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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL. 115

MAR - APR.

1905

MICRO PHOTO INC.
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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME CXV.

MARCH 7 TO APRIL 25, INCLUSIVE.

1905.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1905.

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ERRATA.

784,037, page 13, fifth claim, line 5, before the word "slide," for the letter "a" read *to*.

784,730, page 355, first claim, line 8, for the word "course" read *curve*.

785,444, page 681, in heading, assignment, names of assignees, for "J. M. Westerling" and "Allen Campbell" read *J. M. Westerlin* and *Allan Campbell*.

787,520, page 1673, claim, lines 1 and 2, strike out the word "circular."

788,236, page 2020, in heading, assignment, residence of assignee, for "Cincinnati, Ohio," read *Cleveland, Ohio*.

788,453, page 2112, fourth claim, line 3, for the word "operating" read *coöperating*.

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MARCH—APRIL, 1905.

Patents Nos. 784,019 to 784,527.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 115—No. 1. TUESDAY, MARCH 7, 1905. PRICE—$5 per year.

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Alabama	4	.....	Nevada	1	.....
Alaska Territory	.....	.....	New Hampshire	4	.....
Arizona Territory	1	.....	New Jersey	20	1
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District of Columbia	3	.....	Oklahoma Territ'y	1	.....
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Argentina	.....	.....	Natal	.....	.....
Austria-Hungary	.....	.....	Netherlands	2	.....
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Classification of Inventions.

A classification of patented inventions by classes and subclasses, revised to January 1, 1905, has been published in pamphlet form, paper covers. Copies may be obtained for 10 cents each.

Roster of Registered Attorneys.

An alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, corrected to January 1, 1905, has been published, and copies will be furnished at the price of 20 cents each, four five-cent coupons being acceptable in payment therefor.

Registrants are requested to give notice of any errors that appear in the list as published or any change of address since the list was prepared for publication.

Any solicitor, agent, or attorney who, in circulars or advertisements or otherwise, refers to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of his professional standing does so without authority.

Full Names of Applicants.

* * * All applications which discloses the full name of the applicant in the preamble of the specification will be received and considered as a sufficient compliance with Rule 40 of the Rules of Practice. (Order 521.)

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him. (Order 600.)

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 28, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Feb. 11	Feb. 17	111
223	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 10	Feb. 7	250
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels.	Feb. 1	Feb. 13	230
227	XVIII. Steam-Engineering, etc ...	Feb. 1	Feb. 8	202
221	I. Tillage, etc., and Fences.....	Feb. 1	Feb. 2	201
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304	XXXIV. Draft Appliances, Railways, Railway-Brakes, Rolling-Stock, Store-Service.	Feb. 1	Jan. 26	375
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Tents, Toilet, Umbrellas.	Jan. 30	Feb. 6	286
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Jan. 30	Feb. 1	343
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Jan. 30	Jan. 13	366
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Jan. 30	Jan. 5	550
330	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Jan. 30	Dec. 23	597
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Tobacco, etc.	Jan. 28	Jan. 24	276
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Signals, Time Controlling Mechanism.	Jan. 28	Dec. 21	378
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 28	Nov. 25	369
	Between one and two months.			
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Jan. 26	Feb. 7	229
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Jan. 24	Jan. 20	220
176	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Jan. 23	Jan. 31	350
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148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Jan. 3	Jan. 30	398
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Jan. 3	Jan. 16	323
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303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Dec. 28	Dec. 28	503
	Between two and three months.			
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378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working, Store Furniture.	Dec. 13	Jan. 13	551
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Dec. 6	Dec. 31	361
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‡Labels and Prints.....	Feb. 28	Feb. 28	....

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

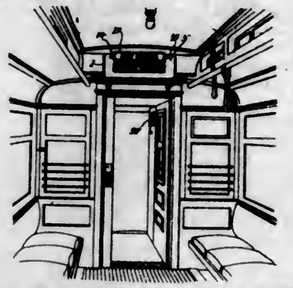
INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 935 pages, bound in cloth.....$10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pages—
- Bound half-turkey..... 2 50
- Bound in cloth 1 25
- Paper covers..... 1 00

PATENTS

GRANTED MARCH 7, 1905.

784,019. ELECTRICALLY-OPERATED STATION-INDICATOR. ERNEST K. ADAMS, New York, N. Y., Edward Dean Adams executor of said Ernest K. Adams, deceased. Filed Mar. 10, 1904. Serial No. 197,532.



Claim.—1. The combination with an electric circuit of an electric motor included therein, an indication-carrier adapted to be driven by the motor, means for making and breaking the circuit to control the motor and thereby the movement of the carrier, and a safety device comprising means independent of said make-and-break means for automatically breaking the circuit when the carrier has reached the end of its travel.

2. The combination with an electric circuit, of an electric motor included therein; a belt provided with indications and adapted to be driven by said motor; a pair of rollers upon which the ends of said belt are wound; tappets secured one adjacent to one end of the belt and the other adjacent to the opposite end; and a circuit-breaking device interposed in the path of said tappets substantially for the purpose set forth.

3. The combination with an electric circuit, of an electric motor included therein; a belt provided with indications and adapted to be driven by said motor; tension-rollers upon which the ends of said belt are wound; tappets secured one adjacent to one end of the belt and the other adjacent to the opposite end thereof; and a pair of circuit-breaking levers included in said circuit and interposed in the path of said tappets.

4. The combination of an electric circuit; an electric motor included therein; a worm driven by the motor; a worm-wheel with which said worm engages; said worm-wheel being included in said circuit; a belt provided with indications and carrying a tappet adjacent to each end; tension-rollers upon which the ends of such belts are mounted; an actuating-drum engaging with said belt by a pin-drive connection; an interrupted-gear connection between said worm-wheel and said drum; a block of insulating material on the worm-wheel; a contact device included in said circuit and which is adapted to engage with the face of the worm-wheel and with said block thereon; a brake and electromagnets to hold the same inoperative also included in said circuit; and a safety device comprising a circuit-breaker included in said circuit and adapted to be actuated from said tappets on the belt.

784,020. STILT. RILEY ALBACH, Mount Gilead, Ohio. Filed June 13, 1904. Serial No. 212,397.

Claim.—1. In a stilt, the combination of a stilt-bar, a foot-rest, means for securing the foot-rest to the stilt-bar, an arm mounted upon the foot-rest, and a stop extension projecting upwardly from the arm and curved inwardly toward the stilt-bar at a point between its ends.

2. In a stilt, the combination of a stilt-bar, a foot-rest having a clamp eye or ring for attachment to the stilt-bar, an arm adjustable lengthwise upon the foot-rest, said foot-rest being provided with a recess upon its under side receiving the arm, a stop extension projected upwardly from the outer end of the arm, and means for attaching the arm to the foot-rest.



3. In a stilt, the combination of a stilt-bar, a foot-rest having a clamp eye or ring for attachment to the stilt-bar, the under side of the foot-rest being provided longitudinally thereof with a recess, an arm received in said recess and provided with a longitudinal slot, a fastening passed through the foot-rest and the slot of the arm adjustably securing the arm thereto, and a stop extension projected upwardly from the outer end of the arm and curved between its ends for the purpose set forth.

784,021. WARDROBE. WALKER G. ANDERSON, Toronto, Canada. Filed Mar. 16, 1904. Serial No. 198,344.

Claim.—1. A garment-support comprising a substantially horizontal flat bar, a saddle disposed upon said bar between the extremities thereof, and brace-rods secured near the extremities of said bar and received by said saddle.

2. A garment-support comprising a substantially horizontal flat bar, socket-plates adapted to be fixed to supports and receiving the extremities of said bar, a saddle having a socket received in the edge of said bar near the middle portion of the same, and tie-rods passing over said saddle and having their extremities secured to said sockets.

3. A garment-support comprising a substantially horizontal bar, socket-plates adapted to be fixed to supports and having sockets receiving the extremities of said bar, a saddle disposed upon said bar, brace-rods passing over said saddle and passing through said socket-plates at their extremities, and nuts mounted upon said extremities behind said socket-plates.

4. In a garment-support, in combination, a fixed member constituting a truss, an extension-bar supported upon said fixed member and adapted to move longitudinally thereupon, said fixed member having an edge inclined to the horizontal toward one extremity.

5. In a garment-support, in combination, a fixed member constituting a truss, an extension-bar therebelow, means for supporting garments below said extension-bar, said fixed member having an edge inclining upwardly toward the outer extremity thereof, and rollers rolling upon said edge and supporting said extension-bar.



6. In a garment-support, in combination, a fixed member constituting a truss, an extension-bar supported therebelow, a main bar supported from said extension-bar and adapted to have garments hung thereupon, rollers supporting said extension-bar and said main bar and rolling respectively upon the upper edges of said first bar and said extension-bar, the upper edge of said first bar inclining upwardly toward the outer extremity of the same, the upper edge of said extension-bar inclining downwardly toward the extremity thereof.

7. In a garment-support, in combination, a substantially flat bar, constituting a support, hangers having rollers and supported upon said bar, means for supporting garments upon said hangers, a member disposed upon said bar near the middle portion thereof, and tie-rods received by said member and having their extremities secured near the extremities of said bar, said rods being disposed on opposite sides of said hangers.

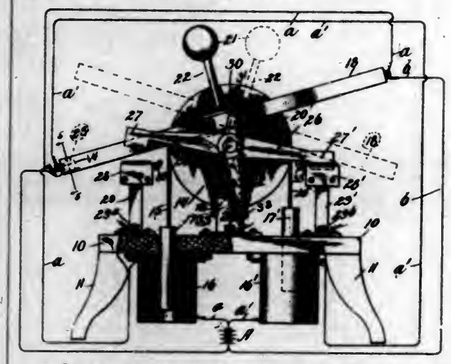
8. In a garment-support, in combination, a substantially flat bar constituting a support, members attached to the ends of said bar, a saddle received by one edge of said bar near the middle portion thereof, tie-rods engaging said saddle and having their extremities attached to said members, said tie-rods being attached to said members at points out of alinement with their points of engagement with said saddle.

9. In a garment-support, a fixed supporting-bar, a plurality of longitudinally-movable bars attached thereto, a saddle disposed upon the said fixed bar between the extremities thereof, brace-rods secured near the extremities of said fixed bar and received by said saddle; the said fixed bar having an edge inclined to the horizontal toward one extremity.

784,022. ELECTRIC SWITCH. CHARLES B. ASHEW, Chicago, Ill. Filed May 11, 1904. Serial No. 207,349.

Claim.—1. In an automatic switch, an oscillating switch-arm, means for oscillating said arm including electromagnetic devices arranged to move the arm in opposite directions, circuits for the electromagnetic devices, and a timing switch device for said circuit operatively associated with the electromagnetic devices for actuation thereby, said timing switch device being arranged to effect the circuit of one of the electromagnetic devices to energize the same when actuated by the other electromagnetic device and timed to operate subsequently to the operation of the oscillating switch-arm.

2. In an automatic switch, an oscillating switch-arm, means for oscillating said arm including two solenoids arranged to move the arm in opposite directions, normally open circuits including said solenoids, and a timing circuit-closer for said circuits arranged to alternately close the circuit through the solenoids subsequently to the operation of the oscillating switch-arm.



3. In an automatic switch, an oscillating switch-arm, means for oscillating said arm including solenoids arranged to move the arm in opposite directions, normally open circuits including said solenoids, and means for closing the circuit through either solenoid at a predetermined interval after the closing of the switch under the influence of the other solenoid.

4. In an automatic switch, an oscillating switch-arm, means for oscillating said arm including two solenoids arranged to move the arm in opposite directions, normally open circuits including said solenoids, and a gravity circuit-closer arranged to close the circuit through each solenoid at a predetermined time after the movement of the switch-arm under the influence of the opposite solenoid.

5. A timing device for automatic switches, comprising an oscillating member, an electromagnetic device for moving said member in one direction, means for moving said member in the opposite direction, circuit-closing devices carried by said oscillating member, including relatively stationary contact parts, and a contact part movable in accordance with the movement of the oscillating member into or out of position of coöperation with the relatively stationary parts, a source of electrical supply, and circuit connections including said source of supply, the electromagnet and the relatively stationary contact parts.

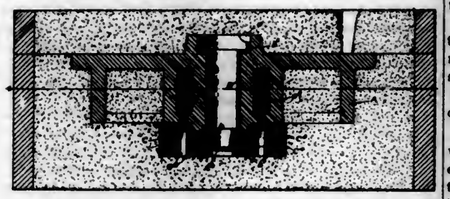
6. A timing device for automatic switches, comprising an oscillating member, two electromagnetic devices for moving said member in opposite directions, circuit-closing devices carried by the oscillating member including relatively stationary contact parts, and a contact part movable in accordance with the movement of the oscillating member to contact-closing position with reference to either of the relatively stationary contact parts, and circuit connections from the electromagneta each to one of the opposing relatively stationary contact parts.

7. In a timing device for automatic switches, comprising an oscillating runway, electromagnetic instrumentalities for oscillating said runway, circuit-closing means carried by said runway including relatively stationary parts near each end of the runway, and a part movable toward and from said relatively stationary parts consistently with the oscillating runway, to close or open circuit through the corresponding stationary parts, a source of electrical supply and circuit connections including said source of supply, the electromagnetic instrumentalities, and the relatively stationary contact parts.

8. In a timing device for electric switches, an oscillating runway, two electromagnetic instrumentalities for moving said device in opposite directions, contact parts adjacent each end of said runway, each arranged in normally open circuit with the electromagnet instrumental in elevating said end of the runway and a gravity circuit-closing instrumentality arranged in said runway for coaction with either of the relatively stationary contact parts.

9. In a timing device for electric switches, a tortuous runway mounted for oscillation to position of inclination in opposite directions, contact members carried by said runway adjacent each end thereof, the contact members adjacent each end of the runway being arranged in circuit with the electromagnetic device instrumental in elevating the said end of the runway, and a circuit-closing instrumentality consisting of a ball mounted to roll in said runway.

784,023. APPARATUS FOR CASTING METALS. IRVING BARKER, Springfield, Ill. Filed May 9, 1904. Serial No. 207,047.



Claim —1. A mandrel for casting metals, consisting of a straight hollow body part smoothly finished externally and having a central bore closed at one end and extending practically the full length of said mandrel and a straight integral collar smoothly finished externally; in combination with a matrix and means for supporting said mandrel centrally in said matrix; said matrix and mandrel being so constructed and arranged as to produce at one casting an article having a straight smoothly-finished bore and a straight smoothly-finished counterbore, as set forth.

2. In an apparatus for casting metals, the combination of a matrix, a center plate supported in said matrix and having a flat smooth surface, and a central hole, a straight hollow mandrel smoothly finished externally having a part fitting in the central hole of said center plate also having a straight integral collar, the bore of said mandrel extending the full length of the article to be cast; said matrix, center plate and mandrel being constructed and arranged to produce at one casting an article having a smooth flat face, a smooth straight bore and a smooth straight counterbore, as set forth.

3. In an apparatus of the class described, the combination of a matrix, a center plate supported in said matrix and having recesses to receive the lugs of a core, a core having lugs fitting in the recesses in said center plate, and a hollow mandrel smoothly finished externally, and central and vertical to said center plate, as set forth.

4. In an apparatus of the class described, the combination of a matrix, a centrally-perforated center plate supported in said matrix, and having a smoothly-finished surface coincident with a surface of said matrix also having recesses adapted to receive the lugs of a core, a core having lugs fitting in the recesses in said center plate, and a hollow mandrel fitting in the central hole of said center plate, as set forth.

5. In an apparatus of the class described, the combination of a matrix, a center plate supported in said matrix and having a central recess, means for varying the depth of the recess in said center plate, and a mandrel central to said center plate, as set forth

6. In an apparatus of the class described, the combination of a matrix, a center plate supported in said matrix, and having a central recess of variable depth, said center plate also having recesses adapted to receive the lugs of a core, a core having lugs fitting in the last-named recesses in said center plate, means for varying the depth of the central recess of the center plate, and a hollow mandrel central to said center plate, as set forth.

7. In an apparatus of the class described, the combination of a matrix, a center plate in said matrix and having a central bore a counterbore, perforated plates fitting in the counterbore of said center plate, and a hollow mandrel having a reduced part fittting in the holes in the plates in the counterbore of the center plate, as set forth.

784,024. DYNAMO-ELECTRIC MASSAGE INSTRUMENT. ALBERT BARRETT and WILLIAM CONDON, Kansas City, Mo. Filed July 5, 1904. Serial No. 215,261.



Claim.—1. A massage instrument comprising two electrodes electrically insulated from each other, one rotatable relative to the other, one serving as a handle and the rotatable one for rolling over the flesh, and a magneto-electric device comprising two members, one a permanent magnet, and the other a magnetizable body having a suitable insulated winding located in the field of the permanent magnet, the winding being connected respectively at its ends with the two electrodes, and one of said members mounted on and rotatable with the rotatable electrode, and the other member mounted on the other electrode.

2. A massage instrument comprising a handle forming an electrode, a permanent magnet carried thereby, an armature rotatively mounted on the handle in the field of the magnet and provided with a suitable insulated winding one end of which is electrically connected to the electrode, and a rotary electrode connected to the other end of the winding and carried by but insulated from the armature.

3. A massage instrument comprising a tubular electrode provided with heads in the ends, a permanent magnet carried by said electrode, an armature rotatively mounted in the said heads and in the field of the magnet and provided with a suitable insulated winding one end of which is electrically connected with the electrode, and a roller-electrode mounted on and insulated from the armature and connected electrically with the other end of said winding.

4. A massage instrument comprising a magneto-electric device consisting of two members, one a magnet and the other an armature, one member being rotatable relative to the other, and one member provided with a suitable insulated winding, a roller-electrode carried by but insulated from the rotatable member and connected with one end of said winding, and a handle-electrode carrying the other member and electrically connected with the other end of said winding.

5. A massage instrument comprising a tubular handle having an outer covering of conductive material, a tubular magnet slotted along its full length and disposed in said handle, an armature rotatively mounted in said magnet and in said handle and provided with a suitable insulated winding one end of which is electrically connected with the conductive covering of the handle, and a roller of conductive material connected electrically with the other end of said winding and mounted on, insulated from and rotatable with the armature.

6. A massage instrument comprising a tubular handle having two heads, a tubular permanent magnet slotted along its full length, an armature rotatively mounted in said heads and in the field of said magnet and provided with a suitable insulated winding connected electrically at one end with said handle, and a roller-electrode mounted on, insulated from and rotatable with said armature and connected electrically with the other end of said winding.

7. A massage instrument comprising a tubular handle consisting of a tube of conductive material having heads in its ends one of which is provided with a hole therethrough, a tubular permanent magnet in said handle, an armature rotatively mounted in said heads in the field of said magnet and extending through the hole in one head, and provided with a suitable insulated winding connected electrically with the said tube of the handle, and a roller of conductive material insulated from but rotatable with said portion of the armature which extends through one head, and electrically connected with the other end of said winding.

8. A massage instrument comprising a conductive tube provided with heads in its ends, said heads being provided with axial holes, each head having an annular inner shoulder disposed concentric with said axial holes, a tubular permanent magnet slotted along its full length and having its inner periphery fitted to said shoulders and supported thereon, an armature rotatively mounted in said holes in said heads and having a portion of magnetizable material located in the field of the magnet, and having a suitable insulated winding, one end of which is electrically connected with the conductive tube, and a roller of conductive material insulated from and rotatable with the armature and connected electrically with the other end of said winding.

9. A massage instrument comprising a tubular handle of conductive material consisting of a tube having two heads, a cylindrical tubular permanent magnet slotted along its full length and disposed concentrically within said handle, an armature rotatively mounted in said heads with its axis of rotation coincidental with the axis of the permanent magnet and having an insulated winding one end of which is electrically connected with the tubular handle, a roller-support disposed in the axial center of and carried by said armature but insulated therefrom, and connected with the other end of said winding, and a roller mounted on and rotatable with said roller-support outside the handle.

10. A massage instrument comprising a tubular handle the exterior of which is of conductive material, a magnet in said handle, an armature rotatively mounted in said handle in the field of the magnet and provided with a suitable winding connected at one end with the conductive exterior of the handle, and a roller-electrode having

a portion of its body of conductive non-absorbent material and a portion of absorbent conductive material, said roller-electrode being mounted on and rotatable with but insulated from the armature, the conductive portions of said roller-electrode being electrically connected with the other end of said winding.

11. A massage instrument comprising a tubular conductive handle having heads in its ends, a permanent magnet mounted in said handle, an armature rotatively mounted in said handle-heads in the field of the magnet and provided with a suitable insulated winding connected electrically at one end with the tubular handle, and a roller-electrode mounted on and insulated from the armature and consisting of two non-absorbent conductive members, and an absorbent conductive member clamped between said non-absorbent members, said roller members being electrically connected with the other end of said armature-winding.

12. A massage instrument comprising a tubular handle of conductive material consisting of a tube having two heads, a lengthwise-slotted tubular permanent magnet mounted in said handle, an armature rotatively supported in said heads in the field of the magnet and provided with a conductive insulated winding one end of which is electrically connected with the handle, an axial roller-support mounted on and insulated from the armature and rotatable therewith and connected with the other end of said winding, and a roller-electrode comprising two conductive non-absorbent plates mounted on and rotatable with the roller-support, and an absorbent conductive member clamped between said plates.

13. A magneto-electric device comprising a cylindrical tubular magnet slotted lengthwise its full length, an armature rotatively mounted in said magnet and having its axis of rotation in the axis of the magnet, an insulated winding on the armature, a handle-electrode supporting the magnet and armature and connected electrically to one end of said winding, a rotary electrode connected electrically to the other end of said winding, and means for rotating the armature when the rotary electrode is rotated.

14. A magneto-electric device comprising a tubular cylindrical permanent magnet slotted lengthwise its full length, an armature rotatively mounted in said magnet with its axis of rotation in the axis of the magnet, an insulated winding on the armature, a handle-electrode supporting the magnet and armature and connected electrically to one end of said winding, a rotary electrode connected electrically to the other end of said winding, and means for rotating the armature when the rotary electrode is rotated.

15. A magneto-electric device comprising a cylindrical tubular permanent magnet slotted its full length, two end plates secured to the ends of said magnet, an armature rotatively mounted in said magnet in said plates, the axis of rotation of the armature being the axis of the magnet, an insulated winding on the armature, a handle-electrode supporting the magnet and armature and connected electrically to one end of said winding, a rotary electrode connected electrically to the other end of said winding, and means for rotating the armature when the rotary electrode is rotated.

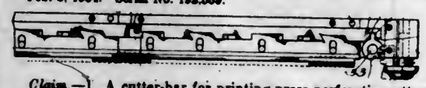
16. A massage instrument comprising a tubular handle having heads on the ends of a tubular body, the body being of conductive material, a cylindrical tubular magnet mounted in said handle consisting of a hardened magnetized tube slotted its full length, an armature rotatively mounted in said heads with its axis of rotation in the axis of the cylindrical magnet and provided with a suitable insulated winding one end of which is electrically connected with the body of the handle, a rod insulated from but mounted in the axial center of the armature and rotatable therewith and connected electrically with the other end of said winding, and a roller-electrode of conductive material mounted on and rotatable with said rod.

17. A magneto-electric machine comprising a cylindrical steel tube slit lengthwise, opposite edges of the slit portion being oppositely polarized, an armature rotatively mounted in said tube with its axis of rotation in the axis of the tube, the armature having a soft-iron core and insulated generating-wires on said core disposed parallel with said slit, an insulated winding on the armature, a handle-electrode supporting the magnet and armature and connected electrically to one end of said winding, a rotary electrode connected electrically to the other end of said winding, and means for rotating the armature when the rotary electrode is rotated.

18. A massage instrument comprising a handle-electrode, a roller-electrode rotatively mounted thereon and insulated therefrom, a permanent magnet mounted on the handle, an armature rotatively mounted on the handle in the field of the magnet and provided with a suitable insulated winding one end of which is electrically connected with the handle-electrode, and the other end connected electrically with the roller-electrode, and means by which the armature is rotated when the roller-electrode is rotated.

19. A massage instrument comprising a handle-electrode adapted to be grasped by the hand and moved to and fro without rotation, a roller-electrode disposed adjacent one end of and rotatively mounted on and insulated from said handle-electrode, whereby when the handle is moved to and fro the roller when resting upon the flesh will be caused to roll, an electro-dynamic mechanism carried by the handle and having the said two electrodes as terminals of its circuit, and means by which said dynamo-electric mechaniam is actuated when the roller-electrode is rotated.

784,025. **PERFORATING, EMBOSSING, OR INDENTING DEVICE.** EDWIN G. BATES, New York, N. Y., assignor to The Bates Machine Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 6, 1904. Serial No. 192,339.



Claim.—1. A cutter-bar for printing-press perforating attachments, comprising a plurality of semi-annular cutters, spaced apart for effecting a series of cuts with intervening unsevered portions or connections, substantially as and for the purpose specified.

2. A cutter-bar for printing-press perforating attachments, comprising a plurality of arch-shaped cutters spaced apart for effecting a series of cuts with intervening unsevered portions or connections, substantially as and for the purpose specified.

3. A cutter-bar for printing-press perforating attachments, comprising a plurality of cutters spaced apart in a longitudinal row, each cutter having a cutting edge which twice crosses a line running centrally through said longitudinal row, but crosses lines at right angles thereto but once, whereby arch-shaped perforations will be effected without removal of any portion of the material perforated, and intervening unsevered portions or connections will remain.

4. In a device of the character described, the combination with an operating-head, of a plurality of units each comprising a casing, a perforating, indenting or embossing bar, and an operating member, the operating member of each of said units having means for connecting it at one end with the opposite end of the operating member of a corresponding unit, and at the other end for connecting it with the operating mechanism of the operating-head, or with the operating member of another corresponding unit.

5. In a device of the character described, the combination with a die or cutter-bar, of a longitudinally-movable operating-bar engaging same, said cutter-bar and operating-bar having two sets of oppositely-disposed coacting cam-surfaces, one set of cam-surfaces having greater length than the other.

6. In a device of the character described, the combination with a die or cutter-bar, of a longitudinally-movable operating-bar engaging same, said cutter-bar and operating-bar having coacting forward and return cam-faces for causing positive movements of the cutter-bar in both directions, the return cam-faces projecting beyond the forward cam-faces.

7. In a device of the character described, the combination with a die or cutter-bar, of a longitudinally-movable operating-bar engaging same, said cutter-bar and operating-bar having coacting forward and return cam-surfaces and intermediate surfaces permitting excess longitudinal movement of the operating-bar without corresponding movement of the die or cutter-bar, said return cam-faces arranged to cross the plane of engagement of the said intermediate surfaces so as to engage each other after the cutter-bar has received the limit of its movement from the said forward cam-surfaces.

8. In a device of the character described, the combination with a die or cutter-bar and a longitudinally-movable bar operating same, of an operating-head comprising a reciprocating rack-bar, and a gear engaging said rack-bar, said gear connected to said longitudinally-movable operating-bar.

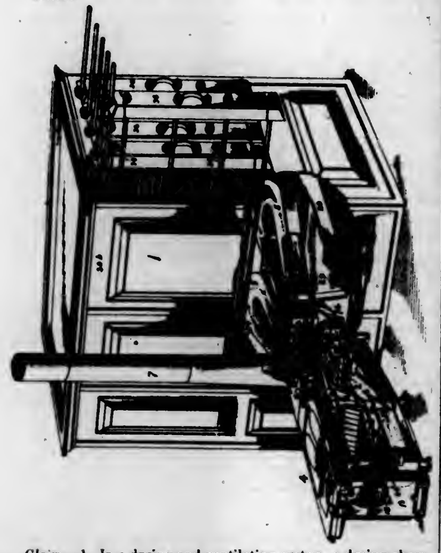
9. In a device of the character described, the combination with a die or cutter-bar and a longitudinally-movable bar operating same, of an operating-head comprising a reciprocating rack-bar, and a gear engaging said rack-bar, said gear provided with a projecting tooth arranged to engage a corresponding notch in the said operating-bar.

10. In a device of the character described, the combination with a die or cutter-bar and a longitudinally-movable bar operating same, of an operating-head comprising a spring-returned reciprocating rack-bar, and a gear engaging said rack-bar, said gear connected to said longitudinally-movable operating-bar.

11. In a device of the character described, the combination with an operating-head comprising a casing, and a rocking gear mounted thereon, arranged to engage an operating-bar, of an independent device comprising a casing, a die or cutter-bar, and a longitudinally-movable operating-bar engaging and arranged to operate said die or cutter-bar, the said last-named casing arranged to engage and interlock with the casing of the operating-head, and the said operating-bar arranged to be engaged by said rocking gear.

12. In a device of the character described, the combination with a die or cutter-bar mounted therein, and means for moving said die or cutter-bar back and forth with respect to said casing, said cutter-bar including a plurality of cutters arranged in a longitudinal row, of a spring-pressed stripper-bar arranged longitudinally at one side of said cutters, said stripper-bar having guiding-stems mounted in suitable recesses in said cutter-bar, whereby said stripper is carried by said bar, but is movable with respect thereto.

784,026. **HEATING AND VENTILATING DRYING APPARATUS.** THOMAS C. BELDING and RUFUS B. HELDMAN, Canton, Ohio, assignors to The Canton Clothes Dryer and Manufacturing Company, Canton, Ohio, a Corporation of Ohio. Filed Apr. 4, 1904. Serial No. 201,500.



Claim.—1. In a drying and ventilating system, a drying-chamber having located therein a plate, provided with angled flanges, and the flanges spaced from the inner faces of the end walls of the drying-chamber, atmospheric openings located above the plate, radiators located within the drying-chamber and above the plate, said radiators having ducts adapted to receive heated air from the combustion-chamber of the stove, and ducts adapted to remove the air to a flue and a duct leading from the drying-chamber from a point below the plate, said duct extended below the combustion-chamber of the stove, and continued above and over the combustion-chamber, and a damper located in the forward vertical portion of the duct, said damper adapted to close the duct or partially close said duct, substantially as and for the purpose specified.

2. In a drying and ventilating system, a heating device and a drying-chamber, radiators located within the drying-chamber, said radiators having ducts communicating with the flue and the combustion-chamber of the heating device, a damper located between the combustion-chamber and the flue, a plate located within the drying-chamber, and said plate located below the radiators, air inlet and outlet openings located above and below the plate, the upper opening constituting an air-inlet to the drying-chamber and the lower one an air-outlet opening from the drying-chamber, a duct adapted to convey the air from the outlet-opening of the drying-chamber through or over the combustion-chamber of the heating device, substantially as and for the purpose specified.

3. In a drying and heating system, a heating device and a drying-chamber, means for the introduction of air into the drying-chamber, means for heating the air within the drying-chamber, and means for withdrawing the air from the drying-chamber and passing the air through or over the combustion-chamber of the heating device, substantially as and for the purpose specified.

4. In a heating and drying system, a heating device, a drying-chamber, means for the introduction of atmospheric air to the drying-chamber, means for heating the air within the drying-chamber, and means for dividing the cooled air from the heated air contained in the drying-chamber, and means for withdrawing the cooled air from the drying-chamber through or over the combustion-chamber of the heating device, substantially as and for the purpose specified.

5. In a heating and drying system of the class described, a drying-chamber having located therein radiators, an air-inlet located below the radiators, a stove or furnace, a duct extended from the lower portion of the drying-chamber and communicating with said drying-chamber, said duct extended to the combustion-chamber of the stove and adapted to convey the air thus withdrawn into the combustion-chamber, substantially as and for the purpose specified.

6. In a heating and drying system, a heating device and a drying-chamber, said heating device provided with a combustion-chamber, a duct providing atmospheric communication between the drying-chamber and heating device, said duct provided with a damper adapted to shunt the air from said duct, either under or over the combustion-chamber, said damper also adapted to divide the air in duct, and shunt a part under and a part over the combustion-chamber, substantially as and for the purpose specified.

7. In a heating and drying system, a heating device and a drying-chamber, a duct leading from the drying-chamber to the combustion-chamber of the heating device, said duct adapted to remove the cooled air from the drying-chamber, means for dividing the air in the drying-chamber, and means for conveying the cooled air over the combustion-chamber of the heating device, and radiators located in the drying-chamber, and outgoing and return ducts located in the radiators, substantially as and for the purpose specified.

8. In a drying and heating system, a heating device and a drying-chamber, said heating device and drying-chamber connected together and the combustion-chamber of the heating device supplied with air withdrawn from the drying-chamber, and means for dividing the cooled air from the heated air in the drying-chamber, substantially as and for the purpose specified.

9. In a drying and heating system, a flue, a heating device and a drying-chamber, means for the introduction of air into the drying-chamber, means for heating the air within the drying-chamber, and means for withdrawing the air from the drying-chamber, and passing said air to the flue in contact with the fuel in heating device or otherwise, substantially as and for the purpose specified.

10. In a heating and drying system, a heating device provided with a flue, a drying-chamber, radiators located within the drying-chamber, means for the introduction of air into the drying-chamber, the heating device and radiators providing means for heating the air within the drying-chamber, and means for passing said heated air from the drying-chamber through the heating device in contact with the fuel or otherwise, and from thence through the radiators located in the drying-chamber to the flue, substantially as and for the purpose specified.

11. In a drier, the combination with a cabinet arranged for the reception of articles to be dried and having air-inlet openings, of a radiator disposed within the cabinet, a stove, means for conducting the products of combustion from the stove to the radiator, an exit-pipe communicating with the radiator, and a duct communicating with the interior of the cabinet and with the space beneath the grate of the stove, substantially as set forth.

784,027. **PAPER-BAG HOLDER.** BERNT L. BORSTAD and ERNEST P. FIEDLER, St. Paul, Minn. Filed July 26, 1904. Serial No. 218,216.

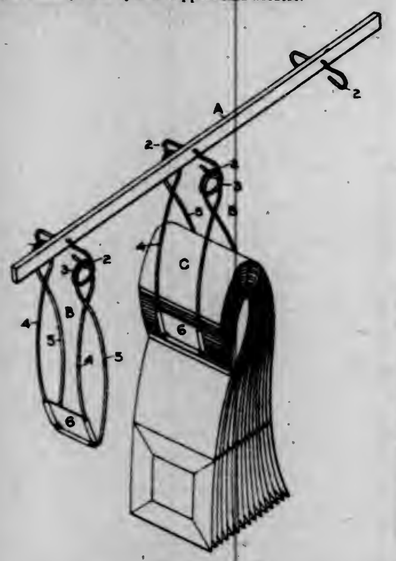
Claim.—1. In combination a bag-holder consisting of a single piece of wire bent to form a pair of eyes and a pair of outwardly-bowed arms, said eyes being susceptible of being sprung toward and from each other.

2. In combination a series of bag-holders each consisting of wire bent upon itself to form a pair of eyes, and to form a pair of outwardly-bowed arms, a support, and outwardly-projecting hooks carried by said support in position to project through said eyes to support said holders.

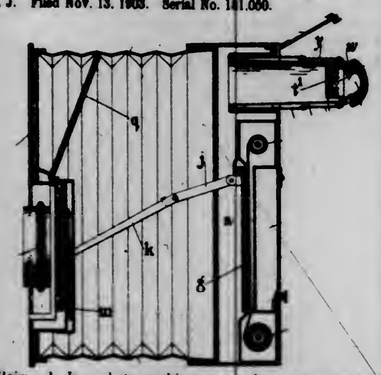
3. In combination, a bag-holder consisting of wire bent to form a pair of eyes, and to form a pair of outwardly-bowed arms, and a cross-strip carried by the free end of one of said arms.

4. In combination, a series of bag-holders each consisting of wire bent upon itself to form a pair of spring-eyes, the wire being

crossed adjacent to the eyes and bent to form outwardly-bowed arms, a bar and outwardly-projecting hooks carried by said bar in position to project through said eyes to support said holders.



784,028. PHOTOGRAPHIC CAMERA. LOUIS BORSUM, Plainfield, N. J. Filed Nov. 13, 1903. Serial No. 181,060.



Claim.—1. In a photographic camera, the combination of the camera-box containing a focal-plane shutter, a surface on which the image to be photographed may be focused and a mirror in which the focused image is reflected and having in its rear wall a countersink or chamber, and a flexible collapsible structure mounted in said chamber around an opening therefrom into the camera-box and through which and said opening the focused image may be viewed.

2. A photographic camera having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a collapsible bellows made of flexible material having eyepieces, means whereby the eyepieces may be adjusted toward and from each other and means for holding the collapsible structure extended or collapsed.

3. A photographic camera having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a flexible collapsible structure or bellows, eyepieces whose outer edges are shaped to conform to the contour of the face of the user and means for adjusting the eyepieces toward and from each other.

4. In a photographic camera, the combination of the camera-box containing a surface on which the image to be photographed may be focused, a mirror in which the focused image is reflected, and a focal-plane shutter, and having in its rear wall above the upper shutter-roll a countersink or chamber, a collapsible hood or structure secured around the opening in the bottom of said chamber, eyepieces carried by the outer end of the collapsible structure, and means for permitting the extension or collapsing thereof and holding the same in either extended or collapsed position.

5. In a photographic camera, the combination of the camera-box containing a surface on which the image to be photographed is focused, and a mirror in which the focused image is reflected, and a focal-plane shutter, and having in its rear wall above the upper shutter-roll a countersink or chamber, a collapsing structure of flexible material secured around the opening in the inner wall or bottom of said chamber and branched at its outer end into two parts, eyepieces applied to the open ends of said branches and means whereby said structure may be extended, or collapsed within said chamber.

6. A photographic camera, having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a structure or bellows of flexible material secured around the observation-aperture in the wall of the camera, eyepieces applied at its outer end, the pivoted levers y, y, links 2, 2 and springs z, z.

7. A photographic camera having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a collapsible structure or bellows of flexible material secured around the observation-opening in the wall of the camera and branched at its outer end into two parts, glass-holders mounted in the open ends of said parts, and eyepieces mounted to be adjusted laterally on the glass-holders.

8. A photographic camera having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a collapsible structure or bellows of flexible material secured around the observation-opening in the wall of the camera and branched at its outer end into two parts, glass-holders mounted in the open ends of said parts, and eyepieces shaped to conform to the contour of the face of the user and mounted to be adjusted laterally on the glass-holders.

9. A photographic camera having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a collapsible structure secured around the observation-opening in the wall of the camera and branched at its outer end into two parts, eyepieces applied at the open ends of said parts and having edges shaped to conform to the contour of the face of the user and a facing of yielding substance or material such as plush applied to said edges.

10. A photographic camera having observation devices for viewing the image focused on a surface within the camera-box, comprising the combination of a flexible collapsible structure applied around the observation-opening in the wall of the camera and branched at its outer end into two parts, flanged glass-holders secured in the open ends of such branches, eyepiece-plates slidably mounted on the glass-holders, and flaring eyepieces carried by said plates and shaped to conform to the contour of the face of the user.

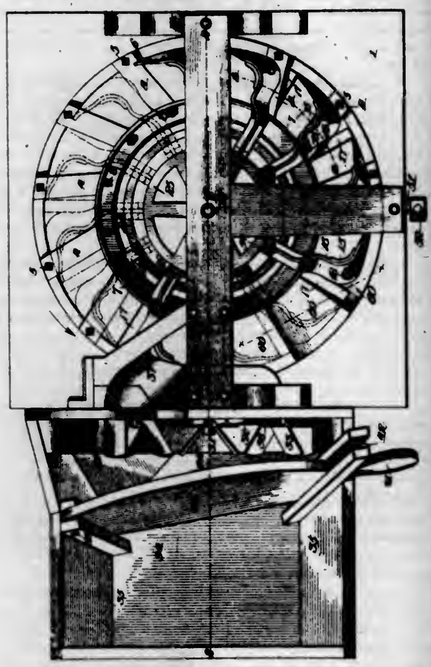
784,029. FRUIT-SLICER. WILLIAM H. BOUTELL, Rochester, N. Y., assignor to Boutell Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Mar. 19, 1900. Serial No. 9,303.

Claim.—1. The combination with a fruit-receptacle having the stationary head provided with an aperture arranged above the bottom and adapted for the passage of fruit, of a series of connected rotary fruit-lifting blades separated at one side forming open-sided pockets movable in close proximity to the stationary head and operating to lift separate pieces of fruit from the bottom of the receptacle and hold them against the head so that they may be discharged through the aperture therein.

2. The combination with a fruit-receptacle having a stationary head provided with a discharge-aperture, of a series of connected rotary lifting-plates separated at one side forming open-sided pockets operating in the receptacle, inclined toward the head and movable in close proximity thereto and operating to lift the separate pieces of fruit from the receptacle holding them against the head and permitting their discharge through the aperture therein.

3. The combination with a fruit-receptacle having the inclined bottom and the stationary head, of a rotary lifting device operating in close proximity to the head and having lifting-plates thereon separated at their sides forming open-sided pockets movable toward and from the bottom of the receptacle and operating to lift separate pieces of fruit, hold them against the head, and permit their discharge above the latter.

4. The combination with a fruit-slicing machine embodying cutting-knives and relatively-movable pushers, of a fruit-feeding device embodying a receptacle having a stationary head or abutment, a series of connected rotary lifting-plates separated at one side to form open-sided pockets movable toward and from the bottom of the receptacle and in close proximity to the head to hold single pieces of fruit against the latter, a discharge-passage leading from the head to the space in front of the pushers and connecting operating mechanism for rotating the pushers and lifting device synchronously to cause one piece of fruit to be fed in front of each of the pushers.



5. In a fruit-slicing machine, the combination with a plurality of stationary knives and a plurality of fruit-pushers movable past the knives, of a hopper or receptacle, a rotary fruit-feeding device operating therein embodying separate fruit-holding devices and timing connections between the feeder and pushers for removing the separate pieces of fruit from the receptacle and depositing them successively in front of the pushers.

6. In a fruit-slicing machine, the combination with a series of stationary knives, a series of rotary fruit-pushers movable above the knives and arms in rear of said pushers moving below the knives, of a feeding mechanism for supplying fruit in front of each of the pushers embodying separate fruit-carrying pockets and timing connections between the feeding mechanism and whereby the contents of each of the pockets of the feeding device will be deposited in front of one of the pushers of the slicer.

7. In a fruit-slicing machine, the combination with a support, knives secured thereto at their outer ends, and connections between the inner ends of the knives, of a carrier having fruit-pushers extending radially thereof above the knives, arms on the carrier located in rear of the pushers and extending below the knives, and means for revolving the carrier.

8. In a fruit-slicing machine, the combination with a support, cutting-knives secured to the support at their outer ends, and a ring joining the inner ends of the said knives, of a carrier located within the ring and supported independently thereof, sliding connections between the carrier and the ring for supporting the latter, fruit-pushers extending radially from the carrier above the knives, and arms mounted on the carrier and operating below the knives.

9. In a fruit-slicing machine, the combination with a stationary knife-support having the cutting-knives, of a movable carrier having the fruit-pushers open upon the forward side and having the curved sides inclining rearwardly and outwardly toward the lower edge, and means for operating the carrier to move the pushers over the knives.

10. In a fruit-slicing machine, the combination with a stationary support and the cutting-knives, of a movable carrier having the arms, pushers having the sloping rear and end portions meeting in a curve, the adjustable corner-plate, and means for revolving the carrier to move the arms over the knives.

11. In a fruit-slicing machine, the combination with a fruit-support having a series of inclined portions, and a series of apertures, cutting-knives arranged above the apertures and secured to the support at their outer ends, and connections between the inner ends of the knives, of a movable carrier, the fruit-pushers on the latter and operating above the knives, the clearing-arms mounted on the carrier in rear of the pushers passing between the knives and the plate, and means for operating the carrier.

12. In a fruit-slicing machine, the combination with a fruit-support having the inclined portions, and a series of apertures, cutting-knives arranged above the latter and secured to the plate at their outer ends, and rigid connections between the inner ends of the knives, of a shaft having the carrier supported above the plate, the fruit-pushers, and the clearing-arms in the rear thereof mounted on the carrier, said pushers and clearing-arms operating upon opposite sides of the knives, and means for revolving the carrier.

13. In a fruit-slicing machine, the combination with a support having the stationary knives thereon, rotating fruit-pushers, and means for operating the latter above the knives, of an inclined fruit-receptacle, a rotary feeding mechanism operating in the lower end thereof embodying separate lifting projections open at one side and adapted to deliver single pieces of the fruit to the pushers, and geared connections between the fruit-pushers and feeding devices for causing their simultaneous operation.

14. In a fruit-slicing machine, the combination with a support having a series of stationary knives, a rotary carrier arranged above the support and a series of fruit-pushers, of a stationary fruit-receptacle having the inclined sides and bottom and a vertical wall or head, a rotary feeding device embodying open-sided pockets and arranged at the lower end of the receptacle, and connected for simultaneous operation with the carrier and adapted to elevate single pieces of the fruit above the carrier and deposit them in front of the pushers.

15. In a feeding device for fruit-slicing machines, the combination with a fruit-receptacle, of a shaft having a wheel operating in the receptacle, the blades on the wheel open upon one side, and the wall cooperating with the blades having the aperture for the passage of the fruit.

16. In a feeding mechanism for fruit-slicing machines, the combination with a stationary fruit-receptacle, and means for causing the fruit to pass into one end thereof, of the wall at the lower end of the receptacle having the aperture, the arms mounted upon a shaft and revolving in proximity to the wall, the plates or blades on the arms arranged at an angle to the wall forming pockets open in the direction in which the arms rotate, whereby a fruit may be engaged and moved upward and deposited through the aperture, and means for revolving the arms.

17. In a feeding mechanism for fruit-slicing machines, the combination with a stationary inclined fruit-receptacle, the wall at the lower end thereof having the aperture, a shaft, the arms mounted upon the shaft and revolving against the wall, said shaft being arranged approximately in line horizontally with the lower edge of said aperture, the elevating-plates on the arms concaved upon their inner surfaces and arranged at an angle to the wall the latter adapted to guide a fruit while it is being moved upward and having the outwardly-extending cut-away portion below the aperture.

18. In a slicing-machine, the combination with a support having a series of apertures, radially-extending knives arranged over the apertures and supported at their outer ends, and the stationary ring to which the inner ends of the knives are connected, of the rotary carrier arranged inside the stationary ring upon which the latter is supported, and the pushers on the carrier extending over the stationary ring.

19. In a slicing-machine, the combination with the radially-extending stationary knives, of the rotary carrier having the pusher-plates thereon movable over the knives, and separately adjustable toward and from the latter.

20. In a slicing-machine, the combination with the radially-extending stationary knives, of the rotary carrier having the pusher-plates arranged above and movable over the knives, said plates being inclined relative to the plane of the knives, and means for separately adjusting them toward and from the knives.

21. In a fruit-slicing machine, the combination with a fruit-support, a series of knives thereon lying in the same plane, of a carrier having fruit-pushers operating above the knives, arms on the carrier operating below the knives and means for revolving the carrier.

22. In a fruit-feeding device, the combination with a stationary fruit-receptacle having the side and end walls, of a plurality of movable fruit-lifting blades or projections open toward the side and end walls and adapted to lift and carry fruit in contact therewith one of said walls having a discharge aperture or portion therein and the other a recessed portion below the aperture having its lower wall inclined toward the path described by said blades.

23. In a fruit-slicing machine, the combination with a support having the inclined portions on its upper surface and cutting-knives secured to the support, of pushers mounted upon a carrier and operating past the knives and means for operating the carrier.

24. In a fruit-slicing machine, the combination with a support having cutting-knives and an inclined portion formed on the surface of the support in front of the knives, of pushers mounted upon a carrier and movable past the knives and means for operating the carrier.

25. The combination with a fruit-support having apertures, the ring or curb and knives connected to the ring and support and extending over the apertures, of the rotary carrier operating beneath the ring and on which the latter is supported, the arms on the carrier extending over the ring, and the pusher-plates mounted on the arms and separately adjustable toward and from the knives.

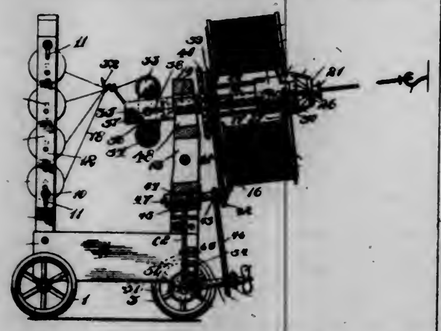
26. An automatic feeding device comprising a rotatable disk-like member provided upon its periphery with a series of open-sided pockets spaced from each other, substantially as specified.

27. The combination with a slicing-machine having sweeps, of a feed device comprising a rotary member having a series of spaced open-sided pockets, a hopper embracing a portion of said rotary member, and means for relatively timing said machine and rotary member, substantially as specified.

28. The combination with a slicing-machine having movable compartments and with a hopper, of feeding devices constructed, arranged and operating by timing connections between the slicing-machine and feeding devices to take, carry and deliver singly fruit from said hopper to relatively timed, movable compartments of said machine, substantially as specified.

29. In an automatic feeding device, the combination with a machine provided with a drum having a series of sweeps operating over a horizontal base, of means for driving said drum, a feed-wheel driven from said drum and having pockets adapted by relatively timing the rotation of said wheel to register with the spaces between the sweeps on said drum; substantially as specified.

784,030. **MACHINE FOR MAKING OR COVERING CORD.** ALBERT J. BUBOLS, Chicago, Ill. Filed Oct. 21, 1903. Serial No. 177,871.



Claim.—1. In a machine for the purpose described, the combination of a wheeled carriage, a twisting-reel mounted thereon, and an operative connection between said reel and one of the wheels of said carriage whereby the reel will be rotated by the motion of the carriage.

2. In a machine for the purpose described, the combination of a wheeled carriage, means provided on said carriage for carrying the thread to compose the inner part of the cord, a twisting-reel mounted on said carriage for winding the covering on the cord and an operative connection between one of the wheels of the carriage and said reel for rotating the reel by the motion of the carriage.

3. In a machine for the purpose described, the combination of a wheeled carriage, a spool-rack mounted thereon, a twisting-reel having means for supporting spools and comprising a hollow shaft journaled upon said carriage and a twisting-head opposite the end of said shaft, having eyes for the thread on said reel, and an operative connection between said reel and one of the wheels of the carriage for rotating the reel.

4. In a machine for the purpose described, the combination of a wheeled carriage, an inclined shaft journaled upon said carriage, a twisting-reel mounted on said shaft and having spool-spindles also inclined in the same direction as the shaft, whereby the spools will be prevented from slipping off the reel, and an operative connection between said reel and one of the wheels of the carriage for rotating the reel.

5. In a machine for the purpose described, the combination of a wheeled carriage, a spool-rack mounted on said carriage and comprising two uprights, one of which is perforated, and spindles for spools having their ends inserted in said perforations, a vertically-adjustable retaining-bar slidably secured to the side of said perforated standard for covering said perforations and having passages adapted to register with said spindles for permitting the latter to be withdrawn, a twisting-reel mounted on said carriage and an operative connection between said reel and one of the wheels of the carriage.

6. In a machine for the purpose described, the combination of a wheeled carriage, a twisting-reel journaled thereon and operatively connected with one of the wheels of the carriage, a spool-rack mounted on said carriage and a tension device contained between said spool-rack and reel and comprising a loop for the passage of the thread and a pair of idlers arranged one above the other around which the thread may be passed in advance of passing through the reel.

7. In a machine for the purpose described, the combination of a wheeled carriage, a twisting-reel journaled thereon, an operative connection between one of the wheels of the carriage and said reel for rotating the reel when the carriage moves in one direction, and means for detaching said connection for rendering the reel inoperative during the motion of the carriage.

8. In a machine for the purpose described, the combination of a wheeled carriage, a twisting-reel journaled thereon, and means for rotating said reel in either direction by the rotation of one of the wheels of the carriage in a single direction.

9. In a machine for the purpose described, the combination of a wheeled carriage, a twisting-reel journaled thereon, means operatively connected with one of the wheels of the carriage for rotating said reel, comprising reversing mechanism whereby the rotation of the reel may be reversed regardless of the direction of travel of the carriage.

10. In a machine for the purpose described, the combination of a twisting-reel, a shell mounted thereon and provided with eyes slotted through the edge of the shell for the passage of the thread on the said reel, means for retaining the thread in said eyes and means for rotating the reel.

11. In a machine for the purpose described, the combination of a twisting-reel, a twisting-head mounted thereon and having eyes slotted entirely through the edge of the head and a ring inserted over said head for preventing the withdrawal of the threads.

12. In a machine for the purpose described, the combination of a twisting-reel, a hollow annular twisting-head mounted thereon and having eyes slotted through the edge of the head, and a collar detachably secured on said head for preventing the withdrawal of the thread through said slots.

13. In a machine for the purpose described, the combination of a twisting-reel, a hollow twisting-head mounted thereon, and having eyes slotted through the edge of the head, and a collar having bayonet-joint connection with said head for preventing the withdrawal of the thread through said slots.

14. In a machine for the purpose described, the combination of a twisting-reel, a hollow twisting-head mounted thereon and having slots for the passage of the thread, an apertured collar arranged opposite the end of said head and an eye for the cord detachably secured in said apertured collar.

15. In a machine for the purpose described, the combination of a twisting-reel, a hollow shaft on which said reel is mounted, an eye detachably secured in one end of said shaft, a twisting-head mounted on said reel opposite the other end of said shaft and having eyes for the passage of the thread, and a detachable eye for the passage of the cord arranged opposite said head.

784,031. **BRIDLE-BIT.** MERRILL B. BUCK, Bowling Green, Fla. Filed Aug. 9, 1904. Serial No. 220,106.



Claim.—1. A bridle-bit comprising a mouth-bar, cheek-pieces, and a curb-link of approximately D form having the straight bar supported in the cheek-pieces and adapted to enter the mouth, and the bow to embrace the lower jaw of the animal, substantially as set forth.

2. A bridle-bit comprising a mouth-bar, cheek-pieces at the ends of the mouth-bar comprising short arms having rings at their extremities, and a curb-link of approximately D form having its straight bar supported in said rings of the cheek-pieces, substantially as set forth.

3. A bridle-bit comprising a mouth-bar, integral cheek-pieces projected to unequal distances from said mouth-bar to provide long and short arms, the short arms terminating in rings, said cheek-pieces having the end portions provided with the rings slightly curved, and a curb-link of approximately D form having its straight bar supported in the rings of said cheek-pieces, substantially as specified.

784,032. **LAMINATED CORE FOR DYNAMO-ELECTRIC MACHINES.** JAMES BURKE, New York, N. Y., assignor to Burke Electric Company, a Corporation of New Jersey. Filed Mar. 9, 1904. Serial No. 197,230.



Claim.—1. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a collar or closed ring adapted to be forced into said grooved portion for retaining the laminæ in place, substantially as described.

2. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a collar of malleable material adapted to be forced into said grooved portion for retaining the laminæ in place, substantially as described.

3. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a yieldable collar adapted to be forced into said grooved portion for retaining the laminæ in place, substantially as described.

4. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a yieldable collar, said collar being adapted to be partially forced into said grooved portion, for retaining the laminæ in place, substantially as described.

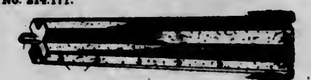
5. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a collar of malleable material, said collar being adapted to be partially forced into said grooved portion, the remaining portion engaging the core for retaining the laminæ in place, substantially as described.

6. In a dynamo-electric machine, the combination of a support having a grooved portion, a laminated core thereon, an end plate, and a collar of yieldable material adapted to be partially forced into said grooved portion in said support for retaining the laminæ in place, substantially as described.

7. In a dynamo-electric machine, the combination of a support having a grooved portion, a laminated core thereon, and means for retaining the laminæ in place comprising a malleable collar located in said grooved portion, substantially as described.

8. In a dynamo-electric machine, the combination of a support having a cut-away portion, a laminated core thereon, and means for retaining the laminæ in place comprising a malleable collar adapted to be partially forced into said cut-away portion, substantially as described.

784,033. **FENCE-POST.** SOLON O. CAMPBELL, East Peru, Iowa, assignor of one-half to B. C. Tilley, Kansas City, Mo. Filed June 25, 1904. Serial No. 214,171.



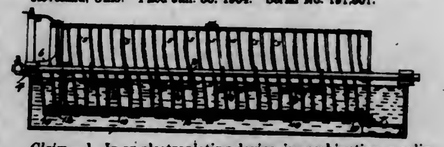
Claim.—1. In a fence-post, the combination of a plastic body, a stay embedded therein, said stay being composed of a main stay-bar, a plurality of auxiliary stay-bars, and engaging members projected from the ends of the auxiliary stay-bars and engaging the end portions of the main stay-bar.

2. In a fence-post, the combination of a plastic body, a stay embedded therein, said stay being composed of a main stay-bar, a plurality of auxiliary stay-bars, and engaging hooks projected from the ends of the auxiliary stay-bars and engaging the end portions of the main stay-bar.

3. In a fence-post, the combination of a plastic body and a stay embedded therein, the said stay being composed of a main stay-bar having its ends projected beyond the ends of the plastic body, a plurality of auxiliary stay-bars, and hooks projected from the ends of the auxiliary stay-bars and receiving the ends of the main stay-bar.

4. In a fence-post, the combination of a plastic body, a stay arranged therein, said stay being composed of a main stay-bar having its ends projected from the end portions of the plastic body, a plurality of auxiliary stay-bars, and hooks projected angularly from the ends of the auxiliary stay-bars and receiving the ends of the main stay-bar adjacent the projected portions thereof.

784,034. **ELECTROPLATING DEVICE.** GEORGE W. CLOUGH, Cleveland, Ohio. Filed Jan. 30, 1904. Serial No. 191,301.



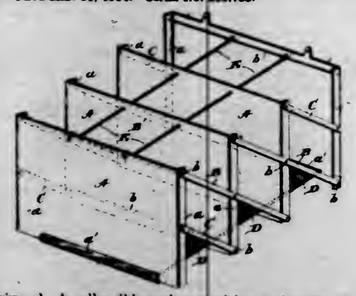
Claim.—1. In an electroplating device, in combination, a cylinder of insulating material, open at either end, a central shaft on which said cylinder rotates, a bath upon the walls of which the ends of the shaft are supported, anodes depending from said shaft and electrically connected therewith, a continuous flange spirally wound upon the inner surface of the cylinder, said flange projecting at one end to form a mouth for the introduction of the material to be plated, and opening freely at the opposite end, said flange also forming a metal cathode for the outward passage of the current, and a metal band on the exterior surface of the cylinder, electrically connected with the cathode, substantially as described.

2. The apparatus described for electroplating, comprising in combination, a bath provided with walls, a shaft mounted on said walls, a cylinder of insulated material mounted on said shaft, a flanged metal-carrier spirally and continuously wound about the inner surface of the cylinder, and forming the cathode for said plating device, a mouth for said flange, anodes suspended from said shaft, and electrically connected therewith, an electric circuit of which the anodes and cathode are terminals, and a plating fluid in said tank, in which said cylinder and anodes are immersed, substantially as described.

3. The apparatus described for electroplating, comprising in combination, a bath provided with walls, a plating fluid therein, a metal shaft mounted on bearings over said bath, a wooden cylinder mounted upon said shaft, a spirally-wound metal flange carrier on the inner surface of the cylinder, forming a cathode for the electroplating device substantially as described, an extended outer end or mouth for said flange arranged for the introduction of articles to be plated, anodes upon the shaft electrically connected therewith, a

source of electricity connected with the shaft, a metal band about the cylinder having electric connection with the articles to be plated and cathode, means for conducting the electric current from said band, and means for rotating the cylinder, substantially as described.

784,035. COLLAPSIBLE RACK. MILTON A. CONNARD, Decatur, Ill. Filed Mar. 30, 1904. Serial No. 200,763.



Claim.—1. A collapsible rack comprising a plurality of partition-plates, a connection between said partition-plates whereby they may be either folded up or extended, and a flexible bottom connected to all of said plates.

2. A collapsible rack comprising a plurality of partition-plates a flexible bottom connecting said partitions and a flexible cord connecting the upper portions of said partitions.

3. A rack, comprising a plurality of partition-plates a toggle connection between said partition-plates whereby they may be either folded up or extended, and a flexible bottom connected to all of said partition-plates.

4. A rack, comprising a plurality of partition-plates, a toggle connection between said partition-plates, a flexible bottom connected to all of said partition-plates, and a flexible cord connected to the upper ends of all of said plates.

5. A rack, comprising a plurality of partition-plates provided with narrow transverse slots near their lower edges, a toggle connection between said partition-plates, and a flexible bottom passing through the slots in all of the partition-plates and having its ends secured to the end plates.

6. A rack, comprising a plurality of partition-plates provided with narrow transverse slots near their lower edges, a toggle connection between said partition-plates, a flexible bottom passing through the slots in all of the partition-plates and having its ends secured to the end plates, and a flexible cord connected to the upper ends of all of said plates.

7. A rack comprising a plurality of partition-plates, a toggle connection between said plates, a flexible bottom connecting all of said plates and means for suspending the rack.

8. A rack comprising a plurality of partition-plates provided with narrow transverse slots near their lower edges, a connection between said partition-plates whereby they may be either folded up or extended, and a flexible bottom passing through the slots in all of the partition-plates and having its ends connected to the end plates.

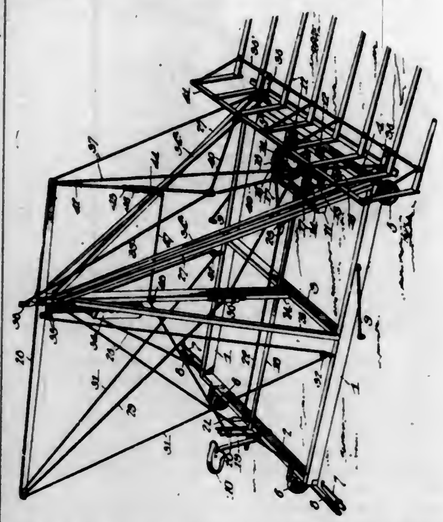
784,036. HAY RAKE AND STACKER. JAMES CRAIG, Garden City, Kans. Filed May 11, 1904. Serial No. 207,475.

Claim.—1. A wheel-supported frame, a mast rising from the same, a tilting beam supported by the mast, braces pivoted in axial alinement with the fulcrum of the beam, a gathering member supported by said braces, connections between the gathering member and the front end of the beam and means for tilting the beam.

2. A wheel-supported frame, a mast rising from the same, a tilting beam supported by the mast, braces connected pivotally with the mast, a gathering member connected hingedly with the braces, connecting means between the gathering member and the beam, and means for tilting the beam.

3. A wheel-supported frame, a mast rising from the same, a tilting beam supported by the mast, braces connected pivotally with the mast, a rod supported by said braces, a gathering member mounted tiltingly upon said rod, connecting means between the gathering member and beam, and means for tilting the beam.

4. A wheel-supported frame, a tilting beam supported above said frame, braces mounted pivotally in axial alinement with the fulcrum of the tilting beam, a gathering member connected tiltingly with said braces, connecting-rods extending from the supports of the gathering member to the beam, means for tilting the beam, and means for supporting the gathering member against tilting.



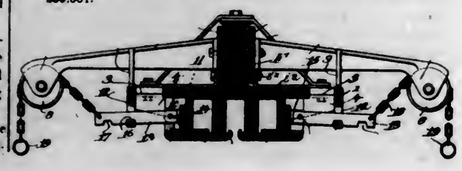
5. A wheel-supported frame, a tilting beam supported above said frame, braces mounted pivotally in axial alinement with the fulcrum of the tilting beam, a rod supported by said braces, a gathering member pivoted upon said rod, connecting-rods extending from the supports of the gathering member to the tilting beam, link-rods connecting an upright portion of the gathering member with a fixed supporting-point, and a rod having a break-joint connecting said link-rods with the tilting beam.

6. A wheel-supported traveling frame, a tilting beam supported above said frame, a pivotally-mounted gathering member, pivotal braces supporting the same, connecting means between said braces and the tilting beam, link-rods connecting an upright portion of the gathering member with a fixed supporting-point, a jointed rod connecting the joint of said link-rods with the tilting beam, and spring-actuated means for maintaining the jointed rod in extended position

7. A wheel-supported frame, a tilting beam supported above said frame, a gathering member connected with the beam, and means for tilting the beam including a flexible element connected therewith, a winding-drum for the flexible element, a swinging frame supporting said winding-drum, toothed earth-engaging members connected with the drum, and stop means adapted to engage said toothed members

8. A wheel-supported traveling frame, a mast rising from the same, a tilting beam supported by the mast, a gathering member supported by the tilting beam, means for effecting the tilting of the beam by the passage of the frame over the ground including a flexible element and a winding-drum having earth-engaging members, and a counterbalance including a flexible element connected with the rear end of the beam, guide-pulleys upon the sills of the frame, guide-pulleys upon the beam in rear of its fulcrum, and a counterweight.

784,037. SWITCH FOR OVERHEAD TROLLEY-TRACKS. ROBERT N. CUNDALL, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Jan. 4, 1905. Serial No. 239,581.



Claim.—1. In a switch device for overhead trolleys, a fixedly-mounted support having transverse guides, and adapted to be interposed between fixed main and branch track-sections, combined with a switch-plate slidably mounted on the guides and having depending track-sections to bridge the gaps in the fixed track-sections, and manually-controlled means to shift the switch-plate and positively lock it in position when shifted.

2. In a switch device for overhead trolleys, a fixedly-mounted, open support having transverse guides and a depending keeper at each side, combined with a switch-plate slidably mounted on the guides and having depending track-sections, latches operatively connected with the switch-plate and adapted to coöperate with the keepers, to lock the plate in position, and manually-controlled means to release the latches and through the same shift the switch-plate.

3. In a switch device for overhead trolleys, a fixedly-mounted, open support having transverse guides and a depending keeper at each side, combined with a switch-plate slidably mounted on the guides and having depending track-sections, pivoted latches operatively connected with said plate and having notches to coöperate with the keepers and lock the switch-plate in position, and manually-controlled means to rock the latches from engagement with the keepers and thereafter shift the switch-plate by or through the latches.

4. In a switch device for overhead trolleys, a fixedly-mounted, open support having transverse guides and a depending loop-like keeper at each side, combined with a switch-plate slidably mounted on the guides and having depending track-sections, notched latches pivotally connected with the switch-plate and extended through the keepers, to coöperate therewith and lock the switch-plate in position, and manually-controlled means to disengage the latches and through the same shift the switch-plate.

5. The combination, in a switch device for overhead trolleys, of a fixedly-mounted support having a rectangular opening and transverse guides at its ends, depending, open keepers at the sides of the support, a rectangular switch-plate provided with depending track-sections and having a transverse flange at each end, a slide upon the guides, the sides of the opening of the support serving as stops for the switch-plate, notched latches operatively connected with the latter and extended through the keepers, and manually-controlled means connected with the latches to disengage them from the keepers and shift the switch-plate, release of said means permitting a keeper to automatically reëngage its keeper and lock the switch-plate.

784,038. AUTOMATIC SELF-DROPPING TROLLEY-POLE. JOHN DELANE, Terra Haute, Ind. Filed Sept. 5, 1903. Serial No. 172,125.



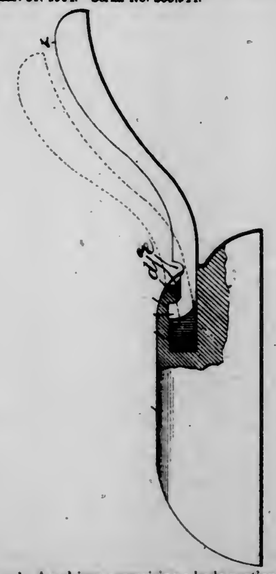
Claim.—1. In a trolley-pole, the combination of a trolley-arm *a*, which is free to fall of its own weight, when disengaged, with a lever *b*, mounted upon said arm *a*, and adapted to carry a trolley-wheel, the socket *c* adapted to fit into the housing of the stand S and to support the arm *a*, the stand S adapted to support the trolley-pole upon the top of a car, the shaft *s*, supported by the stand S and adapted to support the socket *c* and the two pulleys *n*, the two pulleys *n* upon either end of the shaft *s*, the two levers *u* movably attached to the arm *a* by means of the clamp *i* and provided at their outer ends with the pulleys *q*, the clamp *i*, the spring-bar *x* attached to the stand S and adapted to support the spring *x'*, the plate *y* and the tension-rods *r* and the nuts *z*, the spring *x'*, the plate *y*, the nut *z* and the tension-rods *r*, the chains or cables *f*, one end of each of which is attached to the corresponding tension-rods *r* and the other to the levers *u*, the cables *m'* attached to the bolt *j'*, acting over the pulleys *q* and *q'* and connected with the cable *m*, the cable *m* adapted to pass from the cables *m'* to and over the pulley *c* and to the car-platform, the ball *k* attached to the cable *m* and adapted to engage the pulleys *c* and *c''*, and the pulley *c''*, the sheave *j* provided with the two pulleys *q'*, all substantially as described and for the purpose set forth.

2. In a trolley-pole, the combination of a trolley-arm *a*, the lever *b* movably mounted upon said trolley-arm and adapted to be drawn into and out of line with the axis of the trolley-arm *a*, and to support a trolley harp and wheel upon the outer end thereof and the pulley *c* pendent from *b*, with the socket *c* adapted to support the trolley-arm *a*, the stand S adapted to support the socket *c*, the shaft *s* and the two pulleys *n*, the shaft *s* and pulleys *n*, the spring-bar *x*, mounted within the stand S and bearing the adjustable spring *x'*, the tension-rods *r* attached to the plate *y* mounted upon the tension-bar, the nut *z* adapted to adjust the spring *x'*, the bolt *j'* and pulley-bearing sheave *j*, mounted upon the arm *a* and the cables *m'* and *m*, attached to the bolt *j'*, the chains or cables *f*, attached to the tension-rods *r* and the levers *u*, respectively, the levers *u* attached to the arm *a* provided with the pulleys *q* adapted to guide and be controlled by the cables *m'* in conjunction with the chains or cables *f*, the ferrule *d'* mounted upon the end of the arm *a* and provided with the pulley *c''* and the ball *k* attached to the cable *m*, adapted to lock the trolley-pole in an upright position, all substantially as described and shown and for the purpose set forth.

3. In a trolley-pole, the combination of a trolley-arm *a*, adapted to fall when disengaged of its own weight, and provided at its upper end with a lever *b*, which is in hinge-like connection therewith, and which is provided with a pendent boss *b''* adapted to support a pulley *c* and provided with a guide-loop *o*, said lever *b* being adapted to support a trolley-wheel *w'*, with a socket *c* adapted to support the trolley-arm *a*, mounted upon the stand S, the stand S provided with a shaft *s* and two pulleys *n*, the spring-bar *x* and spring *x'*, plate *y* and tension-rods *r*, movably attached to the spring-bar *x*, the cables or chains *f*, the levers *u* attached to the arm *a*, and provided with the pulleys *q*, the cables *m* and *m'* attached to said arm *a* and adapted to control the actuating mechanism thereof, and the ball *k* upon the cable *m* adapted to lock the pole or arm in an upright position, all substantially as shown and for the purpose set forth.

4. In a trolley-pole, the combination of a trolley-arm *a*, free to fall of its own weight, provided with a ferrule *d'* and lever *b* in hinge-like connection with each other and provided, respectively, with the pulleys *c''* and *c*, said pulleys operating together to control the ball *k* attached to the cable *m*, the ball *k* and cable *m* attached to *o*, with the socket and stand S, adapted to support said arm *a*, an actuating mechanism adapted to raise the arm *a* to an upright position, all substantially as shown and for the purpose set forth.

784,039. SAD-IRON. MARGARET E. FALLON, Spokane, Wash. Filed Mar. 31, 1904. Serial No. 200,914.



Claim.—1. A sad-iron comprising a body portion provided with a recess and a lug depending from the roof of said recess at the entrance thereto, and a plurality of notches or kerfs within said recess, substantially as described.

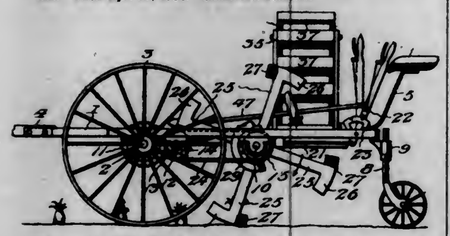
2. A sad-iron comprising a body portion provided with a recess and a downwardly-projecting lug at the entrance of said recess, and a plurality of notches or kerfs within said recess, and a handle having an upwardly-projecting lug at the end thereof adapted to en-

gage with the smaller recesses, said handle being provided with a rounded notch or kerf in which the lug on the body portion rests when the handle is in place with the lug thereon resting in the innermost notch or kerf, substantially as described.

3. In a sad-iron, the combination with a body portion having a flat bottom, a rounded top, and sides tapering from the rear to the forward end, and provided with a recess, of a downwardly-projecting lug at the entrance to said recess, and a handle having an upwardly-projecting lug at the end thereof adapted to engage with said recess, said handle being provided with a rounded notch or kerf in which the downwardly-projecting lug rests when the handle is in place with the lug thereon resting in said recess, substantially as described.

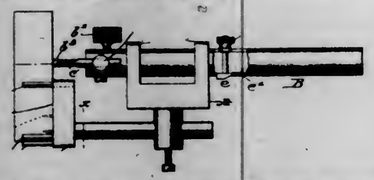
4. A sad-iron comprising a body portion provided with a recess having a flat bottom and the top of which is provided with a plurality of notches or kerfs, and with a downwardly-projecting lug at the entrance to said recess, and a handle provided with an upwardly-projecting lug at the end thereof adapted to fit in the notches or kerfs, said handle being also provided with a rounded notch in which the downwardly-projecting lug rests when the lug on the end of the handle is resting in the innermost notch or kerf in the body portion, substantially as described.

784,040. **BEET-HARVESTER.** HENRY M. FELLENZ, Fond du Lac, Wis. Filed Apr. 27, 1904. Serial No. 205,197.



Claim.—In a machine of the class set forth, a frame, a rotatable element therein, pairs of resilient gathering devices held by said element and being capable of movement toward and from each other, each gathering device of each pair being continuous in structure with the diametrically-arranged similar device, pairs of integral shoes on the gathering devices, each pair of shoes having the rear ends thereof inwardly directed toward each other, compressing elements between which the pairs of gathering devices pass during part of their rotation, and by which the two devices of each pair are forced toward each other, a conveyer disposed in rear of the gathering devices, an axle mounted for rotation in the frame, ground-wheels on the axle, mechanism between the axle and rotatable element for rotating the latter in a direction reverse to the axle, mechanism connecting the conveyer and rotatable element, and shifting devices connected to said last-mentioned mechanism, whereby the rotatable element and conveyer may be rendered active or inactive.

784,041. **MOLD-CUTTER.** WILLIAM H. FORD, Lowell, Mass., assignor to Ringsot Company, Boston, Mass., a Corporation of Maine. Filed Nov. 30, 1900. Serial No. 38,270.



Claim.—1. A device for forming finger-ring molds, comprising a shaft or spindle, a support to receive and sustain part of the face, end, and side edges of mold material to restrain the rotation thereof, a tool disposed eccentrically with relation to the longitudinal axis of said shaft or spindle to cut a mold-groove in the mold material, and means to regulate the depth of the mold-groove.

2. A device for forming finger-ring molds, comprising a rotatable shaft or spindle, a tool carried thereby to cut a circular groove in the face of a block of mold material, a support to engage the face of the mold material and also an edge thereof, and means to stop the cutting action of said tool before the mold-groove has been cut entirely through said material.

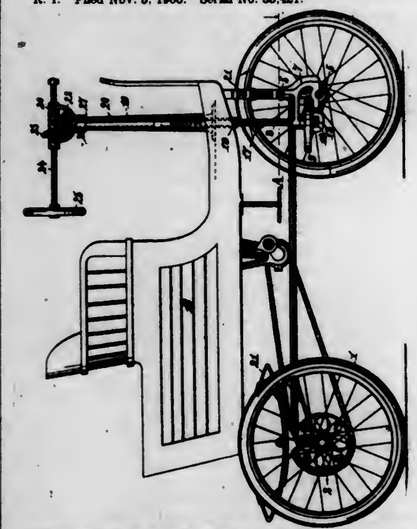
3. A device for forming finger-ring molds, comprising a support for mold material, said support contacting with the face and edge of a block of mold material, a guide engaging said support, a stud extended beyond the end of said shaft or spindle and concentric with the longitudinal axis thereof, a cutting-tool substantially parallel with said stud and adjustably sustained by said shaft, said tool acting to cut a groove in one face of the mold material while the relative positions of said support and spindle are changed in the direction of the longitudinal axis of the spindle, and the spindle is being rotated.

4. In a device for forming finger-ring molds, a rotatable shaft or spindle having an axially-extended guiding-pin to enter a hole bored in a block of mold material, and having an opening at right angles to the longitudinal axis of said pin and shaft or spindle, an adjustable cutter, and means to adjust and sustain said cutter at a greater or less distance from the longitudinal axis of said shaft or spindle according to the diameter of the groove to be cut in mold material, said cutter being adjustable with relation to the end of said spindle according to the depth of the groove to be cut in the mold material.

5. In a device for forming finger-ring molds, means to sustain and abut against one face and the edge of, and prevent the rotation of, a block of mold material, a rotatable shaft or spindle, a cutter adjustably sustained on and rotatable with said shaft or spindle, said cutter presenting a cutting-point shaped to correspond with the cross-section of the mold-groove to be cut, and means to determine the extent of relative longitudinal movement between the means acting against the face of said mold material and cutter, to enable the mold-groove to be cut but partially through said mold material.

6. A device for forming finger-ring molds, comprising a shaft or spindle having projecting from its end centrally a pin of reduced diameter to leave the end of the spindle free to contact with the face of mold material in which said pin enters, said spindle having a hole therethrough at right angles to its longitudinal axis and to the longitudinal axis of the pin, an adjustable cutter-carrier located in said hole and provided with a cutter which is adjustable longitudinally in said cutter-carrier so that the cutting end of the cutter may be made to project beyond the end of the spindle for just the depth of one-half the mold-groove to be cut.

784,042. **STEERING-GEAR.** ALFRED B. FOWLER, Central Falls, R. I. Filed Nov. 3, 1900. Serial No. 35,421.



Claim.—1. A steering-gear for motor-vehicles, having, in combination, a controlling member, an irreversible mechanism connected therewith, steering-wheels independently pivoted at points near their planes of rotation, and connections between the steering-wheels and the irreversible mechanism including spring members acting to permit lateral movement of the wheels independently of the irreversible mechanism, substantially as described.

2. A steering-gear for motor-vehicles, having, in combination, a controlling member, an irreversible mechanism connected therewith, pivoted steering-wheels arranged to have independent lateral movement, and connections between the wheels and the irreversible mechanism including springs acting to permit each steering-wheel to yield laterally independently of the irreversible mechanism and the other steering-wheel, substantially as described.

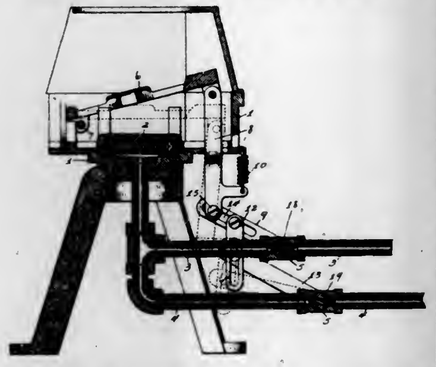
3. A steering-gear for motor-vehicles, having, in combination, steering-wheels, a controlling member, a rotatable shaft on which the controlling member is mounted for transmitting motion by its rotation from the controlling member to the steering-wheels, and supporting means for the said shaft permitting angular displacement thereof about a substantially vertical axis, substantially as described.

4. A steering-gear for motor-vehicles, having, in combination, steering-wheels, a controlling member, a horizontal shaft carrying the controlling member and rotatable thereby, means for supporting the horizontal shaft and permitting angular displacement thereof about a vertical axis, and means operated by the rotation of the horizontal shaft for transmitting motion from the controlling member to the steering-wheels, substantially as described.

5. A steering-gear for motor-vehicles, having, in combination, steering-wheels, a controlling member, a rotatable shaft on which the controlling member is mounted for transmitting, by its rotation, motion from the controlling member to the steering-wheels, and means for supporting the said shaft permitting both longitudinal and angular displacement thereof, substantially as described.

6. A steering-gear for motor-vehicles, having, in combination, steering-wheels, a controlling member, connections between the said wheels and the controlling member including a cam and a cam-follower, connecting-rods between the cam-follower and the steering-wheels, and spring connections between the said connecting-rods, acting to permit lateral movement of the steering-wheels independently of the irreversible mechanism, substantially as described.

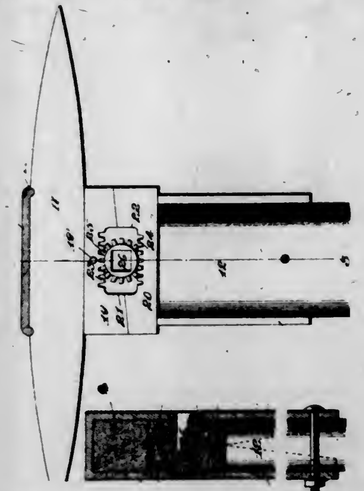
784,043. **AUTOMATIC CUT-OFF FOR GAS-STOVES.** JAMES C. HANSEN, Troy, N. Y. Filed Mar. 22, 1904. Serial No. 199,399.



Claim.—1. In a gas-stove, the combination with a burner; of air and gas pipes connecting with said burner each having a spigot-valve provided with an offset arm; a link; a pivotal connection between one end of said link and one of said arms adjustable longitudinally of the latter; a pivotal connection between the other end of said link, and the other valve-arm adjustable longitudinally of said link; a movable member adapted to be displaced by an article placed over the burner; means for automatically replacing said member when said article is removed; a link depending from said member; and a pivotal connection between said link and one of said valve-arms adjustable longitudinally of the latter.

2. In a gas-stove, the combination with a burner, of air and gas pipes leading to said burner; a valve in the gas-pipe having a spigot provided with a valve-aperture; a valve in the air-pipe having a spigot provided with a valve-aperture of the same dimension as the aperture in the gas-valve spigot measured circumferentially of the spigots, and of a greater length than the aperture in the gas-valve spigot measured longitudinally of the spigots; a movable member adapted to be operated by an article placed above the burner; and operating connections between said member and both of said valve-spigots, whereby simultaneous and substantially equal angular movements of both spigots are induced by operation of said movable member.

784,044. **MINER'S PICK.** MARTIN HARDCOCK, Ottumwa, Iowa. Filed May 22, 1903. Serial No. 158,252.



Claim.—1. The tool, comprising the stem formed with a recess, the pick formed with grooves on one face and mounted in said recess, projections on the stem seated in said grooves of the pick, and wedge-blocks mounted in the stem, one of the blocks contacting the pick and the other the stem, the wedge-blocks formed with oppositely-inclined faces in mutual contact and arranged for opposite rectilinear movement for expansion against said pick and stem respectively.

2. The combination of the stem, the pick therein, the wedge-blocks in said stem, one of the blocks contacting the pick, the wedge-blocks formed with oppositely-inclined faces in mutual contact and notched in their central portions, racks formed in the notches, and a pinion journaled in the stem and extending across the notches of the wedge-blocks in engagement with the racks thereon, said pinion formed with a central angular aperture.

3. The stem formed with a recess and bifurcated below said recess, a pick in the recess, a pair of coacting wedge-blocks in the recess below the pick, one block engaging the pick and the other the stem, said blocks formed with notches and racks in the notches and contacting with each other on inclined faces, a pinion formed with trunnions on opposite ends and mounted in the notches of the wedge-blocks, the teeth of the pinion engaging said racks on the blocks, the trunnions journaled in opposite apertures in the stem, the pinion formed with a central angular aperture adapted to receive rotation means, and means for locking said stem to a handle.

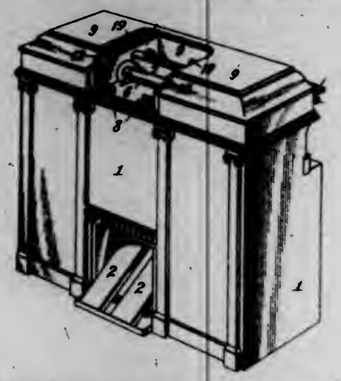
784,045. **PIANO-PLAYER CASE.** JUSTUS HATTERER, New York, N. Y., assignor to Hardman, Peck & Co., a Firm, New York, N. Y. Filed June 30, 1904. Serial No. 214,768.

Claim.—1. A piano-player case having a top formed with an opening at the music-rolls and having adjustable slides provided with horizontally-extending tongues at their forward lower edges and upward rear edges, said tongues fitting grooves located on the inner surface of the case-top, so that the slides will move inside the case-top.

2. A piano-player case having a body and a removable top, means movably attached to one of said members for connecting it with the other member, or disconnecting it therefrom, springs secured to the same member which carries said movable connecting means, and in engagement with said connecting means to prevent rattling.

3. A piano-player case having a removable top, sliding locking-

plates sustained at or near joints of the case top and body portions and having connected rods operative from outside the case for adjusting the plates, and relatively fixed detents engaged by said plates and detachably securing the case-top to its body portion.



4. A piano-player case having a removable top, sliding locking-plates held to said top and having connected rods operative from outside the case for adjusting the plates, and relatively fixed detents held to the case-body and adapted for engagement by the plate-slots for detachably securing the case-top to its body portion.

5. A piano-player case having a removable top formed with an opening at the music-rolls, and having adjustable slides movable inside of the outer wall of said top to give access to the rolls and adapted to close said opening to conceal and protect the rolls; said case having sliding locking-plates sustained at or near joints of its top and body portions and having connected rods operative from outside the case for adjusting the plates, and relatively fixed detents engaged by said plates for detachably securing the case-top to its body portion.

6. The combination with the player-case body having fixed headed detents 31, of a removable case-top having sliding locking-plates 25 provided with angular open slots 30 adapted to engage the detents when the plates are moved endwise to thereby lock the case-top to its body portion; said slotted plates having rearwardly-projecting rods 28 operative from outside the case for adjusting the plates.

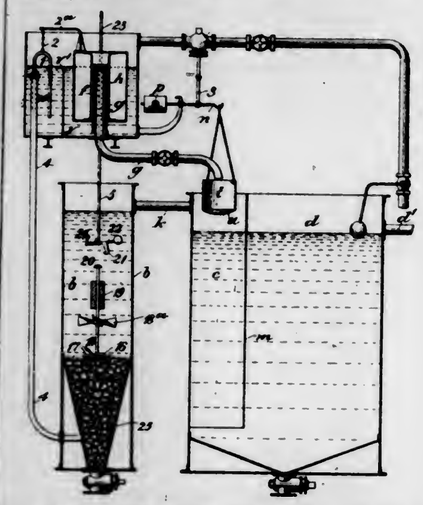
7. The combination with the player-case body having fixed headed detents 31, of a removable case-top having sliding locking-plates 25 provided with angular open slots 30 adapted to engage the detents when the plates are moved endwise to thereby lock the case-top to its body portion; said slotted plates having rearwardly-projecting rods 28 operative from outside the case for adjusting the plates; and springs 32 holding the locking-plates to avoid annoying rattling sounds from them.

784,046. WATER-SOFTENING APPARATUS. STANLEY H. HODGKIN and PHILIP E. HODGKIN, Reading, England. Filed Feb. 17, 1904. Serial No. 193,968.

Claim.—1. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge into said mixing vessel, a liquid-reagent tank arranged to discharge into said mixing vessel, means for discharging liquid reagent at each operation of the flushing apparatus, a pipe for admitting water to said flushing apparatus, a valve for controlling the flow of water from said pipe, and means adapted to automatically close said valve during the discharge of water from said flushing apparatus.

2. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge into said mixing vessel, a liquid-reagent tank arranged to discharge into said mixing vessel, means for discharging liquid reagent at each operation of the flushing apparatus, a pipe for admitting water to said flushing apparatus and provided with a main regulating-valve, a second valve for controlling the flow of water from said pipe, means adapted by the weight of water received from said flushing apparatus to close the second valve during the discharge of water from the flushing apparatus and, by loss of water, to automatically reopen such valve after the discharge of water from the flushing apparatus.

3. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge into said mixing vessel, a liquid-reagent tank arranged to discharge into said mixing vessel, means for discharging liquid reagent at each operation of the flushing apparatus, a pipe for admitting water to said flushing apparatus, a valve for controlling the flow of water from said pipe, a receptacle connected to said valve and provided with a small discharge-outlet, said receptacle being arranged to be charged with water from said flushing apparatus and to close the valve during the discharge of water from the apparatus, and means for automatically reopening said valve after the escape of water from said receptacle.



4. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge into said mixing vessel, a liquid-reagent tank arranged to discharge into said mixing vessel, means for discharging liquid reagent at each operation of the flushing apparatus, a pipe for admitting water to said flushing apparatus and provided with a main regulating-valve, a second valve for controlling the flow of water from said pipe, a lever connected to the second valve, a receptacle connected to the lever, said receptacle having a water-discharge outlet and arranged to be charged with water from the flushing apparatus and thereby to close the second valve during the discharge of water from the flushing apparatus, and means for automatically returning the receptacle and lever to their original positions and reopening the second valve after escape of water from the receptacle.

5. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge into said mixing vessel, a liquid-reagent tank arranged to discharge into said mixing vessel, means for discharging liquid reagent at each operation of the flushing apparatus, a pipe for admitting water to said flushing apparatus and provided with a main regulating-valve, a second valve for controlling the flow of water from said pipe, a lever connected to the second valve, a receptacle having a water-discharge outlet therefrom and carried by said lever, said receptacle being arranged below said flushing apparatus so as to be charged with water therefrom, and to close the second valve during the discharge of water from the flushing apparatus, and means for afterward automatically reopening the second valve and raising the receptacle to its original position.

6. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge into said mixing vessel, a liquid-reagent tank arranged to discharge into said mixing vessel, means for discharging liquid reagent at each operation of the flushing apparatus, a pipe for admitting water to said flushing apparatus and provided with a main regulating-valve, a second valve for controlling the flow of water from said pipe, a lever connected to the second valve, a weight connected to one end of said lever and acting normally to hold the second valve open, and a receptacle with perforated bottom connected to the other end of said lever and arranged to be charged with water from said flushing apparatus, substantially as described.

7. Water-softening apparatus comprising an automatic water-flushing apparatus provided with a float, a reagent vessel, a mixing vessel into which water and reagent are intermittently discharged from said flushing apparatus and reagent vessel respectively, a chamber connected to the reagent vessel and adapted to be charged to a predetermined height with water from the flushing apparatus, and means controlled from said float and adapted to cause a predetermined quantity of water to pass from said chamber to said reagent vessel at each operation of the flushing apparatus for the purpose set forth.

8. Water-softening apparatus comprising an automatic water-flushing apparatus provided with a float, a reagent vessel, a mixing vessel into which water and reagent are intermittently discharged from said flushing apparatus and reagent vessel respectively, a chamber connected to the reagent vessel and adapted to be charged to a predetermined height with water from the flushing apparatus only after the same has been charged to a given height with water and to be left charged with a definite quantity of water after the level of that in the flushing apparatus has fallen below that in the chamber, and means controlled from said float and adapted to cause a predetermined quantity of water to pass from said chamber to said reagent vessel at each operation of the flushing apparatus for the purpose set forth.

9. Water-softening apparatus comprising an automatic water-flushing apparatus provided with a float, a reagent vessel, a mixing vessel into which water and reagent are intermittently discharged from said flushing apparatus and reagent vessel respectively, a chamber connected to the reagent vessel and adapted to be charged to a predetermined height with water from the flushing apparatus only after the same has been charged to a given height with water and to be left charged with a definite quantity of water after the level of that in the flushing apparatus has fallen below that in the chamber, and water-discharging means located in said chamber and controlled from said float and whereby a determined quantity of water will be caused to pass from said chamber to said reagent vessel at each operation of the flushing apparatus.

10. Water-softening apparatus comprising an automatic water-flushing tank provided with a float, a lime-water vessel, a mixing vessel into which hard water is discharged from the flushing-tank and lime-water from the upper portion of said lime-water vessel, said flushing-tank being constructed with main and supplementary compartments of which the latter is arranged to be filled with a definite quantity of water from the former when the level of the water therein rises sufficiently high and afterward falls, and a movable water-discharging device that is arranged in the supplementary compartment, is connected to the float in the main compartment, and is adapted to cause a definite quantity of water to be discharged from the supplementary compartment into the lower portion of the lime-water vessel, at each operation of the flushing apparatus.

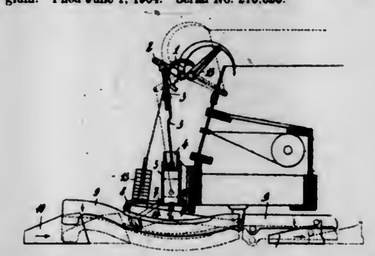
11. In water-softening apparatus of the kind herein referred to, the combination with a lime-water vessel and a mixing vessel, of a flushing-tank arranged at a higher level than the said vessels and provided internally with a stationary siphon, a movable float, and a partition arranged to divide the interior of the tank into a main compartment and a supplementary compartment, the latter of which is arranged to be charged with water from the main compartment over the top edge of said partition, a movable siphon suspended in the supplementary compartment from said float, and a pipe connecting said movable siphon to the lower portion of the lime-water vessel, the movable siphon being arranged to come into action only after the level of the water in the main compartment has fallen below the top edge of the partition.

12. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge water into said mixing vessel at each flushing operation, a liquid-reagent tank arranged to discharge into said mixing vessel, means for supplying water to said flushing apparatus, means adapted to cause definite quantities of liquid reagent to flow into said mixing vessel at each operation of the flushing apparatus, and means adapted to automatically cut off the supply of water to the flushing apparatus during the discharge of water therefrom.

13. Water-softening apparatus comprising a mixing vessel, an automatic intermittent water-flushing apparatus arranged to discharge water into said mixing vessel at each flushing operation, a liquid-reagent tank arranged to discharge into said mixing vessel, means for supplying water to said flushing apparatus, means adapted to cause a definite quantity of water to flow from the flushing apparatus at each operation thereof, into the liquid-reagent tank, and means adapted to automatically cut off the supply of water to the flushing apparatus during the discharge of water therefrom into the mixing vessel.

14. Water-softening apparatus comprising an automatic water-flushing tank provided with a float, a lime-water vessel, a mixing vessel into which hard water is discharged from the flushing-tank and lime-water from the upper portion of said lime-water vessel, said flushing-tank being constructed with main and supplementary compartments of which the latter is arranged to be filled with a definite quantity of water from the former when the level of the water therein rises sufficiently high and afterward falls, a water-pipe with valve for controlling the supply of water to the main compartment of the flushing-tank, means adapted to automatically close said valve during the discharge of water from the flushing-tank, and a movable siphon that is supported in the supplementary compartment, is connected to the float in the main compartment, and is adapted to discharge a definite quantity of water from the supplementary compartment into the lower portion of the lime-water vessel at each operation of the flushing apparatus.

784,047. SELF-ACTING MULE. FERNAND HOUGET, Verviers, Belgium. Filed June 1, 1904. Serial No. 210,626.



Claim.—1. In a self-acting mule, in combination with the carriage and with the counter-faller, a cylinder, a piston in said cylinder and a connection between the piston and the counter-faller, said piston acting to deaden the shock of the counter-faller upon the yarn, substantially as described.

2. In a self-acting mule in combination with the carriage and with the counter-faller, a cylinder, a piston in said cylinder and a connection between the piston and the counter-faller, said piston acting on an elastic body in the cylinder to deaden the shock of the counter-faller upon the yarn, substantially as described.

3. In a self-acting mule in combination with the carriage and with the counter-faller, a cylinder, a piston in said cylinder, a connection between the piston and the counter-faller and means to control the action of the piston in the cylinder at the raising of the counter-faller to deaden the shock of the counter-faller upon the yarn substantially as described.

4. In a self-acting mule in combination with the carriage and with the counter-faller, a cylinder, a piston in said cylinder, a connection between the piston and the counter-faller and regulating cocks and valves provided on the cylinder to use the resistance of the air compressed in the cylinder by the descent of the piston during the raising of the counter-faller to deaden the shock of the counter-faller upon the yarn, substantially as described.

5. In a self-acting mule in combination with the carriage, the counter-faller and the copping-rail, a cylinder on the carriage, a piston in said cylinder, a connection between the piston and the counter-faller, a cock governing the escape of the air from the cylinder, means for controlling the position of the cock through the copping-rail and a non-return valve controlling the inlet of air into the cylinder, substantially as described and for the purpose set forth.

6. In a self-acting mule in combination with the carriage, the counter-faller and the copping-rail, a cylinder on the carriage, a piston in said cylinder, a connection between the piston and the counter-faller, a cock governing the escape of the air from the cylinder, a lever actuating said cock, the said lever following the movements of the copping-rail, a non-return valve controlling the inlet of air into the cylinder and means actuating said valve substantially as described and for the purpose set forth.

7. In a self-acting mule, in combination with the carriage and the counter-faller, a cylinder on the carriage, a piston in said cylinder, a connection between the piston and the counter-faller, cocks and valves provided on the cylinder to control the action of the piston in the cylinder and on the counter-faller at the time of backing

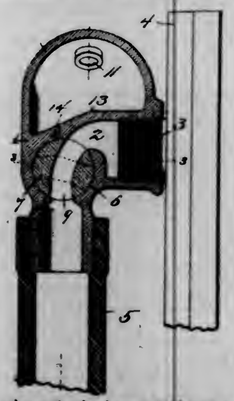
off and means to avoid the action of the piston on the second ascent of the counter-faller, substantially as described and for the purpose set forth.

784,048. FURNACE. DENIS D. HUGHES, Titusville, Pa. Filed Dec. 20, 1904. Serial No. 237,691.



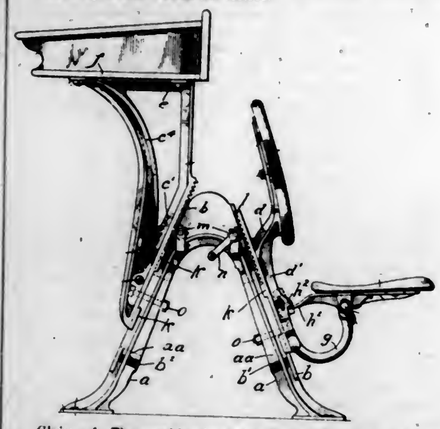
Claim.—In a gas-furnace, a furnace-casing having hot-air exits and a cold-air inlet, a furnace-box within the casing, said box having a conical top provided at its apex with an annular flange, a plurality of radiating-drums suitably connected with each other, one of said drums having an opening surrounded by a depending flange engaging the flange at the apex of the furnace-top and braces connected with sockets upon said furnace-top, an exit-pipe depending from one of the radiating-drums and extending through the wall of the casing to a point of final exit, communicating openings in the casing and the furnace-box, means for regulating the admission of air into the latter and a gas-burner within the furnace-box.

784,049. COMBINED LUBRICATOR AND THROTTLE-VALVE. CHARLES HULTQUIST, Denver, Colo. Filed May 23, 1904. Serial No. 209,402.



Claim.—A valve-casing having a valved fluid-duct, an oil-chamber formed adjacent to said fluid-duct and separated from the latter by an apertured wall or web, and screw-closures engaging threaded perforations in the part of the casing which constitutes the oil-chamber; said valve being operable at will for opening the oil-passage without closing the fluid-duct, for opening the passage and closing the duct, or for closing both the passage and the duct.

784,050. SCHOOL-DESK. JAMES W. JOHNSTON, Chicago, Ill. Filed May 4, 1903. Serial No. 155,581.

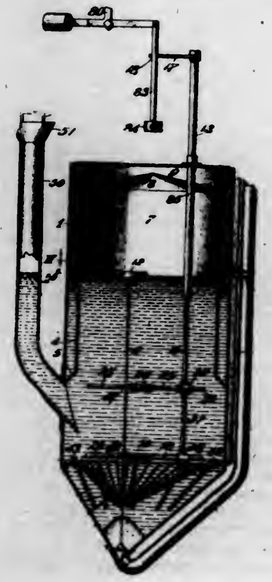


Claim.—1. The combination with longitudinally-slotted and oppositely-inclined floor members, of a reciprocable desk-holding element and means to hold it, regulably, in one of said slots and brackets secured to said reciprocable element provided with flat ends tangent to the desk-bottom, substantially as specified.

2. The combination with a longitudinally-slotted floor member, of a desk-holder on said member provided with fixed desk-holding element, means to adjust said holder, and removable brackets thereon, terminating in the plane of the desk-bottom, substantially as specified.

3. The combination with an inclined bifurcated seat-bracket, an inclined floor member thereto and said bracket provided at the ends of said members with hinge elements, of a tailed seat-support having counterpart hinge elements provided with a single central tailpiece, means for connecting said hinge elements, and a stop for said tail, substantially as specified.

784,051. ACETYLENE-GAS-GENERATING APPARATUS. WALLACE B. JONES, Burroak, Kans. Filed Nov. 17, 1903. Serial No. 181,559.



Claim.—1. In an acetylene-gas apparatus, the combination of a generator having an inverted conical bottom open at its apex, a pipe communicating with said opening, a carbid-supply pipe communicating with the generator above the bottom, a skeleton basket within the generator and below said supply-pipe, a substantially circular pipe forming a part of said basket and provided with downwardly-converging jet-pipes, a supply-pipe communicating with said circular pipe, a gas-bell, means actuated by the descent of the gas-bell to discharge carbid at intervals into the generator, and means for spraying water upon the carbid-ashes collecting therein below the basket.

2. In an acetylene-gas apparatus, the combination of a generator having an inverted conical bottom open at its apex, a pipe communicating with said opening, a carbid-supply pipe communicating with the generator above the bottom, a skeleton basket within the generator and below said supply-pipe, a substantially circular pipe forming a part of said basket and provided with downwardly-converging jet-pipes, a supply-pipe communicating with said circular pipe, a valve-controlled pipe connecting the last-named pipe to the pipe connected to the apex of the generator, a gas-bell, means actuated by the descent of the gas-bell to discharge carbid at intervals into the generator, and means for spraying water upon the carbid-ashes collecting therein below the basket.

3. In an acetylene-gas apparatus, the combination of a generator, a suitable internal brace, couplings secured to said brace, vertical tubes secured at their lower ends to said couplings, and projecting upward to approximately the top of the generator and provided with internal ribs, an escape-pipe connected by a coupling to one of said tubes, a service-pipe in communication through the other coupling with the other tube, a gas-bell within the generator, vertical tubes closed at their upper ends and carried by said bell below and fitting telescopically upon the ribbed tubes, one of said gas-bell tubes having an aperture always above the water-line of the generator, and the other an aperture which attains a position above said water-line only when the bell is elevated its full distance, a cross-bar connecting the upper ends of the gas-bell tubes, a carbid-supply pipe communicating with the generator, a carbid-cup-carrying wheel above said pipe, means actuated by the cross-bar on the descent of the bell for rotating said wheel and disposing a cup over said supply-pipe, and means for opening said cup to effect the discharge of the carbid therein into the supply-pipe as said cup takes its position above said pipe.

4. In an acetylene-gas apparatus, the combination of a generator, having a supply-pipe and a bell, a wheel, and instrumentalities whereby each descent of the bell imparts a forward movement or step to the wheel, with carbid-cups carried by the wheel, and having their centers disposed apart a distance equal to each step or movement of the wheel, each cup having a bottom, a loop hinged to the bottom and to the body of the cup, a frame secured to the cup, a link hinged to the frame secured to the cup, a bracket secured to the cup-bottom, a catch pivoted to said bracket and engaging said link and the bracket to hold the bottom against accidental opening, and means for tripping said catch and permitting the contents of the cup to swing the bottom, the catch, and the link from below the cup to insure complete evacuation of the cup.

5. In an acetylene-gas apparatus, a generator having a conical bottom with its apex eccentric of its base, and a supply-pipe communicating with the body at the same side of its center as said apex, a pipe communicating with the body at the apex of its bottom, a valve closing communication between the body and said pipe, and a float connected with said valve to lift the same from its seat when the body contains an excess of water.

6. In an acetylene-gas apparatus, a generator having a conical bottom with its apex eccentric of its base, and a supply-pipe communicating with the body at the same side of its center as said apex, a pipe communicating with the body at the apex of its bottom, a valve closing communication between the body and said pipe and provided with a vertical stem, suitably guided for vertical movement, and a float attached to the upper end of said stem and adapted to rise and lift the valve from its seat when the body contains an excess of water, and to descend as the water falls, to reseat the valve.

7. In an acetylene-gas apparatus, a generator, a central cross-coupling, pipes radiating therefrom, vertical cross-couplings on a pair of said pipes, a gas-escape pipe connected to one of said couplings and leading out of the generator, and a gas-conducting pipe connected to the other coupling and leading out of the generator, vertical brace-pipes depending from said last-named couplings, and suitably supported, and vertical stand-pipes rising from said couplings, a gas-bell provided with vertical tubes having their upper ends closed and fitting telescopically on said stand-pipes, guide-ribs between said tubes and said stand-pipes to guide the bell in its vertical reciprocation without interfering with the passage of gas between said pipes and tubes, one of said tubes having an aperture normally submerged in the water of the body, and the other an aperture communicating with the interior of the bell above the normal water-level of the body in combination with a carbid-cup-carrying wheel, means whereby the descent of the gas-bell shall rotate said wheel, means for effecting the discharge of the carbid from the cup as the wheel movement ends, and means for conducting said carbid into said body.

8. In an acetylene-gas apparatus, a generator, having a conical bottom, open at its apex, a pipe communicating therewith, an endless pipe within the body provided with depending jet-pipes which are adapted to discharge water on the conical bottom contiguous to its apex, and a supply-pipe communicating with said endless pipe and extending through the wall of the generator.

784,052. ELECTROMAGNETIC DEVICE. WILLIAM KAISLING, Chicago, Ill., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 17, 1901. Serial No. 78,994.



Claim.—1. The combination with a magnet, of an armature therefor having two arms extending at an angle to each other, a support having a knife-edge adapted to fit into the apex of the said angle and to form a support for the armature upon which as a fulcrum it may rock, one of said arms of the armature serving to complete the magnetic circuit of the magnet, and parts adapted to be operated by said armature when it is actuated, substantially as described.

2. The combination with a magnet, of an armature therefor comprising two arms at an angle to each other, a support having an edge upon which as a fulcrum said armature is supported intermediate of its ends and may rock, one of the arms of said armature extending transversely of the magnet and the other longitudinally thereof, said armature serving when the magnet is energized to shorten the path for the magnet-lines, and parts adapted to be operated by said armature, substantially as described.

3. The combination with a magnet having a core and suitable parts affixed thereto to bring the magnetic poles thereof close together, an armature for the magnet having two arms extending at an angle to each other, said armature being supported to rock upon an edge as a fulcrum formed on one of said poles, and one of its arms being attracted by the other of said poles, and parts adapted to be actuated by said armature, substantially as described.

4. The combination with a magnet, of an armature therefor having two arms at an angle to each other, a member having an edge upon which as a fulcrum said armature is supported intermediate of its ends and may rock, one of said arms being transversely disposed with reference to the magnet, and the other longitudinally disposed and extending alongside the magnet, and switch-contacts controlled by said latter part, substantially as described.

5. The combination with a magnet, of an armature therefor having two arms extending at an angle to each other, a support for the armature having an edge upon which as a fulcrum said armature is supported intermediate of its ends and may rock, one of said arms of the armature being in position to be attracted by the magnet, and switch-contacts controlled by the said armature, substantially as described.

6. The combination with a magnet-coil, of a core therefor provided with metallic parts forming an external magnetic circuit normally open at one portion, a bent armature of magnetic material having two arms at an angle to each other so supported as to close the normally open portion or gap in the external magnetic circuit or shorten its path for the lines of force when the core is magnetized, a support for said armature having an edge upon which it rocks as a fulcrum, and a bunched set of flat superposed contact-springs operated by said armature, said set being supported by and secured to a rigid portion of the said parts forming external magnetic circuit, substantially as described.

7. The combination with a magnet-coil, of a core therefor provided with metallic parts forming an external magnetic circuit normally open at one portion, a bent armature having two arms at an angle to each other and supported upon an edge as a fulcrum in a manner so that one of said arms will close said normally open portion or gap in the external magnetic circuit or shorten its path for

the lines of force when the core is magnetized, and a bunched set of flat superposed contact-springs carried by the framework of the electromagnet and operated by said other arm, substantially as described.

8. The combination with a magnet-coil, of a core therefor provided with metallic parts forming an external magnetic circuit for the coil normally open at one portion, a bent armature of magnetic material having two arms at an angle to each other adapted to close said normally open portion or shorten the path for the lines of force when the core is magnetized, a support for said armature having an edge upon which it rocks as a fulcrum, a bunched set of flat superposed switch-springs firmly secured at one end to a rigid portion of the framework of the electromagnet, the free ends of said springs terminating adjacent the said armature, and an insulating-stud carried by one of said arms and engaging an intermediate spring of the set to change it from one position to another when the magnet is energized, substantially as described.

9. The combination with a magnet, of an armature therefor comprising two arms extending at an angle to each other, a support having a corner or edge fitting within the apex of said angle and forming a support for the armature and upon which as a fulcrum it may rock, and switch-contacts, one of said arms of the armature being in position to be attracted by the magnet and the other to operate the switch-contacts, substantially as described.

10. The combination with a magnet, of an armature therefor having two arms extending at an angle to each other, a support having a knife-edge adapted to fit into the apex of said angle and to form a support for the armature upon which as a fulcrum it may rock, one of said arms standing before the end of the magnet in position to be attracted thereby and the other being substantially parallel with the magnet, and devices controlled by the said latter part, substantially as described.

11. The combination with a magnet having a core, of a supporting member extending to a point adjacent the end of the core and having an edge, an armature having two arms at an angle to each other and supported to rock upon said edge as a fulcrum, one arm extending across the end of the magnet in position to be attracted by the core, and the other arm extending substantially parallel with the support, means to secure the armature in place upon said edge and at the same time permitting it to rock thereon, and devices actuated by the said latter part, substantially as described.

12. The combination with a magnet having a core, of a member to extend the magnetic circuit from one end of the core to a point adjacent the opposite end and having an edge formed across the latter end, an armature consisting of two arms bent at an angle to each other and supported at the apex of said angle by said edge as a fulcrum, one of said arms being opposite the end of the core and member in position to be attracted thereby, and the other arm extending back over said member, and switch-contacts actuated thereby, substantially as described.

13. The combination with a magnet, of a support having an edge, an armature for the magnet formed of a single piece of metal bent intermediate its ends into two arms substantially at right angles to each other, said armature being carried upon said edge as a fulcrum and to rock thereon with one arm in position before the pole of the magnet and the other over the support, and switch-contacts actuated by the armature, substantially as described.

14. The combination with a magnet, of a supporting member extending along the sides thereof, an armature having two arms at an angle to each other supported to rock upon the forward edge of said member as a fulcrum, one arm thereof extending in front of a pole of the magnet in position to be attracted thereby and the other arm extending back over said member, a set of switch-springs mounted upon said member and extending forwardly in position to be actuated by the second-mentioned portion of said armature, substantially as described.

15. The combination with a magnet-coil and a core, a magnetic member secured to the core at the rear end and extending above the side of the coil to its forward end to extend the magnetic circuit of the device to said forward end, an armature having two arms at an angle to each other loosely supported to rock upon the forward end of member as a fulcrum with one arm extending in front of the poles of the magnet, a set of superposed switch contact-springs mounted upon the rear end of said member and extending toward the armature, said springs being insulated from each other and from said member and one of the springs extending forward and engaging the said second part of the armature by which the said set is actuated, substantially as described.

16. The combination with a magnet-coil and a core therefor, of a support of magnetic material forming a portion of the external circuit of said magnet, a set of contact-springs, said springs being secured to and carried by one end of said support, an insulated stop or adjusting-post carried by the support and independently supporting the free ends of a plurality of said contact-springs whereby the supported springs are maintained in permanent adjustment, and an armature adapted to operate said springs, substantially as described.

17. The combination with a magnet-coil and core therefor, of a support of magnetic material forming a portion of the external magnetic circuit of said magnet, a bunched set of superposed contact-springs secured at their rear ends to said support, an insulating-post carried at the forward portion of said support and independently supporting the free ends of said springs to permanently adjust them with reference to the support and to insulate them therefrom, and a bent armature pivoted at the forward end of said support and having one portion extending across in front of the end of the coil in position to be attracted thereby and the other extending back over the support to suitably actuate said set of springs, substantially as described.

18. The combination with a magnet-coil, of a core therefor, metallic parts forming an external magnetic circuit of the coil normally open at one portion, a bent armature of magnetic material having two arms at an angle to each other and supported to close the normally open portion or gap in the external magnetic circuit or to shorten the path for the lines of force when the core is magnetized, a bunched set of flat superposed switch contact-springs secured to said parts forming the external magnetic circuit and extending forwardly with their free ends adjacent to said armature, said springs being operatively insulated from each other, and an insulating-stop for the free ends of said springs to independently support the ends of a plurality of said springs in permanent adjustment with reference to said parts forming the external magnetic circuit, the intermediate spring or springs of each set being operated by the armature to change the set from normal to an alternate position, substantially as described

19. The combination with a magnet-coil, of a core therefor provided with an external magnetic circuit normally open at one portion, a bent armature of magnetic material having two arms at an angle to each other and supported so as to close the normally open portion in the said circuit when the magnet is energized, a bunched set of flat superposed resilient contact-springs secured at one end to a support forming a portion of said external magnetic circuit, and an independent stop for the free ends of said springs to permanently and independently adjust a plurality of the same with reference to said supporting external magnetic circuit, said springs being operated by one of the arms of the armature, substantially as described.

20. The combination with a magnet-coil, of a bunched set of flat superposed resilient switch-springs and alternately-disposed strips of insulation secured flatwise to said support and extending longitudinally of the coil, an armature for the coil having two arms, one arm extending transversely across the end of said magnet and adapted to be attracted thereby, and the other arm extending longitudinally of the magnet and to the free ends of said springs and serving to actuate said set to change them from normal position to an alternative position when the magnet is energized, and a support for said armature having an edge upon which it rocks as a fulcrum, said armature acting as a bell-crank lever in such actuation of the springs, substantially as described.

21. The combination with a magnet, of a supporting member at the side of said magnet, a bunched set of flat superposed resilient switch-springs mounted upon said member and secured to its rear end and extending parallel with said magnet to its forward end, an armature mounted at the forward end of the support and having an arm extending transversely across the end of said magnet and adapted to be attracted thereby, a support for said armature having an edge upon which it rocks as a fulcrum, and a second arm of said armature extending back over said support and normally supported thereby, said set of springs being operatively insulated from said support and from each other and having their free ends in position to be actuated by said second arm of the armature, substantially as described.

22. The combination with a magnet-coil having a core, of a member secured to the rear end of the core and serving to extend the magnetic circuit thereof to a point adjacent to its forward end, an armature supported at the latter end of the magnet and having a transverse arm extending across the magnet and in front of said core, said armature having a second arm extending longitudinally back over said member, a support for said armature having an edge upon which it rocks as a fulcrum, and a bunched set of flat superposed resilient switch-springs mounted upon said member and fixedly secured thereto at the rear end, said springs being operatively insulated and extending forwardly to the front end of said member and having their free ends terminating adjacent said second arm and in position to be actuated thereby, substantially as described.

23. The combination with a magnet, of a member extending alongside the same, an armature for the magnet having two arms at an angle to each other, one arm extending transversely across the end of the magnet and in front of its pole and the other arm extending back over said member, a set of flat superposed switch-springs secured to said member, said springs being insulated from each other and from the support, an intermediate spring of the set extending forward and terminating over the end of the second arm of the armature, whereby when the magnet is energized the armature acts as a bell-crank lever to shift the said intermediate spring from one position to another.

24. The combination with a magnet, of a member extending alongside the same, an armature for the magnet having two arms at an angle to each other, one arm extending transversely across the magnet and in front of its pole and the other arm extending back over said member, a set of flat superposed switch-springs secured to said member and insulated from each other and from the support, an intermediate spring of the set extending forward and terminating over the end of the second arm of the armature, an insulating-stop for the forward ends of said springs to permanently adjust them with reference to the said member, and an insulating-stud between the extended end of said intermediate spring and the second arm of the armature, substantially as described.

25. The combination with a magnet-coil, of a member extending longitudinally thereof, an armature for the magnet having two arms extending at an angle to each other, one arm passing transversely across the end of the magnet in front of its pole so as to be actuated thereby while the other arm extends back over the said member, a set of superposed switch-springs and alternately-disposed strips of insulation, screws passing through said springs and strips to clamp them together and to the said member, the free ends of said springs terminating adjacent the said second arm of the armature, and one of said springs extending beyond the others to the said second arm of the armature, an insulating-stud between the said spring and arm of the armature and an insulating-stop for the free ends of the springs to support them in permanent adjustment with reference to each other and to the member, substantially as described.

784,053. MAIL-BAG-DELIVERY DEVICE. JESSE S. KAUFFMAN, Degraff, Ohio. Filed Mar. 19, 1904. Serial No. 199,016.



Claim.—1. A mail-bag-delivery device comprising a crane tructure, and a swinging horizontal member provided at an end thereof with a neck and a reversible bag-catcher rotatably mounted on said neck, said bag-catcher being provided with means for suspending a bag therefrom.

2. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a reversible bag-catcher having means for suspending a plurality of bags therefrom, and means for securing the bag-catcher in its different positions.

3. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, and means between the two said members for locking the horizontal member in its normal position.

4. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, and means between the two said members for locking the horizontal member in its normal position, said means being adapted to disengage this member on application of force to the member in either direction horizontally.

5. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, means for securing the latter in its different positions, and means between the two said members for locking the horizontal member in its normal position.

6. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, means for securing the latter in its different positions, and means between the two said members for locking the horizontal member in its normal position, said last-named means being adapted to disengage the said horizontal member on application of force to the member in either direction horizontally.

7. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a neck, a reversible bag-catcher rotatably mounted on said neck and a post for supporting said horizontal member.

8. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a neck, a reversible bag-catcher having means for suspending a plurality of mail-bags rotatably mounted on said neck, and means for retaining the same on the neck.

9. A mail-bag-delivery device comprising a crane structure, comprising a stationary vertical member, a swinging horizontal member provided at an end thereof with a neck having a circumferential groove, a reversible bag-catcher rotatably mounted on the neck and provided therein with an opening, and a pin passing through said opening and entering said groove.

10. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a head and a neck, said head having opposite notches therein, a reversible bag-catcher rotatably mounted on the neck, and a spring-actuated bolt mounted on said bag-catcher adapted to engage in one of said notches.

11. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a head and a neck, said head having opposite notches therein and said neck being formed with a circumferential groove, a reversible bag-catcher rotatably mounted on the neck and provided with an opening, a pin passing through said opening and entering said groove, and a spring-actuated bolt mounted on the bag-catcher adapted to engage in one of said notches.

12. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a head and a neck, said head having opposite notches therein, a reversible bag-catcher rotatably mounted on the neck, a spring-actuated bolt mounted on the catcher and adapted to engage in one of said notches, and an operating-lever for said bolt pivoted to said catcher.

13. A mail-bag-delivery device comprising a crane structure, and a swinging horizontal member provided at an end thereof with a reversible bag-catcher, the latter being provided with means for suspending a mail-bag thereto.

14. A mail-bag-delivery device comprising a crane structure, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, means for securing the latter in its different positions, and means between the two said members for locking the horizontal member in its normal position, said bag-catcher being provided with means for suspending a bag thereto.

15. A mail-bag-delivery device comprising a crane structure,

comprising a stationary vertical member, a swinging horizontal member provided at an end thereof with a neck, and a reversible bag-catcher rotatably mounted on said neck, said bag-catcher being provided with means for suspending a bag thereto.

16. A mail-bag-delivery device comprising a crane structure, comprising a stationary vertical member, a swinging horizontal member provided at an end thereof with a neck having a circumferential groove, a reversible bag-catcher rotatably mounted on the neck and provided therein with an opening, and a pin passing through said opening and entering said groove, said bag-catcher being provided with means for suspending a bag thereto.

17. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member, a post on which the horizontal member normally rests, a reversible bag-catcher rotatably mounted at the outer end of said horizontal member, another but non-swinging horizontal member projecting from said post, and a rotatable hook supported at the outer end thereof for engaging with the lower end of a mail-bag, said catcher being provided with means for suspending the upper end of the bag thereto.

18. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member, a post on which the horizontal member normally rests, a reversible bag-catcher rotatably mounted at the outer end of said horizontal member, another but non-swinging horizontal member projecting from said post, and a rotatable hook supported at the outer end thereof for engaging with the lower end of a mail-bag, said catcher being provided with means for suspending the upper end of the bag thereto, and said second-named horizontal member being pivoted at its other end for vertical movement.

19. A mail-bag-delivery device comprising a crane structure, comprising a stationary vertical member, a swinging horizontal member, a post on the upper end of which the latter member normally rests, a reversible bag-catcher rotatably mounted at the outer end of said horizontal member and constructed of two arms separated by a space, another but non-swinging horizontal member projecting from the post, a rotatable hook supported at the outer end thereof to engage with the lower end of a bag, a swinging lever pivoted to the under side of said first-named horizontal member and extending across said space between the arms of the bag-catcher, and a spring-actuated bolt movably connected to the inner portion of said lever and engaging with a keeper on the post, said bag-catcher being provided with means for suspending thereto the upper end of said bag.

20. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member provided at one end thereof with a reversible bag-catcher, and a post on the upper end of which said horizontal member normally rests.

21. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, means between the two said members for locking the horizontal member in its normal position, and means tending to restore this member to such position when moved therefrom by a force applied thereto in either direction horizontally.

22. A mail-bag-delivery device comprising a crane structure, comprising a stationary upright member, a swinging horizontal member provided at an end thereof with a reversible bag-catcher, means between the two said members for locking the horizontal member in its normal position, and springs tending to restore this member to such position when moved therefrom by a force applied thereto in either direction horizontally.

23. A mail-bag-delivery device comprising a horizontal shaft mounted on the side of a moving car, means rotatable on the shaft, a reversible bag-catcher supported by said means, a bag-support, and means for automatically moving said bag-support when said rotatable means is rotated.

24. A mail-bag-delivery device comprising a horizontal rotatable shaft mounted on the side of a moving car, vertical shafts geared to each end thereof, each provided with an upper and a lower socket, means on the horizontal shaft rotatable independently thereof and provided with a reversible bag-catcher, an operating-lever for these means having lateral arms, a device rigid with said horizontal shaft constructed to be clamped by said arms, and an arm fitted in one of each of said upper and lower sockets for supporting a mail-bag.

25. A mail-bag-delivery device comprising a horizontal rotatable shaft mounted on the side of a moving car, vertical shafts geared to each end thereof, each provided with an upper and a lower socket, means on the horizontal shaft rotatable independently thereof and provided with a reversible bag-catcher, an operating-lever for these means having lateral arms, a device rigid with said horizontal shaft constructed to be clamped by said arms, and an arm fitted in one of each of said upper and lower sockets for supporting mail-bags, the arm in the upper socket being slotted both vertically and horizontally and provided with a spring and carrying behind the spring a headed anchor supporting a chain to which the upper ends of the bags are directly connected.

26. A mail-bag-delivery device comprising a horizontal rotatable shaft mounted on the side of a moving car, vertical shafts geared to each end thereof, each provided with an upper and a lower socket, means on the horizontal shaft rotatable independently thereof and provided with a reversible bag-catcher, an operating-lever for these means having lateral arms, a device rigid with said horizontal shaft constructed to be clamped by said arms, and an arm fitted in one of each of said upper and lower sockets for supporting mail-bags, the arm in the upper socket being slotted both vertically and horizontally and provided with a spring, and carrying behind the spring a headed anchor supporting a chain to which the upper ends of the bags are directly connected, said lever being pivoted to be swung free of said clamping device.

27. A mail-bag-delivery device comprising a horizontal rotatable shaft mounted on the side of a moving car, vertical shafts geared to each end thereof, each provided with an upper and a lower socket, a yoke rigid with the shaft for turning the same, and an arm fitted in one of each of said upper and lower sockets for supporting, respectively, the upper and lower end of a mail-bag.

784,054. **BRANDING-IRON.** SAMUEL KLEINHAMMER, Marion county, Kans. Filed Aug. 29, 1904. Serial No. 222,549.



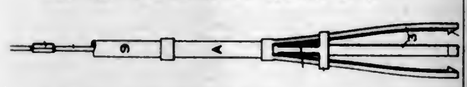
Claim.—1. A branding-iron, comprising a branding element having a stem, a tube kerfed from its extreme lower end upward a suitable distance, and provided at the outer side of said kerfed portion with a head or boss tapering upwardly and inwardly, and having an external head or boss above said kerfed portion, and a tubular casing fitting snugly on the tube and having its lower end flared to receive the first-named head or boss and its upper end beveled for engagement with the lower side of the last-named head or boss.

2. A branding-iron, comprising a branding element having a stem, a tube provided with kerfs extending from its extreme lower end upwardly a suitable distance to produce a pair of oppositely-disposed integrally-formed spring-jaws, an upwardly and inwardly tapering head or boss at the outer side of each of said jaws, a head or boss at the outer side of said tube above said kerfed portion, and a tubular casing fitting snugly on the tube and having its lower end flared to receive the first-named heads or bosses and its upper end beveled for engagement with the lower side of the last-named head or boss.

3. A branding-iron, comprising a branding element having a stem, a tube having its lower end formed with spring-jaws to engage said stem, and provided with bolts having their heads disposed externally of the tube and beveled inwardly and upwardly thereof, and having near its upper end a bolt with its head disposed externally of the tube, and a tubular casing fitting on the tube and having its lower end flared to receive the first-named bolts of the tube and its upper end beveled for engagement with the lower side of the head of the upper bolt of the tube.

4. A branding-iron, comprising a branding element having a stem, a tube having its extreme lower end kerfed to produce a spring-jaw integral with the tube and provided at the other side of said kerfed portion or jaw with a head or boss and above said kerfed portion with a second external head or boss, and a tubular casing fitting snugly on the tube and having its lower end flared to receive the first-named head or boss, and its upper end beveled to engage with the lower side of the last-named head or boss.

784,055. **WELL FISHING-TOOL.** CHARLES W. KROENING, Stillwater, Minn. Filed Mar. 18, 1904. Serial No. 198,776.



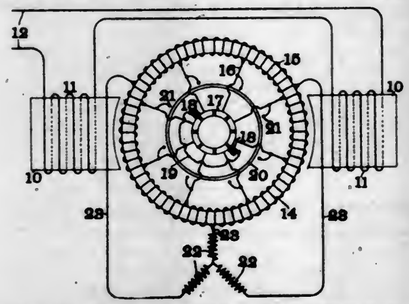
Claim.—1. A device of the class described comprising a sleeve, a series of spring-arms carried by said sleeve, a rod slidable in said sleeve, a series of outwardly-branching arms extending from the lower end of said rod, and a collar supported from the lower end of said branching arms and inclosing said spring-arms, for the purpose set forth.

2. A device of the class described comprising a sleeve, a series of spring-arms carried by said sleeve, a rod slidable in said sleeve, and an open-end cage supported by, and extending beyond, the lower end of said rod, the open end of said cage surrounding said spring-arms whereby an object grasped by said spring-arms may extend into said cage.

3. A device of the class described, comprising a pump-rod and an inclosing pipe, a sleeve detachably connected with the lower end of said pipe, a series of downwardly-extending spring-arms carried by said sleeve, a rod detachably connected with the lower end of the pump-rod, and a collar supported by said lower rod and inclosing said spring-arms.

4. A device of the class described, comprising, in combination, a pump-rod and inclosing pipe, a sleeve connected with the lower end of said pipe, a series of downwardly-extending spring-arms carried by said sleeve, a slidable collar inclosing said spring-arms, a rod connected with said collar, a coupling connecting said collar and rod with said pump-rod, and a washer interposed between said pipe and sleeve and serving as a stop for said coupling.

784,056. **ELECTRIC MOTOR.** WALDO A. LAYMAN, St. Louis, Mo. Filed Dec. 28, 1903. Renewed Aug. 25, 1904. Serial No. 222,136.



Claim.—1. The combination with one of the members of an alternating-current motor, of a conductor connected at a plurality of points to said member to form a short circuit therefor, a second conductor connected to said member, means for determining the position of the poles of said member, and means for short-circuiting said second conductor.

2. The combination with one of the members of an alternating-current motor, of a conductor containing a resistance and connected at a plurality of points to said member to form a short circuit therefor, a second conductor connected to said member, means for determining the position of the poles of said member, and means for short-circuiting said second conductor.

3. The combination with one of the members of an alternating-current motor, of a conductor containing a variable resistance and connected at a plurality of points to said member to form a short circuit therefor, a second conductor connected to said member, means for determining the position of the poles of said member, and means for short-circuiting said second conductor.

4. The combination with one of the members of an alternating-current motor, of a winding therefor, a conductor connected at a plurality of points to said winding to form a short circuit therefor, a second conductor connected to said winding, means connected with said second conductor for determining the position of the poles of said member, and means for short-circuiting said winding.

5. The combination with one of the members of an alternating-current motor, of a conductor connected in polyphase relation thereto to form a short circuit therefor, a second conductor for said member, means for determining the position of the poles of said member, and means for short-circuiting said second conductor.

6. In an electric motor, the combination with field-coils, of an armature having a commuted circuit at starting, a resistance connected in polyphase relation to said armature, and means in addition to said polyphase connections for short-circuiting individual coils of the armature after starting.

7. In an electric motor, the combination with field-coils, of an armature having a commuted circuit at starting, a resistance connected in polyphase relation to said armature, and automatic means for short-circuiting individual coils of the armature after starting.

8. In an electric motor, the combination with field-coils, of an armature having a commuted circuit at starting, a resistance connected in polyphase relation to said armature, and means for short-circuiting individual coils of said commuted circuit after starting.

9. In an electric motor, the combination with field-coils, of an armature having commuted circuit at starting, a resistance connected in polyphase relation to said armature, and automatic means for short-circuiting the individual coils of said commuted circuit after starting.

10. In an electric motor, the combination with field-coils, of an armature having a commuted circuit at starting, a resistance connected in polyphase relation to said commuted circuit, and means for short-circuiting the individual coils of said commuted circuit after starting.

11. In an electric motor, the combination with field-coils, of an armature having a commuted circuit at starting, a resistance connected in polyphase relation to said commuted circuit, and means for automatically short-circuiting the individual coils of said commuted circuit after starting.

12. In an alternating-current motor, the combination of field-coils, of an armature having a commuted circuit at starting, a variable resistance connected in polyphase relation to said armature, and means in addition to the polyphase connections for short-circuiting individual coils of the armature after starting.

13. In an alternating-current motor, the combination with field-coils, of an armature having a commuted circuit at starting, a variable resistance connected in polyphase relation to said commuted circuit, and means in addition to the polyphase connections for short-circuiting individual coils of the armature after starting.

14. In an alternating-current motor, the combination with field-coils, of an armature having a commuted circuit at starting, a variable resistance connected in polyphase relation to said armature, and automatic means for short-circuiting individual coils of the armature, when the motor attains a predetermined speed.

784,057. **WINDOW OR DOOR FASTENER.** CHARLES D. LOVELACE, Hereford, Tex. Filed June 20, 1903. Serial No. 163,795.



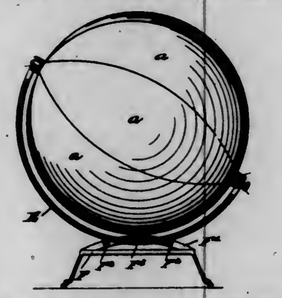
Claim.—1. In a fastener, the combination with a sliding bolt, of a spring-controlled device for moving the bolt in one direction and

having an end projecting beyond the bolt and a means for engaging opposite sides of the projecting end to lock the bolt in the extreme limit of movement in either direction.

2. In a fastener, the combination with a sliding bolt, of a spring-controlled pivoted actuating member connected to the bolt, and a device having an engaging hooked end for holding the bolt against the tension of the spring and for locking said bolt against movement in either direction.

3. In a fastener, the combination with a sliding bolt, of a link pivoted at one end to a supporting member and at an intermediate point to said bolt with its free end extended beyond the bolt, a spring attached at one end to the supporting member and at its other end to said link, and a locking member movably mounted adjacent said bolt and adapted to engage the free end of said link on its respective sides to lock the bolt against movement.

784,058. GLOBE. MARSDEN MANSON and HARRIS DE HAVEN CONNICK, San Francisco, Cal. Filed Mar. 15, 1904. Serial No. 198,283.



Claim.—1. A globe comprising a number of independent sections secured together and pole-sections.

2. A globe comprising a number of independent sections secured together, pole-sections and means for securing the pole-sections in place.

3. A globe comprising a number of independent sections secured together, pole-pieces, and an axis extending through the pole-pieces, and means for securing the pole-pieces and axis together.

4. The combination with a globe comprising a number of independent sections secured together, pole-pieces, and an axis, of a frame in which said axis is journaled and a stand on which said frame is movable.

5. A globe made of flanged lune-shaped sections fastened together through the flanges.

6. A globe made of lune-shaped sections fastened together, and inserted polar sections.

7. A globe made of flanged lune-shaped sections fastened together through the flanges and inserted polar sections.

8. A globe having separable inserted polar sections.

9. In combination with a globe, an axis on which it is mounted extending through the poles, each end of said axis having an extension beyond the surface of the globe, part of which is screw-threaded to receive a nut, and the remainder smooth to act as a trunnion for rotating the globe.

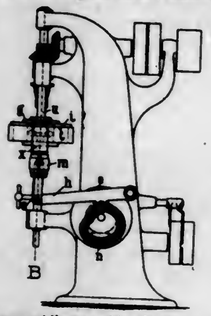
10. In combination with a globe, an axis extending from pole to pole and secured in a suitable manner to the globe at its poles, extensions for said axis, and means in which said extensions are journaled.

11. In combination with a globe, an axis for said pole having screw-threaded portions and nuts fitting on said screw-threaded portions.

12. In combination with a globe, polar sections for said globe, an axis extending through said polar sections provided with a screw-threaded portion and a flange at one end, a nut for clamping the polar section at that end against the flange, and provided with two screw-threaded portions at its other end, one of which receives a boss carried by the other polar section another of which receives a nut.

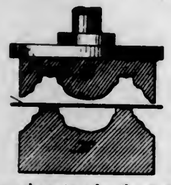
784,059. POTTERY-MOLDING MACHINE. LOUIS MARY, Feger-sheim, Germany. Filed July 29, 1904. Serial No. 218,671.

Claim.—1. In a pottery-molding machine, the combination with a rotary core and vertically-reciprocating flask-carrying frame, of disconnected flask-sections held by the frame and adapted to move in horizontal lines toward and from each other, springs for moving the sections entirely away from each other, and automatically-operated means for raising the sections and pressing them together during their ascending movement, substantially as set forth.



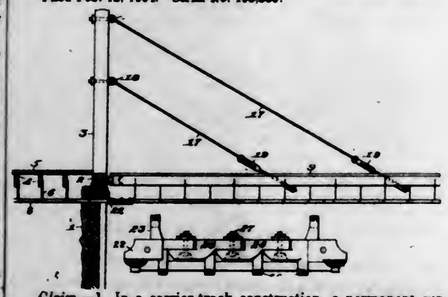
2. In a pottery-molding machine having a rotary core and a flask-carrying frame vertically reciprocated with positive motion, a block held in the said frame, spring-controlled flask-sections located in said block, members protruding from the said flask-sections, and means contacting with the said protruding flask members and pressing the said flask-sections together on their ascent, substantially as set forth.

784,060. PROCESS OF MANUFACTURING DENTAL PLATES. JEAN P. MATHIEBET, Paris, France. Filed Aug. 16, 1904. Serial No. 220,984.



Claim.—The improved process for the manufacture of dental plates, which consists in first making by means of a plaster mold made from the wax impression taken from the mouth, two matrices, one by casting cast iron or steel around the plaster, and the other by means of electro-deposition, the electro-deposited matrix being strengthened externally by means of a filling or backing of zinc or other material; then striking a gold plate successively in the two matrices by means of consecutive dies of increasing hardness produced by casting or striking masses of lead and copper or other metals in the cast iron or steel matrix, substantially as described.

784,061. CARRIER-TRACK. WILLIAM MITCHEL, Raymond, Wis. Filed Feb. 12, 1904. Serial No. 193,330.



Claim.—1. In a carrier-track construction, a permanent support, a horizontally-projecting arm pivoted at its inner end to the permanent support to swing in a horizontal plane, and a carrier-track suspended from the arm and pivoted to the permanent support by a flexible curving connection substantially in vertical alinement with the axis of the swinging arm.

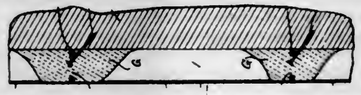
2. In combination, a swinging boom-like arm, a plurality of hangers attached to the arm and depending therefrom, cross-ties secured to the lower ends of the hangers, and two track-rails secured respectively to the two ends of the cross-ties.

3. In combination, a permanent structure, a thereon-supported and laterally-projecting swinging boom-like arm, a permanent two-rail track on said permanent structure, a two-rail track suspended from the boom-like arm, track-heads secured respectively to the adjacent ends of the permanent track and the swinging track, and a plurality of track-hinge members interposed between and pivoted to the track-heads and to each other connecting the permanent track to the swinging track by a flexible connection adapted to provide a curving track-section in alinement vertically with the pivot of the boom-like arm.

4. In combination, a permanent structure, a thereon-supported and laterally-projecting swinging boom-like arm, a permanent two-rail track on said permanent structure, a two-rail track suspended from the boom-like arm, track-heads secured respectively to the adjacent ends of the permanent track and the swinging track, a plurality of track-hinge members interposed between and pivoted to the track-heads and to each other connecting the permanent track to the swinging track by a flexible connection adapted to provide a curving track-section in alinement vertically with the pivot of the boom-like arm, and a straight elastic strap secured to the track-heads and to the interposed track-hinge members and adapted to hold the several pieces to which it is connected in straight line yieldingly.

5. In a carrier-track construction, a permanent structure, a boom-like arm composed of a plank or analogous timber having its greatest width in a vertical plane, and a board or analogous timber having its greatest width in horizontal direction and placed on the plank so that the edge of the plank is along the median longitudinal line of the width of the board and secured thereto, a hinge connecting the arm at one end to the permanent structure, and a stay-rod attached to the arm at a distance from its inner end and hinged to the permanent structure in vertical alinement with the hinge of the arm.

784,062. ENAMELED SHEET-METAL BUILDING-TILE. NICOLAUS MONSHAUSEN, Milwaukee, Wis. Filed Nov. 27, 1903. Serial No. 183,354.



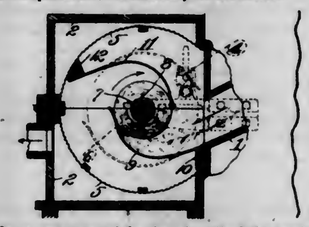
Claim.—The combination with a supporting-wall, of a plurality of tiles formed of enameled sheet metal arranged in courses one above another; the sides of the respective tiles being provided with retaining-flanges formed at right angles to their faces, and provided with a plurality of apertures arranged to register with similar apertures in the adjacent tile-flanges; and means for securing said tiles to the vertical faces of the wall, comprising a plurality of metallic retaining devices respectively inserted through the apertures, with their outer ends engaging the flanges of two consecutive series of tiles, and their inner ends affixed to the supporting-wall against which the tile is secured; a plurality of horizontally-arranged ribs of adhesive cement located at the junction of the respective series of tiles, said cement being formed around the horizontal contiguous flanges of the tiles of the respective series and extending through the opposing apertures in said flanges, said apertures being much larger than the metallic devices inserted through them, whereby the cement, when hardened, forms a connecting-link through said apertures by which the contiguous tiles of the respective series are secured together and to the supporting-wall independently of the metallic devices.

784,063. MACHINE FOR BALING COTTON. WILLIAM A. McGREGOR, Neame, La., assignor of one-half to Paul Bakewell and Frederick R. Cornwall, St. Louis, Mo. Filed Oct. 25, 1902. Serial No. 128,703.

Claim.—1. In an apparatus of the class described, the combination with a closed baling-chamber, of bale-forming mechanism therein, cotton-feeding mechanism therefor, and means for exhausting the air from said chamber; substantially as described.

2. In an apparatus of the class described, the combination with a closed baling-chamber, of bale-forming mechanism therein, cotton-feeding mechanism therefor, and means for drawing air through said chamber whereby the incoming air serves to facilitate the feed of cotton to the bale-forming mechanism; substantially as described.

3. In an apparatus of the class described, the combination with a closed chamber, of a screened compartment therein, bale-forming mechanism in said screened compartment, means for feeding cotton thereto, and means for exhausting the air from said compartment, said exhausting means being connected to the chamber outside the screened compartment; substantially as described.



4. In an apparatus of the class described, the combination with a closed chamber composed in part of hinged sections, of bale-forming mechanism therein, means for feeding cotton thereto, and means for exhausting the air from said chamber; substantially as described.

5. In an apparatus of the class described, the combination with a closed chamber composed in part of a hinged section, of a chute in connection therewith, an exhaust-fan connected to the stationary portion of said chamber, a screened cylinder open at one side adjacent to the feed-chute and divided at the opposite side along the line of division of the casing, and a bale-forming mechanism in said screened cylinder; substantially as described.

6. In an apparatus of the class described, the combination with a casing, of a rotatable core, means for rotating said core, and sets of springs coöperating therewith and arranged at different angles with relation to each other; substantially as described.

7. In an apparatus of the character described, the combination with a casing, of a rotatable core mounted therein, means for rotating said core, and springs equidistantly arranged around the core for distributing cotton on said core; substantially as described.

8. In an apparatus of the character described, the combination with a casing having a hinged section, of a rotatable core mounted therein, means for rotating said core, sets of springs whose free ends coöperate with said core, and cotton wound thereon, one of said sets of springs serving to direct the cotton to the core and the other set of said springs being mounted in the hinged section, whereby when said hinged section is folded back said last-mentioned set of springs is moved so as to permit the removal of the finished bale; substantially as described.

9. In a baling apparatus, the combination of a rotatable core and means for operating the core, a casing around the core providing a pneumatic chamber, and means for automatically feeding loose lint-cotton onto the core, including springs having their ends tangentially arranged with relation to the core; substantially as described.

10. In a baling apparatus, the combination with a rotatable core provided with spurs, means for operating said core, and springs equidistantly arranged with relation to the core and having ends adjacent to the spurs whereby the lint-cotton may be fed by the springs to be engaged by the spurs; substantially as described.

11. In a baling apparatus, the combination of a casing providing a pneumatic suction-chamber, a rotatable core within the chamber, means for operating said core, and devices arranged around the core for feeding loose lint-cotton thereto, said devices bearing against opposite portions of the core, the bearing portions of the devices being tangentially arranged with relation to the core so as to arrange the fibers of the cotton substantially in parallelisms; substantially as described.

12. In an apparatus of the class described, the combination with a suction-chamber, of a rotatable core in said chamber, means for operating the core, and yielding devices having free ends arranged on opposite sides of the core for straightening vegetable fibers as they are wound upon the core; substantially as described.

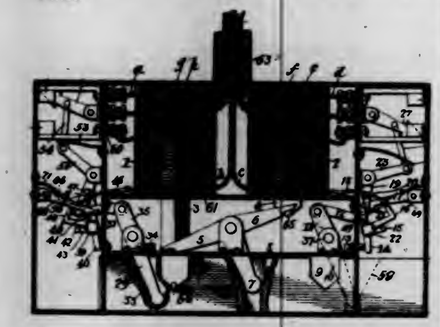
13. In a unitary structure, a combined baling and fiber-straightening machine adapted to form loose lint-cotton into compact bales in which the fibers are subjected to a straightening action while being formed into a bale, said baling and fiber-straightening machine including a rotatable core having means for operating it, a suction-chamber surrounding the core, and springs having free ends to bear against the fibers as they are wound upon the core; substantially as described.

14. In an apparatus of the class described, the combination with

a pneumatic chamber, of a rotatable core in said chamber, means for operating the core, and means arranged about the core for straightening vegetable fibers as they are wound upon the core; substantially as described.

15. In a combined baling and fiber-straightening machine, the combination with a rotatable core, means for rotating the core, a casing around the core providing a pneumatic chamber, and means within the casing for arranging lint fibers in parallelism on the core; substantially as described.

784,034. **ELECTRICALLY-OPERATED LOCKING MECHANISM.** JOHN NORDENBERG, Canon City, Colo., assignor of one-half to Olof J. Rundahl, Canon City, Colo. Filed Sept. 16, 1904. Serial No. 224,736.



Claim.—1. The combination with a series of locks of means whereby the locks may be successively operated from a common source of electricity, and means for rendering any of said locks inoperative without affecting the other locks of the series.

2. The combination with a series of locks, of means whereby the locks may be successively operated from a common source of electricity, and means in each lock for rendering that particular lock inoperative without affecting the other locks of the series.

3. The combination of a series of locks, an electromagnet in each lock for operating the same, an electric circuit common to the several magnets, a circuit-closer in said circuit, and circuit-controlling devices in each lock, whereby the locks will be successively operated upon successive closures of the circuit.

4. The combination of a series of locks, an electromagnet in each lock for operating the same, an electric circuit common to the several magnets, a circuit-closer in said circuit, circuit-controlling devices in each lock, whereby the locks will be successively operated upon successive closures of the circuit, and manually-actuated means in each lock for rendering the same inoperative without affecting the other locks of the series.

5. The combination of a series of locks having sliding bolts, an electromagnet in each lock for operating the bolt, an electric circuit common to the several electromagnets, and a circuit-controller in each lock operated by the movement of the bolt, whereby the locks will be successively operated by successive closures of the common circuit.

6. The combination of a series of locks having sliding bolts, an electromagnet in each lock for operating the bolt, an electric circuit common to the several electromagnets, a circuit-controller in each lock operated by the movement of the bolt, whereby the locks will be successively operated by successive closures of the common circuit, and manually-operated means in each lock for actuating the circuit-controller therein to short-circuit the electromagnet without affecting the other locks of the series.

7. The combination of a series of locks having sliding bolts, electromagnets in each lock for shooting and withdrawing the bolt respectively; electric circuits common to the respective sets of magnets, and circuit-controllers in each lock operated by the movement of the bolt whereby the locks may be successively locked or successively unlocked upon successive closures of the respective circuits.

8. The combination of a series of locks having sliding bolts, electromagnets in each lock for shooting and withdrawing the bolt respectively, electric circuits common to the respective sets of magnets, circuit-controllers in each lock operated by the movement of the bolt whereby the locks may be successively locked or successively unlocked upon successive closures of the respective circuits, and manually-operated means in each lock for actuating the respective circuit-controllers to short-circuit the corresponding magnets without affecting the other locks of the series.

9. In an electrically-actuated lock, the combination of a bolt, an electromagnet in said lock for moving said bolt, a circuit for said electromagnet, and manually-operated means in said lock for rendering said electromagnet inoperative.

10. In an electrically-actuated lock, the combination of a bolt, an electromagnet in said lock for moving said bolt, a circuit for said magnet, a circuit-controller in said lock, and manually-operated means in said lock for operating said circuit-controller to render the electromagnet inoperative.

11. In an electrically-controlled lock, the combination of a sliding bolt, an electromagnet for shooting said bolt, an electromagnet for withdrawing said bolt, circuit-controllers for the respective magnets in said lock, and means operated by the respective locking and unlocking movements of the bolt for setting the corresponding circuit-controller to permit the opposite movement of the bolt.

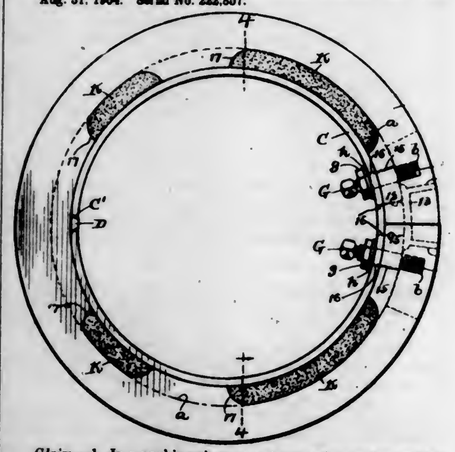
12. In an electrically-controlled lock, the combination of a sliding bolt, an electromagnet for shooting said bolt, an electromagnet for withdrawing said bolt, circuit-controllers for the respective magnets in said lock, means operated by the respective locking and unlocking movements of the bolt for setting the corresponding circuit-controller to permit the opposite movement of the bolt, and manually-operated means for the respective circuit-controllers to render the corresponding magnets inoperative.

13. In an electrically-actuated lock, the combination of a sliding bolt, and electromagnets for moving said bolt to locked and unlocked position respectively, the armature of the inoperative magnet serving to lock the bolt in the position to which the latter is moved by the other magnet.

14. In an electrically-actuated lock, the combination of a sliding bolt, electromagnets for moving said bolt to locked and unlocked position respectively, a rock-lever operatively connecting said bolt with the armatures of said magnets, electric circuits for the respective magnets, a circuit-controller for the locking-magnet operated by the unlocking movement of the bolt, and a circuit-controller for the unlocking-magnet operated by the locking movement of the bolt.

15. In an electrically-actuated lock, the combination of a sliding bolt, electromagnets for moving said bolt to locked and unlocked position respectively, a rock-lever operatively connecting said bolt with the armatures of said magnets, electric currents for the respective magnets, a circuit-controller for the locking-magnet operated by the unlocking movement of the bolt, a circuit-controller for the unlocking-magnet operated by the locking movement of the bolt, and manually-operated means for shifting the respective circuit-controllers to render the corresponding magnets inoperative.

784,065. **PACKING-RING.** WILLIAM ORD, Brooklyn, Ohio. Filed Aug. 31, 1904. Serial No. 222,857.



Claim.—1. In a packing-ring, an outer annular section split to render it expansible and provided with a centrally-located circumferentially-extending peripheral recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the recess and covering the central portion of the split in the aforesaid annular section; a filling within the annular recess and forming a portion of the periphery of the packing-ring; an inner expansion-ring arranged within and snugly fitting the aforesaid annular section and split transversely diametrically opposite the split in the outer section, and means for expanding the inner ring.

2. In a packing-ring, an outer annular cast-iron section split to render it expansible and provided with a centrally-located annular peripheral recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the split in the cast-iron section; a filling of antifriction metal within the annular recess and forming a portion of the periphery of the packing-ring; an inner expansion-ring arranged within and snugly fitting the cast-iron section and split transversely diametrically opposite the split in the cast-iron section, and means for expanding the inner ring.

3. In a packing-ring, an outer annular metal section split to render it expansible and provided with an annular peripheral recess; a segmental section engaging the annular recess at and covering the central portion of the split in the annular section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and snugly engaging the split annular section circumferentially of both ends of the said split section, and a cast-metal filling within the annular recess and forming a portion of the periphery of the packing-ring.

4. In a packing-ring, an outer annular cast-iron section split to render it expansible and provided with an annular peripheral recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the split in the cast-iron section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging the cast-iron section at opposite sides of the split in the said section; a filling of antifriction metal within the annular recess and forming a portion of the periphery of the packing-ring; a transversely-split inner expansion-ring arranged within and snugly fitting the cast-iron section, and means for expanding the inner ring.

5. In a packing-ring, an outer annular cast-metal section split to render it expansible and provided with an annular peripheral recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the split in the cast-metal section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the cast-metal section, and a metal filling cast in the annular recess and forming a portion of the periphery of the packing-ring.

6. In a packing-ring, an outer annular cast-metal section split to render it expansible and provided with an annular peripheral recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the split in the cast-metal section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the cast-metal section; a filling of antifriction metal within the annular recess and forming a portion of the periphery of the packing-ring; an inner expansion-ring arranged within and snugly fitting the cast-metal section and split transversely diametrically opposite the split in the cast-metal section, and a wedge between the ends of the inner ring.

7. In a packing-ring, an outer annular metal section split to render it expansible and having an annular peripheral recess and provided with cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the annular section to and connecting with the annular recess; a segmental section engaging the annular recess at and covering the central portion of the split in the annular section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the annular section, and a metal filling cast within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring.

8. In a packing-ring, an outer annular cast-metal section split to render it expansible and having a centrally-located annular peripheral recess and provided at each side of the said recess with cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the cast-iron section to and connecting with the annular recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the split in the cast-iron section and having its inwardly-facing circumferentially-extending surface engaging both ends of the cast-metal section, and a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring.

9. In a packing-ring, an outer annular cast-metal section split to render it expansible and having an annular peripheral recess and cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the cast-metal section to and connecting with the annular recess; a segmental section engaging the annular recess at and covering the central portion of the split in the annular cast-metal section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the cast-iron section; a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring; an expansion-ring arranged within and snugly fitting the cast-metal annular section and split transversely diametrically opposite the split in the said cast-metal section, with the side walls of the split in the inner ring diverging toward the periphery of the said ring, and a wedge interposed between and conforming to the said walls.

10. In a packing-ring, an outer annular cast-iron section split to render it expansible and having an annular peripheral recess and a segmental section engaging the annular recess at and covering the central portion of the split in the cast-iron section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the cast-iron section; a filling of antifriction metal cast within and largely occupying the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring, and partitions arranged within and extending transversely of the inner portion of the aforesaid annular recess, which partitions are "cast in" during the casting of the filling occupying the said recess.

11. In a packing-ring, an outer annular cast-iron section split to render it expansible and having an annular peripheral recess and cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the cast-iron section to and connecting with the annular recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the split in the cast-iron section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the cast-iron section; a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring, and partitions arranged within and extending transversely of the inner portion of the aforesaid annular recess and extending into the cavities or holes connected with the said recess.

12. In a packing-ring, an outer annular cast-iron section split to render it expansible and having a centrally-located annular peripheral recess and provided at each side of the said recess with cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the cast-iron section to and connecting with the annular recess, with the cavities or holes at one side of the said recess in registry with the cavities or holes at the other side of the said recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess, and covering the central portion of the split in the cast-iron section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the cast-iron section; a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring; an inner steel expansion-ring arranged within and snugly fitting the cast-iron section and split transversely diametrically opposite the split in the cast-iron section, and means for spreading apart the side walls of the split in the expansion-ring.

13. In a packing-ring, an outer annular cast-iron section split to render it expansible and having a centrally-located annular peripheral recess and provided at each side of the said recess with cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the cast-iron section to and connecting with the

annular recess, with the cavities or holes at one side of the said recess in registry with the cavities or holes at the other side of the said recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess and covering the central portion of the split in the cast-iron section; a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring, and sheet-metal partitions arranged within and extending into the adjacent cavities or holes connected with the said recess.

14. In a packing-ring, an outer annular section split to render it expansible and having a centrally-located annular peripheral recess and provided at each side of said recess with cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the split section to and connecting with the annular recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the annular recess at and covering the central portion of the spit in the split section; a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring, and partitions arranged within and extending transversely of the inner portion of the aforesaid annular recess and extending into the adjacent cavities or holes connected with the said recess.

15. In a packing-ring of the character indicated, an annular section split by a centrally-located circumferential cut and two transverse cuts arranged at opposite ends respectively of the circumferential cut, with the ends of the section drawn and separably held together, which section is provided externally with a centrally-located circumferential annular recess and provided interiorly and at opposite sides of the said recess with cavities or recesses arranged at suitable intervals circumferentially of the packing-ring and connecting with the annular recess; a segmental section engaging the annular recess and extending circumferentially of the packing-ring and covering the aforesaid circumferential cut and the inner ends of the aforesaid transverse cuts; and a filling of antifriction metal within the aforesaid annular recess from one to the other end of the aforesaid segmental section and extending into cavities or holes connected with the said recess.

16. In a packing-ring of the character indicated, an inner cast-metal annular section provided externally with a centrally-located circumferential annular recess and provided interiorly and at opposite sides of the said recess with cavities or recesses arranged at suitable intervals circumferentially of the packing-ring and connecting with the annular recess; a segmental section engaging the annular recess and extending circumferentially of the packing-ring over the split in the aforesaid cast-metal section, which segmental section is provided at its inner circumferential surface with two screw-threaded holes arranged a suitable distance apart circumferentially of the packing-ring; an expansion-ring arranged within the cast-metal section and split transversely diametrically opposite the split in the cast-metal ring; a wedge interposed between the ends of the expansion-ring; bolts or screws extending through the expansion-ring and cast-metal section into engagement with the aforesaid screw-threaded holes, and the nuts and washers on the said bolts or screws, and the bolt-holes in the cast-metal section and expansion-ring being elongated circumferentially of the packing-ring, all relatively arranged substantially as shown, for the purpose specified.

17. In a packing-ring, an outer annular section provided externally with a centrally-located circumferentially-extending recess; a segmental section engaging the said recess and extending circumferentially of the packing-ring over the central portion of the split in the aforesaid annular section, which segmental section is provided at its inner circumferential surface with two screw-threaded holes arranged a suitable distance apart circumferentially of the packing-ring; a split expansion-ring arranged within the outer annular section; a wedge interposed between the ends of the expansion-ring; bolts or screws extending through the expansion-ring and outer annular section into engagement with the aforesaid screw-threaded holes, and nuts and washers on the said bolts and screws, and the bolt-holes in the outer annular section and in the expansion-ring being elongated circumferentially of the packing-ring, all relatively arranged substantially as shown, for the purpose specified.

18. In a packing-ring of the character indicated, an annular section split by a centrally-located circumferential cut and two transverse cuts arranged at opposite ends respectively of the circumferential cut, with the ends of the section drawn and separably held together, which section is provided externally with a centrally-located circumferentially-extending recess; a segmental section engaging the said recess and extending circumferentially of the packing-ring and covering the aforesaid circumferential cut and the inner ends of the aforesaid transverse cuts, and a filling of antifriction metal within the aforesaid recess from one to the other end of the said segmental section.

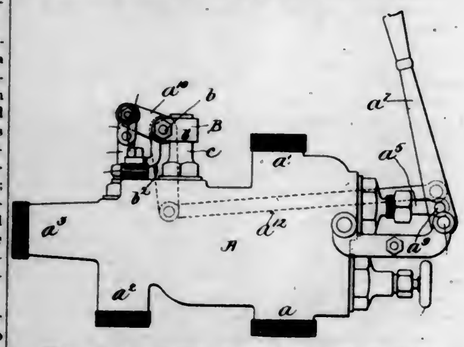
19. In a packing-ring, an outer annular section split to render it expansible and having a peripheral recess extending circumferentially of the packing-ring; a segmental section forming a portion of the periphery of the packing-ring and engaging the said recess and covering the central portion of the split in the aforesaid section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the said annular section; a filling of antifriction metal within the aforesaid recess and forming a portion of the periphery of the packing-ring; an inner expansion-ring arranged within and snugly fitting the outer annular section and split transversely diametrically opposite the split in the said outer section, and means for spreading apart the side walls of the split in the expansion-ring.

20. In a packing-ring, an outer annular section split to render it expansible and having a peripheral recess extending circumferentially of the packing-ring and cavities or holes arranged at suitable intervals circumferentially of the packing-ring and extending from the inner circumferentially-extending surface of the aforesaid annular section to and connecting with the aforesaid recess; a segmental section engaging the said recess at and covering the central portion of the split in the aforesaid annular section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the said annular section; a filling of antifriction metal within the annular recess and connected cavities or holes and forming a portion of the periphery of the packing-ring, and an expansion-ring arranged within and snugly fitting the outer annular section.

21. In a packing-ring, an outer annular metal section split to render it expansible and having a peripheral recess extending circumferentially of the packing-ring; a segmental section engaging the said recess at and covering the central portion of the split in the annular section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the annular section, and a metal filling cast within the annular recess and forming a portion of the periphery of the packing-ring.

22. In a packing-ring, an outer annular section split to render it expansible and provided with a peripheral recess; a segmental section forming a portion of the periphery of the packing-ring and engaging the said recess at and covering the central portion of the split in the annular section and having its inwardly-facing circumferentially-extending surface concentric with the packing-ring and engaging and extending circumferentially of both ends of the annular section, and an expansion-ring arranged within and snugly fitting the aforesaid outer annular section.

784,066. INSPIRATOR. WILLIAM R. PARK, Taunton, Mass., assignor, by mesne assignments, to The United Injector Company, a Corporation of New York. Filed May 31, 1904. Serial No. 210,367.



Claim.—1. In an injector the combination with the overflow-valve, the steam-controlling valve, the control-lever, the operating-lever for the overflow-valve, a connection between the control-lever and the steam-controlling valve, and a connection between the control-lever and said operating-lever, of an adjustable fulcrum-bracket for the operating-lever of the overflow-valve, and a removable, interchangeable gage-bolster for supporting and positioning said bracket relatively to the injector-casing.

2. In an injector the combination with the overflow-valve, the steam-controlling valve, the control-lever, the operating-lever for the overflow-valve, a connection between the control-lever and the steam-controlling valve, and a connection between the control-lever and said operating-lever, of an adjustable fulcrum-bracket for the operating-lever of the overflow-valve, a removable, interchangeable gage-bolster interposed between the bracket and the injector-casing for supporting and positioning the bracket, and means for rigidly fastening the bolster to the casing and the bracket to the bolster.

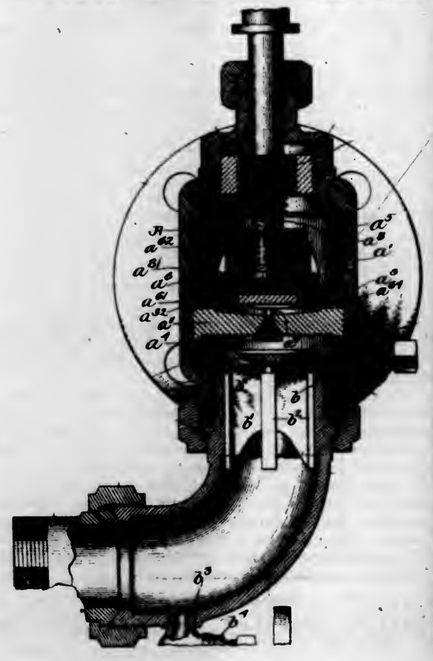
3. In an injector the combination with the overflow-valve, the steam-controlling valve, the control-lever, the operating-lever for the overflow-valve, a connection between the control-lever and the steam-controlling valve, and a connection between the control-lever and said operating-lever, of an adjustable fulcrum-bracket for the operating-lever of the overflow-valve, and a removable, interchangeable gage-bolster for supporting and positioning said bracket relatively to the injector-casing, said gage-bolster bearing an inscription to indicate the capacity of the instrument of which it forms a part.

4. In an inspirator or the like, the combination with the casing, the fixed post on said casing, and the fulcrum-bracket for the operating-lever of the overflow-valve adjustably mounted on said post and made with a leg, of a removable and interchangeable gage-bolster interposed between the leg and casing for supporting and positioning said bracket, substantially as described.

5. In an inspirator or the like, the combination with the casing, the fixed post on said casing, and the fulcrum-bracket for the operating-lever of the overflow-valve adjustably mounted on said post and made with a leg, of a removable and interchangeable gage-bolster interposed between the leg and casing for supporting and positioning said bracket, and means to fasten the leg to the gage-bolster and the gage-bolster to the casing, substantially as described.

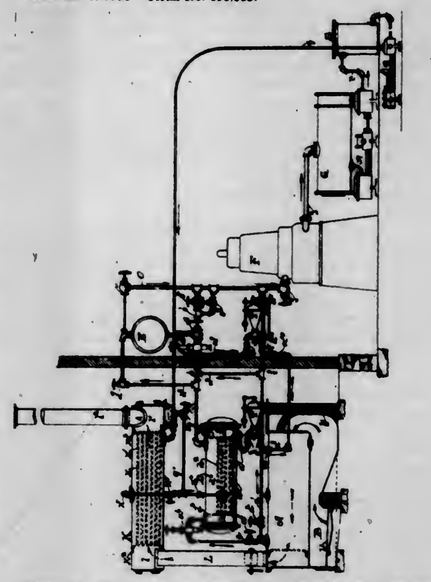
6. In an inspirator or the like, the combination with the casing A provided with a post c of the bracket B mounted on said post; the gage-bolster b^3 and clamp b^4, substantially as described.

784,067. VALVE-FITTING. WILLIAM R. PARK, Taunton, Mass., assignor, by mesne assignments, to The United Injector Company, a Corporation of New York. Filed May 31, 1904. Serial No. 210,473.



Claim.—A valve-fitting of the class described comprising a casing having an inlet and an outlet; a stop-valve in said casing provided with a knife-edge lip for coöperating with the valve-seat, and a tongue to project and closely fit within the aperture of the valve-seat; a check-valve in said casing made upon its top side with a central boss; a raised annular rim at the periphery of the top side of the check-valve projecting beyond said central boss; a stop for the check-valve disposed between the two valves, comprising a central boss and three or more arms radiating from said boss to the walls of the casing, said boss and arms being adapted to engage with the boss and raised annular rim of the check-valve, whereby any tipping of the valve and consequent uneven wearing is prevented; a normally closed vent through the wall of the casing between the two valves adapted to relieve the interior of the casing from pressure; and a stopper for controlling said vent; all organized and arranged substantially as described.

784,068. POWER SYSTEM. CASSIUS C. PECK, Rochester, N. Y. Filed Feb. 1, 1904. Serial No. 191,505.



Claim.—1. In a power system, the combination of a steam-boiler, a vaporizing-chamber containing a liquid having a lower boiling-point than water, a steam-pipe connecting the steam-space in the boiler with steam-heating surface submerged in the liquid contained in said vaporizing-chamber, an engine driven by vapor from said vaporizing-chamber, a steam-pressure-reducing valve in said steam-pipe, and means for discharging water of condensation from the aforesaid heating-surface in said chamber, substantially as set forth.

2. In a power system, the combination of a vaporizing-chamber containing a liquid of lower boiling-point than water, steam-heating surface in said liquid, a source of steam-supply connected with said surface, means of discharging the water of condensation from said surface, a superheater connected with the vapor-space of the liquid of low boiling-point, and heated with live steam from a boiler, and means of using the superheated vapor and returning its liquid of condensation to said vaporizing-chamber.

3. A power system, comprising, in combination, a steam-boiler, a vaporizing-chamber containing a liquid of lower boiling-point than water, and having steam-heating surface supplied with live steam from said boiler, and provision for discharging water of condensation from said surface, a superheater connected with the vapor-space of the liquid of low boiling-point in said vaporizing-chamber and adapted for superheating vapor from said liquid by live steam from a steam-boiler, a vapor-engine with pipe connection for conveying the superheated vapor from the superheater to said engine, and a condenser connected to the exhaust of said engine, essentially as shown and described.

4. In a power system, the combination of a vaporizing-chamber containing a liquid having a lower boiling-point than water, heating-surface, a source of steam-supply connected with said surface submerged in said liquid, means of discharging water of condensation from said surface, a superheater connected with the vapor-space of the liquid of low boiling-point and heated with live steam from a boiler, an automatic steam-pressure regulator in the steam-supply pipe from a steam-boiler to the superheater, and means for using the superheated vapor and returning its liquid of condensation to said vaporizing-chamber.

5. A power system comprising the following elements in combination, namely, a steam-boiler, a vaporizing-chamber containing a liquid of lower boiling-point than water, and having steam-heating surface supplied with live steam from said boiler, provision for discharging water of condensation from said heating-surface, a vapor-engine connected with the vapor-space in said chamber by a valved pipe, a surface condenser for condensing the vapor rejected from said engine, and a valved pipe connection from the steam-space of said boiler to said vapor-engine, substantially as set forth.

6. In a power system, the combination of a vaporizing-chamber containing a liquid having a lower boiling-point than water, steam-heated surface submerged in the liquid, a source of steam-supply connected with said surface, a turbine-engine driven by vapor from said vaporizing-chamber, a second chamber connected to the first chamber and adapted for receiving feed liquid and delivering it to the first chamber, means for using vapor from the first chamber and returning the liquid of condensation to the second chamber, and heating-surface in the second chamber arranged for supplying heat to the liquid of low boiling-point before its entrance to the first chamber by contact of waste gases from a boiler with said heating-surface.

7. In a power system, the combination of a steam-boiler, a vaporizing-chamber for containing a liquid of lower boiling-point than water, steam-heating surface in said liquid supplied with live steam from said boiler, means for discharging water of condensation from said surface, a second chamber containing the same kind of liquid as the first chamber and having an overflow connection therefrom for supplying liquid from the second chamber, and fire-tubes submerged in said liquid of the second chamber, substantially as set forth.

8. In a power system, the combination of a steam-boiler, a vaporizing-chamber for containing a liquid of lower boiling-point than water, steam-heating surface in said liquid supplied with live steam from said boiler, means for discharging water of condensation from said surface, a second chamber for containing the same kind of liquid as the first chamber, an overflow connection from the second chamber to the first chamber whereby the first chamber is supplied with liquid from the second chamber, fire-tubes submerged in liquid of said second chamber and adapted for passage of waste gases from said boiler to a chimney, a vapor-engine connected with the vapor-space in the first chamber, a condenser connected with the exhaust from said engine, and one or more pumps and pipe connections for returning the liquid of condensation formed in said condenser to the second chamber, essentially as shown and described.

9. A power system having the following elements in combination, namely, a steam-boiler for supplying live steam to heating-surface submerged in liquid of a lower boiling-point than water, which liquid is contained in a separate chamber, means for draining the water of condensation from said heating-surface, a superheater connected with the vapor-space of the liquid of low boiling-point in said vaporizing-chamber and adapted for superheating vapor from said liquid by live steam, a vapor-engine with pipe connection for conveying the superheated vapor from said superheater to said engine, a second chamber containing the same kind of liquid as the aforesaid first chamber and having an overflow connection therefrom for supplying liquid from the second chamber to the first chamber, fire-tubes submerged in liquid of the second chamber and adapted for passage of waste gases from the boiler to a chimney, and one or more pumps and pipe connections for delivering the liquid of condensation from the aforesaid condenser to the aforesaid second chamber, substantially as shown and described.

10. In a power system, the combination of a vapor-engine operated by vapor derived from liquid having a lower boiling-point than water, and which will readily separate from admixture of water, a jet-condenser connected with the exhaust from said engine, a closed tank connected to the discharge from the condenser and adapted for receiving and separating the two liquids by action of gravity, and pipes connected onto said tank for conducting the two liquids into separate receptacles, the inlet end of the water-discharge pipe being at lower level in the tank than the inlet end of the pipe for discharge of liquid of low boiling-point, practically as shown and described.

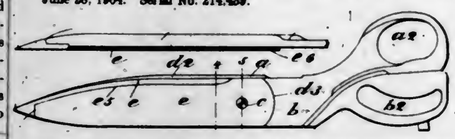
11. In a power system, the combination of a vapor-engine operated by vapor derived from liquid having a lower boiling-point than water, and which will readily separate from admixture with water, a jet-condenser connected with the exhaust from said engine, a tank connected to the discharge from the condenser for receiving the mixture of condensing-water and liquid of condensation and separating the two liquids by action of gravity, a pipe for discharging condensing-water from the tank having the inlet end of the pipe more deeply submerged than the outlet end, and a discharge-pipe for the liquid of condensation having the intake sufficiently elevated above the lower end of the water-outlet pipe so that none of the liquid of condensation shall pass from the tank through the water-discharge pipe, both of said pipes being properly proportioned and arranged for discharge at level of the respective outlets.

12. In a power system, the combination of a steam-boiler, a vaporizing-chamber containing a liquid having a lower boiling-point than water, heating-surface in said chamber supplied with live steam from said boiler for vaporizing said liquid, an engine driven by vapor from said vaporizing-chamber, a steam-pipe connecting said boiler with said heating-surface, a pressure-reducing valve in said pipe for reducing the boiler-pressure of steam delivered to said heating-surface, and means for automatically returning water of condensation from said heating-surface to a boiler.

13. In a power system, the combination of a steam-boiler, a vaporizing-chamber containing a liquid having a lower boiling-point than water, heating-surface in said chamber supplied with live steam from the boiler for vaporizing said liquid, a superheater containing a vapor-chamber connected to the vapor-space of the first-named vaporizing-chamber, heating-surface in said vapor-chamber of the superheater supplied with live steam from a boiler, and means of automatically returning water of condensation from said heating-surface to a boiler.

14. In a power system, the combination of a steam-boiler, a vaporizing-chamber containing a liquid having a lower boiling-point than water, means for vaporizing said liquid by heat of live steam supplied from said boiler, a vapor-engine connected to the vapor-space of the liquid of low boiling-point by a valved pipe, and a valved pipe connecting said engine with the steam-space of said boiler whereby either steam or vapor of low boiling-point can be employed for operating said engine, substantially as set forth.

784,069. **SHEARS.** JOHN POLKOWSKI, New York, N. Y. Filed June 28, 1904. Serial No. 214,439.

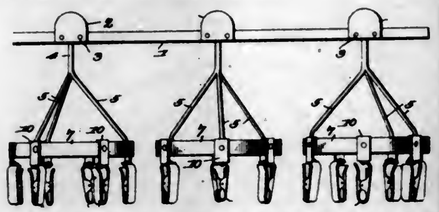


Claim.—1. A pair of shears, the blades of which are composed of a main body portion and a supplemental cutting portion, the supplemental cutting portions being countersunk in the main body portions and being provided adjacent to the cutting edges thereof with longitudinal shoulders against which the edges of the main body portions abut, said supplemental cutting portions being only partially countersunk in the main body portion, and being provided with pointed ends which project beyond the main body portions, and being also projected in the direction of the handles beyond the point at which the pivotal connection of the blades is made, substantially as shown and described.

2. A pair of shears, the blades of which are composed of main body portions and supplemental longitudinal cutting portions the supplemental cutting portions being partially countersunk in the main body portions and being provided adjacent to the cutting-edges thereof with longitudinal shoulders against which the edges of the main body portions abut, said cutting portions being provided with pointed ends which project beyond the main body portions and having transverse shoulders against which the ends of the body portions abut, and said cutting portions being also projected in the direction of the handles beyond the point at which the pivotal connection of the blades is made, substantially as shown and described.

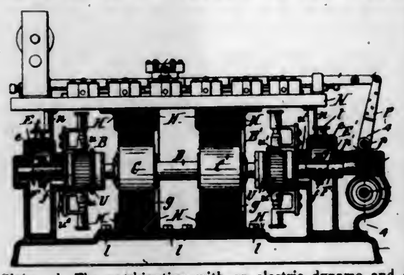
784,070. **DISPLAY-RACK.** ARTHUR RHOADS, Coyle, Okla. Filed May 14, 1904. Serial No. 207,964.

Claim.—1. A display-rack comprising a bar, a ticket-holder secured thereto, a hanger swiveled in the bar and provided with a plurality of depending supporting-arms, a display-frame secured to the supporting-arms, braces extending transversely across said frame, and suspension devices carried by the frame.



2. A display-rack comprising a bar, a plurality of ticket-holders secured thereto, hangers provided with terminal threaded portions passing loosely through the bar adjacent the ticket-holders and having their opposite ends provided with depending supporting-arms, display-frames secured to said arms, braces extending transversely across the display-frames, clasps pivotally secured to said frames, and nuts engaging the threaded ends of the hangers.

784,071. **ELECTRIC-LIGHTING APPARATUS FOR RAILWAY-CARS.** WILLARD F. RICHARDS, Buffalo, and WILLIAM A. TURBAYNE, Lancaster, N. Y., assignors, by mesne assignments, to Gould Coupler Company, New York, N. Y. Filed Apr. 9, 1904. Serial No. 202,373.



Claim.—1. The combination with an electric dynamo and a motor comprising parallel field-magnets, and rotary armatures mounted on a common shaft, of a base on which said field-magnets are secured, bearing-standards at the opposite ends of said base in which the ends of said armature-shaft are journaled, and rods at opposite sides of said field-magnets detachably secured at their ends to said bearing-standards and removably secured between their ends to said field-magnets to hold the latter rigidly in place, substantially as set forth.

2. The combination with an electric dynamo and a motor comprising parallel field-magnets, and armatures mounted on a common shaft, of a base on which said field-magnets are removably secured, bearing-standards at the opposite ends of said base in which the ends of said armature-shaft are journaled, removable caps for said bearing-standards, and rods at the opposite sides of said field-magnets detachably secured at their ends to said bearing-standards and removably secured between their ends to said field-magnets to hold the latter rigidly, substantially as set forth.

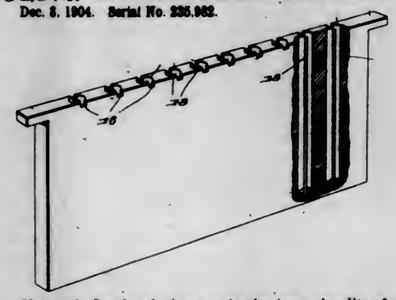
3. The combination with an electric dynamo and a motor having field-magnets comprising thin plates, and rotary armatures mounted on a common shaft, of a base, bearing-standards at the opposite ends of said base in which the ends of said armature-shaft are journaled, clamping-rods secured at their ends to said standards and passing through holes in said field-plates, said clamping-rods having shoulders and screw-threaded portions at opposite sides of said field-plates, and nuts screwed on said threaded portions of the rods for clamping said field-plates together, substantially as set forth.

4. The combination with an electric dynamo, and a motor comprising parallel field-magnets, and armatures mounted on a common shaft, of a base on which said field-magnets are secured, bearing-standards at the opposite ends of said base on which the ends of said armature-shaft are journaled, rods at the opposite sides of said field-magnets detachably secured at their ends to said bearing-standards and detachably secured between their ends to said field-magnets to hold the latter rigidly in place, a switch, and a board therefor arranged over said dynamo and motor and removably secured to supports secured to said base, substantially as set forth.

5. The combination with an electric dynamo and a motor comprising parallel field-magnets, and armatures mounted on a common shaft, of a base to which said field-magnets are secured, bearing-standards at the opposite ends of said base on which the ends of said armature-shaft are journaled, rods at the opposite sides of said field-magnets secured at their ends to said bearing-standards and between their ends to said field-magnets to hold the latter rigidly in place, a switch, a board therefor arranged parallel with and secured to said base, and gearing connecting said switch and armature-shaft, substantially as set forth.

6. The combination with an electric dynamo and a motor comprising parallel field-magnets, and armatures mounted on a common shaft, of a base on which said field-magnets are secured, bearing-standards at the opposite ends of said base in which the ends of said armature-shaft are journaled, removable caps for said bearing-standards, a switch-board removably mounted above said dynamo and motor, a switch carried by said board, one of said bearing-standards being hollow, operating-gearing for said switch inclosed by said hollow bearing-standard, and a side plate for said hollow bearing-standard which is removable with one of said gears inclosed by said standards, substantially as set forth.

784,072. **BEE-FEEDER.** JAMES L. ROBERTS, Winfield, Mo. Filed Dec. 8, 1904. Serial No. 235,982.



Claim.—1. In a bee-feeder, a casing having a plurality of reservoirs, each provided with a centrally-disposed rod or standard extending to the top of said reservoir.

2. In a bee-feeder, a slab or plank having end lugs or flanges, and provided with a plurality of independent reservoirs, the material at the top of the plank or board being removed to form beeways at the tops of the reservoirs, and a centrally-disposed rod or standard arranged within each reservoir and extending to the top thereof.

784,073. **HEATING SYSTEM.** FREDERICK W. ROBERTSHAW, Pittsburg, Pa. Filed June 22, 1901. Serial No. 65,565.

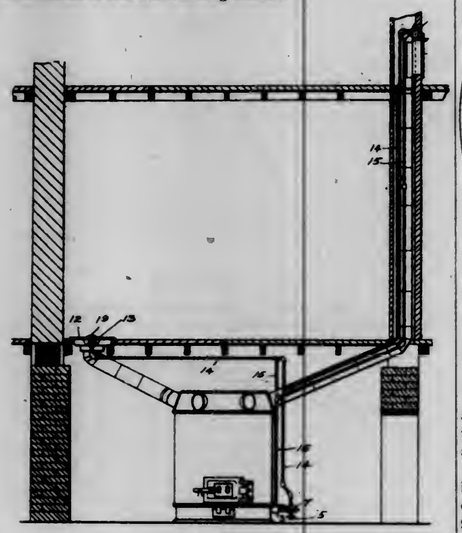
Claim.—1. In a heating system, a furnace, registers for discharging heat therefrom, a furnace-burner composed of several independently-controlled burner-sections, and controlling devices for the respective burner-sections extending to and operative at the several registers.

2. In a heating system, a burner composed of several independently-controlled burner-sections, a plurality of stations for emitting heat generated by the burner, and a plurality of correspondingly-located controlling devices operatively connected, respectively, to the several burner-sections.

3. The combination of a casing, a diaphragm dividing the same into two compartments, the diaphragm being provided with a gas-passage, a valved outlet for one of said compartments, and a gas-inlet and a burner connected with the other compartment, the diaphragm coöperating with the gas-inlet and operating to close the same under pressure of accumulated gas in the compartment having the valved outlet when the valve thereof is closed.

4. The combination of a burner formed of a plurality of independently-controlled burner-sections, a plurality of stations for emitting heat generated by the burner, opening and closing mechanism for each of said stations, a separate gas-supply for each burner-section, and a valve operatively connected to each of said opening and closing mechanisms for separately controlling the gas-supply to each of the burner-sections.

5. The combination of a burner formed of a plurality of independently-controlled burner-sections, a separate gas-admission diaphragm-valve for each burner-section, a gas-inlet which the diaphragm operates to close, the diaphragm having a gas-passage in line with said inlet, a plurality of stations for emitting heat generated by the burner, a tube extending from the unseated side of the diaphragm of each of said valves, a valve in each tube, and operative connections between said tube-valves and the opening and closing mechanisms of said heat-emitting stations.



6. The combination of a burner, a gas-admission diaphragm-valve therefor adapted at one side thereof to admit gas to the burner and formed with a gas-passage, and a valved gas-outlet and the valved by-pass 21 at the opposite side of the diaphragm.

7. The combination of a gas-burner, a source of gas-supply, and regulating mechanism intermediate the source of supply and burner, said mechanism consisting of a chamber, a diaphragm dividing the chamber into upper and lower compartments, the lower compartment communicating with the gas-supply and with the burner, the diaphragm being constructed and arranged to close the gas-supply orifice, a pipe extending from the upper compartment of said chamber, stations for emitting heat generated by the burner, opening and closing mechanisms for said stations, a valve in said pipe operated by said opening and closing mechanisms, the diaphragm having an orifice which registers with the inlet of the gas-supply and constantly open thereto.

784,074. **ROTARY MOTOR.** THOMAS G. SAXTON, Lexington, Ky., assignor of one-third to Elijah Hawkins and one-third to W. B. Hawkins, Fayette county, Ky. Filed July 14, 1904. Serial No. 216,574.

Claim.—1. A motor, having a driven element, a rotary element, cylinders and pistons carried by the rotary element and arranged in opposite coöperating pairs, and means for feeding the motive agent to the cylinders in such manner as to cause the pistons to move in a direction reverse to that of the rotary element.

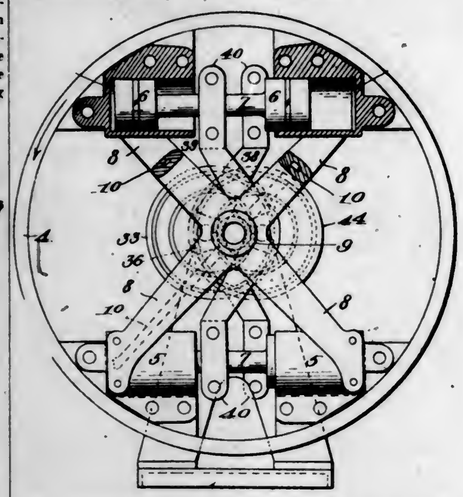
2. A motor, having a driven element, a rotary element, and pairs of propelling devices carried by the rotary element having connected parts actuated by the motive agent and moving back in a direction reverse to the direction of rotation of the said rotary element.

3. A motor, having a driven element, a rotary element coöperating with the driven element, and propulsive devices carried by the rotary element connected in pairs for simultaneous operation and arranged tangentially to the center of the latter.

4. A motor, having a rotary element provided with dependently-operative pairs of propulsive devices arranged tangentially to the center thereof.

5. A motor, having a rotary element carrying simultaneously-operative pairs of propulsive devices arranged tangentially to the center thereof at opposite points.

6. A motor, having a rotary element with pairs of tangential propelling devices arranged at opposite points therein, the said pairs of devices having simultaneous operating elements.



7. A motor, having a driven element, a rotary element coöperating therewith, and pairs of tangentially-arranged propelling devices at opposite points therein, said propelling devices having movable parts connected for simultaneous operation.

8. A motor, having a rotary element provided with pairs of cylinders and piston-heads arranged tangentially with respect to the center, the piston-heads of each pair of cylinders being connected for simultaneous operation.

9. A motor, having a driven element, a rotary element coöperating therewith and provided with tubular arms communicating with a source of supply of the motive agent, and tangentially-disposed propelling devices arranged close to the periphery of the rotary element and connected to the arms.

10. A motor, having a rotary element with tubular arms, a driven element to which said arms extend, and connected pairs of propelling devices disposed close to the periphery of the rotary element and having communication with the said arms.

11. In a motor, a driven element, a rotary element secured to the driven element and having oppositely-disposed tangentially-arranged pairs of propelling devices, a coupling for the opposite pairs of propelling devices, and means for controlling the movement of the coupling during the actuation of the rotary element.

12. In a motor, a driven element, a rotary element for actuating the driven element, pairs of cylinders tangentially disposed in the rotary element at diametrically opposite points and having connected piston-heads, a coupling for the piston-heads of the opposite pairs of cylinders, and a fixed eccentric device with which a portion of the coupling engages.

13. In a motor, a driven element, a rotary element having tangentially-arranged propelling mechanism at diametrically opposite points provided with movable parts, a coupling connecting the said movable parts of the opposite propelling mechanism, and a fixed eccentric device with which a portion of the coupling engages.

14. In a motor, a driven element, two independent rotary elements secured to the driven element, and pairs of propelling devices arranged near the periphery of each rotary element and at diametrically opposite points.

15. In a motor, a driven element, independent rotary elements secured to the driven element, and tangentially-arranged pairs of propelling devices disposed near the periphery of each rotary element at diametrically opposite points.

16. In a motor, a driven element, independent rotary elements secured to the driven element, propelling devices at opposite points in each rotary element, couplings for the propelling devices, and reversely-extending eccentric devices engaged by portions of the couplings.

17. In a motor, tubular standards, a driven element supported by said standards, independent rotary elements secured to the driven element and carrying batteries of propulsive devices and tubular feeding means connecting with the propulsive devices and the standards.

18. In a motor, tubular standards to receive the motive agent, a driven element rotatably held by said standards, rotary elements secured to the driven element and carrying batteries of propulsive devices coupled for simultaneous operation, and tubular connecting means between the batteries of propulsive devices and the standards.

19. In a motor, a driven element, independent rotary elements secured to the driven element, propelling devices arranged at diametrically opposite points and connected to the rotary elements, the propelling devices being positioned tangentially with respect to the driven element, couplings for the propelling devices, reversely-extending eccentric devices engaged by portions of the couplings, and means for feeding and exhausting the propelling devices.

20. In a motor, a driven element, independent rotary elements secured to the driven element, propelling devices at opposite points in each rotary element, couplings for the propelling devices having projecting means, and reversely-arranged eccentric devices engaged by the projecting means of the couplings.

21. In a motor, a driven element, independent rotary elements secured to the driven element, propelling devices arranged in pairs at opposite points in each rotary element, a portion of the pairs of propelling devices in one rotary element being propulsively active while like devices in the other element are propulsively inactive, and means for supplying the motive agent to and exhausting the same from the propelling devices.

22. In a motor, a driven element, independent rotary elements secured to the driven element, pairs of propelling devices arranged at opposite points in each rotary element, portions of the propelling devices in the respective rotary elements being alternately propulsively active and inactive, means for obtaining a unitary operation of the pairs of propelling devices, and means for supplying and exhausting the motive agent.

23. In a motor, a driven element, a rotary element having tubular arms concentrating in a central hub on the driven element, propelling devices at opposite points in the rotary element with which the arms communicate, and tubular supporting means for the driven element and hub having means for receiving a supply of a motive agent and exhausting the latter.

24. In a motor, a driven element, a rotary element secured to the driven element, pairs of cylinders carried by the rotary element and having inner open ends and outer closed extremities, piston-heads in the pairs of cylinders, each pair of heads being connected by a single rod, a coupling means between each piston-rod of the opposite pairs of heads, means for controlling the regularity of movement of the coupling means, and means for supplying the motive agent and exhausting the latter.

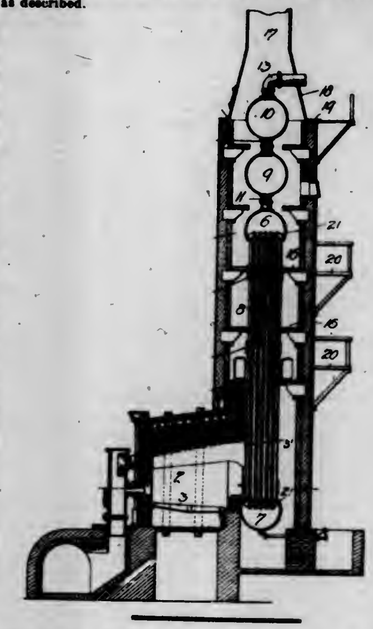
25. In a motor, a driven element, a rotary element secured to the driven element, pairs of cylinders arranged at opposite points in the rotary element and having inner open ends and outer closed extremities, piston-heads in the cylinders connected for simultaneous operation, tubular arms attached to the outer closed extremities of the cylinders and concentrating at the center in a tubular hub engaging the driven element, and a tubular supporting means to receive and exhaust the motive agent, such tubular supporting means operatively holding the driven element and a portion of the hub.

784,075. **WATER-TUBE BOILER.** WILLIAM W. SHILLING, Sharon, Pa. Filed Aug. 6, 1904. Serial No. 219,730.

Claim.—1. In a steam-boiler furnace, an upper and lower drum, tubes connecting said drums, a steam-drum placed above the upper tube-drum and connected therewith, and baffle-plates placed opposite the junction of said drums for directing the hot gases against the bottom thereof, substantially as described.

2. In a steam-boiler furnace, upper and lower drums; tubes connecting the said drums, a steam-drum placed above the upper tube-drum and connected thereto, baffle-plates arranged opposite the junctions of said drums for directing the hot gases against the bottoms thereof and a stack for carrying off the gases after passing around the drums, the opening in said stack being of greater area than the opening between the upper tube-drum and the first pair of baffles below the same, substantially as described.

3. In combination in a steam-boiler furnace, the upper and lower tube-drums, tubes connecting them, the crown of the combustion-chamber extending inwardly to the tubes, the metallic beam-support for the front wall of the furnace extending across the combustion-chamber, the baffles extending from the walls of the furnace to the tubes and brickwork at l over the projecting end of the crown, said brickwork extending to the lower baffle and supporting the same and in rear of the iron beam to protect the same, substantially as described.



784,076. **CUFF-HOLDER.** JOHN W. SMITH, Igorna, Cal. Filed Feb. 23, 1904. Serial No. 194,856.



Claim.—A cuff-holder comprising a shank having two arms projecting from it substantially at right angles and diverging from each other and adapted to be connected to opposite buttonholes of the cuff, and a tongue bent backwardly from the other end of said shank and adapted to engage with the edge of a coat-sleeve, a receiving-space in the shank, and a projection on said tongue opposite the receiving-space whereby the material of the sleeve is clamped.

784,077. **CHANGEABLE ADVERTISING-BUTTON.** HERMAN B. SMITH and RUTHERFORD E. WEINLAND, Indianapolis, Ind.; said Weinland assignor to said Smith. Filed Oct. 20, 1904. Serial No. 229,350.



Claim.—1. In a badge or button, a face-plate having a view-opening and having its edges bent inwardly to form an inwardly-open peripheral groove and a disk revolubly mounted inside of said peripheral grooves with its face contacting with the inner face of said plate, the plate and disk having suitable legends or designs.

2. In a badge or button, a plate having inwardly-turned edges to form inwardly-open peripheral grooves, said plate having a view-opening therethrough, a circular disk mounted against the inner side of the plate between its turned edges, said disk and plate having suitable legends or designs and means for rotating the disk.

3. In a badge or button, a plate having inwardly-turned edges

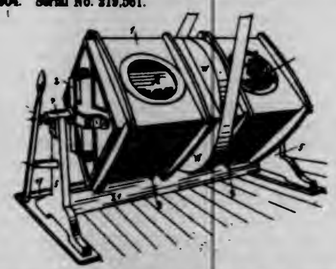
forming an open peripheral groove, said plate having a front view-opening, a second plate fixed in said peripheral groove, a disk mounted between the plates and having a sleeve, said sleeve having a revoluble bearing supported by said second plate, said first plate and disk having suitable legends or designs and means for rocking said sleeve whereby the position of the disk will be changed.

4. In a badge or button, a plate having inwardly-turned edges forming a peripheral groove, said plate having a view-opening in its face, a second plate mounted in the groove of the first plate and having a tongue formed from its material bent first inwardly at right angles and again at right angles, said tongue and its plate being perforated, a disk between said two plates having a fixed sleeve which passes through the perforations of said second plate and its tongue and is revolubly supported thereby, means for rocking said sleeve, said first plate and disk bearing suitable designs or legends.

5. In a badge or button, a plate having its edges bent in to form peripheral grooves, said plate having a view-opening in its face, a second plate mounted in the grooved edge of the first plate, said second plate having its material formed into a tongue which is bent inwardly toward the first plate and then downwardly adjacent to the first plate said second plate and its tongue having perforations, a disk between said two plates having an integral hollow longitudinally-slotted sleeve, said sleeve being inserted in the perforations of the second plate and its tongue, a spring secured within the casing formed by said two plates, said spring having a free end terminating with a loop, a cord secured to the loop of said spring and to said sleeve by means of the slot in said sleeve and a second cord also secured to said slotted sleeve at one end and having its other end extending outside of the button, said first plate and disk having suitable legends or designs.

6. In a badge or button, a plate having its edge bent in to form peripheral grooves, said plate having a view-opening in its face, a second plate mounted in the grooved edge of the first plate, said second plate having its material formed into a tongue which is bent inwardly toward the first plate and then downwardly adjacent to the first plate said second plate and its tongue having perforations and said second plate having stops on diametrically opposite sides of its center, a disk between said two plates having an integral sleeve, said sleeve having a bearing in the perforations of said second plate and its tongue, said disk also having a pin or projection to contact with the stops on the second plate, a spring secured within the casing formed by said two plates, said spring having a free end terminating with a loop, a cord secured to the loop of said spring at one end and to the sleeve at the other and a second cord secured to said sleeve at one end and having its other free end extending outside of said button, said first plate and disk having suitable legends or designs.

784,078. CHURN. DANIEL A. SPRAGUE, Poland, N. Y. Filed Aug. 4, 1904. Serial No. 219,561.



Claim.—1. The combination of a rectangular receptacle mounted on journals to be rotated on its axis, a worker pivoted in one corner of the receptacle between two adjacent sides, and means for operating the worker toward and from one of the sides as the receptacle turns on its journals, substantially as set forth.

2. The combination in a churn of a rectangular receptacle mounted on journals to be rotated, a worker of the form of a comb pivoted at its back in one corner of the receptacle and the worker tines or fingers projecting into the interior, and means for operating the worker as the receptacle revolves, substantially as set forth.

3. The combination in a churn of a receptacle or churn-body mounted on journals to be rotated, a worker of the form of a comb pivoted at its back adjacent to the walls of the receptacle, and means for operating the worker as the receptacle revolves, substantially as set forth.

4. The combination in a churn of a receptacle mounted on journals to be rotated, a worker substantially of the form of a comb pivoted at its back adjacent to the shell or wall of the receptacle, and means for operating the worker as the receptacle revolves, or for holding the worker as the receptacle revolves, substantially as set forth.

5. The combination in a churn of a receptacle, a spider secured to the receptacle and carrying the journal, a crank located within the spider, a worker within the receptacle, and a connection between the crank and worker arranged to pass between the journal and the receptacle, substantially as set forth.

6. The combination in a churn of a receptacle, a spider secured to the receptacle and carrying the journal, on which the receptacle is adapted to revolve, a crank located within the spider and supported on a shaft extending through the journal, a worker within the receptacle, a connection between the crank and the worker, and means for attaching the crank-shaft to the moving parts or to the stationary parts, substantially as set forth.

7. The combination in a churn of a receptacle mounted to be rotated, a worker arranged within the receptacle, a journal on which the receptacle is mounted to rotate, a spider supporting the receptacle from the journal, a bearing in which the journal is mounted, a crank, a shaft extending through the journal on which the crank is mounted, a connection between the crank and the worker, and means for attaching the crank to the moving parts or to the stationary parts, substantially as set forth.

8. The combination in a churn of a journal-bearing, a receptacle, a supporting connection between the receptacle and journal arranged to afford a clearance between the journal and the receptacle, a crank arranged to be held stationary located within said space, a worker within the receptacle and a connection between the worker and said crank, substantially as set forth.

9. The combination in a churn of a rotatable receptacle, a journal for the receptacle, a bracket connection between the receptacle and the journal and arranged to afford a clearance-space, a crank arranged to be held stationary and within the clearance-space, a worker within the receptacle mounted on journals, one of which extends to the outside of the receptacle, an arm secured on the worker-journal and a connection between the worker-arm and crank, substantially as set forth.

10. The combination in a churn of a receptacle mounted to be rotated on its axis, and of a form substantially square transversely to the axis of rotation, a worker of a comb form arranged substantially parallel to the axis and mounted by its back on rocking journals in one corner, and having fingers extending substantially to the axial line of the receptacle, and means for operating the worker as the receptacle revolves, substantially as set forth.

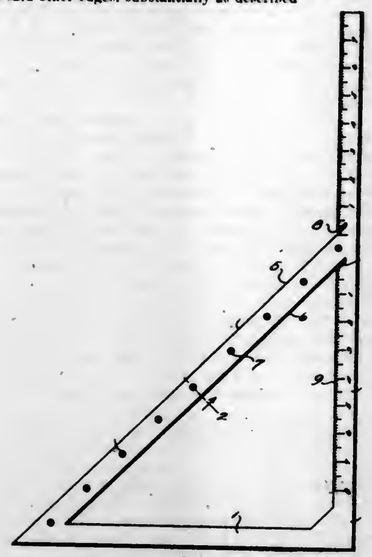
11. The combination in a churn of a receptacle mounted to be rotated on its axis, a worker consisting of a back and fingers or tines projecting therefrom transversely to the axis of the receptacle mounted on rocking journals to be operated toward and from the wall of the receptacle, and means for operating the worker as the receptacle revolves toward the adjacent side as the worker is carried upwardly and to open inverted position when in the upper position, substantially as set forth.

12. The combination in a churn of a rotatable receptacle, a journal for the receptacle, a supporting connection between the receptacle and journal arranged to afford a clearance-space between the journal and the receptacle, a crank arranged in the said space, a crank-shaft extending through the journal and supporting the crank, a bearing-box supporting the journal and receiving the outer end of the crank-shaft, a sliding key arranged to couple the crank-shaft to the journal or to the box, and a worker within the receptacle, connected to and operated by the comb, substantially as set forth.

784,079. RULER FOR CUTTING CLOTH ON THE BIAS. HUGO A. STEMPEL, Chicago, Ill. Filed Oct. 17, 1904. Serial No. 228,860.

Claim.—1. A device of the class described, comprising a ruler having two straight edges, one of said edges intersecting the other obliquely and intermediate of its ends, and said other edge being recessed in alinement with the first edge and being graduated to measure distances from the point of intersection of said edges, substantially as described.

2. A device of the class described, comprising a ruler having two parallel straight edges intersecting a third straight edge obliquely and intermediate of its ends, and said third edge being recessed in alinement with each of the other edges and being graduated to measure distances in opposite directions from the points of its intersection with said other edges, substantially as described



3. A device of the class described, comprising a pair of straight strips rigidly secured together and having ruling edges oblique to each other, one of said strips having thereon a plurality of pointed projections extending transversely of the plane of said strips, and the other strip being graduated to measure distances from the point of its intersection with the first strip, substantially as described.

4. A device of the class described, comprising three strips rigidly secured together to form a triangular frame having two sides at right angles to each other and a third side oblique to the other two, one of said sides being extended beyond the oblique side, and said extended side being graduated to measure distances from the point of its intersection with the edge of said oblique side, substantially as described.

5. A device of the class described, comprising three strips rigidly secured together to form a triangular frame having two sides at right angles to each other, and a third side oblique to the other two, one of said sides being extended beyond the oblique side, and said extended side being graduated for measuring in opposite directions from the points of its intersection with the ruling edges of said oblique side, substantially as described.

6. A device of the class described, comprising three strips rigidly secured together to form a triangular frame having two sides at right angles to each other, and a third side oblique to the other two, one of said sides being extended beyond the oblique side, said oblique strip having thereon a plurality of pointed projections extending transversely of the plane of said strips, and said extended side being graduated to measure distances from the point of its intersection with the edge of said oblique side, substantially as described.

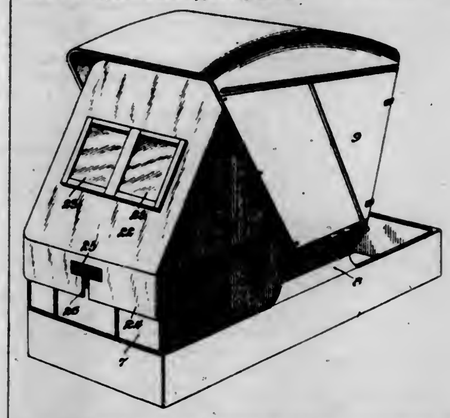
784,080. STORM-FRONT FOR VEHICLES. MICHAEL STIEFF, Fremont, Ohio, assignor to George H. Withey, Fremont, Ohio. Filed July 5, 1904. Serial No. 215,386.

Claim.—1. In a storm-front, the combination with a supporting member, of means for attaching the same against movement to a bow of a vehicle-top, a storm-front hood having its outer portion freely movable, and pivotal connections between the ends of the hood and supporting member.

2. In a storm-front, the combination with a supporting-bow, of means for attaching the same to a bow of and within a vehicle-top, a storm-front hood movable into and out of said top, and means for pivotally connecting the ends of the hood to the bow.

3. In a storm-front, the combination with a supporting-bow, of clips for attaching the bow to a vehicle-top frame, a storm-front frame, a covering carried by the frame, and means connecting the storm-front frame and bow to permit the swinging movement of said frame.

4. In a storm-front, the combination with supporting means, of devices for attaching the same to a bow of a vehicle-top, a storm-front hood, and pivots connecting the supporting means and hood and being adjustable on one of the same to vary the position of the hood with respect to the supporting means.



5. In a storm-front, the combination with supporting means, of devices for attaching the same to a bow of a vehicle-top, a storm-front hood, and pivots carried by the hood and having adjustable connections with the supporting means.

6. In a storm-front, the combination with a supporting-bow, of devices for attaching the same to a bow of a vehicle-top and within such top, a storm-front hood, pivots carried by the hood and having stems, and means for adjustably connecting the stems to the supporting-bow.

7. In a storm-front, the combination with a supporting-bow, of means for attaching the same to a vehicle-top, stems, keepers adjustably securing the stems to the bow, a frame pivoted to the stems, and a covering carried by the frame.

8. In a storm-front, the combination with a supporting-bow, of means for securing the same to a vehicle-top, stems vertically adjustable upon the sides of the bow, means for securing the stems at different heights upon the bow, and a storm-front pivoted to the stems.

9. In a storm-front, the combination with a supporting-bow, of means for attaching the same to a vehicle-top, stems located transversely of the sides of the bow and longitudinally adjustable thereon, keepers securing the stems to the bow, and a storm-front pivoted to the bow.

10. In a storm-front, the combination with a supporting-bow, of spaced clips for securing the sides of the bow to the sides of the vehicle-top bow, keepers vertically adjustable upon the sides of the supporting-bow, stems horizontally adjustable in the keepers, a frame pivoted to the stems and comprising bows, and a covering carried by the frame.

11. In a storm-front, the combination with a stationary supporting-bow, of a frame, a covering carried by the frame, connections between the bow and frame to permit the swinging movement of the latter, and a strap connection between the frame and the supporting-bow

12. In a storm-front, the combination with a supporting member, of means for securing the same to a vehicle-top, a frame detachably connected to the supporting member, and a detachable and flexible connection between the frame and the supporting member.

13. In a storm-front, the combination with a supporting-bow, of means for securing the same to the bow of a vehicle-top, and a storm-front member pivotally and detachably connected to the supporting-bow.

14. In a storm-front, the combination with a supporting-bow, of spaced clips for securing the same to a vehicle-top, stems detachably secured to the supporting-bow, a frame pivoted to the stems and comprising spaced bows, a covering carried by the frame, and a flexible and detachable connection between the frame and the supporting-bow.

15. In a storm-front, the combination with a vehicle-top, of a storm-front comprising a hood pivoted at the lower ends of its opposite sides within the top and arranged to be projected beyond the

front edge of said top, and a flexible connection between the top and hood for limiting the movement of the hood.

16. In a storm-front, the combination with a vehicle-top, of a storm-front hood pivoted at its opposite sides to the sides of the top and arranged to be projected beyond the front of said top, said hood comprising a frame of spaced rigidly-connected bows, a covering carried by the bows, and means for limiting the swinging movement of the hood.

17. A storm-front hood having a rein-receiving slot and an offset entrance-slot communicating therewith and extending into the hood from one edge of the same.

18. In a storm-front, the combination with a vehicle-top, of a supporting-bow secured to the bow of the vehicle-top, stems detachably secured to the supporting-bow, a storm-front frame pivoted to the stems and movable into and out of the top, a covering carried by the frame, and a flexible connection between the frame and the supporting-bow.

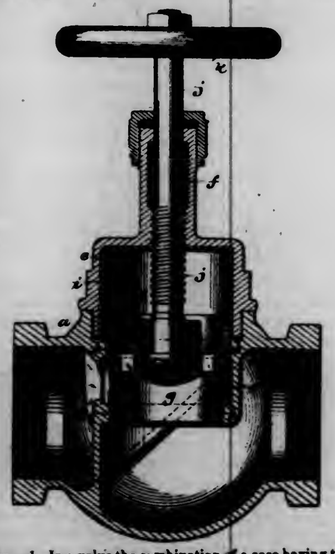
19. As an attachment, a storm-front comprising a supporting device, means for securing the same within a folding vehicle-top, and a storm-front hood having a pivotal connection with the supporting device and having its outer portion movable into and out of the vehicle-top.

20. As an attachment, a storm-front comprising a storm-front hood movable into and out of a vehicle-top and having a pivotal connection therewith, and a flexible stop having connections with the top and hood and detachable from one of the same.

21. As an attachment, a storm-front comprising a supporting device, means for securing the same within and to a bow of a folding vehicle-top, a storm-front hood movable into and out of the vehicle-top and having a detachable pivotal connection with the supporting device, and a flexible stop connecting the hood and supporting device and detachable, whereby said hood may be detached from the supporting device and removed from the top.

22. The combination with a vehicle having a top and dash, of a storm-front hood pivotally connected to the top and having its outer portion movable into and out of the same, said hood including a cover having an outer free apron portion that depends sufficiently to engage over the dash when said hood is projected beyond the top.

784,081. **VALVE.** OLE O. STORLE, Burlington, Wis. Filed July 24 1903. Serial No. 166,816.



Claim.—1. In a valve the combination of a case having two parallel and coaxial valve-openings and a passage between said openings communicating on one side thereof with the valve-chamber, one of said openings being formed in a partition which joins the case on diagonally opposite sides of said openings, and a hollow axially-movable plug fitted in said openings, substantially as described.

2. In a valve the combination of a case formed with a partition extending obliquely across the valve-chamber and having a valve opening and seat, said case being formed at one side with an opening and seat coaxial with the opening and seat in said partition and a passage being formed between said openings and seats in communication with the valve-chamber on one side thereof, and a hollow axially-movable plug fitted in said seats and forming a passage for fluid flowing through the valve-opening at one side of the case, substantially as described.

3. In a valve the combination of a case having an opening and valve-seat in one side and a partition extending obliquely across the valve-chamber and having an opening and valve-seat coaxial with the opening and seat at the side of the valve-case, a passage being formed between said seats communicating with one part of the valve-chamber on one side only of said partition, a hollow axially-movable plug fitted in said seats and a cap closing the opening in the side of said case and recessed to receive said plug when it is withdrawn from its seats in opening the valve, substantially as described.

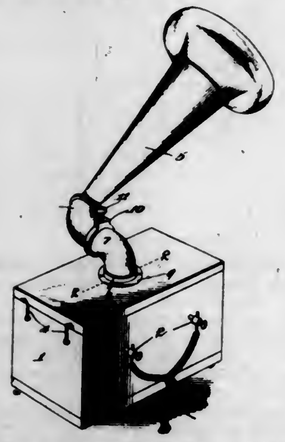
4. In a valve the combination of a case having an opening and a tapered valve-seat at one side and a partition extending obliquely across the valve-chamber and having an opening and a tapered valve-seat parallel and coaxial with the opening and seat at one side of said case, a passage being formed between said seats opening into the valve-chamber on one side only of said partition and a hollow tapered axially-movable plug fitted in said seats, substantially as described.

5. In a valve the combination of a case having two coaxial valve-seats one of which is in a partition joining the valve-chamber on obliquely opposite sides of said seats and forms with the other a passage communicating with the valve-chamber on one side only of said partition, a hollow axially-movable plug fitted in said seats, and a stem swiveled in said plug and threaded in the case, the plug and case being provided with a key and keyway which hold the plug from turning in the case, substantially as described.

6. In a valve the combination of a case having a valve-opening in a partition joining said case on diagonally opposite sides of said opening, said partition being connected across the open space at one side of said opening with the opposite wall of the case by a tie-piece, and an axially-movable plug fitted in said opening, substantially as described.

7. In a valve the combination of a case having seats separated by an annular passage which communicates through an opening on one side with one part of the valve-chamber and connected on the open side by a tie-piece, and an axially-movable plug fitting said seats, substantially as described.

784,082. **RESONATOR.** EDWARD F. SWIGERT, Lima, Ohio. Filed May 2, 1904. Serial No. 206,067.



Claim.—1. In a resonator, the combination of a box, a horn, tubular fittings connecting the horn with the box, and fastening means for securing the horn when moved to the required point of adjustment, substantially as specified.

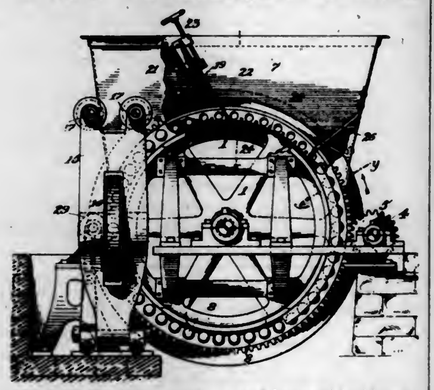
2. In a resonator, the combination of a box, an elbow-fitting connected to the box, a companion elbow-fitting connected to the first fitting and provided with a horn, and securing means between the two elbow-fittings for positively fastening them in the required adjusted position, substantially as described.

3. In a resonator, the combination of a box, a fitting connected thereto, a second fitting provided with a horn and connected to the first-mentioned fitting by means of a screw-thread joint, a clamp-block applied to one of the fittings, and a set-screw coöperating with the clamp-block to secure the two fittings in an adjusted position, substantially as set forth.

4. In a resonator, the combination of a box, a fitting applied to the box and adapted to be turned about a vertical axis, a second fitting connected to the first-mentioned fitting and movable about a horizontal axis, and a horn connected to said second fitting and adapted to be raised and lowered at its outer end and to be swung to any angular position about a vertical axis, substantially as set forth.

5. In a resonator, the combination of a box having an opening in a side thereof, a ring fitted into said opening and having an outer flange overlapping the opening of the box and receiving fastenings, an elbow-fitting connected to the ring by a screw-thread joint, a second elbow-fitting threaded to the first-mentioned fitting, a horn attached to the outer end of the said second fitting, and securing means between the two fittings for holding the horn when adjusted, substantially as set forth.

784,083. **BRIQUET-PRESS.** JOHN TREADWELL, San Francisco, Cal. Filed Apr. 7, 1903. Renewed Aug. 2, 1904. Serial No. 219,227.



Claim.—1. In a briquet-press, an open-bottomed feed-hopper, a wheel having a peripheral feed-groove and rotating beneath said hopper, transverse molds formed in the rim and opening from said groove, oppositely-acting plungers movable in the rim of the wheel, and means for obstructing the feed-groove and so regulating the delivery of material from the feed-groove to the molds formed in the rim.

2. In a briquet-press, an open-bottomed feed-hopper, a wheel having a peripheral groove and rotating beneath said hopper, transverse molds formed in the rim and opening from said groove, oppositely-acting plungers movable in the rim of the wheel in line with said molds, and a gate projecting through the bottom of the hopper and into the groove, whereby said groove is obstructed and material delivered from the hopper into the groove is compelled to enter the open molds formed in the rim.

3. In a briquet-press, an open-bottomed feed-hopper, a rotary wheel beneath said hopper having a peripheral groove, transverse molds formed in the rim and opening from said groove, oppositely-acting plungers movable in the rim of the wheel, a gate projecting from the hopper into the groove and means for adjusting said gate relatively to said groove whereby the groove is controllably obstructed, and the entrance of material into said molds is regulated.

4. In a briquet-press, an open-bottomed feed-hopper, a rotary wheel beneath the same and having a peripheral groove into which material is fed from the hopper, horizontal molds opening into said groove, projections from the inner walls of said groove alternating with the said molds, and an adjustable gate projecting from the hopper into the said groove, and shaped so as to permit the passage of said projections.

5. In a briquet-press, a rotary wheel having a peripheral groove, a hopper for supplying material to said groove, molds in the rim of the wheel communicating with said groove, plungers sliding in the rim of the wheel and across said groove, and a scraper adjacent to the bottom of said groove and to said hopper, whereby material in said groove is prevented from banking and hardening in the path of the plungers.

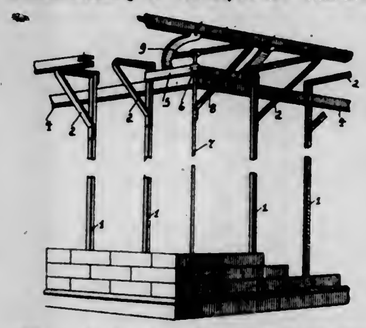
6. In a briquet-press, a rotary wheel having a peripheral feed-groove, a series of molds opening therefrom, pairs of plungers movable in the rim for compressing material in said molds, a pair of pressure-rollers between and in contact with which the pairs of plungers are compelled to pass, and gearing connected to said rollers for positively driving them, substantially as and for the purpose set forth.

7. In a briquet-press, a rotary wheel, having a series of compressing-plungers sliding transversely in its rim and projecting outside of it, a peripheral gear on said wheel, a shaft in gear with said peripheral gear, a pair of oppositely-placed pressure-rollers for forcing said plungers toward each other by contact with their projecting ends, and wheels on said shaft adapted to engage said pressure-rollers and to drive the same.

8. In a briquet-press, a rotary wheel having peripheral parallel feed and discharge grooves, and carrying series of compressing-plungers working transversely in the rim of the wheel and in the described relation to said grooves, molds in the wheel opening from said grooves, and oil-supply pipes entering said discharge-groove and having discharge-outlets directed toward said plungers, whereby the plungers and molds as they successively pass said outlets, receive oil upon their compressing-faces.

9. In combination with a briquet-press comprising a rotary wheel having a peripheral feed-groove and a parallel peripheral discharge-groove, molds opening from said discharge-groove, a series of compressing-plungers for forming briquets in said molds, an oil-pressure tank, pipes connected thereto and extending into the discharge-groove, and relatively small outlets from said pipes directed toward said plungers and molds.

784,084. **CONCRETE-WALL-FORMING MACHINE.** GEORGE H. TRUXELL, Greensburg, Pa. Filed May 28, 1904. Serial No. 210,307.



Claim.—1. In a machine of the type set forth, the combination with an overhead trackway, a turn-table constructed upon said trackway, of a molding-box suspended from said trackway, and means for adjusting said molding-box, substantially as described.

2. In a machine of the type set forth, the combination with a trackway, a turn-table constructed upon said trackway, of a box suspended from said trackway, a core adjustably mounted in said box, and means for adjusting said box.

3. In a machine of the type set forth, the combination with a trackway, a turn-table constructed upon said trackway, of a molding-box suspended from said trackway, a core adjustably mounted in said box, means for elevating said box, and means for guiding the movement of said box.

4. In a machine of the type set forth, the combination with a framework, a trackway supported upon said framework, a turn-table constructed upon said trackway, of a molding-box suspended from said trackway, adjustable cores mounted in said box, auxiliary dies carried by said box, means for adjusting said box.

5. In a machine of the type set forth, the combination with a framework, a turn-table constructed upon said trackway, of a molding-box suspended from said trackway, means for elevating said molding-box, and means for guiding the movement of said box.

6. In a machine of the type set forth, the combination with an overhead trackway, turn-tables constructed upon said trackway, of a box suspended from said trackway, means for elevating said box,

means for limiting the movement of said box, and means for guiding the movement of said box.

7. In a machine of the type set forth, the combination with a framework, a trackway supported upon said framework, turn-tables constructed upon said trackway, of a box suspended from said trackway, adjustable cores mounted in said box, means for elevating said box, means for supporting said box in elevated position, and means for guiding the movement of said box.

8. In a concrete-wall-forming machine, the combination with a trackway, of a molding-box suspended from the trackway, a core adjustably mounted in said box, means for moving said molding-box laterally, and means for elevating the said molding-box.

9. In a machine of the type set forth, the combination of a trackway, turn-tables constructed upon said trackway, a box suspended from said trackway, adjustable cores mounted in said box, means for elevating said box, means for supporting said box, in an elevated position, means for limiting the movement of said box, and means for guiding the movement of said box, substantially as described.

10. In a machine of the type set forth, the combination with a framework, a trackway supported by said framework, turn-tables constructed upon said trackway, of a molding-box suspended from said trackway and adapted to travel thereon, means for locking said box upon said trackway, adjustable cores mounted in said box, and means for elevating said box, substantially as described and for the purpose set forth.

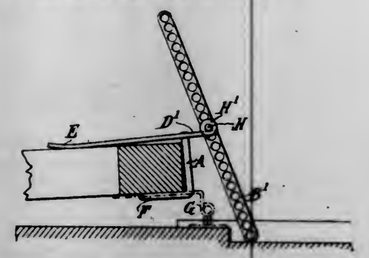
11. In a concrete-wall-forming machine, the combination of a trackway, turn-tables arranged thereon, a molding-box suspended from the trackway and adapted to travel thereon, means for moving said molding-box on the trackway, and means for elevating said box.

12. In a concrete-wall-forming machine, the combination of a trackway, turn-tables arranged upon said trackway, a molding-box suspended from the trackway and adapted to travel thereon, means for moving said molding-box on the trackway, an adjustable core mounted in said box, and means for elevating said box.

13. In a concrete-wall-forming machine, a suitably-supported trackway, a molding-box suspended from said trackway and adapted to travel thereon, means for locking said box at desired positions on the trackway, and means for elevating said box.

14. In a machine of the type set forth, a suitably-supported overhead trackway, a molding-box suspended from said trackway and adapted to travel thereon, means for limiting the movement of said box, and means for guiding said box in its movement.

784,085. **BLIND-FASTENER.** THERON A. UPSON, New York, N. Y. Filed July 29, 1903. Serial No. 167,496.



Claim.—1. A blind-fastener having its opposite ends shaped and positioned to frictionally engage the blind and a fixed abutment respectively whereby the bliad is held open and the fastener is held in place, said fastener being composed of parts adjustably connected together to adapt the device for different blinds.

2. A blind-fastener including a fork adapted to embrace an edge of a blind so as to engage both faces thereof, and means for pressing outward an inner portion of said fork to hold the blind open, said pressing means and fork being adjustably connected to adapt the fastener for different blinds.

3. A blind-fastener including in combination a fork adapted to embrace an edge of a blind so as to engage both the outer face and the inner face thereof, and an abutment member shaped and positioned to be brought into frictional engagement with a fixed abutment and to thereby forcibly press said blind open.

4. A blind-fastener including in combination a fork adapted to embrace an edge of a blind so as to engage both the outer face and the inner face thereof, and means for pressing outward an inner portion of said fork to hold the blind open.

5. A blind-fastener including in combination a blind member for engaging both the outer face and the inner face of the blind, and an abutment member pivoted to said blind member and shaped and positioned to be brought into frictional engagement with a fixed abutment and to thereby forcibly press said blind open.

6. A blind-fastener including in combination a fork adapted to embrace an edge of a blind so as to engage both faces thereof, and an abutment member adapted to be brought into frictional engagement with a fixed abutment to hold said blind open, said fork and abutment member being adjustably connected together to adapt the device for different blinds.

7. A blind member including in combination a fork having an outer end adapted to engage the hinged end of a blind, and a bar adjustably in engagement with an inner portion of said fork adapted to frictionally engage a fixed abutment and to thereby hold outward the inner portion of said fork to hold the blind open.

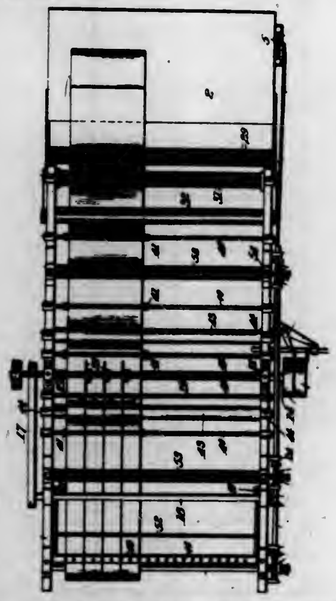
8. A blind-fastener including in combination a fork adapted to engage the hinged end of a blind, a bar adapted for frictional engagement with a fixed abutment and engaged with an inner portion of said fork, and means connected with said fork for frictionally pressing the blind outward and said bar inward against said abutment.

9. A blind-fastener including in combination a fork adapted to engage the hinged end of a blind, a bar adapted to frictionally engage a fixed abutment and to press outward an inner portion of said fork to hold the blind open, and means for holding said bar at a fixed angle with said fork.

10. A blind-fastener including in combination a fork adapted to embrace an edge of a blind so as to engage both the outer face and the inner face thereof, and a bar connected thereto and adapted to engage a part of the fixed structure and to thereby hold the blind open.

11. A blind-fastener including in combination a blind member engaging the blind, and a bar B' adjustably connected thereto to adapt the device for different blinds, said bar frictionally engaging a part of the fixed structure and thereby holding the blind open and the fastener in place.

784,086. **MACHINE FOR CUTTING WOVEN OR KNITTED FABRICS.** JAMES H. VINCENT, Littlefalls, N. Y. Filed Dec. 14, 1904. Serial No. 236,807.



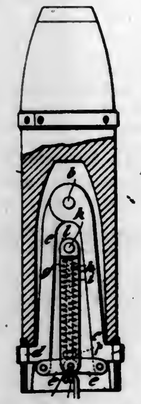
Claim.—1. In a machine of the class described, a rotating cutter-shaft provided with a plurality of rotary cutters, a plurality of guide-rods arranged in the path of the material, adjustable guide-blocks upon the guide-rods, guide-rollers upon each side of the cutter-shaft, a tension-roller journaled near the front end of the machine and provided with a brake, a pair of fluted feed-rollers journaled near each end of the machine upon opposite sides of the cutters, a take-up arbor journaled in the rear end of the machine, a continuously-rotated shaft journaled at one side of the machine, and friction worm-gearing connecting the said shaft with the feed-rollers and with the take-up arbor, substantially as specified.

2. In a machine of the class described, a frame having a plurality of guide-rollers mounted therein, a cutter-shaft having a plurality of adjustable cutters thereon, a pair of fluted feed-rollers journaled upon each side of the cutter-shaft, a take-up arbor journaled near the rear end of the machine, a common driving-shaft for the feed-rollers and take-up arbor, and means associated with the common driving-shaft and the feed-rollers and take-up arbor for imparting a variable speed to the latter.

3. In a machine of the class described, the combination with a frame having a cutter-shaft provided with a plurality of rotary cutters, and a plurality of guide-rods mounted in the frame in the path of the fabric, of a pair of feed-rollers mounted in the front and in the rear of the cutters, a take-up arbor journaled in the frame, a common driving-shaft 23 journaled at one side of the machine and having worm-sleeves frictionally mounted thereon, a worm-gear loose upon the arbor of the feed-rollers and upon the take-up arbor, and a clutch upon said arbors to clutch the worm-wheel to its arbor, substantially as specified.

4. In a machine of the class described, a frame having a plurality of guide-rods and guide-rollers mounted therein in the path of the fabric and around which the fabric is passed, a take-up arbor journaled in the end of the machine, a cutter-shaft having a plurality of rotary cutters thereon, a pair of feed-rollers journaled upon each side of the cutter-shaft, a tension-roller journaled near the front of the machine and provided with a friction-brake, a continuously-driven shaft, means for imparting a variable speed to the feed-rollers and the take-up arbor, comprising a worm-sleeve loosely mounted on the continuously-driven shaft, a friction-disk upon the shaft in engagement with one end of the worm-sleeve, a spring on the shaft to hold the worm-sleeve in frictional engagement with the friction-disk, a worm-wheel loosely mounted upon the arbors of the feed-rollers and the take-up arbor, a clutch-nut on said arbors in engagement with the worm-wheel, and a spring to hold the worm-wheel in engagement with the clutch-nut, substantially as specified.

784,087. **ORDNANCE PROJECTILE FOR GUNNERY PRACTICE.** EVSTEYN G. WANG, Christiania, Norway. Filed June 30, 1904. Serial No. 213,282.

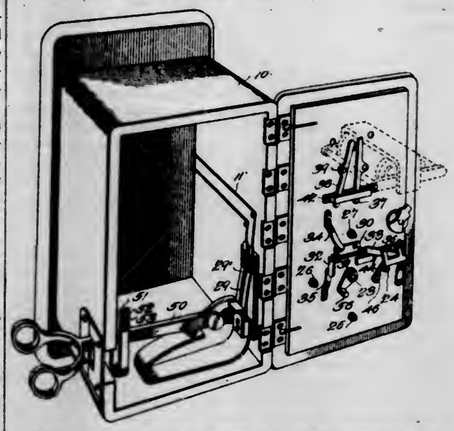


Claim.—1. In a projectile for gunnery practice the combination with the body of the projectile of movable lugs projecting outside of the projectile in the rear part of the same, means to hold the lugs immovable when pressed upon from the outside and means to withdraw the lugs inwardly.

2. In a projectile for gunnery practice the combination with the body of the projectile of radially-movable lugs projecting through apertures in the projectile, arms carrying said lugs, pivoted within the projectile in its front part, knuckle-joint links connecting the rear ends of said arms, and a spring to hold the connecting-pin of said links inside of a line between the outer ends of said links.

3. A projectile having a driving-band provided with movable projections, means to normally hold the latter beyond the periphery of the band and means for withdrawing said projections within said periphery.

784,088. **TELEPHONE SYSTEM.** WILLIAM D. WATKINS, San Jose, Cal., assignor to Watkins Manufacturing Company, San Jose, Cal. Filed Mar. 11, 1903. Serial No. 97,729.



Claim.—1. A telephone system including a signaling and a talking circuit, an electromagnetically-actuated selecting device arranged in the signaling-circuit, a call-bell controlled by the selecting device and including a movable member, and a switch controlled by said movable member for placing the local talking-circuit in communication with the main line.

2. In a telephone system, a main line, a central station, a plurality of telephones connected therewith, the local talking-circuit of each telephone being normally cut out independently of the receiver-hook contacts, a switch normally locked in open position and disposed in said local talking-circuit, a selecting device controlling the switch, and a local signaling-circuit for operating the selector, said signaling-circuit being in constant communication with the main line, and means operable from the central station for operating the selector and releasing the switch to permit the closing of the local talking-circuit.

3. In telephony, a main line, a local signaling-circuit, a selecting mechanism, a call-bell controlled by the selecting mechanism, a normally cut-out talking-circuit, and a switch disposed in said talking-circuit and normally held in open position, said switch being released and closed by the vibratory movement of the bell-clapper.

4. A telephone system comprising a main line, a local signaling-circuit in constant communication with the main line, a selecting mechanism and an electromagnetically-operated bell in the signaling-circuit, a normally cut-out local talking-circuit, and a switch in said talking-circuit, said switch being operably connected to the clapper of the bell and being released from a normally locked position when the clapper is actuated to thereby connect the local talking-circuit to the main line.

5. In a telephone system, a main line, and a central station, a normally cut-out local talking-circuit, a signaling-circuit in constant communication with the main line and including a call-bell, a selecting mechanism arranged in said signaling-circuit and controlling the operation of the call-bell, said selecting mechanism being under the control of the central station, and a switch operable on the sounding of the call-bell and serving to place the local talking-circuit in communication with the main line.

6. In a telephone system, the combination with the main line, a local talking-circuit disconnected from the main line independently of the receiver-hook-controlled contacts, a signaling-circuit constantly connected in the main line, a switch under the control of the signaling-circuit for placing said talking-circuit in communication with the main line, and manually operable means at each station for returning said switch to an initial position after each operation.

7. In a telephone system, a main line and a plurality of telephones, the local talking-circuit of each telephone being normally disconnected from the main line, a local signaling-circuit in constant communication with the main line and including a call-bell, a switch

for placing the local talking-circuit in communication with the main line and a selecting mechanism in the signaling-circuit controlling the operation of the call-bell, the movement of the bell-clapper effecting the closing of the switch and placing the talking-circuit in communication with the main line.

8. In a telephone system, the combination with a party-line and a series of telephones each having its local talking-circuit out of communication with the main line, of a grounded local signaling-circuit including a bell constantly connected in the main line, a switch for placing the local talking-circuit in communication with the main line and controlled by the movement of the bell-clapper, an electromechanically-operated selecting mechanism located in the signaling-circuit and controlling the movement of the bell-clapper.

9. A party-line telephone system comprising a main line, a telephone having its local talking-circuit normally cut out from the main line, a signaling-circuit, a switch having a pivotal support and adapted to place the local talking-circuit in communication with the main line, an electromagnetic call-bell located in the signaling-circuit, a pair of pivoted arms disposed one on each side of the clapper-rod of said bell and serving to hold the switch in elevated position, and means for returning the switch to an initial position.

10. In a telephone system, a normally open local talking-circuit, a normally closed signaling-circuit, a call-bell arranged in the signaling-circuit, a pair of pivoted arms situated one on each side of the clapper-rod of the bell and adapted to be operated thereby, a pivoted switch arranged in the talking-circuit and having devices for engaging said pivoted arms, a lever for raising the switch to open position, and means for operating said lever.

11. In a telephone system, a normally open local talking-circuit, a normally closed signaling-circuit, a call-bell arranged in the signaling-circuit, a pair of pivoted arms arranged one on each side of the clapper-rod and adapted to be operated thereby, a pivoted switch arranged in the talking-circuit and having devices for engaging said pivoted arms, a lever for returning the switch to open position, and a yielding boss carried by the receiver-hook of the telephone for engagement with said lever.

12. The combination of the switch, means for dropping said switch to closed position, a lever for returning the switch to open position, said lever having a projecting tongue or flange, a receiver-hook, a spring carried thereby, a notched boss mounted on the spring for engagement with said flange or tongue, and means for effecting the disengagement of the notched boss from the flange or tongue after the switch has been moved to open position.

13. The combination with a signaling-circuit, of a gravity-switch, means for dropping the switch to closed position, a lever for returning the switch to open position, a revoluble contact-switch arranged in the signaling-circuit, and a crank-arm carried by said revoluble contact-switch for engagement with the returning-lever, substantially as specified.

14. The combination of the local talking and signaling circuits, a pivotally-disposed switch, means for connecting the switch with one of the line-wires, contact-springs adapted for engagement by the switch and situated one in the signaling-circuit and the other in the talking-circuit, and mechanism under the control of the signaling-circuit for permitting a movement of the switch to engage the contact-spring in the talking-circuit and thereby close said circuit through the line-wire connected with the switch, substantially as specified.

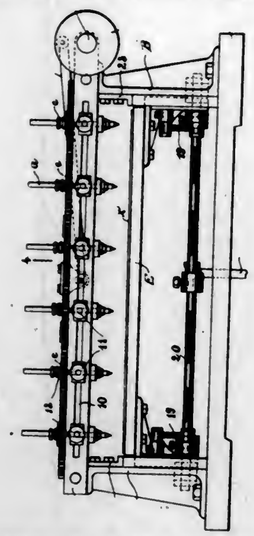
15. The combination with a normally open local talking-circuit, of a signaling-circuit, a switch, means under the control of the signaling-circuit for permitting a movement of said switch to close the talking-circuit, a series of contact-blocks arranged in the signaling-circuit, and a revoluble switch in the signaling-circuit adapted to make contact with the successive blocks, said revoluble switch being provided with means for engaging the switch of the talking-circuit and returning the same to open position.

784,089. **FABRIC-MARKING MACHINE.** KATE A. WERLE, Nazareth, Pa. Filed Apr. 23, 1903. Serial No. 154,644.

Claim.—1. In a fabric-marking machine, the combination with a series of markers, of a table for the fabric, means for bringing the table and markers together for marking, and means for rotating the markers during marking.

2. In a fabric-marking machine, the combination with a series of markers, of a table for the fabric, means for bringing the table and markers together for marking, and means for rotating the markers in opposite directions during marking.

3. In a fabric-marking machine, the combination with a series of markers, of a table for the fabric, means for bringing the table and markers together for marking, gears on the markers, and a reciprocating rack for rotating said markers in opposite directions.



4. In a fabric-marking machine, the combination with a table for the fabric, of two series of markers arranged in pairs, means for bringing the table and markers together for marking, and means for rotating the markers.

5. In a fabric-marking machine, the combination of two series of markers arranged in pairs, gears connecting the markers of each pair for rotating them simultaneously, and means for actuating said gears.

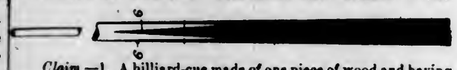
6. In a fabric-marking machine, the combination of two series of markers arranged in pairs, gears connecting the markers of each pair for rotating them simultaneously, and means for actuating said gears to rotate the markers in opposite directions during marking.

7. In a fabric-marking machine, the combination of two series of markers arranged in pairs, of gears connecting the markers of each pair for rotating them simultaneously, a rack for actuating said gears, and means for reciprocating said rack during marking.

8. The combination of carriers D, pairs of clamps *c* and markers *a*, *b* in said carriers, gears 12 connecting said clamps, and rack 13.

9. The combination with the pairs of markers *a*, *b*, of gears 12 connecting said markers, rack 13, and means for reciprocating said rack.

784,090. **BILLIARD-CUE.** JOHN N. WHITEHOUSE and JACOB BENDER, New York, N. Y. Filed Oct. 15, 1903. Serial No. 177,165.



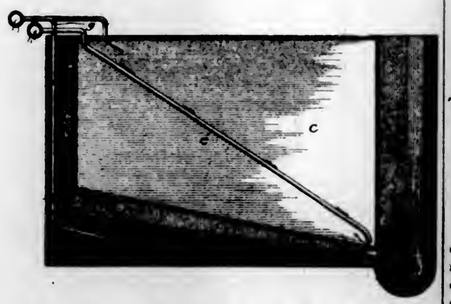
Claim.—1. A billiard-cue made of one piece of wood and having the tapering butt thereof overlaid with celluloid said overlay being formed with spaced extended portions 6, 6 which are inlaid into the material of the cue, substantially as described.

2. A billiard-cue made of one piece of wood and having the tapering butt thereof overlaid with celluloid, said overlay being formed at its smaller end with spaced and tapering extended portions which are inlaid into the material of the cue, substantially as shown and described.

784,091. **GRAINING-TANK FOR FATS.** BAILEY F. WILLIAMSON, Chicago, Ill. Filed May 28, 1902. Serial No. 109,295.

Claim.—1. In an apparatus of the class described, the combination of an exterior receptacle provided with hollow outer walls forming a tempering-chamber between the inner walls thereof, a series of hollow cells mounted inside the tempering-chamber and each having imperforate side and end walls entirely detached from the exterior receptacle and from each other, and means for supplying fluid to the cells and exhausting it therefrom, substantially as described.

2. In an apparatus of the class described, the combination of an exterior receptacle provided with hollow walls forming a tempering-chamber between the inner walls thereof, a series of hollow cells mounted inside the tempering-chamber formed by such inner walls and each having imperforate side walls entirely detached from the exterior receptacle and from each other, means for supplying fluid to the cells and exhausting it therefrom, means for supplying fluid to the space between the hollow walls of the exterior receptacle and exhausting it therefrom, and means for discharging the tempered fats, substantially as described.



3. In an apparatus of the class described, the combination of an exterior receptacle provided with hollow walls forming a tempering-chamber, a series of hollow partitions having imperforate adjacent sides arranged parallel with each other detached entirely from the exterior receptacle and from each other and at a distance from at least one of the inner side walls thereof forming a space between such partition and wall, means for supplying fluid to such hollow walls and partitions and exhausting it therefrom, and means for discharging the tempered fats, substantially as described.

4. In an apparatus of the class described, the combination of an exterior receptacle provided with hollow walls, a series of hollow partitions arranged transversely in the tempering-chamber of the receptacle parallel with each other and detached from the hollow walls, means for supplying fluid to such hollow walls and partitions and exhausting it therefrom, and a helical screw conveyer arranged adjacent to and near the bottom of the partitions at right angles thereto and within the exterior receptacle for discharging the tempered fats, substantially as described.

5. In an apparatus of the class described, the combination of an exterior receptacle provided with hollow walls forming a tempering-chamber, a series of hollow partitions arranged parallel with each other in the tempering-chamber of the receptacle and detached from the walls of such receptacle leaving all parts of the tempering-chamber connected, means for supplying fluid to such hollow walls and partitions and exhausting it therefrom, and a helical conveyer arranged near the bottom of such partitions and within the exterior receptacle formed of a series or plurality of radially-extending pins or beaters for discharging the tempered fats, substantially as described.

6. In an apparatus of the class described, the combination of an exterior receptacle having hollow walls forming a tempering-chamber, a series of hollow partitions arranged in the tempering-chamber thereof and parallel with each other and at a distance from at least one side wall of the tempering-chamber leaving all parts of such chamber connected, means for supplying fluid to such hollow walls and partitions and exhausting it therefrom, a trough at one side of the lower portion of the receptacle at right angles to the hollow partitions, and a helical conveyer formed of a rotatable shaft having a series of radially-extending pins or beaters arranged in such trough for discharging the tempered fats, substantially as described.

784,092. **LAMP-BURNER.** AMOS P. WOODWARD, Franklin, Mass. Filed Nov. 7, 1904. Serial No. 231,640.

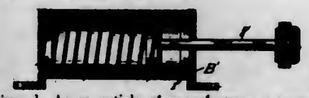
Claim.—1. A lamp-burner having a base-flange and a dome resting thereon, said base-flange having rigid therewith a lateral reflector-supporting extension.

2. In a lamp-burner, a base-flange, as 2, a dome supported thereby, a lateral reflector-supporting extension rigidly secured to the base-flange, and reflector-supporting pins carried by said extension.

784,092.



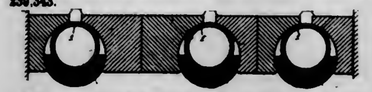
784,093. **DOOR-CHECK.** AGNES S. ADAM, Washington, D. C. Filed June 17, 1904. Serial No. 212,977.



Claim.—1. As an article of manufacture, a pneumatic door-check comprising a barrel or cylinder, heads, a piston, piston-rod and buffer, the device constructed and adapted to be secured to the door-jamb, and the rod secured to the piston and guided through one of the heads and carrying the buffer at its outer end in position to sustain the pressure of the door in closing.

2. The combination with a barrel or cylinder, heads having base-flanges thereon by which to secure them in position and annular flanges to receive the ends of the barrel or cylinder, of a cup-shaped piston fitted to the bore of the barrel or cylinder, and adapted to form an air-cushion between it and one head of the barrel or cylinder, a piston-rod, a buffer on its outer end, and a spiral spring confined in the air-cushioning chamber for restoring the buffer to its normal position.

784,094. **SHEATHING FOR BOILER-TUBES.** JOHN D. ALEXANDER, Troy, N. Y., assignor to Franklin Boiler Works, Green Island, N. Y., a Corporation of New York. Filed Jan. 3, 1905. Serial No. 239,343.



Claim.—1. The combination with a tube; of a sheathing tile or plate adjacent to one side of said tube; and a key engageable with oppositely-disposed portions of said tube and said plate or tile.

2. The combination with a tube; of a sheathing tile or plate located beneath said tube; and a key overhanging said tube and engageable with an overhanging portion of said tile or plate.

3. The combination with a tube; of a key overhanging said tube; and a sheathing tile or plate beneath said tube overhanging said key.

4. The combination with a tube; of a sheathing tile or plate located beneath said tube wholly below the horizontal axial plane thereof; and separate plate-supporting means engageable with the upper side of said tube.

5. The combination with a tube; of a pair of keys on opposite sides of said tube each overhanging said tube; and a sheathing tile or plate beneath said tube overhanging at its opposite sides said keys respectively.

6. The combination with a plurality of tubes; of a plurality of sheathing plates or tiles adjacent to the respective tubes on one side thereof; and a pair of keys inserted between neighboring tubes, said keys abutting each upon the other on one side and each engageable on its other side with oppositely-disposed portions of the adjacent tube and sheathing plate or tile.

7. The combination with a tube; of a key overhanging said tube on one side; a resisting support for the opposite side of said key; and a sheathing plate or tile beneath said tube overhanging said key.

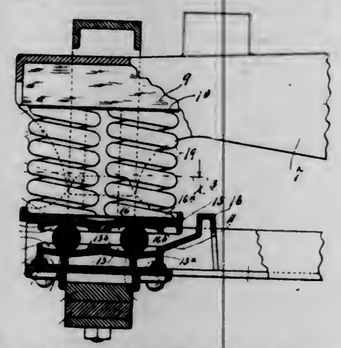
8. The combination with a tube; of a sheathing plate or tile adjacent to a side of the tube; a pair of keys on opposite sides of said tube having their neighboring sides adapted to be engaged by oppositely-disposed portions of said tube and sheathing plate or tile; and resisting-supports for the opposite sides of said keys.

784,095. RAKE. ARTHUR J. ALLISON, East Liverpool, Ohio. Filed Sept. 15, 1903. Serial No. 173,301.



Claim.—In a rake of the type set forth, a cross-bar having a plurality of teeth secured to its under face, depending ends formed integral with the ends of said bar, said depending ends being for their greater portions of greater width than said cross-bar and projecting in advance thereof, said depending ends being slotted and having their lower portions formed into teeth disposed in alinement with the first-named teeth, bolts projecting through said slots, and wheels mounted for rotation on said bolts.

784,096. LATERAL-MOTION DEVICE FOR CAR-TRUCKS. LEE W. BARBER, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a Corporation of New Jersey. Filed Oct. 4, 1904. Serial No. 227,094.



Claim.—1. A lateral-motion device for trucks, comprising upper and lower roller-bearings, and interposed rollers, said roller-bearings having roller-seats formed with flat bearing-surfaces, that diverge from a horizontal plane, and extend from the intermediate portions of said roller-seats, substantially as described.

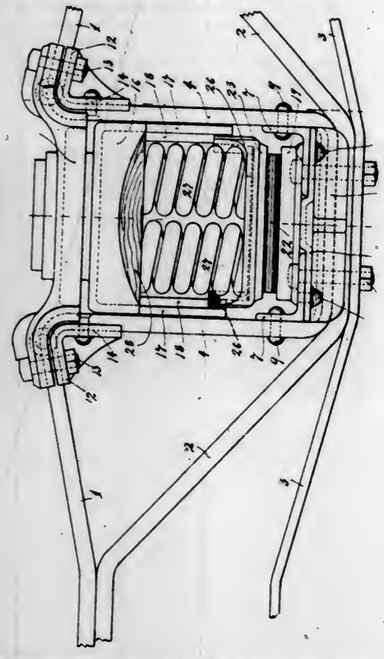
2. In a car-truck, a lateral-motion device interposed between the truck-frame and the truck-bolster comprising upper and lower roller-bearings, and interposed bearing-rollers, said roller-bearings having roller-seats formed with flat bearing-surfaces, that diverge from a horizontal plane, and extend in opposite directions from the intermediate portions of said roller-seats, substantially as described.

3. In a car-truck, a lateral-motion device and springs, interposed between the truck-bolster and the truck-frame, said lateral-motion device comprising upper and lower roller-bearings, and interposed rollers, one of which bearings is held to move with the truck-bolster, and the other with the truck-frame, said bearings having roller-seats formed with flat bearing-surfaces, that diverge from a horizontal plane, and extend from the intermediate portions of said seats, substantially as described.

4. In a car-truck, the combination with a truck-frame and a truck-bolster, of upper and lower roller-bearings, the former of which is carried transversely of the truck by said bolster, and has a limited vertical movement with respect thereto, and the latter of which is fixed on the truck-frame, and has a stop-lug for intercepting transverse movements of said upper roller-bearing, springs interposed between said upper roller-bearing and the truck-bolster, and bearing-rollers interposed between said upper and lower roller-bearings, said roller-bearings having roller-seats formed with flat bearing-surfaces, that diverge from a horizontal plane, and from the intermediate portions of said seats, and which seats terminate in abrupt stop-shoulders, substantially as described.

784,097. CAR-TRUCK. LEE W. BARBER, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a Corporation of New Jersey. Filed Oct. 28, 1904. Serial No. 230,305.

Claim.—1. A trussed side frame for car-trucks provided with an arch-bar constructed to afford a combined arch-bar and bolster-columns, formed integral with each other and rigidly connected to the other arch-bar, substantially as described.



2. In the trussed side frame of a car-truck, an arch-bar bent to form bolster-columns which are integral therewith and rigidly connected to the other arch-bar, and a detachable bridge-bar rigidly connecting the angles of the bent arch-bar and columns, substantially as described.

3. In the trussed side frame of a car-truck, a top arch-bar having formed integrally with its intermediate portion a depending stirrup, which is rigidly connected to the lower arch-bar of said frame, and the sides of which afford bolster-columns, substantially as described.

4. In the trussed side frame of a car-truck, a top arch-bar having integrally formed therewith, at its intermediate portion, a depending stirrup that is rigidly connected to the lower arch-bars of said frame, and the sides of which afford bolster-columns, and a detachable bridge-bar, rigidly secured to the angular portions of said top arch-bar and stirrup, and spanning the gap between the upper portions of said columns, substantially as described.

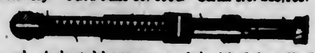
5. In the trussed side frame of a car-truck, the combination with the lower arch-bar thereof, of a top arch-bar 1, bent downward at its intermediate portion to form a stirrup 4 5, the sides 4 of which afford bolster-columns, and a bridge-bar 11 detachably secured to the upper portions of column-forming sections 4, and spanning the gap in said bar 1 between said columns, substantially as described.

6. In a trussed side frame of a car-truck, the combination with a top arch-bar having bolster-columns integrally formed therewith, and rigidly united to the lower bars of said frame, a bridge-bar detachably united to the upper portions of said columns, angle-brackets 12 rigidly secured to the upper ends of said columns and to said top arch-bar, and provided with an inwardly-projecting arm 15, affording a bearing for a brake-hanger, substantially as described.

7. A trussed side frame for car-trucks provided with an arch-bar constructed to afford a combined arch-bar and bolster-columns, and rigidly connected to the other arch-bar, substantially as described.

8. In a trussed side frame of a car-truck, an arch-bar constructed to afford a combined arch-bar and bolster-columns, and a detachable bridge-bar rigidly connecting angles of the arch-bar and columns, substantially as described.

784,098. DENTAL ROOT-EXTRACTOR. WALTER S. BEASLEY, Lancaster, Ky. Filed June 18, 1904. Serial No. 213,169.

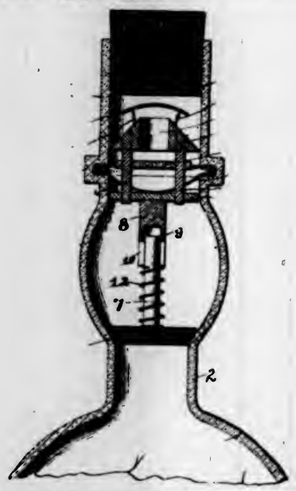


Claim.—1. A dental instrument of the kind described comprising an inner and outer tube, both provided with handles, the inner tube having a bearing-support at its lower end, the outer tube carrying a bar terminating in a hook at the lower end, said hook being adapted to engage a screw-eye, and means for returning the said parts to their normal positions.

2. A dental instrument of the kind described comprising an inner tube having a handle at its upper end and supporting-legs at its lower ends, said legs being provided with cushioned feet, an outer tube provided also with handles and having a bar connected thereto, said bar sliding within the inner tube and carrying a rod which terminates in a hook said hook being adapted to engage a screw-eye, and the spring for returning said parts to their normal positions.

3. A dental instrument of the kind described comprising an inner tube having a handle at the upper end and the legs at the lower end, said legs being provided with cushioned feet, an outer tube provided with laterally-projecting handles, a bar movable in the inner tube and connected to the outer tube by means of a bolt, said bolt working in the longitudinal slots produced in the inner tube, a spring arranged within the inner tube and adapted to bear upon the upper end of said bar, a rod carried by the bar and terminating in a hook at its lower ends and a screw-eye adapted to be engaged by said hook for the purpose specified.

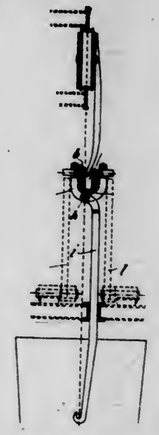
784,099. BOTTLE. HARRY S. BELLIS, Webster Groves, Mo. Filed May 5, 1904. Serial No. 206,566.



Claim.—1. In a bottle of the character described, the combination with the neck of the same having a bulged or globular portion and a reduced portion below said globular portion, of a check-valve arranged in said globular portion to close said reduced portion, an apertured frusto-conical baffle-plug arranged in the upper portion of said neck, baffle-plates arranged above and below said plug, and means whereby said parts are locked against removal from the neck of said bottle, substantially as described.

2. In a bottle of the character described, the combination with the neck of the same, having a bulged or globular portion, a reduced portion below said bulged portion, and an annular groove or recess above the same, of a valve seated in the lower end of said globular portion, thereby closing the entrance to the bottle, an apertured frusto-conical baffle-plug arranged in the upper portion of said neck above said globular portion, a baffle-plate arranged above said plug, a similar plate arranged below the same, hanger-bars connecting said cross-bar with said plug, and a downwardly-curved spring resting on said cross-bar, the ends of said spring being adapted to engage the annular groove or recess formed in said neck, thereby preventing the withdrawal of the valve and the parts connected thereto, substantially as described.

784,100. ROPE-CLUTCH FOR AERIAL-TRAMWAY CARRIAGES. EUGENE BOUCHER, New York, N. Y. Filed June 23, 1904. Serial No. 213,899.



Claim.—1. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage, and a vertically-movable piece guided upon the hanger and carrying the load, the traction-rope being adapted to be clamped between the hanger and the movable part, substantially and for the purpose as specified.

2. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a cylindrical and downwardly-projecting pivot at the lower end of the hanger, a vertically-movable part guided upon said pivot, a second hanger suspended from the said movable part and having a universal movement, and means allowing said universal movement, the said second hanger being adapted to carry the load, substantially and for the purpose as specified.

3. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a vertically-movable part guided upon the lower end of the hanger, said movable part having lateral pivots extending approximately in line with the traction-rope, a double arm journaled upon said pivots, a pivot journaled in said double arm, the latter arm with its pivot forming a universal joint, a second hanger suspended from said universal joint and carrying the load, substantially and for the purpose as specified.

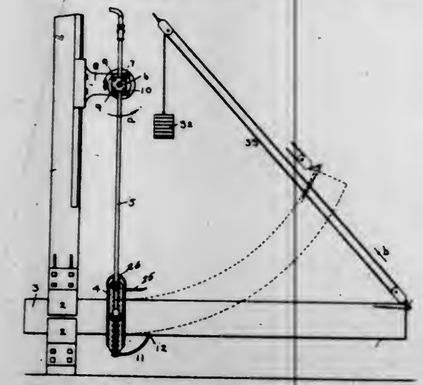
4. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a vertically-movable piece guided upon the lower end of the hanger, said movable piece consisting of a casing adapted to fit upon said lower end of the hanger, a recess at one side of the said casing having an oblique surface, said surface and lower end of the hanger immediately above the cylindrical extension thereof being adapted to clamp the traction-rope, lateral horizontal pivots attached to the movable casing and extending approximately in line with the traction-rope, a universal joint suspended from said pivots and a second hanger suspended from said universal joint and carrying the load, substantially and for the purpose as specified.

5. A rope-clutch for wire-rope-tramway carriages comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a vertically-movable piece guided upon the lower end of the hanger, said movable piece consisting of a casing adapted to fit upon said lower end of the hanger, a recess at one side of the said casing having an oblique surface, a screw working in the said recessed side for the increase of friction, lateral horizontal pivots attached to the movable casing and extending approximately in line with the traction-rope, a universal joint suspended from said pivot and a second hanger suspended from said universal joint and carrying the load, substantially and for the purpose as specified.

6. The combination with a wire-clutch for aerial-wire-rope-tramway carriages, of a device for lifting the movable piece of the clutch, said device comprising swinging arms journaled upon an axle and arranged at suitable points of the track, counterweights

and stops for holding the swinging arms in proper position, said arms being adapted to support with their upper ends the pivots of the movable piece, when the latter comes to lie between the two arms, and in swinging around to lift the said movable piece, substantially and for the purpose as specified.

784,101. APPARATUS FOR BENDING PIPE. LOUIS H. BRINKMAN, West Hartford, Conn., assignor to Whitlock Coil Pipe Company, West Hartford, Conn., a Corporation of Connecticut. Filed July 6, 1903. Serial No. 164,304.



Claim.—1. In an apparatus for bending pipe, the combination of means for applying a bending strain to one end of the pipe and at an angle to the axis of the pipe, means for holding the opposite end of the pipe in a fixed and stationary position capable of resisting said bending strain, and means for heating annular sections of the pipe progressively from the fixed end of the pipe toward its free end, substantially as described.

2. In an apparatus for bending pipe, the combination of means for applying a bending strain to one end of the pipe and at an angle to the axis of the pipe, clamping-jaws for holding the opposite end of the pipe in a fixed and stationary position and capable of resisting said bending strain, means for heating annular sections of the pipe progressively from the fixed end toward the free end of the pipe, and means for progressively cooling the heated sections of the pipe, substantially as described.

3. In an apparatus for bending pipe, the combination of means for holding one end of the pipe in a fixed position, means for progressively heating said pipe in sections, and means for continuously applying a bending strain to the opposite or free end of the pipe.

4. In an apparatus for bending pipe, the combination of means for holding one end of the pipe in a fixed position, means for progressively heating the pipe in sections, means for continuously applying an axial bending strain to the opposite or free end of the pipe, and means for progressively cooling the pipe in sections and adjacent to a heated section.

5. In an apparatus for bending pipe, the combination with means for holding one end of the pipe in a fixed position and means for continuously applying a bending strain to the opposite or free end of the pipe, of a burner for heating a limited section of the pipe, and means for moving said burner progressively along said pipe.

6. In an apparatus for bending pipe, the combination with means for applying a bending strain to the pipe whereby it is axially curved, of a burner for heating a limited section of said pipe, means for moving said burner along said pipe, and means for controlling the movement of the burner as determined by the curvature of the pipe.

7. In an apparatus for bending pipe, the combination with means for applying a bending strain to the pipe whereby it is axially curved, of a burner for heating a limited section of the pipe, means for moving said burner along the pipe, means for controlling the movement of said burner as determined by the curvature of the pipe, whereby said burner is automatically fed along said pipe as the pipe is bent, and means for successively cooling said pipe behind said burner.

8. In an apparatus for bending pipe, the combination with means for applying a bending strain to the pipe, of a burner for heating a limited section of the pipe, means for moving the burner along the pipe, an annular water-chamber surrounding the pipe, and a series of water-jets leading radially from said water-chamber, substantially as described.

9. In an apparatus for bending pipe, the combination with a pipe having one end held in a fixed position, of means for applying a bending strain to the pipe, an annular burner inclosing the pipe, means for pivotally supporting said burner at a distance from the pipe equal to the radius of the desired curvature of the pipe, and means for swinging said burner on its pivotal support.

10. In an apparatus for bending pipe, the combination with a pipe having one of its ends held in a fixed position, of means for applying a bending strain to the pipe, an annular burner inclosing the pipe, means for pivotally supporting said burner, means for swinging said burner on its pivotal support, and means for controlling the swinging motion of the burner as determined by the curvature of the pipe, substantially as described.

11. In an apparatus for bending pipe, the combination with a pipe having one of its ends held in a fixed position, means for applying a bending strain to the pipe, an annular burner inclosing the pipe, means for pivotally supporting said burner, means for swinging said burner toward the free end of the pipe, and a curved brace-rod carried by said burner with its free end in contact with the pipe, whereby the swinging movement of the burner is controlled by the curvature of the pipe, substantially as described.

12. In an apparatus for bending pipe, the combination with a pipe having one of its ends held in a fixed position, of means for applying a bending pressure to the pipe, an annular burner inclosing the pipe, means for pivotally supporting said burner, a spring applied to said burner to swing it toward the free end of the pipe, and means for controlling the swinging movement of the burner, whereby its position is determined by the curvature of the pipe, substantially as described.

13. In an apparatus for bending pipe, the combination with a pipe having one of its ends held in a fixed and stationary position, of a burner for heating a limited section of the pipe, means for moving said burner from the fixed toward the free end of the pipe, means for controlling the movement of said burner as determined by the curvature of the pipe, and means for applying water to the outside of the heated pipe immediately behind said burner, substantially as described.

14. In an apparatus for bending pipe, the combination with a pipe having one of its ends held in a fixed position, of means for applying a bending strain to the pipe, an annular burner inclosing the pipe by which an annular section is heated, means for changing the position of said burner along the pipe, and means for cooling the heated section as the burner is moved, substantially as described.

15. In an apparatus for bending pipe, the combination with means for holding a pipe with one of its ends in a fixed position, of an annular burner arranged to inclose the pipe, means for pivotally supporting the burner, and means for varying the distance of the pivotal support of the burner from the pipe, whereby the curvature of the pipe is determined, substantially as described.

16. In an apparatus for bending pipe, the combination of means for holding a portion of the pipe in a fixed and stationary position, means for applying a bending strain to the pipe, whereby it is curved in the direction of its length, means for heating annular sections of said pipe progressively from the held section toward one end of the pipe, substantially as described.

17. In an apparatus for bending pipe, the combination of means for applying a bending strain to the pipe, and means for heating an annular section of the pipe and consisting of a burner comprising two annular shells one inclosed within the other, and provided with interior slits, a pipe for feeding gas under pressure to one of said shells, and a pipe for supplying air to the other of said shells, means for moving said burner along the pipe, and means for applying a bending strain to the pipe.

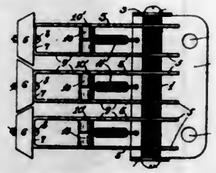
18. In an apparatus for bending pipe, the combination with a pipe, of means for holding a portion of the pipe in a fixed position, means for applying a bending strain to the pipe, an annular burner inclosing the pipe and comprising an outer and an inner shell, parallel pipes communicating with the outer shell on diametrically opposite sides, a rocking spindle provided with clamping devices at its ends for holding said parallel pipes, a pipe for feeding gas under pressure through said parallel pipes to the outer shell of the burner, an opening for admitting air to the inner shell of the burner, and interior adjacent slits in said shells for the escape of gas and air against the pipe, substantially as described.

19. In an apparatus for bending pipe, the combination of a post or frame, a bracket adjustably held on said post or frame, a rocking spindle journaled in said bracket, a pair of pipes adjustably clamped to the ends of said spindle, an annular burner suspended by said pipes, jaws for holding a pipe to be bent, means for moving said burner from the held section of the pipe toward its free end, and means for applying a bending strain to the pipe, substantially as described.

20. In an apparatus for bending pipe, the combination of a vertical post, a pair of clamping-jaws held on said post, a bracket vertically adjustable on said post, a spindle journaled in said bracket, pipes held by said spindle, an annular burner suspended by said pipes, a spring with its tension applied to rotate said spindle, and means for applying a bending strain to the pipe, substantially as described.

21. In an apparatus for bending pipe, the combination with a supporting post or frame, and a bracket adjustably attached thereto, of a spindle journaled in said bracket, an annular burner adjustably held by said spindle and adapted for burning gaseous fuel, a water-chamber formed in said burner and a series of radial interior openings in said water-chamber, substantially as described.

784,102. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES. JAMES BURKE, New York, N. Y., assignor to Burke Electric Company, a Corporation of New Jersey. Filed May 3, 1904. Serial No. 206,137.



Claim.—1. In a brush-holder for dynamo-electric machines, the combination of a threaded stud, a U-shaped sheet-metal support mounted to turn thereon, a brush fixed to said support, and means for forcing the said brush against the commutator, said means being adjustable along the length of said support, substantially as described.

2. In a brush-holder for dynamo-electric machines, the combination of a threaded stud, a plurality of U-shaped sheet-metal supports mounted to turn thereon, a brush fixed to each of said supports, a fixed member, and means for forcing the brushes against the commutator comprising a plurality of springs attached to said fixed member and having the opposite ends of said springs individually adjustable along the length of said supports, substantially as described.

3. In a brush-holder for dynamo-electric machines, the combination of a threaded stud, one or more U-shaped sheet-metal supports mounted to turn thereon and having notched edges, a brush fixed to each of said U-shaped supports, a fixed member, and a spring for each of said supports having one end attached to said fixed member and the other end making adjustable engagement with one of said notched supports, substantially as described.

4. In a brush-holder for dynamo-electric machines, the combination of a stud, a plurality of U-shaped sheet-metal supports, the arms of said supports engaging the stud, a brush fixed to the opposite end of each of said supports, said brushes overlapping each other, and means for forcing the brushes against the commutator, substantially as described.

5. In a brush-holder for dynamo-electric machines, the combination of a threaded stud, a plurality of U-shaped supports, the arms of said supports engaging the threaded stud, a brush fixed to the opposite end of each of said supports, said brushes overlapping each other, and adjustable means for forcing the brushes against the commutator, substantially as described.

6. In a brush-holder for dynamo-electric machines, the combination of a stud, one or more U-shaped sheet-metal supports, the arms of said supports engaging the stud, a brush fixed to the opposite end of each of said supports, a fixed plate, and a spring for each of said supports, engaged at one end to said supports and at the other end to the said plate, substantially as described.

7. In a brush-holder for dynamo-electric machines, the combination of a threaded stud, one or more U-shaped sheet-metal supports, the arms of said supports engaging the threaded stud and having notched edges, a brush fixed to the opposite end of each of said supports, a fixed plate, and a spring for each of said supports adjustably engaged at one end to said supports and at the other end to the said plate, substantially as described.

8. In a brush-holder for dynamo-electric machines, the combination of a supporting-stud and plate, said plate having ears bent at right angles and engaged by said stud, supports mounted to turn on said stud, a brush carried by each of said supports, and a spring engaging each of said supports at one end and the said plate at the other, substantially as described.

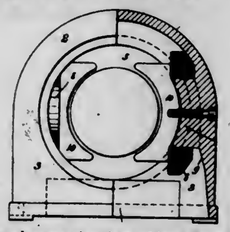
9. In a brush-holder for dynamo-electric machines, the combination of a supporting-stud and plate, said stud being threaded, and said plate having ears bent at right angles and engaged by said stud, supports mounted to turn on said stud, and a spring adjustably engaging each of said supports at one end and the said plate at the other, substantially as described.

10. In a brush-holder for dynamo-electric machines, the combination of a supporting-stud and plate of sheet metal, said plate having ears bent at right angles and engaged by said stud, U-shaped supports of sheet metal mounted to turn on said stud, a brush carried by each of said supports and a spring engaging each of said supports and secured to said plate, substantially as described.

11. In a brush-holder for dynamo-electric machines, the combination of a stud, supports mounted to turn thereon, a brush carried by each of said supports, said brushes overlapping each other, and means for forcing the brushes against the commutator, substantially as described.

12. In a brush-holder for dynamo-electric machines, the combination of a stud, a plurality of supports thereon, a brush secured to each of said supports, said brushes overlapping each other, and means for forcing the brushes against the commutator, substantially as described.

784,103. DYNAMO-ELECTRIC MACHINE. JAMES BURKE, New York, N. Y., assignor to Burke Electric Company, a Corporation of New Jersey. Filed July 18, 1904. Serial No. 216,985.



Claim.—1. In a dynamo-electric machine, a frame having a central opening through its bottom portion, the said opening communicating directly with the space between the field-poles and affording free access to said poles and the coils thereon, said field-poles projecting radially inward.

2. A field-magnet frame for dynamo-electric machines provided with openings in the bottom and end portions, the aggregate cross-section of the frame throughout being substantially equal to the cross-section of the poles.

3. A field-magnet frame for dynamo-electric machines, the base of which comprises two paths, each adapted to carry the magnetic flux, and separated from each other to form an opening in the bottom of the machine, substantially as described.

4. A field-magnet frame comprising a housing having an opening at its bottom, said opening being formed within side portions which are adapted to carry the magnetic flux, and said frame having poles which project radially inward, substantially as described.

5. A dynamo-electric machine having a ∩-shaped field-frame and having an opening through the bottom, said field-frame encompassing both the field-poles and the coils thereon, substantially as described.

6. A dynamo-electric machine having a ∩-shaped field-magnet open at the bottom, and side connections for the ends of said magnet adapted to carry the magnetic flux, substantially as described.

7. In a dynamo-electric machine, the combination of an inverted-U-shaped integral field-frame having side portions connecting the four corners, and side brackets for supporting the armature, substantially as described.

8. In a dynamo-electric machine, a frame having ventilating-openings through the ends thereof and a ventilating-opening through its bottom portion, the said opening at the bottom communicating

directly with the space between the field-poles, the said field-poles projecting radially inward from said frame, and field-coils carried by said poles.

9. In a dynamo-electric machine, a frame having ventilating-openings through the ends thereof and a ventilating-opening through the center of its bottom portion, the said opening at the bottom communicating directly with the space between the field-poles, the said field-poles projecting radially inward from said frame, and field-coils carried by said poles.

10. In a dynamo-electric machine, a frame having ventilating-openings through the ends thereof, and a ventilating-opening through its bottom portion, the said opening at the bottom communicating directly with the space between the field-poles, the said field-poles projecting radially inward from said frame, and the bottom portion of said frame serving to conduct magnetism from pole to pole.

11. In a dynamo-electric machine, a frame having ventilating-openings through the ends thereof and a ventilating-opening through its bottom portion, the said opening at the bottom being formed by side portions on said frame, said side portions serving to conduct magnetism from pole to pole, and the said poles projecting radially inward.

12. In a dynamo-electric machine, a frame having an opening through its bottom portion, the said opening communicating directly with the space between the field-poles, said field-poles projecting radially inward and said opening being formed within side portions of said frame, said side portions serving to conduct magnetism from pole to pole.

13. In a dynamo-electric machine, a frame having a central opening through its bottom portion, the said opening communicating directly with the space between the field-poles, said field-poles projecting radially inward and said opening being formed within side portions of said frame.

14. In a dynamo-electric machine, the combination of an armature and a field-magnet frame, said frame having circumferential and end openings and poles which project radially inward, and field-coils carried by said poles, said circumferential opening communicating directly with the space between said poles.

784,104. **SASH-CENTER.** CHARLES J. CALEY, New Britain, Conn., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed Oct. 19, 1904. Serial No. 229,078.



Claim.—1. A sash-center comprising the combination of a pair of similarly-formed pivot-blocks having recesses in their adjacent faces, a screw-threaded stud carried by one of said blocks and projecting through the other of said blocks, a separately-formed, spring-pressed, corrugated friction-plate mounted in each of said recesses, and secured against rotation relative to the respective blocks, and a clamping-nut carried by said stud for the purpose specified.

2. A sash-center comprising the combination of a pair of blocks having recesses in their adjacent faces, a spring-plate 7 having circumferentially-arranged arms 8 and a corrugated friction-plate mounted in each of said recesses for coöperation substantially as described.

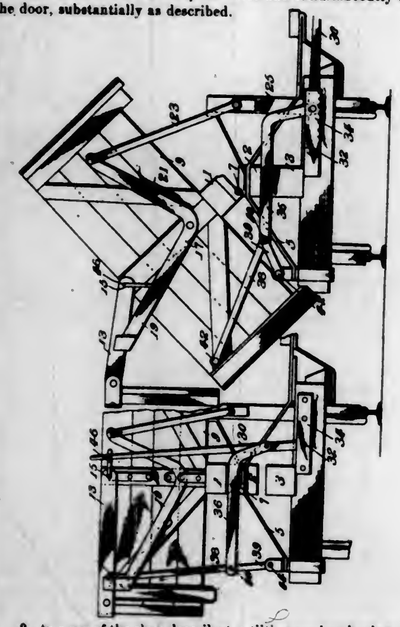
3. A device of the character described comprising the combination of a pair of blocks pivotally mounted with relation to one another and a pair of corrugated friction-engaging plates each separate from but inclosed by and adapted to remain stationary with relation to its corresponding block.

4. A device of the character described comprising the combination of a pair of blocks pivotally mounted with relation to one another and a pair of separate corrugated friction-engaging plates each adapted to remain stationary with relation to its corresponding block and two spring-plates for holding said corrugated plates in contact with one another.

5. A device of the character described comprising the combination of a pair of blocks pivoted with relation to one another and having recesses in their adjacent faces and separate spring-pressed corrugated means housed in said recesses for holding said blocks in any one of a plurality of definite angular positions.

784,105. **DUMPING-CAR.** WALTER R. CLIFFE, Harrisburg, Pa. Filed Nov. 2, 1904. Serial No. 231,126.

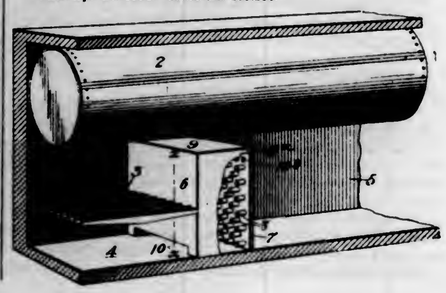
Claim.—1. The combination in a car of the class described, of a tilting car-box having a discharge-opening, a movable door closing said opening, arms pivoted to the car-box and connected with said door, a bell-crank lever connected to the car-box and coacting with the door, whereby the movement of the car-box opens the door, a hand-lever suitably supported, and pivoted connections between said hand-lever and the car-box, whereby the movement of the hand-lever tilts the car-box to dump the same and simultaneously opens the door, substantially as described.



2. In a car of the class described, a tilting car-box having a discharge-opening, a movable door closing said opening, arms pivoted to the car-box and connected to the door, and a bell-crank lever connected to the car-box and coacting with the door, whereby the movement of the car-box opens the door, in combination with a hand-lever suitably supported, and a toggle connected with the car-box, said hand-lever and toggle being connected, whereby the single movement of the hand-lever tilts the car and opens the door, substantially as described.

3. In a car of the class described, a tilting car-box having a discharge-opening, a movable door closing said opening, arms pivoted to the car-box and connected to the door, and a bell-crank lever, connected to the car-box and coacting with the door, whereby the movement of the car-box opens the door, in combination with a hand-lever suitably supported, and a toggle connected with the car-box, and means for holding said hand-lever in its normal position, said hand-lever and toggle being connected, whereby the single movement of the hand-lever tilts the car and opens the door, substantially as described.

784,106. **FUEL-ECONOMIZER.** WILLIAM B. COLE, Norfolk, Va. Filed Apr. 27, 1904. Serial No. 205,256.



Claim.—1. In a fuel-economizer for boiler-furnaces, the combination of a non-metallic bridge-wall having an air-inlet through its lower portion and a recess in the rear, a removable closure-plate for said recess with its lower end on a level lower than the air-inlet, said plate having pins integral therewith projecting into said recess and provided with openings near its upper edge to allow the air to escape, substantially as described.

2. In a fuel-economizer for boiler-furnaces, the combination of a non-metallic bridge-wall having an air-inlet at the base, a recess in the rear below the top, a removable closure-plate for said recess with its lower end on a level lower than the air-inlet, said plate having pins integral therewith projecting from its inner side, and provided with openings near its upper edge to allow air ascending between the pins to escape, substantially as described.

784,107. **PROCESS OF MAKING COMPOUNDS OF PYROCATECHUICMONOALKYL ETHERS.** HEINRICH C. FERRLIN, Schaffhausen, Switzerland. Filed Jan. 14, 1904. Serial No. 189,002.

Claim.—1. The process, which consists in reacting upon a solution of a protein with a pyrocatechuicmonoalkyl ether, separating the reaction product and drying the same.

2. The process, which consists in reacting upon a solution of a protein at a temperature above normal with a pyrocatechuicmonoalkyl ether, separating the reaction product, and drying the same.

3. The process, which consists in reacting upon a solution of a protein at a temperature above normal with a pyrocatechuicmonoalkyl ether, separating the reaction product, drying, and then heating the same to from about 115° to 120° centigrade.

4. The process, which consists in reacting upon a solution of a protein with a pyrocatechuicmonoalkyl ether in the presence of a suitable acid, separating the reaction product and washing and drying the same.

5. The process, which consists in reacting upon a protein in the presence of an indifferent solvent with a pyrocatechuicmonoalkyl ether at a temperature above normal and separating the reaction product, for the purposes set forth.

6. The process, which consists in reacting upon a protein with a pyrocatechuicmonoalkyl ether, separating the reaction product and heating the same to from about 115° to 120° centigrade, for the purpose set forth.

7. The process, which consists in reacting upon a solution of a protein with a solution of an alkaline salt of a pyrocatechuicmonoalkyl ether, acidulating the mixture with hydrochloric acid, heating the same and separating the reaction product, for the purpose set forth.

8. The process, which consists in reacting upon a solution of a protein with a solution of an alkaline salt of a pyrocatechuicmonoalkyl ether, acidulating the mixture with hydrochloric acid, heating the same and separating the reaction product, washing and drying and then heating said product to from about 115° to 120° centigrade, for the purpose set forth.

9. The process, which consists in reacting upon an aqueous solution of albumen with a pyrocatechuicmonoalkyl ether and separating the reaction product, then washing and drying said product and heating the same to from 115° to 120° centigrade, for the purpose set forth.

10. The process, which consists in reacting upon an aqueous solution of albumen with a pyrocatechuicmonoalkyl ether and separating the reaction product, then washing and drying said product and heating the same from 115° to 120° centigrade, and finally washing and drying the product, for the purpose set forth.

11. The process, which consists in mixing a solution of albumen with a solution of an alkaline salt of a pyrocatechuicmonoalkyl ether, acidulating the mixture with hydrochloric acid, heating the same and separating the reaction product, for the purpose set forth.

12. The process, which consists in reacting upon a solution of a protein with melted guaiacol, and separating the reaction product.

13. The process, which consists in reacting upon a solution of a protein with melted guaiacol, separating the reaction product and drying the same.

14. The process, which consists in reacting upon a solution of a protein with melted guaiacol, separating and drying the reaction product, and then heating the latter to from about 115° to 120° centigrade.

15. The process, which consists in mixing a solution of a protein with a solution of an alkaline salt of guaiacol, acidulating the mixture with hydrochloric acid, heating said mixture and separating the reaction product, for the purpose set forth.

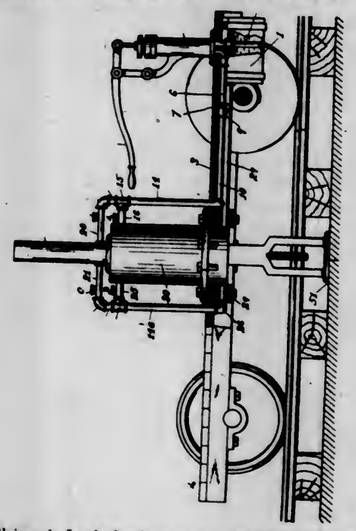
16. The process, which consists in mixing a solution of albumen with a solution of an alkaline salt of guaiacol or guaethol, acidulating the mixture with hydrochloric acid, heating said mixture and separating the reaction product, for the purpose set forth.

17. The herein-described desiccated product consisting essentially of a-protein chemically combined with a pyrocatechuicmonoalkyl ether, said product soluble in alkaline solutions and insoluble in water, alcohol and dilute acids.

18. The herein-described desiccated product, consisting essentially of a protein chemically combined with guaiacol, said product soluble in alkaline solutions but insoluble in water, alcohol and dilute acids.

19. The herein-described desiccated product, consisting essentially of egg-albumen chemically combined with guaiacol.

784,108. **HYDRAULIC HAND-CAR FOR RAILROADS.** WILLIS H. FISHER, Memphis, Tenn., and HENRY B. HELM and GEORGE EPPLE, Shreveport, La. Filed Feb. 12, 1904. Serial No. 193,345.



Claim.—1. In a hydraulic reconstruction hand-car for railroads, of the character described, the combination of a hand-car, a water-tank carried by said car, a force-pump and hydraulic rams mounted on the car, and means for conducting water from the tank to the force-pumps, substantially as described.

2. In a hydraulic reconstruction hand-car for railroads of the character described, the combination of a hand-car, a water-tank carried by said car, a force-pump and hydraulic rams mounted on the car, piston-heads adapted to move up and down in the cylinders of the rams, extended legs integral to said piston-heads, substantially as described.

3. In a hydraulic reconstruction hand-car for railroads the combination of a hand-car, a water-tank carried by said car, a force-pump and hydraulic rams mounted on the car, a cross-beam integral to the cylinders of said rams, depending ears integral to said cross-beams depending grapple-hooks pivotally secured to said depending ears, adapted to engage the under portions of a railway-rail, substantially as described.

4. In a hydraulic reconstruction hand-car for railroads the combination of a hand-car, a water-tank carried by said car, a force-pump, and hydraulic rams mounted on the car, movable piston-heads adapted to be raised and lowered in the cylinders of the rams integral extending legs and feet carried by said piston-heads, chains, mounted to said extended legs, the lower ends thereof secured to the grappling-hooks, substantially as described.

5. In a hydraulic reconstruction hand-car for railroads, of the character described, the combination of a hand-car, a water-tank carried by said car, a force-pump and hydraulic rams mounted on the car, means for conducting the water from the tank to the hydraulic rams and means for conducting the water from the hydraulic rams back to the water-tank, substantially as described.

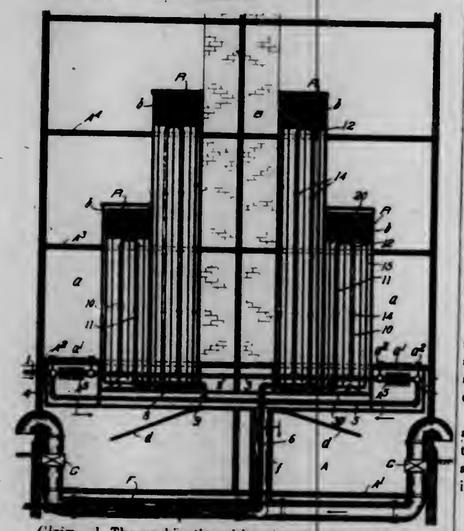
6. In a hydraulic reconstruction hand-car for railroads of the character described, the combination of a hand-car, a water-tank carried by said car, a force-pump and hydraulic rams mounted on the car and means for conducting water from the tank to the force-pumps, ram extensions mounted on the hydraulic rams proper, a piston-head adapted to move up and down in the cylinders of said extensions, a piston-rod, the upper end thereof secured to said piston-head, the lower end secured to the piston-head of the ram proper, substantially as described.

784,109. SHIP'S PROPELLER. FRITS H. GRAWERT-ZELLIN, New York, N. Y. Filed Apr. 4, 1904. Serial No. 201,592. (Model.)



Claim.—A screw-propeller having a plurality of forwardly-inclined concave blades, the working surfaces of which extend to and merge in a point in the axis of the propeller, substantially as described.

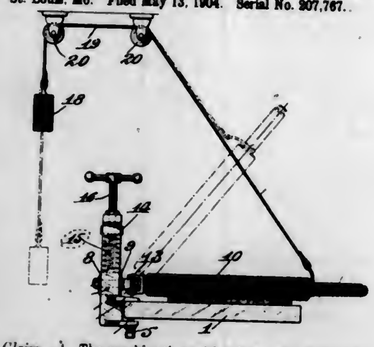
784,110. INDIRECT-HEATING SYSTEM. EUGENE R. KNAPP, Brookline, Mass., assignor to Henry De Ford, Brookline, Mass. Filed Apr. 10, 1903. Serial No. 151,946.



Claim.—1. The combination with a plurality of rooms, in a building, of an air-box; a plurality of air-flues communicating with the air-box, extending upwardly therefrom, and opening, one into one room and another into another room; a steam-distributing pipe in the air-box; a return steam-pipe communicating with the steam-distributing pipe; and a plurality of upwardly-extending steam-pipes, each communicating with the steam-distributing pipe; and severally extending upwardly within the air-flue; a plurality of downwardly-extending return steam-pipes communicating severally with said upwardly-extending steam-pipes, and all communicating with said return of the steam-distributing pipe, an air-conduit leading to the air-box; the upwardly-extending steam and return pipes being detachably connected together and to the steam-distributing pipe and to the return thereof, and withdrawable downwardly out of the air-flues; regulating-valves in the upwardly-extending steam-pipes; and means, accessible in each room, for opening and closing the regulating-valves with which the upwardly-extending steam-pipes are provided.

2. The combination with a plurality of rooms in a building of a plurality of upwardly-extending air-flues, each opening into a room, an upright steam-supply pipe and a therewith-connected downwardly-extending return-pipe within each flue; a steam-distributing pipe communicating with said upright steam-supply pipes; a steam-return main connected with said downwardly-extending steam-return pipes and an air-chamber communicating with and supplying air to said upwardly-extending air-flues; the steam-return pipe extending through the air-supply chamber, and thereby preheating the air by the return steam which, in the return-pipe, is condensed and increases the circulation of the steam through the system.

784,111. CANDY-ROLLING MACHINE. FRANK J. LAUTNER, Jr., St. Louis, Mo. Filed May 13, 1904. Serial No. 207,767.



Claim.—1. The combination with a base, of a standard carried thereby, a sliding bearing-block in the standard, a rotatable shaft in the block, a roller, and a gimbal-joint connection between the roller and shaft; substantially as described.

2. The combination with a standard having means of attachment to a base, a sliding bearing movable in a slot in the standard, a sliding element in the slot and spaced from the sliding bearing, a spring interposed between the bearing and the sliding element, means bearing against the sliding element to compress the spring, and a roller having a free end and connected at its opposite end to the sliding bearing; substantially as described.

3. In a device of the class described, the combination with a standard, of a roller connected thereto and movable in all directions, and a counterbalance-weight connected to one end of the roller and adapted to move the free end of the roller in an upward direction; substantially as described.

4. In a device of the class described, the combination with a standard having a vertical slot, of a vertically-moving bearing in said slot, a shaft carried by the movable bearing, and a roller connected at one end to the slot and movable in all directions; substantially as described.

5. In a device for rolling candy, a base, a single vertical standard carried thereby, a sliding bearing-block in the standard, a rotatable shaft in the block, a roller connected at one end of the shaft and free at its opposite end, the free end of said roller being movable in all directions; substantially as described.

784,112. FLUID-METER. JOHN W. LEDOUX, Swarthmore, Pa. Filed Apr. 12, 1904. Serial No. 202,729.

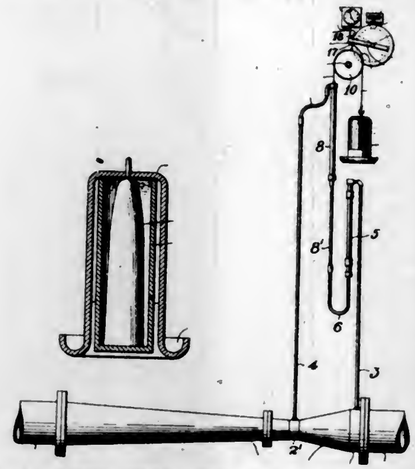
Claim.—1. In a meter, a fluid-conduit, a fluid-reservoir connected therewith reciprocated by variations in the resultant pressure communicated to the contents thereof from said conduit, and a float for balancing said reservoir, said float having a variable cross-section proportioned in accordance with the variations in said resultant pressure, substantially as specified.

2. In a meter, a fluid-conduit, a balanced reservoir containing mercury, tubes connecting a normal and contracted section of said conduit with said reservoir, and a float for balancing said reservoir, substantially as specified.

3. In a meter, a pair of stationary tubes, a reciprocating receptacle having a flexible fluid connection with each of said stationary tubes, means for supporting said receptacle, and a float connected to said reciprocating receptacle, substantially as specified.

4. In a meter, a pair of stationary tubes, a single reciprocating receptacle having a flexible fluid connection with each of said stationary tubes, an oscillating support for said reciprocating receptacle, and a float for balancing said reciprocating receptacle, substantially as specified.

5. In a meter, a movable cam, a register, a rotary disk connected with and operating said register, oscillating mechanism for frictionally clutching and actuating said disk, said cam regulating the arc of said oscillating mechanism, and a clock mechanism for actuating said oscillating mechanism, substantially as specified.



6. In a meter, a register, a rotary disk connected with and actuating said register, an oscillating lever having a gravity-clutch for frictionally engaging said disk in the forward movement, a clock for oscillating said lever, and a stationary support having a gravity-clutch for frictionally engaging said disk, substantially as specified.

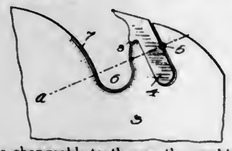
7. In a meter, a fulcrumed lever, a float connected to one end of said lever, an engaging device, a support connecting said engaging device with the other end of said lever, and a second lever through which said support passes freely in one direction, said device engaging said support to said second lever in moving in the opposite direction, substantially as specified.

8. In a meter, a float-chamber, an oscillating receptacle, a flexible conduit connecting said oscillating receptacle with said float-chamber, and a balance connected with said oscillating receptacle, substantially as specified.

9. In a meter, a float-chamber, means for delivering fluid to said chamber at a regular rate, a flexible duct communicating with said float-chamber, a receptacle with which said duct communicates, a duct discharging from said receptacle, and a balance connected with said receptacle, substantially as specified.

10. In a meter, a reservoir having an overflow adapted for maintaining a constant head therein, a float-chamber having a fluid connection with said reservoir, and an oscillating receptacle having a fluid connection with said float-chamber, substantially as specified.

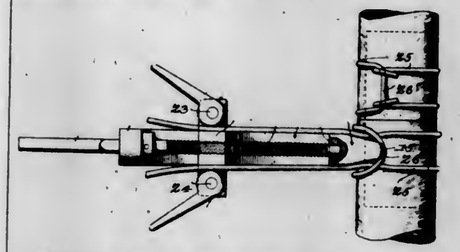
784,113. SAW. JAMES H. MINER, Lumberton, Miss. Filed May 4, 1904. Serial No. 206,380.



Claim.—In a changeable-tooth saw, the combination with the tooth, a projection from the body of the saw, a lining plate or spring encircling the throat of the saw and one end of said lining-spring passing over the projection on said saw, of a hook-shaped projection on said tooth overhanging the end of said lining-spring and retaining the same in place, substantially as described.

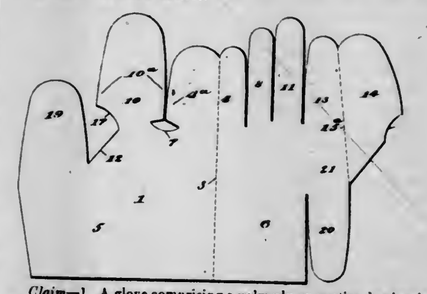
784,114. IMPLEMENT FOR APPLYING BANDS. JACOB J. MOOCK, East Greenville, Ohio. Filed Dec. 28, 1904. Serial No. 238,573.

Claim.—1. In an implement of the class described, a base member having at one end a bearing for rotatively supporting a threaded rod and with a projection at the other end provided at the inner side with a socket to receive the inner end of said threaded rod and with a wire-receiving channel in the outer end, a clamp-block internally threaded for operating upon said threaded rod and slidable upon said base member, and clamp members carried by said clamp-block upon opposite sides of the same.



2. In an implement of the class described, a base member having a bearing at one end and a lateral projection at the other end provided with a band-engaging channel in the outer end and a socket in the inner end, a clamp-block slidable upon said base member and having a band-clamping means and with a threaded longitudinal aperture, a threaded rod engaging said threaded aperture and mounted for rotation respectively in said bearing and in said socket, and means for rotating said rod.

784,115. GLOVE. DANIEL F. MORGAN, Toledo, Ohio. Filed Nov. 25, 1904. Serial No. 234,110.



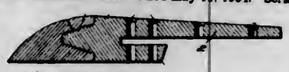
Claim—1. A glove comprising a palm ply or portion having integral fourchettes for the fingers and thumb, the fourchettes for the fingers being side by side and that for the first finger comprising palm and outer members integrally connected along one side and the thumb fourchette being at the edge of said palm portion opposite to said first-finger fourchette, and a back ply or portion having integrally-connected outer fourchettes for the thumb and second finger separated by a space in which is received the outer member carried by the first-finger fourchette of the palm ply of the glove, said outer member for the first-finger portion being stitched to the back ply by a seam extended across the knuckle of the first finger to the thumb portion of the glove.

2. A glove comprising a palm ply or portion having integrally-connected palm members for the thumb and second finger and also provided with integrally-connected palm and outer members for the first finger and a back ply or portion having integrally-connected outer members for the thumb and second finger and provided with a space intervening between said thumb and second-finger members and in which is received the outer member for the first finger, said outer member for the first finger being stitched to the back ply or portion to produce a seam extended across the knuckle of the first finger to the thumb portion of the glove.

3. A glove comprising a body portion centrally folded to produce palm and back plies, the back ply having integrally-connected outer members for alternate thumb and finger portions of the glove and having spaces between said integrally-connected members and the inner ply having integrally-connected palm members for each of the thumb and finger portions of the glove and having in addition an integrally-connected outer member for one finger portion of the glove, which outer member is lapped in a space between the alter-

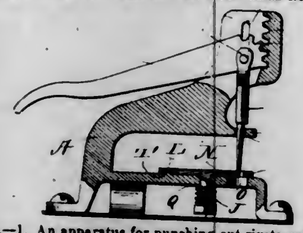
nate thumb and finger portions at the back ply and is sewed to said back ply.

784,116. TOOTH FOR DIPPERS OF EXCAVATORS. JOHN A. MCCASKEY, Hubbard, Ohio. Filed May 11, 1904. Serial No. 207,445.



Claim.—As an article of manufacture, a dipper-tooth for excavators comprising a body adapted to be secured to the dipper, a point, the point being provided with a threaded socket or recess, and a threaded extension projected from the body and screwed into the socket or recess of the point.

784,117. MACHINE FOR PUNCHING OUT RIVETS. NELSON M. MCDANIEL, McFall, Mo. Filed Nov. 25, 1904. Serial No. 234,316.



Claim.—1. An apparatus for punching out rivets consisting of a frame, a rotatable disk mounted thereon and provided with apertures, a longitudinally-movable punch, a lever with projections thereon upon which said punch is pivotally mounted, guideways upon the frame in which said projections have a play, rack-teeth upon the upright portion of the frame, and cog-teeth upon the lever for engagement with the rack-teeth, as set forth.

2. A machine for punching out rivets comprising a frame, an upright portion having rack-teeth thereon, a rotatable spring-actuated disk mounted upon said frame and having apertures therein of different diameters designed to be brought into registration with an aperture in said frame underneath the punch, a lever having pins projecting therefrom, guideways in which said pins have vertical play, teeth upon the lever for engagement with the teeth of the rack-bars, and a punch pivotally mounted upon said pins, as set forth.

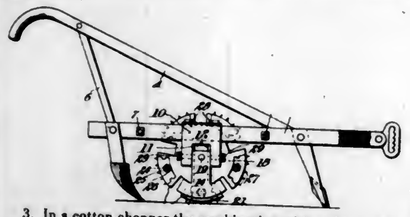
3. A machine for punching out rivets comprising a frame, an upright portion having rack-teeth thereon, a rotatable spring-actuated disk mounted upon said frame and having apertures therein of different diameters designed to be brought into registration with an aperture in said frame underneath the punch, a lever having pins projecting therefrom, guideways in which said pins have vertical play, teeth upon the lever for engagement with the teeth of the rack-bars, and a guideway in which said punch has a longiudinal movement, as set forth.

4. An apparatus for punching out rivets consisting of a frame with an upright portion having rack-teeth thereon, a horizontally-disposed apertured disk, a bolt passing through said disk and frame of the machine, a spring mounted upon said bolt and designed to hold the disk in contact with the frame, a lug projecting from the frame and designed to engage a hole in the under surface of the disk, a lever having teeth upon the inner end thereof designed for engagement with said rack-teeth, a pin carried by said lever and guided in slots in the upright portion of the frame, a punch pivotally mounted upon said pin, an extension of the frame having an aperture therein through which said punch is guided, as shown and described.

784,118. COTTON-CHOPPER. JOHN B. NIX, Nix, Ark. Filed Jan. 12, 1903. Serial No. 138,894.

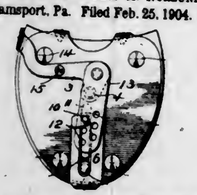
Claim.—1. In a cotton-chopper, the combination with a plow, of a drum journaled transversely of the beams of said plow, knives protruding from the surface of the drum, plates having recesses in their lower edges adjustably secured to the beams of the plow, blocks vertically adjustable in said recesses and forming journal-bearings for the drum.

2. In a cotton-chopper, the combination with a plow, of a drum journaled transversely of the beams of said plow, said drum having its surface interrupted at equal intervals, knives protruding from the uninterrupted surface of said drum, plates having recesses in their lower edges adjustably secured to the beams of the plow, blocks vertically adjustable in said recesses and forming journal-bearings for the drum.



3. In a cotton-chopper the combination with a plow, of a drum journaled transversely of the beams of said plow, said drum having its surface interrupted at equal intervals, knives protruding from the uninterrupted surface of said drum, plates having recesses in their lower edges adjustably secured to the beams of the plow, blocks vertically adjustable in said recesses and forming journal-bearings for the drum and terminating in segmental portions having cammed inner surfaces and means carried by the drum for engaging the cammed surfaces and imparting a reciptocating motion to the knives.

784,119. ICE-CREEPER. OLOF A. NORLUND and WILLIAM K. WAKENHUT, Williamsport, Pa. Filed Feb. 25, 1904. Serial No. 195,201.



Claim.—1. In an ice-creeper, the combination with a plate having a fixed prong, of a sliding bar having a prong, and a lever pivoted to the plate, said bar and lever constituting movable members on the plate, and a link pivotally connected to one of said members and having a series of openings to receive in any of them a pin or projection on the other movable member.

2. In an ice-creeper, the combination with a plate having a fixed prong, of a sliding bar having a prong, a lever pivotally connected with the plate, said sliding bar and lever constituting movable members on the plate, and a spring-link pivotally connected at one end to one member and having a series of openings at its other end to receive in any of them a pin or projection on the other movable member.

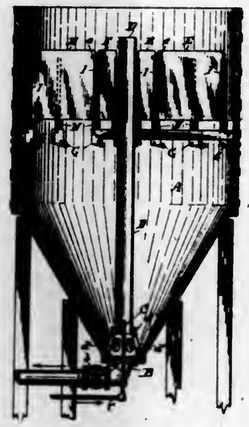
3. In an ice-creeper, the combination with a slotted plate having calks thereon and a prong at one end, of a slotted bar at the other end of the plate having a prong thereon, a headed lug or rivet on the plate and projecting through the slot in the bar, and a pin on the bar projecting into the slot in the plate and the other end of said pin projecting below the bar, a flat perforated spring-link pivotally connected at one end to the bar by means of the pin entering one of its perforations, an S-shaped lever pivotally secured at one end to the plate, and pivotally secured to the spring-link at the bend in the S-shaped lever nearest its pivotal point.

4. In an ice-creeper, the combination with a plate having a prong thereon, of a sliding bar carrying a prong, an S-shaped lever pivoted to the plate, a link connecting the lever and sliding bar, and said plate and lever having openings therein which aline when the lever is in its locked position to receive a screw or like device projected through the alined openings into the heel of a boot or shoe and permanently secure the creeper in place.

784,120. APPARATUS FOR CYANID TREATMENT. EDWIN L. OLIVER, Oakland, Cal., assignor of one-half to Arthur De Wint Foote, Grass Valley, Cal. Filed June 20, 1904. Serial No. 213,274.

Claim.—1. An apparatus for the cyanid treatment of gold and silver bearing materials, comprising a tank; an open-topped pipe rising within and opening directly into the upper portion of said tank, the lower end of said pipe having communication with the lower portion of the tank; a connection from a source of compressed air communicating with the lower end of the pipe; anode and cathode plates within the tank; and suitable electrical connections to said plates.

2. An apparatus for the cyanid treatment of gold and silver bearing material, comprising a tank; an open-topped pipe rising within and opening directly into the upper portion of said tank, the lower end of said pipe having communication with the lower portion of the tank; a connection from a source of compressed air communicating with the lower end of the pipe; electrodes within the tank, the cathode-electrodes being amalgamated plates; and suitable electrical connections to the electrodes.



3. An apparatus for the cyanid treatment of gold and silver bearing materials, comprising a tank; an open-topped pipe rising within and opening directly into the upper portion of said tank, the lower end of said pipe having communication with the lower portion of the tank; a connection from a source of compressed air communicating with the lower end of the pipe; amalgamated plates in said tank; and means for electrolytically depositing the gold and silver upon said plates.

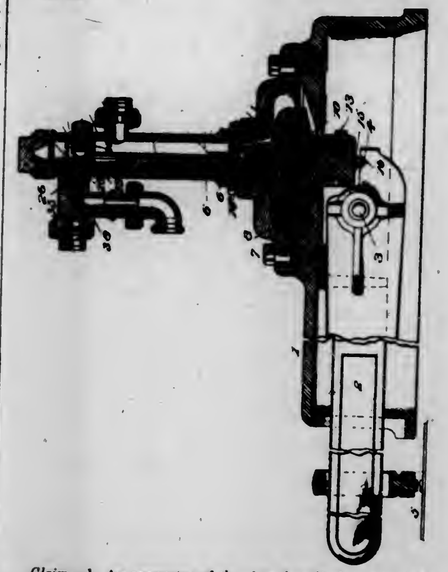
4. An apparatus for the cyanid treatment of gold and silver bearing materials, comprising a tank; an open-topped pipe rising within and opening directly into the upper portion of said tank, the lower end of said pipe having communication with the lower portion of the tank; a connection from a source of compressed air communicating with the lower end of the pipe; anode and cathode plates within the tank; a suitable electrical connection with the anode-plates; and an electrical connection with the cathode-plates comprising troughs with quicksilver, and metallic arms extending from the cathode-plates into the quicksilver in the troughs, said arms being unobstructed to the creeping passage of the quicksilver over them, whereby said plates are amalgamated.

5. An apparatus for the cyanid treatment of gold and silver bearing materials, comprising a tank; an open-topped pipe rising within and opening directly into the upper portion of said tank, the lower end of said pipe having communication with the lower portion of the tank; a connection from a source of compressed air communicating with the lower end of the pipe; electrodes within the tank, the cathode-electrodes being amalgamated plates; a suitable electrical connection with the anode-plates; and an electrical connection with the cathode-plates comprising troughs with quicksilver, and metallic arms extending from the cathode-plates into the quicksilver in the troughs, said arms being unobstructed to the creeping passage of the quicksilver over them whereby said amalgamated plates are replenished with quicksilver.

6. In an apparatus for the cyanid treatment of gold and silver bearing materials, and in combination with amalgamated plates therein, the troughs containing quicksilver, and the metallic arms from said plates dipped in the quicksilver, said arms being unobstructed to the creeping passage of the quicksilver over them, whereby the plates are replenished with quicksilver.

7. In an apparatus for the cyanid treatment of gold and silver bearing materials, and in combination with amalgamated plates therein, the troughs containing quicksilver, the metallic arms from said plates dipped in the quicksilver, said arms being unobstructed to the creeping passage of the quicksilver over them, whereby the plates are replenished with quicksilver and the conductors in the quicksilver with which the electrical connection is made.

784,121. AUTOMATIC BOILER-PRESSURE REGULATOR. HENRY B. PARSON, New York, N. Y. Filed Nov. 18, 1903. Serial No. 181,723.



Claim.—1. An apparatus of the class described, comprising a casing provided with inlet and outlet ports, and an exhaust-port, a valve adapted to move over the outlet and exhaust ports, and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and the exhaust-port, a pressure-resisting means, means acting on the pressure-resisting means and actuated by boiler-pressure, and a universal connection between the means actuated by boiler-pressure and the valve, whereby the movement of the valve-actuating mechanism will have no tendency to lift the valve from its seat.

2. An apparatus of the class described comprising a casing provided with inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and the exhaust-port, a diaphragm actuated by boiler-pressure and a universal connection between said diaphragm and the valve whereby said diaphragm will have no tendency to lift the valve from its seat.

3. An apparatus of the class described comprising a casing having inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the outlet-port and interior of the casing or between the outlet-port and the exhaust-port, means actuated by boiler-pressure, mechanism connecting said means and the valve permitting the former to be moved at right angles to the axis of the valve without affecting the alined movement of the valve, and means operating against the means actuated by boilet-pressure to resist said pressure.

4. An apparatus of the class described comprising a casing having inlet and outlet ports, and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and exhaust-port, a lever, means actuated by the boiler-pressure which moves the lever, mechanism connecting said means and the valve permitting the means to be moved from a plane at right angle to the axis of the valve without affecting the desired movement of the valve.

5. An apparatus of the class described comprising a casing provided with inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the

outlet-port and exhaust-port, means actuated by boiler-pressure and mechanism connecting said pressure-actuated means and the valve, permitting the pressure-actuating means to be moved in a plane at right angles to the valve without affecting the desired movement of the valve, a knife-edge formed on said pressure-actuating means, and a weighted lever provided with a notch in which said knife-edge fits.

6. An apparatus of the class described comprising a casing provided with inlet and outlet ports and an exhaust-port, a vertically-movable valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and the exhaust-port, means actuated by boiler-pressure, a knife-edge on said means, a universal connection between said means and the valve for permitting the means to tilt without affecting the vertical movement of the valve and a weighted lever provided with a notch into which the knife-edge fits.

7. An apparatus of the class described comprising a casing provided with inlet and outlet ports and an exhaust-port, a vertically-movable valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port, or between the outlet-port and the exhaust-port, the valve being provided with a groove, a pin engaging the groove, a notch formed in the face of the valve, a diaphragm provided with a knife-edge, a rod between the valve and the diaphragm, a pin connecting the rod with the diaphragm and a second pin connecting the rod with the valve, said pins being arranged at right angles to each other, and a weighted lever provided with a V-shaped notch to receive the knife-edge.

8. In a regulator for steam-boilers, the combination with a casing having inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port, or between the outlet-port and the exhaust-port, means actuated by boilet-pressure for moving the valve and a universal connection between said means and the valve.

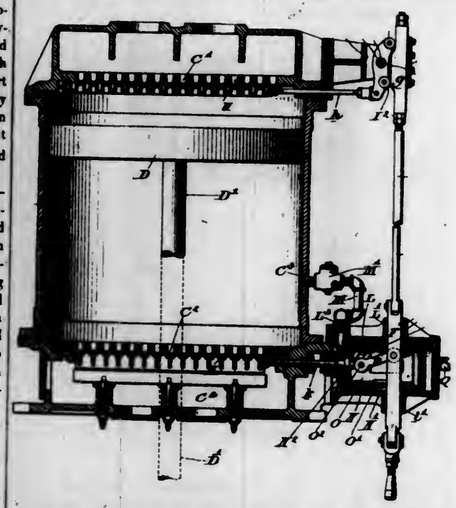
9. In an automatic regulator for steam-boilers, the combination with a lever provided with means for depressing one of its ends, means actuated by boiler-pressure in one direction and connected to and actuated in the opposite direction by the lever, a casing provided with inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and the exhaust-port, and a universal connection connecting the valve to the device actuated by boiler-pressure.

10. In an automatic regulator for steam-boilers, the combination with a pivoted lever, of means for depressing one end of the lever, a casing having inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and the exhaust-port, a diaphragm in the casing, a connection between the lower side of the diaphragm and one end of the lever and a universal connection between the valve and the diaphragm.

11. A pivoted lever provided with means for moving one end thereof and provided at the other end with a transverse notch, a casing provided with inlet and outlet ports and an exhaust-port, a valve adapted to move over the outlet and exhaust ports and held against the ports by steam-pressure, and adapted to establish communication between the interior of the casing and the outlet-port or between the outlet-port and the exhaust-port, a flexible diaphragm actuated by steam-pressure in one direction, a knife-edge secured to the center of the diaphragm and standing in the notch of the pivoted lever and a universal connection between the diaphragm and the valve.

784,122. BLOWING-ENGINE OR COMPRESSOR. GUSTAV B. PETSCHE, Philadelphia, Pa., assignor to The Southwark Foundry & Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Apr. 30, 1903. Serial No. 153,400.

Claim.—1. In a blowing-engine, the combination of a delivery-valve with means acting to open said valve when the pressures in the compressing cylinder and receiver are substantially equal, a reciprocating device positively actuated by a moving part of the engine, another reciprocating device acting when moved in one direction to close the valve and when moved in the other direction to leave it free to open, said device moving in a path substantially at right angles to that of the positively-actuated device aforesaid and a link connected with the valve-closing device and connected also to a point on the positively-actuated device which moves alternately above and below the link's point of connection with the valve-closing device.



2. In a blowing-engine, the combination with a delivery-valve of a cylinder and a piston moving in said cylinder and connected to said valve, means for admitting pressure fluid to the cylinder to actuate the piston to open the valve, a reciprocating device actuated by a positively-moving part of the engine and moving in a path substantially transverse to the axis of the cylinder, a slide, movable in the rear of and substantially parallel to the piston and adapted to move said piston and its connected valve to close said valve and a link connected to said slide and to a point on the positively-actuated device which moves alternately above and below the point of connection with the slide.

3. In a blowing-engine, the combination with a delivery-valve of a cylinder having an admission-port for pressure fluid at its inner end, a piston in said cylinder connected to actuate the valve and having a longitudinal guideway formed in it in the rear of its front face, a slide movable in the guideway of the piston, a reciprocating device actuated by a positively-moving part of the engine and moving transversely to the axis of the cylinder, and a link connected to the slide in the piston and to a point on the positively-actuated device which moves alternately above and below the point of attachment with the slide.

4. In a blowing-engine, the combination with a delivery-valve of a cylinder having an admission-port for pressure fluid at its inner end, a restricted air-escape at its outer end, and a transverse passage formed through its walls, a piston in said cylinder connected to actuate the valve and having a longitudinal guideway formed in it in the rear of its front face, a slide movable in the guideway of the piston, a reciprocating device actuated by a positively-moving part of the engine and moving through the passage in the walls of the cylinder transversely to the axis of the cylinder, and a link connected to the slide in the piston and to a point on the positively-actuated device which moves alternately above and below the point of attachment with the slide.

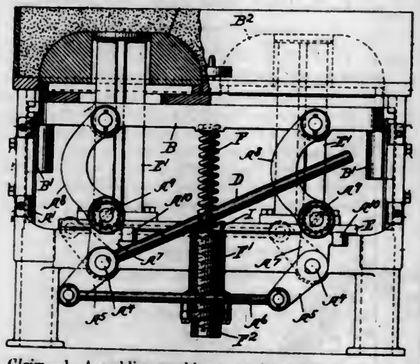
5. In a blowing-engine, the combination with a delivery-valve of a cylinder having an admission-port for pressure fluid at its inner end and a restricted air-escape passage at its rear end, said cylinder having a guideway L^3, formed through its sides, a piston in said cylinder connected to actuate the delivery-valve, said piston having a longitudinal guideway formed in it intermediate of its ends and a transverse passage N', formed through its sides, a slide longitudinally movable in the guideway formed in the piston, a reciprocating slide F, actuated by a moving part of the engine, said slide being movable in the guideways L^3, of the cylinder and through the passage N', in the piston, and a link connected to the slide in the piston and to a point on the slide F, which moves alternately above and below the point of attachment to the piston-slide.

6. In a blowing-engine, the combination with a delivery-valve of a cylinder having an admission-port for pressure fluid at its inner end, a piston in said cylinder connected to actuate the valve and having a longitudinal cylindrical guideway formed in it in the rear of its front face, a piston-like slide movable in the guideway of the piston, said piston-slide having a circular opening in its front face and a valve-actuating piston having a circular projection O^2, adapted to fit in said opening, a reciprocating device actuated by a positively-moving part of the engine and moving transversely to the axis of the cylinder, and a link connected to the slide in the piston and to a point on the positively-actuated device which moves alternately above and below the point of attachment with the slide.

7. In a blowing-engine, having admission and delivery valves, and means, acting to open the delivery-valves when the pressures in the compressing-cylinder and in the receiver are substantially equal, the combination of slides G, *g*, arranged to actuate the admission-valves in both directions, slides F, *f*, moving reciprocally with the slides G, *g*, means actuated by a positively-moving part of the engine to impart a reciprocating motion to said slides, slides O, o, arranged when moved in one direction to close the delivery-valves and links connected to said last-mentioned slides and to the slides F, *f*, at points which move alternately above and below the points of attachment to slides O, o, whereby said slides O, o, are actuated.

8. In a blowing-engine, the combination of a delivery-valve with means acting to open said valve when the pressures in the compressing-cylinder and receiver are substantially equal, a reciprocating device positively actuated by a moving part of the engine, a second reciprocating device moving in a path transverse to the first, and operating when moved in one direction to close the valve, and when moved in the other direction to leave it free to open, a link coupling the two reciprocating devices and connected to a point on the first which moves alternately above and below its point of attachment to the second, an air-cushioning device arranged to check the momentum of the valve and connected parts when moving to open the ports, and an air-cushioning device interposed between the second reciprocating device aforesaid and the part of the valve-connected mechanism upon which it operates when closing the valve.

784,123. MOLDING-MACHINE. HENRY E. PRIDMORE, Chicago, Ill. Filed May 4, 1899. Serial No. 715,583.



Claim.—1. A molding-machine comprising a frame, two parallel shafts rotatably mounted thereon, two cross connecting-pieces beyond the ends of said shafts so as to be free to pass the ends, and adapted to connect the shafts so that they rotate in unison, a reciprocating pattern-carrier, movably mounted on said frame and adapted to support the pattern, and a connection between said shafts and said pattern-carrier.

2. A molding-machine comprising a frame, two parallel shafts rotatably mounted thereon, each provided with two cranks at an angle to each other, two connecting-pieces connecting the respective cranks of the two shafts, a reciprocating pattern-carrier movably mounted on said frame and a connection from said pattern-carrier to both of said shafts.

3. A molding-machine comprising a frame, two shafts rotatably mounted thereon, a yoke movably mounted on said frame and adapted to support the pattern from which the impression is to be taken, two cranks connected with each of said shafts at different points along their length, the cranks on each shaft being at an angle to each other, two connections between the cranks on the two shafts, so that when one shaft is rotated the other will also be rotated, and a connection between said shafts and the pattern-carrier so that the yoke will be moved when the shafts are rotated, the connections between the shafts and the pattern-carrier being at fixed points on said pattern-carrier which do not change as the pattern-carrier moves.

4. A molding-machine comprising a frame, two shafts rotatably mounted thereon, a pattern-carrier movably mounted on said frame and adapted to support the pattern from which the impression is to be taken, two cranks connected with each of said shafts, the cranks on each shaft being at an angle to each other, two connections between the cranks on the two shafts so that when one shaft is rotated the other will also be rotated, a series of connecting-pieces connected at one end with said shafts and at the other end to fixed points on said pattern-carrier, said connecting-pieces being formed or bent so as to permit their ends to pass below the shafts.

5. A molding-machine comprising a frame, a reciprocating pattern-carrier supported upon said frame, adapted to carry the pattern, two shafts mounted on said frame, two cross connecting-pieces beyond the ends of said shafts so as to be free to pass the ends and adapted to connect the shafts so that they rotate in unison, said shafts entirely below the reciprocating pattern-carrier, projecting parts extending beyond the outer boundary of said pattern-carrier and connected at one end to fixed points on the pattern-carrier and at the other end with said shafts so that the pattern-carrier moves proportionately and simultaneously with said shafts, whereby it may be reciprocated to vary the position of the pattern.

6. A molding-machine comprising a frame, one or more shafts mounted on said frame, a reciprocating pattern-carrier upon which the pattern is supported, said shaft or shafts connected with said pattern-carrier so that the position of the pattern-carrier is varied when the shaft or shafts are rotated, and two springs mounted upon said frame at different points and interposed between the pattern-carrier and the frame.

7. A molding-machine comprising a frame, one or more shafts mounted on said frame, a reciprocating pattern-carrier upon which the pattern is supported, said shaft or shafts connected with said pattern-carrier so that the position of the pattern-carrier is varied when the shaft or shafts are rotated, and two springs located at different points and interposed between the pattern-carrier and the frame, said springs of different strength to compensate for irregularities in the pattern.

8. A molding-machine comprising a frame, one or more shafts mounted on said frame, a reciprocating pattern-carrier upon which the pattern is supported, said shaft or shafts connected with said pattern-carrier so that the position of the pattern-carrier is varied when the shaft or shafts are rotated, two springs located at different points and interposed between the pattern-carrier and the frame, and two receiving parts into which the ends of the springs are received, said receiving parts provided with removable caps whereby the springs are removably held in position.

9. A molding-machine comprising a frame having two side pieces but open at the ends, guideways on the said side pieces, a pattern-carrier provided with a series of separated guides having a sliding connection with said guideways so that said pattern-carrier is guided by said side pieces, means for moving said pattern-carrier below the upper edge of said side pieces, said open ends arranged so that the pattern may move to its highest or its lowest position without coming opposite any end cross-piece whereby projecting parts of the pattern at the ends will not strike the frame.

10. A molding-machine comprising a frame, having side pieces, but open at the ends, a pattern-carrier supported by the frame and guided by said side pieces, two parallel shafts mounted on said frame and connected together so as to rotate in unison, connecting-pieces connected to the ends of the pattern-carrier at the open ends of the frame and also connected with said shafts, the open ends of the frame permitting the movement of these connecting-pieces without obstruction so that the pattern-carrier may move below the upper edges of the side pieces of the frame.

784,124. PROCESS OF HARDENING IRON. FERDINAND L. RAMM, San Francisco, Cal., assignor of one-half to Percy D. Bailey, San Francisco, Cal. Filed Mar. 3, 1904. Serial No. 196,414.

Claim.—The herein-described process of hardening iron which consists in forming an alloy of iron and aluminium by placing the

metals in a crucible, heating the same to white heat, then placing on the metals a small quantity of sulfur and reducing such metals to a molten state by the application of additional heat, so as to be ready for pouring for the formation of the finished product, substantially as and for the purposes specified.

784,125. GALVANIC-BATTERY CELL. ALBERT T. SANDEN, New York, N. Y. Filed Dec. 15, 1904. Serial No. 236,857.



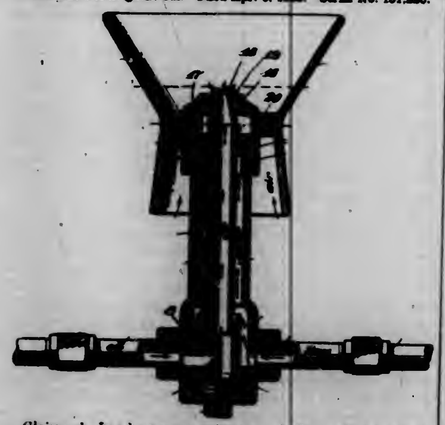
Claim.—1. A battery comprising a folded outer element, an intermediate porous fabric portion in contact with the inner side of said outer element, and a grooved inner element providing on both of its faces a plurality of lines of contact with said fabric portion and a plurality of capillary spaces therebetween.

2. A battery comprising a folded outer element, an intermediate porous fabric portion in contact with the inner side of said outer element, and a longitudinally-grooved inner element consisting of a plate formed with shallow transverse waves providing a plurality of lines of contact with said fabric portion and a plurality of capillary spaces therebetween.

3. A battery comprising a thin outer folded plate of copper, an intermediate porous fabric portion in contact with the inner side of said copper element, and a longitudinally-grooved zinc plate having a series of shallow transverse waves extending approximately from edge to edge thereof forming the inner element, whereby a plurality of lines of contact and of capillary lines is formed between said zinc element and said fabric portion.

4. In a galvanic battery, a zinc element consisting of a plate transversely waved approximately from edge to edge thereof, thereby forming a plurality of longitudinal grooves in its opposite faces, and a conducting-wire secured in one of said grooves.

784,126. HYDROCARBON-BURNER FOR BRICK-KILNS. JOHN SCHUPP, Los Angeles, Cal. Filed Apr. 6, 1903. Serial No. 151,295.



Claim.—1. In a hydrocarbon-burner, a hollow cylindrical body provided with means for feeding steam thereto, and having its forward end closed and provided with longitudinally-arranged perforations, a flaring hood on the closed end of said body having a central portion open at one end to engage and fit over the forward end of said cylindrical body and having a perforated wall at its forward end, said hood being provided with ribs connecting it with said central portion and the said central portion having a chamber between its ends forming an expansion-chamber in communication with the perforations of the body and of the central portion, and an oil-pipe through said body with its forward end projecting through the perforation of said central portion.

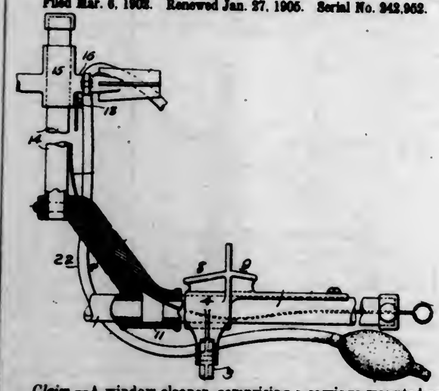
2. In a hydrocarbon-burner, in combination, a body having a central chamber with a perforated end, a steam-inlet into said chamber, a steam-supply pipe connected to said inlet, an oil-pipe extending longitudinally through said chamber and projecting through and beyond said end, an oil-supply pipe connected with the rear end of said oil-pipe and a hood mounted upon said body and provided with a forwardly-flaring portion forming an expansion-chamber for the steam from said first-named chamber beyond the perforated end thereof, said oil-pipe provided with a tapered or conical end projecting through the end of said expansion-chamber and said hood being formed with a converging annular steam-outlet surrounding said tapering end through which steam is discharged from said expansion-chamber into the oil from said oil-pipe.

3. In a hydrocarbon vaporizer and burner in combination, a body provided with a central chamber, a steam-pipe connected with said chamber, an oil-pipe extending longitudinally therethrough, an oil-supply pipe connected therewith, a hood mounted upon the discharge end of said body and provided with a central portion through which the end of said oil-pipe extends and an annular discharge-slot provided between the wall of said portion and the discharge end of said oil-pipe through which steam is discharged from said central chamber, said hood provided with an outwardly-flaring wall extending beyond the end of said oil-pipe, and air-inlets provided in said flaring wall and with a rearwardly-extending tubular portion through which air is drawn into the atomizing and burning vapor.

4. In a hydrocarbon-burner a hollow cylindrical body provided with means for feeding steam thereto and having its forward end closed and provided with longitudinally-arranged perforations, a flaring hood on the closed end of said body having a central portion open at one end to engage and fit over the forward end of said cylindrical body and having a perforated wall at its forward end, said hood being provided with ribs connecting it with the said central portion and the said central portion having a chamber between its ends forming an expansion-chamber in communication with the perforations of the body and of the central portion and an oil-pipe extending from said body and communicating through the perforation of said central portion.

5. In a hydrocarbon-burner a hollow cylindrical body provided with means for feeding steam thereto, a flaring hood on the end of said body having a central portion open at one end to engage and fit over the forward end of said cylindrical body and having a perforated wall at its forward end, said central portion having a chamber between its ends forming an expansion-chamber in communication with said body, and an oil-pipe extending through said body and communicating through the perforation of said central portion.

784,127. WINDOW-CLEANER. WILLIAM SMITH, Duluth, Minn. Filed Mar. 6, 1903. Renewed Jan. 27, 1905. Serial No. 242,962.



Claim.—A window-cleaner, comprising a carriage mounted on rollers and adapted to be moved along a window-sill, platforms on the carriage to receive the window-sash, a tube supported by said carriage and projecting beyond the same at both ends, a slotted arm on the carriage and a screw in said tube and located in the slot, devices carried by the outer end of the tube for cleaning the window and a strip or rod in said tube for operating said devices.

784,128. SPIRAL PIPE. JAMES H. TAYLOR, Chicago, Ill. Filed Feb. 3, 1900. Renewed Jan. 23, 1905. Serial No. 242,323.

Claim.—1. As a new article of manufacture, a pipe consisting of spirally-wound sheet metal, and a spirally-wound locking-bar interposed between adjacent and separated spiral edges of the sheet metal and projecting within the interior of the pipe and projecting beyond the outer contour thereof, the inner portion of said bar being compressed and the outer part expanded, substantially as and for the purpose set forth.



2. As a new article of manufacture, a pipe comprising spirally-wound sheet metal, and a spirally-wound double-jawed locking-bar bonding adjacent and separated spiral edges of the sheet metal, the said bar being provided with grooves formed longitudinally therein in which the adjacent spiral edges of the sheet metal are engaged, said bar projecting within the interior of the pipe and projecting beyond the outer contour thereof, the inner portion of said bar being compressed and the outer part expanded, substantially as and for the purpose set forth.

3. As a new article of manufacture, a pipe comprising spirally-wound sheet metal, the edges of the said sheet metal being formed into portions of increased cross-section, and a spirally-wound double-jawed bar interposed between adjacent and separated edges of the said pipe along the spiral seam thereof, the said bar being provided with extensions or lips for engaging said portions of increased cross-section, said bar projecting within the interior of the pipe and projecting beyond the outer contour thereof, the inner portion of said bar being compressed and the outer part expanded, substantially as and for the purpose set forth.

4. As a new article of manufacture, a pipe comprising spirally-wound sheet metal, and a locking-bar bonding the adjacent spiral edges of the sheet metal, the said bar being provided with grooves formed longitudinally therein, the edges of the said sheet metal being of increased cross-section and inclosed by the opposed walls of the said grooves, the surfaces of the said portions of increased cross-section being corrugated, substantially as described.

5. As a new article of manufacture, a pipe comprising spirally-wound sheet metal, the edges of the said sheet metal being formed into portions of increased cross-section, and a bar interposed between adjacent edges of the said pipe along the spiral seam thereof, the said bar being provided with extensions or lips for engaging said portions of increased cross-section, the surfaces of the said portions of increased cross-section being corrugated, substantially as described.

6. As a new article of manufacture, a pipe consisting of spirally-wound sheet metal, the edges of the said sheet metal being corrugated, and a locking-bar provided with extensions or lips for engaging said corrugated portions substantially as described.

7. As a new article of manufacture, a pipe comprising spirally-wound sheet metal, the edges of the said sheet metal being corrugated, and a locking-bar interposed between the edges of the said sheet metal along the spiral seam thereof, for holding the same in place, substantially as described.

784,129. BOILER-TUBE CLEANER. HENRY F. WEINLAND, Springfield, Ohio, assignor to The Legonda Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Jan. 28, 1904. Serial No. 191,089.



Claim.—1. A boiler-tube cleaner of the rotatory type, comprising an integral head or body provided with a plurality of recesses therein opening radially outward, each recess comprising a central portion to receive a cutter and end portions to receive guide-blocks, said end portions having stops to limit the motion of said blocks, said recesses being arranged in a plurality of annular groups alternating with annular partitions forming part of the body, two guide-blocks for each recess, adapted to be inserted through the central portion thereof into the respective end portions and to slide radially therein, a cutter for each recess located in the central portion thereof between the guide-blocks, and a separate cutter-shaft for each recess extending removably through the guide-blocks and cutters therein and having a length less than the distance between the annular partitions, said recesses being of dimensions such as to permit radial centrifugal movement of the cutters, blocks and shafts when the cleaner is rotated, substantially as described.

2. A boiler-tube cleaner of the rotatory type, comprising an integral head or body provided with a plurality of recesses therein opening radially outward, each recess comprising a central portion to receive a cutter and end portions to receive guide-blocks, said end portions having stops to limit the motion of said blocks, said recesses being arranged in a plurality of annular groups alternating with annular partitions forming part of the body, two guide-blocks for each recess, adapted to be inserted through the central portion thereof into the respective end portions and to slide radially therein, a cutter for each recess located in the central portion thereof between the guide-blocks, and a separate cutter-shaft for each recess extending removably through the guide-blocks and cutter therein and having a length less than the distance between the annular partitions, said recesses being of dimensions such as to permit radial centrifugal movement of the cutters, blocks and shafts when the cleaner is rotated, said annular partitions being provided with longitudinal openings for the insertion and removal of the cutter-shaft, substantially as described.

3. A boiler-tube cleaner of the rotatory type, comprising an integral head or body provided with a plurality of recesses therein opening radially outward, each recess comprising a central portion to receive a cutter and end portions to receive guide-blocks, said end portions having stops to limit the motion of said blocks, said recesses being arranged in a plurality of annular groups alternating with annular partitions forming part of the body, two guide-blocks for each recess, adapted to be inserted through the central portion thereof into the respective end portions and to slide radially therein, a cutter for each recess located in the central portion thereof between the guide-blocks, and a separate cutter-shaft for each recess extending removably through the guide-blocks and cutter therein and having a length less than the distance between the annular partitions, said recesses being of dimensions such as to permit radial centrifugal movement of the cutters, blocks and shafts when the cleaner is rotated, said annular partition being provided with longitudinal openings for the insertion and removal of the cutter-shafts, and with removable blocks filling said openings to keep the cutter-shafts in operative position, substantially as described.

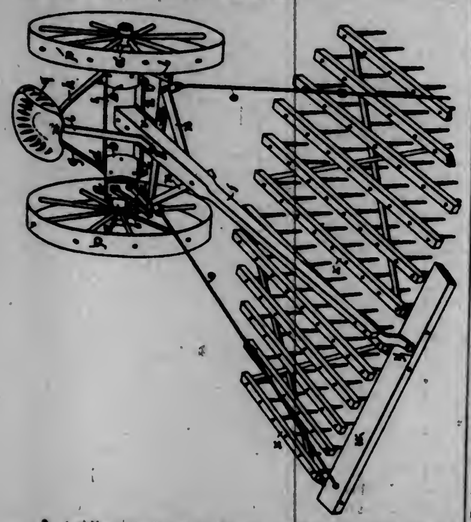
4. A boiler-tube cleaner of the rotatory type, comprising an integral, substantially cylindric head or body provided with a plurality of longitudinal recesses therein opening radially outward, said recesses being arranged in a plurality of annular groups alternating with annular partitions forming a part of the body, the longitudinal axes of the corresponding recesses of the several groups being alined longitudinally of the head, each recess comprising a central portion to receive a cutter and end portions to receive guide-blocks, said end portions having stops to limit the motion of said blocks, two guide-blocks for each recess, adapted to be inserted through the central portion thereof into the respective end portions and to slide radially therein, a cutter for each recess located in the central portion thereof between the guide-blocks, and a separate cutter-shaft for each recess extending removably through the guide-blocks and cutter therein and having a length less than the distance between the annular partitions, said annular partitions being provided with longitudinal openings in alinement with the longitudinal axes of the recesses and with the cutter-shafts, and removable plugs for said openings, substantially as described.

784,130. RIDING ATTACHMENT FOR HARROWS. DALTON K. WILSON, Gladbrook, Iowa, assignor to William Galloway, Waterloo, Iowa. Filed Oct. 3, 1904. Serial No. 227,060.

Claim.—1. A riding attachment for harrows, comprising a cross-timber, stub-axles pivotally mounted on the ends thereof, wheels on said axles, a cross-bar, bars fixed at one end to said stub-axles and pivotally mounted at their other ends to said cross-bar, and a reach attached to said cross-bar and having its rear end extended beyond and horizontally movable along said cross-timber, substantially as described.

2. A riding attachment for harrows, comprising a reach, a cross-timber, a transverse bar connected parallel to and spaced away from said cross-timber, a plate fastened to and extending rearwardly from said reach into the space between said cross-timber and said transverse bar, a cross-bar connected to the reach, stub-axles

pivotally mounted on the ends of said cross-timber, wheels on said axles, and bars extending from said axles and pivotally connected to said cross-bar, substantially as described.



3. A riding attachment for harrows comprising a reach adapted to extend across the harrow and connect with the front thereof, a cross-timber, a transverse bar connected parallel to and spaced away from said cross-timber, a plate fastened to and extending rearwardly from said reach into the space between said cross-timber and said transverse bar, a cross-bar connected with the reach, bearings on the ends of said cross-timber, stub-axles pivotally mounted in said bearings, wheels on said stub-axles, bars fixed to said stub-axles and pivotally connected to said cross-bar, a seat, and fixed and pivoted supports for said seat, substantially as described.

784,131. KNOB. JACOB ABEL, Waterville, Conn., assignor to The Berbecker & Rowland Manufacturing Company, Waterville, Conn., a Corporation of Connecticut. Filed Apr. 15, 1904. Serial No. 203,205.



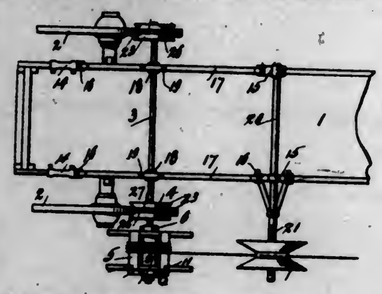
Claim.—1. A knob consisting of a screw, a disk having an opening therein in which is tightly fitted the screw-head, a shell surrounding the upper portion of said screw, the opposite or pointed end of said screw projecting through and beyond said shell, and a cap fitted on and concealing said disk, substantially as described.

2. A knob consisting of a screw, a disk having an opening therein in which is tightly fitted the screw-head, a shell forming a neck or hub on the upper edge of which rests said disk, and with a central opening in the base, through and beyond which projects the opposite or pointed end of said screw, and a cap fitted on said disk and having its edge turned or beat over and upon the upper edge of said shell, substantially as described.

3. A knob consisting of an ordinary screw having a round head, a disk provided with a square opening into which the screw-head is swaged, a shell surrounding the upper portion of the screw, and a cap fitting over said disk and secured to said shell, substantially as described.

784,132. WIRE REELER AND UNREELER. JAMES O. BAILEY, Delavan, Ill. Filed Dec. 4, 1903. Renewed Aug. 9, 1904. Serial No. 220,073.

Claim.—1. In a wire reeler and unreeler, the combination with a vehicle, of a shaft carrying a spool, friction-wheels upon the opposite ends of said shaft-engaging wheels of the vehicle, one of said friction-wheels fixed on the shaft, the opposite friction-wheel while rotatable with its shaft being capable of longitudinal movement to automatically adjust itself to any lateral movement of the wheel with which it engages, substantially for the purposes set forth.



2. In a wire reeler and unreeler, the combination with a vehicle, of a shaft mounted transversely on the vehicle-bed and carrying a spool, two friction-wheels engaging wheels of the vehicle and carried by said shaft, each comprising two separate disks secured together, leaving an annular space between their faces and having open ways in their bodies, one of said friction-wheels fixed on the shaft, the other, while rotatable with its shaft being capable of longitudinal movement to automatically adjust itself to any lateral movement of the wheel with which it engages, substantially for the purposes set forth.

3. In a device of the class described, the combination of driving-wheels, a driven shaft carrying a spool, friction-wheels carried by said driven shaft and adapted to contact with the driving-wheels, one friction-wheel fixed on the shaft, the other slidable upon or with the shaft, having a chambered hub portion, a roller secured to the driven shaft and located within the chambered hub of the wheel aforesaid adapted to impart rotary motion to the shaft when the wheel is turned by engagement of the hub therewith and to facilitate in the lateral movement of said wheel or its shaft, substantially as specified and for the purposes set forth.

4. In a wire reeler and unreeler, the combination with a vehicle, of a shaft mounted transversely upon the vehicle, and slidable in collars supported by and held under tension of springs having their ends attached to means from the vehicle-bed, friction-wheels carried upon opposite ends of said shaft, each engaging ground-wheels of the vehicle, one fixed on the shaft and the other revolubly carried with the same and slidable thereon, substantially as set forth.

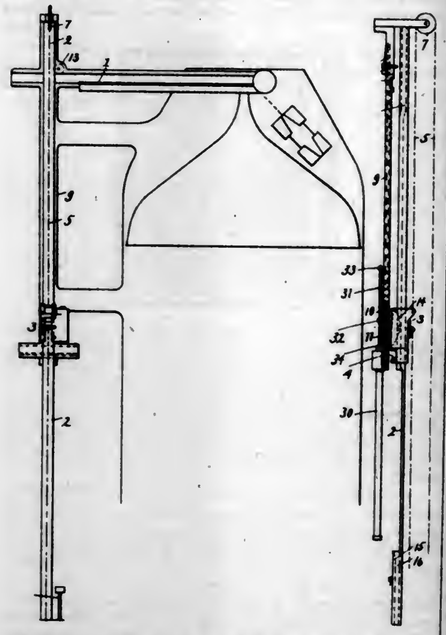
5. In a wire reeler and unreeler, the combination of a shaft, a reel carried thereby, interchangeable means for securing the reel to turn with its shaft for reeling, and for frictionally engaging the reel-frame to permit the reel to rotate independent of its shaft when unreeling, substantially as specified.

6. In a wire reeler and unreeler, the combination with a shaft, of a reel carried thereby, a collar on said shaft, two members pivotally connected to each other and adapted to be locked on said collar, having means for fixedly connecting the reel with the collar, and a spring carried by one of said members adapted when the members are reversed to frictionally hold the reel during its rotation, substantially as described.

7. In a wire reeler and unreeler, the combination with a vehicle, of a shaft carrying a reeling-spool, two friction-wheels carried on said shaft, one fixed to shift with the shaft and the other slidable upon or with the shaft, a collar on said shaft, two members pivotally connected to each other and adapted to be locked on said collar, having means for fixedly connecting the spool with the collar, and a spring carried by one of said members adapted when the members are reversed to frictionally hold the spool during its rotation, substantially as described.

784,133. ELEVATOR MECHANISM FOR CIRCULATING-MATRIX MACHINES. BENJAMIN F. BELLOWS, Cleveland, Ohio, assignor to John Woodruff Simpson, New York, N. Y. Filed July 11, 1904. Serial No. 216,044.

Claim.—1. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, means for raising said elevator, a vertically-movable slide, a latch by which the elevator in its upward movement engages with and lifts said slide, means for withdrawing said latch, a spring-pawl for engaging with and sustaining the slide after the elevator has released it, means operated by the ascending elevator for withdrawing said pawl, a pawl for sustaining the elevator, means operated by the descending slide for withdrawing the last-mentioned pawl, and means operated by the slide for removing the matrices from the elevator-rail.



2. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, means for raising said elevator, a vertically-movable slide, a latch by which the elevator in its upward movement engages with and lifts said slide, means for withdrawing said latch, a spring-pawl for engaging with and sustaining the slide after the elevator has released it, means operated by the ascending elevator for withdrawing said pawl, a pawl for sustaining the elevator, means operated by the descending slide for withdrawing the last-mentioned pawl, means operated by the slide for removing the matrices from the elevator-rail, and means operated by the elevator for severing the operative connection between the elevator and the mechanism for raising it.

3. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a vertically-movable rack-slide, an idle pinion with which said rack-slide engages, a horizontally-movable rack-slide also engaging with said pinion and carrying a pressure-arm for engaging with the matrices on the elevator-rail, and moving them therefrom, mechanism for lifting the elevator, a latch by which the elevator in its upward movement engages with and lifts the vertically-movable slide, and means for releasing said slide to the action of gravity.

4. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a vertically-movable rack-slide, an idle pinion with which said rack-slide engages, a horizontally-movable rack-slide also engaging with said pinion and carrying a pressure-arm for engaging with the matrices on the elevator-rail, mechanism for lifting the elevator, a latch by which the elevator in its upward movement engages with and lifts the vertically-movable slide, means for withdrawing said latch, means for temporarily sustaining said vertically-movable slide after it has been released from the elevator, mechanism for releasing said slide to the action of gravity, and mechanism for sustaining the elevator temporarily and for releasing it to the action of gravity.

5. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a vertically-movable slide, a latch-lever pivoted to the elevator and adapted for engagement with said slide, and means whereby said latch-lever is withdrawn from its engagement with said slide and pushed out into the position for effecting such engagement.

6. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a vertically-movable slide, a latch-lever pivoted to the elevator and adapted for engagement with said slide, a friction-roller carried by said lever, and cam-grooves for engaging with said roller to move said latch-lever.

7. In a machine for making type-bars, the combination of an elevator having a matrix-supporting rail, a vertically-movable slide, a latch by which the elevator in its upward movement engages with and lifts said slide, means for withdrawing said latch, a device which engages with said slide and temporarily supports it, and means whereby the elevator in its subsequent upward movement withdraws said slide-supporting device.

8. In a machine for making type-bars, the combination of an elevator having a matrix-supporting rail, a vertically-movable slide, a latch by which the elevator in its upward movement engages with and lifts said slide, means for withdrawing said latch, a spring-pawl which engages with said slide and temporarily supports it, a rock-shaft to which said pawl is secured, an arm secured to said rock-shaft, and a projection on the elevator, which strikes said rock-shaft arm.

9. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, means for elevating it, a spring-pawl engaging with the elevator when in its most elevated position, and a vertically-movable slide carrying a cam adapted to engage with the tail of said spring-pawl to move it out of engagement with said elevator.

10. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a vertically-movable rack-slide adapted to be engaged and lifted by said elevator and to be released therefrom, mechanism operated by said slide for removing the matrices from the elevator-rail, and a fixed dash-pot adapted to check the downward movement of said slide.

11. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a vertically-movable rack-slide adapted to be engaged and lifted by said elevator and to be released therefrom, a mechanism operated by said slide for removing the matrices from the elevator-rail, a fixed dash-pot and a piston and rod for said dash-pot, collars secured to said piston-rod, and a loop attached to the slide and embracing said piston-rod between said two collars.

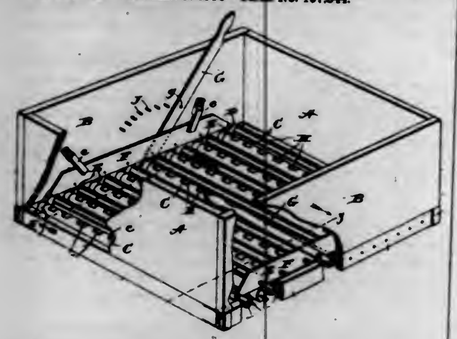
12. In a machine for making type-bars, the combination of a vertically-movable elevator having a matrix-supporting rail, a latch-lever pivoted thereto, a vertically-movable slide, and a spring-pawl carried thereby with its lower end in the path of the said lever.

13. In a machine for making type-bars, the combination of a vertically-movable elevator, a sprocket-chain to which it is attached, and two freely-rotatable sprocket-wheels over which said chain runs, with a clutch for connecting one of said sprocket-wheels with a rotating shaft, an electromagnet for closing said clutch, an electric switch adapted to be operated by the elevator in its upward movement for breaking the circuit of said magnet, and means for opening said clutch.

14. In a machine for making type-bars, the combination of a vertically-movable elevator, a sprocket-chain to which the elevator is secured, two freely-rotatable sprockets over which said chain runs, a rotating shaft, a clutch for connecting one of said sprockets to said shaft, a lever for operating said clutch, a pair of alined magnets, an armature-frame to which the armatures of said magnets are secured, a link connecting said armature-frame with the clutch-lever, means for closing the circuit of that magnet which closes the clutch, and an electric switch operated by the ascending elevator for breaking the circuit of that magnet and for closing the circuit of the other magnet, whereby the armature-frame is moved in the contrary direction to open the clutch.

15. In a machine for making type-bars, the combination of a vertically-movable elevator, a sprocket-chain to which the elevator is secured, two freely-rotatable sprockets over which said chain runs, a rotating shaft, a clutch for connecting one of said sprockets to said shaft, a lever for operating said clutch, a pair of alined magnets, an armature-frame to which the armatures of said magnets are secured, a link connecting said armature-frame with the clutch-lever, a rotatable arm for temporarily closing the circuit of that magnet which closes the clutch, an electrical switch operated by the armature-frame for closing said circuit through another path, a second electric switch for breaking the circuit of said magnet and for closing the circuit of the other magnet, and means whereby the elevator in its upward movement moves said last-named switch in one direction, and in its downward movement moves the switch in the opposite direction.

784,184. GRAIN SORTER OR SEPARATOR. FRANCIS L. BLOCK, Sidney, Ill. Filed Mar. 9, 1904. Serial No. 197,344.



Claim.—1. A separator comprising a receptacle, a bottom therefor having slats wider in cross-section in one direction than in another, means for pivotally mounting said slats, and means for rocking the slats on their pivots to regulate the spaces through the bottom, said means including thimbles mounted upon the end of each slat, a lever connected to one edge of each thimble and extending across the end of each slat, and means connected to said lever for shifting the same.

2. A separator comprising a receptacle, a bottom therefor having two alternately-arranged series of slats wider in cross-section in one direction than in another, means pivotally mounting and independently connecting such series of said slats, and means for rocking the two series of slats in opposite directions to regulate the spaces through the bottom.

3. A separator comprising a receptacle, a bottom therefor having two alternately-arranged series of slats wider in cross-section than in another, means pivotally mounting said slats, and means for rocking the slats of one series independently of the other on their pivots to regulate the spaces through the bottom.

4. A separator comprising a receptacle, a bottom therefor having two alternately-arranged series of slats wider in cross-section in one direction than in another, means pivotally mounting said slats, and means for rocking the slats of one series independently of the other in opposite directions to regulate the spaces through the bottom.

5. A separator comprising a receptacle, a bottom therefor having slats wider in cross-section in one direction than in another, means pivotally mounting said slats, and means for rocking the slats on their pivots to regulate the spaces through the bottom, said means including levers at the end of each slat, a reciprocatory bar connecting said levers, a spring-operating lever connected to said bar and having an aperture therein, and a plurality of pins secured to the side of the receptacle and in the path of the aperture in the lever, whereby the lever may be sprung to cause the aperture therein to engage any of said pins to hold the lever in various positions of adjustment.

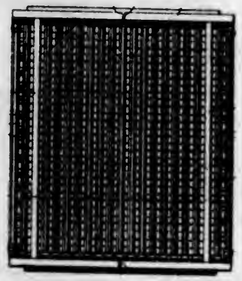
6. A separator comprising a receptacle, a bottom therefor having slats wider in cross-section in one direction than in another, means pivotally mounting said slats, means for rocking the slats on their pivots to regulate the spaces through the bottom, and an auxiliary independently-adjustable slat at one side of the receptacle, substantially as and for the purpose described.

7. A separator comprising a receptacle, a bottom therefor having slats wider in cross-section in one direction than in another, means pivotally mounting said slats, means for rocking the slats on their pivots to regulate the spaces through the bottom, and an auxiliary independently-adjustable slat at each side of the receptacle, substantially as and for the purpose described.

784,135. GRAIN SORTER OR SEPARATOR. FRANCIS L. BLOCK, Sidney, Ill. Filed Mar. 10, 1904. Serial No. 197,396.

Claim.—1. In a separator of the character described, a receptacle, a slatted bottom therefor, in combination with an auxiliary slatted bottom arranged crosswise of said first-mentioned bottom, means whereby one of said bottoms is adjustable relative to the other, and means whereby the slats of one of said bottoms may be adjustable.

2. In a separator of the character described, a receptacle, a slatted bottom therefor, in combination with an auxiliary slatted bottom arranged crosswise of said first-mentioned bottom, means whereby one of said bottoms is adjustable relative to the other, and means whereby the slats of each bottom may be adjusted.



3. In a separator of the character described, a receptacle, a slatted bottom therefor, in combination with a removable auxiliary slatted bottom arranged crosswise of said first-mentioned bottom, and means whereby the slats of each bottom may be adjusted.

4. In a separator of the character described, a receptacle, a bottom therefor comprising a series of slats extending in one direction, and an auxiliary series of slats extending crosswise of said first-mentioned slats, and means whereby the slats in each series may be adjusted.

5. In a separator of the character described, a receptacle, in combination with an adjustable bottom therefor including a series of slats extending longitudinally of the receptacle, and an auxiliary series of slats extending transversely of said first-mentioned series of slats, and means whereby the slats in each series may be adjusted.

6. In a separator of the character described, a receptacle, a slatted bottom therefor, an auxiliary slatted bottom arranged transversely of said first-mentioned bottom, and a slatted frame secured to said auxiliary bottom and adjustable relatively thereto, whereby the spaces between the slats of said auxiliary bottom may be increased or diminished.

7. In a separator of the character described, a bottom therefor comprising a plurality of adjustable slats, an auxiliary slatted bottom arranged transversely of said slats of the first-mentioned bottom and a slatted frame secured to said auxiliary bottom and adjustable relative thereto, whereby the spaces between the slats of the auxiliary bottom may be increased or diminished.

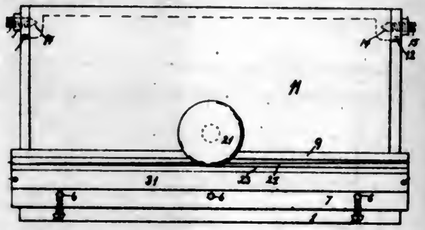
8. A slatted bottom of the character described comprising a plurality of slats arranged in parallel series, a bar pivoted to one of the slats at each end thereof, loose connections between both of said arms and each of the other slats whereby each arm may move in an arc to force said slats together or apart, in combination with means for locking the arms in various positions of adjustment on one side of said slats.

9. A slatted bottom of the character described comprising a plurality of slats arranged in parallel series, a pair of arms having their outer ends pivotally connected to one of the slats at each end thereof, loose connections between both of the arms and each of the other slats whereby each arm may move in an arc to force said slats together or apart, and means for locking the outer ends of said arms in various positions of adjustment on one of the slats.

10. A slatted bottom of the character described comprising a plurality of slats arranged in parallel series, a pair of arms having their outer ends pivotally connected to one of the slats at each end thereof, loose connections between both of the arms and each of the other slats whereby each arm may move in an arc to force said slats together or apart, a plurality of apertures in one of the slats of the bottom, and a pair of catches secured to the outer ends of the arms and adapted to engage with said apertures.

784,136. ENVELOP-OPENER. NELS J. BLOMGREN, Norway, Mich. Filed Mar. 23, 1904. Serial No. 199,549.

Claim.—1. An envelop-opener comprising, in combination, a stationary frame with a cutting-blade screw-fastened upon its front portion, a vertically-swinging hand-operated frame pivoted to the rear corners of the stationary frame, and having its front part extending downward and then forward to form a segmental guiding-surface against the envelop, a vertically-disposed shearing-blade screw-fastened with its flat side against the front side of the vertical portion of the swinging frame above the forward extension and coacting with the blade on the stationary frame in cutting the edge off of the envelop and means for raising the swinging frame and for controlling its motion, said stationary frame having its blade secured in place by screws passing through slots in the frame, and adjustment-screws acting against the front sides of the securing-screws for adjusting the blade rearwardly on the frame and holding it in the adjusted position.



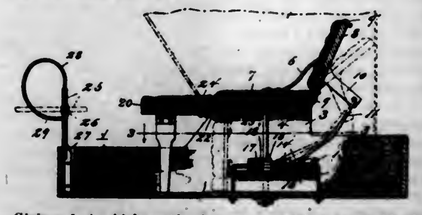
2. An envelop-opener comprising in combination, a main frame and a swinging frame pivoted thereto and a cutting-blade upon each frame to coact in cutting the envelop, a spring actuating the swinging frame in one direction and a button or plate to strike on to actuate the frame in the other direction, a broad stud upon the main frame, a flexible lining or cushion embracing the stud, an L-shaped hook extending from the swinging frame and engaging the lower broad side of the stud, while the other side of the stud meets a portion of the swinging frame whenever it is operated by the hand.

784,137. FENCE-POST. CHARLES BOOK, Harpster, Ohio. Filed June 27, 1904. Serial No. 214,399.



Claim.—The herein-described fence-post base, comprising a vertical leg, an inclined leg, and a horizontal integral bar connecting the two legs at the top, feet extending outward from the lower ends of said legs, anchor-disks bolted one to each foot, a vertical fence-post secured to the vertical leg of the base by a bolt extending through said post and through said leg immediately under the horizontal bar, and an inclined brace secured at its lower end to the inclined leg by a bolt passing through the brace and through the leg at a point immediately under the horizontal bar, the upper end of said brace being secured to the fence-post.

784,138. VEHICLE. JOHN BOOTHE, Fort Worth, Tex. Filed Mar. 18, 1904. Serial No. 198,717.



Claim.—1. A vehicle-seat having a permanently-supported back-section connected with a portion of its rear edge, a back-section connected hingedly and adjustably with the rear edge of the seat adjacent to the permanently-supported section, and means for retaining said hingedly-mounted back-section at various adjustments.

2. A vehicle-seat, a hingedly-supported back-section for said seat, and means for retaining said back-section in adjusted position, said means including a spring capable of yielding to pressure exerted upon the back-section.

3. A vehicle-seat having a hingedly-mounted back-section, a yoke connected with said back-section, and a ratchet-frame engaging said yoke.

4. A vehicle-seat having a hingedly-mounted back-section, a yoke connected hingedly with the latter, and a slidable spring-actuated ratchet-frame engaging said yoke.

5. A vehicle-seat having a hingedly-mounted back-section, brackets extending rearwardly from the latter, a yoke hingedly engaging said brackets, and a slidable spring-actuated ratchet-frame engaging said yoke.

6. A vehicle-seat having a hingedly-mounted back-section, a binding-strip for the latter having rearwardly-extending brackets, a yoke connected hingedly with said brackets, and a slidable spring-actuated ratchet-frame engaging said yoke.

7. A vehicle-seat having a hingedly-mounted back-section, a yoke having hinge connection with the latter, a longitudinally-slidable ratchet-frame engaging said yoke, guide-rods for said frame, spring means to force the latter in a rearward direction, and an adjustable abutment engaging said spring means.

8. A vehicle-seat, a seat extension connected hingedly with the front edge of said seat, and supporting means foldable under said seat extension.

9. A vehicle-seat, a seat extension hingedly and slidingly connected with the front edge of said seat, and supporting members foldable under said seat extension

10. A vehicle-seat provided with a hinged spring-supported back member and with a hingedly-mounted front extension.

11. A vehicle-seat, a back member hingedly and adjustably connected with the rear edge of said seat, a front extension hingedly connected with the front edge of said seat, and foldable supporting means for said front extension.

12. A vehicle-seat having a hingedly-mounted back member, supporting and adjusting means for said back member including spring means adapted to yield to pressure exercised in a downward direction upon the back member when the latter is tilted, a front extension hingedly and adjustably connected with the front edge of the seat, and foldable supporting means for said front extension.

13. A pair of standards, a dashboard supported pivotally between said standards, and means for supporting said dashboard in an approximately horizontal position.

14. A pair of standards, a dashboard supported pivotally between said standards, and bracket means upon said standards for supporting the dashboard in an approximately horizontal position.

15. A pair of standards having brackets provided with laterally-extending arms and a dashboard supported pivotally between said standards and adapted to be supported in an approximately horizontal position upon the arms extending from the brackets of said standards.

16. A vehicle having a reclining seat, a pivoted dashboard, and means for supporting the latter in an approximately horizontal position.

17. A vehicle having a seat, a back member connected hingedly and adjustably with the rear edge of said seat, a front extension connected hingedly and adjustably with the front edge of said seat, supporting means for said front extension, a pair of standards, a dashboard supported pivotally between said standards, and means for supporting said dashboard in an approximately horizontal position.

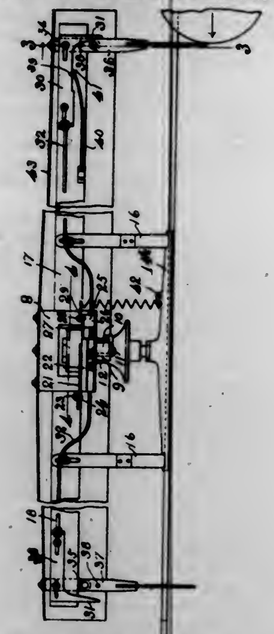
18. A vehicle having a seat provided with a hinged back-section, a top, and an auxiliary back curtain adapted to be connected with the hinged back-section when the latter is folded down from its upright position.

19. A vehicle-seat having a permanently-supported back-section and a hingedly-supported back-section, in combination with a top having a back curtain composed of flaps adapted to be separately connected with the permanently-supported back-section and with the hingedly-supported back-section when the latter is folded down from its upright position.

20. In a vehicle, a seat having a back composed of a plurality of sections, one of said sections being hingedly connected with the seat and capable of being folded to a reclining position, in combination with a top having a back curtain provided with a flap having side members adapted for connection with the back and sides of the hinged back-section of the seat.

21. A vehicle having a seat provided with a hinged, adjustable, reclining back portion, in combination with a top having a back curtain provided with an awning adapted to be connected with the reclining back portion of the seat.

784,139. **ELECTRICAL ANNUNCIATOR FOR TROLLEY-CARS.** IRA J. BRADSHAW, Waukegan, Ill., assignor of one-half to Jacob J. Distmeyer, Waukegan, Ill. Filed June 20, 1904. Serial No. 214,575.



Claim.—1. An electric switch consisting of the bracket, 8, secured on the span-wire, the switch-lever pivoted on the plate of the bracket 8, the switch-block screwed on said plate, the rod 32 secured to the inner end of the switch-lever, the bars 17 and 18, secured to the bracket, 8, the slides 30 and 33, slotted, and bolted on the bars, and respectively secured to the ends of the rod 32 substantially as and for the purpose specified.

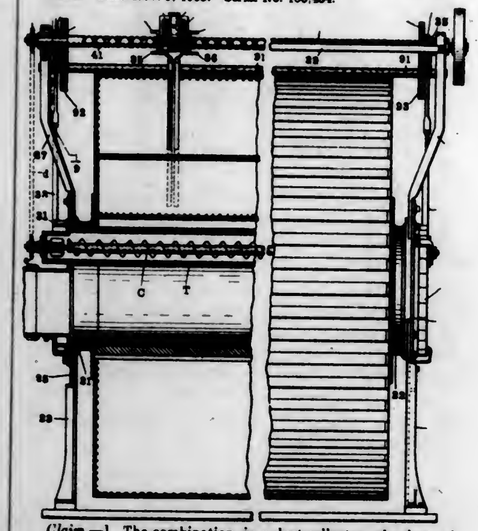
2. In an electric switch; the combination; of the bracket, 8, secured on the span-wire; the bars, 17 and 18, secured to the bracket; the switch-block secured on the bracket; the switch-lever pivoted on the same; the slide 30, secured to the bar 17; the slide, 33, secured to the bar, 18, by bolts through its slots, allowing it to be moved back and forth; the lug, 31, formed at the right-hand end of the slide, 30; the rod, 32, bolted to the slide, 30; and the levers, 36 and 37, pivoted, respectively, on the bars, 17 and 18, and having the lugs, 38, arranged so as to contact with the lugs, 31; substantially as and for the purpose specified.

3. In an electric switch, the combination of the bracket having its plate slotted transversely near its outer ends, clamps, each consisting of the grooved block, 10, threaded hook, 11, and the nut, 12, said clamps being secured to the bracket through its slots; the span-wire of the electric railway, securing the bracket in its place and the grooved guides, 16, resting on the extensions of the hanger of the trolley-wire, substantially as and for the purpose specified.

4. In an electric switch, the combination of the bracket 8 secured on the span-wire, the bars 17 and 18 secured to the bracket, the switch-block 19 secured on the bracket, the switch-lever 25 pivoted on the same, the slide 30 secured to the bar 17, the slide 33 secured to the bar 18 by bolts through its slots, allowing it to be moved forward and back, the rod 32 bolted to the slide 30 and to the slide 33, the lug 31 formed on the right-hand end of the slide 30, the slide 30 having the notch 39 on its lower edge, the spring 40 secured on the bar 17, and the lug 41 formed on the said spring so as to engage with the notch 39, substantially as and for the purpose specified.

5. In an electric switch, the combination of the bracket 8, the switch-block, 19, having its base and cap insulated, from each other, the switch-lever, 25, having its base and cap insulated from each other, both secured on the bracket, 8, the rod, 32, connected with both, the slide, 33, secured to the rod and the electric wires leading from the caps of the switch-block and the switch-lever respectively to an electric magnet of well-known construction, substantially as and for the purpose specified.

784,140. **DUST-COLLECTOR.** ALLEN C. BRANTINGHAM, Toledo, Ohio. Filed Nov. 9, 1903. Serial No. 180,404.



Claim.—1. The combination, in a dust-collector, of a dust-collecting structure rotatable about a horizontal axis and containing a central opening into which the dust-laden air is delivered, a dust-receiving trough located within said central opening and provided with an ingress-passage adapted to register with each of the several dust-collecting sections as the structure is revolved, an axially-traveling carriage mounted above said dust-collecting structure and bearing dust-dislodging devices which extend down between the walls of the section at the time uppermost, means for operating said dust-dislodging devices to deliver blows upon said walls as they travel over them, mechanism positioned at each end of the structure with which said traveling carriage will engage as it reaches said ends respectively, which mechanism is thus caused to move the dust-collecting structure forward a predetermined distance while the dust-dislodging devices are at the ends of the structure and beyond the ends of the sections thereof, and means for reversing the travel of the carriage of the dust-dislodging devices when this is accomplished, whereby said dust-dislodging devices are automatically caused to travel back and forth over successive sections, and the sections are automatically presented to their action, substantially as set forth.

2. The combination, in a dust-collector, of a rotary structure containing a multiplicity of separating sections radially disposed therein, dust-dislodging devices adapted to travel back and forth between the walls of said sections and deliver blows thereon, a carriage arranged to travel back and forth over said structure substantially parallel with the axis thereof and carrying said dust-dislodging devices, mechanism for periodically advancing the rotary dust-collecting structure a distance equal to the width of a dust-collecting unit, and engaging devices carried by the carriage for engaging with said mechanism and causing the same to operate as said carriage reaches the end of its movement in each direction.

3. The combination, in a dust-collector, of a rotary structure comprising a multiplicity of dust-collecting sections radially disposed, a continuously-moving double screw-shaft mounted above said dust-collector, a gear-wheel loosely mounted at each end of said shaft, an eccentric rigidly mounted on each gear-wheel, rods extending down from said eccentrics and provided with engaging ends, toothed rims secured to the ends of the dust-collecting structure with which said engaging ends will engage, a carriage carrying the dust-dislodging devices operated by said screw-shaft, and means carried by said carriage for causing said gear-wheels to revolve as the carriage approaches and carries said means into contact with them.

4. The combination, in a dust-collector, of a rotary structure mounted to revolve horizontally, a double screw-shaft arranged above said structure, a stationary track arranged parallel to said shaft, a carriage mounted on said track, a driving connection between said carriage and shaft whereby said screw-shaft may drive the carriage, longitudinlly of the dust-collector, dust-dislodging devices mounted on said carriage, cams mounted in said carriage and revolved by said shaft for actuating said dust-dislodging devices, and means situated at the ends of the structure for reversing the engagement of the double screw and thus causing the carriage to travel back and forth.

5. The combination, in a dust-collector, of a rotary structure comprising a multiplicity of dust-collecting sections having open longitudinal spaces between them, dust-dislodging devices adapted to pass between said sections through said spaces, a carriage for said dust-dislodging devices, means for driving said carriage from end to end of the structure, mechanism for intermittently advancing the dust-collecting structure a distance equal to the size of a dust-collecting unit, means whereby the carriage is caused to operate said mechanism at the ends of its travel, and a counter-shaft extending from end to end of the dust-collector whereby the rotating means at both ends are caused to operate simultaneously.

6. The combination, in a dust-collector, of the rotary structure comprising the dust-collecting sections, dust-dislodging devices adapted to travel back and forth over said sections, and mechanism adapted to be operated by said dust-dislodging devices as they reach either end of their path of movement, respectively, comprising loosely-mounted gear-wheels arranged at each end of said path, eccentrics rigidly secured to each of said gear-wheels, rods mounted on and operated by said eccentrics and having engaging members at the other ends, toothed rims with which said members will engage, a counter-shaft also extending from end to end of the structure, and gear-wheels rigidly mounted thereon which engage with said first-mentioned gear-wheels, whereby the mechanism at both ends of the structure are operated simultaneously, substantially as and for the purpose set forth.

7. The combination, in a dust-collector, of a rotary structure comprising a multiplicity of dust-collecting sections, dust-dislodging devices adapted to travel back and forth between said sections and deliver blows onto the surfaces thereof, a carriage carrying said dust-dislodging devices supported on a suitable track and operated by a double screw, the said track, the said screw, cams mounted in said carriage and revolubly connected to said shaft, reciprocating frames mounted in said carriage and upon which the dust-dislodging devices are immediately secured, and springs connected to said reciprocating frames and to the carriage-frame, said reciprocating frames being actuated in one direction by said cams and in the other direction by said springs.

8. In a dust-collector, the combination of, a rotatable structure comprising a multiplicity of dust-collecting sections, a dust-dislodging device, means for driving said dust-dislodging device through the dust-collecting sections of the rotatable structure substantially parallel with the axis of the rotary structure, and means for intermittently angularly advancing the rotary structure with relation to the dust-dislodging device, whereby said dust-dislodging device may be driven through the dust-collecting sections successively from end to end substantially parallel with the axis of the rotatable structure.

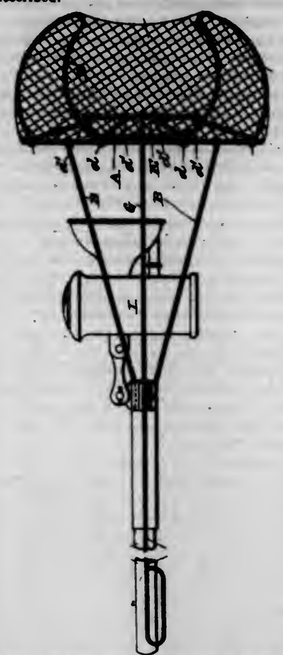
784,141. **ANIMAL-TRAP.** ALBERT BREST, Newcastle, Pa. Filed Aug. 12, 1904. Serial No. 220,550.

Claim.—1. In a trap, a handle, a cage-like receptacle mounted on said handle and a lure secured to said handle, substantially as shown and described.

2. In a trap, a handle, a cage-like receptacle mounted on said handle, and a lantern secured to said handle and so positioned that the shaft of light therefrom shines through said receptacle, substantially as shown and described.

3. In a trap, a handle, a ring secured to said handle, jaws pivotally mounted on said ring, means to operate said jaws, and a lantern secured to said handle and mounted so that the shaft of light therefrom shines through the opening between said jaws, substantially as shown and described.

4. In a trap, a ring suitably mounted, jaws made of heavy wire bent to form loops around said ring, the free ends of said wires formed with loops, a ring passed through said loops, and a rod secured to the last-named ring to operate said jaws, substantially as shown and described.



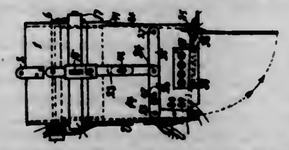
5. In a trap, a handle, rods secured to said handle, a ring secured to said rods, jaws made of heavy wire bent to form loops around said ring, the free ends of said wires formed with loops, a ring passed through said loops, a rod secured to the last-named ring to operate said jaws, and a lantern secured to the handle and so positioned that the shaft of light therefrom shines through the opening between said jaws when open, substantially as shown and described.

6. In a trap, a ring suitably mounted, jaws made of heavy wire bent to form loops around said ring, the free ends of said wires formed with loops, a ring passed through said loops, a rod secured to the last-named ring to operate said jaws, and a net secured to said handle and covering it, and means to open and close said jaws, substantially as shown and described.

7. In a trap, a handle, a ring mounted on said handle, jaws pivoted on said ring and so shaped that when closed they form an inclosed cage, a net covering said jaws, means to open and close said jaws, and a lantern secured to said handle and so positioned that its light shines between the jaws when open, substantially as shown and described.

8. In a trap, a handle, a ring mounted on said handle, jaws pivoted on said ring and so shaped that when closed they form an inclosed cage, a net secured to and covering said jaws, a rod secured to the jaws to open and close them, and a lantern secured to said handle and so positioned that the shaft of light therefrom shines between said jaws when open, substantially as shown and described.

784,142. **WEIGHING APPARATUS.** ALFRED L. BUCKLAND, Marietta, Minn. Filed July 18, 1904. Serial No. 216,941.



Claim.—1. In an apparatus of the class described, the combination with a hopper or spout, of a weighing-chamber arranged below said hopper, counterbalancing means normally holding said chamber raised, mechanism movably connecting said chamber and hopper, wings having rotatable support in said chamber, means actuated

from said connecting mechanism to hold one of said wings in horizontal position when the chamber is raised and to release said wing when the chamber is lowered, and a pair of oscillating wings in the bottom of the hopper for closing automatically its bottom opening while the weighing-chamber is lowered and emptied, said wings being operatively associated with the weighing-chamber.

2. In an apparatus of the class described, the combination of an upper stationary hopper-shaped chamber and a lower vertically-movable counterbalanced chamber suspended below the upper chamber, closing wings in the bottom of each chamber, and mechanisms operatively associated with said wings and chambers to close automatically the wings in the upper chamber and open the closed wing in the lower chamber substantially at the same time.

3. In an apparatus of the class described, the combination of an upper stationary hopper-shaped chamber and a lower vertically-movable counterbalanced chamber suspended below the upper chamber, closing wings in the bottom of each chamber, and mechanisms operatively associated with said wings and chambers to close automatically the wings in the upper chamber and open the closed wing in the lower chamber substantially at the same time, said wings in the upper chamber being two in number, each fixed radially on a horizontal shaft, meshing gears fixed on said shaft to cause the wings to open and to close against each other, a lever projecting from one of the said shafts, a weight on the lever, an arm secured upon the lower chamber and supporting said lever when the wings in the upper chamber are to be held open.

4. In an apparatus of the class described, the combination of an upper stationary, hopper-shaped chamber and a lower vertically-movable counterbalanced chamber suspended below the upper chamber, closing wings in the bottom of each chamber, and mechanisms operatively associated with said wings and chambers to close automatically the wings in the upper chamber and open the closed wing in the lower chamber substantially at the same time, said wings in the upper chamber being two in number each fixed radially on a horizontal shaft, meshing gears fixed on said shafts to cause the wings to open and to close against each other, a lever projecting from one of the said shafts, a weight on the lever, an arm secured upon the lower chamber and supporting said lever when the wings in the upper chamber are to be held open, said weight and supporting-arm being adjustable, substantially as and for the purposes set forth.

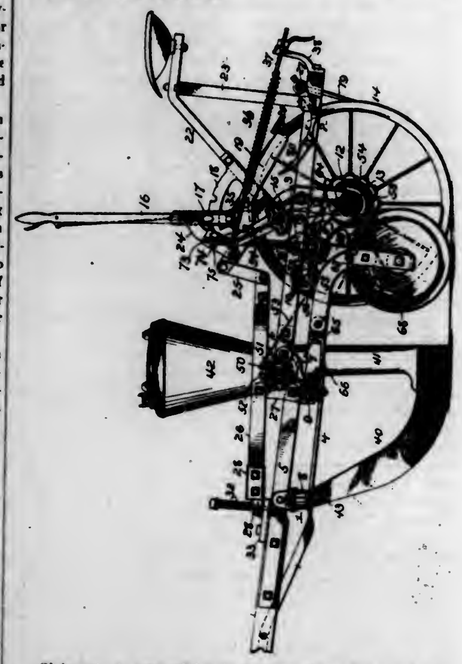
5. In a weighing apparatus of the class described, the chamber having in its bottom a rotatory shaft with wings thereon, each of which in its turn closes the bottom opening of the chamber, a roller supporting the free end of the wing when it closes the opening, said chamber having adjacent said roller a spring-pressed flap formed in its side wall, substantially as and for the purpose set forth.

6. In a weighing apparatus of the class described, the combination of a weighing-chamber having a rotatory shaft in its bottom end provided with wings, each of which in its turn closes the bottom opening of the chamber, a movable support for the free end of the wing when in the closed position, a star-wheel secured upon the said shaft and having one radial finger for each wing on the shaft, a pawl engaging said radial fingers to prevent rebounding of the wings when they strike the support, an indicator secured upon the chamber and having its operating-lever operatively connected with said pawl and fingers.

7. In a weighing apparatus of the class described, the combination of a weighing-chamber having a rotatory shaft in its bottom end provided with wings, each of which in its turn closes the bottom opening of the chamber, a movable support for the free end of the wing when in the closed position, a star-wheel secured upon the said shaft and having one radial finger for each wing on the shaft, a pawl engaging said radial fingers to prevent rebounding of the wings when they strike the support, an indicator secured upon the chamber and having its operating-lever operatively connected with said pawl and fingers by having the pawl formed at the end of the operating-lever.

8. In an apparatus of the class described, the combination with a hopper or spout, of a weighing-chamber arranged below said hopper, counterbalancing means normally holding said chamber raised, mechanism movably connecting said chamber and hopper, wings having rotatable support in said chamber, means actuated from said connecting mechanism to hold one of said wings in horizontal position when the chamber is raised and to release said wing when the chamber is lowered, and means in the bottom of the hopper for closing automatically the bottom opening while the weighing-chamber is lowered and emptied, said closing means being operatively associated with the weighing-chamber and said means for holding the wings in horizontal position in the weighing-chamber having parts which are adjustable horizontally and vertically, substantially as and for the purposes set forth.

784,143. **CORN-PLANTER.** CALVIN R. DAVIS, South Bend, Ind., assignor to Oliver Chilled Plow Works, South Bend, Ind. Filed Mar. 30, 1904. Serial No. 200,758.



Claim.—1. A convertible planter comprising front and rear frames pivotally connected together, an axle mounted in the rear frame, covering-wheels on said axle, feeding mechanism on the front frame near the ends thereof, intermediate feeding mechanism, means for removably attaching said intermediate feeding mechanism at the center of the front frame and at each side of the center of said front frame, intermediate removable covering-wheels, and means for alining the intermediate covering-wheels with the intermediate feeding mechanism.

2. In a planter, the combination with a rear frame and wheels for supporting the same, of a front frame comprising transverse parallel bars made with a large number of bolt-openings at various points, runners and shanks having perforated projections to receive bolts and secure them to the bars, seed-hoppers above the shanks, grooved extensions on the seed-hoppers, and tongues on the shanks to be secured in the grooves of the hopper extensions and secure the hoppers in position over the shanks.

3. In a planter, the combination with a rear frame supported on wheels, of a front frame hinged to the rear frame, feeding mechanism carried by the front frame, a tongue secured to the front frame, a lifting-lever on the rear frame, lifting-bars secured to a block at one end and connected at their other end with said lifting-lever, a vertical rod on the tongue and projecting through an opening in the block, a spring on the rod exerting downward pressure on the block, and said lifting-bars secured between their ends to the front frame.

4. In a planter, the combination with a rear frame supported on wheels, of a front frame hinged to the rear frame and carrying feeding mechanism, of a shaft carried by the rear frame, a hand-lever secured on the shaft, a foot-lever extending transversely across the hand-lever and secured thereto above said shaft, mechanism connected with the foot-lever to compel the front frame to raise or lower when either of said levers is moved, an upwardly-projecting arm on said shaft, and a counterbalance-spring connected to said arm extending rearwardly therefrom and connected with the rear frame.

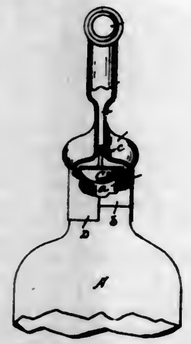
5. In a planter, the combination with a rear frame supported on wheels, of a front frame hinged to the rear frame, seed-dropping mechanism on the front frame, a sprocket-wheel loose on the rear-frame axle and movable laterally thereon, a clutch member on the sprocket-wheel, a spring normally holding the said clutch member in locked engagement with a coöperating clutch member fixed on the axle, a sprocket-chain transmitting motion from the sprocket-wheel to the seed-dropping mechanism, a shaft on the frame, a lever secured to said shaft and adapted to raise and lower the front frame, and an arm on the shaft adapted when the lever is moved to raise the front frame, to move against the sprocket-wheel and separate the clutch members thereby stopping the seed-dropping mechanism.

6. In a planter, the combination with a rear frame supported on wheels, of a front frame hinged to the rear frame and carrying feeding mechanisms, a lever on the rear frame to raise and lower the front frame, covering-wheels, forks carrying said covering-wheels, and a spring-rod connecting said covering-wheel forks with said lever.

7. A convertible planter, comprising front and rear frames pivotally connected together, an axle mounted in the rear frame, combined traction and covering wheels in which said axle is mounted, feeding mechanism attached to the front frame at or near the ends thereof, removable feeding mechanisms intermediate the ends of the front frame, means for attaching one or more of said removable feeding mechanisms to the front frame intermediate of the ends thereof, intermediate covering-wheels to coöperate with said intermediate feeding mechanism, and means for removably connecting said intermediate covering-wheels to the front frame.

8. In a planter, the combination with a rear frame, an axle supporting the frame and wheels supporting the axle, of a front frame hinged to the rear frame and carrying seed-dropping mechanisms, a sprocket-wheel clutched to the axle, a sprocket-chain connecting the sprocket-wheel with the seed-dropping mechanism, a hinged arm on the rear frame carrying a roller at its free end resting on the chain to take up slack therein, a lever on the rear frame for raising and lowering the front frame and means controlled by said lever for throwing the sprocket-wheel out of its clutched engagement with the axle when the front frame is raised.

784,144. **BOTTLE.** ROBERT R. DOERER, Detroit, Mich. Filed Oct. 6, 1904. Serial No. 227,427.



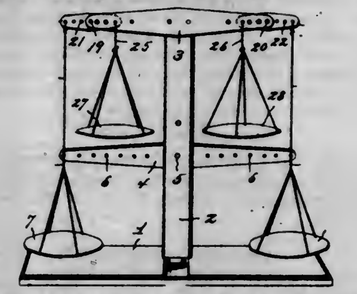
Claim.—1. The combination of a bottle provided with a neck having an annular shoulder and a seat for a valve, an auxiliary neck fitting over the neck of the bottle, flush with the shoulder thereon, and being provided with a narrow or contracted passage-way, a valve which is normally seated in the neck of the bottle and is provided with a wing-like stem which projects into the narrow passage-way, and a label secured about the auxiliary neck and the neck of the bottle, covering the junction thereof, substantially as shown and described.

2. The combination of a bottle provided with a neck having an annular shoulder and a seat for a valve, an auxiliary neck, sinuous in form, fitting over the neck of the bottle, flush with the shoulder thereon and being provided with a narrow or contracted passage-way, a valve which is normally seated in the neck of the bottle and is provided with a wing-like stem which projects into the narrow passage-way, and a label secured about the auxiliary neck and the neck of the bottle covering, the junction thereof, substantially as described.

3. The combination of a bottle provided with a neck having an annular shoulder and a seat for a valve, an auxiliary neck, sinuous in form, fitting over the neck of the bottle, flush with the shoulder thereon, and being provided with a narrow or contracted passage-way and a globular chamber, a valve in said chamber and which is free to move therein, but is normally seated in the neck of the bottle and is provided with a narrow wing-like stem, which projects into the narrow passage-way, the walls of said passage-way forming a guide for the stem and limiting the valve in its movement, and a label secured about the auxiliary neck and the neck of the bottle, covering the junction thereof, substantially as shown and described.

4. The combination of a bottle provided with a neck having an annular shoulder and a seat for a valve, an auxiliary neck fitting over the neck of the bottle, flush with the shoulder thereon, and being provided with a narrow or contracted passage-way, a packing between the neck of the bottle and the auxiliary neck, a valve which is normally seated in the neck of the bottle and is provided with a wing-like stem which projects into the narrow passage-way, and a label secured about the auxiliary neck and the neck of the bottle, covering the junction thereof, substantially as shown and described.

784,145. **EDUCATIONAL DEVICE.** FRANKLIN C. DONECKER, Chicago, Ill. Filed Aug. 23, 1904. Serial No. 221,877.



Claim.—1. An educational device comprising a support having a cross-head, a lever fulcrumed upon the support below the cross-head, receptacles hung from opposite end portions of the lever, and balances hung from opposite end portions of the cross-head and including cords connected to the corresponding ends of the lever, and receptacles hung from the other ends of the cords.

2. An educational device comprising a support having a cross-head, a fulcrum-pin carried by the support below the cross-head, a lever supported upon the fulcrum-pin and capable of being shifted thereon, receptacles hung from opposite ends of the lever, and balances hung from the opposite ends of the cross-head and including cords connected to the corresponding ends of the lever, and receptacles hung from the other ends of the cords.

3. An educational device comprising a base, a standard rising therefrom, a cross-head carried by the top of the standard, a fulcrum-pin carried by the standard, a lever having a longitudinal series of openings for the individual reception of the fulcrum-pin, receptacles hung from opposite ends of the lever, and balances hung from the ends of the cross-head and including cords connected to the corresponding ends of the lever, and receptacles hung from the other ends of the cords.

4. An educational device comprising a support, a lever mounted thereon, and balances supported independently of the lever and connected to the respective ends of said lever.

5. An educational device comprising a base, a standard rising therefrom, a lever fulcrumed intermediate of its ends upon the standard, and balances supported independently of the lever and connected to the respective ends of said lever.

6. An educational device comprising a support, a cross-head thereon, a lever fulcrumed intermediate of its ends upon the support, receptacles hung from opposite end portions of the lever, and balances hung from the respective end portions of the cross-head, each balance having one end connected to the adjacent end of the lever and a receptacle at the opposite end of the balance.

7. An educational device comprising a support, a lever fulcrumed thereon intermediate of its ends, a cross-head carried by the support, receptacles hung from opposite end portions of the lever, intermediately-fulcrumed supplemental levers supported by opposite end portions of the cross-head, corresponding ends of the supplemental levers being connected to adjacent ends of the main lever,

and receptacles hung from the other ends of said supplemental levers.

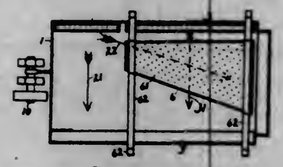
8. An educational device comprising a support, a lever fulcrumed intermediate of its ends thereon, receptacles hung from opposite end portions of the lever, a cross-head upon the support, intermediately-fulcrumed supplemental levers supported by the cross-head and disposed at substantially right angles to the main lever, each supplemental lever having one end connected to the adjacent end of the main lever and provided with a receptacle at its opposite end.

9. An educational device comprising a support, a main lever fulcrumed thereon, receptacles hung from opposite end portions of the main lever, a cross-head upon the support, intermediately-fulcrumed supplemental levers supported by opposite end portions of the cross-head and capable of adjustment thereon, each supplemental lever having one end connected to the adjacent end of the main lever and provided at its opposite end with a receptacle.

10. An educational device comprising a base, a standard rising therefrom and provided with transverse openings disposed at substantially right angles to one another, a rod adjustable endwise through the lower opening, a set-screw to fix the rod in the opening, a main lever fulcrumed intermediate of its ends upon the rod and shiftable therewith, receptacles hung from opposite end portions of the lever, a cross-head adjustable endwise through the other opening in the standard, a set-screw to adjustably fix the cross-head upon the standard, intermediately-fulcrumed supplemental levers supported by the respective end portions of the cross-head, each supplemental lever having one end connected to the adjacent end of the main lever and provided with a receptacle at its opposite end.

784,146. MACHINE FOR CONCENTRATING MINERAL ORES.

GAYLEN R. DUNCAN, Three Rivers, Canada, assignor of three-fourths to Drummond, McCall & Co., a Firm. Filed May 16, 1903. Serial No. 157,349.



Claim.—1. In a machine of the class described the combination of a pulp-feed, a wash-water supply and a dropping-pan adapted to supply a shower of drops of water upon the stream of wash-water and the material which has settled on the surface of the machine beneath the stream of wash-water.

2. In a concentrating-table, the combination of a pulp-feed, a wash-water supply and a dropping-pan situated upon the area traversed by the concentrates in passing to the ore-box and across which the wash-water flows to the tailings-box and adapted to disturb the wash-water and the settled material beneath.

3. The combination with a concentrating-table, of an adjustable dropping-pan adapted to furnish water in the form of drops upon the surface of the table between the pulp-feed and wash-water supply and the tailings and concentrates boxes.

4. In a concentrating-table in which the concentrates pass over the far end of the table for the pulp-feed and the wash-water passes across the table, a dropping-pan and water-supply adapted to disturb by means of a shower of drops the stream of wash-water and the settled material beneath.

5. In an ore-separator the combination of a vibrating table and a dropping-pan adapted to disturb by means of a shower of drops the whole area in which the concentrates pass across the flow of the wash-water as described.

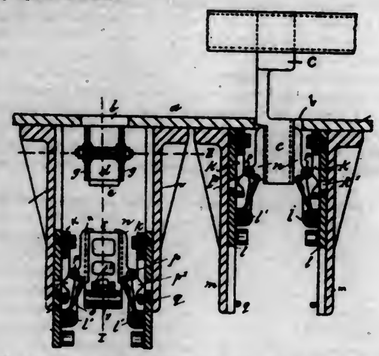
6. In an ore-separator a dropping-pan adapted to disturb by means of a shower of drops the concentrates in the area across the path of which the wash-water flows as described.

7. In an ore-concentrator, a dropping-pan adapted to disturb by means of a shower of drops the wash-water flowing across the path of the concentrates as described.

784,147. FOLDING APPARATUS FOR BOXES OR THE LIKE.

ROBERT B. FISCHER, Barmen, Germany. Filed June 17, 1903. Serial No. 161,988.

Claim.—1. A machine for folding boxes and the like comprising a bed, having a slot, a vertically-reciprocated stamp to engage said slot, fixed pieces forming a channel round the slot, a slide reciprocated at the bottom of the channel and two pairs of creasing-flaps guided at the sides of the fixed pieces substantially as shown and for the purpose set forth.

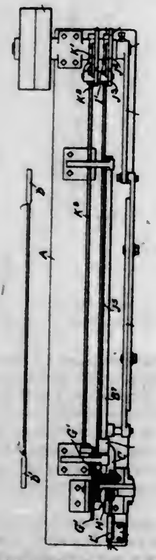


2. In a box-folding machine, a plunger, a bed, lateral standards supporting said bed, plates slidably mounted on the standards and adapted to reciprocate thereon, cams slidably mounted on the plates and provided with a recess, box-engaging fingers linked to the reciprocating plates, and provided with rollers on their outer sides to engage said recesses, and springs to actuate said fingers.

3. In a box-folding machine in combination, a plunger, means for folding a blank around the plunger to form a box, means for stripping the box from the plunger, and means comprising a chain having members of double-T section, adapted to receive the box-blanks as they are stripped from the plunger.

784,148. MACHINE FOR MAKING STRAPS FOR LOOM-HARNESS.

JOHN R. FITTON, Worcester, Mass. Filed May 18, 1903. Serial No. 157,581.



Claim.—1. In a machine of the class described, the combination of the following instrumentalities, means for imparting a longitudinal movement to a strap, knives for reducing the diameter of the strap, means for moving said knives into action, dies for compressing the strap and means for moving said dies into action.

2. In a machine of the class described the combination of a reciprocating draw-plate provided with means for engaging one end of the strap and imparting a longitudinal movement thereto, a pair of fixed cutting-knives held in an oblique position to the line of motion of the strap, means for carrying said knives into continuous contact with the strap at a predetermined period in its movement and a guide-trough through which the strap is drawn, held in fixed relation to said knives.

3. The combination with means for imparting a longitudinal movement to a strap, of a pair of fixed cutting-knives held in an oblique position to the line of motion of the strap, means for carrying said knives into continuous contact with the strap at a predetermined period in its movement and a guide-trough through which the strap is drawn, held in fixed relation to said knives.

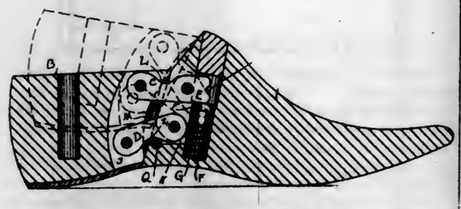
4. The combination with a strap-supporting trough, of a reciprocating draw-plate provided with means for engaging the strap, a pair of knives, means for moving the knives against the strap, means for moving the knives away from the strap, and means for applying pressure to the strap during its longitudinal movement, substantially as described.

5. The combination with a reciprocating draw-plate having means for engaging the strap, of a pair of plates provided in the opposing edges with semicircular notches, and means for moving said notched plates against the strap, substantially as described.

6. The combination of a reciprocating draw-plate having means for engaging the strap, a pair of pivoted levers, knives carried by said levers, a reciprocating plate having curved slots engaging the free ends of said levers, whereby the knives are moved toward and away from the strap, substantially as described.

7. The combination of a reciprocating draw-plate having means for engaging the strap, a pair of pivoted levers, compressing-dies carried by said levers, and a reciprocating slotted plate engaging the free ends of said levers, whereby said dies are moved toward and away from the strap, substantially as described.

784,149. LAST. AMOS G. FITZ, Auburn, Me. Filed Mar. 20, 1903. Serial No. 148,702.



Claim.—1. A last divided transversely, the forward end of the heel part being provided with a recess lying wholly within the lateral walls thereof, portions of the top of the fore part on either side of the center being cut away, said recess being adapted to give entrance to the reduced top of the fore part for shortening the last when the heel part is moved upwardly relative to the fore part, and a union pivotally connecting the parts.

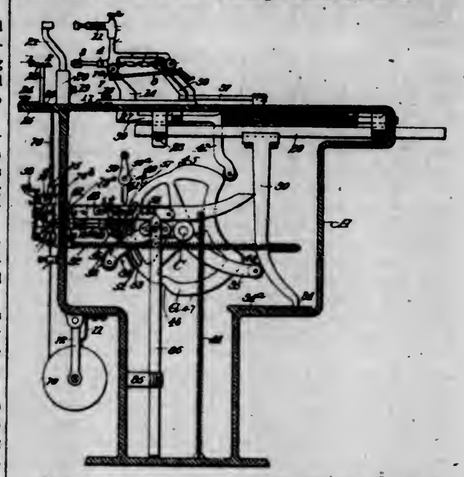
2. A transversely-divided last having contacting adjacent faces, a union pivotally connecting the parts, whereby the adjacent faces are free to move from contact in lengthened relation to contact in shortened relation and vice versa, a projection on one end of the union extending beyond the pivot-point and having a depression therein and a spring-actuated plunger positioned in the path of said projection beyond the pivot-point and tending to move in a direction outside the pivot-point, whereby the plunger enters said depression when the last is in shortened relation and automatically and yieldingly locks the parts in contact.

3. A last divided transversely on a line extending from the top diagonally downwardly toward the heel, a union pivotally connected one end to the fore part and the other end to the heel part, whereby the heel part may be moved upwardly and forwardly relative to the fore part to shorten the last, the heel part being provided with a recess lying wholly within the lateral walls thereof and adapted to give entrance to the top of the fore part when the heel part is moved upwardly and forwardly relative to the fore part.

784,150. MACHINE FOR WIRING TAGS.

WALLACE W. FULLER, Charleston, S. C., assignor of one-third to George S. Legare, Charleston, S. C., and one-third to Thomas R. Harney Washington, D. C. Filed Mar. 3, 1904. Serial No. 196,333.

Claim.—1. In a tag-wiring machine, the combination with a tag-holder and means to insert a wire through the eye of a tag thereon, of a carriage, means to reciprocate the same, a rotatable twister carried thereby and constructed to engage the wire, and means independent of the movement of the carriage to rotate the twister.



2. In a tag-wiring machine, the combination with a tag-holder and means to insert a wire through the eye of a tag thereon, of a carriage, means to reciprocate the same, in alinement with the tag, a spirally-grooved twister carried thereby and engageable with the wire, an independently-operated nut slidable on the twister and engaging the groove to rotate the twister, and means to slide the nut on the twister.

3. In a tag-wiring machine, the combination with a reciprocating needle and means to supply wire thereto, of jaws reciprocating with the needle and between which the wire is supplied, means to reciprocate the needle and jaws and independent means to close and open the jaws, upon the wire.

4. In a tag-wiring machine, the combination with a reciprocating needle and means to supply wire thereto, of jaws reciprocating with the needle and arranged to grip and release the wire, means to reciprocate the needle and jaws, and adjustable means to open and close the jaws.

5. In a tag-wiring machine, the combination with a reciprocating cam-actuated needle and means to supply wire thereto, of jaws, means to reciprocate the same with and behind the needle, said jaws being arranged to grip and release the wire, a trip-lever connected to one of the jaws, and means engageable with the lever to throw the same, to open and close the jaws.

6. In a tag-wiring machine, the combination with a reciprocating cam-actuated needle and means to supply wire thereto, of jaws, means to reciprocate the same with and behind the needle, said jaws being arranged to grip and release the wire, a trip-lever connected to one of the jaws, a projection connected to and moving with the cam and arranged to strike the lever and close the jaws, and a trip located in the way of the lever and arranged to strike the same and open the jaws.

7. The combination with the casing, of the needle-carriage reciprocable vertically on the front thereof, and having an arm extending into the casing, a rotating cam in the casing arranged to strike and lift the arm and carriage, means to supply wire to the needle, a pair of jaws on the carriage behind the needle and arranged to grip the wire, one of said jaws having an operating-rod extending into the casing, a lever pivotally supported on the arm and connected to the rod and means to trip and throw the lever, to open and close the jaws, according to the movement of the cam.

8. The combination with a reciprocating needle, of a spool for wire, having its periphery in line with the needle, means to feed wire from the spool to the needle, and means to preserve the alinement of the periphery of the spool with the needle, as the wire is reeled off.

9. The combination with a tubular needle reciprocating vertically, of a spool for wire hung to swing, with its periphery in line with the needle, means to feed wire from the spool to the needle, and a spring bearing on the spool and constructed to swing the same, to preserve said alinement, as the wire is reeled off.

10. A twister for tag-wiring machines, comprising a shank forked at the head and having elongated eyes in the forks, as and for the purpose described.

11. A twister for tag-wiring machines, comprising a shank having diverging forks at the head, said forks having eyes therein terminating in narrow slits at the divergent portions, as and for the purpose described.

12. A tag-platform for tag-wiring machines, having a recess at the front end to receive a needle and twister therethrough, and a tapered piece extending from one side of the recess partly across the same, as and for the purpose described.

13. In a tag-wiring machine, the combination with means to hold a tag and means to insert a wire through the eye thereof, of a reciprocating carriage, a rotary twister carried thereby and having forks with eyes therein through which the wire is inserted on both sides of the tag, and means moving more rapidly than the carriage to rotate the twister, whereby comparatively slower drawing and faster rotating movements are imparted to the twister.

14. In a tag-wiring machine, the combination with means to hold a tag and means to insert a wire through the eye thereof, of a reciprocating carriage, a rotary twister carried thereby and having means to engage the wire so inserted and loop the same over the end of the tag, means to rotate the twister and twist the wire, and means to accelerate the speed of the carriage after the twist is made.

15. In a tag-wiring machine, the combination with means to hold a tag and means to insert wire through the eye thereof, of a carriage, means to move the same toward and from the tag, a jaw and a knife carried by the carriage, respectively on opposite sides of the tag, to grip and cut the wire, another jaw coöperating with said jaw, and a twister mounted on the carriage and having means to loop and twist the wire over the end of the tag.

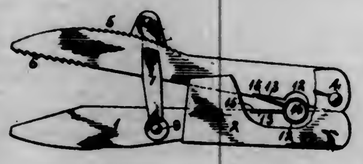
16. In a tag-wiring machine, the combination with means to hold a plurality of tags and means to insert wires through the respective eyes thereof, of a carriage, means to move the same toward and from the tags, a fixed jaw, a movable jaw and a knife carried by the carriage, respectively on opposite sides of the tags, to grip and cut the wires, and a plurality of twisters mounted on the carriage and having means to loop and twist the wires over the ends of the tags.

17. In a tag-wiring machine, the combination with a casing, and vertical and horizontal guides in the front and top thereof, respectively, of a tag-platform in line with both guides, a fixed jaw above the platform, a needle-carriage, slidable in the vertical guides under the platform, and having a wire-carrying needle arranged to pass through the tag in the platform and project the end of the wire beside said jaw, a carriage slidable in the horizontal guides and having thereon wire cutting and twisting devices and a jaw coöperating with said fixed jaw, and means to operate the carriages.

18. A wire cutting and twisting mechanism for tag-wiring machines, comprising a tag-holder, a fixed jaw above and a fixed knife below the same, a carriage slidable toward and from the holder, a knife at the front lower edge thereof and coöperating with the fixed knife, a jaw at the top of the carriage and coöperating with the fixed jaw, a rotary twister mounted on the carriage and having means to engage the wire on both sides of the tag in the holder, and means to operate the carriage and twister.

19. A wire cutting and twisting mechanism for tag-wiring machines, comprising a plurality of tag-holders, a fixed jaw above and a fixed knife below the same, a carriage, means to slide the same toward and from the holders, a knife carried by the carriage under the holders and acting to simultaneously cut all the wires, a plurality of frames mounted on the carriage and adjustable with respect to each other, and a jaw and a rotary twister carried by each frame, the jaws being arranged to coöperate with the fixed jaw and the twisters having respectively means to engage the wires in the several tags.

784,151. **WRENCH.** WILLIAM R. GILCHRIST, Rockford, Ill., assignor of one-half to Edwin M. St. John, Rockford, Ill. Filed May 20, 1904. Serial No. 208,795.

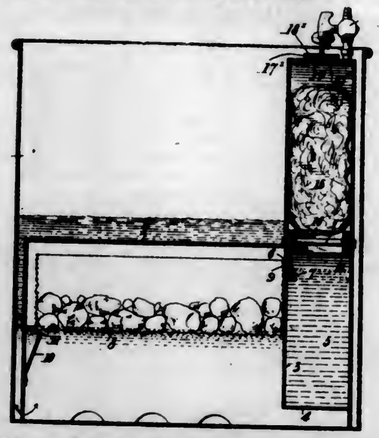


Claim.—1. A wrench comprising two jaws of substantially a uniform thickness throughout, a separate shield permanently connected to one of the jaws and embracing both faces of the other jaw.

2. A wrench comprising two jaws of substantially a uniform thickness throughout, a separate shield permanently connected to one of the jaws and embracing the edge of the jaw to which it is connected and both sides of both jaws.

3. A wrench comprising two jaws of substantially a uniform thickness throughout, a separate shield permanently connected to one of the jaws and adapted to receive both jaws and having a pivotal connection with the other jaw.

784,152. **ACETYLENE-GAS GENERATOR.** HENRY GOODACRE, Flora, Ind. Filed Feb. 23, 1904. Serial No. 194,834.



Claim.—1. The combination with a tank, of a generating-chamber disposed within the tank, and removable therefrom, a gas-washing chamber formed by a partition at one end of the generating-chamber, a carbid-basket detachably mounted within the generating-chamber, a removable drying-tank disposed above and in communication with the washing-chamber, and a locking means for holding the parts in position within the tank.

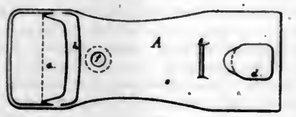
2. In an acetylene-gas generator, a water-tank, a removable casing disposed therein and forming a generating-chamber, a carbid-holder in the generating-chamber, a washing-chamber in communication with the generating-chamber and serving to contain water for washing the gas, a deflecting-hood for directing the gas below the surface of the water, a removable gas-drying tank disposed above the washing-chamber, a compressible packing between the tank and washing-chamber, and means for exerting downward pressure on the gas-tank for compressing the packing and locking the parts in working position.

3. In an acetylene-gas generator, a water-containing tank, a removable casing disposed in the tank and forming a generating-chamber, a partition disposed at one end of the chamber and forming a washing-chamber, said partition having an opening near its top for placing the two chambers in communication, a hood extending from the opening and serving to deflect the gas below the level of the washing-water, a carbid-basket, a hook carried by one end of the basket for engaging said opening, a spring for the support of the opposite end of the basket, a removable gas-drying tank in communication with the washing-chamber, a compressible packing between the tank and chamber, and a clamping means for engaging the tank and exerting downward pressure thereon.

4. In an acetylene-gas generator, a water-containing tank, a casing disposed therein, and forming a generating-chamber, a partition disposed at one end of the generating-chamber and forming a washing-chamber, a carbid-holder in the generating-chamber, a removable gas-drying tank having at its bottom an inwardly-projecting flange supported by a similar flange at the top of the washing-chamber, a compressible packing between the two flanges, a removable clamp-bar adapted to openings in the top of the water-containing tank, and clamping-screws carried by said bar and serving to engage the top of the gas-drying tank.

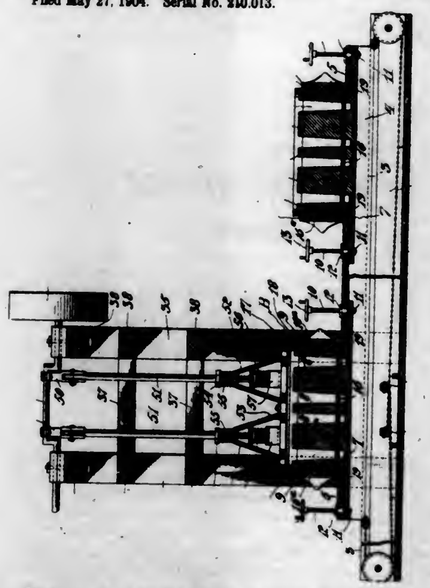
5. In a knockdown portable apparatus of the class described, a tank, a removable casing disposed therein and partitioned to form a generating-chamber and a gas-washing chamber, a detachable carbid-basket arranged within the generating-chamber, a detachable gas-drying tank of less area than the generating-chamber and arranged to nest within the same for transportation, and means for holding the parts in position within the tank.

784,153. **HAME-HOOK.** THOMAS G. GORDON, Madera, Cal. Filed May 17, 1904. Serial No. 208,401.



Claim.—A hame-hook comprising a metallic body having an opening therethrough, a hook upon each end to engage a trace or a name respectively; a cover for the body comprising a body having an opening therethrough, and a guard *g* to cover the hame-hook and a guard *i* to cover the trace-hook; and means to enter said openings to clamp the cover to the body.

784,154. **MACHINE FOR FORMING BUILDING-BLOCKS.** HENRY GUTTERIDGE and JOHN H. MCCONNELL, Hamiota, Canada. Filed May 27, 1904. Serial No. 210,013.



Claim.—1. In a machine of the character described, a bed-frame, a slidable table mounted thereon, a core-plate, cores thereon, screw-threaded adjusting-rods for said plate, a matrix-frame, a clamping-yoke adapted to secure said frame in closed position, a resilient plunger, and a plunger-head thereon provided with perforations therein of substantially the contour of said cores.

2. In a machine of the character described, a bed-frame, a slidable table mounted thereon, a core-plate, cores vertically adjustable with relation to said table, a matrix-frame, a yoke secured to the table for locking said frame, shoulders in said frame, a perforated bottom plate resting thereupon, a plunger, and a perforated plunger-head coöperating therewith.

3. In a machine of the character described, a bed-frame, a slidable table mounted thereon, a core-plate, cores fixed thereupon and vertically adjustable with relation to said table, a matrix-frame having an internal seat, a perforated plate adapted to rest on said seat, a matrix-locking yoke secured to the table, and a cushioned plunger having a head provided with perforations registering with said cores.

4. In a machine of the character described, a bed-frame, a slidable table on said frame, a plurality of core-plates carried by said table, a plurality of adjusting-screws projected through the table into engagement with said plates, cores on the plates, means for sliding said table, a relatively fixed upright frame, a crank-shaft mounted thereon, a plurality of plungers carried by said shaft, and a plunger-head having perforations adapted to register with said cores.

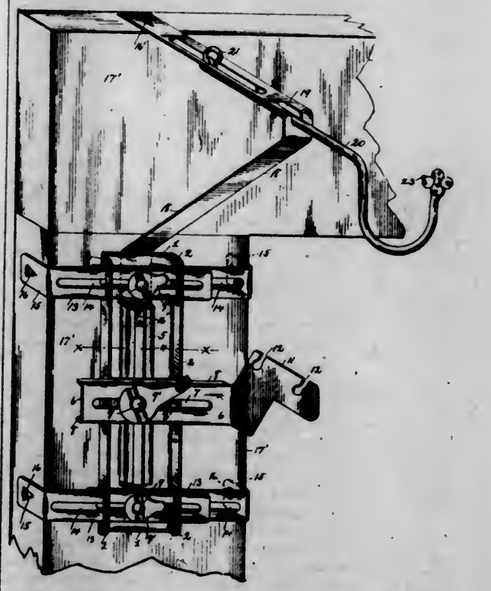
5. In a machine of the character described, a bed-frame, an upright frame, a driving-shaft in said upright frame, a pulley thereon, a driven shaft in said bed-frame, bevel-gears thereon, cross-shafts, bevel-gears thereon, a slidable table on the bed-frame, chains from opposite ends thereof to said cross-shafts, means for bringing said cross-shafts into operative engagement with said driven shaft, matrix-frames mounted on said table, and cores therein, in combination with a reciprocatory plunger and a perforated plunger-head.

6. In a machine of the character described, a bed-frame, a plurality of short shafts therein, bevel-gears on said shafts, a cross-shaft at an angle to said shafts, gears thereon, an upright frame, a driving-shaft mounted thereon, a plunger-shaft, a pulley on said plunger-shaft, connections between said plunger-shaft, said driving-shaft and said cross-shaft, means for shifting said short shafts longitudinally into engagement with said cross-shaft, a slidable matrix-supporting table, matrices thereon, and a plunger-head actuated from said plunger-shaft.

7. In a machine of the character described, a bed-frame, a slidable table thereon, core-plates carried by said table, cores connected with said plates, matrix-frames mounted on the table, clamping-yokes therefor, an upright frame, a crank-shaft mounted in said upright frame, a plurality of plunger-rods connected with said shaft, collars on said rods, a perforated plunger-head, perforated yokes on said plunger-head, and cushioning means between said head and said collars.

8. In a machine of the character described, a matrix, cores supported therein, a perforated bottom plate, a perforated plunger-head, reciprocatory plungers coöperating therewith, resilient cushions between said head and said plungers, means for actuating said plungers, and means for moving said matrix.

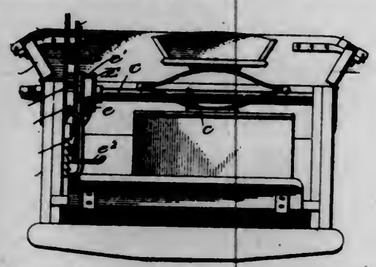
784,155. **COMBINED ADJUSTABLE WINDOW-SHADE AND CURTAIN BRACKET.** CHARLES A. HAAS, Pittsburg, Pa. Filed June 1, 1904. Serial No. 210,732.



Claim.—The herein-described combined adjustable window shade and curtain-pole bracket consisting of the flanged slotted strip 1, the flanged bar 6 operating along the flanges of said strip having a slot 7 and bearing 11 for supporting one end of the window-shades,

the cam-button 9' loosely attached to the rivet 9, said rivet operating in the slot 4 of the strip 1 and the slot 7 of the bar 6, whereby said bar may be adjusted either vertically or horizontally, the clamping-bars 13 arranged in pairs at the top and bottom of the strip 1, the said bars being provided with spurs 16 and operating through slots formed in the flanges 2, and formed with slots 14 and clamped by cam-buttons 9', the bracket 18 attached to the strip 1, provided with a slot 19 formed in the top of said bracket, a bar 20 operating in said slot, a swivel-piece 21 for connecting the bar 20 with the said bracket, said bar being provided with a beat portion 22 for the reception of one end of the curtain-pole, all arranged and combined for service, substantially as and for the purpose described.

784,156. DUMP-WAGON. CHARLES M. HARSEK, South Bend, Ind. Filed June 21, 1904. Serial No. 213,576.



Claim.—1. In a dumping-wagon, a bottom composed of hinged sections, means for raising or lowering said bottom sections, and a brake mechanism adapted to regulate the degree of speed with which said bottom sections are raised or lowered.

2. A dumping-wagon provided with outwardly-swinging bottom sections, mechanism for operating said swinging bottom sections, and a brake mechanism adapted to regulate the degree of speed with which said bottom sections are operated.

3. In a dumping-wagon, a body portion composed of side-boards and hinged bottom sections, a windlass, a brake mechanism carried by and adapted to regulate the degree of speed of said windlass, and connections between said windlass and the said bottom sections whereby the bottom sections are raised or lowered, the said connections being located out of the path of the material being dumped.

4. A dumping-wagon comprising outwardly-swinging bottom sections, mechanism for raising and lowering said bottom sections, and a friction-brake mechanism adapted to regulate the degree of speed with which the said bottom sections are operated.

5. In a dumping-wagon, a bottom section consisting of two oppositely-hinged sections adapted to swing downwardly and outwardly, means for raising or lowering said sections, a brake mechanism adapted to regulate the degree of speed of the said raising or lowering means, and connections between the said bottom sections and the said raising or lowering means, the said connections being located on the outside of the body portion and out of the path of the material being dumped.

6. A dumping-wagon comprising side-boards, wings hinged to the upper part thereof, a locking mechanism adapted to retain said wings in their raised position, bottom sections hinged to the lower portion of said side-boards, mechanism for raising or lowering said bottom sections, and a brake mechanism adapted to regulate the degree of speed of said raising or lowering mechanism.

7. A dumping-wagon comprising side-boards, wings hinged to the upper part of the said side-boards, bottom sections hinged to the lower portion of said side-boards, a windlass, means for rotating said windlass, connections between said windlass and said bottom sections, said connections being located out of the path of the material being dumped, and a brake mechanism carried by and adapted to regulate the speed of the windlass.

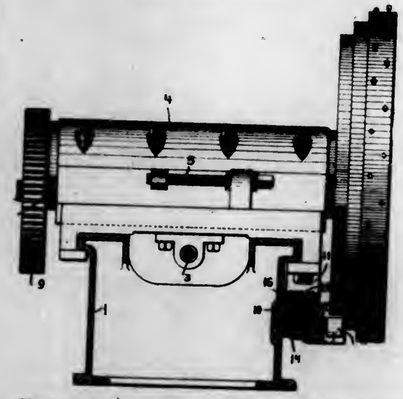
8. A dumping-wagon comprising side-boards, a windlass having bearings in said side-boards, one end of said windlass being extended through one of said side-boards, a brake carried by and adapted to regulate the degree of speed of said windlass, bottom sections hinged to said side-boards, a connection between said windlass, at about its central portion, and the forward exterior portions of said bottom sections, and a connection between the projecting portion of the said windlass and the rear of the said bottom sections, the said connection extending along the upper portion of one of the side-boards and around the end thereof and thence downwardly to the rear exterior meeting edges of the said bottom sections.

9. In a dumping-wagon, a bottom consisting of outwardly-swinging sections, a windlass, a brake mechanism carried by and adapted to control the speed of said windlass, a connection between the forward end of said bottom sections and the windlass, both of said connections being so located as to be on the exterior of the wagon-body and out of the path of the material being dumped.

10. In a dumping-wagon, a bottom composed of sections hinged to the side-boards, a windlass, connections between said windlass and said bottom sections, means for rotating said windlass, means for holding said windlass in the desired position, and means for regulating the degree of speed with which the said windlass is rotated when the rotating means and the holding means are released.

11. In a dumping-wagon, a bottom composed of sections, a windlass, connections between said windlass and said bottom sections, a ratchet-wheel fast on said windlass, a lever and a pawl adapted to engage with said ratchet-wheel to revolve the windlass, another lever and pawl adapted to engage with and hold the ratchet-wheel when the first-mentioned lever is disengaged, a drum fast on said windlass adjacent to said ratchet-wheel, said drum being provided with a friction-surface, a strap or band surrounding said friction-surface and having an extended end portion, and a foot-lever attached to the end portion of the strap whereby said strap or band is caused to bind upon the said friction-surface to regulate the speed of the said windlass.

784,157. ROTARY PLANER. WILLIAM J. HAGMAN, Philadelphia, Pa., assignor to Niles-Bement-Pond Company, Jersey City, N. J. Filed Dec. 27, 1904. Serial No. 238,321.



Claim.—1. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface, a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, of a thrust-shoe having its face bearing against the lower portion of the rear face of the cutter-wheel, and parts connected with said thrust-shoe to the rear thereof and abutting against said guide-surface on the bed.

2. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface, a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, of a thrust-shoe having its face bearing against the lower portion of the rear face of the cutter-wheel, parts connected with said thrust-shoe to the rear thereof and abutting against said guide-surface on the bed, and means for adjusting the distance between said guide-surface on the bed and the front ends of said thrust-shoe.

3. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface, a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, of a thrust-shoe having its face bearing against the lower portion of the rear face of the cutter-wheel, and parts supported by the saddle and connected with said thrust-shoe to the rear thereof and abutting against said guide-surface on the bed.

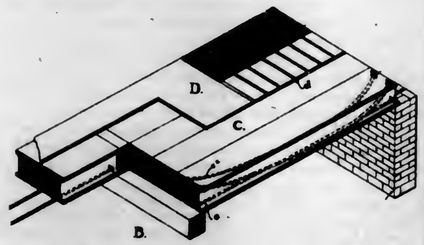
4. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface, a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, of a thrust-shoe having its face bearing against the lower portion of the rear face of the cutter-wheel, a bracket supported by the saddle between the bed and the cutter-wheel, and parts upon the said bracket and connected with said thrust-shoe to the rear thereof and abutting against said guide-surface on the bed.

5. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, a bracket supported by the saddle between the bed and the cutter-wheel and having a bearing against said guide-surface on the bed, a thrust-shoe between the bracket and the cutter-wheel and having its face bearing against the lower portion of the rear face of the cutter-wheel, a threaded stem rearwardly projecting from the thrust-shoe into the bracket, a worm-wheel mounted in the bracket and threaded upon said stem, a worm mounted in the bracket and engaging said worm-wheel, and a shaft for turning the worm.

6. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface, a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, a bracket supported by the saddle between the cutter-wheel and the bed and having a bearing against said guide-surface on the bed, a thrust-shoe supported by the bracket and having its face bearing against the lower portion of the rear face of the cutter-wheel, a horn projecting forwardly from the bracket and engaging under the thrust-shoe, and means carried by the bracket for adjusting the distance between said guide-surface on the bed and the front face of said thrust-shoe.

7. In a rotary planer, the combination, substantially as set forth, with a bed having a front guide-surface, a saddle mounted to slide upon the bed, a spindle supported by the carriage above and at right angles to the bed, and a cutter-wheel carried by the spindle, a bracket supported by the saddle between the cutter-wheel and the bed, a thrust-shoe supported by the bracket and having its face bearing against the lower portion of the rear face of the cutter-wheel, a horn projecting forwardly from the bracket and engaging under the thrust-shoe, means carried by the bracket for adjusting the distance between said guide-surface on the bed and the front face of said thrust-shoe, and a shouldered engagement between said thrust-shoe and horn for resisting the endwise thrust upon the thrust-shoe as imposed by the rotation of the cutter-wheel.

784,158. COMPOUND BLOCK. LAWRENCE G. HALLBERG, Chicago, Ill. Filed Apr. 24, 1903. Serial No. 154,079.



Claim.—A unitary structure of the class described, consisting of a hollow rectangular beam composed of cementitious material, a straight anchor-rod embedded in each side wall of the beam near the base thereof, and a sagged anchor-rod also embedded in said wall above the straight rod, the said rods extending substantially the length of the beam and being provided with heads at the ends thereof.

784,159. VEHICLE-BODY CORNER. WILLIAM B. C. HERSHEY, Columbus, Ohio. Filed June 15, 1904. Serial No. 212,563.

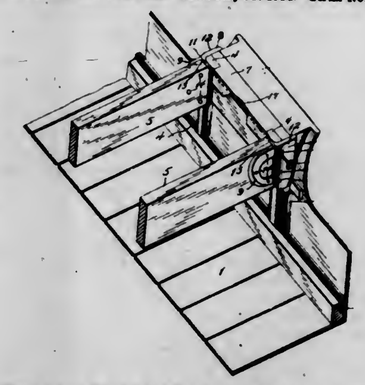
Claim.—1. The combination with a rectangular body having its corner portions formed of united frame parts, of a bolt extending from the lower corner of said body inward and upward and intersecting two or more of said corner frame parts, and a corner-binding plate presenting three contact-faces at angles with each other, a jointed connection between said bolt and binding-plate, and a nut for drawing said bolt inward and upward.



2. The combination with a rectangular body having its corner portions formed of united framework, of a bolt intersecting said body at its lower corner and extending diagonally upward and inward through said corner parts, and an angular binding-plate formed as described and adapted to embrace two sides and the bottom of the corner of said body, said plate and bolt adapted to be detachably connected.

3. The combination with a rectangular body having its corner portions formed of united framework, of a bolt intersecting said body at its lower corner and extending diagonally upward and inward through said corner parts, said bolt having a hook-shaped outer end, and an angular binding-plate formed as described and adapted to embrace two sides and the bottom of the corner of said body, said binding-plate having a lug adapted to be detachably engaged by the outer end of the bolt.

784,160. BRACE-IRON FOR VEHICLE-SEATS. WILLIAM B. C. HERSHEY, Columbus, Ohio. Filed July 23, 1904. Serial No. 217,653.



Claim.—1. A brace-iron for vehicle-seat supports, comprising a loop member, and a leaf portion extended from the loop member.

2. A brace-iron for vehicle-seat supports comprising, a loop member, a leaf portion, a curved portion connecting the loop and the leaf, and a rib formed on the side of the iron.

3. The combination with a seat-support for vehicles having frame-bars and vertical posts, of brace-irons arranged in pairs for connecting the parts, and continuous means for securing each pair of irons and the parts together.

784,161. AIR-SHIP. HENRY E. HONEYWELL, St. Louis, Mo. Filed July 6, 1903. Serial No. 164,434.

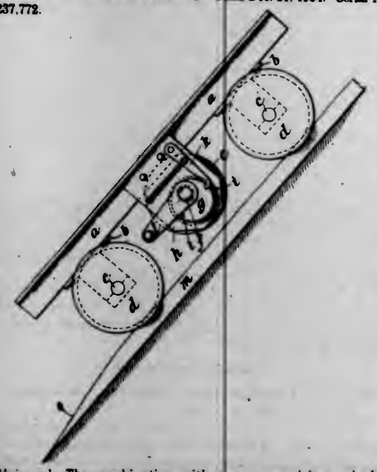
Claim.—1. In an air-ship, the combination of a gas-bag having a suitable frame, and having its bottom surface flat and normally inclined upward longitudinally from its rear end, a platform dependent from the frame, a shaft located beneath the gas-bag, bearings fixed to the frame for the said shaft, a propeller fixed on the shaft, an auxiliary bag located within the gas-bag and having an elastic envelop, means for admitting air to the auxiliary bag and for moving the auxiliary bag within the gas-bag from the said platform, and means for rotating the shaft, substantially as described.

2. In an air-ship, the combination of a gas-bag, a frame surrounding the gas-bag—means for securing the gas-bag to the frame, an auxiliary bag located within the gas-bag and having an elastic envelop, a cord attached to each end of the auxiliary bag and extend-

ing therefrom through a gas-tight hole in the corresponding end of the gas-bag, to the said platform, and means for admitting air to the auxiliary bag, substantially as described.



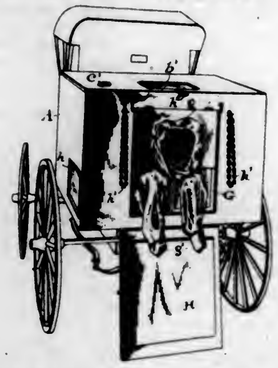
784,162. **MEANS FOR HANDLING MERCHANDISE, &c.** CHARLES W. HUNT, New York, N. Y. Filed Dec. 21, 1904. Serial No. 237,772.



Claim.—1. The combination with a car comprising a body, trucks at the end of said body, an intermediate truck and means to raise and lower said intermediate truck, of separate ways for the end trucks and the intermediate truck, said ways being in different horizontal planes and relatively inclined, substantially as described.

2. The combination with a car comprising a body, trucks at the ends of said body, an intermediate truck having independently-rotatable wheels, and means to raise and lower said intermediate truck, of separate ways for the end trucks and the intermediate truck, said ways being in different horizontal planes and relatively inclined, substantially as described.

784,163. **PORTABLE DARK ROOM.** HARRY E. JOHNSTON, Oberlin, Ohio. Filed June 30, 1904. Serial No. 214,737.



Claim.—1. In a photographic apparatus, a vehicle and a body thereon provided with a dark developing-chamber at its rear end and central and side openings for the head and arms respectively, of the operator in at the rear of said body, and flexible coverings for the head and arms of the operator secured about said openings, substantially as described.

2. A vehicle and a body thereon having a dark working chamber for a photographer in its rear, a door on the outside of said chamber and hooded openings in said door at different elevations for the head and arms of the operator, respectively, substantially as described.

3. In a traveling photographic apparatus, a vehicle and a body thereon having a dark chamber at its rear end and a trough in said chamber, a door to close said chamber to the outside light having arm and head holes at different elevations, and flexible coverings for arm and head over said holes, substantially as described.

4. In a photographic apparatus, a vehicle and a body thereon having a trough in its bottom and a skylight-passage through its top over said trough, and a lens in said passage, substantially as described.

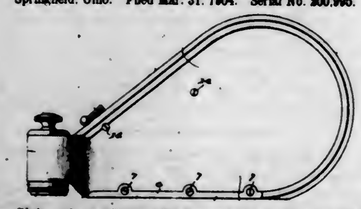
5. The vehicle and the body thereon, a skylight-passage open through the top of said body and a lens in the lower portion of said passage, said passage constructed to place the lens at different elevations, substantially as described.

6. The vehicle and the body thereon, a skylight-passage in said body provided with glass covers at its top and a lens in the lower portion of said passage, and hooded openings in the rear of said body, substantially as described.

7. In a photographic apparatus, a vehicle and a body thereon, and a set of doors at the rear of said body adapted to fold one over the other, one of said doors hinged at the top of said body and the other at the bottom thereof, substantially as described.

8. In a photographic apparatus, a vehicle and a dark chamber thereon provided with a skylight-passage extending downward from its top, and a lens device in said passage, substantially as described.

784,164. **VIBRATOR.** CLARENCE H. KAY and WILLIAM U. COLTHAR, Springfield, Ohio; said Colthar assignor to Harry C. Downey, Springfield, Ohio. Filed Mar. 31, 1904. Serial No. 200,995.



Claim.—1. A vibrator for therapeutic use, comprising a portable casing adapted to be held in the hand and having a substantially smooth bottom, a spring-motor wholly inclosed in said casing, and a percussion or impact member located at one end of the casing, working across the plane of the bottom thereof, and having a vibratory motion imparted to it by said motor, substantially as described.

2. A vibrator for therapeutic use, comprising a portable piriform casing adapted to be held in the hand, a spring-motor wholly inclosed in said casing, a housing located transversely at the smaller or front end of the casing, a percussion or impact member working in said housing across the plane of the bottom of the casing, and a stopping and starting lever or finger-piece controlling the motor and located near the small or front end of the casing within convenient reach of the fingers of the hand as it holds said casing, substantially as described.

3. A vibrator for therapeutic use, comprising a portable casing, a spring-motor inclosed therein and composed of a spring and a gear-train terminating in an anchor escapement, and an arm provided with a percussion or impact member at one end and connected at the other end with the anchor of the escapement so as to vibrate therewith, the percussion or impact member working across the plane of the bottom of the casing, substantially as described.

4. A vibrator for therapeutic use, comprising a portable casing, a spring-motor inclosed therein, and a resilient arm provided at one end with a percussion or impact member working across the plane of the bottom of the casing, said arm having a vibratory motion imparted to it by said spring-motor, substantially as described.

5. In a vibrator for therapeutic use, the combination, with a percussion or impact member, and means for vibrating the same, of an annular guard or shield encircling said impact member and adjustable in the direction of movement of said member to regulate the force of the blows delivered thereby, substantially as described.

6. A vibrator for therapeutic use, comprising a portable casing having a smooth bottom, a spring-motor inclosed in said casing, a percussion or impact member actuated by said spring-motor and working across the plane of the bottom, and an annular guard or shield encircling said impact member, supported from the casing, and adjustable in a direction at right angles to the plane of the bottom thereof, substantially as described.

7. In a vibrator for therapeutic use, the combination, with a portable casing, a spring-motor inclosed therein and a vibrating arm actuated by said spring-motor, extending beyond the body of the casing, and provided with an impact or percussion member on said extension, a housing located at said end of the casing and provided with an adjusting-screw, and a guide located within the housing, connected with the adjusting-screw and having a guard or shield encircling the impact member, substantially as described.

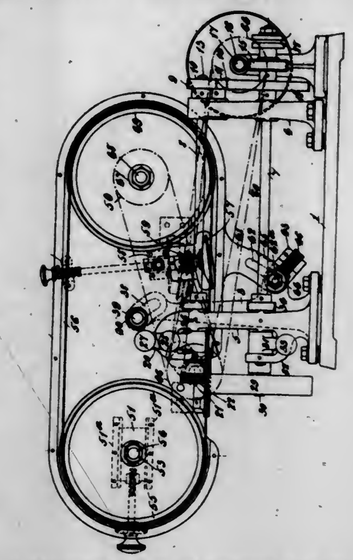
8. In a vibrator of the class described, the combination, with a vibrating impact member, of a guard or sheld surrounding the same, an adjusting screw-shaft provided with means for limiting the movement of said shield toward the surface operated on, and a spring normally holding said guard or shield at said limit of motion, said guard or shield being adapted to yield in the opposite direction, substantially as described.

9. In a vibrator of the class described, the combination, with a casing, a spring-motor inclosed therein, and a vibrating arm provided with an impact member and actuated by said spring-motor, of a stop-arm mounted in the casing, provided externally thereof with means for actuating the same, and having within the casing a portion movable into and out of the path of the vibrating arm to stop or start the motor, substantially as described.

10. In a vibrator of the class described, the combination, with a casing, and a spring-motor located therein, of a main spring or winding shaft having a head located outside the casing and provided with a transverse notch or groove, and inclined or beveled surfaces adjacent thereto, and a bowed finger-grasp of resilient material having its extremities pivoted in the head and provided with a projection to engage said notch and serve as a detent, substantially as described.

784,165. **MACHINERY OR APPARATUS FOR SKIVING LEATHER, LEATHER-BOARD, &c.** CHARLES H. KEATS, Northampton, England. Filed Aug. 24, 1903. Serial No. 170,856.

Claim.—1. In a skiving-machine, the combination of a work-supporting roller mounted upon an axle, an adjustable double-ended lever forming a bearing for said axle, a horizontal shaft on which the said lever is mounted and fulcrumed, two standards provided with bearings for said shaft fixed to a bed-plate, gearing connecting the said axle and shaft together, a second horizontal shaft parallel to the first-named shaft mounted in bearings in said two standards, gearing for connecting the two shafts together, with a driving-shaft supported by a standard fixed to said framework, a feed-roller mounted upon a bell-crank lever, said bell-crank lever being adjustably mounted by a sleeve to one of said standards, screws and springs for adjusting said lever, and gearing for connecting the said feed-roller to the second-named horizontal shaft, as set forth.



2. In a skiving-machine the combination of an emery-wheel mounted on a spindle carried in bearings, the tilting frame to which bearings are fixed, a cord-pulley mounted upon said spindle, guide-pulleys mounted upon an arm fixed to said tilting frame, a driving-shaft with a cord-pulley mounted thereon, the means described for imparting a rotary motion to the driving-shaft, a standard for carrying said driving-shaft fixed to a bed-plate, and a driving-cord, as set forth.

3. In a skiving-machine, the combination of a bed-plate, having a standard mounted thereon, a tilting frame fulcrumed to said standard, said frame having a slotted dependent arm upon its bottom edge, and a slot-hole in its main portion, two band-knife pulleys mounted in said frame capable of adjustment to or from each other, an endless band-knife working over the peripheries of said pulleys, a work-supporting roller mounted upon an axle, an adjustable double-ended lever forming a bearing for said axle, a horizontal shaft on which the said lever is mounted and fulcrumed, two standards provided with bearings for said shaft fixed to a bed-plate, gearing connecting the said axle and shaft together, a second horizontal shaft parallel to the first-named shaft mounted in bearings in said two standards, gearing for connecting the two shafts together, with a driving-shaft supported by a standard fixed to said framework, a feed-roller mounted upon a bell-crank lever, said bell-crank lever being adjustably mounted by a sleeve to one of said standards, screws and springs for adjusting said lever, gearing for connecting the said feed-roller to the second-named horizontal shaft, the frame 6 fulcrumed by arm 36 to standard 3, bed-plate 1 to which said standard is fixed, slotted arm 41 depending from the under side of said frame, worm-teeth 45 formed on the depending arm, worm 46 engaging with said worm-teeth, arm 43 attached to said standard for carrying the worm, pins 42 and 39 and nuts 44 and 40, said pins passing respectively through the slot-holes 42 and 38, an emery-wheel mounted on a spindle carried in bearings, the tilting frame to which bearings are fixed, a cord-pulley mounted upon said spindle, guide-pulleys mounted upon an arm fixed to said tilting frame, a driving-shaft with a cord-pulley mounted thereon, a standard for carrying said driving-shaft fixed to said bed-plate, a driving-cord, and cord-pulleys as described for imparting motion to the said band-knife, and the means described for imparting an intermittent rotary motion to the driving-shaft, as set forth.

784,166. **PNEUMATIC TIRE.** ERNEST LARGE, Toronto, Canada. Filed Mar. 12, 1904. Serial No. 197,830.

Claim.—1. In a pneumatic tire a cover having a pocket in each edge in combination with a plurality of endless wires for each edge, each lying partly in said pocket and partly outside it, substantially as described.



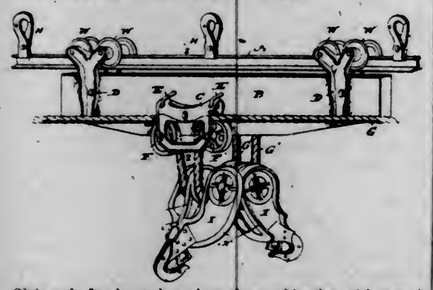
2. In a pneumatic tire a cover having a pocket in each edge in combination with a plurality of endless wires for each edge, each lying partly in said pocket and partly outside it; and supplemental pockets of relatively more stretchable material connected with the edges of the cover and containing the parts of the wires outside the main pockets, substantially as described.

3. In a pneumatic tire a cover having a pocket in each edge in combination with a plurality of endless wires for each edge, each lying partly in said pocket and partly outside it, the portion of any wire outside the pocket being expressed by a fraction whose numerator is one and whose denominator is equal to the number of wires employed on one edge, substantially as described.

4. In a pneumatic tire a cover having incorporated therein two layers of canvas, the outer straight cut and the inner bias cut; and a pocket formed at each edge of each layer of canvas in combination with a plurality of endless wires for each edge of the cover, each wire lying partly in the pocket of the straight-cut canvas and partly in the pocket of the bias-cut canvas, suitable apertures being formed in the first-mentioned pocket for the emergence of the wires, substantially as described.

5. In a pneumatic tire a cover having a pocket in each edge in combination with a plurality of endless wires for each edge, each lying partly in said pocket and partly out of it; and supplemental pockets arranged to cover the parts of the wires outside the main pocket and extending in nearer to the center line of the tire when the latter is in use, substantially as described.

784,167. ELEVATED CARRIER. WILLIAM LOUDEN, Fairfield, Iowa. Filed Sept. 1, 1903. Serial No. 171,512.



Claim.—1. In elevated carriers, the combination with a horizontally-disposed bar having upwardly-projecting arms near each of its ends and said arms carrying wheels adapted to run on an overhead track, of a carrier-frame secured to one side of the bar near its center, said carrier-frame having two sheaves adapted to guide a hoisting-rope in opposite directions therefrom.

2. In elevated carriers, the combination with a horizontally-disposed bar having upwardly-projecting arms near each of its ends and said arms carrying wheels adapted to run on an overhead track, of a carrier-frame secured at each of its upper corners to one side of the bar and near its center, said carrier-frame having two sheaves adapted to guide a hoisting-rope in opposite directions therefrom.

3. In elevated carriers, the combination of a horizontally-disposed bar, upwardly-projecting arms secured at each end to the sides of said bar, track-wheels mounted upon the upper ends of said arms, hooked bolts passed horizontally through the central portion of said bar, a carrier hung at one side of the bar in the eye of said hooks, a plate secured to the opposite side of the bar, ropes passed through said carrier and their ends secured to said plate and a pulley hung in the loop of said ropes.

4. In a device of the character described, the combination of a horizontally-disposed bar adapted to be mounted upon an overhead track, hooked bolts passed horizontally through said bar, the hooked ends of said bolts being turned downward and inserted in recesses in the side of the bar, a carrier hung in the eyes formed by said hooks, ropes passed through said carrier, and means to support the ends of the ropes on the opposite side of the bar.

5. In a device of the character described, the combination of a horizontally-disposed bar adapted to be mounted upon an overhead track, hooked bolts passed horizontally through said bar, the hooked ends of said bolts being turned downward and inserted in recesses in the side of the bar, a carrier hung in the eyes formed by said hooks, ropes passed through said carrier, a plate with eyes secured to the opposite side of the bar and the ends of the ropes secured to said eyes.

6. In a device of the character described, the combination of a horizontally-disposed bar adapted to be mounted upon an overhead track, hooked bolts passed horizontally through said bar, a downward bend in said hook at a distance from the side of the bar, a carrier hung therein, ropes passed through said carrier, a plate secured by said bolts to the opposite side of the bar and having eyes set at approximately the same distance therefrom as the bends in the hooks, ropes passed through said carrier and the ends of the ropes secured to said eyes.

7. In hay-carriers, a pair of pulleys adapted to be brought together by a rope drawn through them, and having flanges on the meeting edges of the frames thereof, and said flanges being continued around the upper ends of said frames so as to form abutting edges between the sides of the frames.

8. In hay-carriers, a pair of pulleys adapted to be drawn together, the frames of said pulleys being made with flanges on their meeting edges so as to widen the faces thereof and said flanges being extended around the upper ends of said frames so as to form abutting edges between the sides of the frames.

9. In hay-carriers, a pair of pulleys adapted to be drawn together, the frames of said pulleys being made with a recess, an intermediate plate having its end inserted and secured in said recess, and sheaves mounted in said frames between the sides of the plate and sides of the frames thereof, the meeting edges of said frame having flanges to widen the faces thereon.

10. In hay-carriers a pair of pulleys adapted to be drawn together, the frames of said pulleys having two separate sides, an intermediate plate inserted and secured between said sides, and sheaves mounted between the sides and the intermediate plate, the meeting edges of said sides having flanges thereon, and the upper end of said intermediate plate being T-shaped so as to form a continuation of the flanges around the upper end of the pulley.

11. In elevated carriers, the combination with a horizontally-disposed bar provided with upwardly-projecting arms near its ends and said arms carrying wheels adapted to run on an overhead track, of a carrier-frame flexibly secured at each of its upper corners to one side of the bar and near its center, said carrier-frame having a sheave in each of its ends, adapted to guide a hoisting-rope in opposite directions therefrom.

12. In elevated carriers, the combination with a horizontally-disposed bar provided with upwardly-projecting arms near its ends and said arms carrying wheels adapted to run on an overhead track, of a carrier-frame flexibly secured at each of its upper corners to one side of the bar and near its center, said carrier-frame having a sheave in each of its ends, and hoisting-ropes passed over said sheaves from opposite directions and passed under the bar and their ends secured to the opposite side thereof, and a pulley or pulleys hung in the loops of said ropes.

784,168. GAS-BURNER. RICHARD T. MALIN, Denver, Colo. Filed Apr. 23, 1904. Serial No. 204,630.



Claim.—1. In a gas-burner, a mixing-chamber having a dished upper surface forming a trough or receptacle and provided with jet-openings in the sides of said trough, uprights extending from the bottom of said trough, wires supported by said uprights, and refractory material upon said wires.

2. In a gas-burner, a mixing-chamber having a dished upper surface forming a trough or receptacle, uprights in said trough and spirally-twisted wires supported by said uprights, and refractory material intertwisted with and secured by said wires.

784,169. PROCESS OF PRODUCING PICTURES OR DESIGNS. HENRY C. MERCER, Doylestown, Pa. Filed Sept. 22, 1904. Serial No. 225,467.



Claim.—1. The process of producing pictures or designs, which consists in providing the surface of a slab with a picture or design, forming depressions in the slab along the lines of the picture or design, molding a type on the slab, whereby the type is provided with raised and depressed portions, forming subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, and applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes.

2. The process of producing pictures or designs, which consists in providing the surface of a slab with a picture or design, forming depressions in the slab along the lines of the picture or design, molding a type on the slab, whereby the type is provided with raised portions and depressions, forming subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes, removing the subtype or subtypes from the type, placing the sheet over the said type, and applying pigment, ink or the like to the portions of the sheet over the raised portions of the type.

3. The process of producing pictures or designs, which consists in providing the surface of a slab with a picture or design, forming depressions in the slab along the lines of the picture or design, molding a type on the slab, whereby the type is provided with raised portions and depressions, forming subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, and applying pigment to the face or exposed side of the sheet, whereby the portion or portions of the sheet above the subtype or subtypes will alone take the pigment.

4. The process of producing pictures or designs, which consists in providing the surface of a slab with a picture or design, forming depressions in the slab along the lines of the picture or design, molding a type on the slab, whereby the type is provided with raised portions and depressions, forming subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, applying pigment to the face or exposed side of the sheet, whereby the portion or portions of the sheet above the subtype or subtypes will alone take the pigment, removing the subtype or subtypes from the type, placing the sheet over the type, and applying pigment to the face or exposed side of the sheet, whereby the portion or portions of the sheet above the raised portions of the type will alone take the pigment.

5. The process of producing pictures or designs, which consists in providing the surface of a slab with a picture or design, forming depressions in the slab along the lines of the picture or design, molding a type on the slab, whereby the type is provided with raised portions and depressions, molding subtypes on the type, separating the subtypes, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, and applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes.

6. The process of producing pictures or designs, which consists in providing the surface of a slab with a picture or design, forming depressions in the slab along the lines of the picture or design, molding a type on the slab, whereby the type is provided with raised portions and depressions, molding subtypes on the type, separating the subtypes, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes, removing the subtype or subtypes from the type, placing the sheet over the said type, and applying pigment, ink or the like to the portions of the sheet over the raised portions of the type.

7. The process of producing pictures or designs, which consists in making a type having raised portions and depressions, making subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, and applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes.

8. The process of producing pictures or designs, which consists in making a type having raised portions and depressed portions, making subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes, removing the subtype or subtypes from the type, placing the sheet over the said type, and applying pigment, ink or the like to the portions of the sheet over the raised portions of the type.

9. The process of producing pictures or designs, which consists in placing a sheet of material over subtypes and applying pigment to the exposed surface of the sheet by rubbing the pigment over the portions of the sheet over said subtypes, and placing the sheet over a type having raised portions and depressions and applying pigment to the exposed surface of the sheet by rubbing pigment over the portions of the sheet over the raised portions of the type.

10. The process of producing pictures or designs, which consists in making a type having raised portions *b* and *b'* and depressed portions, making subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes, removing the subtype or subtypes from the type, placing the sheet over the said type, and applying pigment, ink or the like to the portions of the sheet over the raised portions of the type.

11. The process of producing pictures or designs, which consists in making a type having raised portions and depressions, making subtypes corresponding in shape to the depressions of the type, placing one or more of said subtypes in the corresponding depression or depressions of the type, placing a sheet of material over the form, utilizing either the type or one or more of the subtypes to form shade-lines, and applying pigment, ink or the like to the portion or portions of the sheet over the subtype or subtypes.

784,170. STRAINER-VALVE. CHARLES H. MILLER, Kankakee, Ill. Filed May 21, 1903. Serial No. 158,200.



Claim.—1. The combination with a suitable casing having an inlet and an outlet and an auxiliary flushing opening, of a cylindrical

rotary screen fitting flush in the casing, and having a portion of its surface cut out entirely, another portion solid to obstruct the flow, and a third portion perforated to strain the liquid, the screen having means to rotate it and the divisions of the screen being so arranged as to open the flushing opening and pass the liquid in reverse directions through the screen in flushing, while the casing outlet is closed.

2. In a straining device the combination of a casing having an inlet, an outlet, and an auxiliary waste opening, of a partially closed cylindrical screen shell therein fitting flush in the casing and having a part of its surface perforated and another part solid and being rotatable in the casing, whereby the flow may be directed through said open side of the screen and through the perforated side of the screen in a reverse direction while the outlet remains closed and the waste opening is uncovered.

3. In a straining device the combination of a casing having a straightway inlet and outlet on the sides, a bottom outlet opening for flushing, a screw cap closing the cylindrical chamber of the casing, and a screen in said casing in frictional contact with the casing and rotatable to direct the liquid from either side through the screen and through said discharge opening in the bottom of the casing to clean the screen while the outlet is closed.

4. A straining device comprising a valve casing provided with an inlet and an outlet and an auxiliary flushing opening and a rotary screen valve fitting flush therein and provided with an opening in its side, a solid portion and a perforated portion and means for closing the outlet and presenting the perforated portion directly to the normal stream of water on its reverse side while the flushing opening is uncovered.

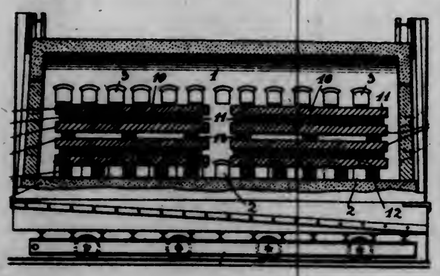
5. In a straining device the combination with a suitable cylindrical casing having inlet and outlet in its sides, and a bottom discharge opening, of a rotary cylindrical screen fitting flush therein in frictional contact with the casing and having a portion of its surface solid, whereby the normal flow of water may be interrupted in order to flush out the inside of said cylindrical screen, the proportions being such that while the outlet is closed and the discharge opening is uncovered the screen may be washed on both sides.

6. The combination with a suitable casing having an inlet and an outlet and a lateral flushing opening, of a cylindrical rotatable screen in frictional contact with the interior of the casing, having an open side and a portion of its wall solid and a portion perforated, whereby the normal flow of water may be intercepted and the current directed through the flushing outlet of the casing and the screen presented to the current on both sides, for cleaning.

7. The combination with a casing having a removable cap and an inlet and outlet and a discharge opening, of a cylindrical screen valve in the casing having an open portion, a solid portion, and a perforated portion, the proportions of the parts being such that while the normal flow is continuing through the outlet the discharge opening may be uncovered in part to clean the screen, substantially as described.

8. A screen valve device comprising a suitable casing having an inlet and outlet and a lateral flushing opening, a curved screen in said casing having a part of its cylindrical surface made solid, and provided with a central spindle, a screw-cap to close said casing and a handle upon said spindle to turn said screen, the screen and solid portion being so arranged that the flow of water may be partially intercepted in order to dump the contents of the screen through the said lateral opening, while the normal flow continues through the outlet.

784,171. PROCESS OF CARBURIZING STEEL PLATES. ANDREW F. MITCHELL, Homestead, Pa., assignor of seven-twentieths to William H. Jones, Homestead, Pa. Filed Mar. 17, 1904. Serial No. 198,648.

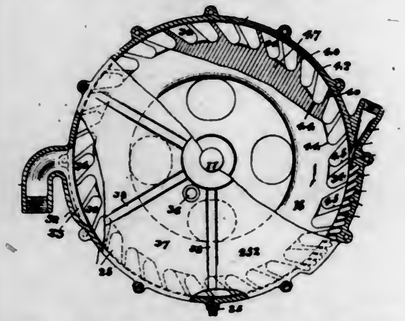


Claim.—1. The process of carburizing armor-plates, which consists in supporting a plate upon refractory material, arranging upon the upper face of said plate a sectional frame or box for confining the carbonaceous material, luting the lower edges of the frame-sections with refractory material, placing sufficient carbonaceous material within the frame to extend above the upper edge thereof, placing another plate upon the carbonaceous material, luting the upper edges of the frame, between the frame and the upper plate, and submitting plates thus prepared to heat in a furnace, substantially as described.

2. The process of carburizing portions only of armor-plates which consists in arranging between two plates inclosed compartments containing a non-cementing material, and then inclosing the entire surfaces to be carburized by a sectional frame containing sufficient carbonaceous material to extend above and below the frame, luting the upper and lower edges of the frame, and submitting the plates thus prepared to heat, whereby the edges of the plates and the portions submitted to non-cementing material will be uncarburized, for the purposes described.

3. The process of preparing armor-plates for carburization which consists in interposing between two plates a sectional frame containing carbonaceous material, which extends above and below the surfaces of said frame, and luting the upper and lower edges of the frame between the plates with a refractory non-cementing material, and submitting the plates thus prepared to heat, substantially as described.

784,172. ROTARY FLUID-PRESSURE MOTOR. GEORGE J. MURDOCK, Newark, N. J. Filed July 7, 1903. Serial No. 164,566.



Claim.—1. The combination with a casing, of a wheel inclosed therein having upon its periphery a zigzag passage the runs of which cross the periphery of the wheel, said casing provided with means for projecting fluid in motion into such passage, and said passage open at the periphery to receive such fluid.

2. The combination with a casing, of a wheel inclosed therein having two sets of blades projecting partly across its periphery and in opposite directions, the blades of one series projecting between blades of the other series and forming therewith a zigzag passage; said casing provided with means for projecting fluid in motion into such passage.

3. The combination with a casing, of a wheel inclosed therein having two sets of blades rearwardly inclined with respect to the direction of rotation of the wheel and oppositely projecting and interprojecting with respect to each other, and forming a zigzag passage; said casing provided with means for projecting fluid in motion into such passage.

4. The combination with a casing having induction and exhaust openings, of a wheel within said casing having in it a zigzag channel forming a tortuous passage connecting said openings, the portions of said channel which are transverse to the plane of rotation of said wheel being rearwardly inclined with respect to the direction of rotation thereof.

5. The combination with a casing, of a wheel inclosed therein having on its periphery two sets of blades rearwardly inclined with respect to the direction of rotation of the wheel and oppositely projecting and interprojecting with respect to each other, and forming a zigzag passage; said casing provided with means for projecting fluid in motion into such passage.

6. The combination with a casing having induction and exhaust openings, of a wheel within said casing having within its periphery a zigzag channel forming a tortuous passage connecting said openings, said channel being open at the periphery of the wheel to receive and discharge motive fluid, the runs of said passage crossing the periphery of the wheel.

7. The combination with a casing having induction and exhaust openings, of a wheel within said casing having in its periphery a zigzag channel forming a tortuous passage connecting said openings, the portions of said channel which are transverse to the plane of rotation of said wheel being rearwardly inclined with respect to the direction of rotation thereof.

8. The combination with a casing, of a wheel inclosed therein having two sets of blades oppositely projecting and interprojecting with respect to each other, and forming a zigzag passage; said casing provided with means for projecting fluid in motion into such passage and with reaction-blades adapted to coact with the said blades of the wheel.

9. The combination with a casing having induction and exhaust openings, of a wheel within said casing having in it a zigzag channel forming a tortuous passage connecting said openings; said casing having also reaction-blades arranged to coact with the walls of said passage in the propulsion of the wheel.

10. The combination with a casing, of a wheel inclosed therein having two sets of blades rearwardly inclined with respect to the direction of rotation of the wheel and oppositely projecting and interprojecting with respect to each other, and forming a zigzag passage; said casing provided with means for projecting fluid in motion into such passage and with forwardly-inclined reaction-blades adapted to coact with the blades of said wheel in the propulsion of the wheel.

11. The combination with a casing having induction and exhaust openings, of a wheel within said casing having within its periphery a zigzag channel forming a tortuous passage connecting said openings, said channel being open at the periphery of the wheel to receive and discharge motive fluid, the runs of said passage crossing the periphery of the wheel, and said casing having forwardly-inclined reaction-blades arranged to coact with the walls of said passage in the propulsion of the wheel.

12. The combination with a casing having induction and exhaust openings, of a wheel within said casing having in it a zigzag channel forming a tortuous passage connecting said openings, the portions of said channel which are transverse to the plane of rotation of said wheel being rearwardly inclined with respect to the direction of rotation thereof; and said casing having forwardly-inclined reaction-blades arranged to coact with the walls of said passage in the propulsion of the wheel.

13. In an engine, the combination with a casing, of a wheel arranged in said casing and having at its periphery a series of partitions which extend from the opposite sides of said wheel inward across the central plane of said wheel perpendicular to the axis thereof, one partition extending inward across said plane from one side and the next in order projecting inward from the opposite side, alternating passages or openings being formed, one at one side of said wheel and the next in order at the opposite side of the said wheel, to prevent a direct flow of motive fluid in the direction of said central plane, substantially as set forth.

14. In an engine, the casing having inlet and exhaust passages, and a wheel having at its periphery a series of partitions, each partition extending transversely across the periphery of the wheel and having an opening therethrough, the opening of one partition being out of alinement with the opening in the partition next in order in the series, said parts being combined substantially as set forth.

15. In an engine the motive wheel herein described having at its periphery webs or flanges at the opposite sides of said wheel and between said webs or flanges transverse partitions forming peripherally-open chambers which are each provided with openings of communication from one chamber to the next in order, said series of openings being out of direct alinement, substantially as set forth.

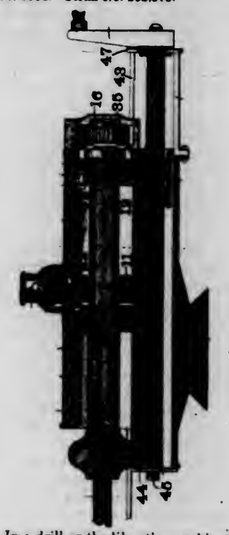
16. In an engine, the motive wheel herein described, having at its periphery webs or flanges extending around the wheel at its opposite sides and between said webs or flanges having two series of transverse rearwardly-inclined partitions with openings therethrough for the motive fluid.

17. In an engine, the motive wheel herein described, having at its periphery webs or flanges extending around the wheel at its opposite sides and between said webs or flanges having transverse partitions with openings therethrough for the motive fluid, said openings being alternately on opposite sides of the wheel, and said partitions and webs or flanges forming a peripherally-open zigzag passage.

18. In a rotary motor, the combination of the casing and the rotary wheel arranged therein, said wheel having at its periphery a series of partitions, each partition extending transversely across the periphery of the wheel and having an opening therethrough, the opening of one partition being out of alinement with the opening of the partition next in order in the series, said casing having inlet and exhaust ports, the former having a length substantially that of the partitions and having a breadth greater than that of said partitions, whereby blocking of said inlet-port during the passage of a partition across the same is avoided.

19. In a rotary motor, the combination of the casing and the wheel arranged therein and having its periphery in close proximity to the casing, said casing provided with an inlet-port arranged to project motive fluid against the periphery of said wheel and an outlet-port arranged to receive such motive fluid from the periphery of said wheel, said wheel having a zigzag passage formed in its periphery and adapted to connect said inlet and outlet ports, the wall of the casing being recessed in the vicinity of the outlet-port to afford opportunity for escape of the motive fluid from such zigzag passage into the outlet.

784,173. ROCK-DRILL. CYRUS T. MCCORMICK, Fredericktown, Mo. Filed Apr. 11, 1904. Serial No. 202,578.



Claim.—1. In a drill or the like, the combination with a cylinder provided with a piston and having an open end at one side of said piston, of a piston-rod for and of less diameter than said piston projecting through the open end of said cylinder, and means for exhausting motive fluid from the other side of said piston and discharging it into the side of said cylinder having the open end.

2. In a drill or the like, the combination with a cylinder open at both ends and provided with a partition, of a piston-rod passing through said partition, a piston carried by said rod at each side of said partition, said piston-rod being of less diameter than said pistons and projecting beyond one of said pistons through one of the open ends of the cylinder, and means for exhausting the motive fluid from the spaces between said pistons and partition and discharging it into the open ends of said cylinder.

3. In a drill or the like, the combination with a cylinder provided with a piston and open at one side of said piston, of a piston-rod for and of less diameter than said piston projecting through the open end of the cylinder, a port opening into the closed side of said cylinder, a supply-port, an exhaust-port opening in the open side of said cylinder, and a valve for placing said first-named port alternately in communication with the supply and exhaust ports.

4. In a drill or the like, the combination with a cylinder open at both ends and provided with a partition, of a piston-rod passing through said partition, a piston carried at each side of said partition, said piston-rod being of less diameter than said pistons and projecting beyond one of said pistons through one of the open ends of the cylinder, a port leading into the closed end of each side of the cylinder, a supply-port, an exhaust-port leading from the closed end of each side of the cylinder to the open end thereof, and a valve for plac-

ing each of said first-named ports alternately in communication with the supply and the corresponding exhaust port.

5. In a drill or the like, the combination with a cylinder open at both ends and provided with a partition, of a piston in said cylinder at each side of said partition, a valve composed of two parts one within the other and arranged adjacent to said partition, exhaust-ports in one of said parts communicating with the exhaust-passages terminating in the open ends of the cylinder, a supply-port extending through both of said parts, and means for independently moving the parts of said valve.

6. In a drill or the like, the combination with a cylinder provided with a partition, of a piston in said cylinder at each side of said partition, a rotary valve composed of two parts one within the other and arranged adjacent to said partition, exhaust-ports in one of said parts, a supply-port extending through both of said parts, and means for independently moving each of said parts.

7. In a drill or the like, the combination with a cylinder, of a piston in said cylinder, a valve composed of two parts, an exhaust-port in one of said parts, a supply-port extending through both of said parts, and by-passes controlled by said piston for independently operating the parts of said valve.

8. In a drill or the like, the combination with a cylinder, of a piston in said cylinder, a valve composed of two parts, an exhaust-port in one of said parts, a supply-port extending through both of said parts, a by-pass for actuating one of said parts, a plurality of openings to said by-pass, and a second by-pass for operating the other of said parts.

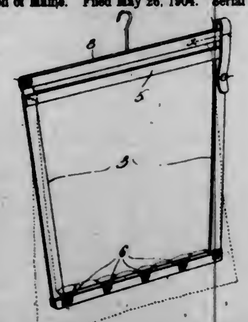
9. In a drill or the like, the combination with a cylinder provided with a partition, of a piston in said cylinder at each side of said partition, a single valve composed of two independently-movable but coöperative parts arranged adjacent to said partition, a pair of by-passes controlling the movement of one part of said valve, and a second pair of by-passes controlling the movement of the other part of said valve.

10. In a drill or the like, the combination with a cylinder provided with a partition, of a piston in said cylinder at each side of said partition, a valve composed of two parts arranged adjacent to said partition, a pair of by-passes controlling the movement of one of said parts, means for varying the point of admission of motive fluid to said by-passes, and a second pair of by-passes controlling the other of said parts.

11. In a drill or the like, the combination with a cylinder provided with a partition, of a piston in said cylinder at each side of said partition, a valve composed of two parts arranged adjacent to said partition, a pair of by-passes controlling the movement of one of said parts, rotary members in said by-passes for varying the point of admission of motive fluid to said by-passes, and a second pair of by-passes controlling the movement of the other of said parts.

12. In a drill or the like, the combination with a cylinder provided with a partition, of a piston in said cylinder at each side of said partition, a rotary valve composed of two parts one within the other and arranged adjacent to said partition, a pair of exhaust-ports in the outer part of said valve, a supply-port extending through both parts of said valve, and by-passes for independently operating the parts of said valve.

784,174. SKIRT-HANGER. FREDERIC H. PARKHURST, Bangor, Me., assignor to The J. F. Parkhurst & Son Company, Bangor, Me., a Corporation of Maine. Filed May 26, 1904. Serial No. 209,823.



Claim.—1. A skirt-hanger having at one edge means to attach skirt-waistband thereto, the opposite edge being constructed to have the skirt folded thereover, and means to clamp the skirt to the edge over which it is folded.

2. A skirt-hanger having a folding edge over which the skirt is folded, and a clamp to hold the fold of the skirt against said edge.

3. A skirt-hanger comprising a frame having skirt-waistband-attaching means at one edge, the opposite edge constituting a folding edge over which the skirt is folded, and means to clamp the skirt against said edge.

4. A skirt-hanger having at one edge means to attach the skirt-waistband thereto, the opposite edge constituting a folding edge over which the skirt is folded, means to clamp the skirt against said edge, and means to suspend the skirt-hanger with the folding edge uppermost.

5. A skirt-hanger comprising a frame having on one side skirt-waistband-attaching means, the opposite side constituting a folding edge, and a clamping-bar coöperating with said folding edge to clamp the skirt in place.

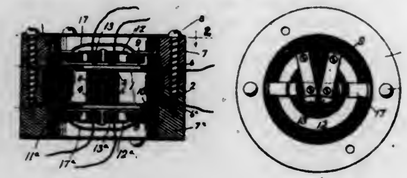
6. A skirt-hanger comprising a frame having on one side skirt-waistband-attaching means, the opposite side constituting a folding edge, a clamping-bar coöperating with said folding edge to clamp the skirt in place, and means to suspend the skirt-hanger with the folding edge uppermost.

7. A skirt-hanger comprising a frame provided with side bars and end bars, one of said end bars having means to attach a skirt-waistband thereto, and the other end bar constituting a folding bar over which the skirt is folded, and means to clamp the folded skirt to said folding bar.

8. A skirt-hanger comprising a frame provided with side bars and end bars, one of said end bars having means to attach a skirt-waistband thereto, and the other end bar constituting a folding bar over which the skirt is folded, and a pivoted clamping-bar coöperating with the folding bar to hold the skirt in place.

9. A skirt-hanger comprising a frame provided with side bars and end bars, one of said end bars having means to attach a skirt-waistband thereto, and the other end bar constituting a folding bar over which the skirt is folded, a pivoted clamping-bar coöperating with the folding bar to hold the skirt in place, and a suspending-hook projecting from the clamping-bar whereby the device is suspended with the folding bar uppermost.

784,175. AUTOMATIC TELEPHONE-REPEATER. HENRY PARSONS, Chicago, Ill. Filed Feb. 16, 1903. Serial No. 143,478.



Claim.—1. A telephone-repeater comprising a transmitter having a plurality of diaphragms; a medium interposed between the diaphragms, exposed to their vibrations; a local circuit comprising such medium and the primary wire of an induction-coil; a like plurality of telephone-receivers having their diaphragms facing the transmitter-diaphragms respectively; an incoming-line circuit which is branched to include in parallel the electromagnet-coils of the several receivers, the secondary wire of the induction-coil being in the outgoing-line circuit.

2. Repeating devices for a telephone-circuit comprising a pair of instruments, each comprising a transmitter having a plurality of diaphragms; a medium interposed between the diaphragms and exposed to their vibrations; a local circuit comprising such medium and the primary wire of an induction-coil; a like plurality of telephone-receivers having their diaphragms facing the transmitter-diaphragms respectively; an incoming-line circuit which is branched to include in parallel the coils of the electromagnets of the several receivers, the secondary wire of the induction-coil of each instrument being a branch circuit from the incoming-line circuit of the other instrument, and in parallel with the branches to the electromagnet-coils of the same, the resistance of said secondary wire being greater than the resistance of the electromagnet-coils.

3. A telephone-repeater comprising a transmitter having a plurality of diaphragms; a medium interposed between them and exposed to their vibration; a local circuit comprising such medium and the primary wire of the induction-coil; a like plurality of telephone-receivers having their diaphragm-influencing magnets in position to influence the transmitter-diaphragms respectively; an incoming-line circuit which is branched to include in parallel the coils of such magnets respectively, the secondary wire of the induction-coil constituting the outgoing-line circuit.

4. A telephone-repeater comprising a shell or casing, a plurality of diaphragms and a medium interposed between them exposed to their vibration or inclosed within the shell or casing and constituting a transmitter, and a like plurality of telephone-receivers contained within the same casing having their diaphragms facing the transmitter-diaphragms respectively at a short interval, forming an inclosed air-chamber between the corresponding diaphragms of the transmitter and receivers respectively; a local circuit comprising the medium interposed between the transmitter-diaphragms and the primary wire of an induction-coil; an incoming-line circuit which is branched to include in parallel the electromagnet-coils of the several receivers, the secondary wire of the induction-coil being in the outgoing-line circuit.

5. A telephone-repeater comprising a transmitter having a plurality of diaphragms; a medium interposed between the diaphragms exposed to their vibrations; a local circuit comprising such medium and the primary wire of an induction-coil; a like plurality of telephone-receivers having their diaphragms facing the transmitter-diaphragm srespectively at a short interval affording air-space between the facing diaphragms respectively, and a shell which encompasses and incloses such air-space; an incoming-line circuit which is branched to include in parallel the electromagnet-coils of the several receivers; and the secondary wire of the induction-coil, which is located in the outgoing-line circuit.

784,176. MOLD. JACOB P. PLATTENBERGER, Savanna, Ill. Filed Feb. 8, 1904. Serial No. 192,554.



Claim.—1. A plural mold comprising a plurality of separate sides, a plurality of bottom pieces therebetween, having cleats thereon, end pieces fitting between the sides, upon the bottom pieces and against the cleats, and rods extending through the sides, at the ends thereof, and binding the parts together.

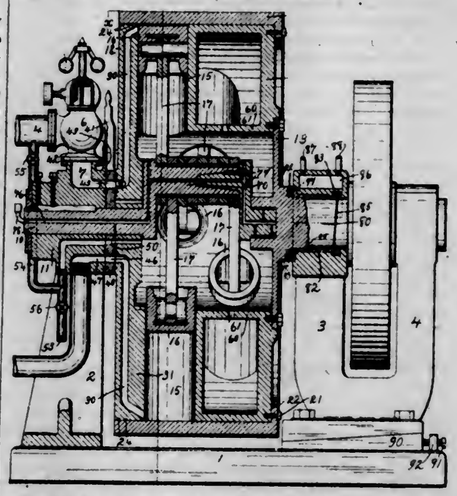
2. A plural mold comprising a series of separate sides, ends therebetween, separate bottoms adjustable between the respective sides, removable inner boards placed against the sides, to vary the size of the molds, and binding-rods extending between the outer sides.

784,177. ROTARY-PISTON ENGINE. JOHN PROBST, Milwaukee, Wis. Filed July 11, 1904. Serial No. 216,004.

Claim.—1. In a steam-motor of the described class, the combination of a rotary drum; a stationary shaft supporting said drum and provided with a crank therein, said drum being subdivided by integral partition-walls into a series of spirally-arranged steam-cylinders and intermediate chambers; a piston in each cylinder and straight connecting-rods connecting the respective pistons with the crank, each successive cylinder being of the same size and offset from the preceding one at a distance equal to the thickness of the connecting-rod.

2. In a steam-motor of the described class having a stationary crank-shaft, a drum mounted thereon, a series of steam-cylinders within the drum provided with pistons and connecting-rods connecting the pistons and crank-shaft; the combination of a valved steam-inlet pipe and means for delivering steam therefrom to the respective cylinders; a valved drainage-pipe in communication with the interspaces of the drum; and a valved by-pass leading from the steam-inlet pipe to the drainage-pipe between the drainage-pipe valve and the drum.

3. In a steam-motor of the described class, a stationary crank-shaft, and a series of steam-cylinders arranged in a row around the crank-shaft; in combination with a drum having a removable peripheral wall provided with inwardly-projecting marginal flanges at one side and screws securing said flanges to a side wall of the drum; said flanges being also provided with screw-threaded apertures opposing integral portions of said side wall whereby the peripheral wall may be removed by means of screws inserted in said last-mentioned apertures and turned in contact with said side wall.



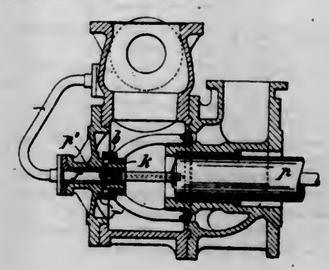
4. In a steam-motor of the described class, the combination of a drum supported at one side by a stationary crank-shaft and at the other side by a power-transmitting shaft; a forked standard provided with suitable bearings for the power-transmitting shaft; a bed-plate supporting said standard, and adjustable wedges interposed between the bed and the base portion of the standard.

5. In a steam-motor of the described class, the combination of a stationary crank-shaft; a drum mounted thereon; a stationary hub provided with steam inlet and exhaust ducts; a controlling-disk interposed between the hub and drum and provided with ports adapted to connect the ducts of the hub and drum, and a radial oil-duct in the controlling-disk having branch ducts for the distribution of oil to the contiguous faces of the disk and drum.

6. In a steam-motor of the described class, the combination of a stationary crank-shaft; a drum mounted to rotate thereon and a controlling-disk regulating the admission of motive fluid to the drum; the contiguous faces of the controlling-disk and drum being provided with annular channels having divergent walls; together with an annular packing-ring having divergent walls fitting the walls of said channels.

7. In a steam-motor of the described class, the combination of a stationary crank-shaft; a rotary drum mounted thereon and provided with steam-cylinders; a rotary shaft mounted in suitable bearings and supporting the drum at one side; an annular resilient packing arranged to press the drum in the direction of the stationary shaft; and a controlling-disk regulating the admission of steam to the drum; said packing being adapted to press the drum against the controlling-disk.

784,178. PUMP. ANDREAS RADOVANOVIC, Zurich, Switzerland. Filed Nov. 2, 1904. Serial No. 231,139.



Claim.—1. In a hydraulic pump, the combination with a forcing-piston, pressure and pump chambers and suction and delivery valves, of means controlled by the piston to admit water under pressure to the suction-valve, the pressure of said water being greater than the pressure of the water in the suction-chamber and means controlled by the movement of the suction-valve to vent said water under pressure into the pump-chamber, substantially as described.

2. In a hydraulic pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of a connection between the suction-valve and pressure-chamber, and a valve on the end of the piston to admit water from the pressure-chamber to the suction-valve to close the same, substantially as described.

3. In a hydraulic pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of means to admit water from the pressure-chamber to the suction-valve and means controlled by the movement of said valve to vent said water into the pump-chamber, substantially as described.

4. In a pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of means controlled by the piston to admit water from the pressure-chamber to the suction-valve to close the same and means controlled by the movement of said valve to vent said water into the pump-chamber, substantially as described.

5. In a pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of a cylinder connected to the pressure-chamber, and a piston coöperating therewith, said piston connected to the suction-valve and a valve on the end of the forcing-piston to admit water under a pressure greater than the pressure in the pump-chamber, to said piston to close the suction-valve, substantially as described.

6. In a pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of a cylinder having outlet-ports and a piston coöperating with the cylinder, said piston connected to the suction-valve and a valve controlled by the forcing-piston to admit water under pressure into the pump-chamber to said piston, to close the suction-valve and open the ports in the cylinder to vent the water under pressure into the pump-chamber, substantially as described,

7. In a pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of a ported valve-casing, a pipe connecting the casing with the pressure-chamber, a piston-valve in said casing and forming an extension of the forcing-piston, a cylinder and a piston coöperating therewith, said cylinder connected to the valve-casing, whereby water from the pressure-chamber will be admitted to the piston to close the suction-valve, substantially as described.

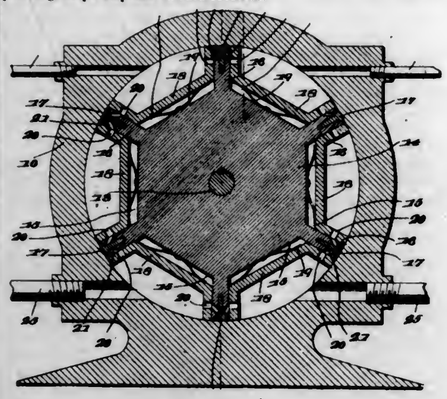
8. In a pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of a ported cylindrical valve-casing, a pipe connecting one end of the casing with the pressure-chamber, a piston-valve in said casing forming an extension of the forcing-piston, a cylinder and a piston coöperating therewith, said cylinder connected to the valve-casing and means controlled by the piston to vent water from the pressure-chamber into the pump-chamber, substantially as described.

9. In a pump, the combination with a forcing-piston, pressure and pump chambers, and suction and delivery valves, of a ported cylindrical valve-casing, a pipe connecting the casing and pressure chambers, a cylinder forming an extension of the valve-casing, a piston external of said cylinder and connected to the suction-valve, and a piston-valve forming an extension of the forcing-piston to admit water from the pressure-chamber to the piston connected to the suction-valve and move said piston to vent the water into the pump-chamber, substantially as described.

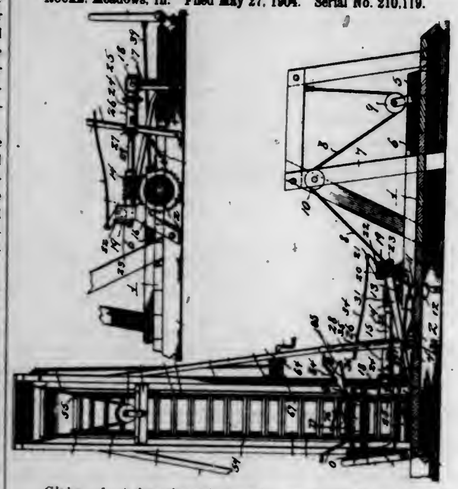
784,179. ROTARY ENGINE. CON P. RHOY, Stirling City, Cal. Filed Dec. 3, 1904. Serial No. 235,235.

Claim.—1. The combination in a rotary engine, of a cylinder, a shaft, a piston-drum mounted on the shaft and provided with a plurality of peripheral pockets, spaced by intervening radial ribs, said ribs being provided with packing-strip-receiving recesses, packing-strips disposed within the recesses, said strips being of T shape in cross-section, and ports leading from the opposite ends of the pockets to said recesses for the passage of a fluid under pressure, the radial web of the packing-strip serving to prevent communication between said ports.

2. The combination in a rotary engine, of a cylinder, a piston arranged within the cylinder and provided with a plurality of peripheral pockets, interchangeable buckets mounted within the pockets and provided with end ports for the passage of steam, means for forcing the buckets outward into engagement with the inner wall of the cylinder, recessed ribs separating the pockets and provided with ports in alinement with the end ports of the buckets, and T-shaped packing-strips disposed in said recesses.



784,180. PORTABLE GRAIN DUMP AND ELEVATOR. JOHN ROCKE, Meadows, Ill. Filed May 27, 1904. Serial No. 210,119.



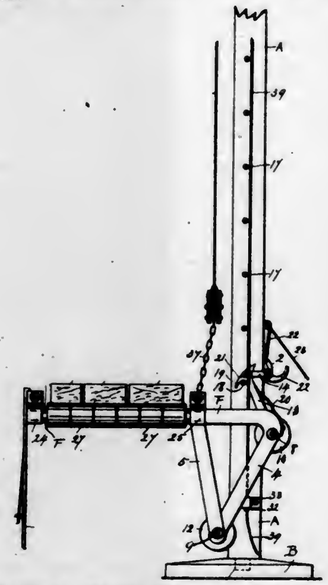
Claim.—1. A dumping-platform having a tilting trap, a drum-carrying shaft, suitably-guided flexible members connecting the drums with the trap, a worm-gear upon the drum-carrying shaft, a driven shaft having a worm engaging the worm-gear, a movable box supporting one end of the shaft, a cam-lever fulcrumed adjacent to and bearing against said box, and a link connected with the cam-lever and engaging the driven shaft.

2. A drum-carrying shaft, a worm-gear on said shaft, a clutch-driven shaft having a worm engaging said worm-gear, a clutch-operating lever, a vertically-movable box supporting one end of the driven shaft, a cam-lever fulcrumed above and bearing against said box, a link connected with the cam-lever and engaging the driven shaft, and an operating-rod connected with the cam-lever and extending through a perforation in the clutch-operating lever.

3. A platform, a tilting trap connected with the same, a shaft mounted for rotation in the platform and having drums, suitably-guided flexible hoisting elements connecting said drums with the tilting platform to elevate the latter by the rotation of the shaft in one direction, a worm-gear upon said shaft, a suitably-supported shaft, vertically adjustable at one end and carrying near its movable end a worm meshing with the gear upon the drum-carrying shaft, a driven

clutch member upon the worm-carrying shaft, a clutch member upon and rotatable with the worm-carrying shaft, a lever having a bifurcated arm engaging said movable clutch member, a spring actuating said lever to hold the clutch members upon the worm-carrying shaft out of engagement with each other, a keeper upon the clutch-operating lever, and a trip-lever extending through said keeper and having a stop adapted to engage the same to retain the clutch-operating lever, against the tension of the spring, in a position at which the clutch members shall be in operative engagement with each other.

784,181. MACHINE FOR PILING LUMBER OR TIMBER. HARVEY M. RUSS, Woodstock, Canada. Filed Aug. 8, 1904. Serial No. 219,833.



Claim.—1. In a machine for piling lumber, a vertical mast adapted to rotate, horizontal holes at intervals through the sides of the mast, a pin to extend through one or more said holes, a horizontal carrying-frame extending from the mast, a flanged roller journaled on the upper part of the frame and adapted to roll against the rear side of the mast, a similar roller on the lower part of the frame and adapted to roll against the front side of the mast, and rollers in sections journaled on the sides of the frame.

2. In a machine for piling lumber, a vertical mast, a horizontal carrying-frame, a flanged roller journaled on the upper part of the frame and in engagement with the rear side of the mast, a similar roller journaled to the lower part of the frame and in engagement with the front side of the mast, rollers in sections journaled on the sides of the frame, and means connected to the frame and the mast for raising and lowering the frame.

3. In a machine for piling lumber, a vertical mast, a horizontal frame, a flanged roller on the upper part of the frame and contiguous to the rear side of the mast, a similar roller on the lower part of the frame and contiguous to the front side of the mast, side rollers in sections journaled on each side of the frame, a removable pin extending through the sides of the mast, dogs pivoted to the frame and adapted to grip said pin, means on the frame for hoisting-mechanism attachment, and means connected to said dogs to release the same from the pin.

4. The combination of a vertical mast adapted to rotate, a horizontal carrying-frame, a flanged roller journaled on the upper part of the frame and in engagement with one side of the mast, a similar roller journaled to the lower part of the frame and in engagement with the opposite side of the mast, and means connected to the frame and to the mast for raising and lowering the frame.

5. In a lumber-piling machine, a vertical mast, a frame horizontal therewith, a flanged roller on the upper part of the frame and contiguous to the rear of the mast, a similar roller on the lower part of the frame and contiguous to the front of the mast, side rollers journaled on the sides of the frame, a removable pin extending through the sides of the mast, dogs pivoted to the frame, means on the dogs to cause the same to grip the pin, means to release the dogs and hold the same and means to hoist said frame.

6. In a lumber-piling machine, a vertical mast, adapted to rotate, holes in the mast one above the other, a horizontal frame, a flanged roller on the upper part of the frame, and contiguous to the rear of the mast, a similar roller on the lower part of the frame and contiguous to the front of the mast, side rollers in sections journaled on the sides of the frame, a removable pin extending through one of said holes, dogs pivoted to the frame, means on the dogs to press the same to grip said pin, means on the frame to release the dogs from the pin, a reversible fender projecting beyond the sectional side rollers and means to raise and lower the frame on the mast.

784,182. TRAIN-PIPE COUPLING. LOUIS M. SARTAIN, Clouse Hill, Tenn., assignor to Lewis M. Hines, Tracy City, Tenn. Filed Dec. 17, 1904. Serial No. 237,308.



Claim.—1. In a train-pipe coupling, a coupling member having in the face thereof a recess countersunk at its outer end and provided in the side thereof with a transverse opening communicating at its inner end with said recess and at its outer end with a train-pipe.

2. In a train-pipe coupling, a coupling member having a flat engaging face and a recess therein countersunk at its outer end, and a train-pipe having direct communication with said recess through a transverse opening in the coupling member.

3. In a train-pipe coupling, a slidably and pivotally supported spring-pressed coupling member having a flat engaging face provided with a recess, and a train-pipe communicating with said recess through an opening in the side of said coupling member.

4. In a train-pipe coupling, a movably-supported spring-pressed coupling member having a flat engaging face provided with a recess, a flexible cushion upon said engaging face, and a train-pipe communicating with said recess through an opening in the side of the coupling member.

5. In a train-pipe coupling, a movably-supported spring-pressed coupling member having a flat engaging face provided with a recess countersunk at its outer end, a flexible cushion upon said engaging face, and a train-pipe communicating with the recess through an opening in the side of the coupling member.

6. In a train-pipe coupling, a body having a horizontal recess and a coupling member having a slotted shank engaging said recess; a connecting-pin extending through the jaws of the body member and through the slot of the coupling member the latter being provided with a recess in its engaging face; and a train-pipe communicating with the recess in the engaging face of the coupling member through an opening in the side of the latter.

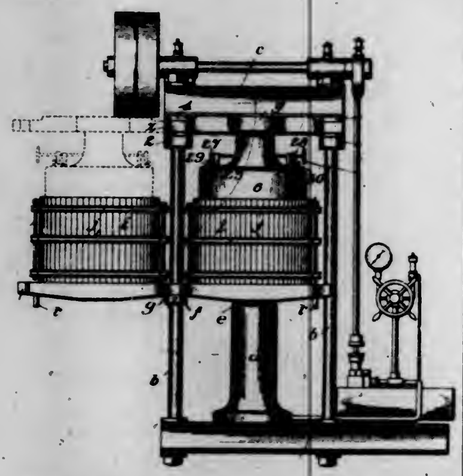
7. In a train-pipe coupling, a body member having a slot or recess and a socket at the inner end of said recess, a coupling member having a slotted shank engaging the recess of the body member, said shank being provided with a socket at its inner end, a coupling-pin connecting the body member with the coupling member and extending through the slot in the shank of the latter, and a compressible spring member seated in the sockets of the body member and the coupling member.

784,183. HYDRAULIC PRESS. JOHN T. SCHAFFER, Rochester, N. Y., assignor, by mesne assignments, to The Schaffer Press Company, Rochester, N. Y., a Corporation of New York. Filed July 18, 1903. Renewed Sept. 13, 1904. Serial No. 224,332.

Claim.—1. In a press, the combination of a device, consisting of a stationary part, a movable part, supporting means for said movable part, said movable part being loosely mounted upon said means, whereby said movable part will automatically adjust itself in case the material is unevenly distributed in said device, and means for exerting pressure upon said device, substantially as described.

2. In a press, the combination of a plunger and a cylinder, one of said parts being movable with relation to the other, and the other of said parts being normally stationary, and pivoted means support-

ing said parts so arranged that said normally stationary part and said movable part may be separately or conjointly swung around so that access to the interior may be readily obtained, substantially as described.



3. In a press, a normally stationary piston, said piston being composed of a large cylinder open at one end, a smaller centrally-located cylinder and perforated devices located in the space between said cylinders, substantially as described.

4. In a press, a movable part composed of an outer perforated cylinder, a smaller inner perforated cylinder, and a supporting-plate provided with a rounded bottom, said supporting-plate being provided with perforations, substantially as described.

5. In a press, the combination of a movable part, having a rounded bottom, a support therefor, having a concave top, and antifriction devices between said parts, substantially as described.

6. In a press, a movable part, composed of a perforated bottom, an outer perforated basket, and an inner perforated cylinder, said inner cylinder being made of flexible material, substantially as described.

7. In a press, a movable part, comprising a perforated support, a perforated bottom, an outer perforated cylinder, and a smaller inner perforated cylinder, said inner cylinder being made of flexible material, substantially as described.

8. In a press, the combination of a normally stationary piston composed of two concentric cylinders, and a plurality of perforated plates between said cylinders, substantially as described.

9. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, and a plurality of perforated plates between said cylinders, said plates being so arranged that the perforations therein will not register with each other, and means for moving said plates toward each other, substantially as described.

10. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, a plurality of perforated plates between said cylinders, and a perforated flexible washer also located between said cylinders, substantially as described.

11. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, a plurality of perforated plates between said cylinders, and a screen and flexible washer also located between said cylinders, substantially as described.

12. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, a plurality of perforated plates between said cylinders, one of said plates being fixed and another movable, a screen and a perforated washer, said screen and washer being also located between said cylinders, substantially as described.

13. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, a perforated plate fixed to said cylinders and located between them, a movable perforated plate located above said fixed perforated plate, a screen below said fixed plate, a perforated washer below said screen, and means for fastening said washer and screen to said fixed plate, substantially as described.

14. In a press, a normally stationary piston, composed of two concentric cylinders, and a support therefor, all cast in a single piece, the open end of the inner cylinder being rounded off, substantially as described.

15. In a press, a piston therefor, composed of two concentric cylinders, and a support therefor, all cast in a single piece, the inner cylinder being rounded off at its lower end, and the support being provided with a bearing and a cut-away portion, substantially as described.

16. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, and a support therefor, all cast in a single piece, a plurality of perforated devices located between the open ends of said cylinders, and a key-valve located in the wall of one of said cylinders, substantially as described.

17. In a press, the combination of a normally stationary piston, composed of two concentric cylinders, one end of each of which is open, a plurality of perforated plates located in proximity to the open ends of said cylinders, one of said plates being fixed and the other movable, a flexible washer separating said plates, and means for moving said movable plate into contact with said fixed plate, said plates being so arranged that the perforations in one plate will not register with the perforations in the other plate, substantially as described.

18. In a press, the combination of a movable part, composed of inner and outer perforated cylinders, and a perforated bottom, and a stationary part composed of inner and outer perforated cylinders open at one end, and perforated devices between the open ends of said last-named cylinders, substantially as described.

19. In a press, the combination of a movable part, including a perforated bottom, inner and outer perforated cylinders, and means for exerting pressure upon said movable part, of a normally stationary piston composed of inner and outer open-ended cylinders, and a plurality of perforated plates located between said last-named cylinders, substantially as described.

20. In a press, a movable part, including a perforated plate having a rounded perforated bottom, inner and outer perforated cylinders resting on said plate, a concave support for said bottom, and means for exerting pressure on said support, substantially as described.

21. In a press, the combination of a movable part, consisting of a plate provided with perforations and drainage-passages, inner and outer perforated cylinders supported on said plate, said plate having a rounded bottom, a concave support for said plate, antifriction devices between said support and said plate, means for exerting pressure on said support, with a normally stationary piston, composed of a support and inner and outer cylinders cast integrally therewith, one end of each of said cylinders being open, a stationary perforated plate between said last-named cylinders, a movable perforated plate above said stationary plate, means for moving said movable plate, a screen located underneath said fixed plate, a perforated washer beneath said screen, and means for fastening said screen and said washer to said plate, substantially as described.

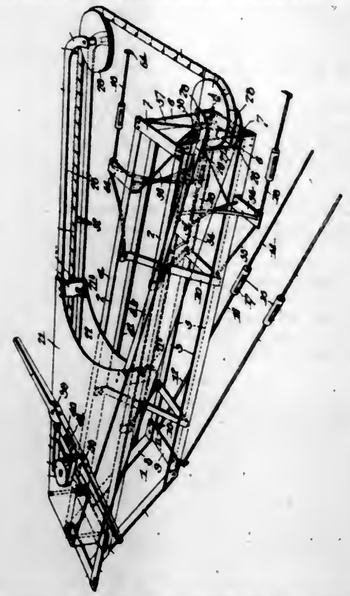
784,184. **WOOD-SAWING MACHINE.** GEORGE T. SERRELL, Alsea, Oreg. Filed May 7, 1904. Serial No. 206,896.

Claim.—1. A machine of the class described comprising a supporting-frame, and means for securing the same to the object to be cut, a head mounted for longitudinal movement upon the frame, arms pivotally connected with the head, guide-sheaves carried by the free ends of the arms, a drive-sheave carried by the head, an endless saw engaging the said sheaves, and pawl-and-ratchet mechanism for imparting forward movement to the head as the cutting progresses.

2. A machine of the class described comprising a supporting-frame, and means for securing the same to the object to be cut, a head mounted for longitudinal movement on the frame, arms pivotally connected with the head, sheaves carried by the arms, a vertical shaft carried by the head, a drive-sheave mounted upon the shaft and having its groove serrated, an endless saw engaging the sheaves and having its back provided with serrations to engage with those of the drive-sheave, a ratchet-wheel mounted upon the shaft of the drive-sheave, a pair of levers fulcrumed upon the head, pawls carried by the levers and engaging the ratchet-wheel, a worm-shaft carried by the supporting-frame, a ratchet-wheel mounted upon the worm-shaft, an eccentric carried by the shaft of the drive-sheave, and a lever carrying at one end a yoke to engage the eccentric and at its other end a pawl to engage the ratchet of the worm-shaft.

3. A machine of the class described comprising a supporting-frame and means for securing the same to the object to be cut, a head mounted for longitudinal movement upon the frame, arms pivotally connected with the head, guide-sheaves carried by the free ends of the arms, a drive-sheave carried by the head, an endless saw engaging the said sheaves, and pawl-and-ratchet mechanism for imparting forward movement to the head as the cutting progresses, and means for maintaining the saw under tension.

head mounted for longitudinal movement on the frame, arms pivotally connected with the head, sheaves carried by the arms, a vertical shaft carried by the head, a drive-sheave mounted upon the shaft and having its groove serrated, an endless saw engaging the sheaves and having its back provided with serrations to engage with those of the drive-sheave, a pair of levers fulcrumed upon the head, pawls carried by the levers and engaging the ratchet-wheel, a worm-shaft carried by the supporting-frame, a sectional ratchet-wheel mounted upon the worm-shaft, an eccentric carried by the shaft of the drive-sheave, and a lever carrying at one end a yoke to engage the eccentric and at its other end a pawl to engage the ratchet of the worm-shaft.



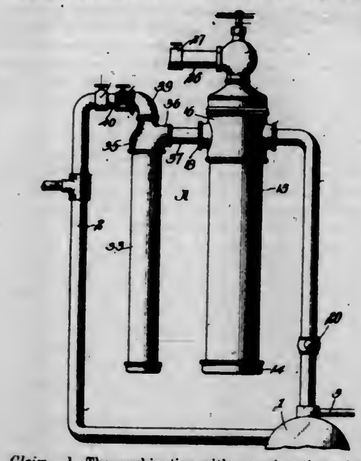
4. A machine of the class described comprising a supporting-frame, and means for securing the same to the object to be cut, a head mounted for longitudinal movement on the frame, arms pivotally connected with the head, sheaves carried by the arms, a vertical shaft carried by the head, a drive-sheave mounted upon the shaft and having its groove serrated, an endless saw engaging the sheaves and having its back provided with serrations to engage with those of the drive-sheave, a ratchet-wheel mounted upon the shaft of the drive-sheave, a pair of levers fulcrumed upon the head and having their opposing terminals connected, pawls carried by the levers and engaging the ratchet-wheel, a worm-shaft carried by the supporting-frame, a ratchet-wheel mounted upon the worm-shaft, an eccentric carried by the shaft of the drive-sheave, and a lever carrying at one end a yoke to engage the eccentric and at its other end a pawl to engage the ratchet of the worm-shaft.

5. A machine of the class described comprising a supporting-frame and means for securing the same to the object to be cut, a head mounted for longitudinal movement upon the frame, arms pivotally connected with the head, guide-sheaves carried by the free ends of the arms, a drive-sheave carried by the head, an endless saw engaging the said sheaves, means for maintaining the saw under tension, and means for imparting forward movement to the head as the cutting progresses.

6. A machine of the class described comprising a supporting-frame, a head mounted for longitudinal movement on the frame, arms pivotally connected with the head, sheaves carried by the arms, a vertical shaft carried by the head, a drive-sheave mounted upon the shaft and having its groove serrated, an endless saw engaging the sheaves and having its back provided with serrations to engage those of the drive-sheave, means for maintaining the saw under tension, means for imparting forward movement to the head as the cutting progresses, and means for driving the vertical shaft to effect operation of the saw.

7. A machine of the class described comprising a supporting-frame, a head mounted for longitudinal movement thereon, arms pivotally connected with the head, an endless saw supported by the arms, and bolts carried by the head and adapted to engage the arms to spread the same, thus to place and maintain the saw under requisite tension.

784,185. **AIR-SEPARATOR AND WATER-SEAL FITTING.** SAMUEL V. SHAROOD, Brockton, Mass., assignor of one-half to Lucius R. Churchill, Brockton, Mass. Filed June 23, 1904. Serial No. 213,879.

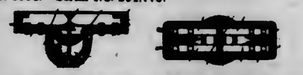


Claim.—1. The combination with a suction-pipe, of a pump, a connection between the pump and suction-pipe, and a combined air-separator and water seal disposed in such connection and operating to receive water, vapor and air from the pump and discharge the vapor and air to the atmosphere and to retain the water and allow the same to pass back to the suction-pipe, substantially as described.

2. The combination with a suction-pipe, of a pump, a connection between the said pump and the suction-pipe, a separator in said connection provided with a sealed inlet and an air and vapor chamber having a valved outlet, and a seal in communication with said separator and having a sealed exhaust in communication with said connection with the suction-pipe, substantially as described.

3. An air-separator and water-seal fitting, for use in connection with a pump for pumping hot water, and comprising a separating-chamber having a seal-pipe discharging and extending downwardly therein, and a valved air-vent, in combination with a seal-chamber having a connection with the separating-chamber at an elevated point, and a seal-pipe connected to and extending downwardly in the seal-chamber, substantially as described.

784,186. **THERMOSTAT.** JOHN E. SHEPHERD, Chicago, Ill. Filed Apr. 25, 1904. Serial No. 204,778.



Claim.—1. In a thermostat, separated parts adapted to be included in two electric circuits, a circuit-controlling means associated therewith, comprising a movable member, means associated therewith for independently completing circuits through the circuit parts when the movable member is in normal position, and to break both circuits when the movable member is moved, means arranged to close the circuit subsequent to the breaking thereof by the first-named means when the movable member is moved, and fusible means for normally holding the movable member against movement.

2. In a thermostat, separated parts adapted to be included in two circuits, circuit-controlling instrumentalities comprising movable means arranged when in normal position to close the circuits through said circuit parts and movable to break the circuits therethrough, other means normally disconnected from said circuit parts movable to reestablish circuit through said parts, after the rupture of the circuit by the first-named movable means, and means for normally holding said circuit-controlling instrumentalities against movement.

3. In a thermostat, separated parts adapted to be included in two electric circuits, a circuit-controlling structure comprising means for normally closing the circuits through said circuit parts, other means adapted to close said circuit parts normally disconnected from the same, and a means for moving said circuit-controlling structure to break the connection of the first said means with the circuit parts and subsequently make connection of the second said means with the circuit parts, and means for normally holding said structure against movement.

4. In a thermostat, the combination with circuit parts of means normally closing circuits through such circuit parts arranged for movement to break connection between the same, means normally out of connection with said circuit parts movable to reëstablish circuit connections between the same subsequently to the operation of the first said means, and a body of fusible material for holding said circuit-controlling parts normally against movement.

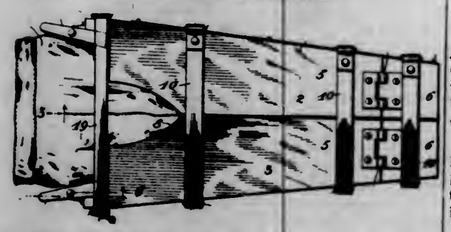
5. In a thermostat, a casing, circuit-strips arranged within the casing in a plurality of parallel pairs, adapted to constitute parts of a plurality of circuits, the strips of each pair being separated, a structure comprising two vertically-separated cross-bars one normally arranged to establish connection independently between said pairs of strips, and adapted when the structure is moved downward to break connection between said strips, and the other normally out of contact with said strip arranged when the structure is moved downward to break connection between said strips, and the other normally out of contact with said strips arranged when the structure is moved downward to make electrical contact therewith, and heat-releasable means for holding said structure against movement.

6. In a thermostat, a plurality of pairs of separated circuit-strips each pair adapted to constitute part of an electric circuit, a circuit-controlling structure comprising two circuit-closing bars one provided with conducting portions insulated from each other normally arranged to close the independent circuits through said pairs of strips, and the other bar providing electrically-connected portions normally disconnected from the circuit-strips, said structure being movable to first disconnect the first said bar from the circuit-strips, and subsequently connect the second-mentioned bar with said strips, and heat-releasable means for normally holding the circuit-controlling structure against movement.

7. In a thermostat, separated parts adapted to be included in an electric circuit, circuit-closing means normally making connection between said circuit parts and movable to break connection therebetween, another circuit-closing means normally out of connection with said circuit parts movable to make connection therebetween subsequently to the breaking of the connection by the first said means, and means for normally holding said circuit-closing means against movement, thermally operable to release said circuit-closing means.

8. In a thermostat, the combination of the following instrumentalities, to wit: separated circuit-strips, a structure arranged for movement when unrestrained comprising two separated conducting-pieces adapted to successively complete the circuit when moved, and heat-releasable means for restraining said structure against movement with the first-acting of said conducting-pieces in circuit-closing position.

784,187. DEVICE FOR PRESSING TROUSERS. WILLIAM A. SMITH, Sherman, Tex., assignor of one-half to Allan M. McBee, Sherman, Tex. Filed Oct. 28, 1904. Serial No. 230,413.



Claim.—1. A trousers-press comprising a base, a presser-board having longitudinally-divided sections, blocks to bear on said sections and being hollowed on their inner sides to enable said sections to be disposed angularly with respect to each other, and means operative on said blocks to clamp said presser-board sections on the base.

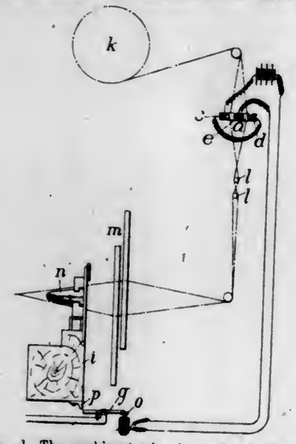
2. A trousers-press comprising a base, a pressure-board divided longitudinally into two detached parts or sections, concavo-convex elements disposed transversely upon said pressure-board, springs upon said elements, and fastening means connecting said springs to said base to clamp said pressure-board upon said base, substantially as described.

3. A trousers-press comprising a base, a pressure-board divided longitudinally into two detached parts or sections, concavo-convex elements disposed transversely upon said pressure-board, springs upon said elements, longitudinally-extending springs upon said elements and detachable fastening means connecting the opposite ends of said springs to said base, substantially as described.

4. A trousers-press comprising a base, a pressure-board divided longitudinally into two detached parts or sections, concavo-convex elements disposed transversely upon said pressure-board, springs upon said elements, longitudinally-extending springs upon said elements having one of their ends pivotally connected to said base and detachable fasteners for securing the opposite ends of said springs to said base, substantially as described.

5. A trousers-press comprising a base, a pressure-board divided longitudinally into two half-sections, each of said sections being composed of hingedly-connected parts, means for securing one of said parts of each of said half-sections upon one end of said base to clamp the lower portions of a pair of trousers thereon, clips upon the opposite end of said base to engage the upper portion of a pair of trousers, a clamping device for said clips and the upper portion of a pair of trousers, said device comprising a transverse spring upon said base, a swinging element connected to one end of said spring and adapted to engage said clips and the upper portions of a pair of trousers, and a detachable connection between the opposite ends of said spring and element, and means for clamping the remaining parts of said half-sections upon the intermediate portions of said base, substantially as described.

784,188. STOP-MOTION DETECTOR FOR LOOMS. MERRILL O. STEERE, Pawtucket, R. I. Filed Sept. 3, 1902. Serial No. 121,941.



Claim.—1. The combination in a loom-stop-motion device of adjacent electrical conductors, with a detector mounted on one conductor and restrained from contact with the other by the reaction of two opposed threads, and adapted to be moved, in case one thread breaks, into contact with the second conductor to complete the electric circuit and cause the stopping of the loom.

2. A stop-motion detector for looms consisting of a movable piece normally engaging two opposed, tensioned threads, and a support for said detector, whereby the detector is positively shifted by the action of one thread when the resistance of the other thread fails, independently of the action of gravitation.

3. A stop-motion detector for looms consisting of a bar notched at its ends, with which notches opposed tensioned threads normally engage, and a support for said detector along which the detector is shifted entirely by the tension of one thread when the resistance of the opposing thread is removed.

4. A stop-motion detector for looms consisting of a straight flat plate of thin metal, having notches or forks in its opposite ends adapted to receive opposing threads.

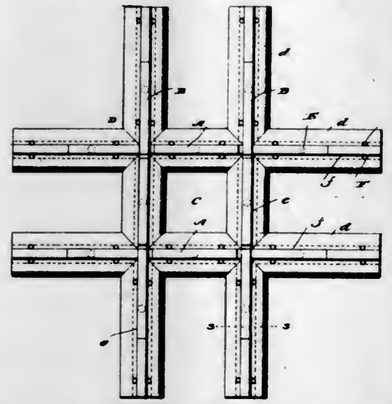
5. The combination in a loom stop-motion, of a movable detector normally engaging two opposed tensioned threads, a support for said detector on which said detector is shifted entirely by the action of one thread when the resistance of the other thread is removed, and stop mechanism controlled by said detector, and thrown into operation by the shifting of said detector to stop the loom.

6. The combination, in a loom-stop, of a detector notched at its opposite ends, to receive opposed tensioned threads, a conductor-support for said detector, an electrical contact-piece with which said detector makes engagement when shifted to abnormal positions, and electrical connections from the support and contact-piece by which the loom action is stopped when contact is made by the shifting of the detector.

7. The combination, in a loom-stop, of a detector normally engaging two oppositely-tensioned threads, electrical conductors in proximity to said detector, in position that the electric circuit is controlled by the detector when shifted to abnormal position, and a loom stop mechanism controlled by said electric circuit.

8. In a loom-stop, the combination of a detector engaged at opposite ends by opposed tensioned threads, and movable longitudinally in either direction by the action of one thread when the resistance of the other is removed, and means controlled by said detector when shifted in either direction and acting to stop the loom.

784,189. BOLTLESS CROSSING. JOSEPH STOLS, New Orleans, La. Filed Sept. 15, 1904. Serial No. 224,623.



Claim.—1. In a railway-crossing, the combination of the rails of intersecting railways, and a body formed in one piece and having channels shaped in conformity to and snugly receiving the bases, the webs and the lower portions of the heads of the rails.

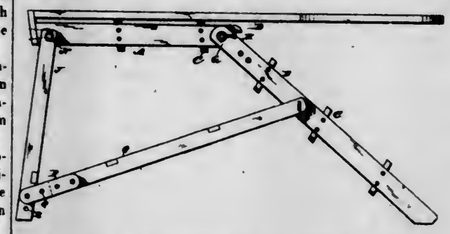
2. In a railway-crossing, the combination of the rails of intersecting railways; said rails having notches in the edges of their bases at intervals in their lengths, a foundation, a body arranged on the foundation and having channels shaped in conformity to and snugly receiving the bases, the webs and the lower portions of the heads of the rails, and also having vertical bores disposed at opposite sides of the channels, and spikes extending through said bores and the notches in the rail-bases and into the foundation.

3. In a railway-crossing, the combination of the rails of intersecting railways, a foundation, a body arranged on the foundation and having channels shaped in conformity to and snugly receiving the bases, the webs and the lower portions of the heads of the rails, and also having vertical bores extending downwardly from the bottoms of the channels, and spikes extending through said bores and into the foundation.

4. In a railway-crossing, the combination of the rails of intersecting railways; said rails having notches in the edges of their bases at intervals in their lengths, a foundation, a body arranged on the foundation and having channels shaped in conformity to and snugly receiving the rails and also having vertical bores disposed at opposite sides of the channles, and vertical bores extending downwardly from the bottoms of the channels, spikes extending through the first-mentioned bores and the notches in the rails and into the foundation, and spikes extending through the second-mentioned bores and into the foundation.

5. The combination of a foundation, a rail, a body having a channel shaped in conformity to and receiving the lower portion of the rail and also having a bore or aperture extending downwardly from the bottom of the channel, and a connecting device disposed in said bore or aperture and the foundation.

784,190. COMBINED IRONING-BOARD AND STEP-LADDER. JOHN H. STONEKING, Bertram, Iowa. Filed Apr. 5, 1904. Serial No. 201,775.

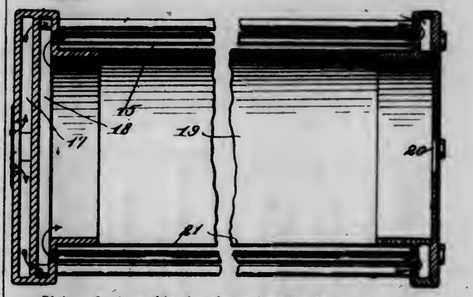


Claim.—1. The combination of two hinged ladder-sections, an ironing-board attached to one of them, legs pivoted to the same section, and supplemental legs hinged to the before-mentioned legs, and means whereby said legs may be locked in alinement, top support the step-ladder, and to one of the ladder-sections when in use as an ironing-board.

2. The combination with a step-ladder section having an ironing-board secured thereto, and provided with slots near one end and terminal notches, of another ladder-section attached thereto by a rod through said slots, and having blocks to fit in said notches, and means for supporting the other end of the section to which the board is attached.

3. The combination with a jointed ladder having an ironing-board secured to one of its sections, of jointed pairs of legs, means substantially as described for locking them in alinement, slots in their upper ends, sockets in the legs communicating with said slots, and a cross-rod with a head seated in one such socket and its tightening-nut in the other, substantially as and for the purpose set forth.

784,191. COMBINED COOLER AND MUFFLER FOR GAS-ENGINES. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Wellesley, Mass., assignors to Sturtevant Mill Company, Portland, Me., a Corporation of Maine. Filed Oct. 11, 1904. Serial No. 228,025.



Claim.—1. A combined cooler and muffler for gas-engines, consisting of the combination with a muffler or muffling-chamber, of an exposed cooler entirely outside of but adjacent to said muffler or muffling-chamber and through which cooler the gases pass to the said muffling-chamber.

2. A combined cooler and muffler for gas-engines, consisting of the combination with a muffler or muffling-chamber, of an exposed cooler through which the gases pass before reaching the muffler, and which cooler is disposed about and adjacent to the said muffler and discharges into the latter.

3. A combined cooler and muffler for gas-engines, consisting of the combination with a muffler or muffling-chamber, of a cooler outside of but adjacent to said muffler or muffling-chamber, and a foraminous screen in the passage-way for the gases between the cooler and muffler.

4. In a combined cooler and muffler for gas-engines the combination with a muffler, of a cooler comprising two headers and a series of exposed tubes communicating with said headers and between which headers the muffler or muffling-chamber is also arranged.

5. In a combined cooler and muffler for gas-engines, the combination with a muffler, of a cooler comprising two connected headers having passages between them, and between which headers the said muffler or muffling-chamber is also arranged, and a foraminous screen in the passage-way for the gases between the cooler and muffler.

6. A combined cooler and muffler for gas-engines, consisting of the combination with a muffler or muffling-chamber, of an exposed multitubular cooler surrounding and discharging into said muffler.

7. A combined cooler and muffler for gas-engines, consisting of the combination with a muffler or muffling-chamber, of a multitubular cooler surrounding the same, and a foraminous screen in the passage-way for the gases between the cooler and muffler.

8. A combined cooler and muffler for gas-engines, consisting of the combination with two headers provided with chambers and between which headers ista muffling-chamber, of two series of tubes one series of which connects the chambers of said headers and the other series of which forms a communication between the chamber of one of said headers and the muffling-chamber surrounded by said tubes.

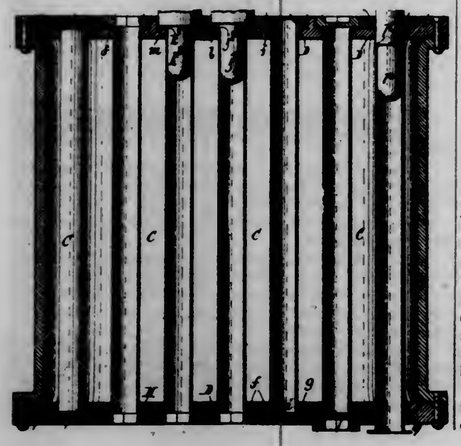
9. A combined cooler and muffler for gas-engines, consisting of the combination with two headers provided with chambers and between which headers is a muffling-chamber, of two series of tubes one series of which connects the chambers of said headers and the other series of which forms a communication between the chamber of one of said headers and the muffling-chamber surrounded by said tubes, and a foraminous screen in the passage-way for the gases between the cooler and muffler.

10. A combined cooler and muffler for gas-engines comprising two headers, an outer series of exposed tubes through which the exhaust-gases flow outward from the first header to the second, an inner series of exposed tubes through which the exhaust-gases return from the second header to the first, and an inclosed muffling-chamber entirely within the circle of said tubes and between said headers, and into which chamber the gases are discharged from the inner series of tubes.

11. A combined cooler and muffler for gas-engines comprising two headers, an outer series of tubes through which the exhaust-gases flow outward from the first header to the second, an inner series of tubes through which the exhaust-gases return from the second header to the first, a muffling-chamber between said headers into which the gases are discharged from the inner series of tubes, and a foraminous screen in the passage-way for the gases between the cooler and muffler.

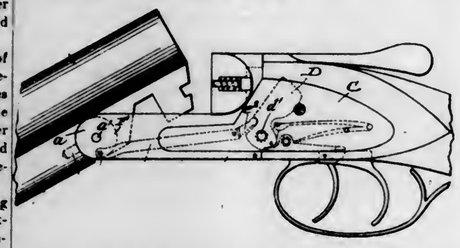
12. A combined cooler and muffler for gas-engines, consisting of a series of exposed or uninclosed cooling-tubes, and a muffling-chamber adjacent thereto and into which the said cooling-tubes discharge.

784,192. **BOILER-TUBE FASTENING.** CHARLES E. THROOP, Buffalo, N. Y. Filed Mar. 23, 1903. Serial No. 149,145.



Claim.—A boiler-tube fastening comprising a tube-sheet provided with a tube-opening which has a narrow inner portion and an enlarged outer portion forming an outwardly-facing shoulder between the same, the inner portion of said opening being plain while the outer portion has an internal screw-thread, a tube arranged in said opening and provided at its outer end with an external annular flange which is arranged in the enlarged portion of said opening, and bears on its inner side against said flange, a clamping-ring bearing against the outer side of said flange and having an external screw-thread which engages with the internal thread of the outer portion of said opening, the bore of said clamping-ring being of substantially the same diameter as the exterior of said tube and the inner edge of said shoulder and the opposing inner edge of the clamping-ring being rounded causing the flange to be gripped only at its outer part or edge leaving its inner part or base free to move lengthwise with the tube during the expansion and contraction of the same, substantially as set forth.

784,193. **BREAKDOWN GUN.** GEORGE TOBORG, Chicago, Ill. Filed June 13, 1904. Serial No. 212,229.



Claim.—1. In a breakdown gun the combination with the lock, hinged barrels and perforated frame of a crank-lever fulcrumed at the hinging of the barrel and frame and adapted to turn with the barrel and a jointed cocking-rod pivoted to the crank-lever and extending therefrom to the breast of the hammer, the joint of the cocking-rod being adapted to allow the end impinging upon the breast to rise and fall, as specified.

2. In a breakdown gun, the frame provided at one end with a chambered, half-circular projection, a, in connection with a longitudinal perforation, a^3, a disk pivoted within said chambered end, the fore end fixed to said disk, a cocking-rod in the perforation having one end pivoted to the lower margin of the disk, and a jointed piece, c^3, attached to the cocking-rod and projecting out through the perforation, as specified.

784,194. **MEDICINE-BOTTLE.** FANNIE S. VICTOR, Atlanta, Ga. Filed Aug. 23, 1904. Serial No. 221,897.



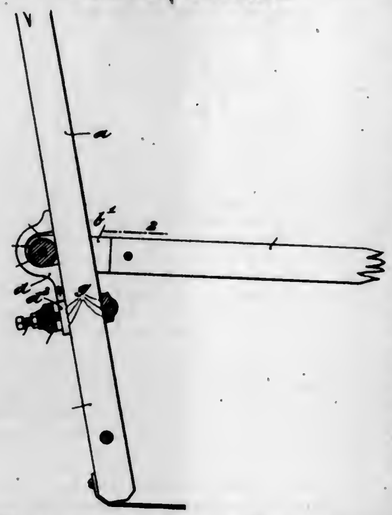
Claim.—1. In a medicine-bottle, a bottle-neck having a series of notches extending around the same, a series of ordinals placed adjacent to said notches, a cork adapted to fit the mouth of said bottle-neck, and an indicator carried by said cork and adapted to register with one of said notches when the cork is inserted in the mouth of the bottle-neck.

2. In a medicine-bottle, a bottle-neck having a series of notches in its upper edge radiating from the axis of the bottle, a series of ordinals placed adjacent to said notches, a cork adapted to fit the mouth of said bottle-neck, and an indicator carried by said cork and adapted to register with one of said notches when the cork is inserted in the mouth of the bottle-neck.

3. In a medicine-bottle, a bottle-neck provided with a flange at its upper part and having a series of notches in said flange, a series of ordinals placed adjacent to said notches, a cork, an indicator carried by said cork and adapted to register with one of said notches when said cork is inserted in the mouth of said bottle-neck, and a clip forming part of said indicator and adapted to engage with said flange when the cork is in place.

4. In a medicine-bottle, a bottle having a series of notches extending around the same, a series of ordinals placed adjacent to said notches, a cork adapted to fit the mouth of said bottle, and an indicator carried by said cork and adapted to register with one of said notches when the cork is inserted in the mouth of the bottle.

784,195. **CONNECTOR FOR SWEEP-STICKS AND PICKER-STICKS OF LOOMS.** HARRY WALMSLEY and JOSHUA S. AMBLER, Philadelphia, Pa., assignors of one-half to H. Reeves Lukens, Philadelphia, Pa. Filed Sept. 9, 1904. Serial No. 223,873.



Claim.—1. A connector for the sweep-sticks and picker-sticks of looms comprising a strap secured to each side of the sweep-stick at the end thereof adjacent to the picker-stick, a roller mounted between said straps and means adapted to loosely confine said roller at a certain distance from the center of oscillation of the picker-stick.

2. A connector for the sweep-sticks and picker-sticks of looms comprising a strap secured to each side of the sweep-stick at the end thereof adjacent to the picker-stick, a roller mounted between said straps adapted to bear against the picker-stick to cause the same to be thrown when the sweep-stick is operated, a bracket having an opening within which said roller is loosely confined, and a clamp adapted to lock said bracket to the picker-stick.

3. A connector for the sweep-sticks and picker-sticks of looms comprising a strap secured to each side of the sweep-stick at the end thereof adjacent to the picker-stick, a roller mounted between said straps adapted to bear against the picker-stick to cause the same to be thrown when the sweep-stick is operated, a bracket having an opening within which said roller is loosely confined and a clamp serving to force an extension of said bracket against the picker-stick, the faces of said extension and clamp contiguous to the picker-stick being provided with projections adapted to bite into the picker-stick.

784,196. **NUMBERING-MACHINE.** FRANK W. WIGHT and CHARLES SPIELMANN, Brooklyn, N. Y. Filed July 18, 1904. Serial No 217,101.



Claim.—1. In an automatic numbering-machine, the combination of the machine-frame, numbering-wheels mounted thereon, means for operating said wheels, and a removable side plate secured to said frame and capable of simultaneous upward and outward movement but held against longitudinal movement.

2. In an automatic numbering-machine, the combination of the machine-frame and a removable side plate therefor, one of said parts having a vertical arc-shaped lug extending outward from its face and the other having a vertical arc-shaped slot cut into its face for frictionally receiving and holding the lug on the other part.

3. In an automatic numbering-machine, the combination of the machine-frame, with a side plate, and means securing said side plate against longitudinal movement relative to said frame while leaving it free to be moved upward and outward or laterally.

4. In an automatic numbering-machine, the combination of the machine-frame, and a side plate tapering in thickness from top to bottom, said plate being removably attached to the frame by arc-shaped lugs on the plate engaging corresponding arc-shaped recesses in the face of the frame.

5. In an automatic numbering-machine, the combination of the frame, the numbering-wheels mounted thereon, the actuating-plunger therefor, a removable printing character mounted on the top of said plunger, a character-retaining catch and a spring actuating both said plunger and catch.

6. In an automatic numbering-machine, the numbering-wheels, the frame in which the same are mounted, the actuating-plunger for said wheels, the plunger-spring, the removable printing character mounted on the plunger-head and the character-retaining catch yieldingly held in engagement with the printing-character body by the plunger-spring.

7. In an automatic numbering-machine, the numbering-wheels, the frame in which the same are mounted, the actuating-plunger for said wheels, the plunger-spring, the removable printing character mounted on the plunger-head, and a character-retaining catch fulcrumed on the plunger, with its lower face resting on the plunger-spring and its upper face bearing against the plunger-head.

8. In an automatic numbering-machine, a numbering-wheel having a removable printing character mounted in a recess therein and having an integrally-formed yielding lug engaging a notch or depression in one of the walls of said recess.

9. In an automatic numbering-machine, a numbering-wheel having a radial recess formed therein with a notch or depression in one of it walls, in combination with a removable printing character having a stem and a spring-blade secured thereto, said spring-blade having a lug yieldingly engaging said notch or depression.

10. In an automatic numbering-machine, the combination of a numbering-wheel having a radial recess, with a removable printing character having a stem fitting in said recess, one of said parts having a notch or depression and the other having an integrally-formed spring-blade bearing a lug engaging said notch or depression.

11. In an automatic numbering-machine, a numbering-wheel having a removable printing character mounted in a recess therein, said character being provided with a shank having a plurality of splits or kerfs whereby members are formed having yielding contacts with the walls of said recess.

12. In an automatic numbering-machine, the numbering-wheels, the frame in which the same are mounted, the actuating-plunger for said wheels, the plunger-spring, the removable printing character mounted on the plunger-head, and character-retaining means held in engagement with the printing-character body by the plunger-spring.

13. In an automatic numbering-machine, the numbering-wheels, the frame in which the same are mounted, the actuating-plunger for said wheels, the plunger-spring, the removable printing character mounted on the plunger-head, character-retaining means held in engagement with the printing-character body by the plunger-spring, said retaining means being provided with character-releasing means.

14. In an automatic numbering-machine, the combination of the machine-frame, numbering-wheels mounted thereon, means for operating said wheels, a removable side plate provided with retaining means permitting it to be moved simultaneously upward and outward relative to said frame and having its exterior face roughened.

15. In an automatic numbering-machine, the combination of the machine-frame, numbering-wheels mounted thereon, means for operating said wheels, a removable side plate secured to said frame said plate tapering in thickness from top to bottom and having its exterior face roughened, said plate being removably attached to the frame by arc-shaped lugs extending from one of said parts and engaging corresponding arc-shaped recesses in the face of the other of said parts.

784,197. **HOLDER FOR LENSES OF EYEGLASSES, &c.** GEORGE H. WINSLOW, Bellevue, Pa. Filed Apr. 4, 1904. Serial No. 201,432.



Claim.—1. A lens grip or clamp having in combination two clamping members having at one end means for engaging the lens, and each provided with an inwardly-projecting lug, said lugs being so arranged as to form in conjunction with a portion of one of the members three sides of a pocket for the spring and nose-guard.

2. A lens grip or clamp having in combination two clamping members, each having at one end means for engaging the lens, and each having an inwardly-projecting lug, the lug on one member being arranged at the end thereof, said lugs being so arranged as to form in conjunction with a portion of one of the members three sides of a pocket for the spring and nose-guard.

3. A lens grip or clamp having in combination two clamping members provided at one end with means for engaging the lens, each member having an inwardly-projecting lug; the lug on one member being arranged at the end thereof, and the lug on the other member intermediate of its ends, said lugs being arranged to form in conjunction with a portion of one of the members three sides of a pocket for the spring and nose-guard.

4. A lens grip or clamp having in combination two clamping members provided at one end with means for engaging the lens, each having an inwardly-projecting lug, the lug on one member being arranged at the end thereof, said lugs being arranged to form a pocket for the reception of the spring and nose-guard, and an extension on one of said members projecting over the pocket for the spring and nose-guard.

5. A lens grip or clamp having in combination two clamping members each having means for engaging the lens, and each provided with inwardly-projecting lugs arranged at the ends of the members, the lug on one member being turned inward parallel or approximately so to the body of the member, said lugs being so arranged as to form a pocket for the spring and nose-guard.

6. A lens grip or clamp having in combination two clamping members each having means for engaging the lens and each provided with inwardly-projecting lugs so arranged as to form between them a pocket for the reception of the spring and an ear on the nose-guard, the lug on one member being formed by suitably bending the member at a point intermediate of its ends.

7. A lens grip or clamp having in combination two clamping members each having means for engaging the lens, a screw for drawing the clamping members together and a screw for moving one member longitudinally of the other, substantially as set forth.

8. A lens grip or clamp having in combination two clamping members adapted to bear on opposite sides of the lens, each member provided with an inwardly-projecting lug, said lugs being so arranged as to form between them a pocket for the spring and nose-guard and a screw for drawing said clamping members toward each other, substantially as set forth.

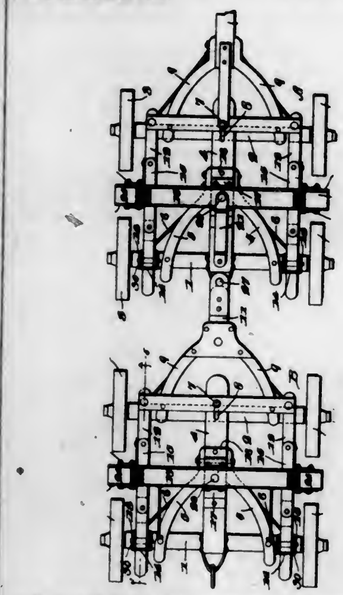
9. A lens grip or clamp having in combination two clamping members each provided with inwardly-projecting lugs arranged to form between them a pocket for the spring and nose-guard, a screw for drawing the members toward each other and a screw for drawing the lugs toward each other and clamping the spring and nose-guard, substantially as set forth.

10. A lens grip or clamp having in combination two clamping members adapted to bear on opposite sides of a lens, a screw for drawing said members toward each other, inwardly-projecting lugs on the members arranged to form a pocket for the reception of the spring and nose-guard, one of said lugs being formed with a resilient section and a screw passing through one lug and engaging the resilient section of the other lug, substantially as set forth.

784,198. **LOGGING-WAGON.** JAMES G. WOODS, Hattiesburg, Miss. Filed Oct. 29, 1904. Serial No. 230,543.

Claim.—1. A truck for logging-wagons including a rear axle, a front axle slidably connected therewith, slides pivotally connected with the front axle, and blocks upon said slides adapted to abut upon the front side of the rear axle.

2. A truck for logging-wagons including a rear axle, a reach firmly connected therewith, a front axle having slidable connection with the reach, and slides connected pivotally with the front axle and supported slidably upon the rear axle, said slides having members adapted to abut upon the front side of said rear axle when the front axle is moved rearward.



3. A truck for logging-wagons including a rear axle, a reach securely connected threwith, a front axle having slidable connection with the reach, slides connected pivotally with the front axle, supported slidably upon the rear axle and having members adapted to abut upon the front side of the latter, and slide-guiding flanges and retaining-yokes connected with the rear axle.

4. A logging-wagon including a plurality of trucks each comprising a rear axle, a reach firmly connected with said rear axle, a front axle slidably connected with the reach, and slides pivotally connected with the front axle, supported slidably upon the rear axle and having members adapted to abut upon the front side of the latter, hounds connected with the front axles, a tongue connected with the hounds of the front truck, and a coupling member connecting the hounds of the rear truck with the rear end of the reach of the front truck.

5. In a logging-wagon, a truck including a rear axle, a reach connected firmly with said rear axle, hounds and braces connecting said reach with the axle, a front axle having a bolt extending through and slidably connected with a slot in the reach, slides connected pivotally with the front axle supported slidably upon the rear axle, and having blocks to abut upon the front side of the rear axle and to establish rigid connection between the front and rear axles when the vehicle is backed, wear-plates upon said slides and upon the reach, a pivotal bolt extending through the reach, a yoke pivoted upon said pivotal bolt, a bolster mounted in the yoke, and wear-plates upon the under side of said bolster engaging the wear-plates upon the slides.

6. A truck for logging-wagons including a rear axle, a reach securely connected therewith, a front axle having slidable connection with the reach, slides connected pivotally with the front axle, rotary supporting means for said slides connected with the rear axle, blocks depending from the slides and adapted to abut upon the front side of the rear axle, and slide-retaining yokes upon the rear axle.

784,199. **NON-REFILLABLE BOTTLE.** ODAVILLE YATES, Portland, Oreg. Filed Oct. 11, 1904. Serial No. 228,036.

Claim.—1. In a non-refillable bottle, a body provided with an upstanding flange, a cap fitting over said flange and having a valve-seat in the top thereof, a frame depending from said cap, a casing secured to the lower end of said frame, a valve to close the seat, a jointed valve-stem piercing the said frame and the casing with the joint thereof adjacent to the top of said casing, a weight on the lower end of the valve-stem, and a controller-disk on the valve-stem below the joint thereof and loosely confined within said casing, whereby the edge of said disk acts as a fulcrum within the casing to exert a pull upon the valve-stem when the bottle is tilted.



2. In a bottle of the class described, the combination of a body portion having an upstanding inwardly-directed annular flange provided with inclined segments, a detachable neck having depending lugs to engage the inclined face of said segments and also having an annular chamber in the lower end thereof, a vertical flange on the top of the body portion projecting partially within the chamber of the neck, a valve mechanism having a cap fitted over said last-mentioned flange and provided with a valve-seat in its top, an annular sheath projecting from the top of said cap and inclosing the valve, a guard above said sheath, a frame depending from said cap, a casing secured to the lower end of said frame, a valve normally held seated on the top of said cap, a jointed valve-stem projecting through the frame and casing, a weight on the lower jointed end of the valve-stem, and a controller-disk secured to the valve-stem below the joint thereof and adapted to have a fulcrum within the casing when the weight falls to one side by the tilting of the bottle, whereby the valve will be held seated when the bottle is tilted, substantially as specified.

784,200. **WRENCH ATTACHMENT.** JOSEPH C. ZUMWALT, Clay Center, Nebr., assignor of one-half to Gilbert E. Stone, Harvard, Nebr., and Bertrum Gregg, Clay Center, Nebr. Filed July 14, 1904. Serial No. 216,564.



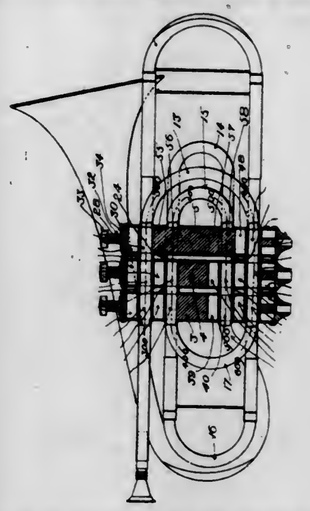
Claim.—1. An attachment for nut-wrenches consisting of a roller and a spring-metal ring pivotally connected to the same whereby said roller may be removably applied to the jaw of a nut-wrench to adapt the same for use as a pipe-wrench, substantially as described.

2. An attachment for nut-wrenches consisting of a cylindrical roller, having a "checkered" or serrated surface, bearing-sockets formed in the ends of said roller, a spring-metal ring having inwardly-bent ends adapted to engage said bearing-sockets and pivotally connect said ring with said roller, thereby forming means whereby said attachment may be removably connected to the inner jaw of said nut-wrench, substantially as and for the purposes set forth.

784,201. **BRASS BAND INSTRUMENT.** CLINTON H. BARRETT, Boston, Mass. Filed Dec. 12, 1902. Serial No. 134,888.

Claim.—1. A brass band instrument having pipes each of a different length arranged in pairs for producing different tones, the respective members of said pairs being situated in planes parallel with the vertical plane passing through the axis of the instrument and on opposite sides thereof, and valves adapted to divert the tone-vibration to either pipe of said pairs of pipes, respectively, to produce thereby change in tone, substantially as described.

2. A brass band instrument having pipes of different lengths arranged in pairs for producing different tones, the respective members of said pairs being situated in planes parallel with the vertical plane passing through the axis of the instrument on opposite sides thereof, and valves having their axes in the said plane and adapted to divert the tone-vibration to either pipe of said pairs of pipes, respectively, to produce thereby change in tone, substantially as described.



3. A brass band instrument having pipes of different lengths arranged in pairs for producing different tones, the respective members of said pairs being situated on opposite sides of the vertical plane passing through the axis of the instrument, and valves offsetting the line of direction of the tone-vibration and continuing it in a direction substantially parallel with its original direction, but at one side of said original line of direction, thereby effecting the substitution of a different length of pipe and producing a corresponding change of tone, substantially as described.

784,202. **MACHINE FOR CLEANSING AND GREASING BAKING-PANS.** ANDREW BERG and JAMES A. FRAY, Bridgeport, Conn., assignors to George H. Cliff and Charles H. W. Cliff, Philadelphia, Pa. Filed Nov. 29, 1904. Serial No. 234,725.

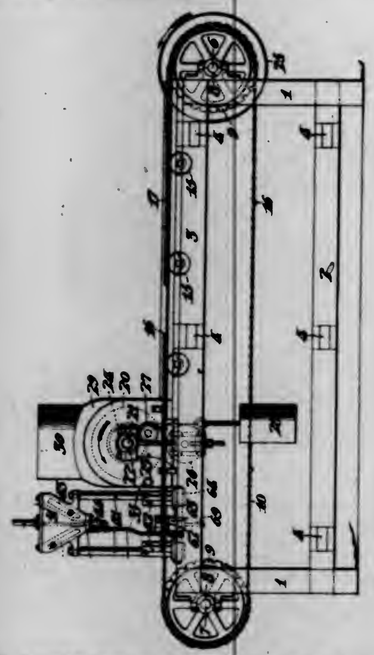
Claim.—1. A machine or apparatus of the character described, comprising means for conveying baking or other pans through the same, and mechanism for occasioning the discharge of oil or grease upon the said pans in a vaporized state.

2. A machine or apparatus of the character described, comprising a conveyer for conveying baking or other pans through the said machine, a movable lever with which the said pans are adapted to contact as they travel through the said machine, a grease or oil receptacle, and means for occasioning the discharge of the said grease or oil upon the said pans in the form of a vapor, the operation of the said means being occasioned by the movement of the said lever.

3. A machine or apparatus of the character described, comprising a conveyer for conveying baking or other pans through the said machine, a movable lever with which the said pans are adapted to contact as they travel through the machine, a device for occasioning the discharge of grease or oil in a vaporized state upon said pans, the said device comprising an oil or grease chamber, vaporizing nozzles communicating with the said chamber, valves for closing and opening the said nozzles, and means interposed between the said valves and the said lever to occasion movement of the said valves to open and close the said nozzles

4. A machine or apparatus of the character described, comprising a conveyer for conveying baking or other pans through the said machine, a movable bell crank lever with which said pans are adapted to contact as they travel through the machine, a device for occasioning the discharge of the grease or oil in a vaporized state upon the said pans, the said device comprising a grease or oil receptacle, a plurality of plugs extending through the bottom of the said receptacle, and the said plugs having perforations which communicate with the said receptacle, valves for closing and opening the said perforations, each of the said valves being provided with an arm or lever

which is secured thereto, a rod or bar connected to each of the said levers, and one of the said valves being provided with a second arm or lever, a link connected at one end to the last mentioned arm or lever and at its other end to one of the arms of the said bell-crank lever, the movement of the latter being occasioned by the passage of the pans through the machine or apparatus.



5. A machine or apparatus of the character described, comprising a conveyer for conveying baking or other pans through the said machine, means for discharging grease or oil in a vaporized state upon said pans, the said means comprising a grease or oil chamber which is provided with a plurality of vaporizing nozzles, the said nozzles being provided with perforations, pipes communicating with one of said perforations and extending upwardly through the grease or oil and communicating with a portion of the chamber above the level of the said grease or oil, means for conveying air under pressure to the interior of the said chamber, valves for closing said perforations in said vaporizing nozzles, and means for opening and closing said valves, the operation of the said means being controlled by the pans as they pass through the said machine.

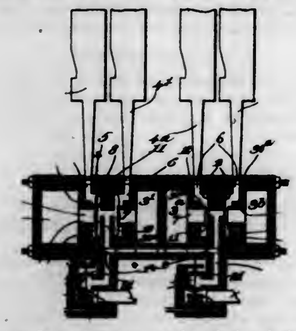
6. A machine or apparatus of the character described, comprising a conveyer for conveying baking or other pans through the said machine, means for discharging grease or oil in a vaporized state upon said pans, the said means comprising a grease or oil chamber which is provided with a plurality of vaporizing nozzles, each of the said nozzles being provided with a plurality of perforations, pipes communicating with one set or series of the perforations in the said nozzles, the said pipes extending upwardly through the grease or oil and communicating with a portion of the chamber above the level of the said grease or oil, means for conveying air under pressure to the interior of the said chamber, valves for closing the perforations through the vaporizing nozzles, a bell crank lever upon the frame of the machine, one of the arms of which is adapted to contact with the pans as they travel through the machine, and connecting means between the other arm of the said lever and the said valves whereby movement of the said bell crank lever occasions movement of the said valve to open and close the perforations in the vaporizing nozzles.

7. In a machine of the character described, in combination, a rotatable shaft, a lever rigidly secured to the said shaft, means for holding the said lever in position to engage the edge of the baking pans as they pass through the said machine, a second lever secured to the said shaft at an angle to the first named lever, a grease or oil receptacle, plugs provided in the bottom of the said receptacle, and each of the said plugs having perforations extending therethrough, valves for opening and closing the said perforations, arms connected to the said valves, a rod connecting the said arms together, a second arm connected to one of the said valves, and a link connecting the last mentioned arm with the second lever above named.

8. In a machine or apparatus for cleansing and greasing baking pans, in combination, a rotatable shaft, a lever rigidly secured to the said shaft, a projecting rod secured upon said lever, a coiled spring connected to the said rod and to the frame of the machine for holding the said lever in position to be engaged by the baking pans as they pass through the said machine, a second lever secured to the said rod at an angle to the first named lever, a grease or oil receptacle, plugs provided in the bottom of the said receptacle, each of the said plugs being provided with perforations, pipes secured in the ends of one set or series of the said perforations, the said pipes extending up through the oil to points above its upper level, valves for opening and closing the said perforations, the said valves being provided with arms, a rod connecting the said arms, and one of the said valves being provided with a second arm, and a link connecting the last mentioned arm and the second lever above named.

9. In a machine for cleansing and greasing baking pans, in combination, a grease or oil containing receptacle provided with plugs arranged in one wall thereof, each plug being provided with perforations, a series of pipes secured in one set or series of the perforations in the said plugs, the said pipes extending upwardly through the grease or oil in the receptacle to a point above its level, the said pipes being adapted to conduct air from the top of the said receptacle into and through the said perforations, caps secured upon the lower ends of the said plugs, each of the said caps being perforated, and each of the said caps inclosing a small space opposite the ends of the said plugs, valves for closing the said perforations, and mechanism for opening and closing the said valves, the operation of the said mechanism being controlled by the pans as they pass through the said machine.

784,203. ORGAN. JACOB BENIG, Boston, Mass., assignor of one-half to Mason & Hamlin Company, Cambridge, Mass., a Corporation of Delaware. Filed Jan. 23, 1903. Serial No. 140,286.



Claim.—1. In an organ, a sound-producing device, a valve-chamber communicating therewith, a wind-chest, a port leading from said wind-chest and terminating in an annular valve-seat which is located between the opposite walls of said valve-chamber, and a valve in said chamber to coact with said seat to control the communication between the wind-chest and the sound-producing device.

2. In an organ, a sound-producing device, a valve-chamber communicating therewith, a wind-chest, a port leading from said wind-chest and terminating in an annular valve-seat which is located between the opposite walls of said valve-chamber, and a diaphragm-valve in said chamber to coact with said seat to control the communication between the wind-chest and the sound-producing device, said valve being spaced from the walls of said chamber.

3. In an organ, a sound-producing device, a valve-chamber communicating therewith, a diaphragm-valve extending across said valve-chamber and located between and spaced from the opposite walls thereof, a port connecting the wind-chest and valve-chamber and terminating in a valve-seat coacting with said valve to control the communication between the wind-chest and sound-producing device, said valve-seat being situated between the planes of said walls of the valve-chamber.

4. In an organ, a sound-producing device, a valve-chamber, a flexible diaphragm extending across said chamber and dividing it into two compartments one of which communicates with the sound-producing device, a wind-chest, a port connecting the wind-chest and said last-named compartment of the valve-chamber, and terminating in a valve-seat located between the planes of the opposite walls of the valve-chamber and adapted to coact with the diaphragm, and means to control the air-pressure in the other compartment of the valve-chamber.

5. In an organ, a wind-chest, a valve-chamber, a sound-producing device communicating with the valve-chamber, a port connecting the wind-chest and the valve-chamber, an annular lip or flange surrounding said port and projecting into the valve-chamber, the end of said lip or flange constituting a valve-seat, and a valve to engage the seat and cut off communication between the wind-chest and sound-producing device.

6. In an organ, a wind-chest, a valve-chamber, a sound-producing device communicating with the valve-chamber, a port connecting the wind-chest and the valve-chamber, an annular lip or flange surrounding said port and projecting into the valve-chamber, the end of said lip or flange constituting a valve-seat, and a diaphragm-valve located between the opposite walls of the valve-chamber to engage the seat and cut off communication between the wind-chest and sound-producing device.

7. In an organ, a sound-producing device, a wind-chest, a valve-chamber, a diaphragm extending across and dividing said chamber into two compartments, one of which communicates with both the sound-producing device and the wind-chest, a lip or flange surrounding the port between the valve-chamber and wind-chest, and projecting into the valve-chamber, the end of said lip or flange constituting a valve-seat against which the diaphragm is adapted to seat to cut off communication between the wind-chest and sound-producing device.

8. In an organ, a sound-producing device, a wind-chest, a valve-chamber, a diaphragm extending across and dividing said chamber into two compartments one of which communicates with both the sound-producing device and the wind-chest, means to control the wind-pressure in the other of said compartments, a lip or flange surrounding the port between the wind-chest and valve-chamber and projecting into the latter, the end of said lip or flange constituting a valve-seat against which the diaphragm is adapted to seat to cut off communication between the wind-chest and sound-producing device.

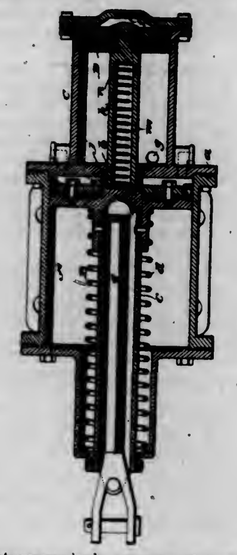
9. In an organ, a wind-chest, a valve-chamber, a sound-producing device connected with the valve-chamber, a port connecting the wind-chest and valve-chamber, a bushing in said port and extending into the valve-chamber, and a diaphragm-valve separated from the walls of the valve-chamber and adapted to be seated on the end of said bushing, said valve operating to control communication between the wind-chest and sound-producing device.

10. In an organ, a sound-producing device, a wind-chest, a valve-chamber having opposite parallel walls, a diaphragm extending across said chamber parallel to said walls and dividing the chamber into two independent compartments, a port connecting one compartment of the valve-chamber with the sound-producing device, another port connecting said compartment with the wind-chest, an annular flange surrounding said latter port and projecting into the valve-chamber and terminating in a valve-seat with which the diaphragm coacts.

11. In an organ, two sound-producing devices, a wind-chest, and a valve-chamber for each sound-producing device, a diaphragm extending across each valve-chamber and dividing it into two compartments, one compartment of each chamber communicating with the corresponding sound-producing device and also with the corresponding wind-chest, the other compartments of said valve-chambers communicating with each other, means to control the air-pressure in said last-named compartments, and a lip or flange surrounding the port leading from each wind-chest to the corresponding valve-chamber, and projecting into the latter, the end of said lip or flange constituting a valve-seat for the diaphragm.

784,204. FLUID-PRESSURE BRAKE. GEORGE W. BUTCHER, San Antonio, Tex. Filed Nov. 3, 1904. Serial No. 231,283.

Claim.—1. In a fluid-pressure brake apparatus, the combination of two cylinders each of which has a port for the admission of fluid-pressure, means movable in one cylinder under the action of fluid-pressure admitted thereto, and means disconnected from the first-mentioned means movable in the other cylinder, independently of said first-mentioned means, under the action of fluid-pressure admitted to said cylinder and arranged to bear against and move the first-mentioned device, packing on the second-mentioned device and in the first-mentioned cylinder, and a spring interposed between the said devices.



2. In a fluid-pressure brake apparatus, the combination of two cylinders having inlets for fluid under pressure, a device movable in one cylinder under the action of fluid-pressure admitted thereto, a device movable in the other cylinder under the action of fluid-pressure admitted thereto and extending into the first-mentioned cylinder and arranged to bear against and move the first-mentioned device, packing on the second-mentioned device and in the first-mentioned cylinder, and a spring interposed between the said devices.

3. In a fluid-pressure brake apparatus, the combination of two cylinders each of which has a port for the admission of fluid-pressure, means movable in one cylinder under the action of fluid-pressure admitted thereto, and means disconnected from the first-mentioned means movable in the other cylinder, independently of said first-mentioned means, under the action of fluid-pressure admitted to said cylinder and normally arranged in engagement with said first-mentioned means, whereby said first-mentioned means is enabled to directly impart movement to the second-mentioned means.

4. In a fluid-pressure brake apparatus, the combination of two cylinders each of which has a port for the admission of fluid-pressure, means movable in one cylinder under the action of fluid-pressure admitted thereto and extending into the other cylinder, and means disconnected from the first-mentioned means movable in the other cylinder, independently of said first-mentioned means, under the action of fluid-pressure admitted to said cylinder and arranged to be moved by the portion of the first-mentioned means which extends into the second-mentioned cylinder.

5. In a fluid-pressure brake apparatus, the combination of a brake-cylinder having a port for the admission of fluid-pressure, a piston movable independently in the said cylinder, an auxiliary cylinder having a port for the admission of fluid-pressure, a device movable in the latter cylinder and extending into the first-mentioned cylinder and arranged to bear against and move the piston, packing on the said device and in the first-mentioned cylinder, and a spring interposed between the piston and the said device.

6. In a fluid-pressure brake apparatus, the combination of a brake-cylinder having a port for the admission of fluid-pressure, a piston movable independently in the said cylinder, an auxiliary cylinder having a port for the admission of fluid-pressure, a piston movable in the latter cylinder and extending into the first-mentioned cylinder so as to bear against and move the first-mentioned piston, packing on the second-mentioned piston, within the first-mentioned cylinder, and a spring interposed between the pistons.

7. In a fluid-pressure brake apparatus, the combination of two tandem cylinders having an aperture between them and also having ports for the admission of fluid-pressure, a piston movable independently in one cylinder, a piston movable in the other cylinder and having a hollow rod extending through the aperture and into the first-

mentioned cylinder so as to bear against the first-mentioned piston, an enlargement on said rod and within the first-mentioned cylinder, packing carried by the rod at the inner side of the enlargement, and a coiled spring contained in the hollow rod and interposed between the pistons.

8. In a fluid-pressure brake apparatus, the combination of a cylinder having a port for the admission of fluid-pressure, a second cylinder having a port for the admission of fluid-pressure, means movable in one cylinder under the action of fluid-pressure admitted thereto and extending into the other cylinder, means movable in the other cylinder, independently of the first-mentioned means, under the action of fluid-pressure admitted to said cylinder and arranged to be moved by the portion of the first-mentioned means which extends into the second-mentioned cylinder, a spring interposed between the two means, and packing on the first-mentioned means, within the second-mentioned cylinder.

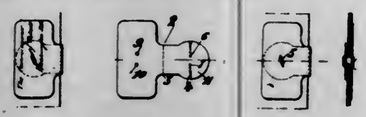
9. In a fluid-pressure brake apparatus, the combination of a brake-cylinder having a port for the admission of fluid-pressure, an auxiliary cylinder, having a port for the admission of fluid-pressure, means movable in the auxiliary cylinder under the action of fluid-pressure, and a piston movable in the brake-cylinder, independently of the means in the auxiliary cylinder, by fluid-pressure admitted to the brake-cylinder and arranged to be moved by the means in the auxiliary cylinder.

10. In a fluid-pressure brake apparatus, the combination of two tandem cylinders each of which has a port for the admission of fluid-pressure, a piston movable in one cylinder under the action of fluid-pressure admitted to said cylinder and extending into the other cylinder, and a piston movable in such other cylinder, independently of the first-mentioned piston, under the action of fluid-pressure admitted to the cylinder and arranged to be engaged by the first-mentioned piston.

11. In a fluid-pressure brake apparatus, the combination of two tandem cylinders each of which has a port for the admission of fluid-pressure, a piston movable in one cylinder under the action of fluid-pressure admitted to said cylinder and extending into the other cylinder, a piston movable in such other cylinder, independently of the first-mentioned piston, under the action of fluid-pressure to the cylinder and arranged to be engaged and moved by the first-mentioned piston, and a spring interposed between the two pistons.

12. In a fluid-pressure brake apparatus, the combination of two tandem cylinders each of which has a port for the admission of fluid-pressure, a piston movable in one cylinder under the action of fluid-pressure admitted to said cylinder and extending into the other cylinder, a piston movable in such other cylinder, independently of the first-mentioned piston, under the action of fluid-pressure admitted to the cylinder and arranged to be engaged by the first-mentioned piston, means for preventing the escape of fluid-pressure from the second-mentioned cylinder to the first-mentioned cylinder, and a spring interposed between the two pistons.

784,205. SAFETY-SEAL FOR NEWSPAPERS. EUGENE CIRJEAN, Paris, France. Filed Nov. 13, 1903. Serial No. 131,213.

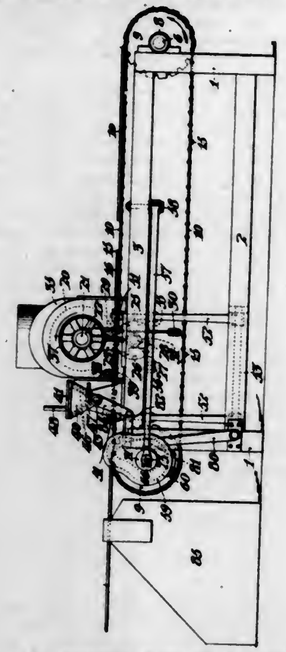


Claim.—1. The combination of a newspaper having a hole in it, and a safety-seal therefor, consisting of a strip of paper folded on the two faces of said newspaper, a metallic staple connecting the two opposing parts of said paper strip, and passing through said hole in said newspaper, substantially as described.

2. The combination of a newspaper having a hole in it, and a safety-seal therefor, consisting of a strip of paper folded on the two faces of said newspaper, a metallic staple connecting the two opposing parts of said paper strip, and passing through said hole in said newspaper, and a series of transverse holes within one bent part of the said paper strip, substantially as described.

3. The combination of a newspaper having a hole in it, and a safety-seal therefor consisting of a strip of paper folded on the two faces of said newspaper, a metallic staple connecting the two opposing parts of said paper strip, and passing through said hole in said newspaper, one part of said strip being of a form such that a name and address may be written on it, while the other has a series of transverse holes, substantially as described.

784,206. MACHINE FOR CLEANSING AND GREASING BAKING-PANS. GEORGE H. CLIFF and CHARLES H. W. CLIFF, Philadelphia, Pa. Filed Feb. 20, 1904. Serial No. 194,472.



Claim.—1. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, means for cleansing the said pans, a receptacle for containing grease in proximity to which the said pans are adapted to travel, the said receptacle being provided with passageways for the escape of said grease, means for opening and closing the said passageways, and mechanism for occasioning movement of the said means to open and close the said passageways, the said mechanism being controlled by the pans as they pass through the said machine.

2. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, means for cleansing the said pans, and means for applying grease to the said pans, the operation of the said greasing means being controlled by the pans as they pass through the said machine.

3. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing brush extending across the path of travel and adapted to contact with the said pans, an exhaust pipe having an enlarged end within which the said cleansing brush is located, the particles removed from the pans by the cleansing brush being withdrawn through the said exhaust pipe.

4. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a rotatable cleansing brush extending across the path of travel and adapted to contact with the said pans, an exhaust pipe having an enlarged end within which the said cleansing brush is located, the particles removed from the pans by the cleansing brush being withdrawn through the said exhaust pipe.

5. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, an exhaust pipe having an enlarged end underneath which the said pans are adapted to travel, a cleansing brush located in the enlarged end of the said exhaust pipe and adapted to contact with the surface of the said pan to cleanse the same, a grease holding receptacle underneath which the pans are adapted to travel after they have been cleansed, the said receptacle being provided with openings in its bottom for the passage of grease from the said receptacle, and means for opening and closing the said openings, the said means being controlled by the pans as they pass underneath the said receptacle.

6. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing brush extending across the path of travel of and adapted to contact with the said pans, an exhaust pipe having an enlarged end located over the said cleansing brush, and means located in proximity to the said brush for directing a blast of air against the said pans to assist in cleansing them and also to assist in forcing the particles which have been removed from the pans through the said exhaust pipe.

7. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing brush extending across the path of travel of and adapted to contact with the said pans, and means located in proximity to the said cleansing brush for directing a blast of air against the said pans.

8. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing brush extending across the path of travel of and adapted to contact with the said pans, means located in proximity to the said cleansing brush for directing a blast of air against the said pans, and means for applying grease to the said pans.

9. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing brush extending across the path of travel of and adapted to contact with the said pans, means located in proximity to the said cleansing brush for directing a blast of air against the said pans, and means for applying grease to the said pans, the operation of the said means being controlled by the pans as they pass through the said machine.

10. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing brush for the said pans, an exhaust pipe having an enlarged end within which the said brush is located, means located within the said enlarged end and in proximity to the said brush for directing a blast of air against the said pans, a grease holding receptacle in proximity to which the said pans are adapted to travel, the said receptacle being provided with openings for the passage of said grease, means for opening and closing the said openings, and mechanism for occasioning movement of the said means to open and close the said openings, a part of the said mechanism being adapted to contact with the pans as they pass through the said machine whereby the escape of the grease from the said receptacle is controlled by the pans.

11. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a grease holding receptacle in proximity to which the said pans are adapted to travel, the said receptacle being provided with a series of openings through which the grease contained in the said receptacle is adapted to pass, a valve for opening and closing the said openings, and means interposed between the said valve and the path of travel of the said pans for occasioning the opening and the closing of the said valve, the operation of the said means being controlled by the said pans.

12. In a machine of the character described, the combination of traveling conveyers for conveying baking or other pans through the said machine, movable means adapted to contact with and to be moved by the pans as they travel through the said machine, a grease holding receptacle underneath which the pans are adapted to travel, the said receptacle being provided with openings through its bottom through which grease is adapted to escape from the said receptacle, a valve for opening and closing the said openings, and means controlled by the movement of the said movable means for occasioning the movement of the said valve to open and close the said openings.

13. In a machine of the character described, the combination of conveyers for conveying baking or other pans through the said machine, movable members adapted to contact with one of the edges of the said pans as they travel through the machine, the said members being respectively mounted upon pivotal levers, a pivotal lever connected to said pivotal levers, a grease holding receptacle underneath which the said pans are adapted to travel, the said receptacle being provided with openings for the escape of grease from the said receptacle, a valve for opening and closing the said openings, a cam for occasioning movement of the said valve to open and close the said openings, and means for controlling the movement of the said cam, the said means being controlled by the last mentioned lever.

14. In a machine of the character described, the combination of a conveyer for conveying baking or other pans through the said machine, pivotally mounted means adapted to contact with and to be moved by one of the edges of the said pans as they travel through the said machine, a pivotally mounted lever having connection with the said pivotal means, a grease holding receptacle underneath which the said pans are adapted to travel, the said receptacle being provided with openings through which grease is adapted to escape from the said receptacle, a valve to open and close the said openings, a rotatable cam disk provided with a cam groove for opening and closing the said valve, means for occasioning the rotation of the said cam, the said means being controlled by the last mentioned lever, the said cam disk rotating and holding the said valve open during the time that a pan is passing underneath the said receptacle, and the said cam disk remaining stationary and holding the said valve closed when no pan is underneath the said receptacle.

15. In a machine of the character described, a conveyer for conveying baking or other pans through the said machine, movably supported means adapted to be engaged and moved by one of the edges of the said pans as they travel through the said machine, a grease holding receptacle underneath which the said pans are adapted to travel, the said receptacle being provided with openings through its bottom for the escape of the grease therefrom, a valve to open and close the said openings, and means interposed between the said valve and the said movable means for occasioning the movement of the said valve so as to open the same during the time that a pan is underneath the said receptacle, and to close the same when there is no pan underneath the receptacle.

16. In a machine of the character described, a conveyer for conveying baking or other pans through the said machine, movably supported means adapted to be engaged and moved by one of the edges of the said pans as they travel through the said machine, a grease holding receptacle underneath which the said pans are adapted to travel, the said receptacle being provided with openings through its bottom for the escape of the grease therefrom, a valve to open and close the said openings, and means interposed between the said valve and the said movable means, the said interposed means including a cam disk provided with a cam grpove and a series of levers, for occasioning the movement of the said valve so as to open the same during the time that a pan is underneath the said receptacle and to close the same when there is no pan underneath the receptacle.

17. In a machine of the character described, the combination of shafts located respectively at the opposite ends of said machine, conveying means supported upon and driven by the said shafts, the said conveying means adapted to support and convey baking or other pans through the said machine, a grease holding receptacle underneath which the said pans are adapted to be conveyed, the said receptacle being provided with openings in its bottom for the passage of grease therefrom, a valve to open and close the said openings, a normally stationary cam mounted upon one of the said shafts, the said cam when stationary holding the said valve in position to close the said openings, and means controlled by the movement of the pans through the said machine to occasion rotation of the said cam to open the said valve during the time that a pan is underneath the said receptacle.

18. In a machine of the character described, the combination of shafts located respectively at the opposite ends of the said machine, conveying means supported upon and driven by the said shafts, a grease holding receptacle underneath which the said pans are adapted to travel openings in the bottom of the said receptacle, and valves to open and close the said openings, a crank arm connected to the said valve, a normally stationary cam disk provided with a cam groove, a pivoted lever having a projection intermediate its ends which is adapted to engage the said cam groove, a link connecting the free end of the said lever and the said valve crank, and means controlled by the movement of the pans through the said machine to connect the said cam disk to the shaft upon which it is mounted to occasion rotation of the said cam disk whereby opening and closing of the said valve is occasioned.

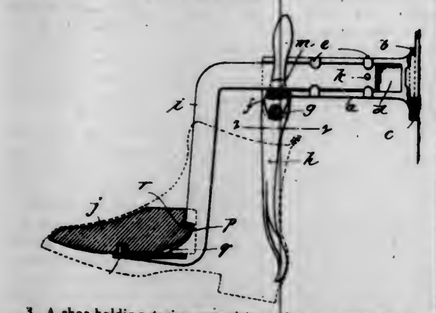
19. In a machine of the character described, the combination of means for conveying baking or other pans through the said machine, a cleansing device adapted to contact with the said pans, and means located in proximity to the said cleansing device for directing a blast of air against the said pans.

784,207. SHOE-HOLDING DEVICE. WILLIAM J. DUNN, Chicopee Falls, Mass. Filed Feb. 6, 1902. Serial No. 92,838.

Claim.—1. A shoe-holding device comprising a frame, a shoe-carrying arm slidable thereon, a heel-arm movable relatively to the frame and the shoe-carrying arm, and automatically-operating locking means between said shoe-carrying arm and said heel-arm, whereby the shoe-carrying arm may be locked by the operation of fitting a shoe on the device.

2. A shoe-holding device comprising a frame, a slidable shoe-

carrying arm supported thereon, a swinging heel-arm, and locking means between said shoe-carrying arm and heel-arm, whereby the contact of a shoe on said shoe-carrying arm with the heel-arm, will lock said shoe-carrying arm in its support.



3. A shoe-holding device comprising a frame, a movable shoe-carrying arm thereon, a movable heel-arm, and automatically-operating locking means between said shoe-carrying arm and said heel-arm, whereby the movements of said shoe-carrying arm and heel-arm, the one relative to the other, may effect the interlocking of said parts, by the act of fitting a shoe on the device.

4. In a shoe-holding device, a substantially horizontal frame, a shoe-carrying arm, one end of which is slidable on said frame, and another part of which is in a lower plane than said frame for entering the toe of a shoe; a heel-arm pivotally depending from said frame for entering the heel part of the shoe; a shoulder on said heel-arm for engagement with said shoe-carrying arm to lock it in the frame by the swinging movement of said heel-arm, imparted by the contact of the heel part of the shoe against said heel-arm.

5. In a shoe-holding device, a frame, a shoe-carrying arm, a toe-last on the latter for fitting the toe portion of the shoe, and means for removably securing the toe-last to said shoe-carrying arm consisting of a stud for engaging the sole of the toe-last, and a projection on the end of the last for engaging the shoe-carrying arm.

6. In a shoe-holding device, a frame, a shoe-carrying arm provided at its forward edge with a notch, and having a forwardly-porjecting portion provided with an upwardly-projecting stud near its forward end, and a toe-last having a slot at its rear end for receiving a part of the arm adjacent the notch thereof, having a rearward projection located within said slot between the upper and lower ends of the latter, and having a depression in its bottom, located forwardly relatively to said slot, within which depression the said stud engages.

784,208. COLLAPSIBLE TAP. FRANKLIN A. ERRINGTON, New York, N. Y. Filed Aug. 21, 1900. Serial No. 27,563.

Claim.—1. The combination of a body provided with a longitudinal succession of projections and indentures the outer ends of the body projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon said external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of said external thrust-faces through the medium of its oblique serrations during the cutting operation to bring the internal thrust-faces out of line with their respective associate external thrust-faces to permit the chaser to slide inwardly laterally of the body, substantially as described.

2. The combination of a body provided with a longitudinal succession of projections and indentures the outer ends of the body projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon said external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of said external thrust-faces through the medium of its oblique serrations during the cutting operation, the outer side of one of the projections of each chaser and the inner side of one of the projections in each of the series of body projections being provided with coacting stop-faces to arrest the outward movement of each chaser longitudinally of the body, substantially as described.

3. The combination of a body provided with a longitudinal succession of projections and indentures the outer ends of the body projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of said external thrust-faces through the medium of its oblique serrations during the cutting operation, and a spring adapted to press the chaser or chasers toward and retain said chaser or chasers in alinement with the axis of the body, substantially as described.

4. The combination of a body provided with a longitudinal succession of projections and indentures the outer ends of the body projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of said external thrust-faces through the medium of its oblique serrations during the cutting operation, and a spiral spring having its ends connected together, said spring surrounding the body and chaser or chasers and exerting a yielding pressure against the movement of the chaser or chasers outwardly radially of the body, substantially as described.

5. The combination of a body provided with a longitudinal succession of projections and indentures the outer ends of the body projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of said external thrust-faces through the medium of its oblique serrations during the cutting operation, and the spring being connected with the chaser or chasers to move in unison therewith longitudinally of the body, substantially as described.

6. The combination of a body provided with radial slots, chasers located in the slots and movable radially and longitudinally of the body, an abutment rigidly carried by the body and a spring surrounding the body and chasers, one of the edges of said last-named elements being rounded to enable said spring to coact with the abutment to form a yielding catch to regulate the movement of the chasers longitudinally of the body, substantially as described.

7. The combination of a body provided with radial slots, chasers located in the slots and movable radially and longitudinally of the body, an abutment rigidly carried by the body, a spring surrounding the body and chasers, one of the edges of said last-named elements being rounded to enable said spring to coact with the abutment to form a yielding catch to regulate the movement of the chasers longitudinally of the body, and a spring-guard interposed between the spring and the chasers at their intersections and meshing with the chasers to equalize their movements, substantially as described.

8. The combination of a body provided with a longitudinal succession of projections and indentures the outer ends of the body projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, means to adjust the external thrust-faces laterally of the body, and means to retain the external thrust-faces in position when adjusted, each chaser being adapted to be drawn longitudinally of the body independently of the external thrust-faces through the medium of its oblique serrations during the cutting operation, substantially as described.

9. The combination of a body having a longitudinal succession of projections and indentures the outermost surfaces of the projections providing external thrust-faces which are located upon cam-faces which slope transversely of the axis of the body inwardly from their outermost points to render said external thrust-faces adjustable, a chaser or chasers connected with the body to rotate in unison therewith and movable radially thereof, the inner surface of each chaser being provided with a corresponding succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, one of said parts provided with said succession of projections and indentures being movable longitudinally of the other of said parts so provided, means to adjust the location of said external thrust-faces along said cam-faces relatively to said chasers, and means to hold said cam-faces from rotation independently of body 1 during the collapsing operation, substantially as described.

10. The combination of a body having a longitudinal succession of projections and indentures the outermost surfaces of the projections providing external thrust-faces which are located upon cam-faces which slope transversely of the axis of the body inwardly from their outermost points to render said external thrust-faces adjustable, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon said external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of said external thrust-faces through the medium of its oblique serrations during the cutting operation, means to adjust the location of said external thrust-faces along said cam-faces relatively to said chasers, and means to hold said cam-faces from rotation independently of body 1 during the collapsing operation, substantially as described.

11. The combination of a body having an axial bore, a center piece located in the axial bore and provided with a longitudinal succession of projections and indentures the outer ends of the projections providing external thrust-faces, a chaser or chasers connected with the body to rotate in unison therewith and movable laterally and longitudinally thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon said external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, each chaser being adapted to be drawn longitudinally of the body independently of the external thrust-faces through the medium of its oblique serrations during the cutting operation, substantially as described.

12. The combination of a body having an axial bore, a center piece located in the axial bore and provided with a longitudinal succession of projections and indentures the outermost surfaces of the projections providing external thrust-faces which are located upon cam-faces which slope transversely of the axis of the body inwardly from their outermost points to render said external thrust-faces adjustable, and a chaser or chasers connected with the body to rotate in unison therewith and movable radially thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon said external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, one of said parts provided with said succession of projections and indentures being movable longitudinally of the other of said parts similarly provided, means to adjust the location of said external thrust-faces along said cam-faces relatively to said chasers, and means to hold said cam-faces from rotation independently of body 1 during the collapsing operation, substantially as described.

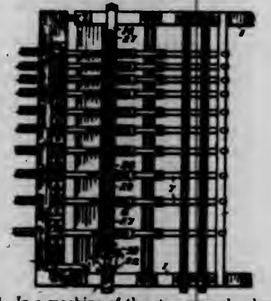
13. The combination of a body having an axial bore, a center piece located in the axial bore and provided with a longitudinal succession of projections and indentures the outermost surfaces of the projections providing external thrust-faces which are cammed transversely of the axis of the body inwardly from their outermost points to render said external thrust-faces adjustable, and a chaser or chasers connected with the body to rotate in unison therewith and movable radially thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, one of said parts provided with said succession of projections and indentures being movable longitudinally of the other of said parts similarly provided, and means to hold the center piece from rotation independently of the body in any one of a series of adjusted positions, substantially as described.

14. The combination of a body having an axial bore, a center piece located in the axial bore and provided with a longitudinal succession of projections and indentures the outermost surfaces of the projections providing external thrust-faces which are cammed transversely of the axis of the body inwardly from their outermost points to render said external thrust-faces adjustable, and a chaser or chasers connected with the body to rotate in unison therewith and movable radially thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, one of said parts provided with said succession of projections and indentures being movable longitudinally of the other of said parts similarly provided, the center piece having a screw-threaded projection, and a nut meshing with said screw-threaded projection and adapted to hold the center piece from rotation independently of the body in any one of a series of adjusted positions relatively thereto, substantially as described.

15. The combination of a body having an axial bore, a center piece located in the axial bore and provided with a longitudinal succession of projections and indentures the outermost surfaces of the projections providing external thrust-faces which are located upon cam-faces which slope transversely of the axis of the body inwardly from their outermost points to render said external thrust-faces adjustable, and a chaser or chasers connected with the body to rotate in unison therewith and movable radially thereof, the outer surface of each chaser being provided with serrations extending at an oblique angle to the axis of the body and the inner surface of each chaser having a longitudinal succession of projections and indentures the inner ends of the chaser projections providing internal thrust-faces that bear upon the external thrust-faces during the cutting operation and that pass within the plane of their respective associate external thrust-faces during the collapsing operation, one of said parts provided with said succession of projections and indentures being movable longitudinally of the other of said parts similarly provided, means to adjust the location of said external thrust-faces along said

cam-faces relatively to said chasers, and a set-screw carried by the body and adapted to hold the center piece from rotation independently of the body, substantially as described.

784,209. **WIRE-FENCE MACHINE.** PETER FRANTZ, Sterling, Ill. Filed Apr. 23, 1904. Serial No. 204,264.



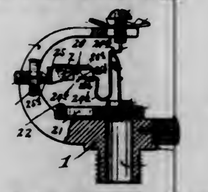
Claim.—1. In a machine of the class named, wherein the feed mechanism for the stay-wires is operated by means of a transverse oscillating bar coming in contact with a series of racks, a reciprocating bar supported on such oscillating bar, and adapted to reciprocate longitudinally thereof; a series of fingers, secured on said reciprocating bar; and means for suitably reciprocating said last-named bar, to bring said fingers alternately in and out of register with said series of racks at each successive operation of the feed mechanism, substantially as shown.

2. In a machine of the class named wherein the feed mechanism is operated by means of a transverse oscillating bar coming in contact with a series of racks, a reciprocating bar 26, located on said oscillating bar, so as to reciprocate thereon, and having a series of fingers 30; the spur-wheel 31, also secured on said oscillating bar, and provided on its upper face with the cam 33, in engagement with the end of the bar 26; and means for suitably operating the wheel 31, substantially as set forth.

3. In a machine of the class named the combination of the suitably-mounted bar 26, provided with fingers 30, the wheel 31, having the cam 33 on its upper face, engaging the end of the bar 26, and the arm 36, provided with the pin 37 adapted to engage and operate the wheel 31, substantially as described.

4. In a machine of the class named, the combination of the oscillating bar 16, the suitably-mounted racks 10, operated thereby; the bar 26, suitably supported upon the bar 16, so as to oscillate thereon; and provided with a series of fingers 30, the wheel 31, rotatably mounted on the bar 16, and provided with the cam 33, engaging the bar 26; and the suitably-mounted arm 36, provided with the pin 37, adapted to operate the wheel 31 upon the oscillation of the bar 16, substantially as shown and described.

784,210. **AUTOMATIC SPRINKLER.** CHARLES B. GARRETT, Minneapolis, Minn., assignor of one-half to Emma G. Garrett, Minneapolis, Minn. Filed Mar. 8, 1902. Serial No. 97,339.



Claim.—1. In an automatic sprinkler, the combination with a stopper normally closing the water-supply orifice, of a spring-strut normally holding said stopper in working position, and a fusible strut normally holding said spring-strut in working position, which two struts, when released are adapted to buckle with toggle actions, substantially as described.

2. In an automatic sprinkler, the combination with a stopper normally closing the water-delivery orifice, of a spring-strut yieldingly holding said stopper in position, said strut having a laterally-projecting finger or lug normally set under compression, and tending to buckle the toggle, by a strain which is additional to that produced by the endwise compresson strain on said strut, and a fusible strut or element normally holding said spring-strut in position, substantially as described.

3. The combination with a sprinkler having a water-supply orifice, of a stopper normally closing said orifice, means involving a fusible element, for holding said stopper in working position, other means tending to unseat said valve, but normally restrained, and an electric circuit having one or more elements applied to said stopper, whereby the condition of the circuit is adapted to be changed wher the said stopper is unseated, substantially as described.

4. The combination with a sprinkler-head having a water-delivery orifice, of a stopper normally closing said orifice, means involving a fusible element for normally holding said stopper in working position, and an electric circuit involving a metal plug seated in said stopper and detachably connected at its ends to the leads of said circuit, substantially as described.

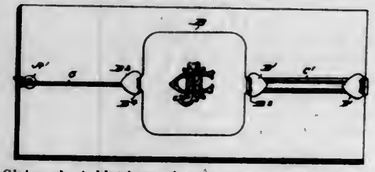
5. The combination with a sprinkler-head having a water-delivery orifice, of a stopper normally closing said orifice, and means for normally holding said stopper in working position involving the spring-strut and the fusible strut, said spring-strut comprising the sections 23 and 24, the former having the lug 23^a and the latter having the shoulder 24^a and depending spring-arm 24^b and said fusible strut involving the sections 25 and 26, the former having the cam-lug 25^b and the latter having the cam-surface 26^b, substantially as described.

6. The combination with the sprinkler-head having the water-delivery orifice, of a stopper normally closing said orifice and means for holding said stopper in working position involving the resistance-screw 4, the spring-strut reacting against said stopper and said resistance-screw, the split lug 6 supported from said sprinkler-head, the screw 7 working through said split lug and a fusible strut compressed between said screw 7 and said spring-strut and holding the latter in working position, substantially as described.

7. The combination with a sprinkler-head 1 having the orifice 2 and laterally-bowed yoke 3, of a lug projecting from the side of said yoke, a screw working through said lug, a stopper normally closing said orifice 2, and means for normally holding said stopper in working position involving a spring-strut, and a coöperating fusible strut, the latter of which is compressed between said spring-strut and said screw and stands to one side of a vertical line intersecting the said yoke 3, substantially as described.

8. The combination with the sprinkler-head having a water-delivery orifice, of a stopper normally closing said orifice, and means for holding said stopper in working position, involving a fusible strut made up of the channel-like section 26 and flat interposed section 25, said sections being soldered at *z*, the former having the cam-surfaces 26^b and the latter having the laterally-bent cam-lug 25^b, substantially as described.

784,211. **BLOTTING-PAD.** CHARLES J. HARMAN, San Francisco, Cal. Filed Oct. 6, 1903. Serial No. 175,979.



Claim.—1. A blotting-pad having a protection-piece of sheet material resiliently secured to the surface.

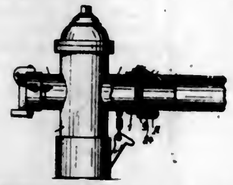
2. A blotting-pad having a protection-piece of sheet material secured to its surface by resilient bands.

3. A blotting-pad, a protection-piece of sheet material, and resilient bands extending between the protection-piece and the edges of the pad.

4. A blotting-pad, a protection-piece of sheet material, having ears extending from its edges and raised above its plane, and resilient members extending between said ears and the edges of the pad.

784,212. **HOSE-COUPLING.** MICHAEL HIRTH, Butler, Pa. Filed Aug. 26, 1904. Serial No. 222,218.

Claim.—1. The combination with a hydrant having a discharge-pipe on its side, of a removable member mounted on said pipe, a member carried by a section of hose and adapted to fit the member on the pipe, a cap attached to the hydrant, means carried by the member on the pipe for securing the two members together, said means being also adapted to secure the cap against the end of the member on the pipe.



2. The combination with a hydrant, of a member secured to said hydrant, a cap suspended from said hydrant, a member secured to a section of hose, means for hinging said member to the first-named member, means carried by the member on the hydrant for locking said members together, said locking means being adapted to lock said cap upon the first-named member when the last-named member is removed.

3. A coupling comprising two members, one member having a beveled lug on one side and a pierced lug on the other side, the other of said members having a lug on one side adapted to enter the pierced lug on the other member, and a pivoted locking-lever on the other side, said locking-lever being formed with a cut-away portion adapted to engage the beveled lug of the other member.

4. The combination with a hydrant having an integral threaded spout on one side, of a coupling member screwing on said spout, said coupling member having a rearwardly-curved lug on one side and a pivoted lever, having an undercut recess in its face, on the other side, and a second coupling member having a pierced lug on one side and a lug with a cam-surface on the other side, said last-named lug entering the recess in said lever when the two members are coupled together.

5. The combination with a hydrant having an integral threaded spout on each side and a coupling member screwing on each said spout, each coupling member having a rearwardly-curved lug on one side and carrying a pivoted lever having an undercut recess on its face, on the other side a coupling member carried by a hose and having a pierced lug on one side and a lug with a cam-surface on the other side, said pierced lug extending in alinement with the longitudinal axis of the member and the lug with a cam-surface entering the recess in the lever of one of the coupling members on the hydrant, and said hydrant being provided with a plurality of caps adapted to fit over and close the coupling members thereon when the said coupling members are not engaged by the member on the hose.

784,213. **TRACE-HOLDER.** CHRISTIAN HEILRATH, Sacramento, Cal. Filed July 19, 1904. Serial No. 217,368.



Claim.—1. The combination with a whiffletree, of an attachment-plate provided at its ends with inwardly-extending spurs engaging the whiffletree, a fastening device piercing the attachment-plate at a point between the spurs and securing the former to the whiffletree and retaining the spurs in engagement with the same, and a hook hinged to the attachment-plate adjacent to the fastening device.

2. A trace-holder, comprising a support provided with a lug, a hook pivoted to the lug and provided at its pivoted portion with a socket or opening, and a spring housed within the socket or opening and coöperating with the lug for holding the hook.

3. A trace-holder, comprising an attachment plate or support provided with a tapered lug, a hook pivoted to the lug and having a longitudinal socket, and a coiled spring housed within the socket and provided with means for engaging the opposite faces of the lug for holding the hook in its opened and closed positions.

784,214. **TRACE-HOLDER.** CHRISTIAN HEILRATH, Sacramento, Cal. Filed July 19, 1904. Serial No. 217,369.

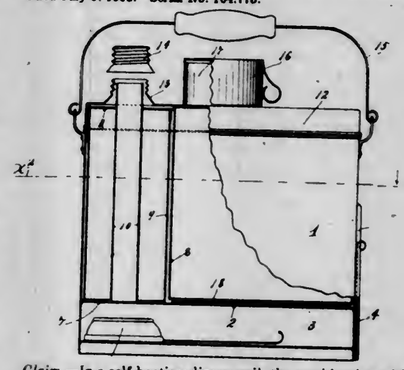
Claim.—1. The combination with a whiffletree, and a trace-receiving tongue extending into the whiffletree, of a support fitted against the end of the whiffletree and secured to the same by the tongue, and a trace-holding hook hinged to the support and coöperating with the tongue.



2. The combination with a whiffletree, and a tongue having a shoulder and provided with a shank extending into the whiffletree, of a support consisting of a plate having an opening to receive the shank and interposed between the shoulder of the tongue and the end of the whiffletree, said plate being also provided with a projecting lug, and a trace-holding hook pivoted to the lug and coöperating with the tongue.

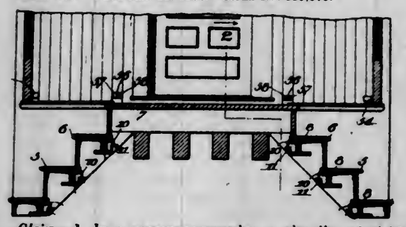
3. The combination with a whiffletree, of a support consisting of a plate fitted against the end of the whiffletree, a trace-receiving tongue piercing the plate and clamping the same against the whiffletree, and a hook pivoted to the support and coöperating with the tongue.

784,215. **DINNER-PAIL.** JAMES E. HUMPHREY, Aberdeen, S. D. Filed July 9, 1903. Serial No. 164,773.



Claim.—In a self-heating dinner-pail, the combination with the body 1 having the false bottom 2 perforated at 7 and formed below said false bottom with the combustion-chamber 3 open at one end, of the lamp 6 insertible into said combustion-chamber below said perforation 7, the can 9 resting on said false bottom over said perforation 7 and provided with the flue 10 passing vertically therethrough and terminating above the top thereof, and the pail-cover 12, having the sleeve 13 which telescopes over the projecting upper end of said flue 10 and is provided with the removable cap 14, substantially as described.

784,216. **PASSENGER-RECORDER.** CHARLES F. JACKSON, Sherman, Tex. Filed Jan. 20, 1904. Serial No. 189,878.



Claim.—1. In a passenger-recorder, a plurality of yieldable steps each having independent circuit-closing contacts, a plurality of imprinting devices, electromagnets controlling the movement of the imprinting members, said magnets being independently connected in circuits leading to the step-contacts, and electromagnetically-controlled operating means connected in series with certain of the electromagnets of the imprinting members and serving to feed the record-strip only at intervals with respect to the operation of the imprinting devices.

2. In passenger-recorders, a series of three movable steps each

having independent circuit-closers, three electromagnets connected one to each of the steps, imprinting devices operably connected to the armatures of the electromagnets, and means for imparting feeding movement to the record-strip after closing of the circuits controlled by the first and third steps.

3. In passenger-recorders, yieldable steps, movable doors or gates, independent contacts carried by the steps and doors and forming the terminals of electric circuits, electromagnets connected with the circuits, imprinting devices having operative connections with the armatures of said electromagnets, an auxiliary imprinting device, an operating-magnet therefor, a circuit in which the operating-magnet is connected, and contacts forming the terminals of said circuit, said contacts being moved to engaging position on the closing of the doors.

4. In passenger-recorders, a plurality of yieldable steps, a movable door or gate, independent contacts carried by the steps and doors, circuits of which the contacts form terminals, electromagnets connected in said circuits, imprinting devices operatively connected to the armatures of said electromagnets, and a battery-circuit connected to and forming a part of the magnet-circuit, said battery-circuit having terminals disposed adjacent to the door of the vehicle and arranged to break the circuit when the door is closed.

5. In a passenger-recorder for vehicles, a plurality of yieldable steps each having independent contacts, a door, contacts controlled thereby, circuits of which the contacts form terminals, electromagnets connected in said circuits, imprinting devices operatively connected to the armatures of said electromagnets, means for imparting a step-by-step movement to a record-strip, an auxiliary electromagnet, a printing member carried thereby for recording on the strip the stations at which the vehicle stops, an independent circuit for the magnet, said circuit having terminals that are movable into engagement by the closing of the vehicle-door, and a battery-circuit having terminals disposed adjacent to the door and movable to break the circuit when the door is closed.

6. In a passenger-recorder, a plurality of yieldable steps, contacts carried thereby and forming the terminals of independent circuits, a casing, a platen arranged in the casing, electromagnetically-actuating means for a recording-strip, an inked ribbon also movable over the platen, an electromagnetically-movable feeding means for the ribbon, a plurality of imprinting devices, and electromagnets for actuating the same, said electromagnets being disposed in the circuit of which the step-contacts form the terminals.

784,217. CLOTHES-LINE HOLDER. JOHN F. KOEPP, New Kensington, Pa., assignor of one-half to Frank W. Zillmer, New Kensington, Pa. Filed Sept. 13, 1904. Serial No. 224,990.

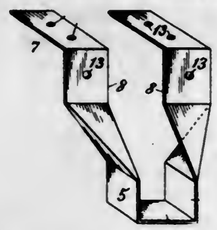


Claim.—The herein-described clothes-line holder comprising a hook having an eye at one end for connection with a post or other object, and formed with an opening at the inner end or point, an eccentric clamp member journaled to the point of said hook by a transverse rivet, said clamp member having a lever portion 7, and integral eccentric flanges adapted to embrace, and engage with the sides of the hook, and support the point of the same, thereby locking said clamp member against lateral movement, and radial recesses 9, formed in the inner faces of the eccentric flanges, adapted to engage the rope and lock the same within the hook, substantially as and for the purpose described.

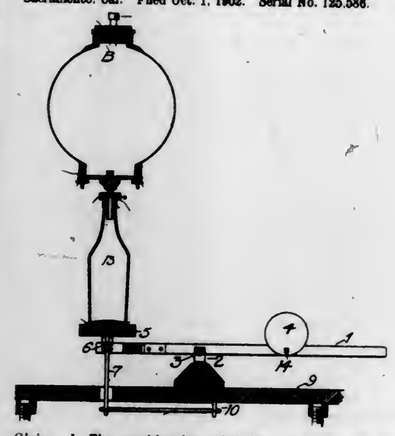
784,218. JOIST-HANGER. GEORGE LANE, Poughkeepsie, N. Y., assignor to Lane Brothers Company, Poughkeepsie, N. Y. Filed Sept. 21, 1904. Serial No. 225,363.

Claim.—1. A joist-hanger formed of a single piece of bar metal shaped to form a bottom member, side members having their lower ends disposed in parallel planes at right angles to the bottom member, their middle portions bent to form two angular surfaces, one inclined backward and increasing in width from below upward, and the other inclined outward and decreasing in width from below upward, and their upper ends disposed in the vertical plane occupied by the rear of the bottom member, and horizontally-disposed top members.

2. A joist-hanger formed of a single piece of bar metal shaped to form a bottom member, horizontally-disposed top members, and side members, the upper portions of which depend from the horizontal members and lie in the plane of the rear of the bottom member, and the lower portions of which bent at an angle, their fronts decreasing in width from the vertical portions of the side members toward the bottom member and their sides decreasing in width from the bottom member toward the vertical portions of the side members.



784,219. BOTTLE-FILLING MACHINE. FREDERICK J. LEWIS, Sacramento, Cal. Filed Oct. 1, 1902. Serial No. 125,586.



Claim.—1. The combination with the valve-seat and slotted nozzle, of an annular weight grooved in its lower face and surrounding the nozzle, a pin extending through the slot in the nozzle, and a valve-plug above the valve-seat and connected to said pin, substantially as described.

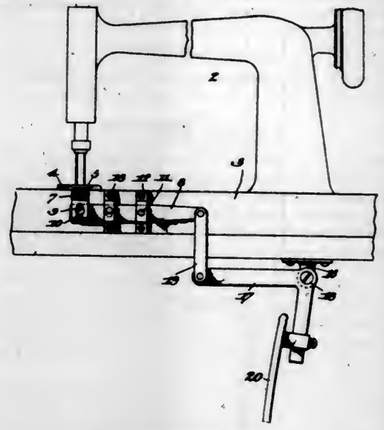
2. The combination of a tank and a filling-nozzle projecting downward therefrom, a valve in said nozzle, means connected to said valve by which a bottle-neck surrounding the nozzle opens the valve, a bottle-supporting platform under the nozzle, a lever on knife-edge bearings supporting said platform and means connected to the platform for retaining the same in substantially horizontal position.

3. The combination with a tank and filling-nozzle projecting downward therefrom, of a valve within the nozzle, a weight surrounding said nozzle and connected to said valve so as to lift the valve when the weight is lifted, a bottle-supporting platform under the nozzle, a lever supporting said nozzle on the knife-edge bearings, a pendant from said platform, a supporting-table through a hole in which the pendant passes, and a bar pivoted to said pendant and pivoted under the table.

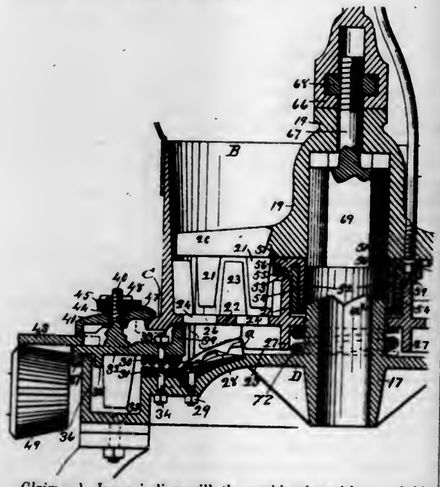
4. In combination with a filling-nozzle, a yielding platform having a cavity in its upper surface, and an annular plate having its inner edge extending over the cavity, whereby an elastic bottle-rest is attained.

784,220. STAY-CUTTING ATTACHMENT FOR SEWING-MACHINES. WILLIS L. MARSH, St. Louis, Mo. Filed Apr. 13, 1904. Serial No. 203,015.

Claim.—The combination with a sewing-machine, of a stay-guide carried thereby, a supporting-lever pivotally connected with the machine, a guide-clip attached to the machine and receiving the lever, one of said parts being provided with a guide-slot and the other with a projection engaging the slot, a stay-severing knife carried by and adjustable on the lever, an operating bell-crank lever, and operative connection between the operating and supporting levers.



784,221. GRINDING-MILL. JOHN G. MOLE, Batavia, Ill. Filed Dec. 30, 1901. Serial No. 87,802.



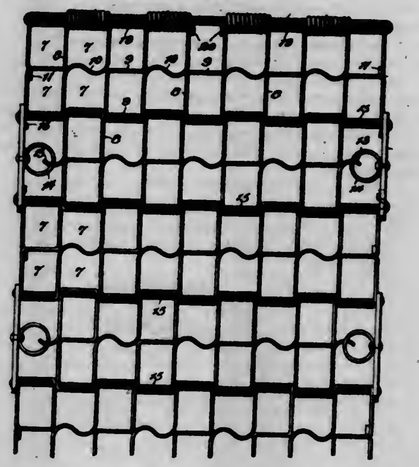
Claim.—1. In a grinding-mill, the combination with a revoluble diaphragm provided on the under side with radial arms presenting a concave reducing edge, of a toothed reducing-ring secured in a stationary position below said arms and presenting a spherical surface to the action of the superposed edges of the radial arms, substantially as set forth.

2. In a grinding-mill, the combination with the stationary bottom part of a supplemental grinding-ring recessed in said bottom part and set at an inclined angle, a perforated revoluble diaphragm provided with radial arms positioned above the grinding-surface of said ring, the grinding-rings proper, located outside of the supplemental ring, and the carrying-ring to which the upper grinding-ring or runner is secured, substantially as set forth.

3. In a grinding-mill, the combination with a revoluble casing, of a stationary base-casting provided with an annular chamber in the outer edge thereof, a supplemental grinding-ring recessed in said base and set at an inclined angle, the companion grinding-rings 30 and 31 means for supporting the ring 30 in its working position, and the driving-rim gear-wheel, substantially as set forth.

4. In a grinding-mill, the combination with a stationary hub, of a stationary upper bearing-ring provided with a sleeve part loosely surrounding said hub, means for locking said ring against a rotary movement, and a revoluble bottom bearing-ring provided with a sleeve loosely inclosing the corresponding part on the upper ring, said rings being retained in their relative bearing position by an annular groove formed in one ring and an engaging annular shoulder formed on the other ring, substantially as set forth.

784,222. MAT. THOMAS C. MCPHERSON, Beaverfalls, Pa. Filed Apr. 20, 1904. Serial No. 204,056.



Claim.—1. A mat consisting of a plurality of connected sections, one of said sections comprising a strip bent to form open meshes and comprising longitudinally-disposed webs, and transversely-disposed webs located between and at the ends of the section.

2. A mat consisting of a plurality of pivotally-connected sections, one of said sections comprising a single strip extending the length and width of the section, said strip being bent to form open meshes and comprising longitudinally-disposed webs, and transversely-disposed webs located at the ends of the longitudinally-disposed webs, said webs being located between and at the ends of the section.

3. A mat consisting of pivotally-connected sections, each section including a strip member extending the width and length of the section and bent to form open meshes comprising longitudinally-disposed webs, and transversely-disposed webs located between and at the ends of the section.

4. A mat consisting of pivotally-connected sections, each section being formed from a strip member that is bent to form open meshes, and comprising substantially parallel spaced sets of longitudinally-disposed webs extending but partially the length of the section, and transverse webs connecting the longitudinally-disposed webs.

5. A mat consisting of pivotally-connected sections, each section being formed from a strip member that is bent to form open meshes, and comprising substantially parallel spaced sets of longitudinally-disposed webs extending but partially the length of the section, and transverse webs connecting the longitudinally-disposed webs, certain of said transverse webs being curved.

6. A mat consisting of pivotally-connected sections, each section being formed of a single flat-sided strip bent to form open meshes, and spaced longitudinally-disposed sets of webs, the webs of each set being disposed in alinement, and the inner end of one web of each set being connected to the inner end of a web of the adjacent set by a reversely-curved transverse web, the terminals of the strip being provided with reduced tongues, and means for receiving said reduced tongues.

7. A mat consisting of sections comprising strips bent to form tortuous webs, pad-blocks located between the sections, and pivots connecting the blocks and sections.

8. A mat consisting of sections, said sections comprising strips bent to form tortuous webs, said sections being spaced apart, pad-blocks located in the spaces between the sections and overlapping the adjacent margins thereof, and pivot-rods passing through the overlapped blocks and sections.

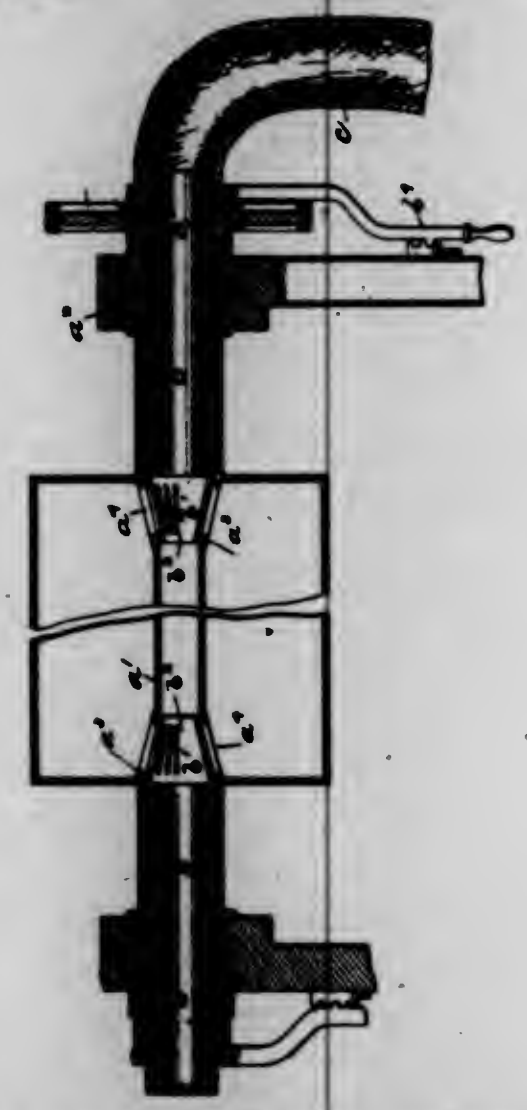
9. A mat consisting of a plurality of independent sections, one of said sections formed from a strip that is bent to form sets of loops, said sets being disposed side by side, and the loops of each set being located end to end forming longitudinally and transversely disposed webs.

10. A mat comprising pivotally-connected sections, each section being formed of sets of loops located side by side, and the loops of each set being disposed end to end, the adjacent corners of the loops being abutted.

11. A mat comprising pivotally-connected sections, each section being formed of sets of loops, the loops of each set being arranged end to end and having open sides, and the loops of the adjacent sets closing said open sides and abutting at the corners thereof.

12. A mat comprising pivotally-connected sections, each section being formed of sets of loops, the loops of each set being arranged end to end, and being furthermore constructed with their opposite sides alternately open and closed, and the closed sides of the sets of the adjacent loops extending across said open sides and closing the same.

784,223. PAPER-MAKING ROLL. HOWARD PARKER, Nashua, N. H., assignor to Improved Paper Machinery Company, Castine, Me., and Nashua, N. H., a Corporation of Maine. Filed June 1, 1903. Serial No. 159,526.



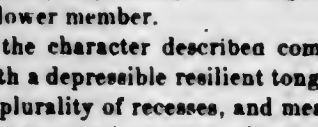
Claim.—1. A paper-making roll having a foraminous surface; a sleeve supporting said roll and having at each end non-cylindrical portions which are perforated; and plugs having perforated ends adapted in shape to the non-cylindrical portions of the sleeve, said plugs being independent of one another, as and for the purposes specified.

2. A paper-making roll supported on a suitable sleeve having oppositely-arranged non-cylindrical portions, independent plugs having ends adapted in shape to the oppositely-arranged non-cylindrical portions of the sleeve, and registering perforations in the non-cylindrical parts, substantially as described.

3. A paper-making roll having a foraminous surface, a supporting-sleeve therefor, plugs independent of one another located within said sleeve, non-cylindrical coacting bearing parts on the sleeve and plugs having registering perforations, said plugs being connected with a vacuum-pump or its equivalent, as and for the purpose set forth.

4. A roll having a foraminous surface, a tubular supporting-sleeve therefor, tubular plugs independent of one another located within said sleeve, and non-cylindrical coacting bearing-surfaces on the sleeve and on the plugs, a closure for the outer end of one of the plugs and a vacuum-pump or its equivalent attached to the outer end of the other plug, as and for the purposes set forth.

784,224. SHOE-FASTENING DEVICE. GEO. E. PIERCE, Providence, R. I. Filed Apr. 16, 1904. Serial No. 203,420.



Claim.—1. A device of the character described comprising a lower member having transverse locking-bars, an upper member adapted to slide on said lower member, and a resilient tongue carried by said upper member, said tongue being provided with means coacting with said lower member for automatically guiding the tongue between said bars and into engagement with the under sides thereof.

2. A device of the character described comprising a lower member having transverse locking-bars, and an upper member adapted to slide on said lower member and provided with a resilient tongue, said tongue being provided with a hook-like end coacting with said lower member to automatically depress the tongue into engagement with the bars of said lower member.

3. A device of the character described comprising a lower member having transverse locking-bars, and an upper member adapted to slide on said lower member and provided with a resilient tongue, said tongue being provided with a forwardly-inclined hook portion constructed to automatically engage the bars of said lower member.

4. A device of the character described comprising a lower member provided with inclined transverse locking-bars, and an upper member carrying a resilient tongue provided with means for automatically depressing the same between said bars and into engagement with the under side thereof.

5. A device of the character described comprising a lower member provided with inclined transverse locking-bars, and an upper member provided with a resilient tongue provided with a forwardly-inclined hook portion constructed to automatically engage said bars.

6. A device of the character described comprising a lower member, an upper member adapted to slide thereon, and a depressible resilient tongue carried by said upper member, the forward end of said tongue being provided with means coacting with said lower member for automatically depressing said tongue into locking engagement with said lower member.

7. A device of the character described comprising an upper member provided with a depressible resilient tongue, a lower member provided with a plurality of recesses, and means carried by the forward end of said tongue and coacting with the lower member to automatically depress the tongue into engagement with said recesses.

8. A device of the character described comprising an upper member provided with a resilient tongue having a forwardly-inclined hook, and a lower member provided with a plurality of recesses, and means for automatically guiding the hook end of said tongue into said recesses.

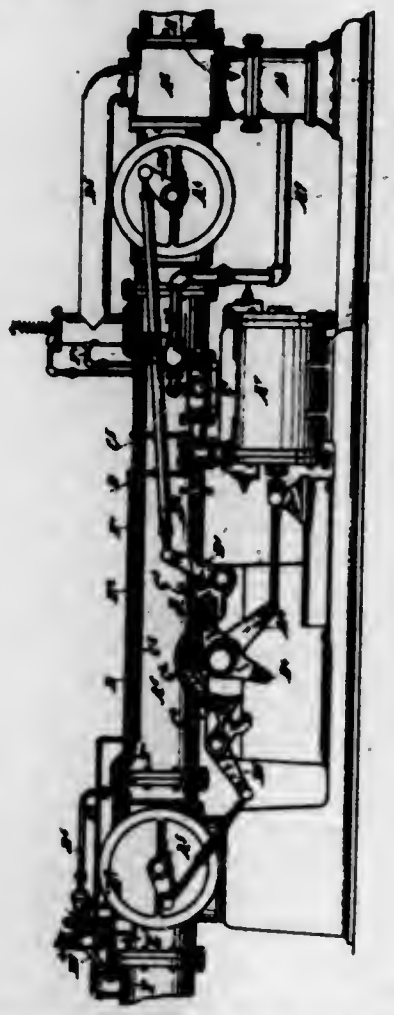
9. A device of the character described comprising a lower member, an upper member adapted to slide thereon and provided with a resilient locking-tongue having an inclined lip, said lower member being provided with transverse bars constructed to intercept the path of movement of said tongue as said upper member is slid forward to locking position.

10. A device of the character described comprising a lower member, an upper member adapted to slide thereon and provided with a resilient locking-tongue having an inclined lip, said lower member being provided with transversely-arranged inclined bars adapted to intercept the path of movement of said inclined lip as said upper member is slid forward to locking position.

784,225. PNEUMATIC-DESPATCH APPARATUS. OTTO S. PIKE, Malden, Mass., assignor to American Pneumatic Service Company, Dover, Del., a Corporation of Delaware. Filed Aug. 6, 1903. Serial No. No. 168,468.

Claim.—1. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, an air-supply

for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply to said cylinder for operating said piston, an air-supply for operating said cylinder-controlling valve, and a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction.



2. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, a locking device for holding said valves in the position to which they are moved by the operation of the piston, an air-supply for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply to said cylinder for operating said piston, an air-supply for operating said cylinder-controlling valve, and a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction.

3. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, a locking device for holding said valves in the position to which they are moved by the operation of the piston, an air-supply for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply to said cylinder for operating said piston, an air-supply for operating said cylinder-controlling valve, a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction, and mechanism operated by the pressure at the rear of the traveling carrier for operating said valve-operating mechanism to return said valves to their normal positions.

4. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, a locking device for holding said valves in the position to which they are moved by the operation of the piston, an air-supply for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply for operating said cylinder-controlling valve, a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction, and mechanism consisting of two vanes and operated by the pressure at the rear of the traveling carrier to operate said valve-operating mechanism to return said valves to their normal positions.

5. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, an air-supply for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply to said cylinder for operating said piston, an air-supply for operating said cylinder-controlling valve, and a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction, and mechanism operated by the pressure at the rear of the traveling carrier for operating said valve-operating mechanism to return said valves to their normal positions.

6. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmisison-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, a locking device for holding said valves in the position to which they are moved by the operation of the piston, an air-supply for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply for operating said cylinder-controlling valve, a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction, mechanism consisting of two vanes and operated by the pressure at the rear of the traveling-carrier to operate said valve-operated mechanism to return said valves to their normal positions, and means for normally holding said vanes against movement.

7. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing said terminal to the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a cylinder, a piston in said cylinder connected to said mechanism, a locking device for holding said valves in the position to which they are moved by the operation of the piston, an air-supply for operating said piston to move said valves, a valve operated by compressed air for controlling the flow of air from said air-supply for operating said cylinder-controlling valve, a valve controlling the air-supply which operates said cylinder-controlling valve and operated by the pressure in the terminal for moving the piston in one direction and actuated by air compressed by the traveling carrier for moving said piston in the opposite direction, mechanism consisting of two vanes and operated by the pressure at the rear of the traveling carrier to operate said valve-operating mechanism to return said valves to their normal positions, and yielding means for normally holding said vanes against movement.

8. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing communication between said terminal and the transmission-tube, a by-pass from said transmission-tube to said terminal, a valve normally closing said by-pass, means for holding said valve closed, a cylinder, a piston in said cylinder for operating said valve, a supply of compressed air for operating said piston, and means for controlling said air-supply to move said piston in opposite directions.

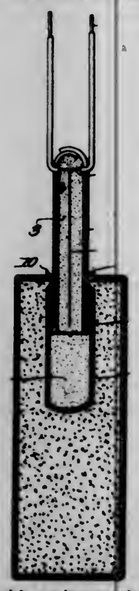
9. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing communication between said

terminal and the transmission-tube, a by-pass from said transmission-tube to said terminal, a valve normally closing said by-pass, means for holding said valve closed, a cylinder, a piston in said cylinder for operating said valve, a supply of compressed air for operating said piston, pipes for the compressed air leading to opposite sides of said piston, and means for controlling the supply of compressed air through said pipes to move the piston in opposite directions.

10. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing communication between said terminal and the transmission-tube, a by-pass from said transmission-tube to said terminal, a valve normally closing said by-pass, means for holding said valve closed, a cylinder, a piston in said cylinder for operating said valve, a supply of compressed air for operating said piston, pipes for the compressed air leading to opposite sides of said piston, and manually-operated valves for controlling the flow of compressed air through said pipes to move the piston in opposite directions.

11. In an apparatus of the character described, a terminal, a transmission-tube, a valve for closing communication between said terminal and the atmosphere and normally closed, a valve for closing communication between said terminal and the transmission-tube and normally open, mechanism common to said valves for operating the same, a by-pass from said transmission-tube to said terminal, a valve normally closing said by-pass, and means for holding said by-pass valve normally closed, the said by-pass valve being opened by the pressure in the transmission-tube through said by-pass when the valve between the terminal and the transmission-tube is closed and the valve between the terminal and the atmosphere is opened.

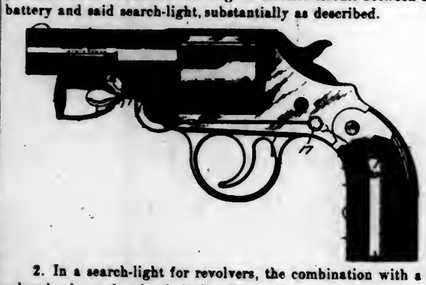
784,226. ELECTRICAL FUSE-PRIMER. FRANCIS M. QUINN, Silverking, Idaho. Filed Sept. 17, 1903. Serial No. 173,584.



Claim.—An electrical fuse-primer consisting of a wrapper containing a combustible material, the upper portion of the wrapper being split and the combustible material divided to form a passage, an electrical conductor comprising a wire having a portion of high resistance, such portion being disposed in the passage, the split ends of the wrapper being brought together over the wire, and a wrapping of waterproof material surrounding such split portions and the adjacent ends of the electrical conductor and serving to hold all of the parts in proper position.

784,227. SEARCH-LIGHT FOR REVOLVERS OR OTHER FIREARMS. BYRON C. RIDLEY, Spokane, Wash. Filed Aug. 1, 1904. Serial No. 219,126.

Claim.—1. In a search-light for revolvers, the combination with a revolver having a chamber in its handle, of a battery located in said handle and a spring-catch which holds said battery in place; a tapered rib upon each side of the barrel of said revolver; a search-light secured upon said barrel, comprising a reflecting-hood having a light-bulb in one end, and a lens in the opposite end; spring-plates on the sides of said hood having grooves which slide upon said tapered ribs and means for forming an electric circuit between said battery and said search-light, substantially as described.



2. In a search-light for revolvers, the combination with a revolver having a chamber in its handle, and a tapered rib on each side of its barrel, of a search-light secured upon the under side of said barrel comprising a reflecting-hood having spring-plates upon its sides, the upper ends of which are grooved and engage said tapered ribs; a lens in the front end of said hood, and a light-bulb at its rear end, having spring-terminals secured thereto, one of which contacts with the revolver; a battery secured in the chamber of said handle; a conductor extending from the battery-carbon to the metal portion of the handle; a circuit-wire which contacts at one end with the other light-terminal and is secured to a push-button at its other end; a conductor, one end of which lies in the path of the push-button, while its opposite end connects with the battery; said push-button being arranged to make or break an electric circuit between said battery and said search-light, substantially as shown.

3. A revolver having a chamber in the handle thereof; a battery in said chamber, a conductor connecting the battery-carbon with the metal portion of said handle; a search-light having spring-terminals, one of which contacts with a metal portion of the revolver while the other connects with a circuit-wire insulated from said revolver and being connected at its opposite end to a push-button, a conductor-plate, one end of which lies in the path of the push-button, while the other end connects with the battery and means for removably securing said search-light upon the barrel of said revolver, and said battery within the handle thereof, substantially as shown.

784,228. REGULATING AND INDICATING DEVICE FOR COMPRESSED AIR. CLARENCE H. RICHWOOD, Boston, Mass. Filed May 17, 1904. Serial No. 208,440.



Claim.—1. In a device of the character described, a cup-shaped casing having a wall of the opening thereof internally screw-threaded, and having a circular screw-threaded cover engaging in said opening, and having a duct formed within the thickness of the cover and terminating in a port at the inner side thereof, a valve-disk having a series of variably-sized holes in circular arrangement, and adapted according to the rotary adjustment of such disk to register with the aforesaid port, and means for turning the disk.

2. In a device of the character described, a cup-shaped casing having the annular wall thereof internally screw-threaded, and having a circular threaded cover, screw-engaging in said opening, and having a duct formed within the thickness of the cover and terminating in a port at the inner side thereof, a valve-disk located at the inner side of said cover, provided with a stem extending through a central opening which is formed therefor through the cover, and having means for turning it, and said disk, having a series of variably-sized holes in circular arrangement, any one of which, according to the rotary adjustment of the valve-disk, may be brought to register with the aforesaid port.

3. In a device of the character described, a cup-shaped casing having the annular wall thereof internally screw-threaded, and having a circular threaded cover, screw-engaging in said opening, and having a duct formed within the thickness of the cover and terminating in a port at the inner side thereof, a valve-disk having a series of variably-sized holes in circular arrangement, and adapted, according to the rotary adjustment of such disk, to register with the aforesaid port, means for turning the disk and a spring in compression and reacting against said disk, for the purposes set forth.

4. In a device of the character described, a cup-shaped casing provided with an inlet-opening, having the annular wall thereof internally screw-threaded, and having a circular threaded cover screw-engaging in said opening, and having a duct formed within the thickness of the cover terminating inwardly in a port at the inner side of the casing, and outwardly terminating in a channel within the face, and leading to the edge, of the cover, a valve-disk located at the inner side of said cover, provided with a stem extending through a central opening which is formed therefor through the cover, and having a series of variably-sized holes in circular arrangement for registry with the aforesaid port, and a circular plate having indicating characters corresponding to the variably-sized and circularly-arranged holes, secured on the said stem, and bearing on the outer side of the cover.

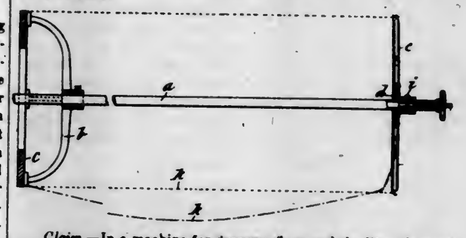
5. In a regulating device for compressed air, the cup-shaped casing provided with an inlet-opening, having the annular wall thereof internally screw-threaded and having a circular threaded cover screw-engaging in said opening, provided with a duct formed within the thickness of the cover, terminating inwardly in a port at the inner side of the latter, and said cover being formed at its inner side with a circular cavity, a valve-disk located within said cavity provided with a stem extending through a central opening therefor, through the cover, and having a series of variably-sized holes in circular arrangement for registry with the aforesaid port and a circular plate secured on the outer end of said stem and overlying the cover.

6. In a regulating device for compressed air, the cup-shaped casing provided with an inlet-opening, having the annular wall thereof internally screw-threaded, a circular edgewise-threaded cover screw-engaging in said opening, having a marginal flange overlying the top edge of the casing-wall, provided with a duct formed within the thickness of the cover, terminating inwardly in a port at the inner side of the latter, and said cover being formed at its inner side with a circular cavity, having a disk of rubber or like compressible material provided with an aperture registering with said port, and means for preventing the rubber disk from turning, a valve-disk located within said cavity, and against said rubber disk, provided with a stem extending through a central opening therefor, through the cover, and having a series of variably-sized holes in circular arrangement for registry with the aforesaid port, and a circular plate secured on the outer end of said stem and overlying the cover.

7. In a regulating device for compressed air, the cup-shaped casing provided with inlet and outlet conduits for compressed air, having the annular wall thereof internally screw-threaded, and having at its bottom a central upstanding stud or boss, a circular threaded cover screw-engaging in said opening, provided with a duct formed within the thickness of the cover terminating inwardly in a port at the inner side of the latter, and said cover being formed at its inner side with a circular cavity, a valve-disk located within said cavity provided with a stem extending through a central opening therefor, through the cover, and having a series of variably-sized holes in circular arrangement for registry with the aforesaid port, a circular plate secured on the outer end of said stem and overlying the cover, and a spiral spring engaging and retained in place by said boss and having a bearing under compression against the valve-disk.

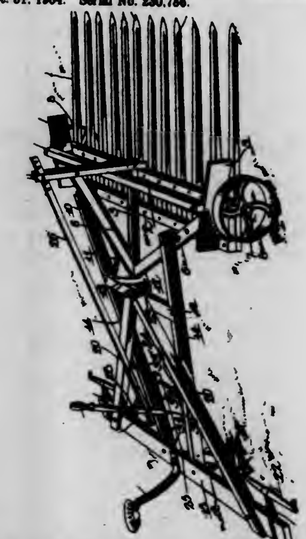
8. In a regulating device for compressed air, the cup-shaped casing provided with an inlet-opening, having the annular wall thereof internally screw-threaded, a circular edgewise-threaded cover screw-engaging in said opening, having a marginal flange overlying the top edge of the casing-wall, provided with a duct formed within the thickness of the cover, terminating inwardly in a port at the inner side of the latter, and said cover being formed at its inner side with a circular cavity, having a disk of rubber or like compressible material provided with an aperture registering with said port, and means for preventing the rubber disk from turning, and a ring of rubber between the edge of the cup-shaped casing and the cover-flange, a valve-disk located within said cavity and against said rubber disk, provided with a stem extending through a central opening therefor, in the cover, and having a series of variably-sized holes in circular arrangement for registry with the aforesaid port, the spring between the bottom of the casing and the valve-disk, and a circular plate secured on the outer end of said stem and overlying the cover.

784,229. MACHINE FOR DRESSING OR SEPARATING FLOUR, &c. HENRY J. P. ROSE, Chesham, England. Filed May 6, 1904. Serial No. 206,634.



Claim.—In a machine for dressing flour and the like, the combination of a loose cloth or cover attached at one end to a rigid ring and at the other end to a series of spring-arms; the reel-shaft, the rigid head secured to or mounted on the shaft at one end, and the spring-arms at the other, substantially as described.

784,230. HAY-RAKE. SAMUEL ROTH, Winnemucca, Nev. Filed Oct. 31, 1904. Serial No. 230,786.



Claim.—1. A tilting wheel-supported rake-head having upright members, a rearwardly-extending longitudinal bar and braces connecting the latter with the ends of the rake-head and with the upright member, and a curved ratchet-bar positioned in rear of the longitudinal bar, in combination with a frame having side members hingedly connected with the rake-head, rotary supporting means for the rear end of said frame, a latch member upon said frame engaging the ratchet-bar connected with the rake-head, and means for tilting the latter.

2. A tilting wheel-supported rake-head having upright members and provided with a curved ratchet-bar, a frame having side members connected hingedly with the rake-head, rotary supporting means for the rear end of said frame, a latch connected with the latter and engaging the ratchet-bar, a hand-lever having a transversely-disposed fulcrum-pin, a pair of bars connected with the frame and provided with a plurality of notches for the fulcrum-pin of the lever, and connecting means between the latter and the upright members upon the rake-head.

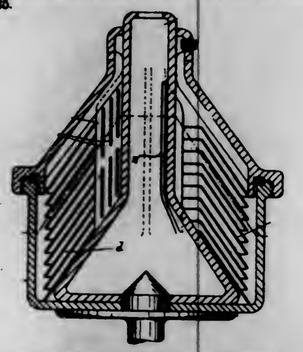
3. In a hay-rake, a tilting, wheel-supported rake-head having an upright, a frame hingedly connected with said rake-head, a ratchet-bar upon the rake-head, a latch upon the frame engaging

said ratchet-bar, means for operating the latch, and means for tilting the rake-head.

4. In a hay-rake, a tilting, wheel-supported rake-head having an upright, a frame hingedly connected with said rake-head, rotary supporting means for said frame, a ratchet-bar upon the rake-head, a latch upon the frame engaging said ratchet-bar, a hand-lever having a shiftable fulcrum upon the frame, and connecting means between said lever and the upright upon the rake-head.

5. In a hay-rake, a tilting, wheel-supported rake-head having an upright and a ratchet-bar, a frame hingedly connected with said rake-head and having a spring-latch engaging said ratchet-bar, means for operating said latch, a hand-lever having a shiftable fulcrum upon the frame, a rod pivotally connecting said lever with the upright upon the rake-head, a segment-rack upon the connecting-rod, and a dog upon the hand-lever engaging said segment-rack.

784,231. **CENTRIFUGAL SEPARATING APPARATUS.** ERIC G. N. SALENIUS, Stockholm, Sweden. Filed Oct. 24, 1904. Serial No. 229,735.



Claim.—1. In a centrifugal separator comprising a separating-bowl provided with inclined division-plates, the combination with a central feed-inlet for the compound liquid, extending vertically through the bowl, of lateral chambers communicating throughout their length with said inlet, the rear walls of the chambers having outlet-orifices arranged to permit the passage therethrough of the separated particles as grouped by centrifugal action.

2. In a centrifugal separator of the class described, in combination, a central, vertical feed-inlet for the compound liquid, extending the length of the bowl, and lateral, upright chambers communicating at their inner sides with the inlet, the rear walls of the chambers having outlet-orifices, to maintain the separation of the particles of the compound liquid effected by centrifugal action in the feed-inlet.

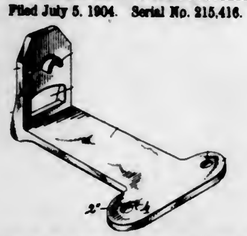
3. In a centrifugal separator comprising a separating-bowl having inclined division-plates extending from near its periphery upward and inward toward its axis, in combination, a vertical feed-inlet for the compound liquid, coaxial with the bowl and extended thereinto, lateral chambers communicating at their inner sides with the inlet, and provided with outlet-orifices in their rear walls, opening into the spaces between the division-plates and arranged to permit exit of the separated particles from the chambers in the grouping effected by centrifugal action within the inlet.

4. In a centrifugal separator comprising a separating-bowl having inclined division-plates extending from near its periphery upward and inward toward its axis, in combination, means to introduce the compound liquid into the bowl at the center thereof and to distribute the liquid between adjacent division-plates, and means to prevent commingling of particles separated by centrifugal action upon the incoming compound liquid at the center of the bowl.

5. In a centrifugal separator comprising a separating-bowl having inclined division-plates extending from near its periphery upward and inward toward its axis, in combination, a vertical tubular inlet for the compound liquid, coaxial with the bowl and extended thereinto, upright distributing-chambers extended laterally from said inlet and communicating therewith throughout their length, the rear walls of the chambers having outlet-orifices communicating with the spaces between the division-plates, and upright walls extended radially from the inlet behind the rear walls of the said chambers.

6. In a centrifugal separator comprising a separating-bowl having inclined division-plates extending from near its periphery upward and inward toward its axis, in combination, a vertical tubular inlet for the compound liquid, coaxial with the bowl and extended thereinto, upright distributing-chambers extended laterally from and communicating with said inlet throughout their length, the rear wall of each chamber being radial with relation to the bowl, said rear walls having outlet-orifices for the passage of particles in the separation or grouping effected in the tubular inlet by centrifugal action.

784,232. **ASTRAGAL BRACKET.** ROBERT N. SCHALKENBACH, Jersey City, N. J. Filed July 5, 1904. Serial No. 215,416.



Claim.—1. A device of the class herein described comprising a base and an upright member conjoined with said base, said upright member having an upwardly-bowed or arched clip at the rear face thereof, substantially as herein specified.

2. A device of the class herein described comprising a base having laterally-projecting tongues at the opposite side edges thereof, and an upright member conjoined with said base, said member having at the rear face thereof a rearwardly-projecting clip, substantially as herein specified.

3. A device of the class herein described comprising a base having laterally-projecting tongues at the opposite side edges thereof, and an upright member conjoined with said base, said member having an opening at the lower portion thereof and a rearwardly-projecting clip at the rear face thereof, substantially as herein specified.

4. A device of the class herein described comprising a base having laterally-projecting tongues at the opposite side edges thereof, and an upright member conjoined with said base, said member having an opening at the lower portion thereof, a rearwardly-projecting clip at the rear face thereof, and vertical webs, one at each side of said opening, substantially as herein specified.

5. A device of the class herein described comprising a base and an upright member conjoined with said base, said member having an opening at the lower portion thereof and vertical webs, one at each side of said opening, substantially as herein specified.

6. In combination with an astragal, a bracket comprising a base and an upright member, the latter having at its rear face a clip adapted to engage said astragal away from the bottom portion thereof, and having an opening to permit the escape of water of condensation flowing from said astragal, substantially as herein specified.

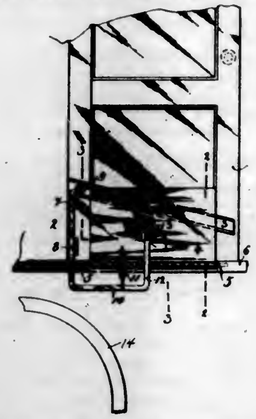
7. In combination with an astragal, a bracket comprising a base having tongues at the opposite side edges thereof, and an upright member conjoined with said base, said member having a rearwardly-projecting clip for engaging said astragal, and an opening to permit the escape of water of condensation flowing from said astragal, said tongues projecting laterally each beyond the adjacent side of said astragal, substantially as herein specified.

8. In combination with an astragal having a vertical web, a bracket comprising a base having tongues at the opposite side edges thereof, and an upright member conjoined with said base, said member having an opening to permit the escape of water of condensation flowing from said astragal, an upwardly-bowed or arched clip at the rear face thereof, said clip being adapted to straddle the adjacent segment of the upper portion of said astragal web, and having vertical webs, one at each side of said opening, the tongues aforenamed projecting each laterally beyond the adjacent side of said astragal, substantially as herein specified.

784,233. **EXTENSIBLE CAR-PLATFORM.** CAMPBELL SCOTT, East Orange, N. J. Filed Dec. 30, 1904. Serial No. 238,909.

Claim.—1. A car-door, a platform and mechanism connecting them, consisting of means for operating the platform upon closing the door and resilient means for operating the platform when opening the same.

2. A car-door, a pivoted platform and mechanism connecting them, consisting of positive means for raising the platform simultaneously with the closing of the door, and resilient means for lowering the platform simultaneously with the opening of the door.

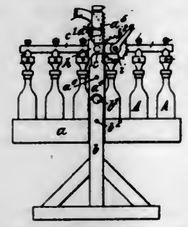


3. A sliding car-door and its casing in combination with a platform, mechanism connecting the door and platform consisting of positive means for lifting the platform upon closing the door, and means for lowering the platform and operated by the opening of the door.

4. A sliding car-door and its casing, a slide-groove in said door, in combination with a pivoted platform, a rod having a roller upon which the slide-groove bears, and a spring connecting the platform and rod.

5. In combination, a car-door sliding within a casing, said door being located inwardly of the outer surface of said casing whereby a recess is formed, a platform adapted to fold up into said recess when said door is closed, and means operated by the closing and opening of said door for raising and lowering said platform.

784,234. **BOTTLE-FILLING MACHINE.** OTTO SELG, New York, N. Y. Filed Nov. 7, 1904. Serial No. 231,652.



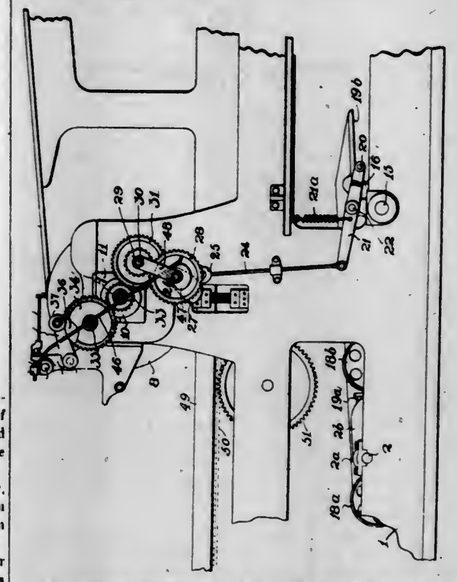
Claim.—1. A bottle-filling machine provided with a reversible bottle-receiving case, a filler, a nozzle on the filler having a valve-chamber, a drop-valve movable within said chamber by the reversal of the case, and means for coupling the filler to the case, substantially as specified.

2. A bottle-filling machine provided with a reversible bottle-receiving case, a filler, a nozzle on the filler having a valve-chamber, a tubular drop-valve movable within said chamber by the reversal of the case, a vent-pipe communicating with the bore of the valve and adapted to be projected into the bottle, and means for coupling the filler to the case, substantially as specified.

3. A bottle-filling machine provided with a reversible case having a series of compartments, a filler composed of a series of parallel pipes and a connecting-pipe, nozzles having valve chambers and projecting from the filler, drop-valves movable within the chambers by the reversal of the case, and means for coupling the filler to the case, substantially as specified.

784,235. **PRINTING APPARATUS.** HARRY SMITH, Philadelphia, Pa. Filed June 29, 1904. Serial No. 214,578.

Claim.—1. A printing mechanism having a revolving cylinder, an eccentric support therefor, in combination with automatic means for rocking said support and thereby holding said cylinder out of printing contact during successive revolutions and in printing contact during a single revolution alternating with said successive revolutions, substantially as specified.



2. A printing mechanism having a revolving cylinder, an eccentric support therefor, and a reciprocating indicating device, in combination with automatic means for rocking and thereby holding said cylinder out of printing contact during successive revolutions, and means for throwing said indicating device and holding it during successive revolutions of said cylinder, substantially as specified.

3. A printing mechanism having a revolving cylinder, a gear-train for revolving said cylinder, automatic means comprising a cam revolving synchronously with said gear-train and a reciprocating rod operated by said cam for throwing and holding said cylinder out of printing contact during successive revolutions and in printing contact during a single revolution, in combination with an indicating device, and means for throwing said indicating device and holding it during successive revolutions of said cylinder, substantially as specified.

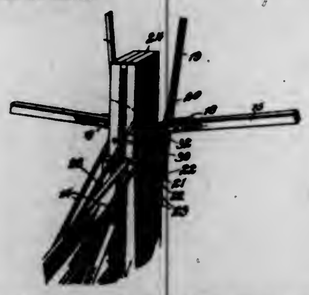
4. A printing mechanism having a revolving cylinder, automatic means for elevating and lowering said cylinder, said means comprising a cam and tripping devices operated thereby, an indicating device, and cam mechanism for throwing and holding said indicating device during successive revolutions of said cylinder, said indicating device occupying a second position during revolutions of said cylinder alternating with said successive revolutions, substantially as specified.

5. A printing mechanism having a revolving cylinder, a reciprocating type-bed, automatic means for throwing said cylinder into and out of contact with said type-bed, said means comprising a cam and tripping devices operated thereby, a revolving cam connected with said cylinder, an indicating device, and a rod connected with and operating said indicating device, said rod being operated by said cam, substantially as specified.

6. A printing mechanism having a revolving cylinder, an eccentric bearing for said cylinder, mechanism for revolving said bearing, a revolving cam connected in operative relation to said cylinder, and mechanism operated by said cam for disconnecting the mechanism for revolving said bearing, substantially as specified.

7. A printing mechanism having a revolving cylinder, means for revolving said cylinder, an eccentric bearing for said cylinder mechanism for revolving said bearing, a cam operated by the means for revolving said cylinder, a reciprocating rod operated by said cam and a lever operated by said rod to disengage the mechanism for revolving said bearing whereby said cylinder passes through successive revolutions without change in said bearing, substantially as specified.

784,236. GATE. ELLIS J. STANLEY, Champaign, Ill. Filed Apr. 15, 1904. Serial No. 203,259.



Claim.—1. The combination with a tilting gate, of a shiftable weight pivotally mounted on the gate at the back thereof and carried by the same, said weight being arranged to swing rearward independently of the gate to assist the opening movement of the latter.

2. The combination with a tilting gate, of a shiftable weight mounted on and carried by the gate, and movable independently thereof to assist the movement of the gate, means for locking the weight against such independent movement, and means for releasing the weight when the gate is opened.

3. The combination with a tilting gate, of a shiftable weight pivotally mounted on the gate at the back thereof and carried by the same, said weight being arranged to swing rearward independently of the gate to assist the opening movement of the latter, means for locking the weight against movement on the gate, and means for releasing the weight when the gate is opened.

4. The combination of a tilting gate, a pivoted weight mounted on the gate and movable independently thereof, means for locking the weight against such independent movement, and means for tripping the weight and for swinging the same outward when the gate opens, substantially as described.

5. The combination of a tilting gate, a pivoted weight carried by the same and arranged to swing outward to assist the opening movement of the gate, a catch for holding the weight against such independent movement and operating mechanism for tripping the weight, substantially as described.

6. The combination of a tilting gate, a weight carried by the gate and movable independently thereof, a catch for holding the weight against such independent movement, a combined trip and keeper engaged by the catch, and operating mechanism provided with means for tripping the weight, substantially as described.

7. The combination of a tilting gate, a pivoted weight mounted thereon, a combined trip and keeper consisting of a rock-shaft having a lug and provided with an arm, a catch arranged to engage the rock-shaft and located in the path of the lug, and operating mechanism connected with the gate and provided with means for engaging the said arm for tripping the weight, substantially as described.

8. The combination of a tilting gate, a pivoted weight movable independently of the gate, a catch mounted on the gate, a stop carried by the weight for engagement with the catch to limit the outward movement of the said weight, a combined trip and keeper mounted on the weight and arranged to engage the catch, and operating mechanism connected with the gate and arranged to actuate the combined trip and keeper, substantially as described.

9. The combination of a tilting gate, a pivoted weight having an opening, a catch mounted on the gate and extending into the opening of the weight, a combined trip and keeper arranged to engage the catch and provided with means located within the opening for disengaging the catch, a stop also arranged to engage the catch to limit the movement of the weight, and operating mechanism connected with the gate and provided with means for actuating the combined trip and keeper, substantially as described.

10. The combination of a tilting gate, an operating-lever connected with the gate, and an upright oscillatory guide receiving the operating-lever and arranged to swing inward and outward, said guide being also arranged to hold the lever against lateral movement, substantially as described.

11. The combination of a tilting gate, operating-levers connected with the gate, and upright oscillatory guides pivotally mounted at their lower ends and arranged to swing transversely of the gate and supporting the operating-levers against lateral movement, substantially as described.

12. The combination of a pair of posts, and a tilting gate pivoted between the posts and provided at its bottom with opposite braces secured to the gate and pivoted to the outer faces of the posts and spaced from the gate to receive the posts when the gate is open, substantially as described.

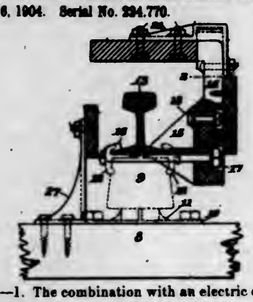
13. The combination of tapering posts, a tilting gate pivoted between the posts, and bottom braces pivoted to the outer faces of the posts and secured to the gate and converging toward the front of same, said braces being spaced from the gate to provide tapering spaces to receive the posts when the gate is open, substantially as described.

14. The combination of a tilting gate provided with a latch, an operating-lever, an oscillatory guide receiving the operating-lever and movable with the same, and means for connecting the operating-lever with the gate and with the latch, substantially as described.

15. The combination of a tilting gate, a shiftable weight carried by the gate and movable independently thereof, a catch for locking the weight against independent movement, and operating mechanism provided with means for tripping the catch to release the weight.

16. The combination of a tilting gate having a latch, a shiftable weight carried by the gate, means for locking the weight against independent movement, operating-levers provided with means for tripping the weight, and means for connecting the levers with the gate and for operating the latch, substantially as described.

784,237. ELECTRICAL-RAIL GUARD. LEWIS B. STILLWELL, Lakewood, N. J., and FREDERICK R. SLATER, Yonkers, N. Y. Filed Sept. 16, 1904. Serial No. 224,770.

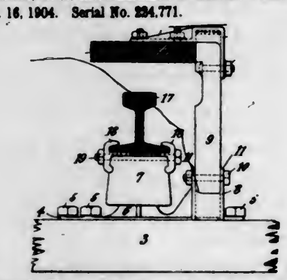


Claim.—1. The combination with an electric conductor, of a series of insulating-supports to which said conductor is attached, a bracket clamped to said conductor between said supports, an upright part and a horizontal extension of said part to which a longitudinal guard is attached.

2. In a guard for an electric conductor, the combination of a metal support, an insulating-post supported thereby, a horizontal bracket supported by said post and a longitudinal guard attached to said bracket.

3. In a guard for an electric conductor, the combination of a metal support, a clamp for attaching said support to said conductor and an insulated post supported by said support.

784,238. ELECTRICAL-RAIL GUARD. LEWIS B. STILLWELL, Lakewood, N. J., and FREDERICK R. SLATER, Yonkers, N. Y. Filed Sept. 16, 1904. Serial No. 224,771.

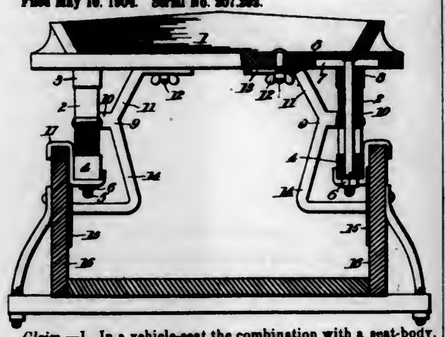


Claim.—1. The combination with an electric conductor, of a guard parallel therewith and insulated therefrom and an insulator for said conductor, the bases for said guard and insulator being formed of a single casting.

2. In a guard for an electric conductor, the combination with a longitudinal guard, of an insulating-post for the guard and a metal base having a yielding section whereby the base is adjusted to firmly hold the posts.

3. The combination with an electric conductor, of a guard parallel therewith and insulated therefrom and an insulator for said conductor; the bases for said guard and insulator being formed of a single casting, an insulating-post and a bracket with a horizontal extension attached to said post by which bracket a guard is supported.

784,239. VEHICLE-SEAT. WILLIAM M. THOMAS, Greensboro, Ala. Filed May 10, 1904. Serial No. 207,393.



Claim.—1. In a vehicle-seat the combination with a seat-body, of end springs carried by the under side thereof, supporting-bars carried by the under side of said springs, bolts carried by the seat-body and passing loosely through the springs and supporting-bars and provided at their lower extremities with threaded portions, and nuts carried by the bolts and working in coöperation with the threaded portion to adjust the tension of the springs.

2. In a vehicle-seat the combination with a seat-body, of end springs carried by the under side thereof, supporting-bars carried by the under side of said springs, bolts carried by the seat-body and passing loosely through the springs and supporting-bars, and brackets carried by the seat-body and having downwardly-extending portions provided with laterally-extending perforated ears through which the bolts loosely pass.

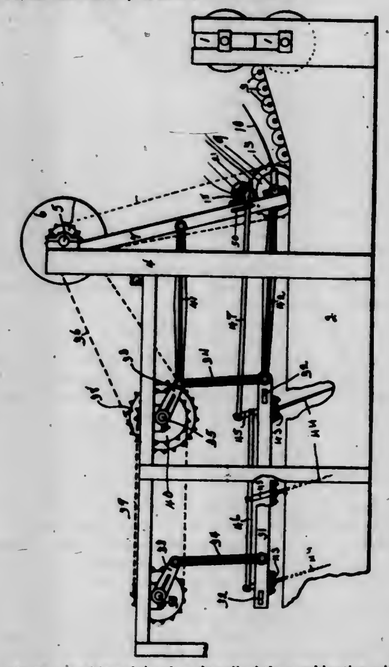
3. In a vehicle-seat the combination with a seat-body, of end springs carried by the under side thereof, supporting-bars carried by the under side of said springs, bolts carried by the seat-body and passing loosely through the springs and supporting-bars, and brackets having central perforated portions through which said bolts loosely pass and provided with upwardly-extending portions attached to the seat-body and downwardly-extending portions bent outwardly at their lower extremities and carrying plates to bear against the inner sides of the vehicle-body.

4. In a vehicle-seat the combination with a seat-body provided with a longitudinally-extending slot, of elliptical end springs carried by the under side thereof, supporting-bars carried by the under side of said springs, bolts carried by the seat-body and passing loosely through the springs and supporting-bars, the head of one of the bolts being adapted to work within the slot in said seat-body, brackets having central perforated portions through which the bolts loosely pass and provided with upwardly-extending portions attached to the seat-body and downwardly-extending portions bent outwardly at their lower extremities beneath the supporting-bars and carrying plates to bear against the inner sides of the vehicle-body, one of said brackets being formed with a slot in the upper portion thereof, and a bolt carried by the seat-body and extending through said slot and carrying a nut.

784,240. WOOL-WASHING MACHINE. JOSEPH H. TILLINGHAST, Stockton, Cal., assignor to Arthur P. Tatterson and George W. Tatterson, Stockton, Cal. Filed Apr. 29, 1904. Serial No. 205,578.

Claim.—1. In a machine of the class described the combination with a suitable tub or vat of the swing-frame, suspended from the power-shaft journaled in suitable posts and carrying the fork-shaft, the fork rigidly attached to the shaft, the shaft 35 carrying the cranks 33 and communicating with the power-shaft, the pitman-rods 41 attached to the arms 7 and cranks 33 and means for rotating the fork-shaft intermittently, all substantially as shown and described.

2. In a machine of the class described the combination with the tub or vat of the power-shaft journaled on the posts 4, the swing-frame 7 8 suspended from the power-shaft, and adapted to carry the fork-shaft, the fork rigidly attached thereto, the pitman-rods 41 connected to the arms 7 and cranks 33 and operated by the cranks 33 on the shaft 35 which is journaled on a frame 35*, the said shaft 35 operated from the power-shaft, the sprocket 13 loosely mounted on the fork-shaft, and operated from the power-shaft, the ratchet-wheel 23, having the slot or notch 25 in its periphery, rigidly mounted on the fork-shaft, the pawl 26 pivoted on the sprocket 13, the pawl 29 mounted on the arm 7, the gear-wheel 14 rigidly attached to the shaft 9, the idler 16 journaled on the side of the arm 7 and adapted to engage the said wheel 14 and the gear-wheel 15, the said gear-wheel 15 rigidly attached to the shaft 17 and journaled in brackets 18 on the side of the arm 7, the shaft 17 having the cam 19 and the pins 21 22, all substantially as shown and described.

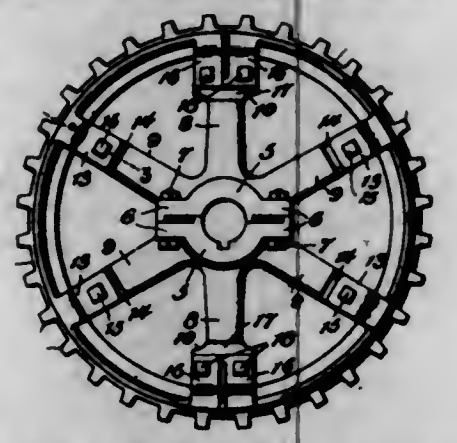


3. In a machine of the class described the combination with the tub or vat 2 of the swing-frame mounted and suspended from a power-shaft journaled on posts above the tub or vat, the fork-shaft 9 journaled in the lower ends of the swing-frame, the fork 10 rigidly attached to said shaft, means for rotating said fork-shaft intermittently, in concert with the oscillation of the swing-frame, the shafts 35 journaled above the tub or vat, the cranks 33 secured thereon, the links 34 pivoted to said cranks and to a suitable rake-frame, having rakes secured therein, the pitman-rods 41 secured to the swing-frame and two of the cranks 33, the pitman-rods 42 journaled on the shaft 9 and to the rake-frame and means for rotating the said shafts 35 in concert with the oscillation of the swing-frame and the rotation of the fork-shaft 9, all substantially as shown and described.

4. In a machine of the class described the combination with a tub or vat, of the swing-frame suspended from a power-shaft journaled on posts above the tub or vat, the fork-shaft 9, journaled in the lower ends of the swing-frame, the fork 10 rigidly attached to said shaft, means for rotating said fork-shaft intermittently in concert with the oscillation of the swing-frame, the shafts 35 journaled above the tub or vat, the cranks 33 secured thereon, the links 34 pivoted to said cranks, and to a suitable rake-frame, said rake-frame having rakes secured therein, the pitman-rods 41 secured to the swing-frame and two of the cranks 33, the pitman-rods 42 journaled on the shaft 9, and to the rake-frame, means for rotating the said shafts 35 in concert with the oscillation of the swing-frame and the rotation of the fork-shaft 9, the rakes 44 having the arms 45, the connecting-rod 46, secured to said arms 45, and the rod 47 secured to

one of the arms 45 and to the arm 7 of the swing-frame, all substantially as shown and described.

784,241. SPROCKET-WHEEL. RICHARD S. TOWNSEND, Union City, Mich. Filed Aug. 18, 1904. Serial No. 221,271.



Claim.—A sprocket-wheel comprising a hub composed of sections, each section having radially-disposed spokes, the adjacent spokes that are located at the correlated ends of said hub-sections being arranged in divergent relation with their outer ends spaced apart, means for securing the hub-sections together, rim-sections having inwardly-extending flanges, the inner faces of which are abutted against the outer ends of the spokes, the corresponding ends of said rim-sections being abutted and respectively located at the intermediate spoke of one of the hub-sections, transverse reinforcing-ears carried by the flanges, said ears lying longitudinally alongside the outer ends of the spokes, and fastening devices detachably securing the spokes and ears together.

784,242. ART OR PROCESS OF PRODUCING ARTIFICIAL WOOD SURFACES. JAMES E. TRAVIS, Westgrove, Pa., assignor to Joseph Ross, Philadelphia, Pa. Filed Oct. 19, 1903. Serial No. 177,641.

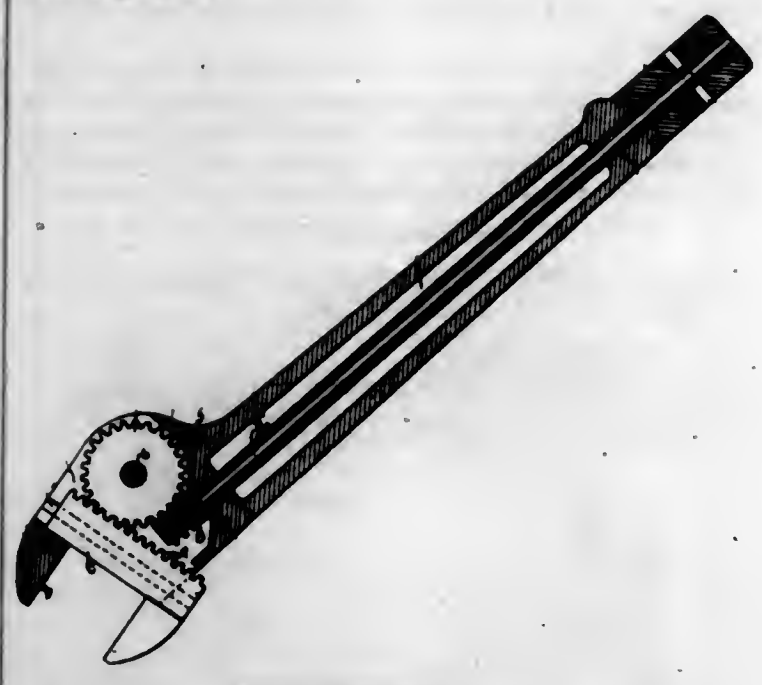


Claim.—1. The art or process of reproducing the surface appearance of one kind of wood upon that of another, which consists in first preparing the latter by smoothing its surface and filling its pores with a transparent filler to obtain a level surface without substantially altering its natural ground effects and appearance, then preparing the surface of a piece of the wood to be copied, to form a matrix, by etching its surface to give a raised effect to the flake or figure surface and a depressed effect to the pore-surface, and filling said pores with an appropriate graining color, then taking up the counterpart of said matrix-surface upon the impressionable surface of a grainer's roller, and finally using the latter to transfer the impressions thereon to the surface of the prepared wood to be treated.

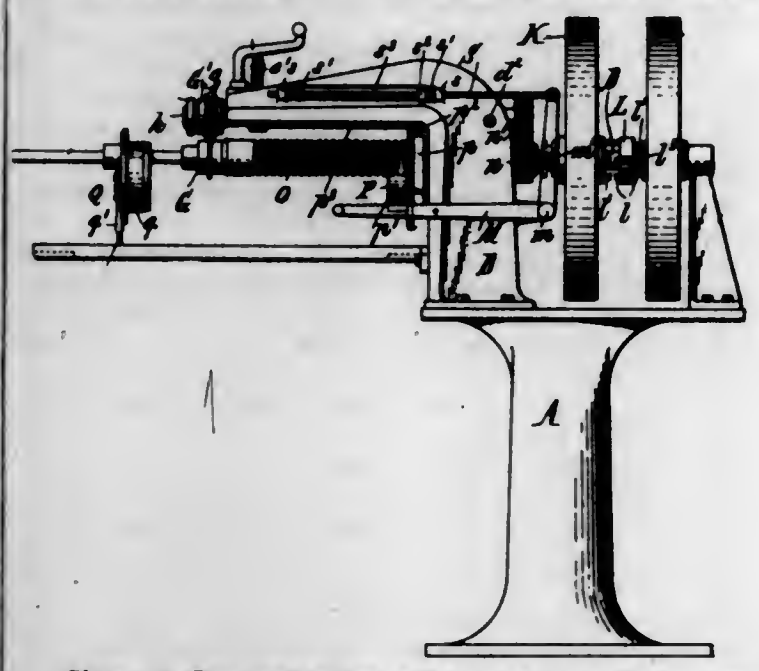
2. The art or process of reproducing upon plain-sawed oak the surface appearance of quartered oak, which consists in planing the former and obtaining a perfectly smooth surface by filling its pores with a colorless filler which will not alter its natural ground effects, then preparing the surface of a piece of quartered oak, to form a matrix, by removing the pulp from the pores of the wood and filling them with a suitable graining color, then taking up the counterpart thereof on the surface of a grainer's roller and finally transferring the surface impressions thereon to the prepared surface of the plain-sawed oak first mentioned.

784,243. WRENCH. WILLIAM WHALEY, Lafollette, Tenn., assignor of one-half to Haywood S. Winkler, Lafollette, Tenn. Filed May 23, 1904. Serial No. 210,260.

Claim.—A wrench comprising a handle having at its outer end a recessed head, a fixed jaw extending therefrom, at an acute angle to the handle; a cover-plate over said recess; a pin fastened in the head and cover-plate and carrying a pinion; a sliding jaw working in the recess and having a rack in mesh with the pinion; a worm-shaft journaled in the handle and meshing with the pinion, said shaft extending to the outside from the handle and carrying a finger-piece for rotating it; and a knob on the handle at the end thereof adjacent to the finger-piece.



784,244. MACHINE FOR SCREW-THREADING SHEET-METAL PIPES. EDMUND ZEH, Buffalo, N. Y., assignor to Niagara Machine & Tool Works, Buffalo, N. Y. Filed June 13, 1904. Serial No. 212,311.



Claim.—1. The combination with corrugating-rolls between which the pipe is gripped, and drive mechanism for said rolls, of a feed device for moving the pipe longitudinally between the rolls, a holder for the pipe which holder is supported so as to be free and capable of a limited movement and is controlled by hand, and means for guiding said holder, substantially as set forth.

2. The combination with corrugating-rolls, shafts, and driving mechanism for said rolls, of a feed device for moving the pipe longitudinally between said rolls, a hand-controlled holder for the outer end of the pipe, and a guide-rod projecting from one of said roll-shafts and on which said holder is loosely supported and is free to slide and swing, substantially as set forth.

3. The combination with corrugating-rolls between which the pipe is gripped, and drive mechanism for said rolls, of a feed device for moving the pipe longitudinally, a hand-controlled holder for the pipe, a guide on which said holder is supported and is free to slide and swing, a part connected to said holder and having a limited movement relative thereto, and a guide which is engaged by said part, substantially as set forth.

4. The combination with corrugating-rolls between which the pipe is gripped, and drive mechanism for said rolls, of a feed device for moving the pipe longitudinally, a hand-controlled holder for the pipe, a guide on which said holder is supported and is free to slide and swing, a finger pivoted on said holder and having a limited movement relative thereto, and a fixed guide which is engaged by said finger, substantially as set forth.

5. The combination with corrugating-rolls, and their drive mechanism, of a feed device for the pipe, a hand-controlled holder

for the outer end of the pipe, a guide-rod for said holder, a finger pivoted on said holder and having a limited swinging movement thereon, and a fixed guide-arm which is engaged by said finger for guiding the latter, substantially as set forth.

6. The combination with corrugating-rolls between which the pipe is gripped, and drive mechanism for positively rotating one of said rolls, of a feed device for moving the pipe longitudinally, a stop mechanism including a part which is moved by said drive mechanism and operates to stop the corrugating-roll upon a definite number of revolutions thereof, substantially as set forth.

7. The combination with corrugating-rolls between which the pipe is gripped, and drive mechanism for positively rotating said rolls, of a feed device operated by said drive mechanism for moving the pipe longitudinally, a stop device which is moved by said drive mechanism, and stop mechanism actuated by said stop device to stop the corrugating-rolls upon a definite number of revolutions thereof, substantially as set forth.

8. The combination with corrugating-rolls between which the pipe is gripped, shafts, and driving mechanism for said rolls, of a feed device for moving the pipe longitudinally operated by said driving mechanism, a stop device, a screw driven by said driving mechanism for operating said stop device, and stop mechanism actuated by said stop device, substantially as set forth.

9. The combination with corrugating-rolls between which the pipe is gripped, and driving mechanism therefor, of a feed device for moving the pipe longitudinally, a screw operated by said drive mechanism, a stop-nut operated by said screw, and stop mechanism for said rolls operated by said nut, substantially as set forth.

10. The combination of corrugating-rolls between which the pipe is gripped, shafts, and driving mechanism for said rolls, of a feed-screw operated by one of said roll-shafts, a feed device for moving the pipe longitudinally operated by said feed-screw, said other roll-shaft being screw-threaded, a stop device which is operated by said threaded roll-shaft, and stop mechanism actuated by said stop device, substantially as set forth.

11. The combination of corrugating-rolls between which the pipe is gripped, shafts, and driving mechanism for said rolls, of a bearing-sleeve in which one of said shafts is journaled, and a feed-screw for the pipe bearing on said bearing-sleeve and detachably connected to the shaft journaled in said sleeve, substantially as set forth.

12. The combination of corrugating-rolls between which the pipe is gripped, shafts, and driving mechanism for said rolls, of a bearing-sleeve for one of said roll-shafts, a feed-screw surrounding said bearing-sleeve and connected to the corrugating-roll which is secured to said shaft, said feed-screw being detachable from said shaft and the bearing-sleeve, and a feed device for moving the pipe longitudinally operated by said feed-screw, substantially as set forth.

784,245. **DIE-CASE EQUIPMENT FOR TYPE-MACHINES.** JOHN S. BANCROFT, Philadelphia, Pa., assignor to Lanston Monotype Machine Company, Philadelphia, Pa., a Corporation of Virginia. Filed Aug. 4, 1904. Serial No. 219,518.



Claim.—1. A die-case for type-casting machines such as described, the same comprising a supporting-frame, and a plurality of detachable suspension-bars in parallel relation, each of said bars being provided with a longitudinal series of lateral projections or fingers.

2. A die-case such as described, consisting of a supporting-frame; a plurality of detachable suspension-bars, in parallel relation, each provided with a longitudinal series of lateral projections or arms separating the space between adjacent bars into compartments; and matrix-blocks adapted to occupy said compartments, provided with shoulders engaging the suspension-bars and held to position by said bars and projections or fingers.

3. A die-case equipment such as described comprising the following elements, to wit: a supporting-frame; a plurality of suspension-bars detachably mounted upon said frame in parallel relation and each provided with a longitudinal series of lateral projections or arms forming, in conjunction with the adjacent bar, a series of compartments; and a series of matrix-blocks, occupying said compartments and each grooved circumferentially to receive the suspension-bars and projections forming the walls of its compartment.

4. A die-case equipment such as described comprising the following elements, in combination, to wit: a supporting-frame; a plurality of independent suspension-bars each provided with lateral projections or arms forming a longitudinal series of open compartments, said bars being detachably supported in parallel relation upon the frame; and a plurality of matrix-blocks supported within said compartments and overlapping the walls thereof, to form suspension-shoulders and permit contact between the proximate faces of adjacent blocks.

5. A die-case equipment such as described containing the following elements, in combination, to wit: a supporting-frame provided with a series of open bearings in opposite walls thereof; a series of suspension-bars each provided with a longitudinal series of lateral projections or arms forming in conjunction with the next adjacent bar a series of closed compartments for the reception of matrix-blocks, said bars occupying the bearings in the frame; matrix-blocks, one or more, supported in said compartments and interlocked with the suspension-bars thereof; and a guard-plate attached to the frame in position to engage the matrix block or blocks to retain the latter in position.

6. In a die-case equipment such as described the combination with the supporting-frame and the suspension-bars detachably mounted thereon and each provided with a longitudinal series of lateral projections or arms forming, in conjunction with the adjacent bar, a series of compartments, of matrix-blocks, one or more, having side grooves or recesses for the reception of the suspension-bars, and projections forming the walls of the compartments.

7. In a die-case equipment such as described the combination with the supporting-frame of a plurality of suspension-bars detachably mounted upon said frame in parallel relation and each furnished with lateral projections or arms of less depth than the bars.

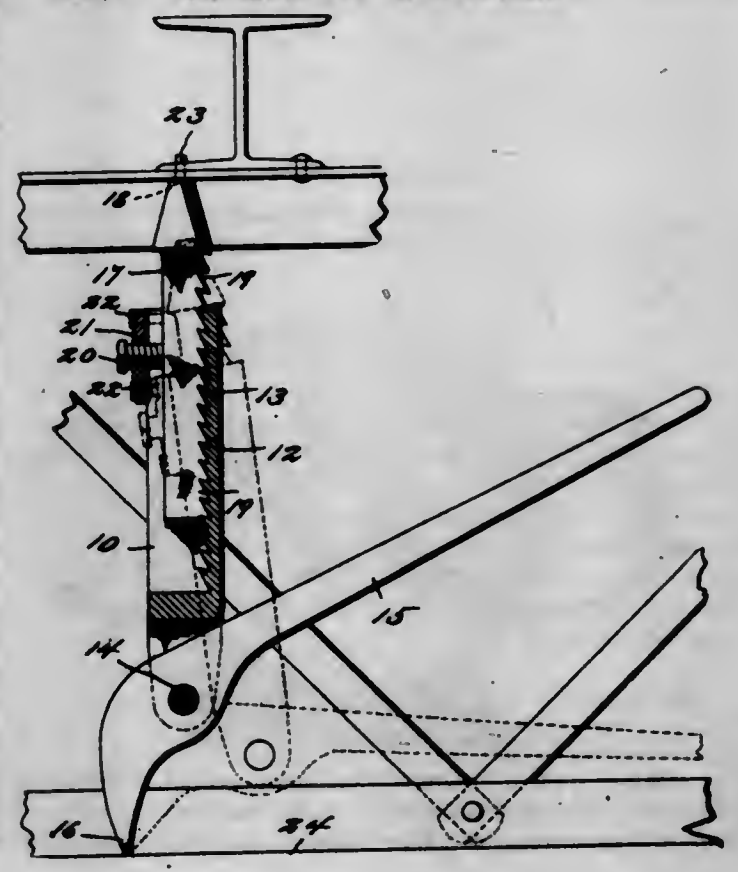
8. In a die-case equipment such as described the combination with the supporting-frame and the suspension-bars detachably mounted thereon and provided with lateral projections or arms of less depth than the bars, of a matrix-block, one or more, provided with two sets of grooves of different widths, one for the reception of the suspension-bars and the other for the lateral projections or arms forming the partitions.

9. A matrix-block for type-machines such as described provided with a quadrilateral body portion and a circumferential groove therein.

10. A matrix-block for type-machines such as described grooved circumferentially to form a quadrangular section of less area than the body.

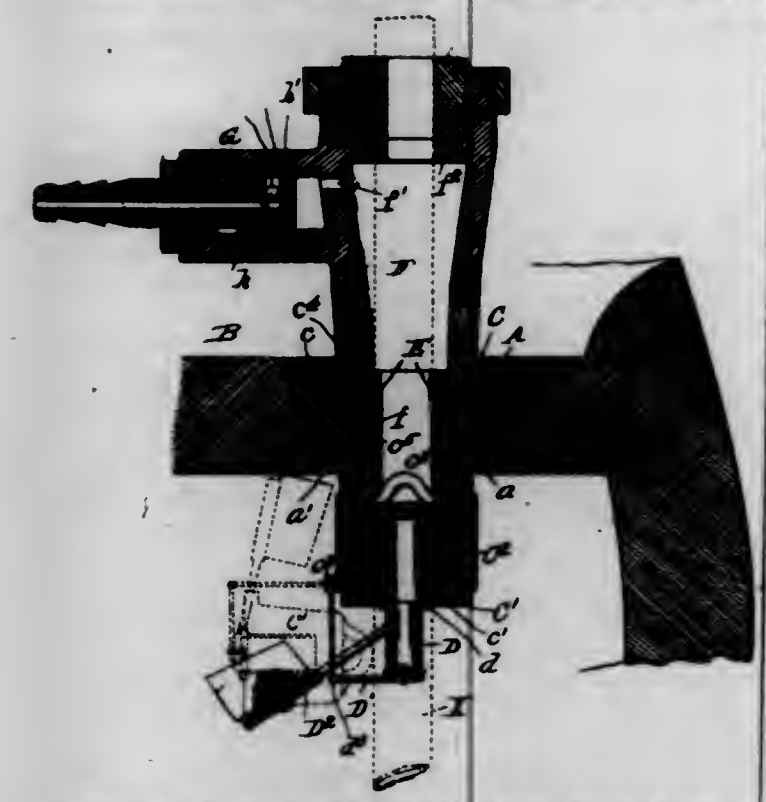
11. A matrix-block for type-machines such as described provided with a quadrilateral body portion, grooved circumferentially in planes parallel with the sides, the grooves on two diametrically opposite sides being wider than those on the remaining sides.

784,246. **RIVET-HOLDER.** ORVIE F. BOTSFORD, Hammersley Fork, Pa. Filed June 21, 1904. Serial No. 213,549.



Claim.—A rivet-holding device comprising in combination a recessed stock open at one side for the greater portion of its length, the rear wall of the recess being provided with teeth, a pair of spaced ears depending from the lower portion of the stock and carrying a pivot-pin, a bar adjustable within the recess and provided at its outer end with a recessed head in alinement with the longitudinal axis of the bar and the pivot-pin, one side of said bar having teeth engaging with those on the stock, a binding-screw extending through a threaded opening in the wall of the stock, and serving to hold the teeth of the bar in engagement with those on the stock, and an operating-lever mounted at a point intermediate of its length on said pivot-pin.

784,247. **DEVICE FOR DISPENSING LIQUIDS.** THOMAS P. BRIODY, South Bethlehem, Pa. Filed May 28, 1904. Serial No. 210,227.



Claim.—1. In a device for dispensing liquids, in combination, a bung, an angle-bracket pivoted at one end to the bung, a lever fulcrumed on the bracket and weighted at one end, and a plug carried by the other end of the lever, substantially as described.

2. In a device for dispensing liquids, in combination, a bung, an angle-bracket pivoted at one end to the bung and provided on its other end with a guide, a lever fulcrumed on the bracket and weighted at one end, and a plug carried by the other end of the lever and engaging the guide of the bracket, substantially as described.

3. In a device for dispensing liquids, a bung provided at its inner end with a self-seating plug, a guide to direct the initial movement of the plug, a pivoted bracket supporting said guide, and a weighted lever connected to the plug and supported on the bracket, substantially as described.

784,248. **ROTARY ENGINE.** CHARLES W. CARMAN, Sarcoxie, Mo., assignor of one-half to Ira B. Adams, Sarcoxie, Mo. Filed Oct. 18, 1904. Serial No. 228,967.



Claim.—1. The combination in a rotary engine, of a cylinder, a revoluble piston disposed therein and provided with steam inlet and exhaust passages, a piston-wing having in its opposite faces ports in communication with said passages, the forward face of said wing being curved to form a cam and being grooved from the hub to its extreme outer end to permit the escape of steam to the exhaust-port, and pivotally-mounted abutments movable outward by engagement with the cam-case of said wing.

2. The combination in a rotary engine, of a cylinder, a piston, a hollow shaft forming a steam-passage, a steam-chest into which the shaft extends, said shaft having an opening through which steam may pass from the chest, a valve controlling the area of said opening, and means for adjusting the position of the valve in accordance with the speed of the engine.

3. The combination in a rotary engine, of a cylinder, a piston disposed therein, a hollow shaft carrying the piston, a steam-chest into which the shaft extends, there being an opening in said shaft for the passage of steam from the chest, a valve movable longitudinally of the shaft, a spring tending to prevent movement of the disk to closing position, and a centrifugal governor carried by the shaft and controlling the position of said disk.

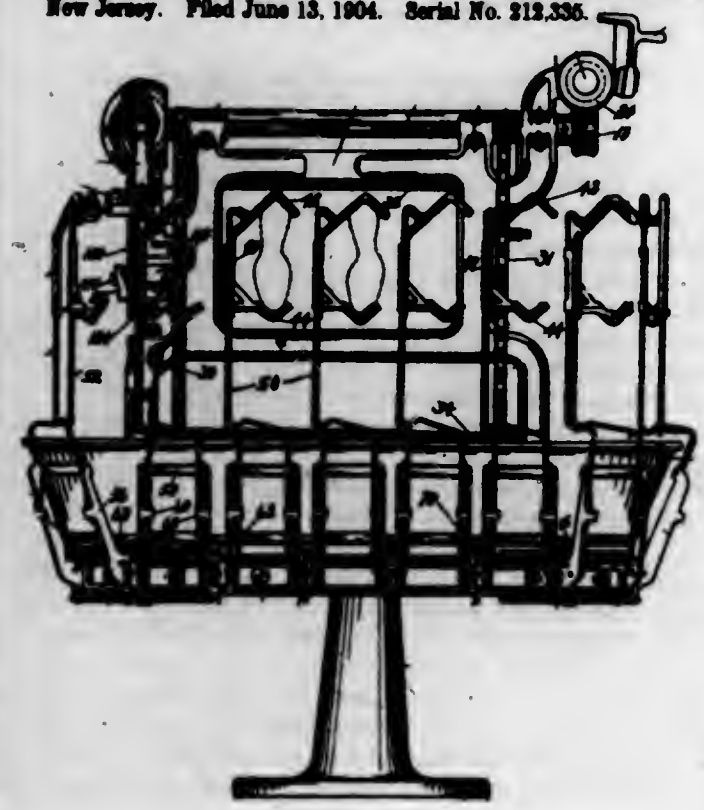
4. The combination in a rotary engine, of a cylinder, a piston disposed therein, a hollow shaft carrying said piston, a steam-chest into which the shaft extends, there being an opening formed in the shaft for the passage of steam from the chest, a valve mounted on the shaft, a spring tending to prevent movement of the disk to closing position, a centrifugal governor carried by the shaft and controlling the position of the disk, and means for positively limiting movement of said disk.

5. The combination in a rotary engine, of a cylinder, a piston disposed therein, a hollow shaft carrying said piston, a steam-chest into which the shaft extends, an opening being formed in the shaft for the passage of steam from the chest, a valve carried by the shaft, a spring tending to resist closing movement of said valve, a governor controlling the position of the valve, a balancing-spring for said governor, and a screw extending through a threaded opening in the wall of the steam-chest and serving as a means for adjusting the stress of the balancing-spring.

6. The combination with a revoluble piston, of a hollow ported shaft, a steam-chest into which the shaft extends, and a governor-controlled valve in the form of a revoluble flanged ring surrounding said shaft and notched or recessed, the ports of the hollow shaft coming successively into alinement with said notch or recess as the shaft revolves.

7. The combination with a piston, of a hollow ported shaft, a steam-chest into which said shaft extends, a non-revoluble valve-ring mounted on the shaft, and provided with a notch or recess, one wall of which is inclined, governor-arms extending through a transverse slot in the shaft and bearing against the valve-ring, and a spring-pressed ring bearing on said governor-arms and tending to move the weighted ends of the same inward toward the shaft.

784,249. **MACHINE FOR DAMPENING THE SOLES OF BOOTS OR SHOES.** LOUIS A. CASERAIN, Winchester, Mass., assignor to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed June 13, 1904. Serial No. 212,336.



Claim.—1. In a machine of the class described, means for supporting a shoe, a dampening device, and means for moving said supporting means and dampening device relatively to each other for moistening the sole of a shoe.

2. In a machine of the class described, a plurality of movable shoe-supports, and a device movable transversely of the plane of movement of the supports for dampening the soles of shoes carried by said supports.

3. In a machine of the class described, a device for dampening the soles of shoes, means for supporting a plurality of shoes, and means for moving successive shoes into position to be engaged by said dampening device.

4. In a machine of the class described, a shoe-support, a carrier for said shoe-support, mechanism for feeding the carrier, and means for applying liquid substance to a shoe carried by the shoe-support.

5. In a machine for dampening the soles of shoes, a shoe-support, a carrier for said shoe-support, mechanism for feeding the carrier intermittingly, and a continuously-operating device for applying water to the sole of a shoe sustained by the shoe-support.

6. In a machine of the class described, a support for sustaining a shoe, a tank for holding water, a dampening device, and means for moving said device into the water in said tank and then into engagement with the sole of a shoe sustained on said support.

7. In a machine of the class described, a carrier, mechanism for feeding said carrier, means under the control of the operator for causing the feeding mechanism to become operative, and means for locking said feeding mechanism at the end of a feeding movement.

8. In a machine of the class described, a dampening device, actuating mechanism therefor, shoe-supports, a carrier for said supports, mechanism for feeding said carrier, and means operated by the dampening-device-actuating mechanism for causing the carrier mechanism to become operative.

9. In a machine for dampening the soles of shoes, a plurality of shoe-supports, a carrier for said shoe-supports, mechanism for feeding the carrier, a water-holding tank, a brush, and means to actuate said brush for taking water from the tank and applying it to the soles of shoes sustained by the shoe-supports.

10. In a machine of the class described, means for supporting a shoe, a dampening device, mechanism for relatively moving said supporting means and dampening device for moistening the sole of a shoe carried by said support, and means arranged to be actuated by the operation of placing a shoe on the support for causing said mechanism to become operative.

11. In a machine of the class described, a dampening device, a plurality of shoe-supports, a carrier for said shoe-supports, mechanism for feeding the carrier, and means for causing said feeding mechanism to become operative, said means being arranged to be operated by contact with a shoe-support as a shoe is being placed therein.

12. In a machine of the class described, a carrier consisting of a plurality of links, frames extending from each link and shoe-supports connected to said frames.

13. In a machine for dampening the soles of shoes, a carrier, shoe-supports pivotally connected to said carrier, means for yieldingly holding the shoe-supports in perpendicular positions and means for limiting the movements of the shoe-supports about their pivots.

14. In a machine for dampening the soles of shoes, a shoe-support comprising a heel-clamp and a toe-support, and means for holding said toe-support yieldingly in position with relation to the heel-clamp.

15. In a machine of the class described, a carrier, mechanism for feeding the carrier, and a device for locking the feeding mechanism, said device comprising a spring-actuated pin having a lateral extension, means for turning the pin to change the position of the extension, and means for engaging said extension and moving it downwardly to cause the locking device to become inoperative.

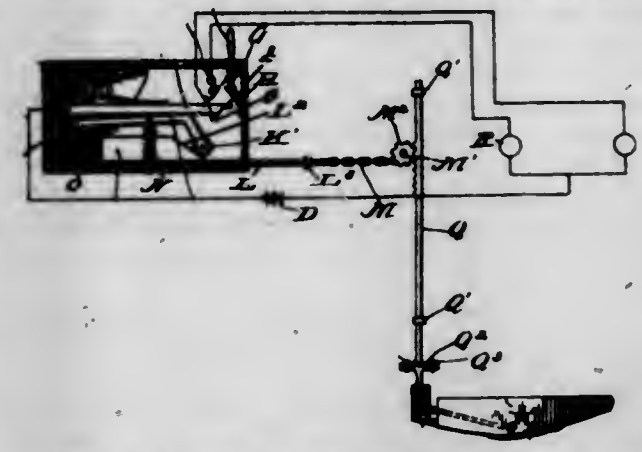
16. In a machine of the class described, a carrier, mechanism for feeding the carrier intermittingly, and means for locking said mechanism at the end of a feeding movement, said locking means comprising a spring-pressed pin provided with an extension which is adapted to be engaged and moved for rendering the locking device inoperative, means for moving said extension into operative position, and means for returning said extension to its normal position.

17. In a machine for dampening the soles of shoes, a water-holding tank, a shoe-support carrier encircling said tank, shoe-supports connected to said carrier, means for feeding said carrier to cause the shoe-supports to travel about the periphery of the tank, and means for applying water to the soles of shoes sustained in the supports.

18. In a machine for dampening the soles of shoes, a plurality of dampening devices, continuously-moving chains carrying said devices, a tripping-block carried by one of said chains, a shoe-support carrier, shoe-supports carried thereby, mechanism for feeding the carrier, and a device for locking said mechanism at the end of a feeding movement, said locking device having a part that is adapted to be engaged and moved by said tripping-block to render said feeding mechanism operative.

19. A machine for dampening shoes, comprising a continuously-rotating shaft that is provided with a cam and a plurality of sprocket-wheels, brush-carrying chains adapted to be driven by said sprocket-wheels, a shoe-support carrier, a plurality of shoe-supports carried thereby, and mechanism for feeding the carrier, said mechanism comprising a sprocket-wheel mounted on a shaft, and an actuator for rotating said shaft, said actuator being adapted to be operated by the cam on the continuously-rotating shaft.

784,250. **LOCOMOTIVE-CAB SIGNALING DEVICE.** JOHN W. CLARK, Wyoming, Del. Filed Jan. 4, 1905. Serial No. 239,051.



Claim.—1. A signaling apparatus for engineers of locomotives comprising two contact-points, a battery electrically connected with said points, a pivotal lever adapted to have a play between said points and electrically connected with the battery, lights of different colors adapted to be displayed when said lever is in contact with one point or the other, a shoe adapted to be carried by a locomotive, a trip member for raising said shoe, connections intermediate the same and said lever for raising and lowering the same from one contact-point to the other as set forth.

2. A signaling apparatus for engineers in cabs comprising contact-points, a battery and electrical connections between the same and said points, a lever electrically connected with said battery and adapted to have a play intermediate said points, lights of different colors adapted to be displayed when said lever is in contact with one point or the other, a shoe and means for carrying the same upon a locomotive, a trip adapted to contact with said shoe to raise the latter, connections intermediate said shoe and pivotal lever, whereby the latter may be raised from contact with one point to the other point, and means for holding said lever in a raised position, as set forth.

3. An apparatus for signaling engineers in cabs comprising a pivotal lever, contact-points between which said lever has a play, a battery and electrical connections between the same and said points, electrical connections between said lever and battery, a shoe, means secured to the locomotive for carrying said shoe, a trip member adapted to raise said shoe, a rack-bar actuated by said shoe, a reel actuated by said rack-bar, mechanism intermediate said reel and lever for raising the latter from one contact-point to the other, and different-colored lights in the electric circuit, as set forth.

4. An apparatus for signaling engineers in cabs comprising a pivotal lever, contact-points between which said lever has a play, a battery and electrical connections between the same and said points, electrical connections between said lever and battery, a shoe, means secured to the locomotive for carrying said shoe, a trip member adapted to raise said shoe, a rack-bar actuated by said shoe, a reel actuated by said rack-bar, a movable block actuated by said reel, and mechanism intermediate said block and lever for raising the latter from one contact-point to the other, and different-colored lights in the electric circuit, as set forth.

5. An apparatus for signaling engineers in cabs comprising a pivotal lever, contact-points between which said lever has a play, a battery and electrical connections between the same and said points, electrical connections between said lever and battery, a shoe, means secured to the locomotive for carrying said shoe, a trip member adapted to raise said shoe, a rack-bar actuated by said shoe, a reel actuated

by said rack-bar, a movable block actuated by said reel, a second lever, an antifriction-wheel carried thereby and adapted to be actuated by said block whereby said second lever may be raised to throw the first-mentioned lever from contact with one point to the other, and different-colored lights in the electric circuit, as set forth.

8. A signaling apparatus for engineers in cabs of locomotives comprising a pivotal lever, contact-points between which said lever is mounted, a battery and electrical connections between the same and said points, electrical connections between said lever and battery, a movable block having an inclined portion, a pivotal angle-lever, an antifriction-wheel journaled at the free end of said angle-lever and adapted to ride upon the inclined surface of said block, a shoe, means carried by the locomotive for supporting said shoe, mechanism intermediate the shoe and said block for actuating the latter, whereby the levers may be raised, and lights of different colors adapted to be displayed as the lever having electrical connection with the battery is raised or lowered, and trip mechanism for actuating the shoe, as set forth.

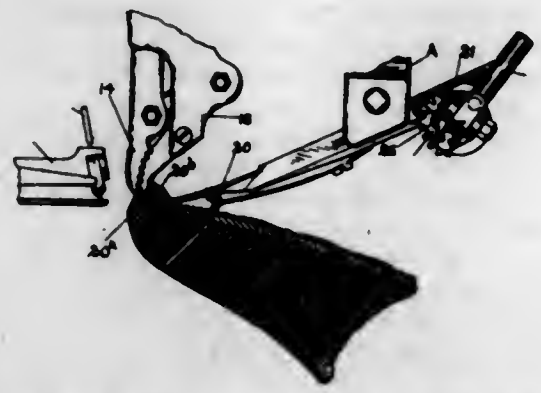
7. A signaling apparatus for engineers of locomotives comprising a battery, contact-points electrically connected therewith, a lever pivotally mounted between said points and having electrical connection with the battery, lights of different colors electrically connected with the battery, a lever pivotally mounted between said points and electrically connected with the battery, a shoe, and means carrying the same secured to the locomotive, said shoe adapted to have a longitudinal movement, a rack-bar, means intermediate the same and said lever for raising the same as the rack-bar is raised, frictional-actuated mechanism intermediate said shoe and rack-bar for raising the latter, and trip mechanism for actuating the shoe, as set forth.

8. A signaling apparatus for engineers of locomotives comprising a battery, contact-points electrically connected therewith, a lever pivotally mounted between said points and having electrical connection with the battery, lights of different colors electrically connected with the battery, a lever pivotally mounted between said points and electrically connected with the battery, a shoe, and means carrying the same secured to the locomotive, said shoe adapted to have a longitudinal movement, a rack-bar, means intermediate the same and said lever for raising the same as the rack-bar is raised, a casing adapted to be secured to a locomotive, a plate pivoted to said casing, a shoe adapted to have a sliding contact with said pivotal plate, a friction-rod actuated by said shoe and adapted to contact with said rack-bar to cause the latter to rise as the plate is tilted, and trip mechanism for actuating the shoe, as set forth.

9. A signaling apparatus for engineers of locomotives comprising a battery, contact-points electrically connected therewith, a lever pivotally mounted between said points and having electrical connection with the battery, lights of different colors electrically connected with the battery, a lever pivotally mounted between said points and electrically connected with the battery, a shoe, and means carrying the same secured to the locomotive, said shoe adapted to have a longitudinal movement, a rack-bar, means intermediate the same and said lever for raising the same as the rack-bar is raised, a casing adapted to be secured to a locomotive, a plate pivoted to said casing, a shoe adapted to have a sliding contact with said pivotal plate, a rod secured to said shoe, a spring secured at one end to said rod, a second rod fastened to said spring, and having a T-shaped end, a movable pin secured to the rack-bar and entering a slot in said plate, and adapted to be frictionally engaged by the T-shaped end of said rod, and a trip for actuating the shoe, as set forth.

10. A signaling apparatus for engineers of locomotives comprising a battery, contact-points electrically connected therewith, a lever pivotally mounted between said points and having electrical connection with the battery, lights of different colors electrically connected with the battery, a lever pivotally mounted between said points and electrically connected with the battery, a shoe, and means carrying the same secured to the locomotive, said shoe adapted to have a longitudinal movement, a rack-bar, means intermediate the same and said lever for raising the same as the rack-bar is raised, a casing adapted to be secured to a locomotive, a plate pivoted to said casing, a shoe adapted to have a sliding contact with said pivotal plate, a rod secured to said shoe, a spring secured at one end to said rod, a second rod fastened to said spring, and having a T-shaped end, the lower end of said rack-bar having a flared portion, bolts carried in apertures in said flared portion, a plate having an elongated slot adapted to be slidingly connected to said bolts, a pin projecting from said slotted plate and engaging a slot in said pivotal plate and adapted to be engaged by the T-shaped end of said rod, and trip mechanism for actuating said shoe, as set forth.

784,251. **LASTING-MACHINE.** CHARLES DE MINICO, Cincinnati, Ohio, assignor to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed June 27, 1902. Serial No. 113,497.



Claim.—1. In a lasting-machine, the combination with means for working an upper over a last, of a downhold having a portion shaped to overlie the shoulder or rib of the sole of a shoe being lasted and a portion formed to bear upon the marginal portion of the sole outside said shoulder or rib and at one side of the said upper-working means.

2. In a lasting-machine, a movably-supported member adapted to engage the feather-edge of the sole of a shoe being lasted to prevent displacement thereof during the lasting operation and means under the control of the operator for moving said member into and out of operative position.

3. In a lasting-machine, a device to engage the marginal portion of the sole of a shoe being lasted to prevent displacement thereof, said device having a portion shaped to bear upon the feather and a portion shaped to overlie the shoulder of the sole.

4. In a lasting-machine, means to engage the marginal portion of the sole of a shoe being lasted to prevent displacement thereof during the lasting operation, in combination with mechanism under the control of the operator for rendering said means operative or inoperative.

5. The combination with a shoe-rest for use in a lasting-machine of means for stretching the shoe-upper, and a downhold arranged to bear upon the feather of the sole of the shoe being lasted to prevent displacement of the edge portion of said feather during the lasting operation.

6. The combination with a shoe-rest for use in a machine for lasting turn-shoes, of a downhold arranged for adjustment toward and from position to bear upon the feather-edge of the sole of a shoe being lasted to prevent displacement of said edge of the sole during the lasting operation.

7. The combination with a shoe-rest for use in a lasting-machine, of a downhold movably mounted upon said rest, and coöperating adjusting mechanism carried by the rest and downhold, by means of which the downhold may be projected into position to bear upon the marginal portion of the sole of a shoe being lasted to prevent its displacement during the lasting operation.

8. The combination with a shoe-rest for use in a lasting-machine, of a downhold movably mounted upon said rest, means to project said downhold into position to engage the marginal portion of the sole of a shoe being lasted during the lasting operation, and means to lock said downhold in adjusted position.

9. The combination with a shoe-rest for use in a lasting-machine, of a downhold movably mounted upon said rest, coöperating mechanism carried by said rest and downhold for adjusting said downhold to and from position to engage the marginal portion of the sole of a shoe being lasted to prevent displacement of said marginal portion of the sole, and means to lock said downhold in adjusted position.

10. In a lasting-machine, the combination with means for working an upper over a last, said means comprising a reciprocating presser, of a device mounted in front of said presser and deflected to one side of its path of movement to engage the edge portion of the sole of the shoe being lasted at a point adjacent to the path of said presser.

11. In a lasting-machine the combination with means for working an upper over a last, said means comprising a reciprocating presser, of a shoe-rest arranged to engage the sole of the shoe being lasted at a point in front of said presser, and a downhold adapted to engage the edge portion of the sole at one side of the path of movement of said reciprocating presser.

12. The combination with a shoe-rest and a downhold movable with relation thereto, of means for adjusting said downhold and lock-

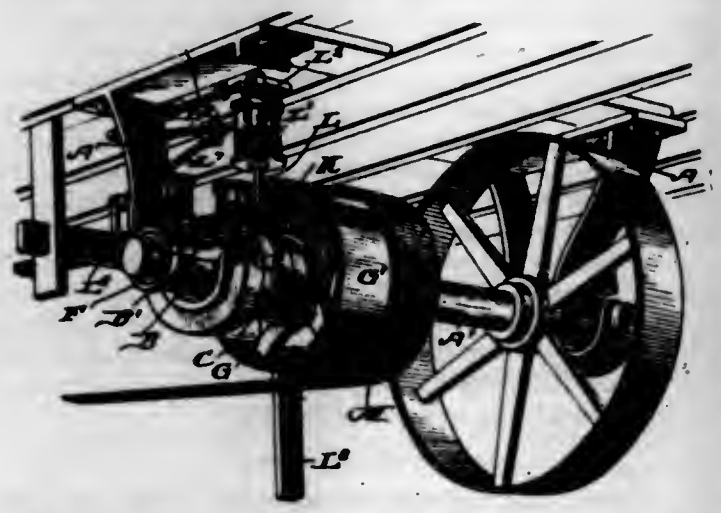
ing it in adjusted position, said means comprising a rack on one of said parts, a pinion on the other, operating means for said pinion, and a locking device carried by said operating means to lock said pinion against movement.

13. In a machine for lasting shoes, the combination with means for working an upper over a last, and a rest for engaging the sole to position the shoe, of a downhold connected with the rest for engaging the feather-edge of the sole to prevent displacement of the edge of the sole during the lasting operation.

14. In a machine for lasting shoes, the combination with means for working an upper over a last, and a rest for engaging the sole to position the shoe, of a yielding downhold mounted on the rest and extending beyond the latter for engaging the feather-edge of the sole to prevent displacement of the edge of the sole during the lasting operation.

15. In a machine for lasting shoes, the combination with means for working an upper over a last, and a rest for engaging the sole to position the shoe, of a downhold for engaging the feather-edge of the sole to prevent displacement of the edge during the lasting operation, said rest and downhold being arranged for relative yielding movement to enable them to adapt themselves to the uneven surfaces engaged by them.

784,252. **LOOSE PULLEY AND BEARING THEREFOR.** ANDREW N. DETHLEFSON and HENRY GRAHN, San Francisco, Cal. Filed Feb. 16, 1904. Serial No. 193,825.



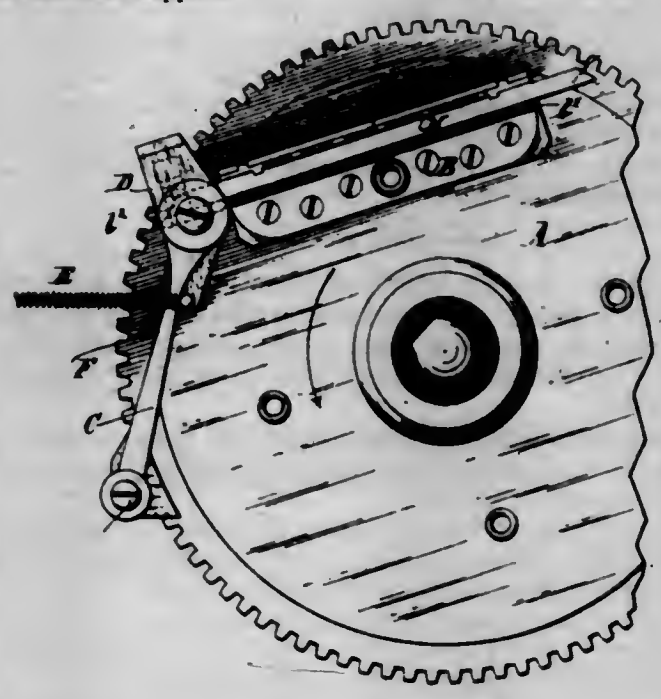
Claim.—1. The combination with a hanger-box, an integral collar formed at one end of the box, a pulley-bearing integral with the collar and on the side opposite the box, the said collar and bearing having a continuous bore greater in diameter than the diameter of the shaft for which the hanger-box is adapted, the said collar and bearing having a bore formed therein adapted to convey oil to the periphery of the bearing, a pulley mounted thereon, the bore of the hub portion of said pulley having an annular groove adapted to register with the inner end of the oil-conveying bore of the collar, means for feeding oil to said bore when the pulley is rotating and means for cutting the supply of oil off when the pulley is stationary.

2. A device of the kind described comprising a sectional hanger-box, one-half of said box being formed integral with an end collar, a loose pulley-bearing formed integral with the said collar, the said hanger-box being babbitted to fit a shaft, the said bearing and collar having a bore of greater diameter than the shaft, a pulley mounted loosely on said bearing and having a hub portion the width of which is less than the length of the bearing, the said hub fitting on one side against one side of the collar, a supplemental collar arranged on the opposite end of the bearing and adapted to hold the pulley in place, the said pulley having an annular groove formed in the bore of its hub portion, the bearings and integral collar having a bore opening at one end on the periphery of the bearing and adapted to register with the groove in the hub portion of the pulley, and means for feeding oil into said bore.

784,253. **LINOTYPE-MACHINE.** PHILIP T. DODGE, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Dec. 1, 1904. Serial No. 235,069.

Claim.—1. In combination with the slotted mold moving around a center, a vibratable arm on a fixed center, a knife-carrying block pivoted to the free end of the arm and guided by the mold, and a spring coöperating with the knife-block.

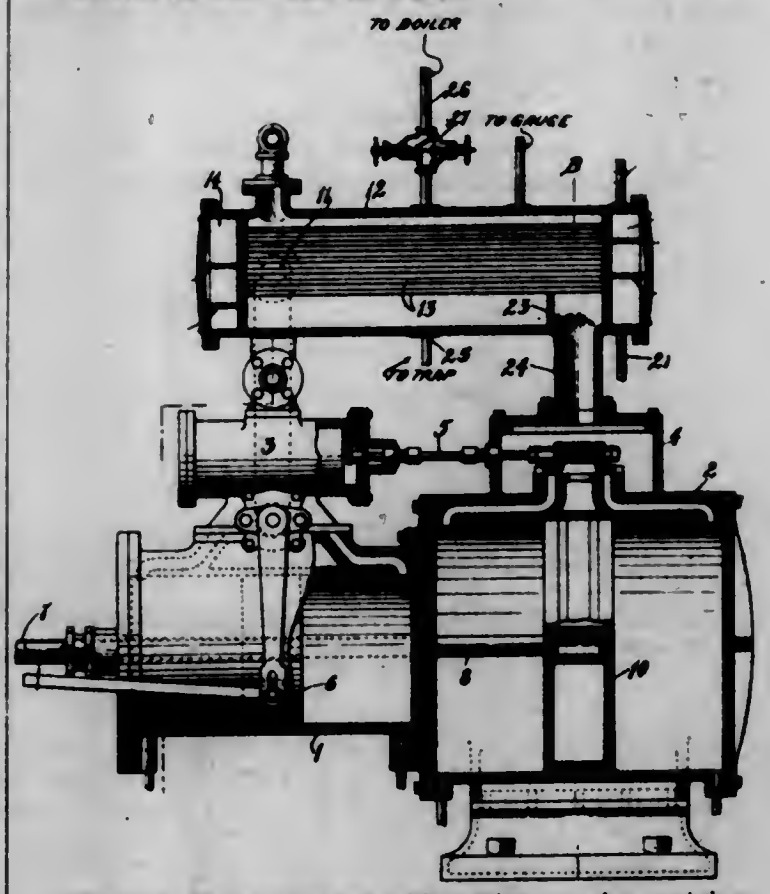
2. In combination with the mold moving in a circular path, a coöperating knife, a knife-support engaging with and guided by the mold to keep the knife in operative position, and a vibratory support for the knife-support.



3. In combination with the mold movable in a circular path, and a guide parallel with the mold-slot, a pivoted knife-block arranged to engage the guide, two knives mounted on the support, the vibratory arm jointed to the knife-block and sustaining the same, and the spring connected to the block.

4. The rotary mold-wheel and the mold therein grooved to guide the knife-support, in combination with said support, the opposing knives thereon, the vibratory arm pivoted at one end to the knife-support and at the other to a fixed support, a spring tending to move the knife-support and the arm, and a stop to limit the motion of the arm in one direction.

784,254. **COMPOUND STEAM-ENGINE.** WILLIAM A. DREWETT, New York, N. Y., assignor to Marshall T. Davidson, Brooklyn, N. Y. Filed Jan. 25, 1904. Serial No. 190,555.



Claim.—1. The combination with a primary and a secondary cylinder, their pistons, a piston-rod to which the two pistons are connected and suitable valve-gear, of a receiver through which the exhaust-steam passes from the primary to the secondary cylinder and automatic means for maintaining the pressure of the steam in the receiver at a predetermined degree while the engine is at rest.

2. The combination with the primary and secondary cylinders, their pistons, a piston-rod to which the two pistons are connected and the receiver, of a pipe leading from a steam-supply to the receiver

and a reducing pressure-valve in said pipe for automatically maintaining the pressure of steam in the receiver at a predetermined degree while the engine is at rest.

3. In a compound engine, the combination with a high-pressure cylinder and a low-pressure cylinder, of a receiver into which said high-pressure cylinder normally exhausts to thereby maintain sufficient for automatically maintaining said pressure in said receiver when pressure to actuate the piston of the low-pressure cylinder and means the engine is at rest.

784,255. **PROCESS OF UTILIZING SCALE FROM CALCIUM-CARBID INGOTS.** ISAAC R. EDWARDS and JOSEPH SCALES, Sault Ste. Marie, Mich., assignors to Union Carbide Company, Niagara Falls, N. Y., a Corporation of Virginia. Filed Dec. 22, 1904. Serial No. 238,087.

Claim.—1. The process of utilizing the scale from calcium-carbid ingots, which consists in decomposing the carbid therein, and smelting the residue, as set forth.

2. The process of utilizing the scale from calcium-carbid ingots, which consists in decomposing the carbid therein by the action of water, and drying and smelting the residue, as set forth.

3. The process of utilizing the scale from calcium-carbid ingots, which consists in decomposing the carbid therein, mixing carbon with the residue, and smelting the mixture, as set forth.

4. The process of utilizing the scale from calcium-carbid ingots, which consists in decomposing the carbid therein by the action of water, drying the residue and mixing it with carbon, and smelting the mixture, as set forth.

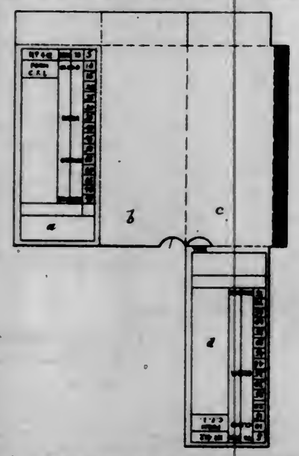
5. The process of utilizing the scale from calcium-carbid ingots, which consists in subdividing the scale, decomposing the carbid therein, and smelting the residue, as set forth.

6. The process of utilizing the scale from calcium-carbid ingots, which consists in subdividing the scale, decomposing the carbid therein by the action of water, and drying and smelting the residue, as set forth.

7. The process of utilizing the scale from calcium-carbid ingots, which consists in subdividing the scale, decomposing the carbid therein, mixing carbon with the residue, and smelting the mixture, as set forth.

8. The process of utilizing the scale from calcium-carbid ingots, which consists in subdividing the scale, decomposing the carbid therein by the action of water, drying the residue and mixing it with carbon, and smelting the mixture, as set forth.

784,256. **DUPLICATED CASH-FARE RECEIPT.** MAURICE C. FLAHAVAN, Cleveland, Ohio. Filed Mar. 7, 1904. Serial No. 196,849.



Claim.—1. A book or pad of receipts, consisting of members *d* whereon are a series of numbers, and alternately-placed members *a* whereon are a duplicate set of numbers which register with corresponding numbers on the members *d*, said numbers being the same on all receipts, but being differently arranged on different receipts, and means for concealing the numbers upon the members *d*.

2. A duplicate receipt consisting of a sheet of paper folded to make four folds, of which two folds are provided with duplicate sets of numbers which occupy registering relations when the blank is folded, and the two other folds are secured together over one of the folds first named so as to conceal the numbers thereon from inspection.

3. A duplicate receipt consisting of a sheet of paper folded to form four folds *a*, *b*, *c*, and *d*, of which the first three are connected with each other along their side edges, and the fourth is connected with one of the others along the lower edge of the latter, the folds *a* and *d* having duplicate figures which, when the paper is folded as stated register with each other, and the folds *b* and *c* being sealed together to form an envelop around the fold *d*.

4. A duplicated receipt consisting of a sheet of paper folded to form four folds *a*, *b*, *c*, and *d*, of which the first three are connected with each other along their side edges, and the fourth is connected with one of the others along the lower edge of the latter, the folds *a* and *d* having duplicate figures which when the paper is folded as stated register with each other, and the folds *b* and *c* being sealed together to form an envelop around the fold *d*, and having in their lower edges finger-notches.

5. A duplicated receipt consisting of a sheet of paper folded to form four folds *a*, *b*, *c* and *d*, of which the three former are connected together along their side edges and the fold *d* is connected with one of the other folds along the lower edge of the latter, the fold *c* having also at its top edge a flap *e* which after fold *d* has been turned up onto fold *c* is folded down upon the said fold *d*, and said fold *c* having also a flap *f* along its side edge which, when fold *b* is folded over along the line joining it with the fold *c* is pasted to said flap *f*.

6. A book or pad of pairs of receipts, each of which pairs consists of a member *d*, on which is a series of symbols, and a superposed member *a* whereon is printed a series of numbers which respectively register with corresponding symbols on the member *d*, the same numbers being used on all members *a* but being differently arranged on different members *a*.

7. A book or pad of pairs of paper members *a* and *d*, whereof each of the members *a* has on its face a series of numbers which are the same on all of said members *a*, but are differently arranged on different members *a*, said members being arranged alternately in a book or pad whereby it is possible to punch a hole simultaneously through corresponding parts of both members.

784,257. **TRAIN AND STATION GUIDE.** PATRICK FLANAGAN, San Francisco, Cal. Filed Mar. 19, 1904. Serial No. 199,036.



Claim.—1. In a train and station guide, the combination of a series of independent triangular-shaped name-bars each having a blank face and a face inscribed with a station-name, lips on the bars adjacent one of the apices thereof, a pivot-pin at each end of each bar by which each bar is pivotally mounted, a crank-arm upon one pivot-pin of each bar, a vertically-movable lifting-rod having means engaging said crank-arms for setting the bars to expose their blank faces, a key at the lower end of the rod for lifting it, a series of latches engaging the lips on the bars for holding them with their blank faces exposed, a series of vertically-movable lifting-rods one for each latch to independently trip the same, a series of keys below, to independently lift said rods, and weighted arms secured to the other pivot-pins of the bars for independently rocking said bars when tripped, to expose their inscribed faces.

2. A train and station guide comprising a frame, a clock-dial in the upper part of the frame, hands movable over the dial, a key in the lower part of the frame, and mechanism operated by the key for setting the heads, transverse slats on the frame, a series of independent name-bars arranged intermediate the slats and each having a blank face and a face inscribed with a station-name, a pivot-pin at each end of each bar by which the bar is pivotally mounted in the frame, a crank-arm upon one pivot-pin of each bar, a vertically-movable lifting-rod having means engaging said crank-arms for setting the bars to expose their blank faces, a key in the lower part of the frame engaging the rod for lifting it, a series of latches pivoted to the slats for engaging the bars for holding them with their blank faces exposed, a series of vertically-movable lifting-rods, to independently trip the latches, a series of keys in the lower part of the frame to independently lift said rods, and weighted arms secured to the other pivot-pins of the bars for independently rocking said bars when tripped, to expose their inscribed faces

3. In a guide, the combination of a series of triangular-shaped name-bars having a blank and an inscribed face, lips projecting beyond one of the apices of the bars, a pivot-pin at each end of the bar for pivotally supporting the same, projections on the pivot-pins, a vertically-movable lifting-rod, common to all the bars and having means for engaging said projections in its upward movement only, to expose the blank faces, means for operating the rod, a series of latches engaging the lips on the bars for holding them with their blank faces exposed, a series of vertically-movable lifting-rods, one for each latch, to independently trip the same, and transversely-extending levers at the lower ends of said lifting-rods having operating-keys at their forward extremities.

4. In a guide, the combination of a series of name-bars having a blank and an inscribed face, a pivot-pin at each end of the bar for pivotally supporting the same, projections on the pivot-pins, a vertically-movable lifting-rod, common to all the bars and having means for engaging said projections in its upward movement only, to expose the blank faces, means for operating the rod, a series of latches engaging the bars for holding them with their blank faces exposed, a series of vertically-movable lifting-rods, one for each latch, to independently trip the same, transversely-extending levers at the lower ends of said lifting-rods having operating-keys at their forward extremities, and an inclosing casing for all of said operating devices.

784,258. **GARMENT-FASTENER.** FERDINAND FRANS, San Francisco, Cal. Filed May 5, 1904. Serial No. 206,482.



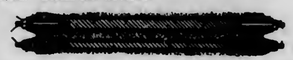
Claim.—1. A garment and like fastener comprising a stud member having a base-plate, a head and an intermediate shank; a socket member having an opening through which the head of the stud member may freely pass; and an independent compressible ring loose on the shank of the stud member and having a concaved periphery, said socket member having the wall of its opening convexed to substantially conform to the concaved periphery of the ring.

2. A garment and like fastener comprising a stud member having a base-plate, a head and an intermediate shank of reduced diameter; a socket member having an opening through which the head of the stud member may freely pass, said opening having a convex wall; and a split ring loose on the shank of the stud member and having a concaved periphery to substantially conform to and receive the convex wall of the socket-member opening, said ring compressible to allow the socket member to be forced into engagement therewith.

3. A garment or like fastener comprising a stud member having a base-plate, a head, and an intermediate shank; a split ring loose on said shank and having a concaved periphery with one edge extended beyond the plane of the opposite edge, said opposite edge being reinforced; and a socket member having an opening through which the head of the stud member protrudes, said opening having a convex surrounding wall substantially conforming to the concaved periphery of the ring, and adapted to seat in said periphery.

4. A garment or like fastening comprising a stud member having a base-plate, a head, and an intermediate shank; an elastic ring with separated ends, said ring loose on said shank having a concaved periphery and a projecting tongue adapted to engage a guide in the base-plate of the stud member; and a socket member having a hole with a substantially convex surrounding wall, said socket member adapted to pass loosely over the head of the stud member and to interlock with the ring.

784,259. **PRESS-PLATE.** ALFRED W. FRENCH, Piqua, Ohio. Filed July 18, 1904. Serial No. 217,006.



Claim.—1. A press-plate comprising a rigid body portion and a yielding marginal portion disposed substantially in the plane of and projecting laterally from the rigid body portion, substantially as set forth.

2. A rigid press-plate provided with a yielding extension which projects from the rigid portion of the plate in the direction of the plane of the plate, substantially as set forth.

3. A press-plate comprising a rigid body portion and a yielding pervious marginal portion disposed substantially in the plane of and projecting laterally from the rigid body portion, substantially as set forth.

4. A rigid press-plate provided with an extension of pervious fabric which projects from the rigid portion of the plate in the direction of the plane of the plate, substantially as set forth.

5. A rigid press-plate provided with a pervious marginal extension of woven horsehair which projects from the rigid portion of the plate in the direction of the plane of the plate, substantially as set forth.

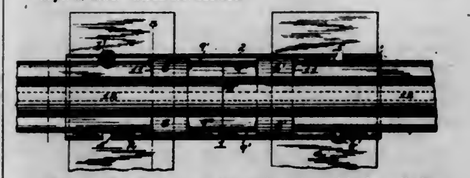
6. A press-plate comprising a body, studs projecting from said body, and a yielding marginal portion supported by said studs, substantially as set forth.

7. A press-plate comprising a body, studs loosely connected to and projecting from said body, and a yielding marginal portion supported by said studs, substantially as set forth.

8. A press-plate comprising a body, studs projecting from said body, a strip connecting said studs, and a fabric woven about said studs between said strip and the body of the plate, substantially as set forth.

9. A press-plate comprising a body, studs projecting from said body, a strip connecting said studs, a fabric woven about said studs between said strip and the body of the plate, nuts secured on said studs, and springs interposed between said nuts and said strip, substantially as set forth.

784,260. **RAIL-JOINT.** JOSEPH A. HAMILTON, Duquesne, Pa. Filed Sept. 9, 1904. Serial No. 223,900.



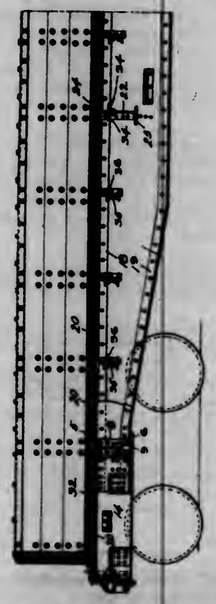
Claim.—1. In a rail-joint, the combination with the rails having the flanges thereof cut away to the face of the web, one at each side to form openings adjacent to the abutting ends of said rails and flanged portions on each side of said openings, of a plate fitting under the flanged portions of said rails for supporting the same, and lugs extending up from said plate and through the openings in said rail-flanges for supporting the heads of the rails.

2. In a rail-joint, the combination with the rails having the flanges thereof cut away to the face of the web on each side to form openings adjacent to the abutting ends of said rails and flanged portions on each side of said openings, of a plate fitting under said rails and having a seat therein for the flanged portions of said rails, and lugs extending up from said plate and through the openings in said rail-flanges for supporting the heads of the rails.

3. In a rail-joint, the combination with the rails having the flanges thereof cut away to the face of the web on each side to form openings adjacent to the abutting ends of said rails and flanged portions on each side of said openings, of a plate fitting under rails and having side flanges thereon for forming a seat for said rail-flanges and to bear against the same, and lugs extending up from said plate and through the openings in said rail-flanges for supporting the heads of the rails.

4. In a rail-joint, the combination with the ties, of rails having the flanges thereof cut away to the face of the web on each side to form openings adjacent to the abutting ends of said rails and flanged portions on each side of said openings, a plate fitting under said rails and having side flanges thereon for forming a seat for said rail-flanges and to bear against the same, lugs extending up from said plate and through the openings in the rail-flanges for supporting the heads of the rails, and spikes passing through openings in said side flanges and into said ties to enable the spike-heads to engage with said side flanges and rail-flanges.

784,261. **METALLIC CAR-UNDERFRAME.** JOHN M. HANSEN, Pittsburg, Pa. Filed Dec. 23, 1904. Serial No. 238,161.



Claim.—1. In a metallic railway-car, the combination with the body-bolsters, of a deep center sill connecting said bolsters, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and secured to both, and a bottom tie member secured to the web members and extending through a slot cut in the web of the center sill.

2. In a metallic railway-car, the combination with body-bolsters, of a deep center sill connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and secured to both, a top tie member secured to said web members and extending across the top of the center sill, and a bottom tie member secured to said web members and extending through a slot in the center sill.

3. In a metallic railway-car, the combination with the body-bolsters, of a deep center sill connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and secured to both and provided with flanges on their bottom edges, and a bottom tie member secured to the flanges of said web members and extending through a slot in the center sill.

4. In a metallic railway-car, the combination with the body-bolsters, of a deep center sill connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and secured to both and being provided with flanges on their top and bottom edges, a top tie member secured to the top flanges of said web members and extending across the top of the center sill, and a bottom tie member secured to the bottom flanges of said web members and extending through a slot in the center sill.

5. In a metallic railway-car, the combination with body-bolsters, of deep center sills connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sills to the car sides and secured to both, braces between the center sills, and a bottom tie member extending through slots in the center sills and secured to said center brace and said web members.

6. In a metallic railway-car, the combination with the body-bolsters, of deep center sills connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sills to the car sides and secured to both, a brace between the center sills, a cross tie member extending through the center sills and secured to said center brace and web members, and a brace located between the center sills below said tie member and secured to said tie member and to the center sills.

7. In a metallic railway-car, the combination with the body-bolsters, of deep center sills connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising members extending from the center sills to the car sides and secured to both, a transverse tie member extending through slots in the center sills and secured to said side members, and a pair of plates secured to the center sills, one above and the other below said cross-tie, said plates being provided with flanges, the one on its top edge and the other on its bottom edge, and rivets passing through said flanges and the interposed cross-tie.

8. In a metallic railway-car, the combination with body-bolsters, of center and side sills, a cross-bearer or transom connecting said center and side sills intermediate the bolsters, a wooden superstructure, and vertical metallic members therefor secured to the side sills, those opposite the transom extending below the side sills and having said projecting portions secured to the ends of the transom.

9. In a metallic railway-car, the combination of body-bolsters, center and side sills, a cross-bearer or transom intermediate the body-bolsters and comprising web members extending from the center to the side sills and secured to both, top and bottom transverse tie members connected to said web members, a wooden superstructure, and metallic vertical members therefor secured to the side sills, said members opposite the transom projecting below the side sills and having said projecting portions secured to the ends of the web members of the transom.

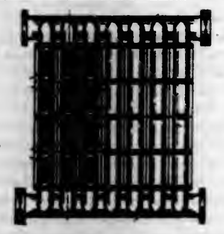
10. In a metallic railway-car, the combination of body-bolsters, center and side sills connecting the same, and a cross-bearer or transom intermediate the bolsters and extending from the center to the side sills and secured to both, the sills, bolsters and transom having their top edges in approximately the same plane, cross-connectors between the transom and body-bolsters and located below the top edges of the sills, and longitudinal stringers extending from the body-bolsters to the transom and resting on said cross-connectors.

11. In a metallic railway-car, the combination of side and center sills, body-bolsters, a transom intermediate the body-bolsters, said bolsters and transom comprising web members extending from the center to the side sills and secured to both, the top edges of said bolsters, transom and sills being in approximately the same plane, cross-connectors extending from the center to the side sills intermediate the bolsters and transom and located below the top edges of said sills, longitudinal stringers extending from the body-bolsters to the transom and resting on said cross-connectors, and brackets secured to the webs of said bolsters and transom and supporting the ends of said stringers.

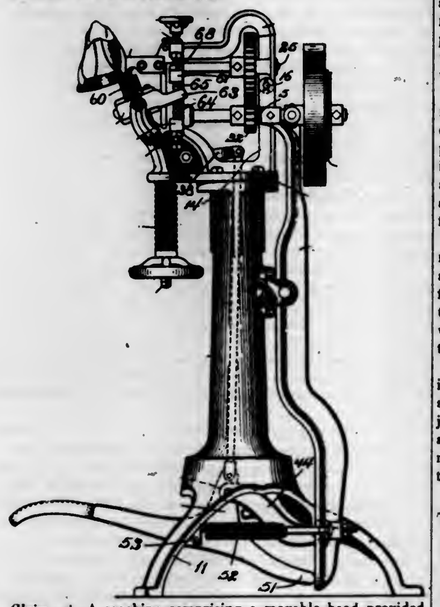
784,262. **HEATING OR COOLING APPARATUS.** JULES HEILMANN, Strasburg, Germany. Filed May 2, 1903. Serial No. 155,411.

Claim.—A heating and cooling apparatus, consisting of a plurality of chambers each having an inlet and an outlet at opposite ends, the outlet of one chamber communicating directly with the inlet of the adjacent chamber, said chambers being assembled in parallel and spaced apart, transverse rows of short tubular members extending across each chamber, the tubular members in one chamber being directly opposite the tubular members in the adjacent chamber, transverse rows of solid members extending across each chamber and staggered with respect to the tubular members, substantially as specified.

784,262.



784,263. **STITCH-INDENTING MACHINE.** JOHN J. HEYD, Lynn, Mass., assignor of one-half to Maurice V. Brennahan, Lynn, Mass. Filed Apr. 27, 1903. Serial No. 154,262.



Claim.—1. A machine comprising a movable head provided with a rotary instrumentality to engage the work, a shaft connected to said instrumentality to rotate it, a power-shaft, clutch mechanism on said shaft, driving connection between said shafts, and means for simultaneously moving said head to inactive position and operating the clutch to stop the rotation of said instrumentality.

2. A machine comprising a rotary tool, movable means for supporting the tool, a shaft connected to the tool, clutch mechanism governing the rotation of the tool, and mechanism for automatically moving said supporting means to inactive position and operating said clutch to effect a cessation of rotation of the tool.

3. A machine comprising a driving-shaft, a driven shaft, driving connection between said shafts, clutch mechanism on said driving-shaft, a movable head, a rotary tool on said head adapted to be actuated by said driven shaft, and a treadle mechanism for simultaneously moving said head to inactive position and actuating the clutch to disconnect it from the driving-shaft.

4. A machine of the character described, comprising a stationary work-support, a movable head having a rotary tool thereon adapted to coact with said work-support in operating upon the work, a shaft connected to said rotary tool, clutch mechanism on the shaft, and means for simultaneously moving said head away from the work-support and unclutching said clutch from the shaft to stop the rotation of said tool.

5. A machine comprising a rotary tool, a movable head therefor, a shaft connected to said tool and having clutch mechanism thereon, and means for simultaneously unclutching the clutch mechanism from the shaft to stop the rotation of said tool and moving the said head toward inoperative position.

6. A machine of the character described, comprising a movable head carrying a rotary shaft with a tool thereon, a relatively stationary power-shaft geared to the first-mentioned shaft, a clutch on the power-shaft, and manually-operatable means for simultaneously unclutching said clutch from said shaft and moving said head to inactive position.

7. A machine of the character described, comprising in combination with a relatively stationary work-support, a power-shaft having a clutch thereon, a frame supporting said work-support and the said power-shaft, a head pivoted to said frame and carrying a tool at its free end, mechanism driven by said power-shaft for operating said tool, a depressible treadle, and means whereby the depression of said treadle moves said head to carry the tool away from said work-support.

8. A machine of the character described, in combination with a relatively stationary work-support, a power-shaft having a clutch thereon, a frame supporting said work-support and the said power-shaft, a head pivoted to said frame and carrying a tool at its free end, mechanism driven by said power-shaft for operating said tool, a depressible treadle, and means whereby the depression of said treadle unclutches the clutch from said shaft to arrest the operation of said tool and moves said head away from the work-support.

9. A machine of the character described comprising instrumentalities for operating on the work, including a power-shaft, clutch mechanism normally clutched on said shaft, a yieldingly-supported treadle having an arm thereon, and a lever fulcrumed between its ends and having one end connected with the clutch mechanism and its other end bearing against the end of the arm on the treadle, so that the depressing of said treadle effects the releasing of said shaft from said clutch.

10. A machine of the character described, comprising instrumentalities for operating upon the work including a movable head, a lever connected to said head, a rod connected to said lever, a spring for holding said head normally in operative position, a treadle between the ends of which said rod is connected, a movable fulcrum to which the treadle is pivoted between its ends, and an abutment for the end of said treadle.

11. A stitch-indenting machine comprising a rotary shaft having a rotary toothed indenting-tool thereon and a work-support consisting of a wheel or roller, a yoke in which said wheel or roller is journaled, trunnions for said yoke arranged at right angles to the axis of the roller, and means for adjusting said yoke about its trunnions to vary the angularity of the periphery of the wheel or roll and the indenting-tool.

784,264. **WIRE-DRAWING DRUM.** JAMES A. HORTON, Providence, R. I., assignor to Iroquois Machine Company, New York, N. Y., a Corporation of New York. Filed Sept. 8, 1903. Serial No. 172,351.



Claim.—1. A wire-drawing drum having a positively-driven circumferential wire-forwarding seat mounted for a limited yielding movement.

2. In a wire-drawing machine, a drum having a radially-yielding positively-driven wire-seat.

3. In a wire-drawing machine, a drum, and a shoe or wire-seat so mounted on the drum as to yield elastically to the varying tension of the wire, and connected for positive rotation thereby.

4. In a wire-drawing machine, a drum, a wire-seat driven by and having a peripheral movement on said drum, and means for positively limiting said movement.

5. In a wire-drawing machine, a drum and a circumferential spring-ring forming a seat for the wire so mounted on the drum as to enable it to contract and expand and having a positive driving connection with said drum.

6. In a wire-drawing machine, a drum and a cushioned wire-seat positively driven thereby.

7. In a wire-drawing machine, a drum, a circumferential positively-driven wire-seat thereon, and a cushion between said seat and the drum.

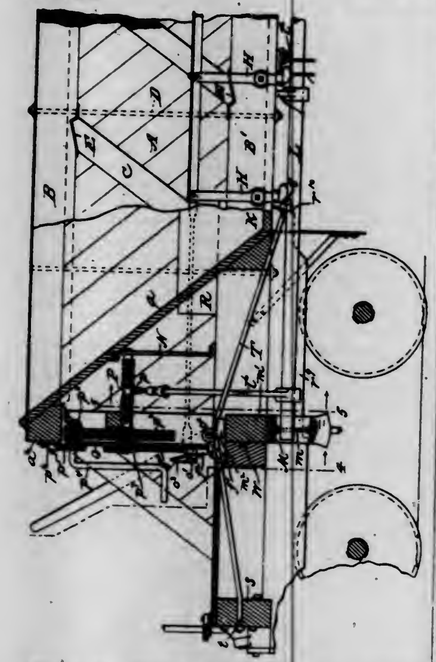
8. In a wire-drawing machine, a wire-drawing drum, a reducing-die, a second drum between the first said drum and the die, and a positively-driven wire-forwarding seat on said second drum mounted for a limited yielding or cushioning movement.

9. In a wire-drawing machine, a series of drums and dies adapted to impart successive reductions to the wire, said drums having yielding positively-driven wire-seats.

10. In a wire-drawing machine, a drum having a wire-seat composed of a lubricating material capable of coating by attrition wire having substantially the hardness of steel.

11. A wire-seat for wire-drawing drums composed of a metallic alloy similar to that used in coating the wire.

784,265. CAR. FRANK S. INGOLDSBY and JOSEPH R. BOWLING, St. Louis, Mo., assignors to The Ingoldsby Automatic Car Company, St. Louis, Mo., a Corporation of West Virginia. Filed Dec. 21, 1903. Serial No. 185,942.



Claim.—1. In a dumping-car, the combination of oppositely-arranged dumping-doors, a rock-shaft for each of said doors, said shaft having rigid therewith one or more arms engaging its door, means carried by said shaft for rocking the same, a common operating means for both of said shafts and a connection between the same and the rocking means carried by said rock-shaft whereby the doors may be closed in unison, substantially as described.

2. In a dumping-car, the combination with the inclined end and the bottom of said car, a bolster, a door for said bottom, a shaft having means attached thereto for engaging said doors to close the same, means for supporting the operating end of said shaft by the bolster, an operating device rigid with said shaft, said device being located under the inclined end portion of the car, power-actuated mechanism under the inclined end of the car, and means connecting said power-actuated mechanism and the operating device rigid with the shaft, substantially as described.

3. In a dumping-car, the combination of oppositely-arranged dumping-doors, a rock-shaft for each of said doors, said shaft having rigid therewith one or more arms engaging its door near the free edge thereof, a lever rigid on said shaft for operating the same, an operating-shaft, and a flexible connection between each of said levers and the operating-shaft, whereby the doors may be closed in unison, substantially as described.

4. In a dumping-car, the combination of oppositely-arranged dumping-doors, a rock-shaft for each of said doors, said shaft having rigid therewith one or more arms engaging its door near the free edge thereof, a lever rigid on said shaft for operating the same, an operating-shaft, a flexible connection between each of said levers and the operating-shaft, and means for adjusting the length of each of said connections whereby the doors may be closed in unison, substantially as described.

5. In a dumping-car, in combination with the bottom of the car, a central longitudinal beam, a door hinged at the bottom of the car and extending between the beam and the side of the car, a rock-shaft below said beam, an arm extending from said rock-shaft against the bottom of said door near the free edge of the same, a lever rigid with said rock-shaft, a centrally-arranged operating-shaft above said rock-shaft, and a chain or similar flexible connection between said rock-shaft lever and said operating-shaft, substantially as described.

6. In a dumping-car, in combination with the inclined end and bottom of said car, a central longitudinal beam, a rock-shaft below said beam, a door extending between said central beam and the side of the car and closing against such side, an arm rigid with said rock-shaft and extending from the same adjacent to the free edge of the door, a lever rigid with said rock-shaft under the inclined end of the car, a centrally-located operating-shaft under the inclined end of the car, and a flexible connection between said shaft and the rock-shaft lever, substantially as described.

7. In a dumping-car, in combination with the bottom of the car, a door hinged to the bottom of said car, means for closing said door consisting of a rock-shaft extending longitudinally of said door, said shaft having a rigid arm engaging said door near the free edge thereof, a lever rigid with said shaft at substantially right angles with said arm, an operating-shaft above said rock-shaft and on the side of the same opposite said arm, and a flexible connection between said operating-shaft and said lever, substantially as described.

8. In a dumping-car, in combination with the bottom of the car, a central longitudinal beam, a door hinged below and at one side of said beam, a rock-shaft extending longitudinally of the door and journaled to the central beam below the hinged portion of the door, an arm or arms rigid with said rock-shaft and engaging the door near the free edge thereof, a lever rigid with said rock-shaft at an angle with said arm or arms, a shaft above said rock-shaft, and a connection between said shaft and the lever on the rock-shaft, substantially as described.

9. In a dumping-car, in combination with the inclined end and bottom of said car, a door for said bottom of the car, a shaft extending longitudinally of the car and having means thereon for closing said door, said shaft being extended at one end beneath the inclined end of the car, an operating-shaft under the inclined end of said car, a connection between said operating-shaft and said first-mentioned shaft for operating the latter, substantially as described.

10. In a dumping-car, in combination with the inclined end and bottom of said car, a door for said bottom of the car, a shaft extending longitudinally of the car and having means thereon for closing said door, said shaft being extended at one end beneath the inclined end of the car, an arm rigid with said shaft for rocking the same, said arm being under the inclined end of the car, an operating-shaft under the inclined end of the car, and a flexible connection between said shaft and said arm, substantially as described.

11. In a dumping-car, in combination with the inclined end and bottom of said car, a door for said bottom of the car, a shaft extending longitudinally of the car and provided with means engaging said door to close the same, the end of said shaft being extended beneath the inclined end of the car, plates secured to the inclined end and cross-cap of the body of the car, an operating-shaft journaled in said plates, and a connection between the operating-shaft and the first-mentioned shaft, substantially as described.

12. In a dumping-car, in combination with the bottom of said car, a door hinged to the bottom of said car, mechanism for closing said door, means for locking and unlocking said door, a lever for operating said locking and unlocking means, and means carried by the lever for throwing part of the door-raising mechanism out of operation when the lever is operated to drop the door, substantially as described.

13. In a dumping-car, in combination with the bottom of said car, a door hinged to the bottom of said car, gear-provided means for closing said door, a crank and pinion for operating said last-mentioned means, means for locking and unlocking said door, a lever for actuating said locking and unlocking means, a rock-shaft to which said lever is fulcrumed, and means carried by said rock-shaft for throwing the pinion and gear-provided means out of mesh when the lever is operated in a direction to drop the doors, substantially as described.

14. In a dumping-car, in combination with the bottom thereof, doors hinged to the bottom, means for closing said doors, said means consisting of a shaft having a gear thereon, a crank and pinion for operating said gear, means for holding said gear and pinion in mesh, said means consisting of a pawl engaging the under portion of the operating-shaft, an arm depending from said pawl, means for locking and unlocking the doors, a lever for operating said locking and unlocking means, and means, operated by the lever, engaging said arm to trip the pawl when the lever is operated in a direction to open the door, substantially as described.

15. In a dumping-car, in combination with the bottom thereof, a door for said bottom, means for closing said door, said means comprising enmeshing gears, one of said gears having an operating-handle, means for holding said gears in mesh, said means comprising a weighted pawl having an arm connected thereto, means for locking and unlocking said door, and means operated by said locking and unlocking means and engaging said arm to trip the pawl and throw the gears out of mesh when the locking and unlocking means, are operated to drop the doors, substantially as described.

16. In a dumping-car, in combination with the bottom of said car, a door for the bottom of said car, means for closing said door, said means comprising enmeshing gears, and means, including a weighted arm, for holding said gears in mesh, means for locking and unlocking said door, a lever for operating said last-mentioned means a rock-shaft to which said lever is fulcrumed, said rock-shaft being provided with a device for engaging said weighted arm to trip the pawl and throw the door-raising gears out of mesh when the lever is operated in a direction to drop the door, substantially as described.

17. In a dumping-car, in combination with the bottom of the car, a door hinged to the same, means for closing said door, said means comprising enmeshing gears, an arm rigid with one of said gears, a journal-box carried by the other of said gears, a pawl pivoted above said box and having a hook engaging the same to hold the gears in mesh, an arm secured to said pawl, a keeper for the outer portion of said arm, said keeper constructed to permit lateral movement of said arm, a spring in the said keeper pressing against the outer portion of said arm, means for locking and unlocking said doors, a lever for operating said means, and a rock-shaft to which said lever is rigidly fulcrumed, said rock-shaft being provided with a projection engaging the outer end of said arm, substantially as described.

18. In a dumping-car, in combination with the sides and bottom of the car, a central longitudinal beam, doors hinged to the opposite sides of said beam and extending to said sides, means for raising said doors, said means comprising a centrally-located operating-shaft having a gear thereon and a gear having a crank-arm rigid therewith meshing with the first-mentioned gear, means comprising a weighted arm for holding said gears in mesh with each other, means carried by each of said sides for locking and unlocking the doors, a lever on each side for operating such locking and unlocking means, a transverse rock-shaft to which each of said levers is fulcrumed, each of said shafts having at its inner end a projection for engaging the weighted arm to trip the pawl and throw the gears out of mesh at the time when either of said levers is operated in a direction to unlock its door, substantially as described.

19. The combination with a car, of a door hinged to said car, a reinforcing angle-iron beam having one flange secured to said door, said flange being extended to form a hinge-eye and the other flange of said angle-iron being extended beyond the free edge of the door to engage the door-locking means, substantially as described.

20. The combination with a car, of a door for said car, of a reinforcing angle-iron beam for said door having one flange secured to the beam of the door, said flange being extended beyond the other and being bent to form a hinge-eye and then extended back upon itself, and a bolt passing through the end and body portion of said flange and securing the same to the door, substantially as described.

21. In a car, in combination with the side and bottom thereof, a central longitudinal beam provided with means at its lower edge for pivoting a door thereto, a reinforcing angle-iron beam having one of its flanges secured to the bottom of said door, said flange being extended beyond the other flange and bent to form a hinge-eye, a sleeve within said eye, and a pintle extending through said sleeve and through members secured to the beam, substantially as described.

22. In a car, in combination with the bottom thereof, a central longitudinal beam, said beam having at its side an overhanging portion, means secured to said beam and extending beneath said overhanging portion for pivoting said door, a beam secured to the lower side of the door, said beam being bent upon itself to form a hinge-eye for the door, a plate secured to the upper surface of the door and extending over said eye, and means for securing together said eye and plate, substantially as described.

23. In a car, in combination with the side and bottom thereof, a door hinged near the central portion of the bottom and extending to the side, an angle-iron beam having one flange secured to the beam of said door, the other flange extending beyond the free edge of the door beyond the first flange and bent to form a beveled surface, a locking-lever pivoted to the side of said lever having a hook engaging the projecting end of the beam and bearing against the beveled portion thereof, substantially as described.

24. In a car, in combination with the side and bottom thereof, a central longitudinal beam, a pair of bolts having their body portions extending over said beam and their extremities extending through the sides of said beam, a pair of straps extending across the under side of said beam in line with said bolts, a plate extending across said straps, said straps and said plate having openings therethrough for the passage of the bolts, nuts on the ends of said bolts, said nuts bearing against said plate, a door hinged to said straps and extending to the side of the car, and means carried by the side of the car for locking the door in a closed position against the lower edge thereof, substantially as described.

25. In a car, in combination with the sides and bottom thereof a central longitudinal beam, a pair of bolts extending through the sides of said beam, a pair of straps extending across said beam against the lower surface thereof, a plate on each side of said beam extending beneath both of said straps, said plates and straps having openings therethrough for the passage of the bolts, nuts for securing said bolts to said plates, doors pivoted to said straps and extending between the bottom and the sides of the car, and means carried by the side of the car for locking said doors closed thereagainst, substantially as described.

26. A car having a bottom and sides, a central longitudinal beam, a door extending between said bottom and said sides, and means for hinging said door to said bottom, said means comprising a strap-plate extending across the under side of said beam the end of said strap-plate being bent to form an eye and then being turned back upon itself, a bolt extending through said beam and through both members of the strap-plate to secure the same in position beneath the beam, the door being provided with a hinge-eye, and a pintle extending through said hinge-eye and through the eye formed in the strap, substantially as described.

27. In a car, in combination with a beam, a door, means for pivoting said door to said beam, said means comprising a pair of strap-plates secured to the under side of said beam, said plates being bent to form hinge-eyes below and at one side of the beam, the ends of said strap-plates being extended beneath the body portions thereof, a plate extending longitudinally of the beam beneath said strap-plates, means for securing said plates to the bottom of the beam, a hinge-eye carried by the door and extending between the two eyes formed in the strap-plates, and a hinge-pintle extending through all of said eyes, substantially as described.

28. In a car, in combination with the bottom thereof, a longitudinal beam, a door hinged to said beam, a shaft for closing said door, and a bearing carried by said beam for said shaft, said bearing consisting of a plate secured to the bottom and having a pair of downward extensions having journals therein for said shaft, substantially as described.

29. In a car, the combination of a beam, a pair of straps extending beneath said beam and provided with eyes adjacent to the lower edge of the beam, a bent metal shape extending from one of said straps to the other and beneath the same and having a depending portion, bolts extending through said beam and through said straps and portions of the bent metal shape to secure the same to the beam, a door having hinge-eyes coöperating with the eyes in the straps, and an operating-shaft for closing said door, said shaft being journaled in the downwardly-extended portion of the bent metal shape, substantially as described.

30. In a car, the combination of a beam, a pair of straps extending beneath said beam and provided with eyes adjacent to the lower edge of the beam, a bent metal shape extending from one of said straps to the other and beneath the same, said shape consisting of an intermediate body portion extending from one of said straps to the other and beneath the same, the end portions of said shape being bent toward each other beneath said straps, then downwardly to form depending leg portions, bolts extending through said beam, straps and adjacent portions of the bent metal shape, a door having a hinge-eye coöperating with the eyes in the straps to form a hinge, and a shaft for operating said door, said shaft being journaled in the depending portions of said shape, substantially as described.

31. In a car, the combination of a door, of a shaft for operating said door, and a journal for said shaft, said journal being formed by a bent metal shape having depending portions provided with journal-bearings for said shaft, substantially as described.

32. In a dumping-car, in combination with the bottom of said car, a bolster, a side member, doors hinged to said bottom, a shaft journaled near the center of said bottom for elevating the doors, the end of said shaft extending to the bolster, an operating-lever rigid with said shaft near the extremity thereof, and a tie-rod having one end secured near the longitudinal axis of the bottom of the car and between said bolster and the center of the car, said tie-rod extending to a point adjacent to the junction of the bolster and side member of the car, substantially as described.

33. In a car, in combination with the bottom thereof, a bolster, a side member, an end sill, a door hinged to said bottom and extending to a point between the transverse axis of the car and the bolster, a longitudinal shaft for closing said door, said shaft being journaled near the center of the car and having one extremity extending as far as the bolster, a lever rigid with said shaft near said extremity, a tie-rod having one end secured at a point near the outer end of said door, said tie-rod extending in proximity to the side member at the junction of the bolster therewith and from there to the end sill of the car, substantially as described.

34. In a car, the combination with a central longitudinal beam, a bolster, an end sill, a strap on the under side of the longitudinal beam having a suitable bearing, and a tie-rod extending upward from said strap to the side of the car at a point above the junction therewith of the bolster and from said point parallel with said side through the end sill, substantially as described.

35. In a car, the combination, with the end sill and the bolster thereof, of a pair of tie-rods having their outer extremities extending through the end sill near the outer ends thereof, said rods extending upwardly and parallel with the sides of the car to a point above the bolster and thence extending inwardly and downwardly to a point adjacent to the center of the car, substantially as described.

36. In a car, the combination, with a longitudinal central member, a side member, a bolster, and an end sill, of a tie-rod extending from the end sill near the outer end thereof parallel with the side member to a point in line with the junction of the bolster and side member, thence inwardly to the central longitudinal member, substantially as described.

37. In a car, the combination, with a central longitudinal member, a bolster, a side member, and an end sill, of a tie-rod extending from the outer portion of said end sill to a point near the junction of said bolster and side member, thence inwardly to said longitudinal member, and a strut extending from the junction of the longitudinal member and the end sill to a point adjacent to the junction of the bolster and the side member, substantially as described.

38. In a car, the combination of a central longitudinal beam, a bolster, an end sill, a strap on the under side of the longitudinal beam having an angular bearing-surface formed thereon, a tie-rod extending from the end sill above the bolster and through the bearing-surface of said strap, and a nut on the end of said tie-rod for adjusting the tension of the same, substantially as described.

39. In a car, the combination of a central longitudinal beam, a bolster, an end sill, a side member, a tie-rod extending from the end sill near one end thereof upwardly and parallel with said side member to a point above the bolster then downwardly and inwardly to the lower portion of said longitudinal beam, substantially as described.

40. In a car, the combination of a central longitudinal beam, a bolster, an end sill, side members, a pair of tie-rods each extending from a point adjacent to the outer end of the end sill parallel with a side member to a point above the bolster, thence downwardly and inwardly to the bottom of said longitudinal beam, a strap extending across said longitudinal beam having openings therethrough for the passage of said tie-rods, and means on the ends of said tie-rods for adjusting the tension thereof, substantially as described.

41. In a car, the combination of the central longitudinal beam, of an end sill, extension-beams secured to the lower side of said longitudinal beam having their inner ends beveled or inclined, a strap secured to and extending across said beveled ends, tie-rods extending from the end sill through said strap, and means for adjusting the tension of said rods, substantially as described.

42. The combination with a trussed car side, of a bearing-plate having end portions in the same plane, means for securing the same to a chord of the side, said plate having two intermediate portions bent from the end portions and meeting at a common point, and a strut forming a portion of the car side and bearing at its end on both of said intermediate portions, substantially as described.

43. In a car side, the combination of an upper and a lower chord, of inclined struts extending between said chords, of a bearing-plate, said bearing-plate being provided with horizontal end portions and means for securing each of said end portions to a chord, and with two portions inclined with respect to said end portions and meeting at a common point, said inclined portions both forming bearing-surfaces for an end of a single strut, substantially as described.

44. In a car side, the combination of an upper and lower chord, an inclined strut between them, a bearing-plate for one end of said strut lying partially within a recess in one of the chords and partially projecting beyond the strut-face of such chord toward the other chord, substantially as described.

784,266. MAIL-CARRIER. ANDREW J. KENNEDY, Chicago, Ill. Filed July 11, 1904. Serial No. 216,121.



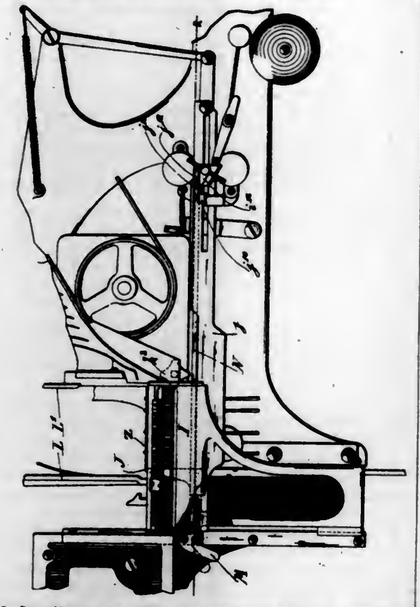
Claim.—1. A carrier of the class described comprising, a wire track or way, a carrier adapted to move thereon, a post or standard, a mast or arm pivotally connected at its lower end to said post or standard and also connected at its upper end to the track or way, and means connected to the opposite end of the track or way whereby the latter is moved endwise and one of its ends is elevated and the other lowered to change its inclination and cause the carrier to travel thereon by gravity, substantially as described.

2. A carrier of the class described, comprising in combination, a post or standard provided with limit-stops, a mast or arm pivotally connected at its lower end to said post or standard and adapted to be moved between said limit-stops, a wire track or way secured at one end to the free end of said mast or arm, and means connected to the opposite end of said track or way whereby the latter is moved endwise and one of its ends is elevated and the other lowered to change its inclination, and a carrier moving thereon by gravity, substantially as described.

3. A carrier of the class described, comprising a wire track or way, a post or standard, a mast or arm pivoted thereon and connected to said track or way, an operating-cable connected to the track or way whereby the inclination of the track may be changed, a car movable by gravity along said way and an indicator mounted on the car, substantially as and for the purpose described.

784,267. LINOTYPE-MACHINE. LUTHER L. KENNEDY, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Sept. 1, 1904. Serial No. 222,908.

Claim.—1. In a linotype-machine, the combination of a matrix-assembling mechanism, adjustable means for determining the length of the composed line, and means connected with the latter to prevent the transfer of the composed line until it has acquired the predetermined length, whereby the adjustment of the machine for a line of any given length automatically effects the corresponding adjustment of the means for preventing the transfer of the line.



2. In a linotype-machine, the combination of the assembling-elevator, a locking device therefor, the assembler-slide, an adjustable stop therefor, and a trip for the locking device connected with said stop.

3. In a linotype-machine, the assembling-elevator and means for delivering matrices thereto, in combination with a lock to prevent the movement of the elevator, the assembler-slide, an adjustable stop thereon, and a connection from said stop to release the assembler-lock.

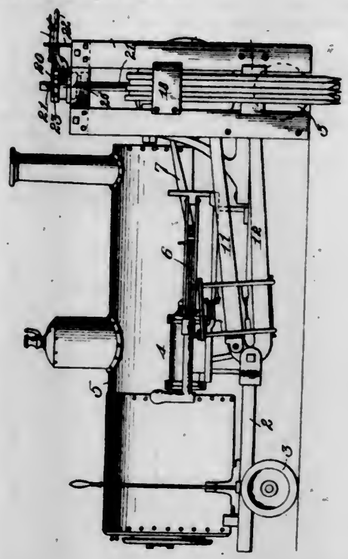
784,268. STONE-CHANNELING MACHINE. CHARLES M. LYMAN, Rutland, Vt. Filed Oct. 11, 1904. Serial No. 228,032.

Claim.—1. In a stone-channeling machine, the combination of an upper slide having means for clamping a gang of drills thereto, a lower slide, a feed-screw in threaded engagement with the upper slide and swiveled to the lower slide, and a hand-operable rotary member through which said screw passes, the screw being provided with a longitudinal keyway and said member being provided with a key to fit said keyway.

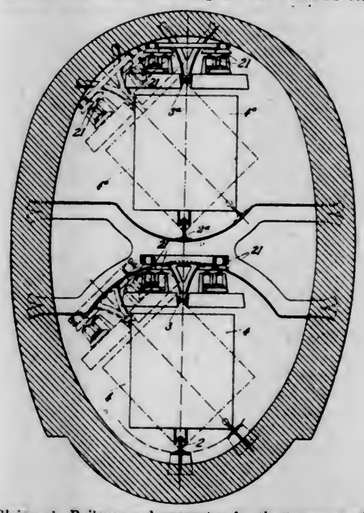
2. In a stone-channeling machine, the combination of an upper slide having means for clamping a gang of drills thereto, a lower slide, a feed-screw in threaded engagement with the upper slide and swiveled to the lower slide, a hand-operable rotary member through which said feed-screw passes, said screw being provided with a longitudinal keyway and said member being provided with a key to fit said keyway, suitably-associated upper and lower levers, the lower lever being operatively connected with said lower slide, and means for vibrating the upper lever.

3. In a stone-channeling machine, the combination of an upper slide having means for clamping a gang of drills thereto, a lower slide, a feed-screw in threaded engagement with the upper slide and swiveled to the lower slide, a ratchet through which the feed-screw passes, the latter having a longitudinal keyway, and the ratchet having a key to fit said keyway, and a hand-lever provided with a pawl for engaging the teeth of the ratchet.

4. In a stone-channeling machine, the combination of an upper slide comprising a body portion and a removable face-plate having complemental recesses to receive a gang of drills, a lower slide, a feed-screw swiveled to the lower slide and in threaded engagement with the upper slide, a ratchet through which said feed-screw passes, the latter having a longitudinal keyway and the ratchet being provided with a key to fit said keyway, a hand-lever supported by turning motion about the hub of said ratchet and provided with a pawl for engaging the teeth of the ratchet, a pair of operatively-associated levers one of which is connected with the lower slide, and means for positively operating the other lever.



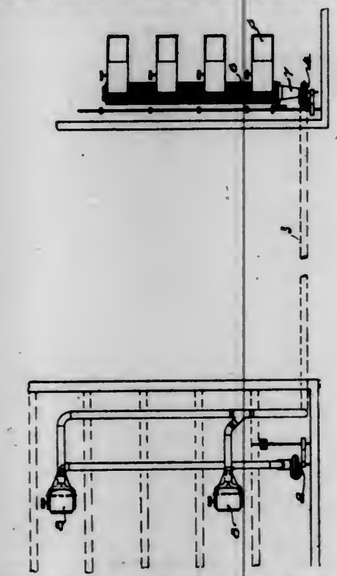
784,269. CONSTRUCTION OF RAILWAYS AND VEHICLES FOR TRANSPORTING LIGHT LOADS AT HIGH SPEED. DIMITRI MONNIER, Paris, France. Filed Aug. 25, 1903. Serial No. 170,719.



Claim.—1. Railway and apparatus for the transport of light loads, consisting of one or more lines of rail contained in a closed conduit tunnel or tube, each line consisting of a single running-rail and an upper guide-rail, the supports of such rails being constituted by surfaces of revolution whose central axis coincides with the center of gravity of the vehicle, and secondly of a vehicle mounted on springs and provided with two running-wheels each of which is driven through the medium of belts from an electric motor suspended from the framing by pivoted beams substantially as described.

2. In transporting apparatus of the kind herein described, the arrangement of the electromotors that drive the running-wheels with a central fixed support suspended from beams pivoted to the casing and a rotor the outer casing of which constitutes two pulleys that drive by means of belts corresponding pulleys on the axle of the running-wheels, the required tension of the belts being effected by springs acting on the motor so as to tend to draw it away from the wheel-axle, substantially as described.

784,270. **PNEUMATIC-CONVEYER SYSTEM.** ALBERT H. MORTON, Lowell, Mass. Filed July 13, 1904. Serial No. 216,340.



Claim.—A conveyer system for cotton-mills, having, in combination, an open-ended pneumatic conveyer-tube, a gang of feeders for disintegrating the bale-cotton, collecting means for collecting the cotton from the feeders and discharging it into the open end of the conveyer-tube, and a condenser at the delivery end of the tube, substantially as described.

784,271. **CATCH-BASIN COVER.** HIRAM W. MCDONALD, Galion, Ohio. Filed Mar. 21, 1904. Serial No. 199,287.

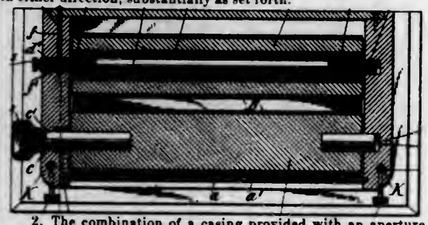


Claim.—1. The combination of a catch-basin cover provided with an inlet-opening, a face-plate adapted for adjustable movement upon the cover and partially closing the opening thereof, a guide-flange projected rearwardly from said face-plate, guide-standards extended from said guide-flange, a supporting-bar connecting the guide-standards, and adjustable grate-bars supported by the said supporting-bar and adjusted longitudinally thereof.

2. The combination of a catch-basin cover provided with an inlet-opening, a face-plate adapted for adjustable movement upon the cover and partially closing the opening thereof, a guide-flange projected rearwardly from said face-plate, guide-standards extended from said guide-flange, a supporting-bar connecting the said guide-standards, and grate-bars comprising sections adjustably and removably mounted upon the supporting-bar.

784,272. **TABULAR-SHEET HOLDER.** AUGUSTUS F. NAGLE, Montclair, N. J. Filed Apr. 7, 1904. Serial No. 202,120.

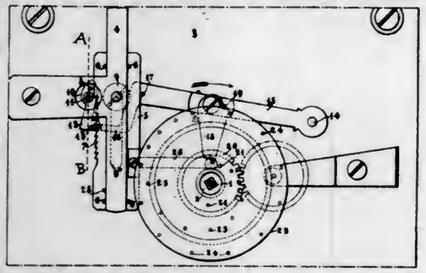
Claim.—1. The combination of a casing provided with an aperture in one of its walls, a pair of rollers journaled to rotate in said casing and carrying a flexible tabular sheet which is supported by the rollers in proximity to said aperture, a scale on said casing adjacent to said aperture and having characters arranged opposite to the characters on said tabular sheet, one of said rollers having a handle whereby the same can be turned manually in either direction, and the other roller having an internal spring for turning it in one direction, and a brake device which constantly exerts a pressure sufficient to hold said rollers against rotation by said spring and keep the sheet taut and permits said manually-operated roller to be turned by hand in either direction, substantially as set forth.



2. The combination of a casing provided with an aperture in one of its walls, a roller journaled to rotate in said casing and provided with a handle whereby it can be turned by hand in either direction, a roller journaled in said casing and having an internal spring for turning it in one direction, a flexible tabular sheet attached at opposite ends to said rollers and supported thereby in proximity to said aperture, a rate-scale on said casing adjacent to said aperture and having characters arranged opposite to the characters on said tabular sheet, and a friction-brake comprising a metal band embracing one of the journals of said hand-operated roller and having projecting substantially parallel arms, and an adjusting device bearing against one of said brake-arms for regulating the pressure of said brake on said journal, substantially as set forth.

3. The combination of a tabular or indicator sheet, a spring-roller connected to said sheet for moving the same, an inclosing casing, said spring-roller having a shaft which projects outside of said casing whereby it can be turned by hand, and an exposed pin which releasably engages in a slot in said shaft to hold the latter after adjustment, substantially as set forth.

784,273. **CLOCK STRIKING MECHANISM.** RICHARD NUSSBERGER, Zurich, Switzerland. Filed June 28, 1904. Serial No. 214,527.



Claim.—1. In braking and releasing mechanism for the rack and striking-gear in rack striking-clocks, the combination of a striking-gear with a vertically-movable rack, a guide for same, a braking-lever arranged in an oblique position, means upon said lever for engaging the side of the rack and braking it in each of its positions by pressure exerted in a horizontal direction, and a bent part at the end of the said brake-lever, adapted to brake the striking-gear, substantially as described.

2. In braking and releasing mechanism for the rack and striking-gear in rack striking-clocks, the combination of a striking-gear, with a vertically-movable rack, a guide for same, a braking-lever arranged in an oblique position, a bent part at the end of said brake-lever, a disk mounted upon the spindle of the hour-wheel, a set of pins projecting from said disk in a spiral line, and a second set of pins projecting from said disk in a circle, substantially as described.

3. In braking and releasing mechanism for the rack and striking-gear in rack striking-clocks, the combination of a striking-gear with a vertically-movable rack, a guide for same, a disk mounted upon the spindle of the hour-wheel, a set of pins projecting from said disk in a spiral line, an arm secured to said rack adapted to engage every successive half-hour with one of the pins on said disk and thereby limit the fall of the rack and a second set of pins projecting from said disk in a circle for engaging at every successive quarter-hour with the arm projecting from the rack and also limiting its movement, substantially as described.

784,274. **MULTIPLE-SCALE RULER.** KNUT M. PAULI, Washington, D. C. Original application filed Feb. 6, 1904. Serial No. 192,388. Divided and this application filed May 14, 1904. Serial No. 207,963.

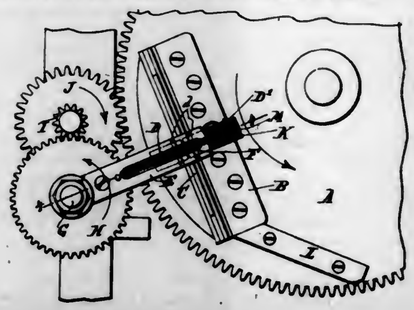


Claim.—1. Scales or rulers of oblong shape with one or more long parallel slots of greatest possible length and pressed or formed of one piece of material, so as to form a solid and fixed frame, for the purpose of having a large number of longitudinal straight-edges, upon which graduations of different scales are placed for accurate and rapid measurement of lines or distances; the material so shaped that the cross-section of one or more of the strips thus formed is approximately angular, whereby strength of such strips is combined with saving of material, and sloping surfaces formed for said graduations; the edges of the slots touching the surface upon which the ruler is resting when the graduations are read off.

2. Scales or rulers of oblong shape with one or more long parallel slots of greatest possible length and pressed or formed out of open sheet material, so as to become a solid and fixed frame, for the purpose of having a large number of longitudinal straight-edges, upon which graduations of different scales are placed for accurate and rapid measurement of lines or distances; the material bent or corrugated parallel to the slots, so that one or more strips with approximately angular cross-sections are formed, whereby the strength of such strips is combined with saving of material, and sloping surfaces formed for graduations; the edges of the slots touching the surface upon which the ruler is resting when the graduations are read off.

3. Scales or rulers provided with several graduated double scales on the same edge and face, in such a way that all double scales on the same face and edge start on the same place at one end of the scale-ruler with the same unit or figure, which is not the zero; from this point the different zeros belonging to said unit in the different double scales being placed consecutively in the same direction of the ruler, in different rows or fields on the surface of the edge, and each double scale extended on the other side of its zero arbitrarily, so that each such double scale is read to both sides of its zero, the side between the zero and the first starting-point being reserved for smaller divisions of the unit; the different double scales on the same edge and face being chosen in a simple relationship to each other, like 1 to 2, 3, &c., so that the zero of each double scale can be placed upon some main division-line of the next higher scale, and coincidence exists between the graduations of each such group of double scales, the same graduations in running through the different rows or fields having different values in each field, depending upon the choice of scales, whereby it is possible to combine a great number of different scales on the same edge and the same face of a ruler, and at the same time read the values rapidly.

784,275. **LINOTYPE-MACHINE.** DAVID PETRI-PALMEDO, Hoboken, N. J., assignor to The Mergenthaler Linotype Company, a Corporation of New York. Filed Sept. 1, 1904. Serial No. 222,984.



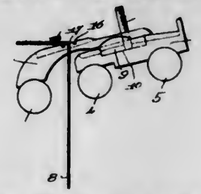
Claim.—1. In a linotype-machine, the combination of a mold arranged to rotate in one plane, and a coöperating knife arranged to rotate in the opposite direction in a parallel plane, whereby the knife is caused to traverse the mold repeatedly in the same direction to trim the front of the contained slug.

2. In a linotype-machine, the combination of a mold, a knife coöperating with its face to trim the front of the contained slug, and means for rotating the mold and the knife in parallel planes and in reverse directions.

3. The mold mounted in a rotary wheel, in combination with the arm geared to the wheel to rotate in the reverse direction, the knives mounted to slide on the arm, a spring connection urging the knives toward each other, and a spring urging the knives toward the axis of the carrying-arm.

4. The mold and its carrying-wheel, in combination with the rotary arm, E, intermediate gear, the two sliding knives adapted to engage and be guided by the mold, and the spring connecting the knives.

784,276. **TOP-ROLL SADDLE.** CLARENCE A. PIERCE, Manchester, N. H., assignor of one-third to Harry E. Parker and one-third to John J. Cronin, Manchester, N. H. Filed Dec. 5, 1904. Serial No. 235,433.



Claim.—1. In a top-roll saddle, a rear saddle to bear on the rear and middle top rolls, an upper member resting at one end on the front top roll and supported at the other end on the rear saddle, and a reversible member interposed between said rear saddle and upper member.

2. In a top-roll saddle, a rear saddle to bear on the rear and middle top rolls, a reversible bearing member carried by said rear saddle, and an upper member resting at one end on the front upper roll and at the other end on said bearing member.

3. A top-roll saddle having a rear saddle to bear on the rear and middle top rolls, a reversible bearing member carried by said saddle, said bearing member having a bearing-surface nearer one end than the other, and an upper member resting on the front top roll and said bearing-surface.

4. A top-roll saddle having a rear saddle to bear on the rear and middle top rolls, a reversible bearing member carried by said saddle, said bearing member having a bearing-surface nearer one end than the other, an upper member resting on the front top roll and said bearing-surface, and a weight-stirrup adjustably supported by the upper member.

5. In a top-roll saddle, a rear saddle resting on the rear and middle top rolls, a headed retaining-pin projecting from said saddle, an upper member resting at one end on the front top roll and at the other end on said rear saddle, said member having a slot through which said retaining-pin extends.

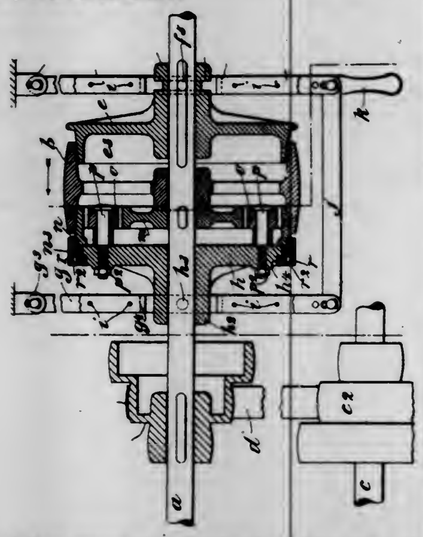
6. In a top-roll saddle, a rear saddle, a reversible bearing member carried thereby, said bearing member having a bearing-surface nearer one end than the other, an upper member resting at one end on said bearing-surface, and a headed retaining-pin projecting from the rear saddle and extending through said bearing member and adjacent end of the upper member.

7. In a top-roll saddle, a rear saddle, a reversible bearing member carried thereby, said bearing member having a bearing-surface nearer one end than the other, an upper member resting at one end on said bearing-surface, and a headed retaining-pin projecting from the rear saddle and extending through slots in the bearing member and adjacent end of the upper member, said head extending across the slots when the parts are in normal position.

784,277. **REVERSING-GEAR FOR MANDRELS OR OTHER SHAFTS.** THOMAS A. QUINN, Yonkers, N. Y. Filed July 5, 1904. Serial No. 215,205.

Claim.—1. In an apparatus of the class described, a driven shaft, a pulley loosely mounted thereon, hangers suspended at the opposite sides of said pulley and adapted to swing in a vertical plane and through which said shaft passes, a clutch-disk mounted on one

side of said pulley, and in operative connection with one of said hangers and adapted to move longitudinally on said shaft, a gear-disk mounted on the opposite side of said pulley and in operative connection with the other hanger and adapted to move longitudinally of said shaft, a gear-wheel secured to said shaft between the last-named disk and the pulley, a clutch flange or rim connected with the perimeter of the gear-disk and adapted to operate in connection with the pulley and provided with an internal gear, and pinions connected with said disk within the clutch flange or rim, and operating in connection therewith and in connection with said gear-wheel, substantially as shown and described.

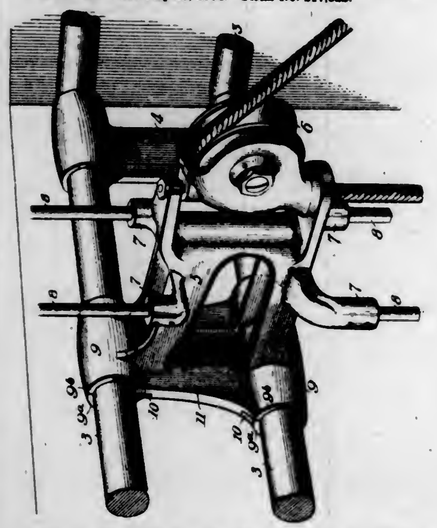


2. In an apparatus of the class described, a driven shaft, a pulley loosely mounted thereon, hangers suspended at the opposite sides of said pulley and adapted to swing in a vertical plane and through which said shaft passes, a clutch-disk mounted on one side of said pulley and in operative connection with one of said hangers and adapted to move longitudinally on said shaft, a gear-disk mounted on the opposite side of said pulley and in operative connection with the other hanger and adapted to move longitudinally of said shaft, a gear-wheel secured to said shaft between the last-named disk and the pulley, a clutch flange or rim connected with the perimeter of the gear-disk and adapted to operate in connection with the pulley and provided with an internal gear, and pinions connected with said disk within the clutch flange or rim, and operating in connection therewith and in connection with said gear-wheel, said hangers being in operative connection at their lower ends, substantially as shown and described.

3. In an apparatus of the class described, a driven shaft, a pulley loosely mounted thereon, hangers suspended at the opposite sides of said pulley and adapted to swing in a vertical plane and provided with collars through which said shaft passes, a gear-wheel secured to said shaft at one side of said pulley, a clutch-disk mounted on said shaft at one side of said pulley and in operative connection with the adjacent hanger and adapted to operate in connection with said pulley, another disk mounted on the opposite side of said pulley and adjacent to said gear-wheel and movable longitudinally of said shaft and in operative connection with the adjacent hanger, said last-named disk being provided with a clutch flange or rim adapted to operate in connection with said pulley and having an internal gear, and a pinion connected with said disk and operating in connection with said gear and also in connection with said gear-wheel, substantially as shown and described.

4. In an apparatus of the class described, a driven shaft, a pulley loosely mounted thereon, hangers suspended at the opposite sides of said pulley and adapted to swing in a vertical plane and provided with collars through which said shaft passes, a gear-wheel secured to said shaft at one side of said pulley, a clutch-disk mounted on said shaft at one side of said pulley and in operative connection with the adjacent hanger and adapted to operate in connection with said pulley, another disk mounted on the opposite side of said pulley and adjacent to said gear-wheel and movable longitudinally of said shaft and in operative connection with the adjacent hanger, said last-named disk being provided with a clutch flange or rim adapted to operate in connection with said pulley and having an internal gear, and a pinion connected with said disk and operating in connection with said gear and also in connection with said gear-wheel, said hangers being in operative connection, substantially as shown and described.

784,278. **CHEST-WEIGHT APPARATUS.** MILTON B. REACH, Chicopee Falls, Mass., assignor to Spalding Manufacturing Co., Chicopee Falls, Mass. Filed July 23, 1904. Serial No. 217,822.



Claim.—1. In apparatus of the class described, a supporting-rail extending along the wall of the room, a bracket supported and arranged to slide thereon, a pulley carried by the bracket and an exercising means associated with the said pulley, substantially as described.

2. In chest apparatus, the combination of a horizontal supporting-rail extending along the wall of the building, a pulley, guide-rods and a bracket carrying the said pulley and guide-rods and adjustable along the rail whereby the chest apparatus may be set in different positions on the rail, substantially as described.

3. In combination a horizontal supporting-rail extending along the wall of the room, a pulley-carrying bracket, means for detachably connecting said bracket to said rail and a rope associated with the said pulley, substantially as described.

4. In combination, a pair of horizontal supporting-rails and a pulley-carrying bracket having socket portions engaging said rails, said socket portions having connected removable sides, substantially as described.

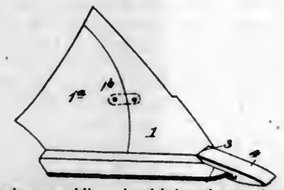
5. An exercising apparatus comprising a horizontal rail, a bracket adjustable thereon, a pulley supported on the bracket and means associated with the pulley and extending vertically in relation thereto, substantially as described.

6. In gymnasium apparatus, a pair of parallel bars arranged one above the other, a bracket supported on said pair of bars adjustably, a pulley on the bracket and exercising means associated with the said pulley, substantially as described.

7. In combination, one or more laterally-extending rails with means for supporting the same, a pulley-carrying bracket attached to the rail or rails, a rope running over the pulley and adapted to suspend a weight-carriage and vertical rods for guiding the said weight-carriage, substantially as described.

784,279. **PLOW.** PETER W. REIFSNEIDER, Limerick township, Montgomery county, Pa. Filed Aug. 5, 1903. Serial No. 168,349.

Claim.—1. A plow having a plow-point bar provided with lateral longitudinal grooves, a moldboard provided upon the under side, at its forward end, with a housing receiving said bar, and a bracket integral with said moldboard and having a lug engaging either of said grooves, said bracket being braced in position from said moldboard.



2. A plow having a moldboard, with its wing, a share applied to said moldboard, said wing having an inclined underneath thickened portion provided with a longitudinal recess, said wing having staples projecting therefrom, and a clamping-plate engaging said inclined thickened portion and having apertures receiving said staples and keys inserted into said staples, outside of said plate.

3. A plow embracing a moldboard with its wing, said wing having an inclined underneath thickened portion provided with a longitudinal recess, said moldboard having a housing upon the under side, at the forward end, a plow-point bar carried at its forward end by said housing and having lateral longitudinal grooves, a rear end-supporting bracket for said plow-point bar, having a lateral lug engaging either of the grooves of said bar, a share having upon its upper surface a longitudinal shoulder engaging the bottom edges of said moldboard and wing, said share also having a stepped and notched oblique lateral edge opposed to said plow-point bar and moldboard, said housing also having a lateral angular notch at its forward edge receiving the corresponding edge of said share, and a clamping-plate secured to, and resting upon, the underneath inclined surface of said moldboard-wing and bearing upon said share, said share having its rear end portion let into the recess of said wing.

784,280. **OIL-CUP.** VERNON ROYLE, Paterson, N. J. Filed July 11, 1904. Serial No. 216,025.



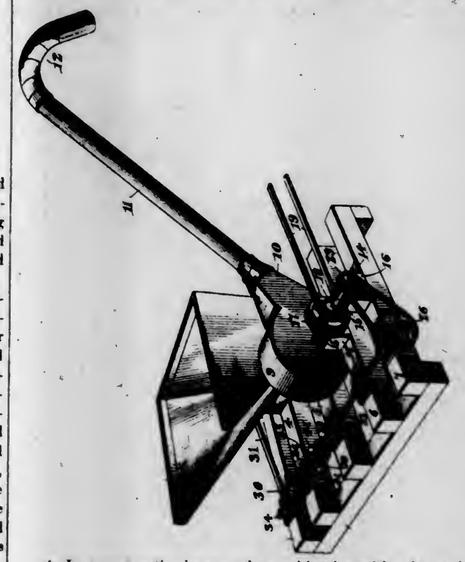
Claim.—The combination with a suitable casing, of a body of absorbent material fitted to the interior of the casing and inclosed by the casing and a rod of absorbent material engaged with the body of absorbent material within the casing and leading thence to the point where the lubricant is to be applied, the capacity of the body of absorbent material for holding the lubricant and the capacity of the rod of absorbent material for transmitting the lubricant having a predetermined relation to one another whereby the lubricant is transmitted in minute and predetermined quantities to the part to which it is to be applied.

784,281. **PNEUMATIC GRAIN-ELEVATOR.** FRANK SCHACHT, Limespring, Iowa. Filed Feb. 17, 1903. Serial No. 143,884.

Claim.—1. In a pneumatic elevator, the combination with a fan-casing and a hopper arranged side by side, of a fan within the casing, said casing having an opening in a side wall thereof to supply air to the fan, and having a second opening in a side wall thereof, beyond the periphery of the fan, and arranged to establish communication between the hopper and the fan-casing, and means for feeding grain to the interior of the fan-casing through the last-named opening.

2. In a pneumatic elevator, the combination with a fan-casing having an axial opening and a spout; of a rotary fan within the casing, and means for directing grain through a vertical side wall of the fan-casing at a point between said opening and the discharge end of the spout.

3. In a pneumatic elevator, the combination with a fan-casing having an axial opening and a spout; of a rotary fan within the casing, and means for directing grain to the fan-casing at a point between said opening and the discharge end of the spout, beyond the periphery of the fan and adjacent to the bottom wall of the casing.



4. In a pneumatic elevator, the combination with a fan-casing having an axial opening, and a valve controlling the same; of a rotary fan within the casing, and a hopper communicating with the fan-casing at one side thereof and at a point beyond the periphery of the fan.

5. In a pneumatic elevator, the combination with a fan-casing having an axial opening and a discharge-spout; of a rotary fan within the casing, a hopper communicating with the fan-casing at a point between the axial opening thereof and the discharge end of the spout, a spiral feeder located in the hopper to feed the grain horizontally to the fan-casing, and means for operating the fan and feeder.

6. In a pneumatic elevator, the combination with a fan-casing, and a rotary fan therein; of a hopper communicating with the interior of the fan-casing through a feed-opening, a spiral feeder located in the hopper, and a guard-sleeve inclosing the end of the feeder adjacent to the feed-opening.

7. In a pneumatic elevator, the combination with the fan-casing, a rotary fan therein, and a hopper communicating with the interior of the fan-casing beyond the periphery of the fan; of a feeder within the hopper, and connecting means intermediate of the fan and feeder, said means including a device for automatically connecting the fan and feeder when the fan has reached a predetermined speed.

8. In a pneumatic elevator, the combination with a fan-casing having an axial opening and a discharge-spout; of a rotary fan in the casing, a hopper communicating with the fan-casing at a point beyond the periphery of the fan, a spiral feeder in the hopper, and connecting mechanism intermediate of the fan and feeder, said mechanism including speed-reducing gearing and a centrifugally-operated clutch arranged to effect an operative connection between the fan and feeder when the fan is rotated at a given speed.

784,282. **COVERED RECEPTACLE.** JOHN J. SCHULER, Rome, N. Y. Filed Feb. 15, 1904. Serial No. 193,515.

Claim.—1. In a covered receptacle comprising the body and a cover hingedly mounted thereon, a series of arms pivotally mounted between the body and the cover operative means connected with one end of the series of arms, spring means provided in resistance to the operating member, in combination, substantially as described.

2. In a covered receptacle comprising the body and a cover hingedly mounted thereon and a handle attached to the body, a series of lever-arms mounted to pivotally connect the body and the cover, a rod adapted to operate the said lever connections in lifting the cover, the said rod passing through the handle of the receptacle to a point without the body thereof, in combination, substantially as set forth.

3. In a covered receptacle, having its lid swingingly mounted

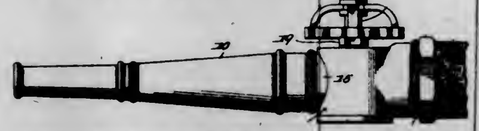
thereon and provided with a handle, the combination of a sliding rod passing from the interior of the receptacle through the handle to the outside thereof, a series of lever-arms pivotally mounted to lift the lid upon the extension of the lever-arms, a spring member operating in resistance to pressure on the rod, the said spring being adapted to hold the lid in a closed position, substantially as described.



4. In a covered receptacle, a body, a lid hingedly mounted thereon, lever-arms connecting the body and the lid to operate the latter on its hinge, operative connection with the series of lever-arms whereby the same may be held at either end of its limit of operation whereby the lid may be held in an opened or closed position, in combination, substantially as shown.

5. In a covered receptacle, a body, a lid hingedly mounted thereon, operative connections within the receptacle between the body and the lid with means for raising the latter from the former and for maintaining it in a given position, in combination, substantially as described.

784,283. NOZZLE. CHARLES H. SMITH, Richmond, Va. Filed May 12, 1904. Serial No. 207,660.



Claim.—In a device of the class described, a valve-casing provided with alined inlet and outlet ports and having threaded extensions at said ports for detachable connection with a nozzle and section of hose, respectively, said casing being closed at one end thereof and provided at its opposite end with a threaded cap, a conduit extending longitudinally through the casing and communicating with said ports, a valve-stem mounted for rotation in the closed end of the casing and having a valve formed of a thin sheet of flexible and imperforate metal detachably connected thereto, said valve being adapted to alternately cover and uncover the conduit and having its free end bearing on the inner surface of the threaded cap, and a stop depending from the closed end of the casing for limiting the rotary movement of said valve.

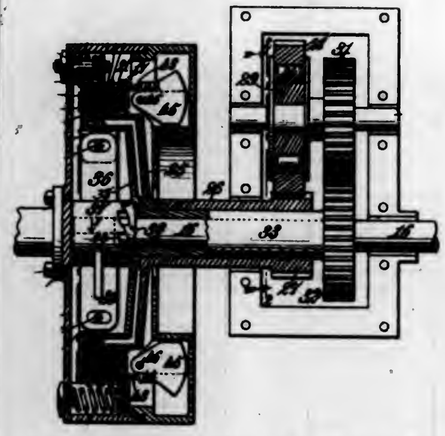
784,284. METHOD OF MAKING NON-CONDUCTING WALLS. JUNIUS H. STONE, Darien, Conn. Filed Sept. 26, 1904. Serial No. 226,833.



Claim.—The herein-described method of building non-conducting walls which consists in dampening particles of cork, sprinkling the dampened particles with waterproof cement and finely-ground cork, agitating the particles of cork with a further quantity of cement and finely-ground cork until they are thoroughly covered over with the coating mixture, and then forming the material to the shape required.

784,285. POWER-TRANSMITTING MECHANISM. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Wellesley, Mass., assignors to Sturtevant Mill Company, Portland, Me., a Corporation of Maine. Filed Dec. 10, 1904. Serial No. 236,309.

Claim.—1. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of a low-speed power-transmitting mechanism, a centrifugally-controlled, high-speed clutch device, and torsionally-acting means whereby, without necessarily reducing the speed of rotation of the driving part or motor, the said high-speed clutch device may be thrown out of action when the torque or resistance of the driven shaft or part exceeds the stress of the said torsionally-acting means, to permit the low-speed power-transmitting mechanism to be set into operation.



2. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of a low-speed power-transmitting mechanism, centrifugally-controlled, high-speed and low-speed clutch devices, and torsionally-acting means whereby, without necessarily reducing the speed of rotation of the driving part or motor, the said high-speed clutch device may be thrown out of action when the torque or resistance of the driven shaft or part exceeds the stress of the said torsionally-acting means, to permit the low-speed power-transmitting mechanism to be set into operation.

3. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of a low-speed power-transmitting mechanism, centrifugally-controlled, high-speed and low-speed clutch devices, torsionally-acting means whereby, without necessarily reducing the speed of rotation of the driving part or motor, the said high-speed clutch device may be thrown out of action when the torque or resistance of the driven shaft or part exceeds the stress of the said torsionally-acting means, to permit the low-speed power-transmitting mechanism to be set into operation, and a fly-wheel or casing within which said centrifugally-controlled clutch devices are inclosed.

4. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, and high-speed and low-speed springs acting in opposition to said weights.

5. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed multiple-disk clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, and high-speed and low-speed springs acting in opposition to said weights.

6. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, high-speed and low-speed springs acting in opposition to said weights, and a fly-wheel or casing within which said clutch devices, weights and springs are inclosed.

7. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, high-speed and low-speed springs acting in opposition to said weights, a gearing-train connecting the low-speed clutch device with the said driven shaft or part, said gearing-train comprising a silent ratchet or grip device which renders ineffective the said low-speed clutch device when the said high-speed clutch device is transmitting power.

8. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, and high-speed and low-speed springs acting in opposition to said weights, stops to limit the action of the said weights on the high-speed clutching parts, and yielding torsional means which will permit the high-speed clutching parts to be disengaged when the torque or resistance of the driven shaft or part exceeds the stress of the said torsionally-acting means, to permit the low-speed clutch to become effective.

9. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, and high-speed and low-speed springs acting in opposition to said weights, stops to limit the action of the said weights on the high-speed clutching parts, yielding torsional means which will permit the high-speed clutching parts to be disengaged when the torque or resistance of the driven shaft or part exceeds the stress of the said torsionally-acting means, to permit the low-speed clutch to become effective, and a fly-wheel or casing within which said clutch devices, springs, weights, stops and torsional means are inclosed.

10. In a power-transmitting device, the combination with a rotating driving part and a rotating shaft or part to be driven therefrom, of high-speed and low-speed clutch devices suitably connected with said driven shaft or part, a single set of weights by which said clutch devices are controlled, and high-speed and low-speed springs acting in opposition to said weights, stops to limit the action of the said weights on the high-speed clutching parts, yielding torsional means which will permit the high-speed clutching parts to be disengaged when the torque or resistance of the driven shaft or part exceeds the stress of the said torsionally-acting means, to permit the low-speed clutch to become effective, a gearing-train connecting the said low-speed clutch device with the said driven shaft or part, said gearing-train comprising a silent ratchet or grip device which renders ineffective the said low-speed clutch device when the said high-speed clutch device is transmitting power, so that either of the said clutch devices may be operated to transmit power without interfering with the other.

11. In a power-transmitting device, adapted for use in automobiles, the combination with a low-speed power-transmitting train of gearing, of a centrifugally-controlled high-speed clutch device, and a spring-controlled torque mechanism by which, when the load or the road resistance is beyond a predetermined limit, the said high-speed clutch device will be thrown out of action to permit the low-speed and high-power mechanism to become efficient without necessarily reducing the speed of the driving part or motor.

12. In a power-transmitting device, adapted for use in automobiles, the combination with a low-speed power-transmitting train of gearing, of centrifugally-controlled low-speed and high-speed clutch devices, and a spring-controlled torque mechanism by which, when the load or the road resistance is beyond a predetermined limit, the said high-speed clutch device will be thrown out of action to permit the low-speed and high-power mechanism to become efficient.

13. In a power-transmitting device, the combination of high-speed and low-speed clutch devices, of centrifugally-acting means for controlling both of said clutch devices, and torque mechanism, coöperating with said centrifugally-acting means, for controlling one of said clutch devices.

14. In a power-transmitting device, the combination of high-speed and low-speed clutch devices, of centrifugally-acting means for controlling both of said clutch devices, torque mechanism, coöperating with said centrifugally-acting means, for controlling one of said clutch devices, and means for rendering the low-speed clutch device inoperative for transmitting power to the driven part when the high-speed clutch device is transmitting power.

15. In a power-transmitting device, the combination of torque-controlled and centrifugally-controlled multiple-disk clutch mechanisms.

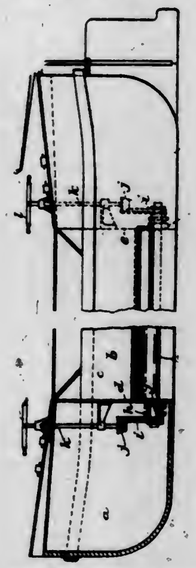
16. In a power-transmitting device, a plurality of centrifugally-controlled clutch devices and a torque-operated mechanism by which one of said clutch devices may be rendered inoperative when the load or resistance reaches a certain predetermined point.

17. In a power-transmitting device, the combination of a plurality of multiple-disk clutch devices and an automatic clutch-controlling torque device.

18. In a power-transmitting device, the combination of a plurality of automatic clutch devices and a controlling mechanism by which, regardless of the speed of the prime mover, one of said clutch devices may be rendered ineffective whenever the resistance or load-moving torque exceeds a predetermined force.

19. In a power-transmitting device, the combination of a plurality of automatic clutch devices and an automatic mechanism which acts to render ineffective one of said clutch devices whenever the load and resulting torque exceeds a predetermined point.

784,286. HOPPER-BARGE. JAN VOLKER-TYSSOON, Dordrecht, Netherlands. Filed Apr. 5, 1904. Serial No. 201,741.



Claim.—1. In a hopper-barge, devices for opening and closing the discharging-aperture in the bottom thereof which consist of rotatable portions of circular segmental section placed within chambers formed at the bottom of the barge, and means by which said portions may be rotated on their axes, substantially as described.

2. In a hopper-barge, devices for opening and closing the discharging-aperture in the bottom thereof which consist of rotatable portions of circular segmental section placed and working in chambers inside the barge parallel to the longitudinal axis thereof, and means for turning the said portions on their axes into such a position that they bear against each other when the discharging-aperture is closed, or into such a position as will leave the said aperture free and clear when the discharging-aperture is opened, substantially as described.

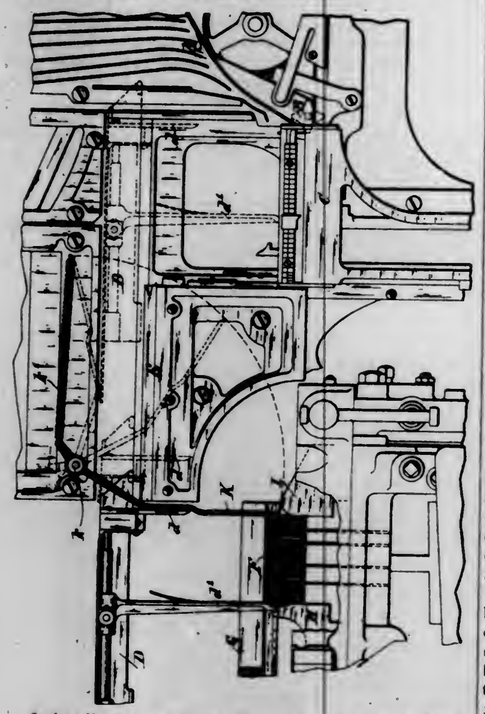
3. In a hopper-barge, the device for opening and closing the discharging-aperture in the bottom thereof, which consists of rotatable portions *f* of circular segmental section chambers formed at the bottom of the barge to contain the slides *f*, pins or gudgeons *g* on the said portions, stuffing-boxes in the ends of said chambers through which the said pins or gudgeons pass, sectors *i*, pinions *j*, shafts *k*, and means for rotating said shafts, combined and operating substantially as described with reference to the drawings.

784,287. LINOTYPE-MACHINE. GUSTAF E. WALLIN, Pocatello, Idaho, assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Sept. 23, 1904. Serial No. 226,416.

Claim.—1. In a linotype-machine, and in combination with the line-transfer carriage and its fingers and the line-confining jaws, the supplemental finger to guide the right-hand end of the matrix-line in its descent between the jaws.

2. In a linotype-machine, the combination of means to confine the matrix-line endwise in front of the mold, means for lowering the

line to said position and means for confining and guiding the line at both ends during the entire course of its descent.



3. In a linotype-machine and in combination with the jaw for confining the matrix-line at one end, the elevator for raising and lowering the line, the carriage for transferring the line to the elevator, the hinged guide-finger mounted in the path of the carriage, and the spring tending to move the finger into operative position.

4. In a linotype-machine, a line-transferring carriage having a long and a short finger and a movable supplemental finger coöperating with the short carriage-finger and forming an extension thereof.

784,288. PORTABLE WORK-STAND. ISAAC H. WEINBERG, LOUIS HEYMAN, and ISAAC DITTENHEIMER, New York, N. Y. Filed Nov. 11, 1904. Serial No. 232,267.



Claim.—A portable work-stand comprising a stick having an upper section and a lower section hinged together, means for locking the sections in alinement, a folding base carried by the lower section and a folding basket carried by the upper section.

784,289. KNIFE-BLADE HOLDER. LON WESTON, Brockton, Mass., assignor to Frank W. Whitcher, Boston, Mass. Filed Mar. 25, 1904. Serial No. 199,929.



Claim.—1. A knife-blade holder comprising a longitudinally-recessed handle, a pair of clamping-jaws for engaging the opposite edges of the knife-blade having on one or both of said jaws a cam projection and offset to permit the passage of a knife-blade to the bottom of the longitudinal recess in the handle, a socket-piece on one side of which the inner ends of said jaws are secured and a threaded stud within the handle adapted to be screwed into a threaded hole in said socket-piece.

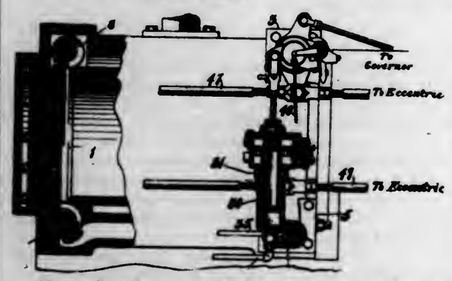
2. A knife-blade holder comprising a longitudinally-recessed handle, a pair of clamping-jaws for engaging opposite edges of the knife-blade, having their inner ends offset to permit the passage of the knife-blade to the bottom of the longitudinal recess in the handle and having on one or both of said jaws a cam projection, a socket-piece to which the offset inner ends of said jaws are secured, and a threaded stud within the handle adapted to engage a threaded hole in said socket-piece.

3. A knife-blade holder comprising a longitudinally-recessed handle, a pair of clamping-jaws for engaging the opposite edges of the knife-blade, having their inner ends offset to permit the passage of the knife-blade to the bottom of the longitudinal recess in the handle and having on one or both of said jaws a cam projection, a cap or ferrule on said handle having a slot therein through which the said clamping-jaws protrude, a socket-piece to which the offset inner ends of said jaws are secured and a threaded stud within the handle adapted to be screwed into a threaded hole in said socket-piece.

4. A knife-blade holder comprising a longitudinally-recessed handle, a pair of grooved clamping-jaws for engaging the opposite edges of the knife-blade, the grooves in said jaws extending throughout a portion only of the length of the said jaws, said clamping-jaws being offset to permit the passage of the knife-blade to the bottom of the longitudinal recess in the handle, a cam projection on one or both of said jaws, a socket-piece to which the inner ends of said jaws are secured and a threaded stud adapted to be screwed into a threaded hole in said socket-piece.

5. A knife-blade holder comprising essentially a longitudinally-recessed handle, clamping means for engaging a knife-blade said clamping means being arranged at their inner end eccentrically of the axis of the said longitudinal recess in the said handle whereby the knife-blade is permitted to pass to the bottom of the said recess and a centrally-disposed stud engaging the said clamping means.

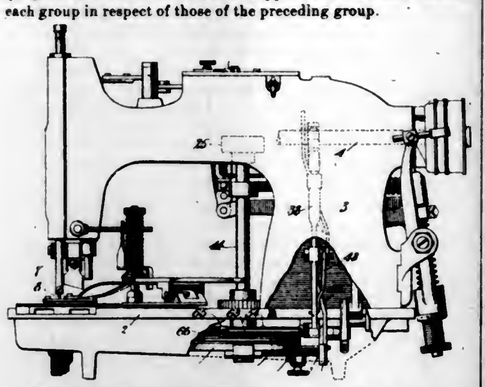
784,290. ENGINE. ROBERT WHITEHILL, Newburgh, N. Y.; Mary E. Whitehill administratrix of said Robert Whitehill, deceased. Filed Oct. 3, 1903. Serial No. 175,543.



Claim.—In valve-gear, steam-inlet valves, means for opening them, steam-cylinders, and plungers, one for each valve, for closing the valves, valves for admitting steam to the said cylinders, rocking spindles, arms on the rocking spindles, valve-operating rods connected with the said arms at points in axial alinement with the steam-inlet valves, cams under the control of the governor and knock-off levers in the spindles in position to engage the cams.

784,291. THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES. EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, a Corporation of New Jersey. Filed July 20, 1904. Serial No. 217,300.

Claim.—1. In a sewing-machine, the combination with stitch-forming devices comprising a reciprocating thread-carrying needle and an under-thread loop-taker coöperating therewith, of a needle-thread take-up, and automatically-controlled means coöperating with said loop-taker for supplying equal amounts of under thread for each of two or more consecutive stitches constituting a group, and for varying the amount of under thread supplied for the initial stitch of each group in respect of those of the preceding group.



2. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, of a pull-off acting uniformly upon the under thread in the formation of a succession of stitches, and means for automatically controlling said pull-off to vary its effect upon the under thread in the production of the stitches of different successions or groups.

3. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, of a pull-off acting uniformly upon the under thread in conjunction with the said loop-taker in the formation of each stitch of a group of stitches, and a device acting periodically upon the pull-off in the formation of the initial stitch of each group to vary the effect of said pull-off in its action upon the under thread for the stitches of said group.

4. In a sewing-machine, the combination with stitch-forming devices comprising a reciprocating thread-carrying needle and an under-thread loop-taker coöperating therewith, of a device acting directly upon the under thread for supplying equal quantities of the same for the stitches of each group or succession, and means for automatically controlling said device for varying the under-thread supply for the stitches of successive groups.

5. In a sewing-machine, the combination with upper-thread mechanism acting uniformly upon its thread for each stitch and under-thread mechanism adapted to act upon the under thread uniformly for the stitches of each group or succession of stitches, of automatically-controlled means acting upon the under thread whereby the thread-supply for the stitches of each group or succession is varied from that of the stitches of the preceding group or succession.

6. In a sewing-machine, the combination with a thread-carrying needle and a uniformly-acting take-up and tension for the needle-thread, and a loop-taker and lower-thread holder with uniformly-acting lower-thread tension, of a device independent of the upper-thread take-up and tension for controlling the under-thread supply to automatically vary the same at the end of each succession or group of stitches.

7. In a sewing-machine, the combination with stitch-forming mechanism comprising a needle and complemental under-thread stitch-forming devices, of a tension device acting uniformly upon the thread in all the stitch-setting operations, means for setting the stitches, a device acting upon the under thread whereby the position of concatenation of the upper and lower threads in respect of the needle-punctures may be varied, and automatic means for controlling the operation of said device for changing the position of concatenation of the stitches of succeeding groups at predetermined times.

8. In a sewing-machine, the combination with the work-plate and stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, disposed respectively above and below said work-plate, of a device operating below the work-plate for regulating the supply of thread for each stitch, and means for controlling said device to automatically vary the relative lengths of thread for the stitches of successive groups.

9. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, means for setting the stitches, and regulating means acting directly upon the under thread for determining the relative lengths of upper and under thread supplied for each stitch, of a device acting automatically upon said regulating means to vary the relative thread-supply for successive stitches and thereby vary the position of concatenation of the threads in respect of the needle-punctures.

10. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, of an under-thread pull-off device movable with said loop-taker, and means for automatically shifting the same relatively to said loop-taker to vary its action upon the under thread.

11. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, of an under-thread pull-off device movable with said loop-taker, and means for automatically shifting the same relatively to said loop-taker after the operation of the latter in the formation of each group or succession of stitches.

12. In a sewing-machine, the combination with a vertically-reciprocating thread-carrying needle and a shuttle provided with a suitable thread-case, of a shuttle-driver, a circularly-moving shaft upon which the shuttle-driver is mounted, a sleeve mounted upon and circularly movable with said shaft, a pull-off finger carried by said sleeve, means for shifting said sleeve upon its shaft, and means for actuating said shaft.

13. In a sewing-machine, the combination with a vertically-reciprocating thread-carrying needle and a shuttle provided with a suitable thread-case, of a shuttle-driver, a circularly-moving shaft upon which the shuttle-driver is mounted, a sleeve mounted upon and circularly movable with said shaft but longitudinally movable thereon, a pull-off finger carried by said sleeve, automatically-acting means for shifting said sleeve upon its shaft at the end of each group or succession of stitches, and means for actuating said shaft.

14. In a sewing-machine, the combination with stitch-forming mechanism comprising a vertically-reciprocating and laterally-vibrating needle and an under-thread loop-taker, of means for automatically changing the extent of vibration of said needle for successive stitches, a regulating device for determining the quantity of under-thread supply for each stitch, and a connection between said means and the under-thread-supply-regulating device for effecting a change in the under-thread supply correspondingly with that of the lateral vibrations of the needle.

15. In a buttonhole stitching and barring machine, the combination with a vertically-reciprocating needle and an under-thread loop-taker, of controlling means acting upon the lower thread for regulating the under-thread supply for each stitch, barring mechanism, and means connected with the barring mechanism for operating said controllig means to vary the under-thread supply.

16. In a sewing-machine comprising upper and under thread stitch forming and feeding mechanisms, and a feed-interrupter for temporarily suspending the feed of the work at the end of each group or succession of stitches of predetermined number, the combination with controlling means for regulating the supply of under thread for each stitch, of means connected with and actuated by said feed-interrupter for operating said controlling means to vary the supply of under thread.

17. In a sewing-machine comprising upper and under thread stitch forming and feeding mechanisms, and a feed-interrupter comprising a two-part connecting-rod and a laterally-movable latch-lever therefor periodically actuated for temporarily suspending the feed of the work, the combination with a pull-off operating in conjunction with said under-thread mechanism for determining the quantity of lower thread supplied for each stitch, of a shift-rod connected with said pull-off, and a cam-piece carried by said feed-interrupting latch-lever and engaging said shift-rod to periodically shift said pull-off.

18. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, of an under-thread pull-off device movable with said loop-taker, and automatically-acting means for shifting the same in respect of said loop-taker for the production of different stitches of a succession of stitches to vary its action upon the under thread.

19. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and an under-thread loop-taker, of an under-thread pull-off device circularly movable concentrically with and shiftable transversely of the path of movement of said loop-taker, and means normally stationary in respect of

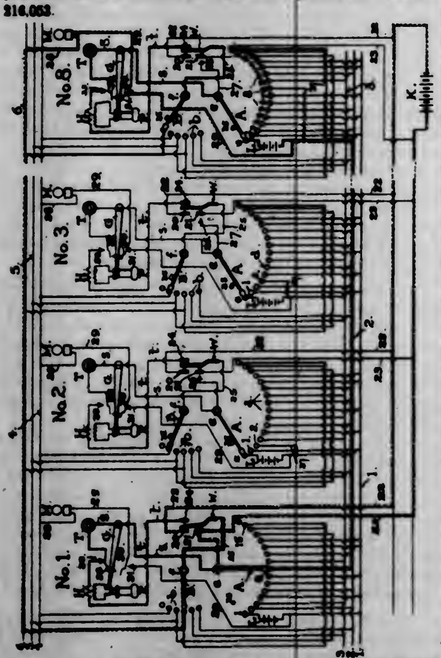
the loop-taker for shifting said pull-off to vary its action upon the under thread.

20. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and a circularly-moving under-thread loop-taker, of a pull-off device with means for actuating it to control the under-thread supply for each stitch, and means acting automatically to shift the position of said pull-off in respect of the loop-taker after the production of the first of two consecutive stitches for changing its action upon the under thread and thus by affecting the under-thread supply changing the relative characters of said stitches.

21. In a sewing-machine, the combination with stitch-forming mechanism comprising a thread-carrying needle and a circularly-moving under-thread loop-taker, of a pull-off device with means for actuating it to control the under-thread supply for each stitch, and means acting automatically to maintain said pull-off device in one position in respect of the loop-taker for the production of two separate groups of stitches and to shift it into another position in respect of said loop-taker for the production of an intervening stitch or stitches whereby a succession of stitches composed of groups differing in character is formed.

22. In a sewing-machine, the combination with stitch-forming devices comprising a reciprocating thread-carrying needle, a shuttle and a circularly-moving driver therefor, of an under-thread pull-off device acting in conjunction with said shuttle to measure off the under-thread supply for each stitch, a carrier therefor mounted upon said driver and fitted to a longitudinal slideway in the same, and means for shifting said pull-off device transversely of the path of movement of said loop-taker to vary its action upon the under thread.

784,292. **DIRECT-LINE CIRCUIT AND SWITCHING MECHANISM FOR TELEPHONE SYSTEMS.** ALBERT K. ANDRIANO, San Francisco, Cal., and HERMANN HERBSTRITT, New York, N. Y., assignors to Direct Line General Telephone Company, San Francisco, Cal., a Corporation. Filed Nov. 21, 1903. Renewed July 11, 1904. Serial No. 216,053.



Claim.—1. In a telephone system, interconnecting conductors, consisting of a plurality of direct conductors, a plurality of return-conductors, and selecting devices for connecting the direct conductors and return-conductors in varying combinations to form separate circuits each composed of a direct conductor and a return-conductor.

2. In a telephone system, interconnecting conductors comprising a plurality of direct conductors, a plurality of return-conductors, and selecting means for connecting said conductors in varying combinations to form separate circuits, each circuit having a direct conductor and a return-conductor individual to itself, said selecting means being adapted to utilize a direct conductor for the return-conductor of a circuit, and a return-conductor for the direct conductor of a circuit.

3. A system of conductors for the transmission of electricity between stations, comprising a series of wires arranged between the stations and means for selecting any one wire for use as a direct conductor of a circuit, and any other wire for use as a return-conductor, each circuit so completed for use being individual to a particular station in the system, substantially as set forth.

4. A system of conductors for the transmission of electricity, comprising a series of wires arranged between stations, adjustable means for selecting one wire as a direct conductor, and other adjustable means for selecting another wire as a return-conductor, to thus complete a circuit between stations, substantially as set forth.

5. A system of conductors for the transmission of electricity, comprising a series of conductors primarily used as direct conductors, and a separate series of conductors primarily used as return-conductors, to form by varying combinations a plurality of electrical circuits, and selecting means whereby any and all of the conductors in one series may be used as a return-conductor to any and all of the conductors in the other series, and means for utilizing a conductor in the same series for the return-conductor of a circuit having one of the remaining conductors in the same series for its direct conductor.

6. In a telephone system, stations divided into groups, a switching device at each station including stationary line-contacts corresponding in number to the stations in a group, and a movable contact adapted to connect the local circuit of the station with the line of another selected station, a series of direct-line wires to which the line-contacts of all the stations are connected, a separate return-wire to each group of stations and having terminals at every station, and means at every station controlling the connection between the local circuit of the station and any selected one of the return-wires.

7. In a telephone system, the combination with stations divided into groups, of a local circuit at every station in a group; a switching device including stationary contacts and a movable contact to which one side of the local circuit is connected, a series of direct-line wires corresponding in number to the stationary contacts in the switching device of the stations comprising a group, a separate return-wire common to the stations contained in the same group, and a switching device at every station including a stationary contact to each return-wire and a movable contact to which is connected the remaining side of the local circuit.

8. In a telephone system, stations arranged in separate groups having local circuits including a battery and an induction-coil, a set of direct-line wires common to all the stations and a series of return-wires to which the stations are connected in separate groups, each return-wire constituting a common return for the circuits of the stations in the same group, in combination with a switching device at each station adapted to connect one side of the local circuit of the station with the direct-line wire, a second switching device operating to connect the remaining side of said circuit with the opposite station over the common return-wire of that station, and means for calling one station from the other, comprising a battery, an electrically-operated signal device and circuit-closing means adapted to connect the signaling device at the called station with one side of the battery through the direct-line wire and with the remaining side of the battery over the common return to the exclusion of the signaling-circuits at all the remaining stations in the group.

9. In a telephone system, stations arranged in groups, a set of direct-line wires common to all the stations, a return-wire to each group constituting a common return between one station and another selected station in the same group, switching-terminals for the direct-line wires and the common return-wires at each station, a separate switching device to the said terminals of each series adapted to connect the local circuit of the station with a selected direct-line wire and with selected common return-wire, an electrically-actuated signal device at each station, a common battery and circuit-closing means adapted to connect the signaling device with one side of the said battery over the direct line at the selected station and with the other side of the battery over the common return-line.

10. In a telephone system circuits connecting a plurality of stations arranged in groups, comprising a set of direct-line wires common to all the stations in the group, a switching device at each station including terminals of the direct-line wires, and a movable contact operating to connect the local circuit of the station with a selected line-wire leading to another station, a separate return-wire common to the stations contained in the same group, a switching device adapted to complete the circuit over the common return-wire between one station and another, and a signaling device including an electrically-actuated signal at each station, a battery, and circuit-closing devices at the signaling-station operating to close one side of the battery on the signal at the selected station through the direct line, and the remaining side of the battery over the return-line

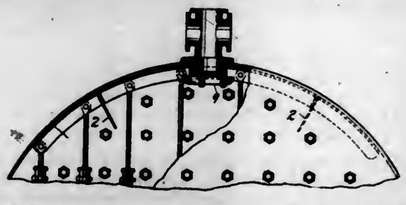
11. In a telephone system, a common signal-circuit having terminals at each station, a series of independent line-wires between the stations terminating in separate contacts at each station, switches at the stations arranged to engage the said contacts of the line-wires, circuit-closing devices connected with said switches and arranged to make contact with the terminals of one of the leads of the signal-circuit, a common return-wire for the stations, signal devices connected with the return-wire, lines extending from the signal devices and terminating in contacts with which the circuit-closing devices normally engage, and branch lines at the stations normally leading from the common return-wire to terminals, the circuit-closing devices being arranged to connect the terminals of the other lead of the signal-circuit with the contacts when moved to engage the terminals of the first-named lead, substantially as set forth.

12. A telephone system having the stations arranged in groups, return-wires common to each group of stations and extending to a contact at each station, line-wires corresponding in number to the stations in a group and terminating at each station in separate contacts, signal devices at each station, each connected on one side with the return-wire of the group to which it belongs, and on the other side connected with the line-wire of its particular station, means for connecting any station with the line of any desired station of the system, comprising independent switches arranged to engage respectively with the contacts of the line-wires and of the return-wires, a signal-circuit, and means at each station for closing the signal-circuit through the signal of the selected station when the switches at the calling-station are properly set, substantially as set forth.

13. In a telephone system having a plurality of stations arranged in groups, the connecting-circuits comprising a plurality of line-wires terminating in contact-points at the several stations, and a return-wire common to the several stations of a group, a signal at each station, each permanently connected with the return-wire, a local circuit at each station arranged to be connected at one end with the return-wire and at its opposite end with any selected one of the contacts of the line-wires, a normally open signal-circuit having terminals at each station, and a circuit-closing device arranged to normally serve as a link in the connection between the local circuit and the line-wires, but arranged to break the said connection and simultaneously close the ringing-circuit, substantially as set forth.

14. A telephone system, the stations of which are arranged in groups having independent line-wires corresponding in number with the stations in a group and having separate contacts at each station, independent return-wires each common to a group of stations and with terminals at each station, a local circuit at each station, a switch A at each station connected with one lead of the local circuit thereof and arranged to be moved into engagement with any selected one of the contacts of the line-wires, and another switch B at each station connected with the other lead of the local circuit and arranged to engage with any selected one of the terminals of the return-wires, substantially as set forth.

784,293. **STEAM-DRYING DEVICE.** HARRY V. ARNOLD and AUGUSTUS H. KRESS, San Francisco, Cal. Filed May 2, 1904. Serial No. 205,982.



Claim.—1. A steam-drying attachment for boilers consisting of precipitating-plates located in the boiler above the water-line and extending inwardly in converging plates substantially across the path of the ascending steam and a separating device at the inner end of the steam-discharge pipe and made pan-shaped, and over the edge of which the steam passes to said pipe, said device of greater diameter than the discharge-pipe, and spaced from the latter, and a plurality of screens between the device and the inlet end of the pipe.

2. A steam-drying attachment for boilers consisting of a ring fixed to the steam-discharge pipe, a plurality of rings and intermediate screens at the inlet to said pipe, a pan underlying the lowermost ring, means spacing the pan from the last-named ring, and bolts passing through the pan, and the rings and screwed into engagement with the first-named ring.

3. An improved steam-drying attachment for boilers and the like said attachment comprising plates fixed to the sides of the boiler above the water-line and extending inwardly toward each other and substantially transversely across the path of the ascending steam, a pan-shaped vessel disposed axially in line with the steam-discharge pipe and the space between the inner ends of said plates, and of larger diameter than said pipe, a plurality of screens and rings fixed across the end of said pipe, a ring on the pipe against which the uppermost screen seats, spacing-sleeves between the lowermost ring and the bottom of the pan, and bolts passing through the pan and rings and engaging the ring on the said pipe.

784,294. **HOOK AND EYE.** BERLE B. BARUCH, New York, N. Y., assignor of one-half to William H. Wills, New York, N. Y. Filed May 17, 1904. Serial No. 208,385.

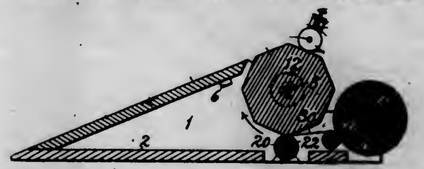


Claim.—1. The herein-described eye, comprising side members merging at one end into thread-eyes and connected at the other end by a bail, said bail being bent downward at essentially right angles to the side members, and middle members extending forward from the thread-eyes and inside and generally parallel with the side members, the said middle members having bends or humps bent downward from the general plane of the eye.

2. The combination with the hook having abrupt bends forming shoulders at the base of the tongue, of the eye having suitable fastening means, a depending bail to engage the tongue, and depending bends or humps arranged to aline with the shoulders at the base of the tongue on the hook.

3. The herein-described eye comprising middle members having inner bends or humps, the said members being connected at their front ends, side members connected at the rear end of the eye to the middle members by thread-eyes, and a hook-engaging bail connecting the front ends of the side members.

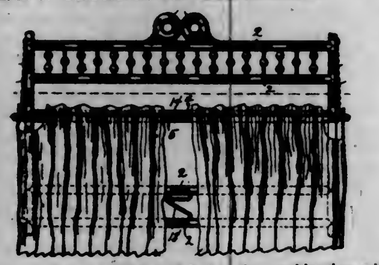
784,295. **FEEDING MECHANISM.** CHARLES J. BELLAMY, Springfield, Mass. Original application filed Dec. 15, 1903, Serial No. 185,294. Divided and this application filed Mar. 10, 1904. Serial No. 197,417.



Claim.—1. In feeding mechanism, the combination with fabric-actuating rollers, of a tension member, and a rotary fabric-supply-roll holder mounted in movable bearings and it or the roll thereon in resiliently-frictional contact with said tension member, the line of such contact marking the line from which the fabric separates from its roll in process of feeding, the tension member being fixedly mounted and arranged to divert the fabric as drawn from the roll partially around said tension member.

2. In feeding mechanism, the combination with a suitable frame and fabric-actuating rollers journaled therein or thereon, of a tension member, and a fabric-supply-roll holder mounted in movable bearings in said frame and it or the roll thereon in resiliently-frictional contact with said tension member, the line of contact marking the line from which the fabric separates from its roll in process of feeding, the tension member being fixedly mounted in the frame and arranged to divert the fabric, as drawn from the roll partially around said tension member by said actuating-rollers, out of its direct course from said line of contact between the tension member and the supply-roll.

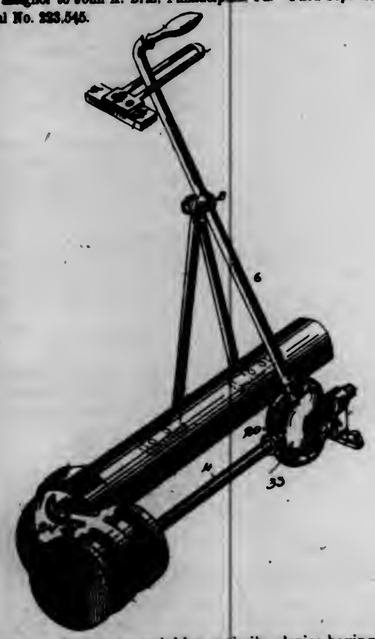
784,296. PORTABLE WARDROBE. CHARLES H. BLASHFIELD, Salem, N. Y. Filed Jan. 31, 1903. Serial No. 141,229.



Claim.—1. In a portable wardrobe, the combination with a frame adapted to be supported in connection with a wall; of a frame-supported folding shelf provided with bail-supporting projections; a frame-supported folding curtain-bail hinged to swing independently of the shelf and adapted to rest upon the shelf projections; and a curtain supported by said curtain-bail.

2. In a portable wardrobe, the combination with a frame adapted to be supported in connection with a wall; of a folding shelf supported by said frame; a curtain-bail hinged to said frame independently of and adapted to rest upon said shelf; and a curtain, substantially as described.

784,297. STREET-SPRINKLER. WILLIAM J. BOLE, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Sept. 6, 1904. Serial No. 223,545.



Claim.—1. In a street-sprinkler or similar device having a discharge-pipe, a discharge-head thereon, provided with a discharge-opening and a rotating valve in said head, provided with an opening adapted to register with the opening in the head when said valve is revolved, and means whereby the said valve may be moved longitudinally to open the said opening in the head.

2. In a street-sprinkler or similar device having a discharge-pipe, a discharge-head thereon provided with a peripheral discharge-aperture, a rotatable valve in said head having an aperture adapted to register with the aperture in said head, and walls in the valve converging toward the said aperture, said valve having a receiving-opening.

3. In a street-sprinkler or similar device having a discharge-pipe, a cylindrical discharge-head thereon provided with a peripheral discharge-aperture, a cylindrical rotatable valve in said head having an aperture adapted to register with the aperture in said head, walls in the valve converging toward the said aperture, receiving-openings in the valve, and a bridge in said head between the said receiving-openings.

4. In a street-sprinkler or similar device having a discharge-pipe, a discharge-head thereon provided with a discharge-opening, a rotatable and sliding valve in said head adapted to register with the aperture in the head, a spindle on said valve and a lever adapted to independently rotate and slide said valve.

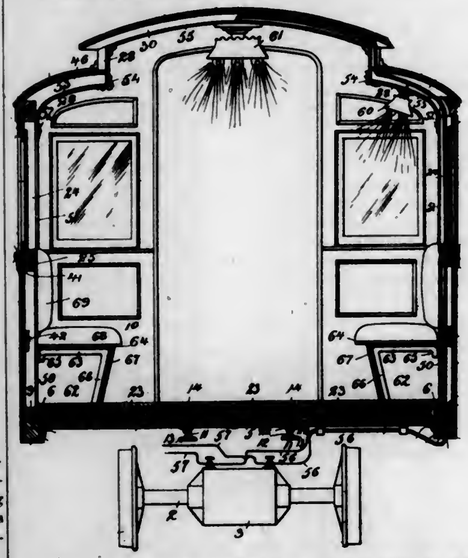
5. In a street-sprinkler or similar device having a discharge-head, a rotatable and sliding valve adapted to control the discharge from said head, a spindle on the valve, and a lever connected to said spindle, and mounted so as to have a pivoting and revolving action, whereby the valve may be revolved or moved longitudinally by said lever.

6. In a street-sprinkler or similar device having a discharge-pipe, a discharge-head thereon, a rotatable and sliding valve in the said head, a spindle on the valve, a bracket in which the free end of the spindle is journaled, a gear on the spindle, a vertical lever fulcrumed to a support and adapted to revolve thereon, and provided with a gear engaging with the gear on the spindle, means for holding the lever and spindle together, a longitudinal guide for the upper end of the lever and an angular handle for operating the said lever.

7. In a street-sprinkler or similar device, a discharge-head thereon, a revolving and sliding valve in the head controlling the discharge therefrom, a spindle on the valve, a support for the free end of the spindle, a vertical lever fulcrumed to a support on the sprinkler so as to pivot and revolve thereon, miter-gear on the said lever and spindle, and a bracket having the said lever and spindle journaled therein, the journal of the spindle being elongated, the spindle being adapted to be revolved and moved longitudinally by said lever.

8. A street-sprinkler or similar device having a discharge-head having a flaring opening 19 therein, a rotating and sliding valve 23 in the head, having converging walls 22, apertures 21 in the valve, receiving-openings 20 in the valve and a circular opening 18 in the valve adapted to register with the openings in the head.

784,298. CONSTRUCTION OF RAILWAY-CARS. GEORGE M. BRILL, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Nov. 24, 1903. Serial No. 182,459.



Claim.—1. A car-body having a fireproofed body-frame, and a body structure superposed upon said frame having an exterior sheathing of iron, a wooden framework over which said sheathing is laid, the woodwork being fireproofed, and an interior lining of asbestos.

2. In a car, the combination with a body-frame comprising longitudinal metallic sills consisting of channel-beams each having a wooden filling, a fireproof filling interposed between the sills, a body erected over the flooring comprising posts supported upon the sills, and an outer base-paneling secured to the sill-flooring.

3. In a car, the combination with a body-frame, of a car-framework, erected upon the body-frame comprising wooden posts and ribs, said car-framework being treated with fireproofed material, and an exterior fireproof sheathing.

4. In a car, the combination with a body-frame, of a car-framework erected upon the body-frame, comprising wooden posts and ribs, said car-framework being treated with fireproof material, an exterior fireproof sheathing and an interior fireproof lining, the sheathing and lining incasing the said car-framework.

5. In a car, the combination with a body-frame, consisting of a fireproof structure, of a car-framework, erected upon the body-frame comprising wooden posts and ribs, a wooden exterior covering therefor, and a fireproof sheathing laid over the wooden covering.

6. In a car, the combination with a body-frame consisting of longitudinal metallic sills and interposed fireproof material, of a car-framework upon the body-frame comprising wooden posts and ribs, a wooden exterior covering therefor, and a fireproof sheathing laid over the wooden covering.

7. In a car, the combination with a body-frame, consisting of a fireproof structure, of a car-framework erected upon the body-frame comprising wooden posts and ribs, said car-framework being treated with fireproof material, and an exterior fireproof sheathing.

8. In a car, the combination with a body-frame, consisting of longitudinal metallic sills and interposed fireproof material, of a car-framework erected upon the body-frame comprising wooden posts and ribs, said car-framework being treated with fireproof material, and an exterior fireproof sheathing.

9. In a car, the combination with a body-frame consisting of a fireproof structure, of a car-framework erected upon the body-frame comprising wooden posts and ribs, said car-framework being treated with fireproof material, an exterior fireproof sheathing, and an interior fireproof lining, the sheathing and lining incasing the car-framework.

10. In a car, the combination with a body-frame consisting of longitudinal metallic sills and interposed fireproof material, of a car-framework erected upon the body-frame comprising wooden posts and ribs, said car-framework being treated with fireproof material, an exterior fireproof sheathing, and an interior fireproof lining, the sheathing and lining incasing the car-framework.

11. In a car-body, the combination with the longitudinal sills comprising the channel-beam side sills, the I-beam intermediate sills, of the cross-sills comprising channel-beams having bent ends secured to the upright webs of the channel and I beams, and metallic plates supported between the longitudinal sills.

12. In a car-body frame, the combination with the side and intermediate longitudinal sills, of the cross-sills, and continuous metallic plates secured to and between the longitudinal sills.

13. In a car-body frame, the combination with the flanged side and intermediate longitudinal sills, of the cross-sills and metallic plates secured to and between the flanges of said sills.

14. In a car-body frame, the combination with the side and intermediate longitudinal sills, of the channel-iron cross-sills extending between and secured to the longitudinal sills with their channels horizontally exposed, and metallic plates extending between and supported by the longitudinal sills adjacent the cross-sills.

15. In a car-body frame, the combination with the side and intermediate longitudinal sills, of the metallic plates extending between and supported by the longitudinal sills, and the channel-beam cross-sills secured to the longitudinal sills over the said plates.

16. In a car-body frame, the combination with the side and intermediate longitudinal sills, of the angle-irons secured to said sills, the metallic plates secured upon said angle-irons, and cross-sills extending between and secured to the longitudinal sills over said plates.

17. In a car-body frame, the combination with the side and intermediate longitudinal sills, of the angle-irons secured to said sills, the metallic plates secured upon said angle-irons, and the channel-beam cross-sills secured to and extending between the longitudinal sills over said plates, their channels being horizontally exposed.

18. In a car-body frame, the combination with the side and intermediate longitudinal sills, of the corrugated metallic plates secured to and extending between said sills with their corrugations transversely disposed, and cross-sills tying the longitudinal sills together transversely.

19. A car-body frame, comprising in combination the metallic side and intermediate longitudinal sills, the metallic cross-sills, metallic plates secured to and extending between the longitudinal sills below the cross-sills, and a fireproof filling material laid upon the said plates between the said sills.

20. A car-body frame, comprising in combination, the metallic side and intermediate longitudinal sills, the metallic plates secured to and extending between the longitudinal sills, the channel-beam cross-sills with their channels horizontally exposed extending between the longitudinal sills, and a fireproof filling material laid upon said plates, between said sills, and within said channel.

21. The cross-sill comprising the channel-beam having the web 16, the flanges 17, extending at an angle from the web 16, and the end 18 separated from the web 16 and extending from the web 16 parallel with the ends of the flanges.

22. In a car, the combination with the body-frame, comprising the channel-iron longitudinal sills having the interposed wooden filling, a car-flooring erected over the body-framing and comprising posts, ribs and longitudinal belt-rail, said posts being supported upon the longitudinal sills, and a base-paneling comprising the panels 40 extending between the belt-rail and the outer face of the sill-filling, and a sheathing 43, 44, covering the panels 40 and belt-rails.

23. In a car, the combination with the body-framing comprising the channel-beam longitudinal sills having the exteriorly-exposed wooden filling, the car-frame erected upon the body-frame comprising posts supported upon the said sills, ribs, and longitudinal belt-rails, and a base-paneling comprising the paneling 40 extending between the belt-rails and outer face of the sill-filling and the sheathing 43, 44 covering the panel 40 and belt-rails.

24. In a car, the combination with the body-framing comprising the channel-beam longitudinal sills, having the exteriorly-exposed wooden filling, the car-frame erected upon the body-frame comprising posts supported upon the said sills, ribs and longitudinal belt-rails, and a base-paneling comprising the paneling 40 extending between the belt-rail and sill-filling, and the sheathing 43, 44 covering the paneling 40 and the belt-rails, and the inner lining 50 extending between the channel-beam sill and the inner face of the belt-rails.

25. In a car, the combination with the body-frame, and a car-frame erected thereon, comprising the posts, the ribs, the longitudinal belt-rails, the longitudinal top rails, and ribbing erected from the top rail upwardly, decking supported upon the ribs, the metallic sheathing covering the decking supported upon the ribs, the metallic sheathing covering the decking, base-paneling extending between the belt-rails and the body-frame, a metal sheathing covering the base-panel exteriorly, metallic sheathing covering the exterior of the posts, an inner lining supported by said ribs below the decking comprising asbestos sheeting, asbestos lining for the inner faces of the posts, an inner lining for the base-paneling comprising plates extend ing between the belt-rail and the body-frame.

26. In a car, the combination with the body-frame, of a car-frame comprising the posts, the ribs extending from the posts upwardly, said ribs being made of wood treated with fireproof material, a decking laid over ribs exteriorly, a metallic sheathing laid over the decking, asbestos plating secured to the inner surface of the ribs and extending to the posts, and forming an interior fireproof protection to said decking or roof.

27. In a car, the combination with the body-frame, and a car-frame erected thereon comprising posts and ribs extending upwardly from the posts, and belt-rails, the base-paneling extending between the belt-rails and body-frame, and interior fireproof base-panel extending between the body-frame and the belt-rails, and car-seats supported against and adjacent to said interior panels.

28. The combination in a car, of the body-frame, the car-frame erected thereon, the latter comprising in its construction the longitudinal belt-rails, an inner base-paneling comprising metallic plates extending between the belt-rails and the body-frame, supports for seats ranged adjacent the inner base-paneling, a fireproof plate supported upon said seat-support, cushions supported upon said plate, and further cushions supported against the lower paneling.

29. In a car, the combination with the body-frame, the car-frame erected thereon and comprising the longitudinal belt-rail, the fireproof base-panel extending between the interior frame of the belt-rails and to the body-frame, and a seat-frame supported upon the body-frame adjacent the inner base-panel, a fireproofed plating disposed upon the said frame, a further fireproofed plating extending from the horizontal plating to the body-frame and inclosing the seat-frame, and cushions supported upon the horizontal plating.

30. A car-post comprising the wooden sections 32, the interposed metallic bar, grooves 34 formed in the faces of the wooden sections, and the sheathing 38 covering the outer exposed faces of the bar and wooden sections.

31. A car-post comprising the wooden sections 32, the interposed metallic bar, grooves 34 formed in the faces of the wooden sections, and the sheathing 38 covering the outer or exposed faces of the bar and wooden sections, the inner faces of the posts being covered by the fireproof lining 51.

32. A car-post comprising the T-iron having its flanges 33 outwardly exposed, the wooden sections 32 seated within the said flange and abutting against its web 31, grooves formed in the side faces of the wooden sections, and the sheathing 30 extending over the outer surface of the flange 33, the corners of the wooden sections and to said grooves.

33. A car-post comprising the T-iron having its flanges 33 outwardly exposed, the wooden sections 32 seated within the said flange and abutting against its web 31, grooves formed in the side faces of the wooden sections, and the sheathing 30 extending over the outer surface of the flange 33, to and over the corners of the wooden sections to said grooves, and the inner fireproof lining 51.

34. A car having window frames or sashes, and a support for said sashes comprising the longitudinal top rail, a letter-board secured to the top rail, posts extending between the belt-rail, the letter-board and top rail, grooves formed in the side faces of the posts and receiving said sash, a metallic sheathing covering the exposed faces of the post and extending to the window-sash, a metallic sheathing covering the belt-rail and extending to the window-sash, and a metallic sheathing covering the top rail and the letter-board and extending to and adjacent the window-sash.

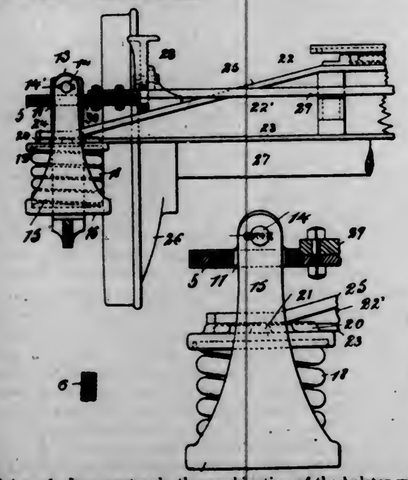
35. A car, the combination with the body-frame, the car-frame, the longitudinal belt-rail, the inner sheathing 50 extending between the belt-rail and the body-frame, a seat comprising the frame 65 secured to the lining 50, the horizontal section 63, the upright section 66 supported upon the body-frame, the plate 64 supported upon the horizontal section 63, cushions supported upon the plate 64, and the plate 67 extending between the plate 64 and the body-frame in front of the seat-frame.

36. In a car, the combination of a body-frame, a car-frame provided with angle metal sills, corrugated metal sheets joining the central webs of said sills, and an asbestos filling resting on said corrugated sheets and between said sills.

37. In a car or similar vehicle, a car-frame provided with angle metal sills, angle-irons extending along said sills, corrugated metal sheets resting on said angle-irons, and an asbestos filling resting on said sheets and a floor resting on said sills.

38. In a car, the combination with a truck and superposed car-body having a wooden superstructure comprising posts and a wooden shell, and an electric motor supported on said truck, and longitudinal walls formed of angle metal united by a fireproof septum, consisting of asbestos resting on corrugated metal, whereby the motor and truck are separated from said wooden superstructure.

784,299. MOTOR-PROPULSION TRUCK FOR STREET-CARS OR SIMILAR VEHICLES. JOHN A. BRILL, Philadelphia, Pa. Filed Nov. 29, 1902. Serial No. 133,175.



Claim.—1. In a car-truck, the combination of the bolster with springs and automatic means for sustaining said springs with their axes approximately coinciding with the stresses put upon them.

2. In a car-truck, the combination of the bolster with springs, supports for said springs, and automatic means for placing and sustaining said supports in a plane normal to the stresses of the springs.

3. In a car-truck, a bolster, springs supporting said bolster and suspended means whereby all transverse stresses cause an uneven distortion of the springs, thereby causing them to resume their normal positions and reducing all transverse vibrations.

4. In a car-truck, a bolster, springs supporting said bolster, pivoted and suspended means for supporting said springs so that when said means operate the springs will be unevenly distorted, and thereby caused to resume their normal position.

5. In a car-truck, a bolster, springs supporting said bolster, pivoted stirrups supporting said springs, and means connecting the bolster and springs so that whenever the stirrups turn on their pivots, the springs will be unevenly distorted thereby tending to cause the stirrups to resume their normal position.

6. In a car-truck, a bolster, springs supporting said bolster, and means supporting said springs so that they will automatically assume a position wherein their axes will coincide with the direction of the stress put upon them, so that they will resist transverse vibrations with maximum effect.

7. In a car-truck, the bolster, springs supporting said bolster, and suspended means for moving said springs out of their normal position, so that they will be unevenly deflected whenever transverse stresses are applied to the bolster.

8. In a car-truck, a bolster, springs supported by suspended means and adapted to be unevenly deflected by transverse stresses on the truck, whereby said uneven deflection will cause the bolster and springs to resume their normal position when said stresses are removed.

9. In a car-truck, a bolster which is spring-supported in a pivoted stirrup so that when the stirrup swings on its pivot, the axes of the spring will be inclined to the vertical.

10. In a car-truck, a frame, a stirrup pivotally supported in said frame, a spring resting on said stirrup, a cap on the spring, and a bolster supported by the cap.

11. In a car-truck, a side frame, a stirrup pivotally mounted in said frame, a recess in the bottom of said stirrup, and a bolster-spring resting in said recess.

12. In a car-truck, a side frame, a stirrup pivotally mounted in said frame, a spring supported by said stirrup and a cap resting on said spring.

13. In a car-truck, a side frame, a pivotally-mounted stirrup provided with a spring-receiving recess in its lower portion, a spring seated in said recess, and a cap on said spring provided with projections adapted to fit a bolster so that when the stirrup swings on its pivot, the axes of the spring will be inclined to the vertical.

14. A stirrup provided in its upper portion with a pivot and in its lower with a spring-receiving recess, a spring in said recess and a cap on said spring so that when the stirrup swings on its pivot, the axes of the spring will be inclined to the vertical.

15. In a side frame for a truck, chords, frame tie-rods uniting said chords, perforations in one chord between the said rods, and pivot-supports on two sides of each perforation.

16. In a side frame for a truck, chords, frame tie-rods uniting said chords, perforations in one chord between the said rods, pivot-supports on two sides of each perforation, and a stirrup pivoted in said supports.

17. A cap provided with two transverse projections and one central projection.

18. In a side frame for a truck, upper and lower chords and a stirrup pivoted to lugs above said chords and swinging between them.

19. In a side frame for a truck, chords, frame tie-rods uniting said chords, and a stirrup pivoted to lugs above said chords and swinging between them and also between the said tie-rods.

20. In a side frame for a truck, an upper chord, a stirrup suspended therefrom by means of lugs extending above said chord, a spring resting in said stirrup and a bolster supported by said spring.

21. In a side frame for a truck, upper and lower chords, side-frame tie-rods uniting said chords, a stirrup pivoted to said upper chord by means of lugs extending above the same, a spring in said stirrup, and a bolster supported by said spring.

22. In a side frame for a truck, an upper chord, a stirrup suspended therefrom by means of lugs extending above said chord and a spring supported by said stirrup.

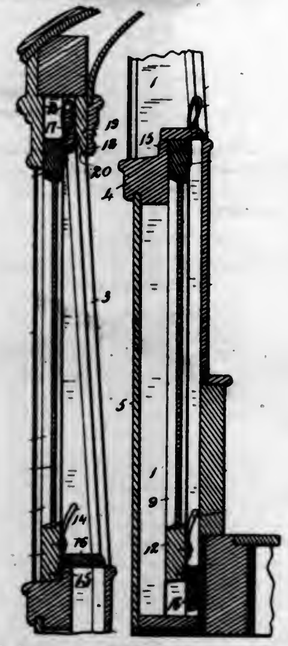
23. In a side frame for a truck, upper and lower chords, side-frame tie-rods uniting said chords, a stirrup pivoted to said upper chord by means of lugs extending above the same, and a spring in said stirrup.

24. The combination, with a bolster and suitable supports, of suspended rockers arranged between the bolster and supports, and springs also arranged between the bolster and supports and cooperating with the rockers, the upper ends of the springs having a fixed relation with respect to the bolster.

25. The combination with a bolster and suitable supports, of suspended rockers interposed between said supports, and bolster, and springs also interposed between such supports and bolster, and arranged in a normally vertical position, said springs having a fixed relation with respect to the bolster.

26. The combination with a bolster and suitable supports, of suspended plates arranged to rock on said supports, and springs arranged in a normal vertical position between the bolster and plates, and having fixed relation with respect to the bolster.

784,300. CAR-WINDOW. JOHN A. BRILL and CHARLES K. PICKLES, Philadelphia, Pa.; said Pickles assignor to said Brill. Filed Nov. 24, 1903. Serial No. 183,460.



Claim.—1. In a car or similar vehicle, a window with a sash and sash-pocket, a pocket-cover secured to the upper edge of said sash and a guide for moving said cover relatively to said sash.

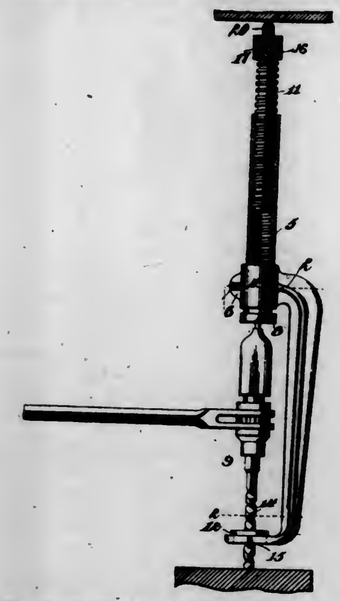
2. In a car or similar vehicle, a sash, means for permitting said sash to be moved in a substantially vertical plane, a sash-pocket into which said sash may be moved, a sash-pocket cover hinged to the upper edge of said sash and between the edges of said cover so that when the sash is lowered into its pocket, the cover will rest on the walls of the sash-pocket.

3. In a car or similar vehicle, a sash, means for guiding the sash when it is moved in a substantially vertical plane, a sash-pocket into which said sash may be moved, a sash-pocket cover hinged to the upper edge of said sash and intermediate of the edges of the cover, and a cam or guide for causing said cover to assume a vertical position when the sash is raised out of the sash-pocket to close the window.

784,301. ATTACHMENT FOR RATCHET-DRILLS. ADDISON B. CARLL, Boothwyn, Pa. Filed Oct. 14, 1903. Serial No. 177,051.

Claim.—1. The combination with a ratchet-drill, of an attachment therefor, comprising a backing-up brace, and an arm extending from the backing-up brace and arranged lengthwise of the drill so as to span the same from the rear or upper end thereof to the tool and provided with means for guiding the latter, said arm being provided with a head forming an abutment receiving the rear or upper end of the drill, said abutment maintaining a fixed relation with respect to the arm during the operation of drilling, and the said backing-up brace being extensible, substantially as described.

2. In combination with a ratchet-drill, of an attachment therefor, comprising a backing-up brace having a seat at its lower end, an arm arranged lengthwise of the drill so as to span the same from the rear end thereof to the tool and provided with guiding means for the latter, and having a clamp engaging the backing-up brace and having its lower end closed by the same, said seat receiving the rear end of the drill and being held in fixed relation with the arm of the clamp during the entire operation of the drill, and the said backing-up brace being extensible to feed the drill, substantially as described.



3. In combination with a drill, an attachment therefor, comprising a tubular shank or member receiving and supporting the inner end of the drill, an arm carried by the shank or member and spanning the drill from the inner end thereof to the tool and provided with means for guiding the latter, a screw engaging the shank or member and having a projection, and a coupling mounted on the screw and terminating short of the projection and adapted to receive an extension-rod.

784,302. COMPOSITION FUEL. CHARLES H. CARPENTER, South Bend, Ind., assignor to John L. White, South Bend, Ind. Filed Mar. 10, 1904. Serial No. 197,472.

Claim.—1. A composition for artificial fuel consisting of peat or muck, salt, and powdered rosin, in substantially the proportions specified, and so compressed into a solid mass or compound as to distribute the volatile and resinous matter of the composition throughout the mass and retain the same.

2. An artificial fuel consisting of a hard compressed amorphous mass in which the easily volatile matter is retained by high pressure, and consisting of peat, salt and rosin mixed in substantially the proportions described, and compressed by high pressure.

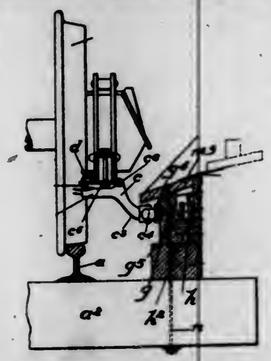
3. The process of making artificial fuel consisting of mixing peat, salt and rosin in the proportions specified, and then compressing the same into a hard amorphous mass in which the easily volatile matter is retained by high pressure and distributed throughout the mass.

4. The herein-described process of making artificial fuel which consists of mixing peat, salt and rosin together, and then forming the same into a hard amorphous masses by high pressure whereby the volatile matter of the compound is retained by high pressure and uniformly distributed throughout the composition.

784,303. THIRD-RAIL ELECTRIC-RAILWAY SYSTEM. THOMAS J. CAREY and FRED H. PICKLES, New York, N. Y. Filed Aug. 11, 1904. Serial No. 220,366.

Claim.—1. In a third-rail electric-railway system, a third rail arranged adjacent to one of the rails of the track and the contact-surface of which is directed toward said track, and a cover or guard hinged to a support at the outer side of said third rail and composed

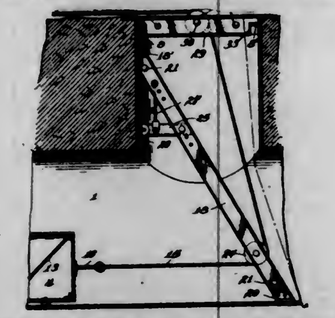
of separate sections provided with insulating-blocks adapted to rest on said rail, substantially as shown and described.



2. In a third-rail electric-railway system, a third rail arranged adjacent to one of the rails of a track and the contact-surface of which is directed toward said track, said third rail being composed of separate insulated sections, a main feed-wire in electrical connection with each of the sections of the third rail by means of supplemental feed-wires and a cover or guard for the third rail hinged to a support at the outer side of said rail and consisting of separate sections provided with insulating-blocks which rest on said rail, substantially as shown and described.

3. In a third-rail electric-railway system, a third rail arranged adjacent to one of the rails of the track and the contact-surface of which is directed toward said track, said rail being composed of main independent insulating-sections between each of which is a short independent section, a main feed-wire connected with each of said main independent sections by supplemental feed-wires having switches, and a guard or cover hinged to a support at the outer side of the third rail and composed of separate sections having insulating-blocks which rest on said third rail, substantially as shown and described.

784,304. **SEWER-CLEANING DEVICE.** MICHAEL T. CONNOLLY, Jersey City, N. J. Filed Nov. 10, 1904. Serial No. 232,220.



Claim.—1. In a device for cleaning sewers, the combination with a manhole-frame, of a pulley-supporting frame adapted to be positioned within the manhole-frame and comprising separated bars connected together side by side, whose ends rest on the manhole-frame, and a pulley journaled to the bars and located between them.

2. In a device for cleaning sewers, the combination with a manhole-frame having an inwardly-projecting flange below its top, of a pulley-supporting frame within said manhole-frame and of less length than the width of said manhole-frame and having its ends resting on the flange aforesaid.

3. In a device for cleaning sewers, the combination with a manhole-frame having an inwardly-projecting flange below the top, of a pulley-supporting frame of less length than the width of said manhole-frame and having undercut ends, said pulley-supporting frame being adapted for positioning within the manhole-frame and the outwardly-extending portions of the undercut ends resting upon the aforesaid flange of the manhole-frame.

4. In a device for cleaning sewers, the combination with a cleaning device in the sewer, of a pulley-support resting on the bottom of the sewer and terminating at its upper end below the street-level, a pulley-support in the manhole, and a rope or cable passing over said pulleys and connected to the cleaning device.

5. In a device for cleaning sewers, the combination with a cleaning device in the sewer, of a pulley-support resting on the bottom of the sewer and against the manhole-walls, an independent pulley-support resting on the manhole-frame, and a rope or cable passing over the pulleys of said pulley-supports and connected to the cleaning device.

784,305. **STOVE-KNOB.** ROBERT G. CORNFORTH, Seymour, Conn., assignor to The H. A. Matthews Mfg. Co., Seymour, Conn., a Corporation. Filed Nov. 14, 1904. Serial No. 232,612.



Claim.—1. A stove-knob having an annular groove, a spirally-coiled wire located in said groove, and ears turned outward from said groove and engaging with the coils of the wire, substantially as described.

2. A stove-knob formed with an annular groove and with integral ears extending outward therefrom, combined with a spirally-coiled wire located in said groove and held in position by said ears, substantially as described.

784,306. **SHADING DEVICE.** RICHARD L. CRIGLER, Columbus, Ohio. Filed Apr. 18, 1904. Serial No. 203,562.



Claim.—1. In a device of the type set forth, a holder, a yoke having hinge-lugs adjustably connected with the holder, a longitudinal adjusting-rod passing through the hinge-lugs whereby the yoke is swingingly mounted, blocks adjustably supporting the rod, boxes in which the blocks are slidably supported, and means connecting the boxes and the blocks for transversely adjusting the blocks.

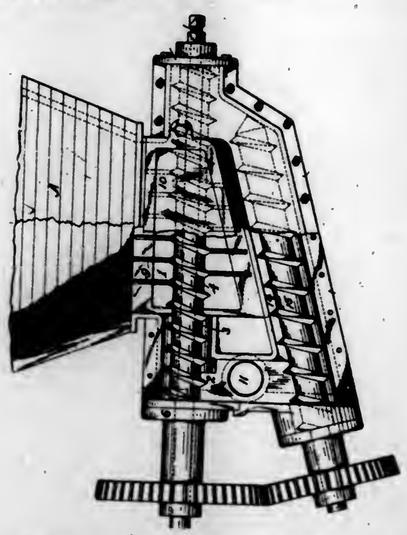
2. In a device of the type set forth, a yoke having a groove therein, a holder having a tongue in adjustable connection with the groove of the yoke, a rod upon which the yoke is swingingly mounted, means for adjusting the rod longitudinally, sliding blocks for supporting the rod, fixed boxes for supporting the blocks, and means connected with the boxes for transversely adjusting the blocks and indicating the degree of such adjustment.

784,307. **FEEDING APPARATUS FOR COAL-DUST.** JOHN V. CULLINEY, Lebanon, Pa., assignor to American Iron and Steel Manufacturing Company, Lebanon, Pa., Incorporated. Filed July 11, 1903. Serial No. 165,129.

Claim.—1. A feeding apparatus for comminuted fuel, comprising a hopper, a conveyer-chamber communicating therewith and provided with a horizontal fuel-delivery passage, an air-conduit chamber located beneath the terminus of said delivery-passage and having transversely-alined inlet and outlet air-conduits therefrom and a conveyer-screw entering said passage and arranged to delive a falling stream of fuel between said alined inlet and outlet conduits.

2. A feeding apparatus for comminuted fuel comprising a hopper, a conveyer-chamber communicating therewith and provided with a horizontal fuel-delivery passage, an air-conduit chamber located beneath the terminus of said delivery-passage and having transversely-alined inlet and outlet air-conduits therefrom, and a conveyer-screw entering said passage and having its rearward portion located in said conveyer-chamber beneath the hopper-opening and provided with agitators.

3. A feeding apparatus for comminuted fuel comprising a hopper, a conveyer-chamber communicating therewith and provided with a horizontal fuel-delivery passage, an air-conduit chamber located beneath the terminus of said delivery-passage and having transversely-alined inlet and outlet air-conduits therefrom, a conveyer-screw entering said passage and arranged to deliver a falling stream of fuel between said alined inlet and outlet conduits, and means below said conduits arranged to catch and return the excess of said stream of fuel to said conveyer mechanism.



4. A feeding apparatus for comminuted fuel comprising a hopper, a conveyer-chamber communicating therewith and provided with a fuel-delivery passage, an air-conduit chamber communicating with said delivery-passage and having transversely-alined inlet and outlet air-conduits therefrom, and a conveyer-screw entering said passage and having its rearward portion located in said conveyer-chamber beneath the hopper-opening and provided with agitators, said conveyer-chamber having a lateral extension beyond the swing of said agitators adapted to serve as a receptacle for foreign material.

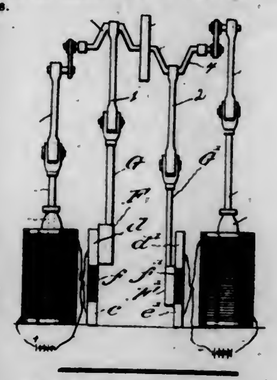
5. A feeding apparatus for comminuted fuel comprising a hopper, a conveyer-chamber communicating therewith and provided with a horizontal fuel-delivery passage, an air-conduit chamber located beneath the terminus of said delivery-passage and having transversely-alined inlet and outlet air-conduits therefrom, a conveyer-screw entering said passage and arranged to deliver a falling stream of fuel between said alined inlet and outlet conduits, an excess-fuel chamber located below and affording communication between said air-conduit and conveyer chambers, and a coöperating feed-screw in said excess-fuel chamber arranged to reconvey the excess fuel to said conveyer-chamber.

6. A feeding apparatus for comminuted fuel comprising a hopper, a conveyer-chamber communicating therewith and provided with a horizontal fuel-delivery passage, an air-conduit chamber located beneath the terminus of said delivery-passage and having transversely-alined inlet and outlet air-conduits therefrom, a conveyer-screw entering said passage and arranged to deliver a falling stream of fuel between said alined inlet and outlet conduits, an excess-fuel chamber located below and affording communication between said air-conduit and conveyer chambers, and a coöperating feed-screw in said excess-fuel chamber arranged at an incline to said conveyer-screw and adapted to convey the excess fuel to the rear portion of the latter.

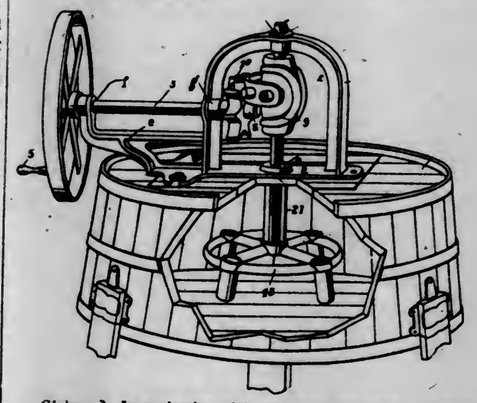
7. A feeding apparatus for comminuted fuel comprising a hopper, a conveyer mechanism arranged to deliver a falling stream of fuel therefrom, an air-blast conduit arranged across the path of said falling stream of fuel, a supplemental air-admission flue through which said conduit discharges into the furnace, and regulating means substantially as set forth.

784,308. **ELECTRIC MOTOR.** GEORGE DENGLER and IDA W. SCHMIDT, Detroit, Mich. Filed Sept. 12, 1904. Serial No. 224,166.

Claim.—In an electric motor, solenoid-coils, suitable conductors extending to sources of electricity, conductors leading from the coils, terminals or contacts with which the conductors are in contact, the said terminals of each coil being insulated from each other, conductors leading from the coil to one of the terminals and from the other terminal to the source of electricity, a crank-shaft arranged above the coil and provided with crank-hangers, solenoid-cores movable in the coils and connected to the crank-shaft, guides on the coils through which the cores pass, guide-plates, slides carried by the cores and engaging the guide-plates, bars connected to the crank-hangers, suitable contact-plates on the bars adapted to bridge the terminals and suitable power-transmitting means carried by the crank-shaft, the relation of the crank-shaft and crank-hangers being such as to cause the contact-plates of the bars to alternately bridge the terminals.



784,309. **GEARING.** CONRAD DIETZ and JOHN DIETZ, Cincinnati, Ohio; said John Dietz assignor to said Conrad Dietz. Filed Jan. 2, 1904. Serial No. 187,449.



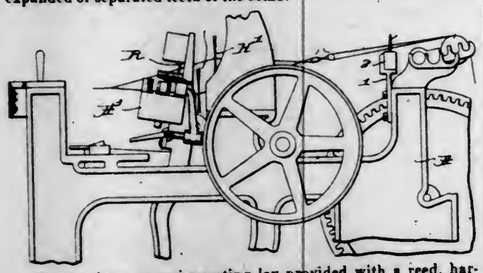
Claim.—1. In mechanism of the character described, a segmental gear provided with a central opening and having a recess in one side of said gear, a cam having a lug adapted to fit into said recess, and having bearings provided with openings adapted to register with the central opening of the segmental gear, a shaft adapted to engage and interlock said segmental gear and cam, means for imparting rotary movement from said shaft to said gear and cam, and means for mounting and operating said mechanism.

2. In mechanism of the character described, a housing, a shaft mounted vertically therein, a segmental gear and cam mounted upon said shaft, a crank-shaft journaled horizontally in fixed bearings, a pinion on said crank-shaft adapted to mesh with said segmental gear and a bearing also upon said crank-shaft adapted to alternately engage the rim of said segmental gear and the walls of said cam, substantially as and for the purposes specified.

3. In mechanism of the character described, a cam having bearings, a segmental gear adapted to take between and engage said bearings, means for preventing rotary movement of said segmental gear and cam with relation to each other, a vertical shaft adapted to take through said segmental gear and the bearings of said cam whereby said gear and cam are detachably locked together, and means for operating the segmental gear and cam.

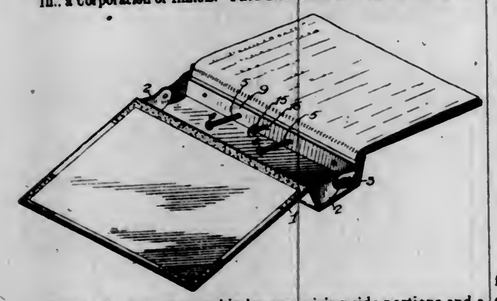
784,310. **WARP-GUIDING MEANS FOR LOOMS.** CLARE H. DRAPER, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 16, 1904. Serial No. 233,261.

Claim.—1. In a loom, a reciprocating lay provided with a reed, harnesses, and a comb fixedly mounted on the loom behind the harnesses, transversely of the warp and having laterally-adjustable teeth, the teeth of the comb passing through the warp and guiding the threads in parallelism with the paths of movement of the reed-dents, whereby the sheet of warp can be reduced to the desired width after the warp-threads have been introduced between the laterally expanded or separated teeth of the comb.



2. In a loom, a reciprocating lay provided with a reed, harnesses, a warp-beam adapted to sustain a yarn mass wider than the reed, and a comb having laterally adjustable or contractible upright guide-teeth located intermediate the beam and the harnesses, to pass between the warp-threads and contract the width of the sheet of warp, and substantially aline the warp-threads with the reed-dents and the heddle members of the harnesses, to prevent wear on the warp-threads and lateral displacement of the heddle members.

784,311. LOOSE-LEAF LEDGER. HARRY ELINOFF and ERNST AXTHELM, Pittsburg, Pa.; Theodore A. Axthelm and Henry C. Arnold, administrators of said Ernst Axthelm, deceased, assignors, by direct and mesne assignments, to Tengwall File & Ledger Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 24, 1902. Serial No. 136,437.



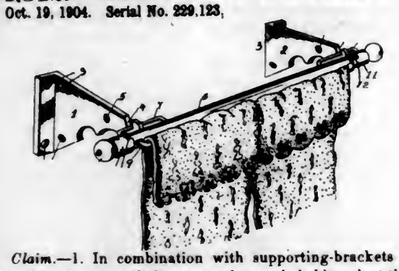
Claim.—1. A temporary binder comprising side portions and a back, hinges connecting the side portions, means to lock said hinges, posts arranged in said binder, a locking-plate formed in two sections, a spring secured in said sections having loops on its free ends encircling said posts, and means whereby said springs may be operated to lock said plate to said posts, substantially as described.

2. In combination, a support provided with a pair of parallel posts, a second member apertured to fit upon said posts, and means for adjustably locking said apertured member to the posts, comprising a flexible strip mounted upon said apertured member, having its ends arranged to encircle the posts, and means for flexing its intermediate portion, whereby the locking-strip is in effect shortened and the ends thereof drawn into clamping engagement with the posts.

3. In a temporary binder, the combination of a back strip provided with a pair of parallel posts, a second back strip apertured to fit upon said posts, and means for adjustably locking said apertured member to the posts comprising a flexible strip arranged within said apertured member and having its end portions arranged to extend around the said apertures so as to engage said posts when the latter occupy the apertures, and means for tensioning said strip to draw it into clamping engagement with said posts.

4. In a temporary binder, the combination of a support provided with a post and a second member apertured to fit upon said post and means for adjustably locking said members together, comprising a strip of resilient metal mounted upon said apertured member and arranged to encircle the post-aperture therethrough, and means for flexing the strip at a point between the held ends for the purpose set forth.

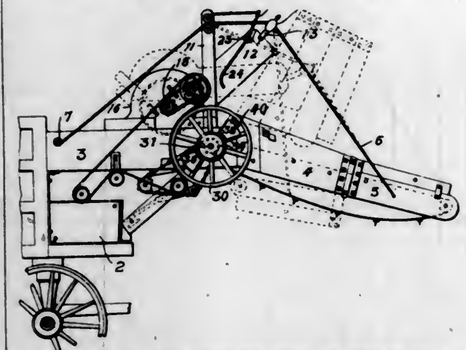
784,312. CURTAIN-POLE. LYDIA EVANS, Braddock, Pa. Filed Oct. 19, 1904. Serial No. 229,123.



Claim.—1. In combination with supporting-brackets having inclined notches near their outer ends, a pole held against the outer ends of the brackets by yokes received in the notches of said brackets, a clamping-bar for binding a curtain against the pole, said clamping-bar extending parallel with the pole and being spaced apart therefrom and having its ends bent to form prongs adapted to lie in recesses in the pole, and means at the ends of the pole for securing said clamping-bar, substantially as described.

2. The combination with notched brackets, of a curtain-pole, yokes at each end of the pole received in the brackets and of length sufficient to permit of longitudinal adjustment of the pole, a clamping-bar having inwardly-extending ends, and slotted sleeves fitting over the ends of the pole and over the ends of said clamping-bar.

784,313. BAND-CUTTER AND FEEDER. FRANK EVES, La Crosse, Wis. Filed May 31, 1904. Serial No. 210,427.



Claim.—1. In a band-cutter and feeder, the combination, with a freely-oscillating centrally-pivoted shoe-frame, of a revolving band-cutting cylinder mounted in said frame near its inner end, a bundle-carrier operating beneath said frame and cylinder, a hinged frame for said carrier, and an operating means for the frame of said bundle-carrier having an anitfrictional connection with the outer end of said shoe-frame.

2. In a band-cutter and feeder, the combination, with a centrally-pivoted shoe-frame, of a revolving band-cutting cylinder mounted in said frame, a bundle-carrier operating beneath said cylinder, and a rope connected with the frame of said bundle-carrier and having a sliding connection with the outer end of said shoe-frame, for the purpose specified.

3. In a band-cutter and feeder, the combination, with a pivoted shoe-frame, of a band-cutting cylinder mounted therein on one side of the frame-pivot, a bundle-carrier operating beneath said cylinder, and retarding devices mounted in said frame on the other side of its pivot from said cylinder and adapted to be swung into position by the upward movement of said cylinder to engage and retard the incoming grain.

4. In a band-cutter and feeder, the combination, with a centrally-pivoted shoe-frame, of a band-cutting mechanism mounted therein near one end and a series of retarding-arms carried by the opposite end of said frame, means for adjusting said frame and operative connections provided between said arms, and a fixed support whereby when said cylinder is raised by the pressure of the grain said arms will be tilted to engage and retard the incoming grain.

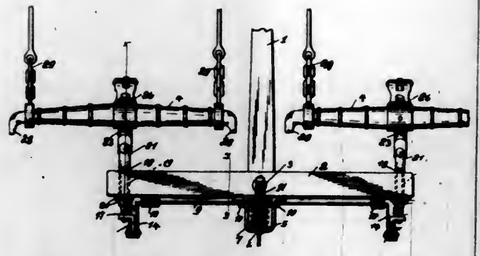
5. In a band-cutter and feeder, the combination, with a shaft, of a pulley loosely mounted thereon, a disk secured on said shaft, a friction-plate interposed between said disk and the hub of said pulley and having cam-surfaces, and blocks carried by said pulley and arranged to be thrown out by centrifugal force to engage said cam-surfaces and operate said friction-plate, for the purpose specified.

6. In a band-cutter and feeder, the combination, with a shaft, of a pulley loosely mounted thereon, a disk secured on said shaft, a friction-plate having cam-surfaces interposed between said pulley-hub and said disk, rods connecting said hub and said pulley-rim, blocks slidably mounted on said rods and having wedge-shaped inner ends adapted to engage said cam-surfaces and pressure-springs provided on said rods and engaging said blocks.

7. In a band-cutter and feeder, a revolving cylinder provided with a series of webs arranged spirally on the periphery of said cylinder from the center toward the end, each web having a sharpened beak at its forward end and being offset and in the rear of the contiguous web, whereby the grain will be plowed out toward the ends of the cylinder in successive rows.

8. In a band-cutter and feeder, a revolving cylinder having a series of webs extending spirally thereon upon each side of the center, each web extending on the surface of the cylinder a distance equal to about one-half its circumference and having a sharpened beak at the forward end and offset and in the rear of the contiguous web, substantially as described.

784,314. HORSE-DETACHER. CARL FRENCKEL, Pittsburg, and GEORGE FLEISCHER, Homestead, Pa. Filed Nov. 10, 1904. Serial No. 232,186.



Claim.—1. In a device of the character described, the combination with a doubletree and swingletrees, said swingletrees having hook-shaped ends, of means for hinging said swingletrees to said doubletree so as to swing over, and outwardly from the doubletree, means for locking said swingletrees, and means carried by said doubletree for unlocking said swingletrees whereby the same may swing upon its binge, substantially as described.

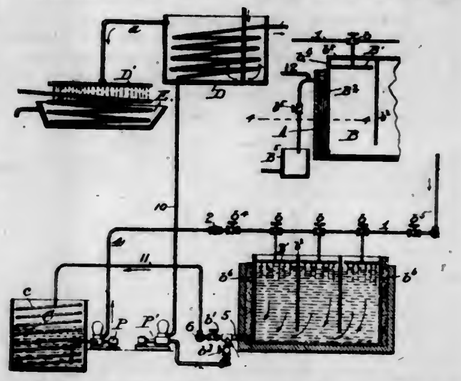
2. In a device of the character described, the combination with a doubletree and swingletrees, said swingletrees having hook-shaped ends, a curved arm pivotally mounted in said doubletrees, said swingletrees being hinged to said curved arms, means for locking said swingletrees upon said curved arms, and means carried by the doubletree to release said locking means, substantially as described.

3. A device of the character described comprising a doubletree and swingletrees, said swingletrees having hook-shaped ends, pins mounted in said doubletree, curved arms swiveled to said pins, said swingletrees being hinged to said curved arms, means for locking said swingletrees in engagement with said curved arms, and means carried by said doubletree, to release said locking means whereby said swingletrees may swing upon their hinges, substantially as described.

4. In a device of the type described, the combination with a doubletree and swingletrees, of pins mounted in said doubletree, a rod mounted upon said doubletree and connected to said pins, curved arms swiveled in the ends of said pins, said swingletrees being hinged to said curved arms and adapted to receive the ends of the traces of a harness, means carried by said doubletree and said swingletrees to release said traces, substantially as described.

5. In a device of the type described, the combination with a doubletree and swingletrees, said swingletrees having curved ends, of a pin mounted upon said doubletree and adapted to be manually actuated, means for retaining said rod in its normal position, pins mounted in the ends of said doubletree, curved arms swiveled in the ends of said pins, said trees being hinged to said curved arms, means carried by said doubletree and curved arms for locking said swingletrees in engagement with said curved arms, and means for releasing said locking means, substantially as described.

784,315. ICE-MAKING APPARATUS. ABRAHAM O. FRICK, Waynesboro, Pa., assignor to The Frick Company, Waynesboro, Pa., a Corporation of Pennsylvania. Filed Apr. 6, 1898. Serial No. 676,668.



Claim.—1. In an ice-making apparatus, the combination with the freezing tank and cells, of pipes connected with said cells for conducting a non-congealable fluid arranged to circulate said fluid in a vertical direction from the top to the bottom of said cells and form two separate circuits, one a "freezing" and the other a "thawing" circuit, with each of said cells constituting a part of each of said circuits, and valves in said pipes for throwing said cell into the circuit desired and cutting it off from the other, substantially as described and for the purpose specified.

2. In an ice-making apparatus, the combination with the freezing tank and cells, of two pipe-circuits for a non-congealable fluid which are joined or completed by a cell, one of said circuits being a "freezing" and the other a "thawing" circuit, the thawing-circuit passing through the condensing agent for the ammonia-condenser, and valves for controlling the flow through whichever circuit is desired, substantially as set forth.

3. In an ice-making apparatus, the combination, of the freezing-tank, the cells, a circuit of pipes from the brine-cooling tank through said cells and return, another circuit from said cells through a pipe which passes through the condensing agent for the ammonia-condenser and return, valves for throwing the cell into whichever circuit is desired, and means for circulating the brine or non-congealable fluid through whichever circuit is open, whereby it may be converted from a freezing to a thawing medium by passing through said condensing agent for the ammonia-condenser, and said condensing agent at the same time reduced in temperature by the cold taken up from said non-congealable fluid and its efficiency thereby enhanced, substantially as set forth.

4. In an ice-machine, the combination, of the freezing-tank, the cells therein, and a pipe-circuit for the freezing medium from the supply-tank therefor through said cells and return, said circuit being arranged to discharge said freezing medium into the top of said cells and through an uninterrupted passage to the bottom in a vertical direction, and take it out at said bottom, substantially as set forth.

5. The combination, in an ice-making machine, of the tank, the cells, the brine-supply pipes, horizontal pipes with openings in their under sides mounted in the tops of said cells and connected with said brine-supply pipe, discharge-pipes connecting with the bottom of said cells, and means for effecting a circulation of the brine through said cells in a vertical direction from the top to the bottom thereof, substantially as set forth.

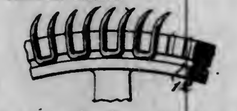
6. In an ice-making machine, the combination, of the tank, the freezing-cells therein formed with vertical partitions at intervals which extend to near the bottom thereof forming uninterrupted vertical passages therethrough, the brine-supply pipe, horizontal pipes connected therewith and mounted in the top of the vertical compartments thus formed in said cells, said pipes having openings in their under sides, a discharge-pipe leading from the bottom of each cell, and means for forcing the brine through the circuit thus formed into the top of said cells and out at the bottom, substantially as set forth.

7. In an ice-making machine, the combination, of the freezing-tank, the cells therein, the brine-supply pipe discharging in a downward vertical direction into said cells at or near the top thereof, a discharge-pipe leading from the bottom thereof, a pipe leading therefrom to a pump, and another to the brine-tank, valves to regulate the flow to said pump or tank, as desired, a pipe leading from said pump

to a coil in the water-supply tank of the ammonia-condenser and back to the pipe which discharges into the top of said cells, and valves for regulating the course of the brine, as desired, substantially as set forth.

8. In an ice-machine, the combination with the cells, of a circuit for circulating the freezing medium through them, which discharges said medium into the top of said cells and takes it through them in an uninterrupted downward vertical direction and withdraws it from the bottom thereof, whereby an active vertical current from the top to the bottom of said cells is secured, substantially as set forth.

784,316. COTTON-GIN. JAMES T. FULLER, Calvert, Tex. Filed May 20, 1903. Serial No. 159,963.

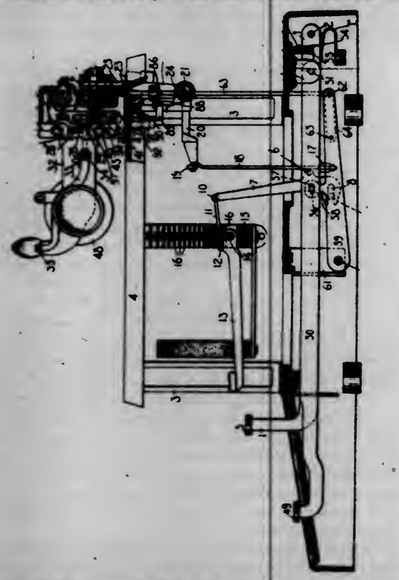


Claim.—1. In a cotton-gin, the combination of a plurality of rings forming the ginning-cylinder and pin-like ginning-points formed in pairs from a single piece of metal, carried in the rings with the points of each pair alined in the plane of their movement.

2. In a cotton-gin the combination of slotted point-carrying rings, ginning-points formed in pairs held therein, and a bearing which engages the points intermediate their ends and prevents radial movement thereof.

3. A ginning-cylinder comprising a plurality of annular point-carrying sections each provided with a concentric groove and with radial slots extending therefrom to the periphery of the ring, for holding and supporting the ginning-points, substantially as set forth.

784,317. TYPE-WRITING MACHINE. CARL GABRIELSON, Springfield, Mass., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 10, 1902. Serial No. 97,493.



Claim.—1. In a type-writing machine and tabulating mechanism, the combination of a carriage, a swinging feed-rack carried by said carriage, coöperating escapement mechanism which engages said rack, a tabulating-stop carried by the carriage, a rock-shaft which is carried by the frame of the machine and extends in the direction of the travel of the carriage, a tabulating-stop on said rock-shaft and which is normally out of the path of the tabulating-stop on the carriage, means for effecting a relative adjustment between said stops, a key for turning said rock-shaft to interpose the tabulating-stop thereon in the path of the tabulating-stop on the carriage, and a lever and a rack-lifter, independent of the rock-shaft for swinging the feed-rack out of engagement with the coöperating escapement mechanism when said key is depressed.

2. In a type-writing machine and tabulating mechanism, the combination of a carriage, a swinging carriage feed-rack carried by said carriage, a feed-pinion meshing with said rack, escapement mechanism which is operatively connected to said feed-pinion, a tabulating-stop carried by the carriage, a rock-shaft which extends in the direction of the travel of the carriage, a tabulating-stop on said rock-shaft and which is normally out of the path of the tabulating-stop on the carriage, said tabulating-stops being relatively adjustable, a key for turning said rock-shaft to interpose the tabulating-stop thereon in the path of the tabulating-stop on the carriage, and means independent of the rock-shaft for swinging the rack out of engagement with the feed-pinion when said key is depressed.

3. In a type-writing machine and tabulating mechanism, the combination of a carriage, escapement mechanism for said carriage, a tabulating-stop carried by the carriage, a rock-shaft, a tabulating-stop carried by said rock-shaft and which is normally out of the path of the tabulating-stop on the carriage, a finger-key, an actuating-link operatively connected to said key and to the rock-shaft, to rock the latter when the key is depressed, a lever which is operable to release the carriage from the escapement mechanism, and a lug or abutment adjustable upon said actuating-link and adapted to actuate the lever when the key is depressed.

4. In a type-writing machine and tabulating mechanism, the combination of a carriage, a swinging rack carried by said carriage, a feed-pinion with which said rack meshes, a lever which is adapted to disengage the rack from said pinion; a tabulating-stop on the carriage, a rock-shaft which extends in the direction of the travel of the carriage, a tabulating-stop on said rock-shaft, an actuating-link connected to said rock-shaft and adapted to rock it, a key which is adapted to actuate said link, and a lug or abutment on the link for actuating the said rack-disengaging lever on the depression of the key.

5. In a type-writing machine and tabulating mechanism, the combination of a carriage, a swinging rack carried by said carriage, a feed-pinion with which said rack meshes, escapement devices which coöperate with the feed-pinion, a lever which is adapted to disengage the rack from said pinion, a tabulating-stop on the carriage, a rock-shaft which extends in the direction of the travel of the carriage and which is fixed against longitudinal movement, an adjustable tabulating-stop on said rock-shaft, a crank-arm thereon, a spring-returned actuating-link connected to said crank-arm and adapted to rock the shaft, a key at the keyboard of the machine and which is operatively connected to said link, and a lug or abutment on the link actuating the said lever on the depression of the key.

6. In a type-writing machine and in tabulating mechanism, the combination of a stop-bar, a tabulating-stop engaging said bar, and a clamping-spring carried by the stop and adapted to contact with and clamp the bar on opposite sides thereof and to hold the stop in place thereon.

7. In a type-writing machine and in tabulating mechanism, the combination of a serrated stop-bar, a movable tabulating-stop engaging the serrations in said bar, and a clamping-spring carried by the stop and adapted to contact with and clamp the bar and to hold the stop in place in the serrations therein against accidental detachment from the bar.

8. In a type-writing machine and in tabulating mechanism, the combination of a serrated stop-bar, a tabulating-stop provided with flanges that are adapted to engage said serrations so that the stop and bar will rotate together, and a clamping-spring carried by said stop and adapted to bear directly upon the bar to hold the stop in place thereon.

9. In a type-writing machine and in tabulating mechanism, the combination of a cylindrical stop-bar having teeth and kerfs, the bases of the latter being straight or flat, a removable tabulating-stop provided with flanges that are seated in said kerfs and coöperate with said straight or flat sides so that the stop and bar will rotate together, and a segmental clamping-spring carried by said stop and partly surrounding the bar to clamp the stop in place thereon.

10. In a type-writing machine and tabulating mechanism, the combination of a toothed stop-rod and a stop device consisting of a housing, a spring within said housing, a forked portion, and a stop or projection.

11. A tabulator-stop device comprising a forked portion adapted to embrace a supporting-rod, a housing, a spring secured within said housing and adapted to embrace said rod, and a stop or projection.

12. In a type-writing machine and in a tabulating mechanism, the combination of a carriage, a tabulating-stop carried by said carriage, a tabulating-stop supported on the frame of the machine, and means for adjusting said stops one with relation to the other, said adjusting means comprising a rock-shaft which carries one of said tabulating-stops and a screw which has a bearing in a fixed portion of the machine and which coöperates with said rock-shaft to afford an endwise adjustment thereof.

13. In a type-writing machine and in a tabulating mechanism, the combination of a carriage, a tabulating-stop carried by said carriage, a tabulating-stop carried by the frame of the machine, and means for adjusting said stops one with relation to the other, said adjusting means comprising a rock-shaft which carries one of said tabulating-stops, and a hollow screw or sleeve which has a threaded bearing in a fixed portion of the machine and which constitutes a bearing in which said rock-shaft turns and which coöperates with said shaft to afford an endwise adjustment thereof.

14. In a type-writing machine and tabulating mechanism, the combination of a carriage, a tabulating-stop thereon, a serrated stop-bar adapted to rock in bearings in the framework of the machine and carrying a tabulating-stop, a hollow exteriorly-threaded screw mounted in a suitable bearing and adapted to receive and support a reduced portion of one end of said rod and abut at its inner end against a shoulder formed on said rod at such reduced portion, a shoulder formed at the outer end of said hollow screw, and a screw inserted into the reduced end of said rod and having a head that bears against said last-mentioned shoulder, whereby the rod is adjustably supported and held securely in its adjusted positions.

15. In a type-writing machine and tabulating mechanism, the combination of a carriage, a tabulating-stop thereon, an oscillatory rod on the framework of the machine and carrying a tabulating-stop, and means for rocking said rod, comprising a key-lever, a sub-lever, a vertical link and a crank-arm.

16. In a type-writing machine and tabulating mechanism, the combination of a carriage, a tabulating-stop thereon, an oscillatory rod on the framework of the machine and carrying a tabulating-stop, and means for rocking said rod, comprising a key-lever pivoted at its rear end, a sublever pivoted at its forward end and connected to said key-lever, a crank-arm connected to said rod, and a link extending from said crank-arm to the rear end of said sublever.

17. In a type-writing machine and tabulating mechanism, the combination of a carriage, a tabulating-stop thereon, an oscillatory rod on the framework of the machine and carrying a tabulating-stop, and means for rocking said rod including a key-operated link, a carriage-escapement mechanism including a feed-rack, a rack-lifter, and a lever connected to the latter and to the said key-operated link.

18. In a type-writing machine and tabulating mechanism, the combination of a carriage, a tabulating-stop thereon, an oscillatory rod on the framework of the machine and carrying a tabulating-stop, and means for rocking said rod comprising a vertically-arranged link, a key-lever and a sublever, carriage-escapement mechanism including a feed-rack, a rack-lifter, and a lever pivoted at one end to the rack-lifter and connected at its opposite end to the vertically-arranged link.

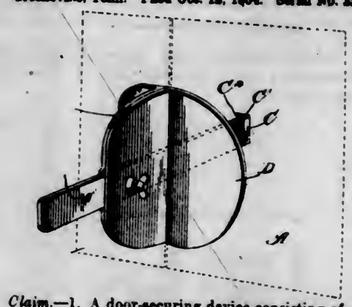
19. In a type-writing machine and tabulating mechanism, the combination of a carriage provided with a fixed tabulating-stop, an oscillatory stop-bar provided with a tabulating-stop adapted to be turned into and out of the path of the stop on the carriage, carriage-feed mechanism including an escapement-wheel, feed-dogs, a pinion and a rack, a forked rack-lifter, means for guiding the same, a lever for operating said rack-lifter, a vertically-arranged link for operating said lever, said link being connected at its upper end to said oscillatory stop-rod, a sublever connected to the lower end of said link, and a key-lever connected to said sublever.

784,318. COMPOSITION OF MATTER FOR FORMING PIPES OR TUBES, &c. JEROME S. GREGG, Pomona, Mich. Filed Sept. 16, 1904. Serial No. 224,660.



Claim.—A composition of matter for a pipe or tube, comprising cement, sand, resin and water impregnated with liquid glue, all mixed together to form a plastic composition.

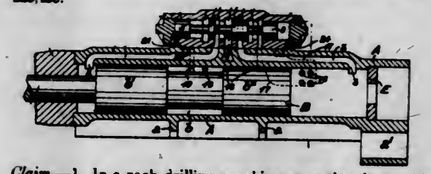
784,319. DOOR-SECURING DEVICE. JOHN H. GREENWAY, Greeneville, Tenn. Filed Oct. 12, 1904. Serial No. 228,201.



Claim.—1. A door-securing device consisting of an angled bar with teeth at the end thereof adapted for engagement with the frame of a door, a holder through which said bar passes, a screw carried by said holder and designed to engage a perforation in said bar, as set forth.

2. A device for holding doors consisting of an angled bar with teeth at one end thereof designed to engage the frame of a door, said bar provided with perforations, a holder comprising two angled plates, one of said plates having an offset to receive said bar, a thumb-screw fitted in a threaded aperture in a boss on one of said plates, the end of said screw designed to engage a perforation in said plate, as shown and described.

784,320. VALVE FOR ROCK-DRILLING MACHINES. JAMES E. H. GROSS, Germiston, Transvaal. Filed Sept. 6, 1904. Serial No. 223,433.

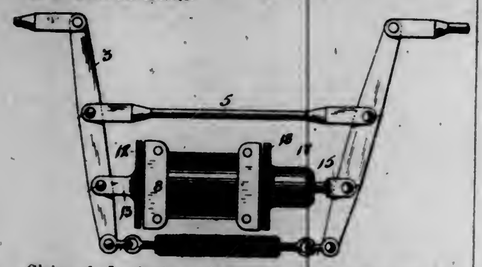


Claim.—1. In a rock-drilling machine or engine, in combination, the cylinder A and piston B arranged therein, the valve-chest F on the cylinder formed with the ports 9, 10, 11, 12, 13 and 14, the valve 4 arranged in the valve-chest F formed with the pistons 5, 6, 7 and 8, the cylinder being formed with a port 17 and the holes 16 placing said port 17 in communication with the interior of the cylinder said port 17 communicating with the port 14 in the valve-chest, the port 22, groove 23, ports 24 and 23^a placing the interior of the cylinder and the main supply-port 1 in communication with the end of the valve-chest, the ports 18 placing the center portion of the cylinder in communication with the exhaust-port 15, the ports 19, 20, 20^a and 21 placing the interior of the cylinder and the main supply-port in communication with the other end of the valve-chest, the ports 19 and 22 being controlled by the piston to alternately close said ports to the exhaust 15 to effect the reversal of the valve 4, substantially as described.

2. In a rock-drilling machine or engine, in combination, the cylinder A constructed with the main inlet 1, the ports 2 and 3 placing said main inlet through the valve in communication with either end of the cylinder, the port 17, holes 16 placing the rear end of the cylinder in communication with said port 17, said port 17 communicating with one end of the valve-chest F, the ports 18 placing the center portion of the cylinder between the two parts of the piston in communication with the exhaust 15, the exhaust-port 15, the ports 22, groove or port 23, and ports 23^a and 24 placing the cylinder in communication with the main supply-port and with one end of the valve-chest, said port 22 being controlled by the piston to close said port 22 to exhaust to reverse the valve, the port 19, groove or port 22, ports 20^a and 21 placing the cylinder in communication with the main supply-port 1 and with the other end of the valve-chest, said port 19 being controlled by the piston to close said port 19 to exhaust to reverse the valve, the valve-chest F formed with the ports or spaces 9, 10, 11, 12, 13 and 14, the ports 9 and 13 communicating with the exhaust-port 15 and the ports 10 and 12 communicating alternately with the main supply-port 1 through the port 11 and the exhaust-port 15 through the ports 9 and 13, the port 11 communicating with the main supply-port 1 and the port 14 communicating

with the port 17 and through the valve with the exhaust 15 through the port 13, substantially as described.

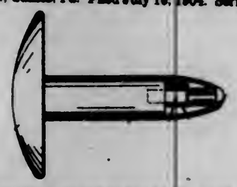
784,321. AIR-BRAKE MECHANISM. HENRY B. HADDOCK, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed July 21, 1904. Serial No. 217,465.



Claim.—1. In a brake mechanism, levers, a link and spring connecting said levers, and a brake-cylinder connecting said levers and located between said link and spring.

2. In an air-brake mechanism, levers, a link pivotally connecting said levers, a spring pivotally connected with the ends of said levers, and an air-cylinder pivotally connected with said levers and located between said link and spring, said air-cylinder having its piston connected with one link and a cylinder-head connected with the other.

784,322. COLLAR OR CUFF BUTTON. WORTHINGTON HAIR and JOHN F. BERRMAN, Gaines, Pa. Filed July 16, 1904. Serial No. 216,780.



Claim.—1. In a button, the combination of a fixed head, an oblong shank on which said head is carried, an auxiliary shank carried by said oblong head and having an angular portion, an oblong revoluble head carried by said auxiliary shank and flat springs mounted in the revoluble head and bearing on the flat sides of the angular portion of the auxiliary shank.

2. In a button the combination of a shank of oblong form having a head at one end and having an auxiliary portion with four flats sides and a fixed head at the other end, with a tapered and oblong head revolubly mounted on the auxiliary portion of the shank and flat springs carried by said revolubly-mounted head, said springs bearing against the flat sides of the auxiliary portion of the shank.

784,323. GARMENT-SUPPORTER CLASP. FRED D. HARDING, Baldwin, Me. Filed June 3, 1904. Serial No. 210,945.

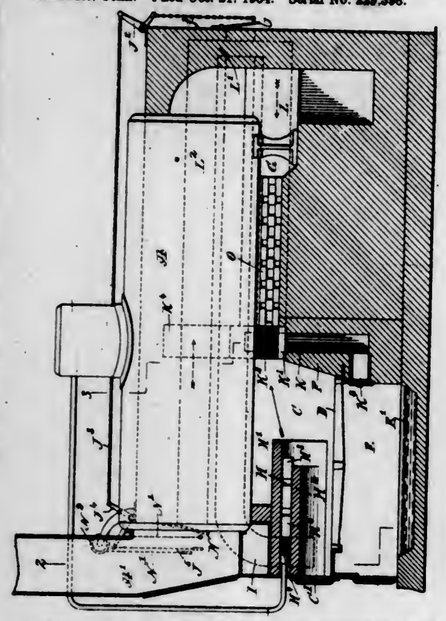


Claim.—1. In a garment-supporter clasp, a frame formed by folding a plate back upon itself, the top of the plate being provided with an opening therein, a stationary jaw on the base of said frame and a movable jaw pivotally secured to the top, said movable jaw being provided with a lever extending outwardly and upwardly from the outer extremity thereof, the end of the lever projecting through said opening.

2. In a garment-supporter clasp, a frame formed by folding a plate back upon itself, the top of the plate being provided with an opening therein, a stationary jaw on the base of said frame and a movable jaw pivotally secured to the top, said movable jaw comprising a plate having one end pivotally secured to the top, a bend therein intermediate its two ends and having its free end adapted to project upwardly through said opening in the top.

3. In a garment-supporter clasp, a frame formed by folding a plate back upon itself, the top of the plate being provided with an opening therein, a stationary jaw on the base of said frame and a movable jaw pivotally secured to the top, said movable jaw comprising a plate having one end pivotally secured to the top, a bend therein intermediate its two ends and having its free end adapted to project upwardly through said opening in the top, when in operative position said free end engaging the top of the frame and the jaw being spaced apart a short distance from the stationary jaw.

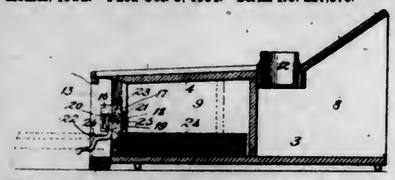
784,324. SMOKE-CONSUMING FURNACE. JOHN B. HARRIS, Nashville, Tenn. Filed Oct. 21, 1904. Serial No. 229,396.



Claim.—1. A smoke-consuming furnace, comprising a fire-box, an independent air-chamber at the front of the furnace and upper part of the fire-box, the bottom of which forms the top of said fire-box, means for delivering heated air to said air-chamber, and thence to the combustion-chamber within the fire-box, and means for introducing steam to the air-chamber at the front thereof, to commingle with the heated air therein before the passing of this air to the combustion-chamber.

2. A smoke-consuming furnace, comprising a fire-box, an independent air-chamber at the front of the furnace and upper part of the fire-box, the bottom of which forms the top of said fire-box, means for delivering heated air to said air-chamber, and thence to the combustion-chamber within the fire-box, and a pipe connecting with a source of steam and having a transverse perforated pipe for introducing steam to the air-chamber at the front thereof, as and for the purpose set forth.

784,325. CABINET FOR STATIONERY, &c. HORDIN HATCH, Des Moines, Iowa. Filed Oct. 3, 1904. Serial No. 227,076.



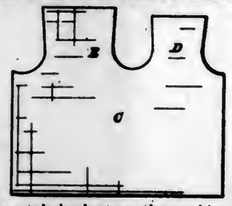
Claim.—1. In a stationery-cabinet having independent compartments for writing-paper and envelops, a closure for each compartment, a rotatable and transversely-movable feed-roll carried by each compartment and adapted to bear normally on the material within said compartment, an operating-lever, means between said operating-lever and feed-roll for turning the latter when the former is raised, and a finger-piece for moving the feed-roll transversely.

2. In a stationery-cabinet having independent compartments for writing-paper and envelops, a closure for each compartment, a casing slidably mounted in said closure, a feed-roll journaled in said casing and bearing on the material within said compartment, means for rotating said feed-roll, and a finger-piece on said casing.

3. In a stationery-cabinet having independent compartments for writing-paper and envelops, a pivoted closure for each compartment comprising a bottom and two side pieces, each side piece having a longitudinal groove, a casing having end ribs to enter said grooves and slidable therein, a feed-roll carried by said casing, and means for rotating said feed-roll.

4. In a stationery-cabinet having independent compartments for writing-paper and envelops, a pivoted closure for each compartment comprising a bottom and two interiorly-grooved side pieces, a casing having end ribs to enter said grooves and slidable therein, a finger-piece for sliding said casing, a feed-roll fixed to a shaft journaled in the ends of the casing, an operating-lever loosely mounted on said shaft, and a pawl-and-ratchet device between the feed-roll and said operating-lever.

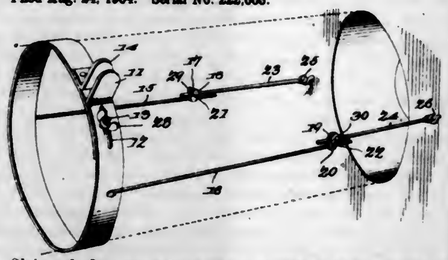
784,326. TUBULAR LANTERN. JAMES H. HILL, Rochester, N. Y., assignor to Defiance Lantern & Stamping Company, Limited, Rochester, N. Y. Filed Oct. 3, 1904. Serial No. 227,080.



Claim.—1. In a tubular lantern, the combination with the side tubes, of the bell-tube formed of a blank having wings bent and joined at their end edges to form a seat for the ends of the side tubes and closing the upper end of the bell-tube.

2. The herein-described blank for forming a lantern bell-tube comprising the extensions having curved side edges and adapted to be bent and secured at their ends to form seats for the tubes and close the upper end of the bell-tube.

784,327. STOVEPIPE-SUPPORT. JAMES J. HILL, Ewing, Ill. Filed Aug. 24, 1904. Serial No. 222,003.

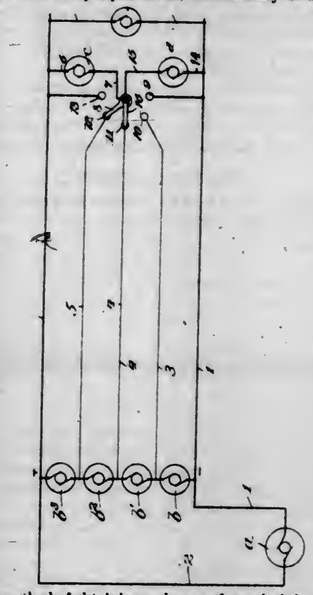


Claim.—1. In a stovepipe-support, a resilient band adapted to encircle the pipe and provided with means for clamping the same, rods pivoted to the opposite sides of the band, rods adapted to be pivotally connected to the wall or ceiling, clamping-disks provided with spaced grooves for the reception of the adjacent ends of said rods, and bolts operating through said disks for clamping said rods in adjusted position.

2. In a stovepipe-support, a band of resilient material adapted to encircle the pipe and having overlapping end portions one of which is formed with a longitudinal slot and provided with a laterally-extending finger-engaging lug, there being a similar lug extending laterally from the opposite end of the band, a clamping-bolt secured to the non-slotted end of the band and engaging the longitudinal slot, longitudinally-adjustable rods pivoted to the opposite sides of the band and pivotally connected to the wall or ceiling, said rods being formed in a plurality of sections, and means engaging the adjacent ends of the rod-sections for clamping said rods in adjusted position.

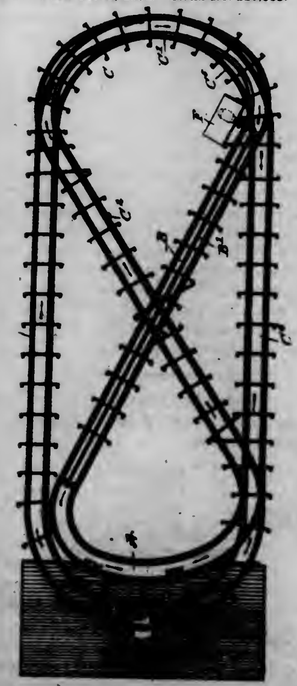
784,328. SYSTEM OF ELECTRICAL DISTRIBUTION. FRANK HOFFMAN, Chicago, Ill., assignor of one-half to Elmer E. Hanna, Chicago, Ill. Filed May 21, 1903. Serial No. 158,101.

Claim.—1. The herein-described method of obtaining a uniform or change of speed of an electric motor, which consists in maintaining three or more circuits of equal potential and connecting the armature-terminals of a motor with different pairs of conductors on said circuits, so that all circuits which are simultaneously in operation carry substantially equal loads, substantially as described.



2. The method of obtaining a change of speed of electric motors which consists in maintaining three or more electric circuits of substantially equal potential and connecting a plurality of motors therewith, so that all circuits which are simultaneously in operation carry substantially equal loads, substantially as described.

784,329. INCLINED RAILWAY. STEPHEN E. JACKMAN, New York, N. Y. Filed Oct. 3, 1904. Serial No. 227,003.



Claim.—1 A railway having a continuous track provided with an up-track extending diagonally.

2. A railway having a continuous track provided with an up-track extending diagonally relative to the down-run, which is approximately oval in plan and provided with a diagonal member.

3. A railway having a continuous track provided with an up-track extending diagonally relative to the down-run, which is approximately oval in plan and provided with a diagonal member crossing the up-track at a higher level

4. A railway having a continuous track provided with an up-track extending diagonally relative to the down-run, which is approximately oval in plan and provided with a diagonal member crossing the up-track at a higher level and in an opposite direction.

784,330. **RAILWAY-GAGE.** ROBERT M. JENKINS, Carney, Ala. Filed Oct. 26, 1904. Serial No. 230,119.



Claim.—1. In a device of the class described, in combination, a draw-bar adapted to be disposed transversely of the rails and adapted to engage the side of one of said rails, a lever pivotally attached to said draw-bar, and a claw pivotally attached to said lever and adapted to engage the side of the opposite rail.

2. In a device of the class described, in combination, a draw-bar having means for engaging the outer side of one of the rails, a claw having means for engaging the outer side of the opposite rail, a bell-crank lever pivotally connecting said claw and said draw-bar, and means for limiting the inward movement of the rails.

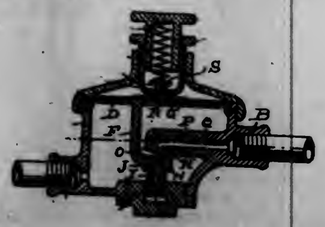
3. In a device of the class described, in combination, a draw-bar having means for engaging one of the rails, a claw having means for engaging the opposite rail, means for forcing said draw-bar and said claw inwardly, and a member adapted to slide on said draw-bar and limiting the inward movement of the rails.

4. In a device of the class described in combination, a draw-bar having means for engaging one of the rails, a claw having means for engaging the opposite rail, a lever connecting said claw and said draw-bar and controlling the same, and a gage-bar having a tubular body mounted on said draw-bar and presenting faces adapted to engage the inner edges of the rails.

5. In a device of the class described, in combination, mechanism for drawing the rails together, a gage-bar supported on said mechanism and limiting the inward movement of said rails, said gage-bar at one extremity presenting projecting ears adapted to rest upon the upper side of the adjacent rail.

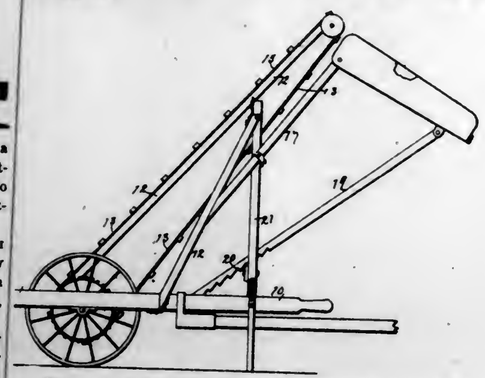
6. In a device of the class described, in combination, a draw-bar having a head adapted to engage the outer edge of a rail, a lever pivotally attached to said draw-bar, a claw attached pivotally to said lever and having a head adapted to engage the outer edge of the opposite rail, a gage-bar comprising a body adapted to slide on said draw-bar, said body carrying a toe adapted to engage the inner edge of a rail, a yoke attached to the extremity of said body remote from said toe and presenting oppositely-disposed forks, the said forks having means for engaging the inner edge of a rail, and projections adapted to rest upon the upper faces thereof.

784,331. **PRESSURE-REGULATOR.** PETER KELLER, Chicago, Ill., assignor of one-half to John M. Tierney, Chicago, Ill. Filed Oct. 31, 1904. Serial No. 230,784.



Claim.—A pressure-regulator comprising a casing provided with an inlet and an outlet opening, a valve adapted to close said inlet-opening, a diaphragm adapted to be operated by the pressure within said casing, a connection between said diaphragm and said valve whereby said valve will be closed or partially closed as said diaphragm is forced outward, means for adjusting the resistance of said diaphragm against said pressure, comprising a compression-spring, mounted in an adjustable holder, adapted to bear on the outer side of said diaphragm, and means for holding said valve closed, comprising a central projection on the outer side of said diaphragm, said projection being provided with an enlarged head, an adjustable member adapted to surround said projection and engage said head whereby when said adjustable member is moved outward said diaphragm will be drawn outward and said valve will be closed.

784,332. **ADJUSTABLE HAY-DIRECTOR FOR HAY-LOADERS.** EUGENE E. KNIGHT, Colo. Iowa. Filed Aug. 27, 1904. Serial No. 222,473.



Claim.—1. A device for directing and conveying hay from the endless carrier of a hay-loader consisting of a frame composed of parallel sides and cross-pieces fixed thereto and slats fixed on the cross-piece, legs for supports pivotally connected with the rear ends of the parallel sides and a bar pivoted to the front and center of the front cross-pieces and provided with notches on its under side and lower end portion, to apply and operate in the manner set forth.

2. A device for directing and conveying hay from the endless carrier of a hay-loader consisting of a frame composed of parallel sides and cross-pieces fixed thereto and slats fixed on the cross-pieces, legs for supports pivotally connected with the rear ends of the parallel sides and a bar pivoted to the front and center of the front cross-pieces and provided with notches on its under side and lower end portion, in combination with an elevator-frame of a hay-loader having a fixed cross-piece to engage the notches of said pivoted bar and an endless carrier on the elevator-frame, to operate in the manner set forth.

784,333. **GOVERNOR.** HERMANN KRONER, Baltimore, Md. Filed July 2, 1904. Serial No. 215,170.

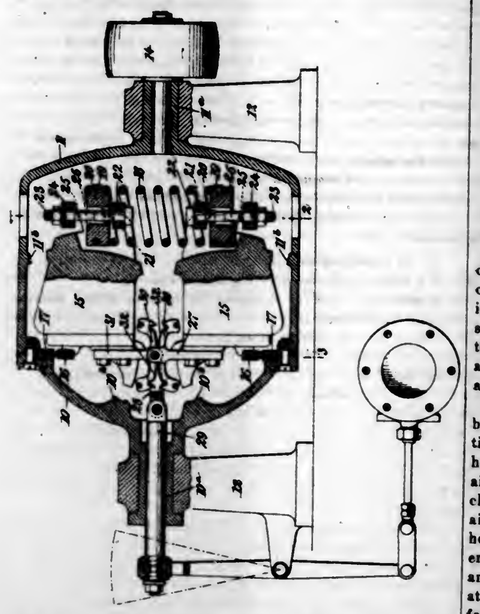
Claim.—1. A governor having two weights, and means for movably mounting the same, said means comprising knife-edges and members engaged therewith, and a connection between the weights.

2. A governor comprising two weights, means for movably mounting the same, comprising knife-edges and coacting members engaged therewith, said mounting means being located at the outer portions of the weights causing them to move in unison, and a connection between the inner portions of the weights causing them to move in unison.

3. A governor comprising two weights, means for movably mounting the same, comprising knife-edges and coacting members engaged therewith, said mounting means being located at the outer portion of the weights, a connection between the inner portions of the weights causing them to move in unison, and means for yieldingly holding the weights in inactive position.

4. A governor comprising two weights, means for movably mounting the same, comprising knife-edges and coacting members engaged therewith, said mounting means being located at the outer portions of the weights, a connection between the inner portions of the weights, a spring, and means for connecting the spring with the

weights, said means comprising knife-edges and coacting members engaged therewith.



5. A governor comprising two centrifugally-actuated weights movable from and toward each other, a spring, and means connecting the ends of the spring respectively with the weights, said means comprising knife-edges and coacting members engaged with the knife-edges.

6. A governor having a movable weight, a spiral or helical spring, a correspondingly-grooved block loosely engaged with the spring, and means for connecting the block with the weight.

7. A governor having a movable weight, a spiral or helical spring, a correspondingly-grooved block loosely engaged with the spring, and means for connecting the block with the weight, said means comprising a knife-edge and a member engaged therewith.

8. A governor having a movable weight, a spiral or helical spring, a correspondingly-grooved block loosely engaged with the spring, means for connecting the block with the weight, said means comprising a knife-edge engaged with the member, a ring mounting the knife-edge, a bolt engaged with the ring, a cross-bar engaged with the bolt, and knife-edges at the ends of the cross-bar and engaged with the weight.

9. A governor having a movably-mounted weight, a spring, a member in connection with the spring, a knife-edge engaged with the member, a ring carrying the knife-edge, a bolt connected to the ring, a cross-bar engaged with the bolt, and a knife-edge on the cross-bar and engaged with the weight.

10. A governor comprising two movable weights, means for transmitting the movement of the governor, said means being in direct connection with one weight, and a connection between the weights.

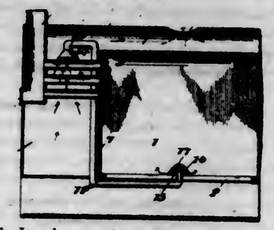
11. A governor comprising two weights, a member directly connected with one weight to transmit the movement thereof, and a flexible connection between the two weights.

12. A governor comprising two weights, and flexible bands having their ends respectively connected with the weights, the bands crossing each other to transmit swinging movement from one weight to the other in either direction.

13. A governor comprising two swinging weights having arc-shaped members connected therewith, and crossing flexible bands having their ends respectively connected with the arc-shaped members to transmit movement from one weight to the other in both directions.

14. A governor having a support, a weight movably mounted thereon, and means connecting the weight with the support, and including a spiral or helical spring and a correspondingly-grooved block in the groove of which the said spring is engaged.

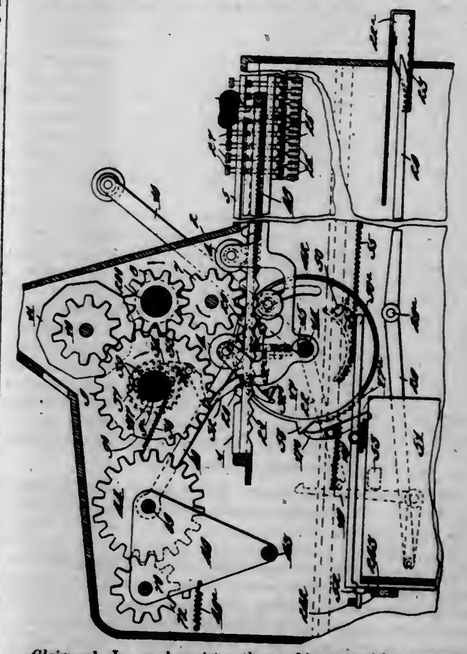
784,334. **HEATER.** HIRAM LANDRUS, Topeka, Kans., assignor, by mesne assignments, of one-half to L. B. Humphreys, Topeka, Kans. Filed May 20, 1904. Serial No. 208,938.



Claim.—1. In a heater of the class described, the combination of a combustion-chamber, a hot-air chamber, a grate disposed in the combustion-chamber, an air-pipe leading from the hot-air chamber into the combustion-chamber and extended through the grate aforesaid, the inlet end of the air-pipe being projected downwardly within the hot-air chamber and provided with a funnel-shaped receiver, and a cap or hood inclosing the deflecting-hood at the outlet end of the air-pipe aforesaid.

2. In a heater of the class described, the combination of a combustion-chamber, a hot-air chamber having an inlet at its lower portion and an outlet at its upper portion, an air-pipe leading from the hot-air chamber into the combustion-chamber, the inlet end of the air-pipe being projected downwardly in the spaces in the hot-air chamber at a point between the outlet and the inlet of the said hot-air chamber, a funnel-shaped receiver carried by the inlet end of the hot-air pipe, a grate disposed in the combustion-chamber, the outlet end of the air-pipe extending upwardly through the grate aforesaid and provided with apertures, an apertured deflecting-hood disposed at the outlet end of the air-pipe, and a protecting-hood of conical form covering the deflecting-bood aforesaid and resting upon the grate.

784,335. **CASH-REGISTER.** CARL LAURICK, Berlin, Germany, assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 5, 1900. Serial No. 19,093.



Claim.—1. In a cash register, the combination with a normally unlocked operating member, of means for locking said member at an intermediate portion of its stroke; and means controlled by the insertion of a check into the machine for releasing said locking means.

2. In a cash-register, the combination with an operating mem-

ber, of a series of differentially-adjustable setting elements; means for locking said member when it has been moved to a certain intermediate position in its stroke; means for locking said setting elements when said operating member is in its normal position, with provisions for releasing said elements when the member is moved to said intermediate position; and means controlled by the insertion of a check into the machine for releasing said locking means for the operating member.

3. In a cash-register, the combination with an operating member, of a series of differentially-adjustable setting elements; means for locking said elements in adjusted positions; spring actuating means common to all of said setting elements for returning the same to normal position; and means controlled by said operating member for unlocking said setting elements and for releasing said spring returning means to cause the latter to return said elements to normal position.

4. In a cash-register, the combination with a series of differentially-adjustable setting elements, of an automatic returning device common to all of said elements for returning said elements to normal position, said setting device being displaced by the adjustment of any one of said elements; means for latching said returning device in displaced position; and means for releasing said returning device to permit the same to return the setting elements to normal position.

5. In a cash-register, the combination with an operating member, of a series of differentially-adjustable setting elements; a common spring returning member for returning said elements to normal position, said member being displaced by the adjustment of any one of said elements; means for latching said returning member in displaced position; and means controlled by said operating member for releasing said latching means.

6. In a cash-register, the combination with an operating-handle, of a series of adjustable setting-slides; a spring-actuated returning device common to said slides; connections intermediate said slides and said returning device for displacing the latter against its spring tension by the adjustment of said slides from normal position; a latch-pawl for holding the returning device in displaced position; and means connected with the operating-handle for tripping said latch-pawl to permit the returning device to return to normal position carrying with it said setting-slides.

7. In a cash-register, the combination with an operating member, of a series of differentially-adjustable setting elements; an automatic returning device common to all of said elements for returning the latter to normal position; means for locking the operating member at an intermediate portion of its stroke; means for locking said setting elements when said operating member is in its normal position, with provisions for unlocking said elements when said member is moved from its normal position; means for latching said returning device in displaced position; and means for releasing said returning device to return the setting elements to normal position during the movement of said operating member from its normal position to the said locked intermediate position.

8. In a cash-register, the combination with an operating member, of a series of differentially-adjustable setting elements; an automatic returning device common to all of said elements for returning the latter to normal position; means for locking the operating member at an intermediate portion of its stroke; means for locking said setting elements when said operating member is in its normal position, with provisions for unlocking said elements when said member is moved from its normal position; means for latching said returning device in displaced position; means for releasing said returning device to return the setting elements to normal position during the movement of said operating member from its normal position to the said locked intermediate position; and means controlled by the insertion of a check into the machine for unlocking the operating member at said intermediate locking position.

9. In a cash-register, the combination with an operating member, of a series of differentially-adjustable setting elements; an automatic returning device for returning all of said elements to normal position; locking means for locking the operating member at an intermediate portion of its stroke; means for effecting the return of the setting elements to normal position by said returning device while the operating member is moving from normal position to said locked intermediate position; means for locking said operating member at a second intermediate position in advance of the first-mentioned intermediate position; and means controlled by the displacement of any one of said setting elements from normal position for releasing the lock for the second intermediate position of the said operating member.

10. In a cash-register, the combination with an operating member; of a series of differentially-adjustable setting elements; an automatic returning device for returning all of said elements to normal position; locking means for locking the operating member at an intermediate portion of its stroke; means for effecting the return of the setting elements to normal position by said returning device while the operating member is moving from normal position to said locked intermediate position; means for locking said operating member at a second intermediate position in advance of the first-mentioned intermediate position; means controlled by the displacement of any one of said setting elements from normal position for releasing the lock for the second intermediate position of the said operating member; a counter; and means for throwing the counter into operative relation with said setting elements during the movement of said operating member from its first intermediate position to its second intermediate position.

11. In a cash-register, the combination with an operating-handle, of a series of adjustable setting-slides; a spring returning device common to said slides for returning the same to normal position; means for latching said returning device in displaced position; means for locking the operating-handle at an intermediate portion of its stroke, and means for releasing said lock; means for releasing said returning device during the movement of said handle from normal position to its intermediate locked position; a locking projection connected with the operating-handle for locking the latter in a second intermediate position of its stroke; and a locking-frame coöperating with said locking projection for locking the handle at said second position, said frame being common to said setting-slides and displaced by any one of the same to unlock the handle from its second intermediate position.

12. In a cash-register, the combination with an operating-handle and a cash-drawer, of means for locking the handle at an intermediate portion of its stroke; means for unlatching the drawer by the movement of the handle from normal position to said intermediate position; and means operated by the cash-drawer for releasing said lock for the handle to permit the same to return to normal position.

13. In a cash-register, the combination with an operating-handle and a cash-drawer, of a spring for normally holding the operating-handle in normal position; a pawl coöperating with said handle for holding the same latched at an intermediate portion of its stroke; a projection formed on the cash-drawer for operating said pawl to release the handle and permit the same to return to normal position; and a second projection connected with said operating-handle for engaging said pawl when the handle is in normal position and holding said pawl out of coöperative position with relation to the aforesaid projection formed on the cash-drawer.

14. In a cash-register, the combination with an operating-handle and a cash-drawer, of a spring for normally holding the operating-handle in normal position; a pawl coöperating with said handle for holding the same latched at an intermediate portion of its stroke; a projection formed on the cash-drawer for operating said pawl to release the handle and permit the same to return to normal position, a second projection connected with said operating-handle for disengaging said pawl when the handle is in normal position and holding said pawl out of coöperative position with relation to the aforesaid projection formed on the cash-drawer; a latch for holding the drawer closed; and means connected with said operating-handle for operating said latch during the movement of said handle from normal position to its intermediate latched position.

15. In a cash-register, the combination with an operating-handle, a series of differentially-adjustable setting elements, and a counter mounted in a movable frame; of connecting-gears intermediate said setting elements and said counter; an operating-plate connected with said operating-handle; and a connecting-bar between said counter-frame and said operating-plate for effecting the engagement between the counter and the aforesaid connecting-gears, said connecting-bar being provided with a pin engaging a slot formed in said operating-plate.

16. In a cash-register, the combination with an operating-handle, a series of differentially-adjustable setting elements, and a counter mounted in a movable frame; of connecting-gears intermediate said setting elements and said counter; an operating-plate connected with said operating-handle; a connecting-bar between said counter-frame and said operating-plate for effecting the engagement between the counter and the aforesaid connecting-gears, said connecting-bar being provided with a pin engaging a slot formed in said operating-plate; and means for disconnecting said pin from said slot at a certain intermediate portion of the stroke of said operating-handle to permit the continued movement of said handle independently of the movement of the counter-frame.

17. In a cash-register, the combination with a series of differentially-adjustable setting elements, of a counter; connections between the counter and said setting elements whereby the former is operated directly by the movements of the latter; and transfer elements between the adjacent counter-wheels operable directly upon said counter-wheels to turn the latter forward or reversely according to the adjustment of the setting element of the respective next lower order of denomination.

18. In a cash-register, the combination with a series of differentially-adjustable setting elements, of a counter mounted in a movable frame; operating connections between the counter and said elements for moving the former directly by the adjusting movements of the latter; means for moving the counter-frame to carry the counter into engagement with said operating connections; and transfer elements between the adjacent counter-wheels operable directly upon said counter-wheels to turn the latter forward or reversely according to the adjustment of the setting element of the respective next lower order of denomination.

19. In a cash-register, the combination with a series of differentially-adjustable setting elements, of a counter; a series of intermediate gears for engaging the counter-wheels and transmitting thereto the adjusting movements of said elements; and transfer-pawls carried by said intermediate gears, with means for causing the engagement of said pawls with the respective counter-wheels of next higher denomination when said intermediate gears pass the transferring position in either direction of movement of the gears.

20. In a cash-register, the combination with a series of differentially-adjustable setting elements, of a counter; a series of intermediate gears for engaging the counter-wheels and transmitting thereto the adjusting movements of said elements; transfer-pawls pivoted upon said intermediate gears and positioned respectively for engagement with the counter-wheels of next higher denomination; and stationary cam projections coöperating with said transfer-pawls to force the latter into transferring position to operate upon said counter-wheels to turn the same forward or reversely at the point of transfer according to the direction of movement of said intermediate gears.

21. In a cash-register, the combination with a series of setting elements and a printing mechanism coöperating therewith, of a cash-drawer; means for operating the printing mechanism by the movement of the cash-drawer; and devices for disabling said drawer operative means whereby the movement of the drawer will not operate the printing mechanism.

22. In a cash-register, the combination with a series of setting elements, type-carriers controlled thereby, a platen, a paper-feeding device, a cash-drawer, and operating connections between said cash-drawer and the platen and the feeding device; of means for destroying the operative alinement of said operating connections at will to prevent the operation of the platen and the feeding device by the movement of the cash-drawer.

23. In a cash-register, the combination with a series of setting elements and a printing mechanism coöperating therewith, of a cash-drawer; means for operating the printing mechanism by the movement of the cash-drawer; devices for disabling said drawer operative means whereby the movement of the drawer will not operate the printing mechanism; and means for automatically enabling said drawer operative means at each operation of the machine.

24. In a cash-register, the combination with a series of setting elements and a printing mechanism coöperating therewith, of a cash-drawer; means for operating the printing mechanism by the movement of the cash-drawer; devices for disabling said drawer operative means whereby the movement of the drawer will not operate the printing mechanism; and means operated by the cash-drawer for automatically enabling said drawer operative means at each operation of the machine.

25. In a cash-register, the combination with an operating-handle, a series of setting elements, type-carriers controlled by said setting elements, a platen for said type-carriers, a cash-drawer, and a latch for said cash-drawer operated by said operating-handle; of means controlled by said cash-drawer for operating said platen by the movement of the drawer; and an auxiliary device for releasing said cash-drawer independently of said operating-handle and for simultaneously preventing the operation of the platen by the ensuing movement of the cash-drawer.

26. In a cash-register, the combination with an operating-handle, a series of setting elements, type-carriers controlled by said setting elements, a platen for said type-carriers, a cash-drawer, and a latch for said cash-drawer operated by said operating-handle; of means controlled by said cash-drawer for operating said platen by the movement of the drawer; an auxiliary device for releasing said cash-drawer independently of said operating-handle and for simultaneously preventing the operation of the platen by the ensuing movement of the cash-drawer; and means controlled by the cash-drawer for restoring said auxiliary device to normal position to permit the operation of the platen by the cash-drawer upon the next successive normal operation of the machine.

27. In a cash-register, the combination with a series of setting elements, and a printing mechanism coöperating therewith, of a cash-drawer and an operating-rack connected therewith; a gear-wheel for operating said printing mechanism and normally arranged in coöperative alinement with said operating-rack; and means for shifting the relative positions of said rack and said gear to destroy the coöperative alinement of the same and thereby prevent the operation of the printing mechanism by the movement of the cash-drawer.

28. In a cash-register, the combination with a series of setting elements, and a printing mechanism coöperating therewith, of a cash-drawer and an operating-rack connected therewith; a gear-wheel for operating said printing mechanism and normally arranged in coöperative alinement with said operating-rack; means for shifting the relative positions of said rack and said gear to destroy the coöperative alinement of the same and thereby prevent the operation of the printing mechanism by the movement of the cash-drawer; and means connected with the cash-drawer for automatically restoring the coöperative alinement of said rack and said gear.

29. In a cash-register, the combination with a series of setting elements and a printing mechanism coöperating therewith, of a cash-drawer having an operating-rack; a gear-wheel for operating said printing mechanism and normally arranged in coöperative alinement with said rack; a shifting member connected with said gear; means for shifting the latter member to displace said gear out of coöperative alinement with said rack; a restoring projection formed on said shifting member; and a spring-pressed projection connected with said cash-drawer for coöperating with said restoring projection to be displaced by the latter during one direction of movement of the drawer, but in the opposite direction of movement of the drawer to shift said restoring projection to carry said shifting member back to normal position.

30. In a cash-register, the combination with a series of setting elements and a printing mechanism coöperating therewith, of a cash-drawer having an operating-rack; a gear-wheel for operating said printing mechanism and normally arranged in coöperative alinement with said rack; a shifting member connected with said gear-wheel; a latch for the cash-drawer; a hand-operative device for releasing said latch and for adjusting said shifting member to move said printer-operating gear-wheel out of alinement with its operating-rack; a restoring projection formed on said shifting member; and a spring-pressed projection connected with said cash-drawer for coöperating with said restoring projection to be displaced by the latter during one direction of movement of the drawer, but in the opposite direction of movement of the drawer to shift said restoring projection to carry said shifting member back to normal position.

31. In a cash-register, the combination with an operating member, a series of keys, and a series of type-carriers controlled by said keys bearing duplicate characters for printing on opposite sides of said carriers, of two platens for engaging the respective opposite sides of said type-carriers, said platens having operating extensions contiguously placed; a wedge-shaped operating device; and means connected with said operating member for forcing said wedge-shaped device between the operating extensions of said platens and thereby forcing the latter against the opposite sides of the type-carriers to take a double impression therefrom.

784,336. **SAFETY-RAZOR.** ARTHUR J. H. LEFEBVRE, Montreal, Canada. Filed Aug. 5, 1904. Serial No. 219,604.



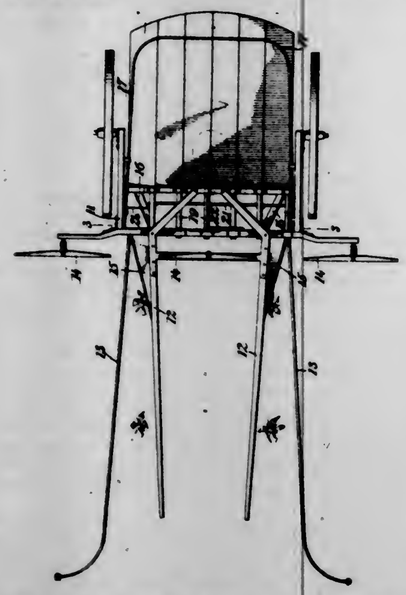
Claim.—1. A razor-guard comprising a guard-plate, blade-clamps thereon, a laterally-projecting ledge on said guard-plate, a spring extending longitudinally thereof, and a locking-tongue pivotally mounted between said spring and said ledge.

2. A razor-guard comprising a guard-plate, blade-clamps there-

on, a laterally-projecting ledge on said guard-plate, a spring extending longitudinally thereof, and a cam-shaped locking-tongue pivotally mounted between said spring and said ledge.

3. A razor-guard comprising a guard-plate, blade-clamps thereon, a laterally-projecting ledge on said guard-plate, a spring extending longitudinally thereof, and a plurality of tongues each of which has integral pintles and cam extensions, said tongues being mounted between said spring and said ledge.

784,337. **CORN-CUTTING MACHINE.** CLEMENT LEIDY, PETER V. JOHNSON, and JOSEPH G. MARTIN, Fostoria, Ohio. Filed Mar. 31, 1904. Serial No. 200,904.



Claim.—1. A stalk-cutting machine, comprising a frame, a pair of shafts connected therewith, a platform composed of pivoted members adapted to support the stalks, means for discharging the stalks therefrom, guards extending along each side of the platform, each having an inwardly-extending portion for retaining stalks on the platform, each of said guards being pivoted at a plurality of points, means for oscillating the guards on their pivots in opposite directions, a stalk-cutter mounted on each shaft, and a stubble-cutter mounted on the frame in line with each of said stalk-cutters but in a lower plane.

2. A stalk-cutting machine, comprising a frame, a single pair of shafts rigidly connected thereto, a platform composed of pivoted members adapted to support the stalks, means for discharging the stalks therefrom, guards extending along each side of the platform, each having an inwardly-extending portion for retaining the stalks on the platform, each of said guards beng pivoted at a plurality of points, means for oscillating the guards on their pivots in opposite directions, a stalk-cutter mounted on each shaft, and a stubble-cutter mounted on the frame in line with each of said stalk-cutters but in a lower plane, all of said cutters having outside cutting edges making acute angles with the central line of the frame.

3. A stalk-cutting machine, comprising a frame, a single pair of shafts rigidly connected thereto, a platform composed of pivoted members adapted to support the stalks, means for discharging the stalks therefrom, guards extending along each side of the platform each having an inwardly-extending portion for retaining the stalks on the platform, each of said guards being pivoted at a plurality of points, means for oscillating the guards on their pivots in opposite directions, a stalk-cutter mounted on each shaft, a stubble-cutter mounted on the frame in line with each of said stalk-cutters but in a lower plane, all of said cutters having outside cutting edges making acute angles with the central line of the frame, a plurality of whiffletrees, and a rod mounted at each side of the shafts, each rod having an eye located at a point beyond the ends of the shafts for guiding a horse at the side thereof.

784,338. **PNEUMATIC TOOL.** HERMAN LEINEWEBER, South Chicago, Ill. Filed June 16, 1904. Serial No. 212,765.



Claim—1. In a pneumatic tool having a casing carrying at one end the tool and at its opposite end a handle, the combination of the casing having a valve-controlled air-pressure-supply passage, a pressure-chamber in its rear end, an annular pressure-feed groove in its inner wall, between the ends thereof, communicating with said passage, and a circumferential enlargement in said wall back of said groove, a piston reciprocably confined in the casing, having ducts extending longitudinally into it from its rear end and each terminating in a lateral opening in the piston near its opposite end, an enlarged rear end and a reduced section adjacent to said enlarged end coöperating with said circumferential enlargement and forming an abutment therein, and an exhaust-port in the casing common to the pressure from said enlargement and that in said pressure-chamber, substantially as and for the purpose set forth.

2. In a pneumatic tool having a casing carrying at one end the tool and at its opposite end a handle, the combination of the casing having a valve-controlled air-pressure-supply passage, a pressure-chamber in its rear end, a vented circumferential enlargement of the inner wall in its forward end, an annular pressure-feed groove in its wall, between said ends, communicating with said passage, and a circumferential enlargement in said wall back of said groove, a piston reciprocably confined in the casing, having ducts extending longitudinally into it from its rear end and each terminating in a lateral opening in the piston near its opposite end, an enlarged rear end and a reduced section adjacent to said enlarged end coöperating with said last-named circumferential enlargement and forming an abutment therein, and an exhaust-port in the casing common to the pressure from said last-named enlargement and that in said pressure-chamber, substantially as and for the purpose set forth.

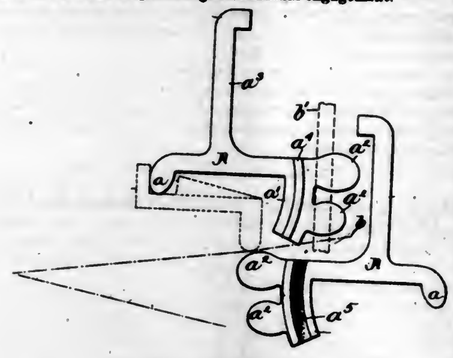
784,339. **WARP STOP-MOTION FOR LOOMS.** JOSEPH B. LEMYRE, Manchester, N. H., assignor, by mesne assignments, to Hugh H. Mawhinney, Boston, Mass. Filed Dec. 4, 1903. Serial No. 183,714.

Claim.—1. In a loom, a row of warp-stop-motion detectors each made with a tongue on one side and a groove on the opposite side, the tongue of each detector fitting into the groove of the next detector on one side, and the groove of each detector receiving the tongue of the next detector on the opposite side.

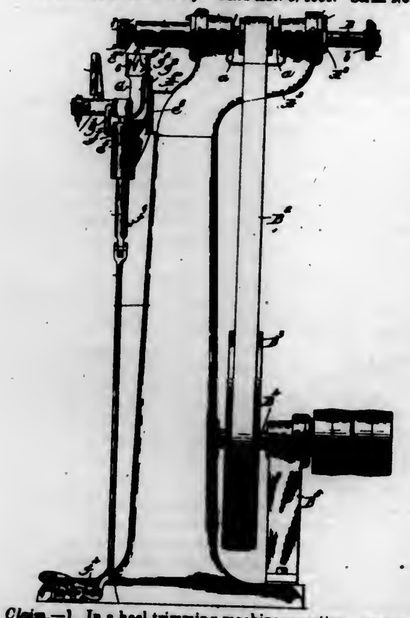
2. A warp-detector made with a tongue on one side and a groove on the opposite side.

A warp-detector having a part adapted to act as a pivot made with a curved tongue on one side and a curved groove on the opposite side, said tongue and groove both concentric with the pivot of the detector.

4. In a warp-stop-motion device for looms, a series of warp-detectors, in lateral tongue-and-groove mutual engagement.



784,340. **HEEL-TRIMMING MACHINE.** BENJAMIN F. MAYO, Salem, Mass., assignor to United Shoe Machinery Company, Boston, Mass., a Corporation of New Jersey. Filed Apr. 6, 1901. Serial No. 54,660.



Claim.—1. In a heel-trimming machine, a cutter, a support for the shoe, having provision for varying the angular position of the breast of the heel with relation to the plane of movement of the cutter, and means for effecting a relative movement of said support and said cutter to cause the cutter to trim the breast of the heel from one side of the shoe to the other side.

2. In a machine for trimming the breasts of heels, a cutter arranged to trim the breast of the heel from one side of the heel to the other side, a support for a shoe and means for relatively adjusting said support and cutter to change the angular position of the breast of the heel with relation to the plane of movement of the cutter, whereby the depth of the cut may be varied.

3. In a heel-trimming machine, a cutter, a support for the shoe, means to adjust said support with relation to said cutter, and a guide for the breast of the top lift, said guide maintaining the breast of the top lift in substantially the same position with relation to the cutter in all positions to which the support may be adjusted.

4. In a heel-trimming machine, a cutter, a support for the heel, a lip on said support for positioning the breast of the top lift, and means for adjusting said support about an axis substantially coincident with the active face of said lip.

5. In a machine for trimming the breasts of heels, a shaft provided with a cutter, means to rotate said shaft and cutter to trim the breast of the heel, and a jack having a lip against which the front end of the top lift may be held during the trimming of the breast of the heel.

6. In a heel-trimming machine, a rotatable cutter, a jack having means to engage and position the breast of the heel, and means to change the relative positions of the jack and cutter in such manner that the breast of the heel may travel throughout the cutting operation in a line substantially tangent to the circle in which the blades of the cutter operate.

7. In a heel-trimming machine, a cutter, a jack having means to engage and position the breast of the heel with relation to the path of movement of the cutter, and means to adjust said jack toward or from the cutter to provide for cutting a cross-groove in the breast of the heel of any desired depth.

8. In a heel-trimming machine, a rotatable cutter, a jack having means to engage and position the breast of the heel, and means to move the jack that the breast of the heel may travel throughout the cutting operation in a line tangent to the circle in which the blades of the cutter operate, said jack being adjustable toward and from the cutter to provide for cutting a cross-groove in the breast of the heel of any desired depth.

9. In a heel-trimming machine, a rotatable cutter, a jack having means to engage and position the breast of the heel, said jack being adjustable about a center which is in a line tangential to the path of the blades of the cutter, and means for effecting a relative movement of said jack and cutter for causing the breast of the heel to travel throughout the cutting operation in a line substantially tangent to the circle in which the blades of the cutter operate.

10. In a heel-trimming machine, a rotatable cutter, a jack having means to engage and position the breast of the heel, said jack being adjustable about a center in a line substantially tangential to the path of the blades of the cutter, and means to adjust the jack toward or from the longitudinal axis of the cutter to provide for cutting a groove in the breast of the heel of any desired depth.

11. In a machine for trimming heels, a shaft having a rotatable cutter, a jack movable in a line tangential to the path of movement of the blades of said cutter, said jack having means to engage the breast and the tread of the top lift of a heel and present the breast of the heel in acute angular position with relation to the longitudinal axis of said cutter throughout the trimming operation.

12. In a heel-breasting machine, a cutter arranged to trim the breast of a heel from one side of the heel to its other side, in combination with a jack for sustaining the heel with its breast in acute angular position with relation to the plane of movement of said cutter.

13. In a machine of the class described, a shaft provided with a cutter, means to rotate said shaft, a jack having means to engage the breast of the top lift of the heel and maintain the breast of the heel in acute angular position with relation to the longitudinal axis of the shaft carrying the cutter throughout the trimming operation, and a rest for the fore part of the shoe.

14. In a machine of the class described, a shaft provided with a cutter, means to rotate said shaft, a jack having means to engage the breast of the top lift of the heel and maintain the breast of the heel in acute angular position with relation to the longitudinal axis of the shaft carrying the cutter throughout the trimming operation, and a rest for the fore part of the shoe, said rest being adjustable to provide for the curve of the sole of the shoe.

15. In a heel-trimming machine, a rotatable cutter for trimming the breast of a heel, a pivoted shoe-supporting jack arranged to be turned about its pivot to provide for changing the depth of the cut in the breast of the heel, and a lip on said jack for maintaining the breast-face of the top lift of the heel in a line tangential to the path of movement of the cutter in any position to which said jack may be adjusted.

16. In a machine of the class described, a shaft, a cutter mounted thereon adapted to trim from the breast of the heel of a shoe portions of said breast adjacent to the shank of the sole of the shoe between the side edges and the central part of the shank, and a rotatable guard for engaging the shank of the sole during the cutting operation, the acting faces of said cutter and said guard forming an angle which permits the cutter to act on said portions of the breast of the heel while the guard engages the shank of the sole.

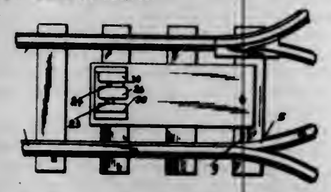
17. In a machine of the class described, a shaft, a cutter mounted thereon adapted to trim from the breast of the heel of a shoe portions of said breast adjacent to the shank of the sole of the shoe between the side edges and the central part of the shank of said sole, said cutter being arranged to cut from one side of the breast to the other and being shaped according to the contour desired for the

breast, and a guard arranged to engage the shank of the sole at a point adjacent to the part of the heel which is being operated upon by the cutter and shaped relatively to the cutter to permit the cutter to trim said portions of the breast while the guard engages the shank of the sole.

18. In a machine of the class described, a hollow shaft having interior screw-threads, a threaded and split cutter-carrying stem inserted in said shaft and engaging the screw-threads of the shaft, combined with a locking device entering said shaft from its opposite end and expanding said split stem to retain it in fixed position in said shaft, said locking device having a threaded portion engaging interior screw-threads of said hollow shaft.

19. In a machine for trimming the breasts of heels, a rod and a jack supported thereby, the jack being adjustable on the axis of the rod as a center, a lip on said jack for positioning the breast of the heel, the said lip being substantially in alinement with the center of the rod in different positions of the jack, whereby the cut made in the breast of the heel to concave it may always start uniformly with relation to the breast of the top lift.

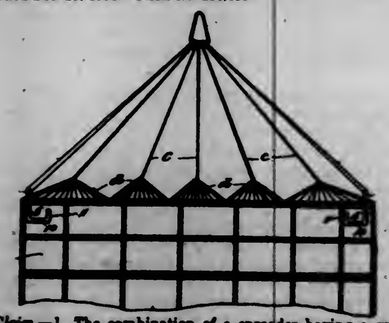
784,341. SWITCH. LLOYD S. MORROW, Monessen, Pa. Filed July 16, 1904. Serial No. 216,768.



Claim.—1. The combination with a switch-tongue and a casing located adjacent to said tongue, the bottom of said casing being formed with a transverse recess and longitudinal recesses communicating with said tranvserse recess, of a rod located in said transverse recess, said rod projecting through the side of the casing and being connected to the switch-tongue, two bell-crank levers pivoted in said transverse recess and pivoted to said rod, the opposite ends of the bell-crank levers extending inwardly toward one another, rods connected to the inwardly-extending ends of the bell-crank levers and extending through the longitudinal recesses, pivoted levers connected to said rods and extending through the top of the casing, spring-retracted tread-blocks carried by a car and rods carried by said tread-blocks and adapted to contact with said pivoted levers.

2. The combination with a switch-tongue of a casing located adjacent thereto, a horizontally-movable rod projecting through the side of the casing, and connected to the switch-tongue, bell-crank levers arranged within the casing, said bell-crank levers having each one end attached to said rod and the other ends of said levers projecting in opposite directions one to the other, rods connected to the oppositely-projecting ends of the bell-crank levers, vertically-disposed levers pivoted in the casing and attached to said rods and projecting through the top of the casing, and vertically-movable rods mounted on a car and adapted each to contact with one of said levers to move the switch-tongue in one or the other direction.

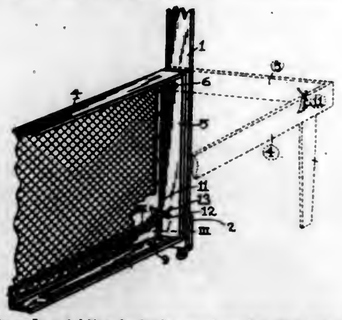
784,342. HAMMOCK. JAMES B. PATTERSON, Philadelphia, Pa. Filed Dec. 22, 1904. Serial No. 238,131.



Claim.—1. The combination of a spreader having a grooved edge and recesses on its top and bottom faces, a hammock-body encircling the spreader, and a bifurcated clip or clamp having an eye and having each branch provided with a projection taking into one of said recesses and with a lateral extension adapted to said groove and fitted with a backwardly-ranging arm engaging another of said recesses, substantially as described.

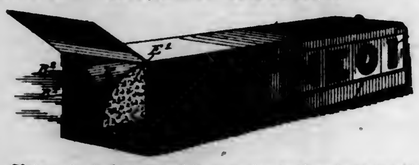
2. An attachment for hammocks comprising a bifurcated clamp having an eye and having each of its branches provided with a projection and with a lateral extension and with an arm ranging backwardly from the lateral extension and provided with a projection, substantially as described.

784,343. FOLDING BED. JOHN G. PEACE, Micanopy, Fla. Filed Feb. 15, 1904. Serial No. 193,509.



Claim.—In a folding bed, the combination of a pair of vertical posts, a cross-tie uniting said posts, a pair of transverse foot-pieces, a bed-bottom frame pivoted to said posts and having an end rail, a latch pivoted to said end rail, a staple inclosing said latch for limiting the movement thereof, a catch-bar secured on the upper edge of said cross-tie and having a free end provided with a downwardly-projecting hook engaging the side face of said foot-piece, and a lug on said catch-bar to receive the engagement of said latch, substantially as set forth.

784,344. SIGN. RALEIGH M. PEARSON and WILLIAM LETHG, Little Rock, Ark. Filed May 25, 1904. Serial No. 209,706.



Claim.—1. A sign comprising a casing having sign-letters in its side and made partly of wire-netting and partly of solid, non-perforate material, a concave reflector in the bottom of the casing, a source of light within the casing and extending lengthwise on the top of the said reflector along the middle thereof, and a curved reflecting-face extending upwardly and outwardly from the source of light to the upper side corner of the casing.

2. A sign comprising a casing having a longitudinal guideway in its side, interchangeable sign-letters removably held in the guideway, each sign-letter consisting of a sheet having an opening corresponding to the shape of the letter, and a wire-netting attached to the sheet at the walls of the opening, the netting being raised.

3. A sign comprising a casing having a longitudinal guideway in its side, interchangeable sign-letters removably held in the guideway, each sign-letter consisting of a sheet having an opening corresponding to the shape of the letter, a wire-netting attached to the sheet at the walls of the opening, the netting being raised and extended inwardly, and an illuminated reflecting background within the casing for the said sign-letters.

4. A sign comprising a casing having longitudinal guideways in its side, interchangeable sign-letters removably held in the guideways, each letter consisting of a sheet having an opening corresponding to the shape of the letter, a wire-netting attached to the sheet at the walls of the opening, the netting being raised and extended inwardly, a reflector in the bottom of the said casing, a source of light within the casing and extending lengthwise on the top of the said reflector along the middle thereof, and a partition curved upwardly and outwardly from the source of light, to connect with the upper side corner of the casing, the front face of the said partition being of reflecting material, irregularly shaped and arranged.

5. A sign-letter consisting of a sheet having an opening corresponding to the shape of the letter, and a wire-netting attached to the sheet at the walls of the opening, the netting being raised.

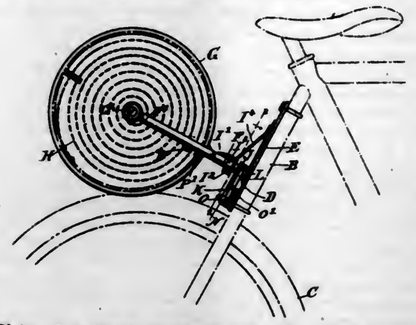
6. A sign-letter consisting of a sheet having an opening corresponding to the shape of the letter, and a wire-netting attached to the sheet at the walls of the opening, the netting being raised on the inside of the sheet, so as to project from the rear face of the plate.

7. A sign comprising a casing having sign-letters in its side, a concave reflector in the bottom of the casing, and a curved reflecting-surface in rear of the letters.

8. A sign, comprising a casing having sign-letters in opposing sides, a concave reflector in the bottom of the casing, and a V-shaped reflecting-surface having upwardly and outwardly curved sides, and arranged lengthwise in the casing.

9. A sign, comprising a casing having longitudinal guideways in opposing sides, sign-letters removably held in the guideways, a concave reflector in the bottom of the casing, a V-shaped reflecting-surface having upwardly and outwardly curved sides and arranged lengthwise in the casing.

784,345. BICYCLE ATTACHMENT. BRUCE R. PEPPER, Yazoo City, Miss. Filed Nov. 11, 1903. Serial No. 180,714.



Claim.—1. A bicycle attachment comprising a wheel, a spring adapted to be wound up by said wheel and arranged to drive the latter, a shaft having a fork in which the wheel is journaled, a pinion on said shaft, a support on the bicycle for said shaft, and a manually-controlled segment engaging the pinion on said shaft for turning the latter.

2. In a device of the character described, a wheel, a spring adapted to be wound up by said wheel and arranged to drive the same, said wheel having corrugations on its outer periphery, a pawl for engaging said corrugations, a shaft having a fork in which the wheel is journaled, a support on the bicycle in which support the shaft is rotatable, and an eccentric for automatically controlling said pawl when said shaft is rotated.

3. A bicycle attachment comprising a motor-wheel adapted to be brought into engagement with the rear wheel of the bicycle, a spring within said motor-wheel adapted to be wound up by the same and arranged to drive the latter, a shaft extending in a substantially horizontal direction above the rear wheel of the bicycle on which shaft said motor-wheel is journaled, a support for said shaft, a pinion on said shaft, the shaft being adapted to be turned a fourth of a revolution in a plane at right angles to the plane of its working rotation to throw the motor out of engagement with the wheel driven thereby, and to be turned a half a revolution to bring the opposite side of the motor-wheel into engagement with the wheel of the bicycle, and a manually-operated rack for engaging said pinion to turn said shaft.

4. A bicycle attachment comprising a motor-wheel in engagement with the rear wheel of the bicycle, a spring within said motor-wheel adapted to be wound up by the same and arranged to drive the latter, a shaft on which the wheel is journaled, a support on the bicycle for carrying said shaft, said shaft being adapted to be turned a fourth of a revolution in a plane at right angles to the plane of its working rotation to throw the motor out of engagement with the wheel driven thereby and to be turned a half-revolution to bring the opposite side of the motor-wheel into engagement with the wheel of the bicycle, and manually-controlled means for turning said shaft.

5. A bicycle attachment comprising a wheel, a spring adapted to be wound up by the said wheel and arranged to drive the latter, a shaft having a fork in which the wheel is journaled, a pinion on said shaft, a support on the bicycle, provided with a guideway, a slide in the said guideway, in which the shaft is journaled, and a manually-controlled segment engaging the pinion on the said shaft, for turning the latter, as set forth.

6. A bicycle attachment comprising a wheel, a spring adapted to be wound up by the said wheel and arranged to drive the latter, a shaft having a fork in which the wheel is journaled, a pinion on said shaft, a support on the bicycle, provided with a guideway, a slide in the said guideway, in which the shaft is journaled, and a manually-controlled segment engaging the pinion on the said shaft, for turning the latter, the said segment having means for imparting an initial sliding motion to the shaft and the slide in which it is journaled, previous to turning the shaft, as set forth.

7. A bicycle attachment comprising a wheel, a spring adapted to be wound up by the said wheel and arranged to drive the latter, a shaft having a fork in which the wheel is journaled, a pinion on said shaft, a support on the bicycle, provided with a guideway, a slide in the said guideway, in which the shaft is journaled, a manually-controlled segment engaging the pinion on the said shaft, for turning the latter, the said segment having means for imparting an initial sliding motion to the shaft and the slide in which it is journaled, previous to turning the shaft, and a locking device for locking the said segment in a desired position, as set forth.

8. A bicycle attachment comprising a motor-wheel adapted to be brought into engagement with the rear wheel of the bicycle, and a spring within said motor-wheel adapted to be wound up by the same and arranged to drive the latter, a rotatable shaft on which said motor-wheel is supported, said shaft being disposed to bring its axis out of alinement with the radius of the bicycle-wheel, whereby to adapt it to be turned a fourth of a revolution to throw the motor out of engagement with the bicycle-wheel and to be turned a half-revolution to bring the opposite side of the motor-wheel into engagement with said wheel of the bicycle, to deliver its stored-up power thereupon to assist in propelling the same.

9. An attachment for wheeled vehicles, consisting of a motor arranged for frictional engagement with the rim of a wheel of the vehicle, for actuating the motor, to store power, the motor being adapted to be bodily turned a half-revolution for reengaging its opposite side with the rotatable part, to drive the latter, the said motor having a reversible wheel, and a spring adapted to be wound up by the reversible wheel and arranged to unwind, to drive the reversible wheel when the latter is reversed and for holding the same in an intermediate inactive position, as set forth.

10. A bicycle provided at its rear fork with a supporting-plate having a guideway, a slide in the said guideway, a shaft journaled in the said slide and provided with a fork, a wheel journaled in the said fork, a spring in the wheel, having one end fastened to the wheel-rim and the other to the wheel-shaft, and means for reversing the said shaft, as set forth.

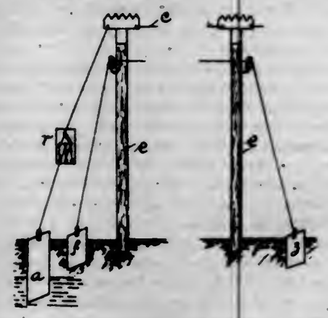
11. A bicycle provided at its rear fork with a supporting-plate having a guideway, a slide in the said guideway, a shaft journaled in the said slide and provided with a fork, a wheel journaled in the said fork, a spring in the wheel, having one end fastened to the wheel-rim and the other to the wheel-shaft, and means for reversing the said shaft, the said means comprising a pinion on the said shaft, a segment mounted to swing on the support and engaging the said pinion and cam-faces on the said segment, for engaging the said shaft, as set forth.

12. A bicycle provided at its rear fork with a supporting-plate having a guideway, a slide in the said guideway, a shaft journaled in the said slide and provided with a fork, a wheel journaled in the said fork, a spring in the wheel, having one end fastened to the wheel-rim and the other to the wheel-shaft, and means for reversing the said shaft, the said means comprising a pinion on the said shaft, a segment mounted to swing on the support and engaging the said pinion, cam-faces on the said segment, for engaging the said shaft, and an operating and locking device for the said segment, as set forth.

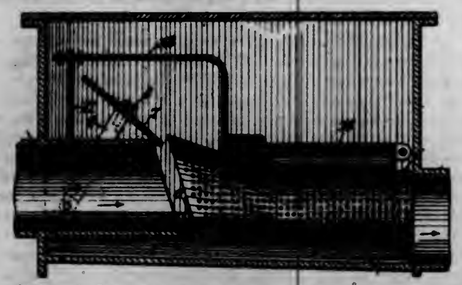
784,346. METHOD OF CULTIVATING PLANTS BY ELECTRICITY. EUGÈNE PILSOUDSKY and EUGÈNE RAGOZINE, St. Petersburg, Russia. Filed Dec. 12, 1903. Serial No. 184,993.

Claim.—The process of electroculture which consists in subjecting adjacent parallel sections of the earth to be treated to the action of galvanic currents flowing in opposite directions between buried plates of dissimilar metals connected by overhead conductors, and simultaneously setting up in the circuits formed by said

conductors, plates and earth sections, currents induced by atmospheric electricity passing through parallel overhead conductors adapted to collect such electricity.



784,347. GATE-VALVE. RICHARD J. POWERS, Chicago, Ill. Filed Apr. 30, 1904. Serial No. 205,713.



Claim.—1. In a gate-valve mechanism, a casing, a pipe-section leading therein, a pipe-section leading therefrom, a perforated pipe-section in the casing, a float mounted to swing over said perforated pipe-section, a valve for closing the first-named pipe-section, and a connection between said valve and said float.

2. In a gate-valve mechanism, a casing, a pipe-section leading therein, a pipe-section leading therefrom, a perforated pipe-section in the casing, a float mounted to swing over said perforated pipe-section, a valve for closing the first-named pipe-section, levers carrying said valve, and a connection between said levers and said float.

3. A gate-valve mechanism comprising a casing, a pipe-section leading therein, a pipe-section leading from the casing, and on a lower plane than the first-named pipe-section, a perforated pipe-section between the first two named sections, a box-like float extended over the perforated pipe-section, a valve for closing the end of the first-named section, levers to which said valve is connected, a bail attached to the short members of said levers, and an arm carried by the float and connecting with said bail.

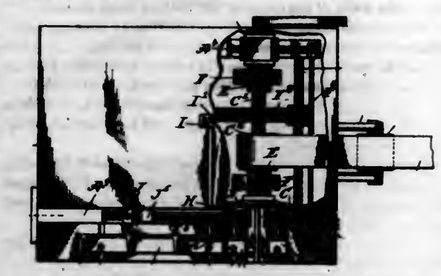
4. In a gate-valve mechanism, a casing, a pipe leading into one end of the casing, a pipe leading from the opposite end of the casing, a perforated pipe-section arranged in the casing between the first-named pipes and having a perforated lower wall, a box-like float mounted to swing in the casing and passing over the top of said perforated pipe and down the sides thereof, levers mounted to swing on the first-named pipe, a valve carried by said levers, a bail connecting with said levers, and an arm extended from the float and connecting with said bail.

784,348. HANDHOLD-SAWING MACHINE. BERTRAM J. PYE, Astoria, Oreg. Filed Aug. 18, 1904. Serial No. 221,231.

Claim.—1. A handhold-sawing machine provided with a revoluble cutting-tool, and a holding-down device for the work, arranged opposite the said cutting-tool, the said holding-down device comprising two spaced rollers, one of the rollers being eccentrically journaled.

2. A handhold-sawing machine provided with a revoluble cutting-tool, and a holding-down device for the work, arranged opposite the said cutting-tool, the said holding-down device comprising two spaced rollers, one of the rollers being eccentrically journaled and provided on its peripheral face with pins.

3. A handhold-sawing machine provided with a revoluble cutting-tool, and a holding-down device for the work, arranged opposite the said cutting-tool, the said holding-down device comprising two spaced rollers, one of the rollers being eccentrically journaled and pressed on by a spring.



4. A handhold-sawing machine provided with a feed mechanism comprising a reciprocating cross-head, a block held adjustable on the cross-head, and a spring-pressed pawl fulcrumed on the said block and capable of yielding in one direction and held by the block against movement in the opposite direction.

5. In a sawing-machine, the combination of a table having an opening therein, an arbor below the table, sliding bearings in which the arbor is mounted, a revoluble cutting-tool on the arbor, means for moving the arbor up and down to move the tool above and below the top of the table, a holding-down device comprising spaced rollers, one of which is eccentrically mounted, a reciprocating cross-head, a pivoted and spring-pressed pawl, adjustably mounted on the cross-head, and means for imparting synchronous movement to the cross-head and to the means for raising and lowering the tool-arbor.

6. In a sawing-machine, the combination of a table having an opening therein, an arbor below the table, vertically-sliding bearings in which the arbor is mounted, a revoluble cutting-tool on the arbor, means for moving the arbor up and down to move the tool above and below the top of the table, a holding-down device on the table, a reciprocating cross-head, an adjustable block carried by the cross-head, a pivoted and spring-pressed pawl carried by the block and held against movement in one direction by said block, and means for imparting synchronous movement to the cross-head and to the means for raising and lowering the tool-arbor.

7. In a sawing-machine, the combination of a table having an opening therein, an arbor below the table, vertically-sliding bearings in which the arbor is mounted, a revoluble cutting-tool on the arbor, means for moving the arbor up and down to move the tool above and below the top of the table, a holding-down device comprising spaced rollers, one of which is eccentrically mounted, a reciprocating cross-head provided with a pivoted and spring-pressed pawl, and means for imparting synchronous movement to the cross-head and to the means for raising and lowering the tool-arbor.

8. In a sawing-machine, the combination with a table, having an opening therein, a horizontal arbor mounted below the table in vertically-sliding bearings, a cutting-tool on the arbor, a shaft, means for raising and lowering the arbor from said shaft, a reciprocating cross-head, a pivoted and spring-pressed pawl carried by the cross-head, a rocking arm having one end pivotally connected with the cross-head, and a connection between the said arm and the shaft to rock the former from the latter.

784,349. PROCESS OF MANUFACTURING LIMPID SOLUTIONS OF AGAR-AGAR AND PRODUCT OF SAME. WALTER RIEBENSAHM, Berlin, Germany. Filed June 1, 1903. Serial No. 159,601. (Specimens.)

Claim.—1. The process of manufacturing a limpid solution of agar-agar, said process consisting in boiling the agar-agar under pressure in water, containing an organic acid, the quantity of organic acid not exceeding 1.5 per cent. of the quantity of agar-agar to be dissolved, substantially as described and for the purpose set forth.

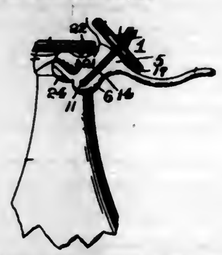
2. The process of manufacturing a limpid solution of agar-agar consisting in boiling the agar-agar under pressure in water acidulated by citric acid up to 1.5 per cent. of the quantity of agar-agar to be dissolved.

3. The process of manufacturing a limpid solution of agar-agar consisting in boiling the agar-agar under pressure in water containing an organic acid the quantity of said acid not to exceed 1.5 per cent. of the quantity of agar-agar to be dissolved, allowing then the solution to settle and filtering same.

4. As a new article of manufacture a limpid solution of agar-agar produced from agar-agar by boiling same under pressure in water aciduated by an organic acid up to 1.5 per cent of the quantity of agar-agar to be dissolved and forming a stiff and perfectly-limpid jelly when cooling.

5. As a new article of manufacture a limpid solution of agar-agar obtained from agar-agar by boiling same under pressure in water acidulated by citric acid and forming upon cooling a stiff and perfectly-limpid jelly.

784,350. BOTTLE-STOPPER. ISAAC A. ROHNER, Newark, N. J. Filed Oct. 24, 1904. Serial No. 229,700.



Claim.—1. A device of the character specified comprising an open-ended or yoke-shaped body adapted to be slipped upon the neck of a bottle from the side thereof, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap, or the like, over the mouth of the bottle, substantially as and for the purposes set forth.

2. A device of the character specified comprising an open-ended or yoke-shaped body adapted to be slipped upon the neck of a bottle from the side thereof, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap, or the like, over the mouth of the bottle, consisting, essentially, of a clamping-frame, and a lever or handle for forcing said clamping-frame in a downward direction, substantially as and for the purposes set forth.

3. A bottle-stopper comprising an open-ended or yoke-shaped body adapted to be slipped upon the neck of a bottle from the side thereof, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, a clamping or tightening frame pivotally connected with the said body, and a sealing-cap loosely connected with the said clamping-frame, substantially as and for the purposes set forth.

4. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle and said arm portions having an oscillatory relation with portions of the neck of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

5. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle and said arm portions having an oscillatory relation with portions of the neck of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, consisting, essentially, of a clamping-frame, and a lever or handle for forcing said clamping-frame in a downward direction, substantially as and for the purposes set forth.

6. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle and said arm portions having an oscillatory relation with portions of the neck of the bottle, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

7. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle and said arm portions having an oscillatory relation with portions of the neck of the bottle, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, consisting, essentially, of a clamping-frame, and a lever or handle for forcing said clamping-frame in a downward direction, substantially as and for the purposes set forth.

8. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

9. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, consisting, essentially, of a clamping-frame, and a lever or handle for forcing said clamping-frame in a downward direction, substantially as and for the purposes set forth.

10. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

11. A device of the character specified comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, means on said body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, and a clamping or tightening means connected with said yoke-shaped body for tightening a sealing-cap upon the mouth of the bottle, consisting, essentially, of a clamping-frame, and a lever or handle for forcing said clamping-frame in a downward direction, substantially as and for the purposes set forth.

12. A bottle-stopper comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, a tightening-frame pivotally connected with the said arm portions, a sealing-cap suspended from said tightening-frame, and means for tightening said sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

13. A bottle-stopper comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, a tightening-frame pivotally connected with the said arm portions, a sealing-cap suspended from said tightening-frame, and a handle or lever connected with the said yoke-shaped body for tightening said sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

14. A bottle-stopper comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said

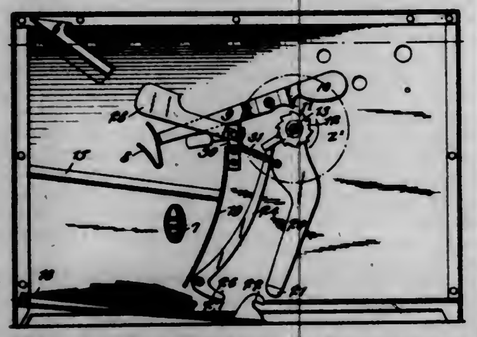
body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, means on said yoke-shaped body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, a tightening-frame pivotally connected with the said arm portions, a sealing-cap suspended from said tightening-frame, and means for tightening said sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

15. A bottle-stopper comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, and a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, means on said yoke-shaped body for engagement with a seal-cap secured over the mouth of the bottle, for the removal of said seal-cap from the mouth of the bottle, a tightening-frame pivotally connected with the said arm portions, a sealing-cap suspended from said tightening-frame, and a handle or lever connected with the said yoke-shaped body for tightening said sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

16. A bottle-stopper comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, a stop projection upon each holding member, a tightening-frame pivotally connected with said arm portions and adapted to be brought in engagement with said stops to limit the forward movement of said frame, a sealing-cap suspended from said tightening-frame, and means for tightening said sealing-cap upon the mouth of the bottle, substantially as and for the purposes set forth.

17. A bottle-stopper comprising an open-ended or yoke-shaped body having forwardly-extending arm portions forming with said body a receiving portion adapted to be arranged upon the neck of a bottle, a socketed holding member on each arm portion, said socketed holding members being adapted to be brought in oscillatory relation with a bead upon the neck of the bottle, a stop projection upon each holding member, a tightening-frame pivotally connected with said arm portions and adapted to be brought in engagement with said stops to limit the forward movement of said frame, a sealing-cap suspended from said tightening-frame, and a handle or lever connected with said yoke-shaped body for tightening said sealing-cap, upon the mouth of the bottle, substantially as and for the purposes set forth.

784,351. COIN-CONTROLLED MECHANISM. LEON F. RUBENS and BENJAMIN I. LEVI, New York, N. Y. Filed Sept. 30, 1904. Serial No. 226,701.



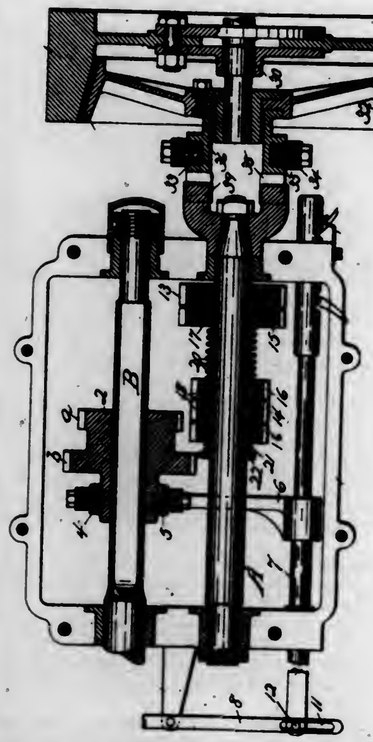
Claim.—1. In coin-controlled mechanism the combination of a clockwork, a lever controlling the same and adapted to permit the operation of the clockwork when a coin engages the lever, a false bottom upon which the coins fall, and means for removing said false bottom when a predetermined weight rests thereon, substantially as described.

2. In coin-controlled mechanism the combination of a clockwork, a ratchet mounted upon a shaft and adapted to wind the clockwork, a lever having a detent for engaging with the teeth of said ratchet, a cranked arm depending from said ratchet-having its lower end engaging with the bottom of the casing of the clock and means for releasing said cranked arm and permitting the bottom of said clock to open for the purpose of removing the coins therefrom, substantially as described,

3. In coin-controlled mechanism the combination of a clockwork, a cranked arm 20 mounted on the shaft 13, the bottom 17 of the clock-casing having a catch 22 for engagement with the lug 21 on arm 20, a false bottom 16 for receiving the coins, a lever 24 normally held by the false bottom 16 and means for releasing the lever 24 from its normal position when the predetermined weight rests upon the false bottom 16, substantially as described.

4. In coin-controlled mechanism the combination of a clockwork, a cranked arm 20 mounted on the shaft 13, the bottom 17 of the clock-casing having a catch 22 for engagement with the lug 21 on arm 20, a false bottom 16 for receiving the coins, a lever 24 normally held by the false bottom 16 and means for releasing the lever 24 from its normal position when the predetermined weight rests upon the false bottom 16, and means for releasing lever 20 when lever 24 has been released by weight of coins on false bottom, substantially as described.

784,352. POWER-TRANSMITTING DEVICE. SAMUEL W. RUSHMORE, Plainfield, N. J. Filed Apr. 27, 1904. Serial No. 205,058.



Claim.—1. In a power-transmitting mechanism, the combination with a suitable support, of parallel shafts, a series of gears fixed on one shaft, a sliding gear fitted to turn with the other shaft and adapted to be moved longitudinally, means to move the sliding gear into engagement with the fixed gears, and yielding gear-like elements arranged on the first shaft at the sides of the fixed gears, first to engage with the sliding gear.

2. In a power-transmitting mechanism, the combination with a suitable support, of parallel shafts journaled therein, a series of main gears fixed on one shaft, a sliding gear fitted to turn with and slide on the second shaft, means to slide the sliding gear on its shaft, and yielding gears carried on the first shaft and maintained in frictional engagement with the respective fixed gears to engage with the sliding gear before it is moved into engagement with the fixed gears.

3. In a power-transmitting mechanism, the combination with a suitable support, of parallel shafts journaled therein, a series of main gears fixed on one shaft, said gears being provided with tapering hubs, a sliding gear on the second shaft, means to move the sliding

gear into engagement with the fixed gears, and yielding gears fitted to the tapering hubs and frictionally engaging therewith.

4. In a power-transmitting mechanism, the combination with a suitable case, of two parallel shafts journaled therein, a series of main gears of different sizes fixed on the first shaft, said gears having tapering hubs, a sliding-gear element fitted to slide on and turn with the second shaft, gears of different size on the sliding-gear element to engage with the respective fixed gears, means to slide the sliding element, yielding gears fitted to the tapering hubs, and springs to force the yielding gears into frictional engagement with the hubs.

5. In a power-transmitting mechanism, the combination with a suitable case, of a driving-shaft journaled therein, means to connect said shaft to the source of power, a parallel driven shaft journaled in the case, a series of gears of different sizes fixed on the driving-shaft, said gears having tapering hubs, a sliding element fitted to slide on and turn with the driven shaft, a series of gears of different diameters on the sliding element to engage with the respective fixed gears, yielding gears fitted to said hubs, and springs arranged on the shaft to maintain the yielding gears in frictional engagement with the hubs.

6. In a changeable-gear mechanism for transmitting power, the combination with a suitable case, of two parallel shafts journaled therein, gears fixed on one shaft, a sliding-gear element fixed on the second shaft, a sliding bar fitted in the case and having inclined portions, an arm fixed on said bar and engaging with the sliding element, and a spring arranged to engage with the inclined portion to accelerate the longitudinal movement of the bar and the engagement of the gears.

7. In a power-transmitting mechanism, the combination with a suitable support, of two parallel shafts journaled therein, a series of main gears of different sizes fixed on one shaft, a sliding gear fitted to turn with the other shaft, means to move the sliding gear into and out of engagement with the main gears, and means to accelerate the movement of the sliding gear at the point of engagement, to effect a rapid and complete engagement of said gears.

8. A power-transmitting mechanism having a driving-shaft and a driven shaft, one or more gears rigidly secured on one of the shafts, gears sildably mounted upon the other shaft, to be moved into or out of mesh with the fixed gear or gears, means for accelerating or retarding the speed of one of the shafts so that the gears may be brought approximately to the same peripheral speeds before being thrown into mesh.

9. In a variable-speed, power-transmitting mechanism the combination of a shaft, one or more main gears rigidly attached thereto, a second shaft, one or more sliding gears fitted to rotate with the second shaft and capable of endwise movement, said sliding gears being adapted to mesh with the main gear or gears on the first shaft and yielding gears arranged to be brought into mesh to accelerate or retard the speed of one or the other of the shafts so that the main and sliding gears may be brought approximately to the same peripheral speeds before being thrown into mesh.

10. In a variable-speed, power-transmitting device, a shaft, one or more gears rigidly attached thereto, a second shaft, one or more sliding gears fitted to rotate with the second shaft and to move endwise thereon, means for sliding one of the sliding gears into mesh with the rigid gears and devices frictionally driven by one of the shafts and adapted to accelerate or retard the motion of one of the shafts so that the gears may be brought approximately to the same peripheral speed before being thrown into mesh.

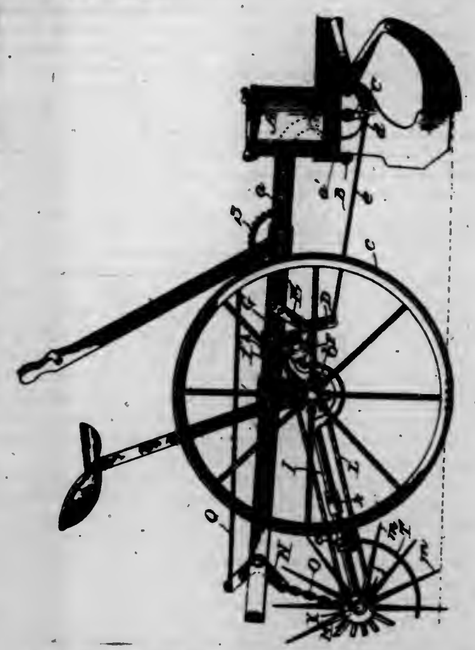
784,353. CORN-PLANTER. HERMAN SCHIELKE, Cleveland, Ohio, and EDUARD STEINMANN, Davenport, Iowa. Filed Oct. 26, 1904. Serial No. 230,403.

Claim.—1. In a check-rower planter, the combination with the hoppers, seed-feeding devices, supporting-frame and running-gear therefor, of spur-wheels, shaft on which the same are mounted the axis of which is below said supporting-frame, and means for operatively connecting said shaft with said feeding devices.

2. In a check-rower planter, the combination with the hoppers, seed-feeding devices, supporting-frame and running-gear therefor, of a spur-wheel the axis of which is below said supporting-frame, and means for operatively connecting said spur-wheel with said feeding devices.

3. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a rock-shaft for actuating the same, a supporting-frame, and running-gear thereof, of a spur-wheel the axis of which is below said supporting-frame, and means for operatively connecting said spur-wheel to said rock-shaft.

4. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a rock-shaft for actuating the same, a supporting-frame, and running-gear thereof, of spur-wheels, shaft on which the same are mounted the axis of which is below said supporting-frame, and means for operatively connecting sa d spur-wheel shaft to said rock-shaft.



5. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, shaft on which the same are mounted, the axis of which is below said supporting-frame, a frame in which said shaft is journaled which is pivotally connected to the said supporting-frame, and means for operatively connecting the spur-wheel shaft to said feeding devices.

6. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of a spur-wheel, a shaft therefor the axis of which is below said supporting-frame, and a guard for removing foreign matter therefrom, and means for operatively connecting said spur-wheels to said feeding devices.

7. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame and the running-gear thereof, of a spur-wheel, and a U-shaped guard for removing foreign matter therefrom, and means for operatively connecting said spur-wheels to said feeding devices.

8. In a check-rower planter, the combination with the hoppers, seed-feeding device therefor, a supporting-frame, and the running-gear thereof, of a spur-wheel, and a U-shapod curved guard for removing foreign matter therefrom, and means for operatively connecting said spur-wheels to said feeding devices.

9. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of a spur-wheel, and a U-shaped evolute curved guard for removing foreign matter therefrom, and means for operatively connecting said spur-wheels to said feeding devices.

10. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a rock-shaft for actuating the same, an arm projecting from said rock-shaft and bell-crank pivotally connected to a suitable supporting-frame, said supporting-frame, and the running-gear thereof, of spur-wheels, and a frame in which said spur-wheels are journaled which is pivotally connected to said supporting-frame, a transverse shaft, means on the end thereof engaging said bell-crank, and sprockets and chain for imparting the motion of said spur-wheels to said transverse shaft.

11. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled, a transverse shaft pivotally connecting said spur-wheel

frame to the supporting-frame, means for imparting the motion of said spur-wheels to said transverse shaft, and continuously-connected mechanism for operatively connecting said transverse shaft to said feeding devices.

12. A check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled the forward ends of which are pivotally connected to said supporting-frame, means for operatively imparting the motion of said spur-wheels to said feeding devices, and continuously-connected mechanism for raising and lowering said spur-wheel frame.

13. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled, and guards on each side of said spur-wheels for removing foreign matter therefrom one end of which is secured to said spur-wheel frame, and means for operatively connecting said spur-wheels to said feeding devices.

14. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, and U-shaped guards for removing foreign matter from said spur-wheels the ends of which are secured to said spur-wheel frame on the opposite sides of said wheel.

15. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled, and U-shaped curved guards for removing foreign matter from said spur-wheels the ends of which are secured to said spur-wheel frame on the opposite sides of said wheel.

16. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled having the forward ends thereof pivotally connected to said supporting-frame, and U-shaped guards for removing foreign matter from said spur-wheels the ends of which are secured to said spur-wheel frame on the opposite sides of said wheel.

17. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled having the forward ends thereof pivotally connected to said supporting-frame, and a curved guard for removing foreign matter from said spur-wheel frame on the opposite sides of said wheel.

18. In a check-rower planter, the combination with the hoppers, seed-feeding devices therefor, a supporting-frame, and the running-gear thereof, of spur-wheels, a frame in which said spur-wheels are journaled the forward ends of which are pivotally connected to said supporting-frame, a bell-crank pivoted to the supporting-frame near its rear end, a chain connecting said bell-crank to the shaft of said spur-wheels, a hand-operated lever, and a connecting-rod connecting said lever and bell-crank, and continuously-connected means for operatively connecting said spur-wheels to said feeding devices.

784,354. MEANS FOR OPERATING CYLINDER-COCKS. JAMES H. SEWALL, Keene, N. H., assignor to Star Brass Manufacturing Company, Boston, Mass., a Corporation of Massachusetts. Filed July 18, 1904. Serial No. 217,108.



Claim.—1. A cylinder-cock having a differential valve adapted to be normally closed by pressure on its larger area, in combination with a fluid-passage connected with the larger side of said valve, and means located in said fluid-passage adapted to cut off the pressure therefrom and allow said cylinder-cock to open, as set forth.

2. A series of cylinder-cocks each having a differential valve adapted to be normally closed by pressure on its larger area, in combination with a series of connecting fluid-passages all connected together and to a common fluid-supply pipe at one end, the other end of each fluid-passage being connected with the larger side of said valve in said cylinder-cock, and means located in said common fluid-passage adapted to cut off the pressure in said passage and allow all of said cylinder-cocks to open, as set forth.

3. An automatic operating-valve comprising a steam-passage, a perforated diaphragm dividing said passage, a valve adapted to close said perforation, and means to close said valve comprising a differential piston, whereby a pressure on the larger area of said piston will close said valve, as described.

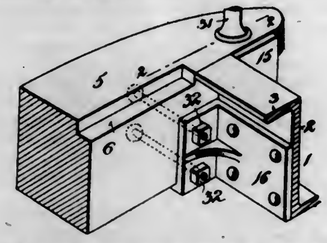
4. In an automatic operating-valve for cylinder-cocks, a steam-passage, a perforated diaphragm crossing said passage, a valve adapted to close the perforations in said diaphragm and provided with a differential piston, whereby it may be opened by steam in said passage, and closed by pressure exerted on the opposite side of said piston from said steam-passage, as described.

5. In combination, a cylinder-cock, an automatic operating-valve therefor, a fluid connection between said cock and said valve, and a differential piston for operating said valve.

6. In an automatic operating-valve, a steam-passage, a perforated diaphragm crossing said passage, a stem having a differential piston mounted on one end thereof, a valve mounted on the other end of said stem, and adapted to close the perforation in said diaphragm, and suitable connections whereby pressure may be delivered to either face of the differential piston to operate the valve, as described.

7. An automatic operating-valve having a steam-passage, a valve to close said passage, a differential piston to operate said valve, and means to relieve the pressure on one side of said valve when said valve is closed, as described.

784,355. CAR CONSTRUCTION. WARREN M. SMITH, Philadelphia, Pa., assignor to John A. Brill, borough of Prospect Park, Pa. Filed Oct. 26, 1904. Serial No. 230,117.



Claim.—1. A railway-car having side sills, a crown-piece and bumper, and means for securing the sill, crown-piece and bumper together.

2. A railway-car having Z-shaped metal side sills forming a support for the platform, a crown-piece and bumper, and a head-block adapted to secure the sill, crown-piece and bumper together.

3. A railway-car having a longitudinal member as a platform-support, a crown-piece and bumper, and a head-block secured to the platform-supporting means, and on which the said bumper and crown-piece are secured.

4. A railway-car having a platform-supporting member, a crown-piece, and bumper, and a head-block, secured to the platform-supporting means, and having a plate to which is secured the said crown-piece and bumper.

5. A railway-car having a longitudinal platform-supporting means, a crown-piece and bumper, and a head-block having a recess to receive said platform-support, and a plate to which the crown-piece and bumper are secured.

6. A railway-car having a longitudinal platform-supporting means, a crown-piece, and a head-block having a recess to receive said platform-support, and a plate to which said crown-piece is secured.

7. A railway-car having longitudinal platform-supporting means, an angle-iron bumper, and a head-block having a plate secured to the platform-supporting means and having a plate to which said bumper is secured.

8. A railway-car having side sills, a crown-piece and bumper and a head-block having a recess to receive the side sill, a plate secured to said sill, and a plate to which said crown-piece and bumper are secured.

9. A railway-car having side sills, a crown-piece, and bumper, and a head-block secured to the side sill, and having a longitudinal plate to which the said crown-piece and bumper are secured and a vertical abutting plate.

10. A railway-car having side sills, a crown-piece, and bumper, and a head-block secured to the sill, having a plate, and means for securing the said plate, crown-piece, and bumper together.

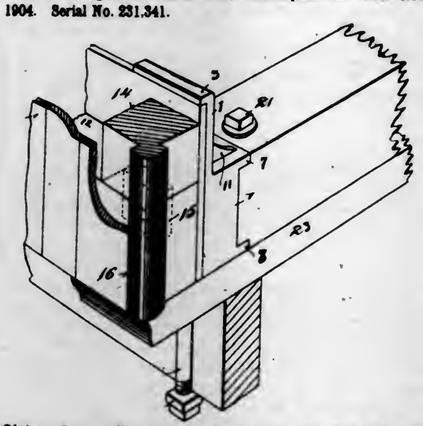
11. A railway-car having side sills, a crown-piece, and bumper, and a head-block secured to the side sill, and having a plate to which the said crown-piece and bumper are adapted to be secured and a hood-support securing the crown-piece, bumper, and head-block together.

12. A railway-car having an angle-metal side sill, an angle-metal bumper, a crown-piece, and a head-block provided with a top plate, having a slot to receive the end of the side sill, a rear plate to which the sill is secured, the upper edge of the sill projecting above the said top plate and against which the bumper abuts, the said crown-piece being secured on the bumper and top plate, and a hood-support securing the crown-piece, bumper, and head-block together.

13. As an article of manufacture, a head-block for railway-cars, having a rearward plate adapted to be secured to a side sill, and a top plate adapted to be secured to the bumper and crown-piece of a railway-car.

14. As an article of manufacture, a head-block for railway-cars comprising a rear plate adapted to be secured to a side sill, a top plate adapted to be secured to a bumper, said plate being provided with a slot 24, vertical walls, 15, 19, and 21, and a horizontal wall 22.

784,356. CAR CONSTRUCTION. WARREN M. SMITH, Prospect Park, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Nov. 4, 1904. Serial No. 231,341.



Claim.—1. A railway-car having a side and end sills, a sill-plate secured to the side sill, and a chair for the end sill secured to the sill-plate, and means for securing the side end sills and chair together.

2. A railway-car having side and end sills, a sill-plate secured to the side sill, a chair for the end sill having a flange adapted to rest on the sill-plate, and means for securing the side and end sills and chair together.

3. A railway-car having side and end sills, a sill-plate secured to the side sill, a chair provided with a pocket to receive the end sill, and having a flange and lugs adapted to engage with the said sill-plate and means for securing the said sills and chair together.

4. A railway-car having side and end sills, a chair adapted to receive said end sill, and secured to the side sill, a platform-knee and means for securing the chair, end sill, and platform-knee together.

5. A railway-car having side, end sills, and a stanchion, a sill-plate secured to the side sill and stanchion, and a chair provided with a pocket to receive the end sill and secured to the said sill-plate.

6. A railway-car having side and end sills, a sill-plate secured to the side sill, a chair to receive the end sill, and secured to the said sill-plate, apertures in the said end sill, a chair and bolts therein, adapted to hold the platform-knees, end sill and chair together.

7. A railway-car having side and end sills, a sill-plate secured to the side sill, a chair to receive the end sill and secured to the said sill-plate, said chair being provided with elongated apertures, the end sill provided with apertures, platform-knees and bolts passing through said apertures adapted to secure the said platform-knees.

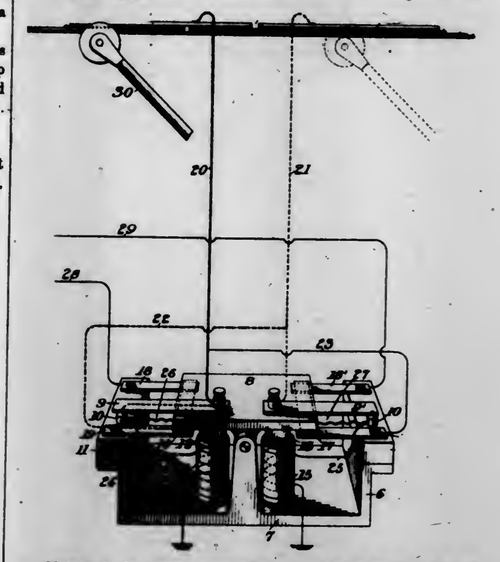
8. A railway-car having side and end sills, a sill-plate secured to the side sill, a chair adapted to receive the end sill, and secured to said plate, the chair and end sill being provided with apertures therein, a beam 23, platform-knee and bolts passing through the apertures in said chair and sill, adapted to secure the platform-knees, plank 23, end sill, and chair together.

9. As an article of manufacture, a chair having a pocket to receive an end sill and a flange 3 adapted to engage the sill-plate.

10. As an article of manufacture, a chair having a pocket to receive an end sill, lugs on the chair, and a flange 3 adapted to engage the sill-plate of the railway-car.

11. A railway-car having a side sill, the end of which is chamfered, an end sill, stanchion resting on the side sill and having a projection on the lower end adapted to lie on the chamfered part of the side sill, and sheathing on said sills.

784,357. CIRCUIT-CONTROLLER FOR ELECTRIC RAILWAY-SIGNALS. HARRY B. SWELL, Jackson, Mich. Filed Apr. 15, 1904. Serial No. 203,350.



Claim.—1. In a circuit-controller for railway-signals, a pair of trolley-contacts insulated from direct connection with each other and from the trolley-wire, a magnetically-operated controller, two line-circuits leading from the controller to a suitable signal device, and connections whereby a trolley-wheel passing beneath the trolley-contacts in one direction will close the current from the trolley-wire through one of the line-circuits and when passing in the opposite direction through the other line-circuit, substantially as described.

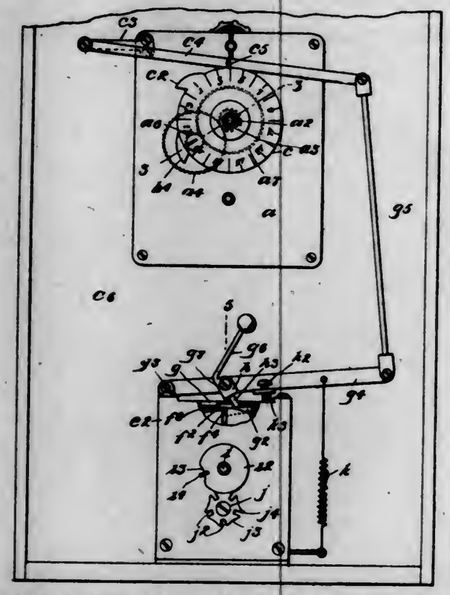
2. In a circuit-controller for railway-signals, a pair of elongated, metallic contacts rigidly supported above the trolley-wire, and insulated therefrom and from each other, a magnetically-operated controller, independent connections from the trolley-contacts to the controller, two line-circuits leading from the controller to a suitable signal device, and connections whereby a trolley-wheel passing beneath the trolley-contacts in one direction will close the current from the trolley-wire through one of the line-circuits and when passing in the opposite direction through the other line-circuit, substantially as described.

3. In a circuit-controller for railway-signals, a pair of elongated trolley-contacts arranged in line with each other above the trolley-wire and insulated therefrom and from each other, a controller embodying in its construction a pivotally-supported table adapted to be tilted on one side or the other, independently-actuated magnets on opposite sides of the pivotal support of said table, and connections from the trolley-contacts through the magnets whereby a trolley-wheel passing beneath the trolley-contacts in one direction will energize the magnets on one side of the pivotal support of the table, and when passing in the opposite direction the magnets on the opposite side of the pivotal support will be energized, substantially as described.

784,358. ELECTRIC TIME-SWITCH. STANISLAUS STRNSKI, Brooklyn, N. Y. Filed Apr. 12, 1904. Serial No. 202,765.

Claim.—1. In an automatic electric time-switch, the combina-

tion with an electric switch of a casing supported adjacent thereto, a shaft passing therethrough and geared in connection with the shaft of the electric switch and adapted to turn with said shaft in one direction and independently thereof in the opposite direction, a spiral spring mounted in said casing one end of which is connected with said shaft and the other with said casing, a drum secured to said shaft within said casing and provided with radially-arranged and spring-operated plungers having transverse pins movable in radial slots in the sides of said drum at the perimeter thereof, said casing being also provided in the top thereof with a slot or opening and with stops adjacent to the sides thereof in connection with which said pins operate, a clock mechanism arranged over said casing, and devices operated by said clock mechanism for depressing said plungers at predetermined times so as to permit the turning of said drum and said shaft, substantially as shown and described.

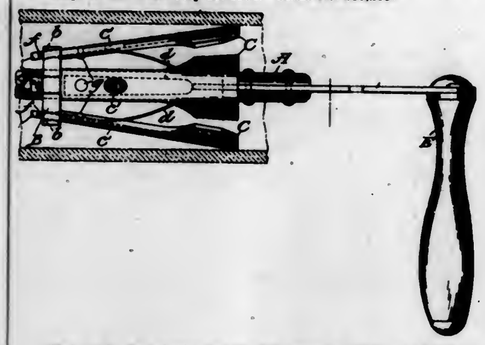


2. In an automatic electric time-switch, the combination with an electric switch of a casing supported adjacent thereto, a shaft passing therethrough and geared in connection with the shaft of the electric switch and adapted to turn with said shaft in one direction and independently thereof in the opposite direction, a spiral spring mounted in said casing one end of which is connected with said shaft and the other with said casing, a drum secured to said shaft within said casing and provided with radially-arranged and spring-operated plungers having transverse pins movable in radial slots in the sides of said drum at the perimeter thereof, said casing being also provided in the top thereof with a slot or opening and with stops adjacent to the sides thereof in connection with which said pins operate, a clock mechanism arranged over said casing, and devices operated by said clock mechanism for depressing said plungers at predetermined times so as to permit the turning of said drum and said shaft, comprising a wheel mounted on the minute-hand shaft of the clock mechanism, gearing operated by said shaft for turning said wheel, said wheel being also provided with a hub, a time-disk mounted on said hub, an arm also mounted on said hub, said disk and said hub being adjustable with reference to each other, a lever supported over said clock mechanism and adapted to be operated at predetermined intervals by said disk and said arm, a pivoted arm supported over the casing containing the said shaft and drum and in connection with said lever, a weighted elbow-lever pivoted to said arm and provided with a finger which projects into the slot or opening in the top of said casing, and means for normally depressing said arm, substantially as shown and described.

3. In an apparatus af the class described, an electric switch provided with the usual shaft, a disk secured to the end of said shaft, a power-shaft arranged in line with the shaft of the electric switch, a disk mounted on the end of the power-shaft and insulated from the first-named disk and connected therewith, a supplemental disk mounted on the power-shaft adjacent to the disk on the end thereof and provided with segmental slots through which are passed screws connected with the disk on the end of the power-shaft, a ratchet-wheel secured to the power-shaft adjacent to the supplemental disk and spring-operated pawls connected with the supplemental disk and operating in connection with said ratchet-shaft, substantially as shown and described.

4. In an apparatus of the class described, an electric switch provided with the usual shaft, a disk secured to the end of said shaft, a power-shaft arranged in line with the shaft of the electric switch, a disk mounted on the end of the power-shaft and insulated from the first-named disk and connected therewith, a supplemental disk mounted on the power-shaft adjacent to the disk on the end thereof and provided with segmental slots through which are passed screws connected with the disk on the end of the power-shaft, a ratchet-wheel secured to the power-shaft adjacent to the supplemental disk, spring-operated pawls connected with the supplemental disk and operating in connection with said ratchet-shaft, and means for turning said power-shaft and the shaft of the switch at predetermined times in one direction, substantially as shown and described.

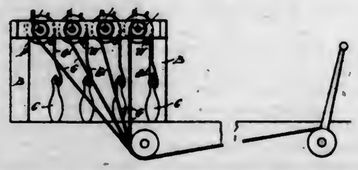
784,359. **TUBE-CLEANING DEVICE.** JOHN F. STEPHENSON, Albany, N. Y. Filed July 26, 1904. Serial No. 218,215.



Claim.—1. In a device for cleaning flues or pipes, the combination with a central shaft, of a collar secured on the end portion thereof and having openings in its outer part, a series of shouldered longitudinal scrapers having their shoulders bearing against the collar, said scrapers having ends extending through the collar-openings and engaged by pins to afford a pivotal connection with the collar, springs connected to the scrapers and bearing against the shaft to normally expand the scrapers, and an operating-handle flexibly connected with the shaft.

2. In a device for cleaning flues or pipes, the combination with a central shaft, of a collar secured on the end portion thereof and having openings in its outer part, a series of shouldered longitudinal scrapers containing apertures and having their shoulders bearing against the collar, said scrapers having ends extending through the collar-openings and engaged by pins to afford a pivotal connection with the collar, springs connected to the scrapers and bearing against the shaft to normally expand the scrapers, said springs working in relation to the scraper-apertures, and an operating-handle connected to the shaft.

784,360. **PIN-RESETTING DEVICE FOR BOWLING-ALLEYS.** BENJAMIN A. STEVENS, Toledo, Ohio. Filed Apr. 18, 1904. Serial No. 203,596.

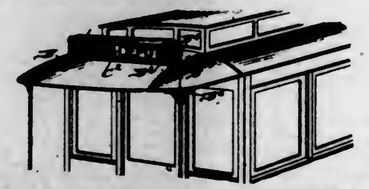


Claim.—1. In a bowling-alley, the combination of a plurality of cylinders, a plurality of laterally-extending rows of pins, one of said cylinders extending above each laterally-extending row of pins, cords extending through the upper ends of the pins and secured to said cylinders, hand-levers pivoted at the playing end of the bowling-alley, and cords connecting said levers and said cylinders, a single cord connecting a single cylinder and lever so that any movement of a lever shall rotate a corresponding cylinder, for the purpose described.

2. In a bowling-alley, the combination of a bowling-pin, a cord secured to one end of said pin, a cylinder pivoted above said pin, a lever at the playing end of the alley, said cord extending parallel around and secured to the periphery of said cylinder, a weight secured to the periphery of said cylinder and adapted to rotate the same to loosen said cord, a second cord adapted to rotate said cylinder and extending to the playing end of the bowling-alley and secured to said lever, a lug upon said cylinder, a rod extending parallel and adjacent to said cylinder and having its ends turned at right angles and pivoted in the axis of said cylinder, said rod being adapted to be contacted by said lug and to limit to a predetermined travel the turning of said cylinder in a direction which acts to raise the pin.

3. In a bowling-alley, the combination of a plurality of cylinders, one of said cylinders extending above each laterally-extending row of pins, cords connected to the end of said pins and secured to said cylinders, levers pivoted at the playing end of the bowling-alley and cords connecting said levers and said cylinders, a single cord connecting a single cylinder and lever so that any movement of a lever shall rotate a corresponding cylinder, for the purpose described.

784,361. **CAR-INDICATOR.** MAX STUHLER, Brooklyn, N.Y. Filed June 27, 1903. Serial No. 163,420.



Claim.—The combination with a sign-box, a bracket at one end of said box comprising a flanged disk, a second disk fitting over same and bolted to the flange, each disk having a U-shaped downwardly-extending slot formed therein the flange being continued along the margins of the slot, insulated contact-plates arranged in the lower portion of the slot, a shaft extending into the sign-box and having its outer end journaled in the slot, rings carried by the shaft adapted to rest on the contact-plates, said plates being offset with reference to each other, and means for lighting the sign-box and means for rotating the box.

784,362. **RECOIL-OPERATED GUN.** VERNON C. TASKER, Washington, D. C., assignor to United States Ordnance Company, Washington, D. C., a Corporation of Virginia. Filed Feb. 12, 1904. Serial No. 193,236.

Claim.—1. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a longitudinal rotatable rod operatively engaging said shaft and means on the mount directly engaging said rod to rotate the same during movement of the gun to open the breech.

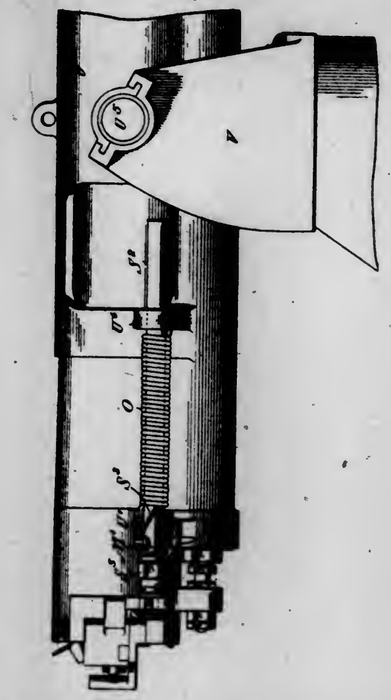
2. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a longitudinal rotatable rod operatively engaging said shaft and means on the mount directly engaging said rod for automatically actuating the same to open the breech.

3. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a longitudinal rotatable rod operatively engaging said shaft, means on the mount directly engaging said rod for automatically actuating the same to open the breech and means for automatically closing the breech.

4. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod moving with the gun and operatively engaging said shaft and means on the mount directly engaging said rod for utilizing longitudinal movement of the rod to rotate the same and open the breech.

5. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod moving with the gun and operatively engaging said shaft, means on the mount directly engaging said rod for utilizing longitudinal movement of the rod to rotate the same and open the breech and automatic means for thereupon releasing said engagement between rod and mount.

6. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a longitudinal rotatable rod moving with the gun and operatively engaging said shaft, and means on the mount directly engaging said rod for utilizing longitudinal movement of the rod to rotate the same and open the breech.



7. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a longitudinal rotatable rod moving with the gun and operatively engaging said shaft, means on the mount directly engaging said rod for utilizing longitudinal movement of the rod to rotate the same and open the breech and automatic means for thereupon releasing said engagement between rod and mount.

8. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod moving with the gun and operatively engaging said shaft, a rotatable member on the mount constantly engaging said rod and means whereby said member is rotated by longitudinal movement of the rod in one direction and locked against rotation during the reverse longitudinal movement of the rod and said rod rotated.

9. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod moving with the gun and operatively engaging said shaft, a rotatable member on the mount constantly engaging said rod and means whereby said engagement between rod and member rotates said rod to open the breech during longitudinal movement of the rod.

10. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount, of a rotatable rod operatively engaging said shaft, means on the mount directly engaging said rod to rotate same to open the breech and means energized by said rotation of the rod to rotate same to close the breech.

11. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod operatively engaging said shaft, means on the mount directly engaging said rod for automatically actuating same to open the breech, means for locking the breech mechanism in open position and means for automatically closing the breech mechanism when released.

12. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod operatively engaging said shaft and means on the

mount directly engaging said rod whereby said rod is rotated to open the breech after discharge of gun.

13. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a longitudinal rotatable rod moving with the gun and operatively connected with said shaft, and means on the mount engaging the rod adapted to rotate said rod during its longitudinal movement in one direction and ineffective to rotate said rod during its longitudinal movement in the reverse direction.

14. The combination with a breech-loading gun and a recoil-mount; of a rotatable rod operatively engaging the breech mechanism and moving with the gun, a rotatable member on the mount engaging guides on said rod and adapted to be rotated by movement imparted to the rod in one direction by the gun after discharge, and means for locking said member against rotation during the reverse movement imparted to the rod whereby said rod is rotated.

15. The combination with a breech-loading gun and a recoil-mount; of a rotatable rod operatively engaging the breech mechanism and moving with the gun, a rotatable member on the mount engaging guides on said rod and adapted to be rotated by movement of the rod in one direction, and means for locking said member against rotation during reverse movement of the rod whereby said rod is rotated.

16. The combination with a breech-loading gun, a transverse operating-shaft for the breech mechanism, and a recoil-mount; of a rotatable rod operatively engaging said shaft and moving with the gun, means for utilizing longitudinal movement of the rod after firing to rotate same to open the breech, a spring for rotating same to close the breech, means for locking said rod against the influence of said spring, and means for automatically releasing said rod to the influence of said spring.

17. The combination with a breech-loading gun and a recoil-mount; of a rotatable rod operatively engaging the breech mechanism and moving with the gun, a bushing journaled in the mount engaging the rod and adapted to be rotated by longitudinal movement of the rod in one direction, and means for locking said bushing against rotation during the reverse longitudinal movement of the rod whereby said rod is rotated.

18. The combination with a breech-loading gun, a recoil-mount, and automatic opening and closing apparatus for the breech mechanism; of a latch normally adapted to automatically engage the breech mechanism to retain same in open position, and means for restraining said latch from engagement with the breech mechanism.

19. The combination with a breech-loading gun, a recoil-mount, and automatic opening and closing apparatus for the breech mechanism; of a latch automatically retaining the breech mechanism in open position and adapted to be tripped by hand in the operation of loading and means for locking the latch in inoperative position.

20. The combination with a breech-loading gun, a recoil-mount, and automatic opening and closing apparatus for the breech mechanism; of a shaft journaled on the gun having a toe at one extremity, a spring rotatively engaging the shaft to deflect the toe into engagement with the breech mechanism when the breech opens and means for releasing the engagement of toe with breech mechanism by hand in the operation of loading.

21. The combination with a breech-loading gun, a recoil-mount, and automatic opening and closing apparatus for the breech mechanism; of a shaft journaled on the gun having a toe at one extremity, a spring rotatively engaging the shaft to deflect the toe to hold the breech mechanism in open position and a tripping-vane at the other extremity of the shaft adapted to be engaged by the hand in the operation of loading to trip the toe and permit the closing of the breech.

22. The combination with a breech-loading gun; of a swinging carrier pivoted to the gun by a hinge-pin, a revoluble breech-block mounted on the carrier, an actuating-bar mounted to slide transversely in the carrier and engaging the breech-block, a lever for swinging said carrier about its pivot, a stud on the lever engaging a slot in the actuating-bar whereby movement of the lever slides the actuating-bar to rotate the breech-block, said slot having its inner end curved about the center of the hinge-pin whereby transmission of motion from the breech-block to the lever is prevented when the block is closed.

23. The combination with a breech-loading gun and a recoil-mount; of a rotatable rod operatively engaging the breech mechanism, means for rotating the rod in one direction to open the breech and a spring energized by said rotation to rotate the rod to close the breech, said spring having one end secured to the rod and the other end to a ratchet-wheel loosely mounted on the rod, a pawl pivoted to the gun adapted to engage said ratchet-wheel to lock same against rotation from the influence of the spring and whereby rotation of the ratchet-wheel against the tendency of the spring adjusts the tension of said spring.

24. The combination with a breech-loading gun and a recoil-mount; of a swinging carrier supporting the breech mechanism and pivoted to the gun by an operating-shaft, a rotatable rod having a gear meshing with a gear carried by the shaft, whereby the breech mechanism is actuated, and means for slidably adjusting the gear on the shaft into and out of mesh with the rod-gear.

25. The combination with a breech-loading gun and a recoil-mount; of a swinging carrier supporting the breech mechanism and pivoted to the gun by an operating-shaft, a sleeve carrying a gear slidable on the shaft, a rotatable rod having a gear adapted to mesh with the shaft-gear whereby the breech mechanism is actuated, and means for adjusting said sleeve on the shaft to bring the gear carried thereby into and out of mesh with the rod-gear.

26. The combination with a breech-loading gun and a recoil-mount; of a swinging carrier supporting the breech mechanism and pivoted to the gun by an operating-shaft, a sleeve carrying a gear slidable on the shaft, a rotatable rod having a gear adapted to mesh with the shaft-gear, whereby the breech mechanism is actuated, an eccentric-shaft journaled in said sleeve and engaging a transverse slot in the operating-shaft and adapted by its rotation to move the gear carried by the sleeve into and out of engagement with the rod-gear.

27. The combination with a breech-loading gun, a mount on which the gun recoils, and automatic opening and closing apparatus for the breech mechanism; of a latch automatically retaining the breech mechanism in open position and means for tripping said latch situated out of the path of travel of the closing breech mechanism and adapted to be actuated by the hand of the loader during its movement after the insertion of the charge.

784,363. BRAKE-SHOE. JAMES S. THOMPSON, Chicago, Ill., assignor to American Brake Shoe & Foundry Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 6, 1904. Serial No. 201,924.



Claim.—1. A brake shoe comprising a hollow cast shell having a non-metallic composition filling in the face thereof, and a backing consisting of ductile metal rods cast in the shell, substantially as described.

2. In a brake shoe, the combination of a hollow cast shell, a composition filling therein for the wearing face of the shoe, a strengthening back comprising a series of malleable bars buried in the cast metal, and an attaching lug comprising a malleable metal strap with its ends anchored under said back rods, substantially as described.

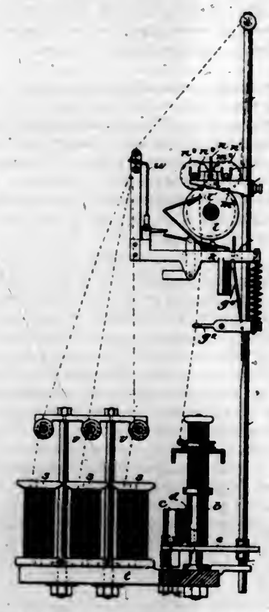
3. In a brake shoe the combination with a cast shell and a composition body therein, of a backing consisting of embedded steel bars and an attaching lug consisting of a steel strap with its ends embedded and engaging the bars of the back.

784,364. DOUBLING AND TWISTING MACHINE. JOSEPH E TYNAN, Paterson, N. J. Filed Apr. 8, 1904. Serial No. 202,251.

Claim.—1. A plurality of bobbins containing threads to be doubled and twisted, said bobbins being so placed that their respective threads may be drawn from their respective heads, supports for the bobbins, suitable guides for the threads leading from the bobbins, a guide in which the threads are doubled, a feeding mechanism consisting of two driven rollers around which the double thread is passed, a twisting-spindle, and a stop-motion for the feeding and twisting mechanism, in combination with a brake, automatically brought into action at the time of the operation of the stop-motion mechaniam, to bear against parts of the driven rollers distant from the wrappings of thread thereon, to stop the momentum of the rollers when they are separated from their driving means, for the purpose described.

2. The driving-belt *d*, adapted to drive a row of spindles, means for driving the belt, the spindle *b*, mounted inside of said belt, the vertical rod *g*, capable of vertical movement, the spring-actuated

hinged lever *e*, having its hinge outside of the belt *d* and extending under said belt *d* to a point in proximity to the vertical rod *g* in combination with the pressure-pulley *c*, mounted on the lever *e* outside of the belt *d*, and adapted to press against the belt opposite the spindle *b* to drive the spindle, and means to cause the vertical movement of the rod *g* to move the lever *e* against the force of its actuating-spring.



3. A spindle, a driving-belt therefor and means for automatically forcing the belt against the spindle to drive the spindle, comprising a pressure-pulley upon a hinged lever, arranged to swing in a horizontal plane into and out of engagement with the belt at a point opposite the spindle, and actuated by spring-pressure to press against the belt to cause the belt to drive the spindle, in combination with automatic means to swing the hinged lever and carry the pressure-pulley from the belt, and a brake carried by the hinged lever arranged to engage the periphery of the spindle when the pressure-pulley is swung out of engagement with the belt.

4. A row of spindles placed in a straight line, a belt, adapted to run parallel with said row of spindles, means for driving the belt, a series of pressure-pulleys, one of said pulleys being in front of and having relation to each of said spindles, a series of hinged levers, each of said levers carrying one of said pressure-pulleys, and a series of brakes, one of said brakes being mounted on each of said hinged levers, the hinge of each lever, the brake upon the lever, and the pressure-pulley upon the lever, being so related to each other that when the lever is moved upon its hinge in one direction it will move the pressure-pulley from the belt and bring the brake into contact with the spindle, and when the lever is moved upon its hinge in the opposite direction it will move the pressure-pulley against the belt opposite the spindle to which it relates to drive the spindle, and remove the brake from the spindle, in combination with means for moving the hinged lever.

5. The roller *l* and means for driving the same, rollers n' and n^3, about which the threads are wrapped, said rollers having gudgeons and resting on and being driven by contact with the roller *l*, and bearings for the gudgeons of the rollers n' and n^3, those parts of the rollers n' and n^3 about which the threads are wrapped overhanging one end of the roller *l*, in combination with a brake-piece beneath and adjacent to those ends of the rollers n' and n^3 farthest from the wrappings of thread thereon, and means, brought into operation when the feeding mechanism of the machine is to be stopped, to raise such rollers from contact with the roller *l*, the ends of the rollers about which the threads are wrapped being raised by elevating the gudgeons of the rollers, and the other ends of the rollers being raised by the brake-piece coming into contact with and elevating their peripheries.

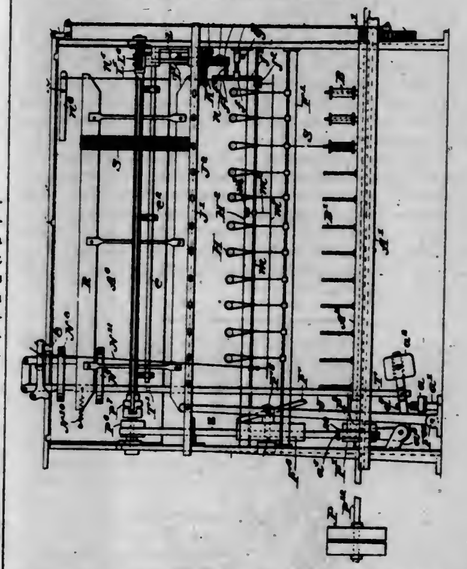
6. The feed-roller-lifting bracket *m* secured to the rod *g* and having the brake-arm m' and the arm m^3 and carrying the bracke *n*, the driving-roller *l* and the rollers n' and n^3, mounted in the bracket *n* and in contact when running with the roller *l*, in combination with means, brought into operation when the parts are to be stopped, to raise the brackets *m* and *n*, bringing the brak-arm m' into contact with the peripheries of the rollers n' and n^3, and raising said rollers from contact with the roller *l*.

7. The roller *l* and means for driving the same, the flanged feed-rollers n' and n^3, adapted to be driven by the roller *l*, and supports for the feed-rollers n' and n^3, the parts being so arranged that the flange on the roller n' is out of alinement with the flange on the roller n^3.

8. The roller *l* and means for driving the same, the flanged feed-rollers n' and n^3, adapted to be driven by the roller *l*, and so mounted that the portions thereof about which the threads are to be wrapped overhang the roller *l*, the parts being so arranged that the flange on the roller n' is out of alinement with the flange on the roller n^3.

9. A stop-motion mechanism having fallers for the threads, the feed-rollers n' and n^3 and means for driving the same, and the spindle *b*, in combination with the rod *g*, the doubling-guide *u* secured to the rod *g* and so located as to receive the threads that leave the fallers, assemble them and guide them to the feed-rollers, and means, brought into action by the operation of the stop-motion mechanism, to impart vertical motion to the rod *g* and thereby raise the feed-rollers and the doubling-guide *u* at the time of stopping the spindle, substantially as and for the purpose described.

784,365. REELING-MACHINE. JOSEPH E. TYNAN, Paterson, N. J. Filed Aug. 19, 1904. Serial No. 221,423.



Claim.—1. In a reeling-machine the drop-rod T having the latch T^2 and the incline T^3, the ledge T^4 upon which the latch T^2 rests when the machine is running, means to move the latch upon the ledge when the drop-rod is raised, the pivoted upright N^7, the link N^6, connecting said pivoted upright with the drop-rod T, and the weighted lever N, pivoted upon the upright N^7, and having the tooth N', in combination with the link N^{11}, secured to the toothed end of the lever N, the reciprocating rod 7 having the lug 8, means for reciprocating the rod, and means to cause the link N^{11} to draw the tooth N' into the path of the lug 8, and, through connected operative mechanism, to stop the machine, substantially as and for the purpose described.

2. In a reeling-machine the rod *e* having supports e^3 and carrying the pins e' and e^3 or their equivalent, the bearing A^5, the reel R having the shaft R', a slide D, having the wing D^6 to close the top of the bearing A^5 in certain positions of the mechanism, and the slide D having the inclined portion *d*, adapted to slide between the pins e' and e^3 and move the rod *e* laterally, in combination with the drop-rod T having the lug T', said lug having a locking engagement with the rod *e*, substantially as and for the purpose set forth.

3. In a reeling-machine the rod *e* having supports e^3 and carrying the pins *c'* and e^3 or their equivalent, the slide D and means for sustaining the same, the slide D having the inclined portion *d*, adapted to slide between the pins *c'* and e^3 and move the rod *e* laterally, the pivoted lever K' actuated by the slide D, and carrying the stud K^4, the worm-wheel K revolving on the stud K^4, and the worm L^3, said worm and worm-wheel forming parts of a measuring device, in combination with the drop-rod T having the lug T', said lug coöperating with the rod *e* to form a lock operating in connection with the worm-wheel K, substantially as and for the purpose set forth.

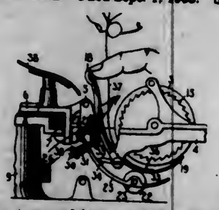
4. In a reeling-machine, the slide D, the pivoted lever K' having the stud K^3, the worm-wheel K revolving on the stud K^4, and having the lug K^5, the lug K^6 on the pivoted lever K', adapted to engage the lug K^5, the pin f^6 upon the worm-wheel K and a stop-motion mechanism, set in operation by impact of said pin, in combination with the worm L^3 and means for driving the same, said worm and worm-wheel forming parts of a measuring device, substantially as and for the purpose described.

5. The frame A, the bearing A^3, the reel R, the shaft R', the slide D having the wing D^2 adapted to close the top of the bearing A^3, the shoulder D^3 upon the slide D, a spring D^4, or its equivalent, actuating slide D, and means for sustaining the slide D in combination with the pivoted lever K', carrying the stud K^3, the worm-wheel K revolving on the stud K^4, and the worm L^3, said worm and worm-wheel forming parts of a measuring device, substantially as and for the purpose described.

6. The reel R and its shaft R', bearings for the shaft, the worm L^4 upon the shaft of the reel, the upright shaft L' and means for sustaining the same, the worm-wheel L^2 upon the upper end of the shaft L', and in gear with the worm L^4, the worm L^3 at the lower end of the shaft L', the pivoted lever K' carrying the stud K^3, the worm-wheel K mounted on the stud K^4, and driven by the worm L^3, the pin f^6 upon the worm-wheel K, the stud *f*, the lever *f'*, having the fingers f^3 and f^4 and swinging on the stud *f*, the rock-lever *m* having the bar m^2, and means to cause the reel to revolve, in combination with a stop-motion mechanism operated by the rock-lever, substantially as and for the purpose described.

7. The lever n^2 pivoted at n^3, the lever *f'* having the arms f^3 and f^4, and the link *n*, connecting one end of the lever n^2 with the lever *f'*, in combination with the worm-wheel K and its bearing, said worm-wheel forming part of a measuring device and carrying the pin f^4 to press against the arm f^4 of the lever *f'* at a certain period of the revolution of the wheel K, and so move the lever *f'*, and, through the medium of the link *n*, pull down one end of the lever n^2, substantially as and for the purpose described.

784,366. TYPE-WRITING MACHINE. GEORGE B. WEBB, Westfield, N. J., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Sept. 1, 1903. Serial No. 171,508.



Claim.—1. In a type-writing machine, the combination of a fixed paper-stop for arresting the leading edge of the paper, and means for forcing the paper away from the stop after the paper is arrested thereby.

2. In a type-writing machine, the combination of a fixed paper-stop adapted to arrest the leading edge of the paper, a paper-feeding device, and means for moving said paper-feeding device into and out of operative position, the construction and arrangement of the parts being such that the leading edge of the paper is adapted to be arrested by said stop when the paper-feeding device is in the inoperative position.

3. In a type-writing machine, the combination of a fixed paper-stop adapted to arrest the leading edge of the paper, a paper-feeding device, and means for moving said paper-feeding device into and out of operative position, the construction and arrangement of the parts being such that the leading edge of the paper is adapted to be arrested by said stop when the paper-feeding device is in the inoperative position and the act of moving the paper-feeding device to the operative position is effective to release the paper from said paper-stop.

4. In a type-writing machine, the combination of a platen, a fixed paper-stop and a paper-feeding device forward of the paper-stop and which is adapted to move the paper away from the stop and into contact with the platen, and hand-operated means for moving said paper-feeding device.

5. In a type-writing machine, the combination of a platen, a paper-apron, a paper-stop carried thereby, a paper-feeding device between the paper-stop and the point where the paper is introduced and which is adapted to move the paper away from the stop and into contact with the platen, and means for moving said paper-feeding device.

6. In a type-writing machine, the combination of a platen, a paper-apron which extends substantially throughout the length of the platen, alined paper-stops which are carried by said paper-apron and which extend therefrom at various points throughout the length thereof, a paper-feeding device located forward of the stops, considered with relation to direction of line-feed of the paper, and hand-operated means for moving said paper-feeding device into and out of contact with the platen and for moving the paper away from said stops and into contact with the platen.

7. In a type-writing machine, the combination of a platen, an apertured paper-apron which extends substantially throughout the length of the platen, alined paper-stops which project from the face of said paper-apron adjacent to the apertures therein, and which extend at various points throughout or substantially throughout the length thereof, paper-feeding rollers located forward of the stops considered with relation to direction of line-feed of the paper, and hand-operated means for moving said paper-feeding rollers into and out of contact with the platen and for moving the paper away from said stops and into contact with the platen.

8. In a type-writing machine, the combination of a platen, a fixed paper-apron, and a stop fixed to and projecting from the face of the paper-apron and adapted to arrest the leading edge of the paper.

9. In a type-writing machine, the combination of a platen, a paper-apron, a stop fixed to and projecting from the face of the paper-apron and adapted to arrest the leading edge of the paper, and means for moving the leading edge away from and out of contact with said fixed stop.

10. In a type-writing machine, the combination of a platen, a paper-apron, a stop fixed to and projecting from the face of the paper-apron and adapted to arrest the leading edge of the paper, and a paper-feed roller that is adapted to be moved into and out of contact with the platen and to move the leading edge of the paper away from and out of contact with said fixed stop.

11. In a type-writing machine, the combination of a platen, a paper-apron, a portion of which conforms generally to the contour of the platen and which receives the paper and guides it to the platen, a paper-stop which is fixed to and projects from the face of the paper-apron toward said platen and is adapted to arrest the leading edge of the paper, and coöperating paper-feeding devices.

12. In a type-writing machine, the combination with a platen, of a fixed paper-stop that is at all times out of contact with the platen and is adapted to arrest the leading edge of the paper.

13. In a type-writing machine, the combination with a platen, of a fixed paper-stop that is at all times out of contact with the platen and is adapted to arrest the leading edge of the paper, and a paper-feeding device that is adapted to move the leading edge of the paper away from the paper-stop and to press the paper against the platen.

14. In a type-writing machine, the combination of a platen, a fixed apertured paper-apron, a series of fixed stops secured to said paper-apron and at all times out of contact with the platen and adapted to arrest the leading edge of the paper, paper-feed rollers that project through the apertures in said paper-apron and which are adapted to move the leading edge of the paper away from the paper-stops and to press it against the platen, and means for moving the paper-feed rollers into and out of contact with the platen.

15. In a type-writing machine, the combination of a platen, a coöperating paper-feed roller, a pivoted paper-feed-roller hanger having a perforation therein, a screw that extends loosely through the perforation in said hanger, a thumb-nut on said screw, and a spring interposed between said thumb-nut and hanger.

16. In a type-writing machine, the combination of a platen, a coöperating paper-feed roller, a pivoted detachable paper-feed-roller hanger having a perforation therein, a screw that extends loosely through the perforation in said hanger, a removable thumb-nut on said screw, and a spring interposed between said thumb-nut and hanger, whereby an adjustment of said thumb-nut affords a variation in the pressure of the spring on said hanger and a removal of the thumb-nut affords a removal of the hanger.

17. In a type-writing machine, the combination of a platen, a platen-frame having a bearing, a feed-roll hanger that is pivoted and bears loosely in the bearing of the platen-frame, a paper-feed roller carried by the hanger, and a spring that retains said hanger in place in its bearing and exerts a pressure to maintain the feed-roller in contact with the platen.

18. In a type-writing machine, the combination of a platen, a platen-frame having a substantially V-shaped bearing or recess therein, a feed-roll hanger that has an end which is loosely seated in the bearing of the platen-frame and provides a pivotal connection on which the hanger swings, a paper-feed roller carried by the hanger, and a spring that retains said hanger in place in its bearing or recess and exerts a pressure to maintain the feed-roller in contact with the platen.

19. In a type-writing machine, the combination of a platen, a platen-frame having a substantially V-shaped bearing or recess therein, a perforated feed-roll hanger that has an end which is loosely seated in the bearing of the platen-frame and provides a pivotal connection on which the hanger swings, a paper-feed roller carried by the hanger, a screw that passes freely through the perforation in the hanger, a thumb-nut on the screw, and a spring interposed between the thumb-nut and hanger.

20. In a type-writing machine, the combination of a platen, a platen-frame having a substantially V-shaped bearing or recess therein, a perforated feed-roll hanger that has an end which is loosely seated in the bearing of the platen-frame and provides a pivotal connection in which the hanger swings, a paper-feed roller carried by the hanger, a screw that passes freely through the perforation in the hanger and takes into a threaded opening in the platen-frame, a removable thumb-nut on the screw, and a coiled spring surrounding said screw and interposed between the thumb-nut and hanger, whereby an adjustment of the thumb-nut affords a variation in the pressure of the spring on the hanger and a removal of the thumb-nut affords a removal of the hanger and feed-roll.

21. In a type-writing machine, the combination of a platen, a paper-feeding device, and a paper-stop that is at all times maintained out of contact with the platen and against which the leading edge of the paper is adapted to abut when the paper-feeding device is thrown out of coöperative relation with the platen; the construction and arrangement being such that when the paper-feeding device is released to coöperate with the platen, it carries the paper away from the stops and against the surface of the platen.

22. In a type-writing machine, the combination of a platen, a paper-stop that remains at a fixed distance from the platen and against which the leading edge of the paper is adapted to abut, and means for rendering the stop effective to arrest the leading edge of the paper and to force the paper out of contact with said stop.

23. In a type-writing machine, the combination of a platen, a paper-stop that remains at a fixed distance from the platen and against which the leading edge of the paper is adapted to abut, and a paper-feeding device that is adapted to determine when the paper-stop may be employed to arrest the leading edge of the paper.

24. In a type-writing machine, the combination of a platen, a paper-stop that remains at a fixed distance from the platen and against which the leading edge of the paper is adapted to abut, and a paper-feeding device that is adapted to determine when the paper-stop may be employed to arrest the leading edge of the paper and which is also operative to effect a disengagement between the paper and stop.

25. In a type-writing machine, the combination of a platen, a paper-stop that remains at a fixed distance from the platen and against which the leading edge of the paper is adapted to abut, and a paper-roller which is movable to and from operative position and exposes the stop for coöperation with the leading edge of the paper when the said roller is thrown back to the inoperative position and is effective to move the paper from coöperation with the stop when said roller moves to coöperative relation with the platen.

784,367. DUMB-BELL. AUGUSTINE F. WILLIAMS, New York, N. Y. Filed Aug. 10, 1904. Serial No. 220,165.

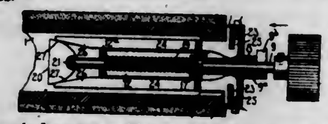


Claim.—1. A light dumb-bell comprising a cylindrical body of elastic and resilient material, air-tight spaces formed therein, and a canvas lining on the interior of said air-tight spaces.

2. A light dumb-bell comprising a cylindrical body of elastic and resilient material having an enlarged ball at each end, a spiral metallic core embedded in its center, a disk at each end of said spiral, and air-tight tubes between said spiral and the surface of the body.

3. A light-weight dumb-bell comprising a cylindrical body made of elastic and resilient material, air-tight spaces formed within said body, and a ring provided in the center portion of same.

784,368. TYPE-WRITING MACHINE. OSCAR WOODWARD, New York, N. Y., assignor to Densmore Typewriter Company, Syracuse, N. Y., a Corporation of New York. Filed Dec. 30, 1902. Serial No. 137,132.



Claim.—1. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, and means for moving said jaws.

2. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, a lever-arm to which said jaws are connected, and means for moving said lever-arm.

3. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, a lever that extends longitudinally of the platen, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, and means for effecting a lateral movement of the free end of said lever.

4. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange projecting therefrom, a lever which is provided with a transverse groove in which said flange is seated, and means for moving said lever.

5. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-projecting flange, a lever that extends longitudinally of the platen and which is provided with a transverse groove in which said flange is seated, and means for moving said lever transversely of the platen to effect the engagement and disengagement thereof from the flange.

6. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange, a plurality of levers, clamping-jaws carried by each of said levers and adapted to engage the flange on opposite sides or faces thereof, and an actuating device that coöperates with said levers to effect an engagement or disengagement between the clamping-jaws and said flange.

7. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed flange, a plurality of levers that extend longitudinally of the platen, clamping-jaws carried by each of said levers and adapted to engage the flange on opposite sides or faces thereof, and a spring-pressed actuating device that coöperates with said levers to automatically effect an engagement between the clamping-jaws and said flange, and hand-actuated means for effecting a disengagement of the jaws from said flange.

8. In a type-writing machine, the combination of a platen, a platen-head secured thereto and which has a channel therein, a lever seated in said channel so that the lever is connected to turn with the platen and may receive a movement independent thereof, a line-spacing wheel having an annular flange which is seated in a groove in said lever, and a finger-wheel operatively connected to afford a transverse movement of the free end of said lever to effect an engagement or disengagement between the lever and said flange.

9. In a type-writing machine, the combination of a platen, a shaft, a line-spacing ratchet-wheel, a plurality of engaging devices that rotate with the platen and which are adapted to engage said line-spacing wheel and an actuating device that is supported by said shaft and is adapted to receive a movement independently and laterally thereof and to bear upon said engaging devices to afford an actuation thereof, whereby the pressure is equally exerted upon said engaging devices.

10. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of engaging levers that extend longitudinally of the platen and rotate with it and which are provided with means adapted to engage said line-spacing wheel, a

longitudinally-movable shaft and an actuating device that is connected to said shaft and is adapted to move independently and laterally thereof and to bear upon said levers.

11. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of engaging devices that rotate with the platen and which are adapted to engage said line-spacing wheel, a shaft and a wedge that is pivoted to said shaft and is adapted to bear or press equally upon said engaging devices.

12. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of engaging devices that are adapted to engage the line-spacing ratchet-wheel or to be disengaged therefrom, a longitudinally-movable shaft that is connected to rotate with the platen, an actuating device carried by said shaft and movable independently thereof in directions transverse thereto and adapted to bear or press on the engaging devices, and a finger-wheel connected to said shaft.

13. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of levers that extend longitudinally of the platen and each of which is provided with means adapted to engage the line-spacing ratchet-wheel or be disengaged therefrom, a longitudinally-movable shaft that is connected to rotate with the platen, an actuating device carried by said shaft and movable independently thereof in directions transverse thereto and adapted to bear or press on said levers, a spring exerting its tension on the shaft and effective to normally maintain the engaging devices locked to the line-spacing wheel, and a finger-wheel connected to said shaft and effective to turn the platen and to move the shaft longitudinally against the tension of its spring in order to release the engaging devices from the line-spacing wheel.

14. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a freely-disposed and unpivoted lever, clamping-jaws carried by said lever and coöperating with the line-spacing wheel, and means for actuating said lever.

15. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an annular flange, a U-shaped clamp that coöperates with said flange, an integral lever-arm connected to said U-shaped clamp, and means for affording a lateral movement of said lever.

16. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, oppositely-disposed U-shaped clamps which coöperate with said flange, an integral lever-arm connected to each of said clamps, and means for affording a lateral movement of the free ends of said lever-arms to effect an engagement and disengagement of the clamps on said flange.

17. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, oppositely-disposed U-shaped clamps which coöperate with said flange, an integral lever-arm connected to each of said clamps, an actuating device interposed between the free ends of said lever-arms, a shaft to which said actuating device is connected, and a finger-wheel connected to said shaft.

18. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, oppositely-disposed U-shaped clamps which coöperate with said flange, an integral lever-arm connected to each of said clamps, a platen shaft or spindle that is connected to rotate with the platen and to move longitudinally independently thereof, a finger-wheel connected to said shaft, a spring that effects a longitudinal movement of the shaft, and an actuating device connected to the shaft and adapted to bear on said lever-arms and to effect an engagement of the clamps on the flange.

19. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, a lever contained within the platen and extending longitudinally thereof, an integral U-shaped clamp that extends at substantially right angles to the length of the lever and coöperates with said annular flange, and hand-controlled means for acting on said lever.

20. In a type-writing machine, the combination of a platen, a platen-head secured thereto and having a channel therein, a line-spacing ratchet-wheel having an inwardly-directed annular flange, a lever loosely seated in the channel in the platen-head and extending longitudinally of the platen, an integral U-shaped clamp that extends at substantially right angles to the length of the lever and coöperates with said annular flange, a platen shaft or spindle that rotates with the platen and moves longitudinally thereof, and means controlled by the longitudinal movement of the shaft for effecting a lateral movement of said lever.

21. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an annular flange that projects inwardly therefrom, oppositely-disposed U-shaped clamps that coöperate with said flange, an integral lever-arm connected to each clamp, said lever-arms being contained within the platen and extending longitudinally thereof, an actuating device intermediate of said lever-arms, a shaft that rotates with the platen and moves longitudinally thereof and to which said actuating device is connected, a spring for effecting a longitudinal movement of the shaft in one direction, and a finger-wheel connected to said shaft and adapted to move it in the opposite direction against the tension of said spring.

22. In a type-writing machine, the combination of a platen, a platen-head secured to the platen and having channels therein, a line-spacing ratchet-wheel having an annular flange that projects inwardly therefrom, oppositely-disposed U-shaped clamps that coöperate with said flange, an integral lever-arm connected to each clamp, said lever-arms being loosely seated in channels in the platen-head and extending longitudinally of the platen, an actuating device intermediate of said lever-arms, a shaft that rotates with the platen and moves longitudinally thereof and to which said actuating device is connected to move laterally and independently of said shaft, a spring for effecting a longitudinal movement of the shaft in one direction, and a finger-wheel connected to said shaft and adapted to move it in the opposite direction against the tension of said spring to release the clamps from engagement with the flange.

23. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel provided with a flange, levers with gripping-jaws operating on the flange of the ratchet-wheel, a spring-pressed shaft, a wedge carried loosely by said shaft and coöperating with the levers to cause the jaws to bite and hold the flange, and a finger-wheel adapted to thrust the shaft against the action of its spring and rotate the platen when the jaws release the flange of the ratchet-wheel.

24. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel provided with a flange, levers each having a pair of gripping-jaws adapted normally to grip or bind the flange on opposite faces thereof and means for operating the levers to release the jaws so that they may travel around the flange and permit the platen to be rotated independently of the ratchet-wheel.

25. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a flange on the ratchet-wheel, levers provided with gripping-jaws to engage the flange of the ratchet-wheel, a shaft arranged to move longitudinally of the platen and carrying a wedge adapted to act on the inner ends of the levers and force the jaws to bite and bind the flange of the ratchet-wheel, and means for connecting the platen and shaft so that the two will at all times rotate in unison.

26. In a type-writing machine, the combination of the platen, a line-space ratchet-wheel, a flange on said ratchet-wheel and which extends toward the axis of the platen, a platen-head with hubs, one of which forms a bearing for said flange, levers carrying gripping-jaws, an actuating device for operating the gripping-levers, a shaft carrying the wedge, a spring, a finger-wheel, and means for connecting the shaft with the platen so that they may rotate in unison.

27. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a flange on the ratchet-wheel, levers provided with gripping-jaws adapted to engage the flange, a platen-head provided with channels for the reception of the levers, a spring-pressed shaft and a loosely-disposed actuating device carried by the shaft, and acting on the inner ends of the gripping-levers to spread them so as to force each lever to sustain the pressure which is exerted on the other.

28. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a flange on said ratchet-wheel, gripping-levers provided with jaws for engaging said flange, a platen-head provided with a hub around which the flange of the ratchet-wheel is adapted to rotate, said platen-head having channels for the reception of the gripping-levers, a stirrup carried by said platen-head and having a slot in its side and a perforation in its end, a shaft which passes through said perforation and provided with a finger to travel in said slot, an actuating device on the shaft for spreading the gripping-levers, a spring carried by said shaft between the end of the stirrup and finger and a finger-wheel on the end of said shaft, whereby the shaft may be moved longitudinally independently of the platen to release it from the line-spacing ratchet-wheel and may be rotated to turn the platen.

29. In a type-writing machine, the combination of a platen, a platen-head provided with hubs and channels, a ratchet-wheel having a flange or web supporting said ratchet-wheel on the hub of the platen-head, levers carried in the channels of said platen-head and provided with gripping-jaws adapted normally to engage the flange of the ratchet-wheel and lock the flange to the platen-head, and means for releasing the jaws from the flange.

30. In a type-writing machine, the combination of a platen, a platen-head, a line-spacing ratchet-wheel provided with a flange which is adapted to be locked to the platen-head, levers with locking-jaws, a shaft carrying an actuating device adapted to operate said levers to lock and unlock the jaws, and means for connecting said shaft and the platen-head and to at all times prevent a relative turning movement between said shaft and platen-head whereby the shaft and platen will at all times be turned together.

31. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange, an end plate, levers having locking-jaws at their ends to engage the flange and inclined faces at their inner ends, means for automatically moving said levers to effect a gripping of the flange by the jaws, and means for relieving the pressure of the lever-moving means and effecting the release of the flange.

32. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange, a platen-head carrying levers that extend longitudinally of the platen and are provided with lateral jaws for engaging said flange, and an actuating device that moves longitudinally of the platen and coöperates with said levers for automatically spreading the levers and causing the jaws to simultaneously and uniformly grip the flange.

33. In a type-writing machine, the combination of a platen and ratchet-wheel adapted to be locked to turn in unison, said ratchet-wheel having a flange, loosely-disposed levers with locking-jaws, an actuating device coöperating with said levers, a shaft carrying said actuating device, and a spring for moving said shaft to cause said jaws to grip said flange.

34. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a shaft provided with a finger-wheel, a guide-finger, a coiled spring, an actuating device carried by the shaft, a platen-head secured to the platen and provided with hubs and having channels and an opening for the passage of the shaft; a stirrup carried by the platen-head and adapted to guide the shaft and its finger, and means controlled by said actuating device for automatically effecting a locking between the ratchet-wheel and the platen-head.

35. In a type-writing machine, the combination of a line-space ratchet-wheel provided with a flange, a platen carrying within its hollow core means for normally locking it to the ratchet-wheel and comprising a platen-head secured to the platen, locking-levers loosely seated in sockets or channels in the platen-head and having jaws which are adapted to engage the flange of the line-spacing ratchet-wheel, an actuating device operating on the inner ends of the levers, a shaft carrying the actuating device and provided with a spring to hold the actuating device in position between the ends of the levers, and means for releasing the actuating device and unlocking the jaws.

36. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel having a flange, levers provided at their outer ends with gripping-jaws that coöperate with said flange and having cams at their inner ends, a platen-head having channels for the reception of said levers, a shaft carrying an actuating device operating on the cams on said levers, a stirrup carried by the platen-head and adapted to guide the shaft, and means for effecting a longitudinal movement of said shaft.

37. In a type-writing machine, the combination of a platen carrying a platen-head provided with holes and channels, a line-space ratchet-ring with an internal flange, levers that extend longitudinally of the platen and each having at one end jaws which engage the flange, a shaft passing through the end plate and provided with means for preventing its rotation therein, a finger-wheel, a spring on said shaft, and an actuating device carried loosely on the shaft and adapted to be automatically moved and forced to bear against the free ends of the locking-levers and cause the jaws to bind the flange of the wheel.

38. In a type-writing machine, the combination of a platen, a platen-head, a ratchet-ring having a flange, levers each having gripping-jaws at one end and a cam at the other, and a shaft carrying an actuating device that is adapted to move laterally with relation to said shaft and to engage the cams on said levers and cause the jaws to bite and hold the flange.

39. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a lever that is arranged longitudinally within the platen and which is brought into direct frictional engagement with the line-spacing ratchet-wheel, and means for actuating said lever.

40. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of levers that are arranged longitudinally within the platen and which are brought into direct frictional engagement with the line-spacing ratchet-wheel and exert a pressure thereon longitudinally of the platen, and hand-controlled means for actuating said levers.

41. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of bent levers having arms of different lengths and having their longer arms extended longitudinally of the platen and their shorter arms arranged to frictionally engage with the line-spacing ratchet-wheel and exert a pressure thereon longitudinally of the platen, and means for actuating said levers.

42. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, levers that extend longitudinally of the platen and which are brought into direct frictional engagement with the line-spacing ratchet-wheel, a finger-wheel, and a wedging device controlled by said finger-wheel for acting on said levers.

43. In a type-writing machine, the combination of a platen, a line-spacing wheel, means for binding said wheel and causing it to turn with said platen, a lever operatively connected to said wheel-binding means and extending longitudinally within the platen, a spring-pressed shaft, and means operated by said shaft for actuating said lever and normally causing the said binding means to act on the said line-spacing wheel so as to cause the latter and the platen to turn together; said shaft being adapted to be moved longitudinally to release the said lever and said binding means and enable the platen to be turned independently of said line-spacing wheel.

44. In a type-writing machine, the combination of a platen, a line-spacing wheel, a platen-head permanently secured to said platen, binding means carried by said head and adapted to engage said line-spacing wheel and cause it normally to turn with said platen, levers arranged longitudinally within said platen and carried by said head and operatively connected to said binding means for actuating the same, a platen-shaft having a bearing in said head, means controlled by said platen-shaft for acting on said levers to cause said binding means to engage said line-spacing wheel, and a spring acting on said shaft and lever-actuating means for normally causing engagement between said binding means and said line-spacing wheel so as to enable the latter and the platen to turn together; said shaft being adapted to be moved longitudinally against the tension of its spring to release said binding means and enable the platen to be turned independently of the line-spacing wheel.

45. In a type-writing machine, the combination of a platen, a line-spacing wheel, a bent lever having one arm arranged longitudinally of the platen and the other transversely thereof, and means for acting on the longitudinally-arranged arm and causing the transversely-arranged arm to press in a direction endwise of the platen and against the line-spacing wheel so as to bind the same by a frictional engagement.

46. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of bent levers having long arms extending lengthwise of the platen and shorter arms extending transversely thereof, and spring-pressed means acting on the longer arms of said levers and causing the shorter arms normally to press against the line-spacing wheel in the general direction of the length of the platen and to bind the same by a frictional engagement.

47. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of bent levers having long arms arranged lengthwise of the platen and shorter arms arranged transversely thereof, a spring-pressed sliding shaft, and means controlled thereby for acting on said levers and causing their shorter arms normally to press against the line-spacing wheel; the construction and arrangement being such that when the shaft is moved in opposition to its spring the pressure on the line-spacing wheel is relieved and the platen left free to be rotated independently of the line-spacing wheel.

48. In a type-writing machine, the combination of a platen, a line-spacing wheel, an unpivoted lever arranged both to fulcrum on and grip said line-spacing wheel, and a spring for causing the lever thus to act; the combination and arrangement being such that the full essential force of the spring is exerted directly on the said lever.

49. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of unpivoted levers arranged to fulcrum on and also to grip said wheel, and a spring acting equally on each of said levers and adapted to expend its entire essential force directly thereupon.

50. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of oppositely-disposed clamping-jaws arranged to fulcrum on and also to grip said wheel, and spring mechan-

ism for acting directly on said jaws and imparting thereto the full essential power of said spring.

784,369. TYPE-WRITING MACHINE. OSCAR WOODWARD, New York, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Nov. 22, 1903. Serial No. 183,309



Claim.—1. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to rotate with or independently of said line-spacing wheel, means for connecting the platen and line-spacing wheel to rotate together, controlling means comprising an actuator that is adapted to move longitudinally and transversely of the platen, said actuator carrying rollers that coöperate with said connecting means.

2. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to rotate with or independently of said line-spacing wheel, a spindle that is movable longitudinally of the platen and is connected to turn the same, a frame that is carried by said spindle and is freely movable in a direction at substantially right angles thereto, rollers carried by said frame, arms between which said frame is adapted to move, and against which said rollers bear, and grippers controlled by said arms.

3. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to rotate with or independently of said line-spacing wheel, a spindle, a guide-pin that projects from said spindle at substantially right angles thereto, an actuator mounted to move transversely of the spindle on said guide-pin, and clamping devices controlled by said actuator.

4. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to rotate with or independently of said line-spacing wheel, a spindle, a spring for moving said spindle in one direction, a guide-pin that projects from said spindle at substantially right angles thereto, an actuator mounted to move transversely of the spindle on said guide-pin, arms between which said actuator extends and clamping devices actuated by said arms.

5. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to rotate with or independently of said wheel, a spindle that is adapted to move longitudinally of said platen, a platen-head, a spring that surrounds said spindle and is connected at one end to the spindle and is directly connected at its opposite end to the platen-head, and engaging means controlled by said spindle, said engaging means being adapted to operatively connect the platen and line-spacing wheel.

6. In a type-writing machine, the combination of a line-spacing wheel, a platen-head on which said wheel is adapted to turn, a platen adapted to turn with or independently of said line-spacing wheel, a movable spindle, a coiled spring surrounding said spindle and connected thereto at one end, a threaded nipple on the platen-head to which the other end of said spring is connected, and engaging means controlled by said spindle, said engaging means being adapted to operatively conaect the platen and line-spacing wheel.

7. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, a spindle, and a frame carrying antifriction-rollers for controlling said clamping-jaws, said frame being carried by said spindle.

8. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, a spindle, a frame, one of said two last-mentioned parts carrying a guide-pin that extends at substantially right angles to the length of the spindle to afford a lateral movement of the frame, and means for affording an actuation of said jaws through said frame.

9. In a type-writing machine, the combination of a platen, a platen-head secured thereto and which has a channel therein, a lever seated in said channel so that the lever is connected to turn with the platen and may receive a movement independent thereof, a line-spacing wheel having an annular flange which is seated in a groove in said lever, an actuating device, and a finger-wheel operatively connected to said actuating device to afford a transverse movement of the free end of said lever to effect an engagement or disengagement between the lever and said flange, said actuating device comprising a frame carrying antifriction-rollers that coöperate with said levers.

10. In a type-writing machine, the combination of a platen, a platen-head secured thereto and which has a channel therein, a lever seated in said channel so that the lever is connected to turn with the platen and may receive a movement independent thereof, a line-spacing wheel having an annular flange which is seated in a groove in said lever, an actuating device, a finger-wheel operatively connected to said actuating device to afford a transverse movement of the free end of said lever to effect an engagement or disengagement between the lever and said flange, said actuating device comprising a frame carrying antifriction-rollers that coöperate with said levers, and a hand-operated spindle carrying said frame and with relation to which the frame is adapted to receive a movement at substantially right angles to the length of the spindle.

11. In a type-writing machine, the combination of a platen, a shaft, a line-spacing ratchet-wheel, a plurality of engaging devices that rotate with the platen and which are adapted to engage said line-spacing wheel, and an actuating device that is supported by said shaft and is adapted to receive a movement independently and laterally thereof and to bear upon said engaging devices to afford an actuation thereof, whereby the pressure is equally exerted upon said engaging devices, said actuating device comprising a frame carrying antifriction-rollers that bear against said engaging devices.

12. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of levers that extend longitudinally of the platen and each of which is provided with means adapted to engage the line-spacing ratchet-wheel or be disengaged therefrom, a longitudinally-movable shaft that is connected to rotate with the platen, an actuating device carried by said shaft and movable independently thereof in directions transverse thereto and adapted to bear or press on said levers, a spring exerting its tension on the shaft and effective to normally maintain the engaging devices locked to the line-spacing wheel, and a finger-wheel connected to said shaft and effective to turn the platen and to move the shaft longitudinally against the tension of its spring in order to release the engaging devices from the line-spacing wheel, said actuating device comprising a frame carrying antifriction-rollers that bear against the levers, and a pin that extends transversely of the shaft for guiding the frame in its transverse movement.

13. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel provided with a flange, levers with gripping-jaws operating on the flange of the ratchet-wheel, a spring-pressed shaft, a frame carrying antifriction-rollers, which frame is loosely carried by said shaft and the rollers on which coöperate with the levers to cause the jaws to bite and hold the flange, and a finger-wheel adapted to thrust the shaft against the tension of its spring and to rotate the platen independently of the ratchet-wheel when the jaws release the flange thereof.

14. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange, a platen-head carrying levers that extend longitudinally of the platen and are provided with lateral jaws for engaging said flange, and means for automatically spreading said levers and causing the jaws to simultaneously and uniformly grip the flange, said spreading means comprising a hand-operated spring-restored spindle and a frame carrying antifriction-rollers which bear against said levers, said frame having a movement transversely and independently of said spindle.

15. In a type-writing machine, the combination of a line-space ratchet-wheel provided with a flange, a platen carrying within its hollow core means for normally locking it to the ratchet-wheel and comprising a platen-head secured to the platen, grippers loosely seated in sockets or channels in the platen-head and having jaws which are adapted to engage the flange of the line-spacing ratchet-wheel, an actuating device operating on the inner ends of the levers, a shaft carrying the actuating device and provided with a spring to hold the actuating device in the operative position between the grippers, said actuating device comprising a frame carrying antifriction-rollers that bear upon the grippers, and which frame is adapted to move independently and transversely of said shaft, and means for releasing the actuating device and unlocking the jaws.

16. In a type-writing machine, the combination of a platen-head, a line-spacing wheel that is adapted to turn on said head, a platen that is adapted to turn with or independently of the line-spacing wheel, a spindle that is splined to the platen-head so as to afford a longitudinal movement of the spindle independently of the platen-head but to cause the spindle, platen-head and platen to rotate together, a nipple formed on the platen-head, a coiled spring surrounding the spindle and connected at one end thereto and at the other end to said nipple, a gripper that coöperates with the line-spacing

ratchet-wheel, and an actuating device carried by the spindle and coöperating with said gripper.

17. In a type-writing machine, the combination of a platen-head, a line-spacing wheel that is adapted to turn on said head, a platen that is adapted to turn with or independently of the line-spacing wheel, a spindle that is splined to the platen-head so as to afford a longitudinal movement of the spindle independently of the platen-head but to cause the spindle, platen-head and platen to rotate together, a nipple formed on the platen-head, a coiled spring surrounding the spindle and connected at one end thereto and at the other end to said nipple, grippers that coöperate with the line-spacing ratchet-wheel, and an actuating device carried by the spindle, said actuating device comprising a frame that carries antifriction-rollers which bear against the grippers and having a movement transversely and independently of said spindle.

18. In a type-writing machine, the combination of a line-spacing wheel, a platen which is adapted to turn with or independently of said line-spacing wheel, grippers for said wheel, and controlling means for said grippers, said controlling means comprising a spindle carrying a transverse pin, a frame that is adapted to move transversely and independently of said spindle and which is apertured for the reception of said spindle and has guide-openings for coöperation with said pin.

19. In a type-writing machine, the combination of a line-spacing wheel, a platen which is adapted to turn with or independently of said line-spacing wheel, grippers for said wheel, and controlling means for said grippers, said controlling means comprising a spindle carrying a transverse pin, a frame that is adapted to move transversely and independently of said spindle and which is apertured for the reception of said spindle and has guide-openings for coöperation with said pin, and antifriction-rollers carried by said frame and bearing against the grippers.

20. In a type-writing machine, the combination of a line-spacing wheel, a platen which is adapted to turn with or independently of said line-spacing wheel, grippers for said wheel, and controlling means for said grippers, said controlling means comprising a spindle carrying a transverse pin, an apertured frame which is struck up from a single piece of sheet metal and receives the spindle therethrough, said frame being carried by the pin and adapted to slide thereon transversely and independently of the spindle, and coöperating with said engaging devices.

21. In a type-writing machine, the combination of a line-spacing wheel, a platen which is adapted to turn with or independently of said line-spacing wheel, grippers for said wheel, and controlling means for said grippers, said controlling means comprising a spindle carrying a transverse pin, an apertured frame which is struck up from a single piece of sheet metal and receives the spindle therethrough, said frame being carried by the pin and adapted to slide thereon transversely and independently of the spindle, and antifriction-rollers carried by the frame on opposite sides of said spindle, and coöperating with said grippers.

22. In a type-writing machine, the combination of a line-spacing-wheel, a platen adapted to rotate with or independently of said line-spacing wheel, grippers for connecting the line-spacing wheel and platen, a spindle, and an actuator that is moved by the spindle and moves independently thereof at right angles to the spindle and coöperates with the grippers.

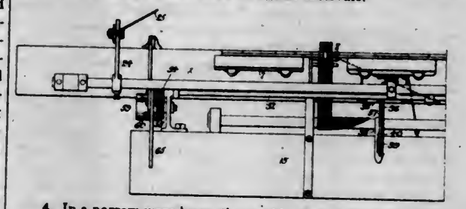
23. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to rotate with or independently of, a platen-head connected to the platen and having a groove therein, a spindle that moves in the platen-head and which has a spline or feather that extends into the groove in the platen-head, grippers adapted to connect the line-spacing wheel to the platen, and an actuator carried by the spindle and coöperating with the grippers.

784,370. LOOM. FREDERICK E. ENGEBRI, Philadelphia, Pa., assignor to E. L. Mansure Company, a Corporation of Illinois. Filed July 17, 1903. Serial No. 166,080.

Claim.—1. In a narrow-ware loom, the combination of the movable lay, a thread-carrier reciprocable in said lay, nippers mounted on said carrier at right angles thereto and arranged to engage a thread, a movable member, and an arm carried by said movable member and arranged to engage the nippers at regular intervals.

2. In a narrow-ware loom, the combination of the movable lay, a series of thread-carriers reciprocable therein, nippers mounted on each of said carriers at right angles thereto, a rock-shaft, and a series of arms carried by said rock-shaft and arranged to engage said nippers at regular intervals.

3. In a narrow-ware loom, the combination of the movable lay, a series of thread-carriers reciprocable therein, nippers mounted on each of said carriers at right angles thereto, a rock-shaft, a series of arms carried by said shaft and arranged to engage said nippers, and means for moving the rock-shaft at regular intervals.



4. In a narrow-ware loom, the combination of the movable lay, a series of thread-carrying members reciprocable therein, nippers carried by each of said members, a rock-shaft, a series of arms carried by said shaft and arranged to engage the nippers, means for holding said rock-shaft in the inactive position, and means for moving said rock-shaft at regular intervals.

5. In a narrow-ware loom, the combination of the movable lay, a series of thread-carrying members reciprocable therein, nippers carried by each of said members, a rock-shaft, a series of arms carried by said shaft and arranged to engage the nippers, a spring for holding said rock-shaft in the inactive position, a lever connected to said rock-shaft, and a cam for engaging said lever whereby the rock-shaft may be moved at regular intervals.

6. In a narrow-ware loom, the combination of the movable lay, a series of thread-carrying members reciprocable therein, nippers carried by each of said members, a rock-shaft, a series of arms carried by said shaft and arranged to engage the nippers, a spring for holding said rock-shaft in the inactive position, a lever, a cord passing over a pulley and connected at one end to said rock-shaft and at the opposite end to the lever, and a cam for engaging said lever whereby the rock-shaft may be moved at regular intervals.

7. In a narrow-ware loom, the combination of the movable lay, a thread-carrier reciprocable therein, means for alternately supplying said carrier with independently-disposed thread ends, guides for said thread ends, and means for moving said guides into and out of a position to direct the thread ends to the carrier, such means being coupled together so as to move one guide into the operative position as the other guide is moved out.

8. In a narrow-ware loom, the combination of the movable lay, a thread-carrier reciprocable therein, means for alternately supplying said carrier with independently-disposed thread ends, guides for said thread ends, paralleling rock-shafts carrying said guides, and means for operating said shafts so as to move said guides into and out of a position to direct the thread ends to a carrier, said shafts being coupled together so as to move one guide into the operative position as the other guide is moved out.

9. In a narrow-ware loom, the combination of the movable lay, a thread-carrying member reciprocable therein, means for supplying said carrier with thread, a pair of guides for said thread, rock-shafts carrying said guides, and means for moving said shafts alternately whereby the guides may be brought into the active and inactive positions with respect to the nippers, alternately.

10. In a narrow-ware loom, the combination of the movable lay, a thread-carrying member reciprocable therein, means for supplying said carrier with thread, a pair of guides for said thread, rock-shafts carrying said guides, hubs operatively connected to said shafts, and hooks carried by the lay and arranged to engage said hubs.

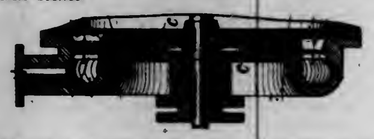
11. In a narrow-ware loom, the combination of the movable lay, a thread-carrying member reciprocable therein, means for supplying said carrier with thread, a pair of guides for said thread, rock-shafts carrying said guides, hubs operatively connected to said shafts, hooks carried by the lay and arranged to engage said hubs, and means for permitting the action of said hooks alternately at regular intervals.

12. In a narrow-ware loom, the combination of the movable lay, a thread-carrying member reciprocable therein, means for supplying said carrier with thread, guides for said thread, paralleling rock-shafts carrying said guides, gearing at each end of said shafts connecting the same together, said gearing including an intermediate gear, means for engaging one of said shafts to shift the respective guides simultaneously to the active and inactive positions, and means for engaging one of the intermediate gears to simultaneously reverse the positions of the respective guides.

13. In a narrow-ware loom, the combination of the movable lay, a thread-carrying member reciprocable therein, means for supplying said carrier with thread, guides for said thread, paralleling rock-shafts carrying said guides, gearing at each end of said shafts connecting the same together, said gearing including an intermediate gear, a toothed hub at one end of one of said shafts, a similar hub carried by the intermediate gear at the opposite end of the shafts and means for engaging and turning said hubs, such movement serving to throw the respective guides alternately and simultaneously into the active and inactive positions.

14. In a narrow-ware loom, the combination of the movable lay, a thread-carrying member reciprocable therein, means for supplying said carrier with thread, guides for said thread, a pair of paralleling rock-shafts carrying said guides, gearing at each end of said shafts connecting the same together, said gearing including an intermediate gear, a toothed hub carried by one of said shafts at one end, a similar hub carried by the intermediate gear at the opposite end, and hooks arranged to engage said hubs alternately whereby the shafts may be moved to shift the respective guides alternately and simultaneously to the active and inactive positions.

784,371. **ELASTIC-FLUID TURBINE.** HEINRICH ZOELLY, Zurich, Switzerland, assignor to Aktien-Gesellschaft der Maschinenfabriken von Escher Wyss & Co., Zurich, Switzerland. Filed Apr. 5, 1904. Serial No. 201,750.



Claim.—1. In an elastic-fluid turbine, the combination with a pressure-chamber and means to direct fluid therefrom, of a turbine-wheel having radially-projecting blades and spacing-blocks interposed between the blades, each blade having a long edge at one side of the wheel and a short edge at the other side of the wheel, said short edges being presented to the directing means, substantially as described.

2. In an elastic-fluid turbine, the combination with a pressure-chamber and directing means, of a wheel having radially-projecting tapering blades, each blade having a notched shank and long and short lateral edges, said short edges presented to the directing means, and spacing-blocks notched similarly to the blades and having inclined faces, the higher end of each such face between the shorter edges of the blades spaced thereby, whereby a steam-passage is formed increasing in section from the bottom of the blade to the top and from one side to the other, substantially as described.

3. In an elastic-fluid turbine, the combination with a pressure-chamber and directing means, of a wheel having a two-part center, radially-projecting tapering blades, each blade having a notched shank, spacing-blocks notched similarly to the blades and having inclined faces, the notched portions of said blocks and blades held between the two parts of the wheel center, the shorter edges of the blades presented to the directing means and the higher portion of each inclined face of a block between the said shorter edges of the blades spaced thereby, substantially as described.

4. An elastic-fluid turbine, comprising a cover-ring having an internal flaring wall, a wheel having radially-disposed blades the outer edge of which conforms to said flaring wall, and blade-spacing blocks having their outer faces inclined outwardly toward the axis of the wheel, whereby passages expanding in the direction of flow of the fluid are formed between the blades.

5. An elastic-fluid turbine, comprising a cover-ring having an internal flaring wall, a wheel having radially-disposed blades decreasing in thickness from the inner end to the outer edge which latter conforms to said flaring wall, and blade-spacing blocks having outer faces inclined outwardly toward the axis of the wheel, whereby passages are formed between the blades which expand both radially and in the direction of flow of the fluid.

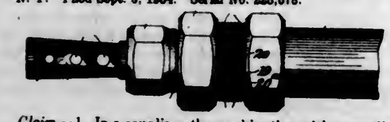
6. An elastic-fluid turbine, comprising a cover-ring having an internal outwardly-flaring wall, a wheel having radially-disposed, substantially concavo-convex blades, the outer edge of which conforms to said flaring wall, and blade-spacing blocks having their outer faces inclined outwardly toward the axis of the wheel, whereby passages expanding in the direction of flow of the fluid are formed between the blades.

7. An elastic-fluid turbine, comprising a cover-ring having an internal outwardly-flaring wall, a wheel having radially-disposed, substantially concavo-convex blades decreasing in thickness from the inner end to the outer edge, which latter conforms to said flaring wall, and blade-spacing blocks having outer faces inclined outwardly toward the axis of the wheel, whereby passages are formed between the blades which expand both radially and in the direction of flow of the fluid.

8. An elastic-fluid turbine, comprising a casing provided with a fluid-distributing chamber, a circular distributing-port and an outwardly-flaring cover-flange; in combination with a wheel having radially-disposed blades whose outer edges conform to said flange, and blade-spacing blocks whose outer faces incline outwardly toward the axis of the wheel.

9. An elastic-fluid turbine, comprising a casing provided with a fluid-distributing chamber, a circular distributing-port and an outwardly-flaring cover-flange; in combination with a wheel having radially-disposed blades decreasing in thickness from the inner end to the outer edge, which latter conforms to the curvature of the cover-flange, and blade-spacing blocks having convex outer faces inclining outwardly toward the axis of the wheel.

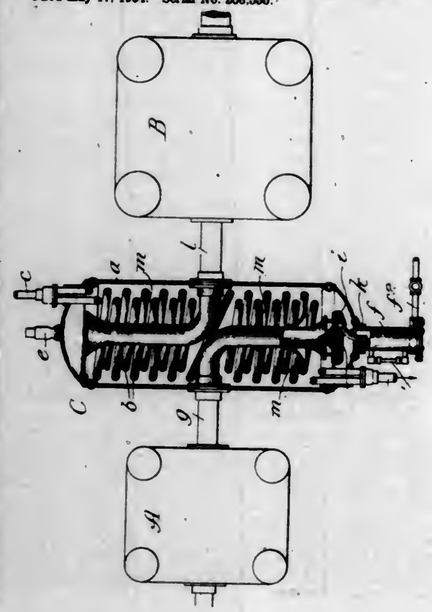
784,372. **HOSE-COUPLING.** WILLIAM H. ALBEE, New York, N. Y. Filed Sept. 8, 1904. Serial No. 223,678.



Claim.—1. In a coupling, the combination with a coupling-section having an annular depression and an inclined depression beyond said annular depression, of a divided threaded sleeve surrounding the inclined depression and being provided with a flange entering the annular depression, and oppositely-inclined nuts operating upon the sleeve.

2. In a coupling, the combination with a coupling-section having an annular depression and an inclined depression beyond said annular depression from which inclined depression open further separated depressions, of a divided threaded sleeve surrounding the inclined depression and being provided with a flange entering the annular depression, and oppositely-inclined nuts operating upon the sleeve.

784,373. **STEAM-REHEATER.** HENRY A. ALLEN, Chicago, Ill. Filed May 17, 1904. Serial No. 208,335.



Claim.—1. In a steam-reheater, the combination of a casing containing a steam-conduit, a pipe conducting exhaust-steam from a cylinder into the lower part of the casing, means for separating from said steam moisture carried by it, preparatory to subjecting the steam, for reheating it, to contact with said conduit, and a discharge-pipe for the reheated steam leading from the casing, substantially as described.

2. In a steam-reheater, the combination of a casing containing a steam-coil, a pipe for conducting exhaust-steam from a cylinder, said pipe discharging downward in the casing into the lower part thereof, a steam-separator in the casing at the discharge end of said pipe, and a discharge-pipe for reheated steam leading from the casing, substantially as described.

3. In a steam-reheater, the combination of a casing containing a steam-coil, a pipe for conducting exhaust-steam from a cylinder, said pipe discharging downward in the casing into the lower part thereof, a steam-separator in the casing at the discharge end of said pipe, a condensation-receptacle communicating with said separator and a discharge-pipe for the reheated steam leading from the casing, substantially as described.

4. In a steam-reheater, the combination of a casing, a pipe conducting exhaust-steam from a cylinder into the lower part of the casing, a steam-conduit in the casing out of the path of the discharge of steam from said pipe, means for separating from said steam moisture carried by it, preparatory to subjecting the steam, for reheating it, to contact with said conduit, and a discharge-pipe for the reheated steam leading from the casing, substantially as described.

5. In a steam-reheater, the combination of a casing containing a steam-coil having at one end a pipe connection for a steam-boiler, a pipe for conducting exhaust-steam from a cylinder, said pipe leading through the coil downward in the casing and discharging into the lower part thereof, whereby the exhaust-steam is admitted into the casing without impinging against the coil and rises in the casing counter to the course of steam through the coil, and moisture carried by the exhaust-steam discharging from said pipe separates from said steam preparatory to subjecting it to reheating, and a discharge-pipe for the reheated steam leading from the casing, substantially as described.

6. In a steam-reheater, the combination of a casing containing a steam-conduit, a pipe conducting exhaust-steam from the cylinder into the lower part of the casing, means for separating from said steam moisture carried by it, preparatory to subjecting the steam, for reheating it, to contact with said conduit, baffle-plates in the path of the steam rising in the casing, and a discharge-pipe for the reheated steam leading from the casing, substantially as described.

7. In a steam-reheater, the combination of a casing containing a steam-conduit, a pipe conducting exhaust-steam from a cylinder into the lower part of the casing, means for separating from said steam moisture carried by it, preparatory to subjecting the steam, for reheating it, to contact with said conduit, and a discharge-pipe for the reheated steam leading from the upper part of the casing where the steam therein is hottest, substantially as described.

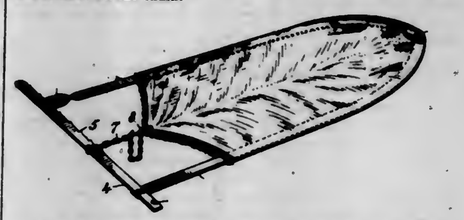
8. In a steam-reheater, the combination of a casing containing a steam-coil, a pipe for conducting exhaust-steam from a cylinder, said pipe leading downward into the lower part of the casing, a discharge-pipe for the reheated steam leading out of the casing from its upper end through the coil, and baffle-plates in the path of the steam rising in the casing, the whole being constructed and arranged to operate substantially as described.

9. A steam-reheater comprising, in combination, a valved casing containing a steam-coil communicating at its upper end with the steam-supply, a pipe for conducting exhaust-steam from a cylinder, said pipe leading through the coil downward in the casing and discharging into the lower part thereof, a steam-separator in the casing at the discharge end of said pipe and provided with a discharge-pipe, a discharge-pipe for the reheated steam leading out of the casing from its upper end through the coil, and baffle-plates in the path of the steam rising in the casing, the whole being constructed and arranged to operate substantially as described.

784,374. **SKIN-STRETCHER.** ASA W. ANDREWS, Winnebago City, Minn. Filed July 16, 1904. Serial No. 216,849.

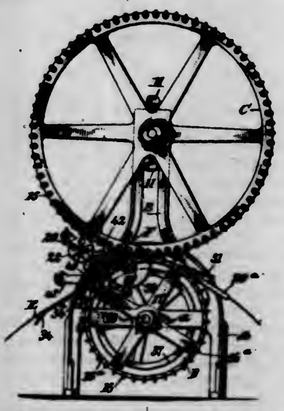
Claim.—1. A skin-stretcher comprising a frame having two members pivotally connected, the said members being curved inward at the pivoted end, a stretcher-bar having pivotal connection with one of the frame members and provided with teeth for engagement with the other frame member, and a chain provided with a hook, attached to said bar.

2. A skin-stretcher having a frame comprising two members pivotally connected together at one end and consisting of flat metal, the greatest width being transverse of the frame, a stretcher-bar pivoted to one of the frame members and having teeth for engagement with the other frame member, a chain attached to said bar, and a double hook on the chain.



3. A skin-stretcher having a frame comprising two members pivotally connected together at one end, a stretcher-bar provided with teeth and pivoted to one of the frame members, the other of said frame members being provided with a notch having a beveled wall at its end, a chain attached to the bar, and a double hook on the chain.

784,375. **MACHINE FOR PRINTING CLOTHING-TICKETS.** ALOISE ANTOINE, New York, N. Y. Filed Aug. 16, 1904. Serial No. 220,866.



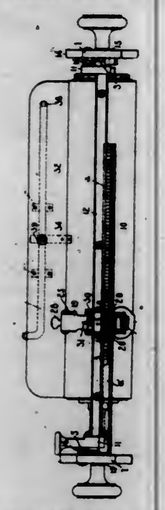
Claim.—1. In a machine for printing tickets or labels in series, a main printing-wheel, series of type removably secured in the periphery of the wheel, a feed-wheel, an auxiliary printing-wheel, an inking device common to both of the printing-wheels, and means for simultaneously actuating the said printing-wheels, as described.

2. In a machine for printing tickets or labels, a feed-wheel for the tickets or labels having projections from its sides, a pinion-controlled printing-wheel, and an arm extending from the said printing-wheel for engagement with the projections from the feed-wheel.

3. In a machine for printing tickets or labels, a feed-wheel for the tickets or labels, having projections from its sides, a tension-controlled printing-wheel, an arm extending from the said printing-wheel for engagement with the projections from the feed-wheel, guide-spurs carried by the said feed-wheel, and a driving mechanism for the feed-wheel and the printing-wheel, whereby the two latter-mentioned parts are made to move in unison while an impression is being produced, as described.

4. In a machine for printing tickets or labels, a main printing-wheel having type adjustably secured at its periphery, a feed-wheel below the main printing-wheel, an auxiliary printing-wheel located adjacent to the feed-wheel and below the main printing-wheel, an inking-wheel common to both of the printing-wheels, a series of spurs extending from the periphery of the feed-wheel, pins extending from a side of the said feed-wheel, an arm carried by the auxiliary printing-wheel and adapted for engagement with the pins of the feed-wheel, and a spring so supported as to exert tension against the said arm and hold the said arm for a predetermined length of time against the pin with which it may engage, as described.

784,376. TYPE-WRITING MACHINE. WALTER J. BARRON, Brooklyn, N. Y., and HENRY W. MERRITT, Springfield, Mass., assignors to Densmore Typewriter Company, Syracuse, N. Y., a Corporation of New York. Original application filed Feb. 6, 1903, Serial No. 92,539. Divided and this application filed June 3, 1903. Serial No. 110,041.



Claim.—1. In a type-writing machine, the combination of a paper-carriage, a carriage-scale, a supporting-bar carried in front of the platen and extending substantially throughout the length thereof, a scale on said bar, the spacing between the indices on which correspond to the carriage-scale, and one or more paper-guides carried by and adjustable lengthwise on said supporting-bar.

2. In a type-writing machine, the combination of a carriage and carriage-scale, a platen-frame adapted to swing in said carriage, a supporting-bar carried by the platen-frame in front of the platen and extending substantially throughout the length thereof, indices on said bar, the spacing between the indices on which correspond to the spacing between like indices on the carriage-scale, a paper-guide carried by and adjustable lengthwise on said supporting-bar, and pivoted means for moving said guide toward and away from the platen and for retaining it in either of said positions.

3. In a type-writing machine, the combination of a paper-carriage and carriage-scale, a supporting-bar carried in front of the platen and extending substantially throughout the length thereof, indices on said bar, the spacing between the indices on which correspond to the spacing between like indices on the carriage-scale, a paper-guide carried by and adjustable lengthwise on said supporting-bar, frictional means for maintaining said guide in its adjusted position along said rod, and means for moving said guide toward and away from the platen and for retaining it in either of said positions.

4. In a type-writing machine, the combination of a platen, a paper-carriage, a supporting-bar carried by said carriage, a paper-guide support movable along said bar, a paper-guiding finger that conforms in part to the contour of the platen pivoted to said support, a hand-operated device pivoted to the support and operable to effect a movement of said guiding-finger toward and away from the platen and to effect a maintenance thereof in either of said positions, and a spring interposed between the support and bar to maintain the support in its adjusted position on said bar.

5. In a type-writing machine, the combination of a paper-carriage, a paper-table carried thereby, and a paper-guide which is carried by said table and is adjustable thereon in the direction of the length of the platen, said guide comprising a longitudinally-movable bar with a guiding-finger thereon that is adapted to project over the top edge and beyond the face of the paper-table and at an angle to the plane thereof, so as to constitute a guiding-abutment for one side edge of the paper.

6. In a type-writing machine, the combination of a paper-carriage, a paper-table carried thereby, a paper-guide which is carried by said table and is adjustable thereon in the direction of the length of the platen, said guide comprising a longitudinally-movable bar with a guiding-finger thereon that is adapted to project over the top edge and beyond the face of the paper-table and at an angle to the plane thereof so as to constitute a guiding-abutment for one side edge of the paper, a scale on said bar operating at an indicating-point to determine the proper adjustment of the paper-guide.

7. In a type-writing machine, the combination of a paper-carriage, a paper-table carried thereby and having an indicating-opening therein, a paper-guide which is carried by said table and is adjustable thereon in the direction of the length of the platen, said guide comprising a longitudinally-movable bar carried at the rear of the paper-table so as not to interfere with the feed of the paper and which is provided with a guiding-finger thereon that is adapted to project from the face of the paper-table and at an angle to the plane thereof so as to constitute a guiding-abutment for one side edge of the paper, and a scale on said bar, the indices on said scale being adapted to register with the indicating-opening in the paper-table to determine the proper adjustment of the paper-guide.

8. In a type-writing machine, the combination of a platen, a paper feeding or guiding device which is adjustable longitudinally of the platen, indices for said device, an independent paper-edge guide which constitutes an abutment for one side edge of the paper, and which is adjustable longitudinally of the platen, and indices for said edge guide.

9. In a type-writing machine, the combination of a platen, a paper feeding or guiding device which is adjustable longitudinally of the platen, indices for said device, an independent paper-edge guide which constitutes an abutment for one side edge of the paper and which is adjustable longitudinally of the platen, and indices for said edge guide, both sets of said indices corresponding, whereby when both guides are adjusted to the corresponding index-points, the guides will be moved to positions where they will coöperate one with the other.

10. In a type-writing machine, the combination of a platen, a paper feeding or guiding device, a portion of which conforms substantially to the contour of the platen and which is adjustable and cooperates therewith, indices or said device, an independent paper-edge guide which constitutes an abutment for one side edge of the paper and which is adjustable longitudinally of the platen, and indices for said edge guide, both sets of said indices corresponding and being so related to their coöperating guides that when both guides are adjusted to the corresponding index-points, the guides will be moved to positions where they will coöperate one with the other.

11. In a type-writing machine, the combination of a platen-carriage, a paper-table carried thereby, a paper-guide carried by said paper-table and which is adjustable in the direction of the length of the platen, a second paper-guide which is adjustable in the direction of the length of the platen and coöperates with the platen and with the first-mentioned guide, and means for determining when said paper-guides are in coöperative relation.

12. In a type-writing machine, the combination of a platen-carriage, a paper-table carried thereby, a paper-edge guide carried by said paper-table and which is adjustable in the direction of the length of the platen, said guide constituting an abutment for one side edge of the paper, a paper-guide which is adjustable in the direction of the length of the platen and coöperates with the platen, and indicating means for determining the position of said guides one with relation to the other.

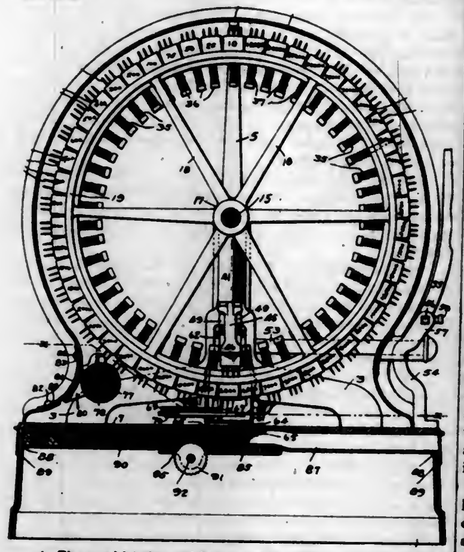
13. In a type-writing machine, the combination of a platen-carriage, a paper-table carried thereby, a paper-edge guide carried by said paper-table and which is adjustable in the direction of the length of the platen, a paper-guide, a portion of which conforms substantially to the contour of the platen and which is adjustable longitudinally of the platen and coöperates therewith, and indicating mechanism for indicating the position of said guides one with relation to the other and to the platen.

784,377. CHECK-PROTECTOR. GAYLORD W. BEEBE, Minneapolis, Minn., assignor to G. W. Todd & Company, Rochester, N. Y., a Firm. Filed Feb. 8, 1901. Serial No. 46,486.

Claim.—1. A die-holder provided with a series of dies, means for causing contact between the paper and a die, and means actuated by said contacting means for automatically inking a die without moving said holder.

2. A die-holder provided with a series of dies, means for causing contact between the paper to be marked and a die, means actuating by said contacting means for automatically inking a die without moving said holder after the die has been adjusted opposite the paper to be marked.

3. The combination, with a frame, of a rotating die-holder mounted therein, a series of dies carried by said holder, and movable independently thereof, and means actuated by the force that moves a die toward the paper for inking a die after its adjustment opposite the paper to be marked and during its movement toward the same.



4. The combination, with a suitable frame, of a rotating die-holder mounted therein, a series of dies carried by said holder and movable independently of the same, means for moving said dies into engagement with the paper, and means actuated by said moving means for automatically inking a die after its adjustment opposite the paper to be marked and during its movement toward the same and while the holder is stationary.

5. The combination, with a suitable frame and casing, of a die-holder rotating in a vertical plane therein, means for rotating said holder, a series of dies carried by said holder and movable independently of the same, means for moving said dies into contact with and through the paper to be perforated or marked, and means actuated by said moving means for automatically inking a die after its adjustment opposite the paper and during its movement toward the same.

6. The combination, with a suitable frame and casing, a die-holder mounted therein, means for rotating said die-holder, a series of dies carried thereby and movable independently of said holder, means for forcing said dies into engagement with the paper to be marked or perforated, means for gripping the paper during the perforating operation, and means actuated by said forcing means for inking a die after its adjustment opposite the paper to be marked and prior to its engagement therewith and while said holder is stationary, substantially as described.

7. The combination, with a suitable frame and casing, of a die-holder rotating in a vertical plane therein, means for rotating said holder, a series of dies carried thereby and movable independently of the same, means for actuating said dies to mark or perforate the paper, means operated by said actuating means for automatically inking a die after its adjustment opposite the paper to be marked and before its engagement therewith, and means for holding or gripping the paper with a yielding pressure during the perforating operation.

8. The combination, with a suitable frame, of a rotating die-holder mounted therein, means for operating said holder, a series of dies carried thereby and movable independently thereof, each die representing a certain sum to be marked or perforated in the paper, a die representing the words "Not over," and means for operating one of said first-named dies and said last-named die simultaneously to move the same into engagement with the paper, substantially as described.

9. The combination, with a suitable frame, of a die-holder rotating in a vertical plane therein, means for operating said holder, a series of dies carried thereby and movable independently thereof, each die representing a certain fixed sum to be marked or perforated in the paper, a die representing the words "Not over," means for actuating any one of said first-named dies and said last-named die simultaneously, and means for inking said dies.

10. The combination, with a suitable frame, of a die-holder rotating in a vertical plane therein, means for operating said die-holder, a series of dies carried thereby and movable independently thereof, each die representing a certain fixed sum, a die representing the words "Not over" adapted for use with any one of the other dies, means for actuating one of said first-named dies and said die representing the words "Not over" simultaneously, means for inking said dies prior to their engagement with the paper and means for gripping the paper during the marking or perforating operation.

11. The combination, with a frame and casing, of a die-holder rotating in a vertical plane therein, means for rotating said holder, a series of yieldingly-held dies carried by said holder, a die representing the words "Not over," a plunger adapted to simultaneously move one of said first-named dies and said die representing the words "Not over" simultaneously into engagement with the paper to be marked or perforated, means for operating said plunger, and means for inking said dies.

12. The combination, with a suitable frame and casing, of a die-holder rotating in a vertical plane therein, an indicator-arm for operating said die-holder, a dial over which said arm moves, said dial bearing a series of figures representing certain sums, a series of dies carried by said holder, each die corresponding to a certain sum on the dial and movable independently of said holder, a plunger mechanism provided within the circumference of said holder for actuating any one of said dies to move the same into contact with and force it through the paper to be marked or perforated, and means for inking a die after its adjustment opposite the paper to be marked but before its engagement therewith.

13. The combination, with a suitable frame and casing, of a die-holder rotating in a vertical plane therein, a dial provided on said casing, an arm for rotating said holder and movable over said dial, said dial being provided with a series of figures representing certain sums, a series of dies carried by said holder and movable independently of the same, each die corresponding to a certain sum on the dial, a die representing the words "Not over," means for actuating one of said first-named dies and said last-named die simultaneously to move the same into engagement with the paper to be marked or perforated, and means for inking said dies.

14. The combination, with a rotating die-holder, of a series of dies carried thereby and movable independently thereof, each die representing a certain sum, a die representing the words "Not over" and adapted for use with any one of said first-named dies, a yieldingly-held plunger adapted to move said dies into engagement with the paper to be marked or perforated, a rock-shaft, arms mounted thereon and supporting said plunger, and an operating-lever provided on said shaft for rocking the same and depressing said plunger.

15. The combination, with a frame and casing, of a rotating die-holder, a series of dies carried thereby and movable independently thereof, means for actuating said dies to move them into contact with the paper to be perforated, means for inking said dies during their movement toward and prior to their engagement with the paper, and means for inking them after their passage through the paper, substantially as described.

16. The combination, with a frame and casing, of a die-holder rotating in a vertical plane therein, means for operating said die-holder, a series of dies carried thereby and movable independently thereof, means for actuating said dies to engage and mark or perforate the paper, means for automatically inking said dies during their stroke toward and prior to their engagement with the paper, and means for inking said dies after their passage through the paper.

17. The combination, with a frame, of a rotating die-holder therein and means for operating the same, a dial, a series of dies carried by said holder, each die representing a sum corresponding to a certain sum on the dial, loose pins whereon said dies are supported, springs normally holding said pins in a retracted position, a plunger adapted to engage said pins, a die representing the words "Not over" carried by said plunger, means for operating said plunger to actuate said dies, and means for inking said dies.

18. The combination, with a rotating die-holder, of a series of yieldingly-held dies carried thereby, a rock-shaft, an operating-lever therefor, a plunger, suitable means connecting said rock-shaft and said plunger, an oscillating inking-arm, a brush carried thereby for inking said dies, and suitable connections provided between said oscillating arm and said shaft whereby the rocking of said shaft will operate said arm.

19. The combination, with a die-holder, of the dies thereon movable independently thereof, a die representing the words "Not over," a yieldingly-held plunger, a rock-shaft, an operating-lever therefor, an oscillating inking-brush, and suitable connections provided between said rock-shaft, said plunger and said inking-brush whereby the rocking of said shaft will simultaneously operate said plunger to actuate said dies and oscillate said brush to ink the faces of the dies, substantially as described.

20. The combination, with a rotating die-holder having a series of notches in its edge, of a series of dies carried by said holder and movable independently thereof, means for actuating said dies to engage the paper to be perforated, an oscillating inking-arm, a brush carried thereby, a lever 72 connected with said actuating means and with said oscillating arm to operate said lever, and a lug 76 provided on said lever and adapted to enter one of said notches when said actuating means is operated, for the purpose specified.

21. The combination, with a rotating die-holder and a series of dies carried thereby, of means supporting the paper to be marked, an operative mechanism for causing contact between the paper and dies, and means actuated by the operation of said mechanism for inking a die after it has been adjusted opposite the paper and before its engagement therewith, substantially as described.

22. The combination, with a rotating die-holder, and a series of dies carried thereby, of means supporting the paper to be marked, an operative mechanism for causing contact between the paper and dies, means actuated by the operation of said mechanism for inking said dies immediately prior to their engagement with the paper, and means for inking the under side of the characters marked in or on the paper, substantially as described and for the purpose specified.

23. The combination, of a die-holder consisting of a rotating drum or ring 19, having rows of holes 32 and 33, pins loosely fitting within said holes 33, springs provided on said pins, dies mounted on the ends of said pins and resting on the outer surface of said ring, each die representing a certain fixed sum, a die representing the words "Not over" adapted to be projected through any one of said holes 32, and means for simultaneously projecting said dies, substantially as described.

24. The combination, with a suitable casing, of a rotating die-holder mounted therein, a series of dies carried thereby, a plate adjustably secured on said casing, brackets provided on said plate, and an inking-roller yieldingly supported in said brackets and adapted to engage the points of said dies, substantially as described.

25. The combination, with the die-holder, of a series of movable dies thereon, a plunger for actuating said dies, a die 46 carried by said plunger, a spring normally holding said plunger in a raised position, means for operating said plunger to actuate said dies, and means for inking said dies.

26. The combination, with a die-holder rotating in a vertical plane, of a series of dies carried thereby, means for actuating said dies to mark or perforate the paper, means for inking said dies during their stroke toward and before their engagement with the paper and after their passage through the same.

27. The combination, with a base having a slotted top, of a trough provided beneath said base, a pad arranged in said trough, means for moving said pad back and forth beneath the slot in said base, and a suitable indicator and dial provided in connection with said moving means, whereby the operator can determine the position of said pad with respect to said slot.

28. The combination, with a die-holder rotating in a vertical plane, of a series of dies carried thereby and adapted to perforate cut or crush the paper fiber, an operative mechanism, and means actuated by the force that causes contact between a die and the paper for inking a die after it has been set opposite the paper and said mechanism has been set in motion to perform the perforating, cutting or crushing operation.

29. The combination, with a die-holder rotating in a vertical plane, of a series of dies carried thereby and adapted to perforate, cut or crush the paper fiber, an operating mechanism, means for inking a die after said mechanism has been actuated to perform the perforating, cutting or crushing operation and before the engagement of said die with the paper, and means for inking the under side of the characters formed in or on the paper by said die, substantially as described and for the purpose specified.

30. The combination, with a ring or drum adapted to rotate in a vertical plane, of a series of dies provided on the periphery of said drum and adapted to perforate, cut or crush the paper fiber, a mechanism which when operated causes contact between a die and the paper, and means actuated by said mechanism for inking said die after it has been adjusted opposite the paper and said mechanism has been set in motion and before the die engages the paper.

31. The combination, with a rotating ring or drum, of a series of dies carried thereby and adapted to be moved radially with respect thereto, a plunger provided within said drum for actuating said dies, means for operating said plunger and means for inking said dies during their radial movement toward the paper and before their engagement therewith.

32. The combination, with a ring or drum rotating in a verical plane, of a series of dies provided on the periphery of said drum, yieldingly-held pins whereon said dies are mounted, said pins having a radial movement with respect to said drum, a plunger provided within said drum for actuating said pins and dies, means for operating said plunger, means for inking said dies during their radial movement toward the paper and before their engagement therewith, and means for inking the under side of the characters formed in or on the paper by said dies.

33. The combination, with the top 7 having a slot 64 and groove 65, of a die adapted to register with said slot, and means for pressing the paper into said groove and drawing it taut across said slot during the perforating or marking movement of said die, substantially as described.

34. The combination, with a base, of a casing thereon, a standard whereon said casing is supported, perforating and inking devices provided within said casing and said base, an opening or slot 60 provided between said base and casing, and said standard and said casing permitting the insertion or withdrawal of a check at the front, back or sides of the machine, for the purpose specified.

35. The combination, with a base 2 having openings in its walls, of an ink-pad trough provided within said base and having open ends opposite said openings, a slidable pad provided within said trough, and removable plates 89 provided on said base over the openings therein, substantially as described.

36. In a check-protector, the combination, with a rotating die-holder, of a series of movable dies carried thereby, means for actuating said dies to move them into engagement with the paper to be perforated or marked, an inking device arranged to ink a die without moving said holder, and operative connections provided between said inking device and said actuating means arranged to actuate the former by the same force that moves a die toward the paper, substantially as described and for the purpose specified.

784,378. COMPOSITION FOR PRESERVING INDIA-RUBBER GOODS. ORLANDO F. BENTON, St. Marys, Ohio, assignor of one-half to Jesse Shimp, St. Marys, Ohio. Filed Oct. 12, 1903. Serial No. 176,659.

Claim.—A composition for preserving india-rubber, consisting of one part turpentine, as much camphor-gum as the turpentine will readily dissolve, and one part linseed-oil proportioned to the combined part of turpentine and camphor-gum.

784,379. RAILWAY-RAIL. FRANS BERTGEN, St. Louis, Mo., assignor of two-thirds to George J. Kobusch, St. Louis, Mo. Filed Apr. 30, 1904. Serial No. 205,632.

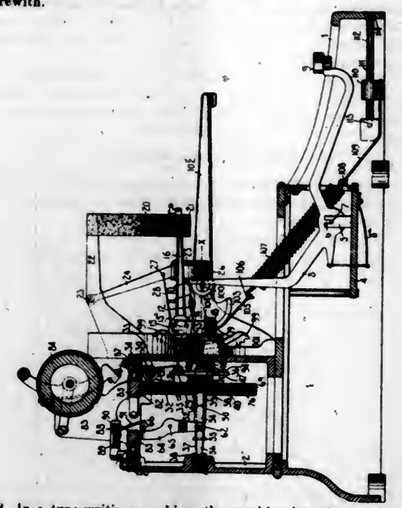


Claim.—1. A railway-rail consisting of a lower grooved member, a pair of upper members seated in said lower member and provided with means for interlocking engagement with each other at their adjacent ends, and means for securing said upper members to said lower member, said means permitting longitudinal movement of the upper members relative to the lower member, substantially as set forth.

2. A railway-rail consisting of a lower grooved member, a pair of upper members having tongues fitting in the grooves in said lower member, said upper members being provided with means for interlocking engagement with each other at their adjacent ends, and bolts passing through said lower member and the tongues of the upper members for securing the upper members to the lower member, said lower member being provided with elongated bolt-openings permitting longitudinal movement of the bolts and the upper members relatively to the lower member, substantially as set forth.

784,380. TYPE-WRITING MACHINE. ALEXANDER T. BROWN, Syracuse, N. Y. Filed Oct. 16, 1903. Serial No. 127,543.

Claim.—1. As a means for affording a feed movement of type-writer carriages, the combination of two gears arranged side by side on the same shaft, and a spring which tends constantly to move one of said gears circumferentially away from the other and thus take up any lost motion between the gears and the parts which coöperate therewith.



2. In a type-writing machine, the combination of a carriage, two independent gears in geared connection with the carriage, a hand-lever having a geared connection to one of said gears, and a spring connected to said hand-lever and tending constantly to move one of said gears circumferentially away from the other and thus take up any lost motion between the gears and the parts with which they coöperate

3. In a type-writing machine, the combination of a carriage, two independent gears in geared connection with the carriage, a hand-lever having a geared connection to one of said gears, and a spring connected to said hand-lever and tending constantly to move the carriage in the drection of its feed and to move one of said gears circumferentially away from the other and thus take up any lost motion between the gears and the parts with which they coöperate, said spring being likewies effective to restore the hand-lever as the carriage is moving in the direction of its feed.

4. In a type-writing machine, the combination of a carriage, two gear-wheels in geared connection with said carriage, spring-pressed means which tend constantly to move one of said gears circumferentially away from the other and a finger-piece connected to said spring-pressed means and effective to move the carriage throughout the extent of its travel from left to right.

5. The combination of a carriage, a feed-rack carried thereby, two disconnected gear-wheels which mesh with said rack, a pinion which meshes with only one of said gear-wheels, an escapement-wheel which is operatively connected to said pinion, feed-dogs which coöperate with said escapement-wheel, a carriage-spring disconnected from the gear-wheel with which said pinion meshes and connected to the other of said gear-wheels.

6. The combination of a carriage, a feed-rack therefor, gear-wheels which mesh with said rack, an escapement device which normally resists the movement of one of said gear-wheels, a driving-pinion connected to the other wheel, a hand-actuated crank operatively connected to said driving-pinion and a spring connected to said crank, and by means of which power is applied to move the carriage.

7. The combination of a carriage, a feed-rack carried thereby, disconnected gear-wheels which are in constant mesh with said rack, an escapement device which normally resists the movement of one of said gear-wheels, a driving-pinion coöperating with the other wheel, an eccentric operatively connected to said driving-pinion, and a spring connected to said eccentric and by means of which power is applied to move the carriage, the relation of the parts being such that the leverage of the eccentric is increased as the tension of the spring decreases.

8. The combination of a carriage, a feed-rack therefor, gear-wheels which are in constant mesh with said rack, an escapement device which normally resists the movement of one of said gear-wheels, a driving-pinion connected to the other wheel, a shaft upon which said pinion is mounted, a driven pinion on said shaft, a toothed segment which meshes with said driven pinion, an eccentric connected to said segment, and a spring connected to said eccentric and by means of which power is applied to move the carriage, the relation of the parts being such that the leverage of the eccentric is increased as the tension of the spring decreases.

9. The combination of a carriage, a feed-rack carried thereby, two disconnected gear-wheels of the same size mounted side by side and the teeth of which are adapted to register and mesh with said rack, spring-propelled means operatively connected to one of said gear-wheels to move the carriage in the direction of its feed, and escapement mechanism operatively connected to the other gear-wheel.

10. The combination of a carriage, a feed-rack therefor, two disconnected gear-wheels of the same size mounted side by side and the teeth of which are adapted to register and are in constant mesh with said rack, a pinion in mesh with one of said gear-wheels and out of mesh with the other, an escapement-wheel operatively connected to said pinion, feed-dogs which coöperate with the escapement-wheel, a spring, and intermediate gear connections between said spring and the gear-wheel which is out of mesh with the pinion.

11. The combination of a carriage, a spring for moving said carriage, a feed-rack for the carriage, two gears in mesh with said rack, an escapement device which is operatively connected to one of said gear-wheels, a spring and a carriage-restoring lever operatively connected with the other gear, and means for releasing the carriage from the escapement device without moving the gears and their gear connections out of mesh.

12. The combination of key-actuated feed-dogs, an escapement-wheel with which said dogs coöperate, a clutch-section fixed to the shaft of said escapement-wheel, a second coöperating clutch-section mounted loosely on the escapement-wheel shaft, hand-actuated means for disengaging said clutch-sections, a pinion connected to said loosely-mounted clutch-section, a gear-wheel in mesh with said pinion, a carriage feed-rack with which said gear meshes, and a second power-driven gear which meshes with said feed-rack.

13. The combination of a carriage, key-actuated feed-dogs therefor, an escapement-wheel with which said dogs coöperate, a clutch-section fixed to the shaft of said escapement-wheel, a second coöperating clutch-section mounted loosely on the escapement-wheel shaft, a hand-actuated finger-piece carried by the carriage, means controlled by said finger-piece for disengaging said clutch-sections, a pinion connectd to said loosely-mounted clutch-section, a gear-wheel in mesh wih said pinion, a feed-rack carried by the carriage and with which said gear meshes, a second gear which meshes with said feed-rack, a spring, and intermediate connections between said last-mentioned gear and said spring for transmitting power from the spring to rotate said second gear and move the carriage in the direction of its feed.

14. In a type-writing machine, the combination of a carriage, a feed-rack therefor, a spring-pressed segment, a gear-wheel meshing with the feed-rack and rotated by said segment to move the carriage in the direction of its feed, a hand-lever connected directly to said segment to return the carriage, a second independently-movable gear-wheel meshing with said rack and an escapement device controlling said second gear-wheel.

15. In a type-writing machine, the combination of a carriage, a feed-rack carried thereby, a toothed segment, an eccentric connected to said segment, a spring connected to the eccentric and to a relatively fixed part of the machine, a gear-wheel rotated by said segment, and meshing with said feed-rack, a second independently-movable gear-wheel meshing with said rack, an escapement device controlling said second gear-wheel, and hand-operated means for disconnecting the second gear-wheel from the escapement device.

16. In a type-writing machine, the combination of a carriage, a feed-rack carried thereby, a gear which is in constant mesh with said rack, a hand-actuated arm operatively connected to said gear-wheel and adapted to move the carriage throughout its travel from left to right, and a spring connected to said arm and the power of which is applied to move the carriage in the direction of its feed.

17. In a type-writing machine, the combination of a carriage, a feed-rack carried thereby, two independent gear-wheels in mesh with said rack, an escapement device which controls the movement of one of said gear-wheels, hand-operated means for rotating the other gear-wheel, and a spring connected to said hand-operated means for moving the carriage in the direction of its feed and for restoring said hand-actuated means.

18. In a type-writing machine, the combination of a power-driven carriage, a feed-rack carried thereby, two independent gear-

wheels in mesh with said rack, an escapement-wheel, a pinion in constant mesh with one of said gear-wheels and out of mesh with the other, hand-operated clutch mechanism for operatively connecting said pinion with the escapement-wheel, and hand-operated means for rotating the gear-wheel which is out of mesh with the pinion.

19. In a type-writing machine, the combination of a power-driven carriage, a feed-rack carried thereby, two independent gear wheels in mesh with said rack, an escapement-wheel, a pinion in constant mesh with one of said gear-wheels and out of mesh with the other, hand-operated clutch mechanism for operatively connecting said pinion with the escapement-wheel, a pinion fixed to rotate with said gear-wheel which is out of mesh with the first-mentioned pinion, a shaft, driving and driven pinions carried thereby, the said driving-pinion meshing with the fixed pinion, a segmental rack meshing with the driven pinion, a spring connected to said segmental rack, and a hand-actuated arm connected to said segmental rack and operable to move the carriage from left to right.

20. In a type-writer or the like a carriage provided with a rack, a carriage-return wheel engaging said rack, a transverse shaft operatively connected with said wheel, a pinion on said shaft, a rocking sector in engagement with said pinion and a carriage-returning key operatively connected with said sector.

21. In a type-writer or like machine, a carriage provided with a rack, a shaft, a carriage-return wheel mounted on said shaft and engaging said rack, a bevel-gear also mounted on said shaft, a transverse shaft, a bevel-gear mounted on said transverse shaft in engagement with said first-named bevel-gear, a pin on said transverse shaft, a rocking sector in engagement with said pinion, and a carriage-returning key operatively connected with said sector.

784,381. DOOR STOP AND CATCH FOR VESTIBULE OR OTHER DOORS.

ERRA S. BUCKNAM, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed May 16, 1904. Serial No. 208,175.



Claim.—1. In a door stop and catch or similar device, a slotted plate with ears adjacent to said slot, a bent lever fulcrumed between said ears, and having a portion extending between the walls of the slot, a buffer secured near one end of said lever, and a catch at the other end of said lever.

2. In a door stop and catch or similar device, a slotted plate with ears projecting near the slot, a bent lever fulcrumed between said ears, and having a portion resting between the walls of the slot and the catch at one end of said lever, comprising an enlarged head, a portion of which extends beyond the slot and over the plate and a buffer at the other end of said lever.

3. In a door stop and catch, a slotted plate, a bent lever pivoted in the slot in said plate, a spring-actuated buffer at one end of said lever, and a catch adapted to engage a door at its other end.

784,382. GONG.

ERRA S. BUCKNAM, Llanerch, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed May 24, 1904. Serial No. 209,453.



Claim.—1. In a bell or similar device, the combination with a striking-lever comprising a hammer-arm and an actuating-toe, of means to swing said striking-lever constructed and arranged to act on said toe at points successively approaching the pivot of said striking-lever.

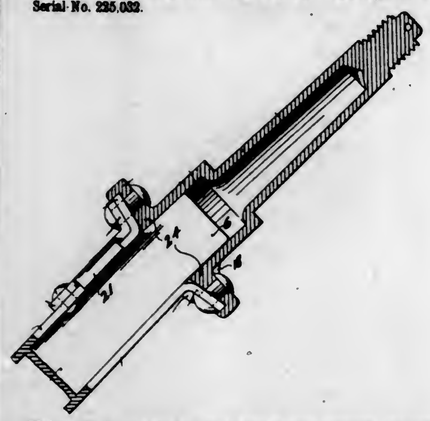
2. In a bell or similar device, the combination of a striking-lever and a tripping-lever, each of said levers having an actuating-toe, said toes having coöperating curved surfaces constructed and arranged to roll on each other when the levers are actuated.

3. In a bell or similar device, the combination of a striking-lever having a hammer-arm and an actuating-toe provided with a concave surface, a tripping-lever to actuate said striking-lever having an actuating-toe provided with a convex surface, said surfaces being constructed and arranged to roll on each other during the movement of said levers, whereby the distance of the point of contact of said surfaces from the pivot of each of said levers constantly varies during the movement of said levers.

4. In a bell or similar device, a gong and gong-striking mechanism, a pair of cords attached to said gong-striking mechanism, a pair of sheaves on a common axis, over which sheaves said cords pass and means for supporting said sheaves.

784,383. AXLE FOR WHEELS OF ROAD-VEHICLES.

HUGH M. BUTLER, Kirkstall Forge, near Leeds, England. Filed Sept. 19, 1904. Serial No. 225,032.



Claim.—1. In an axle for the wheels of road-vehicles, the combination of a bed of H-section metal having its web vertical and its flanges horizontal, the ends of the upper flange being divided from the web and bent upward and the ends of the lower flange being divided from the web and bent downward; of two similar barrels one for attachment to each end of the said bed, an axial bore at the inner end of each barrel to receive the projecting web end of the bed, and upper and lower flanges formed on the inner end of each barrel to which flanges the upwardly and downwardly bent ends of the bed-flanges are secured substantially as set forth.

2. In an axle for the wheels of road-vehicles, the combination of a bed of H-section metal having its web vertical and its flanges horizontal, the ends of the upper flange being divided from the web and bent upward and the ends of the lower flange being divided from the web and bent downward; of two similar barrels one for each end of the said bed, each barrel having an axial bore extending from the inner to nearly the outer end of the barrel into the inner end of which bore the projecting web end of the bed enters, an upwardly-extending flange formed on the inner end of the barrel and a downwardly-extending flange also formed on the inner end of the barrel and recesses on the inner faces of both flanges to receive the upwardly and downwardly turned ends respectively of the flanges of the bed, and the means for connecting the said upwardly and downwardly turned flanges of the bed to the flanges of the barrel substantially as set forth.

3. In an axle for the wheels of road-vehicles, the combination of a bed of H-section metal having its web vertical and its flanges horizontal, the ends of the upper flange being divided from the web and bent upward and the ends of the lower flange being divided from the web and bent downward; of two similar barrels one for each end of the said bed, an axial bore at the inner end of each barrel to receive the projecting web end of the bed, an upwardly-extending flange formed on the inner end of the barrel and a downwardly-extending flange also formed on the inner end of the barrel, a recess on the inner face of each of said barrel-flanges to receive the upwardly and downwardly turned ends respectively of the flanges of the bed, a flap-plate 19 secured upon the top of the upper flange of the bed at each end thereof, an upwardly-bent ear at the outer end of each flap-plate to overlie the upwardly-bent end of the flange of the bed, means for connecting the upwardly-bent flanges of the bed and ears of the flap-plate to the upwardly-extending flanges of the barrels and means for connecting the downwardly-turned flanges of the bed to the downwardly-extending flanges of the barrel substantially as set forth.

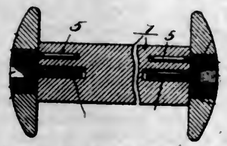
4. In an axle for the wheels of road-vehicles, the combination of a bed of H-section metal having its web vertical and its flanges horizontal, the ends of the upper flanges being divided from the web and bent upward at inclinations toward the outer ends of the bed, and the ends of the lower flange being divided from the web and bent downward at inclinations toward the outer ends of the bed; of two similar barrels one for each end of the said bed, each barrel having an axial bore extending from the inner to nearly the outer end of the barrel, the inner end of which bore receives the projecting web end of the bed, an upwardly-extending flange formed on the inner end of the barrel, an inclined recess on the inner face of said flange to receive the inclined upwardly-turned end of the top flange of the bed, a downwardly-extending flange formed on the inner end of the barrel, an inclined recess on the inner face of said flange to receive the downwardly-turned end of the bottom flange of the bed, and means for connecting the said inclined upwardly and downwardly turned flanges of the bed to the flanges of the barrel substantially as set forth.

5. In an axle for the wheels of road-vehicles, the combination of a bed of H-section metal having its web vertical and its flanges horizontal, the ends of the upper flange being divided from the web and bent upward at inclinations toward the outer ends of the bed, and the ends of the lower flange being divided from the web and bent downward at inclinations toward the outer ends of the bed; of two similar barrels one for each end of the said bed, a cylindrical enlargement at the inner end of each barrel, upwardly and downwardly extending flanges formed on the inner end of the said enlargement, an axial bore extending from the inner end of said enlargement to nearly the outer end of the barrel to receive the projecting web end of the bed, an inclined recess on the inner face of the upwardly-extending flange to receive the inclined upwardly-turned end of the top flange of the bed, an inclined recess on the inner face of the downwardly-extending flange of the barrel to receive the downwardly-turned end of the bottom flange of the bed, means for connecting the said inclined upwardly and downwardly turned flanges of the bed to the flanges of the barrel and a clamping-tongue projecting from each side of the downwardly-extending flange of the barrel adapted to be turned over the rear face of the inclined flange of the bed to further secure the parts substantially as set forth.

6. In an axle for the wheels of road-vehicles, the combination of a bed of H-section metal having its web 1 vertical and its flanges 2, 3 horizontal, the ends 4 of the upper flange 2 being divided from the web and inclined upwardly and the ends 5 of the lower flange 3 being divided from the web and inclined downwardly, and a portion 6 of the web projecting beyond the upwardly and downwardly bent ends 4, 5; of two similar barrels one for each end of the said bed, a cylindrical enlargement 8 at the inner end of each barrel, upwardly and downwardly extending flanges 9 formed on the inner end of the said enlargement, an axial bore extending from the inner end of said enlargement to receive the projecting web end 6 of the bed, an inclined recess on the inner face of the upwardly-extending flange to receive the upturned flange 4 of the bed, an inclined recess on the inner face of the downwardly-extending flange of the barrel to receive the downwardly-turned bottom flange 5 of the bed, rivets connecting the flanges 4, 5 to the flanges 9 of the barrel, the edges of the flanges 9 being calked over the flanges 4, 5 of the bed, and a clamping-tongue projecting from each side of the downwardly-extending flange of the barrel and turned over the rear face of the inclined flange 5 of the bed, substantially as set forth.

784,384. SPOOL FOR MUSICAL-INSTRUMENT-CONTROLLING SHEETS.

MELVILLE CLARK and ERNEST G. CLARK, Chicago, Ill. Filed Oct. 22, 1904. Serial No. 229,558.



Claim.—1. A spool for the purpose indicated comprising a shaft and detachable heads or flanges, the shaft having two parallel bores in each end and the flanges having projecting from their inner face studs or pins positioned and fitted to enter said bores respectively, both said heads or flanges having angular sockets in the outer face.

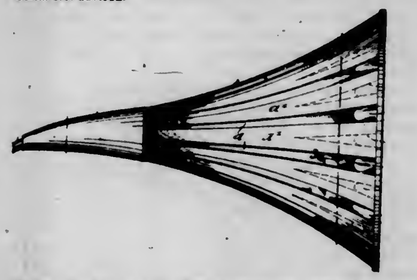
2. A spool for the purpose indicated comprising a shaft and detachable heads or flanges, the two heads or flanges being alike and each having in the outer face an angular socket adapted for driving engagement.

3. A spool for the purpose indicated comprising a shaft and a detachable head or flange having a central metal portion which extends through from inner to outer side thereof, and which has at the outer side one element of a driving-clutch device for rotating the spool and at the inner side one element of the means for detachably connecting it with the spool-shaft.

4. A spool for the purpose indicated comprising a shaft and a detachable head or flange, the shaft having in the end a socket and the head or flange having a metal center portion which extends through from outer to inner side of the head, and has at the outer side one element of a driving-clutch device for rotating the spool and at the inner side a tenon for entering the socket in the shaft.

784,385. TRUMPET FOR TALKING-MACHINES.

ALFRED R. CUNNIUS, New York, N. Y., assignor, by direct and mesne assignments, of one-half to Lipman Kaiser, New York, N. Y. Filed Oct. 11, 1904. Serial No. 227,998.

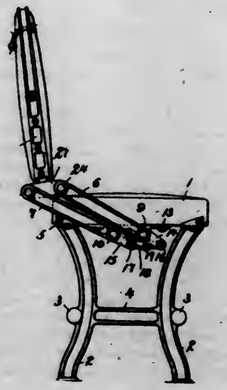


Claim.—1. A trumpet for talking-machines, comprising a conically-tapering body composed of a number of layers, the outer layer being composed of tapering strips separated by spaces tapering inwardly from the larger end of said body, a reinforcing-rim surrounding the body at said larger end, and filling-pieces retained by said rim and extending inwardly into said tapering spaces.

2. A trumpet for talking-machines, comprising a conically-tapering body made of layers of tapering strips, the strips of each layer being separated by spaces tapering inwardly from the larger end of the body and breaking joints with the strips of the adjacent layer, an outer reinforcing-rim surrounding the body at the larger end thereof, filling-pieces retained by said rim and extending inwardly into the tapering spaces of the outer layer, and similar filling-pieces inserted in the spaces between the strips of the inner layer.

784,386. CAR-SEAT.

SAMUEL M. CURWEN, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Oct. 20, 1903. Serial No. 179,105.



Claim.—1. In a car-seat or similar device, a walk-over back with a single link at one end and a plurality of links at the other end and means for causing said links to move in unison when the back is reversed.

2. In a car-seat or similar device, a walk-over back with a single link at one end and a plurality of links at the other end of said seat, a shaft fixed to said single link and mechanism connecting said shaft and the plurality of links so that said links will act in unison when the back is reversed.

3. In a car-seat or similar device, a walk-over back with a single link at one end and a plurality of links at its other end, said single link being fixed to a shaft, a crank fixed to said shaft, a link connected with said crank, and means connecting said link and the plurality of links so that the link secured to the back will act in unison when it is reversed.

4. In a car-seat or similar device, a walk-over back with a single link at one end and a plurality of links at its other end, a shaft fixed to said single link, cranks connected rigidly with each link of said plurality of links, and means connecting said plurality of links and shaft so that the links connected to the back will act in unison when the back is reversed.

5. In a car or similar device, a walk-over back with a single link at one end and a plurality of links at its other end, a shaft connected to said single link and a crank fixed on said shaft, a link connected to said crank and a plurality of cranks also connected to said link, said plurality of cranks being connected to the said plurality of links so that when the back is reversed the links secured thereto will act in unison.

6. In a car-seat or similar device, a walk-over back provided with a single link at one end and a plurality of links at its other end, means for causing said links to move in unison when the seat is reversed and stops to limit the movement of said links.

7. In a car-seat or similar device, a walk-over back provided with a single link at one end and a plurality of links at its other end, means for causing said links to act in unison when the back is reversed, a seat-cushion, and means for inclining said seat-cushion and shifting the same when said back is reversed.

8. In a car-seat or similar device, a walk-over back with a single link secured to one end and a plurality of links secured to its other end, a seat-cushion resting on rockers, means for supporting said rockers, means for causing said links to act together when the back is reversed, and means connecting said last-mentioned means with said rockers when the seat is reversed so that the seat-cushion will be inclined and shifted in unison with said back.

9. In a car-seat or similar device, a walk-over back with a single link at one end and a plurality of links at its other end a rotary shaft fixed to said single link, means connecting said shaft with said plurality of links, stops to limit the movements of said links, a seat-cushion and means connected with said shaft for tilting and inclining said cushion when said back is reversed.

10. In a car-seat or similar vehicle, a walk-over back provided with a single curved link at one end, and a plurality of links at the other end, and means for causing said links to move in unison when the seat is reversed.

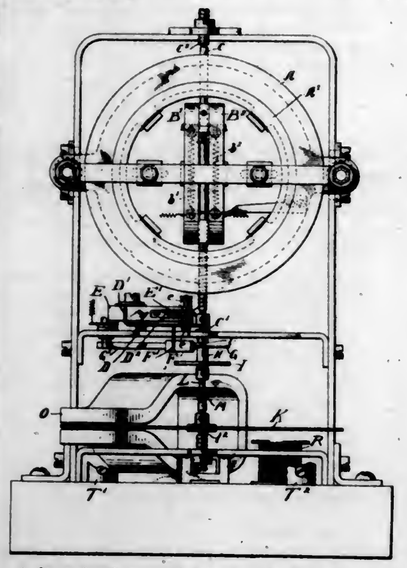
11. In a car-seat or similar device, a walk-over back provided with a single curved link at one end, and a plurality of links at its other end, means for causing said links to move in unison when the seat is reversed, a cushion, means for tilting the said cushion when the back is reversed.

784,387. **ELECTRIC METER.** FREDERICK DARLINGTON, Great Barrington, Mass. Filed Oct. 13, 1904. Serial No. 228,259.

Claim.—1. In an electric meter, the combination of a dynamometer having a stationary coil and an oscillating coil, a drag for retarding the movement of said oscillating coil in one direction only, a ratchet-wheel, a spring connecting said drag and said ratchet-wheel, a pawl connected to said coil and engaging said ratchet-wheel to move it in one direction only, a detent for preventing its movement in the reverse direction, and means for integrating an amount proportional to the number of swings of said coil.

2. In an electric meter, the combination of a dynamometer having a stationary and an oscillating coil, a drag for retarding the movement of said oscillating coil in one direction only and means for establishing a mechanical spring connection between said drag and said oscillating coil during its movement in said direction only, means for electrically moving said coil in the reverse direction, and means for integrating said movement of said coil.

3. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, said movable coil having windings in a forward direction, and windings in a reverse direction means for causing a current to flow alternately through said windings, producing movements of said coil in both directions, and means for connecting said coil to a drag during the movement of said coil in one direction only.



4. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, said movable coil having windings in a forward direction, and windings in a reverse direction, means for causing a current to flow alternately through said windings, a drag, and means for establishing a spring connection between said movable coil and said drag during the movement of said coil in one direction only.

5. In a meter, the combination of contact members, an electromagnetic device having a circuit controlled thereby and acting to bring said members into proximity to one another and to subsequently separate them and an auxiliary magnet acting to cause said members when brought into proximity to one another by said electromagnetic device to engage and also to delay the separation of said members.

6. In an electric meter, the combination of a dynamometer having a stationary coil and an oscillating coil, and a circuit-changer for controlling the current through said movable coil, said circuit-changer consisting of a pallet carried by said movable coil and movably connected thereto and a contact and a magnet for causing said pallet to engage said contact, said pallet and contact being connected, one to windings of said coil and the other to one of the mains.

7. In a meter, the combination of a dynamometer having a stationary and a movable coil, said movable coil having a forward and a reverse winding, means for alternately passing a current through said windings and a coil in series with one of said windings when the current is passed through the same and acting to reinforce the field of said stationary coil.

8. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, said moving coil having two windings in opposite directions, means for alternately passing current through said windings, and a coil acting to reinforce the field of said stationary coil connected in circuit when the current is passed through one of said windings.

9. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, a current-changer for said movable coil consisting of a pallet pivoted eccentrically to the axis of said movable coil, a contact engaged thereby, and means for holding it temporarily in engagement with said contact during a partial movement of said coil.

10. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, a current-changer for said movable coil consisting of a magnetic pallet pivoted eccentrically to the axis of said coil, a contact, a magnet for attracting said pallet and retaining it temporarily in engagement with said contact and means for withdrawing it from said contact.

11. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, a current-changer for said movable coil consisting of a magnetic pallet pivoted eccentrically to the axis of said coil, a contact, a magnet for attracting said pallet and retaining it temporarily in engagement with said contact and means for withdrawing it from said contact.

12. In an electric meter, the combination of a dynamometer having a stationary and a movable coil, a current-changer for said movable coil consisting of a magnetic pallet movably connected to said coil, a contact, a magnet for attracting said pallet and retaining it temporarily in engagement with said contact and means for withdrawing it from said contact.

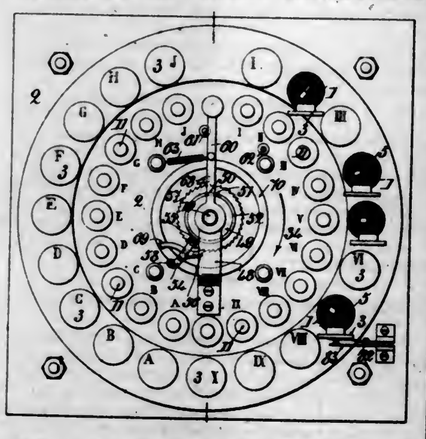
13. In an electric meter, the combination of a ratchet-wheel, a detent therefor, a pawl for said wheel, a magnetic member mechanically connected to said pawl and a magnet acting on said magnetic member to overcome the friction of said detent upon said ratchet-wheel.

14. In an electric meter, the combination of a ratchet-wheel, a detent therefor, a pawl for said wheel, a magnetic member mechanically connected to said pawl, a magnet acting on said magnetic member to overcome the friction of said pawl upon said ratchet-wheel, and means for thereafter overcoming the attraction of said magnet for said magnetic member.

15. In a meter, the combination of a dynamometer having a stationary and a movable coil, said movable coil having windings in opposite directions whose inner ends are connected with one another, and whose outer ends are connected to the same limb of the circuit, the resistance of one winding being high and the resistance of the other winding being relatively low, an electrical connection between the other limb of the circuit and the inner ends of said windings, and means for disconnecting and reconnecting the outer end of said low-resistance winding from said first-mentioned limb.

16. In a meter, the combination of a dynamometer having a stationary and a movable coil, said movable coil having windings in opposite directions whose inner ends are connected with one another, and whose outer ends are connected to the same limb of the circuit, the resistance of the circuit of one winding being high and the resistance of the other winding being relatively low, an electrical connection between the other limb of the circuit and the inner ends of said windings, means for disconnecting and reconnecting the outer end of said low-resistance winding from said first-mentioned limb and an auxiliary coil in series with said low-resistance winding acting to reinforce the field of said stationary coil when said low-resistance coil is connected to said first-mentioned limb.

784,388. **APPARATUS FOR ELECTRICAL SIGNALING.** LOUIS DESPRADELS, Paris, France. Filed Nov. 19, 1902. Serial No. 131,955.



Claim.—1. In an apparatus for electrical signaling, the combination of a support, a circular series of buttons connected therewith and provided with contact-pistons which can be pushed inwardly, swinging shutters disposed adjacent to said buttons, an arm mounted in front of the series of contact-pistons and free to turn, a lever mounted upon said arm and turning therewith for the purpose of causing said shutters to swing, and an electromagnet for actuating said lever.

2. In an apparatus for electric signaling, the combination of a support, a circular series of buttons connected therewith and provided with contact-pistons which can be pushed inward, a spring for pushing each piston outward, a bolt capable of locking the button when it is pushed inward, and of a spring pushing the bolt toward its position for locking the button, an arm turning in front of the series of contact-pistons, and means on the said arm for opening the bolts successively in passing in front of the same.

3. In an apparatus for electrical signaling, the combination of a circular series of buttons having contact-pistons which can be pushed inward, of a spring pushing each button outward, of a bolt for locking the said button when it is pushed inward, of a spring acting on the bolt, of a heel formed on the bolt of an arm turning in front of the series of contact-pistons, of means for turning the arm and of a cam on the said arm acting on the heels of the bolts to unlock the piston-buttons.

4. In an apparatus for electric signaling, the combination of a series of swinging shutters, a support provided with a series of buttons, said buttons being disposed circularly, a shaft disposed in the center of said series of buttons, a clockwork connected to the said shaft, of an arm fixed to the shaft, of a lever mounted on the said arm and turning with the same, of an electromagnet actuating the said lever, of means whereby the lever causes the shutters to swing when it is actuated, of a slidable rod, of an arm on the said rod to lock the clockwork, of a spring pushing the rod toward the locking position, of a disk fixed to the shaft to hold the rod in the unlocking position, and of an opening in the said disk to allow the rod to move after each complete revolution of the shaft.

5. In an apparatus for electric signaling, the combination of a series of swinging shutters, a support provided with a series of buttons, a shaft disposed adjacent to said series of buttons, a clockwork connected to the said shaft, of an arm fixed to the shaft, of a lever mounted on the said arm and turning with the same, of an electromagnet actuating the said lever, of means whereby the lever causes the shutters to swing when it is actuated, of a slidable rod, of an arm on the said rod to lock the clockwork, of a spring pushing the rod toward the locking position, of a disk fixed to the shaft to hold the rod in the unlocking position, of an opening in the said disk to allow the rod to move after each complete revolution of the shaft, of a heel on the said rod, of a slidable sleeve on the shaft and which is actuated by the said electromagnet, and of a projection on the said sleeve to act on the said heel.

6. In an apparatus for electrical signaling, the combination of a circular series of buttons having contact-pistons, of a support for the series of buttons, of the swinging shutters, of a rotary shaft, of an arm on the said shaft, of an electromagnet, of means carried by the said arm to cause the said shutters to swing successively under the action of the said electromagnet, of a switch arranged to be closed by one of the said shutters, the rank of which corresponds to the order-number of the station on the line, of a battery and of a ringing bell in circuit with the said switch.

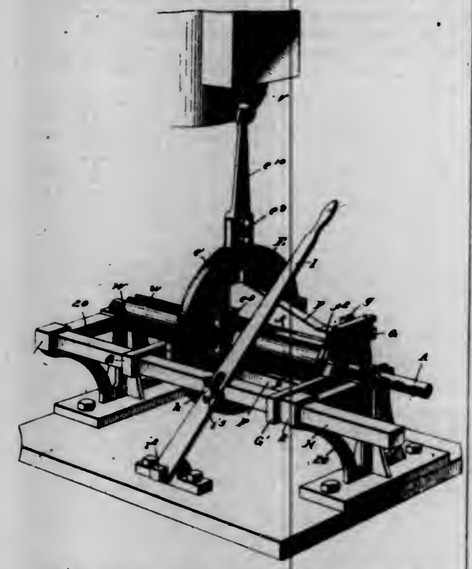
7. In an apparatus for electrical signaling, the combination of a circular series of buttons having contact-pistons, of a support for the series of buttons, of swinging shutters, of a rotary shaft, of an arm on the said shaft, of an electromagnet, of means carried on the said arm and whereby the said shutters are caused to swing under the action of the said elelectromagnet, of a switch arranged to be closed by the said shutters, the rank of which corresponds to the order-number of the station on the line, of a battery and bell in circuit with the said switch, of a second electromagnet and bell in circuit with the said switch, of a lever actuated by the said electromagnet, of a brush on the said lever, of a commutator-segment mounted on the shaft to be rubbed by the said brush, and of a second switch arranged to be closed by the said lever when it is attracted by the respective electromagnet, the result being that the first-named electromagnet is held in the line-circuit during the contact of the said segment with the brush, and that the passage of the line-current through the said electromagnet is afterward allowed or prevented according to whether the second switch is closed by the action of the second electromagnet or remains open for the purpose set forth.

8 In an operating device for an electrically-controlled mechanism, the combination with a base and frame, of a plurality of keys, a corresponding number of electric circuit-terminals, arms adapted to revolve within said frame, means for retaining any of said keys in a depressed position, means for closing the circuit through the termi-

nal corresponding to the depressed key, means for releasing the key, and means for opening the circuit across said terminal.

9. In an operating device for an electrically-controlled mechanism, the combination with a base and frame, of a plurality of keys, a corresponding number of electric circuit-terminals, arms adapted to revolve within said frame, means for retaining any of said keys in a depressed position, means for releasing a depressed key, means for returning a depressed key to its original position after being released, means for closing the circuit through the terminal corresponding to a depressed key, and means for opening the circuit through the said terminal.

784,389. VALVE-GEAR. William F. Diden, Santa Monica, Cal. Filed Oct. 13, 1904. Serial No. 228,321.



Claim.—1. A reversing mechanism for engines, which comprises in combination with the shaft to be rotated and the steam-controlling slide-valve; an eccentric mounted on the shaft and having a slot for the passage of the shaft therethrough, said slot having its side walls grooved, a pair of oppositely-disposed and parallel guides fixedly connected to the shaft, disposed in the slot of the eccentric and in said side-wall grooves of the slot and upon which the said eccentric is slidably supported, the eccentric-yoke, connections that join the sliding valve, and a pair of oppositely-projected wedge-keys, disposed upon diametrically opposite sides of and having longitudinal movement on the shaft, said keys engaging opposite ends of the eccentric slot and means for reciprocally moving the said keys, as set forth.

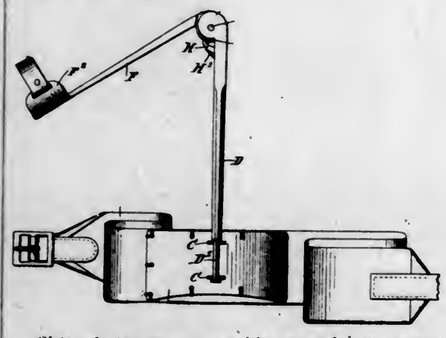
2. The combination with the sleeve mounted on the drive-shaft to turn therewith, said sleeve having a pair of diametrically oppositely disposed longitudinal grooves, a pair of guides disposed at right angles to straddle the sleeve and rotatable therewith, an eccentric having an elongated slot, mounted on the sleeve and having the edges of its slot slidable on the aforesaid guides, cam devices reciprocable on the shaft-sleeve for shifting the eccentric, means for actuating the cam devices and connections that join the eccentric with the slide-valve, as set forth.

3. The combination with the shaft, the two guides that straddle and are clamped to the shaft, the eccentric that is mounted on the guides and has movement therein in a direction at right angles to the shaft, the slide-valve and connections that join said valve and the eccentric; of a pair of oppositely-disposed wedge-shaped keys disposed in alternate relation with their small ends projected through and in engagement with the eccentric, said keys being mounted on and having reciprocable movement in the direction of length of the shaft, and lever devices for shifting the said keys in opposite directions, said eccentric having a slot, the side walls of which being provided with grooves to receive the straddling-guides, as set forth.

4. The combination with the movable eccentric, the shaft, the guides that straddle and are fixedly connected to the shaft, and the clamp-screws that join the guides; of the wedge-shaped cam-keys disposed on diametrically opposite sides of the shaft, projected radially therefrom and rotatable therewith, said keys having reciprocable movement on the shaft and engaging the eccentric, and each having a longitudinal slot to receive the clamp-screws that connect the eccentric-guides, and connections between the eccentric and the slide-valve, as set forth.

5. A reversing-gear for engines, comprising a sleeve keyed on the drive-shaft and having a pair of oppositely-disposed longitudinal grooves, the slide-valve, a pair of parallel guides that straddle the sleeve, the cross-screws that clamp the two guides; of the two-part eccentric having a central rectangular slot, and having the sides of its slot slidably engaging the two guides, a pair of wedge-shaped keys disposed in alternate relation and having longitudinal movement in the grooves of the sleeve and having their small ends held to engage the ends of the slot in the eccentric, each of said keys having a longitudinal slot to take in the cross-screws that clamp the two guides on the sleeve; connections between the eccentric and the sliding valve, the aforesaid sleeve having a clutch-collar at each end, the yoke-levers that engage said collars, the lever H and the shifting lever I, all being arranged substantially as shown and described.

784,390. ARM-REST. William S. Dunham, Sharpsville, Pa. Filed May 24, 1904. Serial No. 209,559.



Claim.—1. An arm-rest comprising means for attachment to the body of the user, a vertical member supported thereon, and provided with a fork at its upper end, an arm-supporting member, mounted to swing with reference to the vertical member, and having a circular heel working in said fork, said heel being formed with a notch in its periphery, and having a recess in one of its faces, the sides of which extend to either side of said notch, a fly pivoted to swing in said recess, and a spring-actuated pawl coöperating with the fly, the free end of which is received by the notch to hold said arm-supporting member in the desired position.

2. An arm-rest comprising means for attachment to the body of the user, a post rotatably supported thereon and provided with a fork at its upper end, an arm-supporting member mounted to swing with reference to the post, and having a circular heel working in said fork, said heel being formed with a notch in its periphery, and having a recess in one of its faces, the sides of which extend to either side of said notch, a fly pivoted to swing in said recess, and a spring-actuated pawl coöperating with the fly, and the free end of which is received by the notch to hold said arm-supporting member in the desired position.

784,391. GAS-RANGE. Carl Bickmeyer, Yonkers, N. Y. Filed Oct. 4, 1904. Serial No. 227,128.

Claim.—1. In a range, the combination of a casing, spaced horizontally-alined ovens supported therein, and a broiling-chamber arranged between said ovens and of greater height than the same.

2. In a range, in combination, a casing, spaced ovens supported therein, the top of each oven being spaced from the top of the casing, and a broiling-chamber arranged between said ovens and extending above the same.

3. In a range, in combination, a casing, spaced ovens supported therein and having the bottoms thereof formed by a strip extending between the same, the top and sides of each oven being likewise formed by said strip, and a broiling-chamber arranged between said ovens and having the bottom thereof constituted by the intermediate portion of said strip and the top thereof constituted by the top of the casing.



4. In combination, in a range, a casing, spaced ovens supported therein, the top of each oven being spaced from the top of said casing, and a broiling-chamber arranged between said ovens and having the top thereof constituted by the top of said casing.

5. In combination, a casing, spaced ovens supported therein, and a broiling-chamber arranged between said ovens and having the top thereof constituted by the top of the casing, the latter being provided with a top opening for said broiling-chamber.

6. In a range, in combination, a casing provided with a top opening, a broiling-chamber in said casing below said opening, and a free cover-plate for the latter provided with means for positioning a broiler in said broiling-chamber.

7. In a range, in combination, a casing provided with a top opening, a broiling-chamber in said casing beneath said opening, and a free cover-plate for the latter adapted to maintain a broiler in upright position in said broiling-chamber.

8. In combination, in a range, a broiling-chamber having a top opening, a cover-plate for the latter, and an auxiliary plate for coöperating with said cover-plate in positioning a broiler in said broiling-chamber.

9. In combination, a broiling-chamber having an opening, a cover-plate for the latter, and an exterior auxiliary plate for coöperating with said cover-plate in positioning a broiler in said broiling-chamber.

10. In combination, a broiling-chamber having an opening, a cover-plate for the latter provided with slots for engaging a broiler to position the same in said chamber, and means arranged exteriorly of said casing for retaining the broiler against movement in said slots.

11. In combination, in a gas-range, a broiling-chamber, a top plate for covering the same and for engaging a broiler so as to prevent the displacement of the same in one direction, and an auxiliary plate in connection with said top plate for preventing the displacement of the broiler in a direction at right angles to the first-named direction.

12. In combination, in a range, a broiling-chamber having a top opening, a cover-plate for the latter provided with slots for engagement with a broiler, and an auxiliary plate for maintaining the broiler against movement in said slots.

13. In combination, a broiling-chamber having an opening, a cover-plate for the latter provided with slots for engagement with a broiler, and an auxiliary plate likewise provided with slots for coöperating with said first-named slots in positioning a broiler in said chamber.

14. In combination, a broiling-chamber, a top plate for the chamber having slots, and an auxiliary plate registering therewith having slots at right angles to the slots of the first plate.

15. In combination, a broiling-chamber, a broiler, a gravy-pan supporting the latter and centering the bottom of the same in the broiling-chamber, and a top plate positioning the handles of the broiler centrally of the broiling-chamber.

16. In a gas-range, the combination, with a casing, of spaced horizontally-alined ovens supported therein, each oven being spaced from the walls of said casing, heating means between the top of each oven and the top of the casing, a broiling-chamber between said ovens and having the top thereof constituted by the top of the casing, means for heating said broiling-chamber, and a damper arranged in the space between the top of each oven and the top of the casing.

17. In a gas-range, the combination, with a casing, of spaced horizontally-alined ovens supported therein and each spaced from the walls of the casing, heating means between the top of each oven and the top of the casing, a broiling-chamber arranged between said ovens, means for heating said broiling-chamber, and an uptake communicating with said casing below said ovens and said broiling-chamber.

18. In a gas-range, the combination of a casing, ovens supported at the interior of said casing transversely to the front and rear walls of the same, a broiling-chamber between said ovens, gas-supply pipes adjacent the side walls of the broiling-chamber, flues extending around the ovens, and dampers located in said flues at their connection with the broiling-chamber.

19. In a gas-range, the combination, with a casing, of spaced horizontally-alined ovens supported therein, each oven being spaced from the walls of said casing, heating means between the top of each oven and the top of the casing, a broiling-chamber between said ovens and having the top thereof constituted by the top of the casing, means for heating said broiling-chamber, dampers in the space between the top of said ovens and the top of the casing, and an uptake communicating with said casing below said ovens and said broiling-chamber.

20. In a gas-range, the combination, with a broiling-chamber provided with gas-supply pipes at opposite sides thereof, of a gravy-collecting pan at the bottom of the same, means for supporting said gravy-collecting pan centrally in the broiling-chamber, means on said collecting-pan for centering the broiler when placed in position therein, a top plate provided with slots for the handles of the broiler, and an auxiliary plate provided with slots extending at right angles to the slots of said top plate for holding the wire handles of the broiler firmly in central position in the broiling-chamber.

21. In a range, the combination, with a broiling-chamber, of a gravy-pan supported at the bottom thereof, said pan being provided with an outlet-tube for centering the same in the broiling-chamber, and at opposite sides thereof with retaining-lugs, and a cover for the broiling-chamber provided with slots, the lugs of said gravy-pan and the slots of said cover being adapted to coöperate in positioning a broiler in said broiling-chamber.

22. In a gas-range, the combination, with an exterior casing provided with a plurality of front doors and openings in its top for the cooking vessels, and gas-burners below said top openings, of ovens in said casing, a broiling-chamber between said ovens, gas-supply pipes at both side walls of the broiling-chamber, flues extending from the broiling-chamber around the ovens, an outlet-opening in the casing below the broiling-chamber, an outlet-opening in the casing above the gas-supply pipe of the broiling-chamber, dampers at the point of connection of the upper part of the broiling-chamber with said flues, and a pipe connecting with the outlets in the broiling-chamber for conducting off the products of combustion.

23. A gas-range, comprising a casing, ovens supported transversely to the casing, having their top, bottom and side walls arranged substantially equidistantly from the respective top, bottom and side walls of the casing, said ovens being made of one continuous piece of metal, heating means in the casing between the top of the oven and top of the casing, lid-openings in the top of the casing above said heating means, a broiling-chamber arranged between the ovens, the adjacent walls of the latter forming the side walls of the broiling-chamber, heating means in the broiling-chamber, and an uptake-pipe connecting with the upper and lower part of the casing.

784,392. ROTARY ENGINE. William M. Ewing, Philadelphia, Pa. Filed Aug. 11, 1904. Serial No. 220,362.

Claim.—1. In an engine, the combination of two rotating and simultaneously-active pistons moving in intersecting planes.

2. In an engine, the combination of two rotating and simultaneously-active pistons moving in intersecting planes, each of said pistons forming an abutment for the other.

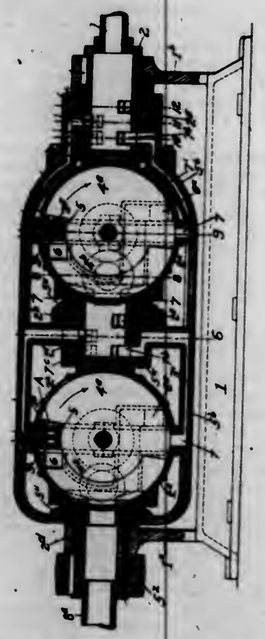
3. The combination of a piston rotating in one plane, a second piston rotating in a plane intersecting that of the first piston, each of said pistons forming a moving abutment for the other and operating actively and simultaneously.

4. The combination of a piston rotating in one plane, and a second piston rotating in a plane at right angles to and intersecting that of the first piston, each of said pistons being continuously active and respectively forming a moving abutment for the other.

5. The combination of a piston rotating in one plane, a second piston rotating in a plane intersecting that of the first piston, each of said pistons being continuously positively active, and respectively forming a moving abutment for the other, and gearing between said pistons.

6. In an engine, the combination of a continuously positively active piston rotating in one plane, and a second continuously positively active piston rotating in a plane at right angles to the plane of the first piston, said pistons being provided with steam-inlet ports, substantially as described.

7. In combination, a stationary annular chamber, a continuously positively active piston rotating therein, a second annular chamber intersecting that of the first chamber, and a continuously positively active piston rotating in said chamber provided with ports adapted to supply steam to the first chamber, and means for applying steam to the second chamber.



8. In a rotary engine, the combination of a chamber, a rotating continuously positively active piston therein, a second chamber intersecting the first chamber, a rotating continuously positively active piston in said chamber intersecting the plane of the first piston, each piston forming the working abutment for the other piston, and means for introducing propelling fluid to and exhausting it from the respective chambers.

9. In a rotary engine, the combination of an annular chamber, a piston rotating therein, a second annular chamber intersecting the first chamber, a piston rotating in said second chamber, each of said pistons forming a moving abutment for the other, inlet-passages in the second piston for supplying steam continuously to the first piston-chamber, and inlet-passages in the supports of the said second piston for supplying steam continuously to its chamber, and exhaust-ports from the respective chambers, substantially as described.

10. In a rotary engine, the combination of a chamber, a rotating piston therein, a second chamber intersecting the first chamber, a rotating piston in said chamber intersecting the plane of the first piston, each piston forming the working abutment for the other piston, and means for introducing propelling fluid to and exhausting it from the respective chambers so as to continuously and positively drive each piston; with gearing between the respective pistons exterior to the piston-chambers.

11. The combination of annular chamber fixedly supported, a continuously positively active piston rotating therein, a second annular chamber intersecting the plane of the first chamber, a continuously positively active piston rotatably supported in said chamber, and intersecting the plane of rotation of the first piston, rotatable supports for the second piston, fluid-inlet passages through the walls of said supports and through said piston, and fluid outlet or exhaust passages from said chambers.

12. The combination of a ported cylinder, a sleeve rotatably mounted thereon provided with ports adapted to register with the ports therein, a fixed piston-chamber, a rotatable piston therein, and a movable abutment for the said piston moving in a plane intersecting the plane of movement of said piston, supports for said abutment connecting it with said sleeve, and passage-ports leading through said abutment and its supports to the sleeve-ports, substantially as described.

13. In an engine, the combination of a ported cylinder, a rotatable ported sleeve thereon, a pair of annular piston-chambers arranged in intersecting planes, rotatable pistons in said chambers, one of said pistons forming the working abutment for the other, and a connection between one of said pistons and the sleeve, whereby the said piston rotates the sleeve, and ports leading through said supports and the piston connected therewith, substantially as described.

14. The combination of annular chamber fixedly supported, a continuously positively active piston rotating therein, a second annular chamber intersecting the plane of the first chamber, a continuously positively active piston rotatably supported in said chamber, and intersecting the plane of rotation of the first piston, each of said pistons forming the working abutment for the other, rotatable supports for the second piston, fluid-inlet passages through the walls of said supports and through said piston, and fluid outlet or exhaust passages from said chambers leading through the stationary supports of the first chamber.

15. The combination of a stationary ported cylinder, a stationary chamber, a piston rotating in said chamber, a rotating frame connected with said sleeve, an abutment connected to said frame and rotating in a plane intersecting the plane of rotation of the first piston, ports leading from said abutment and through its supports to said cylinder, whereby steam is admitted to the respective piston-chambers.

16. In a rotary engine, the combination of a pair of intersecting chambers, a rotating piston in one chamber, a piston in the other chamber moving at right angles to the first piston, rotatable supports for said second piston exterior to the fixed walls of the chambers, supply ports and passages leading through the rotative supports to the chamber of the second piston, and inlet ports and passages leading through the supports and said second piston to the chamber of the first piston, and exhaust ports and passages from said chamber, substantially as described.

17. The combination of a stationary ported cylinder, a chamber rigidly connected therewith, a piston rotating in said chamber, a rotating frame connected with said sleeve, a piston connected to said frame and rotating in a plane intersecting the plane of rotation of the first piston, ports leading through said second piston and its supports to said cylinder, exhaust-passages in the stationary walls of the piston-chambers, and gearing between the respective pistons exterior to the working chambers.

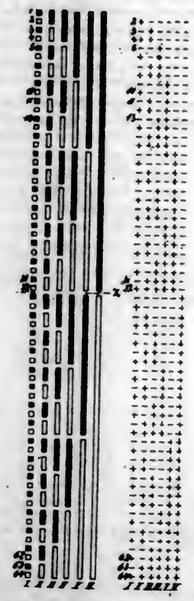
18. In a rotary engine, the combination of a pair of intersecting chambers, a rotating piston in one chamber supported upon the fixed walls thereof, a piston in the other chamber moving at right angles to the first piston, rotatable supports for said second piston exterior to the fixed walls of the chambers, each of said pistons forming the working abutment for the other piston, supply ports and passages leading through the rotative supports to the chamber of the second piston; inlet ports and passages leading through the supports and said second piston to the chamber of the first piston, and exhaust ports and passages in the stationary walls of the chambers, substantially as described.

784,393. COMMUTATOR. GUSTAV GRABOSCH, Berlin, Germany. Filed July 30, 1904. Serial No. 218,917.

Claim.—1. In an electrical transmitting apparatus, a transmitter having parallel rows of contacts, the first of said rows containing as many contacts as there are signals to be given, the second row containing half as many contacts as the first row, the third row having half the number of the second row and so on, each contact of a subsequent row being double the length of a contact in the preceding row, substantially as and for the purpose set forth.

2. In an electrical transmitting apparatus, a transmitter having parallel rows of contacts, the first of said rows containing as many contacts as there are signals to be given, the second row containing half as many contacts as the first row, the third row having half the number of the second row and so on, each contact of a subsequent row being double the length of a contact in the preceding row, in combination with a selecting device carrying a contact for each row on the transmitter, said selector and transmitter being relatively movable, substantially as described.

3. In combination, a series of rows of contacts, the first of said rows containing as many contacts as there are different signals to be given, the second row containing half the number of contacts of the first row, the third row half the number of the second row and so on, the last row containing but two contacts, each contact of a later row being double the length of a contact of the next previous row, the contacts in each row being alternately on a high and a low level, and a number of devices corresponding to the rows of contacts and adapted to close a circuit therethrough, substantially as and for the purpose set forth.



4. An electric signal-selecting apparatus consisting of conductive contacts insulated from each other and arranged in rows, the first of said rows containing as many contacts as there are different signals to be given, the second row containing half the number of contacts as the first row, the third row half the number of the second row, and so on, each contact of a later row being double the length of a field of a previous row, and the contacts in such row being alternately connected with each other and to a source of electricity; and a number of sliding contacts one for each row, adapted to close the circuits, substantially as and for the purpose set forth.

5. In an apparatus for electric signaling by combining different kinds of electric impulses, a series of insulated rows of contacts, the first of said rows containing as many contacts as there are different signals to be transmitted, the second row containing half the number of contacts of the first row, the third row half the number of the second row, and so on, the contacts of each row being alternately connected with each other and in combination with a series of relatively movable contacts, one for each row and means for transmitting electrical impulses through the respective contacts, substantially as and for the purpose set forth.

6. In an apparatus for transmitting electrical signals or signs by combining positive and negative impulses, a series of rows of insulated contacts, the first row containing as many contacts as there are signals to be transmitted, the second row containing half the number of contacts of the first row, the third row half the number of the second row, and so on, the last row containing but two contacts, the contacts in each row being alternately connected by a wire with each other with a sliding contact 7 and with a source of electricity 8; a corresponding number of sliding contacts 14, 15, 16, 17, 18, and electromagnets 45, 46, 47, 48, 49, with a common armature 26, a rack 12, a transmitter-battery 22 and key, two electromagnets, 62, 63, a forked lever 58, an escape-wheel 51 and a contact-arm 52 on a common axle 50, means for rotating said axle, a disk with contacts 53-57 an electromagnet 38-42 with armature for each row I-V, a local battery 65, catches 33-37 for said armature and an electromagnet 43, with armature 44, substantially as and for the purpose set forth.

7. In an apparatus for transmitting signs or signals by electric currents, a transmitting-surface containing a series of rows of contacts, each succeeding row containing half as many contacts as the next preceding row; with a circuit-closing device adapted to simultaneously make contact with transversely-alined contacts in the rows, and means for adjusting said device so that it will close the contacts at predetermined points on the transmitter, substantially as described.

8. In an apparatus for transmitting signs or signals by electric currents, a transmitting-surface containing a series of rows of contacts, the alternate contacts in each row being of opposite polarity, and each succeeding row containing half as many contacts as the next preceding row; with a circuit-closing device adapted to simultaneously make contact with the transversely-alined contacts in the rows, and means for adjusting said device so that it will close the contacts at predetermined points on the transmitting-surface, substantially as set forth.

9. In an electrical transmitter having parallel rows of circuit-controlling spaces, the second of such rows having half as many spaces as the first row, the third row having half as many spaces as the second row, and so on, substantially as set forth.

10. In an electrical transmitter having parallel rows of circuit-controlling spaces, the second of such rows having half as many spaces as the first row, the third row having half as many spaces as the second row, and so on, the spaces in each subsequent row being double the length of the spaces in the next preceding row, substantially as and for the purpose described.

11. In an electrical transmitting apparatus, a transmitter having parallel rows of circuit-controlling spaces, the second of such rows having half as many spaces as the first row, the third row having half as many spaces as the second row, and so on; in combination with a selecting device for each row, the transmitter and selecting devices being relatively movable, substantially as described.

12. In an electrical transmitting apparatus, the combination of a transmitter having parallel rows of circuit-controlling spaces, the second of such rows having half as many spaces as the first row, the third row having half as many spaces as the second row, and so on, the spaces in each subsequent row being double the length of the spaces in the next preceding row; with a selecting device for each row, said devices being arranged in line, the transmitter and selecting devices being relatively movable, substantially as described.

13. In an apparatus for transmitting signs or signals by electric currents, a transmitting-surface containing a series of rows of circuit-controlling spaces, each succeeding row containing half as many spaces as the next preceding row; with circuit-closing devices adapted to simultaneously coact with transversely-alined spaces in the rows, and means for adjusting said devices so that the circuits are closed at predetermined points on the transmitter, substantially as described.

14. An apparatus for transmitting different kinds of electric impulses, comprising parallel rows of contacts; each subsequent row containing but half as many contacts as the preceding row, and the contacts in each row being separated by depressions; with means adapted to short-circuit adjacent rows of contacts.

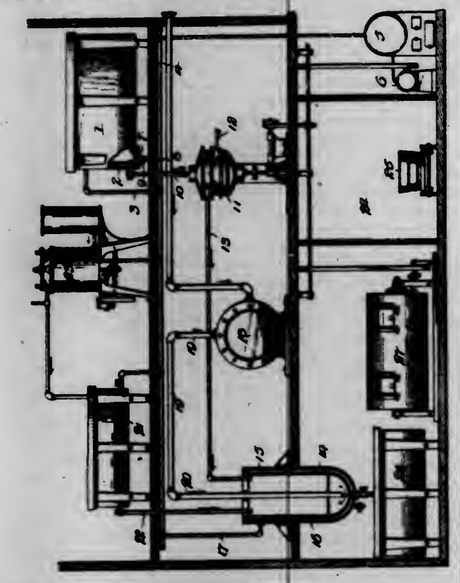
15. In combination, a series of parallel conductive fields each containing a series of contacts insulated from each other and arranged on a drum, the first of said fields having as many contacts as there are different signals to be transmitted, the second field containing half as many contacts as the first field, the third field half as many as the second field, and so on, each contact in a later field being double the length of the contact in the next previous field, the contacts in each field being separated by depression, a corresponding number of pairs of sliding springs electrically connected with a battery, means for controlling said springs and means for transmitting the impulses from said springs to their respective fields, substantially as and for the purpose set forth.

16. In combination, conductive fields, each composed of a series of contacts insulated from each other, said fields being arranged on a drum in parallel, the first of said fields containing a number of contacts equal to the different signals to be transmitted, the second field containing half the number of contacts as the first, the third field half as many contacts as the second, and so on, the contacts in each field being separated by depression, a contact-disk at each end of the drum, a corresponding number of contact-springs $14'$, 14^2, $15'$, 15^2, $16'$, 16^2, $17'$, 17^2, and $18'$, 18^2 electrically connected with a battery, and means for transmitting the impulses from the contacts to their respective fields, substantially as and for the purpose set forth.

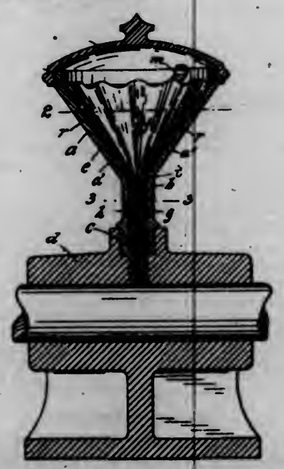
784,394. PROCESS OF REFINING BUTTER. MARK H. GREELEY, Ottumwa, Iowa. Filed Nov. 15, 1904. Serial No. 232,845.

Claim.—The herein-described process of producing a pure, refined quality of butter, consisting, first in raising the temperature of

the butter material to 110° to 115°, more or less, and keeping the contents thoroughly agitated while the temperature is thus being raised, then drawing off the settlings as water, salt, &c., and skimming the heated mass; then drawing off the oil and passing it through a separator at a temperature of 90°; then passing the same into an aerated chamber having an air-pipe leading to the bottom thereof and simultaneously introducing into said tank with the introduction of the purified oil a greater quantity of pasteurized or otherwise purified milk whereby the air introduced into the aerated chamber will cause a thorough commingling of the purified milk and oil, the temperature of the aerated chamber being maintained at 130° and then drawing off the commingled pure milk and oil into a carrying-vat and thence removing the butter from the cooling-vat and permitting it to stand in the cooling-chamber for eighteen hours and thereafter working and salting the butter all substantially as specified and for the purpose set forth.



784,395. GREASE-CUP. JAMES B. HALL, Cleveland, Ohio. Filed June 7, 1904. Serial No. 211,490.

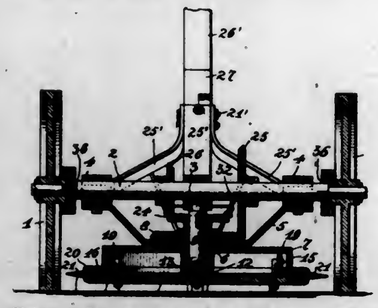


Claim.—1. A grease-cup, comprising an external casing having a contracted opening at its lower end, an internal grease-receptacle having a hollow stem projecting through the said opening of the casing so as to provide an annular space about the said stem, the said internal receptacle being provided with a series of radially-disposed corrugations, substantially as described, constituting in connection with the casing a series of channels in which the heat acts on the outer surface of the receptacle.

2. In a grease-cup the combination with the outer casing having a contracted opening leading therefrom to the rotating member to be lubricated, of a grease-receptacle seated loosely in said casing, and provided with a stem extending in said contracted opening with its lower end resting loosely on the rotating member.

3. In a grease-cup the combination with an external casing having a contracted opening at its lower end leading to the rotating part to be lubricated, of a grease-receptacle seated in said casing and provided with a stem extending in the contracted opening and of a diameter to leave an annular space around the stem, said receptacle and casing being formed relatively to leave a series of radial channels between them communicating with the annular space; whereby the heat generated by the bearing will act through said channels on the surface of the receptacle and liquefy the lubricant therein.

784,396. LAWN-MOWER. JOHN H. HALL, Patrick, W. Va. Filed Nov. 10, 1904. Serial No. 232,173.



Claim.—1. In a mowing-machine of the character described, the combination with the supporting and driving wheels of an axle mounted therein to turn in a forward direction, bearing-brackets mounted on said axle, a hanger-bar secured to said brackets, an upper cutter-disk revolubly supported in said hanger, a lower cutter-disk revolubly supported by said upper disk, and means whereby said lower disk may be adjusted with respect to said upper disk, and gears actuated by said axle whereby said disks are revolved in opposite directions, substantially as described.

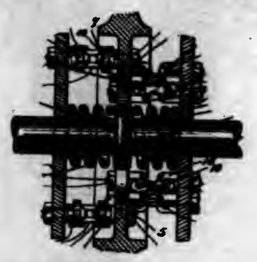
2. In a mowing-machine of the character described, the combination with the supporting and driving wheels, of an axle mounted therein to turn in a forward direction, bearing-brackets mounted on said axle, a hanger-bar secured to said brackets, an upper cutter-disk revolubly supported in said hanger, a lower cutter-disk revolubly supported by said upper disk, means whereby said lower disk may be adjusted with respect to said upper disk, means whereby said disks are driven in opposite directions, and a handle adjustably secured to the same, substantially as described.

3. In a mowing-machine of the character described, the combination with the supporting and driving wheels of an axle mounted therein to turn in a forward direction, bearing-brackets mounted on said axle, a hanger-bar secured to said brackets, an upper cutter-disk revolubly supported in said hanger, a lower cutter-disk, an annular flange formed on said upper disk, upwardly-projecting bearing-bolts arranged on said lower disks, bearing-rollers journaled on said bolts and adapted to engage said annular flange on the upper disk thereby supporting said lower disk, means whereby said lower disk is adjusted with respect to said upper disk, and means whereby said disks are driven in opposite directions, substantially as described.

4. In a mowing-machine, the combination with the driving-wheels of a shaft mounted therein, means whereby said shaft is turned by said wheels in a forward direction only, bearing-brackets arranged on said axle, a hanger-bar supported by said bracket, an upper cutter-disk revolubly mounted in said hanger, a beveled gear-wheel fixed on the hub of said disk above said hanger, a lower cutter-disk arranged beneath said upper disk, an upwardly-projecting stub-shaft fixed in said lower disk and projecting upwardly through

said upper disk-hub, a washer arranged between the hubs of said upper and lower disks, set-screws arranged in the hub of said lower disk to engage said washer thereby permitting said upper and lower disks to be adjusted, a beveled disk fixed on the upper portion of said lower dask-shaft, beveled gears fixed on the axle of said machine to engage the opposite sides of said disk-gears whereby said disks are turned in opposite directions, blades or cutters arranged on said disks, a rear supporting-roller, a handle, and means whereby said handle is adjustably connected to said machine, substantially as described.

784,397. WHEEL FOR VEHICLES. CLIFFORD R. S. J. HALLS, London, England. Filed Jan. 13, 1904. Serial No. 188,882.



Claim.—1. A spring hub or wheel consisting of a wheel or hub proper connected to two shiftable elements by means of parallel links on either side which have a universal joint at either end, these shiftable elements being capable of sliding on the axle, the shiftable elements holding the hub or wheel proper parallel to themselves by means of the parallel links, whether the hub or wheel is eccentric to the axle or not and a spring element coöperating with each of said shiftable elements.

2. A spring hub or wheel consisting of a wheel or hub connected to two disks or stars by means of parallel links with universal joints the shiftable elements being capable of sliding on the axle and being forced apart by means of powerful springs that work laterally to the plane of the wheel, substantially as described, the lateral stress of the springs affording the vertical resilience of the wheel.

3. A spring hub or wheel consisting of a wheel or hub connected to two shiftable elements that can slide on the axle by means of parallel links with universal joints, the disks being forced apart by powerful springs that work laterally to the plane of the wheel, and which springs are assisted by auxiliary springs acting in the direction of the plane of the wheel substantially as described.

4. A wheel of the character described involving in combination with the hub thereof having the spokes projecting therefrom, a laterally-shiftable element arranged at each side of the hub, said elements shiftable in opposite directions with respect to each other, a cushioning device interposed between said elements, and a universally-jointed connection between each of said elements and said hub.

5. A wheel of the character described involving in combination with the hub thereof having the spokes projecting therefrom, a laterally-shiftable element arranged at each side of the hub, said elements shiftable in opposite directions with respect to each other, an abutment, a spring element interposed between each of said shiftable elements and said abutment, and universally-jointed connections between each of said shiftable elements and said hub.

6. A wheel of the character described involving the combination with the hub thereof having the spokes projecting therefrom and an axle provided with an abutment, of a laterally-shiftable element arranged at each side of the hub and upon said axle, each of said elements provided with inwardly-projecting tubes surrounding the axle, said elements shiftable in opposite directions with respect to each other, cushioning devices bearing against said abutment and said shiftable elements and surrounding said tubes, and universally-jointed connections between each of said elements and said hub.

7. A wheel of the character described involving in combination with the hub thereof having the spokes projecting therefrom, a laterally-shiftable element arranged at each side of the hub, said elements shiftable in opposite directions with respect to each other, a cushioning device interposed between said elements, a universally-jointed connection between each of said elements and said hub, and a driving element for the wheel.

8. A wheel of the character described involving in combination with the hub thereof having the spokes projecting therefrom, a laterally-shiftable element arranged at each side of the hub, said elements shiftable in opposite directions with respect to each other, an abutment, a spring element interposed between each of said shiftable elements and said abutment, universally-jointed connections between each of said shiftable elements and said hub, and a driving element for the wheel.

9. A wheel of the character described involving the combination with the hub thereof having the spokes projecting therefrom and an axle provided with an abutment, of a laterally-shiftable element arranged at each side of the hub and upon said axle, each of said elements provided with inwardly-projecting tubes surrounding the axle, said elements shiftable in opposite directions with respect to each other, cushioning devices bearing against said abutment and said shiftable elements and surrounding said tubes, universally-jointed connections between each of said elements and said hub, and a driving element for the wheel.

10. A wheel of the character described involving the combination with the hub thereof provided with an inwardly-extending rib, a laterally-shiftable element arranged at each side of the hub, said element shiftable in opposite directions with respect to each other, a spring element interposed between said shiftable elements, and universally-jointed connections between each of said shiftable elements and said rib.

11. A wheel of the character described involving the combination with the hub thereof provided with a rib and an axle provided with an abutment, of a laterally-shiftable element arranged at each side of the hub and mounted upon the axle, said elements shiftable in opposite directions with respect to each other, a spring element interposed between said shiftable element and said abutment, universally-jointed connections between each of said shiftable elements and rib, and a driving element arranged in operative relation with respect to said hub and said axle.

12. A wheel of the character described involving the combination with the hub thereof provided with a rib and an axle having an abutment, of a laterally-shiftable element arranged at each side of the hub and mounted upon the axle, each of said elements provided with an inwardly-extending tube adapted to surround the axle and form a bearing therefor, said elements shiftable in an opposite direction with respect to each other, a spring element interposed between said shiftable element and said abutment, and universally-jointed connections between each of said shiftable elements and said hub.

13. A wheel of the character described involving the combination with the hub provided with a rib and an axle having an abutment, of a laterally-shiftable element arranged at each side of the hub and mounted upon the axle, each of said elements provided with an inwardly-extending tube adapted to surround the axle and form a bearing therefor, said elements shiftable in an opposite direction with respect to each other, a spring element interposed between said shiftable elements and said abutment, universally-jointed connections between each of said shiftable elements and said hub, and driving devices for the wheel arranged in operative relation with respect to the axle and hub.

14. A spring-wheel involving a pair of shiftable elements universally connected with the hub thereof, said hub having the spokes projecting therefrom and a spring element interposed between said shiftable elements.

15. A spring-wheel involving a pair of shiftable elements universally connected with the hub thereof, said hub having the spokes projecting therefrom, a spring element interposed between said shiftable elements, and driving devices for the wheel.

16. A wheel of the character described involving the combination with the hub thereof having the spokes projecting therefrom, of a pair of shiftable elements movable in opposite directions with respect to each other and universally connected with the hub, and a plurality of spring elements interposed between the shiftable elements.

17. A wheel of the character described involving in combination with the hub thereof having the spokes projecting therefrom and loosely mounted upon the axle, and driving devices for the wheel arranged in operative relation with respect to the axle and hub, of a pair of laterally-shiftable elements loosely mounted upon the axle and forming a bearing therefor, said elements shiftable in opposite directions with respect to each other, and a spring element interposed between said shiftable elements.

18. A wheel of the character described involving in combination with the hub thereof loosely mounted upon the axle, and driving devices for the wheel arranged in operative relation with respect to the axle and hub, of a pair of laterally-shiftable elements loosely mounted upon the axle and forming a bearing therefor, said elements

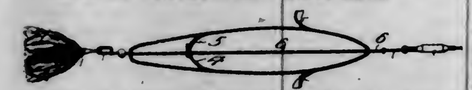
shiftable in opposite directions with respect to each other, and a plurality of spring elements interposed between the shiftable elements.

19. A wheel of the class described involving the combination with the hub thereof provided with a rib, of a pair of laterally-shiftable disks, a plurality of links universally connected at one end to said rib and at their other end to said disks, and a spring element interposed between said disks.

20. A wheel of the character described involving the combination with the hub thereof provided with a rib and an axle provided with an abutment, of a pair of laterally-shiftable disks arranged in suitable relation with respect to said hub, said disks provided with inwardly-extending tubes surrounding the axle and forming a bearing therefor, a plurality of links universally connected at one end to said rib and at their other end to said disks, and a pair of spring elements interposed between said abutment and said disks.

21. A wheel of the character described involving the combination with the hub thereof provided with a rib and an axle provided with an abutment, of a pair of laterally-shiftable disks arranged in suitable relation with respect to said hub, said disks provided with inwardly-extending tubes surrounding the axle and forming a bearing therefor, a plurality of links universally connected at one end to said rib and at their other end to said disks, a pair of spring elements interposed between said abutment and said disks, and a plurality of spring elements interposed between said abutment and said hub.

784,398. **ARTIFICIAL FISHING-BAIT.** WILLIAM HECKELER, Meadville, Pa. Filed June 11, 1904. Serial No. 212,172.

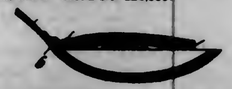


Claim.—1. An artificial fishing-bait formed from a single blank shaped to produce a pair of connected sections each having the general contour of a fish, said blank being folded at a point between the sections, and the latter bent relatively to conjointly present a body of substantially elliptical form in longitudinal section, a pair of oppositely-extending front fins provided respectively on the sections, said fins having their outer longitudinal edges inclined forwardly and inwardly and their rear ends curved outwardly, a pair of oppositely-extending rear fins provided respectively on the sections and having their outer longitudinal edges inclined forwardly and inwardly, a rod extending longitudinally through the body and on which the latter is rotatably mounted, and a hook operatively connected with the bait.

2. An artificial fishing-bait formed of a single blank shaped to produce a pair of connected sections each having the general contour of a fish, said blank being folded at a point between the sections, and the latter bent relatively to conjointly present a body of substantially elliptical form in longitudinal section, and the said body-sections having their initially free ends united, a pair of front fins provided respectively on the sections and having their rear ends curved outwardly, a pair of rear fins provided respectively on the sections each having their rear ends curved inwardly and disposed each in the path of the opposite section, a rod extending longitudinally through the body and on which the latter is rotatably mounted, and a hook operatively connected with the bait.

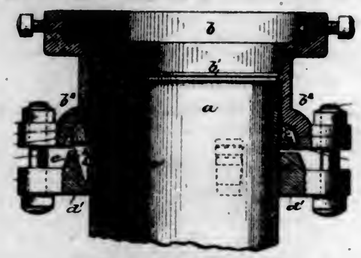
3. An artificial fishing-bait composed of a single blank shaped to produce a pair of connected sections each having the general contour of a fish, said blank being folded at a point between the sections and the latter bent relatively to conjointly present a body of substantially elliptical form in longitudinal section, a pair of front fins provided respectively on the sections and having their rear ends curved outwardly, a pair of rear fins provided respectively on the sections and having their rear ends curved inwardly, a rod extending longitudinally through the body and on which the latter is rotatably mounted, and a hook operatively connected with and carried by the bait.

784,399. **MEDICINE-SPOON.** GEORGE C. HORNER, Norfolk, Va. Filed Aug. 20, 1904. Serial No. 221,535.



Claim.—As an improved article of manufacture, a medicine-spoon comprising a bowl, and a hingedly-mounted cover having a flange adapted to engage over the edge of the bowl to secure the cover in locked position upon the bowl.

784,400. **CASING-HEAD.** FRANK F. HOWE, Marietta, Ohio. Filed Dec. 8, 1904. Serial No. 236,965.



Claim.—1. The combination with a casing having an unthreaded upper end, of a casing-head consisting of a bonnet having an enlarged upper end and provided with an internal annular flange intermediate its upper and lower ends adapted to be abutted by the upper edge of the casing, a gland adjustably secured to and below the bonnet, and a packing interposed between the said bonnet and the gland, and surrounding the casing.

2. A casing-head consisting of a bonnet provided with an internal annular flange and a dished flange at its lower end, packing within said dished portion, a gland adjustably secured to said bonnet and below the same, serrated slips or gibs movably held in said gland and means for forcing the gland into the dished portion of the bonnet whereby the packing and the slips may be brought into contact with each other and forced against the outer face of a casing-pipe.

3. A casing-head consisting of a bonnet, provided with an internal annular flange, and a dished portion at its lower end, packing within said dished portion to surround a casing, a gland adjustably held to the bonnet and provided with dovetail slots in its inner face, and dovetailed slips or gibs mounted within said slots, the upper face of said slips projecting above the upper face of the gland, and means for forcing the gland toward the bonnet whereby the packing will be spread against the outer face of the casing and the slips or gibs forced into contact with the outer face of casing.

4. A casing-head consisting of a bonnet having an internal annular flange near its upper end, a dished lower end, packing held within said dished lower end and adapted to surround a casing-pipe, a gland adjustably held to and below said bonnet, said gland having dovetailed slots in its inner face, serrated dovetailed slips or gibs mounted in said slots, and means for forcing the gland toward the bonnet whereby the packing will be forced into contact with the outer face of the casing and the serrated dovetailed slips or gibs caused to bite and retain the casing in position.

5. A casing-head consisting of a bonnet having an internal annular flange near its upper end, and a dished flange at its lower end said flange provided with outwardly-projecting perforated lugs, a packing within said dished flange, a gland mounted below the bonnet, provided with outwardly-projecting perforated lugs and having dovetailed slots in its inner face, dovetailed slips or gibs seated in said slots, the front face of said slips or gibs having serrated and biting teeth, and bolts passing through the perforated lugs of the bonnet, and the gland, whereby the gland may be forced upwardly and cause the packing to spread against the outer face of a casing-pipe and the serrated slips or gibs to bite against the outer face of said casing-pipe

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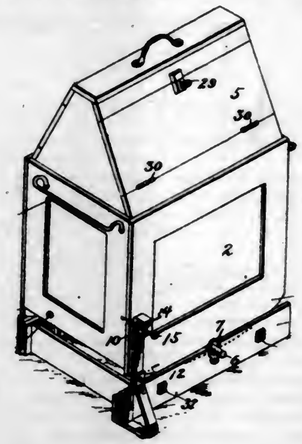
784,401. **ICE-CREAM FREEZER.** CHARLES P. HUDSON, Lancaster, S. C. Filed Apr. 15, 1904. Serial No. 203,373.

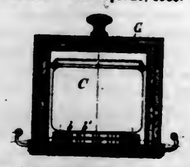
Claim.—1. In an ice-cream freezer, the combination with the freezer proper, of a frame within the same, consisting of longitudinal rods having perforations along their length, and longitudinal rods carrying clamps, transverse rods, said clamp-rods journaled in the transverse rods, and ice-cream receptacles adapted to be received within the perforations in the longitudinal rods and held by the clamp-rods.

2. In an ice-cream freezer, a base, a top provided with rockers adapted to operate on the base, and a detachable foot adapted to be connected with the base, and carrying a bolt, said bolt adapted to lock the receptacle when desired.

3. In an ice-cream freezer, the combination with the freezer proper, of a frame within the same, feet supporting said frame, longitudinal rods having perforations along their length, longitudinal rods carrying clamps, transverse rods, said clamp-rods journaled in the transverse rods, ice-cream receptacles, and recesses in the bottom of the freezer to receive the receptacles.

784,402. **AUTOMATICAL COOKING APPARATUS.** OTTO HUTSLER, Zurich, Switzerland. Filed Apr. 29, 1903. Serial No. 154,829.





Claim.—1. A cooking apparatus, comprising a base-plate of suitable material non-conductive of heat, a culinary vessel, a heat-retaining body consisting of a plurality of disks, detachably interposed between the vessel and the base-plate, and adapted to be heated with the vessel, and a cover inclosing said vessel and heat-retaining body, substantially as described.

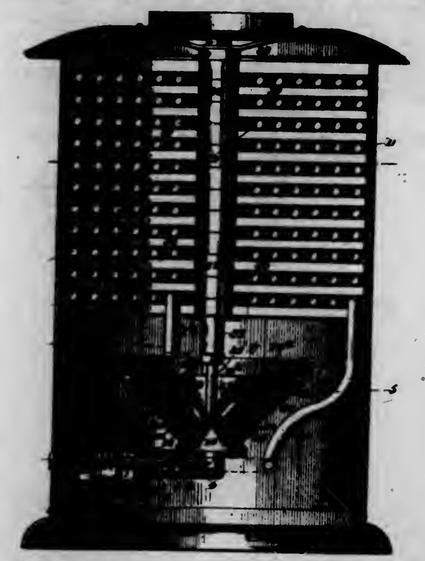
2. In a cooking apparatus, the combination with a base-plate of suitable material non-conductive of heat, a cover therefor also of suitable material non-conductive of heat, a culinary vessel, and a heat-retaining body consisting of a plurality of perforated disks provided with ribs, adapted to be heated with the vessel and interposed between the vessel and base-plate when inclosed by the cover, substantially as set forth.

3. In a cooking apparatus, the combination of a culinary vessel, a heat-retaining body consisting of a plurality of disks, and means, of suitable material non-conductive of heat, inclosing said vessel and heat-retaining body.

784,403. **WATER-HEATER.** WILLIAM E. KAY, Lorain, Ohio. Filed Nov. 16, 1904. Serial No. 232,971.

Claim.—1. In a water-heater, the combination with the gas-burner and a water-heater proper, of the water and gas regulating mechanism comprising a piston and its cylinder having a main water-inlet near its front end and a small water-inlet on one side in rear of the piston and an opposite water-outlet of greater capacity, a needle gas-valve rigidly connected with said piston and extending in the direction of movement thereof and working in a bearing having a gas-inlet that extends lengthwise of the valve near its conical end, a spring acting on the rear side of the piston, and pipe connections for water and gas, all operating as shown and described.

2. In a water-heater, the combination of the burner and a water-heater proper, a gas-conductor connected with the base of said burner, and having an elongated gas-inlet, a sliding valve arranged in line with the gas-inlet and controlling admission of gas therefrom, a water-cylinder having a main water-inlet that communicates with its front portion, a smaller water-inlet and a relatively larger water-outlet arranged near the rear end of the cylinder, a slidable piston arranged between the main water-inlet and the smaller inlet and outlet, a spring acting on said piston to hold it normally in an intermediate position respecting the water-inlets, a water-outlet pipe connected with the cylinder and so arranged that the piston covers its mouth when in normal position, the said piston and gas-valve being connected so that they slide together, substantially as described.



3. In a water-heater, the combination with a burner, of a gas-conductor connected therewith and having a side passage provided with a series of gas-outlets, a needle-valve adapted to slide in said conductor and fitted in the bore with which said gas-outlets communicate, the arrangement being such that the gas-outlets are uncovered in proportion to the retractile movement of the valve, and a water-cylinder having a slidable piston which is connected with said gas-valve, water inlets and outlets being provided whereby the flow of water through the cylinder is proportionate to the volume of gas which passes the valve, substantially as described.

4. In a water-heater, the combination with a burner, of a gas-conductor and a needle-valve adapted to reciprocate therein, the said conductor having a passage arranged parallel to the valve and communicating throughout its length with the bore in which said valve reciprocates, and a water-cylinder and piston which is slidable therein and connected with the gas-valve, the cylinder being provided with differential inlets for admitting water to both sides of the piston for balancing the same, and a water-outlet communicating with the rear side of the piston, substantially as described.

5. In a water-heater, the improved burner, comprising a conical gas mixing and distributing chamber, and burner proper formed by a superposed and inverted double cone, the two conical parts being arranged one within the other and spaced apart, a series of air-openings formed in the outer part and gas-passages leading upward therefrom, the same being formed by and between partitions that extend upward between the two conical parts of the burner, substantially as described.

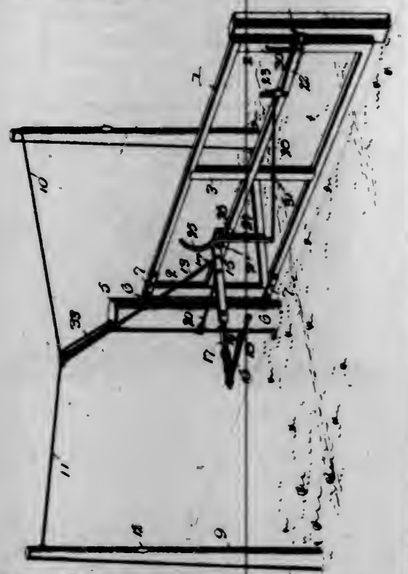
6. In a water-heater, the burner comprising a conical base portion having a distributing-chamber, and a body portion formed of inverted cones arranged concentrically and connected and spaced apart, a series of partitions ranging from the bottom upward and forming a series of gas-passages, and a series of air-openings formed in the outer cone and communicating with the said gas-passages, substantially as described.

7. In a water-heater of the class indicated, the combination, with an inclosing casing, and a hanger supported vertical from the top of said casing, of a series of independent and removable spiders each composed of a central hub applied to said hanger, and a series of radiating horizontal arms, for supporting the convolutions of a pipe-coil, substantially as described.

8. In a water-heater, the combination with the casing, and a central rod supported from the top thereof, of a series of spiders each comprising a central perforated hub and radiating arms, the several spiders being applied to said rod, and a water-coil formed of a series of spiral convolutions which are supported upon the arms of the spiders, in the manner described.

9. In a water-heater, the combination with the casing, of a hanger-rod arranged centrally and detachably connected with the top of the casing, a second rod which is detachably connected with the first-named one, a series of horizontal spiders supported upon the first-named rod, and a water-heating coil arranged on the said spiders, a burner, and water and gas regulating mechanism connected therewith, all supported detachably from the central hanger in the manner described.

784,404. GATE. WILLIAM KREGOE, Laplata, Mo. Filed Dec. 17, 1904. Serial No. 237,278.

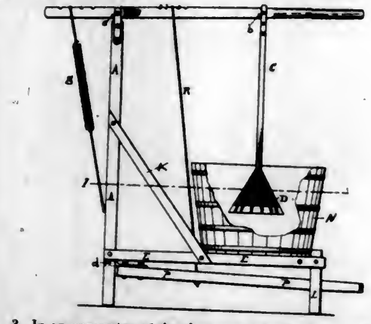


Claim.—The herein-described gate, comprising the combination with the gate proper, of suitable supporting hinges and posts therefor; a bracket 17 properly braced and supported in its operative position upon the hinge-post; a controlling-lever 15 having an antifriction-roller upon its inner end; controlling-cables for said lever operatively connected thereto and disposed in position to be conveniently grasped by the operator; a latch having an angular extension 23 pivoted to the free end of the gate; a keeper designed to coöperate with said latch; a latch-controlling lever pivoted to the gate and having a curved upper end, said curved end being designed to coöperate with said antifriction-roller; suitable means to connect said lever with said latch whereby when the antifriction-roller upon the controlling-lever 15 is moved upward said roller will engage said curved extension and raise the latch out of engagement with its keeper, substantially as specified and for the purpose set forth.

784,405. WASHING-MACHINE. PETER P. KIEL, Oakland, Cal. Filed Feb. 8, 1904. Serial No. 192,582.

Claim.—1. In an apparatus of the character described, the combination of a frame having at the front a level surface on which a tub can rest and having at the rear a standard, a foot-lever suitably guided below said surface, a hand-lever pivoted on said standard, a link connecting said foot-lever with said hand-lever between said standard and said level surface, a dasher-rod connected to said hand-lever and a dasher supported by said dasher-rod independently of the tub, substantially as described.

2. In an apparatus of the character described, the combination of a frame having at the front a level surface on which a tub can rest and having at the rear a standard, a foot-lever suitably guided below said surface, a hand-lever pivoted on said standard and having a series of notches, a link the upper end of which selectively engages one of said notches to adjustably connect said hand-lever with the foot-lever, said link extending between said standard and said level surface, a dasher-rod connected to said hand-lever, and a dasher supported by said dasher-rod independently of the tub, substantially as described.



3. In an apparatus of the character described, the combination of a frame having at the front a level surface on which a tub can rest and having at the rear a standard, a foot-lever suitably guided below said surface, a hand-lever pivoted on said standard and having a series of notches, a link the upper end of which selectively engages one of said notches to adjustably connect said hand-lever with the foot-lever, said link extending between said standard and said level surface, a dasher-rod connected to said hand-lever, and a dasher pivotally supported by said dasher-rod independently of the tub, substantially as described.

784,406. DRAFT-RIGGING. HARRY T. KRAKAU, Cleveland, Ohio, and LENDELL A. CONNER, Jr., Pittsburg, Pa., assignors to The National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 3, 1902. Renewed Jan. 13, 1903. Serial No. 138,927.

Claim.—1. A frictional draft-rigging having a stationary cage, a longitudinally-movable friction member which moves within the cage, and a friction device contained within the cage and in frictional contact with said longitudinally-movable member, said friction device being in both pulling and buffing moved longitudinally with said member and solely by its lateral frictional contact therewith, and means adapted to exert in such movement a frictional wedging action on the member; substantially as described.

2. A frictional draft-rigging comprising a rolling or oscillatory friction member having surface-bearings on its opposite sides; substantially as described.

3. A frictional draft-rigging comprising a rolling or oscillatory friction member having surface-bearings on its opposite sides, and an inclined surface against which said friction member bears; substantially as described.

4. A frictional draft-rigging comprising a rolling or oscillatory friction member having surface-bearings on its opposite sides, and an inclined surface against which said friction member bears, said member and its frictional bearing having relatively inclined surfaces; substantially as described.

5. A frictional draft-rigging comprising a rolling or oscillatory friction member having surface-bearings on its opposite sides, and an inclined surface against which said friction member bears, said member and its frictional bearing having relatively inclined surfaces extending in both directions from a central position; substantially as described.

6. A frictional draft-rigging having a longitudinally-movable friction member with downwardly-diverging but otherwise untapered sides, and a friction member adapted to bear thereon; substantially as described.

7. A frictional draft-rigging having a longitudinally-movable friction-bar with downwardly-diverging but otherwise untapered sides, and friction-shoes adapted to bear thereon; substantially as described.

8. A frictional draft-rigging having a longitudinally-movable friction member with downwardly-diverging but otherwise untapered sides, and a second friction member, and spring-bearings upon said member adapted to create initial friction between the parts and to take up lost motion; substantially as described.

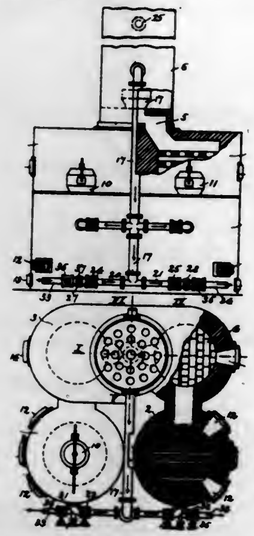
9. A frictional draft-rigging comprising an eccentric rolling or oscillatory friction member having bearings on both sides; substantially as described.

10. A frictional draft-rigging comprising an eccentric rolling or oscillatory friction member having bearings on both sides, said eccentric friction member having an inclined surface against which it bears; substantially as described.

11. A frictional draft-rigging, having a longitudinally-movable friction member, friction-shoes set at an inclination thereto and engaging said friction member, and means for pressing said shoes against said friction member and transversely to the longitudinal motion thereof; substantially as described.

12. A frictional draft-rigging having a longitudinally-movable friction member, friction-shoes set at an inclination thereto, and a spring for pressing the shoes against said friction member and transversely to the longitudinal motion thereof; substantially as described.

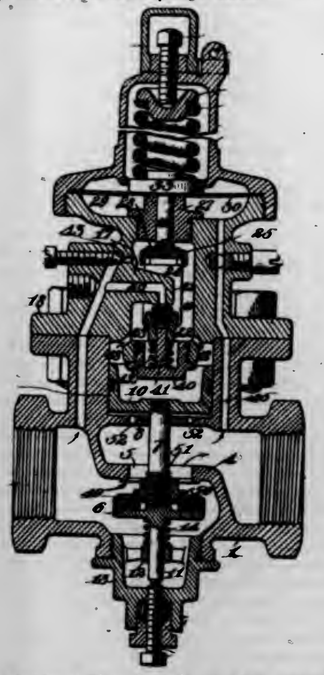
784,407. PROCESS OF MAKING GAS. JOANNES C. H. KRAMERS, Mastricht, and JACOBUS G. AARTS, Dongen, Netherlands, assignors to Water-Gas-Maatschappy Systeem Dr. Kramers & Aarts, Amsterdam, Netherlands, a company incorporated according to Dutch law. Filed Mar. 15, 1901. Serial No. 51,303.



Claim.—The herein-described process of making gas which consists in simultaneously firing up a pair of generators to a state of incandescence, supplying fresh coal to the top of the incandescent fuel in one generator, passing steam from beneath the fuel-bed up through said incandescent bed and the freshly-supplied fuel, passing the products in the condition in which they arrive from the fuel-bed through a plurality of regenerators capable of fixing and oxidizing the gaseous products and causing a part of the carbon monoxid to react with the excess of steam to form carbon dioxid, and then passing said products downward through the incandescent material in the other generator to reduce the carbon dioxid, substantially as described.

784,408. PRESSURE-REGULATOR. WILLIAM F. KRICHBAUM, Newark, N. J., assignor to Foster Engineering Co., Newark, N. J., a Corporation of New Jersey. Filed Aug. 18, 1904. Serial No. 221,273.

Claim.—1. In a pressure-regulator, in combination with a casing having an inlet and outlet communicating through a valve-opening, a main valve controlling said opening, a cylinder, a piston in said cylinder controlling said main valve, an auxiliary-valve chamber communicating with said cylinder, a port leading from the inlet or high-pressure side of the regulator and communicating with said auxiliary chamber, an auxiliary valve controlling said port and closing against the high pressure therein, a pressure-chamber containing a spring-pressed diaphragm coöperating with said auxiliary valve and tending normally to press the same from its seat, and means for controlling said auxiliary valve to regulate the admission of high-pressure fluid to said cylinder comprising a spring tending normally to raise said auxiliary valve, and a port leading from the outlet or low-pressure side of the regulator and communicating with said pressure-chamber below the diaphragm thereof.



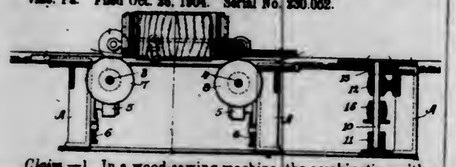
2. In a pressure-regulator, in combination with a casing having an inlet and outlet communicating through a valve-opening, a main valve controlling said opening and actuated by the high-pressure fluid from the inlet side of the regulator, a port for the high-pressure fluid, an auxiliary valve controlling said port, means for automatically regulating the movements of said auxiliary valve, a second port leading from the inlet side of the regulator and adapted, when open, to admit high-pressure fluid to operate the main valve, and a valve for controlling the opening of said second port.

3. In a pressure-regulator, in combination with a casing having an inlet and outlet communicating through a valve-opening, a valve for controlling said opening, a cylinder, a piston in said cylinder operating said valve, an auxiliary-valve chamber communicating with said cylinder, a high-pressure-fluid port communicating with said chamber, an auxiliary valve controlling said port, means for automatically controlling said auxiliary valve, a second port affording communication between said chamber and said high-pressure port, and located above the port controlled by the auxiliary valve, and a needle-valve for controlling said second port.

4. In a pressure-regulator, in combination with a casing having an inlet and outlet communicating through a valve-opening, a valve for controlling said opening, a cylinder, a piston in said cylinder operating said valve, an auxiliary-valve chamber communicating with said cylinder, a high-pressure-fluid port communicating with said chamber, an auxiliary valve controlling said port, means for automatically controlling said auxiliary valve, a second port affording communication between said chamber and said high-pressure port,

and located above the port controlled by the auxiliary valve, a needle-valve for controlling said second port, and a limit-screw for determining the distance at which the main valve shall be moved from its seat.

784,409. WOOD-SAWING MACHINE. HERMAN A. LITZ, Danville, Pa. Filed Oct. 26, 1904. Serial No. 230,062.



Claim.—1. In a wood-sawing machine, the combination with a pair of parallel guide-rails, two gangs of scoring-saws arranged in parallel planes between said guide-rails, and a cutting-off saw arranged at the rear ends of said rails in a plane substantially tangential to the peripheries of both gangs of saws, of a carriage movable along said guide-rails and having a supporting-ring with its axis extending vertically, a rotatable tubular work-holder fitting within said ring and supported thereby, and means, connected with said tubular work-holder, for gripping the sides of a log or block.

2. In a wood-sawing machine, the combination with the machine-frame having carriage guide-rails, and scoring-saws arranged in planes parallel with said carriage guide-rails, of a work-holder having an angular movement relatively to the planes of the saws, a carriage movable upon said guide-rails and arranged to support the work-holder, and means for automatically lifting the work-holder so that the work will not engage the scoring-saws in one direction of movement of the carriage.

3. In a wood-sawing machine, the combination with the machine-frame having carriage guide-rails, scoring-saws arranged in planes parallel with said guide-rails, and a cutting-off saw arranged in a plane substantially tangential to the peripheries of said scoring-saws, of a work-holder having an angular movement relatively to the planes of the scoring-saws, a carriage movable upon said guide-rails and arranged to support the work-holder, and means for automatically lifting the work-holder so that the work will not engage the scoring-saws in one direction of movement of the carriage.

4. In a wood-sawing machine, the combination with a main frame having carriage guide-rails and scoring-saws arranged parallel with said rails, of a carriage movable upon said rails to feed the work to the saws, return guide-rails arranged parallel with said carriage guide-rails, a pair of trailers pivoted to the carriage and adapted to bear upon the return guide-rails and raise the carriage so that the work will clear the saws when the carriage is returned.

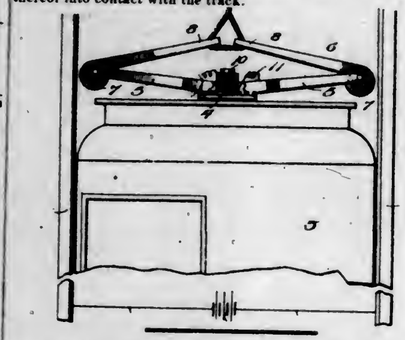
5. In a wood-sawing machine, the combination with carriage guide-rails and a series of scoring-saws arranged in planes parallel with said guide-rails, of a carriage movable along said guide-rails and having a tubular supporting-ring arranged with its axis extending vertically, a tubular work-holder arranged within said supporting-ring and rotatable therein, and means connected with said tubular work-holder for gripping the sides of a log.

6. In a wood-sawing machine, the combination with a frame having guide-rails thereon, and saws arranged between said guide-rails, of a carriage movable upon the guide-rails and having a tubular supporting ring or collar, a tubular work-holder arranged within said collar, a dog extending horizontally through the wall of the holder and adapted to engage the work, said dog being provided with a rack, a pinion engaging said rack, and worm-gearing arranged to operate said pinion.

784,410. SAFETY DEVICE FOR ELEVATORS. ELMER L. MAYER, Dowagiac, Mich. Filed Nov. 21, 1904. Serial No. 233,717.

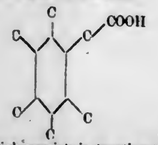
Claim.—1. The combination with an elevator and a track therefor, of a lever on said elevator adapted to contact with said track, a flexible element connected with said lever for hoisting the elevator and maintaining said lever normally out of contact with said track, and an electromagnet adapted to attract said lever as soon as it moves into contact with said track.

2. The combination with an elevator and a track therefor, of supporting-arms on said elevator, levers pivoted on said supporting-arms and having eccentric outer portions and elongated inner portions, a flexible element connected with the elongated inner portions of said levers for hoisting the elevator and maintaining the eccentric portions of said levers out of contact with said track, an electromagnet adapted when energized to attract the elongated inner ends of said levers, electrical connections between said electromagnet and eccentric portions of said levers, and a battery in circuit with said track, whereby, when the flexible element breaks the elongated ends of the levers descend by gravity and throw the eccentric portions thereof into contact with the track.

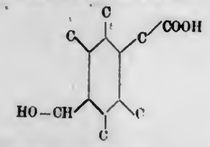


784,411. MATERIALS FOR PERFUMES AND PROCESS OF MAKING SAME. GEORG MERLING, Frankfort-on-the-Main, and ROBERT WELDE, Höchst-on-the-Main, Germany, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed Apr. 6, 1903. Serial No. 151,390 (Specimens.)

Claim.—1. The process herein described of making cyclohexen carboxylic acids having the general formula

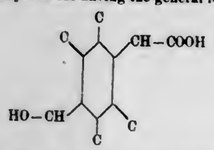


and their derivatives, which consists in treating the oxy-cyclohexancarboxylic acids having the general formula



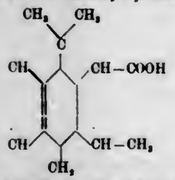
and their esters with dehydrating agents.

2. As new products cyclohexencarboxylic acids obtained from oxy-cyclohexancarboxylic acids having the general formula



by eliminating water from the latter by means of dehydrating agents, like phosphoric anhydrid, phosphoric oxychlorid, potassium bisulfate; the cyclohexencarboxylic acids being colorless compounds, soluble with difficulty in water, readily soluble in alcohol, ether and benzene, caustic and alkali carbonates and distilling without decomposition in a vacuum.

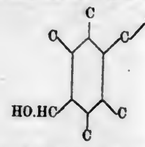
3. As a new product, the trimethyl-cyclohexencarboxylic acid



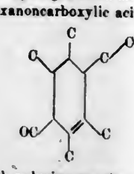
the position of the double combination not being definitely settled, a thick, colorless oil of acid reaction, immiscible with water, readily soluble in alcohol, ether, benzene, boiling at 140° to 142° centigrade under fifteen millimeters pressure without decomposing, said product being adapted for the manufacture of perfumes.

784,412. MATERIALS FOR PERFUMES AND PROCESS OF MAKING SAME. GEORG MERLING, Frankfort-on-the-Main, and ROBERT WELDE, Höchst-on-the-Main, Germany, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed May 2, 1903. Serial No. 155,435. (Specimens.)

Claim.—1. The process herein described of making oxy-cyclohexancarboxylic acids and their esters having the general formula

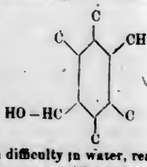


wherein "R" means hydrogen or an alcohol radical, which consists in treating cyclohexanoncarboxylic acid of the type



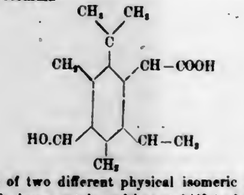
and their esters with reducing agents.

2. As new products oxy-cyclohexancarboxylic acids having the general formula



being soluble with difficulty in water, readily soluble in alcohol and ether, boiling in a vacuum without decomposition and without formation of lactones.

3. As a new product the trimethyl-oxy-cyclohexancarboxylic acid having the formula



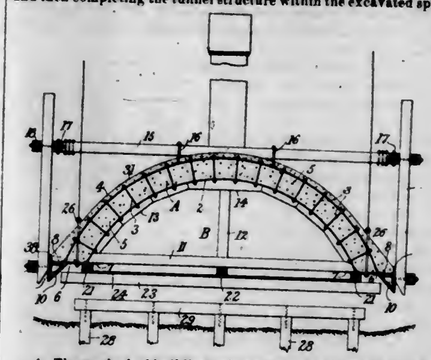
being a mixture of two different physical isomeric modifications, both forming colorless crystals melting at 141° to 143° centigrade and at 151° to 153° centigrade respectively, the acid mixture boiling at 176° to 178° centigrade under eight millimeters pressure, soluble with difficulty in water, readily soluble in alcohol and ether and adapted for the manufacture of perfumes.

784,413. SUBAQUEOUS TUNNEL CONSTRUCTION. DUNCAN D. MCBEAN, New York, N. Y. Filed Oct. 24, 1904. Serial No. 229,879.

Claim.—1. In subaqueous tunnel construction, the method which consists in erecting in place successive, longitudinal sections of the tunnel-roof, driving sheeting side walls outside of and adjacent to the lower edges of the roof, forcing air into the chamber thus formed, excavating the included material, and progressively driving said sheeting as the work of excavation advances.

2. In subaqueous tunnel construction, the method which consists in erecting longitudinal sections of the tunnel-roof in permanent place, driving sheet-pilings alongside the lower edges thereof, unwatering the space underneath such roof-sections and between the sheeting walls to provide a working chamber, excavating the material at the bottom of said chamber and extending said sheeting walls downward with the progress of said excavation, and completing the tunnel structure in the excavated space.

3. The method of constructing subaqueous tunnels without interference with navigation thereover, consisting in first constructing and then submerging into permanent position a section of the tunnel-roof, unwatering the space included within the depending edges of the section, excavating the material underneath, progressively driving side walls along the sides of and below the level of the excavation, excavating the further requisite amount of included material, and then completing the tunnel structure within the excavated space.



4. The method of building subaqueous tunnels, which consists in first constructing the tunnel-roof in sections, then lowering these severally into permanent position, then driving sheet-pilings alongside the same, then unwatering the chamber thus formed, then excavating the included material, and then completing the tunnel structure in the excavated space.

5. In subaqueous tunnel construction, the method which consists in first setting contiguous sections of the roof in permanent position, then driving walls around the same, then forcing air into the chamber thus formed, and excavating the included material and completing the tunnel structure in place thereof.

6. Means for constructing a tunnel under water, comprising a pneumatic working chamber made up of a longitudinal section of the tunnel-roof, with depending side plates or flanges, a temporary support therefor, guides coacting with said depending plates, and sheet-piling fitting in said guides and adapted to be driven downward to extend said working chamber with the progress of excavation of the included material.

7. In subaqueous-tunnel-construction apparatus, a pneumatic working chamber, comprising a longitudinal section of the tunnel-roof with depending flanges, and means for temporarily supporting said roof in final position over the material to be excavated.

8. In subaqueous tunnel construction, the combination of series of piles in the bed of the tunnel-site, series of longitudinal sections of the tunnel-roof provisionally supported in final position upon said piles, horizontal transverse beams upon said roof-sections, aligning sheeting-guides carried by said transverse beams and the lower edges of said roof-sections, and sheet-piles fitted to said guides and adapted to be driven into the material beneath to constitute inclosing side walls for the tunnel structure.

9. In tunnel construction, a subaqueous working chamber comprising longitudinal sections of the tunnel-roof anchored in permanent position above the site to be excavated, guides carried by said roof-sections, depending side flanges on said sections, and downwardly-extensible side walls, consisting of sheet-piling slidable in guides upon said roof-sections.

10. A subaqueous tunnel having a roof comprising two concentric, interspaced, sheet-metal cylindrical segments, common base-plates for the adjacent edges of the segments, concrete filling the space between and covering such segments, vertical plates secured to the outer edges of said base-plates, longitudinal guides parallel with and spaced from said vertical plates, and sheet-piling driven between said vertical plates and guides, and permanently secured thereto.

11. In subaqueous tunnel construction, a pneumatic working chamber consisting of longitudinal sections of the tunnel-roof anchored in permanent position, and downwardly-extensible side walls.

12. A tunnel structure comprising a double wall, sheet-metal roof with intermediate filling, sheet-piling walls outside said roof, and masonry base and side walls within said sheeting walls supporting said roof.

13. A subaqueous tunnel comprising base and side walls of

masonry and a roof made up of interspaced cylindrical metallic segments with concrete filling.

14. A subaqueous tunnel comprising base and side walls of masonry, with waterproof lining, a roof of interspaced, cylindrical metallic segments, a concrete filling between said segments, and a concrete lining and covering therefor.

15. A subaqueous tunnel comprising foundation-piles, base and side walls of masonry, a waterproof lining within said base and side walls, a roof thereon comprising a double, cylindrical metallic segment with concrete filling and covering, and a concrete lining for said roof, side walls and base.

16. The method of building subaqueous tunnels, consisting in first arranging sections of the tunnel-roof in permanent position, then preliminarily excavating the material beneath, then forcing downward side walls around the site, then continuing the excavation of material, and then erecting the tunnel structure in place.

17. The method of building subaqueous tunnels, consisting in first arranging a section of the tunnel-roof in place, then forcing side walls downward around the same, then excavating the included material, and unwatering the space as excavation progresses, and then erecting the tunnel structure in place.

18. The method of building subaqueous tunnels, consisting in arranging a section of the tunnel-roof in place, then excavating the material underneath, and then erecting the tunnel structure in the excavated space.

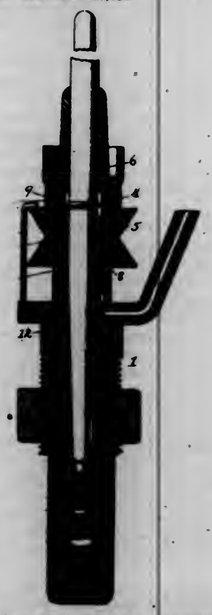
19. A tunnel of the class described, comprising a masonry substructure, inclosing side walls of piling, and a masonry-embedded, sheet-metal roof.

20. A tunnel of the class described, comprising a masonry substructure, piling side walls, and a masonry superstructure having embedded therein a cylindrical segment of sheet metal.

21. A tunnel of the class described, comprising a masonry substructure, inclosing sheeting walls and a double wall, sheet-metal roof with intermediate filling.

22. A tunnel having piling side walls inclosing the substructure and an interfilled double wall, sheet-metal roof.

784,414. SPINDLE. GEORGE B. MCCRACKEN, Willimantic, Conn. Filed Nov. 3, 1903. Serial No. 179,704.



Claim.—1. In combination in a spindle, a base-piece, a bolster located in said base-piece, a spindle-blade located in the bolster, means for rotating said blade, and a bolster-case engaging the lower end of the bolster and constituting a lever projecting upward from its fulcrum and resisting at its upper end lateral movement of the bolster and the spindle located therein.

2. In combination in a spindle, a base-piece, a bolster located in said base-piece, a spindle-blade located in the bolster, means for rotating said blade, and a bolster-case located within the base-piece and in engagement with the lower end of the bolster and having a space between its inner surface and the bolster and between its outer surface and the base-piece and constituting a lever projecting upward from its fulcrum and resisting at its upper end lateral movement of the bolster and the spindle located therein.

3. In combination in a spindle, a base piece or support, a bolster forming a step-bearing and with its lower end formed on the arc of a circle to fit a corresponding recess in a bolster-case, a spindle-blade supported by the bolster, means for rotating the blade, and a bolster-case located in the base piece or support and constituting a lever projecting upward from its fulcrum and resisting at its upper end lateral movement of the bolster and the spindle-blade supported thereby.

4. In combination in a spindle, a base-piece, a bolster forming a step-bearing, a spindle-blade located within the bolster, means for rotating the spindle-blade, and a bolster-case in engagement with the bolster and having its lower end formed on an arc of a circle, said bolster-case constituting a lever projecting upward from its fulcrum and acting upon the bolster to resist lateral movement of the spindle-blade.

5. In combination in a spindle, a base piece or support, a bolster having its lower end formed on an arc of a circle, a spindle-blade located within the bolster, means for rotating the spindle-blade and a bolster-case having its lower end formed on the arc of a circle to fit a corresponding recess in the base-piece, said bolster-case constituting a lever projecting upward from its fulcrum and acting upon the bolster to resist lateral movement of the spindle and providing a space between its inner surface and the bolster and between its outer surface and the base-piece.

6. In combination in a spindle, an oil-cup, a bolster-case having its lower end formed on an arc of a circle to fit a correspondingly-formed recess in the oil-cup, said case extending upward within and with a slight space between it and the oil-cup, said case also having a slot formed at its lower end, a pin projecting into said slot, a combined step and bolster bearing having its lower end formed on an arc of a circle to fit a correspondingly-formed recess in the bolster-case, and providing a slight space between said case and the bolster, said bolster also having a slot at its lower end, a pin projecting into said slot, a blade secured within the bolster, and means for rotating the blade.

7. In combination in a spindle, a base-piece, a bolster located in the base, a spindle-blade located in the bolster, means for rotating the blade, and a bolster-case in engagement with the lower end of the bolster and projecting upward to form a long lever to resist at its upper end lateral movements of the spindle-blade.

8. In combination in a spindle, a base-piece, a bolster located in said base-piece, a spindle-blade located in the bolster, means for rotating said blade, and a bolster-case composed of a single piece forming a lever fulcrumed at its lower end and acting upon the bolster and projecting upward from its fulcrum to resist at its upper end lateral movement of the spindle.

784,415. AUTOMATIC FEED FOR DIE-PRESSES, &c. CHARLES D. MCDONALD, Chicago, Ill., assignor of one-half to Charles B. McDonald, Chicago, Ill. Filed Oct. 28, 1904. Serial No. 230,316.

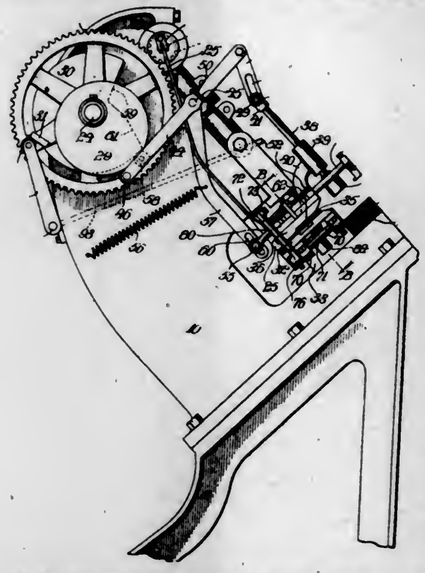
Claim.—1. In a device of the class described, the combination with the blank-holder, of a separator for the blanks, and means for automatically feeding each blank after it has been separated to the machine intermittently so as to be operated on thereby a plurality of times.

2. In a device of the class described, the combination with the blank-holder, of a separator for the blanks, means for automatically feeding each blank after it has been separated to the machine intermittently so as to be operated on thereby a plurality of times, and mechanism for translating the separated blank from the separator to the feeding means.

3. In a device of the class described, the combination with the blank-holder, of a separator for lifting the blanks one by one, and means for automatically feeding each blank after it is separated longitudinally to the machine intermittently so as to be operated on thereby a plurality of times.

4. In a device of the class described, the combination with the blank-holder, of a separator for lifting the blanks one by one, means for automatically feeding each blank after it has been separated longitudinally to the machine intermittently so as to be operated on

thereby a plurality of times, and mechanism for translating the separated blank transversely from the separator to the feeding means.



5. In a device of the class described, the combination with the blank-holder, of a sucker for lifting the blanks one by one, and means for automatically feeding each blank after it has been separated to the machine intermittently so as to be operated on thereby a plurality of times.

6. In a device of the class described, the combination with the blank-holder, of a sucker for lifting the blanks one by one, means for automatically feeding each blank after it has been separated longitudinally at intervals to the machine operating thereon, and transversely-moving hooks for dragging the separated blank from the sucker and carrying it to the feeding means.

7. In a device of the class described, the combination with the blank-holder, of a separator for the blanks, means for automatically feeding each blank after it has been separated to the machine intermittently so as to be operated on thereby a plurality of times, and a discharge mechanism for throwing the blank from the machine when it has been fed therethrough.

8. In a device of the class described, the combination with a die-press, of means for automatically feeding a blank to the press intermittently so as to be operated on thereby a plurality of times, and a discharge mechanism for automatically throwing the blank from the press when it has been fed therethrough.

9. In a device of the class described, the combination with a blank-holder, of a lifter coöperating therewith, means for carrying away the separated blanks one by one from the lifter, mechanism having a fixed movement to operate the lifter, and lost-motion connections between said mechanism and lifter to permit it to accommodate itself automatically to the height of the blanks.

10. In a device of the class described, the combination with a blank-holder, of a sliding lifter coöperating therewith, means for carrying away the separated blanks one by one from the lifter, a cam-shaft, a lever operated by the cam-shaft, and a slotted link connecting the lifter and the lever, substantially as and for the purpose described.

11. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, and a reciprocating gripper coöperating therewith to feed the blank forward step by step.

12. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, and a reciprocating gripper coöperating therewith to feed the blank forward step by step, consisting of a sliding member, a bell-crank lever pivoted thereon, a jaw carried by the lever and coöperating with the sliding member, and a horizontally-reciprocating link connected to the lever to first swing it and then slide the member.

13. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, a sliding gripping member, a bell-crank lever pivoted thereon, a jaw carried by the lever and coöperating with the sliding member, a second bell-crank lever pivoted to the framework of the machine, an eccentric-pin on the press-shaft, a link connecting said pin and the second bell-crank lever, and a link connecting the two bell-crank levers to first close the jaws and then slide the member.

14. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, a bell-crank lever, connections between the lever and the press for reciprocating the lever, means for advancing the blank step by step operated by lever, a pawl to coöperate with the end of the blank, a second lever on which the pawl is pivoted, and a link connecting the two levers so that the pawl moves in the opposite direction to the main mechanism for advancing the blank.

15. In a device of the class described, the combination with the blank-holder, of the reciprocating lifter coöperating therewith, and translating mechanism consisting of transversely-movable hooks, a spring to draw them in one direction quickly, and a cam to return them.

16. In a device of the class described, the combination with the blank-holder, of the reciprocating lifter coöperating therewith, step-by-step feeding mechanism for the separated blanks, and translating mechanism to carry the blanks from the lifter to the feeding mechanism between certain advances thereof, said mechanism consisting of transversely-movable hooks, a spring to draw them in one direction quickly, and a cam to return them.

17. In a device of the class described, the combination with the blank-holder, of the reciprocating lifters coöperating therewith, a blank-receiver, step-by-step feeding mechanism coöperating with said receiver to advance the separated blanks, and translating mechanism consisting of transversely-movable hooks, a spring to throw them in one direction quickly, and a cam to return them.

18. In a device of the class described, the combination with the die-press, of a step-by-step blank-feed therefor to cause the same blank to be operated on a plurality of times, and ejecting mechanism adapted to discharge the blank when it has passed completely through the press.

19. In a device of the class described, the combination with the die-press, of a step-by-step blank-feed therefor, and ejecting mechanism to discharge the blank when it has passed completely through the press, consisting of a pivoted lever, a dog pivoted thereon so as to hang in a recess in the blank, and means for giving the lever a sudden movement just after the last punch is made in the blank and it is released from the die.

20. In a device of the class described, the combination with the die-press, of a step-by-step blank-feed therefor, and ejecting mechanism adapted to discharge the blank when it has passed completely through the press, consisting of a pivoted lever, a dog pivoted thereon so as to hang in a recess in the blank, and means for giving the lever a sudden movement just after the last punch is made in the blank and it is released from the die, consisting of a cam-shaft, reducing-gearing between it and the main shaft of the press, a short cam on the cam-shaft, and connections between the cam and the lever.

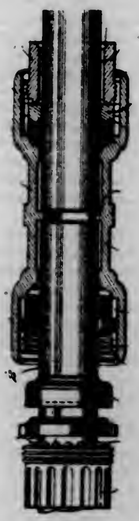
21. In a device of the class described, the combination with the die-press, of a step-by-step blank-feed therefor, and ejecting mechanism adapted to discharge the blank when it has passed completely through the press, consisting of a pivoted lever, a dog pivoted thereon so as to hang in a recess in the blank, and means for giving the lever a sudden movement just after the last punch is made in the blank and it is released from the die, consisting of a cam-shaft, reducing-gearing between it and the main shaft of the press, a short cam on the cam-shaft, and connections between the cam and the lever, consisting of a rock-shaft having two arms, one coöperating with the cam and the other with the lever.

22. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, a sliding gripping member coöperating therewith, a bell-crank lever pivoted thereon, a jaw carried by the lever and coöperating with the sliding member, a horizontally-reciprocating link to first swing the lever and then slide the member, and a tension device coöperating with the sliding member.

23. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, a sliding gripping member coöperating therewith, a bell-crank lever pivoted thereon, a jaw carried by the lever and coöperating with the sliding member, a horizontally-reciprocating link to first swing the lever and then slide the member, and an adjustable tension device coöperating with the sliding member.

24. In a device of the class described, the combination with the die-press, of a blank-receiver adjacent thereto, a sliding gripping member coöperating therewith, a bell-crank lever pivoted thereon, a jaw carried by the lever and coöperating with the sliding member, a horizontally-reciprocating link to first swing the lever and then slide the member, and a tension device coöperating with the sliding member, consisting of a disk pressing against the sliding member, a helically-coiled expanding-spring engaging the disk, and means for regulating the tension of the spring.

784,416. **PIPE-COUPLING.** JOHN MCDONALD, Bradford, Pa., assignor of one-half to H. Harrington, Bradford, Pa. Filed Sept. 24, 1904. Serial No. 226,807.



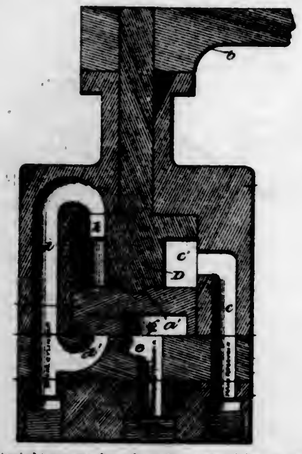
Claim.—1. The combination with a plurality of pipe-sections, of a sleeve having screw-threaded ends, each of said ends being formed with an annular groove and a plurality of longitudinal grooves, a packing-ring fitted into each of said ends and surrounding one of said pipe-sections, a metallic ring abutting against each of said packing-rings, and having a plurality of ears or lugs fitting into the longitudinal grooves of the sleeve, each of said metallic rings having an annular rib thereon adapted to bite into the adjacent packing-ring, and a collar screwed into each end of said sleeve, each of said collars being concentrically removed from the adjacent pipe-section and having a plurality of knobs or projections abutting against the adjacent metallic ring.

2. The combination with a plurality of pipe-sections, of a sleeve having its opposite ends formed interiorly with longitudinal grooves, a packing-ring disposed in each end of said sleeve, a metallic ring in each end of said sleeve having ears or lugs fitting into the adjacent longitudinal grooves, and means for retaining each of the metallic rings in position.

3. The combination with a plurality of pipe-sections, of a sleeve having flared screw-threaded ends, each of said ends being formed with a plurality of longitudinal grooves and an annular groove, a packing-ring fitted into each of said flared ends, a metallic ring fitted into each of said flared ends and having ears or lugs engaging the longitudinal grooves thereof, each of said metallic rings having an annular rib adapted to bite into the adjacent packing-ring, a collar screwed into each of said flared ends and having a plurality of knobs or projections bearing against the adjacent metallic ring, and an annular shoulder formed on the interior of said sleeve adjacent to the center thereof, said sleeve having an annular chamber upon each side of said annular shoulder.

784,417. **ENGINEER'S VALVE.** ALFRED D. MCWHORTER, Atlanta, Ga. Filed June 10, 1904. Serial No. 212,026.

Claim.—1. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to a supplemental reservoir and to the atmosphere, a valve seated in said casing constructed to open communication on the release between said brake-cylinder port and each of said other ports when said valve is actuated, and means for actuating said valve, substantially as described.



2. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to a supplemental reservoir and to the atmosphere, a valve seated in said casing constructed to open communication on the release between said brake-cylinder and supplemental-reservoir ports during initial actuation, and between said brake-cylinder and atmosphere ports upon continued actuation, and means for actuating said valve, substantially as described

3. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to the atmosphere, and to a main and a supplemental reservoir, a valve seated in said casing and constructed to open communication between said main-reservoir and brake-cylinder ports upon actuation in one direction and between said brake-cylinder and each of said supplemental-reservoir and atmosphere ports upon actuation in an opposite direction, and means for actuating said valve, substantially as described.

4. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to the atmosphere, and to a main and a supplemental reservoir, a valve seated in said casing constructed to open communication between said main-reservoir and brake-cylinder ports upon actuation in one direction and between said brake-cylinder and supplemental-reservoir ports during initial actuation, and between said brake-cylinder and atmosphere ports upon continued actuation in an opposite direction, and means for actuating said valve, substantially as described.

5. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to the atmosphere, and to a main and a supplemental reservoir, a valve seated in said casing constructed to open communication between said main-reservoir and brake-cylinder ports upon actuation in one direction, and between said brake-cylinder and supplemental-reservoir ports during initial actuation and between said brake-cylinder and atmosphere ports upon continued actuation in an opposite direction, and hand-operated means for actuating said valve, substantially as described.

6. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, and to a main and a supplemental reservoir, a movable valve seated in said casing provided with a port constructed to open communication between said brake-cylinder and main-reservoir ports to apply the brakes and also provided with a second port constructed to open communication between said brake-cylinder and supplemental-reservoir ports when the brakes are released, and means to actuate said valve, substantially as described.

7. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to the atmosphere, to a main and a supplemental reservoir, a movable valve seated in said casing provided with a port constructed to open communication between said brake-cylinder and main-reservoir ports to apply the brakes and also provided with a second port constructed to open communication successively between said brake-cylinder and supplemental-reservoir and atmosphere ports when the brakes are released, and means to actuate said valve, substantially as described.

8. A straight-air engineer's valve comprising a valve-casing provided with ports at opposite sides thereof leading to a main reservoir and to a brake-cylinder, and further provided with ports leading to the atmosphere and to a supplemental reservoir adjacent said brake-cylinder port, a valve seated in said casing provided with two independent ports, one constructed to open communication between said brake-cylinder and main-reservoir ports and the other constructed to successively open communication between said brake-cylinder ports and each of said remaining ports, and means to operate said valve, substantially as described.

9. A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to the atmosphere, and to a supplemental reservoir, a valve seated in said casing constructed to open communication on the release between said brake-cylinder port and each of said other ports when said valve is actuated, a check-valve adjacent said supplemental-reservoir port closed toward said reservoir, and means for actuating said valve, substantially as described.

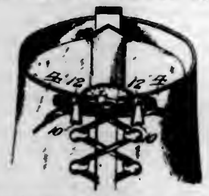
10 A straight-air engineer's valve comprising a valve-casing provided with ports leading to a brake-cylinder, to the atmosphere and to a main and a supplemental reservoir, a valve seated in said casing constructed to open communication between said brake-cylinder port and each of said other ports to apply and release the brakes, a check-valve adjacent said supplemental port closed toward said reservoir, and means for operating said valve, substantially as described.

784,418. **SPIRIT-LEVEL.** HENRY N. NORTHOFF, San Francisco, Cal. Filed May 13, 1901. Renewed Jan. 23, 1905. Serial No. 242,415.



Claim.—An improvement in spirit-levels consisting in combination of a casing A, and the removable spirit-tube B, having an open end, to be filled with a suitable liquid, the open end of the tube B being closed with a removable stopper C of such shape as to fit with its upper part closely in the case A and with its lower part to fit closely in the spirit-tube B to make an air-tight joint substantially as described.

784,419. **SHOE-FASTENING.** CHARLES T. ODENA and JOSEPH F. JONES, Hampton, Miss. Filed Dec. 9, 1904. Serial No. 236,180.

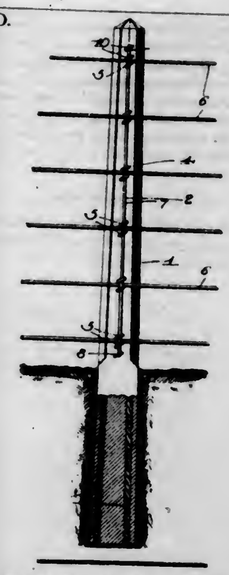


Claim.—A shoe-fastening comprising a base member having means to secure the same to a shoe-upper and being formed with an integral tongue, a clamping member having a spring formed integral therewith and bent back thereupon, the two terminals of said spring being in engagement with the clamping member and the intermediate portions being separate therefrom, integral tongues upon said clamping members on opposite sides of said integral spring, a pin extending through the integral tongues of the clamping member and through the integral tongue of the base member for hinging the clamping member to the base member, and ball-and-socket means for locking the clamping member to the base member.

784,420. **FENCE-POST.** MORGAN L. OLIVER, Mulberry, Mich., assignor of one-half to Robert Patchett, Mulberry, Mich. Filed June 21, 1904. Serial No. 213,526.

Claim.—An artificial-stone post having a longitudinal rod embedded therein, and a wire coiled upon said rod and bent to form pairs of obliquely-disposed loops projecting beyond the face of the post.

784,420.



784,421. **STRING-CUTTER.** EMERICK H. PAINTER, Alpha, Wash. Filed July 9, 1904. Serial No. 215,901.



Claim.—1. In a string-cutter, the combination with a ring having spaced pairs of spaced ears, of a cutting-blade pivoted at one end between one pair of spaced ears and movable on its pivot with its opposite end into position between the opposite pair of spaced ears, and means for holding the blade against pivotal movement, the outer longitudinal edge of the blade being sharpened.

2. In a string-cutter, the combination with a ring having spaced pairs of spaced ears, of a cutting-blade pivoted at one end between one pair of spaced ears and movable on its pivot with its opposite end into position between the opposite pair of spaced ears, means for holding the blade against pivotal movement, the outer longitudinal edge of the blade being sharpened, and the end of the cutting-blade opposite to its pivot projecting with its unsharpened lower face beyond the corresponding ears for the purpose set forth.

3. In a string-cutter, the combination with a ring having spaced pairs of spaced ears, of a cutting-blade pivoted at one end between one pair of ears and movable into and out of position with its opposite end between the opposite pair of ears, the outer longitudinal edge of the blade being sharpened and the unpivoted end of the blade projecting with its lower unsharpened longitudinal edge beyond the corresponding ears, and a set-screw engaged with one of the ears at the opposite end of the blade from its pivot and adapted to impinge against the blade and hold it against pivotal movement.

784,422. **LOCK-WASHER FOR NUTS.** WILLIAM H. PARKER, Maben, Miss., assignor of one-half to Charles N. Rix, Hot Springs, Ark. Filed Feb. 13, 1904. Serial No. 193,385.



Claim.—1. In a device of the character described, a curved washer-plate of spring metal having a lip cut from its edge, the end of said lip adapted to abut against the nut, and standing below the surface before the ends of said washer are depressed, but, after said ends are drawn down by screwing down the nut, adapted to stand above the surface and act as a ratchet, allowing the nut to be screwed on but locking it against reverse turning.

2. In a device of the character described, a washer-plate having a central flat portion and its ends curved upward from said flat portion, said plate having a lip formed on each side by cutting a slit from its edge inward and from thence a longitudinal slit, said lip turned upward laterally substantially perpendicular with the plate, the bend and the flat portion of said plate extending from the extremity of the longitudinal slit to the edge of the plate, said lip adapted to act as a ratchet against the corners of the nut, permitting it to be turned on and locking it against reverse turning.

784,423. LOCK-WASHER FOR NUTS. WILLIAM H. PARKER, Maben, Miss., assignor of one-half to Charles N. Rix, Hot Springs, Ark. Filed Dec. 17, 1904. Serial No. 237,333.



Claim.—1. In a device of the character described, a washer-plate having a lip formed by cutting a slit from its lateral edge inward and thence a longitudinal slit, said lip turned up laterally substantially perpendicular with the plate, the end of said lip adapted to engage the side of a nut at right angles thereto and lock said nut against reverse turning.

2. In a device of the character described, a washer-plate having a lip formed by cutting a slit from its lateral edge inward and thence a longitudinal slit, said lip turned up laterally substantially perpendicular with the plate, the end of said lip adapted to engage the side of a nut at right angles thereto and lock said nut against reverse turning, and means for holding the plate against rotation.

3. In a device of the character described, a curved washer-plate having a lip formed by cutting a slit from its lateral edge inward and thence a longitudinal slit, said lip turned up laterally substantially perpendicular with the plate, the end of said lip adapted to engage the side of a nut at right angles thereto and lock said nut against reverse turning.

4. In a device of the character described, a washer-plate of spring metal having a lip formed by cutting a slit from its lateral edge inward and thence a longitudinal slit, said lip turned up laterally substantially perpendicular with the plate, the end of said lip adapted to engage the side of a nut at right angles thereto and lock said nut against reverse turning.

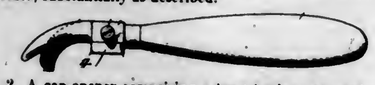
5. In a device of the character described, a washer-plate having a lip formed by cutting a slit from its lateral edge inward and thence a longitudinal slit, said lip turned upward laterally substantially perpendicular with the plate, the bend extending from the extremity of the longitudinal slit to a point on the edge within the ends of said plate, said lip adapted to engage the side of a nut and lock said nut against reverse turning.

6. In a device of the character described, a washer-plate having a lip formed by cutting a slit from its lateral edge inward and thence a longitudinal slit, said lip turned upward laterally substantially perpendicular with the plate, the bend extending from the extremity of the longitudinal slit to a point on the edge within the ends of said plate, said lip adapted to engage the side of a nut and lock said nut against reverse turning, and means for holding the plate against rotation.

7. In a device of the character described, a washer-plate of spring metal having a lip formed by cutting a slit from its lateral edge and thence a longitudinal slit, said lip turned upward laterally substantially perpendicular with the plate, the bend extending from the extremity of the longitudinal slit to a point on the edge within the ends of said plate, said lip adapted to act as a ratchet against the corners of the nut permitting it to be turned on and locked against reverse turning, and means for holding the plate against rotation.

784,424. CAN-OPENER. AARON PETERSON, Kane, Pa. Filed Dec. 13, 1904. Serial No. 236,740.

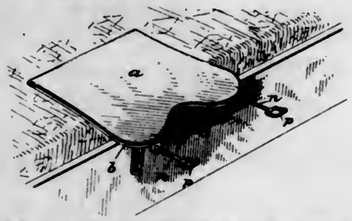
Claim.—1. A can-opener comprising an approximately rectangular head, the front lower corner of which forms the transverse angular fulcrum edge, the head on one side having a longitudinal shoulder a distance above the bottom face of the head, a forwardly-extending guide-finger rigid with said head and having a downwardly-elongated free end, and the elongated longitudinally and downwardly curved blade having the top curved shearing edge and the flat shank secured against a side face of said head and seated on said shoulder, substantially as described.



2. A can-opener comprising a head having an angular transverse fulcrum edge, a curved guide-finger extending forwardly from said head with its free end extended downwardly, and an elongated curved blade approximately oval in cross-section and spaced from said finger and extending forwardly from said head a distance above said fulcrum edge, said blade extending forwardly and downwardly at a different curvature from that of said finger and having a curved longitudinal upper cutter edge, the free end of said finger depending below the blade.

3. A can-opener comprising a handle having an end head, the lower front corner of which forms the transverse angular fulcrum edge, and an elongated blade secured to the head, said blade having the top longitudinal cutting edge curving forwardly and downwardly from the head, the lower free cutting end of said blade extending across the plane of the bottom face of said head, said head formed with a flat guide-finger projecting forwardly therefrom with its outer end curved downwardly to a point below and terminating in a plane between the head and the extremity of said blade.

784,425. SURGICAL APPARATUS. HENRY W. PHILLIPS, Norfolk, Va., assignor of one-half to William F. Byrd, Norfolk, Va. Filed June 29, 1904. Serial No. 214,634.



Claim.—1. A surgical apparatus for use in examinations and operations affecting the pelvic region, comprising a table-like structure wholly supported by and projecting from a bed or similar structure to present the patient in the lithotomy position.

2. A surgical apparatus for use in examinations and operations affecting the pelvic region, comprising a table-like structure resting upon and projecting from a bed or similar device, and means for adjustably securing and supporting the same in the plane of the bed's surface.

3. A surgical apparatus for use in examinations and operations affecting the pelvic region, comprising a flat table-like section, brackets depending therefrom, and means to secure said brackets to a bed or similar device to cause the flat section to rest upon the surface of the bed and to project from the bed in the plane of said surface.

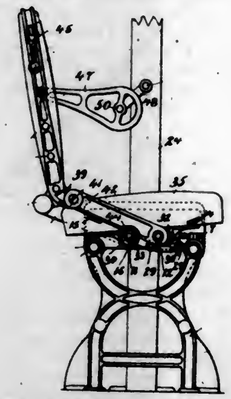
4. A surgical apparatus for use in examinations affecting the pelvic region, comprising a flat table-like section having two forward swells and an intermediate recess or depression in its front edge, brackets hinged to the under side thereof and adjustable clamps on said brackets adapted to secure the apparatus to a bed or similar structure with the flat section resting upon the surface at one end and projecting from the side of the bed at the other end.

5. A surgical apparatus for use in examinations and operations affecting the pelvic region, comprising a flat table-like section, brackets hinged to the under side thereof, adjustable clamps adapted to secure the apparatus to the side rail of a bed with the flat section resting upon and projecting laterally from the bed, and stirrups or foot-rests projecting from the forward edge of the flat section.

6. A surgical apparatus, comprising a flat section of metal or the like, a U-shaped brace secured to the under side thereof, brackets hinged to said brace, clamps adjustably engaging said brackets and adapted to secure the apparatus to the side rail of a bed, or similar structure, with the flat section resting upon and projecting laterally from the bed, and removable and adjustable stirrups or foot-rests mounted in the ends of said brace and projecting forwardly of said flat section.

7. A surgical apparatus for use in examinations and operations affecting the pelvic region, comprising a table-like structure supported by and projecting from a bed or similar structure and serving to support and project the hips and buttocks of a recumbent patient out from the side of the bed, and stirrups carried by said structure to support the feet of the patient.

784,426. WALK-OVER CAR-SEAT. CHARLES K. PICKLES, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Sept. 9, 1903. Serial No. 172,432.



Claim.—1. In a reversible car-seat or similar device, a single link pivoted to each end of said back and to said support, said pivots being out of axial alinement, and means for supporting said links at the limits of their movements.

2. In a reversible car-seat or similar device, a support, a back, single links pivoted to said back and fixed to shafts journaled in said support, and means for causing said shafts to rotate in unison when the seat is reversed.

3. In a reversible car-seat or similar device, a support, a back, single links pivoted to said back and fixed to parallel shafts journaled in said support and means secured to said shafts for causing them to move in unison when the seat is reversed.

4. In a reversible car-seat or similar device, a support, a back, single and vertically-disposed links pivoted to said back and pivotally connected to said support, one of said links being fixed to a shaft and means connected with said shaft for causing said links to move in unison.

5. In a reversible car-seat or similar device, a support, a back, single links at each end of said back, horizontally-disposed parallel shafts journaled in said support and to which said links are fixed, cranks fixed to said shafts, and a link connecting said cranks.

6. In a reversible car-seat or similar device, a support, a back with projections extending out of the plane of said back in one direction only from each lower edge of each end, two pivots on said support, said pivots being out of axial alinement, and means connecting said projections and pivots.

7. In a reversible car-seat or similar device, a support with horizontally-disposed shafts journaled therein, a back with oppositely-disposed projections extending from its plane adjacent to its lower edge, and links connecting each projection with a shaft so that each shaft is connected with said back by one link only.

8. In a reversible car-seat or similar device, a support comprising cross-bars adjustably mounted in legs, plates uniting the ends of said bars, shafts journaled in said plates, a back, oppositely-disposed projections, each extending in one direction from the plane of said back, and means for pivotally connecting each projection with one shaft.

9. In a reversible car-seat or similar device, a support comprising cross-bars adjustably mounted in legs, plates uniting the ends of said bars, shafts journaled in said plates, a back with oppositely-disposed projections each extending in one direction out of the plane of said back, and identical means for connecting each projection with one shaft.

10. In a reversible car-seat or similar device, a support, comprising in its construction cross-bars united at their ends by plates, shafts journaled in said plates, a back with oppositely-disposed projections extending from the plane of its surface, links connecting each projection with one shaft, and means for causing said shafts to move in unison when the seat is reversed.

11. In a reversible car-seat or similar device, a support provided with cross-bars united at their ends by plates, a shaft journaled in said plates a back; two oppositely-disposed projections protruding from the plane of said back, a link connecting one of said projections with said shaft, and means for pivotally connecting the other projection with said support.

12. In a reversible car-seat or similar device, a support provided with cross-arms united at their ends by plates, a shaft journaled in said plates, a back; two oppositely-disposed projections protruding from the plane of said back, a link connecting one of said projections with said shaft, means for connecting the other projection, with said support, and means for connecting said first-mentioned means and said link so that they will act in unison when the seat is reversed.

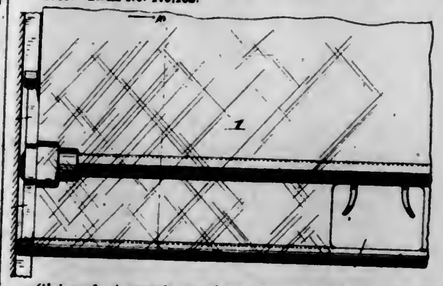
13. In a walk-over car-seat or similar device, a seat-support, a back, shafts journaled in said support, a seat-cushion, links connecting said shafts and back, eccentrics on said shafts, and means connecting said eccentrics and seat-cushion so that the seat and back are moved in unison when the seat is reversed.

14. In a reversible car-seat or similar device, a seat-support with shafts journaled therein, a back, links connecting said back and shafts, eccentrics on said shafts, brackets engaging said eccentrics a seat-cushion resting on said brackets so that when the seat is reversed, the back and seat-cushion will be moved in unison.

15. In a reversible car-seat or similar device, a seat-support with shafts journaled therein, eccentrics mounted on said shafts, brackets engaging said eccentrics and a seat secured to said brackets.

16. In a reversible car-seat or similar device, a seat-support with shafts, journaled therein, means for causing said shafts to move in unison, oppositely-disposed eccentrics secured to said shafts so that when the most eccentric part of one eccentric is elevated, the corresponding part of the other is depressed, a seat-cushion, and means connecting said cushion and eccentrics.

784,427. CURTAIN-FIXTURE. CHARLES K. PICKLES, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Oct. 29, 1903. Serial No. 179,103.



Claim.—1. A curtain attachment having guiding-shoes, vertical guide-arms on said shoes, and a rod connected to the ends of said guide-arms.

2. A curtain attachment for railway-cars or similar vehicles, having guide-shoes on the ends thereof, vertical guide-arms on said shoes, and a cross member connecting the lower ends of said guide-arms.

3. In a curtain attachment, a casing, shoes to guide the same, guide-arms on said shoes having sockets, and a rod in said sockets, connecting the opposite arms of said shoes.

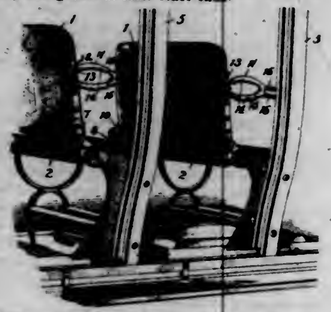
4. In a railway-car or similar vehicle, a curtain, a curtain attachment secured thereto, having shoes on the ends thereof, guide-arms on said shoes, a rod connected with the lower portion of said curtain, and connecting the said guide-arms.

5. In a railway-car or similar vehicle, a curtain, a curtain attachment therefor, shoes to guide the same having downwardly-extending arms, a rod passing through a hem on the lower end of said curtain and connecting the opposite ends of said guide-arms.

784,428. CAR-SEAT AND GUARD. CHARLES K. PICKLES, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Feb. 10, 1904. Serial No. 192,969.

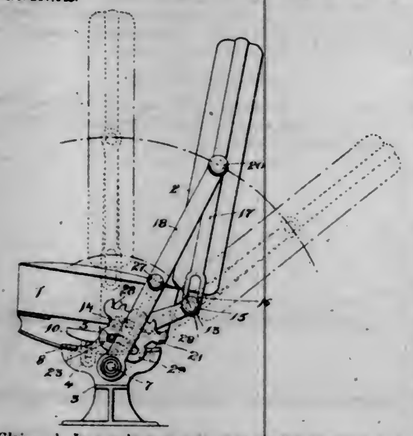
Claim.—1. As an article of manufacture, a grab-handle for car-

seats and cars comprising a pivot-plate, two curved and substantially parallel handles extending therefrom, a web uniting the ends of said handles, parallel guides extending from said web and means for uniting said guidee at their other ends.



2. In a car or similar vehicle, a stanchion, a transverse seat having an end adjacent said stanchion, a reversible back movably supported upon said seat or its support, and a guard having a plurality of bars at one end and a slotted extension at the other, the guard being pivoted to the back adjacent said bars and movably supported by a stud on the stanchion engaging the slot of the extension.

784,429. CAR-SEAT. CHARLES K. PICKLES, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed July 23, 1904. Serial No. 217,045.



Claim.—1. In a walk-over car-seat or similar device, a back, links supporting said back provided with spur and annular gears, and means for tilting said back at various angles to the seat.

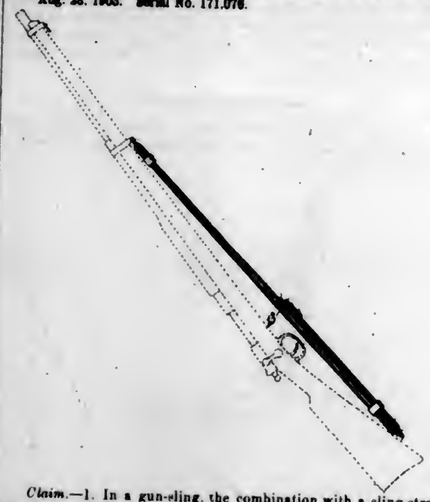
2. In a walk-over car-seat or similar device, a back, links for supporting said back, a spur and an annular gear secured to said links, a pawl secured to one of said links, and teeth integral with one of said gears, adapted to be engaged by said pawls.

3. In a walk-over car-seat or similar device, a back, links supporting said back, said links being provided with spur and annular gears, ratchet-teeth attached to said annular gear, and a pawl on one of said links adapted to engage ratchet-teeth on said annular gear.

4. In a walk-over car-seat or similar device, a back, links supporting said back, a spur-gear attached to one of said links, an annular gear mounted concentric with another of said links, and a pawl adapted to hold the annular gear with the link with which it is concentric.

5. In a walk-over car-seat or similar device, a back, links supporting said back, one of said links being mounted on a shaft, and provided with a spur-gear, and another of said links being mounted on a stud, an annular gear concentric with the link, mounted on a stud, and connected therewith by a pawl, and means for permitting said shaft to project through a portion of said annular gear, and act as a stop to limit its movement.

784,430. GUN-SLING. LEIGHTON POWELL, U. S. Army. Filed Aug. 28, 1903. Serial No. 171,076.



Claim.—1. In a gun-sling, the combination with a sling-strap having at one end a device for connection with a gun-swivel or its equivalent, and provided throughout a portion of its length with a series of perforations; of a hook pivotally secured to said strap and having a hook-point adapted to enter said perforations and hold the sling in any desired position of adjustment, said hook-point extending rearwardly past the pivot of the hook and having its extreme end curved outwardly so that the hook will ride easily along the surface of the strap when said hook is in upturned or open position in engaging it with said perforations, said hook-point lying between the two runs of the sling when in engaged position so as to present a readily-engageable point for the finger when in closed position for disengaging it from the said perforations.

2. In a gun-sling, the combination with a sling-strap having at one end a device for connection with a gun-swivel or its equivalent, and provided throughout a portion of its length with a double row of perforations; of a double-pointed hook pivotally secured to said strap and having hook-points adapted to enter said perforations and hold the sling in any desired position of adjustment, said hook-points extending rearwardly past the pivot of the hook and having their extreme ends curved outwardly so that the hook will ride easily along the surface of the strap when said hook is in upturned or in open position, said hook-points lying between the two runs of the sling when in engaged position so as to present readily-engageable points for the finger when in closed position for disengaging it from said perforations.

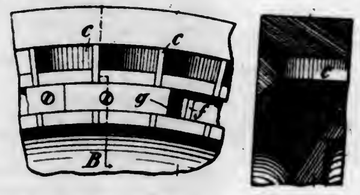
3. In a gun-sling, the combination with a sling-strap having at one end a device for connection with a gun-swivel or its equivalent, and provided throughout a portion of its length with a series of perforations; of a rigid hook-plate secured to said strap at its other end to form a rigid support for a pivoted hook; and a hook pivotally secured to said rigid hook-plate and having a hook-point adapted to enter said perforations and hold the sling in any desired position of adjustment, the extreme end of the said hook being curved outwardly so that the hook will ride easily along the surface of the strap when said hook is in upturned or in open position, in engaging it with said perforations, said hook-point lying between the two runs of the sling when in engaged position so as to present a readily-engageable point for the finger when in closed position for disengaging it from the said perforations.

4. In a gun-sling, the combination with a sling-strap having at one end a device for connection with a gun-swivel or its equivalent, and provided throughout a portion of its length with a double row of perforations; of a rigid hook-plate secured to said strap at its other end to form a rigid support for a pivoted hook; and a double-pointed hook pivotally secured to said rigid hook-plate and having hook-points adapted to enter said perforations and hold the sling in any desired position of adjustment, the extreme ends of the said hook-points being curved outwardly so that the hook will ride easily along the surface of the strap when said hook is in upturned or in open position in engaging it with said perforations, said hook-points lying between the two runs of the sling when in engaged position so as to present readily-engageable points for the finger when in closed position for disengaging it from said perforations.

5. In a gun-sling, the combination with a sling-strap having at one end a device for connection with a gun-swivel or its equivalent, and provided throughout a portion of its length with a double row of perforations and with a double row of notches; of a rigid hook-plate secured to said strap at its other end to form a rigid support for a pivoted hook; and a double-pointed hook pivotally secured to said rigid hook-plate and having hook-points adapted to enter said perforations and hold the sling in any desired position of adjustment, the extreme ends of the said hook-points being curved outwardly so that the hook will ride easily along the surface of the strap when said hook is in upturned or in open position in engaging it with said perforations, said hook-points lying between the two runs of the sling when in engaged position so as to present readily-engageable points for the finger when in closed position for disengaging it from said perforations.

6. As a new article of manufacture, a hook for gun-slings formed of a substantially H-shaped plate bent into a substantially U shape, the vertical members of which are bent at one end to form pivot-lugs, and at the other end are turned under to form hook-points, the extreme ends of said underturned hook-points being curved outwardly.

784,431. STEAM-TURBINE. PIERRE RAMDAL, Zurich, Switzerland, assignor to The Firm of Actiengesellschaft der Maschinenfabriken von Escher Wyss & Co., Zurich, Switzerland. Filed Feb. 23, 1904. Serial No. 194,899.



Claim.—1. A turbine directing device or intermediate, comprising an annular body having slots in its side extending in the direction of rotation of said body, blades insertible into said slots and means to lock said blades against displacement.

2. A turbine directing device or intermediate, comprising an annular body, blades insertible from one side of the body, and means to lock the blades against displacement, in combination with a cover-ring for said blades.

3. A turbine directing device or intermediary, comprising an annular body having slits cut partly through the body, blades having notched shanks insertible from one side of the body in said slits and a locking-ring engaging the notches of said shanks to lock the blades against displacement.

4. A turbine directing device or intermediary, comprising an annular body, having slits cut partly through the body, blades having notched shanks insertible from one side of the body into said slits and a sectional locking-ring engaging the notches of said shanks to lock the blades against displacement.

5. A turbine directing device or intermediary, comprising an annular body, blades having notched shanks insertible from one side of the body, said blades projecting beyond the periphery of the body, a locking-ring engaging the notches of the blade-shanks and a cover-ring for the blades.

6. A turbine directing device or intermediary, comprising an annular body having separate blade-seats formed in its rim and open on one side of said body, blades insertible into said seats from said side of the body, means to lock said blades against displacement and a sectional cover-ring for said blades.

7. A turbine directing device or intermidate, comprising an annular body having separate blade-seats formed in its rim and open on one side of said body, blades insertible into said seats from said side of the body, means to lock said blades against displacement and a sectional cover-ring for said blades detachably secured to the annular body.

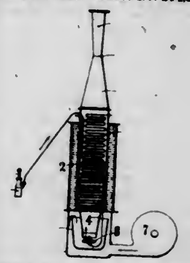
8. In steam or gas turbines, a directing device for the steam or gas with guide-blades, said blades having feet projecting from the body of the blades, a body which supports the guide-blades, said body being provided with slits in which the feet of the guide-blades are placed, a locking-ring arranged in the one face of the body supporting the blades, said ring engaging in notches of the feet of the blades, substantially as set forth.

9. In steam or gas turbines, a directing device with a disk-like body and a ring arranged at some distance around the periphery of the disk-like body, guide-blades arranged between the periphery of the disk-like body and the ring, said guide-blades having feet projecting from the body of the blades and engaging in slits of the disk-like body, a locking-ring arranged in the one face of the disk-like body and engaging in notches of the feet of the blades, substantially as set forth.

10. In steam or gas turbines, a directing device with a disk-like body and a ring supported by pieces projecting from the periphery of the disk-like body, guide-blades arranged in the apertures between the ring and the disk-like body, said guide-blades having feet projecting from the body of the blades and engaging in slits of the disk-like body, a locking-ring arranged in the one face of the disk-like body and engaging in notches of the feet of the blades, substantially as set forth.

11. In steam or gas turbines, a directing device with a disk-like body provided with slits in the periphery, said slits extending to the one face of the body, a ring supported by pieces projecting from the periphery of the disk-like body, guide-blades arranged in the apertures between the ring and the disk-like body, said guide-blades having feet projecting from the body of the blades and fitting in the slits of the disk-like body, a locking-ring arranged in the face of the disk-like body to which the slits extend, said locking-ring engaging in notches of the feet of the blades, substantially as set forth.

784,432. STEAM-GENERATOR. CHARLES REWARD, Meudon, France. Filed June 27, 1904. Serial No. 214,385.



Claim.—1. A steam-generator having a tube in one piece forming a large number of horizontal grids with closely-arranged parallel straight portions of alternate coils at right angles to straight portions of the coils between and adjacent to the said alternate coils, a liquid-fuel-evaporating coil arranged midway and between the steam-generating coils, a water-jacket surrounding the steam-generator and having means for feeding water thereto, a furnace beneath the generator, and a chimney communicating with the furnace.

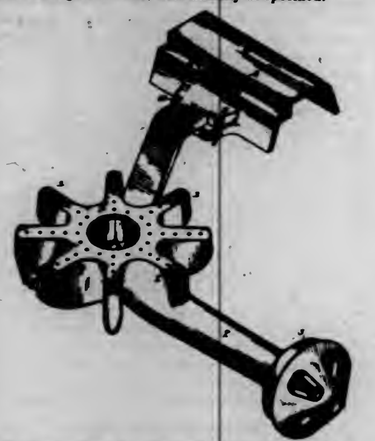
2. A steam-generator having a tube in one piece forming a large number of horizontal grids with closely-arranged parallel straight portions, the said grids being superposed in such manner that the straight portions of alternate coils are at right angles to the straight portions of the coils interposed between the alternate coils, a liquid-fuel-evaporating coil arranged midway and between the steam-generating coils, and a casing surrounding the tube and forming a water-jacket with respect thereto.

3. A steam-generator having a tube in one piece forming a large number of horizontal grids with closely-arranged parallel straight portions, the said grids being superposed in such manner that the straight portions of alternate coils are at right angles to the straight portions of the coils interposed between the alternate coils, and a liquid-fuel-evaporating coil of the same arrangement as the steam-generating coil, disposed between the coils of the latter at an intermediate point.

4. In a steam-generator, a tubular coil for the evaporization of liquid fuel, and a tubular coil in which water circulates, the liquid-fuel coil being inserted between the members of the tubular coil, both coils being horizontally disposed and having the parts thereof alternately arranged at angles to each other.

784,433. BURNER-SUPPORT FOR GAS OR VAPOR STOVES. CLARENCE V. ROBERTS, Philadelphia, Pa. Filed Mar. 21, 1904. Serial No. 199,160.

Claim.—1. The combination of the rim of a gas or vapor stove or range, having a shelf projecting in advance of the rim, and a bearing-surface above the shelf, with a burner having an arm supported upon said shelf, and provided with an end portion for engagement with said bearing on the rim, substantially as specified.



2. The combination of the flanged rim of a gas or vapor stove or range having a bearing thereon, and an arm-supporting member with lug thereon, and a burner having an arm engaging with the bearing on rim, and a projecting wing confined between the flange on the rim and the lug upon the arm-supporting member thereof, substantially as specified.

3. The combination of the slotted rim of a gas or vapor stove or range, having a shelf projecting in advance of the rim, and a bearing-surface above the slot, with a burner having an arm supported upon said shelf, said arm projecting into the slot of the rim and contacting with the bearing above said slot, substantially as specified.

4. The combination of the slotted rim of a gas or vapor stove or range, having a shelf projecting in advance of the rim and a bearing-surface above the slot, with a burner supported upon said shelf and provided with an arm having an upwardly-extending end which enters the slot and engages with the bearing above the same, substantially as specified.

5. The combination of the flanged and slotted rim of a gas or vapor stove having a bearing above the slot, and an arm-supporting member with lug thereon, and a burner having an arm entering the slot of the rim and engaging with the bearing above the same, and a projecting wing confined between the flange on the rim and the lug upon the arm-supporting member, substantially as specified.

6. The combination of the slotted frame of a gas or vapor stove or range, with a burner having an arm projecting into said slot, and means for preventing the longitudinal withdrawal of the arm from said slot, substantially as specified.

7. The combination of the slotted frame of a gas or vapor stove or range, with a burner having an arm projecting into said slot, and means for preventing the longitudinal withdrawal of the arm from said slot, but from which the arm can be freed by vertical movement, substantially as specified.

784,434. **OIL-BURNER.** SAMUEL D. ROSER, Los Angeles, Cal., assignor to Raymond Manufacturing Company, Los Angeles, Cal., a Corporation of Arizona. Filed Jan. 19, 1905. Serial No. 241,735.



Claim.—1. An oil-burner comprising a base having a dished table, a nipple screwed thereto, a thimble attached to the nipple and having a conical upper portion, a vaporizer having a depending hollow stem with a conical recess in the bottom thereof closely fitting the conical upper end of the thimble, the contacting faces being ground to fit and forming a tight but separable joint, a draft-ring girdling the vaporizer, and a spreader above the vaporizer.

2. An oil-burner comprising a base having a downwardly-directed rim with openings therein at suitable intervals for receiving a fuel-pipe, the upper part of the base comprising a dished table, a thimble above the table, a vaporizer resting upon the thimble, fitting the same with a tight joint, but being unattached thereto, the vaporizer being conical with a series of annular gutters formed therein and graduated in size, a draft-ring around the vaporizer and having a bell-shaped bore, and a spreader above the vaporizer.

3. An oil-burner comprising a base having a downwardly-directed rim with openings therein at intervals for receiving a fuel-pipe, the upper part of the base comprising a dished table, a thimble above the table, a vaporizer resting upon the thimble, fitting the same with a tight joint but being unattached thereto, the vaporizer being conical with a series of annular gutters formed therein and graduated in size, a draft-ring around the vaporizer and having a bell-shaped bore, a spreader above the vaporizer, and an annular starting-pan under the vaporizer resting upon the dished table.

4. An oil-burner comprising a base, a thimble on the base having a conical top, a vaporizer above the base having a downwardly-extending stem conically cupped at the bottom and resting upon the conical thimble, the upper end of the vaporizer having a flange, a spreader having a depending annular hub with radial slots which fits over the flange on the vaporizer, the lower parts of the slots being closed by the flange, leaving the upper parts free.

5. An oil-burner comprising a base, a thimble on the base having a conical top, a vaporizer above the base having a downwardly-extending stem conically cupped at the bottom and resting upon the conical thimble, the upper end of the vaporizer having a flange, a spreader having a depending annular hub with radial slots which fits over the flange on the vaporizer, the lower parts of the slots being closed by the flange, leaving the upper parts free, and a draft-ring around the vaporizer having a bell-shaped bore with standards formed integral with the draft-ring and base.

6. An oil-burner comprising a base, a thimble on the base having a conical top, a vaporizer above the base having a downwardly-extending stem conically cupped at the bottom and resting upon the conical thimble, the upper end of the vaporizer having a flange, a spreader having a depending annular hub with radial slots which fits over the flange on the vaporizer, the lower parts of the slots being closed by the flange, leaving the upper parts free, and a draft-ring around the vaporizer having a bell-shaped bore with standards formed integral with the draft-ring and base, and an annular starting-pan around the stem of the vaporizer and resting upon the base.

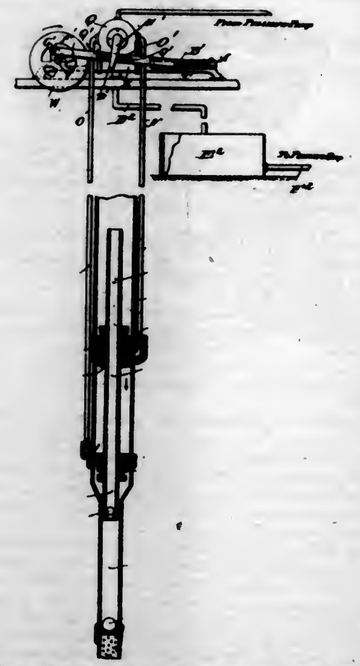
7. An oil-burner comprising a base with a dished table, a nipple screwed to the table, a thimble screwed to the nipple above the table, a fuel-pipe connected with the nipple, a draft-ring formed integrally with the base being connected therewith by standards, a vaporizer resting upon the thimble but unattached thereto, a spreader resting upon the vaporizer but unattached thereto, and an annular starting-pan below the vaporizer resting upon the dished table.

784,435. **HYDRAULIC PUMP.** ROBERT H. RUSSELL, Galveston, Tex., assignor of one-half to Clifton W. Arnold and Walter L. Sheldon, Galveston, Tex. Filed Mar. 29, 1904. Serial No. 200,532.

Claim.—1. In an apparatus substantially as described, means for lifting liquid, fluid-operated devices for actuating said lifting means, a controller for the feed and exhaust of the fluid to the lifting means, and means operated by the exhaust of said fluid from the device which actuates the lifting means, whereby to shift the said controller.

2. In an apparatus substantially as described, means for lifting liquid consisting of a pump, means conveying fluid under pressure to the lifting means, a controller for the fluid-conveying means operated by exhaust of the lifting means, and means which actuates the lifting means, whereby to shift the said controller.

3. In an apparatus substantially as described, the combination of a fluid-lifting pump having a free piston, a tube carried by the piston having its ends extended through the pump-cylinder ends, feed and exhausting pipes leading into the pump-cylinder ends, wherethrough to convey fluid under pressure, passage-ways leading to and from the pump, wherethrough to convey the fluid being pumped, a controller in communication with the said feed and exhausting pipes, adapted to be shifted and thereby reverse action of the fluid flowing therethrough, and motor means adapted to shift the controller and reverse the action of the lifting means substantially as described.



4. The combination with a fluid-lifting pump of the character described, of passage-ways adapted for conveying fluid under pressure to and from the said pump, a controller at the receiving ends of said passage-ways, consisting of a suitable casing containing an oscillating valve, and exhaust and feed ports, means for conveying fluid under pressure to and from the said controller, and motor means operated by direct pressure of the exhaust-flow from the pump whereby to shift said controller and thereby through its connecting means with the lifting-pump, reverse the action of the feed and exhaust of the fluid-lifting means, substantially as described.

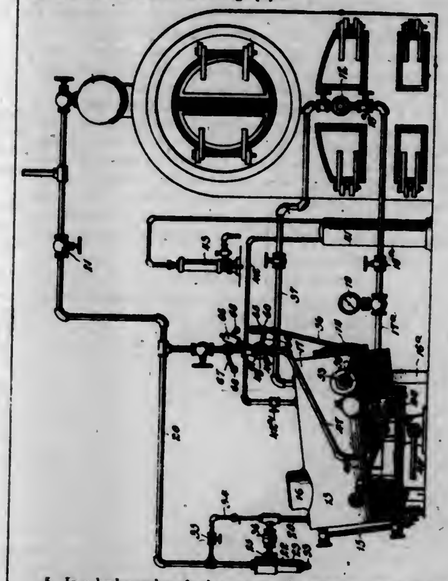
784,436. **HYDROCARBON-FEEDER SYSTEM.** RICHARD P. SCHRODER, Sacramento, Cal. Filed Sept. 26, 1901. Serial No. 76,912.

Claim.—1. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir having a steam-space at one of its upper corners, and a sediment-space in its diametrically opposite lower corner, of a steam-supply pipe connected to the reservoir above the sediment-space, a burner, a hydrocarbon-discharge pipe connecting the burner and the lower portion of the reservoir below the steam-space and above the plane of the sediment-space, a steam-discharge pipe leading from the steam-space to the burner, and a valved sediment-discharge vent connected with the sediment-space of the reservoir.

2. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir located at an inclination, of a steam-supply pipe connected with the upper portion of the lower end of the reservoir, a hydrocarbon-burner, a steam-discharge pipe connecting the upper corner of the reservoir to the burner, a hydrocarbon-discharge pipe connecting the lower portion of the upper end of the reservoir and the burner, and a sediment-discharge vent communicating with the lower corner of the reservoir.

3. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir, of a hydrocarbon-discharge pipe leading from the reservoir above the bottom of the same, and an apron secured to the wall of the reservoir between the bottom of the reservoir and the discharge-pipe, said apron extending into said reservoir and terminating short of the opposite wall thereof.

4. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir, of a hydrocarbon-discharge pipe leading from the reservoir above the bottom of the same, an apron secured to the wall of the reservoir between the bottom thereof and the discharge-pipe, said apron extending into the reservoir and terminating short of the opposite wall thereof, and a screen secured to the apron and to the wall of the reservoir above the discharge-pipe, thereby inclosing the inlet end of said discharge-pipe.



5. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir arranged at an inclination, of a hydrocarbon-discharge pipe leading from the lower portion of the upper end of the reservoir, an apron located between the bottom of the reservoir and the hydrocarbon-discharge pipe, and a residue-vent leading from the lower end of the reservoir.

6. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir, of a burner, a connection between the burner and the reservoir, a pump having an inlet connection with the reservoir, a motive-fluid supply for the pump, a controlling-valve for the motive-fluid supply having a valve-stem, a weighted lever rotatably mounted on the stem, a stop carried by the stem for limiting the rotary movement of the lever upon the same, and means actuated by the hydrocarbon within the reservoir for shifting the weighted lever, and thereby actuating the valve.

7. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir, of a burner, a connection between the burner and the reservoir, a pump having an inlet connection with the reservoir, a motive-fluid supply for the pump, a controlling-valve for the motive-fluid supply having a valve-stem, a weighted lever provided with a collar which is rotatably mounted on the valve-stem, said collar having a slot, a pin carried by the stem and projecting into the slot of the collar, and means actuated by the hydrocarbon within the reservoir for shifting the weight and thereby actuating the valve.

8. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir, of a burner, a connection between the burner and the reservoir, a pump having an inlet connection with the reservoir, a motive-fluid supply for the pump, a controlling-valve for the motive-fluid supply, a weighted lever having a connection with the valve and provided with an offset arm, a float pivoted within the reservoir, and a connection between the offset arm of the weighted lever and the float, said connection including a link having a limited sliding movement upon said offset arm.

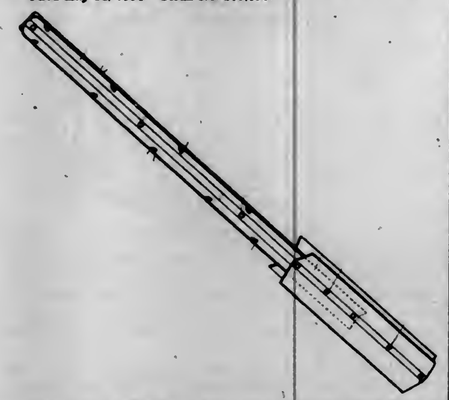
9. In a hydrocarbon-feeder system, the combination with a hydrocarbon-reservoir, of a burner, a connection between the burner and the reservoir, a pump having an inlet connection with the reservoir, a motive-fluid supply for the pump, a controlling-valve for the motive-fluid supply, a substantially horizontal bracket secured within the reservoir and comprising spaced arms connected by journal-boxes, a rock-shaft journaled upon the bracket in said boxes and passing through the walls of the reservoir, a float secured to the rock-shaft within the reservoir, a crank-arm secured to the exterior por-

tion of the shaft, and connections between the crank-arm and the controlling-valve.

10. In a hydrocarbon-feeder system, the combination with a boiler, of a burner, a hydrocarbon-reservoir, hydrocarbon and steam conductors connecting the reservoir and burner, a steam-supply pipe directly connecting the boiler and the reservoir, an automatic valve located in said supply-pipe and operated by the pressure of steam therein, an automatically-operated pump for supplying oil under pressure to the reservoir, a steam-supply pipe connecting the boiler and pump, a valve arranged in said pipe, and means located in the reservoir for controlling the movement of the valve.

11. In a hydrocarbon-feeder system, the combination with a boiler, of a burner, a hydrocarbon-reservoir, hydrocarbon and steam conductors connecting the reservoir and burner, a steam-supply pipe directly connecting the boiler and the reservoir, an automatic valve located in said supply-pipe and operated by the pressure of steam, an automatically-operated pump for supplying oil under pressure to the reservoir, a motive-fluid supply for the pump, a valve controlling said supply, and means located in the reservoir for controlling the movement of the valve.

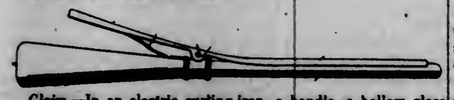
784,437. METALLIC POST. LEE C. SHARP, Plattsmouth, Nebr. Filed May 14, 1904. Serial No. 208,036.



Claim.—1. A metallic post comprising two trough-sections secured together back to back, and two ground-engaging sections of similar form fitting into and secured to the former, the edges of the latter sections extending laterally beyond the edges of the former and forming a shoulder adapted to be engaged by suitable means for driving the post into the ground.

2. A metallic post comprising four trough-shaped sections secured together by suitable means, two of said sections being placed back to back and forming the upper part of the post, the other two sections fitting into and being secured to the lower portions of the former sections, and the edges of the latter sections extending laterally beyond the edges of the former and forming the ground-engaging portion of the post.

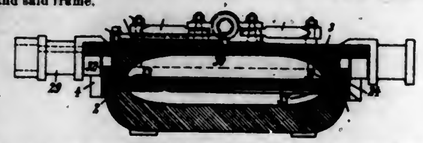
784,438. CURLING-IRON. GEORGE F. SHIELDS, Kern, Cal. Filed Oct. 19, 1904. Serial No. 229,149.



Claim.—In an electric curling-iron, a handle, a hollow glass tube constructed for detachable engagement therewith, the tube serving as a heater and clamping member, a second clamping member pivoted upon the said handle and cooperating with the tube for clamping purposes, and means for establishing electrical communication through the handle and the tube.

784,439. APPARATUS FOR PRODUCING HOLLOW GLASS ARTICLES. PAUL T. SILVERT, Dresden, Germany. Filed Feb. 17, 1904. Serial No. 194,078.

Claim.—1. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, and means for detachably engaging said cover and said frame.



2. A device for producing hollow glass articles comprising a dished supporting-plate, a divided frame vertically disengageable from said plate and having a glass-engaging interior surface, a cover, and means for detachably engaging said cover with said frame.

3. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, and a divided clamping-ring for detachably engaging said cover with said frame.

4. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, a clamping-ring consisting of a plurality of parts, and means for moving said parts inwardly and outwardly toward and from a common center to engage and disengage said cover and said frame.

5. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, a clamping-ring consisting of a plurality of parts, and means for moving said parts inwardly and outwardly toward and from a common center to engage and disengage said cover and said frame, including a right and left threaded screw and connections between said screw and said ring parts.

6. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, a clamping-ring consisting of a plurality of parts, means for moving said parts inwardly and outwardly toward and from a common center to engage and disengage said cover and said frame, and signaling means operating during said disengagement.

7. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, means for detachably engaging said cover and said frame, and means for introducing fluid-pressure into the space between said cover and a mass of glass carried by said frame.

8. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, and means on said frame and said cover for first detaching said frame from the mass of glass carried thereby and for afterward detaching said frame from said cover.

9. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, a segmental clamping-ring guided to move radially on said cover, a right and left threaded screw on said cover, nuts on said screw, and connecting-bars between said nuts and the segments of said ring, whereby the latter are radially moved.

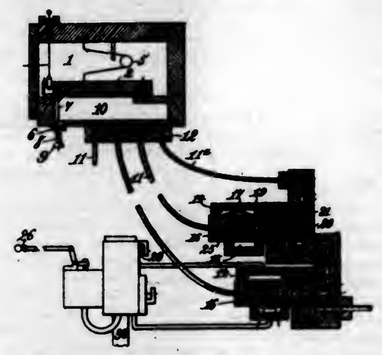
10. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging inner surface, a cover, a segmental clamping-ring guided to move radially on said cover, a right and left threaded screw on said cover, nuts on said screw, connecting-bars between said nuts and the segments of said ring, whereby the latter are radially moved, a bell on said cover, and a trip on one of said connecting-bars for sounding said bell during the movement of said segments.

11. A device for producing hollow glass articles comprising a supporting-plate, a divided frame having a glass-engaging interior surface, a cover, a segmental clamping-ring guided to move radially on said cover and provided with upper and lower inwardly-extending flanges for engaging respectively with said cover and said frame, and means for moving said clamping-ring toward and from its center.

784,440. ORGAN-ACTION. ERNEST M. SKINNER, Boston, Mass. Filed July 31, 1903. Serial No. 167,746.

Claim.—1. In an organ-action, a pair of coupler-blocks provided with communicating passages forming a continuous windway for the normal action, each of said blocks having a branch passage for the coupler-action communicating with said continuous passage, and valves controlling said branch and continuous passages.

2. In an organ-action, a system of coupler-blocks provided with communicating passages to form a continuous channel constituting the normal windway, each of said blocks having a branch channel for the coupler-action in communication with said normal windway, and a valve controlling such communication.



3. In an organ-action, a block having a normal and a branch channel, diaphragms operating to close the branch channel, and controlled by air-pressure, and valves for controlling the admission of air to said diaphragms.

4. In an organ-action, a block having a normal and a branch channel, oppositely-acting diaphragms operating to close the branch channel and controlled by air-pressure, and valves for controlling the admission of air to said diaphragms.

5. In an organ-action, a block having a normal and a branch channel, diaphragms operating to close the branch channel, and means for controlling said diaphragms operating to subject one to air-pressure while simultaneously removing the air-pressure from the other.

6. In an organ-action, a block having one system of outlet-ducts and two systems of air-supply ducts, and means whereby said supply-ducts may be closed to the compressed-air supply and simultaneously be placed in communication with the atmosphere, comprising a separate diaphragm for closing one end of each duct of one system and a single diaphragm for closing the opposite end of all of said ducts.

7. In an organ-action, a block having one system of outlet-ducts and two systems of air-supply ducts, means whereby said supply-ducts may be closed to the compressed-air supply and simultaneously be placed in communication with the atmosphere, comprising a separate diaphragm for closing one end of each duct of one system and a single diaphragm for closing the opposite end of all of said ducts, and means for operating said diaphragms by air-pressure.

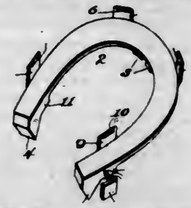
8. In an organ-action, a block having one system of outlet-ducts and two systems of air-supply ducts, means whereby said supply-ducts may be closed to the compressed-air supply and simultaneously be placed in communication with the atmosphere, comprising a separate diaphragm for closing one end of each duct of one system and a single diaphragm for closing the opposite end of all of said ducts, and means for simultaneously supplying air-pressure to said individual diaphragms while permitting air to exhaust from said single diaphragm, or the reverse.

9. In an organ-action, a block having a cell entered by an outlet-duct and two inlet-ducts, one of said inlet-ducts having three orifices, one of which terminates in the cell, a diaphragm under which another of the orifices terminates and which is adapted to place the orifice in communication with the atmosphere, a second diaphragm under which the remaining orifice terminates, and a valve in said cell interposed between said inlet-ducts and common to the orifices of both.

10. In an organ-action, a key-chest having a cell for each key, valves for controlling the admission and exhaust of compressed air to and from said cells, respectively, and a plurality of coupler-blocks each of which has a normal windway communicating with one of said cells, and a windway for the coupler-action communicating with a different cell.

11. In an organ-action, a coupler-block having a cell therein and having ducts for the normal and coupler action entering said cell and an outlet-duct leading therefrom to a pneumatic, a valve interposed between said normal and coupler ducts, chambers provided in said block and communicating with said coupler-duct, a diaphragm in each of said chambers controlling said duct, means for admitting compressed air to and exhausting it from said chambers to operate said diaphragms, a key-valve chest provided with a cell for each key, a conduit connecting the normal duct with one of said cells, and a conduit connecting the coupler-duct with a different cell.

784,441. ROUGHENER-SHOE FOR HORSESHOES. ALBERT SMITH, Bowie, Md. Filed Jan. 11, 1905. Serial No. 240,560.



Claim.—1. In means for attaching overshoes to horseshoes, the combination, with an overshoe having suitable toe-clips, a clamping-clip on the outer edge of one overshoe-arm and a clamping-clip on the inner edge of the other overshoe-arm, of a screw-stud working transversely in one of said arms and having a head to hold the shoes against lateral movement.

2. An overshoe for horseshoes having suitable toe-clips, clamping-clips one on the inner edge and the other on the outer edge of the overshoe-arms, and a bolt working transversely through one of the said arms and having a head to clamp the horseshoe against the clips.

3. A roughener-shoe for horseshoes having suitable toe-clips, clamping-clips one of which overhangs the outer edge and the other the inner edge of the roughener, and a set-bolt opposed to the clips and working transversely in the roughener to connect the shoes.

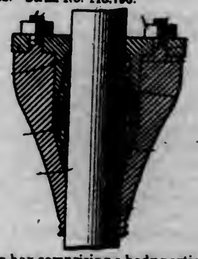
4. The combination, with an overshoe for horseshoes having suitable toe-clips, toe-calks and heel-calks, and a pair of clamping-clips one of which engages the outer edge and the other the inner edge of the horseshoe, of a screw-stud working transversely through the overshoe to clamp the latter to the horseshoe.

5. The combination, with an overshoe for horseshoes, suitable overshoe toe-clips, a lug on the outer face of the overshoe at each end thereof, and a clamping-clip projecting vertically from each lug one of said clips being on the inside and the other on the outside of the overshoe, of a screw-bolt working transversely in one of the lugs to connect the shoes.

6. The combination, with an overshoe for horseshoes, suitable overshoe toe-clips, and a clamping-clip projecting from the outer edge of the overshoe, of a washer having a lip to engage the inner face of the horseshoe, and a bolt working through the washer and the overshoe to clamp the latter to the horseshoe.

7. The combination, with an overshoe having suitable toe-clips, and the clamping-clips one of which is projected from the outer edge of the overshoe and has a top edge projecting inwardly and the other of which is projected from the inner edge of said shoe and has a top edge projecting outwardly, and a bolt coacting with the clips to clamp the overshoe to a horseshoe.

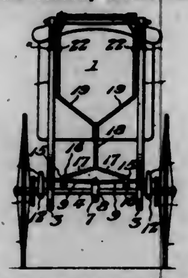
784,442. STUFFING-BOX. WILLIAM J. SMITH, Amos, W. Va. Filed June 30, 1902. Serial No. 113,798.



Claim.—A stuffing-box comprising a body portion having a passage therethrough, the external walls of the body tapering downwardly, said passage including an upper cylindrical portion, a lower cylindrical portion of less cross-sectional diameter than the upper cylindrical portion, and a downwardly-tapered portion arranged intermediate the upper and lower cylindrical portions, the lower cylin-

drical portion receiving the shaft adapted to receive the packing, the upper edge of the body having upwardly-directed screw-threaded projections rising therefrom, and a follower including a head having an opening therein of a diameter corresponding to the diameter of the said lower cylindrical portion of said body, and a depending portion continuous in circular form arranged intermediate the edges of the head of the follower and the opening therein, the outer surface of the said depending portion fitting snugly the inner walls of the upper cylindrical portion of the aforesaid passage and the inner walls of the depending portion being out of contact with the pipe to be packed and tapering in a direction opposite to the tapering portion of the aforesaid passage, the under face of the head of the follower between the edge of the opening therein and the depending portion thereof forming a shoulder for compressive action upon the upper portion of the packing, the head of the follower having perforations therein for registration with the said upwardly-directed screw-threaded projections, and means associated with the said head and projections for securing the follower in operative position with relation to the said body, substantially as specified.

784,443. BRAKE FOR BABY-CARRIAGES. RAYMOND C. STARBARD, Milford, Mass. Filed July 19, 1904. Serial No. 217,231.



Claim.—1. The combination with a baby-carriage, of a wheel element, a brake element adapted to be moved by gravity into contact with the wheel element, a lever, and a spring element connecting the brake element and the lever, for normally maintaining the brake element out of contact with the wheel element.

2. The combination with a baby-carriage, of pivoted brake elements, a lever having diverging arms pivoted to the handle-supports of the carriage, a cross-piece connecting the diverging arms of the lever, and a plurality of coil-springs connecting the brake elements with the lever.

3. The combination with a baby-carriage having wheels, an axle, handle-supports, and a handle, of a bracket removably mounted upon the axle, a plurality of brake-bars pivoted upon the bracket and extending in opposite directions, a longitudinally-adjustable bracket upon each of the brake-bars, a lever having diverging arms pivoted to the handle-supports of the carriage above the middle portion of the lever, a shell or cross-bar connecting the diverging arms of the lever and lying in parallel relation with the handle of the carriage, and a coil-spring connected with each of the longitudinally-adjustable brackets and with the lower end of the lever.

4. The combination with a baby-carriage having wheels, an axle, handle-supports, and a handle, of a disk formed with an irregular periphery and mounted to rotate with each of the wheels, a supporting-bracket removably mounted upon the axle, a plurality of guide-brackets having slots therein and being removably mounted upon the axle, a plurality of brake-bars pivoted upon the supporting-bracket and extending in opposite directions, a longitudinally-adjustable bracket on each of the brake-bars, a coil-spring connected with each of the longitudinally-adjustable brackets, a lever connected with each of the coil-springs and having diverging arms pivoted upon the handle-supports of the carriage, the pivot-point of the lever being above the central portion thereof, and the upper end of each diverging arm being twisted, and a shell connecting the upper ends of the diverging arms and lying in parallel relation with the handle of the carriage.

784,444. TYPE-WRITING MACHINE. DURHAM C. STOCKNEY, Elizabeth, N. J., assignor, by mesne assignments, to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Dec. 26, 1900. Serial No. 617,187.

Claim.—1. In a type-writer margin-gage mechanism, the combination with a carriage, a front rail therefor, and a series of stops cut upon said rail, of a margin-gage arranged upon the rail and comprising both a tooth for engaging any of the stops to limit the return movements of the carriage, and a lever adapted to move the gage in either direction along the rail independently of the stops by a single push thereon, the lever being movably mounted on the gage and the tooth being freely movable with and independently of the lever, substantially as set forth.



2. In a type-writer margin-gage mechanism, the combination with a series of stops and a slideway of a margin-gage arranged upon the slideway and provided with a spring-pressed pivoted tooth and a handle independently pivoted and coöperating with said tooth; the construction and arrangement being such that when the handle is pushed to carry the margin-gage in one direction the tooth will ride over the stops independently of the handle, and when the handle is pushed to carry the margin-gage in the opposite direction the tooth is released from the stops, substantially as set forth.

3. In a type-writing machine, the combination with a platen-frame having a forward supporting-roll of a rail upon which the roll runs; a series of stops; a margin-gage movable by a single push in either direction along said rail and comprising a hand-lever and a spring-pressed tooth freely pivoted to coact with said lever and adapted to engage any of the stops, to limit the return movements of the carriage, and so constructed and arranged as to leave a clear runway for the roll; an abutment arranged upon the platen-frame and adapted to coöperate with the gage to limit the carriage return movements; provision being made to permit the carriage in its return movement to be moved past the margin-gage at the option of the operator; and the recited mechanism embracing a movable part to permit the subsequent movement of the carriage past the margin-gage in letter-space direction, substantially as set forth.

4. In a type-writing machine, the combination with a hinged platen-frame having a forward supporting-roll of a rail upon which the roll runs; a series of stops; a margin-gage arranged upon the rail and comprising a hand-lever and a spring-pressed tooth freely pivoted to coact with said lever and adapted to engage any of the stops, to limit the return movements of the carriage, and so constructed and arranged as to leave a clear runway for the roll; an abutment arranged upon the platen-frame and adapted to coöperate with the gage to limit the carriage return movements; the construction and arrangement being such that the platen-frame may be swung up about its hinge to permit its return movement to be prolonged beyond the margin-gage; and the recited mechanism embracing a movable part to permit the subsequent movement of the carriage past the margin-gage in letter-space direction, substantially as set forth.

5. In a type-writing machine, the combination with a carriage provided with a supporting-roll, of a rail upon which the roll runs; a series of stops; and a margin-gage comprising a pivoted lever and a pivoted tooth and said gage being movable by a single push of the lever in either direction along said rail and adapted to move thereon past the roll and to engage any of the stops to limit the return movements of the carriage, substantially as set forth.

6. In a type-writing machine, the combination of a platen-frame having a forward supporting-roll and provided with a hinge; a rail upon which the roll runs; a series of stops; a margin-gage arranged upon the rail and so constructed and arranged as to leave a clear runway for the roll, and adapted to engage any of the stops to limit the return movements of the carriage; and a pawl arranged upon the platen-frame and adapted to ride over the gage when moved in letter-space direction, but to engage therewith when moved in the reverse direction; the construction and arrangement being such that the platen-frame may be swung up about its hinge to permit its return movement to be prolonged beyond the margin-gage substantially as set forth.

7. In a type-writing machine, the combination with a platen-frame having an abutment of a front supporting-rail therefor having a longitudinal groove and a series of stops; and a margin-gage arranged upon the rail and provided with a part for engaging the groove and a tooth for engaging any of the stops, the construction and arrangement being such that the portion of the carriage which bears upon said rail is enabled to pass by said margin-gage in either direction, substantially as set forth.

8. In a type-writer margin-gage mechanism, the combination with a bar and a series of stops formed thereon and having inclined faces, of a margin-gage comprising a pawl and a releasing-lever; the pawl being adapted to move independently of the lever when moved in one direction, whereby the lever is not vibrated by the pawl when the pawl slips over the teeth, and to lock with said teeth when pressed in the opposite direction, and the lever being adapted to unlock the pawl therefrom, substantially as set forth.

9. In a type-writer margin-gage mechanism, the combination with a slideway and a series of stops of a margin-gage arranged upon the slideway and provided with a pivot-pin, upon which are independently mounted both a pawl for engaging any of the stops to limit the return movements of the carriage, and a lever for releasing the pawl, substantially as set forth.

10. In a type-writer margin-gage mechanism, the combination with a slideway and a series of stops of a margin-gage arranged upon the slideway and provided with a tooth for engaging any of the stops to limit the return movements of the carriage, and provided with an elbow-lever independently of the tooth, one arm thereof being adapted to release the tooth from the stops, and the other arm thereof being formed into a handle, substantially as set forth.

11. In a type-writer margin-gage mechanism, the combination with a carriage-track and a series of stops of a margin-gage arranged upon the carriage-track and comprising a pivotally-mounted pawl adapted to engage any of the stops, to limit the return movements of the carriage, and an independently-mounted lever for both swinging the pawl out of engagement with the stops and moving the gage along the carriage-track, substantially as set forth.

12. In a type-writer margin-gage mechanism, the combination of a carriage-track having a series of stops formed thereon; a sleeve arranged upon the carriage-track; a tooth arranged upon the sleeve and adapted to engage any of the stops; and a lever arranged upon the sleeve independently of the tooth and adapted to release the tooth from the stops, substantially as set forth.

13. In a type-writing machine, the combination with a platen-frame provided with a front roll of a cylindrical grooved rail upon which the roll runs; a series of stops cut in the rail; and a sleeve open at the top arranged upon the rail and provided with a tooth for engaging any of the stops, to limit the return movements of the carriage, and also provided with means for engaging said groove, substantially as set forth.

14. In a type-writing machine, the combination with a platen-frame provided with a forward roll, of a grooved rail upon which the roll runs, a series of stops, and a margin-gage arranged upon the rail and adapted to pass beneath the roll and to engage any of the stops to limit the return movements of the carriage, and also provided with means for engaging said groove, substantially as set forth.

15. In a type-writing machine, the combination with a platen-frame provided with a forward roll, and an abutment arranged upon the platen-frame at the left of the roll, of a grooved rail upon which the roll runs, a series of stops, and a margin-gage arranged upon the rail and adapted to pass by the roll to contact with the abutment, and adapted to engage any of the stops and also provided with means for engaging said groove, substantially as set forth.

16. In a type-writing machine, the combination with a margin-gage and a series of stops therefor, of a carriage provided with a longitudinally-adjustable letter-spacing rack, substantially as set forth.

17. In a type-writing machine, the combination of a carriage having a roller at the front thereof, a track or bar upon which said roller bears, teeth on said track or bar, a slide that is cut away at one side to afford a free movement of the roller past it and which is mounted for adjustment along said track or bar, a margin-stop formed on the slide to limit the movement of the carriage to the right, a pawl pivoted to said slide and engaging the teeth on said track or bar, and a handle for said pawl.

18. In a type-writing machine, the combination of a carriage having a roller at the front thereof, a track or bar upon which said roller bears, ratchet-teeth on said track or bar, a slide that is cut away at one side to afford a free movement of the roller past it while bearing on said rail and which is mounted for adjustment along the track or bar, a margin-stop formed on the slide to limit the movement of the carriage to the right, a pawl pivoted to said slide and engaging the ratchet-teeth on said track or bar to afford a free movement of the slide in one direction and to normally prevent a movement thereof in an opposite direction, a handle for said pawl, and a coöperating margin-stop on the carriage.

19. In a type-writing machine, the combination of a carriage having a roller at the front thereof, a track or bar upon which said roller bears, teeth on said track or bar, a slide that is cut away at one side to afford a free movement of the roller past it and which is mounted for adjustment along said track or bar, a margin-stop formed on the slide to limit the movement of the carriage to the right, a pawl pivoted to said slide engaging the teeth on said track or bar, a handle for said pawl, and a coöperating margin-stop on the carriage, one of said stops being movable into and out of coöperative position, whereby the stops normally coöperate to arrest the carriage in its movement to the right and afford a free movement of one stop past the other in the movement of the carriage to the left.

784,445. RATCHET PIPE-CUTTER. FRANK M. SYLVESTER, Hamilton, Wash. Filed July 19, 1904. Serial No. 217,237.



Claim.—1. In a tool of the character described, a body formed of two like circular plates, each plate having a central opening therethrough and a peripheral flange, a cutter radially movable in the slot formed in said body, and a ring rotatable about said body between said flanges and having peripheral teeth.

2. In a tool of the character described, a body formed of two like circular plates, each plate having a central opening therethrough and a peripheral flange, a removable abutment forming a part of each plate, a cutter radially movable in the slot formed in said body, and a ring rotatable about said body between said flanges and having peripheral teeth.

3. In a tool of the character described, a body formed of two like circular plates, each plate having a central opening therethrough and a peripheral flange, a cutter radially movable in the slot formed in said body, a ring rotatable about said body between said flanges and having peripheral teeth, and a locking-block forming a part of said ring and removable therefrom.

4. In a tool of the character described, a body formed of two circular plates, each plate having a central opening therethrough and a peripheral flange, a removable abutment forming a part of each plate, a cutter radially movable in the slot formed in said body, a ring rotatable about said body between said flanges and having peripheral teeth, and a locking-block forming a part of said ring and removable therefrom.

5. In a tool of the character described, a circular body having a central opening therethrough, a rotatable ring surrounding said body, portions of said body and ring adapted to be removed whereby an opening or slot is formed from the periphery of said ring to the central opening, and a radially-movable cutter carried by said body and adapted to enter a central opening.

6. In a tool of the character described, a flat cylindrical body having a central opening therethrough, a removable abutment forming a part of said body, a cutting-wheel in said head movable radially thereon, and a ring having cam-surfaces surrounding said body adapted to be turned to advance the cutting-wheel.

7. In a tool of the character described, a body having a central opening formed of two like separable circular plates in close contact, the said body having a central opening and an interior radial slot formed partly in each plate, a ring rotatable on said body and having cam-surfaces on its inner face, and a cutting-wheel in said radial slot adapted to be moved toward said central opening by the cam-surfaces.

8. In a tool of the character described, a body formed of two like circular plates, having a central opening therethrough, peripheral flanges, and notches or teeth on its edge outside said flanges, a ring surrounding said body between said flanges, the body and ring adapted to be turned in opposite directions, operating-levers to turn said parts, a cutting-wheel, and means on said ring for moving the cutting-wheel radially.

9. In a tool of the character described, a circular body having a central opening and peripheral flanges, a cutting-wheel, and a ring surrounding said body between said flanges, said body and ring adapted to be turned in opposite directions to advance the cutting-wheel.

10. In a tool of the character described, a flat cylindrical body having a central opening and a radial slot, a cutting-wheel movable in said slot, a ring surrounding said body and centrally placed thereon, said body and ring adapted to be moved in opposite directions, and means for connecting said parts together that they may be rotated as one.

11. In a tool of the character described, a flat cylindrical body, a ring rotatable thereon and having cam-surfaces on its inner face, a cutting-wheel slidably carried in said body, and bearing against said cam-surfaces, means for turning said body and ring in opposite directions to advance said cutting-wheel toward the material to be cut, and other means for connecting said body and ring that they may be moved as one around said material.

12. In a tool of the character described, a circular body having a central opening, a series of peripheral teeth and a peripheral opening 35, a ring rotatable on the circular body and having cam-surfaces and a series of notches 34 on its inner face, a cutting-wheel in said body radially movable by said cam-surfaces, and a key adapted to be inserted in said opening 35 and one of said notches 34 to lock said body and ring together after setting the cutting-wheel, that they may turn as one.

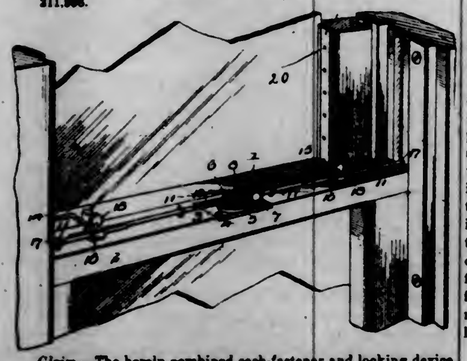
13. In a tool of the character described, a circular body having a central opening, a cutting-wheel carried by said body, a ring rotatably mounted on said body and held against axial movement, divided collars adapted to be screwed on a pipe to be cut, and oppositely-inclined levers pivoted to said collars.

14. In a tool of the character described, a circular body having a central opening and peripheral notches or teeth, a toothed ring surrounding said body and rotatably mounted thereon, divided collars adapted to be secured on a pipe to be cut near the sides of the body, operating-levers pivoted to said collars, one of said levers adapted to turn the body while the other lever rotates said ring, a cutting-wheel within said body and adapted to move radially by the movement of said ring, and means for joining the body and ring to turn as one when the lever operating said body is disengaged therefrom.

15. In a tool of the character described, two members circumferentially disposed and adapted to be turned in opposite directions, a cutting-wheel radially moved by the turning of said members, means for connecting said members that they may be turned as one, and a lever arranged to engage with and turn each member.

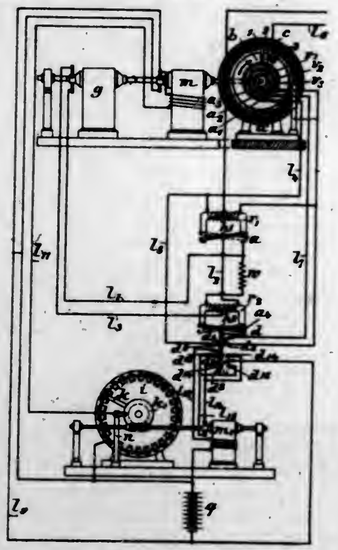
16. In a tool of the character described, two members circumferentially disposed and rotatable one upon the other, each of said members having a central opening and a radial slot communicating therewith, removable parts of said members to close said radial slots, and a cutter carried by one of said members and radially movable toward said central opening.

784,446. SASH-FASTENER. WILLIAM M. TAYLOR, Weston, and WALTER HOLLE, St. Clara, W. Va. Filed June 10, 1904. Serial No. 211,966.



Claim.—The herein combined sash-fastener and locking device for windows, comprising a cam-controller 5 having a flange, rods 9 and 10 having notches in their inner end to fit over and coöperate with said flange, L-shaped extensions secured to said bolts adapted to engage the upper sash, auxiliary bolts 17, the inner ends of which parallel the outer ends of the bolts 9 and 10, collar-sections telescoping said overlapping ends, and set-screws carried by said collar adapted to engage said rods to hold them in their adjusted position whereby, when the cam is operated, the upper sash will be engaged by the L-shaped extensions and the window-frame by the auxiliary extensions 17 simultaneously and the lower and upper sashes locked in their respective adjusted position, all combined substantially as set forth.

784,447. MEANS FOR MAINTAINING SYNCHRONISM IN ELECTRIC MOTORS. PAUL THOMAS, Charlottenburg, near Berlin, Germany. Filed Mar. 7, 1903. Serial No. 146,621.

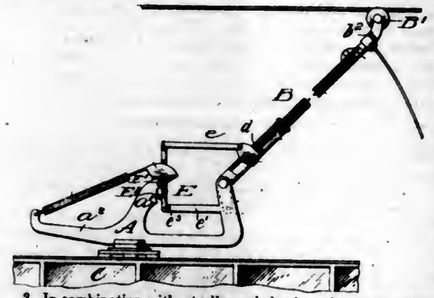


Claim.—1. The method of maintaining synchronism between a primary and a secondary rotating shaft, both shafts being independently driven, which method consists in transmitting periodic current impulses, from the station of the primary shaft to that of the secondary shaft, actuating by said impulses two separate regulating forces, one of said forces having a constant regulating effect upon the speed of the secondary shaft lasting for the time during which the said shaft deviates from synchronism and ceasing as soon as synchronism is reëstablished, the other of said two regulating forces having a variable regulating effect upon the speed of the secondary shaft beginning with the beginning of the deviation from synchronism and increasing until synchronism is reëstablished and then remaining constant at the value obtained at the moment of the reëstablishment of synchronism until a new deviation takes place.

2. The method of maintaining synchronism between a primary and a secondary rotating shaft both the shafts being independently driven, which method consists in transmitting periodic current impulses from the station of the primary shaft, to that of the secondary shaft, applying to the secondary shaft two regulating forces of which one increases and diminishes in regular periods that are short in relation to the duration of the deviations from synchronism and the other steadily increases, transforming the first regulating force into a constant force and starting the increase of the latter of the said two forces by means of the said current impulses whenever the secondary shaft deviates from synchronism, and retransforming the first regulating force into a periodically increasing and diminishing force and stopping the increase of the second regulating force by means of said current impulses so soon as synchronism is reëstablished.

784,448. TROLLEY. JOHN H. THOMPSON, Charleston, W. Va., assignor of one-half to Daniel Regan, Birmingham, Ala. Filed Aug. 4, 1904. Serial No. 219,533.

Claim.—1. In combination with a trolley-pole having a long and a short arm, a spring-actuated lever having a plurality of fulcrums and a link connecting each arm thereof with one arm of said pole for maintaining electrical contact between the trolley and a trolley-wire with a yielding pressure, means for automatically releasing the pressure and throwing the trolley out of the path of the trolley-wire and its supports when the trolley is disengaged from the trolley-wire, substantially as described.



2. In combination with a trolley-pole having a long and a short arm, a spring-actuated lever having a plurality of fulcrums and a link connecting each arm thereof with one arm of said pole for maintaining underneath electrical contact between the trolley and a trolley-wire with a yielding pressure, means for automatically releasing the pressure and allowing the trolley to drop by gravity below the plane of the trolley-wire and its supports when the trolley is disengaged from the trolley-wire, substantially as described.

3. In combination with a trolley, mechanism exerting a pressure thereon to maintain electrical contact with a trolley-wire, comprising a rocking lever having a plurality of fulcrums and links connecting its arms with the trolley-pole on opposite sides of the pivot of the latter and a spring acting through said lever and links to raise said pole, means for automatically releasing the pressure on the trolley and throwing the latter out of the path of the trolley-wire supports when the trolley is disengaged from the trolley-wire, and means for restoring the pressure and returning the trolley into position to reëstablish and maintain the electrical contact through the action of said pressure-exerting mechanism, substantially as described.

4. In combination with a trolley, mechanism for sustaining it yieldingly in electrical contact with a trolley-wire comprising a rocking lever having a plurality fo fulcrums and links connecting its arms with the trolley-pole on opposite sides of the pivot of the latter and a spring acting through said lever and links to raise said pole, together with means for releasing the hold of said sustaining mechanism to allow the trolley to descend by gravity out of the path of the trolley-wire supports when it is disengaged from the wire, and means for returning the trolley to working position through the medium of said sustaining mechanism, subtantially as described.

5. In combination with the trolley-pole having arms of unequal length on opposite sides of its pivot and a hinged terminal section, and carrying a locking-dog engaging a catch pivoted on said pole, a rocking lever having two fulcrums on which it may rock, in different positions, a spring tending to raise said pole through said lever, a link connecting one arm of the lever with said catch on one side of the pivot of the pole, a second link connecting the other arm of the lever with an arm of the pole projecting from the opposite side of its pivot, and means for throwing said hinged section out of alinement with the adjoining member of the pole and unlocking the catch when the trolley is disengaged from the trolley-wire, whereby the trolley may be quickly automatically lowered out of the path of the trolley-wire supports when the trolley leaves the wire, substantially as described.

6. In combination with a pivotally-supported trolley-pole, a rocking lever having a plurality of fulcrums and links pivotally connecting opposite ends thereof with the pole on opposite sides of its pivot, a spring acting through said lever to uphold the pole, means for releasing the hold of the spring and allowing the pole to move downward clear of the trolley-wire supports when the trolley is disengaged from the trolley-wire and shift the fulcrum of the lever to enable the spring to arrest the descent of the pole.

7. In combination with a pivotally-supported trolley-pole, a rocking lever having a plurality of fulcrums and links pivotally connecting opposite ends thereof with the pole on opposite sides of its pivot, a spring acting through said lever to uphold the pole, means for releasing the hold of the spring and allowing the pole to move downward clear of the trolley-wire supports when the trolley is disengaged from the trolley-wire and shift the fulcrum of the lever to enable the spring to arrest the descent of the pole, and means for reengaging said releasing means to enable the spring to raise the pole to working position.

8. In combination with a trolley and spring-actuated mechanism for sustaining it yieldingly in engagement with a trolley-wire, a rocking lever having a plurality of fulcrums forming a part of said mechanism, means for releasing the hold of the spring to permit the trolley to descend below the trolley-wire when disengaged therefrom and shift the fulcrum of the lever so as to increase the leverage and adapt the spring to arrest the descent of the trolley.

9. In combination with a trolley and spring-actuated mechanism for sustaining it yieldingly in engagement with a trolley-wire, a rocking lever having a plurality of fulcrums forming a part of said mechanism, means for releasing the hold of the spring to permit the trolley to descend below the trolley-wire when disengaged therefrom together with means for shifting the fulcrum of the lever so as to increase the leverage and adapt the spring to arrest the descent of the trolley, and means for reëngaging said releasing means to enable the spring to raise the trolley.

10. In combination with the pivotally-supported trolley-pole, the lever connected therewith having two fulcrums on which it may alternately rock, a spring tending to raise the pole through said lever, and means for releasing the hold of the spring and allowing the pole to descend and shift the fulcrum of the lever which thereupon arrests the descent of the pole.

11. In combination with the pivotally-supported trolley-pole, the lever connected therewith having two fulcrums on which it may alternately rock, a spring tending to raise the pole through said lever, and means for releasing the hold of the spring and allowing the pole to descend and shift the fulcrum of the lever which thereupon arrests the descent of the pole, together with means for reëngaging said releasing means to cause the spring-actuated lever to raise the pole.

12. In combination with the trolley-pole, the spring, the interposed lever having a plurality of pivots and an equalizing-segment connected with said spring, and links connecting the pole and lever on opposite sides of their pivots.

13. In combination with the trolley-pole, a spring and an interposed rocking lever having a plurality of fulcrums and links connecting the pole and lever on opposite sides of their fulcrums adapted to yieldingly uphold the trolley and permit it to be automatically lowered and to raise it after lowering, subtantially as described.

14. In combination with a trolley-pole having a long and a short arm, a rocking lever and a link connecting each arm thereof with one arm of said pole, a spring acting through said lever and links to yieldingly uphold the pole, and means for automatically releasing the pressure of the spring when the trolley-wheel runs off the trolley-wire so as to allow the pole to descend by gravity.

15. In combination with a trolley-pole having a long and a short arm, a rocking lever and a link connecting each arm thereof with one arm of said pole, a spring acting through said lever and links to yieldingly uphold the pole, and means for automatically releasing the pressure of the spring when the trolley-wheel runs off the trolley-wire, so as to allow the pole to descend by gravity, together with means for resetting said releasing means and raising the pole through the action of said spring.

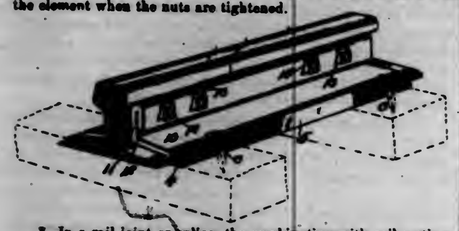
16. In combination with a trolley-pole having a long and a short arm, a rocking lever having a plurality of fulcrums and a link connecting each arm thereof with one arm of said pole, a spring acting through said lever and links to yiedingly uphold the pole, and means for automatically releasing the pressure of the spring when the trolley-wheel runs off the trolley-wire, so as to allow the pole to descend by gravity, together with means for resetting said releasing means and raising the pole through the action of said spring.

784,449. RAILROAD JOINT. THOMAS H. TRACY, Jacksonville, Fla. Filed July 19, 1904. Serial No. 217,302.

Claim.—1. In a rail joint or splice, the combination with rail-sections, of a fish-plate applied to one side thereof, a nut-locking member applied to the opposite side and having a depending resilient tongue with nut-receiving recesses in the outer faces thereof, and locking-bolts inserted through the fish-plate and locking-tongue and having nuts to engage the said recesses.

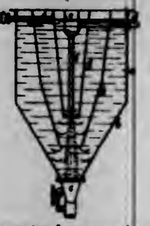
2. In a rail joint or splice, the combination with rail-sections, of an angular fish-plate applied to one side of said sections, a locking

member applied to the opposite side of said sections and having a vertical element continuing into an outer depending resilient tongue which normally stands outwardly at an angle of inclination to said element, the outer face of the tongue having nut-receiving recesses therein, and locking-bolts inserted through the fish-plate, the vertical element and its tongue, and the rail-sections and having nuts thereon to enter the said recesses, the tongue being pressed toward the element when the nuts are tightened.



3. In a rail joint or splice, the combination with rail-sections having abutting ends, of a chair-plate on which said rail-sections are disposed, the chair-plate being provided with upstanding intermediate guards, against which the opposite edges of the base-flanges of the rail-sections have bearing, an angular fish-plate applied against one side of the rail-sections, a locking member applied against the opposite side of the sections and provided with a vertical element continuing into a spring-tongue which normally stands outwardly from said element at an angle of inclination and formed with nut-receiving recesses in the outer side thereof, and locking-bolts inserted through the fish-plate, rail-sections, and the element and its tongue, and having nuts movable thereon to enter said recesses, the pressure of the nuts against the tongue forcing the latter inwardly toward the element of which it forms a part.

784,450. APPARATUS FOR MAKING STARCH. WILHELM H. UHLAND, Leipsic-Gohlis, Germany. Filed Sept. 9, 1903. Serial No. 172,519.

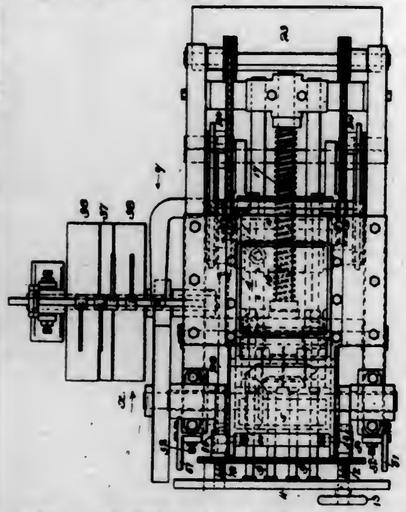


Claim.—1. In an apparatus for separating starch, the combination with a vessel having a downwardly-converging conical bottom part, of a downwardly-converging cone adjoining said conical bottom part of said vessel, a discharge-valve on the lower end of said cone, a vertical tube in the center of said vessel and provided with a widened part projecting above the level, a plurality of downwardly-converging conical partitions concentrically surrounding said vertical tube and projecting above the level and forming a plurality of compartments, a tube connecting at a point beneath the level the widened part of said vertical tube with the source of liquid starch, a plurality of draining-tubes placed in the level and connecting said plurality of compartments with the outside of said vessel, and a plurality of stop-valves on the external ends of said draining-tubes.

2. In an apparatus for separating starch, the combination with a rectangular vessel having a downwardly-converging conical bottom part, of a downwardly-converging cone adjoining said conical bottom part of said vessel, a discharge-valve on the lower end of said cone, a first partition near one side of said vessel projecting above the level and forming a narrow compartment widened upward, a tube connecting at a point beneath the level the widened part of said narrow compartment with the source of liquid starch, a plurality of partitions projecting above the level and forming lateral compartments in said vessel into which the water separated from the starch is allowed to move sidewise, means for draining off the water in the level from said lateral compartments, and means for regulating the quantities of the water drained off.

3. In an apparatus for separating starch, the combination with a vessel having a downwardly-converging conical bottom part, of a downwardly-converging cone adjoining said conical bottom part of said vessel, a vertical tube in the center of said vessel and provided with a widened part projecting above the level, a plurality of downwardly-converging conical partitions concentrically surrounding said vertical tube and projecting above the level and forming a plurality of compartments, a tube connecting at a point beneath the level the widened part of said vertical tube with the source of liquid starch, means for draining off the water separated from said compartments in the level, a cock-casing on the lower end of said cone, a plug in said cock-casing and provided with a passage corresponding to the area of said cone and on the opposite side with a larger passage, the diameter of said plug being so large in proportion to the upper passage, that about one-eighth revolution of the plug is sufficient for opening and closing the cock, a toothed segment, a pinion, a shaft, a hand-wheel, and means for locking said hand-wheel.

784,451. DOUGH-DIVIDING MACHINE. FRANK H. VAN HOUTEN, Fishkill-on-the-Hudson, N. Y., assignor to Dutchess Tool Company, Fishkill-on-the-Hudson, N. Y., a Corporation of New York. Filed Dec. 21, 1903. Serial No. 186,100.



Claim.—1. The combination of a hopper, a compression-chamber in communication therewith, a mold adapted to be brought into and out of alinement with said compression-chamber, a plunger in said compression-chamber, a power-driven shaft having a portion provided with a screw-thread, and a nut coöperating with said screw-thread and controlling the movement of said plunger.

2. The combination of a hopper, a compression-chamber in communication therewith, a mold adapted to be brought into and out of alinement with said compression-chamber, a plunger in said compression-chamber, a power-driven shaft having a portion provided with a screw-thread, a weight having a flexible connection with said plunger to operate the same, and a nut coöperating with said screw-thread to permit or restrain the operation of the weight.

3. The combination of a hopper, a compression-chamber in communication therewith, a mold adapted to be brought into and out of alinement with said compression-chamber, a plunger in said compression-chamber, a power-driven shaft having a portion provided with a screw-thread, a nut coöperating with said screw-thread for controlling the movement of said plunger, and means for reversing the direction of rotation of said shaft.

4. The combination of a hopper, a compression-chamber in communication therewith, a mold adapted to be brought into and out of alinement with said compression-chamber, a plunger in said compression-chamber, a shaft provided with a screw-thread, a nut mounted upon the screw-threaded portion of said shaft, means for rotating the shaft alternately in opposite directions, a lever connection between said nut and plunger, and means operated by the movement of said nut for moving said mold into and out of alinement with said compression-chamber.

5. The combination of a hopper, a compression-chamber in communication therewith, a mold adapted to be brought into and out of alinement with said compression-chamber, means for compressing the contents of said chamber, a shaft provided with a screw-thread, a nut mounted upon the screw-threaded portion of said shaft, means for rotating the shaft alternately in opposite directions, and a connection between said nut and mold whereby said mold is caused by the movement of said nut to move into and out of alinement with said compression-chamber.

6. The combination of a hopper, a compression-chamber in communication therewith, a plunger in said chamber, a mold adapted to be brought into and out of alinement with said compression-chamber, a reciprocatory member, and independent connections intermediate the plunger and mold and said reciprocatory member for actuating said plunger and said mold.

7. The combination of a compression-chamber provided with a plunger, a movable cylinder carrying a plurality of molds adapted to be brought into and out of alinement with said compression-chamber, a reciprocatory member, and independent connections intermediate the plunger and cylinder and said reciprocatory member for actuating said plunger and said movable cylinder.

8. The combination of a hopper, a compression-chamber in communication therewith, a plunger in said compression-chamber, a weight connected for advancing said plunger, a knife to separate the material to be compressed in the compression-chamber from the body of material in the hopper, a reciprocatory member, a lever connection between said reciprocatory member and said knife, and a second and independent lever connection between said reciprocatory member and said plunger.

9. The combination of a hopper, a compression-chamber in communication therewith, a plunger in said compression-chamber, a weight connected for advancing said plunger, a mold adapted to be brought into and out of alinement with said compression-chamber, a knife to separate the material to be compressed in the compression-chamber from the body of material in the hopper, a reciprocatory member, and independent connecting mechanism from said reciprocatory member to said knife and to said plunger arranged to cause the complete separating movement of said knife during a fractional compressing movement of said plunger.

10. The combination of a hopper, a compression-chamber in communication therewith, a plunger in said chamber, means for actuating said plunger, a mold adapted to be brought into and out of alinement with said compression-chamber, a knife to separate the material to be compressed in said compression-chamber from the body of material in the hopper, a reciprocatory member, a connection between said reciprocatory member and said plunger, and an independent lever connection between said reciprocatory member and said knife.

11. The combination of a hopper, a compression-chamber in communication therewith, means for compressing the contents of said chamber, a movable cylinder carrying a mold adapted to be brought into and out of alinement with said compression-chamber, a piston in said mold, a reciprocatory member, mechanism controlled by said reciprocatory member for actuating said compressing means and said movable cylinder, and a connection from said cylinder to said piston for ejecting the contents of said mold when the latter is out of alinement with said compression-chamber.

12. The combination of a hopper, a compression-chamber in communication therewith, a movable cylinder carrying a mold adapted to be brought into and out of alinement with said compression-chamber, a reciprocatory member, and a lost-motion connection between said reciprocatory member and said mold-carrying cylinder.

13. The combination with a hopper, a compression-chamber in communication therewith, a movable cylinder carrying a mold adapted to be brought into and out of alinement with said compression-chamber, a piston in said mold, a reciprocatory member, an operative connection between said reciprocatory member and said mold-carrying cylinder, and a lost-motion connection from said cylinder to said piston for ejecting the contents of said mold when the latter is out of alinement with said compression-chamber.

14. The combination with a hopper, a compression-chamber in communication therewith, a plunger in said compression-chamber, a weight connected for actuating said plunger, a knife to separate the material to be compressed in the compression-chamber from the body of material in the hopper, a reciprocatory member, a lever connection between said reciprocatory member and said knife, a lever connection between said reciprocatory member and said plunger, a mold-carrying cylinder, and an operative connection from said reciprocatory member to said mold.

15. In a dough-dividing machine, the combination with the hopper compression-chamber and mold for receiving the dough from the compression-chamber, of the plunger and knife movable toward the mold in the same direction, mechanism for giving the knife an initial movement in advance of the plunger and mechanism for holding the knife and plunger advanced during the filling of the mold; substantially as described.

16. In a dough-dividing machine, the combination with the hopper compression-chamber, mold movable into and out of registry with the compression-chamber and means for discharging material into said mold, of an adjustable stop controlling the capacity of the mold, means for moving said stop in unison with the mold when the mold is open to the compression-chamber and means for discharging the material from the mold; substantially as described.

17. In a dough-dividing machine, the combination with the hopper compression-chamber, mold movable into and out of registry with the compression-chamber and a plunger in said mold for regulating its capacity, of an adjustable stop for limiting the inward movement of the plunger, supports for the stop movable with the mold when the latter is open to the compression-chamber and a reciprocatory member for advancing the plunger to discharge the contents of the mold; substantially as described.

784,452. WIRE STRETCHER AND FASTENER. FELIX VERHOEVEN, Forestgrove, Oreg. Filed Sept. 1, 1904. Serial No. 223,053.



Claim.—In a wire-stretcher, the reel C having the rims *e e'* and *f f'*, the square shaft end E and the openings *b* and *e e'*.

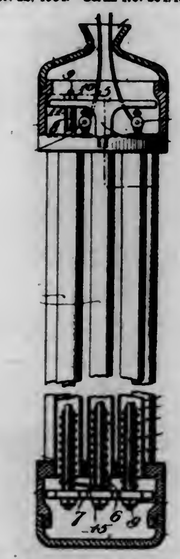
784,453. BIRD-TRAP. OTTO H. VOELKERDING and FREDERICK H. VOELKERDING, Augusta, Mo. Filed July 9, 1904. Serial No. 215,899.



Claim.—1. A trap comprising a body portion, a partition disposed within the body portion and having an opening therethrough, a cylindrical member pivoted between the partition and one end of the body portion, said end having an opening therethrough, said cylindrical member having a compartment in one side and having openings through its ends communicating with said compartment, said cylindrical member being arranged for movement to bring its openings into and out of alinement with the openings in the end of the body portion and the partition, the openings of the cylindrical member being arranged to lie one in alinement with its respective opening in the body portion when the other is out of such alinement, a plate disposed between the cylindrical member and the partition, a second plate disposed between the cylindrical member and the wall of the body portion, said plates being pivoted for movement into and out of position to cover the openings in the partition and the wall, and means for moving the plates out of such position, when the cylindrical member is moved to aline its openings with the openings of the partition and wall.

2. A trap comprising a body portion having an opening through one of its walls, a partition disposed within the body portion and lying parallel to said wall and having an opening therethrough, a member pivoted between said partition and wall and having a compartment therein at one side of its center of pivotal movement, said member having openings in its ends communicating with the compartment and arranged for movement into and out of position to aline its openings with those of the partition and wall, said openings being disposed to lie one in registration with the opening of the partition when the other is out of registration with the opening of the wall, means for holding the pivoted member yieldably out of such position and with its last-named opening in registration with that of the wall, means for closing the opening of the partition when the opening of the pivoted member is out of registration therewith, means for closing the opening of the wall when the opening of the pivoted member is out of registration therewith, means for admitting light to the body portion at the opposite side of the partition from the pivoted member, one of the walls of the body portion having an opening communicating with the interior of the body portion at said side of the partition, and a closure for the opening.

784,454. ELECTRIC HEATER FOR OIL OR GAS WELLS. FRED B. WARING, Lima, Ohio, assignor of one-half to Ira R. Longsworth, Lima, Ohio. Filed Apr. 22, 1904. Serial No. 204,461.



Claim.—1. A heater for oil-wells comprising an upper and a lower support, a plurality of tubes connected to said supports, heating devices extending through each of the tubes and connected with an electrical source, and spiders connected with said supports for centering the heating devices within the tubes.

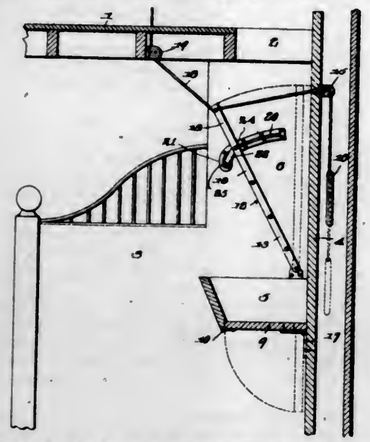
2. A heater for oil-wells comprising a pair of supports having a plurality of openings, a plurality of tubes having their ends extending in said openings and hermetically connected to said supports, heating devices extending through said tubes and out of contact therewith, means carried by the supports for centering said heating devices within said tubes, binding-posts carried by one of the supports and connected with said heating devices, and leading-in wires connected to said binding-posts.

3. An oil-well heater comprising a pair of supports provided with openings, tubes extending in said openings and hermetically connected to said supports, heating devices extending through said tubes and of such a diameter as to form an intervening space between them and the inner faces of the tubes, spiders carried by the supports and adapted to engage with the said heating devices for centering them within the tubes, and means for establishing communication between said heating devices and a source of electrical supply.

4. An oil-well heater comprising a pair of supports provided with openings, tubes extending in said openings and hermetically connected to said supports, heating devices extending through said tubes and of such a diameter as to form an intervening space between them and the inner faces of the tubes, spiders carried by the supports and adapted to engage with the said heating devices for centering them within the tubes, a pair of binding-posts carried by one of said supports and connected with said heating devices, and leading-in wires communicating with an electrical source and connected to said binding-posts.

5. An oil-well heater comprising a pair of supports, a plurality of tubes hermetically connected thereto, an insulated elongated bar extending through each of the tubes, a resistance-coil surrounding each of said bars, said coils alternately connected at their tops and bottoms, a spider carried by each of said supports for centering said bars within said tubes, said bars extending through the arms of the spiders, means mounted upon the bars for drawing them taut, and means connected with the coils for establishing communication between them and a source of electrical supply.

784,455. FEED-RACK AND MANGER. GEORGE B. WARREN, Spokane, Wash. Filed July 15 1904. Serial No. 216,717.



Claim.—1. In a device of the class described, a pivoted rack adapted to swing to operative and inoperative positions, means for locking the rack in operative position, and means operating automatically to move the rack to inoperative position when the locking means is released, thus to cause the material to be fed through the rack.

2. In a device of the class described, a fixed wall, a rack pivotally mounted adjacent thereto, means for moving the rack to operative position, means for temporarily holding the rack in this position and means operating automatically to move the rack to inoperative position.

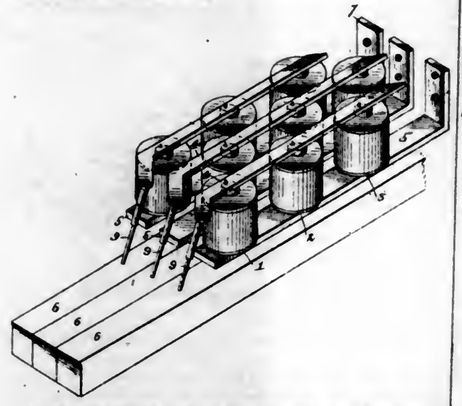
3. In a device of the class described, a fixed wall, a rack movable toward and from the same, a floor above the rack having an opening for delivering material thereinto, means for moving the rack to receive a charge of feed, means for temporarily holding the rack in charging position and means for moving the rack toward the wall.

4. In a device of the class described, a fixed wall, an open-work rack movable to and from the same, means for guiding the rack in its movements and locking the same in its outward or open position, and means for feeding the rack inward toward the fixed wall when the locking means is released.

784,456. ELECTROMAGNET AND ARMATURE. JOSEPH WEBER, Brooklyn, N. Y. Filed May 1, 1900. Renewed Aug. 31, 1904. Serial No. 223,903.

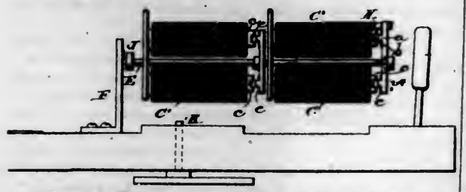
Claim.—1. The combination with an electromagnet, of a disconnected armature loosely mounted upon the core of a magnet, to oscillate about an axis parallel to the longitudinal axis of the armature, a projection on one part and a coöperating member operatively arranged with relation to the said projection for pivotally engaging the armature and core at their points of connection, as set forth.

2. The combination with an electromagnet, of a disconnected armature loosely mounted upon the core of the magnet to oscillate about an axis parallel to the longitudinal axis of the armature, an arm projecting at an angle from the armature and a detachable pivotal connection between the armature and core to one side of the axial center of the core.



3. The combination with an electromagnet, of a disconnected armature loosely mounted upon the core of the magnet to oscillate about an axis parallel to the longitudinal axis of the armature, an arm projecting at an angle from the armature and a detachable pivotal connection between the armature and core to one side of the axial center of the core and parallel with said core, and a connection between a lateral offset of the armature and its appropriate key.

784,457. ELECTRICAL ATTACHMENT FOR MUSICAL INSTRUMENTS. JOSEPH WEBER, Brooklyn, N. Y. Filed Aug. 19, 1904. Serial No. 221,390.

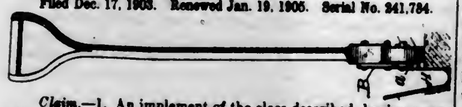


Claim.—1. The combination with a musical instrument provided with keys, of a series of electromagnets, one for each key, and an upright on each of said keys, the said electromagnets when electrically connected operating on the uprights to actuate the keys, substantially as set forth.

2. In a musical instrument provided with keys, the combination with each of said keys, of an electromagnet, and an upright secured to each of said keys, the said electromagnets being arranged in a single row and when electrically connected, operating on the uprights to depress the keys, substantially as specified and for the purpose set forth.

3. In pianos, or the like, the keys, a plurality of electromagnets for each key, each magnet being complete in itself, in combination with an armature for each magnet, a rod disposed between the cores of the magnets and parallel therewith and connecting the armatures thereof, and suitable means to apply combined force of the armatures to the key of the instrument substantially as specified and for the purpose set forth.

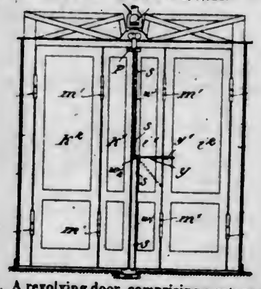
784,458. TRENCH-CUTTER. LEONARD C. WEMPLE, Chicago, Ill. Filed Dec. 17, 1903. Renewed Jan. 19, 1905. Serial No. 241,784.



Claim.—1. An implement of the class described, having a supporting device, a cutting-blade of U shape, substantially, located at one side of the supporting device and extending downward, below it, whereby said supporting device limits the depth of the cut, the space bounded by the blade being wholly open and unobstructed from front to rear, and propelling means, substantially as described.

2. An implement of the class described having a handle for propelling it, a supporting-wheel adapted to run upon the sidewalk, and a blade of substantially U shape, located at one side of the supporting-wheel and extending downward below the periphery thereof, the space bounded by the blade being wholly open and unobstructed from front to rear, substantially as described.

784,459. REVOLVING DOOR. JULIUS WENDLER, Berlin, Germany. Filed Mar. 19, 1904. Serial No. 198,921.



Claim.—1. A revolving door, comprising a rotary structure having vertical pendent members adjacent to the walls of the entrance-chamber, wings swinging on the said members and each consisting of two folding leaves, and means at the junction-point of the wings when arranged radially, separably connecting the latter, substantially as described.

2. A revolving door, comprising a rotaty structure having vertical pendent members adjacent to the walls of the entrance-chamber and a roof covering the latter, means carrying the said structure and presenting a pendent central pin, wings swinging on the said pendent members and each consisting of two folding leaves, a sleeve having a slotted base sliding in the said pendent pin and engaging with the wings when arranged radially, and means for elevating the said sleeve on its pin to disengage the wings, substantially as described.

3. A revolving door, comprising a rotary structure having vertical pendent members adjacent to the walls of the entrance-chamber and a roof covering the latter, means carrying the said structure, wings swinging on the said pendent members and each consisting of two folding leaves, the inner of which presents projections at the bottom, a spring-actuated rotary member housed in the floor of the entrance-chamber and having recesses to receive the said projections of the leaves when arranged radially, and means for depressing the rotary member to disengage the wings, substantially as described.

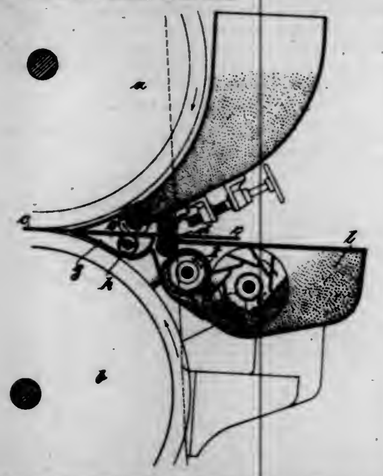
4. A revolving door, comprising a rotary structrue having pendent members adjacent to the walls of the entrance-chamber and a roof covering the latter, means carrying the said structure and presenting a pendent central pin, wings swinging on the said pendent members and each consisting of two folding leaves, the inner of which presents projections at the bottom, a sleeve having a slotted base sliding on the pendent pin and engaging with the wings when arranged radially, a spring-actuated rotary member housed in the floor of the entrance-chamber and having recesses to receive the said projections of the leaves, and a basquill-bolt device simultaneously lifting the said sleeve on its pin and depressing the spring-actuated member, for the purpose of disengaging the wings, substantially as described.

784,460. MACHINE FOR GRINDING OR POLISHING METAL ARTICLES. CARL WISSNER, Solingen, Germany. Filed May 6, 1904. Serial No. 206,733.

Claim.—1. In a grinding and polishing machine the combination of a hopper for the pulverulent material said hopper situated above the tangential plane passing between two grinding-rollers, a trough to receive the superfluous material from said hopper said trough being situated between said plane and the upper part of the lower grinding-roller and means for removing said material from said trough substantially as set forth.

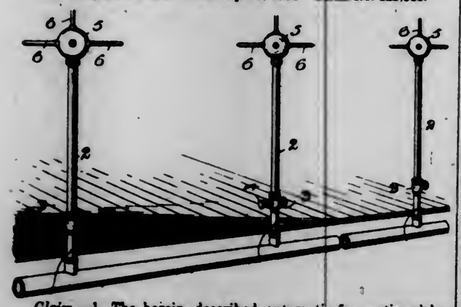
2. In a grinding and polishing machine the combination of a hopper for containing the pulverulent material for the upper roller a trough to receive the superfluous material from said hopper, a conveyer for removing said material from said trough, a hopper for con-

taining pulverulent material for the lower roller, and a revoluble scoop-roller in the last-named hopper for feeding said material to said lower roller substantially as set forth.



3. In a grinding and polishing machine the combination of a hopper for containing the pulverulent material, for the upper roller, a trough to receive the superfluous material from said hopper, a conveyer for removing said material from said trough, a hopper for containing pulverulent material for the lower roller, a revoluble scoop-roller in the last-named hopper for feeding said material to said lower roller and an oppositely-revolving scoop-roller for maintaining constant the depth of material in which the first-named scoop-roller revolves substantially as set forth.

784,461. **AUTOMATIC FIRE-EXTINGUISHER.** JESSE D. WILLIAMS, Plymouth, Ind. Filed Sept. 6, 1904. Serial No. 223,508.

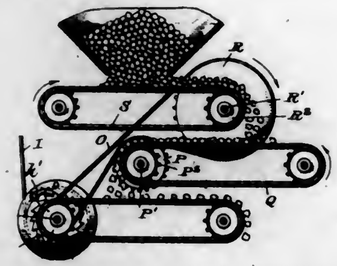


Claim.—1. The herein-described automatic fire-extinguisher comprising the combination with the water-main, or source of supply, of a plurality of stand-pipes or extensions connected to said supply-pipe, each of said stand-pipes being provided with an enlarged terminal having a plurality of fragile extensions whereby said fragile extensions will be broken by a sudden rise of temperature and therefore release a stream or streams of water to be directed upon the fire, substantially as specified.

2. In an automatic fire-extinguishing apparatus, the combination with a supply-pipe, of a plurality of stand-pipes connected to said supply-pipe, a spherical, hollow terminal at the upper ends of said stand-pipes, a plurality of fragile extensions carried by said terminal, the outer ends of which are closed, the inner ends being open and in position to receive water from said terminal whereby when said extensions are broken, the water will be released and directed upon the fire, substantially as set forth.

784,462. **ACETYLENE-GENERATOR.** ARTHUR YANCEY, Dermott, Ark., assignor to Benjamin M. Walmsley, New Orleans, La. Filed Apr. 12, 1904. Serial No. 202,811.

Claim.—1. In a feeding apparatus for acetylene-generators, the combination of an open-bottom hopper, movable means beneath the same to support the carbid to be fed, and movable means traveling faster than the first-named means and governed by the movement of the gas-bell, to spread out the carbid into a thin layer and deliver it slowly to the water, substantially as described.



2. In a feeding apparatus for acetylene-generators, the combination of an open-bottom hopper, movable means beneath the same to support the carbid, movable means traveling faster than the first-named means to spread out the carbid into a thin layer and deliver it slowly to the water, a gas-bell, and connections whereby said means are set in operation by the fall of the bell and stop on the rise of the bell, substantially as described.

3. A feeding apparatus for acetylene-generators, including a hopper open at the bottom, and a plurality of linear conveyers traveling at speeds progressively increasing from the hopper to the water, all located below said hopper and above the water in the generator, substantially as described.

4. In a feeding apparatus for acetylene-generators, the combination with the carbid-hopper open at the bottom, of a series of linear conveyers located beneath said hopper, one above the other, and all located above the water in the generator, and means for running said conveyers at speeds increasing progressively from the hopper to the water, substantially as described.

5. In a feeding apparatus for acetylene-generators, the combination with the carbid-hopper open at the bottom, of a series of linear conveyers located beneath said hopper, one above the other and all located above the water in the generator, and automatic means for driving said conveyers at speeds progressively increasing from the hopper to the water, substantially as described.

6. In a feeding apparatus for acetylene-generators, the combination with a carbid-hopper provided with an opening at the bottom, of a series of linear conveyers located beneath said hopper, one above the other and all located above the water in the generator with automatic means controlled by the generation of the gas for running said conveyers at progressively-increasing speeds, substantially as described.

7. In a feeding apparatus for acetylene-generators, the combination with a carbid-hopper, provided with an opening at the bottom, of a series of linear conveyers located beneath said hopper, one above the other and running in opposite directions, and all located above the water in the generator and mechanism controlled by the generation of the gas for running said conveyers at progressively-increasing speeds, substantially as described.

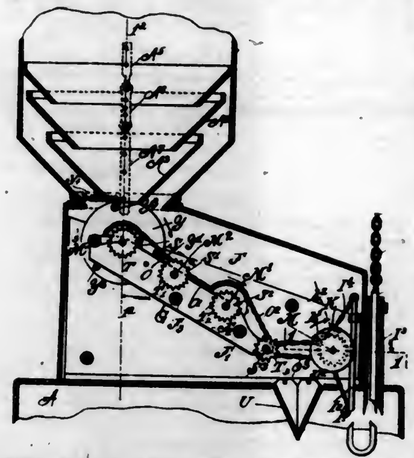
8. In an acetylene-generating apparatus, the combination with a gasometer and a generator, of a feeding device comprising a hopper, and a plurality of conveyers, receiving the carbid from said hopper, and all located above the water in the generator, with a rope and drum operated by the rise and fall of said gasometer for imparting progressively-increasing speeds to said conveyers, substantially as described.

9. In an acetylene-generating apparatus, the combination with a gasometer and a generator, of a feeding device comprising a hopper, a series of linear conveyers receiving the carbid from said hopper, and running in reverse directions and all located above the water in the generator with automatic means comprising a rope and drum and a ratchet-and-pawl arrangement controlled by the generation of the gas for running said conveyers at progressively-increasing speeds, substantially as described.

10. In an acetylene-generating apparatus, the combination with a gasometer and a generator, of a feeding device comprising a hopper, and a plurality of linear conveyers, receiving the carbid from said hopper, and all located above the water in the generator, a rope

connected to said gasometer, a drum, a spring in said drum, and a ratchet-and-pawl arrangement mounted on said drum, with mechanism operated by said drum for imparting progressively-increasing speeds to said conveyers, substantially as described.

784,463. **FEEDING DEVICE FOR ACETYLENE-GENERATORS.** ARTHUR YANCEY, Dermott, Ark. Filed May 25, 1904. Serial No. 209,735.



Claim.—1. In an acetylene-generator, the combination of a carbid-hopper provided with a series of open-mouthed bottoms arranged vertically and means for agitating said bottoms by the action of the gas generated, substantially as described.

2. In an acetylene-generator, the combination of a gasometer, a generator, a carbid-hopper provided with a series of movable open-mouthed bottoms arranged vertically, and means to move said bottoms by the movement of the gasometer-bell, substantially as described.

3. In an acetylene-generator, the combination of a carbid-hopper provided with a series of movable open-mouthed bottoms arranged vertically, means for jarring said bottoms by the action of the gas generated, and a series of conveyers located below said hopper-bottoms, substantially as described.

4. In an acetylene-generator, the combination of a carbid-hopper provided with a series of movable open-mouthed bottoms arranged vertically, means to impart motion to said bottoms by the action of the gas generated, and a series of differentially-speeded conveyers beneath said hopper-bottoms, substantially as described.

5. In an acetylene-generator, the combination of a carbid-hopper provided with a series of movable open-mouthed bottoms arranged vertically, means for jarring said bottoms, a casing surrounding the same provided with an opening, and means for normally closing said opening to prevent aqueous vapor rising therethrough, substantially as described.

6. In an acetylene-generator, the combination of a casing divided into two compartments separated by a perforated partition, feed mechanism in one of said compartments and the second compartment being adapted to contain liquid, the said feed mechanism including a carbid-hopper, and a series of movable open-mouthed hopper-bottoms arranged vertically, and means for agitating said movable bottoms, and means for normally closing the perforation forming a communication between said compartments, said means being normally closed but automatically opened by the falling carbid, substantially as described.

7. The combination for producing a regular feed in acetylene-generators, of a carbid-hopper provided with a series of movable bottoms, and a series of differential conveyers set between inclined grate-bars, and automatic means to operate same, substantially as described.

8. In an apparatus for the generation of acetylene, the combination for producing a regular feed and protecting the unused carbid, of a hopper provided with agitating means, with a plurality of differential conveyers set in spaces on a grate-surface, and means for simultaneously operating aforesaid means and conveyers; all aforesaid inclosed in one compartment and separated from the generating-chamber by a diaphragm provided with a normally closed chute, substantially as described.

9. A feeding apparatus for acetylene-generators comprising a series of conveyers separated by grate-bars which are widest on the surface presented to the carbid so that the spaces in which said conveyers operate increase in width downward, substantially as described.

10. A feeding apparatus for acetylene-generators comprising a hopper and a series of conveyers moving in spaces in a grate-surface, over which the carbid is carried, and operated by power applied from a suitably external source, substantially as described.

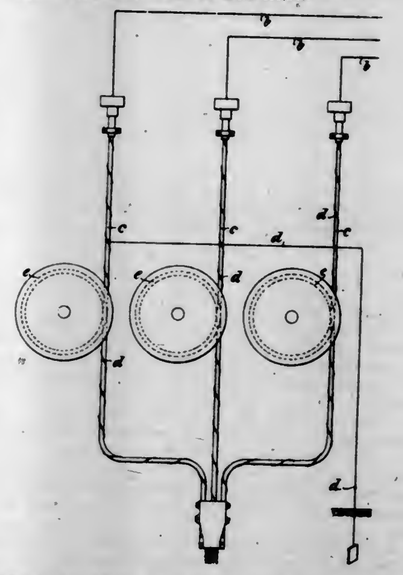
11. A feeding apparatus for acetylene-generators comprising a hopper, a set of grate-bars and a series of conveyers operating between said grate-bars at differential speeds produced by a rack pivotally fastened at one end and moved in a suitable cycle at the other by power applied at a suitably external source, substantially as described.

12. The combination for reducing the power required to operate an acetylene-feeding device, of a hopper, with an inclined grate-surface containing recesses in which a series of tines are uniformly moved forward at different speeds, partly above said grate-surface, and suddenly returned entirely beneath said surface to an initial position by power transformed from a suitably external source, substantially as described.

13. In a feeding apparatus for acetylene-generators, the combination of a grate, fingers working between the bars of said grate, a differential rack for operating said fingers, a cam provided with a tortuous groove with which the end of said rack engages, and means for moving said cam, substantially as described.

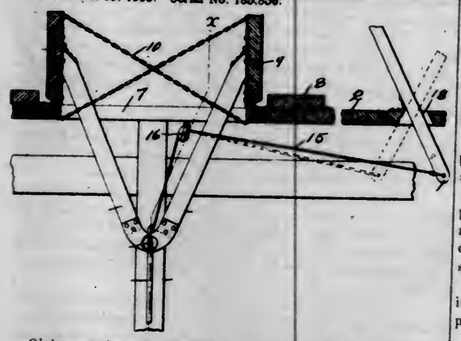
14. In an acetylene-generator, the combination with a gasometer and a generator, of a feeding device comprising a hopper provided with a series of vertically-arranged open-mouthed bottoms, a series of conveyers receiving the carbid from said hopper, and automatic means comprising a rope, drum, and ratchet-and-pawl construction connected to water-sealed vertical shafts, to impart motion to said conveyers by the movement of the gasometer, substantially as described.

784,464. **MEANS FOR PROTECTING ELECTRIC CABLES AGAINST EXCESS PRESSURE.** GEORG ZAPP, Cologne-Nippes, Germany. Filed Mar. 24, 1904. Serial No. 199,838.



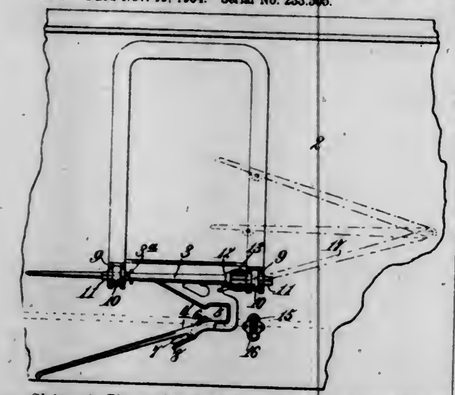
Claim.—A coil for protecting an electrical cable against excess pressures, comprising a weakly-insulated cable introduced into the circuit of the cable to be protected and provided with a lead casing and an earthed conductor formed of a wire wrapped around said casing substantially as and for the purpose set forth.

784,465. DUMPING-TRAP. WILLIAM ANDERSON, Hoffman, Minn. Filed Dec. 19, 1903. Serial No. 185,856.



Claim.—A dumping-platform comprising a horizontal middle section having inclined approaches on two sides and a centrally-arranged elongated discharge-opening, doors hinged at one of their longitudinal edges to the corresponding edges of said opening and adapted to swing toward one another down to a horizontal position to close said opening, stay-chains connecting said doors and platform and limiting the outward swinging movement of the former, bars hinged at their upper ends to the ends of said doors near their free longitudinal edges and arranged to lift said doors from a horizontal to a vertical position, a pivot-pin whereon the lower ends of both said bars are mounted, a vertical guide-rod whereon one end of said pin is slidably mounted, and a lever mounted on said platform and having an operative connection with said pivot-pin to raise said bars and lift said doors to a vertical open position or allow them to drop by gravity to a closed position, substantially as described.

784,466. MAIL-POUCH CATCHER. LEWIS W. BARKER, Clinton, Iowa. Filed Nov. 19, 1904. Serial No. 233,505.



Claim.—1. The combination of a car having an opening in its side, and a mail-pouch catcher movably supported below the opening and arranged to move from a pouch-receiving to a pouch-delivering position.

2. The combination of a car having an opening, and a mail-pouch catcher supported for swinging movement below said opening.

3. The combination of a car having an opening in its side, and a mail-pouch catcher associated with the car and arranged, when in its operative or mail-pouch-catching position, outside the boundaries of said opening and movable across the same to a pouch-delivering position.

4. The combination of a car having an opening in its side, and a mail-pouch catcher involving an elongated shank and a V-shaped catching portion extending from the shank, the latter being supported for rocking motion below said opening.

5. The combination of a car having an opening, and a mail-pouch catcher associated with said car and arranged to occupy two opposite subtantially vertical positions and an intermediate substantially horizontal position.

6. The combination of a car having an opening, and a mail-pouch catcher mounted for movement below said opening, and means, including a manually-operable device, supported independently of the catcher, for actuating said catcher.

7. The combination of a car having an opening, and a mail-pouch catcher supported for movement below said opening, and means, including a hand-lever, supported indpendently of the catcher, for actuating the same.

8. The combination of a car having an opening, and a mail-pouch catcher reversibly supported for swinging movement below said opening.

9. The combination of a car having an opening, and a mail-pouch catcher supported for swinging movement below said opening and arranged to occupy running, catching and delivering positions distinct from each other, and being located outside the boundaries of said opening when in the running and catching positions.

10. The combination of a car having an opening, turnable bearings supported below said opening, and a catcher removably supported by said bearings.

11. The combination of a car having an opening, turnable bearings supported below said opening, and a catcher removably and reversibly supported by said bearings.

12. The combination of a car having an opening, turnable bearings supported below said opening, a pouch-catcher reversibly supported by said bearings, and means connected with a bearing for actuating the catcher.

13. The combination of a car having an opening, and a mail-pouch catcher supported for swinging movement outside the boundaries of said opening and arranged to assume distinct positions during running, catching and delivering, a manually-operable member cooperative with the catcher and serving to move the catcher to its several positions and to be held while the catcher is in its catching or operative position solely by the manipulator.

14. The combination of a car having an opening, and a mail-pouch catcher supported for swinging movement outside the boundaries of said opening and arranged to assume distinct positions during running, catching and delivering, a manually-operable member cooperative with the catcher and serving to move the catcher to its several positions and to be held while the catcher is in its catching or operative position solely by the manipulator, and to be held positively in its other positions.

15. The combination of a car having an opening, turnable bearings supported below the opening, a segment having a cam-surface and connected with one of the bearings, a cable extending along the cam-surface of the cam and connected rigidly therewith, guide-pulleys over which the cable is extended, a hand-lever to which the cable is connected, a guide slotted to receive the hand-lever and having an offset in its upper end, into which the hand-lever may be laterally moved, and a mail-pouch catcher supported by said bearings.

16. The combination of a car having an opening, and a mail-pouch catcher supported for swinging movement below said opening and to occupy running, pouch-catching and pouch-delivering positions distinct from each other, and means, including a manually-operable device, supported within the car, for actuating the catcher, said manually-operable device, when the catcher is in its running position, being without the boundaries of said opening.

17. The combination of turnable sleeves having square openings therethrough, and a pouch-catcher, including in its make-up a shank provided with squared portions to removably fit in said openings.

18. The combination of turnable sleeves having square openings therethrough, and a pouch-catcher, including in its make-up a shank provided with squared portions to removably fit in said openings, and means for operating a sleeve to move the catcher to different positions.

19. A swinging mail-pouch catcher mounted to occupy three distinct positions, to wit, a running position, a catching position and a delivering position.

20. A swinging mail-pouch catcher mounted to occupy three distinct positions, to wit, a runnig position, a catching position and a delivering position, combined with means mounted independently of the said catcher, for operating the same.

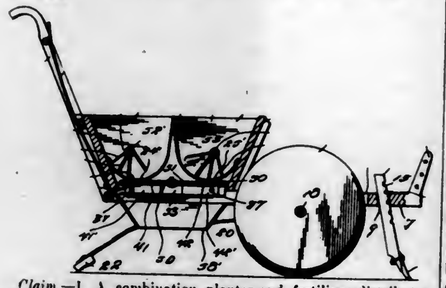
784,467. JAR OPENER OR CLOSER. CHRISTIAN BRAUNSCHWEIGER, Toledo, Ohio, assignor of one-half to John Braunschweiger, Toledo, Ohio. Filed Feb. 1, 1904. Serial No. 191,468.

Claim.—As a new article of manufacture, a jar opener and closer, comprising a sheet-metal handle bent into substantially U-

cross-sectional shape, a pin extending across the channel formed by the handle and secured in the side walls of the same, a second pin secured at its ends in the flat sides of the handle and extending across the channel provided by the same and separated a distance from the first pin, said handle having an elongated slot in the back thereof between the two pins, and a resilient strand bent at one end around the first-named pin extending therefrom in looped formation and having its opposite end passed through said elongated slot into the space between the two sides of the handle and secured about the second pin, the loop normally assuming a contracted position, substantially as described.



784,468. COTTON-PLANTER AND FERTILIZER-DISTRIBUTER. GEORGE L. BROWN, Lee, Fla. Filed Jan. 18, 1904. Serial No. 189,556.



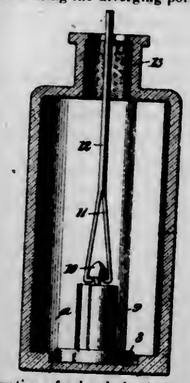
Claim.—1. A combination planter and fertilizer-distributer, comprising sills, a furrow-opener mounted at the forward end thereof, a ground-wheel mounted between the sills, a hopper mounted rearwardly of the ground-wheel, a partition within the hopper to divide it into two compartments, the said partition being formed of sheet metal bent upon itself, the ends being bent in arch shape and attached to the ends of the hopper, and the arch-shaped portions of the ends being perforated, means for conducting the contents of the compartments to a furrow and means for closing the furrow.

2. A combination planter and fertilizer-distributer, comprising sills, receptacles mounted upon the sills for the reception of seed and fertilizer respectively, the receptacles having slots in the bottoms thereof, perforated plates slidably disposed below the receptacles, means for moving the plates to bring their perforations into and out of registration with the slots, additional means for opening and closing the slots consisting of a plate pivoted to the bottom of the hopper, a furrow-opener mounted at the forward end of the sills and means for conveying the contents of the hoppers to a furrow.

3. A combination planter and fertilizer-distributer, comprising sills, a furrow-opener mounted at the forward end thereof, a ground-wheel mounted between the sills, receptacles mounted rearwardly of the ground-wheel, a plate having longitudinal slots and downturned edges mounted below the hopper and between the sills, perforated plates slidably disposed below the first-named plate and having extensions passing through guides in the downturned edges in the said first-named plate, means for adjusting the said perforated plates, additional means for opening and closing the slots, said means consisting of a plate pivoted to the bottom of the first-named plate, a furrow-opener mounted at the forward ends of the sills and means for conveying the contents of the receptacles to a furrow.

784,469. BOTTLE-STOPPER. EDWARD CAMPBELL, Rossland, Canada. Filed Dec. 26, 1903. Serial No. 186,573.

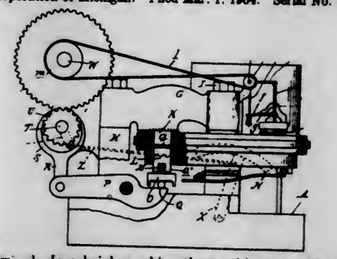
Claim.—1. The combination of a bottle having a central recess in the bottom thereof extending outwardly near the side walls of the bottle, the bottom of said recess being flat, said bottle having a neck of even internal diameter surrounded at its lower end within the bottle by a flat surface, a stopper for the bottle, comprising a stud portion of even diameter designed to tightly fit within the neck of the bottle and of approximately the same length as said neck, a flanged portion at the lower end of the stopper of a size to be easily received into the recess at the bottom of the bottle, the upper and lower sides of said flanged portion being flat, to engage respectively with the flat surface at the top of the bottle when the stopper is in operative position and to rest within the recess at the bottom of the bottle when the stopper is in inoperative position, and a frangible projection at the upper end of the stopper for drawing the stopper into the neck of the bottle, said projection comprising an upper portion diverging downwardly and provided with a shoulder around its lower end, and a reduced neck connecting the diverging portion with the stopper.



2. The combination of a bottle having a central recess in the bottom thereof, the bottom of said recess being flat, said bottle having a neck of even internal diameter, a stopper for the bottle, comprising a stud portion of even diameter designed to tightly fit within the neck of the bottle, a flanged portion at the lower end of the stopper of a size to be easily received into the recess at the bottom of the bottle, the lower side of said flanged portion being flat to hold the stopper in a vertical position within the recess of the bottom of the bottle when the stopper is in inoperative position, and a frangible projection at the upper end of the stopper adapted to be engaged by a tool to draw the stopper into the neck of the bottle.

3. The combination of a bottle having a flat bottom and a neck of even internal diameter, a stopper for the bottle, comprising a stud portion of even diameter designed to tightly fit within said neck, a flanged portion at the lower end of the stopper the under side of said flanged portion being flat to hold the stopper in a vertical position when resting upon the bottom of the bottle, and a frangible projection at the upper end of the stopper adapted to be engaged by a tool to draw the stopper into the neck of the bottle.

784,470. BRICK-PRESS. EDGAR D. CHURCH, Saginaw, Mich., assignor to The American Sandstone Brick Machinery Co., Saginaw, Mich., a Corporation of Michigan. Filed Mar. 1, 1904. Serial No. 196,087.



Claim.—1. In a brick-machine the combination with a rotary table having mold-cavities therein, of an elongated work member having a bearing-plate intermediate at its ends, plungers arranged for vertical reciprocation within said cavities, and means for depositing plastic material in said cavities to be compressed by said plungers against said bearing-plate, of means for cleaning the ends of said plungers comprising a brush and mechanism for moving the same over the surface of the plungers while in registration therewith.

2. In a brick-machine, the combination with a rotary table hav-

ing a mold-cavity therein, a stationary plate above the cavity, an annular cam-track having a cut-away portion, a plunger adapted to be reciprocated within said cavity, a reciprocatory plate arranged within said cut-away portion of the track, means for successively registering said plunger with said track and the reciprocatory plate, and a cleaning device for the plunger spaced from said reciprocatory plate.

3. In a brick-machine the combination with a rotary table having a series of mold-cavities therein, plungers adapted for reciprocation in said cavities, a hopper for depositing the plastic material on said table to fill said cavities and a compression-plate against which said material is compressed in the subsequent movement of said plungers, of means for cleaning the compression-faces of said plungers comprising a brush normally arranged above the table and adapted to cross the path of the plungers in advance of said hopper, and mechanism for actuating said brush to bring the same into contact with the plungers to brush the material in one direction from off the face of said plungers when in registration therewith.

4. In a brick-machine, the combination with a rotary table having a series of mold-cavities therein, plungers adapted for reciprocation in said cavities, and means for depositing the plastic material in said cavities to be compressed by said plunger, of a cleaning device for said plungers, comprising a brush arranged above the table, and mechanism for reciprocating said brush across said plungers with its bristles in contact therewith when moving in one direction, and withdrawn from the contact when moving in the opposite direction.

5. In a brick-press the combination with a rotary table having a series of mold-cavities therein, plungers adapted for reciprocation in said cavities, means for depositing the plastic material in said cavities to be compressed by said plungers, of a cleaning device for said plungers comprising a brush, a head having horizontal guides for slidingly securing said brush, vertical guides in which said head is slidingly secured, a pair of levers for respectively oscillating said head and brush in vertical and horizontal direction, actuating-rods for said levers and an eccentric to which said rods are connected whereby horizontal and vertical reciprocation is imparted to the brush.

6. In a brick-machine the combination with a rotary table having a mold-cavity therein, a plunger adapted for reciprocation in said cavity, an antifriction-roll on said plunger, and a track over which said antifriction-roll is adapted to travel in the rotation of said table, of a vertically-movable plate arranged in an interruption of said track and adapted to bear against the under face of said plunger during its upward movement, a lug secured to said table, and projecting into a recess in said plunger, and a shoulder formed at the upper end of said recess adapted to rest upon said lug, and support said plunger out of contact with said vertically-movable plate when the latter is in its depressed position.

7. In a brick-press the combination with a rotary table having a mold-cavity, a plunger in said cavity adapted for reciprocation, and a stationary compression-plate flush with the upper face of said table, of a vertically-adjustable wedge-shaped bearing for said rotary table, whereby it may be maintained in contact with said compression-plate.

8. In a brick-press the combination with a rotary table having a mold-cavity therein, a plunger adapted for reciprocation in said mold-cavity, and a stationary compression-plate above said table, and flush with the upper face thereof, of an annular bearing for supporting said rotary table, and a wedge-shaped member for vertically adjusting said bearing.

9. In a brick-press, the combination with a rotary table having a mold-cavity therein, a plunger adapted for reciprocation in said cavity, and a stationary compression-plate above said table, and flush with the face upper thereof, of a pin on which said table is journaled, an annular bearing surrounding said pin and forming the support for said table, and means engaging said bearing for vertically adjusting the same.

10. In a brick-press the combination with a rotary table having mold-cavities therein, a plunger adapted for reciprocation in said cavity, and a stationary compression-plate having its lower face flush with the upper face of said table, of a pin forming a journal for said rotary table, an annular bearing surrounding said pin formed of two members having parallel opposite faces and oppositely-inclined meeting faces one of said members being adjustable laterally in relation to the other to vertically adjust said table.

11. In a brick-press the combination with a rotary table having mold-cavities, a plunger adapted for reciprocation in said cavity, and a compression-plate having its lower face flush with the upper face of said table, of a pin on which said table is journaled and an annular bearing surrounding said pin comprising the members *x* and *y* having parallel opposite faces and oppositely-inclined meeting faces, the member *x* being slotted for lateral adjustment on said pin and having a tongue-groove engagement with the member *y* and means for adjusting the member *x* laterally to vertically adjust said rotary table.

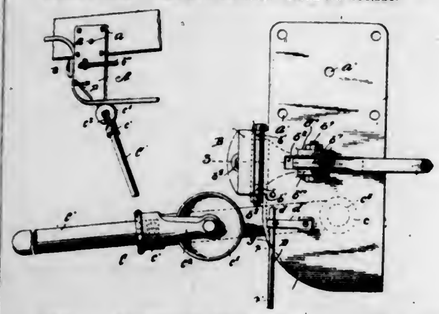
12. In a brick-machine, a stationary bearing-plate, a rotary recessed table therebelow, a cam-track having a cut-away portion, a vertically-reciprocatory plate within said cut-away portion, a plunger traveling over said track and adapted to be reciprocated within said recess by said reciprocatory plate, but normally spaced above the latter when in line therewith.

13. In a brick-machine, a stationary bearing-plate, a rotary recessed table therebelow, a cam-track having a cut-away portion, a vertically-reciprocatory plate within said cut-away portion, a plunger traveling over said track and adapted to be reciprocated within said recess by said reciprocatory plate, and means on the table for limiting the downward movement of the plunger and normally spacing the latter from said reciprocatory plate when in line therewith.

14. In a brick-press, the combination with a bed having a series of mold-cavities therein, plungers adapted for reciprocation in said cavities, means for depositing the plastic material in said cavities to be compressed by said plungers, of a cleaning device for said plungers, comprising a brush, a head having horizontal guides for slidingly securing said brush, vertical guides in which said head is slidingly secured, and means for respectively oscillating said head and brush in vertical and horizontal direction.

15. In a brick-machine, the combination with a bed having a series of mold-cavities therein, plungers adapted for reciprocation in said cavities, means for depositing the plastic material in said cavities to be compressed by said plungers, of a cleaning device for said plungers, comprising a brush, a head having horizontal guides for slidingly securing said brush, vertical guides in which said head is slidingly secured, a pair of levers for respectively oscillating said head and brush in vertical and horizontal direction, and means associated with said levers whereby horizontal and vertical reciprocation is imparted to the brush.

784,471. DEVICE FOR FORMING STANDARD ELBOWS IN ELECTRIC CONDUITS OR OTHER PIPES. LEWIS H. CHURCH, Stamford, Conn. Filed Nov. 14, 1903. Serial No. 181,221.

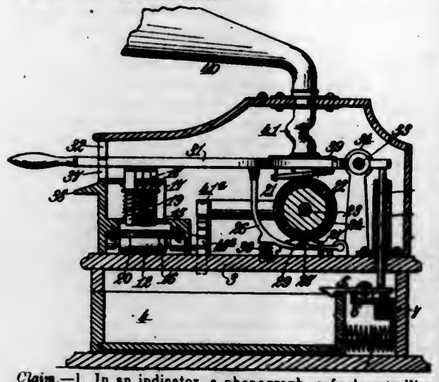


Claim.—1. In a device for forming elbows in conduits or pipes for electrical or other purposes, the combination with a form around which the conduit or pipe is adapted to be bent, a swinging arm provided with a revoluble bending device, adapted to follow the curvature of the form and bend the conduit or pipe to conform thereto, a gravity-jaw pivotally connected to the side of the form and lying normally in an open position, the said jaw forming, in conjunction with the side of the form, a vise-like mouth adapted to grip a conduit or pipe, laid lengthwise therein, and a device adapted to close said jaw and lock it in engagement with the conduit or pipe.

2. In a device for forming elbows in conduits or pipes for electrical or other purposes, the combination with a form around which the conduit or pipe is adapted to be bent, a swinging arm provided with a revoluble bending device, adapted to follow the curvature of the form and bend the conduit or pipe to conform thereto, a clamp pivotally secured to said form and arranged to receive various sizes of conduits or pipes sidewise, a removable jaw, and an eccentric adapted to bear against said clamp and lock the same in engagement with the conduit or pipe, the said clamp having its weight distributed so as to unlock by gravity when the eccentric is disengaged therefrom.

3. In a device for forming elbows in conduits or pipes for electrical or other purposes, the combination with a form around which the conduit or pipe is adapted to be bent, a swinging arm provided with a revoluble bending device, adapted to follow the curvature of the form and bend the conduit or pipe to conform thereto, a clamp pivotally secured to said form and provided with a removable jaw cooperating with a stationary jaw on the form to receive and retain conduits or pipes of various sizes, said conduits or pipes being clamped therebetween, an eccentric adapted to bear against the pivotal clamp and lock the same in engagement with the conduit or pipe, the said clamp being weighted to unlock by gravity when the eccentric is disengaged therefrom and a gage consisting of a pivotal arm mounted on said form and adapted to maintain a position parallel to the conduit or pipe to be formed with an elbow and indicia on said gage at predetermined distances and designed to register with marks placed on the conduit or pipe and indicating the distance from either end thereof for the formation of the elbow.

784,472. INDICATOR. CORNELIUS S. CLARK, Norfolk, Va. Filed Jan. 9, 1905. Serial No. 240,284.



Claim.—1. In an indicator, a phonograph, a feed-controlling device for the phonograph, indicating mechanism, and a lever laterally movable, for operating a desired member of the indicating mechanism and simultaneously the feed-controlling device to release the phonograph, the latter having a reproducer operable by the lever.

2. In an indicator, a phonograph, a feed-controlling device for the phonograph, indicating mechanism, a lever laterally movable, for operating a desired member of the indicating mechanism and simultaneously the feed-controlling device to release the phonograph, the latter having a reproducer operable by the lever, a cash-drawer, a locking device for holding the cash-drawer in a retracted position, and means operable by the said lever, for actuating the locking device to release said cash-drawer.

3. In an indicator, a phonograph, a feed-controlling device for the phonograph, indicating mechanism comprising a plurality of laterally-separated printing members, a laterally-movable lever for simultaneously operating a printing member, and the feed-controlling device for the phonograph, the latter having a reproducer, carried by said lever.

4. In an indicator, a phonograph, a feed-controlling device for the phonograph, indicating mechanism, a laterally-movable lever adapted also for swinging movement, the lever on its lateral movement being adapted to be brought into position to operate different members of the indicating mechanism, and to simultaneously operate the feed-controlling device to release the phonograph, a cash-drawer, a locking device for holding the cash-drawer in a retracted position, and mechanism adapted, on the swinging motion of the lever, to be operated in a direction to actuate the locking device to release the said drawer.

5. In an indicator, a phonograph, a feed-controlling device for the phonograph, a swinging and laterally-movable lever, the lever, on its lateral movement, being adapted to be brought into position to operate different members of the indicating mechanism, and simultaneously to operate the feed-controlling device to cause the operation of the phonograph, a cash-drawer, a locking device for retaining the cash-drawer in a retracted position, and a plunger arranged for endwise movement by the lever on the swinging movement of the latter and serving, on such endwise movement, to operate the locking device in a direction to cause the release of said drawer.

6. In an indicator, a phonograph, a feed-controlling device for the phonograph, a plurality of printing members, a table, means for supporting a strip of paper for movement across said table, a laterally movable and swinging lever adapted, on its lateral movement, to be brought into position to operate the respective printing members to cause their action against said paper and to simultaneously operate the feed-controlling device in a direction to cause the action of the phonograph, a cash-drawer, a locking device for the cash-drawer, and mechanism arranged for operation by the lever on its swinging movement, to actuate the locking device in a direction to effect the release of said drawer.

7. In an indicator, a phonograph, a feed-controlling device for the phonograph, indicating mechanism involving printing members, a lever provided with a reproducer for the phonograph, arranged to simultaneously operate the indicating mechanism, and the feed-controlling device, means for supporting a strip of paper to receive the impressions, and mechanism to positively feed the paper.

8. In an indicator, a phonograph, a feed-controlling device for the phonograph, indicating mechanism involving printing members, a lever provided with a reproducer for the phonograph, arranged to simultaneously operate the indicating mechanism and the feed-controlling device, means for supporting a strip of paper to receive the impressions, and mechanism operative with the phonograph for positively feeding the paper.

9. In an indicator, a phonograph, a yoke-form feed-controlling device for the phonograph, indicating mechanism, and a lever, laterally movable, to engage different members of the printing mechanism, and provided with a reproducer for the phonograph, said lever, in its different lateral positions, being adapted to operate the feed-controlling device in a direction to cause the action of the phonograph.

10. In a machine of the class described, a phonograph, a feed-controlling device for the phonograph, indicating mechanism involving printing members, a laterally-movable lever having a reproducer for the phonograph, and arranged, on its lateral motion, to be brought into position to operate different printing members of the indicating mechanism and simultaneously to operate said feed-controlling device, means for supporting a strip of paper in position to receive the impressions of the printing members, a pair of feed-rolls between which the paper is led, a gear connected with one of said feed-rolls, and a single-toothed actuator, operative with the phonograph, and its tooth serving to operate said gear.

11. In an indicator, a phonograph, a yoke-form spring-controlled feed-controlling device for the phonograph, a laterally-movable member for operating the indicating mechanism and simultaneously operating the said feed-controlling device, the latter, when operated, serving to permit the action of the phonograph, the reproducer of said phonograph being carried by said laterally-movable member, a horn, a flexible tube between the reproducer and horn, a cash-drawer, a locking device for holding the cash-drawer in a retracted position, and mechanism operable by said laterally-movable lever, the latter being capable of swinging movement to secure such action, to effect the operation of the locking device and the release of said cash-drawer.

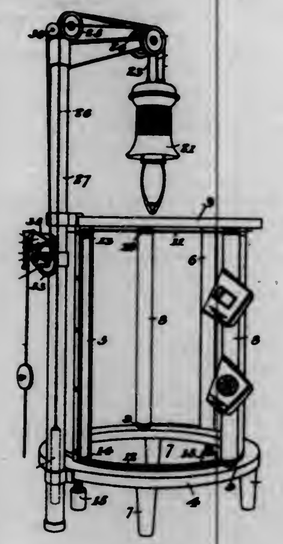
12. An indicator having a phonograph, a feed-controlling device for the phonograph, indicating mechanism, a laterally movable and swinging member adapted on its lateral movement to be brought in position to operate different members of the indicating mechanism, a notched portion, into one of the notches of which the laterally movable and swinging member is adapted normally to fit, the latter having a reproducer for the phonograph, a cash-drawer, a locking device for holding the cash-drawer in a retracted position, and mechanism operable on the swinging motion of said laterally movable and swinging member for operating the said locking device in a direction to effect the release of said cash-drawer.

784,473. BLUE-PRINTING MACHINE. EDGE T. COPE, Salem, Ohio, assignor of one-half to Buckeye Engine Company, Salem, Ohio, a Corporation of Ohio. Filed July 7, 1904. Serial No. 215,575.

Claim.—1. In a blue-printing machine, a curved transparent surface, a curtain secured at one end, a roller on which the curtain winds, and weighted cables arranged to yieldingly hold the curtain in contact with the surface; substantially as described.

2. In a printing-machine, a transparent surface, a curtain secured at one end, a roller on which the curtain winds, said roller hav-

ing a right-hand helical groove at one end and a left-hand helical groove at the opposite end, and cables winding in said grooves; substantially as described.



3. In a printing-machine, a transparent surface, a movable curtain-roller, a curved bearing at the lower end of the roller, and a ring-shaped support on which the bearing moves; substantially as described.

4. In a blue-printing machine, a cylinder of transparent material with a plurality of posts, a plurality of curtains secured to said posts, movable rollers over which the curtains wind, and cords arranged to wind upon the rollers and extending over pulleys to weights, substantially as described.

5. In a printing-machine, a frame supporting a curved transparent surface, a post extending upwardly from the frame, a lamp, a cord extending from the lamp over a pulley on the post and to an escapement mechanism mounted on the same frame, and a counterweight for the lamp; substantially as described.

6. In a printing-machine, a frame having a curved transparent surface, a hollow post projecting upwardly therefrom, a lamp having cords extending over pulleys at the top of the post, one of said cords extending down within the hollow post to a weight therein, and the other extending to an escapement mechanism carried on the post; substantially as described.

784,474. PAINT-REMOVER AND PROCESS OF MAKING SAME. ARNOLD CONTI, Dübendorf, near Zurich, Switzerland. Filed Sept. 1, 1904. Serial No. 223,032.

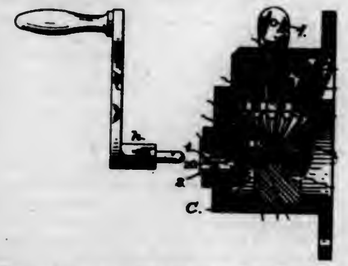
Claim.—1. The herein-described composition of matter containing a mixture of alcohol, slaked lime, soda, petroleum and soft soap, substantially as and for the purposes set forth.

2. The herein-described composition of matter containing a mixture of alcohol, slaked lime, soda, petroleum, soft soap and chalk, substantially as and for the purpose set forth.

3. The process, which consists in forming a mixture containing about five hundred parts by weight of alcohol, about three hundred parts by weight of slaked lime and about seventy-five parts by weight of pulverized soda, then forming a mixture of about sixty parts by weight of petroleum and seventy-five parts by weight of soft soap and stirring the first-named mixture into the second.

4. The process, which consists in forming a mixture consisting of about five hundred parts by weight of alcohol, about three hundred parts by weight of slaked lime and about seventy-five parts by weight of pulverized soda, then forming a mixture of about sixty parts by weight of petroleum and seventy-five parts by weight of soft soap and stirring the first-named mixture into the second and finally adding about four hundred and fifty parts by weight of chalk.

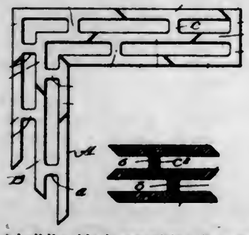
784,475. AWNING-OPERATING MECHANISM. THOMAS J. DANIELS, San Francisco, Cal. Filed Feb. 29, 1904. Serial No. 195,783.



Claim.—1. In an awning-operating mechanism the combination with an awning-operating shaft, a beveled gear fast thereon, a second beveled gear in continual engagement with the first-named gear and having a hub provided with a socket, a detachable hand-crank having a shank for insertion in said socket for turning the said gear, radially-set projections on the back of the first-named gear and extending around the circumference thereof separately of the gear-teeth; of a swinging latch-piece suspended from a pivotal point situated above the plane of the said projections and adapted to normally engage the same by gravity the body of said latch-piece being arranged behind and in line with the socket in the hub of the socket-carrying gear, and means inclosed within said socket and interposed between the latch-piece and the shank of the crank when the latter is inserted, by which the latch-piece is pressed back and held out of the projections on the gear by the act of placing the crank in the gear to turn it, and is released and allowed to drop into the projections by gravity by the act of removing the crank.

2. In an awning-operating mechanism, in combination, an awning-operating shaft having a beveled gear thereon, a gear engaging therewith having spaced projections arranged circumferentially of the gear and separately of the teeth thereof, a suspended latch-piece pivotally attached at the upper end at a point above the plane of rotation of the said projections, and having a tooth to engage the said projections and normally held therein by gravity, a second beveled gear in continual engagement with the first-named gear and having a hub provided with a socket, a hand-crank having a shank insertible in the socket for turning the said gear, and means inclosed within the socket operating to engage and hold back the latch-piece when the shank of the hand-crank is pressed into the socket, and to release the latch-piece when the crank is removed.

784,476. BUILDING-BLOCK. BENJAMIN W. DAVIS, Phillips, Wis. Filed Sept. 12, 1904. Serial No. 224,079.



Claim.—1. A building-block comprising three or more parallel partitions, a web interposed between adjacent partitions intermediate of their ends thereby forming a plurality of series of open-ended air-spaces between the partitions.

2. A building-block comprising a plurality of parallel partitions, a web interposed between adjacent partitions intermediate of their ends thereby forming a series of open-ended air-spaces between the partitions, the corresponding ends of adjacent partitions being oppositely beveled vertically.

3. A building-block comprising a plurality of parallel partitions, a connecting means composed of staggered portions interposed between and uniting the outer partitions intermediate of their ends thereby forming a series of open-ended air-spaces between the partitions.

4. A building-block comprising a plurality of parallel staggered partitions of equal length, a web interposed between adjacent partitions intermediate of their ends, thereby forming a series of open-ended air-spaces between the partitions.

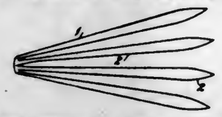
5. A building-block comprising a plurality of parallel staggered partitions of equal length, a web interposed between adjacent partitions intermediate of their ends thereby forming a series of open-ended air-spaces between the partitions, the corresponding ends of adjacent partitions being oppositely beveled vertically.

6. A building-block comprising a plurality of parallel staggered partitions, a connecting means composed of staggered portions interposed between and uniting the outer partitions intermediate of their ends thereby forming a series of open-ended air-spaces between the partitions.

7. A corner building-block comprising a plurality of partitions, a web interposed between adjacent partitions thereby forming a series of open-ended air-spaces between the partitions, the outer partition being angular and extending around one end of the inner partition.

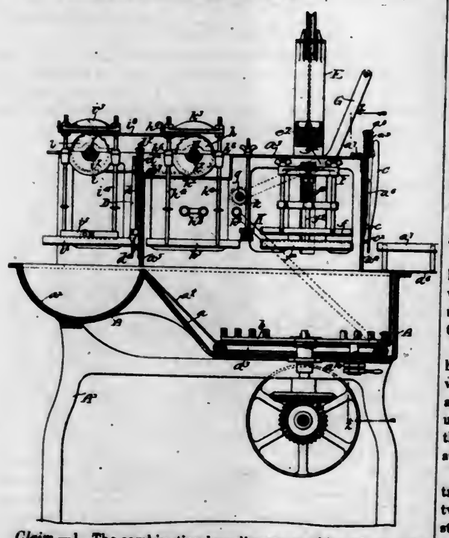
8. A corner building-block comprising a plurality of partitions, a web interposed between adjacent partitions thereby forming a series of open-ended air-spaces between the partitions, the outer partition being angular and extending around one end of the inner partition, the corresponding ends of adjacent partitions being oppositely beveled vertically.

784,477. BOOK WITH CLOTH LEAVES. HENRY S. DEAN, London, England. Filed Dec. 18, 1903. Serial No. 185,732.



Claim.—A book comprising a plurality of leaves of textile fabric consisting of a continuous sheet folded inward and forming the back and cover, a second continuous sheet folded together to form leaves and situated within the cover, the two being secured by stitching at or near the back of the cover.

784,478. DIPPING-MACHINE. JASPER L. DERN, Philadelphia, Pa. Filed Mar. 24, 1904. Serial No. 199,735.



Claim.—1. The combination in a dipping-machine of a tray for material to be treated, a kettle, a device for dipping the tray into the kettle, a knocking-off device including a shaft and a toothed wheel thereon, a tray-supporting structure acted upon by the toothed wheel and heating means extending between the tray when it is on the supporting structure of the knocking device and the wheel-shaft on said device, substantially as described.

2. The combination in a dipping-machine of a tray, a kettle, an inclosing casing, a device in the casing for dipping the tray into the kettle, a shaft having a toothed wheel, a cross-bar engaging said wheel outside of the casing and a tray-supporting structure in the casing connected to said cross-bar, with heating means in the casing adjacent to a tray on the said supporting structure and between the same and said shaft, substantially as described.

3. The combination in a dipping-machine of a tray, a kettle, means for heating the same, a casing over the kettle, dipping and knocking-off mechanism including a shaft and a knocking-wheel, said mechanism having portions within the casing for the reception of a tray, with a heating pipe or pipes in the casing adjacent to the tray when it is acted on by the knocking-off mechanism and in the rear of the dipping mechanism, said heating pipe or pipes extending between the knocking-wheel shaft and the tray-holding structure, substantially as described.

4. The combination in a dipping-machine of a kettle, a tray-supporting structure having a portion movable into the kettle, a lever connected to the structure and means acting upon said structure to normally retain the same in an elevated position, substantially as described.

5. The combination in a dipping-machine of a kettle, a tray-supporting structure having a portion movable into the kettle, a lever connected to the structure and a counterweight acting upon said structure to normally retain the same in an elevated position, substantially as described.

6. The combination in a dipping-machine of a kettle, a tray-supporting structure having a portion movable into the kettle, a lever connected to each side of said structure and provided with an operating-handle, with a counterweight having a flexible connection to the tray-supporting structure, substantially as described.

7. The combination in a dipping-machine of a kettle, a casing, a tray-supporting structure within the casing and movable into the kettle, a lever outside of the casing connected to the tray-supporting structure and having an operating-handle, with a counterweight operatively connected to said tray-supporting structure, substantially as described.

8. The combination in a dipping-machine of a kettle, a casing, a tray-supporting structure within the casing and movable into the kettle, a frame above the casing, pulleys thereon, pivoted levers and flexible connections attached to the tray-supporting structure, said connections passing over said pulleys and having a counterweight connected to them, substantially as described.

9. The combination of a kettle, a tray-supporting structure having means for moving it into said kettle and a knocking-off device, said device including a toothed wheel, a bar engaging the same, a second tray-supporting structure connected to the bar and means for adjusting the amplitude of the movement imparted to said second supporting structure by said wheel, substantially as described.

10. The combination of a kettle, a tray-supporting structure having means for moving it into said kettle and a knocking-off device, said device including a toothed wheel, a bar connected to the tray-supporting structure and normally resting upon said wheel, with a piece adjustable on said bar for varying the violence of the vibration imparted to the tray-supporting structure, substantially as described.

11. The combination of a kettle, a tray-supporting structure having means for moving it into the kettle and a knocking-off device, the same including a second tray-supporting structure and means for adjusting the amplitude of successive movements imparted thereto, substantially as described.

12. The combination of a kettle, a tray-supporting structure having means for moving it into the kettle, and a knocking-off device including a second tray-supporting structure, a toothed wheel, a cross-bar supporting said second structure and normally resting upon the teeth of said wheel, with an adjustable piece for varying the amount of movement imparted to said cross-bar by said wheel, substantially as described.

13. The combination of a kettle, a tray, a device for dipping the tray into the kettle, a knocking-off device and a brush between said two devices for removing surplus material from objects dipped, substantially as described.

14. The combination of a kettle, a tray, a supporting structure for the tray, mechanism for causing said structure to enter the kettle, knocking-off mechanism including a second tray-supporting structure, with a brush between said two structures placed to engage the objects on the tray as the latter is moved from one supporting structure to the other, substantially as described.

15. The combination in a dipping-machine, of a kettle, a casing,

a plurality of tray-supporting structures within the casing, means for moving one of the structures into the kettle and knocking-off mechanism outside of the casing operative upon the other tray-supporting structure, substantially as described.

16. The combination in a dipping-machine, of a kettle, a casing, tray-supporting structures within the casing, means for moving one of the structures into the kettle, and mechanism outside of the casing operative upon a second tray-supporting structure for vibrating the same, with a second set of tray-vibrating mechanism wholly outside of the casing, substantially as described.

17. The combination in a dipping-machine of a kettle, three tray-supporting structures, means for moving one of the same at will into the kettle, and means for vibrating the other two structures, said means including two shafts respectively extending above the tray-supporting structures, toothed wheels on the shafts, a cross-bar engaging each wheel and depending means for connecting each cross-bar with its respective structure, substantially as described.

18. The combination in a dipping-machine of a kettle, a casing, a plurality of tray-supporting structures, means for dipping one of said structures into the kettle and knocking-off mechanism operatively connected to the other structures, said mechanism including shafts extending above the tray-supporting structures, said casing extending under one of the shafts, substantially as described.

19. The combination in a dipping-machine of two containers of which one includes a kettle, a plurality of tray-supporting structures, means for moving one of the same into the kettle, knocking-off mechanism operative upon the other tray-supporting structures and including knocking-wheels having operative shafts extending above their respective tray-supporting structures, one of said structures being over the second container, substantially as described.

20. The combination in a dipping-machine of twocontainers of which one includes a kettle, a casing extending over said kettle dipping mechanism, tray-supporting structures of which one is acted on by said mechanism, one of said structures being outside the casing and over the second container, with knocking-off mechanism for vibrating certain of the tray-supporting structures, said latter mechanism including shafts, knocker-wheels and cross-bars all placed above their respective tray-supporting structures, substantially as described.

21. In a dipping-machine, the combination of a frame, a kettle, means for dipping a tray into the same, a tray-supporting structure in addition to the dipping means, vibrating mechanism for said structure including a shaft extending over the structure, said shaft having a casing extending under it and attached to the frame of the machine, substantially as described.

22. In a dipping-machine the combination of a frame, a kettle, a plurality of tray-supporting structures, mechanism for dipping one of said structures into the kettle, a shaft carried in bearings on the frame, said shaft extending over a second tray-supporting structure, a toothed wheel on the shaft, and means actuated from said wheel for vibrating the second tray-supporting structure, there being a casing extending under the shaft and adjacent thereto, said casing rigidly connecting the bearings thereof, substantially as described.

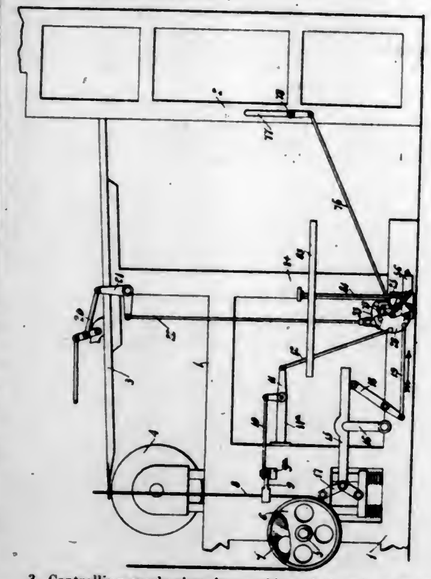
23. The combination in a dipping-machine of two containers, of which one serves as a kettle, a plurality of tray-supporting structures, means for moving one of the same into the kettle, knocking-off mechanism operative upon the other tray-supporting structure including a knocking-wheel having an operating-shaft extending above its tray-supporting structure, said latter structure being over the second container, substantially as described.

24. The combination in a dipping-machine of two containers, of which one serves as a kettle, a plurality of tray-supporting structures, means for moving one of the same into the kettle, knocking-off mechanism operative upon the other tray-supporting structure including a knocking-wheel having an operating-shaft extending above its tray-supporting structure, said latter structure being reversibly supported over the second container, substantially as described.

784,479. TRIPPING MECHANISM FOR PRINTING-PRESSES. TALBOT C. DEXTER, Pearl River, N. Y. Filed Mar. 30, 1904. Serial No. 200,777.

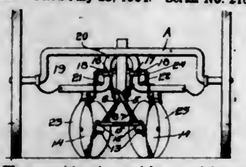
Claim.—1. Controlling mechanism for machines designed to operate upon sheets, having in combination a rotary throw-out member for said machine, an actuating device connected eccentrically with said rotary throw-out member, a cushioning-cylinder, a piston working in said cylinder and connected eccentrically with said rotary throw-out member, and automatically-controlled latching means normally locking said rotary throw-out member against movement, substantially as set forth.

2. Controlling mechanism for machines designed to operate upon sheets, having in combination a rotary throw-out member for said machine, an expansion-spring device connected eccentrically with said rotary throw-out member for actuating it, a cushioning-cylinder, a piston working in said cylinder and connected eccentrically with said rotary throw-out member, and an automatically-controlled latch normally engaging and locking said rotary throw-out member, substantially as set forth.



3. Controlling mechanism for machines designed to operate upon sheets, having in combination a rotary throw-out member for said machine, an expansion-spring device connected eccentrically with said rotary throw-out member at a point close to its center of rotation, a cushioning-cylinder rigidly mounted independently of said throw-out member, a piston operating in said cylinder, a connection between said piston and said throw-out member, the connections of the actuating-spring device and the retarding-piston being upon opposite sides of the center of rotation of said throw-out member, and normally active restraining means engaging said throw-out member and holding it at rest, substantially as set forth.

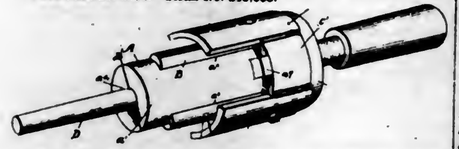
784,480. CULTIVATOR ATTACHMENT. GEORGE W. DISNEY, Richland, Kans. Filed July 25, 1904. Serial No. 218,074.



Claim.—1. The combination with a cultivator including a framework having spaced vertical portions and forwardly-extending portions, and ground-treating devices, of an attachment therefor comprising spaced plates, clamps carried by the forward ends of the plates and engaged with the forwardly-extending portions of the framework, yokes engaged with the plates, crossed plates connected with the yokes at one end and at their other ends to the first-mentioned plates adjacent to their rearward ends, cultivating-disks revolubly connected with the rearward ends of the first-mentioned plates, an adjustable space-rod connected with the rearward ends of the first-named plates and arranged for operation to vary the distance between the cultivating-disks, uprights connected with the first-named plates, and clamps carried by the upper ends of the uprights and engaged with the vertical portions of the cultivator.

2. An attachment for cultivators comprising spaced plates, clamps carried by the forward ends of the plates, supporting-uprights secured to the plates between their ends, clamps carried by the upper ends of the supporting-uprights, brace-plates connected at either end to one of the first-named plates, cultivating-disks carried by the rearward ends of the first-named plates, and a space-rod connected with the first-named plates and arranged for operation to vary the distance between the rearward ends thereof.

784,481. FLUE-EXPANDER. PATRICK DIXON, Bloomington, Ill. Filed June 23, 1904. Serial No. 213,805.



Claim.—1. The combination of a cage which comprises a base portion and a cylindrical extension, the latter being of less diameter than the base portion and having a series of equidistant tapering, longitudinally-extended radial slots, said cage also having axial openings to receive the mandrel and the cylindrical portion thereof having radial projections, a tapering mandrel and a gage rotatably mounted on the cage between its inner end and the radial projections, said gage including forwardly-projecting arms and having a series of internal longitudinal recesses having a depth greater than the length of the radial projections on the cage, and tapering rollers adapted to seat in the radial openings in the cage, for the purposes specified.

2. The hereinbefore-described tube-expander which comprises in combination, a cage or frame having a base or head portion formed with an annular rim, and a cylindrical extension of less diameter than the base portion, said extension and base having alining axial apertures and the extension being formed with a series of radial slots to receive the swaging-rollers, a swaging-roller detachably mounted in each of the said slots, the said extension being also provided with a series of radial lugs, a gage which comprises a sleeve portion loosely rotatable upon the base of the cage between its annular rim and the radial lugs and having forwardly-projecting arms disposed in a plane parallel with the longitudinal axis of the cage, the sleeve of the said gage having internal longitudinal recesses, and set-screws carried by the gage that project into the recesses, for the purposes specified.

784,482. REVERSIBLE FLUID-MOTOR. HENRY A. DUC, Jr., Charleston, S. C. Filed Aug. 26, 1903. Serial No. 170,859.



Claim.—1. In an elastic-fluid motor, the combination of an annularly-arranged rotatable series of reactionary surfaces adapted to constrict the flow of the fluid, and a series of relatively stationary elastic-fluid jets within the orbit of the series of reactionary surfaces adapted to direct fluid against said reactionary surfaces, substantially as described.

2. In an elastic-fluid motor, a rotatable trough, reactionary surfaces therein adapted to constrict the flow of the fluid, and a relatively stationary series of elastic-fluid jets adapted to direct fluid against said reactionary surfaces, substantially as described.

3. In an elastic-fluid motor, the combination of an annular rotatable trough, a series of reactionary surfaces therein provided with means for guiding and constricting the flow of the fluid, and a series of relatively stationary jets within the trough adapted to direct fluid against the reactionary surfaces, substantially as described.

4. In an elastic-fluid motor, the combination of a rotatable trough adapted to contain a body of fluid retained therein by centrifugal action and provided with surfaces adapted to constrict the flow of the fluid, and a series of elastic-fluid jets adapted to direct fluid against the surface of the body of fluid, to rotate the latter within the trough, and cause said fluid to rotate the trough, substantially as described.

5. In a reversible elastic-fluid motor, the combination of an annularly-arranged rotatable series of reactionary surfaces adapted to constrict the flow of fluid, and a series of relatively stationary elastic-fluid jets located within the orbit of the series of reactionary surfaces adapted to direct fluid against said reactionary surfaces, and means for shifting said jets so as to reverse the direction of rotation of the reactionary surfaces, substantially as described.

6. In a reversible elastic-fluid motor, a rotatable trough, reactionary surfaces therein adapted to constrict the flow of fluid, a relatively stationary series of elastic-fluid jets adapted to direct fluid against said reactionary surfaces, and means for shifting said jets so as to cause the trough to rotate in either direction desired, substantially as described.

7. In an elastic-fluid motor, the combination of an annular rotatable trough, a series of reactionary surfaces therein provided with means for guiding and constricting the flow of the fluid, a series of relatively stationary jets within the encircling trough adapted to direct fluid against the surfaces, and means for shifting said jets so as to reverse the direction of rotation of the trough, substantially as described.

8. In a reversible elastic-fluid motor, the combination of a rotatable trough adapted to contain a body of fluid retained therein by centrifugal action and provided with means to constrict the flow of the fluid, a series of elastic-fluid jets arranged within the encircling trough adapted to direct fluid against the surface of the body of fluid, to rotate the latter within the trough, and cause said fluid to rotate the trough, and means for shifting the direction of said jets, to reverse the rotation of the trough, substantially as described.

9. In a fluid-motor, the combination of a shaft, a wheel mounted thereon having a peripheral trough, a series of impact or reactionary surfaces arranged within the trough and adapted to constrict the flow of the fluid, a series of jet-heads located within the encircling trough but independent thereof and fixed relatively thereto, and means for admitting steam or elastic fluid to said jet-heads, substantially as described.

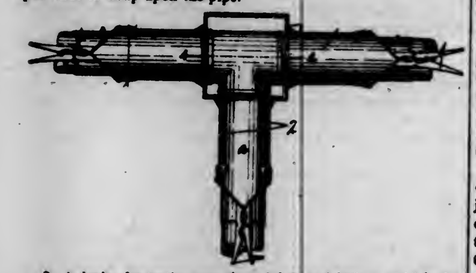
10. In a fluid-motor, the combination of a shaft, a wheel mounted thereon having a peripheral internally-opening trough; a series of ended jet-heads mounted within the trough but independently thereof, means for supplying elastic fluid to said jet-heads; with a series of reactionary surfaces within the encircling trough but above the bottom thereof, and series of fluid-guiding surfaces within the trough, all substantially as and for the purpose set forth.

11. In a reversible fluid-motor, the combination of a shaft, a wheel mounted thereon having a peripheral trough, a series of impact or reactionary surfaces arranged within the trough, a series of oscillating jet-heads located within the encircling trough but independent thereof and fixed relatively thereto, means for admitting steam or elastic fluid to said jet-heads, and means for rocking said jet-heads so as to reverse the direction of the jets, and consequently reverse the direction of rotation of the wheel, substantially as and for the purpose described.

12. In a reversible fluid-motor, the combination of a shaft, a wheel mounted thereon having a peripheral internally-opening trough, a series of oscillatory double-ended jet-heads mounted on hollow spindles within the encircling trough but independently thereof, means for supplying elastic fluid to said jet-heads, and means for oscillating said jet-heads so as to reverse the direction of the jets, and consequently reverse the direction of rotation of the wheel; with a series of reactionary surfaces within the encircling trough but above the bottom thereof, and series of fluid-guiding surfaces within the trough, all substantially as and for the purpose set forth.

784,483. DEVICE FOR TESTING GAS-PIPES. MARTIN J. ERK, Binghamton, N. Y. Filed Oct. 25, 1904. Serial No. 229,867.

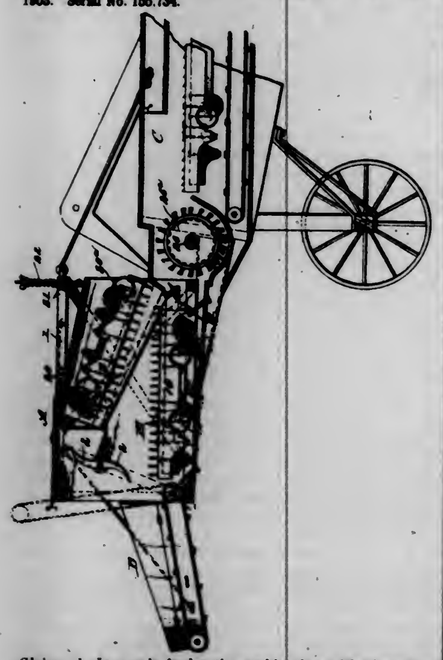
Claim.—1. A device for testing gas-pipes, joints and fittings, comprising a receptacle open at the top and receiving the part to be so tested, said receptacle containing a quantity of liquid, as water, sufficient to envelop the inclosed pipe or joint and having flexible open ends to wrap upon the pipe.



2. A device for testing gas-pipes, joints and fittings, said device consisting of a trough open at the top and having flexible flaps at its ends to wrap around the adjacent portions of the pipe, said trough partially enveloping the part to be tested and containing a liquid as water, which envelops the part of the pipe within the trough.

3. A device for testing portions of a gas-pipe system, said device comprising main and branch troughs united to form a receptacle which is open at the top to receive the portion of the pipe to be tested, the outer ends of said troughs having flexible flaps to wrap around the adjacent portions of the pipe to retain liquid in the receptacle, said receptacle containing a liquid, as water, which envelops the inclosed pipe.

784,484. **BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES.** FRANK FREDERN, Taylors Falls, Minn. Filed May 5, 1903. Serial No. 155,734.



Claim.—1. In a grain-feeder, the combination, with a lower jaw of an upper jaw consisting of inverted rakes, a transverse rotary shaft whereon the rakes are pivoted so as to swing vertically, an inclosing frame in which the rakes are arranged, and which is also pivoted on the same shaft, a transverse shaft arranged counter to the first-named one and journaled in the said frame, and an elastic and adjustable suspension device connected with the free end of said frame, substantially as shown and for the purpose specified.

2. In a grain-feeder, the combination, with the upper jaw pivoted and adapted to swing vertically and the hood inclosing the same and pivoted on the same center, of rods connected with the hood at its free end and passing through a fixed portion of the casing, and springs and nuts applied to said rods, as and for the purpose specified.

3. In a grain-feeder, the combination, with the threshing-cylinder, a rotary band-cutter operatively connected therewith, an upper jaw comprising devices for moving the grain forward and rotary shafts for imparting motion thereto, of an automatic governor consisting of automatically-expansible pulleys and a belt connecting the same, the said pulleys being applied to the extended shafts of the band-cutter and the upper jaw, substantially as shown and described.

4. In a grain-feeder, the combination, with a threshing-cylinder, of a band-cutter operatively connected therewith, and an upper jaw comprising devices adapted to feed the grain forward, the band-cutter having an extended shaft which is feathered as described, and the jaw having an extended shaft provided with clutches which rotate therewith, of expansible pulleys applied to the respective shafts, the pulley of the band-shaft comprising two cones which are adapted to slide endwise but rotate therewith, a compression-spring interposed between the cones, a centrifugal-governor attachment adapted to draw the cones together corresponding to the speed of rotation, the opposite pulley being rotatable and also slidable on the jaw-shaft and provided with a governor attachment tending to draw the cones apart as the speed of rotation increases, clutches connected with the cones of the last-named pulley and adapted to engage the clutches fixed on the jaw-shaft, and levers which connect the cones of the respective pulleys, the same being pivoted at intermediate points so that the expansion of the driving-pulley effects reduction of the diameter of the opposite pulley, and duly engages the same with the shaft-clutches so that rotation is imparted from the driving-pulley to the jaw-shaft when the rate of speed suffices, substantially as shown and described.

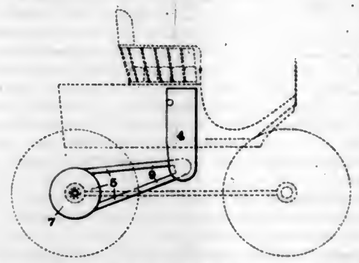
5. In a grain-feeder, the combination, of the lower jaw comprising devices for feeding the grain forward and a rotary shaft imparting motion thereto and provided with a friction-disk, the upper jaw comprising devices for feeding the grain forward and a rotary shaft for imparting motion thereto, the said jaw being pivoted at its inner end and adapted to swing vertically at its outer end, a counter-shaft arranged at such outer end, and means for operatively connecting said shaft with the aforesaid friction-disk, the same comprising a rotary shaft which is geared with the jaw-shaft and provided at its opposite end with a friction-roller which is adapted to work in contact with the face of said disk and for adjustment toward and from the axis thereof according to the forward adjustment of the upper jaw, substantially as shown and described.

6. In a grain-feeder, the combination, with the lower jaw comprising a series of toothed bars and means for imparting vertical and endwise movement thereto the same consisting of parallel shafts one of which is provided with a friction-disk, of the upper jaw similarly composed of toothed bars and means for actuating them, the said bars being pivoted at their inner ends and adapted to swing vertically at their outer ends, a transverse counter-shaft arranged and operatively connected with their outer ends, and means for connecting such shaft with the shaft of the lower rakes, the same comprising parallel shafts having bevel-gears meshing with a corresponding gear on the upper rake-shaft, and friction-rollers applied to the lower ends of said shafts and engaging the disk of the lower rake-shaft, substantially as shown and described.

7. The combination with the upper jaw, having an extended driving-shaft provided with a double bevel-gear and the lower jaw having an extended driven shaft provided with a detachable disk, of a governor attachment comprising parallel shafts geared with the shaft of the upper jaw, two friction-rollers on said parallel shafts working on the faces of the said disk, and a device connected with the hubs of said rollers for adjusting the latter on their shafts, as and for the purpose specified.

8. The combination, with the upper jaw and its extended shaft provided with a gear and the lower jaw and its extended shaft provided with a friction-disk, of an interposed governor attachment comprising parallel shafts which are geared with the shaft of the upper jaw, and friction-rollers engaging the said disk, a bracket fixed to the frame in which the upper jaw is arranged, a movable bearing for one of said shafts, and means for adjusting said bearing toward and from the opposite shaft, for the purpose of varying the pressure of the friction-rollers on the disk, substantially as shown and described.

784,485. **MOTOR-VEHICLE.** WILLIAM L. GARRELS, St. Louis, and CLINTON KIMBALL, Kirkwood, Mo. Filed Jan. 17, 1900. Serial No. 1,741.



Claim.—1. A motor-vehicle comprising a body, a motor carried thereby, a divided rear axle operatively connected to said motor to be driven thereby, a compensating gear in said connecting devices and between the sections of said axle, and a gear-casing comprising a central portion incasing said compensating gear and tubular extensions rigidly fixed thereto for incasing the axle-sections and a portion extending from said central portion to said motor for incasing the power-transmitting mechanism, said casing being swiveled to and forming part of the running-gear, to permit the parts connecting said motor to said axle to conform to the position of said body and being connected to said motor by means of an intervening universal joint, substantially as described.

2. A gear-case for the actuating mechanism of motor-vehicles, comprising two members and an intervening universal joint, substantially as described.

3. A gear-case for the actuating mechanism of motor-vehicles comprising a member mounted on the vehicle-body and adapted to incase the motor, and a member mounted on the running-gear and forming part thereof, and a universal joint between said members, substantially as described.

4. A gear-case for the actuating mechanism of motor-vehicles comprising a member mounted on the vehicle-body and adapted to incase the motor, and a member swiveled to the running-gear and forming part thereof, and a universal joint between said members, substantially as described.

5. A gear-case for the actuating mechanism of motor-vehicles comprising a member mounted on the vehicle-body and adapted to incase the motor, and a member mounted on the running-gear and forming part thereof, said last-mentioned member having a ball-and-socket connection with said first-mentioned member or with the frame of the motor incased thereby, substantially as and for the purpose set forth.

6. In a motor-vehicle, a case for inclosing the power-transmitting mechanism, and a universal joint for said case, said case being arranged to protect the mechanism and said joint being arranged to prevent flexure of the parts of the case, substantially as described.

7. In a motor-vehicle, a chain-case comprising two members operatively connected to a motor-driven sprocket and to a sprocket to be driven thereby, and a universal joint between said members, substantially as described.

8. In a motor-vehicle, a chain-case, connections therefor to a motor-driven sprocket and to a sprocket to be driven thereby, said connections comprising a swivel-joint and a universal joint, substantially as described.

9. In a motor-vehicle, an adjustable chain-case operatively connected to the motor-sprocket and to a sprocket to be driven thereby, said case being adapted to act as a compression member, substantially as described.

10. A chain-case comprising a tubular frame and a threaded tubular sleeve for connecting the parts thereof, said sleeve being adapted to lengthen or shorten said case, substantially as and for the purpose set forth.

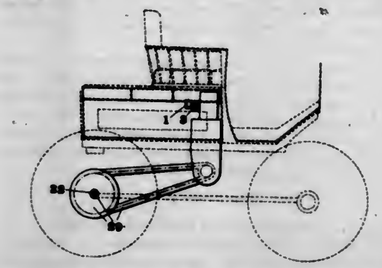
11. In a motor-vehicle a chain-case comprising a tubular frame having an elongated slot therein and a cover for said slot, said frame being adapted to act as a compression member, substantially as described.

12. In a motor-vehicle a chain-case comprising a tubular frame having an elongated slot therein and a cover therefor consisting of a sheet of resilient metal adapted to fit therein and having extensions for clamping the frame, substantially as described.

13. In a motor-vehicle, provided with driving mechanism and brake mechanism, a case for said mechanisms, said case having ribs or portions extending close to the brake-drum to coöperate in stripping the brake-band from the brake-drum, substantially as described.

14. A motor-vehicle having a chain-driven axle, a casing for said axle, said vehicle comprising a member extending from said axle-casing to the motor shaft or frame and inclosing said chain, said member comprising means for adjusting the length thereof and said motor being mounted to permit such adjustment without flexing the parts thereof, substantially as described.

784,486. **MOTOR-VEHICLE.** WILLIAM L. GARRELS, St. Louis, and CLINTON KIMBALL, Kirkwood, Mo. Filed July 7, 1900. Serial No. 22,810.



Claim.—1. In a motor-vehicle, a driving-motor pivotally mounted on the vehicle-body and operatively connected to an axle of said vehicle, a beam constituting part of the running-gear, and a strut having a spherical socket at its end adapted to fit over a spherical portion of the motor frame or casing, and thereby constitute a ball-and-socket joint, said strut being also pivotally connected to the running-gear to oscillate thereon, substantially as described.

2. In a motor-vehicle, a driving-motor pivotally mounted on the vehicle-body and operatively connected to an axle of said vehicle, a rigid casing for said axle extending from side bar to side bar and constituting part of the running-gear, and a strut extending from the motor frame or casing to said axle-case and having a universal connection therewith, substantially as described.

3. In a motor-vehicle, a driving-motor pivotally mounted on the vehicle-body and operatively connected to an axle of said vehicle, a rigid casing for said axle constituting part of the running-gear, and a casing for the mechanism connecting said motor to said axle, said last-mentioned casing constituting a strut and being universally connected to the motor frame or casing and to the axle-casing respectively, substantially as described.

4. In a motor-vehicle, a driving-motor pivotally mounted on the vehicle-body, a chain for transmitting power from said motor to the driving-axle of said vehicle, a casing for said chain extending from the frame or casing of said motor to the running-gear, and pivotally connected to one and universally connected to the other, said chain-case constituting a strut for maintaining the distance between the driving-shaft and the axle constant, substantially as described.

5. In a motor-vehicle, a driving-motor pivotally mounted on the vehicle-body, a chain for transmitting power from said motor to the driving-axle of said vehicle, an adjustable case for said chain extending from the frame or casing of said motor to the running-gear, and pivotally or universally connected to them respectively, said adjustable chain-case constituting a strut for maintaining the distance between the driving-shaft and the axle constant, substantially as described.

6. In a motor-vehicle, a driving-motor pivotally mounted on the vehicle-body, a chain for transmitting power from said motor to the driving-axle of said vehicle, a casing for said chain extending from the frame or casing of said motor to the running-gear, and pivotally connected to one and universally to the other, said chain-case constituting a strut for maintaining the distance between the driving-shaft and the axle constant, said strut consisting of tubular sections, each section having a threaded sleeve working therein, said sleeve being arranged to telescope in a second sleeve having a shoulder thereon, and a third sleeve threaded to work on a thread on one of said first-mentioned sleeves, and having a flange adapted to interlock with a shoulder on one of said sleeves, substantially as described.

7. In a motor-vehicle, a strut operatively connected to the motor-sprocket and to a sprocket to be driven thereby and a chain-case com-

prising telescoping members operatively connected to said sprockets, substantially as described.

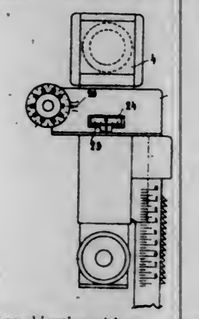
8. In a motor-vehicle, a steam-engine pivotally suspended on hollow trunnions adapted to communicate with the admission and exhaust ports of said engine respectively, said engine being operatively connected to the driving-axle, and a casing for the power-transmitting mechanism, said casing being arranged to position the engine, substantially as described.

9. In a motor-vehicle, a steam-engine pivotally suspended on hollow trunnions connected with the steam and exhaust ports of said engine respectively, the cylinders of said engine being made in two castings arranged to form the valve-chest, substantially as described.

10. In a motor-vehicle, an engine pivotally suspended on hollow trunnions connecting with the steam and exhaust ports of said engine respectively, the cylinders of said engine being made in two castings adapted to form the valve-chest, and one of said castings containing the entire passage-way from the steam-pipe to the steam-chest, substantially as described.

11. In a motor-vehicle, a steam-engine pivotally suspended from hollow trunnions connecting with the steam-port and exhaust-port of said engine, the connection on the steam side consisting of a flanged steam-pipe bearing against a shoulder in a socket formed in one of the engine-castings, a hollow nut working in a thread in said socket and bearing against said flange, and means for packing said joint, substantially as described.

784,487. **TANGENT-SCALE TELESCOPE FOR GUNS.** CARL P. GOERZ, Friedenau, and HEINRICH KORRODI, Eisenach, Germany, assignors to The Firm of Optische Anstalt C. P. Goerz Aktiengesellschaft, Friedenau, Germany. Filed Jan. 28, 1903. Serial No. 140,962.



Claim.—1. In combination with a tangent-scale for guns, a telescopic attachment mounted thereon, the same comprising a pivotally-arranged telescope, and means for mounting the same on said scale, said telescope being provided with a reflecting means adapted to sweep the horizon in the rotation of the telescope and reflect the rays coming from any point of the horizon always in the same direction, so that the same can be seen by the pointer without his changing his position, substantially as set forth.

2. In combination with a tangent-scale for guns, a telescopic attachment mounted thereon, the same comprising a pivotally-arranged telescope, and means for mounting the same on said scale, said telescope being provided with a reflecting means adapted to sweep the horizon in the rotation of the telescope and reflect the rays coming from any point of the horizon always in the same direction, so that the same can be seen by the pointer without his changing his position, and an adjusting device for showing the position of the telescope and reflector at any time, substantially as set forth.

3. In combination with a tangent-scale telescope for guns, a pivotally-arranged reflector sweeping, in its rotation, the horizon, a further system of reflectors inserted into the path of the rays coming from the rotating reflector, the latter system of reflectors possessing at least one reflecting-face pivoted on its axis, said axis being parallel to the direction of the axial ray in the air-space traversed by it immediately before its falling upon the reflecting-face, substantially as set forth.

4. In combination with a tangent-scale telescope for guns a pivotally-arranged reflector sweeping in its rotation the horizon, an index device showing the position of the reflector, a further system of reflectors inserted into the path of the rays coming from the rotating reflector, the latter system of reflectors possessing at least one reflecting-face pivotal on an axis, said axis being parallel to the direction of the axial ray in the air-space traversed by it immediately before it falling upon the reflecting-face, substantially as set forth.

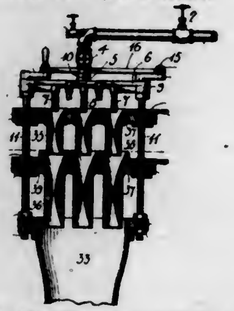
5. In combination with a tangent-scale telescope for guns, a pivotally-arranged reflector sweeping, in its rotation, the horizon and reflecting the rays coming from any point of the horizon always in the same direction, a rotating prism inserted into the path of the rays coming from the rotating reflector, in such a manner that the axial ray, after being reflected at least once, leaves the prism in a direction parallel to its direction of incidence, the axis on which the prism turns being parallel to the direction of the ineidence and the emergency of the axial ray, and the prism being coupled with the rotating reflector in such a manner that, on the latter being rotated, said prism will be likewise and automatically rotated, substantially as set forth.

6. In combination with a tangent-scale telescope for guns a pivotally-arranged reflector, sweeping in its rotation the horizon and reflecting the rays coming from any point of the horizon always in the same direction, an index device showing at any time the position of the reflector, a rotating prism inserted into the path of the rays coming from the rotating reflector, in such a manner that the axial ray, after being reflected at least once, leaves the prism in a direction parallel to its direction of incidence, the axis on which the prism turns being parallel to the direction of the incidence and the emergency of the axial ray and the prism being coupled with the rotating reflector in such a manner that, on the latter being rotated, said prism be likewise and automatically rotated with half the circular velocity of the reflector, substantially as set forth.

7. In combination with a tangent-scale for guns a telescope with a pivotally-arranged reflector sweeping in its rotation the horizon, a bore in the pointing-arc of the gun into which the telescope can be placed and from which it can be easily removed and a support on the pointing-arc for holding an adjustable notch, substantially as and for the purpose set forth.

8. The combination, with a tangent-scale for guns, of reflecting means mounted thereon to sweep the horizon and reflect the rays coming from any point of the horizon always in the same direction, so that the same can be seen by the pointer without changing his position.

784,488. **STEAM-BLOWER.** CHARLES E. GOCOINS, Brooklyn, N. Y. Filed May 20, 1904. Serial No. 208,898.



Claim.—1. In a steam-blower, the combination with a movable blast-pipe, of a jet-frame and jet-pipes provided with nozzles, means for serving steam to said jet-pipes, a movable nipple-seating plate, nipples seated upon said plate and supported thereby in alinement with the said nozzles, and adjusting devices whereby the said plate and nipples and the said blast-pipe may be adjusted toward or from said nozzles and with respect to each other.

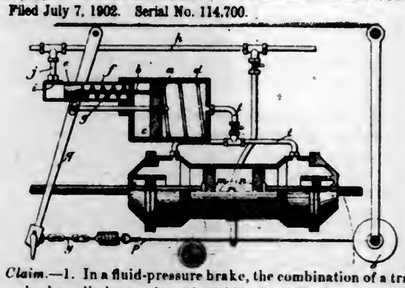
2. In a steam-blower, the combination with a movable blast-pipe, of a jet-frame and jet-pipes provided with nozzles, means for serving steam to said jet-pipes, a movable nipple-seating plate, nipples seated upon said plate and supported thereby in alinement with the said nozzles, adjusting devices whereby the said movable plate and nipples and the said movable blast-pipe may be adjusted toward or from said nozzles and with respect to each other, and locking means adapted to place one of said movable elements in and out of engagement with said adjusting devices.

3. In a steam-blower, the combination with a blast-pipe, of a jet-frame and jet-pipes provided with nozzles, means for serving steam to said jet-pipes, movable nipple-seating plates, nipples seated upon said plates and supported thereby in alinement with the said nozzles, adjusting devices whereby said movable plates and nipples may be adjusted toward or from said nozzles and blast-pipe and with respect to each other, and locking means adapted to place said movable plates in and out of engagement with said adjusting devices.

4. In a steam-blower, the combination with a flanged blast-pipe, of a jet-frame and jet-pipes provided with nozzles, movable nipple-seating plates, nipples seated upon said plates and supported thereby in alinement with said nozzles, movable clamping-nuts, said plates having orifices adapted to receive said clamping-nut as described, screw-rods passing through said jet-frame and nuts and through the flange of said blast-pipe, devices for turning the screw-rods, and locking means borne by said plates whereby said nuts are held against revolution and said plates adjusted.

5. In a steam-blower, the combination with nipple-seating plates, of revoluble clamping-nuts having the nut-form projecting tops 23, said plates having orifices to receive said nuts as described, screw-rods passing through said nuts, and movable annular locking-rings borne by said plates and having slots arranged to engage said tops 23 of the nuts whereby the revolution of the clamping-nuts is permitted and prevented and said plates adjusted.

784,489. **RAILWAY-BRAKE.** PAUL HALLOT, Vincennes, France. Filed July 7, 1902. Serial No. 114,700.



Claim.—1. In a fluid-pressure brake, the combination of a train-pipe, a brake-cylinder, a piston in said brake-cylinder, an air-compressor connected with said brake-cylinder, a piston in said air-compressor, a frictional device adapted to be placed in contact with a movable part of the vehicle, said frictional device being connected with the piston of said air-compressor, and means for establishing communication between the opposite ends of said air-compressor.

2. In a fluid-pressure brake, the combination of a brake-cylinder, a piston in said brake-cylinder, a train-pipe connected with said brake-cylinder on one side of said piston, an air-compressor connected with said brake-cylinder on the opposite side of said brake-piston, a piston in said air-compressor, a frictional device adapted to be placed in contact with a movable part of the vehicle, said frictional device being connected with the piston of said air-compressor, and means for establishing communication between the opposite ends of said air-compressor.

3. In a fluid-pressure brake, the combination of a brake-cylinder, a piston in said brake-cylinder, a train-pipe connected with said brake-cylinder on one side of said piston, an air-compressor connected with said brake-cylinder on the opposite side of said piston, a piston in said air-compressor, a friction-pulley adapted to be placed in contact with a movable part of the vehicle, a flexible element adapted to be wound on said friction-pulley, said flexible element being connected with the piston of said air-compressor, and means for establishing communication between the opposite ends of said air-compressor.

4. In a fluid-pressure brake, the combination of a brake-cylinder, a piston in said brake-cylinder, a train-pipe connected with said brake-cylinder on one side of said piston, an air-compressor connected with said brake-cylinder on the opposite side of said piston, a piston in said air-compressor, a frictional device adapted to be placed in contact with a movable part of the vehicle, said frictional device being connected with the piston of said air-compressor, an auxiliary cylinder connected with said air-compressor, a piston in said auxiliary cylinder, the stem of said piston being conically enlarged and passing through the piston of said air-compressor, and a connection between said auxiliary cylinder and the train-pipe system of the train.

5. In a fluid-pressure brake, the combination of a brake-cylinder, a piston in said brake-cylinder, a train-pipe connected with said brake-cylinder on one side of said piston, an air-compressor connected with said brake-cylinder on the opposite side of said piston, a piston in said air-compressor, a lever connected with the piston of said air-compressor, a flexible element connected with said lever, a friction-pulley adapted to be placed in contact with a movable part of the vehicle, said flexible element being adapted to be wound on said frictional pulley, an auxiliary cylinder connected with said air-compressor, a piston in said auxiliary cylinder, the stem of said piston being conically enlarged and extending through a conical aperture in the piston of said air-compressor, and a communication between said auxiliary cylinder and said train-pipe.

6. In a fluid-pressure brake, the combination of a brake-cylinder, a pair of pistons in said brake-cylinder adapted to operate in opposite directions, a train-pipe connected with said brake-cylinder between the pistons therein, an air-compressor, a communication between said air-compressor and each end of said brake-cylinder, a piston in said air-compressor, a lever connected with the piston of said air-compressor, a flexible element connected with said lever, a friction-pulley adapted to be placed in contact with a movable part of the vehicle, said flexible element adapted to be wound on said air-compressor, a piston in said auxiliary cylinder, the stem of said piston being conically enlarged and extending through a conical aperture in the piston of said air-compressor, and a communication between said auxiliary cylinder and said train-pipe.

7. In a fluid-pressure brake, a compressor comprising a cylinder and a piston, for automatically increasing the fluid-pressure by which the brakes are applied, and means for automatically establishing communication between the opposite ends of said compressor to reduce the pressure on the brakes according to the reduction of the rotary speed of the wheels.

8. In a fluid-pressure brake, a compressor comprising a cylinder and a piston, for automatically increasing the fluid-pressure by which the brakes are applied, and a balancing-valve for automatically establishing communication between the opposite ends of said compressor to reduce the pressure on said brakes.

9. In a fluid-pressure brake, a compressor comprising a cylinder and a piston, for automatically increasing the fluid-pressure by which the brakes are applied, and a balancing-valve comprising an auxiliary cylinder and piston for automatically establishing communication between the opposite ends of said air-compressor to reduce the pressure on said brakes.

784,490. **ADJUSTABLE SHADE-BRACKET.** CHRISTIAN HEILRATH, Sacramento, Cal. Filed June 24, 1904. Serial No. 214,049.



Claim.—1. An adjustable shade-bracket having a slotted arm, said arm being provided at opposite sides of its slot with projecting longitudinal edges arranged in pairs, a fastening device arranged in the slot, and means pivotally mounted on the fastening device for engaging the arm to force the said edges into the supporting-surface, said means being also arranged to release the arm for adjusting the bracket.

2. An adjustable shade-bracket provided with an arm having a slot, a fastening device arranged in the slot, and a cam-lever pivoted on the fastening device and having a substantially wedge-shaped head arranged to be turned transversely or longitudinally of the slot to clamp and release the bracket.

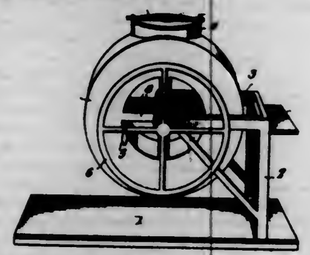
3. An adjustable shade-bracket provided with a slotted arm having projecting edges at opposite sides of the slot, a cam-lever provided with a head bent to form an approximately wedge-shaped portion, and a pivot passing through the head and through the slot of the arm, whereby the head is adapted either to extend into the slot or engage the arm at opposite sides of the same.

4. An adjustable shade-bracket provided with an arm having a slot, a lever provided at one end with a head having an approximately wedge-shaped portion, and a pivot passing through the head and through the slot of the arm to permit the head to be turned longitudinally or transversely of the arm, said lever being disposed longitudinally of the arm when the head is in engagement with the same.

784,491. **WASHING-MACHINE.** DANIEL E. HOWARD and ARTHUR S. HALL, Saguache, Colo. Filed May 14, 1904. Serial No. 207,972.

Claim.—1. In a washing-machine, the combination with a platform having standards thereon, braced arms on the standards,

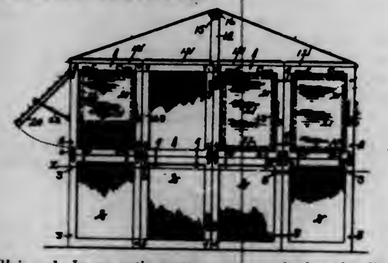
and a shaft journaled within the ends of the arms; of a corrugated tubular ring surrounding the shaft, spokes connecting the ring and shaft, and means for rotating the shaft.



2. In a washing-machine, the combination with a platform having standards thereon, and arms extending from the standards; of a shaft journaled within the arms, a tubular ring surrounding the shaft, said ring being corrugated along the radii thereof, spokes connecting the ring and shaft, and means for rotating the shaft.

3. In a washing-machine, the combination with a platform having standards thereon, and arms extending from the standards; of a shaft revolubly mounted in the arms, a tubular ring having a normally closed inlet and surrounding and secured to the shaft, said ring being corrugated along its radii.

784,492. OUTING-COTTAGE. WILLIAM W. KEEN, Richmond, Ind., assignor of one-half to Joseph W. McGriff, Richmond, Ind. Filed Oct. 10, 1904. Serial No. 227,831.



Claim.—1. In an outing-cottage composed of a plurality of double vertical sections each upper and lower section being hinged together, means for connecting the sections together, a plurality of horizontal sections forming a top and secured to the vertical sections, a gable-roof of fabric for said structure, and an awning-frame hinged to each of the upper vertical sections, all substantially as shown and described.

2. An outing-cottage formed of side walls consisting of upper and lower screen-sections hinged together disposed vertically and forming an inclosure, a plurality of top screen-sections covering said inclosure and secured to the upper edges of said upper side sections, an upper and a lower side section secured together and forming a door, a ridge-pole extending across the center and above the top sections, a gabled canvas roof extending over the ridge-pole and having its edges buttoned to the screen-sections, and an awning-frame hinged to each upper side section with means for supporting it extended, all substantially as shown and described.

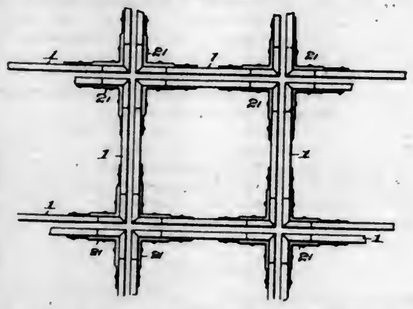
784,493. INTERCHANGEABLE RAILROAD-CROSSING FROG. LOUIS B. KELLER, Oil City, Pa. Filed Oct. 20, 1904. Serial No. 229,295.

Claim.—1. A shoe of the class described, comprising a tread portion, parallel, integral webs extending therefrom, and said shoe having one of its ends cut at right angles to the body portion thereof and its opposite end cut at an oblique angle.

2. A shoe of the class described, comprising a tread portion, integral extensions projecting from said tread portion in the same direction, and said tread portion provided with a beveled end.

3. A shoe, comprising a tread portion, a pair of extensions having apertures projecting from said tread portion, said shoe having one end cut at right angles and the opposite end at an oblique angle, and a beveled portion formed upon the end of the tread cut at right angles.

4. A railroad-crossing frog of the class described, comprising four crossing-points, each crossing-point comprising a series of pairs of engaging rails, removable tread means positioned upon the rails of each pair, a center block secured to said rails of each point, and an angle-plate secured to each pair of rails.



5. In a device of the character described, the combination with crossing-tracks, of crossing-point structures, each crossing-point structure comprising a series of pairs of engaging rails, each rail having a portion of its tread removed, and a removable shoe positioned thereon.

6. In a device of the character described, the combination with crossing-tracks, of crossing-point structures, each crossing-point structure comprising a series of pairs of engaging rails, each rail having a portion of its tread removed, a removable shoe positioned upon the web of each rail, and means connecting all the pairs of rails together.

7. In a device of the character described, the combination of crossing-tracks provided with crossing-point structures, each point structure comprising a plurality of angled-rail structures, said rail structures comprising a base portion, removable shoes positioned upon said base portion, an angle-plate secured to each of the rail structures, and means connecting all of the rail structures of each point structure.

8. In a device of the character described, the combination of crossing-tracks, said crossing-tracks provided with crossing-point structures, each point structure comprising angled track structures, said track structures comprising engaging rails having their tread removed therefrom, a removable shoe positioned upon the web of the tread-removed portion of each rail, an angle-plate secured to each track structure, and a sectional center block secured to the rail structure of each point structure.

9. In a device of the character described, the combination of a plurality of crossing-tracks provided with crossing-point structures, each point structure comprising a plurality of parallel engaging rails, the rails in each pair secured at angles to each other, removable shoes positioned upon each pair of rails, a center block connecting the pairs of rails in each point structure, comprising detachable bars, one bar having a transverse notch formed upon its upper surface and a longitudinal channel extending throughout its entire length, and the other bar of the block having a transverse notch formed upon its under surface and a longitudinal channel extending the entire length thereof.

10. In a device of the character described, the combination of a plurality of crossing-tracks having crossing-point structures, each crossing-point structure comprising a plurality of angled track structures, each track structure comprising engaging rails, removable means positioned upon the web of the rails, a center block connecting the track structures, an angle-plate secured to each track structure, comprising an angled bar having end portions formed in different vertical planes from that in which the longitudinal central portion of the angle-plate is formed.

11. In a device of the character described, the combination of crossing-tracks, said crossing-tracks provided with crossing-point structures, each crossing-point structure comprising assembled track structures, said track structures comprising a pair of rails having their engaging ends cut at an oblique angle and a portion of their tread removed therefrom, a removable shoe positioned upon the web, and engaging the tread of the track, said shoe comprising a tread portion having parallel webs, said shoe having one end cut at an oblique angle, and means for connecting the track structures of each point structure.

12. In a device of the character described, the combination of crossing-tracks, said crossing-tracks provided with crossing-point structures, said crossing-point structures comprising connected angled track structures, said track structures comprising engaging rails, each rail having a portion of its tread removed and a transverse recess formed therein, a removable shoe positioned upon the web of the rail having its tread removed, said shoe comprising a tread portion having a beveled end and a plurality of parallel webs secured to said tread of the shoe.

13. In a device of the character described, the combination of tracks, said tracks provided with crossing-point structures, each crossing-point structure comprising engaging rails, said rails provided with removable shoes, and means connecting all of the rails in each point structure.

14. In a device of the character described, the combination of crossing-tracks, said tracks provided with crossing-point structures, each point structure comprising pairs of engaging rails, the rails in each pair having a portion of their tread removed, an integral extension projecting from the tread of each rail forming a recess, removable shoes adapted to be positioned upon the webs of the rails, each shoe comprising a tread portion provided with webs and having one end of its tread portion beveled, the beveled end of the tread of the shoe adapted to be positioned within the recess formed by the extension of the tread of the rail, a sectional center block secured to and connecting the pairs of rails of the point structure, the sections of said block having grooves extending the entire length thereof, and angle-plates secured to each pair of rails of the point structures, comprising an angular body portion having ends formed in different vertical planes from that in which the longitudinal portion is constructed.

15. The combination with tracks, of crossing-point structures connecting said tracks, each of said crossing-point structures comprising interchangeable shoes, a center block, and fastening and binding means assembled with said shoes and center block.

16. The combination with tracks, of crossing-point structures connecting said tracks, each crossing-point structure comprising removable shoes and reinforcing means positioned upon each side of said shoes and secured to the tracks.

17. A railroad-crossing frog, comprising crossing-tracks, a removable member comprising a tread portion and parallel, depending sides positioned upon each rail of said tracks, and fastening and binding means secured to the rails and removable members.

18. The combination with crossing-tracks, of pairs of adjoining removable members provided with tread portions positioned at an angle to each other upon the rails of said tracks.

19. In a device of the character described, the combination with crossing-tracks, of adjoining removable, angular tread portions provided with depending sides positioned upon the engaging ends of the rails of the track.

20. In combination, with tracks, of crossing-point structures connecting said tracks, each point structure comprising removable and interchangeable tread portions, and binding and fastening members secured to the sides of said tread portions and the rails.

21. The combination with crossing-tracks, of shoes positioned upon the adjoining ends of the rails, each of said shoes provided with an end formed at right angles to the body portion and the opposite end formed at an oblique angle to the same.

22. A shoe, comprising a body portion provided with ends formed at different angles thereto, and one end formed differently from the other end.

23. The combination with crossing-tracks, of removable tread members positioned upon the engaging ends of the rails of the tracks, each of said tread members provided with ends formed at different angles to the body portion, and binding and fastening means secured to the shoes and rails.

24. In a mechanism of the class described, the combination with tracks, of crossing-point structures connecting said tracks, each point structure comprising a center block, removable tread means positioned upon each point structure, and means for connecting said removable tread means and the center block.

25. In a device of the character described, the combination with tracks, of crossing-point structures connecting said tracks, each point structure comprising a center block, removable tread members assembled with said block, and fastening and binding means positioned upon the outside of said tread members.

26. In a mechanism of the class described, the combination with tracks, of crossing-point structures connecting said tracks, each point structure comprising removable tread means, a center block assembled with said tread means, said center block comprising a plurality of members, and angular members assembled with said tread means and center block.

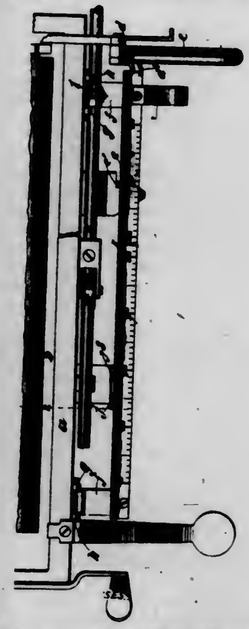
27. A railroad-crossing frog comprising a pair of crossing-tracks, said tracks provided with point structures, each of said point structures comprising a plurality of pairs of engaging shoes, a center block interposed between said pairs of shoes, and means for securing said shoes and center block in an assembled position.

28. In a mechanism of the class described, the combination with a pair of crossing-tracks, of a removable structure connecting said tracks at each crossing-point, said structure comprising interchangeable shoes, and a center block connecting part of said shoes.

29. The combination with a plurality of pairs of engaging rails, of removable, parallel shoes positioned upon the adjoining ends of said rails, and connecting means interposed between the parallel shoes.

30. A series of parallel pairs of rails, each pair of rails provided with removable, tread members, said members engaging similarly-constructed members positioned upon a rail or rails, removable members interposed between the tread members of each pair of rails, and binding and fastening means connecting said tread and removable members.

784,494. PARAGRAPHING-STOP FOR TYPE-WRITING MACHINES. CHARLES R. KELLY, Louisville, Ky. Filed Oct. 21, 1902. Serial No. 128,113.



Claim.—1. In a paragraphing-stop for type-writing machines, the combination of a front scale, an adjustable paragraphing-stop attached to the scale, a second coacting stop, the scale and coacting stop being respectively attached to the carriage and to a relative stationary fixed portion of the machine, spring-controlled means for holding one of said stops normally out of the path of the other stop, and means for depressing said stop into contacting position to arrest the return movement of the carriage.

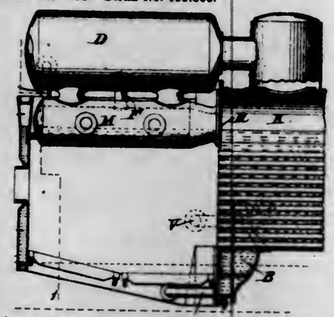
2. The combination of a type-writer carriage, a swinging bar attached to the front thereof adjacent to the carriage-controlling lever in position to be depressed by the thumb of the operator's hand grasping the carriage-controlling lever, a paragraphing-stop on said swinging bar and a coacting paragraphing-stop on a relatively fixed position of the machine, said stops being adapted to contact when the swinging bar is depressed and arrest the movement of the carriage at any predetermined point during its return movement to the right, substantially as described.

3. The combination in a type-writer, of a swinging bar attached to the front of the type-writer carriage, a sliding paragraphing-stop attached to said bar, a relatively fixed paragraphing-stop attached to the machine, a thumb-piece on said swinging bar adjacent to the

carriage-manipulating handle, whereby said bar may be depressed so as to bring the stop thereon in position to contact with the fixed stop by the thumb of the hand moving the carriage to the right.

4. In a type-writing machine, the combination of the platen, a laterally movable or swinging scale-bar attached to the front thereof, a spring for holding said scale-bar in forward or upward position, said scale-bar being adapted to be depressed or shifted by the thumb of the operator's hand grasping the carriage-manipulating handle, a laterally-adjustable paragraphing-stop on said bar, and a fixed stop attached to an adjacent part of the machine adapted to contact with the stop on the scale when the latter is depressed and the carriage moved to the right, all substantially as and for the purpose set forth.

784,495. **FIRE-BOX.** WILHELM KEMMERICH, Munich, Germany. Filed Mar. 24, 1904. Serial No. 199,866.



Claim.—1. Means for generating steam, comprising, in combination, a tubular boiler, a fire-box arranged adjacent thereto, double walls forming a vertical water-casing inclosing the furnace and grate at the sides and front, horizontally-disposed cylindrical vessels forming the top of the fire-box, passages communicating between the boiler and the water-casing and the top vessels, a steam dome or container, and passages leading from the water-heaters to the steam-container.

2. Means for generating steam, comprising, in combination, a boiler, a fire-box arranged adjacent thereto, a vertical water-casing forming the sides and the front of the fire-box, a water-containing vessel arranged above and forming the top of the fire-box, a water-receptacle lying to the rear of the fire-box beneath the end of the boiler and cooling the lower part of the tube-plate, and passages communicating between the boiler and the several water-containing vessels, the casing and the vessel forming the top of the fire-box.

3. Means for generating steam, comprising, in combination, a tubular boiler, a fire-box arranged adjacent thereto, double walls forming a vertical water-casing inclosing the furnace and grate at the sides and front, horizontally-disposed cylindrical vessels forming the top of the fire-box, a water-receptacle lying to the rear of the fire-box beneath the end of the boiler and cooling the lower part of the tube-plate, and passages communicating between the several water-containing vessels, the casing and the cylindrical top vessels.

4. Means for generating steam, comprising, in combination, a boiler, a fire-box arranged adjacent thereto, a vertical water-casing forming the sides and the front of the fire-box, a water-containing vessel arranged above and forming the top of the fire-box, a steam dome or container, a water-receptacle lying to the rear of the fire-box beneath the end of the tube-plate, and passages communicating between the boiler and the several water-containing vessels, the casing and the vessel forming the top of the fire-box and passages leading the steam from the water-heaters to the steam-container or to the boiler directly.

784,496. **HORSESHOE-CALK.** FREDERICK A. KUNER and THOMAS GREENEWEIGHT, Williamsport, Pa. Filed Sept. 23, 1904. Serial No. 226,672.



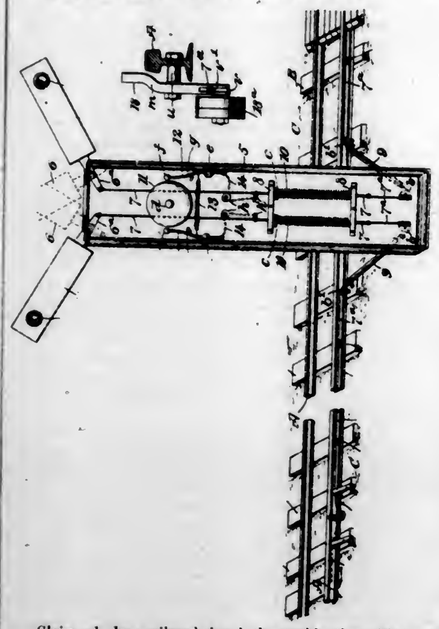
Claim.—1. A longitudinally fluted or corrugated hollow calk, tapered from its base to its point.

2. A horseshoe-calk having a threaded shank, a longitudinally-corrugated hollow body, substantially circular in cross-section, and open on one side, the inner wall of the calk being disposed on a curve.

3. A horseshoe-calk having a threaded shank and a tapered hollow body portion, longitudinally-corrugated and open on one side.

4. A horseshoe-calk having a threaded shank and a longitudinally-corrugated hollow body open at one side.

784,497. **AUTOMATIC RAILWAY-SIGNAL.** JOHN C. LAMBERT, Tonica, Ill. Filed June 30, 1904. Serial No. 214,739.



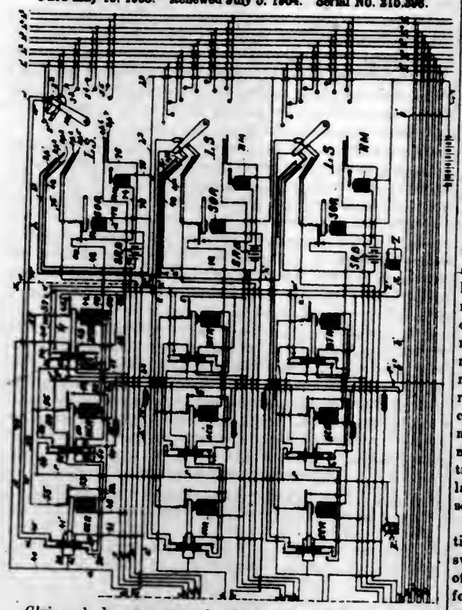
Claim.—1. In a railroad-signal, the combination with a track-rail, and a tripping-arm weighted at its lower end and pivoted above said end upon the track-rail so that the upper end of the arm normally projects above the track-rail, of a signaling device located at a distance from the tripping-arm, and a flexible connection extended between the weighted end of the tripping-arm and the signaling device, whereby the signal is operated when a car runs over the tripping-arm so as to move it.

2. In a railroad-signal, the combination with a track-rail, a tripping-arm weighted at the lower end thereof and pivoted on the track-rail above the weight, of a visual signal, an audible signal, means for supporting said signals in operative positions, and a flexible connection extended from the tripping-arm below its pivot and engaging the operative mechanism of the signaling devices, whereby the rocking movement of the tripping-arm due to impact of car-wheels thereon will simultaneously operate the visual signal and the audible signal.

3. In a railroad-signal, a visual signal, comprising a box-like support near a railroad-track, a semaphore-blade pivoted on the upper end of the box and having an arm extended therein, a spring-drawn flexible connection extended from said arm down in and out of the box and thence along the railroad-track, and a tripping-arm pivoted upon a track-rail and having a weighty lower end, the flexible connection having its extended end secured to the tripping-arm below its pivot, whereby the rocking of the arm will vibrate the semaphore-blade.

4. In a railroad-signal, the combination with a track-rail, a tripping-arm having a weighty lower end and pivoted upon the track-rail above its weighty end, the upper end of said arm projecting above the track-rail, a box inclosing the lower portion of the tripping-arm, and a bracket-arm extended into the box and having a perforation therein, of a flexible connection passing at one end through the perforation in the bracket-arm and secured by said end upon the tripping-arm below its pivot, said flexible connection extending along the railroad-track to a distant point, and supported visual and audible signal devices connected to the extension of the flexible connection, and both adapted for operation when the tripping-arm is rocked by impact of a car-wheel traversing the track-rail.

784,498. **AUTOMATIC-TELEPHONE-EXCHANGE SYSTEM.** JOHN K. NORSTROM and HENRY M. GRAIF, Chicago, Ill., assignors to Automatic Telephone Company, Chicago, Ill., a Corporation of Illinois. Filed May 18, 1903. Renewed July 5, 1904. Serial No. 215,206.



Claim.—1. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central group of line-selecting switches adapted and arranged to be instrumental in connecting for communication the lines of any two subscribers, switch-actuating means operatively associated with each switch, such means, for each switch, including a series of devices each adapted and arranged to control the corresponding switch, one of such devices in each series being operatively associated with each subscriber's line for control by the subscriber.

2. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central group of line-selecting switches, each adapted and arranged to be instrumental in connecting for communication the lines of any two subscribers, switch-actuating means, including a switch-circuit, and a series of switch-circuit-controlling devices, operatively associated with each switch, one of such circuit-controlling devices of each series being provided for and operatively associated with each subscriber's line, and means within the control of each subscriber for operating the switch-circuit-controlling devices associated with his line.

3. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central group of line-selecting switches each having terminal contact connections with all of the lines and each having also a movable member adapted to be brought into contact with the contact-terminals of any line, and adapted and arranged to be instrumental in connecting for communication the lines of any two subscribers, means, for each switch, for actuating the movable member thereof, and a series of devices associated with each switch adapted and arranged to control such actuating means, one such controlling device of each series being operatively associated with each subscriber's line for control from the subscriber's station.

4. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central group of line-selecting switches, each having terminal contact connections with all of the lines and each having also a movable member adapted to be brought into contact with the contact-terminals of any line, means associated with each switch for actuating the movable member thereof including a circuit and a series of circuit-controlling devices, one device in the series for each switch being operatively associated with each subscriber's line for control from the subscriber's station and each device comprising circuit-closing means, and normally open circuit connections between the line of each subscriber and the movable contact member of each line-selecting switch, each of said open circuits being adapted and arranged to be closed by the circuit-closing means of the switch-controlling device of the corresponding subscriber's line included in the actuating means of the corresponding switch upon the actuation thereof, to connect any subscriber's line to the movable contact member of any switch.

5. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central group of line-selecting switches, each switch having a set of terminals to which all of the lines are respectively connected, and a contact member adapted to make contact with the terminals of any line, means for establishing connection between any two lines through said switch-contact member including series of switch-controlling relays, one series being operatively associated with each switch and each series having a relay operatively associated with each subscriber's line for control from the subscriber's station, and suitable circuits for the relays.

6. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central set of line-selecting switches, each switch having contact-terminals connected with each line and a movable contact member adapted to contact with the terminals of any line, and adapted and arranged to be instrumental in connecting for communication the lines of any two subscribers, means associated with each switch for actuating the moving contact member thereof, such means for each switch comprising a series of relays each adapted to control the corresponding switch, one of such relays in each series being associated with each subscriber's line for control by the subscriber, means for placing the relays of one switch normally within the control of all subscribers, and means for automatically removing the relays of each actuated switch from the control of any other than the actuating subscriber, and placing the relays of the first then idle switch within the control of such other subscribers.

7. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a central set of line-selecting switches, each having a series of contact-points forming terminals of all the subscribers' lines, and a movable contact member, means for actuating said contact member including an electric circuit, a series of switch-controlling relays for each switch, each relay being arranged and adapted to control the circuit of the actuating means of its switch, means within the control of each subscriber for actuating a switch-controlling relay of each series, and means for automatically removing the relays of the first-actuated switch from the control of any other than the actuating subscriber and placing within the control of such other subscribers the relays of the first then idle switch.

8. In an automatic-telephone-exchange system, the combination of the lines of the subscribers, a plurality of switches each adapted and arranged to be instrumental in connecting the lines of any two subscribers, means for actuating each switch, a series of relays for each switch, each relay being adapted and arranged to control the actuating means for its switch, one relay of each series being provided for and operatively associated with the line of each subscriber, a normally open circuit normally including one series of relays, means within the control of each subscriber for closing said circuit to render operable the switch-actuating means of the switch corresponding with said series, and means controlled by the switch, for cutting out of the normally open circuit the series of relays of the first-actuated switch, and cutting into said normally open circuit the relays of the first then idle switch.

9. In an automatic-telephone-exchange system, the combination with the lines of the subscribers, of a plurality of line-selecting switches, each adapted and arranged to be instrumental in connecting for communication the lines of any two subscribers, actuating means for each switch including a normally open circuit, a series of switch-controlling relays associated with each switch, each relay being adapted to close said actuating-circuit, and a relay of each series being provided for the line of each subscriber, and an auxiliary circuit including means within the control of each subscriber for energizing the subscriber's switch-controlling relay of the series of relays associated with any switch whereby the actuation of the corresponding switch is brought within the control of the subscriber.

10. In a telephone-exchange system, the combination with the

lines of the subscribers, of a line-selecting switch having a series of contact-terminals to which the subscribers' lines are respectively connected, and a contact member adapted to make contact with any of said terminals, actuating means for said contact member including a normally open circuit having therein devices within the control of any subscriber, adapted and arranged when the circuit is closed to actuate the switch, a series of relays for said switch, one relay being provided for the line of each subscriber, circuit connections for the lines of the respective subscribers and the contact member of the switch open at the respective relays and adapted to be closed by the energizing of any relay to bring the switch within the control of the corresponding subscriber, a normally open relay-energizing circuit, and means within the control of each subscriber for closing said circuit through his corresponding relay.

11. In combination, a plurality of telephone-lines, a switch having contacts arranged to form the termini of the lines, and a contact member adapted to sweep over said termini, electromagnetic devices for operating said switch, a circuit for the electromagnetic devices, a series of relays, one for each subscriber's line, arranged to control the circuit of the switch-actuating electromagnet, connecting-wires arranged and adapted to be connected to any line by the actuation of its relay, complementary connecting-wires terminating in the contact member of the switch, a relay adapted when energized to connect said complementary wires, and means associated with the switch arranged to be brought into operation by the movement of the latter for bringing the circuit-closing relay within the control of the subscriber, whereby the talking-circuit may be established by the subscriber.

12. In combination, a plurality of telephone-lines a line-selecting switch provided with a contact member adapted and arranged to be instrumental in connecting for communication the lines of any two subscribers, means for operating said switch-contact member arranged for control by any subscriber, and means for connecting the line of the calling subscriber with the switch-contact member arranged to be operated subsequently to the switch-operating means.

13. In an automatic-telephone-exchange system, the combination with the subscribers' lines adapted to be connected, and means for supplying energy to said lines when connected for conversation, of means within the control of each subscriber for connecting any two subscribers' lines, a ringing-circuit including a ringing-generator adapted to be connected to the connected lines of the subscribers, whereby when the called line is busy and already energized current from the energized line is received in the ringing-circuit, a busy-test circuit including a signaling device and means for connecting said device with the line of the calling subscriber, comprising a relay having its coil arranged to receive current from the ringing-circuit, said relay being inoperable by the ringing-generator current, and operable by the current transmitted thereto when said ringing-circuit is connected to a busy line.

784,499. RACK. ARTHUR M. PADMORE, Lead, S. D. Filed July 8, 1904. Serial No. 215,809.



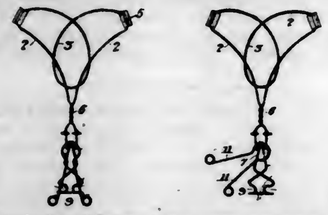
Claim.—1. A rest for table use comprising two side bars united at their ends and separated intermediate thereof, a cross-bar centrally and angularly disposed between said side bars, and notches in said cross-bar and in opposite ends of each side bar.

2. A rest for table use comprising side bars provided with end portions diagonally disposed to the longitudinal axis of the rest and having their upper sides notched near their diagonally-disposed ends, and a diagonal cross-bar connecting each side bar and also provided with notches in its upper side.

3. A rest for table use comprising a supporting-frame formed of two ogee-curved side bars with upwardly-opening notches in their opposite ends, and a cross-bar between said notched ends of the side bars and provided with similar notches.

4. A rest for table use comprising two curved bars united at their ends and separated at their centers, a cross-bar between said side bars having upstanding fingers, fingers being also formed on one end of each side bar diagonally opposite each other.

784,500. STOCKING-SUPPORTER. WALTER W. PALMER, Erie, Pa. Filed May 8, 1903. Serial No. 156,238.



Claim.—1. A stocking-supporter comprising a stocking-attaching means; a strap for encircling the leg of the wearer; and a wire having its lower portion secured to the stocking-attaching means, and its upper part looped to form the spring for the supporter, said strap being secured to said looped spring portion.

2. A stocking-supporter comprising a stocking-attaching means; a strap for encircling the leg of the wearer; and a wire having its ends secured to the stocking-attaching means; and a continuous wire looped above said ends forming the spring portion of the supporter, said strap being attached to said spring portion.

3. A stocking-supporter comprising a stocking-attaching means; a strap for encircling the leg of the wearer; and a wire having its lower portion secured to the stocking-attaching means, and its upper end formed into three interwoven loops, said strap being secured to two of said loops.

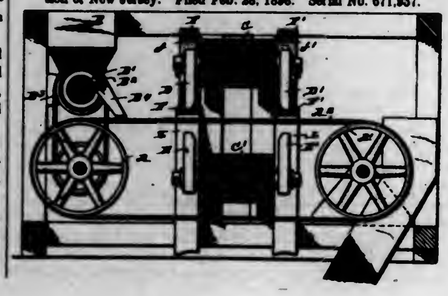
4. A stocking-supporter consisting of a non-elastic strap for encircling the leg, a single-wire flat structure formed into three loops, two of the loops extending in opposite directions and adapted, the one for fixed engagement and the other for removable engagement with the non-elastic strap, the third loop, which forms the spring, being interwoven with the other two loops and in the same plane, and means connected with the above structure for holding the fabric of the stocking.

784,501. UMBRELLA-HOLDER. GLENN A. ROBINSON, Genesee, Ill. Filed Feb. 25, 1904. Serial No. 195,273.



Claim.—An umbrella-holding device comprising a bracket having a laterally-extending vertical slot open at its outer end, an elastic fixed jaw bearing against the vertical side forming the inner end of the slot, an elastic pivoted jaw in the slot disposed in substantially the same horizontal plane with the inner jaw and the outer end of which projects beyond the outer side of the bracket, said pivoted jaw when its inner end is depressed serving to press the fixed jaw squarely against the vertical inner side of the slot, the said jaws having their inner opposing portions downwardly and outwardly beveled to facilitate the insertion of an umbrella-tip between them by an upward movement of the umbrella, and a spring to normally depress the inner end of the pivoted jaw, substantially as described.

784,502. MAGNETIC ORE-SEPARATOR. LEWIS G. ROWAND, Camden, N. J., assignor to Wetherill Separating Company, a Corporation of New Jersey. Filed Feb. 26, 1898. Serial No. 671,937.



Claim.—1. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, the upper magnet having the stronger magnetic field.

2. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity, with the conveyer-belt interposed, the belt being in closer proximity to the pole-pieces of the upper magnet than the pole-pieces of the lower magnet.

3. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, the upper magnet having the stronger magnetic field, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and the upper magnet.

4. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and the upper magnet said magnet being in closer proximity to the conveyer-belt than the lower magnet.

5. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, the upper magnet having the stronger magnetic field, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and one of the magnets, the pole-pieces of the upper magnet being tapered and extending along said discharging-belt.

6. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, the upper magnet having the stronger magnetic field, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and one of the magnets, the pole-pieces of the upper magnet, extending along said discharging-belt.

7. In a magnetic ore-separator, the combination of two electro-magnets of general U shape, each provided with a magnetizing coil or bobbin, and arranged so that their cores and pole-pieces will form a magnetic circuit, interrupted by two air-gaps, one of said electro-magnets being located above the other, and having tapered pole-pieces, and a conveyer-belt passing between the two magnets in close proximity to the pole-pieces of the upper magnet, and discharging-belts passing over the pole-pieces of the upper magnet at an angle to the conveyer-belt.

8. In a magnetic separator for weakly magnetic materials, the combination with a mechanical conveyer, and a superposed cross-conveyer, of a magnetic system having one pole above the conveyers and another pole below the conveyers, the magnetic field of said system increasing in strength upwardly and being substantially vertical.

9. In the magnetic system of a magnetic separator, and in combination with means for carrying the material to the magnetic field, an opposed pair of magnetic poles placed to form a vertical magnetic field which increases rapidly in strength upward, and acts substantially vertically.

10. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and one of the magnets, and a belt interposed between the conveyer-belt and the other magnet and extending parallel with the discharging-belt.

11. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and the magnet in closer proximity to the conveyer-belt, and a belt interposed between the conveyer-belt and the other magnet and extending parallel with the discharging-belt.

12. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, and a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and one of the magnets, and a belt interposed between the conveyer-belt and the other magnet and extending parallel with the discharging-belt, the pole-pieces of said magnets extending along said interposed belt and discharging-belt.

13. In a magnetic ore-separator, the combination of a conveyer-belt adapted to convey the material to be treated, of magnets above and below said belt, the pole-pieces of opposite magnets being in proximity to the conveyer-belt, a discharging-belt passing over and beyond and at an angle with the conveyer-belt, said discharging-belt being interposed between the conveyer-belt and one of the magnets, and a belt interposed between the conveyer-belt and the other magnet and extending parallel with the discharging-belt, the pole-pieces of said magnets extending along said interposed belt and discharging-belt.

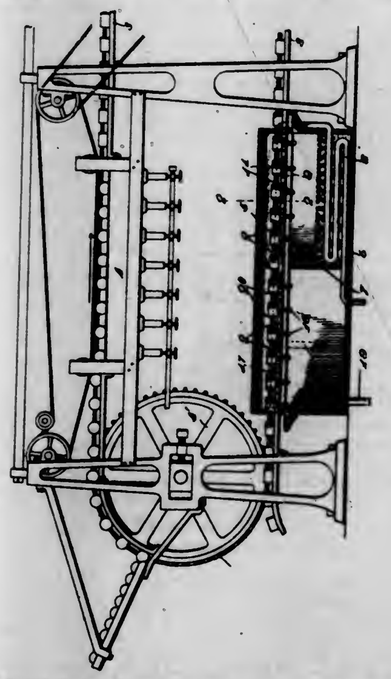
784,503. PRESERVATIVE FOR FOODS, &c. KARL RÜCKER and DANIEL J. PICKER, Berlin, Germany. Filed Apr. 4, 1904. Serial No. 201,583.

Claim.—1. A preservative compound comprising oil, shellac, resin and wax, substantially as described.

2. A preservative compound comprising oil, shellac, resin, wax and glycerin, substantially as set forth.

3. A preservative compound consisting of more than fifty per cent. of linseed-oil, substantially equal quantities of shellac and resin, and a mixture of wax and glycerin, substantially as described.

784,504. CAN-CLEANING MACHINE. WILLIAM RUBIN, South Omaha, Nebr. Original application filed Jan. 30, 1902, Serial No. 91,930. Divided and this application filed Nov. 14, 1903. Serial No. 181,209.



Claim.—1. In a can-cleansing mechanism, the combination with a track and a carrier for directing a can along the track; of a casing surrounding a portion of the carrier, a nozzle in the casing

for discharging upwardly from and beneath said track, means for supplying a cleansing fluid through said nozzle and into the casing, and means actuated by the cans moved by said carrier for controlling said supply.

2. In a can-cleansing mechanism, the combination with a track, means for moving a can along the same; of a nozzle arranged beneath said track and directing centrally toward the same, a pipe for supplying a cleansing fluid to said nozzle, a valve interposed in said pipe, a lever connected with said valve and extending into the path of movement of a can upon the track, and a casing inclosing a portion of the track and the nozzle and adapted to receive the can and the material discharged from the nozzle.

3. In a can-cleansing mechanism, the combination with a casing; of a track extending through the casing and partly inclosed thereby, means for moving the can along the track and through the casing, a cleansing-fluid-supply pipe, a nozzle carried thereby and within the casing, said nozzle being directed across the path of movement of said can, and means adapted to be actuated by the can for controlling the supply through said pipe and into the can and casing.

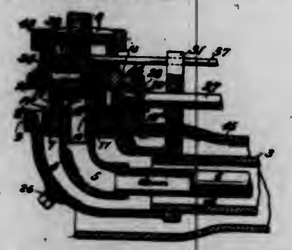
4. In a can-cleansing mechanism, the combination with a casing having closed cleaning and drying compartments therein, the cleaning-compartment forming a liquid-receptacle; of a can-carrier extending through the compartments, nozzles within the cleaning-compartment adapted to direct fluid into the cans and above the carrier, a supply-pipe connected to said nozzles and adapted to extend through the liquid in the cleaning-compartment, nozzles within the drying-compartment adapted to direct a drying agent into the cans and the drying-compartment, and means actuated by the cans for opening the nozzles for successively opening and closing the nozzles.

5. In a can-cleansing mechanism, the combination with a closed casing having a cleaning and drying compartment therein, said cleaning-compartment forming a liquid-receptacle; of means within the cleaning-compartment for converting the liquid into vapor, nozzles arranged in said compartment and connected to said means, nozzles within the drying-compartment, means for supplying a drying agent thereto, a can-carrier extending through the casing and above the nozzles, and means adapted to be actuated by cans on the carrier for successively opening and closing the nozzles.

6. In a can-cleansing mechanism, the combination with a casing having a cleaning and a drying compartment, and means for producing steam within the cleaning-compartment; of nozzles within said compartments, means for supplying steam to the nozzles in the cleaning-compartment, means for supplying a drying agent to the nozzles in the other compartment, a can-carrier extending through the compartments and above the nozzles, and means adapted to be actuated by cans on the carrier for successively opening the valves.

7. In a can-cleansing mechanism, the combination with a track and a carrier for conveying cans upon the track; of means for automatically subjecting all the surfaces of the cans to the action of steam and a drying agent successively.

784,505. INJECTOR-BURNER. ALLAN C. RUSH, Los Angeles, Cal. Filed Dec. 7, 1903. Serial No. 184,122.



Claim.—1. A body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, adjustable closure means for adjusting the length of the exit-outlets through said inner and outer channels and to limit the space across which the expansive fluid will pass, and operating means extending to within the reach of the operator for adjusting said first-named means while the burner is in operation.

2. A body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, adjustable means operatively positioned with respect to the inner channel and for regulating the vertical width of the outlet from said inner channel, an adjustable director arranged to close a portion of the outer channel and to limit the space across which the expansive fluid will pass, and means extending to within the reach of the operator for operating said adjustable means to regulate the vertical width of the expansive-medium discharge slot or outlet.

3. A body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel, means for supplying expansive fluid to the inner channel, adjustable means operatively positioned with respect to and for closing a portion of the outer channel and limiting the space across which the expansive fluid will pass, adjustable means operatively positioned with respect to the inner channel and for regulating the width of the outlet from said inner channel, and means extending from said body to within reach of the operator for operating said adjustable means.

4. An atomizer comprising a body having an upwardly-opening curved or arc-shaped channel, means for supplying liquid fuel to said channel, means for directing an expansive material outward radially across said channel above the same, detachable closure means for regulating the length of the portions of said channel from which liquid fuel may be emitted and across which expansive material may flow, and means whereby said detachable means may be adjusted to regulate the closure of said channel and the flow of expansive material across the same.

5. An atomizer comprising a body having an upwardly-opening curved or arc-shaped channel, means for supplying liquid fuel to said channel, means for directing an expansive material outwardly radially across the same, detachable means for closing a portion of said channel, and means for adjusting said detachable means to regulate the lateral closure of said channel and means for regulating the vertical width of the expansive-medium stream.

6. An atomizer comprising a body having an upwardly-opening channel, means for supplying liquid fuel to said channel, means for directing an expansive material outward radially across said channel above the same, detachable means for closing a portion of said channel, regulable means operatively positioned with respect to the expansive-medium discharge, and means extending out from said atomizer, for operating said last-named means to regulate the vertical width of the expansive-medium discharge.

7. An atomizer comprising a body having an upwardly-opening curved or arc-shaped channel, means for supplying liquid fuel thereto, means for directing an expansive material outward radially across the channel above the same, detachable means for closing a portion of said channel, regulable means operatively positioned with respect to the expansive-medium discharge, means extending out from said atomizer, for operating said last-named means to regulate the vertical width of the expansive-medium discharge, and means provided above said annular channel and spaced apart therefrom, for controlling the upward expansion of the expansive material as it flows radially across said channel.

8. An atomizer comprising a body having an upwardly-opening curved or arc-shaped channel, means for supplying liquid fuel thereto, means for directing an expansive material outward radially across the channel above the same, detachable means for closing a portion of said channel, regulable operating means for adjusting said detachable means, and means, provided above said annular channel and spaced apart therefrom, permitting the expansive material to expand upwardly as it flows radially across said channel.

9. A body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel, means for supplying an expansive material to the inner channel, adjustable means arranged to close a portion of the outer channel and to limit the space across which the expansive material will pass, operating means extending out from said body to within the reach of the operator for adjusting said adjustable means while the burner is in operation, and means provided above the outer channel and spaced apart therefrom, permitting the expansive material to expand away from said outer channel as it flows thereacross.

10. A body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel and an expansive material to the inner channel, means for closing a portion of the outer channel and to limit the space across which expansive material will flow, regulable means operatively positioned with respect to the expansive-medium discharge, means extending out from said atomizer to within reach of the operator, for operating said regulable means to vary the vertical width of discharge from said inner channel, and means, provided above the outer channel spaced apart therefrom, permitting the expansive material to expand away from said outer channel as it flows thereacross.

11. A body having two curved or arc-shaped channels and between said channels a flat face of considerable width, means for supplying liquid fuel to the outer channel, means for supplying expansive material to the inner channel, adjustably-arranged means above said inner channel extending across a portion of said flat face and terminating in a direction giving edge forming in connection with said face, a slot to direct the expansive material across the outer channel, and means extending out from said body for operating said adjustably-arranged means to vary the width of said expansive-material slot.

12. A body having two curved or arc-shaped channels and between said channels a flat face of considerable width, means for supplying liquid fuel to the outer channel, means for supplying an expansive material to the inner channel, adjustably-arranged means above said inner channel extending across a portion of said flat face and terminating in a direction giving edge forming in connection with said face, a slot to direct the expansive material across the outer channel, means extending out from said body for operating said adjustably-arranged means to vary the width of said expansive-material slot, and means provided above the outer channel and spaced apart therefrom, for controlling the upward expansion of the expansive material as it flows across the outer channel.

13. A body having two curved or arc-shaped channels and between said channels a flat face, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, means above said inner channel extending across a portion of said flat face to form therewith a slot to direct the expansive fluid across said outer channel, said means embracing an expansion-chamber, regulable means for closing said outer channel and said expansive-medium-discharge slot, means for operating said regulable means to vary the opening from said channel and slot.

14. A body having a curved or arc-shaped channel, means for supplying liquid fuel to said channel, means for directing an expansive fluid across said channel, a two-part segmental member having a bead to fit a portion of said channel and to limit the space across which the expansive fluid may pass, and means for moving the parts of said segmental member to vary the space across which the expansive fluid may pass.

15. A body having a curved or arc-shaped channel, the outer wall of which terminates in a plane surface, means for supplying liquid fuel to said channel, means for directing an expansive fluid outward radially of said channel in a plane parallel to said terminal plane, a two-part segmental member having a bead to fit a portion of said channel and to limit the space across which the expansive fluid may pass, and means for moving the parts of said segmental member to vary said space.

16. A body having two curved or arc-shaped channels, a hollow stem projecting upward therefrom and closed at the top and provided with openings leading into the inner channel, means for supplying liquid fuel to the outward channel, means for supplying an expansive fluid to the hollow stem, a deflector adjustably mounted on the hollow stem, a two-part segmental member, closing a portion of the outer channel, and means extending from said body to within reach of the operator for moving said parts of said segmental member in relation to each other to vary the discharge of expansive fluid across said channel.

17. An atomizer comprising a body having two discharge-slots, means for supplying oil through one of said slots, means for supplying expansive material through the other slot or duct, said slots being so arranged that the fuel and fluid material intermingle outside said slots, adjustable means for regulating the opening through said slots, and means extending from said atomizer to within the reach of the operator whereby said closing means may be operated to simultaneously vary the discharge from both said slots as desired.

18. An atomizer comprising a body having a curved or arc-shaped channel, means for supplying liquid fuel thereto, a hollow plug, means for supplying expansive fluid thereto, a sleeve adjustably mounted with relation to said plug and provided with a chamber at its lower end into which expansive fluid is communicated through ports in said plug, said body provided with a flat face between which and the lower end of said sleeve is formed an expansive-fluid-discharge slot adapted to discharge fluid across said annular channel, and means extending from said atomizer to within reach of the operator whereby said sleeve may be adjusted vertically to vary the width of said fluid-discharge slot.

19. An atomizer comprising a body having a curved or arc-shaped channel, means for supplying liquid fuel thereto, a hollow plug, means for supplying expansive fluid thereto, a sleeve adjustably mounted with relation to said plug and provided with a chamber at its lower end into which expansive fluid is communicated through ports in said plug, said body provided with a flat face between which and the lower edge of said sleeve is formed an expansive-fluid-discharge slot adapted to discharge fluid across said annular channel, said sleeve provided upon its periphery with gear-teeth, and an operating-rod extending from within reach of the operator into said atomizer, and provided at its inner end with a worm meshing with said teeth.

20. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, a hollow plug closed at its top and provided with a radial outlet, a member forming a chamber about said plug and into which the same communicates, a plane face being provided between the outer channel and said plug, said plane face lying in a plane higher than the plane of the outer plane face, the end of said member being spaced apart from said inner plane face to provide a discharge-slot, means for supplying liquid fuel to the outer channel, and means for supplying an expansive fluid to said plug.

21. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, a hollow plug closed at its top and provided with a radial outlet, a member forming a chamber about said plug and into which the same communicates, a plane face being provided between the outer channel and said plug, said plane face lying in a plane higher than the plane of the outer plane face, the end of said member being spaced apart from said inner plane face to provide a discharge-slot, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to said plug, and means extending out from said atomizer and operatively connected with said member for raising and lowering said member.

22. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, and a plane face inside said channel, said inside plane face being higher than the rim of the outside plane face, means for supplying liquid fuel to said channel, means for discharging expansive fluid over said inside plane face and across and above said annular channel, adjustable means for closing said outer channel, and means for operating said adjustable means to vary the width of the discharge.

23. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, and a plane face inside said channel higher than the outside plane face, means for supplying liquid fuel to said channel, means for discharging expansive fluid over said inner plane face and across and above said channel, regulable means for closing said outer channel and for cutting off the discharge of expansive fluid over the corresponding portion of said inner face, and means for operating said regulable means.

24. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, and a higher plane face inside said channel, a hollow plug extending up inside said inner plane face and provided with a radial port thereabove, an adjustable member surrounding said hollow plug and provided with an expansion-chamber into which said plug communicates, the lower end of said member spaced apart from said face and provided with a discharge-slot from said expansion-chamber over said inner face, regulable means closing said outer channel and said expansive-medium discharge-slot, and means for operating said regulable means.

25. An atomizer-body having a channel in its top, the outer wall of which is lower than the inner wall, means for supplying liquid fuel to the channel, a hollow plug, a sleeve screwed onto the plug and arranged to form a slot between itself and the said inner wall, said sleeve provided with an open-ended expansion-chamber into which said plug communicates above said slot, and means for supplying an expansive fluid to said hollow plug, and means for revolving said sleeve to vary said slot.

26. An atomizer-body having a channel in its top, the outer wall of which is lower than the inner wall, means for supplying liquid fuel to the channel, a hollow plug, a sleeve screwed onto the plug and arranged to form a slot between itself and the said inner wall, said sleeve provided with an open-ended expansion-chamber into which said plug communicates above said slot, means for supplying an expansive fluid to said hollow plug, means for revolving said sleeve to vary said slot, adjustable means for closing a portion of said slot, and means for adjusting said closure means.

27. An atomizer-body having a channel in its top, the outer wall of which is lower than the inner wall, means for supplying liquid fuel to the channel, a hollow plug, a sleeve screwed onto the plug and ar-

ranged to form a slot between itself and the said inner wall, said sleeve provided with an open-ended expansion-chamber into which said plug communicates above said slot, and means for supplying an expansive fluid to said hollow plug, means for revolving said sleeve to vary said slot, and a deflector above and spaced apart from said outer wall.

28. An atomizer-body having a channel in its top, the outer wall of which is lower than the inner wall, means for supplying liquid fuel to the channel, a hollow plug, a sleeve screwed onto the plug and arranged to form a slot between itself and the said inner wall, said sleeve provided with an open-ended expansion-chamber into which said plug communicates above said slot, means for supplying an expansive fluid to said hollow plug, means for revolving said sleeve to vary said slot, adjustable means for closing a portion of said slot, means for adjusting said closure means, and a deflector above and spaced apart from said outer wall.

29. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, and a plane face inside said channel, said inside plane face being higher than the rim of the outside plane face, means for supplying liquid fuel to said channel, means for discharging expansive liquid over said inside plane face and across and above said annular channel, adjustable means for closing said outer channel, means for operating said adjustable means to vary the width of the discharge, and an annular deflector above and spaced apart from said plane faces.

30. An atomizer comprising a body having a curved or arc-shaped channel and a plane face outside said channel, and a plane face inside said channel higher than the outside plane face, means for supplying liquid fuel so said channel, means for discharging expansive fluid over said inner plane face and across and above said channel, regulable means for closing said outer channel and for cutting off the discharge of expansive fluid over the corresponding portion of said inner face, means for operating said regulable means, and an annular deflector above and spaced apart from said plane faces.

31. An atomizer comprising a body having two discharge-slots, means for supplying oil through one of said slots, means for supplying expansive material through the other slot, said slots being so arranged that the fuel and fluid material intermingle outside said slots, adjustable means for closing said slots, means extending from said atomizer to within the reach of the operator whereby said closing means may be operated to simultaneously vary the discharge from said slots as desired, and an annular deflector arranged above and spaced apart from the outer discharge-slot.

32. A body having a curved or arc-shaped channel, means for supplying liquid fuel to said channel, means for directing an expansive fluid across said channel, a two-part segmental member having a bead to fit a portion of said channel and to limit the space across which the expansive fluid may pass, and means for moving the parts of said segmental member to vary the space across which the expansive fluid may pass, and a deflector arranged above and spaced apart from said annular channel.

33. An atomizer comprising a body having an upwardly-opening curved or arc-shaped channel, means for supplying liquid fuel to said channel, means for directing an expansive material outward radially across said channel above the same, detachable means for closing a portion of said channel, means whereby said detachable means may be adjusted to regulate closure of said channel, and a deflector arranged above and spaced apart from said annular channel.

34. An atomizer comprising a body having a downwardly-tapering channel, means for supplying liquid to said channel, means for discharging a fluid across said channel, a two-part adjustable member provided with a bead adapted to close a part of said channel, and means for adjusting the parts of said member.

35. A burner comprising a body having a curved or arc-shaped channel, the outer wall of which terminates in a plane surface, means for supplying liquid fuel to said channel, means for directing an expansive fluid outward radially across said channel in a plane parallel to said terminal plane, a deflector arranged above and spaced apart from said channel, means for closing a portion of said channel and adjustably controlling the direction of the outflowing product, and means for adjusting said means as desired.

36. An atomizer comprising a hollow body divided into two chambers and having a curved or arc-shaped channel, a hollow plug in communication with the inner chamber, said plug provided with an externally-threaded shank, a sleeve threaded thereon, said sleeve embracing an open-ended chamber of greater diameter than the plug, the wall of said inner chamber and the end of said sleeve forming a slot opening from said chamber, said plug provided with a port opening above the plane of the lower end of said sleeve, and an annular deflector surrounding said sleeve, the under face of said deflector spaced apart from and lying above the rim of said body.

37. An atomizer comprising a curved or arc-shaped channel, means for supplying liquid fuel thereto, an expansion-chamber having an annular outlet adapted to emit expansive fluid radially across said channel, means for supplying expansive fluid to said chamber, a segmental member closing a portion of said channel, and independent means for closing a portion of said annular outlet.

38. An atomizer comprising a curved or arc-shaped channel, means for supplying liquid fuel thereto, a vertically-adjustable member above the inner wall of said channel, said member provided at its lower end with an open-ended expansion-chamber, a radial expansive-fluid outlet formed between the lower end of said member and the edge of said inner wall, means for supplying expansive fluid to said chamber, means for closing a portion of said channel, and independent means extending up within a portion of said chamber for closing the said outlet.

39. A liquid-hydrocarbon-burning apparatus comprising a body having two curved or arc-shaped channels, adjustable means arranged to close a portion of the outer channel and to limit the space across which the expansive fluid will pass, operating means extending outside the furnace or fire-box for adjusting said first-named means, a steam-supply pipe operatively connected with the inner channel, an oil-supply pipe surrounding said steam-pipe and operatively connected with the outer channel, and an air pipe or cylinder surrounding said oil-supply pipe and opening below and at the front of the body.

40. A liquid-hydrocarbon-burning apparatus comprising a body having two curved or arc-shaped channels, adjustable means arranged to close a portion of the outer channel and to limit the space across which the expansive fluid will pass, operating means extending outside the furnace or fire-box for adjusting said first-named means, a steam-supply pipe operatively conaected with the inner channel, an oil-supply pipe surrounding said steam-pipe and operatively connected with the outer channel, an air pipe or cylinder surrounding said oil-supply pipe and opening below and at the front of the body, and means in connection with the outer end of said air-pipe for regulating the admission of air thereto.

41. A liquid-hydrocarbon-burning apparatus comprising a body having an upwardly-opening curved or arc-shaped channel, means for directing an expansive material outward radially across said channel above the same, detachable means for closing a portion of said channel, means for adjusting said detachable means to regulate the closure, a steam-supply pipe connected with said expansive-material-directing means, an oil-supply pipe surrounding said steam-pipe, and operatively connected with said channel, and an air-pipe surrounding said oil-pipe and opening at the front and below said body.

42. A liquid-hydrocarbon-burning apparatus comprising a body having an upwardly-opening curved or arc-shaped channel, means for directing an expansive material outward radially across said channel above the same, detachable means for closing a portion of said channel, means for adjusting said detachable means to regulate the closure, a steam-supply pipe connected with said expansive-material-directing means, an oil-supply pipe surrounding said steam-pipe, and operatively connected with said annular channel, an air-pipe surrounding said oil-pipe and opening at the front and below said body, and means at the outer end of said air-pipe for regulating the admission of air thereto.

43. A hydrocarbon-burning apparatus comprising a body having a curved or arc-shaped channel and a plane face outside said channel, and a plane face inside said channel, said inside plane face being higher than the outside plane face, adjustable means for closing said outer channel, means extending outside the fire-box for operating said adjustable means to vary the width of the discharge, a steam-pipe connected with said body and adapted to discharge expansive fluid over said inside plane face and across and above said channel, an oil-supply pipe surrounding said steam-pipe and operatively connected with said channel, and an air-pipe surrounding said oil-pipe and opening below said body and in front of the same.

44. An atomizer comprising a body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel, means for supplying expansive fluid to the inner channel, a two-part segmental ring arranged to close a portion of the outer channel and to limit the space across which the expansive fluid may pass, said two-part segmental ring provided with gear-teeth, and an operating-rod extending beyond the atomizer and provided at its inner end with a gear meshing with the gear of said segmental ring.

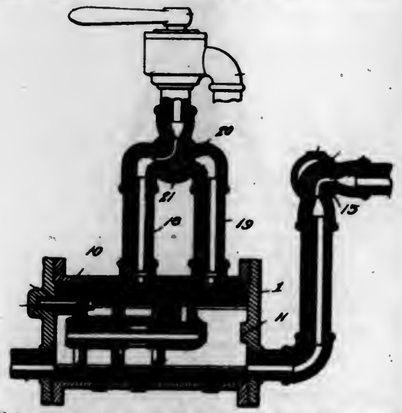
45. An atomizer comprising a body having two curved or arc-shaped channels, means for supplying liquid fuel to the outer channel, means for supplying expansive fluid to the inner channel, a two-part segmental ring arranged to close a portion of the outer channel and to limit the space across which the expansive fluid may flow, said two-part segmental ring provided with gear-teeth, an operating-rod extending beyond the atomizer and provided at its inner end with a gear meshing with the gear of said segmental ring, and a secondary segmental ring in connection with said two-part ring for closing the inner channel when said two part-ring is operated to adjust the width of the flame.

46. An atomizer comprising a body having a curved or arc-shaped channel, means for supplying liquid fuel thereto, means for discharging expansive fluid across said annular channel, a two-part segmental ring arranged to close a portion of said channel and to limit the space across which the expansive fluid may pass, said two-part segmental ring provided with gear-teeth and an operating-rod extending beyond the atomizer and provided at its inner end wi h a gear meshing with the gear of said segmental ring.

47. An atomizer comprising a body having a curved or arc-shaped channel, means for supplying liquid fuel thereto, means for discharging expansive fluid across said channel, a two-part segmental ring arranged to close a portion of said channel and to limit the space across which the expansive fluid may flow, and means for regulating the parts of said ring to vary said space.

48. An atomizer comprising a body having a curved or arc-shaped channel, means for supplying liquid fuel thereto, means for discharging an expansive fluid across said channel, a two-part segmental ring arranged to close a portion of the outer channel and to limit the space across which the expansive fluid may pass, means for regulating and adjusting the parts of said ring to vary said space, and means for closing said channel at the rear and between the rear ends of said parts of said ring.

784,506. AIR-BRAKE SYSTEM. ISAAC M. SIMONS, Youngstown, Ohio. Filed July 19, 1904. Serial No. 217,303.



Claim.—1. A valve for air-brake systems comprising a casing having ports at opposite ends thereof, a tubular core arranged for reciprocation and fitting snugly within the casing, said core being adapted to maintain communication between the end ports, valve-controlled inlets opening into the casing, and a lateral port provided in the core and adapted for communication with the passage through the latter and one of the inlets.

2. A valve for air-brake systems comprising a casing having train-pipes communicating therewith, a tubular core mounted for reciprocation in the casing and adapted to maintain communication between the train-pipes, spaced flanges embracing and movable with the core, and valve-controlled inlets opening into the casing, the core being provided between a pair of its flanges with a port designed to communicate with one of the inlets

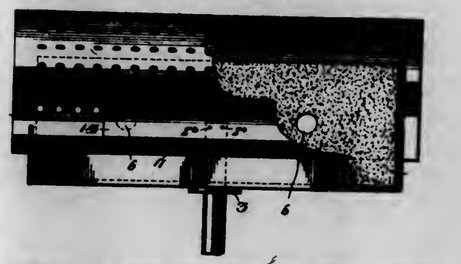
3. A valve for air-brake systems comprising a casing having ports at opposite ends thereof, a tubular core mounted for reciprocation within the casing and adapted to maintain communication between the ports, flanges embracing the core and contacting with the casing, said core having a lateral port disposed between a pair of the flanges, and valve-controlled inlets leading to the casing, one of said inlets being designed to communicate with the lateral port in the core.

4. A valve for air-brake systems comprising a casing having air-pipes communicating therewith, a controlling-valve arranged in one of the pipes, a tubular core mounted for reciprocation in the casing and adapted to maintain communication between the pipes, spaced flanges embracing and movable with the core and fitting snugly within the casing, said core being provided with a port disposed between a pair of the flanges, means for preventing rotation of the core and flanges, and valve-controlled inlets opening into the casing, one of said inlets being adapted to communicate with the port in the core.

5. In a device of the character described, the combination with a casing having valve-controlled inlets, a valve-controlled pipe opening into one end of the casing, and a port at the opposite end thereof; of a tubular core open at its ends and adapted to reciprocate within the casing, annular flanges upon the core fitting snugly within the casing, said core having ports between two of the flanges adapted when in one position to register with one of the first-mentioned inlets, and means for preventing the rotation of the core and flanges.

6. In a device of the character described, the combination with a casing having valve-controlled inlets adapted to be connected to a pump; of a tubular valve loosely mounted within the casing and adapted to maintain communication between openings at opposite ends of the casing, a valve-controlled pipe extending from one of said openings, the valve within the casing being adapted to automatically cut off communication between one of the inlets and one of the openings in the casing.

784,507. OIL OR GAS BURNER. THOMAS VANTINE, New Cambria, Mo., assignor of one-half to John T. Jones, New Cambria, Mo. Filed Nov. 1, 1904. Serial No. 230,961.



Claim.—1. A burner comprising a tray, a fire-brick therein, end plates on said tray having notches therein to produce wings, and a perforated casing resting upon the end plates and having its lower edges fitting into the notches thereof, the ends of said casing extending longitudinally beyond said end plates.

2. A burner comprising a tray, a fire-brick having passages extending therethrough, a supply-pipe extending through said tray and into one of the passages of said brick, a collar upon said supply-pipe resting against the bottom of said tray, end plates on said tray having notches therein to produce wings, and having arched upper portions, a perforated casing resting on the arched portions of said end plates and having its lower edges fitting into the notches thereof, the ends of said casing extending longitudinally beyond said end plates, and a door for said casing.

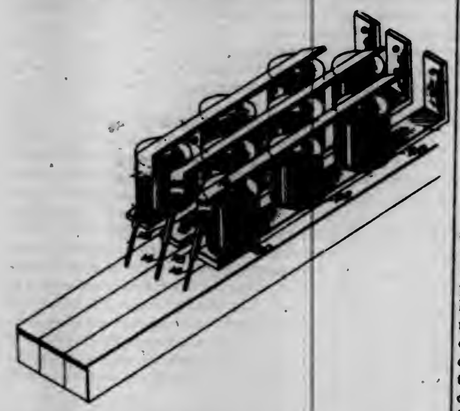
3. A burner comprising a tray, a fire-brick therein, end plates on said tray having notches therein to produce wings, and a perforated casing resting upon the end plates and having its lower edges fitting into the notches thereof.

784,508. ELECTRICALLY-ACTUATED PIANO. JOSEPH WEBER, Brooklyn, N. Y. Filed Aug. 10, 1904. Serial No. 221,389.

Claim.—1. In electrically-operated pianos or the like, the keys of the instrument, combined with a plurality of magnets for each key, each magnet having a diameter greater than the width of one key, but less than the width of two keys, said magnets being arranged so as to present a staggered effect, and an operating-armature for each series of magnets, said armature having a lateral extension formed at one end and a connection between the end of said extension and the key, substantially as shown.

2. In electrically-operated pianos or the like, the keys of the instrument, a plurality of electromagnets for each key and a rocking or tilting armature common to all the magnets for each key and having a lateral extension formed at one end; said armature rocking about

an axis parallel with the line joining the centers of the magnets; combined with means connecting the end of said lateral extension with one of the keys of the instrument, as set forth.



3. In electrically-operated pianos or the like, the keys of the instrument, a plurality of magnets located above each key and an armature common to the magnets of each key, said armature having a lateral extension formed near one end, combined with suitable means for connecting the end of the armature to the key, and means for loosely holding the armature in position above said magnets so that it will have a rocking or tilting movement in relation to its magnets substantially as shown.

4. In electrically-operated pianos or the like, the keys of the instrument, a series of magnets for each key located in line therewith, each magnet having a diameter greater than the width of one key and less than the width of two keys, said magnets being arranged to present a staggered effect, and an armature common to each series of magnets, in combination with means adjustably connecting the end of the armature with its respective key, said means comprising a standard having a body-section and an adjustable cap cooperating with the upper threaded end of said body-section and suitable means loosely holding each armature in line with its magnets whereby they will have a movement relative thereto, said movement of each armature being designed to operate the key with which it is operatively connected, all substantially as specified and for the purpose set forth.

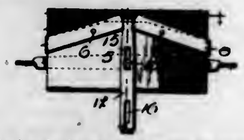
784,509. **JAR CLOSURE AND FASTENER.** JOSEPH P. YOUNG, Marshalltown, Iowa, assignor of three-fourths to W. L. Peckham, C. F. Smith, and J. F. Harrigan, Marshalltown, Iowa. Filed June 13, 1904. Serial No. 212,381.



Claim.—1. In combination with a jar and a bail, a lever pivotally connected to the bail, and a cover having a central boss on its outer side, provided with flanges, notched in their outer edges, said cover being further provided with a channel between said flanges, a centrally-disposed shoulder extending across the channel, and notches in the bottom of the channel on opposite sides of the base of the shoulder, for engagement by one end of the lever, substantially as described.

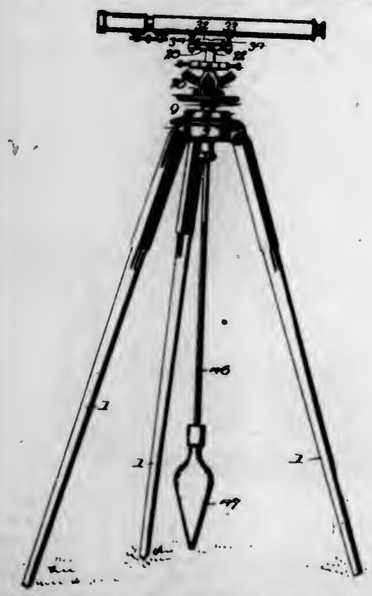
2. In combination with a jar and a bail, a lever connected to the bail and having one end provided with a fulcrumed foot forming a lateral extension thereof, and a cover having a central boss on its outer side, provided with flanges, notched in their outer edges, said cover being further provided with a channel between said flanges, a centrally-disposed shoulder extending across the channel, and notches in the bottom of the channel, on opposite sides of the base of the shoulder, for engagement by the fulcrum-foot of the lever, substantially as described.

784,510. **GATE-LATCH.** JOHN J. AKER, Bee, Minn. Filed Sept. 26, 1904. Serial No. 226,979.



Claim.—The herein-described combination-latch comprising a suitable casing; a pair of latches carried by said casing and normally disposed so that their inner ends will be elevated; a controlling-bar having its ends protruding from opposite sides of the casing and placed in coöperation with said latches, whereby when the controlling-bar is raised or lowered the latches will be correspondingly moved, in combination with an adjustable keeper-plate 12 having an extension 11, said keeper-plate being adapted to be carried by the end of the gate whereby said extension will occupy a space between the normally elevated inner ends of said latches when the gate is closed all combined substantially as specified and for the purpose set forth.

784,511. **AUTOMATIC LEVELING INSTRUMENT.** JOHN W. BELYEU, Alexander City, Ala. Filed Sept. 26, 1904. Serial No. 226,980.



Claim.—The herein-described automatic leveling instrument comprising the body portion or collar-like member 3 having suitable supporting-legs; an auxiliary collar member 6 pivotally mounted within the member 3 and a member 7 having extensions or sockets upon its upper and lower sides also pivotally mounted in said collar member whereby a universal joint is formed for said extensions or sockets; a tubular member 9, a conical stem fitting in said tubular member; a leveling instrument 26 carried by the upper end of said stem; a graduated plate mounted on said tubular extension; standards carried by said stem; a member 23 pivotally mounted between said standards and having at its lower end a segmental graduated plate 24 and at its upper end a cross-head 28; a pair of brackets upon said cross-head; a suitable leveling instrument carried by said bracket and a sighting instrument and means to connect the same to said cross-head whereby the sighting instrument may be moved in any direction and readily disposed in a true horizontal plane and means to

lock said parts in an adjusted position, all combined substantially as specified and for the purpose set forth.

784,512. **COMPOUND FOR EXTERMINATING GOPHERS.** NELS C. BILLE, Balfour, N. D. Filed Sept. 23, 1904. Serial No. 226,509.

Claim.—A compound for destroying gophers, consisting of whisky, vinegar, water, strychnin, sugar, aniseed-oil and alum, substantially in the proportions described.

784,513. **CAP-FASTENING FOR VESSELS.** AUGUSTUS BROCKELBANK, Ossining, N. Y. Filed June 15, 1904. Serial No. 212,663.



Claim.—1. In cap fasteners for vessels, a cap having spring-tongues forming a part of its lower section, the tongues having locking-lugs at the inner faces of their free ends.

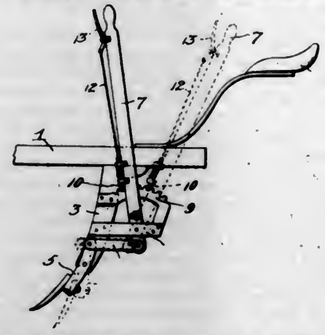
2. A cap-fastener for vessels, consisting of a cap, opposing spring-tongues secured at one of their ends to the flange portion of the cap, the tongues being inclined downwardly in direction of their free ends and provided at the inner faces of their free ends with segmental lugs.

3. A vessel provided with an exterior groove at its neck, recesses leading from the mouth of the vessel into the said groove, recesses formed in the back wall of the groove, all the recesses being of segmental form, a cap or cover for the mouth portion of the said receptacle, and spring-tongues carried by the said cap or cover, provided at their free ends with segmental lugs on their inner faces, which lugs are entered into the said groove through the mouth-recesses of the receptacle and are adapted to fit in the recesses in the back wall of the groove in the neck of the vessel.

4. A receptacle provided with an exterior groove at its neck portion and recesses leading from the mouth of the vessel to the groove, the said groove being in two spiral sections commencing and terminating at the said recesses at the mouth, each section of said groove being provided with a recess in its rear wall, a cap or cover for the said vessel, and spring-tongues forming a portion of the cap or cover, having lugs at their free ends adapted to pass through the recesses at the mouth of the vessel to enter the recesses in the back wall of the groove in the vessel.

5. A vessel provided with an exterior groove at its neck portion, segmental recesses extending from the mouth of the vessel into the groove, said groove being in two oppositely-inclined sections, the inclinations starting from and terminating at said recesses, each section of the groove being provided with a segmental recess in its rear wall, a cap or cover for the vessel, spring-tongues forming a portion of the flange of the cap or cover, the tongues being inclined downward in direction of their free ends, and segmental lugs formed at the inner faces of the free ends of the said spring-tongues, which lugs are adapted to be seated in the recesses in said groove.

784,514. **ATTACHMENT FOR CULTIVATORS.** EDWIN H. BURER, Trent, Tex. Filed Oct. 13, 1904. Serial No. 228,318.

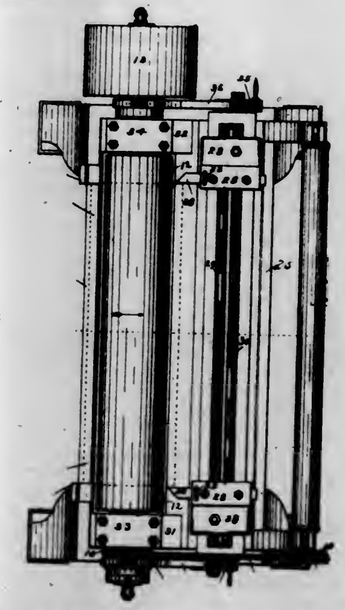


Claim.—1. A cultivator having a standard provided with a porting device, a lever pivoted to said supporting device, a boot pivotally connected to the standard and extending downwardly therefrom, and a link connecting said boot and lever, whereby the boot may be disposed at any desired angle by operating said lever.

2. A cultivator having a standard provided with a supporting device extending rearwardly therefrom, a lever fulcrumed to said supporting device, a boot pivotally connected to the standard, and extending upwardly and downwardly therefrom, and a link connected to said lever and said arm of said boot, for the purpose set forth.

3. In a cultivator, the combination with the standard of the same, of a bifurcated boot pivotally connected to the foot of said standard, rearwardly-projecting parallel bracket-bars secured to said standard, a hand-lever pivotally mounted between said bars, parallel link-bars connecting the lower end of said lever and the upper end of said boot whereby the latter may be adjusted by said lever to vary the angle of the same, a segmental rack-bar secured to said standard and said bracket-bars, and a spring-actuated pawl carried by said lever to engage the teeth of said rack-bar, thereby holding the same and said boot in their adjusted positions, substantially as described.

784,515. **METAL-CUTTING MACHINE.** ALBERT C. CALKINS, Los Angeles, Cal., assignor to The Calkins Company, Los Angeles, Cal., a Corporation of California. Filed July 16, 1902. Renewed Sept. 3, 1903. Serial No. 171,782.



Claim.—1. In a sheet-metal-cutting machine a hollow mandrel constructed to receive sheet material, means for circulating a refrigerating fluid therethrough, mechanism or revolving the mandrel, cutting devices and instrumentalities for simultaneously progressing said devices against the ends of the material upon said mandrel.

2. In a sheet-metal-cutting machine a mandrel constructed to receive sheet material, mechanism for operating said mandrel, means for cooling said mandrel, adjustable cutting devices and instrumentalities for progressing said devices simultaneously against the ends of the material upon said mandrel.

3. In a sheet-metal-cutting machine, a hollow mandrel, means for revolving the mandrel, devices for retaining the sheets of metal upon the mandrel, means for conveying a refrigerating fluid through the mandrel, cutting-tools, mechanism for simultaneously moving each of the cutting-tools in opposite directions against the edges of the sheets of metal wound upon the mandrel.

4. In sheet-metal-cutting machine, a hollow mandrel having a water-tight jacket shrunk thereon, means for revolving the mandrel, longitudinally-adjustable cutting-tools, mechanism for moving the cutting-tools simultaneously against the edges of sheets of metal

wound upon the water-jacket, and means for conveying a refrigerating mixture to and from the mandrel.

5. In metal-cutting machines, the bed-plate having journal-bearings, the revolving mandrel provided with a jacket, slotted guides secured to the bed-plate and means for revolving the mandrel and jacket.

6. In metal-cutting machines, the bed-plate with journal-bearings made integral therewith, the revolving mandrel having a jacket shrunk thereon, the adjustable guides secured to the bed-plate, and having longitudinal slots upon the inner edges thereof for guiding sheets of metal of different widths upon the jackets, and means for revolving the mandrel and jacket secured thereon.

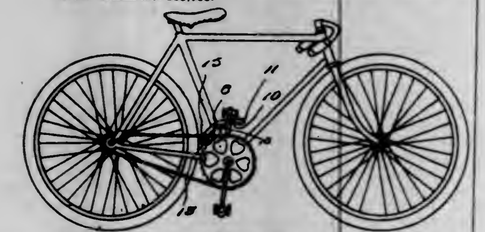
7. A machine provided with means for supporting material, mechanism for rotating said means, threaded rods, a cutter-holder having a nut in engagement with each rod and means for relatively rotating the nuts and rods whereby said cutters are automatically progressed against both ends of said material simultaneously.

8. A hollow mandrel, a water-tight jacket secured thereto, means for revolving the mandrel and water-jacket secured thereon, devices for holding sheets of metal rolled upon the jacket thereto, means for conveying a refrigerating fluid through the mandrel and jacket, adjustable cutting-tools, mechanism for moving the said cutting-tools in opposite direction against the edges of the sheets of metal rolled upon the jacket.

9. A hollow mandrel, a jacket secured thereto, means for revolving the mandrel and jacketa secured thereon, adjustable cutting-tools and mechanism for moving the cutting-tools simultaneously and in opposite directions against the edges of the sheets of metal wound upon the jackets.

10. In a machine for shaving sheet metal, a hollow mandrel, means for revolving the mandrel, means for conveying a cooling agent therethrough and devices for securing the material upon the mandrel.

784,516. BICYCLE-BRAKE. JEFF CHAMBLESS, Jacksons Gap, Ala., assignor of one-fourth to Sol Young, Island Home, Ala. Filed Nov. 18, 1903. Serial No. 181,706.



Claim.—As an article of manufacture, a bicycle-brake comprising a clamping-collar having trunnions at diametrically opposite points thereof, a lever formed from a metallic plate bent to form parallel spaced members and a connecting-bight, said members being bent longitudinally into arc shape and having alining perforations at their centers and other alining perforations adjacent to their free ends, said members being disposed with the trunnions pivotally engaged with the first-mentioned perforations, a bolt engaged in the second-named perforations of the members to hold said members in engagement with the trunnions, a roller revolubly mounted upon the bolt, and a spring connected to the trunnions and bearing against the spaced members at its free ends and having a yoke arranged for engagement with the central upright of a bicycle with which the collar is engaged to hold the roller yieldably out of engagement with the rear wheel of the bicycle.

784,517. PROCESS OF EXPANDING SLITTED SHEET METAL. LEWIS B. CURTIS, Chicago, Ill., assignor, by mesne assignments, to Brookbridge Jones, trustee, St. Louis, Mo. Filed June 8, 1903. Serial No. 160,695.

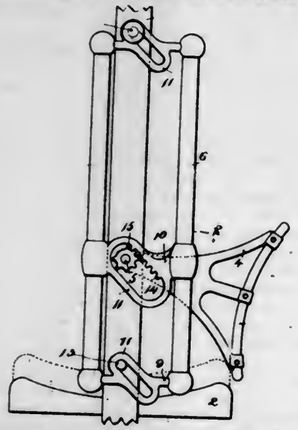


Claim.—1. The herein-described process of opening slashed sheet metal, consisting in subjecting the sheet to a longitudinally-progressive bending operation, the bending commencing at one end of the sheet and along a longitudinal line intermediate the edges thereof, and being in lines diagonal to the said longitudinal intermediate line, and the parts of the sheet on the opposite sides of the said line being bent in opposite directions transversely to the original plane of the sheet as the opening of the sheet progresses.

2. The herein-described process of bending slashed sheet metal, consisting in subjecting the sheet to a longitudinally-progressive bending operation, the bending commencing at one end of the sheet and progressing along a longitudinal line intermediate the edges thereof, and being in lines diagonal to the said longitudinal line, the parts of the sheet on the opposite sides of the said line being bent in opposite directions transversely to the original plane of the sheet as the opening of the sheet progresses, and the unopened portions of the sheet situated outside of the parts being opened being held at an angle to the said opened parts.

3. The herein-described process of opening slashed sheet metal, consisting in subjecting the sheet to a longitudinally-progressive bending operation, the bending commencing at one end of the sheet and extending along the longitudinal central line thereof and thence being in lines diagonal to said central line, and the longitudinal halves of the sheet being bent in opposite directions transversely to the original plane of the sheet as the bending operation progresses.

784,518. GRAB-HANDLE FOR RAILWAY-CARS. SAMUEL M. CURWEN, Haverford, Pa., assignor to John A. Brill, Philadelphia, Pa. Original application filed Sept. 6, 1904, Serial No. 223,544. Divided and this application filed Dec. 17, 1904. Serial No. 237,223.



Claim.—1. A railway-car having side posts and stanchions, side openings between the stanchions, a seat between the stanchions, a swing-back to said seat, a gear on said stanchion operated by the movement of said seat-back, a grab-handle connected with the stanchion and provided with a member having a ratchet thereon, adapted to engage with said gear, whereby the gear will move said grab-handle in its relation to said stanchion.

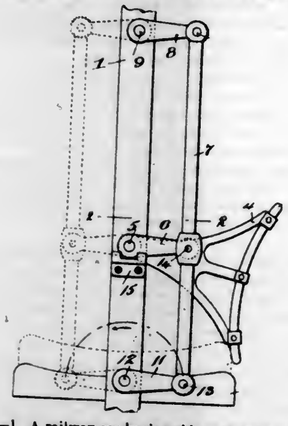
2. A railway-car having side posts or stanchions, side openings between stanchions, a seat between the stanchions, a swing-back for said seat, a gear connected with and operated by said seat-back, a grab-handle connected with said stanchion and comprising a plurality of vertical grab members, one of which is disposed on each side of said stanchion, and means whereby said gear will move the handles longitudinally of the direction of the car.

3. A railway-car having side posts or stanchions provided with studs, side openings between the stanchions, a seat between the stanchions, a swing-back for said seat, a gear connected with and operated by said seat, a grab-handle comprising vertical members 6 and 7 disposed on each side of the stanchion, and having arms 8 and 9 provided with oblique loops to engage with the studs on the stanchion and an arm provided with an oblique loop having a ratchet adapted to engage with the said gear, whereby the movement of the seat-back will shift the grab-handles 6 and 7 in relation to the stanchion.

4. A railway-car having side posts or stanchions, side openings between the stanchions, a seat between the stanchions, a swing-back

for said seat, a gear on said stanchion operated by the movement of said seat-back, a grab-handle connected with the said stanchion, and provided with an arm having a loop provided with teeth adapted to engage with the said gear-wheel, whereby the latter will longitudinally shift the grab-handle in relation to said stanchion.

784,519. GRAB-HANDLE FOR RAILWAY-CARS. SAMUEL M. CURWEN, Haverford, Pa., assignor to John A. Brill, Philadelphia, Pa. Original application filed Sept. 6, 1904, Serial No. 223,544. Divided and this application filed Dec. 17, 1904. Serial No. 237,224.



Claim.—1. A railway-car having side posts or stanchions, side openings between the stanchions, a grab-handle comprising a vertical hand-rod fulcrumed to an arm, which arm is fulcrumed to the stanchion, whereby said rod may swing on said arm, and means for holding the said rod in predetermined positions in relation to said stanchion.

2. A railway-car having side posts or stanchions, side openings between the stanchions, seats between said stanchions having a movable back, a grab-handle fulcrumed to arms which are also fulcrumed to said stanchion, and mean whereby the movement of said seat-back will move said arms in a vertical arc to alter the position of said grab-handle in its relation to said stanchion.

3. A railway-car having stanchions, side openings between the stanchions, a seat between said stanchions having a movable back carried by an arm, a grab-handle fulcrumed to an arm which is connected with the arm of said back, whereby the arm of the grab-handle will be moved in a vertical arc thereby.

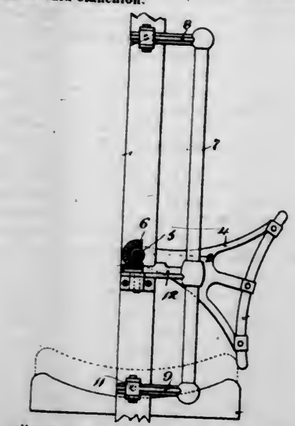
4. A railway-car having side posts or stanchions, side openings between the stanchions, seats between the stanchions, swing seat-backs pivoted to the stanchion, having a pivoting-pin extending through said stanchion and a grab-handle fulcrumed to arms which are also fulcrumed to the stanchion, one of said arms engaging with the pivoting-pin of said seat-back whereby the movement of the seat-back will cause the said arm to move in a vertical plane, and a rest for the arm of said grab-handle.

784,520. GRAB-HANDLE FOR RAILWAY-CARS. SAMUEL M. CURWEN, Haverford, Pa., assignor to John A. Brill, Philadelphia, Pa. Original application filed Sept. 6, 1904, Serial No. 223,544. Divided and this application filed Dec. 17, 1904. Serial No. 237,225.

Claim.—1. A railway-car having side posts or stanchions, side openings between the stanchions, a grab-handle comprising a vertical rod, secured to the stanchion by a horizontal arm, adapted to move in a horizontal arc, and means for holding said arm in predetermined positions in relation to said stanchion.

2. A railway-car having side posts or stanchions, side openings between the stanchions, a seat between the stanchions and having a seat-back, a grab-handle secured to the stanchion by a horizontal arm, adapted to move in a horizontal arc, and means carried by said seat-back for engaging said horizontal arm to hold the same in predetermined positions.

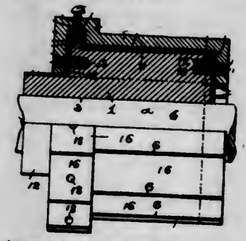
3. A railway-car having side posts or stanchions, side openings between the stanchions, a movable seat-back between the stanchions, a grab-handle secured to the stanchion by a horizontal arm adapted to move in a horizontal arc, means whereby said seat-back will move said horizontal arm, and means to hold it in predetermined positions in relation to said stanchion.



4. A railway-car having side posts or stanchions, side openings between the stanchions, a seat and back therefor between the stanchions, a grab-handle secured to the stanchion by arms adapted to move in relation to the stanchion, a gear secured to one of said arms, and a second gear movable with the said seat-back engaging with the first gear whereby the movement of the seat-back will shift said grab-handle.

5. A railway-car having side posts or stanchions, side openings between the stanchions, a grab-handle having arms fulcrumed to the stanchion, a gear on one of said arms, a swing seat-back having a pivoting-pin passing through said stanchion, provided with a gear adapted to engage with the said first-mentioned gear to shift the said handle and an arm secured to said pin adapted to laterally engage with the arm of said grab-handle in its reversed positions.

784,521. COMMUTATOR FOR ELECTRIC MACHINES AND PROCESS OF MAKING SAME. FRITZ A. FELDKAMP, Newark, N. J. Filed Apr. 16, 1901. Serial No. 56,031.



Claim.—1. A commutator, comprising a core or base, and electrolytically-deposited commutator-sections on said core or base, each commutator-section comprising a main body portion extending laterally across the cylindrical face of the core, and downwardly-extending end portions forming integral parts with said main body portion, said end portions extending down the sides of the end faces of the core, and means on said end faces embedded directly in said end portions of said commutator-sections for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

2. A commutator for electric machines, comprising, a core or base, insulating-sections extending from said core or base, electrolytically-deposited metal commutator-sections on said core or base and between the said insulating-sections, each commutator-section comprising a main body portion extending laterally across the cylindrical face of the core, and downwardly-extending end portions forming integral parts with said main body portion, said end portions extending down the sides of the end faces of the core, and means on said end faces embedded directly in said end portions of said commutator-sections, for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

3. A commutator for electric machines, comprising, a core or base, having an arrangement of slots, insulating-sections held in said slots and extending from said core or base, and electrolytically-deposited commutator-sections on said core or base and between the said insulating-sections, and means for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

4. A commutator for electric machines, comprising, a core or base, a conducting-film on said core or base, electrolytically-deposited metal commutator-sections on said film, each commutator-section comprising a main body portion extending laterally across the cylindrical face of the core, and downwardly-extending end portions forming integral parts with said main body portion, said end portions extending down the sides of the end faces of the core, and means on said end faces embedded directly in said end portions of said commutator-sections, for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

5. A commutator for electric machines, comprising, a core or base, insulating-sections extending from said core or base, a conducting-film on said core or base, electrolytically-deposited metal commutator-sections on said film and between the said insulating-sections, each commutator-section comprising a main body portion extending laterally across the cylindrical face of the core, and downwardly-extending end portions forming integral parts with said main body portion, said end portions extending down the sides of the end faces of the core, and means on said end faces embedded directly in said end portions of said commutator-sections, for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

6. A commutator for electric machines, comprising, a core or base, having an arrangement of slots, insulating-sections held in said slots and extending from said core or base, a conducting-film on said core or base, electrolytically-deposited metal commutator-sections on said film and between the said insulating-sections, and means for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

7. A commutator for electric machines, comprising, a core or base, insulating-sections extending from said core or base, electrolytically-deposited metal commutator-sections on said core or base and between the said insulating-sections, and holding means connected with said core or base embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

8. A commutator for electric machines, comprising, a core or base, electrolytically-deposited metal commutator-sections on said core or base, and holding means connected with said core or base embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

9. A commutator for electric machines, comprising, a core or base, having an arrangement of slots, insulating-sections held in said slots and extending from said core or base, electrolytically-deposited metal commutator-sections on said core or base and between the said insulating-sections, and holding means connected with said core or base embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

10. A commutator for electric machines, comprising, a core or base, a conducting-film on said core or base, electrolytically-deposited metal commutator-sections on said film, and holding means connected with said core or base embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

11. A commutator for electric machines, comprising, a core or base, insulating-sections extending from said core or base, a conducting-film on said core or base, electrolytically-deposited metal commutator-sections on said film and between the said insulating-sections, and holding means connected with said core or base embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

12. A commutator for electric machines, comprising, a core or base, having an arrangement of slots, insulating-sections held in said slots and extending from said core or base, a conducting-film on said core or base, electrolytically-deposited metal commutator-sections on said film and between the said insulating-sections, and holding means connected with said core or base embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

13. A commutator for electric machines, comprising, a metal core, a film of non-conducting material on said core, a conducting-film on said non-conducting film, and electrolytically-deposited commutator-sections on said conducting-film, each commutator-section comprising a main body portion extending laterally across the cylindrical face of the core, and downwardly-extending end portions forming integral parts with said main body portion, said end portions extending down the sides of the end faces of the core, and means on said end faces embedded directly in said end portions of said commutator-sections, for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

14. A commutator for electric machines, comprising, a metal core, having an arrangement of slots, insulating-sections held in said slots and extending from said core, sections of insulating material on the exposed surfaces of the core between said insulating-sections which extend from said slots, a conducting-film on said insulating material, electrolytically-deposited metal commutator-sections on said conducting-film and between said insulating-sections, and means for preventing centrifugal displacement of said sections, substantially as and for the purposes set forth.

15. A commutator for electric machines, comprising, a metal core, having an arrangement of slots, insulating-sections held in said slots and extending from said core, sections of insulating material on the exposed surfaces of the core between said insulating-sections which extend from the said slots, a conducting-film on said insulating material, electrolytically-deposited metal commutator-sections on said conducting-film and between said insulating-sections, and holding means connected with said core embedded in the said commutator-sections to prevent displacement of the said commutator-sections.

16. The method or process of producing commutator-sections by electrodeposition, which consists, in providing a core or base with radial slots, securing insulator-sections in said slots to provide receiving-pockets, lining the said pockets with films of conducting material, and electrodepositing the commutator-sections upon the films of conducting material, substantially as set forth.

17. The method or process of producing commutators, which consists, essentially, in providing a core or base with radial slots, securing insulator-sections in said slots to provide receiving-pockets, lining the exposed portions of said core or base in said pockets with a conducting-film, electrically connecting said film with a source of electrical energy, and electrodepositing commutator-sections upon said film in each pocket, substantially as set forth.

18. The method or process of producing commutators, which consists, essentially, in providing a core or base with pockets made from insulating material, lining the exposed portions of said core or base in said pockets with a conducting-film, placing insulated screws having non-insulated ends in contact with said conducting-film, electrically connecting said screws with a source of electrical energy, and electrodepositing the commutator-sections upon said film in each pocket and around the said screws, substantially as set forth.

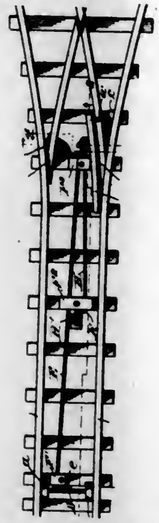
19. The method or process of producing commutators, which consists, essentially, in providing a core or base with pockets made from insulating material, lining the exposed portions of said core or base in said pockets with a conducting-film, placing insulated screws having non-insulated end in contact with said conducting-film, electrically connecting said screws with a source of electrical energy, and electrodepositing the commutator-sections upon said film in each pocket and around the said screws, and then removing each screw from the deposited commutator-sections and providing thereby a screw-socket in each commutator-section, substantially as set forth.

20. The method or process of producing commutator-sections by electfodeposition which consists in providing a core or base with suitable holding devices, insulating said devices from said core or base, and then electrodepositing commutator-sections upon said core and about said holding devices that said holding devices will be embedded in portions of each commutator-section, substantially as set forth.

784,522. RAILWAY-SWITCH. SAMUEL R. FLOWERS, Richmond, Ky., assignor of part to William S. Hume and George W. Nelson, Richmond, Ky. Filed May 20, 1904. Serial No. 208,970.

Claim.—1. In a railway-switch, the combination with a movable switch-point, of a reciprocating bolt located beneath the switch-point, means interposed between said bolt and switch-point for throwing the latter upon the reciprocation of the bolt, and means adapted to be actuated by a car approaching the switch for reciprocating said bolt.

2. In a railway-switch, the combination with a movable switch-point, of a reciprocating bolt located beneath the switch-point, means interposed between said bolt and switch-point for throwing the latter upon the reciprocation of the bolt, means adapted to be actuated by a car approaching the switch for reciprocating said bolt, and means for automatically returning said bolt to its normal position after it has thrown the switch.



3. In a railway-switch, the combination with a movable switch-point, of two reciprocating bolts located beneath the switch-point for throwing the latter in one direction upon the reciprocation of one bolt and in the opposite direction upon reciprocation of the other bolt, and means adapted to be actuated by a car approaching the switch for separately reciprocating said bolts.

4. In a railway-switch, the combination with a movable switch-point, of two reciprocating bolts located beneath the switch-point for throwing the latter in one direction upon the reciprocation of one bolt and in the opposite direction upon reciprocation of the other bolt, means adapted to be actuated by a car approaching the switch for separately reciprocating said bolts, and weights operatively connected to said bolts for returning the same to their normal positions after the switch has been thrown.

5. In a railway-switch, the combination with a movable switch-point, of a rib rigidly secured to and projecting from the under side of the switch-point, a reciprocating bolt located beneath the switch-point, a shoulder on said bolt adapted when the latter is reciprocated to engage said rib and throw the switch-point.

6. In a railway-switch, the combination with a movable switch-point, of a rib rigidly secured to and projecting from the under side of the switch-point, a reciprocating bolt located beneath the switch-point, a shoulder on said bolt adapted when the latter is reciprocated to engage said rib and throw the switch-point, and means for automatically returning said bolt to its normal position and removing said shoulder away from said rib after the switch-point has been thrown.

7. In a railway-switch, the combination with a movable switch-point, of a rib rigidly secured to and depending from the switch-point, two reciprocating bolts located beneath the switch-point, a shoulder on one of said bolts adapted when the latter is reciprocated to engage said rib and throw the switch-point in one direction, a shoulder on the other of said bolts adapted when the latter is reciprocated to engage the opposite side of said rib and throw the switch-point in an opposite direction.

8. In a railway-switch, the combination with a movable switch-point, of a rib rigidly secured to and depending from the switch-point, two reciprocating bolts located beneath the switch-point, a shoulder on one of said bolts adapted when the latter is reciprocated to engage said rib and throw the switch-point in one direction, a shoulder on the other of said bolts adapted when the latter is reciprocated to engage the opposite side of said rib and throw the switch-point in an opposite direction, and means for automatically returning said bolts to their normal position and removing the shoulders thereon away from said rib after the switch-point has been thrown.

9. In a railway-switch, the combination with a movable switch-point, of a reciprocating bolt located beneath the switch-point, means interposed between the bolt and switch-point for throwing the latter in one direction upon the reciprocation of the bolt, a crank operatively connected to said bolt for reciprocating the same, a rotary rod extending longitudinally with respect to the track and rigidly connected to said crank, and means for oscillating said rod projecting into the path of the car-wheels.

10. In a railway-switch, the combination with a movable switch-point, of two reciprocating bolts located beneath the switch-point, separate means interposed between each of said bolts and the switch-point for throwing the latter in opposite directions upon the reciprocating of the bolts, separate cranks operatively connected to said bolts for reciprocating the same, rotary rods extending longitudinally with respect to the track and rigidly connected to said cranks, means for oscillating one of said rods projecting into the path of movement of the car-wheels, and means for oscillating the other of said rods adapted to be actuated when desired from a car approaching the switch.

11. In a railway-switch, the combination with a movable switch-point, of a rib rigidly secured to and depending from the switch-point, transverse guides located beneath the switch-point into which said rib projects, reciprocating bolts within said guides, shoulders on said bolts adapted to engage the opposite sides of said rib to throw the switch-point in opposite directions, means for separately reciprocating said bolts adapted to be actuated by a car approaching the switch, and means for automatically returning said bolts to their normal positions and moving the shoulders thereon away from said rib after the switch has been thrown.

12. In a railway-switch, the combination with a movable switch-point, of means adapted to be actuated by a car approaching the switch to engage and throw the switch-points in either direction, and means for automatically returning said actuating means to their normal positions out of contact with the switch-point after the switch has been thrown whereby the switch may be thrown by hand independently of the actuating mechanism.

784,523. SYSTEM OF ELECTRICAL DISTRIBUTION. FRANK HOFFMAN, Chicago, Ill., assignor of one-half to Elmer E. Hanna, Chicago, Ill. Original application filed May 21, 1903. Serial No. 158,101. Divided and this application filed Aug. 13, 1903. Serial No. 169,310.



Claim.—1. In a system of electric distribution, the combination of a plurality of electric conductors forming three or more electric circuits of equal potential, an electric motor, and switch mechanism for connecting the electric motor between different pairs of the conductors, substantially as described.

2. In a system of electric distribution, the combination of a plurality of generators of equal electromotive force and capacity, a plurality of electric conductors forming three or more electric circuits of equal potential, said generators having their opposite poles connected in series with said conductors, an electric motor, and switch

mechanism connecting the electric motor between different pairs of conductors, substantially as described.

784,524. RAWHIDE BUSHING. FRED LATULIP, Syracuse, N. Y., assignor to Syracuse Rawhide Manufacturing Company, Syracuse, N. Y., a Corporation of New York. Filed July 2, 1904. Serial No. 215,104.



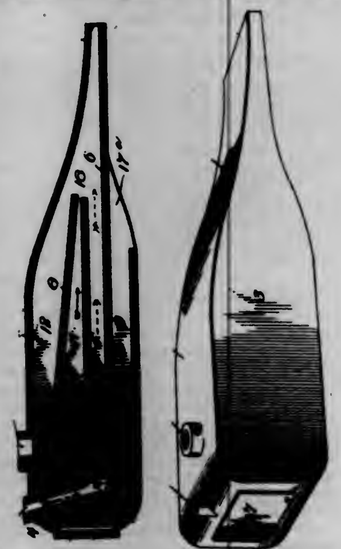
Claim.—1. A shaft or pulley bushing consisting of a sheet or strip of rawhide gathered into a series of folds adhesively secured together.

2. In a bushing for the purpose described, a strip or sheet of rawhide gathered into a series of folds arranged face to face in the form of a cylinder and adhesively secured together.

3. A bushing consisting of a strip of rawhide gathered into folds and forming a cylinder, some of the folds being of less depth than others to compensate for differences between the inner and outer diameters of the bushing.

4. A bushing consisting of a strip of rawhide gathered into folds and forming a cylinder, the folds being adhesively secured together.

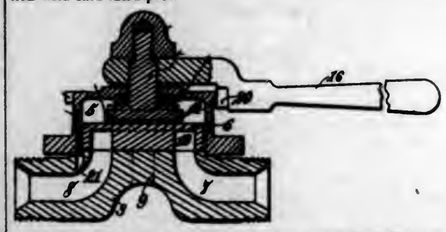
784,525. LIQUID-FUEL BURNER. JOHN R. SMITH and FRANK DIETZ, Tucson, Ariz. Filed Apr. 27, 1904. Serial No. 205,220.



Claim.—In a liquid-fuel burner and in combination, a shell having a tapering nozzle portion, partitions arranged in the shell and forming with each other and the walls of the shell an oil-passage, a steam-passage and an air-passage, the latter passage having portions thereof located on opposite sides of the steam-passage and having its mouth near the nozzle end of the burner and its discharge end located between the discharge ends of the steam and oil passages, and pipes communicating with the oil and steam passages, respectively, substantially as described.

784,526. AIR-BRAKE APPARATUS. CHARLES E. TURNER, Rochester, N. Y. Filed July 13, 1904. Serial No. 213,336.

Claim.—1. In an air-brake apparatus, valve mechanism including a casing having ports adapted to communicate respectively with the brake-cylinder and release-port of a triple valve on a locomotive and having a third port adapted to communicate with the atmosphere, and a valve arranged to put the first-mentioned ports into communication with each other or either of them into communication with said third port.



2. In an air-brake apparatus, valve mechanism including a casing having ports adapted to communicate respectively with the brake-cylinder and release-port of a triple valve on a locomotive and having a third port adapted to communicate with the atmosphere, a valve arranged to put the first-mentioned ports into communication with each other or either of them into communication with said third port, and mechanism for actuating said valve and for positively indicating when it is in its several positions.

3. In an air-brake apparatus, valve mechanism including a casing having ports adapted to communicate respectively with the brake-cylinder and release-port of a triple valve on a locomotive and having a third port adapted to communicate with the atmosphere, a valve arranged to put the first-mentioned ports into communication with each other or either of them into communication with said third port, a handle or lever connected with said valve and provided with a pawl, and a notched segment fixed with respect to the valve, and the notches of which are adapted for engagement by said pawl.

4. In an air-brake apparatus, valve mechanism including a casing having a chamber, provided with three ports opening into the bottom of said chamber, two of the ports being adapted to communicate respectively with the brake-cylinder and release-port of the triple valve of a locomotive and the third port being adapted to communicate with the atmosphere, and a valve fitted against the bottom of the chamber and adapted to put said two ports into communication, or either of said two ports into communication with said third port, the casing having means for conducting air from one of said two ports into said chamber to act against the upper side of the valve.

5. In an air-brake apparatus, valve mechanism including a casing having two main ports adapted to communicate respectively with the brake-cylinder and release-port of the triple valve on a locomotive, a third port adapted to communicate with the atmosphere, a valve-containing chamber the wall of which has a channel, said casing also having an auxiliary port connecting said channel with one main port, and a valve arranged to put said two main ports into communication with each other or either of them into communication with the port which opens into the atmosphere.

6. In an air-brake apparatus, valve mechanism including a casing having ports adapted to communicate respectively with the brake-cylinder and release-port of the triple valve on a locomotive and having a third port adapted to communicate with the atmosphere, a valve arranged to put each of the first-mentioned ports into communication with each other, or either of them into communication with said third port, said valve having a stem extending through a perforation in the top of the casing, a packing between the valve and said top, and an actuating hand-lever for the valve, connected with said stem.

7. In an air-brake apparatus, valve mechanism including a casing having ports adapted to communicate respectively with the brake-cylinder and release-port of the triple valve on a locomotive and having a third port adapted to communicate with the atmosphere, a valve arranged to put each of the first-mentioned ports into communication with each other, or either of them into communication with said third port, a stem for the valve, having a key at its base, the valve being provided with a seat to receive said key, and valve-actuating means connected with said stem.

8. In an air-brake apparatus, valve mechanism including a casing having ports adapted to communicate respectively with the brake-cylinder and release-port of the triple valve on a locomotive and having a third port adapted to communicate with the atmosphere, a valve arranged to put each of the first-mentioned ports into communication with each other, or either of them into communication with said third port, a stem for the valve, provided with a wedge-shaped key, the valve having a wedge-shaped seat to receive said key, and valve-actuating means connected with said stem.

9. In an air-brake apparatus, valve mechanism including a casing having a chamber provided with three triangularly-disposed ports opening into the bottom thereof, one of said ports being adapted to communicate with a brake-cylinder and another with the release-port of a triple-valve mechanism on a locomotive, and the third port being adapted to communicate with the atmosphere, a turning valve in said chamber, provided with an angular port adapted to put two of said ports into communication with each other, or to put either of said two ports into communication with the third port.

784,527. PROCESS OF PEELING FRUIT. CHARLES J. VERNON, Fresno, Cal. Filed Nov. 22, 1902. Serial No. 132,492.



Claim.—1. The herein-described process or method of peeling fruit, which consists in halving and pitting the fruit, then subjecting the fruit to the action of a skin-disintegrating solution, then subjecting the partially-treated fruit to the action of the solution containing alum and finally removing the particles of skin from the treated fruit.

2. The herein-described process or method of peeling fruit which consists in first cutting up and pitting the fruit, then subjecting the same to the action of a heated solution containing caustic soda, then subjecting the partially-treated fruits to the action of a solution containing alum and finally brushing the fruit.

3. The herein-described process or method of peeling fruit which consists in pitting and cutting up the fruit, then subjecting the cut-up fruit to the action of a solution containing caustic soda, then immersing the fruit in a solution of alum, then rinsing the fruit in cold water and finally brushing the fruit.

4. The herein-described process or method of peeling fruit which consists in pitting and dividing the fruit, then subjecting the divided fruit to the action of a solution of caustic soda in a heated receptacle, then immersing the fruit in an alum solution, then rinsing the fruit in cold water and finally brushing the fruit.

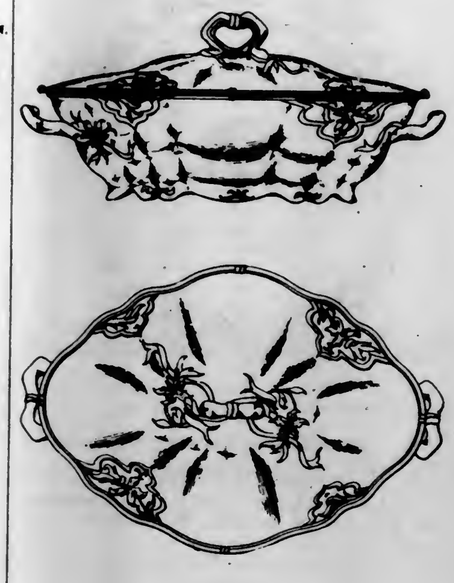
5. The herein-described process or method of peeling fruit, which consists in dividing and pitting the fruit, then subjecting the fruit to the action of a skin-disintegrating solution, then subjecting the partially-treated fruit to the action of a solution containing alum and finally brushing the treated fruit.

6. The herein-described process or method of peeling fruit which consists in subjecting the fruit to a skin-disintegrating solution, then introducing the fruit into an astringent solution, then rinsing the fruit in cold water and finally removing the particles of skin from the fruit.

7. The herein-described process or method of peeling fruit, which consists in dividing or pitting the fruit, then subjecting the fruit to the action of the skin-disintegrating solution, then introducing the fruit into an astringent solution, and finally rinsing the fruit.

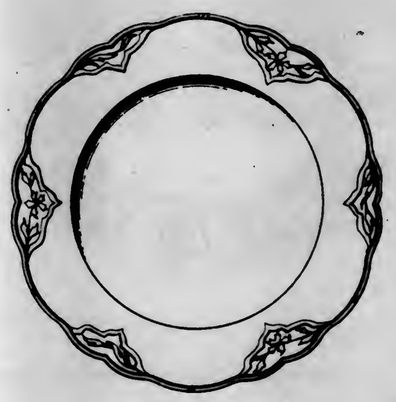
DESIGNS.

37,360. COVERED DISH OR SIMILAR ARTICLE. CHARLES J. AHRENFELDT, New York, N. Y. Filed Jan. 28, 1905. Serial No. 243,148. Term of patent 7 years.



Claim.—The ornamental design for a covered dish or similar article as shown.

37,361. PLATE OR SIMILAR ARTICLE. CHARLES J. AHRENFELDT, New York, N. Y. Filed Jan. 28, 1905. Serial No. 243,149. Term of patent 7 years.



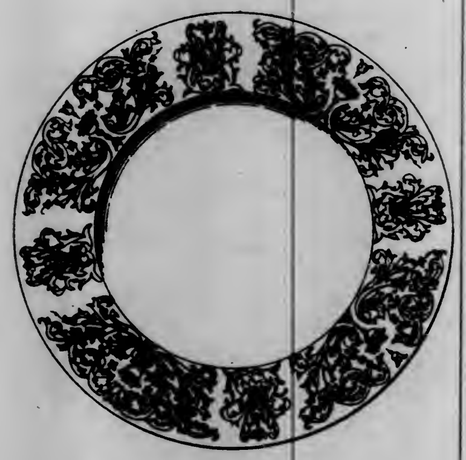
Claim.—The ornamental design for a plate or similar article as shown.

37,362. PLATE OR SIMILAR ARTICLE. CHARLES J. AHRENFELDT, New York, N. Y. Filed Jan. 28, 1905. Serial No. 243,150. Term of patent 7 years.



Claim.—The ornamental design for a plate or similar article as shown.

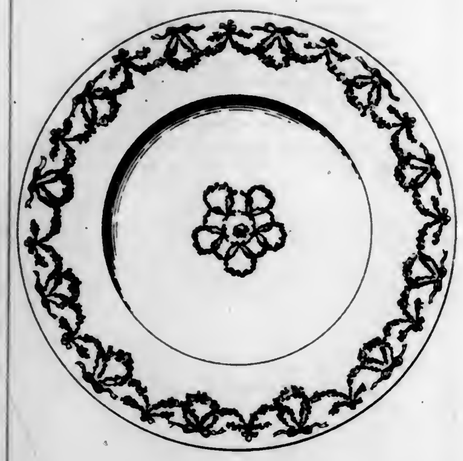
37,363. PLATE OR SIMILAR ARTICLE. CHARLES J. AHRENFELDT, New York, N. Y. Filed Jan. 28, 1905. Serial No. 243,151. Term of patent 7 years.



Claim.—The ornamental design for a plate or similar article as shown.

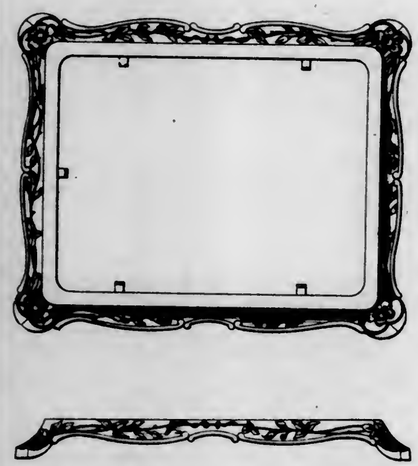
37,364. PLATE OR SIMILAR ARTICLE. CHARLES J. AHRENFELDT, New York, N. Y. Filed Jan. 28, 1905. Serial No. 243,152. Term of patent 7 years.

37,364.



Claim.—The ornamental design for a plate or similar article as shown.

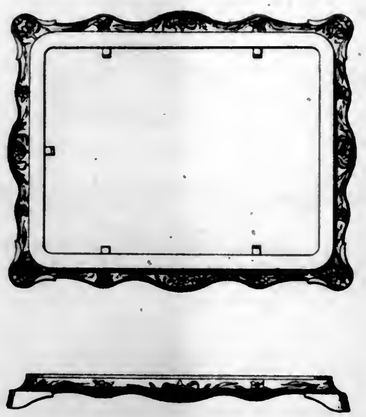
37,365. BASE FOR BIRD-CAGES. GEORGE A. GLAHN, Wallingford, Conn., assignor to The Andrew B. Hendryx Co., New Haven, Conn., a Corporation. Filed Jan. 30, 1905. Serial No. 243,424. Term of patent 14 years.



Claim.—The ornamental design for a base for a bird-cage as shown.

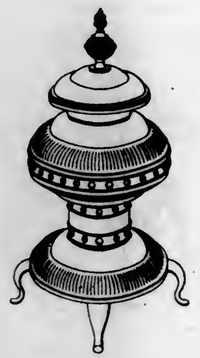
37,366. BASE FOR BIRD-CAGES. GEORGE A. GLAHN, Wallingford, Conn., assignor to The Andrew B. Hendryx Co., New Haven, Conn., a Corporation. Filed Jan. 30, 1905. Serial No. 243,425. Term of patent 14 years.

37,366.



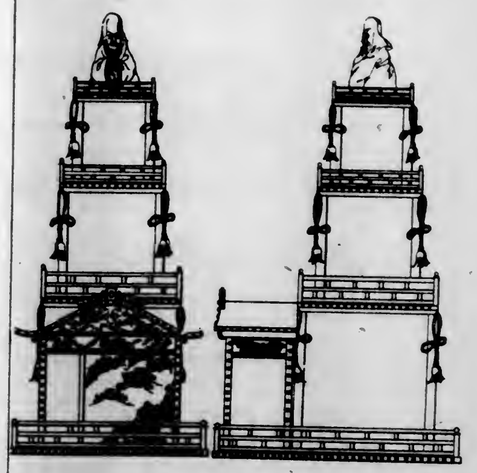
Claim.—The ornamental design for a base for a bird-cage as shown.

37,367. STOVE. JAMES ALLINGHAM, Chicago, Ill. Filed Dec. 17, 1904. Serial No. 237,299. Term of patent 7 years.



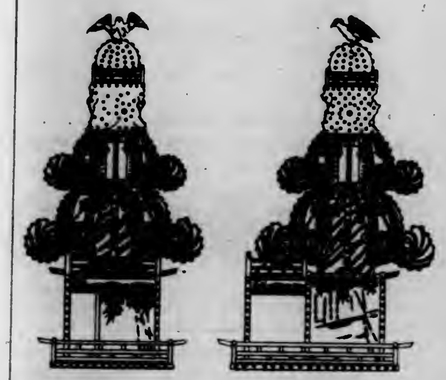
Claim.—The ornamental design for a stove herein shown.

37,368. PORTABLE DANCING-PAVILION. SIMAN MIYATA, West Orange, N. J. Filed Jan. 30, 1905. Serial No. 242,003. Term of patent 7 years.



Claim.—The ornamental design for a portable dancing-pavilion, as shown.

37,369. PORTABLE DANCING-PAGODA. SIMAN MIYATA, West Orange, N. J. Filed Jan. 30, 1905. Serial No. 242,004. Term of patent 7 years.



Claim.—The ornamental design for a portable dancing-pagoda, as shown.

TRADE-MARKS

REGISTERED MARCH 7, 1905.

44,272. HARMONICAS. FRANK SCRIBNER, New York, N. Y. Filed Feb. 11, 1905.

The Brass Band

The words "THE BRASS BAND." Used since September, 1894.

44,273. COMBINED SHOULDER-BRACE AND SUSPENDERS. JACOB N. FAUST, Chicago, Ill. Filed Nov. 18, 1904.

RADIUM

The word "RADIUM." Used since September 1, 1903.

44,274. WOMEN'S HATS, HAT-FRAMES, TRIMMED HATS, AND HAT-TRIMMINGS. JOSEPH MOSES, New York, N. Y. Filed Feb. 6, 1905.

Florette

The word "FLORETTE," arranged within an elliptical outline. Used since February 3, 1902.

44,275. HATS. WILLIAM JULIUS MITCHELL, Waco, Tex. Filed Sept. 3, 1904.



The representation of an ornamental panel-like scroll, upon the top of which is superposed the forehead of a steer with its horns connected thereto. Used since April 29, 1904.

44,276. TANNED GOAT SKINS. LENNOX & BRIGGS, Haverhill, Mass. Filed Feb. 14, 1905.

RELIANCE

The word "RELIANCE." Used since January 1, 1903.

44,277. LIQUID TONIC MEDICINE. CHECKERS MEDICINE CO., Winston-Salem, N. C. Filed Nov. 3, 1904.

Checkers

The word "CHECKERS." Used since November 3, 1893.

44,278. REMEDIAL PREPARATIONS FOR DISEASES OF THE BLOOD. THE DR. TAYLOR REMEDY COMPANY, Philadelphia, Pa. Filed Jan. 31, 1905.



A portrait of Dr. Taylor, (deceased,) the originator of the preparation. Used since January 15, 1905.

44,279. REMEDY FOR CERTAIN NAMED DISEASES. THE PORTER MEDICINE CO., Paris, Tenn. Filed Jan. 25, 1905.

GRIP-IT

The compound word "GRIP-IT." Used since December 15, 1904.

44,280. ANTISEPTIC AND EMOLIENT MEDICINE. INEEDA COFFEE COMPANY, Louisville, Ky. Filed Jan. 30, 1905.



The word "INEEDARUB," associated with the representation of a nurse wearing a white band around the sleeve, upon which is displayed a red star, and in the act of rubbing the bare leg of a patient. Used since January 4, 1905.

44,281. MODERATELY-ADHESIVE SALVE. WILLIAM J. LICKEL, Brooklyn, N. Y. Filed Jan. 17, 1905.

SALV-O

The compound word "SALV-O." Used since November 1, 1904.

44,282. REINHOLD BERGNER, Argyle, Minn. Filed Feb. 4, 1905.



A pictorial likeness and a facsimile signature of the registrant. Used since January 1, 1903.

44,283. HOOF-OINTMENT. PRATT FOOD CO., Philadelphia, Pa. Filed Feb. 4, 1905.



The representation of a seal having serrated edges, within the field of which is a square or rectangle having a shade or color contrasting with the field of the seal, said square or rectangle having represented within the confines thereof a hoof and a portion of the ankle of a horse. Used since December 15, 1904.

44,284. CONDITION-POWDER. PRATT FOOD CO., Philadelphia, Pa. Filed Feb. 4, 1905.



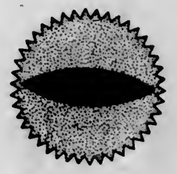
The representatoin of a seal having serrated edges, within the field of which are three circles inclosing a surface having a shade or color contrasting with the field of the seal and separated therefrom by a narrow border of a shade or color contrasting with the field of the seal and of the circles. Within each circle is represented, respectively, the head and neck of a horse, a cow, and a hog. Used since January 5, 1905.

44,285. HEAVE, COUGH, AND COLD CURE. PRATT FOOD CO., Philadelphia, Pa. Filed Feb. 4, 1905.



The representation of a seal having serrated edges, within the field of which is a figure having two parallel sides connected at their ends by arcs of a concentric circle, the space within said lines having a shade or color contrasting with the seal and separated therefrom by a narrow border having a shade or color contrasting with that of the field and of the figure. Used since November 26, 1904.

44,286. LICE-KILLER. PRATT FOOD CO., Philadelphia, Pa. Filed Feb. 4, 1905.



The representation of a seal having serrated edges, within the field of which is a figure formed by the arcs of two circles intersecting at their ends having a shade or color contrasting with the field of the seal and separated therefrom by a narrow border of a shade or color contrasting with that of the field of the seal and of the said figure. Used since November 26, 1904.

44,287. COFFEE. THE PORTO RICO CO., San Francisco, Cal. Filed Feb. 9, 1905.

PONCE DE LEON

The name "PONCE DE LEON." Used since July, 1903.

44,288. CANDIES. WILLIAM L. CASWELL, Lowell, Mass. Filed Jan. 27, 1905.

IMMENSE

The word-symbol "IMMENSE." Used since 1883.

44,289. CANDY, CANDIED FRUIT, AND CANDIED POPCORN. PLOWS CANDY CO., St. Louis, Mo. Filed Feb. 1, 1905.

HONEY BOY

The words "HONEY BOY." Used since October, 1896.

44,290. CERTAIN NAMED MEATS. TENNESSEE PACKING & PROVISION COMPANY, Nashville, Tenn. Filed Jan. 23, 1905.



A representation of the statue of Andrew Jackson on horseback, associated with the words "OLD HICKORY" and the name "JACKSON." Used since December 20, 1904.

44,291. LARD. TENNESSEE PACKING & PROVISION COMPANY, Nashville, Tenn. Filed Jan. 23, 1905.



A representation of the statue of Andrew Jackson on horseback, associated with the words "OLD HICKORY" and the name "JACKSON." Used since December 20, 1904.

44,292. AIR MOISTENING AND PURIFYING COMPOSITIONS. GERTZ CO., Chicago, Ill. Filed Feb. 6, 1905.

FORMOZONE

The word "FORMOZONE." Used since February 2, 1905.

44,293. CHEMICALS FOR PHOTOGRAPHIC PURPOSES. CLAUDE ANTOINE LUMIERE, Burlington, Vt. Filed Oct. 29, 1904.

PHOTODOSES

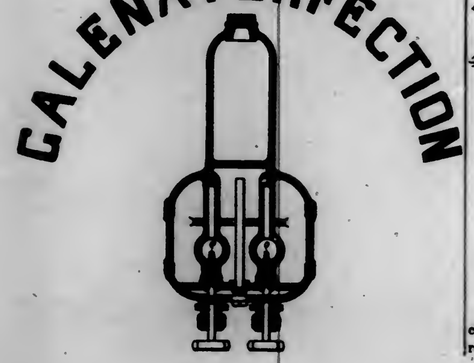
The word "PHOTODOSES." Used since January 2, 1901.

44,294. PREPARATION IN POWDER FORM FOR POLISHING, SCOURING, AND CLEANSING PURPOSES. LEVER BROTHERS COMPANY, Portland, Me., and Cambridge, Mass. Filed July 7, 1904.

VIM

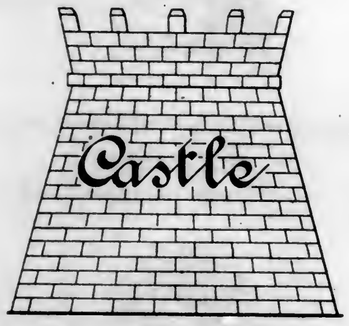
The word-symbol "VIM." Used since May, 1904.

44,295. LUBRICATING ENGINE-OIL. GALENA-SIGNAL OIL COMPANY, Franklin, Pa. Filed Jan. 23, 1905.



The words "GALENA PERFECTION" in connection with the representation of a central vertical section of a lubricator. Used since June 21, 1904.

44,296. METALLIC PACKING. THE BUHNE METAL PACKING CO. New York, N. Y. Filed Jan. 26, 1905.



The word "CASTLE" and the representation of a castle. Used since December 1, 1904.

44,297. BROOMS. DIEDERICH FINK, New York, N. Y. Filed Feb. 3, 1905.

Sampson

The word "SAMPSON." Used since July, 1899.

44,298. OIL AND GASOLENE CANS. J. A. HARPS MANUFACTURING CO., Greenfield, Ohio. Filed Feb. 13, 1905.

NEVER-FAIL

The hyphenated word "NEVER-FAIL." Used since July 1, 1895.

44,299. SCREW-DRIVERS. HERMAN A. METZ, New York, N. Y. Filed Feb. 3, 1905.



The word "SLIPNOT" inclosed within a representation of a cord forming a slip-knot. Used since November 1, 1904.

44,300. BUTTONS. DIRCKSHOFF, RAFFLOER & CO., New York, N. Y. Filed Dec. 16, 1904.



The representation of an escutcheon—an argent and a fess azure charged with a mullet of the field—and a small ribbon below said representation. Used since September 1, 1904.

LABELS

REGISTERED MARCH 7, 1905.

11,926.—*Title:* "LEGATION." (For Cigars.) COLE LITHOGRAPHING CO., Chicago, Ill. Filed February 13, 1905.

11,927.—*Title:* "BLUE EAGLE." (For Cigars.) S. LEVINSON & CO., Seattle, Wash. Filed January 18, 1905.

11,928.—*Title:* "GOLDEN EAGLE." (For Cigars.) ISRAEL LEWIS, New York, N. Y., and Newark, N. J. Filed February 11, 1905.

11,929.—*Title:* "CAMBRIDGE SPRINGS MINERAL WATER." (For Mineral Water.) THOMAS C. WETZEL, Cambridge Springs, Pa. Filed February 10, 1905.

11,930.—*Title:* "DE VITA MINERAL WATER." (For Mineral Water.) THOMAS C. WETZEL, Cambridge Springs, Pa. Filed February 10, 1905.

11,931.—*Title:* "RHEIN BLUME." (For Rhein Wine.) UNITED WINE & TRADING CO., New York, N. Y. Filed February 4, 1905.

11,932.—*Title:* "TOSETTI." (For Hop Products.) ADOLPH WILMANNS, Milwaukee, Wis. Filed February 14, 1905.

11,933.—*Title:* "OSMANIN." (For Coffee.) LAZAR DEUTSCH, New York, N. Y. Filed February 7, 1905.

11,934.—*Title:* "TIGER HEAD." (For Coffee and Spices.) CHARLES HAROLD MONTANYE, New York, N. Y. Filed February 10, 1905.

11,935.—*Title:* "PRATT'S WHEAT." (For Cereal Products.) THE PRATT CEREAL COMPANY, Boston, Mass. Filed February 13, 1905.

11,936.—*Title:* "YORKSHIRE." (For Breakfast-Bacon.) KENTUCKY PACKING & PROVISION CO., Louisville, Ky. Filed January 20, 1905

11,937.—*Title:* "IRIS FACE CREAM." (For Face-Cream.) IRIS FACE CREAM CO., Berkeley, Cal. Filed February 11, 1905.

11,938.—*Title:* "VELO." (For Massage Cream or Lotion.) THE H. P. ENGELN COMPANY, Cleveland, Ohio. Filed November 5, 1904.

11,939.—*Title:* "ERDMAN'S GERMAN HERB CURES." (For Medicine.) ERDMAN & CO., Philadelphia, Pa. Filed February 11, 1905.

11,940.—*Title:* "H. & G. ANTI-TEARABLE TAFFETA." (For Silk Goods.) HARRISON & GORE SILK CO., Newburgh, N. Y. Filed February 9, 1905.

11,941.—*Title:* "H. & G. ANTI-FADEABLE TAFFETA." (For Silk Goods.) HARRISON & GORE SILK CO., Newburgh, N. Y. Filed February 9, 1905.

11,942.—*Title:* "THE OWL CLIP." (For Wire Paper-Clips.) MICHAEL BARTHOLOMEW RYAN, Boston, Mass. Filed February 10, 1905.

11,943.—*Title:* "CLINGSTONE FLOOR VARNISH." (For Varnish.) THE MICHIGAN PAINT COMPANY, Flint, Mich. Filed February 13, 1905.

11,944.—*Title:* "DECORA GILT." (For Paint.) GERSTENDORFER BROS., New York, N. Y. Filed February 6, 1905.

11,945.—*Title:* "COLUMBUS MITCHELINE QUILT." (For Quilts.) SWIFT MANUFACTURING COMPANY, Columbus, Ga. Filed February 11, 1905.

PRINTS

REGISTERED MARCH 7, 1905.

1,234.—*Title:* "HARVARD." (For Beer.) HARVARD BREWING CO., Lowell, Mass. Filed February 11, 1905.

1,235.—*Title:* "HEARTSEASE." (For Medicine.) THE HEARTSEASE REMEDY CO., Ashland, Ohio. Filed February 6, 1905.

1,236.—*Title:* "TANNERY, SHOE FACTORY, JOBBING HOUSE, SHOE STORE." (For Shoes.) ERNEST S. GILE, Boston, Mass. Filed January 30, 1905.

1,237.—*Title:* "ALLEN'S ROYAL REMEDY, A FOOT POWDER." (For Powder for the Feet.) JOSEPH C. ALLEN, Plainfield, N. J. Filed January 19, 1905.

1,238.—*Title:* "THE KING OF LUBRICANTS." (For Cutting Compound.) THE WHITE & BAGLEY COMPANY, Worcester, Mass. Filed February 8, 1904.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BARNHART.

Decided September 30, 1904.

1. DESIGNS—PATENTABILITY.

Where the applicant's design is for a font of Gothic letters characterized by minute ceriphs and Gothic letters are shown in one reference and minute ceriphs upon letters similar to the Gothic in another reference, *Held* no invention is involved in placing ceriphs upon the letters of the first reference in the same manner in which they have been previously applied to somewhat similar letters in the second reference.

2. SAME—SAME.

In affirming the rejection of a design for Gothic letters provided with minute ceriphs upon two references, one showing the Gothic letters and the other showing minute ceriphs upon letters somewhat similar to Gothic, *Held* that the ground of rejection here is not aggregation, but lack of invention, by reason of the mere obviousness of the changes relied upon to distinguish over prior designs.

APPEAL from Examiners-in-Chief.

DESIGN FOR FONT OF PRINTING-TYPE.

Messrs. Burton & Burton for the appellant.

ALLEN, *Commissioner:*

This is an appeal from a decision of the Examiners-in-Chief affirming the rejection by the Examiner of the following claim:

The ornamental design for a font of printing-type, herein shown.

The references are: Heyer, No. 18,968, March 19, 1889; Heyer, No. 20,506, February 3, 1891; Schroeder, No. 21,119, October 20, 1891; American Type Founders' Desk Book, page 622.

The applicant's design is for a font of Gothic letters characterized by minute ceriphs upon all ends of lines which would otherwise be square. The Gothic letters are shown upon page 622 of the "Desk Book" of the American Type Founders' Company. Minute ceriphs upon the otherwise square terminations of lines in letters somewhat similar to the Gothic are shown by Design Patent No. 20,506, February 3, 1891, Heyer. It is clear that no invention is involved in placing ceriphs upon the Gothic letters of the "Desk Book" in the same manner in which they have been previously applied to somewhat similar letters by Heyer, and no more than this does the applicant appear to have accomplished in this case.

The ground of rejection here is not aggregation, but lack of invention, by reason of the mere obviousness of the changes relied upon to distinguish over prior designs. The application of the ceriph to a letter would undoubtedly involve invention if new, though the lines or forms constituting the letter and those of the ceriph apart from any letter had both been previously known. But when ceriphs of certain character have been applied to letters of one style it becomes apparent at once to all that the same ceriphs may be applied to any other letters not of too widely different style to secure similar effects. To grant patents for such extensions of the original design would be to set aside entirely the effect of the word "invented" in the statute authorizing the grant of design patents.

The decision of the Examiners-in-Chief sustaining the Primary Examiner in the rejection of the claim is affirmed.

EX PARTE BARNES.

Decided January 21, 1905.

1. APPLICATION—AMENDMENT—SHIFTING GROUND—REQUIREMENT TO CANCEL CLAIMS CORRECT.

Where after prosecuting claims to each of two distinct features the claims to one of these features were voluntarily canceled, but after action upon the merits of the claims to the remaining feature claims to each feature were again presented and the Examiner required the claims to the reinstated feature to be canceled, *Held* the Examiner's action was based upon well-established practice regarding shifting ground, and if his conclusion that two features are independent inventions is correct his action refusing consideration upon the merits and requiring cancellation of the claims to the feature proposed for reinstatement was clearly proper.

2. SAME—SAME—SAME—EXAMINER'S ACTION NOT REVIEWABLE ON PETITION.

Where the Examiner refused to act upon the merits of a case as amended and required the cancellation of claims on the ground that they were drawn to an invention independent from that which the applicant had elected to prosecute in that case, *Held* the question of independence of invention in this case is the same as that which is raised when division is required and must follow the same course of appeals, wherefore the Examiner's conclusion upon this question will not be reviewed upon petition.

3. SAME—SAME—SAME—DIVISION SHOULD NOT BE REQUIRED AFTER ELECTION.

Where the Examiner refused further action upon the merits and required the cancellation of claims on the ground that they were for an invention independent from that which the applicant had elected to prosecute in that case, and the applicant contends that, as no requirement for division had been made, he should be permitted to try that question and elect, if necessary, which invention should be retained, *Held* the contention is not sound, since the applicant has already elected and since the fact that this election was not made in response to a requirement for division, but was voluntary, or even accidental, is immaterial.

ON PETITION.

IRONING-MACHINES.

Messrs. Harding & Harding for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring cancellation of claims 2 to 6, inclusive, of the above, entitled application.

The application when filed contained claims to the arrangement and support of the pressing-rollers of an ironing-machine and claims to means for adjusting a belt conveyer upon such machine. For brevity the former feature will be designated herein an "ironing-machine" and the latter a "belt-tightener." After several actions by the applicant and by the Office the applicant canceled all claims to the ironing-machine and presented for consideration claims to the belt-tightener only, though no question of division had been raised. The claims to the belt-tightener were considered and rejected as lacking in patentable novelty. The applicant thereupon presented claims to the ironing-machine, together with claims to the belt-tightener. The Examiner has made no further action upon the merits of the case and has required that the claims to the ironing-machine be canceled. The present petition has been taken from this action.

The Examiner's action was based upon the well-established practice by which an applicant who has elected to prosecute claims to one of two independent inventions will not be permitted to shift ground and have examined in the same application claims to the remaining invention. If the Examiner's conclusion that the ironing-machine and the belt-tightener, as claimed in this case, are independent inventions is correct, his action requiring the cancellation of the claims to the ironing-machine was clearly proper. The Examiner's conclusion upon the independence of the different inventions claimed will not, however, be reviewed on petition. The question of independence of invention in this case is the same as that which is raised when division is required and must follow the same course of appeals. The applicant's remedy is therefore to be sought first by appeal to the Examiners-in-Chief. (*Steinmetz* v. *Allen, Commissioner of Patents*, 109 O. G., 549.) If on appeal it is found that the claims to the ironing-machine and those to the belt-tightener do not represent independent inventions, no reason is seen why either set of claims or both sets at once should not be prosecuted in this application; but if the independence of the inventions is acquiesced in or is affirmed on appeal the claims to the ironing-machine must be presented, if at all, in a new application or in a division of the present application.

The applicant contends that as no requirement for division has yet been made such requirement should be made at this time and he should now be permitted to try that question and to elect, if necessary, which invention shall be retained in this application. This contention is not sound. The applicant has already elected, as pointed out by the Examiner, to prosecute the claims to the belt-tightener in this case. That this election was not made in response to action by the Office requiring division, but was purely voluntary, or even accidental, is immaterial. What is material is, first, that claims to but one of the alleged inventions were contained in the case after the amendment of February 20, 1903, and, second, that such claims received action upon their merits by the Office. Under these conditions the applicant is not entitled to present and have considered claims to an independent invention.

The petition so far as it presents the question of independence of invention is dismissed and is denied as to the remaining grounds.

IN RE BROWN.

Decided February 14, 1905.

1. ACCESS TO PENDING APPLICATION.

The following facts are not in themselves sufficient to entitle defendant in an infringement suit to have access to a pending application of the plaintiff therein: first, that testimony was taken by plaintiff to prove infringement of his patent by devices shown in the patent of another, the application for which was involved in interference with and prevailed over application to which access is requested; second, that the application to which access is requested also discloses the invention upon which suit is being maintained, and, third, that defendant has introduced the record of said interference into evidence as part of his defense in the suit.

2. SAME.

Where access to the pending application of another was requested for use in a suit, but the applicant opposed such access, had not waived the rule of secrecy by asserting his application in the suit or elsewhere, and the judge trying the suit had not certified that the application would probably be material and relevant evidence, *Held* that the request would be denied.

IN the matter of the petition of D. Walter Brown for permission to inspect and be furnished with copies of application for patent filed by Frederic W. Hillard.

Mr. E. G. Siggers for D. Walter Brown.

Mr. Thomas Ewing, Jr., and *Mr. Vernon M. Dorsey* for the applicant.

ALLEN, *Commissioner:*

This is a petition by D. Walter Brown for permission to inspect an application for patent filed by Frederic W. Hillard and to be furnished with copies of said application.

The application is properly identified by serial number, date of filing, and title of invention. It is described by the petitioner as abandoned; but this is denied by Hillard's attorneys, and the denial is supported by the face of the record. The petitioner's request is based upon the following assertions of fact:

(1) That the petitioner is the solicitor of the Fisher Book Typewriter Company, who are defendants in a suit brought by Hillard to restrain infringement of Hillard's patent, No. 580,281.

(2) That Hillard has taken testimony in said suit to prove the infringement of his aforesaid patent by certain specified devices.

(3) That these devices are disclosed by Patent No. 717,347 to Arthur W. Cash, the application for which was involved in interference with and prevailed over Hillard's application to which access is requested.

(4) That this application of Hillard also discloses the invention upon which Hillard is maintaining his suit against the Fisher Book Typewriter Company

(5) That the Fisher Book Typewriter Company have introduced the record of said interference into evidence as part of their defense in the said suit.

The petitioner represents that under the circumstances access to the file of the Hillard application is believed to be material and necessary to the defense of the suit which has been brought against his client. I am of the opinion, however, that such grounds have not been presented as will warrant departure from the rule requiring applications for patents pending before this Office to be preserved in secrecy. The applicant has opposed the grant of the petition, and it does not appear that he has waived the rule of secrecy by the assertion of his application or any reference thereto in the present suit or elsewhere; nor has the judge trying the case certified that a copy of this application would probably be relevant and material evidence for the defendant. The facts here do not, therefore, fall under the exceptions appearing in the following decisions: *United States, ex rel. Pollok*, v. *Hall*, (48 O. G., 1263;) *in re Standard Plunger Elevator Company*, (112 O. G., 1480;) *in re Deitsch*, (108 O. G., 1885;) *in re Ashtabula Telephone Company*, (110 O. G., 860.) Nor is any exception to the rule of secrecy made on the ground that the application to which access is desired was at one time in interference with applications of the parties seeking access or of their assignors. (*Ex parte Warner*, 96 O. G., 1238.)

The petition is denied.

NORMAND v. KRIMMELBEIN.

Decided February 14, 1905.

1. INTERFERENCE—MOTION TO TRANSMIT—INCLUSION OF NEW COUNTS—COUNTS SHOULD BE SPECIFIED.

Where a motion is brought to transmit an interference for the purpose of including therein as counts certain "allowable claims," which claims were not specified in the motion, *Held* that the interference should not be transmitted for the inclusion of some claims about which the opposing party had no notice.

2. SAME—SAME—SAME—PRACTICE.

When an interference is transmitted to the Examiner to determine whether claims corresponding to certain claims made by the other party can be admitted as a part of the issue, *Held* that if there exists a broad invention which is common to both parties and a patentable claim can be agreed upon by all the parties at the hearing such claim may be included in the issue of the interference.

APPEAL on motion.

QUICK-ACTION AUTOMATIC RELEASE MECHANISM FOR AIR-BRAKES.

Application of Joseph E. Normand. Reissue application of Leopold Krimmelbein.

Messrs. Davis & Davis for Normand.

Mr. Edward A. Wright and *Mr. J. Snowden Bell* for Krimmelbein.

ALLEN, *Commissioner:*

This is an appeal by Normand from a decision of the Examiner of Interferences refusing to suspend the interference and transmit the same for the purpose of including therein "allowable claims" in another pending application which has been filed by Normand.

It appears that this new application contains claims corresponding to original counts 4 and 5, and as these counts have been specifically referred to in the motion the interference was transmitted for this distinct purpose. The Examiner of Interferences, however, held that inasmuch as the "other allowable claims" referred to in the motion were not specified therein the interference should not be transmitted for the inclusion of some claims about which the opposing party had no notice.

The Examiner of Interferences was right in refusing to transmit the interference for such an indefinite purpose as that proposed by the appellant.

As stated in *Reece* v. *Fenwick*, (99 O. G., 669,) it is the general policy of this Office—

to have all questions which may be brought in issue between the parties settled in one interference.

When the interference goes before the Examiner to determine whether the claims corresponding to original counts 4 and 5 should be included in the issue, there would seem to be no objection to the inclusion therein of a broad claim which may be agreed upon by all parties. If there is a broad invention common to the respective inventions, it would seem that this fact could be determined by the respective parties and the claims included in the issue, so that this interference can proceed on its merits without further delay, of which there has already been too much in this proceeding.

With this exception the decision of the Examiner of Interferences is affirmed.

LEMP v. BALL.

Decided February 15, 1905.

INTERFERENCE—AMENDMENT UNDER RULE 109—APPEAL.

Where the Examiner refuses to admit claims for the purpose of interference under Rule 109 because, in his opinion, they are not patentable, *Held* that his decision will not be reviewed upon direct appeal to the Commissioner.

APPEAL on motion.

OPERATION OF FLASH-BOILERS.

Application of Hermann Lemp. Application of Augustus A. Ball.

Mr. Albert G. Davis for Lemp and for Ball.

ALLEN, *Commissioner:*

There are here presented appeals by both parties from the refusal of the Primary Examiner to admit claims under Rule 109 and make them counts of the interference issue.

The Examiner has refused to admit the claims because, in his opinion, they are not patentable, in view of a newly-discovered reference. It is very clear that his action cannot be reversed without reversing his judgment upon the question of patentability, for the reason that so long as the claims are regarded as unpatentable they cannot be made issues of the interference.

The question of patentability should be reviewed, if at all, in the first instance by the Examiners-in-Chief.

The appeals are dismissed.

EX PARTE SCHMIDMER.

Decided February 23, 1905.

COMPLETE APPLICATION—PROCESS CASES—DRAWINGS UNNECESSARY.

An application claiming a process will be entered complete even where no drawing is filed, and the Examiner will call for a drawing when he examines the case if he finds one necessary.

ON PETITION.

PROCESS FOR PRODUCING FLEXIBLE ELECTRICAL CONDUCTORS.

Mr. B. Singer and *Mr. C. Le Roy Parker* for the applicant.

ALLEN, *Commissioner:*

This is a petition that the complete filing date of the above-entitled application be changed from December 29, 1904, to May 4, 1904.

It appears from the record that the petition, affidavit, specification, and first fee of fifteen dollars were filed in this Office on May 4, 1904. The applicant was required to file a drawing, which drawing was filed on December 29, 1904. The application was then given a serial number and date of complete filing as of December 29, 1904.

The invention is for a "process for producing flexible electrical conductors," and the single claim at the end of the specification is drawn to cover that process. The drawing illustrates the product resulting from the claimed process. Rule 30 provides in part as follows:

A complete application comprises the first fee of $15, a petition, specification, and oath; and drawings, model, or specimen when required.

It is therefore seen that under the provisions of Rule 30 a complete application must comprise the first fee of fifteen

dollars, a petition, specification, and oath. The drawings, model, or specimen are only necessary to render the application complete when they are required.

Rule 49, relating to the drawings, is as follows:

> The applicant for a patent is required by law to furnish a drawing of his invention whenever the nature of the case admits of it.

It is therefore seen that an application may be filed complete when no drawing accompanies the same if the nature of the case does not require a drawing. While it is often necessary and desirable in process cases that a drawing should be filed before the patent issues, nevertheless many processes are of such a nature that no drawing is required to illustrate the invention. There has been much confusion in the Application Division in regard to the requirement of drawings when an application is filed for a patent on a process. It cannot be well determined by the Examiner whether a drawing is necessary to aid in the description of a process invention prior to an examination of the case. As stated in *ex parte Russell*, (84 O. G., 2021:)

> Drawings of apparatus are many times desirable in applications in which the invention is a process and in which the desirability of a drawing cannot be determined until examination of the applications by the expert Examiner.

The same reasoning applies to drawings for a product when such drawings are deemed to be necessary to more completely describe the process which results in that product. It is believed that the work of the Application Division will be greatly simplified if in all process cases which are filed in this Office a complete filing date be given when the first fee of fifteen dollars, petition, affidavit, and specification are filed in the Office. When all these parts of a process application are on file, the application should be entered as filed complete and sent to the Examiner for examination. Upon examination if the Examiner deems a drawing necessary he should then require that one be filed. In such cases as stated in *ex parte Russell*, *supra*:

> The drawing furnished must be considered in the same light as additional illustration in a case in which a drawing was originally filed or as additional description.

Under the present practice the Application Division is at a loss to know whether a drawing is necessary in order to make a complete application. In the present case unless the application is given a complete filing date as of May 4, 1904, the grant of a patent will be barred by reason of a prior foreign patent which has been granted on an application filed more than twelve months before December 29, 1904. Many applications for patents on processes are now held to be filed complete and they are forwarded to the Examiner when they are not accompanied by drawings. Rule 30, above quoted, specifically provides for such practice. It is believed that uniformity in practice warrants the holding that all applications for processes alone should be entered as filed complete when all the parts except the drawing, model, or specimen are filed. When any one of these—namely, drawing, model, or specimen—is deemed necessary for more complete disclosure of the invention, the Examiner can determine this fact when he examines the application and can make a requirement accordingly.

The petition is granted.

EX PARTE LENDL.

Decided February 25, 1905.

PETITION PREMATURE—RECONSIDERATION BY EXAMINER NECESSARY.

> Petition should not be taken from an Examiner's action until the matter has been presented to him for reconsideration, as required in Rule 145.

ON PETITION.

COUNTING APPARATUS.

Mr. B. Singer for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring a supplemental oath in connection with certain proposed amendments to the above-entitled application.

The Examiner states that the question for decision has not been twice acted upon by him and that the petition is therefore prematurely taken. The applicant admits that the question upon which the petition is brought was not presented to the Examiner for reconsideration and states that he was aware of this fact when the petition was taken. His excuse for deliberate disregard of the plain requirements of Rule 145 is a desire to expedite the prosecution of his case in view of certain business considerations. The practice prescribed by Rule 145 should be strictly followed, for the reasons set forth in *ex parte Shone*, (99 O. G., 863.) The facts presented by the applicant do not, in my opinion, require that an exception to the practice should be made in this case.

The petition is dismissed.

IN RE CLARK.

Decided February 25, 1905.

ASSIGNMENT—LIEN—EX PARTE STATEMENTS NOT RECORDED.

> An *ex parte* statement or affidavit by the beneficiary under an alleged lien as to his claimed rights under a patent will not be recorded in the assignment records of this Office.

IN the matter of recording an attorney's lien for services claimed to have been rendered by James P. Clark in interferences *Bowditch* v. *Todd*, No. 20,873, and *Miles* v. *Todd*, No. 21,640.

ALLEN, *Commissioner:*

This document has been referred to me by the Chief of the Assignment Division for instructions.

The instrument purports to be an attorney's lien and is in the form of an affidavit by the attorney that he entered into a written contract with one Todd to act as his attorney in certain interferences entitled *Bowditch* v. *Todd* and *Miles* v. *Todd*. A copy of the contract is embodied in the affidavit, in which it appears that he was to receive a cash payment of fifty dollars and—

> ten per cent. of any amount recovered by sale or other disposition of said patents by said Todd involved in said cases or his associates that may be hereafter appointed by said Todd.

The original contract entered into between Todd and the attorney does not accompany the affidavit.

Section 4898 of the Revised Statutes states that "an assignment, grant, or conveyance" may be recorded in the Patent Office. Rule 198 of the Rules of Practice provides that—

> No instrument will be recorded which is not in the English language and which does not, in the judgment of the Commissioner, amount to an assignment, grant, mortgage, *lien*, incumbrance, or license, or which does not affect the title of the patent or invention to which it relates.

If the present instrument is to be recorded, it can only be done under the provisions of this rule which permits the recording of liens. It is not thought that this rule was ever meant to permit the recording of such instruments as the present one, which is a mere *ex parte* affidavit that the inventor is indebted to him for services rendered. To permit such *ex parte* affidavits to be recorded might quickly be-

come the means of harassing inventors by casting unjust clouds upon their titles. It has not been the practice to record such instruments, and no reason is seen now for instituting such practice.

It is held that the word "lien" in Rule 198 does not refer to an *ex parte* statement or affidavit by the beneficiary under the alleged lien. The Chief of the Assignment Division is instructed to refuse to record the present instrument.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

PAUL *v.* HESS.

Decided January 3, 1905.

1. INTERFERENCE—BURDEN OF PROOF—APPLICANT *v.* PATENTEE.

Where the senior party was a patentee, but the application of the junior party was pending when the patent issued, *Held* that no benefit accrued to the senior party from his possession of a patent in respect to the burden of proof imposed upon his adversary.

2. SAME—PRIORITY—OVERCOMING RECORD DATE OF SENIOR PARTY.

Where the senior party relies upon his record date, the burden is upon the junior party to show reduction to practice preceding that date or else earlier conception followed with due diligence to reduction to practice, either actual or constructive.

3. SAME—REDUCTION TO PRACTICE—OPERATION.

Where the claim to reduction to practice is founded on a type-writing machine having six type-bars embodying the issue and the inventor testifies that he manipulated these bars, and thereby satisfied himself of the practical mechanism of the invention, but no paper was used and his satisfaction was derived from the operation of the bars singly, *Held* that this is not sufficient to show actual reduction to practice.

4. SAME—SAME—SAME—SIMPLE DEVICES.

Where new devices are of an old type and the novelty resides in specific construction, it may be that practical utility may be determined without use under conditions of industry; but where the device is of a new type there is need for demonstration of utility under the conditions of practical operation.

5. SAME—SAME—SAME—SAME—TYPE-WRITING.

Held that an improvement in type-bars of type-writers, upon the efficacy of which the successful operation of the whole machine depends, is not of that simple character which requires no test or operation in order to establish reduction to practice.

6. SAME—SAME—EVIDENCE.

Where the machine claimed as a reduction to practice was submitted to the inventor's employers, but they adopted another machine, and this proving unsatisfactory was withdrawn and still another machine put on the market, *Held* that the circumstances point to the conclusion that the machine did not represent a complete and practical invention.

7. SAME—SAME—SAME—DELAY AND INCONSISTENT CONDUCT.

Held long delay in making use of an invention claimed to have been reduced to practice or in applying for patent tend to show that the alleged reduction to practice was nothing more than an unsatisfactory or abandoned experiment, and this is especially the case where in the meantime the inventor has been engaged in prosecuting similar inventions or others, without reasonable explanation, have been adopted for manufacture and use.

8. SAME—SAME—DILIGENCE.

Where an inventor relies upon the constructive reduction to practice, established by his application, and upon diligence, coupling this with an earlier conception, and urges in excuse of delay in filing the application that he could not come to terms with the company at whose expense the invention had been made, *Held*, this excuse is insufficient, as it does not attempt to explain why an understanding could not have been reached earlier either that the company file the application or allow the inventor to protect the invention himself.

9. SAME—SAME—SAME—BUSINESS CONSIDERATIONS.

Where the excuse given for delay in filing application for patent is impossibility of agreement with employers concerning the invention, *Held* that the excuse is insufficient to establish diligence, as it involves business considerations rather than circumstances of a compelling nature.

Mr. H. C. Lord, *Mr. A. P. Greeley*, and *Mr. C. L. Sturtevant* for the appellant.

Mr. E. C. Davidson for the appellee.

SHEPARD, *J.*:

This is an interference case involving priority of invention of an improvement in type-writing machines as disclosed in the four counts of the following issue:

1. In a front-strike type-writing machine, the combination of a pivoted type-bar arranged below the platen and normally lying toward the front of the machine; a flexing connection disposed below said type-bar, one end being connected to the type-bar, and the opposite end secured to a point arranged in front of the type-bar pivot, said opposite end being arranged to swing about said fixed point with a movement entirely pivotal when said connection is flexed; and means applied upon the flexing connection intermediate its ends for flexing it to actuate the type-bar, the distance between the point of flexure and connection with the type-bar being greater than the distance between the point of flexure and the fixed point.

2. In a front-strike type-writing machine, the combination of a pivoted type-bar arranged below the platen, and normally lying toward the front of the machine; a flexing connection disposed below said type-bar, one end being connected to the type-bar, and the opposite end secured to a point arranged in front of the type-bar pivot, said opposite end being arranged to swing about said fixed point with a movement entirely pivotal when said connection is flexed; and means applied upon said flexing connection intermediate its ends for flexing it to shorten the distance between the ends of the flexing connection and to actuate the type-bar by drawing the part of the bar connected with the flexing connection toward the fixed point, the distance between the point of flexure and connection with the type-bar being greater than the distance between the point of flexure and the fixed point.

3. In a front-strike type-writing machine, the combination of a pivoted type-bar, arranged below the platen and normally lying toward the front of the machine; a flexing connec ion comprising two links connected at the point of flexure and disposed below the said type-bar, one end of said connection being connected to the type-bar and the opposite end secured to a fixed point arranged in front of the type-bar pivot, said opposite end being arranged to swing about said fixed point with a movement entirely pivotal when said connection is flexed; the length of the link connected with the fixed point being shorter than the link connected to the type-bar; and means acting upon said flexing connection intermediate its ends for actuating the type-bar.

4. In a front-strike type-writing machine, the combination of a pivoted type-bar, arranged below the platen and normally lying toward the front of the machine; a flexing connection comprising two links connected at the point of flexure and disposed below the said type-bar, one end of said connection being connected to the type-bar and the opposite end secured to a fixed point arranged in front of the type-bar pivot, said opposite end being arranged to swing about said fixed point with a movement entirely pivotal when said connection is flexed; and means applied upon said flexing connection intermediate its ends for flexing it to shorten the distance between the ends of the flexing connection and to actuate the type-bar by drawing the part of the bar connecting the flexing connection toward the fixed point, the distance between the point of flexure and connection with the type-bar being greater than the distance between the point of flexure and the fixed point.

The case of the appellee, Hess, stands, both for conception and reduction to practice, upon an application disclosing the invention which was filed April 26, 1901. This application ripened into a patent, but no benefit accrued to him therefrom, in respect of the burden of proof imposed upon his adversary, the appellant Paul, because the latter's application was pending at the time of the issue. That application having been filed later, the burden was imposed upon Paul to show a reduction to practice preceding Hess's date, or else an earlier conception followed up with due diligence to reduction to practice, either actual or constructive.

The tribunals of the Patent Office agreed on the sufficiency of Paul's proof to show a conception of the invention about August 1, 1899; but, all concurring, denied his reduction to practice as well as diligence in reduction thereafter.

From the final decision of the Commissioner awarding priority to Hess, Paul has prosecuted this appeal.

The claim of actual reduction to practice is founded on a

model constructed October 18, 1899, which has been made an exhibit in the case.

This model is a type-writing machine having in it six bars answering the description of the issue. Paul testified that he manipulated these bars and thereby satisfied himself of the practical mechanism of his invention. No piece of paper was used in making his test, and it is apparent that his satisfaction was derived from the operation of the bars singly when struck with the finger. We agree with the tribunals of the Patent Office that this is not sufficient to show an actual reduction to practice.

It is true, as we have heretofore held in several cases, that some devices may be so simple and their efficacy so obvious upon mere inspection, that the construction of one of a size and form capable of practical use may well be deemed a sufficient reduction to practice without actual use or test to demonstrate its complete success and probable commercial value. (*Mason* v. *Hepburn*, 13 App. D. C., 86, 89, case of clip for gun; *Lindemeyer* v. *Hoffman*, 18 App. D. C., 1, cap for bottles; *Loomis* v. *Hauser*, 19 App. D. C., 401, paper-ticket holder; *Couch* v. *Barnett*, 23 App. D. C., 446, horse-collar.)

Bearing in mind the intended purpose and use of the new type-bar under consideration, it is not of the simple character of the inventions above mentioned. It constitutes one of the essential parts of a type-writing machine, upon the successful operation of which, entirely supplied with the new bars, the demonstration of its efficacy depends. This called for the application of another and different rule. (*McDonald* v. *Edison*, 21 App. D. C., 527, 529.) And it was therefore necessary for the inventor to show that a type-writing machine supplied with the new bars had been constructed and tested sufficiently to show that it was capable of successfully performing the work for which it was intended. As was well said by the Examiners-in-Chief:

> In a case where the new devices are of an old type and their novelty consists in specific constructions of that old type, it may well be that their practical utility may be determined without actual use of them under conditions of industry. But not so where, as here, the type of devices is a new type. A type-bar-actuating mechanism of a new type, in order to be in practical form, must be one which can be operated with a light touch and one which must act with practical promptness and certainty and with uniform and adequate force. When it is of a new type there is need for demonstration of its practical utility, of a use of it under the conditions of industrial use, and evidence that that use demonstrated its practical operation.

Notwithstanding Paul's statement that he was satisfied with the practical success of the new bar, his action thereafter, and that of the company with which he was engaged, point to a different conclusion. He says that he submitted it to the company, but it was not accepted and adopted. On the other hand, the company adopted another machine called the "Improved Daugherty." This not giving satisfaction was withdrawn and another, not of the type of Paul's model, was substituted and put on the market. Regarding these facts as negativing the claim that the exhibit represented a complete and practical invention at the time, the Commissioner proceeded to say:

> Either Paul or the company could have filed an application in the Patent Office on this machine, had they so desired at any time after its alleged completion in October, 1899, whereas none of the five modifications of the application in interference shows the pin-and-slot connection used in the embodiment of the issue in "Paul's first machine," and no application based on the specific structure of this machine was filed until November 1, 1901. Paul states that applications for patents based on "Paul's first machine," and the "Improved Daugherty" machine were prepared for the company in March, 1900. The application on the "Improved Daugherty" machine, it is stated, was filed in the Patent Office in May, 1901, but the applications on "Paul's first machine" were not filed. This indicates an abandonment of "Paul's first machine" in favor of the "Improved Daugherty" rather than a knowledge of its practicability at that time, as argued by Paul. Paul's unsupported statement that the applications on his machine were not filed because he and the company could not come to terms upon this invention is of little weight. That an application based on "Paul's first machine" was eventually filed November (June 25?) 1, 1901, is of little significance, as the prior Paul-Hess interference had then been declared, and the importance of establishing this machine had become evident.

Long delay in making use of an invention claimed to have been reduced to practice, or in applying for a patent, have always been regarded as potent circumstances tending to show that the alleged reduction to practice was nothing more than an unsatisfactory or abandoned experiment. (*Traver* v. *Brown*, 14 App. D. C., 34, 41; *Reichenbach* v. *Kelley*, 17 App. D. C., 333, 344; *Latham* v. *Armat*, *idem*, 333, 353.) And this is specially the case where, in the meantime, the inventor has been engaged in the prosecution of similar inventions, (*Fejel* v. *Stocker*, 17 App. D. C., 317, 321,) or others, without reasonable explanation, have been adopted for manufacture and commercial use.

Having the benefit of conception only by the construction of his device in October, 1899, Paul was not exercising diligence when his rival entered the field. While nothing was being done to complete this invention by reduction to practice, two other type-writing machines had been adopted and put on sale by the company.

Concurring with the Patent Office tribunals in this conclusion also, we approve and adopt the following extract from the opinion of the Commissioner:

> Aside from business reasons, Paul could undoubtedly have caused the company to file the Pattison applications, or else have had prepared and filed an application on his own account at that time. The application on Paul's Daugherty improvement was filed during the period of delay. Paul urges in excuse of delay that he could not come to terms with the company upon this invention and that as their employee, constructing the model and machine at their expense, it was only proper that he should refrain from applying for patents on his own account until finally convinced of the impossibility of agreement. This excuse does not attempt to explain why an understanding with the company could not have been reached sooner either that they file the Pattison applications or let Paul protect the invention himself. Moreover, it rests upon the bare assertion of Paul entirely unsupported by evidence. Even if properly supported and covering the entire period of delay, this excuse would be insufficient as not of the character required. It involves mere business considerations and not circumstances of a compelling nature. Diligence will not wait on business arrangements. (*Kasson* v. *Hetherington*, 88 O. G., 1157.)

Without further discussion, the decision appealed from will be affirmed. It is so ordered. The clerk will certify this decision to the Commissioner of Patents as required by law. Affirmed.

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OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Patents	547	No. 784,528 to No. 785,074, inclusive.
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Reissues	2	No. 12,324 to No. 12,325, inclusive.
Total issue	604	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			Nevada		
Alaska Territory			New Hampshire	1	
Arizona Territory	1		New Jersey	28	
Arkansas	2		New Mexico Ter't'y		
California	13	1	New York	85	7
Colorado	12		North Carolina	1	
Connecticut	17	2	North Dakota	1	
Delaware	1		Ohio	41	3
District of Columbia	4		Oklahoma Territ'y	1	
Florida	3	1	Oregon	2	
Georgia	3		Pennsylvania	44	4
Hawaii Territory			Porto Rico		
Idaho	1		Rhode Island	4	1
Illinois	57	11	South Carolina		
Indian Territory	2		South Dakota	1	
Indiana	16	1	Tennessee	5	
Iowa	13		Texas	9	
Kansas	10		Utah		2
Kentucky	6		Vermont	1	
Louisiana	1		Virginia	3	4
Maine	1		Washington	5	
Maryland	3		West Virginia	2	
Massachusetts	30	2	Wisconsin	11	
Michigan	18	2	Wyoming		
Minnesota	16	2	U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	14	2			
Montana			Total to citizens of the United States	494	46
Nebraska	3	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Netherlands	1	
Austria-Hungary	3		Newfoundland		
Belgium			New South Wales	3	
Brazil			New Zealand	1	
British West Indies			Norway	2	
Canada	6	1	Persia		
Cape Colony	1		Queensland		
Chili			Roumania		
China			Russia	1	
Costa Rica			San Salvador		
Cuba			Scotland	5	1
Denmark	2		South Australia	1	
Ecuador			Spain		
England	16		Sweden	2	
France	3		Switzerland		
Germany	9		Transvaal, South Africa	1	
India			Victoria	1	
Ireland			Western Australia	1	
Italy					
Japan	1		Total to citizens of foreign countries	60	
Java					
Mexico					

Date of Patent.

RULE 207. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Patents to Assignees.

RULE 200. In every case where it is desired that the patent shall issue to an assignee, the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; from July 1, 1883, to December 31, 1902, in quarterly volumes; since January 1, 1903, in bimonthly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries, 10 cents additional for postage. *Payment in advance required. No club rates. No discount to newsdealers. No sample copies.* All subscriptions must commence with the beginning of a volume. None taken for less than an entire volume. All orders should be addressed to "The Commissioner of Patents, Washington, D. C.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 7, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Feb. 18	Feb. 23	137
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 11	Feb. 13	254
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Feb. 10	Feb. 10	353
321	I. Tillage, etc., and Fences	Feb. 8	Feb. 11	209
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Tents, Toilet, Umbrellas.	Feb. 8	Feb. 9	311
329	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Feb. 8	Dec. 27	579
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels.	Feb. 7	Feb. 21	254
304	XXXIV. Draft Appliances, Railways, Railway-Brakes, Rolling-Stock, Store-Service.	Feb. 7	Feb. 3	393
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Feb. 7	Feb. 2	190
	Between one and two months.			
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Tobacco, etc.	Feb. 4	Jan. 30	256
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Feb. 4	Jan. 9	556
327	XVIII. Steam-Engineering, etc.	Feb. 3	Feb. 14	239
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Feb. 3	Jan. 21	397
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 2	Nov. 25	400
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Signals, Time Controlling Mechanism.	Jan. 31	Jan. 7	401
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Jan. 31	Dec. 28	370
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Jan. 30	Jan. 25	216
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Jan. 27	Feb. 10	246
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Jan. 25	Dec. 15	417
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Jan. 23	Feb. 1	342
139	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Cutlery, Optics, Photography.	Jan. 18	Feb. 7	147
164	XI. Boot and Shoe Making, Boots, Shoes, and Leggings, Button, Eyelet, and Rivet Setting, Harness, Leather Manufacturing, Nailing and Stapling, Whips and Whip Apparatus.	Jan. 18	Jan. 7	383

Applications Under Examination—Continued.

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148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Jan. 10	Feb. 8	385
332	X. Carriages and Wagons	Jan. 10	Jan. 26	435
137	VIII. Beds, Chairs, Check-Controlled Apparatus, Furniture, Kitchen and Table Articles.	Jan. 9	Dec. 27	608
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks, Sheet-Metal Ware, Making, Tools, Wire-Working.	Jan. 9	Nov. 16	408
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Jan. 7	Jan. 4	569
	Between two and three months.			
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Jan. 3	Jan. 16	324
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 30,	Dec. 21	612
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Dec. 30	Nov. 29	735
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Dec. 19	Nov. 3	611
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Dec. 14	Dec. 13	416
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working, Store Furniture.	Dec. 13	Jan. 16	585
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Dec. 8	Jan. 14	370
	Between three and four months.			
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors, Pumps, Sewerage, and Water Distribution.	Dec. 2	Jan. 26	509
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Dec. 1	Oct. 27	756
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Dentistry, Locks and Latches, Safes, Surgery, Undertaking.	Nov. 1	Nov. 1	747

Total number of applications awaiting action..... 15,350

Under one month.			
*Designs	Feb. 17	Mar. 1	22
†Trade-Marks	Mar. 3	Mar. 3	9
‡Labels and Prints	Mar. 7	Mar. 7	....

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

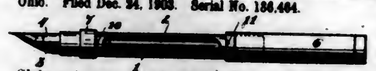
An Appendix to the above, covering the period from July 1, 1888, to October 1, 1892. One volume, 18 pages. Paper covers, 25 cents.

Appendix No. 2, October 1, 1892, to March 1, 1895. One volume 28 pages. Paper covers, 25 cents.

PATENTS

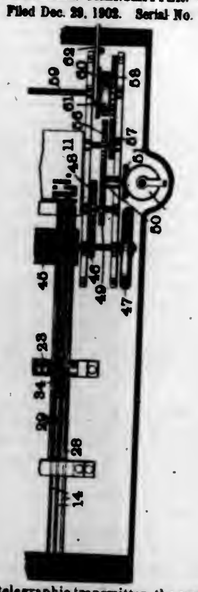
GRANTED MARCH 14, 1905.

784,528. **FOUNTAIN-PEN.** THOMAS P. AMBROSE, Cincinnati, Ohio. Filed Dec. 24, 1903. Serial No. 186,464.



Claim.—As a new and improved article of manufacture, a fountain-pen consisting of the slotted tubular frame 1 provided with the boss 7 and the stud 10, the flexible ink-reservoir 2 having the pen-feed 3 secured in said frame, the recessed sleeve 6 adjustably secured on said frame, covering the slots in said tubular frame and said ink-reservoir and engaging said stud, and the cap 5, all combined in the manner and for the purposes specified.

784,529. **TELEGRAPHIC TRANSMITTER.** MARTIN ARMSTRONG, St. Louis, Mo. Filed Dec. 29, 1903. Serial No. 186,992.



Claim.—1. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a contact member movable independently of said key-bar, a rack carried by said contact member, connections between said key-bar and rack and a toothed member for imparting motion to said rack, said rack having lateral movement toward and away from said toothed member.

2. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a contact member comprising a part movable independently of said key-bar and a finger pivotally mounted on said part and adapted to coöperate with said signal-producing member, a rack carried by said contact member, connections between said key-bar and rack, and a toothed member for imparting motion to said rack, said rack having lateral movement toward and away from said toothed member.

3. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a contact member comprising a part movable independently of said key-bar and a contact-finger mounted on said part but insulated therefrom, said contact member and finger being arranged to make electrical contact during the movement of said member in one direction, a rack carried by said contact member, connections between said key-bar and rack, and a toothed member for imparting motion to said rack.

4. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a contact member movable independently of said key-bar, a rack pivotally carried by said contact member, connections between said key-bar and rack, and a toothed member for imparting motion to said rack.

5. In a telegraphic transmitter, the combination with a signal-producing member, of a reciprocating contact member therefor, a rack pivotally mounted on said contact member, a motor-driven toothed cylinder engaging with said rack to move said contact member in one direction, means for bringing said rack into engagement with said cylinder, means for disengaging said rack from said cylinder, and means for returning said contact member.

6. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a contact member movable independently of said key-bar, a rack pivotally mounted on said contact member, a motor-driven toothed member for imparting motion to said rack, and means for disengaging said rack from said toothed member.

7. In a telegraphic transmitter, the combination with a signal-producing member, of a reciprocating contact member therefor, a rack controlling the movement of said contact member in one direction, a rotary toothed member, means for bringing the said rack and rotary toothed member into engagement, a locking device for retaining said latter-named parts in engagement, and means for releasing said locking device.

8. In a telegraphic transmitter, the combination with a signal-producing member, of a reciprocating contact member therefor, a rack pivotally mounted on said contact member, a toothed cylinder, means for forcing said rack laterally into engagement with said cylinder, a locking device for retaining said rack in engagement with said cylinder, and means for releasing said locking device when said contact member has traveled a predetermined distance.

9. In a telegraphic transmitter, the combination with a signal-producing device, of a reciprocating contact member therefor, a rack pivotally mounted on said contact member, a motor-driven toothed cylinder, means adapted to be actuated by the key-bar of a type-writer for forcing said rack laterally into contact with said cylinder, a locking device for retaining said rack in contact with said cylinder, a stop for releasing said locking device, and a spring for returning said contact.

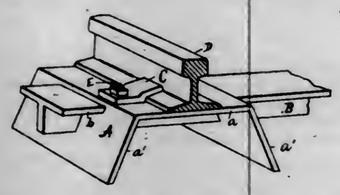
10. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a slidingly-mounted contact member provided with a contact-finger coöperating with said signal-producing member, a rack carried by said contact member but movable independently thereof, a rotary toothed member for driving said rack, and connections between said key-bar and rack for moving the latter into contact with said toothed member.

11. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a slidingly-mounted contact member provided with a contact-finger coöperating with said signal-producing member, a rack carried by said contact member but movable independently thereof, a rotary toothed member for driving said rack, connections between said key-bar and rack for moving the latter into contact with said toothed member, and a locking device for retaining said rack in engagement with said rotary toothed member.

12. In a telegraphic transmitter, the combination with a key-bar, of a corresponding signal-producing member, a slidingly-mounted contact member provided with a contact-finger coöperating with said signal-producing member, a rack carried by said contact mem-

ber but movable independently thereof, a rotary toothed member for driving said rack, connections between said key-bar and rack for moving the latter into engagement with said toothed member, a locking device for retaining said rack in engagement with said toothed member, and a stop for releasing said locking device.

784,530. METALLIC RAILWAY-TIE. HENRY W. AVERY, Cleveland, Ohio, assignor of one-half to The AVERY Stamping Company, Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 22, 1904. Serial No. 221,610.



Claim.—1. In a metallic tie-bar, the combination of two chairs, each having a flat seat and depending side members, tie-bar threaded through the side members of said chairs, hook-plates upon the chair-seats, and means for rigidly fastening said members together in various relative positions.

2. In a metallic tie-bar, the combination of two chairs, each having a flat seat and depending sides, tie-bar threaded through the said sides of said chairs, and hook-plates upon the chair-seats, said three members being provided with means which interlock the one with the other when said members are in proper relative positions, and means for maintaining the interlocking relationship.

3. In a mtallic tie, the combination of two chairs, having flat seats and depending side members, and one of said chairs having a traverse serrated slot, with a tie-bar threaded through the side members of said chair and having a top plate in which are correspondingly serrated openings, and hook-plates upon said chair-seats having downwardly-projected serrated lugs which enter the slots in said chair-seat and tie-bar and interlock therewith, and means for preserving this interlocking relation.

784,531. CISTERN-COVER. CHARLES W. ATT and FERDINAND H. BORCHERDING, Fort Wayne, Ind. Filed July 27, 1904. Serial No. 218,338.

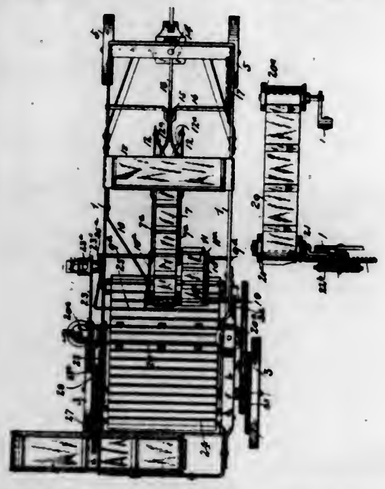


Claim.—1. A cistern-cover consisting of an annular metallic rim having a vertical slot and an undercut recess upon its inner edge in diametric relation; a two-part cap for the central opening of the rim, consisting of two separable sections or semicircular plates having coincident semicircular openings at their inner edge, and coincident semicircular inclined flanges concentric with the said cap for the purpose specified, and provided upon their lower face with pendent lugs adapted for an interlocked engagement with the adjacent inner edge of the rim at the said slot and recess; and means for locking the said cap-sections together.

2. In a well or cistern cover an annular supporting-rim having its inner edge provided with a vertical slot and an undercut recess in opposite relation; a two-part cover consisting of substantially duplicate semicircular plates having semicircular openings at their inner edge, semicircular inclined flanges upon their upper face for the purpose specified; means for securing the said plates to the said rim; and means for interlocking the said plates together.

3. In a cistern or well cover an annular supporting-rim having its inner edge slotted and undercut as shown; a cap for the central opening of said rim consisting of two semicircular plates having coincident semicircular openings at their diametric edge, having coincident semicircular inclined flanges upon their upper face for the purpose specified, one of said plates having on its inner edge flanges overlapping its companion plate and having upon its lower face pendent lugs adapted for an interlocking engagement with the said rim in the said slot and recess respectively, the other plate having upon its lower face a pendent lug adapted to engage the said slot; and means for securing the said plates against lateral displacement when in position.

784,532. BEET-HARVESTER. HENRY F. BARBER, Fort Morgan, Colo., assignor of seven-twelfths to John O. Jones and Frank M. Tefft, Fort Morgan, Colo. Filed Apr. 9, 1904. Serial No. 202,418.



Claim.—1. In a machine of the character described, an elevator having its lateral bars equipped at their lower ends with excavating means, a transverse carrier arranged to receive the contents of said elevator and conduct the same laterally thereof, means adapted to deflect and precipitate said contents, a carrier to receive said precipitated contents, and a cutter arranged laterally of said latter carrier and adapted to engage said contents for the removal of the superfluous portion thereof.

2. In a harvester of the character described, an elevator equipped with excavating means, a transverse carrier arranged to receive the contents of said elevator and deliver it laterally thereof, and a spring-guide arranged parallel with said carrier and adapted to aid the action thereof.

3. In a harvester of the character described, an elevator equipped with excavating means, a transverse carrier receiving the contents of said elevator and delivering the same laterally thereof, a spring-guide opposed to and arranged to aid the action of, said carrier, a second carrier arranged in a plane below the aforesaid carrier, and a lateral deflector arranged to deliver said contents upon said second carrier.

4. In a harvester of the character described, an elevator equipped with excavating means, a transverse carrier with its carrying-surface presented toward the upper delivery end of said elevator, a spring-guide opposed to said carrier, a laterally-arranged deflector adjustably disposed in position, a second carrier arranged in a plane below the aforesaid carrier and adapted to receive the objects precipitated by said deflector and a lateral cutter arranged to act upon the objects borne by said second carrier

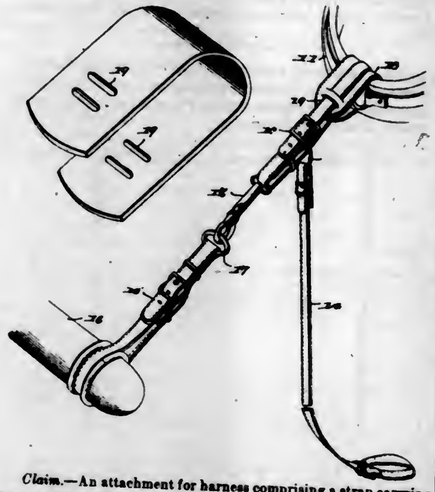
5. In a harvester of the character described, a transverse carrier, an elevator having excavating means delivering upon the aforesaid carrier, and a spring-guide with one right-angled end portion fixed in position and having its main portion arranged parallel to the carrying-surface of said transverse carrier, and its other right-angled end portion having frictional contact with a fixed part.

6. In a harvester of the character described, an elevator equipped with excavating means, a transverse carrier with its carrying-surface presented to the upper delivering end of said elevator, a deflector arranged laterally of said parts, a guide opposed to said transverse carrier, a second carrier arranged in a plane below the aforesaid carrier, shaft and gear-pinion mechanism, and a driving-belt common to the latter mechanism and adapted to transmit the action thereof to said elevator and carriers.

7. In a harvester of the character described, an elevator equipped with excavating means, a transverse carrier, with its carrying-surface presented toward the upper end of said elevator, means for aiding the action of said transverse carrier, a second carrier below the aforesaid carrier, a deflector for precipitating the objects carried by the first-referred-to carrier upon said latter carrier, means

for "topping" said objects thus precipitated and received upon said latter carrier and a third carrier, adapted to receive said objects from said second carrier.

784,533. HARNESS ATTACHMENT. JOHN T. BAER, Daingerfield, Tex. Filed July 15, 1904. Serial No. 216,708.



Claim.—An attachment for harness comprising a strap carrying at one end a detachable shield to embrace the collar and having combined with its other end a snap-hook, a ring depending from the strap intermediate of its ends, and a martingale combined with the ring.

784,534. PUMP-VALVE. JOHN M. BASSETT, Dallas, Tex. Filed June 21, 1904. Serial No. 213,473.



Claim.—1. A valve comprising a cage having a cover and a rim and suitable arms connecting said rim and cover, said cover having a boss formed on the upper part thereof, a seat screwed into said rim and threaded on the lower part thereof for engaging the pump-deck, said seat having an annular groove formed in the upper part thereof, a seating-ring mounted in said groove, a valve-disk of hardened material adapted to seat on said ring and having a stem integral therewith and adapted to move freely through said boss, and a helical spring seated in said cover and adapted to direct the thrust of said disk.

2. A valve comprising a cage having a cover and a rim and suitable arms connecting said cover and rim, a boss formed on said cover and constituting a guide for the valve-stem, a seat attached to said rim, an annular groove formed in said seat, a seating-ring of suitable material mounted in said groove, a cylindrical flange protecting said seating-ring and holding the same in place against radial displacement, said rim having an inward projecting flange adapted to prevent axial displacement of said seating-ring, and a spring-pressed valve adapted to seat on said ring, and having a stem moving freely through said boss.

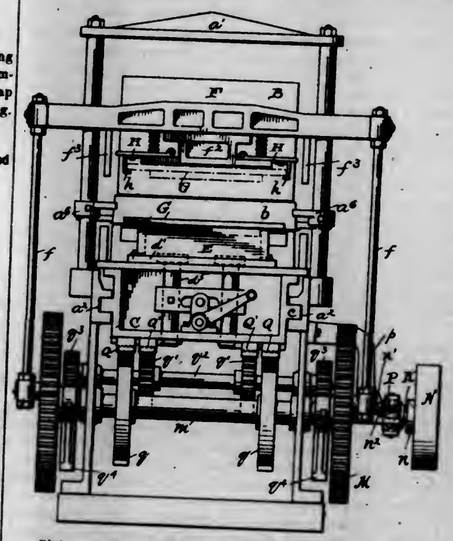
3. A valve comprising a cage having a cover with a spring-seat formed therein and a rim and suitable arms connecting said rim and cover, a seat attached to said rim, a seating-ring mounted in said seat, an upward projecting cylindrical flange formed on said seat and an inward projecting flange or lip formed on said rim for preventing displacement of said seating-ring, a valve-disk having a stem integral therewith and moving freely through said cover, and a helical spring surrounding said stem and seated in said cover and adapted to direct a central thrust of said disk on said seating-ring.

4. A valve comprising a cage having a cover with a spring-seat formed therein and a valve-stem guide formed thereon and a rim and suitable arms connecting said rim and cover, a seat attached to said rim, a renewable seating-ring mounted in said seat and adapted to receive the wear of the element passing through the valve, a flange on said seat and a flange on said rim for preventing displacement of said ring, a valve-disk having a stem integral therewith and moving freely through said guide, and a spring seated in said seat and adapted to direct the thrust of said valve-disk on said seating-ring.

5. A valve comprising a seat having an annular groove in the upper part, a seating-ring mounted in said groove whereby said ring is held against radial displacement and protected from the wearing action of elements passing through the valve, a cage having a rim attached to said seat and having a guide for the valve-stem, said rim having an annular inwardly-projecting lip to prevent axial displacement of said seating-ring, and a spring-pressed valve-disk of hardened material seatable on said seating-ring and provided with a stem projecting through said guide.

6. A valve comprising a seat having a renewable seating-ring of suitable material mounted therein, a spring-pressed valve-disk of hard material adapted to form a seal with said seating-ring, and a cage preventing displacement of said valve, said cage and said seat having provisions preventing the displacement of said seating-ring.

784,535. MOLDING-MACHINE. HARRIET A. BATTENFELD, Cleveland, Ohio, assignor to The Berkshire Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 9, 1903. Serial No. 180,343.



Claim.—1. In a molding-machine, the combination with a reciprocating bed adapted to carry a flask, of a flask, a hopper, pressing mechanism, means whereby the flask on said bed may be automatically filled from said hopper, may be operated upon by said pressing mechanism and may be moved out of range thereof, and means carried by said bed for closing the opening in said hopper.

2. In a molding-machine, the combination with a reciprocating bed adapted to carry a flask, of a flask, a hopper and pressing mechanism, means whereby the flask upon said bed may be moved from its normal position to the opening under said hopper, to the pressing mechanism and then to its normal position, and a plate carried by said bed for closing the opening in said hopper when said flask is removed from under the same.

3. In a molding-machine, the combination with a frame, of a reciprocating bed carrying a plate, means for securing a flask thereto, a hopper adapted to deliver molding-sand to said flask when in one position, means carried by said bed for closing the opening in said hopper when said flask is not beneath the same, a press, and means

for moving said flask under said hopper, under said press and back to a position out of range with the same.

4. In a molding-machine, the combination with a reciprocating bed adapted to carry a flask thereon, of a flask, a hopper, pressing mechanism, means whereby said flask may be moved from its normal position to said hopper to the pressing mechanism and then to its normal position, and a plate carried by said bed on a level with the upper portion of the flask for closing the opening in said hopper when said flask is removed from under the same.

5. In a molding-machine, the combination with the frame, of a reciprocating bed having a plate thereon, a flask secured upon said plate, a hopper arranged to deliver molding-sand to said flask, means for closing the opening in said hopper when the flask is not under the same, a press, a presser-board carried by said press, means whereby said presser-board is left in the flask, and means for moving said bed to said hopper to said press and out of range with the same.

6. In a molding-machine, the combination with a reciprocating bed, gearing therefor, a flask, a press arranged to compress the sand in said flask, a presser-board carried by one member of said press, and means whereby said presser-board is left in said flask when the member of said press retires.

7. In a molding-machine, the combination with a reciprocating bed, of gearing therefor, a flask, a press arranged to coöperate with said flask and to compress the material therein, a presser-board carried by one member of said press, and latches carried by the member of said press for normally holding said presser-board, and means for releasing said board upon the descent of said member.

8. In a molding-machine, the combination, with a reciprocating bed, of gearing therefor, a flask, a press arranged to coöperate with said flask, latches carried by one member thereof, a presser-board carried by said latches, and stops for engaging said latches to release said presser-board upon the retiring of the member of said press.

9. The combination of a frame, a reciprocating bed mounted therein, gearing therefor, a plate, a flask thereon, a reciprocating presser member above said flask, means for reciprocating said bed, means for reciprocating said presser member, a presser-board, latches carried by the presser member for engaging said board, and stops mounted upon the frame for releasing said board after the compressing action has taken place.

10. In a molding-machine, the combination of the frame, of a reciprocating bed having a plate, a flask removably secured thereto, a hopper carried by said frame above said flask, a closing-plate carried by said bed and adapted to close the opening in said hopper, a presser member located above said flask, means for reciprocating the same, a presser-board carried thereby, means for releasing said board upon the downward movement of said presser member, means for moving said flask under said hopper, then under said presser-board, and finally out of the range of said presser member.

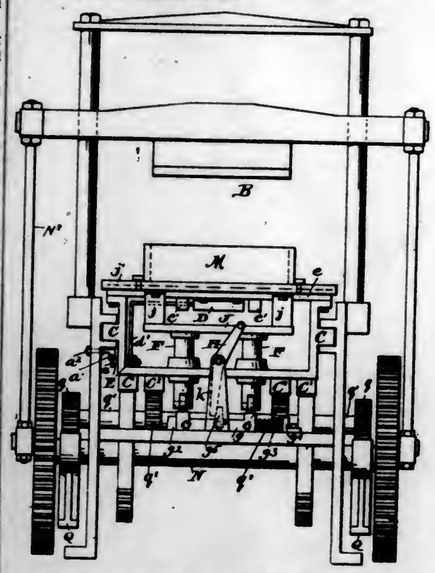
11. In a molding-machine, the combination with a reciprocating bed, of a hopper, pressing mechanism, an operating-shaft, another shaft, a counter-shaft, gearing between said operating-shaft and said second-mentioned shaft whereby the same is rotated, a mutilated gear upon said second-mentioned shaft arranged to mesh with a pinion upon said last-mentioned shaft, a gear upon said last-mentioned shaft arranged to mesh with a rack upon said bed, and another mutilated gear upon said second-mentioned shaft arranged to mesh with a rack upon said bed, all of said gears being arranged to move said bed from its normal position to the hopper, from there to the pressing mechanism and finally back to its normal position.

12. In a molding-machine, the combination with a reciprocating bed, of a hopper, pressing mechanism, racks upon the under side of said bed, an operating-shaft adapted to rotate in one direction, gearing between said shaft and said racks whereby said bed may be moved from normal position to the hopper where it will stop while the flask is filled, other gears for moving it to the pressing mechanism, and another set of gears for moving it back to normal position after the sand has been completely pressed.

13. In a molding-machine, the combination with a reciprocating bed arranged to carry the flask, of a hopper, pressing mechanism, racks on the under side of said bed, an operating-shaft arranged to rotate continuously in one direction, a counter-shaft provided with pinions meshing with one pair of said racks, and mutilated gears between said first-mentioned shaft and one pair of said racks whereby the bed is moved from its normal position to the hopper, from said hopper to the press and finally back to its normal position.

14. In a molding-machine, the combination with a reciprocating bed carrying the flask, of a hopper, pressing mechanism, racks on the under side of said bed, a main operating-shaft arranged to rotate continuously in one direction, a second shaft, gearing between these two shafts whereby the latter will rotate at a much lower rate of speed, a counter-shaft provided with a pair of pinions, a rack upon said bed meshing with one of said pinions, a mutilated gear upon said second-mentioned shaft arranged to mesh with the other of said pinions and another mutilated gear upon this same shaft arranged to mesh with a rack on the bed, all of said gears being arranged in a manner such that the bed is moved from normal position to the hopper, from said hopper to the press, from the press back to the normal position.

784,536. MOLDING-MACHINE. JOHN N. BATTENFELD and HARRIET A. BATTENFELD, Cleveland, Ohio, assignors to The Berkshire Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 25, 1904. Serial No. 195,267.



Claim.—1. In a molding-machine, the combination with a reciprocating bed, a press, a pattern-plate carried by said bed, a vibrator carried by said plate, valve mechanism carried by said bed for controlling said vibrator, and means for operating said valve-mechanism to start the vibrator as the bed is leaving the press and for turning off the pressure before it reaches normal or rest position.

2. In a molding-machine, the combination with a traveling bed having a pattern-plate for carrying the flask, a pair of rails at the edges of said pattern-plate and arranged to engage the flask, a pair of yokes carrying said rails, a pair of plungers for supporting said yokes, a block having a pair of wedges and arranged to slide upon a stationary part of the machine, means for normally retaining said block in the path of said plungers, and means for moving said block out of the path of said plungers.

3. In a molding-machine, the combination with a frame, of a reciprocating bed, a pattern-plate carried thereby, a press, a hopper, means for moving said bed from its normal position to the hopper to the press and finally back to normal position, a vibrator in connection with said pattern-plate, a controlling-valve for said vibrator, and means for operating said valve to set said vibrator in motion as the bed is leaving the press and to stop the motion of the vibrator before the bed reaches its normal position.

4. In a molding-machine, the combination with the frame, of a traveling bed having a pattern-plate for carrying the flask, a press, a hopper, means for moving said bed to bring said flask under the hopper, under the press and finally back to normal position, a vibrator secured to said pattern-plate, a pipe leading to said vibrator, a valve in said pipe and provided with a star-wheel upon its stem, a stop upon said frame arranged to engage said valve and set the vibrator in motion as the bed is carrying the flask from the press, another stop for engaging said valve and stopping said vibrator before the bed reaches normal position.

5. In a molding-machine, the combination with the frame, of a

traveling bed having a pattern-plate for carrying the flask, a press, a hopper, means for moving said bed to bring said flask under the hopper, under the press, and finally back to normal position, a vibrator secured to said pattern-plate, a pipe leading to said vibrator, a valve in said pipe and provided with a star-wheel upon its stem, a stop upon said frame arranged to engage said valve and set the vibrator in motion as the bed is carrying the flask from the press, another stop for engaging said valve and stopping said vibrator before the bed reaches normal position, and means whereby said stops may be adjusted.

6. In a molding-machine, the combination with a frame, of a traveling bed having a pattern-plate arranged to receive the flask, a press, a hopper, means for moving said bed to bring the flask under the hopper, under the press and back to normal position, a vibrator upon said pattern-plate, a controlling-valve therefor, means for operating said valve to vibrate said plate as the flask is leaving the press and means to stop the motion of said vibrator.

7. In a molding-machine, the combination with a frame, of a traveling bed having a pattern-plate arranged to receive the flask, a press, a hopper, means for moving said bed to bring the flask under the hopper under the press and back to normal position, a vibrator on said pattern-plate, a controlling-valve therefor, means for operating said valve to vibrate said plate as the flask is leaving the press and to stop the motion of said vibrator before said flask reaches its normal position, and means for raising said flask from said pattern-plate during the vibration of the same.

784,537. DEFLECTOR FOR AIR-BRAKES. EUGENE BEARDS, Ilenville, N. Y. Filed Aug. 12, 1904. Serial No. 220,579.

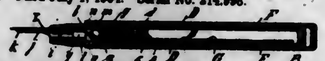


Claim.—1. In combination, an air-reservoir having oppositely-opposed inlet and outlet openings and a deflector for the inlet-opening adapted to force air from the inlet-opening toward the walls of the reservoir, said deflector terminating at a point slightly below the inlet-opening, said deflector having its portion opposite the inlet-opening reinforced.

2. In combination, an air-reservoir having inlet and outlet openings, and a removable deflector for the inlet-openings, said deflector having a portion reinforced.

3. In combination, an air-reservoir, having inlet and outlet openings and a deflector for the inlet-opening insertible through said opening, said deflector having a portion reinforced.

784,538. FOUNTAIN-PEN. FREDERICK W. BENDER, Hoboken, N. J. Filed July 1, 1904. Serial No. 214,996.



Claim.—1. In a fountain-pen the combination of the bar A having the bar portion *a* which ends in the cone *b* and at the other end the three equidistant raised and threaded portions *c c' c''* and between the said raised portions the depressions *d d' d''*, the reservoir B having an opening at one end and having the threaded portion *f* about the outside and having the threaded portion *e* in the interior into which fits the threaded portions *c c' c''* of the valve A, the outer tube D open at both ends having the threaded portion *g* inside into which fit the threads *f* of the reservoir and the threads *m* of the feed-pipe, the feed-pipe C having the passage *x z* the shoulder *l* in the interior of the said passage and the small circular passage *y* through the shoulder *l* and having the collar *n* about the outside and the threaded portion *m* about the outside which threads fit in threads *g* of the outer tube, the thin ribbon-like shaft G which is longer than the reservoir and protrudes from the interior of the reservoir, the slotted feed-tube E having the slotted tube part *h* which fits into the passage *x* of the feed-pipe and having the ear-like projection *k* and having the circular interior passage *i* and having the slot *g* which cuts through the tube and almost to the end of the projection *k* substantially as described.

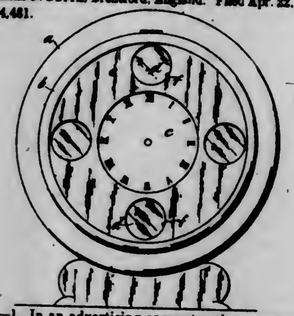
2. In a fountain-pen the locking device consisting of a valve-bar A having the conical end *b* and the raised threaded portions *c c' c''* which screw into the reservoir B, the reservoir B threaded interiorly at *e* and exteriorly at *f* which screws into the outer tube D, the outer tube D having the interior threads *g*, the feed-pipe C having the interior passage *z* and the shoulder *l* and the passage *y* through the shoulder and the exterior collar *n* and the exterior threads *m* which screw into the outer tube D, so that when the closed end of the reservoir is turned the conical end of the valve *a* moves forward and closes the passage *y* of the feed-pipe C thus locking the device and preventing the egress of ink substantially as described.

3. In a fountain-pen the device to aid the easy flow of ink consisting of a valve-bar A having raised threaded portions *c c' c''* and depressed portions *d d' d''* between the raised portions, the reservoir B having the interior threads *e* into which screw the raised threaded portions *c c' c''* of the valve and having the exterior threads *f*, the outer tube D having the interior threads *g*, the feed-pipe C having the passage *z* the exterior collar *n* and the exterior threads *m* which screw into the outer tube D, the ribbon-like shaft G longer than the reservoir which passes out of the reservoir through one of the openings made by the depressions *d d' d''* of the valve-bar into the passage *z* of the feed-pipe, so that when the reservoir is turned at the closed end the shaft G moves about in the feed-pipe and breaks the air-bubbles thus permitting an even flow of ink substantially as described.

4. In a fountain-pen the slotted feed-tube E having an ear-like projection *k* and a slot cleaving the tube and extending almost to the end of the projection *k* and having the interior passage *i* substantially as described.

5. In a fountain-pen the combination of the feed-pipe C having the collar *n* and the threaded portion *m* and the smooth space *o*, with the reservoir B having the inner threads *e* and the inner smooth space *p* and the outer threads *f*, so that the smooth space *o* of the feed-pipe fits tightly into the smooth space *p* of the reservoir B and so prevents an overflow of ink into the outer tube D substantially as described.

784,539. APPARATUS FOR DISPLAYING ADVERTISEMENTS, &c. JAMES F. BLYTH, Brentford, England. Filed Apr. 22, 1904. Serial No. 204,461.



Claim.—1. In an advertising apparatus the combination of an annular advertisement-carrier, an annular screen in front of same, a clock-face concentric with said parts, friction-wheels on said clock-face supporting said screen, and means for driving said screen, substantially as described.

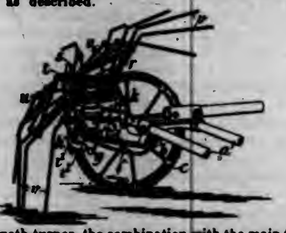
2. In an advertising apparatus, the combination of a clock, a stationary advertisement-carrier concentric with the face of said clock, an annular screen provided with apertures and with gearing round its inner edge, a clockwork-train acting on said gearing for driving said screen, and means for enabling the time mechanism to control said train and screen, substantially as described.

3. In an advertising apparatus the combination of a clock, an annular advertisement-carrier surrounding said clock-face, an annular screen provided with apertures for showing the advertisements and also surrounding the clock-face, a driving-train for said screen distinct from the clock-train, mechanism for enabling the clock-train to release said driving-train periodically, and means for automatically putting such releasing mechanism out of action for such periods as those during which advertisements are not required, substantially as described.

784,540. SWATH-TURNER. EDWARD C. BLACKSTONE and RICHARD B. WATTS, Stamford, England. Filed July 27, 1903. Serial No. 167,178.

Claim.—1. In a swath-turner, the combination with the main frame of a horizontally-rotatable part carried thereby, a series of rake-arms each of which is independently pivoted to said rotatable part by a horizontal pivot permitting the vertical movement of said

arms, mechanism for rotating said rotatable part, mechanism for reversing the direction of rotation of said rotatable part and devices engaging said rake-arms between their points of pivoting and their outer extremities for raising and lowering the same during rotation, substantially as described.



2. In a swath-turner, the combination with the main frame of a horizontally-rotatable part carried thereby, a series of rake-arms each of which is independently pivoted to said rotatable part by a horizontal pivot permitting the vertical movement of said arms, mechanism for rotating said rotatable part, a vertical supporting pivot-pin arranged above and eccentric to said rotatable part, a rotatable collar on said pin and rods pivoted to said collar and connected to said rake-arms between their points of pivoting and their outer extremities, substantially as described.

784,541. **WASHING-MACHINE.** DENNIS B. D. BLAKE and WILLIAM F. BLAKE, Chicago, Ill. Filed June 2, 1904. Serial No. 210,700.



Claim.—1. In a washing-machine, the combination with a supporting structure, of a tub pivotally mounted thereon, a pair of springs attached to the tub, an adjusting-screw, a nut on said screw, and a pair of levers fulcrumed on said supporting structure and each having one end attached to one of said springs, and the other end engaging said nut.

2. In a washing-machine, a pair of standards spaced apart, and a slotted bar connecting the standards, a tub pivotally mounted upon said standards, a pair of springs attached to said tub at the ends thereof, a pair of levers arranged in the slot of said bar and having their outer ends attached to said springs, means carried by said bar for preventing the bodily upward movement of said levers, and means for raising the inner ends of said levers simultaneously.

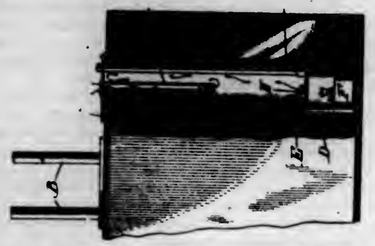
3. In a washing-machine, a supporting structure including an upright member, a tub pivotally mounted on said upright member, a pair of arms pivotally mounted on opposite sides of said upright member, a block carried by said arms and adapted to rest upon the edge of the tub, means carried by the block for securing it in contact with the edge of the tub, and a pivoted stay for limiting the outward pivotal movement of said arms from said upright member.

4. In a washing-machine in combination, a pair of oppositely-disposed standards, a tub pivotally mounted therebetween, a bar connecting said standards below said tub, levers mounted upon said bar and extending longitudinally from substantially the middle point thereof, springs connecting said levers respectively with said tub, an adjusting-screw and a nut carried thereby engaging said levers.

5. In a washing-machine in combination, a pair of oppositely-disposed standards, a tub pivotally mounted therebetween, a bar connecting said standards below said tub and carrying a plate, an adjusting-screw mounted in said plate, a nut mounted upon said adjusting-screw, levers engaging said nut resting against said plate and extending longitudinally of said bar, and springs respectively connecting said levers with said tub.

6. In a washing-machine in combination, a supporting structure, a tub pivotally mounted thereupon, a locking-arm pivotally mounted upon said supporting structure and adapted to engage said tub, and a stay pivotally mounted upon said structure and having lateral extensions, said locking-arm having slots receiving said extensions.

784,542. **HEATING DEVICE FOR STORAGE-TANKS.** SYLVANUS F. BOWSER, Fort Wayne, Ind., assignor to S. F. Bowser & Company, Inc., Fort Wayne, Ind., a Corporation of Indiana. Filed May 5, 1904. Serial No. 207,465.

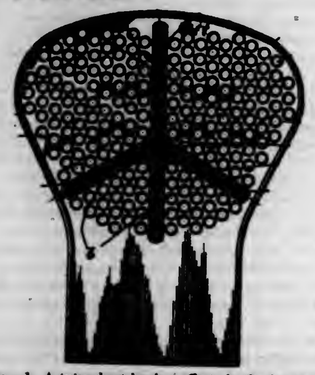


Claim.—1. The combination with a storage-tank having a chamber, said chamber being closed at one end and opening to the outer air at the other end, a heating device arranged within said chamber and comprising a carrier or holder having a closed top or diaphragm, and a lamp or other burner carried thereby below said diaphragm or top, and an air-supply pipe communicating with the outer air and to the space occupied by said lamp or burner.

2. The combination with a storage-tank having a closed chamber therein, a heating device arranged to be received within said chamber and comprising a carrier or holder, a lamp or burner carried by said holder, said carrier or holder having a closed top or diaphragm, an opening through said top or diaphragm delivering into said chamber and an air-supply pipe communicating with the outer air and passing through said top or diaphragm and delivering into the space occupied by said burner or lamp.

3. The combination with a storage-tank having a closed chamber therein, of a carrier or holder arranged to be received in said closed chamber, a lamp or burner carried by said holder, said carrier or holder having a closed top or diaphragm, said top or diaphragm having an opening therethrough forming a communication between the space occupied by the lamp or burner and the chamber, an air-supply pipe communicating with the outer air and delivering through said diaphragm or top into the space occupied by said burner or lamp, a top for said chamber, and an open-ended pipe projecting through said top and into said chamber.

784,543. **TUBE-SHEET.** JOHN J. BOYCE and JOHN MCCORMACK, Chicago, Ill.; said McCormack assignor to said Boyce. Filed Mar. 14, 1904. Serial No. 198,063.



Claim.—1. A tube-sheet having offsets in the face and located between the tubes, the outer faces of said offsets being in a plane parallel to the tube-sheet.

2. A tube-sheet having offsets extending radially from a common point within the sheet.

3. A tube-sheet having offsets extending radially from that portion of the tube-sheet which is exposed to the greatest heat.

4. A tube-sheet having offsets of a substantially rectangular cross-section in the face thereof and located between the tubes.

5. A tube-sheet having offsets of a substantially rectangular cross-section extending radially from a common point within the tube-sheet.

6. A tube-sheet having offsets of a substantially rectangular cross-section extending radially from that portion of the tube-sheet which is exposed to the greatest heat.

784,544. **PULLEY, GEAR, AND SHEAVE.** WALTER BRINTON, Highbridge, N. J., assignor to Taylor Iron and Steel Company, a Corporation of New Jersey. Filed Dec. 23, 1903. Serial No. 186,804.



Claim.—1. An article of the class specified, comprising an outer or ring member, and an inner or hub member holding the outer or ring member under compressive tension by the contraction or shrinkage of said hub member from a heat-expanded condition.

2. An article of the class specified, comprising a ring member and an inner or hub member having coöperating locking-faces, said inner member holding the outer member under compressive tension by the shrinkage or contraction of the inner member from a heat-expanded condition.

3. A metal wheel comprising a ring member and a hub member having annular overlapping engaging surfaces, said hub member holding said ring member under compressive tension by the shrinkage or contraction of said hub member from a heat-expanded condition.

4. A metal wheel or similar article comprising an unmachineable metal outer or ring member, and a machineable metal inner or hub member secured together by compressive tension exerted by the inner member upon the outer member.

5. A metal wheel or similar article comprising an outer or ring member and an inner or hub member having interlocking surfaces, the variations in diameter between such surfaces being sufficient to permit one to engage the other when the inner or hub member is under expansion due to heat, said hub member holding said ring member under compression by the contraction or shrinkage of the hub member from its heat-expanded condition.

6. A metal wheel comprising a ring member and a hub member having interlocked undercut ribs, the meeting surface of the hub-rib being initially of less diameter than the meeting surface of the ring-rib but of greater diameter than the ring-rib surface when said hub is heat-expanded to permit one to slip over the other, said hub member holding said ring member under compressive tension due to shrinkage or contraction of said hub member from its heat-expanded condition.

7. A metal wheel comprising a ring member and a hub member having sidewise interlocking ribs, the variations in diameter between the engaging faces of the ribs being just sufficient to permit them to overlap when the hub is under expansion due to heat, said hub member holding said ring member under tension by the contraction of such hub member from its heat-expanded condition.

8. A metal wheel comprising a ring member and a hub member having undercut interlocking ribs, the variations in diameter between the engaging faces thereof being sufficient to permit one to overlap the other when the hub is under expansion due to heat, said hub member holding said ring member under tension by the contraction of such hub member from its heat-expanded condition.

9. A metal wheel comprising a ring member, a hub member having interlocking surfaces, the variations in diameter between such surfaces being sufficient to permit one to engage the other when the hub member is under expansion due to heat, said hub member holding said ring member under compression by the contraction or shrinkage of the hub member from its heat-expanded condition, and means for preventing the slipping of one circumferentially relatively to the other.

10. A metal wheel comprising an outer or ring member, and an inner hub member having interlocking surfaces, the variations in diameter between such surfaces being sufficient to permit one to engage the other when the inner member is under expansion due to heat, said inner member holding said outer member under compression by the contraction or shrinkage of the inner member from its heat-expanded condition, and means for preventing the slipping of one circumferentially relatively to the other and comprising one or more projections and a coöperating recess or recesses carried by said members.

11. A metal wheel comprising a ring member, a hub member having interlocking surfaces, the variations in diameter between such surfaces being sufficient to permit one to engage the other when the hub member is under expansion due to heat, said hub member holding said ring member under compression by the contraction or shrinkage of the hub member from its heat-expanded condition, and means for preventing the slipping of one circumferentially relatively to the other and comprising one or more projections and a coöperating recess or recesses carried by said members, the projection or projections being carried by the hub member and the recess or recesses by the ring member.

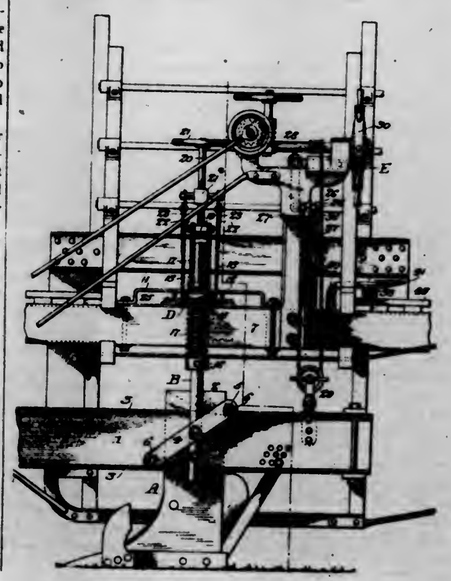
12. An article of the class specified, comprising an outer or ring member, an inner or hub member holding said outer member under compressive tension by the contraction or shrinkage of said inner member from a heat-expanded condition, and means for preventing the slipping of one member circumferentially relatively to the other member.

13. A metal wheel comprising a ring member and a hub member, said ring member having an inwardly-extending annular flange provided with a ribbed portion, and said hub member engaging said ribbed portion and holding the ring member under tension due to the shrinkage or contraction of such hub member from a heat-expanded condition, and means for preventing circumferential slipping of one member relatively to the other member.

14. A metal wheel comprising an unmachineable metal, such for instance as manganese steel, outer or ring member, and a machineable metal inner or hub member having interlocked surfaces, said inner or hub member holding the outer or ring member under shrinkage tension exerted on the ring member at the point of engagement of the inner or hub member with said outer or ring member.

15. A metal wheel comprising an unmachineable metal cast outer or ring member and a machineable metal cast inner or hub member having interlocked laterally-engaging surfaces comprising a rib and a receiving-recess, one formed on each member, said inner or hub member exerting a shrinkage tension upon the outer or ring member.

784,545. **GRADING AND DITCHING MACHINE.** LUKE V. BROPHY, Barberton, Ohio, assignor to National Drill & Manufacturing Company, Chicago, Ill., a Corporation of West Virginia. Filed Nov. 25, 1904. Serial No. 234,190.



Claim.—1. In a grading and ditching machine, a plow supported for side tilt; an arm rigidly connected with and extending upwardly from the plow and arranged to tilt in unison with the side tilt of the plow; and a reciprocative member for tilting said arm in directions to cause side tilt on the part of the plow; said arm and reciprocative member being connected by a swivel connection permitting the arm to turn axially and independently of the reciprocative member.

2. In a grading and ditching machine, a plow supported for side tilt; an arm rigidly connected with and extending upwardly from the plow and arranged to tilt in unison with the side tilt of the plow; and a reciprocative member for tilting said arm in directions to cause side tilt on the part of the plow; said arm and reciprocative member being connected by a swivel connection forming a universal joint.

3. In a grading and ditching machine, a plow supported for side tilt; an arm connected with and extending upwardly from and arranged to tilt in unison with the side tilt of the plow; and a reciprocative member for tilting said arm in directions to cause side tilt on the part of the plow; the arm and the reciprocative member being connected by a universal swivel-joint; and a device for actuating the reciprocative member in direction to cause it to tilt the arm.

4. In a grading and ditching machine, a plow supported for side tilt; an arm consisting of a rod or bar rigidly secured to the plow and extending upwardly therefrom and arranged to tilt in unison with the side tilt of the plow; a reciprocative member for tilting said arm in directions to cause side tilt on the part of the plow; a toggle device for operating the reciprocative member; and a screw-rod engaging a nut supported as a fixture, said screw-rod being connected with the toggle as a means for operating the same.

5. In a grading and ditching machine, a plow supported for side tilt; an arm attached to and extending upwardly from the plow and arranged to tilt in unison with the side tilt of the plow; a reciprocative member for tilting said arm in direction to cause side tilt on the part of the plow, said arm and reciprocative member being connected by universal swivel connection; and a laterally-swinging member upon which the reciprocative member is supported.

6. In a grading and ditching machine, a plow supported for side tilt; an arm attached to the plow and extending upwardly therefrom and arranged to tilt in unison with the side tilt of the plow; a reciprocative member for tilting said arm in directions to cause side tilt on the part of the plow, said arm and reciprocative member being connected by a universal joint; and a laterally-swinging member consisting of a bar supporting the said reciprocative member, the said member being arranged transverse to the line of progression and being supported for longitudinal adjustment.

7. In a grading and ditching machine, a plow supported for side tilt and having an upwardly-projecting rod or arm; a reciprocative member having a universal-jointed connection with the upwardly-extending arm; a support upon which the reciprocative member is arranged to slide; a toggle having one arm connected with the reciprocative member and having its other end connected with the support for the reciprocative member; and suitable means for operating the toggle.

8. In a grading and ditching machine, a plow supported for side tilt; an arm consisting of an upright rod rigidly secured at its lower end to the plow; a reciprocative member for tilting said rod consisting of a slide having an opening through which the upper end portion of the rod extends, the edge around said opening being wedge-shaped to engage the rod and thereby form a universal swivel-joint; and mechanism for adjusting the slide in directions to tilt the arm on the plow.

9. In a grading and ditching machine, a plow supported for side tilt; a rod or bar forming an arm which is secured to the plow and arranged to extend upwardly therefrom; a reciprocative member arranged laterally to the axis of the said rod and connected therewith by a universal joint; and a spring arranged about a portion of said rod and confined between the reciprocative member and an adjustable stop or shoulder arranged at a point lower down upon the rod or arm.

10. In a grading and ditching machine, a plow suspended by chains or cables; an arm attached to the plow and extending upwardly therefrom; a horizontally-swinging bar having its free end portion provided with a longitudinal slot through which said upright plow-arm extends; a reciprocative bar supported upon and guided by said bar and having a swivel connection with the upright arm of the plow, said swivel connection being also in the nature of a universal joint, whereby the arm on the plow can partake of different movements on the part of the latter.

11. In a grading and ditching machine, a plow-beam suspended by chains or cables; a reciprocative member supported for movement in directions transverse to the line of progression of the plow; an upright arm connecting the plow with said reciprocative member; and a universal-jointed connection permitting various movements on the part of the plow independent of the reciprocative member.

12. In a grading and ditching machine, a plow suspended by chains or cables; an arm attached to the plow and extending upwardly therefrom; a transversely-arranged I-beam pivoted at one end upon the body-frame of the machine and having its opposite end portion supported to rest and move upon another suitable portion of the body-frame; a reciprocative member consisting of a bar C having universal-jointed connection with the arm which extends upwardly from the plow; means for operating the slide C and a cleat 11 extending over the free end portion of the I-beam; said I-beam being provided with a longitudinal slot through which the upright arm of the plow extends.

13. In a grading and ditching machine, a plow suspended for side tilt; a toggle device; and connection between the toggle device and plow for tilting the latter when the toggle device is operated.

14. In a grading and ditching machine, a plow suspended by chains or cables; a hand-wheel; an arm extending upwardly from the plow; power-transmitting connection between the hand-wheel and said arm for tilting the latter when the hand-wheel is operated.

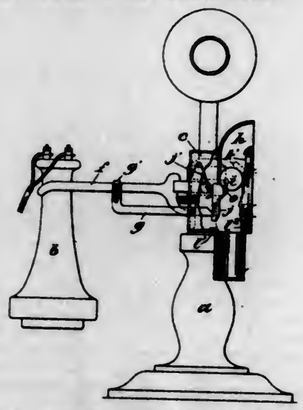
15. In a grading and ditching machine, a plow suspended by chains or cables; a winding-shaft provided with a pilot-wheel; a latch-bolt normally engaging between spokes of the pilot-wheel; a treadle device arranged upon or adjacent to an attendant's platform of the machine; a spring normally maintaining the treadle in a raised position and holding the latch-bolt in engagement with the pilot-wheel; and power-transmitting lever connections between said treadle and the latch-bolt.

16. In a grading and ditching machine, a plow suspended by chains or cables; an arm attached to the plow; a reciprocative member for tilting the arm so as to tilt the plow laterally; said arm having a sliding and universally-jointed connection with the reciprocative member.

17. In a grading and ditching machine, a plow suspended by chains or cables; an arm rigidly secured to the plow and extending upwardly therefrom, and mechanism for tilting the arm and plow applied to the said arm.

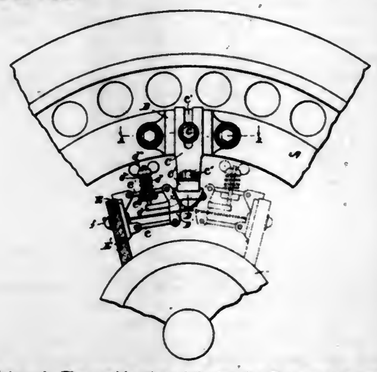
18. In a grading and ditching machine, a plow having an upwardly-extending arm which is secured to the plow so as to tilt in unison therewith; and a laterally-swinging and longitudinally-movable member connected with the said arm by a universal swivel-joint.

784,546. COIN-OPERATED TELEPHONE-LOCKING DEVICE. WILLIAM CALHOUN, New York, N. Y., assignor, by mesne assignments, to National Telephone Lock Company, a Corporation of the District of Columbia. Filed Sept. 18, 1903. Serial No. 173,065.



Claim.—In a coin-operated telephone-locking device, the combination of a lever-arm adapted to be firmly attached to the telephone-receiver arm and to control the motion of the same, a ratchet-lever arranged to act against the inner end of such lever-arm, means for keeping the two in contact, means whereby a movable metal disk may be caused to rest against the upper end of the ratchet-lever and a thumb-piece and lever adapted to press said disk against said ratchet-lever sufficiently to actuate the same, so as to release the receiver-arm, substantially as described.

784,547. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES OR MOTORS. JOHN F. CARD, Three Rivers, Mich., assignor to Sheffield Car Company, Three Rivers, Mich. Filed Oct. 1, 1903. Serial No. 175,257.



Claim.—1. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C′ thereon; a set-screw c carried by said bracket B, adapted to engage said slot; a block D, having lugs or ears D′ thereon, and a projecting arm d; a set-screw c'' for securing said block to said arm C′; links $e\,e'$ pivotally secured to said arms D′, said link e' having a seat or socket e'' and a slot e''' therein; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ adjustably secured to said plate E; a coiled spring d'' arranged in the said seat in the said link; an upwardly-projecting pin d' carried by said arm arranged through said slot in said link; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

2. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C′ thereon; a set-screw C carried by said bracket B, adapted to engage said slot; a block D having lugs or ears D′ thereon, and a projecting arm d; a set-screw c'' for securing said block to said arm C′; links $e\,e'$ pivotally secured to said ears D′, said links e' having a seat or socket e'' and a slot e''' therein; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ secured to said plate E; a coiled spring d'' arranged in the said seat in the said link; an upwardly-projecting pin d' carried by said arm d arranged through said slot in said link; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

3. The combination of a bracket C having a laterally-projecting arm C′ thereon; a block D having a projecting arm thereon; a set-screw c'' for securing said block to said arm C′; links $e\,e'$ pivotally secured to said block; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ adjustably secured to said plate E; a coiled spring arranged on said link e'; an upwardly-projecting pin d' carried by said arm d arranged through said link e'; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

4. The combination of a bracket C having a laterally-projecting arm C′ thereon; a block D having a projecting arm thereon; a set-screw c'' for securing said block to said arm C′; links $e\,e'$ pivotally secured to said block; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ secured to said plate E; a coiled spring arranged on said link e'; an upwardly-projecting pin d' carried by said arm d arranged through said link e'; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

5. The combination of a suitable support; a block having a projecting arm thereon; links $e\,e'$ pivotally secured to said block; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ adjustably secured to said plate; a coiled spring arranged on said link e'; an upwardly-projecting pin d' carried by said arm d arranged through said link e'; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

6. The combination of a suitable support; a block having a projecting arm thereon; links $e\,e'$ pivotally secured to said block; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ secured to said plate; a coiled spring arranged on said link e'; an upwardly-projecting pin d' carried by said arm d arranged through said link e'; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

7. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C′ thereon; a set-screw c carried by said bracket B, adapted to engage said slot; a block detachably secured to said arm; links $e\,e'$ pivotally secured to said blocks; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ adjustably secured to said plate; a coiled spring for applying tension to said links; and means for adjusting the tension of said spring, all coacting for the purpose specified.

8. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C′ thereon; a set-screw c carried by said bracket B, adapted to engage said slot; a block detachably secured to said arm; links $e\,e'$ pivotally secured to said blocks; a brush-holding plate E pivotally secured to said links $e\,e'$; a brush E′ secured to said plate; a coiled spring for applying tension to said links; and means for adjusting the tension of said spring, all coacting for the purpose specified.

9. The combination of a suitable support; a bracket adjustably secured thereto; a block detachably secured to said bracket; a pair of parallel-arranged links pivotally secured to said block; a brush-holding plate pivotally secured to said links; a brush adjustably secured to said plate; a tension-spring; and means for adjusting the tension on said spring, for the purpose specified.

10. The combination of a suitable support; a bracket adjustably secured thereto; a block detachably secured to said bracket; a pair of parallel-arranged links pivotally secured to said block; a brush-holding plate pivotally secured to said links; a brush secured to said plate; a tension-spring; and means for adjusting the tension on said spring, for the purpose specified.

784,548. INKING-PAD. DAVID L. CLAYTON, Amoret, Mo. Filed June 17, 1904. Serial No. 213,041.



Claim.—1. An inking-pad the ink-retaining material of which is composed of sections of pith presented endwise.

2. An inking-pad comprising a holder, and a plurality of sections of compressed pith standing on end therein.

3. An inking-pad the ink-retaining material of which has stiff fibers therein the ends of which project slightly beyond the surface of the pad.

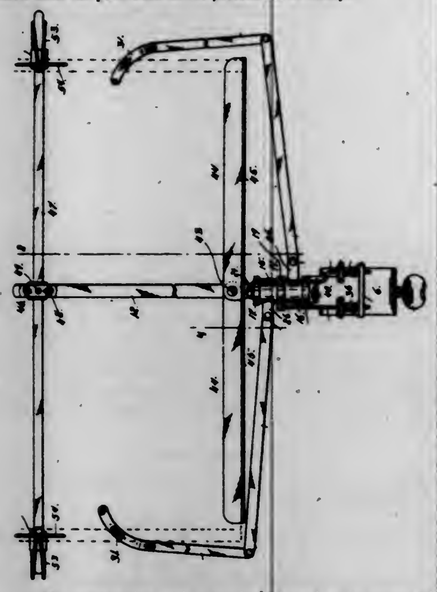
784,549. LEAF-TURNER. CHARLES J. COULTER, Denver, Colo. Filed Aug. 8, 1904. Serial No. 219,818.

Claim.—1. In a leaf-turning device, the combination with a suitable casing, of spring-actuated cylinders carried thereby, leaf-turning arms connected with said cylinders, push-buttons supported by the casing, spring-actuated rods connected with the push-buttons and adapted to engage the cylinders and lock the latter in the desired position of adjustment, the rods with which the push-buttons are connected being vertically movable to release the said cylinders to allow the leaf-turning arms to be automatically actuated for the purpose set forth.

2. The combination with a suitable casing provided with a depending part, cylinders mounted in the casing, coil-springs located in the cylinders, one extremity of each spring being connected with the casing and the other extremity with a cylinder, leaf-turning arms connected with the cylinders, spring-actuated rods passing through the depending part of the casing and bent upwardly, the said rods being double where they pass through the casing, the upper free extremity of each rod being provided with a push-button, coil-springs located between the depending part and the push-buttons whereby there is a tendency to force the rods upwardly, the cylinders being provided with notches adapted to receive the upper extremities of the rods when the cylinders are adjusted to place their springs under tension.

3. The combination with a suitable holding device provided with a socket, a casing provided with a part adapted to enter the said socket, rotary cylinders mounted in the casing, springs connected

with said cylinders and with the casing, leaf-turning arms connected with the cylinders which are capable of independent movement, the casing being provided with a depending part, rods passing through the depending part and provided with push-buttons, springs acting on the push-buttons to throw the rods upwardly, the upper extremities of the rods entering the casing and being adapted to enter notches or recesses with which the cylinders are provided, the arrangement being such that when the cylinders are turned to place their springs under tension and to throw the leaf-turning arms in one position of adjustment, the said rods will lock the cylinders in the adjusted position until the push-buttons are pressed downwardly.



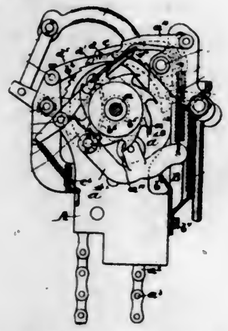
4. The combination with a bracket adapted to be connected with a suitable support, a casing detachably connected with the bracket, spring-actuated leaf-turning devices mounted in the casing, means for releasing said devices whereby the leaves may be automatically turned, a standard projecting upwardly from the leaf-turning devices, book-supporting arms connected with the lower part of the standard, a bar connected with the upper part of the standard and extending at right angles thereto, a clamp adjustably mounted on the standard and carrying the said bar, and spring clamping devices connected with the bar and adjustable longitudinally thereon for holding the leaves of the book not in use.

5. In a leaf-turning device, the combination with a suitable support, of leaf-turning devices connected with said support, a standard extending upwardly from the leaf-turning devices, and book-holding means connected with the standard and comprising parts forming a support for the lower edge of the book and another part forming a support for the upper portion of the book, the last-named part consisting of a bar provided with a spring-retained clamp engaging the standard whereby the bar is vertically movable on the standard, the tension of the spring being such as to normally retain the bar in the adjusted position but yielding readily to pressure either upward or downward, the said bar extending at right angles to the standard and provided with spring clamping devices connected with the bar on opposite sides of the standard and longitudinally adjustable on the bar for holding the leaves of the book not in use.

784,550. **PATTERN MECHANISM FOR LOOMS.** RANDOLPH CROMPTON, Worcester, Mass., assignor to Randolph Crompton, George Crompton, Edward D. Thayer, and William B. Scofield, Worcester, Mass. Filed Sept. 19, 1904. Serial No. 225,094.

Claim.—1. In a loom, a pick-suspending device, and a pattern surface or chain having a pick-suspending indicator carried thereby to move said device over varying distances according to the size of the pick-suspending indicator.

2. In a loom, a pick-suspending device, and a pattern surface or chain having a plurality of pick-suspending indicators carried thereby and varying in size, each indicator when in its operative position moving said device over varying distances according to the size of the pick-suspending indicator.



3. In a loom, a single pattern-surface having a plurality of pick-suspending indicators varying in their height, combined with a single pick-suspending device under the control of said indicators and adapted to vary the length of time that the pattern-surface is stopped according to the particular indicator that is in operative position.

4. In a loom, a pattern-surface provided at intervals of its length with pick-suspending indicators, and means acting thereby to suspend the movement of the pattern-surface for a longer or shorter interval according to the size of the pick-suspending indicator.

5. In a loom, a pattern-surface provided at intervals of its length with pick-suspending indicators, means to move said pattern-surface step by step, and means actuated by said pick-suspending indicators to suspend the movement of the pattern-surface for a longer or shorter interval according to the size of the pick-suspending indicator.

6. In a loom, a pattern surface or chain provided with pick-suspending indicators, means for moving the pattern surface or chain, a pick-suspending device, a controller, means to move the suspending device backwardly into a variable abnormal position according as the one or the other pick-suspending indicator is in operative position, and means to return said pick-suspending device step by step into its abnormal position.

7. In a loom, the following instrumentalities: a pattern-shaft, actuating means for operating said shaft, a pattern-surface carried thereby having pick-bars provided with indicators and pick-repeating indicators, a single pick-suspending device under the control of the pick-repeating indicator and arranged to suspend the operation of the pattern-surface for a varying number of picks, preparatory to reoperating the pattern-surface.

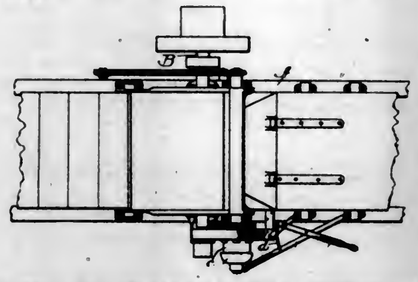
8. In a loom, a toothed pick-suspender, means to move the same into its abnormal position at one step, a pawl, means to cause it to engage the teeth of the pick-suspending device when the same has been brought into its abnormal position, and means to actuate said pawl to turn said pick-suspending device back step by step into its normal position.

9. In a loom, the following instrumentalities, viz: a pattern-shaft, actuating means for moving said shaft intermittingly a pattern-surface thereon having pick-indicators and pick-repeating indicators, a controlling device to control the said actuating means, a pick-suspending device, and means to operate it for a varying distance into an abnormal position according to the dimensions of the pick-repeating indicator then in working position, and through said movement permit the said controller to operate and suspend the effective action of said actuating means, and devices to engage and move said pick-suspending device back step by step into its normal position, the final movement of said pick-suspending device letting the pattern-shaft-actuating mechanism again operate to move the pattern-surface, substantially as described.

10. The pattern-shaft, a pattern-surface carried thereby, a pawl to engage a ratchet on, and to move, said shaft intermittingly, a pick-suspending device composed of a toothed plate, and a controller operated thereby and interposed between said suspending device and said pawl, combined with means to move said suspender for a varying distance in one direction at one step, that depending upon the number of picks the pick-indicator then in working position is called upon to repeat that pick, and means to thereafter move said pick-suspending device back into its normal position by a step-by-step motion while the said picks are being repeated, substantially as described.

11. In a loom, a pattern-surface having pick-suspending indicators varying in size, means to sustain the pattern-surface, means to move the pattern-surface-sustaining means and pattern-surface, a pick-suspending device, means for moving the same over a variable distance according to the size of the pick-suspending indicator then in operative position to render the pattern-surface-moving means inoperative, and means to restore the pick-suspending device step by step into its normal position, the number of picks that the pattern-surface remains at rest with one of its bars in operative position depending on the number of movements necessary to restore the pick-suspending device to its normal position.

784,551. **CLUTCH-SHIFTING DEVICE.** CHARLES E. CURTISS, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed July 29, 1904. Serial No. 218,657.



Claim.—1. In a clutch-shifting device, the combination with the means for engaging the clutch, of a shifting-bar connected therewith, an operating-lever connected with said bar and means for engaging said lever with said bar to lock the clutch in the operative or inoperative position.

2. In a clutch-shifting device, the combination with the means for engaging the clutch, of a shifting bar connected therewith, an operating-lever, a connection between said bar and lever and a detent for said lever adapted to engage said bar to lock it in the shifted position.

3. In a clutch-shifting device, the combination of a clutch-shifter, a shifting lever pivoted thereto, an operating-lever connected with said lever, a detent for locking said levers in the shifted position and means for holding said detent in operation.

4. In a clutch-shifting device, the combination of a clutch-shifter, a shifting lever pivoted thereto, an operating-lever, a link connecting said levers, a detent for locking said levers together in the shifted position and a spring for holding said detent in operation.

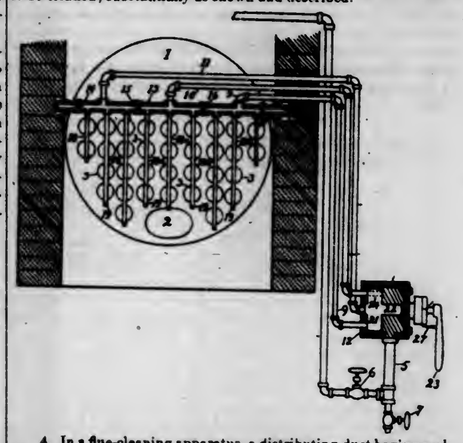
5. In a clutch-shifting device, the combination of a clutch-shifter, a shifting lever pivoted thereto, an operating-lever, a link connecting said levers, a detent for said operating-lever adapted to engage said shifting lever, a pivot-pin for said operating-lever, and a spring mounted on said pin and adapted to hold said detent in engagement with said shifting lever.

784,552. **BOILER-FLUE CLEANER.** OTTO DONATS, Trenton, N. J. Filed Dec. 30, 1904. Serial No. 239,046.

Claim.—1. In a flue-cleaning apparatus, a valve having two or more discharge-ports; an inlet-duct opening into the chamber of said valve; two or more discharge-ducts opening respectively from the discharge-ports of said valve and respectively connected with separate chambers; two or more separate chambers, and ducts opening from said chambers and having orifices through which the vapor, air or fluid may be ejected and pass into the flues to be cleaned.

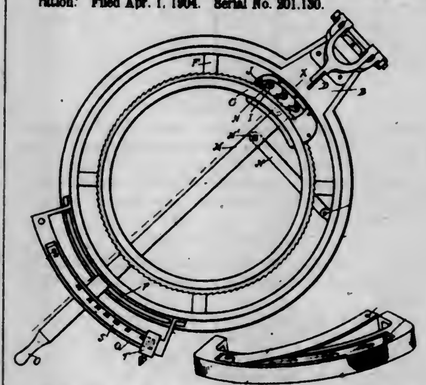
2. In a flue-cleaning apparatus, the combination of a boiler; a duct connecting said boiler with a valve having two or more discharge-ports; said valve; two or more discharge-ducts opening respectively from the discharge-ports of said valve and respectively connected with separate distributing-chambers; said chambers, and ducts opening from said chambers and having orifices through which steam may be discharged into the flues to be cleaned.

3. In a flue-cleaning apparatus, a distributing-duct having clusters of orifices located therein at points opposite the ends of the flues to be cleaned; substantially as shown and described.



4. In a flue-cleaning apparatus, a distributing-duct having multiple nozzles located on said duct on points opposite the ends of the flues to be cleaned; substantially as shown and described.

784,553. **CHEESE-CUTTER.** FRANK P. DUNN, Anderson, Ind., assignor to Stimpson Computing Scale Company, Elkhart, Ind., a Corporation. Filed Apr. 1, 1904. Serial No. 201,130.



Claim.—1. In a cheese-cutter, the combination of a rotary cheese-plate, a lever for rotating the plate, a clutch between the plate and the lever and a removable series of superimposed weight-indication plates arranged in a vertical series adjacent to the path of the handle of the lever, said plates having thereon scales of total cheese-weights at different prices per pound.

2. In a cheese-cutter, the combination of a rotary cheese-plate, a lever for rotating the plate, a clutch between the plate and the lever, a box-shaped segment arranged adjacent to the handle of the lever and a series of independently-detachable graduated plates in the receptacle.

3. In a cheese-cutter, the combination of a rotary cheese-plate, a lever for rotating the plate, a clutch between the plate and the lever, a segmental receptacle Q supported on the brackets Q′ adjacent to the path of the lever, detachable segmental plates R fitting in the receptacle and having thereon various graduations of total cheese-weights at different prices per pound, and an adjustable block T on the receptacle.

4. In a cheese-cutter, the combination of a cheese-plate, a lever for rotating the plate, a clutch between the plate and lever, a segmental receptacle arranged in the path of the lever, said receptacle comprising front, rear and side sections and being open at its top, segmental plates detachably fitting in the receptacle and having thereon various graduations of total cheese-weights at different prices per pound.

5. In a cheese-cutter, the combination of a rotary cheese-plate, a lever for rotating the plate, a clutch between the plate and lever, a segmental receptacle arranged in the path of said lever, detachable segmental plates arranged within the receptacle and having thereon various graduations of total cheese-weights at different prices per pound, and means at the respective ends of the receptacle for engaging the adjacent ends of the plates for retaining them in position therein.

784,554. WINDOW. RICHARD W. ENNIS, Buffalo, N. Y. Filed June 3, 1904. Serial No. 210,904.



Claim.—A window-frame having guideways at its opposite sides and provided at the bottom with a sash-pocket, and at the top with an obliquely-disposed screen-pocket, and pivotally-connected sash and screen members slidable in the frame, the opposite ends of the upper edge of said screen member having pins or lugs adapted to enter the guideways.

784,555. JUNCTION-BOX FOR ELECTRICAL CONDUCTORS. JOHN FOUNTAIN, Jr., Elizabeth, N. J. Filed Nov. 13, 1902. Serial No. 131,033.

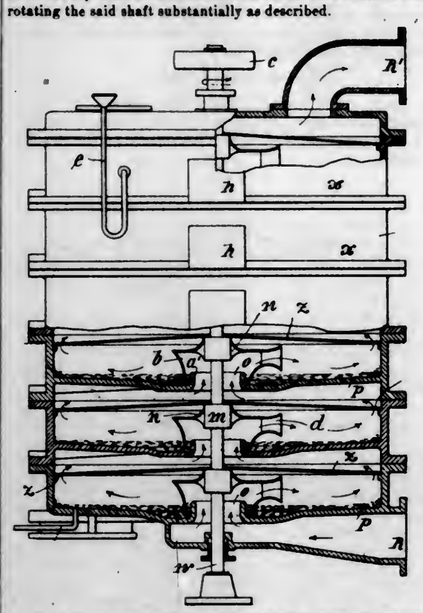


Claim.—1. A junction-box having an opening therein, a removable plate secured in said opening by means of adjacent indentations respectively formed in box and plate at different points around the opening and on opposite sides of the box and plate.

2. A junction-box having an opening therein, a removable plate secured in said opening by means of adjacent indentations respectively formed in box and plate at different points around the opening and on opposite sides of the box and plate, the indentations on each side being diametrically disposed with reference to each other, and the indentations on one side being arranged at substantially right angles to those on the other side of the box and plate.

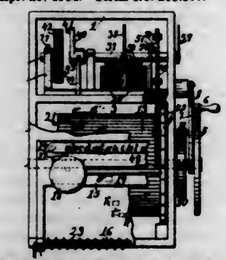
784,556. GAS-WASHER. HEINRICH GIESEN, Berlin, Germany, assignor to the Firm of Julius Pintsch, Berlin, Germany. Filed May 18, 1903. Serial No. 157,636.

Claim.—1. In a gas-washer, the combination of a series of superposed chambers, having each a central opening in the bottom with upwardly-extending flange around it, said opening serving for the upward passage of the gas and the downward passage of the liquid, a cover to each compartment, downwardly inclined from the center to the edges and having a series of peripheral openings for the downward passage of the liquid and the upward passage of the gas, a shaft extending through all the central openings and having thereon a fan-wheel in each compartment, the lower edge of which extends into the liquid on the bottom of the said compartment, said fan-wheels having a series of peripheral openings for the throughlet of the gas, gas inlet at the bottom and outlet at the top and liquid inlet at the top and outlet at the bottom of the washer and means for rotating the said shaft substantially as described.



2. In a gas-washer, the combination of a series of superposed chambers, having each a central opening in the bottom, the said bottom being upwardly inclined from the center toward the edge, a vertical flange around said central opening, a cover to each compartment being downwardly inclined from the center to the edges and having peripheral openings at the edges, a shaft extending through the central openings and having fan-wheels thereon, downwardly-extending annular flanges to said fan-wheels to extend into the liquid on the bottom of the chamber, peripheral openings in said fan-wheels for the throughlet of the gas, gas inlet at the bottom and outlet at the top and liquid inlet at the top and outlet at the bottom of the apparatus and means for rotating the said shaft and fan-wheels substantially as described.

784,557. TELEPHONE-CALL. PETER T. GEYERMAN, Brewster, Minn. Filed Apr. 29, 1904. Serial No. 206,577.



Claim.—1. In telephone-calls, two shafts journaled in bearings; a notched disk, a toothed wheel, and a cylinder provided with a notch, and a series of projecting stop-studs fixed upon one of the said shafts to revolve with it; a crank mounted to revolve around the shaft and having a pawl to engage the said notched disk; a spring acting between the crank and a fixture to impel the crank continually in one direction; a stop for the crank at the ends of its path of revolution; a retaining-lever pivoted in the box and having a catch to engage the notch in the cylinder; a selecting-frame mounted to swing toward and away from the said cylinder and having a slot and indices marked beside it, longitudinal of the cylinder, also having a projecting arm and rod to connect it with the receiver-hanger of a telephone-box; a spring impelling the selecting-frame toward the cylinder; a stop-pin fitted to slide in the slot in the frame to engage either of the said stop-studs on the cylinder; a spring-arm carrying an electrical contact-spring, and having a knob to engage the teeth of the said wheel; a second electrical contact-spring fixed to be engaged by the first; a pointer, a tripping-stud, a ratchet-wheel and a switch-arm, fixed to the second of the two shafts; a fixed dial having indices to register with the said pointer; a tripping-lever to be engaged by the said tripping-stud; a ratchet-lever and pawl to engage the said ratchet-wheel; an electrical contact-spring to engage the hub of the said switch-arm; a disk of insulating material mounted on a revolubly-adjustable shaft, and an electrical contact-plate on the disk to be engaged by the said contact-arm; an electromagnet and an armature opposed to it on the ratchet-lever; a rod hanging upon the tripping-lever adjacent to the aforesaid retaining-lever; a pair of electrical contact-springs located adjacent to the retaining-lever on the side opposite to the hanging rod; a push-pin adjacent to the hanging rod on the side opposite to the retaining-lever; a call-bell and electrical wire connections substantially as described.

2. In telephone-calls, a rotary shaft connected with calling mechanism; a disk fixed upon that shaft and having a single notch in it, a starting-crank mounted to rotate around the shaft and provided with a pawl to engage the notch in the disk; a spring to actuate the crank, and a latch hung to swing in the path of the crank, and a stop at each end of the path of the latch.

3. In telephone-calls, selecting mechanism compriseing a cylinder having stop-studs projecting from its surface, each stop-stud occupying a separate circular plane and a separate circular position relatively to the other stop-studs on the cylinder; a selecting-frame hung to swing to and from the cylinder and having a slot through it and indices on it lengthwise of the cylinder; and a stop-pin fitted to slide in the said slot in the frame and to be swung by the frame into the rotary path of any one of the stop-studs, and at the same time to register with the indice on the frame which corresponds with that one of the stop-studs.

4. In telephone-calls, a toothed wheel; a spring for revolving it, and means for stopping it at a desired point; a spring-arm having a knob to engage the teeth of this wheel; an electrical contact-spring attached to the said spring-arm; another spring located normally in electrical contact with the said contact-spring; and wires connecting these springs with means for operating an electrical selecting-switch.

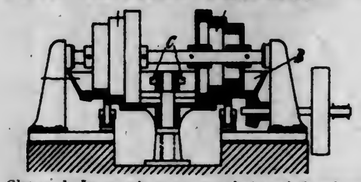
5. In telephone-calls, a cylinder mounted to revolve and having a series of stop-studs on its surface; a selecting-frame hung to swing to and from the cylinder and provided with a stop-pin fitted to be set to engage any one of the stop-studs, and further provided with an arm projecting in a direction away from the cylinder; and a rod attached to this arm to connect it with a movable telephone-receiver-hanging device.

6. In telephone-calls, a cylinder mounted to revolve and provided with a series of stop-studs, and having a retaining-notch in it; a retaining-lever to engage the said notch; a push-pin; a selecting-switch, an electrical contact-arm of which is mounted upon a rotary shaft which carries a tripping-stud; a tripping-lever mounted to engage the said tripping-stud; and a rod hung upon the tripping-lever to depend between the said retaining-lever and push-pin.

7. In telephone-calls, a cylinder mounted to revolve and having a series of stop-studs upon it and a retaining-notch in it; a retaining-lever to engage the said notch; a push-pin; a selecting-switch, a tripping-lever connected with the operating mechanism of the selecting-switch; a rod hung upon the tripping-lever between the retaining-lever and the push-pin, and two talking-switch springs having electrical connections with subscribers' telephones; one of the said talking-switch springs being located in the path of the said retaining-lever.

8. In telephone-calls, a cylinder mounted to revolve and having a series of stop-studs upon it and a notch in it; a retaining-lever to engage the notch; a talking-switch adjacent to the retaining-lever; a push-pin; a rod normally hung between the push-pin and the retaining-lever; a selecting-switch and communicating means between it and the said rod whereby the rod is withdrawn from between the push-pin and the retaining-rod during the time the selecting-switch is operating or in service, substantially as described.

784,558. EDGE-RUNNER AND PAN. CHRISTIAN GIELOW, Görlitz, Germany, assignor of one-half to Bruno Alexander-Katz, Görlitz, Germany. Filed Jan. 30, 1904. Serial No. 191,213.



Claim.—1. In an edge-runner and pan of the character described, the stepped grinding-surface and the stepped runners, which latter are arranged coaxially, and of whose steps the one which acts last upon the material to be ground bears upon the corresponding step of the grinding-surface, while each of the other steps is at an equal distance from the corresponding step of the grinding-surface throughout the width of such runner-step, the distance of the succeeding runner-steps from the corresponding steps of the grinding-surface increasing gradually to that of the steps to which the material to be ground is conducted first, substantially as and for the purpose herein set forth.

2. In an edge-runner and pan of the character described, the stepped grinding-surface and the stepped runners, which latter are arranged coaxially, and of whose steps the largest one bears upon the corresponding step of the grinding-surface, while each of the other steps is at an equal distance from the corresponding step of the grinding-surface throughout the width of such runner-step, the distance of the succeeding runner-step from the corresponding steps of the grinding-surface increasing gradually to the smallest runner-step, substantially as and for the purpose set forth.

784,559. SACK OR BAG. ROBERT GRAHAM, Greeley, Colo. Filed Aug. 11, 1904. Serial No. 220,395.



Claim.—A sack or bag made of flexible material and composed of the body of uniform size to the mouth, having the enlarged and flaring mouth portion provided with extensions, the flap or cover having the curved top, and inclined ends to snugly fit the mouth, and fastenings carried by the flaps to engage the body of the sack to secure the flaps over the mouth.

784,560. FUEL-ECONOMIZER. FRANCIS W. GREEN, Wakefield, England. Filed Dec. 6, 1904. Serial No. 235,716.

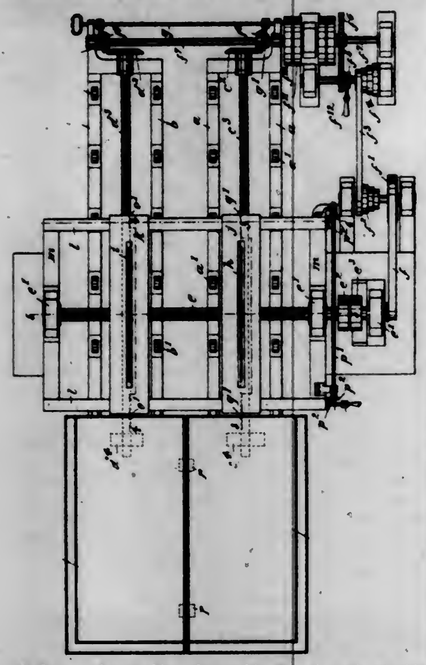


Claim.—In a fuel-economizer, a top box or header having a plurality of holes one or more of which are of larger diameter than the others, to permit lids for the smaller holes to be passed therethrough, and having a tubular branch with internal slots or grooves at right angles to the top box of header to permit lids for the larger of said holes to be passed into the box or header, as set forth.

784,561. SAWING-MACHINE. ARTHUR G. GRICE, Carnoustie, Scotland. Filed May 23, 1904. Serial No. 209,179.

Claim.—1. In a sawing-machine, the combination of a pair of

tables with means for continuously reciprocating one for a desired period, while the other table is at rest and conversely continuously reciprocating the second table while the first is at rest, a saw-spindle, a pair of saws slidably mounted thereon, and means for independently setting the saws upon the spindle, substantially as specified.



2. In a sawing-machine, the combination of a pair of tables with means for continuously reciprocating one for a desired period, while the other table is at rest and conversely continuously reciprocating the second table while the first is at rest, a saw-spindle, a pair of saws slidably mounted thereon, slides embracing the saws, and means for independently operating the slides, substantially as specified.

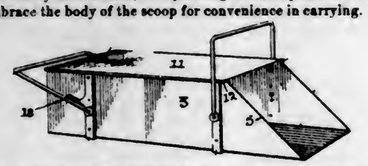
3. In a sawing-machine, the combination of a pair of tables with means for reciprocating the same, a saw-spindle, a pair of saws slidably mounted thereon, a pair of slides embracing the saws, nuts engaging the slides, a pair of intergeared screw-spindles engaging the nuts of the first slide, and a second pair of intergeared screw-spindles engaging the nuts of the second slide, substantially as specified.

4. In a sawing-machine, the combination of a pair of tables with means for continuously reciprocating one for a desired period, while the other table is at rest and conversely continuously reciprocating the second table while the first is at rest, a saw-spindle, a pair of saws slidably mounted thereon, a pair of slides embracing the saws, nuts engaging the slides, a pair of intergeared screw-spindles engaging the nuts of the first slide, and a second pair of intergeared screw-spindles engaging the nuts of the second slide, substantially as specified.

784,562. SCOOP. ARTHUR HETLAND, Henning, Minn., assignor of one-third to Otto J. Oak, Henning, Minn. Filed July 11, 1904. Serial No. 216,100.

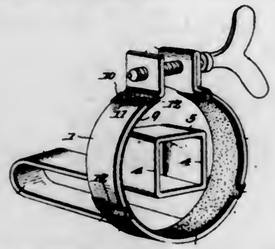
Claim.—1. A hollow receptacle having an open end, a plain side, a straight scooping edge, a removable cover disposed opposite the plain side, a pivoted bail secured adjacent to the open end, a pivoted bail secured to the end opposite the scooping edge and adapted to be folded to embrace the body and means for holding the last-mentioned bail at a predetermined operative angle to the receptacle.

2. A grain-scoop consisting of a hollow elongated body portion having an open end, a plain side and straight scooping edge and provided with a sliding cover member removably disposed opposite the plain side, a pivoted bail secured at the front end adapted to serve as a handle for operating the scoop and as a bail for carrying, and a pivoted bail secured to the rear end adapted to engage with lugs to serve as a handle for operating the scoop and to be folded to embrace the body of the scoop for convenience in carrying.



3. A grain-scoop consisting of an elongated hollow body portion rectangular in cross-section, the top adapted to be slidably removed, a spring-catch mounted upon the top adapted to engage the body portion to retain the top in position; one end of the body portion being provided with an end piece closing the opening, the other end provided with slanting sides and a straight scooping edge, strengthening-braces secured to the external sides and near the ends, a bail pivoted to the front brace adapted to swing above the body to serve as a handle for operating the scoop and outwardly over the open end to serve as a bail for carrying, lugs secured to the rear braces and a bail pivoted to the rear braces adjacent to and adapted to contact with the lugs when extending rearwardly of the body in position to serve as a handle for operating the scoop and to be folded to embrace the scoop for convenience in carrying.

784,563. HUB-WRENCH. RUFUS L. HICKS, Stamford, Tex. Filed May 12 1904. Serial No. 207,666.



Claim.—1. A hub-wrench, comprising, a clamping-band for application to a hub, a substantially U-shaped lateral handle, having one end connected to the band, and its opposite end located centrally within the band, and provided with opposite ears, which are bent to form an angular nut-receiving socket or jaw.

2. A hub-wrench, comprising a split band having its opposite ends provided with outwardly-directed perforate ears, an adjusting-screw fitted in the perforations of the ears, an integral substantially U-shaped handle projecting laterally from the band and having its inner end located centrally within the plane of the band, and opposite integral ears at the inner end of the handle, said ears being bent into an angular nut-receiving socket or jaw upon the outer side of the handle.

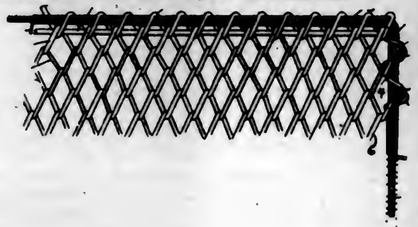
3. A hub-wrench comprising a member to embrace the hub, a nut-receiving socket spaced from and carried within the hub-embracing means, a liner applied to the inner periphery of the hub-embracing means and provided with corresponding ears which are folded over and lapped across the outer side of said hub-embracing means, and fastenings connecting the overlapped ears.

784,564. MAT. ROBERT L. HOUSLEY, Fort Worth, Tex., assignor to Worth Wire Works, Fort Worth, Tex., a Corporation of Texas. Filed May 31, 1904. Serial No. 210,387.

Claim.—1. As a new article of manufacture, a flexible mat constructed of a cable and coils of spring-wire engaging said cable and forming loops pivoted together on the outside of said cable.

2. As a new article of manufacture, a mat constructed of flexible cable forming the frame of the mat, coils of wire woven together and having their ends looped about said cable at the sides of the mat, and each pair of coils having their ends pivoted together outside of said cable and rods loosely mounted in the ends of the mat for forming rigid ends of the mat.

3. As a new article of manufacture, a non-elastic mat composed of a frame consisting of a flexible and non-elastic cable, and coils of spring-wire woven together, and each pair of wire springs having their ends pivotally connected together about said cable.



4. As a new article of manufacture, a mat composed of a non-elastic flexible cable forming a frame for the mat and a series of coils of spring-wire flexibly woven together in series and each pair of wire springs having their ends flexibly connected together on the outside of the frame.

784,565. JOINT FOR THE LOCKING-BAR TYPE OF ROLLED IRON PIPES. GEO. J. HOSKINS, Ultimo, Sydney, New South Wales, Australia. Filed Sept. 22, 1902. Serial No. 124,373.



Claim.—1. In joints for locking-bar pipe, pipe-sections having locking-bars formed with recesses in the external ends of the same, an annular band fitting around the ends of said pipe-sections, and wedges between the recessed ends of the locking-bars and said band.

2. In joints for locking-bar pipe, pipe-sections having locking-bars formed with recesses adjacent the ends of the sections, an annular band engaging said recesses and forming an annular seam with the external surface of the pipe-sections and calking material in said annular seam.

3. In joints for locking-bar pipe, pipe-sections having locking-bars formed with recesses adjacent the ends of the sections, and a band engaging said recesses.

4. In joints for locking-bar pipe, a pipe-section having locking-bars formed with recesses adjacent the end of the section and a band engaging the end of said pipe-section in said recesses.

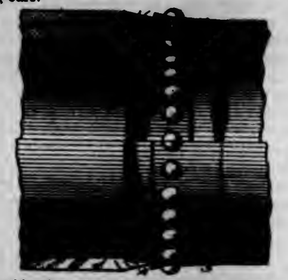
5. In joints for locking-bar pipe, a pipe-section having locking-bars formed with recesses adjacent the end of the section, a band engaging the end of said pipe-section and the reduced ends of said locking-bars and securing means to hold said reduced ends of said locking-bars to said band.

6. In joints for locking-bar pipe, a pipe-section having locking-bars formed with recesses adjacent the end of the section, a band engaging the end of said section and riveted thereto, the reduced ends of said locking-bars being riveted to said band.

784,566. LOCKING-BAR PIPE. GEORGE J. HOSKINS, Ultimo, Sydney, New South Wales, Australia. Filed Aug. 2, 1904. Serial No. 219,244.

Claim.—1. In combination, pipe-plates, locking-bars between said pipe-plates forming pipe-sections provided with flaring and tapering ends, said locking-bars being beveled externally and internally adjacent said flaring and tapering ends respectively and being formed flush with the coöperating surfaces of the adjacent pipe-plates at the ends of said pipe-sections, there being recesses formed in the ends of said pipe-sections to accommodate the ends of said locking-bars and rivets to hold said pipe-sections together.

2. In combination, pipe-plates, locking-bars between said pipe-plates forming pipe-sections provided with flaring and tapering ends, said locking-bars being reduced externally and internally adjacent said flaring and tapering ends respectively, there being recesses formed in the ends of said pipe-sections to accommodate the ends of said locking-bars.



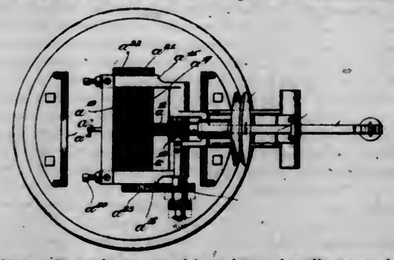
3. In combination, pipe-plates, locking-bars between said pipe-plates to form a pipe-section provided with a flaring and a tapering end, said locking-bars being beveled externally and internally adjacent said flaring and tapering ends respectively and being formed substantially flush with the coöperating surfaces of the adjacent pipe-plates at the ends of said pipe-section, there being recesses formed in the ends of said pipe-sections to accommodate the ends of the locking-bars of adjoining pipe-sections.

4. In combination, pipe-plates, locking-bars between said pipe-plates forming a pipe-section, said locking-bars being beveled externally and internally adjacent the coöperating surfaces of the ends of said pipe-section and said locking-bars being formed substantially flush with the coöperating surfaces of the adjacent pipe-plates at the ends of said section, there being recesses formed in the ends of said pipe-section to accommodate the ends of the locking-bars of adjoining pipe-sections.

5. In combination, pipe-plates, locking-bars between said pipe-plates forming a pipe-section, said locking-bars being reduced externally and internally adjacent the ends of said section and being formed substantially flush with the coöperating surfaces of the adjacent pipe-plates at the ends of said section, there being recesses formed in the ends of said pipe-section to accommodate the ends of the locking-bar of adjacent pipe-sections.

6. In combination, pipe-plates, locking-bars between said pipe-plates forming pipe-sections provided with flaring and tapering ends, said locking-bars being beveled externally and internally adjacent said flaring and tapering ends respectively and being formed flush with the coöperating surfaces of the adjacent pipe-plates at the ends of said pipe-sections, there being recesses formed in the ends of said pipe-sections to accommodate the ends of said locking-bars and rivets to hold said pipe-sections together, said rivets passing through the beveled ends of said locking-bars to hold them in proper position with respect to said pipe-plates.

784,567. KNITTING-MACHINE TAKE-UP. LEON C. HUSE, Laconia, N. H., assignor of one-third to Warren D. Huse and one-third to Walter L. Huse, Laconia, N. H. Filed Aug. 6, 1903. Serial No. 168,263.



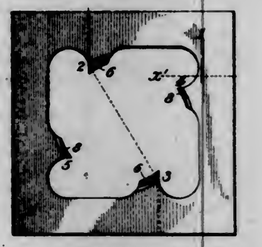
Claim.—1. A take-up comprising a frame pivotally mounted, a pair of take-up rolls journaled in said frame, gears connecting said rolls, a cross-bar carried by said frame, a shaft mounted in said cross-bar, means for driving said shaft, and a pinion mounted to rotate with said shaft, and movable longitudinally thereon to carry said pinion into and out of engagement with the said take-up rolls.

2. A take-up comprising a pivotally-mounted frame, take-up rolls journaled therein, a driving-shaft therefor, a pinion normally in driving connection with said rolls and mounted to rotate with and be longitudinally movable on said shaft into and out of driving engagement with the take-up rolls, and means to rotate said shaft.

3. A take-up comprising a pivotally-mounted frame, take-up rolls journaled therein, a driving-shaft therefor, a pinion normally in driving connection with said rolls and mounted to rotate with and be longitudinally movable on said shaft into and out of engagement with the take-up rolls, locking means for holding the pinion in driving engagement with the rolls, and means to rotate said shaft.

4. A take-up comprising a frame pivotally mounted to swing upward and downward in a vertical plane, a pair of take-up rolls mounted in said frame, a cross-bar on said frame, a driving-shaft mounted in said cross-bar, a pinion splined to said shaft to be longitudinally movable thereon and rotatable therewith, to put the same into or out of driving connection with the take-up rolls, and means for rotating said shaft.

784,568. **PIPE-THREADING DIE.** HENRY JANSEN, Chicago, Ill., assignor to The Nye Tool and Machine Works, a Corporation of Illinois. Filed June 17, 1904. Serial No. 212,947.



Claim.—1. A screw-cutting tool provided with a series of blades formed with threading-teeth, the first threading-tooth of each blade of the series back of the forward end of the tool being full and on a pitch-line with one another, the remainder of the threading-teeth of said blades being alternately removed, and such remaining threading-teeth of one blade having a staggered or alternated relation to the remaining threading-teeth on the next adjoining blade, substantially as set forth.

2. A screw-cutting tool provided with a series of blades formed with threading-teeth, the first threading-tooth of each blade of the series back of the forward end of the tool being full and on a pitch-line with one another, the remainder of the threading-teeth on two opposed blades being entirely removed, and the remainder of the threading-teeth of two other opposed blades being alternately removed and the remaining teeth arranged so that the threading-teeth on one of said blades will have a staggered or alternated relation with the remaining threading-teeth of the other blade, substantially as set forth.

3. A die for cutting threads on pipe ends and the like, comprising a die-body having a central orifice formed with an entrance-countersink and provided with a series of instanding die-blades, the first threading-tooth of each blade of the series back of the countersink aforesaid being full and on a pitch-line with one another, the remainder of the threading-teeth of said die-blades being alternately removed and such remaining threading-teeth of one die-blade having a staggered or alternated relation to the remaining threading-teeth on the next adjoining die-blade, substantially as set forth

4. A die for cutting threads on pipe ends and the like, comprising a die-body having a central orifice formed with an entrance-countersink and provided with a series of instanding die-blades, the first threading-tooth of each blade of the series back of the countersink aforesaid being full and on a pitch-line with one another, the remainder of the threading-teeth on two opposed die-blades being entirely removed, and the remainder of the threading-teeth of two other opposed die-blades being alternately removed and the remaining teeth arranged so that the threading-teeth on one of said blades will have a staggered or alternated relation to the remaining threading-teeth of the other blade, substantially as set forth.

784,569. **AIR OR LIQUID RECIPROCATING ENGINE AND PUMP HAVING ROTARY OPERATING MECHANISM.** GEORGE W. JOHNSTON, St. Joseph, Mo. Filed Aug. 26, 1903. Serial No. 170,833.

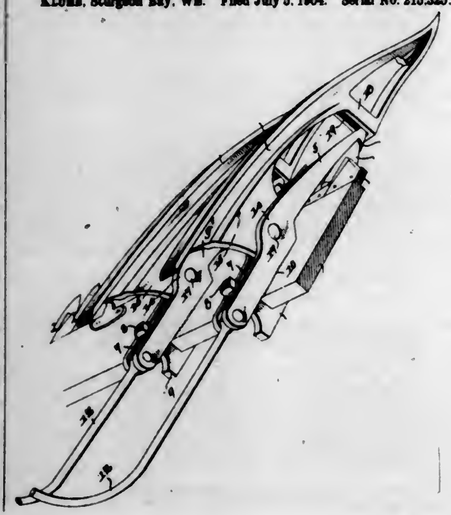
Claim.—1. In a reciprocating power-engine and pump having a rotary operating mechanism the combination with a supporting-frame, the axles, the duplicate cam-plates adapted to form a casing for a drive-wheel and the connecting-rim, a stationary cylinder between said cam-plates provided with duplicate slots or guides set longitudinally in the cylinder opposite each other at each end, the duplicate pistons, their rods and duplicate cross-arms adapted to operate in said slots, the rollers on said cross-arms and the duplicate camways in which said rollers are adapted to travel so that when used as a pump the rotating motion of the cam-plates will cause reciprocating motion of the pistons and when used as an engine the reciprocating motion of the pistons will cause rotating motion of the cam-plates and their drive-rim, the duplicate dash-pots upon opposite sides of the cylinder in the inner ends of said axles, the inlet and outlet ducts having connection with said dash-pots and the cylinder, the piston-valves in the dash-pots, the piston-valves rods and the rollers thereon, the automatic valves for releasing air or fluid from the vacuum dash-pots and the segments forming cams to operate the inlet and outlet valves in conjunction with the vacuum dash-pots, substantially as shown and described.



2. The combination with a reciprocating power-engine and pump having a rotary operating mechanism with a supporting-axle, duplicate cam-plates and their connection, a stationary cylinder, duplicate pistons, cross-arms, slots and rollers and camways for said rollers, of the dash-pots at opposite sides of cylinder, the piston-valves operating in said dash-pots, the piston-valves rods and connected rollers, the automatic relief-valves, the inlet and outlet ducts passing through the axle projections and the segments forming cams adapted to operate said piston-valves in conjunction with the vacuum dash-pots, substantially as shown and described.

3. The combination in a power-pump and engine with the necessary support, cam-plates and drive-rim, camways and stationary cylinder, of the duplicate cylinder-heads and the guides, the pistons and their rods, the cross-arms adapted to operate in said guides and the rollers adapted to operate in said camways, the inlet and outlet ducts and the dash-pots with which connected, the piston-valves in said dash-pots and the rods, rollers and guides therefor, the segments forming cams that operate said piston-valves in conjunction with the vacuum dash-pots and the automatic valve for releasing air or fluid that may be drawn into the vacuum dash-pots, substantially as shown and set forth.

784,570. **FINGER-GUARD FOR PEA-HARVESTERS.** GUSTAV P. KLUMB, Sturgeon Bay, Wis. Filed July 5, 1904. Serial No. 215,325.



Claim.—1. In a device of the class described, a finger-bar, fingers carried thereby, a finger-guard attached to the bar, and a lifting member pivotally connected with the guard, the fulcrum of the lifting member being disposed adjacent to the transverse center of the bar.

2. In a device of the class described, a finger-bar, a finger carried thereby, a guard having a socket to receive the forward end of the finger, said guard being provided with a longitudinal slot and having its face serrated beneath the latter, a clamping member having serrations facing the serrated face of the guard, an attaching-bolt engaging the clamping member and adjustably disposed in the slot, and a lifting member pivotally connected with the guard.

784,571. **WELL-DRILLING MECHANISM.** JACOB C. KNUPP and JAMES G. GREENE, Warren, Pa. Filed Jan. 12, 1904. Serial No. 188,712.

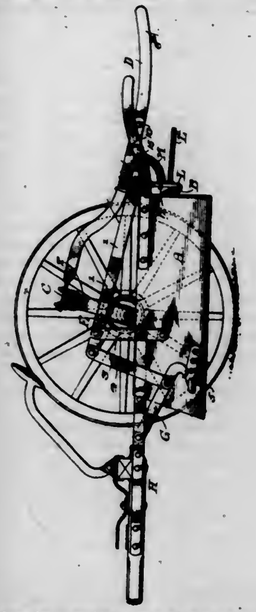


Claim.—In a device of the class described, a driven shaft carrying a band-wheel and a tug-wheel, said shaft having a crank, a walking-beam, a pitman connecting said walking-beam with the crank, a sand-reel-carrying shaft, a permanent support for one end of said shaft, a box forming a bearing for the other end of said shaft, said box having upward and downward extending trunnions, a longitudinally-slidable frame having bearings for said trunnions, a friction-wheel upon the sand-reel shaft adapted to engage the band-wheel, a brake-block adapted to engage said friction-wheel, and means for manipulating the slidable frame.

784,572. **WHEELED DUMPING-SCRAPER.** JOHN O. E. KROHN, Barberton, Ohio, assignor to National Drill & Manufacturing Company, Chicago, Ill., a Corporation of West Virginia. Filed Dec. 17, 1904. Serial No. 237,317.

Claim.—1. In a wheeled dumping-scraper of the class described, a latch pivoted to and depending from the lever and adapted to engage the catch on the rear end of the bowl when the latter is in raised carrying position; a curved rod attached to the lever in rear of the latch and extending forwardly to and through an opening with which the latch is provided at a point below its pivotal end; and a spring supported upon said curved rod and arranged between the latch and the lever, the latch being held in engagement with the catch by the expansion of such spring.

2. In a wheeled dumping-scraper of the class described, the lever comprising a pair of parallel bars secured to and extending back from the rear transverse portion of the bail; a pendent latch having its upper end pivoted between said parallel bars and adapted to engage a catch on the rear end of the bowl when the latter is in raised carrying position; a curved rod having one end attached to the lever and its opposite end portion extending through an opening with which the latch is provided below its pivoted end; and a spring arranged on said curved rod between the latch and the lever; the upper end of the latch being arranged to engage the rear transverse portion of the bail and thereby limit extent of forward swing on the part of the latch, and the latch being held in engagement with the catch by the expansion of the spring.



3. In a dumping wheeled scraper of the class described, a latch pivoted to and depending from the lever and adapted to engage a catch on the rear end of the bowl; a curved rod pivoted at one end to the lever and having its opposite end portion extended through an opening with which the latch is provided; and a spring arranged upon the curved rod and confined between the latch and a shoulder on the curved rod, the latch being held in engagement with the catch by the expansion of the spring.

4. In a dumping wheeled scraper of the class described, a latch pivoted to and depending from the lever and adapted to engage a catch on the rear end of the bowl; a curved rod attached to the lever and extending through an opening with which the latch is provided at a point below the latch-pivot; and a spring arranged on the curved rod and confined between the latch and the lever; said curved rod being substantially curved on the arc of a circle having the latch-pivot as its center, and the latch being held in engagement with the catch by the expansion of the spring.

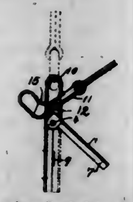
5. In a wheeled dumping-scraper of the class described, a latch pivoted to and depending from the lever and adapted to engage a catch on the rear end of the bowl; a rod attached at one end to the lever, the latch having a shifting connection with the opposite end portion of such rod at a point below the point at which said latch is pivoted to the lever; and a spring arranged upon said rod and between the latch and the lever and adapted to hold the latch in engagement with the catch.

6. In a wheeled dumping-scraper of the class described, a pendent latch having its upper end pivoted to the lever; a rod attached at one end to the lever and having its opposite end portion extending through an opening with which the latch is provided below its pivotal point; and a spring supported upon said rod and arranged to act against the latch, the upper end of the latch being cam-shaped and arranged to engage the rear transverse portion 6 of the bail at a time suitable to limit the forward swing of the latch.

784,573. **CLASP.** ALBERT G. KUNDE, Milwaukee, Wis. Filed Mar. 25, 1904. Serial No. 199,895.

Claim.—1. In a device of the described class, the combination

of a pair of clamping-plates hinged together and extended beyond the hinge to form hooks; the shank portions of said hooks being substantially in the plane of one of the plates and the end portions of said hooks being substantially in the plane of the other plate, when the device is in closed position; and a link engaged by said hooks; the hooked portion of one of the plates having its extremity brought close to the pintle, and the hooked portion of the other plate having an extremity sufficiently distant therefrom to permit the disengagement of the link.

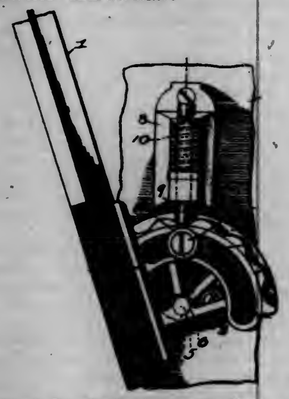


2. In a device of the described class, the combination of a pair of clamping-plates hinged together; hooks connected with the respective plates and extended on the opposite side of the hinge from that occupied by the plates; the shank portions of all the hooks being in the plane of one of the plates and the extremities in the plane of the other plate when said plates are closed together; and a link permanently engaged in one of the hooks and engageable in the other hooks.

3. In a device of the described class, the combination of a pair of clamping-plates hinged together; hooks connected with the respective plates and extended on the opposite side of the hinge from that occupied by the plates; the shank portions of all the hooks being in the plane of one of the plates and the extremities in the plane of the other plate when said plates are closed together; and a link permanently engaged in one hook and adapted to fit snugly in the other hooks; said last-mentioned hooks being shorter than the one in which the link is permanently engaged.

4. In a device of the described class, the combination of a pair of clamping-plates hinged together; hooks connected with the respective plates and extended on the opposite side of the hinge from that occupied by the plates; the shank portions of the hooks being all in the plane of one of the plates and the extremities in the plane of the other plate when said plates are closed together; and a link permanently engaged in one hook and adapted to fit snugly in the other hooks; said last-mentioned hooks being shorter than the one in which the link is permanently engaged, and one of the hooks having an inwardly-projecting bend adapted to yieldingly obstruct the passage of the link.

784,574. **PIVOTING DEVICE FOR VENTILATING-SASHES.** CHARLES N. LANGDON and OSCAR H. CARLSON, Newcastle, Pa. Filed June 7, 1904. Serial No. 211,571.



Claim.—1. In a pivoting device of the class described, the combination of a holding-catch, and a bracket having a pivotal support and provided with a latching-surface engaging with the catch, said bracket being further provided with a guard-flange extending behind the said catch.

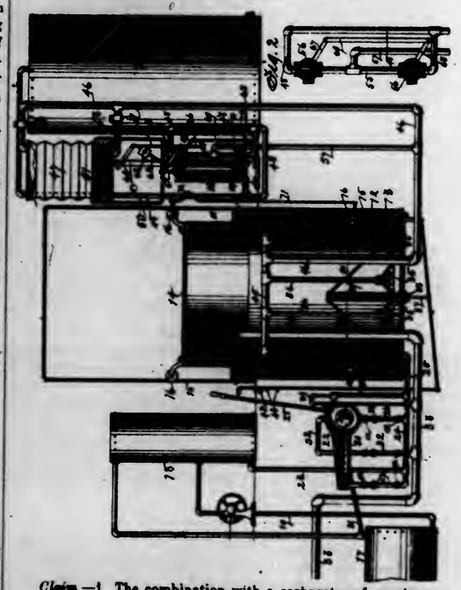
2. In a pivoting device of the class described, the combination with a yielding catch-bolt, of a pivotal supporting-bracket having a segmental notched latching-surface engaged by said catch-bolt, and also provided at one side with an outwardly-projecting guard-flange extending beyond the edge of said latching-surface, and engaging behind the said catch-bolt.

3. In a pivoting device of the class described, the combination of a catch, a pivotally-mounted bracket having a guide-slot, and a guiding and retaining device extending through said slot.

4. In a pivoting device of the class described, the combination of a catch, a pivotally-mounted bracket coöperating with said catch and provided with a guide-slot, and a guiding and retaining device consisting of a headed bushing extending through said slot, and a screw passing through the bushing and into a fixed support.

5. In a pivoting device of the class described, the combination of a bearing-plate having a bearing-seat and supporting a spring-projected catch-bolt, a sector-shaped pivot-bracket having a stud engaging said bearing-seat and provided with a notched latching-segment slidably engaging the active end of the catch-bolt, said bracket being further provided with a segmental guide-slot and with a guard-flange disposed at one side of the notched surface and projecting beyond such surface for engagement behind the bolt, and an auxiliary bracket guiding and retaining device supported upon the bearing-plate and having a headed member disposed within the slot and overlapping the edges of the latter.

784,575. **AIR-PUMPING APPARATUS.** THEODOR H. J. LECKBAND, Des Moines, Iowa, assignor to Leckband Gas Company, Mason City, Iowa. Filed July 14, 1902. Serial No. 115,520.



Claim.—1. The combination with a carbureter of an air-compressor delivering thereto, a compressed-air motor for driving the compressor and connections whereby the exhaust of the motor is also delivered to the carbureter.

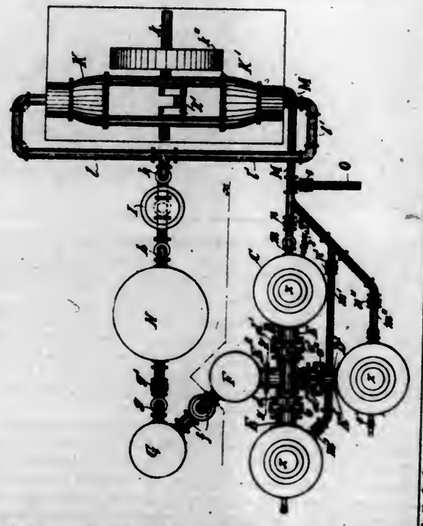
2. In an apparatus for feeding air to a carbureter, a carbureter, automatic feed mechanism consisting of a duplex bellows, an air-reservoir, a pipe connected with the top of the bellows and the carbureter, a pipe connected with the lower end of the bellows and with the said pipe that is connected with the carbureter, a fixed transverse partition in the center of the bellows, a motor-cylinder, connected to the reservoir, a bar fixed to the lower end of the bellows and to the motor-cylinder, a frame fixed to the fixed partition of the bellows, a piston in the cylinder, a stem fixed to the piston and to said frame and automatic valve-operating mechanism connected with the fixed bar that connects the bellows and cylinder, arranged and combined to operate in the manner set forth for the purposes stated

3. In an apparatus for feeding air to a carbureter, a carbureter, automatic feed mechanism consisting of a duplex bellows, an air-reservoir, a pipe connected with the top and bottom of the bellows and the carbureter, a fixed transverse partition in the center of the bellows, a motor-cylinder for actuating the bellows, a bar fixed to the lower end of the bellows and to the cylinder, a frame fixed to the fixed partition of the bellows, a piston in the cylinder, a stem fixed to the piston and to the said frame, automatic valve-operating mechanism connected with the fixed bar that connects the bellows and cylinder, a valve-chamber at each end portion of the cylinder, a plug-valve, having an elbow-shaped port, in each valve-chamber, a valve-stem fixed to each valve, a link connecting the ends of the valve-stems, a tube connecting the two valves with the air-reservoir, two levers fulcrumed to the bar that connects the bellows and the cylinder, an arm extending from the lower lever, a weight on the end of the arm, a link, having a loop at its lower end, connecting the ends of the long arms of the levers and the loop inclosing the stem of the upper valve, arranged and combined to operate in the manner set forth for the purposes stated.

4. In an apparatus for feeding air to a carbureter, a carbureter, a reservoir for compressed air, an air-forcing mechanism, a pipe extending from said air-forcing mechanism, a motor-cylinder having a piston connected to the air-forcing mechanism and a valve at each end, a tube connected with each valve for supplying air from the reservoir to the cylinder and a tube connected with each valve for exhausting air from the cylinder, and tubes for conveying the air from the air-forcing mechanism and the motor-cylinder to the carbureter, arranged and combined to operate in the manner set forth for the purposes stated.

5. In an apparatus for feeding air to a carbureter, an air-forcing mechanism, a reservoir for compressed air, a motor-cylinder having a valve at each end connected with the air-reservoir, a tube connected with each valve for feeding air to the motor-cylinder, a tube connected with each valve for exhausting air from the motor-cylinder, a carbureter, a tube for conveying the exhaust air from both the valves to the carbureter and automatic mechanism for regulating the passage of air from the reservoir to the motor-cylinder, arranged and combined to feed air from the reservoir and from the atmosphere to the carbureter in the manner set forth for the purposes stated.

784,576. **APPARATUS FOR MANUFACTURING GAS.** BURDETT LOOMIS, Hartford, Conn., and HAWLEY PETTIBONE, New Rochelle, N. Y., assignors to Power and Mining Machinery Company, a Corporation of New York. Filed Feb. 4, 1904. Serial No. 192,036.



Claim.—1. The combination with three-cupola gas-generators, of pipes connecting them, one with another at the top, controlling-valves in said pipes, pipes connecting said generators, one with another at the bottom, valves in said pipes and a gas-take-off pipe leading from one of said bottom connecting-pipes, whereby any two of the generators may be operated together as a pair and anyone of them cut out of circuit for cleaning and repair, substantially as described.

2. The combination with a pair of cupola-generators connected at the top and each having, at the bottom, a valved pipe connecting with a gas-take-off pipe, of means for supplying air at the top of each cupola, a pipe connecting with the base of each generator and means for supplying through said pipe gaseous fluid under pressure and impulses for opening the fires and blowing ashes and fine carbon from the interstices of the fuel, substantially as described.

3. A pair of cupola-generators having air-inlets and pipe connection at the top and each having at the bottom a pipe and valve connecting with a gas-take-off pipe, a gas-engine connecting with said take-off pipe, an exhaust-pipe for spent gases leading from the engine and connecting by a valved pipe with the base of each of the cupola-generators for utilizing such gases, under the pressure and impulses imparted by the engine, to open and clean the fires and make combustible gas, substantially as described.

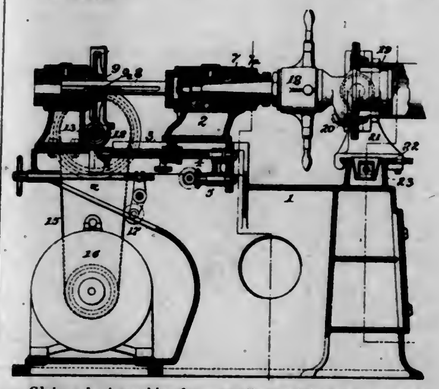
4. The combination with a pair of cupola-generators connected at the top and having valved pipes at the bottom connecting with a gas-take-off pipe, of a scrubber, a governor, a gas-engine and the exhaust-pipe of the engine connecting by valved pipes with the base of said cupola-generators, substantially as described.

5. A gas generating and power plant comprising three generating-chambers connecting each with the other at the top by a valved pipe and each having at the bottom a valved pipe connecting with a gas-take-off pipe, means for purifying the gas, a connected gas-engine and the exhaust-pipe of the engine connecting by a branch pipe with each of the generating-chambers, substantially as described.

6. The combination with three-cupola gas-generators, of pipes connecting them, one with another at the top, controlling-valves in said pipes, pipes connecting said generators, one with another at the bottom, valves in said pipes and a gas-take-off pipe leading from one of said bottom connecting-pipes, whereby any two of the generators may be operated together as a pair and any one of them cut out of circuit for cleaning and repair, a gas-engine, and the exhaust-pipe of the engine connecting by a branch pipe with each of the generating-chambers, substantially as described.

7. A gas generating and power plant comprising three generating-chambers connecting each with the other at the top by a valved pipe and each having at the bottom a valved pipe connecting with a gas-take-off pipe, means for purifying the gas, and a connected gas-engine, substantially as described.

784,577. **MACHINE FOR EXPANDING AND FLANGING PIPE.** LUTHER D. LOVEKIN, Philadelphia, Pa. Filed Feb. 25, 1904. Serial No. 195,231.



Claim.—1. A machine for expanding and flanging pipe of the character described having a rotating socket-head for a detachable expanding and flanging tool carried in a sliding head and having a rearwardly-extending shaft, combined with gearing for rotating the shaft of the socket-head fixedly located on the machine and maintaining connection with the said shaft of the socket-head during its longitudinal adjustment, and clamping devices for the pipe and pipe-flange consisting of a support for the pipe-flange having clamping devices and grips for the pipe provided with toothed jaws.

2. In a machine for expanding and flanging pipe, the combination of the rotating tool-carrying socket-head 7 journaled in a sliding adjustable head 2 and having a rearwardly-extending shaft 8, annular antifriction-rings 7ª to receive the end thrust between the socket-head and sliding head, a worm-wheel carried in fixed bearings to rotate the shaft 8 while permitting adjustment of the sliding head, and clamping devices arranged in front of the socket-head.

3. In a machine for expanding and flanging pipe, the combination of the base having guides 3 and 22 arranged at right angles to each other, a sliding adjustable head 2 adapted to the guides 3, a rotating socket-head 7 having a socket for the tool and journaled in the sliding head, and clamping devices consisting of clamps for the pipe-flange and grip-jaws for the pipe adjustable to and from each other on the respective clamps arranged in front of the socket-head and adjustably supported on the guides 22.

4. In a machine for expanding and flanging pipe, the combination of a rotating socket-head for the expanding and flanging tool, means to adjust it longitudinally of its axis, transversely-arranged guides on the base, two adjustable brackets guided upon the guides and movable to and from each other by a screw-shaft device, clamping-heads carried by the brackets for holding the pipe-flange, and grip-jaws carried by the clamping-heads for holding the pipe against rotation and end thrust.

5. In a machine for expanding and flanging pipe, the combination of the rotating and longitudinally-adjustable socket-head for the tool, with two independently-operated clamping devices for clamping opposite sides of the pipe-flange, and two grip-jaws respectively secured to the clamping devices and independently adjustable to or from the axis of the pipe to suit pipes of various sizes.

6. In a machine for expanding and flanging pipe, the combination of means for holding the pipe and pipe-flange, a rotating tool-socket head movable to and from the means for holding the pipe and having a rearwardly-extending shaft, a rotating sleeve mechanically connected to rotate the shaft while permitting of its longitudinal adjustment, means to rotate the sleeve consisting of a worm-wheel and worm, and a driving-shaft to rotate the worm.

7. In a machine for expanding and flanging pipe, the combination of means for holding the pipe and pipe-flange, a rotating tool-socket head movable to and from the means for holding the pipe and having a rearwardly-extending shaft, a removable expanding and flanging tool carried by the socket-head, a rotating sleeve mechanically connected to rotate the shaft while permitting of its longitudinal adjustment, a stationary bearing for supporting the sleeve at a fixed distance from the means for holding the pipe and pipe-flange, and gearing for rotating the sleeve.

8. In a machine for expanding and flanging pipe, the combination of means for holding the pipe and pipe-flange, and a rotating sleeve supported in a fixed bearing and arranged at a fixed distance from the means for holding the pipe and pipe-flange, with an adjustable sliding head intermediate of the sleeve and means for holding the pipe and pipe-flange and movable to or from the said parts as required, and a rotating tool-socket head carried by the sliding head and having a rearwardly-extending shaft extending through the rotating sleeve and being rotated thereby while permitting of longitudinal adjustment.

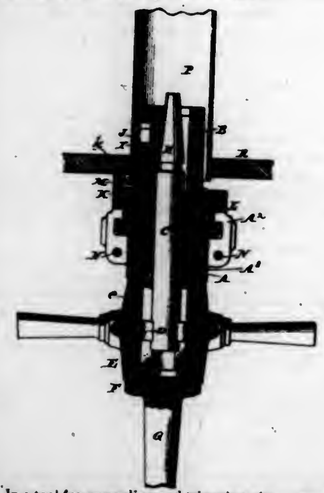
784,578. TOOL FOR EXPANDING AND CUTTING PIPE.

LUTHER D. LOVEKIN, Philadelphia, Pa. Filed Feb. 25, 1904. Serial No. 195,233.

Claim.—1. In a tool for expanding and trimming pipe, a mandrel adapted to enter the pipe, combined with a rigid trimming-cutter extending laterally from the body of the mandrel at a distance from the end of the mandrel, and a shoe encircling the mandrel and extending above and below the trimming-cutter and rotatable relatively to the mandrel whereby the shoe restricts the extent of trimming of the end of the expanded pipe.

2. In a tool for trimming the ends of expanded tubes, a mandrel having a rigid trimming-cutter extending laterally from the body of the mandrel and in which the mandrel has an annular shoulder above the cutter, in combination with a shoe encircling the mandrel and extending beyond the cutter to limit the extent of the trimming of the end of the tube, and antifriction annular rings interposed between the shoulder of the mandrel and shoe.

3. A tool for cutting off expanded tubes consisting of a mandrel combined with radially-adjustable carriages in its end provided with cutting-off cutters, a longitudinally-adjustable follower-shaft for adjusting the carriages radially in the mandrel, a split collar screwed upon the outside of the mandrel-body so as to be longitudinally adjustable, means to clamp the parts of the split collar together upon the mandrel, and a shoe rotatably supported by the split collar and encircling the mandrel to limit the extent to which it enters the tube so as to insure the cutters to rotate in the same plane and continuously operate upon the same part of the tube.



4. In a tool for expanding and trimming pipe, a mandrel adapted to extend into the pipe, combined with a rigid trimming-cutter extending laterally from the body of the mandrel at a distance from the end of the mandrel, a shoe encircling the mandrel and extending above and below the trimming-cutter and rotatable relatively to the mandrel whereby the shoe restricts the extent of trimming of the end of the expanded pipe, and means for adjusting the end of the shoe to a greater or less distance beyond the trimming-cutter to vary the length of projecting end of the tube above the boiler-head.

5. In a tool for expanding and trimming pipe, a mandrel adapted to extend into the pipe, combined with a rigid trimming-cutter extending laterally from the body of the mandrel at a distance from the end of the mandrel, a shoe encircling the mandrel and extending above and below the trimming-cutter and rotatable relatively to the mandrel whereby the shoe restricts the extent of trimming of the end of the expanded pipe, and means for adjusting the end of the shoe to a greater or less distance beyond the trimming-cutter to vary the length of the projecting end of the tube above the boiler-head, consisting of an adjustable collar carried by the mandrel-body and provided with a shoulder against which the shoe rests.

6. A tool for cutting off expanded tubes consisting of a mandrel combined with radially-adjustable carriages I, a longitudinally-adjustable follower-shaft for adjusting the carriages radially in the mandrel, cutters J held in the carriages, and clamping-wedges J′ for locking the cutters in the carriages.

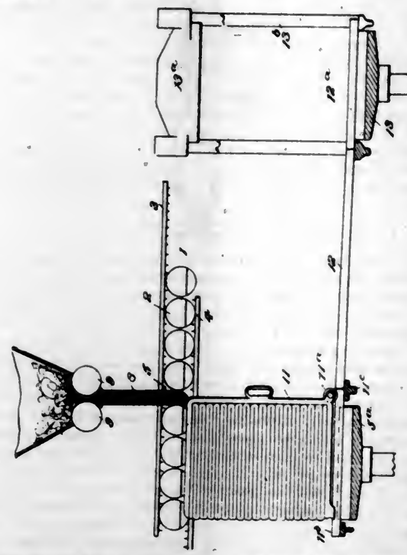
784,579. ART OR METHOD OF COMPRESSING COTTON OR OTHER FIBROUS MATERIALS.

CHARLES J. LUCE, Niantic, Conn., assignor to Luce Compress & Cotton Company, a Corporation of Delaware. Filed Feb. 12, 1904. Serial No. 193,329.

Claim.—1. The art of forming a bale which consists of first forming a continuous wad under pressure, maintaining the pressure upon the wad and then folding the wad into layers and piling the layers one upon the other in bale form, applying to the wad as it is laid down a continuous pressure greater than the original compression applied to the wad, substantially as described.

2. The art of forming a bale which consists of first forming a continuous wad under pressure, maintaining the pressure upon the wad and then laying down and folding the wad into layers and piling them one upon the other in bale form, the operation of laying down being performed under a continuous pressure, substantially as described, sufficient, when the bale is completed, to prevent its immediate expansion.

3. The art of forming a bale which consists of first forming a continuous wad, maintaining the pressure upon the wad and then folding the continuous wad into layers and laying the layers down upon each other to form a bale and maintaining upon the bale and the layers as they are laid down a continuous pressure sufficient to produce in the bale a density of about twenty-seven pounds to the cubic foot.



4. The art of forming a bale which consists of first forming a continuous wad under pressure, maintaining the pressure upon the wad and then folding the wad into layers and laying the layers down one upon the other in bale form, applying to the layers as they are laid down a pressure sufficient to produce a density of about twenty-seven pounds to the cubic foot by means of a procession of pressure devices which are caused to travel back and forth across the bale as the layers are laid down, applying the desired pressure to the layers as they are laid down in a series of vertical planes which are caused to travel back and forth across the layers and the bale as the layers are laid down.

5. The art of forming a bale which consists of first forming a continuous wad under pressure, then folding the wad into layers and laying the layers down one upon another in bale form, while maintaining the primary pressure upon the wad at all times except at the instant at which the fold of the wad occurs, when the pressure is relieved temporarily, then applying to the wad as it is laid down a pressure greater than that applied to the wad during its formation, the baling pressure being applied in a series of distinct vertical planes separated from each other, which are caused to travel back and forth across the bale, and the layers as they are laid down, the exterior of said vertical planes of pressure on each side stopping short in their travel of the fold of the layer on each side of the bale.

6. The art of forming a bale which consists of first forming a continuous wad, maintaining the pressure on the wad and then folding the wad into layers and laying the layers down one upon the other in bale form, applying to the layers as they are laid down a pressure sufficient to produce a density of about twenty-seven pounds to the cubic foot by means of a procession of pressure devices which are caused to travel back and forth across the bale as the layers are laid down, applying the desired pressure to the layers as they are laid down in a series of vertical planes which are caused to travel back and forth across the layers and the bale as the layers are laid down.

7. The art of forming a bale which consists of first forming a continuous wad, maintaining the pressure on the wad and then folding the wad into layers and laying down the layers one upon another to form a bale, the layers being laid down under a pressure sufficient to produce in the bale a density of about twenty-seven pounds to the cubic foot, and this pressure being applied in a series of vertical planes separated from each other, which vertical planes of pressure are caused to advance back and forth across the bale and the layers as they are laid down.

8. As a new article of manufacture, a bale of cotton or other similar material formed of a continuous wad folded into layers, which are piled one upon the other to form the bale, the body of the bale having a high density and the folds of the wad which form the two sides of the bale having a low density, substantially as described.

9. The art of forming a bale which consists of forming a continuous wad by a preliminary pressure, and forming the wad into a bale, subjecting said bale to a greater pressure than that given the wad without relieving the pressure on the wad.

10. The art of forming a bale which consists of forming a continuous wad under a constant forcing pressure, and forming the wad into a bale, and subjecting said bale to a greater pressure than that given the wad without relieving the pressure on the wad.

11. The art of forming a bale, which consists of first forming by pressure a wad, forming the wad into a bale, and then immediately giving said bale a greater compression than the pressure on the wad without relieving the first-named pressure.

12. The art of forming a bale which consists of forming a continuous bat and semicompressing it into a wad, and then forming the wad into a bale by greater pressure than the preliminary pressure, without relieving the pressure on the wad.

13. The art of forming a bale which consists of forming a wad under a constant pressure, and then laying the wad down in layers under pressure to form a bale without relieving the pressure on the wad.

14. The art of forming a bale which consists of forming a wad under a constant pressure, secondly, laying the wad down in successive layers to form a bale without relieving the pressure on the wad, and thirdly, applying a pressure to the bale greater than the pressure to form the wad.

15. The art of forming a bale which consists of forming a wad by a preliminary and continuous pressure throughout its whole extent, and then forming the wad into a bale by a greater pressure than the preliminary compression without relieving the pressure on the wad.

16. The art of forming a bale which consists of forming a wad by pressure, forcing the wad into a bale by pressure greater than the pressure on the wad and without relieving the pressure on the wad, then transferring the bale and applying pressure greater than that before given, the latter pressure being greater than the previous compressions, and then binding the bale.

17. The art of forming a bale which consists of forming a wad by pressure, forming the wad into a bale by folding it to form layers, the folding of the wad spreading and separating the fibers of the material, then applying pressure to the bale to laterally expand the folds to produce a plurality of fluffy ridges at the ends of the bale, and then binding the bale.

784,580. SHOE.

JOHN G. MARCHAND, Buffalo, N. Y. Filed Apr. 19, 1904. Serial No. 203,865.



Claim.—1. In a turned shoe, the combination of a main sole provided on its upper side with a channel forming a marginal flange thereon, a vamp stitched to said flange, a cushion-insole arranged on the main sole and also stitched to said flange, and a covering applied to the cushion-insole and stitched at its margin to the margin of the cushion-insole, substantially as set forth.

2. In a turned shoe, the combination of a main sole provided on its upper side with a channel forming a marginal flange thereon, a vamp stitched to said flange, a cushion-insole stitched on its under side to said flange and having its marginal portion reduced in thickness, and a covering applied to said cushion-insole and having a marginal flap which is turned over the edge of the cushion-insole and stitched against the under side of the reduced part thereof, substantially as set forth.

3. In a turned shoe, the combination of a main sole provided on its upper side with a channel forming a marginal flange thereon, a vamp secured by a row of stitches to the base of said flange, a cushion-insole arranged on the main sole and having its marginal portion beveled on its under side and projecting over the seam between the main sole and vamp, stitches connecting the under side of the cushion-insole and the free end of said flange, a covering extending over

said cushion-insole and having a marginal flap which is turned downwardly over the edge of the cushion-insole and against the beveled under side thereof, and stitches connecting said flap with the beveled under side of the cushion-insole, substantially as set forth.

784,581. GRINDING OR CRUSHING HEAD. VOLNEY W. MASON, Jr., New York, N. Y. Filed Jan. 12, 1903. Serial No. 138,603.



Claim.—1. A grinding or crushing head comprising a core having a plurality of longitudinal dovetailed grooves, a plurality of segmental plates mounted on said core, each plate having a longitudinal dovetailed rib projecting from its inner face, a locking device for each plate consisting of two transverse keys, disposed in alined apertures of said core and plate, and means interposed between their adjacent ends for holding them separated, substantially as described.

2. A grinding or crushing head comprising a core having a plurality of longitudinal dovetailed grooves, a plurality of segmental plates mounted on said core, each plate having a longitudinal dovetailed rib projecting from its inner face, a locking device for each plate consisting of two transverse keys disposed in alined apertures of said core and plate, and means interposed between their adjacent ends for adjusting them longitudinally and for holding them separated, substantially as described.

3. A grinding or crushing head comprising a core having a plurality of longitudinal dovetailed grooves, a plurality of segmental plates mounted on the core, each having a longitudinal dovetailed rib projecting from its inner face, locking devices for said plates consisting of a plurality of keys, arranged in pairs, the keys of each pair being disposed end to end, in alined apertures of said core and plate, screws projecting from the adjacent ends of the keys of each pair, the heads of which are adapted to engage each other, substantially as described.

4. A grinding or crushing head comprising a core having a plurality of longitudinal dovetailed grooves and having two oppositely-disposed recesses near the lower ends of each groove, a plurality of segmental plates mounted on said core, each having a longitudinal dovetailed rib projecting from its inner face, having a transverse key-receiving recess, a pair of keys contained in said recess which project laterally from the opposite sides of said rib, and enter the recesses in the core, and a passage through said rib communicating with the transverse key-receiving recess for the introduction and removal of said keys, substantially as described.

5. A grinding or crushing head comprising a core having a plurality of longitudinal dovetailed grooves extending from the bottom to a point near the top, and a corresponding number of segmental plates, each plate having a dovetailed rib adapted to enter a groove in the core and abut against the upper end thereof, a locking device for each plate and a tapering gib placed in each groove in the core at one side of the rib, the upper end of which is made widest and abuts against the upper end of the groove and the lower end of which terminates above the locking device, substantially as described.

784,582. ELEVATING-GRADER. ORTUS B. MOATS, Harvey, Ill., assignor to National Drill & Manufacturing Company, Chicago, Ill., a Corporation of West Virginia. Filed Dec. 17, 1904. Serial No. 237,331.

Claim.—1. In an elevating-grader of the class described, the plow arranged at one side of a wheeled body-frame and having its beam provided at its forward end with a caster-wheel arranged at one side of such plow-beam.

2. In an elevating-grader of the class described, the plow having its beam provided with a lateral extension at the forward end thereof, and a caster-wheel having its spindle connected with such lateral extension.

3. In an elevating-grader of the class described, the plow having its beam constructed with a forward longitudinally-adjustable section carrying a caster-wheel arranged in a plane at one side of the main length of the plow-beam.

4. In an elevating-grader of the class described, the plow having its beam constructed with one section consisting of a metal channel-bar, and another section comprising a wooden bar clamped between metal plates and provided with a caster-wheel.



5. In an elevating-grader of the class described, the plow having its beam constructed with one section consisting of a flanged metal bar, and another section comprising a wooden bar clamped between upper and lower metal plates, said plates being provided with lateral extensions to which a caster-wheel is attached.

6. In an elevating-grader of the class described, the plow having its beam constructed with a channel-bar having its forward end portion cut away in width thereby terminating the lower flange of such bar short of its forward end, and a composite bar or section adjustably secured to the channel-bar and constructed with a wooden bar clamped between metal plates; clamp-straps by which the channel-bar and said composite bar are held together; and a caster-wheel on the forward end portion of the said composite bar or section.

7. In an elevating-grader of the class described, the plow having its beam constructed with a channel-bar, and a composite bar or section composed of wood and metal; means for clamping such bars together; and a caster-wheel on the composite bar; the said composite bar being arranged against the upper flange of the channel-bar and the lower flange of the latter being terminated short of its forward end.

8. In an elevating-grader of the class described, the plow having its beam constructed with a channel-bar 1, and a composite bar constructed with a wooden bar portion 2 clamped between upper and lower metal plates, the rear end of the wooden bar portion being formed and arranged to bear on the lower flange of the channel-bar, and the upper metal plate being held against the upper flange of the channel-bar; and means for holding said bars together.

784,583. CISTERN-CLEANER AND WATER-PURIFIER. THOMAS S. MURRAY, Arkansas City, Kans. Filed July 7, 1904. Serial No. 215,067.



Claim.—1. A device of the kind described comprising a downwardly-open, movable casing, a pump carried by and having communication with the interior of the casing, a discharge-pipe leading from the pump, a perforated pipe carried by the casing, a tube connecting the said pipe with the top of the pump-cylinder, and an air-pipe leading from the top of the pump-cylinder.

2. A device of the kind described, a casing downwardly open, brushes arranged within the casing and adapted to rotate in opposite directions, means for rotating the brushes, a cylinder on the casing having communication with the interior of the casing, a check-valve, a discharge-pipe leading from the lower portion of the cylinder, an air-chamber connected to the discharge-pipe, a flap-valve in the discharge-pipe between the air-chamber and the cylinder, a plunger in the cylinder, an air-pipe leading to the top of the cylinder, and an air-pipe leading from the top of the cylinder adapted to discharge air adjacent the casing, as and for the purpose set forth.

3. A device of the kind described comprising in combination a pole, a yoke, a casing, a crank-shaft on the casing, said shaft supporting the yoke, wheels supporting the casing, a packing-strip carried by the lower edges of the casing, weights adapted to hold the packing in position, rotatable brushes in the casing, means for rotating the brushes, a receptacle in the casing adapted to retain matter carried thereto by the brushes, a pump carried by the casing and adapted to pump water from the casing, aerating-pipes connected to the pump-cylinder, and a discharge-pipe carried by the pump-cylinder.

4. A cistern-cleaner comprising a downwardly-open casing having rotatable brushes arranged therein and mounted upon suitable wheels, a pump mounted on the casing, said pump comprising a cylinder having communication at its lower end with the interior of the casing, a discharge-pipe leading from the lower portion of the cylinder, a plunger working in the cylinder and air-pipes leading to and from the top of the cylinder, all for the purpose set forth.

5. A device of the kind described comprising a downwardly-open, wheeled casing, a leather packing-strip extending along the lower edge of the casing, a pump carried by the casing, brushes arranged in the casing, means for rotating the brushes, and means for moving the casing backward and forward independent of the brush-rotating and pumping means.

6. A cistern-cleaner comprising a casing, a shaft thereon, a pole-handle, wheels on the casing, a gear-wheel carried by the casing adapted to impart rotation to the casing-wheels, a worm-gear adapted to mesh with the said gear-wheel, a collar on the first-mentioned shaft, crown gear-wheels carried by the said shaft, one on each side of the collar, a yoke pivoted to the collar, the upper end of the worm-gear shaft being journaled in said yoke, a pinion carried by the worm-gear shaft and adapted to mesh with the crown-gears, an arm carried by the yoke, rollers on the arm, a pivoted cam-lever adapted to work between said rollers and slide the yoke and collar, means for rotating the shaft carrying the crown gear-wheels, and cables connected to the lever and carried by the pole, as and for the purpose set forth.

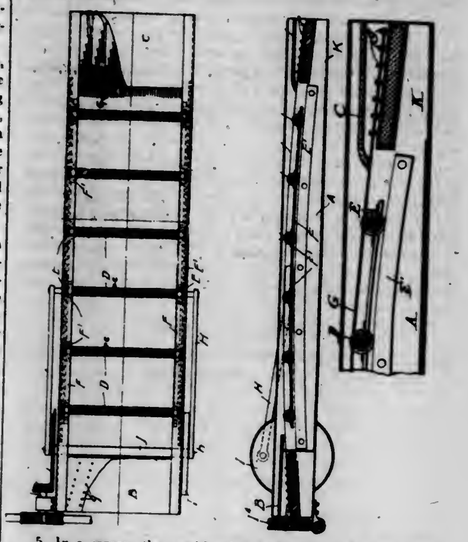
784,584. SCREEN. JOHN W. MYERS, Johnstown, Pa. Filed Feb. 11, 1903. Renewed Nov. 10, 1904. Serial No. 232,133.

Claim.—1. The combination with a screen composed of a plurality of parallel screening members and supports to which the end portions of said members are attached, of a number of transversely-arranged cleaning devices below the said screen and having projections extending upwardly between the said members, said members being positively supported by said devices between the said projections, whereby they are held in the same horizontal plane and are prevented from sagging under the weight of the material being screened.

2. A screen composed of a plurality of spaced parallel rods or wires and end supports to which said rods or wires are attached, in combination with cleaning devices consisting of grooved or corrugated rolls which carry said rods or wires, means for reciprocating said rolls, and means for causing them to rotate in a reverse direction as they are reciprocated.

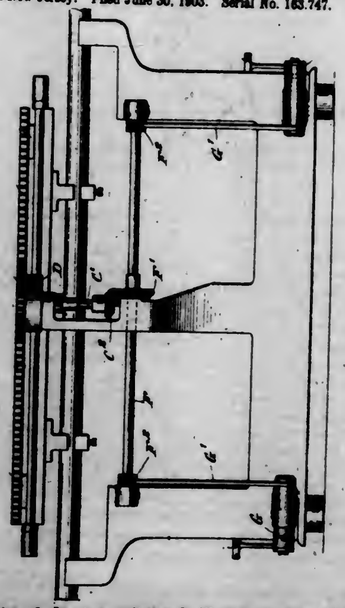
3. A screen composed of a plurality of parallel rods or wires, in combination with a number of circumferentially-grooved rolls arranged transversely underneath the said rods or wires and in frictional engagement therewith, wheels in which said rolls are loosely journaled, tracks or guides for the said wheels, and means for reciprocating said rolls.

4. A screen composed of a number of spaced parallel members and in combination therewith, a cleaning device consisting of a number of corrugated rotatable rolls whose corrugations extend between said members from the under side thereof, means for reciprocating said rolls, and means for rotating them in a reverse direction as they are reciprocated.



5. In a screen, the combination with a frame having lateral trackways arranged in curved planes, highest at their central portions, a series of transverse cleaning members mounted for reciprocation on said trackways, and the screen proper, consisting of a plurality of wires stretched tightly over the said cleaning members.

784,585. CARRIAGE-RETURN MECHANISM FOR TYPE-WRITERS OR THE LIKE. LOUIS MYERS, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed June 30, 1903. Serial No. 163,747.



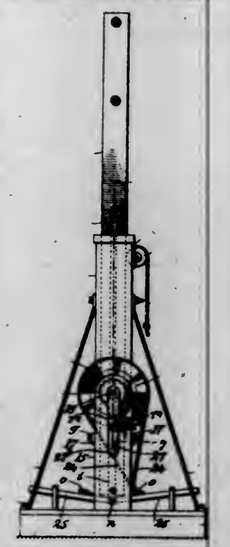
Claim.—1. In a type-writer or the like a carriage provided with a rack, a carriage-return wheel engaging said rack, a propelling-

spring one end of which is connected with said wheel so as to be wound when said wheel is turned in the direction contrary to the step-by-step feed movement, and key-operated mechanism connected with the shaft of said carriage-return wheel to operate the same.

2. In a type-writer or the like, a carriage provided with a rack, and a carriage-return mechanism separate from the step-by-stepfeed mechanism, said carriage-return mechanism comprising a wheel engaging said rack, a transverse shaft operatively connected with said wheel, a pinion on said shaft, a rocking sector in engagement with said pinion, and a carriage-returning key operatively connected with said sector.

3. In a type-writer or the like, a carriage provided with a rack, and a carriage-return mechanism separate from the step-by-stepfeed mechanism, said carriage-return mechanism comprising a wheel engaging said rack, a shaft on which said wheel is mounted, a bevel-gear also mounted on said shaft, a transverse shaft, a bevel-gear mounted on said transverse shaft in engagement with said first-named bevel-gear, a pinion on said transverse shaft, a rocking sector in engagement with said pinion, and a carriage-returning key operatively connected with said sector.

784,586. HOISTING DEVICE. RICHARD MCGAHEY, Walla Walla, Wash. Filed Mar. 9, 1904. Serial No. 197,297.



Claim.—1. A hoisting device comprising a movable platform, a derrick-mast formed in two telescoping sections and erected on the platform, the lower section of the mast having box form, the upper section having a longitudinal slot extended from the lower end and a longitudinal groove in one side, a rope fastened at one end upon the lower end of the upper section and extending up in the groove, said rope extending out through the upper end of the lower section of the mast and hanging over a sheave carried by said lower mast-section, a rotatably-supported windlass-shaft passing through the lower mast-section and occupying the slot in the upper section thereof when it is lowered, a drum on the shaft, a crane on the upper section of the mast, a flexible connection fast on the drum and extended up and over supports on the crane, and means for rotating the shaft.

2. In a hoisting device of the character described, the combination with a rotatably-supported windlass-shaft, and ratchet-wheels secured upon the shaft, having their teeth inclined oppositely, of a crank-lever having parallel members that embrace the ratchet-wheels and are loosely mounted upon the shaft, a weight-pawl pivoted changeably on the crank-lever so as to be adapted to engage either ratchet-wheel, and means for supporting the pawl inclined away from the ratchet-wheels.

3. In a hoisting device of the character described, the combination with a vertically-supported derrick-mast, a horizontally-supported rotatable windlass-shaft, a friction brake-drum secured on the shaft at one side of the mast, a windlass-drum thereon at the other side of said mast, a swinging support on the upper portion of the mast, and a flexible connection extended from the windlass-drum up to and over the swinging support so as to hang pendent therefrom, of a pliable band mounted on the friction brake-drum and having its lapped ends extended downwardly, a treadle-lever pivoted near its center on a suitable support so as to provide two integral members therefor that extend oppositely from the pivot, and means for detachably securing the ends of the pliable band upon either member of the treadle.

4. In a hoisting device of the character described, the combination with a platform and a derrick-mast comprising a hollow lower section fixed upon the platform, and an upper section slidably occupying the lower section, of means for raising and holding the upper mast-section at a desired point in the fixed lower section comprising the formation of a longitudinal groove in a side wall of the upper mast-section, a bracket-supported pulley secured opposite a slot formed in a side wall of the lower mast-section near its upper end and opposite the groove in the upper section, a rope or the like fastened at one end in the lower end of the groove and loosely bedded therein, the upper portion of said rope passing out of the slot and resting on the pulley, and a stop-bolt insertible in any one of a series of spaced perforations formed transversely in the lower mast-section, said bolt affording support for the lower end of the slidable mast-section.

5. A hoisting device, comprising a mast formed of telescoping sections, the upper section having its lower end longitudinally slotted, means for adjusting and holding the upper mast-section in position, a revoluble windlass-shaft extending through the lower mast-section and the slot of the upper mast-section, a drum on the shaft, a crane on the upper mast-section, and a rope secured to the drum and passing over supports on the crane.

6. In a hoisting device, the combination with a mast, a crane at the upper end of the mast, a drum, and a rope on the drum and passing over supports on the crane, of a brake-drum on the shaft of the hoisting-drum, a brake-band on the brake-drum, and a treadle pivoted at its center to form two treadle members, each member being provided with means whereby the ends of the brake-band may be attached thereto.

7. In a hoisting device, the combination of a hoisting-drum, ratchet-wheels on the shaft of the drum and having their teeth oppositely inclined, a crank-lever loosely mounted on the drum-shaft, a pawl interchangeably pivoted to the crank-lever to permit it to engage either ratchet-wheel, a brake-drum on the hoisting-drum shaft, a brake-band on said drum, and a treadle pivoted at its center to form two treadle members, each member being provided with means whereby the ends of the brake-band may be detachably secured thereto.

784,587. PHOTOGRAPHIC-PRINTING APPARATUS. HERVEY H. MCINTIRE, South Bend, Ind. Filed Mar. 29, 1904. Serial No. 200,641.

Claim.—1. A photographic-printing apparatus provided with a movable platen, means for manually operating the platen, and means controlled by the movements of the platen for emitting a light to a negative and for resetting the light-emitting means.

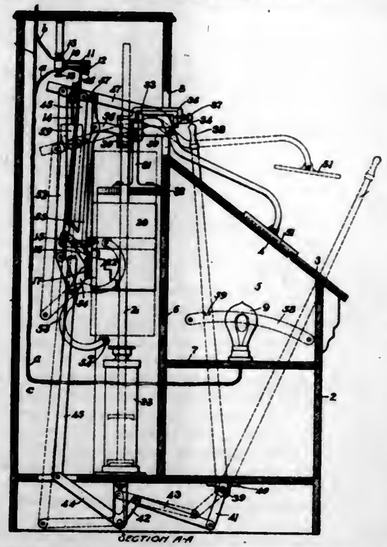
2. A photographic-printing apparatus provided with a movable platen, means for manually operating the platen, means for controlling the admission of a light to a negative for a predetermined period, and means operated by the platen for resetting the light-controlling means.

3. A photographic-printing apparatus provided with a movable platen, means for operating the platen, means coöperating with the platen-operating means for emitting a light to a negative for a predetermined period, and means operated by the movements of the platen for resetting the light-emitting means.

4. In a photographic-printing apparatus, a case having a source of light therein and provided with means for holding a negative and a sensitized element, a platen, means for manually operating the platen, means for emitting a light to the negative, and means operated by the platen-operating means for restoring the light-emitting means into operative position.

5. In a photographic-printing apparatus, a case having a source of light therein and provided with means for holding a negative and a sensitized element, a movable platen, means for manually operating the platen, means for emitting a light to the negative for a predetermined period, said means operating simultaneously with the contact of the platen, means controlled by the movement of the platen for resetting the light-emitting means, and means operated by the platen-operating means for releasing the light-emitting means.

6. In a photographic-printing apparatus, a case having a source of light therein and provided with means for holding a negative and a sensitized element, a movable platen, a platen-frame movable with the platen means connected with the platen-frame for operating the platen, a movable member for controlling the emission of light to the negative, means carried by the platen-frame and operating simultaneously with the contact of the platen to release the light-emitting means, and means operated by the platen-operating means for bringing the said movable element into operative position.



SECTION A-A

7. A photographic-printing apparatus provided with a movable platen, means for operating the platen, comprising a platen-frame, a hand-lever, connections between the platep-frame and the hand-lever, means for emitting a source of light to the negative, and means for controlling the admission of the light for a predetermined period.

8. In a photographic-printing apparatus, a case having a source of light therein and provided with means for holding a negative and a sensitized element, a platen, a platen-frame movable with the platen, mechanism connected with the platen-frame for operating the platen, a movable member for controlling the emission of light to the negative, means for setting said member to predetermine the period of exposure, and means operated by the movement of the platen-frame for controlling the operation of the movable element.

9. In a photographic-printing apparatus, a case having a source of light therein and provided with means for holding a negative and a sensitized element, a movable platen, a platen-frame movable with the platen, means connected with the platen-frame for manually operating the platen, a movable member for controlling the emission of light to the negative, means for operating upon said member for predetermining the period of exposure, means operated by the platen-operating means for bringing the movable elements into operative position, and means carried by the platen-frame, operating simultaneously with the contact of the platen, to release the movable member.

10. In a photographic-printing apparatus, a case having a source of light therein and provided with means for holding a negative and a sensitized element, a platen, a platen-frame movable with the platen and disposed in the case, a hand-lever, connections between the platen-frame and the hand-lever for operating the platen, a vertically-reciprocatory drum in the case, a cushioning device in the case to regulate the descent of the drum, means formed on the drum for controlling the admission of light to the case for a predetermined period, a lever operated by the platen-operating means for elevating the drum, means for holding the drum in an elevated position, and means carried by the platen-frame and operating on the drum-holding means simultaneously with the contact of the platen to release the drum.

11. In a photographic-printing apparatus, a case having a ource of light therein and provided with means for holding a negative and a sensitized element, a platen, a platen-frame movable with the platen, a hand-lever, jointed connections between the hand-lever and the platen-frame for operating the platen, a vertically-movable drum having a plurality of projections of different length upon its periphery, means beneath the drum for retarding the descent thereof, an electric switch, a contact-lever arranged within the path of the projections on the drum and connected with the switch to make and break an electric circuit to emit light to a negative, means operated by the platen-frame for elevating the drum, a dog for holding the drum elevated, means carried by the platen-frame to trip the dog to release the druin, means for adjusting the drum to bring one of the projections thereon into the path of the switch-lever, and means co-operating with the last-named means for predetermining the period of contact between the switch-lever and the projections on the drum.

12. A photographic-printing apparatus provided with a manually-operated platen, a platen-frame for the platen, a reciprocatory member, a dog engaging said member to hold it elevated, means carried by the platen-frame adapted to trip the dog and release the reciprocatory member, an electric switch operated by the reciprocatory member, and an electric lamp connected to the switch.

13. In a photographic-printing apparatus, a platen, a platen-frame, a reciprocatory member controlled by the movements of the platen-frame, a switch controlled by the reciprocatory member, and a lamp connected with the switch.

14. In a photographic-printing apparatus, a platen, a platen-frame, a reciprocatory member, means to hold the reciprocatory member elevated, means carried by the platen-frame to engage the first-mentioned means and release the reciprocatory member, means connected with the platen-frame to elevate the reciprocatory member, and an electric-lighting circuit controlled by the reciprocatory member.

15. In a photographic-printing apparatus, a platen, a platen-frame, a reciprocatory member, means to hold the reciprocatory member elevated, means carried by the platen-frame to engage the first-mentioned means and release the reciprocatory member, a lifting-lever connected with the platen-frame and adapted to elevate the reciprocatory member, and an electric-lighting circuit controlled by the reciprocatory member.

16. In a photographic-printing apparatus, a movable platen, a platen-frame movable therewith, means connected with the platen-frame for operating the platen, a reciprocatory member controlled by the movements of the platen-frame, and an electric-lighting circuit controlled by the reciprocatory member.

17. In a photographic-printing apparatus, a movable platen, a platen-frame movable therewith, means connected with the platen-frame for operating the platen, a reciprocatory member controlled by the movements of the platen-frame, a lever 15 adapted to engage the reciprocatory member, an electric switch connected with said lever, a lamp, an electric circuit connecting the switch and lamp, and means for adjusting said reciprocatory member to change the period of contact with the lever.

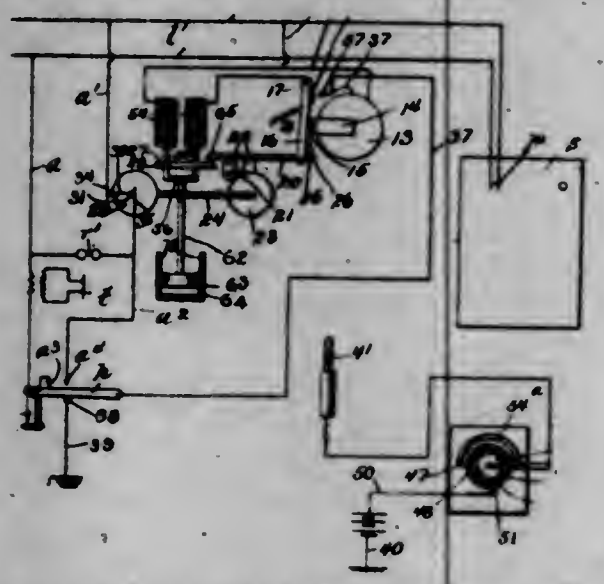
18. In a photographic-printing apparatus, a movable platen, a platen-frame movable therewith, means connected with the platen-frame for operating the platen, a reciprocatory member controlled by the movements of the platen-frame, a lever 15 adapted to engage the reciprocatory member, an electric switch connected with said lever, a lamp, an electric circuit connecting the switch and lamp, means for adjusting said reciprocatory member to change the period of contact with the lever, and a scale to predetermine the period of contact.

19. In a photographic-printing apparatus, a movable platen, a platen-frame movable therewith, means connected with the platen-frame for operating the platen, a reciprocatory member controlled by the movements of the platen-frame, a lever 15 adapted to engage the reciprocatory member, an electric switch connected with the said lever, a lamp, an electric circuit connecting the switch and lamp, means for changing the period of contact between the lever 15 and the reciprocatory member comprising a plurality of projections of different length on the reciprocatory member with which the lever contacts, a guide-rod non-rotatable in the reciprocatory member, and an indicator-arm rigid on the guide-rod, and a scale over which the indicator moves, substantially as specified.

784,588. PARTY-LINE SELECTIVE SYSTEM. FRANK P. O'CONOR and FREDERIC MCNEILL, Lasalle, Ill. Filed Feb. 13, 1904. Serial No. 193,454.

Claim.—1. The combination with a telephone-line comprising the two limbs of a metallic circuit terminating at a jack at a central station, substations along the line and connections from the lines to

such substations, each station being provided with a disk having a conductor normally inserted in one of the connections and a second conductor adapted to be inserted in the connection when the normal conductor is withdrawn, an arbor to which the disk is fixed, a ratchet-wheel on the arbor, a pawl for moving the ratchet-wheel, a magnet whose armature controls the pawl, means at the central station to intermittently energize the magnets, a dog holding the ratchet against backward movement, a spring tending to return the arbor to its original position, and a magnet whose armature is adapted to release the dog and pawl from the ratchet-wheel and included in a local circuit closed upon the attraction of the armature of the magnet controlling the ratchet mechanism.



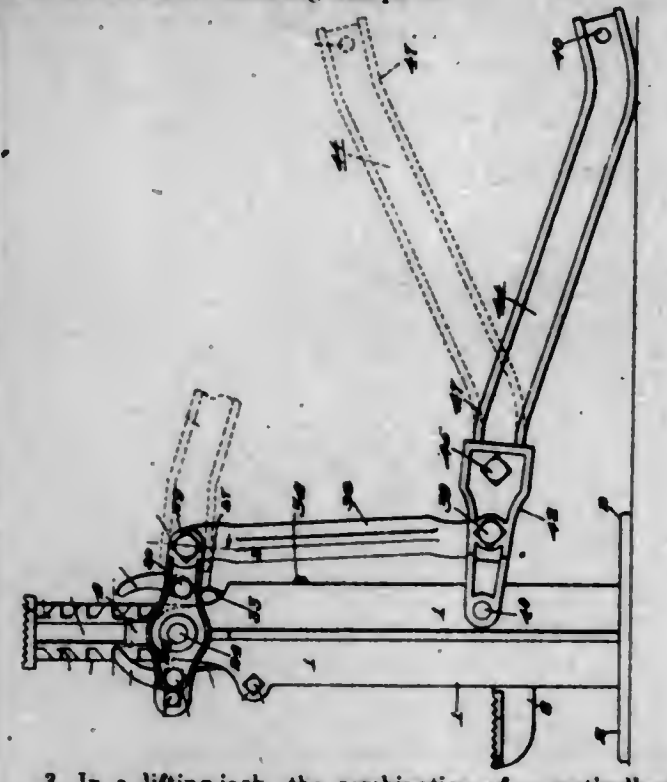
2. The combination with a telephone-line comprising the two limbs of a metallic circuit terminating at a jack at a central station, substations along the line and connections from the lines to such substations, each station being provided with a disk having a conductor normally inserted in one of the connections and a second conductor adapted to be inserted in the connection when the normal conductor is withdrawn, an arbor to which the disk is fixed, a ratchet-wheel on the arbor, a pawl for moving the ratchet-wheel, a magnet whose armature controls the pawl, means at the central station to intermittently energize the magnets, a dog holding the ratchet against backward movement, a spring tending to return the arbor to its original position, and a solenoid whose armature is adapted to engage the dog and release the same and its pawl from the ratchet-wheel and which is included in a local circuit closed upon the attraction of the armature of the magnet.

3. The combination with a telephone-line comprising the two limbs of a metallic circuit terminating at a jack at a central station, substations along the line provided with telephone sets on normally open circuits, connections between the limbs of the line and the telephone sets, disks provided with conductors one of which is normally inserted in one of the connections at each substation and the other of which is adapted to be inserted in such connection in lieu of the normal conductor, a ratchet-wheel for turning the disk, a pawl engaging the ratchet-wheel, a magnet on a normally closed grounded circuit adapted to be intermittently closed at the central station and whose armature is adapted to operate the pawl, a dog for holding the ratchet against backward movement, a spring tending to return the disk to its normal position, a pair of solenoids whose armatures provide a yoke through which the dog extends, and a dash-pot to retard the action of the solenoids, the said solenoids being included in a local circuit adapted to be closed upon the attraction of the armature of the magnet upon the energization of the latter, and release the dog and pawl from engagement with the ratchet-wheel.

784,589. LIFTING-JACK. WILLIAM H. OLIVER, Chicago, Ill. Filed Nov. 23, 1903. Serial No. 182,294.

Claim.—1. In a lifting-jack, the combination of a vertically-slotted frame, a standard inserted in said frame and provided with notches or teeth on opposite sides thereof, a support projecting from the lower end of said standard through said slot, a removable block secured to said frame and closing the upper end of said slot for engaging said support and limiting the upward movement of the standard, and a ratchet mechanism engaging said teeth for raising and lowering the standard.

2. In a lifting-jack, the combination of a vertically-slotted frame, a toothed standard inserted in said frame, a support projecting from the lower end of said standard through said slot, a removable block closing the upper end of said slot above said support and adapted to limit the upward movement of said standard, a pawl engaging the teeth of said standard for raising it, a spring secured to said block and engaging said pawl for holding it against the standard, and means for actuating said pawl.



3. In a lifting-jack, the combination of a vertically-slotted frame, a standard inserted therein, a support projecting from the lower end of said standard through said slot, a block shouldered in the upper end of said slot for limiting the upward movement of said support and a cross-bar extending through the sides of the frame and into said block for holding the block in place, and means for raising and lowering the standard.

4. In a lifting-jack, the combination of a vertically-slotted frame, a standard inserted therein, a support projecting from the lower end of said standard through said slot, a block shouldered in the frame across the upper end of said slot for limiting the upward movement of said support, and having a transverse countersink in its outer face, a bolt passing through the sides of the frame and engaging in said countersink for holding said block in place, and means for raising and lowering the standard.

5. In a lifting-jack, the combination of a hollow frame having vertical tongues on the opposed sides thereof, a toothed standard inserted in said frame between said tongues, and having vertical grooves in its opposite sides in which said tongues engage and engaging and sustaining the standard, trunnions formed on said frame at the outer sides of said tongues, a walking-beam journaled in said trunnions, and pawls journaled in the ends of said walking-beams and engaging the teeth on opposite sides of said standard for raising and lowering the latter.

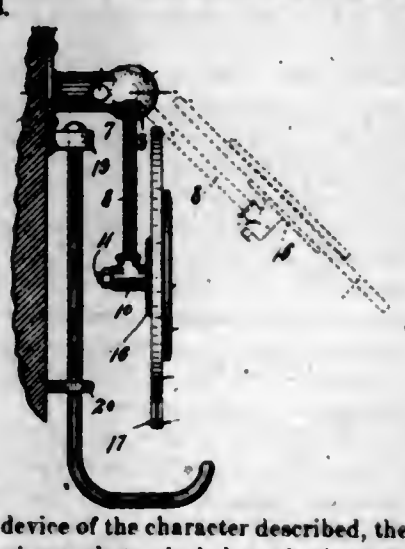
6. In a lifting-jack, the combination of a frame, a toothed standard inserted therein, a walking-beam pivoted across said frame near the upper end thereof, pawls pivoted to said walking-beam for engaging the teeth of said standard, a lever pivoted to said frame at a point below said walking-beam, and a link connecting said lever and walking-beam together.

7. In a lifting-jack, the combination of a frame, a toothed standard inserted therein, a walking-beam pivoted across the upper end of said frame, pawls pivoted in the ends of said beam and engaging opposite sides of said standard, a lever pivoted to the frame below said walking-beam and a link having its upper end pivoted to the end of the walking-beam outwardly from the pivot of one of said pawls and its lower end pivoted to said lever, the distance between the pivot at the lower end of the link and the pivot of said lever being less than the distance between the pivot of said walking-beam and the pivot of the upper end of the link.

8. In a lifting-jack, the combination of a frame, a standard inserted therein, an operating-lever having a handle socket or connection, means operatively connected with said lever for raising the standard when the lever is elevated from a position below a certain level to a point above said level and for lowering the standard when moved from said point downwardly to said level, and a handle adapted to be inserted in said socket and having a crooked end adapted to be turned downwardly to engage the supporting-surface of the jack for preventing the lever being lowered below said level.

9. In a lifting-jack, the combination of a frame, a standard inserted therein, a lever pivoted to the frame and having a handle socket or connection, means operatively connected with said lever for raising and lowering said standard, and a handle having interchangeable ends adapted to be inserted in said socket or connection, and said ends being bent at different angles.

784,590. **ATTACHMENT FOR THEATER-SEATS.** JOHN A. OLSON and PERRY D. SHERWIN, Minneapolis, Minn. Filed Mar. 4, 1904. Serial No. 196,483.

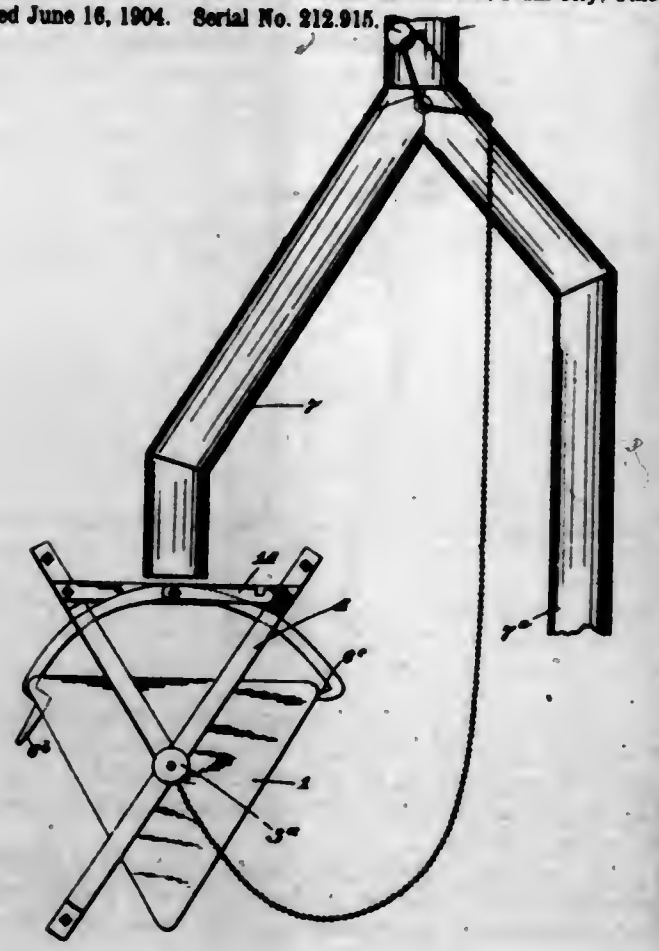


Claim.—1. In a device of the character described, the combination with a split clamping-socket swiveled on a horizontal axis, of an arm having at one end a ball working in said socket, said arm having an oscillatory movement from a vertical to a horizontal position, and a holder applied to the free end of said arm, and provided with means for holding cards, substantially as described.

2. In a device of the character described, a support having a split clamping-socket, an arm having at one end, a ball working in said socket, said arm having an oscillatory and rotary movement, and a rotating holder carried by the free end of said arm and provided with means for holding cards or similar devices, substantially as described.

3. In a device of the character described, the combination with a swiveled support having a clamping-socket, of an arm having at one end a ball working in said socket, said arm having an oscillatory and rotary movement, and a holder rotatively mounted on the free end of said arm and provided on both faces with means for holding cards and having on one face a looking-glass, substantially as described.

784,591. **FLUID-MOTOR.** NORMAN A. PALMER, Plain City, Ohio. Filed June 16, 1904. Serial No. 212,915.



Claim.—1. In combination with a fluid-conductor, a motor-wheel to be operated by the flow of the fluid therefrom, comprising three or more adjoined chambers rotarily mounted so as to be brought successively into the path of said flow, each chamber having a main bucket and a bucket to receive overflow from the main bucket, the overflow-bucket upon receiving a predetermined quantity of fluid adapted to alter the center of gravity of the wheel and its contained fluid and bring the main bucket of another chamber into position to receive the operating fluid.

2. In a fluid-motor, a rotary motor-wheel comprising an axial shaft and sides, partitions dividing the space between the sides into three or more chambers, and a partition dividing each of said chambers into a main bucket and a bucket to receive overflow from the main bucket, substantially as described.

3. In a fluid-motor, a rotary wheel comprising an axial shaft and sides, partitions dividing the space between the sides into chambers, and a partition dividing each of said chambers into a main bucket and a bucket to receive overflow from the main bucket, combined with means for supporting the motor-wheel stationarily while a main bucket is being filled and arresting the movement of the wheel when another main bucket is brought into position to be filled.

4. In a fluid-motor, a motor-wheel comprising an axial shaft and sides, partitions dividing the space between the sides into chambers, said partitions being symmetrically arranged with respect to said shaft and a partition dividing each of said chambers into a main and an overflow bucket, combined with a rocking lever having a shoulder or hook at one end adapted to support the wheel while the buckets are being filled and a shoulder or hook at its other end adapted to catch and limit the movement of the wheel when rotated by the fluid.

5. In a fluid-motor, a rotary wheel comprising an axial shaft and sides, partitions dividing the space between the sides into chambers, a partition dividing each of said chambers into a main bucket and a bucket to receive overflow from the main bucket and a partition in each chamber for limiting the accumulation of the fluid in the chamber at the end opposite the overflow-bucket.

6. In combination with a fluid-motor, a winding-shaft operated by said motor, a conductor for the motor-operating fluid, a valve or cut-off axially supported in said conductor, a weighted arm projecting upward from the axis of the valve and adapted to be shifted from one side to the other of the vertical plane of the axis of said valve to hold the valve in position by gravity, an arm extending laterally from the axis of said valve and a chain or cord connected with the weighted arm and passing over the laterally-extending arm and with the winding-shaft of the motor.

7. In a fluid-motor, a rotarily-mounted motor-wheel comprising three or more adjoined chambers adapted to be brought intermittingly and successively under the flow of the operating fluid, each chamber having a main bucket and a bucket to receive overflow from the main bucket to alter the center of gravity of the wheel and its contained fluid, combined with a rocking lever having a shoulder or hook at one end adapted to support the wheel while the buckets are receiving the operating fluid and a shoulder or hook at its other end adapted to catch and limit the movement of the wheel when rotated by the fluid, the bucket-supporting end of said lever being normally depressed.

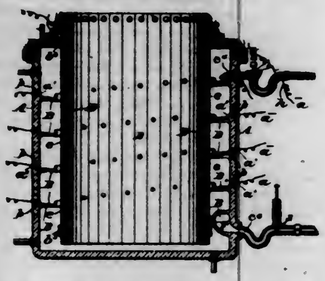
8. In a fluid-motor, a rotarily-mounted motor-wheel comprising three or more adjoined chambers adapted to be brought intermittingly and successively under the flow of the operating fluid, each chamber having a main bucket and a bucket to receive overflow from the main bucket to alter the center of gravity of the wheel and its contained fluid, combined with a rocking lever having at one end a cam edge 6^b adapted to be struck by a partition to throw the opposite end of said rocking lever into the path of the preceding partition and a shoulder or hook 6^a adapted to support the wheel while the buckets are receiving the operating fluid and at its other end a shoulder or hook 6^c adapted to arrest the wheel when rotated by the fluid, the bucket-supporting end of said lever being normally depressed.

784,592. **APPARATUS FOR EFFECTING ELECTROLYSIS.** HERBERT PHILIPP, Wyandotte, Mich. Filed Aug. 10, 1903. Serial No. 169,096.

Claim.—1. An electrolytic apparatus comprising a vessel having a feed and discharge opening and a mercury-conducting trough extending spirally from top to bottom, a separated compartment within the vessel around which the trough extends, and means for supplying mercury to the apparatus.

2. An electrolytic apparatus comprising a vessel having a feed

and discharge opening, a mercury-conducting trough extending spirally from top to bottom thereof, a separated containing-compartment arranged within the plane of the spiral trough, an inlet leading into the space between the containing-compartment and the wall of the vessel, and an outlet leading from said space.



3. In an electrolytic apparatus, the combination with a vessel having a containing-compartment arranged therein, an inclined trough in the space between the compartment and the wall of the vessel and inclined transversely, a feed communicating with the upper end of the trough and a valve-outlet at the lower end thereof, and inlet and outlet openings arranged respectively at the top and bottom portions of the vessel.

4. An electrolytic cell comprising a vessel having a mercury-conducting trough of uninterrupted spiral formation, an anode wholly within the plane of the spiral trough, means for introducing mercury into the cell, and a valve-discharge at the lower end of the trough.

5. In an electrolytic cell, the combination with a vessel, of an anode constituting the walls of a compartment, an inclined conductor arranged wholly within the space between the anode and the wall of the cell, wire terminals passing through the walls of the cell, and means for supplying the conductor with an electrolyte.

6. In an electrolytic apparatus, the combination with a vessel having a spirally-arranged conducting-trough on the inner face of its outer wall, of an independently-removable and hollow anode located within the vessel, means for supplying a fluid material to the spiral trough, and an outlet for the said material at the lower end of the trough.

7. In an electrolytic apparatus, the combination with a vessel having an inclined mercury-conducting trough therein extending from and secured to its outer wall, a removable anode having a hollow center located within the vessel and terminals of electrical conductors passing through the walls of the vessel and terminating at the inner wall of the vessel.

8. A vessel provided with a lute around the upper outer edge for the purpose of making a gas-tight joint and provided with a trough inclined at an angle around its inner wall; said trough inclined transaversely, as to its bottom surface, and provided at suitable distances along the outer bottom corner, or that portion nearest the inner wall of the vessel, with perforations passing entirely through the walls of the vessel, and conductors passing through the perforations, substantially as set forth and described.

9. The combination with a containing vessel having a marginal trough at its upper edge, a cover therefor having a depending flange entering the trough and formed with a trough or gutter at its upper edge, and an anode arranged within the vessel and provided with a depending flange entering the trough of the said cover.

10. In an electrolytic cell, the combination with a vessel having a mercury-conducting trough extending from its inner wall and inclined from top to bottom and transversely, the walls of the vessel being provided with a series of perforations in line with the bottom of the trough, and metallic points passing through the said perforations and terminating adjacent the inner wall of the vessel, substantially as described.

11. In an apparatus of the character described, the combination with a vessel and an anode therein, of a conducting-trough extending at an inclination from top to bottom of the vessel and having an overhanging covered portion at its lower end, and an inlet at the upper end of the trough and an outlet at the lower end thereof.

12. In an apparatus of the character described, the combination with a vessel, of a compartment within the vessel, a mercury-conducting trough within the vessel, means for supplying mercury to the trough, an outlet for the mercury at the lower end of the trough, and means acting automatically to close the outlet when the mercury ceases to flow through the trough.

13. In an apparatus of the character described, the combination with a vessel having a removable anode therein, of hollow formation constituting a containing-chamber, of a mercury-conducting trough, means for supplying mercury to the trough, an outlet for the mercury, and means acting automatically to permit the flow of mercury from the trough and prevent the escape of the solution after the mercury has ceased to flow.

14. In an apparatus of the character indicated, a mercury-conducting trough, a feed for supplying mercury to the trough, an outlet for the trough, and a specific-gravity valve governing said outlet.

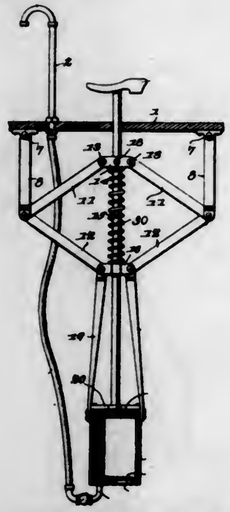
15. In combination with the vessel described, an anode composed of a series of carbon blocks or staves, of sufficient dimensions, when fitted together, to form a cylinder or other shaped form and held in place by hoops, bands, or braces of suitable material, all as substantially set forth and described.

16. In combination with an anode composed of carbon blocks or staves, a metallic band, hoop, or brace, connected to each stave or block by a metal rivet, the metallic band or hoop being provided with metallic leads to which the positive terminal carrying the current, is attached, the whole forming an effective connection between the assembled carbons and the source of electric energy, also assisting to hold the carbons in proper position.

17. A hollow cylindrical vessel consisting of an outer wall or ring and an inner wall or ring, each wall provided with a recess or lute around its upper edge, the outer wall having the recess around the outer edge, the inner wall having the recess around the inner edge, the vessel also being constructed with an inclined gutter or trough around the inner surface of the outer wall, all as substantially set forth and described.

18. In combination with a hollow cylindrical vessel consisting of an outer wall or ring, a cylindrical-shaped carbon molded with a hook or rim around the circumference for the purpose of fitting into the recess or lute of the upper inner edge of the lid or cover, and an inner hook or rim, forming a circular male projection, made to engage the inner recess or lute on the inner wall of the vessel, all as substantially set forth and described.

784,593. **PUMP.** EDWARD B. RESOR, Vanwert, Ohio. Filed July 21, 1904. Serial No. 217,511.



Claim.—1. In a pump, the combination with a platform, of a stand-pipe, a movable cylinder, a plunger reciprocating therein, and toggle-levers pivoted to the platform and operatively connected to the cylinder and plunger for reciprocating said cylinder and plunger in reverse directions.

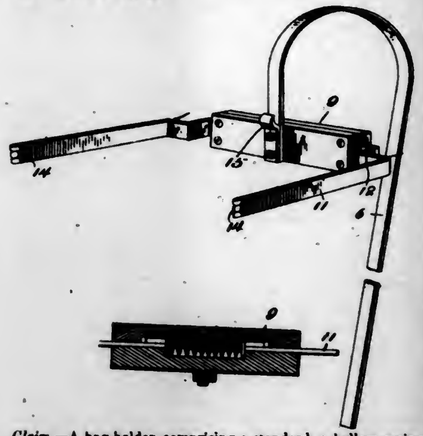
2. In a pump, a stand-pipe, a movable cylinder, a plunger reciprocating therein, means for moving the cylinder and plunger in reverse directions on the downstroke of the latter, and means for automatically reversing the direction of movement of said cylinder on the upstroke of the plunger.

3. In a pump, the combination with a platform, of a stand-pipe, a movable cylinder, a plunger reciprocating therein, toggle-levers pivoted to the platform for moving the cylinder and plunger in reverse directions on the downstroke of the latter, and a spring for automatically reversing the direction of movement of said cylinder on the upstroke of the plunger.

4. In a pump, the combination with a platform, of a movable cylinder, a stand-pipe, a flexible liquid-conducting tube connecting the cylinder and stand-pipe, a pair of links pivoted to the platform, and toggle-levers pivoted to said links and operatively connected to the cylinder and plunger for reciprocating said cylinder and plunger in reverse directions.

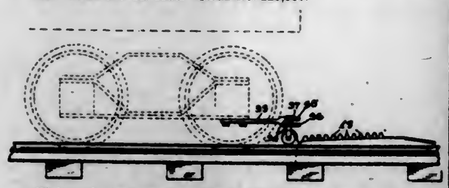
5. In a pump, the combination with a platform, of a stand-pipe, a movable cylinder, a plunger reciprocating therein, collars mounted on said plunger, depending links pivoted to the platform, toggle-levers pivoted to said links and collars, respectively, for reciprocating the cylinder and plunger in reverse directions, and a spring carried by the plunger and interposed between said collars.

784,594. **BAG-HOLDER.** JOHN RILEY, Scio, N. Y. Filed Sept. 29, 1904. Serial No. 226,493.



Claim.—A bag-holder comprising a standard, a hollow casing secured to the upper end thereof, arms the inner ends of which extend into opposite ends of the casing and in which they are slidable in alinement with each other, each of said arms being bent to produce two elbows from which the arms project forward in parallelism, and a spring in the casing in compression between the said ends of the arms.

784,595. **CAR-REGISTER.** FREDERICK A. SCHIERBERG, St. Louis, Mo. Filed Oct. 25, 1904. Serial No. 229,967.

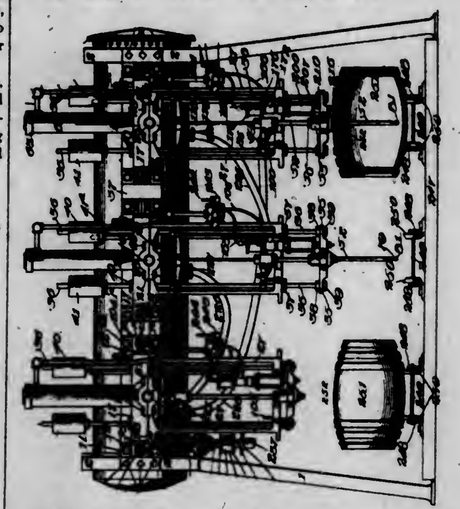


Claim.—1. In a car-recorder: a series of recording mechanisms adapted to be mounted inside of one of the rails; a second series adapted to be mounted inside of the other rail; and operating mechanism adapted to be carried by the cars so that when the car runs one way it will operate one series of recorders, and so that when the car runs the other way it will operate the other series of recorders.

2. In a car-recorder: a recording mechanism adapted to be mounted upon the track and having paper to receive the record and recorder-operating mechanism adapted to be carried by the car, and having means to make a record upon the paper as the car passes along the track.

3. In a car-recorder: recording mechanisms adapted to be mounted upon the track; a recorder-operating mechanism adapted to be carried by the car; and having means of identifying the car upon the recording mechanism; said recording mechanisms and said recorder-operating mechanisms being arranged so that the record will be made by the car going in either direction.

784,596. **FILLING APPARATUS FOR LIQUIDS.** SIMON SCHLANGEN, Chicago, Ill. Filed Feb. 4, 1904. Serial No. 191,997.



Claim.—1. In a filling apparatus for liquids, the combination of a frame journaled at its ends to oscillate fore and aft, a plate journaled at its sides to the frame to oscillate endwise, side bars depending from the plate, a cross-bar at the lower end of the side bars, guide-rods passing through the plate and the cross-bar, a cross-head on the lower end of the guide-rods, a cross-head on the guide-rods below the oscillating plate for the oscillating frame and plate to properly center a closing-head and a filling-tube with the filling-hole of the to-be-filled package, a closing-head on the lower cross-head of the guide-rods, a reciprocating filling-tube for liquids passing through the closing-head, a pressure-cylinder mounted on the oscillating plate, a piston in the pressure-cylinder, and a piston-rod connected with the piston and with the filling-tube, substantially as described.

2. In a filling apparatus for liquids, the combination of end standards, a cross-bar extending from end standard to end standard, journal-boxes projecting from the cross-bar, a frame having a journal at each end to enter the journal-boxes of the cross-bar and permit the frame to oscillate fore and aft, journal-boxes on the sides of the frame, a plate having a journal on each side to enter the journal-boxes of the frame and permit the plate to oscillate endwise, side bars depending from the plate, a cross-bar at the lower end of the side bars, guide-rods passing through the plate and the cross-bar, a cross-head on the lower end of the guide-rods, a cross-head on the guide-rods below the oscillating plate for the oscillating frame and plate to properly center a closing-head and a filling-tube with the filling-hole of the to-be-filled package, a closing-head on the lower cross-head of the guide-rods, a reciprocating filling-tube for liquids passing through the closing-head, a pressure-cylinder mounted on the oscillating plate, a piston in the pressure-cylinder, and a piston-rod connected with the piston and with the filling-tube, substantially as described.

3. In a filling apparatus for liquids, the combination of end standards, a cross-bar extending from end standard to end standard, journal-boxes projecting from the cross-bar, a frame having a journal at each end to enter the journal-boxes of the cross-bar and permit the frame to oscillate fore and aft, journal-boxes on the sides of the frame, a plate having a journal on each side to enter the journal-boxes of the frame and permit the plate to oscillate endwise, side bars depending from the plate, an ear on each side bar, an adjustable stop for each ear limiting the endwise oscillation of the plate, a

cross-bar at the lower end of the side bars, guide-rods passing through the plate and the cross-bar, a cross-head on the lower end of the guide-rods, a cross-head on the guide-rods below the oscillating plate for the oscillating frame and plate to properly center a closing-head and a filling-tube with the filling-hole of the to-be-filled package, a closing-head on the lower cross-head of the guide-rods, a reciprocating filling-tube for liquids passing through the closing-head, a pressure-cylinder mounted on the oscillating plate, a piston in the pressure-cylinder, and a piston-rod connected with the piston and with the filling-tube, substantially as described.

4. In a filling apparatus for liquids, the combination of a fore and aft oscillating frame, an endwise-oscillating plate carried by the frame, a closing-head connected with the endwise-oscillating plate, a reciprocating filling-tube passing through the closing-head, and means for causing the closing-head and the filling-tube to descend and have the oscillating frame and plate properly center the filling-tube and the closing-head with the filling-hole of the package to be filled, substantially as described.

5. In a filling apparatus for liquids, the combination of a fore and aft oscillating frame, an endwise-oscillating plate carried by the frame, a closing-head connected with the endwise-oscillating plate, a reciprocating filling-tube passing through the closing-head, a pressure-actuated piston for the filling-tube and closing-head, and means for supplying pressure to actuate the piston, substantially as described.

6. In a filling apparatus for liquids, the combination of a fore and aft oscillating frame, an endwise-oscillating plate carried by the frame, a closing-head connected with the endwise-oscillating plate, a reciprocating filling-tube passing through the closing-head, a pressure-actuated piston for the filling-tube and closing-head, a cylinder in which the piston is located, and means for supplying pressure to the cylinder, substantially as described.

7. In a filling apparatus for liquids, the combination of a suspended frame having both a fore-and-aft and a lateral oscillation, a cross-bar at the lower end of the frame, a slidable cross-head below the cross-bar and carried by the frame, a closing-head on the slidable cross-head, a reciprocating filling-tube for liquid extending below the cross-bar at the lower end of the frame and through the closing-head, a head at the upper end of the filling-tube, means for reciprocating the filling-tube and its head, a valve controlling the discharge end of the filling-tube, a valve-stem extending into the head of the filling-tube, means carried by the head of the filling-tube and engaging a stop on the cross-bar and connected with the valve-stem and automatically operated by engaging the stop with the descent of the filling-tube to open the valve at the discharge end of the filling-tube, substantially as described.

8. In a filling apparatus for liquids, the combination of a suspended frame having both a fore-and-aft and a lateral oscillation, a cross-bar at the lower end of the frame, a slidable cross-head below the cross-bar and carried by the frame, a closing-head on the slidable cross-head, a reciprocating filling-tube for liquid extending below the cross-bar at the lower end of the frame and through the closing-head, a head at the upper end of the filling-tube, means for reciprocating the filling-tube and its head, a valve controlling the discharge end of the filling-tube, a valve-stem extending into the head of the filling-tube, means carried by the head of the filling-tube and engaging a stop on the cross-bar and connected with the valve-stem and automatically operated by engaging the stop with the descent of the filling-tube to open the valve at the discharge end of the filling-tube, and a spring for automatically returning the valve-stem and its connected operating means to normal position and closing the valve at the discharge end of the filling-tube with the initial upward movement of the valve-stem, substantially as described.

9. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquids extending below the cross-bar, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the filling-tube head, and a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, substantially as described.

10. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquids extending below the cross-bar, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, and means engaging the lever and automatically operating to close the valve at the discharge end of the filling-tube by depressing the lever, substantially as described.

11. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquids extending below the cross-bar, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, a spring engaging the lever and operating to force the lever down when disengaged from the stop and automatically close the valve at the discharge end of the filling-tube, substantially as described.

12. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquids extending below the cross-bar, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, a pin upwardly projecting from the bar and engaging and raising the lever with the descent of the filling-tube and automatically opening the valve at the discharge end of the filling-tube, substantially as described.

13. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquids extending below the cross-bar, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, a pin upwardly projecting from the bar and engaging and raising the lever with the descent of the filling-tube and automatically opening the valve at the discharge end of the filling-tube, a roller engaging the lever, and a spring carrying the roller and operating as the lever is disengaged from the pin to carry down the lever and automatically close the valve at the discharge end of the filling-tube, substantially as described.

14. In a filling apparatus for liquids, the combination of a reciprocating cross-head, a closing-head carried by the cross-head, a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquid passing through the closing-head, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, and a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, substantially as described.

15. In a filling apparatus for liquids, the combination of a reciprocating cross-head, a closing-head carried by the cross-head, a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquid passing through the closing-head, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering

the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, and means for automatically closing the valve with the initial upward movement of the valve-stem, substantially as described.

16. In a filling apparatus for liquids, the combination of a reciprocating cross-head, a closing-head carried by the cross-head, a suspended frame, a cross-bar at the lower end of the frame, a reciprocating filling-tube for liquid passing through the closing-head, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, means for automatically closing the valve with the initial upward movement of the valve-stem, a port in the head for admitting liquid to the filling-tube, and hose connected with the port, and a filling-tank for liquid having the hose connected therewith, substantially as described.

17. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, slidable rods extending above and below the cross-bar, a cross-head on the lower end of the slidable rods, a closing-head carried by the cross-head, a reciprocating filling-tube for liquid passing through the cross-head, a head for the filling-tube, means for reciprocating the filling-tube and head, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, and a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, substantially as described.

18. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, slidable rods extending above and below the cross-bar, a cross-head on the lower end of the slidable rods, a closing-head carried by the cross-head, a reciprocating filling-tube for liquid passing through the cross-head, a head for the filling-tube, a pressure-cylinder, a piston within the pressure-cylinder, a piston-rod connected with the head of the filling-tube, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, and a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, substantially as described.

19. In a filling apparatus for liquids, the combination of a suspended frame, a cross-bar at the lower end of the frame, slidable rods extending above and below the cross-bar, a cross-head on the lower end of the slidable rods, a closing-head carried by the cross-head, a reciprocating filling-tube for liquid, passing through the cross-head, a head for the filling-tube, a pressure-cylinder, a piston within the pressure-cylinder, a piston-rod connected with the head of the filling-tube, means for simultaneously and alternately admitting and withdrawing pressure from the cylinder, a valve controlling the discharge end of the filling-tube, a valve-stem extending upwardly through the filling-tube and entering the head, a pendant within the head on the upper end of the valve-stem, an arm within the head and having the pendant pivotally suspended therefrom, a rock-shaft having the arm fixed thereon, a lever for the rock-shaft on the outside of the head of the filling-tube, and a stop engaging and raising the lever as the filling-tube approaches the limit of its descent for automatically opening the valve at the discharge end of the filling-tube, substantially as described.

20. In a filling apparatus for liquids, a main pressure-controlling valve having in its casing a main inlet-port for pressure, a main outlet-port for pressure, a combined supply and exhaust port on two sides intermediate of the main inlet and outlet ports for pressure, a passage leading from the main inlet-port, a passage leading from the main outlet-port, a combined supply and exhaust port on two sides at the terminal ends of the passages leading from the main inlet and outlet ports, and having in its valve-plug passages furnishing communication between the main inlet and outlet ports and the intermediate supply and exhaust ports, and passages furnishing communication between the passages leading from the inlet and outlet ports and their terminal supply and exhaust ports, substantially as described.

21. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve having in its casing a main inlet for pressure, a main outlet for pressure, a combined supply and exhaust port on two sides intermediate of the main inlet and outlet ports for pressure and having in its valve-plug passages furnishing communication between the main inlet and outlet ports and the intermediate supply and exhaust ports, a cylinder, a pipe leading from the upper end of the cylinder to one of the intermediate supply and exhaust ports of the main controlling-valve, a pipe leading from the lower end of the cylinder to the other intermediate supply and exhaust port of the main controlling-valve, a piston within the cylinder, a piston-rod for the piston, and a filling-tube connected with the piston-rod, substantially as described.

22. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve having in its casing a main inlet-port for pressure, a main outlet-port for pressure, a passage leading from the main inlet-port, a passage leading from the main outlet-port, a combined supply and exhaust port on two sides at the terminal ends of the passages leading from the main inlet and outlet ports, and having in its valve-plug passages furnishing communication between the passages leading from the inlet and outlet ports and their terminal supply and exhaust ports, a controlling-cylinder, a pipe leading from the upper end of the cylinder to the terminal port of the passage from the main inlet-port, a pipe leading from the lower end of the cylinder to the terminal port of the passage from the main outlet-port, a piston in the controlling-cylinder, a piston in the pressure-cylinder, a hollow piston-rod for the piston of the pressure-cylinder and through which the piston-rod of the controlling-cylinder extends, a valve on the end of the piston-rod of the controlling-cylinder, and a pipe leading into the hollow piston-rod of the pressure-cylinder, for supplying pressure to and exhausting pressure from the pressure-cylinder when the valve of the controlling-cylinder is open, substantially as described.

23. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve having in its casing a main inlet-port for pressure, a main outlet-port for pressure, a passage leading from the main inlet-port, a passage leading from the main outlet-port, a combined supply and exhaust port on two sides at the terminal ends of the passages leading from the main inlet and outlet ports, and having in its valve-plug passages furnishing communication between the passages leading from the inlet and outlet ports and their terminal supply and exhaust ports, a controlling-cylinder, a pipe leading from the upper end of the cylinder to the terminal port of the passage from the main inlet-port, a pipe leading from the lower end of the cylinder to the terminal port of the passage from the main outlet-port, a piston in the controlling-cylinder, a piston-rod for the piston, a pressure-cylinder in juxtarelation to the controlling-cylinder, a piston in the pressure-cylinder, a hollow piston-rod for the piston of the pressure-cylinder and through which the piston-rod of the controlling-cylinder extends, a valve on the end of the piston-rod of the controlling-cylinder, a pipe leading into the hollow piston of the pressure-cylinder for supplying pressure to and exhausting pressure from the pressure-cylinder when the valve of the controlling-cylinder is open, a port in the bottom of the controlling-cylinder, a valve controlling the port, a closing-head for the filling-hole of the package and having therein a passage in communication with the port of the pressure-cylinder for admitting and venting pressure from the package, substantially as described.

24. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve having in its casing a main inlet-port for pressure, a main outlet-port for pressure, a passage leading from the main inlet-port, a passage leading from the main outlet-port, a combined supply and exhaust port on two sides at the terminal ends of the passages leading from the main inlet and outlet ports, and having in its valve-plug passages furnishing communication between the passages leading from the inlet and outlet ports and their terminal supply and exhaust ports, a control-

ling-cylinder, a pipe leading from the upper end of the cylinder to the terminal port of the passage from the main inlet-port, a pipe leading from the lower end of the cylinder to the terminal port of the passage from the main outlet-port, a piston in the controlling-cylinder, a piston-rod for the piston, a pressure-cylinder in juxtarelation to the controlling-cylinder, a piston in the pressure-cylinder, adjustable in the cylinder and when adjusted held in a fixed relation, a hollow piston-rod for the piston of the pressure-cylinder and through which the piston-rod of the controlling-cylinder extends, a valve on the end of the piston-rod of the controlling-cylinder, and a pipe leading into the hollow piston-rod of the pressure-cylinder for supplying pressure to and exhausting pressure from the pressure-cylinder and regulating the quantity of liquid flowing into the cylinder, substantially as described.

25. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve having in its casing a main inlet-port for pressure, a main outlet-port for pressure, a passage leading from the main inlet-port, a passage leading from the main outlet-port, a combined supply and exhaust port on two sides at the terminal ends of the passages leading from the main inlet and outlet ports, and having in its valve-plug passages furnishing communication between the passages leading from the inlet and outlet ports and their terminal supply and exhaust ports, a controlling-cylinder, a pipe leading from the upper end of the cylinder to the terminal port of the passage from the main inlet-port, a pipe leading from the lower end of the cylinder to the terminal port of the passage from the main outlet-port, a piston in the controlling-cylinder, a piston-rod for the piston, a pressure-cylinder in juxtarelation to the controlling-cylinder, a piston in the pressure-cylinder, adjustable in the cylinder and when adjusted held in a fixed relation, a hollow piston-rod for the piston of the pressure-cylinder and through which the piston-rod of the controlling-cylinder extends, a valve on the end of the piston-rod of the controlling-cylinder, a pipe leading into the hollow piston-rod of the pressure-cylinder for supplying pressure to and exhausting pressure from the pressure-cylinder and regulating the quantity of liquid flowing into the cylinder, a port in the bottom of the pressure-cylinder, a valve controlling the port in the bottom of the pressure-cylinder, a closing-head for the filling-hole of the package and having therein a passage for liquid and pressure for admitting pressure to and exhausting pressure from the package and regulating the outflow of liquid, substantially as described.

26. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve connected with the tank, a controlling-cylinder having a piston actuated by pressure passing through the controlling-valve, a pressure-cylinder having a piston operative from the piston of the controlling-cylinder and receiving pressure thereinto from the tank and returning pressure to the tank therefrom, and a closing-head for the filling-hole of a package, having therein a passage in communication with the pressure-cylinder, substantially as described.

27. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, a main pressure-controlling valve connected with the tank, a controlling-cylinder having a piston actuated by pressure passing through the controlling-valve, a pressure-cylinder having a piston operative from the piston of the controlling-cylinder and receiving pressure thereinto from the tank and returning pressure to the tank therefrom, a cylinder having therein a piston actuated from pressure supplied through the main pressure-controlling valve, a reciprocating filling-tube actuated from the piston, and a closing-head for the filling-hole of a package, having therein a passage in communication with the pressure-cylinder, substantially as described.

28. In a filling apparatus for liquids, the combination of a main pressure-controlling valve, a cylinder and piston for actuating a filling-tube, the cylinder having communication with the main pressure-controlling valve, a controlling-cylinder having communication with the main controlling-valve, a pressure-cylinder opened and closed to the flow of pressure thereinto and therefrom by the controlling-cylinder, and a closing-head for the filling-hole of a package in communication with the pressure-cylinder for actuating the filling-tube and controlling the admission of pressure into and the discharge of pressure from the package by one and the same valve, substantially as described.

29. In a filling apparatus for liquids, a closing-head for the filling-hole of a package and having a passage therein for liquid and pressure, a pressure-cylinder in communication with the passage of the closing-head for admitting pressure into the passage of the head and for venting pressure from and allowing liquid to flow through the passage of the head, and a vent-valve admitting atmospheric pressure into the pressure-cylinder as the liquid flows out therefrom for the admitted atmospheric pressure to prevent explosive action and insure the discharge of the liquid from the pressure-cylinder, substantially as described.

30. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, means for admitting pressure into the tank, means for admitting liquid into the tank, a main controlling-valve for pressure, means connecting the controlling-valve with the tank, a cylinder having therein a piston, a reciprocating filling-tube actuated from the piston of the cylinder, means connected with the controlling-valve for inducting pressure into and educting pressure from the cylinder through the valve to operate the filling-tube, a controlling-cylinder having a piston therein and having at the end of the piston-rod a valve, means for inducting pressure into and educting pressure from the controlling-cylinder on opposite sides of the piston through the main controlling-valve, a pressure-cylinder having the inlet-port controlled by the valve of the controlling-cylinder, and means for supplying pressure to the pressure-cylinder for the pressure to flow into a to-be-filled package and equalize the pressure between the tank and the package, substantially as described.

31. In a filling apparatus for liquids, the combination of a tank for liquid and pressure, means for admitting pressure into the tank, means for admitting liquid into the tank, a main controlling-valve for pressure, means connecting the controlling-valve with the tank, a cylinder having therein a piston, a reciprocating filling-tube actuated from the piston of the cylinder, means connected with the controlling-valve for inducting pressure into and educting pressure from the cylinder through the valve to operate the filling-tube, a controlling-cylinder having a piston therein and having at the end of its piston-rod a valve, means for inducting pressure into and educting pressure from the cylinder on opposite sides of the piston through the main controlling-valve, a pressure-cylinder having an inlet-port controlled by the valve of the controlling-cylinder, means for supplying pressure to the pressure-cylinder, and a closing-head for the filling-hole of a package, having therein a passage in communication with the pressure-cylinder and through which closing-head the reciprocating filling-tube passes, substantially as described.

784,597. **APPARATUS FOR PURIFYING SEWAGE AND CONSUMING GARBAGE.** FRED P. SMITH, New York, N. Y., assignor to The Municipal Engineering Company New York, N. Y., a Corporation of Delaware. Filed Oct. 30, 1903. Serial No. 129,374.

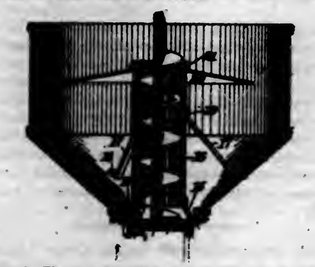


Claim.—1. In an apparatus for purifying sewage and consuming garbage, a septic-tank wherein the crude sewage is clarified, and means for collecting the odors and gases escaping therefrom, in combination with a furnace, two chimneys one located inside of the other, an outlet for the heat from the furnace to the inner chimney, an outlet for the collected odors and gases into the outer chimney and means for incinerating the odors and gases at the top of the inner chimney and within the outer one.

2. In an apparatus for purifying sewage and consuming garbage, a septic-tank wherein the crude sewage is clarified, a purifying-receptacle to receive the clarified liquid from the septic-tank, and two chimneys one located inside of the other in combination with a furnace provided with an outlet for its flame to the inner chimney, devices for drawing the air through the purifying-receptacle into the inner chimney, means for passing the gases and odors from the septic-tank into the outer chimney, and means for incinerating said gases and odors by the heat from the inner chimney.

3. In an apparatus for purifying sewage and consumnig garbage, a septic-tank wherein the crude sewage is clarified, a purifying-receptacle to recieve the clarified liquid from the tank, a floor over the septic-tank, and a covered room above the floor, in combination with a furnace located in the room, two chimneys one located inside of the other, an opening above the grate of the furnace to the inner chimney, open connections from the inner chimney to the purifying-receptacle, means for discharging the gases and odors from the septic-tank through the outer chimney, and means for incinerating these gases at the top of the inner chimney.

784,598. **CYANID-AGITATOR.** EUGENE STEVENS, Leadville, Colo. Filed Jan. 19, 1904. Serial No. 189,727.

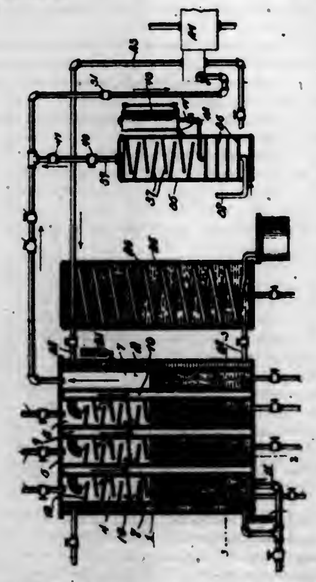


Claim.—1. The combination of a containing vessel provided with a substantially frusto-conical portion, a basin engaging said frusto-conical portion, bolts connecting said basin upon said frusto-conical portion, said basin being provided with a bearing, a tubular member disposed within said containing vessel, and a revoluble shaft provided with a carrier-thread disposed within said tubular member, said revoluble shaft being provided with a journal engaging said bearing within said basin.

2. The combination of a containing vessel provided with a substantially frusto-conical portion, a basin engaging said substantially frusto-conical portion, fastening members securing said basin upon said frusto-conical portion, said basin being provided with a bearing, a revoluble carrier engaging said bearing so as to rest upon said basin, and a stationary member encircling said carrier.

3. The combination of a containing vessel provided with a substantially frusto-conical portion, a basin engaging said frusto-conical portion, fastening members connecting said basin and said frusto-conical portion together, said basin being provided with a bearing, a revoluble carrier journaled within said bearing, a member encircling said revoluble carrier, and a trap-door for discharging the contents from said basin.

784,599. **CARBURETER.** HUGH D. STUDABAKER, Bluffton, Ind., assignor of one-half to Paul Herman, Bluffton, Ind. Filed Oct. 8, 1903. Serial No. 176,288.



Claim.—1. In a carbureter, a tank adapted to contain liquid hydrocarbon and provided at its lower end with an air-inlet, and at its upper end with a gas-outlet, a foraminous plate extending across the tank at a point below the liquid-level, a plurality of baffle-plates arranged above the level of the liquid and forming a tortuous passage for the carbureted air, and a heating-jacket encircling the tank and serving to raise the temperature of the hydrocarbon and to assist in the separation of excess liquid from the air while passing the baffle-plates.

2. In a carbureter, a tank divided by partitions into a plurality of carbureting-chambers separated by intervening passages, outlets leading from the upper portions of the chambers to the passages, inlets leading from the passages to the lower ends of the chambers, and a continuous heating-jacket surrounding said tank and all of the chambers and passages.

3. In a carbureter, a tank divided by partitions into a plurality of carbureting-chambers separated by intervening passages, outlets leading from the upper portions of the chambers to the passages, inlets leading from the passages to the lower portions of the chambers, foraminous plates disposed in the several chambers at points below the liquid-level, inclined baffle-plates arranged in each chamber and forming a tortuous passage for the carbureted air, and a continuous heating-jacket encircling said tank and all of such chambers and passages.

4. In a carbureter, a tank divided by partitions into a plurality of chambers separated by intervening passages, the final chamber of the series serving as a scrubbing-chamber, and the remaining chambers being adapted to contain liquid hydrocarbon, ducts connecting the chambers and passages in series, the air to be carbureted being passed successively through the several carbureting-chambers and finally through the scrubbing-chamber, and a continuous heating-jacket encircling said tank and all of said chambers and passages.

5. In a carbureter, a pair of tanks spaced from each other to form a water-jacket, the inner of such tanks being divided by partitions into a plurality of carbureting-chambers, a water-tank, a heating-coil disposed in said water-tank, a pipe for conveying the exhaust of a gas-engine to said coil, and circulating-pipes extending between the upper and lower portions of the outer tank of the pair and the water-tank thereby to permit the continuous circulation of water between and through the two tanks.

6. In a carbureting apparatus, a carbureting-chamber, a heating-jacket encircling the same, an air-pipe leading through the heating-jacket for the heating of the air in advance of its entrance to the carbureting-chamber, and a valved auxiliary pipe through which a controlled quantity of air may be admitted to the inlet-pipe in advance of the connection of the latter with the carbureting-chamber, thereby to vary both the quantity and the temperature of the air.

784,600. **TANK-SUPPORT.** PAYNE P. STURDEVANT, Passaic, N. J., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed Nov. 11, 1904. Serial No. 232,331.



Claim.—1. The combination with center sills and a bolster, side sills projecting above the bolster and terminating in depth short of the bottom of the bolster, angles carried by the side sills and extending to the bottom of the bolster, and tank-supports resting on the bolster and against one side of each side sill; substantially as described.

2. The combination with center sills, a bolster carried thereby, channel side sills connected to the bolster and extending above the same, angles connected to the bottom of the side sills and to the bolster, and tank-supports resting upon the bolster and against the side sills; substantially as described.

3. In a tank-car, the combination with a bolster, side sills connected to the ends of the bolster and projecting above the same, a tank-support on the bolster, the ends of said tank-support resting against the projecting portions of the side sills; substantially as described.

4. In a tank-car, bolsters and center sills, side sills connected to the ends of the bolsters and having portions extending above the top of the bolsters, and tank-supports riveted to the tops of the bolsters and having ends resting against the upwardly-projecting portions of the side sills; substantially as described.

5. In a tank-car, channel side sills having outwardly-projecting flanges, bolsters connected to the side sills, the tops of said bolsters being lower than the tops of the side sills, and tank-supports carried by the bolsters and having their ends resting against the webs of the channel side sills; substantially as described.

6. In a tank-car, channel side sills having outwardly-projecting flanges, bolsters connected to the side sills, the tops of said bolsters being lower than the tops of the side sills, tank-supports carried by the bolsters and having their ends resting against the webs of the channel side sills, and reinforcing-angles connected to the lower flanges of the side sills; substantially as described.

7. A tank-support comprising a casting having a central web provided with perforations for the head-block tie-rods, top and bottom flanges carried by the web, and vertical reinforcing-ribs projecting outwardly from the web and connecting the top and bottom flanges; substantially as described.

784,601. **GUN-TRUNK.** LLOYD B. TAYLOR, Chicago, Ill. Filed Apr. 11, 1903. Serial No. 152,163.



Claim.—1. In a gun-trunk, the combination of a tray and a series of independent securing-blocks arranged in line with each other, each block being adjustable both longitudinally and rotatably, and independent means for securing each block after it has been adjusted, substantially as set forth.

2. In a gun-trunk, the combination of a tray and a series of independent securing-blocks, each block being adjustable both longitudinally and rotatably, and adjacent blocks having reversely-inclined bearing edges, and means for securing each block after it has been adjusted, substantially as set forth.

3. In a gun-trunk, the combination of a tray and a series of tapering, longitudinally-slotted securing-blocks, each block being adjustable both longitudinally and rotatably, and they being reversely arranged in line with each other, substantially as set forth.

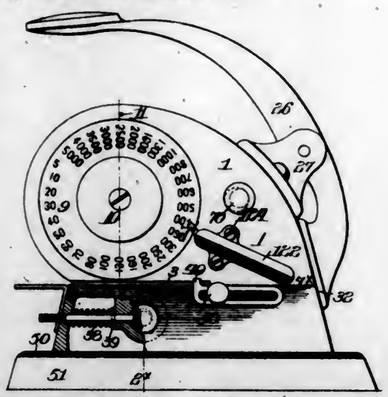
4. In a gun-trunk, the combination of a tray, a series of independent longitudinally-slotted securing-blocks arranged in pairs and formed each with one bearing edge oblique to the other so that when the adjacent edges of the blocks of a pair are arranged to be approximately parallel, the other edges of the blocks of the pair are reversely inclined each with relation to the adjacent edge of the next block of the series, the blocks being all adjustable both longitudinally and rotatably, and means for securing the blocks after they have been adjusted substantially as set forth.

5. In a gun-trunk, the combination of a tray, a series of independent securing-blocks arranged in line with each other, each block being adjustable both longitudinally and rotatably and provided with elastic bearing edges, and independent means for securing each block after it has been adjusted, substantially as set forth.

6. In a gun-trunk, the combination of a tray, a series of independent securing-blocks in the same plane, each block being adjustable both longitudinally and rotatably, and independent means for securing each block after it has been adjusted, substantially as set forth.

7. In a gun-trunk, the combination of a plurality of independent securing-blocks adjustable longitudinally and rotatably, such blocks being arranged in two rows, the blocks of one row being set, alternately, relatively near together and relatively distant from each other, the blocks of the other row being arranged in like manner but spaced one from another in reverse order and such blocks being provided with oppositely-placed bearing-faces one oblique with respect to the other, so that one row of blocks may be set to clamp in position alternately the barrels and stocks of guns, while the other row will in like manner clamp the other ends of such guns, but in the reverse order.

784,602. **PRINTING-STAMP.** LIBANUS M. TODD, Rochester, N. Y., assignor to G. W. Todd and Company, Rochester, N. Y., a Firm. Filed Aug. 11, 1903. Serial No. 119,216.



Claim.—1. In a printing-stamp, the combination with a printing-wheel, a platen and a lever for operating it, of an arbor carrying the lever adjustable relatively to the printing-wheel and means for operating the lever.

2. In a printing-stamp, the combination with a casing, type characters supported therein and a platen adapted to engage with the latter, of a lever coöperating with the platen and a journal on the casing supporting the lever, means for adjusting the journal relatively to the type characters, and operating devices for revolving the lever on the arbor.

3. In a printing-stamp, the combination with a casing, type characters supported therein and a platen adapted to engage with the latter, of an arbor journaled in the casing having an eccentric portion, a lever journaled on the arbor, means for adjusting the arbor to move the lever relatively to the type characters and devices for operating the lever.

4. In a printing apparatus, the combination with a casing, type characters supported therein and a platen adapted to engage with the latter, of a lever coöperating with the platen and an arbor supporting the lever having eccentrically-arranged end portions journaled in the casing, means accessible from the exterior of the casing for revolving the arbor in its bearings and devices for operating the lever thereon.

5. In a printing apparatus, the combination with a casing, type characters supported therein and a platen, of a lever coöperating with the platen, an arbor forming a bearing for the lever and having portions journaled in the casing and arranged eccentrically to the lever-bearing, and a head on the arbor having recesses therein, a locking device engaging the head and devices for operating the lever.

6. In a printing apparatus, the combination with a casing, type characters supported therein and a platen, of a lever having one end coöperating therewith, an operating-lever, a link connecting the ends of said levers and a stop for limiting the movement of the link in one direction.

7. In a printing apparatus, the combination with a casing, type characters arranged therein and a platen, of a pivoted lever having the end coöperating therewith, and provided at its opposite end with a pin, an operating-lever having a pin thereon and a link connecting the two levers journaled on one of the pins and provided with the slot embracing the other pin and a retaining-plate engaging the latter to prevent its removal from the slot.

8. In a printing apparatus, the combination with a casing, type characters therein and a platen movable relatively thereto mounted on a supporting-arm attached to the casing, an arbor arranged at one side of the platen and a lever journaled on the arbor having the end engaging the platen, of a spring attached to the arm and to the lever adapted to be placed under tension as the latter is revolved on its arbor and devices for operating the lever.

9. In a printing apparatus, the combination with a casing, a rotatable printing-wheel, and a pivoted platen movable relative the wheel, of a pivoted operating-lever having the end at one side of the pivot engaging the platen to move it toward the wheel, a spring arranged between the lever, at the opposite side of its pivot, and the platen whereby the operating end of the latter is retracted from the platen and the latter is moved away from the wheel, and means for operating the lever.

10. The combination with the casing, and the rotatable printing-wheel, of the movable pivoted platen having sockets in its lower side, and the balls in the sockets forming bearing-surfaces, the lever having sockets in its upper side, and the balls therein engaging the balls in the platen, and means for operating the lever to cause the movement of the platen toward the printing-wheel.

11. In a printing apparatus, the combination with a rotatable wheel having printing characters extending longitudinally on the face thereof, means for inking them and a support for a check or other instrument arranged below the wheel, of a stationary guard located above the support and extending over the face of the wheel at each side of the printing characters thereon, a movable platen and means for operating it through the guard into engagement with the wheel.

12. In a printing apparatus, the combination with a rotatable printing-wheel having printing characters arranged in parallel rows extending longitudinally on its face and means for inking them, of a support for a check or other instrument and a stationary guard extending over the face of the wheel and adapted to expose a single row of printing characters, a movable platen located below the support and means for operating it to cause a check or other instrument to be moved through the guard into engagement with the exposed printing characters.

13. In a printing-machine, the combination with a casing, a wheel journaled therein, and a type-plate wrapped around the periphery of the wheel and secured at its ends and provided with type characters projecting therefrom, of a spring-pressed inking-roller coöperating with the type to center the wheel, and a relatively movable platen adapted to coöperate with the type-plate.

14. In a printing apparatus, the combination with a casing having a slot or aperture therein, a rotatable printing-wheel journaled therein above the slot and having printing characters projecting therefrom, a movable inking-roller engaging between the characters to center the wheel in printing position, of a platen movable relative the wheel, a guard extending over the face of the wheel and above the slot and provided with an aperture through which the platen operates to engage the type characters, and means for operating the platen.

15. In a printing apparatus, the combination with a casing, a rotatable printing-wheel journaled in the casing, arms pivoted to the casing, and a platen mounted on the arms, of a lever pivoted to the casing having the end coöperating with the platen to move it toward the wheel, an operating-lever pivoted on the casing, and a link connecting the two levers, a spring attached to the platen and lever between their pivotal points whereby the platen is moved away from the wheel and the operating-lever returned to the normal position.

16. In a printing apparatus, the combination with a casing having bearings in its sides, an arbor mounted therein and a printing-wheel having type characters thereon, of an inking-roller and a shaft therein, cap-plates forming guides and secured to the casing and springs arranged in the cap-plates and engaging the ends of the shaft to move the inking-roller into contact with the printing-wheel, a platen and means for operating it into engagement with said wheel.

17. In a printing apparatus, the combination with a casing having bearings in its sides, an arbor mounted therein and a printing-wheel having type characters thereon, of an inking-roller, a shaft therein having the ends extending through the sides of the casing and cap-plates forming guides and secured upon the exterior of the casing, plungers mounted in the guides and carrying the ends of the shaft and springs secured between the cap-plates and the sides of the casing engaging the plungers to yieldingly hold the inking-roller in contact with the printing-wheel, a platen and operating devices for moving it into engagement with said wheel.

18. The combination with a casing, open at the bottom and provided with a shoulder or projection, a base and devices for attaching the latter to the casing forming stops, of a removable closure for the base engaging said stops, and a spring-finger mounted on the closure and adapted to engage the shoulder to removably secure it in position on the base.

19. The combination with a casing, and a base therefor embodying a platform having depending edges, of adjustable stops extending through the platform and engaging the casing, and nuts on the stops engaging the platform to secure it to the casing, a closure fitting within the depending walls of the base and devices for securing the closure therein in engagement with the stops.

20. The combination with a casing and a base attached thereto embodying a platform having depending edges, of a closure fitting within the base, adjustable stops for limiting its inward movement and engaging devices between the base and closure for removably securing the latter.

21. In a printing-stamp, the combination with a casing, a printing-wheel and a platen coöperating with the latter, of an inking-roller normally in contact with the wheel, a supplying-roller normally out of contact with the inking-roller, and means for moving the supplying-roller into engagement with the inking-roller independently of the movement of the printing-wheel.

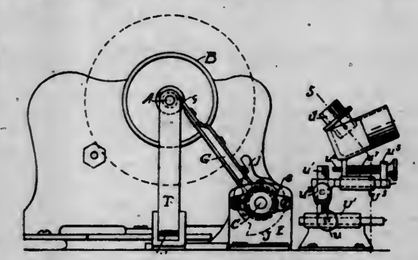
22. In a printing-stamp, the combination with a casing, a printing-wheel and a platen coöperating therewith, of an inking-roller for the wheel, a supplying-roller movably mounted in the casing and means accessible from the exterior of the casing for moving it into engagement with the inking-roller.

23. In a printing-stamp, the combination with a casing, printing devices and a platen coöperating therewith, of an inking-roller for said devices, a supplying-roller having an internal reservoir and means for moving the supplying-roller into engagement with the inking-roller.

24. In a printing-stamp, the combination with a casing, printing devices, a platen coöperating therewith and an inking-roller for said devices, of a supplying-roller having a reservoir, supporting-arms for said roller arranged within the casing and means for operating the arms from the exterior of the casing.

25. In a printing-stamp, the combination with a casing, a printing-wheel, a platen coöperating therewith and an inking-roller engaging the wheel, of arms arranged within the casing, a supplying-roller journaled loosely therein, and means for operating either arm to move one end or the other of said roller into contact with the inking-roller.

784,603. **PHONOGRAPH.** LOUIS DEVIREAU, Cleveland, Ohio. Filed Jan. 2, 1904. Serial No. 187,401.



Claim.—1. In a phonograph, in combination, a rotating screw, a tube surrounding the same, an arm slidable upon the tube, means carried by the arm adapted to engage the screw, and a rotating and slidable head which said arm operates to move longitudinally.

2. In a phonograph, in combination, a rotatable screw, a tube surrounding the same and having a longitudinal slot through it, an arm surrounding the tube and carrying the nut adapted to extend through said slot and engage the screw, and a rotatable head adapted to be shifted by said arm.

3. In a phonograph, in combination, a rotatable screw, a tube surrounding the same and having a longitudinal slot through it, a sleeve surrounding the tube, an arm rigidly secured to the sleeve, a nut carried within a recess in the arm and adapted to pass through said slot into engagement with the screw, and a head adapted to carry the impression-surface and be shifted by said arm.

4. In a phonograph, in combination, a rotatable screw, a tube surrounding the same and having a longitudinal slot therein, a sleeve surrounding said tube and slidable thereon, an arm carried by said sleeve, a nut mounted on said arm and adapted to pass through the slot in said tube and into engagement with the screw, a spring tending to bring about such engagement, an annular ring surrounding said sleeve and arranged to pass through openings in the nut and the arm, a peripheral cam upon said ring for raising said nut out of engagement with said screw, and means for rotating said ring.

5. In a phonograph, in combination, a rotatable screw, a tube surrounding the same and having a longitudinal slot therein, a sleeve surrounding said tube and loosely mounted thereon, an arm carried by said sleeve, a nut slidably mounted in said arm in a position to pass through said slot and engage said screw and having an opening therein, an annular ring loosely surrounding said sleeve and passing through the opening in said nut, a peripheral cam upon said ring for raising said nut out of engagement with the screw, a stop upon said ring for engaging said arm and means for rotating said ring.

6. In a phonograph, in combination, a rotatable head, a rotatable screw, a tube surrounding the same and having a longitudinal slot therein, a sleeve surrounding said tube and slidably mounted thereon, a hollow arm carried by said sleeve and adapted to engage said head, a nut slidably mounted within said arm and adapted to pass through the slot in the tube and into engagement with the screw, a spring within said arm and bearing upon said nut for bringing about said engagement, a ring loosely mounted upon said sleeve, a cam upon said ring adapted to engage said nut and raise the same out of engagement with the screw, and means for rotating said ring.

7. In a phonograph, in combination, a recorder-support including a rail, a block slidable thereon, another block swiveled to the block first mentioned, and a tube carried by said swiveled block.

8. In a phonograph, in combination, a recorder-support, comprising a sliding block, another block swiveled thereto, a tube-support slidable upon said swiveled block, and a screw and spring for moving said tube-support in one direction or the other.

9. In a phonograph, a recorder-support comprising the combination of a rail U, a sliding block U′ having a stud u′, a second block U^1 swiveled on said stud, set-screws for clamping said two blocks, a tube-support slidably mounted upon said block U^1, and means for adjusting said tube-support upon said block U^1.

784,604. CHAIR-TABLE. LOUISA WALL, Boise, Idaho. Filed June 9, 1904. Serial No. 211,853.

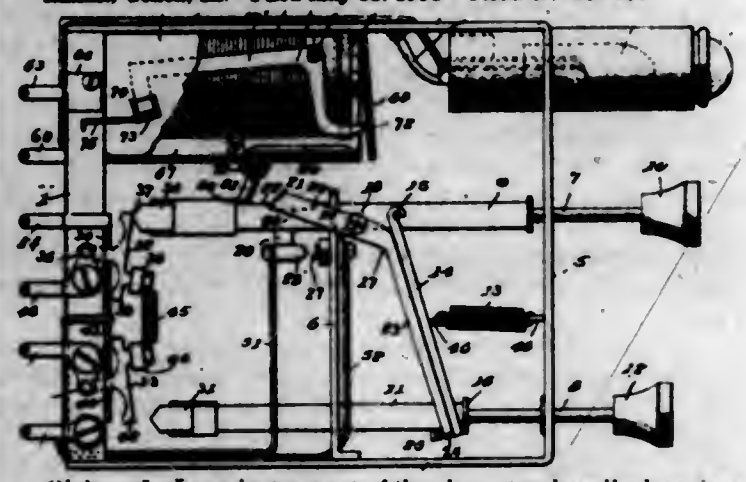


Claim.—1. The combination with a table, of a supporting-base provided with a central recess having a plurality of radially-disposed recesses communicating therewith, a standard secured to the table-top and seated in the central recess in the base, a plate secured to the base and covering the bottom of the recesses, slots formed in said plate, and a plurality of chair-carrying slides mounted for longitudinal movement in said recesses and adapted to engage the base of the standard when folded beneath the table-top, said slides being provided with depending lugs for engagement with the slots in said plate.

2. The combination with a table, of a supporting-base provided with a central recess having a plurality of radially-disposed recesses communicating therewith, a standard secured to the table-top and seated in the central recess in the base, a plurality of chair-carrying slides mounted for longitudinal movement in said recesses, and adapted to engage the base of the standards when folded beneath the table-top, said slides each comprising a plurality of telescopic sections one of which is provided with a shoulder adapted to limit the outward movement of the adjacent section.

3. The combination with a table, of a supporting-base provided with a plurality of radially-disposed recesses, a standard secured to the table-top and seated in the base, a plate secured to the base and provided with a series of slots adapted to register with the recesses in said base, a plurality of chair-carrying slides mounted for longitudinal movement in said recesses, said slides each comprising a pair of telescopic sections one of which is provided with oppositely-disposed shoulders and a depending lug fitting in one of the slots in the plate and the adjacent section with an enlarged head adapted to engage said shoulders for limiting the outward movement of said section.

784,605. TELEPHONE-OPERATOR'S KEY. LOUIS W. WANEMAKER, Genoa, Ill. Filed May 11, 1904. Serial No. 207,355.



Claim.—1. In an instrument of the character described, spring-controlled rocking contact-levers, contact-plates on which said levers normally bear for connecting them electrically, signaling-circuit contact-plates on the opposite sides of said levers, and separate keys for independently moving said levers into contact with said last-mentioned plates, substantially as described.

2. An operator's outfit comprising rocking contact-levers respectively connected to the cord-circuits of the plugs, contact-plates arranged in the path of said levers in one direction to electrically connect said levers, spring-actuated means for holding said levers normally in contact with said contact-plates, signaling-circuit contact-plates arranged in the path of said levers in the opposite direction, and separate keys for independently moving said levers into contact with said last-mentioned plate, substantially as described.

3. An instrument of the character described comprising rocking spring-actuated contact-levers, means for electrically connecting said levers with the telephones of the respective parties, contact-plates lying between and on opposite sides of levers, the intermediate plates electrically connecting said levers, which are normally in contact therewith, the other plates being connected with the signaling-circuit, and separate keys for independently rocking said levers to connect either telephone with the signaling-circuit, substantially as described.

4. In an instrument of the character described, rocking contact-levers connecting with the plug-circuits, contact-plates located between said levers to connect them electrically, a spring connecting said levers and holding them normally in contact with said plates, signaling-circuit contact-plates located on the opposite sides of said levers, and means for independently rocking said levers into contact with said last-mentioned plates, substantially as described.

5. In an instrument of the character described, an insulating-base, rocking contact-levers pivotally mounted therein and mechanically connected in insulated pairs to move in unison, each pair of levers being electrically connected to the respective wires of a plug-circuit, contact-plates located between the opposite levers of the pairs, a spring connecting the two pairs to hold them normally in contact with said plates, signaling-circuit contact-plates located on the other side of each pair, and spring-controlled push-keys in the path of which said pairs are respectively located, whereby said pairs may be independently moved into contact with the signaling-circuit contact-plates, substantially as described.

6. In an instrument of the character described, the combination, with rocking contact-levers having arms extending in opposite directions, contact-plates in the paths of said arms, and a spring connecting said contact-levers, of push-keys arranged to contact with the respective levers, a link connecting said push-keys, and a spring connected to said link and to a fixed point, substantially as described.

7. In an instrument of the character described, the combination, with two pairs of rocking contact-levers, an insulated bar connecting the levers of each pair, and a coiled spring connecting said insulated bars, of a push-key reciprocating in line with the spring-lifted portion of each pair of levers, and provided with an insulated contact-piece to bear thereon and tilt said pair, substantially as described.

8. In an instrument of the character described, the combination, with two pairs of rocking contact-levers, an insulated bar connecting the levers of each pair, and a coiled spring connecting said

insulated bars, of a push-key reciprocating in line with the spring-lifted portion of each pair of levers, and provided with an insulated contact-piece to bear thereon and tilt said pair, a link loosely connected to said push-keys, and a coiled spring connected to said link between said push-keys and to a fixed point, substantially as described.

9. In an instrument of the character described, the combination, with parallel-moving spring-actuated push-keys controlling the signaling-circuits, of an operator's set and a loop-circuit therefor, one pair of terminals of which is carried by and moves with one of said keys, and a latch normally engaging said key to hold said terminals out of contact with the other terminals of said circuit, said latch being operated by the other key, substantially as described.

10. In an instrument of the character described, the combination, with spring-actuated rocking contact-levers connected with the respective plugs, intermediate contact-plates for electrically connecting them, and signaling-circuit contact-plates arranged on opposite sides of them, of independent spring-actuated parallel-moving push-keys for rocking said contact-levers in connection with the signal-circuit contact-plates, an operator's set connected with the intermediate contact-plates by a loop-circuit, said circuit being divided to form opposite fixed and movable terminals, the movable terminals carried by one of said push-keys, and a latch normally engaging said last-mentioned push-key to separate said terminals, said latch being operated by the other key, substantially as described.

11. In an instrument of the character described, the combination, with rocking contact-levers and coöperating contact-plates controlling the talking and signaling circuits, an operator's set and loop circuit connected with the main talking-circuit, and means for making and breaking said loop-circuit, of two spring-controlled push-keys, one of which controls the loop-circuit making and breaking means, and a latch controlling said key and itself controlled by the other key, whereby a light pressure on said circuit-controlling key will break the loop-circuit, a light pressure on the other key will close said circuit, and a heavy pressure on either key will connect the corresponding subscriber's telephone with the signaling-circuit, substantially as described.

12. In an instrument of the character described, the combination, with two push-keys for ringing the respective subscribers' signals, of a clear-out signal, and a circuit therefor comprising a battery or generator and a switch for opening and closing the circuit, a relay connected with the subscribers' circuits and provided with an armature to operate the switch to close the signal-circuit, and a lever arranged in the path of one of said push-keys, and serving to open said switch when said push-key is moved in the proper direction, substantially as described.

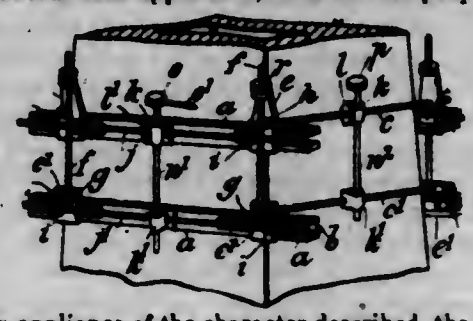
13. An operator's instrument comprising a frame, a clear-out signal and relay mounted thereon, said relay controlling the clear-out-signal circuit to close the same when its magnet is energized, spring-actuated push-keys mounted in said frame and controlling the ringing and listening circuits, one of said push-keys being provided with a projection, a lever mounted in the path of said projection and operating the clear-out-signal switch when engaged by said projection, and a latch engaging said lever-operating key and controlled by the other key, whereby the initial pressure on said other key will release the lever-operating key to open the clear-out switch, while further pressure on said latch-operating key will close its ringing or signaling circuit, substantially as described.

14. In an instrument of the character described, the combination, with parallel-moving push-keys for separately controlling the signaling-circuits of connected subscribers' telephones, of a link pivotally connected to one of said keys and having a sliding connection with the other key, and a coiled spring having one of its ends connected to said link between its connections with the two keys, the other end of said coiled spring being connected to a suitable fixed part, substantially as described.

784,606. APPLIANCE FOR USE IN BUILDING CHIMNEYS, &c. WILLIAM T. WEIGHTMAN, Dunham-upon-Trent, England. Filed June 28, 1904. Serial No. 214,572.

Claim.—1. In an appliance for use in building chimneys and like structures, the combination of upper and lower slotted horizontal beams constituting a staging, plates mounted to slide in said slotted beams, pivoted vertical rods connecting the said plates and beams, means for raising or lowering said rods and with them the staging, tie-rods engaged in said plates, and mechanism for operating said tie-rods to allow the beams to approach, and recede from, each other.

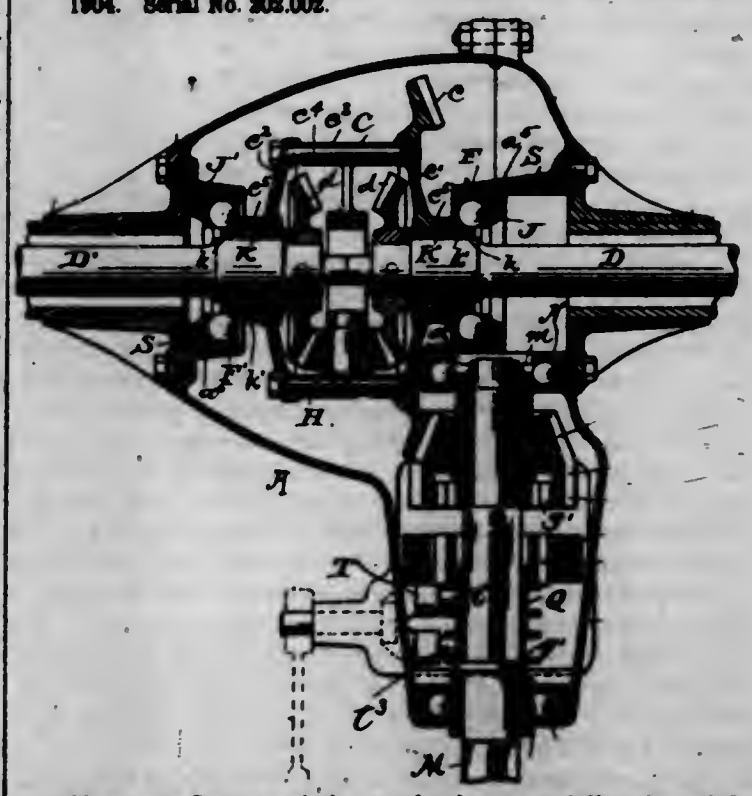
2. In an appliance of the character described, the combination with upper and lower slotted beams forming a staging and carrying slidable plates with pivoted vertical rods and horizontal tie-bars between the corresponding beams, of parallel rods mounted in front of each upper and lower beam and formed with right and left hand screw-threads, an operating-wheel on each of the upper parallel rods, a block mounted on the boss of said operating-wheel, a worm-wheel fast on each of the lower parallel rods, a block mounted over the worm-wheel, and vertical rods with worms at their lower ends and held in each pair of blocks to engage the said worm-wheel, and an operating-wheel at their upper ends, as and for the purpose set forth.



3. In an appliance of the character described, the combination with upper and lower slotted beams forming a staging and carrying slidable plates with pivoted vertical rods, of upper and lower horizontal tie-bars between the corresponding beams, said tie-bars having each right and left hand screws at their ends, nuts carried on said slidable plates in which the tie-bars engage, and an operating-wheel and block secured in each upper tie-bar.

4. In an appliance of the character described, the combination with upper and lower slotted beams forming a staging and carrying slidable plates with pivoted vertical rods, of upper and lower horizontal tie-bars between the corresponding beams, said tie-bars having right and left hand screws at their ends, nuts carried on said slidable plates in which the ends of said tie-bars engage, an operating-wheel secured on each upper tie-bar, a block mounted on each boss of said operating-wheels, a worm-wheel fast on each lower tie-bar, a hollow boss mounted over each worm-wheel, and vertical rods for each pair of blocks, with worms at their lower ends and operating-wheels at their upper ends, as and for the purpose set forth.

784,607. TRANSMISSION MECHANISM FOR AUTOMOBILES. ROLLIN H. WHITE, Cleveland, Ohio, assignor to The White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 7, 1904. Serial No. 202,002.



Claim.—1. In transmission mechanism especially adapted for automobiles, the combination of two alined axle-sections, an axially-mounted differential mechanism for driving them, which differential mechanism has an external gear by which it is driven, with a driving-gear meshing with said external gear and having external gear-teeth additional to those which mesh with said external gear, a driving-shaft mounted axially with respect to said driving-gear and rotatable independently thereof, a clutch for connecting said driving gear and shaft, a clutch-operating sleeve movable lengthwise only on said driving-shaft and having external gear-teeth, a rotatable sleeve

which is longitudinally movable in a path parallel with the driving-shaft, said sleeve having two external gears adapted respectively to mesh with the external teeth on the driving-gear and with the external gear on said sliding sleeve, and means for moving said two sleeves longitudinally, substantially as specified.

2. In transmission mechanism especially adapted for automobiles, the combination with the rotatable differential gear having an external gear by which it may be rotated, of a driving-shaft, an axially-mounted and independently-rotatable gear G having teeth for meshing with the gear on the differential mechanism, and having internal teeth in that end which is remote from the differential mechanism, and having also external teeth, with a sleeve movable longitudinally only upon the driving-shaft and having a gear adapted to mesh with the internal gear-teeth above mentioned, a rotatable sleeve which is longitudinally movable in a path parallel with the driving-shaft, said sleeve having two gears which are respectively adapted to mesh with the external teeth on the gear G and with the gear on the sleeve slidable upon the driving-shaft, and means for moving said two sleeves longitudinally, substantially as specified.

3. In transmission mechanism especially adapted for automobiles, the combination with the rotatable differential gearing having an external gear by which it may be rotated, of a driving-shaft, an axially-mounted and independently-rotatable gear G having teeth for meshing with the gear on the differential mechanism, and having internal teeth in that end which is remote from the differential mechanism, and having also external teeth, with a sleeve movable longitudinally only upon the driving-shaft and having a gear adapted to mesh with the internal gear-teeth above mentioned, a rotatable sleeve which is longitudinally movable in a path parallel with the driving-shaft, said sleeve having two gears which are respectively adapted to mesh with the external teeth on the gear G and with the gear on the sleeve slidable upon the driving-shaft, and means for moving said two sleeves reciprocally, substantially as described.

4. In transmission mechanism especially adapted for automobiles, the combination with the rotatable differential gearing having an external gear by which it may be rotated, of a driving-shaft, an axially-mounted and independently-rotatable gear G having teeth for meshing with the gear on the differential mechanism and having internal teeth in that end which is remote from the differential mechanism and having also external teeth with a sleeve movable longitudinally only upon the driving-shaft, and having a gear adapted to mesh with the internal gear-teeth above mentioned, a rotatable sleeve which is longitudinally movable in a path parallel with the driving-shaft, said sleeve having two gears which are respectively adapted to mesh with the external teeth on the gear G and with the gear on the sleeve slidable upon the driving-shaft, each of said longitudinally-movable sleeves having an annular groove, a rocker having projections entering said grooves, and means for rocking said rocker, substantially as described.

5. In transmission mechanism especially adapted for automobiles, the combination with the rotatable differential gearing having an external gear by which it may be rotated, of a driving-shaft, an axially-mounted and independently-rotatable gear G having teeth for meshing with the gear on the differential mechanism, and having internal teeth in that end which is remote from the differential mechanism, and having also external teeth, with a sleeve movable longitudinally only upon the driving-shaft and having a gear adapted to mesh with the internal gear-teeth above mentioned, a rotatable sleeve which is longitudinally movable in a path parallel with the driving-shaft, said sleeve having two gears which are respectively adapted to mesh with the external teeth on the gear G and with the gear on the sleeve slidable upon the driving-shaft, each of said longitudinally-movable sleeves having an annular groove, a casing in which all of said parts are inclosed and mounted, a rock-shaft passing through the casing-wall, an operating-arm secured to the outer end of said rock-shaft, and a rocker secured near its middle to its inner end and having projections at opposite ends which enter the annular grooves in said sleeves, substantially as specified.

6. In transmission mechanism especially adapted for automobiles, the combination of a driving-shaft, a gear G independently rotatable upon the same axis having external gear-teeth and internal gear-teeth, a sleeve movable lengthwise only on said driving-shaft having an annular groove and a gear adapted to mesh with said internal gear-teeth, a sleeve slidable lengthwise on a parallel axis and having two gears of different diameters and an annular groove, a rocking lever having projections on opposite arms which engage with said two annular grooves respectively, and means for rocking said rocker, substantially as specified.

7. In transmission mechanism especially adapted for automobiles, the combination of a casing composed of two transversely-separable parts, two axle-sections entering opposite ends of said casing, antifriction-bearings in the casing for supporting the inner ends of said axle-sections, differential gearing rotatable about the axis of said axle-sections for transmitting automatically-differentiated motion to them, said differential gearing having an external gear by which it may be rotated, with a driving-shaft entering said casing, adjustable antifriction-bearings in said casing for supporting said driving-shaft, a gear independently rotatable upon said driving-shaft in mesh with the gear on said differential mechanism, means preventing the endwise movement of said independently-rotatable gear, a clutch by which said gear may be made fast to said driving-shaft, and clutch-operating mechanism extending through the wall of the casing and operable from the outside thereof, substantially as specified.

8. In transmission mechanism especially adapted for automobiles, the combination of a casing composed of two transversely-separable parts, two axle-sections entering opposite ends of said casing, antifriction-bearings in the casing for supporting the inner ends of said axle-sections, differential gearing rotatable about the axis of said axle-sections for transmitting automatically-differentiated motion to them, said differential gearing having an external gear by which it may be rotated, with a driving-shaft entering said casing, adjustable antifriction-bearings in said casing for supporting said driving-shaft, a gear G independently rotatable upon said driving-shaft in mesh with the gear on said differential mechanism, means preventing the endwise movement of said independently-rotatable gear, said gear having external gear-teeth additional to those which mesh with said external gear, and having also internal gear-teeth in the end which is remote from said external gear, a sleeve carrying a gear located within the casing and movable lengthwise only upon said driving-shaft, a non-rotatable shaft in said casing parallel with the driving-shaft, a sleeve slidable lengthwise thereon and having two gears, and means passing through the casing-wall and operable from outside of the casing for imparting reciprocal endwise motion to said two sleeves, substantially as specified.

9. In transmission mechanism especially adapted for automobiles, the combination of a gear-casing formed of two transversely-separable sections, having cylindrical openings in its ends, bearing-cups movably fitted in said opening, adjustable rings which screw into said openings against said cups, and laterally-extended tubes which are removably secured to the ends of the casing over said openings, with axle-sections entering said casing through said tubes, sleeves within the casing embracing said axle-sections and having cones which coöperate with said cups to form ball-raceways, and having also external annular shoulders facing toward each other, a differential drum which embraces said sleeve and lies between and in contact with said shoulders, said drum and axle-sections being relatively rotatable, gears secured to the axle-sections within said drum, planetary gears, and means for rotating said drum, substantially as specified.

10. In transmission mechanism especially adapted for automobiles, the combination of a gear-casing, formed of two transversely-separable sections, having cylindrical openings in its ends, bearing-cups movably fitted in said opening, adjustable rings which screw into said openings against said cups, and laterally-extended tubes which are removably secured to the ends of the casing over said openings, with axle-sections entering said casing through said tubes, sleeves embracing said axle-sections and having cones which coöperate with said cups to form ball-raceways and having also external annular shoulders facing toward each other, a differential drum which embraces said sleeve and lies between and in contact with said shoulders, said drum and axle-sections being relatively rotatable, gears secured to the axle-sections within said drum, planetary gears mounted on said drum in mesh with said axle-section gears, a cup supported in a recess in a part of one of said casing-sections with its axis at right angles to the axis of the axle-sections, a driving-shaft entering the front end of said casing, a cone secured to its inner end for coöperating with said cup to form a ball-raceway, another cone fixed to said driving-shaft within said casing, and a cup screwing into the opening in said casing through which said driving-shaft passes and which coöperates with the last-named cone to form a raceway, a gear independently rotatable upon said driving-shaft for driving said drum, and a clutch for connecting and disconnecting said gear and driving-shaft, substantially as specified.

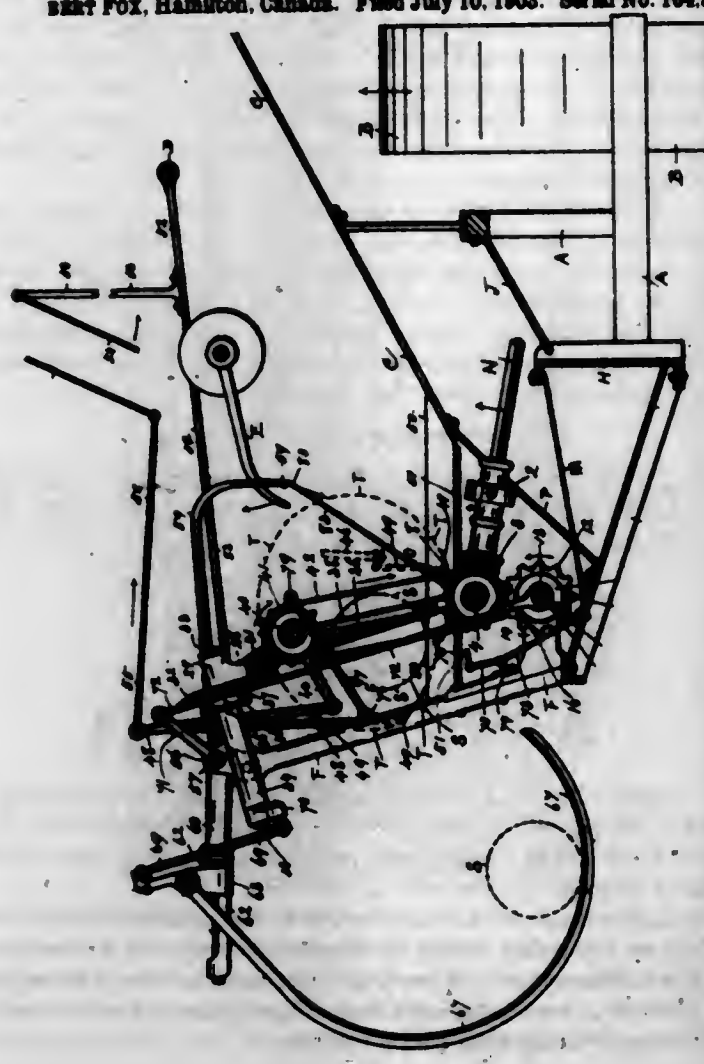
784,608. **MUSICAL WIND INSTRUMENT.** GEORGE L. WILLER and GEORGE H. WALCOTT, Elkhart, Ind. Filed Oct. 22, 1904. Serial No. 229,559.

Claim.—1. In a musical wind instrument, a slidable tube, spring-actuated keys, rods pivotally connected thereto, one of said rods pivotally connected to the slidable tube, and means for adjustably connecting the rods together whereby the extent of their sliding movement with relation to each other may be adjusted and controlled, substantially as and for the purpose set forth.



2. In a musical wind instrument, a slidable tube, hinged and spring-actuated keys, rods pivotally connecting therewith, one of said rods being pivotally connected to the slidable tube, brackets with which the rods are adjustably connected, one of said brackets having an outwardly-extending bearing with which one of said rods engages, and a stationary bracket upon the instrument to form a guide and support for one of the rods, substantially as and for the purpose described.

784,609. **SHOCKING-MACHINE.** THOMAS A. WOOLEY and HERBERT FOX, Hamilton, Canada. Filed July 10, 1903. Serial No. 164,946.



Claim.—1. The combination with a binder, of a shocking-machine, comprising a frame connected to the frame of the binder at the discharge side thereof, a horizontal bearing secured to the lower part of the frame, a knotter, a knotter-shaft adapted to revolve in the bearing, a horizontal operating-shaft, a sleeve on the operating-shaft, a bearing for said sleeve, and means on said sleeve to revolve the knotter-shaft, substantially as set forth.

2. The combination with a binder, of a shocking-machine, comprising a frame connected to the discharge side of the binder, an operating-shaft journaled in the frame, a rock-frame journaled on the operating-shaft, a shaft journaled in the rock-frame, a sprocket on the operating-shaft, a sprocket on one end of the rock-frame shaft revolved by the operating-shaft sprocket, a crank on the other end of the rock-frame shaft, and a rake operated by the crank, substantially as set forth.

3. In a shocking-machine, a frame, an operating-shaft suitably journaled in the frame, rock-frames journaled on the ends of the operating-shaft, shafts extending through said rock-frames, sprockets on said rock-frame shafts and sprockets on the operating-shaft connected to the rock-frame sprockets, cranks, a floating rake-frame pivotally connected to the cranks, teeth on the rake-frame, and means for causing the rake-frame to float in a predetermined path when operated by the cranks, substantially as set forth.

4. The combination with a binder, of a shocking-machine, comprising a frame, an operating-shaft journaled in the frame, rock-frames journaled on the shaft and adapted for movement toward the binder, shafts loosely journaled in the rock-frames, cranks on the shafts, a rake-frame pivotally connected to said cranks, means to limit the rock-frames to a predetermined oscillation, and means to revolve the crank-shafts, substantially as set forth.

5. The combination with a binder, of a shocking-machine, comprising a frame connected to the discharge side of the binder, a deck on said frame, strips on the deck to receive the sheaves from the binder, a movable rake-frame having rake-teeth, said teeth adapted to operate between said strips, and means for moving the rake-frame to cause the teeth to operate between the strips, substantially as set forth.

6. In a shocking-machine, a machine-frame, a bracket secured to the frame, a substantially horizontal stationary bar rigidly secured to the bracket, a sleeve adapted to revolve on said horizontal bar, a second horizontal bar rigidly secured to the said revoluble sleeve, a sheaf-receptacle connected to said last-named horizontal bar and adapted to swing with it, and means for swinging the last-named horizontal bar and receptacle into an upright position to discharge the shock and for returning it to sheaf-receiving position.

7. In a shocking-machine, a frame, a bearing on the frame, a sleeve journaled in the bearing, an operating-shaft extending loosely through said sleeve, bevel-gears connected to each other and secured to said sleeve, a clutch interposed between the gears and shaft and adapted to revolve said shaft, a drive-shaft having a gear meshing with one bevel-gear, a bundle or sheaf receptacle, and a gearing interposed between the other bevel-gear and the bundle or sheaf receptacle, substantially as set forth.

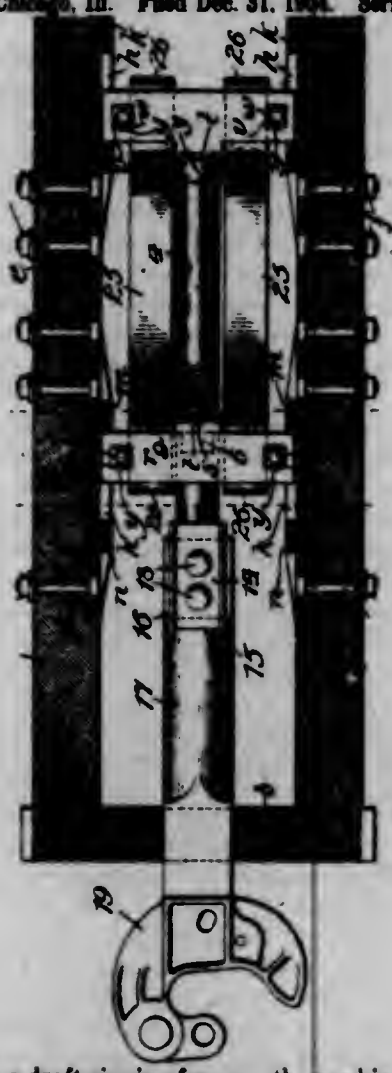
8. In a shocking-machine, a machine-frame, a rake-operating shaft, a rake, means for operating the rake from the said rake-operating shaft, a rotary sleeve on the said rake-operating shaft, bevel-wheels secured to said sleeve, a tilting sheaf-receptacle, a crank-shaft having operative connection with the sheaf-receptacle for tilting said sheaf-receptacle, gearing interposed between said crank-shaft and one of the bevel-wheels aforesaid, a drive-gear meshing with the other bevel-gear, a clutch on the rake-operating shaft co-operating with said last-named bevel-gear, whereby the rake-shaft is driven, a knotter-shaft, a knotter operated by said shaft, and gearing interposed between the sleeve and the knotter-shaft.

9. In a shocking-machine, the combination with a machine-frame, of rockers, crank-shafts journaled in said rockers and movable with the rockers, a rake carried by the cranks on said crank-shafts and operated thereby, means connecting the rake to a fixed support whereby the rake is anchored and made to move in an orbit, means for rocking the rockers, and means for turning the crank-shafts carried by said rockers, whereby the rockers displace the rake as an entirety, and the crank-shafts cause said rake to operate.

10. In a shocking-machine, the combination with a tilting bundle or sheaf receptacle, of means for tilting said receptacle into a general upright position to discharge the sheaf therefrom, a substantially horizontal shocker-deck for initially receiving the sheaf, rockers, a rake carried by said rockers and adapted to convey the sheaf from the shocker-deck to the receptacle, means for operating the rake, and means for vibrating the rockers.

11. In a shocking-machine, the combination with a stationary machine-frame, of a bracket fixedly secured to said machine-frame, a shaft secured to said bracket and extending horizontally, a second bracket journaled on the shaft, a horizontal shaft or bar secured to the bracket last named and adapted to tilt therewith into a general upright position, hangers depending from the bar aforesaid, a sheaf-receptacle secured to said hangers, another bracket secured to the bar, a crank and pitman operatively connected to the bracket secured to the bar, and means for operating the crank and pitman to position the sheaf-receptacle in upright or horizontal position.

784,610. DRAFT-RIGGING FOR RAILWAY-CARS. ROBERT M. ZIMMERMAN, Chicago, Ill. Filed Dec. 31, 1904. Serial No. 239,152.



Claim.—1. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, front and rear plates movably mounted in engagement with such draft-lugs, and spring mechanism secured to both of such plates and yieldingly connecting them together.

2. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, front and rear plates movably mounted in engagement with such draft-lugs, spring mechanism yieldingly connecting such plates and yieldingly resisting the movement thereof away from each other, and a draw-bar in operative engagement with such plates and adapted to be connected with a coupler.

3. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, front and rear plates movably mounted in engagement with such draft-lugs, spring mechanism yieldingly connecting such plates for holding them yieldingly against movement away from each other, a draw-bar in operative engagement with such plates and adapted to be connected with a coupler, and means for removably securing the draw-bar in operative engagement with the plates.

4. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, front and rear plates movable into and out of engagement with such draft-lugs, and retractile springs each having one end connected to the front plate and the other to the rear plate and yieldingly holding such plates against movement in a direction away from each other.

5. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, front and rear plates movable into and out of engagement therewith, a draw-bar in operative engagement with such plates and adapted to be secured to a car-coupler, and means for securing such plates together forming a yielding resistance to the movement thereof in a direction away from each other.

6. In a draft-rigging for cars, the combination of cheek-plates secured to the car structure and provided with draft-lugs, front and rear plates slidably mounted between such cheek-plates, and mechanism connecting such front and rear plates and forming a yielding increasing resistance to the movement of such plates away from each other.

7. In a draft-rigging for cars, the combination of cheek-plates secured to the car structure and provided with draft-lugs, front and rear plates slidably mounted between such cheek-plates, a draw-bar connected with such front and rear plates, and spring mechanism connected to both front and rear plates connecting them yieldingly together and provided a yielding increasing resistance to the movement of the plates in a direction away from each other and to the movement of the draw-bar with relation to the car structure.

8. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, a draw-bar movably mounted with relation to such draft-lugs and adapted to be secured to a car-coupler, and front and rear plates mounted respectively forward and rearward of the draft-lugs in operative engagement with such draw-bar and draft-lugs and movable away from each other by means of the draw-bar.

9. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, a draw-bar movably mounted with relation to such draft-lugs and adapted to be secured to a car-coupler, front and rear plates mounted in operative engagement with such draw-bar and lugs and movable away from each other by means of the draw-bar, and spring mechanism connecting such plates and holding them yieldingly against movement away from each other and forming an increasing resistance to such movement and to the movement of the draw-bar.

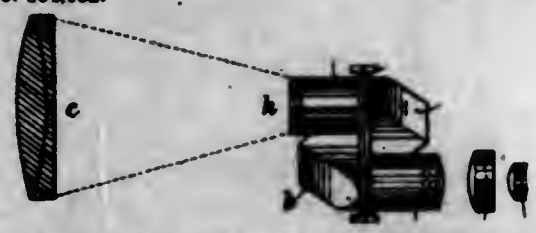
10. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, a draw-bar, a front plate having an opening for admitting the draw-bar therethrough in movable engagement therewith, a rear plate mounted in engagement with the rear end of the draw-bar, mechanism secured to the draw-bar and in engagement with the front plate for securing such draw-bar in position, and spring mechanism connecting such front and rear plates together.

11. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, a draw-bar, a front plate having an elongated opening for admitting the draw-bar in movable engagement therewith, lugs mounted upon such draw-bar, and a washer movably mounted between such lugs and the front plate, for holding the draw-bar in position.

12. In a draft-rigging for cars, the combination of draft-lugs secured to the car structure, a draw-bar, a front plate having an elongated opening for admitting the draw-bar in movable engagement therewith, lugs mounted upon such draw-bar, a washer movably mounted between such lugs and the front plate for holding the draw-bar in position, and means for securing such washer in non-rotatable relation to the draw-bar.

13. In a draft-rigging for cars, the combination of cheek-plates secured to the car structure and provided with draft-lugs, a draw-bar, means for connecting such draw-bar with a car-coupler, front and rear plates slidably mounted between such cheek-plates each adapted to alternately rigidly engage the draw-bar, and spring mechanism connecting such plates together and yieldingly resisting the movement thereof away from each other.

784,611. PRISMATIC TELESCOPE, BINOCULAR, OR THE LIKE. JAMES ATCHISON, London, England. Filed Dec. 7, 1903. Serial No. 184,182.



Claim.—1. In a device of the class described, the combination with a plurality of suitable refractive prisms, of a concave lens located in front of the prisms and a casing having a large object-glass and an eyepiece, substantially as described.

2. In a device of the class described, the combination of a concave lens, a plurality of suitable refractive prisms, said lens located in front of the prisms to increase the light-rays and reduce the angle of the cone, a casing having a large object-glass and an eyepiece, and means for adjusting the said casing.

3. In a device of the class described, the combination of a biconcave lens, a plurality of suitable refractive prisms, said lens located in the front of the prisms to increase the light-rays and reduce the angle of cone, a casing having a large object-glass and an eyepiece, and means for adjusting the said casing.

4. In a device of the class described, the combination of a lens having a concave face, a plurality of suitable refractive prisms arranged in close proximity to each other, said lens located in the front of the prisms to increase the light-rays and reduce the angle of the cone, a casing having a large object-glass and an eyepiece, and means for adjusting the said casing.

784,612. INCANDESCENT-MANTLE SUPPORT. ROBERT S. ALLYN, New York, N. Y. Filed Aug. 3, 1901. Renewed Sept. 1, 1904. Serial No. 223,005.



Claim.—1. In an incandescent-mantle gas-lamp, the combination of a fragile mantle formed of deposited salts of rare earths suitably shaped and free from support or constraint at the top with removable means for supporting said mantle at the base.

2. In an incandescent gas-burner the combination of a mantle of deposited salts laterally reinforced by its own structure, with removable means for supporting said mantle on the burner from the base alone.

3. In an incandescent-mantle gas-lamp, a burner-cap, a mantle, the lower end of said mantle fitting about the tube of said cap, a scalloped ring fitted over said mantle and about said tube so as to draw said mantle into a scalloped shape and hold said end of said mantle in place substantially as described.

784,613. MAP-CABINET. GEORGE W. BARNETT, Chicago, Ill. Filed Apr. 16, 1904. Serial No. 203,512.



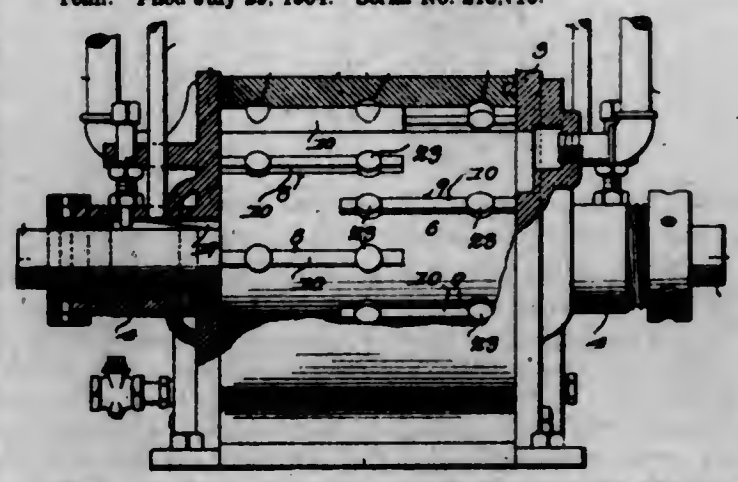
Claim.—1. In a device of the class described, a shaft mounted for rotation and having frames spaced apart thereon and provided with spaced circumferential lateral lugs, roller-brackets connected to said lugs, rollers carried by the brackets, stop-bars extending between said frames adjacent to said rollers and supported in said brackets, means for rotating said shaft, and means for holding said shaft and its attachments stationary at certain predetermined points.

2. In a device of the class described, a shaft mounted for rotation, spaced frames carried thereby and provided with spaced circumferential lateral lugs, roller-brackets mounted on said lugs and provided with sockets, rollers carried by the brackets, stop-bars substantially parallel with the rollers and supported in the sockets of the roller-brackets, means for rotating the shaft, and means for holding the shaft stationary at predetermined points of its rotary movement.

3. In a device of the class described, an inclosing casing having a movable closure at one side, a shaft mounted longitudinally in said casing and having means operating exteriorly of said casing for rotating the shaft, frames spaced apart upon said shaft and partaking of its motion and provided with laterally-extending spaced circumferential lugs, roller-brackets detachably connected to said lugs, stop-bars extending between each opposite pair of brackets and parallel to said rollers, and means operating through said casing for holding said shaft and its attachments stationary at certain predetermined points.

4. In a device of the class described, a shaft mounted for rotation and having frames spaced apart thereon and provided with spaced circumferential lateral lugs, roller-brackets detachably connected to said lugs, rollers carried by the brackets, stop-bars extending between said frames and supported in said brackets, maps or like articles connected by one end to said rollers and having lateral stop members at their other ends for engagement with said stop-bars when the rollers are wound up, means for rotating said shaft and means for holding said shaft and its attachments stationary at certain predetermined points.

784,614. ROTARY ENGINE. JOHN D. BUCHANAN, Memphis, Tenn. Filed July 29, 1904. Serial No. 218,716.



Claim.—1. In a rotary engine, a cylinder provided with a continuous groove in its inner circular wall, a drum arranged within the cylinder and provided with wing-receiving recesses, and wings mounted within said recesses and provided with projecting lugs entering said groove.

2. In a rotary engine, a cylinder having a grooved wall, a piston-drum provided with wing-receiving recesses, and wings mounted in the recesses and provided with lugs adapted to enter the grooves, said lugs having their faces arranged at an oblique angle with respect to the bottom of the groove.

3. The combination in a rotary engine, of a cylinder having a grooved inner wall, a drum arranged within the cylinder and provided with piston-wing-receiving recesses, a plurality of wings arranged in the recesses and each having a projecting lug adapted to enter the groove, the width of the lug being greater than the thickness of the wing.

4. The combination in a rotary engine, of a cylinder having a grooved wall, a piston-drum having wing-receiving recesses, a wing disposed in each recess and provided with a lug projecting beyond the general line of the outer edge of the wing, the width of the lug being greater than the thickness of the wing, and its outer face being inclined with respect to the outer edge of the wing.

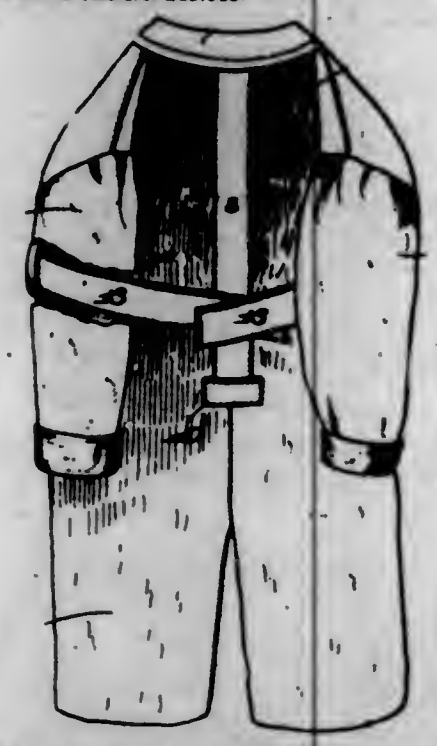
5. The combination in a rotary engine, of a cylinder having a groove forming a continuous steam-passage, a drum arranged within the cylinder, and piston-wings carried by the drum and provided with projecting lugs that partly enter said groove.

6. The combination in a rotary engine, of a cylinder having steam-inlet ports at its opposite ends and provided with an approximately centrally-disposed escape-port, a drum arranged within the cylinder and having a pair of sets of wing-receiving recesses arranged in staggered relation, and piston-wings disposed in said recesses.

7. The combination in a rotary engine, of a cylinder having steam-inlet ports at its opposite ends and provided with an approximately centrally-disposed escape-port, a piston-drum arranged within the cylinder and having a pair of sets of wing-receiving recesses which extend respectively from opposite ends of the drum to a point beyond its center, and a pair of sets of piston-wings disposed in said recesses.

8. The combination in a rotary engine, of a cylinder having a pair of inlet-ports disposed at its opposite ends and provided with an approximately central escape-port, a piston-drum disposed within the cylinder and having a pair of sets of piston-wing-receiving recesses disposed in staggered relation, and a pair of sets of piston-wings disposed in the recesses and having their adjacent ends overlapping.

784,615. OVERALLS. MARTHA COLSTROM, Osage City, Kans. Filed June 17, 1904. Serial No. 213,013.



Claim.—A one-piece garment embodying a jacket opened down its back and having fastening devices inset from the edges thus to form an overlapping flap which operates both to shield the fastening devices from view and also to increase the thickness of the garment at that point, the front of the jacket and trousers being continuous, the same being made of a single piece of material and the jacket being vertically reinforced at its front by a stay extending from the neck to a point near the crotch and transversely reinforced by a stay located at the lower terminal of the first-named stay and secured thereto, the rear portion of the trousers being provided with a drop-flap to inclose the lower end of the jacket, keepers or loops secured to the sides of the jacket, and a fastening-band secured to the upper edge of the flap and passing through the keepers or loops at the front of the garment.

784,616. ENVELOP-MOISTENER. JESSE CROWTHER, Shelton, Conn. Filed Nov. 2, 1904. Serial No. 231,022.



Claim.—1. An envelop-moistener comprising a reservoir, a roller journaled in the walls of said reservoir, the bearings for the roller being integral with said walls, a cover having an opening through which the roller extends, and a guard over the opening between which and the roller the flaps of envelops are passed to be moistened, said guard being integral with the cover.

2. An envelop-moistener comprising a reservoir, a roller journaled in the walls of said reservoir, the bearings for the roller being integral with said walls, and a cover provided with an opening through which the roller extends and having an integral depending flange engaging the reservoir and an integral curved guard over the opening.

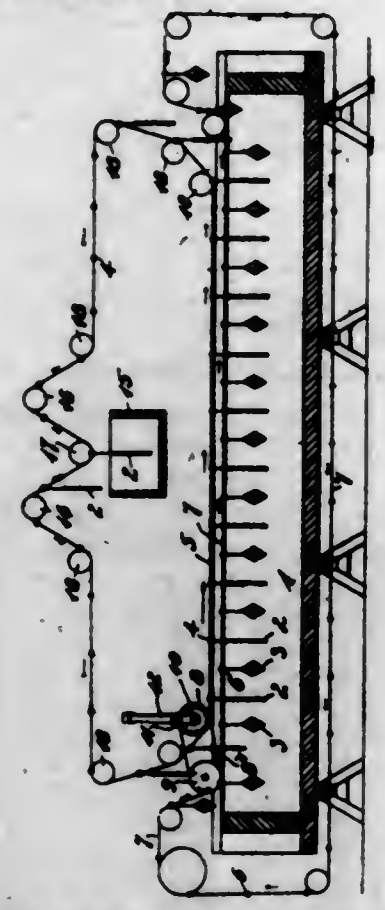
3. An envelop-moistener comprising a reservoir, having sides curved at the top and on the inner faces of the sides bosses provided with recesses, a roller having a journal-pin adapted to engage the recesses and a cover having an opening through which the roller extends and a guard over the opening between which and the roller the flaps of envelops may be passed.

4. An envelop-moistener comprising a reservoir, a roller journaled in the walls of said reservoir, and a cover provided with an opening through which the roller extends and having an integral guard over the opening which guard is curved to correspond with the curvature of the roller and to hold the flaps of envelops in contact therewith and is curved at the ends to permit the convenient insertion of the flaps.

5. An envelop-moistener comprising a reservoir, a roller journaled therein and a cover having an opening through which the roller extends, a guard covering the opening and a scraping-wall whereby superfluous moisture is removed from the flaps of envelops.

6. An envelop-moistener comprising a reservoir, a roller journaled therein and a cover having an opening through which the roller extends, a guard covering the opening, and a scraping-wall for the purpose set forth, said cover having also a drainage-opening and converging grooves leading from the outer face of the scraping-wall to said opening.

784,617. ELECTROPLATING APPARATUS. HERMAN FLEISCHER and CHARLES H. FLEISCHER, New Britain, Conn., assignors to The Stanley Works, New Britain, Conn., a Corporation of Connecticut. Filed May 23, 1904. Serial No. 209,294.



Claim.—1. In an electroplating apparatus, a series of anodes, an endless conveyer for said anodes, a plating-tank arranged in the path of travel of said anodes said conveyers immersing each of said anodes successively into and removing the same from said plating-tank.

2. In an electroplating apparatus, a plating-tank, endless chains arranged at opposite sides of the tank, anode-carriers connected with said chains and conveyed thereby, said carriers extending transversely of the path of travel of said conveyers, and anodes suspended from said carriers and arranged to be mechanically immersed in, moved through and removed from said tank.

3. In an electroplating apparatus, a plating-tank, a series of anodes, a series of cathodes, independent supports for said anodes and cathodes, means for conveying said anodes and cathodes into, through and out of said plating-tank.

4. In an electroplating apparatus, a plating-tank, a series of anodes, a series of cathodes and independent conveyers for said anodes and cathodes said conveyers being arranged to move said anodes and cathodes into, through and out of said plating-tank.

5. In an electroplating apparatus, a plating-tank, an anode-cleansing tank, an anode, a conveyer for said anode arranged to

move said anode into, through and out of each of said tanks alternately.

6. In an electroplating apparatus, a plating-tank, an anode-cleansing tank, an anode, a conveyer for said anode arranged to move said anode into, through and out of each of said tanks alternately, and a cathode and means for conveying said cathode into, through and out of said plating-tank simultaneously with said anode.

7. In an electroplating apparatus, a plating-tank, a movable anode, a movable cathode and means for alternately immersing said anode and cathode in said plating-tank and independent supports and conveyers for said anodes and cathodes.

8. In an electroplating apparatus, a plating-tank, movable anodes, movable cathodes, means for alternately immersing said anodes and cathodes in said tank and conveying them therethrough at substantially equal intervals apart and independent supports and conveyers for said anodes and cathodes.

9. In an electroplating apparatus, a tank, movable anodes, movable cathodes and means for immersing said anodes and cathodes in said tank and for conveying them therethrough at equal intervals apart and independent supports and conveyers therefor.

10. In an electroplating apparatus, a plating-tank, a movable anode, a movable cathode and independent means for immersing said anodes and cathodes in said plating-tank and for moving the same therethrough at the same rate of speed.

11. In an electroplating apparatus, a series of anodes, a series of cathodes, movable conveyers therefor, a plating-tank, electrical contacts and independent means for conveying said anodes and cathodes into and through said tank and bringing them into electrical connection with said contacts only while said anodes and cathodes are immersed in said tank.

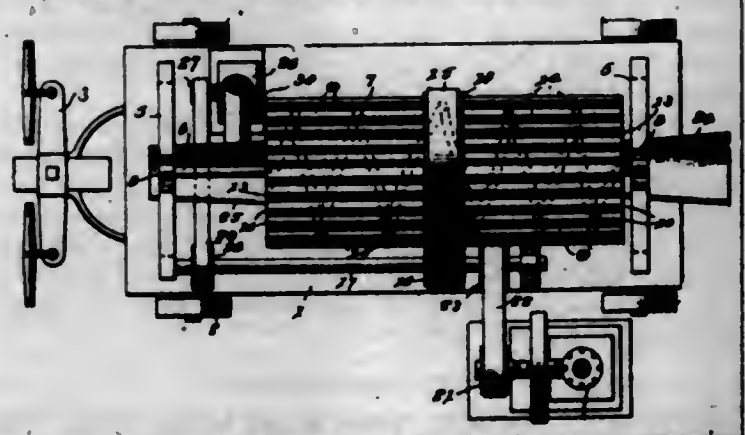
12. In an apparatus of the character described, a tank for holding a plating solution, tracks along the upper edge thereof and constituting one of the poles of an electric circuit, an anode-carrier arranged to be supported by and in electrical contact with said tracks, means for moving said anode-carrier along said tracks and an anode suspended from said carrier and in electrical contact therewith and immersed in said solution.

13. In an apparatus of the character described, a tank for containing a plating solution, anode and cathode tracks at opposite sides thereof, anode-carriers supported on said anode-tracks, cathode-carriers supported on said cathode-tracks, means for moving both of said carriers along said tracks and for keeping said carriers and articles suspended therefrom from contact with each other.

14. In an apparatus of the character described, a tank for containing a plating solution, anode-carriers, cathode-carriers and means for moving both of said carriers along the upper part of said tank whereby articles suspended therefrom may be immersed in a solution contained within said tank and means for elevating said carriers before the same reach the end of the tank.

15. In an apparatus of the character described, a tank for containing a plating solution, an anode-cleansing tank, a movable anode-carrier, means for moving said anode-carrier over each of said tanks alternately whereby an anode suspended from said carrier may be immersed in a plating solution in the first-mentioned tank and subsequently immersed in a washing solution contained in said second-mentioned tank and so on.

784,618. **ONION-CLEANER.** FRENCH GRIFFIN, McDonald township, Hardin county, Ohio, assignor of one-half to Chandler Robbins, Springfield, Ohio. Filed June 27, 1904. Serial No. 214,280.



Claim.—1. A portable apparatus for cleaning onions comprising a platform provided with supporting-wheels and drive-gear and having supports thereon, a shaft having its bearings on said supports, a rotating screen carried by said shaft, said screen being open at both ends and having an internal spiral feeding-rib, an inclined discharge-chute to receive the onions as they come from said screen, a blast-fan mounted on said platform and having its discharge-pipe arranged to direct the blast across the discharge-chute, a counter-shaft mounted on said platform and provided with driving-pulleys for the blast-fan and screen, a driving-belt connecting the blast-fan and its pulley, and a driving-belt passing around the other pulley and around the body of the screen, substantially as described.

2. A portable machine for cleaning onions comprising a platform provided with supporting-wheels and draft-gear, a revolving screen and blast-fan mounted on said platform, said screen being open at both ends and provided with means for feeding the onions through the same, an inclined discharge-chute at the discharge end of said screen, the blast-fan having its discharge-pipe arranged to direct the blast across said chute, a counter-shaft mounted on said platform, power-transmitting means for driving said cylinder and blast-fan from said counter-shaft, substantially as described.

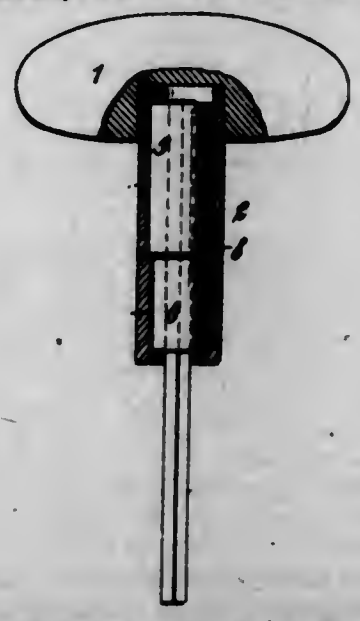
3. A portable machine for cleaning onions comprising a platform 1, with wheels 2 and draft devices 3, standards 4, shaft 6 mounted therein, rotating screen 7 carried thereby and having the interior spiral feeding-rib 14, the inclined discharge-chute 25, a blast-fan 26 with its discharge-pipe 30 discharging across the chute 25, a counter-shaft 17 mounted on the platform 1 and having pulleys 26 and 16, a belt 29 connecting pulley 26 to the fan-shaft, and a belt 15 passing around the pulley 16 and around the body of the screen.

784,619. **HOOK.** ANDREW D. HAMILTON, Ebensburg, Pa., assignor of one-half to Gurney A. Pierce, Ebensburg, Pa. Filed Oct. 11, 1904. Serial No. 228,077.



Claim.—A hook substantially as described, comprising the shank 1, the hook 3 having the bill 3^a and the spring-mousing consisting of a strip of spring metal having the shank 6 rigidly attached at one end to the shank 1 of the hook, the other end of the shank 6 of the mousing being extended toward the bill 3^a of the hook and projected outwardly and coiled into a flat spring-helix within the body of the hook and constituting a closure for the month thereof, volutes of the helix being located in contact with and between the extremity of the bill 3^a and the adjacent portion of the shank 1.

784,620. **KNOB-SPINDLE ATTACHMENT.** ADRIAN HITT, Jersey City, N. J. Filed May 25, 1904. Serial No. 209,606.



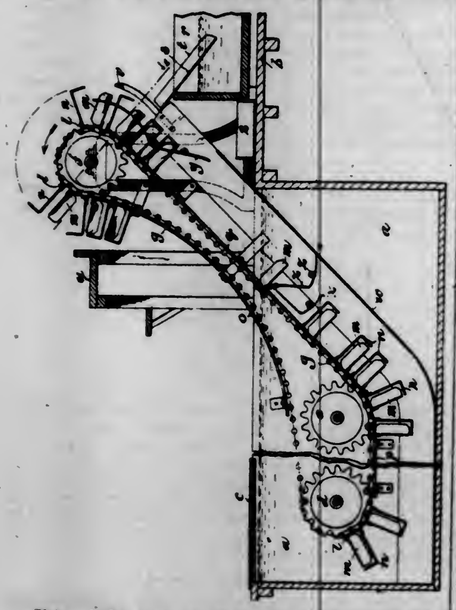
Claim.—The combination with a knob-shank and lock-spindle, of a plurality of movable cylinders located within such shank, and having different longitudinal axes, said cylinders being perforated for the reception of the lock-spindle, and means for maintaining the relative position of the cylinders; whereby, upon the turning of the knob-shank with respect to the spindle, the cylinders are partially rotated, securing said spindle to the shank.

784,621. PROCESS OF MANUFACTURING REFRACTORY ARTICLES. PAUL KLEIN, Riga, Russia. Filed Mar. 19, 1904. Serial No. 199,263.

Claim.—1. A process for manufacturing refractory articles, consisting in mixing pure hydrate of alumina (Al_6) (OH_8) with from ten to eighty per cent. of pulverized quartz, molding and pressing and then burning such mixture, substantially as herein described.

2. As a new product, a refractory article made of pure hydrate of alumina and quartz, and consisting of silicate of alumina containing upward of forty-two per cent. of alumina, substantially as herein described.

784,622. BOTTLE-SOAKING MACHINE. AUGUST S. LINDEMANN, Milwaukee, and HENRY F. STOCK, Waukesha, Wis., assignors to Milwaukee-Waukesha Brewing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Oct. 20, 1902. Serial No. 127,962.



Claim.—1. In a bottle-soaking machine the combination with a tank for holding the soaking liquid, of a conveyer consisting of link belts passing over sprocket-wheels located in and above the tank, and bottle-holders each comprising two members which are attached to different links of each belt, each of the upper sprocket-wheels having bearings in a straight line for a number of links and the belts being so arranged on the sprocket-wheels that as the belts pass over the sprocket-wheels above the tank the bottle-holders will open, substantially as described.

2. In a bottle-soaking machine the combination with a tank for holding the soaking liquid, of a conveyer comprising link belts, sprocket-wheels located in and above said tank and each having bearings in a straight line for a number of links of the belt carried thereon, and bottle-holders each comprising two members attached to different links of each belt which is arranged on its carrying-wheels so that in passing over the wheel at the receiving and discharging point it will bend between the members of the bottle-holders and cause them to open, and in passing over the other wheels the belt will be held straight between the members of the bottle-holders, keeping them closed, substantially as described.

3. In a bottle-soaking machine the combination with a tank for holding the soaking liquid, of a conveyer comprising belts composed of links of uniform length or pitch, bottle-holders each composed of two members attached to different links of the same belt, and sprocket-wheels carrying said belts in and above said tank and each having two pitch-circles of larger and smaller diameter, the pitch of the teeth measured alternately from one pitch-circle to the other being the same as that of the belts, and the belts being arranged on said sprocket-wheels so that they will bend between members of the same bottle-holders and open them in passing around the sprocket-wheels above the tank, and will not bend at those points in passing around the sprocket-wheels in the tank, substantially as described.

4. In a bottle-soaking machine the combination with a tank for holding a soaking liquid, of sprocket-wheels located in and above said tank and having teeth the opposite faces of which are formed to pitch-circles of larger and smaller diameters, link belts mounted on said sprocket-wheels, cross-bars attached at their ends to different links of each belt, angular plates attached at their inner ends to one of each pair of cross-bars, and hooked bands or rods attached to the other cross-bars and forming with the opposing angular plates transverse series of bottle-holding compartments, the belts being arranged on the sprocket-wheels so that the bottle-holding compartments will open at their outer ends in passing over the upper sprocket wheels and will remain closed in passing over the sprocket-wheels in the tank, substantially as described.

5. In a bottle-soaking machine the combination with a tank for holding a soaking liquid, of sprocket-wheels located in and above said tank and each having bearings in a straight line for a number of links in the belt carried thereon, link belts mounted on said sprocket-wheels, transverse angle-bars attached at their ends to different links of each belt, angular plates attached at their inner ends to one of each pair of bars, and bands or rods attached to the other bars and bent at their outer ends toward said plates, with which they form transverse series of bottle-holding compartments, the belts being arranged on the sprocket-wheels so that they will bend between opposing members of the same compartments when they pass over the upper sprocket-wheels, and will not bend at those points when they pass over the other sprocket-wheels, substantially as described.

6. In a bottle-soaking machine the combination with a tank for holding liquid, of sprocket-wheels located in and above said tank, link belts mounted on said sprocket-wheels, cross-bars attached at their ends to different ends of each belt, bottle-holders composed of members attached at their inner ends to adjacent cross-bars, said sprocket-wheels and belts being constructed and arranged so that the belts will bend on joints between opposing members of the same bottle-holders and thereby open said bottle-holders as they pass over the upper sprocket-wheels, and a cross-bar located adjacent to the upper sprocket-wheels in position to engage the necks of bottles protruding from the bottle-holders as the latter are opened to discharge the bottles therefrom, substantially as described.

7. In a bottle-soaking machine the combination with a tank for holding liquid, of sprocket-wheels located in and above said tank, link belts mounted on said sprocket-wheels and provided with bottle-holders, an inclined way extending from the bottom of said tank to a point above the top thereof parallel with the lower ascending side of said belts, and a scraper hinged to said belts and adapted to traverse said inclined way for removing refuse deposited in said tank, substantially as described.

8. In a bottle-soaking machine the combination with a tank for holding liquid, of an endless conveyer comprising sprocket-wheels located in and above said tank, link belts mounted on said sprocket-wheels, bottle-holders each consisting of opposing members attached to different links of each belt, said sprocket-wheels and belts being constructed and arranged so that the belts will bend between the members of the bottle-holders and open the same as they pass over the upper sprocket-wheels, an inclined way extending from the bottom of the tank to a point above the top thereof parallel with the lower ascending side of the conveyer, an inclined chute arranged to receive the bottles discharged from the conveyer as it passes around the upper sprocket-wheels, a scraper hinged to said conveyer and adapted to traverse said inclined way for removing refuse from the tank, and a guide arranged to lift said scraper as it passes said chute, substantially as described.

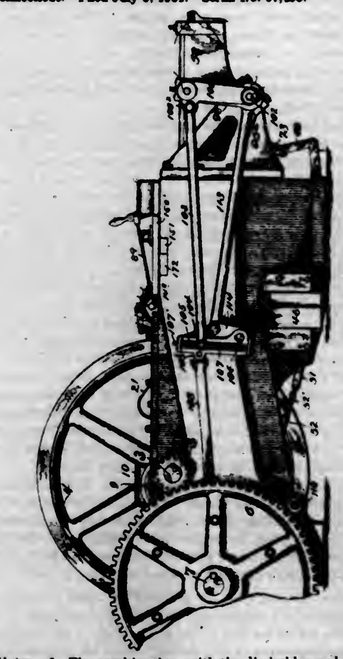
9. In a machine of the class described, a multiple bottle-holder comprising a plurality of jaws arranged in succession along an endless flexible carrier, each jaw serving, with the jaw next to it, to form a bottle-pocket, in combination with means for moving the jaws apart and together and moving the carrier, said means consisting of sprocket-wheels suitably placed along the line of travel of the carrier and each having two pitch-circles of larger and smaller diameter, substantially as described.

784,623. CUSPIDOR. HENRY MALICK, Belmont, W. Va. Filed Apr. 19, 1904. Serial No. 203,941.

Claim.—In a cuspidor, the combination of an inner receptacle and means for pivoting the same to an annular band, an outer cover composed of an upper and a lower section, vertical slots in the upper edge of said lower section, pins on said annular band adapted to enter said vertical slots, horizontal slots near the upper edge of said lower section, pins on said upper section near the lower edge thereof adapted to enter said vertical slots in said lower section, and adapted to be passed horizontally into said horizontal slots in said lower section to lock the said two sections together to securely hold the said inner receptacle within the two sections, substantially as described.



784,624. MACHINE FOR HEADING BOLTS. ETHELBERT A. MOORE, New Britain, Conn., and FRANKLIN HOLLAND, Baltimore, Md., assignors to The Stanley Works, New Britain, Conn., a Corporation of Connecticut. Filed July 8, 1901. Serial No. 67,495.



Claim.—1. The combination, with the die-holder and gripping-dies of a heading-machine, of knob-forming dies mounted on the front of said gripping-dies; a header-slide carrying a plurality of heading dies or punches; means for successively operating the heading dies or punches; means for opening said knob-forming dies for the action of one of said punches and closing them for a subsequent action of said header slide and punches, and means to advance the knob prior to said closing.

2. The combination, with the die-holder and gripping-dies of a heading-machine, of knob-forming dies and holders mounted to slide on the front of said gripping-dies; a header-slide carrying a plurality of punches for acting on the stock held in said gripping-dies; means for successively operating the punches; means for feeding the blank after the action of a punch of said header-slide, and means for closing said knob-forming dies after such feed.

3. The combination, with a header-slide having a guideway in its forward end, of a slide mounted in said guideway; a block having a series of locking-notches secured to said slide; a horizontally-shiftable slide carrying a pawl for engaging consecutively with said locking-notches; cams for shifting said slide; and a series of heading dies or punches carried by the slide.

4. The combination, with a header-slide having a guideway, of a slide mounted for movement in said guideway; means for actuating said slide; a block having a series of locking-notches secured to the rear side of said slide; a shiftable plate having a pawl for consecutively engaging said locking-notches; stationary devices carried by the frame for actuating said plate upon the reciprocation of the header-slide; and a series of heading dies or punches mounted on the slide carrying the locking-block.

5. The combination, with a header-slide having a guideway in its front end, of a slide mounted in said guideway; a block having a series of locking-notches secured to the rear portion of said slide; means adapted to engage with each of said locking-notches; a plate having a wedge-shaped surface secured to the front of the slide; a series of heading dies or punches carried by said plate; and a wedge also carried by the plate for adjusting said dies or punches.

6. In a machine of the class specified, the combination, with a header-slide, and with means for actuating said slide, of a vertically-movable slide mounted in a guideway in said header-slide; means for actuating said vertically-movable slide; a block having a series of locking-notches carried by the vertically-movable slide; a slide movable transversely of the header-slide and carrying a device for consecutively engaging with said locking-notches; a series of heading dies or punches carried by the vertically-movable slide; and means for adjusting said heading dies or punches.

7. In a machine of the class specified, the combination, with a header-slide having a guideway, of a vertically-movable slide working in the said guideway; a block having a series of locking-notches carried by the vertically-movable slide; a plate carrying a pawl or tooth, and fitted for movement transversely of the header-slide; means for actuating said plate; a series of heading dies or punches carried by the vertically-movable slide; and means for reciprocating the header-slide.

8. The combination, with a header-slide, having a guideway, of a slide reciprocating in said guideway, and carrying a roller at its lower end; a rack for actuating the reciprocatory slide; a shaft carrying gears, one of which engages the rack; a rack engaging the other gear on said shaft; a pitman for actuating the last-named rack; and cam-controlled mechanism for actuating the pitman.

9. In a machine of the class specified, the combination, with a header-slide having a vertical guideway, and with means for reciprocating said slide, of a slide vertically movable in said guideway; a plate carrying a rack for actuating the vertically-movable slide; gearing for actuating the rack; a cam and connections for actuating said gearing; and a series of heading dies or punches carried by the vertically-movable slide.

10. The combination, with a die-holder, of gripping-dies mounted therein; mechanism for opening and closing said dies; forming side dies mounted in front of said gripping-dies and having a thickness greater than the height of the portion of the blank to be subjected to the influence thereof; mechanism for opening and closing said forming side dies; a header-slide carrying a plurality of punches; means for successively actuating the punches; main and secondary feed mechanisms coöperating with said dies and heading-punches; and means to actuate the secondary feed mechanism prior to the closing of the side dies.

11. In a machine of the class specified, the combination, with gripping-dies, of means for actuating said gripping-dies; heading mechanism; a feed-slide; stock-clamping jaws carried by said feed-slide; means for opening and closing said stock-clamping jaws; a rock-shaft; means connecting said rock-shaft with the feed-slide; a second rock-shaft; and mechanism connecting the second rock-shaft with the means for actuating the stock-clamping jaws.

12. In a machine of the class specified, the combination, with gripping-dies, of mechanism for actuating said gripping-dies; a feed-slide; levers pivoted to said feed-slide; feed-clamping jaws carried by said levers; toggle mechanism for opening and closing the pivoted levers; a lever pivoted to a part of the toggle mechanism; a yielding connection between said lever and the frame; means for actuating said lever to cause it, through the toggle mechanism, to open

and close the feed-clamping jaws; and means for reciprocating the feed-slide.

13. The combination, with gripping-dies, of means for opening and closing said dies; a feed-slide; means for reciprocating said feed-slide; movable feed-clamping jaws; a lever for operating said clamping-jaws; means for actuating the lever; and a link pivoted to the lever and to the frame.

14. The combination, with gripping-dies, and with means for opening and closing said dies, of a feed-slide; a pair of levers pivoted to said feed-slide; toggle mechanism for actuating said pivoted levers; a lever articulated to a member of said toggle mechanism; a link connecting said lever to the frame; a rock-shaft; means for actuating said rock-shaft; a crank-arm secured to the rock-shaft; and a link connecting said crank-arm with the lever for actuating the toggle mechanism.

15. The combination, with dies for gripping the stock, of heading mechanism; a feed-slide; a rock-shaft and connections for reciprocating said feed-slide; feed-gripping mechanisms on the feed-slide; means for actuating said feed-gripping mechanism; a cam on the driving-shaft; and means connecting said cam with the mechanism for actuating the feed-gripping mechanisms and comprising a rock-shaft, an arm thereon, an idler rock-arm connected thereto, a pitman controlled by said cam, a pin on the idler-arm, a hook on the pitman adapted to engage the pin, a rock-arm, manually-controlled means to rock the same, and a cam-face on said arm adapted to disengage said hook from the pin, whereby the feed-gripping mechanism may be rendered inoperative without stopping the machine.

16. In a machine of the class specified, the combination, with feed mechanism, of gripping-dies; means to actuate said dies; a header-slide; means to reciprocate said header slide; a series of heading dies or punches carried thereby to consecutively upset the end of the work; means to move said heading-dies transversely of the header-slide; forming-dies to engage the sides and back of the head during its formation; means to impart a secondary feed to the work after a portion of the heading-dies have acted to bring its end into position to receive the action of the forming-dies; and means to actuate said dies.

17. In a machine of the class specified, the combination with a chambered header-slide, of a series of heading dies or punches mounted on said header-slide; a block reciprocatory in ways of the header-slide in said chamber adapted to engage and break engagement with the header-slide; a gagger-plate reciprocatory in ways of the block transverse to the former ways; and automatic means for reciprocating the gagger-plate and embodying a roller on the gagger-plate, a shiftable inclined face therefor, and means to shift the inclined face.

18. The combination, with gripping-dies, of means for opening and closing said dies; rod-feeding mechanism; means for actuating said mechanism to impart a main feed movement to the rod; multiple heading mechanism, one of the dies of which is adapted to partially form the head on the end of the rod, and another of which is adapted to complete said head; forming-dies adapted to engage the sides and back of the head during the completion thereof; means for imparting a supplemental movement to the rod-feeding mechanism, after the partial formation of a head whereby to feed the rod forward to bring its partially-headed end into line with the forming-dies; and mechanism for actuating said forming-dies to cause them to close upon the incomplete head.

19. The combination, with gripping-dies, and with means for actuating said dies, of a header-slide; a series of heading dies or punches carried by said slide embodying preliminary and finishing heading dies or punches; means for intermittingly actuating said dies or punches in sequence across the face of the slide; movable forming-dies for closing upon the preliminarily-headed end of the rod; means for actuating said forming-dies; a feed-slide; means carried by said slide for clamping a rod; and means for imparting main and supplemental feed movements to said feed-slide respectively before and after the action of the preliminary dies or punches.

20. The combination, with a feed-slide carrying a clamp, of a lever connected to said slide; a rock-shaft carrying said lever; a pitman; means connecting one end of said pitman with the rock-shaft; a rocker to which the other end of said pitman is attached; a second pitman articulated at one end to the rocker; a pivoted lever to which the opposite end of the second pitman is attached; and a cam for actuating said pivoted lever.

21. The combination, with a feed-slide, of means for actuating said slide; levers pivoted to said slide and carrying clamping-jaws; a toggle for actuating said levers; a lever for operating the toggle; a link connecting said lever to the frame; a rock-shaft connected to the lever; and means for actuating the rock-shaft.

22. The combination, with a feed-slide, of means for reciprocating said slide; levers pivoted to the end of said slide, and each carrying a clamping-jaw; a toggle for actuating said levers; a lever for actuating the toggle; a rock-shaft connected to said lever; an arm carried by the rock-shaft; a cam; and means connecting said cam with the arm of the rock-shaft.

23. The combination, with a feed-slide, and with means for reciprocating said slide, of rod-clamping mechanism carried by the slide; a device for actuating said rod-clamping mechanism; a rock-shaft for actuating said device; an arm carried by the rock-shaft; a pitman connected to said arm at one end; a rocker to which the opposite end of said pitman is connected; a connecting-rod detachably connected to the rocker; means for releasing said connecting-rod from the rocker; and cam-and-lever mechanism for actuating said connecting-rod.

24. The combination, with a feed-slide, of means for reciprocating said slide; levers pivoted to the inner end of said slide and each carrying a rod-clamping jaw; toggle mechanism for operating said levers; a lever for operating said toggle mechanism; a rock-shaft having an arm; a link connecting said arm with the toggle-actuating lever; a slotted arm also secured to the rock-shaft; a pitman one end of which is adjustably mounted in the slot of said arm; a rocker to which said pitman is connected at its other end; a connecting-rod detachably secured to the rocker; cam-and-lever mechanism for actuating said connecting-rod; and means for lifting the connecting-rod from its seat upon the rocker when it is desired to stop the feed.

25. In a bolt-machine, the combination, with a feed-slide reciprocable in ways of the frame, of a rock-shaft connected to said feed-slide; means for actuating the rock-shaft; clamping-jaws carried by the feed-slide; mechanism for actuating said clamping-jaws; a rock-shaft connected to said mechanism; an arm carried upon one end of said rock-shaft; a pitman adjustably mounted upon said arm; a rocker to which said pitman is articulated; a connecting-rod hooked upon the rocker; a lever having a cam-surface for raising said connecting-rod; means for actuating said lever; and means for actuating the connecting-rod.

26. In a bolt-machine, the combination, with a feed-slide, and with means for actuating said slide, of rod-clamping devices carried by said slide; a rock-shaft connected with the rod-clamping devices; a pitman connected to the rock-shaft; a rocker having a projection; a connecting-rod having its inner end hooked over said projection; means for actuating said connecting-rod; a swinging cam for lifting the hooked end of the connecting-rod from the projection; a hand-lever; and means connecting said hand-lever with the swinging cam.

27. In a bolt-machine, the combination, with a feed-slide, of means for imparting to said slide main and supplemental feed movements; a pair of levers, each carrying a rod-gripping jaw, pivoted to the feed-slide; a toggle for opening and closing said levers; a lever connected at one end to the toggle; means for actuating said lever; and a link connecting the other end of the lever to the frame.

28. In a bolt-machine, the combination, with a header-slide, and with means for reciprocating said slide, of a carrier; a series of heading dies or punches secured to said carrier; a slide for reciprocating the carrier; a rack attached to the slide; a shaft carrying pinions, one of which is in engagement with said rack; and intermittingly-operated gearing for actuating the other pinion.

29. In a bolt-machine, the combination, with a header-slide and with means for intermittingly reciprocating said slide, of a carrier; a series of heading dies or punches secured to said carrier; a slide for reciprocating the carrier; a rack attached to the slide; a shaft carrying pinions, one of which is in engagement with said rack; and an intermittingly-operated rack for actuating the other pinion.

30. In a bolt-machine, the combination, with a header-slide, and with means for intermittingly reciprocating said slide, of a carrier movable across the face of the header-slide; a series of heading dies or punches secured to said carrier; a slide for reciprocating the carrier; a rack attached to the slide; a pinion in engagement with said rack; and intermittingly-operated gearing for actuating said pinion.

31. In a bolt-machine, the combination, with a header-slide having a guideway in its end, of means for intermittingly actuating said header-slide; a vertical slide fitted in said guideway; a series of heading dies or punches carried by said vertical slide; a slide having a guide upon which the end of the vertical slide moves as the header-slide reciprocates; a rack secured to the guide-slide; gearing for actuating said rack; and means for intermittingly actuating the gearing.

32. In a bolt-machine, the combination, with a header-slide having a guideway, of a vertical slide fitted in said guideway; a notched locking-block secured to said vertical slide; a series of heading dies or punches carried by the vertical slide; a slide carrying a pawl adapted to engage with the notches of the locking-block; a rack-slide in engagement with the header-slide and having a guide to permit the movement of said vertical slide back and forth thereon; a rack secured to said rack-slide; gearing for actuating the rack; and means for intermittingly actuating said gearing.

33. In a bolt-machine, the combination, with a chambered header-slide, of a gagger-plate; a block in a way of which the gagger-plate is mounted; lever mechanism moving the gagger-plate in one direction; means to intermittently actuate the same; a spring to return said gagger-plate; an abutment on the header-slide; a slide fitted for movement in a guideway of the header-slide; a series of heading dies or punches carried thereby; means to lock the slide in position when actuated; and means to intermittingly reciprocate said slide.

34. In a bolt-machine, the combination, with a header-slide having a guideway in its end, of a vertical slide fitted in said guideway and carrying an antifriction-roller at its lower end; a locking-block having a series of notches secured to said vertical slide; a series of heading dies or punches also secured to said vertical slide; means for engaging and disengaging the notches of the locking-block; a rack-slide having a guide upon which rests the antifriction-roller of said vertical slide; a rack secured to the rack-slide; a shaft carrying a pinion in engagement with said rack; a second pinion carried by said shaft; a rack in engagement with the second pinion; a pitman connected to said rack; a lever to which said pitman is articulated, said lever having a stud; and a cam having a series of active portions for intermittingly actuating the lever.

35. The combination, with multiple heading mechanism, of means to successively bring the elements thereof into action; feed mechanism; means to impart a main feed movement to said feed mechanism; means to impart a supplemental feed movement to the feed mechanism after the actuation of a part of the heading mechanism; gripping-dies; means to actuate said dies to open and close respectively before and after the several feed movements; slides carrying forming-dies; rock-shafts; toggle connections between said rock-shafts and said forming-die slides; and mechanism for simultaneously actuating the rock-shafts to close the forming-dies after the supplemental feed movement.

36. In a bolt-machine, the combination, with a pair of cut-off slides, of cut-off tools carried by said slides; rock-shafts having arms at their upper ends, each arm provided with a socket; links seated in said sockets and in the slides; crank-arms rigidly secured to the lower ends of the rock-shafts; arms loosely mounted on said rock-shafts adjacent to the crank-arms thereof; a spring-pressed pin and a socket therefor, one of which is beveled to connect each crank-arm and cooperative loosely-mounted arm; slides connected to the loosely-mounted arms; and means for reciprocating said slides.

37. In a bolt-machine the combination with a feed-slide, of a rock-shaft connected to said feed-slide; a crank-arm fast on said rock-shaft and having a slot; a wrist-pin adjustable in the slot of the crank-arm; an arm loose on the rock-shaft and having an eye; an arm intermediate of the said arms and having a groove to receive said wrist-pin and carrying at one end a stud fitted loose in said eye and at the other end an actuator connection; actuator means connected to said connection to turn said intermediate arm on said stud as a fulcrum and to hold said connection-carrying end to afford a pivot or fulcrum for said arm at such end; and means for turning the loose arm on the shaft as a fulcrum and to hold it from turning thereon, the turning of the loose arm upon the shaft being effective to turn the intermediate arm upon the fulcrum afforded by its actuator whereby one end of the intermediate arm is held as a fulcrum during the movement of the opposite end to give the rock-shaft an excursion of oscillation embodying two steps.

38. In a bolt-machine, the combination, with a feed-slide, of a rock-shaft connected to said feed-slide; a slotted crank-arm rigidly secured to said rock-shaft; a wrist-pin adjustably secured in the slot of said crank-arm; an arm having a recess to receive the wrist-pin and carrying at one end a stud and at the other end a circumferential groove; a pitman having an eye fitted in said circumferential groove and means for actuating said pitman to turn said arm on its stud as a fulcrum and to hold it from so turning and to then act as a fulcrum therefor; an arm loosely mounted at one end on the rock-shaft and at its opposite end on said stud, and a pitman connected to said latter arm and means for actuating said pitman to turn said arm on its shaft as a fulcrum, and to hold said arm from so turning and thereby hold the said stud as a fulcrum for the arm carrying the same.

39. The combination with a shaft having an eccentric, of a pitman connected to the eccentric; a block connected to the pitman; a header-slide in which the block reciprocates; a movable gagger-plate carried by the block; automatic means for actuating the gagger-plate; a slide fitted in a groove on the header-slide; a block having locking-notches carried by the slide; a transversely-reciprocatory plate having a pawl or detent for engaging with the locking-notches of the block; automatic means for reciprocating the plate as the header-slide moves back and forth; and a series of heading dies or punches carried by the slide.

40. In a machine of the class specified, the combination with a header-slide having a guideway, of a slide reciprocatory in the guideway; a block carrying locking devices secured to the reciprocatory slide; means reciprocable transversely of the path of movement of the header-slide for engaging the locking devices of the block; and means for reciprocating the locking-device-engaging means.

41. The combination with a header-slide having a guideway and with means for actuating the slide, of a movable slide fitted to the guideway; a block having inclined notches secured to the rear portion of the movable slide; a plate having an inclined pawl or tooth reciprocable transversely of the path of movement of the header-slide to lock and unlock the block; means for reciprocating the plate; and a series of heading dies or punches carried by the movable slide.

42. The combination with a die-block having a guideway, of a pair of gripping-dies provided with beveled corners; means for closing the dies; a pair of plunger-chambers in the die-block adjacent to the normal position of the meeting beveled corners of the gripping-dies; plungers mounted in the plunger-chambers and provided with beveled ends; springs for advancing the plungers into the corners between the gripping-dies; and an adjustable abutment within the plunger-chambers for regulating the tension of the plunger-springs.

43. The combination with a die-block having a guideway, of gripping-dies; one or more grooves in each die for the reception of the work; beveled edges at the meeting of the dies; means for closing the gripping-dies; plunger-chambers in the die-block in line with the crevices comprising the bevel of the abutting gripping-dies; a plunger mounted in each chamber and provided with an end adapted to enter the crevice; springs for advancing the plungers; screw-threads upon the inner walls of the chambers; and screw-threaded bushings mating with such screw-threads and forming guides for the plunger-stems and abutments for the plunger-springs.

44. The combination with die-slides movable toward and from each other in ways of the machine-frame, of means for moving each slide comprising a rock-shaft and connections therefrom; a crank-arm secured to the rock-shaft; a slide to actuate the crank-arm; a pitman connected to the slide; a pivoted lever to which the pitman is connected; and means to positively rock the lever in both directions.

45. The combination with a feed mechanism, of a shaft effective when rocked to actuate the feed; an arm fast upon the shaft; an adjustable lug upon the arm; an arm loosely mounted at one end upon the shaft; an opening in the swinging end of the arm; an arm medially disposed relatively thereto having a lug fitting the opening in the loose arm and a hub with an opening of larger diameter than the shaft surrounding the shaft and an opening receiving said lug; a cam-shaft; a pair of cams upon the cam-shaft; a pitman connected to the swinging end of the loose arm and actuated by one of the cams; and a pitman having an eye embracing the shaft-surrounding hub of the medially-disposed arm.

46. The combination with a feed mechanism, of a shaft effective when rocked to actuate the feed; an arm fast upon the shaft; an adjustable lug upon the arm; an arm loosely mounted at one end upon the shaft having an opening in the swinging end thereof; an arm medially disposed relatively thereto having a lug fitting the opening in the loose arm, an opening receiving said adjustable lug and a hub with an opening of larger diameter than the shaft surrounding the shaft; a cam-shaft; a pair of cams upon the cam-shaft; a pitman connected to the swinging end of the loose arm and actuated by one of the cams; a pitman having an eye embracing the shaft-surrounding hub of the medially-disposed arm; and means for adjusting the length of stroke of one of the pitmen.

47. The combination with feed mechanism, of a shaft to actuate the same; two arms fulcrumed at the axis of the shaft, one of which arms is fast thereon and one of which is loose; an arm therebetween and fulcrumed to the end of the loose arm and pivotally connected to the fast arm; and means for turning the loose arm and the medially-disposed arm upon their respective fulcrums at different intervals

and for holding each arm from turning on its fulcrum during the turning of the other arm upon its fulcrum.

48. In a bolt-heading machine, the combination with a header-slide having an abutment, of ways upon which the slide is shiftable; a header die or punch carried thereby; means to reciprocate the header-slide and embodying a slide shiftable in ways on the header-slide; a gagger-plate carried by said slide and having a transverse arm adapted to bear against the abutment and to make and break the active connection between the header-slide and the slide shiftable thereon; and automatic means to actuate the gagger-plate.

49. The combination with a slide shiftable on ways and carrying ways parallel thereto, of an eccentric and pitman; a block pivoted to the pitman and reciprocatory on ways carried by the slide; an abutment on the slide; a slide transversely reciprocatory on the block; an arm on said slide adapted to engage the abutment and actuate the slide upon the movement of the block; and means to shift the transverse slide to withdraw the arm from engagement with the abutment and permit the block to reciprocate idly in the header-slide.

50. In a machine of the class specified, the combination with main and secondary feeding mechanisms, of gripping-dies; a series of heading dies or punches; means to actuate the same to act successively upon stock held by the gripping-dies before and after the secondary feed; means to actuate the gripping-dies and cause the same to open during the feed movement; forming-dies to engage the stock after action of some of the dies or punches upon it; and means to actuate the forming-dies after the secondary feed preliminary to the last operation of the heading-dies.

51. In a machine of the class specified, the combination with a header-slide and means to reciprocate the same, of a slide transversely shiftable at the front of said header-slide; a series of heading dies or punches carried thereby; mechanism to actuate said transversely-movable slide to bring the dies in sequence into active position; gripping-dies; means to open and close the same; side forming-dies; means to open and close the same; main feeding mechanism organized to feed the rod while the gripping-dies are open and into position to be acted upon by some of the heading-dies; and a secondary feed mechanism to feed the partially-formed head into position to be engaged by the forming-dies while the same are open and while the gripping-dies are open.

52. The combination with a header-slide having a recess and an abutment, of a block mounted to reciprocate within said header-slide and provided with a groove; means to reciprocate the block; a gagger-plate having a head fitted in the said groove and also having a horizontal arm adapted to bear against said abutment; and cam mechanism for raising the gagger-plate and means for returning the same to its normal position.

53. The combination with a header-slide having an abutment and a recess, of a gagger-plate movable in said recess and having an arm adapted to bear against the abutment or to reciprocate idly past the same; a block having a groove in which the head of the gagger-plate is fitted; an antifriction-roll upon said head; an angle-lever constituting a track for said roll; means to rock the same to force the gagger-plate in one direction to permit the arm to reciprocate idly; and means to return the plate to its normal position to permit the arm to engage the abutment.

54. The combination with a header-slide having a guideway in its forward end, of a slide mounted in said guideway; a series of heading dies or punches secured to said slide; an antifriction-bearing on said slide; a track for the said bearing; a slide carrying the track; a rack on the said slide; a shaft; a pair of pinions fast thereon and one of which is in mesh with said rack; a slide; a rack carried thereby and in engagement with the other pinion; and means to reciprocate said latter slide.

55. The combination with a die-holder, of gripping-dies mounted in said die-holder; means to actuate said dies to open and close the same twice during a complete operation; forming-dies mounted in advance of said gripping-dies; means to open and close said forming-dies; a preliminary heading die or punch; means to actuate the same; main feed mechanism to advance stock through the gripping-dies, while open, to a point where the end thereof will be acted upon by the preliminary heading die or punch; a finishing heading die or punch; a secondary feed mechanism to advance the stock through the gripping-dies while open and the forming-dies while open to a point where it will be engaged by the forming-dies and acted upon by the finishing heading die or punch; and means to actuate the finishing-punch.

56. In a bolt-heading machine, the combination with a die-holder, of gripping-dies mounted in said die-holder; means to actuate said dies to open and close the same twice during a heading operation; a preliminary heading-die; means to actuate the same; main feed mechanism to advance stock through the gripping-dies while open to a point where the end thereof may be acted upon by the preliminary heading-die; forming-dies mounted in advance of the gripping-dies; means to open and close said forming-dies; a finishing heading-die; secondary feed mechanism to advance the stock through the gripping-dies while open and forming-dies while open to a point where it may be acted upon by the forming-dies and the finishing-die; means to actuate the finishing-die; cut-off mechanism to sever the product after the main feed to present fresh stock to the dies; and devices to actuate said cut-off mechanism.

57. In a machine of the class specified, the combination with gripping-dies, of mechanism to open said dies prior to the main and secondary feeds and to close the same thereafter; a series of heading dies or punches; means to actuate said heading dies or punches in sequence; main feed mechanism to advance a rod or wire through the gripping-dies when open to a position where it will be upset by certain of the heading dies or punches; secondary feed mechanism to feed the rod or wire while the gripping-dies are open to cause the partially-formed head thereon to project slightly in front of the gripping-dies; forming-dies adapted to be shifted in front of the gripping-dies and having working faces adapted to compress the incomplete head of the rod laterally; and mechanism to actuate said forming-dies.

58. In a machine of the class described, the combination, with dies for gripping the stock, of heading mechanism comprising a series of punches; forming-dies; main and secondary feed mechanisms; means for independently actuating said main and secondary feed mechanisms, respectively, to first advance the stock until its end projects from the gripping-dies, and subsequently, after the actuation of some of the punches, to again advance said stock to bring its end in line with the forming-dies; cams on the driving-shaft to actuate said means; devices connecting said cams with the feed mechanisms; and means to close the forming-dies on the advanced stock prior to the actuation of the remainder of said punches.

59. The combination with gripping devices, and with means for opening and closing said devices, of feeding means; means for actuating the same to cause the end of the work to project on one side of the gripping-dies; means for acting upon the end of the work; means to again actuate the feeding means to cause the end of the work acted upon to project farther on the side of the gripping-dies; forming-dies for engaging the end of the work so projected; and means for acting upon the end of the work a second time.

60. The combination with gripping-dies, of means to open and close said dies; a feed-slide carrying a clamp to secure the stock rod thereto; means to actuate said feed-slide to impart a feed movement to said rod; multiple heading mechanism one of the dies of which is adapted to partially form a head on the end of the rod and another to complete said head; forming-dies to engage the sides of the head; means to impart a supplemental movement of the feed-slide to cause said slide to advance the rod to a position where the partially-completed head will be in line with the forming-dies; and mechanism to actuate said dies to cause them to close upon the incomplete head.

61. The combination with feed-gripping dies, of preliminary heading-tools and heading-tools; means to actuate the same in sequence; means to open and close the dies; means to advance the same when closed prior to the first actuation of the preliminary heading-tools; means to advance the same while still closed before the actuation of the heading-tools; forming-dies; means to close the same upon the partially-headed stock when advanced the second time; and means to hold the stock while it is being headed.

62. The combination with heading mechanism comprising preliminary and complete heading-tools, of a die-block; gripping-dies through which the stock may be fed; means to open and close said dies; main feeding mechanism to shift said dies and advance the stock so that its end from which the head is to be formed will project beyond the die-block; forming-dies; supplemental feed mechanism to further shift said dies and advance the partially-completed head from the die-block and between the forming-dies; means to actuate the same between the actuation of the preliminary and the completing heading-tools; and means to hold the stock while it is being headed.

63. The combination with a die-block, of gripping-dies mounted therein and adapted to hold a blank; means to reciprocate one of said dies toward and from the other to clamp and release the blank twice during each revolution of the cam-shaft; a feed-slide; a blank-clamping device carried by said feed-slide; a series of heading-dies; means to actuate the same in sequence; a system of linkage to shift the feed-slide to advance the rod during one of its periods of release

by the gripping-dies and before the actuation of the heading-die; and a supplemental system of linkage to act upon said system to further shift said slide and rod during a subsequent period of release.

64. In a bolt-machine, the combination with a feed-slide, of a rock-shaft; an arm secured to the rock-shaft and connected to the feed-slide; a crank-arm rigidly secured to the rock-shaft; an arm loose on said rock-shaft; an intermediate arm between said loose arm and said crank and pivotally connected at its end to the said loose arm and pivotally connected to the crank at a point at a less distance radially from the rock-shaft than the point of its connection to the loose arm; and separate means to actuate and control said loose arm and said intermediate arm one of which said means being connected to the intermediate arm at a point on the opposite side of its point of connection to the crank.

65. In a bolt-machine, the combination with a feed-slide, of a shaft connected to said feed-slide; an arm loosely mounted on the outer end of said shaft; means to actuate said arm; a crank-arm rigidly secured to said outer end of the shaft; means attached to the loosely-mounted arm and the crank-arm at different distances from the shaft to connect the same; and independent means to shift said loose arm and said attaching means to impart two distinct feeds to said slide.

66. In a bolt-heading device the combination with means to grip the stock, of means to actuate the gripping means; a feed-slide having means to grip the stock; means to actuate the feed-slide comprising a shaft; a crank-arm fast thereon; a pair of lever-arms one of such arms having its fulcrum axially coincident with the shaft and one of which arms having its fulcrum in the free end of the other; a cam to move the former lever-arm upon its fulcrum and to hold it in its moved position; and a cam to move the latter lever-arm upon its fulcrum and to hold it in position; and means to connect the latter arm to the crank-arm.

67. The combination with means to hold the stock; of a rock-shaft connected to the holding means to advance the same; a crank secured to the rock-shaft; a cam-shaft; a pair of cams upon the cam-shaft; an arm connected to the crank and actuated by one of the cams and controlled by the other to rock the shaft; and an arm mounted loose upon the said rock-shaft and pivotally connected to the other arm and thereby to the rock-shaft and actuated by the second-mentioned cam and controlled by the first-mentioned cam to rock the shaft an additional distance in the same direction, all organized so that the device will be advanced in its working direction, positively held from recession therefrom, and again advanced in the same direction while so held, both cams coöperating in effecting each advance.

68. The combination with a feed-slide, of a rock-shaft; an arm secured to said rock-shaft and connected with the feed-slide; a crank-arm secured to the rock-shaft; a lever connected midward of its ends to such crank-arm; means to alternately make the respective ends thereof a fulcrum; and means to turn the lever upon its respective fulcrums.

69. The combination with blank-holding means, of means for forming, by successive steps, a head upon a rod; means for advancing the blank along its axial line between such steps; and means for engaging and supporting the back and a portion of the sides of the partially-formed head during the forming steps succeeding such advance.

70. In a machine of the class described, the combination, with dies for gripping the stock, of heading mechanism comprising punches adapted to act at different points in the seam line; forming-dies; main and secondary feed mechanisms; means for independently actuating said main and secondary feed mechanisms, respectively, to first advance the stock along said line of activity of the punches until its end projects from the gripping-dies, and subsequently, after the actuation of one of said punches, to again advance said stock upon the same line to bring its end in line with the forming-dies; and means to close the forming-dies on the advanced stock prior to the actuation of another of the said punches.

71. The combination with blank-feeding mechanism, of gripping-dies; means for forming by successive steps a head upon the blank; forming-dies; and means for advancing the blank in the gripping-dies between the steps and placing the head under formation into position for engagement and support by the forming-dies during the succeeding steps.

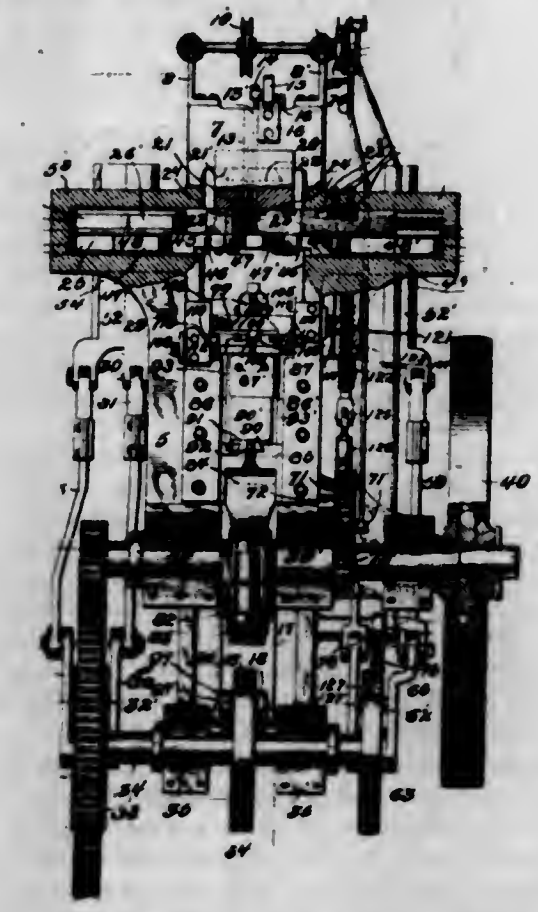
72. In a bolt-machine, the combination with a bracket secured to the frame, said bracket having guideways, of a feed-slide mounted thereon; a pair of pivoted levers mounted upon the feed-slide, each lever carrying a rod-clamping jaw; a rock-shaft and intermediate mechanism for opening and closing said pivoted levers; and means involving a detachable connection for actuating the rock-shaft.

73. In a bolt-machine, the combination with a bracket secured to the frame, said bracket having guideways, of a feed-slide mounted thereon; a threaded stop-rod secured to said feed-slide and passing through an opening of the bracket; screw-threaded stops upon said rod for limiting the movement of the feed-slide in either direction and for preventing overthrow; and means to actuate said slide.

74. In a bolt-machine the combination with gripping-dies, preliminary heading-punches, finishing heading-punches and forming dies, of means to actuate the respective heading-punches in sequence; means to actuate the forming-dies; means to project a blank after the actuation of the preliminary heading-punches and while in control of the gripping-dies to such a position that its head will be embraced by the forming-dies prior to the actuation of the finishing heading-punches.

784,625. MACHINE FOR HEADING BOLTS.

ETHELBERT A. MOORE, New Britain, Conn., and FRANKLIN HOLLAND, Baltimore, Md., assignors to The Stanley Works, a Corporation of Connecticut. Filed Aug. 28, 1901. Serial No. 73,538.



Claim.—1. In a bolt-machine the combination with heading mechanism adapted to perform a series of operations upon a blank, of a die-block; gripping-dies; means to move the same to sever a blank from the stock rod and to open the gripping-dies preliminary to the advance of the blank; forming-dies; and means to advance the blank through the gripping-dies after the performance of a portion of said series of operations to place its partially-formed head out of contact with the gripping-dies and into position to be acted upon by the forming-dies and heading mechanism in the remainder of said series of operations.

2. In a bolt-machine, the combination with stock-feeding mechanism, of means to carry the stock end of the rod; gripping-dies adjacent thereto to engage the blank end of the rod and having a shearing relation therewith; yieldable means to close the dies; means to shift the dies to sever a blank from the stock and to move such severed blank from its original position; means for preliminarily upsetting the end of said blank to form a partial head thereon; means to advance the partially-headed blank through the gripping-dies means to open the gripping-dies preliminary to such advance; forming-dies; means to actuate said forming-dies; and means to finish the head of the blank while the forming-dies are closed upon the head-receiving end of said blank.

3. In a bolt-machine the combination with a die-block having a cut-off device, of gripping-dies through which the stock is fed; preliminary heading mechanism; means for moving the dies laterally to sever a blank from a rod fed through the die-block; forming-dies; means for actuating the forming-dies; means for advancing the partially-headed blank through the gripping-dies to place its head in position to be acted upon by the forming-dies; means to open the

gripping-dies preliminary thereto; and mechanism for finishing the head of said blank.

4. In a bolt-machine, the combination, with stock-rod-feeding mechanism, of a die-block having an opening through which the rod is fed, a bushing in said die-block constituting a cut-off surface; gripping-dies movable back and forth on the face of said die-block, and adapted to sever a blank from the rod, to carry it in front of the heading mechanism, and to return the headed blank to a position in line with the feed-opening of the die-block, where it will be ejected by the stock rod upon the next feed movement; mechanism for actuating said gripping-dies; heading mechanism; means for actuating said heading mechanism; forming-dies; mechanism for operating the forming-dies; and means to feed the stock.

5. In a bolt-machine, the combination with feed mechanism, of a die-block having a feed-passage through which a rod is fed by said mechanism; gripping-dies movable back and forth upon the face of said die-block, and adapted to sever a blank from the rod, to carry it in front of heading mechanism, and to return the blank after it has been headed to a position in line with the feed-passage of the die-block; means for actuating said gripping-dies; preliminary heading mechanism; means to actuate the same; means to advance the blank in the gripping-dies; forming-dies in front of the gripping-dies; means to actuate said forming-dies; finishing heading-dies; and means to actuate the same.

6. In a bolt-machine, the combination, with gripping-dies, and with means for actuating said dies to cause them to carry a plain blank in front of heading mechanism and to return the headed blank to the original position of said plain blank, of means for preliminarily heading said blank; a device for advancing the blank with its partially-formed head through the gripping-dies; means to open said dies preliminary thereto; means for actuating said device; forming-dies; means for actuating the forming-dies; heading-dies for completing the head on the blank; and means for actuating said heading-dies, substantially as described.

7. In a bolt-machine, the combination, with rod-feeding mechanism, of a die-block having an opening through which the rod is fed; gripping-dies movable laterally back and forth on the face of the die-block, and adapted to sever a blank from the rod; preliminary heading-dies for forming an incomplete head on said blank; finishing heading-dies; forming-dies; means to release the gripping action of the dies; a plunger for pushing the partially-headed blank forward between the gripping-dies during such release; means for actuating said plunger; and means for actuating the finishing heading-dies, substantially as described.

8. In a bolt-machine, the combination of the following instrumentalities: rod-feeding mechanism; a die-block having a cutting-surface through which the rod is fed by said mechanism; gripping-dies movable back and forth with relation to the die-block; means for actuating said gripping-dies to close them upon the rod, and to move them laterally to sever a blank from said rod and to carry said blank to the position where it receives the impact of the heading mechanism; preliminary heading mechanism for forming an incomplete head on said blank; means to release the grip of said dies; a device for advancing the partially-headed blank partly through the gripping-dies; means to cause said dies to again grip the blank; forming-dies; mechanism for closing said dies upon the partially-formed head of the blank; heading dies or tools for completing the head of the blank while the same is within the forming-dies; and means for actuating the heading-dies, substantially as described.

9. In a bolt-machine, the combination, with rod-feeding mechanism, of a die-block having a rod-passage; gripping-dies shiftable across the said block and coöperative therewith to sever a blank from the rod; means for opening said dies prior to the feed of the rod and the advance of the blank and for closing the same thereafter, and for returning them to their original position; a header-slide carrying a series of heading dies or punches; forming-dies; means for actuating the forming-dies; a plunger for advancing the blank to a position where it will be acted upon by the forming-dies; and means for actuating the heading-dies transversely of the header-slide.

10. In a bolt-machine, the combination, with means to feed the stock, of blank-gripping dies; means for actuating the gripping-dies to perform their gripping action, to release the same to permit the feed of the blank, and to sever a blank from the stock, and shift the same from the line of the feed of the stock; a plunger for advancing a blank partly through said gripping-dies at the period of release; forming-dies; means for actuating the forming-dies; and means for heading the blank.

11. In a bolt-machine, the combination with preliminary and finishing heading-punches reciprocatory upon parallel lines, of means to feed the stock upon the line of reciprocation of the preliminary punches; gripping-dies and means to actuate the same in their gripping function and to cause the release of the same to permit the feed, and to shift to sever a blank from the stock after the action of the preliminary punches, and to shift the blank from the line of the feed of the stock to the line of reciprocation of the finishing-punches; a plunger to advance the blank on such line to the working point of said punches partly through the gripping-dies and into the reach of forming-dies; and the said forming-dies and means to actuate the same to close on the preliminary head, and to open after the finishing thereof.

12. In a bolt-machine, the combination, with a die-block having perforations in alinement with similar perforations in the machine-frame, of means for feeding a rod through one of said perforations; a pair of gripping-dies movable back and forth in a groove of the die-block and adapted to cut off a blank and carry the same to the working position of the machine; means for actuating said dies to close them upon the rod and move them laterally to cut off a blank, and to release the grip of the dies to permit the advance of the blank; a pair of forming-dies located in front of the gripping-dies; a plunger working in one of the perforations of the die-block and serving to advance the blank partly through the gripping-dies so that its head portion may be acted upon by the forming-dies; cam-and-lever mechanism for actuating said plunger; a header-slide; a series of heading dies or punches movable across the face of said header-slide; and means for intermittingly actuating the said heading dies and punches, substantially as described.

13. The combination, with rod-feeding mechanism, of a die-block having a perforation to which the rod is fed by said mechanism, and also having another perforation parallel to the first perforation; a plunger reciprocable therein; gripping-dies reciprocable in a groove of the die-block and coöperative with said die-block as a cut-off; means to reciprocate said dies to cut off a blank from the rod and carry it in front of said plunger and to then partly release the gripping action thereon; means to actuate the plunger and actuate the blank in the gripping-dies; forming-dies and means to actuate the same; a header-slide; means to reciprocate said slide; a series of heading dies or punches movably mounted on said header-slide; and means to actuate the heading dies or punches in a path transverse to the path of movement of said header-slide.

14. In a bolt-machine, the combination with rod-feeding mechanism, of forming-die mechanisms, preliminary and finishing heading-die mechanism; means to actuate said respective mechanisms; gripping-dies and means to shift the same to shift a blank from its line of feed; a device for advancing a blank after the action of the preliminary heading-die mechanism and while between the gripping-dies to such a position that its head will be acted upon by the forming-dies and the finishing heading-die mechanism; and means for shifting the gripping-dies to return the blank after the same has been headed to a point in line with the path of feed movement of the machine and in position to be ejected by the next feed of the rod.

15. In a bolt-machine, the combination, with rod-feeding mechanism, of a perforated die-block through which the rod is fed by said mechanism and carrying a cut-off face; a pair of gripping-dies mounted in a groove of the die-block; slides for actuating said dies to cause them to clamp the rod, to move laterally and sever a blank therefrom, and to return with the headed blank to their original positions and the blank in position to be ejected by the succeeding feed movement of the rod; forming-dies; means for projecting the blank from between the gripping-dies so that its head will be operated upon by the forming-dies; means for actuating the forming-dies; a header-slide, and preliminary and finishing heading-dies carried by said slide; and means to open the gripping-dies.

16. In a bolt-machine, the combination, with gripping-dies, and with means for actuating said dies, of feed mechanism; forming-dies; a plunger for pushing the blank partially from the gripping-dies so that the head thereof may be acted upon by said forming-dies; a header-slide; a slide movable in ways on the front of said header-slide; and a series of heading dies or punches carried by the last-named slide, substantially as described.

17. The combination, with roller-feed mechanism, of a perforated die-block having a cut-off bushing; a pair of gripping-dies mounted in a groove of said die-block; a slide for actuating said dies in one direction to sever a blank from the rod; a spring for returning said slides and dies; forming-dies; means for actuating said forming-dies; multiple heading mechanism; means to release the gripping-dies; and means for advancing the blank in the gripping-dies between strikes of the heading mechanism thereon, so that its entire head will be acted upon by the forming-dies and a part of the heading mechanism, substantially as described.

18. In a bolt-machine, the combination, with rod-feeding mechanism, of a die-block having a pair of parallel perforations; gripping-dies movable back and forth on the face of said die-block; means for actuating said gripping-dies; forming-dies; means for actuating the forming-dies; a header-slide; a series of heading dies or punches on the face of said header-slide; means for reciprocating said slide to bring the heading dies or punches successively into line with the blank held by the gripping-dies; a plunger for advancing the blank partly through said gripping-dies, so that its head portion may receive the action of the forming-dies; means to release the gripping-dies preliminary thereto; a pivoted lever connected to said plunger; a pitman articulated to said lever; and lever-and-cam mechanism for actuating said pitman, substantially as described.

19. In a bolt-machine, the combination, with a die-block through which the work is fed, of gripping-dies; toggles for closing said dies; means for opening said dies; a link connected to the die-closing toggles at one end; a block to which the opposite end of said link is connected; a wedge for actuating said block; a pitman pivoted to the wedge; cam-and-lever mechanism for actuating the pitman; and mechanism for heading the work, substantially as described.

20. In a bolt-machine, the combination, with a die-block having perforations, of means for feeding a stock-rod through one of said perforations; rod-gripping mechanism coöperative with the said block to cut off the stock and into blanks; wedge and toggle devices for actuating said gripping mechanism to sever a blank from the rod and to carry it to the position where it is headed and to there release the gripping action of the dies to permit the advance of the blank; preliminary heading dies or punches; means for slightly advancing the blank through the gripping-dies after it has been partially headed by said dies or punches; forming-dies; means for actuating said forming-dies; finishing heading dies or punches; means for returning the gripping-dies to the line of feed of the rod; means for opening the gripping mechanism prior to the feed; and means to actuate the heading dies or punches.

21. In a bolt-machine, the combination, with a die-block having perforations, one of which is provided with a cut-off bushing, of gripping-dies; toggles for actuating said dies in one direction; a link for actuating said toggles; means for opening said gripping-dies; wedge mechanism for actuating the link; and cam-and-lever devices for actuating the wedge, substantially as described.

22. The combination, with feed-rollers, of pawl-and-ratchet mechanism for actuating said feed-rollers; a sector for tripping the pawl; a pitman for actuating the sector; a pivoted lever to which the pitman is connected; a cam for actuating said lever in one direction; a spring for returning the lever; a perforated die-block having a cut-off bushing; a pair of gripping-dies; means for actuating the gripping-dies; a pair of forming-dies; toggle mechanism for opening and closing said gripping-dies; wedges for actuating the toggle mechanism; and means for reciprocating the wedges, substantially as described.

23. The combination with gripping-dies, of means to feed a blank thereto; means to shift said dies to move the blank into a position substantially parallel to its fed position; means for forming by successive steps a head upon the blank; forming-dies; and means for advancing the blank in the gripping-dies between the steps and placing the head under formation into position for engagement and support by the forming-dies during the succeeding steps.

24. In a machine for forming at successive steps a head upon a blank, the combination of blank-holding means, of means to feed a blank thereto; means to shift said holding means to move the blank into a position substantially parallel to its fed position; means for preliminarily upsetting the blank; means for moving the blank forward in the holding means after such upsetting; and means for embracing the rear of the upset portion and supporting it during the succeeding steps.

25. In a bolt-machine the combination with a die-block, of gripping mechanism embodying means coöperative with the die-blank to sever the stock rod; means to open and close the same and to move them across the die-block to sever a blank from a stock rod; heading mechanism; means to intermittently function the heading mechanism; forming-dies; means to actuate the same; and means to advance the blank through the gripping-dies while open and between functions of the heading mechanism to place its head out of contact with the gripping mechanism and in position to be acted upon by the forming-dies and thereby held against the thrust of the heading mechanism.

26. In a heading-machine the combination with a series of heading mechanisms, means to actuate the same, means to bring the members of such series consecutively into the working position of the machine, means to feed the stock rod, means to sever a blank therefrom and shift the same into a position in parallelism to the line of the feed movement and to hold the same during the action of a portion of said series of heading mechanisms, means to advance the blank in the axial line in which it is held, means to hold the same in such position for the action of the remainder of the series of heading mechanisms, and said forming-dies and means to actuate the same.

27. The combination with heading mechanism embodying a number of heading devices, means to actuate the same serially, means to feed the stock, means to sever a blank and carry it to a position parallel to the line of feed, means to control such blank and present it to the heading mechanisms at a number of points along the line upon which it is held, and side-forming dies and means to actuate the same.

28. The combination with heading mechanisms, means to feed a stock rod, means to sever a blank therefrom and shift it to a position in parallelism with its line of feed, means to perform a number of heading operations thereon while the blank is in a number of positions upon the line of such parallel position, and means to thereafter return the blank to a position in the line of the feed, and side-forming dies and means to actuate the same.

29. In a machine of the class described, the combination with means to feed a rod along its axial line, of means to cut off a blank and shift the same into a position with its axial line parallel to the line of its feed; heading mechanism; and means to present the blank thereto at a number of points in such parallel line, and side-forming dies and means to actuate the same.

784,626. ELECTRIC SPARKING IGNITER FOR EXPLOSIVE-ENGINES. GEORGE MCCADDEN, St. Cloud, Minn., assignor to Frank Zins, St. Cloud, Minn. Filed June 22, 1903. Serial No. 162,648.



Claim.—1. In a device of the character stated, the combination of a support, a stationary electrode, a movable electrode C, a trip-block mounted on the electrode C, a flat steel plate E having a beveled edge and a slot to receive its fastening, whereby it is adjustably secured to said block, a plunger F′ having a circular top with a beveled under side, and means for operating said plunger substantially as described.

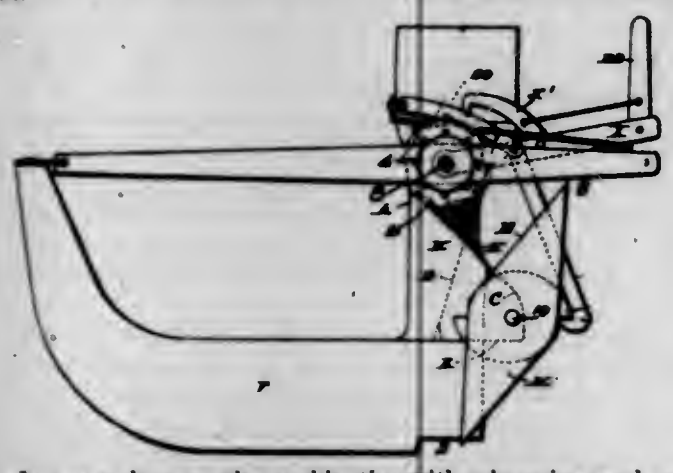
2. In a device of the character stated, the combination of a support, a stationary electrode, a movable electrode C, a trip-block connected with said movable electrode, a beveled-edge steel plate adjustably secured to said block, an eccentric, its rod adjustable thereon, and a guide therefor, a spring to yieldingly retain said rod laterally, and a plunger borne in said rod and provided with a top having a bevel under side, substantially as described.

784,627. CORN-PLANTER. LAFAYETTE H. MCCORMAC, Mallard, Ill. Filed June 29, 1903. Serial No. 163,563.

Claim.—1. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to be operated by engagement with the ground, and means to cause said marker to engage the ground at regular intervals.

2. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to be operated by engagement with the ground, and means operated by the dropping mechanism to cause said marker to engage the ground at regular intervals.

3. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, a wheel carried by the operating-shaft, and means operated by said wheel to cause the marker to engage the ground.



4. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, a cam-wheel mounted to rotate with said marker, and means operated by the dropping mechanism to rotate the wheel and cause said wheel to engage the ground at regular intervals.

5. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, means for causing said marker to engage the ground at regular intervals, and means for moving said marker into operative position.

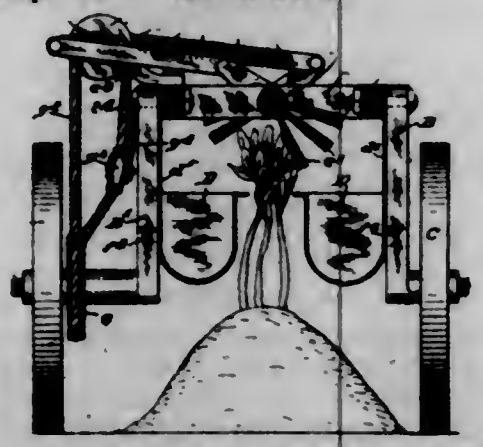
6. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, means operated by the dropping mechanism to cause said marker to engage the ground, and means for moving said marker to its initial position in starting.

7. In a corn-dropper, the combination with a dropper mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, means operated by the dropping mechanism to cause said marker to engage the ground, a ratchet-wheel carried by the operating-shaft, and a lever mounted on said shaft adapted to rotate said wheel and operate said operating means to move the marker to its initial position in starting.

8. In a corn-dropper, the combination with a dropper mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, means operated by dropping mechanism to cause said marker to engage the ground, and means to rotate said marker between the intervals of its engagement with the ground.

9. In a corn-dropper, the combination with a dropping mechanism, of a marker adapted to engage the ground at regular intervals, and be operated thereby, means operated by the dropping mechanism to cause said marker to engage the ground, a stationary member, and a movable member carried by the shaft of the marker, adapted to coact with said stationary member to rotate said marker between the intervals of its engagement with the ground.

784,628. **POTATO-BUG PICKER.** LEWIS E. MCGOVNEY, Mokena, Ill. Filed Apr. 9, 1904. Serial No. 202,424.

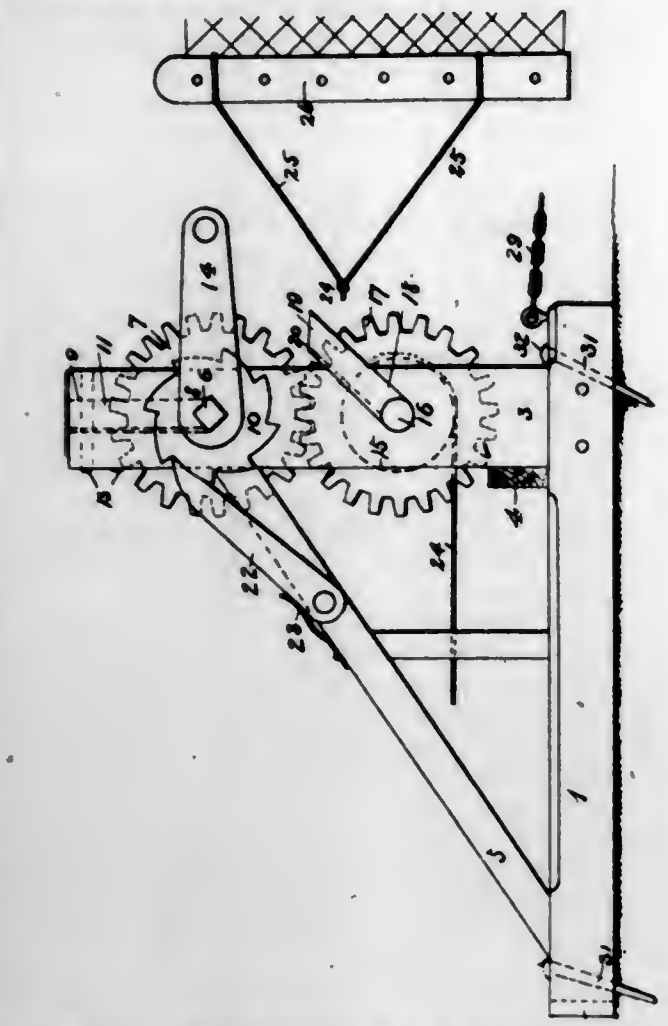


Claim.—1. In a machine of the class described, a brush-carrying frame, draft means connected with said frame, hangers secured to and supporting said frame, and adjustable means connecting said hangers with said draft element, whereby the height of the frame above the ground may be regulated.

2. In a machine of the class described, a frame, brushes mounted on said frame, means for operating said brushes, hangers secured to and supporting said frame, a tongue secured to said frame, a rod secured to said hangers and means on said tongue for engaging said rod whereby the latter may be adjusted relative to the tongue, for the purpose described.

3. In a machine of the class described, a supporting-frame, a tongue secured to the frame, adjustable hangers secured to said frame, ground-wheels carrying said hangers, means for adjusting said hangers from said tongue, bug-receiving troughs supported under said frame, brushes mounted above said troughs, and means for operating said brushes for the purpose described.

784,629. **FENCE-STRETCHER.** MARK REESE, Augusta, Ark. Filed Aug. 22, 1904. Serial No. 221,730.



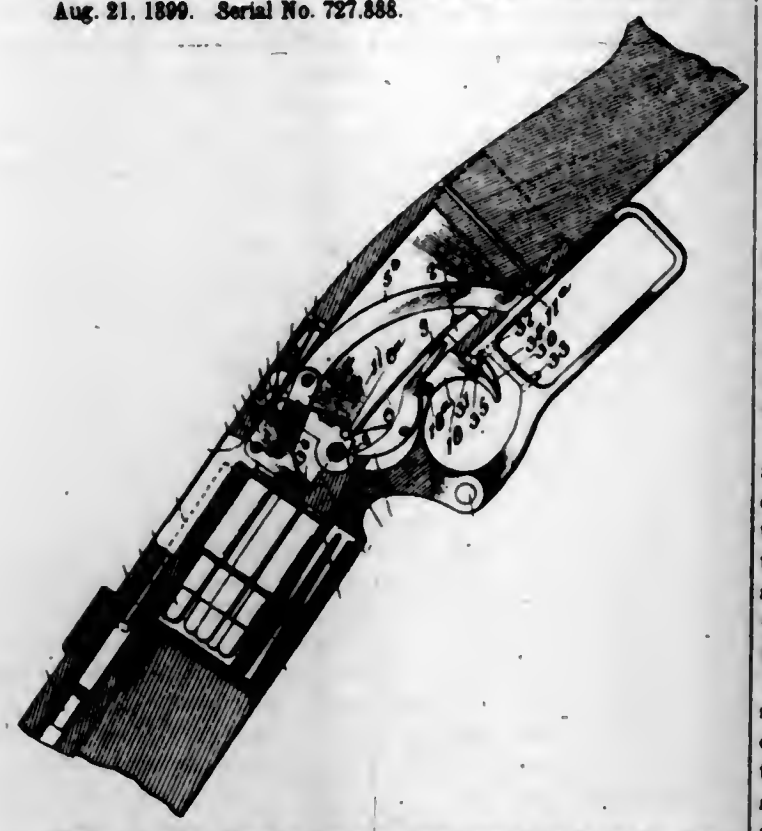
Claim.—1. The combination of the bed-sills 1, having grooves 30, in their front ends, and in their front and rear ends perforations 31, slanting forwardly; pins 32, fitting in said perforations; chains 29, secured to the rear ends of said sills; cross-beams 2, uniting said sills; uprights 3, rising from the rear ends of said sills, each provided with slots 9 and 18; windlass-axle 6, journaled in the lower ends of said slots 9, said axle provided with a cog-wheel 7, ratchet-wheel 10, and windlasses 14; drum-axle 16, journaled in the lower end of slot 18, said axle provided with a drum 15, and cog-wheel 17, said cog-wheels meshing with each other; angle-braces 5, having their lower ends secured to the front ends of the bed-sills 1, and their upper ends to the uprights 3, opposite to the windlass-axle 6; a dog 22, hinged to said angle-brace, and adapted to arrest the backward movement of the ratchet-wheel 10; spring 23, secured to said angle-brace, and adapted to hold the free end of said dog down in the notches of said ratchet-wheel, and a cable 24, secured to said drum, its free end divided into two parts 25, and secured to the lower ends of a fence-holder 26, substantially as shown and described and for the purposes set forth.

2. A fence-stretcher, consisting of a bed-frame; uprights rising from the rear ends of said bed-frame, properly braced, each of said uprights provided with a vertical slot, terminating in a bearing, and slanting slots, also terminating each in a bearing; a windlass-axle, cog-wheel and ratchet-wheel journaled in first-mentioned bearings; drum-axle, drum and cog-wheel journaled in second-mentioned bearings; vertically-grooved wedges, fitting in said slots, and secured in place; a dog, adapted to contact with said ratchet-wheel; windlasses, secured on each end of said windlass-axle; a drum-axle, drum and cog-wheel, all integral, journaled in the bearings of said slanting slots; vertically-grooved plugs, fitting in said slanting slots, and a

cable, having one end secured to said drum, and its other to a fence-holder, with means to hold said stretcher securely in place, substantially as shown and described and for the purposes set forth.

3. A fence, consisting of a bed-frame; uprights, rising from the rear end of said bed-frame, properly braced, each of said uprights provided with a vertical slot, terminating in a bearing, and slanting slots, also terminating each in a bearing; a windlass-axle, cog-wheel and ratchet-wheel, all integral, journaled in said mentioned bearings; vertically-grooved plugs, fitting in said slots; a dog, adapted to contact with said ratchet-wheel; cranks, secured on each end of said windlass-axle; a drum-axle, drum and cog-wheel, all integral, journaled in the bearings of said slanting slots, and vertically-grooved plugs, fitting in said slanting slots, substantially as shown and described and for the purposes set forth.

784,630. **MAGAZINE BOLT-GUN.** MORRIS P. RICHARDS, Utica, N. Y., assignor to Clough-Mauser Arms Company, a Corporation. Filed Aug. 21, 1899. Serial No. 727,888.



Claim.—1. In a firearm, the combination of the frame having a breeching-shoulder, a reciprocating breech-bolt having a breeching-shoulder at its rear end adapted to be swung into and out of engagement with the breeching-shoulder in the frame, a lever pivotally mounted to swing below the frame having a rigid arm back of the pivot, a cam-link pivoted to the rear of the breech-bolt for raising and lowering the rear of the bolt into engagement or disengagement with the shoulder in the frame, and engaging mechanism between the arm on the pivoted lever and the pivoted cam-link for operating the parts, substantially as set forth for the purposes stated.

2. In a firearm, the combination of a frame having a breeching-shoulder, a reciprocating breech-bolt, a swinging hand-lever below and fulcrumed to the frame and provided between its fulcrum and free end with a rigid arm extending into the frame, a double-link pivotal connection between said arm and the breech-bolt, and means engaging one of said links to raise and lower the bolt to and from said breeching-shoulder, substantially as described.

3. The combination with the frame and the reciprocating breech-bolt, of the pivoted lever, having a segmental arm back of the fulcrum, a link connected to the segmental arm and to the toggle, the toggle pivoted to the rear of the breech-bolt having an upper and a lower projecting angle, for the purpose stated.

4. In a firearm, the combination with the frame and the sliding breech-bolt, a lever mounted to swing below the frame, forming a front protection to the trigger, and having an arm in the rear of the trigger, extending into engagement with the link, the link connected to the arm of the lever and the operative mechanism, a toggle pivoted to the rear of the breech-bolt and the link and mechanism, substantially as set forth for operating the parts for the purpose stated.

5. The frame, the reciprocating breech-bolt, carrying at its rear an extension guide-cheek, a way inside of the frame in which the guide-cheek may work, a lever pivoted to the frame, and having a projecting arm back of the fulcrum, extending into engagement with a toggle, a toggle pivoted on the rear of the breech-bolt, a cam for elevating the rear of the breech-bolt into and out of engagement with the frame, combined substantially as set forth.

6. In a firearm, a frame having a breeching-shoulder, a reciprocating shouldered breech-bolt, a cam in the frame, and operative sliding mechanism pivotally connected to said bolt to move on the cam for elevating the rear of the shouldered breech-bolt into engagement with the breech-shoulder in the frame and lock the same in such position, combined, substantially as set forth.

7. In a firearm the combination of the frame having a breeching-shoulder at an incline backward from a vertical line, a reciprocating breech-bolt having an incline shoulder conforming to the shoulder in the frame, a cam-link pivoted to the rear of the breech-bolt and mounted to engage the under side of the upper tang, a support for engaging and supporting the cam-link at its lower end forming a supporting-shoulder in the frame, and mechanism for reciprocating the breech-bolt and swinging the breeching-shoulders into and out of engagement with each other, substantially as set forth for the purposes stated.

8. In a gun, the frame having a breeching-shoulder, a shouldered reciprocating breech-bolt, a toggle pivoted to the rear of the breech-bolt, the upper end of the toggle arranged to engage with the under side of the upper tang, and mechanism for operating the toggle for depressing the rear of the bolt, unlocking its shoulder from the breeching-shoulder in the frame, and mechanism for operating the toggle, combined substantially as set forth.

9. In a firearm, a frame having a breeching-shoulder, a breech-bolt having a shoulder at its rear for engaging and disengaging the shoulder in the frame and mounted to be reciprocated within the frame, a cam-link pivoted to the rear of the breech-bolt, a coöperating cam-shoulder in the frame, for depressing the rear of the breech-bolt out of engagement with the breeching-shoulder in the frame and mechanism for operating the parts, for the purposes stated.

10. In a firearm, a frame having a breeching-shoulder therein, a reciprocating breech-bolt, a toggle pivoted to the breech-bolt, the ends of the toggle arranged to move between the upper and lower tangs, a cam on the lower tang, engaged by said toggle for elevating the shouldered breech-bolt into engagement with the breeching-shoulder in the frame and mechanism for reciprocating the bolt and operating the toggle combined, substantially as set forth for the purposes stated.

11. In a gun, the combination of the frame having a breeching-shoulder, a shouldered reciprocating breech-bolt mounted and guided to be operated within the frame, a support pivoted to the rear of the breech-bolt and arranged to engage the upper part of said frame, and mechanism for operating the support and for swinging, locking and unlocking the breeching-shoulders, substantially as set forth for the purposes stated.

12. The reciprocating breech-bolt, the frame having an abutting breeching-shoulder against which the rear of the breech-bolt swings, an upper and a lower shouldered support within the frame, a link pivoted to the breech-bolt, and mechanism for operating the link whereby the breech-bolt is swung into engagement with the breeching-shoulder in the frame and locked in its supported position and unlocked for retiring the bolt within the frame, combined, substantially as set forth, for the purposes stated.

13. In a gun, a frame having a breeching-shoulder, a reciprocating breech-bolt having a breeching-shoulder, a toggle pivoted to the rear of the breech-bolt having its opposite ends engage the upper and lower tangs, means for bringing the breech-bolt shoulder into and out of engagement with the breeching-shoulder in the frame and for reciprocating the breech-bolt, combined, substantially as set forth, for the purposes stated.

14. In a gun, the frame having a breeching-shoulder and an upper and lower tang, a shouldered breech-bolt mounted to reciprocate between the upper and lower tang of the gun and having a breeching-shoulder, a toggle pivoted to the rear of the breech-bolt and having its ends arranged to engage the upper and lower tangs, a lever pivoted to swing below the lower tang, having an arm concentric with the pivot of the lever, a link connecting the ends of the concentric lever and toggle for moving the rear of the breech-bolt into or out of contact with the breech-shoulder to reciprocate the same, combined, substantially as set forth for the purposes stated.

15. In a magazine-firearm, the combination, of a frame having an opening formed in its opposite inner faces with longitudinally-arranged recesses, the parallel transversely-beveled magazine-stops pivoted in said recesses at their upper edges so that their beveled projecting free portions can swing into said recesses or into said magazine-opening, springs actuating said stops, said stops having cam-shaped ends to engage the breech-bolt and thereby cause the stops

to be swung into their recesses, a reciprocating breech-bolt moving between said stops, and operating mechanism therefor, substantially as described.

16. In a firearm, a frame having an upper tang, with the recess in the lower side of the tang, in combination with the pivoted indicator-lever, mounted in the recess, a vertical reciprocating plunger working through the tang, and the reciprocating breech-bolt working in engagement with the pivoted indicator with mechanism for operating the same, substantially as set forth.

17. In a firearm, a frame having an upper tang with the recess on its under side, and an opening from the recess through the tang, in combination with the lever pivoted in the recess, a spring for actuating the lever, and a vertically-movable plunger, and the reciprocating breech-bolt, for the purpose as stated.

18. In a firearm, the combination of a frame having an upper tang with an opening therethrough, an indicating-plunger reciprocating in said opening, a lever below the tang and reciprocating said plunger to project and withdraw the same, and operating mechanism swinging the lever to project and retract the plunger, substantially as described.

19. In a gun, the frame, the reciprocating breech-bolt, the pivoted lever mounted to swing below the gun having a concentric arm on a circle from the pivot of the lever at the rear of the fulcrum, said arm connected to and operating the mechanism controlling the breech-bolt and firing mechanism, the catch on the lever between the fulcrum and the concentric arm, the pivoted trigger having a concentric cam at its rear for engaging the catch on the lever, combined, substantially as set forth for the purposes stated.

20. In combination, in a firearm, a frame having a breech-shoulder, a reciprocating breech-bolt, mechanism for moving the breech-bolt into and out of engagement with said breech-shoulder, an operating-lever having an arm concentric with the fulcrum of the lever and provided with a catch, and a swinging trigger having a curved surface for engaging the catch on the operating-lever, substantially as described.

21. In a gun, the frame having a breeching-shoulder, a reciprocating breech-bolt having a breeching-shoulder, mechanism for bringing the breeching-shoulders into and out of engagement and reciprocating the breech-bolt, a centrally-disposed firing-pin in the breech-bolt, a spring-actuated hammer located within the frame between the tangs, a lever pivoted below the frame and having a curved arm concentric with the fulcrum of the lever connected to the operative mechanism, a shoulder or catch between the fulcrum and the arm, and a pivoted trigger having a curved cam at its back, combined, substantially as set forth for the purposes stated.

22. In a firearm of the character described, the extracting-hook on the breech-bolt, a toggle-lever pivoted to the breech-bolt having arms extending at an angle to its pivoted point, and arranged to engage the under side of the upper tang, in combination with mechanism for operating the toggle for the purpose stated.

23. In a firearm of the character described, the combination of the safety-breeching mechanism, consisting of the breeching-shoulder in the frame, the shoulder on the breech-bolt, a pivoted toggle on the rear of the breech-bolt, a cam-surface supporting the lower end of the angle of the toggle, and mechanism for locking the parts, for the purpose stated.

24. In a gun the frame, the longitudinally-moving bolt, the abutment in the frame in front of which the bolt swings in a sectorial plane in unlocking the breeching-shoulders, the toggle pivoted on the rear of the breech-bolt and striking a portion of the frame to unlock the breeching-shoulders and retire the breech-bolt and mechanism for operating the toggle and breech-bolt combined substantially as set forth.

25. In a gun, a reciprocating bolt, the frame having a breeching-abutment against which the rear of the bolt swings in locking, a swinging toggle supported on the rear of the breech-bolt, a second abutment in the lower tang against which the toggle rests at the completion of the locking of the breech-shoulders and mechanism for operating the bolt substantially as set forth.

26. In a firearm, in combination, a frame having a breeching-shoulder, a breech-bolt and actuating mechanism for the breech-bolt comprising an exterior handhold and a toggle connection pivotally joined to the rear end of the breech-bolt, portions of the frame arranged to engage a member of said toggle and thereby raise and lower the rear end of the breech-bolt, substantially as described.

27. In a firearm, the combination of a frame, a reciprocating breech-bolt and its operating mechanism comprising hand-operated means extending to the exterior of the frame, firing mechanism comprising a trigger provided with a locking portion normally out of the path of movement of said means, and on firing movement of the trigger locking said means and breech-bolt against unlocking movement, and a movable lock carried by said hand-operated means and arranged to project into the path of the trigger, substantially as described.

28. In a firearm, in combination, a frame, a reciprocating breech-bolt having a guide-block sliding in the frame, said frame formed with a cam-face, and hand-operating means for the breech-bolt comprising a lever and a toggle connection between the lever and breech-bolt engaging said cam-face to breech and unbreech the rear end of the breech-bolt, substantially as described.

29. In a firearm, the combination, of a frame, a movable breech-bolt and its operating mechanism comprising a hand-lever fulcrumed to the frame, firing mechanism comprising a trigger fulcrumed to the frame, and a movable locking member carried by said lever arranged to project into the path of the trigger and thereby lock the trigger against firing movement and the lever against unbreeching movement, substantially as described.

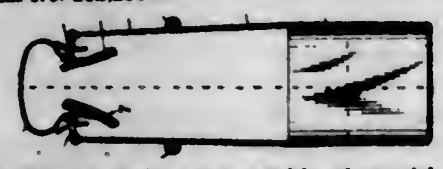
30. In a firearm, in combination, a frame having a bottom longitudinal opening therethrough having longitudinal recesses in its inner opposite faces, the swinging stops at their upper outer portions fulcrumed therein so that their lower inner edges can swing into said recesses or outwardly or inwardly into said opening, said stops beveled at their rear ends, and provided with shoulder 30, and a reciprocating breech-bolt and its operating mechanism, substantially as described.

784,631. PIANO-CASE. MARK F. RICHARDSON, New York, N. Y. Filed Dec. 14, 1904. Serial No. 236,828.



Claim.—The combination with a piano-case having a pivotally-mounted front panel, of a pivot-bracket arranged within the case and having a stop-flange at its front portion, a pivot-pin carried by the bracket, a lever mounted on said pivot-pin and having a rounded cam-like end engaging the rear face of the panel, and a torsion-spring wound around the pin and bearing against the lever and the bracket, substantially as specified.

784,632. INHALER. WILLIAM M. RICKETTS, Columbus, Ohio, assignor of one-half to Colonel E. Bright, Columbus, Ohio. Filed June 13, 1904. Serial No. 212,238.



Claim.—1. In an inhaler, the combination with a receptacle and supports rising therefrom, of a spring-actuated nose-clamping device connected to and disposed between the supports.

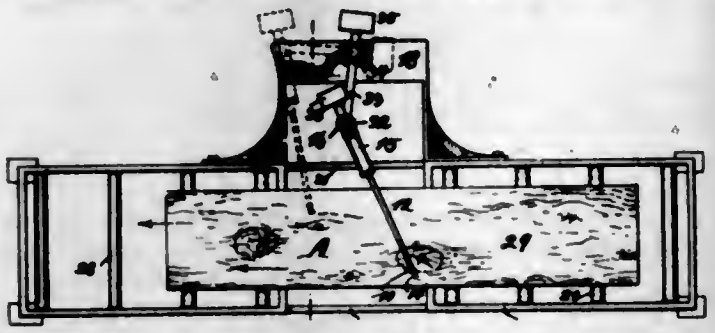
2. In an inhaler, the combination of a receptacle, a yoke-like support between the vertical members of which said receptacle is slidably mounted, and a spring-actuated nose-clamping device having a hinged connection with said supports.

3. In an inhaler, the combination of a receptacle having its opposite sides grooved, a yoke-like support, the upright members of which lie in the opposing grooves of said receptacle, and a nose-clamping device connected with the upper portion of said support

and comprising a bowed spring, clamping-pieces, and projecting studs, substantially as described.

4. In an inhaler, the combination with a receptacle having one of its sides perforated and having its sides at right angles therewith provided with vertical grooves, of a support comprising a yoke-like frame the vertical members of which enter said receptacle-grooves, and a spring-actuated clamping device connected with the ends of said support.

784,633. **DUPLICATING DEFECT-TRACER.** EDWIN M. SCHANTZ, Zimmerman, Ohio. Filed June 13, 1904. Serial No. 212,394.



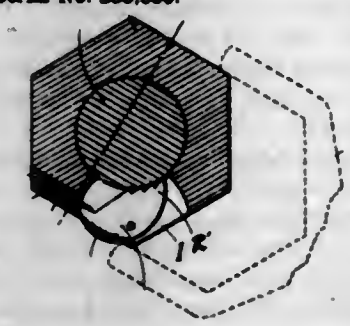
Claim.—1. In a duplicating defect-tracer for the purpose described, the combination of a support for the material, a tracer-point, an arm on which it is supported in a manner to be free to be moved over the material on one side thereof after brought in contact therewith, a transfer-point adapted to be brought simultaneously in contact with the other side of the material, both points being arranged to point toward each other, an intermediate member to which both points are connected in a manner that one follows the movement of the other over the surface of the material after in contact therewith, a movable pivot on which this latter member is supported and a swinging arm permanently attached to the support for the material and carrying at its other end the movable pivot mentioned.

2. In a duplicating defect-tracer for the purpose described, the combination of a tracing and a transfer point, means whereby the material is supported between them, arms at one end of each of which these points are carried, one being arranged below the other, an intermediate member to which the other ends of each of these arms are attached, an arm permanently attached by means of a pivot and to which this intermediate member is pivotally attached so that the two arms may be simultaneously swung about either of the two pivots and means connecting the arms in a manner that if one arm is moved in a direction toward the other arm, this latter is caused to move also but in a direction opposite to the other arm.

3. In a duplicating defect-tracer for the purpose described, the combination of a tracing and a transfer point, one coöperating with the other, means whereby the material is supported between them, arms at one end of which these points are carried, one below the other, a member 15, to one end of which the other ends of these arms are attached, a hub 16, at the other end of this member 15, an arm 33, having a hub at each end, to one of which hub 16 is connected for support and a bracket permanently attached to the support for the material and to which the other hub connects for support.

4. In a duplicating defect-tracer for the purpose described, the combination of a tracing and a transfer point, arms at one end of each of which one of these points is carried, one below the other and one coöperating with the other, means to support the material between them, an arm 15, to which the other ends of the arms first mentioned are attached, a hub at the other end of arm 15, an arm 33 having a hub at each end and on one of which hub 16 is supported, a bracket permanently attached to the support for the material and which supports the other hub and counterweights carried on these hubs at a point opposite to where the arms project therefrom.

784,634. **NUT-LOCK.** HERMANN SCHUETTE, St. Louis, Mo. Filed Dec. 7, 1904. Serial No. 235,830.



Claim.—A nut-lock comprising a nut having a suitable chamber formed therein in communication with the central opening of the nut, a closed passage formed in the nut and communicating with the said chamber, a locking-lever pivoted in said chamber and having at one end a serrated cam formation for engaging the threaded portion of the bolt over which the nut is passed, a spring mounted in the passage aforesaid and extending into the chamber and engaging the inner surface of the adjacent arm of the locking-lever, thereby permanently forcing the cam into engagement with the bolt, a portion of the said adjacent arm projecting outside of the nut whereby the same can be engaged and depressed by the jaws of a wrench, the parts operating substantially as, and for the purpose set forth.

784,635. **RELAY.** MICHAL SETTER, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 5, 1902. Serial No. 101,472.



Claim.—1. In a relay, the combination of a suitable electromagnet, a swinging and pendent armature for said magnet, and an armature-mounting supporting the said pendent armature, the latter being normally balanced, or practically balanced, about its axis, said axis being coincident with a knife-edge contact between the armature and mounting, and switch-contacts operated by said armature.

2. In a relay, the combination of a suitable electromagnet, a swinging armature provided with a knife-edge, an armature-mounting having a seat adapted to receive the said knife-edge, the said armature being normally balanced, or practically balanced, about its point of support, said point of support consisting of a knife-edge contact between the armature and mounting, and switch-contacts operated by said armatures.

3. In a relay, the combination of a suitable electromagnet, an armature swingingly supported at its upper end, the point of support for said armature being of a knife-edge character and so relatively positioned as to permit the force of gravity to hold it normally away from said magnet, and switch-contacts operated by said armature.

4. In a relay, the combination of a suitable electromagnet, a metal tube having a circumferential groove at one end thereof and inclosing said magnet, a cap fitted upon the rear end of said tube and having its edge pressed into the circumferential groove in the tube, a member having a ring-like portion fitted upon the forward end of said tube, a vibratory armature supported by said member, the armature being hung on knife-edges, a cap inclosing the armature and fitted upon the said ring-like portion, and switch-contacts operated by said armature.

5. In a relay, the combination of a suitable magnet, a swinging and pendent armature normally balanced, or practically balanced, about its point of support, the armature being hung on knife-edges, a resting contact normally engaged by the armature, and a second contact which the armature engages when attracted by the magnet together with the mounting on which both the said switch-contacts and the armature are mounted.

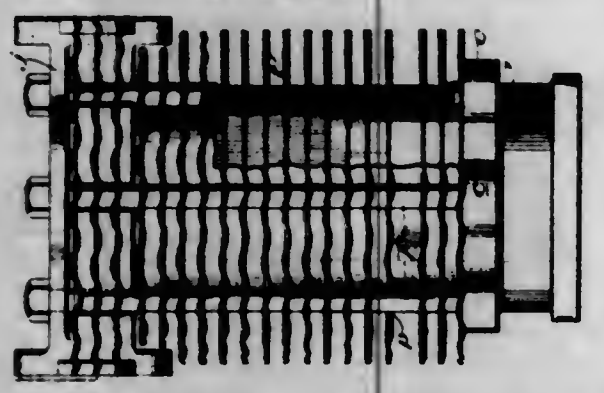
6. In a relay, the combination of a suitable electromagnet, a swinging and pendent armature supported in such manner that gravity tends to normally hold it away from the magnet, the armature being hung on knife-edges, and an adjustable resting contact normally engaged by the armature together with the mounting on which both the said switch-contacts and the armature are mounted.

7. In a relay, the combination of a suitable electromagnet, a swinging and pendent armature held normally away from the magnet by gravity, a spring adapted to assist gravity in returning the armature to its normal position, the armature being hung on knife-edges, and contacts adapted to coöperate with the armature in making and breaking the circuits.

8. In a relay, the combination of an electromagnet, a tubular metal casing for said magnet, a ring-like member fitted upon the end of said casing, said ring-like member being provided with a vertical cross-bar connected at its ends with the ring-like portion by short horizontal portions, the upper short portion being recessed and provided at each side of said recess with a notch, an armature having its upper end provided with a portion adapted to extend through said recess and provided with knife-edges adapted to rest in said notches, the armature thus mounted being practically normally balanced about its axis, and contacts adapted to coöperate with said armature in opening and closing circuits.

9. A relay, comprising an electromagnet, an armature-mounting suitably fixed to the end of the magnet-casing, a disk-like armature provided at its upper end with knife-edges, the said mounting having notches adapted to receive said knife-edges, an adjustable spring connection between the back of said armature and the said mounting, the armature being practically normally balanced about its axis, and contacts adapted to coöperate with said armature in opening and closing circuits.

784,636. ENGINE-CYLINDER. CLEMENT SMITH, Topeka, Kans. Filed Nov. 22, 1904. Serial No. 233,832.



Claim.—1. A cylinder comprising alternate layers of cast metal and metal of a higher thermal conductivity than cast metal; the latter layers extending from the interior of the cylinder outwardly beyond the cast-metal layers.

2. A cylinder comprising layers of cast metal, and layers of metal possessed of higher thermal conductivity than the cast metal alternating with the first-mentioned layers and extending from the interior of the cylinder outwardly beyond said first-mentioned layers and having their extended portions corrugated whereby the radiating-surface thereof is increased.

3. A cylinder comprising a head of cast metal, a head made up of cast-metal sections and layers of metal of a higher conductivity than cast metal alternating with the cast-metal sections, annular cast-metal layers interposed between the two heads, annular layers of metal of a higher thermal conductivity than cast metal also interposed between the two heads and alternating with the cast-metal layers, and rods connecting the two heads and arranged outside the cast-metal layers and extending through apertures in extended portions of the other layers.

4. A cylinder composed of a plurality of parts of one kind of metal and a plurality of parts of metal possessed of higher thermal conductivity than the first-mentioned metal; the latter parts extending from the interior of the cylinder outwardly beyond the first-mentioned parts.

5. A cylinder composed of a plurality of parts of one kind of metal and a plurality of parts of metal possessed of higher thermal conductivity than the first-mentioned metal; the latter parts extending from the interior of the cylinder outwardly beyond the first-mentioned parts and having their extended portions corrugated whereby the radiating-surfaces thereof are increased.

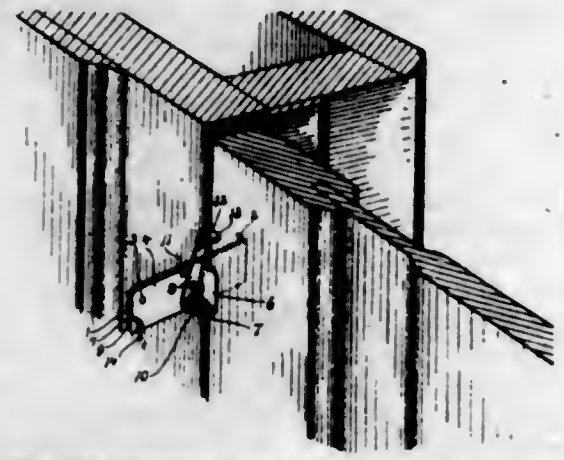
6. A cylinder composed of a plurality of parts of one kind of metal and a plurality of parts of metal possessed of higher thermal conductivity than the first-mentioned metal and extending from the interior of the cylinder outwardly beyond the first-mentioned parts; the said parts being bolted together.

7. A cylinder comprising a plurality of annular layers of one kind of metal, and a plurality of annular layers of metal of higher thermal conductivity than the first-mentioned metal extending from the interior of the cylinder outwardly beyond the first-mentioned layers.

8. A cylinder comprising alternate layers of cast metal and metal of a higher thermal conductivity than cast metal; the latter layers extending from the interior of the cylinder outwardly beyond the cast-metal layers and being provided in their extended portions with perforations.

784,637. DOOR-SECURER AND ALARM COMBINED. DANIEL N. STEWART, Detroit, Mich., assignor of one-half to John McPherson, Jr., Detroit, Mich. Filed Apr. 20, 1904. Serial No. 205,478.

Claim.—1. The combination with a holding-plate provided with means for engaging the door-jamb, of a supporting-plate carried by said holding-plate and provided with means for opposing the opening of the door, an arm pivotally secured at one end to said supporting-plate, a spring to actuate said arm, and means on the said plate for holding said arm against the action of its spring in a position to be engaged and released by the initial opening movement of the door.

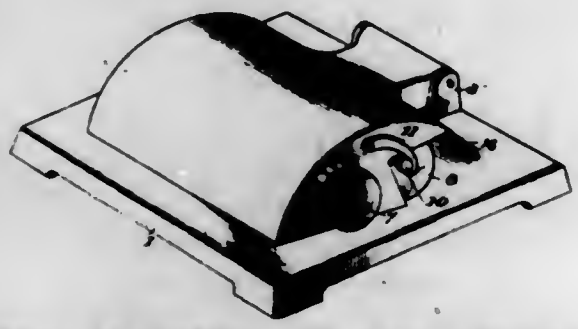


2. The combination with a holding-plate provided with means for engaging the door-jamb, of a supporting-plate pivotally secured near one end to the holding-plate and provided with means for opposing the opening of the door at one end and with a projection at the opposite end, an arm pivotally secured at one end to said supporting-plate, a spring to normally hold said arm in contact with the said projection, yielding means on the plate for engaging and holding the arm in a position to be engaged by the initial opening movement of the door and be released thereby to contact the projection with a blow, and means for holding an explosive in position to be exploded by the blow.

3. The combination with a holding-plate provided with means for engaging the door-jamb, of a supporting-plate pivotally secured near one end to the holding-plate, an abutment on the opposite end of said supporting-plate to oppose the opening of the door, an arm pivotally secured at one end to the supporting-plate near the abutment, a flange on the supporting-plate, a spring to normally hold the arm in contact with the flange, a spring projection on the supporting-plate to engage and hold the arm in a raised position with its free end extending over the abutment toward the door, and means on the arm for holding an explosive in a position to be brought into contact with the said flange.

4. The combination of a holding-plate, spurs on one end of said plate to engage the door-jamb, a flexible filling-strip pivoted at one end to said holding-plate, a supporting-plate having a laterally-bent end forming an abutment and pivoted to the holding-plate with the filling-plate between, a flange on the supporting-plate near one end having a projection forming a firing-pin, a stud on the supporting-plate near the abutment, an arm pivotally mounted on the stud at one end and provided with a loop at its opposite end to receive a cartridge, a spring to actuate said arm, and a spring projection on the supporting-plate to hold the arm in a raised position with its upper end projecting over the abutment toward the door.

784,638. STAMPING DEVICE. JOHN N. STEWART, Chicago, Ill. Filed Dec. 9, 1903. Serial No. 184,504.



Claim.—1. In a stamping device, a base, a spring-supported shell pivoted thereon, a type-roller mounted in said pivoted shell, an ink-roller parallel with and driven by said type-roller, and spring-pressed pivoted hooks on the ends of said shell, supporting the ink-roller shaft and pressing it continuously toward the type-roller, substantially as set forth.

2. In a stamp, a base, a spring-supported frame pivoted thereon, a type-roller mounted in said frame, an ink-roller driven by said type-roller, a cross-rod rotatably mounted in the frame, hooks rigidly connected with said cross-rod and engaging the ink-roller shaft, and a spring bearing on said cross-rod and pressing said ink-roller continuously toward the type-roller, substantially as set forth.

3. In a stamping device, a base, a spring-supported shell pivoted thereto and having slotted end walls, a type-roller mounted in said end walls, an ink-roller parallel with and driven by said type-roller and having its shaft extending through said slots, and spring-pressed pivoted hooks on th. ends of said shell bearing against said shaft and supporting it in said slots, substantially as set forth.

4. In a stamp, a base, a spring-supported inclosed shell pivoted thereto and having slotted end walls, a type-roller mounted in said end walls, an ink-roller driven by said type-roller and having its shaft extending through said slots, and spring-pressed pivoted hooks supporting said shaft in said slots and pressing the ink-roller toward the type-roller, substantially as set forth.

784,639. **ELECTRICAL TROLLEY.** SENECA R. STODDARD, Glens Falls, N. Y. Filed Mar. 21, 1903. Renewed Aug. 12, 1904. Serial No. 220,517.



Claim.—1. In an electrical trolley system, the combination of a longitudinal conductor, a third rail for supporting the same, said third rail being provided with a bearing-surface, a shoe for moving along said third rail, a lever mounted within said shoe and free to move relatively thereto when actuated by the weight thereof, and also free to engage said bearing-surface, and a rocking member mounted within said shoe and provided with a bearing-surface for engaging said conductor.

2. In an electrical trolley, the combination of a trolley-shoe to be moved relatively to a longitudinal conductor, contact mechanism connected with said shoe and free to engage said conductor, and mechanism for actuating said shoe relatively to said longitudinal conductor, said mechanism being connected with said shoe by means of universal joints for the purpose of permitting relative movements to take place between said shoe and said mechanism for actuating the same.

3. In an electrical trolley system, the combination of a longitudinal conductor, a member for supporting the same, said member being provided with a bearing-track surface, a trolley-shoe disposed adjacent to said member, and contact mechanism mounted within said shoe and free to move relatively to the same for the purpose of engaging said conductor when actuated by the weight of said shoe.

4. In an electrical trolley, the combination of a trolley-shoe, and a member mounted therein and movable laterally relatively thereto for the purpose of engaging an electrical conductor.

5. In an electrical trolley, the combination of a gravity-operated trolley-shoe, and contact mechanism connected with said shoe and movable to engage a stationary conductor by the weight of said shoe.

6. In an electrical trolley-shoe, contact mechanism movable relatively thereto and acting automatically by gravity alone to make and break connection with an electrical conductor.

7. In an electrical trolley, the combination of a trolley-shoe to be moved in the general direction of a longitudinal conductor, and weight-controlled contact mechanism connected with said shoe for engaging and disengaging said longitudinal conductor.

8. In an electrical trolley, the combination of a trolley-shoe to be moved relatively to a longitudinal conductor, and contact mechanism connected with said shoe and movable relatively thereto for engaging and disengaging said conductor.

9. In an electrical trolley system, the combination of a third rail provided with a longitudinal conductor, a trolley-shoe engaging said third rail and free to move longitudinally in the general direction thereof, and contact mechanism connected with said shoe and controllable by the weight thereof for engaging and disengaging said longitudinal conductor.

10. In an electrical trolley system, the combination of a third rail provided with a body portion and with a longitudinal conductor insulated therefrom, a trolley-shoe engaging said third rail and free to move longitudinally thereof, and contact mechanism connected with said shoe and controllable by the weight thereof, a portion of said contact mechanism being insulated from said shoe and provided with a surface free to engage said longitudinal conductor directly.

11. In an electrical trolley, the combination of a shoe to be moved relatively to a longitudinal conductor, and a weight-controlled contact member connected with said shoe and movable relatively thereto for engaging and disengaging said longitudinal conductor.

12. In an electrical trolley, the combination of a shoe to be moved in a general direction substantially parallel with a longitudinal conductor, a contact member connected with said shoe and movable relatively thereto for engaging and disengaging said conductor, and a lever connected with said contact member and actuated by the weight of said shoe for engaging and disengaging said longitudinal conductor.

13. In an electrical trolley system, the combination of a third rail provided with an upper bearing-surface and with a longitudinal conductor, a trolley-shoe adapted to move along said rail, and contact mechanism mounted within said shoe and movable relatively thereto, said contact mechanism being provided with a portion for engaging said upper bearing-surface and with a portion for engaging said longitudinal conductor.

14. In an electrical trolley, the combination of a trolley-shoe to be moved in the general direction of a longitudinal conductor, a contact member connected with said shoe and free to automatically engage and disengage said longitudinal conductor, and mechanism connected with said shoe and with said member for automatically causing said contact member to engage and disengage said longitudinal conductor.

15. In an electrical trolley, the combination of a trolley-shoe, a contact member mounted therein and movable relatively thereto, and a lever connected with said contact member for forcing the same into engagement with the conductor, said lever being also connected with said shoe and free to engage a longitudinal member along which said shoe is free to move.

16. In an electrical trolley system, the combination of a third rail provided with a conductor having its surface facing downward, a shoe movable in the general direction of said third rail and provided with a member mounted within said shoe and free to rock, said member being provided with a contact-surface below said surface facing downward and free to rise into engagement therewith.

17. In an electrical trolley, the combination of a trolley-shoe, and a movable member pivoted therein and controllable by the weight thereof for the purpose of engaging a stationary electrical conductor.

18. In an electrical trolley system, the combination of a shoe adapted to move along the rail, and a contact member connected with said shoe and free to rock relatively thereto when actuated by the weight of said shoe, said contact member being for the purpose of engaging a conductor connected with said rail.

19. In an electrical trolley, the combination of a trolley-shoe provided with a collector movable relatively thereto, said collector being free to move into engagement with a contact-surface when said shoe is pressed into engagement with a bearing-surface.

20. In an electrical trolley, the combination of a trolley-shoe, and a contact member free to oscillate relatively thereto and controllable by the weight thereof for the purpose of engaging a stationary conductor.

21. In an electrical trolley system, the combination of a third rail, a trolley-shoe engaging the same and free to move longitudinally thereof, and contact mechanism connected with said shoe and controllable by the weight thereof, a portion of said contact mechanism being insulated from said shoe and provided with a surface free to engage said longitudinal conductor directly.

22. A trolley-shoe, comprising a member adapted to slide upon a rail and provided with contact mechanism movable relatively to said member and free to engage a contact-surface connected with said rail.

23. A trolley-shoe, comprising a traveling member adapted to move downward toward a mechanical contact-surface, and mechanism engaging said traveling member and said contact-surface, said mechanism being provided with a contact member for engaging a conductor.

24. In a trolley-shoe, a traveling member adapted to slide upon a rail and to be forced toward the same by its own weight, in combination with contact mechanism for engaging a conductor connected with said rail, said contact mechanism being connected with said traveling member and free to engage said rail and being controllable by the weight of said traveling member.

25. A trolley-shoe, comprising a traveling member adapted to move along a rail, said member being forced toward said rail by gravity, a contact member mounted upon said traveling member and movable relatively thereto for the purpose of engaging a contact-surface, and intermediate mechanism connected with said traveling

member and with said contact member for the purpose of transferring motion from said traveling member to said contact member.

26. In a trolley-shoe, the combination of a member to be moved along a rail, and a collector connected with said member and adapted to swing laterally in a general direction crossing the length of said rail.

27. In an electrical trolley system, the combination of a shoe to be flexibly connected with a motor-car and free to slide upon a supporting third rail, a member pivoted within said shoe and facing downward for engaging the trolley-surface of said rail, and a collector also pivoted within said shoe and free to move into contact with an electrical conductor connected with said supporting member.

28. In an electrical trolley system, the combination of a shoe flexibly connected with a motor-car, and adapted to travel along a bearing-rail, a member pivotally mounted within said shoe and actuated by downward pressure of said shoe relatively to said rail, and a collector connected with said shoe and actuated by said member so as to swing laterally in a direction crossing the general length of said rail for the purpose of engaging a conducting-surface.

29. In an electrical trolley system, the combination of a shoe, a supporting member pivoted therein and movable relatively thereto, and a swinging collector connected with said supporting member and adapted to make contact with a longitudinal conductor.

30. In combination with a motor-car and a bearing-rail, of a trailing-shoe and a collector pivoted therein for the purpose of forming contact with a longitudinal conductor.

31. In an electrical trolley system, the combination of a trolley-shoe, and a rocking member mounted therein, said member being provided with a contact-surface free to move into engagement with an electrical conductor attached to the side or overhanging flange of a supporting-rail.

32. In combination with a motor-car, a trailing shoe flexibly attached thereto and free to slide along upon a supporting third rail, a bearing member pivoted within said shoe and facing downward for engaging the upper surface of said rail and by virtue of such engagement forcing a collector, also pivoted within said shoe, into contact with an electrical conductor embedded in or attached to the side or under portion of the said supporting-rail.

784,640. PROCESS OF MAKING CHROMATES. Robert Suchy, Griesheim-on-the-Main, Germany, assignor to Chemische Fabrik Griesheim Electron, Frankfort-on-the-Main, Germany. Filed July 16, 1903. Serial No. 166,539.

Claim.—1. The process of making chromates, which consists in subjecting a mixture of pulverized chrome ore and caustic potash to a temperature not exceeding 500° centigrade in the presence of air, and agitating the mixture during the period of heating.

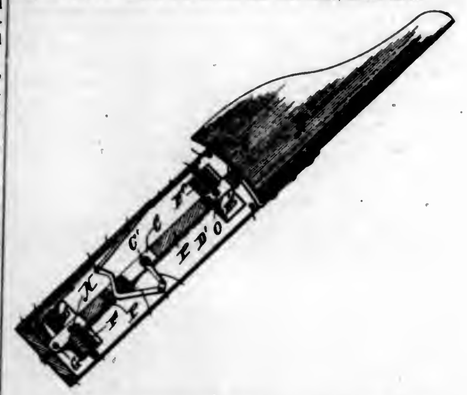
2. The process of making chromates which consists in subjecting a mixture of pulverized chrome ore and a caustic-potash lye of 50° Baumé, in substantially the proportions of one hundred to two hundred and fifty by weight, to a temperature not exceeding 500° centigrade in the presence of air, and agitating the mixture during the period of heating.

3. The process of making chromates, which consists in subjecting a mixture of pulverized chrome ore and caustic potash to a temperature not exceeding 500° centigrade in the presence of air, agitating the mixture during the period of heating, lixiviating the melt and freeing it from impurities, and separating the chromate from the lye by evaporation.

784,641. WEIGHING-SCOOP. John L. Taylor, Benton Harbor, Mich. Filed May 17, 1904. Serial No. 208,416.

Claim.—1. A weighing apparatus comprising a scoop, arms secured to said scoop and spaced apart, plates between which said arms are supported, a handle provided with a scale thereon secured to said plates, springs secured to said plates and adapted to support said arms, and an indicator-finger having pivotal link-and-lever connections with said arms and adapted to move over said scale, as set forth.

2. A weighing apparatus comprising a scoop, arms secured to the latter with a handle detachably held to the scoop and having a scale on the surface thereof with slots adjacent thereto, plates spaced apart, pins carried by said plates, springs secured at their outer ends to the pins carried by said plates, pins fastened to said arms and to which the inner ends of said springs are fastened, said springs adapted to have tension in opposite directions as the arms are tilted means for limiting the throw of said arms in one direction, an indicator adapted to move over said scale, and pivotal link-and-lever connections between said indicator and said arms, as set forth.



3. A weighing apparatus comprising a scoop, a handle detachably held thereto and having a scale upon the surface thereof, arms secured to said scoop having shank portions spaced apart, pins connecting said arms, slotted plates held together by pins and between which said arms are mounted, a pin carried by said arms and having ends projecting beyond the sides thereof and adapted to have a play in curved slots in said plates, springs secured at their outer ends to pins carried by said plates and their inner ends secured to said arms, an indicating-pointer adapted to play over said scale, and pivotal link-and-lever connections with said arms intermediate said springs, as set forth.

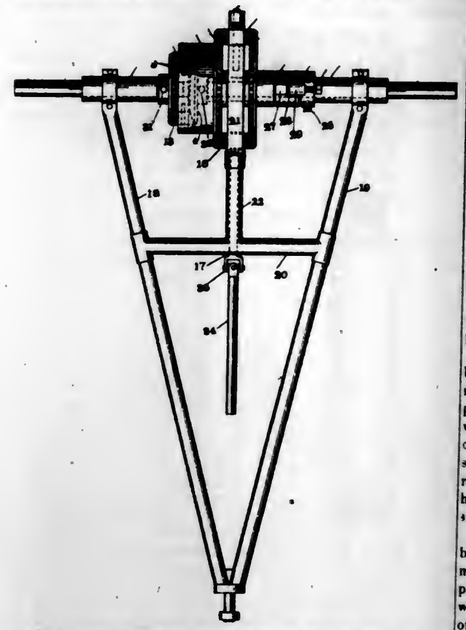
4. A weighing apparatus comprising a scoop, a handle detachably held thereto and provided with a scale upon the surface thereof, with a slot in said handle adjacent to said scale, arms fastened to the scoop and having shank portions which are spaced apart, slotted plates and pins for holding the same together and between which plates said arms are mounted, springs secured one at its outer end adjacent to the rear ends of said plates, and a second spring secured at its outer end adjacent to the forward ends of the plates, the inner ends of said springs being fastened to said arms, a stop-pin carried by said arms and projecting beyond the outer faces thereof and having play in curved slots in said plates, a link pivotally mounted between said arms, an indicating-pointer, and pivotal connections between the same and said link, as set forth.

5. A weighing apparatus comprising a scoop, a handle detachably held thereto and provided with a scale upon the surface thereof, with a slot in said handle adjacent to said scale, arms fastened to the scoop and having shank portions which are spaced apart, slotted plates and pins for holding the same together and between which plates said arms are mounted, springs secured one at its outer end adjacent to the rear ends of said plates, and a second spring secured at its outer end adjacent to the forward ends of the plates, a stop-pin carried by said arms and projecting beyond the outer faces thereof and having play in curved slots in said plates, a link pivotally mounted between said arms, an indicating-pointer having a finger extending through said slot in the handle and adapted to move over said scale, and an angle-lever pivotally connected to said link and indicating-pointer, as set forth.

6. A weighing apparatus comprising a scoop, a hollow handle detachably held thereto and provided with a scale upon its surface with slots along the marginal edges thereof, arms secured to said scoop and having shank portions which are spaced apart, plates between which said arms are mounted, said plates having transverse apertures, pins carried by said plates, springs secured at their outer ends each to one of said pins and positioned in said transverse apertures, the inner ends of the springs being connected to said arms, an indicator having fingers projecting through said slots and adapted to move over said scale, a link pivotally supported by said arms, an angle-lever pivotally mounted upon said plates and having pivotal connection with said indicator and said links, as set forth.

784,642. TRANSMISSION-GEAR FOR AUTOMOBILES. Gustav A. Thode, Middlebranch, Nebr. Filed Mar. 25, 1903. Serial No. 149,415.

Claim.—1. A transmission-gear for automobiles, consisting of the combination of a shaft, a compensating gear, a second shaft axially alined with the first-named shaft, said compensating gear connecting the said shafts, a gear-wheel loosely mounted on the said second shaft and connecting directly to said compensating gear, a driving-pinion meshing with said gear-wheel, an idle gear also mounted on said second shaft and meshing with said pinion, and an idle pinion meshing with both said idle gear and said gear-wheel.



2. A transmission-gear for automobiles, consisting of the combination of a shaft, a gear-wheel loosely mounted on said shaft, a driving-pinion meshing with said gear-wheel, an idle gear also mounted on said shaft and meshing with said pinion, an idle pinion meshing with both said idle gear and said gear-wheel, and means for adjusting said idle gear to different positions along said shaft.

3. A transmission-gear for automobiles, consisting of the combination of a shaft, a gear-wheel loosely mounted on said shaft, a driving-pinion meshing with said gear-wheel, an idle gear also mounted on said shaft and meshing with said pinion, an idle pinion meshing with both said idle gear and said gear-wheel, a collar secured on said shaft, a second collar mounted loosely on said shaft between said idle gear and said first-named collar, and means carried by said first-named collar for adjusting said second collar to or from said idle gear.

4. A transmission-gear for automobiles, consisting of the combination of a shaft, a gear-wheel loosely mounted on said shaft, a driving-pinion meshing with said gear-wheel, an idle gear also mounted on said shaft and meshing with said pinion, an idle pinion meshing with both said idle gear and said gear-wheel, a collar fixed on said shaft, a second collar loosely mounted on said shaft between said first-named collar and said idle gear, two diametrically opposite projecting lugs on said second collar, also two similarly-located recesses in said second collar, two diametrically opposite projecting lugs on said first-named collar, said last-named lugs engaging in said recesses respectively, and adjusting-screws passing through the lugs on the first-named collar and engaging the lugs on the second collar.

5. A transmission-gear for automobiles, consisting of the combination of a shaft, a gear-wheel loosely mounted on said shaft, a driving-pinion meshing with said gear-wheel, an idle gear also mounted on said shaft and meshing with said pinion, an idle pinion meshing with both said idle gear and said gear-wheel, a collar fixed on said shaft, a second collar loosely mounted on said shaft between said first-named collar and said idle gear, means for preventing rotation of the second collar, two diametrically opposite projecting lugs on said second collar, two similarly-located lugs on said first-named collar, and adjusting-screws passing through the lugs on said second collar and engaging the lugs on the first-named collar.

6. A transmission-gear for automobiles, consisting of the combination of two bevel-gears facing each other and loosely mounted on the same shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, and a shaft to which one of said pinions is secured, the other of said pinions being an idler.

7. A transmission-gear for automobiles, consisting of the combination of two bevel-gears facing each other and loosely mounted on the same shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a shaft to which the other of said pinions is secured, a frame located between said gears, and bearings on said frame for said shafts and said pinions.

8. A transmission-gear for automobiles, consisting of the combination of two bevel-gears facing each other and loosely mounted on the same shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a shaft to which the other of said pinions is secured, a frame located between said gears, said frame surrounding said pinions, and bearings on said frame for said shafts and said pinions.

9. A transmission-gear for automobiles, consisting of the combination of a shaft, two bevel-gears facing each other and loosely mounted on the said shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a second shaft on which the other of said pinions is secured, a frame located between said gears and surrounding said pinions, and an extension on said frame forming a housing for said second shaft, and bearings on said frame for said shafts and said pinions.

10. A transmission-gear for automobiles, consisting of the combination of a shaft, two bevel-gears facing each other and loosely mounted on the said shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a second shaft on which the other of said pinions is secured, a frame located between said gears and surrounding said pinions, an extension on said frame forming a housing for said second shaft, and bearings on said frame for said second shaft and said pinions.

11. A transmission-gear for automobiles, consisting of the combination of a shaft, two bevel-gears facing each other and loosely mounted on the said shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon one of said pinions being an idler, a second shaft on which the other of said pinions is secured, a frame between said gears and surrounding said pinions, and bearings on said frame for said pinions.

12. A transmission-gear for automobiles, consisting of the combination of a shaft, two bevel-gears facing each other and loosely mounted on the same shaft, one of said gears being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a second shaft on which the other of said pinions is secured, a frame located between said gears and surrounding said pinions, a bearing at one portion of said frame for said second shaft, and a pin having a seating at the opposite portion of said frame, said pin forming a bearing for said idle pinion.

13. A transmission-gear for automobiles, consisting of the combination of two axially-alined shafts, a compensating gear connecting the said shafts, equalizing-pinions for said compensating gear, bearings for said equalizing-pinions, a bevel-gear loosely mounted on one of said shafts, a tube-like flange integral with the back of said bevel-gear, said bearings being secured to the inside of said flange, a second bevel-gear loosely mounted on the same shaft and facing the first-named gear, said last-named gear being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a third shaft on which the other of said pinions is secured, a frame located between said gears and surrounding said pinions, a bearing at one portion of said frame for said third

shaft, and a pin having a seating at the opposite portion of said frame, said pin forming a bearing for said idle pinion.

14. A transmission-gear for automobiles, consisting of the combination of two axially-alined shafts, a compensating gear connecting the said shafts, equalizing-pinions for said compensating gear, bearings for said equalizing-pinions, a bevel-gear loosely mounted on one of said shafts, a tube-like flange integral with the back of said bevel-gear, said bearings being secured to the inside of said flange, a second bevel-gear loosely mounted on the same shaft and facing the first-named gear, said last-named gear being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler.

15. A transmission-gear for automobiles, consisting of the combination of two axially-alined shafts, a compensating gear connecting the said shafts, equalizing-pinions for said compensating gear, bearings for said equalizing-pinions, a bevel-gear loosely mounted on one of said shafts, a tube-like flange integral with the back of said bevel-gear, said bearings being secured to the inside of said flange, a second bevel-gear loosely mounted on the same shaft and facing the first-named gear, said last-named gear being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a third shaft on which the other of said pinions is secured, a collar fixed on the same shaft on which the two bevel-gears are mounted, a second collar loosely mounted on said shaft between, and contiguous to both, said first-named collar and said idle gear, two diametrically opposite projecting lugs on said second collar, also two similarly-located recesses in said second collar, two diametrically opposite projecting lugs on said first-named collar, said last-named lugs engaging in said recesses respectively, adjusting-screws passing through the lugs on the first-named collar and engaging the lugs on the second collar, a frame, bearings on said frame for all of said shafts, a portion of said frame extending between said bevel-gears and surrounding said pinions, and a pin having a seating in said frame portion, said pin forming a bearing for said idle pinion.

16. A transmission-gear for automobiles, consisting of the combination of a rotary shaft, a bevel-gear mounted on the said shaft and operatively connected thereto, a second bevel-gear like the first loosely mounted on said shaft and facing the said first-named gear, said second gear being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a shaft to which the other of said pinions is secured, a frame located between said gears, and bearings on said frame for said shafts and said pinions.

17. A transmission-gear for automobiles consisting of the combination of a rotary shaft, a bevel-gear mounted on the said shaft and operatively connected thereto, a second bevel-gear like the first loosely mounted on said shaft and facing the said first-named gear, said second gear being an idler, two bevel-pinions located between said gears and each of said pinions meshing with both of said gears at diametrically opposite points thereon, one of said pinions being an idler, a second shaft to which the other of said pinions is secured, a frame located between said gears, said frame surrounding said pinions, and bearings on said frame for said shafts and said pinions.

784,643. MASSAGE-MACHINE. GEORGE F. TROTTER, Louisville, Ky., assignor to Universal Manufacturing Company, Louisville, Ky., a Corporation of Kentucky. Filed Mar. 5, 1904. Serial No. 196,679.

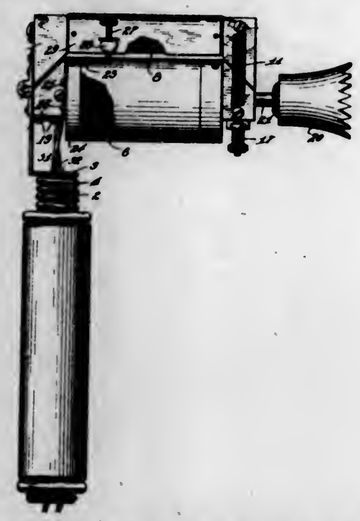
Claim.—1. A massage-machine carrying a non-vibratory massage device and a means vibrating on the machine and inducing vibration therein.

2. A massage-machine carrying a massage device in non-vibratory relation thereto, and having mounted on the machine, an electromagnetic vibrator inducing vibration in the machine.

3. In a massage-machine, the combination with a handle and a vibratory mechanism; of a yielding connection between said handle and said vibratory mechanism.

4. In a massage-machine, the combination with a primary electromagnet, and a secondary electromagnet adjacent thereto; of a contact on said secondary magnet, and a terminal on said primary magnet, said contact and terminal being so connected to the wires supplying current to the machine, that by their contacting, the secondary magnet is connected in parallel with the primary electromagnet.

5. In a massage-machine, the combination with a primary electromagnet, and a secondary electromagnet; of line-wires connected to the terminals of said primary electromagnet, a wire connecting one end of the secondary magnet-coil with one of said line-wires, a contact electrically connected with the other end of said secondary magnet-coil, and a terminal mounted upon the primary magnet in the path of said contact and electrically connected with the other of said line-wires, whereby the two magnets are automatically connected in parallel when the primary magnet attracts the secondary magnet.

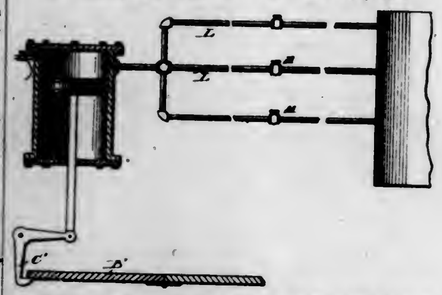


6. In a massage-machine, the combination with a primary electromagnet, and a secondary electromagnet; of a hinge connecting one end of said primary magnet with one end of said secondary magnet, and springs holding the other end of the secondary magnet in proximity to the other end of the primary magnet, and automatic means for short-circuiting the operating-current of the machine.

7. In a massage-machine, the combination with an electromagnet and its armature, of a handle, and means providing a yielding connection between said handle and magnet.

8. In a massage-machine, the combination with an electromagnet and its armature, of a handle and a spring connecting the handle with said magnet.

784,644. PNEUMATIC CONTROL OF DOORS. CHARLES M. WARNER, Memphis, Tenn. Filed Mar. 7, 1904. Serial No. 196,873.



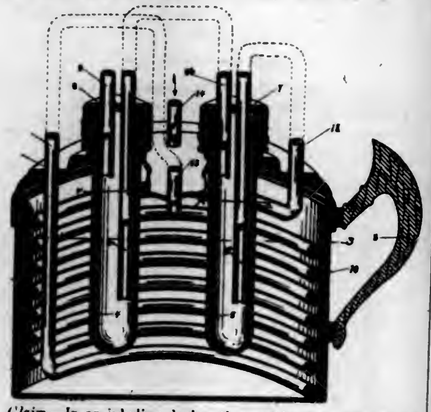
Claim.—1. The combination with a normally closed door, of a device for holding the door closed, a cylinder, a piston in the cylinder, connections whereby the movement of the piston may withdraw the door-holding device and release the door, a source of compressed air, a conduit leading from said source to said cylinder and having branches reaching various distant points, and independent hand-operated closures for the conduit located at said points, respectively.

2. The combination with a closure for any passage, of a spring tending to open the same, means whereby a body of compressed air resists such action of the spring, a conduit leading from said body to various distant points, and a hand-operated conduit-opening device at each of said points, whereby one at any of said points may instantly remove said resistance.

3. The combination with a door, of devices normally holding the door closed, a cylinder, a piston in the cylinder operatively connected with said devices, a source of compressed air, a conduit extending from said cylinder to various distant points and communicating with said source, and hand-operated means at each of said distant points for opening and closing the passage in said conduit, whereby the pressure in the cylinder may be instantly changed by a person at any of the distant points.

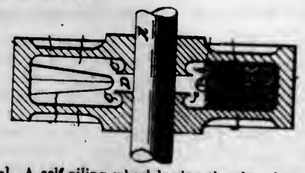
4. The combination with a closure for any passage, of a spring tending to open said closure, means whereby a body of compressed air prevents such action of the spring, conduits leading from said body to distant points, and a hand-operated conduit-opening device at said points; whereby a distant person may instantly bring said spring into action from any of several distant points.

784,645. INHALER. HUBERT L. WHITE, Utica, N. Y. Filed May 6, 1901. Serial No. 58,842.



Claim.—In an inhaling device, the combination of the closed tank having openings in the top, each provided with pipe-couplings, a coil of pipe within said tank, the ends of which project through the cover and are provided with similar pipe-couplings to that on the tank-opening, a closed medicine-receptacle depending from the cover into the tank, having an opening with a pipe-coupling similar to the others, a pipe having an external pipe-coupling similar to the others extending into the medicine-receptacle and substantially to the bottom thereof, a delivery-pipe attachable at any of said pipe-couplings, and connecting-tubes attachable at both ends to any of said pipe-couplings, whereby the device is adapted to be used, substantially as set forth.

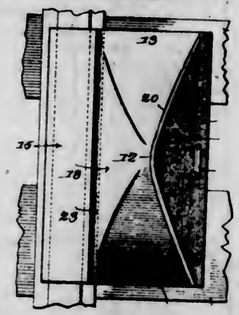
784,646. SELF-OILING WHEEL. WILLIAM W. WILLSON, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed May 4, 1901. Serial No. 58,681.



Claim.—1. A self-oiling wheel having the rim, the separated hubs arranged to expose the entire periphery of the shaft within the oil-chamber, the two-face webs, each integral with a hub-section and both with the rim, and the integral oil-lifting tines or fingers in transverse planes between the inner ends of the hub-sections, substantially as set forth.

2. A self-oiling wheel, having the rim, the two-face webs, the two hub-sections, each projecting inward from a web and arranged to expose the entire periphery of the shaft within the oil-chamber, and having a peripheral groove, and the oil-lifting tines or fingers, all arranged to provide the relatively enlarged oil-chamber extending from the rim to the shaft-aperture, substantially as set forth.

784,647. CAR-REPLACER. CHARLES E. WISE, Parkersburg, W. Va., assignor of one-half to James K. Fletcher, Parkersburg, W. Va. Filed Oct. 12, 1904. Serial No. 228,183.



Claim.—A car-replacer comprising a pair of members each provided with a platform inclined from the center downwardly toward its opposite ends and having a web along one side thereof provided with a longitudinal channel for engagement with the head of the rail, the opposite side of the platform being inclined to a horizontal plane and provided with a guiding-rib along the juncture of said inclined side and the adjacent surface of the platform, said platforms being likewise inclined in a downwardly-curving line between the centers of the guiding-ribs and said engaging webs, one of said members having a channel between its longitudinal web and the inclined surface of the adjacent platform for the reception of the flange of the car-wheel.

784,648. PROCESS OF MAKING RUBBER-CORED GOLF-BALLS. GEORGE C. WORTHINGTON, Elyria, Ohio. Filed Apr. 7, 1904. Serial No. 202,001.

Claim.—1. The process of making rubber-cored golf-balls, which consists in covering a compressible core with gutta-percha in a plastic, cohesive condition; in compressing and shaping said ball; in allowing the cover to set while subject to pressure; in reheating the cover sufficiently to render it slightly yielding to the outward pressure of the compressed core and plastic on its surface; in again compressing and shaping the ball, reducing its diameter and applying the desired surface markings thereto; and finally in cutting off the fin produced thereon during this last operation.

2. The process of making golf-balls, which consists in covering a wound rubber core with gutta-percha in a plastic, cohesive condition; in forming the ball by pressure into a smooth sphere of slightly larger diameter than the finished ball is to be; in allowing the same to cool and set while subject to pressure; in trimming off the adhering fin; in reheating this cover slightly so that it is slightly yielding to the outward pressure of the compressed core and is plastic on its surface; in forming said ball by pressure into a sphere of the desired diameter and having the desired surface markings; and in finally trimming off whatever fin remains attached to the ball.

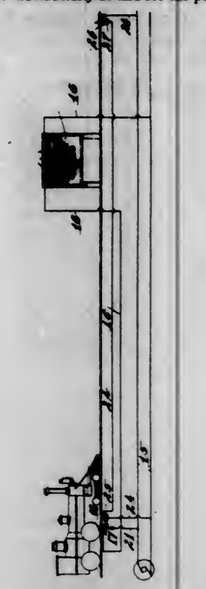
784,649. ADVERTISING APPARATUS. WILLIS B. WORTHY, Chicago, Ill. Filed Nov. 3, 1904. Serial No. 231,207.

Claim.—1. An advertising apparatus for use in connection with railroads, comprising a sign along the track, devices for illuminating the sign, and means controlled by the passage of the car on the track for bringing the illuminating devices into action at intervals and during the passage of the train or car, substantially as described.

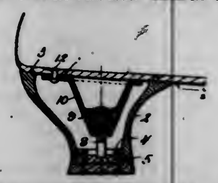
2. An advertising apparatus for use in connection with railroads, comprising a sign along the track, devices for illuminating the sign, and means for bringing the illuminating devices into action at intervals and by intermittent flashes during the passage of the car or train, substantially as described.

3. In an advertising apparatus for railroads, the combination of a sign located alongside of, and facing, the road-bed, electric illuminating devices adjacent the sign, a circuit including the illuminating

devices, means operated automatically by an approaching train for closing said circuit when the sign comes within the field of vision of the passengers carried on the train, and means operated by the train for opening the circuit when the sign leaves the field of vision of the passengers, substantially as and for the purpose set forth.



784,650. **HEEL.** WILLIAM F. KARWELL and JOSEPH B. CULLEN, Milwaukee, Wis. Filed Nov. 12, 1903. Serial No. 130,950.



Claim.—1. A heel, comprising a metal shell having pointed projections on its upper edge for engagement with a shoe-sole, and an inner horizontal flange adjacent to its lower end, extending continuously all around the inner wall of said shell and projecting inwardly only a slight distance therefrom; a flanged nut, and means for securing same permanently to said sole, independently of the shell; a vertically-perforated block located beneath the shell-flange; and a screw, extending through said block and engaging with said nut, the head of said screw serving to hold said block against said shell-flange.

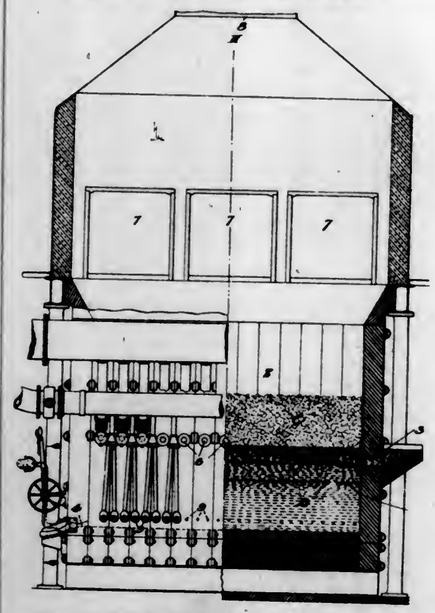
2. A heel, comprising a metal shell, adapted to be held against a shoe-sole free from permanent attachment thereto, and provided with an inner narrow encircling horizontal flange adjacent to its lower end; a flanged nut permanently secured to said sole, within said shell, but free from contact with the latter; a block of penetrable material located within the lower end of said shell below said shell-flange; a screw extending through said block, and in engagement with said nut; and a flexible tread-lift of an outline coincident with that of said lower end of the shell, immovably secured to said block.

3. A heel, comprising a metal shell with smooth inner walls, interrupted only by a narrow encircling flange adjacent to the lower end of the shell, and pointed projections extending from the upper edge of said shell; a nut having an upwardly-extending hollow wall terminating in a horizontal flange, and means for immovably securing the same to a shoe-sole independently of said shell; a wooden block having a vertical central opening therethrough, and the edges of said block extending under and beyond the edge of the said narrow flange of said shell; a screw extending through the opening in said block, and in engagement with the said nut, and a flexible tread-lift held by nails to said block and concealing the lower surfaces of said shell, block and screw.

4. In a hollow metal shoe-heel, the combination with a hollow nut having screw-threads in its lower portion only, and an upwardly-extending hollow wall terminating in an outwardly-projecting horizontal perforated flange; clenched nails extending through the perforations in said flange for attachment to a shoe-sole; a vertically-perforated block held in place in the lower part of said heel by a flange thereof; and a screw extending through the perforation in said block for engagement with said nut, but everywhere free from contact with the metal of said heel.

5. In a hollow metal shoe-heel, the combination with a hollow conical nut having a lower portion solid save for a vertical screw-threaded bore therethrough, and an upper annular flange with perforations therethrough, for attachment to a shoe-sole; of a narrow encircling horizontal flange integral with and projecting inwardly from the lower part of the metal heel, above the base-line thereof; a vertically-perforated block of penetrable material whose upper surface is in contact with said flange and whose edge is in contact with the shoe-heel below the said flange, the lower surface of this block being flush with the base-line of said heel; a screw holding said block to said nut, but everywhere free from contact with the metal of said heel; and a leather tread-lift nailed to said block and located entirely below the base-line of said heel.

784,651. **METHOD OF SMELTING ORE.** RALPH BAGGALEY, Pittsburg, Pa. Filed Apr. 8, 1904. Serial No. 202,195.



Claim.—1. The method herein described of producing matte which consists in forming a molten bath of matte, and charging a body of ore in such limited quantity that it will float with its bottom above the bottom of the furnace, and blowing air into the bath; substantially as described.

2. The method herein described of producing matte which consists in forming a molten bath consisting of matte, charging a body of ore in such limited quantity that it will float with its bottom above the level of the converting-twyers, and blowing air into the bath and into the body of ore above the bath; substantially as described.

3. The method herein described of producing matte, which consists in forming a molten bath of matte, charging a body of ore in such limited quantity that it will float with its bottom above the bottom of the furnace, and blowing air into the bath, and renewing the floating body of ore from time to time; substantially as described.

4. The method herein described of producing matte which consists in forming a molten bath of matte, charging a body of ore in such limited quantity that it will float with its bottom above the bottom of the furnace, and blowing air into the bath, withdrawing the slag above the level of the bath, and blowing air into the ore body above the level of the slag-outlet; substantially as described.

5. The method herein described which consists in blowing a converting-blast into a body of molten matte and maintaining a floating body of unfused charge material to retain heat in the bath and prevent splashing of slag or matte from the action of the converting-twyers; substantially as described.

784,652. **GAGE OR GAGING-TOOL.** ARTHUR L. BEARDSLEY, Chicago, Ill. Filed June 30, 1904. Serial No. 214,765.

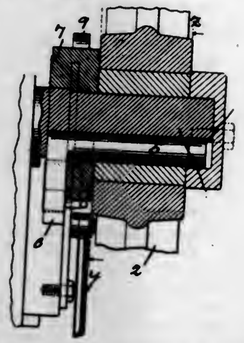


Claim.—1. A tool-gage comprising two members of substantially semicircular outline pivoted together above the middle portions of their straight edges, and one of said straight edges provided with a graduated scale at one side of said pivot and the other at the other side.

2. A tool-gage consisting of upper and lower semicircular plates pivotally connected at their straight edges above their center and said plates having graduated scales extending from said pivot-point in opposite directions one from the other, and the lower of said plates having a graduated scale along its outer curved edge overlapped by the said upper plate.

3. A tool-gage consisting of two members of substantially semicircular shape pivoted together at their straight edges above their middle portions, and having graduated scales extending from said pivots in opposite directions one from the other, and one of said members having a graduated scale along its circular edge and overlapped by the other member, substantially as described.

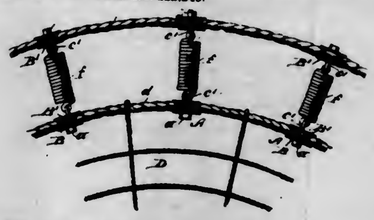
784,653. **CLUTCH.** OTTO S. BEYER, East Rutherford, N. J., assignor to The E. W. Bliss Company, a Corporation of West Virginia. Filed Sept. 24, 1903. Serial No. 174,412.



Claim.—1. In a clutch, the combination of a driving member and a driven member, corresponding grooves in the driving and driven members, an oscillatory key adapted to occupy both grooves or one of said grooves only, means for normally keeping said key in both grooves, a projection on the said key, a pivoted stop for engaging with the said projection to turn the key entirely into one of the said grooves, means for moving said pivoted stop out of the path of the projection of the key, a tripping member on the driven member, a tripping-lever pivoted on the stop and adjustable so as to be in contact or out of contact with the tripping member aforesaid, and adapted when engaged by the said tripping member to release the stop, and means for moving the said stop into the path of the projection of the key after said stop is released by the tripping member.

2. In a clutch, the combination of a driving member and a driven member, corresponding grooves in the driving and driven members, an oscillatory key adapted to occupy both grooves or one of said grooves only means for normally keeping said key in both grooves, a projection on the said key, a stationary bracket, a stop pivoted on said bracket, means for normally keeping the said stop in the path of the projection of the key, so as to turn the said key entirely into one of the said grooves, a tripping member on the driven member, a stud on the pivoted stop, a tripping-lever pivoted on the said stud, and adapted to be adjustably secured on the bracket so as to be in the path or out of the path of the tripping member aforesaid, and means connected to the said tripping-lever for moving the stop out of the path of the projection of the key.

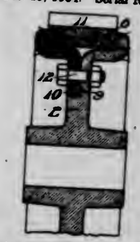
784,654. **CLAMPING AND ATTACHING DEVICE.** THEIS BIEL, Jersey City, N. J., assignor to C. N. Richardson, New York, N. Y. Filed Aug. 26, 1904. Serial No. 222,348.



Claim.—1. A clamping and attaching device for a rope comprising a pair of plates having openings, one of which is non-circular and adapted to engage a loop, and a bolt having at one end an eye or loop engaged in said opening, and at the other end a screw-thread and nut, substantially as described.

2. The combination with a rope and a pair of curved plates thereon having openings, of a bolt therefor having at one end a loop and at the other end a screw-thread and nut, the opening in one plate being adapted to engage said loop to prevent the bolt from turning, substantially as described.

784,655. **SECTIONAL WHEEL.** FLORENCE C. BIGGERT, Jr., Idlewood, Pa. Filed Oct. 19, 1904. Serial No. 229,112.



Claim.—1. A sectional wheel, having flanges or ribs and a rim carried thereby and grooved to receive the flanges or ribs.

2. A sectional wheel, having flanges or ribs, a rim carried thereby and grooved to receive the flanges or ribs, means for securing the same together, and other means for preventing the rotation of the rim on the flanges.

3. A sectional wheel, having a rim having circular grooves, and flanges or ribs seated in said grooves and supporting inward thrusts on said rim.

4. A sectional wheel, having a rim having wedging circular grooves and wedging flanges or ribs seated in said grooves and supporting inward thrusts on said rim.

5. A sectional wheel, having a peripheral portion having opposing flanges, a rim portion having grooves to receive the said flanges, means to prevent the rim from rotary movement relative to the flanges, and means to secure the said parts together.

6. A sectional wheel, having a hub, a web, and a peripheral portion, the latter composed of a rim having grooves on its opposite sides, a flange integral with the web and having its free end extend-

ing back over itself and fitting in one of said grooves, a second flange, a web portion and its free end extending back over itself and fitting in the other of said grooves, means to prevent the rim from rotary movement on said flanges, and bolts extending through the said web and the web portion.

7. A sectional wheel, having a hub, a web, and a peripheral portion consisting of a rim having lateral grooves, and flanges carried by the web, one flange being integral with the web and distinct therefrom, and bolts passing through the web for securing the parts together.

8. A sectional wheel, having a peripheral portion having opposing flanges, a rim portion having grooves to receive the said flanges, means to prevent the rim from rotary movement relative to the flanges, and means to secure the said parts together, the key and keyway having diverging side walls.

9. A sectional wheel, having a rim and means for supporting the same, one part having a keyway and the other a key to fit the same, the key having its sides diverging, and its outer face inclined toward the axis of the wheel.

10. A sectional wheel, having a pair of opposing flanges, a key between the same, a rim secured between the flanges and provided with a keyway to receive said key.

784,656. **NON-REFILLABLE BOTTLE.** HENRY W. BRENT, Jr., New York, N. Y., assignor of one-fourth to Charles S. Wilson, Washington, D. C. Filed July 5, 1904. Serial No. 215,342.

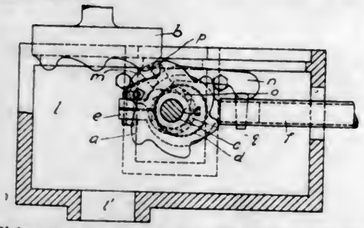


Claim.—1. A non-refillable bottle having in combination a bottle-body with an integral neck extension, a conical valve-seat separate from the bottle-body and having a surrounding yielding jacket or annulus whereby a tight joint is formed and the valve-seat is adjustably held in said neck extension, a ball-valve adapted to engage said seat, a controller-ball adapted to rest upon said ball-valve, a separate neck seated on top of the said neck extension of the body and having internal means forming a tortuous passage for the fluid, and means rigidly uniting said neck portions, said separate neck having its lower end serving as a trackway for the controller-ball.

2. A non-refillable bottle having in combination a bottle-body with a neck extension, a conical valve-seat separate from said body and having a surrounding jacket of compressible material closely fitting the said neck extension, a ball-valve to engage said seat, a controller-ball adapted to rest upon the valve, a separate neck seating on top of the neck extension and having an annular inclined trackway on its bottom edge and having oppositely-projecting lugs forming a tortuous passage, said trackway normally close to the controller-ball to allow but slight movement to the latter when the bottle is inclined to the perpendicular, and said lugs forming a stop for the controller-ball when the bottle is substantially inverted, and a band surrounding separate neck and neck extension of the body and rigidly united to both and covering the joint therebetween.

3. A non-refillable bottle having in combination a body and two aligned neck portions one separate from the other and having its lower edge provided with an annular track, said separate neck having, also, a tortuous passage and a cork or stopper, a separate valve-seat of conical form in the lower neck portion, a ball-valve and a weight-ball thereon and contained in said lower neck portion close to said track and contact with which is made when the bottle is inclined out of a perpendicular, and a band surrounding the neck portions and covering the joint therebetween said band and neck portions having threaded engaging portions.

784,657. **MEANS FOR OPERATING RAILWAY-SWITCHES.** ROBERT C. BULLOUGH, Manchester, England. Filed July 20, 1904. Serial No. 217,309.



Claim.—1. In apparatus for operating a point-tongue for tramways or railways, the combination of an operating device attached to a car, a wheel capable of being turned a half-revolution upon engagement with the said operating device, said wheel being journaled to rotate in a vertical plane, an eccentric or crank connected to the wheel, a reciprocable rod attached at one end to the crank or eccentric, a point-tongue, and means for connecting the rod and the point-tongue.

2. Apparatus for operating a point-tongue in tramways or railways, consisting of a wheel journaled to rotate in a vertical plane and capable of being turned a half-revolution upon engagement with an operating device carried by the car, an eccentric or crank connected to the wheel, a reciprocable rod connected to the crank or eccentric and means for transmitting the motion of the rod to the point-tongue in such a manner that as the rod is moved alternately in opposite directions the point-tongue is moved from one position to the other, substantially as described.

3. In apparatus for operating a point-tongue in tramways or railways, a wheel journaled to rotate in a vertical plane upon engagement with an operating device carried by a passing car, an eccentric or crank connected to such wheel and means by which the motion of the wheel is transmitted to cause the required motion of the point-tongue, substantially as described.

4. The combination with a movable switch tongue or point, of a toothed wheel journaled in a vertical plane and having a portion of its toothed periphery projecting up into the flange-groove of the adjacent fixed track-rail, and a connecting-rod forming an operating connection between the said wheel and the movable tongue or point.

5. The combination with a movable point-tongue, of a member journaled to rotate in a vertical plane and having its peripheral portion extending up through the bottom of the groove or floor of the rail, means carried by the car for imparting a partial rotation to the said member, and operating connections between said member and the point-tongue, substantially as described.

6. The combination with the rotatable member and the operating connections between the same and the point-tongue, of pawl-and-ratchet devices whereby said member may be manually operated, substantially as described.

784,658. **RACK FOR INDEXING-MACHINES.** JOHN J. BURKE, Cincinnati, Ohio. Filed July 1, 1904. Serial No. 214,855.



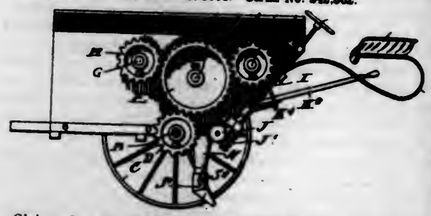
Claim.—1. A rack for index-cutting machines consisting of a bar having a longitudinal groove therein, a series of independent teeth having bases to seat in the groove and a series of independent spacing-blocks having bases to seat in the groove and means for clamping the bases of the teeth and of the blocks in the groove.

2. A rack for index-cutting machines consisting of a bar having a longitudinal way cut therein, a longitudinal key seated in the way, independent teeth in the way and set-screws for engaging the key and clamping the teeth in the way.

3. A rack for index-cutting machines consisting of a bar having a longitudinal inwardly-flaring groove, independent teeth having similarly-flared bases for engaging the groove, spacing-blocks having similar bases for engaging the groove and means for clamping the teeth and the blocks in the groove.

4. A rack for index-cutting machines having a series of perforations upon its side, a bell-crank lever carrying a pawl for engaging the rack, thumb-screws for engaging the perforations, and a block slotted for adjustment upon the screws and carrying a stud to engage said lever to limit the travel of the rack.

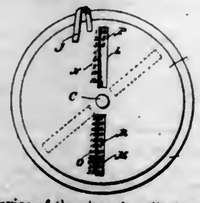
784,659. **FERTILIZER-DISTRIBUTER.** NEAL A. BUTLER, Hampton, Va. Filed Jan. 23, 1905. Serial No. 242,362.



Claim.—1. A fertilizer-distributer comprising a box, a driving-axle, wheels turning therewith, stirrer-shafts having gear connection with said axle, exit feed-pipes swiveled to the under side of the box, worm-teeth about the circumference of said pipes, worm-wheels mounted upon a suitable shaft and in mesh with the worm-teeth upon said pipes, means for rotating said worm-wheels, and angled nozzles mounted upon said pipes, as set forth.

2. A fertilizer-distributer comprising a box, a driving-axle, wheels turning therewith, stirrer-shafts having gear connection with said axle, exit feed-pipes swiveled to the under side of the box, worm-teeth about the circumference of said pipes, worm-wheels mounted upon a suitable shaft and in mesh with the worm-teeth upon said pipes, angled nozzles adjustably held upon said pipes, an operating-wheel, a shaft carrying the same mounted in suitable bearings and having gear connection with the worm-wheel-carrying shaft, as set forth.

784,660. **LUMBER-COMPUTER.** JOSH E. CHRITTON, Rockyford, Colo., assignor of one-half to Henry E. Burkdoll, Rockyford, Colo. Filed July 19, 1904. Serial No. 217,268.

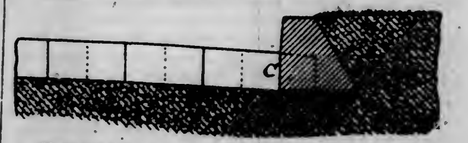


Claim.—1. A device of the class described including a pair of members which are concentrically pivotally connected, one of the members having a radial slot with a length-table at one side of the slot and an opening with a numeral indicating thickness adjacent the opening, the other member having a plurality of radial contents-tables capable of being individually exposed through the slot, and a circular series of numerals indicating widths to be exposed through the opening in the first-mentioned member.

2. A device of the class described including a pair of members which are concentrically pivotally connected, one of the members having a slot with a series of factor-numerals at one side thereof and also provided with an opening adjacent the slot with a factor-numeral adjacent the opening, and the other member being provided with a concentric series of factor-numerals capable of being exposed through the opening and a plurality of tables made up of numerals designating multiples of the factors and capable of being individually exposed through the slot.

3. A device of the class described comprising a pair of movably-connected members, one of said members having a pair of factor-numerals and a plurality of contents-tables arranged in coöperative relation with the respective factor-numerals thereof, one of said members being movable to bring the factor-numerals of the first-mentioned member into coöperative relation with any of the factor-numerals of the other member and a corresponding contents-table of the other member.

784,661. **PAVEMENT-CURB.** FRANK E. CUDELL, Cleveland, Ohio. Filed July 25, 1904. Serial No. 218,118.



Claim.—A pavement-curb, substantially as described, having an indented side below the pavement-level and under the curb-line, adapted to mesh with the paving-brick, and having a slanting rear side.

784,662. **BALL-CLEANING DEVICE.** HOWARD D. DAY, Providence, R. I. Filed Jan. 4, 1904. Serial No. 187,673.



Claim.—1. A device for cleaning balls comprising a brush; a support on which the brush is movably mounted, and a ball-holder on the support for holding the ball loosely and preventing bodily rotary movement of the ball with the brush.

2. A device for cleaning golf-balls comprising a brush; a support on which the brush is movably mounted; a stationary ball-holder adjacent to the brush adapted to hold a ball in contact with the brush, and means for wetting the brush.

3. A device for cleaning golf-balls, comprising a rotatable brush; a support on which the brush is mounted; and a ball-holder adjacent the brush adapted to hold a ball by gravity in contact with the brush, and means for wetting the brush.

4. A device for cleaning golf-balls, comprising a rotatable brush; a support on which the brush is mounted; a ball-holder adjacent to the brush adapted to hold a ball in contact with the brush by gravity and consisting of a box open on the side toward the brush, whereby a ball in contact with both the brush and one wall of the box will be allowed imperfect freedom of motion of rotation under the influence of the brush, and means for wetting the brush.

5. A device for cleansing golf-balls comprising a tank, a brush rotating therein, and a ball-holder adjacent to said brush and adapted to hold a ball by gravity in contact with the brush.

6. A device for cleaning golf-balls comprising a rotatable brush, and a ball-receptacle adjacent thereto and adapted to hold a ball by gravity in contact with the brush and so proportioned as to allow it freedom of lateral movement, said brush being provided with bristles of uneven length laterally of the periphery of the brush, whereby a lateral as well as a rotary movement will be imparted to the ball.

7. A device for cleaning golf-balls comprising a tank open at the top, a rotatable brush mounted therein, a removable bridge spanning the top of the tank and of the brush, and a ball-receptacle upon said bridge open at the bottom and adapted to hold a ball by gravity in contact with the brush.

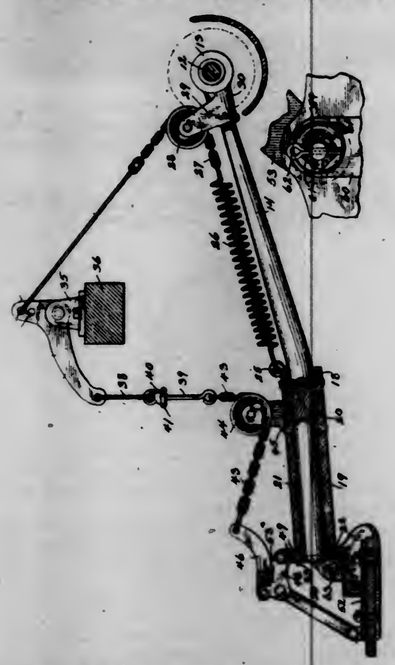
8. A device for cleaning golf-balls comprising a tank open at the top, a rotatable brush mounted therein, a removable cover or bridge spanning the top of the tank and open at the sides to admit of the convenient filling of the tank, and a ball-receptacle upon said

bridge open at the bottom and adapted to hold a ball by gravity in contact with the brush.

9. A device for cleaning golf-balls comprising the tank *c*, brush *e* mounted therein and provided with crank-handles *k*, ball-receptacle *b* suitably supported above said brush, emptying-tube *p* and bracket *x'* all organized and arranged substantially as shown and described.

10. A device for cleaning balls comprising a brush; a water-tank in which the brush is movably mounted, a ball-holder for rotatably supporting a ball in position to be acted upon by said brush and for holding said ball against bodily movement with the brush, and means substantially as described for emptying the tank.

784,663. **MOWER.** SAMUEL K. DENNIS, Chicago, Ill., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Jan. 24, 1902. Serial No. 91,094.



Claim.—1. In a mowing-machine, the combination with the main frame, of a coupling-frame connected thereto, a coiled spring connected at one end to said coupling-frame and extending longitudinally of the main bar thereof, a flexible connection secured to the other end of said spring, a bearing about which said connection passes, the finger-bar pivoted to said coupling-frame, and connections between said finger-bar and flexible connection whereby the tension of the spring tends to lift the finger-bar.

2. In a mowing-machine, the combination with the main frame, of a coupling-frame connected thereto, a coiled spring connected at one end to said coupling-frame and extending longitudinally of the main bar thereof, a flexible connection secured to the other end of said spring, a sheave on the inner end of said coupling-frame about which the flexible connection passes, a bell-crank lever pivoted to the main frame and connected to said flexible connection, the finger-bar pivoted to said coupling-frame and connections between the finger-bar and the bell-crank lever whereby the tension of the spring tends to lift the finger-bar.

3. In a mowing-machine, the combination with the main frame, of a coupling-frame hinged thereto, a coiled spring connected at one end to said coupling-frame and extending longitudinally of the main bar thereof, a flexible connection secured to the other end of said spring, a bearing about which said connection passes, the finger-bar pivoted to said coupling-frame, connections between said finger-bar and flexible connections whereby the tension of the spring tends to lift the finger-bar, and a lifting-crank coöperating with the connections secured to the finger-bar for the purpose described.

4. In a mowing-machine, the combination with the main frame, of a coupling-frame connected thereto, a coiled spring connected at one end to said coupling-frame and extending longitudinally of the main bar thereof, a flexible connection secured to the other end of said spring, a sheave mounted on the inner end of the coupling-frame about which said flexible connection passes, a bell-crank lever on the main frame to which said flexible connection extends, a second sheave near the outer end of said coupling-frame, a flexible connection with the bell-crank lever passing beneath said sheave, the finger-bar pivoted to said frame, and connections between said finger-bar and said second flexible connection whereby the tension of the spring tends to lift the finger-bar.

5. In a mowing-machine, the combination with the main frame, of a coupling-frame hinged thereto, a coiled spring connected at one end to said coupling-frame and extending longitudinally of the main bar thereof, a chain secured to the other end of said spring, a sheave secured near the inner end of the said coupling-frame about which said chain passes, a bell-crank lever pivoted on the main frame to which said chain is connected, a second sheave secured on said coupling-frame toward the outer end thereof, a second chain passing beneath said second sheave, links connecting said second chain with the bell-crank lever, the finger-bar pivoted to the coupling-frame, connections between said finger-bar and the second chain whereby the tension of the spring tends to raise the finger-bar, a lifting-crank pivoted on the main frame having the eye 41 through which the links connecting the second chain and the bell-crank lever pass, and a lug on said links with which said eye coöperates.

6. In a mowing-machine, the combination with the main frame, of a coupling-frame secured thereto, the collar 18 secured to the main bar of the coupling-frame and having the eye 25 thereon, the coiled spring 26 secured to said eye 25 at one end, the chain 27 secured to the other end of said spring, the sheave 28 journaled in the bearings 29 secured at the inner end of the main bar, the bell-crank 34, the link 31 connecting the chain 27 and the bell-crank 34, the sheave 44 journaled in the bearing 45 pivoted adjacent the collar 18, the chain 43 passing beneath said sheave, the links connecting said chain 43 and the bell-crank 34, the finger-bar pivoted to the coupling-frame, and connections between the chain 43 and the finger-bar whereby the tension of the spring 26 tends to raise the finger-bar.

7. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the finger-bar pivoted to said coupling-frame, a lever pivoted on the main frame, and connections between said lever and the finger-bar including the swinging link pivotally mounted on the end of said coupling-frame, and the combined link and lever member, 46, pivoted thereon and coöperating therewith.

8. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the finger-bar pivoted to said coupling-frame, a lever pivoted on the main frame, and connections between said lever and finger-bar including the fulcrum-link pivotally mounted on the end of said coupling-frame, and the gag-lever pivotally mounted on said fulcrum-link and coöperating therewith.

9. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the main bar constituting a part thereof, the finger-bar pivoted to said coupling-frame, a lever pivoted on the main frame, and connections between said lever and the finger-bar, the collar 22 secured on the outer end of the main bar and having a yoke thereon, the fulcrum-link pivoted in said yoke, and the gag-lever pivoted to the fulcrum-link and coöperating therewith.

10. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the main bar constituting a part thereof, the collars 18 and 22 secured on the drag-bar, the yoke pivotally mounted on said main bar between said collars, the finger-bar pivoted to said yoke, a lever pivoted on the main frame, and connections between said lever and finger-bar including the sheave 44 mounted adjacent the collar 18, the chain passing beneath said sheave, the gag-lever 46 connected to said chain and to the fulcrum-link 48, the fulcrum-link 48 pivoted to the collar 22, and the link 50 pivoted to the fulcrum-link 48 and the finger-bar.

11. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the finger-bar pivoted to said coupling-frame, a lever pivoted on the main frame, and connections between said lever and finger-bar including the fulcrum-link having the fulcrum-lug thereon, and the gag-lever pivoted to said fulcrum-link and coöperating with said fulcrum-lug.

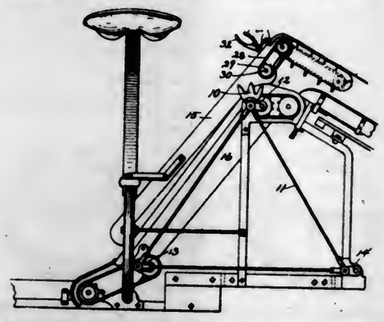
12. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the main bar constituting a part thereof, the finger-bar pivoted to said coupling-frame, a lever pivoted on the main frame, a collar secured on the outer end of the main bar, and connections between said lever and finger-bar including a member secured on said collar and adapted to change a horizontal pull of said connections along the coupling-frame into a vertical lift on the finger-bar.

13. In a mowing-machine, the combination with the main frame, the coupling-frame pivoted thereto, the main bar constituting a part thereof, the coupling-frame yoke pivotally secured on the outer end of the main bar, the collars 18 and 22 secured to said main bar and between which the yoke is mounted, the coiled spring 26 secured to said collar 18 at one end and having the chain 27 secured to the other end, the sheave 28 secured to the inner end of the coupling-frame and about which the chain 27 passes, the bell-crank lever pivoted to the main frame and connected to the chain 27 by the link 31, the collar 45, the sheave 44 mounted thereon, the chain 43 passing beneath the sheave 44 and connected to the bell-crank 34, the gag-lever 46 having its inner end turned upwardly and its outer end pivotally secured to the fulcrum-lever 48, the fulcrum-lever 48 having the lug 53ª thereon and pivotally mounted on the collar 22, the finger-bar pivotally mounted on the coupling-frame yoke, and the link 50 connecting the finger-bar with the fulcrum-lever 48.

14. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, having a bearing thereon, the coupling-frame yoke on said bearing, the finger-bar pivoted to said coupling-frame yoke, a lever pivoted on the main frame, and connections between said lever and the finger-bar including the swinging link pivotally mounted on said coupling-frame beyond the bearing for the coupling-frame yoke.

15. In a mowing-machine, the combination with the main frame, of the coupling-frame connected thereto, the collar 45 pivotally mounted thereon, the sheave 44 supported by the collar, the finger-bar pivoted to said coupling-frame, a lever pivoted on the main frame, and connections between said lever and the finger-bar including the chain 43 passing beneath the sheave 44; substantially as shown and described.

784,664. **HARVESTER.** SAMUEL K. DENNIS, Chicago, Ill., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Dec. 19, 1902. Serial No. 135,839.



Claim.—1. In a harvester, the combination with the open-ended elevator, of the binder-deck adjacent thereto to receive the grain from the elevator, the triangular frame for rotating the canvas-rollers of the elevator at the open end thereof, and the comb secured to the uppermost angle of said triangular frame in position as it moves to engage the projecting ends of the grain and carry it from the elevator to the deck.

2. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto adapted to receive the grain from said elevator, and an endless conveyer transversely adjustable at its point of support located at the top of the elevator and extending downward over the deck in position to engage the body of the grain and carry it to the packer-arms.

3. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto adapted to receive the grain from said elevator, and an endless conveyer transversely adjustable at its point of support located at the top of the elevator and extending downward over the deck in position to engage the body of the grain and carry it to the packer-arms, said conveyer consisting of a toothed sprocket-chain coöperating with a pair of suitably-supported sprocket-wheels.

4. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, and an endless conveyer pivotally mounted and transversely adjustable at its upper end at the top of the elevator and having its lower end resting on the grain passing beneath it to the packer-arms, said conveyer consisting of a toothed sprocket-chain coöperating with a pair of suitably-supported sprocket-wheels.

5. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, an endless conveyer pivotally mounted and transversely adjustable at its upper end at the top of the elevator and having its lower end resting on the grain passing beneath it to the packer-arms, and a latch for holding it in any position of adjustment without interfering with its vertical movement.

6. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, a shaft mounted in the upper part of the elevator-frame parallel to the elevator-rollers, driving connections between said shaft and elevator, and a conveyer consisting of a frame having sprocket-wheels journaled in its ends, the upper wheel being splined on said shaft so as to be transversely adjustable thereon, and a toothed sprocket-chain on said wheels.

7. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, a shaft mounted in the upper part of the elevator-frame parallel to the elevator-rollers, driving connections between said shaft and elevator, and a conveyer consisting of the plates 23, the interposed block 24, the sprocket-wheels 21 and 22 journaled in said plates, the wheel 21 being splined on said shaft so as to be transversely adjustable thereon, and the toothed sprocket-chain connecting said wheels.

8. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, a shaft mounted in the upper part of the elevator-frame parallel to the elevator-rollers, driving connections between said shaft and elevator, and a conveyer consisting of the plates 23, the interposed block 24, the sprocket-wheels 21 and 22 journaled in said plates, the wheel 21 being splined on said shaft so as to be transversely adjustable thereon, and the toothed sprocket-chain connecting said wheels, and means for preventing excessive upward movement of the lower end of said conveyer.

9. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, a shaft mounted in the upper part of the elevator-frame parallel to the elevator-rollers, driving connections between said shaft and elevator, and a conveyer consisting of the plates 23, the interposed block 24, the sprocket-wheels 21 and 22 journaled in said plates, the wheel 21 being splined on said shaft so as to be transversely adjustable thereon, and the toothed sprocket-chain connecting said wheels, the notched flange adjacent said shaft, and a latch secured to the conveyer and coöperating with the notches.

10. In a harvester, the combination with the elevator, of the binder-deck adjacent thereto, a shaft mounted in the upper part of the elevator-frame parallel to the elevator-rollers, driving connections between said shaft and elevator, and a conveyer consisting of the plates 23, the interposed block 24, the sprocket-wheels 21 and 22 journaled in said plates, the wheel 21 being splined on said shaft so as to be transversely adjustable thereon, and the toothed sprocket-chain connecting said wheels, the notched flange adjacent said shaft, and a latch secured to the conveyer and coöperating with the notches and having the lug 38 thereon to prevent excessive upward movement of the lower end of the conveyer.

784,665. **CAR-FRAME.** EYRAN I. DODDS, Avalon, Pa., assignor to The Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Feb. 11, 1904. Serial No. 193,060.



Claim.—1. In combination with a center sill, bolster members on opposite sides of the sill and a flanged tension member uniting the bolster members across the center sill, said bolster members having integral flanges along their lower edges; substantially as described.

2. In combination with a center sill, bolster members on opposite sides of the sill and a tension member extending along the bolster members across the center sill, said bolster members having integral flanges along their lower edges, and the tension member being flanged and applied to the upper unflanged edge of the bolster members; substantially as described.

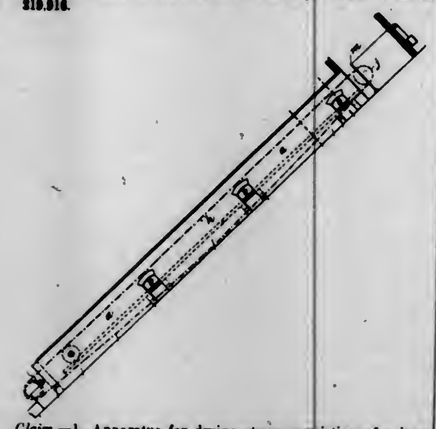
3. In combination with a center sill, bolster members on opposite sides of the sill and a flanged tension member extending along the unflanged edges of the bolster members and across the center sill, said bolster members being constituted in sections of flanged beams divided longitudinally through the web with bias cuts; substantially as described.

4. In combination with a center sill, bolster members having unflanged upper edges and abutting against opposite sides of the sill, and a flanged tension member extending along said bolster members and across the sill, said tension-member flanges being omitted above the sill; substantially as described.

5. In combination with a center sill, a plurality of bolster members on opposite sides of the sill, and a flanged tension member uniting the bolster members, said tension member being unflanged where it crosses the center sill; substantially as described.

784,666. APPARATUS FOR HEATING AND DRYING STAVES.

OLIVER L. ELLIS, London, England. Filed Aug. 8, 1904. Serial No. 219,916.



Claim.—1. Apparatus for drying staves consisting of a long chamber, a furnace whose products of combustion pass along the chamber, a plate running longitudinally up the chamber of less width than the chamber except where it passes above the furnace, an endless chain passing over the plate, and means for actuating the chain.

2. Apparatus for drying staves consisting of a long chamber, a furnace whose products of combustion pass along the chamber, a plate running longitudinally up the chamber of less width than the chamber, except where it passes above the furnace, an endless chain passing over the plate, sprocket-wheels at each end of the chamber engaging the chain, and means for turning the sprocket-wheels.

3. Apparatus for drying staves consisting of a long chamber, furnaces whose products of combustion pass along the chamber, a plate running longitudinally up the chamber of less width than the chamber except where it passes above the furnaces, endless chains passing over the plate, sprocket-wheels at each end of the chamber engaging the chains, and means for turning the sprocket-wheels.

784,667. FENCE-POST MOLD.

JACOB B. ENGERSON, Manchester, Iowa. Filed Oct. 26, 1904. Serial No. 230,419.



Claim.—1. In a mold of the character described, the combination with a supporting-frame, of a mold-trough hingedly connected thereto, one side of said trough being adapted to be removed, a tamping-plunger arranged above said trough, guide-rods on said plunger, means whereby said plunger is raised and lowered, and means whereby the same may be swung laterally to clear said trough, substantially as described.

2. In a mold of the character described, the combination with a supporting-frame, of a mold-trough arranged thereon, means whereby said trough may be swung to a horizontal position on said frame, means whereby one of the side boards of the trough is detachably supported to permit the same to be lifted from the trough thus facilitating the removal of a finished post, a plunger-supporting frame arranged above and hingedly connected to said standards, a tamping-plunger slidably mounted in said frame, and means whereby said plunger is raised and lowered, substantially as described.

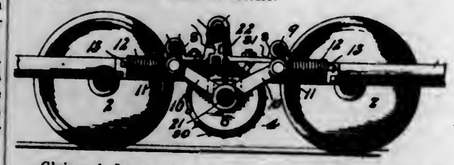
3. In a mold of the character described, the combination with a supporting-frame, of a mold-trough arranged therein, supporting-arms connected at their upper ends to said trough and hingedly connected at their lower ends to said frame, V-shaped brace-bars connected to one of the side boards of said trough and adapted to removably support the other side board, a plunger-frame arranged above and hingedly connected to said standards, a tamping-plunger slidably mounted in said frame, guide-rods arranged on said frames to guide said plunger in its movement, and means whereby said plunger is raised and lowered, substantially as described.

4. In a mold of the character described, the combination with a supporting-frame, of a mold-trough arranged therein, supporting-arms connected at their upper ends to said trough and hingedly connected at their lower ends to said frame, whereby said mold may be tilted to a horizontal position, means whereby the same is supported in said horizontal position, V-shaped brace-bars connected to one of the side boards of the mold and adapted to removably support the other side board, a weighted plunger-frame hingedly mounted on the upper ends of said standards, a plunger slidably mounted in said frame, pins arranged on the under side of said plunger to engage holes formed in the bottom of said trough, guide-rods arranged on said frames, to guide said plunger in its movements, and means whereby said plunger is raised and lowered, substantially as described.

5. In a mold of the character described, the combination with a supporting-frame, of a mold-trough arranged therein, supporting-arms connected at their upper ends, to said trough and hingedly connected at their lower ends to said frame, V-shaped brace-bars connected to one of the side boards of said trough and adapted to removably support the other side board, a plunger-frame arranged above and hingedly connected to said standards, a tamping-plunger slidably mounted in said frame, guide-rods arranged on said frames, to guide said plunger in its movement, rack-bars arranged on said plunger, an operating-shaft journaled on said plunger-frame, pinions fixed on said shaft to engage said rack-bars whereby when said shaft is turned in one direction or the other said plunger will be raised or lowered, and means whereby said shaft is turned, substantially as described.

784,668. CAR-BRAKE.

LEWIS J. EVANS, East Pittsburg, Pa. Filed May 5, 1904. Serial No. 206,455.



Claim.—1. In an emergency-brake, the combination of a vehicle, a brake-wheel, automatically-operated power-driven means for bringing said wheel into contact with the highway, means for normally suspending the operation of the power-driven means, and means for releasing said power-driven means.

2. In an emergency-brake, the combination of a vehicle, a rotary brake-wheel, automatically-operated power-driven means for bringing said wheel into rolling contact with the highway, means for normally suspending the operation of the power-driven means, and means for releasing said power-driven means.

3. In an emergency-brake, the combination of a vehicle, a brake-wheel, automatically-operated power-driven means for bringing said wheel into contact with the highway, means for normally suspending the operation of the power-driven means, and hand-operated means for releasing said power-driven means.

4. In an emergency-brake, the combination of a vehicle, a brake-wheel, springs for bringing said wheel into contact with the highway, means for normally suspending the operation of said springs, and means for releasing said springs.

5. The combination of a vehicle, a brake-wheel, springs adapted to bring the wheel into engagement with the highway, a brake-wheel shaft, links connected to the shaft and to the springs, means for normally suspending the operation of said springs, and means for throwing said suspending means out of operation.

6. The combination of a vehicle, a brake-wheel, power-driven means for bringing said wheel into contact with the highway, a brake-wheel shaft, a second shaft disposed above the brake-wheel shaft, flexible means connected to the brake-wheel shaft and to the second shaft for normally restraining the action of said power-driven means, and means for throwing the restraining means out of operation.

7. The combination of a vehicle, a brake-wheel, springs for bringing said wheel into contact with the highway, a brake-wheel shaft, a second shaft disposed above the brake-wheel shaft, flexible means connected to the brake-wheel shaft and to the second shaft for normally restraining the action of said power-driven means, and means for throwing the restraining means out of operation.

8. The combination of a vehicle, a brake-wheel, springs adapted to bring the wheel into engagement with the highway, a brake-wheel shaft, links connected to the shaft and to the springs, a second shaft disposed above the brake-wheel shaft, flexible means connected to the brake-wheel shaft and to the second shaft for normally restraining the action of said power-driven means, and means for throwing the restraining means out of operation.

9. The combination of a vehicle, a brake-wheel, springs adapted to bring the wheel into contact with the highway, a brake-wheel shaft, links connected to the shaft and to the springs, means for normally suspending the operation of said springs, and a pawl and segment for releasing said springs.

10. The combination of a vehicle, a brake-wheel, power-driven means for bringing said wheel into contact with the highway, a brake-wheel shaft, a second shaft disposed above the brake-wheel shaft, flexible means connected to the brake-wheel shaft and to the second shaft for normally restraining the action of said power-driven means, and a pawl and segment for releasing said springs.

11. The combination of a vehicle, a brake-wheel, a brake-wheel shaft, oppositely-disposed links journaled to said shaft, links journaled to the frame and pivotally connected to the aforementioned links, springs adapted to operate said links and force the brake-wheel into contact with the highway, and means for normally suspending said brake-wheel.

12. In an emergency-brake, the combination of a vehicle, a brake-wheel, power-driven means for bringing said wheel into contact with the highway, means for normally suspending the operation of the power-driven means, means for releasing said power-driven means and means for applying frictional contact between the brake-wheel and the vehicle.

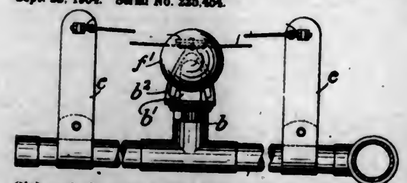
13. The combination of a vehicle, a brake-wheel, power-driven means for bringing said wheel into contact with the highway, means for normally suspending the operation of the power-driven means, means for releasing said power-driven means and means independent of the wheel contact for applying frictional contact between the brake-wheel and the vehicle.

14. The combination of a vehicle, a brake-wheel, springs adapted to bring the wheel into contact with the highway, means for normally suspending the operation of the springs, means for releasing said springs, and means for applying frictional contact between the brake-wheel and the vehicle.

15 The combination of a vehicle, a brake-wheel having a frictional face, a frictional disk adapted to engage said face, a pivoted bell-crank lever adapted to force the frictional disk into engagement with the brake-wheel and an arm connected with the brake-operating means for depressing the bell-crank lever.

784,669. AUTOMATIC FIRE SPRINKLER AND ALARM SYSTEM.

JAMES FIDDES and JOHN F. WATT, Aberdeen, Scotland. Filed Sept. 23, 1904. Serial No. 225,454.



Claim.—1. In a fire-sprinkler the combination with a water-pipe having a discharge-outlet of a frangible dome normally closing said outlet, a jointless slotted lever embracing said dome, means for supporting said lever and automatically releasing said lever on sudden rise of temperature, so as to fracture said dome.

2. Automatic fire-extinguishing apparatus comprising, in combination, a sprinkler, a dome of frangible material normally preventing the discharge of water from said sprinkler, a metallic wire, and a jointless lever having a slot embracing said dome and supported from said wire but automatically released on sag of said wire due to expansion to fracture said dome.

3. Automatic fire-extinguishing apparatus, comprising, in combination, a sprinkler, a dome of frangible material normally preventing the discharge of water from said sprinkler, a jointless weighted lever having a slot embracing said dome, a metal wire, and a catch supporting said lever from said wire and adapted on expansion of said wire to release said lever to fracture said dome, substantially as described.

4. Automatic fire-extinguishing apparatus, comprising, in combination, a sprinkler, a dome of frangible material normally preventing the discharge of water from said sprinkler, a jointless weighted lever having a slot embracing said dome, a metal wire, adjustable supports for the ends of said wire, and a catch supporting said lever from said wire and adapted to release said lever to fracture said dome on expansion of said wire, substantially as described.

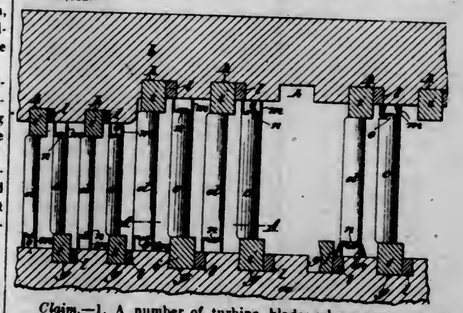
5. Automatic fire-extinguishing apparatus, comprising, in combination, a sprinkler, a frangible dome normally preventing discharge of water from said sprinkler, a jointless weighted lever having a slot embracing said dome, a metal wire, a pin entering a recess in the weighted end of said lever and a recess in a stationary part of said sprinkler, and supporting said lever from said wire, and adapted to release said lever on expansion of said wire.

6. Automatic fire-extinguishing apparatus, comprising, in combination, the water-pipe *c*, the discharge-box *b* on said pipe, the frangible dome *b'* normally preventing passage of water from said box *b* the lever *f*, *f'*, having a slot embracing said dome *b'*, the stretched wire *a* and the pin a^2, supporting said lever *f*, *f'* from said wire *a* as shown and described.

7. Automatic fire-extinguishing apparatus, comprising, in combination, the water-pipe *c*, the discharge-box *b* on said pipe *c*, the frangible dome *b'* normally preventing passage of water from said box *b*, arms b^3 surrounding said dome, the sprayer-plate b^3 supported by said arms, the stretched wire *a*, the eyebolts *a'* to which the ends of said wire are connected, brackets *e* on said pipe *c*, the lever *f*, *f'*, f^3 having a slot embracing said dome *b'*, and the pin a^2 a^2 supporting said lever from said wire, as shown and described.

784,670. FLUID-PRESSURE TURBINE.

HUGH F. PULLAGAR, Newcastle-upon-Tyne, England. Filed Mar. 19, 1904. Serial No. 198,012.



Claim.—1. A number of turbine-blades whose roots are of wedge-like section and a curved holding-strip formed with wedge-like notches in which the roots of the blades are fitted.

2. In a turbine, a number of blades whose roots are of wedge-like section and a curved holding-strip formed with wedge-like notches in which the roots of the blades are fitted, said strip with blades being secured in a groove.

3. In a turbine, a ring of blades comprising a number of blades whose roots are of wedge-like section and a curved holding-strip formed with wedge-like notches in which the roots of the blades are fitted, said strip with blades being secured in a groove by calking.

4. In a turbine, a ring of blades comprising a number of blades whose roots are of wedge-like section and a curved holding-strip formed with wedge-like notches in which the roots of the blades are

fitted, said strip with blades being secured in a groove by a calking-strip.

5. In a turbine, a number of radially-arranged blades whose roots are of wedge-like section and curved holding-strip having one of its sides formed with wedge-like notches in which the roots of the blades are fitted, said strip with blades being secured in a groove.

6. In a turbine a ring of blades comprising a number of radially-arranged blades whose roots are of wedge-like section, a ring of curved holding-strip having one of its sides formed with wedge-like notches in which the roots of the blades are fitted, a groove in a blade-carrying portion of the turbine and a calking-strip, the strip with blades and the calking-strip being fixed by the calking of the latter in the said groove.

7. In a turbine, the combination of a drum formed with a series of annular grooves, rings of radially-arranged blades having wedge-like roots, a curved holding-strip formed at one side with wedge-like notches into which the blade-roots fit, said strips with blades being secured in said grooves by calking, a casing surrounding said drum and formed with a series of internal annular grooves, radially-arranged blades having wedge-like roots, the curved holding-strip formed at one side with wedge-like notches in which the blade-roots are fitted, said strips with blades being secured in said grooves by calking and the rings of drum-blades alternating with rings of casing-blades as set forth.

8. A turbine-blade the body of which is of crescent-like cross-section and the root of wedge-like cross-section, as set forth.

9. A number of turbine-blades whose bodies are of crescent-like cross-section and whose roots are of wedge-like cross-section and a curved holding-strip formed with wedge-like notches into which the roots of the blades are wedged, as set forth.

10. In a turbine, a casing, a drum or spindle within the casing, rings of blades alternately secured to the casing and to the drum, and a baffling-strip attached to the free ends of each of said rings of blades and provided with a transversely-arranged flanged portion the free edges of which extend into close proximity of the casing and of the drum respectively, substantially as described.

11. In a turbine, a casing provided with a cylindrical bore, a cylindrical drum or spindle within the casing, rings of blades alternately secured to the casing and to the drum, and a baffler attached to the free ends of each of said rings of blades and having a relatively thin central portion and transversely-extending circumferential flanges at each lateral edge the free edges of which extend into close proximity with the bore of the casing and cylindrical surface of the drum respectively, substantially as described.

12. In a turbine, the combination of a turbine-drum, rings of radial blades, secured to said drum, a combined fitting and baffling strip attached to the outer ends of the blades of each of said rings, an inclosing casing, rings of radially-arranged blades secured to said casing, a combined fitting and baffling strip attached to the inner ends of the blades of each of said rings, the blade-rings of the drum and casing being arranged alternately and the fitting and baffling rings extending transversely of the turbine-axis into proximity to the casing and drum respectively, as set forth.

13. In a turbine, the combination of a turbine-drum, rings of radial blades formed with roots of wedge-like section, holding-strips formed at one side with wedge-shaped notches into which the roots of the said blades fit, said holding-strips being secured to the drum, combined fitting and baffling strips attached to the outer ends of the said rings of drum-blades, an inclosing casing, rings of radial blades formed with roots of wedge-like section, holding-strips formed at one side with wedge-shaped notches into which the roots of the blades fit, said holding-strips being secured to the casing, combined fitting and baffling strips attached to the ends of the blades of each of said rings, the blade-rings of the drum and casing being arranged alternately and the fitting and baffling strips extending transversely of the turbine-axis into proximity to the casing and drum respectively, as set forth.

14. In a turbine, the combination of a blade-carrying portion, a groove formed therein, a holding-strip formed at one side with wedge-shaped notches, radial blades whose roots are of wedge-like cross-section and fit in said notches and a calking-strip, said holding-strip with inserted blades and calking-strip occupying said groove and the calking-strip being located at the plain side of the holding-strip, as set forth.

15. In a turbine, the combination of a blade-carrying portion, a groove formed therein, a holding-strip formed at one side with wedge-shaped notches, radial blades whose roots are of wedge-like cross-section and fit in said notches and a calking-strip, said holding-strip with inserted blades and calking-strip occupying said groove and a fitting and baffling strip attached to the free ends of the blades and extending transversely of the turbine-axis, as set forth.

16. In a turbine, the combination of a blade-carrying portion, a groove formed therein, a holding-strip formed at one side with wedge-shaped notches, radial blades whose roots are of wedge-like cross-section and fit in said notches and a calking-strip, said holding-strip with inserted blades and calking-strip occupying said groove and a perforated angular fitting and baffling strip attached to the free ends of the blades and extending transversely of the turbine-axis, as set forth.

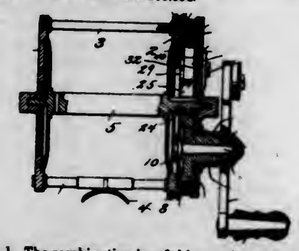
17. In a turbine, the combination of a blade-carrying portion, a groove formed therein, a holding-strip formed at one side with wedge-shaped notches, radial blades whose roots are of wedge-like cross-section and fit in said notches and a calking-strip, said holding-strip with inserted blades and calking-strip occupying said groove with the calking-strip at the plain side of the holding-strip and a fitting and baffling strip attached to the free ends of the blades and extending transversely of the turbine-axis, as set forth.

18. In a turbine, the combination of a blade-carrying portion, a groove formed therein, a holding-strip formed at one side with wedge-shaped notches, radial blades whose roots are of wedge-like cross-section and fit in said notches and a calking-strip, said holding-strip with inserted blades and calking-strip occupying said groove with the calking-strip at the plain side of the holding-strip and a perforated angular fitting and baffling strip attached to the free ends of the blades and extending transversely of the turbine-axis, as set forth.

19. A turbine-blade the body of which is of irregular crescent-like cross-section and the root of wedge-like cross-section, the two side surfaces of the wedge-like root being approximately in the same planes as the surfaces of the outlet edge portion of the blade-body, as set forth.

20. A turbine-blade the body of which is of irregular crescent-like cross-section and the root of wedge-like cross-section, the two side surfaces of the wedge-like root being approximately in the same planes as the surfaces of the outlet edge portion of the blade-body, and the third side of the wedge-like root being approximately parallel to the plane of rotation, as set forth.

784,671. FISHING-REEL. FRANK FULLILOVE, Owenton, Ky. Filed May 14, 1904. Serial No. 208,004.



Claim.—1. The combination in a fishing-reel, of a frame, a spool, a crank, gearing connections between the crank and spool, a click-spring for engaging one of said gears, a click-spring-holding stud having a threaded opening and provided with an annular recess for receiving a correspondingly-shaped end of the click-spring, and a screw engaged in said threaded opening of the stud and serving to retain the end of the click-spring in said recess.

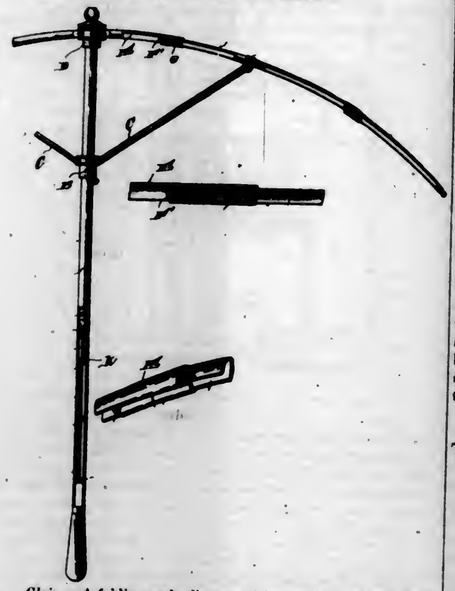
2. The combination in a fishing-reel, of a frame having a slot, a spool, a crank, gearing connections between the crank and spool, a stud having an annular recess and provided with a non-circular portion entering the slot, a spring having an opening for the passage of such non-circular portion of the stud, a screw for locking the stud in adjusted position, a click-spring having one end curved to conform to that of the annular recess of said stud, and a screw for confining the click-spring in position.

3. The combination in a fishing-reel, of a frame having a guiding-slot, a flanged spool, a crank, gearing connections between the crank and spool, a drag having a projecting head or stud for engaging the flange of the spool, said drag being formed of an inherently elastic arm tending to move away from the flange, a thumb-piece having a milled portion outside the frame, an arcuate flange inside the frame, a contracted neck between the outer and inner portions of the thumb-piece, said neck passing through the guiding-slot in the frame, and a headed stud carried by the flange, one end of the head being

adapted to engage the frame and the other serving to engage the drag, substantially as specified.

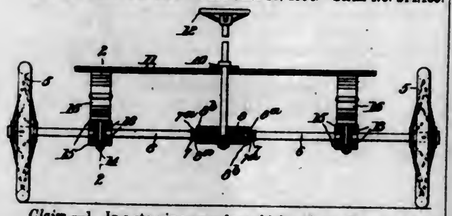
4. The combination in a fishing-reel, of a frame including a recessed disk and a ring, cross-bars uniting the two, a spool, a flanged disk forming a detachable portion of the frame and provided with peripheral threads, an internally-threaded ring embracing the frame-ring and engaging the threads of the flange, a crank supported by said flanged disk, and gearing connections between the crank and the spool.

784,672. FOLDING UMBRELLA. CAPTAIN P. FUNK, Jeromeville, Ohio. Filed Sept. 12, 1904. Serial No. 224,210.



Claim.—A folding umbrella comprising a stick made up of two sections, one carrying a handle and hollowed, the other section carrying a top and having a shoulder with a contracted threaded portion projecting beyond said shoulder and adapted to fit within said hollow section, an eye formed at the end of said threaded portion, a link pivotally connected to said eye, a rod having a headed portion working in said hollow section and pivotally connected to said link, a pin projecting at right angles on the inner surface of the hollow section and adapted to limit the outer throw of said headed rod, as set forth.

784,673. STEERING-GEAR FOR VEHICLES. THOMAS M. GEORGE, Cleveland, Ohio. Filed June 25, 1904. Serial No. 214,185.

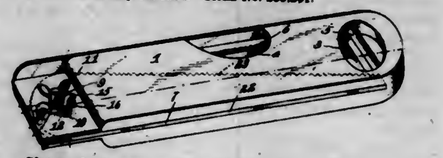


Claim.—1. In a steering-gear for vehicles, the combination with the frame and axle-section, of a split box embracing the axle-section and having a bearing upon the frame, and a pivot-bolt extending through the box parts, and the frame.

2. In a steering-gear for vehicles, the combination with upper and lower spaced side bars of the frame, of an axle-section extending between said bars, a boxing inclosing the axle and having a bearing against said bars, and a pivot-bolt extending through the bars, boxing and axle.

3. In a steering-gear for vehicles, the combination with a frame, and axle-section, of a box through which the axle-section extends, a pivot-bolt extending through the box and frame, and bearing-rollers between the box and frame, around the bolt.

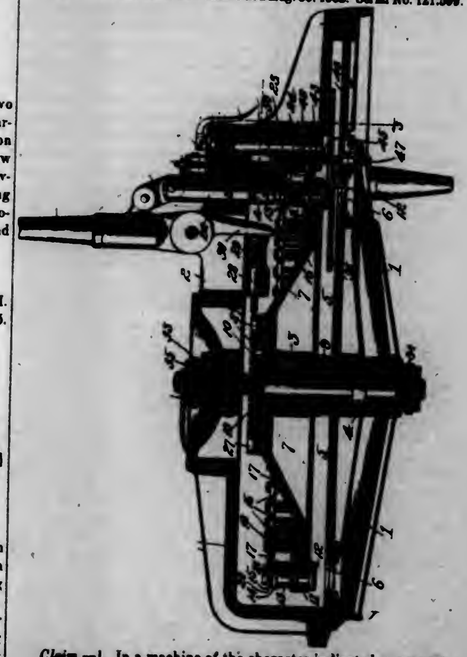
784,674. COMBINATION-TOOL. ARTHUR HAAG, New York, N. Y. Filed May 16, 1904. Serial No. 208,961.



Claim.—1. A combination-tool of the character described comprising a stock carrying a plumb-level, a pivoted saw-blade having a working edge to serve as a square, a pivot-hole, a series of openings concentric with said hole, and a locking device comprising a bolt, said locking device having a body mounted to tilt upon the bolt and having a locking-arm to engage in one of said openings in the blade and a finger-lug, a spring acting on said lug to project the arm and a nut on the bolt to retain the locking device thereon, substantially as described.

2. A combination-tool of the character described, comprising a stock slotted on side and on one end, and carrying a plumb-level and a pivot pin or bolt, a saw-blade mounted in the slot and provided with a working edge to serve as a square and having a hole for the passage of said pin or bolt and a series of openings concentric therewith, and a combined plumb, gage and blade locking device, the same comprising a body mounted to tilt upon the bolt and having a locking-arm to engage in one of said openings and a finger-lug, a spring acting on said lug to project the arm, and a nut on the bolt to retain the locking device thereon, substantially as described.

784,675. STENCIL-CUTTING MACHINE. STEPHEN D. HARTOG, St. Louis, Mo., assignor to Hartog Stencil Machine Company, St. Louis, Mo., a Corporation of Missouri. Filed Aug. 30, 1902. Serial No. 121,599.



Claim.—1. In a machine of the character indicated, a supporting-arch, a rotatable spindle hung therefrom and having unrestricted rotation, said arch being provided with a circular index about said spindle, a die-carrying member supported upon said spindle to

rotate therewith, and a pointer also mounted on said spindle and lying above said index and coöperating therewith; substantially as described.

2. In a machine of the character indicated, upper and lower frame-plates, a rotatable spindle hung from said upper plate and passing through said lower plate, a die-carrying member supported upon said spindle to rotate therewith, and an adjustable member upon the end of said spindle below said lower plate and having an upward bearing thereagainst; substantially as described.

3. In a machine of the character indicated, a punch-carrying plate provided with a circular seat, a cylindrical punch movable in said seat, a relatively fixed member separable from said punch, and a pin engaging both said punch and said member; substantially as described.

4. In a machine of the character indicated, a punch-carrying plate provided with a circular seat, a cylindrical punch movable in said seat, a relatively fixed member separable from said punch, and a pin extending in a line across said member and seated therein and in said punch; substantially as described.

5. In a machine of the character indicated, a punch-carrying plate having a circular seat, a cylindrical punch movable in said seat, a guide-plate abutting against said punch but not encircling the same, whereby said punch and guide-plate are separable from each other, one of said last two mentioned elements entering a groove in the other thereof, means for guiding said plate, and coöperating means upon said punch and guide-plate for holding said punch against circumferential displacement; substantially as described.

6. In a machine of the character indicated, a punch-carrying plate having a circular seat, a cylindrical punch movable in said seat, a guide-plate abutting against said punch but not encircling the same, whereby said punch and guide-plate are separable from each other, one of said last two mentioned elements entering a groove in the other thereof, means for guiding said plate, and a pin seated partly in said plate and partly in said punch; substantially as described.

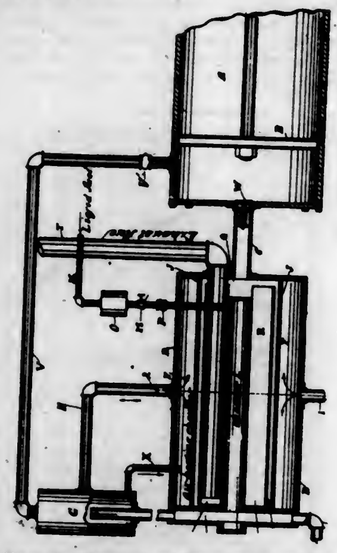
7. In a mechanism of the character indicated, a feed mechanism including a presser member having movement toward and away from its coöperating member, a ratchet upon said presser member, a bar slidable transverse the line of said movement of said presser member, a pawl pivoted to said bar and coöperating with said ratchet, and means for sliding said bar; substantially as described.

8. In a mechanism of the character indicated, punches, a plunger for operating the same, a feed mechanism including a presser member having movement toward and away from its coöperating member, a ratchet upon said presser member, a bar above said ratchet and slidable transverse the line of said movement of said presser member, a pawl pivoted to said bar and coöperating with said ratchet, and a suitably-supported lever connected to said bar and having pin-and-slot connection with said plunger; substantially as described.

784,676. CARBURETER FOR GAS-ENGINES. JOHN F. HILTSCHER and MAX HILTSCHER, Fullerton, Cal. Filed Aug. 6, 1903. Serial No. 168,476.

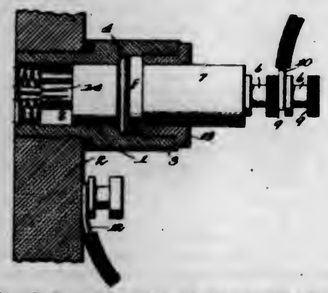
Claim.—1. Means to carburet air for use in gas-engines comprising a central vaporizing-chamber closed at one end and open at the other; a fuel-supply port in the closed end communicating with a fuel-supply; radial flanges projecting from the casing of the vaporizing-chamber into an exhaust-chamber; an exhaust-chamber communicating with the exhaust of the engine at one end and with the exhaust-flue at the other end; an air-heating chamber surrounding the exhaust-chamber, the said air-chamber having communication on the bottom thereof with the open air and having communication at the top with the gas-chamber, a gas-chamber having communication at its top with the end of the engine-cylinder and at the bottom with a carbureting-chamber; a carbureting-chamber in the end of the carbureter, the said chamber being in open communication with the outer air on the lower part thereof and with the gas-chamber at the upper part, the vaporizing-chamber discharging directly into the carbureting-chamber, substantially as herein shown and described.

2. The combination in a carbureter of the central cylindrical chamber L having radial flanges R on the casing S thereof, an exhaust-chamber Q surrounding the vaporizing-chamber, the exhaust-chamber being in communication at one end with the exhaust of the engine and the other end communicating with the exhaust-flue T leading to the outer air; an annular air-heating chamber surrounding the exhaust-chamber and having on its bottom the air and drain port I and communicating on its upper end with the top of the gas-chamber G, the said air-heating chamber having communication with the lower part of the gas-chamber G substantially as herein shown and described.



3. Means to carburet air and silence the report of the exhaust of a gas-engine, comprising a cylindrical vaporizing-chamber, closed at one end and having an open discharge at the other end into and a carbureting-chamber, the said vaporizing-chamber being in communication at its closed ends with the liquid-fuel supply; an exhaust-chamber surrounding the vaporizing-chamber, the said exhaust-chamber communicating at one end with the exhaust of the engine and the other end of the exhaust-chamber communicating with an exhaust-flue leading from the closed end of the exhaust-chamber into the outer air; an annular air-heating chamber surrounding said exhaust-chamber, said air-heating chamber being provided at its lowermost side with the air and drain pipe and the uppermost side communicating with the gas-chamber; a gas-chamber having communications at its bottom with the carbureting-chamber and its top with the end of the cylinder substantially as herein shown and described.

784,677. SPARKING IGNITER FOR EXPLOSIVE-ENGINES. ISAIAH E. HINDMAN and JOSEPH J. ALBRIGHT, Columbus, Ga., assignors of one-half to John F. Weathers, Columbus, Ga. Filed May 16, 1904. Serial No. 208,247.



Claim.—1. A sparking igniter having one element provided with a series of annular flanges constituting spark-terminals, and a second element provided with a longitudinal series of flanges constituting opposing spark-terminals, the last-mentioned flanges being transversely disposed across the first-mentioned flanges.

2. A sparking igniter having a tubular element provided with a series of inner annular flanges constituting spark-terminals, and an inner element provided with a longitudinal series of flanges constituting opposing spark-terminals disposed transversely across the first-mentioned flanges.

3. A sparking igniter having an element provided with a plurality of flanges constituting spark-terminals, and a second element provided with flanges constituting spark-terminals disposed at an angle across the flanges of the first-mentioned element.

4. A sparking igniter having one element provided with a series of flanges constituting spark-terminals, and another element provided with flanges disposed at an angle across the flanges of the first-mentioned element and constituting spark-terminals, one of the elements being adjustable to bring unused portions of the flanges opposite one another.

5. A sparking igniter comprising a tubular element provided with a series of inner annular flanges constituting spark-terminals, and another element within the tubular element and provided with an annular series of longitudinal flanges constituting opposing spark-terminals disposed above and transversely across the first-mentioned flanges, one of these elements being rotatably adjustable to bring unused portions of the flanges opposite one another.

6. A sparking igniter comprising a tubular element, and another element within the tubular element, one of these elements having a series of annular flanges constituting spark-terminals, and the other element having an annular series of longitudinal flanges crossing the annular flanges and constituting opposing spark-terminals.

7. A sparking igniter having a tubular element provided with an inner annular shoulder, and another element located within the tubular element and having a stem provided with an intermediate non-conducting covering having an annular shoulder for engagement with the annular shoulder of the tubular element, the outer end of the stem having means for connection with a circuit-wire, one of the elements being provided with a series of annular flanges constituting spark-terminals and the other element having an annular series of longitudinal flanges extending across the first-mentioned flanges and constituting opposing spark-terminals, and means to retain the inner element within the outer element.

8. A sparking igniter having a tubular element provided with a series of annular flanges located at its inner end and constituting spark-terminals, another element within and insulated from the tubular element and provided with an annular series of longitudinal flanges extending across the first-mentioned flanges and constituting opposing spark-terminals, and means to retain the inner element within the outer element.

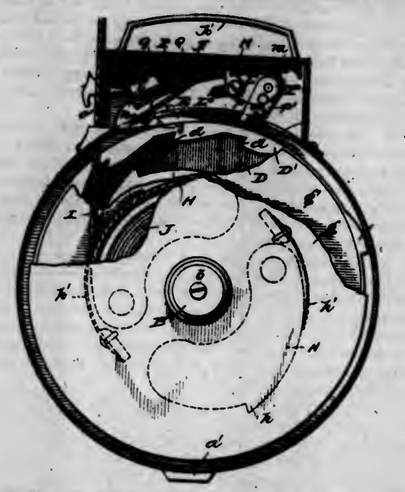
9. A sparking igniter comprising an outer tubular element which is externally threaded and has an annular polygonal portion to form a wrench-seat, the interior of the element having an annular shoulder and a series of annular flanges constituting spark-terminals, an inner element comprising a stem provided at one end with means for connection with a circuit-wire and at its opposite end with an annular series of substantially radial flanges disposed across the flanges of the outer member and constituting opposing spark-terminals, an insulating-covering for the intermediate portion of the stem and provided with an annular shoulder engaging the inner shoulder of the outer element, and a nut carried by the outer element and engaging the flange of the covering to retain the inner element within the outer element.

10. A sparking igniter having one element provided with a spiral flange constituting spark-terminals, and a second element provided with a longitudinal series of flanges constituting opposing spark-terminals and disposed transversely across the spiral flange, one of the elements being rotatable to bring unused portions of the flanges into use.

784,678. TROLLEY CATCHER AND RETRIEVER. WILLIAM W. HOFFMAN and FRANCIS W. POWERS, West Lafayette, Ind., assignors to Electric & Steam Railway Supply Company, Lafayette, Ind. Filed Sept. 23, 1904. Serial No. 225,085.

Claim.—1. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means normally exerting upward pressure on the detent-bar.

2. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined fixed lugs carried by said disk, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means normally exerting upward pressure on the detent-bar.



3. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs formed integral with said disk, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means normally exerting upward pressure on the detent-bar.

4. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, said lugs being curved and tapering rearwardly and forming opposed abutment-faces, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means exerting upward pressure on the detent-bar.

5. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar provided with a tooth on its forward end, a dog pivoted at the rear end of said detent-bar, said tooth and dog adapted to project respectively in the path of said lugs, and means normally exerting upward pressure on said detent-bar.

6. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar provided with a tooth on its forward end, a dog pivoted at the rear end of said detent-bar and a stop therefor, said tooth and dog adapted to project respectively in the path of said lugs, and means normally exerting upward pressure on said detent-bar.

7. The combination with a winding-drum, disk, actuating means and automatic locking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar provided with a tooth on its forward end, a spring-operated dog pivoted on the rear end of said detent-bar and a stop therefor, said tooth and dog adapted to project respectively in the path of said lugs, and means normally exerting upward pressure on said detent-bar.

8. The combination with a winding-drum, disk, actuating means and automatic locking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar capable of longitudinal and vertical movement, a tooth on the forward end of said detent-bar, a pivoted dog and stop therefor at the rear end of said detent-bar, said tooth and dog adapted to project respectively in the path of said lugs, and means normally exerting upward pressure on said detent-bar.

9. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs mounted on the peripheral edge of said disk, said lugs being curved on their upper face and tapering toward each other, forming opposed abutment-faces, a slotted detent-bar, a pivot-pin supporting said detent-bar within said slot, a tooth on the forward end of said detent-bar, a pivoted dog at the rear end of said detent-bar, said tooth and dog adapted to project respectively in the path of one of said lugs,

and means normally exerting upward pressure on the forward end of said detent-bar.

10. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs mounted on the peripheral edge of said disk, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means normally exerting upward pressure on the detent-bar.

11. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs formed integral with the periphery of said disk, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means normally exerting upward pressure on the detent-bar.

12. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs mounted on the peripheral edge of said disk, said lugs being curved and tapering rearwardly and forming opposed abutment-faces, a pivoted detent-bar provided with forward and rear projections adapted to ride over said lugs in one direction of rotation of said disk and to engage same in the opposite direction of rotation, and means exerting upward pressure on the detent-bar.

13. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs mounted on the peripheral edge of said disk, a pivoted detent-bar provided with a tooth on its forward end, a dog pivoted at the rear end of said detent-bar, said tooth and dog adapted to project respectively in the path of said lugs, and means normally exerting upward pressure on said detent-bar.

14. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs mounted on the peripheral edge of said disk, said lugs being curved and tapering toward each other forming opposed abutment-faces, a pivoted detent-bar provided with a tooth on its forward end, a dog pivoted at the rear end of said detent-bar and a stop therefor, said tooth and dog adapted to project respectively in the path of said lugs, and means normally exerting upward pressure on said detent-bar.

15. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of a detent-bar capable of vertical and longitudinal play, a resiliently-mounted buffer-block disposed adjacent the forward end of said detent-bar, means carried by said disk normally engaging said detent-bar, means normally exerting upward pressure on said detent-bar for operating same vertically, and coöperating means between said disk and detent-bar for depressing said detent-bar and bodily shifting the same longitudinally beneath said resilient buffer-block.

16. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, a detent-bar capable of vertical and longitudinal play, a tooth formed on the forward end of said detent-bar, a dog pivoted at the rear end of said detent-bar, said tooth and dog being arranged in alinement with said lugs respectively and adapted to ride over in one direction of rotation of the disk and to engage therewith in the opposite direction of rotation, means normally tending to operate said detent-bar vertically, and a resiliently-mounted buffer-block disposed adjacent the forward end of said detent-bar.

17. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, a detent-bar capable of vertical and longitudinal play, a tooth formed on the forward end of said detent-bar, a spring-controlled dog pivoted at the rear end of said detent-bar and a stop therefor, said tooth and dog being arranged in alinement with said lugs respectively and adapted to ride thereover in one direction of rotation of the disk and to engage therewith in the opposite direction of rotation, means normally tending to operate said detent-bar vertically, and a resiliently-mounted buffer-block disposed adjacent the forward end of said detent-bar.

18. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs having opposed abutment-faces carried by said disk, a detent-bar capable of longitudinal and vertical play, a tooth on the forward end of said detent-bar coöperating with one of said lugs on said disk, a pivoted dog carried at the rear end of said detent-bar coöperating with the other of said lugs on said disk, a spring extending longitudinally above said detent-bar, a buffer-block carried by said spring and normally supported adjacent the upper forward end of said detent-bar, and means exerting upward pressure on the forward end of said detent-bar.

19. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs mounted on the periphery of said disk and having opposed abutment-faces, a slotted detent-bar, a headed pivot-pin supporting said detent-bar within said slot, allowing vertical and longitudinal play of said detent-bar, a friction-washer interposed between said headed pin and said detent-bar for partially retarding the latter's longitudinal movement, a tooth formed at the forward end of said detent-bar coöperating with one of said lugs on said disk, a spring-controlled pivoted dog and stop therefor at the other end of said detent-bar coöperating with the other of said lugs, a spring extending longitudinally above said detent-bar, a support for the forward end of said spring, a buffer-block carried by said spring adjacent the forward end of said detent-bar, and means exerting upward pressure on the forward end of said detent-bar.

20. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of a slotted detent-bar, a pivot-pin supporting said detent-bar within said slot, allowing vertical and longitudinal play of said detent-bar, resiliently-mounted means engaging and pressing against said detent-bar for partially retarding the latter's longitudinal movement, coöperating interlocking means carried by said disk and detent-bar, and means normally exerting upward pressure on said detent-bar.

21. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of a slotted detent-bar, a pivot-pin supporting said detent-bar within said slot, allowing vertical and longitudinal play of said detent-bar, a spring-pressed washer on said pivot-pin engaging said detent-bar for partially retarding the latter's longitudinal movement, coöperating interlocking means carried by said disk and detent-bar, and means normally exerting upward pressure on said detent-bar.

22. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of a pivoted detent-bar and interlocking means between said detent-bar and disk, and adjustable means for holding said detent-bar in its locked position with reference to said disk.

23. The combination with the winding-drum, disk, actuating means and automatic interlocking means therefor, of a pivoted detent-bar and interlocking means between said detent-bar and disk, and adjustable means for holding said detent-bar in its locked position with reference to said disk, comprising a spring normally tending to press against said detent-bar and operating means for withdrawing said spring from engagement with said detent-bar.

24. The combination with the winding-drum, disk, actuating means and automatic locking means therefor, of a pivoted detent-bar and interlocking means between said detent-bar and disk, and adjustable means for holding said detent-bar in its locked position with reference to said disk, comprising a spring adapted to press against said detent-bar, and means for withdrawing said spring out of engagement therewith, comprising a spindle having a shank portion projecting transversely beneath said spring, and means for rotating said spindle.

25. The combination with a winding-drum, disk, actuating means and automatic locking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar capable of vertical and longitudinal play, a tooth formed at the forward end of said detent-bar coöperating with one of said lugs, a pivoted dog at the rear end of said detent-bar coöperating with the other of said lugs, means exerting upward pressure on the forward end of said detent-bar, a resiliently-mounted buffer-block disposed adjacent the upper forward end of said detent-bar, a spring having a bent end normally resting beneath said buffer-block and tensioned to spring downwardly into engagement with said detent-bar, and means for controlling the movement of said spring.

26. The combination with a winding-drum, disk, actuating means and automatic interlocking means therefor, of non-alined lugs carried by said disk, a pivoted detent-bar capable of vertical and longitudinal play, a tooth formed at the forward end of said detent-bar coöperating with one of said lugs, a pivoted dog at the rear end of said detent-bar coöperating with the other of said lugs, means exerting upward pressure on the forward end of said detent-bar, a resiliently-mounted buffer-block disposed adjacent the upper forward end of said detent-bar, a spring having a bent end normally resting beneath said buffer-block and tensioned to spring downwardly into engagement with said detent-bar, and means for controlling the movement of said spring comprising a suitably-supported spindle provided with a projecting shank extending transversely beneath said spring and an index-finger for rotating said spindle.

27. The combination with a slotted casing, of a winding-drum, disk, actuating means and interlocking means therefor, inclosed within said casing, a housing on said casing above said slot, a detent-bar pivotally mounted in said housing above said slot and capable of vertical and longitudinal play, non-alined lugs carried by the periphery of said disk and adapted to operate adjacent said slot, a tooth on the forward end of said detent-bar coöperating with one of said lugs, a pivoted dog carried at the rear end of said detent-bar coöperating with the other of said lugs, a resiliently-mounted buffer-block adjacent the upper forward end of said detent-bar, and means exerting upward pressure on the forward end of said detent-bar.

28. In portable trolley-retrieving mechanism, the combination with a frame adapted to be carried on the front and rear of a car, said frame provided at its base with an aperture and at its upper end with a recessed portion and a recessed pivoted locking-button coöperating with said recessed portion of said frame, of a portable casing provided on its underneath and top faces with lugs adapted to register with said aperture and recesses, and internal mechanism coöperating together for normally holding the trolley-rope taut and mechanically retrieving the trolley-pole upon the sudden upward movement of the latter.

29. In portable trolley-retrieving mechanism, the combination with an oval frame adapted to be carried on the front and rear of a car, said frame provided at its base with an aperture and at its upper end with a recessed portion and a recessed pivoted locking-button coöperating with said recessed portion of said frame, of a cylindrical casing provided on its underneath and top faces with lugs adapted to register with said aperture and recesses, and internal mechanism coöperating together for normally holding the trolley-rope taut and mechanically retrieving the trolley-pole upon the sudden upward movement of the latter.

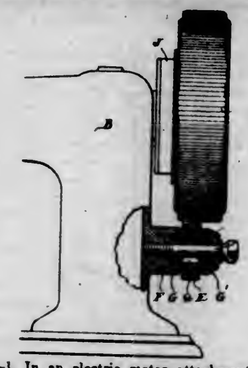
784,679. SPIKE-PULLER. HIRAM Q. HOOD, Webb City, Mo. Filed Oct. 10, 1904. Serial No. 227,912.



Claim.—1. In a spike-puller, a lever comprising a bar, heel-plates detachably secured to opposite sides thereof, each comprising an integral web and a curved arm, said plates having flanges on their opposing sides bearing on opposite sides of the lever-bar, and said curved arms having projecting portions forming lugs, in combination with a swivel member having its bearings in said lugs, and a bit connected to said swivel member.

2. In a spike-puller, a lever comprising a lever-bar, heel-plates on opposite sides thereof having flanges in their opposing sides bearing on opposite sides of the lever-bar, said heel-plates being further provided with curved arms projecting beyond the front sides of the heel-plates and forming lugs, and a bolt passed through alined openings in the heel-plates and the lever-bar and detachably clamping them together, in combination with a swivel member having bearings in the said lugs, a bit having a stem adjustably connected to the swivel member, and an adjusting-nut on the said stem, substantially as described.

784,680. SEWING-MACHINE MOTOR ATTACHMENT. FRANCIS P. HUYCK, Swanton, Ohio. Filed June 4, 1903. Serial No. 160,013.



Claim.—1. In an electric motor attachment for sewing-machines, the combination with an electric motor having its revolving part carried by the projecting end of the sewing-machine shaft and having its stationary part surrounding it, of a downwardly-projecting lug depending from the under side of said stationary part, a boss on the arm of the sewing-machine adjacent to the aforesaid lug and extending laterally toward it, and means for adjustably clamping said lug to the boss.

2. In an electric motor attachment for sewing-machines in which the armature of the electric motor is carried upon the projecting end of the sewing-machine shaft, a supporting arm or boss for the field of the motor integrally cast upon the arm of the sewing-machine and forming the sole means of support therefor, the field of the motor being secured to said supporting arm or boss in universal adjustable relation to the armature.

3. In an electric motor attachment for sewing-machines, the combination with an electric motor having its revolving part carried by the projecting end of the sewing-machine shaft and having its stationary part surrounding it, of a downwardly-projecting lug depending from the under side of said stationary part, a laterally-projecting boss on the arm of the sewing-machine extending toward said lug, a ball-and-socket connection between said lug and boss, and a clamping-bolt through said connection.

4. In an electric motor attachment for sewing-machines, in which the armature of the motor is carried upon the projecting end of the sewing-machine shaft, a supporting arm or boss for the field of the motor integrally formed with the arm of the sewing-machine, a field-magnet integrally formed with a securing-lug and means for securing said lug to the supporting-arm whereby the field of the motor is supported in universal adjustable relation to the armature.

5. In an electric motor attachment for sewing-machines in which the armature of the motor is carried upon the projecting end of the sewing-machine shaft, a supporting arm or boss for the field of the motor integrally formed with the arm of the sewing-machine, and means for securing said field to the supporting-arm in universal adjustable relation to the armature, said means involving the use of a single clamping-screw.

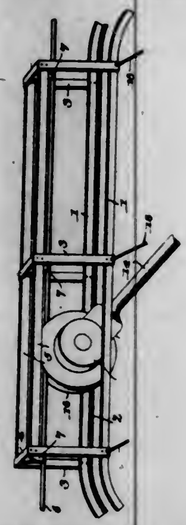
6. In an electric motor attachment for sewing-machines in which the armature of the motor is carried upon the projecting end of the sewing-machine shaft, a supporting arm or boss, integrally formed with the arm of the sewing-machine, a depending lug on the field of the motor adapted to said supporting-arm, washers, and a cap forming in connection with the supporting-arm and the depending lug a ball-and-socket joint, and a clamping-screw tapped into the supporting-arm and passing through said cap, washers and depending lug, the aperture in the depending lug being slotted to permit vertical and lateral adjustment of the field-magnet.

7. In an electrically-driven sewing-machine, an electric motor comprising a revolving member and a single stationary member, the former being carried by the shaft and the latter by the frame of the sewing-machine in universal adjustable relation to the other member.

784,681. TROLLEY-GUIDE. JOHN F. JAMESON, Plimpton, Ohio. Filed Dec. 21, 1904. Serial No. 237,845.

Claim.—1. In an overhead-trolley system, the combination with a trolley-wire, of guide-rails located at opposite sides of the wire and

provided with corresponding inwardly-directed substantially horizontal flanges, and a trolley-wheel having guide-rollers at opposite sides to run between the guide-rails and upon the flanges thereof.



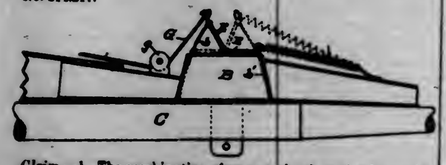
2. A guide for trolleys consisting of a pair of spaced substantially parallel guide-rails, hanger members rising from the rails, cross-bars connecting opposite hangers, and longitudinal bars connecting the hangers of the respective rails.

3. A guide for trolley-wheels comprising a pair of spaced substantially parallel guide-rails having corresponding inwardly-directed flanges at their lower edges with their opposite ends inclined downwardly, corresponding hangers rising from the rails, cross-bars connecting the hangers, and longitudinal bars connecting the hangers of the respective rails.

4. An overhead-trolley system, the combination with a trolley-wire, of a pair of guide-rails located below and at opposite sides of the wire, hangers rising from the rails, cross-bars connecting the corresponding hangers of the two rails across the top of the wire, and seats pendent from cross-bars and engaging the top of the wire to support the guide.

5. In an overhead-trolley system, the combination with a trolley-wire, of a pair of guide-rails located below and at opposite sides of the wire and provided with corresponding inwardly-directed flanges, hangers rising from the rails and extending above the wire, cross-bars connecting the hangers above the wire, seats depending from cross-bars and resting upon the top of the wire, and a trolley-wheel for engagement with the under side of the wire to run between the rails and provided at opposite sides with guide-rollers to run upon the flanges of the rails.

784,682. **ATTACHMENT FOR HAND AGRICULTURAL IMPLEMENTS.** ALVA D. JONES, Louisville, Ky. Filed June 27, 1904. Serial No. 214,217.



Claim.—1. The combination of a reservoir adapted to be carried by the operator; a hand implement; a discharge-box on the implement; a flexible feed connection between the reservoir and discharge-box: shutters *b* and *b'* carried by lever E; spring F for normally holding shutter *b'* in closed position and shutter *b* in open position, and cord G for operating shutters *b* and *b'*, substantially as specified.

2. The combination of reservoir A adapted to be carried by the operator; hand implement C; discharge-box B on implement C; flexible hose D connecting reservoir A and box B; shutters *b* and *b'* for discharging from box B; angular lever E connecting shutters *b* and *b'*; spring F for normally holding shutter *b'* in closed position; cord G connected with shutter *b* and passing under pulley g' and up the handle of the implement and ring g^2 for operating cord G, substantially as specified.

784,683. **STAIR-CARPET FASTENER.** SOLOMON KAHN, Cadillac, Mich. Filed Apr. 11, 1904. Serial No. 202,641.

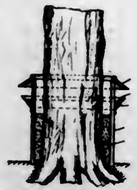


Claim.—1. A stair-carpet fastener having means to secure it against a stair-riser and having an outwardly-projecting prong adapted to be inserted in the carpet to secure the latter to the stair-riser.

2. A stair-carpet fastener comprising heads having outwardly-projecting prongs disposed transversely with reference thereto and adapted to be inserted in the carpet, and an adjusting-screw connecting said heads to secure them against a stair-riser and between the latter and the carpet.

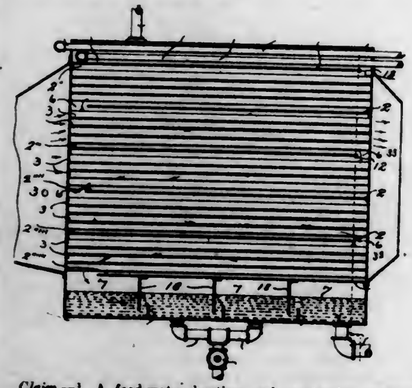
3. A stair-carpet fastener comprising heads having outwardly-projecting prongs to engage the carpet and a right and left handed adjusting-screw connecting the said heads, substantially as described.

784,684. **DEVICE FOR PROTECTING TREES.** ADOLF KARLSEN, Röken, near Christiania, Norway. Filed Feb. 8, 1904. Serial No. 192,690.



Claim.—In a device of the character described, a sleeve made in two semicircular sections, detachably secured together, one of said sections being provided with a longitudinal rim, and the other section with an engaging portion to permit the two sections to be connected by sliding one section upon the other longitudinally, substantially as described.

784,685. **CONDENSER.** JAMES M. KELLER, Los Angeles, Cal. Filed Apr. 5, 1904. Serial No. 201,718.



Claim.—1. A feed-water heating and condensing apparatus comprising a casing having compartments, the partition-plates secured to the casing and arranged one above the other therein, the said partition-plates provided with passage-ways between alternate ends thereof and the inner face of the ends of the casing, a pipe for conveying exhaust-steam from an engine to the casing, feed-water pipes, a pump for circulating the feed-water therough the feed-water pipes, the spray-pipes for conveying cold water within the casing and an air-pump for increasing the circulation of the condensed steam and water through the casing.

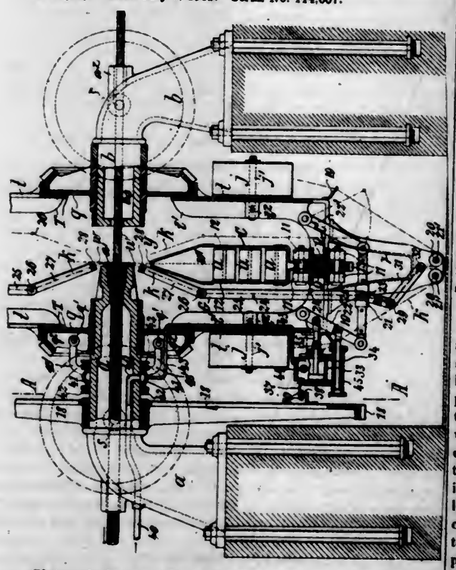
2. A combined feed-water heating and condensing apparatus, comprising a casing having compartments, the partition-plates secured to the casing at alternate ends thereof, the said partition-plates provided with passage-ways between alternate ends thereof and the inner face of the ends of the casing, a pipe for conveying exhaust-steam to the uppermost compartments of the casing, feed-water pipes and pump for continuously circulating the feed-water through the feed-water pipes within the casing, spray-pipes for conveying cold water within the casing and an air-pump for increasing the circulation of the condensed steam and water through the casing.

3. A combined feed-water heating and condensing apparatus, comprising a casing having compartments one arranged above the other, the partition-plates secured to the casing at one end and provided with passage-ways between alternate ends thereof and the inner face of the ends of the casing, a pipe for conveying exhaust-steam to the upper portion of the casing, feed-water pipes located in said upper portion of the casing, a pump for continuously circulating the feed-water through the feed-water pipes within the casing and an air-pump for augmenting the circulation of the condensed steam and water through the casing.

4. A combined feed-water heating condensing and circulating apparatus, comprising a casing having compartments therein formed by partition-plates secured to the casing, feed-water pipes located in the uppermost compartments of the casing, means for continuously circulating the feed-water through the said feed-water pipes, a pipe for conveying exhaust-steam to the said uppermost compartment, spray-pipes for conveying cold water within the casing and a pump for increasing the circulation of the condensed steam and water through the casing.

5. A combined air, feed-water heating and condensing apparatus, comprising a casing provided with partition-plates forming compartments within the casing, pipes for conveying air and feed-water through the casing, means for conveying exhaust-steam to the upper portion of the casing, spray-pipes for conducting cold water to the casing, means for forcing cold air through the air-pipes within the casing and an air-pump for increasing the circulation of condensed steam and water through the casing.

784,686. **BRAIDING-MACHINE.** BERNHARD KIRSCH, Vienna, Austria-Hungary, assignor of one-half to Adolf Pessl, Vienna, Austria-Hungary. Filed July 7, 1903. Serial No. 114,607.



Claim.—1. In a braiding-machine, a carrier, two series of substantially straight thread-guides radially disposed on the carrier, means to rotate one series of guides on the carrier about a straight line or core in a plane normal thereto, means to rotate the carrier and the second series of guides about the core at the same angular velocity as the first series but in an opposite direction and means to reciprocate said second series of guides alternately from one side to the other of the plane of rotation of the first series of guides, for the purposes set forth.

2. In a braiding-machine, two series of thread-guides, a carrier on which said thread-guides are radially disposed with their thread-delivery ends proximate to a central straight line or core, means to revolve one series of thread-guides on the carrier about the core in a plane normal thereto, means to rotate the carrier and second series of guides about said core at the same angular velocity as the first series but in an opposite direction, and means to reciprocate the guides of the second series alternately from one side to the other of the plane of rotation of the first series, for the purposes set forth.

3. A machine for braiding thread on a core moving in a straight line, comprising a circular track concentric with said straight line and having its continuity interrupted at given points, a support for said track, means to rotate the support about the aforesaid straight line, a series of thread-guides carried by said support and means imparting to said guides a traversing motion across the aforesaid track; in combination with a series of bobbin-carriages provided with a segmental toothed rack, a radially-disposed thread-guide carried by each carriage and mechanism for moving said carriages along the said track in a direction opposite to the direction of its rotation, comprising a stationary gear-wheel concentric with the aforesaid straight line, spindles mounted on the aforesaid track-support, each spindle carrying gearing adapted to mesh with the aforesaid segmental toothed racks and stationary gear-wheel, respectively, substantially as set forth.

4. A machine for braiding thread on a core moving in a straight line, comprising a circular track concentric with said straight line and having its continuity interrupted at given points, a support for said track, means to rotate the support about the aforesaid straight line, a series of radially-disposed thread-guides carried by said support and means imparting to said guides a traversing motion across the aforesaid track; in combination with a series of bobbin-carriages provided with a segmental toothed rack, a radially-disposed thread-guide carried by each carriage and mechanism for moving the carriages along the said track in a direction opposite to the direction of its rotation, comprising a stationary gear-wheel concentric with the aforesaid straight line, spindles mounted on the aforesaid track-support, each spindle carrying gearing adapted to mesh with the aforesaid segmental toothed racks and stationary gear-wheel, respectively, substantially as set forth.

5. A machine for braiding thread on a core moving in a straight line, comprising a circular track concentric with said straight line and having its continuity interrupted at given points, a support for said track, means to rotate the support about the aforesaid straight line, a series of radially-disposed thread-guides carried by said support, means to guide threads to said guides organized to maintain said threads at a substantially uniform tension and means imparting to said guides a traversing motion across the aforesaid track; in combination with a series of bobbin-carriages provided with a segmental toothed rack, a radially-disposed thread-guide on each carriage and mechanism for moving the carriages along the said track in a direction opposite to the direction of its rotation, comprising a stationary gear-wheel concentric with the aforesaid straight line, spindles mounted on the aforesaid track-support, each spindle carrying gearing adapted to mesh with the aforesaid segmental toothed racks and stationary gear-wheel, respectively, for the purposes set forth.

6. A machine for braiding thread on a core moving in a straight line, comprising a circular track concentric with said straight line and having its continuity interrupted at given points, a support for said track, means to rotate the support about the aforesaid straight line, a series of thread-guides carried by said support and means imparting to said guides a traversing motion across the aforesaid track; in combination with a series of bobbin-carriages provided with a segmental toothed rack, a radially-disposed thread-guide on each carriage and mechanism for moving said carriages along said track in a direction opposite to the direction of its rotation, comprising a stationary gear-wheel concentric with the aforesaid straight line, spindles, mounted on the aforesaid track-support, each spindle carrying gearing adapted to mesh with the aforesaid segmental toothed racks and stationary gear-wheel, respectively, said gearing proportioned to move the bobbin-carriages at the same angular velocity as that of their track, substantially as set forth.

7. A machine for braiding thread on a core moving in a straight line, comprising a series of radially-disposed thread-guides, means revolving the same about said straight line and means supplying

thread to said guides; in combination with a second series of thread-guides, a support therefor, means revolving the support about the aforementioned straight line in a direction opposite to the direction of revolution of the first-named series of guides, and means imparting to said second series of guides a traversing movement across the path of the first series of such, and comprising a parallel motion for each guide having a horizontal bar, to which bar such guide is rigidly secured, and means imparting to the bar to-and-fro movements in a substantially horizontal plane, substantially as and for the purposes set forth.

8. The combination with the thread-guides G, their carrier T and the fixed gear 18, the parallel motions, each consisting of the elements 21, 22', 30 and 31, the spindles 15, their pinions 17 and 46, the gear-wheel 47, said pinion 17 in gear with the wheel 18, and said pinion 46 in gear with wheel 47, the cam-disk 50 loose on spindle 15, the gear-wheel 49 rigidly connected with said cam-disk, the spindle of wheel 47 and the pinion 48 on said spindle in gear with said wheel 49; of the crank-shaft 54, its crank-pin, engaging the cam-groove 51 in cam-disk 50, and having a radial arm 55 linked to link 22' of the aforesaid parallel motion, substantially as and for the purposes set forth.

9. The combination of a thread-guide G, its support, the parallel motion consisting of the elements 21, 22' 30 and 31 for said guide, and the roller-guides 20, 20 for the threads, on said support, the pivot-pins for links 30 and 31, constructed to serve as guides for the threads guided thereto by rollers 20, 20, substantially as and for the purposes set forth.

10. The combination of a thread-guide G, its support, the parallel motion consisting of the elements 21, 22', 30 and 31, for said guide, and the roller-guides 20, 20 for the threads, on said support, the pivot-pins for links 30, 31, said pins slotted longitudinally, said slot flaring outwardly in opposite directions from the axis of the pin, and the perforated guide-plate m secured in the inner half of the slot, substantially as and for the purposes set forth.

11. In a machine such as described, the thread-guide G composed of two side plates 25, spacing-bolts 24 spacing the same and located on opposite sides of the longitudinal center of said plates; in combination with two shorter side plates 27 pivotally connected to the inner end of the side plates 25 and having at their inner end a perforated thread-guide plate 28, and the bolt 23 at the outer end of said plates 25, said bolt slotted longitudinally and said slot made to flare outwardly on opposite sides of the axis of the bolt, and a perforated guide-plate m secured in the inner half of the slot, substantially as and for the purposes set forth.

12. In a machine such as described, a radially-disposed and sector-shaped bobbin-carriage revoluble about a straight line; in combination with a thread-guide at the inner end of and midway between the lateral edges of the carriage, said guide terminating in a tapered end provided with a perforated thread-guide plate, and said carriage provided with bearings for the spindles of a group of bobbins, substantially as and for the purposes set forth.

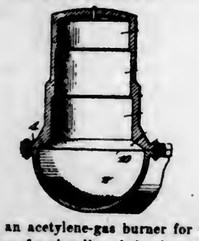
13. A machine for braiding thread on a core moving in a straight line, comprising a bobbin-carrier composed of two wheels revoluble about said straight line, yokes connecting said wheels at different points of their peripheries, a circular track intermediate of and secured to said wheels, radially-disposed bobbin-carriages, each provided with bearings for the spindles of a group of bobbins, said bearings arranged in arcs of circles concentric with said track, on which the carriages are adapted to travel, and a thread-guide projecting from the inner face of each carriage, and means to move said carriages along the track in a direction opposite to the direction of rotation of the aforesaid carrier; in combination with radially-disposed thread-guides supported in the aforesaid yokes of the carrier, means to impart to said thread-guides a traversing motion across the path of the guides moving on the aforesaid track, and means to guide the threads to the traversing guides and maintain said threads at a substantially uniform tension during the traversing movements of said guides, substantially as and for the purposes set forth.

14. In a machine such as described and comprising a revoluble bobbin-carrier and a circular track secured thereto; a bobbin-frame provided with a thread-guide projecting toward the axis of rotation of the carrier, and a carriage for and to which said frame is detachably connected, said carriage adapted to travel along the track, for the purposes set forth.

15. In a machine such as described and comprising a revoluble bobbin-carrier and a circular track secured thereto; a sector-shaped skeleton bobbin-frame having its radial bars connected by segmental bars concentric with the track and having bearings for bobbin-spindles arranged in arcs of circles also concentric with said track, a thread-guide common to all the bobbins projecting from the frame toward the axis of rotation of the carrier, and a carriage for and to which said frame is detachably connected, said carriage adapted to travel along said track, for the purposes set forth.

16. In a braiding-machine, two series of thread-guides disposed radially about a common center with their thread-delivery ends proximate to said center, means to rotate one series of guides in one direction and the other series in an opposite direction about said center, and means to reciprocate the guides of one series of such alternately from one side to the other of the plane of rotation of the other series of guides, for the purposes set forth.

784,687. ACETYLENE-GAS BURNER. SAMUEL L. KISTLER, Los Angeles, and HENRY SYMONDS, Longbeach, Cal., assignors to Superior Light and Heat Co., Los Angeles, Cal., a Corporation of California. Filed Sept. 16, 1904. Serial No. 224,768.



Claim.—1. In an acetylene-gas burner for producing heat, a burner-tip consisting of a plurality of circular chambers of increasing diameter from the top toward the bottom, the top chamber having a narrow slitted orifice, extending from one side wall to the other and passing centrally across the top of said chamber through the top plate thereof.

2. An acetylene-gas burner comprising a mixing-tube, a supply-chamber into which said mixing-tube opens, burner-tips connected and opening into said supply-chamber, said burner-tips having narrow slitted outlets, and being composed of a plurality of circular chambers of increasing diameters toward the bottom.

3. An acetylene-gas burner comprising a mixing-tube, a supply-chamber into which said mixing-tube opens, burner-tips connected and opening into said supply-chamber, said burner-tips having narrow slitted outlets, and being composed of a plurality of circular chambers of increasing diameters toward the bottom, wire screening intermediate said burner-tips and supply-chamber.

4. An acetylene-gas burner comprising a mixing-tube, an annular supply-chamber into which said mixing-tube opens, burner-tips connected and opening into said supply-chamber, said burner-tips having narrow slitted outlets, and being composed of a plurality of circular chambers of increasing diameters toward the bottom, wire screening intermediate said burner-tips and supply-chamber.

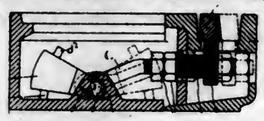
784,688. CORKSCREW. GUSTAV L. KLEISER, Christiania, Norway. Filed June 2, 1904. Serial No. 210,563.



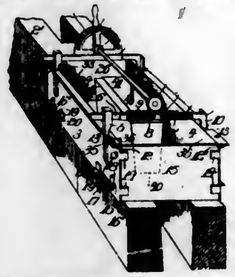
Claim.—In combination with a corkscrew, a lever, a fulcrum-piece having laterally-extending lugs and a pivot-pin connecting the lever to the corkscrew engaging the lugs of the fulcrum-piece and hence also pivotally connecting the fulcrum-piece to the corkscrew and lever and adapting the fulcrum-piece to lie in the angle between the corkscrew and the lever, to bear on the mouth of a bottle and to be moved inwardly thereon by the action of the lever and pressed by the lever against one side of the cork to start the cork, substantially as described.

784,689. HOLDING DEVICE FOR SWITCH POINTS OR TONGUES. CLARENCE C. KOONS, Johnstown, Pa., assignor to The Lorain Steel Company, a Corporation of Pennsylvania. Filed Oct. 5, 1903. Serial No. 175,835.

Claim.—The combination with a movable switch tongue or point, of a pivoted weight, an arm connected to the tongue and pivoted to said weight eccentrically of the pivot of the latter, and means for always holding the weight in a position in which the pivotal connection of the said arm therewith is above its own pivot, whereby the throw of the switch-tongue will act to throw said weight.



784,690. ADJUSTABLE MOLDING-MACHINE. ISRAEL L. LANDIS, Chicago, Ill. Filed Dec. 19, 1904. Serial No. 237,484.



Claim.—1. In a molding-machine, two series of mold-board supports, one series movable relatively to the other series, spaced-apart mold-boards normally secured at their upper edges to said supports, means for adjusting said mold-boards toward and from each other and relatively to said supports, means for moving one series of supports relatively and parallel to the other series of supports, and means for yoking together the lower portions of said mold-boards against angular spreading movement.

2. In a molding-machine, two series of mold-board supports, one series movable relatively to the other series, mold-boards normally secured at their upper edges to said supports, said mold-boards being spaced apart to provide an intervening mold-space, means for adjusting said mold-boards toward and from each other along said supports, rests for supporting said mold-boards in a plane passing therebetween, said rests adjustable into and out of said plane, and means for moving one of said series of supports relatively and parallel to the other said series of supports.

3. In a molding-machine, two series of mold-board supports, one series movable parallel to the other series, mold-boards normally secured to said supports and spaced apart to provide an intervening mold-space, means for adjusting said mold-boards, on said supports, toward and from each other in parallel relation, movable rests adapted to support said mold-boards upon a wall between the planes of said mold-boards, said rests adjustable into and out of engagement with said wall, means independently of said supports for preventing angular spreading movement of said mold-boards, and means for simultaneously moving said series of supports and mold-boards.

4. In a molding-machine, two series of members arranged in pairs, the members of each pair mounted for sliding movement longitudinally of each other, mold-boards secured to said members, means upon said members for moving said mold-boards toward and from each other in parallel relation, means, independently of said members, for adjusting said mold-boards toward and from each other, means for supporting said mold-boards upon a wall in planes lateral to the vertical plane of said wall, said last-mentioned means being adjustable in and out of supporting position.

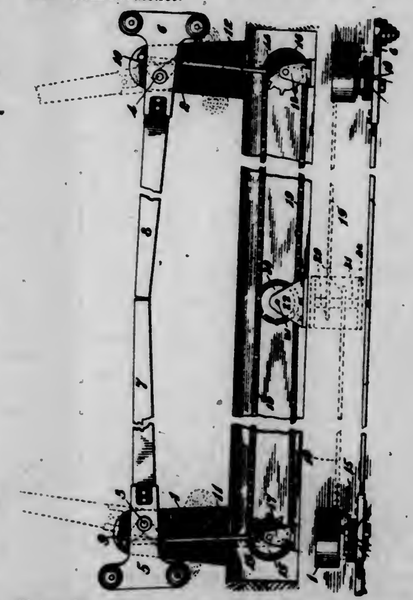
5. In a molding-machine, two series of members arranged in pairs, the members of each pair upon and longitudinally of each other, mold-boards secured at their upper edges to said members, yokes connecting the lower edges of said members, means upon the latter for moving said mold-boards toward and from each other in parallel relation, with said members, means for moving said mold-boards relatively to said members, and adjustable means for supporting said mold-boards upon the wall laterally to the vertical plane of the wall.

6. In a molding-machine, having a pair of mold-boards arranged parallel, a plurality of pairs of members supporting the upper edges of said mold-boards, cross-bars supporting their lower edges, the individual member of each said pair of members arranged to slide longitudinally of its companion member, a rotary shaft journaled in bearings upon one member of each said pair of members, gear-racks upon the other of each said pair of members, pinions keyed upon said shaft in mesh with said racks, a lever for rotating said shaft, means for locking said shaft against rotation and thereby preventing relative movement of said members, and means for adjusting said mold-boards relatively to each other while said shaft and members are held against movement.

7. In a molding-machine, a pair of mold-boards arranged parallel, relatively movable pairs of bars supporting the upper edges of said mold-boards, cross-bars, having pins therein, for supporting the lower edges of said mold-boards, rests upon the lower edges of said mold-boards, said rests rotatable and out of engagement with a wall when the machine is in operative position thereon, a rotary shaft journaled on one set of bars, gear-racks mounted on a companion set of bars, pinions keyed upon said shaft in position to mesh with said racks, a lever-arm for rotating said shaft, a slotted arch against which said arm is movable and a clamp for securing said arm immovably to said arms, and means for adjusting and securely clamping one of said mold-boards along and to one set of said bars.

8. The combination of a mold, with a hollow core having an immovable and a movable side, of a shaft projecting into the interior of said core, and secured to said immovable side, a rotary member mounted upon said shaft within said core, said member comprising a combination cam and hook, a loop on the movable member adapted to engage said hook whereby the latter may move said movable side toward said immovable side.

784,691. SAFETY-GATE FOR RAILWAY-CROSSINGS. ALFRED C. LAYMAN and PETER A. BENTSEN, Wilmington, Del. Filed Aug. 8, 1904. Serial No. 219,959.



Claim.—In combination with pivotally-mounted counterbalanced gate-bars, each having a crank element, sprocket-wheels, each having an axle, bearings therefor, links connected to the crank element and eccentrically connected to said sprocket-wheels, a drive-shaft mounted for rotation, disposed between the said sprocket-wheels, sprocket-wheels on the said shafts, and endless sprocket-chains each connecting one of the first-named sprocket-wheels to one of the sprocket-wheels of the said drive-shaft, substantially as described.

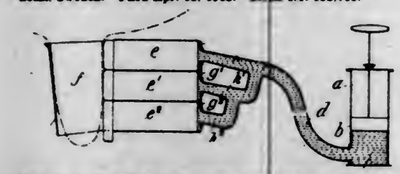
784,692. COMBINED PUMP AND PISTON ROD. JOHN F. LEARY, Luzerne, Pa. Filed Oct. 28, 1904. Serial No. 230,411.

Claim.—1. In combination with a piston-rod having a head provided with a dovetail flange, a tappet-arm to operate a valve-rod and comprising a pair of separable sections formed with dovetail members at their lower ends to engage said dovetail flange of the piston-rod head, and a bolt extending transversely through said sections of the tappet-arm and said dovetail flange of the piston-rod head.



2. In combination with a piston-rod having a head provided with a dovetail flange, a tappet-arm to operate a valve-rod and comprising a pair of separable sections formed with dovetail members at their lower ends to engage said dovetail flange of the piston-rod head, and a bolt extending transversely through said sections of the tappet-arm and said dovetail flange of the piston-rod head, said dovetail flange of said head having a transverse groove or slot for the reception of said bolt.

784,693. MILKING-MACHINE. FREDRIK LJUNGSTRÖM, Stockholm, Sweden. Filed Apr. 15, 1903. Serial No. 152,768.



Claim.—1. A milking apparatus comprising an abutment for the teat, pistons arranged at right angles to the major axis of said abutment, the cylinders for said pistons, a receptacle for fluid in communication with said cylinders, a forcing and suction device to move the body of fluid to and fro and therethrough to move the pistons toward and from the abutment, and means dividing said body of fluid so as to cause the pistons to move successively to and from the abutment, for the purpose set forth.

2. A milking apparatus comprising an abutment for the teat, pistons arranged at right angles to the major axis of said abutment, the cylinders for said pistons, a receptacle for fluid in communication with said cylinders, a forcing and suction device to move the body of fluid to and fro and therethrough to move the pistons toward and from the abutment, and means dividing said body of fluid so as to cause the pistons to move successively to and from the abutment and to cause the successive pistons to move toward the abutment under successive reduced pressure, for the purpose set forth.

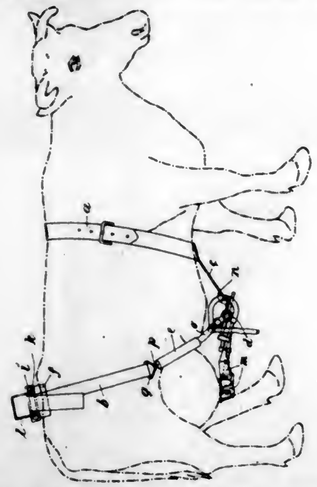
3. In a milking apparatus, a milking device consisting, for each teat, of a set of pistons moving in cylinders and bearing against and acting successively on the teat, a shell fixed to the cylinders and surrounding the teats, each of said cylinders communicating with a closed conduit containing a body of fluid, and means for imparting energy to said body of fluid acting upon the pistons.

4. In a milking apparatus, a milking device consisting, for each teat, of a set of pistons moving in cylinders and bearing against and successively acting upon the teat, a shell surrounding the teat and fixed to the cylinders, the uppermost cylinder communicating directly with a closed conduit containing a body of fluid, whereas the next cylinder communicates with the said conduit by a branch, the next cylinder by a branch with the former branch, and means for imparting energy to said body of fluid.

5. In a milking apparatus, a milking device consisting, for each teat, of a set of pistons moving in cylinders and bearing against and successively acting upon the teat, a shell surrounding the teat and fixed with its ends to the cylinders, and acting as an abutment for the teat, the uppermost cylinder communicating directly with a closed conduit containing a body of fluid, whereas the next cylinder communicates with said conduit by a branch, the next cylinder by a branch with the former branch and a pump whose cylinder communicates with the closed circuit.

6. In a milking apparatus, a milking device consisting, for each teat, of a set of pistons moving in cylinders and bearing against and successively acting upon the teat, a shell surrounding the teat and fixed with its ends to the cylinders and acting as an abutment for the teat, the uppermost cylinder communicating directly with a closed circuit containing a body of fluid, whereas the next cylinder communicates with said conduit by a branch, the next cylinder by a branch with the former branch, the closed conduit and one or more of the branches being terminated by nozzles each surrounded by a space communicating with the cylinders, and a pump whose cylinder communicates with the closed circuit.

784,694. SUPPORTING-HARNESS FOR MILKING-MACHINES. FREDRIK LJUNGSTRÖM, Stockholm, Sweden. Filed Mar. 16, 1904. Serial No. 198,444.



Claim.—1. The combination with a milking-machine having lateral supporting-arms and a hook, of a girth adapted to be connected to the hook, a self-adjusting rump-saddle, a strap adjustably held in the saddle, the ends of which strap are connected to the arms of the milking-machine, substantially as and for the purposes set forth.

2. The combination with a milking-machine having lateral supporting-arms of a central hook, of a girth, a short strap connected at one end to the girth and the other end attached to said hook, a saddle, hinged plates thereon, a roller mounted on one of said plates, a yoke pivoted eccentrically to the roller, a strap passing between the roller and yoke, the ends thereof being attached to the arms of the milking-machine, substantially as and for the purposes set forth.

784,695. INSULATING-LINING. NORMAN MARSHALL, Newton, Mass. Filed Apr. 15, 1903. Serial No. 152,714.



Claim.—1. An insulating-lining consisting of a tube having end portions of different diameters and having an elastic and compressible portion of greater diameter than the part within which it is to fit, substantially as described.

2. An insulating-lining consisting of a tube having end portions of different diameters and having an elastic integral holding portion, substantially as described.

3. An insulating-lining consisting of an elastic compressible tube one end of which is of smaller diameter than the other, substantially as described.

4. An insulating-lining consisting of a tube having an elastic compressible holding portion of greater diameter than the part within which it is to fit, substantially as described.

5. An insulating-lining consisting of a paper tube having its diameter reduced for a portion of its length, substantially as described.

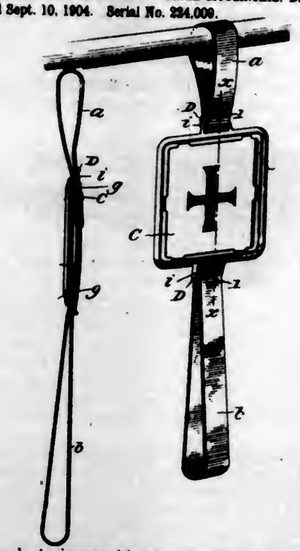
6. An insulating-lining consisting of a paper tube having its diameter reduced for a portion of its length and having a portion of greater diameter than the part within which it is to fit, substantially as described.

7. The combination with a metallic shell, of an insulating-lining consisting of an elastic compressible tube held frictionally against the shell by its resiliency, substantially as described.

8. An insulating-sleeve consisting of a tube having an elastic holding portion of different diameter from the part which it is to fit.

9. The combination with a metallic shell, of an insulating-sleeve consisting of an elastic, compressible paper tube held in frictional engagement with the shell by its own resiliency.

784,696. HAND-STRAP. URIAH MCCLINCHIE, Brooklyn, N. Y. Filed Sept. 10, 1904. Serial No. 224,009.



Claim.—1. An improved hand-strap comprising a single piece of material folded upon itself to form upper and lower loops, and a rigid frame or holder over the face of the strap and having loops through which the folded portions of the strap are passed, the folded portions being united to each other behind the holder.

2. An improved hand-strap comprising a single piece of material folded upon itself to form upper and lower loops, an open center frame or holder intermediate of the loops and having oppositely-extending loops and cross-bars extending across the last-named loops and dividing the same into separate openings for the respective portions of the folded strap, and a card or like member contained within said holder and exposing its subject-matter through the open center of the holder.

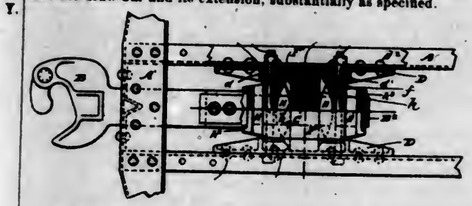
3. An improved advertising hand-strap comprising a frame or holder having projecting loops at opposite ends said loops each having a centrally-located cross-bar, a strap passed through said loops at one side of the cross-bars and having its ends returned and passed through the loops at the opposite side of the bars, said returned ends being brought together and united, and a card or like member bearing advertising matter and contained in said frame or holder.

4. An improved hand-strap comprising a strap and a frame or holder thereon, and having loops at opposite ends for engagement with the strap, and a card or member bearing advertising matter, said frame or holder having lugs on its back projecting into the open center and serving as retaining-guides for the advertising card or member.

5. An improved hand-strap comprising a strap and a channeled frame or holder thereon and having loops at opposite ends for engagement with the strap, and a card or member bearing advertising matter, said frame or holder having a recessed back and projecting lugs forming retaining-guides for the card or member, and strips insertible between the lugs and back of the card for retaining the card fixedly in position.

784,697. DRAFT-RIGGING FOR RAILWAY-CARS. JOHN F. O'CONNOR, Chicago, Ill., assignor to W. H. Miner Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 24, 1904. Serial No. 238,237.

Claim.—1. In a draft-rigging, the combination with draft-sills and side plates or stop-castings secured thereto, of a draw-bar and draw-bar strap or extension, a spring box or case fitting and extending between the side plates or stop-castings and abutting against the front and rear stops thereon and provided with a chamber to receive a series of straight, flat spring-plates, and with shoulders or bearings for the opposite ends of said series of spring-plates, a series of straight, flat spring-plates in said box or case, and front and rear thrust-blocks having convex bearing-faces to engage the series of spring-plates at their middle and interposed between said springs and the draw-bar and its extension, substantially as specified.



2. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, and a spring box or case containing said springs and having bearings for the ends thereof, substantially as specified.

3. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, a spring box or case containing said springs and having bearings for the ends thereof, and side plates or stop-castings having front and rear stops engaging said spring box or case, substantially as specified.

4. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, a spring box or case containing said springs and having bearings for the ends thereof, said spring box or case having hollowed or concaved front and rear inner faces, substantially as specified.

5. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, a spring box or case containing said springs and having bearings for the ends thereof, said spring box or case having hollowed or concave front and rear inner faces, and said thrust-block having convex bearing-faces to engage said springs at their middle, substantially as specified.

6. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, a spring box or case containing said springs and having bearing for the ends thereof, said spring box or case having openings at the sides thereof through which the springs may be inserted and removed, substantially as specified.

7. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, a spring box or case containing said springs and having bearings for the ends thereof, said spring box or case having slots or openings through its front and rear walls through which the thrust-blocks project and slide, substantially as specified.

8. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, and a spring box or case containing said springs and having bearings for the ends thereof, said spring box or case having slots or openings through its front and rear walls, and said thrust-blocks having wings projecting through said slots or openings in the front and rear walls of said box or case, substantially as specified.

9. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a pair of thrust-blocks embraced and carried thereby, a series of flat, straight spring-plates interposed between said thrust-blocks, a spring box or case containing said springs and having a bearing for the ends thereof, side plates or stop-castings having front and rear stops engaging said spring box or

case, and bolts extending transversely through said side plates or stop-castings and said spring box or case to removably secure the same in position, substantially as specified.

10. In a draft-rigging, the combination with a draw-bar B' and draw-bar strap B², of side plates D D, having front and rear stops d d', spring box or case F having spring-chamber F' and spring b arings or shoulders f', a series of straight, flat springs G in said box or case, and thrust-blocks H H' carried by said draw-bar and its extension, and engaging said springs, substantially as specified.

11. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, provided with curved or convex bearings adapted to engage a series of straight, flat spring-plates at their middle, of a series of straight, flat, spring-plates interposed between said bearings, and a spring box or case containing said springs and having bearings for the ends thereof, substantially as specified.

12. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, provided with curved or convex bearings adapted to engage a series of straight, flat spring-plates at their middle, of a series of straight, flat spring-plates interposed between said bearings, a spring box or case containing said springs and having bearings for the ends thereof, and side plates or stop castings furnished with stops or shoulders engaging said spring box or case, substantially as specified.

13. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a series of flat, straight spring-plates extending transversely between the upper and lower members of the draw-bar strap or extension, and a spring box or case furnished with bearings for the ends of the springs, substantially as specified.

14. In a draft-rigging, the combination with a draw-bar and draw-bar strap or extension, of a series of straight, flat spring-plates extending through the draw-bar strap or extension and embraced thereby, means connected with the draw-bar for engaging said springs at their middle, side plates or stop-castings, and bearings for the ends of the springs, substantially as specified.

15. The combination with a laterally movable or swinging draw-bar, of a series of straight, flat spring-plates extending transversely of the draw-bar, stationary front and rear bearings for the ends of the springs, and curved or convex front and rear bearings movable with the draw-bar and embracing said springs at their middle portion, whereby the springs serve both as a cushioning device for the draw-bar and also as a centering device therefor while permitting the draw-bar to swing laterally as required, substantially as specified.

16. The combination with a draw-bar, of a series of transversely-extending flat spring-plates, means for anchoring said spring-plates at their ends to the car-frame, and curved bearings connected with the draw-bar between which said springs are snugly embraced so that the springs will serve both to cushion the draw-bar and to restore it to position centrally of the car after it has been swung laterally, substantially as specified.

17. The combination with the laterally movable or swinging draw-bar, of a series of flat, straight spring-plates extending transversely of the draw-bar, means for anchoring said spring-plates at their ends to the car-frame, and curved bearings connected to and movable with the draw-bar and snugly embracing said springs, whereby lateral or swinging movement of the draw-bar causes flexure of the springs, substantially as specified.

18. The combination with a draw-bar, of a series of transversely-extending spring-plates, and opposing convexly and concavely curved bearing-faces connected respectively with the draw-bar and the stationary frame of the car and engaging said springs to limit their extent of flexure and prevent their being given a permanent set and affording solid supports for the springs, substantially as specified.

19. The combination with a car-frame or sills furnished with opposing bearings for transversely-extending flat spring-plates, and with concave faces to limit the extent of flexure of the springs, of a set of transversely-extending flat spring-plates, a draw-bar and draw-bar strap or extension furnished with convex bearing-faces engaging the springs, the convex bearing-faces carried by the draw-bar being concentric with said corresponding opposing concave bearing-faces, substantially as specified.

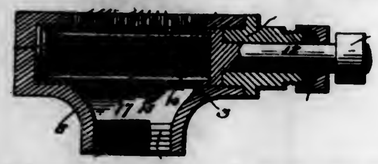
784,698. BRAKE-BEAM. JOHN F. O'CONNOR, Chicago, Ill., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 18, 1905. Serial No. 241,026.

Claim.—1. The herein-described brake-beam, consisting of a commercially-rolled member, whose ends possess the characteristics common to their origin, and whose web at the center is stretched in a transverse direction; substantially as described.



2. The herein-described brake-beam, consisting of a commercially-rolled beam having its ends and one flange preserved in their original form, the opposite flange being cambered or tapered from the center toward the ends and the integrity of whose web is preserved, said web being stretched transversely at the center of the beam; substantially as described.

784,699. FEED-VALVE FOR GASOLENE-ENGINES. CHRISTIAN PEDERSON and OLE J. ANDERSEN, North La Crosse, Wis. Filed May 13, 1904. Serial No. 207,816.



Claim.—1. A feed-valve for gasolene-engines, consisting of a casing having an inlet-passage formed in one side thereof and discharge-passages formed in the opposite side of the same, a hollow valve arranged in said casing and having in one side small inlet-openings and in its opposite side larger outlet-openings which when said valve is operated coact with the discharge-openings in said casing, thereby regulating the feed of said engine, substantially as described.

2. A feed-valve for gasolene-engines, consisting of a casing having an inlet-passage formed in one side of the same, and oppositely-diverging discharge-passages formed in its opposite side, a hollow valve arranged in said casing and having in one side inlet-apertures and in its opposite side outlet-apertures larger than the inlet-openings which when said valve is operated coact with the discharge-passages in said casing thereby regulating the size of the openings formed by said apertures and passages thus regulating the feed and speed of said engine, and means arranged in said hollow valve to break up or vaporize the oil passing through said valve, substantially as described.

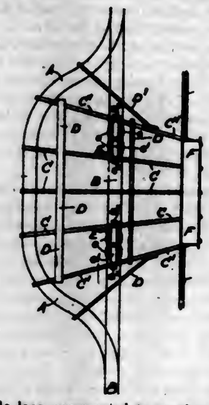
3. A feed-valve for gasolene-engines consisting of a cylindrical valve-casing having an elongated inlet-passage formed in one side thereof, oppositely-diverging discharge-passages formed in the opposite side of the same, a tubular cylindrical valve arranged in said casing and having small inlet-apertures formed in one side thereof and larger outlet-apertures formed in the opposite side of the same, said apertures being adapted to be thrown into and out of alinement with said passages by the turning of said valve, thereby regulating the feed of oil to said engine, and means arranged in said tubular valve, whereby said oil is broken up and vaporized before entering said engine, substantially as described.

4. A feed-valve for gasolene-engines consisting of a cylindrical valve-casing having an elongated inlet-passage formed in one side thereof, oppositely-diverging discharge-passages formed in the opposite side of the same, a tubular cylindrical valve arranged in said casing and having inlet-apertures formed in one side thereof and larger outlet-apertures formed in the opposite side of the same, said apertures being adapted to be thrown into and out of alinement with said passages by the turning of said valve, thereby regulating the feed of oil to said engine, and a cylindrical wire-gauze tube adapted to be inserted into said hollow valve, whereby the oil passing through the same will be broken up, substantially as described.

784,700. PORTABLE LOOP FOR DUMP-CARS. HENRY A. PENBERTHY, Randfontein, and JOHN B. PITCHFORD, Johannesburg, Transvaal, assignors of one-half to Charles Robinson and William Webb Beeby, Randfontein, Transvaal. Filed July 19, 1904. Serial No. 217,198.

Claim.—1. A portable loop for dumps or depositing-sites constructed to overhang the edge or face of the dump and arranged so that the trucks or vehicles conveying the material to be dumped can run off the main line onto the loop and after being emptied continued

in the same direction along the loop to the main line or track, substantially as described.



2. A portable loop constructed to overhang the face of the dump or depositing-site and arranged so that the trucks conveying the material to be dumped may run off the main line onto the loop and after being emptied of their contents run off the loop onto the main line, carriages or bogies adapted to traverse the main line or track and means for raising the loop to transfer the weight thereof to said carriages or bogies, substantially as described.

3. A portable spur adapted to overhang the edge of the dump and arranged so that the vehicles conveying the material to be dumped can run off the main line onto the spur and back along the spur to the main line, carriages or bogies traversing the main line or track and means for raising the spur onto said carriages or bogies so that it may be traversed along the main line, substantially as described.

4. In a portable loop for dumps or depositing-sites the combination with the main line or track of the loop constructed to overhang the face of the dump, carriages or bogies for carrying the loop adapted to traverse the main line or track, means for raising the loop to transfer the weight thereof to said carriages or bogies and means for counteracting the weight of the overhanging portion of the loop and loaded truck or vehicle when it is run onto the loop, substantially as described.

5. In a portable spur for dumps or depositing-sites the combination with the main line of the spur constructed to overhang the edge of the dump, carriages or bogies adapted to traverse the main line for carrying the spur, means for raising the spur to transfer the weight thereof to said carriages or bogies and means for counteracting the weight of the overhanging portion of the spur and the loaded car or vehicle when it is run onto the spur, substantially as described.

6. In a portable loop for dumps or depositing-sites, the combination with the main line of the loop constructed to overhang the face of the dump, carriages or bogies adapted to traverse the main line for carrying the loop, means for raising the loop to transfer the weight thereof to said carriages or bogies and adjustable means for counteracting the weight of the overhanging portion of the loop and the loaded car when it is run onto the loop, substantially as described.

7. In a portable loop for dumps or depositing-sites, in combination, a portable loop adapted to overhang the face of the dump, means for detachably connecting the rails of the loop to the rails of the main line, said means consisting in forming the under side of the rail of the loop at an inclination and in forming at or in proximity to the end thereof lugs which project down the sides of the bulb of the main rail, and a strap or straps which pass through the web of the loop-rail and project down the sides of the main line and are secured underneath the rail of the main line, substantially as described.

8. In a portable loop for dumps or depositing-sites, in combination, a portable loop adapted to overhang the edge of the dump, means for detachably connecting the rails of the loop to the rails of the main line, said means consisting in forming the under side of the rail of the loop at an inclination to the bulb of the main line and in forming at or in proximity to the end thereof lugs or projections which project to either side of the bulb of the main line, and a strap or straps which pass through the web of the loop-rail and project down the sides of the main line, and keys and cotters carried by the lower extremities of said straps for fixing the loop-rail to the main rail, substantially as described.

9. In a portable loop for dumps or depositing-sites, in combination, a portable loop constructed to overhang the face of the dump, means for counterbalancing the weight of the overhanging portion of the loop and the weight of the loaded car when it is run onto the loop, said means consisting of a weight-box secured to the main frame or structure opposite the loop and provided with an inclined bottom to facilitate the discharging of the contents or a portion of the contents of said box to balance the loop, and doors or hinged sides for emptying or partially emptying the weight-box substantially as described.

10. In a portable loop for dumps or depositing-sites, in combination, a portable loop constructed to overhang the edge of the dump, means for counterbalancing the weight of the overhanging portion of the loop and the weight of the loaded car when it is run onto the loop, said means consisting of a suitably-loaded truck adapted to traverse rails carried by the main frame or structure at right angles to the loop, substantially as described.

11. In a portable loop for dumps or depositing-sites the combination with the overhanging loop of carriages or bogies for carrying the loop arranged to traverse the main line, and means for raising the loop to transfer the weight thereof to said carriages, consisting of screws supported by said carriages or bogies and attached to the members of the main frame or structure, said screws being movable vertically to raise the main structure, and means for raising or lowering the screws, substantially as described.

12. In a portable loop for dumps or depositing-sites, the combination with the main line of a loop constructed to overhang the face of the dump, means for attaching the ends of the rails of the loop to the rails of the main line, means for moving the loop along the main line, and means for counteracting the weight of the loop and loaded truck when it is run onto the loop, substantially as described.

13. In a portable loop for dumps or depositing-sites the combination with the main line of a loop constructed to overhang the face of the dump, carriages or bogies adapted to traverse the main line, means for attaching the extremities of the rails of the loop to the rails of the main line, means for raising the structure carrying the loop to transfer the weight thereof to the carriages or bogies, a weight-box carried by the frame or structure opposite the loop, and means for discharging or partially discharging the contents of said weight-box, substantially as described.

14. In a portable loop for dumps or depositing-sites, in combination, the main line, the loop, the cantalivers and supports carrying said loop, braces or stays attached to said cantalivers and supports, carriages or bogies adapted to traverse the main line, screws carried by said carriages or bogies attached to the cantalivers, nuts for raising said screws to lift the structure to transfer the weight thereof to said carriages or bogies, a weight-box carried by the structure opposite the loop, said weight-box being constructed with an inclined bottom and hinged sides for facilitating the emptying of the same, and a rail or support for the structure arranged beneath the weight-box, substantially as described.

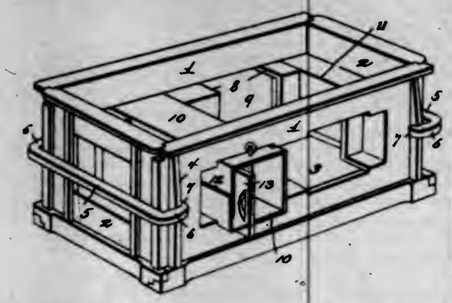
15. In a portable loop for dumps or depositing-sites, in combination, the main line, the loop and the cantalivers and supports carrying the same, the lugs formed on the ends of the rails of the loop-line projecting down the sides of the bulb of the rails of the main line, the straps passing through holes formed in the flanges of the rails of the loop-line and secured beneath the rails of the main line by cotters and keys, braces or stays attached to the cantalivers and supports, carriages or bogies adapted to traverse the main line, screws carried by said carriages or bogies attached to the cantalivers, nuts for raising said screws to lift the structure to transfer the weight thereof to said carriages or bogies, rails laid on the structure at right angles to and opposite the loop, a suitably-loaded truck or vehicle arranged thereon and movable along the rails for counterbalancing the weight of the overhanging portion of the loop and the loaded vehicle when it is run thereon, and a rail or support arranged beneath the structure at the side opposite the loop, substantially as described.

16. In a portable loop for dumps, the combination with the main line, of a loop constructed to overhang the face of the dump, and means for counterbalancing the weight of the loop.

17. In a portable loop for dumps, the combination with the main line, of a loop constructed to overhang the face of the dump, and means for counterbalancing the weight of the loop, and means independent of the loop for increasing the counterbalancing means when a loaded car is run onto the loop.

18. In a portable loop for dumps, the combination with the main line, of a loop constructed to overhang the face of the dump, a counterbalance for said loop, and means independent of the loop for increasing or diminishing the counterbalance.

784,701. MOLD. JOHN B. PEPPER, Canton, Ohio. Filed May 12, 1904. Renewed Feb. 7, 1905. Serial No. 244,868.

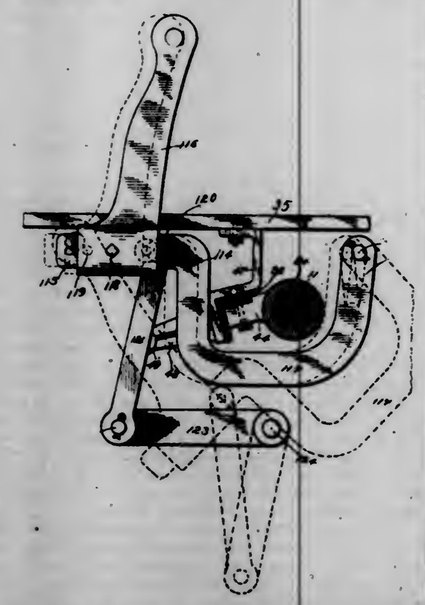


Claim.—1. The combination with a mold, of a facing member disposed therein and comprising a pair of sections pivotally connected, one of the sections being pivoted to the mold, and means for adjusting said sections to vary their angular relation to each other and to the mold.

2. The combination with a mold, of a facing member comprising an open frame pivotally mounted in the mold, a pattern-die removably seated within the frame, a plate pivotally connected with the latter, and means for adjusting the plate relative to the frame to vary their angular relation.

3. The combination with a mold provided with guideways, of a facing member disposed in the mold and comprising a primary section pivotally connected with the latter and a secondary section pivotally connected with the primary section, and devices carried by the secondary section for travel in the guideways to vary the angular relation of the sections.

784,702. BINDING MECHANISM. JAMES A. PLOPPER, Chicago, Ill., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Sept. 28, 1901. Serial No. 76,958.



Claim.—1. In a binding mechanism, the combination with the deck having the binder trip-shaft extending longitudinally beneath it, of the compressor-hook, the compressor-hook-supporting arm, connections between said arm and shaft which permit a movement of the arm substantially parallel to the deck to move the shaft, and supports for said compressor-hook-supporting arm so that as it moves in a line parallel to the deck the binder trip-shaft is moved to start the binding mechanism; substantially as described.

2. In a binding mechanism, the combination with the deck having the binder trip-shaft extending longitudinally beneath it, of the compressor-hook, the compressor-hook-supporting arm pivotally connected to said trip-shaft, and supports for the arm which together with said pivotal connection constrain it and the hook to move parallel to the deck to move the trip-shaft to start the binding mechanism and subsequently to swing down to permit the discharge of the bundle; substantially as described.

3. In a binding mechanism, the combination with the deck having the binder trip-shaft extending longitudinally beneath it, of the compressor-hook, the compressor-hook-supporting arm pivotally connected to said trip-shaft, the compressor-hook shaft having a crank-arm thereon, the link pivotally connected at its opposite ends to the compressor-hook-supporting arm and the crank-arm, and means for preventing the rotation of said compressor-hook shaft except when a bundle is to be discharged; substantially as described.

4. In a binding mechanism, the combination with the frame having the sleeve 11, of the deck 35 supported above said sleeve, the binder trip-shaft 95 journaled in the rear of said sleeve and having the crank end 112 above said sleeve 11, the compressor-hook-supporting arm 114 having the U-shaped portion 117 pivotally connected to the end 112 and extending beneath the continuation of the axis of said sleeve 11, the compressor-hook 116 secured on the forward horizontal end of the arm 114, the compressor-hook shaft 124 located beneath the sleeve 11 and having the normally horizontal crank-arm 123, the link 121 connecting the end of the crank-arm 123 and the horizontal portion of the compressor-hook-supporting arm 114, and means for preventing the rotation of the compressor-hook shaft 124 except when a bundle is to be discharged; substantially as described.

5. In a binding mechanism, the combination with the frame having the sleeve 11, of the binder trip-shaft 95 journaled in the rear of said sleeve and having the crank end 112 at one end, the crank end 96 at the other end, the U-shaped bend adjacent to the crank end 96, the trip-stop cooperating with the crank end 96, and the binding mechanism including the sprocket-wheel 73 and the sprocket cam-wheel 75 connected by the sprocket-chain 74 in the plane of the U-shaped bend in the binder trip-shaft; substantially as described.

6. In a device of the class described, the combination with the framework of the machine, of the binding mechanism longitudinally movable thereon, and connections between said framework and binding mechanism comprising two supports, one carried by the framework and the other by the binding mechanism, and which are brought together as the binder is adjusted for binding short grain and which are separated as the binder is adjusted for binding long grain; substantially as described.

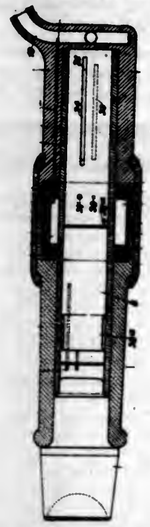
7. In a device of the class described, the combination with the framework carrying the supporting-bracket 18 provided with an antifriction-roller and having the substantially horizontal bar 20, of the binding mechanism longitudinally movable thereon and including the rod 12 resting on the antifriction-roller on the bracket 18, and the downwardly-projecting bracket 22 having the antifriction-roller 23 resting on the bar 20; substantially as and for the purpose described.

784,703. PERCUSSIVE HAND-TOOL. HENRY POTTER, Bromley, England. Filed Dec. 17, 1904. Serial No. 237,307.

Claim.—1. The combination, with a cylinder, of a tubular distributing-valve arranged in the said cylinder and prevented from sliding longitudinally therein, said cylinder and valve being provided at one end with ports which are longer than one-half of the stroke of the piston, a piston slidable longitudinally inside the said valve, and means for moving the said valve circumferentially to open and close the said ports.

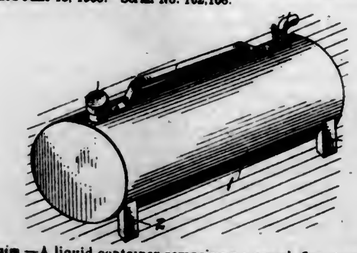
2. The combination, with a cylinder, of a tubular distributing-valve arranged in the said cylinder and prevented from sliding longitudinally therein, said cylinder and valve being provided at each end with ports which are longer than one-half of the stroke of the piston, and the said cylinder having also a longitudinal supply-passage in its side wall which is connected with the said ports at each end of it, a piston slidable longitudinally in the said valve, and means for moving the said valve circumferentially to open and close the said ports at the opposite ends of the cylinder alternately.

3. The combination, with a cylinder provided with side chambers, of a tubular distributing-valve arranged in the said cylinder and provided with wings which project into the said chambers and prevent the valve from moving longitudinally, said cylinder and valve being provided at one end with ports, a piston slidable longitudinally in the said valve, and means for admitting and exhausting pressure fluid to and from the said chambers whereby the said valve is oscillated in the said cylinder to open and close the said ports.



4. The combination, with a cylinder formed of two sections arranged end to end and provided with recesses at their meeting ends, means for securing the said cylinder-sections together, and a bush formed of bush-segments arranged in the said recesses and provided with chambers; of a tubular distributing-valve arranged in the said cylinder and provided with wings which project into the said chambers and prevent the valve from moving longitudinally, said cylinder and valve being provided at one end with ports, a piston slidable longitudinally in the said valve, and means for admitting and exhausting pressure fluid to and from the said chambers whereby the said valve is oscillated in the said cylinder to open and close the said ports.

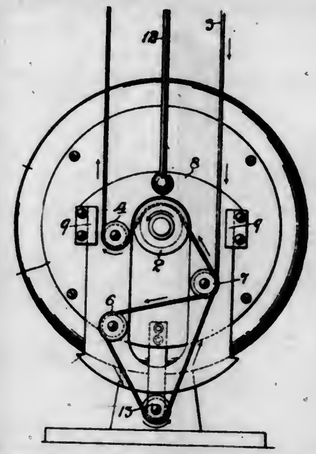
784,704. LIQUID-CONTAINER. OSCAR J. PUNCHES, Toledo, Ohio. Filed June 18, 1903. Serial No. 162,106.



Claim.—A liquid-container comprising a vessel, flat at one end and having a faucet near said end, a filling-orifice near the opposite end and a longitudinally-arranged handle, said faucet, orifice and handle being on the same side of the vessel and in line with one another, and the ends of the handle being secured to the vessel, the latter having supporting-legs on its opposite side to retain it when in a horizontal position, with the faucet, orifice and handle uppermost, substantially as described.

784,705. REVERSING DRIVING MECHANISM. ENOCH J. RECTOR, Parkersburg, W. Va. Filed Sept. 26, 1902. Renewed June 10, 1904. Serial No. 211,886.

Claim.—1. The combination with a rotary drive wheel or pulley, of four guide pulleys or wheels located at opposite sides of said drive-wheel, a belt or cord passing about said guide-pulleys and on opposite sides of the drive-wheel and in contact therewith at one side only, and a shifter for causing relative motion of said drive and guide wheels, whereby the cord or belt may be caused to engage with the drive-wheel at either side thereof



2. The combination with a rotatory wheel or pulley, of a plurality of guide wheels or pulleys located some at one and some at the other side of said rotatory wheel or pulley, a belt or cord passing about said guide wheels or pulleys at opposite sides of and in contact with one side of said rotatory wheel or pulley, and means for causing relative motion of said rotatory wheel or pulley and said guide wheels or pulleys, whereby the belt or cord may be caused to engage with either side of the rotatory wheel or pulley

3. The combination with a rotatory wheel, of four guide-wheels located two at one side and two at the other side thereof, a belt or cord passing about said guide wheels or pulleys and on opposite sides of the said rotatory wheel or pulley and in contact with the said rotatory wheel at one side thereof, a fifth guide-wheel at a fixed distance from the said rotatory wheel, and a shifter for causing relative motion of said rotatory and said guide wheels in a direction substantially parallel to a line through the fifth guide-wheel and the rotatory wheel.

784,706. WINDOW-SASH FOR STREET-CARS. EDWARD T. ROBINSON, St. Louis, Mo. Filed Jan. 13, 1903. Renewed Nov. 9, 1904. Serial No. 231,985.

Claim.—1. A car-window comprising posts having stops for upper and lower sashes, the stops for the upper sash being outside of and below the top of the lower sash when in position on its stops, a lower sash and an upper sash, said posts being constructed to permit said upper sash to move upwardly to clear the top of said lower sash when in position on its stops so that said upper and lower sashes are independently movable in all positions of each sash.

2. A car window comprising posts provided with a guide-groove, and having no part inside of said guide-groove projecting laterally beyond the inner wall thereof, and a sash traveling between the posts and provided with retaining-pintles cooperating with the said guide-grooves, one of the said pintles being retractable and capable of manipulation when the sash is in its operative position, whereby said sash may be removed without disturbing any part of said posts.

3. A car-window comprising posts each provided with a parting-strip and a guide-groove and having no part inside of said guide-groove projecting laterally beyond the inner wall thereof, a lower sash vertically movable outside of the parting-strip, and an upper sash having a fixed retaining-pintle upon one side and a spring-pressed retractable retaining-pintle upon the other side cooperating with said guide-grooves, said retractable pintle being capable of manipulation when the sash is in its operative position, whereby said sash may be removed without disturbing any part of said posts.

4. A car-window comprising posts provided with a guide-groove extending upwardly, and then outwardly and terminating in a downwardly-extending pocket, and stops for upper and lower

sashes, a lower sash, and an upper sash having pintles coöperating with the said guide-grooves, the highest part of the guide-grooves being at least as high above the lower sash when in position on its stop as the pintles are above the bottom of the upper sash, whereby the upper sash is movable independently of the lower sash.



5. A car-window comprising posts provided with a parting-strip terminating in a stop-piece forming a vertical stop for the lower sash and an inner lateral stop for the upper sash, a lower sash vertically movable outside of the parting-strip, an upper sash vertically movable inside of the parting-strip at the lower portion of its travel, and laterally movable over the parting-strip at the upper portion of its travel.

6. In a street-car, a window comprising movable upper and lower sashes, and a fitting on the window-post constituting an inner lateral stop for the upper sash and a vertical stop for the lower sash.

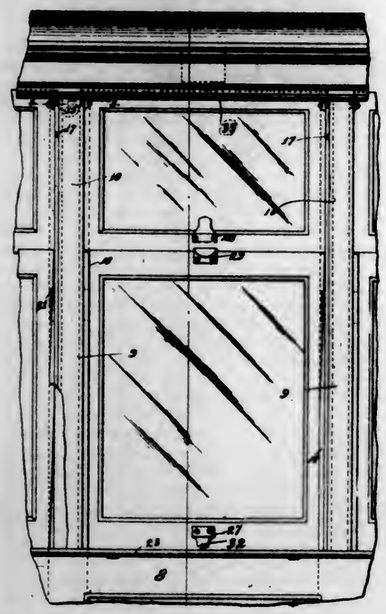
7. In a street-car, a window comprising an upper sash and a lower sash, the window-posts having grooves located inside of the lower sash, the upper ends of said grooves extending outwardly above the lower sash and terminating in downturned pockets, and pivot-bolts mounted on said upper sash to slide in said grooves, the said posts being constructed to permit said upper sash to move upwardly to clear the top of said lower sash so that said upper and lower sashes are independently movable in all positions of each sash.

8. In a street-car, a window comprising an upper ash and a lower ash, the window-posts having grooves located inside of the lower ash, the upper end of said grooves extending outwardly above the lower ash and terminating in downturned pockets, and pivot-bolts mounted on said upper sash to slide in said grooves, and a parting-strip whose upper end is arranged to permit said upper sash to clear it, the said posts being constructed to permit said upper sash to move upwardly to clear the top of said lower sash so that said upper and lower sashes are independently movable in all positions of each sash.

9. A car-window comprising posts having parting-strips stopping short of the top and stops for upper and lower sashes, the stops for the upper sash being outside of and below the top of the lower sash when in position on its stops, a lower sash movable vertically outside of said parting-strips, an upper sash movable vertically inside of said parting-strips at the lower portion of its travel, said posts being constructed to permit said upper sash to move upwardly to clear the top of said lower sash when in position on its stops so that said upper and lower sashes are independently movable in all positions of each sash.

10. A car-window comprising posts provided with a guide-groove extending upwardly and then outwardly and terminating in a downwardly-extending pocket, and stops for upper and lower sashes, a lower sash, and an upper sash having pintles coöperating with said guide-grooves, one of said pintles being retractable, the highest part of the said guide-grooves being at least as high above the lower sash when in position on its stop as the pintles are above the bottom of the upper sash whereby the upper sash is movable independently of the lower sash.

784,707. **WINDOW CONSTRUCTION.** EDWARD T. ROBINSON, St. Louis, Mo. Filed Feb. 9, 1903. Serial No. 142,457.



Claim.—1. A window construction comprising a window-frame, a movable window-sash, a sash-groove in the window-frame having a rearwardly and downwardly curved portion terminating in a seat, means on the window-sash engaging said groove and resting in said seat when the sash is in its normal position, and a passage-way leading from said groove but stopping short of the forward edge of the frame, whereby the sash may be freely removed without disturbing the connecting parts.

2. A window construction comprising a window-frame having two vertical posts, upper-sash grooves in said posts, a passage-way leading from one of said grooves but stopping short of the inward edge of said post, a sash sliding between said posts, and projections on said sash engaging the said sash-grooves, and traveling in the said passage-way when the sash is being removed from the frame.

3. A window construction comprising a window-frame having two vertical posts on opposite sides, upper-sash grooves in said posts, a sash sliding between said posts, projections on said sash engaging the said grooves, and a passage-way leading from the groove in but one of the posts, whereby the sash may be removed from the frame without changing the position of any part of the frame.

4. A window construction comprising a window-frame having two vertical posts on opposite sides, a sash sliding between said posts, an upper-sash groove in each of said posts, projections on said sash engaging said grooves, a curtain-groove in each of said posts, and a passage-way leading from the said upper-sash groove to the said curtain-groove whereby the said sash may be removed from the frame without changing the position of any part of the frame.

5. A window construction comprising a window-frame having two vertical posts, upper-sash grooves in said posts, curtain-grooves in said posts, the bottoms of the grooves in one post being in the same plane and the bottoms of the grooves in the other post being in different planes, a passage-way leading from the sash-groove to the curtain-groove of the latter post, a sash sliding between said posts, and projections on said sash engaging the said sash-grooves.

6. A window construction comprising a window-frame having two vertical posts on opposite sides, sash-grooves and curtain-grooves in said posts, the front wall of the curtain-groove in one post extending laterally not farther than the vertical plane of the bottom of the sash-groove in the same post, a passage-way leading from the said sash-groove to the said curtain-groove, a sash sliding between said posts, and projections on said sash engaging the said sash-grooves.

7. A window construction comprising two members, viz.—a window-frame and a movable window-sash, and a parting-strip on the window-frame, one of said members being beveled whereby when the sash is moved into an abnormal position it may be removed without disturbing the parting-strip.

8. A window construction comprising a window-frame, a movable window-sash, a parting-strip on the window-frame, the upper part of the said parting-strip and the lower part of the sash-stile being beveled whereby when the sash is raised it may be freely removed without disturbing the parting-strip.

9. A window construction comprising a window-frame having two vertical posts, parting-strips on said posts terminating short of one end of the frame, and shoulders on the outer edge of said posts, said parting-strips and said shoulders bounding a groove to receive a sash, no part of the posts forward of the parting-strips projecting laterally beyond the plane of the bottom of the said sash-groove, whereby a sash may be removed from the frame without changing the position of any part of the said frame.

10. A window construction comprising a window-frame having two vertical posts, integral parting-strips on said posts terminating short of one end of the frame, integral shoulders on the outer edge of said posts, said parting-strips and said shoulders bounding a groove to receive a sash, upper-sash grooves and curtain-grooves in said posts inward of said parting-strips, the walls of said grooves projecting laterally not farther than the bottoms of the said sash-grooves formed by said parting-strips and shoulders.

11. A window construction comprising a window-frame including vertical posts on opposite sides, upper-sash grooves in the sides of said posts, a sash, and projections on the sash taking into said grooves, and a passage-way leading from the groove in one post, the inward portion of said post being reduced in width, whereby the sash may be freely removed from its seat.

784,708. **BAG HOLDER AND FILLER.** WILLIAM H. STONE, Jr., South Chicago, Ill. Filed July 14, 1902. Renewed Dec. 16, 1904. Serial No. 237,163.

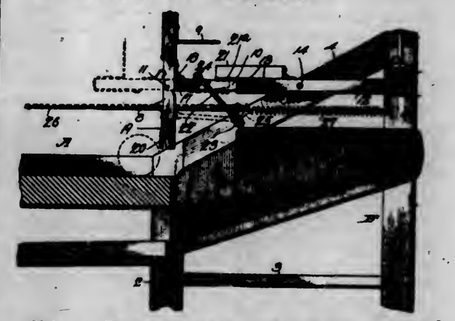


Claim.—1. An apparatus of the character specified comprising a suitable base 1; a standard 2 rigidly secured to said base; an arm 8 having a bent-up portion at its free end, carried at or near the upper end of said standard; registering orifices in the said standard 2, and bent-up portion; a collar having an outwardly-extending rod 3 adapted to find a bearing in the registering orifices and thereby swivelly disposing said collar 4; a nut adapted to retain the said rod in place, in combination with a funnel proper having a flaring upper end and an open lower end, designed to be received by said collar whereby the funnel may be tilted or inclined in either direction to permit the lower end to enter a sack or other receptacle as and for the purpose set forth.

2. In an apparatus of the class specified, the combination of the funnel proper with a supporting-ring 4, said ring having a socket 12 in its upper edge; an arm 10 having a dowel 13 adapted to fit the said socket; a socket 15 at the upper end of said arm 10; a graduated standard adapted to take loosely into said socket and means carried by said arm 10 to adjust the standard 11, substantially as set forth.

3. An apparatus comprising a suitable base, a standard secured to said base; an arm 8 carried by said standard, said arm having its free end bent up at right angles to the body portion, said standard and said bent-up portion having registering apertures; a collar 4 having an outwardly-extending rod 3 adapted to take into said apertures, and a nut adapted to hold said rod in place, in combination with a funnel proper having a flaring upper end and an open lower end designed to be received by the said collar, and means carried by the collar adapted to accurately determine the quantity of contents of said funnel, said means comprising the bracket 10 having a pin at its lower end adapted to take into an orifice in the ring 4, and a graduated standard 11 carried by said bracket, substantially as and for the purpose set forth.

784,709. **GAME APPARATUS.** DANIEL H. TALBERT, Indianapolis, Ind. Filed June 26, 1903. Serial No. 163,267.



Claim.—1. The combination in a game apparatus, of an alley, a frame at the end of said alley, a plurality of arms mounted on said frame and extending forward over the alley, means for adjusting the height of said arms above the alley, and a plurality of members pivotally supported by said arms and adapted to hang over said alley in the path of balls traveling along the alley.

2. In a game apparatus, the combination of an alley, a frame at the end of said alley, a plurality of bars pivotally mounted in said frame, means for adjusting the position of said bars, and a plurality of members pivotally mounted at the ends of said bars and adapted to be suspended above said alley in position to be struck by balls passing along said alley.

3. In a game apparatus, the combination of an alley, a frame at the end of said alley, a plurality of bars pivotally mounted in said frame to extend longitudinally of the alley and spaced apart, a plurality of members pivotally supported between said bars and adapted to be held in vertical position above said alley to be engaged by balls traveling along the alley.

4. In a game apparatus, the combination with an alley, of a plurality of members pivotally supported above said alley, a rod horizontally arranged adjacent to said members, and a plurality of spring-catches provided on said members and adapted to engage said rod to hold said members yieldably in position to be struck by balls traveling along the alley.

5. In a game apparatus, the combination with an alley, of a plurality of members pivotally supported above said alley and adapted to be held in position to be struck by balls traveling along said alley, each of said members having a leaf-spring of metal attached at its upper end only on the surface lying in the path of the balls.

6. In a game apparatus, the combination with an alley, of a plurality of members pivotally suspended above said alley and having the front surface thereof at the lower end beveled, and each having a buffer-spring of steel secured above the beveled surface and extending downward in front of the beveled surface.

7. In a game apparatus, the combination with an alley, of a plurality of members pivotally suspended above said alley and having at the lower end thereof on the front surface a buffer consisting of a steel leaf-spring having a facing of tough protective material.

8. In a game apparatus, the combination with an alley, of a plurality of members pivotally supported above the alley, and means for setting said members in vertical position, said means comprising a pivoted loop mounted behind each of said members and means for rocking said loops to bring them into engagement with said members.

9. In a game apparatus, the combination with an alley, of a plurality of members pivotally supported above the alley, and means for setting said members in vertical position, said means comprising a rock-shaft normally in inoperative position, a plurality of loops on said rock-shaft to engage said members, and means for rocking said shaft to bring the loops thereon into engagement with said pivoted members.

10. In a game apparatus, the combination with an alley, of a plurality of members pivotally mounted above said alley, and means for setting said members in vertical position, said means comprising a plurality of loops pivotally supported behind said members and each provided with a roller adapted to contact with one of said members, and means for swinging said loops into engagement with said pivoted members.

784,710. HOOK AND EYE. GEORGE G. TANDY, San Francisco, Cal. Filed June 19, 1902. Renewed June 28, 1904. Serial No. 214,497.



Claim.—1. A hook-and-eye member comprising an engaging portion having two shanks, and a pin having two prongs both pivoted on one of said shanks and extending transversely of said shank across to the other shank and being engaged thereby, substantially as described.

2. A hook-and-eye member for attachment to the cloth without stitching comprising an engaging portion proper having two shanks spaced from each other, and a pin portion comprising two prongs spaced from each other, and pivoted on one of said shanks and extending transversely thereof to the other shank, said shank having means for engaging one of said prongs, substantially as described.

3. A hook-and-eye member for attachment to cloth without stitching comprising an engaging portion having two shanks spaced from each other, and a pin portion comprising two prongs spaced from each other and pivoted on one of said shanks and movable longitudinally thereon, said prongs extending transversely of said shanks across to the other shank, said latter shank having means for engaging one of said prongs, substantially as described.

4. A hook-and-eye member for attachment to cloth without stitching comprising an engaging portion having two shanks spaced from each other, and a pin portion comprising two prongs spaced from each other and pivoted on one of said shanks and movable longitudinally thereon, said shank having a loop limiting the longitudinal movement of said prongs, said prongs extending transversely of said shanks across to the other shank, said latter shank having means for engaging one of said prongs, substantially as described.

784,711. ADJUSTABLE FOOT-REST FOR RADIATORS, &c. EUGENE TEARY, Ithaca, N. Y. Filed May 8, 1903. Serial No. 156,153.



Claim.—1. In combination with a radiator, rods passing between the sections thereof, each of said rods having an adjusting-nut at one end and a head at the other end, a shelf pivotally mounted with respect to said rods and a notched arm pivotally connected to said shelf and adapted to engage a detent-plate connected to said radiator.

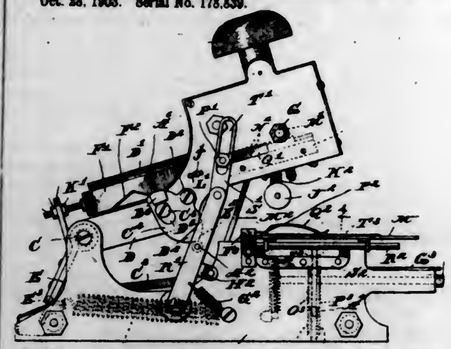
2. In combination, with a radiator, rods passing between the sections thereof, each of said rods having an adjusting-nut at one end and a head at the other end, a shelf pivotally mounted with respect to said rods and a notched arm pivotally connected to said shelf and adapted to engage a detent-plate adjustably connected to said radiator below that part upon which said shelf is mounted.

3. In combination, means adapted to be adjustably secured to a radiator, a shelf pivotally mounted thereon, a member adapted to be secured to the radiator at a lower point, and a notched arm pivotally secured to said shelf and adapted to rest with its notched surface in engagement with said member.

4. In combination, means adapted to be adjustably secured to a radiator, a shelf pivotally mounted thereon, a member adapted to be secured to the radiator at a lower point, a notched arm pivotally secured to said shelf and extending downwardly into engagement with said member, and a handle upon said shelf.

5. In combination, two rods adapted to extend between the sections of a radiator and having adjustable means thereon adapted to engage said sections and maintain said rods in fixed relation thereto, each of said rods being provided with a portion extending substantially at right angles with the body thereof, a shelf pivotally mounted upon said last-mentioned portions of said rods, a detent-plate, a rod connected with said detent-plate adapted to pass between sections of the radiator and be adjustably secured thereto, a notched bar pivotally mounted upon said shelf having a portion extending downwardly into engagement with said detent-plate, and a handle projecting upwardly from said shelf.

784,712. ELECTRIC CENTRAL-STATION RECORDING MECHANISM FOR METERS. CHESTER H. THORDARSON, Chicago, Ill. Filed Oct. 28, 1903. Serial No. 178,539.



Claim.—1. In a central-station recording mechanism for meters, and in combination with a meter, including means for successively registering unit-tallies and such units in units of higher denomination and circuit make and break devices, a recorder mechanism including a printing-wheel, and means arranged in the circuit made and broken by the make and break devices of the meter for successively actuating the printing-wheel of the recorder mechanism to position to record the tallies in such meter, as and for the purpose set forth.

2. In a central-station recording mechanism for meters, and in combination with a meter, including tally-registering mechanism and circuit make and break devices, a recorder mechanism including a printing-wheel, and means arranged in the circuit made and broken by such make and break devices for successively positioning the printing-wheel of the recorder mechanism in accordance with the tally-registers, as and for the purpose set forth.

3. In a central-station recording mechanism for meters, printing devices including a printing-wheel, electrical devices for positioning the printing-wheel, a meter including registering mechanisms, and means actuated by registering mechanisms of the meter for controlling the circuit of said electrical devices in accordance with the registers of such registering mechanisms, as and for the purpose set forth.

4. In a central-station recording mechanism for meters, printing devices, electric means for controlling the printing position of said devices, a meter including means for registering thereon unit-tallies and in units of higher denominations, said registering means controlling the circuits of said electrical devices, as and for the purpose set forth.

5. In a central-station recording mechanism for meters, printing devices including a type-wheel, means for imposing a rotative tension upon said wheel, electrical devices for releasing said wheel, and a meter mechanism including means for registering by unit-tallies, said mechanism controlling the circuits of said electrical devices, as and for the purpose set forth.

6. In a central-station recording mechanism for meters, a recorder, including printing devices, means for imposing a tension upon said devices tending to move the same, electrical devices for releasing said printing mechanism for positioning the same for the printing operation, and a meter mechanism including means for registering by unit-tallies, said means controlling the circuit of said electrical devices, as and for the purpose set forth.

7. In a central-station recording mechanism for meters, a printing mechanism normally held under tension tending to shift or move the same, electrical devices for controlling the release of said printing mechanism whereby said mechanism is permitted to move into printing position, a meter including means for registering unit-tallies and such units in units of higher denomination and means for controlling the circuit of said electrical devices from the meter registering mechanism, as and for the purpose set forth.

8. In a central-station recording mechanism for meters, printing mechanism, means normally maintaining said printing mechanism under a tension tending to move the same, release mechanism for controlling the movement of said mechanism under the influence of said tension, electrical devices for operating said release mechanism, and a meter including means for registering unit-tallies and in units of higher denominations, said registering mechanism operating to control the circuit of said electrical devices, as and for the purpose set forth.

9. In a central-station recording mechanism for meters, a printing mechanism including a type-wheel, means for normally maintaining said type-wheel under rotative tension, and electrical devices for controlling the release of said type-wheel, a meter including registering means for unit-tallies and said tallies in units of higher denomination, the circuits of said devices being successively controllable from such registering means, as and for the purpose set forth.

10. In a central-station recording mechanism for meters, printing mechanism including a type-wheel, means for imposing a rotative tension upon said wheel tending to rotarily displace the same, a release mechanism for controlling the extent of rotary movement of said wheel under the influence of said tension; electrical devices for controlling said release mechanism, a meter including registering means for unit-tallies and said tallies in units of higher denominations, the circuit of said electrical devices being controlled successively by such registering means, as and for the purpose set forth.

11. In a central-station recording mechanism for meters, a printing mechanism, a meter including registering devices for unit-tallies and such tallies in units of higher denominations, means controllable by said registering devices for automatically positioning said printing mechanism for the printing operation, and means for restoring the printing mechanism, and means for restoring the registering devices to normal positions, as and for the purpose set forth.

12. In a central-station recording mechanism for meters, a printing mechanism, means for maintaining the same under tension normally tending to shift or move the same, in combination with a meter, the readings of which are to be recorded, and means controllable by said meter for automatically positioning the printing devices, and means for restoring the printing mechanism to initial position.

13. In a central-station recording mechanism for meters, printing mechanism including a printing wheel, means for imposing a rotative tension upon said wheel, a meter including registering devices, electrical devices automatically controllable from the registering devices for releasing said printing-wheel whereby said wheel is brought into printing position, and means for restoring the printing-wheel to initial position, as and for the purpose set forth.

14. In a central-station recording mechanism for meters, a base-frame, a frame movably mounted thereon, a single printing-wheel carried by said movable frame, electrical devices for controlling the printing positions of said wheel, a meter including registering devices, and operating to automatically control the circuit of said electrical devices to successively actuate said printing-wheel to printing position, and means for returning said wheel to normal position after each operation thereof.

15. In a central-station recording mechanism for meters, a base-frame for supporting a card or strip upon which the record is to be received, a frame movably mounted upon said base-frame, and normally held separated therefrom, a single printing-wheel carried by said movable frame, a meter including registering devices, electrical devices automatically controllable from said registering devices for successively positioning the printing-wheel for printing, and means for returning or restoring said wheel to normal position after each operation thereof.

16. In a central-station recording mechanism for meters, a base-frame, a table supported thereon, a frame movably mounted upon said base-frame and yieldingly held separated therefrom, a single printing-wheel carried by said movable frame, whereby when said movable frame is moved toward said base-frame the desired record is made, a meter including registering devices, electrical devices controllable automatically from the registering devices for controlling the successive printing positions of the printing-wheel, and means actuated by the movement of said movable frame for returning or restoring the printing-wheel to normal position.

17. In a central-station recording mechanism for meters, a base-frame, a table supported thereon, a frame movably mounted upon said base-frame and yieldingly held separated therefrom, printing mechanism carried by said movable frame whereby when said movable frame is moved toward said base-frame the desired record is made, electrical devices controllable automatically from the meter for controlling the printing position of the printing mechanism, and means actuated by the return of said movable frame to initial position for restoring the printing mechanism to its initial position, as and for the purpose set forth.

18. In a central-station recording mechanism for meters, a table or platen to receive the card or strip upon which the record is to be made, a printing mechanism mounted for movement toward and from said table or platen to effect the printing operation, said printing mechanism including a printing-wheel, means normally operating to maintain said printing mechanism separated from said table a meter including registering devices, electrical devices controllable from said registering devices for successively moving said printing-wheel into printing position with reference to the table or platen and means operated by the movement of the printing mechanism upon completion of the printing operation for returning or restoring the printing-wheel to normal position.

19. In a central-station recording mechanism for meters, a base-frame, a frame movably mounted thereon and yieldingly held separated therefrom, a printing mechanism carried by said movable frame and including a type-wheel, electrical devices for controlling the printing position of said type-wheel, the circuit of said electrical devices being automatically controllable from the meter, and means actuated by the movement of said movable frame toward the base-frame to effect the printing of the record for breaking the circuit of said electrical devices, as and for the purpose set forth.

20. In a central-station recording mechanism for meters, a printing mechanism including a rotary shaft, a type-wheel mounted thereon to rotate therewith, means for imposing a rotative tension upon said shaft, release mechanism for releasing said shaft, said release mechanism operating to arrest the rotative movement of said shaft at any predetermined point to bring the type-wheel into any desired printing position, a meter including registering devices, means actuated by such registering devices for controlling said release mechanism, and means for restoring said shaft and type-wheel to initial position, as and for the purpose set forth.

21. In a central-station recording mechanism for meters, printing devices including a rotary shaft, means for imposing a rotary tension thereon, a printing-wheel mounted upon to rotate with said shaft, an escapement mechanism, a meter including registering devices, means controllable from said registering devices for automatically releasing said escapement mechanism to bring said printing-wheel into printing position as predetermined by said registering devices, and means for restoring said printing-wheel to initial position, as and for the purpose set forth.

22. In a central-station recording mechanism for meters, a printing mechanism including a rotatable shaft, means for imposing a rotative tension thereon, an escapement mechanism, means for locking said shaft against rotative movement under the influence of said tension, a printing-wheel mounted on said shaft to rotate therewith, means for detachably connecting said wheel and escapement mechanism, a meter including registering devices, and means controllable by the operation of said registering devices for releasing said escapement mechanism to permit said type-wheel to be brought into printing position as predetermined by the registering devices, as and for the purpose set forth.

23. In a central-station recording mechanism for meters, a printing mechanism including a rotatable shaft, a printing-wheel mounted thereon to rotate therewith, means for imposing a rotative tension upon said shaft, means for locking said shaft against rotary movement under the influence of said tension, a meter including registering devices for unit-tallies and said tallies in units of higher denomination, and automatically-operating devices controlled by the registering devices for releasing said locking mechanism, whereby said printing-wheel is successively brought into printing position as

predetermined by the registering devices, as and for the purpose set forth.

24. In a central-station recording mechanism for meters, a printing mechanism including a rotatable shaft, a printing-wheel mounted thereon to rotate therewith, means for imposing a rotative tension upon said shaft, means for locking said shaft against rotation under the influence of said tension including a stop-disk, a pawl-and-ratchet connection between said disk and wheel, and means controllable from the meter for automatically releasing said stop-disk to permit the type-wheel to be brought into printing position corresponding to the action of the meter-controlling mechanism, as and for the purpose set forth.

25. In a central-station recording mechanism for meters, a printing mechanism including a rotatable shaft, a printing-wheel mounted thereon to rotate therewith, means for imposing a rotative tension upon said shaft, means for locking said shaft against rotation under the influence of said tension including a stop-disk, a pawl-and-ratchet connection between said disk and wheel, means controllable from the meter for automatically releasing said stop-disk to permit the type-wheel to be brought into printing position corresponding to the action of the meter-controlling mechanism, and means for restoring said shaft and type-wheel to initial position against the action of said tension, as and for the purpose set forth.

26. In a central-station recording mechanism for meters, a printing mechanism including a rotatable shaft, a printing-wheel mounted to rotate therewith, means for imposing a rotative tension upon said shaft, a ratchet-disk connected to rotate with said wheel, a stop-disk loosely sleeved upon said shaft and carrying a pawl coöperating with said ratchet, stop mechanism coöperating with said stop-disk for locking said type-wheel in initial position against the tension of said tension mechanism, and means controllable from the meter for automatically releasing said locking mechanism to permit said type-wheel to attain printing position corresponding to the condition of the meter, as and for the purpose set forth.

27. In a central-station recording mechanism for meters, a printing mechanism, a supporting-frame therefor movably mounted to move said printing mechanism to effect a record, a rotatable shaft journaled in said frame, a printing-wheel mounted upon said shaft to rotate therewith, means for imposing a tension upon said shaft, means for locking said shaft against rotative movement under the influence of said tension, automatic devices controllable from the meter for releasing said locking mechanism to position said printing-wheel, and means actuated by the return of said frame to initial position after effecting a record for restoring said shaft and wheel to initial position, as and for the purpose set forth.

28. In a central-station recording mechanism for meters, a movable frame, printing mechanism carried thereby and including a rotatable shaft, a printing-wheel mounted upon to rotate with said shaft, means for imposing a rotative tension upon said shaft, means for locking said shaft against rotative movement to hold said wheel in initial position, means controllable from the meter for automatically releasing said locking mechanism, a pinion mounted upon said shaft, a movable rack with which said pinion engages, and means actuated by the return movement of said frame to initial position for shifting said rack to restore said shaft and wheel to initial position, as and for the purpose set forth.

29. In a central-station recording mechanism for meters, a movable frame, a printing mechanism carried thereby and including a rotatable shaft, means for imposing a rotative tension upon said shaft, printing devices carried by said shaft to rotate therewith, locking mechanism for holding said shaft against rotative movement under the influence of said tension and normally operating to hold said printing mechanism in initial position, means controllable from the meter for automatically releasing said locking mechanism, a pinion mounted upon said shaft, a sliding rack with which said pinion coöperates, and means operated by the return of said frame to initial position for restoring said rack, whereby said shaft and printing devices are restored to initial position, as and for the purpose set forth.

30. In a central-station recording mechanism for meters, a movable frame, a shaft journaled therein, means for imposing a rotative tension upon said shaft, a type-wheel mounted upon to rotate with said shaft, a ratchet-disk connected to rotate with said shaft, a stop-disk loosely sleeved upon said shaft and carrying a pawl coöperating with said ratchet-disk, whereby said disk and wheel are connected to rotate together in one direction but said wheel is permitted to independently revolve in the opposite direction, a stop-arm coöperating with said stop-wheel for releasing the same step by step, means automatically controllable from the meter for actuating said stop-arm, a pinion mounted upon said shaft, and means engaging said pinion and operated by the movement of said frame for returning or restoring said shaft and type-wheel to initial position under tension, as and for the purpose set forth.

31. In a central-station recording mechanism for meters, a printing mechanism including a type-wheel, means for imposing a rotative tension upon said wheel, a locking mechanism for maintaining said wheel against rotary movement under the influence of said tension and in an initial position and including a stop-wheel, a stop-arm having coöperating engaging lugs, and electrical devices automatically controllable from the meter for actuating said stop-arm to release said type-wheel step by step, whereby said wheel is brought into printing position corresponding to the action of the meter, as and for the purpose set forth.

32. In a central-station recording mechanism for meters, a printing mechanism, means for normally maintaining said printing mechanism in initial or retracted position under tension tending to move the same, release devices therefor, a stop-arm, a spring for maintaining said stop-arm in initial position, an armature for moving said stop-arm, a magnet for moving said armature, and means controllable by the meter for automatically making and breaking the circuit of said magnet, as and for the purpose set forth.

33. In a central-station recording mechanism for meters, a printing mechanism, means for normally maintaining said printing mechanism in an initial position under a tension tending to move the same, a stop mechanism for releasing said printing mechanism step by step and including an arm, stop-lugs carried thereby and separated from each other, one of said stop-lugs presenting a flat engaging surface and the other an inclined or curved engaging surface, and automatic devices controllable from the meter for actuating said stop-arm to release said printing mechanism to an extent corresponding to the operation of the meter, as and for the purpose set forth.

34. In a central-station recording mechanism for meters, a base-frame, a frame pivotally hinged or connected thereto, means for yieldingly maintaining said pivoted frame raised from said base-frame, a printing mechanism carried by said swinging frame, means automatically controllable from the meter for positioning said printing mechanism to an extent corresponding to the operation of the meter, whereby said printing mechanism is brought into position to print when said movable frame is depressed toward the base-frame, and means actuated by the return of said pivoted frame to initial or raised position for restoring said printing mechanism to initial position, as and for the purpose set forth.

35. In a central-station recording mechanism for meters, a base-frame and a relatively movable frame, a single printing-wheel carried by said relatively movable frame, a meter including registering devices, means controllable by the registering devices for successively rotating said printing-wheel from initial position to an extent corresponding to the action of such registering devices for positioning said printing-wheel, means for returning or restoring said wheel to initial position after each rotative actuation thereof, and means for inking the printing-wheel.

36. In a central-station recording mechanism for meters, a base-frame and a relatively movable frame, a single printing-wheel carried by said relatively movable frame, a meter including registering devices, means controllable by the registering devices for successively rotating said printing mechanism from initial position to an extent corresponding to the action of the registering devices for positioning said printing-wheel, means for returning or restoring said wheel to initial position after each rotative actuation thereof, and automatic devices for supplying ink to said printing-wheel.

37. In a central-station recording mechanism for meters, a base-frame, a movable frame hinged or pivoted thereto and yieldingly maintained raised therefrom, a printing mechanism including a single type-wheel, a meter including registering devices, means controllable from the registering devices for rotatively actuating said printing-wheel successively from initial position to position the same for printing, means for restoring said wheel to initial position after each rotative actuation thereof, an ink-supply device arranged to supply ink to said printing-wheel during the positioning movements thereof, and means for automatically shifting said ink-supplying device out of the path of said printing-wheel when the latter is moved toward the base-frame to effect an imprint.

38. In a central-station recording mechanism for meters, a base-frame, a frame pivotally mounted thereon, means for yieldingly maintaining said pivoted frame in raised position relative to the base-frame, a single printing-wheel carried by said pivoted frame, whereby by rocking said pivoted frame said printing-wheel is caused to effect an imprint or record, a meter including registering devices, means automatically controllable by the registering devices for successively displacing said printing-wheel rotatively into printing position, ink-supplying devices for said printing-wheel, means actuated by the movement of said pivoted frame toward said base-frame for shifting said ink-supplying devices out of the way, and means actuated by the movement of said pivoted frame away from said base-frame for returning or restoring said printing-wheel to initial position.

39. In a central-station recording mechanism for meters, a base-frame, a frame pivotally mounted to swing thereon, means yieldingly maintaining said pivoted frame in raised position, a single printing-wheel carried by said pivoted frame, whereby when said pivoted frame is rocked or swung toward the base-frame an imprint is made by the printing-wheel, a meter including registering devices, means automatically controllable from the registering devices for successively shifting said printing-wheel rotatively into printing position, an ink-supply roller for said printing-wheel, a swinging arm forming a support for said roller, an arm pivotally connected to said base-frame at one end and to said swinging arm at the other end, whereby when said swinging frame is rocked toward said base-frame said ink-roller is shifted out of the way, and means actuated by the rocking movement of said pivoted frame away from the base-frame for returning or restoring the printing-wheel to initial position.

40. In a central-station recording mechanism for meters, a base-frame, a swinging frame pivotally mounted thereon and yieldingly held in raised position with reference thereto, a printing-wheel carried by said swinging arm, a meter including registering devices, means automatically controlled by the meter registering devices for operating said printing-wheel rotatively to position the same successively from initial position and including a magnet mounted upon said swinging frame, means for adjusting the position of said magnet and means for restoring said wheel to initial position after each rotative displacement thereof, as and for the purpose set forth.

41. In a central-station recording mechanism for meters, a base-frame, a swinging frame pivotally mounted thereon, a printing mechanism carried by said swinging frame and normally held in initial position under tension tending to displace the same, means controllable by the meter for automatically releasing said printing mechanism to permit it to be displaced to position corresponding to the action of the meter, and a printing platen or table carried by said base-frame, and means actuated by the movement of said swinging frame for shifting the position of said table or platen, as and for the purpose set forth.

42. In a central-station recording mechanism for meters, a base-frame, a movable table mounted thereon, a printing mechanism, a movable frame upon which said printing mechanism is mounted, said movable frame being movable toward and from said base-frame to carry said printing mechanism into position to imprint upon a record carried by said table, means controllable from the meter for automatically positioning the printing mechanism, and means actuated by the movement of said movable frame away from the base-frame for shifting the position of said table, as and for the purpose set forth.

43. In a central-station recording mechanism for meters, a base-frame, a table movably mounted thereon; a rack connected to said table, a swinging frame hinged upon said base-frame, a bar connected to move with said movable frame and carrying a pawl arranged to coöperate with said rack, and a printing mechanism mounted upon said movable frame, and means controllable from the meter for automatically positioning the printing mechanism, as and for the purpose set forth.

44. In a central-station recording mechanism for meters, a base-frame, a table movably mounted thereon, a rack connected to said table, a swinging frame hinged upon said base-frame, a bar connected to move with said movable frame and carrying a pawl arranged to coöperate with said rack, a printing mechanism mounted upon said movable frame, means controllable from the meter for automatically positioning the printing mechanism, and manual devices for releasing said pawl to permit said table to be returned to initial position, as and for the purpose set forth.

45. In a central-station recording mechanism for meters, a base-frame, a swinging frame pivotally mounted thereon, a printing mechanism carried by said swinging frame, means actuated by the meter for automatically positioning the printing mechanism, and means actuated by the movement of said swinging frame for automatically restoring said printing mechanism to initial position, as and for the purpose set forth.

46. In a central-station recording mechanism for meters, a base-frame, a swinging frame pivotally mounted thereon, printing mechanism mounted upon said swinging frame, means actuated by the meter for automatically positioning the printing mechanism, means for restoring said printing mechanism to initial position including a sliding rack, an arm pivotally mounted upon the base-frame, a slotted link pivoted to said arm, a stud carried by said rack and operating in the slot in said link, and means actuated by the swinging movement of said swinging frame for rocking said arm to restore said rack and printing mechanism to initial position, as and for the purpose set forth.

47. In a central-station recording mechanism for meters, a base-frame, a swinging frame pivotally mounted thereon, a printing mechanism carried by said swinging frame, means actuated by the meter for automatically controlling the printing position of the printing mechanism, means for restoring the printing mechanism to initial position, including a slide-rack, a stud carried thereby, an arm pivotally mounted upon said base-frame, lost-motion connecting devices between said arm and rack, and a movable plate carried by said swinging frame and arranged to engage said arm to restore said rack and printing mechanism to initial position, as and for the purpose set forth.

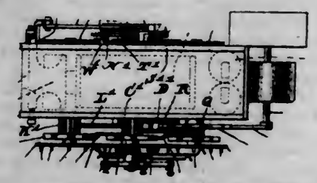
48. In a central-station recording mechanism for meters, a base-frame, a swinging frame pivotally mounted thereon, printing mechanism mounted upon said swinging frame, means actuated by the meter for automatically controlling the printing position of said printing mechanism, and means for restoring said printing mechanism to initial position, including an arm pivotally mounted upon the base-frame, lost-motion connecting devices between said arm and printing mechanism, a stud carried by said arm, a pivoted plate carried by said swinging frame and having an engaging shoulder arranged to coöperate with said stud to rock said arm, whereby said printing mechanism is restored to initial position by the movement of said swinging frame, as and for the purpose set forth.

49. In a central-station recording mechanism for meters, and in combination with printing mechanism and means actuated by the meter for automatically controlling the printing position of said printing mechanism, a pole-changing switch, and circuits arranged to be controlled thereby, as and for the purpose set forth.

50. In an apparatus of the class described, a meter including contact-wheels, locking devices therefor, means controllable from a central station for successively releasing said locking mechanism, circuit make and break devices actuated by the movement of said contact-wheels, electrical devices arranged in the circuits made and broken thereby, and printing mechanism and means actuated by said electrical devices for positioning the printing mechanism, as and for the purpose set forth.

51. In an apparatus of the class described, a meter including circuit make and break devices, release mechanism therefor, a release-magnet for controlling said release mechanism, a polarized magnet for controlling the circuit of said release-magnet, a pole-changing switch at the central station for controlling the circuit of said pole-changing switch, a printing mechanism, and a magnet for controlling the same, the circuits of said magnet being completed and broken by said make and break devices, all combined and arranged as and for the purpose set forth.

784,713. ELECTRIC METER RECORDING MECHANISM. Chester H. Thordarson, Chicago, Ill. Filed Oct. 28, 1903. Serial No. 178,340.



Claim.—1. In an electric meter recording mechanism, the combination with circuit make and break devices for the unit of each denomination to be recorded, register or meter mechanism for actuating the same, and circuits controlled by said make and break devices, and a recorder mechanism for such register, and electrical devices arranged in said circuits for controlling said recorder mechanism, as and for the purpose set forth.

2. The combination with a meter or register mechanism including circuit make and break devices for the unit of each denomination to be recorded, and means for actuating the same, of recorder mechanism, and electrical devices arranged in the circuits to be made and

broken for controlling the recorder mechanism, as and for the purpose set forth.

3. The combination with a meter or register mechanism including means for actuating the same, of stop devices for locking said mechanism, means for releasing said stop mechanism, means beyond the control of the subscriber for controlling said releasing means, and means actuated by the return of such mechanism to initial position for making and breaking electric circuits, a printing-wheel, and electrical devices arranged in the circuits to be made and broken for controlling said printing-wheel, as and for the purpose set forth.

4. The combination with a meter or register mechanism including circuit make and break devices for the unit of each denomination to be recorded, means for actuating said make and break devices for displacing the same according to the meter action, locking mechanism for maintaining said make and break devices in displaced position, means tending to return said make and break devices to initial position, circuits made and broken by the return of said devices, a recorder mechanism, and electrical devices arranged in said circuits for controlling said recorder mechanism, as and for the purpose set forth.

5. The combination with a meter or register mechanism including wheels or disks one for each denomination to be recorded, said wheels or disks carrying contact-points, and means for rotarily displacing said wheels or disks, of coöperating contacts, a circuit including said contact-points and contacts whereby during the return of said wheels or disks said circuit is made and broken, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

6. The combination with a meter or register mechanism including contact wheels or disks one for each denomination to be recorded, said wheels or disks mounted for rotary movement and carrying contacts, means for actuating said wheels or disks to displaced position, contact-arms with which said contacts coöperate when said wheels or disks are returned to initial position to make and break an electric circuit, and locking mechanism for maintaining said wheels or disks in rotarily-displaced position, of means for releasing said locking mechanism, and a recorder mechanism, and electrical devices arranged in the circuit to be made or broken for controlling said recorder mechanism, as and for the purpose set forth.

7. In an apparatus of the class described, a meter or register mechanism including rotarily-mounted register-wheels or disks, means for rotarily displacing said wheels or disks, means for yieldingly opposing the rotary displacement of said disks, a locking mechanism for retaining said wheels or disks in displaced position, circuit make and break devices actuated by the return of said wheels or disks to initial position, and means arranged at the central station for controlling the release of said locking mechanism, in combination with a printing-wheel, and electrical devices arranged in the circuit made and broken for controlling said printing-wheel, as and for the purpose set forth.

8. In an apparatus of the class described, a meter or register mechanism including register-wheels mounted for rotary displacement, one for each denomination to be recorded, each succeeding wheel being actuated by the preceding wheel in the train, means for rotarily displacing the initial wheel, means for yieldingly opposing the rotative displacement of said wheels, lock mechanism for maintaining said wheels in rotarily-displaced position, means for automatically releasing said locking mechanism, a recorder mechanism, and means actuated by the return of said register-wheels to initial position for controlling said recorder mechanism, as and for the purpose set forth.

9. In an apparatus of the class described, meter or register mechanism including rotarily-mounted register-wheels arranged in train, means for rotatively actuating one of said wheels, a locking mechanism for maintaining said wheels in rotatively-displaced position, electrical devices for automatically releasing said locking mechanism, and means for controlling said electrical devices, an electric circuit arranged to be made and broken by the return of each of said wheels to initial position, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

10. In an apparatus of the class described, a meter or register-wheel, contact-points carried thereby, a contact-arm coöperating with said points, means for rotatively displacing said wheel, a tension arranged to oppose the rotative displacement of said wheel and operating to normally return or restore said wheel to initial position, a locking mechanism for maintaining said wheel in rotatively-displaced position, electrical devices for releasing said lock, means for controlling said electrical devices solely from the central station, a circuit for said contact-arm and points whereby during the return of said wheel to initial position said circuit is made and broken, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

11. In an apparatus of the class described, a meter or register-wheel mounted for rotary movement, a pinion mounted to rotate with said wheel, a segment-rack engaging the said pinion, means for yieldingly opposing the movement of said rack, a locking device for maintaining said wheel in rotatively-displaced position, means for releasing said lock, a circuit, means operated by the return of said wheel to initial position for successively making and breaking said circuit, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

12. In an apparatus of the class described, a shaft, a meter or register-wheel, and a ratchet-wheel mounted on said shaft, means for rotatively displacing said shaft, means for yieldingly opposing the rotative movement of said shaft and operating to return or restore the same to initial position, a pawl engaging said ratchet-wheel to maintain said shaft in rotatively-displaced position, a circuit, means operated by the return of said wheel to initial position after rotary displacement for making and breaking said circuit, means controlled solely from the central station for disengaging said locking-pawl, a recorder mechanism, and means arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

13. In an apparatus of the class described, a shaft, means for rotatively displacing said shaft, a ratchet-wheel mounted on said shaft, a pawl coöperating therewith to lock said shaft in rotarily-displaced position, means normally tending to return or restore said shaft to initial position, a circuit, means actuated by the return of said shaft to initial position for making and breaking said circuit, means beyond the control of the subscriber for releasing said pawl, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

14. In an apparatus of the class described, a shaft, means for rotatively displacing the same, means for opposing the rotative displacement of said shaft including a segment-rack and a pinion arranged to intermesh with each other, a ratchet-disk mounted on said shaft, a locking-pawl therefor, means for releasing said locking-pawl, a circuit, means actuated by the return of said shaft to initial position for making and breaking said circuit, a printing-wheel, and electrical devices arranged in said circuit for successively positioning said printing-wheel, as and for the purpose set forth.

15. In an apparatus of the class described, a wheel or disk, means for rotatively displacing said wheel or disk, means for yieldingly opposing the rotative displacement of said disk, a lock for locking said disk in rotatively-displaced position, a ratchet mechanism for releasing said lock, means beyond the control of the subscriber for controlling said ratchet mechanism, a circuit, means actuated by the return of said wheel or disk to initial position for making and breaking said circuit, a printing-wheel, and electrical devices arranged in said circuit for controlling said printing-wheel, as and for the purpose set forth.

16. In an apparatus of the class described, a wheel or disk mounted for rotary movement, means for rotatively displacing said wheel or disk, means for opposing the rotative displacement of said wheel or disk, a lock for locking said wheel or disk in rotatively-displaced position, and including a pawl, a ratchet-wheel, means for actuating the same, said ratchet-wheel operating to release said pawl, a circuit, means actuated by the return of said wheel or disk to initial position for making and breaking said circuit, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

17. In an apparatus of the class described, a wheel or disk, means for rotatively displacing the same, means for yieldingly opposing the rotative displacement thereof, a locking-pawl for locking said wheel or disk in rotatively-displaced position, a ratchet-wheel carrying a cam projection arranged to engage said locking-pawl to disengage the same, means for actuating said ratchet-wheel, a circuit, means actuated by the return of said wheel to initial position for successively making and breaking said circuit according to the extent of rotary displacement of said wheel, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

18. In an apparatus of the class described, a rotatable disk or wheel, means for rotatively displacing the same, tension devices for yieldingly opposing the rotative displacement of said wheel or disk, locking mechanism for locking said wheel or disk in displaced position, and including a locking-pawl, a cam-wheel for disengaging said locking-pawl, electrical devices for actuating said cam-wheel, an electric circuit, means actuated by the return of said wheel or disk to initial position for successively making and breaking said circuit according to the extent of rotary displacement of said wheel, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

19. In an apparatus of the class described, a shaft, a disk or wheel mounted thereon, a pinion also mounted on said shaft, means for rotatively displacing said shaft, a pivotally-mounted segment-rack arranged to mesh with said pinion, a spring arranged to oppose the swinging movement of said rack, whereby when said shaft and disk or wheel are rotatively displaced said rack under the influence of said spring normally tends to return or restore said shaft and disk or wheel to initial position, a ratchet-wheel also mounted upon said shaft, a locking-pawl therefor, a cam-wheel for disengaging said locking-pawl, means for operating said cam-wheel, an electric circuit, means operated by the return of said wheel or disk to initial position for successively making and breaking said circuit according to the extent of rotary displacement thereof, a recorder mechanism, and electrical devices arranged in said circuit and operated by the makes and breaks of such circuit for controlling said recorder mechanism, as and for the purpose set forth.

20. In an apparatus of the class described, a wheel or disk carrying contact-points, means for imparting a step-by-step rotary movement to said wheel or disk, means for yieldingly opposing the rotative movement of said wheel or disk, a fixed contact-arm with which said contact-points coöperate to make and break an electric circuit including said points and arm, a stop device for locking said wheel or disk in displaced position, means beyond the control of the subscriber for releasing said stop device to permit said wheel or disk to return to initial position, a recorder mechanism, and electrical devices arranged in the circuit made and broken by said points and contact-arm and operated by the makes and breaks of said circuit for controlling said recorder mechanism, as and for the purpose set forth.

21. In an apparatus of the class described, a train of wheels or disks, gearing whereby one complete rotation of each wheel imparts a step of rotary movement to the wheel or disk next adjacent thereto in said train, means for rotatively actuating one of said wheels, means for yieldingly opposing the rotary displacements of said wheels, a lock mechanism for holding each of said wheels or disks in rotative displacement, means for successively releasing said lock mechanisms, an electric circuit, means actuated by the return of each of said wheels or disks to initial position for successively making and breaking said circuit according to the extent of rotary displacement of said wheels or disks, a recorder mechanism, and electrical devices arranged in the circuit made and broken by said make and break devices, and operated by the make and break in said circuit, for controlling said recorder mechanism, as and for the purpose set forth.

22. In an apparatus of the class described, a series of register-wheels, gearing intermediate said wheels whereby the complete rotation of each wheel imparts one step of rotary movement to the next succeeding wheel in the train, means for rotatively displacing the first wheel of the train, means for yieldingly opposing the rotative displacement of each of said wheels, a locking device for each of said wheels operating to lock said wheels in rotatively-displaced position, automatic devices for successively releasing said locks, an electric circuit, means actuated by the return of each of said wheels to initial position for successively making and breaking said circuit a number of times corresponding to the extent of rotary displacement of said wheels, a recorder mechanism, and electrical devices arranged in said circuit, and operated by the makes and breaks thereof, for controlling said recorder mechanism, as and for the purpose set forth.

23. In an apparatus of the class described, a series of register-wheels arranged in a train, gearing intermediate said wheels whereby the complete rotation of one of said wheels imparts one step of rotary movement to the next wheel of the train, a pinion connected to rotate with each wheel, a swinging rack for each of said pinions, means for yieldingly opposing the swinging movement of said racks, a locking mechanism for locking each of said wheels in rotarily-displaced position, means for successively releasing said locking mechanism to permit said wheels to return successively to initial position, a circuit, means actuated by the return of each of said wheels to initial position for successively making and breaking said circuit a number of times dependent upon the degree or extent of rotary displacement of said wheels, a recorder mechanism, and electrical devices arranged in the circuit, and operated by the make and break of said circuit, for controlling said recorder mechanism, as and for the purpose set forth.

24. In an apparatus of the class described, a series of disks or wheels arranged in train, gearing intermediate said wheels whereby each complete rotation of a wheel imparts one step of rotary movement to the next adjacent wheel, means for rotatively displacing, step by step, one of said wheels, means for yieldingly opposing the rotative displacement of said wheels, a locking-pawl for locking each of said wheels in rotatively-displaced position, a cam-wheel, means for rotating said cam-wheel whereby said locking-pawls are successively disengaged to permit said wheels or disks to return to initial position, an electric circuit, means actuated by the return of each of said disks or wheels for successively making and breaking said circuit a number of times dependent upon the extent of rotary displacement of said wheels, a recorder mechanism, and electrical devices arranged in said circuit, and operated by the makes and breaks thereof, for controlling said recorder mechanism, as and for the purpose set forth.

25. In an apparatus of the class described, a series of disks or wheels arranged in train, gearing intermediate said wheels whereby one step of rotary movement is imparted to each wheel upon the complete rotation of the preceding wheel of the train, means for imparting a step-by-step rotary movement to one of said wheels, means for yieldingly opposing the rotative movement of each of said wheels, a locking-pawl for locking each of said wheels in rotative displacement, release mechanism for said locking-pawls, electrical devices for controlling the action of said release mechanism, means for controlling the circuit of said electrical devices, an electric circuit, means actuated by the return of each of said wheels or disks to initial position for successively making and breaking said circuit a number of times corresponding to the extent of rotary displacement of said disks or wheels, a recorder mechanism, and electrical devices arranged in said circuit for controlling said recorder mechanism, as and for the purpose set forth.

26. In an apparatus of the class described, circuit make and break devices, means for actuating the same, means normally tending to return or restore said devices to initial position, locking mechanism for locking said devices in displaced position, a release mechanism for said locking devices including a magnet, means arranged at the central station for controlling the circuit of said magnet, means for yieldingly opposing the action of said magnet, a printing-wheel, and electrical devices arranged in the circuit of said make and break devices for controlling said printing-wheel, as and for the purpose set forth.

27. In an apparatus of the class described, circuit make and break devices, and means for displacing the same from initial position, locking mechanism for maintaining said devices in displaced position, a magnet for releasing said locking mechanism, a polarized magnet for making and breaking the circuit of said release-magnet, means for controlling the direction of current through said polarized magnet, a recorder mechanism, and electrical devices arranged in the circuit of said make and break devices for controlling said recorder mechanism, as and for the purpose set forth.

28. In an apparatus of the class described, circuit make and break devices, means for displacing said devices from initial position, means for yieldingly opposing the displacement of said devices and tending to normally return or restore the same to initial position, a locking mechanism for maintaining said devices in displaced position, a release mechanism for said locking mechanism including a rotatable ratchet-wheel, a release-magnet, a pawl-link for actuating said release-wheel, means actuated by said magnet when energized for moving said pawl-link into position to operate said wheel, means yieldingly opposing the action of said magnet, means for controlling the circuit of said release-magnet, a recorder mechanism, and electrical devices arranged in the circuit of said make and break devices for controlling said recorder mechanism, as and for the purpose set forth.

29. In an apparatus of the class described, a pole-changing switch device, a polarized magnet, a release-magnet, said polarized magnet operating to make and break the circuit of said release-magnet, register mechanism, locking mechanism therefor, release devices controlled by said release-magnet for releasing said register mechanism, circuit make and break devices controlled by said register mechanism, a recorder mechanism, and electrical devices arranged in the circuit of said make and break devices for controlling said recorder mechanism, as and for the purpose set forth.

30. In an apparatus of the class described, a register, means for registering thereon by unit-tallies, associated means for registering the unit-tallies in units of higher denominations, and means for printing successively the numerals of the registered units of each denomination, as and for the purpose set forth.

31. In an apparatus of the class described, a register, means for registering thereon by unit-tallies, associated means corresponding to the units of each denomination to be recorded for registering the unit-tallies in units of such higher denomination, and means for successively printing the numerals of the registered units of each denomination, as and for the purpose set forth.

32. In an apparatus of the class described, a register, means for registering thereon by unit-tallies, associated means for registering unit-tallies in units of higher denominations, and means controllable solely from a central station for printing successively the numerals of the registered units of each denomination, as and for the purpose set forth.

33. In an apparatus of the class described, a register, means for registering thereon by unit-tallies, associated means for registering the unit-tallies in units of higher denominations, means for displacing said registering means to effect the registering operations, means for returning said registering means to initial position, a single recording device, and means actuated by the successive return of said registering means to initial position for successively actuating said recording device to record the registered unit of each denomination, as and for the purpose set forth.

34. In an apparatus of the class described, a register, means for registering thereon by unit-tallies, associated means for registering the unit-tallies in units of higher denominations, means for displacing said registering means to effect the registering operations, means for returning said registering means to initial position, a single recording device at a central station, and means actuated by the successive return of said registering means for positioning said recording device successively to correspond to the unit of each denomination to be recorded thereby, as and for the purpose set forth.

35. In an apparatus of the class described, a register, means for registering thereon by unit-tallies, associated means for registering the unit-tallies in units of higher denominations, means for displacing said registering means to effect the registering operations, means for returning said registering means to initial position, a single recording device at a central station, means actuated by the successive return of said registering means for positioning said recording device successively to correspond to the unit of each denomination to be recorded thereby, and means located solely at the central station for controlling the return of said registering means to initial position, as and for the purpose set forth.

784,714. CARVING-MACHINE. BENJAMIN W. TUCKER, Newark, N. J., assignor to The Marlen Carved Moulding Company, Philadelphia, Pa., a Corporation of West Virginia. Filed Apr. 1, 1902. Serial No. 100,904.

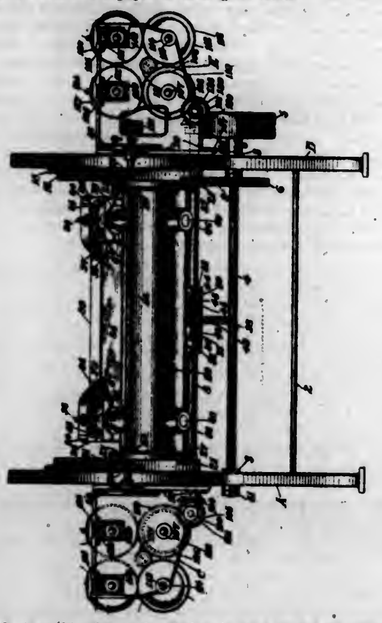
Claim.—1. A machine for carving designs in stock during the longitudinal feed movement thereof, the same comprising in combination, opposed incising-tools reciprocatory toward and away from each other in meeting paths, to thereby form different sides of the design, and means for carrying such tools with the stock during that portion of the working stroke of each in which it is engaged in incising the stock.

2. A machine for carving designs in stock during the longitudinal feed movement thereof, the same comprising in combination, opposed incising-tools reciprocatory toward and away from each other in paths meeting at an angle, to thereby form different sides of the design, and means for carrying such tools with the stock during that portion of the working stroke of each in which it is engaged in incising the stock.

3. A machine for carving designs in stock during the longitudinal feed movement thereof, the same comprising in combination, a stock-guide, a roughing-out and a finishing tool disposed longitudinally of such guide, and means for carrying said tools with the stock during that portion of the working stroke of each in which it is engaged in incising the stock.

4. A machine for carving designs in stock during the longitudinal feed movement thereof, the same comprising in combination, a stock-guide, a set of roughing-out and a set of finishing tools disposed longitudinally of such guide and in different planes, and means for carrying said tools with the stock during that portion of the working stroke of each set in which the tools thereof are engaged in incising the stock.

5. A machine for carving designs in stock during the longitudinal feed movement thereof, the same comprising in combination, a stock-guide, opposed sets of tools, each opposing set comprising a roughing-out and a finishing tool disposed longitudinally of such guide and which tools are reciprocatory in meeting paths, one roughing-out tool toward and away from another roughing-out tool, and a finishing-tool toward and away from another finishing-tool, to thereby form different sides of the design, and means for carrying said tools with the stock during that portion of the working stroke of each in which it is engaged in incising the stock.



6. A machine for carving designs in stock during the longitudinal feed movement thereof, the same comprising in combination opposed incising-tools reciprocatory toward and away from each other in meeting paths, to thereby form different sides of the design, means for somewhat delaying the advancing movement of one tool with reference to the advancing movement of the other, and means for carrying said tools with the stock during that portion of the working stroke of each in which it is engaged in incising the stock.

7. In a machine for carving designs in stock during the longitudinal feed movement thereof, the combination with carving-tools moving in a circuit approaching, accompanying and receding from the moving stock, a stock-guide, a feed mechanism adjacent to each end of the guide, and a brush for removing the chips from the stock prior to its engagement with the feed mechanism at the rear.

8. The combination with a stock-guide and means for feeding the stock continuously, of a tool-carrier, means for moving the same to and fro along the stock and also transversely of the stock, two cutters one below the other and spaced apart along said carrier a distance substantially equal to the distance traveled by the stock during the time intervening between two successive working strokes of the carrier whereby the second tool deepens the incision made by the first, a coöperating tool-carrier, and means for enabling said coöperating tool-carrier to travel with the stock.

9. The combination with stock-guiding means, of means for feeding the stock continuously, a tool-carrier, means for moving the tool-carrier both to and fro longitudinally of said stock-guide and also toward and from the stock in such a manner that the movement of the stock substantially coincides with the longitudinal movement of the tool-carrier during the incising operation; and two sets of cutting-tools, one set projecting beyond the other and spaced apart upon said carrier a distance substantially equal to the distance traveled by the stock during the time intervening between two successive working strokes of the carrier whereby the tools in the second set lengthen the incisions made by the tools in the first set.

10. The combination with stock-guiding means, of means for feeding the stock continuously, a tool-carrier, means for moving the tool-carrier both to and fro longitudinally of said stock-guide and also toward and from the stock in such a manner that the movement of the stock substantially coincides with the movement of the tool-carrier during the incising operation, and a plurality of similar carving-tools mounted in line upon said tool-carrier in such relation as to produce by repeated incising movements uniformly-spaced incisions in the stock, a second plurality of carving-tools also mounted upon said carrier and projecting beyond and located below the other set, the distance between the sets along the carrier being substantially equal to the distance traveled by the stock during the time intervening between two successive working strokes of the carrier whereby the incisions made by the first plurality are deepened and lengthened, and two sets of coöperating carving-tools mounted to incise the stock in a different direction.

11. The combination with stock-guiding means, of means for feeding the stock continuously, a tool-carrier, means for moving the tool-carrier both to and fro longitudinally of said stock-guide and also toward and from the stock in such a manner that the movement of the stock substantially coincides with the longitudinal movement of the tool-carrier during the incising operation, a plurality of similar carving-tools mounted in line upon said tool-carrier in such relation as to produce by repeated incising movements uniformly-spaced incisions in the stock, a coöperating tool-carrier, a plurality of tools therein, means for causing said coöperating tool-carrier to move with the stock during the incising operation, and means for effecting angular adjustment of either tool-carrier.

12. The combination with a stock-guide and means for feeding the stock continuously, of a tool-carrier, a plurality of actuators positively connected by said tool-carrier, for effecting movement thereof both longitudinally of the stock and transversely thereof, a coöperative tool-carrier mounted for movement with the stock during the incising operation, and means for effecting angular adjustment of either tool-carrier.

13. The combination with a stock-guide and means for feeding the stock continuously, of a pair of separate shafts, a tool-carrier supported by its ends upon said shafts, eccentrics upon said shafts, said eccentrics being positively connected by said tool-carrier, means for rotating said shafts in unison, means for effecting angular adjustment of said shafts, tool-carrier and eccentrics, and a coöperative tool-carrier mounted for movement with the stock during the incising operation.

14. The combination with stock-feeding means and a stock-guide, of two tool-carriers, means for guiding the same, two pairs of eccentrics, each pair being positively linked together by one of said tool-carriers, driving means connected to all of said eccentrics for rotating each pair thereof in unison, and means for effecting angular adjustment of either tool-carrier, together with its guiding means and eccentrics.

15. The combination with a stock-guide and means for feeding the stock continuously, of two tool-carriers, means for moving the same to and fro along the stock and also in different directions transversely of the stock, and means for effecting angular adjustment of one of the tool-carriers.

16. The combination with a stock-guide and means for feeding the stock continuously, of two tool-carriers, a plurality of actuators positively connected by each of said tool-carriers, for effecting movements thereof both longitudinally of the stock and transversely thereof, and means for effecting angular adjustment of one of said tool-carriers with its actuators.

17. In a carving-machine, the combination with a stock-guide, of a circuitously-translatable chisel or chisels angularly adjustable about said guide as a center.

18. In a carving-machine, the combination with a stock-guide, of one or more travelers carrying circuitously-translating chisels, said travelers being angularly adjustable about said guide as a center.

19. In a carving-machine, a plurality of chisels movable to effect a translation of their cutting edges in meeting circuitous paths lying in intersecting planes, the positions of said cutting edges of said chisels coinciding at the point of meeting of said paths.

20. In a carving-machine, the combination with a frame having a stationary stock-guide and a driving-shaft, of one or more carriages angularly adjustable about said guide as a center, one or more chisels and mechanism for translating said chisels in a circuitous path carried by each of said carriages and extensible power-transmitting mechanism or mechanisms intermediate said driving-shaft and said mechanism.

21. In a carving-machine, the combination with a frame having a stationary stock-guide and a driving-shaft of one or more carriages angularly adjustable about said guide as a center, one or more chisels and mechanism for translating said chisels in circuitous paths, carried by said carriages or each of said carriages and a linked gear train or trains intermediate said driving-shaft and said mechanisms.

22. In a carving-machine, the combination with the frame and main power-shaft thereon, of a counter-shaft carriage adjustably mounted upon said frame, a counter-shaft journaled in said carriage, one or more chisels carried by said carriage and translated in a circuitous path from said counter-shaft, and a linked gear-train forming extensible transmitting means between said power and counter shafts.

23. In a carving-machine, the combination with the frame and main power-shaft thereon, of a counter-shaft carriage adjustably mounted upon said frame, a counter-shaft journaled in said carriage, one or more chisels carried by said carriage and translated in a circuitous path from said counter-shaft, and extensible power transmission between said power and counter shafts.

24. In a carving-machine, the combination of a frame, a stock-guide thereon, counter-shaft carriages angularly adjustable about said stock-guide as a center, chisels carried by said counter-shaft carriages and translatable from said counter-shaft, a power-shaft mounted on said frame eccentric to the path of adjustment of said carriages, and linked gear-trains forming extensible power-transmitting means between said power and counter shafts.

25. In a carving-machine, the combination with a tool-carriage translationally movable in a circuitous path of a number of series of tools mounted thereon, the tools of each series protruding beyond and set in a lower plane than the preceding series.

26. In a carving-machine, the combination of a tool-carriage translationally movable in a circuitous path, of a number of series of tools mounted thereon, the distance between the centers of said series being equal to the length of said circuitous path.

784,715. ROTARY PUMP. DENNIS E. VIRTUE, Owatonna, Minn. Filed Mar. 22, 1904. Serial No. 199,336.



Claim.—1. In a rotary pump, the combination with a cylinder having a peripheral discharge-passage, of a detachable cylinder-head fitting one side of said cylinder and provided with an upturned integrally-formed inlet-spout opening into said cylinder at the axis thereof, a clamping-bar pivoted to said cylinder at one end and having interlocking engagement therewith at its free end, a set-screw at the central portion of said clamping-bar, engageable with said cylinder-head at the axis of said cylinder, to clamp said cylinder-head in working position, and a rotary piston working within said cylinder, substantially as described.

2. In a rotary pump, the combination with the cylinder casting or shell 3, having the peripheral outlet or neck 5, of the detachable head 7, fitting one side of said cylinder and having cast integrally therewith the upturned inlet-spout 8 terminating in an axial port 8^a, a clamping-bar having its base of reaction on the said cylinder casting or case, a set-screw working through the intermediate portion of said bar and engageable with said cylinder-head at the axis of said cylinder, to clamp said cylinder-head in working position, and the rotating piston-head 18 working in said cylinder or shell, and having a plurality of curved blades, cut away or reduced in width at 18^a to afford increased clearance in the vicinity of said axial inlet-port 8^a, substantially as described.

784,716. HEAT-INTERCHANGING APPARATUS. GARDNER T. VOORHEES, Boston, Mass. Filed Jan. 26, 1903. Serial No. 140,493.

Claim.—1. In a heat-exchanging apparatus, a header having three adjacent parallel chambers, one a small tube-chamber, one a medium tube-chamber, and one a large tube-chamber; a single row of small tubes, each tube being open at both ends; a single row of medium tubes, each tube being open at one end, and closed at the other; a single row of large tubes, each tube being open at both ends; one end of each small tube, being fixed to an opening, into the small

tube-chamber; the open end of each medium tube being fixed into an opening into the medium tube-chamber; each medium tube partly inclosing a small tube; one end of each large tube, being fixed to an opening into the large tube-chamber; each large tube partly inclosing the medium tube; one or more individual return-bends connecting the adjacent free ends of the large tubes; an inlet and an outlet for the channel, formed by the large and medium tubes; and an inlet and an outlet for the channel, formed by the small and medium tubes.



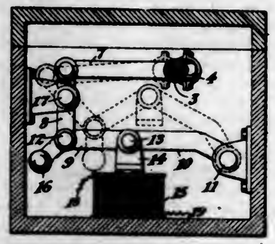
2. In a heat-exchanging apparatus, a header having three adjacent parallel chambers, one a small tube-chamber, one a medium tube-chamber, and one a large tube-chamber; a single row of small tubes, each tube being open at both ends; a single row of medium tubes, each tube being open at one end, and closed at the other; a single row of large tubes, each tube being open at both ends; one end of each small tube, being fixed to an opening, into the small tube-chamber; the open end of each medium tube, being fixed into an opening into the medium tube-chamber; each medium tube partly inclosing a small tube; one end of each large tube, being fixed to an opening, into the large tube-chamber; each large tube partly inclosing the medium tube; one or more individual return-bends connecting the adjacent free ends of the large tubes; an inlet and an outlet for the channel, formed by the large and medium tubes; an inlet and an outlet for the channel, formed by the small and medium tubes; and one or more cross-partitions that divide the large tube-chamber into subchambers.

3. In a heat-exchanging apparatus, a header having three adjacent parallel chambers, one a small tube-chamber, one a medium tube-chamber, and one a large tube-chamber; a single row of small tubes, each tube being open at both ends; a single row of medium tubes, each tube being open at one end, and closed at the other; a single row of large tubes, each tube being open at both ends; one end of each small tube, being fixed to an opening, into the small tube-chamber; the open end of each medium tube, being fixed into an opening into the medium tube-chamber; each medium tube partly inclosing a small tube; one end of each large tube, being fixed to an opening, into the large tube-chamber; each large tube partly inclosing the medium tube; one or more individual return-bends connecting the adjacent free ends of the large tubes; an inlet and an outlet for the channel, formed by the large and medium tubes; an inlet and an outlet for the channel, formed by the small and medium tubes; one or more cross-partitions that divide the large tube-chamber into subchambers; and one or more cross-partitions that divide each of the medium and small tube-chambers into subchambers.

4. In a heat-exchanging apparatus, a header having three adjacent parallel chambers, one a small tube-chamber, one a medium tube-chamber, and one a large tube-chamber; a single row of small tubes, each tube being open at both ends; a single row of medium tubes, each tube being open at one end, and closed at the other; a single row of large tubes, each tube being open at both ends; one end of each small tube, being fixed to an opening, into the small tube-chamber; the open end of each medium tube, being fixed into an opening into the medium tube-chamber; each medium tube partly inclosing a small tube; one end of each large tube, being fixed to an opening, into the large tube-chamber; each large tube partly inclosing the medium tube; one or more individual return-bends connecting the adjacent free ends of the large tubes; an inlet and an outlet for the channel, formed by the large and medium tubes; an inlet and an outlet for the channel, formed by the small and medium tubes; one or more cross-partitions that divide the large tube-chamber into subchambers; one or more cross-partitions that divide the medium and small tube-chambers into subchambers; and one or more passages between the adjacent subchambers of the small and medium tube-chambers.

784,717. CONTROLLING DEVICE. LUDWIG S. WALLE, Brooklyn, N. Y., assignor to Fridtjof Jobsen, Bergen, Norway. Filed Dec. 29, 1903. Serial No. 187,677.

Claim.—1. In a device for controlling mechanical movement, the combination of a toggle-movement, means for positively connecting an element of said toggle to a movable part of a mechanism, whereby the movements of each are coexistent and means for holding said toggle at a predetermined point of its movement so as to control the movement of said mechanism.



2. In a device for controlling mechanical movement, the combination of a toggle-movement composed of two links one of which is positively connected to a movable part of a mechanism, whereby the movements of each are coexistent, and means for holding said toggle at a predetermined point of its movement so as to control the movement of said mechanism.

3. In a device to control mechanical movement, the combination of a toggle-movement, means for connecting said mechanical movement to said toggle whereby the movements of each are coexistent, and means for holding said toggle at a predetermined point of its movement to control the movement of said mechanism.

4. In a device for controlling mechanical movement, the combination of a toggle-movement, means for positively connecting said toggle to a movable part of a mechanism whereby the movements of each are coexistent, an electromagnet for holding said toggle at a predetermined point of its movement so as to control the movement of said mechanism.

5. In a device for controlling mechanical movement, the combination of a toggle-movement, means for positively connecting said toggle to a movable part of said mechanism whereby the movements of each are coexistent, an electromagnet for holding said toggle, and a pole-piece connected to said toggle and held at a predetermined point of its movement by said magnet so as to control the movement of said mechanism.

6. In a device for controlling mechanical movement, the combination of a toggle-movement, a lever fulcrumed between the ends thereof and having one end connected to said toggle and the other end thereof to a movable part of a mechanism, and means for holding said toggle at a predetermined point of its movement so as to control the movement of said mechanism.

7. In a device for controlling mechanical movement, the combination of a toggle-movement connected to a rotatable shaft having an offset forming a crank, and means for holding said toggle so as to prevent the rotation of said shaft at a predetermined point of its movement.

8. In a device for controlling mechanical movement, the combination of a toggle-movement, a rotating member operatively connected to said toggle whereby the movements of each are coexistent, and means for holding said toggle so as to control the movement of said rotating member at a predetermined point in its cycle of motion.

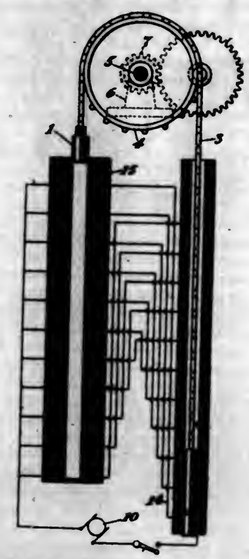
9. In a device for controlling mechanical movement, the combination of a toggle-movement, means for connecting an element of said toggle to a movable part of a mechanism, means for holding said toggle so as to control the movement of said mechanism, and means attached to an element of said toggle to open or break the toggle when released by said holding means.

10. In a device for controlling mechanical movement, the combination of a toggle-movement, means for connecting an element of said toggle to a movable part of a mechanism, means for holding said toggle so as to control the movement of said mechanism, and a counterweight acting in conjunction with said toggle to open or break the toggle when released by said holding means.

11. In a device for controlling mechanical movement, the combination of a toggle-movement, a rotating member operatively connected to said toggle whereby the movements of each are coexistent and have a coextensive cycle of motion, and means for holding said toggle at a predetermined point in its cycle of motion to control the movement of said rotating member.

12. In a device for controlling mechanical movement, the combination of a toggle-movement, a rotating member operatively connected to said toggle whereby the movements of each are coexistent and have a coextensive cycle of motion, and means for holding said toggle at the point in its cycle of motion in which the toggle is nearest to its straight or locked position to control the movement of said rotating member.

784,718. ELECTRIC SOLENOID. LUDWIG S. WALLE, Brooklyn, N. Y., assignor to Fridtjof Jobsen, Bergen, Norway. Filed Dec. 29, 1903. Serial No. 187,678.



Claim.—1. In an electric solenoid, the combination of a solenoid-core, a solenoid-coil, a counterweight operatively connected to the solenoid-core to return the same to its initial position when the current is cut out from the solenoid-coil, and a contact member forming a guide for said counterweight and adapted to control the current in said coil, substantially as described.

2. In an electric solenoid, the combination of a solenoid-core, a solenoid-coil having portions thereof adapted to be energized by an electric current, a counterweight operatively connected to the solenoid-core to return the same to its initial position when the current is cut out from the solenoid-coil, and a contact member forming a guide for said counterweight and adapted to control the current in said coil, substantially as described.

3. In an electric solenoid, the combination of a solenoid-core, a series of solenoid-coils adapted to be energized by an electric current, a counterweight operatively connected to the solenoid-core to return the same to its initial position when the current is cut out from the solenoid-coil, and a contact member forming a guide for said counterweight and adapted to control the current in said coils, substantially as described.

4. In an electric solenoid, the combination of a solenoid-core, a solenoid-coil having portions thereof adapted to be energized by an electric current, a counterweight operatively connected to the solenoid-core to return the same to its initial position when the current is cut out from the solenoid-coil, and a contact member forming a guide for said counterweight and adapted to connect successive portions of said coil into circuit, substantially as described.

5. In an electric solenoid, the combination of a solenoid-core, a series of solenoid-coils adapted to be energized by an electric current, a counterweight operatively connected to the solenoid-core to return the same to its initial position when the current is cut out from the solenoid-coils, and a contact member forming a guide for said counterweight and containing a series of contacts for controlling the current in the said series of solenoid-coils, substantially as described.

6. In an electric solenoid, the combination of a solenoid-core, a solenoid-coil having portions thereof adapted to be energized by an electric current to advance the solenoid-core, a counterweight operatively connected to the solenoid-core for returning the same to its initial position when the current ceases to flow in the solenoid-coil, and a circuit-closing device carried by said counterweight to connect said coils successively into circuit as the core advances.

7. In an electric solenoid, the combination of a solenoid-core, a solenoid-coil having portions thereof adapted to be energized by an electric current to advance the solenoid-core, a counterweight operatively connected to the solenoid-core for returning the same to its initial position when the current ceases to flow in the solenoid-coil, a circuit-closing device carried by said counterweight to connect said coils successively into circuit as the core advances, and a circuit-breaking device operating in conjunction with the solenoid-core to open the circuit in the solenoid-coil at a predetermined point allowing the counterweight to return the core to its initial position.

8. In an electric solenoid, the combination with a solenoid-core, of a series of solenoid-coils, a series of contacts for connecting said coils to an energizing source of current, a counterweight carrying a circuit-closing device operating in conjunction with said contacts to energize a number of said coils for advancing said core.

784,719. HAIR-DRESSING DEVICE. JULIUS WARBURG, New York, N. Y., assignor to Max G. Cohn, New York, N. Y. Filed Apr. 11, 1904. Serial No. 202,556.



Claim.—1. A pompadour-comb comprising a curved toothed portion, and a correspondingly-curved puff-forming portion provided with means for holding it away from the toothed portion throughout its entire length and which has a central pivotal connection with said toothed portion.

2. A hair-dressing device, comprising a comb, a roll or puff forming device, means for holding said device above and in front of the teeth of the comb, and a central pivotal connection, so connecting the comb and roll or puff forming device together, whereby the roll or puff forming device may be set parallel with the comb and at various angles thereto, the arrangement being such that as either end approaches the comb the other end recedes from the comb.

3. In a hair-dressing device the combination of a comb, a bracket secured to the back of the comb and extending over and beyond its teeth, and a roll or puff forming device pivotally connected at its central part to the end of the bracket, whereby the comb and roll or puff forming device are adapted to be set in different angular positions relatively to one another.

4. In a hair-dressing device, the combination of a longitudinally-curved comb, an angular bracket secured at two places to the back of the comb and extending over and beyond the teeth, and a longitudinally-curved roll or puff forming device pivotally connected at its central part to the end of the bracket, whereby the comb and roll or puff forming device are adapted to be set in different angular positions relatively to one another.

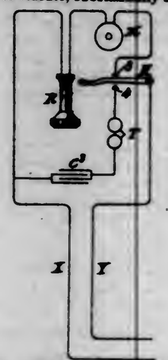
5. A pompadour-comb comprising a curved toothed portion and a correspondingly-curved puff-forming portion pivotally connected therewith and provided with means for holding its middle puff-forming portion away from the toothed portion, for the purpose specified.

784,720. TELEPHONE SIGNALING MEANS. KLAS WEMAN, New York, N. Y. Filed June 4, 1904. Serial No. 211,161.

Claim.—1. In combination, a battery in circuit with a relay, an armature of said relay in circuit with the armature of a buzzer or current-interrupter, an induction-coil, the primary of which is in circuit with said buzzer, a telephone-receiver in circuit with the secondary of said induction-coil, and means for closing the circuit from the battery to the said receiver, whereby when the buzzer or current-interrupter operates, the diaphragm of said receiver will be caused to vibrate, substantially as described.

2. In combination, a battery, a circuit from one pole thereof to the opposite pole, including a relay, a telephone switch-hook, and a receiver, a second circuit from the armature of said relay to the primary of an induction-coil, said second circuit including a buzzer or current-interrupter and its armature, a third circuit from the secondary of said induction-coil and back to the secondary, including the said receiver, and means for closing said circuits, whereby when the

buzzer or current-interrupter operates the diaphragm of said receiver will be caused to vibrate, substantially as described.



3. In combination, a battery, a circuit from one pole thereof to the opposite pole, including a relay, a telephone switch-hook, and a receiver, a second circuit from the armature of said relay to the primary of an induction-coil, said second circuit including a condenser, a buzzer or current-interrupter and its armature, a third circuit from the secondary of said induction-coil and back to the secondary, including a condenser, the said receiver, and means for closing said circuits, whereby, when the buzzer or current-interrupter operates the diaphragm of said receiver will be caused to vibrate, substantially as described.

4. In combination, a battery in circuit with a relay, a wire running from said relay and terminating in a contact-point adapted to make contact with a spring-arm, a second wire running from said spring-arm to a telephone switch-hook, a third wire having a contact-piece at one end adapted to make contact with the switch-hook, including in its circuit a telephone transmitter and receiver and terminating at the other end in a second spring-arm, a wire from a contact-point, contacting with said second spring-arm, to the battery, a second circuit from the armature of said relay including a buzzer or current-interrupter in line with the primary of an induction-coil, the secondary of said induction-coil being in circuit with said telephone-receiver, and means for closing the circuit from the battery to the receiver, whereby the buzzer or current-interrupter will operate and cause the diaphragm of the receiver to vibrate, substantially as described.

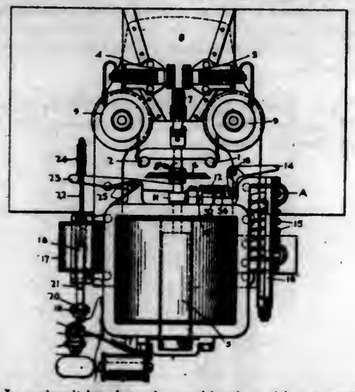
784,721. TROUSERS-LEG SUPPORT. FREDERICK A. B. WENDEL and CHRISTIAN O. HJERMSTAD, Red Wing, Minn. Filed June 14, 1904. Serial No. 212,468.



Claim.—A device for supporting the lower rear portion of a trousers-leg from the upper rear portion of a shoe, comprising the strap 3, having a sliding buckle 8 for adjusting it, of the hook 4 applicable to the upper rear portion of a shoe, and bulged inward at 5 to increase its bite thereon, and the double-pointed spring-barb applied to the other end of said strap, and engageable with the lower rear portion of the trousers-leg, substantially as described.

784,722. AUTOMATIC CIRCUIT-BREAKER. EARL P. WETMORE, Wolverhampton, England. Filed Oct. 22, 1903. Serial No. 178,059.

Claim.—1. In a circuit-breaker of the character described, the combination with a tripping-coil and tripping devices, of a resetting-coil, a shunt-circuit for said coil, a make-and-break switch for said coil, means for actuating the said switch arranged to be set in operation by the opening of the breaker, a retarding device for retarding the operation of said actuating means, and a locking device for preventing the operation of the said actuating means so long as a short circuit remains on the line protected by the circuit-breaker.



2. In a circuit-breaker, the combination with automatic tripping devices, and automatic resetting mechanism, of a retarding device, acting to delay the resetting action, and positive locking means for preventing the action of the resetting means so long as a short circuit remains on the line protected by the circuit-breaker

3. In a circuit-breaker of the character described, the combination with the tripping-latch and its actuating-coil, of the resetting-coil, the shunt-circuit therefor, a switch controlling such circuit, a spring for actuating said switch, and means actuated by the opening of the breaker for putting said spring into condition for operation.

4. In a circuit-breaker of the character described, the combination with the tripping-latch and its actuating-coil, of the resetting-coil, the shunt-circuit therefor, a switch for controlling said circuit, a spring for closing said switch, and the lever actuated by the opening of the breaker and arranged to compress said spring.

5. In a circuit-breaker of the character described, the combination with the resetting-coil, its shunt-circuit and switch, of means for closing said switch, arranged to be put in condition for operation by the opening of the circuit-breaker, and a locking device connected to the movable member of said switch, together with means whereby said locking device holds the switch against movement so long as a short circuit remains on the line protected by the circuit-breaker.

6. In a circuit-breaker of the character described, the combination with the resetting-coil, its shunt-circuit and switch, and means for closing said switch arranged to be put in condition for operation by the opening of the circuit-breaker, of a retarding device connected to the movable member of said switch, a locking device for said movable member, and an electromagnet connected across the main terminals of the breaker and controlling the operation of the locking device.

7. In a circuit-breaker, of the character described, the combination with the resetting-coil, its shunt-circuit, the controlling-switch for said circuit, and means for closing said switch, of an auxiliary coil for holding said switch closed while the resetting-coil is operating.

8. In a circuit-breaker of the character described, the combination with a resetting-coil, its shunt-circuit, the switch for controlling said circuit, and means for closing said switch, of an auxiliary coil for holding the switch closed while the resetting-coil is operating, and means for short-circuiting said coil when the breaker has been reset.

9. In a circuit-breaker of the character described, the combination with the resetting-coil, its shunt-circuit, a controlling-switch for said circuit, and means for closing said switch, of a retarding device connected to the movable member of the said switch, and consisting of a cord or the like, a drum around which said cord is passed and beyond which it is secured, and an escapement device in connection with the said drum.

10. In a circuit-breaker of the character described, the combination with a resetting-coil, a switch for closing the circuit of said coil, an electromagnetic lock for holding said switch against operation so long as a short circuit remains on the line, an auxiliary coil for holding the said switch closed while the resetting-coil is in operation, and means for subsequently short-circuiting the auxiliary coil.

11. In a circuit-breaker of the character described, the combination with a resetting-coil, a shunt-circuit therefor, a switch for controlling said circuit, a retarding device connected to the movable member of said switch, and means whereby said retarding device acts as a positive lock for said member so long as a short circuit remains on the line protected by the circuit-breaker.

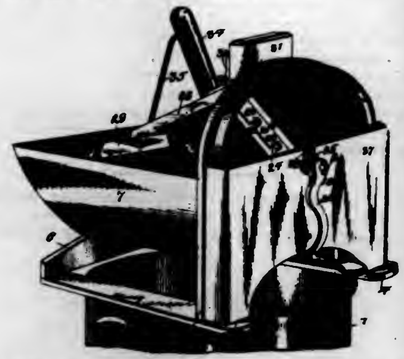
12. In a circuit-breaker of the character described, the combination with the resetting-coil, its shunt-circuit and switch, of the auxiliary coil surrounding the movable member of said switch, and means for energizing said auxiliary coil by the closing of the said switch, said auxiliary coil forming a solenoid whereby said switch is, during the operation of the resetting-coil, held in closed position.

13. In a circuit-breaker of the character described, the combination with the trip-latch, and the resetting-coil, of the circuit-controlling switch for said coil actuated by the movement of the said latch.

14. The herein-described circuit-breaker having the tripping coil and latch, the resetting-coil, the shunt-circuit for said coil, the switch for controlling said circuit, the spring for closing said switch, the auxiliary coil for holding the switch closed, the retarding device for said switch, and the locking device arranged to hold said switch against movement under certain circuit conditions, all arranged to operate substantially as and for the purpose set forth.

15. In a circuit-breaker of the character described, the combination with a resetting-coil, and an automatic switch, which controls the circuit of said coil, of an escapement device in connection with the movable member of said switch for retarding the closing of the switch.

784,723. VEGETABLE-CUTTER. WILLIAM WILDERMUTH, Rochester, Ind. Filed Oct. 28, 1904. Serial No. 230,410.



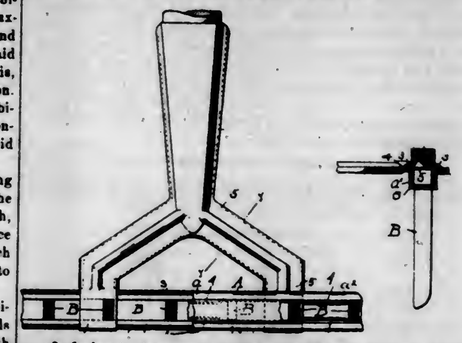
Claim.—1. A vegetable-cutter comprising an open base, uprights upon said base, a semicylindrical hopper mounted upon said uprights and provided with an open end, a rotary cutter-wheel journaled upon one of said uprights and adapted to close the open end of said hopper, a vertical swinging arm pivotally mounted upon one of said uprights, a follower-head upon the lower portion of said arm adapted to swing in said hopper to feed its contents to said cutter-wheel and means for rotating said cutter-wheel, substantially as described.

2. A vegetable-cutter comprising an open base, uprights upon said base, a semicylindrical hopper mounted upon said uprights and provided with an open end, a rotary cutter-wheel journaled upon one of said uprights and adapted to close the open end of said hopper, a vertical swinging arm pivotally mounted upon one of said uprights, a follower-head upon the lower portion of said arm adapted to swing in said hopper, a spring for actuating said arm and a guard-casing for said cutter-wheel, substantially as described.

3. A vegetable-cutter comprising an open base, uprights upon said base, a semicylindrical hopper mounted upon said uprights and provided with an open end, a rotary cutter-wheel journaled upon one of said uprights and adapted to close the open end of said hopper, means for feeding the contents of said hopper to said wheel and a guard-casing for the outside of said cutter-wheel removably mounted upon said base and one of said uprights, substantially as described.

784,724. HAND-RAKE. WILLIAM C. WINFIELD, Warren, Ohio, assignor to The Warren Sheet Metal Co., Warren, Ohio, a Corporation. Filed Sept. 6, 1904. Serial No. 223,407.

Claim.—1. In hand-rakes, a rake-head formed of two sections of channeled sheet metal clamped together along their edges and the said edges extending laterally and forming strengthening-ribs on opposite sides of the head, substantially as described.



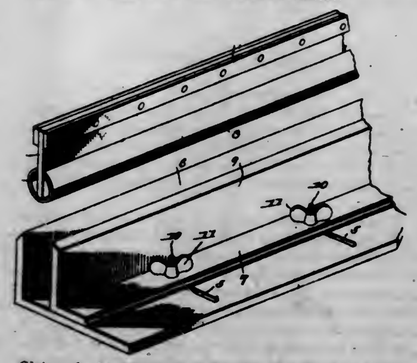
2. In hand-rakes, a rake-head formed of two pieces of channeled sheet metal interlocked along their edges at the sides of the head, and rake-teeth clamped in said head and extending through the bottom thereof, substantially as described.

3. In hand-rakes, a rake-head formed of two channeled sheet-metal pieces having their edges bent outward at right angles and the edges of one piece overlapped on both sides and clamped within the edges of the other piece, and teeth projecting through the bottom of the head and clamped in the upper portion thereof, substantially as described.

4. In hand-rakes, a handle-socket and diverging arms engaging the head of the rake, and constructed of two pieces of sheet metal clamped one upon the other along their edges and the said arms having one portion extending through said head and the other portion about the outside thereof and both portions interlocked at the rear of the head, substantially as described.

5. In hand-rakes, a hollow sheet-metal head and a handle-socket and arms formed of two pieces of sheet metal interlocked along their edges and one of said pieces extending through said head from front to rear and the other piece bent around beneath the head and interlocked with the first-named piece at its end, and teeth locked in said head, substantially as described.

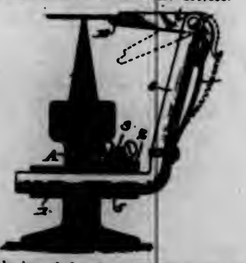
784,725. CORNICE-MAKING MACHINE. JOHN W. YATES, New York, N. Y. Filed Oct. 7, 1904. Serial No. 227,587.



Claim.—1. An apparatus of the class described comprising a stationary die member embodying a base provided with a plurality of transverse slots and a jaw disposed at right angles to the base and having its upper edge beveled outward and downward, an adjustable die member embodying a base to rest upon that of the stationary die member and provided with a plurality of orifices to register with the slots and a jaw disposed at right angles to its base and having its upper edge beveled outward and downward, bolts passing through the slots and orifices, and nuts engaging the bolts to hold the jaws at any desired adjustment relatively to each other.

2. In an apparatus of the class described, the combination with a plunger having a split tube detachably connected therewith to constitute a former, of a stock comprising a stationary die member embodying a base provided with a plurality of transverse slots and a jaw disposed at right angles to the base and having its upper edge beveled outward and downward, an adjustable die member embodying a base to rest upon that of the stationary die member and provided with a plurality of orifices to register with the slots, and a jaw disposed at right angles to its base and having its upper edge beveled outward and downward, bolts passed through the slots and orifices and nuts engaging the bolts to hold the jaws at any desired adjustment relatively to each other.

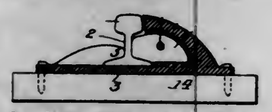
784,726. CORNICE-MAKING MACHINE. JOHN W. YATES, New York, N. Y. Filed Jan. 3, 1905. Serial No. 239,460.



Claim.—1. A device of the class described comprising an approximately L-shaped standard, the upper end of which is bifurcated, a gage pivoted in the bifurcation and provided at one end with a work-engaging seat and at its opposite end with a downward-curved projection, and a spring secured to the standard and engaging the projection.

2. In a cornice-making machine, the combination with a knife-bar and a seat secured thereto and carrying clamping means, of an approximately L-shaped gage one member of which engages the seat, and the other member of which projects upward beyond the knife-bar, a gage pivotally connected with the standard and having one end provided with a work-engaging seat and at its other end with a downward-curved projection, and a spring secured to the standard and having one of its terminals in engagement with the projection.

784,727. RAIL-CHAIR. JOHN M. YOUNG, Keremeos, Canada. Filed June 1, 1904. Serial No. 210,640.



Claim.—1. In a device of the character described, a chair having a base portion, lugs projecting inwardly and upwardly from opposite sides of said base whereby flange-recesses are formed, a wedge adapted to enter one of said recesses, a pin connected with said wedge, a second wedge and means for locking the said wedges together.

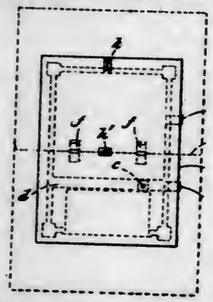
2. In a device of the character described, a chair having a base portion, lugs projecting inwardly and upwardly to form recesses of different sectional elevation at opposite sides of said chair, a plurality of slidable lugs in the higher of said recesses, a pin in positive engagement with one of the wedges, said pin being adapted to be projected through an opening in the other of the wedges, and locking means adapted to engage with the pin.

3. In a device of the character described, a chair having lugs projecting inwardly and upwardly from one side thereof, each of said lugs being adapted to bear against a rail-web, an opposing lug extending to a relatively higher plane and forming with the base of the chair a recess, a wedge, a companion wedge having a stop-flange thereon and a perforation extending therethrough, and means adapted for locking said wedges together.

4. In a device of the character described, a chair having a base portion, a lug extending toward the central portion thereof, an opposing lug extending to substantially the plane of the upper surface of the rails and forming a recess, in combination with a plurality of slidable wedges, and locking means therefor.

5. In a device of the character described, a chair having a base portion, a lug extending toward the central portion thereof, an opposing lug extending to substantially the plane of the upper surface of the rails whereby a substantially continuous support is provided for wheels passing the joint, in combination with a plurality of slidable wedges, and locking means therefor.

784,728. COMBINED KITCHEN AND DINING TABLE. SAMUEL ASTALOS, Silverdale, Wash. Filed Dec. 18, 1903. Serial No. 185,693.



Claim.—In a combined kitchen and dining table, the combination of the table-frame and a two-part top therefor, one of said parts being hinged to the other at one of its edges whereby the first-named part can be folded on top of the other, said last-named part being pivoted to the table-frame, said parts when unfolded forming a top of greater dimensions than when in a folded position, and means for locking said top in both folded and unfolded positions, said means comprising a single pin swiveled at one end of the frame, and a pair of slotted plates, one being secured to each part of the top, said pin having angularly-disposed ends, one of which is adapted to pass through the slots of either of said plates.

784,729. NUMBERING-MACHINE. EDWIN G. BATES, New York, N. Y., assignor to The Bates Machine Company, New York, N. Y., a Corporation of New Jersey. Filed July 7, 1904. Serial No. 215,614.



Claim.—1. In a machine of the character described, the combination with a stationary frame and a reciprocating wheel-carrier, of an operating-arm pivoted to the stationary frame, and having a slotted connection with a portion carried by the said wheel-carrier, a swinging ink-pad carrier pivotally connected to and carried by the said operating-arm, and a link pivotally connected at its opposite ends with the said ink-pad carrier and wheel-carrier respectively.

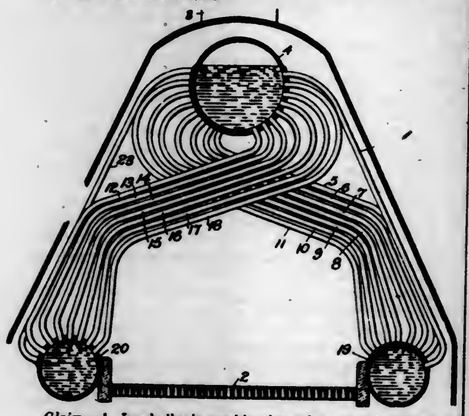
2. In a machine of the character described, the combination with a stationary frame, a reciprocating wheel-carrier and a wheel-shaft carried thereby, of an operating-arm pivoted to the stationary frame and having a slotted connection with the said wheel-shaft, a swinging ink-pad carrier pivoted to the said operating-arm, and a link pivotally connected at its opposite ends with the said ink-pad carrier and wheel-carrier respectively.

3. In a machine of the character described, the combination with a stationary frame having legs or standards 12, said legs or standards having longitudinal grooves 11 therein, a wheel-carrier mounted to reciprocate between said standards, and a wheel-shaft carried thereby, the ends of said shaft extending beyond the said wheel-carrier, and received within said grooves 11, of operating-arms located one each upon each side of the wheel-carrier and between the said wheel-carrier and the said standards, and pivoted to the said standards, said operating-arms having a slotted connection with the said wheel-shaft, a swinging ink-pad carrier pivoted to said operating-arms, and links connected each at their opposite ends with the said ink-pad carrier and wheel-carrier respectively.

4. In a machine of the character described, the combination with a stationary frame and a reciprocating wheel-carrier, of an operating-arm pivoted to the stationary frame and having a slotted connection with a portion carried by the said wheel-carrier, a swinging ink-pad carrier pivotally connected to and carried by the said operating-arm, a link pivotally connected at its opposite ends with the said ink-pad carrier and wheel-carrier respectively, and an actuating-lever carried by said wheel-carrier, said actuating-lever comprising means for imparting a limited movement to the ink-pad carrier.

5. In a machine of the character described, the combination with a stationary frame, a reciprocating wheel-carrier, a wheel-shaft carried thereby, and a wheel-actuating lever, also carried by said wheel-carrier, of an operating-arm pivoted to the stationary frame, and having a slotted connection with the said wheel-shaft, a swinging ink-pad carrier pivoted to the said operating-arm, and a link pivotally connected at its opposite ends with the said ink-pad carrier and wheel-carrier respectively, said actuating-lever having a portion adapted to engage said ink-pad carrier when said lever is moved for a wheel-actuating operation.

784,730. BOILER. JAMES P. BLAUVELT, Nyack, N. Y. Filed Dec. 8, 1903. Serial No. 134,276.



Claim.—1. In a boiler in combination, a heat-chamber, a steam-drum therein, a plurality of sets of water-tubes opening into said steam-drum longitudinally along one side of the same above the lowest point in said drum, the pipes of each set lying in a substantially vertical plane and the upper pipes of each set tapping said steam-drum nearer its lowest point than the lower pipes of that set whereby the upper pipes tap cooler water, said pipes curving downwardly in a continuous course and across said chamber underneath said steam-drum and tapping a water-drum located in said chamber below and on the other side of said steam-drum, a plurality of similar sets of pipes similarly arranged and similarly tapping said steam-drum on the other side of its lowest point and similarly curved downwardly across said chamber and other pipes and tapping a second water-drum located below and on the other side of said steam-drum, a fire-box below said pipes, and a stack leading out of the top of said heat-chamber, whereby the heat passes substantially vertically through said chamber, said two sets passing directly across said heat-chamber, whereby those pipes which tap the lower part of said drum are at all points farther removed from the fire than those pipes which tap the upper portions of said drum.

2. In a boiler in combination, a heat-chamber, a steam-drum, two sets of water-tubes connected to the same and extending downwardly and crossing and touching each other in said chamber directly underneath said drum to form a shield for the bottom of the same, the tubes of each set lying one above another in respect to the direction of movement of the heat through said chamber, whereby said upper tubes of each set are farther removed from the source of heat than said lower tubes, the upper tubes of each set being connected to said drum at a point to tap cooler water than said other tubes of that set, and water-conducting means connecting the ends of the upper and lower tubes of each set.

3. In a steam-generating boiler in combination, a heat-chamber, a steam-drum, two sets of water-tubes connected to the same and extending downwardly and crossing each other in said chamber, the tubes of each set lying at all points one above another with respect to the direction of movement of the heat through said chamber, the upper tubes of one set being connected to said steam-drum at a point to tap cooler water than said other tubes of that set, and water-drums on either side of said chamber connecting the ends of the upper and lower tubes of each set.

4. In a steam-generating boiler in combination, a heat-chamber, a steam-drum, two sets of water-tubes connected to the same at opposite sides of said drum, each set extending downwardly and crossing over to the side of said chamber opposite to the side at which they are tapped into said drum, said sets crossing each other in said chamber, the tubes of each set lying at all points one above another with respect to the direction of movement of the heat through said chamber, the upper tubes of one set being connected to said steam-drum at points farther up on the side of said drum than are the lower tubes of that set, and water-drums located on opposite sides of said heat-chamber and lower down than said steam-drum, said tubes being tapped into said water-drums.

5. In a steam-generating boiler in combination, a heat-chamber, a steam-drum, two sets of water-tubes connected to the same at opposite sides of said drum, each set extending downwardly and crossing over to the side of said chamber opposite to the side at which they are tapped into said drum, said sets crossing each other in said chamber, the tubes of each set lying at all points one above another in the same plane, with respect to the direction of movement of the heat through said chamber, the upper tubes of one set being connected to said steam-drum at points farther up on the side of said drum than are the lower tubes of that set, and water-drums located on opposite sides of said heat-chamber and lower down than said steam-drum, said tubes being tapped into said water-drums.

784,731. VALVE FOR REGULATING PRESSURE. JOHN H. ELROD, New York, N. Y., assignor to Abraham B. Levy, New York, N. Y. Original application filed Jan. 9, 1904, Serial No. 188,393. Divided and this application filed Apr. 4, 1904. Serial No. 201,332.



Claim.—1. A feed-valve casing provided with two chambers, a valve to control the flow of fluid from one chamber to the other, a diaphragm on one side of one of said chambers, and a pin between the valve and diaphragm fitting closely in bearings to prevent the flow of fluid past the pin, said pin being provided with a friction-groove within such bearing to receive fluid to serve in maintaining the pin in positions in which it may be placed by the diaphragm or feed-valve, substantially as described.

2. A feed-valve casing provided with three chambers, a valve to control the flow of fluid from one chamber to the other, two chambers being in communication through a port, a diaphragm on one side of one of said chambers, and a pin interposed between the diaphragm and said valve, said pin being of such length between the diaphragm and the part of the valve opposed to said pin as to permit

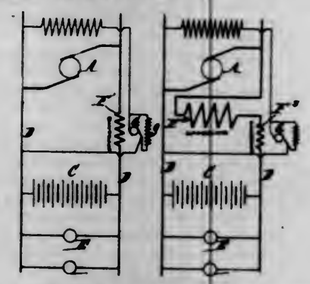
independent movement of the parts relative to each other, substantially as described.

3. A feed-valve casing provided with a plurality of chambers, a valve to control the flow of fluid from one chamber to the other, a diaphragm on one side of one chamber, and a pin interposed between said valve and diaphragm and movable independently thereof, said pin having means to cause it to remain in the position to which it is moved by the diaphragm after the diaphragm has been forced away from the pin by the increased pressure in the diaphragm-chamber, substantially as described.

4. In a valve provided with chambers, a friction-pin entering two chambers on opposite sides of its bearing and having both ends in communication with the same fluid, and a valve movable independently of said pin and adapted to move the pin through the influence of main fluid-pressure, substantially as described.

5. A valve-casing provided with a plurality of chambers, a valve to control the flow of fluid from one chamber to another, a diaphragm on one side of one chamber, the last-named chamber being in communication with the chamber receiving fluid from said valve, a spring to operate said diaphragm, and a pin interposed between said valve and diaphragm for opening the valve by the diaphragm, said pin having a friction-groove to receive fluid to serve in holding the pin in set positions, substantially as described.

784,782. SYSTEM OF ELECTRICAL DISTRIBUTION. RUFUS H. CHAMBERLAIN, Depew, N. Y., assignor to Gould Storage Battery Company, New York, N. Y., a Corporation of West Virginia. Filed June 13, 1903. Serial No. 161,160.



Claim.—An electrical-power-regulating system comprising a dynamo which is operated at a practically uniform speed, a consumption-circuit supplied from the dynamo, a storage battery connected with said circuit, an exciting-coil for the dynamo, and an opposing series coil in the consumption-circuit, which series coil is several times smaller in effect than said exciting-coil, whereby the differential action of the coils produces a practically constant load on the generator under varying conditions of load on the consumption-circuit and at a practically uniform dynamo speed, substantially as set forth.

784,738. TICKET-HOLDER FOR DAIRYMEN. HOMER G. CLOVER, Denver, Colo. Filed May 5, 1904. Serial No. 206,567.



Claim.—1. A device of the class described comprising a bottle-clamping member, and a ticket-clamping member through which a portion of the bottle-clamping member projects.

2. A device of the class described comprising a bottle-clamping member and a ticket-clamping member disposed longitudinally of the bottle-clamping member and through which a portion of the latter projects.

3. A device of the class described comprising a bottle-clamping member, a ticket-clamping member disposed longitudinally thereof, and a flexing member.

4. A device of the class described comprising a bottle-clamping member, a flexing member therefor and disposed at right angles thereto, and a ticket-clamping member disposed longitudinally of the bottle-clamping member.

5. A device of the class described comprising a bottle-clamping member, a flexing member therefor, and a ticket-clamping member.

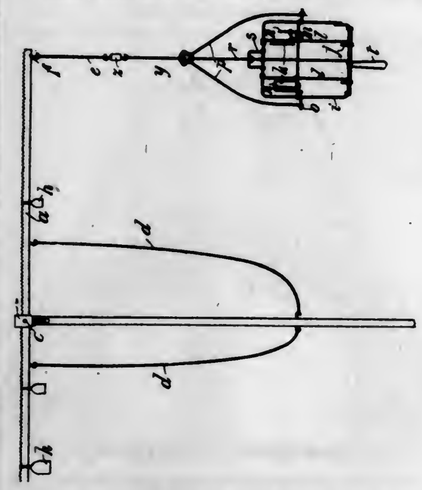
6. A device of the class described comprising a bottle-clamping member, a flexing member therefor, and a ticket-clamping member, all of the parts being integral.

7. A device of the class described comprising a bottle-clamping member, a flexing member therefor, and a ticket-clamping member disposed exteriorly of the bottle-clamping member.

8. A device of the class described comprising a bottle-clamping member, and an elongated ticket-clamping member disposed exteriorly of the bottle-clamping member.

9. A device of the class described comprising a bottle-clamping member, an elongated ticket member disposed exteriorly thereof, and a flexing member disposed at right angles to the bottle-clamping member.

784,784. BOOK-SUPPORT. GEORGE L. T. DENNIS, Folkestone, England. Filed June 6, 1904. Serial No. 211,404.



Claim.—1. A book-supporting device comprising a pivoted bar, a support therefor, a book-holder comprising a frame having hooks for engaging a book suspended from said bar and counterweights for counterbalancing the weight of the book and holder.

2. A book-supporting device comprising a bar, a support therefor, a universal joint between said bar and its support, a book-holder suspended from said bar and counterweights for counterbalancing the weight of the book and holder.

3. A book-supporting device comprising a bar, a swivel support therefor, counterweights on said bar and a book-holder suspended from the bar, consisting of a frame having hooks for engaging a book, such frame being pivoted in order to permit angular adjustment and also having means for locking it in the adjusted position.

4. A book-supporting device comprising a standard, a bar supported thereon by means of a swivel-joint, a book-holder comprising a frame having hooks for engaging a book suspended from one end of said bar and counterweights suspended from the other end to counterbalance the weight of the book substantially as hereinbefore described.

5. In a book-supporting device comprising a bar pivoted on a universal joint, and having counterbalance-weights, a book-holder suspended from said bar consisting of a grid, fixed lower hooks on said grid for holding a book, upper hooks adapted to slide to suit books of various sizes, and means for locking said adjustable hooks, the said latter hooks being also adapted to lie flat if desired and a handle on said grid, substantially as hereinbefore described.

6. In a book-supporting device comprising a bar pivoted on a universal joint, and having counterbalance-weights, a book-holder suspended from said bar consisting of a grid, fixed lower hooks on said grid for holding a book, upper hooks adapted to slide to suit books of various sizes, and means for locking said adjustable hooks, the said latter hooks being also adapted to lie flat if desired, a handle on said gird and the whole book-holder being pivoted to permit angular adjustment and having a ratchet-bar for locking it in the adjusted position, substantially as hereinbefore described.

784,785. RAILWAY-TRACK STRUCTURE. GEORGE M. ERVIN, Johnstown, Pa., assignor to The Lorain Steel Company, a Corporation of Pennsylvania. Filed Aug. 1, 1904. Serial No. 219,090.



Claim.—1. In a railway-track structure, the combination with a body portion formed with rail-seating pockets, of rail members seated in said pockets, and a filling in said pockets around the rail members.

2. In a railway-track structure, the combination with a body portion formed with arms, rail-seating pockets formed in said arms and larger than the rails which they are to seat, rail members seated in said pockets, and a filling material about the pocketed end portions of said rails.

3. In a railway-track structure, the combination with a body portion formed with rail-seating pockets which are of greater area than the portions of the rails which they are to seat, of rail members seated in said pockets, and a filling surrounding the pocket portions of said rails, said filling being introduced in a fluid or molten state.

4. In a railway-track structure, a body portion formed with seating-pockets for the connecting-rails of the structure, said pockets being of sufficiently larger area than the portions of the rails which they are to seat to leave space for a filling material.

5. In a railway-trach structure, a body portion formed with seating-pockets for the connecting-rails of the structure, said pockets corresponding generally in shape to the portions of the rails which they are to seat, but of materially larger.

6. In a railway-track-crossing structure, a body portion carrying the intersecting track-surfaces, and formed with extensions provided with pockets for receiving the running-rails, said extensions also forming the guard-rail members of the structure.

7. In a railway-track-crossing structure, a body portion carrying the intersecting track-surfaces, and formed with extensions provided with pockets to receive the running-rails, said extensions also forming the bearing or easing rail member of the structure.

8. In a railway-track-crossing structure, a body portion carrying the intersecting track-surfaces, and formed with extensions provided with pockets to receive the running-rails, said extensions also forming the bearing and the guard-rail members of the structure.

9. In a railway-track structure, a body portion formed of cast-steel, and provided with pockets to seat connecting-rail members, and also with a pocket to seat a removable wear member.

10. In a railway-track structure, a cast body portion having one or more bearing or guard rail members formed integrally therewith, and provided with a procket to receive a removable intersection piece or plate.

11. In a railway-track structure, a body portion formed with a pocket to seat a removable intersection or wear member, and with extensions formed with pockets for receiving connecting-rails, said extensions also forming rail members.

12. In a railway-track structure, the combination with a body portion carrying the intersecting track-surfaces, and formed with pocketed arms or extensions, of rail members seated in the pockets of said arms or extensions with their inner ends abutting the track-surfaced portion of said body.

13. In a railway-track structure, the combination with a body portion carrying track-surfaces, and formed with arms or extensions provided with rail-seats, of rail members in said seats, a filling material surrounding the seated portions of the rail members, and means for anchoring said members.

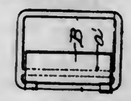
14. In a railway-track structure, the combination with a cast-metal body portion formed with a plurality of rail-seating pockets, of rail members seated in said pockets in a filling of softer metal.

15. A body portion for use in the manufacture of railway-track structures, comprising a casting formed with a plurality of arms or extensions, each of which is recessed to seat the end portions of one or more rail members, the rail-seating recesses being of considerably larger area than the rail members to be seated therein.

16. A body portion for use in the manufacture of railway-track structures, comprising a casting formed with a plurality of arms or extensions, each of which is recessed to seat the end portion of one or more rail members, the rail-seating recesses being of considerably larger area than the rail members to be seated therein, and said arms or extensions themselves forming rail members.

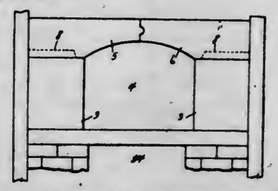
17. In a railway-track structure, a body portion formed with a rail-seating recess of larger area than the rail, a rail seated in said recess, and a filling in said recess about the seated portion of the rail and applied thereto in a fluid state after the rail is seated.

784,736. BUCKLE. HERBERT G. EVANS, Brighton, Mass. Filed Apr. 30, 1904. Serial No. 206,847.



Claim.—The buckle above described comprising frame A with fulcrum-bar *a* and cross-bar *a'*, and lever B with a short and a long arm, the lever being arranged with its short arm between the fulcrum *a* of the lever and cross-bar *a'* of the frame and with its long arm curved about the cross-bar *a'*, substantially as shown.

784,737. FRONT ARCH FOR FURNACES. JOHN H. FOOTE, Troy, N. Y., assignor to Harvey S. McLeod, Troy, N. Y. Filed Jan. 13, 1905. Serial No. 240,914.



Claim—1. A front arch for furnaces, comprising oppositely-disposed side walls and a pair of arch-blocks, supported by the side walls respectively, meeting each other midway between the walls, and forming an arch, and tongue-and-groove connections between the arch-blocks and walls extending in line with the arch, substantially as described.

2. In a front fire-box arch, the combination with the oppositely-disposed jambs; of a pair of arch-blocks; tongue-and-groove connections between such blocks and jambs, respectively, extending transversely of the jambs and in line with the arch, substantially as described.

3. The combination with the jambs of a fire-box; of a pair of arch-blocks; a tongue-and-groove connection between each block and its supporting-jamb extending in line with the arch; and a tongue-and-groove connection between the meeting ends of the arch-blocks, substantially as described.

4. In a front fire-box arch, the combination with the oppositely-disposed jambs; and outer case-walls; of a pair of comparatively short arch-blocks; a filling material between the outer ends of the arch-blocks and the case-walls; and a tongue-and-groove connection between each block, and its supporting-jamb extending in line with the arch, substantially as described.

784,788. PNEUMATIC TIRE. TULLIO GIARA, Boston, Mass. Filed Apr. 19, 1904. Serial No. 203,903.

Claim.—1. A protecting-shield for tires consisting of layers of textile material treated with a binding substance to stick them together and with a flexibility-retaining substance, metal plates inclosed by said layers of textile material, and a rubber covering inclosing said layers of textile material.



2. A protecting-shield for tires consisting of layers of textile material treated with a binding substance to stick them together and with a flexibility-retaining substance, overlapping metal plates inclosed by said layers of textile material, and a rubber covering inclosing said layers of textile material.

3. A protecting-shield for tires consisting of layers of textile material treated with a binding substance to stick them together, overlapping metal plates inclosed by said layers of textile material, and a rubber covering inclosing said layers of textile material.

4. In a protecting-shield for tires consisting of layers of textile material treated with a binding substance to stick them together, overlapping metal plates inclosed by said layers of textile material and inclosed in pockets between said layers, and a rubber covering inclosing said layers of textile material.

784,739. FIFTH-WHEEL. MICHAEL J. GRIFFIN, New Britain, Conn. Filed Aug. 15, 1904. Serial No. 220,706.



Claim.—1. The herein-described fifth-wheel comprising an upper and lower member, the lower member having a rim or circle in the form of an angle-plate, with outwardly-projecting lugs at the upper edge of its cylindrical member, and the upper member having a rim or circle with a plate-like base, notched on its inner edge to receive the said lugs and having the said inner edge fitted to the outer cylindrical surface of the lower rim or circle.

2. In a fifth-wheel, the combination of an upper and lower member, each having a central tubular hub, with an outer rim or circle, the said rims or circles fitting one within the other, and provided with engaging lugs and recesses for holding the said two members together when the said lugs and recesses do not register, and a central pin passing through both of the said tubular hubs for holding the said two members together when the said lugs and recesses register with each other.

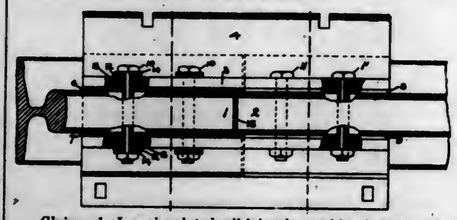
784,740. MEANS FOR FEEDING GAS-GENERATORS. FERNAND R. GUILBAUD, Levallois-Perret, France. Filed Sept. 19, 1904. Serial No. 224,976.



Claim.—1. A gas-generator in which the fuel is continuously fed, having conduits oblique with respect to the vertical axis of the generator and with respect to the radii of the section of the receptacle, in which the said oblique conduits each having its upper discharging-orifice in the angle formed by the lower part of the interior cylindrical wall of the gas-generator and the base of the latter, and Archimedean screws located in said conduits.

2. A gas-generator in which the fuel is continuously fed, having conduits oblique with respect to the vertical axis of the gas-generator and with respect to the radii of the section of the receptacle, the said oblique conduits each having its upper discharging-orifice in the angle formed by the lower part of the interior cylindrical wall of the gas-generator and the base of the latter, in which the upper part of these conduits is straight and of a uniform section, and Archimedean screws located in said conduits.

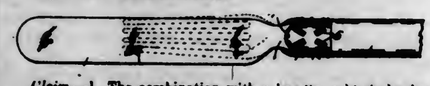
784,741. INSULATED RAIL-JOINT. GEORGE L. HALL, New York, N. Y. Filed Jan. 9, 1904. Serial No. 188,305.



Claim.—1. In an insulated rail-joint the combination of two rail ends with a metal bridge-plate and opposing metal clamping-plates crossing the joint, said bridge-plate and clamping-plates being in electric contact with one of said rails, insulating material between the other of said rail ends and said bridge-plate and clamping-plates, and means for holding said rail ends in alinement and out of contact with each other.

2. In an insulated rail-joint the combination of a metal band or fish-plate crossing the joint with a plurality of bolts passing through said band and one of the rail ends, said bolts being provided with necks other than round, and a washer adapted to include at least two of said bolts and provided with holes adapted to mesh with the necks of said bolts.

784,742. SEAMLESS COMBINATION FERRULE AND BOLSTER FOR KNIVES. GLOVER S. HASTINGS, Plainville, Conn. Filed July 1, 1904. Serial No. 214,856.



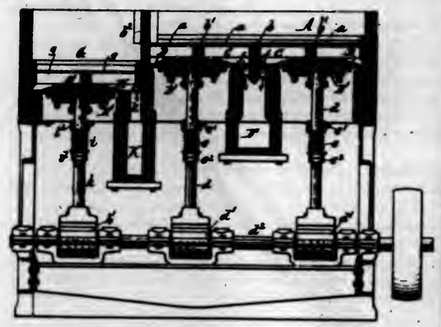
Claim.—1. The combination with a handle, a blade having a short tang resting against one end of said handle, and a combined ferrule and bolster, the forward end of which overhangs and engages with the tang, and which is provided with an opening leading to a space between the handle and bolster through which to inject molten metal.

2. The combination with a handle, a blade having a short tang resting against the handle end, and a combined ferrule and bolster being struck up in one piece and provided with protuberances and having an opening at its fore part through which to inject metal adapted to flow around and confine said tang to the handle, and retainers on said handle adapted to be embedded in said metal.

784,743. PULP-STRAINER. FREDERICK H. HEMMES, Brownville, N. Y., assignor of one-half to Charles H. Sherman, Watertown, N. Y. Filed May 21, 1903. Serial No. 158,106.

Claim.—1. The combination of a primary screen, a secondary screen arranged at a lower level than the primary screen, pulsating means for each screen, a gate which is arranged above the discharge end of the primary screen and allows the surplus liquid and unscreened material to escape underneath its lower edge, and means for conducting such surplus liquid and unscreened material to the secondary screen, substantially as set forth.

2. In a pneumatic pulsating pulp-strainer, the combination of a supporting-frame, a primary screen and a secondary screen arranged therein side by side, the secondary screen at a lower level than the primary screen, separate pneumatic pulsating devices arranged underneath each of said screens, means for regulating the level of the screened pulp underneath each of said screens independently, means for conducting the stock which fails to pass through the primary screen from the discharge end of the latter to the secondary screen, and an adjustable gate which is arranged over the discharge end of the primary screen with its lower edge above the same and allows the unscreened material to escape underneath its lower edge, substantially as set forth.



3. The combination of a primary screen, a secondary screen arranged at one side of the primary screen and at a lower level, pulsating means for each screen, and a connecting-trough which is arranged below the level of the discharge end of the primary screen, to cause the surplus liquid and unscreened material to drain from said primary screen into said trough, and which conducts such surplus liquid and unscreened material to the secondary screen, substantially as set forth.

4. The combination of a primary screen, a secondary screen arranged at one side of the primary screen and at a lower level, the receiving end of the secondary screen being arranged in line with the discharge end of the primary screen, pulsating means for each screen, and a connecting-trough which is arranged below the level of the discharge end of the primary screen to cause the surplus liquid and unscreened material to drain from said primary screen into said trough, said trough extending along the discharge end of the primary screen and the receiving end of the secondary screen, substantially as set forth.

5. In a pulp-strainer, the combination of a primary screen and a secondary screen arranged side by side, the discharge end of the primary screen being in line with and higher than the head end of the secondary screen, a connecting-trough extending along the discharge end of the primary screen and the head end of the secondary screen, and an adjustable gate which is arranged over the discharge end of the primary screen with its lower edge above the same and allows the unscreened material to escape underneath its lower edge, substantially as set forth.

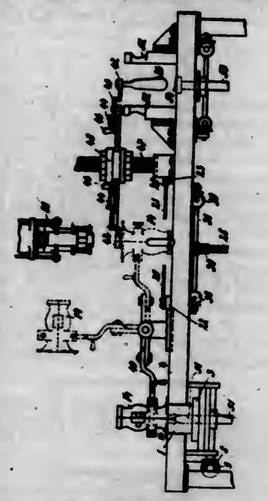
6. In a pulp-strainer, the combination of a screen, a pneumatic pulsating mechanism arranged beneath the same, a discharge-passage for the screened pulp which terminates in an elevated discharge below the screen-level and by which said discharge-passage is kept submerged and an air-space is maintained below the screen, and means for increasing or reducing the flow area of said submerged passage, thereby regulating the pneumatic action on the screen, substantially as set forth.

7. In a pulp-strainer, the combination of a screen, a pneumatic pulsating mechanism arranged beneath the same, a flow-passage for the screened pulp, a flow-box connected with said spout and having an elevated discharge below the screen-level by which said passage is kept submerged and an air-space is maintained below the screen, and a regulating-valve arranged in said submerged passage and controlling the flow area thereof, substantially as set forth.

784,744. GLASS-BLOWING MACHINE. HERMANN HILDE, Rossvein, Germany. Filed Feb. 12, 1904. Serial No. 193,218.

Claim.—1. In a glass-blowing machine having a bottle-head-forming device located adjacent to a body-blowing device, in combination, a composite, hingeless, head-mold 1 permanently located on the machine-table, a reversed body-mold 14 resting loosely on the head-mold, and means for swinging the body-mold from the head-mold to the body-blowing apparatus, substantially as described.

2. In a glass-blowing machine having a bottle-head-forming device located adjacent to a body-blowing device, in combination, a composite, hingeless, head-mold 1 permanently located on the machine-table, a reversed body-mold 14 resting loosely on the head-mold, means for swinging the body-mold from the head-mold to the body-blowing apparatus, and tongs 42 located adjacent to the body-blowing apparatus, gripping the bottle-head on its being swung round to the said body-blowing apparatus, substantially as described.



3. In a glass-blowing machine having a bottle-head-forming device located adjacent to a body-blowing device, in combination, a composite, hingeless, head-mold 1 permanently located on the machine-table, a reversed body-mold 14 resting loosely on the head-mold, means for swinging the body-mold from the head-mold to the body-blowing apparatus, tongs 42 located adjacent to the body-blowing apparatus, gripping the bottle-head on its being swung round to the said body-blowing apparatus and means for cutting off the superfluous glass, or such glass as is blown out of the body, substantially as described.

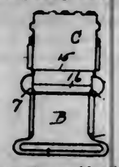
4. In a glass-blowing machine having a bottle-head-forming device located adjacent to a body-blowing device, in combination, a composite, hingeless, head-mold 1, resting loosely on the head-mold, means for swinging the body-mold from the head-mold to the body-blowing apparatus, tongs 42 located adjacent to the body-blowing apparatus, gripping the bottle-head on its being swung round to the said body-blowing apparatus and means for cutting off the superfluous glass, comprising a pair of vertically-adjustable, pivotal cutters 20, 21, rack-carriers 22, 23 for the same, a compressed-air cylinder 27 having a rack piston-rod 28, 29, a shaft 31, a pinion 30 thereon meshing with the piston-rod rack, bevel-wheels 32, 33 mounted on the said shaft 31, bevel-wheels 34, 35 meshing with said wheels 32, 33, shafts 36, 37 carrying said wheels 11, 12 and pinions 15, 16 keyed to said shafts 36, 37 respectively, each meshing with one of the knife-carrier racks, substantially as described.

5. In a glass-blowing machine having a bottle-head-forming device located adjacent to a body-blowing device, in combination, a composite, hingeless, head-mold 1 permanently located on the machine-table, a reversed body-mold 14 resting loosely on the head-mold, means for swinging the body-mold from the head-mold to the body-blowing apparatus, tongs for holding the bottle-head, comprising gripper-limbs 42, 43 pivoted to a stationary part of the machine, links 44 pivoted at one end to the extremity of the tong-limbs 43, a slide 45 pivoted to the other end of the links 44 and a stationary guiding member for the said slide 45, and means for cutting off the superfluous glass, or such glass as is blown out of the body, substantially as described.

784,745. GARMENT-CLASP. ERNEST N. HUMPHREY, New Britain, Conn. Filed Apr. 5, 1904. Serial No. 201,696.

Claim.—1. In a garment-clasp, the combination of the two jaw members fulcrumed one upon the other and having holding-jaws at

one end with a separately-formed flat spring secured to one of the said members and engaged by the other at a point on the opposite side of the said fulcrum from the said jaws, for holding the said spring under tension for opening the said jaws.



2. In a garment-clasp, the combination of the two jaw members fulcrumed one upon the other near one end and having holding-jaws at the other end, with a separately-formed flat spring secured to the broad side of one of the said jaw members and having one end engaged by the heel of the other of the said members, and an operating-lever having a holding-arm and pivotally mounted on one of the said members between the said jaws and the said fulcrum with the said holding-arm bearing on one of the said members for pressing it toward the other member.

3. In a garment-clasp, the combination of the two jaw members, and one having the offset with opening therein, the other having a heel passed through the said offset, with a flat spring secured on the broad side of one jaw member and having one end in engagement with the heel of the other member for holding the said spring under tension tending to open the grasping ends of the said jaw member.

784,746. BATH-TUB AND METHOD OF ATTACHING FEET THERETO. John A. Leppiatt, Elizabeth, N. J. Filed May 20, 1904. Serial No. 208,842.



Claim.—1. A bath-tub having detachable feet, bosses thereon comprising three walls inclined one toward the other, and a base provided with a bifurcation, and said feet each having arms provided with two inclined walls adapted to bind upon the outside of two of the first-mentioned inclined walls, and clamping means adapted to take in said bifurcation, which means bind upon the upper side of each boss and on the under side of each arm.

2. A bath-tub having detachable feet, bosses thereon comprising three walls inclined one toward the other, and a base provided with a bifurcation, and said feet each having arms provided with two inclined walls adapted to bind upon the outside of two of the first-mentioned inclined walls, and a clamping-bolt adapted to take in said bifurcation, which bolt binds upon the upper side of each boss and on the under side of each arm.

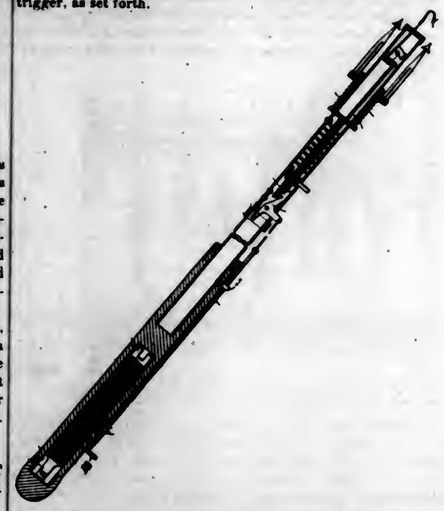
784,747. FISHING-SPEAR. Jean M. Lobit, New York, N. Y. Filed July 6, 1904. Serial No. 215,533.

Claim.—1. In a device of the kind described, the combination of a handle or holder, a spring-actuated spear-rod carried by the handle or holder, a trigger for holding the rod in retracted position against the tension of the spring, and a spear-head yieldingly carried by the spear-rod, as set forth.

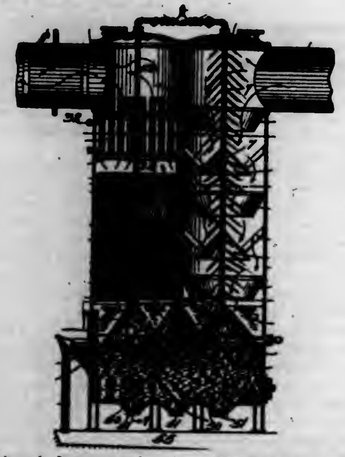
2. In a device of the kind described, the combination of a handle or holder, a spring-actuated spear-rod carried by the handle or holder, a spear-head carried by the spear-rod, a trigger for holding the rod in retracted position against the tension of the spring, and a bait-carrier arranged to release the trigger, as set forth.

3. In a device of the kind described, the combination of a handle or holder, a spring-actuated spear-rod carried by the handle or holder, a trigger for holding the rod in retracted position against the tension of the spring, a spear-head yieldingly carried by the spear-rod, and a bait-carrier arranged to release the trigger, as set forth.

4. In a device of the kind described, the combination of a handle or holder, a spring-actuated spear-rod carried by the handle or holder, a manually-operated trigger for holding the rod in retracted position against the tension of the spring, a spear-head yieldingly carried by the spear-rod, and a bait-carrier arranged to release the trigger, as set forth.



784,748. GAS-WASHER. Patrick Meehan, Lowellville, Ohio. Filed Apr. 26, 1904. Serial No. 204,782.



Claim.—1. In a gas-washer, the combination of a chamber having a gas-inlet and a gas-outlet, baffle-plates in said chambers so arranged as to cause alternate contractions and expansions of the gas, means for spraying water onto said baffle-plates, a series of vertically-arranged scrubber-plates in the bottom of said chamber, and means for spraying water onto said scrubber-plates.

2. In a gas-washer, the combination of a vertical chamber having a gas-inlet at the top and a gas-outlet from the bottom, basin-shaped and conical baffle-plates arranged alternately and oppositely at the outer walls and center of said chamber to cause alternate expansions and contractions of the gas, means for spraying water onto said baffle-plates, a second chamber connected to the bottom of said vertical chamber, and a series of spirally-arranged baffle-plates in said second chamber.

3. In a gas-washer, the combination of a vertical chamber having a gas-inlet at the top and a gas-outlet from the bottom, baffle-plates arranged in said chamber, a perforated pipe arranged vertically in said chamber to spray water onto said baffle-plates, and a

plate arranged underneath the head of said chamber and below an opening or openings in the spray-pipe, whereby the top of said chamber will be kept cool.

4. In a gas-washer, the combination of a vertical chamber having a gas-inlet at the top and a gas-outlet from the bottom, a series of baffle-plates in said chamber, means for spraying water onto said baffle-plates, a series of vertically-arranged scrubber-plates in the bottom of said chamber, and spray-pipes extending across said scrubber-plates.

5. In a gas-washer, the combination of a vertical chamber provided with a gas-inlet at the top, a series of baffle-plates projecting into said chamber, means for spraying water onto said baffle-plates, a horizontal chamber communicating at one end with the lower end of the vertical chamber and having a gas-outlet from its opposite end, vertically-arranged scrubber-plates extending longitudinally of said horizontal chamber, and spray-pipes extending across said scrubber-plates.

6. In a gas-washer, the combination of a vertical chamber having a gas-inlet at its upper end, basin-shaped and conical baffle-plates arranged alternately and oppositely at the walls and center of said chamber, a perforated pipe arranged vertically in the center of said chamber, a horizontal chamber communicating at one end with the lower end of said vertical chamber and having a gas-outlet from its opposite end, vertically-arranged scrubber-plates in said horizontal chamber and extending longitudinally thereof, and spray-pipes extending across said scrubber-plates.

7. In a gas-washer, the combination of two vertical chambers communicating with each other at their lower ends, a gas-inlet at the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, a series of baffle-plates in the inlet-chamber, means for spraying water onto said baffle-plates, and spirally-arranged baffle-plates in the outlet-chamber.

8. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers, and a gas-outlet from the upper end of the other chamber, a series of baffle-plates in the inlet-chamber arranged to cause alternate expansions and contractions of the gas passing therethrough, means for spraying water onto said baffle-plates, and spirally-arranged baffle-plates in the outlet-chamber.

9. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, basin-shaped and conical baffle-plates arranged alternately and oppositely at the walls and center of the inlet-chamber, a perforated spray-pipe arranged vertically at the center of said chamber, and spirally-arranged baffle-plates in the outlet-chamber.

10. In a gas-washer, the combination of two vertical chambers, a gas-inlet into the top of one of said chambers and a gas-outlet from the top of the other chamber, a horizontally-arranged chamber connecting the lower ends of the two vertical chambers, baffle-plates in the inlet-chamber, means for spraying water onto said baffle-plates, vertically-arranged scrubber-plates in the horizontal chamber and extending longitudinally thereof, means for spraying water onto the same, and gas-drying means in the outlet-chamber.

11. In a gas-washer, the combination of two vertical chambers, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, a horizontally-arranged chamber connecting the lower ends of said vertical chambers, basin-shaped and conical baffle-plates arranged alternately and oppositely at the walls and center of inlet-chamber, a perforated spray-pipe arranged vertically and centrally in said chamber, vertically-arranged scrubber-plates in the horizontal chamber and extending longitudinally thereof, spray-pipes extending across said scrubber-plates, and gas-drying means in the outlet-chamber.

12. In a gas-washer, the combination of a chamber provided with a gas-inlet, baffle-walls therein, means for spraying water onto the same, a second chamber communicating with said first-named chamber and provided with a gas-outlet, and heated drying means in said second chamber.

13. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, baffle-plates arranged in the inlet-chamber to cause alternate expansions and contractions of the gas, means for spraying water onto said baffle-plates, a series of drying-tubes in the outlet-chamber, and means for heating said tubes.

14. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, a series of baffle-plates in the inlet-chamber, means for spraying water onto said plates, a pair of heads or walls extending across the outlet-chamber, tubes extending through said heads or walls, and a steam inlet and outlet for the space between said heads.

15. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, baffle-plates in the inlet-chamber, means for spraying water onto said baffle-plates, and a series of spirally-arranged baffle-plates in the outlet-chamber.

16. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, baffle-plates in the inlet-chamber, means for spraying water onto said baffle-plates, and a series of spirally-arranged baffle-plates in the outlet-chamber, said baffle-plates having downwardly-projecting gutters at their upper edges.

17. In a gas-washer, the combination of a scrubbing-chamber, a chamber communicating therewith, a series of spirally-arranged plates therein, and heated drying means in said chamber above said spirally-arranged plates.

18. In a gas-washer, the combination of a scrubbing-chamber, a chamber communicating therewith, a series of spirally-arranged plates in said second chamber and provided with downwardly-directed gutters at their upper edges, and heated drier-tubes arranged above said spiral plates.

19. In a gas-washer, the combination of a scrubbing-chamber, a second chamber communicating therewith, heated drying-pipes therein, an outlet-pipe from said chamber, and a heated jacket in said pipe.

20. In a gas-washer, the combination of two vertical chambers, a gas-inlet in the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, a horizontal chamber connecting the lower ends of said vertical chambers, baffle-plates in the inlet-chamber, means for spraying water onto said plates, scrubber-plates arranged vertically and extending longitudinally in said horizontal chamber, means for spraying water on said scrubber-plates, and a series of spirally-arranged baffle-plates in the outlet-chamber.

21. In a gas-washer, the combination of two vertical chambers, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, a horizontal chamber connecting the lower ends of said vertical chambers, a series of baffle-plates in the inlet chamber, means for spraying water onto said plates, a series of vertically-arranged plates in the horizontal chamber and extending longitudinally thereof, means for spraying water onto said scrubber-plates, and a series of spirally-arranged baffle-plates in the outlet-chamber and provided at their upper edges with downwardly-directed gutters.

22. In a gas-washer, the combination with two vertical chambers, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, a horizontal chamber connecting the lower ends of said vertical chambers, baffle-plates in the inlet-chamber, means for spraying water onto said baffle-plates, vertical scrubber-plates in the horizontal chamber and extending longitudinally thereof, means for spraying water onto said scrubber-plates, spirally-arranged baffle-plates in the outlet-chamber, and heated drier-tubes in said chamber above said spiral baffle-plates.

23. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, baffle-plates arranged in both of said chambers, and perforated pipes arranged vertically in both of said chambers.

24. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one of said chambers and a gas-outlet from the upper end of the other chamber, basin-shaped and conical baffle-plates arranged alternately and oppositely at the walls and center of the inlet-chamber, a perforated pipe arranged vertically and horizontally in said chamber, spiral baffle-plates in the outlet-chamber, and a perforated pipe arranged vertically and centrally in said chamber.

25. In a gas-washer, the combination of two vertical chambers communicating at their lower ends, a gas-inlet into the upper end of one chamber and a gas-outlet from the upper end of the other chamber, baffle-plates in the inlet-chamber, means for spraying water onto said baffle-plates, spirally-arranged plates in the lower portion of the other chamber, a perforated pipe arranged vertically in said chamber, and heated drier-tubes in the upper portion of said chamber.

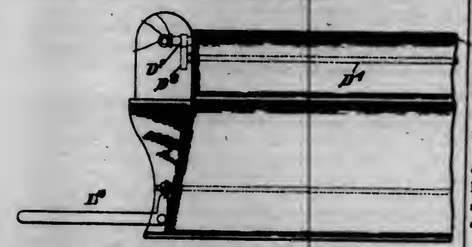
26. In a gas-washer, the combination of two vertical chambers, a gas-inlet into the upper end of one chamber and a gas-outlet from

the upper end of the other chamber, scrubbing means in the inlet-chamber, gas-drying means in the outlet-chamber, a horizontal chamber connecting the lower ends of said vertical chambers and having an overflow-outlet at one end, and jets projecting through the opposite end of said chamber and applied at the surface of the water and directed toward the overflow-opening.

27. In a gas-washer, the combination with two vertical chambers, a gas-inlet into the upper end of one chamber and a gas-outlet from the upper end of the other chamber, scrubbing means in the inlet-chamber, gas-drying means in the outlet-chamber, a horizontal chamber connecting the lower ends of said vertical chambers and having an overflow-opening at one end, a gate for controlling said opening, and jets projecting through the opposite end of the chamber and applied at the surface of the water and directed toward the overflow-opening.

28. In a gas-washer, the combination of a vertical scrubbing-chamber, a collecting-chamber at the bottom thereof provided with a trough or hopper bottom, cleaning-valves in said bottom, an overflow-opening at one side of said chamber, and a seal for closing said opening.

784,749. LOOPING AND TYING MACHINE. SILAS A. MILLER and CHARLES B. GILMORE, Boston, Mass., assignors, by mesne assignments, to Palmer Brothers Company, (Incorporated,) New London, Conn. Filed Oct. 6, 1902. Serial No. 126,285.



Claim.—1. The combination of mechanism for supplying a length of thread on one side of the work, means for carrying the free ends of the thread to the other side of the work, mechanism for knotting the ends of the thread, and means for varying the relative positions of the thread-supply mechanism and the knotting mechanism for loops of different lengths.

2. The combination of two needles, means for reciprocating them, mechanism for supplying a thread to said needles, mechanism for knotting the ends of said thread, and means for varying the relation between the thread-supplying mechanism and the knotting mechanism for loops of different lengths.

3. The combination of two needles, means for reciprocating them, mechanism for supplying a thread to said needles, mechanism for knotting the ends of said thread, and means for varying the tying position of the knotting mechanism for loops of different lengths.

4. The combination of two needles, means for reciprocating them, mechanism for supplying a thread to the needles, mechanism for knotting the ends of said thread, and a reciprocating slide carrying said knotting mechanism and means for reciprocating said slide.

5. The combination of two needles, means for reciprocating them, mechanism for supplying a thread to the needles, mechanism for knotting the ends of said thread, a reciprocating slide carrying said knotting mechanism, means for reciprocating said slide, and means for varying the reciprocation of said slide for loops of different lengths.

6. The combination of work-compressing devices, mechanism for supplying a length of thread on one side of the work, thread-carrying devices for carrying the free ends of said length of thread through the compressed material to form a loop through the work, and a knotting mechanism for tying the thread ends together to complete the loop and tie down the compressed work.

7. The combination of work-compressing devices, mechanism for supplying a length of thread on one side of the work, mechanism for simultaneously carrying the free ends of the thread through the compressed material to form a loop through the work, and a knotting mechanism for tying the thread ends together to complete the loop and tie down the compressed work.

8. The combination of work-compressing devices, two needles, mechanism for supplying a length of thread to said needles, mechanism for operating said needles to carry the ends of the length of thread through the compressed material to form a loop through the work, and a knotting mechanism for tying the thread ends together to complete the loop and tie down the compressed work.

9. The combination of work-compressing devices, mechanism for supplying a length of thread, means for carrying the free ends of said thread through the work to form a loop, and mechanism carried with a movable member of the compressing devices for knotting the ends of the thread.

10. The combination of a work-plate, a presser-foot coöperating therewith to compress the work, two reciprocating needles, mechanism for supplying a thread to the needles, and mechanism carried with the presser-foot for tying the ends of the thread.

11. The combination of two reciprocating needles having eyes open at the side, and means for closing said eyes during the passage of the needles through the work and opening said eyes after they emerge from the work, mechanism for introducting a thread into said eyes through the open sides, and mechanism for knotting the ends of said thread.

12. The combination of two reciprocating needles, mechanism for supplying a thread to the needles, thread-holders having thread-engaging devices between which the needles pass, and devices coöperating with said holders for knotting the thread.

13. The combination of two needles, means for reciprocating them, thread-carriers for receiving the ends of a thread carried by the needles, a knotter-tube, means for operating the carriers to wrap the threads about the tube, and means for drawing the thread ends through the loop about the knotter-tube.

14. The combination of two needles, means for reciprocating them, mechanism for supplying a thread to the needles, thread-holders through which the needles reciprocate, a knotter-tube, means for rotating the thread-holders to wrap the ends of the thread about the tube and means for drawing the ends of the thread through the loop formed on the tube.

15. The combination of a work-plate, two reciprocating needles, thread-supplying mechanism on one side of the work-plate, knot-tying mechanism on the other side of the work-plate, and mechanism for moving the knot-tying mechanism toward the work-plate during the knotting operation.

16. The combination of a work-support, means for carrying the ends of a thread through the work, and clamping members at one side of the work for engaging the thread and preventing lengthwise movement of the middle of the thread while the ends are being carried through the work.

17. The combination of a work-support, means for carrying the ends of a thread through the work, clamping members at one side of the work for engaging the thread and preventing lengthwise movement of the middle of the thread, and mechanism for knotting the thread.

18. The combination of a work-support, two reciprocating needles, mechanism for supplying a thread to said needles, clamping members at one side of the work for engaging the thread and preventing lengthwise movement of the middle of the thread, and mechanism for knotting the thread.

19. The combination of two needles, means for reciprocating them through the work, mechanism for supplying a thread to said needles, mechanism for knotting the threads, and means between the paths of the needles for preventing lengthwise movement of the thread during the passage of the needles through the work and during the knotting operation.

20. A needle-threading mechanism having in combination, a gripper for drawing the thread longitudinally and a yielding finger in the path of the gripper for engaging the thread and carrying it laterally.

21. A needle-threading mechanism having in combination, a gripper for drawing the thread longitudinally, means coöperating with the gripper to carry the thread laterally, a cutter, means for releasing the thread from the gripper, and means for varying the action of the cutter and of the releasing means for different lengths of thread.

22. A needle-threading mechanism having in combination, a gripper for drawing the thread longitudinally, a yielding finger in the path of the gripper, a device in the rear of the gripper for holding the thread in position to be engaged and carried laterally by said finger.

23. A needle-threading mechanism having in combination, a device for holding the free end of the supply-thread, a traveling gripper for drawing the thread longitudinally, cutter-blades between which the thread is drawn by the gripper, and a guide which moves in back of the gripper and guides the thread between the cutter-blades.

24. The combination of two reciprocating needles having eyes open at the side, a gripper for drawing the thread longitudinally across the needles, means coöperating with the gripper to carry the thread laterally through said open sides and devices between the paths of the needles for holding the thread as the needles draw the ends through the work.

25. The combination of two reciprocating needles, a horn between the paths of the needles, and a clamp for holding the thread to the horn.

26. The combination of two needles, means for reciprocating them, thread-holders to which the needles deliver the threads carried thereby, a knotter-tube about which the threads are wrapped by the holders, means for drawing the threads through the loop formed on the tube, and means for advancing the tube during the knotting operation.

27. The combination of a knotter-tube, means for wrapping the thread about the knotter-tube, means for passing the thread through the loop thus formed and casting the loop off the end of the tube, and means for advancing said tube during the knotting operation.

28. The combination of a wrapper, a knotter-tube around which the wrapper wraps the thread, means for casting the loop thus formed off the end of the tube, and means for moving the knotter-tube toward the work during the knotting operation.

29. The combination of a knot-forming mechanism, a pin about which the knot is formed, and means for tightening the knot while on the pin.

30. The combination of a knotting mechanism, a pin around which the knot is tied and means for moving said pin toward the work during the knotting operation.

31. The combination of a knotter-tube, a pin projecting from the end of said tube, means for wrapping the thread about the tube, and means for drawing the thread through the loop thus formed.

32. The combination of a knotter-tube, thread-carriers for wrapping the thread about the tube, a retaining-finger for holding the threads on the tube, a thread-drawing hook, and means for moving the thread-carriers to carry the threads into said hook and to disengage said retaining-finger.

33. The combination of two needles, means for reciprocating them, means between the paths of the needles for holding the thread, thread-holders through which the needles pass, a knotter-tube, means for rotating said holders about the knotter-tube, a loop-retaining finger, means for moving the holders longitudinally of the knotter-tube and a hook for receiving the threads and drawing them through the loop formed about the knotter-tube.

34. The combination of two needles, a reciprocating slide carrying the needles, knot-tying devices, a slide carrying the knot-tying devices, and mechanism carried by said slides and operated by relative movement between the same for operating the knot-tying devices.

35. The combination of two needles, means for reciprocating them, mechanism for supplying a thread to the needles, knot-tying mechanism and means for advancing said knot-tying mechanism toward the work during the knotting operation.

36. The combination of mechanism for looping a thread through the work, mechanism for knotting the ends together and means for carrying the knotting mechanism toward the work during the knotting operation.

37. The combination of mechanism for looping a thread through the work, mechanism for knotting the ends together and mechanism for carrying the loop of the knot toward the work as the ends of the thread are drawn through said loop in tightening the knot.

38. The combination of a work-support, mechanism for looping a thread through the work, clamping members at one side of the work for engaging the thread at the end of the loop and preventing lengthwise movement thereof as the ends of the thread are drawn through the work, and mechanism for knotting the thread.

39. The combination of a work-plate, a thread-supply mechanism on one side of the plate, a presser-foot on the other side of the work-plate, thread-carrying means, mechanism for advancing said thread-carrying means through the work and into position to receive the thread, and for retracting the same to carry the ends of the thread through the work, and mechanism moving with the presser-foot for forming a knot in the threads.

40. The combination of work-compressing devices, a thread-carrier, means for feeding a length of thread to said carrier, means for actuating said carrier to take the two ends of said thread through the work at the point where it is compressed, and a knotting mechanism to tie said ends close to said compressed surface of the work.

41. The combination of work-compressing members, means for carrying a thread through the work, mechanism for knotting the ends of the thread at the face of a compressing member before the work is released, and means for varying the distance apart of said knotting mechanism and the opposed work-compressing member.

42. The combination of compressing devices between which the work is compressed, means for piercing the work and forming a loop therethrough, knotting mechanism within one of the compressing devices, and means for operating the knotting mechanism to tie the knot at the face of the compressing device before the work is released.

43. The combination of compressing devices, two needles for carrying a length of thread through the work, knotting mechanism to tie the ends of the said thread and means for operating the knotting mechanism to tie the knot at the face of one of the compressing devices.

44. The combination of means for carrying a length of thread through the work, a wrapper to which the ends of the thread are delivered, a post around which the threads are wrapped, a hook, means for moving the wrapper longitudinally of the post to lay the threads in the hook, and means for causing the relative movement between the hook and post to draw the threads through the loop formed about the post.

45. The combination of a work-plate, two reciprocating needles, thread-supplying mechanism on one side of the work-plate, knot-tying mechanism on the other side of the work-plate embodying a knotter-tube around which the knot is formed, and mechanism for moving the knotter-tube toward the work-plate during the knotting operation.

46. The combination of adjustable means for supplying threads of different length, means for carrying the two ends of the thread through the work, a clamp to hold the middle of the thread, knotting mechanism and means for moving the knotting mechanism toward the work during the knotting operation.

47. The combination of adjustable means for supplying a thread of the required length, means for carrying the two ends of the thread through the work, knotting mechanism, and means for moving the knotting mechanism toward the work during the knotting operation.

48. The combination of devices for compressing the work, adjustable means for supplying different lengths of thread, needles for carrying the two ends of the thread through the work at the point of compression, knotting mechanism and means for operating the knotting mechanism to tie the knot at the point of compression.

49. The combination of devices for compressing the work, adjustable means for supplying different lengths of thread, needles for carrying the two ends of the thread through the work at the point of compression, a clamp to hold the middle of the thread, knotting mechanism and means for operating the knotting mechanism to tie the knot at the point of compression.

50. The combination of a work-support, two reciprocating thread-carriers, and clamping members at one side of the work for engaging the thread and preventing lengthwise movement of the thread between the carriers.

51. The combination of a work-support, two reciprocating thread-carriers, mechanism for supplying a length of thread to said carriers, and clamping members at one side of the work for engaging the thread and preventing lengthwise movement of the thread between the carriers.

52. The combination of a work-support, two reciprocating thread-carriers, mechanism for supplying a length of thread to said carriers, clamping members at one side of the work for engaging the thread and preventing lengthwise movement of the thread between the carriers, and mechanism for knotting the thread.

53. The combination of a work-support, clamping members at one side of the work for engaging and holding the thread from lengthwise movement, and means for drawing the ends of the thread away from the clamping members.

54. The combination of a work-support, means for supplying a length of thread, clamping members at one side of the work for engaging and holding the thread from lengthwise movement, and means for drawing the ends of the thread away from the clamping members.

55. The combination of a work-support, means for supplying a length of thread, clamping members at one side of the work for engaging and holding the thread from lengthwise movement, means for drawing the ends of the thread away from the clamping members, and knotting mechanism to which the threads are delivered.

56. The combination of holding devices between which the work is held, two needles, means for thrusting the needles through the work, means for then opening the eyes of the needles to receive a thread, mechanism for laying a thread in the open eyes of the needles,

means for retracting the needles, means for closing the eyes of the needles during their return through the work, and a knotting mechanism to which the threads carried through the work by the needles are delivered.

57. The combination of holding devices between which the work is held, two reciprocating needles having eyes open at the side, means for closing said eyes during the passage of the needles through the work and then opening said eyes to receive a thread, mechanism for introducing a thread into said eyes through the open sides, and a knotting mechanism to which the threads carried through the work by the needles are delivered.

58. The combination of holding devices between which the work is held, means for supplying a length of thread on one side of the work, means for carrying the ends of the thread through the work, a knotting mechanism, and means for operating said mechanism to tie the knot close to the surface of the work before the work is released.

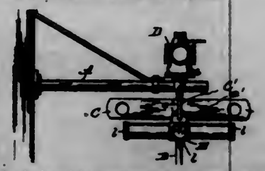
59. The combination of holding devices between which the work is held, mechanism for supplying a length of thread on one side of the work, thread-carrying devices for carrying the free ends of said length of thread to the other side of the work, and a knotting mechanism for tying the thread ends together.

60. The combination of a work-plate, a presser-foot coöperating therewith, two reciprocating needles, thread-supplying mechanism on one side of the work-plate, and a knotting mechanism on the opposite side of the work-plate.

61. In a machine of the kind described having a work-supporting table means for clamping the work and a plurality of needles adapted to reciprocate between a position above the table and a position below it, means for feeding the thread to said needles and means for clamping said thread during the upward movement of the needles comprising a thread-holder located below the table and means for moving it to carry and clamp the thread against the under surface of the table as described.

62. In a machine of the kind described, in combination with a pair of vertically-reciprocating needles and means whereby said needles are threaded as set forth, a feed-table adapted to support the material to be tufted, a compression-ring adapted to compress said material against said table, said table being provided with an opening through which said needles may pass down to bring up a thread said opening being approximately under said compression-ring, one edge of said opening projecting between the paths of motion of said needles, and a thread-holder having a reciprocating movement adapted to clamp the thread on the under side of said projection of said feeding-table, whereby the loop of the thread may be held out of engagement with the material during the draft of the thread therethrough by the needles, as described.

784,750. **RAILWAY-SIGNAL.** EDWARD L. MORGAN, Little Rock, Ark. Filed July 15, 1904. Serial No. 216,718.



Claim.—1. A signal device for the purposes set forth, comprising a tube open at its forward end, and a reflector located in the rear end of the tube and adapted to reflect the light of an approaching light-carrying vehicle.

2. A signal device for the purposes set forth, comprising a tube open at its forward end, a reflector in the rear end of the tube, and a lens located in the tube in front of the reflector, whereby to reflect the light of an approaching light-carrying vehicle.

3. A signal device for the purposes set forth, comprising a tube open at its forward end, a reflector in the rear end of the tube, a lens located in the tube in front of the reflector, and sleeves for holding said lens in place.

4. A signal device for the purposes set forth, comprising a socket-casting, a reflector located in the socket, a collar bearing against the lens, and a tube threaded in the outer end of the socket against the collar, substantially as shown and described.

5. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, a reflector in each socket, and tubes threaded in said sockets, whereby to reflect the light of a light-carrying vehicle approaching the device in either direction.

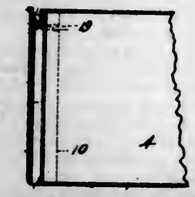
6. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, reflectors in said sockets, tubes threaded in the sockets, and lenses in the tubes in front of the reflectors, substantially as shown and described.

7. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, reflectors in said sockets, tubes threaded in the sockets, lenses in said tubes, and sleeves in the tubes at either side of the lenses to hold the latter in place.

8. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets, reflectors in said sockets, tubes threaded in the sockets, lenses in said tubes in front of the reflectors, and sleeves in the tubes at either side of the lenses to hold the latter in place, together with a retaining-ring threaded on the outer end of the tubes, substantially as shown and described.

9. A signal device for the purposes set forth, comprising a socket-casting having opposite sockets and projections or wings for attaching the same to a support, reflectors located in the sockets, tubes threaded in the sockets, lenses in the tubes, sleeves in the tubes at either side of the lenses to hold the latter in place, colored glasses in the outer ends of the tubes and fitting against the adjacent sleeves, and retaining-rings threaded on the outer ends of the tubes, as shown and described.

784,751. **COMBINATION SHIPPING AND SHOW CASE.** WATSON W. MCKEE, Tacoma, Wash. Filed Apr. 28, 1904. Serial No. 206,336.



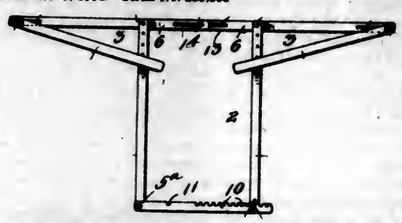
Claim.—1. A box having a front formed with side flanges secured on and partially overlapping the opposite sides thereof, and a frame having an opening and provided with sides which are provided with flanges to engage those of the box and detachably secure the said frame to the said box, for the purpose set forth, substantially as described.

2. A packing, shipping and displaying case, consisting of a box formed by side, front and rear walls, a bottom connected to said walls, a top adapted to fit over and close the upper end of said box, flanges formed on the edges of the front and rear walls whereby the same are connected to said side walls, means whereby a portion of the front wall may be readily removed to form a view-opening, a vertically-disposed transparent panel or plate arranged over the front of said box to cover said opening and means whereby said plate is held in place and supported in a vertical position, substantially as described.

3. A packing, shipping and displaying case consisting of a box formed by side, front and rear walls, a bottom connected to said walls, a flanged top adapted to fit over and close the upper end of said box, flanges formed on the edges of said front and rear walls whereby the same are connected to said side walls, extensions formed on the flanges of said front wall, a transparent panel or plate arranged over the front wall of said box, and spaced from the same, means whereby said plate is supported upon and spaced from said front wall, said supporting and spacing device also forming closures for said space, substantially as described.

4. A packing, shipping and displaying case consisting of a box formed by side, front and rear walls, a bottom connected to said walls, a flanged top adapted to fit over and close the upper end of said box, flanges formed on the edges of said front and rear walls whereby the same are connected to said side walls, extensions formed on the flanges of said front wall, an open frame arranged on the front of said box, hook-shaped side flanges formed on said frame, said flanges being adapted to be removably engaged with the extensions formed on the flanges of the front wall thereby removably securing said frame in place, an inwardly-projecting curved flange formed on the lower end of said frame, a transparent plate arranged in said frame, and supported by said curved flange, and a cross-bar arranged near the upper end of the frame to hold said plate in place and to close the upper end of the space between said plate and the front of the box, substantially as described.

784,752. **GARMENT-STRETCHER.** LARS NELSON, Chicago, Ill. Filed Dec. 5, 1904. Serial No. 235,585.



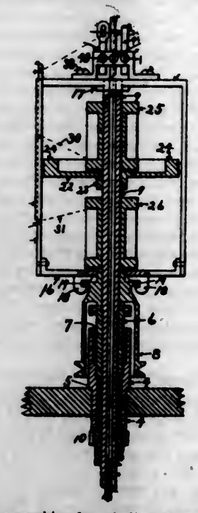
Claim.—1. A drying and stretching frame for garments, consisting of a body portion comprising a bottom bar and side bars pivotally connected thereto, and arm portions comprising bars pivotally connected to the side bars and also pivotally and slidably connected together, substantially as described.

2. A drying and stretching frame for garments, consisting of a body portion comprising a bottom bar and side bars pivotally connected thereto, and arm portions comprising upper bars pivotally connected together and also pivotally connected to the side bars, and lower bars pivotally connected to the upper bars and angularly adjustable with respect thereto and with respect to the side bars, substantially as described.

3. A drying or stretching frame for undershirts or similar garments comprising two side bars, a bottom bar pivotally connected to one of said side bars, means for adjustably connecting said bottom bar to the other of said side bars, two top bars pivotally connected intermediate their ends to said side bars, means for adjustably connecting the inner ends of said top bars and adjustable bars connecting said top and said side bars, substantially as described.

4. A drying or stretching frame for undershirts or similar garments comprising two side bars, a bottom bar pivotally connected to one of said side bars, means for adjustably connecting said bottom bar to the other of said side bars, two top bars pivotally connected intermediate their ends to said side bars, means for adjustably connecting the inner ends of said top bars, angularly-swinging bars pivotally connected to said top bars, and means for adjustably securing said angularly-swinging bars upon said side bars, substantially as described.

784,753. **MACHINE FOR COVERING WIRE.** GEORGE T. NICHOLLS, Providence, R. I., assignor to Palmer-Nicholls Company, Cheraw, S. C., a Corporation of South Carolina. Filed Nov. 29, 1901. Serial No. 84,051.



Claim.—1. In a machine for winding thread upon a wire, the combination of a rotatable spindle having a central longitudinal bore adapted to receive loosely a wire passing therethrough, which bore is enlarged at the bottom of the spindle, and a short tube inserted into said spindle-bore at the bottom thereof, substantially as and for the purpose specified.

2. In a machine of the class described, the combination of a bolster-rail, a bolster mounted therein and having an enlarged concentric chamber in its upper portion, a tubular bearing supported in and by the bolster, a spindle-whirl supported by said tubular bearing, a spindle supported in and by said spindle-whirl and a tubular cork packing surrounding said bearing in the said chamber of the bolster substantially as shown.

3. In a machine of the class described, the combination of a bolster-rail, a bolster mounted therein, and having an enlarged concentric chamber in its upper portion, a tubular bearing supported in and by the bolster, a spindle-whirl supported by said tubular bearing, a spindle supported in and by said spindle-whirl, and a tubular packing made of an elastic material surrounding the bearing in said chamber of the bolster, substantially as set forth.

4. In a machine of the class described, the combination of a bolster-rail, a bolster mounted therein, and open at the bottom, an open-bottomed tubular bearing supported in and by the bolster, a spindle-whirl supported on said tubular bearing, a spindle supported by the spindle-whirl and extending below the bolster-rail and out below the open bottom of the bolster and bearing, a gear mounted fast upon the bottom of the spindle, means to rotate said spindle-whirl, and mechanism operated by said gear and adapted to draw a wire up through the spindle, substantially as described.

5. In a machine of the class described, the combination of a bolster-rail, a bolster mounted therein, and having an open bottom, an open-bottomed tubular bearing supported in and by the bolster, a spindle-whirl supported by the bearing, a spindle supported in and by said whirl, provided with a central longitudinal bore, and having its lower end extended below the bolster-rail and out below the open end of the bolster and bearing, a gear mounted fast upon the lower end of the spindle, a properly-mounted shaft, a gear fixed upon the bottom of said shaft, and engageable with the first-named gear, and mechanism operated by the said shaft adapted to draw a wire up through the spindle, substantially as shown and for the purpose specified.

6. In a machine of the class described, the combination of a rotatable spindle, properly mounted and having a central longitudinal bore, means adapted to rotate said spindle, and a balance-wheel mounted on and rotated by said spindle, substantially as described.

7. In a machine of the class described, the combination of a rotatable spindle, having a central longitudinal bore and supported at its lower part but not at its upper part, means adapted to rotate the spindle, and a balance-wheel mounted on and rotated by said spindle, substantially as shown.

8. In a machine of the class described, the combination of a rotatable spindle, properly mounted, and having a central longitudinal bore for the passage of a wire therethrough, means adapted to rotate the spindle, a flier arranged and adapted to rotate with the spindle, devices carried by the flier arranged and adapted to wind thread from a spool or spools upon said wire, and a balance-wheel mounted on and rotated by the spindle, substantially as set forth.

9. In a machine of the class described, the combination of a properly-mounted spindle-whirl, having at its top a flange with diametrically opposite radial slots, a spindle mounted in the spindle-whirl, a flier, whose lower cross-piece has two diametrically opposite hook-end lugs adapted to enter said slots, respectively, and which is capable of partial rotation, and a stop-pin projecting from said flange and arranged to limit the rotation of said cross-piece, substantially as described.

10. In a machine of the class described, the combination of a properly-mounted rotatable spindle having a central longitudinal bore adapted to allow the passage of a wire therethrough, means adapted to rotate the spindle, a flier properly mounted and rotatable with the spindle and having an upright arm, a winding device carried by the flier and adapted to wind thread upon the wire, and a wind-shield attached to said upright arm and having its outer edge extending along and parallel with the outer side of said upright arm and arranged so as to allow the unobstructed passage of thread between said arm and wind-shield, substantially as shown.

11. The combination of a flier properly mounted, a spindle passing through said flier and carrying a spool or spools, a balance-wheel mounted fast on said spindle, and a tension-spring attached to the balance-wheel, with its free end in forcible contact with the rim of the spool, substantially as specified.

12. The combination of a flier properly mounted, a spindle passing through said flier, a balance-wheel mounted fast on said spindle, a screw fixed in said balance-wheel, a bent spring passing around

said screw, and a set-screw passing through a flange of the balance-wheel and having its end bearing against one end of said spring, substantially as described.

13. In a machine of the class described, the combination of a properly-mounted spindle having a central longitudinal bore adapted for the passage of wire therethrough, means adapted to rotate said spindle, a flier properly mounted and rotatable with said spindle and having an upper cross-bar, a winding device having two elongated slots at its opposite ends, and headed screws passing through said slots into the cross-bar, substantially as specified.

14. In a machine of the class described, the combination of a rotatable spindle having a central longitudinal bore for the passage of a wire therethrough, a flier properly mounted and rotatable with said spindle, a winding-head mounted upon said flier, a wire-holder having a longitudinal groove for the passage of said wire in a line with said bore of the spindle and loosely mounted in a vertical hole through said winding-head, a set-screw passing through the side of the winding-head and capable of securing the wire-holder in its adjusted position, and a post on said winding-head terminating with a porcelain eye, substantially as described.

15. In a machine of the class described, the combination of a rotatable spindle having a central longitudinal bore for the passage of a wire therethrough, a flier properly mounted and rotatable with said spindle, a winding-head mounted upon said flier, a wire-holder having a longitudinal groove for the passage of said wire in a line with the bore of said spindle, a post loosely mounted in a hole in said winding-head and terminating with a porcelain eye, and a set-screw passing through the side of the winding-head and capable of securing said post in its adjusted position, substantially as specified.

16. In a machine of the class described, the combination of a rotatable spindle having a central longitudinal bore for the passage of wire therethrough, a flier properly mounted and rotatable with said spindle, a winding-head mounted upon said flier, a wire-holder having a longitudinal groove for the passage of said wire in a line with the bore of said spindle, a post terminating with a porcelain eye, mounted in said winding-head, and adjustable with relation to said wire-holder, and means of securing said post in its adjusted position, substantially as shown.

17. In a machine of the class described, the combination of a rotatable spindle having a central longitudinal bore for the passage of wire therethrough, a flier properly mounted and rotatable with said spindle, a winding-head mounted upon said flier, a wire-holder having a longitudinal groove for the passage of said wire in a line with the bore of said spindle, a post mounted upon said winding-head and having a wedge-shaped projection which enters the groove of the wire-holder arranged substantially as and for the purpose specified.

18. In a machine of the class described, the combination of a rotatable spindle having a central longitudinal bore for the passage of wire therethrough, a flier properly mounted and rotatable with said spindle, a winding-head mounted upon said flier, a wire-holder having a longitudinal groove, for the passage of said wire in a line with the bore of said spindle, and a post mounted and adjustable upon said winding-head in both perpendicular and rotary directions and having a wedge-shaped projection which enters the groove of the wire-holder, arranged as and for the purpose specified.

19. In a machine of the class described, the combination of a rotatable spindle having a central longitudinal bore for the passage of a wire therethrough, a flier properly mounted and rotatable with said spindle, a winding-head mounted upon said flier, a wire-holder having a longitudinal groove for the passage of wire in a line with the bore of said spindle, a post loosely mounted in a vertical hole in the winding-head, a set-screw passing through the side of the winding-head and capable of holding said post in its adjusted position, and a wedge-shaped projection from said post, which enters the groove of the wire-holder, arranged substantially as shown and for the purpose specified.

20. In combination with a flier for winding thread upon a wire, a winding-head, having a wire-holder, which is provided with a longitudinal groove, and a post mounted upon the winding-head and provided with a wedge-shaped projection adapted to enter said groove, substantially as specified.

21. In combination with a flier for winding thread upon a wire, a winding-head, having a wire-holder thereon, which is provided with a longitudinal groove, a post adjustably mounted on said winding-head, means for holding said post in its adjusted position, and a wedge-shaped projection extending from said post and adapted to enter said groove, substantially as described.

22. In combination with a flier for winding thread upon a wire, a winding-head, having a wire-holder thereon, which is provided with a longitudinal groove, a post mounted upon said winding-head, a wire-guard mounted movably in said post at an angle thereto, and adapted to enter said groove, and a set-screw mounted in said post and capable of securing said arm in adjusted position with relation to said post, substantially as shown.

23. In combination with a flier for winding thread upon a wire, a winding-head, having a wire-holder thereon, which is provided with a longitudinal groove, a post mounted adjustably on said winding-head, a set-screw adapted to hold said post in its adjusted position, and a wire-guard mounted movably in said post at an angle thereto and adapted to enter said groove and a set-screw mounted in said post and capable of securing said arm in adjusted position in relation to said post, substantially as set forth.

24. In combination with a flier for winding thread upon a wire, a winding-head, having a centrally-located wire-holder, which is rotatably mounted in a vertical hole in said winding-head, and provided with a longitudinal groove, a set-screw arranged to secure said wire-holder in position, two vertical holes through the respective ends of the winding-head, two posts longitudinally and rotatably mounted in said holes, respectively, one of which posts has at its upper end a thread-spreading eyepiece, and the other of which posts has at its upper end an angularly-projecting wire-guard adapted to enter said groove, each of said posts, respectively, being capable of attachment and detachment on either side of said wire-holder, and a set-screw arranged to hold each of said posts in its adjusted position, substantially as described.

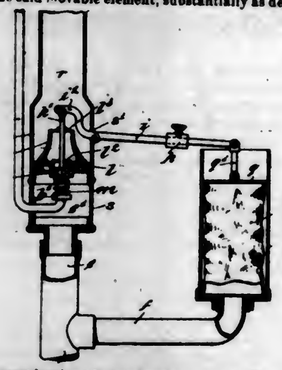
25. In a machine for covering wire, the combination of a longitudinally-bored spindle and means of supporting and rotating same, a flier properly mounted and rotatable with said spindle and having a winding device, a gear upon the lower end of the spindle, a vertical shaft properly mounted, having at its upper end a worm and at its lower end a gear engageable with the first-named gear, two standards, a horizontal shaft mounted in said standards having an annular shoulder and a screw-threaded reduced end, a train of gears mounted upon one of the standards, one of which gears is engageable with said worm and another of which gears is loose on said horizontal shaft, a nut engageable with the screw-threaded end of the horizontal shaft and adapted when screwed up to connect the last-named gear with the horizontal shaft so as to rotate said shaft, a drum fixed upon the horizontal shaft and having a grooved pulley, and a second pulley and a belt passing over both said pulleys, said wire being arranged after passing through the winding device to pass over said drum and to be wound on a spool connected with the last-named pulley, substantially as specified.

26. In a machine of the class described, the combination of means for feeding wire to the machine and for winding thread upon the wire, and for reeling said wire when so wound, parallel top rails, collars on said top rails, each having a bracket which terminates in a semitubular bearing, detachable arbors mounted in said bearings and pulleys on said arbors, respectively, two parallel cross-bars extending at right angles with said top rails and each having two apertures by which they are mounted and movable on said top rails, cross-braces adapted to strengthen said cross-bars, an arm extending from each end of each cross-bar in the line thereof, respectively, two parallel traverse-bars mounted on the outer ends of said arms, respectively, traverse-whirls rotatably mounted upon said traverse-bars contiguous to said arbors, respectively, a vertical shaft properly mounted and rotated, a cam fixed upon the top of said shaft, a collar on one of said top rails having a side extension, a V-shaped lever centrally pivoted to the said side extension of the last-named collar, a friction-roller rotatably mounted on one end of said lever and in contact with the said cam, a link-bar pivotally connected at one end to the center of one of said cross-bars and pivotally connected at its opposite end to the other end of said lever, a cord connected with the other of said cross-bars at the center thereof, a pulley properly supported over which the cord passes, and a weight at the end of said cord, substantially as described.

27. In a machine of the class described, having mechanism for feeding the wire and covering the wire with thread and reeling the covered wire upon spools, the combination of a horizontal shaft, a take-up drum loosely mounted on said shaft in a position intermediate the winding and reeling mechanism aforesaid, and over which drum the covered wire passes, and a set-screw passing through a portion of the drum and adapted to connect it with the shaft so as to be rotatable therewith, substantially as described.

784,754. GAS-BURNER. CARL NIELSEN, Copenhagen, Denmark. Filed Nov. 25, 1903. Serial No. 182,053.

Claim.—1. The combination of a gas-burner and a gas-lighting tube having their respective inlets opposite each other and spaced apart, with a double-seated valve operative between said inlets to admit gas alternately to the burner and the lighting-tube, a gas-pressure-operated device having a movable element, a lever having its fulcrum out of line with the valve and being further provided with arms of unequal length, a connection between the shorter arm of the lever and the valve, and a connection between the longer arm of the lever and the said movable element, substantially as described.



2. The combination of a gas-burner and a gas-lighting tube having their respective inlets opposite each other and spaced apart, with a double-seated valve operative between said inlets to admit gas alternately to the burner and the lighting-tube, a gas-pressure-operated device having a movable element, a lever having arms of unequal length, a connection between the shorter arm of the lever and the valve, a connection between the longer arm of the lever and the said movable element, and a weight carried by and shiftable longitudinally with respect to the longer arm of said lever, substahtially as described.

3. The combination of a gas-burner and a gas-lighting tube having their respective inlets opposite each other and spaced apart, with a double-seated valve operative between said inlets to admit gas alternately to the burner and the lighting-tube, a gas-pressure-operated device having a movable element, a lever having arms of unequal length, a connection between the shorter arm of the lever and the valve, a connection between the longer arm of the lever and the said movable element, said longer arm of the lever being hollow, and a weight in said hollow arm shiftable by gravity therein by the movement of the lever, substantially as described.

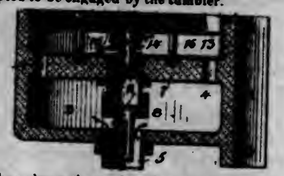
4. The combination of a gas-burner and a gas-lighting tube having their respective inlets opposite each other and spaced apart, with a double-seated valve operative between said inlets to admit gas alternately to the burner and the lighting-tube, a collapsible storage vessel operated by gas-pressure, and one end of which is movable, a lever having its fulcrum out of line with the valve and being further provided with arms of unequal length, a connection between the shorter arm of the lever and the valve, and a connection between the longer arm of the lever and the movable end of the said collapsible storage vessel, substantially as described.

5. The combination of a gas-burner and a gas-lighting tube having their respective inlets opposite each other and spaced apart, with a double-seated valve operative between said inlets to admit gas alternately to the burner and the lighting-tube, a gas-pressure-operated device having a movable element, a connection, including a lever, between said movable element and the valve, to operate the latter and successively-acting springs of unequal strength to resist the movement of the valve toward the inlet of the lighting-tube, substantially as described.

784,755. GLASS-RINSING MEANS. HENRY PEIN, Jersey City, N. J., assignor of one-half to Aaron M. Sloss, New York, N. Y. Filed May 13, 1904. Serial No. 207,870.

Claim.—1. In a glass-rinser, the combination of a base having a top chamber, a plate, the base and plate formed with an annular recess between them, adapted to receive a tumbler, a valve below said plate adapted to control the liquid-supply, means for operating said valve disposed at different points in said annular recess, whereby the said valve-operating means must be operated at the several places simultaneously.

2. In a glass-rinser, the combination of a base, having a chamber, a plate, said base and plate having an annular recess for receiving a tumbler, a valve for controlling the liquid-supply, a collar on said valve, a spider fitting loosely about said valve and resting on the collar, and having arms extending into said annular recess where they are adapted to be engaged by the tumbler.



3. In a glass-rinser, the combination of a base having a top chamber, a plate, the base and plate formed with an annular recess between them adapted to receive a tumbler, a valve below said plate adapted to control the liquid-supply, a collar on the valve and a spider, having arms extending into said concentric recess, resting on said collar and adapted to operate said valve.

4. In a glass-rinser, the combination of a base having a chamber 19, a superimposed plate having discharge-holes, a spray-valve controlling the liquid-supply, secured to the base below said plate, a collar on said valve, a spring adapted to force said valve upwardly, a spider having radial arms extending beyond said plate, and resting on said collar.

784,756. FLORIST'S BENCH. CASPAR J. PULT, North Tonawanda, N. Y. Filed May 24, 1904. Serial No. 209,896.



Claim.—1. In a bench for florists and others, the combination with legs, of trussed braces whose ends are supported by said legs, and a bed-bottom resting on said trussed braces.

2. In a bench for florists and others, the combination with cement or concrete legs, of trussed braces of cement or concrete whose ends are supported by said legs, and a cement or concrete bed-bottom resting on said trussed braces.

3. In a bench for florists and others, the combination with legs, of trussed braces whose ends are supported by said legs, said trussed braces having rods anchored in the legs whereby the braces are tied to said legs, and a bed-bottom resting on said trussed braces.

4. In a bench for florists and others, a bed support or bottom comprising a plurality of aggregated molded sections placed end to end having reinforcing members embedded therein, the free ends of said reinforcing members of one section being connected to the free ends of the members of the other section to connect the sections together and prevent their separation at their adjoining edges, and means for sustaining said bed-bottom.

5. In a bench for florists and others, a bed support or bottom comprising a plurality of aggregated molded sections placed end to end having reinforcing members embedded therein, the free ends of said reinforcing members of one section being connected to the free ends of the members of the other section to connect the sections together and prevent their separation at their adjoining edges, trussed braces supporting said bed-bottom, and legs supporting the ends of the trussed braces.

6. In a bench for florists and others, a bed-support comprising a bed-bottom of cement or concrete, reinforced cement or concrete trussed braces for said bed-bottom, and cement or concrete legs for supporting the said trussed braces.

7. In a bench for florists and others, the combination with a bed-support and legs, of a brace for said bed-support, said brace resting on the legs and having an internal truss and an external truss.

8. In a bench for florists and others, a bed-support comprising a bed-bottom and braces for said bed-bottom, said braces having an internal rod, a cable connected at its ends to said rod and acting, in con-

nection with said rod, as a truss for the brace, said cable having projections thereon

9. In a bench for florists and others, a bed-support comprising a bed-bottom and hollow braces for said bed-bottom, said hollow braces having embedded therein wire-netting, a rod, and a cable arranged in truss-like form in relation to the rod, said cable having protuberances

10. In a bench for florists and others, the combination with a bed-bottom of cement or concrete, of a sleeve or collar of non-metallic material cemented to the bed bottom or support in a general upright position so as to be adapted to receive a supporting-pole for the roof over said bench.

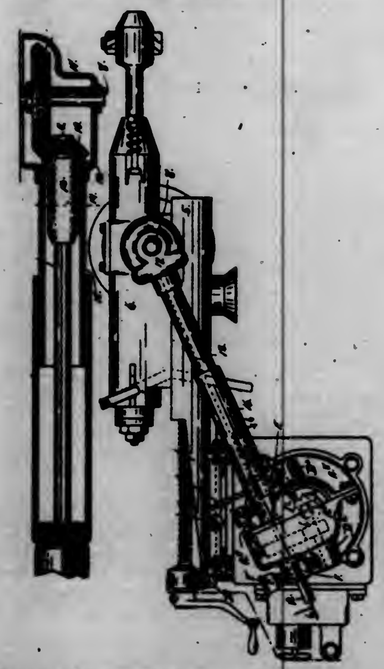
11. In a bench for florists and others, the combination with a bed-support and stationary legs rigidly connected to said bed-support, of braces connecting the legs, sleeves rotatably mounted on the braces, and heating-pipes resting on the sleeves.

12. In a bench for florists and others, the combination with the bench-legs, of brackets adjustable up and down relatively to said legs and a shelf supported by said brackets.

13. In a bench for florists and others, the combination with bench-legs, of brackets having jaws embracing said legs, clamping means for securing the jaws to the legs in adjustable manner to permit the brackets to be slid up and down on the legs, and a shelf supported by said brackets.

14. In a bench for florists and others, a bed-support having vertically-disposed drainage-openings extending therethrough from top to bottom which flare from the upper portions downwardly to prevent clogging by the dirt in the bed.

784,757. MEANS FOR COUPLING MOTORS TO ROCK-DRILLS. JOHN H. REDFIELD, Denver, Colo., assignor of one-half to Fred Grutt, Denver, Colo., and Charles Grutt and Emil Grutt, Davenport, Wash. Filed Apr. 27, 1904. Serial No. 205,210.



Claim.—1. The combination with the guide-shell, of a rock-drill or similar machine, of an electric motor yieldingly suspended therefrom, and an operative connection between the motor and the drill, including tubular telescoping parts whereby the coupling is extensible to compensate for the back-and-forth movement of the drill-body on the guide-shell.

2. The combination with a drill or similar machine having a guide-shell and a body part movable longitudinally thereon, of a motor yieldingly connected with the guide-shell, and an operative connection between the motor and the power-shaft of the drill, comprising an operating-shaft, a gear connection between the shaft and the motor-armature, a gear connection between the operating-shaft of the coupling and the operating-shaft of the drill, the coupling-shaft being movable longitudinally to allow the drill to move back and forth on the guide-shell without changing the position of the motor, telescoping sleeves surrounding the shaft and forming a protection therefor, and gear-cases with which the telescoping sleeves are respectively connected, the gear-case connected with the motor being mounted thereon to permit a partial rotary movement for the purpose set forth.

3. The combination with a drill, a guide-shell and an electric motor, of a cushion connection between the guide-shell and the motor whereby the latter is yieldingly suspended on the shell to prevent or overcome the vibration incident to the operation of the drill.

4. The combination of a drill, a guide-shell and a motor, of a cushion connection between the guide-shell and motor for arresting the vibrations which would otherwise be communicated from the drill to the motor during the operation of the drill.

5. The combination with a guide-shell and drill, of a plate slidably mounted on the guide-shell, a motor, bolts for connecting the motor with the plate, and cushion-washers located on opposite sides of the plate, the bolts passing through registering openings formed in the washers and plate, substantially as described.

6. The combination with a drill, of a guide-shell provided with flanges, a plate having flanges forming ways which the flanges of the guide-shell enter, a motor, cushion-washers located between the motor and plate, and bolts for securing the plate to the motor, and cushion-washers interposed between the heads of the bolts and the plate.

7. The combination with a drill and guide-shell, of a track mounted on the guide-shell, a plate provided with ways which engage the track, cushions inserted in the track on opposite sides, spring-actuated devices mounted on the flanges of the plate and adapted to pass between the said track-cushions when the plate is in position, a motor and a cushion connection between the motor and the plate, substantially as described.

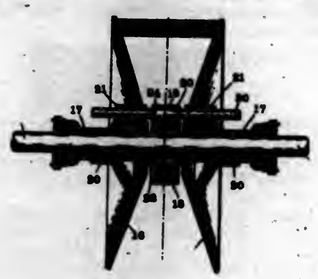
8. The combination with a drill and guide-shell, of a motor suspended from the guide-shell, a gear-case movably connected with the motor, a shaft journaled in said gear-case, a gearing connection between said shaft and the armature of the motor, a second shaft passing through the gear-case at right angles to the first-named shaft, a sleeve through which the second shaft passes, a gearing connection between the said sleeve and the first-named shaft, the said sleeve having clutch-teeth at one extremity, a second sleeve having coöperating teeth, the second sleeve being splined on the second shaft, a gearing connection between the second shaft and the operating-shaft of the drill, the second sleeve being capable of longitudinal movement on the second shaft, and means for actuating the second sleeve to disengage the coöperating teeth of the two sleeves.

9. The combination with a drill, a guide-shell, and a motor mounted on the guide-shell, of a gear-case mounted to turn on the motor-casing, an operating-shaft passing through the gear-case, a gearing connection between the armature of the motor and the said shaft, clutch members surrounding the shaft one of them being movable, two toothed collars located adjacent each other, a loose pinion interposed between the toothed edges of the collars, the latter being constructed to allow the pinion to occupy a position between them when their body portions are in engagement with each other, the toothed portions of the two collars being inclined whereby a partial rotary movement of one collar separates the two collars by the longitudinal movement of one collar, and a connection between the longitudinally-movable collar and one of the clutch members whereby the latter is actuated sufficiently to disengage the two clutch members for the purpose set forth.

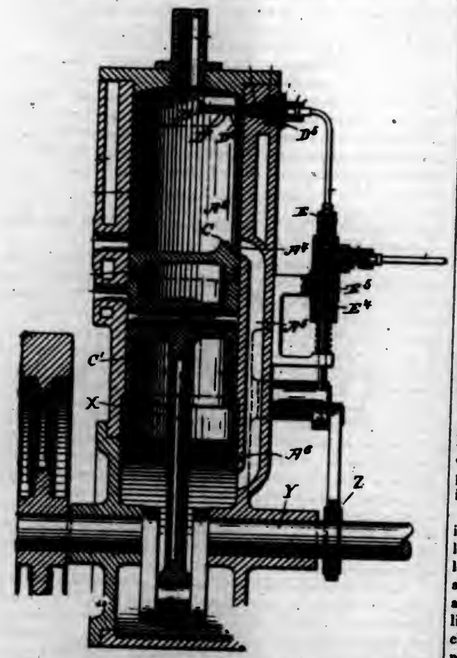
10. The combination with a drill and a motor mounted thereon, of means for coupling the motor with the operating mechanism of the drill including suitable gearing, and a gear-case having flanges interlocking with flanges formed on the motor-casing, the flanges of both parts being interrupted to permit the removal of the gear-case by a partial rotary movement.

784,758. SPEED-VARYING MECHANISM. MILTON O. REEVES, Columbus, Ind., assignor to Reeves Pulley Company, Columbus, Ind., a Corporation of Indiana. Filed Dec. 21, 1903. Serial No. 186,122.

Claim.—In a speed-varying mechanism, the combination, with a shaft, of a pair of disks axially movable upon said shaft, a collar carried by the shaft between the disks, and a plurality of pins secured to the collar parallel with the shaft and projected through the disks.



784,759. GAS-ENGINE. CANFIELD J. ROUSSEAU, Bridgeport, and ELMER C. FERRIS, Stamford, Conn., assignors, by mesne assignments, to Universal Kerosene Engine Company, a Corporation of New York. Filed Sept. 11, 1903. Serial No. 172,986.



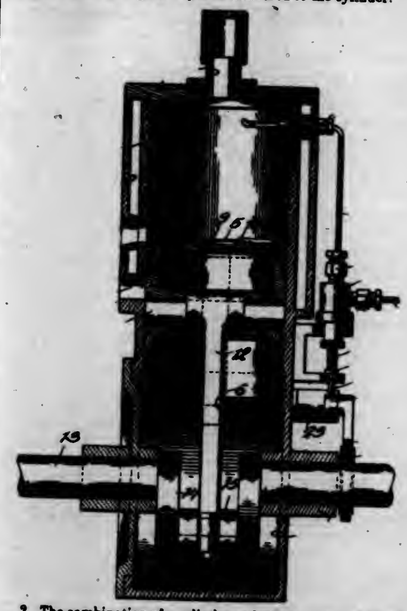
Claim.—1. In a hydrocarbon internal-combustion engine comprising a cylinder and piston reciprocating therein, a vaporizer formed of a capillary tube of heat-retaining material located wholly within the working cylinder.

2. In a hydrocarbon internal-combustion engine comprising a cylinder and piston reciprocating therein, a vaporizer formed of a capillary tube of heat-retaining material located wholly within the working cylinder, the discharge end of said tube pointing toward the cylinder-head.

3. In a hydrocarbon internal-combustion engine comprising a cylinder and piston reciprocating therein, a vaporizer formed of a capillary tube of heat-retaining material located wholly within the working cylinder and radial thereof.

784,760. GAS-ENGINE. CANFIELD J. ROUSSEAU, Bridgeport, and ELMER C. FERRIS, Stamford, Conn., assignors, by mesne assignments, to Universal Kerosene Engine Company, a Corporation of New York. Filed Apr. 11, 1903. Serial No. 152,102.

Claim.—1. The combination of a cylinder and piston reciprocating therein, a fuel-injector having a nozzle with a capillary discharge-orifice located near the inner wall of the cylinder, means for forcing regulated quantities of liquid fuel through said injector, a vaporizer consisting of a body of metal located wholly within the working cylinder adjacent to the discharge-nozzle, having its surface substantially in line with the line of discharge therefrom, and means for igniting the charge of vapor so delivered to the cylinder, said vaporizer having a portion of its surface farthest from the nozzle curved toward the cylinder-head.



2. The combination of a cylinder and piston reciprocating therein, a fuel-injector having a nozzle with a capillary discharge-orifice located near the inner wall of the cylinder, means for forcing regulated quantities of liquid fuel through said injector, a vaporizer consisting of a body of metal located wholly within the working cylinder adjacent to the discharge-nozzle, having its surface substantially in line with the line of discharge therefrom, and means for igniting the charge of vapor so delivered to the cylinder, said vaporizer having a portion of its surface farthest from the nozzle curved toward the cylinder-head, the main body of the vaporizer being trough-shaped.

3. The combination of a cylinder and piston reciprocating therein, a fuel-injector having a nozzle with a capillary discharge-orifice located near the inner wall of the cylinder, means for forcing regulated quantities of liquid fuel through said injector, a vaporizer consisting of a body of metal located wholly within the working cylinder adjacent to the discharge-nozzle, having its surface substantially in line with the line of discharge therefrom, and means for igniting the charge of vapor so delivered to the cylinder, said vaporizer having a portion of its surface farthest from the nozzle curved toward the cylinder-head, the main body of the vaporizer being trough-shaped and provided with a removable cover.

4. In a gas-engine the combination of a cylinder and piston reciprocating therein, a fuel-injector for said cylinder, means for forcing regulated quantities of liquid fuel through said injector, a vaporizer projecting into the interior of said cylinder, in the path of the discharge of said injector, and means for igniting the charge of vapor so delivered to the cylinder, said vaporizer comprising a straight portion extending substantially in the line of discharge of the injector and a discharge end curved toward the cylinder-head, the main body of the vaporizer being trough-shaped and provided with a removable cover.

5. The combination of a cylinder and piston reciprocating therein, a fuel-injector having a nozzle with a capillary discharge-orifice located near the inner wall of the cylinder, means for forcing regulated quantities of liquid fuel through said injector, a vaporizer consisting of a body of metal located wholly within the working cylinder adjacent to the discharge-nozzle, having its surface substantially in line with the line of discharge therefrom, and means for igniting the charge of vapor so delivered to the cylinder, together with separate means for supplying air to said cylinder.

784,761. HAND-THREADING LOOM-SHUTTLE. CHARLES B. SACKETT, Fall River, Mass., assignor to Sackett-Marshall Shuttle Company, Fall River, Mass., a Corporation of Rhode Island. Filed Sept. 1, 1904. Serial No. 222,916.



Claim.—1. In a loom-shuttle adapted to be threaded by hand, the combination with the shuttle-body, and the vertical thread-passage through the shuttle side terminating in the thread-outlet, of a recess in the shuttle side in the bed of which said outlet terminates, and a longitudinal bar arranged in said recess above said outlet, having one of its ends bedded in the shuttle-body or recess-wall, at one side of said vertical passage, crossing it substantially at right angles, the other end of said bar terminating above said thread-outlet substantially parallel with the fast end of said bar, space being reserved behind and around the point of said bar for a thread to pass between it and the recess-walls substantially as described and shown.

2. In a loom-shuttle adapted to be threaded by hand, the combination with the shuttle-body, the vertical thread-passage through the shuttle side, and the terminal outlet, of a recess arranged about said outlet in the bed of which said outlet terminates, and a longitudinal bar crossing said recess within its walls, having one fast end and one free end at either side of said vertical passage, said ends being arranged above said outlet and substantially parallel with each other, the ends of said bar being reversible when applied relatively to a right or a left hand shuttle substantially as described and shown.

3. In a loom-shuttle adapted to be threaded by hand, the combination with the shuttle-body having a recess, and the vertical thread-passage, of a terminal outlet arranged in the bed of said recess in the shuttle side, a longitudinal bar arranged across said recess, above said outlet, having one fast and one free end at either side of the vertical passage, said bar having a slight lateral and longitudinal curvature as it crosses the vertical passage, sufficient to lift the thread in passing along the shuttle side over the edges and corners of said vertical passage where it intersects said recess-walls, substantially as described and shown.

4. In a loom-shuttle adapted to be threaded by hand the combination with the shuttle-body and the terminal outlet of a U-shaped recess arranged about said outlet, the side walls of said recess being joined by a longitudinal wall at top, a longitudinal bar arranged across said recess beneath said top wall and above the outlet-eye, said bar having one fast and one free end, and a vertical passage through the shuttle side arranged behind said bar a short distance from it, and terminating in said outlet, substantially as described and shown.

5. In a loom-shuttle adapted to be threaded by hand, the combination with the shuttle-body having a recess in its side, and a suitable thread-passage between them, of a longitudinal thread-controlling bar arranged in said recess, having one fast and one free end, said ends being constructively reversible when applied relatively to a right or a left hand shuttle substantially as described and shown.

6. In a loom-shuttle adapted to be threaded by hand, the combination with the shuttle-body, a recess in its side, and a suitable thread-passage between them, of a longitudinal bar arranged in said recess crossing said thread-passage, having one fast and one free end, said bar having a laterally-inward-turned point, and a laterally-outward-turned curved section, substantially as described and shown.

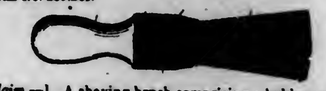
784,762. RAWHIDE BUSHING. EDGAR T. SHEPARD, Oneida, N. Y., assignor to Oneida Steel Pulley Company, Oneida, N. Y., a Corporation of New York. Filed June 24, 1904. Serial No. 213,977.



Claim.—1. A cylindrical bushing for shaft and loose-pulley bearings consisting of a continuous strip of rawhide wound spirally and having its helices adhesively secured together.

2. The herein-described bushing consisting of a strip of rawhide coiled upon itself and having its helices pressed into close engagement with each other and secured together.

784,763. SANITARY SHAVING-BRUSH. LOUIS SILVERMAN, San Francisco, and WILLIAM VINCENT, Oakland, Cal. Filed May 23, 1904. Serial No. 209,941.



Claim.—1. A shaving-brush comprising a holder and a flexible sheet of bristles rolled axially into brush form and detachably inserted in said holder, said sheet, when detached from the holder and unrolled, allowing the bristles to be opened out and thoroughly cleansed and sterilized.

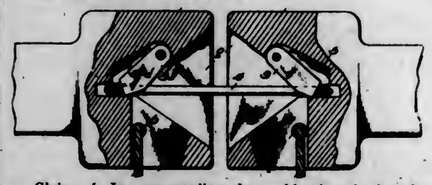
2. A readily-separable shaving-brush comprising a flexible sheet of bristles rolled into brush form, a sleeve into which one end of the rolled sheet is inserted, said sheet, when detached from the holder and unrolled, made to assume a flat sheet-like form, and means detachably binding the rolled sheet in the sleeve.

3. A readily-separable shaving-brush comprising a holder and brush fiber said fiber consisting of a rolled sheet arranged to be unrolled and spread out into a flat sheet-like form for cleansing purposes.

4. Brush fiber bound into bunch units with the units normally assembled in the form of a flat sheet to permit the fiber to be rolled into brush form and to be spread out flat at pleasure, in combination with a holder into which the rolled fiber is detachably fitted.

5. A shaving-brush comprising a brush portion formed from a flexible sheet of assembled fibers stitched together adjacent to one end whereby the fibers may be rolled into brush form and then unrolled for cleaning, means for bonding the fibers into bunch units, an interiorly-threaded sleeve for detachably receiving the rolled sheet of fibers, and a handle detachably fitting the sleeve and bearing endwise upon the rolled sheet to bind it in the sleeve.

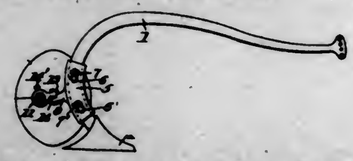
784,764. CAR-COUPLING. FRANK G. SMITH, Shelby, Ohio. Filed June 18, 1904. Serial No. 213,156.



Claim.—1. In a car-coupling, the combination of a draw-head, a coupling-hook, a coupling device for said hook, and an actuating member normally out of the path of movement of the coupling device and adapted to engage said hook in the uncoupling operation, the actuating member, when engaging the hook, being in the path of uncoupling movement of the coupling device, whereby as the coupling device is withdrawn from the draw-head, same actuates the engaging member to restore it to its normal position.

2. In a car-coupling, the combination of a draw-head, a coupling-hook mounted in the upper portion of said draw-head, a link, a shaft mounted transversely of the draw-head, a lifting-arm projected from said shaft and located forward of that part of the hook engaging the link and normally out of the path of movement of the link, said arm being mounted beneath the coupling-hook and adapted to be projected upwardly so as to engage said hook, said arm being received by the link and in the path of movement of said link when engaging the hook, whereby as the link is withdrawn from the draw-head same will actuate the arm and restore it to its normal position.

784,765. DISK LISTING-PLOW. JEFFERSON D. SMITH, Stafford, Kans. Filed Apr. 2, 1904. Serial No. 201,336.



Claim.—1. In a lister, a beam having a curved portion downward, and terminating in a foot, laterally-extending wings formed integral with the foot, a lister-point suitably secured to the laterally-extending wings and foot, a collar adapted to fit over the curved portion of the beam, said collar being provided in each side with short vertical and longitudinal slots, a bracket formed integral with the collar, an axle-box provided with a wing, said wing provided with a transversely-extending lug, an axle and disks carried by the axle as and for the purpose described.

2. In a lister-plow, a beam having a downwardly-projecting portion terminating in a foot-piece, said foot-piece being provided with laterally-extending wings formed integral with the foot-piece, a suitable point secured to the wings and foot-piece, a collar provided with vertical and longitudinal slots crossing each other at right angles, a bracket formed integral with the collar and provided with a transversely-extending groove, an axle-box having an extension-wing said extension-wing being provided with a transversely-extending lug adapted to seat in the transversely-extending groove carried by the bracket, means for securing the axle-box to the bracket, and an axle carried by the axle-box, means for preventing the rotation of the central part of the axle and disks having hollow extensions formed integral with the disk and means for securing the disks on the ends of the axle as and for the purpose set forth.

784,766. ELECTRIC-CONDUCTOR UNION. FREDRICK W. SOBS, Englewood, N. J. Filed Aug. 17, 1903. Serial No. 169,676.



Claim.—1. In electric unions, a U-shaped union having internal coöperating ribs to form a wire-retaining pocket in the bottom of the union, and being provided with substantially equally projecting edges on either side of said pocket, the free edges being bent inward to form a second wire-retaining pocket.

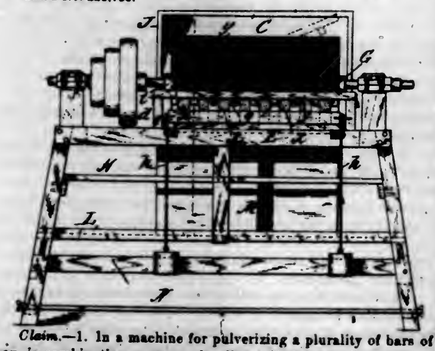
2. In electric unions, a union formed of U-sectioned sheet metal having internal projections to form a wire-retaining pocket, and having substantially equally projecting edges on either side of said pocket.

3. In electric unions, an elongated U-sectioned union having an open side through which wires may be inserted and having a depth sufficient to accommodate a plurality of wires side by side in the direction of its depth, said union having internally-projecting means to retain a wire therein.

4. In torsional electric unions, an open U-sectioned union having an internal projection to form a resilient wire-retaining pocket.

5. In torsional electric unions, an open U-sectioned union having an internal projecting rib between its curved bottom and one of its free edges to form a resilient wire-retaining pocket.

784,767. SOAP-PULVERIZING MACHINE. RICHARD H. L. TALCOTT, Brookline, Mass. Filed Aug. 27, 1901. Renewed Aug. 15, 1904. Serial No. 220,706.



Claim.—1. In a machine for pulverizing a plurality of bars of soap, in combination, a rotary abrading-cylinder, an adjacent soap-bar support, a frame or rack having upper longitudinal bars to constrain the soap bars from rising, and having transverse bars to extend between and hold the soap bars separated, a follower resting on the support behind the soap bars, and means for imparting an impelling force to the follower.

2. In a machine for pulverizing a plurality of bars of soap, in combination, a rotary abrading-cylinder, and an adjacent soap-bar support, a part hinge supported above the support and arranged to be swung to a position over the soap bars, and having separated members extending in lines at right angles to the axis of the cylinder, for disposition between and to hold separated the soap bars, a follower and means for imparting an impelling force thereto.

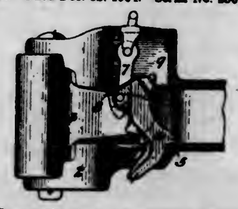
3. In a machine for pulverizing soap, in combination, a frame, a rotary cylinder mounted therein, a soap-bar support or table having a rack hinged to the soap-bar support, and having members to overlie the soap bars and members to constrain such bars in separation, the follower, and means for imparting an impelling force thereto.

4. In a machine for pulverizing soap, the combination with the frame, the soap-bar support, the follower, and means for imparting a crowding force to the follower, of the cylinder mounted in the frame and consisting of a journal-shaft, the disks *b*, the separating intermediate disks *c*, of smaller diameter, and an abrasive covering forming the peripheral surface of the cylinder.

5. In a machine for pulverizing soap, in combination, the frame A having the adjustable bar N, the shelf or support L and the shelf H, the rotary abrading-cylinder mounted in an upper portion of the frame, the horizontal soap-support adjacent the cylinder, the rack or frame G comprising the longitudinal upper bars, *f*, and the depending transverse bars *g*, said frame being hinged to swing upwardly away from, and into approached relation to, the soap-support, the follower, the sheave-guided flexible connections attached thereto having the weights, the cylinder-inclosing casing J and the powdered soap-receptacle beneath the cylinder resting on said support L and adapted to be drawn therealong from under the cylinder, all arranged and combined for coöperative action, substantially as described.

6. In a machine for pulverizing soap, in combination, the abrading-cylinder and an adjacent table-like soap-bar support, and means for constraining the bars of soap in their parallel movements toward the cylinder, a follower for pressing the soap bars, a plate *o* to intercept soap remnants and the grating *n* outwardly beyond the plate, and the receptacle M, beneath the cylinder, substantially as described.

784,768. CAR-COUPLING. CLINTON A. TOWNE, Cleveland, Ohio, assignor to The National Malleable Castings Company, Cleveland, Ohio, a Corporation. Filed Dec. 12, 1904. Serial No. 236,554.



Claim.—1. In combination with a coupler and knuckle, a locking and opening piece contained in the coupler and adapted when locked to rest with its upper end under the wall of the coupler-head; substantially as described.

2. In combination with a coupler and knuckle, a locking and opening piece contained in the coupler and adapted when locked to rest with its upper end under the wall of the coupler-head at the base of the recess in which the lock moves; substantially as described.

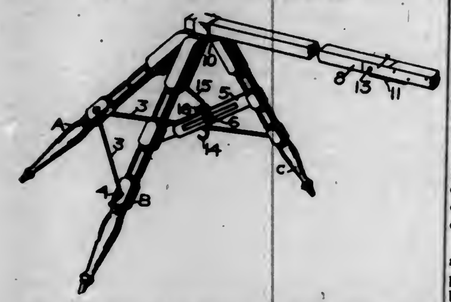
3. In combination with a coupler and knuckle, a locking and opening piece contained in the coupler and adapted when locked to rest with its upper end under the wall of the coupler-head, and a lifting-link which engages the wall of the coupler-head and retains the locking and opening piece; substantially as described.

784,769. COMBINATION HAMMOCK AND CANOPY SUPPORT. WILLIAM VINCENT, Oakland, Cal. Filed May 2, 1904. Serial No. 206,917.

Claim.—1. An end support for hammocks comprising a plurality of legs hinged together at one end and arranged when folded to lie contiguous to and parallel with each other, hinged, pivotally-connected adjustable braces carried by opposed legs and projecting in overlapping planes, a clamp uniting the overlapping portions of the braces, means connecting the clamp with a third leg, and pivoted braces carried by the third of said legs engaging said opposed connected legs.

2. An end support for hammocks comprising a plurality of legs

hinged together at one end and arranged when folded to lie contiguous to and parallel with each other, opposed of said legs connected by hinged, pivotally-connected adjustable braces, pivoted braces carried by a third of said legs engaging said opposed connected legs, a screw and a clamp-nut uniting said adjustable braces, and hammock-sustaining means carried by the said clamp-nut.



3. An end support for hammocks comprising a plurality of legs hinged together at one end and arranged when folded to lie contiguous to and parallel with each other, opposed of said legs connected by hinged, pivotally-connected adjustable braces, a bolt passing through overlapping portions of the braces and a nut securing said bolt, pivoted braces carried by a third of said legs engaging said opposed connected legs, hammock-sustaining means carried by the said clamp-nut, and a supporting connection between the third leg and said hammock-sustaining means.

4. An end support for hammocks comprising a tripod, a clamp to which the legs of said tripod are hinged, braces connecting said legs, hammock-sustaining means carried by the braces between two of said legs and brace means connecting the third leg and said hammock-sustaining means.

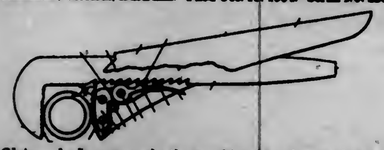
5. An end support for hammocks comprising a ridge-pole, a tripod, a clamping-sleeve to which the legs of the tripod are hinged said sleeve adjustably secured to the ridge-pole, foldable braces connecting two opposite legs of the tripod, hammock-supporting means carried by the braces, and a brace between the foldable braces and the third leg of the tripod.

784,770. AUTOMATIC WRAPPER SEAL AND LOCK. Edmund F. Webber, New York, N. Y. Filed Mar. 16, 1904. Serial No. 198,322.



Claim.—The combination of the outside and inside seal-plates having the two pairs of coincident slots respectively in different radial lines, inside staple having the oppositely-placed hooks of the head, the prongs of said staple adapted to be inserted through the slots of one pair, and the outside staple having prongs adapted to be inserted through the slots of the other pair and into the hooks of the inside staple, said prongs and hooks adapted to be clenched on the inside seal-plate by hand-pressure and the prongs of the inside staple adapted to be similarly clenched on the head of the outside staple and on the outside seal-plate.

784,771. PIPE-WRENCH. James Adams and Charles A. Cross, Hamilton, Victoria, Australia. Filed Oct. 16, 1904. Serial No. 228,918.



Claim.—1. In a wrench, the combination of a notched or serrated handle having a jaw on one end, with a relatively adjustable handle slidable upon the first handle, and having depending jaws embracing the handle, a pawl pivoted between the jaws adapted to engage the serrations on the first handle, a bridge-piece between the jaws against which the pawl bears to relieve its pivot of strain, and a spring to keep the pawl in engagement with the serrations of the handle, substantially as described.

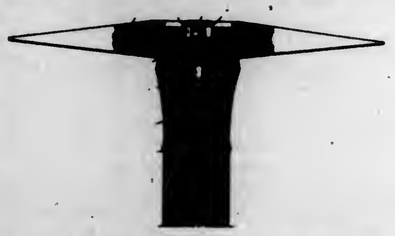
2. In a wrench, the combination of a relatively stationary handle notched or serrated on its under side and having a jaw on one end; with a relatively adjustable handle U-shaped in cross-section to embrace the handle, the front end of said handle forming jaws opposite the fixed jaw, a bridge-piece secured between the jaws of the adjustable handle, a pawl pivoted between the jaws adapted to engage the serrations of the stationary handle, and a spring bearing against the bridge-piece and pawl and yieldingly holding the latter in engagement with the serrations, for the purpose and substantially as described.

3. In an improved pipe-wrench a handle having an integral jaw at one end thereof, serrations in the said handle near the jaw and teeth on the inner face of the said jaw, in combination with a handle having at one end cam-shaped jaws consisting of two legs and provided with teeth, a bridge-piece between said legs, a pawl and a cross-pin between said legs, a plate-spring retained by said cross-pin, one end of the said plate-spring bearing against the bridge-piece and the outer against an intermediate portion of a pawl, all substantially as described.

4. The combination with the relatively fixed jaw and handle, of an adjustable handle having cam-shaped jaws on one end, a bridge-piece between the said jaws, a circumferential bearing upon said bridge-piece, a cross-pin between the jaws, a plate-spring intermediately retained by said, cross-pin one end of said spring bearing against the bridge and the outer against a pawl, a pivot-pin between said legs, and a pawl pivoted to said pivot-pin, engaging teeth on the fixed jaw, substantially as and for the purpose described.

5. An improved pipe-wrench consisting of a stationary handle having serrations therein, and an integral jaw having teeth thereon, in combination with a handle U-shaped in cross-section having at one end cam-shaped jaws provided with teeth, a bridge-piece between said jaws, a circumferential bearing on said bridge-piece, a cross-pin between said jaws, a plate-spring one end of which bears against the bridge-piece and the other against a pawl, a pivot-pin between said legs, a pawl pivoted to said pivot-pin, said pawl having at the outer end a finger-hold and an intermediate catch, all substantially as described.

784,772. DETACHABLE TOOL-HANDLE. William Ashbey, Des Moines, Iowa. Filed Apr. 11, 1904. Serial No. 202,571.



Claim.—1. The combination with a tool having a handle-eye and also having notches adjacent to the upper end of the handle-eye, of a cross-piece resting in said notches and formed with a central opening, a handle-socket having a body portion introduced into the handle-eye, said body portion formed with a notch at its upper end to receive said cross-piece and a screw-threaded rod passed through the cross-piece and seated in the socket.

2. The combination with a tool having a handle-eye tapered from its lower to its upper end, of a cross-piece at the upper end of the handle-eye resting on the tool-head, a handle-socket having a solid body portion tapered to fit the handle-eye and susceptible of projecting above the top of a tool-head having a handle-eye of sufficient size and formed with a notch to receive the cross-piece, and a screw-threaded rod mounted in the cross-piece and seated in the body portion of the socket.

3. The combination with a tool formed with a handle-eye tapered from its upper to its lower end and also formed with notches in the sides of the top portion of the tool adjacent to the handle-eye, of a cross-piece resting in said notches and formed with a central opening, a handle-socket formed with a solid body portion tapered to fit the handle-eye and formed with a transverse notch at its upper end to receive said cross-piece, a handle secured in the socket and a headed screw-threaded rod passed through the cross-piece through the notch in the top of the handle-socket and seated in the handle-socket, said rod formed with an angular opening in its head.

784,773. PUMP. Augustus A. Ball, Jr., Lynn, Mass., assignor, by mesne assignments, to General Electric Company, a Corporation of New York. Filed Aug. 10, 1903. Serial No. 168,982.



Claim.—1. In a pump, the combination of a cylinder, a plunger working therein without substantial clearance between them, inlet and discharge ports, a rod which is connected to the plunger through a lost-motion connection, and a valve at the head of the plunger which is positively actuated by the rod for controlling the transfer of fluid from one side of the plunger to the other.

2. In a pump, the combination of a cylinder, a plunger which works in the cylinder without clearance, a valve in the head of the plunger which controls the passage of fluid through the latter, and a rod which actuates the plunger and positively opens and closes the valve.

3. In a pump, the combination of a casing provided with suction and discharge chambers and a plunger-cylinder intermediate the same, a hollow plunger having a suction-port at one end, a plunger-rod which extends into the plunger from the end opposite to that of the suction-port, a valve at the end of the rod adapted to open and close the suction-port, and an outwardly-opening discharge-valve in the discharge-chamber.

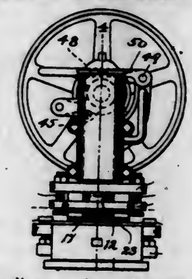
4. In a pump, the combination of a casing provided with suction and discharge chambers and a plunger-cylinder intermediate the same, a hollow plunger having an inlet-opening at one end and a suction-port at the opposite end, a plunger-rod which extends through the plunger from the inlet end thereof and adapted to move independently of the plunger at the beginning of each stroke, a valve on the end of the plunger-rod for opening and closing the suction-port by the independent movement of the rod, and a valve in the discharge-chamber.

5. In a pump, the combination of a casing provided with suction and discharge chambers and a plunger-cylinder intermediate the chambers, a hollow plunger having an inlet-opening at one end and a suction-port at the opposite end or head, an internal annular flange between the discharge-chamber and plunger-cylinder forming a seat for the head of the plunger and having a discharge-port registering with the suction-port, a plunger-rod adapted to open and close the suction-port, and a spring-actuated valve controlling the discharge-port.

6. In a pump, the combination of a casing, a hollow plunger provided with an inlet-opening at one end and a suction-port at the opposite end, a lip formed at the inlet end of the plunger, a plunger-rod extending into the plunger through the inlet end thereof, a valve-disk formed at the end of the plunger-rod, adapted to open and close the suction-port, and spaced shoulders provided on the plunger-rod and adapted to alternately engage the lip of the plunger.

7. In a pump, the combination of a casing, a hollow plunger provided with an inlet-opening at one end and a suction-port at the opposite end, a plunger-rod extending into the hollow plunger, a valve on the end of the plunger-rod adapted to open and close the suction-port, means permitting a partial movement of the plunger-rod independently of the plunger for operating the suction-valve, and guide-lugs at the valve end of the plunger-rod engaging the inner wall of the plunger.

784,774. PUNCHING-PRESS. Lyman L. Barber, Charlestown, Mass. Filed May 4, 1904. Serial No. 206,362.



Claim.—1. In a die-press, the combination of a press member having a die-seat, a detachable die member having a base for attachment to said seat, a clamping device having portions connected to simultaneously engage said die-base at substantially opposite points thereof to clamp it to the press member, and means to actuate said clamping device.

2. In a die-press, the combination of a press member having a die-seat, a clamping-yoke having grippers to engage a die member and separated by a space for the entrance of said member, and a slidable wedge operating on said yoke to secure the die member to said seat.

3. In a die-press, the combination of press members relatively mounted to approach and recede, die-clamps on the respective press members, and means to simultaneously actuate said die-clamps to cause them to clamp the dies.

4. In a die-press, the combination of press members relatively mounted to approach and recede, die-clamps on the respective press members, and means including slidable wedges and actuating mechanism therefor, for operating said die-clamps to cause them to clamp the dies.

5. In a die-press, the combination of relatively movable press members having die-clamps, wedges therefor, operating means adapted to simultaneously actuate said wedges, and an equalizing connection between said operating means and said wedges.

6. In a die-press, the combination of press members having die-clamps, means for simultaneously actuating said clamps including an equalizing-lever, and stop-abutments acting as fulcrums for the opposite ends of said lever.

7. In a die-press, the combination of relatively movable press members having die-clamps, sliding wedges to actuate said clamps, an equalizing-lever having a pivotal connection with said wedges, an oscillatory operating member having a pivotal connection with said lever, and fulcrum-stops for the opposite ends of said equalizing-lever.

8. In a die-press, the combination of a movable press-plunger, a cooperating press member, a die having members removably attached to said plunger and press member, a rotary driving device for said plunger, a clutch to connect said driving device with the plunger, means to automatically disengage said clutch after a complete cycle of the plunger, and auxiliary means to automatically disengage the clutch after a half-cycle of the plunger.

9. In a die-press, the combination of a lower die-seat, a movable plunger, a die consisting of a lower plate to fasten to the lower die-seat and an upper plate having punches to fasten to the movable plunger, clamping means having portions connected to simultaneously engage and fasten said parts of the die to the lower die-seat and movable plunger, and means to simultaneously actuate the portions of said clamping device.

10. In a die-press, the combination of a movable press-plunger, a die member, a clamp therefor, and a wedge carried by said plunger for setting the clamp to secure the die member to the plunger.

784,775. LAMP-SOCKET. Henry Bayer, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed June 21, 1901. Serial No. 65,394.

Claim.—1. A lamp-socket comprising a porcelain base having a neck provided with a recess, a lamp-receptacle screwed on the out-

side of said neck and covering said recess, and a line-terminal plate having one end lying in said recess and attached to said receptacle by means of solder poured into said recess about said plate, and the other end carrying a binding-screw.



2. A lamp-socket comprising a base having a deep narrow radial slot, and a W-shaped metal strip in said slot, one end of said strip resting against the end of the base, and the other end against the side of said base and carrying a binding-screw.

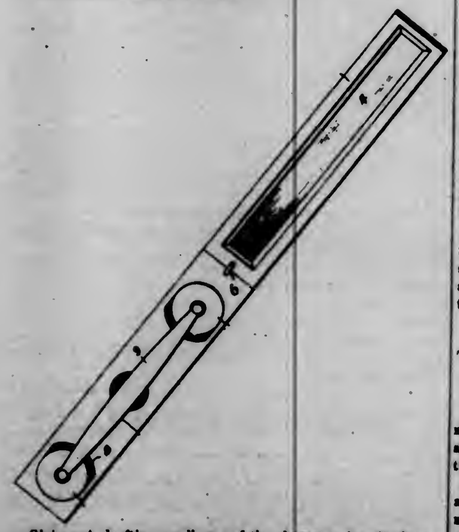
3. A lamp-socket comprising a base having a flange and a neck, and containing a deep radial slot extending through said neck and into the flange, and a shallow recess in one side of said neck, a strip in said slot, a screw extending centrally through the base into one end of said strip, a line-terminal plate in said recess, and a lamp-receptacle fitting on said neck and soldered to said plate.

784,776. RIDING ATTACHMENT FOR HARROWS. CHARLES H. BAYTON, Chatsworth, Ill. Filed Nov. 23, 1904. Serial No. 233,855.



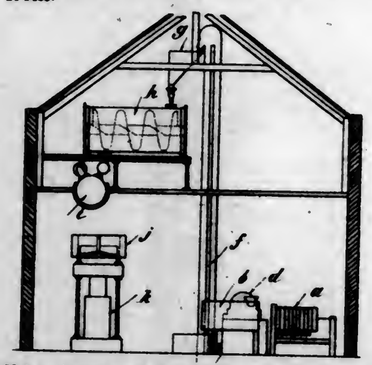
Claim.—In combination in a riding attachment for harrows and the like, a frame composed of a single flat bar of metal set on edge and bent substantially in the form of a U so as to form parallel side bars and a rear cross-bar connecting the parallel bars, the front ends of the side bars being curved downwardly and having openings therein, an arch composed of flat metal extending over the frame and being secured to the side bars thereof, said arch having its lower ends projecting below the lower edges of the side bars, a shaft supported in the said lower extensions of the arch, a wheel journaled on the shaft, a cross-bar connecting the side bars of the frame directly in front of the wheel, inclined braces connecting the arch with the frame and a seat supported on the arch, substantially as described.

784,777. INK-PAD. GEORGE C. BRASSEUR, Chinaing, Tex. Filed Mar. 17, 1904. Serial No. 198,690.



Claim.—A drafting appliance of the character described comprising a ruler having a stepped edge, said ruler being also provided with an instrument-receiving recess in one face and a second recess within said face, an ink-pad within said second recess, a retaining-frame hinged to the ruler and adapted to inclose and partly overlap the pad and its recess, the side edges of the frame aligning with the adjoining edges of the ruler, and means for locking the retaining-frame upon the pad.

784,778. PROCESS OF MAKING CATTLE-FOOD CAKE. MAURICE J. BOUTTEAU, Anzin, France. Filed Apr. 22, 1904. Serial No. 204,463.



Claim.—A process of making cattle-food cakes consisting in forcing beer-yeast through filtering-presses in order to obtain dry cakes of yeast, in heating said cakes of dry yeast with a suitable quantity of molasses, in grinding barley-radicals previously cleaned with dry malt-waste, in pouring the liquid mixture of yeast and molasses into the ground mixture of barley radicals and malt-waste, in mixing the whole while it is heated at a suitable temperature, and in pressing the mass in a hydraulic press in order to obtain cakes, substantially as and for the purpose set forth.

784,779. CALF-WEANER. FRANCIS M. BURGE, Linton, N. D. Filed Mar. 8, 1904. Serial No. 197,694.



Claim.—1. In a device of the class described, the combination with a frame, of braces extending transversely of said frame, a covering for said frame, means secured to the frame for attaching the device, and means on the frame adapted to engage the nose of the animal when the frame is forced upward.

2. A device of the class described, comprising a frame, bearings on said frame, spring-pressed fingers within said bearings, and resilient means secured to said frame adapted to engage the nose of the animal when the frame is raised, to limit the upward movement thereof.

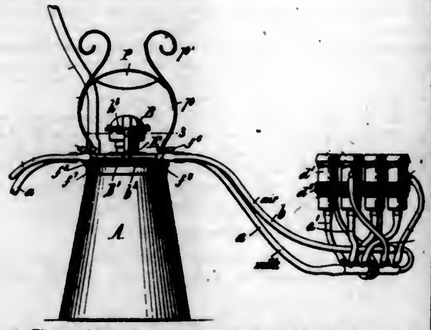
3. In a device of the class described, the combination with a frame, of braces extending transversely of said frame, a covering for said frame, means secured to the frame for attaching the device, and an arched spring-wire secured to the covering and adapted to engage the nose of the animal to prevent further upward movement thereof.

784,780. MILKING-MACHINE. LOUIS BURRELL, Littlefalls, N. Y., assignor to D. H. Burrell & Company, Littlefalls, N. Y. Filed May 13, 1904. Serial No. 207,744.

Claim.—1. The combination of a teat-cup having a movable inner wall, an air-chamber outside said wall and a milk-chamber inside said wall, and means for producing alternating vacuum pulsations in both of said chambers, substantially as set forth.

2. The combination of a teat-cup having a movable inner wall, an air-chamber outside said wall and a milk-chamber inside said wall, means for producing alternating vacuum pulsations in both of said chambers, and means for alternately admitting air to said chambers, substantially as set forth.

3. The combination of a teat-cup having a movable inner wall, an air-chamber outside said wall and a milk-chamber inside said wall means for producing vacuum pulsations in said air-chamber, and an automatic air-inlet valve which is opened by suction applied to the air-chamber and admits air to the milk-chamber, substantially as set forth.



4. The combination of a teat-cup having a movable inner wall, an air-chamber outside said wall and a milk-chamber inside said wall means for producing alternating vacuum pulsations in both of said chambers, and an automatic air-inlet valve which is opened by suction applied to the air-chamber and admits air to the milk-chamber, substantially as set forth.

5. The combination of a teat-cup having a movable inner wall and an air-chamber outside said wall, an air-passage connected with said outer chamber, a milk-passage connected with the chamber within said movable wall, an exhausting means, and a pulsator which places the exhausting means alternately in communication with said inner and outer chambers, thereby producing alternating vacuum pulsations in both chambers, substantially as set forth.

6. The combination of a teat-cup having a movable inner wall and an air-chamber outside said wall, an air-passage connected with said outer chamber, a milk-passage connected with the chamber within said movable wall, an exhausting means, and a pulsator which places the exhausting means alternately in communication with said inner and outer chambers, thereby producing alternating vacuum pulsations in both chambers, and which is provided with an air-inlet which admits air to the air-passage and outer chamber when it applies the exhaust to the milk-passage and inner chamber, substantially as set forth.

7. The combination of a teat-cup having a movable inner wall and an air-chamber outside said wall, an air-passage connected with said outer chamber, a milk-passage connected with the chamber within said movable wall, an exhausting means, a pulsator which places the exhausting means alternately in communication with said inner and outer chambers, thereby producing alternating vacuum pulsations in both chambers, and which is provided with an air-inlet which admits air to the air-passage and outer chamber when it applies the exhaust to the milk-passage, and air-inlet means separate from said pulsator for admitting air to the milk-passage when the exhaust is cut off from the same by the pulsator, substantially as set forth.

8. The combination of a teat-cup having a movable inner wall and an air-chamber outside said wall, an air-passage connected with said outer chamber, a milk-passage connected with the interior of said inner wall, and a pulsator-valve connected with said air and milk passages and having a milk-port, an air-exhaust port and an air-inlet port, said ports being so arranged that either said milk-port and said air-inlet port are in register with said milk-passage and said air-passage, respectively, or said air-exhaust port is in register with said air-passage and said milk-port is closed, substantially as set forth.

9. The combination of a teat-cup having a movable inner wall and an air-chamber outside of said wall, an air-passage connected with said outer chamber, a milk-passage connected with the interior of said movable wall, a pulsator which admits air to said air-passage and simultaneously applies suction to said milk-passage and which alternately applies suction to said air-passage and cuts off the suction from said milk-passage and the interior of said movable wall, and means for admitting air to said milk-passage when the suction is cut off from the same, substantially as set forth.

10. The combination of a teat-cup having a movable inner wall and an air-chamber outside said wall, an air-passage connected with said outer chamber, a milk-passage connected with the chamber within said movable wall, an exhausting means, and a pulsator having a valve-casing which is connected with said exhausting means and provided with a milk-port and an air-port, and a reciprocating valve arranged in said casing and provided with a milk-port, an air-exhaust port and an air-inlet port, said air-exhaust port and air-inlet port being adapted to register alternately with the air-port of the valve-casing, substantially as set forth.

11. The combination of a milk-receptacle, means for exhausting the same, a pulsator having an upright valve-cylinder which opens at its lower end into said receptacle, a pulsator-valve arranged to move up and down in said cylinder and exposed to the suction in the receptacle, whereby the valve is caused to move downwardly, and means for moving the valve upwardly, substantially as set forth.

12. The combination of a milk-receptacle, means for exhausting the same, a pulsator having an upright valve-cylinder which opens at its lower end into said receptacle, and a pulsator-valve arranged to move up and down in said cylinder and exposed to the suction in the receptacle, whereby the valve is caused to move downwardly, said valve being provided with a milk-port, an air-exhaust port, and an air-inlet port, substantially as set forth.

13. The combination of a milk-receptacle, means for exhausting the same, a pulsator having an upright valve-cylinder which is open at its upper end to the atmosphere and communicates at its lower end with the milk-receptacle, said cylinder having a milk-port and an air-port in its side, and a pulsator-valve in said cylinder having a milk-port adapted to register with the milk-port of the cylinder and opening through the lower end of the valve, an air-exhaust port adapted to register with the air-port of the cylinder and opening through the lower end of the valve, and an air-inlet port adapted to register with the air-port of the cylinder and opening to the atmosphere through the upper end of the valve, substantially as set forth.

14. The combination of a teat-cup, an exhausting means, and a pulsator having a valve-casing open at one end to the atmosphere and at the other end to the exhausting means, a reciprocating pulsator-valve arranged in said casing, an exhaust-chamber provided with a movable member which is connected with said valve for moving the same in one direction, and means for alternately connecting said exhaust-chamber with the exhausting means or with the atmosphere, substantially as set forth.

15. The combination of a milk-receptacle, means for exhausting the same, a pulsator having a valve-casing which is open at one end to the atmosphere and at the other end to the receptacle, a reciprocating pulsator-valve arranged in said casing, an exhaust-chamber provided with a movable member which is connected with said valve for moving the same in one direction, and means for alternately connecting said exhaust-chamber with said milk-receptacle or with the atmosphere, substantially as set forth.

16. The combination of a milk-receptacle, means for exhausting the same, a pulsator having a valve-casing which is open at its lower end to the receptacle and at its upper end to the atmosphere, a piston-valve adapted to move up and down in said casing and exposed to the suction in said receptacle, an exhaust-chamber arranged above said valve and provided with a movable member which is connected with said valve for raising the same, and means for alternately applying suction or admitting air to said exhaust-chamber, substantially as set forth.

17. The combination of a milk-receptacle, means for exhausting the same, a pulsator having a valve-casing which is open at its lower end to the receptacle and at its upper end to the atmosphere, a piston-valve adapted to move up and down in said casing and exposed to the suction in said receptacle, an exhaust-chamber arranged above said valve and provided with a movable member which is connected with said valve for raising the same, and a reversing-valve by which said exhaust-chamber is alternately connected with said receptacle or with the atmosphere, substantially as set forth.

18. The combination of a teat-cup, an exhausting means, and a pulsator having a valve-casing open at one end to the exhausting means and at the other to the atmosphere, a piston-valve adapted to reciprocate in said casing and exposed to the suction created by the exhausting means, an exhaust-chamber provided with a movable member which is connected with the valve for moving the same in one direction, a reversing-valve by which the exhaust-chamber is alternately connected with the exhausting means or with the atmosphere, and a spring reversing mechanism which is operated by said reciprocating pulsator-valve and which shifts said reversing-valve at the end of the stroke of said pulsator-valve, substantially as set forth.

19. The combination of a milk-receptacle, means for exhausting

the same, a pulsator having a valve-casing which is open at its lower end to the receptacle and at its upper end to the atmosphere, a piston-valve adapted to move up and down in said casing and exposed to the suction in said receptacle, an exhaust-chamber arranged above said valve and provided with a movable member which is connected with said valve for raising the same, a reversing-valve by which said exhaust-chamber is alternately connected with said receptacle or with the atmosphere, and a spring reversing mechanism which is operated by said reciprocating pulsator-valve and which shifts said reversing-valve at the end of the stroke of said pulsator-valve, substantially as set forth.

20. The combination of a milk-receptacle, means for exhausting the same, a pulsator having a valve-casing which is open at one end to the atmosphere and at the other end to the receptacle, a reciprocating pulsator-valve arranged in said casing, an exhaust-chamber provided with a movable member which is connected with said valve for moving the same in one direction, a conduit leading to said exhaust-chamber, and a reversing-valve which has an air-port and an exhaust-cavity and which alternately places said passage in communication with said receptacle or with the atmosphere, substantially as set forth.

21. The combination of a milk-receptacle, means for exhausting the same, a pulsator having a valve-casing which is open at one end to the atmosphere and at the other end to the receptacle, a reciprocating pulsator-valve arranged in said casing, an exhaust-chamber having a movable member which is connected with said valve, an exhaust-port leading to the milk-receptacle and a passage leading to the exhaust-chamber, said port and passage being arranged in the base-plate of the pulsator, a reversing-valve arranged on said base-plate over said port and passage and provided with an air-port and an exhaust-cavity, and means for shifting said reversing-valve from said pulsator-valve, substantially as set forth.

22. The combination of a milk-receptacle, means for exhausting the same, a pulsator having a base-plate applied to the same and provided with a valve-casing, a pulsator-valve arranged therein, an exhaust-chamber provided with a movable member which is connected with said valve, an oscillating reversing-valve arranged on said base-plate and controlling the admission of the exhaust and the external air to said exhaust-chamber, and means for oscillating said reversing-valve from said pulsator-valve, substantially as set forth.

23. The combination of a teat-cup, an exhausting means, and a pulsator comprising a valve-casing open at one end to the exhausting means and at the other to the atmosphere, a piston-valve adapted to reciprocate in said casing and exposed to the suction created by the exhausting means, an exhaust-chamber provided with means for moving said piston-valve, a reversing-valve by which the exhaust-chamber is alternately connected with the exhausting means or the atmosphere, and connecting reversing mechanism composed of a reversing-lever which is oscillated from the reciprocating valve, a valve-lever connected with the reversing-valve, a spring-bar having opposite ends connected with said levers, and escapement-stops on said levers, substantially as set forth.

24. The combination of teat-cups, a main milk-pipe, a connector interposed between the main milk-pipe and teat-cups, an automatic air-inlet valve in said connector adapted to admit air to said milk-pipe and teat-cups, an air-pipe connected with said connector, and means for producing pulsations in said air-pipe, which pulsations control said air-inlet valve, substantially as set forth.

25. The combination of teat-cups provided with branch air and milk pipes, a pulsator, a connector to which said branch pipes are connected, main air and milk pipes connected with said connector, and an air-inlet valve in said connector whereby air is admitted to the milk-pipes and which is controlled by the pulsations in the main air-pipe, substantially as set forth.

26. The combination of teat-cups, a main milk-pipe connected therewith, a connector interposed between the main milk-pipe and the teat-cups, an automatic air-inlet valve in said connector which seats itself toward the milk-pipe, an air-pipe which opens against the back of the valve, and means for producing pulsations in said air-pipe, substantially as set forth.

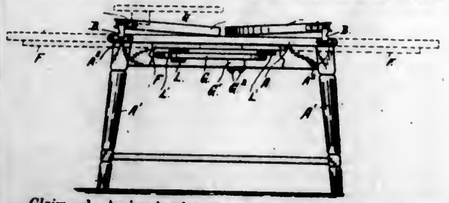
27. The combination of teat-cups, branch milk-pipes and air-pipes connected therewith, a main air-pipe and a main milk-pipe, a connector interposed between said main pipes and branch pipes and comprising two passages, one connecting with the milk-pipes and the other with the air-pipes, and a valve-chamber and automatic air-inlet valve arranged between said two passages, substantially as set forth.

28. A teat-cup connector comprising a valve-chamber, an air-inlet valve arranged therein, a milk-passage arranged on one side of said chamber and provided with a seat against which said valve closes, an air-inlet which is in communication with the milk-passage when the valve is open, and an air-passage which opens on the rear side of said valve, substantially as set forth.

29. A teat-cup connector comprising a valve-chamber, a diaphragm-valve arranged therein, a milk-passage arranged on one side of the valve and provided with a seat against which said valve closes, an air-inlet arranged in the chamber on the same side of the diaphragm-valve, milk-pipe connections provided on said milk-passage, an air-passage opening into said valve-chamber on the opposite side or back of the diaphragm-valve, and air-pipe connections provided on said air-passage, substantially as set forth.

30. The combination of teat-cups, each having an outer air-chamber and an inner milk-chamber, a milk-pipe and an air-pipe, means for exhausting said pipes, a connector interposed between said pipes and said teat-cups, and an automatic air-inlet valve in said connector which seats itself toward the milk-pipe and is opened by suction applied to the air-pipe, substantially as set forth.

784,781. **COMBINED IRONING-BOARD AND TABLE.** STEWART K. DAVIS, Denver, Colo. Filed Jan. 11, 1904. Serial No. 188,637.



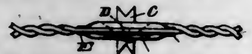
Claim.—1. An ironing-board consisting of a central, relatively stationary part mounted upon legs, and two folding parts hinged to the outer extremities of the stationary part, and adapted to be extended to occupy the same plane as the stationary part, a pair of links connecting each folding part with the stationary part, and a pin mounted on the stationary part outside of each link-pivot, each link being provided with a recess adapted to engage said pin when the folding part is in the extended position.

2. In an ironing-board construction, the combination with a central, relatively stationary part mounted upon legs, of two folding parts, links connecting the folding parts with the stationary part, and pins mounted on the stationary part on opposite sides of each link-pivot, one pin being in position to prevent further movement of the link when the folding part is in the folded position, and the other pin being in position to engage the link and support the folding part when in the extended position.

3. A combination table and ironing-board, consisting of a relatively stationary part mounted upon legs, folding parts, links connecting the folding parts with the extremities of the stationary part, pins mounted on the stationary part on opposite sides of the like-pivots, one set of the pins limiting the movement of the links when the folding parts are folded, and the other set of pins supporting the folding parts when extended, and a removable top having depending flanges adapted to inclose the ironing-board features when the folding parts are in the closed position, substantially as described.

4. An ironing-board consisting of a central, relatively stationary part mounted upon legs, two folding parts hinged to the outer extremities of the stationary part, links forming the hinging connection between the folding parts and the stationary part, the stationary part at each end being provided with a pin and each link having a notch adapted to engage the pin when the folding parts are extended, and sliding parts adapted to be extended to further support the folding parts when the latter are in the extended position.

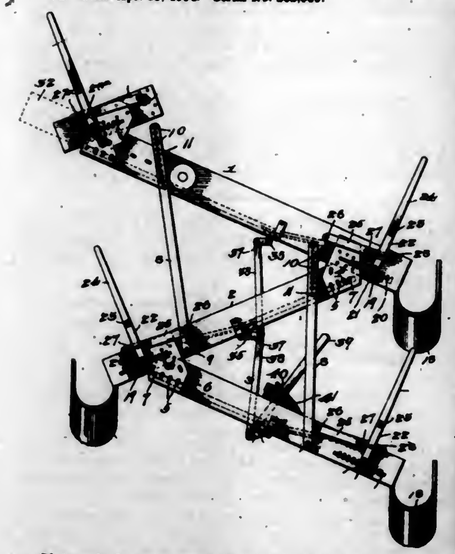
784,782. **BARB FOR WIRE FENCING.** ULRICH DURAND, Kankakee, Ill. Filed Jan. 13, 1905. Serial No. 240,937.



Claim.—1. In combination with a fence line-wire, a casing consisting of two metal strips secured together at their ends and having their outer edges bent outwardly to form recesses to receive the strands of the line-wire, and a barb revolubly mounted in the casing, substantially as shown and described.

2. In combination with a fence line-wire, a casing consisting of two metal strips secured together at their ends and having their outer edges bent outwardly to form recesses to receive the strands of the line-wire, a stud secured to one strip and pressing against the other, and a circular, pointed barb revolubly mounted on said stud, substantially as shown and described.

784,783. **COAL-SEPARATOR.** FREDERICK H. HENRY, Scranton, Pa. Filed Apr. 13, 1904. Serial No. 203,869.



Claim.—1. In a separator of the class described, a series of chutes having bottom discharge-openings, and slidable regulating-gates adjustably mounted in the discharging end of each chute at one side of the bottom discharge-opening, a swinging lever-frame having an operative connection with the gate, pivotal bars pivotally mounted upon the sides of the chutes above the gates and provided with longitudinally-slotted end portions, and combined pivot and fastening bolts connecting each lever-frame with the slotted end portions of the pair of said pivot-bars.

2. In a separator of the class described, a plurality of inclined chutes arranged one above the other in zigzag relation and having a pivotal hanger connection between their contiguous ends, and pitch-adjusting means.

3. In a separator of the class described, a plurality of inclined chutes arranged one above the other in zigzag relation and pivotally connected at their contiguous ends, and pitch-adjusting braces adjustably connecting and holding the several chutes.

4. In a separator of the class described, a plurality of inclined chutes arranged in zigzag relation and pivotally connected at their contiguous ends, and pitch-adjusting braces having a fixed point of connection at their lower ends to one chute, and an adjustable connection at their other ends with the next higher chute.

5. In a separator of the class described, a plurality of inclined chutes arranged in zigzag relation and provided at their lower end portions with pendent hanger-plates, the upper end of each chute being pivotally hung from the hanger-plates of the next higher chute and also having a plurality of pin-and-slot connections with such hanger-plates, and pitch-adjusting braces paired with the several chutes, each pair of braces being connected at their lower ends to a fixed point of attachment on one chute and provided at their other ends with a series of adjustment-holes cooperating with fastening-bolts carried by the next higher chute.

6. In a separator of the class described, an inclined chute having a receiving-table at its upper end and a short feed-deck arranged at the upper end of said chute and having a feed-regulating gate disposed oblique to the receiving-table.

7. In a separator of the class described, an inclined chute having at its upper end a receiving-table, and a short feed-deck having an adjustable mounting on the upper end of the chute and provided therein with an adjustable feed-regulating gate disposed oblique to the said receiving-table.

8. In a separator of the class described, a plurality of inclined chutes arranged one above the other in zigzag relation and having a pivotal hanger connection between their contiguous ends, and a delivery-trough arranged at the lower coal-discharging end of each chute.

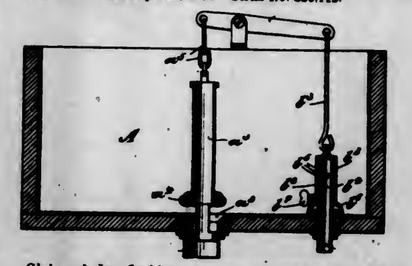
9. In a separator of the class described, a plurality of inclined chutes arranged one above the other in zigzag relation and having a pivotal hanger connection between their contiguous ends, pitch-adjusting means, and a delivery-trough arranged at the lower coal-discharging end of each chute.

10. In a separator of the class described, a plurality of inclined chutes arranged one above the other in zigzag relation and pivotally connected at their contiguous ends, pitch-adjusting braces adjustably connecting and holding the several chutes, and a delivery-trough arranged at the lower coal-discharging end of each chute.

11. In a separator of the class described, a plurality of inclined chutes having receiving-tables at their upper ends, a short feed-deck arranged at the upper end of the uppermost chute, and a pivotal hanger connection between the contiguous ends of said chutes.

12. In a separator of the class described, a plurality of inclined chutes having receiving-tables at their upper ends, a short feed-deck arranged at the upper end of the uppermost chute, a pivotal hanger connection between their contiguous ends, and pitch-adjusting means.

784,784. **AUTOMATIC FLUSHING-TANK FOR WATER-CLOSET HOPPERS.** HENRY H. FLECK and JOHN G. FLECK, Philadelphia, Pa. Filed Sept. 27, 1904. Serial No. 226,112.



Claim.—1. In a flushing apparatus, the combination with an elevated tank, of a supply-pipe leading thereto, a valve slidably connected therewith and normally controlling the outlet therefrom, a flush-pipe leading from said tank, a valve connected with said flush-pipe, and means connecting said flush-pipe valve with said supply-pipe valve; the latter adapted to hold said flush-pipe valve normally in an inoperative position and to close the same by the pressure of fluid supplied to said tank.

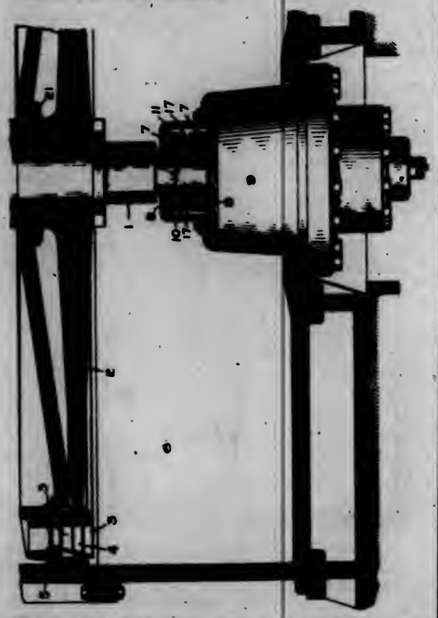
2. In a flushing apparatus, the combination with an elevated tank, of a supply-pipe leading thereto, a valve movably connected therewith, a flush-pipe leading from said tank, a valve connected with said flush-pipe, means connecting said flush-pipe valve with said supply-pipe valve, the latter adapted to close the flush-pipe valve when raised by the pressure of the fluid conducted through said supply-pipe to said tank.

3. In a flushing apparatus, the combination with an elevated tank, of a supply-pipe leading thereto and provided with outlets, a valve movably connected therewith and adapted normally to close the outlets of said supply-pipe, a flush-pipe leading from said tank, a valve connected therewith, means adapted to connect said flush-pipe valve with said supply-pipe valve to hold the same open, the supply-pipe valve adapted to close the flush-pipe valve when raised by the pressure of the fluid conducted to said tank and to permit said flush-pipe valve to open when the supply to said tank ceases.

4. In a flushing apparatus, the combination with an elevated tank, of a supply-pipe leading thereto, a flush-pipe leading from said tank, a closet-bowl seat with a movable valve controlled by the movement of said seat to permit fluid to enter said tank by actuation of said supply-pipe valve and to close at the same time the flush-pipe valve and then upon the raising of the seat and closing of its valve to open the flush-pipe valve to empty the tank into said closet-bowl, a combined valve and overflow governing the flush-pipe, means in movable connection with the supply-pipe in said tank, and means connecting said means with said flush-valve, substantially as and for the purposes specified.

5. In a flushing apparatus, the combination with an elevated tank, of a supply-pipe leading thereto, a flush-pipe leading therefrom, a closet-bowl to which the flush-pipe is connected, a movable seat on said bowl, a valve in the supply-pipe controlled by said seat, a combined valve and overflow governing the flush-pipe, a bell-shaped cap upon the extremity of the supply-pipe within the tank having a sliding movement thereon, means for limiting said sliding movement and a rocking lever connected to said cap and to said flush-valve, whereby the latter is operated by the former.

784,785. SHAFT-PACKING. FRANK H. GETTS, Chicago, Ill., assignor to General Electric Company, a Corporation of New York. Filed July 26, 1904. Serial No. 218,095.



Claim.—1. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat, an annular carrier for said ring, and soft packing for the joint between the ring and the shaft.

2. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat, an annular carrier for said ring, soft packing for the joint between the ring and the shaft, and means for compressing said soft packing.

3. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat and having a chamfer next the shaft, soft packing having a beveled face bearing on said chamfer, and a spring-actuated follower pressing against said soft packing.

4. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat and having a chamfer next the shaft, soft packing having beveled faces, one of which bears on said chamfer, and a spring-actuated follower having a beveled flange bearing on the other face of the soft packing.

5. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat, an annular carrier for said ring, a lug projecting from said carrier, and a driver projecting from said shaft and engaging said lug.

6. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat, an annular carrier for said ring having a flange, soft packing in the space between the flange and the shaft, and a follower entering said space and bearing on the packing.

7. The combination with a rotatable shaft, of a stationary seat adjacent thereto, a packing-ring bearing on said seat, an annular carrier for said ring having a flange, soft packing in the space between the flange and the shaft, a follower entering said space and bearing on the packing, a lug on the carrier-flange passing through said follower, and a driver secured to the shaft and engaging with said lug.

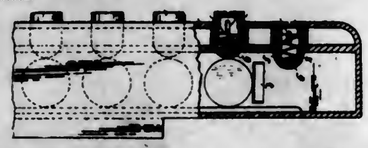
8. The combination with a rotatable shaft, of a casing concentric therewith, two opposing stationary seats inside said casing, and packing-rings carried by said shaft and rubbing on said seats.

9. The combination with a rotatable shaft, of two stationary seats opposite to each other and concentric with said shaft, two packing-rings bearing respectively on said seats, carriers for said rings, and springs between said carriers.

10. The combination with a rotatable shaft, of two stationary seats opposite to each other and concentric with said shaft, two packing-rings bearing respectively on said seats, carriers for said rings, soft packing for the joints between the shaft and said rings, followers bearing on said packing, and springs abutting between said followers.

11. The combination with a rotatable shaft, of two stationary seats opposite to each other and concentric with said shaft, two packing-rings bearing respectively on said seats, carriers for said rings springs between said carriers, interlocking lugs on said carriers, and a radial driver on said shaft engaging with said lugs.

784,786. DEVICE FOR INDICATING THE NUMBER OF CARTRIDGES IN THE MAGAZINES OF FIREARMS. FRANCESCO GOTTARDI, Innsbruck, Austria-Hungary. Filed July 7, 1904. Serial No. 215,662.

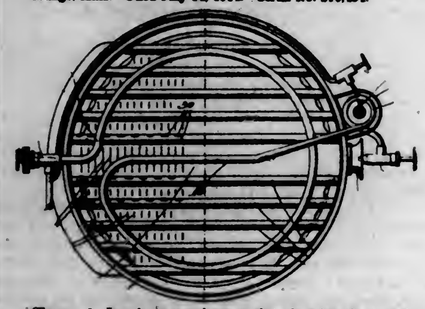


Claim.—1. An indicator for a magazine for firearms, having a number of projecting studs in the wall of its chamber adapted to be displaced, with relation to the surface of the magazine-walls, one at a time upon the successive ejection of the cartridges.

2. An indicator for a magazine for firearms, comprising a number of projecting studs in the wall of the cartridge-chamber, against which cartridges may press, and springs adapted to return the studs toward the interior of said chamber one at a time as the cartridges are ejected.

3. An indicator for firearms, comprising a number of studs in a line projecting beyond the surface of the outer wall of the cartridge-chamber, springs tending to force said studs into said chamber, the inner end of a stud being adapted to be projected against its spring by a cartridge adjacent thereto and within the chamber.

784,787. HYDROCARBON-BURNER. FREDERICK B. GROUT, Orange, Mass. Filed July 14, 1904. Serial No. 216,494.



Claim.—1. In a burner, a burner-plate forming the top of a vapor-chamber and having a plurality of burner-openings, a vaporizing-coil above said burner-plate, a valve to control the supply of liquid fuel to the vaporizing-coil, means to determine the number of burner-openings to which the vaporized fuel is delivered, and connections between said means and the valve.

2. In a burner, a burner-plate having a plurality of burner-openings, a vaporizing-coil above said plate, a valve to control the supply of liquid fuel to the vaporizing-coil, means to control the number of burner-openings to which the vaporized fuel is delivered, and mechanical connections between said means and said valve.

3. In a burner, a burner-plate having a plurality of burner-openings, a vaporizing-coil above said plate, a valve controlling the supply of liquid fuel to the vaporizing-coil, another valve controlling the number of burner-openings to which the vaporized fuel is delivered, and means connecting said valves for simultaneous operation.

4. In a burner, a burner-plate having a plurality of burner-openings, a vaporizing-coil, a valve controlling the supply of liquid fuel to the vaporizing-coil and constructed to give a minimum and a maximum flow in its two adjusted positions, means to control the number of burner-openings to which vaporized fuel is delivered, and connections between said means and the valve whereby the former is operated by the latter.

5. In a burner, a burner-plate having a plurality of burner-openings, a vaporizing-coil, a valve controlling the supply of liquid fuel to said coil, said valve being constructed to give a maximum and a minimum flow, and another valve operatively connected to the first-named valve and controlling the number of burner-openings to which the vaporized fuel is delivered, said latter valve when in one position shutting off the supply of vapor from a minimum number of burner-openings, and when in another position shutting off the supply of vapor from a maximum number of openings.

6. In a burner, a burner-plate having a plurality of burner-openings, a vaporizing-coil, a valve controlling the supply of liquid fuel to said coil, said valve being constructed to give a maximum and a minimum flow, another valve controlling the number of burner-openings to which the vaporized fuel is delivered, said valve when in one position shutting off the supply of vapor from a minimum number of burner-openings and when in another position shutting off the supply of vapor from a maximum number of burner-openings, and means to operate said valves simultaneously.

7. In a burner, a burner-plate having parallel corrugations, the ridges of said corrugations being provided with burner-openings, and air-supply pipes in the grooves between the ridges, said pipes having openings situated below the level of the burner-openings.

8. In a burner, a burner-plate having parallel corrugations, the ridges of said corrugations being provided with burner-openings, and air-supply pipes in the grooves between the ridges, said pipes having openings situated below the level of the burner-openings, and a hood beneath the burner and into which the air-supplying pipes open, the mouth of the hood opening at the front of the burner.

9 In a burner, a burner-plate forming the top of the vapor-chamber and having a plurality of burner-openings, a vaporizing-coil above the burner-plate, and mechanical means to control simultaneously the supply of liquid fuel to the vaporizing-coil and the number of burner-openings to which the vaporized fuel is delivered.

10. In a burner, a corrugated burner-plate, the ridges of said corrugations being provided with burner-openings, a valve device fitting the under side of one of said ridges and when in one position closing said openings, and when in another position opening them but preventing the passage of vaporized fuel to the other openings.

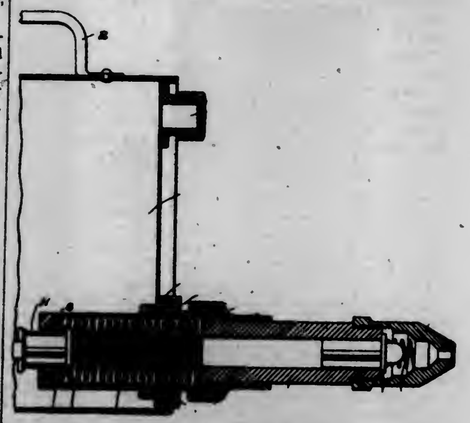
11. A burner, a corrugated burner-plate forming the top of the vapor-chamber, the ridges of the corrugations being provided with burner-openings, a valve device beneath one of said ridges and through which the vaporized fuel is admitted to the vapor-chamber, and means to turn said valve whereby the number of burner-openings to which the vaporized fuel is delivered may be regulated.

12. In a burner, a corrugated burner-plate forming the top of the vapor-chamber, the ridges of the corrugations being provided with burner-openings, a vaporizing-coil above the burner-plate, a valve device beneath one of the ridges of said plate through which valve device the vaporized fuel is admitted to the vapor-chamber, a supply-valve controlling the supply of liquid fuel to the vaporizing-coil, and operative connections between said supply-valve and valve device.

13. In a burner, a burner-plate having a plurality of burner-openings, a vaporizing-coil above said plate, a valve controlling the supply of liquid fuel to the vaporizing-coil, another valve determining the number of burner-openings to which the vaporized fuel is delivered, and mechanical means connecting said valves for simultaneous operation.

784,788. FORCE-FEED LUBRICATOR. CHARLES J. GUSTAFSON, Chattanooga, Tenn. Filed June 11, 1904. Serial No. 212,143.

Claim.—1. In a lubricating apparatus, an oil-receptacle, a casing projecting thereinto and having a valved inlet for the passage of the oil, a stuffing-box nut at the outer end of the casing, a hollow plunger guided by the casing and extending through the nut, a spring tending to force the plunger outward from the casing, a spring-closed valve at the outer end of the plunger, and a chambered nozzle secured to the end of the plunger the chamber serving to contain the closing-spring of the outer valve.



2. In a lubricator, an oil-receptacle, a casing secured thereto and having a valved inlet, a spring-pressed plunger arranged within the casing and provided with a notched flange, a stuffing-box nut secured to the threaded end of the casing and having a forwardly-extended annular flange forming a guide for the plunger, a packing-ring held in place by the nut and forming a cushion for engagement by the notched flange, a valve for closing the outlet from the plunger, and a nozzle member secured to the plunger and surrounding the valve.

3. In a lubricator, the combination with an oil-receptacle, of an internally-threaded flanged collar secured thereto, a casing having a threaded connection with the collar and provided at its inner end with a spring-closed inlet-valve, a hollow plunger guided within the casing and provided with a notched flange portion, a spring disposed between the inner ends of the casing and plunger and tending to force the latter outward, a stuffing-box nut having a threaded connection with the outer portion of the casing and provided with a forwardly-extending annular flange serving as a guide for the plunger, a washer held in place by the nut and forming a cushion for engagement by the notched flange, an outlet-valve at the outlet end of the plunger, a nozzle member having a threaded connection with the outer end of the plunger and surrounding the valve, and a coiled compression-spring arranged between the nozzle and the outlet-valve, substantially as specified.

784,789. CLASSIFYING SHEET-HOLDER FOR TYPE-WRITERS. HARRY C. HARTLEY, Washington, D. C. Filed Oct. 10, 1904. Serial No. 227,813.

Claim.—1. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, in combination with a type-writer positioned relatively to the drum for the delivery of the sheets from the drum to the type-writer platen.

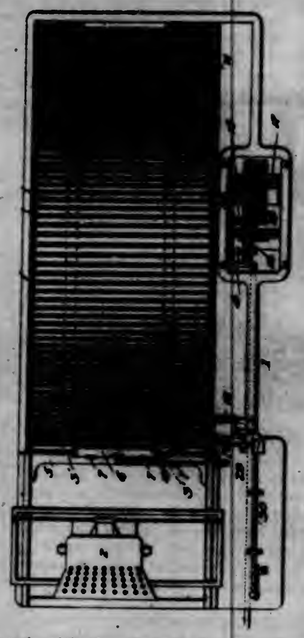
2. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, in combination with a book type-writer having its flat bed or platen positioned relatively to the drum for the delivery of the sheets from the drum to the said platen.

3. In a device of the character set forth, a rotary drum having a plurality of compartments for independently removably holding a plurality of recording-sheets, in combination with a book type-writer having its flat bed or platen positioned relatively to the drum for the delivery of the sheets from the drum to the said platen, and a carriage movable over the said bed or platen having means to engage the sheet and remove it from a compartment.

4. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, and a motor and reversing mechanism therefor for revolving the drum in either direction.

5. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, independent motors for driving

the drum independently in opposite directions, and means controlling said motors.



6. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, a motor for revolving the drum, and means for checking the revolution of the drum at any time to position any given sheet carried thereby at any desired point.

7. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, a motor for revolving the drum, a platen or bed located adjacent the drum, and means for checking the drum to position any given sheet carried by the drum adjacent the bed or platen so that said sheet may be positioned on the bed or platen.

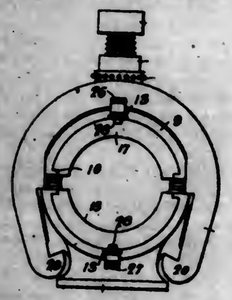
8. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, a motor for revolving the drum, a type-writer having a bed or platen located adjacent the drum, and means for checking the drum to position any given sheet carried by the drum adjacent the bed or platen so that the said sheet may be positioned on the bed or platen to be type-written on.

9. In a device of the character set forth, a rotary drum having a plurality of independent devices for independently removably holding a plurality of recording-sheets, a motor for revolving the drum, a platen or bed located adjacent the drum, means for checking the drum to position any given sheet carried by the drum adjacent the bed or platen so that said sheet may be positioned on the bed or platen, and an indicator operated by the drum.

784,790. **GUIDE FOR BATTERY-STEMS.** CHARLES F. HAWLEY, Heppner, Oreg. Filed Apr. 23, 1904. Serial No. 204,628.

Claim.—1. In a device of the character described, the combination with a bed having integral flanges; of a flanged cap extending longitudinally of the bed, inclined extensions upon the opposite sides of the bed, a yoke straddling the cap and engaging an inclined face of each extension, said yoke being formed in a single piece of material, binding means within the yoke and bearing on the cap, and detachable lining-sections within the bed and cap.

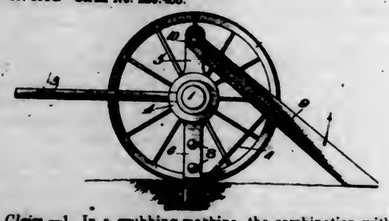
2. In a device of the character described, the combination with a bed having extensions on the sides thereof forming shoulders inclined from end to end, and inwardly-extending flanges integral with the bed; of a flanged cap extending longitudinally of the bed, a yoke formed in a single piece and adapted to straddle the cap and engage the shoulders of the extensions, lining-sections within the bed and the cap and engaged by the flanges, and spring retaining-clips for preventing longitudinal movement of the sections.



3. In a device of the character described, the combination with a bed having inwardly-extending flanges at the edges and one end thereof, and extensions upon the sides of the bed forming shoulders inclined from end to end; of a cap arranged longitudinally upon the bed and having inwardly-extending flanges at its edges and one end, substantially semicylindrical lining-sections within the bed and cap and retained by the flanges thereof, said sections being removable longitudinally, spring retaining-clips engaging the bed and cap, respectively, and overlapping the lining-sections, a yoke formed in a single piece and straddling the cap and bed, said yoke engaging the inclined shoulders of the extensions, and a clamping device within the yoke adapted to bear on the cap.

4. In a device of the character described, the combination with a bed formed in a single casting and having a semicylindrical recess in one face, and extensions at the sides of the bed forming shoulders inclined from one end to the other; of a semicylindrical cap arranged longitudinally upon the bed and having its outer walls reduced and having the outer faces of its walls parallel adjacent the edges of the cap, whereby a portion of each edge of the bed is exposed, detachable lining-sections secured within the cap and bed to form a cylindrical bearing-surface, a yoke straddling the cap and bed, inwardly-extending ears integral with the yoke and engaging the inclined shoulders of the extensions, said yoke having shoulders upon its inner faces adapted to rest upon the bed at opposite sides of the cap, and a binding device within the yoke and adapted to contact with the cap.

784,791. **GRUBBER.** WILLIAM C. HOUSE, Vienna, Tex. Filed Oct. 21, 1904. Serial No. 229,453.



Claim.—1. In a grubbing-machine, the combination with the axle and the wheels thereon, of a frame journaled on the axle and having arms extending above and below the same, a grubbing-point secured to the end of the lower arm, and means secured to the upper arm for holding the grubbing-point normally in engagement with the ground and permitting said point to move out of engagement with the ground when it meets an obstruction.

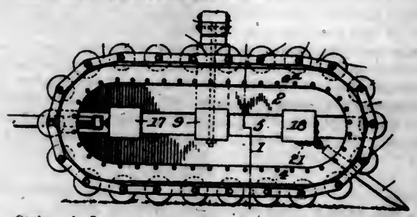
2. In a grubbing-machine, the combination with the axle and the wheels thereon, of a frame journaled on the axle and having arms extending above and below the same, a grubbing-point secured to the end of the lower arm, and a weighted lever secured at its upper end to the upper arm and extending downwardly and rearwardly from the arm, the free end being adapted to travel on the ground.

3. In a grubbing-machine, the combination of a grubbing-tool revolubly mounted, and a weighted lever secured at its upper end to the tool and at its lower end adapted to travel on the ground in the rear of the tool.

4. In a grubbing-machine, the combination with a wheeled axle, of frames revolubly mounted thereon, arms extending radially from

said frames, a grubbing-tool secured between a pair of said arms, a weighted lever secured between another pair of said frames and depending therefrom, and a tie-rod connecting said lever with said grubbing-tool.

784,792. **TRUCK.** GEORGE HUTTON, Richmond, Canada. Filed May 9, 1904. Serial No. 207,135.



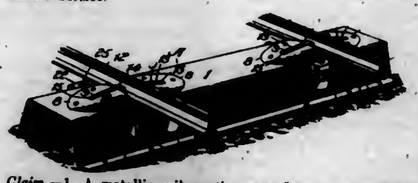
Claim.—1. In a vehicle, a plurality of supporting members, each in separate sections, channels on the peripheral faces thereof, a series of connected rollers in said channels, transverse connecting-beams secured between the sections of said members and seated in recesses in the adjacent faces thereof, a bolster supported by one of said beams, and a gravity-stop.

2. In a vehicle, supporting members, each in longitudinally-separated sections, channels on the peripheral faces of said members, a series of connected rollers in said channels, transverse connecting-beams secured between the sections of said members, a draft-tongue connected with one of said beams, a stop, a rigid bolster-supporting beam, a bolster and blocks removably connected to said bolster near its ends by links.

3. In a vehicle, supporting members, channels on the peripheral face of said members, each in longitudinally-separated sections, a series of rollers adapted to travel in said channels, links connecting said rollers, a connecting-beam, a rigid bolster-supporting beam, a bolster supported thereby and blocks removably secured to the bolster near its ends by links.

4. In a vehicle, supporting members, each in sections separated, with the upper section provided with vertical channels, channels on the peripheral face of said members, rollers movable in said channels, a rigid bar connecting the supporting members, a supporting-block on said bar, and a bolster on said supporting-block.

784,793. **METALLIC RAILWAY-TIE AND RAIL-FASTENING DEVICE.** JOHN H. KILLINGER, Steelton, Pa. Filed Jan. 9, 1905. Serial No. 240,211.



Claim.—1. A metallic railway-tie, comprising a channel-iron and base-plates secured to the base thereof at opposite ends of the tie, each base-plate having integral tongue-pieces bent upward and disposed within the channel-iron and serving to brace the tie internally.

2. A metallic railway-tie, comprising a channel-iron having base-flanges, and plates secured to said flanges at opposite ends of the tie, each plate having integral tongue-pieces bent upward and disposed within the channel-iron and serving to brace the tie internally.

3. A metallic railway-tie, comprising a channel-iron having inclined side walls and base-flanges, and strengthening base-plates extending across the open bottom of the channel-iron at opposite ends thereof, each base-plate having side flanges secured to the base-flanges of the channel-iron and provided with upturned end wings, said wings corresponding in shape and size to the interior of the channel-iron and bearing against the inner walls thereof so as to brace the same from within.

4. A railway-tie, comprising a channel-iron having a pair of separated slotted blocks at each end thereof, rail-fastening elements seated wholly within the slots in the blocks and having portions adapted to overhang the flange of the rail located between the blocks, and means passing through the channel-iron and engaging said fastening elements for drawing them into clamping engagement with the rail.

5. A railway-tie, comprising a channel-iron having a pair of separated and longitudinally-slotted blocks secured to the top thereof at each end, the side walls of said channel-iron being provided with coincident openings, rail-fastening elements seated wholly within the slots in the blocks and each element having a depending slotted portion and a portion adapted to embrace the flange of a rail, a wedge-key extending transversely through the coincident openings in the channel-iron and through the depending slotted portion of each fastening element, said wedge-keys each having a threaded stem at one end, and a nut engaging each stem for the purpose specified.

6. A railway-tie, comprising a channel-iron having a pair of separated and longitudinally-slotted blocks secured to the top thereof at each end, the side walls of said channel-iron being inclined and provided with coincident openings, rail-fastening elements seated wholly within the slots in the blocks and each element having a depending slotted portion and a portion adapted to embrace the flange of a rail, a wedge-key extending transversely through the coincident openings in the channel-iron and through the depending slotted portion of each fastening element, said keys each having a threaded stem at one end, a nut engaging each stem, and a wedge-block interposed between each nut and a side of the channel-iron.

7. A railway-tie, comprising a channel-iron having slots in the top thereof and inclined side walls provided with coincident openings, rail-fastening elements each having a depending slotted portion extending through one of said slots and a portion adapted to embrace the flange of a rail, a wedge-key extending transversely through the coincident openings in the channel-iron and through the depending slotted portion of each fastening element, said keys each having a threaded stem at one end, a nut engaging each stem, and a wedge-block interposed between each nut and a side of the channel-iron, said wedge-block being provided with an opening for the stem and a longitudinal recess to receive a part of the wedge-key.

784,794. **SHIPPING DEVICE FOR BARBED WIRE.** CHARLES B. KIMBALL, Rocky River, Ohio. Filed Mar. 7, 1904. Serial No. 196,845.



Claim.—1. In means for shipping barbed wire and other rolls, the same comprising a set of substantially dish-shaped shells having central openings and a series of holes about said openings, and wires through said holes connecting said shells, whereby a flexible core is formed and the shells are held together as the roll is unwound, substantially as described.

2. The shells for shipping wire rolls having central openings and hubs inside about said openings and holes through said shells about said openings, in combination with wires threaded through said holes and fastened at their ends on the outside of the shells, substantially as described.

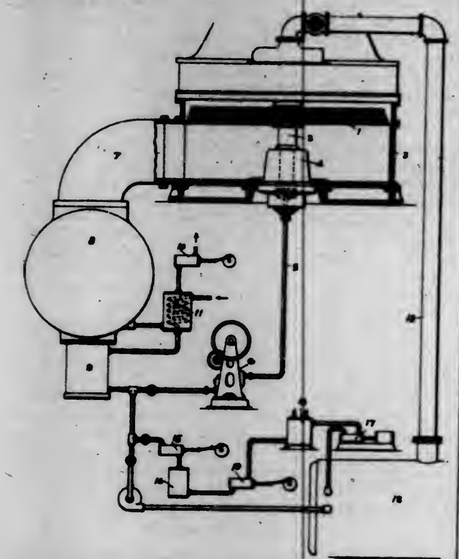
3. The combination of a set of saucer-shaped shells provided with central holes and inwardly-extending hubs about said holes, wires axially connecting the said shells through holes at the base of said hubs and binding-wires engaged through the axis of the shells and extending around the outside thereof from one side of said shells to the other, substantially as described.

4. In means for shipping barbed wire, a pair of substantially saucer-shaped rigid shells each having an integral tubular hub on its inside and provided with a plurality of holes from side to side immediately outside the base of said hub, in combination with core-wires threaded through said holes and binding-wires through said hubs and over said shells, substantially as described.

784,795. **WATER LUBRICATING SYSTEM FOR STEAM-TURBINES.** AUGUST H. KRUSE, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 3, 1903. Serial No. 171,787.

Claim.—1. In a steam-turbine, the combination with a base con-

taining an exhaust-chamber, of a condenser connected with said chamber, a shaft-bearing supporting the entire weight of the moving element and located in said chamber which bearing is subjected to the action of the condenser, and means for supplying said bearing with water for lubrication.



2. In a steam-turbine, the combination with a shaft-bearing discharging water into the condenser where it mingles with the exhaust from the turbine, of a condenser, and a pump supplied with water from said condenser and forcing it into said bearing to lubricate the same.

3. In a steam-turbine, the combination with a step-bearing located in the exhaust-passage, of a condenser, and a pump receiving water from the hot-well of the condenser and forcing it into the step-bearing to lubricate the same.

4. In a steam-turbine, the combination with a step-bearing located in the exhaust-passage, of a condenser, a feed-tank, a pump forcing water from the hot-well into the feed-tank, and a pump taking water from the tank and forcing it into the step-bearing.

5. In a steam-turbine, the combination with a step-bearing located in the exhaust-passage, of a condenser, a pump receiving water from said condenser and forcing it into said bearing, and means for adding make-up water to the system.

6. In a steam-turbine, the combination with a step-bearing located in an exhaust-passage, of means whereby make-up water for the condenser system is fed to said bearing.

7. An elastic-fluid turbine comprising a chamber and a shaft-bearing which supports the entire weight of the moving structure and is closed to the atmosphere and discharges its lubricant into the chamber where it mingles with the exhaust from the turbine, in combination with a condenser which maintains a vacuum in the chamber and a pump for supplying fluid to the bearing under high pressure.

8. In an elastic-fluid turbine having a shaft-bearing which is closed to the atmosphere, a condenser, a vaporizer, and a pump for supplying make-up fluid to the vaporizer through the bearing.

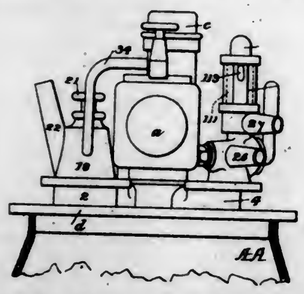
9. In combination, an elastic-fluid turbine comprising a frame containing an exhaust-receiving chamber, and a shaft-bearing in the chamber, a vapor-generator for supplying vapor to the turbine, means for conveying condensed vapor to the vaporizer, and a conduit which supplies liquid to the bearing for lubricating it and also to the vaporizer through the bearing.

10. In combination, an elastic-fluid turbine comprising a frame containing an exhaust-receiving chamber, and a shaft-bearing located in and discharging into the chamber, a vapor-generator for supplying vapor to the turbine, a condenser connected to the chamber and vaporizer, a means for forcing liquid from the condenser to the vaporizer, a dry-air pump connected to the condenser, and a conduit for supplying liquid under pressure to the bearing for lubricating it.

11. In combination, an elastic-fluid turbine comprising a frame containing an exhaust-chamber, and a shaft-bearing located in and discharging into the chamber, a vapor-generator for supplying vapor to the turbine, a condenser connected to the exhaust-chamber, a hot-well receiving water from the condenser, a high-pressure pump receiving water from the hot-well and discharging it into the vaporizer.

12. The combination of a vaporizer, a turbine receiving vapor therefrom, a condenser for condensing the exhaust from the turbine, a conduit receiving liquid from the condenser and returning it to the vaporizer, the said vaporizer, turbine and conduit operating in a closed system, a bearing for the turbine-shaft which is subjected to and discharges into the condenser, and a conduit which supplies lubricating fluid to the bearing and make-up liquid to the system.

784,796. **MILKING APPARATUS.** WILLIAM H. LAWRENCE, Glasgow, Scotland. Filed May 24, 1904. Serial No. 209,590.



Claim.—1. In milking apparatus the combination with a teat-cup having a milk-chamber and an air-chamber, means for exhausting air from both said chambers, means for varying the degree of air exhaustion in the air-chamber, means for regulating the degree of air exhaustion in the milk-chamber, and means for admitting air intermittently from the air-chamber to the milk-chamber of the teat-cup.

2. In milking apparatus, the combination with a milk receptacle and a teat-cup having a milk-chamber and an air-chamber of means for connecting the teat-cup to the milk-receptacle, means for exhausting air from both said teat-cup chambers, means for varying the degree of air exhaustion in the air-chamber, means for regulating the degree of air exhaustion in the milk-chamber and the milk-receptacle, and means for admitting air intermittently from the air-chamber to the milk-chamber of the teat-cup.

3. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers and means for varying the degree of air exhaustion in both the chambers.

4. In milking apparatus the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers and means for periodically varying the degree of air exhaustion in both the chambers.

5. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers and means for varying synchronously the degree of air exhaustion in both the chambers.

6. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers, and means for varying periodically the degree of air exhaustion in both the chambers the periodic variations in the one chamber alternating with those in the other chamber.

7. In a milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers and automatic means for varying the degree of air exhaustion in both the chambers.

8. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers and pneumatically-operated means for varying the degree of air exhaustion in both the chambers.

9. In milking apparatus, the combination with a teat-cup having milk and air chambers of means for exhausting air from both said chambers, means for varying the degree of air exhaustion in the air-chamber and means for cutting off the suction from the milk-chamber periodically and in synchronism with the variations of pneumatic pressure in the air-chamber.

10. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers, means for varying the degree of air exhaustion in the air-chamber, and means for partially cutting off the suction from the milk-chamber periodically and in synchronism with the variations of pneumatic pressure in the air-chamber.

11. Apparatus for milking cows by pneumatic pulsating means working in conjunction with teat-cups having milk-chambers and air-chambers, comprising, in combination, a milk-receptacle, a valve for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle, and a valve for admitting air intermittently from the air to the milk-chambers of the teat-cups to assist the flow of milk to the milk-receptacle, substantially as described.

12. Apparatus for milking cows by pneumatic pulsating means working in conjunction with teat-cups having milk-chambers and air-chambers, comprising, in combination, a milk-receptacle, a pulsator for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle, means for supplying air to the air-chambers of the teat-cups, a claw having air and milk conductors connected with the teat-cups, a valve having a convex face and a piston portion which works within a cylindrical casing connected with the milk-conductor of the claw by a restricted passage and with the air-conductor by an opening which can be closed by the said convex portion of the valve, substantially as described.

13. Apparatus for milking cows by pneumatic pulsating means working in conjunction with teat-cups having milk-chambers and air-chambers comprising, in combination, a milk-receptacle, a pulsator for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle and a double-seated valve for admitting air to the air-chambers of the teat-cups either from the atmosphere or from the milk-receptacle, substantially as described.

14. Apparatus for milking cows comprising, in combination, a base made with vacuum and air ports therein and capable of fitting on the milk-pail, a pulsator fitted on the base, a pulsator-valve having a cavity therein, a vacuum-reducing valve, an air-admission valve, milk and air conduits, an inspection device, means for opening or closing the milk and air conduits, and double-chambered teat-cups, substantially as described

15. Apparatus for milking cows by pneumatic pulsating means working in conjunction with teat-cups, having milk-chambers and air-chambers, comprising, in combination, a milk-receptacle, a pulsator for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle, means for supplying air to the air-chambers of the teat-cups, a claw having air and milk conductors, teat-cups connected with the claw, and an automatically-acting valve on the claw for admitting air to the milk-conductor in order to assist the flow of the milk, substantially as described.

16. Apparatus for milking cows by pneumatic pulsating means working in conjunction with teat-cups having milk-chambers and air-chambers, comprising, in combination, a milk-receptacle, a pulsator for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle, means for supplying air to the air-chambers of the teat-cups, a claw having air and milk conductors connected with the teat-cups, a spring-loaded valve having a convex face which is arranged in connection with the air-conductor and allows a restricted amount of air to pass from the atmosphere to the milk-conductor, substantially as described.

17. Apparatus for milking cows comprising, in combination, a milk-pail, a base made with vacuum and air ports therein and capable of fitting on the milk-pail, a pulsator fitted on the base, a pulsating piston having a cavity therein, a vacuum-reducing valve, an air-admission valve, milk and air conduits, a double cock for the conduits, an overflow-inspection device having a transparent portion arranged vertically above said double cock, means for opening and closing the milk and air conduits, and double-chambered teat-cups, substantially as described.

18. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers, valves for varying the degree of air exhaustion in both the chambers, and means for operating the valves, substantially as described.

19. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers, a reciprocating valve, a second reciprocating valve, and means for operating these valves, substantially as described.

20. In milking apparatus, the combination with a teat-cup having milk and air chambers, of means for exhausting air from both said chambers, a reciprocating valve, a second reciprocating valve connected with the first valve and operated therefrom, and means for operating the first valve, substantially as described.

21. The combination with a teat-cup having a milk-chamber and an air-chamber, a milk-pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a pulsator, air and milk pipes connecting the pulsator with said claw, and means for operating the pulsator, substantially as described.

22. The combination with a teat-cup having a milk-chamber and an air-chamber, a milk-pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the air-chamber, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the milk-chamber, and means for operating these valves, substantially as described.

23. The combination with a teat-cup having a milk-chamber and an air-chamber, a milk-pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the air-chamber, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the milk-chamber, means for operating said valves, and means for regulating the degree of air exhaustion in the pipes leading to the teat-cup chamber, substantially as described.

24. The combination with a teat-cup having a milk-chamber and an air-chamber, a pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the air-chamber, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the milk-chamber, means for operating said valves, and automatically-acting valves for regulating the degree of air exhaustion in the pipes leading to the teat-cup chambers, substantially as described.

25. The combination with a teat-cup having a milk-chamber and an air-chamber, a pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the air-chamber of the teat-cup, a reciprocating valve for alternately exhausting air from and admitting air to the pipe leading to the milk-chamber of the teat-cup, and means for operating these valves simultaneously and in opposite directions so that when air is being exhausted from the air-chamber it is being admitted to the milk-chamber of the teat-cup and vice versa, substantially as described.

26. The combination with a teat-cup having a milk-chamber and an air-chamber, a pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a pulsator, air and milk pipes connecting the pulsator with said claw, an automatically-acting air-admission valve in the claw, and means for operating the pulsator, substantially as described.

27. The combination with a teat-cup having a milk-chamber and an air-chamber, a pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a pulsator, air and milk pipes connecting the pulsator with said claw, a duplex air-admission valve in the claw and means for operating the pulsator, substantially as described.

28. The combination with a teat-cup having a milk-chamber and an air-chamber, a pipe connected with the milk-chamber, a pipe connected with the air-chamber, a claw having a milk-conductor and an air-conductor connected respectively with said pipes, a pulsator, air and milk pipes connecting the pulsator with said claw, a pneu-

matically-operated air-admission valve in the claw, said valve having two areas the larger area open to the atmosphere and the smaller area to the vacuum-space of the milk-conductor of the claw, and means for operating the pulsator, substantially as described.

29. In milking apparatus, the combination with a teat-cup having a milk-chamber and an air-chamber, of means for exhausting air from both said chambers, combined pneumatic and mechanical means for varying the degree of air exhaustion in the air-chamber and means for cutting off the suction from the milk chamber periodically and in synchronism with the variations of pneumatic pressure in the air-chamber, substantially as described.

30. In milking apparatus, the combination with a teat-cup having a milk-chamber and an air-chamber, of means for exhausting air from both said chambers, means for varying the degree of air exhaustion in the air-chamber, a valve for cutting off the suction from the milk-chamber periodically and in synchronism with the variations of pneumatic pressure in the air-chamber, and combined pneumatic and mechanical means for operating said valve, substantially as described.

31. In milking apparatus, the combination with a teat-cup having a milk-chamber and an air-chamber, of means for exhausting air from both said chambers, a reciprocating valve for varying the degree of air exhaustion in the air-chamber and cutting off the suction from the milk-chamber periodically and means for operating said valve, substantially as described.

32. In milking apparatus, the combination with a teat-cup having a milk-chamber and an air-chamber, of means for exhausting air from both said chambers, a reciprocating valve for varying the degree of air exhaustion in the air-chamber and cutting off the suction from the milk-chamber periodically, and pneumatic means for operating the valve in one direction and mechanical means for operating the valve in the other direction, substantially as described.

33. In milking apparatus, the combination with a teat-cup having a milk-chamber, and an air-chamber, of means for exhausting air from both said chambers, a reciprocating valve for varying the degree of air exhaustion in the air-chamber and cutting off the suction from the milk-chamber periodically and in synchronism with the variations of pneumatic pressure in the air-chamber, and means for operating said valve, substantially as described.

34. In milking apparatus, the combination with a teat-cup having a milk-chamber and an air-chamber, of means for exhausting air from both said chambers, a reciprocating differential piston-valve with a cavity therein for varying the degree of air exhaustion in the air-chamber and cutting off the suction from the milk-chamber periodically, a valve-casing with milk-passages and air-passages, pneumatic means for operating the valve in the one direction, and a spring for operating the valve in the other direction, substantially as described.

35. In milking apparatus, the combination with a teat-cup having a milk-chamber and an air-chamber, of means for exhausting air from both said chambers, a reciprocating differential piston-valve with a cavity therein for varying the degree of air exhaustion in the air-chamber and cutting off the suction from the milk-chamber periodically, a claw connected with the teat-cup and having an air-conductor and a milk-conductor the air-conductor communicating with the milk-conductor, a valve-casing with milk-passages and air-passages, pneumatic means for operating the valve in the one direction, and a spring for operating the valve in the other direction, substantially as described.

36. Apparatus for milking cows by pneumatic pulsating apparatus working in conjunction with teat-cups having milk-chambers and air-chambers, comprising, in combination, a milk-receptacle, a pulsator-valve for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, an automatically-acting differential valve for controlling the movements of the pulsator-valve and for supplying air to the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle, and means for operating the pulsator-valve, substantially as described.

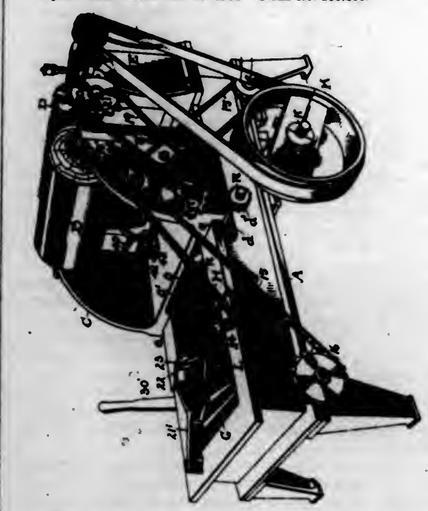
37. Apparatus for milking cows by pneumatic pulsating apparatus working in conjunction with teat-cups having milk-chambers and air-chambers, comprising, in combination, a milk-receptacle, a pulsator-valve for effecting variations of vacuum or pneumatic pressure in the air-chambers of the teat-cups, an automatically-acting differential valve for controlling the movements of the pulsator-valve, combined pneumatic and mechanical means for operating said controlling-valve, means for intermittently admitting air to the air-chambers of the teat-cups, means for regulating the degree of vacuum in the milk-chambers of the teat-cups and the milk-receptacle, and means for operating the pulsator-valve, substantially as described.

38. In milking apparatus, a double-chambered teat-cup having, in combination, an outer flexible case, an inner flexible lining, a cup end with air-nozzle thereon, and a cone arrangement for securing the bottom of the inner lining tightly in position in the said cup end, substantially as described.

39. In milking apparatus, a double-chambered teat-cup having, in combination, an outer case with reduced lower end having a conic extension, an inner flexible lining, a nozzle with expanded upper end fitted in the lining and means for forcing the lower end of the inner lining tightly against the conic extension of the outer case, substantially as described.

40. In milking apparatus, a double-chambered teat-cup comprising, in combination, an outer case, an inner elastic lining, and means for increasing the resilience of the elastic lining by extending it lengthwise, substantially as described.

784,797. **WOOD-FIBER-CUTTING MACHINE.** HOWARD M LEONARD, Elyria, Ohio, assignor of one-half to Benjamin F. Shuart Elyria, Ohio. Filed May 16, 1904. Serial No. 208,168.



Claim.—1. In a wood-fiber-cutting machine, a set of saws and a carrier for the log supported to slide to and from said saws, and means to move said carrier and to rotate the log automatically with increasing speed as the log is reduced, said means having initial controlling connection with the said carrier and comprising friction-cones and a friction device therewith and endless connections with one of said cones having actuating connection with said log-carrier, substantially as described.

2. In a wood-fiber-cutting machine having saws, a slidable support for the log, means to feed said support toward the saws and means to raise the log on said support, a set of power-driven friction-cones and means operatively engaging said cones to actuate the said log-support and to vary the speed of rotation for the log according to the size thereof, said means having fixed connection with said log-support and comprising a pair of oppositely-arranged friction-cones and a roller between them, substantially as described.

3. In a wood-fiber-cutting machine, a set of saws, a suitable support for the log and means to feed the same forward toward the saws with increasing speed, in combination with power-actuated means to rotate the log with increasing speed as the log is reduced, whereby both the feed of the log and the speed of rotation are automatically controlled, said means having cable-controlling connection with the support for the log, a set of cones and a rotating member between said cones controlled by said cable, substantially as described.

4. In a wood-fiber-cutting machine, a log-support and means to feed said support forward comprising racks on the sides of the support and pinions engaging said racks, a drive-cone and a driven cone and a rolling friction device between said cones to change the speed of one cone from the other, means for rotating the log operatively connected with the said driven cone, and means connected with the said log-support and with the said friction device to automatically increase the speed of rotation of the log as it is reduced, substantially as described.

5. In a wood-fiber-cutting machine, a drive-cone having power connections and a driven cone, a friction-roller operatively connecting said cones, a movable log-carrier and means to rotate the log operatively connected with the said driven cone, and a cable to move the said friction-wheel over said cones having connection with said log-carrier, substantially as described.

6. A wood-fiber-cutting machine comprising a pair of friction-cones and a friction-wheel between the same, and a pivoted support carrying said wheel having a rod on which the wheel is slidable, in combination with a log-carrier and means connecting said carrier operatively with said friction-wheel, whereby the said wheel is caused to traverse said cones in one direction as the log is fed to the saws and in the opposite direction as the said carrier is moved back, substantially as described.

7. In a wood-fiber-cutting machine, a carrier for a log and means to rotate the log, in combination with a drive and a driven cone, a friction-operating roller between said cones and means to move said roller axially over the surface of said cones, said means comprising an endless cable having controlling connection with said log-carrier, substantially as described.

8. In a wood-fiber-cutting machine, a log-carrier and means to rotate the log, in combination with variable-speed gears to rotate the log and move said carrier, a pair of friction-cones, a friction-roller operating therewith and means operatively connecting said roller with said log-carrier, whereby the said wheel is moved when the said carrier is moved, substantially as described.

9. In a wood-fiber-cutting machine, a log-carrier and means to feed said carrier forward and to rotate the log, mechanism to automatically vary the speed of said rotation and the feed of the log, a friction-cone to drive said mechanism, a friction-wheel in engagement with said cone and a sliding carrier for said wheel and flexible connection between said carrier and the log-carrier, substantially as described.

10. In a wood-fiber-cutting machine, a series of differential gears and pinions to vary the cut of the fiber as to grade, and log-rotating mechanism having power connections to maintain the grade of the fiber through the reduction of the log, said mechanism constructed to increase in speed as the log is reduced, substantially as described.

11. In a wood-fiber-cutting machine, a set of saws, a carriage to support the log, lines of mechanism to rotate the log and to feed the carriage toward the saws, and automatic controlling mechanism for said log and said carriage to proportionately drive the same at increasing speed as the diameter of the log is reduced, said mechanism comprising a traveling cord having fixed connection with the log-carriage, substantially as described.

12. In a wood-fiber-cutting machine, the saws, a carrier for the log, means to drive said saws and carrier, variable-speed mechanism for said carrier comprising gears and pinions of different sizes meshing therewith, and means to automatically throw out said variable-speed mechanism and stop the feed of the carrier at the minimum reduction of the log comprising a worm-gear and a pinion and means to disengage said parts, substantially as described.

13. In a wood-fiber machine, saws and a log-carrier movably mounted opposite thereto, means to feed said carrier and to rotate the log comprising drive mechanism with variable-speed cones therefor, a friction-roller for said cones, and means to automatically disengage said roller from the cones, substantially as described.

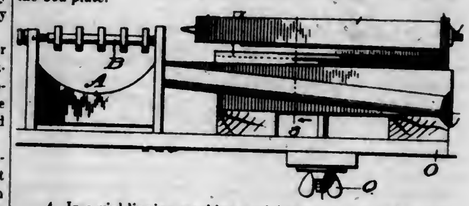
14. In a wood-fiber-cutting machine, a set of saws, a movable log-carrier and feed mechanism therefor, racks on the bottom of said carrier and gear mechanism for centering and raising the log to working position comprising racks having fixed ends, substantially as described.

784,798. **NECKING AND LIPPING MACHINE FOR VIALS.** WILLIAM LITTLE, Baltimore, Md. Filed Dec. 31, 1904. Serial No. 239,175.

Claim.—1. In a vial-lipping machine, a vial-support having a plurality of shafts on which the vial is rotatable, and a lipping-tool.

2. In a vial-lipping machine, a vial-support comprising a plurality of shafts, a series of rollers for supporting the vial to permit its rotation, and a lipping-tool.

3. In a vial-lipping machine, a vial-supporting member, a lipping-tool, a post on which the lipping-tool is secured, a plate supporting the post, a bed-plate for supporting the first-named plate and means for permitting a sliding movement of the first-named plate, on the bed-plate.

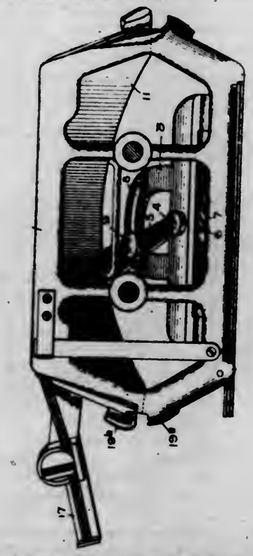


4. In a vial-lipping machine, a vial-supporting member, a lipping-tool consisting of jaws suitably supported, a stem with which the jaws coact, a post to which the stem and jaw-supporting members are attached, a plate for carrying the post, a depending rib on the plate, a bed-plate having a dovetailed groove to receive the depending rib, and suitable means for supporting the bed-plate.

5. In a vial-lipping machine, a vial-supporting member, a lipping-tool consisting of jaws suitably supported, a stem with which the jaws coact, a post to which the stem and jaw-supporting members are attached, a plate for carrying the post, a depending rib on the plate, a bed-plate having a dovetailed groove to receive the depending rib, suitable means for supporting the bed-plate and drain-troughs on each side of the bed-plate.

6. In a vial-lipping machine, a vial-supporting member, a lipping-tool consisting of jaws suitably supported, a stem with which the jaws coact, a post to which the stem and jaw-supporting members are attached, a plate for carrying the post, a depending rib on the plate, a bed-plate, having a dovetailed groove to receive the depending rib, suitable means for supporting the bed-plate and drain-troughs on each side of the bed-plate and a reservoir into which the drain-troughs discharge.

784,799. **WINDING-FORM.** JULIUS W. LUNDSKOG, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Feb. 6, 1903. Serial No. 142,128.



Claim.—1. A former for coils composed of layers, which comprises a base having fixed surfaces conforming to the shape of the finished coil, and a movable side piece which acts as a clamp and is adjusted for each succeeding layer of the coil as it is applied to the base.

2. In a winding-form, the combination of a base, an adjustable side, means for adjusting the side, a detachable plate, and a locking device for securing the detachable plate to the base.

3. In a winding-form, the combination of a base, a detachable plate having an overhanging wall at right angles to the adjacent wall

on the base, an adjustable sliding piece having an end wall opposite that on said plate, and means for securing the parts in working relation.

4. In a winding-form, the combination of a base, a detachable plate having an overhanging wall at right angles to the adjacent wall on the base, an adjustable sliding piece having a wall opposite the wall of the detachable plate, a lever for moving the adjustable sliding piece, and means for securing the parts in working relations.

5. In a winding-form, the combination of a base, a detachable plate having an overhanging wall at right angles to the adjacent wall on the base, an adjustable sliding piece, guides for the piece that are secured to the base, a lever having a cam to move the sliding wall toward or away from the base, and a device for holding the parts in a working relation.

6. In a winding-form, the combination of a base having the configuration of the finished coil, a detachable plate that engages the wires of each succeeding layer, a means for adjusting the side after each layer is applied to provide a space for the next, and means for securing the parts in working relation.

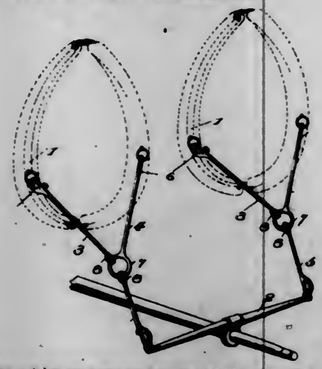
7. In a winding-form, the combination of a base having hooks which form offsets in the ends of the finished coil, a plate for forming one side of the coil, which is detached in removing the coil, an adjustable plate for forming a second side, other offset-forming hooks cooperating with those on the base and carried by the detachable plate, and means for securing the parts in working relation.

8. In a winding-form, the combination of a base having hooks secured thereto, a detachable plate also having hooks secured thereto and coöperating with those on the base to form offsets in the finished coil, an adjustable plate, guides for the adjustable plate which maintain it parallel with the wire-receiving surface on the base, a lever for moving the plate after each layer is applied to make room for the next, and a means for clamping the adjustable plate.

9. In a winding-form, the combination of a base having stationary walls thereon, an adjustable wall in working relation with one of the stationary walls under which is wound a conductor, the said wall assuming a new position for each layer of the finished coil, means for moving the adjustable wall into engagement with the conductor as each turn is applied, and a clamping device for securing the adjustable wall in its several positions.

10. A former for coils composed of layers which comprises a base having fixed surfaces conforming to the shape of the finished coil, a movable side piece which acts as a clamp, a device for adjusting the tension of each succeeding layer as it is applied to the base, and a means for securing the side while each layer is applied.

784,800. **BREAST-CONNECTOR.** VIRGIL H. MILLS, Hubbard, Tex. Filed Feb. 20, 1904. Serial No. 194,531.



Claim.—A breast-connector composed of a rod or link having an integral snap-hook at its outer end and a solid continuous ring integral with its inner end, and two other similar links or rods provided with integral snap-hooks at the outer ends thereof and having integral split rings at their inner ends, the said split rings being engaged with the continuous ring of the first-mentioned link or rod.

784,801. **CARPET-CLEANING APPARATUS.** ALBERT B. MOORHEAD, Oakland, Cal. Filed July 1, 1904. Serial No. 214,984.

Claim.—1. In a carpet-cleaning device, a movable casing, means to conduct air under pressure thereto and for conveying the mingled air and dust therefrom, a pair of nozzles in said casing, for directing the entering air-current at the proper angle against the surface to be cleaned, and means for bringing said nozzles into action separately and alternately, accordingly as the device is moved forward or backward over a carpet, substantially as specified.



2. In a carpet-cleaning device, a movable casing, means to conduct air under pressure thereto, and for conveying the mingled air and dust therefrom, a pair of nozzles in said casing reversibly mounted on a common axis, and means for automatically reversing the position of said nozzles so as to bring one of the same into position for directing the air-current at the proper angle against the surface to be cleaned while the other nozzle is held out of action, accordingly as the device is moved forward or backward, substantially as specified.

3. In a carpet-cleaning device, a movable casing, a pipe to conduct air under pressure thereto, a centrally-mounted slotted tube therein with which said pipe is connected, a pair of nozzles axially mounted on said tube, communicating alternately with the slot therein, means for automatically reversing the position of said nozzles on the tube to bring them alternately into communication with said slot, accordingly as the device is moved forward or backward, whereby one of said nozzles presents the air-current to the surface to be cleaned at the proper angle whether the device is moved forward or backward, and means for conveying away the mingled air and dust from the casing, substantially as specified.

4. In a carpet-cleaning device, a movable casing, a pair of nozzles axially mounted therein, means for alternately reversing the position of said nozzles to bring each into position to direct the air-current at the proper angle against the surface to be cleaned accordingly as the device is moved forward or backward, a pipe to conduct air under pressure to said nozzles, a pipe to convey away the mingled air and dust from the casing, and automatically-acting pawls to arrest and hold said nozzles at the required angle in either position, substantially as specified.

5. In a carpet-cleaning device, a movable casing, a slotted tube centrally mounted therein, a pair of nozzles axially mounted on said tube, communicating alternately with the slot therein, a pipe to convey away the mingled air and dust from the casing, means to automatically reverse the position of said nozzles accordingly as the device is moved forward or backward, and means to automatically stop said nozzles at the proper angle to direct the current efficiently against the surface to be cleaned, whether the device is moved forward or backward, substantially as specified.

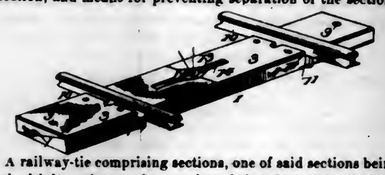
6. In a carpet-cleaning device, a movable casing, the ends of said casing being detachable, a central slotted tube mounted in said ends, a pair of nozzles axially mounted on said tube, communicating alternately with the slot, means for automatically reversing the position of said nozzles as the casing is moved forward or backward, whereby one of them is brought into position at the proper angle for directing the current efficiently against the surface to be cleaned, means for conducting air under pressure to said slotted tube, and means for conveying away the mingled air and dust from said casing, substantially as specified.

7. In a carpet-cleaning device, a movable casing, a pair of reversible nozzles axially mounted in said casing, means to conduct air under pressure to said nozzles, and means for conveying away the mingled air and dust from the casing, said casing being provided with adjustable air-inlets for modifying the degree of air-exhaustion therein, substantially as specified.

784,802. **RAILWAY-TIE.** ALEXANDER M. MOYLAN, Century, Fla. Filed Oct. 20, 1904. Serial No. 229,294.

Claim.—1. A railway-tie embodying sections, each section having portions overlapping and interlocking with like portions upon the other section, and means for preventing separation of the sections.

2. A railway-tie embodying sections, extensions projected from each section and interlocking with like extensions projected from the other section, and means for preventing separation of the sections.



3. A railway-tie comprising sections, one of said sections being provided with lateral extensions projected therefrom at a point between its ends for coöperation with the other section, and means for preventing separation of the sections.

4. A railway-tie comprising sections, each section embodying parts interlocking with the other section, means for preventing separation of the sections, and rail-engaging means upon the upper and lower sides of the tie and including engaging parts carried by each section thereof.

5. A railway-tie embodying sections, both sections being of the same form and having a straight unbroken side, and members extending from this side and interlocking with like members of the other section.

6. A railway-tie embodying sections having lateral interlocking members coöperating with each other, and rail-seats upon adjacent interlocking members of the sections and adapted to be reduced or enlarged by longitudinal movement of the sections relative to each other.

7. A railway-tie embodying complementary sections longitudinally movable relative to each other, rail-engaging members projected from the respective sections, an adjusting device coöperating with the complementary sections of the tie to effect longitudinal movement thereof and fix the same at an ascertained adjustment, each adjusting device comprising bars engaging the respective sections and means for separating said bars.

8. A railway-tie embodying complementary sections, extensions projected laterally from each section and adapted to interlock with the other section, an adjusting device for effecting longitudinal movement of the sections relative to each other and consisting of bars engaging extensions of the respective sections, and a turnbuckle coöperating with said bars for the purpose specified.

9. A railway-tie comprising sections having interlocking overlapping parts extended laterally therefrom, and keepers engaging the side of each of the sections to prevent separation thereof.

784,803. **COMBINED PAN AND STOVE-LID LIFTER.** ALEXANDER M. MOYLAN, Century, Fla. Filed Nov. 16, 1904. Serial No. 233,007.

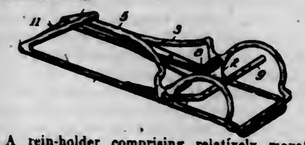


Claim.—A pan-lifter comprising a single piece of metal bent upon itself between the ends to form a handle composed of upper and lower members, the upper member being upwardly and downwardly bent at one end to form an engaging member, the lower member being downwardly and outwardly bent to form a supporting member, the opposite end of the upper member being inwardly curved and thence recurved and projected downwardly from the handle, the lower member having its opposite end also downwardly curved adjacent the recurved portion of the upper member and forming therewith a stove-lid-lifting arm, the inwardly-curved and recurved portions of the upper member being permanently fastened to the adjacent portion of the lower member.

784,804. **HARNESS-BUCKLE.** WOLFGONG OBERMEIR, Lost Lake, Wis. Filed June 15, 1904. Serial No. 212,600.

Claim.—1. A rein-holder comprising upper and lower members hinged together, and an independent hook between said members adapted to receive the folded ends of the rein and to connect the members.

2. A rein-holder comprising upper and lower members, and means pivoting said members, said means adapted to receive the folded ends of a rein.



3. A rein-holder comprising relatively movable members, means pivoting said members together, and means integral with said pivoted means adapted to support the folded ends of the rein.

4. A rein-holder comprising two relatively movable members having jaws, means pivoting said movable members together, and means between said jaws and integral with said pivoted means adapted to receive the folded ends of a rein.

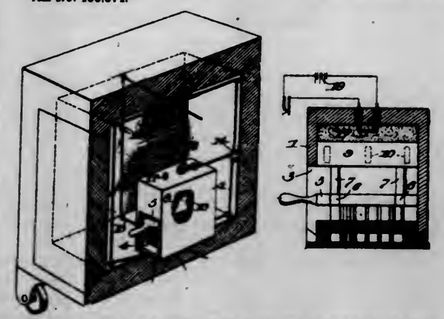
5. A rein-holder comprising relatively movable upper and lower members, means pivoting the two members together, an extension on the lower member adapted to limit the movement of the upper member, means for normally holding said upper member in engagement with said extension, and means integral with said pivoting means adapted to receive the folded ends of a strap.

6. A rein-holder comprising upper and lower members, apertured lugs on said lower member, means pivoting said upper member to said lugs, an extension on said lower member, means surrounding said pivotal means and adapted to engage said upper member for holding it in engagement with the extension, and means integral with said pivotal means adapted to receive the folded ends of a strap.

7. A rein-holder comprising upper and lower members, and a U-shaped pintle, one leg of which is adapted to pivot the upper and lower members together and the other leg of which is adapted to receive the folded ends of a strap.

8. A rein-holder comprising upper and lower members, a U-shaped pintle, one leg of which is adapted to pivot the upper and lower members together and the other leg of which is adapted to receive the folded ends of a strap, and a spring surrounding the pivoting-leg of said pintle and adapted to engage the upper and lower members to clamp the strap in its received position.

784,805. **APPARATUS FOR MARKING CURRENCY FOR SAFES, &c.** ARNOLD A. PETERSEN, Muscatine, Iowa. Filed Dec. 21, 1903. Serial No. 186,074.



Claim.—1. In a protective device for use in connection with safes or other closed receptacles, a normally inactive mutilating member arranged adjacent to the currency to be mutilated, a normally inactive operating means for said member, and mechanism for causing such means to become effective and force the mutilating member into engagement with the currency.

2. In a protecting device for use in connection with safes or other closed receptacles, a currency-mutilating member in contact with or adjacent to the currency to be mutilated, a normally inactive operating means for said member, and mechanism operable by an attack on the safe or receptacle for causing the operating means to become effective and force the mutilating member into engagement with the currency.

3. In mechanism of the class described, a cutting or perforating member disposed adjacent to a quantity of currency to be mutilated, a normally inactive operating means in the form of an explosive mixture adjacent to said member, and means for exploding such mix-

ture and thereby forcing the member into engagement with the currency.

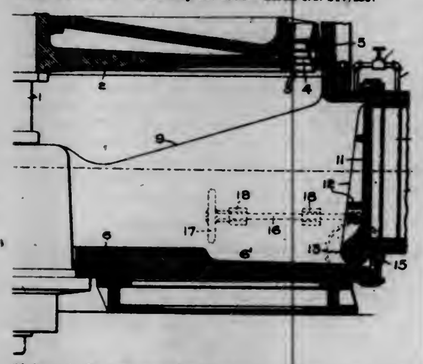
4. In a protecting device for use in connection with safes or other closed receptacles, a currency-mutilating member, an explosive compound disposed adjacent to and serving when exploded to cause operative contact between said member and the currency, and means for automatically firing said compound.

5. In a protective device for use in connection with safes or other closed receptacles, a currency-mutilating member, a casing for containing the member and currency, an explosive compound disposed within the casing, and means for firing said compound.

6. In a protecting device for use in connection with safes and other closed receptacles, a casing for the reception of currency, a marking-die therein, a block disposed within the casing and forming the movable wall of an explosion-chamber, an explosive compound disposed within the chamber, and a means for automatically firing said compound.

7. In a protecting device for use in connection with safes and other closed receptacles, a casing for the reception of currency, a pair of marking-dies disposed within the chamber and between which the currency normally rests, the upper of said dies being movable, a block guided within the casing and forming the movable wall of an explosion-chamber, and an explosive compound disposed within said chamber.

784,806. **ELASTIC-FLUID TURBINE.** WILLIAM B. POTTER. Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 21, 1904. Serial No. 217,439.



Claim.—1. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, one or more wing-valves located entirely within the turbine for closing said conduit, and an actuator located outside of the turbine for swinging the valve or valves about their axes to open or close them.

2. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, and one or more wing-valves located in said chamber and closing against the mouth of said conduit.

3. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, a shaft extending into said chamber adjacent to the mouth of said conduit, and one or more wing-valves actuated by said shaft and closing against said mouth.

4. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, a shaft adjacent to the mouth of said conduit, and one or more wing-valves carried by said shaft and closing against said mouth.

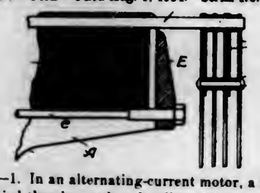
5. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, a shaft adjacent to the mouth of said conduit, arms on said shaft, and one or more wing-valves pivoted to said arms.

6. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, one or more wing-valves for closing the mouth of said conduit, means for pivotally supporting said valves at their middle, and soft packing around their edges.

7. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a wide-mouthed conduit leading thence to a condenser, one or more posts dividing the mouth of said conduit into separate openings, a valve for each opening, and a common operating-shaft for said valves.

8. In an elastic-fluid turbine, the combination with a chamber receiving the exhaust, of a conduit leading thence to a condenser, one or more valves for closing said conduit, and a valved by-pass around said valve or valves.

784,807. **DYNAMO-ELECTRIC MACHINE.** HENRY G. REIST, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 1, 1904. Serial No. 218,988.



Claim.—1. In an alternating-current motor, a rotor-body, conductors carried thereby, and a plurality of flat parallel rings separated by air-spaces and short-circuiting the ends of said conductors.

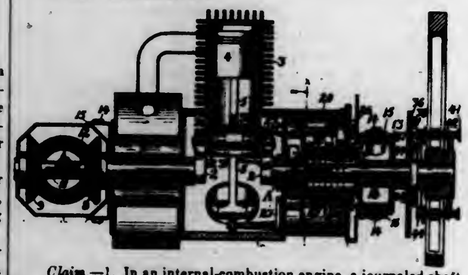
2. In an alternating-current motor, a rotor-body, conductors carried thereby, and flat plates arranged to form a plurality of flat parallel rings separated by air-spaces and short-circuiting the ends of said conductors.

3. In an alternating-current motor, a rotor-body, conductors carried thereby, and a plurality of flat parallel rings separated by air-spaces and short-circuiting the ends of said conductors, said rings being slotted between adjacent conductors.

4. In an alternating-current motor, a rotor-body, conductors carried thereby, and a flat ring short-circuiting the ends of said conductors and slotted to cut the straight lines joining adjacent conductors.

5. In an alternating-current motor, a rotor-body, conductors carried thereby, a plurality of flat parallel rings separated by air-spaces and short-circuiting the ends of said conductors, and radially-arranged spacing-strips inserted between adjacent rings.

784,808. **REVOLUBLE EXPLOSIVE-ENGINE.** CHARLES A. SAWTELLE, San Francisco, Cal., assignor to The Sawtelle Rotary Motor Company, San Francisco, Cal., a Corporation of California. Filed Nov. 19, 1903. Serial No. 181,850.



Claim.—1. In an internal-combustion engine, a journaled shaft with a single crank, a crank-case with bearings upon the crank-shaft, cylinders fixed in the crank-case in the plane of revolution of the crank and standing radially at angles of one hundred and twenty degrees with each other, pistons with rods connecting with the crank, gearing by which the shaft and crank-casing are connected to revolve in unison in opposite directions, a counter-shaft to which the motion of both is transmitted, inlet and exhaust valves, non-revoluble cams and levers and rock-shafts interposed between the cams and the valve-stems.

2. In an internal-combustion engine, a journaled shaft with a single crank, an inclosing crank-case journaled upon the crank-shaft, gears carried by the crank-case and shaft, a counter-shaft to which the opposite movements of the crank-shaft and the case are transmitted, cylinders fixed radially in the crank-case in the plane of rotation of the crank and at angles of one hundred and twenty degrees with each other, pistons and rods connecting with the crank, spring-closed inlet and exhaust valves, rocker-arms engaging the valve-stems, cams carried by the sleeve of the journal-box and means for moving the cams to vary the time of opening the valves.

3. In an internal-combustion engine a journaled shaft with a single crank, an inclosing crank-case with sleeves turnable upon the crank-shaft, gears upon the sleeve and shaft whereby the opposite rotations of said sleeve and shaft are transmitted to a counter shaft, cylinders fixed radially in the crank-case in the plane of rotation of the crank and at angles of one hundred and twenty degrees with each other, pistons and rods connecting with the crank, spring-closed inlet and exhaust valves, non-revoluble cams and intermediate mechanism through the cams acting to open the valves, igniting devices connecting with the cylinder, other cams and contacts actuated by said cams to complete electrical circuits and energize the igniters.

4. In an internal-combustion engine, a journaled shaft with a single crank, a crank-case journaled and revoluble upon the crank-shaft, and in an opposite direction, cylinders radially disposed upon the crank-case in the plane of rotation of the crank, said cylinders having pistons and rods connecting with the crank, gears carried by the crank-case and shaft, a counter-shaft to which the opposite movements of the crank-case and shaft are transmitted, inlet and exhaust valves and non-revoluble cams and mechanism through which the cams operate to open the valves, igniting devices for each cylinder, other cams and contacts actuated thereby to energize the igniters, means by which the first-named cams may be turned to advance or retard the opening of the valves, and means for operating the second-named cams to vary the period of explosion.

5. In an internal-combustion engine, a journaled shaft with a single crank, a crank-case journaled and revoluble upon said shaft and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank, pistons and rods connecting said pistons with the crank, gears turnable with the crank-case and shaft; a counter-shaft to which the opposite movements of the shaft and case are transmitted, inlet and exhaust valves and igniting devices for each cylinder, cams by which said valves and igniting devices are actuated and a wheel carried by the crank-shaft to equalize the inertia of the revoluble engine.

6. In an internal-combustion engine, a journaled shaft with a single crank, a crank-casing journaled and revoluble upon the shaft and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank and having pistons and rods connecting with said crank, a counter-shaft and gears by which the opposite revolutions of the crank-case and shaft are transmitted to said counter-shaft, inlet and exhaust valves, igniting devices, and cams fixed with relation to the crank-case and cylinders, a muffler mounted and turnable with the cylinders, and exhaust-pipes connecting said muffler with the cylinders.

7. In an internal-combustion engine, a journaled crank-shaft, a crank-case journaled and revoluble upon the shaft and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank, and having pistons with rods connecting with said crank, a counter-shaft and gears by which the opposed revolutions of the crank-case and shaft are transmitted to said counter-shaft, inlet and exhaust valves and actuating-cams therefor, a muffler turnable with the crank-case, said muffler having a passage through which the crank-shaft is freely turnable, and exhaust-pipes connecting the cylinders with the muffler.

8. In an internal-combustion engine, a journaled crank-shaft, a crank-case journaled and revoluble upon said shaft, and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank and having pistons and rods connecting with said crank, a counter-shaft and gears by which the opposed revolutions of the crank-case and shaft are transmitted to said counter-shaft, and a flexible support, said support comprising yokes with turnable bearings at the ends and pivots by which the engine journal-boxes are flexibly connected with the intermediate portions of the yoke.

9. In an internal-combustion engine a journaled shaft with a single crank, a crank-case journaled and revoluble upon said shaft and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank, and having pistons and rods connecting with said crank, gears and a counter-shaft to which the opposed revolutions of the crank and case are transmitted, inlet and exhaust valves, igniting devices, and actuating-cams, and a muffler concentric with and inclosing the crank-shaft and turnable in unison with the crank-case and cylinders.

10. In an internal-combustion engine a journaled shaft with a single crank, a crank-case journaled and revoluble upon said crank-shaft and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank and having pistons and piston-rods connecting with said crank, a wheel upon the crank-shaft to equalize the revolutions of the cylinders, a counter-shaft and gears whereby the opposite movements of the cylinders and crank-shaft are transmitted to the counter-shaft.

11. In an internal-combustion four-cycle engine, a journaled shaft with a single crank, a crank-case journaled and revoluble upon said crank-shaft and in an opposite direction, cylinders fixed radially to the crank-case in the plane of rotation of the crank, said cylinders having pistons and rods connecting with the crank, a counter-shaft, and gears by which the opposing revolutions of the crank-shaft and case are transmitted to the counter-shaft, spring-closed inlet and exhaust valves, and igniting devices, cams carried by the journal-box and disposed to actuate the valves and igniters of each successively-passing cylinder at each revolution.

12. A revolubly-balanced engine said engine comprising a journaled revoluble crank-shaft, cylinders journaled concentrically upon said shaft in the plane of and revoluble in an opposite direction from the crank and having pistons connected with the crank, a wheel fixed to the crank-shaft, a counter-shaft, and gears whereby the opposing revolutions of the cylinders and crank, are transmitted to the counter-shaft.

13. In an internal-combustion four-cycle engine, a journaled crank-shaft revoluble in one direction, radially-disposed cylinders journaled and revoluble upon said shaft in an opposite direction whereby the cylinders and cranks coincide at each semirevolution, inlet and exhaust valves and igniting devices for each cylinder, stationary cams by which said valves are opened, other cams and igniters actuated thereby at each complete revolution.

14. In an internal-combustion engine, a journaled crank-shaft revoluble in one direction, radial cylinders journaled concentrically upon the shaft with pistons and connecting-rods, said cylinders revoluble in an opposite direction, a counter-shaft, gears by which the opposing revolutions of the engine-shaft and cylinders are transmitted to the counter-shaft, and a fly-wheel mounted upon the engine-shaft to equalize the transmitted inertia of the engine-shaft and cylinders.

15. An improved internal-combustion engine having in combination a revoluble shaft having a single crank, triple cylinders radially disposed in a plane of rotation common to said single shaft and having pistons, connecting-rods between the pistons and the pin of the crank-shaft said rods having segmental ends whose combined circumference is substantially equal to the circumference of the crank-pin, sleeves engaging the said segmental ends and binding the parts together to form substantially a solid box around the crank-shaft, said sleeves being divided in a plane parallel with the crank-pin and bolts uniting the sections of said sleeves and adjusting the contact-faces thereof relative to each other and to the portion of the crank-pin inclosed thereby, a case fixed to and revoluble with the cylinders, said case having a sleeve concentric with the shaft, a gear on the crank-shaft and a corresponding gear on the crank-case sleeve, whereby the shaft and case revolve in opposite directions, power-shafts arranged at right angles to the crank-shaft and gears on the adjacent ends of the power-shafts and located between and engaging the first-named gears whereby motion is transmitted from both the crank-case and the shaft to the power-shafts.

16. The combination in an internal-combustion engine of a shaft having a single crank and crank-pin, a casing within which said crank is inclosed, cylinders mounted upon the casing having their axes radial to the crank and in a single plane of rotation, said cylinders and casing being revoluble, pistons and connecting-rods extending from the pistons to the crank-pin, said connecting-rods having convergent segmental ends, inclosing the crank-pin, clamping-rings divided in a plane parallel with the crank-pin and each having laterally-extending lugs, said rings having the interior made tapering and adapted to fit the correspondingly-shaped connecting-rod ends, and means including bolts passing through the laterally-projecting lugs of the rings at right angles to the crank-pin by which said rings may be adjustably secured upon the tapering ends.

17. The combination in an engine of a shaft having a single crank, a crank-casing, cylinders carried by said casing, radial to the shaft, and in a plane of rotation transverse to the crank-pin, connections between the pistons of said cylinders and the crank-pin whereby the cylinders and crank-shaft are revoluble in opposite directions, adjustable bearings for said engine consisting of yokes, made in the form of trusses and having their outer ends formed with journals disposed longitudinally in line, and journal-boxes connected to the yokes and having pivot-pins by which they are turnable therein.

18. An improved internal-combustion engine having in combination a shaft with a single crank and radially-disposed cylinders revoluble in a plane transverse to said single shaft and having their pistons connected thereto, inlet and exhaust valves and correspond-

ing connecting-passages, cams by which said valves are actuated and connections between the cams and the valve-stems said connections including lever-arms engaged by the cams, rocker-shafts carrying the arms, and rocker-arms also on said shafts and adapted to operate the valve-stems, and means whereby the cams may be turned in unison to vary the amount of explosive mixture admitted to the cylinders, and to reverse the movement of the engine.

19. The combination in an engine of a journaled revoluble single crank-shaft, a crank-case with sleeves revoluble concentrically about the shaft, and in an opposite direction, cylinders carried by the crank-case radial to the shaft and having pistons movable therein, connections between said pistons and the crank-pin, means for admitting and exploding a gas whereby the cylinders are revoluble in one direction and the crank-shaft in the other, connections by which the motion of the shaft and crank-case is transmitted to the power-shaft, and a balance-wheel carried by the crank-shaft and adapted to counterbalance the movements of the cylinders and crank.

20. The combination in an internal-combustion engine of a plurality of cylinders revoluble about a single crank-shaft and means whereby the cylinders and shaft are revoluble in opposite directions, and means connecting the piston of the cylinders with a single crank on the shaft, means for admitting an explosive gas, and exhausting the residue, and electrical devices by which the cylinder charges are ignited, said devices comprising a revoluble cam, arms pivoted at one end and having their free ends disposed in the range of action of the cam, spring-plates fixed to the arms substantially parallel therewith, and provided with contacts, and other contacts with which those carried by the springs are caused to impinge.

784,809. MASSAGE APPARATUS. EUGENE W. SCHNEIDER, New York, N. Y., assignor of three-fourths to Hippolyte Wertheim, Henry Frank Mohler, and Michel Wertheim. Filed June 23, 1903. Serial No. 162,760.



Claim.—A massage apparatus comprising an arm adapted to rest against the body, a casing from which said arm is projected, a tapper movable adjacent to said arm, a tapper-carrier movably supported within the casing, and electromagnetic mechanism, located within the casing, for imparting a vibratory movement to the tapper-carrier.

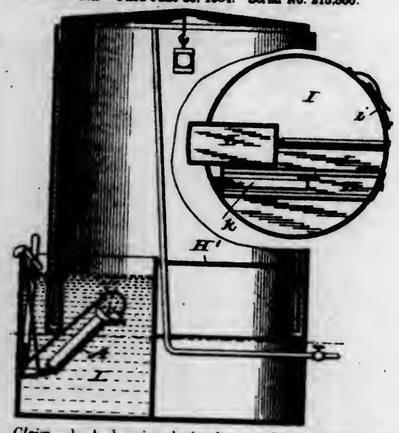
784,810. CROSS-LINE BUCKLE. HENRY L. SHELDON, Sharon Springs, Kans. Filed June 21, 1904. Serial No. 213,563.



Claim.—1. In a buckle, the combination of a frame composing end and side bars, a cross-bar pivoted to one of the side bars of the frame, a tongue carried by the cross-bar, the other side bar of the frame being provided with an elongated longitudinal slot upon the inner side thereof, said slot extending upwardly at one end to the upper side of the said side bar, the cross-bar having means for pivotal movement outward from the frame and for other pivotal movement in substantially the plane of the frame to introduce the free end thereof into the slot aforesaid.

2. In a buckle, the combination of a frame composing end and side bars, said side bars being thickened vertically between the ends thereof, a horizontal pivot-loop projected from the inner side of one of the side bars at the thickened portion thereof, the thickened portion of the other side bar being provided with an elongated slot of approximately L form upon the inner side thereof, a portion of said slot extending longitudinally of the inner side of the side bar aforesaid, and the other portion extending at an angle to the first-mentioned portion to the upper side of the side bar, a cross-bar pivoted at one end to the pivot-loop and having its other end mounted in the L-shaped slot aforesaid, said cross-bar being capable of pivotal movement outward from and in the plane of the frame, and a tongue carried by the cross-bar.

784,811. CARBID-FEEDING DEVICE. WILLIAM SINCLAIR, San Antonio, Tex. Filed June 20, 1904. Serial No. 213,300.



Claim.—1. A charging device for acetylene-gas-generating apparatus, comprising a handle, a carbid-holder pivoted to one end of the handle, a lever pivoted to the other end of the handle, and connections between said lever and holder, whereby the holder can be held in alinement or at an angle to the handle, substantially as described.

2. In a charging device for acetylene-gas-generating apparatus, the combination of a handle, a holder pivoted to one end of the handle, and means for retaining the holder in line with or at an angle to the handle; with a valve for closing said holder, and means for opening the valve when the holder is shifted to an angle with the handle, substantially as described.

3. A charging device for acetylene-gas-generating apparatus, comprising a handle, a carbid-holder pivoted to one end of the handle, a lever pivoted to the other end of the handle, and connections between said lever and holder, whereby the holder can be held in alinement or at an angle to the handle; with a valve for closing the open end of the holder when in line with the handle, and means whereby the valve is opened when the holder is turned to an angle with the handle, substantially as described.

4. A charging device for acetylene-gas-generating apparatus, comprising a handle, a carbid-holder pivoted to one end of the handle, a lever pivoted to the other end of the handle, and connections between said lever and holder, whereby the holder can be held in alinement or at an angle to the handle; with a valve for closing the open end of the holder when in line with the handle, and a rod connecting the valve and handle—whereby the valve is opened when the holder is turned to an angle with the handle, substantially as described.

5. In combination, a gasometer, a water-holding chamber below the bell, extending both in and out of the gasometer; with a carbid-charging device comprising a handle, a holder pivoted to one end thereof, a lever pivoted to the other end thereof, and a connection between the lever and holder, whereby the holder can be tilted upwardly in the inner leg of the generating-chamber after it has been inserted downwardly through the outer leg thereof, substantially as described.

6. In combination, a gasometer, and a water-holding generating-chamber below the bell, extending both in and out of the gasometer; with a carbid-charging device consisting of a handle, a holder pivoted to one end thereof, a valve for closing the outer end of the holder, means for unseating the valve when the holder is tilted upwardly, and means for tilting the holder upwardly in the inner leg of the generating-chamber after it has been inserted downwardly through the outer leg thereof, substantially as described.

7. In combination, a gasometer, a water-holding generating-chamber below the bell extending both in and out of the gasometer; with a carbid-charging device comprising a handle, a holder pivoted to one end thereof, a valve for closing the outer end of the holder, means for unseating the valve when the holder is tilted upwardly, a lever pivoted to the other end of the handle, and a connection between the lever and holder, whereby the holder can be tilted upwardly in the inner leg of the generating-chamber after it has been inserted downwardly through the outer leg thereof, substantially as described.

8. A charging device for acetylene-gas-generating apparatus, comprising a handle, a carbid-holder pivoted to one end thereof, and means whereby the holder can be held mouth downward in alinement with the handle, and whereby it can be swung upwardly at an angle thereto, with a valve or cover for the holder adapted to close the same when it is mouth downward and to admit water into the holder when it is swung upwardly, substantially as described.

9. In combination, a gasometer, and a water-holding chamber below the bell, opening both in and out of the gasometer; with a carbid-charging device consisting of a handle, a holder pivoted to one end thereof, adapted to be inserted mouth downward into the outer part of said water-chamber, and means for swinging the holder upwardly into the gasometer-leg of the water-chamber after it has been inserted downwardly through the outer leg thereof, substantially as described.

784,812. FILING DEVICE. CHARLES C. SPENGLER, Rockford, Ill. Filed Oct. 12, 1904. Serial No. 228,242.



Claim.—1. In a lock for followers, in combination, a guide-rod; a follower; and a locking-lever pivotally mounted upon said guide-rod and adapted to hold the guide-rod and the follower in frictional engagement with each other.

2. In a lock for followers, in combination, a guide-rod; a follower; a cam rotatable upon said guide-rod and adapted to move said follower with relation to said guide-rod to cause a frictional engagement between said parts; and a lever for moving said cam.

3. In a lock for followers, in combination, a guide-rod; a follower having two bearing-points upon said guide-rod; a cam pivotally mounted on said guide-rod between said bearing-points and adapted to cause a frictional engagement between said guide-rod and said bearing-points; and a lever for moving said cam.

4. In a lock for followers, in combination, a guide-rod; a follower having two bearing-points upon said guide-rod; a cam pivotally mounted on said guide-rod and adapted to engage a portion of said follower between said bearing-points to cause a frictional engagement between said guide-rod and said bearing-points; and a lever for moving said cam.

5. In a lock for followers, in combination, a guide-rod; a follower having two perforated ears adapted to receive said guide-rod; a cam pivotally mounted on said guide-rod and adapted to impinge upon said follower to cause a frictional engagement between said guide-rod and said ears; and a lever for moving said cam.

6. In a lock for followers, in combination, a guide-rod; a follower having two perforated ears adapted to receive said guide-rod; a cam pivotally mounted on said guide-rod between said ears and adapted to engage a portion of said follower to cause a frictional engagement between said guide-rod and said ears; and a locking-lever for moving said cam.

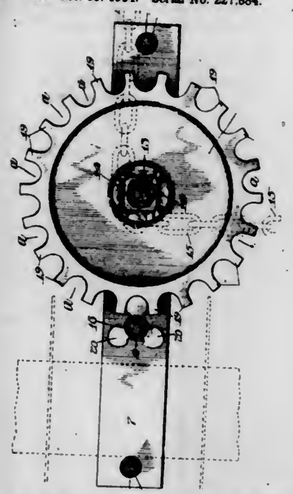
7. In a lock for followers, in combination, a guide-rod; a follower having two perforated ears adapted to receive said guide-rod, one of which ears is doubled to form a loop; and a locking-lever pivotally mounted upon said guide-rod within said loop, said lever having a cam adapted to impinge upon said loop to cause a frictional engagement between said guide-rod and said ears.

8. In a lock for followers, in combination, a follower; two perforated ears fixed to the lower edge of said follower and adapted to receive a guide-rod; a cam rotatable upon said guide-rod for causing a frictional engagement between one of said ears and the guide-rod; and a lever for moving said cam.

9. In a lock for followers, in combination, a guide-rod; a follower; two perforated ears fixed with relation to and extending downwardly from said follower, one of said ears having an angular portion; a cam rotatable upon said guide-rod for causing a frictional engagement between the guide-rod and said angular portion; and a lever for moving said cam.

10. In a lock for followers, in combination, a guide-rod; a follower; a plate adapted to be attached to the lower edge of said follower; two perforated ears integral with said plate and extending downwardly therefrom; a cam rotatable upon said guide-rod for causing a frictional engagement between said guide-rod and one of said ears; and a lever for moving said cam.

784,813. WIRE-STRETCHER. WILLIAM H. SPILLER, Aurora, Ill., assignor to Wilcox Manufacturing Company, Aurora, Ill., a Corporation of Illinois. Filed Oct. 10, 1904. Serial No. 227,884.



Claim.—1. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, said wheel being arranged to bear inwardly upon certain teeth of said pinion when power is initially applied to said wheel to rotate it, substantially as described.

2. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, the teeth of said wheel being arranged to bear inwardly upon the outer end portions of the teeth of said pinion when power is initially applied to said wheel to rotate it, substantially as described.

3. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, said wheel being arranged to bear inwardly upon certain teeth of said pinion when power is initially applied to said wheel to rotate it in either direction, substantially as described.

4. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, the teeth of said wheel being arranged to bear inwardly upon the outer end portions of the teeth of said pinion when power is initially applied to said wheel to rotate it in either direction, substantially as described.

5. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, the teeth of said pinion being arranged to intercept the teeth of said wheel and positively lock said wheel against initial reverse rotation, substantially as described.

6. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, the teeth of said pinion being arranged to intercept the teeth of said wheel and positively lock said wheel against initial rotation, substantially as described.

7. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, certain teeth of said wheel being arranged to bear inwardly upon the end portions of certain teeth of said pinion at opposite sides of a line intersecting the pivots of said wheel and pinion when power is initially applied

to said wheel to rotate it in either direction, substantially as described.

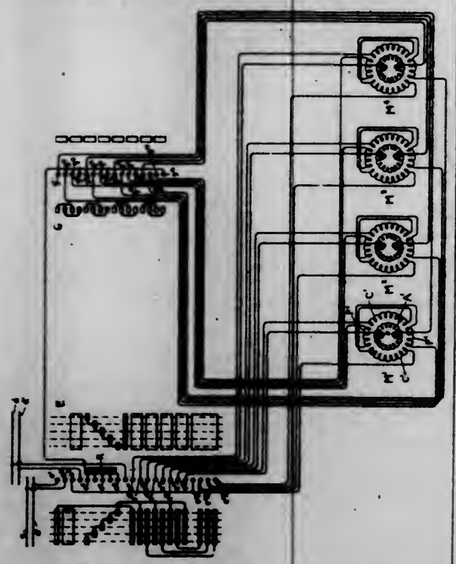
8. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, the teeth of said wheel being arranged to bear upon the outer end portions of the teeth of said pinion substantially toward the axis of said pinion when power is applied initially to said wheel to rotate the same, substantially as described.

9. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, alternate teeth of said wheel being arranged to engage the outer end portions of adjacent teeth of said pinion when power is initially applied to said wheel to rotate the same, substantially as described.

10. A self-locking gear, comprising a driving-pinion, and a toothed wheel meshing therewith and driven thereby, alternate teeth of said wheel being arranged to engage the outer end portions of adjacent teeth of said pinion when power is initially applied to said wheel to rotate the same, said pinion having recesses between adjacent teeth adapted to receive the intermediate teeth of said wheel and permit slight movement of said wheel independently of said pinion, substantially as described.

11. A wire-stretcher, comprising a frame, a driving-pinion, and a driven wheel meshing with said pinion and driven thereby, said wheel and pinion being arranged to interlock against rotation when power is applied initially to said wheel, substantially as described.

784,814. **RAILWAY-MOTOR CONTROL.** CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 20, 1904. Serial No. 221,480.



Claim.—1. In combination with a "compensated" motor having armature, field and compensating windings, a source of direct current, a source of alternating current, means for connecting all three windings in series to said direct-current source, and means for connecting the compensating winding to the alternating-current source and connecting the armature and field windings in series in a closed circuit.

2. In combination with a "compensated" motor having armature, field and compensating windings, a variable resistance, a source of direct current, a source of alternating current, means for connecting all three windings and said resistance in series and to said direct-current source, and means for connecting said compensating winding to said alternating-current source and for connecting said armature and field windings and said resistance in a closed circuit.

3. In combination with a "compensated" motor having armature, field and compensating windings, a source of direct current, a source of alternating current, means for connecting all three windings in series to said direct-current source, means for connecting the compensating winding to the alternating-current source and connecting the armature and field windings in series in a closed circuit, and means for reversing the relative connections of said armature and field windings.

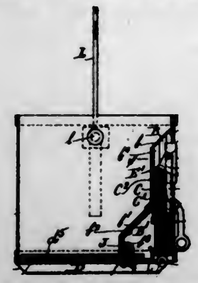
4. In combination with a "compensated" motor having armature, field, and compensating windings, a variable resistance, a source of direct current, a source of alternating current, means for connecting all three windings and said resistance in series and to said direct-current source, means for connecting said compensating winding to said alternating-current source and for connecting said armature and field windings and said resistance in a closed circuit, means for varying the amount of said resistance in circuit, and means for reversing the relative connections of said armature and field windings.

5. In combination, a plurality of "compensated" motors each having armature, field and compensating windings, a source of direct current, a source of alternating current, means for connecting said motors in parallel to said direct-current source with all three windings of each motor in series, and means for connecting said compensating windings in series to said alternating-current source and connecting the armature and field windings of each motor in series with each other in a closed circuit.

6. In combination, a plurality of "compensated" motors each having armature, field and compensating windings, a variable resistance, a source of direct current, a source of alternating current, means for connecting the motors in parallel with each other and in series with said resistance to said direct-current source, all three windings of each motor being connected in series, and means for connecting said compensating windings to said alternating-current source and connecting the armature and field windings of each motor in series and connecting them in a closed circuit in parallel with the other motors and in series with said resistance.

7. In combination, a plurality of "compensated" motors each having armature, field and compensating windings, a variable resistance, a source of direct current, a source of alternating current, means for connecting the motors in parallel with each other and in series with said resistance to said direct-current source, all three windings of each motor being connected in series, and means for connecting said compensating windings in series to said alternating-current source and connecting the armature and field windings of each motor in series and connecting them in a closed circuit in parallel with the other motors and in series with said resistance.

784,815. **DUMPING-BUCKET.** GUSTAVUS L. STUEBNER, Flushing, N. Y. Filed Feb. 10, 1904. Serial No. 192,953.



Claim.—1. In a bucket the combination of a swinging bottom connected thereto, a pocket in the bucket, a counterweight guided in the pocket and located to bear on the swinging bottom, and thereby close the said bottom against the body of the bucket.

2. In a bucket the combination of a hinge, a bottom swinging from the hinge and extending on opposite sides thereof, a pocket in the bucket, a counterweight guided in said pocket with its lower face arranged to bear against one of the ends of said swinging bottom, a latch hinged to the bucket and arranged to bear against the top face of said counterweight.

3. In a bucket the combination of a hinge thereon, a bottom of the bucket swinging on the hinge, a latch pivoted to the body of the bucket, a pocket in the bucket, a counterweight guided in the pocket and arranged to bear between one end of said bottom and the said latch, means to disengage the latch from the counterweight.

4. In a bucket the combination of a door swinging therefrom, a pocket in the bucket, a counterweight guided in said pocket and arranged to bear on one end of the door to maintain it closed, and means to allow a charge in the bucket to bear against the door and raise the counterweight.

5. In a bucket the combination of a swinging bottom hinged thereto, a pocket formed in the bucket, a counterweight arranged to move in the said pocket, a latch pivoted on the bucket and arranged to swing into and out of the said pocket, one end of the latch capable of bearing on one end of the counterweight, and one end of the swinging bottom capable of bearing on the opposite end of the counterweight.

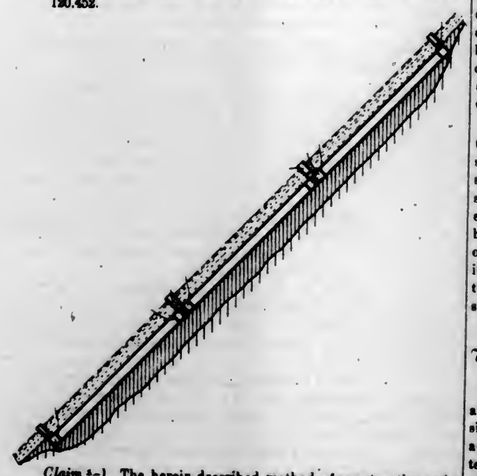
6. In a bucket the combination of a swinging bottom thereon, a pocket in the bucket, a counterweight guided in the pocket and arranged to bear against one end of the bottom, and thereby automatically close the bottom against the bucket, a latch pivoted on the bucket and arranged to bear against the said counterweight to keep the bottom against the bucket, means to detach the latch from the counterweight to allow the latter to move, by virtue of the end of the swinging bottom bearing thereon, when the latter is swinging from the body of the bucket.

7. In a bucket the combination of a pocket formed therein, a latch pivoted in the sides of the bucket and swinging into and out of the pocket through an opening in the body of the bucket, a roller in the end of the latch entering the pocket, and a handle at the end of the latch, lugs on the handle to prevent the latter entering the said pocket, a hinge formed in the lower end of the pocket, a swinging bottom connected to the bucket with the said hinge, a roller journaled at the end of the swinging bottom, and a counterweight arranged in the pocket to bear between the latter roller and the roller in the latch.

8. In a bucket the combination of a pocket formed thereon, angle-plates extending from the body of the bucket and inserted in an opening in the body of the bucket leading to the said pocket, a latch pivoted in the said plates, a roller journaled in one end of the latch, and a handle at the other end of the latch, a counterweight in the pocket having a recess to clear the said angle-plates and to be stopped by the latter when moving up, a swinging bottom hinged to the bucket, a roller at one end of said bottom bearing up against the said weight, the roller on the latch bearing down on the counterweight when in a locked position, and free from the counterweight when unlocked, and a bail pivoted from the bucket.

9. In a bucket the combination of a pocket formed therein, a counterweight guided in the said pocket, a swinging bottom with one end located to swing into and out of the pocket and bear against the counterweight, and a hinge for the swinging bottom located in the pocket.

784,816. **METHOD OF CONSTRUCTING SUBAQUEOUS TUNNELS.** THOMAS K. THOMSON, Yonkers, N. Y., assignor of one-half to Arthur McMullen, New York, N. Y. Filed Aug. 21, 1902. Serial No. 120,452.



Claim.—1. The herein-described method of constructing subaqueous tunnels, which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting on one end of each of said sections a caisson, towing each of said sections to a place above its permanent position, sinking said sections successively, and finally uniting the ends of the adjacent sections within the adjacent caisson, substantially as described.

2. The herein-described method of constructing subaqueous tunnels which method comprises the construction of a plurality of substantially complete tunnel-sections, placing in one end of each of the extreme sections a working shaft, erecting upon one end of each of the other sections a caisson, towing each of said sections to a place above its permanent position, sinking said sections successively, and finally uniting the ends of the adjacent sections within a caisson, substantially as described.

3. The herein-described method of constructing subaqueous tunnels, which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting on one end of each of said sections a caisson, towing each of said sections to a place above its permanent position, sinking said sections successively, uniting the ends of the adjacent sections within a caisson, and finally removing the upper part of each of said caissons, substantially as described.

4. The herein-described method of constructing subaqueous tunnels which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting on one end of each of said sections a caisson, dredging the bed of the stream in order to form a suitable foundation for the tunnel-sections, sinking said sections successively and uniting the ends of the adjacent sections within the adjacent caisson, substantially as described.

5. The herein-described method of constructing subaqueous tunnels which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting on one end of each of said sections a caisson, dredging the bed of the stream in order to form a suitable foundation for the tunnel-sections, strengthening said foundation by the addition of stones or other material or by the driving of piles, sinking said sections successively and uniting the ends of the adjacent sections within the adjacent caisson, substantially as described.

6. The herein-described method of constructing subaqueous tunnels, which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting upon one end of the sections a caisson, sinking into place first one of the extreme tunnel-sections, and then the second section adjoining said extreme section, so that the end having a caisson secured thereto shall be adjacent to said extreme section, fastening the two adjacent ends of said sections together within said caisson, removing the upper part of said caisson and proceeding similarly with each of the remaining sections successively until the line of tunnel is completed, substantially as described.

7. The herein-described method of constructing subaqueous tunnels, which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting upon one end of the sections a caisson, sinking into place, first one of the extreme tunnel-sections and then sinking into place the second section, so that the end of said second section adjacent to the first section will be near but shall not abut against said first section, securing said caisson over the end of the section, and finally fastening together the ends of said sections within the caisson and sealing the joint formed by said ends, substantially as described.

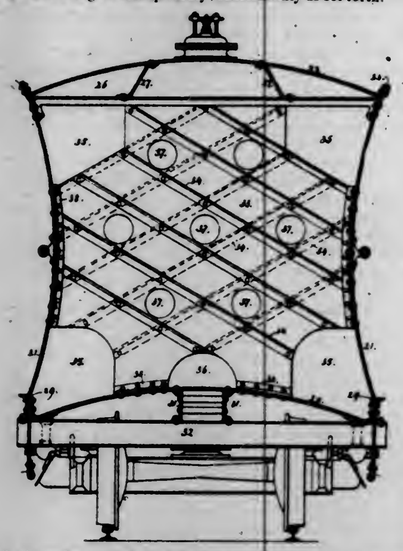
8. The herein-described method of constructing subaqueous tunnels, which method comprises the construction of a plurality of substantially complete tunnel-sections, erecting upon one end of the sections a caisson, sinking into place first one of the extreme tunnel-sections and then sinking into place the second section, so that the end of said second section adjacent to the first section will be near but shall not abut against said first section, securing said caisson over the end of the first section and establishing an air-pressure within said caisson, fastening together the ends of said sections within the caisson, and finally removing the upper part of said caisson, substantially as described.

784,817. **RAILWAY-CAR.** EDWARD A. TRAPP, New York, N. Y. Filed Nov. 21, 1904. Serial No. 233,635.

Claim.—1. A car having a floor structure comprising upwardly-arched steel plates, longitudinal beams along the lower edge of the sides of the car to which the adjacent parts of said plates are secured, and vertical longitudinal plate-girders secured to said beams and extending below the same intermediate the car-trucks; substantially as set forth.

2. A car having a floor structure comprising upwardly-arched steel plates, longitudinal beams along the lower edges of the sides of the car to which the adjacent parts of said plates are secured, and

vertical longitudinal plate-girders secured to said beams and extending below the same intermediate the car-trucks, the lower edges of said girders being folded upwardly; substantially as set forth.



3. A car having a floor structure comprising upwardly-arched steel plates, longitudinal central draw-beams, longitudinal beams along the lower edges of the sides of the car, and connecting transverse beams below said longitudinal beams, said arched plates being secured to said longitudinal beams; substantially as set forth.

4. A car having a floor structure comprising upwardly-arched steel plates, and longitudinal beams along the lower edges of the sides of the car, and said car also having steel-plate sides, said sides and floor-plates being secured to said beams; substantially as set forth.

5. A car having a floor structure comprising upwardly-arched steel plates, and longitudinal beams along the lower edges of the sides of the car, and said car also having steel-plate sides, said sides and floor-plates being secured to said beams, and said sides being extended below said beams to form longitudinal plate-girders; substantially as set forth.

6. A car having sides composed of steel plates arched inwardly, a top, bottom and ends; substantially as set forth.

7. A car having sides composed of steel plates arched inwardly, a floor comprising steel plates arched upwardly, and a top and ends; substantially as set forth.

8. A car having sides composed of steel plates arched inwardly, and means secured to and connecting said plates within the car; substantially as set forth.

9. A car having sides composed of inwardly-arched steel plates, and transverse partitions within the car, said partitions having openings therein and being secured to said sides; substantially as set forth.

10. A car having sides composed of inwardly-arched steel plates, and transverse partitions within the car, said partitions having openings therein and being secured to the said sides and the bottom of the car and consisting of metal plates having crossing flanged bars secured upon their opposite faces; substantially as set forth.

11. A steel tank-car having the upwardly-arched bottom, inwardly-arched sides, a top, ends and partition, the latter having openings for the passage of the oil by the same; substantially as set forth.

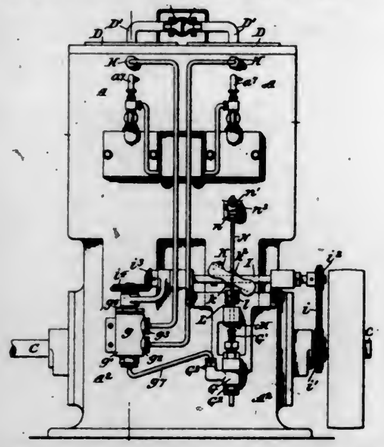
12. A steel tank-car having the upwardly-arched bottom, inwardly-arched sides, inwardly-arched ends, and a top; substantially as set forth.

13. A steel tank-car having the upwardly-arched bottom, inwardly-arched sides, a top and ends, combined with a longitudinal draw-beam centrally below said bottom, longitudinal beams along the lower edges of said sides, and transverse connecting-beams below said longitudinal beams; substantially as set forth.

14. A steel tank-car having the upwardly-arched bottom, inwardly-arched sides, a top, ends, and a transverse partition connecting said sides and having openings for the passage of the oil by it, combined with a longitudinal draw-beam centrally below said bottom, longitudinal beams along the lower edges of said sides, and transverse connecting-beams below said longitudinal beams; substantially as set forth.

15. A car-body having metallic floor-framing provided with the longitudinal belly-plate girders extending downwardly between the trucks, the lower edges of said girders being folded upwardly; substantially as set forth.

784,818. **INTERNAL-COMBUSTION ENGINE.** CARL W. WEISS, New York, N. Y. Filed Feb. 26, 1903. Serial No. 145,154.



Claim.—1. In an explosion-engine, the combination of a fuel-pump, a shaft driven from the engine, weighted arms pivoted transversely upon said shaft, a cam or eccentric carried by said arms whereby the throw of the cam or eccentric is varied with the shifting of the arms, and operative connections between said cam or eccentric and said pump, substantially as described.

2. In an explosion-engine, the combination of a fuel-pump, a shaft driven from the engine, integral weighted arms pivoted centrally and transversely upon said shaft, a cam or eccentric carried by said arms about the pivot thereof, and operative connections between said cam or eccentric and said pump, substantially as described.

784,819. **SHOCKER FOR GRAIN-BINDERS.** HERMAN WELCH, Addington, Ind. Ter. Filed Apr. 9, 1903. Serial No. 151,925.

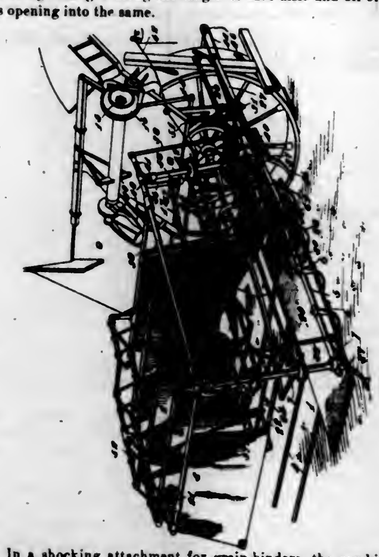
Claim.—1. In a shocking attachment for grain-binders, the combination with suitable framework of stalls supported thereby, gates guarding the entrance to each of said stalls, means for automatically closing the entrance of one stall and opening the entrance to another stall when the former stall is filled, and means for discharging the bundles from all of said stalls, substantially as described.

2. In a shocking attachment for grain-binders, the combination with suitable framework of stalls supported thereby, means carried within each of said stalls for automatically closing the entrance thereof, substantially as described.

3. In a shocking attachment for grain-binders, the combination with a suitable framework, stalls pivotally supported on the said framework, means for delivering bundles to the said stalls, and means for raising the said stalls from the bundles, substantially as described.

4. In a shocking attachment for grain-binders, the combination with a suitable floor supported above the ground and a top above the floor, of means for lowering the floor to the ground, fingers pivotally mounted on the bottom side of the floor for engaging the ground, and means operated thereby for raising the said top, substantially as described.

5. In a shocking attachment for grain-binders, the combination with a supporting-frame, of parallel stalls carried thereby, an aisle being formed at right angles to and at one end of the stalls, and means for directing bundles down said aisle and into said stalls, the stalls being arranged along the length of said aisle and all of said stalls opening into the same.



6. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed at one end of and arranged at right angles to said stalls, means for moving bundles down said aisle, means for forcing bundles into said stalls, and means governing the admission of the bundles to the stalls.

7. In a shocking attachment for grain-binders, the combination with a supporting-frame, of a plurality of stalls carried thereby, a gate closing one of said stalls, means for forcing bundles into the other of said stalls, and means within the last-mentioned stall for opening said gate.

8. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed transversely of the stalls, means for directing a bundle longitudinally of said aisle, and a spring-arm extending longitudinally of the aisle and designed to exert pressure upon the bundles passed longitudinally of said aisle in a direction toward said stalls.

9. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed at one side of said frame transversely of the stalls, a spring-arm extending longitudinally of said aisle, and means for directing a bundle longitudinally of the aisle between said spring and said stalls.

10. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed transversely of said stalls, a spring-arm extending longitudinally of said aisle, means for directing a bundle between said arm and said stalls, and means actuated by said arm for positioning a cord in the path of movement of said bundle.

11. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed transversely of said stalls, a pivotally-mounted arm at each end of said aisle, a spring connecting said arms, and means for directing a bundle between said spring and said stalls.

12. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed transversely of said stalls, a lower spring extending longitudinally of said aisle, an upper spring also extending longitudinally of said aisle, and means for directing bundles longitudinally of the aisle between said springs and stalls.

13. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, an aisle being formed transversely of said stalls, a pivotally-mounted cord-carrying needle extending across said aisle, means for directing bundles longitudinally of said aisle, means for directing bundles into said stalls from said aisle, and means for swinging said needle across the aisle in front of each bundle as the same passes down the aisle.

14. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, a floor for said stalls, means for supporting said floor above the ground, releasing means for said support for permitting the floor to descend to the ground, and means carried by said floor for elevating said stalls.

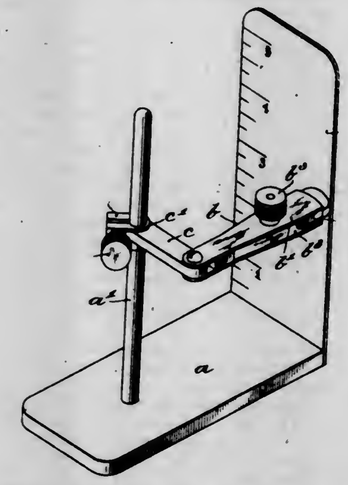
15. In a shocking attachment for grain-binders, the combination with a frame having a plurality of stalls carried thereby, of a floor for said stalls, means supporting said floor above the ground, means for releasing said support for permitting the floor to descend to the ground, and ground-engaging means for elevating said stalls.

16. In a shocking attachment for grain-binders, the combination with a frame, of a plurality of stalls carried thereby, a pivotally-mounted gate for closing one of said stalls, a crank turning with said gate, a shaft pivotally engaging said crank and extending into the other stall, and means adapted to engage said shaft for actuating said gate when the last-mentioned stall has been filled.

17. In a shocking attachment for grain-binders, the combination with a rotatably-mounted shaft, of a cradle fixed thereto, a spring engaging said shaft for counterbalancing the weight of said cradle, means for tilting the cradle when supporting a bundle, means for discharging said bundle from said cradle, and means for assembling the bundles discharged from the cradle.

18. In a shocking attachment for grain-binders, the combination with a frame and bundle-assembling means carried thereby, of a pivotally-mounted rod pivotally engaging said frame, a pivotally-mounted rod arranged parallel to said first-mentioned rod and also pivotally engaging said frame, a trip engaging said first-mentioned rod for supporting the same in an elevated position, and means for releasing said trip.

784,820. **SKIRT OR COAT GAGE.** JOEL B. WELLS, Moylan, Pa. Filed Nov. 22, 1904. Serial No. 233,823.

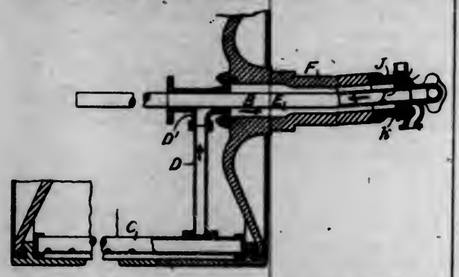


Claim.—1. A skirt and coat gage, comprising a standard suitably connected with a base having a vertical end plate, a crayon-holder, a movable link pivotally connected therewith so as to afford said crayon-holder a movement toward or away from the garment to be marked, and said link connected with said standard, substantially as and for the purposes described.

2. A skirt and coat gage, comprising a base provided with a graduated or scale plate; a standard, a crayon-holder pivotally connected with a movable link so as to afford said crayon-holder a movement toward or away from the garment to be marked, and said link adjustably connected with said standard, substantially as and for the purposes described.

3. A skirt and coat gage, comprising a base having a standard, a movable link adjustably connected with said standard, a crayon-holder pivotally secured to said link so as to permit of the movement of said holder toward or away from the garment to be marked and a plate against which the garment is adapted to rest during the marking thereof, substantially as described.

784,821. APPARATUS FOR REMOVING WATER FROM PAPER-DRYING CYLINDERS. JOHN WHITE, Edinburgh, Scotland. Filed Dec. 27, 1904. Serial No. 238,473.



Claim.—1. The combination with a paper-drying cylinder, of a water-lifter rotating with said cylinder and discharging through the end gudgeon of said cylinder, a tubular end piece secured on said gudgeon, a steam-inlet pipe, and an exhaust-pipe connection fitted to said end piece, said end piece having an automatically opening and closing exhaust-port providing communication between the water-lifter and the exhaust connection when the water-lifter is in position to discharge water, substantially as described.

2. The combination with a paper-drying cylinder, of a steam-pipe admitting steam to said cylinder, a perforated tube having a radial vane and serving as a water-lifter, a pipe connecting said tube to the end gudgeon of said cylinder, a tubular end piece secured to said gudgeon, an exhaust-pipe connection fitted to said end piece, said end piece having an exhaust-port extending about half-way round its circumference outside the steam-pipe so as to communicate with the exhaust connection while the water-lifter is traveling through the upper part of its path, substantially as described.

3. The combination with a paper-drying cylinder, of a water-lifter rotating with said cylinder, and discharging through the end gudgeon of said cylinder, a tubular end piece secured on said end gudgeon, a steam-inlet pipe supplying steam to said cylinder, an exhaust-pipe connection fitted to said end piece, said end piece having an exhaust-port providing communication between the water-lifter and the exhaust-pipe connection when the water-lifter is in position to discharge water a steam-supply pipe secured to said connection a gland made in halves secured around the end piece, and bolts and springs serving to keep the faces of the end piece and of the exhaust connection in close contact, substantially as described.

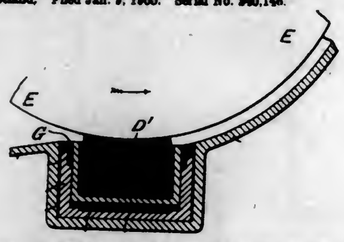
4. The combination with a paper-drying cylinder, of a water-lifter rotating with said cylinder and adapted to periodically discharge water, an exhaust-pipe connected to said cylinder, a valve-box connected to the exhaust-pipe, a valve in said box, and means for operating said valve from the rotating cylinder, substantially as described.

5. The combination with a paper-drying cylinder, of a water-lifter rotating with said cylinder and adapted to periodically discharge water, an exhaust-pipe connected to said cylinder, a valve-box connected to the exhaust-pipe, a valve in said box, a beam-lever, a connection between said valve and said lever, and a cam on the trunnion end of the rotating cylinder serving to lift said valve to allow escape of water in the valve-box.

6. The combination with a paper-drying cylinder, of a water-lifter rotating with said cylinder and discharging water through the end gudgeon of said cylinder, a tubular end piece secured on said gudgeon, a steam-supply pipe fitted to said end piece, said gudgeon having an exhaust-port providing communication between the water-lifter and the exhaust connection when the water-lifter is in a position to discharge water, a valve-box connected to the exhaust-pipe, a valve in said box, a beam-lever, a connection between said valve and said lever, and a cam on the trunnion end of said rotating cylinder serving to lift said valve, substantially as described.

7. The combination with a paper-drying cylinder, A, of a perforated tube C serving as a water-lifter, the pipe D connecting said tube C to the end gudgeon of said cylinder, the tubular end piece G secured on said gudgeon, the steam-inlet pipe B screwed into said end piece, the exhaust-pipe and connection H, H' fitted to said end piece G, said end piece having an exhaust-port I providing communication between the water-lifter and the exhaust-pipe, the steam-supply pipe B', the valve-box N connected to the exhaust-pipe and having an outlet O, a valve P in said box, a beam-lever Q, a valve-rod P', chain P^2 and adjusting-screw P^3 connecting said valve with said lever and a cam R on the trunnion end of the rotating cylinder, as and for the purpose set forth.

784,822. PULP-BEATING ENGINE. JOHN WHITE, Edinburgh, Scotland. Filed Jan. 9, 1905. Serial No. 240,146.



Claim.—1. In a pulp-beating engine the combination of a plate-box adapted to fit externally the usual opening in the beater-trough and forming internally a fluid-pressure chamber, a movable ram or piston closely fitted into said chamber, carrying knives to constitute a knife-plate and adjustably supported by fluid-pressure in said chamber.

2. In a pulp-beating engine the combination with the beater-trough and its roll of a plate-box comprising a fluid-pressure vessel, a ram or piston fitted therein and a knife-plate supported in contact with the beater-roll by said ram or piston.

3. In a pulp-beating engine, the combination with the beater-trough and its roll, of a plate-box comprising a ram casing or chamber, a ram or piston fitted therein and a knife-plate supported in contact with the beater-roll by said ram or piston, and a flexible water-pressure bag interposed in said casing between the bottom thereof and the ram or piston.

4. In a pulp-beating engine, the combination with the beater-trough and its roll, of a plate-box adapted to fit the opening in the beater-trough and forming internally a fluid-pressure chamber, a movable ram or piston closely fitting said chamber and carrying knives to constitute a knife-plate, means for raising the ram by the action of fluid under pressure and stops for limiting the movement of said ram.

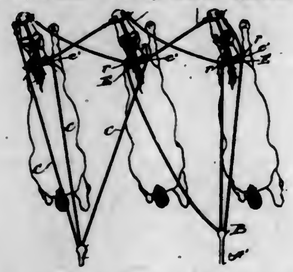
784,823. EXPANSIBLE REMINDER-RING. CHARLES T. WHITSETT, Indianapolis, Ind. Filed May 7, 1904. Renewed Feb. 10, 1905. Serial No. 245,034.



Claim.—1. A finger-ring comprising a coil-spring, a plate having separated projections, and fingers situated between the projections and embracing the spring.

2. A finger-ring comprising a coil-spring, a plate having pairs of separated projections, fingers situated between the projections and embracing the spring, and a legend extending in opposite directions across the projections.

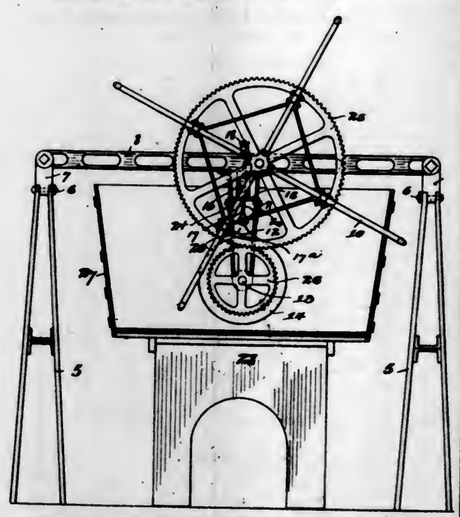
784,824. MULTIPLE DRIVING-REINS. DOUGLAS S. WILSON, Mound Bayou, Miss. Filed Aug. 30, 1904. Serial No. 222,695.



Claim.—1. A driving apparatus consisting, in combination, of main driving-reins A, A connecting-ring holders, B, which latter are composed of two disk-like pieces attached to each other and to the main driving-reins by stitching; ring b inclosed in said ring-holder, branching reins C, provided at each end with snap-hooks for attachment respectively to the ring in the ring-holder and to the ring-bit in the animal's mouth, whereby the movement of the ring-holder is transmitted positively and directly to each of the branching reins, all substantially as described.

2. The combination of main driving-reins, connecting-rings, ring-holders, branching reins, each of the latter being provided with snap-hooks and buckles, whereby the movement of the ring-holder is transmitted positively and directly to each of the branching reins, guide-rings secured to the hames on the collars, and bit-rings secured to the bits, the arrangement of said parts being such that each of the branching reins attached to the ring-holder of the left-hand main driving-rein will connect directly with the left bit-ring of each animal in the team, while the branching reins connected to the ring-holder of the right-hand main driving-rein is connected directly to the bit-ring at the right side of each animal in the team, each of the branching rings passing through its respective guide-ring on the hame substantially as described.

784,825. WASHING-MACHINE. GUSTAV A. WOLTER, Chicago, Ill. Filed June 15, 1904. Serial No. 212,719.



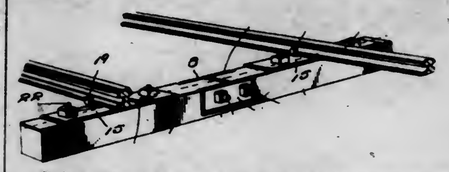
Claim.—1. In a washing-machine, the combination with a supporting-frame having a pair of parallel horizontal cross-bars, of brackets depending from said cross-bars, a squeezing-roll journaled in the lower ends of said brackets, yieldingly-supported journals suspended from said cross-bars above said roll, an upper squeezing-roll mounted in said yieldingly-supported journals, an operating-shaft journaled on said cross-bars, and driving-gears between said operating-shaft and said first-named roll, substantially as described.

2. In a washing-machine, the combination with a supporting-frame and a pair of squeezing-rolls rotatably supported thereby, of means for driving one of said rolls, and a guide or scraper mounted to lie against the periphery of the upper roll to prevent winding of the clothes therearound, substantially as described.

3. In a washing-machine, the combination with a supporting-frame having horizontal cross-bars, of brackets depending from said cross-bars, a lower squeezing-roll journaled in the lower ends of said brackets, a yieldingly-mounted upper squeezing-roll, manually-operable means for driving said lower roll and a scraper-bar secured at its ends to said brackets and engaging by its lower edge the periphery of said upper roll, substantially as described.

784,826. RAILROAD-TIE. FLAVIUS C. WRIGHT, Logan, Ohio. Filed May 9, 1904. Renewed Jan. 26, 1905. Serial No. 243,803.

Claim.—1. A railroad-tie comprising a plurality of sections having recesses in their side faces adjacent to their meeting ends and communicating with said ends, said sections being spaced slightly from each other, connecting-plates disposed in the recesses and pivoted to the sections, and means connected with the tie for attaching rails thereto.



2. In a railroad-tie, the combination with two alining sections spaced from each other at their inner ends, of plates disposed at opposite sides of the sections and pivoted thereto, and rail-attaching plates secured to the upper faces of the sections, said plates having notches in their opposite edges spaced from each other longitudinally of the plates, and tongues extending upwardly and inwardly from the inner ends of the notches, said tongues being arranged for engagement with the base-flange of a rail.

3. In a railroad-tie, the combination with two alining sections spaced from each other at their ends, of plates disposed at opposite sides of the sections and pivoted thereto, rail-attaching plates secured to the upper faces of the sections, and tongues extending upwardly from the plates adjacent to the opposite edges thereof, and spaced from each other longitudinally of the plates, said tongues being arranged for engagement with the base-flange of a rail.

784,827. SAFETY-PIN. JENS M. A. W. ZIMMERMANN, Copenhagen, Denmark. Filed Nov. 14, 1904. Serial No. 232,670.



Claim.—1. An extensible safety-pin comprising a single length of resilient wire bent upon itself to form pin and leg sections, a guard inclosing the ends of said sections, an expansively-acting spring wound about said leg-section, a washer on the outer end of said leg-section forming a shoulder against which one end of said spring is seated, said guard being reduced and forming a seat for the remaining end of said spring, said guard having lateral slits normally preventing dislodgment of the pin-section, and a projecting shoulder or lip on said washer adapted to engage collapsed wall portions of the guard and serving to maintain alinement between said pin and guard.

2. An extensible safety-pin comprising a single length of resilient wire bent upon itself to form pin and leg sections, a guard inclosing the ends of the said sections, a washer on the outer end of said leg-section forming a shoulder against which one end of said spring is seated, and an expansively-acting spring wound about said leg-section, a seat being formed for the remaining end of said spring formed by reduced wall portions of said guard.

3. An extensible safety-pin comprising a single length of resilient wire bent upon itself to form pin and leg sections, a guard inclosing the ends of said sections, and an expansively-acting spring for said leg-section yieldingly connecting the same with said guard.

4. An extensible safety-pin comprising a single length of resilient wire bent upon itself to form pin and leg sections, a guard for inclosing the ends of said sections, and a spring connecting said leg-section and guard, said leg-section having an upwardly-extending projection adapted to engage collapsed portions of said guard thereby serving to maintain alinement between the same and said pin.

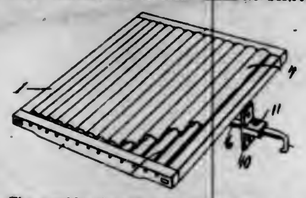
5. An extensible safety-pin comprising a wire forming pin and leg sections, a guard for inclosing the ends of said sections, a spring connecting said leg-section and guard, and means maintaining alinement of said guard and sections.

6. An extensible safety-pin comprising pin and leg sections, a guard inclosing the ends of said sections, and a spring for said leg-section connecting the same with said guard.

7. An extensible safety-pin comprising pin and leg sections, a guard therefor formed of a separate piece of material, a spring yieldingly connecting said leg-section and guard, and means holding said leg-section and guard in alinement.

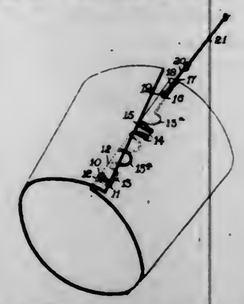
8. An extensible safety-pin comprising pin and leg sections forming a loop and constructed from a single piece of material, a guard inclosing the ends of said sections, and a spring directly connected with said guard and leg sections, said parts being separably united, said spring holding the ends of said section and guard in yielding engagement.

784,828. GRAIN-SEPARATOR SIEVE. ELIPHALET ARMSTRONG, Mansfield, Ohio, assignor, by direct and mesne assignments, of one-half to Lorenzo D. Patten and Samuel S. Bricker, Mansfield, Ohio. Filed Feb. 10, 1902. Renewed Jan. 20, 1905. Serial No. 241,964.



Claim.—The combination of a rectangular frame, a series of rods or bars journaled to the frame members and in parallel relation with each other, concavo-convexed blades secured to the parallel rods or bars, adjustable operating-arms attached to the free edges of the concavo-convexed blades and a reciprocating rod, said arms pivotally attached to the reciprocating rod, and means for holding said reciprocating rod in fixed adjustment, and means for supporting the inner end of the rod, substantially as and for the purpose specified.

784,829. CUFF-FASTENER. CHARLES W. BARNES, New York, N. Y. Filed July 2, 1904. Serial No. 215,106.



Claim.—1. A cuff-fastener, comprising a wire formed into a series of clamps to engage the meeting edges of a cuff, and a tailpiece pivotally connected to the fastener.

2. A cuff-fastener extending longitudinally along the meeting edges of a cuff and provided with a series of clamps which engage the said meeting edges at a plurality of points.

3. A cuff-fastener comprising a wire constructed to extend along the meeting edges of a cuff and provided with a series of clamps to engage such edges, and a tailpiece pivotally connected with the fastener.

784,830. MEDICINE-SPOON. MARTIN L. BEISTLE, Ingram, Pa. Filed Aug. 12, 1904. Serial No. 220,565.

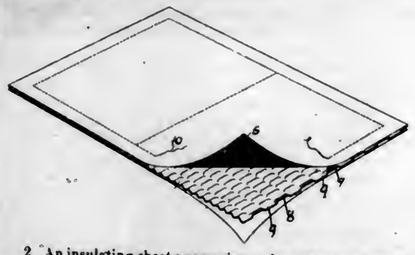


Claim.—1. As a new article of manufacture, a spoon embodying an imperforate bowl, and a handle, the said handle having a portion thereof bent at right angles to the bowl and then bent downwardly to engage the rim of a vessel and support the bowl within the vessel.

2. As a new article of manufacture, a receptacle comprising a bowl having an integral handle, the end of said handle being bent to form a substantially inverted-V-shaped yoke, said yoke extending at right angles to said receptacle, and a spring carried by said yoke, substantially as described.

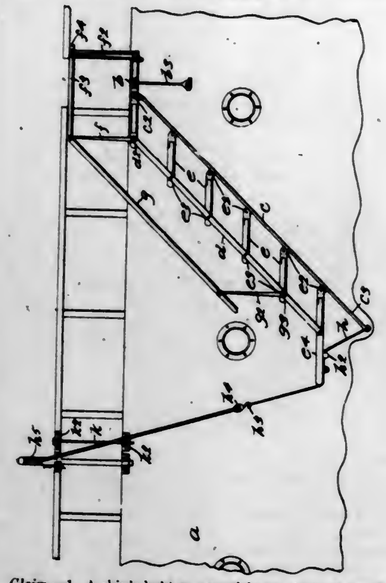
784,831. INSULATING SHEET OR STRUCTURE. CHARLES S. BIRD, East Walpole, Mass. Filed May 31, 1904. Serial No. 210,423.

Claim.—1. An insulating-sheet comprising a flexible sheet having a multiplicity of projections formed at one surface thereof, and a flexible protecting waterproofed sheet loosely secured to said first-named sheet whereby a limited independent movement of the sheets may be effected in rolling.



2. An insulating-sheet comprising an intermediate sheet having series of projections arranged in rows at both sides thereof, the projections of each row being staggered with relation to the projections of the adjacent rows, and a pair of outer flexible waterproof layers loosely secured to the intermediate sheet by sewing.

784,832. SHIP-LADDER. PHILIP BRACEGIRDLE, Southwick, England. Filed Nov. 12, 1904. Serial No. 232,304.

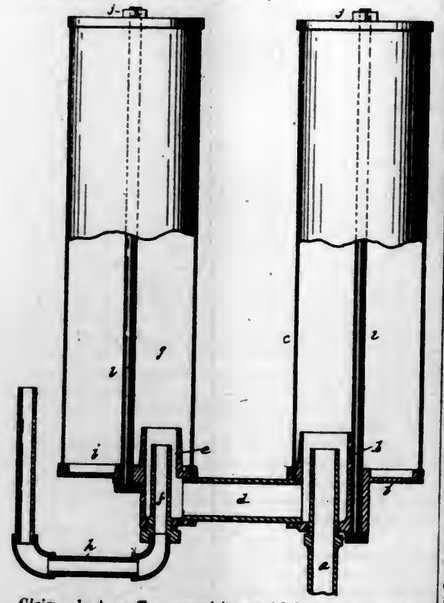


Claim.—1. A ship's ladder, comprising a platform-step hinged to the hull of the ship and adapted to fold in a vertical plane, means for holding the platform-step in a horizontal position, bottom rails pivoted to the opposite sides of the platform-step centrally thereof, top rails pivoted to the opposite sides of the platform-step at the front edge thereof, a bottom step pivoted to the bottom rails and between the top rails and projecting beyond the top rails, intermediate steps pivoted to the bottom rails and between the top rails, the lower ends of the bottom rails being also projected beyond the bottom step, cables connected with the lower ends of said rails and passed through keepers on the bottom step and adapted to be connected with a hoisting apparatus, supporting members pivoted to the outer side of the platform-step and to the bottom portion of the outer top rail of the ladder and adapted to be held in an upright position when the latter is lowered into position for use and guard-rails pivotally connected with the said supporting members and adapted to form a cage around the platform-step and a guard for the ladder when the said ladder is lowered into position for use, substantially as shown and described.

2. A ship's ladder adapted to be folded adjacent to the hull of the vessel, comprising a platform-step hinged to the hull of the vessel and adapted to be folded in a vertical position and means whereby it

may be held in a horizontal position, bottom bars pivoted to the opposite sides of said step centrally thereof, top bars pivoted to the opposite sides of said step near the front edge thereof, a bottom step pivoted to the bottom bars and between the top bars and projecting beyond the top bars, intermediate steps pivoted to the bottom bars and between the top bars, the lower ends of the bottom bars being also projected below the bottom step, flexible hoisting devices connected with the lower ends of said bars, and passed through keepers connected with the bottom of the bottom step and connected with a hoisting apparatus, the platform-step and the outer top bars of the ladder being provided with guard devices which are held in an upright position when the ladder is lowered for use and which are folded adjacent thereto when the ladder is raised and folded adjacent to the hull of the vessel or the guard-railing thereof, substantially as shown and described.

784,833. MUFFLER. ALANSON P. BRUSH, Detroit, Mich. Filed Dec. 6, 1904. Serial No. 235,708.



Claim.—1. A muffler comprising multiple chambers, an exhaust-pipe leading into one end of one of the chambers, an exhaust-pipe leading from the same end of said chamber into one end of a second chamber, and an exhaust-pipe leading from the same end of the second chamber as set forth.

2. A muffler comprising multiple chambers each provided at one end thereof with an outflow-channel communicating therewith, a pipe connecting said channels, an exhaust-pipe leading into one of said channels, and an exhaust-pipe leading from the other of said channels.

3. A muffler comprising a muffler-chamber having inlet and outlet passages coincident the one with the other, the outlet-passage projecting within the chamber beyond the inlet-passage.

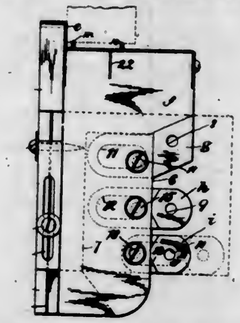
4. A muffler comprising a muffler-chamber having inlet and outlet passages coincident the one with the other, the outlet-passage leading into the chamber beyond the opening of the inlet-passage whereby the outflow of the gases will be retarded by the inflow.

5. A muffler comprising a muffler-chamber having inlet and outlet passages coincident the one with the other, said passages arranged to form a single opening at the extremity of the outlet-passage within said chamber.

6. A muffler comprising plural communicating muffler-chambers connected in series substantially as set forth, an exhaust-channel leading into one end of one of said chambers, and an exhaust-channel leading from the corresponding end of the other of said chambers.

7. A muffler comprising plural communicating muffler-chambers, each of said chambers provided with coincident inlet and outlet openings, said openings arranged so that the inflow of gas through the inlet-channel will retard the outflow of gas through the outlet-channel.

784,834. DOOR-LOCK-MARKING GAGE. ANDREW CARLSON, New York, N. Y. Filed Nov. 18, 1904. Serial No. 233,253.



Claim.—1. A door-lock-marking gage comprising a front piece having a guide-bar in each side of the same, a gage member slidably adjustable on each guide-bar, means for securing the gage members in any desired position, a side piece, gage-blocks having transverse openings therein and adjustably mounted in the edge of the said side piece, means for securing said gage-blocks in any desired position and means for securing said side and front pieces together at right angles to one another.

2. A door-lock-marking gage comprising a front piece having correspondingly cut-away portions along opposite edges and a guide-bar in each cut-away portion, a gage member slidably adjustable on each guide-bar, means for securing the gage members in any position, a side piece also having a cut-away portion and a longitudinal recess therein, gage-blocks having transverse openings therein and adjustably mounted in the said recess, means for securing said gage blocks in any desired position and means for securing said front and side pieces together at right angles to one another.

3. A door-lock-marking gage comprising a front piece having correspondingly cut-away portions along opposite edges, a guide-bar in each cut-away portion, a gage member slidably adjustable on each guide-bar, means for securing the gage members in any position, a side piece also having a cut-away portion and a longitudinal recess therein, gage-blocks having transverse openings therein and adjustably mounted in the said recess, means for securing said gage-blocks in any desired position and means for marking the edge of the door for the sides of the face of the lock and for marking the door-jamb for the sides of the strike-plate, so that these parts may bear the correct relative positions to one another

4. A door-lock-marking gage comprising means for indicatin the positions of the upper and lower edges of the face of the lock means for indicating the positions of the key and other holes of the lock and means for marking the edge of the door for the sides of the face of the lock and for marking the door-jamb for the sides of the strike-plates so that these parts may bear the correct relative positions to one another.

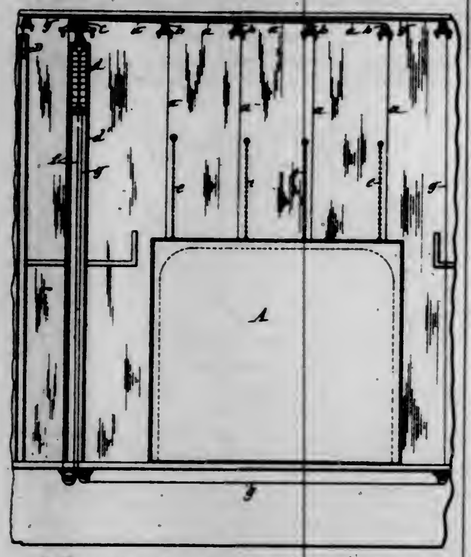
5. A door-lock-marking gage comprising a front piece, a side piece, means for registering the upper and lower edges of the face of the lock, means for registering the key and other holes in the lock, means for securing the said front and side pieces pivotally together, a plate mounted on one face of the front piece at one end thereof and markers adjustably mounted in the end of the side piece which is adjacent to and adapted to engage a shoulder in the lower edge of the said plate.

784,835. AUXILIARY RELEASE FOR THEATRICAL FIRE-CURTAINS. JOHN R. CLANCY, Syracuse, N. Y. Filed Sept. 26, 1904. Serial No. 226,536.

Claim.—1. The combination, with the drop-curtain, of a primary counterweight preponderated by said curtain, and an auxiliary counterweight applied by means of a connection which is destructible by flame or heat, as and for the purpose set forth.

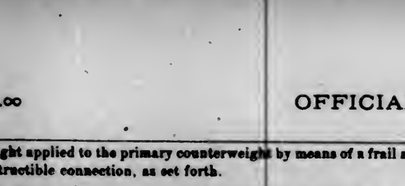
2. The combination, with the drop-curtain, of a primary counterweight preponderated by said curtain, an auxiliary counter-

weight applied to the primary counterweight by means of a frail and destructible connection, as set forth.



3. The combination, with the drop-curtain, of a primary counterweight preponderated by the curtain, an auxiliary counterweight applied by means of a frail material destructible by heat or flame and extended in a circuitous direction from the primary counterweight, as and for the purpose set forth.

784,836. TINNING-MACHINE. DAVID D. CLARKE, Newcastle, Pa. Filed Mar. 5, 1904. Serial No. 196,785.



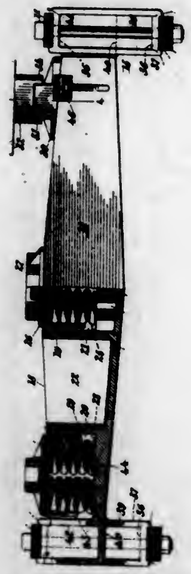
Claim.—1. In a tinning-machine, the combination with an oil-receptacle and rollers arranged therein, of two sinuous lines of pipes arranged one on each side of the rollers in said receptacle, an inlet-pipe and outlet-pipe, both said lines of pipes being connected to common inlet and outlet pipes and the outlet-pipe being provided with protective coverings arranged at the level of the oil in said receptacle.

2. In a tinning-machine, the combination with an oil-receptacle and with rollers arranged therein, of two sinuous lines of pipes, a pipe arranged horizontally on the outside of and spaced apart from and parallel to the lowermost line of each of said sinuous lines of pipes and connected thereto, an inlet-pipe common to said horizontal pipes, said horizontal pipes being connected to said common inlet-pipe, substantially as described.

3. In a tinning-machine, the combination of an oil-receptacle and rollers arranged in said receptacle, with cooling-pipes arranged in said receptacle, inlet and outlet pipes connected to said cooling-pipes and protective coverings arranged on said inlet and outlet pipes at the level of the oil in the receptacle.

784,837. CAR-TRUCK. EDWARD CLIFF, New York, N. Y., assignor to Vose and Cliff Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Nov. 7, 1904. Serial No. 231,609.

Claim.—1. In a car-truck, the side frames having upper and lower bars, the bolster having on its ends the heads extending between said bars, and means rigidly securing said heads to said bars, said bolster being formed with the vertical compartments at its center and adjacent to its ends, combined with the springs seated in said compartments, and the caps mounted on said springs and affording the center and side bearing seats, said springs and caps being arranged to receive the car-body and its load about equally: substantially as set forth.



2. In a car-truck, the side frames having upper and lower bars, combined with the integral cast bolster having on its ends the heads adapted to said bars and affording column-posts through which the column-bolts pass, said posts having on their upper and lower ends the gibs or flanges extending on opposite sides of said bars; substantially as set forth.

3. In a car-truck, the side frames having upper and lower bars, combined with the integral cast bolster having on its ends the heads extending between said bars and secured thereto, said heads comprising the column-posts connected together by webs and adapted to receive the column-bolts; substantially as set forth.

4. In a car-truck, the side frames having upper and lower bars, combined with the integral cast bolster having on its ends the heads extending between said bars and secured thereto, said heads comprising the column-posts connected together by the inner and outer webs which are themselves connected together by the transverse integral sections; substantially as set forth.

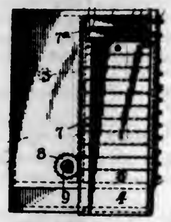
5. In a car-truck, the side frames having upper and lower bars, combined with the bolster having on its ends the heads extending between said bars and secured thereto, the springs seated within said bolster at its center and adjacent to its end portions, and the caps on said springs and affording the center and side bearing seats, said heads and the side-bearing caps being recessed to permit inspection of the springs below said caps from the outer side of the truck; substantially as set forth.

6. In a car-truck, the bolster extending between and secured to the side frames, said bolster being an integral casting having compartments formed therein at its center and adjacent to the side frames of the truck, springs within said compartments, and caps on said springs and affording the center and side bearing seats, said caps having freedom for lateral play endwise of the bolster and said springs being adapted to receive the load about equally; substantially as set forth.

7. In a car-truck, the integral cast bolster having the rectangular compartments formed therein at its center and adjacent to its ends, the sets of rectangularly-arranged coiled springs seated in said compartments, and the rectangular caps mounted on said springs and affording the center and side bearing seats, said springs and caps being arranged to receive the car-body and its load about equally; substantially as set forth.

8. In a car-truck, the integral cast bolster having the bottom, sides and partitions and forming the series of compartments 20, 21, 22 all normally entirely open at their upper ends, the springs seated in said compartments 21, 20 and the caps 26, 30 mounted on said springs and affording the center and side bearing seats; substantially as set forth.

784,838. VENDING-MACHINE. AUSTIN CONWAY, Sherbrooke, Canada. Filed Mar. 3, 1904. Serial No. 196,450.



Claim.—1. In a vending-machine, the combination with a casing having transverse compartments, of a slidable gravity cover for the said compartments, means retaining the cover in predetermined positions, releasing means whereby said cover is caused to expose said compartments in single series, and means for preventing return movement of said cover, and an ejector for each compartment, the same comprising a slidable rod with angular offset with the offset arranged to engage the rear of a magazine.

2. In a vending-machine, the combination of a casing having transverse compartments, a slidable gravity cover for said compartments, a rack carried at one edge of said cover, a pinion meshing with said rack, a shaft carrying said pinion, a ratchet fast upon said shaft and having its teeth arranged a distance apart corresponding to the distance between the said compartments, a second ratchet on said shaft having its teeth oppositely extending, a spring-actuated lever engaging the last-named ratchet, and a rocking arm having one end engaging the other ratchet and its other end extended to be actuated by contact with an object moving over the same.

784,839. BRAKE-BEAM. SETH A. CRONE, New York, N. Y. Filed Oct. 1, 1904. Serial No. 226,790.



Claim.—1. The forged-metal brake-beam fulcrum comprising the angularly-disposed sides having at their inner ends the flanges 17, 18, with means for securing said sides to the body-beam, said flanges 18 being of substantially triangular shape and the metal in said sides about said flanges 18 being thicker at the outer diagonally opposite portions 20 than at the inner diagonally opposite portions 21; substantially as set forth.

2. The forged-metal brake-beam fulcrum comprising the angularly-disposed sides having at their inner ends the flanges 17, 18, with means for securing said sides to the body-beam, said flanges 18 being of substantially triangular shape and the metal in said sides about said flanges 18 being thicker at the outer diagonally opposite portions 20 than at the inner diagonally opposite portions 21, and gradually tapering from the edges of said portions 20 to the edges of said portions 21; substantially as set forth.

3. The forged-metal brake-beam fulcrum comprising the angularly-disposed sides having at their inner ends the flanges 16, 17 and 18, said flanges 18 being of substantially triangular shape and the metal in said sides about said flanges 18 being thicker at the outer diagonally opposite portions 20 than at the other portions of said sides, and the metal at the inner diagonally opposite portions 21 about said flanges 18 being thinner than the metal in the remaining portions of said sides; substantially as set forth.

784,840. NUMBERING DEVICE FOR STORM-SASH OR SCREENS. EDWARD A. CROSBY, Minneapolis, Minn. Filed June 30, 1904. Serial No. 213,268.



Claim.—1. A numbering device, comprising a plate adapted to be secured to a window sash or door and having a portion of its surface raised above the plane of the remaining portion, and provided with a character cut or formed therein and communicating with the space in the rear of said raised portion to allow paint and other foreign matter to pass through and prevent the concealment or obliteration of said character.

2. A numbering device, comprising a plate having a series of raised areas thereon formed by pressing up portions of the plate above the plane of the remaining portion, each raised area bearing a character formed in the plate and extending therethrough and communicating with the space in the rear of said area, and said raised area being of comparatively thin material and adapted to be crushed or pressed down upon the plate, substantially as described.

3. A numbering device, comprising a plate adapted to be secured to a window-sash or door and having rows of raised areas thereon above the plane of the remaining portion of the plate, said areas having rows of numbers running from one to zero cut through the plate and communicating with the space in the rear of said raised areas, and said areas being adapted to be crushed or pressed with the numbers therein down upon said plate, for the purpose specified.

784,841. NEEDLE-CASE. PETER A. CURTIN, Buffalo, N. Y. Filed Oct. 26, 1903. Serial No. 178,568.



Claim.—1. A needle-case comprising a hollow inner section having a needle-point protector and a plug entering one end and holding said needle-point protector in said section, and a hollow outer section into which the open end of the inner section is inserted.

2. A needle-case comprising a hollow tapered section having a needle-point protector held therein, a plug entering the enlarged end of said section and bearing with its inserted end against said needle-point protector, and a hollow cylindrical section into which the open end of the tapered section is inserted.

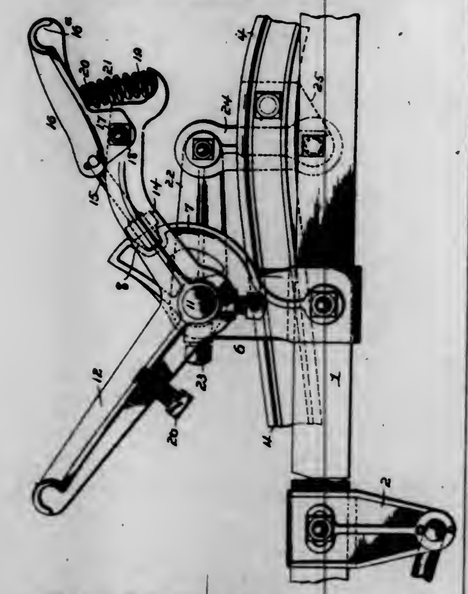
3. A needle-case comprising a hollow section slitted lengthwise at one end and tapered from said slitted end to a point intermediate its ends, a needle-point protector located in said section and being held from movement in one direction by the said taper, a plug inserted in said slitted end and bearing with its inserted end against said needle-point protector to hold the same against movement in the opposite direction, and a second hollow section into which the open end of the first-mentioned section is inserted.

4. A needle-case comprising a hollow section slitted lengthwise at one end and tapered from said slitted end to a point intermediate its ends, a needle-point protector located in said section and being held from movement in one direction by the said taper, a plug inserted in said slitted end and bearing with its inserted end against said needle-point protector to hold the same against movement in the opposite direction, a staple passing through the wall of said section on opposite sides of the slit therein and entering the plug, and a hollow cylindrical section into which the open end of the first-mentioned section is inserted.

5. A needle-case comprising a hollow section slitted at one end

and having an annular internal bead near said end, a needle-point protector held in said section, a plug having an annular groove and being inserted in said slitted end to cause said bead to enter said groove, and a second hollow section into which the open end of the first-mentioned section is inserted.

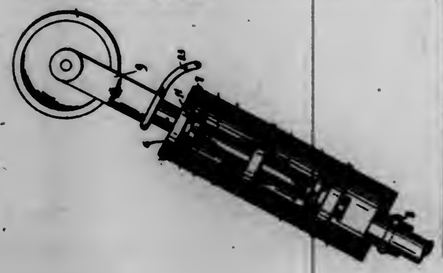
784,842. FOOT-LIFT FOR PLOWS. CALVIN R. DAVIS, South Bend, Ind., assignor to Oliver Chilled Plow Works, South Bend, Ind. Filed Dec. 31, 1904. Serial No. 239,222.



Claim.—1. In a plow, the combination with a frame, of a shaft extending across the frame, a crank-arm adjustably secured on the shaft, a plow-beam carrying plow-bases, a link connecting the crank-arm with said beam, a foot-lever secured between its ends on said shaft, a spring-pressed detent on said lever to lock the latter in one position and a foot-lever on the first-mentioned lever to operate said detent.

2. In a plow, the combination with a frame, of brackets secured to opposite sides of said frame, a notched segment on one of said brackets, a shaft supported in the brackets, a crank-arm adjustably secured on the shaft and connected with a plow-beam, a foot-lever secured between its ends on the shaft, a small foot-lever pivoted to the first-mentioned foot-lever, a detent connected with the smaller foot-lever, a spring between the levers forcing the detent into engagement with the segment to compel the detent to spring into a notch in the segment and hold the plow-bases elevated, and a set-screw carried by the larger lever adapted to engage the end of the segment and limit the downward movement of the plow-bases.

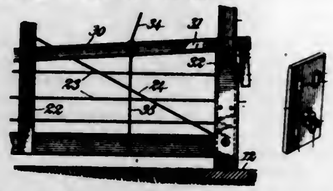
784,843. TROLLEY. MICHAEL O. DAY, Newcastle, Pa. Filed Dec. 20, 1904. Serial No. 237,638.



Claim.—1. The combination with a trolley-pole, a harp and a trolley-wheel, of a casing carried by said trolley-pole, a depending stub-shaft carried by said harp and adapted to extend within said casing, a plurality of partitions carried by said casing, means for preventing any vertical movement of said stub-shaft, and means to return said stub-shaft to its normal position should the shaft be rotated.

2. The combination with a trolley-pole, a harp and a trolley-wheel, of a casing carried by said pole, a stub-shaft carried by said harp and adapted to extend within said casing, a plurality of partitions carried by said casing, washers carried by said stub-shaft, insulation interposed between said stub-shaft and said washers, and means to return said shaft to its normal position should the shaft be rotated, substantially as described.

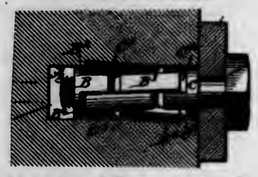
784,844. GATE. JAMES W. ELLIOTT, South McAlester, Ind. Ter. Filed Nov. 10, 1904. Serial No. 232,118.



Claim.—1. The combination with a post provided with a substantially vertical inner face and a curved outer face, of a gate pivoted upon the post to open upwardly, and a latch contacting with the faces.

2. The combination with opposite posts having sockets, of a gate provided with trunnions coacting with the sockets, and means for varying the position of a trunnion.

784,845. EXPANSION-BOLT. FREDERIC H. EVANS, New York, N. Y. Filed Nov. 11, 1904. Serial No. 232,281.



Claim.—1. An expansion-bolt, comprising a bolt, and expanding members, movable relatively to one another along the bolt and having laterally-movable jaws, and means arranged to contact with the under side of the jaws and move them outward when the said members approach each other.

2. An expansion-bolt, comprising a bolt, and a pair of members sleeved on the bolt, each member having laterally-movable portions arranged to ride upon the other member when the said members are moved toward each other.

3. An expansion-bolt, comprising a bolt, and an expanding device on said bolt, consisting of tubular members in one of which screws the threaded end of the bolt, the other member being loose on the bolt, the said members having bendable jaws, the jaws of each member being constructed to ride upon the other member, whereby the jaws will be bent outward and their ends embedded in the wall of the bore of the part in which the bolt is arranged on drawing the threaded member toward the other member.

4. An expansion-bolt, comprising a bolt, and an expanding device on said bolt and consisting of a threaded member in which screws the bolt and an abutting member loose on the bolt, the said members having integral jaws extending toward each other, the jaws of each member being reduced in thickness at their junction with the members to permit them to be readily bent outward and constructed to ride upon the other member when the threaded member is drawn toward the abutting member on turning the bolt.

5. An expansion-bolt, comprising a bolt, and members capable of expanding and held on the bolt, each member having a plurality of spaced gripping-jaws, and beveled surfaces between the jaws at the bases thereof, one member being screw-threaded to screw on the bolt and the other member being held loosely on the bolt.

6. An expansion-bolt comprising a bolt, and members capable of expanding and held on the said bolt, each member having integral laterally-movable jaws and beveled faces, for the jaws of one member to engage the beveled faces of the other member, one of the members being threaded to screw on the bolt and the other member being held loosely on the bolt between the threaded member and the head of the bolt.

7. An expansion-bolt comprising a bolt, and members capable of expanding and held on the said bolt, each member having integral gripping-jaws and beveled faces, for the jaws of one member to engage the beveled faces of the other member, the said jaws on each member being spaced apart for the reception of the jaws of the other member.

784,846. RAILWAY-TIE. JOSEPH J. FLOYD, Washington township, Montgomery county, Ohio, assignor of one-fourth to John C. Kline, Washington township, Montgomery county, Ohio. Filed Dec. 14, 1904. Serial No. 236,818.



Claim.—1. In the herein-referred-to tie for railways, the combination with the rails thereof; of a body portion; a tie-bar; a brace-bar; a supporting-bar; supporting means disposed between said brace and supporting bars; and connecting-bolts provided with washers and nuts, for retaining the rails in position; all substantially as described.

2. The combination in a composite railway-tie with the track-rails; of the tie-body; the bar for connecting said rails; the brace-bar; the supporting-bar; the supporting means between the bars; the tie-bolt; and the bolts provided with nuts and washers for holding said rails firmly in position; all substantially for the purposes and in the manner described.

3. In an improved railway-tie, and in combination with the rails of the track; of a body portion; a tie-bar for connecting the rails; a brace-bar for supporting said tie-bar; a supporting-bar; a tie-bolt; and the U-shaped bolts provided with retaining-nuts and washers, so as to hold the rails firmly and securely in position; all substantially for the purpose described.

784,847. FOOT-VISE. JOHN W. FORD, Denver, Colo. Filed Jan. 11, 1905. Serial No. 240,632.

Claim.—1. In a foot-vise, the combination of a stationary member and a movable member, the movable member being pivoted on the stationary member, an operating lever-arm pivotally connected with the stationary member below the pivot of the movable member, and a locking-lever fulcrumed on the operating-lever, the fulcrum of the locking-lever being provided with a bearing which engages the movable member below the pivot of the latter, the locking-lever having a jointed arm, a spring for normally holding the two parts of the jointed arm in alinement, the stationary member being provided with a notched or toothed part which is engaged by the jointed arm of the locking-lever when the movable member is in the closed position.



2. In a foot-vise, the combination of a stationary member, a movable member pivotally mounted on the stationary member, a spring normally holding the movable member in the open position, an operating lever-arm pivotally connected with the lower part of the stationary member, and a locking-lever fulcrumed on the operating-lever, the fulcrum of the locking-lever having a bearing which engages the lower part of the movable member, the latter being so shaped that the fulcrum bearing on the locking-lever acts to close the operating-jaw of the movable member, as the operating-lever is thrust downwardly.

3. In a foot-vise, the combination of a stationary member which is T-shaped in cross-section having flanges on opposite sides of a central web, a movable member bifurcated to straddle the stationary member, the arms of the bifurcated part passing through openings formed in the flanges of the stationary member, the movable member being pivotally connected with the web of the stationary member, the lower parts of the bifurcated portion of the movable member being curved outwardly from the stationary member, an operating lever-arm pivotally connected with the lower part of the stationary member, the lever-arm being U-shaped and straddling the lower portion of the movable member, and a locking-lever located between the two parts of the U-shaped lever-arm and fulcrumed thereon, the said locking-lever having bearings at its fulcrum which engage the curved arms of the bifurcated portion of the movable member.

4. In a foot-vise, the combination of an upwardly-projecting stationary member a movable member having a jaw at its upper extremity and bifurcated below the jaw to straddle the stationary member and pivotally connected with the latter, springs mounted on the stationary member, acting on the movable member and having a tendency to hold it in the open position, an operating lever-arm connected with the lower part of the stationary member and bifurcated to straddle the lower part of the movable member, the latter being outwardly curved, a locking-lever fulcrumed on the operating lever-arm and having bearings at its fulcrum engaging the lower curved portion of the movable member, one arm of the locking-lever being jointed and a leaf-spring having one extremity connected with the part nearer the fulcrum while the other extremity bears upon the other part whereby the two parts are normally held in alinement, the stationary member being notched to engage the spring-held arm of the locking-lever when the operating-lever is thrust downwardly, substantially as described.

5. In a foot-vise, the combination of a stationary member, a movable member pivotally connected with the stationary member, an operating lever-arm, and a locking-lever fulcrumed on the lever-arm and carrying a bearing engaging the movable member.

6. In a foot-vise, the combination of a stationary member, a movable member pivotally connected therewith, an operating lever-arm, a roller journaled on the arm and bearing on the movable member, and a locking-lever fulcrumed on the roller.

7. In a foot-vise, the combination of a stationary member, a movable member pivotally connected therewith, an operating lever-arm, a roller journaled on the arm, a locking-lever fulcrumed on the roller, the latter having a circumferential groove engaged by the lever, the roller also having bearing parts engaging the movable member on opposite sides of the lever-arm.

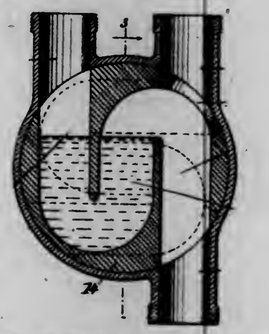
784,848. PIPE-COUPLING. GEORGE A. FULLIPP, East McKeesport, Pa. Filed Dec. 9, 1904. Serial No. 236,215.



Claim.—1. A pipe-coupling comprising two members each having an enlarged head, the head of one member carrying an outwardly-extending locking-piece with tapering sides, said sides being grooved and the grooves having their enlarged end at the smallest end of said tapering piece, the other member being formed with a tapering recess adapted to receive said tapering piece and the sides of said recess being formed with tapering grooves

2. A pipe-coupling comprising two members having enlarged heads, a tapering piece carried by one of said heads, said piece having tapering grooves formed therein, the opposing head having a wedge-shaped recess formed therein, the sides of said recess having tapering grooves formed therein, said recess and said grooves adapted to receive said tapering piece, one of said heads having a transversely-disposed groove formed therein, a transversely-disposed spring-lock carried by the opposing head and adapted to engage in said transversely-disposed groove, said members having bores formed therein, substantially as described.

784,849. TRAP. ARTHUR L. FUQUA, Durham, N. C. Filed July 21, 1904. Serial No. 217,473.



Claim.—1. The combination of a casing having an inlet and outlet and a member movable therein, and having a passage forming a trap adapted when said member is in one position to register with the inlet and outlet openings of the casing, said member being movable from said position to close the inlet-opening of the casing, and the said member also having an opening adapted to register with the outlet when the member is in its second position to drain the liquid from said passage, the casing having a vent-opening adapted to register with the said opening in the movable member when the member is in its first position.

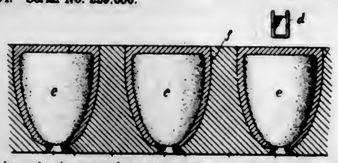
2. The combination of a casing having inlet and outlet openings and a vent-opening, and a trap proper mounted within the casing and having passages therein opening at the periphery of the trap and placing all of said openings of the casing in communication thereby forming a vented trap, said trap proper being mounted to turn in the casing to close the inlet of the casing and drain the trap.

3. The combination of a casing having an inlet and an outlet opening and a vent-opening, and a member within the casing and having a passage forming a trap and adapted to register with the inlet and outlet openings of the casing, the said member also having a vent-passage normally registering with the vent-opening in the casing, the said member being mounted to turn to close the inlet-opening in the casing and bring the vent-passage into registry with the outlet-opening of the casing and means for limiting the turning movement of said member.

4. The combination of a casing having inlet and outlet openings and a vent-opening, and a movable member arranged in the casing, said member having an S-shaped passage comprising end portions normally registering with the said inlet and outlet openings respectively, and a middle portion connecting the end portions, the said member also having an opening leading from one of the end portions of the passage to the periphery of the member and normally registering with the vent-opening in the casing.

5. The combination of a casing having inlet and outlet openings, and a movably-mounted member arranged in the casing, said member having an S-shaped passage formed therein and adapted to place said inlet and outlet openings in communication when the said member is in one position, the member also having an opening leading from the S-shaped passage intermediate its ends and adapted to register with the outlet-opening when the trap is in closed adjustmen to drain the said S-shaped passage, the casing also having a vent-opening adapted to register with the said opening in the member when the trap is in open adjustment.

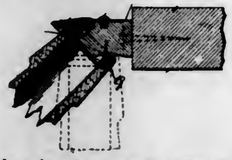
784,850. SULFID-ORE-SMELTING BRICK AND PROCESS OF MAKING SAME. JUNKICHI FURUKAWA, Tokio, Japan. Filed Oct. 22, 1904. Serial No. 229,606.



Claim.—1. As an article of manufacture, a smelting-brick composed of a single core of charging-material smalls, substantially surrounded by a shell of matte.

2. The improvement in the art of smelting which consists in forming a core of charging-material smalls, and casting a shell of matte substantially all around the same.

784,851. DEVICE FOR REMOVING INTERNAL BOTTLE-CAPS. FREDERICK M. GLAESSEL, Chicago, Ill. Filed July 25, 1904. Serial No. 218,062.



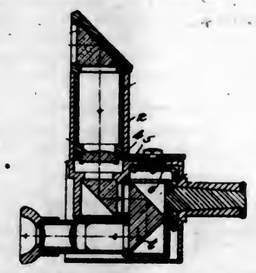
Claim.—1. In a device for removing internal bottle-caps, the combination with a flaring guide adapted to engage the top of a bottle-neck, of an arm rigid with said guide and projecting within the same, adapted to bear on its under side upon the top of a bottle-neck and provided with an engaging edge adapted to engage the inside of the cap below its edge, said flaring guide and said arm being so placed with reference to each other that when a bottle is inserted in the said guide the engaging edge of the arm engages the inside of the cap, substantially as described.

2. In a device for removing internal bottle-caps, the combination with a partially cone-shaped guide open from below and adapted to engage the top of a bottle-neck and guide the same, of an arm projecting into said guide from one side and rigidly secured thereto, adapted to bear on its under side upon the top of the bottle-neck and provided at its end with an engaging edge adapted to engage the inside of the cap below the edge thereof, said guide and arm being so placed with reference to each other that when the neck of a bottle is thrust into said guide the engaging edge of said arm will engage the inside of the cap below the edge, substantially as described.

3. In a device for removing internal bottle-caps, the combination with an arm adapted to bear on its under side on the top of a bottle-neck and having at its end an edge adapted to engage the inside of the cap below its edge, of a flaring guide secured to said arm, partially inclosing the same and adapted to engage the top of a bottle-neck inserted in it and to guide said arm into engaging position in said cap, substantially as described.

4. A device for removing internal bottle-caps, consisting of an arm adapted to bear on its under side on the top of a bottle-neck and having at its ends an angularly-disposed or beveled bearing-surface adapted to bear upon the upper surface of the cap, the front portion of said beveled surface merging into an edge adapted to engage the inside of the cap below the edge thereof, and a flaring guide secured to said arm, adapted to engage the top of a bottle-neck moved into it and to direct the arm into said cap with its engaging edge and bearing-surface engaging the same, substantially as described.

784,852. PANORAMA-TELESCOPE. CARL P. GOERZ, Friedenau, Germany, assignor to The Firm of Optische Anstalt C. P. Goerz Aktiengesellschaft, Friedenau, Germany. Filed Aug. 4, 1903. Serial No. 168,238.



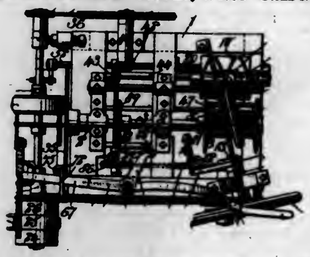
Claim.—1. In a telescope, the combination with an objective and an ocular, of a system of reflectors inserted in the path of the rays and inclined to same, one of the reflectors being rotatably mounted and inclined to its axis of rotation and at least one further erecting-reflector being rotatably mounted about an axis parallel or essentially coincident with the direction of the axial ray, where it passes through the air-space before meeting the said reflector, substantially as and for the purposes described.

2. In a telescope, the combination with an objective and an ocular, of a pivotally-arranged reflector inserted in the path of the rays and inclined to same so as to sweep the horizon on rotation, an erecting-prism pivotally arranged on an axis essentially coincident with the axial ray, in the air-space traversed by it immediately before its meeting the prism, said prism having at least one reflecting-surface adapted to reflect the rays before leaving the prism, substantially as and for the purposes set forth.

3. In a telescope, the combination with an objective and an ocular, of a system of prisms adapted to eliminate the reversion of images produced by the objective, two prisms of said system, with at least two reflecting-surfaces, being pivotally arranged, one of same adapted to sweep the horizon on rotation and the other having an axis of rotation essentially coincident with the axial ray in the air-space immediately before its meeting the prism, substantially as and for the purposes set forth.

4. In a telescope, the combination with an objective and an ocular, of a system of reflectors inserted in the path of the rays and inclined to same, one of the reflectors being rotatably mounted and inclined to its axis of rotation and at least one further erecting-reflector being rotatably mounted about an axis parallel or essentially coincident with the direction of the axial ray, where it passes through the air-space before meeting the said reflector, the said two pivotable reflectors being coupled with one another, the ratio of gearing being such that the angular speed of the erecting-reflector is half as great as that of the other pivotable reflector, substantially as and for the purposes set forth.

784,853. BALLING-MACHINE. JOHN GOOD, New York, N. Y., assignor, by direct and mesne assignments, to The John Good Cordage Co., a Corporation of New York. Filed May 7, 1904. Serial No. 206,851.



Claim.—1. In a ball or cop winding machine, the combination with a winding-spindle having a friction-disk thereon, a drive-shaft having a friction-wheel in engagement with the disk for positively rotating the winding-spindle and means under the control of the ball or cop being wound for moving the friction-wheel along the disk away from the axis of the winding-spindle for gradually reducing the speed of rotation of the winding-spindle.

2. In a ball or cop winding machine, the combination with a winding-spindle having a friction-disk thereon, a drive-shaft having a friction-wheel in engagement with said disk for positively rotating the winding-spindle, a vertically-sliding bar having its head in engagement with the ball or cop being wound, a weighted lever controlled by said bar and a connection between the weighted lever and the friction-wheel for gradually moving the wheel along the disk away from the axis of the winding-spindle as the bar is depressed by the winding of the ball or cop to gradually reduce the speed of rotation of the spindle.

3. In a ball or cop winding machine, the combination with a winding-spindle, a drive-shaft for rotating it having fast and loose pulleys, a driving-belt, a belt-shifter tending to shift the belt from the fast to the loose pulley, a latch for holding the shifter with the driving-belt in engagement with the fast pulley and means under the control of the ball or cop being wound to release the latch when the ball or cop reaches a predetermined size to permit the shifter to shift the belt onto the loose pulley, said means comprising a vertically-sliding rod having its head engaged with the ball or cop, a weighted lever for holding the head against the ball or cop, a rod depending from the latch and an arm carried by the lever arranged to engage the said rod.

4. In a ball or cop winding machine, a winding-spindle, a drive-shaft for positively rotating it having fast and loose pulleys, a flier-spindle, arranged obliquely to the winding-spindle, means connected to a loose pulley on the drive-shaft for rotating the flier-spindle and winding-spindle independently of the drive-shaft.

5. In a ball or cop winding machine, the combination with a winding-spindle, a drive-shaft for rotating it having fast and loose pulleys, a flier-spindle arranged obliquely to the winding-spindle, means connecting the flier-spindle with a loose pulley and the winding-spindle with said loose pulley, a driving-belt and a belt-shifter for shifting the driving-belt onto and off from the loose pulley for controlling the operation of the winding and flier spindles independently of the drive-shaft.

6. In a ball or cop winding machine, the combination with a winding-spindle, a drive-shaft for rotating it having fast and loose pulleys, a driving-belt, a belt-shifter, a controlling-lever therefor, a worm-shaft arranged to be brought into and out of driving connection with the winding-spindle by the controlling-lever and a driving connection between a loose pulley and worm-shaft for rotating the winding-spindle independently of the drive-shaft.

7. In a ball or cop winding machine, a drive-shaft, a winding-spindle driven thereby, a flier-spindle arranged obliquely to the winding-spindle, a loose pulley on the drive-shaft connected thereto, a second loose pulley and a fast pulley on the drive-shaft, a driving-belt, means for automatically shifting the belt from the fast to the second-named loose pulley for stopping the rotation of the winding-spindle and means for shifting the belt to the first-named loose pulley for rotating the flier-spindle and also for rotating the winding-spindle at a lower speed than its speed when driven by the drive-shaft.

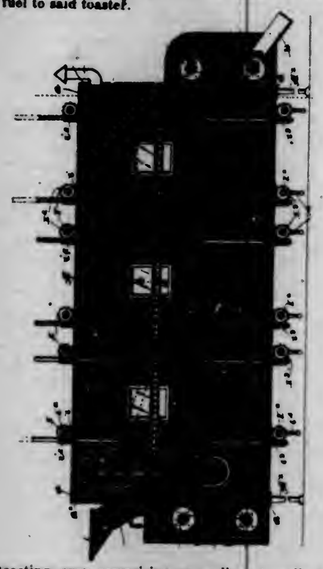
8. In a ball or cop winding machine, a drive-shaft, a winding-spindle driven thereby, a flier-spindle, arranged obliquely to the winding-spindle, a worm-shaft arranged to be brought into and out of engagement with the winding-spindle, a stud-shaft, a loose pulley on the drive-shaft, a connection between the loose pulley and the stud-shaft, the flier-spindle and the stud-shaft and the worm-shaft and stud-shaft, a second loose pulley and a fast pulley on the drive-shaft, a driving-belt, means for automatically shifting the driving-belt from the fast pulley to the second-named loose pulley and means for shifting the belt from the second-named loose pulley to the first-named loose pulley for driving the flier-spindle and the winding-spindle independently of the drive-shaft.

9. In a ball or cop winding machine, a winding-spindle, a flier-spindle arranged obliquely thereto, means for positively rotating the winding-spindle, a twine-guide arranged to travel back and forth parallel with the winding-spindle for producing the longitudinal wind of the ball or cop, a guide carried by the flier-spindle for producing the end wind of the ball or cop and means for rotating the flier-spindle.

784,854. TOASTING-OVEN. RALPH GRACE, Battlecreek, Mich., assignor to Simon A. Kohn, Chicago, Ill. Filed July 9, 1903. Serial No. 164,854.

Claim.—1. A toasting-oven comprising an endless, traveling belt upon the upper lap of which the material to be toasted is carried through the oven, a flat, horizontal toaster arranged above and

closely adjacent to said upper lap of the belt and having a plurality of burners which direct their flames toward said belt, a flame-retaining, heat-radiating, foraminated sheet located between the burners of said toaster and the belt, and means for supplying a burning fuel to said toaster.



2. A toasting-oven comprising an endless, traveling foraminated belt upon the upper lap of which the material to be toasted is carried through the oven, flat, horizontal, gas-heated toasters arranged above and below and closely adjacent to the upper lap of said belt and provided with burners which direct their flames toward said upper lap of the belt, flame-retaining, heat-radiating, foraminated sheets located between the burners of said toasters and the belt, and means for supplying a burning gas to said toasters.

3. A toasting-oven comprising an endless, traveling belt upon the upper lap of which the material to be toasted is carried through the oven, a flat, horizontal toaster arranged above and closely adjacent to said upper lap of the belt and having a plurality of burners which direct their flames toward said belt, a flame-retaining, heat-radiating, foraminated sheet located between the burners of said toaster and the belt, means for supplying a burning fuel to said toaster, and means for varying the heat applied to the material by said toaster.

4. A toasting-oven comprising an endless traveling belt upon the upper lap of which the material to be toasted is carried through the oven, a flat, horizontal toaster arranged above and closely adjacent to said upper lap of the belt and having a plurality of burners which direct their flames toward said belt, a flame-retaining, heat-radiating, foraminated sheet located between the burners of said toaster and the belt, means for supplying a burning fuel to said toaster, and means for moving said toaster toward and away from the upper lap of the belt.

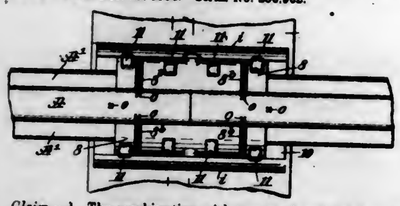
5. A toasting-oven comprising an endless traveling belt upon the upper lap of which the material to be toasted is carried through the oven, a plurality of flat, horizontal, gas-heated toasters arranged above and closely adjacent to said upper lap of the belt and provided with burners which direct their flames toward said upper lap of the belt, means for separately moving said toasters toward and away from the belt, and means for supplying a burning gas to said toasters.

6. A toasting-oven provided with an endless, traveling, foraminated belt, upon the upper lap of which the material to be toasted is carried through the oven, a plurality of toasters arranged above and below said upper lap of the belt, means for separately raising and lowering said toasters with respect to the belt, and means for separately tilting the toasters to vary the angles thereof with respect to the belt.

7. A toasting-oven provided with an endless, traveling belt upon the upper lap of which the material to be toasted is carried through the oven, a toaster arranged to direct the heat thereof upon the material carried on the belt and means for moving the toaster toward and away from the belt comprising rack-bars connected at their inner ends with the toaster, rotative shafts provided with gear-pinions which mesh with the rack-bars, and means for locking said shafts from rotation.

8. A toasting-oven provided with an endless, traveling, horizontal belt upon the upper lap of which the material to be toasted is carried through the oven, a toaster for heating the material on said belt, and means for tilting the toaster to vary the angle thereof with respect to the belt.

784,855. **RAIL-JOINT CONNECTION.** JOSEPH GRAFF, Calmar, Iowa. Filed Dec. 15, 1904. Serial No. 236,962.



Claim.—1. The combination with two track-rails at their joint, of two clamping-plates having horizontal base-flanges and integral upright flanges, the base-flanges having notches and tongues adapted for an interlocked engagement and each having also a transverse keyway, a bottom flange on each horizontal base-flange that extends across the keyway, a key which when driven into the keyways forces the tongues further into the notches and draws the clamping-flanges toward each other, and a shoe wherein the clamping-flanges seat, the clamping-flanges and shoe having alined perforations through which spikes may be driven.

2. The combination with two track-rails at their joint, of two clamping-plates having horizontal base-flanges, extended toward each other from respective upright flanges, said base-flanges each having a transverse channel through it, and also having notches and tongues at the sides of respective notches, the notches in one flange receiving the tongues on the other flange, a key having a head on one end that projects below the lower side of the key forming an offset shoulder, said key when driven through the opposed channels drawing the clamping-flanges toward each other, and a shoe having a recess in its upper side, and flanges at its side edges, the recess in the shoe receiving downward-projecting portions of the base-flanges that seat therein, the shoulder on the key-head then bearing on the side edge of the adjacent base-flange, and one flange on the shoe contacting with the head of the key holding said key in place.

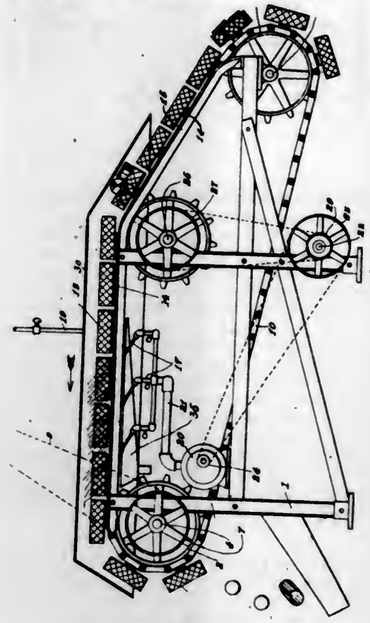
784,856. **APPARATUS FOR UNSOLDERING THE JOINTS OF SHEET-METAL CANS.** STANLEY K. GREEN, Baltimore, Md. Filed June 16, 1904. Serial No. 212,763.

Claim.—1. In an apparatus for detaching the heads from the bodies of waste sheet-metal cans, the combination of two sets of sprocket-wheels carrying endless sprocket-chains, a series of reticulated holders secured to the said chains, a burner so situated as to project flame and heat around and into the reticulated holders as the same are moved by the said chains, substantially as specified.

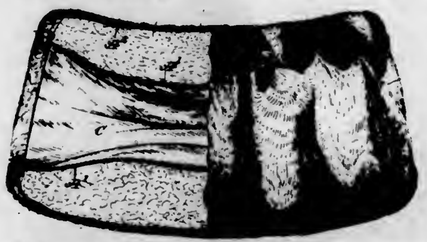
2. In an apparatus for detaching the heads from the bodies of waste sheet-metal cans, the combination of two sets of sprocket-wheels carrying endless sprocket-chains, a series of reticulated holders for the cans, transverse bars situated under the said reticulated holders and secured to the said chains and reticulated holders, guide-rails whereby the upper runs of the said chains are supported, and burners situated between the said guide-rails, and under the reticulated holders which at the time are supported by the said guide-rails, substantially as specified.

3. In an apparatus for detaching the heads from the bodies of waste sheet-metal cans, the combination of two sets of sprocket-wheels carrying endless chains and transverse bars, a series of reticulated holders connected to and placed over the said transverse bars, guide-rails to support a portion of the upper runs of the said chains together with the reticulated holders and the transverse bars attached thereto, and burners situated on a lower plane than the transverse bars adapted to project flames which envelop and enter the said reticulated holders supported by the said guide-rails, and a hood through which the reticulated holders are carried while the same are subjected to the action of flame, substantially as specified.

4. In an apparatus for detaching the heads from the bodies of waste sheet-metal cans, the combination of a frame, sprocket-wheels situated and supported at the entrance and delivery ends of the frame, the sprocket-wheels at the entrance end being on a lower plane than those at the delivery end, a pair of guide-rails which begin at the entrance end of the machine and extend in an incline position to a certain height, and then extend in a horizontal plane to the delivery end of the machine, sprocket-chains supported by the sprocket-wheels and provided with transverse bars which rest on the guide-rails, holders for the cans, gas-burners situated beneath the path of the upper runs of sprocket-chains, adapted to project flame toward and so envelop the holders supported by the horizontal portion of the guide-rails substantially as specified.



784,857. **MUFF.** WOLF GRUSHOFF, New York, N. Y. Filed Dec. 9, 1904. Serial No. 236,126.

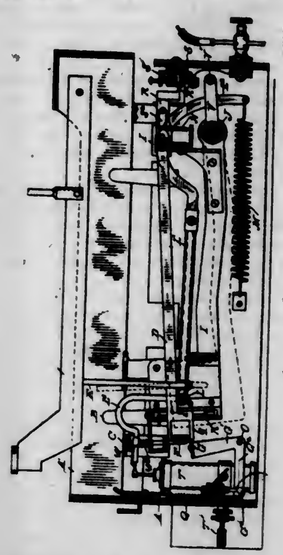


Claim.—1. A muff comprising a down-bed formed of inner and outer tubular sheets having a filling therebetween, and provided with means at the ends for securing the two together, and a lining for the innermost sheet secured in place by said means.

2. A muff comprising a down-bed formed of inner and outer tubular sheets having a filling therebetween, and provided at the ends with stitches for fastening the two together, and a lining for the innermost sheet secured in place at its ends by means of said stitches.

784,858. **COMBINED TYPE-WRITER AND TELEGRAPH-TRANSMITTER.** CYRUS H. HEPBURN, St. Thomas, Canada. Filed Feb. 1, 1904. Serial No. 191,601.

Claim.—1. In an electric signal-transmitter the combination with a contact member of a coöperating interrupted contact member comprising a metallic cylinder having annular grooves therein filled with insulating material, and means for moving said cylinder axially over the other contact.



2. The combination with a base having bearings thereon for positioning and supporting a type-writer, of a signal-transmitter within said base, a series of interrupted contacts and coöperating contacts each arranged below the keys and adapted to be reciprocated by the corresponding key of the type-writer to transmit a predetermined succession of electric impulses, and means for simultaneously throwing the whole series of interrupted contacts in or out of mechanical actuating connection with said type-writer.

3. In a signal-transmitter the combination with an interrupted contact, a lever, a coöperating contact at one end of said lever adapted for relative reciprocation, to transmit a predetermined succession of electric impulses, of means for opening the electric circuit by the initial movement of the reciprocatory contact in one direction, and for closing said circuit by the initial movement in the opposite direction whereby one series only is transmitted during the reciprocation.

4. In a signal-transmitter, the combination with a series of interrupted contacts, and a universal coöperating contact adapted for relative reciprocation to transmit a predetermined succession of electrical impulses, of independent means operating upon the initial movement of each of said contacts in one direction to open the electric circuit, and operating upon the initial movement of said contacts in the opposite direction to close said circuit.

5. In a signal-transmitter, the combination with a series of reciprocatory interrupted contacts, and a universal coöperating contact of a universal bar mechanically actuated upon the movement of any one of said contacts, a circuit-closer operated by the initial movement of said universal bar to open the electric circuit, and actuated by the initial return movement of said bar to close said circuit.

6. In a signal-transmitter, the combination with a series of levers of an interrupted contact carried by each lever, and a universal coöperating contact over which said interrupted contact is adapted to travel in the movement of the lever to transmit a predetermined succession of electric impulses, of a universal bar actuated by the depression of any one of said levers, a contact frictionally actuated by said universal bar, and a coöperating contact, and a stop between which said contact is reciprocated in the movement of said bar whereby the electric circuit is broken on the initial depression of each of said levers, and is closed upon the initial return movement thereof.

7. In an electric signal-transmitter, the combination of an interrupted contact, a coöperating contact adapted for relative reciprocation, said contact being adjustable laterally of the direction of reciprocation to alter the line of contact, and means for limiting said lateral movement.

8. An electric signal-transmitter the combination of an interrupted contact and a coöperating contact adapted for relative recip-

rocation, the one being rotatably adjustable in relation to the other to alter the line of contact.

9. In an electric signal-transmitter the combination of an interrupted and coöperating contact adapted for relative reciprocation one of said contacts being rotatably adjustable and the other contact being adjustable laterally of the direction of reciprocation whereby the line of contact may be changed.

10. In an electric signal-transmitter, the combination with a contact member, of a coöperating interrupted contact member comprising a cylinder movable axially over the other contact and formed of conducting material, having annular grooves therein for forming interruptions, said cylinder being rotatably adjustable to change the line of contact.

11. In an electric signal-transmitter the combination with a contact member of a coöperating interrupted contact member comprising a metallic cylinder having annular grooves therein filled with insulating material and means for moving said cylinder axially over the other contact permitting of a rotative adjustment of the cylinder to alter the line of contact.

12. In a signal-transmitter the combination with a bifurcated lever of a cylindrical contact member journaled at its opposite ends in the bifurcations of said lever adapted to travel axially in the movement of said lever, said cylinder being provided with a series of annular grooves forming interruptions in the surface thereof, and a coöperating contact over which said cylinder is drawn in the movement of the lever.

13. In a signal-transmitter the combination of a lever D having the end *e* of the interrupted contact F having the annular grooves *b* therein to form a series of contact-rings *c* the ends of said cylinder being rotatively secured in the furcations of the lever.

14. In a signal-transmitter, the combination of a series of signal-transmitting levers having upwardly-extending hollow stems adapted to be operated by corresponding key-levers of a superimposed type-writer, means for spacing said key-levers from said stems, and a series of detachable finger-tips for engagement with said stems after said spacing operation

15. In an electric signal-transmitter, the combination with a contact member, of a coöperating interrupted contact member, including a rotatably-adjustable cylindrical member movable axially over the other contact.

16. In an electric signal-transmitter, the combination with an adjustable contact member, of a coöperating interrupted contact member including a rotatable adjustable cylindrical member movable axially over the other contact.

17. In an electric signal-transmitter, the combination with a contact member, of a lever, and a coöperating interrupted contact member, comprising a rotatably-adjustable cylindrical member, detachably connected to said lever and movable axially over the complementary contact.

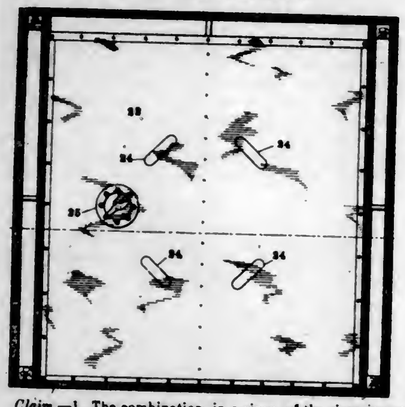
18. In a combined type-writer and electric transmitter, the combination with operating-keys for the type-writer, of a transmitter therebelow, including a plurality of levers having upwardly-extended stems intermediate their ends in line with the several type-writer keys and adapted to be actuated thereby, a contact at one end of the levers adapted to be reciprocated across the path of a universal contact, and an electric connection operatively associated with the opposite end of said levers.

19. In a combined type-writer and transmitter, the combination with operating-keys for the type-writer, of a transmitter therebelow including a plurality of levers having upwardly-extended stems intermediate their ends in line with the several type-writer keys and adapted to be vertically reciprocated thereby, a laterally-adjustable universal contact arranged in the path of one end of the levers and coöperating contacts at the adjacent ends of said levers.

20. In a combined type-writer and transmitter, the combination of operating-keys for the type-writer, a transmitter therebelow, including a plurality of levers having upwardly-extended stems intermediate their ends in line with the several keys, and adapted to be actuated thereby, and means whereby all of said stems may be simultaneously spaced below and out of operating engagement with said keys.

21. In a combined type-writer and transmitter, the combination with operating-keys for the type-writer, of a transmitter therebelow, including a plurality of levers having upwardly-extended stems intermediate their ends in line with the several keys, and adapted to be actuated by the latter, means whereby all of said stems may be simultaneously spaced below and out of operative engagement with said keys, and complementary detachable keys for said stems for operating the same after being spaced below the key connections.

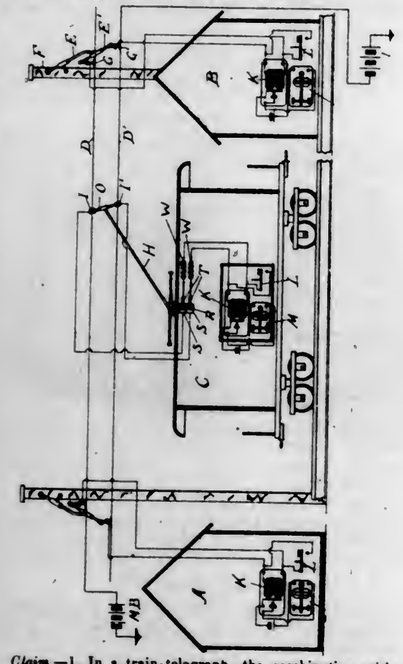
784,859. SELF-CLEANING SIEVE. MARTIN W. HUNT, Portland, Oreg. Filed Feb. 27, 1904. Serial No. 196,506.



Claim.—1. The combination, in a sieve, of the sieve structure, blocks secured to said structure and positioned in the middle portion of the sieve, and a cleaner mounted between the sides and walls of said sieve structure and adapted to move freely in every direction therebetween and which comes in contact with the walls of the sieve and with said blocks in operation, substantially as and for the purpose set forth.

2. The combination, in a sieve, of the sieve structure, composed of a suitable frame, a lower floor, a sieve-cloth above said floor, short knocker-blocks centrally positioned and secured between said floor and said sieve-cloth, and a cleaner adapted to move freely in every direction in operation, which comes in contact with the walls of the sieve and with said blocks in operation.

784,860. TRAINGRAPH. WILLIAM A. INWOOD, Colorado Springs, Colo. Filed Aug. 16, 1904. Serial No. 220,883.



Claim.—1. In a train-telegraph, the combination with two main-line conductors insulated from one another and connected at their opposite ends with generators of electricity operated in series, of telegraph-instrument circuits connected in multiple across said main-line conductors, and means for shunting resistance out of and into the instrument-circuit for the purpose of signaling.

2. In a train-telegraph, the combination of two main-line conductors connected respectively at their opposite ends with generators working in series, and open or dead at their ends remote from said generators, trolleys or collectors mounted on a car or locomotive and bearing respectively on said conductors, a telegraph receiving instrument on the car having its opposite terminals connected respectively to said trolleys or connectors and a telegraph key or transmitter normally open and adapted to shunt the resistance of the instrument-circuit, as and for the purpose described.

3. In a train-telegraph, the combination with a pair of line conductors insulated from one another and forming respectively opposite poles of the circuit, of telegraph-station circuits connected in multiple across said conductors and each normally closed through a receiving instrument, means connected with each circuit and normally in open-circuit position, for establishing a path of lower resistance than the normal resistance of the circuit and collecting devices for maintaining a traveling connection between one of said station-circuits and said line conductors.

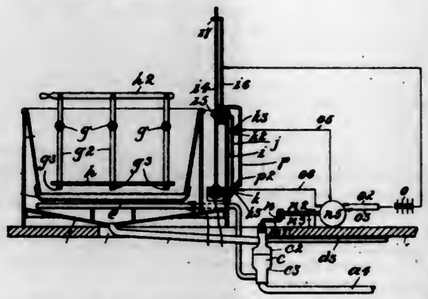
4. In a train-telegraph, the combination with a pair of line conductors insulated from one another, open or dead at one end, and connected respectively at their opposite ends remote from one another to opposite poles of suitable generators or batteries, of a telegraph receiving instrument on normally closed circuit across said conductors, and a telegraph-key normally open and connected across the terminals of said instrument.

5. In a train-telegraph, the combination of a pair of line conductors insulated from one another and forming respectively opposite poles of the circuit, a telegraph receiving instrument mounted on the rolling equipment and connected in normally closed circuit across said line conductors, means for maintaining a traveling connection with said conductors and a telegraph-key adapted to shunt said receiving instrument into and out of the circuit.

6. The combination with the reversible trolley-arm and a pair of trolleys or collectors mounted thereon, of a depending post or shaft extending through the roof of the car in line with the vertical axis of rotation of the support which carries the arm, conducting rings or sleeves insulated from one another and mounted on said post or shaft, and springs or brushes engaging respectively with said sleeves, as and for the purpose described.

7. The combination with the reversible trolley-arm carrying a pair of trolleys insulated from one another, of a rotatable support for said arm, a pair of conducting rings or sleeves rotating therewith, and springs or brushes bearing on said sleeves, as and for the purpose described.

784,861. APPARATUS FOR WASHING PHOTOGRAPHIC PRINTS. EVERARD L. JOHNSON, Patchogue, N. Y. Filed Mar. 26, 1904. Serial No. 200,074.



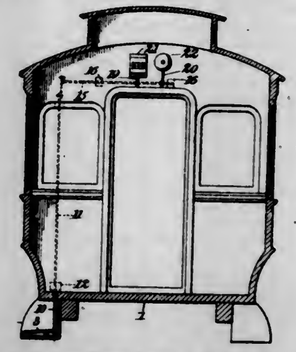
Claim.—1. In an apparatus of the class described, a main tank, a water-discharge pipe communicating with the bottom thereof, a valve-casing connected with said pipe, a valve placed in said casing and provided with a stem which passes upwardly therethrough and is provided with an arm, a water-coil in the bottom of said tank, a water-supply pipe connected therewith, a valve-casing connected with said pipe and provided with a stem which passes upwardly therethrough and is provided with an arm, a link-bar connecting the arms of said valves, an armature-lever connected with said bar, electromagnets arranged on the opposite sides of said armature-lever, a float placed at one end of said tank and provided with a vertically-arranged rod forming part of an open circuit in which said magnets are placed and means whereby the rise and fall of said float will open and close said circuit and open and close said valves, substantially as shown and described.

2. In an apparatus of the class described, a main tank, a water-discharge pipe communicating with the bottom thereof, a valve-casing connected with said pipe, a valve placed in said casing and provided with a stem which passes upwardly therethrough and is provided with an arm, a water-coil in the bottom of said tank, a water-supply pipe connected therewith, a valve-casing connected with said pipe and provided with a stem which passes upwardly therethrough and is provided with an arm, a link-bar connecting the arms of said valves, an armature-lever connected with said bar, electromagnets arranged on the opposite sides of said armature-lever, a float placed at one end of said tank and provided with a vertically-arranged rod forming part of an open circuit in which said magnets are placed and means whereby the rise and fall of said float will open and close said circuit and open and close said valves, said tank being also provided with a supplemental tank having an open-work bottom and swinging print-supports, substantially as shown and described.

3. In an apparatus of the class described, a main tank, a water-discharge pipe connected with the bottom thereof, a water-supply coil placed in the bottom portion thereof, a supplemental removable tank suspended in the main tank and provided with an open-work bottom, swinging print-supports mounted in the supplemental tank and means for automatically supplying water and discharging the same from said tank, substantially as shown and described.

4. In an apparatus of the class described, a main tank, a water-discharge pipe connected with the bottom thereof, a water-supply coil placed in the bottom portion thereof, a supplemental removable tank suspended in the main tank and provided with an open-work bottom, and means for automatically supplying water to and discharging the same from said tank, substantially as shown and described.

784,862. REGISTER-ACTUATING MECHANISM. WILLIAM W. JOHNSON, Memphis, Tenn. Filed Mar. 19, 1904. Serial No. 199,014.

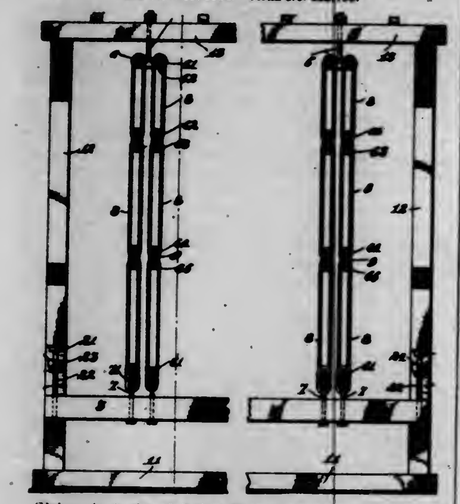


Claim.—1. The combination with a suitable supporting structure, of a register and register-actuating devices including a pivoted foot-plate carried by said supporting structure and having a downwardly-turned lip at its free margin, a spring disposed between the foot-plate and the supporting structure, and connections between the foot-plate and the register.

2. The combination with a register, of actuating mechanism therefor, said mechanism comprising a support, a foot-plate pivotally mounted at one margin upon said support, a spring disposed beneath said foot-plate and having its ends resting upon the support, a pair of catches adapted to engage the free margin of the pivoted foot-plate, to limit its upward movement, and connections between said foot-plate and said register.

3. The combination with a register for a car or the like, of a step, a foot-plate thickened at its forward margin and pivotally mounted at the front of the step, said foot-plate having a downwardly-turned lip at its rear margin, a pair of catches extending upward from said step at the back thereof and engaging said foot-plate, a spring attached to the under surface of said foot-plate and engaging said step, and connections between said foot-plate and said register.

784,863. THREAD-DRYING FRAME. JACOB KNOTT, Sr., Paterson, N. J. Filed Nov. 15, 1904. Serial No. 232,795.



Claim.—1. A thread-drying frame comprising a framework provided with stationary and movable bars, means for supporting between said bars a plurality of series of skein-supporting and skein-supported rods arranged in vertical planes, each of said rods being adapted to engage with a plurality of skeins, and positive means for increasing the distance between said bars whereby the skeins on each of said series of bars may be equally stretched.

2. A thread-drying frame comprising a framework consisting of suitably-supported upper and lower side bars, a plurality of cross-bars engaging with the upper side bars, hangers in each of said cross-bars, cross-rods in said hangers, a plurality of cross-rods connected to the lower side bars, and positive means for increasing the distance between said upper and lower side bars whereby skeins supported beneath all of said cross-bars may be equally strained.

3. A thread-drying frame comprising a framework consisting of suitably-supported upper and lower side bars, a plurality of cross-bars engaging with each of the upper side bars, hangers in each of said cross-bars, cross-rods in said hangers, a plurality of cross-rods connected to the lower side bars, a pair of parallel and detachably-engaged rods respectively skein-supported and skein-supporting interposed between the cross-rods in the hanger and the lower cross-rods, and positive means for increasing the distance between said upper and lower side bars whereby skeins supported beneath all of said cross-bars may be equally strained.

4. A thread-drying frame comprising a framework consisting of suitably-supported upper and lower side bars, a plurality of cross-bars engaging with the upper side bars, hangers in each of said cross-bars, a plurality of crose-rods in each of said hangers, a plurality of cross-rods connected to the lower side bars, one of which is approximately beneath each of the upper cross-rods, and positive means for increasing the distance between said upper and lower side bars.

5. A thread-drying frame comprising a framework provided with stationary upper and vertically-adjustable lower side bars, a plurality of cross-bars engaging with the upper side bars, hangers in each of said cross-bars, cross-rods in said hangers, a plurality of cross-rods connected to the lower side bars, and means for forcing the lower side bar downward.

6. A thread-drying frame comprising a framework provided with stationary upper and vertically-adjustable lower side bars, a plurality of cross-bars engaging with the upper side bars, hangers in each of said cross-bars, cross-rods in said hangers, a plurality of cross-rods connected to the lower side bars, means adjacent each end of the lower side bar for forcing it downward, and a scale adjacent each end of the bar for measuring its downward movement.

7. In a thread-drying frame, a movable bar and means for moving said bar, comprising a screw engaging said bar adjacent each of its ends, an abutment above said bar against which said screw bears, heads on said screws, and collars on said frame and loosely engaging said screws beneath their heads to support said bar.

8. In a thread-drying frame, a thread-engaging bar, the lower face of which is curved and the vertical faces of which taper inwardly from said lower face.

9. In a thread-drying frame, a thread-engaging bar, the upper and lower faces of which are curved and the vertical faces of which are reëntrant.

784,864. PORTABLE FIRE-ESCAPE. DAVID E. LANDIS, Rockglen, Pa. Filed Apr. 13, 1904. Serial No. 203,066.



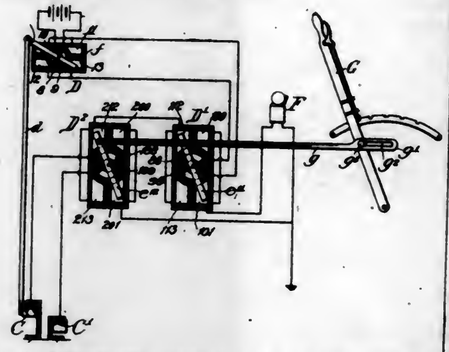
Claim.—1. A reversible fire-escape consisting of a rope, combined with a sliding block having openings for the rope in its top and bottom ends and a series of connecting zigzag tubular passages for the rope between the ends, soft tubular handpieces secured to each end of the block and surrounding the rope-openings therein and through which the rope passes, and a suspension device connected with the sliding block at a point intermediate of the two soft tubular handpieces.

2. In a fire-escape, the combination of a rope, a sliding block having an irregular-shaped guide-aperture for the rope, a suspension device connected with the sliding block, a brake-sleeve connected at one end of the block and through which the rope passes consisting of a metallic plate secured to the bottom end of the sliding block, and a tubular piece of rubber surrounding the rope and fastened to and depending from the metallic plate so as to extend downward below the sliding block in use.

3. A reversible fire-escape consisting of a rope, combined with a sliding block having openings for the rope in its top and bottom ends and a series of connecting zigzag tubular passages for the ropes between the ends, tubular metal plates G secured to the sliding block at each end and surrounding the rope-openings therein and through which the rope passes, soft tubular handpieces H fitted over and secured to each of the metal plates G and extending away from each other and from the block.

784,865. ELECTRIC TRAIN SIGNALING EQUIPMENT. W. BRITTON LANE, Evanston, Ill. Filed Dec. 31, 1904. Serial No. 237,786.

Claim.—1. In combination, a railway-track, a block system comprising a line of parallel rails between the track-rails divided into longitudinal sections insulated one from the other and forming blocks, with one side of each section electrically connected with the other side of the next section but one, the rails forming one side of said line being higher than those forming the opposite side thereof, and a locomotive electric-signal-containing equipment comprising brushes on a pendent resilient support permitting each brush to engage either side of said block-line, a battery-circuit containing the signal, and a pole-changing device in said circuit connected with said brushes to be actuated by the engagement of a brush with a side of said block-line, substantially as described.



2. In combination, a railway-track, a block system comprising a line of parallel channel-rails between the track-rails divided into longitudinal sections insulated one from the other and forming blocks, with one side of each section electrically connected with the other side of the next section but one, the rails forming one side of said line being higher than those forming the opposite side thereof, and a locomotive electric-signal equipment comprising brushes on a pendent resilient support permitting each brush to engage either side of said block-line at the under surface of the upper flange thereof, a battery-circuit containing the signal, and a pole-changing device in said circuit connected with said brushes to be actuated by the engagement of a brush with a side of said block-line, substantially as described.

3. In combination, a railway-track, a block system comprising a line of parallel rails between the track-rails divided into longitudinal sections insulated one from the other and forming blocks, with one side of each section electrically connected with the other side of the next section but one, the rails forming one side of said line being higher than those forming the opposite side thereof, and a locomotive electric-signal-containing equipment comprising brushes on a pendent resilient support permitting each brush to engage either side of said block-line, a battery-circuit containing the signal, a pole-changing device in said circuit connected with said brushes to be actuated by the engagement of a brush with a side of said block-line, and pole-changing devices in said circuit connected with the reversing-lever of the locomotive to be actuated thereby, substantially as described.

4. In combination, a railway-track, a block system comprising a line of parallel rails between the track-rails divided into longitudinal sections insulated one from the other and forming blocks, with one side of each section electrically connected with the other side of the next section but one, the rails forming one side of said line being higher than those forming the opposite side thereof, and a locomotive electric-signal-containing equipment comprising a battery-circuit containing the signal, a pole-changing device in said circuit, depending resilient toggles carrying brushes to engage said line-rails and included in said circuit, and a rod connecting one of said brushes with the switch-lever of said device, substantially as described.

5. In combination, a railway-track, a block system comprising a line of parallel rails between the track-rails divided into longitudinal sections insulated one from the other and forming blocks, with one side of each section electrically connected with the other side of the next section but one, the rails forming one side of said line being higher than those forming the opposite side thereof, and a locomotive electric-signal-containing equipment comprising a battery-circuit containing the signal, a pole-changing device in said circuit, depending resilient toggles carrying brushes to engage said line-rails and included in said circuit, a rod connecting one of said brushes with the switch-lever of said device, and a pair of pole-changing devices in said circuit having their switch-levers connected with the reversing-lever of the locomotive to be actuated thereby, substantially as described.

6. In combination, a railway-track, a block system comprising a line of parallel channel-rails between the track-rails divided into longitudinal sections insulated one from the other and forming blocks, with one side of each section electrically connected with the other side of the next section but one, the rails forming one side of said line being higher than those forming the opposite side thereof, and a locomotive electric-signal-containing equipment comprising a battery-circuit containing the signal, a pole-changing device in said circuit, depending spring-controlled toggles having brushes pivotally connected with their lower ends to engage said line-rails and included in said circuit, a rod connecting one of said brushes with the switch-lever of said device, a pair of pole-changing devices in said circuit, and a reciprocable rod connecting the switch-lever of said pair of devices with the reversing-lever of the locomotive to be actuated thereby, substantially as described.

784,866. CONCRETE FENCE-POST. REUBEN H. LATHERS, Detroit, Mich. Filed Oct. 27, 1904. Serial No. 230,283.

Claim.—1. In a concrete fence-post the combination with a nailing-strip embedded in the cementitious body, of a strip of wire-cloth along the front surface of said nailing-strip, of a groove in the front surface of the post, and metal reinforcements embedded in the corners of the posts, substantially as described.

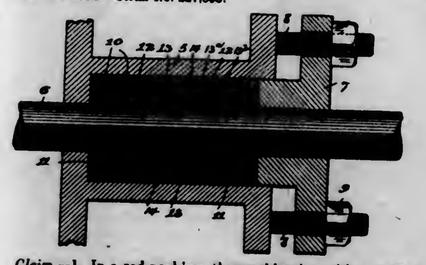
2. A concrete fence-post having a groove along the front surface, of a nailing-strip of wood having wire-cloth attached to the front surface, said nailing-strip and wire-cloth embedded in the cementitious body material of the post at a short distance below the said groove, of additional metal reinforcements disposed in other portions of the post, substantially as described.

3. A concrete fence-post consisting of a cementitious body material, of a strip of wire-cloth embedded in the front surface of the post and extending through its length, of a nailing-strip placed immediately behind said wire-cloth running longitudinally of the post above the ground-line, of metal reinforcements disposed in the corners of the posts, substantially as described.

4. A fence-post consisting of a cementitious body material, a nailing-strip embedded in one face of the post and protected by a covering consisting of a strip of open metal mesh laid in the face of the post, the pores of the mesh being filled with the cementitious body material, substantially as described.

5. A fence-post consisting of a cementitious body reinforced with metal pieces embedded therein and running longitudinally thereof, of a strip of wire-cloth embedded in the post a short distance beneath the surface, of a nailing-strip immediately under the wire-cloth and the cementitious coating contained within the interstices of the wire-cloth, substantially as described.

784,867. ROD-PACKING. CHAS. R. LAW, Shreveport, La. Filed Oct. 10, 1904. Serial No. 227,893.



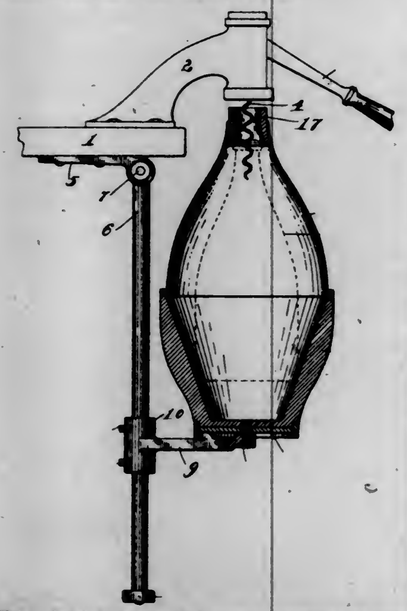
Claim.—1. In a rod-packing, the combination with a stuffing-box and compressing-gland, of a series of packing-rings each comprising an inner soft-metal member and an outer elastic member interlockingly engaged with and connected to said inner member, said inner and outer members unitedly constituting a unitary and independent packing-ring, substantially as described.

2. In a rod-packing, the combination with a stuffing-box and compressing-gland, of a series of flat-faced packing-rings each comprising an inner soft-metal member and an outer elastic member interlockingly engaged with and connected to said inner member, said inner and outer members having flat, beveled, annular contacting-surfaces and unitedly constituting a unitary and independent packing-ring, substantially as described.

3. In a rod-packing, the combination with a stuffing-box and compressing-gland, of a series of packing-rings each comprising a sectional inner ring of soft metal having a beveled periphery and an outer ring or cylinder of elastic material having an internally-beveled periphery adapted to fit and cooperate with the beveled periphery of said inner ring, said outer ring being cut through radially in line with one of the divisions of the inner ring and being also partially cut through in line with the other divisions of the inner ring, substantially as described.

4. In a rod-packing, the combination with a stuffing-box and compressing-gland, of a series of packing-rings each comprising a sectional inner ring of soft metal having one side of its periphery beveled, and an outer ring or cylinder of elastic material internally formed to fit the periphery of the inner ring, said outer ring or cylinder being flush with the inner ring on the straight side of the periphery of the latter and on its opposite side projecting beyond the beveled side of the inner ring, said rings being arranged in the stuffing-box with their flush surfaces in contact with each other and with the projecting faces of the outer rings in contact with each other, substantially as described.

784,868. **BOTTLE SUPPORT AND PROTECTOR.** JEAN A. LEU, Montreal, Canada, assignor of one-half to Numa Huguenin, Montreal, Canada. Filed June 9, 1904. Serial No. 211,763.



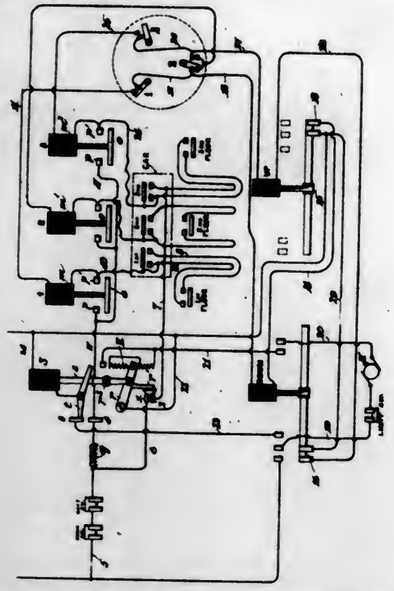
Claim.—In a bottle-support for stopper-extractors, a fixed plate, a rod pivoted to said plate to swing in a vertical plane beneath the stopper-extractor, a bracket slidingly and adjustably mounted on said rod, a bottle-holder rotatably mounted on said bracket, the same having a socket in the shape of a frustum of a cone, whereby it is adapted to hold different sizes of bottles, and a cap-shield for the upper part of the bottle adapted to cooperate with said bottle-holder.

784,869. **ELECTRIC-ELEVATOR CONTROL.** NILS O. LINDSTROM, Jersey City, N. J., assignor to Alonzo B. See and Walter L. Tyler, New York, N. Y. Filed Nov. 17, 1904. Serial No. 233,069.

Claim.—1. In an electric elevator, a manually-operated control-circuit including a door-circuit breaker, a resistance-solenoid adapted to be thrown into circuit with said door-circuit breaker, and itself adapted to control said manually-operated control-circuit.

2. In an electric elevator, the combination of a solenoid adapted to control the armature resistance and the elevator-control circuit, and two circuits both including said solenoid, one of which is closed and opened simultaneously with the closing and opening of the motor-circuit and the other of which includes a door-circuit breaker.

3. In an electric elevator, the combination of a solenoid adapted to control the armature resistance on the elevator-control circuit, and two circuits both including said solenoid, one of which is closed and opened simultaneously with the closing and opening of the motor-circuit and the other of which includes a door-circuit breaker, and a switch adapted to throw the solenoid from one circuit to the other, substantially as described.



4. In an electric elevator, the combination of the car-motor, a rheostat therefor, a solenoid adapted to operate the rheostat, a control-circuit common to all landings and adapted to be opened by said solenoid when it is energized to start the motor, and means for maintaining the solenoid energized after the motor is stopped.

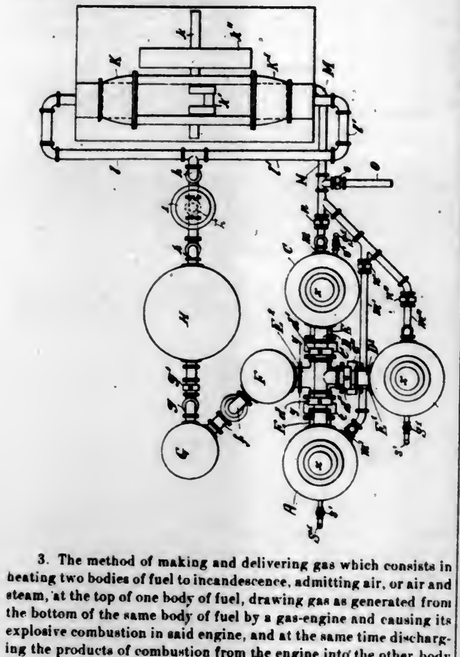
5. In a push-button-control system for elevators, the combination of an electromagnet adapted to control the motor resistance, two circuits each including the resistance-magnet, one of said circuits being controlled by a motor-controlling switch and the other including a cut-out actuated simultaneously with the elevator-car door.

6. In an electric elevator, a motor, an armature-resistance solenoid, a main switch adapted to close the circuit through the motor and the solenoid simultaneously, an auxiliary switch actuated by the resistance-solenoid and adapted to direct current through the solenoid independently of the main switch, a manually-operated control-circuit and means whereby the resistance-solenoid will hold the control-circuit open while it is holding the auxiliary switch in a position to direct current through the solenoid.

784,870. **METHOD OF MAKING AND DELIVERING GAS.** BURDETT LOOMIS, Hartford, Conn., and HAWLEY PETTIBONE, New Rochelle, N. Y., assignors to Power and Mining Machinery Company, a Corporation of New York. Filed Feb. 4, 1904. Serial No. 192,035.

Claim.—1. The method of making and delivering gas which consists in generating combustible gas in a body of incandescent fuel, delivering the gas as generated to, and causing its explosive combustion in, a gas-engine and discharging the resulting gaseous products impulsively into the body of the incandescent fuel from which the gas is drawn to the engine for cleaning ashes from the interstices of the fuel and making the whole body of fuel permeable by vapors and aeriform fluids used in the gas-making operation.

2. The method of making and delivering gas which consists in admitting air to a body of incandescent fuel, drawing the resulting gas as generated into, and causing its explosive combustion in, a gas-engine, and at the same time discharging the products of combustion from the engine under pressure and impulse into a second body of incandescent fuel for clearing the interstices of ashes, and then converting the contained water-vapor and carbonic acid into hydrogen and carbonic oxid by passing said products through both bodies of fuel.



3. The method of making and delivering gas which consists in heating two bodies of fuel to incandescence, admitting air, or air and steam, at the top of one body of fuel, drawing gas as generated from the bottom of the same body of fuel by a gas-engine and causing its explosive combustion in said engine, and at the same time discharging the products of combustion from the engine into the other body of fuel and passing them through both bodies of fuel for converting water-vapor and carbonic acid present in the combustion products, into hydrogen and carbonic oxid and at the same time clearing ashes from the interstices between the lumps of fuel.

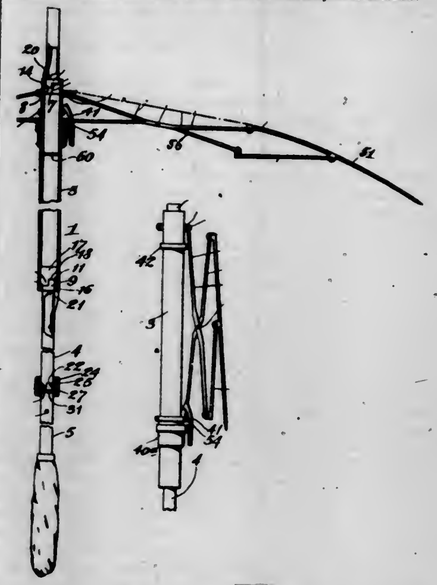
4. The method of generating and delivering gas which consists in heating two connecting bodies of fuel to incandescence and generating combustible gas therein, drawing gas from the base of one of the bodies of fuel by a gas-engine and causing its explosive combustion in said engine, and at the same time discharging the resulting products under the impulse and pressure of explosion directly into the base of the other body of fuel and passing said products up through the same and down through the other body of fuel, and, at suitable intervals, reversing the direction of flow of said explosion products through the bodies of fuel for blowing ashes from the interstices of the fuel keeping the fires permeable to gaseous fluids.

784,871. **FOLDING UMBRELLA.** FRANK A. LUNDQUIST, Brooklyn, N. Y. Filed Sept. 25, 1903. Serial No. 174,568.

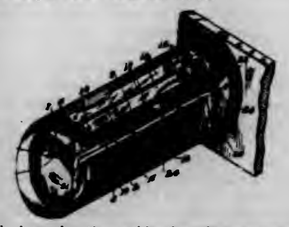
Claim.—1. In a foldable umbrella the combination with a stick of sectional pivoted foldable ribs, each inner section thereof having an angular portion, sectional pivoted foldable stretchers, each inner section thereof having an angular portion the angular portions of the rib-sections and stretcher-sections crossing each other and pivot-pins passing through said angular portions, substantially as described.

2. In a foldable umbrella, the combination with sectional foldable ribs and sectional foldable stretchers, of a stick comprising end sections provided with sleeves on their inner ends having peripheral recesses and projections and an intermediate section provided with sleeves in its ends having peripheral recesses and projections into which sleeves said end sections slide, the projections of the sleeves of the end sections adapted to engage the recesses in the sleeves of the intermediate section to lock said sections in extended position, substantially as described.

3. In a foldable umbrella, a stick comprising end sections provided with sleeves on their inner ends having peripheral recesses and projections, and an intermediate section provided with sleeves in its ends having peripheral recesses and projections into which sleeves said end sections slide, the projections of the sleeves of the end sections adapted to engage the recesses in the sleeves of the intermediate section to lock said sections in extended position, a runner, a notch, rib-sections pivoted together at their ends, the inner ends of the inner sections pivoted to the runner, and stretchers comprising sections pivoted together at their ends approximately opposite the pivots of the ends of the ribs, the inner sections pivoted approximately centrally to the inner sections of the ribs and the inner ends pivoted to the notch and the outer sections pivoted approximately to the centers of the outer rib-sections, substantially as described.



784,872. **RELAY.** RAY H. MANSON, Chicago, Ill., assignor to Kellogg Switchboard & Supply Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 3, 1903. Serial No. 166,003.



Claim.—1. In a relay, the combination with a magnet structure, of an armature-lever having one arm extending across in front of one end of the magnet of said structure and adapted to be attracted by said magnet and the other arm extending rearwardly at the side of said structure, said armature-lever being pivoted to said structure, a set of superposed switch-springs disposed longitudinally of said structure and having their free contact-carrying ends extended to near the forward end thereof and outside of said rearwardly-extending arm, whereby the movement of said armature shall operate said springs without obstructing a full view of the contacts from directly in front of the magnet structure.

2. In a relay, the combination with a magnet structure, of an armature-lever consisting of two arms at an angle to each other, one arm extending across in front of the magnet structure and adapted to be attracted thereby and the other extending rearwardly at the side of said structure, said armature-lever being pivoted to said structure adjacent the angle of said parts, a set of switch-springs disposed longitudinally of said structure and having their free contact-carrying ends adjacent the forward end thereof and outside of said rearwardly-extending arm of said armature-lever whereby the con-

tacts carried by said springs are exposed to view from the forward end of said structure, and means engaging the springs at a point behind the contacts for operating said springs by said rearwardly-extending arm of the armature-lever, substantially as described.

3. The combination with a magnet structure, of an armature-lever therefor consisting of two parts at an angle to each other and pivoted at the forward end of said structure, one part of said armature extending across in front of the magnet structure and adapted to be attracted thereby, while the other arm extends rearwardly at the side of said structure, a set of switch-springs disposed longitudinally of said structure and at the same side of the structure as said latter part of the armature, said set consisting of a plurality of superposed springs, the free ends of said springs being raised above the plane of said rearwardly-extending part of the armature, and a member carried by said latter part of the armature engaging an intermediate spring of said set at a point to the rear of the contacts of the springs to operate the same when the magnet is energized, substantially as described.

4. In a relay, the combination with a magnet structure, of an armature-lever consisting of two parts at an angle to each other, said lever being pivoted adjacent the angle of said structure and having one part extending across in front of the magnet structure and adapted to be attracted thereby while the other part extends rearwardly at the side of said structure, said latter part having a portion cut away and a transverse member in the rear of said portion, a set of switch-springs mounted longitudinally of said structure, a lower spring of said set passing through said cut-away portion of the armature-lever and beneath said transverse portion, the other springs of the set passing above said transverse portion of the armature and terminating adjacent the free end of the lower spring, whereby the contacts of said set of springs are exposed to view from the front end of the relay and said springs are operated by said transverse part of the armature engaging the springs at a point to the rear of the contacts of the springs, substantially as described.

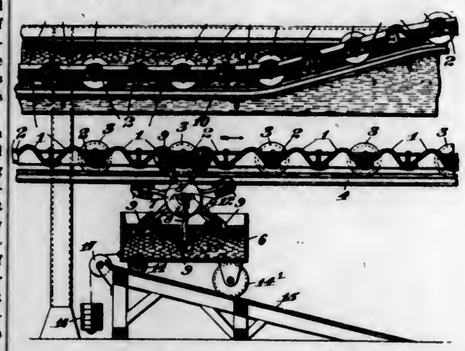
5. In a relay, the combination with a magnet structure, of an armature-lever consisting of two arms at an angle to each other, one arm extending across in front of the magnet structure and adapted to be attracted thereby and the other extending rearwardly at the side of said structure, said armature-lever being mounted to rock upon an edge of said structure, a set of switch-springs disposed longitudinally of said structure and having their free ends adjacent the forward end thereof and outside of said rearwardly-extending arm of said armature-lever whereby the contacts carried by said springs are exposed to view from the forward end of said structure, and means engaging the springs back of the contacts thereof for operating said springs by said rearwardly-extending arm of the armature-lever, substantially as described

6. The combination with a magnet structure, of an armature-lever therefor consisting of two parts at an angle to each other and adapted to rock upon an edge of said structure, one part of said armature extending across in front of the magnet structure and adapted to be attracted thereby, while the other arm extends rearwardly at the side of said structure, a set of switch-springs disposed longitudinally of said structure and at the same side of the structure as said latter part of the armature, said set consisting of a plurality of superposed springs, the free ends of said springs being raised above the plane of said rearwardly-extending part of the armature, and a member carried by said latter part of the armature engaging an intermediate spring of said set back of the contacts to operate the same when the magnet is energized, substantially as described.

7. The combination with a magnet structure, of an armature-lever therefor consisting of two parts at an angle to each other and adapted to rock upon an edge of said structure, one part of said armature extending across in front of the magnet structure and adapted to be attracted thereby, while the other arm extends rearwardly at the side of said structure, a set of switch-springs disposed longitudinally of said structure and at the same side of the structure as said latter part of the armature, said set consisting of a plurality of superposed springs, the free ends of all of said springs being raised above the pivotal point of the armature, and a transverse member carried by said latter part of the armature and engaging under an intermediate spring of said set back of the contacts to operate the same when the magnet is energized, substantially as described.

8. In a relay, the combination with a magnet structure, of an armature-lever having one arm extending across in front of one end of the magnet of said structure and adapted to be attracted by said magnet and the other arm extending rearwardly at the side of said structure, said armature-lever being pivoted to said structure, a set of superposed switch-springs disposed longitudinally of said structure and having their free contact-carrying ends extended to near the forward end thereof and outside of said rearwardly-extending arm, and means for operating said springs by the movement of said armature and at the same time leaving all the contacts of said springs exposed to view from directly in front of the magnet structure, said means engaging the springs at a point back of the contacts, substantially as described.

784,873. APPARATUS FOR COATING MOLDS. CHARLES MERRITTS and HENRY L. BARTLEBAUGH, Johnstown, Pa. Filed Sept. 20, 1904. Serial No. 225,215.



Claim.—1. In combination with a metal-casting machine having a series of traveling molds, an apparatus for automatically applying to said molds, a viscous or liquid substance, said apparatus consisting of a plurality of brushes or paddles moving in and by contact with the said molds.

2. In combination with a metal-casting machine having a series of traveling molds, an apparatus for coating the said molds with a viscous or liquid substance, said apparatus consisting of brushes or paddles arranged on radial arms mounted on an axle and caused to revolve by the motion of said molds.

3. In combination with a metal-casting machine having a series of traveling molds, an apparatus for applying to said molds a viscous or liquid substance, said apparatus consisting of brushes or paddles mounted at the ends of the radial arms of a rimless wheel arranged to revolve in and by contact with the said molds, a movable tank supporting the said wheel and containing the liquid or viscous substance aforesaid.

4. The combination with a metal-casting machine having a series of traveling molds, of an apparatus for applying to said molds a viscous or liquid substance, said apparatus consisting of brushes or paddles mounted at the ends of the arms of a wheel arranged to revolve in and by contact with the said molds, a movable tank supporting said wheel and mounted on a track beneath the said molds, said tank also containing the viscous or liquid substance aforesaid.

5. The combination with a metal-casting machine having a series of traveling molds, of an apparatus for coating the said molds with a viscous or liquid substance, said apparatus consisting of brushes or paddles arranged at the ends of the arms of a wheel arranged to revolve in and by contact with the said molds, a movable tank mounted on an inclined track beneath the said molds carrying the said wheel and containing the said substance, counterweights attached to the said tank, whereby the same is maintained in position.

6. An apparatus for coating a series of traveling molds composed of a plurality of arms or spokes mounted on an axle and carrying at their ends brushes or paddles adapted to receive a viscous or liquid substance and spread the same within the said molds, said apparatus being operated by the contact of said paddles with the traveling molds.

7. An apparatus for coating a series of traveling molds composed of a plurality of arms or spokes mounted on an axle and carrying at their ends brushes or paddles adapted to take up a portion of a viscous or liquid substance and spread the same within the said molds, a tank carrying the said axle and containing the said substance, said apparatus being operated by the contact of said paddles with the traveling molds.

8. An apparatus for coating a series of traveling molds comprising a plurality of radial arms or spokes mounted on an axle and carrying at their ends brushes or paddles adapted to take up a portion of a viscous or liquid substance and spread the same within the said molds, a movable tank carrying the said axle and containing the said viscous substance, an inclined track supporting the said tank whereby the said radial arms may be released from the molds through the downward motion of the said tank, said paddles being operated by the traveling movement of the molds aforesaid.

9. An apparatus for coating molds, composed of a plurality of arms or spokes mounted on an axle and provided at their ends with paddles or brushes, said apparatus being operated by the contact of the paddles with the traveling molds, whereby the said molds are coated with a liquid or viscous substance.

10. An apparatus for coating a series of traveling molds composed of a plurality of radial arms or spokes mounted on an axle, a paddle at the end of each of the said arms or spokes consisting of a block of wood secured thereto, a movable tank carrying the said axle and containing a viscous or liquid substance which is taken up by the said paddles or brushes and spread thereby within the molds aforesaid, the movement of said paddles being accomplished by their contact with the molds aforesaid.

11. The combination in an apparatus for coating a series of traveling molds, of a rotary wheel carrying brushes or paddles, a tank containing the coating substance, wheels supporting said tank, an inclined track on which said latter wheels travel, a counterweight for maintaining the tank in operative position, said apparatus being operated by the contact of said paddles with the surfaces of the traveling molds aforesaid.

784,874. MOLD. CHARLES MILLER, Binghamton, N. Y. Filed Feb. 10, 1904. Serial No. 192,881.



Claim.—1. The combination of a mold proper, comprising two sections with longitudinal matching cavities, the sections engaging each other at one side of the cavities and being spaced apart at the other side, and a core comprising a body set between the said spaced surfaces of the mold-sections and spaced fingers carried by the body and projecting from the inner edge of the core-body into the cavities of the mold-sections, said fingers being of a shape corresponding to the shape of the mold-cavity.

2. The combination of a mold proper, comprising two sections with longitudinal matching cavities, the sections engaging each other at one side of the cavities and being spaced apart at the other side, and a core comprising a body set between the said spaced surfaces of the mold-sections and spaced fingers carried by the body and projecting into the cavities of the mold-sections, said fingers having a passage running through them longitudinally of the core.

3. The combination of a mold proper, comprising two sections with longitudinal matching cavities, the sections engaging each other at one side of the cavities and being spaced apart at the other side, and a core comprising a body set between said spaced surfaces of the mold-sections and spaced fingers carried by the body and projecting from the inner edge thereof into the cavities of the mold-sections, said core-body having at its inner edge, a central annular groove, which extends outwardly through the fingers in a plane at right angles to the sides of the fingers.

4. A mold-core, comprising a body having a series of spaced fingers projecting from the inner edge of the core-body, said fingers being formed with convex outer side edges, for the purpose specified, and the fingers having a passage running through them longitudinally of the core, and said passage extending into the core-body at the side adjacent to the fingers.

5. A mold-core, comprising a curved body having a series of flat fingers projecting from the inner edge of the core-body and spaced from each other and formed with a continuous horizontal passage running through them longitudinally of the core-body at right angles to the spaces between the fingers to divide the fingers into sections spaced from each other.

784,875. RUBBER-TIRED WHEEL. RICHARD MULHOLLAND, Dunkirk, N. Y. Filed Nov. 17, 1904. Serial No. 233,103.

Claim.—1. In a wheel of the class described, a felly, a rim on said felly, a tire on said rim, one or more retaining-bands extending through said tire and a plate for locking the ends of said bands having a series of tire-retaining projections which are tapered to present a sharpened surface transversely and a comparatively broad and blunt surface longitudinally for the purposes set forth.



2. In a wheel of the class described, a felly, a rim on said felly, a tire on said rim, one or more retaining-bands extending through said tire and a plate for locking the ends of said bands having a series of integral rivet projections on one face, and a series of tire-retaining projections on another face.

3. In a wheel of the class described, a felly, a rim on said felly, a tire on said rim, one or more retaining-bands extending through said tire and a plate for locking the ends of said bands having a series of integral rivet projections on one face, and a series of tire-retaining projections on another face which are tapered to present a sharpened surface transversely and a comparatively broad and blunt surface longitudinally for the purposes set forth.

4. In a wheel of the class described, a felly, a rim on said felly, a tire on said rim, one or more retaining-bands extending through said tire and a plate for locking the ends of said bands having a plurality of sets of integral projections, one of said sets serving as rivets and another of said sets extending oppositely to said first-mentioned set and constituting tire-retaining devices, substantially as set forth.

5. In a wheel of the class described, a felly, a rim on said felly, a tire on said rim, one or more retaining-bands extending through said tire, a plate for locking the ends of said bands, having integral rivet projections on one face and tire-retaining projections on the other face, and one or more projections entering the under surface of the tire from the inside of the felly or rim to prevent longitudinal movement.

6. In a wheel, a rim, a tire on said rim, two parallel channeled retaining-bands U-shaped in cross-section, extending longitudinally through said tire, plates with integral rivet projections on one face, and tire-retaining projections on the other face, fitting into the channel of said bands for locking the ends in place and a bolt having a broad head extending over both bands passing through a portion of the tire through the rim and secured to same.

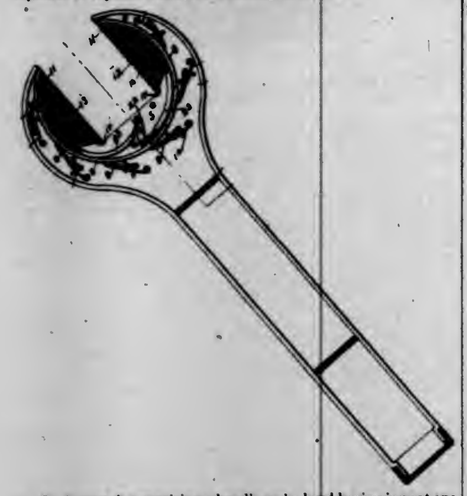
7. In a wheel, a rim, a tire on said rim, two parallel channeled retaining-bands U-shaped in cross-section extending longitudinally through said tire, plates with integral rivet projections on one face, and tire-retaining projections on the other face, fitting into the channel of said bands for locking the ends in place, and a bolt having a broad head extending over both bands passing through a portion of the tire through the rim and secured to same, one or more lag-screws passing from the inside of the rim into the inner surface of the tire to prevent creeping.

8. In a wheel of the class described, a rim, a felly on said rim, a tire on said rim, one or more retaining-bands extending through said tire, a plate for locking the ends of said band having integral rivet projections on one face, and integral tire-retaining projections on the other face, and means for securing said plate to the rim and felly including a shank or rod passing through a portion of the tire and having a screw-threaded end passing through the rim and felly and secured thereto by a screw-nut and one or more screw-bolts passing from the inside of said rim and felly and entering the lower surface of the tire, after the tire is secured to the rim to prevent longitudinal movement.

784,876. WRENCH. JOSEPH OPPERMANN, Minneapolis, Minn. Filed Apr. 23, 1904. Serial No. 204,522.

Claim.—1. A wrench comprising a bar having oppositely-arranged fixed jaws with a space between them at the end of said bar, a ring rotatably mounted in said jaws and having a ratchet-and-pawl connection with them, blocks carried by said ring and having guideways that converge from the inner toward the outer ends of said jaws, and movable jaws slidably mounted in said guideways and having oppositely-arranged gripping-surfaces that are substantially parallel throughout the travel of said movable jaws, and mechanism for reciprocating said movable jaws, substantially as described.

2. A wrench comprising a bar provided with jaws having a space between them, a ring having an opening in one side to correspond with the opening between said jaws and adapted to revolve therein and having a series of ratchet-teeth, pawls mounted at intervals in said jaws and engaging said teeth there being a sufficient number of pawls to allow said ring to be revolved through the space between said jaws without all of the pawls passing out of engagement with said teeth, blocks having guideways secured in said ring upon each side of the opening therein, movable jaws arranged in said guideways, and mechanism for operating said movable jaws to draw them together or separate them, substantially as described.



3. A wrench comprising a handle and a head having jaws at one end and composed of sheet-metal plates having flanged edges placed one upon the other, and means securing them together, a space being provided between the ends of said jaws, a ring having an opening in one side coinciding with the opening between said jaws and composed of sheet-metal plates provided with a series of exteriorly-arranged ratchet-teeth, a series of pawls mounted in said arms and engaging said teeth, movable blocks mounted in said ring, and mechanism for moving said blocks toward one another or separating them, substantially as described.

4. A wrench comprising a bar having oppositely-arranged fixed jaws at one end with a space between them, movable jaws mounted in guides in said fixed jaws, a key, and links pivotally connecting said key with said movable jaws, for the purpose specified.

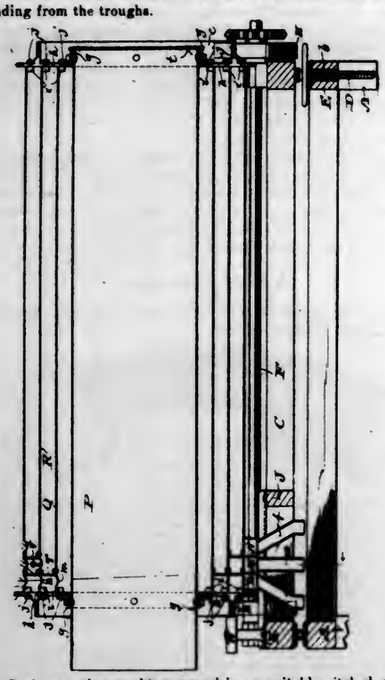
5. A wrench comprising a bar having a head at one end provided with jaws having a space between them, a ring having an opening in one side to correspond with the opening between said jaws and adapted to revolve therein, and having a series of ratchet-teeth, pawls mounted at intervals in said jaws and engaging said teeth, and jaws slidably supported in said ring and having parallel faces, and mechanism for moving said jaws toward or from each other their faces remaining in parallel relation, substantially as described.

6. A wrench comprising a bar having fixed oppositely-arranged jaws at one end with a space between them, a ring mounted in said jaws and having a ratchet-and-pawl connection therewith, movable jaws slidably mounted in guideways in said ring, a pivoted key, and links connected with said key and said movable jaws, for the purpose specified.

784,877. SCREENING-MACHINE. JOHN O'LAUGHLIN, Racine, Wis. Filed Mar. 17, 1904. Serial No. 198,541.

Claim.—1. A screening-machine comprising a frame adjustable to various angles, a rotary drum adjustable with the frame and consisting of a series of concentric screens of different mesh, heads through which the central screen is open at both ends but which close the ends of the other screens, and partitions back of the head at the discharge end of the drum between certain of the screens adjacent to outlets provided in the same; trough stationary on said frame concentric with said drum under the partition end of same to receive material discharged through the outlets of the screens between the drum-heads, and chutes depending from the troughs.

2. A screening-machine comprising a frame adjustable to various angles, a rotary drum adjustable with the frame, and consisting of radially-slotted heads having central openings, a cylindrical screen open at both ends and set in the head-slots, other cylindrical screens supported at their ends on the bolt-heads concentric to each other and the screen aforesaid between the drum-heads, and partitions back of the drum-head at the discharge end of the machine between certain of the screens adjacent to outlets provided in the same; troughs stationary on said frame concentric with said drum under the partitioned end of same to receive material discharged through the outlets of the screens between the drum-heads, and chutes depending from the troughs.



3. A screening-machine comprising a suitably-pitched rotary drum consisting of a central cylindrical screen of coarse mesh open at both ends, heads having central openings engaged by said screen, other screens of different mesh finer than that of the one aforesaid concentric with the same between the drum-heads by which they are closed at their ends, and partitions back of the heads at the discharge end of the machine between the screens of finer mesh adjacent to outlets in the same; stationary troughs under the partitioned end of the drum concentric with the same to receive material discharged through outlets of the screens between the drum-heads, and chutes depending from the troughs.

4. A screening-machine comprising a suitably-pitched rotary drum consisting of a central cylindrical screen of coarse mesh open at both ends but having its feed end provided with an inner annular flange, heads having central openings engaged by said screen, other screens of different mesh finer than that of the one aforesaid concentric with the same between the drum-heads by which they are closed at their ends, and partitions back of the head at the discharge end of the machine between the screens of finer mesh adjacent to outlets in the same; stationary troughs under the partitioned end of the drum concentric with the same to receive material discharged through outlets of the screens between the drum-heads, and chutes depending from the troughs.

5. A screening-machine comprising a main frame an auxiliary frame adjustable on the main one to various angles, a drum having rotary support on the auxiliary frame and consisting of a series of concentric screens of different mesh, heads through which the central one of the screens is open at both ends but which close the ends of the other screens, and partitions back of the head at the discharge end of the machine between certain of the screens adjacent to outlets in the same; troughs stationary on the auxiliary frame concentric with the drum under the partitioned end of same to receive material discharged through the outlets of the screens between the drum-heads, and chutes depending from the troughs.

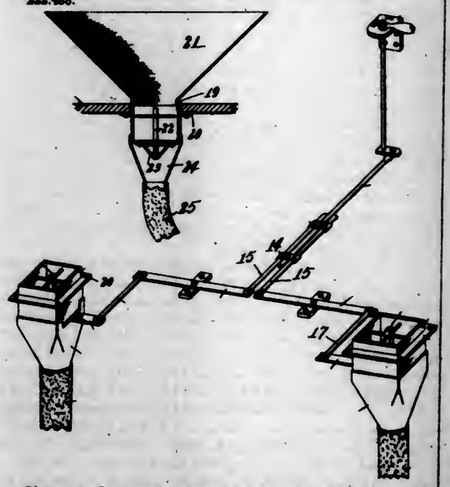
784,878. FIREPROOF FLOOR AND CEILING CONSTRUCTION. ALOIS PFEIFFER, Chicago, Ill. Filed Aug. 20, 1904. Serial No. 222,050.



Claim.—1. A fireproof floor or ceiling, comprising in combination floor-joists provided on their lower edges with supporting-flanges, tiles resting at their ends upon said supporting-flanges and consisting of substantially flat plates having concaved lower faces and provided on their side edges with interfitting tongues and grooves said tiles having embedded therein arched foraminated plates extending substantially concentric with the lower face thereof, blocks abutting against said joists and resting upon the ends of said tiles and having inclined outer faces thereby forming pockets above said tiles, and a filling of cinders or the like in said pockets.

2. In a fireproof floor or ceiling, the combination with the joists provided on their lower edges with supporting-flanges, of tiles supported at their ends on said supporting-flanges, each of said tiles comprising a substantially flat plate having a concaved lower face and provided on its side edges with interfitting tongues and grooves extending concentric with the lower face, an arched foraminated plate embedded in each of said tiles and extending from the inner wall of the groove at one side to the free end of the tongue at the other side thereof said plate being concentric with said lower face of said tile and said tongue and groove, wedge-shaped blocks abutting against the joists and resting upon the ends of said tiles and forming flaring pockets between said joists, a filling in said pockets, and a floor resting on said joists and said filling.

784,879. SAND-BOX FOR STREET-RAILWAY CARS. SIDNEY W. PHELPS, Globe Village, Mass. Filed Aug. 29, 1904. Serial No. 223,488.



Claim.—1. In a construction of the class described, the combination of a sand-box mounted on the body of a car, a discharge-pipe flexibly mounted on a truck-frame, and a flexible hose connecting the sand-box and discharge-pipe.

2. In a construction of the class described, the combination of a sand-box mounted on the body of a car, a discharge-pipe in the truck-frame supported near its center so as to be free to be swung or turned in any direction, and a flexible hose connecting the sand-box and discharge-pipe.

3. In a construction of the class described, the combination of a sand-box mounted on the body of a car, a discharge-pipe, means for supporting the discharge-pipe in a truck-frame, comprising a yoke with oppositely-arranged tension-springs connecting the arms of the yoke substantially with the center of the discharge-pipe, whereby the discharge-pipe is free to be swung or turned in any direction, and a hose connecting the sand-box and discharge-pipe.

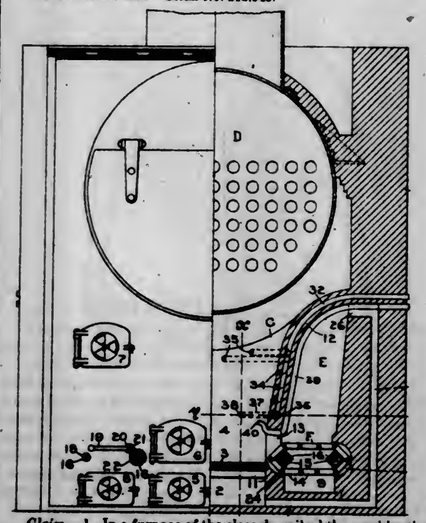
4. In a construction of the class described, the combination of a sand-box mounted in a car-body, a discharge-pipe, means for supporting the discharge-pipe in a truck-frame, comprising a yoke having a ball-and-socket joint, and means for clamping the yoke in different adjusted positions, and a hose connecting the discharge-pipe and the sand-box.

5. In a construction of the class described, the combination of a sand-box mounted in a car-body, a discharge-pipe, means for mounting the discharge-pipe in a truck-frame, comprising a yoke, a bearing-plate therefor, the yoke having a ball-and-socket connection with the bearing-plate, a bolt fastening the yoke in different adjusted positions, oppositely-arranged tension-springs connecting the arms of the yoke substantially with the center of the discharge-pipe, whereby the discharge-pipe is free to swing or turn in any direction, and a hose connecting the discharge-pipe and the sand-box.

6. In a construction of the class described, the combination of a sand-box, means for fastening the sand-box to the under side of a car-floor so that its upper edge will extend up above the surface of the floor, a reservoir or hopper fitted inside of the sand-box, a discharge-pipe flexibly mounted in the truck-frame so as to be free to turn or swing in any direction, and a hose connecting the discharge-pipe and sand-box.

7. In a construction of the class described, the combination of a vertical shaft having a controlling-lever at its upper end, means for mounting the shaft in position to be operated by the motorman of an electric car, a link extending from a crank-arm of the vertical shaft, two sets of connections from the link, one set of connections controlling the discharge of sand from a sand-box at one side of the car, and the other set of connections controlling the discharge of sand from a sand-box at the other side of the car, a discharge-pipe for each sand-box, means for supporting each of the discharge-pipes in a truck-frame, comprising a bearing-plate, a yoke having ball-and-socket connection with the bearing-plate, oppositely-arranged tension-springs connecting the arms of the yoke substantially with the center of a discharge-pipe, whereby the discharge-pipe will be free to be swung or turned in any direction, and a hose connecting each discharge-pipe with its sand-box.

784,880. BOILER-FURNACE. SIMEON F. PIERCE, St. Paul, Minn. Filed June 17, 1904. Serial No. 212,940.



Claim.—1. In a furnace of the class described the combination, with the walls and fire-box thereof, of a coking-chamber arranged at the side of the fire-box and having an inner side wall dividing it therefrom, pipes supported at one end in one of the walls of the furnace and extending through the interior of the inner side wall of the coking-chamber, each pipe leading separately from the outside air and discharging into the fire-box at a predetermined point, and a passage within one of the walls of the furnace and along the bottom

with the drum under the partitioned end of same to receive material discharged through the outlets of the screens between the drum-heads, and chutes depending from the troughs.

784,878. FIREPROOF FLOOR AND CEILING CONSTRUCTION. ALOIS PFEIFFER, Chicago, Ill. Filed Aug. 29, 1904. Serial No. 223,669.



Claim.—1. A fireproof floor or ceiling, comprising in combination floor-joists provided on their lower edges with supporting-flanges, tiles resting at their ends upon said supporting-flanges and consisting of substantially flat plates having concaved lower faces and provided on their side edges with interfitting tongues and grooves said tiles having embedded therein arched foraminated plates extending substantially concentric with the lower face thereof, blocks abutting against said joists and resting upon the ends of said tiles and having inclined outer faces thereby forming pockets above said tiles, and a filling of cinders or the like in said pockets.

2. In a fireproof floor or ceiling, the combination with the joists provided on their lower edges with supporting-flanges, of tiles supported at their ends on said supporting-flanges, each of said tiles comprising a substantially flat plate having a concaved lower face and provided on its side edges with interfitting tongues and grooves extending concentric with the lower face, an arched foraminated plate embedded in each of said tiles and extending from the inner wall of the groove at one side to the free end of the tongue at the other side thereof said plate being concentric with said lower face of said tile and said tongue and groove, wedge-shaped blocks abutting against the joists and resting upon the ends of said tiles and forming flaring pockets between said joists, a filling in said pockets, and a floor resting on said joists and said filling.

784,879. SAND-BOX FOR STREET-RAILWAY CARS. SIDNEY W. PHELPS, Globe Village, Mass. Filed Aug. 29, 1904. Serial No. 223,488.



the discharge-pipe is free to be swung or turned in any direction, and a hose connecting the sand-box and discharge-pipe.

4. In a construction of the class described, the combination of a sand-box mounted in a car-body, a discharge-pipe, means for supporting the discharge-pipe in a truck-frame, comprising a yoke having a ball-and-socket joint, and means for clamping the yoke in different adjusted positions, and a hose connecting the discharge-pipe and the sand-box.

5. In a construction of the class described, the combination of a sand-box mounted in a car-body, a discharge-pipe, means for mounting the discharge-pipe in a truck-frame, comprising a yoke, a bearing-plate therefor, the yoke having a ball-and-socket connection with the bearing-plate, a bolt fastening the yoke in different adjusted positions, oppositely-arranged tension-springs connecting the arms of the yoke substantially with the center of the discharge-pipe, whereby the discharge-pipe is free to swing or turn in any direction, and a hose connecting the discharge-pipe and the sand-box.

6. In a construction of the class described, the combination of a sand-box, means for fastening the sand-box to the under side of a car-floor so that its upper edge will extend up above the surface of the floor, a reservoir or hopper fitted inside of the sand-box, a discharge-pipe flexibly mounted in the truck-frame so as to be free to turn or swing in any direction, and a hose connecting the discharge-pipe and sand-box.

7. In a construction of the class described, the combination of a vertical shaft having a controlling-lever at its upper end, means for mounting the shaft in position to be operated by the motorman of an electric car, a link extending from a crank-arm of the vertical shaft, two sets of connections from the link, one set of connections controlling the discharge of sand from a sand-box at one side of the car, and the other set of connections controlling the discharge of sand from a sand-box at the other side of the car, a discharge-pipe for each sand-box, means for supporting each of the discharge-pipes in a truck-frame, comprising a bearing-plate, a yoke having ball-and-socket connection with the bearing-plate, oppositely-arranged tension-springs connecting the arms of the yoke substantially with the center of a discharge-pipe, whereby the discharge-pipe will be free to be swung or turned in any direction, and a hose connecting each discharge-pipe with its sand-box.

784,880. BOILER-FURNACE. SIMEON F. PIERCE, St. Paul, Minn. Filed June 17, 1904. Serial No. 212,940.

thereof leading from the coking-chamber to the ash-pit below the main grate.

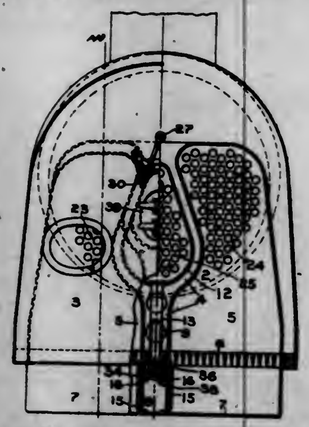
2. In a furnace of the class described, the combination, with the walls and fire-box thereof, of a coking-chamber arranged at the side of the fire-box and having an inner side wall dividing it from the fire-box, and pipes supported at one end in one of the walls of the furnace and extending through the interior of the inner side wall of the coking-chamber, each pipe leading separately from the outside air and discharging into the fire-box at a predetermined point.

3. In a furnace of the class described, the combination, with the side wall and fire-box, of a coking-chamber arranged at the side of the fire-box and having an inner side wall dividing it therefrom, and pipes passing through the side wall of the furnace and extending downwardly through the interior of the inner side wall of the coking-chamber, said pipes having separate air-inlet openings and discharging into the fire-box at predetermined points.

4. In a furnace of the class described the combination, with the front wall, side wall, bridge-wall and fire-box, of a coking-chamber arranged at the side of the fire-box and having an inner side wall dividing it therefrom, a main pipe supported at its ends in the front and bridge walls and passing intermediately through the interior of the inner side wall of the coking-chamber, said pipe extending into the bridge-wall and discharging therefrom into the fire-box, and one or more communicating pipes passing through the side wall of the furnace and extending downwardly through the interior of the inner side wall of the coking-chamber to the main pipe.

5. In a furnace of the class described the combination, with the fire-box, main grate and side wall, of a coking-chamber arranged at the side of the fire-box and having a dividing-wall extending over the chamber to the side wall of the furnace, the dividing-wall being formed with an opening above the main grate, and one or more pipes passing through the side wall of the furnace and extending down along the inner side of the dividing-wall and through the opening therein in supporting proximity to the dividing-wall, said pipes being open at both ends, for the purpose set forth.

784,881. SMOKE-CONSUMING APPARATUS FOR LOCOMOTIVE-BOILERS. SIMEON F. PIERCE, St. Paul, Minn. Filed Jan. 27, 1905. Serial No. 243,818.



Claim.—1. The combination with two separated sets of fire-boxes and ash-pans, of a boiler of the class described, a damper-box and smoke-stack at the forward end of the boiler, a passage from the damper-box to the smoke-stack, two separated groups of flues leading from the damper-box through the boiler to the two fire-boxes respectively, a third group of flues leading from the damper-box through the boiler to the ash-pans, means to shut off said third group of flues from either one of the ash-pans, and a damper in the damper-box capable of being turned into position to shut off the group of flues leading to one fire-box and the group of flues leading back to the ash-pans, from the passage to the smoke-stack and the group of flues leading to the other fire-box.

2. The combination with two sets of fire-boxes and ash-pans, of a boiler of the class described and its flue-sheets, a water-wall extending longitudinally between the fire-boxes and communicating with the interior of the boiler, a flue or flues within the water-wall extending from the rear flue-sheet to the ash-pans, flues extending through the boiler, said flues being arranged in three groups, one group extending from the fire-box on one side of the water-wall to the forward flue-sheet, another group extending from the fire-box on the other side of the water-wall to the forward flue-sheet, and the third group extending from the flue within the water-wall to the forward flue-sheet, and means at the forward ends of said boiler-flues for returning the smoke and gases passing through either of the fire-box flues rearwardly through the flues communicating with the water-wall flue.

3. The combination with two separated sets of fire-boxes and ash-pans, of a boiler of the class described and its flue-sheets, a water-wall extending longitudinally between the fire-boxes and communicating at different points with the interior of the boiler, a longitudinally-extending flue within the water-wall, downwardly-extending branch flues leading from the longitudinal flue to the ash-pans, a group of flues leading from the fire-box on each side of the water-wall to the forward flue-sheet, a third group of flues extending through the boiler from the flue in the water-wall to the forward flue-sheet, means to direct the products of combustion passing through the flues from the fire-boxes into the flues leading to the water-wall flue, and dampers to open or close the communication between said downwardly-extending flues and the ash-pan under either fire-box.

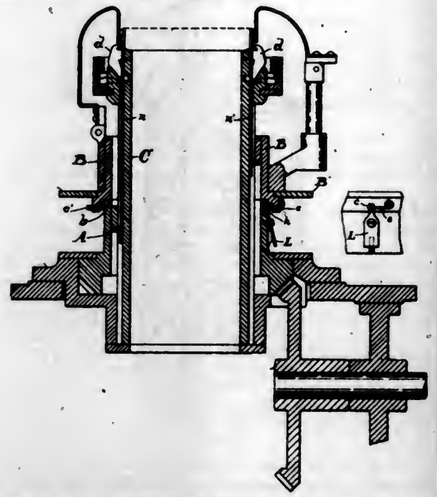
4. The combination with two separated sets of fire-boxes and ash-pans, of a boiler of the class described and its flue-sheets, a damper-box and smoke-stack at the forward end of the boiler, a passage from the damper-box to the smoke-stack, a dividing-wall extending longitudinally between the fire-boxes, a flue or flues within the dividing-wall extending from the rear flue-sheet to the ash-pans, three separated groups of boiler-flues leading from the rear flue-sheet forwardly through the boiler to the damper-box, two of the groups leading from the two fire-boxes respectively, and a third group leading from the flue in the dividing-wall, a damper in the damper-box to direct the smoke and gases either into the smoke-stack or back through the third group of boiler-flues to the flue in the dividing-wall, and dampers in position to open or shut off communication between the dividing-wall flues and the ash-pan beneath one or other of the fire-boxes as may be desired.

5. The combination, with two separated sets of fire-boxes and ash-pans, of a boiler of the class described and its flue-sheets, a damper-box at the forward end of the boiler, a passage from the damper-box to the smoke-stack, a water-wall extending longitudinally between the fire-boxes and communicating with the interior of the boiler, a flue or flues within the water-wall extending from the rear flue-sheet to the ash-pans, two separated groups of boiler-flues leading through the boiler from the two fire-boxes, respectively, to the damper-box, a third group of flues leading from the water-wall flue to the damper-box, a damper in the damper-box capable of being turned into position to shut off the group of flues leading from one fire-box and the group of flues leading from the water-wall flue, from the passage to the smoke-stack and the group of flues leading from the other fire-box, and means to shut off the water-wall flues from either or both of the ash-pans.

6. The combination with two separated sets of fire-boxes and ash-pans, of a boiler of the class described, its flues and flue-sheets, a dividing-wall extending longitudinally between the fire-boxes, a longitudinally-extending flue within the dividing-wall, downwardly-extending branch flues leading from the longitudinal flue to the ash-pans, a group of flues leading from the fire-box on each side of the dividing-wall to the forward flue-sheet, a third group of flues extending through the boiler from the forward flue-sheet to the flues in the dividing-wall, means to direct the products of combustion passing through the flues from the fire-boxes into the flues leading to the dividing-wall flue, a partition-box extending longitudinally between the ash-pans and communicating with the lower ends of the downwardly-extending branch flues, dampers arranged in each side of the partition-box to open or close communication with either of the ash-pans, plugs arranged in the partition-box in position to close the ends of the downwardly-extending flues, and actuating mechanism therefor.

784,882. HOSIERY-KNITTING MACHINE. ALBERT M. PIGEON, Philadelphia, Pa., assignor of one-half to Charles S. Weierman, Philadelphia, Pa. Filed June 27, 1903. Serial No. 113,506.

Claim.—1. In a circular-knitting machine, the combination of a circle of needles in two series, a series of long needles on one side of the needle-cylinder and a series of short needles on the opposite side of the needle-cylinder, the two series overlapping one or more needles at each end as may be desired, two sets of needle-actuating cams, one for actuating the long needles and one for actuating the short needles, two cam-rings one vertically over the other forming a cam-cylinder, each ring containing one of the sets of needle-actuating cams and being adjustable upon each other so that the two sets of needle-actuating cams may at will be brought either on the same or opposite sides of the cam-cylinder, means for temporarily fastening the cam-rings in the relative position desired, and means for so operating the machine that the cam-rings may either rotate or reciprocate at will, substantially as shown and described.



2. In a circular-knitting machine, the combination of a needle-cylinder, a series of short needles on one side of the needle-cylinder a series of long needles on the opposite side of the needle-cylinder, an overlap of one or more needles at each end where the two series join, a lower cam-ring, a set of needle-actuating cams carried by the lower cam-ring and adapted to actuate the long needles, an upper cam-ring vertically over the lower cam-ring and capable of being rotated thereon, a set of needle-actuating cams carried by the upper cam-ring and adapted to actuate the short needles, means for temporarily fastening the two cam-rings together with their cams either on the same or opposite sides of the needle-cylinder as may be desired and means for rotating and reciprocating the cam-rings together, all substantially as shown and described.

3. In a circular-knitting machine the combination of a needle-cylinder, a series of short needles on one side of the needle-cylinder, a series of long needles on the opposite side of the needle-cylinder, a lower cam-ring, a set of needle-actuating cams carried by the lower cam-ring and adapted to actuate the long needles, an upper cam-ring vertically over the lower cam-ring and capable of rotation thereon, a set of needle-actuating cams carried by the upper cam-ring and adapted to actuate the short needles, means for temporarily fastening the two cam-rings together with their cams either on the same or opposite sides of the needle-cylinder as may be desired, and means for rotating and reciprocating the cam-rings together, all substantially as shown and described.

4. In a circular-knitting machine, a cam-cylinder of two parts or rings, one vertically over the other, each carrying a set of needle-actuating cams and capable of being temporarily fastened together with the cams either on the same or opposite sides of the cam-cylinder, in combination with a needle-cylinder containing two series of needles, all the long needles being on one side of the needle-cylinder and all the short needles on the other side of the needle-cylinder, and means for rotating and reciprocating the cam-cylinder.

5. In a circular-knitting machine, a cam-cylinder in two parts or rings, one vertically over the other, each carrying a set of needle-actuating cams and capable of being temporarily fastened together with the cams either on the same or opposite sides of the cam-cylinder, in combination with a needle-cylinder containing two sets of needles, long needles on one side and short needles on the opposite side, each series of needles being continuous except for such irregularity as may be required for forming a seam or join as described, and means for rotating and reciprocating the cam-cylinder.

6. In a circular-knitting machine a cam-cylinder of two parts one vertically over the other, each carrying a set of needle-actuating cams and capable of being temporarily fastened together with the cams either upon the same or opposite sides of the cam-cylinder, in combination with a needle-cylinder having the needles in two series, a series of long needles on one side and a series of short needles on the other side, the two series overlapping one or more needles at each end, and means for rotating and reciprocating the cam-cylinder.

7. In a circular-knitting machine the combination of a needle-cylinder, a series of short needles occupying one side of the needle-cylinder, a series of long needles occupying the other side of the needle-cylinder, one or more short needles at each end of the series of long needles, one or more long needles at each end of the series of short needles, a lower cam-ring surrounding the lower part of the needle-cylinder, a set of cams in such lower cam-ring adapted to act on the butts of the long needles, means for either rotating or reciprocating at pleasure the lower cam-ring, an upper cam-ring placed vertically over the lower cam-ring so that the two shall form one cylinder, the upper cam-ring adapted to be rotated on the lower cam-ring through a half-circle, a set of cams in the upper cam-ring adapted to act on the butts of the short needles, means for temporarily fastening the two cam-rings together either on the same or on opposite sides of the needle-cylinder as may be desired, and two yarn-carriers one on each side of the upper cam-ring.

784,883. APPARATUS FOR HEATING TOOLS. JAMES PIRIE, Montpelier, Vt., assignor to Piris Tool Sharpening Machine Company, Montpelier, Vt. Filed Sept. 2, 1903. Serial No. 171,644.

Claim.—1. An apparatus for heating tools, comprising a forge having a longitudinal opening in its front portion at the top thereof, an endless carrier for the tools having its upper run passing through the said opening, the carrier being arranged to carry the points of the tools through the forge with the shanks in the open air, means for supplying fuel to the forge to cause the heat to rush up at the inner face of the front wall and come in contact with the points of the tools to heat the points only, and an apron or shield suspended from the forge-hood and extending in front of said opening, and the upper run of said carrier.

2. An apparatus for heating tools comprising a forge having a longitudinal opening in its front portion at the top thereof, means for supplying fuel to said forge, the said opening at the top causing the heat to rush upward at the inner face of the front wall to said opening, an endless carrier having its upper run passing horizontally through said opening above the upper face of the front wall and arranged to carry tools with their cutting edges extending into the forge to be met by the upwardly-rushing heat from the forge, the top wall of the forge forming the top of said opening and projecting but

a short distance beyond the inner face of the front wall to permit the heat to pass upward over the inner edge of the carrier without coming in contact with the shanks of the tools, as set forth.

3. In an apparatus for heating tools, a forge having a longitudinal opening in its front portion at the top thereof, means for supplying fuel to said forge, the said opening at the top causing the heat to rush upward at the inner face of the front wall to said opening, an endless carrier for the tools having its upper run passing horizontally through the said opening above the upper face of the front wall of the forge and arranged to carry tools with their cutting edges extending into the forge to be met by the upwardly-rushing heat from the forge, the top wall of the forge forming the top of said opening and projecting but a short distance beyond the inner face of the front wall to permit the heat to pass upward over the inner edge of the carrier, and means for regulating the speed of the said carrier, as set forth.

4. An apparatus for heating tools, comprising a forge having a longitudinal opening in its front portion at the top thereof, an endless carrier for the tools having a portion of its upper run passing horizontally through the said opening in the forge to carry the tools through the forge to heat their cutting edges, the said carrier comprising an endless link chain, platforms secured on the chain for supporting the tools, sprocket-wheels around which the chain passes and parallel supporting-bars extending horizontally between the sprocket-wheels and on which the platforms ride, means for supplying fuel and air to the lower part of the forge, means under the control of the operator for regulating the fuel-supply, and means for regulating the speed of the carrier, as set forth.

5. An apparatus for heating tools prior to sharpening the same and comprising a forge having a longitudinal opening in its front portion at the top thereof, an endless carrier for the tools having its upper run passing horizontally through the said opening in the forge to carry the tools through the upper part of the forge to heat the cutting edges of the same, the said carrier comprising an endless link chain, platforms secured on the chain for supporting the tools, sprocket-wheels around which the chain passes, parallel supporting bars extending horizontally between the sprocket-wheels and on which the platforms ride, means for driving one of said sprocket-wheels, and a shield suspended in front of the opening in the forge, as set forth.

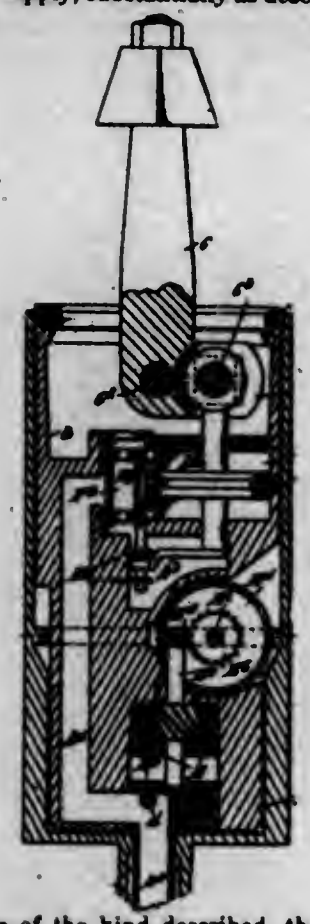
6. An apparatus for heating tools comprising a forge having a longitudinal opening in its front portion at the top thereof, the opening at the top causing the heat from the fuel in the forge to rush upward at the inner face of the front wall to said opening, an endless carrier having its upper run passing horizontally through said opening above the upper face of the front wall and arranged to carry tools with their cutting edges extending into the forge to be met by the upwardly-rushing heat from the fuel, the forge-wall at the top of said opening projecting over the inner edge only of the carrier to permit the heat to pass upward over the said inner edge of the carrier without coming in contact with the shanks of the tools, and a shield arranged in front of the said opening and extending below the upper run of the carrier at the outer side thereof, as set forth.

784,884. TUBE-CLEANER. JOHN J. PRICE, Cement City, Mich. Filed Jan. 20, 1904. Serial No. 189,794.

Claim.—1. In a device of the class described, the combination of an outer casing, an inner casing rotatable therein, an L-shaped member pivotally attached to said inner casing with its long arm longitudinal and extending outside thereof, a piston mounted in said inner casing and attached to the short end of said L-shaped member and adapted to cause oscillation thereof, means consisting of a worm-wheel and rack and a motor for causing rotation thereof and means for conducting an actuating fluid to said piston and to said motor, substantially as described.

2. In a device of the class described, the combination of an outer casing, a rotatable part interior thereto, an L-shaped member pivotally attached to said rotatable part, having its long arm longitudinal thereof, actuating means mounted in said inner member and attached to the short arm of said L-shaped member and adapted to cause oscillation thereof, a motor carried by the inner rotatable member, independent of the said actuating means, and adapted to act upon the outer casing and cause rotation of its own supporting part with reference thereto, and means connected with said motor for conducting power thereto, substantially as described.

3. In a device of the kind described, the combination of an outer casing, an inner casing adapted to rotate therein, an L-shaped member pivotally attached to said inner casing with its long arm longitudinal thereof, means carried by said inner casing for causing oscillation of said L-shaped member, means consisting of a worm-wheel and rack and a motor for rotating the same, and means connected therewith for conducting an actuating fluid thereto from a suitable source of supply, substantially as described.



4. In a device of the kind described, the combination of an outer casing, an inner casing rotatable therein, a motor mounted thereon, an L-shaped member pivotally mounted on said inner casing, having its long arm longitudinal thereof, means consisting of a piston mounted on said inner member and connected to the short arm of said L-shaped member for causing oscillation thereof, an internal gearing on said outer casing, means consisting of a worm-wheel mounted on the inner casing and meshing with said gearing for causing rotation of said inner casing, and means for conducting an actuating fluid to said rotating and motor means from a suitable source of supply, substantially as described.

5. In a device of the class described, the combination of an outer casing, an inner casing rotatable therein, motor means carried thereby, an L-shaped member pivotally attached to said inner casing, means carried by said inner casing whereby said L-shaped member may be oscillated, means consisting of a worm-wheel carried by said inner casing and a rack upon the inner face of said outer casing whereby the same may be rotated, and means for conducting an actuating fluid from a suitable source of supply to said oscillating and to said rotating means, substantially as described.

784,885. METHOD OF EXTRACTING METALS FROM ORE BY ELECTRICITY. EDWARD L. PRIEST, Oakland, Cal. Filed Apr. 5, 1904. Serial No. 201,631.



Claim.—1. The method of extracting metals from ores by electricity, consisting in forming a body of comminuted ore into a coherent mass, associating an electric conductor with the same, and positioning the mass with its conductor in contact with a liquid electrode and passing an electric current through the same to form an arc therebetween.

2. The method of extracting metals from ores by electricity, consisting in first preparing a reducible body comprising a comminuted coherent ore mass and a consumable electric conductor capable of reducing the same, and second in reducing said body by establishing and maintaining an electric arc between said body and a liquid electrode.

3. The method of extracting metals from ores by electricity consisting in preparing a reducible comminuted coherent ore mass, second, connecting with said mass a consumable electric conductor, and third, contacting said body with a liquid electrode, thereby creating an electric arc therebetween to reduce said body and consume said conductor.

784,886. EYEGLASSES. THOMAS H. PRITCHARD, London, England. Filed Nov. 22, 1904. Serial No. 233,319.



Claim.—1. In eyeglasses or pince-nez, a framework, flexible cables having their ends fixed in said framework, and plaquettes each of which is secured to a cable between the respective ends thereof.

2. In eyeglasses or pince-nez, the combination with the frames, glasses carried in the said frames, and a bridge-piece connecting the said frames; of two plaquettes, a length of flexible metallic cable fixed about centrally of its length to the back of each plaquette, the ends of the cable of one plaquette being fixed to one of the eyeglass-frames, and the ends of the cable of the other plaquette being fixed to the other eyeglass-frame to flexibly and elastically connect the said plaquettes to the said frames, substantially as set forth.

3. In eyeglasses or pince-nez, the combination with the frames, glasses carried in the said frames, and a rigid bridge-piece connecting the said frames; of two plaquettes, a length of flexible metallic cable fixed about centrally to the back of each plaquette, a bead for each plaquette through which bead the free ends of the cable are threaded in reverse directions, and means for fixing the free ends of the cable of each plaquette to their respective eyeglass-frames, substantially as set forth.

784,887. BIN. CHARLES T. RANNEY, Greenville, Mich., assignor to Ranney Refrigerator Company, Greenville, Mich., a Corporation of Michigan. Filed Apr. 29, 1904. Serial No. 205,441.



Claim.—1. The combination with a bin, its frame, and horizontal supporting ledges or surfaces on said frame, of rocking members for supporting the bin in said frame located a single one at each end of the bin, said rocking members being hinged at their upper ends centrally to the upper parts of the end walls of the bin, the lower ends of the rocking members being formed with convexly-curved, downwardly-facing bearing-surfaces which rest and roll on said supporting ledges or surfaces, whereby the bin travels in a straight path when it is opened and closed, and stops for limiting the opening and closing movements of the bin, the stops for limiting the opening movement of the bin comprising a bar hinged at its front end to the frame and adapted to engage at its rear end the rear wall of the bin, and to swing upwardly at its rear end to permit the complete withdrawal of the bin.

2. The combination with a bin, provided at the upper central parts of the end walls thereof with bearing-sockets, its frame and horizontal supporting ledges or surfaces on said frame, of rocking supports for the bin, located one at each end of said frame, and provided at their upper ends with bearing-studs adapted to enter said sockets, each of said rocking supports comprising two members extending radially from its bearing-stud and an arc member extending between and integral with the radial members, the arc members of said rocking supports resting and rolling on said supporting ledges or surfaces of the frame, stops for limiting the opening and closing movements of the bin, and protuberances extending inwardly from said rocking supports for contact with said end walls, one at the upper end of each support, and one at the junction of each radial member with the arc member and serving to hold the principal lengths of the rocking members out of contact with said end walls.

784,888. TOY. FRED F. REISNER, St. Louis, Mo., assignor to Richard L. Barrington, St. Louis, Mo. Filed Feb. 27, 1904. Serial No. 195,639.



Claim.—1. A toy comprising a plurality of nested figures, each provided with a representation of an object or objects on its exterior, and certain of said figures comprising separable parts, a portion of the representation being upon each part, a projection upon one of the separable parts of each figure and a recess in the other part arranged to register with said projection whereby said parts can be assembled only with the portions of the representation in proper position with respect to each other.

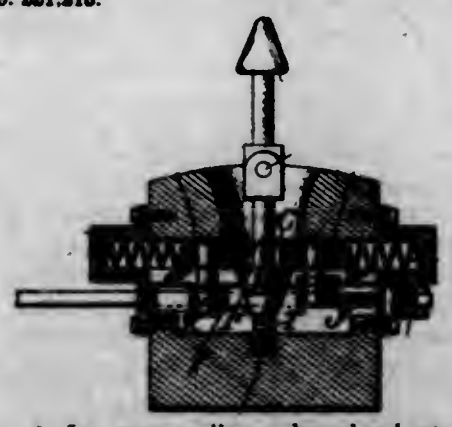
2. A toy comprising a plurality of nested figures each provided with a representation of an object or objects on its exterior, the inner figures being entirely surrounded by the outer figures, and means to compel the nesting of said figures with all the figures facing the same direction.

3. A toy comprising a plurality of nested figures, each provided with a presentation of an object or objects on its exterior, and certain of said figures comprising separable parts, a portion of the representation being upon each part and means to compel assembling the separable parts of each figure in a predetermined position with respect to each other.

4. A toy comprising a plurality of nested figures, each provided with a representation of an object or objects on its exterior, the inner figures being entirely surrounded by the outer figures, and corresponding projections and recesses upon said figures arranged to compel nesting said figures with all the figures facing in the same direction.

5. A toy comprising a plurality of nested figures, certain of said figures consisting of separable parts, and each of said figures having a representation upon its exterior and means to compel assembling said separable parts with the portions of said representation in proper position with respect to each other, and means to compel the nesting of said figures with all the figures facing the same way.

784,889. CAR-COUPLING. ALBERT RITTERSBACH, Philadelphia, Pa., assignor of one-fourth to Jacob F. Gashring and one-eighth to Robert B. Rittersbach, both of Philadelphia, Pa. Filed Aug. 18, 1904. Serial No. 221,313.



Claim.—1. In a car-coupling, a draw-head, opposed jaws therein and means for simultaneously opening the same consisting of a slidable bar, a lever attached to said bar, a pivotal connection for said lever and one of said jaws and a piece rigidly secured to said bar and depending therefrom passing freely through a slot in the draw-head and freely connected with the other jaw.

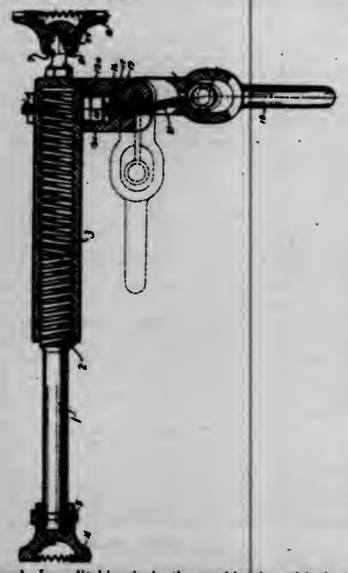
2. In a car-coupling, a draw-head, opposed jaws, a piece connected with one of said jaws passing therefrom through the draw-head, a link connected with the other jaw, a lever pivotally connected with said link, and an operating slidable bar common to said lever and piece.

3. In a car-coupling, a draw-head, opposed jaws therein, a slot in said draw-head, a piece passing through said slot and freely connected with one of said jaws, a link connected with the other jaw, a lever connected with said link, a bearing on said draw-head for said lever and an operating-bar common to said lever and piece, said piece being rigidly secured to said bar and said lever being pivotally connected with said bar.

4. In a car-coupling, a draw-head, opposed jaws therein, boxes on the walls of said draw-head, means for removably connecting said boxes with said walls, and springs fitted in said boxes adapted to bear against said jaws to close the same, said boxes being on the exterior of said walls and projecting outwardly therefrom.

5. In a car-coupling, a draw-head having a recess in the rear wall thereof and a coupling-link having its rear end adapted to enter said recess and be prevented from rotating therein and its body formed of jointed sections and a vertical pivot connecting the same.

784,890. DITCHING-JACK. ROSS RUE, Alliance, Ohio. Filed Jan. 12, 1905. Serial No. 240,840.

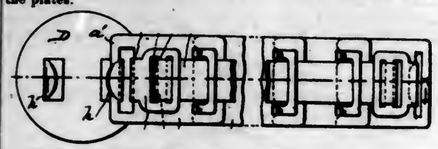


Claim.—1. In a ditching-jack, the combination of jack members adjustably connected together, said members provided with feet, and one of said members provided with a flange having an annular groove, cross-slots intersecting the groove, a yoke located around the flange, a stem connected to the yoke and located upon the grooved flange, said stem provided with a reciprocating bar adapted to engage the slots of the flange, a spring to actuate the reciprocating blade in one direction, a pull-bar and a handle pivotally attached to the shank, substantially as and for the purpose specified.

2. In a ditching-jack, the combination of jack members provided with screw-threads, heads secured to the members, one of the members provided with a notched and grooved flange, a shank connected to the notched and grooved flange, a reciprocating bar adapted to engage the notches of the flange, a handle pivotally attached to the shank, and means for disengaging the reciprocating blade from the notched flange, substantially as and for the purpose specified.

784,891. GIRDLE. ALBERT G. HART, Attleboro, Mass., assignor to James R. Blake Company, a Corporation of Rhode Island. Filed Jan. 2, 1904. Serial No. 187,474.

Claim.—1 As an article of manufacture, a girdle comprising interlocked plate-sections overlapped and having rearwardly-extending portions, and a flexible connection engaging the rearwardly-extending portions of the sections, said connection being covered by the plates.



2. As an article of manufacture, a girdle comprising overlapped sections, each section being provided with a rearwardly-extending projection interlocked with the adjacent section, and a flexible connection located longitudinally along the rear sides of the sections and engaging the projections thereof.

3. As an article of manufacture, a girdle comprising overlapped sections, each section being provided with a rearwardly-extending projection interlocked and having a slidable engagement with the adjacent section, and a connecting device engaging the various projections.

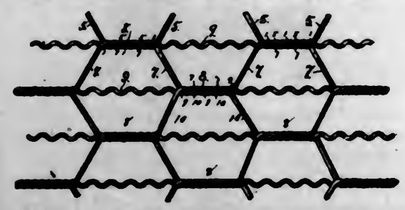
4. As an article of manufacture, a girdle comprising sections, each having a rearwardly-projecting portion extending through the adjacent section and provided with an opening, and a connecting device located along the rear sides of the sections and passing through the openings of the rearwardly-projecting portions.

5. As an article of manufacture, a girdle comprising sections, each provided at one end with an opening and at the other end with a hook portion that passes through the opening of the adjacent section, said hook portions being provided with openings, and a flexible extensible strap extending longitudinally along the sections and passing through the openings in the hook portions thereof.

6. As an article of manufacture, a girdle comprising sections, each having an opening therethrough and a rearwardly-extending hook that passes through the opening of the adjacent section, said hooks being also provided with openings, a flexible strap passing longitudinally along one side of the sections and through the openings in the hooks thereof, forming means for fastening the sections together, and hook elements having detachable engagements with the ends of the strap and with the end sections.

7. An elastic belt composed of a series of links, each provided with a turned-up lip in which a slit is formed and with a slot to be engaged by the lip of an adjacent link, a strip of elastic webbing being passed through the slots in the lips and secured to the end links, and means for connecting the end links.

784,892. WIRE FABRIC. BENJAMIN SCARLES, Stockton, Cal., assignor to Pacific Steel & Wire Company, San Francisco, Cal., a Corporation of California. Filed Oct. 19, 1903. Serial No. 177,555.



Claim.—1. A wire fabric or netting, comprising upper and lower longitudinal wires, an intermediate longitudinal wire formed with a series of closely-wound coils throughout its length, and diagonally-disposed stay-wires extending inwardly from said upper and lower longitudinal wires and intertwisted with the coils of said intermediate wire, forming closed joints.

2. A wire fabric or netting, comprising upper and lower longitudinal wires, an intermediate longitudinal wire formed with a series of closely-wound coils throughout its length, and diagonally-disposed stay-wires extending inwardly from said upper and lower longitudinal wires, adjacent stay-wires being intertwisted with the coils of said intermediate wire forming closed joints.

784,893. LAWN-TRIMMER. CHARLS H. SCHICK, Burlington, Iowa. Filed July 26, 1904. Serial No. 218,278.

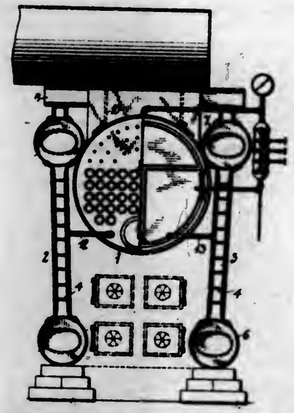
Claim.—1. In a lawn-trimmer, the combination with a toothed plate, of a sickle mounted to reciprocate thereon, a bell-crank lever pivotally mounted on said plate and engaging the sickle, a pole adjustably secured to said plate, and gearing on said pole to operate the bell-crank lever.



2. In a lawn-trimmer, the combination with a toothed plate, of a sickle on said plate mounted to reciprocate, a bell-crank lever pivotally mounted on the toothed plate to reciprocate the sickle, a pole adjustably secured to the toothed plate, gearing on the pole, and a rod connecting said gearing with the bell-crank lever.

3. In a lawn-trimmer, the combination with a toothed plate, and a pole pivotally secured thereto and adapted to be secured at any angle, of a reciprocating sickle on said toothed plate, a bell-crank lever pivotally mounted on said toothed plate having one member projecting into a notch or recess in the sickle, gearing on the pole, and a rod connecting said gearing with the other member of the bell-crank lever.

784,894. STEAM-BOILER. JOHN C. SCHNEIDER, Winona, Minn. Filed Nov. 8, 1904. Serial No. 231,930.



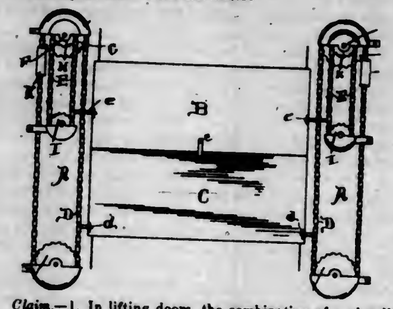
Claim.—1. In a steam-boiler, the combination with the boiler proper, of water-jacketed side walls therefor communicating with the boiler proper and having at their lower end mud-drums and at or near their upper end steam-drums, substantially as and for the purpose set forth.

2. In a steam-boiler, the combination with the boiler proper, of water-jacketed side walls therefor, each composed of two corrugated sheets and communicating with the boiler proper and having at their lower end mud-drums and at or near their upper end steam-drums, substantially as and for the purpose set forth.

3. In a steam-boiler, the combination with the boiler proper, of water-jacketed side walls in communication with the boiler proper, and having upper steam-drums and lower mud-drums, said drums being provided with end openings and closures for said openings.

4. In a steam-boiler, the combination with the boiler proper, of interchangeable water-jacketed walls each having an upper steam-drum and a lower mud-drum.

784,895. LIFTING DOOR. NICHOLAS C. SCHOMMER, Chicago, Ill. Filed July 29, 1904. Serial No. 218,756.



Claim.—1. In lifting doors, the combination of a plurality of vertically-movable sections adapted to move at different predetermined ratios with respect to one another, sprocket-wheels of different predetermined ratios, a shaft mounting the several sprocket-wheels, connections between the sprocket-wheels and the different door-sections and weights on the connections to counterbalance the sections, substantially as described.

2. In lifting doors, the combination of a plurality of vertically-movable sections, sprocket-wheels of different predetermined ratios, one for each section, a common shaft upon which the sprocket-wheels are mounted, endless chains passing around said sprocket-wheels, connections securing the chains to the different door-sections, coöperating sprocket-wheels for returning the endless chains and weights on the endless chains for counterbalancing the sections, substantially as described.

3. In lifting doors, the combination of a plurality of vertically-movable sections, sprocket-wheels of different predetermined ratios, one for each section, a common shaft upon which the sprocket-wheels are mounted, endless chains passing around said sprocket-wheels, connections securing the chains to the different door-sections, coöperating sprocket-wheels for returning the endless chains, and counterbalances carried by the chains and having a predetermined ratio to the weight of the door-sections, substantially as described.

4. In lifting doors, the combination of a plurality of sections, sprocket-wheels of different predetermined ratios, one for each section, a shaft upon which said sprocket-wheels are mounted, connections between the doors and the respective sprocket-wheels, and a locking mechanism for locking two sections of the door together to prevent the movement of either, substantially as described.

5. In lifting doors, the combination of a plurality of sections, wheels of different predetermined ratio, one for each section, a shaft to which said wheels are fixedly secured, a connection for each of the door-sections passing over said wheels for adapting the sections to move at different predetermined ratios of speed, and a locking mechanism between two of the sections, substantially as described.

6. In lifting doors, the combination of a plurality of vertically-movable sections, wheels of different predetermined ratio, one for each section, a rotatable shaft on which all of the wheels are rigidly mounted, a connection for each of the sections passing over the wheel coöperating therewith, and counterbalances secured to one of the connections and having a weight of predetermined ratio to the door-sections, substantially as described.

784,896. HINGED LIFTING DOOR. NICHOLAS C. SCHOMMER, Chicago, Ill. Filed Oct. 19, 1904. Serial No. 229,155.



Claim.—1. A door consisting of two sections, hinges connecting the sections together, a hinge connecting the upper section with a suitable support, a cam pivoted to one of the sections, an abutment

adapted to be contacted by the cam, and a chain or cable connected with the cam and adapted to initially revolve the cam to contact the abutment and outwardly project the door-sections and then raise and fold up the door, substantially as described.

2. A door consisting of two sections, a hinge connecting the sections together, a hinge for securing the upper section of the door to a suitable support, cam-wheels pivoted to the lower section of the door, abutments adapted to be contacted by the cam-wheels for outwardly swinging the door, and chains or cables connected with the cam-wheels and adapted to initially revolve the cam-wheels and then raise and fold up the door-sections, substantially as described.

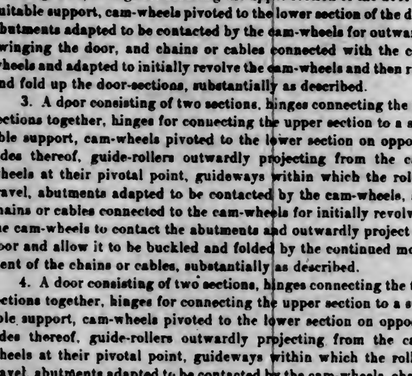
3. A door consisting of two sections, hinges connecting the two sections together, hinges for connecting the upper section to a suitable support, cam-wheels pivoted to the lower section on opposite sides thereof, guide-rollers outwardly projecting from the cam-wheels at their pivotal point, guideways within which the rollers travel, abutments adapted to be contacted by the cam-wheels, and chains or cables connected to the cam-wheels for initially revolving the cam-wheels to contact the abutments and outwardly project the door and allow it to be buckled and folded by the continued movement of the chains or cables, substantially as described.

4. A door consisting of two sections, hinges connecting the two sections together, hinges for connecting the upper section to a suitable support, cam-wheels pivoted to the lower section on opposite sides thereof, guide-rollers outwardly projecting from the cam-wheels at their pivotal point, guideways within which the rollers travel, abutments adapted to be contacted by the cam-wheels, chains or cables connected to the cam-wheels for initially revolving the cam-wheels to contact the abutments and outwardly project and initially buckle the door and then raise the door, and springs connecting the cam-wheels with the lower door-section entirely buckling the door, substantially as described.

5. A door consisting of two sections, hinges connecting the sections together, hinges for securing the upper door-sections to a suitable support, cam-wheels pivoted near the bottom of the lower door-section on opposite sides, abutments adapted to be contacted by the cam-wheels on the side of their shortest diameters when the doors are in closed position, guide-rollers outwardly projecting from the cam-wheels at their pivotal points, guide-slots terminating in angularly-disposed end recesses within which slots the guide-rollers operate, and chains or cables carried partially around the cam-wheels when in normal position and adapted to revolve the cam-wheels out of normal position to contact the abutments at a point of greater diameter to thrust forward the door-sections preparatory to being folded and raised, substantially as described.

6. A door consisting of sections, hinges connecting the sections, a hinge connecting the top section with a suitable support, a cam on one of the sections, an abutment adapted to be contacted by the cam to outwardly project the door from normal position, and a chain or cable connected with the lower section and adapted to move the cam into contact with the abutment to outwardly project the door and allow the door-sections to be buckled and the door to be folded by the continued movement of the chains or cables, substantially as described.

784,897. **AUTOMATIC AWNING ATTACHMENT.** ABRAHAM I. SCHWINGER, New York, N. Y. Filed Oct. 11, 1904. Serial No. 227,994.



Claim.—1. The combination with a frame, and an awning adapted to be rolled up upon the frame, of means for retaining the awning in rolled position, and means adapted to be operated by the fall of rain or snow for automatically releasing said retaining means.

2. The combination with an inclined frame, and an awning adapted to be rolled up thereupon in a position near the top of the frame, of means for retaining the awning in rolled position, means adapted to be operated by the fall of rain or snow for automatically releasing said retaining means, and additional manually-operated means for releasing said retaining means.

3. The combination with a frame, and an awning adapted to be rolled thereupon, of means for retaining the awning in rolled position upon the frame, and means adapted to be operated by the fall of rain or snow for automatically releasing said retaining means.

4. An awning retaining and releasing device, comprising an armature, a bar connected with said armature and adapted to engage an awning, and means for automatically releasing the bar from the awning under certain conditions of the weather.

5. An awning retaining and releasing device, comprising a cup for receiving rain and snow, means for holding an awning, and means for automatically releasing said holding means when rain or snow enters the cup.

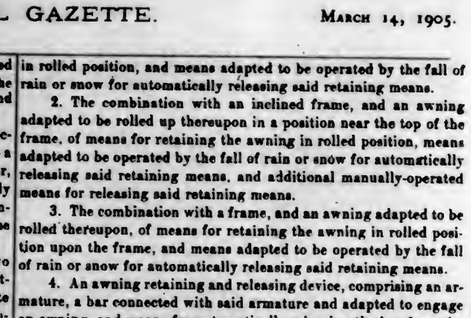
6. An awning retaining and releasing device, comprising a cup for receiving rain and snow, an electric circuit having terminals in said cup spaced from and insulated from each other, means for holding the awning, and means connected with said circuit for releasing said holding means when a connection between said terminals is made.

7. An awning retaining and releasing device, comprising a cup for receiving rain and snow, an electric circuit having terminals within said cup spaced from each other, means for holding an awning, means connected with said electric circuit for releasing said holding means when the circuit is closed, and means for causing the circuit to be closed when the temperature reaches a predetermined point.

8. An attachment for awnings, comprising a retaining device therefor, an electric circuit, connections between the retaining device and the electric circuit, whereby the former is operated to release the awning when the circuit is closed, means for closing the circuit when the temperature reaches a predetermined point, and means for closing the circuit upon the fall of rain or snow.

9. An attachment for awnings, comprising a magnet having an armature, a bar connected with the armature for engaging with the awning, an electric circuit connected with the magnet, said circuit being normally open, means for closing said circuit to force the bar out of engagement with the awning, and additional manually-operated means for releasing the awning.

784,898. **MECHANISM FOR HAULING AND CONTROLLING CARS.** JOHN G. SCOTT, Girardville, Pa., assignor of one-half to Isaac Christ, Tamaqua, Pa. Filed Oct. 24, 1904. Serial No. 229,843.



Claim.—1. In mechanism for hauling and controlling cars, a track comprising a single pair of rails for a car and a "barney," said rails being provided with switch-sections normally open when the "barney" is on the main track, and adapted to be positively closed by the movement of the "barney" into its pit.

2. In mechanism for hauling and controlling cars, the combination with a single pair of rails, of a trackway for a "barney" below said rails, and movable switch-sections formed in the rails above the trackway for the "barney."

3. In mechanism for hauling and controlling cars, the combination with a single pair of rails, of a trackway for a "barney" below said rails, and movable switch-sections formed in the rails above the trackway for the "barney," short curved rail-sections of a different

gage being located alongside of the ends of the rails adjacent to the trackway for the "barney" adapted to be engaged by the flanges of the wheels of the "barney."

4. The combination with the rails 10, of movable switch-sections, a depressed trackway for a "barney," and means whereby said switch-sections are positively closed by the "barney."

5. The combination with the rails 10 having an inclined portion and a substantially level portion, of a second pair of rails below the rails 10, and movable sections in the rails 10, said movable sections being adapted to automatically open when released, and to be positively closed when engaged by a "barney."

6. In mechanism of the character described, the combination with a main trackway, of a depressed trackway, portions of the rails of the main trackway above the depressed trackway being omitted to form spaces in the main trackway, movable rail-sections adapted to fill said spaces, and means for shifting said movable portions automatically.

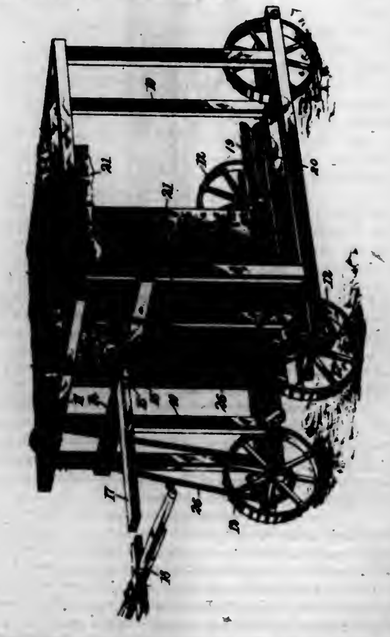
7. The combination with the rails 10, of the depressed trackway 12, laterally-movable rail-sections 16, and means located below portions of the rails 10 for controlling the positions of the rail-sections 16.

8. The combination with the rails 10, of the depressed trackway 12, rock-shafts 19, rail-sections 16 supported by said rock-shafts, and means whereby said rock-shafts will be actuated by the movement of a "barney" on the trackway 12.

9. The combination with the rails 10, of the depressed trackway 12, rock-shafts 19 having arms 18 and provided with counterweights, rail-sections 16 carried by said arms 18, and means whereby the rock-shafts will be actuated by the movement of a "barney" on said trackway 12.

10. The combination with the rails 10, of the depressed trackway 12, rock-shafts 19 having arms 18 and arms 21 and provided with counterweights for moving the rock-shafts in one direction, rail-sections 16 carried by the arms 18, and levers 22 connected with the arms 21, said levers being adapted to be engaged by portions of a "barney" moving on the depressed trackway.

784,899. **COTTON-PICKER.** JAMES M. SEARLES, Vicksburg, Miss. Filed Oct. 28, 1904. Serial No. 230,386.



Claim.—1. A cotton-picker having an apron, means for movably mounting and driving the same, and a picking-finger integral with and projecting directly from the apron.

2. A cotton-picker having an apron, means for movably mounting and driving the same, and a resilient picking-finger integral with and projecting directly from the apron.

3. A cotton-picker having an apron, means for movably mounting and driving the same, a picking-finger integral with and projecting directly from the apron, and spurs projecting from the finger.

4. A cotton-picker having an apron, means for movably mounting and driving the same, an integral resilient picking-finger projecting directly from the apron, and spurs projecting from the picking-finger.

5. A cotton-picker having an apron, picking-fingers projected therefrom and formed integral therewith, and means for mounting and driving the apron.

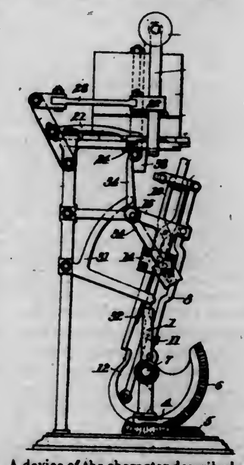
6. A cotton-picker having an apron, picking-fingers projecting therefrom, the apron and fingers being formed integral of resilient rubber, and means for mounting and driving the apron.

7. A cotton-picker having an apron, picking-fingers projected therefrom and formed integral therewith, means for mounting and driving the apron, and spurs projecting from the picking-fingers.

8. A cotton-picker having an apron, picking-fingers projecting therefrom, the apron and fingers being formed integral of resilient rubber, means for mounting and driving the apron, and spurs projecting from the picking-fingers.

9. A cotton-picker having integrally-connected picking-fingers, means for mounting and driving the same, and a relatively stationary scraper adapted to be engaged by the fingers to remove the cotton from the fingers.

784,900. **RAILWAY DANGER SIGNALING DEVICE.** EUGENE DE SERAN, Cape Town, Cape Colony. Filed Aug. 15, 1904. Serial No. 220,886.



Claim.—1. A device of the character described comprising a rotating arm or member, a plunger pivotally supported thereby, means for supplying detonating devices to said plunger, and means for rotating said arm or member, whereby said detonator is placed in position.

2. A device of the character described comprising a rotating arm or member, a plunger formed of articulated members and pivotally mounted on said rotating arm or member, means for supplying detonating devices to said plunger, and means for rotating said arm or member.

3. A device of the character described comprising a rotating arm or member, a plunger formed of articulated members and pivotally mounted on said rotating arm or member, means for supplying detonating devices to said plunger, means for automatically operating the members of said plunger, and means for rotating said arm or member.

4. A device of the character described comprising a rotating arm or member, a plunger carried thereby, means for supplying detonating devices to said plunger, means for rotating said arm and simultaneously reciprocating said plunger longitudinally.

5. A device of the character described comprising a rotating arm or member, pivoted members carried thereby and forming a plunger, means for supplying detonating devices to said plunger, means for automatically operating the members of said plunger, and

means for rotating said arm or member and simultaneously reciprocating said plunger longitudinally.

6. A device of the character described comprising a rotating arm or member, a plunger pivotally supported thereby and formed of articulated members, an automatically-operated slide adapted to control said members, means for supplying detonating devices to said plunger, and means for rotating said arm or member.

7. A device of the character described comprising a rotating arm or member, a plunger carried thereby and formed of articulated members, an automatically-operated slide adapted to control said members, means for supplying detonating devices to said plunger, and means for rotating said arm or member and simultaneously reciprocating said plunger.

8. A device of the character described comprising a reciprocating arm or member, a plunger carried thereby and formed of articulated members, a slide adapted to control said members, means for supplying detonating devices to said plunger, means for rotating said arm or member, and means operated by said arm or member for holding said slide normally elevated.

9. A device of the character described comprising a rotating arm or member, a plunger carried thereby and formed of articulated members, a slide adapted to control said members, means for supplying detonating devices to said plunger, means for rotating said arm or member, means operated by said arm or member for holding said slide normally elevated, a pivoted lever adapted to engage said slide, and means carried by said arm or member for operating said pivoted lever.

10. A device of the character described comprising a rotatable post or support, means for rotating the same, an arm or member, means whereby rotation of said post will effect the rotation of said arm or member, a plunger carried by said arm or member, and means for supplying detonating devices to said plunger.

11. A device of the character described comprising a rotatable post or support, means for rotating the same, an arm or member, means whereby the rotation of said post will effect the rotation of said arm or member, a plunger carried by said arm or member, means for supplying detonating devices to said plunger, and means for automatically reciprocating said plunger.

12. A device of the character described comprising a rotatable support, means for rotating the same, a fixed toothed segment, a corresponding segment meshing therewith and carrying an arm or member, a plunger carried thereby, and means for supplying detonating devices to said plunger.

13. A device of the character described comprising a rotatable support, means for rotating the same, a fixed toothed segment, a corresponding segment meshing therewith and carrying an arm or member, a plunger carried thereby, means for supplying detonating devices to said plunger, and a cam fixed between said second segment and said support and adapted to reciprocate said plunger.

14. In a device of the character described, the combination with a rotating arm or member, a plunger pivotally supported thereby, means for operating said plunger, of a drum or magazine, and means for automatically delivering the contents of said drum or magazine to said plunger.

15. In a device of the character described, the combination with a rotating arm or member, a plunger pivotally supported thereby, and means for operating said plunger, of a drum or magazine, a support therefor having a trap-door to coincide with said plunger, and means for automatically closing said trap-door as said plunger moves away therefrom.

16. In a device of the character described, the combination with a rotating arm or member, a plunger pivotally supported thereby, and means for operating said plunger, of a drum or magazine, a support therefor having a trap-door to coincide with said plunger, means for automatically closing said trap-door and simultaneously moving said drum or magazine as said plunger moves from the trap-door.

17. In a device of the character described the combination with a rotating arm or member, a plunger carried thereby and means for operating said plunger, of a drum or magazine, a support therefor having a trap adapted to coincide with said plunger, and a weighted lever having one end adapted to engage and close said trap as said plunger moves away therefrom.

18. In a device of the character described, the combination with a rotating arm or member, a plunger carried thereby, and means for operating said plunger, of a drum or magazine, means for delivering the contents of said drum or magazine to said plunger, a pawl adapted to revolve said drum or magazine and means for operating said pawl.

19. In a device of the character described, the combination with a rotating arm or member, a plunger carried thereby, and means for operating said plunger, of a drum or magazine, means for delivering the contents of said drum or magazine to said plunger, a pawl adapted to revolve said drum or magazine, a lever connected thereto, and means for reciprocating said lever.

20. In a device of the character described, the combination with a post or support, a rotating arm or member operated thereby and a plunger carried by said arm or member, of a drum or magazine, means for delivering the contents thereof to said plunger, a pawl adapted to revolve said drum or magazine, a lever connected thereto, a horizontal bar and another lever and a bar connecting said first lever with said post or support.

21. A device of the character described comprising a rotatable post or support, a semaphore or target mounted thereon, means for rotating said post or support, an arm or member, means whereby the rotation of said post will effect the rotation of said arm or member, a plunger carried by said arm or member, and means for supplying detonating devices to said plunger.

784,901. **GUN-CASE.** FRANK L. SHELDON, Chicago, Ill., assignor to The Curtain Supply Company, Newark, N. J., a Corporation of New Jersey. Filed May 13, 1904. Serial No. 207,825.



Claim.—1. A gun-case of fixed form and dimensions provided therein with a longitudinally-extending member of soft flexible material forming a pocket for the barrels of a gun, said pocket being not less, appreciably, in cross-sectional area at the smallest end of said case than the interior cross-sectional area of the case at its smallest portion.

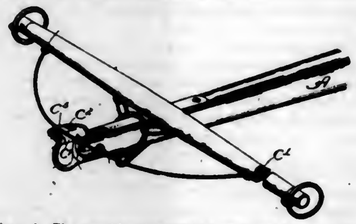
2. A gun-case of fixed form and dimensions provided therein with a longitudinally-extending member of soft flexible material forming a pocket for the barrels of a gun, said pocket being throughout its length not less, appreciably, in cross-sectional area than the interior cross-sectional area of the smallest part of said case, and a cap or closure for the open end of said case.

3. A gun-case of relatively stiff material and of fixed form and dimensions having one end open to receive the stock and barrels of a gun, a longitudinally-extending pocket or sack of soft flexible material secured therein to receive the barrels of a gun, said pocket or sack being of substantially the same cross-sectional area as the cross-sectional area interiorly of the smallest portion of said case, a closing-flap for said pocket, and a cap or closure for said case.

4. A gun-case of fixed form and dimensions, and having a widened portion of substantially the same length as the stock of the gun to be contained therein and of a cross-sectional area substantially the same as the extreme width and thickness of said stock, said widened portion terminating in a reduced extension of the same cross-sectional area, substantially, as the largest part of the barrel portion of said gun, and a longitudinally-extending pocket of soft flexible material and of the same cross-sectional area as the interior of said extension, substantially as described.

5. A gun-case of fixed form and dimensions, the cross-sectional area of which is substantially the same as that of the gun-stock and the length of which is substantially the same as the length of the barrels of the gun to be contained therein, and a soft flexible member mounted within said case and adapted to fold about said barrels and form a padding between said barrels and said stock as the two are placed in said case in an overlapping and interfitting position relative to each other, substantially as described.

784,902. **POLE-GUARD.** JOHN SODERBERG, Iron Mountain, Mich., assignor of two-thirds to Isaac Urger and Jacob Quist, Iron Mountain, Mich. Filed Dec. 30, 1904. Serial No. 238,906.



Claim.—1. The combination with a pole and neck-yoke, of a forwardly-bowed guard connected with the neck-yoke, a fastening member carried by the pole, and a fastening member connected with the guard and disengageably joined to the tongue-carried fastening member, for the purpose set forth.

2. The combination with a pole and neck-yoke, of a forwardly-bowed guard connected with the neck-yoke, a fastening member connected with the guard, and a retaining-catch disengageably holding the fastening members in engagement with each other, for the purpose set forth.

3. The combination with a pole and neck-yoke, of a forwardly-bowed guard connected with the neck-yoke, a spring-equipped socket-provided fastening member carried by the pole, and a companion fastening member connected with the guard and equipped with a socket-entering part, for the purpose set forth.

4. The combination with a pole and neck-yoke, of a forwardly-bowed guard connected with the neck-yoke, a fastening member pivotally joined to the pole near its end and having a bearing on the pole limiting the downward swing of the member, and a disengageable companion fastening member with which said guard has sliding connection, for the purpose set forth.

5. The combination with a pole and neck-yoke, of a forked fastening member having curved arms pivotally joined to the pole and equipped with an upwardly-presented socket provided with a catch, a curved guard having its extremities joined to the end portions of the neck-yoke, and a fastening member provided with a socket-entering part engaging said socket and retained by said catch, said last-named fastening member having a perforation through which the guard passes freely, substantially as and for the purpose set forth.

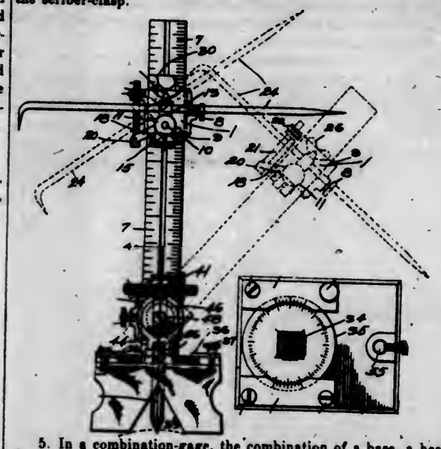
784,903. **COMBINATION-GAGE.** FREDERICK J. STEMBRICH, Turtlecreek, Pa. Filed Apr. 18, 1904. Serial No. 203,773.

Claim.—1. In a combination-gage, the combination of a block, a scriber-carrier rotatably mounted on said block, an arm connected to said scriber-carrier, a screw-rod hinged to said arm, a rotatable nut engaging said screw-rod and held against movement longitudinally of said rod and serving to adjust said scriber-carrier angularly, and a scriber mounted on said scriber-carrier.

2. In a combination-gage, the combination of a block, a stud projecting therefrom, a sleeve rotatable on said stud, an arm on said sleeve, a screw engaging said arm to adjust the same, a scriber-clasp mounted on said sleeve, and a scriber secured in said clasp.

3. In a combination-gage, the combination of a block, a stud projecting therefrom, a sleeve rotatably mounted on said stud and provided with a shoulder, a scriber-clasp mounted on said sleeve, means for adjusting said sleeve angularly, and a nut for clamping said scriber-clasp against the shoulder on said sleeve.

4. In a combination-gage, the combination of a block, a stud projecting therefrom, a sleeve rotatably mounted on said stud and provided with a shoulder, means for adjusting said sleeve angularly on said stud, a scriber-clasp mounted on said sleeve, a nut on the end of said stud and serving to clamp the scriber-clasp against the shoulder on the sleeve, and a non-rotatable washer between said nut and the scriber-clasp.



5. In a combination-gage, the combination of a base, a head mounted thereon to rotate on a vertical axis, a post carried by said head, a block slidably mounted on said post and vertically adjustable thereon, and a scriber carried by said block and projecting outwardly with reference to said post.

6. In a combination-gage, the combination of a base provided with graduations, a head mounted thereon to rotate on a vertical axis and also provided with graduations, a post secured to said head, a block slidably mounted on said post and vertically adjustable thereon, and a scriber carried by said block and projecting outwardly with reference to said post.

7. In a combination-gage, the combination of a base, a head mounted on said base to rotate on a vertical axis, a post, a support for the post mounted in the head on a horizontal axis and adjustable therein, a block slidably mounted on said post and adjustable vertically thereon, and a scriber carried by said block and projecting outwardly with reference to said post.

784,904. **DOOR AND DOORWAY AND THRESHOLD THEREFOR FOR AIR-TIGHT INCLOSURES.** SAMUEL P. STEVENSON, Chester, Pa. Filed Mar. 8, 1901. Serial No. 50,369.



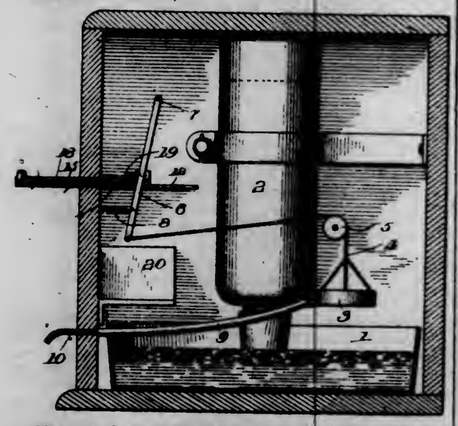
Claim.—1. In an air-tight door and frame therefor a sill and threshold having the front portion of said sill beyond the front of said door-frame beveled downwardly with a thick front edge adapted to be let into the floor as shown, and described in combination with a strip adjustably secured to the bottom of the door, and folded packings *h* and *h'* secured to the front and rear surfaces of said strip, arranged to oppose the folded edges of said packings to the horizontal surface of said sill within the doorway and clear the inclined forwardly-extended portion of said sill when the door is in open position as set forth.

2. An article of manufacture and sale, comprising a door and door-frame and a sill and threshold therefor, said door having a flexible packing at its lower end and being hinged to the frame to swing forwardly over the threshold, and the sill and threshold being formed integrally with a horizontal upper surface between the door-jambs and under the door when closed, whereby a rest for said packing is afforded upon such horizontal surface, and having a down-

wardly-inclined upper surface in front of the door with a thick front edge adapted to be embedded in a floor, as set forth and described.

3. A packing for the lower ends of air-tight doors consisting of a front packing of folded flexible material, a strip attached thereto adapted to be secured to the lower end of the door in combination with an inner or rear packing of folded flexible material secured to said strip, and having the ends returned to meet the front packing as described and shown.

784,905. COIN-CONTROLLED DISPENSING APPARATUS. ROY G. THOMPSON, Chicago, Ill. Filed Oct. 10, 1903. Serial No. 177,572.



Claim.—1. In apparatus of the class specified, the combination of a reciprocating plunger, a lever operated by the plunger, a toothed device for engaging the lever as the plunger is inserted, to prevent retraction of the lever before the same has reached the end of its movement, means whereby the lever is released from the toothed device when the plunger has been given the full extent of its stroke, means for retracting the lever when so released, and liquid-dispensing apparatus arranged to be operated by the lever to dispense liquid by the retraction of the lever after being released, substantially as described.

2. In apparatus of the class specified, the combination of a reciprocating plunger, a lever actuated thereby, a toothed rack 11 adapted to engage the lever, the teeth of said rack being arranged at an inclination, whereby when the plunger has reached the end of its stroke the lever will pass over the side thereof and be free to return along the side edge, spring means tending normally to retract the lever, and liquid-dispensing apparatus operated to dispense the liquid on the return or retracting movement of the lever, substantially as described.

3. In apparatus of the class specified, the combination of a reciprocating plunger, a pivoted lever 6 arranged at the end of the plunger so as to be actuated by the insertion thereof, a toothed plate 11 having teeth 12 arranged at an inclination so that the lever will be engaged during the insertion of the plunger but will be moved to the side edge thereof on the completion of its stroke, and spring means for retracting the lever, substantially as described.

4. In apparatus of the class specified, a plunger having a coin-aperture, a lever operated by said plunger, a rack adapted to be engaged by said lever to prevent backward movement thereof until the plunger has been advanced its full stroke, a reservoir for the liquid to be dispensed, a cup provided with means whereby it is lowered into said reservoir by the inward movement of said plunger and elevated by the outward movement thereof, and an outlet for said cup substantially as described.

5. In apparatus of the class specified, the combination of a coin-plunger 13 having an aperture 15 for the coin, a plate 11 below said plunger, said plate having an aperture 21 and a rack 12, a pivoted lever 6 adapted to be operated by said plunger 13, a cup 3 connected with the lever 6 by a flexible connector 4, a spring 8 tending normally to retract the lever 6, a reservoir 1 below the cup 3, and a tube 9 extending from the cup 3, substantially as described.

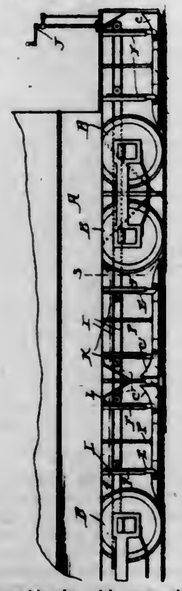
6. In apparatus of the class specified, the combination of a coin-plunger 13 having an aperture 15 for the coin, a plate 11 below said plunger, said plate having an aperture 21 and a rack 12, a pivoted lever 6 adapted to be operated by said plunger 13, a cup 3 connected with the lever 6 by a flexible connector 4, a spring 8 tending normally to retract the lever 6, a reservoir 1 below the cup 3, a tube 9 extending from the cup 3, a coin-receptacle 20, and a catch 18 for engaging the coin-plunger when no coin is inserted.

7. In apparatus of the class specified, the combination with a reciprocating plunger, of means whereby the same is prevented from being inserted without the deposit of a proper coin, a pivoted lever arranged to be operated by the insertion of the plunger, an inclined rack adapted to engage said lever and to prevent the return thereof until the stroke of the plunger is completed and to permit the return on completion of such stroke, and spring means tending to return said lever, substantially as described.

8. In apparatus of the class specified, the combination of a reciprocating plunger 13 having a coin-aperture 15, a coin-lever 19 adapted to engage the aperture 15 when the plunger is inserted without a coin, a plate 11 arranged below the plunger and provided with teeth 12 arranged at an inclination, and a spring tending normally to retract the lever when released by the completion of the plunger-stroke, substantially as described.

9. An apparatus of the class specified comprising a reservoir, a vertically-arranged receptacle for liquid for the reservoir, said receptacle being closed at its upper end and opened at the reservoir, whereby the level of liquid in the latter is maintained uniform, a vertically-movable receptacle arranged to be raised and lowered to be filled with the liquid in the reservoir, said receptacle being provided with an outlet to permit the liquid to be dispensed, a flexible connector carrying said receptacle, a lever to which said connector is attached, a reciprocating plunger for actuating said lever, a spring for retracting the lever, and a rack for holding the lever against the return movement, substantially as described.

784,906. CAR-BRAKE. RALPH VOGEL, Germantown, Pa. Filed Nov. 24, 1903. Serial No. 183,549.

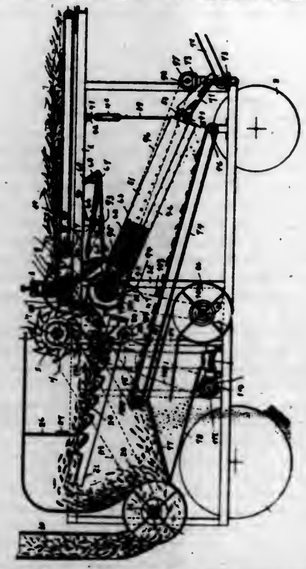


Claim.—1. In combination with a car and car-wheels, sectional tracks arranged forward and rearward of the wheels, the ends of the sectional tracks next to the wheels being beveled, and the other ends of the sectional tracks being raised, means for normally suspending said tracks from the car a slight distance above the rails, means for raising and lowering the tracks, the means by which the tracks are automatically disengaged as the car moves forward, each track being composed of a number of sections pivoted together so that the tracks may bend horizontally, braces securing each side of opposite sections together, as and for the purpose specified.

2. In a device of the character described, a car, car-wheels, main rail upon which the car-wheels run, sectional tracks arranged forward and rearward of the wheels, the end of each track next to the wheels being beveled, the other ends of the tracks being raised, each track being composed of a number of sections pivoted together so as to bend horizontally, vertically-sliding bars, guideways depending from the car in which said bars are adapted to slide, pins extending at right angles from the lower end of the bars, eyelets extending from the side of the tracks in which said pins are adapted to normally lie, thereby suspending the tracks above the rail, means for raising and lowering said bars from the platform of the car, as and for the purpose specified.

3. In a device of the character described, a car, car-wheels, and main rail upon which the car-wheels run, sectional tracks arranged forward and rearward of the wheels, the ends of the tracks next to the wheels being beveled, the other ends of the tracks being raised, each track being composed of a number of sections, the sections being pivoted together so that the track may be bent horizontally, eyes extending laterally from the end sections of the tracks, one eye upon one side and the other upon the other side, vertically-sliding bars, guideways depending from the car in which said bars are adapted to slide, pins extending at right angles from the lower end of the bars and adapted to normally lie within the eyelets to suspend the tracks above the rails, abutments carried by the car against which the raised ends of the tracks are adapted to normally rest, means for raising and lowering the bars, cross-braces securing together the opposite sections of the tracks, as and for the purpose specified.

784,907. CORN-HUSKING APPARATUS. CHARLES C. WELSH, Fostoria, Ohio. Filed July 27, 1903. Serial No. 167,127.

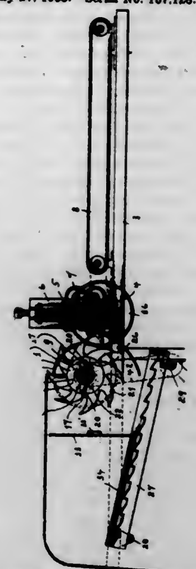


Claim.—1. In a corn-husker, the combination with a lower husking-roller, of two upper husking-rollers held yieldingly in lengthwise contact with the lower roller, in parallel relation, on opposite sides of the vertical plane of its axis, and means to revolve the rollers, the upper rollers in opposite direction from the lower.

2. In a corn-husker, the combination of a series of lower husking-rollers, in parallel lengthwise inclined position with intervals between the rollers, a series of upper husking-rollers so arranged above the lower rollers that each lower roller is in parallel lengthwise contact with two of the upper rollers on opposite sides of the vertical plane of its axis, and each intermediate upper roller is in contact lengthwise with two lower rollers and bridges the interval between them and means to revolve the rollers, the lower series of rollers all in one direction and the upper series of rollers all in the opposite direction.

3. In a corn-husker, the combination with a body-frame of snapping-rollers journaled in the body-frame, a driving-shaft mounted in bearings secured to the body-frame below the snapping-rollers, a husking-roller frame, bearings on one end of the roller-frame pivotally mounting one end of the frame on the shaft, means to suspend the opposite end of the husking-roller frame and adjustably decline the frame from the shaft, lower husking-rollers journaled parallel at intervals in the ends of the roller-frame, upper husking-rollers above the lower husking-rollers and contacting therewith on opposite sides of the vertical planes of their axes, journal-bearings for the upper rollers having arms pivotally secured to the ends of the roller-frame, intermeshing spur-gears mounted concentric on the upper and lower rollers, intermeshing miter-gears mounted on the driving-shaft and on the upper end journals of the lower rollers adapted to revolve all the lower rollers in the same direction, means to yieldingly hold the upper rollers in contact with the lower rollers, complementary means on the upper and lower rollers to engage the husks of ears of corn deposited on the rollers, and means to revolve the snapping-rollers and the driving-shaft of the husking-roller frame, substantially as set forth.

784,908. FODDER-SHREDDER. CHARLES C. WELSH, Fostoria, Ohio. Filed July 27, 1903. Serial No. 167,128.



Claim.—1. In a corn-husking and stalk-shredding mechanism, the combination with a frame, of upper and lower snapping feed-rollers journaled in the frame and geared together to revolve the top of the lower and the bottom of the upper roller in the same direction, a revolving feed-apron adapted to carry cornstalks to the feed-rollers in position to be drawn between the feed-rollers, a shredder-head journaled in the frame behind the feed-rollers, comprising a mandrel provided with end journals, end collars and an intermediate sectional collar mounted on the main body portion of the mandrel and together forming a helical groove around the mandrel, and a helical cutter formed of half-turn helical blades detachably mounted in the groove, a revoluble ledge between the feed-rollers and the shredder-head, gear mechanism connecting the feed-rollers and feed-apron with the shredder-head and means to revolve the shredder-head downward toward the ledge and thereby revolve the top of the lower feed-roller and the bottom of the upper feed-roller toward the shredder-head and the top of the apron toward the feed-rollers, substantially as set forth.

2. In a shredder-head, the combination with a mandrel comprising the body portion 9, the end journals 10 and 10', the shoulder 12, and the threaded portion 13, of the end collars 14, the intermediate lap-jointed, semihelical collar-sections 16, the semihelical knife-blades 21 and the compression-nuts 15, substantially as shown and described.

784,909. HOLLOW WOODEN COLUMN. ANDREW WESTERLIND, Chicago, Ill., assignor to Henry G. Dawson, Chicago, Ill. Filed Nov. 30, 1904. Serial No. 234,936.

Claim.—1. The method of manufacturing a hollow wooden column, which consists of winding a strip of veneer spirally about a core, enveloping said spirally-wound strip with a sheet of veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of veneer and cementing together the contacting surfaces of the two sheets, binding the layers together about the core, and subjecting the whole to drying to set the cement.



2. The method of manufacturing a hollow wooden column, which consists in winding a strip of veneer spirally about a core, springing about said spirally-wound strip a cylindrically-formed enveloping sheet of thicker veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of veneer and cementing together the contacting surfaces of the two sheets, binding the layers together about the core, and subjecting the whole to drying to set the cement.

3. The method of manufacturing a hollow wooden column, which consists in heating a core, winding spirally about said heated core a strip of veneer, enveloping said spirally-wound strip with a sheet of veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of veneer and cementing together the contacting surfaces of the two sheets, binding the layers together about the core, and subjecting the whole to drying to set the cement.

4. The method of manufacturing a hollow wooden column, which consists in winding a strip of veneer spirally about a core, enveloping said spirally-wound strip with a sheet of veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of veneer and cementing together the contacting surfaces of the two sheets, binding the layers together about the core, heating the whole to soften and spread the cement between the layers, and subjecting the whole to drying to set the cement.

5. The method of manufacturing a hollow wooden column, which consists in heating a core, winding spirally about said heated core a strip of veneer, enveloping said spirally-wound strip with a sheet of veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of veneer and cementing together the contacting surfaces of the two sheets, binding the layers together about the core, heating the whole to soften and spread the cement between the layers, and subjecting the whole to drying to set the cement.

6. The method of manufacturing a hollow wooden column which consists in winding a strip of veneer spirally about a core, enveloping said spirally-wound strip with a sheet of veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of veneer and cementing together the contacting surfaces of the two sheets, fastening the layers together upon the core and then applying a binding spirally about the other sheet, meantime removing the fastenings, heating the whole to soften and spread the cement between the layers, and subjecting the whole to drying to set the cement.

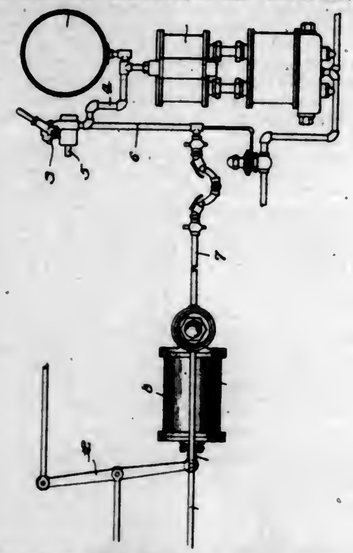
7. The method of manufacturing a hollow wooden column, which consists in heating a core, winding spirally about and fastening upon said core a strip of veneer, springing about said spirally-wound strip a cylindrically-formed enveloping sheet of thicker veneer and cementing the strip and sheet together at their contacting surfaces, enveloping said sheet with another sheet of relatively thin veneer and cementing together the contacting surfaces of the two sheets, fastening the layers together upon the core and then applying a binding spirally about the outer sheet, meantime removing the fastenings, heating the whole to soften and spread the cement between the layers, subjecting the whole to drying to set the cement, and finally removing the core and spiral binding.

8. As a new article of manufacture, a hollow column consisting of an inner spiral strip of veneer, a sheet of veneer enveloping and cemented to said strip and an outer sheet of veneer enveloping and cemented to said last-named sheet.

9. As a new article of manufacture, a hollow column consisting of an inner spiral strip of veneer, a sheet of relatively thicker veneer enveloping and cemented to said strip and an outer sheet of relatively thin veneer enveloping and cemented to said last-named sheet, the joints of said sheets being non-coincident.

784,910. AIR-BRAKE. ANDREW J. WIENER, Philadelphia, Pa.

Filed Oct. 3, 1900. Renewed May 14, 1904. Serial No. 207,916.



Claim.—1. In an air-brake system, the combination of the brake-cylinder, its piston, the auxiliary reservoir having communication with one end of the cylinder, the train-pipe, a passage-way leading from the train-pipe to the auxiliary reservoir, a passage-way leading from the train-pipe to the reverse end of the cylinder, means adapted to be operated by train-pipe pressure for opening and closing communication between said passage-ways and between said passage-ways and the train-pipe, means adapted to be operated by a predetermined pressure in said passage-ways for opening and closing communication between said second-named passage-way and said reverse end of the cylinder, and means operatively connected to the first-named means for opening and closing communication between said reverse end of the cylinder and the open air, substantially as described.

2. In an air-brake system, the combination of the brake-cylinder, its piston, the auxiliary reservoir having communication with one end of the cylinder, a chamber, a piston dividing said chamber into two parts, the train-pipe communicating with one part of the chamber, two passage-ways leading from the other part of said chamber one of said passage-ways leading to the auxiliary reservoir and the other of said passage-ways leading to the reverse end of the brake-cylinder, a valve controlling communication between the two parts of said chamber and being adapted to be opened and closed by the movement of the second-named piston, means operatively connected to the second-named piston for opening and closing communication between said passage-ways, means adapted to be operated by a predetermined pressure in said passage-ways for opening and closing communication between said passage-ways and said reverse end of the cylinder, and means operatively connected to the second-named piston for opening and closing communication between said reverse end of the cylinder and the open air, substantially as described.

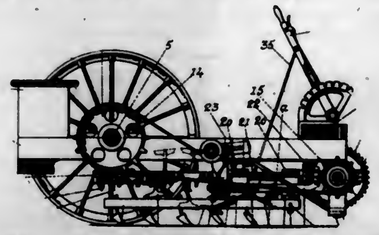
3. In an air-brake system, the combination of the brake-cylinder, its piston, the auxiliary reservoir having communication with one end of the cylinder, the train-pipe, a passage-way leading from the train-pipe to the auxiliary reservoir, a passage-way leading from the train-pipe to the reverse end of the cylinder, means adapted to be operated by train-pipe pressure for opening and closing communication between said passage-ways and between said passage-ways and the train-pipe, a valve controlling communication between the second-named passage-way and said reverse end of the cylinder, a diaphragm connected to said valve and adapted to be operated by air-pressure in said passage-ways to open said valve, means acting upon the diaphragm in opposition to such pressure, and means operatively connected to the first-named means for opening and closing communication between said reverse end of the cylinder and the open air, substantially as described.

4. In an air-brake system, the combination of the brake-cylinder, its piston, the auxiliary reservoir having communication with one end of the cylinder, a chamber, a piston dividing said chamber into two parts, the train-pipe communicating with one part of the chamber, two passage-ways leading from the other part of said chamber one of said passage-ways leading to the auxiliary reservoir and the other of said passage-ways leading to the reverse end of the brake-cylinder, a valve controlling communication between the two parts of said chamber and being adapted to be opened and closed by the movement of the second-named piston, means operatively connected to the second-named piston for opening and closing communication between said passage-ways, a valve controlling communication between said passage-ways and said reverse end of the cylinder, a diaphragm connected to said valve and adapted to be operated by air-pressure in said passage-ways to open said valve, means acting upon the diaphragm in opposition to such pressure, and means operatively connected to the second-named piston, for opening and closing communication between said reverse end of the cylinder and the open air, substantially as described.

5. In an air-brake system, the combination of the brake-cylinder, its piston, the auxiliary reservoir having communication with one end of the cylinder, a chamber, a piston dividing said chamber into two parts, the train-pipe communicating with one part of the chamber, two passage-ways leading from the other part of said chamber one of said passage-ways leading to the auxiliary reservoir and the other of said passage-ways leading to the reverse end of the cylinder, a valve-stem extending through said piston and carrying a valve adapted to control communication between the two parts of the chamber by the movement of the second-named piston, a spring tending to maintain said valve normally seated, means operatively connected to the second-named piston for opening and closing communication between said passage-ways, means adapted to be operated by a predetermined pressure in said passage-ways for opening and closing communication between said passage-ways and said reverse end of the cylinder, a passage-way leading from said reverse end of the cylinder to the open air, a valve controlling the last-named passage-way, and connections between the last-named valve and said valve-stem, substantially as described.

784,911. BEET-BLOCKING MACHINE. ERNEST J. YOUNG, Fleming, N. Y.

Filed Aug. 8, 1904. Serial No. 219,966.



Claim.—1. In a beet-blocking machine a twisted bar carrying blocking-blades and thinning-prongs arranged oppositely and spirally thereon and carried centrally on the blocker-head of a shaft on a bed-piece having foot-pieces and hung forwardly on the side bearings or hubs of a vertically-pivoted yoke carrying a shaft having a universal joint and carried rearwardly on an adjustable strap, and cultivator-beams pivoted on said bed-piece and having a cranked shaft provided with treadles at either end and stops on either side thereof substantially constructed in the manner and for the purpose herein described and shown.

2. In a beet-blocking machine a twisted bar having the bearings 25, and centrally attached on the blocker-head 23, combined with the rocking pieces 26, the concaved clip-pieces 27, the blocking-blades 29, and the thinning-prongs 33, arranged oppositely and spirally thereon between said rocking pieces and said concaved clips, and the twisted extended clip 30, and the springs 31, between said twisted extended clip 30, and said twisted bar, substantially in the manner and for the purpose herein shown and described.

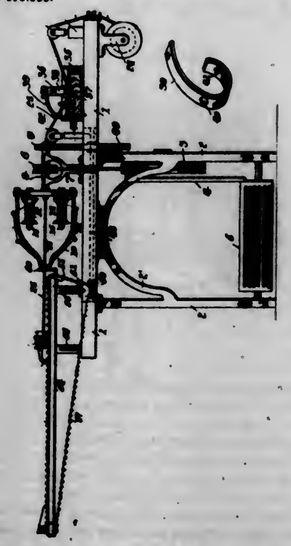
3. In a beet-blocking machine the bed-piece 10, having foot-pieces 49, flanges 36, a bearing-space 19 on the under side, boxes 9, supporting the shaft 21, having at one end the blocker-head 23, and at the other end the beveled pinion 22, and boxes 9, at the forward end of said bed-piece, a spring 51, between it and the framework 1, and the slotted straps 41, pivoted beneath by a slotted or looped bolt *a*, combined with the yoke 6, having the hubs 7, and the top and bottom pivots 50, and carrying the shaft 8, having the beveled driving-gear 11, and the universal joint 12, and a sprocket-wheel 15, connected with the main driving sprocket-wheel 13, on the main shaft 5, by a sprocket-chain 14, substantially in the manner and for the purpose herein described and shown.

4. In a beet-blocking machine the bed-piece 10, having foot-pieces 49, a bearing-space 19, flanges 36, and boxes 20, supporting the shaft 21, and boxes 9, on the hubs 7, of the yoke 6, the spring 51, between it and the framework 1, and the slotted straps 41, pivoted beneath by the looped bolt *a*, combined with the cultivator-bars 37, pivoted to said flanges 36, by the looped bolt 39, and the cross-bolt 38, and having a cranked shaft 44, provided with treadles 45, and the stops 47, for said cranked shaft, and a spring 48, between one of said cultivator-bars and said cranked shaft, and shares arranged on each substantially constructed in the manner and for the purpose herein specified and shown.

5. In a beet-blocking machine the combination of the twisted bar 24, having the bearings 25, the rocking pieces 26, the concaved clip-pieces 27, the blocking-blades 29, the thinning-prongs 33, arranged spirally and oppositely thereon between said rocking pieces and said concaved clips, and the twisted extended clip 30, and the springs 31, between said twisted extended clip 30, and said twisted bar; with the bed-piece 10, having foot-pieces 49, flanges 36, a bearing-space 19, on the under side, boxes 20, supporting the shaft 21, having at one end the blocker-head 23, to which one end of said twisted bar 24, is centrally secured, and at the other end the beveled pinion 22, and boxes 9, at the forward end of said bed-piece, a spring 51, between it and the framework 1, and the slotted straps 41, pivoted beneath by a looped bolt *a* the yoke 6, having hubs 7, on the outer side of which said boxes 9, of said bed-piece 10, are adapted to turn, and the top and bottom pivots 50, and carrying the shaft 8, within said hubs 7, said shaft having the beveled driving-gear 11, and the universal joint 12, and a sprocket-wheel 15, connected with the main driving sprocket-wheel 13, on the main shaft 5, by a sprocket-chain 14; the adjustable supporting-strap 16, at the rear end of said bed-piece; and the cultivator-bars 37, pivoted to said flanges 36, by a looped bolt 39, and a cross-bolt 38, and having a cranked shaft 44, provided with treadles 45, and the stops 47, for said cranked shaft, and a spring 48, between one of said cultivator-bars and said cranked shaft, and shares arranged on each substantially constructed and arranged in the manner and for the purpose herein described and shown.

784,912. MACHINE FOR MANUFACTURING ARTIFICIAL FLOWERS. MARTIN L. BEISTLE, Ingram, Pa.

Filed Mar. 14, 1904. Serial No. 198,000.



Claim.—1. In a machine for manufacturing artificial flowers, the combination of a wire-reel, means for wrapping the wire with

thread, means for drawing sections of the wire of various predetermined lengths from the reel, means for automatically stopping the movement of the wire when the predetermined length has been drawn from the reel, and means for coating the wire with adhesive material previously to the wrapping operation.

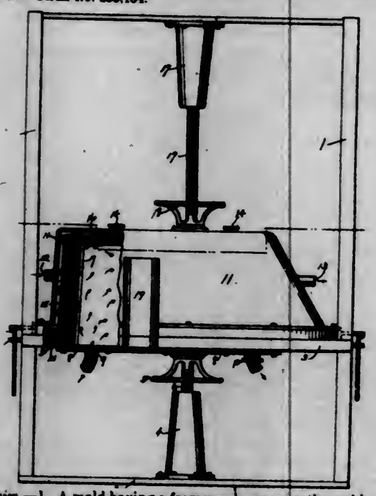
2. In a machine of the type described, the combination of a wire-reel, an adjustable tension device located adjacent to said reel, means for wrapping thread upon the wire, means for coating the wire with adhesive material, and means for gripping the free end of the wire and drawing it a limited distance and then automatically releasing it from traction.

3. In a machine of the type described, the combination of a table, a wire-reel mounted thereon, a tension device, a receptacle for adhesive material, a scraper arranged in said receptacle, a hollow shaft, means for imparting motion to said shaft, a head carried by said shaft, spool-supporting pins mounted on said head, needles carried by said head, an endless conveyer mounted on said table, and receiving motion from the shaft-operating means, a wire-clamping device engaging said endless conveyer, and means for automatically releasing the wire-clamping device from engagement with the said conveyer.

4. In a machine of the type described, the combination of a rotary head, a spool carried on said head, a needle carried on the head at a point farther from the center of the head than said spool, the said needle projecting beyond the end of the spool and inwardly toward the axis of the head, means for feeding wire through said head, and means for rotating the head.

5. In a device of the type described the combination of a wire-reel, a rotary head, a hollow shaft on which said reel is mounted, spools mounted on said head and projecting beyond the end of said hollow shaft, and needles mounted on the head and projecting beyond the ends of the spool, said needles having eyes on their outer ends for the reception of thread from the spools, the position of the eyes in the needles being such that sufficient space would be left between the wrapped portion of the wire and the end of said hollow shaft to permit of the stem of a flower being laid along the wire between the wrapped portion of the same and the end of said hollow shaft.

784,913. BATH-TUB MOLD. JAMES P. BICKERSTAFF, Monaco, Pa., assignor of one-half to Samuel McGivern, Monaco, Pa. Filed Dec. 2, 1904. Serial No. 235,154.



Claim.—1. A mold having a framework, a supporting-table, an outer hollow jacket supported on said table, an inner core seating in an opening formed in the table and independent means for operating said core and jacket, said table being formed with an annular groove adjacent the opening therein, the groove being in communication with the space between the jacket and core.

2. A mold having a supporting-table, a hollow core seated in an opening formed in the table, an annular groove formed adjacent said opening, a hollow jacket seated over said core and supported by the table, gates leading to the space between the core and jacket, and vents to permit the escape of gas.

3. A mold having a supporting-table, a hollow core removably seated in an opening formed in said table, the table being formed adjacent said opening with an annular groove, a hollow jacket removably seated over said core and supported by the table, the groove in the table being in communication with the space between the jacket and core, means for introducing a heating medium into the jacket and into the core, pouring-gates communicating with the space between the jacket and core, and vents for the escape of gas.

784,914. NURSING-BOTTLE HOLDER. WILLIAM J. BOYLE, Lewiston, Me., assignor of one-half to William J. O'Brien, Bath, Me. Filed Aug. 19, 1904. Serial No. 221,377.

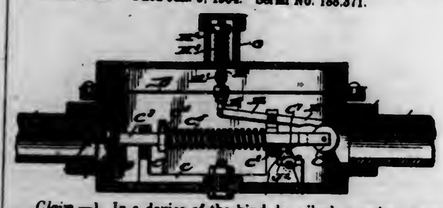


Claim.—1. A nursing-bottle combined with a bottle-holder having a bottle-sustaining strap permanently connected thereto at one end, the opposite end of the strap being adapted to be fitted about the neck of the bottle to connect the same with the holder.

2. The combination with a nursing-bottle, of an open-bottomed bottle-holder composed of flexible material having a flexible binding at its upper edge, and a bottle-sustaining strap connected thereto at one end, the opposite end of said strap being wrapped around the neck of the bottle.

3. An open-bottomed nursing-bottle holder composed of flexible material having a flexible binding at its upper edge and having a bottle-sustaining strap connected thereto at one end, the opposite end of said strap being adapted to be connected with the bottle.

784,915. AUTOMATIC CUT-OFF FOR GAS. JOHN B. BROWN, Akron, Ohio. Filed Jan. 9, 1904. Serial No. 188,371.



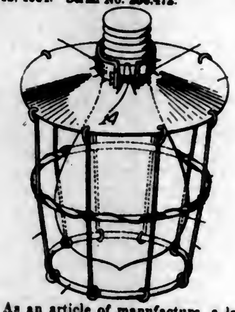
Claim.—1. In a device of the kind described, a casing, a supply-pipe, a service-pipe leading from the casing, a spring-pressed valve adapted to close the inner end of the service-pipe, an elastic diaphragm, a lever operable by movement of the diaphragm and adapted to lock the valve in open or closed position, and a spring adapted to coöperate with pressure of the gas in lifting the diaphragm.

2. In a device of the kind described, a casing, supply and service pipes, a movable plunger, a valve carried thereby and adapted to close one of the pipes, an adjustable spring adapted to close the valve, a lever adapted to lock the plunger against movement, a diaphragm connected to said lever and adapted to be moved by pressure of the gas and to lift the lever, and a spring connected to the diaphragm and adapted to counterbalance the first-mentioned spring.

3. A device of the kind described comprising a casing, service and supply pipes, a plunger longitudinally movable, a valve carried by the plunger adapted to close the service-pipe, a spring adapted to force the plunger forward, a roller carried by the plunger, an elastic diaphragm arranged parallel with the plunger, a lever pivoted intermediate its end and adapted to be actuated by the diaphragm,

one end of said lever resting on the roller, and being recessed adjacent said end, the roller engaging the said recess when the valve is closed, and a spring adapted to coöperate with gas-pressure in lifting the diaphragm.

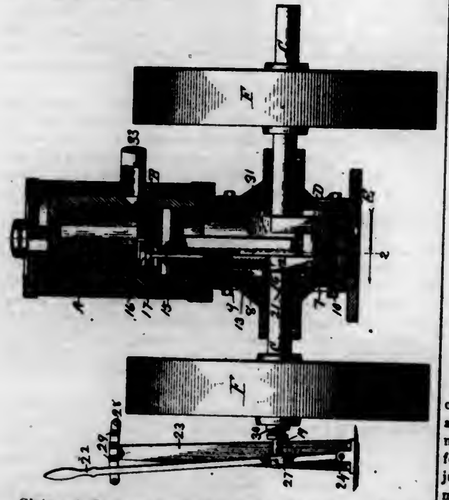
784,916. LAMP-GUARD. WILLIAM L. BROWNE, Worcester, Mass. Filed Dec. 12, 1904. Serial No. 236,472.



Claim.—1. As an article of manufacture, a lamp-guard comprising a reflector-disk having a central opening for the neck of an electric-lamp bulb, and a wire framework having a bottom ring which forms a base upon which the lamp-guard and its inclosed lamp-bulb may rest, and which provides the opening through which the lamp-bulb may be inserted in place.

2. The combination of an electric-lamp bulb, and a lamp-guard comprising a reflector-disk having a central opening with converging spring-fingers clamped into engagement with the neck of the lamp-bulb, and a wire framework having a bottom ring forming a base upon which the lamp-guard and its inclosed bulb may rest, which base-ring also provides the opening through which the lamp-bulb is inserted into place.

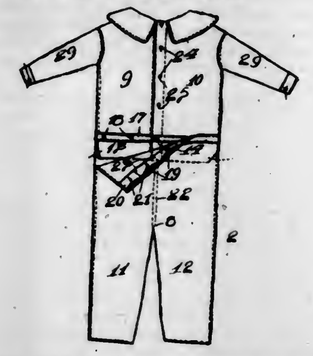
784,917. SPEED ATTACHMENT FOR GAS-ENGINES. ALBERT BUCHNER and ELMER P. MCCLURE, Chicago, Ill. Filed Aug. 6, 1903. Serial No. 168,560.



Claim.—1. In a motor of the class described, an auxiliary attachment for controlling the speed, comprising a rod inserted longitudinally in the crank-shaft and having its inner end beveled, means for manually imparting an endwise movement to said rod, a governor-weight provided with a cam-plate, a tension-pin inserted between said weight and cam-plate and in position to be engaged by the beveled end of said rod, a spring mounted on the tension-pin, and the valve and its stem carried by the piston and controlling the admission of the explosive charge and actuated by the cam-plate.

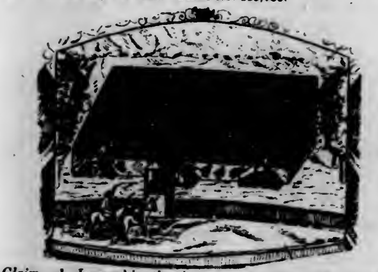
2. In a motor of the class described, the combination with a crank-shaft, of a rod having an endwise movement therein and a beveled end, a hand-lever for actuating said rod, a governor-weight having a sliding movement on the crank part of said shaft and carrying a segmental cam-plate, a tension-pin loosely inserted between the weight and cam-plate, and in position to be engaged by the beveled end of the rod, a spring mounted on the tension-pin, a valve-rod having a valve mounted on the upper end thereof, the lower end being positioned to be periodically contacted by said cam-plate, substantially as set forth.

784,918. COMBINATION-GARMENT. MEYER BUNNICK, Phoenix, Ariz. Filed Oct. 28, 1904. Serial No. 230,350.



Claim.—A combination-garment consisting of waist and trousers comprising two sections connected by a vertical seam extending from the neckband of the waist to the crotch of the trousers, and each of said sections consisting of a trousers-leg and one-half of the waist, a belt or reinforce-band surrounding the waist-line and sewed to the two sections, buttons connected to said belt in the rear, a flap on the waist at the rear extending below the waist-line, and unattached at the side edges, button-pockets at the upper edge of the trousers-sections in the rear, buttonholes formed in the inner member of the waistband, and a front flap-opening covered by a double tab, substantially as described.

784,919. STAGE APPARATUS. NEILSON BURGESS, Highlands, N. J. Filed July 16, 1902. Serial No. 115,788.



Claim.—1. In combination in a stage apparatus for producing certain illusory effects, a pictorial background, a series of movable arms arranged in a mass in advance of said background to form a movable foreground in connection with the background, and means for vibrating said movable arms, said movements producing in conjunction with the pictorial background a visual effect simulating a mass of individuals in action.

2. In combination in a stage apparatus, a pictorial background, a series of movable arms arranged in a mass and in advance of said background to form a movable foreground, means appurtenant to said movable members for producing sounds when in movement, said movement producing in conjunction with the pictorial background a visual and audible effect simulating a mass of individuals in action.

3. In a stage apparatus for producing "grand stand" effects, a pictorial background, a plurality of movable members arranged to vibrate in front of said background and forming a movable fore-

ground, means for vibrating said members, and means appurtenant to said movable members for producing audible effects.

4. In a stage apparatus for producing certain illusory effects, a background, a plurality of movable arms or levers projecting through said background and forming a movable foreground of substantially the same extent as the background, and means for moving said levers.

5. In a stage apparatus for producing certain illusory effects, a background bearing certain pictorial characters, a plurality of arms or levers projecting through said background, means borne upon one end of said levers for producing audible effects, and operating mechanism for moving said levers arranged at their opposite ends.

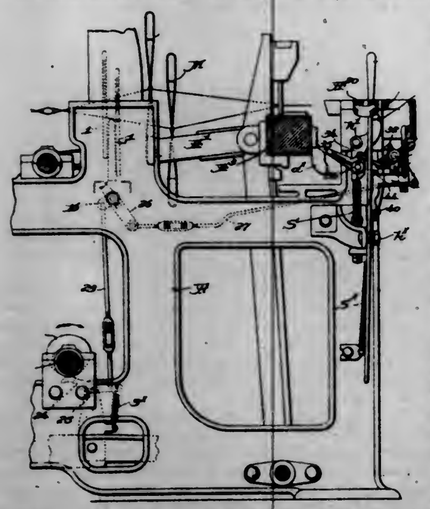
6. In combination in a stage apparatus for producing illusory effects, a background bearing pictorial characters, a series of shafts arranged adjacent to said background, a plurality of arms or levers provided at one end with means for producing visual and audible effects, and connections between the operating-shafts and arms for moving the latter.

7. In combination in a stage apparatus for producing illusory effects, a pictorial background, means for producing visual and audible effects in connection with said background, a series of operating-shafts for controlling the visual and audible effects, toothed wheels borne upon said shafts, and connections for moving said toothed wheels and shafts in unison.

8. In combination in a stage apparatus for producing illusory effects, a pictorial background, means for producing visible and audible effects in connection with said background said means including a series of movable arms, part of the series of arms having comparatively hard striking-surfaces while other of the arms have resilient striking-surfaces, corresponding hard and resilient surfaces coöperating with the striking-surfaces of the arms for producing sounds simulating hand-clapping and stamping and means for actuating said movable arms.

9. In combination in a stage apparatus for producing illusory effects, a pictorial background, means for producing visible and audible effects in connection with said background, said means including a series of movable arms arranged to vibrate in front of and intermittently strike against the background, the striking-surfaces of part of the arms being comparatively hard while the striking-surfaces of the remainder of the arms are faced with resilient material, and means for vibrating said arms whereby an effect is produced simulating the stamping and hand-clapping of a mass of people.

784,920. **WARP STOP-MOTION FOR LOOMS.** Charles E. Chase, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 18, 1904. Serial No. 228,967.



Claim.—1. In a loom, a series of stop-motion-controlling detectors maintained inoperative by intact individual warp-threads, a feeler to coöperate with and be arrested by a released detector, loom-stopping means adapted to be actuated by or through arrest of the feeler, and means the operation whereof is dependent upon the actuation of the stopping means to free the arresting detector from feeler-pressure.

2. In a loom, a series of stop-motion-controlling detectors maintained inoperative by intact individual warp-threads, and reciprocated vertically thereby during the formation of the shed, a vibratable feeler to coöperate with and be arrested by a released detector, loom-stopping means adapted to be actuated by or through such feeler arrest, and means operated by actuation of the stopping means to centralize the feeler automatically and free the arresting-detector from feeler-pressure.

3. In a loom having harnesses to effect the formation of the shed, a series of longitudinally-slotted stop-motion detectors located behind the harnesses and each normally maintained inoperative by a single warp-thread, change of shed effecting reciprocatory movement of the detectors, a vibratable feeler to engage and be arrested by a dropped detector, loom-stopping means the actuation whereof is caused by or through feeler arrest, a centering-cam, connections between it and the feeler, and means to operate said cam automatically upon the actuation of the stopping means, to centralize the feeler and free the arresting-detector from feeler-pressure.

4. In a loom provided with shed-forming devices and a shipper, in combination, a series of single-thread warp-stop-motion-controlling detectors, a vibrating feeler to coöperate with and be arrested by a released detector, shipper-releasing means actuated by or through arrest of the feeler, and means, including a member operated through release of the shipper, to withdraw the feeler from and thereby free the arresting-detector.

5. In a loom provided with shed-forming devices and a shipper, in combination, two banks of single-thread warp-stop-motion-controlling detectors, a vibrating feeler to coöperate with and be arrested by a released detector in either bank, shipper-releasing means actuated by or through arrest of the feeler, and feeler-centering means, including a spring-actuated member maintained inoperative by the shipper when in running position, to center the feeler and thereby free the arresting-detector from pressure.

6. In a loom provided with shed-forming devices and a shipper, in combination, two banks of single-thread warp-stop-motion-controlling detectors, arranged in parallelism behind the shed-forming devices and vertically reciprocated by the warps in the formation of the shed, a vibrating feeler to engage and be arrested by a released detector in either bank, shipper-releasing means actuated by or through arrest of the feeler, and feeler-centering means, including a centering-cam, an operating-spring therefor, and a controller coöperating with the shipper to maintain the cam inoperative until release of the shipper, operation of the centering means causing the feeler to free the arresting-detector from pressure.

7. In a loom provided with stopping means, in combination, two banks of stop-motion-controlling detectors each governed by a single warp-thread, a vibrating feeler to engage and be arrested by a released detector in either bank, connections between the feeler and the stopping means to effect the actuation of the latter by or through arrest of the former, and manually-operated means to indicate in which bank the released detector is located.

8. In a loom provided with stopping means, in combination, two banks of stop-motion-controlling detectors each governed by a single warp-thread, a vibrating feeler to engage and be arrested by a released detector in either bank, connections between the feeler and the stopping means to effect the actuation of the latter by or through arrest of the former, means rendered operative by actuation of the stopping means to centralize the feeler automatically and thereby free the arresting-detector from feeler-pressure, and a manually-operated device acting through the centering means to indicate in which bank the arresting-detector is located.

9. In a loom, a lay having a bunter, a shipper, a knock-off lever therefor having a dog pivoted thereon to at times coöperate with the bunter, a vibrating feeler to engage and be arrested by a released detector, two banks of stop-motion-controlling detectors each governed by a single warp-thread, connections, including a vibrating finger, between the feeler and dog to normally rock the latter out of the bunter-path, arrest of the feeler positioning the dog to be engaged by the bunter, and feeler-centering means, including a spring-actuated cam maintained inoperative by the shipper when in running position, actuation of the cam upon shipper release causing the finger to center the feeler and thereby free the arresting-detector from feeler-pressure.

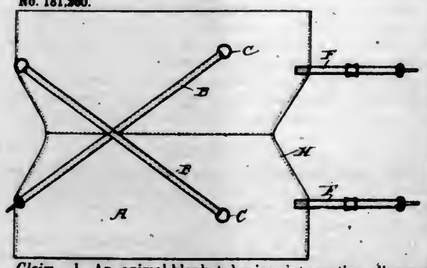
10. In a loom, a lay having a bunter, a shipper, a knock-off lever therefor having a dog pivoted thereon to at times coöperate with the bunter, a vibrating feeler to engage and be arrested by a released detector, two banks of stop-motion-controlling detectors each governed by a single warp-thread, connections, including a vibrating finger, between the feeler and dog to normally rock the latter out of the bunter-path, arrest of the feeler positioning the dog to be engaged by the bunter, and feeler-centering means, including a cam having a locking-depression, a spring to move the cam into coöperation with the finger, to cause the latter to enter the depression and lock the feeler in mid-position, to thereby free the arresting-detector from pressure, and a controller fixedly connected with the cam, the shipper when in running position coöperating with the controller and thereby maintaining the cam inoperative.

11. In a loom, a lay having a bunter, a shipper, a knock-off lever therefor having a dog pivoted thereon to at times coöperate with the bunter, a vibrating feeler to engage and be arrested by a released detector, two banks of stop-motion-controlling detectors each governed by a single warp-thread, connections, including a vibrating finger, between the feeler and dog to normally rock the latter out of the bunter-path, arrest of the feeler positioning the dog to be engaged by the bunter, and means to free the arresting-detector from feeler-pressure, said means including a cam maintained inoperative by the shipper when in running position and adapted when operative to coöperate with the finger and move it into position to center the feeler, manual movement of said cam into inoperative position when the loom is at rest permitting vibration of the feeler to indicate in which bank the released detector is located.

12. In a loom having a shipper, and a knock-off lever therefor, in combination, two banks of stop-motion-controlling detectors governed by single warp-threads and vertically reciprocated thereby in the formation of the shed, a feeler vibratable below said detectors and adapted to be arrested by engagement with a released detector of either bank, a rock-shaft on which the feeler is mounted, a cam to turn the rock-shaft in one direction and a spring to turn it in the opposite direction, a single transmitting member between the cam and spring and the rock-shaft, a yielding connection between the latter and said transmitting member, angular adjustment of the cam causing the feeler to feel when the warp-threads are in the upper or lower plane of the shed, as desired, and means to operate the knock-off lever upon arrest of the feeler by a released detector.

13. In a loom, stopping means therefor, a rotatable shaft, and a feeler-cam thereon, combined with stop-motion-controlling detectors governed by single warp-threads and vertically reciprocated thereby in the formation of the shed, a feeler located below and adapted to engage and be arrested by a released detector, to thereby cause the actuation of the loom-stopping means, and connections between the feeler-cam and feeler to normally vibrate the latter, angular adjustment of the cam on the rotatable shaft effecting the feeling stroke of the feeler when the warp-threads are in the upper or the lower plane of the shed, as desired.

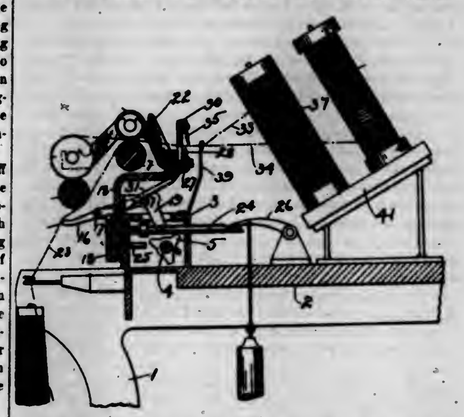
784,921. **HORSE OR CATTLE BLANKET.** Tobias Clemetson and Gabriel Clemetson, Duluth, Minn. Filed Nov. 14, 1903. Serial No. 181,260.



Claim.—1. An animal-blanket having intersecting diagonal straps secured upon its outer side, said straps extending from the front edge or end of the blanket to points near the rear and side edges of the blanket and being provided with fastening means at their front ends, and connections between the rear ends of the straps and the rear of the blanket.

2. An animal-blanket having intersecting diagonal straps secured on its outer side, said straps extending from the front edge of the blanket to points near the rear and side edges of the blanket and provided with connecting means at their front ends, rings carried by the rear ends of the said straps, and straps secured to the rear end of the blanket and carrying hooks adapted to engage the rings at the rear ends of the intersecting straps.

784,922. **TWISTING-MACHINE.** Henry Collins and Joseph W. Collins, Pawtucket, R. I. Filed Nov. 7, 1904. Serial No. 231,687.



Claim.—1. In a device of the character described, two feed-rolls, means for delivering two threads, means whereby said rolls will deliver said threads in different relative proportions to each other to be subsequently twisted together, and automatic clamping means for engaging each of the threads separately and independently to stop them both from feeding when one of said threads breaks.

2. In a twisting-machine, means for holding two or more spools of thread or yarn, two sets of feed-rolls, means for driving said sets of rolls at different speeds, means including said rolls for feeding said threads one faster than the other to be subsequently twisted together and means whereby said threads will be automatically stopped from feeding when one of said threads breaks.

3. In a twisting-machine, means for holding two or more spools of thread or yarn, two sets of feed-rolls, means for driving said sets of rolls at different speeds, means including said rolls for feeding said threads one faster than the other to be subsequently twisted together and means including a clamp-bar whereby said threads will be automatically stopped from feeding when one of said threads breaks.

4. In a twisting-machine, means for holding two or more spools of thread or yarn, two sets of feed-rolls, means for driving said sets of rolls at different speeds, means whereby the threads are fed through said rolls separate and independent of each other, means including said rolls for feeding said threads one faster than the other to be subsequently twisted together and means for engaging each of the threads separately to automatically clamp and stop them both from feeding when one of said threads breaks.

5. In a twisting-machine, the combination of means for holding two or more spools of thread or yarn, two feed-rolls, a top roll for each feed-roll, means for driving said feed-rolls at different relative speeds to feed said threads one faster than the other to be subsequently twisted together, means for supporting the top rolls independent from the feed-rolls, means whereby said top rolls will be carried clear of the feed-rolls when a thread breaks and means for engaging each of the threads separately by a single sliding clamp-bar to stop them from feeding when a thread breaks.

6. In a twisting-machine, the combination of means for holding two or more spools of thread or yarn, two feed-rolls, a top roll for each feed-roll, means for driving said feed-rolls at different relative speeds to feed said threads one faster than the other to be subsequently twisted together, a sliding frame, means for supporting said top rolls from said frame, means whereby said top rolls will be carried forward clear of the feed-rolls when a thread breaks and means for engaging each of the threads to stop them from feeding when said frame is carried forward.

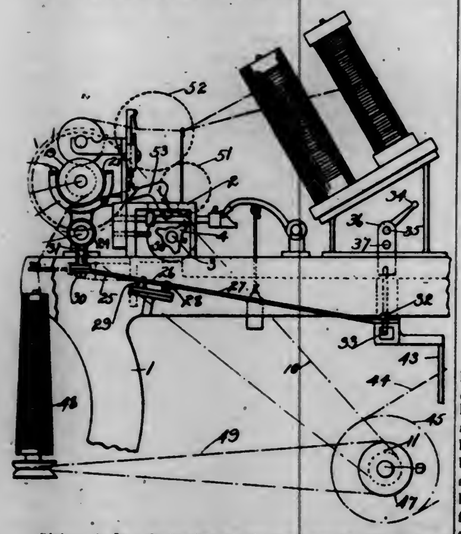
7. In a twisting-machine, the combination of means for holding two or more spools of thread or yarn, two feed-rolls, a top roll for each feed-roll, means for driving said feed-rolls at different relative speeds to feed said threads one faster than the other to be subsequently twisted together, a longitudinally-sliding frame from which said top rolls are supported, means whereby said top rolls will be carried clear of the feed-rolls when a thread breaks and means for engaging each of the threads by a sliding clamp-bar to stop them from feeding when said frame is carried forward.

8. In a twisting-machine, the combination of means for holding a plurality of spools of thread or yarn, a plurality of feed-rolls, a top roll for each feed-roll, means for driving said feed-rolls at different relative speeds to feed said threads one faster than the other to be subsequently twisted together, a longitudinally-sliding frame from which said top rolls are supported independent from the feed-rolls, means whereby said top rolls will be carried forward clear of the said feed-rolls when a thread breaks, and clamping means for engaging each of the threads to stop them from feeding when a thread breaks.

9. In a twisting-machine the combination of means for holding two or more spools of thread or yarn, two feed-rolls, a top roll for each feed-roll, means for driving said feed-rolls at different relative speeds to feed said threads one faster than the other to be subsequently twisted together, means for supporting the top rolls independent from the feed-rolls, means whereby said top rolls will be carried clear of the feed-rolls when a thread breaks, and clamping means for engaging the threads to stop them from feeding when a thread breaks.

10. In a twisting-machine, the combination of means for holding two or more spools of thread or yarn, two feed-rolls, a top roll for each feed-roll, means for driving said feed-rolls at different relative speeds to feed said threads one faster than the other to be subsequently twisted together, a trough or box in which the cam rotates, a longitudinally-sliding frame from which said top rolls are supported, means for supporting said sliding frame from said trough or box, means whereby said top rolls will be carried forward clear of the feed-rolls when a thread breaks, a clamping-bar supported from said trough for engaging each of the threads separately, and means whereby said clamp-bar will fall and bite both of the threads when said frame is carried forward.

784,923. **STARTING OR STOPPING DEVICE FOR TWISTING-MACHINES.** HENRY COLLINS and JOSEPH W. COLLINS, Pawtucket, R. I. Filed Dec. 19, 1904. Serial No. 237,571.



Claim.—1. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam and means whereby said levers will be automatically raised out of engagement with said cam before said cam is started to rotate.

2. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam, means whereby said levers will be automatically raised out of engagement with said cam before said cam is started to rotate, and means whereby the cam is caused to cease rotating before said levers are allowed to fall into engagement with the same when it is desired to stop the machine.

3. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam and means whereby said cam is started automatically to rotate after said levers have been raised out of engagement therewith.

4. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam, and means including a clutch and clutch-actuating mechanism whereby said cam is started automatically to rotate after said levers have been raised out of engagement therewith.

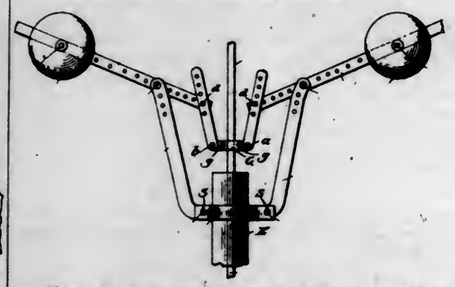
5. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam, a lower roll and lower-roll shaft, means mounted on said roll-shaft and detachable therefrom, said means being connected to transmit a rotary motion to said cam, and means for connecting said rotary transmitting means to said roll-shaft after said roll-shaft has been started.

6. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam, a lower roll and lower-roll shaft, means mounted on said roll-shaft and detachable therefrom, said means being connected to transmit a rotary motion to said cam, and means including a clutch for connecting said rotary transmitting means to said roll-shaft after said roll-shaft has been started.

7. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam, a lower roll and lower-roll shaft, a clutch-gear mounted on said roll-shaft through which gear a rotary motion is transmitted to said cam, a clutch-collar also mounted on said shaft and means operated by the movement of the belt-shipper to throw said clutch-collar into engagement with said clutch-gear causing the same to rotate the said cam after the spindles have been started to tighten the threads and raise said stop-levers from said cam.

8. In a device for stopping and starting twisting-machines, stop-levers, a stop-lever-actuating cam, a lower roll and lower-roll shaft, a clutch-gear mounted on said roll-shaft through which gear a rotary motion is transmitted to said cam, a clutch-collar also mounted on said shaft, and means including a double-acting shifting lever operated by the movement of the belt-shipper to throw said clutch-collar into engagement with said clutch-gear causing the same to rotate the said cam after the spindles have been started to tighten the threads and raise said stop-levers from said cam.

784,924. **BALANCING ATTACHMENT.** CHARLES E. COONS, Fort Worth, Tex. Filed Jan. 13, 1905. Serial No. 240,877.



Claim.—1. A balancing device for windmills and the like comprising sucker-rod clamps, fulcrums terminating in clamps for engaging the well tubing or pipe, levers mounted in said fulcrums, link-bars pivotally connected to said sucker-rod clamps and pivotally connected to said levers, and movable weights mounted on said levers, said fulcrum-clamps being bent to engage the tubing, and bolts being provided for securing said fulcrum-clamps together, said clamps having elongated bolt-holes and said levers and fulcrums having each a plurality of bolt-holes to permit adjustment of said fulcrums to effect a balancing of said levers to increase or diminish the power of said balancing devices.

2. In a balancing device for windmills and the like, the combination of a sucker-rod connection, clamps engaging said sucker-rod connection, link-bars pivotally engaging said clamps, fulcrums terminating in clamps adapted to engage the well tubing or pipe, levers adjustably pivoted in said fulcrums and pivotally connected to said link-bars, the clamps formed by the terminals of said fulcrum-arms having elongated bolt-holes to permit the changing of the positions of said fulcrums, bolts for retaining said clamps in different positions, and movable weights mounted on the long arms of said levers.

784,925. **PROCESS OF CONSTRUCTING WATER-TIGHT MASONRY WALLS.** CHAS. M. CRAWFORD, Hartford, Conn. Filed Oct. 13, 1904. Serial No. 228,106.

Claim.—1. A process of constructing water-tight joints in masonry which consists of interposing a collapsible trough or its equivalent between a recessed block forming part of said masonry and the cement which forms the adjacent block until said cement hardens, and in then removing said collapsible trough and filling the recesses in the blocks with a plastic material.



2. A process of constructing water-tight joints in masonry which consists of forming a recessed block of cement, concrete or some analogous material and so placing a collapsible trough or its equivalent that the cement forming the adjacent block will be prevented from filling said recess until the cement hardens, and in then removing said collapsible trough and filling the remaining recesses with a plastic material.

3. A process of constructing water-tight joints in masonry which consists of interposing a mold between a recessed monolith and the cement which forms the adjacent monolith, until said cement hardens and in then removing said mold and filling the recess with a plastic material.

4. A process of constructing water-tight joints in masonry which consists of interposing a collapsible mold between the cement blocks forming said masonry until said cement hardens and in then removing said mold and filling the recess or passage left by the withdrawal of the mold with a plastic material.

784,926. **WATER-TIGHT JOINT FOR MASONRY WALLS.** CHARLES M. CRAWFORD, Hartford, Conn. Filed Nov. 25, 1904. Serial No. 234,203.



Claim.—1. A masonry construction consisting of a plurality of masses of artificial stone having their adjacent faces recessed to thereby form a series of channels between said masses, a mold forming one of the walls of each of said channels, and a plastic filling material in said channels.

2. A masonry construction consisting of a plurality of masses of artificial stone having recesses formed in their adjacent faces to thereby form a series of channels between said masses, trough-like molds forming one of the walls of each of said channels, and means for anchoring said molds to their adjacent masses.

3. A masonry construction consisting of a plurality of masses of artificial stone having recesses formed in their adjacent faces to thereby form a series of channels between said masses, closures for one side of said recesses, and means for anchoring said closures to their adjacent masses.

4. In a masonry construction the combination with a plurality of masses of artificial stone having channels between their adjacent faces of molds forming one of the walls of each of said channels, filling-tubes carried by said molds, and flanges or ribs upon said tubes.

784,927. **COUPLING.** JOSEPH L. CRISLER, Perth, Kans. Filed Feb. 1, 1904. Serial No. 191,595.



Claim.—1. A coupler embodying a draw-head provided with an entrance-throat having a slanting and contracted rear portion, and a coupling-hook pivotally mounted in the draw-head and provided with a bill extending across the throat and also having a slanting shoulder which lies opposite the bill and inclines reversely to the inclination of the rear end of the throat, substantially as and for the purpose described.

2. A coupler embodying a draw-head having an entrance-throat with an obliquely-disposed and gradually-contracting inner end, and a coupling-hook pivotally mounted in the draw-head and provided with a bill extending across the entrance-throat, and also having a tongue provided with a slanting face which lies opposite the bill and which inclines reversely to the inclination of the rear end of the throat and which extends across the throat when the hook is open so as to receive the impact of the coupling-pin, substantially as described.

3. A coupler comprising a draw-head, having an entrance-throat, and a coupling-hook pivotally mounted therein, the entrance-throat and hook having reversely-inclined faces against which the coupling-pin simultaneously acts as it moves along the throat, and the coupling-hook being provided with a lock-notch which registers with the contracted rear end of the entrance-throat, substantially as described.

4. A coupler comprising a draw-head having an entrance-throat, a spring-closed coupling-hook having a bill which extends across the throat, the hook and throat having reversely-inclined faces against which the coupling-pin simultaneously acts for closing the coupling-hook to retain the coupling-pin, and means for opening the coupling-hook to release the coupling-pin, substantially as described.

5. A coupler embodying a draw-head having an entrance-throat, a spring-closed coupling-hook having a bill which projects across the entrance-throat, a self-locking uncoupling-lever, and connections interposed between the said uncoupling-lever and the coupling-hook, the arrangement being such that when the hook is moved to its closed position, the uncoupling-lever is thrown to a position in which it locks itself and also locks the coupling-hook, substantially as described.

784,928. **RAIL-JOINT.** WILLIAM DAVES, Bloomington, Ill., assignor of one-fourth to W. A. Freese, Bloomington, Ill., and one-fourth to G. W. Quackenbush, Marshall, Mo. Filed Nov. 23, 1904. Serial No. 234,076.



Claim.—In an insulated rail-joint, the combination of rails having their adjacent ends electrically separated, a base-plate supporting the end portions of the rails, insulation interposed between the base-plate and the bases of the rails, fish-plates embracing the rails and having bearings on the base-flanges of the rails, and having, also, outturned flanges at their bases, the base-plate having lateral edge portions projecting beneath the fish-plate flanges and separated therefrom by spaces, bolts joining the fish-plates and passing through the rail-webs, whereby the rails are clamped between the fish-plates, suitable insulation for the fish-plates, and bolts connecting the fish-plate flanges with the lateral portions of the base-plate, whereby the base-flanges of the rails are securely clamped, substantially as and for the purpose set forth.

784,929. **BOBBIN-CLUTCHING MEANS FOR ROTATABLE SPINDLES.** GEORGE O. DRAPER, Hopedale, Mass., assignor to Sawyer Spindle Company, Portland, Me. Filed Jan. 4, 1905. Serial No. 239,589.



Claim.—1. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, and centrifugally-controlled pressure-equalizing means to coöperate with said clutching members.

2. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, and having a limited radial movement, and centrifugally-controlled pressure-equalizing means to coöperate with the inner faces of the said clutching members.

3. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, and supplementary centrifugally-controlled means to augment the clutching action of said members.

4. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, to rock radially upon their lower ends, and supplementary centrifugally-controlled means to act internally upon the upper ends of the clutching members.

5. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members, means to positively connect the lower ends of said members with the spindle while permitting them to rock radially, and centrifugally-controlled pressure equalizing and distributing means to coöperate with the upper ends of said members.

6. The combination with a rotatable spindle of a plurality of centrifugally-acting bobbin-clutching members, means to laterally position and positively connect the lower ends of the clutching members with the spindle while permitting them to tip or rock radially about their lower ends, and supplementary centrifugally-controlled means to coöperate with and augment the clutching action of said members.

7. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted upon and bodily rotatable with the spindle, and a plurality of loose rings surrounding the spindle and inclosed by the clutching members, said rings acting by or through centrifugal action to coöperate with the clutching members and equalize and augment their clutching action.

784,930. LOOM-TEMPLE. WILLIAM P. DRAPER, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Jan. 7, 1905. Serial No. 239,994.



Claim.—1. A temple-head provided with a toothed roll, and separate means located adjacent said roll to engage and laterally stretch the cloth.

2. A temple-head provided with a toothed roll, and separate spring-controlled means to engage the cloth in front of the roll and subject the cloth to a yielding transverse pull.

3. A temple-head provided with a rotatable cloth-engaging member, cloth-gripping means mounted adjacent said member and movable transversely of the cloth, and a spring-actuated device to govern said means and cause the same to exert yielding side pull on the cloth.

4. A temple-head provided with a rotatable cloth-engaging member, and separate cloth-gripping means movable longitudinally of said member, to engage and exert a side pull on the cloth on the backward beat of the lay.

5. A temple-head provided with a rotatable cloth-engaging member, a pivotally-mounted jaw-carrier having a fixed jaw, a relatively movable jaw on said carrier, the jaws being bodily movable transversely of the cloth, to engage the same, and a spring to effect retractive movement of the jaw-carrier, and thereby exert a side pull on the cloth engaged by the jaws.

6. A temple-head provided with a toothed roll, a jaw-carrier fulcrumed on the head and having a rigid jaw, a spring-controlled, coöperating jaw, a heel on the jaw-carrier, adapted to be engaged by the lay on its forward beat to move the jaws inward from the selvage of the cloth, and a spring to move the jaw-carrier outward on the backward beat of the lay and thereby laterally stretch the cloth gripped by the jaws.

7. A temple-head provided with a toothed roll, cloth-gripping jaws, means adapted to be operated on the forward beat of the lay to move the jaws inward from the selvage to momentarily release and take a fresh hold on the cloth, and spring-operated means to move the jaws outward as the lay recedes and thereby exert a yielding outward pull on the cloth to maintain the same stretched.

8. A temple-head comprising a pod and a cap, a toothed roll carried thereby, a jaw-carrier fulcrumed on the pod and overhanging the front of the cap, a depending heel connected with the carrier and adapted to be struck by the lay, to rock the carrier, automatically-acting cloth-gripping jaws on the carrier, rocking thereof by the lay as it beats up moving the jaws inward from the selvage, to take a fresh hold on the cloth, and a spring to oppositely rock the carrier and through the jaws exert a side pull on the cloth.

9. A temple-head provided with a rotatable cloth-engaging member, and separate means to engage the cloth near its selvage and alternately release, and grip and pull laterally the cloth as the lay beats up and retires, respectively.

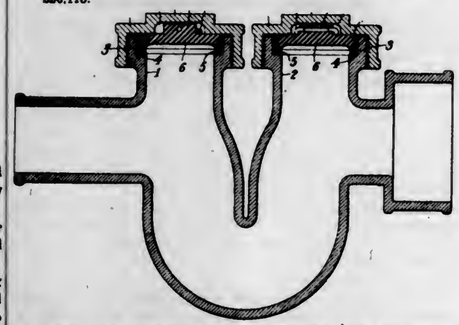
10. A temple-head provided with a rotatable cloth-engaging member, separate means to engage and exert a yielding lateral pull on the cloth, and a spring to control said means, the latter being adapted to slacken its hold on the cloth on the beat up of the lay.

11. A temple-head provided with a rotatable cloth-engaging member, automatically-acting gripping-jaws movable transversely to and adapted to engage the cloth near its selvage, a jaw-carrier fulcrumed on the head and having a foot adapted to be engaged by the lay to move the jaws inward on the beat up, and spring-actuated means to oppositely move the carrier and through the jaws exert a side pull on the cloth as the lay recedes.

12. A temple-head provided with a toothed roll, and means to engage intermittingly and stretch the cloth laterally over the roll, the roll by its engagement with the cloth serving to maintain it in stretched position while said means are intermittingly inoperative.

13. A temple-head provided with a toothed roll, and separate gripping means movable in the direction of the length of the roll, to intermittingly grip the cloth and stretch it laterally, the roll holding the cloth in such stretched position during the periods in which the said gripping means are inoperative.

784,931. CLOSURE FOR PLUMBING-TRAPS OR THE LIKE. JAMES R. DUNCAN, New York, N. Y. Filed Sept. 27, 1904. Serial No. 226,115.

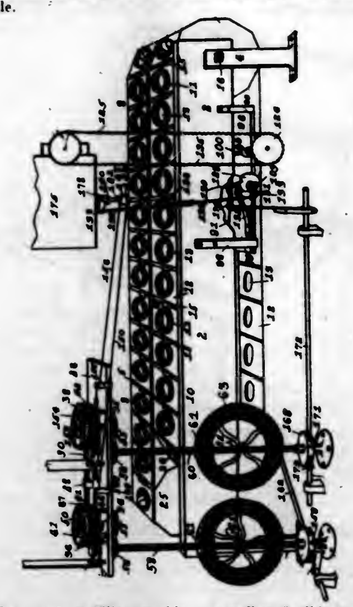


Claim.—The combination of a fitting having a hand-hole or similar opening formed in a neck integral with the body of the fitting, said opening having an inner shoulder, a tapered seat of non-corrodible metal screw-threaded in the opening and seated on the shoulder, a correspondingly-tapered closure of similar metal fitting the seat and having a stud or boss to be engaged in removing the closure, and a cap of non-corrodible metal screwed upon the neck over the closure and having an imperforate top with a cavity in its inner surface to receive the boss on the closure, whereby the closure is engaged around its periphery only, and forced firmly into its seat by the pressure of the cap, substantially as shown and described.

784,932. PACKING-MACHINE. DANIEL L. EUSTICE, Galena, Ill. Filed Nov. 24, 1903. Serial No. 182,468.

Claim.—1. In a package-filling machine, a filling mechanism, an endless flexible traveling table, a weighing mechanism inclosed by the table and means connected with the weighing mechanism for controlling the movements of the table and preventing any movement of the table while the filling mechanism is operating to fill a package.

2. In a package-filling machine, a traveling table consisting of plates loosely united together to form an endless flexible table, a weighing mechanism, and means actuated by a filled can and connected to the weighing mechanism for applying power to advance the table.



3. In a package-filling machine, an endless flexible traveling table, a weighing mechanism inclosed by the table, and means for automatically advancing the table by an intermittent motion.

4. In a package-filling machine, a traveling table formed of plates flexibly united together and provided with openings in the plates, a sprocket-wheel for advancing the table adapted to engage the openings in the plates, means for rotating the sprocket-wheel, and a weighing mechanism having a platform adapted to be projected and retracted through the openings in the table.

5. In a package-filling machine, a flexible traveling table provided with openings therethrough, a weighing mechanism having a platform adapted to be raised through the openings in the table, means for lowering and withdrawing the platform through the openings in the table and means for automatically applying power to operate the table.

6. In a package-filling machine, an endless flexible traveling table, a weighing mechanism inclosed by the table and means connected with the weighing mechanism for automatically applying power for advancing the table.

7. In a package-filling machine, an endless flexible table, a sprocket-wheel to advance the table, a weighing mechanism inclosed by the table, a filling mechanism and means operated by the filling mechanism and connected with the weighing mechanism for rotating the sprocket-wheel to advance the table.

8. In a package-filling machine, an endless flexible traveling table provided with openings, a weighing mechanism provided with a balance-beam, a platform attached to the balance-beam and adapted to be raised through the openings in the table, means for lowering the platform through the openings in the table, means for advancing the table, and connection between the weighing mechanism and the means for advancing the table.

9. In a package-filling machine, an endless traveling table provided with openings therethrough, a weighing mechanism having a platform connected with the balance-beam of the weighing mechanism and adapted to be raised through the openings in the table, means for lowering the platform through the openings in the table and means engaging the balance-beam for applying power to operate the table at a variable rate of speed.

10. In a package-filling machine, a traveling table, intermittently-operated mechanism for imparting a progressive step-by-step feed to the table, a weighing mechanism operated by the filled package to energize said intermittently-operated mechanism, and a filling mechanism operated by the weighing mechanism synchronously with the energizing of the intermittently-operated mechanism.

11. In a package-filling machine, a traveling table, a weighing mechanism and means connected with the weighing mechanism for advancing the table consisting of a rotating ratchet-wheel a ratchet attached to a shaft adapted to engage said ratchet-wheel a driving-shaft, and connection between the driving-shaft and the ratchet-wheel shaft.

12. In a package-filling machine, an endless traveling table, a feeding mechanism, a weighing mechanism and means connected with the weighing mechanism to apply the power to operate the table consisting of a shaft provided with a ratchet-wheel a shaft 103 and connections between the shaft and the power-operated mechanism.

13. In a package-filling machine, a traveling table, a filling mechanism, a weighing mechanism and connection between the weighing mechanism and the filling mechanism for operating the filling mechanism, and means including said connections for advancing the table intermittently and at a variable speed.

14. In a package-filling machine, a traveling table, a filling mechanism, a weighing mechanism and connection between the weighing mechanism and the table for advancing the table intermittently and at a variable speed.

15. In a package-filling machine, a traveling table provided with openings, a filling mechanism, a weighing mechanism operated by the filled can, connection between the weighing mechanism and filling mechanism for operating the filling mechanism, means connected with the filling mechanism operated by the weighing mechanism for advancing the table, and means operated by the table-advancing means to control the operation of the weighing mechanism.

16. In a package-filling machine, an endless flexible traveling table having openings, a rotating drum having sprocket-teeth adapted to engage the openings in the table, and means for rotating the drum to operate the table, a filling mechanism and a weighing mechanism, and connection between the filling and weighing mechanisms operated by the weighing mechanism for advancing the table.

17. In a package-filling machine, an endless flexible table consisting of plates linked together and provided with an opening through each plate, a weighing mechanism provided with a platform adapted to be raised through the openings in the plates, means for lowering the platform through said openings, and means for advancing the table consisting of a sprocket-wheel adapted to engage said table, and connection between the sprocket-wheel and the power for rotating the sprocket-wheel.

18. In a package-filling machine, a feeding mechanism, a weighing mechanism, an endless flexible table, means for advancing the table at a variable speed consisting of gears of unequal diameters meshing in with each other and connections between the gears and the power-operated mechanism, and connections between said gears and the table

19. In a package-filling machine an endless flexible table provided with openings therethrough, a weighing mechanism provided with a platform adapted to be raised and lowered through the openings in the table, and means for forcing and holding down the platform after the package has been filled consisting of a plate attached to the driving-shaft and provided with a notch therein, an arm adapted to contact said plate and engage said notch, a connection between said arm and the platform of said weighing mechanism, and means for rotating said driving-shaft.

20. In a package-filling machine, an endless traveling table, means for advancing the table consisting of a sprocket-wheel engaging the table and connection between the sprocket-wheel and the power-operated mechanism, a weighing mecahnism, and connection between the weighing mechanism and the power-operated mechanism for advancing the table intermittently.

21. In a package-filling machine, a feeding mechanism, a weighing mechanism, an endless flexible traveling table consisting of plates linked together and provided with grooves for determining the place where the package shall be set upon the plates while being filled.

22. In a package-filling machine, an endless flexible table consisting of plates linked together and provided with openings therethrough, a groove around said openings of the diameter of the package to be filled for determining the position the package shall occupy upon the table while it is being filled, a weighing mechanism provided with a platform adapted to be raised through the openings in the table, means for lowering the platform through the openings in the table and means for advancing the table intermittently.

23. In a package-filling machine, a filling mechanism, a weighing mechanism, an endless flexible traveling table having an intermittent feed, and means connected with the weighing mechanism

for controlling the intermittent feed of the table and preventing any movement of the table while the filling mechanism is operating to fill a package.

24. In a package-filling machine, a filling mechanism, a traveling table adapted to be moved intermittently, a weighing mechanism, and means connected with the weighing mechanism for controlling the filling mechanism and movements of the table consisting of a shaft 103 provided with an arm adapted to engage a ratchet-wheel on the shaft 100 and connection between the shaft 103 and the feeding mechanism.

25. In a package-filling machine, a plurality of traveling tables adapted to carry the packages, a filling mechanism, means whereby the packages upon the tables are alternately filled, and means for advancing the tables separately.

26. In a package-filling machine, a plurality of traveling tables adapted to carry the packages, a weighing mechanism, means for advancing the tables separately, and connections between the weighing mechanism and the filling mechanism to alternately operate the latter, whereby the packages upon the tables are alternately filled.

27. In a package-filling machine, a plurality of traveling tables, a filling mechanism adapted to fill successively the cans placed on the tables, and means for advancing one of the tables while the filling mechanism is delivering its contents into a package on another table.

28. In a package-filling machine, a plurality of traveling tables, each having a progressive step-by-step feed, a filling mechanism, power-operated mechanism constructed and arranged to separately advance the tables, and means included in the table-advancing means to vary the speed of the tables at each progression thereof.

29. In a package-filling machine, a filling mechanism, a weighing mechanism, a plurality of traveling tables adapted for intermittent and separate advancement, means connected with the weighing mechanism for operating the filling mechanism and for advancing the tables at a variable speed.

30. In a package-filling machine, a plurality of traveling tables, a filling mechanism adapted to fill successively the packages placed on the tables, and means for advancing one of the tables separately and carrying the filled package away from the filling mechanism while the package on another table is being filled, and connection between the means for advancing the tables and the filling mechanism.

31. In a package-filling machine, a plurality of traveling tables, means for intermittent and separate advancement of the tables, a filling mechanism for filling all of the packages in their order on the tables, a weighing mechanism adapted to cooperate with each table, and means for operating the filling and weighing mechanism and the table conjointly.

32. In a package-filling machine, a plurality of traveling tables, means for advancing each table intermittently and independent of the other tables, a filling mechanism adapted to fill packages one after another on all of the tables, and means for carrying the filled package away from the filling mechanism while a package on another table is being filled.

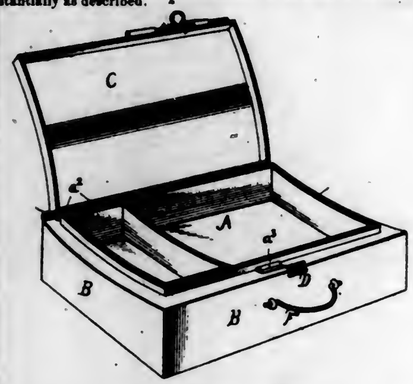
33. In a package-filling machine, a plurality of tables, means for advancing each table intermittently and at a variable speed, a filling mechanism adapted to fill the packages one after another upon the various tables, and means connected with the filling mechanism for disengaging the means for advancing the table from the power-operated mechanism while a package is being filled upon that table.

34. In a package-filling machine, a plurality of traveling tables provided with openings, power-operated mechanism for intermittent and separate advancement of the tables, a filling mechanism for successively filling packages upon the tables in their order, a weighing mechanism provided with a platform for each table adapted to be raised through the openings in the tables, means for lowering the platform through the openings in the table, and means for disengaging the power-operated mechanism that advances the tables to maintain each table at rest while a package thereon is being filled.

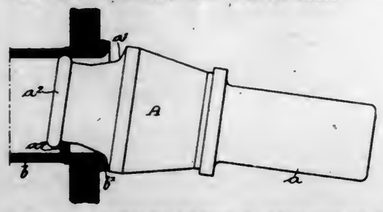
784,933. COMBINED FISHERMAN'S BOX AND LIFE-PRESERVER. WILLIAM FISCH, New York, N. Y. Filed Aug. 4, 1904. Serial No. 219,508.

Claim.—1. A box or receptacle provided with an air-tight chamber surrounding its sides and bottom, a slightly-concaved lid or cover detachably secured to the box, and means for attaching the same to the body, substantially as described.

2. A box or receptacle provided with an air-tight chamber surrounding its sides and bottom, a lid or cover detachably secured to the box, and means for attaching the same to the body, said means comprising a strap passing through slots in the edges of the box, substantially as described.



784,934. PROSSERING AND FLUE-BEADING TOOL. THEODORE V. FREEBURY, Pueblo, Colo., assignor of one-half to H. A. Deuel, Pueblo, Colo. Filed June 21, 1904. Serial No. 213,550.



Claim.—1. A prossering-tool made in a single piece and having a shank for attachment to a motor, a continuous bead at the end thereof opposite said shank, and means for limiting the distance said tool is entered in a tube, the distance between said bead and the limiting means bearing a definite relation to the distance between the end of a tube operated upon and the prosser thereof, said tool being so constructed that when it is inclined to the line of a tube said bead and limiting means engage opposite sides of said tube, substantially as described.

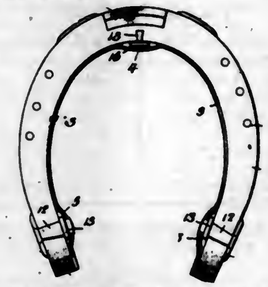
2. A tool made in a single piece and having a portion for attachment to a motor, a continuous bead extending around one end of the tool, and a head adjacent to the end and provided with a filleted portion for engagement with the end of a tube, said filleted portion being at a definite distance from said bead depending upon the distance from the end of a tube to the prosser to be formed therein, and the bead being of such a diameter that when the tool is inclined to the line of the tube said bead and the filleted portion engage opposite sides of said tube, substantially as described.

3. A tool consisting of a metal piece having a head, a shank for attachment to a fluid-operated motor, there being a portion of said tool of a diameter less than the head and extending beyond the same, with a relatively narrow bead on said extension, the dimensions of said tool being such that when said tool is inclined to the line of the tube a portion of its head and the bead respectively engage opposite sides of the tube, substantially as described.

4. A tool having a portion for attachment to a motor, a head of a greater diameter than the internal diameter of a tube to be operated on, an integral extension beyond said head of less diameter than the same, and a continuous rounded flange at the end of said extension, the dimensions of said tool being so proportioned that when in operative position portions of the head and of said flange respectively engage opposite sides of the tube, substantially as described.

784,935. HORSESHOE. JOHN E. G. GEIBEL, Lehighton, Pa. Filed June 4, 1904. Serial No. 211,130.

Claim.—1. A horseshoe comprising separable hoof and tread sections, the hoof-section being provided with a flange which engages and positions the tread-section, downwardly-extending lugs on the hoof-section, keys engaging said lugs and extending across the lower face of the tread-section, and key-bolts connected with the hoof-section and engaging the keys.

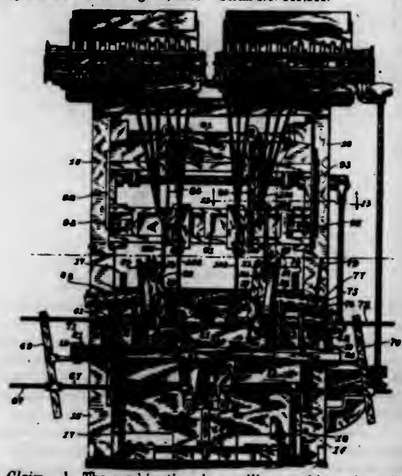


2. A horseshoe comprising separable sections, the hoof-section being provided with a flange for positioning the tread-section, said flange being offset and the hoof-section being provided with openings in line with the offsets, key-bolts arranged in the offsets and engaging the hoof-sections, and keys inserted through the key-bolts and engaging the lower face of the tread-section, substantially as described.

3. A horseshoe comprising separable sections, a flange extending along the inner edge of the hoof-section and provided with offsets in line with bolt-holes extending through the hoof-section, and bolts arranged in said holes and offsets and adapted to secure the sections of the shoe together.

4. A horseshoe comprising separable sections, the hoof-section being provided with a flange extending along its inner edge and provided with offsets, key-bolts arranged in the offsets and engaging the hoof-section, lugs adjacent to the outer edge of the hoof-section, and keys extending across the lower face of the tread-section and engaging the key-bolts and lugs, substantially as described.

784,936. NAILING-MACHINE. JASON H. GREENSTREET, Indianapolis, Ind. Filed Aug. 13, 1903. Serial No. 169,361.



Claim.—1. The combination, in a nailing-machine, of a pair of relatively adjustable box-head chucks which face each other and receive and carry the box-shooks while being nailed, spindles on which said chucks are mounted, and means for revolving said chucks.

2. The combination, in a nailing-machine, of a pair of box-head chucks, and inclined spindles on which said chucks are mounted.

3. The combination, in a nailing-machine, of a pair of box-head chucks, flanges on the facing surfaces of said chucks upon which the box-heads may rest while the sides and bottoms of the box are being nailed thereto, and means for adjusting said flanges.

4. In a nailing-machine, a pair of box-head chucks hung on spindles that vary from a horizontal position and are provided with supporting-flanges for the box-heads, whereby those flanges which at the time are lowest may be brought directly below the nail-drivers, while the opposite flanges are kept out of the path of said nail-drivers, thus permitting the nail-chucks to descend within the upper edges of the box-head chucks during the nailing operation, in combination with said spindles.

5. In a nailing-machine, a pair of box-head chucks provided with adjustable head-supporting flanges whereby they are adapted to hold boxes of varying sizes and diameters.

6. In a box-nailing machine, the combination, with a pair of relatively adjustable box-head chucks for carrying the boxes during the nailing operation, of means for connecting said chucks and causing them to revolve in unison.

7. The combination, in a box-head chuck of a nailing-machine, of the main chuck-plate, flanges thereon, and a rock-shaft suitably positioned in relation thereto and carrying cam-fingers whereby after the box-head is placed in the said chuck it may be thrown out to perpendicular position.

8. The combination, in a nailing-machine, of a table, a pair of revoluble box-head chucks mounted thereon, the nail-chucks, the nail-drivers, means whereby during the nailing operation the distance between the nail-chucks and the box-head chucks is varied, a cam on one box-head chuck for throwing the box-heads up into perpendicular position ready to be nailed, and means actuated by the machine for operating said cam.

9. In a nailing-machine, a box-head chuck provided with a cam whereby the box-head may be thrown up to position to be nailed while the one side of the box is being nailed on, and then thrown back out of the way while the other sides of the box are nailed on.

10. In a nailing-machine, a revoluble box-head chuck provided with supporting-flanges and yielding supports, in combination with guides adjacently positioned and arranged to operate in conjunction therewith.

11. In a nailing-machine, the combination, with a box-head chuck, of a device for moving the same axially, whereby the distance between said box-head chuck and its fellow may be increased or diminished.

12. The combination, in a box-nailing machine, of a table, a pair of box-head chucks mounted thereon, nailing mechanism, and guides carried from said nailing mechanism for supporting and guiding the sides and bottom of the box accurately while being nailed onto the heads in the chucks.

13. The combination, in a nailing-machine, with box-head chucks adapted to revolve, of locking-pins for holding said chucks in adjusted position while the nailing operation is performed.

14. The combination, in a nailing-machine, of box-head chucks, locking-pins for holding said chucks in adjusted position during the nailing operation, a treadle, and links and levers connecting said treadle to said pins, whereby the same are operated.

15. The combination, in a box-nailing machine, of box-head chucks, locking-pins for holding said chucks to proper position during the nailing operation, a treadle for disengaging said locking-pins, links and levers connecting the treadle and said pins, and a spring for holding said pins into engagement when not forcibly withdrawn by means of the treadle.

16. The combination, in a nailing-machine, of a table, standards containing bearings adjustably mounted thereon, and box-head chucks mounted in said bearings.

17. The combination, in a nailing-machine, of a table, standards containing inclined bearings mounted thereon, and box-head chucks the spindles whereof are mounted in said inclined bearings.

18. The combination, in a nailing-machine, of a table, standards adjustably mounted thereon, box-head chucks mounted in bearings in said standards, and means connecting said box-head chucks whereby they are caused to move in unison when revolved, said means being likewise adjustable.

19. The combination of a table, suitable bearings carried thereby, relatively adjustable box-head chucks mounted in said bearings, and means connecting said box-head chucks whereby they are caused to move in unison when revolved.

20. The combination, in a nailing-machine, of a table, suitable bearings carried thereby, box-head chucks mounted in said bearings and provided with toothed rims, a shaft also mounted on said table adjacent to said box-head chucks and provided with gears which intermesh with the toothed rims thereon, whereby said box-head chucks are caused to move in unison when revolved.

21. The combination, in a nailing-machine, of a table, suitable

bearings carried thereby, box-head chucks mounted in said bearings, means for moving one of said box-head chucks toward and from the other, and means connecting said box-head chucks whereby they are caused to move in unison said means embodying variable connection with one of said box-head chucks whereby the movement of said box-head chucks toward and from each other is permitted without disengagement of the means whereby they are caused to move in unison when revolved.

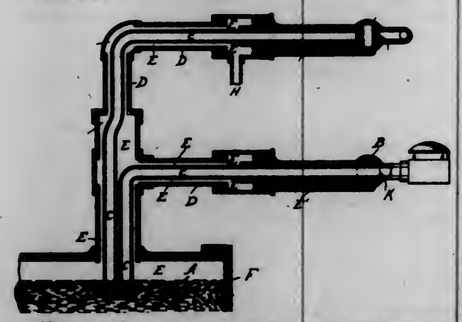
22. The combination, in a nailing-machine, of a table, suitable bearings carried thereby, box-head chucks mounted in said bearings, means for moving one of said box-head chucks toward and from the other, and means connecting said box-head chucks whereby they are caused to move in unison, comprising a shaft, gears thereon, and gear-rims on the box-head chucks, one of said gears on the shaft being wide enough to maintain engagement with the corresponding gear-rim at all points during the movement of said box-head chuck toward and from its fellow.

23. The combination, in a nailing-machine, of a table, a pair of revoluble box-head chucks mounted thereon, means for revolving said chucks and the box carried thereby between the steps of the nailing operation, the nail-chucks, the nail-drivers, and means for varying the distance between the nail-chucks and the box-head chucks whereby the corners of the box being nailed are permitted to pass as the chucks are revolved.

24. The combination, in a nailing-machine, of a table, standards containing bearings mounted thereon, box-head chucks revolubly mounted in said bearings, the nail-chucks, the nail-drivers, means for revolving the box-head chucks and the box carried thereby between the steps of the nailing operation, and means for varying the distance between the nail-chucks and the box-head chucks between the steps of the nailing operation whereby the corners of the box being nailed are enabled to pass the nail-chucks and whereby the sides of the box are brought back into proper relation to said nail-chucks to be nailed.

25. The combination, in a box-nailing machine, of a table, a pair of box-head chucks revolubly mounted thereon, nailing mechanism, means for varying the distance between the box-head chucks and the nailing mechanism, and guides carried from said nailing mechanism for supporting and guiding the sides and bottom of the box accurately while being nailed onto the box-heads in the chucks.

784,937. PNEUMATIC DISTRIBUTING SYSTEM FOR FLUIDS. FLORENCE M. GRISWOLD, Essex Falls, N. J. Filed Apr. 12, 1904. Serial No. 202,579.



Claim.—1. The combination with a service or discharge pipe for a fluid under pressure, of an inclosure for said pipe in which air or other gas is maintained under pressure, a faucet controlling the outlet of the service-pipe and valve ports and passages for establishing connection between the inclosure and the service-pipe when the faucet is closed thus establishing an equalizing pressure whereby any liquid in the service-pipe may be caused to flow back through the same, as and for the purpose described.

2. The combination with a service or discharge pipe for liquids, of a tank containing a body of liquid under air or gas pressure tending to force the liquid through said service-pipe, a pipe surrounding said service-pipe and communicating with the air or gas space in the tank, means for controlling the outlet of the service-pipe and means for establishing connection between the surrounding pipe and said service-pipe at, or near, the outlet, when the outlet is closed.

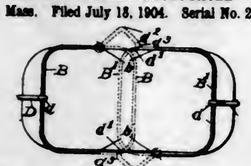
3. The combination with a fluid service or discharge pipe, of a surrounding jacket or inclosure in which an equalizing pressure is maintained and means for establishing connection between said inclosure and said service-pipe to cause any liquid contained therein to flow backward from the outlet of said service-pipe.

784,938. GRIP DRIVING APPLIANCE. WILLIAM L. R. HALL, Peak Hill, Western Australia, Australia. Filed Apr. 6, 1904. Serial No. 201,934.



Claim.—A grip-lever as A for the purpose specified provided with jaws a' and a^2, clearance-grooves a^3, ear a^4 and lug a^5 and with a hole as A′ near its outer end substantially as described and shown.

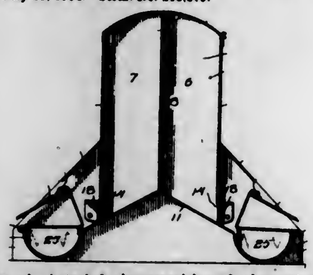
784,939. BASKET OR OTHER RECEPTACLE. JOSEPH HAMILTON, Lowell, Mass. Filed July 18, 1904. Serial No. 216,972.



Claim.—1. The combination of a receptacle-body, a cover adapted to rest thereon, handles pivoted to said body and adapted to be folded down upon said cover between the ends thereof, and fasteners movable on said handles and adapted to reach over the ends of said cover, to engage said receptacle-body when said handles rest upon said cover, and to engage the sides of said cover when said handles are raised.

2. The combination of a receptacle-body, a cover adapted to rest thereon, handles pivoted to said body and adapted to be folded down upon said cover between the ends thereof, and hooks movable on said handles and adapted to reach over the ends of said cover, to engage said receptacle-body when said handles rest upon said cover, and to engage the sides of said cover when said handles are raised.

784,940. STOCK-FEEDER. THEODORE G. HARRIS, Helena, Okla. Filed July 25, 1904. Serial No. 218,079.



Claim.—1. A stock-feeder comprising a food-receptacle, troughs communicating with the receptacle and arranged for the reception of food therefrom, means for regulating the passage of food from the receptacle to the troughs, a water-trough communicating with the first-named troughs for the passage of water thereto, and closures for the first-named troughs, said closures being movable into and out of operative position.

2. A stock-feeder comprising a food-receptacle, troughs communicating with the receptacle and arranged for the reception of food therefrom, plates secured to the receptacle and extending over portions of the troughs, shafts secured at their ends to the ends of the troughs and lying beneath the plates, closures for the troughs hinged to the shafts for movement into and out of operative position, a plurality of transverse partitions disposed within each of the troughs and hinged to the shafts for movement upwardly out of the troughs to permit of cleaning of the latter, and a closure for the receptacle.

3. A stock-feeder comprising a receptacle including vertical side and end walls, and a bottom, and a partition disposed within the receptacle to form food-receiving compartments, said partition resting against the bottom at its lower edge, said bottom slanting downwardly from the partition and outwardly beyond the opposite side walls of the receptacle and spaced from the lower edge thereof, said bottom being curved downwardly beyond the walls and then outwardly to form troughs, the end walls of the receptacle having extensions at opposite sides secured to the end edges of the outwardly-extending portions to form the ends of the troughs.

4. A stock-feeder comprising a food-receptacle, troughs communicating with the receptacle and arranged for the reception of food therefrom, a water-trough communicating with the first-named troughs and having an opening communicating with a water-supply, a valve for the opening, and a plate secured to the trough and to the receptacle and lying above the valve to form a guard therefor.

784,941. NON-REFILLABLE BOTTLE. FRANCIS S. HEFFERNAN, Springfield, Mo. Filed Apr. 22, 1904. Serial No. 204,492.



Claim.—In a device of the character described, a plug adapted to fit into a tubular body, said plug having a cavity therein and an outlet-opening extending centrally from the outer end of said cavity to the outer end of the plug, and having also a flat valve-seat at its inner end provided with a central port, and a check-valve fitting closely within the lateral walls of said cavity, said valve having a concave outer face and an inner face adapted to fit against said valve-seat, and having one or more openings extending from its concave face to its inner face, said openings being out of line with the port and arranged so that their inner ends will be closed by the valve-seat in the normal position of the valve.

784,942. FISH-HOOK. WILLIAM HENCKLER, St. Louis, Mo. Filed May 10, 1902. Serial No. 106,666.



Claim.—1. The combination with a fish-hook having a prong, of a guard constructed to be applied to said prong and overhang the point of the hook, and means for holding said guard to said prong, substantially as described.

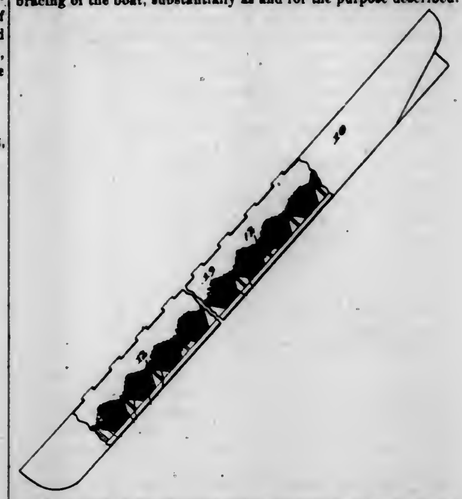
2. The combination with a fish-hook having a prong, of a guard constructed to be detachably applied to said prong, and overhang the point of the hook, and a spring whereby said guard is connected to the shank of the fish-hook, substantially as described.

3. The combination with a fish-hook having a prong, of a guard constructed to be detachably applied to said prong and overhang the point of the hook, a slide movably mounted on the shank of said hook, and a spring connecting said guard to said slide, substantially as described.

4. The combination with a fish-hook, having a prong, of a guard having a socket portion adapted to engage the spur of said prong, an outturned portion adapted to overhang the point of the prong, and a spring whereby said guard is connected to the shank of said hook, substantially as described.

784,943. VESSEL FOR CARRYING ORE OR LIKE MATERIAL. FRANK K. HOOVER and ARTHUR J. MASON, Chicago, Ill. Filed Feb. 17, 1903. Serial No. 143,758.

Claim.—1. A boat of the character described, the deck whereof is provided with hatchways, said boat having beneath each hatchway a compartment provided with permanent inclined downwardly-converging walls for the reception of the cargo and constituting interior bracing of the boat, substantially as and for the purpose described.



2. A boat of the character described having the deck thereof provided with a series of transversely-extending hatchways, said boat having formed beneath said hatchways a corresponding series of load-receiving compartments each having permanent inclined downwardly-converging side walls constituting interior bracing of the boat and each compartment having a maximum width equal to the distance between two adjacent hatchways, substantially as and for the purpose described.

3. A boat of the character described the hull whereof is provided with a permanent double bottom inclosing a water-ballast chamber and the deck with hatchways through which the cargo is introduced and withdrawn, the inner bottom being made of a form to provide beneath each hatchway a load-receiving compartment having inclined downwardly-converging side walls, substantially as and for the purpose described.

4. In a boat of the character described, the combination with the outer shell or hull and a deck having hatchways formed transversely therethrough, of a series of transversely-extending partitions connected along their upper and lower margins, said partitions connectedly constituting the inner shell or bottom of the boat and adjacent partitions being oppositely inclined, whereby there is created beneath each hatchway a substantially V-shaped receptacle for the cargo and between adjacent hatchways a substantially inverted-V-shaped tank for water ballast, substantially as described.

5. In a boat of the character described, the combination with the outer shell or hull and a deck having hatchways formed therethrough, of a permanent inner bottom constructed to present alternate ridges and valleys extending across the vessel, the valleys lying directly beneath the hatchways and serving to contain the cargo, and the ridges lying between the hatchways and serving as internal bracing to strengthen the hull, substantially as described.

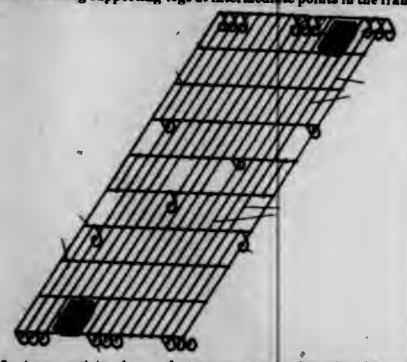
6. In a boat of the character described, the combination with the outer shell or hull and a deck having hatchways formed therethrough, of a water-ballast tank in said shell or hull having its top formed by a series of transverse ridges and valleys extending from side to side of the shell or hull, substantially as described.

784,944. SUPPORTING-FRAME FOR KITCHEN-SINKS. EUGENE H. JAQUITH, Clinton, Mass. Filed Sept. 24, 1904. Serial No. 226,784.

Claim.—1. As an article of manufacture, a rectangular frame for use in sinks comprising longitudinal members and transverse members, which members are parallel with the sides and ends of the frame respectively, and some of which members are provided with turned-down ends forming supporting-legs.

2. As an article of manufacture, a rectangular sink-frame com-

prising longitudinal members extending parallel with the sides of the frame, and transverse members at right angles to the longitudinal members, and parallel with the ends of the rectangular frame, part of said members being provided with intermediate turned-down sections forming supporting-legs at intermediate points in the frame.



3. As an article of manufacture, a rectangular wire supporting-frame for sinks comprising longitudinal and transverse wires parallel with the sides and ends of the frame respectively, and electrically welded together, said frame having some of its wires provided at their ends with turned-down sections forming legs, while some of the wires are provided with turned-down sections forming legs at intermediate points, the wires of the framework themselves forming the supporting-surface, and said wires all being electrically welded together at their crossing points.

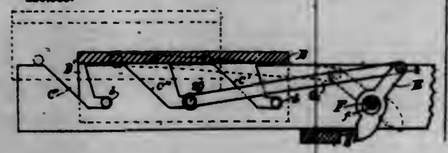
784,945. TABLE. CHARLES KING, Port Huron, Mich., assignor of seven-twelfths to Mary B. King, Port Huron, Mich. Filed Jan. 25, 1904. Serial No. 190,623.



Claim.—1. A table-frame, a table-top supported on said frame and having notches cut from the lower surface at the edges, and cross-rails in the frame below the table-top, in combination with sheet-metal side rails secured to the under surface of the table-top bent up at the end of the lower surface of the top and extending to the surface of the projecting ends of the table-top, thence bent out and extending toward the ends of the top, thence bent down and extending below the top surface of the cross-rails, thence bent and extending to the ends of the cross-rails, thence bent up and extending to the upper surface of the cross-rails and thence bent horizontally and secured to the tops of the cross-rails, forming slide-receptacles, each having three smooth metallic bearing-surfaces above and below, and slides fitted to coact with said receptacles, substantially as and for the purpose set forth.

2. In combination with a table-frame, a table-top having the ends cut away forming a square receptacle on the under side, cross-rails in the frame; metal rails having each edge bent thrice at right angles forming a metallic guideway at each edge and a flange for securing the rails to the surface of the table-top and of the cross-rails, and a slide fitted into said guideways.

784,946. TABLE. CHARLES KING, Port Huron, Mich., assignor to Mary B. King, Port Huron, Mich. Filed Aug. 12, 1904. Serial No. 220,583.



Claim.—1. In combination with an extension-table having a stationary bed and extensible ends, two slides secured to the table-bed and two slides secured to the extensible ends and movable slides slidingly connected therewith, guides parallel with the slides and provided with inclined slots, leaves having downwardly-projecting cleats with pins projecting therefrom through the inclined slots in the guides, levers pivoted to the guides, arms pivoted to the levers and projecting therefrom to a slot in the guide, a pin at the end of each arm, extending therefrom through the slot in the guides and engaging the cleats upon the leaves, and trips in the line of travel of the levers, substantially as and for the purpose set forth.

2. In combination with an extension-table, leaves having downwardly-projecting cleats, across the ends, pins projecting at right angles from the sides of said cleats, guides having inclined slots through which said pins pass, movable ends to the table, slides secured thereto parallel with the cleats and guides, movable slides slidingly connected with the said slides, levers pivoted to the guides near their longitudinal centers, arms pivoted to the upper ends of said levers and extending forward to slots in the guides, pins projecting from the ends of the arms through said slots and engaging the cleat on the leaves, and trips in the line of travel of the lower ends of the levers, substantially as and for the purpose set forth.

3. In combination with an extension-table, a stationary bed and extensible ends, parallel guides and slides secured to the bed and the movable ends, the guides having inclined slots, leaves having cross-cleats extending downward parallel with the guides and adjacent thereto, pins projecting from the cleats and entering the slots in the guides, slides secured to the bed of the table in position to coact with the slides on the movable ends, levers pivoted to the guides for each leaf in the table, arms pivoted at one end to the upper end of the levers, the other end free and having pins that project through the slots in the guides and engage the cleats on the leaves, the levers having apertures much larger than the pin they are pivoted upon, and trips in the line of travel of the lower ends of the levers, substantially as and for the purpose set forth.

784,947. KEYHOLE-GUARD. JOSEF KOHOUSEK, Budapest, Austria-Hungary. Filed Mar. 12, 1904. Serial No. 198,085.

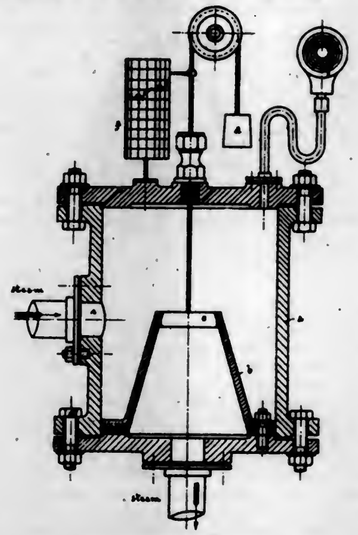


Claim.—1. A keyhole-guard consisting of a housing, having substantially the form of the bit and adjacent parts of the stem of the lock-key, a latch mounted to slide in said housing and adapted to be projected out at the back of the stem opposite the bit, a movable member mounted in the front of the bit part of said housing and suitably coupled to the said latch, the adjacent end of the stem part of the said housing being bored and slotted to receive a key and means in connection with the said movable member for operating it to project the latch by means of the inserted key substantially as described.

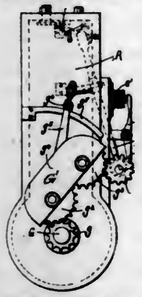
2. A keyhole-guard consisting of a housing having substantially the form of the bit and adjacent parts of the stem of the lock-key, a latch 9 having projection 9^2 mounted to slide in said housing and adapted to be projected out of the same at the back of the bit part of the housing, a diagonal groove 10 in the front part of said latch, a slide 11 having downwardly-extending pin to engage said groove, a series of tumblers to control the movement of said slide, the adjacent stem part of the housing being bored and slotted to allow a key access to the said tumblers to operate the latch in the manner and for the purpose substantially as described.

784,948. STEAM-METER. EMIL KUHNER, Leverkusen, near Cologne, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed July 2, 1903. Serial No. 164,089.

Claim.—A steam-meter comprising a casing provided with an ingress at the side and an egress-opening at the bottom and with a manometer connected to its top, in combination with an open, hollow, conical case supported over the egress-opening, a bell movable in the interior of the conical case, a wire supporting the bell and passing over a pulley and supporting a weight at its free end, and a pointer connected to the wire, substantially as described.



784,949. INTERNAL-COMBUSTION ENGINE. HERBERT J. LEIGHTON, Syracuse, N. Y. Filed Jan. 20, 1902. Serial No. 90,370.



Claim.—1. In an internal-combustion engine, the combination with a cylinder having inlet and exhaust ports, ignition-controlling mechanism, and means for setting the ignition-controlling mechanism to produce regular or delayed sparking; of means associated with said inlet-port for delaying the inlet of the combustible gases therethrough during a given stroke of the piston when said ignition-controlling mechanism is set to produce delayed sparking, substantially as and for the purpose described.

2. In an internal-combustion engine, the combination with a cylinder having inlet and exhaust ports, ignition-controlling mechanism, and means for setting the ignition-controlling mechanism to vary the time of the production of the igniting-sparks relatively to the operation of the piston; of means for controlling the entrance of the explosive fluid through the inlet-port, said means being inactive when the ignition-controlling mechanism is set for one operation relatively to the operation of the piston and active when the ignition-controlling mechanism is set for another operation relatively to the piston, substantially as and for the purpose specified.

3. In an internal-combustion engine, the combination with a cylinder having inlet and exhaust ports, ignition-controlling mechanism, and means for actuating said ignition-controlling mechanism to produce regular or delayed sparking; of a valve associated with the inlet-port inactive when the ignition-controlling mechanism is set for regular sparking, and means for actuating said valve when the ignition-controlling mechanism is set to produce delayed sparking, substantially as and for the purpose set forth.

4. In an internal-combustion engine, the combination with a cylinder having inlet and exhaust ports, ignition-controlling mechanism, and means for setting said ignition-controlling mechanism to vary the time of the production of the igniting-sparks relatively to the operation of the piston; of means for controlling the inlet-port normally inactive, and means for operating said controlling means for the inlet-port when said ignition-controlling means is set to operate in a predetermined relation to the operation of the piston, substantially as and for the purpose described.

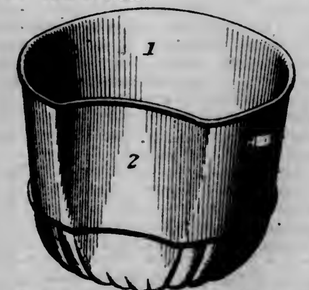
5. In an internal-combustion engine, the combination of a cylinder having inlet and exhaust ports, means for opening and closing said ports, and additional means for preventing the entrance of the explosive fluid through the inlet-port in a given stroke of the piston until a predetermined period is passed after said inlet and exhaust ports have been opened by the first-mentioned means, substantially as and for the purpose specified.

6. In an internal-combustion engine, the combination of a cylinder having inlet and exhaust ports, a valve for controlling the passage of the explosive fluid from the inlet-port into the cylinder, and means constructed and arranged to actuate the valve when the ignition of the charges in the cylinder is delayed, to prevent the entrance of the explosive fluid into the cylinder during a given stroke of the piston until a predetermined time after said charge would be admitted into the cylinder if the ignition of the charges in the cylinder were not delayed, substantially as and for the purpose set forth.

7. In an internal-combustion engine, the combination of a cylinder having inlet and exhaust ports opened and closed by the piston in its movement in the cylinder, and a mechanically-actuated valve constructed and arranged to prevent the entrance of the incoming explosive fluid from the inlet-port into the cylinder until a predetermined time after the piston has passed beyond the advance side of the inlet-port in a given stroke of the piston, substantially as and for the purpose described.

8. In an internal-combustion engine, the combination of a cylinder having inlet and exhaust ports communicating with the cylinder at a point in proximity to the piston when in its position assumed during the entrance of the explosive fluid into the cylinder, said ports being opened and closed by the piston in its movement in the cylinder, and the advance side of the inlet-port being nearer the piston when in said position than the corresponding side of the exhaust-port, and a mechanically-actuated valve constructed and arranged to prevent the entrance of the incoming explosive fluid from the inlet-port into the cylinder until a predetermined time after the piston during a given stroke thereof has passed beyond the advance side of the inlet-port toward its position assumed during the entrance of the explosive fluid within the cylinder, substantially as and for the purpose specified.

784,950. BASKET. RALPH E. LINDSAY, Davenport, Iowa. Filed July 6, 1904. Serial No. 215,550.



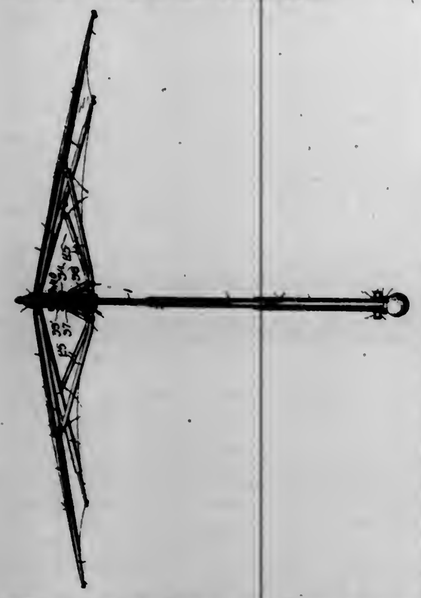
Claim.—A basket having a concavity at one side, tapering downwardly from the top substantially to the bottom of the basket and having a pair of oppositely-disposed handles, symmetrically located on the basket with respect to the concavity, said handles being inclined upwardly and forwardly toward the front of the basket, at angles of substantially twenty degrees to the top of the basket, and said handles being further located so that a line joining them, will pass above and forward of the center of gravity of the basket when loaded.

784,951. NUT-LOCK. ADAM A. LONG, Rochester, N. Y. Filed Sept. 19, 1902. Serial No. 124,075.



Claim.—The combination with a bolt and a nut having a cylindrical slotted projection on its inner face provided with a beveled edge, of a bearing-plate having a recess surrounding the bolt and an angular surface in the bottom thereof at such depth from the face of the plate that as the faces of the nut and plate frictionally engage the ends of the slotted projection also engage the angular surface and are forced into binding contact with the bolt.

784,952. FOLDING UMBRELLA. DELVENE W. MABEE, Baltimore, Md. Filed Oct. 15, 1904. Serial No. 228,545.

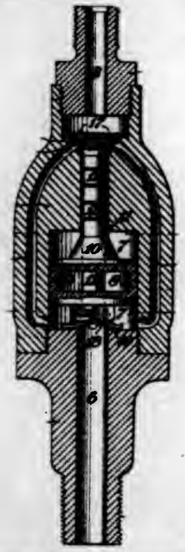


Claim.—1. In an umbrella, the combination with a stick having ribs pivotally connected therewith, of a runner slidably mounted on the stick, rib-stretchers pivotally connected to the runner and to the ribs, a sleeve slidably mounted on the runner, arms pivoted to the sleeve and to the stretchers at points between the ends of the latter, a stop at the upper end of the runner, and a helical spring disposed upon the runner between the sleeve and stop and adapted to force the sleeve downwardly on the runner.

2. In an umbrella, the combination with a stick having a notch, of rib-sections pivoted to the notch, rib-sections slidably connected with the first-named sections and adapted to project from the ends thereof, a runner slidably mounted upon the stick, stretchers pivoted to the runner and to the slidable rib-sections, and spring-operated automatic means connected with the stretchers for moving them in a direction to project the slidable rib-sections.

3. In an umbrella, the combination with a stick having a notch, of rib-sections pivoted to the notch, rib-sections slidably connected with the first-named sections, and movable to project from the ends thereof, a runner slidably mounted upon the stick, stretchers pivoted to the runner and to the slidable rib-sections, a sleeve slidably mounted upon the runner, links pivoted to the sleeve and to the stretchers at points between the ends of the latter, and resilient means for shifting the sleeve in one direction upon the runner, to swing the stretchers into active positions and project the slidable rib-sections.

784,953. LUBRICATOR. DONALD R. MACBAIN, Jackson, Mich., assignor to Joel S. Coffin and Samuel G. Allen, Franklin, Pa. Filed Oct. 27, 1904. Serial No. 230,167.



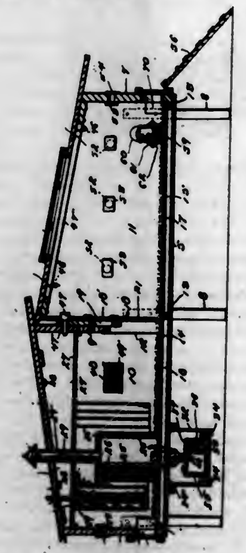
Claim.—1. The combination, in a lubricator device, of a body or casing, a valve-chest plug having a central unobstructed delivery-passage and secured to one end of the body, a cap having a central unobstructed oil-supply passage and secured to the opposite end of the body, there being independent main oil-ports cored on the outside of the body and connecting the oil-supply and oil-delivery passages, a controlling-valve governing communication between the oil-supply passage and the main oil-ports, a restricted passage being provided in said valve establishing communication between said passage and ports, and a piston connected to and of greater diameter than the controlling-valve, and subject throughout its area on the side further from said valve to the pressure in the oil-delivery passage.

2. The combination, in a lubricator device, of a body or casing, a valve-chest plug having a central unobstructed oil-delivery passage and secured to one end of the body, a cap having a central unobstructed oil-passage and secured to the opposite end of the body, there being independent main oil-ports cored on the outside of the body and connecting the oil-supply and oil-delivery passages, a piston fitting a chamber in the body which is open unobstructedly to the oil-delivery passage, a stem connected to said piston and fitting, throughout its length, in a central bore in the body, a compression-valve carried by the stem and seating around the end of the bore, a controlling-valve of smaller diameter than the piston, connected to the stem and governing communication between the oil-supply passage and the main oil-ports, and a restricted passage being provided in said valve establishing communication between said passage and ports.

3. The combination, in a lubricator appliance, of a body or casing, a piston-chamber therein, a valve-chest plug connected to the body, and having an oil-delivery passage open directly to the piston-chamber, a cap connected to the opposite end of the body and having an oil-supply passage opening thereinto, a piston fitted in the piston-chamber, there being two main oil-ports cored on opposite sides of the body and open to the lower end of the piston-chamber, a stem connected to the piston and fitting a central bore in the body, a controlling-valve, of smaller diameter than the piston, fixed upon the stem and adapted to govern communication between the oil-supply passage and the main oil-ports, and a restricted passage being provided through the controlling-valve which communicates, when the valve is seated, with the main oil ports.

4. The combination, in a lubricator appliance, of a body or casing, a piston-chamber therein, a valve-chest plug connected to the body, and having an oil-delivery passage open directly to the piston-chamber, a cap connected to the opposite end of the body and having an oil-supply passage opening thereinto, a piston fitted in the piston-chamber, there being two main oil-ports cored on opposite sides of the body and open to the lower end of the piston-chamber, a stem connected to the piston and fitting a central bore in the body, a controlling-valve, of smaller diameter than the piston, fixed upon the stem and adapted to govern communication between the oil-supply passage and the main oil-ports, and a restricted passage being provided through the controlling-valve which communicates, when the valve is seated, with the main oil-ports, an annular bearing on the upper end of the valve-chest plug, surrounding the oil-delivery passage and serving as a rest for the piston or its connecting device if detached from the stem, and radial oil-passages being provided extending from the oil-delivery passage to the periphery of the bearing.

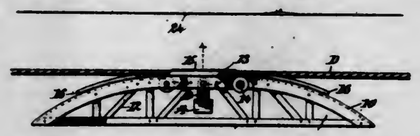
784,954. BROODER. ASHBEL F. MESERVE, Danville, Ill. Filed Dec. 4, 1903. Serial No. 183,768.



Claim.—1. A brooder comprising a casing having a transverse partition in its upper portion and an opening therebelow, a curtain depending from said partition and closing said opening, a door for said opening having a smaller opening therethrough, the casing at one side of said partition having heating means therein.

2. A brooder comprising a casing having a transverse partition and resultant separate rooms, a heater disposed in the room at one side of the partition, said last-named room having a ceiling and a roof having an air-chamber therebetween having ventilating-openings through its side walls, curtains suspended from the ceiling and surrounding the heater in spaced relation therefrom and from each other, said ceiling having ventilation-openings therethrough within the inclosure of the outer curtain, and said ceiling having other ventilation-openings exterior to the curtains.

784,955. CABLE-TRAMWAY. CHARLES MESSICK, Jr., Hackensack, N. J. Filed May 26, 1904. Serial No. 209,846.



Claim.—1. A pivoted saddle in the form of an arch with a flat crown.

2. A pivoted saddle in the form of an arch with a flat crown and retaining-guide or cage.

3. A pivoted saddle in the form of an arch having sheave-wheels at the crown of the arch.

4. A pivoted saddle in the form of an arch with a flat crown, and a channel on said flat crown to retain a cable from slipping off the arch sidewise.

5. A pivoted, built-up, structural-iron truss-saddle in the form of an arch, with means for retaining a cable on said arch.

6. A built-up, structural-iron arch saddle with a flat crown, and having means for retaining a cable on said arch.

7. A pivoted saddle of arched construction, having a flat crown outer surface and a cage at the said flat surface adapted to receive a cable, substantially as described.

8. A pivoted saddle in the form of an arch with a flat crown, having retaining sides on said flat crown.

9. A pivoted saddle in the form of an arch with a starp located at the center and flanges at each side of the strap to retain the cable in place.

10. A pivoted saddle in the form of an arch with a flat crown having a retaining-strap fastened over the cable at the crown so that the cable passes over the saddle but under the strap.

11. An arched saddle, a support to which said saddle is pivoted in the upper central portion, the tread-face of the saddle being flat above the pivotal point and for a predetermined distance each side of such point, a cage or retaining-guide for the cable located at the flattened upper portion of said saddle, and side flanges extending above the upper face of the saddle toward its curved ends, for the purposes described.

12. An arched saddle, a support to which said saddle is pivoted at its upper central portion, the tread-face of the saddle being flat above the pivotal point and for a predetermined distance each side of such point, a cage or retaining-guide for the cable located on the flattened upper portion of said saddle, side flanges extending above the upper face of the saddle toward its curved ends, and friction-rollers mounted to turn in the said upper portion of the saddl, which friction-rollers are located between the cage and said flanges extending along the upper face of the saddle for engagement with the cable passed through said cage, as described.

13. A pivoted saddle with sheave-wheels at the crown, permitting the freest possible end movement of the cable, as described.

14. A pivoted saddle in the form of an arch having sheave-wheels at the crown and a retaining-strap over the cable to keep the cable in place.

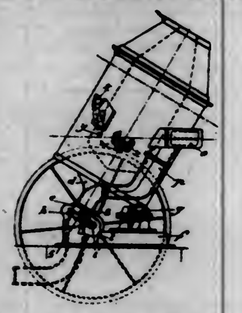
15. An arch saddle in the form of a built-up structural-iron truss pivoted in the center near the crown and having means for keeping the cable in place on the upper surface of the arch.

16. An arched saddle in the form of a structural-iron truss pivoted in the center, composed of a single piece with means for retaining a cable in the saddle.

17. An arched saddle in the form of a built-up structural-iron truss with a flat crown, pivoted in the center near the crown and having means for keeping the cable in place on the upper surface of the arch.

18. An arched saddle in the form of a structural-iron truss with a flat crown, pivoted in the center, composed of a single main piece with means for retaining the cable in position on the saddle.

784,956. FURNACE FOR TREATING METAL. JACQUES MORAT. New York, N. Y. Filed Oct. 4, 1904. Serial No. 227,154.



Claim.—1. A vessel for treatment of molten metal having a restricted upper opening, and mounted with its longitudinal axis at an angle to a vertical line, and rotatable as an entirety at will about said axis and having in its side an aperture for the passage of metal.

2. A vessel for the treatment of molten metal, having a restricted upper opening and mounted with its longitudinal axis at an angle to a vertical line, and rotatable as an entirety at will about said axis and having in its side an aperture for charging and an aperture for discharging the metal.

3. A vessel or converter for the pneumatic treatment of molten metal, having a restricted upper opening and mounted with its longitudinal axis inclined to a vertical line, and having in its walls twyers for the air-blast and an opening for the discharge of the metal, combined with means for rotating the vessel as an entirety about its longitudinal axis at will, said twyers being so located in the wall of the vessel as to be above a normal charging-line during the charging operation.

4. A vessel or converter for the pneumatic treatment of molten metal, having a restricted upper opening and mounted with its longitudinal axis inclined to a vertical line and having in its walls twyers for the air-blast, and two side openings, combined with means for rotating the vessel as an entirety about its longitudinal axis at will, said twyers being so located in the wall of the vessel as to be above a normal charging-line during the charging operation.

5. A vessel or converter for the pneumatic treatment of molten metal, having a restricted upper end mounted with its longitudinal axis inclined to a vertical line and having in its walls twyers for the air-blast and an opening for the discharge of the metal combined with means for rotating the vessel as an entirety about its longitudinal axis at will for the purpose set forth, and an index indicating to the operator the angular position of the vessel and consequently the relation of the twyers to the surface of the metal therein.

6. A vessel or converter for the pneumatic treatment of molten metal, having a restricted upper end mounted with its longitudinal axis inclined to a vertical line and having in its walls twyers for the air-blast and an opening for discharging the metal, combined with means for rotating the vessel as an entirety about its longitudinal axis at will for the purpose set forth, and means for changing the angle of the longitudinal axis of the vessel.

7. A vessel for the treatment of molten metal, rotatably mounted with its longitudinal axis inclined to a vertical line, two openings *w*, *y*, in the wall thereof, one for the introduction of the metal and for withdrawal of the metal and slag, and in the position for pouring one being of a higher level than the other, and twyers arranged in the side wall of the vessel combined with means for rotating the vessel as an entirety at will about its longitudinal axis.

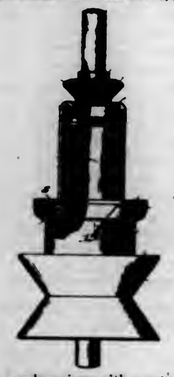
8. A vessel for the treatment of molten metal, having a restricted upper end rotatably mounted with its longitudinal axis inclined to a vertical line, two openings *w*, *y*, in the wall thereof, one for the withdrawal of the metal, and one for withdrawal of the slag, at different levels during the pour, and twyers arranged in the side wall of the vessel combined with means for rotating the vessel as an entirety at will about its longitudinal axis, and an index by which is indicated to the operator the disposition of the twyers with reference to the surface of the contained metal-bath.

9. A vessel for the treatment of molten metal, rotatably mounted with its longitudinal axis inclined to a vertical line, two openings *w*, *y*, in the wall thereof for introduction of the metal and for withdrawal of the metal and slag, and twyers arranged in the side wall of the vessel combined with means for rotating the vessel at will about its longitudinal axis, an index by which is indicated to the operator the disposition of the twyers with reference to the surface of the contained metal-bath, and means for changing the angle of the vessel during rotation.

10. A vessel for the pneumatic treatment of iron and other metals, mounted with its longitudinal axis inclined to a vertical line, and having in its side wall an opening through which the metal may be charged and discharged, and twyers in a portion of the vessel's wall which is above the normal level of the molten metal when the vessel is in charging position, combined with means for rotating the vessel as an entirety about its longitudinal axis.

11. A cylindrical vessel for the pneumatic treatment of iron and other metals, mounted with its longitudinal axis inclined to a vertical line and having in its side wall an opening through which metal may be charged and discharged, and twyers combined with means for rotating the vessel about its longitudinal axis and means for changing the angle thereof.

784,957. BOBBIN-RETAINING MEANS FOR ROTATABLE SPINDLES. ANDREW D. MORSE, Hopedale, Mass., assignor to Sawyer Spindle Company, Portland, Me. Filed Feb. 1, 1905. Serial No. 243,608.



Claim.—1. The combination, with a rotatable spindle, of centrifugally-acting bobbin-clutching members carried thereby, to engage and effect rotation of a bobbin with the spindle, and means to retract said members when the spindle is running bare, the application of a bobbin to the spindle acting through said means to release automatically the clutching members and permit them to coöperate with the bobbin.

2. The combination, with a rotatable spindle, of centrifugally-acting bobbin-clutching members carried thereby, to engage and effect rotation of a bobbin with the spindle, and spring-controlled means to coöperate with and normally retract said members, the application of a bobbin to the spindle acting through said means to release automatically the clutching members and permit them to coöperate with the bobbin.

3. The combination, with a rotatable spindle, of centrifugally-acting bobbin-clutching members carried thereby, to engage and effect rotation of a bobbin with the spindle, a motion-limiting raceway for the upper ends of the clutching members, movable with relation to the spindle, and means to move said raceway in one direction to retract said members, the engagement of the bobbin with the raceway moving it oppositely to release and permit outward clutching movement of the said members.

4. The combination with a rotatable spindle having motion-limiting raceways, one of which is movable with relation to the spindle, and a spring to move said raceway in one direction, of centrifugally-acting bobbin-clutching members having their upper and lower ends loosely held by said raceways, and means to retract the clutching members by or through spring-induced movement of the movable raceway, the application of a bobbin to the spindle moving it oppositely and permitting the clutching members to expand.

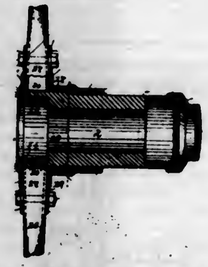
5. The combination with a rotatable spindle having motion-limiting raceways, one of which is vertically movable on the spindle and provided with an annular cam, and a spring to raise said raceway, of upright, centrifugally-acting bobbin-clutching members having their upper and lower ends loosely held in the raceways, the spring-induced movement of the movable raceway acting through the cam to press inward the adjacent ends of the clutching members, the application of a bobbin depressing the movable raceway and thereby causing the cam to release the clutching members and permit them to expand.

6. The combination with a rotatable spindle having a fixedly-attached seat, a vertically-movable collar on the spindle above it and provided with a cam, and a spring to lift the collar, of upright, centrifugally-acting clutching members supported loosely at their lower ends in the seat, the upper ends of said members being bent over and inward to coöperate with the cam, spring-induced movement of the collar causing the cam to act upon the upper ends of and draw in the clutching members, the application of a bobbin to the spindle depressing the collar and its cam, to thereby permit outward clutching movement of the said members.

7. The combination, with a rotatable spindle, of centrifugally-acting bobbin-clutching members carried thereby, to engage and effect rotation of a bobbin with the spindle, means to coöperate with the upper ends of and govern the outward movement of said clutching members, and a spring acting upon said means to render said members inoperative, the application of a bobbin to the spindle acting upon said means in opposition to the spring, to permit outward clutching movement of the clutching members.

8. The combination with a rotatable spindle having motion-limiting raceways, one of which is vertically movable on the spindle and provided with an annular cam, and a spring to raise said raceway, of upright, centrifugally-acting bobbin-clutching members having their upper and lower ends loosely held in the raceways, the spring-induced movement of the movable raceway acting through the cam to press inward the adjacent ends of the clutching members, the application of a bobbin depressing the movable raceway and thereby causing the cam to release the clutching members and permit them to expand, and stops fixedly secured to the spindle to limit the vertical movement of the movable raceway.

784,958. WHEEL. GEORGE W. MORSE and THEODORE W. PLUMB, Pittsburg, Pa., assignors, by mesne assignments, to the Parish & Bingham Company, Cleveland, Ohio, a Corporation of West Virginia. Filed July 1, 1903. Serial No. 163,862.



Claim.—1. A metallic hub, comprising a barrel having a shoulder thereon, disks secured on said barrel adapted to form an annular space between them around said barrel and one of said disks being adapted to fit against said shoulder, spokes secured within said space, and a lip on said barrel adapted to form a seat for the disk fitting against said shoulder and be compressed against the said disk to hold the same in place.

2. A metallic hub, comprising a barrel having a shoulder thereon, disks secured on said barrel adapted to form an annular space between them around said barrel and one of said disks being adapted to fit against said shoulder, spokes secured within said space, and a lip on the end of said barrel adapted to be bent against said disk to form a flanged portion, said flanged portion being adapted to form a seat for said disk and being compressed against said disk to hold it in place within said seat and against the shoulder.

3. A metallic hub, comprising a barrel having a shoulder thereon and provided with a threaded portion adjacent to said shoulder, disks secured on said barrel adapted to form an annular space between them around said barrel and one of said disks being adapted to engage said threaded portion and fit against said shoulder, and a lip on the end of said barrel adapted to be bent against said disk to form a flanged portion, said flanged portion being adapted to form a seat for said disk and being compressed against said disk to hold it in place within said seat and on said threaded portion against the shoulder.

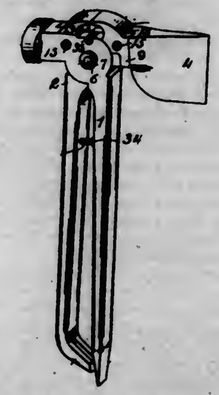
4. A metallic hub, comprising a barrel having a shoulder thereon, disks secured on said barrel adapted to form an annular space between them around said barrel and one of said disks being adapted to fit against said shoulder, spokes secured within said space, and a lip on the end of said barrel adapted to be bent against said disk to form a flanged portion, said lip having a curved inner end to form a rounded outer end on said flanged portion and such flanged portion being adapted to form a seat for said disk and be compressed against said disk to hold it in place within said seat and against said shoulder.

5. A metallic hub, comprising a barrel having a shoulder thereon, disks secured on said barrel adapted to form an annular space between them around said barrel and one of said disks being adapted to fit against said shoulder, a lip on said barrel adapted to form a seat for the disk fitting against the shoulder and be compressed against the said disk to hold the same in place, said disks having their inner faces inwardly flaring from said barrel to form wedge-shaped faces for said space, and tubular spokes having hollow base ends secured within said space and having their side faces outwardly flaring to engage with the flared inner faces on said disks, said hollow base ends also having their end faces inwardly flaring to fit against each other around the barrel and being provided with curved open bottom faces to conform to the shape of said barrel.

6. A metallic hub, comprising a barrel having a threaded portion thereon and a smooth portion adjacent thereto, disks secured in said barrel adapted to form an annular space between them around said barrel, tubular spokes secured within said space, a lug or feather on said smooth portion, a sleeve on one of said disks having a groove therein adapted to engage with said feather, and a nut adapted to engage with the threaded portion on said barrel and be screwed up against the end of said sleeve to hold the disk carrying said sleeve and the spokes in place.

7. A metallic hub, comprising a barrel having a threaded portion thereon and a smooth portion adjacent thereto, disks secured on said barrel adapted to form an annular space between them around said barrel, tubular spokes secured within said space, bolts having nuts thereon passing through said disks and spokes, a lug or feather on said smooth portion, a sleeve on one of said disks having a groove therein adapted to engage with said feather, and a nut adapted to engage with the threaded portion on said barrel and be screwed up against the end of said sleeve to hold the disk carrying said sleeve and the spokes in place, said disk being held by pressure against said spokes while said nut is being screwed up against said sleeve and while the nuts are screwed up on the said bolts.

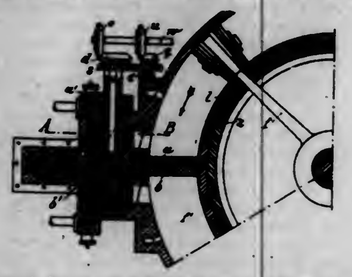
784,959. COMBINATION-TOOL. JOHN R. MORRIS, Jewel, Kans. Filed Nov. 24, 1903. Serial No. 183,430.



Claim.—A combination-tool comprising two arms pivoted together, one side of each arm being provided with a dovetail groove, and the upper end of each arm having a portion beveled downwardly toward the side opposite the one having the groove and disposed transversely to the groove, and two detachable members adapted to coöperate with each other, one member having a cutting edge, the

other member serving as abutment therefor, and each member being provided with a shank fitted to one of said dovetail grooves and having also a projecting portion fitted to the beveled portion of the arm to which it is to be secured.

784,960. **ROTARY ENGINE.** ROBERT MAIR, Thalkirchen, near Munich, Germany. Filed Mar. 14, 1904. Serial No. 197,940.

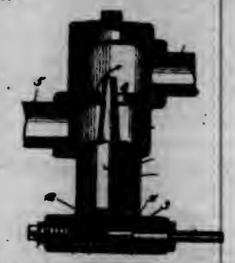


Claim.—1. In a rotary engine of the class specified, the combination of a plurality of cut-off disks and means for rotating the same in different directions and at different speeds.

2. In a rotary engine of the class specified, the combination of a pair of rotary cut-off disks concentrically arranged, and means for rotating the same in opposite directions at different speeds.

3. In a rotary engine of the class specified, the combination of a divided packing-ring having inclined edges, rings mounted in the piston-housing and having wedge-shaped edges to fit against the inner inclined surfaces of the packing-ring, and means for yieldingly adjusting the said wedge-rings against the packing-ring.

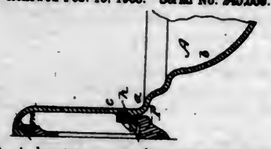
784,961. **UNLOADING DEVICE FOR COMPRESSORS.** FREDERICK W. PARSONS, Tarrytown, N. Y., assignor to Rand Drill Company, New York, N. Y., a Corporation of New York. Filed Jan. 26, 1903. Serial No. 91,610.



Claim.—1. In an unloading device for compressors, the combination with a casing containing a fluid-pressure cylinder through one end of which air to be compressed passes to the compressor, of a combined piston and valve fitted to said cylinder and arranged in its movements to control passage of air therethrough, said cylinder provided at its end opposite the end through which said inlet-air passes, with inlet and exhaust ports, a secondary valve-chamber, and a controlling-valve therein, spring-actuated in one direction and arranged to be actuated by receiver-pressure in the opposite direction, said controlling-valve arranged in its movements to control said inlet and outlet ports, substantially as specified.

2. An unloading device for compressors comprising a casing having therein a cylindrical bore closed at its lower end by a wall or diaphragm and at its upper end by a cap, through which latter end air to be compressed is arranged to pass, and having also another cylindrical bore which passes clear through the casing at substantially right angles to the first said bore, and immediately beneath same, and two passages through the wall or diaphragm between said bores and connecting same, one of said passages for inlet and the other for discharge, said last-mentioned bore having also an exhaust-passage, of a cap closing one end of said last-mentioned bore, means for connecting the opposite end thereof with the receiver of an air-compressor, a piston-valve in said first-named bore, adapted when moved upwardly to close the air-passage through the upper end thereof, a second piston in said last-named bore, said piston-spring actuated in one direction and open to receiver-pressure to actuate it in the other, and adapted alternately according to its position to override one or other of said connecting-passages, and so to open the inlet-passage between the bores to receive the pressure, or to close same and open the discharge-passage to exhaust, substantially as specified.

784,962. **LAVATORY AND LAVATORY-SUPPORT.** JOHN C. REED, Allegheny, Pa., assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 20, 1903. Renewed Feb. 10, 1905. Serial No. 245,059.



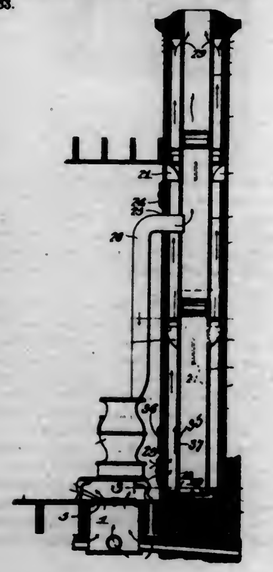
Claim.—1. A lavatory-supporting structure, consisting of a frame, adapted to be attached to a wall, and formed with sockets, and other connecting and supporting means, in combination with a lavatory having a vertical back or wall-plate extending above the surface of the lavatory-slab and formed with devices, adapted to engage with the sockets and other supporting devices of said frame, said wall-plate having its upper edge flanged outwardly, substantially as described.

2. The wall-frame G, having the sockets *g*, *g*, and the shelf or bracket P, having the wedge-shaped pin R, with a recess or notch formed in one side, and a wedge-shaped key fitting said notch in combination with a lavatory, having a back, or wall-plate, provided with lugs to engage with the sockets on the wall-frame, and with a shelf or bracket D, having a hole for the reception of the pin R, substantially as described.

3. A lavatory or similar article, the parts of which are cast integral, having an upright back, or wall-plate, with its upper edge flanged outwardly, and formed with depending lugs, in combination with a frame or support to be attached to a wall, and provided with means for engaging or interlocking with said lugs, substantially as described.

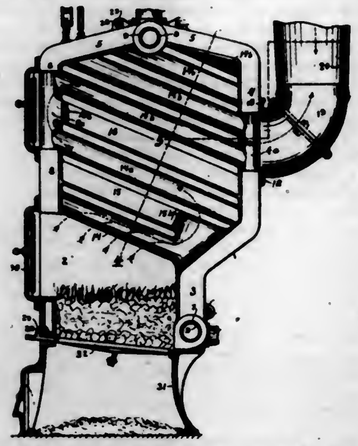
4. The combination with a lavatory comprising a bowl, a slab and a wall-plate rising above said slab and having an outwardly-turned edge or flange and means for attachment to a supporting-frame, of a supporting-frame adapted to be secured to a wall and to be entirely concealed by said wall-plate.

784,963. **VENTILATING APPARATUS FOR BUILDINGS.** WILLIAM N. REYNOLDS, Pierre, S. D. Filed Oct. 20, 1903. Serial No. 177,833.



Claim.—The combination in apparatus of the class described, of an outer flue having openings near the floor and the ceiling of the room in which the flue is located for foul air to pass into the flue and an intermediate opening, an inner flue having an opening intermediate of its ends registering with the intermediate opening in the outer flue, a heating apparatus spaced apart from the outer flue, means for admitting cold air below said heating apparatus and for controlling the entry thereof, means for conveying products of combustion from the heating apparatus through the registering openings to the inner flue, the latter being provided at the top thereof with openings communicating with the space between the inner and outer flues and with an outwardly-disposed flange forming a closure for said outer flue.

784,964. **WATER-HEATER.** WILLIAM S. ROATH, Canton, Ohio. Filed Sept. 23, 1904. Serial No. 226,304.



Claim.—1. A water-heater comprising a series of vertical sections between water-containing side sections, the intermediate sections having laterally-abutting waterways forming the back, top and front of the heater, the top ways being inclined upward from front and rear to the middle, abutting baffle-ways communicating and inclined upward from the back to the front ways, and similarly communicating and inclined tubeways at intervals apart, and below, between and above the baffle-ways, the alternate ends of the baffle-ways being reduced in width to make intervals therebetween for the passage of fire-gases, and parts of the back ways near and above the upper baffle-ways being likewise reduced to make intervals therebetween for smoke-outlets, and the parts of the front ways above the lower baffle-ways being likewise reduced to make intervals for cleaning, there being communicating apertures between the upper parts of the top ways and the lower ends of the back ways, and inlet and outlet pipes connected in the lowest and highest parts of the waterways.

2. A water-heater comprising a series of vertical sections between water-containing side sections, the intermediate sections having laterally-abutting waterways forming the back, top and front of the heater, the top ways being inclined upward from front and rear to the middle, abutting baffle-ways communicating and inclined upward from the back to the front ways, and similarly communicating and inclined tubeways at intervals apart, and below, between and above the baffle-ways, the alternate ends of the baffle-ways being reduced in width to make intervals therebetween for the passage of fire-gases, and parts of the back ways near and above the upper baffle-ways being likewise reduced to make intervals therebetween for smoke-outlets, there being communicating apertures between the upper parts of the top ways and the lower ends of the back ways, and inlet and outlet pipes connected in the lowest and highest parts of the waterways.

3. A water-heater comprising a series of vertical sections between water-containing side sections, the intermediate sections having laterally-abutting waterways forming the back, top and front of the heater, the top ways being inclined upward from front and rear to the middle, abutting baffle-ways communicating and inclined upward from the back to the front ways, and similarly communicating and inclined tubeways at intervals apart, and below, between and above the baffle-ways, the alternate ends of the baffle-ways being reduced in width to make intervals therebetween for the passage of fire-gases, and parts of the back ways near and above the upper baffle-ways being likewise reduced to make intervals therebetween for smoke-outlets.

4. A water-heater comprising a series of vertical sections between water-containing side sections, the intermediate sections having laterally-abutting waterways forming the back, top and front of the heater, the top ways being inclined upward from front and rear to the middle, abutting baffle-ways communicating and inclined upward from the back to the front ways, and similarly communicating and inclined tubeways at intervals apart, and below, between and above the baffle-ways, the alternate ends of the baffle-ways being reduced in width to make intervals therebetween for the passage of fire-gases, and parts of the back ways near and above the upper baffle-ways being likewise reduced to make intervals therebetween for smoke-outlets.

5. A water-heater comprising a series of vertical sections between water-containing side sections, the intermediate sections having laterally-abutting waterways forming the back, top and front of the heater, alternating adjacent tubeways and abutting baffle-ways with a series of adjacent tubeways thereabove all communicating and inclined upward from the back to the front ways, the alternate ends of the baffle-ways and parts of the back ways near and above the upper baffle-ways being reduced in width to make intervals therebetween for the passage of fire-gases and smoke.

6. A water-heater comprising a series of vertical sections between water-containing side sections, the intermediate sections having laterally-abutting waterways forming the back, top and front of the heater, a series of abutting baffle-ways with a series of adjacent tubeways thereabove all communicating and inclined upward from the back to the front ways, the alternate ends of the baffle-ways and parts of the back ways near above the upper baffle-ways being reduced in width to make intervals therebetween for the passage of fire-gases and smoke.

7. In a sectional water-heater, a baffle-plate inclined upward and forward from the back with intervals at the forward end for the passage of fire-gases, and a gas-retaining chamber above the baffle-plate having a series of adjacent and similarly-inclined tubeways therein, there being a smoke-outlet in the back from the lower part of the chamber.

8. In a sectional water-heater, a vertical section having back, top and front waterways, the top way being inclined upward from front and rear to the middle, baffle-ways communicating and inclined upward from the back to the front ways, and similarly communicating and inclined tubeways at intervals below, between and above the baffle-ways, the alternate ends of the baffle-ways being reduced in width.

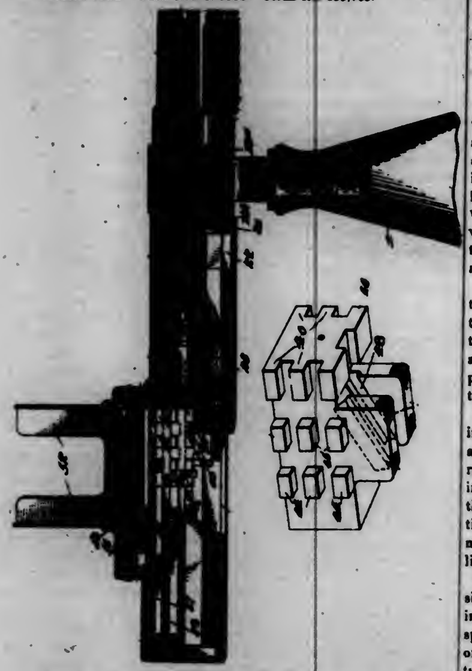
9. In a sectional water-heater, a vertical section having back, top and front waterways, baffle-ways communicating and inclined upward from the back to the front ways, and similarly communicating and inclined tubeways at intervals below, between and above the baffle-ways, the alternate ends of the baffle-ways being reduced in width.

784,965. **HARNESS ATTACHMENT.** MANCIL V. ROOT, Sheboygan, Wis., assignor to Thomas B. Camp, Milwaukee, Wis. Filed Dec. 14, 1903. Serial No. 185,073.



Claim.—A post attachable to a harness-saddle and having a hollow cylindrical head provided with a rear longitudinal opening as well as a forward central circumferential opening intersecting the one aforesaid, and a check-hook the shank of which has a cylindrical end and semicylindrical lateral wings, these wings being extended in opposite directions from said shank and caught under overhanging portions of the post-head when the check-hook is swung forward to engage its shank with the circumferential forward opening in said head subsequent to engagement with the rear longitudinal opening of same.

784,966. GAS-OPERATED MACHINE-GUN. MORRIS P. SMITH, Philadelphia, Pa., assignor of three-fourths to William D. Condit, Des Moines, Iowa. Filed Dec. 3, 1902. Serial No. 133,703.



Claim.—1. In a gun, a breech-bolt reciprocating therein to open and close the breech, having a transverse movement to lock and unlock the bolt, and having locking means at opposite points thereon, whereby the bolt is balanced in its locked relation.

2. In a gun, a breech-bolt having a longitudinal movement to open and close the breech, and a transverse movement to lock and unlock it, and locking lugs or projections at opposite points on the bolt, whereby the locking effect is balanced.

3. In a gun, a breech-bolt having a longitudinal movement to open and close the breech and a transverse movement to lock and unlock the bolt, and locking and guiding lugs or projections at opposite points on the bolt engaging in longitudinal and transverse ways in the gun for locking and guiding the bolt in its respective movements.

4. In a gun, a longitudinally-reciprocating breech-bolt moving bodily at an angle to its longitudinal movement to lock and unlock it, and having locking means at diametrically opposite points thereon, engaging in locking and guiding grooves.

5. In a gun, a breech-bolt having a longitudinal opening and closing movement, and a bodily locking and unlocking movement at an angle thereto, and balancing locking and guiding means on opposite faces thereof.

6. In a gun, a breech-bolt having a longitudinal opening and closing movement and a bodily locking and unlocking movement at an angle to its longitudinal movement, locking and guiding means whereby the bolt is locked and guided in the adjacent portion of the gun located at diametrically opposite points with respect to the bolt; said locking means consisting each of intersecting grooves corresponding in direction to the movements of the bolt and projections coöperating with said groove.

7. In a gun, the combination of a breech-bolt having longitudinal opening and closing movement, and a locking and an unlocking movement at an angle to the longitudinal movement, and locking and guiding means on opposite sides of the bolt, consisting of intersecting grooves corresponding in directions to the movements of the bolt, and coöperating projections working in said grooves; a plurality of said projections being provided in the direction of the longitudinal movement to maintain the alinement of the bolt in its opening and closing movement.

8. In a gun, the combination of a breech-bolt having a longitudinally-reciprocating opening and closing, and a bodily locking and unlocking movement, and locking and guiding means on opposite sides of the bolt, consisting of intersecting grooves corresponding in direction respectively to the opening and closing and to the locking and unlocking movements, and coöperating projections working in said grooves; a plurality of said projections being provided in the line of the locking and unlocking movement to maintain the alinement of the bolt during such movement.

9. In a gun, the combination of a breech-bolt having a longitudinally-reciprocating opening and closing, and a bodily locking and unlocking movement, and locking and guiding means on opposite sides of the bolt, consisting of intersecting grooves corresponding in direction respectively to the opening and closing and to the locking and unlocking movements, and coöperating projections working in said grooves; a plurality of said projections being provided in the line of the opening and closing movement, and also in the line of the locking and unlocking movement, to maintain the alinement of the bolt during such movements.

10. In combination with a gun, a breech-bolt having a longitudinal movement to open and close the breech, and a movement transverse thereto for locking and unlocking the bolt in closed position; these relatively moving parts engaging by lugs on one part, and intersecting longitudinal and transverse grooves on the other part in which the lugs are guided in the opening and closing and in the locking and unlocking movements respectively.

11. In a gun, the combination of a breech-bolt having an opening and closing, and a locking and unlocking movement and locking and guiding means on opposite sides of the bolt, consisting of a plurality of grooves corresponding in direction to the opening and closing movement, a plurality of intersecting grooves corresponding to the locking and unlocking movement, a plurality of lugs or projections engaging in the grooves which guide the opening and closing movement, and a plurality of lugs engaging in the grooves in the line of the locking and unlocking movement.

12. In a gun, the combination of a breech-bolt having on opposite sides thereof a plurality of series of lugs or projections arranged in longitudinal and also in transverse lines on the bolt, and a corresponding number of series of grooves in the gun receiving said lugs or projections with the transverse grooves intersecting the longitudinal grooves, whereby the bolt may receive its respective movements successively.

13. In combination with a gun, a breech-bolt moving longitudinally therein to open and close the breech and transversely therein to lock and unlock the bolt; said bolt engaging the receiver by a longitudinal series of lugs on one part engaging in longitudinal grooves on the other part to guide the bolt in its longitudinal movement and in a series of transverse grooves on said other part to lock and unlock the bolt; said lugs being of different dimensions to insure their return to the corresponding transverse groove on completing the forward movement of the bolt.

14. In a gun, the combination with a reciprocating rod, having a cam, and a breech-bolt moving bodily in a transverse direction for locking and unlocking and moving longitudinally for opening and closing and having a groove in which said cam works to impart the locking and unlocking movement to the breech-bolt, and the opening and closing movement thereto, and suitable locking means for said bolt; a cam-groove being disposed at an intermediate point on the bolt, whereby the bolt is substantially balanced in the locking and unlocking movement imparted thereto.

15. In a gun, the combination of a reciprocating rod, a breech-bolt having locking means on opposite sides thereof, and moving transversely to lock and unlock the bolt and longitudinally to open and close the breech, and a cam connection between the reciprocating rod and the breech-bolt transmitting a bodily transverse movement to the bolt in locking and unlocking it.

16. In a gas-actuated machine-gun, the combination of a breech-bolt having locking means on opposite sides thereof, moving bodily in a transverse direction to lock and unlock the breech-bolt and in a longitudinal direction to open and close the breech, and gas-actuated reciprocating rod, having a cam connection with an intermediate point on the bolt for the purpose set forth.

17. In a gas-operated machine-gun, the combination with the receiver, having vertical and longitudinal grooves therein, a breech-bolt having lugs working in said vertical and longitudinal groove, and a gas-actuated reciprocating rod having a cam connection through which it imparts the movements of the bolt permitted by the engagement of the lugs in the grooves.

18. In a gun, the combination of the receiver, the breech-bolt reciprocating longitudinally in said receiver, the cartridge-magazine feeding cartridges to said receiver, the oscillating gate in said magazine, the transversely-reciprocating part controlling the oscillation of said gate, and a cam connection between the breech-bolt and the transversely-reciprocating part actuating the latter as the breech-bolt reciprocates.

19. In a gun, the combination of the receiver, the breech-bolt reciprocating in said receiver, the cartridge-magazine feeding cartridges to said receiver, the gate oscillating in said receiver, the pinion controlling the oscillation of said gate, the transversely-reciprocating toothed block engaging said pinion and having a cam-groove therein, and a pin carried by the breech-bolt engaging said cam-groove.

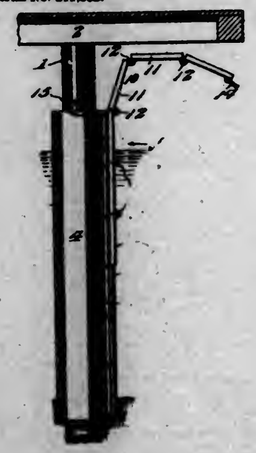
20. In a gun, the combination of the receiver, the breech-bolt reciprocating in said receiver and carrying a firing-pin, the operating connections for imparting movements to the breech-bolt, a groove in the side of the receiver having a transverse and a longitudinal portion, a projection on the firing-pin entering the transverse portion of said groove as the breech-bolt reaches its forward position, and passing into the longitudinal portion as the breech-bolt reaches its seat.

21. In a gun, the combination of the receiver, the breech-bolt having a longitudinal movement and a transverse movement in said receiver, the reciprocating rod imparting movement to said breech-bolt, the firing-pin in the breech-bolt cocked by the reciprocating rod, having a projection thereon, and a groove in the side of the receiver having a transverse and a horizontal portion in which the projection on the firing-pin enters, said pin entering the transverse portion as the bolt reaches its forward limit and passing into the longitudinal portion to detonate the cartridge when the bolt reaches its seat.

22. In an automatic machine-gun, the combination of the breech-bolt having a firing-pin, the reciprocating rod actuating the breech-bolt to open and close the breech and engaging the firing-pin to cock it by a motion relative to the breech-bolt, a projection on said firing-pin, an arresting-shoulder on the receiver adjacent to the forward position of the breech-bolt, maintaining the firing-pin in cocked position as the breech-bolt moves to its seat, but releasing said firing-pin as the breech-bolt reaches its seat.

23. In an automatic machine-gun, the combination of the receiver, the breech-bolt having a locking movement and a closing movement in said receiver, as well as motions for unlocking and opening the same, a firing-pin movable in said breech-bolt and having a projection thereon, a slot in the wall of the receiver having a vertical portion and a longitudinal portion in which the projection on the firing-pin engages as the breech-bolt reaches its forward limit, and a reciprocating rod engaging the firing-pin to retract it, and also moving the bre ch-bolt; the reciprocating rod continuing it movement to seat the bolt, after it reaches its forward limit, and the projection on the firing-pin engaging in the vertical part of the slot during said seating movement and entering the longitudinal portion of the slot as the breech-bolt is seated so as to permit the projection of the firing-pin to fire the gun.

784,967. MOLD. OMAR A. STRUPPEL, Clearwater, Fla. Filed June 9, 1904. Serial No. 211,932.



Claim.—1. A mold for the purpose specified, comprising sections flexibly joined to form the mold-body, the meeting edges of two of the sections being separable to allow the mold to open, and a jointed connection for fastening said separable meeting edges together.

2. A mold comprising a plurality of water-tight hinged sections, packing on the free edges of two of said sections, and a jointed connection for clamping and holding the free edges of said sections together.

3. A mold comprising a plurality of water-tight hinged sections, packing on the free edges of two of said sections, a lip outside the elastic packing, and a jointed connection for engaging said lip to hold the mold closed.

4. A mold comprising a plurality of sections joined by water-tight connections, packing on the free edges of two of said sections, a lip on each of said sections, outside of said packing, and a flexible connection of a length equal to said sections adapted to engage said lips and hold the mold closed against the entrance of water.

5. A mold comprising a plurality of sections having their edges joined by flexible water-tight connections, one of said connections being separable, and a jointed sliding union or clamp for holding said separable connection closed.

6. A mold for the purpose specified, comprising jointed and folding sections, and a flexible jointed union or clamp movable into and out of engagement with the meeting edges of the two mold-sections.

7. A mold comprising a plurality of sections having their edges joined by flexible water-tight connections, packing on one edge of two abutting sections, a lip on each of said edges extending the full length of the section outside of said packing, and a jointed clamp or union adapted to be placed over said lips.

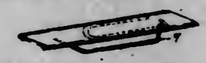
8. A mold comprising a plurality of sections united at their sides by flexible material, packing secured to the free edges of the two abutting sections, a lip on each of said free edges outside the packing and extending from end to end of said section, and a clamp or union formed of jointed sections, each section having a guideway on each side adapted to engage the lips on the mold.

9. A mold comprising a plurality of sections hinged together by flexible material, and adapted to be folded to form an inclosed chamber, packing on the abutting edges of the outer sections, a lip near the longitudinal edge of each outer section, and a clamp or union composed of short jointed sections, each section having a guideway on each side adapted to be applied endwise to said lips to compress said packing and hold said mold closed.

10. A flexible mold separable at one side, and a clamp formed of pivoted sections and having means to interlock with the mold adjacent to the meeting edges at the separable side of the mold.

11. A flexible mold separable at one side and having locking-lips extending the length of the mold, packing between the meeting edges of the mold, and a jointed sectional clamp or union, having ways adapted to interlock with the mold to hold the meeting edges together.

784,968. SAFETY-PIN. ADA W. STRAIGHT, Chicago, Ill. Filed Apr. 15, 1904. Serial No. 203,267.



Claim.—An improved safety-pin, consisting, essentially, of a plate having both of its longitudinal edges downwardly and inwardly bent to form grooves; a pin consisting of a single piece of wire having one of its ends pointed to serve as a pin proper, and its other end formed into a U-shaped member adapted to slidingly engage said grooves, said portion of the plate having its edges shaped to form said grooves being depressed or the grooves closed to form stops for the pin.

784,969. MEMORANDA ATTACHMENT FOR WATCHES. WILLIAM W. WIKOFF, Maysville, Ky. Filed Oct. 10, 1904. Serial No. 227,797.

Claim.—1. A memoranda attachment for a watch comprising a detachable circular writing-tablet made concave to fit over the watch and means for securing it to the watch substantially as described.

2. A memoranda attachment for a watch comprising a writing-surface, a soft lining, a marginal ring and means for securing it to the watch substantially as described.

3. A memoranda attachment for a watch comprising a writing

surface and clasp-springs adapted to embrace the stem of the watch substantially as described.



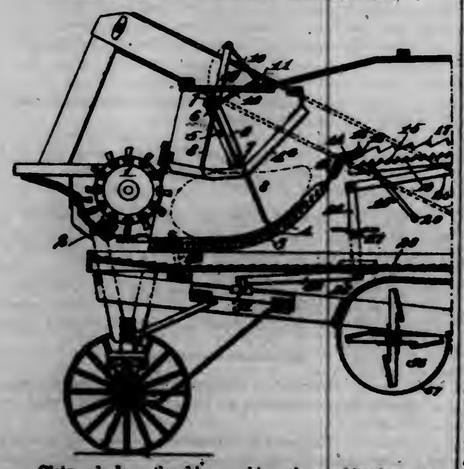
4. A memoranda attachment for a watch comprising a writing-surface, and a marginal frame having clasp-springs for the stem of the watch at one side, and a retaining-lip at the other substantially as described.

784,970. **DRINKING UTENSIL.** MAUD L. WILLIAMS, St. Louis, Mo. Filed June 25, 1904. Serial No. 214,191.



Claim.—A drinking utensil for heated beverages, comprising a cup formed with a handle, and a casing surrounding said cup at a distance from its sides and bottom and integrally connected at its upper end to the cup, the cup projecting uniformly on all sides above the casing, the projecting portion thereof carrying said handle, said casing having an opening in its upper end located on one side of an imaginary line passing through the handle and the center of the cup.

784,971. **THRESHING-MACHINE.** VICTOR C. BAILEY, Hallock, Minn., assignor to Advance Thresher Co., Battlecreek, Mich., a Corporation of Michigan. Filed Feb. 3, 1904. Serial No. 191,848.



Claim.—1. In a threshing-machine, the combination with a cylinder and a concave, of a rearwardly and upwardly inclined slatted shaker arranged in the rear of the cylinder, pivoted supporting-links arranged beneath the forward end of the shaker, pivoted suspension-links arranged above the rear end of the shaker, a grain-pan suspended beneath the shaker, a driven crank-shaft for vibrating the grain-pan, a transverse rod fixed to the under side of the grain-pan, levers pivoted intermediate their ends and jointed at the lower ends to said rod, links pivoted at their respective ends to the upper ends of said levers and to said shaker, a pitman connecting the said crank-shaft and transverse rod, a second shaker arranged in the rear of the first-mentioned shaker, the forward end of the second shaker being arranged beneath the rear end of the first shaker, a driven shaft connected to the under side of the forward end of the second shaker, pivoted suspension-links connected to the rear end of the second shaker, and a fan arranged to discharge an upward blast of air between the ends of said shakers.

2. In a threshing-machine, the combination with a cylinder and a concave, of a rearwardly and upwardly inclined slatted shaker arranged in the rear of the cylinder, pivoted supporting-links arranged beneath the forward end of the shaker, pivoted suspension-links arranged above the rear end of the shaker, a grain-pan suspended beneath the shaker, a driven crank-shaft for vibrating the grain-pan, a transverse rod fixed to the under side of the grain-pan, levers pivoted intermediate their ends and jointed at the lower ends to said rod, links pivoted at their respective ends to the upper ends of said levers and to said shaker, a pitman connecting the said crank-shaft and transverse rod, a second shaker arranged in the rear of the first-mentioned shaker, the forward end of the second shaker being arranged beneath the rear end of the first shaker, a driven shaft connected to the under side of the forward end of the second shaker, pivoted suspension-links connected to the rear end of the second shaker, a fan arranged to discharge an upward blast of air between the ends of said shakers, a suitably supported return-table arranged below said second shaker, an arm pivotally supported by the framework and jointed to said grain-pan, and a link connecting said arm and return-table.

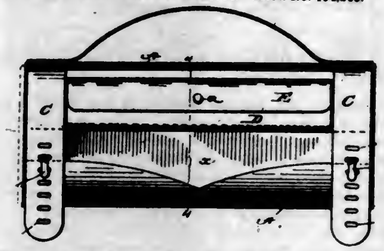
3. In a threshing-machine, the combination with a cylinder and a concave, of a rearwardly and upwardly inclined slatted shaker arranged in the rear of the cylinder, pivoted supporting-links arranged beneath the forward end of the shaker, pivoted suspension-links arranged above the rear end of the shaker, a grain-pan suspended beneath the shaker, a driven crank-shaft for vibrating the grain-pan, a transverse rod fixed to the under side of the grain-pan, levers pivoted intermediate their ends and jointed at the lower ends to said rod, links pivoted at their respective ends to the upper ends of said levers and to said shaker, a pitman connecting the said crank-shaft and transverse rod, a second shaker arranged in the rear of the first-mentioned shaker, the forward end of the second shaker being arranged beneath the rear end of the first shaker, a driven shaft connected to the under side of the forward end of the second shaker, pivoted suspension-links connected to the rear end of the second shaker, a fan arranged to discharge an upward blast of air between the ends of said shakers, a suitably-supported return-table arranged below said second shaker, an arm pivotally supported by the framework and jointed to said grain-pan, a link connecting said arm and return-table, a shaking-shoe operable from said grain-pan, troughs, containing spiral conveyers, situated at the opposite ends of said shoe, and an exhaust-fan located at the forward end of the shoe, said exhaust-fan serving to blow off the chaff and the like from the mass supported on the shoe.

4. In a threshing-machine, the combination with a cylinder and concave, of a rearwardly and upwardly inclined slatted shaker arranged in rear of the cylinder, pivoted supporting-links arranged beneath the forward end of the shaker, pivoted suspension-links arranged above the rear end of the shaker, a grain-pan suspended beneath the shaker, a driven crank-shaft for vibrating said grain-pan, a transverse rod fixed to the under side of the grain-pan, levers pivoted intermediate their ends and loosely connected at their lower ends to said rod, links pivoted at their respective ends to the upper ends of said levers and to said shaker, and a pitman connecting the said crank-shaft and transverse rod, substantially as described.

5. In a threshing-machine, the combination with a cylinder and concave, of a rearwardly and upwardly inclined slatted shaker arranged in rear of the cylinder, a second slatted shaker arranged in rear of the first-named shaker, means for independently vibrating said shakers, a reciprocating grain-pan arranged beneath the first shaker and provided at its rear end with a hinged slatted extension, means for vibrating the grain-pan, a downwardly and forwardly inclined return-table arranged beneath the second shaker, suspension-links for supporting the rear end of said table, pivoted supporting-links arranged beneath the forward end of said table, suspension-arms pivoted at their upper ends to the frame of the machine and at their lower ends to the rear end of the said extension-links connecting said arms with the forward end of the return-table, substantially as described.

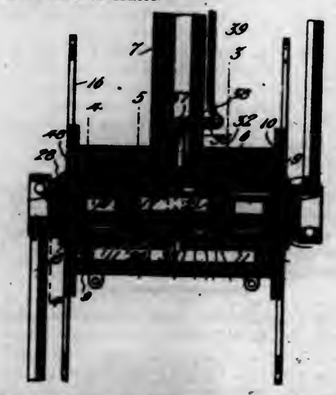
6. In a threshing-machine, the combination with a cylinder and a concave, of a rearwardly and upwardly inclined slatted shaker arranged in the rear of the cylinder, a second slatted shaker arranged in rear of the first-mentioned shaker, means for independently vibrating said shakers, a reciprocating grain-pan arranged beneath the first-mentioned shaker and provided at its rear end with a hinged slatted extension, means for vibrating the grain-pan, a downwardly and forwardly inclined return-table arranged beneath the second shaker, suspension-links for supporting the rear end of said table, pivoted supporting-links arranged beneath the forward end of said table, suspension-arms pivoted at their upper ends to the frame of the machine and at their lower ends to the rear ends of the said suspension-links, a fan arranged to discharge an upward blast of air between the adjacent ends of said shakers, a vibratory shoe located below the grain-pan, troughs containing spiral conveyers and arranged to receive the grain from the shoe, and a fan arranged to direct a blast of air along the shoe to separate therefrom the chaff and other like matter in the mass.

784,972. **SCHOOL-BOOK-HOLDER STRAP.** THOMAS E. BARTON, Des Moines, Iowa. Filed Feb. 18, 1904. Serial No. 194,360.



Claim.—The combination of a single flexible supporting back piece of a book-holder strap, said back piece being made of leather or similar flexible material, perforated strap-arms, rivets passing through the opposite ends of the handle, the strap-arms, the back piece and a stout strip of sole-leather on the opposite side of the back piece and thereby permanently securing said handle and strap-arms to said back piece, buckle-fasteners attached to said back piece at one end thereof and adapted to engage the perforated strap-arms, all combined and arranged substantially as described, as a unitary apparatus for holding books, sheet-music and other articles in simple convenient and compact form for securely carrying the same.

784,973. **VELOCIPEDE.** EDDIE BENTLEY, Lincoln, Ill. Filed June 25, 1904. Serial No. 214,151.



Claim.—1. A bicycle provided with a tubular seat-post having a longitudinal slot formed in its side wall, a hub journaled beneath the seat-post and composed of a pair of sections provided at their inner ends with teeth, sprockets fixedly carried by the outer ends of the hub-sections, a crank-shaft rotatively mounted within the hub, a clutch member slidably mounted upon the shaft between the hub-sections and having teeth adapted to engage the teeth on the sections, a yoke pivoted within the seat-post to swing in a vertical plane, said yoke being operatively engaged with the clutch member and having an arm extended outward through the slot in the post, an operating-rod connected with the yoke-arm and operable for moving the clutch into engagement with either hub-section or to an immediate non-engaging position, and means for locking the rod against movement.

2. A bicycle provided with a tubular seat-post having a longitudinal slot formed in its side wall, a tubular hub journaled beneath the seat-post and composed of a pair of sections having teeth at their inner ends, sprockets fixedly carried by the hub-sections, a crank-shaft journaled for rotation in the hub and provided with longitudinal splines, a clutch member slidably disposed upon the shaft between the hub-sections and having grooves to receive the splines, and an encircling peripheral groove, said clutch member also having teeth adapted for engagement with the teeth on the hub-sections, a yoke pivoted within the tubular post and having an arm extended through the slot in the latter, said yoke being adapted to straddle the clutch member and carrying antifriction-rollers designed for travel within the peripheral groove, an operating-rod pivotally connected with the yoke-arm and movable for shifting the yoke into engagement with either of the hub-sections or to an intermediate non-engaging position, a sleeve embracing the seat-post and having a perforated guide for the reception of the rod, a lug carried by the rod and adapted to seat within the perforation in the guide or above or below the latter for maintaining the clutch member in its various positions, and a spring within the guide adapted to act on the rod for maintaining the lug in engagement with the guide.

784,974. **CALENDAR.** JOHN M. BIGGS, Glasgow, Ky. Filed Nov. 21, 1904. Serial No. 233,627.



Claim.—1. The calendar herein described comprising the main disk having its face divided at its outer edge into seven sections containing in order the names of the days of the week and having a central opening and its face rabbeted surrounding such opening, the central disk fitting in the rabbet of the main disk and having its face at its outer edge divided into sections corresponding to and registering with those of the main disk and having in the sections of the central disk numbers in series extending in a circumferential direction and corresponding to the days of the month which fall upon the days of the week with which the said sections may be registered in any particular adjustment of the calendar, the circular projection on the rear side of the central section and turning in the central opening of the main section and the back plate secured to said circular projection of the central disk substantially as set forth.

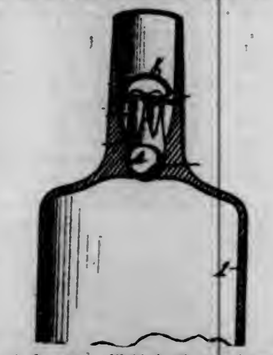
2. The calendar herein described comprising the main disk inscribed with the days of the week and having a central circular opening and a rabbet in its face surrounding said central opening and the central section having a circular series of numbers arranged in sets corresponding to the days of the month which fall upon the days of the week and fitted in the rabbeted portion of the main disk with its numbers registering with the days of the week on the main disk and having on its rear face a circular projection fitting and turning in the circular opening in the main disk substantially as set forth.

3. The combination in a calendar of the main disk having a central circular opening and a rabbet in its face surrounding such opening, the central disk fitting in said rabbet in the main disk and having on its rear side a circular projection fitting in the circular opening in the main disk and the back plate secured to the said circular projection of the central disk and fitting against the rear face of the main disk and extending at its outer edge to and coinciding at such edge with the outer edge of the main disk substantially as set forth.

4. A calendar substantially as described comprising a main disk having a central opening and having its face rabbeted surrounding such opening, the surface of the disk surrounding the rabbet being imperforate and continuous or unbroken throughout its circumference, the central disk fitting in the rabbet of the main disk and

made of a thickness equal to the depth of the rabbet whereby its outer face will be flush with that of the main disk, the outer face of said central disk being imperforate and unbroken throughout, said central disk being provided on its inner side with a circular projection fitting and turning in the circular opening of the main disk and made of a thickness equal to the rabbeted portion of the main disk, and the back disk secured to said circular projection and overlapping the rear face of the main disk and extending at its outer edge to and coinciding at said outer edge with the outer edge of the main disk and said back plate or disk being imperforate and unbroken throughout its surface, all substantially as described whereby there is provided an adjustable calendar of uniform thickness throughout and free of all openings and adapted to be printed upon throughout its entire surface after its parts are assembled, substantially as set forth.

784,975. **NON-REFILLABLE BOTTLE.** LOUIS N. BISHOP, Dayton, Ky. Filed May 28, 1904. Serial No. 210,345.



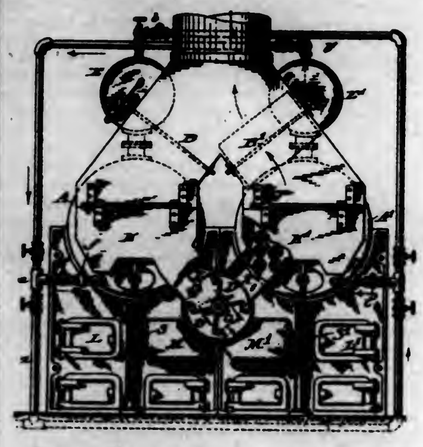
Claim.—1. In a non-refillable bottle, a neck portion having its inner face terminating at its lower end in a valve-seat and further provided with an annular shoulder at a point removed from said seat, the inner diameter of that portion of the neck between the shoulder and said valve-seat being of smaller diameter than the inner diameter of the neck above the shoulder, and that portion of the bottle-neck between the shoulder and valve-seat forming a valve-chamber with the wall thereof formed with a series of outlet-channels starting from a point removed from said seat and terminating in said shoulder and gradually increasing in size upwardly, a valve operating in said chamber, and a valve-guard mounted upon said shoulder.

2. In a non-refillable bottle, a neck portion having its inner face terminating at its lower end in a valve-seat and further provided with an annular shoulder at a point removed from said seat, the inner diameter of that portion of the neck between the shoulder and said valve-seat being of smaller diameter than the inner diameter of the neck above the shoulder, and that portion of the bottle-neck between the shoulder and valve-seat forming a valve-chamber, a valve guard and arrester arranged in said neck portion and provided with a plurality of supporting-lugs secured to and projecting over the edge of said shoulder, and a valve operating in said chamber.

3. In a non-refillable bottle, a neck portion having its inner face terminating at its lower end in a valve-seat and further provided with an annular shoulder at a point removed from said seat, the inner diameter of that portion of the neck between the shoulder and said valve-seat being of smaller diameter than the inner diameter of the neck above the shoulder, and that portion of the bottle-neck between the shoulder and valve-seat forming a valve-chamber with the wall thereof formed with a series of outlet-channels starting from a point removed from said seat and terminating in said shoulder and gradually increasing in size upwardly, a valve guard and arrester arranged in the neck portion and provided with a plurality of supporting-lugs secured to and projecting over the edge of said shoulder, and a valve operating in said chamber.

4. In a non-refillable bottle, a neck portion provided on its inner face intermediate its ends with an annular shoulder and further provided with a valve-seat, said neck portion having its inner face at a point removed from said valve-seat provided with a plurality of outlet-channels terminating in said shoulder, a valve adapted to engage said seat, and a combined valve guard and arrester suitably secured to said shoulder.

784,976. **STEAM-BOILER.** GEORGE H. BLOWERS, San Francisco, Cal. Filed Oct. 27, 1903. Serial No. 178,747.



Claim.—1. The combination of two or more boilers, a passage from each boiler to the smoke-stack, a passage connecting the two boilers for conveying products of combustion from one to the other, a system of water-pipes having valves for controlling the flow of water and directing it into the water-heating boiler and for taking hot water from said boiler to the steam-generating boiler, and means for opening and closing all of said passages, whereby products of combustion from one boiler can be cut off from the stack and be compelled to pass to the other boiler before reaching said stack.

2. In a steam-generating plant, two boilers either of which is adapted to be used as a steam-generator and the other as a water-heater, a system of water-pipes having valves for controlling the flow of water and directing it into the water-heating boiler and for taking hot water from the said boiler to the steam-generating boiler, and means for preventing the normal discharge of the products of combustion from the steam-generating boiler and compelling them to pass to the water-heating boiler before being discharged.

3. In a steam-generating plant, two or more boilers any of which may be used as steam-generators and others as feed-water heaters, a system of water-supply pipes having valves for directing the flow of water into the feed-water-heating boilers and for taking hot water from the feed-water-heating boilers to the steam-generating boilers, and dampers for cutting off the products of combustion in the steam-generating boilers from the smoke-stack and compelling them to pass to the heating-surfaces of the feed-water-heating boilers before final discharge into the open air.

4. In a steam plant, a plurality of boilers, a hollow breeching having smoke flues or passages communicating with a stack, a damper in each of such flues or passages, such breeching having also intersecting passages communicating with the smoke-tubes of and with the heating-space beneath the respective boilers, and a damper at the intersection, coöperating with the dampers in the smoke-flues, for causing the products of combustion from one boiler to enter the said heating space of the other and vice versa.

5. The combination with two boilers having heating-space beneath them, of a removable deflecting-plate adapted to be set in either heating-space, and means for causing the products of combustion from one boiler to enter the heating-space of the other above said deflecting-plate.

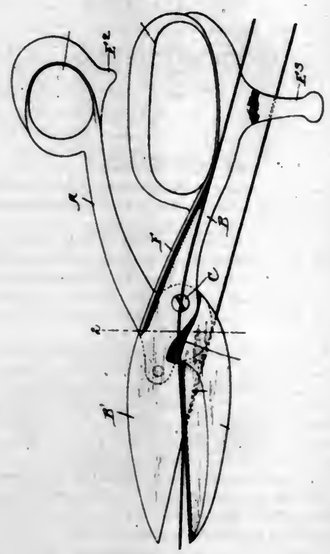
784,977. **CARTRIDGE.** FRANK H. BOWLY, New York, N. Y. Filed May 3, 1904. Serial No. 206,222.



Claim.—1. A cartridge of the class set forth consisting of a shell having an explosive charge therein, and a combustible ball held in the cartridge directly in contact with the explosive charge, the said ball being formed with a cavity opening through its rear end in which a slow-burning propulsive material is disposed.

2. A cartridge of the class set forth consisting of a shell having firing means at its closed end, an explosive charge therein, and a single ball of combustible material held in the shell and provided with a charge of slow-burning material which is in contact with, and ignited by, the said explosive charge.

784,978. **SHEARS.** PETER BROADBOOKS, Batavia, N. Y. Filed July 23, 1904. Serial No. 217,760.



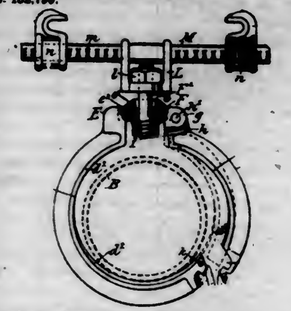
Claim.—1. In a pair of shears of the character described, two levers crossing one another and pivoted together, a cutting-blade formed integral with each lever, one lever provided with a lateral offset connecting said lever with its blade so as to bring said blade upon the opposite side of the other blade, said offset also adapted to separate the severed ends of the material, one passing above and the other below said offset, a set-screw passing through the lever provided with the offset bearing against the blade of the opposite lever to force both blades together, and a shield provided upon the lever not having an offset adapted to guide the severed ends of the material downward below the hands, as and for the purpose specified.

2. In a pair of shears of the character described, two levers crossing one another and pivoted together, integral cutting-blades formed in each lever, a lateral offset formed upon one lever passing below the other lever so as to bring the cutting-blade upon the opposite side of the other cutting-blade, an extension extending forward from the lever having an offset, a set-screw threaded through said extension and bearing against the opposite blade so as to force the two blades together, a shield in the form of a rib extending along the outside of the lever not having an offset, a standard-post at the end of one of the levers also provided with an offset, the severed ends of the material adapted to pass above and below said offset, a stop adapted to limit the closing of the shears, as and for the purpose specified.

3. In a shear, two levers of the character described, one lever being formed with an offset, a stop and adjusting screw, the other lever being formed with a shield to shield the hand, and a standard-post having an offset to allow the material to pass through the shears and also pass the standard-post, said post also to serve as a support to the shears and a rest to the hand, as specified.

4. In a shear of the character described, two levers and two cutting-blades fulcrumed together, one lever having an offset to allow the ends of the material severed to pass through the shears in any length or width, the other lever being formed with a shield to prevent the end passing through the shears above the offset from coming in contact with the hand, and a stop to keep the jaws from passing their limit, as specified.

784,979. **PIPE-HANGER.** JOHN M. BRUCE, Yonkers, N. Y., assignor to Alonzo H. Mapes, New York, N. Y. Filed Nov. 26, 1903. Serial No. 183,700.



Claim.—1. A pipe-hanger, comprising a supporting member and a closing member pivotally connected, interlocking jaws at the free ends of the said members provided with coöperating inclined faces, each of the members being recessed behind its jaw to receive the jaw of the other member, substantially as described.

2. A pipe-hanger, comprising a supporting member and a closing member pivotally connected, interlocking jaws at the free ends of the said members provided with inclined contact-faces, each of the members being recessed behind its jaw to receive the jaw of the other member, and a stud on each jaw, at the side of the hanger, substantially as described.

3. The combination of a pipe-hanger and means for supporting the same, comprising a bracket from which the pipe-hanger is suspended, a rotatable shaft having teeth thereon, and hooked hubs mounted upon the ends of the shaft and adapted to be rotated thereon, the said hubs being longitudinally recessed to permit the passage of the teeth on the shaft and having internal teeth communicating with the longitudinal recesses to receive the teeth of the shaft, whereby the hubs may be adjusted and locked upon the shaft by the rotation of the latter, substantially as described.

4. A pipe-hanger comprising in combination a rotatable shaft provided with lateral projections, a hanger-supporting bracket rigid thereon, beam-engaging jaws provided with hubs and adapted when in one position with respect to the hanger-supporting bracket to slide longitudinally on the shaft and when in other positions to be locked against said longitudinal movement by said lateral projections.

784,980. **EXCAVATING-MACHINE.** JOHN D. BUCHANAN, Memphis, Tenn. Filed July 29, 1904. Serial No. 218,718.



Claim.—1. The combination with a wheeled frame having a dirt-receptacle, of a tongue connected to the front of the frame, a pair of colters supported by the tongue, an endwise-adjustable conveyer-frame, an endless conveyer supported thereby, a horizontal

cutter disposed at the lower end of the conveyer-frame and working between the colters, and means for adjusting the conveyer-frame longitudinally and moving the horizontal cutter to and from the working position.

2. In combination, a wheeled frame, a tongue projecting from the forward end of the frame, a conveyer-frame carried by the wheeled frame and tongue, and having a slidable connection with one and a pivotal connection with the other, an endless conveyer supported by the frame, and a horizontally-disposed cutter disposed at the lower end of the conveyer-frame.

3. The combination with a wheeled frame having a dirt-receptacle, of a forwardly-projecting tongue, a conveyer-frame supported in part by the tongue, a conveyer on said frame, a cutting-tool at the lower end of the conveyer-frame, gearing connections for driving the conveyer, and means for elevating the tongue and conveyer-frame and thereby disconnecting the gearing.

4. The combination with a wheeled frame having a dirt-receptacle, of a double tongue projecting forwardly of the frame, a cross-bar carried by the members of the tongue, a conveyer-frame connected to said cross-bar, an endless conveyer on said frame, and gearing connections for imparting movement to the conveyer, a horizontal cutter arranged at the lower end of the conveyer-frame, and means for elevating the tongue thereby to move the cutter to inoperative position and to effect disconnection of the gearing.

5. The combination with a wheeled frame having a dirt-receptacle, of a double tongue projecting from the front end of the frame, a conveyer-frame supported by the tongue and provided with a longitudinal slot, a rigid cross-bar extending from said slot and forming a support for the upper portion of the conveyer-frame, a horizontal cutter detachably secured to the lower end of the conveyer-frame, a conveyer, gearing connection for driving the conveyer, a pair of colters carried by the tongue, and means for elevating the tongue thereby to adjust the cutting devices to inoperative position and to effect disconnection of the gearing.

6. The combination with a wheeled frame having a dirt-receptacle, and provided with means for the hitching of draft-animals thereto, of an excavating device arranged between the draft-animal connections and adjustable to operative and inoperative positions independently of such connections.

784,981. **HAIR-DRIER.** DANIEL J. BUCKLEY, Newburyport, Mass. Filed Sept. 10, 1904. Serial No. 224,004.



Claim.—1. A hair-drier comprising a body portion, a shell having a screened outlet removably secured to the body portion, an electric heater within the body portion, the body portion being formed with air-inlets below the heater, and means to removably secure the heater within the body.

2. A hair-drier comprising a body portion, a shell having a screened outlet removably secured to the body portion, an electric heater within the body portion, said heater comprising perforate plates, and resistance-coils joining the plates, means for making electric connection through the body portion, and catches for removably securing the heater within the body portion.

3. A hair-drier comprising a casing having a screened outlet, an electric heater removably held within the casing, said heater comprising an upper and a lower plate, rods connected to the plates and holding them spaced apart, resistance-coils connected to the plates, and means for making electric connection with said coils through the body portion.

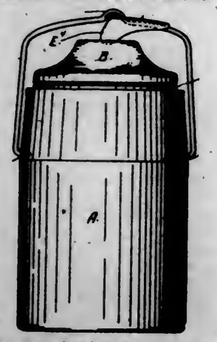
784,982. **DEVICE FOR FILLING FOUNTAIN-PENS.** GEORGE H. BYE, Jersey City, N. J. Filed June 7, 1904. Serial No. 211,469.



Claim.—1. A device for filling fountain-pens, consisting of a receptacle provided with a flanged neck, an ejecting-cover of a flexible material located over the flanged portion of the neck, a clamping-ring for the said ejecting-cover, located at the flanged portion of the neck of the receptacle, and a stable support located in the upper portion of the ejecting-cover, and a conducting-tube extending down through the said cover and the stable support into the said receptacle, which conducting-tube is provided with an upper delivery branch.

2. In a device for filling fountain-pens, a receptacle provided with a neck and a flange on the neck, an elastic diaphragm secured to the said flanged portion of said neck, a clamping-ring holding the said diaphragm in such engagement, the diaphragm being provided with an upward extension, a stopper located in the said extension of the diaphragm, a clamp engaging with the outer face of the said extension of the diaphragm, and a conducting-tube passed down through the said extension of the diaphragm, the clamp located at such point and the stopper, which conducting-tube extends down into the receptacle and is provided with a delivery branch above the extension of the diaphragm, as described.

784,983. **JAR-CLOSURE-FASTENING DEVICE.** FRANK CANFIELD, Denver, Colo., assignor of one-half to Patrick F. Carney, one-fourth to George Dodge, and one-fourth to W. H. Townsend, Denver, Colo. Filed June 15, 1904. Serial No. 212,716.



Claim.—1. In a fastening device for the closures of receptacles, the combination of a bail whose extremities are pivotally connected with the body of the receptacle, and a lever provided with an opening through which the bail is passed whereby the bail becomes a fulcrum for the lever, the opening through which the bail passes being intermediate the arms of the lever, one arm of the lever being adapted to engage the closure and the other arm the bail when the lever is thrown to the locking position.

2. In a device of the class described, the combination with a receptacle and its closure, of a bail pivotally mounted on the body of the receptacle, a lever having an opening to receive the bail, an arm extending downwardly from the opening to engage the closure, and another arm extending beyond the opening and adapted to engage the bail when the lever is in the locking position.

3. The combination with a receptacle and its cap or closure, of a bail whose extremities are pivotally connected with the receptacle and having an upward bend above the closure, and a lever threaded on the bail and having one arm engaging the cap and the other arm engaging the bail when the lever is in the locking position, the lever having a part which engages the bend in the bail from below when the device is locked.

4. The combination with a receptacle and its closure, of a bail whose extremities are pivotally connected with the body of the receptacle, the bail having a central upward bend, and a lever having an opening intermediate its extremities through which the bail passes, the said lever having a part located adjacent the opening and adapted to engage the bend of the bail when the lever is thrown to the locking position, one arm of the lever projecting below the opening to engagement with the cap or closure, and the other arm projecting forwardly from the bend in the bail when the lever is in the locking position.

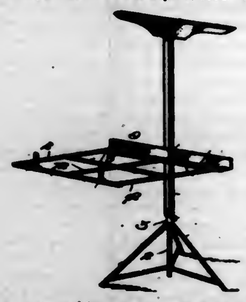
5. In a device of the class described, the combination with a receptacle and its closure, of a bail mounted on the body of the receptacle, and a locking-lever having an opening through which the bail passes, the bail serving to hold the lever in place, the lever extending lengthwise of the bail when in the locking position and having a groove in which the bail is received, substantially as described.

784,984. **TOOL.** WILLIAM L. CARSON, Seattle, Wash. Filed May 24, 1904. Serial No. 209,522.



Claim.—A lathe-tool comprising a head having a threaded bore, a stub-shaft threaded through said bore, a finger pivoted on said stub-shaft, a spring-actuated locking-dog extending through said head on a line parallel with the axis of said stub-shaft, and being adapted to be engaged by said finger, a turret mounted on said stub-shaft and having sockets adapted to be engaged by said locking-dog, and a ratchet connection between said turret and stub-shaft, whereby, when the stub-shaft is rotated in one direction, the turret is unlocked, loosened from the head, rotated, and relocked, and when the stub-shaft is rotated in the opposite direction, the turret is tightened against the head.

784,985. **DEVICE FOR HANGING WALL-PAPER.** CARL F. CARWELL, Coon Rapids, Iowa. Filed Sept. 3, 1904. Serial No. 223,222.



Claim.—1. A device for hanging wall-paper, comprising a support, a handle removably supported thereon, a paper-receiving tray carried by the handle, and a smoothing-bar upon the upper end of the handle.

2. A device for hanging wall-paper, comprising a support, a handle removably supported thereon, a longitudinally-adjustable paper-receiving tray carried by the handle, and a smoothing-bar upon the upper end of the handle.

3. A device for hanging wall-paper, comprising a foldable support, a handle removably supported thereon, a foldable paper-receiving tray carried by the handle, and a smoothing-bar detachably connected with the upper end of the handle.

4. A device for hanging wall-paper, comprising a support having a central bar, and provided with legs; a handle having a socket adapted to receive the upper end of the central bar of the support and having on its upper end a tongue; a smoothing-bar having a socket adapted to receive the tongue on the upper end of the handle; a paper-supporting tray comprising a flange having a shelf on its lower end, parallel bars and cross-pieces pivotally connected to each other and to said shelf, uprights on the outer portions of the tray, a band attached to the flange and encircling the handle, and a thumb-screw extending through the band.

784,986. **BAROMETER.** LEE F. CHANEY, Lynchburg, Ohio, assignor of one-half to Riley S. Chaney, Lynchburg, Ohio. Filed Sept. 12, 1904. Serial No. 224,208.



Claim.—1. In a barometer the combination of two communicating mercury-chambers, an air-passage communicating with one chamber, and a mercury-tube passing through the latter chamber into the other chamber and sealed by the mercury therein, substantially as described.

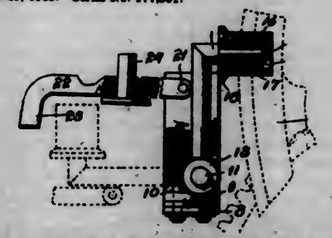
2. In a barometer, the combination of two communicating mercury-chambers, a mercury-tube communicating with one chamber and sealed by the mercury therein, and an air-tube extending through such chamber and opening into the other mercury-chamber, substantially as described.

3. In a barometer two communicating mercury-chambers adapted to provide for the expansion and contraction of the mercury, a mercury-tube passing through one chamber and communicating with the other chamber and sealed by the mercury therein, and an air-passage to that mercury-chamber through which the tube passes, substantially as described.

4. In a barometer, the combination of the casing, having a pair of connected mercury-chambers, a mercury-tube passing through one chamber and connecting with the other, and an air-passage connecting with that mercury-chamber through which the tube passes, all constructed and adapted to operate substantially as described.

5. In a barometer, the combination of the glass casing, having a pair of connected chambers, a mercury-tube passing through one chamber and connecting with the other, and an air-passage connecting with that mercury-chamber through which the tube passes, and means for closing the connection between the chambers, substantially as described.

784,987. **BELT-GUIDE.** JOSEPH L. CRISLER, Perth, Kans. Filed Oct. 19, 1903. Serial No. 177,991.



Claim.—1. In a device of the character described, the combination with a belt-wheel and belt, of guide-wheels rotatable in planes

transverse to the belt-wheel, each provided with a flange adapted to embrace a margin of the belt, and means to move said wheels toward and from the belt-wheel.

2. The combination with a belt-pulley, of a belt-guide comprising a rock-shaft parallel to the pulley-shaft, arms adjustable on the rock-shaft, and guide-rollers mounted on journals at an angle to said arms and adapted to be moved thereby toward and away from the belt-pulley and to lie on opposite sides of the pulley-rim and close to the side edges of said rim.

3. The combination with a belt-pulley, of a belt-guide comprising a rock-shaft parallel to the pulley-shaft, arms on said shaft having journals extending at an angle thereto, and circumferentially-flanged guide-rollers mounted on said journals and adapted to be moved toward and away from the belt-pulley and to lie at opposite sides of and close to the side edges of the rim of the belt-pulley.

4. The combination with a belt-pulley, of a belt-guide comprising a rock-shaft parallel to the pulley-shaft, guide-rollers carried by said rock-shaft and adapted to be moved toward and away from the belt-pulley, and to lie at opposite sides of and close to the rim of the pulley, and a stop for limiting the movement of the guide-rollers in opposite directions.

5. The combination with a belt-pulley, of a belt-guide comprising a rock-shaft parallel to the pulley-shaft, guide-rollers carried by said rock-shaft and adapted to be moved toward and away from the belt-pulley and to lie at opposite sides of and close to the side edges of the rim of the pulley, and stops for limiting the movement of the rock-shaft in opposite directions, said stops being adjustable on the rock-shaft.

6. The combination with a belt-pulley, of a belt-guide comprising a bracket, a base-plate adjustable on the bracket, a rock-shaft parallel to the pulley-shaft, and guide-rollers carried by said rock-shaft and adapted to be moved toward and away from the belt-pulley and to lie at opposite sides of and close to the side edges of the rim of the pulley.

7. The combination with a belt-pulley, of a belt-guide comprising a rock-shaft parallel to the pulley-shaft, arms on said rock-shaft, guide-rollers journaled on said arms and adapted to be moved thereby toward and away from the belt-pulley and to lie on opposite sides of the pulley-rim and close to the side edges of said rim, an operating bar or roll connected to one of said arms, a guide or housing through which said guide or bar is adapted to slide, and a tension-spring engaging said rod or bar.

8. The combination with a belt-pulley, of a belt-guide comprising a rock-shaft parallel to the pulley-shaft, arms on said rock-shaft, guide-rollers journaled on said arms, and adapted to be moved toward and away from the belt-pulley and to lie at opposite sides of and close to the side edges of the pulley-rim, an operating-bar provided with notches, a slotted guide or housing through which said bar slides, a lip for engaging the notches of the operating-bar, and a spring within the guide or housing for maintaining an engagement between said lip and notches.

784,988. **PHOTOGRAPHIC EXPOSURE-METER.** CHARLES W. DAKE, Grand Rapids, Mich., assignor of one-half to William Donker, Grand Rapids, Mich. Filed May 16, 1904. Serial No. 208,269.



Claim.—1. As a new article of manufacture, a photographic exposure-meter involving a casing forming a chamber and provided with a graduated light-inlet, said casing further provided with an eye-opening, and a sleeve arranged in operative relation with respect to said casing having one end closed and further provided with an irregular-shaped inner end, said irregular-shaped inner end of said sleeve adapted to gradually close said light-inlet, said sleeve having the inner face of its closed end provided with a visual figure.

2. As a new article of manufacture, a photographic exposure-meter involving a closable chamber provided with a light-inlet, a visual figure within said chamber, a rotatable sleeve extending into said chamber for regulating the quantity of light admitted through said inlet, and an index for indicating the time an object should be exposed for the purpose of photographing.

3. As a new article of manufacture, a photographic exposure-meter involving a closable chamber provided with an irregular-shaped light-inlet, a visual figure within said chamber, a rotatable sleeve extending within said chamber and adapted to regulate the amount of light admitted to said chamber through said inlet, said sleeve having an irregular-shaped inner end, and an index for indicating the time an object should be exposed for the purpose of photographing.

4. As a new article of manufacture, a photographic exposure-meter involving a casing forming a chamber and provided with a graduated light-inlet, said casing further provided with an eye-opening, and a rotatable sleeve having one end closed and projecting in said casing for closing one end thereof and further provided with an irregular-shaped inner end, said irregular-shaped inner end adapted to close said light-inlet in a graduating manner, said sleeve having the inner face of its closed end provided with a visual figure.

5. As a new article of manufacture, a photographic exposure-meter, involving a closed chamber having an eye-opening and a graduated light-inlet, and a rotatable means extending in said chamber for regulating the quantity of light admitted through said inlet and provided with a visual figure adapted to be seen through said eye-opening.

6. As a new article of manufacture, a photographic exposure-meter, involving a closed chamber having an eye-opening and a graduated light-inlet, a rotatable means extending in said chamber for regulating the quantity of light admitted through said inlet and provided with a visual figure adapted to be seen through said eye-opening, and a time-register for indexing the time that a camera should be exposed, said index arranged in operative relation with respect to said light-inlet.

7. As a new article of manufacture, a photographic exposure-meter involving a casing forming a chamber and provided with a graduated light-inlet, said casing further provided with an eye-opening, a sleeve arranged in operative relation with respect to said casing having one end closed and further provided with an irregular-shaped inner end, said irregular-shaped inner end of said sleeve adapted to gradually close said light-inlet, and a visual figure arranged in operative relation with respect to said casing.

8. A photographic exposure-meter involving a hollow tubular casing open at one end and having its other end provided with an extension having an eye-opening, said casing forming a chamber and said casing provided with a graduated inlet for admitting light into the chamber, a rotatable regulating means extending in said chamber and adapted when operated to gradually close said inlet, thereby regulating the quantity of light admitted into said chamber, and a visual figure arranged in the chamber opposite said eye-opening.

9. A photographic exposure-meter involving a hollow tubular casing open at one end and having its other end provided with an extension having an eye-opening, said casing forming a chamber and said casing provided with a graduated inlet for admitting light into the chamber, a rotatable regulating means extending in said chamber and adapted when operated to gradually close said inlet, thereby regulating the quantity of light admitted into said chamber, and a visual figure carried by said regulating means and arranged opposite said eye-opening.

10. A photographic exposure-meter involving a casing forming a chamber, open at one end and having its other end provided with an extension having an eye-opening, a sleeve projecting in said chamber and having a closed outer end, thereby closing the open end of said casing, said sleeve having an irregular-shaped inner end, said inner end of said sleeve adapted when operated to gradually close said inlet, thereby regulating the quantity of light admitted into said chamber, and said sleeve carrying a visual figure arranged opposite said eye-opening.

11. A photographic exposure-meter involving a casing forming a chamber, open at one end and having its other end provided with an extension having an eye-opening, a sleeve projecting in said chamber and having a closed outer end, thereby closing the open end of said casing, said sleeve having an irregular-shaped inner end, said inner end of said sleeve adapted when operated to gradually close said inlet, thereby regulating the quantity of light admitted into said chamber, said sleeve carrying a visual figure arranged opposite said eye-opening, and a time-register for indexing the time the camera should be exposed, said time-register arranged in operative relation with respect to said inlet.

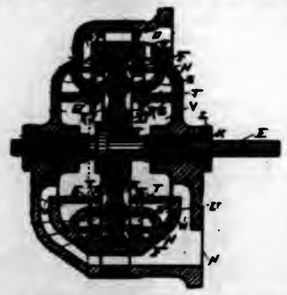
12. As a new article of manufacture, a photographic exposure-meter involving an element having a graduated light-inlet, and an element having an irregular-shaped end and arranged in operative relation with respect to said first element, one of said elements rotatable within the other of said elements, causing thereby the gradual opening or closing of said inlet, thereby regulating the quantity of light admitted through said inlet.

13. As a new article of manufacture, a photographic exposure-meter involving a closed chamber having an eye-opening and a graduated light-inlet, and a rotatable means for regulating the quantity of light admitted through said inlet and provided with a visual figure adapted to be seen through said eye-opening.

14. As a new article of manufacture, a photographic exposure-meter involving an element having a graduated light-inlet, and an element having an irregular-shaped end for gradually closing said inlet, thereby regulating the quantity of light admitted, one of said elements surrounding the other of said elements, and one of said elements being rotatable

15. As a new article of manufacture, a photographic exposure-meter involving an element having a graduated light-inlet, an element having an irregular-shaped end for gradually closing said inlet, thereby regulating the quantity of light admitted, one of said elements surrounding the other of said elements, and one of said elements being rotatable, said element provided with the inlet having an eye-opening and said element having the irregular-shaped inner end provided with a figure visible through said eye-opening of the other element.

784,989. **STEAM-TURBINE.** CHARLES W. DAKE and WILLIAM DONKER, Grand Rapids, Mich. Filed Oct. 4, 1904. Serial No. 227,137.



Claim.—1. In combination with a rotating turbine-wheel, a plurality of separated rows of buckets upon the face of the said wheel, a stationary casing therefor having separated spirally-formed chambers of varying capacities, stationary rings supported in the stationary casing and provided with a series of nozzles conveying the steam to one row of buckets in increasing volume and subsequently to another row of buckets as the said wheel advances the buckets in its revolution.

2. In combination with a turbine-wheel provided with a series of buckets in the face of the said wheel, a stationary casing having rows of chambers of varying capacities, a stationary ring secured to the stationary casing of the engine and provided with a series of nozzles having openings leading from the said chambers increasing so that the volume of steam fed to the buckets through the nozzles successively increases as the wheel rotates to one row of buckets, and subsequently to another row of said buckets.

3. In combination with a rotating wheel mounted within a case and provided with a series of curved buckets R and a series of curved buckets R', a stationary ring F secured to the case and a stationary ring G secured to the case, the ring F provided with a series of nozzles adapted to feed the steam in increasing volume to the wheel as it revolves, and the ring G provided with a series of nozzles adapted to feed the steam simultaneously to the buckets R' before said steam is expelled from the engine.

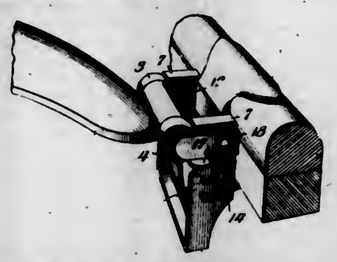
4. In a turbine-engine, the combination of the inclosing casing having separated rows of chambers of varying capacities, a revolving wheel provided with a plurality of rows of curved buckets in the face thereof so as to overlap each other, nozzles for feeding the steam successively into one row of the said curved buckets and subsequently to another row, and steam-passages for taking the steam from the said buckets.

5. In combination with a turbine-wheel mounted in a case, having a plurality of separated rows of chambers spirally formed of varying capacities, a plurality of rows of curved buckets arranged on the face of said wheel, inlet-passages leading from the said chambers and registering with the rows of buckets for feeding the steam thereto and steam-passages for the discharge of the steam.

6. In combination with a turbine-wheel having separated rows of buckets, a casing therefor having a plurality of spirally-formed chambers of varying capacities, means for feeding the steam to one row of buckets in increasing volume, an auxiliary chamber communicating with one of the first-mentioned chambers, means for feeding steam from the auxiliary chamber to the last row of buckets in increasing volume and steam-passages for removing the steam from the engine.

7. In a turbine-engine, the combination with a supported case having separated rows of chambers spirally formed of varying capacities, a turbine-wheel mounted thereon and provided with rows of buckets, having communication with the respective rows of chambers, at least one row of buckets having communication with a discharge-port of the engine and adjustable bearings for the shaft of the said wheel.

784,990. **THILL-COUPLING.** ERNEST J. S. DAVIS, Knoxville Iowa, assignor of one-half to Andrew Vandrimmelen, Knoxville, Iowa. Filed June 4, 1904. Serial No. 211,181.



Claim.—1. An antirattler attachment for couplings comprising a frame having inwardly-bent separable ends and a laterally-extending ear, a retaining-strip pivoted to the frame and adapted to be supported by the ear, a lug upon the frame, a spring having a stationary apertured end detachably engaging the lug, said spring also having a curved portion, and a cam mounted within the frame for tensioning the spring.

2. In a device of the character described, the combination with a clip having arms extending from it: of a thill-iron between the arms, a longitudinally-movable coupling-pin engaging the arms and thill-iron, a frame partly surrounding the arms and suspended therefrom, one end of said frame having inwardly-bent and separable supporting portions bearing upon the arms, an ear upon the frame, a lug integral with one end of the frame, a spring having an apertured stationary end detachably engaging the lug, said spring being adapted to bear upon the thill-iron, means for tensioning the spring and a retaining-strip pivoted to the frame and adapted to extend over one end of the coupling-pin and to bear upon the ear.

784,991. **OIL-ELEVATOR.** PATRICK H. DAVITT, Bradford, Pa. Filed Feb. 18, 1904. Serial No. 194,217.

Claim.—1. An oil-elevator, comprising a casing having oil-inlet openings, air-supply openings therein, and means for closing the oil-supply openings before the air-supply openings are opened.

2. An oil-elevator, comprising a casing having oil-inlet openings and air-inlet openings therein, a working barrel within said casing and means carried by the working barrel for closing the oil-inlet openings before the air-inlets are opened.

3. An oil-elevator, comprising a casing having oil-inlet openings adjacent the upper end, an air-supply chamber in communication with the lower end of said casing, a working barrel within said casing, means carried by said working barrel for controlling the communication between the casing and the air-chamber, and means carried by the said working barrel for controlling the inlet-openings.

4. An oil-elevator, comprising a casing having oil-inlet openings adjacent the upper end, an air-chamber in communication with the lower end of said casing, a working barrel within said casing and operated by said air from the air-chamber, means controlled by said working barrel for controlling the communication between the casing and the air-chamber and means carried by the working barrel for controlling the inlet-openings.

5. An oil-elevator, comprising a casing having oil-inlet openings adjacent the upper end, an air-chamber carried by the lower end, a pipe in communication with the air-chamber and extending into said casing and having lateral openings intermediate its ends, a working barrel within the casing and inclosing said pipe, and the

air-pressure within the pipe adapted to raise the working barrel above said lateral openings, and means carried by the upper end of said working barrel for closing said oil-inlet openings.



6. An oil-elevator comprising a casing having oil-inlet openings, and air-inlet openings therein, and means within said casing for closing the oil-inlet openings before the air-inlet openings are opened.

7. An oil-elevator comprising a casing having oil-inlet openings and air-inlet openings therein, and a working barrel within the casing and adapted to close the oil-inlet openings before the air-inlet openings are opened.

8. An oil-elevator comprising a casing having oil-inlet openings adjacent its upper end and air-inlet openings within the lower end, a working barrel within the casing, and means carried by the working barrel for closing the oil-inlet openings before the air-inlet openings are opened.

9. An oil-elevator, comprising a casing having oil-inlet openings adjacent its upper end, an air-chamber in communication with the lower end of said casing, a working barrel operated by the air from said air-chamber, means carried by the upper end of said working barrel for closing said oil-inlet openings.

10. An oil-elevator comprising a casing having oil-inlet openings adjacent its upper end, an air-chamber carried by the lower end of said casing, a pipe communicating with said air-chamber and extending within said casing and having lateral openings therein intermediate the ends, a working barrel having a chamber in its lower end and adapted to receive the said pipe, said working barrel having openings communicating with the interior thereof intermediate its ends, and a piston carried by the upper end of said working barrel and adapted to close the oil-inlet openings.

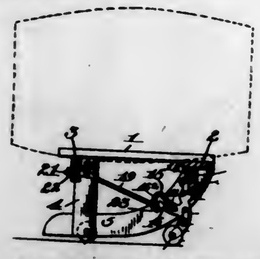
11. An oil-elevator, comprising a casing having oil-inlet openings at its upper end, an air-inlet opening at its lower end, a convergent tube extending upward from said opening and having lateral openings intermediate its ends, and a working barrel passing over said convergent pipe and adapted to close said oil-inlet openings before the lateral inlet-openings are opened.

12. An oil-elevator, comprising a casing having oil-inlet openings adjacent its upper end, an oil-chamber carried by the lower end of said casing, a pipe communicating with said air-chamber and extending into said casing and having lateral openings therein intermediate its ends, a working barrel vertically movable in said casing and having a chamber at its lower end into which passes said pipe, a coil-spring surrounding said pipe and bearing against the lower end of said working barrel, said barrel having openings extending inwardly above said chamber, a piston carried by the upper end of said working barrel, an inwardly-extending bushing carried by the casing, a flange carried by the working barrel below said bushing, a coil-spring surrounding said working barrel above and below said bushing and bearing respectively against the flange and the piston carried by the working barrel,

13. An oil-elevator, comprising a casing having oil-inlet openings adjacent its upper end, an air-tube extending upwardly within said casing, and having lateral openings therein, a hollow piston adapted to receive said air-tube, a passage-way around said tube and means carried by the piston for closing the oil-inlet openings when the air is passing around the piston.

14. An oil-elevator comprising a casing having oil-inlet openings adjacent its upper end, an air-tube extending upwardly within the bottom of said casing and having lateral openings, a piston within the casing and having a compartment adapted to receive said air-tube, a passage-way around said piston and through the upper end when the piston is above the openings in the air-tube, and the upper end of said piston adapted to close the oil-inlets before the piston rises above the openings in the air-tube.

784,992. **COMBINED WHEEL TRUCK AND SUPPORT.** HOMER K. DERRICK and JAMAN J. DERRICK, Appleton, Wis. Filed June 29, 1904. Serial No. 214,673.



Claim.—1. In a combined truck and support, a frame, a pair of rear wheels therefor, a shiftable member suspended from said frame and provided with a substantially L-shaped slot, a front wheel suitably connected with said shiftable member, and a locking member operating in said slot and adapted to automatically engage said shiftable member for retaining said front wheel in its operative position.

2. A combined truck and support comprising a frame provided with a fulcruming means, a pair of rear wheels for said frame, a front wheel, a shiftable member suspended from said frame and carrying said front wheel, said shiftable member provided with a slot having portions thereof extending in an opposite direction with respect to each other, and a pivoted locking member carried by said frame and adapted to operate in said slot and to automatically engage said shiftable member for retaining said front wheel in position.

3. A combined truck and support comprising a frame having a fulcruming means, a shiftable support for the front end of said frame, said support suspended from said frame and provided with a slotted rearward extension, and a pivoted locking member carried by the frame and engaging in said slotted extension for retaining said support in its operative position.

4. A combined truck and support comprising a frame provided with a fulcruming means, a shiftable member suspended from the forward part of said frame and adapted when in its operative position to support the forward end of the frame, said shiftable member provided with a slotted rearward extension, and a locking member operating in said slot and adapted when engaging in the rear part of said slot to retain said shiftable member in its operative position and when moved to the forward part of said slot, adapted to permit of the shifting of said shiftable member.

5. A combined truck and support comprising a frame having a fulcruming means, a shiftable supporting member suspended from the forward part of said frame, said member provided with a rearward extension having a substantially L-shaped slot, and a locking-rod pivoted at one end to the rear of said frame and its other end provided with an L-shaped hook operating in the slot of said rearward extension.

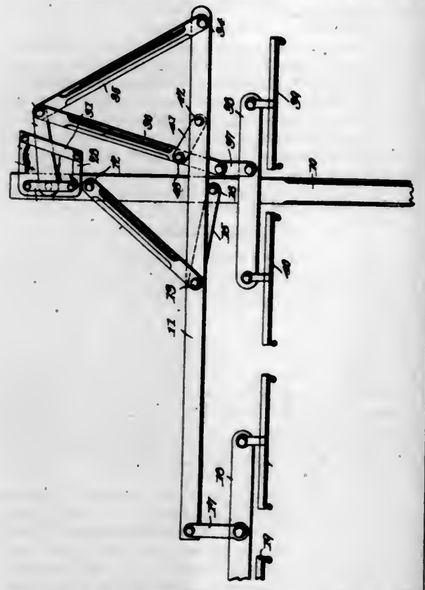
6. A combined truck and support comprising a frame provided with a fulcruming means, a shiftable supporting member provided with a rearward extension and a nose, said nose adapted to engage the frame to prevent movement of said member in one direction, and a locking-rod pivoted with the frame and engaging in said extension for limiting the movement of said member in an opposite direction.

7. A combined truck and support comprising a frame provided with a fulcruming means, a shiftable supporting member provided with a rearward extension and a nose, said nose adapted to engage the frame to prevent the movement of said member in one direction, a locking-rod pivoted with the frame and engaging in said extension for limiting the movement of said member in an opposite direction, a pair of rear wheels for said frame, and a front wheel swivelly connected to said member.

8. A combined truck and support comprising a frame provided with a fulcruming means, a shiftable supporting member provided with a rearward extension and a nose, said nose adapted to engage the frame to prevent the movement of said member in one direction, and a locking-rod pivotally connected with said frame and engaging said extension for limiting the movement of said member in an opposite direction, said rod manually released from its operative position and automatically movable to its operative position.

9. A combined truck and support comprising a frame provided with a fulcruming means, a shiftable member suspended from the forward portion of said frame, and provided with a rearward extension, a pivoted locking-rod carried by the frame and adapted to automatically engage said extension for locking said member in its operative position, said rod manually removed from its locking position, a front wheel suitably connected to said shiftable member, and a pair of rear wheels suitably connected with said frame.

784,993. **DRAFT-EQUALIZER.** JULIUS DOBERSTEIN, Alma City, Minn. Filed May 20, 1904. Renewed Feb. 16, 1905. Serial No. 245,966.



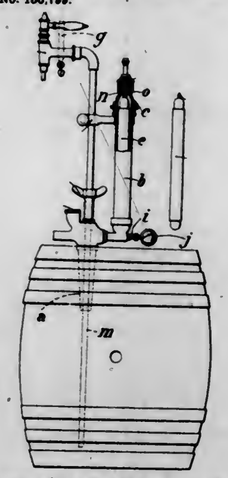
Claim.—1. In a draft-equalizer, a bracket for attachment to the draft-tongue and extending laterally from the same, a draft-beam centrally pivoted to said bracket and having means for the connection of a doubletree at the end adjacent to the bracket side of the tongue, an arm for pivotal attachment by one end to the tongue and extending from the same at the side opposite to the bracket a connecting member between the free end of said pivoted arm and the adjacent end of said beam, a pull-bar pivoted to the free end of said pivoted arm and having means for the connection of a doubletree to its free end, and a link connecting said pull-bar to said beam.

2. In a draft-equalizer, a bracket for attachment to the draft-tongue and extending laterally from the same, a draft-beam centrally pivoted to said bracket and having means for the connection of a doubletree at the end adjacent to the bracket side of the tongue, a plate for connection to the tongue and extending from the same at the side opposite to said bracket, an arm pivoted by one end to said plate and extending thereover, a connecting member between the free end of said pivoted arm and the adjacent end of said beam, a pull-bar pivoted to the free end of said pivoted arm and having means for the connection of a doubletree at its free end, and a link connecting said pull-bar to said beam.

3. In a draft-equalizer, a bracket for reversible attachment to the draft-tongue whereby it may be disposed for extension laterally from either side of the same and having means for the attachment of a doubletree at the end adjacent to the side of the tongue from which the bracket projects, a plate for reversible connection to the draft-tongue and extending from the same at the side opposite to the bracket, an arm pivoted to the plate, a connecting member between the free end of said pivoted arm and the adjacent end of said beam, a pull-bar pivoted to the free end of said pivoted arm and having means for the connection of a doubletree to its free end, and a link connecting said pull-bar to said beam.

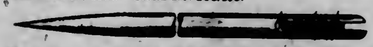
4. In a draft-equalizer, a bracket for reversible attachment to the draft-tongue whereby it may be disposed for extension laterally from either side of the same and having means for the attachment of a doubletree at the end adjacent to the side of the tongue from which the bracket projects, a plate for reversible connection to the draft-tongue and extending from the same at the side opposite to the bracket, and having oppositely-disposed studs extending from its opposite sides, an arm pivoted upon the outer one of said studs and extending over said plate, a keeper extending over said arm and the stud upon which it is pivoted, and a keeper extending over said arm at the free edge of said plate.

784,994. **APPARATUS FOR DISPENSING BEER OR OTHER LIQUIDS.** VICTOR E. J. DURAFORT, Paris, France. Filed Nov. 10, 1902. Serial No. 130,799.



Claim.—An apparatus for dispensing beer and other liquids comprising a spigot, a thumb-nut carried thereby and forming a stuffing-box, a tube passing through and held in proper position with relation to the spigot by the thumb-nut, a liquefied-gas container communicating with the spigot at one side of the tube, a screw-clip carried by said container and engaging the tube to hold the latter against yielding, a discharge-tap carried by the upper end of the tube, and a pressure-reducing piston carried by the said container.

784,995. **SURGICAL NEEDLE.** THOMAS C. EDWARDS, Salinas, Cal. Filed June 27, 1904. Serial No. 214,408.

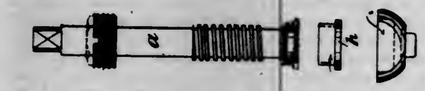


Claim.—1. A surgical needle having an eye located some distance back of its head, and an axial groove opening from one side only of the needle and extending from the eye to the head, the walls of the groove constituting clamping elements.

2. A surgical needle provided with an eye disposed some dis-

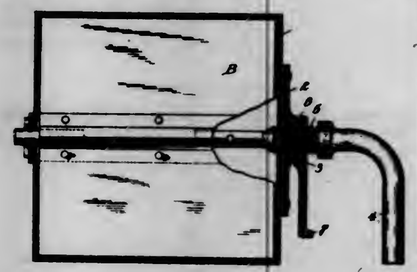
tance back of its head and having an axial groove extending from the eye to the head of the needle, the opposed walls of the groove being provided with corrugations or depressions.

784,996. **MEANS FOR SECURING VALVES TO THEIR SPINDLES.** CLEMENT ELY, Manchester, England, assignor to Isaac Storey and Sons Limited, Manchester, England. Filed Feb. 17, 1904. Serial No. 194,056.



Claim.—In the connection of valve-spindles to valves, a valve spindle having an enlargement or prepared extremity, a loose ring or part having a tubular extension compressed or turned over around said extremity, a screwed union, and a non-integral valve, said union engaging said valve and securing same around the ring or part, substantially as described.

784,997. **DAMPER.** PHILIP FAUTH, Washington, D. C. Filed June 9, 1904. Serial No. 211,868.



Claim.—1. The combination with a pipe or duct, a plate on one surface thereof having a threaded orifice, and a damper fitted to the pipe or duct and provided with socket in one end, of a stem having a thread which screws into the threaded orifice in the plate whereby to feed the stem into the socket when turned and whereby the damper may be forced against the opposite side of the pipe.

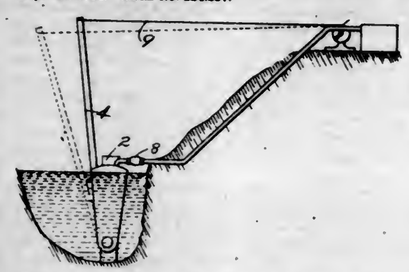
2. The combination with a pipe or duct, a plate on one surface thereof having a threaded orifice, and a damper fitted to the pipe or duct and provided with a socket in one end, of a stem having a thread which screws into the threaded orifice in the plate whereby to feed the stem into the socket when turned and whereby the damper may be forced against the opposite side of the pipe, and means for positively locking the damper wherever set against turning.

3. The combination with a pipe or duct, a plate on one surface thereof having a threaded orifice, and a damper fitted to the pipe or duct and provided with a socket in one end, of a stem having a thread which screws into the threaded orifice in the plate whereby to feed the stem into the socket when turned and to hold the stem against endwise movement when not turned and a nut on the threaded portion of the stem which screws up to the plate on the side of the flue or duct and acts in opposition thereto to lock the damper wherever set against turning.

4. The combination with a pipe or duct, a plate on one surface thereof having a threaded orifice, and a damper fitted to the pipe or duct and provided with an angular socket in one end, of a stem having an angular end which enters the angular socket and a thread which screws into the threaded orifice in the plate whereby to feed the stem into the socket when turned and to hold the stem against endwise movement when not turned and a nut on the threaded portion of the stem which screws up to the plate on the side of the flue or duct and acts in opposition thereto to lock the damper wherever set against turning.

5. The combination with a pipe or duct, and a damper fitted therein, of a stem secured to the damper, said stem having a threaded portion, a plate secured to the pipe or duct and having a threaded orifice for the threaded portion of the stem and a nut on the threaded portion of the stem which screws up to the plate and in conjunction therewith locks the damper against turning, and a handle on the stem by which it is held when the nut is turned to lock the damper.

784,998. **FORCE-PUMP.** RICHARD F. GEORGE, Palmyra, Va. Filed Sept. 15, 1904. Serial No. 224,567.



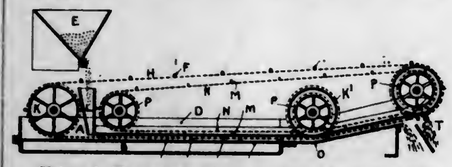
Claim.—1. In a device of the character described, a casing adapted to be mounted in a submerged position, a single-armed lever hinged at its lowest extremity to said casing and having a projecting portion adapted to fit said casing, means to operate said lever to force the water from said casing and means to convey the water to a storing-receptacle.

2. In a device of the character described, a casing mounted vertically in a submerged position, a single-armed lever hinged at its lowest extremity to said casing and extending upwardly, said lever having a projecting portion adapted to fit said casing, means to operate said lever to force the water from said cavity and means to convey the water to a storing-receptacle.

3. In a device of the character described, a casing mounted vertically in a submerged position, a single-armed lever hinged at its lowest extremity to said casing and extending upwardly, said lever having a projecting portion adapted to fit said casing, means to withdraw said projecting portion from the casing to permit the latter to fill, means to operate said lever to force the water from said casing and means to convey the water to a storing-receptacle.

4. In a device of the character described, a casing mounted vertically in a submerged position, a single-armed lever hinged at its lowest extremity to said casing and extending upwardly, said lever having a projecting portion adapted to fit said casing, means to withdraw said projecting portion from the casing to permit the latter to fill, a windlass and line connected to the upper extremity of the lever to operate the same to force the water from said casing, and means to convey the water to a storing-receptacle.

784,999. **APPARATUS FOR SEPARATING AND CONCENTRATING MINERALS.** GEORGE A. GOYDER and EDWARD LAUGHTON, Adelaide, South Australia, Australia. Filed Aug. 5, 1903. Serial No. 168,332.



Claim.—1. The apparatus for separating minerals and extracting some of them as concentrates consisting of a vessel adapted to contain a solution, the floor of such vessel being partly horizontal and partly inclined and provided with means for heating the solution, a feeding-hopper extending across one end of the said vessel adapted to feed ore or minerals in a finely-divided state, a series of transverse rod-rakes, and means for moving them at a regulated speed along the bottom of the vessel from the feed to the discharge end, inclined deflectors along and above the bottom of the separating portion of the vessel, trough-receptacles arranged parallel with the said deflectors and at such distance from the bottom of the vessel as to enable the gas-raised particles of mineral to be deflected, guided, deposited and collected therein, sloping extensions of said troughs and angular rakes for discharging the concentrates from the troughs through the sloping extension of the vessel.

2. In apparatus for effecting the separation of minerals and extracting some of them as concentrates, a vessel provided with inclined deflector-plates and V-shaped troughs, the said deflector-plates being arranged alternately with and so that their deflecting planes extend at an angle to and overlap the sides of the V-shaped troughs which latter underlie the deflector-plates and receive the particles of mineral as they are deflected by the said plates, substantially as herein described.

3. In apparatus for effecting the separation of minerals and extracting some of them as concentrates, a vessel having inclined deflector-plates and V-shaped troughs, the former being arranged with their deflecting planes extending to and overlapping the sides of the latter, and a series of transverse rod-rakes adapted to be actuated at a regulated speed and to cause the minerals to travel along the floor of the said vessel as and for the purpose set forth.

4. In apparatus for effecting the separation of minerals and extracting some of them as concentrates, a vessel having inclined deflector-plates and V-shaped troughs, the former being arranged with their deflecting planes extending at an angle to and overlapping the sides of the latter, a series of transverse rod-rakes adapted to be actuated at a regulated speed and to cause the minerals to travel along and over the floor of the said vessel and a sloping extension adapted to enable the transverse rod-rakes to discharge tailings, as and for the purpose set forth.

785,000. **SEALING MEANS FOR VESSELS.** JAMES M. HICKS, Summit, N. J., assignor, by direct and mesne assignments, to The Auto Stopper Company, New York, N. Y. Filed Aug. 11, 1903. Serial No. 169,074.



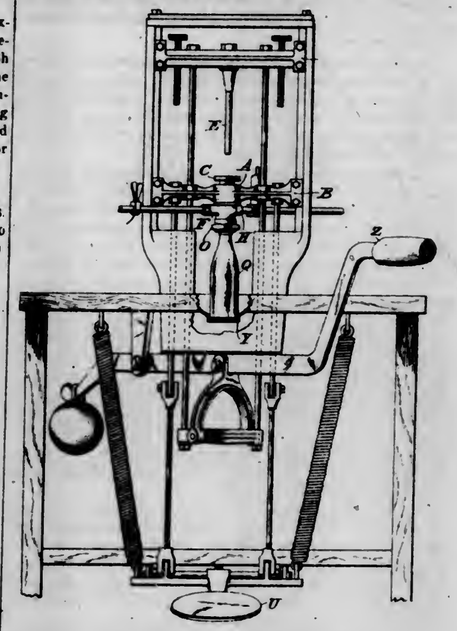
Claim.—1. In a means for sealing vessels, the combination consisting of a vessel provided with a neck and with a circumferential bead surrounding its mouth, said bead being provided with a vertical groove or grooves, the surface beneath said bead forming a shoulder therewith parallel with the mouth; a cap having a top surface, and a flange pendent from its outer diameter, provided with indents for locking with said bead on the vessel; a disk of sealing material located and held within said cap, all constructed arranged and combined to operate to seal a vessel by compressing the sealing material in said cap upon the walls of the vessel-mouth and locking the indents of the said cap under the shoulder beneath the said bead, by turning the vessel and cap relatively to each other to open or close it substantially as specified.

2. In a means for sealing vessels, the combination consisting of a vessel provided with a neck and with a bead surrounding its mouth; the surface beneath said bead being substantially parallel with the top of said bead and bottle-mouth and provided with a vertical groove or grooves in said bead; a cap provided with flat top surface surrounding a centrally-depressed surface; downwardly and centrally inclined walls or surfaces joining the said top surface with the central depression; a flange pendent from the outer diameter of said top surface, provided with means for locking with the shoulder under said bead; sealing material located in said cap, all constructed, arranged and combined to operate to seal a vessel by compressing the sealing material to such a limit that the locking means take under the said shoulder on the vessel-neck and is locked or unlocked solely by circumferential movement of the cap or vessel, while under pressure, substantially as specified.

3. The combination in a sealing-cap for vessels consisting of an unbroken top surface; a continuous flange pendent from the outer circumference of said top surface, provided with means to lock the said cap to a vessel by independent vertical and horizontal movements; said cap having a depression within the periphery of the top surface having its outer surface inclined downwardly and centrally of said cap, all constructed, and arranged when secured over the mouth of a vessel to include a taper chamber between the inner walls of the vessel-mouth and the outer wall of the said downwardly and centrally inclined depression in the said cap, substantially as and for the purposes specified.

785,001. **MACHINE FOR BOTTLING LIQUIDS.** JOHN A. HICKS, Summit, N. J., assignor, by mesne assignments, to The Auto Stopper Company, New York, N. Y. Filed July 27, 1904. Serial No. 218,242.

Claim.—In a bottling-head for bottling-machines, the combination consisting of the corking-tube as D; a flange-plate secured to the base of said bottling-head, surrounding the base of said corking-tube, and forming a space between the said flange and the base of said bottling-head; passages for conveying fluid and for air-discharge leading to and from the space between said flange and the base of said corking-tube, all combined and arranged substantially as specified, whereby the fluids in their passage to and air in its passage from a vessel being filled, passes beneath the corking-tube into the bottle substantially as specified.



785,002. **MANUFACTURE OF IRON AND STEEL.** JAMES J. HUDSON, Philadelphia, Pa. Filed Mar. 9, 1904. Serial No. 197,212.



Claim.—1. The improvement in the art of manufacturing iron and steel, which consists in placing a combined charge of charcoal and the material to form such metal upon the hearth or bottom of a furnace, melting said metal with the charcoal, and maintaining a molten bath of the metal in contact with the charcoal until the completion of the heat.

2. The improvement in the art of manufacturing iron and steel, which consists in placing a combined charge of charcoal and the material to form such metal upon the hearth or bottom of a furnace, heating said furnace to a temperature sufficient to melt said metal with the charcoal, and maintaining a molten bath of the metal in contact with the charcoal until the completion of the heat.

3. The improvement in the art of manufacturing iron and steel, which consists in placing a charge of charcoal upon the hearth or bottom of a furnace, placing material to form such metal upon said charcoal, melting said metal with the charcoal, and maintaining a molten bath of the metal in contact with the charcoal until the completion of the heat.

4. The improvement in the art of manufacturing iron and steel, which consists in heating a suitable furnace, placing a charge of

charcoal upon the hearth or bottom of the same, placing the material to form such metal upon said charcoal, introducing a blast of air to raise the heat of the furnace and melt the metal, and then maintaining said metal in a molten bath in contact with the charcoal until the completion of the heat.

5. The improvement in the art of manufacturing iron and steel, which consists in heating a suitable furnace, placing a charge of charcoal upon the hearth or bottom of the same, placing a charge of iron upon said charcoal, introducing a blast of air to raise the temperature sufficiently to melt and refine said charge, and maintaining a molten bath of the metal in contact with the charcoal until the completion of the heat.

6. The improvement in the art of manufacturing iron and steel, which consists in heating a suitable furnace, placing a charge of charcoal and iron upon the hearth or bottom of the same, introducing a blast of air to increase the heat and melt said charge, and then maintaining a molten bath of the metal in contact with the charcoal until the completion of the heat.

7. The improvement in the art of manufacturing iron and steel, which consists in heating a suitable furnace, placing a charge of charcoal and iron upon the bottom or hearth of the same, introducing a blast of air to increase the heat and effect the melting of the charge, and maintaining said blast until the iron is caused to boil in the presence of the charcoal whereby it may be refined by the charcoal and maintained in a molten condition in contact therewith until the completion of the heat.

8. The improvement in the art of manufacturing charcoal iron and steel of uniform grade or quality, which consists in heating a suitable furnace, placing a charge of charcoal and iron upon the hearth or bottom of the same, introducing a blast of air to increase the heat of the furnace and thereby melt the metal, maintaining such metal in a molten condition in the presence of the charcoal whereby it may be refined by the same until the metal shows the analysis desired, such process being carried on in such a manner as to permit testing and analysis of the metal from time to time, and then casting said metal substantially as described.

9. The improvement in the art of manufacturing charcoal iron and steel, which consists in heating a suitable furnace, charging the same with alternate layers of charcoal and iron, introducing a blast of air to assist the combustion and raise the melting heat, and maintaining a molten bath of the metal in contact with the charcoal until the impurities of the metal are burned out and the heat has been completed.

10. The improvement in the art of manufacturing charcoal iron and steel, which consists in heating a suitable furnace, charging the same with alternate layers of charcoal and iron, introducing a blast of air to assist the combustion and raise the melting heat, maintaining said metal in a molten condition in contact with the charcoal, and finally boiling it until the impurities of the metal are burned out and the heat has been completed.

11. The improvement in the art of manufacturing charcoal iron and steel, which consists in heating a suitable furnace, charging the same with alternate layers of charcoal and iron, introducing a blast of air to assist the combustion and raise the melting heat, maintaining said metal in a molten condition until the impurities of the metal are burned out by the charcoal, causing said molten metal to boil, and then adding a suitable fuel to the metal to burn off the gases arising during the boiling operation until the metal shows the analysis desired.

12. The improvement in the art of manufacturing iron and steel, which consists in heating a suitable furnace, placing a charge of charcoal and iron upon the hearth or bottom of the same, melting said metal, introducing a blast of air to increase the heat and cause said charge to boil thereby refining the metal with the charcoal, and then finishing the boiling to bring the metal to the analysis required by the means for heating the furnace such as the gas, hydrocarbon vapor, or oil fuel, substantially as described.

785,008. DICHLOR-DIMETHYL-FLUORANE AND PROCESS OF MAKING SAME. PAUL JULIUS, Ludwigshafen-on-the-Rhine, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed June 14, 1904. Serial No. 212,570.

Claim.—1. The process for the production of dichlor-dimethyl-fluorane which consists in condensing phthalic anhydrid with ortho-chlor-para-cresol.

2. As a new article of manufacture the dichlor-dimethyl fluorane, such as can be produced by condensing phthalic anhydrid with ortho-chlor-para-cresol, which consists of colorless crystals, which is easily soluble in chloroform and in hot nitrobenzene, which is difficultly soluble in alcohol, ether and benzene, and which dissolves in concentrated sulfuric acid yielding a yellowish-green solution.

785,004. ELECTRIC MOTOR. RUDOLF KLEMM and FELIX REISS, Berlin, Germany. Filed May 26, 1904. Serial No. 209,949.



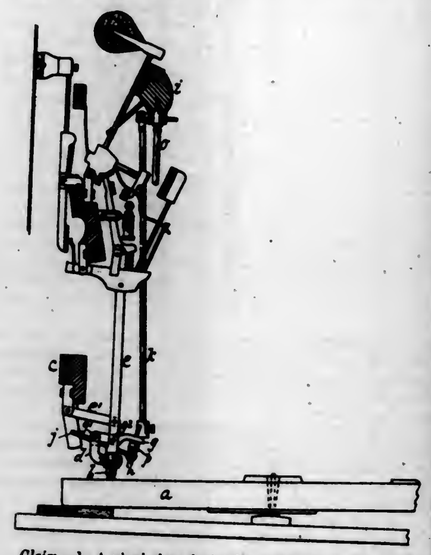
Claim.—1. The combination with a cylindrical casing, of a straight core placed across within the one part of said cylindrical casing, a spool surrounding said straight core and forming therewith a field-magnet, two opposite sectoral pole-shoes secured on the two ends of said straight core and extending over the whole length of said cylindrical casing, two studs connecting said two opposite sectoral pole-shoes, a shaft within the other part of said cylindrical casing in its axis and mounted to turn in said two studs, an armature on said shaft, a commutator, two brushes therefor, an insulating-block on the end of said cylindrical casing near said straight core, a terminal on said insulating-block and adapted to engage in an electric socket and comprising two contacts, a wire connecting the one of said two contacts with the one of said two brushes, a wire connecting the other of said two contacts with the one coil end of said spool, a wire connecting the other coil end of said spool with the other of said two brushes, and a centrifugal device on said shaft without said cylindrical casing.

2. The combination with a cylindrical casing, of a straight core placed across within the one part of said cylindrical casing, a spool surrounding said straight core and forming therewith a field-magnet, two opposite sectoral pole-shoes secured on the two ends of said straight core and extending over the whole length of said cylindrical casing, two studs connecting said two opposite sectoral pole-shoes, a shaft within the other part of said cylindrical casing in its axis and mounted to turn in said two studs, an armature on said shaft, a commutator, two brushes therefor, an insulating-block on the end of said cylindrical casing near said straight core, a terminal on said insulating-block and adapted to engage in an incandescent-lamp socket and comprising two contacts, a wire connecting the one of said two contacts with the one of said two brushes, a wire connecting the other of said two contacts with the one coil end of said spool, a wire connecting the other coil end of said spool with the other of said two brushes, and a fan on said shaft without said cylindrical casing.

3. The combination with a cylindrical casing, of an insulating-block on one end of said cylindrical casing, a terminal on said insulating-block and adapted to engage in an electric socket and comprising two contacts, two opposite frames secured on the inside of said insulating-block and longitudinally reaching along the inside of said cylindrical casing, a plurality of thin angular plates whose longer sides of sectoral cross-section are put together and secured in said two opposite frames to form two sectoral pole-shoes, while the shorter sides placed across are triangular and alternately inclined so as to bear on each other and form a field-magnet core, a spool surrounding said field-magnet core, two disks connecting said two opposite frames, a shaft in the axis of said cylindrical casing and mounted to turn in said two disks, an armature on said shaft, a commutator, two brushes therefor, a wire connecting the one of said two contacts with the one of said two brushes, a wire connecting the other of said two contacts with the one coil end of said spool, a wire connecting the other coil end of said spool with the other of said two brushes, and a centrifugal device on said shaft without said cylindrical casing.

4. The combination with a cylindrical casing, of an insulating-block on one end of said cylindrical casing, a terminal on said insulating-block and adapted to engage in an incandescent-lamp socket and comprising two contacts, two opposite frames secured on the inside of said insulating-block and longitudinally reaching along the inside of said cylindrical casing, a plurality of thin angular plates whose longer sides of sectoral cross-section are put together and secured in said two opposite frames to form two sectoral pole-shoes, while the shorter sides placed across are triangular and alternately inclined so as to bear on each other and form a field-magnet core, a spool surrounding said field-magnet core, two disks connecting said two opposite frames, a shaft in the axis of said cylindrical casing and mounted to turn in said two disks, an armature on said shaft, a commutator, two brushes therefor, a wire connecting the one of said two contacts with the one of said two brushes, a wire connecting the other of said two contacts with the one coil end of said spool, a wire connecting the other coil end of said spool with the other of said two brushes, and a ventilator on said shaft without said cylindrical casing.

785,005. PIANISSIMO DEVICE FOR PIANO-ACTIONS. WILLIAM KRETER and CHARLES KRETER, New York, N. Y. Filed Oct. 13, 1904. Serial No. 228,275.



Claim.—1. A pianissimo device for piano-actions composed of key, a capstan device, an elbow-piece having a foot that is supported upon the capstan device, and a lever pivoted to the elbow-piece and operatively connected to the action, substantially as specified.

2. A pianissimo device for piano-actions composed of a key, a capstan device, an elbow-piece having a foot that is supported upon the capstan, a lever pivoted to the elbow-piece, an abstract pivoted to the lever, and means for operating the lever, substantially as specified.

3. A pianissimo device for piano-actions composed of a key, a capstan device, an elbow-piece having a foot that is supported upon the capstan device, a lever pivoted to the elbow-piece, an abstract pivoted to the lever, a transverse rod engaging the lever, a hammer-rail, and a hanger which is adjustably secured to the hammer-rail and to the transverse rod, substantially as specified.

4. A pianissimo device comprising a key, a capstan device, an elbow-piece supported on the capstan device, a compensator-lever pivoted to the elbow-piece, an abstract pivoted to the lever, a link for guiding the abstract, and means for operating the lever.

5. A pianissimo device comprising a key, a capstan device, an elbow-piece on the capstan device, and an abstract linked to the elbow-piece, said elbow-piece having a socket or seat for retaining the abstract.

6. A pianissimo device comprising a key, a capstan device, an elbow-piece on the capstan device, and an abstract, said elbow-piece being linked to the abstract and loose or free with respect to the rest of the action.

7. A pianissimo device comprising a key having a capstan device, an abstract having a link pivoted to a fixed point, a compensating lever pivoted to the abstract, and a freely-movable elbow-piece joined to the compensating lever and resting on the capstan device.

785,006. NAILLESS HORSESHOE. NORMAN W. LA CLAIR, St. Paul, Minn., assignor of one-half to Ida M. Shoemaker, St. Paul, Minn. Filed Mar. 12, 1904. Serial No. 197,784.



Claim.—1. A nailless horseshoe, consisting, in combination with the body or shoe proper, of a crown-plate, a pad for protecting the frog of the hoof, means for fastening said crown-plate and pad to said body, a counter hinged upon the ends of said crown-plate, a strap connected with said counter and passing around the hoof, clips on the toe end and sides of said crown-plate for engaging the hoof, and a loop on one of said clips at said toe end, through which said strap is adapted to be adjusted.

2. A nailless horseshoe, consisting, in combination with the shoe proper, of a crown-plate, means for fastening said crown-plate to said shoe, clips on said crown-plate for engaging the hoof, a counter in turning connection with said crown-plate at the back of the hoof, and a strap connected with said counter and adapted to embrace the hoof, for the purposes specified.

3. A nailless horseshoe, consisting, in combination with the shoe proper, of a crown-plate, means for fastening the shoe to said crown-plate, clips projecting up at the toe portion and sides of said crown-plate for engaging said hoof, a counter at the back of the hoof, a hinged connection between said counter and crown-plate, a strap adjusted to said counter, and a loop on one of said clips at the toe portion of the plate, through which said strap is passed.

4. A nailless horseshoe, consisting, in combination with the shoe proper, of a crown-plate, a pad, means for detachably fastening said pad and crown-plate to said shoe, clips extending up from the toe and sides of said crown-plate for engaging the hoof, a counter at the back of the shoe, a turning connection between said counter and crown-plate, a strap adjusted to said counter, and a connection between said clip near the toe end of the crown-plate and said strap.

5. A nailless horseshoe, consisting, in combination, of a shoe proper A, a crown-plate B, a pad protecting the frog of the hoof, screws 2 by which the plate and pad are fastened to the shoe, a counter C at the back of the hoof, a hinge 7 connected with said plate, indents on the hinge for engaging the hoof, a strap 12 adjusted to the ends of the counter, clips 13, 16 and 17 extending up from the toe portion and sides of the plate, and a loop 14, through which said strap is adapted to be passed.

785,007. MOVABLE PLATFORM FOR EXCAVATING-MACHINES, &c. FRANK P. LEACH, JOSEPH D. LEACH, and ARTHUR L. LEACH, Goldengate, Ill. Filed Oct. 10, 1904. Serial No. 227,909.

Claim.—1. The combination with a movable frame having longitudinal bottom planks and longitudinal top flanges, of an endless anchoring device comprising a plurality of transverse members constituting anchors and flexible connecting means for the same, a device having hook members engaging the anchors of the lower lead of said anchoring device, and draft means upon the frame connected with said device.

2. The combination with a movable frame having longitudinal bottom members and longitudinal top flanges spaced apart, of an endless anchoring device including a plurality of transverse members constituting anchors and flexible connecting means for the same, said frame being supported upon the lower lead of said anchoring device, the upper lead of which is supported between the top

sills, and a carriage or traveler slidable longitudinally with relation to the frame and having hook members engaging individual anchors of the endless anchoring device, and means upon the movable frame for exerting draft upon said carriage or traveler.



3. A movable frame including longitudinal bottom members, blocks supported upon the same, transverse members connecting said blocks and a superstructure including a pair of longitudinal flanges, in combination with an endless anchoring device comprising transverse members constituting anchors and flexible connecting means for the same, the lower lead of said anchoring device extending under the movable frame, and an upper lead of said anchoring device being disposed between the longitudinal sills, and means, including a carriage or traveler for operating the said anchoring device to shift the position of the movable frame.

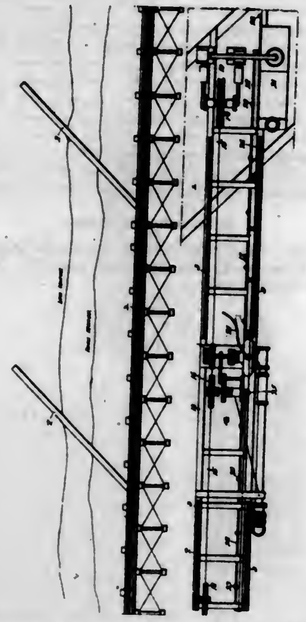
4. A machine-supporting frame, an endless anchoring device extending around said frame and comprising a plurality of anchoring members, and flexible means connecting said members, a longitudinally-movable carriage having means to engage individual anchors of the anchoring device, said carriage being provided with a bracket and a pulley carried by said bracket, a pulley having a fixed point of attachment to the frame, and a flexible member having a fixed point of attachment to the frame and guided over the pulley connected with the carriage and thence over the fixed pulley.

5. A movable frame including longitudinal bottom members constituting runners, longitudinal upwardly-extending flanges and a flooring between said flanges, in combination with an endless anchoring device comprising a plurality of transverse members constituting anchors and flexible connecting means for said anchors, the lower lead of said anchoring device supporting the bottom members, the runners of the movable frame and the upper lead of said anchoring device being supported upon the flooring between the top sills of the frame, a movable carriage having members slidable between the runners of the frame and provided with means engaging individual anchors of the endless anchoring device, and means for applying draft to said carriage.

6. The combination of a supporting-frame, an endless anchoring device surrounding said frame in the direction of its length, a traveler engaging said anchoring device, and suitably-guided means for applying positive draft from a fixed point upon the frame to said traveler to thereby shift the position of the frame.

785,008. SYSTEM OF DREDGING. William H. Le Chard, Atlantic City, N. J., assignor of one-half to William P. Cain, Atlantic City, N. J. Filed Apr. 7, 1904. Serial No. 202,104.

Claim.—1. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean, a pumping apparatus mounted on said pier, and means for discharging spoil from said pumping apparatus, said means having a discharging end which does not partake of the movement of the pumping apparatus.



2. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean, a pumping apparatus movable on said pier, means for driving said pumping apparatus at any point, and means for discharging the spoil from said pumping apparatus.

3. In a system for excavating sand or spoil from the ocean the combination of a bulkhead, a pier extending from the same, a movable pumping apparatus mounted on the pier, and means for discharging the sand or spoil as the pumping apparatus is moved on said pier.

4. In a system for excavating sand or spoil from the ocean, the combination of a bulkhead, a pier extending from the same, a movable pumping apparatus mounted on the pier, and means for discharging the sand or spoil as the pumping apparatus is moved on said pier, said means having a point of discharge behind the bulkhead.

5. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean, a motive-power generator carried by the land end of said pier, a movable pumping apparatus mounted on the pier, means for driving said pumping apparatus from said motive-power generator as the former is moved back and forth, and means for discharging the sand or spoil as the pumping apparatus is moved on the pier.

6. In a system for excavating sand or spoil from the ocean, the combination of a bulkhead, a pier extending from the same, a motive-power generator carried by the land end of the pier, a movable pumping apparatus mounted on the pier, means for driving said pumping apparatus from said motive-power generator as the former is moved back and forth, and means for discharging the sand or spoil as the pumping apparatus is moved on the pier.

7. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean, a pumping apparatus movable on said pier, means for driving said pumping apparatus at any point, and means for discharging the spoil from said pumping apparatus, said means having a discharge end which does not partake of the movement of the pumping apparatus.

8. In a system for excavating sand or spoil from the ocean, the combination of a bulkhead, a pier extending from the same, a motive-power generator at the land end of the pier, a movable pumping apparatus mounted on the pier, means for driving said pumping apparatus from said motive-power generator as the former is moved back and forth, and means for discharging the sand or spoil as the pumping apparatus is moved on the pier, said means having a point of discharge behind the bulkhead.

9. The combination in a system for excavating sand or spoil from the ocean, of a series of piers extending into the ocean, a pumping apparatus movable on each pier from end to end of the same and transferable from one pier to the other, a motive-power generator, driving means operated by the same for actuating the pumping apparatus at any point the latter may occupy in the length of the pier, a suction device carried by said pumping apparatus, and means for discharging the spoil as the pump is moved back and forth.

10. The combination in a system for excavating sand or spoil from the ocean of a series of piers extending into the ocean, rails carried by said piers, a pumping apparatus movable on said rails from end to end of each pier and transferable from one pier to the other, an engine, driving means operated by the engine for actuating the pumping apparatus at any point the latter may occupy in the length of the pier, suction apparatus carried by said pumping structure, and means for discharging the spoil as the pump is moved back and forth.

11. The combination in a system for excavating sand or spoil from the ocean, of a bulkhead, a series of piers extending from said bulkhead, an engine mounted on the bulkhead, rails carried by said piers, a pumping apparatus movable on said rails from end to end of the piers and transferable from one pier to the other, driving means operated by the engine for actuating the pumping apparatus at any point the latter may occupy in the length of the pier, suction apparatus carried by said pumping structure, and means for discharging the spoil behind the bulkhead as the pump is moved back and forth.

12. The combination in a system for excavating sand or spoil from the ocean, of a series of piers extending into the ocean, an engine mounted at the land end of said piers, rails carried by said piers, a pumping apparatus movable on said rails from end to end of the piers and transferable from one pier to the other, driving means operated by the engine for actuating the pumping apparatus at any point the latter may occupy in the length of the pier, suction apparatus carried by said pumping structure, and means for discharging the spoil as the pump is moved back and forth.

13. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean, a pumping apparatus movable on said pier, and a fixed motive-power generator from which said pumping apparatus is operated as it is being moved on the pier.

14. In a system for excavating sand or spoil from the ocean, the combination of a pier extending into the ocean, a pumping apparatus movable on said pier, means for discharging the spoil from said pumping apparatus, and an engine for driving said pumping apparatus as it is moved back and forth on the pier, the discharging means having an outlet end which does not partake of the movement of the pumping apparatus.

15. In a system for excavating sand or spoil from the ocean, the combination of a pier extending into the ocean, a pumping apparatus movable on said pier, means for discharging the spoil from said pumping apparatus, and a fixed engine at the land end of said pier for driving said pumping apparatus as it is moved back and forth on the pier, the discharging means having an outlet end which does not partake of the movement of the pumping apparatus.

16. The mode described of reclaiming sand or spoil from the bed of the ocean, said mode consisting in constructing a bulkhead with a plurality of piers extending therefrom into the ocean, excavating sand or spoil from the bed of the ocean by means of suction apparatus, first in proximity to one pier and then in proximity to another pier, and then discharging the excavated material behind the bulkhead, whereby the natural action of the waves will redeposit sand or spoil adjacent to each pier during the intervals between the successive removals of the same.

17. In a system for excavating sand or spoil from the ocean, the combination of a pier extending into the ocean, a movable pumping apparatus mounted on the pier, a suction-pipe carried by the same, means for driving said pumping apparatus, means for raising and lowering said suction-pipe, and means for discharging the sand or spoil from said pumping apparatus.

18. The combination in a system for excavating sand or spoil from the ocean, of a bulkhead, a series of piers extending therefrom, an engine mounted on the bulkhead, rails carried by the piers, a pumping apparatus movable on said rails from end to end of the piers, driving means operated by the engine for actuating the pumping apparatus at any point the latter may occupy in the length of the pier, suction apparatus carried by said pumping structure, means for discharging the spoil as the pump is moved back and forth, means for moving said engine along the bulkhead, and provision for moving the pumping apparatus from one pier to another.

19. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean having a pumping apparatus movable thereon and operable on one side only of the same, and braces for the opposite side of said pier.

20. In a system for excavating sand or spoil from the ocean, the combination of a bulkhead, a fixed pier extending from the same at an angle thereto having a pumping apparatus movable thereon and operable on one side only of the same, and braces for the opposite side of said pier.

21. In a system for excavating sand or spoil from the ocean, the combination of a fixed pier extending into the ocean, a pumping apparatus movable on said pier, means for driving said pumping apparatus at any point, means for discharging the spoil as the pumping apparatus is advanced toward the end of the pier, and means for moving said pumping apparatus back and forth.

22. In a system for excavating sand or spoil from the ocean, the combination of a bulkhead, a pier extending from the same, a fixed engine carried by said bulkhead, a movable pumping apparatus mounted on the pier, means for driving said pumping apparatus from said fixed engine as the former is moved back and forth, means for discharging the sand or spoil as the pumping apparatus is moved toward and from the end of the pier, and means for moving said pumping apparatus back and forth.

23. In a system for excavating sand or spoil from the ocean, a pier, a pumping apparatus movable on said pier, a flexible tube for priming said pump, and a pipe conveying a priming medium carried by the pier.

24. In a system for excavating sand or spoil from the ocean, a pier, a pumping apparatus movable on said pier, a flexible tube for priming said pump, a pipe conveying a priming medium carried by the pier and connections for said tube carried by the pipe at intervals.

25. In a system for excavating sand or spoil from the ocean, a pier, a pumping apparatus movable on said pier, a carriage on which said pumping apparatus is mounted, a winch mounted on said carriage, means for driving the same, and a cord or rope fixed at each end of the pier and passing around said winch whereby when the latter is driven the carriage will be moved back and forth.

26. In a system for excavating sand and spoil from the ocean, a pier, a pumping apparatus movable on said pier, means for driving said pumping apparatus comprising pulleys mounted in fixed bearings at the ends of the piers, a driven wheel carried by the pumping apparatus, a rope or cable passing over said pulleys to and around the wheel carried by the pumping apparatus whereby the latter may be moved and driven at the same time, and means for driving one of the pulleys carried by the pier.

27. In a system for excavating sand and spoil from the ocean, a pier, a pumping apparatus movable on said pier, a hoisting apparatus carried therewith, means for driving said pumping and hoisting apparatus comprising pulleys mounted in fixed bearings at the ends of the pier, driven wheels carried by the pumping and hoisting apparatus, a rope or cable passing over said pulleys to and around the wheels carried by the pumping and hoisting apparatus, whereby the same may be moved and driven at the same time, and means for driving one of the pulleys carried by the pier.

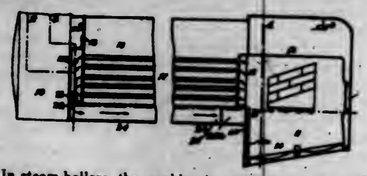
785,009. MULTITUBULAR STEAM-BOILER. John F. Liebentritt, Bankstown, near Sydney, New South Wales, Australia. Filed May 3, 1904. Serial No. 206,164.

Claim.—1. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and a tortuous flue, located adjacent said tubes on the exterior of said shell, communicating at one end with said tubes and at the other end with the open air.

2. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and a tortuous flue located adjacent said tubes and extending longitudinally thereof on the exterior of said shell, communicating at one end with said tubes and at the other end with the open air.

3. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and

communicating at one end with said fire-box, and a plurality of tortuous flues located adjacent said tubes on the exterior of said shell, communicating at one of their ends with said tubes and at their other ends with the open air.



4. In steam-boilers, the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and a plurality of tortuous flues, located adjacent said tubes and extending longitudinally thereof on the exterior of said shell, communicating at one of their ends with said tubes and at their other ends with the open air.

5. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and a plurality of tortuous flues extending longitudinally of said tubes, forming a plurality of longitudinal passages segmentally disposed in cross-section, and communicating at one of their ends with said tubes and at their other ends with the open air.

6. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and a plurality of tortuous flues extending longitudinally of said tubes, on the exterior of said shell, forming a plurality of longitudinal passages segmentally disposed in cross-section, and communicating at one of their ends with said tubes and at their other ends with the open air.

7. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and at their other ends with a chamber formed at the rear end of said shell, and a tortuous flue, located adjacent said tubes on the exterior of said shell, communicating at one end with said chamber and at the other end with the open air.

8. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and at their other ends with a chamber formed at the rear end of said shell, and a tortuous flue located adjacent said tubes and extending longitudinally thereof on the exterior of said shell, communicating at one end with said chamber and at the other end with the open air.

9. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and at their other ends with a chamber formed at the rear end of said shell, and a plurality of tortuous flues located adjacent said tubes on the exterior of said shell, communicating at one of their ends with said chamber and at their other ends with the open air.

10. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and at their other ends with a chamber formed at the rear end of said shell, and a plurality of tortuous flues, located adjacent said tubes and extending longitudinally thereof on the exterior of said shell, communicating at one of their ends with said chamber and at their other ends with the open air.

11. In steam-boilers the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, and at their other ends with a chamber formed at the rear end of said shell, and a plurality of tortuous flues extending longitudinally of said tubes, on the exterior of said shell, forming a plurality of longitudinal passages segmentally disposed in cross-section, and communicating at one of their ends with said chamber and at their other ends with the open air.

12. In steam-boilers the combination with the water-shell and fire-box, of forward and rear tube-plates, said rear tube-plate being set within said shell and forming therewith an annular rim, a baffle-plate extending transversely of said rim spaced away from said rear tube-plate and forming a chamber therewith, a plurality of tubes mounted in said tube-plates, communicating at their respective ends with said fire-box and said chamber, and a tortuous flue located adjacent said tube on the exterior of said shell, communicating at one end with said chamber and at the other end with the open air.

13. In steam-boilers, the combination with the water-shell and fire-box, of forward and rear tube-plates, said rear tube-plate being set within said shell and forming therewith an annular rim, a baffle-plate extending transversely of said rim spaced away from said rear tube-plate and forming a chamber therewith, a plurality of tubes mounted in said tube-plates, communicating at their respective ends with said fire-box and said chamber, and a tortuous flue located adjacent said tubes and extending longitudinally thereof on the exterior of said shell, communicating at one end with said chamber and at the other end with the open air.

14. In steam-boilers, the combination with the water-shell and fire-box, of forward and rear tube-plates, said rear tube-plate being set within said shell and forming therewith an annular rim, a baffle-plate extending transversely of said rim spaced away from said rear tube-plate and forming a chamber therewith, a plurality of tubes mounted in said tube-plates, communicating at their respective ends with said fire-box and said chamber, and a plurality of tortuous flues extending longitudinally of said tubes on the exterior of said shell forming a plurality of longitudinal passages segmentally disposed in cross-section and communicating at one of their ends with said chamber and at their other ends with the open air.

15. In steam-boilers, the combination with the water-shell and fire-box, of forward and rear tube-plates, said rear tube-plate comprising the head of said shell and being set within same for forming therewith an annular rim, a baffle-plate extending transversely of the lower portion of said rim and projecting beyond its peripheral surface, the upper end of said baffle-plate being provided with a flanged portion secured to said rear tube-plate and forming a chamber with said annular rim and tube-plate, a plurality of tubes mounted in said tube-plates, communicating at their respective ends with said fire-box and said chamber, and a tortuous flue extending longitudinally of said tubes, communicating at one end with an opening in said chamber and at its other end with an opening in said baffle-plate.

16. In steam-boilers, the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, a tortuous flue extending longitudinally of said tubes communicating at one end with substantially all of said tubes and at the other end with the open air, the forward convolutions of said flues being opposed to said fire-box and provided with apertures adapted to open therein, and closures for said apertures.

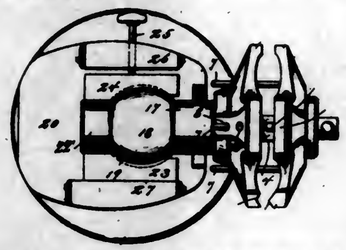
17. In steam-boilers, the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, a tortuous flue communicating at one end with substantially all of said tubes, and at its other end with the open air, forming a plurality of longitudinal flue-passages segmentally disposed in cross-section and having apertures in the convolutions of their forward ends adapted to communicate with said fire-box, and a closure for said apertures comprising a semicylindrical door.

18. In steam-boilers, the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, a tortuous flue communicating at one end with substantially all of said tubes, and at its other end with the open air, forming a plurality of longitudinal flue-passages segmentally disposed in cross-section and having apertures in the convolutions of their forward ends adapted to communicate with said fire-box, and a closure for said apertures comprising a substantially semicylindrical sliding door and means for operating same.

19. In steam-boilers, the combination with the water-shell and fire-box, of forward and rear tube-plates, said rear tube-plate being set within said shell and forming therewith an annular rim, a baffle-plate disposed transversely of said rim, projecting beyond the peripheral surface of said shell and forming a chamber with said rear tube-plate, a plurality of tubes mounted in said plates, communicating at their respective ends with said fire-box and said chamber, a pair of tortuous flues extending longitudinally on the exterior of said shell and communicating at one of their ends with said chamber and at the other of their ends with the open air, the said flues being formed by a spaced substantially semicylindrical plate connecting said baffle-plate with the rear wall of said fire-box and provided with the alternating division-plates extending respectively from said baffle-plate and rear wall of said fire-box.

20. In steam-boilers, the combination with the water-shell and fire-box, of a plurality of fire-tubes extending through said shell and communicating at one end with said fire-box, a plurality of tortuous flues extending longitudinally of said tubes, on the exterior of said shell, forming a plurality of longitudinal passages segmentally disposed in cross-section and communicating at one of their ends with said chamber and at their other ends with the open air.

785,010. VISE. CARL J. LINDGREN, Warren, Pa. Filed Mar. 21, 1904. Serial No. 199,216.



Claim.—1. A vise comprising a bed-piece provided with lateral abutments, a pair of socket members disposed between the abutments, a movable jaw and operating-screw therefor, a fixed jaw having a shank provided with a ball to engage the socket members and adapted for rotary movement on an axis coincident with that of the screw, and a bolt carried by one of the abutments and adapted to move one of the socket members into engagement with the ball, thus to lock the shank against rotation and to hold it at any desired adjustment.

2. A vise comprising a base, a stationary jaw having a shank adjustably mounted thereon and adapted for rocking movement in a vertical plane about a transverse axis and for rotary movement about an axis coincident with its long diameter, and a movable jaw combined with the stationary jaw.

3. A vise comprising a base, a stationary jaw having a shank mounted thereon for rotary and rocking movements about axes respectively coincident with its long diameter and transversely thereto a nut carried by the shank, and a movable jaw provided with a two-part shank to straddle the nut and with a screw to engage the nut.

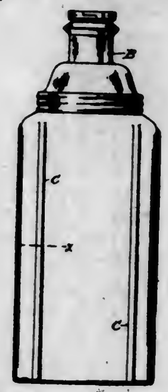
4. A vise comprising a base, socket members carried thereby, a shank having a ball engaging the socket members and adapted for rotary and rocking movements about axes respectively coincident with its long diameter and transversely thereto, abutments disposed on each side of the socket members, a bolt carried by one of the abutments and engaging one of the socket members to force the same into engagement with the ball, a multijawed head carried by the shank, and a movable multijawed head combined with the shank.

785,011. SECRET-SEALING MEANS FOR VESSELS. ABBOT A. LOW, Horseshoe, N. Y., assignor to The Auto Stopper Company, New York, N. Y. Filed Aug. 14, 1903. Serial No. 169,544.



Claim.—In a means for safety-sealing vessels, the combination, consisting of a cap secured over a vessel-mouth, and provided with an opening in its top surface; a stopper located beneath said cap, and its opening; a mass of adherent material secured to both the cap and the stopper, substantially as and for the purposes hereinbefore specified.

785,012. BOTTLE. ABBOT A. LOW, Horseshoe, N. Y., assignor to The Auto Stopper Company, New York, N. Y. Filed Mar. 15, 1904. Serial No. 198,139.



Claim.—In a bottle, the combination with the body thereof, of longitudinal ribs extending substantially throughout the length of the body, and raised from the surface of said body, whereby the hand may readily grasp the bottle firmly in pouring its contents, and to serve as a protection while in transportation, substantially as specified.

785,013. BOTTLE MOUTH AND NECK. ABBOT A. LOW, Horseshoe, N. Y., assignor to The Auto Stopper Company, New York, N. Y. Filed June 23, 1904. Serial No. 214,501.



Claim.—A vessel neck and mouth constructed substantially as specified and shown, with a circumferential bead on its exterior at its top, provided with vertical slots and, an internal bore of larger diameter above and smaller diameter below, joined the one to the other by a taper bore, substantially as specified.

785,014. TURBINE-ENGINE. EDWIN H. LUDEMAN, New York, N. Y. Filed Dec. 16, 1903. Serial No. 185,539.

Claim.—1. In a turbine-engine, the combination with a rotatable body, of a number of vanes carried thereby, each vane having a plurality of buckets, and nozzles to pass fluid at successive stages to the respective buckets.

2. In a turbine-engine, the combination with a turbine-wheel, of a series of vanes thereon occupying a radial position upon the per-

imeter of the wheel, a series of buckets upon each vane arranged in progression upon the radial line of the wheel, a casing for the engine, and a series of chambers having nozzles therein corresponding to the position of progression of the buckets.



3. In a turbine-engine, the combination with a turbine-wheel, of a number of vanes thereon occupying a radial position upon the perimeter of the wheel, a number of series of buckets upon the vanes arranged in progression upon the radial plane of the wheel, a casing for the engine, and a series of chambers having nozzles therein corresponding to the position of progression of the series of buckets.

4. As an article of manufacture, a vane for a turbine-engine having a number of buckets, heads or abutments at the ends of and between the several buckets, and channels through the sides of the intermediate heads.

5. In a turbine-engine, the combination with a casing having a number of steam passages and nozzles, of a turbine-head adjacent thereto and having a number of concentric series of working faces to receive in succession the impulse of the fluid and each series organized to travel past one of said nozzles.

6. A turbine-engine comprising a rotatable body, a series of vanes carried thereby, each vane having a number of buckets, heads between such buckets, heads at the ends of the outer buckets, channels through the intermediate heads, a casing through a port adjacent to the position of travel of the respective buckets, chambers leading from one point of delivery from the buckets to the next port, and guards therebetween to occupy the channels in said heads to prevent escape of steam.

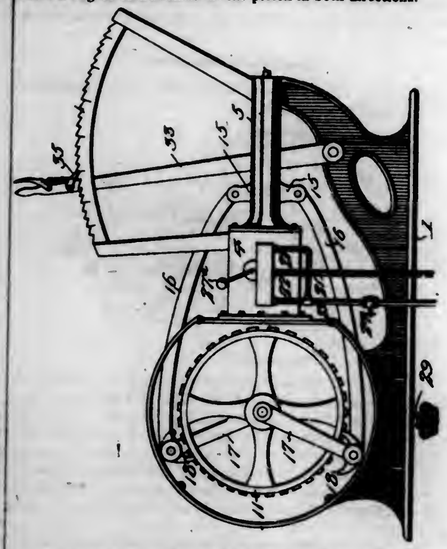
7. A turbine-engine comprising a rotatable body, a number of vanes carried thereby, such vanes having a number of series of buckets, each vane carrying a bucket from each of such series of buckets, heads upon each vane between such buckets, and heads at the ends of the outer buckets, channels through the intermediate heads, a casing having a port adjacent to the position of travel of each of the respective series of buckets, chambers leading from one point of delivery from the series to the next port, and guards therebetween to occupy the channels in said heads to confine the steam.

8. A turbine-engine comprising a casing, a wheel rotatable therein, the perimeter whereof has a working fit with the casing, a steam-nozzle adjacent to each point of working, a plurality of nozzles respectively at greater distances therefrom, chambers connecting said several nozzles, a supply for the first nozzle, an exhaust from the last nozzle, and a series of working faces carried by the wheel adjacent to each of said nozzles.

785,015. **PNEUMATIC SETTING-MACHINE FOR SAWMILL-CARRIAGES.** Alexander H. Masters, Greensboro, N. C. Filed July 20, 1904. Serial No. 218,720.

Claim.—1. A pneumatic setting-machine for sawmill-carriages, a base, a power-wheel, a reciprocating piston, a cross-head on the piston, means for connecting the cross-head and power-wheel to impart motion to the latter, and means arranged on opposite sides of the cross-head and connected for simultaneous adjustment to control the degree of movement of the piston in both directions.

2. A pneumatic setting-machine for sawmill-carriages, a base, a power-wheel mounted on the base, a reciprocating piston, a cross-head on the piston, means for connecting the cross-head and power-wheel to impart motion to the latter, a rod, means carried by said rod and arranged on each side of the cross-head, and means for operating said rod to simultaneously adjust the means carried by the rod to control the degree of movement of the piston in both directions.



3. A pneumatic setting-machine for sawmill-carriages, a power-wheel, a reciprocating piston, means for connecting the piston and power-wheel to impart motion to the latter, and means arranged for simultaneous adjustment to control the degree of movement of the piston in both directions.

4. A pneumatic setting-machine for sawmill-carriages, a power-wheel, a power-driven piston, means for connecting the piston and power-wheel to impart motion to the latter, a rod, means carried by said rod and adapted to control the degree of movement of the piston in both directions, and means for operating said rod to simultaneously adjust the means carried by the rod.

5. A pneumatic setting-machine for sawmill-carriages, a base, a power-wheel mounted on the base, a reciprocating piston, a cross-head carried by the piston, means to connect the cross-head and the power-wheel to impart motion to the latter, rods having threaded portions, blocks movable on said threaded portions and arranged on each side of the cross-head, gears secured to said heads, an internal gear adapted to mesh with said first-named gears, and means arranged on said internal gear, whereby it may be operated to rotate the rods to adjust the blocks to limit the movement of the piston in both directions.

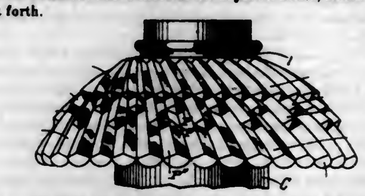
785,016. **COVER FOR FLAT-IRONS.** Anna B. Matthew, Millesburg, Pa. Filed May 14, 1904. Serial No. 207,979.



Claim.—A cover for the purpose specified comprising an outer casing consisting of top, sides and ends, an inner casing arranged therein, a lining sheet of asbestos interposed between the outer and inner casings, and an inturned flange extending from the lower edge of the outer casing, substantially as and for the purpose set forth.

785,017. **COMBINED LAMP-SHADE AND REFLECTOR.** Alexander P. McArthur, New York, N. Y. Filed Sept. 19, 1904. Serial No. 225,082.

Claim.—1. A shade and reflector composed of a single piece of glass and having a neck for engaging the walls of a chimney or electric bulb, the inside of said reflector being smooth, the outer surface of said reflector being substantially covered with series of integral prisms calculated to reflect the light-rays back into the reflector and out at the open mouth thereof, those of one series being raised in step-like formation above those of the adjacent series, substantially as set forth.



2. A shade and reflector composed of a single piece of glass and having a neck for enveloping a chimney or electric bulb, and having a series of inner spacing devices for engaging the wall of the chimney or bulb, the inside of said reflector being smooth, the outer surface of said reflector being substantially covered with series of integral prisms calculated to reflect the light-rays back into the reflector and out at the open mouth thereof, those of one series being raised or superimposed above those of the adjacent series in step-like formation, substantially as set forth.

3. A reflector composed of a single piece of glass having a smooth inside, and an exterior surface covered with series of light-reflecting prisms, the different series being superimposed relatively above one another in step-like formation, substantially as set forth.

4. A reflector having series of reflecting-prisms disposed along its outer surface, those of one series being disposed along a curved surface and removed a suitable distance from the surface of disposition of the next adjacent series, substantially as set forth.

5. A reflector having series of reflecting-prisms disposed along its outer face in step-like formation, a portion of the prisms forming an intermediate series being of different lengths, making a corresponding difference in the lengths of the reflecting-faces of the next adjacent series, substantially as set forth.

785,018. **DENTAL FORCEPS.** Ira P. Norton, Laporte, Ind. Filed Sept. 3, 1904. Serial No. 223,271.



Claim.—1. A pair of forceps having a lancet combined with the outer side of one of its jaws.

2. A pair of forceps having a detachable lancet combined with the outer side of one of its jaws.

3. A pair of forceps having the outer side of each of its jaws provided with a longitudinal groove, and lancets removably mounted within the grooves.

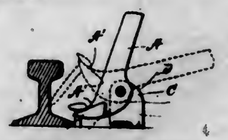
785,019. **FIRE-ESCAPE.** Frank A. Parker, Spencer, Iowa. Filed June 11, 1904. Serial No. 212,178.



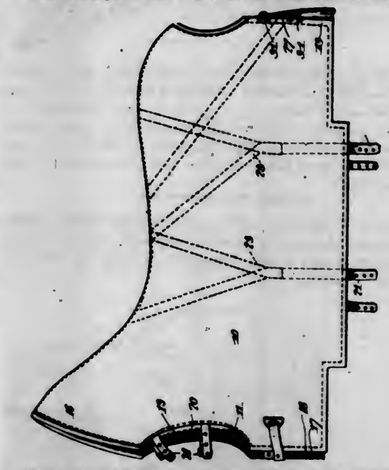
Claim.—A fire-escape embodying a stock having a central intersecting enlarged circular eye which serves to divide the stock, above and below the eye into two equal straight parts, said parts having circular eyes on opposite ends, said central eye being arranged in reverse direction from the end eyes so that the offsets thereof will extend laterally on opposite sides of the intersecting ends of the two parts of the stock, substantially as specified.

785,020. **SPIKE-EXTRACTOR.** George F. Pearson, Lowell, Mass. Filed Feb. 29, 1904. Serial No. 195,763.

Claim.—The combination with a claw-bar having an integral cam-foot provided with lateral stop-shoulders and projecting forward of the bar to form a claw-toe, said cam-foot projecting in rear of the bar to form a rounded heel, said toe and heel being connected by a cam-bottom of gradually-increasing curvature from toe to heel, of a pendent U-form fulcrum-piece pivoted to said heel and having a straight serrated bottom formed across the bridge of said piece, said serrated bottom being at nearly right angles to the upright claw-bar and terminating in front in a rounded corner, said fulcrum-piece abutting against said lateral stop-shoulders at the limit of its forward movement, when the claw-bar and fulcrum-piece are nearly parallel, substantially as specified.



785,021. **ANIMAL-BLANKET.** Samuel D. Reid and Ella M. Reid, Burlington, Kans. Filed Mar. 26, 1904. Serial No. 200,396.



Claim.—1. A blanket for animals having fastening means combined therewith, a head-covering detachably connected with the blanket and provided with apertures for the eyes and nostrils, and with an aperture for the mouth, and a closure for the mouth-aperture.

2. A blanket for animals having fastening means combined therewith, a head-covering detachably connected with the blanket and provided with apertures for the eyes and nostrils, and with an aperture for the mouth, a flap connected at one end with the head-covering beneath the chin, and fastening means for connecting the free end of the flap to the head-covering.

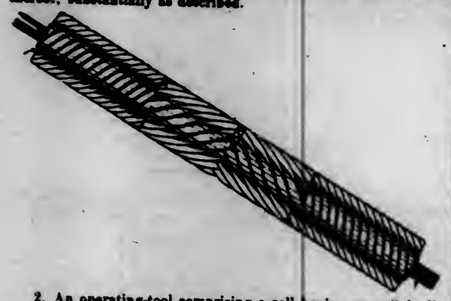
3. A blanket for animals having fastening means combined therewith at front and rear and belly portions, a head-covering detachably connected with the blanket and provided with apertures for the eyes and nostrils, and with an aperture for the mouth, a flap connected at one end to the head-covering beneath the chin, fastening means for connecting the free end of the flap to the head-covering, side flaps connected to the covering and extending over the said flap, and a yieldable strap disposed exteriorly of the first-named flap to hold the side flaps in position.

4. A blanket for animals having fastening means combined therewith, a head-covering detachably connected to the blanket and provided with ear-pockets, with apertures for the eyes and nostrils, and with an aperture for the mouth, and a closure for the mouth-aperture.

5. A blanket for animals conforming substantially to the body of the animal and having fastening means combined therewith, a head-covering detachably connected to the blanket and provided with ear-pockets and with apertures for the eyes and nostrils, with an aperture for the mouth and with a ventilating-aperture disposed intermediate of the eye-apertures, and a pair of flaps, one for closing the mouth-aperture and the other for closing the ventilating-aperture.

785,022. **OPERATING-TOOL FOR LEATHER-WORKING MACHINES OR THE LIKE.** John Rood, Danvers, Mass. Filed May 9, 1904. Serial No. 207,997.

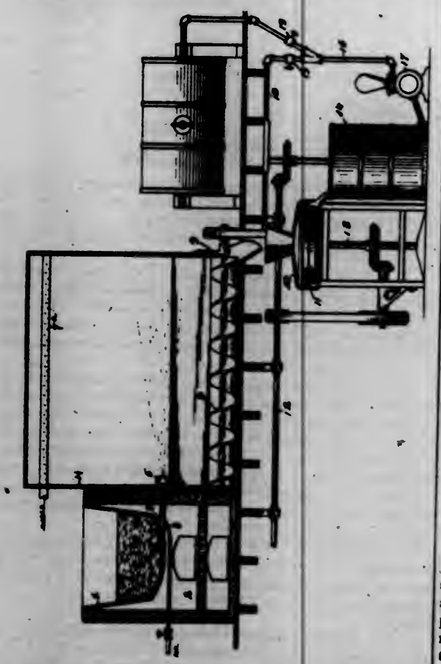
Claim.—1. An operating-tool comprising a roll having helical blades set thereon in groups the groups of blades at one or both ends of the roll being of sharper pitch than those at the central portion thereof, substantially as described.



2. An operating-tool comprising a roll having oppositely-disposed helical blades set thereon, the pitch of the said blades increasing from the center toward one or both of the ends of the tool.

3. An operating-tool comprising a roll having oppositely-disposed helical blades set thereon in groups, the pitch of the said groups of blades being greater at one or both of the ends of the roll than at the center.

785,023. **PROCESS OF MANUFACTURING WHITE LEAD.** WILLSON H. ROWLEY and JOHN H. MONTGOMERY, St. Louis, Mo., assignors of one-third to Martin Shaughnessy, St. Louis, Mo. Filed Aug. 5, 1901. Serial No. 70,904.



Claim.—1. The within-described steps in the process of making white lead, consisting in first melting the lead, then simultaneously atomizing and oxidizing the molten lead, and thereby producing oxid-laden particles, then subjecting said oxid-laden particles to the oxidizing action of moisture in a closed chamber, and finally precipitating said particles within said chamber, by the action of jets of water, substantially as specified.

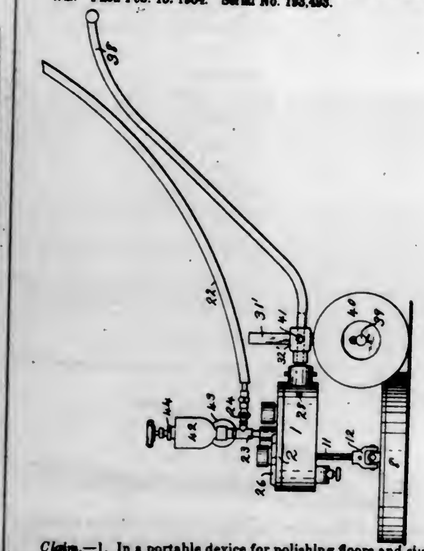
2. The within-described steps in the process of making white lead, consisting in first melting the lead, then simultaneously atomizing and oxidizing the molten lead, and thereby producing oxid-laden particles, then subjecting said oxid-laden particles to the oxidizing action of moisture in a closed chamber, precipitating said particles within said chamber, by the action of jets of water, and finally reducing said oxid-laden particles by grinding the same, substantially as specified.

3. The process of making white lead, consisting of first melting the lead, then simultaneously atomizing and oxidizing the molten lead, and thereby producing oxid-laden particles, then subjecting said oxid-laden particles to the oxidizing action of moisture in a closed chamber, precipitating said particles within said chamber, by the action of jets of water, reducing said oxid-laden particles by grinding the same then stirring the liquid to prevent settling, and finally subjecting the material to the action of carbonic-acid gas and air to produce carbonate of lead, substantially as specified.

4. The steps in the process of making white lead, consisting in first-melting the lead; secondly, simultaneously atomizing and oxidizing the molten lead and thereby producing oxid-laden particles; thirdly, precipitating said particles by the action of jets of water; fourthly, agitating the liquid to prevent settling of said particles; and finally reducing said oxid-laden particles by grinding the oxid therefrom in a grinding-mill, substantially as specified.

5. The process of making white lead, consisting in first melting the lead; secondly, simultaneously atomizing and oxidizing the molten lead and thereby producing oxid-laden particles; thirdly, precipitating said particles by the action of jets of water; fourthly, agitating the liquid to prevent settling of said particles; fifthly, reducing said oxid-laden particles by grinding the oxid therefrom in a grinding-mill, and finally subjecting the material to the action of carbonic-acid gas and air, to produce carbonate of lead, substantially as specified.

785,024. **POLISHING-MACHINE.** JOSEPH SHAVER, Milwaukee, Wis. Filed Feb. 15, 1904. Serial No. 193,493.



Claim.—1. In a portable device for polishing floors and similar surfaces, a truck comprising a pair of wheels and a wheel-connecting axle; a motor pivotally supported from said wheels upon said axle; a polishing-wheel pivotally suspended from the driving-shaft of said motor and means for adjusting said motor and polishing-wheel vertically from said truck.

2. In a portable device for polishing floors and similar surfaces, a truck comprising a pair of wheels and a wheel-connecting axle; a motor pivotally supported from said wheels upon said axle; a polishing-wheel pivotally suspended from the driving-shaft of said motor; an operating-handle pivotally supported from said wheels upon the opposite side of said axle and means for adjustnig said motor and polishing-wheels vertically from said truck.

785,025. **STOCK-WASHER.** GEORGE R. SHERWOOD, Oak Park, Ill. Filed June 11, 1904. Serial No. 212,222.

Claim.—1. In a machine of the character described, the combination with a suitable feed-chute, of a disintegrating-wheel journaled adjacent to and transversely of the delivery end of said chute, and provided with forwardly-directed peripheral teeth, a chute within which said disintegrating-wheel operates, provided with a concentrically-curved bottom having upon its inner face a series of teeth opposed to the teeth of the feed-wheel and offset from the path of the latter, a vat into which the delivery end of the disintegrating-wheel chute delivers, mechanism for impelling the stock onwardly within the vat through the liquid therein, and mechanism for collecting and lifting the stock at the delivery end of the vat.



2. In a machine of the character described, the combination with a suitable vat and mechanism for disintegrating stock delivered to the vat, of a trough arranged within said vat having a segmental-shaped bottom, a beater-shaft arranged to extend parallel and concentrically with said trough-bottom, and a series of helically-disposed beater-blades upon said shaft.

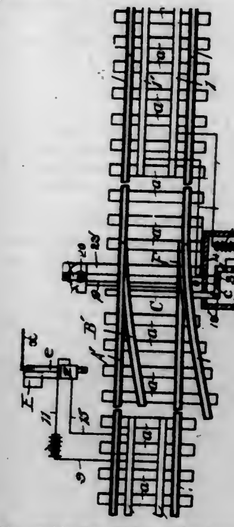
3. In a machine of the character described, the combination with a suitable vat and mechanism for disintegrating stock delivered to the vat, of a trough arranged within said vat having a segmental-shaped skeleton bottom, a beater-shaft arranged to extend parallel and concentrically with said trough-bottom, and a series of helically-disposed beater-blades upon said shaft.

4. In a machine of the character described, the combination with a suitable vat of a chute arranged in one end of said vat, a disintegrating-wheel arranged within said chute, means for delivering stock to said disintegrating-wheel, a skeleton trough communicating with the delivery end of said chute, a beater-shaft, carrying a series of spirally-disposed beater-blades, arranged to extend longitudinally within said trough, a conveyer arranged contiguous to the delivery end of said trough, means for admitting a continuous supply of water to the vat, and a waste-pipe communicating with the bottom of the vat, as and for the purpose set forth.

5. In combination with a suitable vat, a gang of disintegrating-wheels journaled upon a transverse axis within one end of said vat, a chute inclosing the lower side of said gang of disintegrating-wheels, having a bottom portion curved concentrically with the peripheries of the wheels and toothed, a skeleton trough with which the delivery end of said chute communicates, a spiral conveyer extending longitudinally within said trough, a skeleton conveyer arranged adjacent to the delivery end of said trough, a series of bars forming a grating extending from the delivery end of the trough downwardly to the bottom of the vat, and contiguous to the receiving end of the conveyer, an inlet-pipe overhanging the receiving end of the conveyer, and a waste-pipe communicating with the vat at the end remote from the conveyer; the bottom of said vat being inclined downwardly toward said waste-pipe, substantially as described.

6. In a machine of the character described, the combination with a suitable vat, of a chute arranged at one end of said vat, a disintegrating device arranged to receive material fed through said chute, a trough within said vat having one end arranged to receive material from the disintegrating device, mechanism operating within said trough for agitating and impelling the stock onwardly, mechanism for collecting and removing the stock from the vat at the delivery end of said trough, a source of liquid-supply communicating with the vat, and means for discharging the liquid at a point forward of the delivery end of said trough whereby the outflow of dirty liquid is in a direction the reverse of the delivery movement of the stock.

785,026. **ELECTRIC OPEN-SWITCH AND STOP SIGNAL.** JOHN B. SMILEY, South Omaha, Nebr. Filed Dec. 14, 1904. Serial No. 236,806.



Claim.—The combination with a switch-provided railway system, of two contact-rails positioned between the steel rails proper, a pivotally-held contact-making rock-lever, an electric conductor extending from said rock-lever to one of said intermediate contact-rails, a connecting-bar secured to the moving rail ends of the switch and being in engagement with said contact-making rock-lever, an electrical terminal in circuit, said rock-lever being adapted to come in contact with said terminal, a conductor leading from said electrical terminal, and secured to the remaining contact-rail, two pendent brushes secured to a suitable locomotive and adapted to come in contact with said contact-rails, and a suitable electric bell in circuit with said brushes.

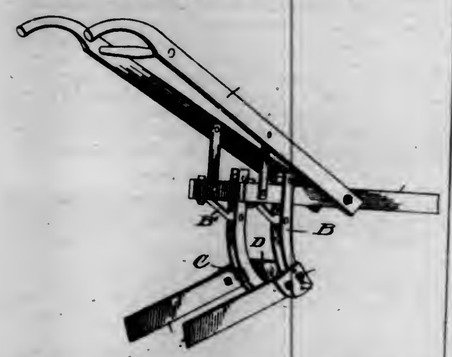
785,027. **DEVICE FOR ATTACHING HANDLES TO CARPET-SWEEPER RAILS.** DELL F. STARKWEATHER, Grand Rapids, Mich., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich., a Corporation. Filed Apr. 1, 1902. Serial No. 100,964.



Claim.—A carpet-sweeper handle having a tapering screw-threaded end provided with a slot and a metallic reinforcement forming a permanent part of the handle, said reinforcement consist-

ing of a strip of suitable material surrounding and conforming in contour to said screw-threaded end and having the ends thereof extending in said slot and the abutting portions thereof flush.

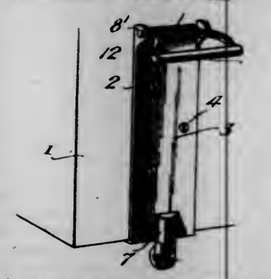
785,028. VINE-CUTTER. ROBERT M. VARNEDOE, Thomasville, Ga., assignor of one-half to J. W. Peacock, Thomasville, Ga. Filed Dec. 19, 1904. Serial No. 237,570.



Claim.—1. A vine-cutting apparatus comprising a plow-beam, handles thereto, double plow-stocks secured to said beam, a bar having angled ends, bolts for fastening said bar to the front edges of said stocks, and cutting-blades adjustably mounted upon the angled ends of said bar, as set forth.

2. A vine-cutting apparatus comprising a plow-beam with handles thereto, plow-stocks secured to said beam, an angle-bar fastened to the front edges of said stocks and provided with series of perforations, cutting-blades pivotally mounted upon the angled ends of said bar, a pin carried by each of said blades and designed to engage one of the perforations in said bar, as shown and described.

785,029. BOX ROLLER OR TRUCK. BYRON L. VORE, Vanwert, Ohio. Filed Nov. 1, 1904. Serial No. 231,020.



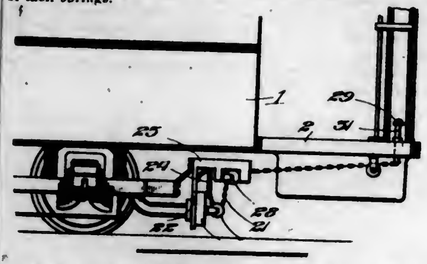
Claim.—1. A device of the character described comprising a body-plate carrying a flange and supporting-roller at its lower end and having at its upper end ears and a reinforcing portion, and a handle pivoted to said ears and adapted when adjusted for use to engage said reinforcing portion.

2. A device of the character described, comprising a body portion or bracket having a caster-roller at its lower end and ears at its upper end, and a handle pivotally connected to said ears and adapted to normally assume a vertical position, and provided with a portion adapted to bear upon the upper edge of the bracket when moved to a horizontal position for use, substantially as described.

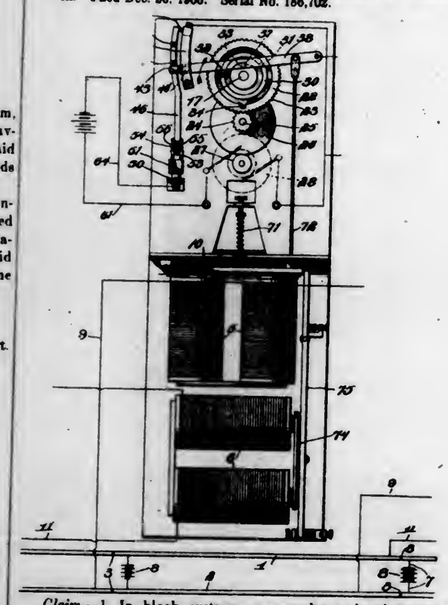
785,030. SWITCH. ABRAM E. WILLEY, Atlanta, Ga. Filed Dec. 13, 1904. Serial No. 236,697.

Claim.—1. In switch-operating mechanism, a switch-point, an oscillating disk eccentrically pivoted to the free end of the switch-point, operating-bars pivoted to said disk on opposite sides of its pivot, switch-operating bars on the car, and means for independently projecting said switch-throwing bars to operate the said switch-operating bars.

2. The combination with a car, of a guide-frame mounted thereon and provided with guide-passages, switch-throwing bars sliding in said guide-passages, springs for holding the bars in normal position, operating devices, and guided flexible connections between the operating devices and bars to project the latter against the resistance of their springs.



785,031. BLOCK SYSTEM. JOHN W. ANDERSON, Jr., Woodland, Ill. Filed Dec. 26, 1903. Serial No. 186,702.



Claim.—1. In block systems, a semaphore-signal for each block, a semaphore-actuating means for causing movement of the signal to safety, caution, or danger positions, a plurality of signal-controlling devices for each semaphore, and circuits connecting the controlling means of adjacent blocks in series, the controlling means of one class of one block being connected to the controlling means of another class in an adjacent block.

2. In block systems, insulated blocks, a motor, a motor-circuit, a grooved disk having a plurality of notches, means connecting the motor to the disk, means for transmitting the movement thereof to a semaphore-arm, and an electromagnetically-controlled member movable into and out of the groove and notches, said member controlling the making and breaking of the motor-circuit.

3. In block systems, insulated blocks, a semaphore-arm, a grooved disk having notches, an arm having a lug entering said groove and notches, an electromagnet for controlling the position of the arm, a motor, and means carried by the arm for making and breaking the circuit of the motor.

4. In block systems, insulated blocks, a semaphore-arm, a grooved disk having a plurality of notches, a circuit-closing arm having a lug adapted to the grooves and notches of the disk, a motor arranged in the circuit closed by said arm and serving as a disk-revolving means, and mechanism for controlling the movements of the arm.

5. In block systems, insulated blocks, a semaphore-arm, a grooved disk having a plurality of notches, a motor for revolving the disk, a motor-circuit, a circuit-closing arm having a lug adapted to the grooves and notches of the disk, means for connecting the disk to the semaphore-arm, and means for controlling the position of the circuit-closing movement.

6. In block systems, insulated blocks, a semaphore-arm, a revoluble disk connected to the arm, a motor for revolving the disk, and means in part controlled by the disk for making and breaking the motor-circuit.

7. A semaphore-operating mechanism, including a motor, a motor-circuit, a revoluble disk, connected to the motor and to the semaphore-arm, and means in part controlled by the disk for making and breaking the motor-circuit.

8. A semaphore-operating mechanism including a motor, a motor-circuit, a grooved disk in which the walls of the groove are provided with notches, a circuit-closing arm having a lug adapted to the grooves and notches of the disk, an electromagnet for moving the arm, means for connecting the motor to the disk and means for transmitting the movement of the disk to the semaphore-arm.

9. In semaphore-operating mechanisms, a motor, a motor-circuit, a revoluble disk connected to the semaphore-arm and to the motor and provided with grooves and notches, an arm having a lug adapted to the grooves and notches and serving to make and break the motor-circuit, an electromagnet controlling the position of the arm, and an independent means for stopping the movement of the arm during a portion of the time said magnet is energized.

10. In semaphore-operating mechanisms, a motor, a motor-circuit, a revoluble disk connected to the motor and to the semaphore-arm, said disk having on one of its faces an annular groove provided with notches in both walls, a lever or arm having a lug adapted to the groove and notches of the disk and serving to make and break the motor-circuit, an electromagnet arranged in a block-circuit, an armature disposed within the field of force of the electromagnet and connected to the circuit-controlling arm, and means tending to withdraw the armature from the poles of the magnet.

11. In a semaphore-actuating device, a motor, a motor-circuit, a revoluble disk connected to the motor, means for transmitting the movement of the disk to the semaphore, said disk being provided with an annular groove having notched walls, an arm or lever having a lug entering the groove and notches and serving when in the groove to close the motor-circuit and when in the notches to break said motor-circuit, and means for controlling the position of the arm.

12. In semaphore-operating mechanisms, a semaphore-arm, a disk connected thereto and having an annular groove provided with a notched wall, a motor for actuating the disk, and an arm having a lug adapted to enter the notch and lock the disk in predetermined position, said arm serving also to control the motor-circuit.

13. A semaphore-operating mechanism including a motor, a motor-circuit, a revoluble disk connected to the motor and to the semaphore-arm, said disk having grooves, the walls of which are provided with notches, an arm having a lug movable into and out of the grooves and notches, said lug serving when in the notches to lock the disk in predetermined positions controlling respectively the different classes of signals and when moved out of the notches into the grooves to release the disk, electrically-controlled means for moving the arm, means controlled by the arm serving to close the motor-circuit when the disk is released and to break said circuit when the disk is locked.

14. In block systems, insulated blocks, block-circuits, a motor, a motor-circuit, a semaphore-arm, a revoluble disk, means for transmitting the movement of the motor to the disk, means for transmitting the movement of the disk to the semaphore-arm, electrically-controlled means for simultaneously locking the disk in predetermined positions controlling respectively the different classes of signals and breaking the motor-circuit, and means for simultaneously unlocking the disk and closing the motor-circuit when a change of signal is required.

15. In a semaphore-operating mechanism, a motor, a motor-circuit, a disk having a pair of annular and concentric grooves, the walls of which are provided with notches, said disk being connected to the motor, means for transmitting the movement of the disk to the semaphore-arm, an arm or lever having a lug adapted to the grooves and notches and serving when in the grooves to close the motor-circuit and when in the notches to break said circuit, and means for limiting the movement of said arm.

16. In semaphore-operating mechanism, a motor, a motor-circuit, a disk having a pair of annular grooves, the walls of which are notched, said disk being connected to the motor, means for transmitting the movements of the disk to the semaphore-arm, a circuit-closing arm having a lug entering the grooves and notches, a pair of electromagnets having armatures, and means for connecting the circuit-closing arm to one of the armatures, a second armature serving as a means for limiting the movement of the first armature.

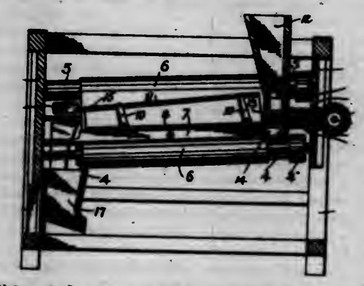
17. In semaphore-operating mechanisms, block-circuits, a semaphore for each block, said semaphores being movable to display safety, caution, and danger signals, a semaphore-actuating motor, a motor-circuit, and means for making and breaking the circuit, and a pair of electromagnets for controlling the position of the circuit maker and breaker, said magnets being connected, respectively, in different block-sections.

18. In a mechanism of the class described, a circuit including a liquid-containing vessel forming one terminal of the circuit, a pivotally-mounted contact forming the second terminal and movable by gravity into engagement with the first, a pivoted lever having a notched portion and a movable member movable to a position opposite the notch to allow swinging movement of the lever and downward movement of the pivoted terminal to close the circuit.

19. A mechanism of the class described, a circuit of which a liquid-containing vessel forms one terminal, a pivotally-mounted arm forming the second terminal, a pivoted lever having a linked connection with said arm and provided with a notch or recessed portion, and a movable member normally engaging the face of the lever to hold the circuit broken, and the adjustment of said movable member to a position in alinement with said recess to permit the swinging movement of the lever and downward movement of the pivoted arm to close the circuit.

20. In semaphore-operating mechanisms, a semaphore-arm, a revoluble disk having a cranked connection therewith, a crank-pin being normally stopped beyond a dead-center thereby to permit the descent of the semaphore-arm by gravity, and means for elevating the semaphore-arm.

785,032. BEAN-SEPARATING MACHINE. OTTO F. BEYTHAN, Freeland, Mich. Filed June 1, 1903. Serial No. 159,653.



Claim.—1. In a device of the class described, an upwardly-moving inclined bottom of material having a villous surface; together with a stationary transversely-flexible apron arranged above said inclined bottom, said apron being disposed at an inclination relatively to said inclined bottom, the lower end of said apron being farther away from said bottom than the upper end.

2. In a device of the class described an upwardly-movable inclined bottom of fabric having a surface of villous texture; a fixed transversely-flexible apron of similar surface arranged above said movable bottom; said fixed apron having one end out of contact with the movable bottom and being so disposed that the distance between said apron and movable bottom gradually diminishes toward the high side of the inclined bottom, for the purposes set forth.

3. In a separating-machine of the class described the combination with an upwardly-moving inclined bottom having a villous upper surface; of a stationary transversely-flexible apron having a villous lower surface and arranged above and in proximity to said bottom, the lower end of said apron being out of contact with said bottom and being so disposed that the space between said apron and bottom gradually diminishes toward the high side of the inclined bottom, for the purpose set forth.

4. In a separating-machine the combination with an upwardly-moving inclined bottom having a villous surface; of a stationary transversely-flexible apron having a villous surface, the lower end of said apron being out of contact with said bottom and being so disposed relatively to said bottom that the space between the opposing villous surfaces of said apron and bottom gradually diminishes

toward the high side of the inclined bottom, for the purposes set forth.

5. In a device of the class described two converging aprons arranged one above the other and having opposing surfaces of villous texture, the lower apron being endless and so arranged as to present a continuous upwardly-moving inclined surface; the upper apron being stationary and having one end out of contact with the lower apron and the other end yieldingly in contact with the lower apron, said upper apron being transversely flexible.

6. In a separating-machine, the inclined triangular-shaped separating-chamber, having an inclined traveling bottom of felt-like texture; a substantially vertical stationary side, and a substantially horizontal stationary top side of felt-like material yieldingly engaging the high end of the inclined moving bottom as and for the purposes set forth.

7. The substantially triangular separating-chambers 9 and 9' inclined toward the rear, the bottom side of said chamber being an inclined plane movable transversely toward the high side of the triangle; and having a feed-hopper discharging into the bottom angle of said separating-chambers at the high end of the same.

8. In a separating-machine of the class described, diverging endless traveling belts of felt, forming a trough inclined downwardly at the rear end, the movement of said belts being in the direction of the high side of the trough; in combination with a central longitudinal bar having a member of like material secured to and extending laterally therefrom, so that the outer portions are in yielding contact with the high side of said traveling belts, and the inner portions are held free from same so as to form substantially triangular separating-chambers, largest near the central bar and gradually diminishing and closing toward the high side of said belts.

9. In combination with a machine of the class described, the diverging endless belts of felt forming a trough inclined downwardly to the rear end; a central longitudinal bar in contact with the said belts along the bottom of said trough; a member of felt secured to said longitudinal bar and extending laterally therefrom so that the outer portions will engage the high side of said trough and thereby form the substantially triangular separating-chambers 9 and 9'; a spring secured to said central bar and to the lateral edges of said member of felt for the purpose of holding the same in proper yielding contact against the said moving belts; a feed-hopper with a spout discharging into the bottom of the high end of the said separating-chamber; and a receiving-spout at the lower end of said chamber for receiving the separated material.

10. In combination with a machine of the class described, the diverging endless belts of felt forming a trough inclined downwardly to the rear end; a central longitudinal bar in contact with the said belts along the bottom of said trough; a member of felt secured to said longitudinal bar and extending laterally therefrom so that the other portions will engage the high side of said trough and thereby form the substantially triangular separating-chambers 9 and 9'; and a spring secured to said central bar and to the lateral edges of said member of felt for the purpose of holding the same in proper yielding position against the said moving belts.

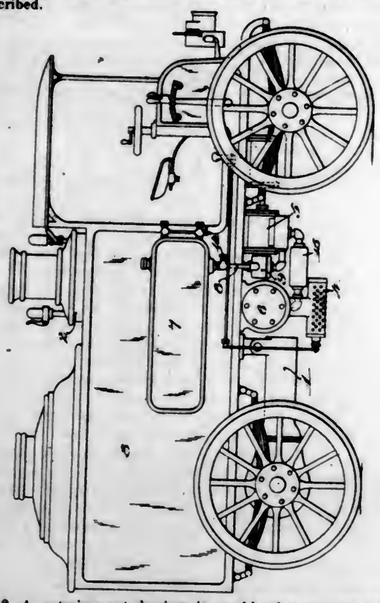
11. In combination in a machine of the class described, the diverging endless belts of felt forming a trough inclined downawardly to the rear end; a central longitudinal bar in contact with the said belts along the bottom of said trough; a member of felt secured to said longitudinal bar and extending laterally therefrom so that the outer portions will engage the high side of said trough and thereby form the substantially triangular separating-chambers 9 and 9'.

12. In a device of the class described, an upwardly-moving inclined bottom; together with a stationary transversely-flexible apron arranged above said inclined bottom, said apron being disposed at an inclination relatively to said inclined bottom, the lower end of said apron being farther away from said bottom than the upper end; the opposing surfaces of said aprons being of such nature as to exert slight tenacity for beans of smooth surface and greater tenacity for beans of rough or wrinkled surface, for the purpose specified.

13. In a device of the class described, an upwardly-traveling inclined bottom of fabric, an apron of flexible fabric supported along one edge above said traveling apron, the body portion of said non-traveling apron being adapted to rest loosely upon said traveling bottom, for the purposes set forth.

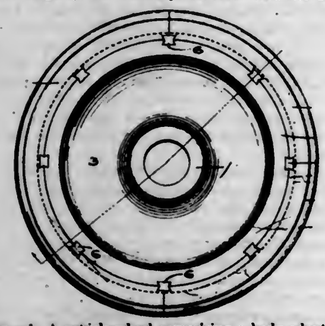
785,083. STREET-WATERING CART. CHARLES W. COLLYER, Randolph, Mass., assignor of one-half to Herbert M. Briggs, Randolph, Mass. Filed July 16, 1904. Serial No. 216,068.

Claim.—1. A watering-cart, having, in combination, a water-tank, a disenfectant-tank, a spraying-head, a pump located below the said tanks and connected with the water-tank, a measuring-valve in the connection between the water-tank and the pump, a connection between the disinfectant-tank and the measuring-valve, a connection between the pump and the spraying-head, and a mixer interposed in the connection between the pump and the spraying-head comprising a chamber with oppositely-disposed baffle-plates, the said measuring-valve operating to open and deliver water and disinfectant to the pump when the latter is in operation in definite proportions, and to close automatically and shut off both the water and the disinfectant when the operation of the pump ceases, substantially as described.



2. A watering-cart, having, in combination, a water-tank, a disinfectant-tank, a spraying-head, a pump located below the said tanks and connected with the water-tank, a measuring-valve in the connection between the water-tank and the pump, a connection between the disinfectant-tank and the measuring-valve, and a connection between the pump and the spraying-head, the said measuring-valve operating to open and deliver water and disinfectant in definite proportions to the pump when the pump is in operation, and to close automatically and shut off both the water and the disinfectant when the operation of the pump ceases, substantially as described.

785,084. CAR-WHEEL. JOHN T. DUFF, Pittsburg, Pa., assignor of two-thirds to William H. Latshaw, Pittsburg, Pa., and Joshua Rhodes, Allegheny, Pa. Filed Sept. 26, 1904. Serial No. 226,347.



Claim.—1. A vehicle-wheel comprising a body adapted to be mounted on an axle or shaft, a removable and renewable tread secured to said body, and dovetailed keys driven into matching undercut slots in said body and tread and serving to secure the same together.

2. A vehicle-wheel comprising a body adapted to be mounted on an axle or shaft, a tread portion formed in several sections, dovetailed keys fitting in matching undercut slots in the body and tread-sections and serving to secure the same together, and means for preventing lateral displacement of the tread-sections.

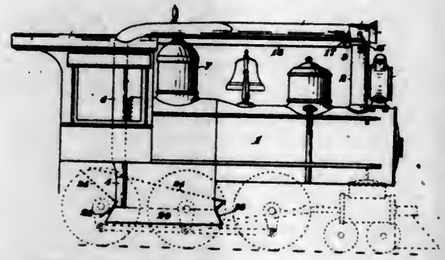
3. A vehicle-wheel comprising a body adapted to be mounted on an axle or shaft, a tread portion formed in several sections, and dovetailed keys fitting in matching undercut slots in the body and tread-sections and serving to secure the same together.

4. A vehicle-wheel comprising a body adapted to be mounted on an axle or shaft, and a removable and renewable tread portion formed in several sections and secured to said body, said body and tread portions being provided with coöperating projections and depressions on their meeting faces to prevent lateral displacement of the tread-sections.

5. A vehicle-wheel comprising a body adapted to be mounted on an axle or shaft, and a removable and renewable tread portion formed in several sections and secured to said body, said body and tread being formed the one with an annular rib and the other with an annular groove coöperating with said rib and serving to prevent lateral displacement of the tread.

6. A vehicle-wheel comprising a body adapted to be mounted on an axle or shaft, a removable and renewable tread formed in several sections, said tread portion and body being provided with coöperating projections and depressions on their meeting faces to prevent lateral displacement of the tread, and dovetailed keys fitting in matching undercut slots in the body and tread-sections and serving to secure the same together.

785,085. LOCOMOTIVE. PATRICK F. DUNDON, San Francisco, Cal. Filed Feb. 21, 1903. Renewed Jan. 3, 1905. Serial No. 239,466.

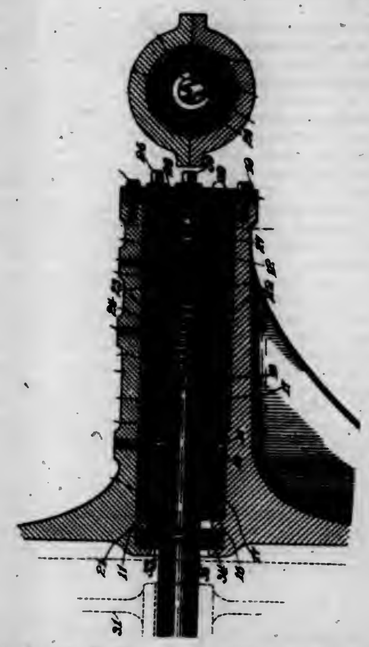


Claim.—1. In a locomotive-engine, in combination with the vertical smoke-flue, a horizontal flue leading to the rear of the engine, branch connections leading thence to the ash-pan, a hood, 10, pivoted in the angle between said vertical and horizontal flues, and means for turning said hood through an arc of ninety degrees, from the cab, whereby it is made to form a continuation of the vertical or the horizontal flue alternately as desired, and the products of combustion are sent to the atmosphere or to the ash-pan at will, substantially as specified.

2. In a locomotive-engine, in combination with the vertical smoke-flue, a horizontal flue leading to the rear of the engine, branch connections leading thence to the ash-pan, a hood pivoted in the angle between said vertical and horizontal flues, a damper in said horizontal flue, and means for turning said hood and damper through an arc of ninety degrees, from the cab, whereby the hood is made to form a continuation of the vertical or horizontal flue alternately as desired, and the products of combustion are sent to the atmosphere or to the ash-pan at will, substantially as specified.

785,086. BEARING. ELMER S. FARWELL, Ridgewood, N. J., assignor to Edwin H. Ludeman, Brooklyn, N. Y. Original application filed Dec. 22, 1903, Serial No. 186,191. Divided and this application filed Feb. 11, 1904. Serial No. 193,068.

Claim.—1. The combination with a casing embodying a bearing-casing, of a shaft mounted in such bearing-casing, said shaft comprising a journal portion and a portion having peripheral channels; a floating bushing within the bearing-casing for the journal and a pair of ribbed bushings for the channeled portion and means to independently adjust said ribbed bushings on the axial line of the shaft.



2. The combination with a shaft having a plain journal and a ribbed portion; of a bearing-casing; a floating bushing therein for the journal and a thrust-bearing embodying a pair of split bushings provided with ribs to engage the ribs on the shaft and means to independently longitudinally adjust the thrust-bushings.

3. A bearing for high-speed apparatus comprising a floating bushing, a thrust-bearing contiguous to the same and embodying a sectional split bushing having ribs to take into thrust-ribs on a shaft, and means to adjust the sections in opposite axial directions.

4. The combination with a casing embodying a bearing-casing, of a shaft mounted in such bearing-casing, and a portion of said shaft having peripheral channels; a pair of ribbed bushings for said channeled portion; and means to independently adjust said ribbed bushings on the axial line of the shaft.

5. The combination with a casing embodying a bearing-casing, of a shaft mounted in such bearing-casing, and a portion of said shaft having peripheral channels; a pair of bushings for said channeled portion, each bushing extending entirely around the shaft, and independent means to adjust said bushings to limit the longitudinal movement of the shaft in each direction.

6. A bearing for high-speed motors comprising a floating bushing, means to support the same while at dead-load, a thrust-bearing beyond the same and embodying a sectional bushing having ribs taking into thrust-ribs on a shaft and means to adjust the sections in opposite directions axially.

7. A bearing for high-speed motors comprising a floating bushing, yieldable means to support the same while at dead-load, a thrust-bearing beyond the same and embodying a sectional bushing having ribs to take into thrust-ribs on a shaft and means to adjust the sections in opposite directions axially.

8. A thrust-bearing for a high-speed motor embodying a sectional split bushing having ribs to take into thrust-ribs on the shaft; a plain bushing surrounding one of the ribbed bushings and adapted to hold the other ribbed bushings from longitudinal movement, means of adjusting the position of said plain bushing, and independent means for adjusting and holding the first-mentioned ribbed bushing from longitudinal movement.

9. In combination with a shaft for a high-speed motor embodying a plain bearing portion and a thrust-bearing portion surrounded by a number of rings; a bearing-casing; a floating bushing therein for such plain bearing portion of the shaft; thrust-bearing bushings

therein having ribs to engage the rings of the shaft, and divided transversely into sections, and means to independently adjust the sections.

10. A high-speed bearing comprising a shaft having a bearing portion and a thrust-bearing portion, a floating bearing engaging the bearing portion, thrust-bearings engaging the thrust portion upon faces transverse to the axis of the shaft.

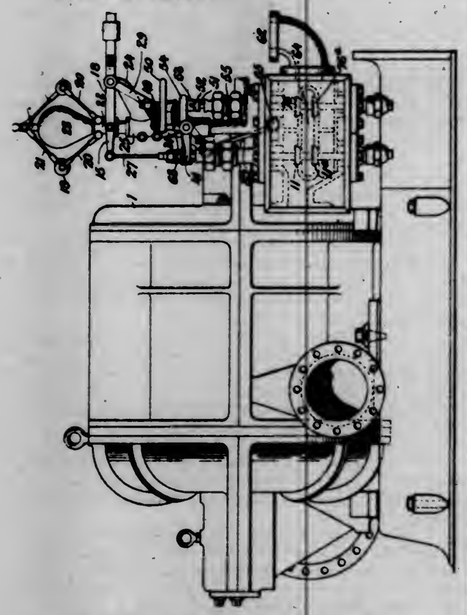
11. In a bearing the combination with a shaft having a plain portion and having faces transverse to its axis, some of such faces directed in one direction and some in the other, a floating bearing for the plain portion of the shaft, and means to engage the respective faces of the thrust-bearing and having free spaces about the perimeter thereof.

12. A bearing for high-speed apparatus comprising a casing, a shaft mounted therein, a floating bushing within said casing having rings fitting corresponding recesses, and means to support the same while at dead-load.

13. A bearing for high-speed apparatus comprising a casing, a shaft mounted therein, a bushing fitting said casing and secured from turning therein, a floating bushing having rings fitting corresponding recesses in said stationary bushing, and yieldable means to support the same while at dead-load.

14. A bearing for high-speed apparatus comprising a casing, a shaft mounted therein, a bushing fitting said casing and secured from turning therein, a floating bushing having rings fitting corresponding recesses in said stationary bushing, means for admitting liquid to the space between said bushings and springs to support said floating bushing in a central position.

785,087. **GOVERNOR FOR TURBINE-ENGINES.** ELMER S. FARWELL, Ridgewood, N. J., and EDWIN F. WILLIAMS, New York, N. Y., assignors to Edwin H. Ludeman, Brooklyn, N. Y. Filed Dec. 1, 1904. Serial No. 235,063.



Claim.—1. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, means connecting with the valves for opening and closing one of the valves regularly while a second remains closed and for allowing the first to remain open continuously while the second is open, said means including a governor device.

2. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, means connecting with the valves and adapted to open and close one of said ports at intervals, and means to open and close the other port and permit the first-mentioned port to remain open continuously.

3. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, means connecting with the valves for opening and closing one of the valves regularly, and a governor device for controlling the position of said means so as to regulate the time and degree of the valve-opening.

4. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, means for opening and closing one of said valves regularly, a variable fulcrum for said means, means for determining the position of the fulcrum, and means for opening and closing a second valve while allowing the first valve to remain open continuously.

5. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, means for opening and closing one of said valves at intervals, a variable fulcrum for said means, and a governor controlling the position of the fulcrum and operating to open the second valve when the first valve remains open.

6. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, a vibrating lever for regularly opening and closing one of said valves, said lever having a variable fulcrum, constantly-acting means for vibrating said lever, and a governor device controlling the position of the fulcrum so as to regulate the time and degree of the opening and closing of the valve.

7. The combination with a turbine-engine having a plurality of inlet-ports, of separate valves for said ports, a vibrating lever having a variable fulcrum and operating to open and close one of the valves, constantly-acting means vibrating the lever, a governor controlling the position of the fulcrum to regulate the time and degree of the opening of the valve, and means for opening and closing a second valve and allowing the first to remain open continuously, said means including a lever operated by the same governor device.

8. The combination with a turbine-engine having a plurality of inlet-ports, a steam-chest having a corresponding number of ports, separate valves for admitting steam from the chest to the engine-ports, constantly-acting means to open and close one of the valves regularly with a given position of said means, a governor device regulating the position of said means so as to control the time and degree of the opening of the valve, said governor device also causing the second valve to open and close at such times as the position of the opening means for the first valve permits said valve to remain open continuously.

9. The combination with a turbine-engine having two inlet-ports, of separate valves therefor, a lever having a variable fulcrum and operating to regularly open and close the first valve, a governor device controlling the position of the fulcrum, a lever for opening and closing the second valve at such times as the opening-lever for the first valve becomes ineffective, and means whereby the same governor controls the action of the opening-lever for the second valve.

10. The combination with a turbine-engine having two inlet-ports, of separate valves for said ports, a vibrating lever having a variable fulcrum and operating to open and close one of the valves, constantly-acting means consisting of an eccentric gear for vibrating said lever, a governor device controlling the position of the fulcrum, a rotative shaft provided with a lever operating to open and close the second valve at such times as the first valve is permitted to remain open continuously, said shaft being acted upon by the same governor device as controls the variable fulcrum.

11. The combination with a turbine-engine having two inlet-ports, of separate valves for said ports, a vibrating lever for opening and closing one of the valves, said lever having a variable fulcrum, means for vibrating the lever, a ball-governor, a yoke reciprocated thereby, said yoke connecting with the variable fulcrum, an oscillating shaft having an arm for opening and closing the second valve when the first valve is allowed to remain open continuously, and a leverage connection with said shaft and the aforesaid yoke.

12. The combination with a turbine-engine having admission-ports for the steam, of a steam-chest having separate valves for said ports and having also a throttle-valve, and means for automatically operating said throttle-valve consisting in the combination with the valve-stem, of a governor device and connections between said device and the stem for allowing the valve to close when the engine is running at a dangerous speed.

13. The combination with a turbine-engine having steam-inlet ports, of a steam-chest and its valves including a throttle-valve, and means for automatically operating said throttle-valve consisting in the combination with the valve-stem, of a governor device and connections between said device and the stem for allowing the valve to close when the engine is running at dangerous speed.

14. The combination with a turbine-engine having two separate inlet-ports, of a valve-chest, separate valves controlling the

ports, a throttle-valve for controlling the admission of steam to the steam-chest, said throttle-valve having a stem, a governor device, means for opening and closing one of the inlet-valves, and means for opening and closing the other inlet-valve at such time as the other is left open continuously, said latter means including an oscillating shaft, connections between said shaft and the governor device, and an arm on said shaft together with connections between it and the throttle-valve stem whereby when required the throttle-valve may be closed.

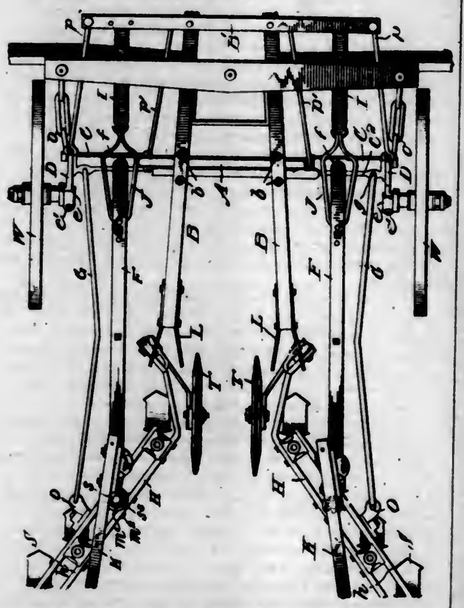
15. The combination with a turbine-engine having two inlet-ports, of separate valves controlling the same, means for opening and closing either of said valves, governor means for controlling the period, time and degree of such opening and closing, a throttle-valve having a stem, and means whereby the governor will close the throttle automatically when necessary.

16. In a governor device for engines, the combination with an engine organized to receive steam at two points, of a steam-chest having a fixed port at each of such points and connected with a source of supply, separate valves for said ports, means for opening and closing one of said valves at intervals and for allowing it to remain continuously open at times, and means for opening the second valve.

17. The combination with an engine organized to receive steam at two points, of valve mechanism controlling the admission of the steam at said points, a throttle-valve device, and a governor device, together with automatic mechanism actuated by the governor to close said throttle-valve device.

18. The combination with a turbine-engine having steam-inlet ports, of a steam-chest and its valves including a throttle-valve, and means for automatically closing said throttle-valve consisting of a governor device, an element vertically reciprocable thereby, a rotative shaft, a lever connection between the shaft and the vertically-reciprocable element, and connections between the shaft and the throttle-valve stem.

785,088. **CULTIVATOR.** SAMUEL N. HENCH, York, Pa. Filed Sept. 28, 1904. Serial No. 226,353.



Claim.—1. In a cultivator the combination, substantially as set forth, of the frame, the coupling-sleeves pivotally mounted on the frame, the spindle-carrying arms fast to the sleeves, the wheels mounted on said spindles, the drag-bars and connections between the same and the coupling-sleeves, and spring-actuated means for controlling the vertical position of the drag-bars and holding them raised or lowered as desired.

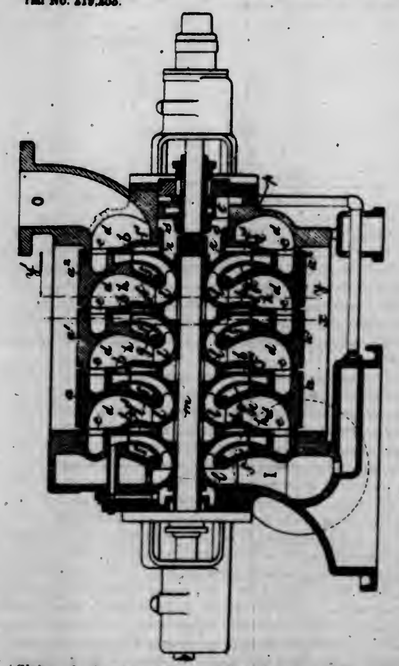
2. In a cultivator the combination, substantially as set forth, of the frame, the coupling-sleeves pivotally mounted on the frame, the wheels and spindles or stub-axles on which they are mounted, the drag-bars and connections between the same and the coupling-sleeves, and arms attached at one end to the wheel-spindles, and adjustably mounted at the other end so as to be capable of movement relatively to the coupling-sleeves, upon the axis of oscillation of the latter, and means for rigidly securing the arms in their adjusted positions.

3. The arch-beam and frame, the coupling-sleeves swiveled on the ends of the beam, the spindle-carrying-arms, fast to the coupling-sleeves, the wheels mounted on the spindles, the drag-bars and the coupling-arms connecting the drag-bars with the coupling-sleeves, in combination with springs attached at one end to the frame and at the other end to the coupling-arms, arranged substantially as described, to hold the drag-bars down or throw them up, according as the points of attachment of the springs to the coupling-arms and the frame respectively, are in a line below or above the axis of oscillation of the coupling-sleeves, substantially as set forth.

4. In a cultivator, the combination with the frame, the coupling-sleeves pivotally mounted on the frame, the spindle-carrying arms fast to the sleeves and the wheels mounted on said spindles, of the drag-bars, the coupling-arms connecting the drag-bars with the coupling-sleeves, springs attached to the frame, notched bars extending downwardly from the coupling-arms, and adjustable connections between the springs and the notched bars, substantially as and for the purposes hereinbefore set forth.

5. In a cultivator, a drag-bar composed of two parallel bars, a split box between said bars having cone ends, a coupling-pin held in said box, and bolts for drawing together the two parts of the drag-bar, upon the box and coupling-pin, in combination with the main coupling-arm having a divided end the limbs of which have cone-openings which swivel on the ends of the coupling-pin and fit the cone ends of the box, and means for closing, and holding closed, the limbs of the coupling-arm, upon the cone ends of the box, substantially as and for the purposes hereinbefore set forth.

785,089. **ROTARY PUMP OR TURBINE.** EDWARD HOPKINSON and ALAN E. L. CHORLTON, Salford, England. Filed Aug. 2, 1904. Serial No. 219,253.



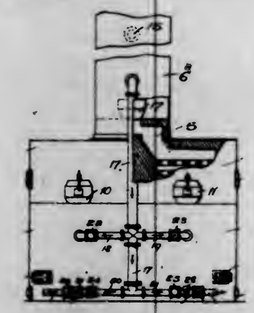
Claim.—1. A rotary pump or turbine having a body composed of end pieces and a plurality of hollow sections forming chambers for the reception of the wheel by the juxtaposition of cavities in

alternate sections and in the end walls curved guides *b* forming spiral-like passages external to the chambers, ports *c* intercommunicating therewith and with passages *d* formed by curved guides *h* in the next section, the said end pieces and sections having central apertures for the reception of the wheel, the said central apertures being coaxial and of equal radius, a wheel rotating therein and a water inlet and outlet substantially as and for the purpose set forth and shown.

2. A rotary pump or turbine consisting of a wheel having a plurality of sections, each having a hollow interior with vanes therein and curved bosses on the suction and delivery sides, the hollow interior of one section, the curved boss on the suction side thereof, and the curved boss on the delivery side of the preceding adjacent section forming a path of continuous curved contour, a pump-body having a plurality of chambers for containing the wheel, and curved guides, ports, and passages, the whole operating to direct the water in easy curved paths from the suction to the outlet side without abrupt changes of direction, substantially as set forth and shown.

3. In a multistage centrifugal turbine or similar pump the combination of end pieces or heads and a plurality of intervening hollow sections having partitions or diaphragms for the reception of a multiple wheel or plurality of impellers mounted on a common shaft, the central apertures of the heads or ends and those of the diaphragms or partitions being coaxial and of equal radius, substantially as set forth.

785,040. APPARATUS FOR THE MANUFACTURE OF WATER-GAS. JOANNES C. H. KRAMERS, Maestricht, and JACOBUS G. AARTS, Dongen, near Breda, Netherlands, assignors to Watergas-Maatschappij Systeem Dr. Kramers & Aarts, Amsterdam, Netherlands, a company incorporated according to Dutch law. Original application filed Mar. 15, 1901, Serial No. 51,503. Divided and this application filed June 26, 1903. Serial No. 113,263.

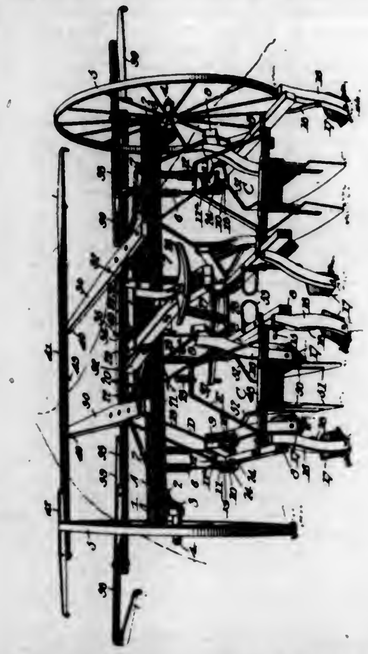


Claim.—1. A gas-producing apparatus comprising a pair of generators, having means on top thereof for supplying fuel, a pair of regenerators arranged in rear of the generators and having their bottom portions connected with the upper portions of the generators by horizontal passages, a passage directly connecting the upper portions of said regenerators, an outlet for products of combustion from said passage, and a valve controlling said outlet, substantially as described.

2. A gas-producing apparatus comprising a pair of generators, having means on top thereof for supplying fuel, a pair of regenerators arranged in rear of the generators and having their bottom portions connected with the upper portions of the generators by horizontal passages, a passage directly connecting the upper portions of said regenerators, an outlet-stack connected to said passage, a valve for controlling the communication between the passage and stack, an air-heating device located in said stack, and pipes leading from the air-heating device to the generators, substantially as described.

3. A gas-producing apparatus comprising a pair of generators arranged side by side, and having means on top thereof for supplying fuel, a pair of regenerators arranged side by side in rear of said generators and at a higher level and having their lower portions connected with the upper portions of the generators, a passage connecting the upper portions of said regenerators, an outlet-stack in communication with said passage, an air-heater located in said stack, an air-pipe leading from said air-heating device, branch pipes leading from said pipe to the generators above and below the grates therein, and means for controlling the passage of air through said branch passages, substantially as described.

785,041. RIDING-CULTIVATOR. PHILIP JARVIS, Cedar Rapids, Nebr. Filed June 28, 1904. Serial No. 214,539.



Claim.—1. In a cultivator, a plurality of independently-operable gangs, each gang including two relatively short inner beams and two relatively long outer beams, means for pivotally connecting each long beam with the adjacent short beam to enable said beams to move in a vertical plane, an arch adjustably connecting the inner beams, and an arch independently connecting the outer beams.

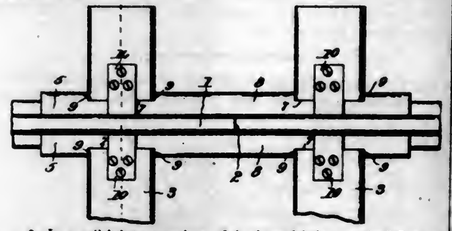
2. A cultivator-gang including a pair of relatively short inner beams and a pair of relatively long outer beams, transverse pins pivotally connecting the front ends of the outer beams with the adjacent inner beams, couplings supporting said pins and having pivoted members provided with lateral lips or flanges extending over the outer beams, supporting-stirrups having pivotal connection with the members of the couplings, and springs connecting the latter with the outer beams.

3. In a cultivator, a plurality of gangs, each gang including two relatively long outer beams and two relatively short inner beams, the long beams and the short beams being disposed adjacent to one another, an adjustable arch connecting the inner beams and provided with a handle, an arch connecting the outer beams and having a handle, implement-carrying standards connected with the inner sides of the end beams, and implement-carrying standards connected with the outer beams in rear of the rear extremities of the short beams.

4. A cultivator-gang including a pair of relatively long outer beams, and a pair of relatively short inner beams, pivotal connecting means connecting the front end of each long beam with the front end of the adjacent short beam, coupling-boxes supporting the connecting means, stirrups supporting the coupling-boxes, straps connected with said couplings, fenders extending rearwardly from said straps, an arch adjustably connecting the inner beams, an arch independently connecting the outer beams, a cross-bar connecting the rear ends of said outer beams, fender-guiding prongs depending from said cross-bar, and implement-carrying standards connected with the several beams.

785,042. JOINT FISH-PLATE FOR RAILROADS. DEWITT C. JOHNSON, Hutchinson, Kans. Filed Apr. 26, 1904. Serial No. 204,865.

Claim.—1. In a rail-joint of the character described fish-plates having vertical flanges and lateral extensions, said lateral extensions terminating in abutting edges beneath the surface of the rail, said fish-plates having cut-away portions forming abutting shoulders and means for securing the fish-plates to the ties and rails as and for the purpose described.



2. In a rail-joint comprising fish-plates having vertical flanges and lateral extensions abutting beneath the base of the rail, said fish-plates having cut-away portions forming abutting shoulders for the side surfaces of the tie, lateral clips having one end secured to the tie and its opposite end extending over the flange of the fish-plate and means for securing the lateral projections to the tie as and for the purpose described.

3. In a rail-joint comprising fish-plates bent to conform to the contour of the rail and having their abutting edges beneath the rail, said fish-plates having cut-away portions at each end forming shoulders adapted to seat against the side surface of the tie, lateral clips having one end secured to the top surface of the tie and extending over the top surface of the flange and having its opposite end abutting against the rail as and for the purpose described.

4. In a rail-joint, fish-plates having vertical extensions and lateral extensions, said lateral extensions extending over and under the base-flange of the rail forming abutting edges, a tie having a cut-away portion adapted to receive the fish-plates and means for securing the tie to the fish-plates and means for preventing the longitudinal displacement of the fish-plates substantially as described.

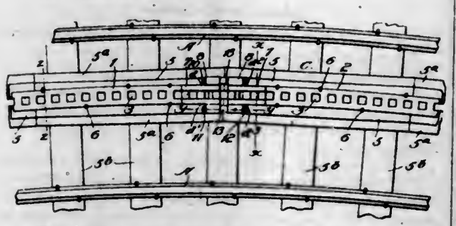
785,043. STRINGER-SUPPORT FOR CARS. CHARLES A. LINDSTRÖM, Allegheny, Pa., assignor to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed July 7, 1904. Serial No. 215,696.



Claim.—1. In a car-frame the combination with the stringer of a stringer-support of L shape in cross-section extending under a plurality of the stringers and having projections pressed therein to form strengthening members; substantially as described.

2. In a car-frame the combination with a flanged diaphragm, of a stringer-support angular in cross-section secured to the diaphragm and projecting therefrom beyond the flange thereof, bracing portions for the support, and a plurality of stringers held by the support; substantially as described.

785,044. RAIL-FASTENING. GEORGE E. LYNCH, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Dec. 30, 1904. Serial No. 239,027.



Claim.—1. In a railway-rack structure, a rack-rail section having a lug or projection near its end, in combinatoin with an adjacent rack-rail section having an opposing lug near its end, and a connecting rod or bolt arranged approximately parallel to the rack-sections and holding together the two sections by longitudinal stress, as set forth.

2. In a railway-rack structure, a rack-rail section having a laterally-extending lug or projection at or near its end, in combination with an adjacent rack-rail section having a laterally-extending lug or projection near its end, variable spacing devices, and a pin or bolt approximately parallel to the rail-sections and clamping together the spacing devices and rail-sections, substantially as set forth.

3. In a railway-rack structure, the combination with a rack-rail section, and a second rack-rail section adjacent thereto and adapted to be placed in line therewith or at an inclination thereto, of joining devices connecting said sections and arranged to exert longitudinal stresses thereon either while in line with each other or when situated at an angle to each other, substantially as set forth.

4. In a railway-rack structure, the combination with a rack-rail section having at its end a lateral projection, and a second rack-rail section adjacent thereto and having a laterally-extending projection, of a variable spacing device between said rack-sections, and means for fastening rigidly together the said rack-sections and said fastening and spacing devices, substantially as set forth.

5. In a railway-rack structure, the combination with two adjacent rack-rail sections, of a connecting device for said rack-rail sections consisting of one or more pins or rods situated substantially parallel to the rack-sections and engaging with each of said sections, and means for causing said pins or rods to exert longitudinal stress upon the said rack-sections and for fastening the sections immovably in relative positions, substantially as set forth.

6. In a railway-rack structure, the combination of a rack-section, a bar secured by riveting to the said rack-section, a second rack-section adjacent to that aforesaid and having a bar riveted to said second section, a pin or bolt engaging with each of said bars and adapted to adjustably draw them on lines longitudinal of the rail-sections, substantially as set forth.

7. In a railway-rack structure, the combination of a rack-section, an adjacent rack-section, and two sets of connecting devices for joining one end of one section to one end of the adjacent section, said sets being on different lines longitudinally of the rack and each of said sets comprising means for spacing or holding apart the said sections, and means for drawing them together and clamping the rack-sections and the spacing devices together, substantially as set forth.

8. In a railway-rack structure, the combination of a rack-rail section having at its end two tubular ears or projections on different longitudinal lines, a second rack-section adjacent thereto and having at its adjacent end two tubular ears on longitudinal lines, two independent bolts or draft-rods adapted each to draw together a pair of said tubular ears or projections and to be independently adjusted, substantially as set forth.

9. In a railway-rack structure, the combination of a rail-section having at its end two similar lugs or projections on different longitudinal lines, a second rack-section adjacent thereto having at its end two similar lugs or projections, said rack-sections being adapted to lie in alinement with each other or at an inclination to each other, and two fastening-bolts engaging with two opposing lugs or projections and adapted to draw toward each other, on lines longitudinal of the rack-sections, the projections with which it engages, whether the rack-sections are in line or at an inclination to each other, substantially as set forth.

10. A rack-rail section, for a railway-rack structure, consisting of a bar or plate formed with apertures or a series of sprocket-engaging devices and having at each end two lugs or projections each adapted to engage with a bolt situated longitudinally of the rack-section, substantially as set forth.

11. A rack-rail section for a railway-rack structure consisting of a bar or plate of sheet metal having sprocket-apertures cut or punched therein and having at each end two opposite cast lugs or projections formed separately from the bar and rigidly secured thereto, and portable therewith, and adapted to be rigidly connected to similar rack-sections by bolts or draft devices acting lengthwise of the said rack-sections, substantially as set forth.

12. A rack-rail section for a rack-railway consisting of a bar or plate of sheet metal having sprocket-apertures cut or punched therein, and having at each end a cast lug or projection formed separately from the bar, and rigidly secured thereto, and provided with a suitable bolt-seat arranged to support a bolt lying substantially parallel to the rack-rail section, substantially as set forth.

13. In a railway-rack structure, the combination with a rack-rail section 1, provided with a bolt-supporting device at the end, having a bolt aperture or cavity adapted to hold a bolt on a line longitudinal to the rack-section, of the rack-section 2, having at its end a bolt-supporting device formed with a bolt aperture or cavity adapted to aline with the bolt-holding device on the rack-section 1, and the

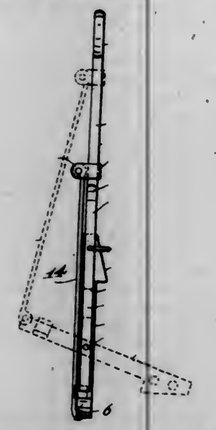
bolt engaging with and adapted to draw toward each other the bolt-holding devices, substantially as set forth.

14. The herein-described device for fastening one rack-rail section to another, having the bar or plate 7, adapted to be detachably secured to a rack-rail section, and the offset bolt-holding device 8 integral with said bar or plate 7, substantially as set forth.

15. A device for fastening one rack-rail section to another having a plate or bar 7, adapted to be detachably secured to a rack-rail section, and an ear, lug or projection integral therewith and extending from said plate or bar 7, and adapted to be connected by a bolt or pin with a corresponding lug or ear secured to an adjacent rail-section, substantially as set forth.

16. A joining device for securing one rack-rail section to another, having the plate or bar 7, and the bolt-supporting ear or lug 8, projecting laterally from said plate, said lug or ear being arranged substantially as set forth whereby the plate can have either of its faces in contact with the rail-section when secured thereto and can be secured to either side of the rail.

785,045. **BOOTJACK.** JOHN J. MCDONALD, Port Madison, Wash. Filed June 11, 1904. Serial No. 212,155.



Claim.—1. A bootjack comprising an upright frame, a second frame pivoted thereto, a means movably mounted on said upright frame for swinging said second frame, and a connection between said second frame and said means.

2. In a bootjack, in combination, an upright frame, a second normally inclined frame pivoted thereto, and being formed with a heel having its lower face disposed to form a broad flat bearing-surface for the frame, means slidably mounted on said upright frame for swinging said second-named frame, and a connection between said means and said second frame.

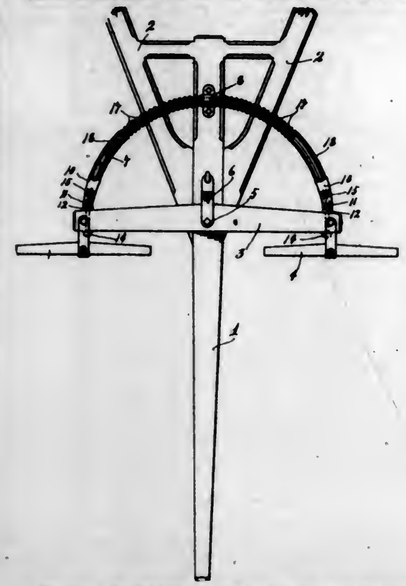
3. In a bootjack, a frame formed with a handle, a second frame projecting through and pivoted to said first-named frame, a means on said first-named frame movable to and from the handle for swinging said second frame, and a link connected to said means and said second-named frame.

4. A bootjack comprising a frame formed of a strip of metal bent centrally to provide frame side portions and at the juncture thereof formed with a handle, said frame side portions at a point below the handle having straight portions arranged in contacting relation to form a slideway, and then continuing in legs, a second frame pivoted between said legs, a slide mounted on said slideway, and a link pivoted to said slide and to said last-named frame.

5. In a bootjack, a pair of frames, one projecting through and pivoted to the other, a slide on the last-named frame, a link pivoted to said slide and the first-named frame, and a swinging latch for engagement with the first-named frame for locking the same in an inoperative position.

6. In a bootjack, an upright open frame, a second frame projecting through and pivoted thereto and normally bearing an inclined relation thereto, said last-named frame being formed of a strip of metal bent to approximately U shape, the free end portions thereof having their lower edges inclined relatively to their upper edges, a block secured between said portions and having its lower face lying flush with the lower edges thereof, a flexible toe-support extending across the opposite end of said second frame, a slidably-mounted sleeve on said first-named frame, and a link pivotally connected to said sleeve and second frame.

785,046. **CUSHIONING DEVICE FOR DRAFT-EQUALIZERS.** STEVEN PATLEEB, Hamel, Minn. Filed Oct. 6, 1904. Serial No. 227,351.



Claim.—1. The combination with a pole and a draft-equalizer having its beam pivoted to said pole, of an arch-rod extending on a curve struck from the beam-pivot, a thrust-bearing on said pole to the rear of said beam-pivot through which the intermediate portion of said arch-rod works, and cushioning-springs on said arch-rod, on opposite sides of said thrust-bearing, reacting against said thrust-bearing and against said arch-rod, substantially as described.

2. The combination with a pole and a draft-equalizer having its beam pivoted thereto, of coupling-heads 12 rigidly secured to the ends of said beam, and provided with trunnions 11, the arch-rod 7, having at its ends the bifurcated heads 10, perforated to receive the trunnions of said heads 12, nutted bolts 15 passed through the prongs of said heads, to hold them in engagement with said trunnions 11, springs 16 on said bolts 15 compressed between the prongs of said heads, for spreading them when said bolts are loosened, a thrust-bearing 8 on said pole through which the intermediate portion of said arch-rod 7 works, and springs 17 on said arch-rod, on the opposite sides of said bearing 8, reacting against said bearing and against said arch-rod, substantially as described.

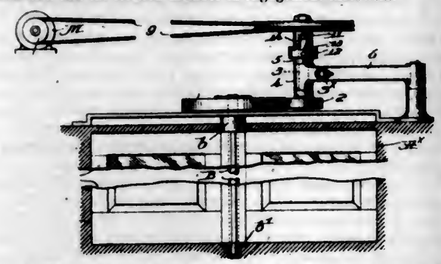
785,047. **REVOLVING-DOOR APPARATUS.** JOHN A. PEARSON, Boston, Mass. Filed Jan. 18, 1905. Serial No. 241,591.

Claim.—1. The combination with a vertical, revolving door, and continuously-operating motive means for the door, of a normally operating transmitting connection between the latter and said motive means, permitting ready stoppage of the door if its movement is unduly obstructed.

2. The combination with a vertical, revolving door, and a continuously-operating motor, of normally-operating transmitting means intermediate the motor and door, including a frictionally-acting member, to permit stoppage of the door independently of the action of the motor.

3. The combination with a door comprising a vertical, revoluble support and lateral wings, and a continuously-acting motor, of a friction-transmitting connection between the motor and the door, to normally effect continuous rotation of the latter while permitting its ready stoppage if obstructed in its movement.

4. The combination with a vertical, revolving door, an attached friction-disk, and a continuously-running motor, of transmitting means intermediate the motor and the door, said means including a positively-driven friction member in driving engagement with the said friction-disk, to normally effect continuous rotation of the door, obstruction of the movement thereof causing relative slip of the friction-disk and the friction member in engagement therewith.



5. The combination with a vertical, revolving door, an attached friction-disk, and a continuously-operating motor, of transmitting means intermediate the latter and the door, said means including a driven friction-disk, a movable support therefor, and means to maintain said disks normally in driving engagement while permitting ready stoppage of the door when obstructed in its movement.

6. The combination with a vertical, revolving door, and continuously-running driving means to rotate it, of transmitting and speed-reducing friction-gearing intermediate the door and said driving means, to normally effect continuous rotation of the former.

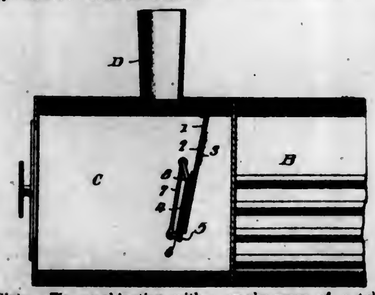
7. The combination with a vertical, revolving door, and motive means to normally effect continuous rotative movement of the door, of a transmitting connection between the latter and said motive means, to permit ready stoppage of the door if its movement is unduly obstructed, and a clutch included in said connection, to compensate for temporary and manually-induced increased speed of the door without derangement of such connection or the driving means.

785,048. **KNIFE AND SHEARS SHARPENER.** JOHN N. RICHIE, Allerton, Iowa. Filed July 11, 1904. Serial No. 216,117.



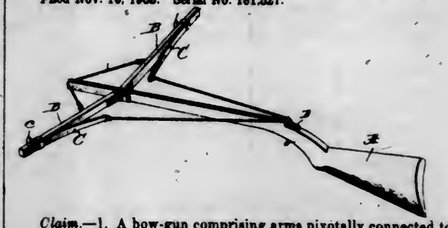
Claim.—A sharpening-tool comprising a supporting-plate provided with a V-shaped notch at one end, sharpening-plates secured one at each side of said notch by means of binding-screws at their inner ends and by adjusting-screws at their outer ends, said sharpening-plates being slotted to accommodate the adjusting-screws, and the sharpening edges of said plates being bent outward away from the supporting-plate, substantially as described.

785,049. **DRAFT-REGULATOR FOR STEAM-BOILERS.** ORVILLE R. SACKETT and HERMAN M. RIDGES, Niagara Falls, N. Y. Filed Apr. 23, 1904. Serial No. 204,627.



Claim.—The combination with a smoke-space of a tubular boiler, of a draft-regulator comprising a stationary depending plate reaching partly across the vertical diameter of the smoke-space and formed with an always-open slot in its upper portion, a screen covering said slot, a guide-plate secured to the stationary plate below the slot, a damper slidably positioned between the stationary and guide plates, a transverse shaft having a plurality of cranks mounted within the smoke-space, one end of said shaft extending outside the boiler, bars hung to the cranks and having their lower ends connected to the lower edge of the slidable damper-plate, a pinion on the outer end of the shaft, a swinging sector meshing with said pinion, a rod connected to the sector, whereby the pinion may be oscillated to rock the crank-shaft to raise and lower the damper-plate, and a lever for reciprocating said rod, substantially as described.

785,050. **BOW-GUN.** SAMUEL L. SAUNDERS, Winthrop, Mass. Filed Nov. 16, 1903. Serial No. 181,327.



Claim.—1. A bow-gun comprising arms pivotally connected to opposite sides of the gun-barrel, means for maintaining said arms in extended position, bows attached at one end to said arms, a bow-string connecting the unattached ends to said bows, and a trigger mechanism.

2. A bow-gun comprising arms pivotally connected to opposite sides of the gun-barrel, means for maintaining said arms in extended position, bows attached at their outer ends to said arms, a bow-string connecting said bows, and a trigger mechanism.

3. A bow-gun comprising arms pivotally connected to opposite sides of the gun-barrel, means for maintaining said arms in extended position, bows adjustably attached at their outer ends to said arms, a bowstring connecting said bows, and a trigger mechanism.

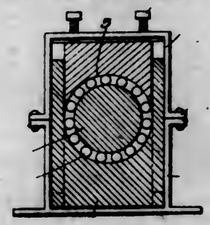
4. A bow-gun comprising arms extending transversely from opposite sides of the gun-barrel, bows attached at one end to said arms and arranged to come into contact at their opposite ends with said arms when sprung, whereby a sharp report is made, a bow-string connecting the unattached ends of said bows, and a trigger mechanism.

5. A bow-gun comprising arms extending transversely from opposite sides of the gun-barrel, bows attached at their outer ends to the outer ends of said arms and arranged to come into contact at their opposite ends with said arms when sprung, whereby a sharp report is made, a bowstring connecting the unattached ends of said bows, and a trigger mechanism.

6. A bow-gun comprising arms extending transversely from opposite sides of the gun-barrel, bows attached to said arms, means for varying the effective length of each bow, whereby the strength of each bow is varied, a bowstring connecting the unattached ends of said bows, and a trigger mechanism.

7. A bow-gun comprising a barrel provided with a groove to contain and guide a projectile, a bowstring, means for pulling the bowstring to hurl the projectile, an upwardly-spring-pressed Y-shaped bow-pin adapted when elevated to hold the bowstring across the arms of the Y with the projectile resting therebetween, a trigger for depressing the bow-pin, projections on the gun-barrel adjacent said bow-pin to support and maintain the position of the bowstring at a fixed distance from the bottom of the barrel-groove during the depression of the bow-pin.

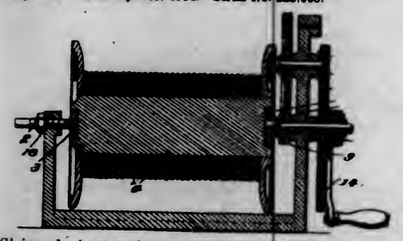
785,051. **JOURNAL-BEARING.** ANDERS C. SCHULTZ, Camden, N. J. Filed Mar. 12, 1903. Serial No. 147,505.



Claim.—1. A journal-bearing comprising sections adapted to interlock with each other, for the full extent of corresponding sides thereof, and a casing inclosing the sections, said sections being constructed on their inner faces to form an opening for the reception of a journal.

2. A journal-bearing comprising sections having alternating ribs and grooves for the full extent of corresponding sides thereof, the ribs on one section being disposed opposite and movable in the grooves of the other section, a casing inclosing the sections, and adjusting devices for one of the sections working through a part of said casing.

785,052. MEASURING-TAPE HOLDER. WILLIAM J. SEEP, Albany, Ind. Filed Sept. 23, 1904. Serial No. 225,668.



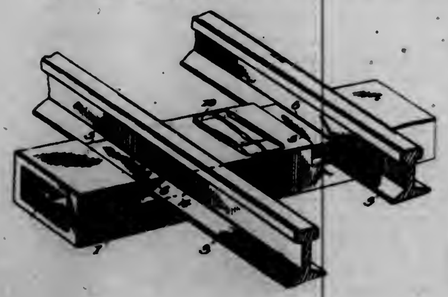
Claim.—1. A measuring-tape holder comprising a drum, an operating-shaft therefor, a stationary bearing for the latter, a bearing concentric with the last-mentioned bearing, and through which the said shaft is extended, a gear-pinion on said shaft, a second shaft having a gear-wheel on one end and a pinion on the other, the former meshing with the pinion of the operating-shaft, and a main gear-wheel mounted on the second-mentioned bearing and in mesh with the pinion of said second shaft.

2. A measuring-tape holder comprising a drum, an operating-shaft therefor, a stationary bearing for the latter, a fixed sleeve extended outwardly from said bearing and in which said shaft fits, a gear-pinion on said shaft, a second shaft having a gear-wheel on one end and a pinion on the other, the former meshing with the pinion of the drum-shaft, and a main gear-wheel mounted on said sleeve and in mesh with the pinion of said second shaft.

3. The combination with the frame having opposite bearings, of the end shafts supported by said bearings, a drum, said shafts detachably engaging said drum at its opposite ends, a gear-pinion on one of said shafts, a main gear-wheel having the same axis as said latter end shaft, but supported independently thereof, a second shaft carrying at one end a pinion with which said gear-wheel meshes, and at the other end a gear-wheel which meshes with the gear-pinion of the said end shaft.

4. The combination with the frame having opposite bearings, of the end shafts supported by said bearings, one shaft being longitudinally adjustable, the other shaft having a squared end and a pinion, a drum having a socket in one end to receive the squared end of said end shaft, a main operating gear-wheel mounted concentrically with but independently of said end shafts, a second shaft carrying at one end a gear-pinion meshing with said gear-wheel, and at the other end a gear-wheel meshing with said pinion of the end shaft, and an operating-handle secured to said main gear-wheel.

785,053. RAILROAD-TIE. JAMES A. SIPERS, Warren, Ind. Filed Aug. 17, 1904. Serial No. 221,132.



Claim.—1. In combination, a hollow railroad-tie provided with rail-seats adjacent the ends thereof, clamp members adjustable within the hollow portion of the tie, engaging flanges projecting upward from said members for coöperation with the rails, and an adjusting-bar for effecting simultaneous actuation of the clamp members.

2. In combination, a hollow railroad-tie provided with rail-seats adjacent the ends thereof, clamp members adjustable within the hollow portion of the tie, engaging flanges projecting upward from said members for coöperation with the rails, and an adjusting-bar having its ends threaded and received by the clamp members.

3. In combination, a hollow railroad-tie provided with rail-seats adjacent its ends, rail-clamp members adjustable in said tie, an adjusting-bar coöperating with said clamp members to effect movement thereof, and means for preventing movement of the adjusting-bar.

4. In combination, a hollow railroad-tie provided with rail-seats adjacent its ends, rail-clamp members movable longitudinally in said tie, said tie being provided between its ends and in the hollow portion thereof with a vertical web having an opening therethrough, an adjusting-bar passing through the web and having its opposite ends received by the clamping members for actuation thereof, the said bar being squared between its ends, the tie being provided with an opening adjacent to the squared portion of the adjusting-bar, a cap-plate normally closing said opening, and lock means carried by said cap-plate and coöperating with the adjusting-bar to prevent movement thereof.

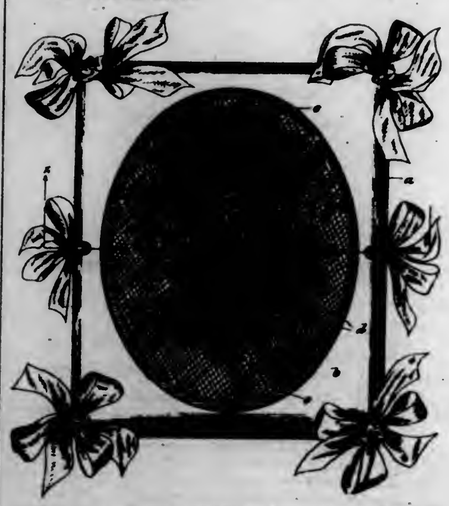
785,054. HOLDER FOR OIL-CANS. FRANKLIN H. SPICER, Washington, D. C. Filed Nov. 15, 1904. Serial No. 233,128.



Claim.—1. An oil-can holder adapted to be attached to the base of a can, and provided with a pivoted arm having a loop-bearing for connection with the spout of the can, substantially as specified.

2. An oil-can holder consisting of a wire base having attachment-lugs, and a pendent arm pivoted thereto having a loop-bearing for the spout of the can, substantially as specified.

785,055. MEANS FOR PRESERVING AND EXHIBITING FLOWERS. REGINA R. SPICER, Washington, D. C. Filed Nov. 15, 1904. Serial No. 233,129.



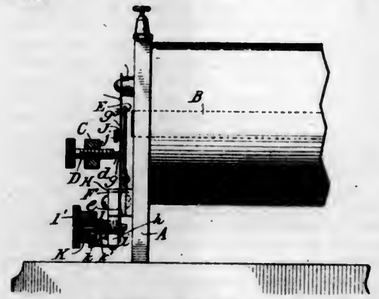
Claim.—1. A frame for preserving flowers having a back section to which the flowers are attached, and a front section having the sight-opening and soft netting attached to the front section and closing such opening, substantially as specified.

2. A frame for preserving flowers, having back and front sections, opposed to each other, each section having a sight-opening and a web of soft netting attached to the section and closing such sight-opening, substantially as specified.

3. A frame for preserving flowers having a back section provided with a sight-opening and a web of soft netting attached to said section and closing such sight-opening, and a front section having a similar sight-opening and a web of soft netting similarly attached closing the latter sight-opening, said sections being opposed to each other, and detachably secured together, substantially as specified.

4. The combination with one or more dried flowers or leaves, of a sectional back holder having a sight-opening, a web of netting closing such sight-opening and carrying the flowers or leaves which are connected thereto, a sectional front holder opposed to such back holder, and having a sight-opening, and a web of netting closing the latter sight-opening and forming a transparent protection-guard extending over the fronts of the flowers and leaves, substantially as specified.

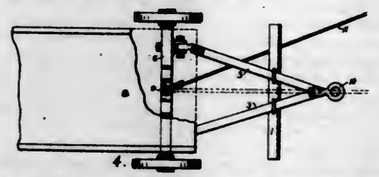
785,056. VIBRATOR-REGULATOR. CHARLES F. SPLITDORF, New York, N. Y. Filed Jan. 23, 1904. Renewed Jan. 24, 1905. Serial No. 243,563.



Claim.—1. A tension-regulator for vibrators or interrupters comprising a screw member and a threaded support therefor, said screw member bearing a series of peripheral depressions; together with a lock for said screw member comprising a circular body tensionally held in one of said depressions and adapted to roll into an adjacent depression upon the application of turning force to said screw.

2. A turnable body having an annular series of depressions together with means for locking said body in a set position, said means comprising a circular body held between two spring-leaves and protruding through an orifice in one of said leaves into one of said depressions.

785,057. DRAW-BAR. GEORGE STEVENSON, Riverdale, New Zealand. Filed July 14, 1904. Serial No. 216,511.

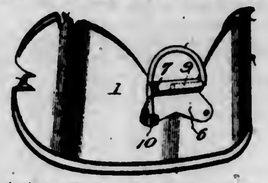


Claim.—1. A wagon having an axle and a draw-bar pivoted thereto, there being a transverse bar on the draw-bar having a series of notches therein, and a draft-cable attached to the wagon near the pivotal point and adapted to be entered in the several notches.

2. A wagon having an axle pivoted thereto, a transverse bar connected to the axle in front thereof, there being a series of notches in the bar, and a draft-cable attached to the wagon near the pivotal point and adapted to be entered in the several notches.

785,058. CALF-WEANER. EDWARD P. VAN ALSTYNE, Jr., Kinderhook, and HUGH VAN ALSTYNE, Old Chatham, N. Y. Filed Sept. 13, 1904. Serial No. 224,220.

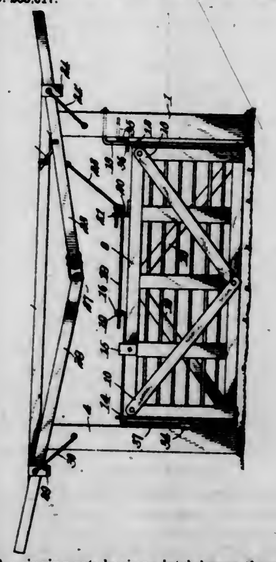
Claim.—1. In a device of the class described, a guard or shield formed to fit the muzzle of an animal and having a tubular bearing-sleeve, an attaching member having a bearing portion pivotally engaged with the bearing-sleeve, and means for detachably securing the other end of the attaching member to the shield.



2. In a device of the class described, a guard or shield struck from a single piece of material and having a portion of the material folded upon the body of the shield to form a clip provided with a tubular bearing-sleeve, a substantially U-shaped attaching member having one end angularly bent and pivotally engaged with the bearing-sleeve and its other end perforated, and a fastening member entered through the perforated end of the attaching member and shield.

3. In a device of the class described, a shield struck from a single piece of material and having a lower marginal flange and an upper recess, the portion of the material struck from the recess being folded upon the face of the shield to form a clip having a tubular bearing-sleeve, and an attaching member having one end pivotally engaged with the bearing-sleeve and its other end detachably engaged with the shield.

785,059. GATE. JOHN H. WHITE, Tuscola, Ill. Filed Apr 13, 1904. Serial No. 203,017.

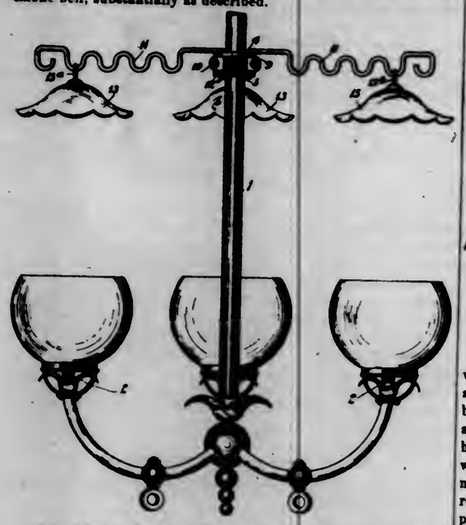


Claim.—A swinging gate having a latch-bar on the outer side of its free end, the lower end of the latch-bar being fast to the gate and the upper portion of the latch-bar being bent to extend rearwardly on the upper side of the gate and then upturned at its inner end, in combination with a guide on the gate for the inner portion of the latch-bar, a bracket on the upper side of the gate, a rod guided in said bracket, extending through an opening in the upturned inner end of the latch-bar and having an adjusting-nut engaging said upturned inner end of the latch-bar, an operating-lever, and a link-rod connecting the latter to the first-mentioned rod, substantially as described.

785,060. HANGER FOR SMOKE-BELLS. CHARLES J. WOODWARD, New York, N. Y. Filed Sept. 27, 1904. Serial No. 226,128.

Claim.—1. In a hanger for smoke-bells the combination of a bracket consisting of two segmental parts each formed with two

parallel flanges having registering vertical perforations for the reception of the vertical tang of a radial arm for supporting the smoke-bell, means for clamping the bracket-segments on the pendant, and a radial arm formed with one or more seats for the suspension of the smoke-bell, substantially as described.



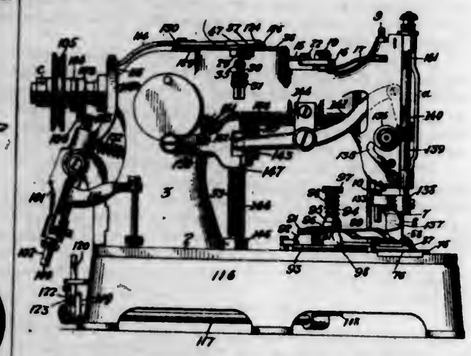
3. In a hanger for smoke-bells the combination of a supporting-bracket consisting of a pair of segments each formed with two parallel flanges having a series of vertical peripherally-disposed and registering perforations, a series of radial arms having tangs seated in the registering perforations in the segment-flanges and means for clamping the flanged segments on the chandelier-pendant at desired height, substantially as described.

3. In a hanger for smoke-bells the combination of a pair of segments formed with opposed angular cavities for clamping on the pendant and each formed with two horizontal flanges having a number of peripherally-disposed and registering perforations, means for clamping said segments on the pendant, radial bell-supporting arms having vertical tangs seated in the registering perforations in the segment-flanges, and means for securing said tangs in their seats, substantially as described.

4. A hanger for smoke-bells comprising two members each consisting of a pair of parallel horizontal segments 4, 5 connected at their ends by vertical flanges 9 and provided with registering vertical perforations 6, 7 disposed peripherally about said segments, screws 10 passing through the flanges 9 and clamping said paired segments 4, 5 to the pendant of a chandelier or the like and horizontal bell-supporting arms 11 having vertical tangs inserted in the registering perforations 6, 7 of the segments 4, 5, substantially as and for the purpose set forth.

785,081. **BUTTONHOLE-SEWING MACHINE.** EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, a Corporation of New Jersey. Original application filed Sept. 20, 1901. Serial No. 75,867. Divided and this application filed July 16, 1903. Serial No. 165,791.

Claim.—1. In a buttonhole-stitching machine, the combination with a stitch-forming mechanism comprising a horizontally-movable needle-bar and needle, a work-clamp and a feeding mechanism for spacing the overseaming or edge-covering stitches, of the bar 15 provided with two converging notches 25 and 26 and a pin or projection 28, the lever or rocker b having the pins 23 and 24 at different distances from its fulcrum or center of motion, a rotating cam for operating said lever or rocker, the lever 30 provided with a pawl 29 for engagement with said pin or projection 28, means for operating said lever 30 to cause the said pawl to engage the said pin 28 at proper intervals to move the said bar laterally when barring-stitches are to be formed, automatic means for disengaging said pawl from said pin 28 when the barring-stitches have been completed, said auomatic means comprising the intermittingly-rotated spring-retracted ratchet-wheel 36, carrying a controlling-plate, operating and detent pawls for said ratchet-wheel, a stop-motion mechanism, and connections controlled by said controlling-plate so that when the final bar of a buttonhole has been completed the machine will be stopped.



2. In a straight-buttonhole-stitching machine, the combination with a stitch-forming mechanism, a work-clamp and a feeding mechanism for spacing the overseaming or edge-covering stitches, of a barring mechanism, a stop-motion device, and a controlling mechanism for the said barring mechanism and stop-motion device whereby after the formation of alternate bars the said stop-motion device will be operated or tripped from said barring mechanism, to stop the machine, said controlling mechanism comprising the intermittingly-rotating ratchet-wheel 36, its controlling-plate 38, the spring-pressed latch-lever 114, the latch 127 pivoted to said latch-lever, and means for holding the said latch slightly elevated during the formation of one bar at the end of which the machine is not to be stopped, and means whereby the said latch is permitted to fall into contact with the said ratchet-wheel at the formation of a second bar at the end of which the machine is to be stopped.

3. In a straight-buttonhole-stitching machine, the combination with overseaming-stitch-forming devices and a work-clamp, of a feeding mechanism for imparting a relative movement to the said stitch-forming devices and work-clamp, so as to stitch first one side of a buttonhole and subsequently the other side thereof, a barring mechanism, comprising means for shifting the needle-bar, forming part of the said stitch-forming devices, laterally, and which barring mechanism is independent of the said feeding mechanism and is operated to form a bar at one end of the buttonhole, after the first side of said buttonhole has been stitched, and subsequently to form other barring-stitches at the other end of the buttonhole after the second side thereof has been stitched, and a stop-motion device connected with and controlled by said barring mechanism and serving to stop the machine automatically when the said second bar has been completed.

4. In a straight-buttonhole-stitching machine, the combination with overseaming-stitch-forming devices and a work-clamp, of a feeding mechanism for moving said work-clamp relative to said stitch-forming devices so as to stitch first one side of a buttonhole and subsequently the other side thereof, a barring mechanism, comprising means for shifting the needle-bar, forming part of the said stitch-forming devices, laterally, and which barring mechanism is operated to form a bar at one end of the buttonhole, after the first side of said buttonhole has been stitched, and subsequently to form other barring-stitches at the other end of the buttonhole after the second side thereof has been stitched, and a stop-motion device connected with and controlled by said barring mechanism and serving to stop the machine automatically when the said second bar has been completed.

5. In a straight-buttonhole-stitching machine, the combination with a stitch-forming mechanism, a work-clamp and a feeding mechanism for spacing the overseaming or edge-covering stitches, of a barring mechanism, independent of said feeding mechanism, and comprising means for shifting the needle-bar, forming part of said stitch-forming devices, laterally, adjustable means for varying the operation of the said barring mechanism so that any desired number of barring-stitches may be formed in each bar, a stop-motion device, and a controlling mechanism for the said barring mechanism and stop-motion device; whereby, after the formation of alternate bars, the said stop-motion device will be operated or tripped from said barring mechanism to stop the machine.

6. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for imparting relative feeding movements to said stitch-forming devices and work-clamp to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism operating to form a bar intermediate the side-stitching operations, means for suspending the feed of the work-clamp during the barring operations, and a stop-motion device connected with and controlled by said barring mechanism and operating to stop the machine while the feed is suspended.

7. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for moving said work-clamp relative to said stitch-forming devices to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism operating to form a bar intermediate the side-stitching operations, means for suspending the feed of the work-clamp during the barring operations, and a stop-motion device connected with and controlled by said barring mechanism and operating to stop the machine while the feed is suspended.

8. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for imparting relative feeding movements to said stitch-forming devices and work-clamp to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism operating to form a bar intermediate the side-stitching operations and subsequently to form other barring-stitches, means for suspending the feed of the work-clamp, during the barring operations, and a stop-motion device connected with said barring mechanism so that the machine will be stopped when the last barring-stitches have been made and operating to stop the machine while the feed is suspended.

9. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for moving said work-clamp relative to said stitch-forming devices to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism operating to form a bar intermediate the side-stitching operations and subsequently to form other barring-stitches, means for suspending the operation of the said feeding mechanism during the barring operations, and a stop-motion device connected with said barring mechanism so that the machine will be stopped when the last barring-stitches have been made and operating to stop the machine while the feed is suspended.

10. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for imparting relative feeding movements to said stitch-forming devices and work-clamp to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism comprising means for shifting the needle-bar, forming part of said stitch-forming mechanism, laterally, and which barring mechanism is operated to form a bar intermediate the side-stitching operations, means for suspending the feed of the work-clamp during the barring operations, and a stop-motion device connected with and controlled by said barring mechanism and operating to stop the machine while the feed is suspended.

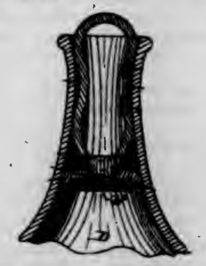
11. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for moving said work-clamp relative to said stitch-forming devices to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism comprising means for shifting the needle-bar, forming part of said stitch-forming mechanism, laterally, and which barring mechanism is operated to form a bar intermediate the side-stitching operations, means for suspending the feed of the work-clamp during the barring operations, and a stop-motion device connected with and controlled by said barring mechanism and operating to stop the machine while the feed is suspended.

12. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for imparting relative feeding movements to said stitch-forming devices and work-clamp to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism comprising means for shifting the needle-bar, forming part of said stitch-forming mechanism, laterally, and which barring mechanism is operated to form a bar intermediate the side-stitching operations and subsequently to form other barring-stitches, means for suspending the feed of the work-clamp during the barring operations, and a stop-motion device connected with said barring mechanism so that the machine will be stopped when the last barring-stitches have been made and operating to stop the machine while the feed is suspended.

13. In a straight-buttonhole-sewing machine, the combination with overseaming-stitch-forming devices, a work-clamp and a feeding mechanism for moving said work-clamp relative to said stitch-forming devices to space the overseaming-stitches first along one side and subsequently along the opposite side of a buttonhole, a barring mechanism comprising means for shifting the needle-bar, forming part of said stitch-forming mechanism, laterally, and which barring mechanism is operated to form a bar intermediate the side-stitching operations and subsequently to form other barring-stitches, means for suspending the operations of the said feeding mechanism during the barring operations, and a stop-motion device connected with said barring mechanism so that the machine will be stopped when the last barring-stitches have been made, and operating to stop the machine while the feed is suspended.

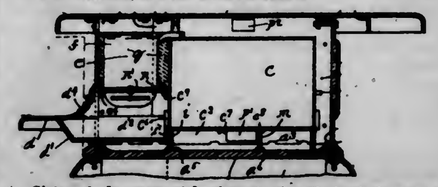
14. In a machine for stitching straight buttonholes, the combination with a stitch-forming mechanism, a work-clamp and a feeding mechanism for spacing the overseaming or edge-covering stitches, of an automatic mechanism for barring both ends of each buttonhole, adjustable means for varying the operation of the said barring mechanism so that any desired number of barring-stitches may be formed in each bar, means for suspending the feeding operation during the barring operations, and a stop-motion device connected with and controlled by said barring mechanism so that the machine will be automatically stopped from said barring mechanism when the last bar of a buttonhole has been formed and while the feed is suspended.

785,082. **BOTTLE-STOPPER.** KARL CLEMENS, Chicago, Ill., assignor of one-half to Henry E. Lamarus, Chicago, Ill. Filed Sept. 17, 1904. Serial No. 224,846.



Claim.—A bottle-stopper comprising a C-shaped wire spring provided with an inward bend on the closed side thereof, and with the ends of the wire on the open side thereof bent inwardly, metal disks attached to one end of the C-shaped spring, and a rubber disk between such metal disks, in combination with a bottle-neck the opening whereof is convex longitudinally to obtain a plurality of contact-points on the closed side of such spring when the bottle is closed by such stopper; substantially as described.

785,083. **REVERSIBLE STOVE.** FLORENCE DE RANCH, Haverhill, Mass., assignor of one-fourth to Edward H. Barry, Haverhill, Mass. Filed May 5, 1904. Serial No. 206,500.



Claim.—1. In a stove of the character described, a bed, an oven mounted thereon, and interchangeable fire-box and closure sections arranged at opposite sides of the oven, substantially as described.

2. In a stove of the character described, a bed, an oven adjustably mounted thereon, and interchangeable fire-box and closure sections arranged at opposite sides of the oven, substantially as described.

3. In a stove of the character described, a bed-plate having a longitudinally-extending edge rib at each side thereof, an oven adjustably mounted on said bed between said ribs, and interchangeable fire-box and closure sections arranged at opposite sides of said oven and bed-plate, substantially as described.

4. In a stove of the character described, a bed-plate, an oven adjustably mounted thereon, longitudinally-extending supporting-flanges for said oven at each side of said bed-plate, to provide a flue-chamber between the bottom of the oven and said bed-plate, and interchangeable fire-box and closure sections at opposite sides of the oven, substantially as described.

5. In a stove of the character described, a bed-plate, an oven adjustably mounted thereon, longitudinally-extending supporting-flanges for said oven at each side of said bed-plate to provide a flue-chamber between the bottom of the oven and said bed-plate, a door-plate for closing either the front or rear end of said chamber, and interchangeable fire-box and closure sections removably connected to opposite sides of the oven, said closure-sections providing a passage connecting said flue-chamber with the space above the oven, substantially as described.

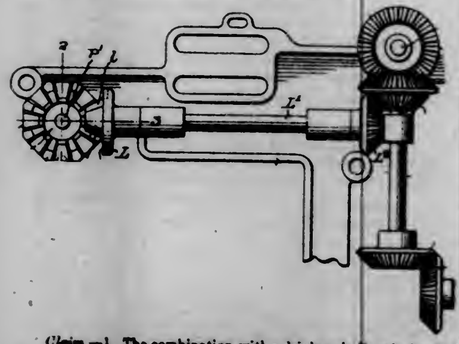
6. In a stove of the character described, a bed, an oven, longitudinally-extending supports between said bed and oven providing a circulating-chamber therebetween, a plate adapted to close either end of said chamber, and interchangeable fire-box and closure sections connected to opposite sides of the oven, substantially as described.

7. In a stove of the character described, a bed, an oven adjustably mounted thereon, and interchangeable fire-box and closure sections connected to opposite sides of the oven, said fire-box section comprising a front wall having a front opening, a hearth, and an ash-pit tray connected to said hearth and removably fitted in the lower end of said opening, substantially as described.

8. In a stove of the character described, a bed-plate, an oven adjustably mounted thereon, longitudinally-extending supporting-flanges for said oven at each side of said bed-plate to provide a flue-chamber between the bottom of the oven and said bed-plate, said rear supporting-flange having a flue-passage therethrough leading into said chamber, a baffle-plate, means for removably supporting the same transversely of said chamber at either side of the entrance to said flue-passage, and interchangeable fire-box and closure sections connected to opposite sides of the oven, substantially as described.

9. In a stove of the character described, a bed, an oven adjustably mounted thereon, and interchangeable fire-box and closure sections connected to opposite sides of the oven, said sections and oven having overlapping connecting-flanges, substantially as described.

785,064. **GEARING.** PAUL DIETZ, Philadelphia, Pa. Original application filed Apr. 6, 1904, Serial No. 202,307. Divided and this application filed Oct. 14, 1904. Serial No. 228,406.



Claim.—1. The combination, with a driving-shaft and a beveled gear thereon having a tooth and an inset into which said tooth extends, of a driven shaft and a beveled gear thereon having a polygonal periphery and a continuous series of teeth adapted to be successively engaged by the tooth of the first-named bevel-gear in the latter's rotation, substantially as described.

2. The combination, with a driving-shaft, of a mutilated gear-wheel, and a gear-wheel adapted to be engaged by the toothed section of the mutilated gear; the mutilated gear having a tooth and an inset into which said tooth extends and the other gear having a polygonal periphery, substantially as described.

3. The combination, with a driving-shaft and a beveled gear thereon having a conical projection, a tooth extending radially therefrom and an inset into which said tooth extends, of a driven shaft and a beveled gear thereon having a polygonal periphery and a continuous series of teeth each having a concavity adapted to said conical projection, whereby the rotation of the driving-gear imparts an intermittent rotation to the driven gear, substantially as described.

4. The combination, with a driving-shaft, of a mutilated gear-wheel and a gear-wheel adapted to be engaged by the toothed section of the mutilated gear; the latter having a projection, a beveled tooth extending radially therefrom and an inset into which said tooth extends; and the former having a polygonal periphery and a series of beveled teeth each having a concavity adapted to said conical projection, substantially as described.

5. The combination, with a driving-shaft and a beveled gear thereon having a conical projection, a tooth extending radially therefrom, and a flat annular shoulder surrounding said projection and broken away to form a radial inset into which said tooth extends, of a driven shaft and a beveled gear thereon having a polygonal periphery and a continuous series of teeth each having a concavity adapted to said conical projection and located respectively centrally of the flat sections of the periphery, whereby the rotation of the driving-gear imparts an intermittent rotation to the driven gear, substantially as described.

6. The combination, with a driving-shaft, of a mutilated gear-wheel and a gear-wheel adapted to be engaged by the toothed section of the mutilated gear; the latter having a conical projection, a flat shoulder surrounding said projection, said shoulder being broken away to form a radial inset, and a beveled tooth extending into said inset; and the former having a polygonal periphery and a series of beveled teeth located respectively centrally of the flat sections of said periphery and each having a concavity adapted to said conical projection, substantially as described.

7. The combination, with a driving-shaft and a beveled gear thereon having a conical projection, a tooth extending radially therefrom, and a flat annular shoulder surrounding said projection and broken away to form a radial inset into which said tooth extends, of a driven shaft and a beveled gear thereon having a polygonal periphery adapted to said conical projection and located respectively centrally of the flat sections of the periphery, the periphery of each tooth being flattened, said flattened periphery being contiguous to and flush with one of the flattened sections of the periphery of the gear, whereby the rotation of the driving-gear imparts an intermittent rotation to the driven gear, substantially as described.

8. The combination, with a driving-shaft, of a mutilated gear-wheel and a gear-wheel adapted to be engaged by the toothed section of the mutilated gear; the latter having a conical projection, a flat annular shoulder surrounding said projection, said shoulder being broken away to form a radial inset, and a beveled tooth extending into said inset; and the former having a polygonal periphery, a series of beveled teeth located respectively centrally of the flat sections of said periphery and each having a concavity adapted to said conical projection, the periphery of each tooth being flattened, and the flattened periphery of each tooth being contiguous to and flush with one of the flattened sections of the periphery of the gear, substantially as described.

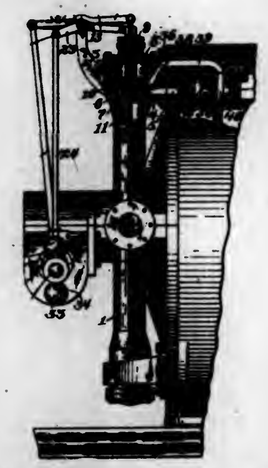
785,065. **GOVERNOR.** ELMER S. FARWELL, Ridgewood, N. J., assignor to Edwin H. Ludeman, Brooklyn, N. Y. Original application filed Dec. 22, 1903, Serial No. 186,191. Divided and this application filed Feb. 11, 1904. Serial No. 193,059.

Claim.—1. In a governing device the combination with a steam-chest having two ports of varying function, a slide-valve, means to reciprocate the slide-valve with excursions of constant length, and means to control the region of reciprocation thereof to permit the same to cover and uncover either or both of said ports.

2. In a governing mechanism for turbine-engines, the combination with a steam-chest having two ports of varying function; means adapted to open and close either of said ports at intervals; means for operating the same; and means for varying the periods of such opening.

3. In a governing mechanism for turbine-engines, the combination with a steam-chest having two ports of varying function; means adapted to open and close one of said ports at intervals; means for operating the same; and means to open and close the other port and permit the first-mentioned port to remain open continuously.

4. In a turbine-engine having a number of ports of progressively-increasing area to admit steam at its successive steps of expansion to the turbine, the combination of a steam-chest having a port to supply steam to said turbine at the port of least area and an adjacent port to supply steam to a port of larger area, means adapted to open and close either of said ports at intervals; means to operate the same, and means embodying a governor to vary the period of such opening.



5. In a turbine-engine having a number of ports of progressively-increasing area to admit steam at its successive steps of expansion to the turbine, the combination of a steam-chest having a port to supply steam to said turbine at the port of least area and an adjacent port to supply steam to a port of larger area, means adapted to open and close one of said ports at intervals, means to operate the same, and means embodying a governor to open and close the port of larger area and permit the port of least area to remain open continuously.

6. In means to govern a turbine-engine having a number of ports of progressively-increasing area to admit steam at its successive steps of expansion to the turbine, the combination of a steam-chest having a port to supply steam to said turbine at the ports of least area and an adjacent port to supply steam to a port of larger area, a slide-valve adapted to cover both ports, means to continuously reciprocate said valve, and means embodying a governor to change the region of reciprocation thereof to open and close the respective ports.

7. In means to govern a turbine-engine having a number of ports of progressively-increasing area to admit steam at its successive steps of expansion to the turbine, the combination of a steam-chest having a port to supply steam to said turbine at the ports of least area, and an adjacent port to supply steam to a port of larger area, a slide-valve adapted to cover both ports, means to continuously reciprocate said valve and means to change the region of reciprocation thereof to open and close the port of larger area and permit the port of least area to remain open continuously.

8. In means to govern an engine organized to receive steam at two points, the combination of a steam-chest having a fixed port at each of such points and connected with a source of supply; slide-valves for said ports; means to reciprocate said valves with constant length of stroke, and means to change the position of stroke relative to said fixed ports to control the steam supplied to the engine.

9. In means to govern a turbine-engine having a number of series of ports of progressively-increasing area to admit steam at its successive stages of expansion to the turbine; the combination of a steam-chest having a port to supply steam to each of said series of ports at the port of least area, and an adjacent port to supply steam to a port in the series of larger area; a pair of slide-valves each adapted to cover both ports to one of the series; means to continuously reciprocate said slide-valves and means embodying a governor to change the region of reciprocation thereof to open and close the respective ports.

10. In a governing device the combination of a steam-chest, of a pair of slide-valves therein, stems connected to the slide-valves, levers to which the slide-valves are pivoted, an eccentric-rod pivoted to both slide-valves and fulcrums for such levers, and means to shift the fulcrums.

785,066. **NOZZLE FOR TURBINE-ENGINES.** ELMER S. FARWELL, Ridgewood, N. J., assignor to Edwin H. Ludeman, Brooklyn, N. Y. Filed Dec. 16, 1903. Serial No. 185,351.



Claim.—1. An element for turbine-engine nozzles comprising a body portion having chambers for the passage of fluid and a base portion having end faces provided with flaring locking-faces.

2. An element for a turbine-engine nozzle comprising two ends and a web portion joining the same and forming thereby a chamber for the passage of fluid on each side of said web portion.

3. An element for a turbine-engine nozzle comprising two ends and a web portion joining same and forming thereby two chambers for the passage of fluid, the cross-sectional area of such chambers being smaller toward the delivery end.

4. A nozzle unit having plane ends and curved sides, the curvature whereof is similar, and chambers through such sides, the walls whereof are curved at the top and bottom and converge toward the delivery end and the side walls whereof are curved and converge toward the delivery end, and one of which walls has a concave curvature adjacent to the mouth.

5. A nozzle for a turbine-engine comprising a pair of units fitting one against the other at their ends and each embodying half a hopper-shaped chamber forming together a converging passage for the motive fluid.

6. A nozzle for a turbine-engine comprising a pair of units fitting one against the other at their ends and each embodying half a chamber forming together a converging passage for the motive fluid, the base portion of said units provided with oppositely-flaring locking-faces.

7. A jet-nozzle for a turbine-engine consisting of a number of units, means for securing the units and comprising an undercut channel, dovetailed ends upon the units to interlock with such channel, nozzle-chambers through the sides of the unit, and means within the chamber to direct the course of the steam.

8. A series of jet-nozzles for a turbine-engine comprising a number of dovetailed jet-nozzle units carried by an undercut channel.

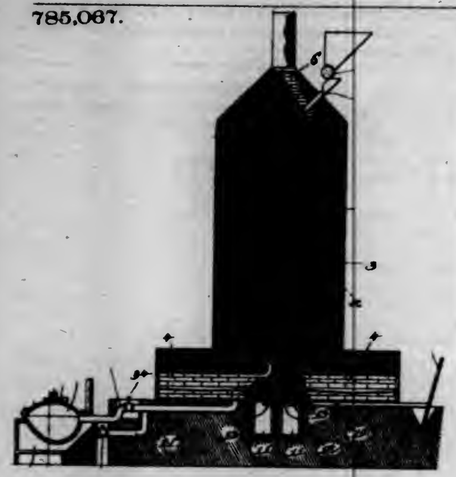
785,067. **ORE-ROASTING FURNACE.** HORACE M. HEATH, Newton, Mass., and GEORGE MORRICE, Sonora, and ROBERT L. J. GRUBB, Genesee, Cal., assignor by direct and mesne assignments, to Frank W. McAleer, Newton, Mass. Filed Sept. 13, 1902. Serial No. 123,220.

Claim.—1. In an ore-roasting furnace, an oxidizing-flue having non-perforated sides and open to the atmosphere only at the upper end where it receives the ore to be treated, means to heat said flue externally, a plurality of air-tight chambers beneath said flue, means to connect the lower end of said flue with either of said chambers, and means to deliver oxygen to the lower end of the flue above said chambers.

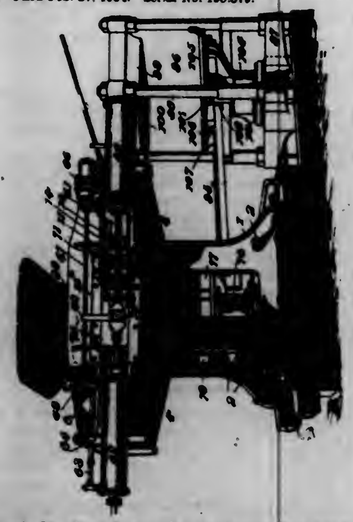
2. In an ore-roasting furnace, an oxidizing-flue which is open at its upper end to receive the ore to be treated, a furnace to externally heat said flue, a plurality of air-tight chambers beneath said flue, means to connect said flue with either of said chambers, and an oxygen-generator connected to the lower end of the flue and operating to deliver pure oxygen thereto.

3. In an ore-roasting furnace, a tower having a vertically-extending zigzag passage-way, two parallel partitions extending longitudinally of said passage-way and dividing it throughout its entire length into three separate flues, of which the central one constitutes an oxidizing-flue, a combustion-chamber communicating with the two outside flues, an air-tight chamber beneath and with which the oxidizing-flue communicates, and means to deliver pure oxygen to said oxidizing-flue, the two outside flues having communication with each other at a plurality of points throughout their length.

785,067.



785,068. BALING-PRESS. CHARLES J. LUCE, Atlantic, Conn., assignor to Luce Compress & Cotton Company, a Corporation of Delaware. Filed Feb. 27, 1904. Serial No. 195,579.



Claim.—1. In a baling-press, the combination with means for forming a continuous wad, of means for feeding the wad under pressure throughout its whole extent, means for forming the wad into a bale without relieving the pressure thereon, a press connected to the aforesaid means by tracks to give a final compression to the bale, temporary binders of permanent size and form adapted to embrace the bale and transport it on the tracks to the press for final compression, the said binders being removed before the final compression takes place.

2. In a baling-press, the combination with a platen, means to reciprocate the platen, of a pressure-head adapted to be pressed toward the platen, means for forming a wad of cotton under a constant forcing pressure, said cotton being laid down in layers by the reciprocation of the platen to form a temporary bale between the pressure-head and platen, binders adapted to be applied to the temporary bale, means to support the bale after the pressure-head is removed therefrom, a press adapted to give the bale its final compression, and means extending from the means which support the bale to the press for transferring the cotton to the press.

3. In a baling-press, the combination with means for forming a temporary bale, comprising a platen and a pressure-head, grooves formed in the pressure-head, tracks supported in the grooves, supports adapted to receive the tracks when the pressure-head is lowered, a press, tracks connecting the means for forming the bale and the press, said latter tracks being in alinement with the first-mentioned tracks, and means to compress the bale in the press.

4. In a baling-press, the combination with means for forming a temporary bale, comprising a platen and a pressure-head, tracks carried by the pressure-head, means for separating the pressure-head from the tracks to support the bale on said tracks, a press, tracks connecting the means for holding the temporary bale and the press, said tracks being in alinement with the tracks on the pressure-head to transfer the temporary bale to the press, and means to operate the press.

5. In a baling-press, the combination with a platen, means for reciprocating the platen, means to adjust the length of stroke of the platen, and means coöperating with the platen to form a bale.

6. In a baling-press, the combination with a reciprocating platen composed of a plurality of rollers, means for revolving the rollers, a piston-rod connected to a roll, means for adjusting the length of stroke of the platen, and means coöperating with the platen to form a bale.

7. In a baling-press, the combination with a reciprocating platen composed of a plurality of rollers, means for revolving the rollers, notches formed in a plurality of the rollers and extending only part way around the rollers, a pressure-head, and binders adapted to pass through the notches when they are in alinement and over the bale for holding said bale.

8. In baling-press, the combination with a reciprocating platen carrying a roller formed with an opening extending only part way around the roller, of a pressure-head, and binders adapted to pass through the opening and over the bale at the top and between said bale and the pressure-head when the opening stands over the bale.

9. In a baling-press, the combination with a reciprocating platen carrying a roller formed with an opening extending only part way around the roller, of a pressure-head formed with corresponding opening, and binders adapted to be passed through the opening in the roller of the platen and the pressure-head when the opening in the roller stands over the bale.

10. In a baling-press, the combination with a platen formed with openings, of a pressure-head formed with corresponding openings, temporary binders adapted to be passed through the opening in the platen and the pressure-head, a track, a press, a portion of the track being carried by the pressure-head and the press, the tracks being brought into alinement for transferring the bale to the press.

11. In a baling-press the combination with a platen formed with openings, of a pressure-head formed with corresponding openings, and temporary binders of permanent form adapted to be passed through the openings in the platen and pressure-head and engage the bale.

12. In a baling-press, the combination with a platen formed with openings, of a pressure-head formed with corresponding openings, of a temporary binder in the form of three sides of a rectangle adapted to be passed through the openings in the platen and pressure-head and engage the bale.

13. In a baling-press, the combination with a frame, a reciprocating platen comprising sides and a series of rolls bearing on the frame, shafts supported by the sides, rolls on the shafts which contact with the rollers of the platen, and feeding mechanism carried by the platen, the weight of the sides of the platen and the feeding mechanism being supported by the rolls resting on the rollers.

14. In a baling-press, the combination with a frame, a reciprocating platen comprising rollers and sides through which the rollers pass and an element supported by and revolved by the rollers to relieve the rollers of the weight of the sides.

15. In a press, the combination with a frame, a reciprocating platen comprising a plurality of rollers, gears on the rollers, a stationary rack, a movable rack, the two racks being engaged by the gears and mechanism connected to a roller for reciprocating the platen.

16. In a baling-press, the combination with a platen comprising a series of rollers, gears on the rollers, a stationary rack, a stationary track adjacent the rack and on which the rollers are supported, a movable rack, an antifriction device to relieve the friction of the movable rack, and means for reciprocating the platen.

17. In a baling-press, the combination with a platen comprising a series of rollers, gears on the rollers, a stationary rack, a stationary track adjacent the rack and on which the rollers are supported, a movable rack, having a track adjacent thereto which bears on the rollers, the two tracks being in contact with the rollers, and means for reciprocating the platen.

18. In a press, the combination with a platen composed of a series of rollers, and notches formed in the rollers, the notches in the rollers being located so that they are all in alinement at a predetermined point, a pressure-head, the notches permitting of the introduction of a binder.

19. In a baling-press, the combination with a platen composed of a plurality of rollers, notches formed in the rollers, the notches being located so as to be in alinement with each other at a predetermined point, a platform provided with an opening in which the bale fits, slots in the platform which are coincident with the notches in the rollers, a pressure-head, the notches in the rollers and the slots in the platform permitting of the introduction of a binder.

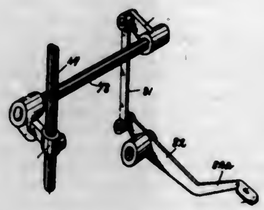
20. In a baling-press, the combination with a platen, and means coöperating therewith for temporarily forming a bale, of a frame, tracks supported by the frame, a pressure-head having grooves formed in it to receive the tracks, a press to finally compress the bale, tracks supported by the press, a pressure-head in the press, grooves formed in said pressure-head to receive the tracks, tracks supported in alinement with the aforesaid track, the pressure-heads when compressing bales lifting the tracks adjacent thereto, for the introduction of a binder when the bale is temporarily formed, and permitting of the removal of said binder when the final compression takes place.

21. In a press, the combination with a platen provided with a series of notches, a pressure-head provided with a series of grooves, tracks carried by the pressure-head, while compressing a bale, binders adapted to prevent longitudinal expansion of the bale supported by the rail and provided with a roller, said binder embracing the bale, a press, and an inclined track arranged in alinement with the track when the pressure-head is lowered to transport the bale to the press by gravity on the binders.

22. In a baling-press, the combination with means for forming a continuous wad, of means for feeding the wad under continuous pressure throughout its whole extent, means for forming the wad into a bale of predetermined density without relieving the pressure on the wad, means for temporarily holding the bale to prevent longitudinal expansion of the bale, means for giving the bale a final compression to increase its density, and means for transferring the bale from where it received the predetermined density to the means for increasing its density.

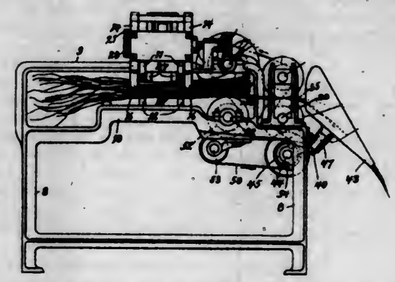
23. In a baling-press, the combination with a reciprocating platen having an aperture therein, of means to reciprocate said platen, means for forming a wad under pressure, means for feeding the wad through said aperture and under said platen under continuous pressure throughout its whole extent, said platen operating by its reciprocation to form the wad into a bale having a predetermined density, a press for increasing the density of the aforesaid bale, and means for transferring the bale to the press.

785,069. PRESSER-FOOT-LIFTING MECHANISM FOR SEWING-MACHINES. JOSEPH M. MERROW, Merrow, Conn., assignor to The Merrow Machine Company, Hartford, Conn., a Corporation of Connecticut. Filed Mar. 18, 1902. Serial No. 98,822.



Claim.—In a sewing-machine, the combination with the machine-frame having an overhanging arm, said frame and its arm constituting a casing for the driving mechanism and a presser-foot bar mounted to move vertically in the end of said arm, of a horizontally-arranged rock-shaft located within the arm and coöperating with the presser-foot bar to elevate the same, an operating-lever pivoted in the frame below the arm and having an elevated finger-piece projecting forwardly through the front of the casing, and a link connecting the rear end of the lever and an arm on the rock-shaft; substantially as described.

785,070. AUTOMATIC MATERIAL-FEEDING DEVICE. LOUIS J. MONAHAN and CONRAD KIEREN, Oshkosh, Wis., assignors to The Oshkosh Grass Matting Company, a Partnership. Filed June 12, 1902. Serial No. 111,881.



Claim.—1. In a material-feeding device, the combination of a frame having a passage-way for the lengthwise travel of the material therethrough, and also provided with a laterally-projecting feedway into which the material to be operated upon is fed sidewise, said feedway leading to the passage-way of the frame, a carrier device provided with depending fingers adapted to operate in the feedway, means for imparting to the carrier device an inward movement, an upward movement, an outward movement, and a downward movement, the inward movement causing the depending fingers to contact with the material and push said material inwardly into the passage-way of the frame, the upward movement lifting the carrier device and its depending fingers and thereby bringing said fingers out of contact with the material, the outward movement carrying the carrier device back to its outward limit, and the downward movement again bringing the depending fingers into contact with the material, and means for moving said material through the passage-way of the frame.

2. In a material-feeding device, the combination of a frame having a passage-way for the lengthwise travel of the material therethrough, and also provided with a laterally-projecting feedway into which the material to be operated upon is fed sidewise, said feedway leading to the passage-way of the frame, a carrier device provided with depending fingers adapted to operate in the feedway, means for causing the carrier device to move in a rectangular path, the inward movement thereof causing the depending fingers to engage the material and push the same inwardly, and means for moving the material through the passage-way of the frame.

3. In a material-feeding device, the combination of a frame having a passage-way for the travel of the material therethrough, and also provided with a projecting feedway into which the material to be operated upon is fed, said feedway leading to the passage-way of the frame, a carrier device provided with depending fingers adapted to extend into the feedway, and said carrier device also provided with side pieces, each having an opening therein, cams fitting loosely in the openings of the side pieces, means for rotating said cams in unison so as to cause the same to act on the bordering edges of the openings and thereby impart to the carrier device an inward movement, an upward movement, an outward movement, and a downward movement, the said inward movement causing the depending fingers to contact with the material and force said material inwardly into the passage-way of the frame, the upward movement elevating the frame and its depending fingers and thereby bringing said fingers out of contact with the material, the outward movement carrying the carrier device back to its outward limit, and the downward movement again bringing the depending fingers into contact with the material, and means for moving the material through the passage-way of the frame.

4. In a material-feeding device, the combination of a frame having a passage-way for the travel of the material therethrough, and also provided with a projecting feedway into which the material to be operated upon is fed, said feedway leading to the passage-way of the frame, a carrier device provided with depending fingers adapted to extend into the feedway, and also provided with side pieces, each side piece having an opening therein, cams fitting loosely in the openings of the side pieces, means for rotating said cams in unison so as to cause the same to act on the bordering edges of the openings and thereby impart to the carrier device an inward movement, an upward movement, an outward movement, and a downward movement, the said inward movement causing the depending fingers to

contact with the material and force said material inwardly into the passage-way of the frame, the upward movement elevating the frame and its depending fingers and thereby bringing said fingers out of contact with the material, the outward movement carrying the carrier device back to its outward limit, and the downward movement again bringing the depending fingers into contact with the material, and means for moving the material through the passage-way of the frame.

5. In a material-feeding device, the combination of a frame having a passage-way for the travel of the material therethrough and also provided with a projecting feedway into which the material to be operated upon is fed, said feedway leading to the passage-way of the frame, a carrier device having depending fingers adapted to extend into the feedway, said carrier device also provided with side pieces, each side piece having a plurality of openings therein, cams fitting loosely in the openings of the side pieces, means for rotating said cams in unison so as to cause the same to act on the bordering edges of the openings and thereby impart to the carrier device an inward movement, an upward movement, an outward movement, and a downward movement, the said inward movement causing the depending fingers to contact with the material and force said material inwardly into the passage-way of the frame, the upward movement elevating the frame and its depending fingers and thereby bringing said fingers out of contact with the material, the outward movement carrying the carrier device back to its outward limit, and the downward movement again bringing the depending fingers into contact with the material, and means for moving the material through the passage-way of the frame.

6. In a material-feeding device, the combination of a frame having a passage-way for the travel of the material therethrough, and also provided with a projecting feedway leading to the passage-way of the frame, a carrier device having fingers depending therefrom and adapted to extend into the feedway, and said carrier device also provided with side pieces, each side piece having openings therein, cams fitting loosely in the openings, shafts on which said cams are mounted, toothed wheels on the ends of said shaft, an intermediate toothed wheel meshing with the toothed wheels of the shafts, means for actively driving one of the cam-shafts, whereby the cams, through the intermeshing toothed wheels, are caused to rotate in unison and thereby act on the bordering edges of the openings and impart to the carrier device an inward movement, an upward movement, an outward movement, and a downward movement, the said inward movement causing the depending fingers to contact with the material and force said material inwardly into the passage-way of the frame, the upward movement elevating the frame and its depending fingers and thereby bringing said fingers out of contact with the material, the outward movement carrying the carrier device back to its outward limit, and the downward movement again bringing the depending fingers into contact with the material, and means for moving the material through the passage-way of the frame.

7. In a material-feeding device, the combination of a frame having a passage-way for the travel of the material therethrough, and also provided with a projecting feedway leading to the passage-way, means for conveying the material through the feedway into the passage-way, downwardly-extending tines or prongs, means, when the conveying mechanism is engaging the material and conveying the same into the passage-way, for holding the tines or prongs elevated, and for causing said tines or prongs to lower and engage the material, when the conveying mechanism is not actively engaging the material, and means for moving the material through the passage-way of the frame.

8. In a material-feeding device, the combination of a frame having a passage-way for the travel of the material therethrough and also provided with a projecting feedway leading to the passage-way, a carrier device provided with means for acting on the material, and also provided with elongated slots, means for imparting to the carrier device an inward movement, an upward movement, an outward movement, and a downward movement, the said inward movement causing the carrier device to contact with the material and force said material into the passage-way of the frame, the upward movement elevating the carrier device out of contact with the material, the outward movement carrying the carrier device back to its outward limit, and the downward movement again bringing the carrier device into contact with the material, a lever pivoted intermediate of its ends and having a cross-piece at one end, the extremities of said cross-piece fitting loosely the elongated slots of the device, and the opposite end of the lever having tines or prongs depending therefrom, and means for moving the material through the passage-way of the frame.

9. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be acted upon, a rotatable roll journaled in the frame, a series of revoluble devices coöperating with the roll, each revoluble device provided with a concentrically-curved edge, the said devices being so set that the material is always acted upon by one or more of the curved concentric edges, whereby said material is pressed against the roll and moved along the frame of the machine.

10. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be operated upon, a rotatable roll journaled in the frame, a series of revoluble devices coöperating with the roll and revolubly mounted on a common shaft, but having an independent and variable radial play on said shaft, each revoluble device provided with means for pressing the material against the roll, whereby said material is moved along the frame of the machine.

11. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be operated upon, a rotatable roll journaled in the frame, a series of revoluble devices coöperating with the roll and revolubly mounted on a common shaft but having an independent and variable radial play on said shaft, each revoluble device provided with means for pressing the material against the roll, whereby said material is moved along the frame of the machine, and a series of spacing-collars loosely set on the shaft between the revoluble devices.

12. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be operated upon, a rotatable roll journaled in the frame, a rotatable shaft mounted in the frame, a series of devices provided with oblong openings through which the shaft passes, and each device provided with means for pressing the material against the roll, whereby said material is moved along the frame of the machine, a series of pins fitting loosely in openings therefor in the shaft and in recesses therefor in the rotatable devices, and a spring interposed between one end of each pin and the closed end of the opening of the shaft.

13. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be acted upon, means for moving said material along the frame of the machine, a funnel having a gradual taper toward its discharge end, said funnel being in line to receive therein the material moving along the frame of the machine, a stem depending from the funnel, a tubular bearing through which the stem passes, a rotatable cam provided with a sinuous groove, and a follower extending from the stem and engaging the sinuous groove of the cam, whereby, upon the rotation of the cam, a lateral shaking motion is imparted to the funnel.

14. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be operated upon, a rotatable roll journaled in the frame, a series of revoluble devices coöperating with the roll, each revoluble device provided with means for pressing the material against the roll, whereby said material is moved along the frame of the machine, and two rotatable rolls in advance of the first-mentioned roll and adapted to receive therebetween the material so moved along the frame of the machine.

15. In a material-feeding device, the combination of a frame having a passage-way therein and a projecting feedway leading to the passage-way, a carrier device provided with depending fingers adapted to extend into the feedway, said carrier device provided with side pieces, each side piece having an opening therein, cams loosely fitting in the opening and adapted, when rotated, to impart an inward movement, an upward movement, an outward movement, and a downward movement to the carrier device, a shaft on which said cams are mounted, one extremity of said shaft having a worm-wheel thereon, mechanism for moving the material along the frame, one member thereof consisting of a rotatable shaft having means thereon for acting at different portions thereof successively on the material fed to the passage-way of the frame, and the other member thereof forming an opposing surface coöperating, and adapted in connection, with the successively-acting portions to move the material along the passage-way of the frame, and a worm on the end of the shaft of the first-referred-to member and in mesh with the worm-wheel of the cam-shaft.

16. In a material-feeding device, the combination of a frame having a passage-way for the travel therethrough of the material fed therein, a shaft having a roll mounted thereon and also having a pulley mounted thereon, a shaft above the roll, said shaft having a pulley mounted thereon, and also having a series of revoluble devices thereon, each revoluble device provided with means for pressing material against the roll, whereby said material is moved through the passage-way, two shafts in advance of the first-mentioned shaft, said shafts having pulleys mounted thereon, and each of said shafts also having a roll thereon, means for actively driving one of said roll-shafts, and a belt engaging the several pulleys.

17. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the lengths of material to be operated upon, a pair of draw-rolls arranged in line with the travel of the material and transverse of the lengths thereof, and roller means for starting or forcing the ends of successive lengths of the material between the draw-rolls, whereby said rolls serve to grasp and draw a portion of the lengths of the material.

18. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material fed therein, mechanism for moving the material along the frame, one member of said mechanism being movable and adapted to act at different longitudinal portions thereof successively on the material fed into the machine, and the other member thereof forming an opposing surface coöperating, and adapted, in connection with the successively-acting portions of the other member, to move the material along the frame of the machine.

19. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material fed therein, mechanism for moving the material along the frame, one member of said mechanism having a circular path of movement and adapted to act at different longitudinal portions thereof successively on the material fed into the machine, and the other member thereof forming an opposing surface coöperating, and adapted, in connection with the successively-acting portions of the other member, to move the material along the frame of the machine.

20. In a material-feeding device, the combination of a frame, constructed for the travel therethrough of the material fed therein, mechanism for moving the material along the frame, one member of said mechanism being movable and having different longitudinal portions thereof provided with differently-positioned grooves adapted to act successively on the material fed into the machine, and the other member thereof consisting of an opposing surface coöperating, and adapted, in connection with the successively-acting portions of the other member, to move the material along the frame.

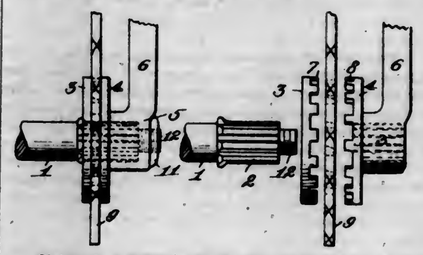
21. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material fed therein, mechanism for moving the material along the frame, one member of said mechanism being movable and adapted to act at different longitudinal portions thereof successively on the material fed into the machine, and the other member thereof forming a rotatable opposing surface coöperating, and adapted, in connection with the successively-acting portions of the other member, to move the material along the frame of the machine.

22. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be operated upon, mechanism for moving the material along the frame, one member of said mechanism consisting of a series of revoluble devices, each revoluble device provided with a partially concentrically curved edge, and the said devices being so set that the material will always be acted upon by one or more of the curved concentric edges, and the other member of the material-moving mechanism having an opposing surface, coöperating, and adapted, in connection with the concentrically-curved edges of the revoluble devices, to move the material along the frame of the machine.

23. In a material-feeding device, the combination with a frame constructed for the travel therethrough of the material to be operated upon, of mechanism for moving the material along the frame, one member of said mechanism being revoluble, and having material-engaging means carried thereby and located thereon transversely of or at an angle to the axis of said revoluble member, and the other member of the mechanism for moving the material having a surface opposed to the revoluble member, portions of the material-engaging means of said revoluble member, in the revolution of said member, successively coöperating with the opposing member, and thereby moving the material along the frame of the machine.

24. In a material-feeding device, the combination of a frame constructed for the travel therethrough of the material to be operated upon, mechanism for moving the material along the frame, one member of said mechanism being movable and adapted to act at different longitudinal portions thereof successively on the material fed into the machine, and the other member thereof having an opposing surface coöperating, and adapted, in connection with the successively-acting portions of the other member, to start the movement of the material along the frame of the machine, and a pair of draw-rolls arranged in line with the travel of the material and transverse of the lengths thereof, and adapted to receive therebetween the lengths of material moved by the material-moving mechanism, and thereby draw said lengths of material therebetween.

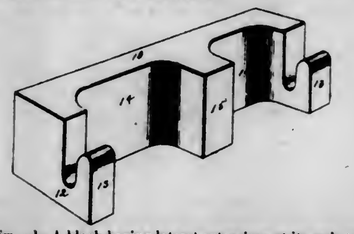
785,071. FASTENING FOR WHEELS, SHAFTS, AND CRANKS. JOHN V. PUGH, Allesley, England. Original application filed May 9, 1904, Serial No. 207,194. Divided and this application filed Nov. 18, 1904. Serial No. 233,030.



Claim.—1. A fastening for wheels, cranks and shafts, involving a longitudinally-grooved element, a plurality of internally-ribbed members having their ribs engaging in the grooves of said element, each of said members having a toothed face, a toothed member interposed between and engaging the teeth of said ribbed members and adapted to cause the interlocking of all of said members together, and means for securing said element and members together.

2. A fastening of the character set forth, involving the combination of a grooved element and a wheel whose nave is mounted thereon and provided on each side thereof with teeth, of a pair of internally-ribbed members mounted upon and having their ribs engaging in the groove of said element and further provided with teeth engaging in the teeth of the nave, and means for securing the nave, said members and element together.

785,072. COPING FOR GRAVES. SAMUEL B. RICKORDS, Seymour, Iowa, assignor of one-half to William O. Jamison, Seymour, Iowa. Filed Nov. 17, 1904. Serial No. 233,233.



Claim.—1. A block having lateral extensions at its ends terminating in hooks, cavities between said extensions and the center for producing open-ended chambers, for the purposes stated.

2. Two mating blocks, each having lateral extensions at its ends terminating in hooks, cavities between said lateral extensions and the hooks interlocked as shown and described, for the purposes stated.

3. A block composed of two mating parts, each having lateral projections at its ends terminating in hooks, cavities between said projections and the center and a cavity in its central portion and the two parts detachably connected by means of the hooks, for the purposes stated.

785,073. STEERING-WHEEL. PATRICK L. HUSSEY, Cleveland, Ohio. Filed June 4, 1903. Serial No. 159,963.

Claim.—1. The combination with a shaft and a hand-wheel, of a head on the shaft, and means whereby the wheel is attached to the head to turn the shaft free to slide in a plane at right angles thereto.

2. The combination with a vertically-extending shaft, of a head on said shaft, and a hand-wheel secured to said head to turn the shaft and shiftable thereon in a plane at substantially right angles thereto.

3. The combination with a shaft, of a head on said shaft, a hand-wheel having a sliding engagement with said head free to move in a

plane at substantially right angles to the shaft, and means for locking the wheel to the head.



4. The combination, of a shaft extending in substantially a vertical direction, a head on said shaft, a hand-wheel on said head with its rim extending in substantially a horizontal direction, and means for attaching the wheel to the head to move thereon transversely of the shaft and for maintaining said wheel in its substantially horizontal position throughout said movement.

5. The combination with a shaft, of a head on said shaft, a hand-wheel, means on the head and wheel for uniting the same and guiding the wheel free to slide in a plane at substantially right angles thereto, and means for locking the wheel to the head to turn the shaft.

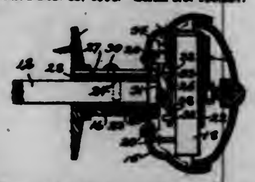
6. The combination, with a shaft, of a head on the shaft, a hand-wheel, a tongue-and-groove connection between said head and wheel, and means for locking the wheel to the head.

7. The combination, with a shaft, of a head on said shaft having a lateral extension and provided with an undercut groove in the face of the head and extension, a hand-wheel having a corresponding rib on its under side to engage the groove and movable therein, and means for detachably securing the rib within the groove.

8. The combination, with a vertically-extending shaft, of a head secured to the upper end of said shaft having an undercut groove in its upper face and lateral extensions formed with openings, a hand-wheel, a corresponding rib on said wheel to engage said groove, lugs on said wheel having notches, and latches in the openings of said extensions to engage the notches in said lugs.

9. The combination with the steering-shaft, of a head on said shaft, a hand-wheel, means for locking the wheel to the head, and means for shifting the wheel laterally and maintaining the same in its own plane.

785,074. BURGLAR ALARM AND TRAP. HENRY MASKER, Chicago, Ill. Filed Feb. 15, 1904. Serial No. 193,857.



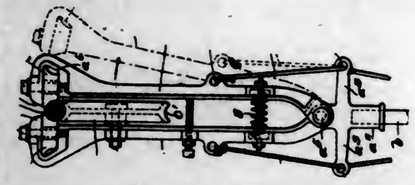
Claim.—The combination of a square spindle; a round sleeve secured to one end of said spindle, a notched flange on one end of said sleeve provided with two longitudinally-extending pins; a sleeve integral with a knob mounted to rotate on said round sleeve, provided with a longitudinal slot; a bolt mounted to slide in said slot; a notch provided on the door to receive the end of said bolt; a notch provided on the knob to receive the other end of said bolt; a spring-actuated mechanism provided with a bell secured in said knob and a trip-lever controlling said spring-actuated mechanism arranged to be moved by said two longitudinally-extending pins.

REISSUES.

12,824. TROLLEY-WHEEL GUARD FOR ELECTRIC WIRES. JOHN L. SULLIVAN, Warren, R. I., assignor of one-half to Joseph Harris, Warren, R. I. Filed Jan. 26, 1903. Serial No. 140,816. Original No. 777,869, dated Dec. 6, 1904.

Claim.—1. A trolley-wheel guard comprising a frame having one relatively fixed and one relatively movable member, means carried by the free ends of said members for contacting with the electric wire, and a single means for first moving the movable member laterally as regards the said wire and then moving the frame bodily in line with and away from the said wire.

2. A trolley-wheel guard, comprising a frame having one relatively fixed member and a member movably mounted thereon, wire-contacting means carried by the free ends of said members, a pull-cord, and branches of different lengths extending from said pull-cord and connected one with each of said members, as and for the purpose specified.



3. A trolley-wheel guard, comprising a frame having a fixed and a movable member, wire-contacting means carried by the free ends of said members, adjusting means carried by one member for engagement with the other, and means for moving the movable member laterally with relation to and independent of the movement of the other member and then moving both members together at right angles to the said movement of the movable member.

4. A trolley-wheel guard comprising a frame having a movable member and a fixed member carrying wire-contacting means at their free ends, an adjusting device carried by the fixed member to engage the movable member, a spring interposed between the said members for normally holding the members in their closed position, and means for first moving the movable member at right angles to the length of the electric wire and then moving the two members together in a direction at substantially right angles to the said movement of the movable member.

5. A trolley-wheel guard, comprising a frame having a movable member and a relatively fixed member, wire-contacting means on said members near their free ends, a trolley-wheel mounted on the fixed member and between the same and the movable member, a set-screw mounted in one member for engagement with the other, means interposed between the said members for normally holding them in their closed position, and a pull-cord, and branches of different lengths for first moving the movable member away from the other member and then moving both members together in a direction at substantially right angles to the movement of the said movable member, as set forth.

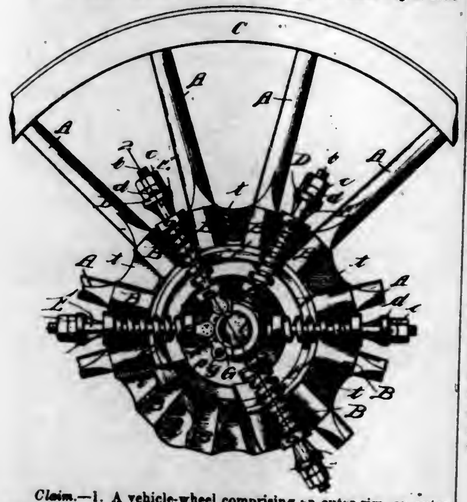
6. In a trolley-wheel guard for electric wires, a frame having a member with means for securing it to the pole of an electric car, a wheel mounted on said member near its free end, a second member having one end pivotally connected with the first-named member, a wheel mounted on said member near its free end, means between said members for normally holding them closed, means for limiting the movement of said members toward each other, and a pull-cord having branches of different lengths, one of which is connected to the one member and the other to the other member, as and for the purpose set forth.

7. In a trolley-wheel guard for electric wires, the combination of a frame, comprising an arm having one end arranged to be secured to the swinging pole of an electric car and its opposite end terminating in a lateral U-shaped portion; a wheel pivotally mounted on said arm and provided with a groove in its peripheral surface to contact with the bottom of the electric wire; a second arm having one end pivotally connected on the first-mentioned arm and its opposite end terminating in a lateral U-shaped portion; rollers made of non-electric-conducter material and pivotally mounted in the U-shaped portions of said arms and provided with grooved peripheral surfaces arranged to contact upon the sides and upper portions of the electric wire; a pull-spring having its ends connected to said arms; a set-screw mounted in the first-mentioned arm and arranged to bear against the second-mentioned arm and forming a stop to prevent friction of said rollers upon the electric wire; and a pull-cord terminating with two branch cord connections, one of which cord connections is of a longer length and attached to the first-mentioned arm and the other of which cord connections is of shorter length and attached to the second-mentioned arm, substantially as set forth.

8. In a trolley-wheel guard for electric wires, the combination of a device, comprising a frame having two arms, one of which arms is arranged to be held in a fixed position upon the swinging pole of an electric car, and the other arm pivotally mounted on the fixed arm, and each of said arms having lateral U-shaped extremities disposed opposite each other; a grooved wheel pivotally mounted on the fixed arm of said frame and arranged to contact upon the bottom portion of the electric wire; grooved rollers made of non-conducter material and pivotally mounted in the U-shaped extremities of said frame and arranged to contact upon the side and upper portions of the electric wire; a pull-spring from the fixed arm of said frame to the pivotal arm thereof; means to permit adjustment of said arms of the said frame whereby its grooved rollers are brought into frictional contact with the electric wire; and a pull-cord having two integral cord connections of different lengths and having their ends attached to the arms of said frame, all arranged substantially as shown and for the purpose specified.

9. A trolley-wheel guard comprising an arm with hub to receive the end of the pole and lateral extensions, an arm pivotally mounted on said arm near its lower end, wire-contacting means carried by said arms near their free ends, a trolley-wheel carried by one of the said arms, means for adjustably limiting the approach of the said arms toward each other, means for normally holding the arms in their closed position, a pull-cord and branches of different lengths connected with the pull-cord and passed through openings in said extensions and connected with the arms between their ends.

12,825. VEHICLE-WHEEL. HORACE H. TAYLOR, San Jose, Cal., assignor of one-tenth to James A. Curry, San Jose, Cal. Filed Nov. 28, 1904. Serial No. 234,681. Original No. 766,780, dated Aug. 2, 1904.



Claim.—1. A vehicle-wheel comprising an outer rim, an outer hub having suitable sockets, spokes fitting therein and connected to the rim, a central hub having a plurality of tubular bearings, rods having journals extending at right angles thereto and engaging the tubular bearings, suitable springs upon the rods, and means for holding the springs thereon, substantially as and for the purpose set forth.

2. In a vehicle-wheel, a central hub having a plurality of tubular bearings, rods having journals extending at right angles thereto and engaging the tubular bearings and having cup-shaped supports, and adjustable brackets having cup-shaped supports, the ends of the springs resting therein and in the support of the rods, said rods extending through holes in the cup-shaped supports of the brackets, substantially as and for the purpose described.

3. In a vehicle-wheel, an outer hub to which the spokes are connected and an inner hub having a plurality of tubular bearings, a circumferential flange around the outer side of the bearings, and a suitable box, rods having journals at right angles thereto engaging the tubular bearings, suitable springs upon the rods, and means for regulating the tension of the springs, substantially as and for the purpose specified.

4. In a vehicle-wheel, a central hub having a plurality of tubular bearings and a circumferential flange around the same, an outer hub to which the spokes are connected having a central clamping-flange and a screw-threaded clamping-flange separable from the hub between which flanges the flange of the central or inner hub is held, rods with springs thereon, journals extending at right angles to the rod and engaging the tubular bearings, substantially as and for the purpose set forth.

5. In a vehicle-wheel, a central hub comprising a plurality of tubular bearings and having a tubular box, a circumferential flange around the bearings, an outer hub to which the spokes of the wheel are connected, said hub being formed in two separable sections between which the circumferential flange is held, rods with suitable springs thereon, said rods having journals at right angles thereto and engaging the tubular bearings, and means for regulating the tension of the springs, substantially as and for the purpose described.

6. A vehicle-wheel, comprising a suitable rim and an outer hub and spokes connecting the rim with the hub, an inner or central hub comprising a plurality of tubular bearings and a circumferential flange, a stationary and separable flange around the center of the outer hub between which the flange of the inner hub is clamped and held, rods having suitable springs thereon and having journals at right angles thereto and engaging the tubular bearings, cup-shaped supports upon the rods with which the ends of the springs engage, and means for regulating the tension of the springs, consisting of adjustable brackets having cup-shaped supports for the ends of the springs, the rods extending through the holes in the brackets, substantially as and for the purpose specified.

7. In a vehicle-wheel, the combination with an outer hub and an inner hub, of brackets carried by one of said hubs and extending transversely of the plane of the wheel-rim upon each side thereof, springs between the ends of said brackets and the other hub, and means for preventing the lateral movement of one hub with reference to the other, substantially as described.

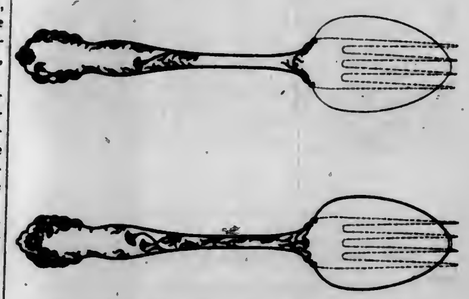
8. In a vehicle-wheel, the combination with an outer hub and an inner hub, of brackets carried by one of said hubs and extending transversely of the plane of the wheel-rim upon each side thereof, springs between the ends of said brackets and the other hub, means for adjusting the tension of said springs, and means for preventing the lateral movement of one hub with reference to the other, substantially as described.

9. In a vehicle-wheel, the combination with an outer hub and an inner hub, of radially-adjustable brackets carried by one of said hubs and extending transversely of the plane of the wheel-rim upon each side thereof, springs between the ends of said brackets and the other hub, and means for preventing the lateral movement of one hub with reference to the other, substantially as described.

10. In a vehicle-wheel, the combination of an outer hub, an inner hub, a circumferential flange on one of said hubs, and a groove in the other of said hubs adapted to receive said flange and prevent the movement of one of said hubs laterally of the plane of the wheel with reference to the other, of brackets mounted on said outer hub and adjustable thereon radially of said hub and extending transversely of the plane of the wheel-rim and upon each side thereof, bearings on the ends of said brackets, opposing bearings on said inner hub, and springs between the bearings on the ends of said brackets and the bearings on said inner hub, substantially as described.

DESIGNS.

37,370. SPOON, FORK, OR SIMILAR ARTICLE. WILLIAM H. ROGERS, Plainfield, N. J. Filed Dec. 19, 1904. Serial No. 237,584. Term of patent 3½ years.



Claim.—The ornamental design for a spoon, fork or similar article as shown.

37,371. LAVATORY-BASIN. WILLIAM H. LLOYD, Evanston, Ill., assignor to Crane Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 7, 1905. Serial No. 240,113. Term of patent 7 years.



Claim.—The ornamental design for a lavatory-basin, as shown.

37,372. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, New York, N. Y. Filed Dec. 27, 1904. Serial No. 238,547. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric, as shown.

37,373.



Claim.—The ornamental design for a printed textile fabric, as shown.

37,374. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, New York, N. Y. Filed Dec. 14, 1904. Serial No. 236,899. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

37,378. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, New York, N. Y. Filed Jan. 12, 1905. Serial No. 240,536. Term of patent 7 years.

37,375. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, New York, N. Y. Filed Dec. 14, 1904. Serial No. 236,900. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

37,376. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, New York, N. Y. Filed Dec. 14, 1904. Serial No. 236,901. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

TRADE-MARKS

REGISTERED MARCH 14, 1905.

44,301. ACCORDIONS AND CONCERTINAS, THEIR CASES, FITTINGS, AND PARTS. LYON & HEALY, Chicago, Ill. Filed July 29, 1904.

Zenith

The word "ZENITH." Used since April 15, 1904.

44,302. SILK AND SILK-MIXTURE TEXTILES. GREENWOOD ROBINSON, New York, N. Y. Filed Oct. 31, 1904.

FREEOSPOT

The word "FREEOSPOT." Used since September 1, 1904.

44,303. HAND-CROCHETED BUTTONS, BRAIDS, AND HAND-CROCHETED TRIMMINGS. BLUMENBOHN CROCHET BUTTON WORKS, New York, N. Y. Filed Feb. 8, 1905.



The representation of a castle having two spears crossed in front thereof, a crown at the junction of the spears, and a flowing ribbon or streamer attached to the head of each spear. Used since January 30, 1905.

44,304. WITHDRAWN.

44,305. LADIES' LEATHER BOOTS AND SHOES. THE WILMORE & KENDRICK COMPANY, Middletown, Conn. Filed Jan. 17, 1905.

RECENCY

The word "RECENCY." Used since September 15, 1904.

44,306. BREAD, CAKES, BISCUITS, AND CRACKERS. THE WAGNER BAKING CO., Detroit, Mich. Filed Feb. 15, 1905.

Awise

The word "AWISE." Used since February 10, 1905.

44,307. SOAP. FRAKER LUBRICATOR CO., Chicago, Ill. Filed Feb. 18, 1905.

STRAJUSO

The word "STRAJUSO." Used since January 1, 1905.

44,308. CLARIFIED EXTRACT OF HEMLOCK-BARK. CLINTON A. SPENCER, Boston, Mass. Filed Jan. 30, 1905.

ACME

The word "ACME." Used since June 1, 1883.

44,309. TOOTH AND MOUTH CLEANSING PREPARATIONS. ALBERT M. PEARSON, Cleveland, Ohio. Filed Feb. 13, 1905.

SMOKERS

The word "SMOKERS" associated with quotation marks. Used since July 1, 1904.

44,310. REMEDIES FOR CERTAIN NAMED DISEASES. WILLIAM J. ZELNER, San Francisco, Cal. Filed Feb. 15, 1905.



The representation of a man leaping or dancing with joy, the face of the man expressing delight, while at the sides of the figure of the man are the representations of a crutch on one side and a walking-stick on the other falling to the ground. Used since February 1, 1895.

44,311. PREPARATION FOR THE TREATMENT OF CERTAIN NAMED DISEASES. CARENDER & GAYES, Jerico Springs, Mo. Filed Feb. 16, 1905.

CASSENNA

The word "CASSENNA." Used since December, 1904.

44,312. LIQUID PREPARATION FOR THE TREATMENT OF CERTAIN NAMED DISEASES. JOHN W. COTTERELL, Harrisburg, Pa. Filed Feb. 10, 1905.

OIL-THUNDER

The compound word "OIL-THUNDER." Used since December 12, 1894.

44,313. PREPARATION FOR RHEUMATISM CURE. GEORGE ANTON GEORGIADI, New York, N. Y. Filed Nov. 22, 1904.



A rectangular border of Greek design inclosing a heart surmounted by a cross springing from the upper central hollow. Superposed upon the heart is a double-headed crowned eagle, upon each wing of which are four squares bearing, respectively, the letters "H," "M," "S," "K," "E," "O," "C," and "M." Upon the breast of the eagle is an open book, around which is coiled a serpent holding in its mouth, between the legs of the eagle, a pair of scales, between the pans of which are the figures "1453." On either side and just about to seize the upright of the scale is the hand of an arm to the elbow. Below the scales and supported upon the apex of the heart by two thorns is an apple. In one claw the eagle holds a pair of compasses and in the other a tomahawk, and between the crowned heads of the eagle is an eye with rays. On one side of the eagle and on the heart are the words "THE EMPIRE" and on the other side "OF BYZANTIUM." Within the rectangular outside of the heart, in one lower corner, is the figure of a lion couchant and a woman wearing a pectoral cross sitting upon the lion's back. In one upper corner is a bull's head, with the words "THE GREAT HEADS," and in the opposite upper corner a star and crescent. Used since May 16, 1904.

44,314. DYES, DYESTUFFS, STAINS, AND COLORING-MATTERS. THE JOHNSON-RICHARDSON CO. LIMITED, Montreal, Canada. Filed Feb. 15, 1905.

DY-O-LA

The hyphenated word "DY-O-LA." Used since February 10, 1905.

44,315. CERTAIN NAMED LIQUID ROOFING PAINT OR COATING. ELLIOTT VARNISH CO., Chicago, Ill. Filed Feb. 16, 1905.

Roof Leak

The words "ROOF LEAK." Used since May 1, 1903.

44,316. ASPHALT. WARREN CHEMICAL & MANUFACTURING CO. New York, N. Y. Filed Feb. 17, 1905.

EBANO

The word-symbol "EBANO." Used since January 3, 1905.

44,317. CARTRIDGES. THE AUSTIN CARTRIDGE CO., Cleveland, Ohio. Filed Feb. 17, 1905.

RELIANCE

The word "RELIANCE." Used since February 10, 1905.

44,318. CARTRIDGES. THE AUSTIN CARTRIDGE CO., Cleveland, Ohio. Filed Feb. 17, 1905.

ADVANCE

The word "ADVANCE." Used since February 10, 1905.

44,319. TABLE AND CARVING KNIVES, BUTCHERS' KNIVES, AND BUTCHERS' CLEAVERS. LANDERS, FRARY AND CLARK, New Britain, Conn. Filed Mar. 15, 1904.



The representation of an eagle supported on a heraldic roll and having beneath it a scroll. Used since September, 1903.

44,320. MANTLES FOR GAS-BURNERS AND GAS-BURNERS. USONA LIGHT CO., New York, N. Y. Filed Dec. 29, 1904.



The representation of a map of the United States inclosed in a border made up of concentric rectangular figures, with the word "USONA" running across the face of the said map. Used since December, 1904.

44,321. WITHDRAWN.

44,322. RECEPTACLES FOR EVAPORATING LIQUIDS. FREDERICK J. TUCKER, Chicago, Ill. Filed Dec. 12, 1904.

GEETZY

The word "GEETZY." Used since December 10, 1904.

44,323. WAGONS, CARTS, AND TRUCKS. ACME WAGON COMPANY, Emigsville, Pa. Filed Feb. 13, 1905.

ACME

The word "ACME." Used since 1882.

44,324. LUMBER, LATH, AND SHINGLES. HARRY L. JENKINS, Minneapolis, Minn. Filed Jan. 19, 1905.

CREAMOTREE

The word "CREAMOTREE." Used since January 2, 1905.

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LITHOGRAPHING & PRINTING CO.
352 FOURTH AVENUE
NEW YORK

LABELS

REGISTERED MARCH 14, 1905.

11,946.—*Title:* "CAMPOMOR." (For Cigars.) GEORGE W. HEIGHO, Detroit, Mich. Filed February 7, 1905.

11,947.—*Title:* "USONA." (For Cigars.) HENRY BROCKMAN, Evansville, Ind. Filed January 25, 1905.

11,948.—*Title:* "PORTSMOUTH LUXURY." (For Cigars.) HARTWELL F. COKE, Norfolk, Va. Filed February 15, 1905.

11,949.—*Title:* "NORFOLK LUXURY." (For Cigars.) HARTWELL F. COKE, Norfolk, Va. Filed February 16, 1905.

11,950.—*Title:* "J. W. ROBERTS & SON." (For Cigars.) J. W. ROBERTS & SON, Tampa, Fla. Filed February 18, 1905.

11,951.—*Title:* "MILLIONAIRE CHAMPAGNE." (For Champagne.) JAMES C. MALONEY & Co., Chicago, Ill. Filed December 19, 1904.

11,952.—*Title:* "OTARD, DUPUY & CO. COGNAC." (For Cognac and Brandy.) FREDERICK DE BARY & Co., New York, N. Y. Filed February 16, 1905.

11,953.—*Title:* "WESTOVER RYE." (For Whisky.) PHIL G. KELLY, Richmond, Va. Filed February 11, 1905.

11,954.—*Title:* "MALT ESSENCE." (For Malt Tonic.) BESLEY'S WAUKEGAN BREWING Co., Waukegan, Ill. Filed February 17, 1905.

11,955.—*Title:* "CINCOVIN." (For Medicine.) THE CINCOVIN COMPANY, Chicago, Ill. Filed February 16, 1905.

11,956.—*Title:* "NEBRASKA COUGH CURE." (For Medicine.) GOODRICH DRUG Co., Omaha, Nebr. Filed February 20, 1905.

11,957.—*Title:* "BOYD'S C. A. T.s CARBON-ALBUMEN TABLETS." (For Medicine.) CHARLES L. BOYD, Chicago, Ill. Filed February 16, 1905.

11,958.—*Title:* "SCHIVE'S RHEUMATIC REMEDY." (For Medicine.) GEORGE W. SCHIVE, Scranton, Pa. Filed February 16, 1905.

11,959.—*Title:* "GLO-SILK." (For Umbrellas.) CARSON, PIRIE, SCOTT AND COMPANY, Chicago, Ill. Filed February 20, 1905.

11,960.—*Title:* "TASMA." (For Double-Woven Finger-Tip Gloves.) CARSON, PIRIE, SCOTT AND COMPANY, Chicago, Ill. Filed February 17, 1905.

11,961.—*Title:* "TEMPLE BRAND GARMENTS." (For Garments.) SALT LAKE KNITTING WORKS, Salt Lake City, Utah. Filed February 20, 1905.

11,962.—*Title:* "RAMS HEAD SWEATERS." (For Sweaters.) SALT LAKE KNITTING WORKS, Salt Lake City, Utah. Filed January 18, 1905.

11,963.—*Title:* "GLO-SILK." (For Mercerized Crochet-Cotton.) CARSON, PIRIE, SCOTT AND COMPANY, Chicago, Ill. Filed February 20, 1905.

PRINTS

REGISTERED MARCH 14, 1905.

1,239.—*Title:* "PATTERSON'S SEAL CUT PLUG." (For Tobacco.) R. A. PATTERSON TOBACCO COMPANY, Richmond, Va. Filed February 13, 1905.

1,240.—*Title:* "VERY CLEANLY MAID." (For Flour.) WASHBURN, CROSBY COMPANY, Minneapolis, Minn. Filed February 20, 1905.

1,241.—*Title:* "HORSFORD'S BREAD PREPARATION." (For Bread Preparation.) RUMFORD CHEMICAL WORKS, Providence, R. I. Filed February 16, 1905.

1,242.—*Title:* "MAKES THE DUTY AGREEABLE." (For Dentifrice.) JENNINGS COMPANY, Greenport, N. Y. Filed February 20, 1905.

1,243.—*Title:* "BUY MASCOT HOSIERY." (For Hosiery.) FERGUSON-MCKINNEY DRY GOODS Co., St. Louis, Mo. Filed February 15, 1905.

1,244.—*Title:* "LONDON FASHION PLATES." (For Clothing.) ERNEST A. WRIGHT, Philadelphia, Pa. Filed February 13, 1905.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

Ex parte Schmohl.

Decided September 29, 1904.

1. Designs—Patentability.

Differences upon which a design patent is granted must involve invention and be directed to the ornamentation of the device to which applied, and the officer or tribunal authorizing the issue of the patent must be satisfied upon both of these points.

2. Same—Same—Font of Printing-Type.

There can be no invention in the application of an irregular outline to letters of one style when this has already been done upon letters of style not widely different unless some new effect of ornamentation is secured.

3. Same—Same—Same.

Where the forms of certain letters in the applicant's font differ from those of the reference and these differences are easily observable and might alone enable the fonts to be distinguished, but produce no variation of the ornamental effect, *Held* that said differences are immaterial to the patentability of the design.

Appeal from Examiners-in-Chief.

DESIGN FOR FONT OF PRINTING-TYPE.

Messrs. Burton & Burton for the applicant.

Allen, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief affirming the rejection by the Examiner of the following claim:

The ornamental design for a font of printing-type, as shown.

The references are patents to Schmohl and Lauschke, May 26, 1891, No. 20,778; Ihlenburg, November 12, 1895, No. 24,896; Updike and Goodhue, August 25, 1896, No. 25,979.

The design presented in this case as described in the applicant's brief is for a font of printing-type comprising letters and other characters the lines of which are heavy and irregular in outline, so as to produce the effect of rudely-cut or water-worn type. The applicant admits that the patent to Updike and Goodhue shows a design for type of substantially the same general characteristics as his own except for the irregular outline of the letters. He also admits that the general roughness of outline which forms the principal distinction between his design and that of Updike and Goodhue is found in several of the references, notably in the Ihlenburg design. The applicant states that in spite of the similarity between his design and those of the references the most casual observer would distinguish the error if the fonts were wrongly associated on the printed page, and he contends that even if the differences were not immediately apparent to the ordinary observer, but were distinguishable by the printer or expert in type, the prior designs should not bar the grant of the patent.

It is not necessary to decide here whether the differences which will justify the issue of a patent upon a design for type must be such as to appeal to the casual observer or whether it is sufficient that the type expert would appreciate them as distinguishing separate designs. There can be no doubt but that differences upon which a design patent is granted must involve invention and be directed to the ornamentation of the device to which applied, and the officer or tribunal authorizing the issue of the patent must be satisfied upon both of these points. I am convinced that there can be no invention in the application of an irregular outline to letters of one style when this has already been done upon letters of style not widely different unless some new effect of ornamentation is secured. To apply to the Updike and Goodhue letters the wavy outline of the Ihlenburg letters is, so far as I am able to discern, to provide them with the same effect of ornamentation that has been disclosed by Ihlenburg and in the same manner. The applicant does not appear to have done anything more than this toward the production of an ornamental design. It is true that the forms of certain letters in the applicant's font differ from those of Updike and Goodhue. These differences are easily observed and might alone enable the fonts to be distinguished, as the applicant contends; but I find in them no variation of the ornamental effect, and they are consequently immaterial to the patentability of the design.

The decision of the Examiners-in-Chief sustaining the Primary Examiner in the rejection of this claim is affirmed.

Lattig and Goodrum *v.* Dean.

Decided December 7, 1904.

Interference — Priority — Patentee — Applicant — Patent Reissued—Omission of Claims Corresponding to Issue—Abandonment of Invention—Effect of—Rule 125—Construed.

Where an interference is declared between a patentee and an applicant and during the pendency of the interference the patentee obtains a reissue patent from which are omitted the claims corresponding to the issue, *Held* that this action of the patentee in surrendering to the public the right to the claims corresponding to the issue of the interference cannot be regarded in any other light than a formal written abandonment of the invention of the issue, and priority of invention as to the issue should be awarded to the applicant. (Rule 125.)

Appeal from Examiners-in-Chief.

TELEPHONE.

Patent of Jacob W. Lattig and Charles L. Goodrum. March 10, 1903, No. 722,367. Application of William W. Dean.

Mr. Edward E. Clement for Lattig and Goodrum.

Mr. Robert L. Ames and *Mr. H. A. Seymour* for Dean.

ALLEN, *Commissioner:*

This is an appeal by Lattig and Goodrum from a decision of the Examiners-in-Chief awarding judgment of priority of invention to Dean. The Examiner of Interferences also awarded priority of invention to Dean. The issue is as follows:

1. In a telephone-exchange system, a subscriber's station and a central station and a line-circuit interconnecting them, a source of current connected to the line, and a signal-magnet connected to said source at a point intermediate its terminals, so as to divide it, together with means controlled by the subscriber to close a circuit through the signal-magnet and one side or division of the source, and means under the control of the central office to close a circuit through the magnet and the other side or division of the source, whereby the signal may be controlled and restored as desired.

2. In a telephone system, a subscriber's station and a central station and a metallic circuit connecting them, a source of current bridged across the metallic circuit at the central station and means at the subscriber's station to determine the flow of current therefrom in the line, a signal-magnet connected from one side of the line to a point intermediate of the terminals of the source of current in making connection with the line, means at the subscriber's station to determine the flow of current in the line from the source, a signal controlled by the magnet, and means to keep said signal normally retired.

It appears from the record that this interference was declared on June 30, 1903, between an application of Dean and a joint patent granted to Lattig and Goodrum.

On July 31, 1903, an application was filed for the reissue of the Lattig and Goodrum patent which was involved in the interference, and the reissue patent was granted on September 8, 1903, No. 12,156. Claims 1 and 4 of the original patent, which constitute the counts of this issue, were omitted from the reissue patent.

This interference proceeding was instituted under the provisions of section 4904 of the Revised Statutes, which provides that the question of priority of invention as between the parties to an interference shall be determined.

Rule 125 is as follows:

125. After the interference is finally declared, it will not, except as herein otherwise provided, be determined without judgment of priority founded either upon the testimony, or upon a written concession of priority by one of the parties, signed by the inventor himself (and by the assignee, if any), or upon a written declaration of abandonment of the invention.

The question to be decided on this appeal as between the two parties to this interference is which one is the prior inventor. The proceeding should not be terminated without a judgment of priority being rendered.

The joint patentees having seen fit to reissue their patent which was involved in this interference, and thereby to surrender to the public their right to the claims corresponding to the issue of this interference, their action cannot be regarded in any other light than a formal written abandonment to the public of the invention of the issue.

This being the case, as between the party Lattig and Goodrum and the party Dean, Dean must be awarded judgment of priority of invention defined in the issue. (Rule 125.)

The decision of the Examiners-in-Chief awarding priority of invention to Dean is affirmed.

FRENCH v. HALCOMB.

Decided January 6 1905.

1. INTERFERENCE—PATENTEE—APPLICANT—BURDEN OF PROOF.

When an interference is declared between a patent granted prior to the date of filing of an interfering application, *Held* that if the applicant is to prevail he must establish his case by proofs which admit of no reasonable doubt (*Sharer* v. *McHenry*, 98 O. G., 585; *Meyer* v *Sarfert*, 102 O. G., 1155.)

2. SAME—PRIORITY—DOCTRINE OF EMPLOYER AND EMPLOYEE—WHEN APPLICABLE.

Where the record clearly shows that H. not only exercised rigid and careful supervision of the work performed by F., but also gave many specific directions to F. as to what he should do in making tests, and it is apparent that F. did little more than carry out the suggestions and make reports of the results of the tests to H., and that H. was the president of the company of which F. was the chemist, *Held* that the relation of employer and employee existed between H. and F., and though the invention of the issue was actually reduced to practice it was the result of a general disclosure of the invention by H. to F., and that all F. did after the disclosure to him by H. is what might have been expected from any person skilled in the art who was employed for the purpose of completing a general conception, and that priority of invention should be awarded to H.

3. SAME—SAME—ADMISSIONS—PRESUMPTIONS RAISED.

Where it is admitted by F. that H. furnished him with all mixes and made suggestions and exercised rigid oversight over all his work with the sole exception of the single specific invention of the issue and H. obtains a patent before F. files his application, which was only done after the knowledge came to him of H.'s patent, *Held* that the presumption is raised that H. also disclosed the invention of the issue to F.

4. SAME—ORIGINALITY—ABSENCE OF DENIAL OF ALLEGED DISCLOSURE—INVENTION MUST BE DISCLOSED—EFFECT OF.

Where F. testifies to a certain disclosure to H. and H. does not deny the fact of this alleged disclosure, *Held* the absence of this denial can have no effect upon the circumstances of the case, since the alleged disclosure, even if true, is not a disclosure of the invention of the issue, but a mere disclosure of something that was already well known by experts in the art.

APPEAL from Examiners-in-Chief.

STEEL.

Application of Edmund L. French. Patent granted Charles H. Halcomb March 10, 1903, No. 722,504.

Messrs. Christy & Christy for French.

Mr. Alfred Wilkinson for Halcomb.

ALLEN, *Commissioner:*

This is an appeal by Halcomb from a decision of the Examiners-in-Chief awarding priority of invention to French as to the following issue:

1. A high-grade steel containing less than 1.20 per cent. of carbon, and from six per cent. to fifteen per cent. of molybdenum.
2. A high-grade steel containing less than 1.20 per cent. of carbon, from six per cent. to fifteen per cent. of molybdenum and from 2.50 per cent. to six per cent. of chromium.
3. A high-grade steel containing less than 1.20 per cent. of carbon, from six per cent. to fifteen per cent. of molybdenum, from 2.50 per cent. to six per cent. of chromium and less than two per cent. of silicon.

Halcomb is a patentee. His patent, No. 722,504, was granted March 10, 1903, on an application filed January 21, 1903.

French filed his application May 6, 1903, about two months after the grant of Halcomb's patent. Halcomb has presented no proofs, but rests his case on his previously-granted patent, as well as upon the facts which have been brought out by French in his record, which facts, it is contended by Halcomb, not only fail to establish French's claim as the original inventor of the invention of the issue, but, on the contrary, show that Halcomb is, in fact, the true and original inventor. The Examiner of Interferences accepted this view of the case and awarded priority of invention to Halcomb.

Halcomb having a patent granted prior to the date on which French filed his application is presumptively the prior inventor, and it is therefore necessary for French, if he is to prevail in this proceeding, to establish his case by proofs which admit of no reasonable doubt. (*Sharer* v. *McHenry*, 98 O. G., 585; *Meyer* v. *Sarfert*, 102 O. G., 1155.)

French alleges in his preliminary statement that he conceived and disclosed the invention to others December 31, 1899, and reduced it to practice April 24, 1902.

The question presented for determination in this case is one of originality, as distinguished from that of priority of invention.

The record shows that Halcomb was the president of the Sanderson Works at Syracuse, N. Y., up to July, 1900, and that French was the chemist at those works. In July, 1900, the Sanderson Works were, with other steel companies, merged into the Crucible Steel Company of America, of which Halcomb was made the president and general manager, and he continued in these offices until June, 1902. French was retained as a chemist employed by the Crucible Company; but his post of duty was at the Sanderson Works at Syracuse. After Halcomb became the president of the Crucible Company in June, 1900, he moved to the general offices of that company at Pittsburg, Pa.

French testifies (Q. 10) that Halcomb was kept in touch with everything that took place at the Sanderson Works through frequent reports and letters and that he (French) after Halcomb left—

had charge of the formulas for making steel and had general supervision of the metallurgical end of the business there. (Q. 12.)

It is clearly shown from the testimony given by French himself and his witness Gardner and also by the correspondence between Halcomb and French between December 6, 1901, and May 3, 1902, all of which is of record, that Halcomb not only exercised a rigid and careful supervision of the work performed by French, but that Halcomb gave French many specific directions as to what he should do in making the various tests of the steels produced at the Sanderson Works and also of other steels which were placed in French's hands for that purpose. It is also apparent that French did little more than to carry out the suggestions which he received from time to time from Halcomb and to make reports of the results of his tests to Halcomb. The letters which form the correspondence between Halcomb and French and have been referred to above, are introduced in evidence, and it is only necessary to read these letters to be convinced that French worked only under Halcomb's orders and in accordance with Halcomb's directions. From these letters it is apparent that Halcomb was specific in giving directions to French with regard to the tests that were to be made from time to time and that French was equally specific in his reports to Halcomb as to the results of the tests which he had made in pursuance of the directions received from Halcomb.

It is contended by counsel for French that the first point in the correspondence between Halcomb and French where the issue is clearly disclosed occurs in a letter written by French to Halcomb dated March 14, 1902. In this letter, which appears on page XVIII of the record, French writes:

Now, what I propose to do is to immediately make up two or three steels with low carbon, and molybdenum and chromium, on the idea of the Jonas & Colvert, Vickers-Maxim and Capital steels. These I know to be all low carbon. The analyses are about as follows:

Jonas & Colver high-speed: C .75, W 19.50, Si .35.

Vickers-Maxim: C .71, W 7.75, Cr 3.50.

Therefore with your approval I shall make say three ingots as follows—

Carbon.	Molybdenum.	Chromium.
.50	4.00	3.75
.60	5.00	3.75
.70	6.00	3.75

or do you think it would be best to make them all the same carbon, say .50, for the first tests?

Counsel for French referred to the analysis of the third ingot as follows: C, 70, Mo, 6.00, Cr, 3.75, and said in their brief:

Here is the first point in this correspondence at which the issue was plainly disclosed, and the disclosure came from French to Halcomb, and not from Halcomb to French.

This contention, however, is not supported by the record. This suggestion of French's as to the proposed composition of the third ingot in his letter of March 14, 1902, is clearly reported to Halcomb as a result of Halcomb's previous directions to French in his letters of January 14 and March 1, 1902. In the letter of March 1, 1902, Halcomb states, among other things, that he sends to French samples of foreign steels and gives their analyses as follows:

Jonas and Colver's Novo steel: C .736; Si .357; P .019; Mn .18; W 18.31.

* * * * * * *

Vicker's Taylor-White process: one inch square; C .725; Si .214; P .019; Mn .15; W 7.863; Cr 3.381.

By substituting in these steels molybdenum for tungsten in the well-known proportions of one to two the steel of the issue is disclosed by Halcomb.

French testifies, (Q. 42:)

Mr. Halcomb suggested, as will be seen from the correspondence, that I duplicate some of these foreign high-speed steels, but he left the matter of what was to be done almost entirely with me.

It appears from the testimony (Q. 19) that it was well known to both Halcomb and French that molybdenum would give the same effect in steel as twice the quantity of tungsten; but it was Halcomb, as shown by the record, (letters, pages 4 and 5, dated, respectively, December 11, 1901, and January 12, 1902, Halcomb to French,) who suggested to French that in duplicating the foreign steels molybdenum be substituted for the tungsten of those steels in the proportion of one to two. These suggestions are shown by the correspondence to have been made by Halcomb to French prior to the letter from French to Halcomb dated March 14, 1902, upon which counsel for French lay so much stress and which it is claimed by them contains the first disclosure of the issue of this interference. The disclosure in this letter of March 14, 1902, by French to Halcomb is not a disclosure by French of an original conception on his part, but is clearly a report of what he proposes to do in carrying out the specific disclosures which had been previously given to him by Halcomb.

It is stated by French in his testimony that he suggested to Halcomb the advisability of manufacturing a low-carbon steel and that this suggestion was made early in the year 1900. The date of this suggestion is stated by French to be some time during the winter 1899–1900; but this date is not established by the record. French has introduced in evidence a note book which bears the date of June, 1900, in which a record is said to have been made by him that he suggested to Halcomb the advisability of using low-carbon steel. This note-book, however, is not identified by any witness save one Buckley, who testifies generally that French read to him from a note-book in May, 1902, which had the general appearance of the note-book in evidence. This testimony of Buckley at best does not establish the date of the memorandum prior to May, 1902, and this is substantially admitted by counsel for French in their brief, page 20, where it is stated that "the testimony of Buckley * * * does not prove the exact date of the memorandum."

It is to be noted that the issue of this interference is very specific. It does not reside in merely a low-carbon steel product. Low-carbon steel was well known long prior to the date alleged by French as his date of conception, and this low-carbon steel was made with tungsten. (Gardner's testimony, X-Qs. 20 to 22.) With regard to this alleged

disclosure French testifies that it was generally understood that the efficiency of steel-hardening would be increased if the carbon could be lowered on the cutting edge, and that—

From this I got an idea that the same condition might be produced in the bar by making the carbon in the steel low. I spoke to Mr. Halcomb about this at the time, but he thought there was not much use trying this. (Q. 23.)

The contention is made by counsel for French that as Halcomb has not denied this statement by French it must be accepted as established under the doctrine of *Winslow* v. *Austin*, (86 O. G., 2171.) Such a disclosure, however, even if true, is not a disclosure of the specific invention of this issue, and therefore the absence of a denial on the part of Halcomb can have no effect upon the determination of this case.

In such a case as this one, where the question to be decided is one of originality between two inventors who are working together to accomplish a common end, much weight is to be given to the circumstances surrounding the case and to the acts of these inventors.

French's conduct, as shown by the record, in reference to his claims of inventorship is very significant and is not believed to be consistent with his present claims. It is therefore entitled to great weight in the determination of this case. (*Slaughter* v. *Halle*, 102 O. G., 469; *Greenwood* v. *Dover*, 109 O. G., 2172; *Barrett* v *Harter*, 112 O. G., 729, affirmed by the Court of Appeals of the District of Columbia December 7, 1904.) It is to be particularly noted that French in analyzing the Capital steel sent to him by Halcomb found that it had—

* * * rather a surprising analysis: carbon, .41; tungsten, 10.21; chromium, 1.16; silicon, .12.

This report is made in the first letter which was written by French to Halcomb introduced in evidence, dated December 5, 1901. Subsequent letters also show that the analyses of the foreign steels which were sent by Halcomb to French show that they were low in carbon. It is particularly significant that nowhere in this record, which is largely composed of documentary evidence, does French state to Halcomb on finding that low-carbon steels have been in existence that he also had that idea in 1899 and disclosed it to him, if it is a fact, as is now contended by his counsel, that this feature is substantially the issue in question.

French did not, as far as it appears from the record, disclose this "low-carbon idea" even to Gardner, who testifies that he had many conversations with French at that time about the production of steels. Gardner, it appears from the record, knew that low-carbon steels were old, yet he testifies that he—

* * * called to Mr. Halcomb as he crossed from one of the offices to another, and he entered into conversation. I told him what Mr. French had said to me touching low carbon.

What is believed to be still more significant is the statement quoted below, which appears in the letter written by French to Alexander Thomas, secretary of the Crucible Steel Company, April 28, 1903, page LIII. This letter was written after French admits that he had seen Halcomb's patent and eight days before French's application was filed. The statement is as follows:

It seems to me that it will be best to work on the fact that what was done by the Sanderson Bros. Steel Co. while Mr. Halcomb was here, and afterward while he was president of the Crucible Steel Co., was not original with him or with me, but was merely imitation of what had already been accomplished with molybdenum by others.

It is very significant that even after French had become aware of the invention as disclosed in the patent to Halcomb he was not even then quite sure whether he was the inventor.

While it is true that French suggested in December, 1902, to his company the advisability of taking out patents, it does not appear that he became particularly interested until he learned that Halcomb had obtained a patent and after he had become aware of the disclosure in that patent. It is only necessary to read the letters which form "French Exhibit Correspondence *in re* Patent Application" to become convinced that French was not specially anxious to file an application for the invention. Even after he learned of the Halcomb patent it became necessary to urge him to activity, as shown by the letter of March 30, 1902, written by Thomas, the secretary of the Crucible Steel Company, to French, urging him to complete his invention, so that an application could be made. It appears from French's answer to this letter that his excuse for not being prompt in forwarding the description of his invention was that—

I have been waiting for the results of tests which we are to make here on molybdenum magnet-steels, and to get figures as to the waste in hammering and rolling molybdenum steels, to incorporate those points in the specifications, my idea being to take in every point which it could be possible or advantageous to cover. * * * I regret that my delay in giving you the specifications as required by our patent attorneys has perhaps allowed Mr. Halcomb to step in first and secure rights, and am sorry now I took so much pains to have the claims broad. The patent I had in mind would have covered a wider field than Mr. Halcomb's in case the magnet-steel experiments had proven a success.

In this letter it is to be noted that French does not state that he is the inventor of the specific issue of this interference as disclosed and claimed by Halcomb. He was still engaged upon experiments which would have covered a wider field than Halcomb in case the magnetic-steel experiments had proved a success. In no one of these letters does French claim to be the inventor of the invention made in the Halcomb patent.

From a consideration of the whole record it is believed that French has failed to overcome the burden of proof which was placed upon him by reason of the prior grant of a patent to Halcomb. It is also believed that the relation of employer and employee existed between Halcomb and French, and that the invention of the issue, though actually reduced to practice by French, was the result of the general disclosure made by Halcomb to French, and that all that French did in completing the invention is what might have been expected from any person skilled in the art who was employed for the purpose of working out the general conception, such as the record clearly shows was disclosed to French by Holcomb. (*Agawam* v. *Jordan*, 7 Wall., 583; *Milton* v. *Kingsley*, 75 O. G., 2193, 2195; *Gallagher* v. *Hastings*, 103 O. G., 1165.)

The conclusion that the relationship of employer and employee existed between Halcomb and French with regard to the reduction to practice of this invention is believed to be warranted from the following testimony. French testifies:

Q. 10. Please state, so far as you know, what his personal relations to the work done at Syracuse were after his removal to Pittsburg?

A. Mr. Halcomb was kept in touch with everything that took place at the Sanderson Works through frequent reports and letters.

* * * * * * *

Q. 26. Now, will you please have the entry copied into the record at this point?

A. * * * C. H. Halcomb gave me the mixes for self-hardening and special steels of all kinds made by us.

* * * * * * *

Q. 41. Please state from your recollection, what, if anything, Mr. Halcomb had to do with the making of these steels by you as stated above.

A. He was kept informed by letters from me of what I was doing

and what I was proposing to do, and made suggestions from time to time.

* * * * * * *

Q. 43. Were you under orders to report to Mr. Halcomb both what you proposed doing, and what you did?

A. Yes.

Q. 44. Was that a general instruction which held in all cases, or was it only true in respect of these particular experiments?

A. It was generally understood at the Sanderson Works that Mr. Halcomb should be kept closely in touch with everything that was done, whether it was in my department or in any other department of the works.

* * * * * * *

Q. 55. In Mr. Halcomb's letter to you, dated March 3, 1902, he asks you to come to New York to meet and have a talk with him. Did you meet him in New York as requested therein?

A. Yes.

* * * * * * *

Q. 57. While we are on this matter of conversations, I suppose you had occasional conversations with Mr. Halcomb at various times after he left Syracuse, did you not, which related to the work you were doing there?

A. I saw him several times in Pittsburg and three or four times in Syracuse, and we always talked over the work which was being done at Syracuse in the experimental line.

* * * * * * *

X-Q. 109. You knew at that time and had learned that Mr. C. H. Halcomb had had entire charge of those works for many years?

A. Yes.

X-Q. 110. And at that time his reputation personally as a manufacturer of and expert in crucible steel was of the very highest?

A. Yes.

* * * * * * *

X-Q. 116. Please give the circumstances or the method of these analyses, or how they were brought to your attention, and who directed you and what you were directed to do?

A. I acted directly under Mr. Halcomb and made analyses of such samples of steel as he gave me for that purpose; sometimes giving him advice about these analyses when he asked it; most of my work was confined to the laboratory strictly.

Gardner testifies:

X-Q. 27. State, if you remember, who decided and prescribed the composition of the steels prior to the organization of the Crucible Steel Co.

A. Mr. Charles H. Halcomb.

* * * * * * *

X-Q. 63. Referring to these low-carbon samples made in the spring of 1902, how did you come to make them, or who directed that it should be done?

A. I met Mr. Halcomb at the Waldorf in New York, and at that time he told me that he wanted me to allow some new steels to be made. This was authority for me to instruct our melter to make anything that Mr. French gave him the formula for.

The testimony and documentary evidence of record presented in behalf of French clearly show that Halcomb directed French as to the work which he was employed to do. French admits that Halcomb furnished him with all mixes and made suggestions and exercised a rigid oversight over all the work done by French at the Sanderson Works with the sole exception of the single specific invention of the issue. These admissions on the part of French are sufficient to raise the presumption at least that Halcomb also disclosed to French the mix which comprises the invention of this issue. This presumption is strengthened by the fact that Halcomb obtained a patent before French filed his application and also by French's action after the knowledge came to him of Halcomb's patent. They were not such as would be expected from one who had previously disclosed the invention to Halcomb, if such disclosure was a fact. These presumptions have not been overcome by proofs on the part of French which admit of no reasonable doubt.

The decision of the Examiners-in-Chief is reversed, and priority of invention is awarded to Charles H. Halcomb.

MOORE *v.* HEWITT *v.* POTTER.

Decided February 14, 1905.

1. INTERFERENCE—MOTION TO AMEND APPLICATION—JURISDICTION.

Where motion was made before Examiner of Interferences to amend an application in interference by the addition of claims, *Held* that the Examiner of Interferences properly denied the motion as not within his jurisdiction.

2. SAME—SAME—PROPOSED CLAIMS MUST BE MADE BY ALL PARTIES.

Where one party to an interference proposed to make and add to the issue claims from the patent of a second party to the interference, but a third party to the interference had not made nor offered to make these claims, *Held* that unless made by all parties the said claims could not be included in that interference. (*Maxwell* v. *Bryon* v. *Henry*, 98 O. G., 1968.)

3. APPLICATION—AMENDMENT—FILED DURING INTERFERENCE.

Where an amendment to an application in interference is filed which purports to put the application in condition for another interference, the Primary Examiner should give the amendment consideration sufficient to determine whether the application is, in fact, made ready for the additional interference.

4. SAME—SAME—SAME—CASE IN CONDITION FOR ADDITIONAL INTERFERENCE.

Where the Examiner finds that an amendment proposed for an application in interference puts the application in condition for another interference and the additional interference is otherwise ready for declaration, he should request authority to enter the proposed amendment and to declare the additional interference without waiting for the termination of the pending interference.

5. SAME—SAME—SAME—CASE NOT IN CONDITION FOR ADDITIONAL INTERFERENCE.

Where the Examiner finds that a proposed amendment to an application in interference purporting to put the application in condition for another interference does not, in fact, put the application in condition for the proposed interference or that it disturbs the condition of the application with respect to the pending interference or that for any other reason the proposed amendment should not be received and the proposed interference declared, he should refuse to enter said amendment or to further consider the same prior to the determination of the pending interference.

APPEAL on motion.

ELECTRIC TUBE-LAMP.

Application of Daniel McFarlan Moore. Application of Peter Cooper Hewitt. Application of Henry Noel Potter.

Mr. Henry C. Townsend for Moore.

Mr. Charles A. Terry for Hewitt.

Mr. Charles A. Terry for Potter.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Interferences denying Moore's motion for leave to amend his application in interference and for suspension of proceedings in the interference until the matter of the proposed amendment is finally determined.

The interference was declared August 4, 1903. The preliminary statements were approved September 12, 1903. The interference was dissolved on motion before the Primary Examiner as to certain counts and proceedings resumed as to the remaining counts. The case has also been before the Primary Examiner upon his request to consider the addition of another party. The party was not added, however. Proceedings were again resumed and testimony partly taken. Moore now requests another suspension for the consideration of his proposed amendment, presenting claims which he states have been copied from a patent to the party Hewitt. He states that this amendment was not earlier presented because he only became aware of the Hewitt patent upon the introduction of the same in the evidence taken by Hewitt in this interference. He also states that this patent issued after the applications in interference of the parties Moore and Potter had been filed and that the claims of this patent can properly be made in each of these applications and should have been suggested therein under Rule 96 before said patent issued.

It does not appear that the party Potter has made or offered to make the claims which Moore desires to add to the issue. Unless made by all parties the proposed claims cannot be included in this interference. (*Maxwell* v. *Bryon* v. *Henry*, 98 O. G., 1968.) Furthermore, the motion comes long after the time prescribed by Rule 109 for bringing motions of this kind and is opposed by Hewitt, who has taken testimony. The Examiner of Interferences

properly denied the motion to amend Moore's application as not within his jurisdiction, and he properly denied the request to suspend proceedings.

It may be stated here, however, that when an amendment to an application in interference is filed with the Primary Examiner and the amendment purports to put the application in condition for another interference the Examiner should give the amendment consideration sufficient to determine whether the application is, in fact, made ready for the additional interference. If he finds that such is the case and the interference is otherwise ready for declaration, he should request authority to enter the proposed amendment and to declare the additional interference without waiting for the termination of the pending interference. If, however, he finds that the proposed amendment does not put the case in proper condition for the proposed interference, or that it disturbs the condition of the application with respect to the pending interference, or that for any other reason the proposed amendment should not be received and the proposed interference declared, he should refuse to enter said amendment or to further consider the same prior to the termination of the pending interference.

The decision of the Examiner of Interferences denying Moore's motion is affirmed.

EX PARTE CARROLL.

Decided February 15, 1905.

INTERFERENCE—WITHHOLDING COMPANION CASE FROM ISSUE—DIVISIBLE INVENTIONS.

An application will not be withdrawn from issue to await the termination of an interference involving another application by the same party when this Office is of the opinion that the two applications cover separate and divisible inventions.

ON PETITION.

CASH-REGISTERS.

Mr. Frank P. Davis for the applicant.

ALLEN, *Commissioner:*

This is a petition that the above-entitled application be withdrawn from issue to await the termination of an interference involving another application filed by the same party.

The other application relates to the same class of invention; but according to the ruling of this Office the two applications cover separate and divisible inventions. The present application would not have been allowed if it had not been regarded as covering subject-matter divisible from that in the application in interference. Counsel states that he agrees with this conclusion as to divisibility, but fears that some court may disagree with him hereafter and hold one of the patents invalid unless they are issued upon the same day.

In passing upon the question whether this application should be withdrawn from issue because not properly divisible from the application in interference this Office must be controlled by its own judgment upon the question of divisibility. It cannot decide cases contrary to its judgment upon the mere possibility that some court may at some time reach a different conclusion.

The petition is denied.

JACKSON v. CUNTZ.

Decided February 23, 1905.

1. INTERFERENCE—MOTION—DELAY IN PRESENTING—EXCUSE INSUFFICIENT.

Where motion for dissolution is made after the twenty days allowed by the rule and no showing is made why the grounds of the motion were not discovered and the motion brought within the twenty days except that the motion was delayed to await decision upon a motion by another party, *Held* that the motion will not be transmitted to the Primary Examiner.

2. SAME—SAME—SAME—PENDENCY OF ANOTHER MOTION.

The pendency of one motion furnishes no excuse for delay in presenting another motion beyond the twenty days fixed by the rule.

APPEAL on motion.

ELECTRIC CABLES.

Application of Dugald C Jackson. Application of Johannes H. Cuntz.

Mr. Charles A. Brown and *Messrs. Collamer & Co.* for Jackson.

Mr. Hermann F. Cuntz and *Mr. Charles L. Sturtevant* for Cuntz.

ALLEN, *Commissioner:*

This is an appeal by Jackson from the decision of the Examiner of Interferences refusing to transmit to the Primary Examiner his motion to dissolve the above-entitled interference.

Jackson's motion was not filed until January 6, 1905, although the preliminary statements were approved and the applications of the parties were open to the inspection of opposing parties as early as October 8, 1904. The motion is based entirely upon the disclosure in the applications, and there is no suggestion of newly-discovered evidence. There is no showing why the grounds of the motion were not discovered and the motion brought within the twenty days fixed by the rule.

It is said in the affidavit in support of the motion that a motion for dissolution was brought by one Brown, who was a party to the proceedings, and such motion was not decided until December 30, 1904. This seems to be regarded by Jackson as an excuse for not taking steps to make his own motion before December 30; but it is well settled that it constitutes no valid excuse. (*Perrussel* v. *Wichman*, 99 O. G., 2970.) The pendency of Brown's motion constituted no obstacle to the filing of Jackson's motion, but, on the contrary, it would seem that both might have been filed and considered with advantage at the same time. To delay one until after the other was disposed of would accomplish no useful purpose, but, on the contrary, would result in unnecessary delay.

It is said on behalf of Jackson that after December 30, 1904, delay in bringing the motion was caused by difficulty experienced by the attorney in finding and communicating with the inventor.

The excuse for the delay of nearly three months is clearly insufficient, and therefore the decision of the Examiner of Interferences is affirmed.

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Maryland	4	.....	West Virginia	5	.....
Massachusetts	32	6	Wisconsin	12	4
Michigan	12	.....	Wyoming	.....	.....
Minnesota	15	1	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	24	1			
Montana	2	.....	Total to citizens of the United States	538	36
Nebraska	6	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Netherlands	1	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	3	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	5	.....	Norway	1	.....
Cape Colony	.....	.....	Persia	.....	.....
Chile	.....	.....	Queensland	.....	.....
China	.....	.....	Roumania	.....	.....
Costa Rica	.....	.....	Russia	3	.....
Cuba	.....	.....	San Salvador	.....	.....
Danish West Indies	1	.....	Scotland	1	.....
Denmark	1	.....	South Australia	1	.....
Ecuador	.....	.....	Spain	.....	.....
England	21	.....	Sweden	5	.....
France	9	.....	Switzerland	3	.....
Germany	28	.....	Transvaal, South Africa	.....	.....
India	1	.....	Victoria	1	.....
Ireland	.....	1	Western Australia	.....	.....
Italy	1	.....			
Japan	3	.....	Total to citizens of foreign countries	91	1
Java	.....	.....			
Mexico	.....	.....			

Changes in Classification.

(ORDER No. 1,632.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 7, 1905.

The following transfers of classes of patents are hereby directed, to take effect March 15, 1905:

Class 128, Surgery, from Division XX to Division XXIV.

Class 194, Check-Controlled Apparatus, from Division VIII to Division XI.

Class 211, Store Furniture, from Division XXXVIII to Division VIII.

Class 88, Optics, from Division XXXIII to Division XXIII.

Class 30, Cutlery, from Division XXXIII to Division XX.

Class 95, Photography, from Division XXXIII to Division XXXV.

Class 186, Store-Service, from Division XXXIV to Division II.

Class 213, Railway Draft Appliances, from Division XXXIV to Division I.

E. B. MOORE,
Acting Commissioner.

Renewal of Forfeited Cases.

A petition for the renewal of a forfeited application need not be signed by the inventor or assignee, but may be signed by the attorney.

A power of attorney in the original application authorizing an attorney to transact all business in the Patent Office in connection with the application construed to be of sufficient scope to include the signing of a petition for renewal and the subsequent prosecution of the application. (*Ex parte Agee*, 101 O. G., 1609.)

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 14, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Feb. 23	Feb. 23	152
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Feb. 20	Feb. 20	377
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 17	Feb. 17	272
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Feb. 16	Feb. 11	168
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels, Photography.	Feb. 15	Feb. 28	213
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Feb. 15	Feb. 15	258
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Feb. 15	Jan. 13	579
329	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Feb. 15	Jan. 3	573
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Surgery, Tents, Toilet, Umbrellas.	Feb. 14	Jan. 19	504
	Between one and two months.			
304	XXXIV. Railways, Railway-Brakes, Rolling-Stock.	Feb. 11	Feb. 10	341
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Store-Service, Tobacco etc.	Feb. 11	Jan. 30	263
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 10	Dec. 6	419
327	XVIII. Steam-Engineering, etc....	Feb. 8	Feb. 14	235
321	I. Tillage, etc., Fences, and Railway Draft Appliances.	Feb. 8	Feb. 1	288
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Feb. 8	Jan. 13	363
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Feb. 6	Jan. 26	437
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Feb. 4	Feb. 10	348
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Feb. 3	Feb. 1	221
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Harness, Ladders, Mechanical Motors, and Paper Manufactures.	Jan. 30	Dec. 23	404
154	XI. Boot and Shoe Making, Boots, Shoes, and Leggings, Button, Eyelet, and Rivet Setting, Leather Manufacturing, Nailing and Stapling, Check-Controlled Apparatus, Whips and Whip Apparatus.	Jan. 25	Jan. 17	382
109	XVI. Telegraphy and Telephony..	Jan. 23	Jan. 5	220
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Optics, Signals, Time Controlling Mechanism.	Jan. 18	Jan. 11	504

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Jan. 16	Feb. 10	387
137	VIII. Beds, Chairs, Furniture, Kitchen and Table Articles, Store Furniture.	Jan. 16	Jan. 9	506
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Jan. 14	Jan. 12	589
	Between two and three months.			
332	X. Carriages and Wagons.....	Jan. 12	Feb. 9	424
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks, Sheet-Metal Ware, Making, Tools, Wire-Working.	Jan. 11	Nov. 25	403
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Jan. 4	Jan. 3	412
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 4	Dec. 27	617
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Jan. 3	Jan. 16	334
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Jan. 3	Nov. 8	642
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Jan. 3	Oct. 27	722
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Dec. 30	Dec. 5	759
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working.	Dec. 27	Jan. 24	411
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Dec. 21	Jan. 14	334
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors, Pumps, Sewerage, and Water Distribution.	Dec. 19	Jan. 26	534
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Cutlery, Dentistry, Locks and Latches, Safes, Undertaking.	Nov. 2	Nov. 1	622

Total number of applications awaiting action..... 15,346

	Under one month.			
159	XXXIII. DESIGNS, TRADE-MARKS, LABELS AND PRINTS.			
	Designs.....	Mar. 3	Mar. 11	24
	Trade-Marks.....	Mar. 8	Mar. 9	28
	Labels and Prints.....	Mar. 14	Mar. 13	3

Changes in Classification.

(ORDER No. 1,633.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 11, 1905.

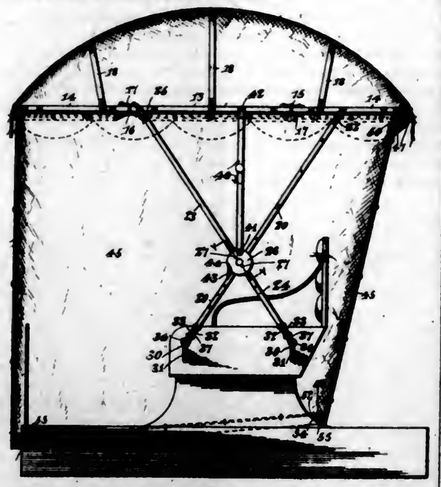
Class 54, Harness, is hereby transferred from Division XI to Division VII, to take effect March 15, 1905.

E. B. MOORE,
Acting Commissioner.

PATENTS

GRANTED MARCH 21, 1905.

785,075. VEHICLE-TOP. MILTON B. ANDERSON, Chicago, Ill. Filed Mar. 10, 1904. Serial No. 197,553.



Claim.—1. In a vehicle-top, the combination with a body, of a standard mounted thereon, a top pivotally connected to the standard, a runner slidably mounted on the standard, and another standard comprising sections, one of said sections being pivotally connected to the top and runner, the other section being a single rigid piece pivotally connected at its ends to the runner and body.

2. In a vehicle-top, the combination with the top, of a standard pivoted to the rear portion of the top, a runner slidably mounted on the standard, and another standard comprising sections one of which is pivoted to the runner and to the front portion of the top, the other section being pivoted to the runner and extending below the same, said sections being disposed in alinement when the top is elevated.

3. In a vehicle-top, the combination with the vehicle-top, of standards supporting the same and disposed in substantially the form of an X when elevated, one of the standards being continuous and pivoted to the top contiguous to one end, a runner slidably mounted upon said continuous standard, the other standard comprising sections pivoted to the runner on opposite sides of the continuous standard, the upper of said standards being pivoted to the top, and means for pivotally securing the lower end of the continuous standard and the lower end of the lower section to a vehicle-body.

4. In a vehicle-top, the combination with a canopy, of standards for supporting the same, one of said standards having a pivotal connection with the canopy, a runner slidably mounted on said standard and comprising plates that embrace the same, the other standard comprising sections pivoted between the plates, one of said sections having a connection with the canopy.

5. In a vehicle-top, the combination with a canopy, of a standard, means for pivotally connecting the upper end of the standard to the canopy, means for pivotally securing the lower end of the standard to a vehicle-body, a runner slidably mounted on said standard and comprising spaced plates that embrace the same, and another standard comprising sections, said sections having ends that are pivoted between the plates of the runner on opposite sides of the main standard, means for pivotally connecting one of the standards to a canopy, and means for pivotally attaching the other section to a vehicle-body.

6. In a vehicle-top, the combination with a canopy, of a standard pivotally connected thereto, a runner slidably mounted on the standard, a standard-section pivotally connected to the runner and canopy, and a jointed brace connected to the runner and canopy.

7. In a vehicle-top, the combination with a canopy, of a standard pivotally connected thereto, a runner slidably mounted on the standard, a standard-section pivotally connected to the runner and canopy, and a jointed brace connected to the runner and canopy between the standard and section.

8. In a vehicle-top, the combination with a canopy, of a standard pivotally connected thereto at its upper end, a runner slidably mounted on the standard, upper and lower standard-sections pivotally connected to the runner, the upper standard-section having a pivotal connection with the canopy at its upper end and being disposed in angular relation to the standard when elevated, and a jointed brace pivoted at its lower end to the runner and having its upper end pivoted to the canopy substantially midway between the standard and the standard-section.

9. In a vehicle-top, the combination with a substantially horizontal frame comprising hinged sections, of means for securing the hinged sections in alinement, bows pivoted to the opposite portions of the frame and extending above the same, intersecting standards pivotally connected to the horizontal frame, one of said standards comprising pivotally-associated sections, and means for securing the standards to a vehicle-body.

10. In a vehicle-top, the combination with a canopy, of a standard for supporting the same, said standard having a dog, a runner slidably mounted on the standard and arranged to engage the dog, and a brace connecting the runner and canopy and constructed to hold the runner in engagement with said dog.

11. In a vehicle-top, the combination with a canopy-supporting standard, of detachably-interlocked eyes, one of which is secured to the standard, and means for fastening the other eye to a vehicle-body.

12. In a vehicle-top, the combination with a canopy-supporting standard, of detachably-interlocked eyes, one of said eyes comprising pivotally-associated clips arranged to embrace the other eye, means for attaching one eye to the body of the vehicle, and means for securing the other to the standard.

13. In a vehicle-top, the combination with a canopy-supporting standard, of detachably-interlocked eyes, means for securing one of the eyes to a vehicle-body, the other eye comprising pivotally-associated clips, means for rigidly securing one of the clips to the standard and pivotally securing the other clip to said standard, and a device for normally holding the pivoted clip against movement.

14. In a vehicle-top, the combination with a canopy, of inclosed guideways supported along the sides thereof, and side curtains having headed portions slidably mounted in the guideways and supported thereby.

15. In a vehicle-top, the combination with a canopy, of guideways supported along the sides thereof, and flexible side curtains having projecting devices at their upper ends, said devices being slidably mounted in the guideways and constituting means for supporting the curtains.

16. In a vehicle-top, the combination with a canopy, of inclosed guideways secured to the opposite sides of the same and having longitudinally-disposed slots, and flexible side curtains having projecting buttons at their upper ends, said buttons extending through the slots and engaging in the guideways.

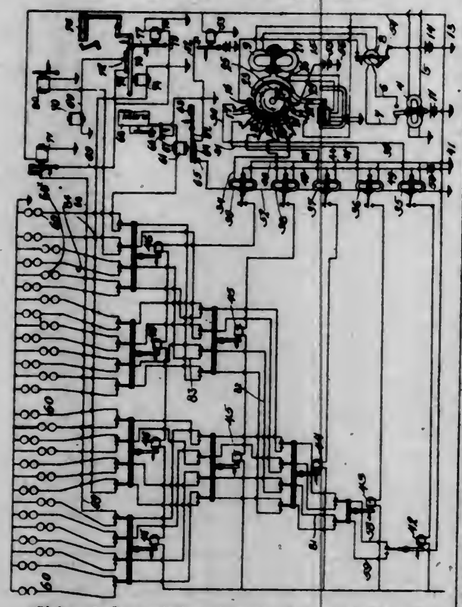
17. In a vehicle-top, the combination with a substantially horizontal canopy-frame, of inclosed guideways secured to the opposite sides of the frame and in the front thereof, and curtains having pro-

jections at their upper ends that are slidably mounted in the guideways, said curtains being movable along the sides and in the front of the canopy.

18. In a vehicle-top, the combination with a canopy, of a continuous guideway extending along the front, sides, and rear of the canopy, said guideway having its ends overlapping in the rear of the canopy, and curtains having projecting portions slidably mounted in the guideways and constituting supports for said curtains.

19. In a vehicle-top, the combination with a canopy, of curtains slidably suspended from the canopy and movable about the front, sides, and rear of the same, a cable arranged to be secured to the seat and dash of a vehicle, and eyes carried by the lower portions of the curtains and sliding upon the cable.

785,076. **PRINTING-TELEGRAPH.** JOHN C. BARCLAY, New York, N. Y. Filed Mar. 1, 1904. Serial No. 196,084.



Claim.—1. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, and a plurality of corresponding primary selecting-relays, one for each such circuit, of a plurality of secondary selecting-circuits controlled by said primary selecting-relays, secondary selecting-relays in said secondary selecting-circuits, having contacts connected in tandem, each selecting-relay of each series but the last controlling the circuits through a plurality of contacts of the next series, magnets in circuit with the last series of secondary selecting-relay contacts, a restoring-relay, a restoring-circuit operated thereby passing through said primary selecting-relays, and a circuit connected to the contact of the first of said series of secondary selecting-relays and to a further contact of said sunflower, and arranged to be completed by said sunflower-contact through contacts of the secondary selecting-relays to whichever of said magnets is selected thereby.

2. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, and selecting mechanism controlled by said circuits, of printing means for effecting the printing, and a printing-circuit therefor passing through contacts of said selecting mechanism and through a further contact of said sunflower.

3. In a printing-telegraph, the combination with selecting means, operating means therefor, and a restoring-circuit and controlling means therefor, of electrically-operated carriage-release mechanism comprising a release-magnet, a circuit for said magnet, arranged to be completed by said selecting means upon the transmission of a predetermined message, and means actuated by said carriage preventing action of said restoring-circuit during motion of the carriage toward its starting-point.

4. In a printing-telegraph, the combination with selecting means, operating means therefor, and a restoring-circuit and controlling means therefor, of electrically-operated carriage-release mechanism comprising a magnet and armature, and a circuit for said magnet, arranged to be completed by said selecting means upon the transmission of a predetermined message, means actuated by said carriage preventing action of said restoring-circuit during motion of the carriage toward its starting-point, and comprising a contact operated by said armature and arranged to be broken when the armature is attracted, and another contact in the circuit of said carriage-release magnet, arranged to be broken by the carriage during motion of the carriage toward its starting-point.

5. In a printing-telegraph, the combination with selecting-relays, means for operating the same, and a restoring-circuit for said relays and controlling means therefor, of electrically-operated carriage-release mechanism comprising a magnet and armature, and a circuit for said magnet, arranged to be completed by said selecting means upon the transmission of a predetermined message, means actuated by said carriage preventing action of said restoring-circuit during motion of the carriage toward its starting-point, and comprising a contact operated by said armature and arranged to be broken when the armature is attracted, and another contact in the circuit of said carriage-release magnet, arranged to be broken by the carriage during motion of the carriage toward its starting-point.

6. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, a plurality of corresponding primary selecting-relays, one for each such circuit, a plurality of secondary selecting-relays controlled by said primary selecting-relays, having contacts connected in tandem, and a restoring-circuit and controlling means therefor, operated by a further contact of the sunflower, of electrically-operated carriage-release mechanism comprising a magnet and armature and a circuit for said magnet, arranged to be completed by said selecting means upon the transmission of a predetermined message, means actuated by said carriage preventing action of said restoring-circuit during motion of the carriage toward its starting-point, said carriage-release mechanism having a contact operated by said armature and arranged to be broken when the armature is attracted, and another contact in the circuit of said carriage-release magnet, arranged to be broken by the carriage during motion of the carriage toward its starting-point.

7. In a printing-telegraph, the combination with selecting means, operating means therefor and means for restoring said selecting means to normal condition after operation, of electrically-operated spacing means and a circuit therefor arranged to be completed by said selecting means when the latter is in normal condition, and a spacing cut-out arranged to prevent the operation of said spacing means upon the transmission of any message other than that designed to effect the operation thereof.

8. In a printing-telegraph, the combination with selecting-relays, means for operating the same and means for restoring said relays to normal condition after operation, of electrically-operated spacing means and a circuit therefor arranged to be completed through contacts of said selecting-relays when said relays are in normal condition, and a spacing cut-out arranged to prevent the operation of said spacing means upon the transmission of any message other than that designed to effect the operation thereof.

9. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, selecting means controlled by said circuits, a restoring-circuit therefor, and a restoring-relay arranged to close the same upon the closing of a further contact of said sunflower, of electrically-operated spacing means and a circuit therefor, arranged to be completed by said selecting means when the latter is in normal condition, and a spacing cut-out arranged to prevent the operation of said spacing means upon the transmission of any message other than that designed to effect the operation thereof.

10. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, a plurality of corresponding primary selecting-relays, one for each such circuit, a plurality of secondary selecting-relays controlled by said primary relays and having contacts connected in tandem, and means for restoring said selecting-relays to normal condition after operation, said restoring means operated by a further contact of said sunflower, of electrically-operated spacing means and a circuit therefor arranged to be completed through contacts of said selecting-relays when said relays are in normal condition, and a spacing cut-out arranged to prevent the operation of said spacing means upon the transmission of any message other than that designed to effect the operation thereof.

11. In a printing-telegraph, the combination with selecting means, operating means therefor, a restoring-circuit for said selecting means, and a restoring-relay for closing same operated by said operating means, of electrically-operated spacing means and a circuit therefor arranged to be completed by said selecting means when the latter is in normal condition, and a spacing cut-out relay operating in conjunction with said restoring-relay and arranged to prevent the operation of said spacing means after said restoring-circuit is operated.

12. In a printing-telegraph, the combination with selecting means, operating means therefor, a restoring-circuit for said selecting means, and a restoring-relay for closing the same operated by said operating means, but more sluggish than said selecting means, of electrically-operated spacing means and a circuit therefor arranged to be completed by said selecting means when the latter is in normal condition, a spacing cut-out relay operating in conjunction with said restoring-relay, and a circuit therefor likewise controlled by said operating means, said cut-out relay being more sluggish than said selecting means, and being arranged when operated to prevent the operation of said spacing means.

13. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, selecting means controlled by said circuits, a restoring-circuit therefor, a restoring-relay for closing said circuit, and a circuit controlling said restoring-relay and arranged to be closed by a contact of said sunflower, said restoring-relay being more sluggish than said selecting means, of electrically-operated spacing means and a circuit therefor, arranged to be completed by said selecting means when the latter is in normal condition, and a spacing cut-out relay likewise located in the circuit controlled by said further contact of the sunflower, said cut-out relay likewise more sluggish than said selecting means, and arranged when operated to prevent the operation of said spacing means.

14. In a printing-telegraph, the combination with a plurality of printing devices, selecting means arranged at will to select any one of said printing devices, according to the message transmitted, and operating means therefor, of shift mechanism controlled like said printing devices by said selecting means and arranged to be operated thereby upon the transmission of a predetermined message, a detent for holding the shift mechanism in its shifted position, and means for releasing the detent likewise controlled like said printing devices by said selecting means, and arranged to be operated through the operation of said selecting means upon the transmission of a predetermined release-message.

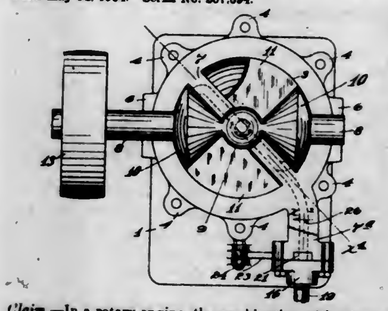
15. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, and selecting means controlled by said circuits, of shift mechanism arranged to be operated by said selecting means when a predetermined message is transmitted, a detent for holding the shift mechanism in its shifted position, and means for releasing the detent, arranged to be operated by said selecting means upon the transmission of a release-message.

16. In a printing-telegraph, the combination with an electrically-controlled sunflower having selector-contacts, a separator-relay, a plurality of selecting-circuits controlled thereby and by said selector-contacts, a plurality of corresponding primary selecting-relays, one for each such circuit, a plurality of secondary selecting-relays controlled by said primary relays and having contacts connected in tandem, of shift mechanism comprising an operating-magnet and a circuit therefor arranged to be completed through contacts of said secondary selecting-relays when a predetermined message is transmitted, a detent for holding the shift mechanism in its shifted position, a magnet for releasing the detent and a circuit therefor arranged to be completed through contacts of said secondary selecting-relays upon the transmission of a release-message.

17. In a printing-telegraph, the combination with selecting means, and operating means therefor, of shift mechanism arranged to be operated by said selecting means when a predetermined message is transmitted, a detent for holding the shift mechanism in its shifted position, a magnet for releasing said detent and a circuit therefor through which said magnet is operated by said selecting means upon the transmission of a predetermined message, and another mechanism having an operating-magnet connected with the circuit of the said detent-magnet, the shift mechanism having means preventing the operation of such other mechanism when the shift mechanism is in its shifted position.

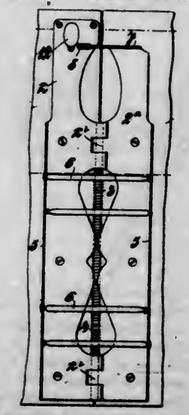
18. In a printing-telegraph, the combination with selecting means, operating means therefor, shift mechanism arranged to be operated by said selecting means when a predetermined message is transmitted, a detent for holding the shift mechanism in its shifted position, and a magnet for releasing said detent, of spacing mechanism likewise arranged to be operated by said selecting means when a predetermined spacing-message is transmitted, said spacing mechanism comprising an operating-magnet connected in circuit with the said detent-magnet, whereby the transmission of the same predetermined selective message serves for the operation either of the spacing mechanism or for the release of the detent, the shift mechanism having means preventing the operation of the spacing mechanism when the shift mechanism is in its shifted position.

785,077. **ROTARY ENGINE.** LUDWIG BERGMAN, Cass Lake, Minn. Filed May 14, 1904. Serial No. 207,894.



Claim.—In a rotary engine, the combination with a base member 1 and top member 2, formed with an approximately spherical piston-seat 3, divided into compartments by an oblique abutment 7, of the conical rotary pistons 10 connected by a spherical head 9 and having shaft extensions 8 journaled in said members 1 and 2, said pistons having tangential contact with said abutment 7 and said head 9 fitting a seat in said abutment, the disk-like impelling-blade 11 working diametrically through said pistons 10 and head 9, and notched at 12 to embrace said abutment 7, and suitable admission and exhaust ports leading to and from the piston-seat compartments, substantially as described.

785,078. **TEMPORARY BINDER.** MARTIN O. BONG, Christianstad, Sweden. Filed July 27, 1904. Serial No. 218,403.

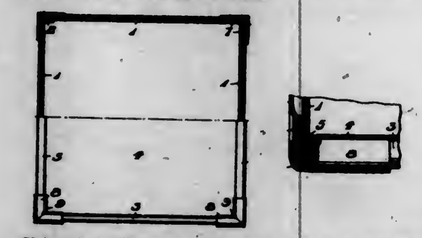


Claim.—1. A temporary binder comprising hinged members having acurate impaling-pins overlapping across the joint therebe-

tween, a latch carried by one of the members and piercing the other member, a catch upon the under side of said other member for engagement with the latch, a spring-arm secured to the under side of said other member and having its free end provided with a lateral trip portion piercing the adjacent member and provided upon its upper end with a finger-piece, the trip portion of the spring-arm lying in coöperative relation with the catch to disengage the same from the latch when the finger-piece is depressed.

2. A temporary binder comprising hinged members having arcuate impaling-pins overlapping across the joint thereof, a latch carried by one of the members with its free end piercing the other member, a spring-catch pivoted upon the under side of said other member for engagement with the latch, and a spring-arm secured to the under side of said other member and provided with a lateral trip portion piercing the adjacent member and provided upon its upper end with a finger-piece, said trip portion being disposed in coöperative relation with the spring-catch to disengage the latter from the latch when the finger-piece is depressed.

785,079. **SHIPPING-PACKAGE.** JOHN A. BOWER, Pittsburg, Pa. Filed Mar. 19, 1904. Serial No. 198,944.



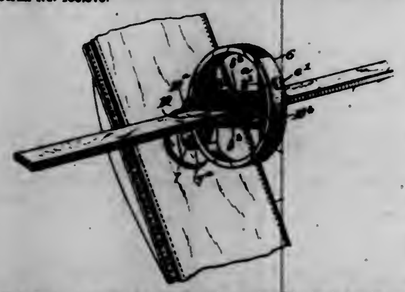
Claim.—1. A shipping-package composed of an open-ended shell, dished metallic covers therefor, and metallic corner-strips provided with portions bent into the depressed portions of the dished covers.

2. A shipping-package composed of an open-ended shell, metallic caps provided with beads and grooves, the ends of the shell being seated in the grooves, and metallic corner-strips having their ends bent down over said beads.

3. A shipping-package composed of a shell, metallic caps having flanges, metallic corner-strips having tongues under said flanges and extensions bent down on the caps.

4. A shipping-package composed of a shell, caps having continuous raised margins, and corner-strips each having its opposite ends bent into hooks over the said margins.

785,080. **TERRET-RING FOR HARNESS.** MICHEAL BRENNAHAN, Colby, and LOUIS H. GAFFNEY, Greenbay, Wis. Filed Nov. 9, 1903. Serial No. 180,378.



Claim.—1. A terret-ring, comprising a ring-like body having an opening therein the defining-walls of which flare outwardly, two spaced rollers in the ring adapted to receive a rein through the opening, a closing-block hinged by one end upon the ring at the opening, the end walls of which conform to the flared walls of said opening, means for securing the block in closed adjustment, and a threaded shank on the terret-ring for securing said ring on the harness.

2. A terret-ring, comprising a ring-like body having an opening therein, two spaced rollers in the ring adapted to receive between them a rein passed through the opening, a closing-block hinged by one end upon the ring at the opening, the end walls of which conform to the flared walls of said opening, a turn-button adapted to hold the closing-block in closed condition, and a threaded shank projected diagonally from the terret-ring for securing it on harness.

3. A terret-ring, comprising a body portion in ring form, two spaced upright walls disposed oppositely in the ring, one of said walls having a slot opening therethrough and spaced perforations in the side walls of the said slot, a closing-block hinged at one transverse edge of the opening for its closure, a turn-button on the ring-body adapted to hold the block closed, two spaced journal-shafts extended from the unslotted wall toward the slotted wall and having their ends supported in the perforations therein, metal sleeves loosely mounted on the shafts between the upright walls, elastic envelops on the sleeves, and a threaded shank extended diagonally from the ring-body for engagement with harness.

785,081. **RADIATOR FOR MOTOR-VEHICLES.** LOUIS H. BRINKMAN, West Hartford, Conn., assignor to The Whitlock Coil Pipe Company, West Hartford, Conn., a Corporation of Connecticut. Filed July 23, 1904. Serial No. 217,787.



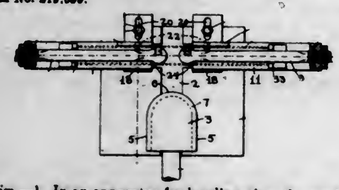
Claim.—1. In a radiator for motor-vehicles, the combination with a series of water-pipes fastened at their opposite ends to water-chambers and bent into serpentine convolutions, said serpentine convolutions being arranged in vertical and horizontal rows, of a series of plates extending from top to bottom of the water-pipes, each plate uniting all the serpentine convolutions in said horizontal and vertical rows, thereby securing said pipes in position.

2. In a radiator for motor-vehicles, the combination with a series of water-pipes forming part of a water-circulatory system, of a series of radiating-plates provided with openings to receive said series of pipes, each plate having annular flanges surrounding said pipes and in contact therewith, said annular flanges being arranged on opposite sides of said plate.

3. In a radiator for motor-vehicles, the combination with a serpentine pipe forming part of a water-circulatory system, of a radiating-plate having openings for separate convolutions of the pipe, said opening provided with complete annular flanges integral with the plate and in contact with said pipe.

4. In a radiator, the combination of an upper and a lower water-chamber, a series of pipes connecting said chambers, said pipes being bent into serpentine convolutions interposed between said water-chambers, and a series of radiating-plates extending from the upper to the lower water-chamber and having their ends attached thereto, said plates having a series of openings for said pipes and a series of annular flanges integral with the plates and inclosing said pipes.

785,082. **APPARATUS FOR BENDING PIPE.** LOUIS H. BRINKMAN, West Hartford, Conn., assignor to Whitlock Coil Pipe Company, West Hartford, Conn., a Corporation of Connecticut. Filed Aug. 6, 1904. Serial No. 219,699.



Claim.—1. In an apparatus for bending pipe, the combination with a former, of a pair of swinging arms, a pair of mandrels held by said arms in alinement with each other, with the opposing ends of said mandrels free to enter opposite ends of the pipe to be bent, and means for applying a bending strain to a pipe held on the free ends of said mandrels.

2. In an apparatus for bending pipe, the combination of a former, a pair of mandrels held in alinement with each other, with the opposing ends of the mandrels free to enter the opposite ends of the pipe to be bent, each of said mandrels being capable of a swinging movement about an axis substantially coincident with the side of the pipe opposite the former, and means for applying a bending strain to a pipe held on said mandrels by which the pipe is wrapped around said former.

3. In an apparatus for bending pipe, the combination with a former, a pair of mandrels held from longitudinal movement and in alinement with each other, with the opposing ends of said mandrels free to enter the opposite ends of the pipe to be bent, a pair of pivoted arms supporting said mandrels, and means for adjusting the axes of said pivoted arms relatively to the pipe held on said mandrels, and means for bending said pipe around said former.

4. In an apparatus for bending pipe, the combination with a former, of a pair of mandrels held in alinement with each other, with the opposing ends of the mandrels free to enter the opposite ends of the pipe to be bent, means for adjusting a pipe longitudinally on said mandrels, and means for wrapping a pipe held on said mandrels around the former.

5. In an apparatus for bending pipe, the combination with a pair of mandrels in alinement with each other, and having their opposing ends free to enter the opposite ends of the pipe to be bent, a pair of holding-arms for said mandrels capable of a swinging motion, and a reciprocating former by which a bending strain is applied to a pipe held on said mandrels.

6. In an apparatus for bending pipe, the combination with a pair of mandrels held in alinement, with the opposing ends of said mandrels free to enter the opposite ends of the pipe to be bent, said mandrels being capable of a swinging movement in opposite directions, and a reciprocating former adapted to apply a bending strain to a pipe held on said mandrels.

7. In an apparatus for bending pipe, the combination of a pair of mandrels held in alinement, with their opposing ends capable of entering the opposite ends of the pipe to be bent, a reciprocating former adapted to apply a bending strain to a pipe held on said mandrels, said mandrels being capable of a swinging movement in opposite directions about axes at right angles to the plane of said reciprocating former.

8. In an apparatus for bending pipe, the combination with a reciprocating former, of a pair of mandrels held in alinement with each other in a line at right angles to the line of movement of said former, said mandrels being capable of a swinging movement, and means for adjusting the axes of rotation of said mandrels.

9. In an apparatus for bending pipe, the combination with a table having ways for a reciprocating former, of a reciprocating former, a pair of swinging arms pivotally held on said table, brackets on said arms and mandrels held in said brackets, with their free ends adapted to enter the pipe to be bent.

10. In an apparatus for bending pipe, the combination with a table having ways for a reciprocating former, of a reciprocating former, a pair of swinging arms pivotally held on said table, brackets on said arms, mandrels held in said brackets with their free ends adapted to enter the pipe to be bent, and means for longitudinally adjusting said mandrels in said brackets.

11. In an apparatus for bending pipe, the combination with a table having ways for a reciprocating former, of a reciprocating former, pivots for a pair of swinging arms, means for adjusting said pivots relatively to said former, swinging arms on said pivots, and mandrels held by said swinging arms.

12. In an apparatus for bending pipe, the combination with a table provided with ways for a reciprocating former, of a reciprocating former, swinging arms pivotally mounted on said table, means for adjusting said arms relatively to said former, means for adjusting said arms relatively to their axes of rotation and mandrels carried by said arms.

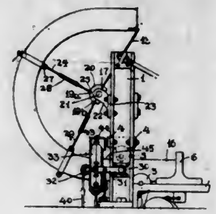
13. In an apparatus for bending pipe, the combination with a reciprocating former, of a pair of swinging arms, means for adjusting said arms relatively to said former, means for adjusting said arms relatively to their axes of rotation and mandrels carried by said arms.

14. In an apparatus for bending pipe, the combination with a reciprocating former, of a pair of swinging arms, a pair of mandrels carried by said arms and adapted to enter the opposite ends of the pipe to be bent, the axes of said swinging arms substantially coincident with one side of a pipe held on said mandrels.

15. In an apparatus for bending pipe, the combination with a pair of mandrels held in alinement and arranged to enter the opposite ends of the pipe to be bent, of a reciprocating former adapted to apply a bending strain to a pipe held on said mandrels and flanges arranged to bear against a pipe held on said mandrels and to resist the bending strain exerted by said former.

16. In an apparatus for bending pipe, the combination with a reciprocating former, of a pair of swinging arms, mandrels carried by said arms, and adapted to enter the opposite ends of the pipe to be bent, and stops adjustably held on said arms and adapted to bear against the ends of the pipe.

785,083. **APPARATUS FOR BENDING PIPE.** LOUIS H. BRINKMAN, West Hartford, Conn., assignor to Whitlock Coil Pipe Company, West Hartford, Conn. Filed Dec. 16, 1904. Serial No. 237,067.



Claim.—1. In an apparatus for bending pipe, the combination of a pair of supports in different planes arranged to bear against the pipe to be bent and on opposite sides, means for imparting a longitudinal movement to said pipe between said supports, means for applying a pulling strain to the advancing end of the pipe, and means for applying pulling strains successively at other points in the pipe as it is bent, the number of such points increasing with the increase in its curvature, all such strains being toward a point concentric with the desired curvature of the pipe.

2. In an apparatus for bending pipe, the combination with a framework, two fixed supports in different planes adapted to receive the pipe to be bent, means for heating a section of the pipe contiguous to one of said supports, means for imparting a longitudinal movement to the pipe between said supports, means for maintaining both the advancing end and other points of the pipe as it is bent, the number of such points increasing with the increase in its curvature, at a constant distance from a fixed point concentric with the desired curvature of the pipe.

3. In an apparatus for bending pipe, the combination of a framework, a pair of supports arranged to bear against opposite sides of the pipe to be bent and in different planes, means for moving the pipe longitudinally, means for heating a section of the pipe between said supports and its advancing end, and a series of radial rods adapted to be successively attached to the pipe as its curvature increases, whereby the pipe is held from distortion.

4. In an apparatus for bending pipe, the combination of a pair of supports in different planes and arranged to bear against opposite sides of the pipe to be bent, means for moving the pipe longitudinally between said supports, means for applying a pulling strain to the pipe behind said supports and toward a fixed point concentric with the desired curvature of the pipe, an annular burner for heating a section of the pipe behind said supports, and means for raising or lowering said annular burner in order to maintain said burner concentric with the pipe to be bent.

5. In an apparatus for bending pipe, the combination of a pair of supports in different planes and arranged to bear against opposite sides of the pipe to be bent, means for applying a pulling strain to the pipe behind said supports toward a fixed point concentric with the desired curvature of the pipe, means for heating a section of the pipe behind said supports, means for imparting a longitudinal movement to the pipe, and means for controlling the longitudinal movement of the pipe in a right line.

6. In an apparatus for bending pipe, the combination with a pair of rolls arranged to bear against opposite sides of the pipe and in different planes, means for heating a limited portion of the pipe behind said rolls, means for applying a bending strain to the pipe behind said rolls, a pushing-plate bearing against the end of the pipe in front of the rolls, means for moving said plate to impart a longitudinal movement to the pipe between said rolls, and ways for said pushing-plate parallel with the longitudinal movement of the pipe.

7. In an apparatus for bending pipe, the combination with means for imparting a longitudinal movement to the pipe to be bent, means for applying a bending strain to the pipe, means for successively heating limited portions of the pipe, and means for applying a cooling liquid to the pipe as it approaches the heating means and on the side subjected to upsetting strains during the process of bending.

785,084. **TIME-RECORDER.** WILLARD L. BUNDY, Binghamton, N. Y., assignor, by mesne assignments, to International Time Recording Company, a Corporation of New Jersey. Filed May 3, 1900. Serial No. 15,312.



Claim.—1. The combination of a platen, an arm for moving the platen, a device for moving the arm and actuating the platen, a connection between the arm for moving the platen and its actuating device arranged and adapted to yield without actuating the platen when the actuating device is moved in one direction, and to transmit motion from the actuating device to the platen to cause it to deliver a printing blow when the actuating device is moved in the other direction, a stop in the path of movement of the arm arranged so that the arm will strike the stop before the platen delivers its blow, whereby the platen will be caused to deliver a sharp, whip-like blow.

2. The combination of a platen, an arm for moving the platen, a device for moving the arm and actuating the platen, a connection between the arm for moving the platen and its actuating device arranged and adapted to yield without actuating the platen when the actuating device is moved in one direction, and to transmit motion from the actuating device to the platen to cause it to deliver a printing blow when the actuating device is moved in the other direction, and a stop so arranged between the platen and the point where the arm is mounted, that the arm will strike the stop before the platen delivers its blow, whereby the platen will be caused to deliver a sharp, whip-like blow.

3. The combination of a platen, a device for actuating the platen to cause it to deliver a blow, a spring-pressed part movably mounted upon the platen-support and having a portion projecting into the path of movement of the actuating device adapted to be struck and moved by the platen-actuating device, as the latter moves in one direction, a stop for the spring-pressed part secured to the platen-support, a spring for normally holding the spring-pressed part against the stop, whereby, when the platen-actuating device moves in one direction, it will strike, move and pass by the projection of the spring-pressed part without actuating the platen, but, when it moves in the other direction, it will strike and move the spring-pressed part and the platen-support, and actuate the platen.

4. The combination of a platen mounted upon a rock-shaft, a device for actuating the rock-shaft to cause the platen to deliver a blow, a sleeve movably mounted upon the rock-shaft and having a portion projecting into the path of movement of the actuating device adapted to be struck and moved by the platen-actuating device, as the latter moves in one direction, a stop for the sleeve secured to the rock-shaft, a spring for normally holding the sleeve against the stop, whereby, when the platen-actuating device moves in one direction, it will strike, move and pass by the projection of the sleeve to revolve the sleeve on the rock-shaft without rocking the latter, but, when it moves in the other direction, it will strike and revolve the sleeve and rock the rock-shaft and actuate the platen.

5. The combination of a platen mounted upon a rock-shaft, a platen-actuating spring to hold the platen normally in printing position, a device for actuating the rock-shaft to cause the platen to deliver a blow, a sleeve movably mounted upon the rock-shaft and having a portion projecting into the path of movement of the actuating device adapted to be struck and moved by the platen-actuating device, as the latter moves in one direction, a stop for the sleeve secured to the rock-shaft, a spring for normally holding the sleeve against the stop, whereby, when the platen-actuating device moves in one direction, it will strike, move and pass by the projection of the sleeve to revolve the sleeve on the rock-shaft without rocking the latter, but when it moves in the other direction, it will strike and revolve the sleeve and rock the rock-shaft, and strain the platen-actuating spring, and then release the sleeve and rock-shaft to permit the platen-actuating spring to cause the platen to deliver a blow.

6. In a workmen's time-recorder the combination with suitable impression mechanism, and means for feeding a record-surface, of a shutter or cover adapted normally to cover an opening over against the record-surface and adapted to be moved away to expose the record-surface, a lock for the shutter to prevent its removal from the opening, an operating device for actuating the impression mechanism and for feeding forward the record-surface connected with the lock and shutter and adapted to remove the lock and withdraw the shutter when the impression mechanism is operated and to return the parts to their normal positions when the printing has been completed.

7. In a workmen's time-recorder the combination with suitable impression mechanism, of a movable shutter or cover adapted normally to cover an opening over against a record-surface and adapted to be moved away to expose the record-surface, a lock for the shutter to prevent its removal from the opening, an operating device for actuating the impression mechanism connected with the lock and shutter and adapted to remove the lock and withdraw the shutter when the impression mechanism is operated and to return the parts to their normal positions when the printing has been completed.

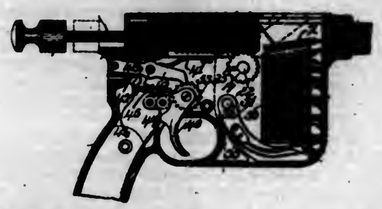
8. In a workmen's time-recorder the combination of time-recording mechanism driven synchronously by a clock-movement, impression mechanism, a cover or shutter for an opening in the casing of the machine adapted to permit the workman to write upon a recording-strip adapted to pass thereunder, means for moving the cover to open or close the opening and an operating device connected and adapted to operate the impression mechanism and to move the cover to expose or hide the recording-strip.

9. In a workmen's time-recorder the combination of time-recording mechanism driven synchronously by a clock-movement, impression mechanism, a recording-strip adapted to pass an opening in the casing of the machine to permit the workman to write upon the strip, means for feeding forward the recording-strip, a cover or shutter for the opening, means for moving the cover to open or close the opening, and an operating device connected with and adapted to operate the impression mechanism, and to move the cover to expose or hide the recording-strip and to feed forward the recording-strip.

10. In a time-recorder the combination of an hour-wheel provided with type representing the hours, with the line of direction of the figures composing the type transverse to the plane of the hour-wheel, and a minute-recording wheel provided with a series of type representing minutes arranged in staggered order around the periphery of the wheel and with the line of direction of the figures composing the type transverse to the plane of the wheel, whereby the numbers representing the hour and minute when the time-recorder is operated will be printed upon the recording-strip in a vertical line and the number representing the next adjoining minute character upon the minute-wheel on either side will, if printed at all upon the record-strip, be printed out of said vertical line.

785,085. **AUTOMATIC FIREARM.** BETHEL BURTON, Brooklyn, N. Y.; Henry C. Burton administrator of said Bethel Burton, deceased. Filed Jan. 16, 1903. Serial No. 139,277.

Claim.—1. In a firearm, the combination with a reciprocative breech-bolt provided with a rack, of a spring for automatically returning the bolt when thrown back by the discharge of the cartridge, a pinion meshing with the rack on the breech-bolt and free to run idly during the automatic reciprocation of the bolt, a lever-arm for rotating the pinion and thereby drawing back the bolt against the pressure of the spring, a lug fixed relatively to said pinion, and a lug adapted to engage with the pinion-lug, and which is fixed relatively to said arm.



2. In a firearm, the combination with a reciprocative breech-bolt provided with a rack, of a spring for automatically returning the bolt when thrown back by the discharge of the cartridge, a pinion meshing with the rack on the breech-bolt, a lever-arm for rotating the pinion and thereby drawing back the bolt against the pressure of the spring, a clutch for connecting the lever with and disconnecting it from the pinion, a lug fixed relatively to said pinion, and a lug adapted to engage with the pinion-lug, and which is fixed relatively to said arm.

3. In a firearm, the combination with a reciprocative breech-bolt provided with a rack, of a spring for automatically returning the bolt when thrown back by the discharge of the cartridge, a pinion meshing with the rack on the breech-bolt, a lever-arm for rotating the pinion and thereby drawing back the bolt against the pressure of the spring, a clutch for connecting the lever with and disconnecting it from the pinion, a releasable detent for holding the lever, a lug fixed relatively to said pinion, and a lug adapted to engage with the pinion-lug, and which is fixed relatively to said arm.

4. In a firearm, the combination of a reciprocative bolt provided with a rack, a pinion engaging with the rack, a lever-arm for rotating the pinion, a lug fixed relatively to said pinion, and a lug adapted to engage with the pinion-lug and which is fixed relatively to said manually-operated lever-arm.

5. In a firearm, the combination of a frame, a reciprocative bolt provided with a rack, a pinion engaging with the rack, a lever-arm mounted exteriorly of the frame, for rotating the pinion, a lug fixed relatively to said pinion, a lug adapted to coöperate with the pinion-lug and which is fixed relatively to said lever-arm, and a spring-pressed locking-pin mounted on said lever-arm and adapted to be seated in a locking-recess in said frame.

6. In a firearm, the combination with a frame of a reciprocative bolt provided with a rack, an actuating-spring therefor, a stop for determining the extreme rearward position of the bolt, and a rack and pinion for manually retracting the bolt.

7. In a firearm, the combination of a reciprocative bolt provided with a rack, a restoring-spring therefor, a stop for determining the extreme rearward position of the bolt, a pinion engaging with the rack, a lever-arm for rotating the pinion, a lug fixed relatively to said pinion, and a lug adapted to engage with the pinion-lug and which is fixed relatively to said lever-arm.

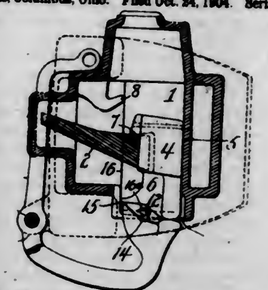
8. In a firearm, the combination of a reciprocative bolt provided with a rack, a pinion engaging with the rack, a lever-arm for rotating the pinion, a lug fixed relatively to said pinion, a lug adapted to engage with the pinion-lug and which is fixed relatively to said lever-arm, a stop for determining the extreme rearward position of the bolt, a restoring-spring for the bolt interposed between the bottom of a recess in said bolt and said stop, a firing-pin provided with a shoulder and slidably mounted in the bolt and in the stop, and an actuating-spring for the firing-pin interposed between said shoulder and said stop.

9. In a firearm, the combination of a frame, a reciprocative bolt provided with a rack, a pinion engaging with the rack, a lever-arm mounted exteriorly of the frame for rotating the pinion, a lug fixed relatively to said pinion, a lug adapted to coöperate with the pinion-lug and which is fixed relatively to said lever-arm, a spring-pressed locking-pin mounted on said lever-arm and adapted to be seated in a locking-recess in said frame, a stop for determining the extreme rearward position of the bolt, a restoring-spring for the bolt interposed between the bottom of a recess in the bolt and said stop, a firing-pin provided with a shoulder and slidably mounted in the bolt and in the stop, and an actuating-spring for the firing-pin interposed between said shoulder and said stop.

10. In a firearm, the combination of a reciprocative bolt provided with a rack, a restoring-spring therefor, a stop for determining the extreme rearward position of the bolt, a pinion engaging with the rack, a lever-arm for rotating the pinion, a lug fixed relatively to said pinion, a lug adapted to engage with the pinion-lug and which is fixed relatively to said lever-arm, a sear, and a rotative pin adjustable from the exterior of the frame for locking the sear at will against action.

11. In a firearm, the combination of a reciprocative bolt provided with a rack, a pinion engaging with the rack, a lever-arm for rotating the pinion, a lug fixed relatively to said pinion, a lug adapted to engage with the pinion-lug and which is fixed relatively to said lever-arm, a stop for determining the extreme rearward position of the bolt, a restoring-spring for the bolt interposed between the bottom of a recess in said bolt and said stop, a firing-pin provided with a shoulder and which is slidably mounted in the bolt and in the stop, an actuating-spring for the firing-pin interposed between said shoulder and said stop, a sear, and a rotative pin adjustable from the exterior of the frame for locking the sear at will against action.

785,086. **AUTOMATIC CAR-COUPLING.** SAMUEL P. BUSH and JAS TIBBS, Columbus, Ohio. Filed Oct. 24, 1904. Serial No. 230,776.



Claim.—1. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of an operating device movable vertically through the opening in the bottom of the head and operating to raise the locking-block and coöperate with the tail of the knuckle to throw the latter open.

2. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, and a locking-block, of an operating device movable vertically through the opening in the bottom of the draw-head to raise the locking-block, said operating device having a part coöperating with the inclined face of the tail of the knuckle to throw the latter open by cam action when said operating device is raised.

3. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, of an operating device movable vertically through the opening in the bottom of the coupling-head and having a part coöperating by cam action with the inclined face of the tail of the knuckle to throw the knuckle open when said operating device is raised.

4. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, of an operating device vertically movable through the opening in the bottom of the coupling-head, said operating device coöperating by cam action with the knuckle-tail to throw the knuckle open when said operating device is raised, and an antifriction device between the faces of the operating device and the knuckle-tail.

5. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, and a locking-block, of an operating device constructed to embrace the coupling-head and having a part vertically movable through the opening in the bottom of the coupling-head, said vertically-movable part coöperating with the locking-block to raise the same and with the tail of the knuckle to open the latter.

6. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of a bent lever pivotally attached to the exterior to the coupling-head and having a part to project upwardly through the opening in the coupling-head and engage the locking-block and knuckle-tail to operate the same.

7. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of a lever pivotally attached to one side of the coupling-head and having a part vertically movable through the opening in the bottom of the coupling-head and coöperating with the locking-block and knuckle to operate the same.

8. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of a lever pivoted to and partially embracing the coupling-head, said lever having a part movable vertically through the opening in the bottom of the coupling-head and adapted to engage the locking-block to raise the same and the tail of the knuckle to throw the latter open.

9. The combination with a coupling-head, of a pivoted knuckle therein, a tail on the knuckle, a locking-block in the head, a hook in the head to enter a recess in the block and hold the latter in lock-set position when elevated, a lever adapted to enter the head through an opening in the bottom thereof, engage the locking-block to move it to its lock-set position, and engage the knuckle-tail to throw the knuckle open.

10. The combination with a coupling-head, of a pivoted knuckle therein, a locking-block in the head, a lever pivoted between its ends to the outside of the head and having an eye at its upper end to receive operating means, an enlargement at the other end of the lever to enter an opening in the bottom of the head and engage the locking-block to operate the latter.

11. The combination with a coupling-head having an opening in its bottom, of a pivoted knuckle in said head, an inclined tail on the knuckle, a locking-block in the head, a lever pivoted between its ends to the outside of the head, an enlargement on one end of the lever to enter the opening in the bottom of the head and engage the block to unlock the knuckle, and a lip on said enlargement to engage the inclined tail of the knuckle and throw the knuckle open.

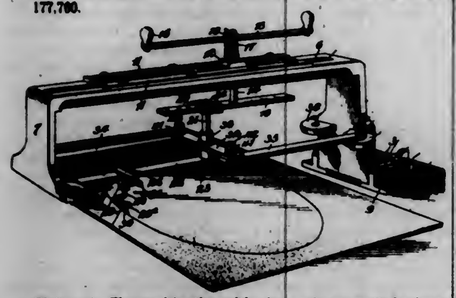
12. The combination with a coupling-head having an opening in its bottom of a pivoted knuckle in said head, a locking-block in the head, a lever engaging the block from below to move it upward, a hook in the head to hold the block in lock-set position when the block is raised and tilted, a laterally-projecting lug or finger on the block, and a guide-wall in the head against which the lug or finger moves to insure the tilting of the block when raised.

13. The combination with a coupling-head, of a knuckle pivoted therein, a tail on the knuckle having its lower face inclined, and a lever pivoted to the outside of the head and having a face adapted to engage the lower face of the knuckle-tail and operating by cam action to throw the knuckle open.

14. The combination with a coupling-head, a knuckle pivoted therein, said knuckle provided with a tail having an inclined under face, and a locking device in the head to lock the knuckle in its closed position, of an operating device movable vertically under the locking device and also under the knuckle-tail, and adapted to cooperate with the inclined under face of the knuckle-tail and open the knuckle by cam action between said inclined face of the knuckle-tail and the operating device when the latter is raised.

15. The combination with a coupling-head, of a knuckle pivoted therein, and a tail on the knuckle, of a lever pivoted between its ends, and an antifriction rotary device in the end of the lever adapted when the latter is moved, to engage the knuckle-tail and throw the knuckle open.

785,087. MACHINE FOR CUTTING ELLIPSES, OVALS, OR CIRCLES. ROBERT CARLTON, Searcy, Ark. Filed Oct. 20, 1903. Serial No. 177,760.



Claim.—1. The combination with a base, of a normally horizontal supporting-arm having a vertical terminal part hinged to the base and unsupported at its opposite end, means for sustaining said arm in a vertical position when swung up, and figure-describing mechanism carried wholly by said arm.

2. The combination with a base and a normally horizontal supporting-arm having a vertical terminal part provided with an angular foot hinged to the base and having its opposite end unsupported, of figure-describing mechanism carried wholly by said arm.

3. The combination with a base and a normally horizontal supporting-arm terminally hinged to the base and otherwise unsupported, of adjustable means for preventing lateral vibration of the arm, and figure-describing mechanism carried by said arm.

4. The combination with a base provided with parallel bearing-flanges, of a normally horizontal supporting-arm having a vertical terminal part provided with a horizontal foot located between the flanges and hinged thereto, said foot having angularly-related faces designed to rest upon the base in the horizontal and vertical positions of the arm to sustain the same, and figure-describing mechanism carried by said arm.

5. The combination with a base provided with parallel bearing-flanges, of a normally horizontal supporting-arm having a vertical terminal part provided with a horizontal foot located between the flanges and hinged thereto, said foot having angularly-related faces designed to rest upon the base in the horizontal and vertical positions of the arm to sustain the same, a screw carried by one of the flanges and bearing against one side of the hinged structure to prevent lateral vibration thereof, and figure-describing mechanism carried by said arm.

6. The combination with a support, of a rotary and laterally-movable handle-shaft, a second shaft constituting an eccentric continuation thereof, an arm extending laterally from the second shaft, and means for confining the lateral movement of said second shaft to a given path, said means including a shifter and swinging arms connected thereto.

7. The combination with a support, of a rotary and laterally-movable handle-shaft, a second shaft constituting an eccentric continuation thereof, a tool-carrying bar extending laterally from the second shaft, and means for confining the lateral movement of the second shaft to a given path, said means including arms swinging from independent centers and connected by a shifter operatively related to said second shaft.

8. The combination with a support, of a rotary and laterally-movable handle-shaft, a second shaft constituting an eccentric continuation thereof, a tool-carrying bar extending laterally from the second shaft, a shifter rotatably receiving said second shaft, and swinging arms pivotally connected at their inner ends to the shifter at opposite sides of the last-named shaft.

9. The combination with a support, of a rotary and laterally-movable handle-shaft, a second shaft constituting an eccentric continuation thereof, a tool-carrying bar extending laterally from the second shaft, a shifter rotatably receiving said second shaft, swinging arms pivotally connected at their inner ends to the shifter at opposite sides of the last-named shaft, and means for mounting said arms in directly or diagonally opposed relation as desired.

10. The combination with a support, of a rotary and laterally-movable handle-shaft, a second shaft constituting an eccentric continuation thereof, a tool-carrying bar extending laterally from the second shaft, means for confining the lateral movement of the second shaft to a given path, said means including arms swung from independent centers and connected by a shifter operatively related to said second shaft, paired bearing members at opposite ends of the support, and means for swinging the last-named arms from either pair of members or from a bearing member of each pair respectively.

11. The combination with a support, of a rotary and laterally-movable handle-shaft and a second shaft constituting a continuation thereof, said shafts being relatively adjustable laterally, a tool-carrying bar extending from the second shaft, and means including independently-mounted swinging arms for limiting the lateral movement of the second shaft to a given path.

12. The combination with a support, of a slide movable thereon, a handle-shaft rotatably mounted in the slide and having a bar at its lower end, a cutter-bar shaft having adjustable connection with said bar to present the shafts in concentric or eccentric relation, a cutter-bar extending laterally from the cutter-bar shaft, and means for preventing or controlling the lateral movement of the last-named shaft, said means including a pair of arms having operative connection with the cutter-bar shaft.

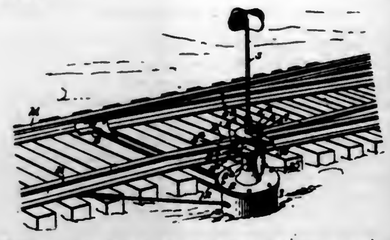
13. The combination with a support, of a slide longitudinally movable thereon, a handle-shaft rotatably mounted in the slide and having a graduated bar at its lower end, a cutter-bar shaft having at its upper end a slide adjustable along the graduated bar to dispose the shafts in concentric or eccentric relation as desired, a cutter-bar at the lower end of the cutter-bar shaft, a pair of arms swung from the support, and a link connecting said arms and having a bearing for the cutter-bar shaft.

14. The combination with a support, of a laterally-movable handle-shaft provided with a graduated bar and a slide shiftable along said bar, a cutter-bar shaft rigidly connected to said slide, an adjusting-screw for retaining the slide in its adjusted positions and having a socket, and a centering-pin extending into the socket in the screw.

15. In an instrument of the character described, the combination with a base, of a horizontal supporting-arm connected at one end only to the base, and having its opposite end unsupported and elevated above the plane of the base to permit the material to be cut to be slipped under the elevated end of the arm and thus quickly positioned, a slide movable upon the supporting-arm, a handle-shaft rotatably mounted in the slide and having a graduated bar at its lower end, a cutter-bar shaft adjustable along the graduated bar, a cutter-bar at the lower end of the cutter-bar shaft, and means for confining the lateral movement of the cutter-bar shaft to a given path.

16. The combination with a support, a cutter-bar, and means for operating the latter, of a cutter-holder, a cutter, and a shank for said cutter formed with a vertically-disposed upper end received by the holder, a knife-bearing end having acute-angular relation to the vertical end, and a crook connecting the end portions of the shank and having a lateral deflection, substantially as described, the cutter being disposed in right-angular relation to the knife-bearing end of the shank and detachably secured thereto.

785,088. RAILWAY-SWITCH SETTING AND LOCKING MECHANISM. JAMES H. CLARK, Richmond, Va., assignor of one-half to Frank M. Thompson, Richmond, Va. Filed May 19, 1904. Serial No. 208,690.



Claim.—1. In a switch and signal-actuating mechanism of the character described, means for shifting the switch-tongue, said means including a throw-lever, a lock for holding said throw-lever from operation, a signal-setting means including a lever, said means coöperating with said switch-tongue-shifting means, and said signal-setting means adapted when adjusted to set the signal to either position, to release the aforesaid lock whereby to permit of actuating the switch-shifting means, as set forth.

2. In a switch mechanism of the character described, the combination with the tongues, a throw-bar that connects the two tongues, a detent for holding the switch-tongues from movement, and a signal-setting device, the said detent being arranged to be tripped by the movement of the said signal-setting device when the same is shifted to bring the signal to danger as specified.

3. In a switch mechanism of the character described, a manually-operated means connected with and adapted to shift the switch-tongues, a signal device arranged to be set to its danger position independent of the movement of the aforesaid manually-operated means, a detent for holding the switch-setting means from operation arranged to be freed when the signal is set to a danger position substantially as shown and described.

4. In a switch mechanism as described, means for setting the switch-tongue, in combination with signal-actuating means, and coöperating therewith, a detent for automatically holding the signal-actuating means from operation during a partial or incomplete shifting or closure of the switch-tongue, said detent adapted to interlock the switch-tongue-setting means and the signal-actuating means when the switch-tongue has been completely shifted, substantially as shown.

5. In a switch mechanism of the character described, in combination with the switch-tongues; a manually-operated means for shifting the tongues, a manually-actuated signal-setting means, a detent for holding the signal-setting means from operation, connections that join the said detent with the switch-tongues arranged to trip the said detent only after the tongues have been fully and completely shifted for the purposes specified.

6. In a switch-actuating means of the character described, in combination with the switch-tongues and a lock for holding said tongues to their normal or safety position, of a signal, means for holding said signal to its safety or normal position, said means including a member for interlocking with the switch-throwing devices when returned to their normal or safety position, and a detent for holding the said signal devices from being returned to their normal or safety position, a trip mechanism connected with the detent and the switch-tongues adapted to release the said detent only upon the complete shifting of the switch-tongues to their normal or safety position for the purposes specified.

7. A combined switch and signal actuating means which comprises a throw-bar connected with the switch-tongues, a manually-operated means for shifting said throw-bar, means for setting the signal to its danger position, and to its normal or safety position, a detent for locking the said supplemental means from operation, and trip devices coöperatively joined with the switch-tongues arranged to release the said detent when the switch-tongues reach the limit of their complete movement to their normal or safety positions as set forth.

8. In a switch mechanism of the character described, the combination with the tongues, the throw-bar, a manually-operated means for shifting said bar, said means including a sweep-handle 25, a rotary signal, a detent for locking the signal from turning back to its normal or safety position, and connections that join the said detent and the tongues, said connections being arranged to release the detent after the tongues have been returned to their complete normal or safety position for the purposes specified.

9. In a switch mechanism of the character described, the combination with the tongues, the casing, the crank member 13 mounted within the casing, the throw-rod 12 that joins the crank/13 with the tongues, the main shaft journaled in the casing provided with a means for engaging the crank 13 and turning it, of a signal comprising a rotary shaft carrying the signal-blades mounted on the casing in the axial line of the main shaft 3, a disk pinion carried by the signal-shaft, the shaft 22 having a pinion that meshes with the aforesaid disk pinion, a cam on the lower end of the said shaft 22, the shaft 19 mounted in the casing, a cam on the said shaft for engaging with the cam on the shaft 22, the two cams being arranged to lock the shaft 22 from rotation during one adjustment thereof, the sweep-lever 25 mounted on the shaft 3, means for rotating the signal independent of the movement of the lever 25 when the aforesaid two cams are adjusted to permit the rotation of the shaft 22 and means controlled by a movement of the switch-tongues for setting the said cams to allow for the rotation of the shaft 22, all being arranged substantially as shown and described.

10. In a switch mechanism as described, in combination with the switch-tongues; of a means for shifting the said tongues to the main-line or normal position and also to the siding position, a detent, a detector device that coöperates with the said detent and signal that is actuated by the movement of the said detector device, and connection joining the said detent device and the said detector adapted when the signal is moved to its danger position to release the detent for the purposes specified.

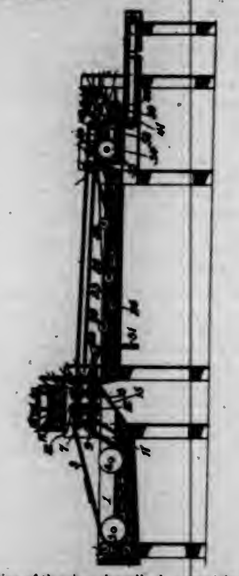
11. In a switch and signal actuating mechanism as described, a manually-actuated means for shifting the switch-tongues, a spring for holding the said tongues to their main-line or normal position, a lock for holding the said means from operation, and a signal-setting means adapted when adjusted to set the signal to danger position to release the aforesaid lock whereby to permit of actuating the switch-shifting means as set forth.

12. In a switch and signal actuating mechanism of the character described, in combination with a pair of switch-tongues spring-held to their normal or main-line position, means for shifting the said switch-tongues, a lock for holding the said means from operation, and a signal-setting means adapted when adjusted to set the signal to danger position to release the aforesaid lock whereby to permit actuating the switch-shifting means as set forth, the said spring mechanism for the switch-tongues being arranged to permit of the switch-tongues being moved open by a wheel-flange passing over them and the adjacent rails while the switch-setting mechanism is locked as set forth.

785,089. MACHINE FOR COATING SEALING-RINGS WITH WAX. GEORGE D. C. CODDINGTON, Hoso, Ohio, assignor to Ball Brothers Glass Manufacturing Company, Muncie, Ind. Filed Feb. 10, 1904. Serial No. 192,995.

Claim.—1. A machine of the class described, comprising carrying mechanism for conveying the rings to be coated, means for applying sealing material in a heated condition to the rings, means for setting and hardening the sealing material, and means actuated directly

by the rings for collecting and discharging the same in bunches, substantially as described.



2. A machine of the class described, comprising carrying mechanism for carrying the rings to be coated, means for supplying sealing material in a heated condition to the rings, heated grooved rolls for spreading the material uniformly over the rings, and means for setting and hardening the sealing material, substantially as described

3. A machine of the class described, comprising carrying mechanism for conveying the rings to be coated, means for supplying sealing material in a heated condition to the rings, heated rolls arranged one above the other for spreading the material uniformly over the rings, and means for setting and hardening the sealing material, substantially as described.

4. A machine of the class described, comprising carrying mechanism for conveying the rings to be coated, means for supplying the sealing material in a heated condition to the rings, heated rolls for spreading the material uniformly over the rings, and means for setting and hardening the material, the said rolls being interposed between the means for supplying the sealing material and the means for setting and hardening the same and serving to transfer the rings from the former to the latter, substantially as described.

5. A machine of the class described, comprising carrying mechanism, means for applying sealing material in a heated condition to the rings, grooved and smooth heated rolls arranged in pairs for spreading the sealing material over the rings, substantially as described.

6. A machine of the class described, comprising a receptacle for sealing material, and a conveyer for carrying the rings to be coated through the material, said conveyer being of a width less than the diameter of the rings to cause the latter to project from opposite sides of the conveyer, whereby the projecting portions are exposed to the sealing meterial within the receptacle, substantially as described.

7. A machine of the class described, comprising a conveyer consisting of a pair of belts having contiguous flights arranged to clamp the rings to be coated, said belts being of a width less than the diameter of the rings to cause the latter to project from opposite sides of the belts, and means for applying sealing material to the rings, substantially as described.

8. A machine of the class described, comprising a receptacle provided with sealing material, and a conveyer comprising a pair of endless belts having contiguous flights arranged to clamp the rings and located within the said receptacle for carrying the said rings through the sealing material, said belts being of a width less than the diameter of the rings to cause the latter to project from opposite sides of the belts, substantially as described.

9. A machine of the class described, comprising a receptacle, a plurality of conveyers, each consisting of a pair of endless belts having contiguous flights arranged to clamp the rings and located within the receptacle to carry the said rings through the sealing material, said belts being of a width less than the diameter of the rings to cause the latter to project from opposite sides of the belts, and heated rolls arranged to receive the rings from the conveyers for spreading the sealing material uniformly over the surfaces of the rings, substantially as described.

10. A machine of the class described, comprising a receptacle for sealing material, a plurality of conveyers each consisting of belts having contiguous flights for engaging the rings to carry the same through the sealing material, heated rolls located over the receptacle and arranged to receive the rings from the conveyer, and a superimposed receptacle for discharging sealing material upon the rolls, substantially as described.

11. A machine of the class described, comprising a receptacle for sealing material, carrying mechanism for conveying the rings to be coated through the sealing material, heated rolls arranged to receive the rings from the carrying mechanism, and a superimposed receptacle for discharging sealing material upon the heated rolls, substantially as described.

12. A machine of the class described, comprising means for applying sealing material in a heated condition to the rings, a trough for containing a liquid for cooling the rings to set and harden the material, an endless conveyer having a flight arranged to submerge the rings in the said liquid, and rolls interposed between the means for applying sealing material, and the endless conveyers for transferring the rings from the former to the latter, substantially as described.

13. A machine of the class described, comprising means for applying sealing material in a heated condition to the rings, a trough for containing a liquid for cooling the rings to set and harden the material, and an endless conveyer composed of a belt, and transverse rolls arranged at different elevations and receiving the belt and submerging the same at different points, substantially as described.

14. A machine of the class described, comprising means for applying sealing material to the rings, heated rolls for spreading the material uniformly over the surfaces of the rings, a discharge-pipe located in rear of the rolls for cooling the rings to set and harden the sealing material, and a shield interposed between the discharge-pipe and the said rolls, substantially as described.

15. A machine of the class described, comprising means for applying sealing material in a heated condition to the rings, a receptacle for containing a liquid for cooling the rings, an endless conveyer operating in the receptacle, and a plurality of rolls located at different points and arranged above and below one of the flights of the conveyer for forming a plurality of submerged portions, substantially as described.

16. A machine of the class described, comprising means for applying sealing material in a heated condition to the rings, a tank for holding a liquid for cooling the rings, a conveyer for carrying the rings through the said liquid, a drying device for removing water from the rings after they leave the conveyer, and means for coating the rings with a liquid solution of powered material after they leave the drying device, substantially as described.

17. A machine of the class described, comprising means for coating rings with sealing material, a plurality of hoppers arranged to receive the rings, a conveyer operating beneath the hoppers, and means for discharging the rings from the hoppers in bunches, substantially as described.

18. A machine of the class described, comprising means for applying sealing material to the rings, a plurality of hoppers arranged to receive the rings and having movable doors or closures, and means operable by the rings for discharging the same from the hoppers in bunches of a predetermined size, substantially as described.

19. A machine of the class described, comprising means for applying sealing material to the rings, a plurality of hoppers arranged to receive the rings and having movable doors or closures, a conveyer located beneath the hoppers and means operable by the rings for opening the doors or closures to discharge the rings in bunches upon the conveyer substantially as described.

20. A machine of the class described, comprising carrying mechanism for conveying the rings to be coated, a hopper located adjacent to the carrying mechanism and having a movable closure, ratchet mechanism connected with the closure for opening and closing the same, and means actuated by the rings for operating the ratchet mechanism, substantially as described

21. A machine of the class described, comprising carrying mechanism for conveying the rings to be coated, an operating-lever arranged in the path of the rings, ratchet mechanism actuated by the operating-lever, and dumping mechanism controlled by the ratchet mechanism, substantially as described.

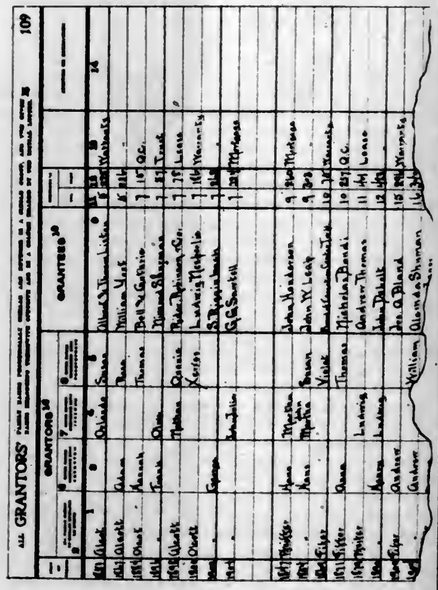
22. A machine of the class described, comprising carrying mechanism for conveying the rings to be coated, a ratchet-wheel having a cam, dumping mechanism, a movable member connected with the dumping mechanism and arranged in the path of the cam, and means operable by the rings for actuating the ratchet-wheel, substantially as described.

23. A machine of the class described, comprising means for coating rings with sealing material, a hopper arranged to receive the rings, means operable by the rings for discharging the same from the hopper in bunches, and a conveyer arranged to receive the rings as they are discharged from the hopper, substantially as described.

24. A machine of the class described, comprising a receptacle for sealing material, a conveyer arranged therein for carrying the rings through the sealing material, a trough for containing a liquid for cooling the rings to set and harden the sealing material, a conveyer arranged in the trough, and spreading-rolls interposed between and arranged in line with the conveyers for transferring the rings from one conveyer to another, substantially as described.

25. A machine of the class described, comprising a receptacle for sealing material, a conveyer for carrying rings to be coated through the sealing material, a trough for containing a liquid for cooling the rings to set and harden the sealing material, a conveyer arranged within the trough, heated rolls interposed between the conveyers for spreading the sealing material over the rings, said rolls serving to transfer the rings from one conveyer to another, and means for supplying the heated rolls with sealing material, substantially as described.

785,090. INDEX. CHARLES M. COTT, Columbus, Ohio. Filed Dec. 31, 1904. Serial No. 239,197.



Claim.—1. An index divided into vertical columns properly designated to receive therein, in a single group, all the recorded surnames of similar spelling.

2. An index divided into vertical columns properly designated to receive therein in a single group all the recorded surnames phonetically similar.

3. In an index, a page properly designated by a letter, a vertical column upon the page properly designated to receive in a group, surnames phonetically similar, other vertical columns adjacent and parallel thereto properly designated to receive a letter occupying a predetermined position in said surnames.

4. In an index, a page properly designated by a plurality of letters, a vertical column upon the page properly designated to receive in a group, surnames phonetically similar, other vertical columns adjacent thereto properly designated to receive a letter occupying a predetermined position in said surnames.

5. An index divided into vertical columns properly designated to receive therein, in a single group, all the recorded surnames of similar spelling, and other vertical columns adjacent thereto properly designated to receive given names on horizontal lines opposite the surnames to which they belong.

6. In an index, a page properly designated by a number, a vertical column upon said page properly designated to receive in a single group, all the recorded surnames of similar spelling, in combination with a page properly designated by a letter, a vertical column upon the page properly designated to receive in a single group surnames phonetically similar, other vertical columns adjacent thereto properly designated to receive a letter which shall occupy a predetermined position in the surnames, and another vertical column adjacent, properly designated to receive a numeral referring to the page designated by a number.

7. In an index, a page properly designated by a number, a vertical column upon said page properly designated to receive in a single group all the recorded surnames phonetically similar, in combination with a page properly designated by a letter, a vertical column upon the page properly designated to receive in a group surnames phonetically similar, other vertical columns adjacent thereto properly designated to receive a letter which shall occupy a predetermined position in the surnames, and another vertical column adjacent, properly designated to receive a numeral referring to the page designated by a number.

8. In an index, a page properly designated by a number, a vertical column upon the page properly designated to receive in a single group all the recorded surnames of similar spelling or sound, other vertical columns adjacent thereto properly designated to receive upon horizontal lines opposite the surname the given name belonging thereto, another adjacent vertical column properly designated to receive numerals referring to the volume and page where the record may be found, in combination with a page properly designated by a letter, a vertical column upon the page properly designated to receive in a group surnames phonetically similar, other vertical columns adjacent thereto properly designated to receive a letter which shall occupy a predetermined position in the surnames, and another vertical column adjacent properly designated to receive a numeral referring to the page designated by a number.

785,091. PLASTIC COMPOUND. GEORGE B. DUNBAR, Detroit, Mich. Filed Oct. 30, 1903. Serial No. 179,175.

Claim.—1. A plastic compound having in combination, resin, litharge, shellac, Portland cement, and sand or its named substitute combined with a fibrous material, substantially as described.

2. A plastic compound having in combination, resin, litharge, shellac, Portland cement, and sand or its named substitute combined with a fibrous material, and with a pigment, substantially as described.

785,092. SOUVENIR DEVICE. JAMES J. RENNER, Rochester, N. Y. Filed Dec. 10, 1903. Serial No. 184,566.



Claim.—1. In a device of the character described, the combination with a bowl, having a concaved bottom, of a similarly-shaped lining lying within the bowl and a rim on the latter for securing the lining therein.

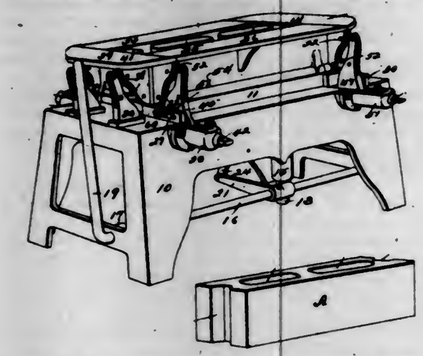
2. In a device of the character described, the combination with a bowl, having a concaved bottom, of a similarly-shaped lining lying within the bowl and a detachable frame engaging the rim of the bowl and having a flange extending over the edge of the lining.

3. The combination with a spoon embodying a bowl having a concaved bottom, of a similarly-shaped lining having its inner face decorated and a frame conforming to the periphery of the bowl and embodying an outer flange and an inner flange extending over the outer and inner surfaces respectively of the bowl, and securing the lining therein.

4. The combination with a spoon embodying a handle and a bowl attached thereto having a concaved bottom, of a similarly-shaped lining having its inner surface decorated and a frame comprising an inner flange adapted to overlie the edge of the lining and

an outer flange adapted to engage the outer surface of the bowl said outer flange terminating at the sides of the handle of the spoon.

785,093. ARTIFICIAL-STONE MOLD. WILLIAM C. FOX, Waterloo, Iowa, assignor to Iowa Gasoline Engine Company, Waterloo, Iowa, a Corporation of Iowa. Filed July 18, 1904. Serial No. 217,144.



Claim.—1. The combination of a bed, cores mounted thereon, a lifting-frame normally resting on said bed and surrounding said cores, guide-arms on said lifting-frame, lever mechanism whereby said frame may be lifted, end plates and side plates of a mold normally resting on said guide-arms of the lifting-frame and pivotally supported from the bed, and means whereby the lifting of the frame raises the end plates and side plates through arcs.

2. In a machine of the class described, mold members, parallel links sustaining said mold members, the inner ends of said links being normally below the outer ends thereof whereby the mold members normally are locked against separation by lateral movements, and means for lifting said mold members and then moving them through arcs.

3. In a machine of the class described, mold members, parallel links sustaining said mold members pivotally, the inner ends of said links being normally below the outer ends thereof whereby the mold members normally are locked against separation by lateral movements, a lifting-frame, guide-arms on said lifting-frame and adapted to support said mold members normally, and means for lifting said frame whereby said mold members are lifted and then moved through arcs.

4. In a machine of the class described, a mold comprising side plates and end plates, parallel links arranged in pairs and pivotally supporting said side plates and end plates, the inner ends of said links being normally below the outer ends thereof whereby the mold members normally are locked against separation by lateral movements, the links supporting the side plates being adjustable inward and outward to vary the distances of separation of said side plates, and means for lifting said side plates and end plates and then moving them through arcs.

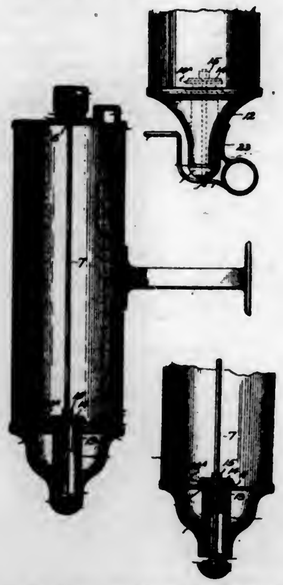
5. In a machine of the class described, a bed, a rock-shaft in said bed, cranks on said rock-shaft, links rising from said cranks through said bed, a lifting-plate carried by said links, guide-arms on said lifting-plate, end plates and side plates pivotally supported from said bed and normally resting on said guide-arms, and a carrying-plate normally resting on said lifting-plate.

6. In a machine of the class described, a bed, guide-bearings on said bed, rods slidingly mounted in said bearings, a lifting-plate fixed to said rods, mold members normally resting on said lifting-plate and pivotally carried by said bed, and means for lifting said plate and mold members.

7. The combination of a bed, mold members pivotally supported from said bed independent of each other, cores rigidly mounted on said bed and non-movable, said cores surrounded by said mold members, a lifting-frame on said bed and supporting said mold members supplementary to the pivotal connection thereof with the bed, and a lever mechanism engaging said lifting-frame, whereby when the frame is lifted the mold members may be moved conjunctively through arcs.

8. In a machine of the class described, mold members, parallel links pivotally sustaining said mold members, the inner ends of said links being normally below the outer ends thereof, rigidly-mounted cores surrounded by said mold members and non-movable, a lifting-frame carrying said mold members supplementary to the pivotal support thereof by the links, and a single lever mechanism for lifting said frame and mold members conjunctively, and then moving said mold members through arcs.

785,094. LIQUID-SOAP RESERVOIR. ANDRÉE L. FRIBOURG, Denver, Colo. Filed July 21, 1904. Serial No. 217,588.



Claim.—1. In a liquid-soap holder, the combination of a cylinder, a cover fitting said cylinder, a capped inlet in said cover, a hollow hub on the center of said cover, a cap fitting slidably over said hub, an expansion-spring in said hub and cap and a valve-rod secured to said cap and extending loosely through said spring and hub into said cylinder, substantially as described.

2. In a liquid-soap holder, the combination with a suitable cylinder, provided with a cover having a fitting capped inlet, of a reservoir and discharging tube at the bottom of said cylinder, an inverted-thimble-shaped valve slidably mounted in the top of said tube and arranged to normally extend into the body of said cylinder, a flange on the top of said thimble-valve, a washer on said thimble-valve resting against the under side of said flange, and adapted to engage the bottom of said cylinder at the end of said thimble-valve's operative movement, inlet-apertures in the side of said thimble-valve close to its flanged top, a discharge-valve at the lower end of said reservoir and discharge tube, a valve-rod extending through said cylinder and secured to said valves and arranged and adapted to normally hold under resilient tension said thimble-valve open and said discharge-valve closed, substantially as described.

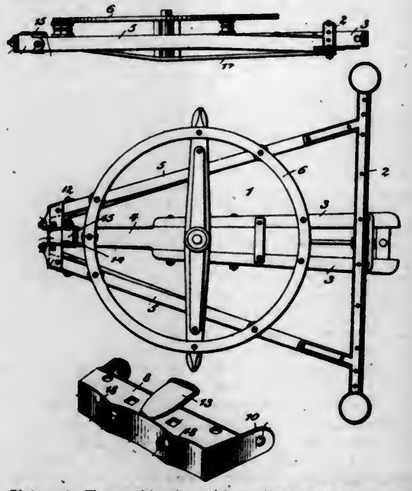
3. In a liquid-soap holder, the combination with the cylinder provided with a cover having a cylinder-filling capped inlet-aperture, of a reservoir and discharge tube in the bottom of said cylinder, a hollow hub in said cover, an aperture in said hub and cover, a valve-rod extending through the aperture in said hub and cover through said cylinder, and reservoir and discharge tube, an inverted-thimble-shaped valve secured to said valve-rod and slidably fitted in the top of said reservoir and discharge tube, and arranged to normally project into said cylinder, a flange in the top of said thimble arranged to be moved against the bottom of said cylinder soap-inlet apertures in the sides of said thimble below said flange, a discharge-valve secured to the lower end of said rod and arranged to close the discharge end of said reservoir and discharge tube, a cap on the upper end of said valve-rod fitting slidably over said hub, an expansive spring on said rod between said cap and said hub, arranged to normally hold by its expansive tension said thimble-valve normally over to the ingress of soap into said reservoir and discharge tube and said discharge-valve closed against the discharge end of said reservoir and discharge tube, substantially as described.

4. In a liquid-soap holder, the combination of the cylinder, a reservoir and discharge tube secured to the bottom of said cylinder, a subbase secured to the lower end of said cylinder and surrounding said reservoir and discharge tube, a cover on the top of said cylinder, an inverted-thimble-shaped cup arranged to control the entrance to said reservoir and discharge tube, a discharge-valve arranged to control the discharge-outlet of said reservoir and discharge tube, a rod connecting said discharge-valve and inlet-valves together in relative positions so that where one valve is open, the other valve is closed, a spring secured at one end to said cylinder and arranged to hold with a resilient tension said discharge-valve closed normally and said inverted-thimble inlet-valve normally open, and means including a handle for opening said discharge-valve and at the same time closing said inverted-thimble inlet-valve, substantially as described.

5. In a liquid-soap holder, the combination with the cylinder having a discharge and reservoir tube in its bottom and a removable cover at its top with a valve-rod extending through said discharge and reservoir tube, an inverted-thimble inlet-valve secured to the top end of said rod, provided with a soap-inlet aperture in its sides, and with a flange at its top end adapted to seat against the bottom of said cylinder and close said valve, a discharge-valve secured in the lower end of said valve-rod, said valves being arranged in said valve-rod so that when one is closed, the other is open and the coiled spring secured at one end to said cylinder and arranged to bear with a resilient upward tension on said discharge-valve to normally hold it closed and having its opposite end arranged to be normally operated to open said discharge-valve, substantially as described.

6. In a liquid-soap holder, the combination of a cylinder having a reservoir and discharge tube at its bottom, a cover at its top, a valve-rod extending through said cylinder and its reservoir and discharge tube, a discharge-valve at the end of said valve-rod, an inverted soap-inlet thimble-valve secured to said valve and slidably arranged in the top of said reservoir and discharge tube to stand normally partially in said cylinder and partially in said tube, and positioned in such relation to said discharge-valve on said rod that, when said discharge-valve is closed, said inlet-valve will be open and having said inverted-thimble inlet-valve provided with soap-inlet apertures in its sides, a flange on the top of said inlet-valve adapted to close said soap-inlet holes when said valve is moved downward, and means including a spring and a cap secured to said valve-rod above said cap for normally holding said discharge-valve closed against the end of said discharge-tube, substantially as described.

785,095. PLATFORM-GEAR FOR VEHICLES. SIDNEY A. GIBSON and ALPHEUS C. GIBSON, Sharon, Pa. Filed Aug. 10, 1904. Serial No. 220,297.

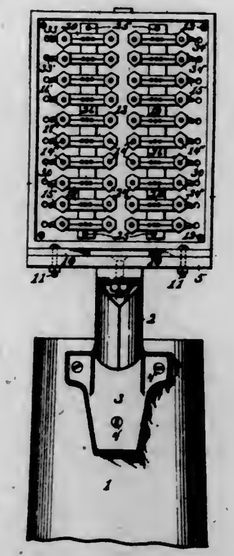


Claim.—1. The combination with a vehicle running-gear, of a fastening provision adapted to embrace the converged end thereof, and having a flanged extension against which the extremities of the center and side bars will abut, and being further provided with a plurality of openings adapted to receive the truss-rods, shoulders or lugs for the fastening-nuts formed on said flange, at approximately right angles to the line of convergence of said truss-rods, whereby a direct pressure is exerted on the gear-bars, and means for securing the latter and the fastening provision together.

2. The combination with a vehicle running-gear, of a fastening provision, comprising a body portion, adapted to embrace the converged end thereof, and having a flanged extension against which the extremities of the center and side bars will abut, said flange having lateral extensions to embrace the outer end portions of said side bars, and having perforations therein, bolts adapted to pass therethrough and through openings in the side bars, perforated shoulders or lugs adapted to receive truss-rods and formed at approximately right angles to the line of convergence of said truss-rods, and fastening-nuts for said truss-rods, adapted to rest on said shoulders or lugs.

3. The combination with a vehicle running-gear, of a fastening provision comprising a body portion, adapted to embrace the converged end thereof, and having a tongue projecting therefrom, a flanged extension depending from said body portion, and against which the extremities of the center and side bars will abut, said flange having lateral extensions to embrace the outer end portions of said side bars, and having perforations therein, bolts adapted to pass therethrough, and through openings in the side bars, perforated shoulders or lugs adapted to receive truss-rods and formed at approximately right angles to the line of convergence of said truss-rods, fastening-nuts for said truss-rods adapted to rest on said shoulders or lugs, and a clamp adapted to embrace said tongue and surround the center bar.

785,096. CABLE-BOX. FRANK B. HALL, Wheeling, W. Va. Filed Nov. 11, 1902. Serial No. 130,898.



Claim.—1. In a cable-box, the combination with a pole, cable-wires and distributing-wires, of a bracket mounted on said pole, a non-conducting plate mounted in said bracket, longitudinal rows of screws extending through said plate, a hook mounted on each screw, the hooks in one row adapted for connection with the cable-wires, and those of an opposite row for connection with the distributing-wires, fuses connecting the opposite rows, said fuses provided with perforations therethrough, strips of carbon mounted underneath the perforations in the fuses, and ground-wires attached to said carbon strips, substantially as set forth and described.

2. In a cable-box, a bracket, a shell mounted on said bracket, corner-braces for said shell, a non-conducting plate mounted in said shell and secured thereto, two longitudinal rows of binding-posts

along the medial portion of said plate, a hook secured on each binding-post, each hook adapted for connection with a cable-wire, a longitudinal row of binding-posts on said plate near the side edges thereof, a hook on each of the last-mentioned binding-posts, each hook adapted for connection with a distributing-wire, fuses connecting the binding-posts of the cable-wires and distributing-wires in pairs, said fuses provided with perforations therein, a carbon strip secured on said plate underneath each row of fuses, and a ground-wire connected with said carbon strips, all substantially as and for the purposes set forth and described.

3. In a cable-box, the combination with a pole, cable-wires, and distributing-wires; of a bracket, consisting of a pole-embracing plate, an arm, a circular plate, having a cable-hole and distributing-wire holes therethrough, mounted on said arm, and a rectangular frame mounted on said plate; a non-conducting plate mounted in the frame of said bracket, binding-posts extending through said non-conducting plate in parallel rows, a hook secured on each of said posts, the hooks on the middle rows being secured on the rear face of the plate and adapted for receiving the ends of the cable-wires, and the hooks on the outer rows being secured on the front face of the plate and adapted for receiving the ends of the distributing-wires, fuses for connecting each middle binding-post with its opposite in the outer row; said fuses each consisting of a strip of mica having perforations therethrough and having metal bands on each end thereof, each metal band provided with a recess therein, one metal band being recessed from its end and the other from its side, and a fuse-wire connecting said bands across the face of the mica strip over the perforations therethrough; carbon strips secured on the front face of said non-conducting plate underneath the perforations in the fuses, and ground-wires connected with said carbon strips, all substantially as described and for the purposes set forth.

4. In a bracket for cable-boxes, the combination with a pole, of a plate for embracing the pole on one side thereof, an integral arm, a circular horizontal plate supported by said arm, a rectangular frame mounted on said plate, integral corner-braces and integral base-pieces carried by said frame, and a brace for holding said frame firmly, substantially as described.

785,097. **MECHANICAL CALCULATOR.** JOHN R. HAMILTON, Mount Kisco, N. Y., assignor to Darius P. Sackett, New York, N. Y. Filed Aug. 23, 1903. Serial No. 171,063.



Claim.—1. In a mechanical calculator of the character described, the combination with a series of adjustably-mounted keys and a series of recorder-wheels, of a series of slide-bars adapted to be engaged and controlled by said keys, and a series of spring-actuated goosenecks connected to and actuating said wheels and having forked ends engaging said bars to control the movement of said goosenecks.

2. In a mechanical calculator of the character described, the combination with a series of adjustably-mounted keys and a series of recorder-wheels, of a series of slide-bars adapted to be engaged and controlled by said keys, of a series of spring-actuated goosenecks connected to and adapted to actuate said recorder-wheels, and having forked ends, and protractor-bars connected at their forward ends to said slide-bars, and adapted to slidably engage at their rear ends the forked ends of said goosenecks to control the movement of the latter.

3. In a mechanical calculator of the character described, the combination with a series of adjustably-mounted keys and a series of recorder-wheels, of a series of spring-actuated slide-bars adapted to be engaged and controlled by said keys, of a series of spring-actuated goosenecks connected to and adapted to actuate said recorder-wheels, and slidable connection between the slide-bars and the goosenecks to control the movement of the latter by the former.

4. In a mechanical calculator of the character described, the combination with a series of adjustably-mounted keys and a series of spring-actuated recorder-wheels, of a series of slide-bars adapted to engage said keys, of suitable connection between the slide-bars and the recorder-wheels to control the movements of said recorder-wheels by the movement of said slide-bars, of a series of dogs engaging said slide-bars, of release-bails adapted to release said dogs, and means carried by said keys to actuate said release-bails, said keys being adapted to control the degree of movement of said slide-bars.

5. In a mechanical calculator of the character described, the combination with a series of recorder-wheels, of a series of channel-bars, of keys mounted in said bars, of a series of slide-bars beneath said channel-bars and having a series of graduated notches therein adapted to engage the stems of said keys, of a suitable connection between said slide-bars and the recorder-wheels to control the movements of the latter by the movements of the former, of a series of spring-controlled dogs engaging said slide-bars, of a series of release-bails adapted to release said dogs from engagement with said slide-bars, of means carried by the stems of said keys adapted to actuate said release-bails, of means for returning the keys to their normal condition, of means for returning the release-bails to their normal positions, and means for returning the slide-bars to their normal positions.

6. In a mechanical calculator of the character described, the combination with a series of keys and a series of recorder-wheels, of a series of slide-bars adapted to be engaged and controlled by said keys, of a series of goosenecks, each pivoted to a recorder-wheel and having forked forward ends, of protractor-bars pivoted to the slide-bars and slidably engaging the forked ends of said goosenecks and means for dogging the slide-bars, means for releasing said dogging means, means for actuating the slide-bars upon release, and means for actuating the goosenecks upon the release of the slide-bars.

7. In a mechanical calculator of the character described, the combination with a series of recorder-wheels, each having a segmental slot therein, of means for determining the extent of forward movement of said wheels, of a bar passing through said segmental slots, of a crank-arm mounted on the axis of said wheels and engaging said bar, of an operating-shaft, of means for operating said shaft, of a swivel connection between said shaft and said crank-arm, and means for throwing said wheels into printing operation.

8. In a mechanical calculator of the character described, the combination with an oscillatory frame and a series of recorder-wheels having segmental slots therein and mounted on said frame, of a spring-controlled gooseneck pivotally secured to each of said recorder-wheels and means for determining the extent of forward movement of said goosenecks, of a bar passing through said segmental slots, of a crank-arm mounted on the axis of said recorder-wheels and secured to said bar, of an operating-shaft, of an arm mounted on said operating-shaft swivelly connected to said crank-arm, of a projecting cheek carried by said frame, and means carried by said arm adapted to engage said cheek to force said frame rearwardly to throw the recorder-wheels into printing operation.

9. In a mechanical calculator of the character described, the combination with a series of recorder-wheels and means for determining the extent of forward movement of said wheels, of means for releasing said wheels, of a series of accumulating-wheels, of means for throwing said accumulating-wheels into engagement with said recorder-wheels, means for throwing said recorder-wheels into printing operation, means for returning said recorder-wheels to their normal positions, of a series of normally dogged spring-controlled gears adapted to engage said accumulating-wheels, means carried by said accumulating-wheels for releasing said gears, means for disengaging said accumulating wheels from the recorder-wheels to throw the former into engagement with said gears, and means for returning said gears to their normal position.

10. In a mechanical calculator of the character described, the combination with a series of recorder-wheels, of a series of spring-actuated goosenecks pivotally connected to said recorder-wheels, of a series of slide-bars, suitable connection between the slide-bars and goosenecks adapted to determine the extent of forward movement of said goosenecks, and a series of keys adapted to engage and determine the extent of movement of said slide-bars, of means for returning the recorder-wheels to their normal positions, accumulating-wheels for registering the extent of such return movement of each of said recorder-wheels and means for transmitting motion from said accumulating-wheels to the next adjacent recorder-wheel of higher denomination.

11. In a mechanical calculator of the character described, the combination with a frame and a series of recorder-wheels carried by said frame, of means for advancing said recorder-wheels to predetermined positions, of a series of accumulating-wheels carried by said frame, means for throwing said accumulating-wheels into engagement with said recorder-wheels while the latter are in their advanced positions, of means for returning said recorder-wheels to their zero positions while in engagement with the said accumulating-wheels, of a series of spring-actuated gears, of means for dogging the said gears, of a series of bell-cranks adapted to disengage said gears, of means carried by each of said accumulating-wheels adapted to actuate a bell-crank to release the next adjacent gear of higher denomination, of means for disengaging the accumulating-wheels from said recorder-wheels and for throwing the same into engagement with said gears, and means for returning said gears to their normal position.

12. In a mechanical calculator of the character described, the combination with an oscillating frame and a series of recorder-wheels carried thereby, of means for advancing said recorder-wheels to predetermined positions, of an operating-shaft, of an arm rigidly mounted on said shaft, of a post rigidly mounted adjacent said shaft, of a motor-spring connecting said post and arm, and suitable connection between said frame and said shaft to move the frame in opposition to said motor-spring to throw said recorder-wheels into printing operation, said spring being adapted to return said frame and recorder-wheels to their normal positions upon release of the operating-shaft.

13. In a mechanical calculator of the character described having a suitable casing, the combination with a suitable frame, a series of recorder-wheels carried by said frame and each having a segmental slot, of means for advancing said recorder-wheels to predetermined positions, of an operating-shaft, of a rigid arm mounted on said shaft, of a post mounted in the said casing, of a motor-spring connecting said post and said arm, of a transverse bar extending through said segmental slots, a crank-arm mounted on the axis of said recorder-wheels and connected to said transverse bar, a second arm mounted on said operating-shaft, a swivel connection between said second arm and said crank-arm, and means carried by said second arm for engaging said frame to first move the latter to the rear to throw said recorder-wheels into printing operation and then to return said frame to its normal position.

14. In a mechanical calculator of the character described, the combination with a series of recorder-wheels, means for advancing said recorder-wheels to predetermined positions, of a series of juxtaposed accumulating-wheels, means for throwing said accumulating-wheels into engagement with said recorder-wheels after the latter have been advanced to their predetermined positions, of a series of juxtaposed gears, means for holding said gears normally in elevated positions, of a series of juxtaposed bell-cranks each having a hooked lower end in the path of the next adjacent accumulating-wheel of lower denomination, said bell-cranks adapted to release said gears, of means for returning said recorder-wheels to zero positions while in engagement with said accumulating-wheels, of pins carried by said accumulating-wheels and adapted to engage and actuate said bell-cranks to release said gears, of means for disengaging the said accumulating-wheels after the return of the recorder-wheels to zero position to throw the former into the line of engagement with said gears, of means for returning said gears to their normally elevated position after said accumulating-wheels have been thrown into the line of engagement therewith, of means for simultaneously advancing said recorder-wheels and throwing said accumulating-wheels into engagement therewith, said pins adapted also to enter the hook on the lower end of said bell-cranks to limit the forward movement of said recorder-wheels, and means for throwing said recorder-wheels into printing operation.

15. In a mechanical calculator of the character described, the combination with an oscillating frame of a series of recorder-wheels of different denominations mounted thereon and having detaining-slots therein, of means for advancing the recorder-wheels of selected denominations to predetermined positions, of means for throwing said selected wheels into printing operation, of a detaining-pin adapted to enter the detaining-slots of the non-selected wheels of higher denomination to move the type on said wheels out of printing position, of a suitable bell-crank engaging said pin, and means for engaging said bell-crank to actuate the latter when the selected wheels are thrown into printing operation.

16. In a mechanical calculator of the character described, the combination with a recorder-wheel comprising two overlapping segments adapted to normally move in unison, of means adapted to engage one of said segments to oscillate said segment relatively to the other and move the type on said recorder-wheel out of printing position.

17. In a mechanical calculator of the character described, the combination with a recorder-wheel comprising relatively movable segments, and spring means causing said segments to normally move in unison, of means operating in opposition to said spring means adapted to move one of said segments independently to move the type portion of the recorder-wheel out of printing operation.

18. In a mechanical calculator of the character described, the combination with the oscillating frame and a series of recorder-wheels rotatably mounted on said frame and provided with segmental slots, of means connected to said recorder-wheels for holding the same in normal position, and for advancing said recorder-wheels to predetermined printing position, a crank-arm mounted on the axis of said recorder-wheels, a transverse bar mounted on said crank and engaging said segmental slot, and means for actuating said crank-arm.

19. In a mechanical calculator of the character described, the combination with the frame and a series of recorder-wheels mounted on said frame, of a series of suitably-mounted accumulating-wheels, a series of suitably-mounted gears, a series of latches holding said gears normally in elevated positions, a series of bell-cranks for releasing said latches and having hooked ends, a series of tripping-pins so mounted on the accumulating-wheels as to trip said bell-cranks upon rotation of the accumulating-wheels in one direction and to be caught in the hooked ends of said bell-cranks upon rotation of accumulating-wheels in the opposite direction, means for moving said accumulating-wheels into and out of mesh with the recorder-wheels and for moving said accumulating-wheels and the tripping-pins into mesh with said gears and means for returning said gears to their latched position while in engagement with said accumulating-wheels.

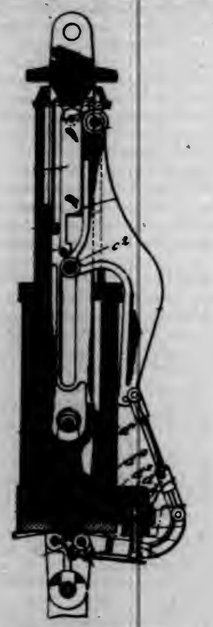
20. In a calculating-machine of the character described, the combination with a series of recorder-wheels and a series of accumulating-wheels, of a series of actuating-gears in the line of engagement with said accumulating-wheels, a series of latches adapted to hold said gears in elevated positions, a series of latch-releasing bell-cranks, and a series of tripping-pins mounted on said accumulating-wheels, each of said pins extending into the line of engagement with the next adjacent gear of higher denomination and adapted to engage and trip said bell-cranks.

785,098. **RAILWAY-SIGNAL.** MARQUIS D. HANLON, Wilkinsburg, Pa., assignor to The Union Switch and Signal Company, Swissvale, Pa., a Corporation of Pennsylvania. Filed Aug. 11, 1904. Serial No. 220,351.

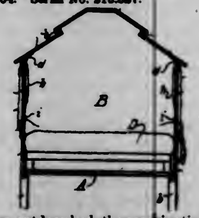
Claim.—1. In a railway-signal, the combination of a signal; a fluid-pressure apparatus for moving the signal; means for locking the signal in the position to which it has been moved; a fluid-pressure apparatus for moving said means; a fluid-pressure supply for both of said apparatuses; a valve for cutting off the supply of fluid-pressure to the first-mentioned fluid-pressure apparatus after the signal has been moved and locked; and means, independent of the signal and its fluid-pressure apparatus and means for locking the signal, actuated by the fluid-pressure apparatus of the locking means for operating said valve to close it.

2. In a railway-signal, the combination of a signal; a fluid-pressure apparatus for moving the signal; means for locking the signal in the position to which it has been moved; a fluid-pressure appara-

tus for moving said means; a fluid-pressure supply for both of said apparatuses; a valve for cutting off the supply of fluid-pressure to the first-mentioned fluid-pressure apparatus after the signal has been moved and locked; means, independent of the signal and its fluid-pressure apparatus and means for locking the signal, actuated by the fluid-pressure apparatus of the locking means for operating said valve to close it, and a spring for operating the valve to open it.



785,099. OUTDOOR BED. JOHN H. HERRENER, Providence, R. I. Filed July 13, 1904. Serial No. 216,237.



Claim.—1. In an outdoor bed, the combination of head and foot boards, side boards interposed between and connected to the head and foot boards, a roof disposed between the head and foot boards and compriaing an upper portion fixed to the said head and foot boards and a section hinged to and arranged, when in use, to extend outwardly from the upper portion and, when idle, to rest on said upper portion, and a wall or side hinged to the said hinged section of the roof and arranged, when idle, to be superposed on the upper portion and hinged section of the roof and, when in use, to rest on one of the side boards.

2. In an outdoor bed, the combination of head and foot boards, side boards interposed between and connected to the head and foot boards, a roof disposed between the head and foot boards and comprising an upper portion fixed to the said head and foot boards and a section hinged to and arranged, when in use, to extend outwardly from the upper portion and, when idle, to rest on said upper portion, a wall or side hinged to the said hinged section of the roof and arranged, when idle, to be superposed on the upper portion and hinged section of the roof and, when in use to rest on one of the side board; said wall or side having an opening and a screen occupying the same, a curtain attached along its lower edge to the outer side of the wall or side below the opening and screen thereof, and means whereby said curtain may be raised and lowered by a person in the bed.

785,100. PIPE-HANGER. CHARLES W. HODGDON, Somerville, Mass., assignor to Hodgdon Brass Works, Boston, Mass., a Corporation of Massachusetts. Filed June 26, 1904. Serial No. 214,063.



Claim.—1. A pipe-hanging device, comprising two similar, separable members each having a concave pipe-seat and a lateral, externally semicylindrical extension at each side of the seat, a retaining-lug on each extension of one member, annular couplings to embrace and lock together each adjacent pair of extensions, each coupling having an offset in its periphery to slip over and past the retaining-lug, and sustaining means operatively connected with one of said members.

2. In a pipe-hanging device, two similar, separable members made of sheet metal and each having a semicircular pipe-seat and a lateral extension at each side thereof, semicylindrical in cross-section, a radial retaining-lug on the convex surface of each extension of one member, the extensions of the two members coöperating with each other when in operative position, and annular couplings to embrace and lock together each coöperating pair of extensions, each coupling having an offset in its periphery to slip over and past the retaining-lug.

3. In a pipe-hanging device, two similar, separable members made of sheet metal semitubular throughout their length and each having a centrally-arranged pipe-seat and a lateral, semicylindrical extension at each side thereof, a radial retaining-lug on the convex portion of each extension of one of said members, and annular couplings to embrace and lock together each coöperating pair of extensions, each of said couplings having a clearance to slip over and beyond the retaining-lug when the coupling is applied or removed.

4. In a pipe-hanging device, two similar, separable members made of sheet metal transversely arched throughout their length and each having a centrally-arranged pipe-seat and a lateral, semicylindrical extension at each side thereof, a radial retaining-lug on the convex portion of each extension of one of said members, the extensions of the two members abutting when the same are in operative position, and annular couplings to embrace and lock together each paid of abutting extensions, each coupling having a peripheral offset to slip over and past the retaining-lug when the coupling is applied or removed.

5. A pipe-hanging device, comprising two similar, separable members made of sheet metal and semitubular throughout their length, each having a central pipe-seat and a semicylindrical, lateral extension at each side closed at its outer end, the parallel edges of the opposed extensions abutting when the members are in operative position, a radial retaining-lug on each extension of one of said members, at its outer end, annular couplings to embrace and lock together the abutting pairs of extensions, each coupling having a clearance portion to slip over and past the lug, and a supporting device extended through the seat-forming portion of one of said members.

6. In a pipe-hanger, two similar, separable members struck up from sheet metal and semitubular throughout their length to impart strength and stiffness, each member having a central pipe-seat and a semicylindrical lateral extension at each side thereof closed at its outer end, the adjacent straight edges of opposed extensions abutting when the members are in operative position, and detachable couplings to embrace and lock together abutting extensions.

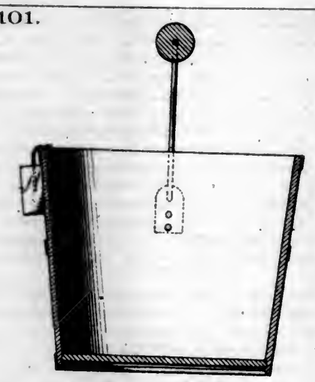
785,101. WELL-BUCKET SINKER. HENRY C. HOPKINS, Lithonia, Ga. Filed Jan. 11, 1904. Serial No. 188,551.

Claim.—1. As a new article, a well-bucket sinker consisting of a weight having a resilient arm extending therefrom for detachable connection to the rim of the bucket.

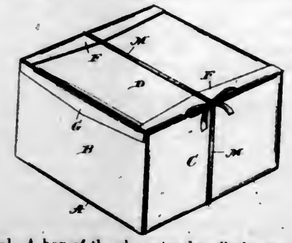
2. As a new article, a well-bucket sinker consisting of a weight having a resilient arm extending therefrom and curving backwardly into spaced position relative to the weight, whereby the weight is capable of detachable connection to a bucket.

3. As a new article of manufacture, a well-bucket consisting of a weight, and a resilient clip connected therewith and comprising a curved arm the lower terminal of which extends below the top of the weight and is adapted to embrace the bucket.

785,101.



785,102. BOX. FRANK H. HOUGLAND, Nashville, Tenn. Filed May 3, 1904. Serial No. 206,120.



Claim.—1. A box of the character described comprising sides and ends, a single-piece bottom secured to the sides, and free at points between the ends of the same and the ends of the box, and a supplemental bottom comprising overlapping flaps secured to the ends of the box adjoining the open ends of the bottom and overlying said bottom.

2. A box of the character described provided with a bottom, sides and ends, and a supplemental bottom comprising oppositely-disposed flaps carried by the ends of the box and overlying the bottom thereof, in combination with auxiliary flaps underlying the end portions of said bottom, said flaps and the sides and ends of the box being formed of a single sheet of material.

3. A box of the character described provided with a bottom, sides and ends, and a supplemental bottom comprising oppositely-disposed flaps carried by the ends of the box and overlying the bottom thereof, in combination with auxiliary flaps cut from said first-mentioned flaps and underlying the end portions of said bottom.

4. A box of the character described provided with a bottom, sides and ends, and a supplemental bottom comprising oppositely-disposed flaps carried by the ends of the box and overlying the bottom thereof, in combination with auxiliary flaps cut from said first-mentioned flaps at points intermediate their side edges and underlying the end portions of said bottom.

5. A collapsible box of the character described formed with an attached bottom, sides and ends, and two series of free reinforcing-flaps secured at one edge only the one series overlying and the other underlying said bottom.

6. A box of the character described provided with sides and ends, a single-piece bottom secured to said sides and unattached at its ends, and oppositely-disposed reinforcing-flaps secured to the ends of the box adjoining the unattached ends of the bottom and overlying said bottom.

7. A collapsible box of the character described provided with a bottom, sides secured to said bottom and ends, and two series of normally free oppositely-disposed reinforcing-flaps, one series overlying and the other series underlying said bottom.

8. A box of the character described provided with a bottom, sides and ends, said bottom being creased longitudinally and said ends being correspondingly creased vertically, in combination with a supplemental bottom comprising oppositely-disposed flaps overlying the bottom of the box and arranged to be folded up to the ends of the box, said flaps being creased to correspond with the creasing of said ends whereby the box may be collapsed.

9. A box of the character described provided with a bottom, sides and ends, said bottom being creased longitudinally and said ends being correspondingly creased vertically, in combination with reinforcing-flaps overlying the bottom of the box and arranged to be folded up to the ends of the box, said flaps being creased to correspond with the creasing of said ends whereby the box may be collapsed.

10. A box of the character described provided with a bottom, sides and ends, said bottom being creased longitudinally and said ends being correspondingly creased vertically, in combination with reinforcing-flaps overlying and underlying the bottom of the box, the inner flaps being creased to correspond with the creasing of the ends of the box and arranged to be folded up to said ends whereby the box may be collapsed.

11. A box of the character described formed with a bottom, sides and ends, a supplemental bottom comprising oppositely-disposed flaps carried by the ends of the box and overlying the bottom thereof, said supplemental bottom being of substantially the same area as that of the bottom, and auxiliary flaps underlying the end portions of said bottom, in combination with a cover and a cord arranged to pass around said cover, the ends of the box and said auxiliary flaps.

12. A box of the character described provided with sides and ends having flaps at their upper edges, in combination with a top having downwardly-bent flaps at its edges, said flaps of the box and those of the top being arranged to alternately overlie and underlie the parts they adjoin and coöperate to secure the top in place and brace the sides and ends of the box.

13. A box of the character described provided with sides and ends having flaps at their upper edges, in combination with a detached top having downwardly bent flaps at its edges, said flaps of the box and those of the top being arranged to alternately overlie and underlie the parts they adjoin and coöperate to secure the top in place and brace the sides and ends of the box.

14. A box of the character described comprising sides and ends, a single-piece bottom secured to the sides, and a supplemental bottom comprising flaps secured to the lower portion of the ends of the box and overlying said bottom.

15. A box of the character described provided with a body portion having a flap at its upper edge, and a top having several flaps at the edges thereof bent downwardly at substantially right angles to said top, the flaps of the top being arranged one to fold down within the box and another to fold upon the outer surface of the body and the flap of the body being arranged to fold down upon the top.

16. A box of the character described provided with a body portion having a flap at its upper edge and another flap independent of said first-mentioned flap, and a top having a flap at one edge thereof bent downwardly at substantially right angles to said top, the flap of the top being arranged to fold down upon the outer surface of the body and the flaps of the body being arranged the one to underlie the top and the other to overlie the same.

17. A box of the character described provided with a body portion having four flaps at its upper edge, and a top having a corresponding number of flaps bent downwardly at substantially right angles to said top, two of the flaps of the body being arranged to underlie the top and two to overlie the same, and two of the flaps of the top being arranged to project into the body of the box and two to fold down upon the outer surface thereof.

18. A box of the character described provided with a bottom, sides and ends, a supplemental bottom comprising oppositely-disposed flaps carried by the ends of the box and overlying the bottom thereof, and auxiliary flaps underlying the end portions of said bottom, in combination with a top having flaps arranged to fold down upon the ends of the box, and a cord arranged to pass around said cover and its flaps, the ends of the box and said auxiliary flaps.

19. A box of the character described provided with a body portion having a flap at its upper edge, and a top having a flap at one edge thereof, the flap of the top being arranged to fold down upon the interior of the box and the flap of the body being arranged to fold down upon the upper surface of the top.

20. A box of the character described provided with a bottom, sides and ends, the bottom being secured to the sides and free at its ends, and reinforcing-flaps underlying the end portions of said bottom, in combination with a top having flaps arranged to fold down upon the ends of the box, and one or more flaps bent down within the box, and a cord arranged to pass around said cover and its flaps, the ends of the box and said reinforcing-flaps.

21. A box of the character described provided with sides and ends, flaps at all upper edges of the box, and a top having downwardly-bent flaps at all its edges, said flaps of the top and those of the box coöperating to secure the top in place and brace the sides and ends of the box, one or more of the flaps of the top being bent down on the inside of the box.

22. A box of the character described provided with sides and ends, and flaps at all upper edges of the box, in combination with a top having flaps at all its edges adapted to bend downwardly, said flaps of the top and those of the box being arranged to coöperate to secure the top in place and brace the sides and ends of the box, and one or more of the flaps of the top being arranged to be folded down on the inside of the box.

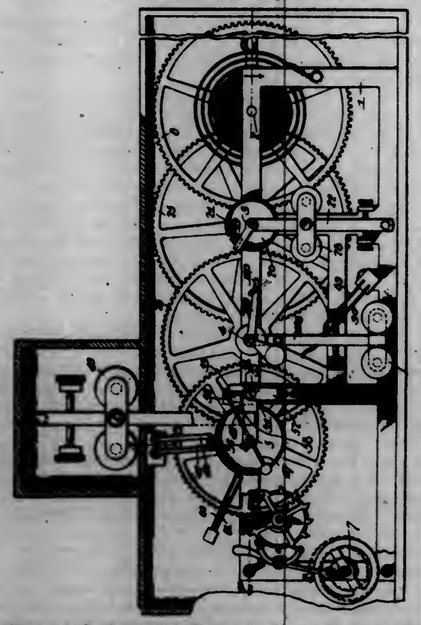
23. A collapsible box of the character described provided with a bottom, sides secured to said bottom and ends, and integral reinforcing-flaps overlying and underlying said bottom at the same edge thereof, both of said flaps being carried by one end of the box.

24. A collapsible box of the character described provided with a bottom, sides and ends, said bottom being free at its ends, and reinforcing-flaps overlying and underlying said bottom at said free ends thereof and at both ends of the box.

25. A collapsible box of the character described provided with a bottom, sides and ends, said bottom being secured to the sides and free at its ends, and oppositely-disposed flaps carried by the ends of the box and overlying the bottom thereof, in combination with auxiliary flaps underlying the end portions of said bottom.

26. A box of the character described provided with a bottom, sides and ends, said bottom being secured to the sides and free at its ends, and two series of normally free oppositely-disposed reinforcing-flaps integral with the ends of the box, one series overlying and the other series underlying said bottom.

785,103. TELEPHONE SELECTING MECHANISM. JOHN P. JACKSON, Orleans, Ind. Filed June 30, 1903. Serial No. 163,786.



Claim.—1. In electric signaling mechanism, a selecting device including a constantly-operative clock-train, an electromagnet and its armature, a circuit-closer having operative connection with the armature, a closed circuit in which the electromagnet is arranged and by which the circuit-closer is held disengaged from the clock-train, means operable on the breaking of the circuit for clutching said circuit-closer to the clock-train, and contacts arranged at predetermined distances for engagement by the circuit-closer when the circuit of the electromagnet is again closed.

2. In electric signaling mechanism, a circuit-closer, a clock-work mechanism with which said closer may be engaged, an armature for controlling the movement of the circuit-closer, an electromagnet for attracting the armature, and means independent of the electromagnet for varying the extent of movement of the armature.

3. In telephony, a clock-train, a selecting mechanism including an electromagnet and its armature, a circuit-closer carried by the armature, and normally disconnected from the clock-train, a clutching means operable on movement of the armature for connecting the circuit-closer to the clock-train, and means controlled in part by the selecting device for varying the effective movement of the armature.

4. In telephony, a selecting mechanism including a clock-train, a normally inactive shaft or arbor, an indicating-arm secured to the arbor, a circuit-closer carried by said arbor, and a normally energized electromagnet holding the arbor from connection with the clock-train.

5. In telephony, a selecting mechanism including a clock-train, a local station including circuit-closers for the talking-circuit, a shaft or arbor normally disconnected from the clock-train, an electromagnet, an armature arranged within the field of force of the magnet and connected to the arbor, an indicating hand or pointer carried by the arbor, and a selecting-arm also carried by said arbor and operable on the energizing of the electromagnet.

6. In telephony, a selecting mechanism including a clock-train, local stations having normally disconnected talking-circuits, circuit-closing devices disposed at the stations and arranged each at a different point in such station, an arbor, an indicating hand or pointer carried by the arbor, a selecting-arm also carried by said arbor, an armature connected to the selecting-arm and arbor, and an electromagnet for actuating the armature and connecting said arbor to the clock-train.

7. In telephony, a selecting mechanism including a clock-train, normally disconnected local talking-circuits, an arbor, a hand or pointer carried thereby, a selecting-arm also carried by the arbor, an electromagnet, an armature disposed within the field of force of the electromagnet, and connected to said arbor, and means controllable by the selecting-arm for varying the effective movement of said armature.

8. In telephony, a selecting mechanism including a clock-train, a normally disconnected arbor, a hand or pointer carried by the arbor, a selecting-arm also carried by said arbor, an electromagnet, an armature arranged within the field of force of the electromagnet and connected to the arbor, and a spring controllable by the selecting-arm for limiting the movement of the armature.

9. In telephony, a selecting mechanism including a clock-train, a normally disconnected arbor, a normally cut-out local talking-circuit, a hand or pointer carried by the arbor, a selecting-arm also carried by the arbor, an electromagnet, an armature arranged within the field of force of said magnet and connected to said arbor, and a spring having a shoulder or cam for engagement with the selecting-arm.

10. In telephony, a selecting mechanism including a clock-train, local stations normally disconnected from the main line, circuit-closers disposed at the stations, a shaft or arbor normally disconnected from the clock-train, a hand or pointer carried by the shaft, a circuit-closing arm also carried by said shaft, an electromagnet disposed in the main line and normally energized, an armature arranged within the field of force of the electromagnet, and connected to said shaft, and a movable member controlled in part by the arm for limiting the effective movement of said armature.

11. In telephony, a selecting mechanism including a clock-train, a normally inactive disk, electromechanically-actuated means for connecting the clock-train to the disk, a normally inoperative local talking-circuit, a manually-operative switch for closing the circuit, and means controllable by said disk for limiting the movement of the switch.

12. In telephony, a selecting mechanism including a clock-train, a shaft or arbor, a normally energized electromagnet disposed in the main line, an armature arranged in the field of force of the electromagnet, and connected to said arbor, a revoluble member carried by the arbor, a normally cut-out local talking-circuit, a switch for connecting the circuit to the main line, and means controllable by said revoluble member for limiting the movement of said switch.

13. In telephony, a selecting mechanism including a clock-train, a normally cut-out local talking-circuit, a switch for connecting said circuit to the main line, an arbor, an electromechanically-actuated mechanism for connecting the arbor to the clock-train, a notched disk carried by said arbor, and a pivoted arm arranged between the notched disk and the switch.

14. In telephony, a selecting mechanism including a clock-train, circuit-closers, a selecting-arm, means for connecting the selecting-arm to the clock-train, and means for correcting the movement of said selecting-arm in both directions.

15. In telephony, a selecting mechanism including a clock-train, a normally inactive selecting-arm, means for connecting the arm to the clock-train, a normally cut-out local talking-circuit, circuit-closing devices, and a flanged disk having a tapering slot for receiving and correcting the movement of the selecting-arm.

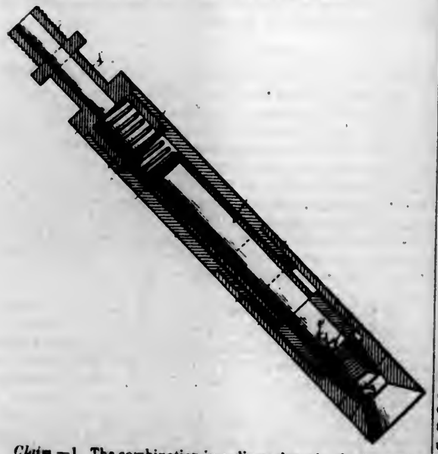
16. In telephony, a clock-train, a circuit-breaker carried by said clock-train and normally disconnected therefrom, means controllable by the receiver-hook for connecting the circuit-breaker to the clock-train, and means for returning said circuit-breaker to its normally inactive position.

785,104. REMOVABLE HEAD FOR BARRELS. ALEXANDER JARGER, Philadelphia, Pa. Filed Sept. 3, 1903. Serial No. 171,756.



Claim.—In a device of the character described, in combination a wooden barrel formed of staves, one end of which is closed by a wooden head, a metallic plate fitting in an annular groove upon the interior of the staves adapted to close the other end of the barrel, said plate provided with an oblong opening formed through the same, an annular bead formed upon the under side of the plate surrounding the opening, a concaved cover slightly larger than the opening through the plate also formed oblong, an annular groove formed in the upper side of the cover adapted to fit the bead, sealing material adapted to be inserted in the annular groove, an exteriorly-threaded stud extending upward from the center of the cover, a removable cross-bar resting at each end upon the plate and extending across the opening, a bolt passing downward through the cross-bar and threaded into the stud, the cross-bar being separate and only held in place by the bolt threaded into the stud, as and for the purpose specified.

785,105. SLIP-SOCKET. DAVID K. JOHNSTON, Oil City, Pa., assignor to Oil Well Supply Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Dec. 7, 1904. Serial No. 235,883.



Claim.—1. The combination in a slip-socket of a check member slidable in the slip-socket, and a plurality of slips or wickers connected with and slidable on the check member, substantially as and for the purposes specified.

2. The combination in a slip-socket of an annular check member slidable in the slip-socket, and a plurality of slips or wickers connected with and slidable on the check member, substantially as and for the purposes specified.

3. The combination in a slip-socket, of a plurality of slips or wickers, and a check member slidable in the slip-socket, said member and slips provided with interlocking slidable connections, substantially as and for the purposes specified.

4. The combination in a slip-socket, of a check member slidable in the slip-socket said check member having radial slots or ways, and a plurality of slips or wickers having parts adapted to traverse the slots or ways of the check member, substantially as and for the purposes specified.

5. The combination in a slip-socket, of a check member slidable in the slip-socket and provided with radially-disposed T-slots, and a plurality of slips or wickers provided with T-heads, substantially as and for the purposes specified.

6. The combination in a slip-socket, of a check member, a plurality of slips or wickers connected to and movable radially on said check member, and means for yieldingly supporting said check member, substantially as and for the purposes specified.

7. The combination in a slip-socket, of a check member, a plurality of slips or wickers connected to said member and movable therewith and thereon, and a spring for yieldingly supporting said check member, substantially as and for the purposes specified.

8. The combination in a slip-socket, of a check member, a plurality of slips or wickers connected to said member and movable therewith and thereon, a spring for yieldingly supporting said member, and a disk interposed between the spring and check member, substantially as and for the purposes specified.

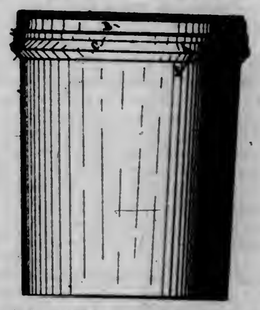
9. The combination in a slip-socket, of a pin member, a box member, an interposed extension-section, a plurality of slips or wickers, a spring, and an extension-sleeve interposed between the slips or wickers and the spring, substantially as and for the purposes specified.

10. The combination in a slip-socket, of a pin member, a box member, an interposed extension-section, a plurality of slips or wickers, a check member, a spring, and an extension-sleeve interposed between the spring and the check member, substantially as and for the purposes specified.

11. The combination in a slip-socket, of a plurality of yieldingly-supported wickers, and means for permitting a movement of the wickers to and from the axis of the socket and for maintaining the parallel relation of the wickers throughout their movement, substantially as and for the purposes specified.

12. In a slip-socket, the combination with a yieldingly-supported check member slidable in the socket, of a plurality of wickers slidably connected with the check member, substantially as and for the purposes specified.

785,106. JAR OR BOTTLE CLOSURE. WILLIAM H. W. JONES, Waverly, N. Y. Filed Mar. 10, 1904. Serial No. 197,465.



Claim.—1. A jar or other vessel having a circumferential groove at its mouth and an outwardly-projecting flange below said groove, in combination with a cap having a flaring or outwardly-inclined rim and a contiguous circumferential groove, the latter registering with the groove on the vessel when the rim of the cap rests upon said flange, and an elastic packing-ring inserted and compressed within and between said grooves when the cap is pressed into position to complete the closure.

2. The combination with a jar or other vessel having a circumferential groove at its mouth, of a cap having a circumferential groove registering with the groove on the vessel, an elastic packing-ring, a preliminary supporting-surface to receive said ring on one of

said parts contiguous to the groove thereon, an outwardly-projecting flange having a beveled surface at the opposite side of said groove, a flaring or outwardly-inclined surface on the other part contiguous to its groove adapted to contact with the beveled surface of said flange when the grooves register, said packing-ring being inserted and compressed within and between said grooves when the cap is pressed into position to complete the closure.

3. The combination with a jar or other vessel having a circumferential ⊏-shaped groove at its mouth, of a cap having a circumferential ⊐-shaped groove registering with the groove on the vessel, an elastic packing-ring, a preliminary supporting-surface to receive said ring on one of said parts contiguous to the groove thereon, a flaring or outwardly-inclined surface on the other part contiguous to its groove, said packing-ring being inserted and compressed by means thereof within and between said grooves when the cap is pressed into position to complete the closure.

785,107. **DRIVING-BELT.** THOMAS J. KEAN, Philadelphia, Pa., assignor of one-half to John C. Scott, Bryn Mawr, Pa. Filed Oct. 3, 1903. Serial No. 176,261.



Claim.—1. A driving-belt comprising a link chain, a longitudinal strip of leather arranged parallel to the chain, and a second strip of leather engaging the first-named strip and the chain to secure them together.

2. A driving-belt comprising a link chain, a longitudinal strip of leather provided with perforations and arranged parallel to the chain, and a lacing passing through the said perforations and engaging the chain, whereby the strip of leather is secured to the chain.

3. A driving-belt comprising a strip of leather provided with perforations and a longitudinal channel, a link chain arranged within said channel, and a lacing passing through said perforations and engaging the chain, whereby the strip of leather is secured to the chain.

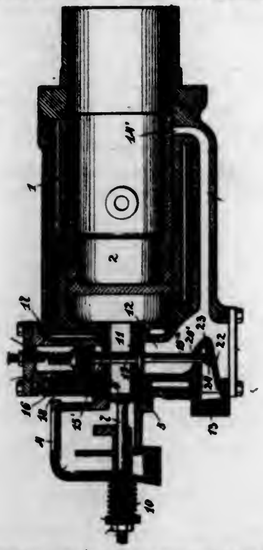
4. A driving-belt comprising a chain provided with inner and outer links, a longitudinal strip of leather provided with perforations and arranged parallel to the chain, and a lacing passing through said perforations and engaging said inner links, whereby the strip of leather is secured to the chain.

5. A driving-belt comprising a strip of leather provided with perforations and a longitudinal channel, a chain provided with inner and outer links and arranged within said channel, and a lacing passing through said perforations and engaging said inner links, whereby the strip of leather is secured to the chain.

785,108. **VALVE MECHANISM FOR EXPLOSIVE-ENGINES.** JAMES KERNS, Defiance, Ohio, assignor to Model Gas Engine Company, Auburn, Ind., a Corporation. Filed Feb. 29, 1904. Serial No. 196,876.

Claim.—1. In a gas-engine, the combination of a cylinder provided with an opening in its working end, an admission-port, a passage communicating between said admission-port and the opening in the working end of the piston, a valve governing said inlet portion, a discharge-port communicating with said passage between the inlet-port and the opening in the working end of the piston, an exhaust-passage leading from the opposite end of the cylinder and having an outlet end communicating with said discharge-port, a valve governing said discharge-port, an auxiliary cylinder, a piston operating in said auxiliary cylinder and in communication with the passage, said piston and valve controlling the outlet-port being so proportioned that a preponderating pressure normally exists on the adjoining side of the valve to hold it closed, a valve governing the outlet of the exhaust-passage and adapted to actuate said piston and discharge-valve, and a piston operating in the cylinder and adapted to control the exhaust-passage and admit preponderating pressure to the under side of the valve.

2. In a gas-engine, a cylinder provided with an opening in its working end, an admission-valve casing, a passage connecting said admission-valve casing with the opening in the working end of the cylinder, a piston operating in said cylinder, a second cylinder communicating with said passage, a piston operating in said second cylinder, an exhaust-conduit also communicating with said passage, a supply connection between the opposite end of the first-named or main cylinder and the exhaust-passage, said supply connection being controlled by the main piston, an exhaust-valve governing communication between the aforesaid opening and exhaust-passage and exposed to pressure in the said passage connecting the admission-port with the opening in the working side of the cylinder, a valve-stem connecting said valve with the secondary piston to move in unison therewith, means acting on said piston to oppose the opening of the valve, and means operated by the exhaust-gases from the supply connection to operate said stem against said resistance.



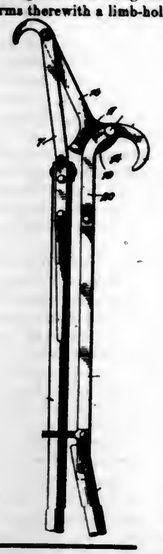
3. In an engine, a main cylinder provided in its working end with an opening, a secondary cylinder in communication with said opening, an exhaust-passage also communicating with the opening, an exhaust-valve governing the exhaust of the spent gases from the cylinder to the exhaust-passage, a piston connected to said valve and moving in said secondary cylinder, said piston and valve being so proportioned that a preponderating pressure normally exists on the adjoining side of the valve to hold itcldseo, a stem connecting the valve and secondary piston to move in unison, and a flap-valve having a boss upon its upper surface, said valve normally closing the exhaust-passage and adapted to be actuated by the pressure of the discharging spent gases to open said passage and to impart movement to said stem, the latter normally resting upon the boss of the flap-valve, substantially as described.

785,109. **PRUNING IMPLEMENT.** JAMES M. KING, Nebraska City, Nebr. Filed Dec. 8, 1903. Serial No. 184,292.

Claim.—1. In a pruning implement, the combination with a member having an upstanding shank provided with an overhanging hook, said hook having a depending bill that forms with the shank an upwardly-extending limb-receiving mouth, of a cutter including a blade pivoted upon the hook directly above the mouth and having a cutting edge that is movable diagonally downward across the mouth and coacts with the depending bill of the hook, said bill having its free terminal inturned forming on the inner side of said bill and within the mouth a lateral recess constituting a seat in which the limb is held by the cutter during the movement of the latter across the mouth.

2. In a pruning implement, the combination with a standard, of a hook movable with respect to the standard, an arm attached to the standard and projecting beyond the same, said arm comprising spaced bars, and a stem pivoted at its ends respectively to the aforementioned hook and arm, said stem having at one end a blade that coacts with said hook and having at its other end a depending inwardly-curved hook that projects beyond the adjacent pivot and is movable between the bars of the arm below the pivot to form a limb-holding clamp.

3. In a pruning implement, the combination with a standard, of spaced upstanding arms mounted upon the upper end of the standard, an actuating-rod, a shank pivoted to the upper end of the actuating-rod and carrying a ring that slidably embraces the standard, an overhanging cutting-hook carried by the upper end of the shank and having a depending bill, a stem having a cutting-blade at one end that is pivoted at its upper end to the upper portion of the cutting-hook and has a cutting edge coacting with the bill of the hook, the other end of the stem having a pivotal connection with and between the upper ends of the arms, said latter end being provided with a downwardly-extending curved holding-hook that is movable between the arms and forms therewith a limb-holding clamp.



785,110. **COATED OR IMPREGNATED FABRIC AND METHOD OF MAKING SAME.** THOMAS E. KINNEY, Waverly, Ohio. Filed Dec. 8, 1904. Serial No. 236,015.

Claim.—1. The process of treating fabrics which consists in subjecting them to the action of a heated bath containing paraffin and a wax.

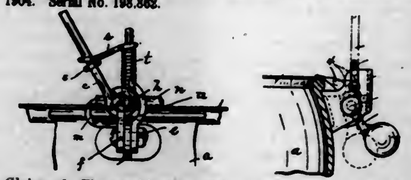
2. The process of treating fabrics which consists in subjecting them to the action of a heated bath containing paraffin, a wax and non-volatile oil.

3. The process of treating fabrics to render them waterproof and increase their durability which consists in subjecting them to the action of a heated bath containing paraffin, tallow, beeswax, rosin, linseed-oil and water and drying the said fabrics.

4. A fabric coated or impregnated with a waterproofing mixture containing paraffin and a wax.

5. A fabric coated or impregnated with a waterproofing mixture containing approximately ninety per cent. paraffin, two and one-half per cent. tallow, two and one-half per cent. beeswax, two and one-half per cent. rosin and two and one-half per cent. linseed-oil.

785,111. **DETACHABLE LID CONTROLLING AND LOCKING MECHANISM FOR PANS, KETTLES, OR THE LIKE.** ALEXIUS T. LUNDQVIST, Paterson, N. J., assignor to The Favorite Pan and Utensil Company, Paterson, N. J., a Corporation of New Jersey. Filed Mar. 18, 1904. Serial No. 198,863.



Claim.—1. The combination with a pan or vessel, of a lid, a hinged connection between the lid and the ear of the vessel, a bolt and nut for removably securing said hinged connection to the ear, a bail or handle for the vessel, and means arranged on the lid and bail for opening and closing said lid, substantially as described.

2. The combination with a pan or vessel, of a lid, a hinged connection between the lid and the ear of the vessel, a bolt and nut for removably securing said hinged connection to the ear, a bail or handle for the vessel, a pin carried by the lid, and a link carried by the handle and adapted to engage said pin when the lid is to be opened, substantially as described.

3. The combination with the pan or vessel, of a lid, a bracket removably secured to one ear of the vessel, a bolt and nut for removably securing said bracket to the ear, a hinged connection between the lid and the bracket, a bail or handle for the vessel and pivotally arranged with one end in said bracket, and means arranged on the lid and bail for opening and closing said lid, substantially as described.

4. The combination with a pan or vessel, of a lid, a hinged connection between the lid and the ear of the vessel, a bolt and nut for removably securing said hinged connection to the ear, a bail or handle for the vessel, means on the lid and bail for opening and closing said lid, and a stop on the vessel for limiting the rearward movement of the bail, substantially as described.

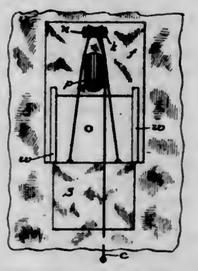
5. The combination with a pan or vessel, of a lid, a bracket removably secured to one ear of the vessel, a bolt and nut for removably securing said bracket to the ear, a substantially U-shaped rod projecting from said bracket, and forming a fulcrum for the lid, a bail or handle for the lid, and means arranged on the lid and bail for opening and closing the lid, substantially as described.

6. The combination with a pan or vessel, of a lid, a weighted lever pivotally arranged on one ear of the vessel and adapted with its free end to engage the lid when closed, and a bail or handle for the vessel and adapted to control the weighted lever, all said parts, substantially as described.

7. The combination with a pan or vessel, of a lid, a weighted lever pivotally arranged on one ear of the vessel and adapted with its free end to engage the lid when closed, a bail for the vessel and adapted to control the weighted lever, and means for locking the handle, when the lid is closed, substantially as described.

8. The combination with a pan or vessel, of a lid, a bracket removably arranged on one ear of the vessel, a bail or handle for the vessel and pivotally connected with said bracket, a weighted fulcrumed lever controlled by said bail and removably arranged on the ear of the vessel, and adapted with its free end to engage the lid when closed, and means for locking the bail, when said lid is closed, substantially as described.

785,112. **VENTILATOR.** NELS MARTIN, Brooklyn, N. Y. Filed May 26, 1903. Serial No. 158,809.

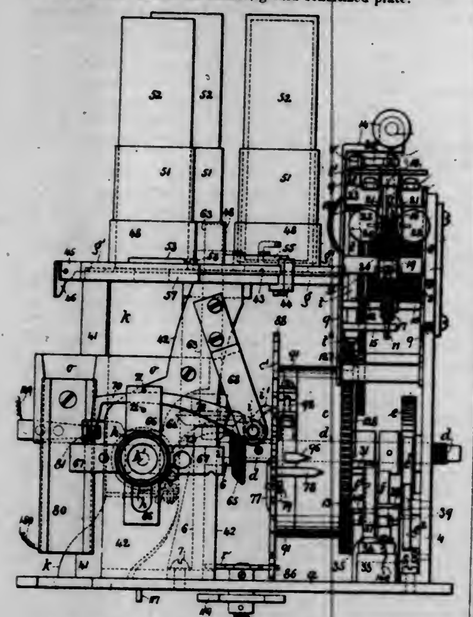


Claim.—1. A ventilator comprising a plate; a pipe fixed in the plate and arranged to communicate with a chimney-flue; a ventilating-opening in the plate; ways fixed on the plate; a slide mounted in the ways and arranged to either open or close the ventilating-opening; a bifurcated flexible member, the bifurcations whereof pass on opposite sides of the pipe and are separately attached to and collectively arranged to operate, the slide; and means for guiding the bifurcated member.

2. A ventilator comprising a plate; a pipe fixed in the plate and arranged to communicate with a chimney-flue; a ventilating-opening in the plate; ways fixed on the plate; a slide mounted in the ways and arranged to either open or close the ventilating-opening; a bifurcated flexible member; the bifurcations whereof pass on opposite sides of the pipe and are separately attached to, and collectively arranged to operate, the slide; means for engaging the flexible member and for thus retaining the slide in various positions; and means for guiding the bifurcated member.

785,113. **AUTOMATIC PHOTOGRAPHIC APPARATUS.** EDWARD H. MATTHEY and EMIL C. REUTLINGER, New York, N. Y. Filed Nov. 25, 1903. Serial No. 182,583.

Claim.—1. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of baths for developing and fixing the sensitized plate, means for receiving and holding the sensitized plate on edge, means for imparting a revoluble movement to the aforesaid means and for simultaneously lowering and raising the same into and from said baths and means for releasing said sensitized plate.



2. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of baths for developing and fixing the sensitized plate, means for receiving and holding the sensitized plate on edge, means for imparting a revoluble movement to the aforesaid means and for simultaneously lowering and raising the same into and from said baths, means for agitating said plate-holding means while the sensitized plate is immersed in a bath, and means for releasing said sensitized plate.

3. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of baths for developing and fixing the sensitized plate, means for receiving and holding the sensitized plate on edge, means for imparting a revoluble movement to the aforesaid means and for simultaneously lowering and raising same into and from said baths, means for agitating said plate-holding means while the sensitized plate is immersed in each bath, and means for releasing said sensitized plate.

4. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of stationary baths for developing and fixing a sensitized plate, a shaft, a rocker-arm, means for receiving and holding the sensitized plate, means actuated by said motor for turning said shaft, means actuated by the turning of said shaft to operate said rocker-arm to lower and raise said sensitized plate into and from the successive baths, and means for releasing the sensitized plate.

5. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of stationary baths for developing and fixing the sensitized plate, a shaft, a rocker-arm, means for receiving and holding the sensitized plate, means actuated by said motor for turning said shaft, means actuated by the turning of said shaft to operate said rocker-arm to lower and raise said sensitized plate into and from the successive baths, means for vibrating the said rocker-arm to agitate the sensitized plate while the same is immersed in a bath, and means for releasing the sensitized plate.

6. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of stationary baths for developing and fixing the sensitized plates, a shaft, a rocker-arm, means for receiving and holding the sensitized plate, means actuated by said motor for turning said shaft, means actuated by the turning of said shaft to operate said rocker-arm to lower and raise said sensitized plate into and from the successive baths, means for vibrating the said rocker-arm to agitate the sensitized plate while the same is in each bath and means for releasing the sensitized plate.

7. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of stationary baths for developing, washing and fixing the sensitized plate, a shaft, a rocker-arm, means actuated by the said motor for turning the said shaft, a hopper and grooved plate-carrying arms secured to the end of said rocker-arm for receiving the sensitized plate, means for holding said sensitized plate in said carrying-arms, means actuated by the rotation of said shaft to lower and raise the said plate-carrying arms into and from said baths successively, means for vibrating said rocker-arm to agitate the sensitized plate while the same is immersed in each bath and means for releasing the said sensitized plate.

8. In an automatic photographic apparatus, the combination with a casing, a motor and means for actuating and controlling the same, of stationary baths for developing, washing and fixing the sensitized plate, a shaft, a rocker-arm, means actuated by the said motor for turning the said shaft, a hopper and grooved plate-carrying arms secured to the end of said rocker-arm for receiving the sensitized plate, a pivoted arm secured in position centrally of said plate-carrying arms and provided with a finger at its lower end to hold the sensitized plate in position in said carrying-arms and means for tripping the said pivoted arm to release the sensitized plate, means actuated by the rotation of said shaft to lower and raise the said plate-carrying arms into and from said baths successively, means for vibrating said rocker-arm to agitate the sensitized plate while the same is immersed in each bath, and means for releasing the said sensitized plate.

9. In an automatic photographic apparatus, the combination with a light-tight box, of a spring-barrel, an escapement, a shaft, means for winding said spring-barrel through said shaft, a stop-plate for preventing more than one complete revolution at a time being given to said shaft in winding the spring-barrel, means for depressing said stop-plate after the spring-barrel has made a complete revolution so that said barrel may be wound again, means for producing and delivering a picture, and means for stopping the said spring-barrel after the same has made a complete revolution.

10. In an automatic photographic apparatus, the combination with a light-tight box, of a spring-barrel, an escapement, a shaft, means for winding said spring-barrel through said shaft, means operated by the winding of said shaft for closing an electric circuit at one point, a stop-plate for preventing more than one complete revolution at a time being given to said shaft in winding the spring-barrel, means for depressing said stop-plate after the spring-barrel has made a complete revolution, so that said barrel may be wound again, means for producing and delivering a picture, and means for stopping the said spring-barrel after the same has made a complete revolution.

11. In an automatic photographic apparatus, the combination with a light-tight box, of a spring-barrel, an escapement, a shaft, means for manually winding said spring-barrel one turn at a time through said shaft, a stop-plate for preventing more than one turn at a time being given to said shaft, an arm fixed on said shaft, an arm loose on said shaft, a contact-plate, a spring-contact adapted to be engaged by said fixed arm, a spring-contact adapted to be engaged by the said loose arm whereby in turning the shaft a complete revolution and in the operation of the mechanism both said spring-contacts are depressed to bear upon the said contact-plate, means for releasing the said escapement and spring-barrel, means actuated by the spring-barrel for producing and delivering a picture, and means for stopping the said spring-barrel after the picture has been delivered.

12. In an automatic photographic apparatus, the combination with a light-tight casing, of a spring-barrel, an escapement, a shaft, means for manually winding said spring-barrel one turn at a time through said shaft, a stop-plate for preventing more than one turn at a time being given to said shaft, an arm fixed on said shaft, an arm loose on said shaft, a contact-plate, a spring-contact adapted to be engaged by said fixed arm, a spring-contact adapted to be engaged by the said loose arm whereby in turning the shaft a complete revolution and in the operation of the mechanism both said spring-contacts are depressed to bear upon the said contact-plate, means for releasing the said escapement and spring-barrel, means actuated by the spring-barrel for producing and delivering a picture, means for

depressing the stop-plate approximately at the end of a complete revolution of the spring-barrel so that the said shaft may be turned again to wind the spring-barrel, and means for stopping the said spring-barrel after the picture has been delivered.

13. In an automatic photographic apparatus, the combination with a light-tight casing, a motor mechanism, means for winding the same, and means for releasing and stopping the same, of a lens-tube, a lens therein, means for holding magazines containing sensitized plates, means actuated by the winding of said motor mechanism for delivering one sensitized plate at a time to said lens-tube, means for opening said lens, means for simultaneously closing the lens and releasing a sensitized plate from its position in the lens-tube.

14. In an automatic photographic apparatus, the combination with a light-tight casing, a motor mechanism, means for winding the same, and means for releasing and stopping the same, of a lens-tube, a lens therein, means for holding magazines containing sensitized plates, means actuated by the winding of said motor mechanism for delivering one sensitized plate at a time to said lens-tube, means for opening said lens, means for simultaneously closing the lens and releasing a sensitized plate from its position in the lens-tube, and means for adjusting the length of the exposure.

15. In an automatic photographic apparatus, the combination with a light-tight casing, a motor mechanism, means for winding the same and means for releasing and stopping the motor mechanism, of a lens-tube and a lens therein, means for holding magazines containing sensitized plates, means actuated by the winding of said motor mechanism for delivering one sensitized plate at a time to said lens-tube, an electric bell, an electric circuit, means for simultaneously opening the lens and closing the electric circuit to said bell, means for simultaneously closing the lens, releasing a sensitized plate from its position in the lens-tube and opening the bell-circuit, and means for finishing and delivering a picture.

16. In an automatic photographic apparatus, the combination with a light-tight box, a spring-motor, means for manually winding the same and means for electrically releasing the spring-motor, of a vertical shaft, a rocker-arm pivoted to the same, means carried by said rocker-arm for receiving and holding a sensitized plate, means actuated by said spring-motor for turning said vertical shaft a partial revolution at a time, baths for developing, washing and fixing the sensitized plate, and means actuated by the partial revolutions of said vertical shaft for lowering and raising the sensitized plate into and from said baths.

17. In an automatic photographic apparatus, the combination with a light-tight box, a spring-motor, means for manually winding the same and means for electrically releasing the spring-motor, of a vertical shaft, a rocker-arm pivoted to the same, means carried by said rocker-arm for receiving and holding a sensitized plate, means actuated by said spring-motor for turning said vertical shaft a partial revolution at a time, baths for developing, washing and fixing the sensitized plate, means actuated by the partial revolutions of said vertical shaft for lowering and raising the sensitized plate into and from said baths, and means for delivering the picture.

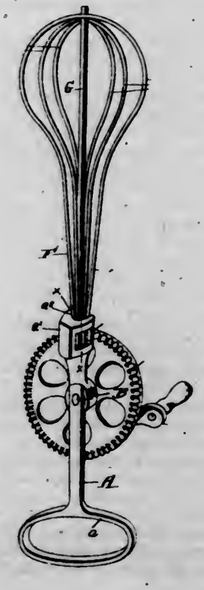
18. In an automatic photographic apparatus, the combination with a light-tight box, of a spring-barrel means for winding the same, means for releasing the same, a flange on said spring-barrel, dogs on said flange, a vertical shaft, a star-wheel secured to said vertical shaft and adapted to be engaged by said dogs to impart a partial revolution at a time to said vertical shaft, a rocker-arm pivoted to said vertical shaft, means on said arm for receiving and holding a sensitized plate, baths for developing, washing and fixing the sensitized plate, means actuated by the partial revolutions of said vertical shaft for lowering and raising the sensitized plate into and from said baths, and means for delivering the picture.

19. In an automatic photographic apparatus, the combination with a light-tight box, of a spring-barrel, means for winding the same, means for releasing the same, a flange on said spring-barrel, dogs on said flange, a vertical shaft, a star-wheel secured to said vertical shaft and adapted to be engaged by said dogs to impart a partial revolution at a time to said vertical shaft, a rocker-arm pivoted to said vertical shaft, means on said arm for receiving and holding a sensitized plate, baths for developing, washing and fixing the sensitized plate, means actuated by the partial revolution of said vertical shaft for lowering and raising the sensitized plate into and from said baths, means for agitating the sensitized plate while immersed in the baths, and means for delivering the picture.

20. In an automatic photographic apparatus, the combination with a light-tight box, of a spring-barrel, means for winding the same, means for releasing the same, a flange integral with said barrel, dogs on said flange, dogs of shorter radius also on said flange and placed between the aforesaid dogs, a vertical shaft, a star-wheel secured to said shaft and adapted to be engaged by said dogs, a rocker-arm pivoted to said vertical shaft, means connected with said rocker-arm for receiving and holding a sensitized plate, baths for developing, washing and fixing the sensitized plate, means actuated by the partial revolutions of said vertical shaft for lowering and raising the sensitized plate into and from said baths, a hexagonal plate secured to said vertical shaft, a spring contacting with the edges of the same by means of which, together with the dogs of shorter radius, and the means for raising and lowering the sensitized plates into the baths, an agitation of the sensitized plate is produced while immersed in the baths, and means for delivering the picture.

21. In an automatic photographic apparatus, the combination with a light-tight casing, of a spring-motor, a shaft for the same, means for manually winding the said motor through said shaft, means for preventing more than one complete revolution at one time of said shaft, receptacles for magazines containing sensitized plates, means for breaking off one of the closed ends of each of said magazines, a lens-tube, a lens therein, a shutter for the same, a plate-chute leading from a point beneath the said magazines to and below the lens-tube, means for holding the sensitized plate at the end of the lens-tube after the plate has been delivered from its magazine, means actuated by the winding of said motor for delivering one sensitized plate at a time through said chute to its position in the rear of the lens-tube, means for closing an electric circuit at one point by the winding of said spring-motor, contacts by which said electric circuit may be closed at another point, means for starting said motor, means actuated by said motor for operating the shutter and opening the said electric circuit at said contacts, an electric bell, means for closing an electric circuit to said bell simultaneously with the opening of the lens, means for simultaneously closing the lens, releasing the sensitized plate from its position in the rear of the lens-tube and for opening the electric circuit to said bell, means for adjusting the length of exposure, a rocker-arm, a carrier on one end of said rocker-arm adapted to receive the sensitized plate after the same has been released from its position in the rear of the lens-tube, developing, washing and fixing baths, means for actuating said rocker-arm to drop said carrier first into one bath and then into the next, means for agitating said carrier while the same is immersed in the baths, means for releasing said plate from the carrier after the developing and fixing processes have been completed and for dropping the said plate into a chute by which it is conveyed to the exterior of the casing, and means for stopping the motor mechanism after the picture has been delivered.

785,114. EGG-BEATER. GEORGE M. MUNN, Fitchburg, Mass. Filed May 9, 1904. Serial No. 207,012.



Claim.—In an egg-beater, a standard terminating at one end in a handle and at the opposite end in a bracket, a gear-wheel pivoted intermediate the standard, a pinion mounted in the bracket and meshing with the gear-wheel, said pinion having an opening, a removable core fitting in the opening, said core having peripheral recesses extending from the outer surface of the core and terminating a suitable distance from the opposite surface of said core, said recesses forming sockets when the core is applied, beaters anchored in the sockets and a supporting-rod passing through the core and secured at one end to the standard.

785,115. SHOE-FORM. WALTER L. C. NILES, Saugus, Mass. Filed Jan. 23, 1904. Serial No. 190,297.



Claim.—1. A shoe-form comprising a collapsible body and means for positively and unyieldingly locking the same in collapsed position, substantially as described.

2. A shoe-form comprising a toe portion and a heel portion hinged together, and means for positively and unyieldingly locking the said parts in collapsed position, and for holding them in expanded position, substantially as described.

3. A shoe-form comprising two relatively movable parts, a toggle connecting the said parts, and means for locking the toggle in closed position, substantially as described.

4. A shoe-form, having, in combination, a toe portion, a heel portion hinged thereto, a toggle secured at its ends to said parts and provided with slots in its arms, and a locking-bar carrying pins engaging the said slots to lock the toggle in closed position, substantially as described.

5. A shoe-form comprising a hollow body having reinforcing-strips secured to the inner surfaces of the toe portion, and a brace connecting the said strips and comprising a metal strip passing through the reinforcing-strips and clenched between the said strips and the body of the form, substantially as described.

6. A shoe-form, having, in combination, a toe portion, a heel portion hinged thereto, a toggle secured at its ends to the said parts and provided with slots, a bar carrying pins engaging the slots, and an extension from the joint of the toggle arranged to engage the said bar when the toggle is open to prevent closing of the toggle in one direction, substantially as described.

7. A shoe-form, having, in combination, a toe portion, a heel portion, a toggle secured at its ends to said parts, a bar mounted on the arms of the toggle and having a sliding connection therewith permitting the toggle to close in one direction, and a projection from the toggle arranged to engage said bar and prevent the toggle from closing in the other direction, substantially as described.

8. A shoe-form, having, in combination, a toe portion, a heel portion hinged thereto, a toggle secured at its ends to said parts, a locking-bar mounted on the arms of the toggle, and means coöperating therewith to lock the toggle in closed position and to prevent closing of the toggle in one direction, substantially as described.

9. A shoe-form, having, in combination, a toe portion, a heel portion hinged thereto, a toggle secured at its ends to said parts, and a locking-bar mounted on the arms of the toggle and coöperating therewith to lock the toggle in closed position, substantially as described.

785,116. GASKET OR PACKING-RING AND APRON THEREFOR. EDWARD L. PERRY, Paterson, N. J. Filed Mar. 11, 1904. Serial No. 197,708.

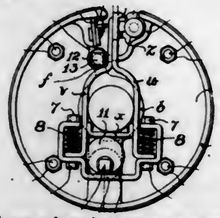
Claim.—1. A gasket or packing-ring of elastic material and an apron of heat-insulating material to close the opening in said ring, substantially as and for the purpose set forth.

2. An elastic gasket or packing-ring and an apron closing the opening therein, said gasket or packing-ring and the apron therefor being molded together, substantially as and for the purpose specified.

3. An elastic gasket or packing-ring and an apron therefor, the ring being circumferentially corrugated and the apron extending across and within the opening in the ring and closing the same, the device as a whole being dish-shaped, as and for the purpose specified.



785,117. DRUM FOR SANDPAPERING-MACHINES. JAMES L. PERRY, Smithville, N. J., assignor to H. B. Smith Machine Company, Smithville, N. J., a Corporation of New Jersey. Filed June 3, 1904. Serial No. 210,969.



Claim.—1. A paper-fastening for sanding-drums, consisting of a fixed fastener for one end of the sandpaper, a movable fastener for the other end of the sandpaper, a stretcher in operative relation with said movable fastener, means to compress the spring and thereby actuate the stretcher to stretch the paper on the drum, and means enabling the stretcher to be positively moved toward its inoperative position.

2. A paper-fastening for sanding-drums consisting of a stretcher, a spring, means to compress the spring and thereby actuate said stretcher to stretch the paper on the drum, and means enabling the stretcher to be positively moved toward its inoperative position.

3. A paper-fastening for sanding-drums consisting of a stretcher, a spring, a cam, means enabling the cam to actuate the spring and thereby actuate said stretcher to stretch the paper on the drum, and means enabling said cam to positively actuate the stretcher in the opposite direction, and means to turn the cam.

4. A paper-fastening for sanding-drums, consisting of a movable fastener for one end of the sandpaper, a stretcher in operative relation with said movable fastener, and adapted when actuated to operate said fastener to clamp said paper, and means to actuate the stretcher, thereby, by a single operation of the stretcher-actuating means, both clamping the paper and stretching it on the drum.

5. A paper-fastening for sanding-drums consisting of a stretcher, a fastener consisting of two clamping members, one at least of which is carried by said stretcher and is adapted to clamp one end of the said paper against the other member in the operation of the stretcher, and means to actuate the stretcher, thereby clamping the paper in the movement of the stretcher to stretch it on the drum.

6. A paper-fastening for sanding-drums consisting of a fixed fastener for one end of the sandpaper, a movable fastener for the other end of the sandpaper, a stretcher adapted when operated to actuate said movable fastener to clamp the paper and also to stretch the paper on the drum, and means to actuate the stretcher.

7. A paper-fastening for sanding-drums consisting of a fixed fastener within the drum for one end of the sandpaper, a movable fastener within the drum for the other end of the paper, a stretcher and means to move said stretcher in substantially a radial direction within the drum, said stretcher being so connected with said movable fastener that in its movement to stretch, it also actuates said movable fastener to clamp the paper.

8. A paper-fastening for sanding-drums consisting of a stretcher composed of two parts and a spring interposed between said parts, one of said parts being adapted, when moved away from its inoperative position, to stretch the paper on the drum, and means to actuate the other part of said fastener, thereby through said spring actuating the first-named part and stretching the paper on the drum.

9. A paper-fastening for sanding-drums consisting of a stretcher composed of two parts and a spring interposed between said parts, one of said parts being adapted, when moved away from its inoperative position, to stretch the paper on the drum, and means adapted to actuate the other part of said fastener to move the stretcher to stretch the paper on the drum and adapted to actuate the first-named part to return the stretcher to its inoperative position.

10. A paper-fastening for sanding-drums consisting of a stretcher within the drum composed of two parts and a spring interposed between the parts, one of said parts being adapted, when moved away from its inoperative position, to stretch the paper on the drum, and a cam adapted to engage the other part of said fastener and thereby, through said spring, actuate the first-named part to stretch the paper on the drum.

11. A paper-fastening for sanding-drums consisting of a stretcher within the shell composed of two parts and a spring interposed between the parts, a fastener for the paper in operative relation with one of said parts, and a cam between said parts adapted when turned in one direction to engage the part remote from the fastener and thereby through the spring actuate the part connected with the fastener to stretch the paper on the drum and adapted when turned in the other direction to engage the last-named part and return it to its normal position.

12. A paper-fastening for sanding-drums consisting of a movable fastener, the plates *v* and *w*, connected with the fastener, a cross-bar *x* connecting said plates, a plate *y*, a spring interposed between plates *v* and *y*, a spring interposed between plates *w* and *y*, a shaft, a cam on said shaft adapted to engage said cross-bar to hold plates *v* and *w* in their inoperative position, said cam being adapted when turned to engage plate *y* and thereby through said springs actuating plates *v* and *w* and the movable fastener to stretch the paper on the drum.

13. A paper-fastener for sanding-drums consisting of upper plates *v* and *w* whose upper ends extend substantially parallel to each other and whose lower ends are bent outwardly downwardly and thence outwardly in opposite directions respectively, a cross-bar connecting the downward bends of said plates, a lower plate *y* whose opposite ends extend successively transversely outwardly, upwardly, and transversely inwardly whereby the transverse bends of the ends of plate *y* respectively underlie and overlie the ends of plates *v* and *w*, a bolt extending through the transverse bends of one end of plate *y* and the end of plate *v*, a bolt extending through the transverse bends of the other end of plate *y* and the end of plate *w*, a coiled spring around each bolt, said springs being confined respectively between the ends of plates *v* and *w* and the opposite inward bends of plate *y*, a shaft, and a cam on said shaft adapted to alternately engage and move the central portion of plate *y* and the cross-bar *x*.

14. A sanding-drum having a longitudinal opening, a stretcher within the drum, means to actuate the stretcher, a guide, adjacent to said longitudinal opening, over which the paper extends, said guide being adapted to turn on its axis in the operation of the stretcher, and fastening means for the paper.

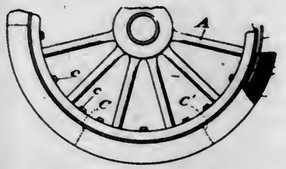
15. A sanding-drum having a longitudinal opening, a stretcher within the drum, a guide, adjacent to said longitudinal opening, over which the paper extends, a fastener for the paper one member at least of which is carried by said stretcher, and which, in the movement of the stretcher, is adapted to be actuated to clamp the paper, and means to actuate the stretcher, thereby, by a single operation, successively clamping the paper and stretching it on the drum.

16. A sanding-drum having a longitudinal opening, a stretcher within the drum, a guide adjacent to said opening, adapted to turn on its axis, a movable fastener the members of which are respectively carried by said stretcher and guide, the end of the paper being adapted to be inserted between said members, and means to actuate said stretcher, whereby, as the paper is stretched on the drum, said guide will turn on its axis.

17. A sanding-drum having a longitudinal opening, a movable paper-guide adjacent to said opening, a stretcher within the drum, a longitudinally-extending fastening member on the stretcher, said guide having a longitudinal groove forming the other member of the fastener, and means to actuate the stretcher, thereby moving both fastening members and the guide and stretching the paper on the drum.

18. A sanding-drum having a longitudinal opening, a pivoted paper-guide adjacent to said opening, said guide having a longitudinal groove forming one member of the paper-fastener, a stretcher, a longitudinal bar carried by said stretcher and forming the other member of the fastener, said bar normally extending above said groove, and means to move said stretcher away from said longitudinal opening, thereby clamping the paper between the members of the fastener, and turning said guide on its pivot, and stretching the paper on the drum.

785,118. VEHICLE-TIRE. CHARLES A. PETTIT, New York, N. Y. Filed May 2, 1904. Serial No. 206,048.



Claim.—1. In a tire, a base consisting of sections each having grooves in the sides thereof, and an elastic tread enveloping said sections and interlocking with the grooved sides thereof.

2. A solid tire having a base comprising a plurality of radial spaced members, each formed with grooves at both sides thereof, and an elastic tread covering the base and interlocking along substantially continuous lines and at both side portions thereof with the grooved portions in the members of said base.

3. A solid tire having a base comprising a plurality of radial spaced members and provided at its side portions with longitudinal grooves, and an elastic tread covering the base and interlocking on substantially continuous lines with the side portions of said members of the base, said tread being molded around and filling the grooves of the base, and also having interlocking engagement on transverse lines with said base.

4. A solid tire having a base comprising a plurality of segmental sections each composed of a curved bar and a plurality of members on said bar, an elastic tread united to said members of the base, said tread having substantially continuous interlocking engagement at both of its side portions with the members of the base, and means for securing the curved bars of the segmental sections individually to a wheel-felly.

5. A solid tire having a base formed by a plurality of segmental sections, means for individually securing said segmental sections to a felly, and an elastic tread having interlocking engagement on cross-lines and at the side portions with said sections of the base.

6. A solid tire having a base formed by a plurality of segmental sections, means for attaching the sections individually to a wheel-felly, and an elastic tread having rooted engagement on cross-lines with the sections of the base, and also having interlocking engagement at both side portions and on substantially continuous lines with said base-sections.

7. In a solid tire, a base comprising a plurality of individual segmental sections, each consisting of a curved binder bar or plate and a plurality of members fitted to said binder bar or plate.

8. In a solid tire, a base consisting of a plurality of individual segmental sections, each having a curved binder, and a plurality of grooved members fitted to said binder.

9. In a solid tire, a tread-base consisting of a plurality of curved sections, each having a binder and a plurality of grooved or slotted members engaging with said binder.

10. In a solid tire, a base for an elastic tread comprising a plurality of individual curved sections, each consisting of a rigid binder, a plurality of members having grooves, spaces or slots for the reception of portions of a rubber tread, and means for separately securing the rigid binders of said curved sections to a wheel-felly.

11. In a solid tire, a plurality of segmental sections, each comprising a curved rigid bar or plate and a plurality of members which are fitted loosely to said bar or plate, means for fastening each bar or plate to a wheel-felly, and a tire inclosing the base.

12. In a solid tire, a plurality of segmental plates or bars having means for attachment individually to a wheel-felly, skeletonized members held by said plates or bars, and a tread molded around the members.

13. In a solid tire, a base for an elastic tread consisting of members each having a grooved foundation, and crossing-pieces united to said foundation and producing a space for the reception of a binder.

14. In a solid tire, a base consisting of radial skeletonized members each having a foundation and crossing members, the latter lying in a different plane from the foundation and the whole arranged to produce openings or spaces which extend across and at the

sides of the member, and a tread partially enveloping the members and filling the spaces or openings thereof.

15. In a solid tire, a plurality of individual segmental binders, skeleton members held thereby, and a tread filling the members and the spaces between them.

16. In a solid tire, a plurality of individual curved binders, skeleton members spaced on each of the binders, and a tread having rooted engagement with the members and the spaces between them.

17. In a solid tire, a base having a plurality of sections, each comprising a binder and a plurality of skeletonized members thereon, and a tread filling the spaces of the members and inclosing the base.

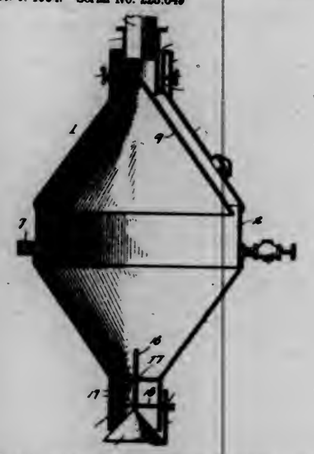
18. A solid tire having a base comprising a plurality of individual segmental binders, skeleton members held by each of the binders, means for separately securing the binders, and an endless tread enveloping the base and having rooted engagement with said skeleton members; either of the binders together with a number of members and a portion of the tread being adapted for removal without affecting the remainder of the tire.

19. In a tire, a base having a plurality of members, fastening devices each adapted for securing a number of base members to a felly, each fastening device and the members held thereby being independent of other fastening devices and the members secured by the latter, and a tread enveloping said members.

20. In a tire, a base consisting of skeletonized members, a plurality of binders adapted for engagement with a plurality of members, means for attaching the binders to a wheel-felly, and a tread interlocking with said skeletonized members.

21. In a tire, a base consisting of members, a plurality of binders each engaging with a plurality of said members, suitable bolts for fastening said binders to a wheel-felly, and a tread interlocking with said members.

785,119. **GRAIN-STEAMER.** PETER PROVOST, Menominee, Mich. Filed Sept. 1, 1904. Serial No. 223,049.

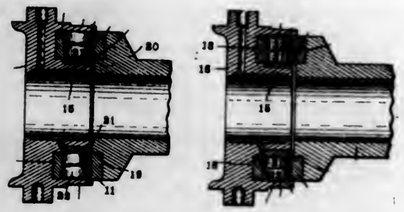


Claim.—In a device of the class described, a steamer-casing having an inlet and an outlet, a spreader-cone supported permanently below the inlet, a feed-tube centered in the inlet above the spreader-cone and vertically adjustable with relation to the latter, set-screws for positively retaining the feed-tube at various adjustments, and for centering the same, a conical valve supported below the outlet, and means for positively retaining said conical valve at various adjustments.

785,120. **ROLLER-BEARING.** MILTON O. REEVES, Columbus, Ind., assignor to Reeves Pulley Company, Columbus, Ind., a Corporation of Indiana. Filed Dec. 21, 1903. Serial No. 186,134.

Claim.—1. A roller-bearing consisting of a containiug annulus having a continuous concave track formed in its inner face, a spacing-spider sleeved within said annulus, rollers arranged in said spider and having convex outer ends to contact progressively with the entire length of said concave track, and suitable roller-tracks.

2. A roller-bearing consisting of, a containing annulus, a plurality of rollers arranged therein, said rollers having right-line bearing-peripheries and ends adapted to progressively engage the entire length of the interior of the annulus with at least two points of contact upon opposite sides of the axis of each roller, roller-tracks for engaging the right-line bearing-peripheries of the rollers upon opposite sides, and a spacing-splider, whereby the ends of the rollers will progressively engage the entire length of the interior of the annulus and will serve to hold the rollers radially with relation to the axis of the annulus.



785,121. **GREENISH-BLUE ANTHRAQUINONE DYE.** ROBERT E. SCHMIDT, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Dec. 20, 1904. Serial No. 237,706.

Claim.—The herein-described new dyestuff which can be prepared by treating with formic aldehyde and sulfuric acid the product obtainable by heating 1.3-dibromo-2-amidoanthraquinone with cupric chlorid, nitrobenzene and sodium acetate, which dyestuff forms after being dried and pulverized a dark-blue powder soluble in concentrated sulfuric acid with a brownish-olive color, being transformed into its hydro compound on suitable reduction with hydrosulfite and caustic-soda lye, the alkaline solution thus obtained exhibiting the typical properties of a "vat" which dyes unmordanted cotton greenish-blue shades, substantially as hereinbefore described.

785,122. **GREEN-BLUE ANTHRAQUINONE DYE.** ROBERT E. SCHMIDT, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Dec. 20, 1904. Serial No. 237,707.

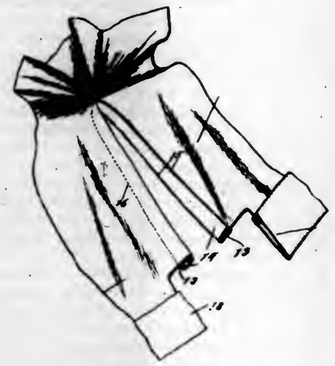
Claim.—The herein-described new dyestuff which can be obtained by treating with formic aldehyde and sulfuric acid the dyestuff described in United States Letters Patent No. 682,523, dated September 10, 1901, which dyestuff forms after being dried and pulverized a dark-blue powder soluble in concentrated sulfuric acid with an olive-brown color; being transformed into its hydro compound on suitable reduction with hydrosulfite and caustic-soda lye, the alkaline solution thus obtained exhibiting the typical properties of a "vat" which dyes unmordanted cotton greenish-blue shades, substantially as hereinbefore described.

785,123. **GREEN ANTHRAQUINONE DYE.** ROBERT E. SCHMIDT, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Dec. 20, 1904. Serial No. 237,708.

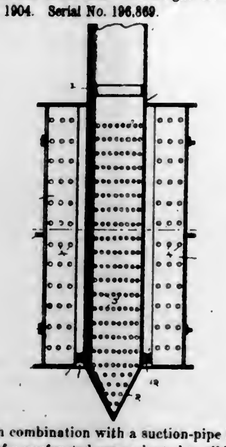
Claim.—1. The herein-described new dyestuff which can be prepared by treating with formic aldehyde and sulfuric acid the product obtainable by heating 1-4-diamido-2-3-dibromoanthraquinone with cupric chlorid, nitrobenzene and sodium acetate, which dyestuff forms after being dried and pulverized a greenish-black powder soluble in concentrated sulfuric acid with a yellowish-green color; being transformed into its hydro compound on suitable reduction with hydrosulfite and caustic-soda lye, the violet-blue alkaline solution thus obtained exhibiting the typical properties of a "vat" which dyes unmordanted cotton green shades, substantially as hereinbefore described.

785,124. **WEARING-APPAREL.** CATHRINE SCHNEIDER, Racine, Wis., assignor to The Hilker-Wiechers Manufacturing Company, Racine, Wis., a Corporation of Wisconsin. Filed Oct. 28, 1904. Serial No. 230,289.

Claim.—A garment having an opening, such as a sleeve-opening, a pair of continuous facing-strips between which the material of the garment extends and each of which has its edges folded inwardly, and seams passing through the folded edges and one of which seams secures the strips to the material, the strips at one side of the opening being folded under the garment material and secured thereto, substantially as shown and described.



785,125. **WATER-SCREEN.** HARRY B. SHAFER, Allegheny, Pa., assignor of one-half to Jonathan Wainwright, Jr., Washington, D. C. Filed Mar. 5, 1904. Serial No. 196,869.



Claim.—1. In combination with a suction-pipe having a perforated extremity, of a perforated cage adapted to slide thereon, having its surrounding wall stellated transversely and in spaced relation to the suction-pipe, said cage having an upper head provided with an opening to admit the suction-pipe in bearing relation, and a lower head adapted to provide a passage around the suction-tube, and a cleaning device supported on the wall of said cage and arranged to extend across said passage, substantially as and for the purpose set forth.

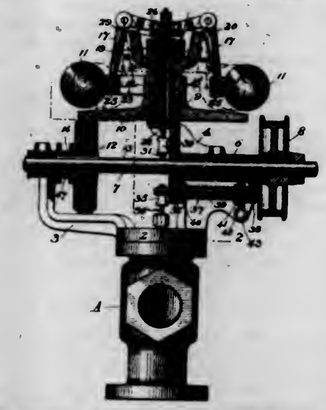
2. In combination with a suction-pipe having a perforated extremity, of a perforated cage adapted to slide thereon in spaced relation thereto, a closure for the top of said cage, and a circular cleaning-brush carried by said cage and adapted to form a closure for the base-opening thereof, substantially as and for the purpose set forth.

3. In combination with a suction-pipe having a perforated extremity, of a perforated cage adapted to slide thereon in spaced relation thereto and provided with a series of flexible projections extending therefrom in circular arrangement and adapted to enter the perforation of the tube extremity, substantially as and for the purpose set forth.

4. In combination with a suction-pipe, of a perforated cage adapted to slide thereon and comprising longitudinal sections hinged together, a flexible bail connecting said sections, and a suspending means for said bail, substantially as and for the purpose set forth.

785,126. **VARIABLE-SPEED GOVERNOR.** WILLIAM N. SPRINGER, Peoria, Ill., assignor to Avery Manufacturing Company, Peoria, Ill. Filed Feb. 27, 1902. Serial No. 95,963.

Claim.—1. In a governor, the combination of the stationary supporting-frame, the centrifugally-operated weights, the rotating support for such weights, a bearing in the frame upon which the support is loosely and removably mounted, and connections between the weights and the valve comprising a detachable coupling arranged to permit the said connection to be severed and leave the support free to be removed from its bearing in the frame, substantially as set forth.



2. In a governor, the combination of the stationary supporting-frame, the governor-weights, the support for the weights, a bearing in the frame for such support concentric with the axis of rotation of the weights, and another bearing for the support arranged in a plane at right angles to the first-mentioned bearing, comprising two members one carried by the support for the weights and the other by the supporting-frame, one of such members being adjustable relative to the other, substantially as set forth.

3. In a governor, the combination of a stationary supporting-frame, the governor-weights, a support for the weights, a vertical bearing in the frame for such support concentric with the axis of rotation thereof, and a horizontal bearing for the support arranged above the same, whereby the said horizontal bearing serves to cause the support for the weights to run in a true plane, but does not operate to sustain the support, substantially as set forth.

4. In a governor, the combination of the stationary supporting-frame having a vertically-disposed bearing, the governor-weights, the support for the weights surrounding the said bearing and arranged to rotate about the same, and a horizontally-disposed bearing for the support having one member carried by the hub of the support for the weights, and the other member carried by the vertical bearing of the stationary frame, substantially as set forth.

5. In a governor, the combination with a stationary supporting-frame, a rotary friction-disk, the governor-weights connected with the disk, a bearing for the disk concentric with its axis of rotation, another bearing for the disk parallel with its friction-face, and means for driving the friction-disk, substantially as set forth.

6. In a governor, the combination of a stationary frame, the governor-weights, a rotary carrier for the weights, a bearing for the said carrier concentric with its axis of rotation, from which bearing the carrier is freely removable, another bearing for the carrier disposed in a plane at right angles to its axis of rotation, the last said bearing being removable with the carrier, and means for rotating the carrier, substantially as set forth.

7. In a governor, the combination of a supporting-frame, the governor-weights, a carrier for the weights mounted in vertically-disposed bearings in the frame, a horizontally-disposed vertically-adjustable bearing for the carrier, and means for driving the carrier, substantially as set forth.

8. In a governor, the combination with a supporting-frame, of a friction-disk having a horizontal bearing-face, and mounted in vertically-disposed bearings in the frame, the centrifugally-operated weights connected with the said disk, a horizontally-disposed bearing for the disk, it being removable from the frame along with the disk, and a friction driving-wheel for rotating the disk, substantially as set forth.

9. In a governor, the combination of a supporting-frame having a bearing 9, the governor-weights, a rotary carrier for the weights mounted on the said bearing, another bearing for the carrier ar-

ranged in a plane at right angles to the axis of rotation of the carrier, and a support for the last-named bearing loosely supported in the frame, substantially as set forth.

10. In a governor, the combination of the governor-weights, a rotary carrier therefor having a hub, a stationary bearing for the carrier extending through the hub, and a second bearing arranged in a plane at right angles to the axis of rotation of the carrier, substantially as set forth.

11. The combination of a supporting-frame provided with a vertically-disposed chambered bearing 9, a friction-disk mounted upon the bearing and provided with a hub 15, the weights connected with the hub of the friction-disk, a tube or sleeve 18 mounted in the chambered portion of the bearing 9 and extending through the hub of the disk, a horizontally-disposed bearing for the disk arranged at the upper end of the tube or sleeve 18, and the friction-wheel for driving the disk, substantially as set forth.

12. In a governor, the combination of the weights, a rotary carrier therefor, a driving-shaft extending diametrically across the face of the carrier, gearing between the driving-shaft and the carrier, and valve connections operated by the weights and offset about the shaft and extending in line with the axis of rotation of the carrier on either side of the driving-shaft, substantially as set forth.

13. In a governor, the combination of the weights, a rotary carrier therefor, a driving-shaft extending diametrically across the face of the carrier, gearing between the driving-shaft and the carrier, a valve stem or rod operated by the governor-weights, made in two parts which are arranged on opposite sides of the driving-shaft, and connections between the two parts of the valve stem or rod extending past the driving-shaft, substantially as set forth.

14. In a governor, the combination of the weights, a carrier therefor, a driving-shaft extending across the face of the carrier, gearing between the driving-shaft and the carrier, a valve-rod operated by the governor-weights and made in two parts situated upon opposite sides of the driving-shaft, and the connecting-levers 32 and 34, and the link 33 between the levers uniting the two parts of the valve-rod, substantially as set forth.

15. In a governor, the combination of the weights, a carrier therefor, a valve-stem passing through the carrier and connected to the weights, a driving-shaft extending across the face of the carrier, bearings for the driving-shaft arranged upon opposite sides of the axis of rotation of the carrier, a driving-wheel for rotating the carrier mounted upon the shaft between the said bearings and free to move longitudinally upon the shaft, and means for shifting the driving-wheel upon its shaft, substantially as set forth.

16. In a governor, the combination of the weights, a rotary carrier for the weights having a friction-face, a driving-shaft, a friction-wheel mounted on the said shaft arranged to engage with the friction-face of the carrier, such wheel being free to move longitudinally along its shaft, a shifting-arm engaging with the said wheel and adapted to move it longitudinally of its shaft, and a screw-threaded shaft arranged to move the shifting-arm, substantially as set forth.

17. In a governor of the class described, the combination of the weights, a rotary carrier for the weights having a friction-face, a valve-stem passing through the carrier and adapted to be operated by the weights, a driving-shaft, a friction-wheel carried by the said shaft, and arranged to engage the friction-face of the carrier, and means for shifting the said wheel across the face of the carrier, substantially as set forth.

18. In a governor of the class described, the combination of the friction-disk, the weights connected with the said disk, the valve-stem passing through the disk and adapted to be operated by the said weights, the driving-shaft, the friction-wheel carried by the said shaft and arranged to engage with the said friction-disk, and means for moving said wheel across the face of the disk, substantially as set forth.

19. In a governor of the class described, the combination of the weights, the valve-stem operatively connected with the weights, the friction-disk adapted to rotate about the axis of the said stem and to support the said weights, a driving-shaft, a friction-wheel carried by the said shaft and adapted to engage with the friction-face of the said disk, and means for shifting the said wheel across the face of the disk, substantially as set forth.

20. In a governor of the class described, the combination of the weights, a rotary carrier therefor having a friction-face, a valve-stem passing through the carrier and operatively connected with the said weights at points above the said friction-face, a driving-shaft, a friction-wheel carried by the said shaft and arranged to engage with the friction-face of the carrier, and means for shifting the friction-wheel across the face of the carrier, substantially as set forth.

21. In a governor of the class described, the combination of the weights, a rotary carrier for the weights having a friction-face, a vertically-arranged valve-stem passing up through the carrier and operatively connected with the weights at points above said friction-face, a driving-shaft, a friction-wheel carried by the said shaft and arranged to engage with the friction-face of the carrier, and means for shifting said friction-wheel across the face of the carrier, substantially as set forth.

22. In a governor of the class described, the combination of the weights, a rotary carrier therefor having a friction-face, a driving-shaft extending diametrically across said face, a friction-wheel carried by the shaft and arranged to engage with the friction-face of the carrier, means for shifting the friction-wheel across the face of the carrier, a valve-rod operated by the governor-weights, a spring connected with the rod adapted to oppose the action of the weights on the rod, and means for varying the tension of the spring, substantially as set forth.

23. In a governor of the class described, the combination of the weights, the driven friction-disk supporting the weights, a valve-rod passing through said disk and operated by the weights, the friction driving-disk arranged to engage with the friction-face of the driven disk, means for shifting the driving-disk across the face of the driven disk, and means for normally maintaining the contact between the disks, substantially as set forth.

24. In a governor of the character described, the combination of the horizontal driving-shaft, the vertical tubular shaft, the steam-controlling valve directly below said shafts, the speed-changing frictional wheels respectively mounted on the axes of said shafts, and each adapted to be moved longitudinally of its shaft, and a vertically-adjustable valve-rod loosely connected to one of said frictional wheels, substantially as set forth.

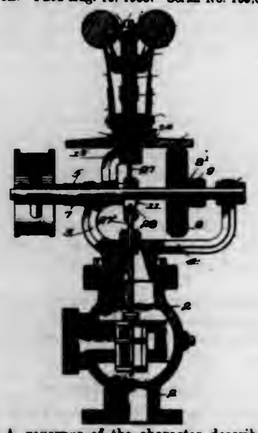
25. A governor of the character described provided with speed-changing gearing, means for normally maintaining contact between the gearing, and means for shifting one of the gears across the face of its opposing gear, substantially as described.

26. In a governor of the character described, speed-changing gearing comprising friction-disks, means for shifting one of said disks across the face of its opposing gear to change the point of contact, and means for normally maintaining the disks in contact, said last-mentioned means being independent of the adjusting means for the movable disk, substantially as described.

27. In a governor of the character described, friction-gearing, and means for normally maintaining a forced contact between the friction-gearing comprising adjustable mechanism associated with the governor-rod, substantially as described.

28. In a governor of the character described, friction-gearing, and means for normally maintaining a forced contact between the gearing comprising yieldable adjusting mechanism associated with the governor-rod, substantially as described.

785,127. **ENGINE-GOVERNOR.** WILLIAM N. SPRINGER, Peoria, Ill., assignor to Avery Manufacturing Company, Peoria, Ill., a Corporation of Illinois. Filed Aug. 10, 1903. Serial No. 169,012.



Claim.—1. A governor of the character described, provided with speed-changing frictional gearing, a steam-controlling valve directly below the gearing, a vertically-movable valve-rod associated with said frictional gearing, a spring bearing directly on said valve-rod arranged to normally maintain the said frictional gearing in operative engagement, and means for shifting one of the gears across the face of its opposing gear, substantially as set forth.

2. In a governor of the character described, the combination of the horizontal shaft, the driving pinion-wheel thereon, the horizontally-rotating friction-wheel engaging with said driving pinion-wheel and mounted on a vertical axis, a steam-controlling valve situated on said vertical axis, a vertically-movable valve-rod extending continuously from the valve to points below the horizontally-rotating friction-wheel, a spring bearing directly on the said valve-rod, and means for shifting one of the gears across the face of its opposing gear, substantially as set forth.

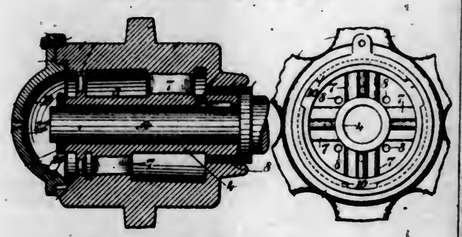
3. In a governor of the character described, the combination of the speed-changing gearing comprising friction-disks, means for shifting one of said disks across the face of its opposing gear to change the point of contact, a vertically-arranged valve-rod, governor-balls connected to said valve-rod arranged to move downward as they increase in rotary speed, means connecting the said balls directly to one of the friction-gears, and means for maintaining the friction-disks normally in engagement with each other, substantially as set forth.

4. The combination with the steam-duct, the valve therein, the driving-shaft, the driving friction-pinion thereon, the driven friction-wheel, the valve-rod extending from points below to points above the shaft, the spring below the driving-shaft engaging with the valve-rod, the governor-balls, means connecting the governor-balls with the valve-rod, and means connecting them with the driven friction-gearing, substantially as set forth.

5. In an engine-governor of the character described, the combination of the valve and the valve-rod, of the governor driving-shaft transverse to the line of the valve-rod, the driving friction-pinion on said shaft, the driven friction-wheel rotating around the line of the valve-rod, the centrifugal acting device connected with the friction-gearing and with the valve-rod, and means associated with the said rod for maintaining the frictional gearing normally in operative engagement, substantially as set forth.

6. In a governor of the class described, the combination of the valve, the valve-rod, the friction-gearing, the governor-balls arranged to move downward and outward with increase of speed, means interposed between the balls and one element of the friction-gearing and adapted to transmit pressure from the balls to said gearing element, and means interposed between the balls and the valve-rod whereby the latter is moved longitudinally, substantially as set forth.

785,128. **SELF-OILING CAR-WHEEL.** ELLIS T. THAYER, Charleston, W. Va., assignor of one-third to James E. Crawford, Charleston, W. Va. Filed Apr. 30, 1904. Serial No. 205,712.



Claim.—1. The combination with a wheel-hub having an oil-chamber therein open at one end and provided with cam-lugs at said open end, of a cap for said oil-chamber, said cap having cam-lugs for coöperating with the lugs at the end of the oil-chamber, and also having an opening for the introduction of oil, and a strap-spring carried upon the inner face of said cap and extending across said oil-opening therein and adapted to close said opening when the cap is in its normal position on the hub.

2. The combination with a wheel-hub having an oil-chamber therein open at one end, and provided with cam-lugs at said open end, of a cap for said oil-chamber, said cap having cam-lugs for coöperating with the lugs at the end of the oil-chamber, and a yielding plate carried upon the inner face of said cap and having a free end adapted to spring between two of said lugs when the cap is screwed home to lock said cap on the hub.

3. The combination with a wheel-hub having an oil-chamber therein open at one end and provided with cam-lugs at said open end, of a cap for said oil-chamber, said cap having cam-lugs for coöperating with the lugs at the end of the oil-chamber, and means for locking said cap against rotation when the same is screwed home on the hub.

785,129. **COMBINATION CHECKREIN-BASE.** JOHN R. UNCAPHER, Plumville, Pa. Filed Aug. 3, 1903. Serial No. 168,068.



Claim.—1. In a device of the class described, the combination with a support, of a check-holding device having spaced shanks slidably mounted on the support, springs fitted upon the shanks and opposing the sliding movement thereof in one direction, and fastening means for the support passing transversely therethrough between the shanks.

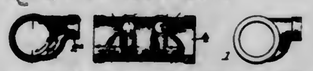
2. In a device of the class described, the combination with a casing, of a substantially U-shaped check-holding device having spaced shanks slidably mounted in the casing, springs coiled upon the shanks and opposing the sliding movement thereof in one direction, said springs being located within the casing, and fastening-bolts passing transversely through the casing between the shanks.

3. In a device of the class described, the combination with a casing formed of sheet metal and having its opposite side margins rolled to form spaced tubular compartments, of a check-holding device projecting from one end of the casing and having spaced shanks slidably mounted in the compartments, springs coiled upon the shanks and located within said compartments, and means for securing the casing to a harness-saddle.

4. In a device of the class described, the combination with a casing, of an end closure detachably mounted on the casing, a check-holding device having a shank that is slidably mounted in the casing, a spring mounted within the casing and engaging the shank, and means for fastening the casing to a harness-saddle, said means engaging the closure to secure the same upon the casing.

5. In a device of the class described, the combination with a casing having spaced tubular compartments, of a substantially U-shaped check-holding device having spaced shanks that are slidably mounted in the compartments, coiled springs fitted upon the shanks and located within the compartments, and fastening devices passing through the casing between the compartments.

785,130. **PIPE-FITTING.** WILLIAM VANDERMAN, Willimantic, Conn. Filed May 6, 1904. Serial No. 206,776.



Claim.—1. A pipe fitting or connection having a main chamber and a branch with an opening of smaller area communicating therewith, providing a direct-flow passage from the main chamber to the branch adjacent to the top of the main chamber, and having a flow-passage connecting the bottom of the branch and bottom of the main chamber and arranged outside of the direct line of the main chamber.

2. A pipe fitting or connection having a main chamber and a branch with an opening of smaller area communicating therewith and having a flow-passage of a width corresponding to the diameter of the opening in the branch, and connecting the bottom of the branch and the bottom of the main chamber and arranged outside of the direct line of the main chamber.

3. A pipe fitting or connection having a main chamber and a branch with an opening of smaller area communicating with the upper part of said chamber and forming a direct flow-passage between the main chamber and the branch, and a channel extending from said branch to the lowest part of the chamber and offset from the main chamber.

4. A pipe fitting or connection having a main chamber with a branch opening or connection communicating with the upper part of the chamber, and provided with a gradually-curved wall between

the main chamber and the branch extending in the direction of flow of fluid thereto, and a channel offset from the main chamber and leading from the branch into the lower part of said main chamber.

5. A pipe fitting or connection having a main chamber with a branch communicating therewith of smaller area and with one wall flush with the wall of the main, a channel extending from the branch to a point flush with the opposite wall of the main, and a surface gradually curving into the branch in the direction of flow of fluid.

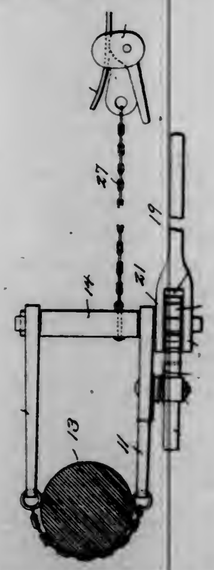
6. A pipe fitting or connection having a chamber with a branch of smaller area communicating therewith, the wall of the chamber adjacent to the branch curving gradually thereinto in all directions of flow of fluid to said branch but curving abruptly away from said branch in the opposite direction, and a channel portion leading from said branch to the lowest part of the chamber.

7. A pipe fitting or connection having a main chamber with an opening of smaller area communicating therewith, providing a direct-flow passage for hot fluid from the main chamber, and having a flow-passage connecting the bottom of the smaller opening and the bottom of the main chamber and arranged outside of the main wall of the main chamber.

8. A pipe-fitting including a body part having a chamber with an opening of equal area thereto, and a plural number of smaller openings communicating therewith, the upper walls of each of said smaller openings being of a height at least equal to that of the upper wall of said chamber whereby a flow-surface for hot fluids in directions out of said chamber is provided, the lower walls of said chamber gradually sloping and merging into the bottom of each of the small chambers, whereby a flow-surface for colder fluid into said chamber is provided.

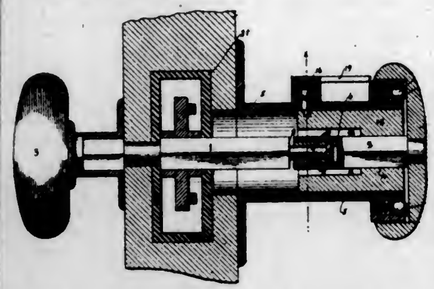
9. In combination in a pipe-fitting, a body part having a chamber with an opening of equal area thereto and a plural number of openings of smaller area communicating therewith, the upper walls of the smaller openings being of a height at least equal to that of the upper wall of the chamber whereby a flow-surface for hotter fluid into the smaller passage is provided, the said wall curving gradually from the chamber into a lateral opening in the direction of flow of fluid thereto, but curving abruptly in the chamber on the opposite side of the lateral opening, the bottom walls gradually sloping from the bottom of the chamber to the bottom of each of the smaller openings.

785,131. WIRE-STRETCHER. MARCUS F. VARNUM, Amorita, Okla. Filed June 22, 1904. Serial No. 213,706.



Claim.—In a device of the class described, the combination with a pair of spaced arms, of a flexible member connecting the arms and adapted to embrace a post or similar support, a winding-drum having reduced end portions extending through openings in the opposite ends of the arms and serving as a connecting means therefor, means for connecting the winding-drum to the wire to be stretched, a ratchet-wheel rigidly secured to one of the extended end portions of the drum, an operating-lever bifurcated at one end to form a pair of arms that straddle the ratchet-wheel, said arms being provided with elongated slots disposed at an obtuse angle to the general plane of the operating-lever, and through which slots the end portion of the winding-drum passes, an integral pawl formed at the point of bifurcation of the arms, the relation of the shaft, the slots and the pawl, with respect to the teeth of the ratchet-wheel being such that both ends of the slot are distant from the end portion of the winding-drum when the pawl is in engagement with one of the ratchet-teeth, thereby forming a cam which forces the pawl against the tooth to an extent proportioned to the degree of force exerted on the lever, and a pivotally-mounted retaining-pawl carried by one of the arms and arranged to engage the ratchet-wheel.

785,132. LOCK. FRED J. VIEWEG, Plainfield, N. J. Filed Oct. 21, 1903. Serial No. 177,834.



Claim.—1. In a lock, the combination of a latch-bolt, a rotatable knob, and means controlled by the rotation of the knob from either side of the door adapted to render the bolt inoperative as to one side of the door.

2. In a lock, the combination of a latch-bolt, operative at all times from one side of the door, a rotatable knob, and means controlled by the rotation of the knob from either side of the door, adapted to render the bolt inoperative as to one side of the door.

3. In a lock, the combination with a latch-bolt, a rotatable knob on one side of the door adapted to operate the latch-bolt at all times from its side of the door, and to render the bolt inoperative as to the other side of the door, and means controlled by the rotation of the knob on the other side of the door adapted to render said bolt both operative and inoperative at will from its side of the door.

4. In a lock in combination, latch mechanism, a broken rotatable spindle adapted to actuate the same, a device adapted to unite and disunite the members of said spindle, and means on one side of the lock adapted to move said device to unite and disunite the members, and means on the other side of the lock adapted to move said device to throw the opposite member out of operative relation to the said latch mechanism.

5. In a lock in combination, latch mechanism, a broken rotatable spindle adapted to operate the same, means adapted to throw one of the members of said spindle out of operative relation to the said latch mechanism but not the other, said means being operative from either side of the lock.

6. In a lock in combination, latch mechanism, a broken rotata ble spindle, a movable collar mounted loosely on the spindle, and means adapted to move said collar to unite and disunite the spindle members.

7. In a lock in combination, latch mechanism, a broken rotatable spindle, one member of which is, the other of which is not normally adapted to operate said mechanism, a movable collar mounted loosely on the latter member, and means adapted to move said collar to unite and disunite the spindle members to enable both to operate said mechanism at will.

8. In a lock in combination, latch mechanism, a broken rotatable spindle, one member of which is, the other of which is not normally adapted to operate said mechanism, a movable collar mounted loosely on the latter member, and means operative from the said side of the door as the latter member adapted to move said collar to unite and disunite the two spindle members and enable both to operate said mechanism at will.

9. In a lock in combination, latch mechanism, a broken rotatable spindle, two members relatively movable, and adapted to unite and disunite the parts of the spindle.

10. In a lock in combination, latch mechanism, a broken rotatable spindle, a collar and a pin, movable in relation to each other, and adapted to unite and disunite the parts of the spindle.

11. In a lock in combination, latch mechanism, a broken rotatable spindle, one member of which is, the other of which is not normally adapted to operate said mechanism, and a movable collar mounted loosely on the latter, and adapted to unite and disunite the two spindle members to enable the latter member to operate said mechanism at will.

12. In a lock in combination, latch mechanism, a broken rotatable spindle, a movable collar mounted loosely on the said spindle, and having an angular hole adapted to receive the members of said spindle, and means adapted to move said collar to unite and disunite said spindle members to enable both to operate said latch mechanism at will.

13. In a lock in combination, latch mechanism, a broken rotatable spindle, one of whose members carries a movable collar mounted loosely thereon, and having an angular hole adapted to receive the other member and means operative from the side of the former member, adapted to move said collar to unite and disunite said members at will.

14. A lock comprising: latch mechanism, a broken rotatable spindle, a collar mounted loosely on the spindle, and a pin adapted to move the collar laterally to unite and disunite the spindle members.

15. A lock comprising: latch mechanism, a rotatable spindle consisting of two opposed independent members, one of which is, the other of which is not normally adapted to operate said mechanism, a movable collar loosely mounted on the latter member operative from the same side of the lock as the latter member, and a pin adapted to move the collar laterally to unite and disunite the spindle members.

16. A lock comprising: latch mechanism, a broken rotatable spindle, a collar having a labyrinth of grooves, and a pin adapted to engage therein, said pin and collar being relatively movable and adapted to unite and disunite the members of said spindle.

17. A lock comprising: latch mechanism, a broken rotatable spindle, a movable and rotatable collar having a labyrinth of grooves, and a pin adapted to engage therein, and to move said collar laterally when the latter rotates.

18. A lock comprising: latch mechanism, a broken rotatable spindle, a collar having a labyrinth of grooves, a pin adapted to engage with said grooves, a knob and connections adapted to cause the pin and grooved collar to travel with relation to each other, to unite and disunite the said spindle members.

19. A lock comprising: latch mechanism, a rotatable spindle, consisting of two opposed independent members, one of which is, the other of which is not normally adapted to operate said mechanism, a movable and rotatable collar having a labyrinth of grooves, a pin adapted to engage with said grooves, a knob and connections adapted to cause the pin and the grooved collar to travel with relation to each other, and which when turned a variably-predetermined number of times and a variably-predetermined distance in opposite directions will cause said pin to take certain passages through the said labyrinth to move the collar a predetermined distance to unite the spindle members, and to enable either to operate said latch mechanism.

20. A lock comprising: latch mechanism, a rotatable angular spindle consisting of two opposed independent members, one of which is, the other of which is not normally adapted to operate said mechanism, a movable and rotatable collar having a chambered portion of sufficient diameter to allow the spindle members to rotate freely therein, and having at the end of said chamber an angular hole adapted to receive the opposed angular spindle member, and having a labyrinth of grooves, a pin adapted to engage in said grooves, a knob and connections adapted to cause the pin and the grooved collar to travel with relation to each other, and which when turned a variably-predetermined number of times, and a variably-predetermined distance in opposite directions will cause said pin to take certain passages through the said labyrinth to move the collar a predetermined distance to engage the opposed angular spindle member in the angular hole of the collar to unite the spindle members, and to enable either to operate said latch mechanism.

21. A lock comprising: latch mechanism, a rotatable angular spindle consisting of two opposed independent members, one of which is, the other of which is not normally adapted to operate said mechanism, a movable and rotatable collar having a chambered portion of sufficient diameter to allow the spindle members to rotate freely therein, and having at the end of said chamber an angular hole adapted to receive the opposed angular spindle member, and having a labyrinth of grooves, a pin adapted to engage in said grooves, a knob and connections adapted to cause the pin and the grooved collar to travel with relation to each other, and which when turned a variably-predetermined number of times, and a variably-predetermined distance in opposite directions, will cause said pin to take certain passages through the said labyrinth to move the collar a predetermined distance to engage the opposed angular spindle member in the angular hole of the collar to unite the spindle members, and to enable either to operate said latch mechanism, and means adapted to indicate the progress of the said pin through the grooves.

22. A lock comprising: latch mechanism, a broken rotatable spindle, a collar having a series of cam-surfaces, a pin adapted to engage therewith, said pin and collar being relatively movable, and adapted to unite and disunite the members of said spindle.

23. A lock comprising: latch mechanism, a broken rotatable spindle, a movable and rotatable collar, having a labyrinth of cam-surfaces, and a pin adapted to engage therewith to move said collar laterally when the latter rotates.

24. In a lock of the character described, means for operating said lock, comprising in part: a rotatable and movable collar having a labyrinth of grooves, a pin adapted to engage therein and to move said collar laterally when the latter rotates, means adapted to rotate said collar, and means adapted to determine the passage of said pin through said grooves.

25. In a lock of the character described, means for operating said lock, comprising in part: a rotatable and movable collar, having a labyrinth of grooves, a pin adapted to engage therein, and to move said collar laterally when the latter rotates, a knob carrying a spindle member adapted to rotate said collar as the knob rotates, spring-seated pins in the one member, and indents in another member adapted to engage with each other to indicate the progress of the first-mentioned pin through said grooves.

26. In a lock of the character described, means for operating said lock, comprising in part: a rotatable and movable collar having a labyrinth of grooves, a pin adapted to engage therein, and to move said collar laterally when the latter rotates, a knob carrying a spindle member adapted to rotate said collar as the knob rotates, spring-seated pins in the one member, and indents in another member adapted to engage with each other to indicate the progress of the first-mentioned pin through said grooves, and means adapted to determine the starting-point therefor.

27. In a lock of the character described, means for operating said lock, comprised in part of a sleeve and a door-knob, relatively movable, one of said members having a series of indents and the other member having a spring-seated pin adapted to engage therein.

28. In a lock of the character described, means for operating said lock, comprised in part of a collar having a labyrinth of grooves, a pin adapted to engage therein, means adapted to cause said pin and collar to travel one with relation to the other, a sleeve and a rotatable door-knob, one of said members having a series of indents and the other having a spring-seated pin adapted to engage in said indents to indicate the progress of the first-mentioned pin through the said grooves.

29. In a lock in combination, a latch-bolt, a door-knob, and means actuated by the rotation of the said door-knob adapted to operate said bolt from both sides or from one side only at will.

30. In a lock in combination, a latch-bolt, a plurality of spindles, bolt-actuating means adapted to be operated thereby to move said bolt, a door-knob, and means actuated by the rotation of said knob, adapted to bring into and throw out of operative relation with the said bolt-actuating means, one of said spindles.

31. In a lock, in combination, a latch-bolt, a door-knob, means adapted to operate said bolt from both sides or from one side at will, said means being actuated solely by the said knob, and adapted to effect such change.

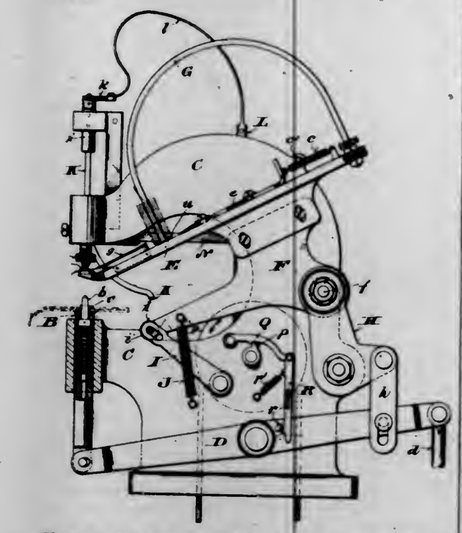
32. In a lock in combination, a latch-bolt, a door-knob, means adapted to operate said bolt from both sides of the lock, and means actuated by the rotation of said knob adapted to render the said bolt inoperative and operative from one side of the lock at will.

33. In a lock of the character described, a broken angular spindle, one member having a recess adapted to engage with the collar extension of another member, a movable collar carried by the one member and provided with a chambered recess of sufficient diameter to allow said collar to rotate freely about the opposite spindle member, and an angular hole adapted to engage said opposite spindle member.

34. In a lock of the character described, a broken angular spindle, one member having a recess adapted to engage with a collar extension of another member, a movable collar carried by one member and provided with a chambered recess of sufficient diameter to allow said collar to rotate freely about the opposite spindle member, an angular hole adapted to engage said opposite spindle member, means adapted to allow a lateral movement between the members, and means adapted to positively limit said movement.

35. In a lock of the character described, a broken rotatable spindle, one of whose members is provided with a recess adapted to engage with a tenoned portion of another member, said tenoned portion being of smaller diameter than said recess, a collar of the same diameter as said recess formed on the said tenoned portion, and adapted to keep said members in alinement, means adapted to allow a lateral movement between the members, bushings attached to the inner side of said recess, and adapted to positively limit the lateral movement of said spindle members.

785,133. **GROMET-SETTING MACHINE.** WILLIAM H. WAGNER, Burlington, Wis., assignor to Burlington Blanket Company, Burlington, Wis., a Corporation of Wisconsin. Filed May 18, 1903. Serial No. 157,536.



Claim.—1. In a gromet-setting machine the combination with setting-dies, of rods on which the gromet-sections are strung, and means for feeding said sections one at a time from said rods to each of said dies, substantially as described.

2. In a gromet-setting machine the combination with the setting-dies, one of which is movable toward and from the other, and means for operating the movable die, of rods on which the gromet-sections are strung, and feeding devices arranged to release and deliver the gromet-sections one at a time from each rod to each die in position for setting, substantially as described.

3. In a gromet-setting machine the combination with setting-dies, and means for feeding gromet-sections to one of said dies, of a carrier provided with a rod for holding a series of gromet-sections thereon, a pusher for removing the sections from said rod one at a time, and means for moving said carrier toward and from the other die and delivering the detached gromet-section in position for setting between said dies, substantially as described.

4. In a gromet-setting machine the combination with setting-dies of a curved rod for holding a series of gromet-sections strung thereon; means for turning the free end of said rod into position for delivering a gromet-section to one of said dies, and a reciprocating slotted plate for supporting the series of gromet-sections on said rod and releasing them one at a time, substantially as described.

5. In a gromet-setting machine the combination with a suitable frame and setting-dies, and means for feeding eyelets to one of said dies, of a carrier, pivoted arms connecting said carrier with the frame and arranged to hold it in an inclined position when thrown forward and in an approximately horizontal position when thrown backward, a lever arranged to operate one of said dies and said carrier, a rod for holding a series of washers on said carrier, a spring-retracted pusher mounted upon said carrier, and a stop on the frame in the path of said pusher arranged to arrest it and cause it to thrust one of said washers from the series when said carrier is swung back, substantially as described.

6. In a gromet-setting machine the combination with a suitable frame and setting-dies, and means for feeding eyelets to one of said dies, of a carrier, a slotted link and a lever connecting said carrier with the frame, a bearing on said frame for said carrier in its forward position, a spring tending to swing said carrier forward against said bearing, a lever for operating one of said dies connected by a slotted link with the carrier-supporting lever, a yielding rod mounted upon said carrier for holding a series of washers, and a pusher adapted to thrust one of said washers from the series when said carrier is swung back, substantially as described.

7. In a gromet-setting machine the combination with setting dies, one of which has a retractile center-pin, of a shaft provided with cams, means tending to turn said shaft, a detent for holding said shaft from turning, a curved oscillatory rod adapted to hold a series of gromet-sections and to be turned into position to deliver them to said center-pin, a reciprocating plate movable transversely to said rod in position to support a series of gromet-sections thereon and slotted and tongued to release them one at a time, mechanism actuated by said cams to intermittently turn said rod and reciprocate said plate, and means for operating one of said dies and releasing said detent, substantially as described.

8. In a gromet-setting machine the combination with setting-dies, of a swinging carrier adapted to deliver washers to one of said dies and provided with a rod for holding the washers and with a pusher for removing the washers one at a time from the rod, a curved rod for supplying eyelets to the other die, a reciprocating plate adapted to support the eyelets on said rod and slotted and tongued to release them one at a time, an intermittently-rotated shaft provided with cams for turning said curved rod and operating said slotted plate, and a lever for operating the movable die and the carrier, and for releasing the cam-shaft, substantially as described.

9. In a gromet-setting machine the combination with setting-dies, one of which has a retractile center-pin, of a rod supported and adapted to turn at or near its upper end in a vertically-disposed bearing and curved at its lower end which is arranged to be swung into and out of line with said center-pin, a lever having a spring connection with a crank on said rod, a reciprocating slotted plate movable tranaversely to said rod and provided with upturned tongues on opposite sides of the slot through which the rod passes, and a shaft provided with cams for operating said lever and plate, to first turn said rod into engagement with said center-pin and then to release a gromet-section, substantially as described.

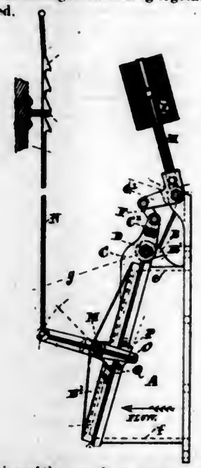
10. In a gromet-setting machine the combination with a suitable frame, setting-dies, one of which is movable axially toward and from the other and has a retractile center-pin, and means for depositing eyelets one at a time upon the center-pin of the movable die, of a swinging carrier forked and provided on the sides with converging springs at its front end which comes opposite the stationary die when said carrier is tipped forward, a rod for holding washers mounted on said carrier and having one end presented to and free to yield away from its upper face, a spring-retracted pusher mounted and movable longitudinally upon said carrier, a stop arranged on the frame to arrest said pusher and thrust it underneath the free end of said rod when said carrier is swung backward, and a lever having connections arranged to first advance the movable die toward the stationary die and then swing said carrier backward, substantially as described.

785,134. **FLUSHING-GATE FOR SEWERS, &c.** GEORGE S. WALKER, Boston, Mass., assignor to Coffin Valve Company, Boston, Mass., a Corporation of Massachusetts. Filed Jan. 9, 1905. Serial No. 240,325.

Claim.—1. The yoke-lever, having the upward arm for connection to the lifting-rod and the two lower arms provided with hold-down-lugs and the intermediate fulcrum attachment to the valve, in combination with the hinged valve, its stop-lugs for the lower arms of the lever, the gate-frame and its incline lugs to engage the hold-down ends of the lever, substantially as shown and described.

2. In combination with the hinged valve, its arms and connecting-links, the pivoted bell-cranks and adjustable balance-weights, arranged at corresponding reversed angles, substantially as shown and described.

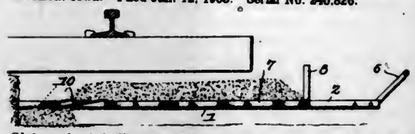
3. The adjustably-balanced flushing-gate, comprised of a frame having a through fluid-way and a hinged valve, the yoke-lever with central fulcrum jointed to the valve and arms embracing valve and frame, and locking under lugs provided with inclines upon the frame, an upward arm and jointed lifting-rod with the valve-arms, connecting-links, bell-cranks, adjustable balance-weights, to which they are connected, all arranged and acting together substantially as shown and described.



4. The combination of the gate frame, its pivoted valve, the pivoted three-arm lever, its engaging lugs, operating-rod, and lever-stops on valve and frame, all arranged and operating together, substantially as shown and described and for the purpose set forth.

5. The three-arm lever and operating-rod in combination with the pivoted valve, and valve-frame, all constructed and arranged substantially as shown and described and for the purpose set forth.

785,135. **BALLAST-HANDLING DEVICE.** NILS P. WALTERS, Fort Madison, Iowa, assignor of one-half to Charles L. O'Kell, Fort Madison, Iowa. Filed Jan. 12, 1905. Serial No. 240,826.



Claim.—1. A ballast-handling device comprising a base member and a grating member removably supported thereon, the base member capable of being withdrawn from beneath the grating member.

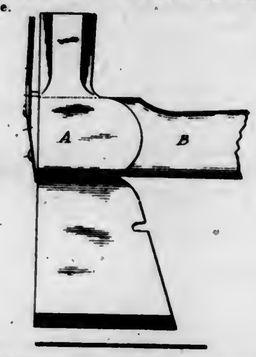
2. A ballast-handling device comprising a base member having a terminal handle, and a grating member supported upon the base member and provided with a terminal handle adjacent the handle of the base, said members capable of being successively withdrawn from beneath a charge of ballast to deposit the latter upon the ground.

3. A ballast-handling device comprising a base member having opposite longitudinal flanges with its forward end open and its rear end provided with an upstanding handle, and a grating member removably supported upon the base member between the flanges thereof and provided with an upstanding handle located adjacent the handle of the base, the base capable of being withdrawn from beneath the grating when the latter is supported by its handle.

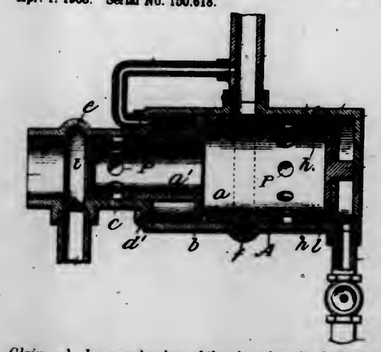
4. A ballast-handling device comprising a base member which has one end unobstructed and its opposite end provided with a handle, and a grating member in the form of a zigzag bar removably supported upon the base and provided with a handle adjacent the handle of the base, said base capable of being withdrawn from beneath the grating member when the latter is supported by its handle.

785,136. **NAIL-PLACER.** WILLIAM H. WARRAM, Kent county, and JAMES W. URIE, Baltimore, Md. Filed Sept. 7, 1904. Serial No. 223,641.

Claim.—A combination, with a driving implement and a handle therefor, of a nail-placer comprising an abutment and a retaining member superimposed thereupon, the abutment located upon the outer end of the handle and extending over and lying upon the driving implement to prevent the latter from starting from the handle, and fastening means passing through the retainer and abutment and into the handle.



785,137. **VALVE.** JAMES G. WESTBROOK, Ogdensburg, N. Y. Filed Apr. 1, 1903. Serial No. 150,618.



Claim.—1. In a mechanism of the class described, the combination with a casing formed with an annular shoulder, of a valve mounted within said casing having an enlarged portion snugly fitting the casing at one side of said shoulder and a reduced portion snugly fitting the casing at the other side of said shoulder, means for supplying pressure to said valve-casing, a by-pass leading from said means to and communicating through the wall of said casing at the point of said shoulder, means for reciprocating said valve within said casing and ports in the path of movement of said valve.

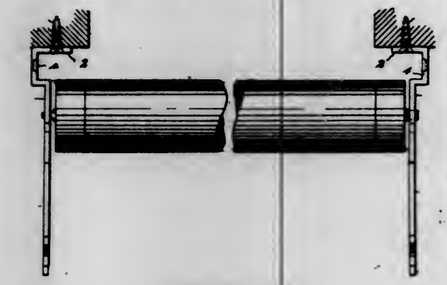
2. In a mechanism of the class described, the combination with a valve-casing formed with an internal annular shoulder, a supply-pipe communicating with said casing, a by-pass communicating between the said supply-pipe, and the interior of the casing, said by-pass extending through said shoulder, a valve within said casing normally retained in a closed condition by pressure supplied through said by-pass, means for moving said valve within the casing against pressure and ports in the path of the movement of the valve.

3. In a mechanism of the class described, the combination with a valve-casing formed with an internal, annular shoulder provided with an annular groove, a supply-pipe communicating with said casing, a by-pass communicating between said supply-pipe and said groove, said by-pass extending through said shoulder, a valve within said casing normally retained in a closed condition by pressure supplied through said by-pass, means for moving said valve within the casing against said pressure, and ports in the path of movement of the valve.

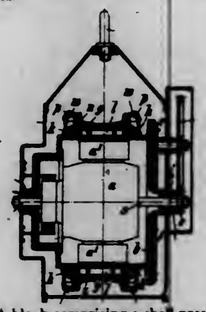
785,138. **WINDOW-FIXTURE.** AMOS B. WHEELER, Manchester, Conn. Filed Aug. 2, 1904. Serial No. 219,162.

Claim.—A window-fixture having a body, a section offset from the body, perforations through the offset section for the passage of holding-screws, an ear extending at right angles to the offset section,

perforations through the ear for the passage of holding-screws, an arm curving forwardly from the body, so as to form a pole-recess, fingers extending upwardly from the end of the arm so as to form a rod-recess, and a leg extending downwardly from the body and having two openings adapted to receive the ends of shade-roller spindles, one opening being lower than and farther forward than the other opening, substantially as specified.



785,139. ELECTRICALLY-DRIVEN HOIST OR COAL-WHIP. JOHANNES WILHELMI, Hamburg, Germany. Filed June 16, 1904. Serial No. 213,862.



Claim.—1. A block comprising a shell provided with means to connect it to an overhead support, a pulley, and an electric motor to drive said pulley, both contained in said shell.

2. A block, comprising a shell provided with means to connect it to an overhead support and containing a pulley, an electric motor and transmitting mechanism to transmit the angular motion of the rotor of said motor to the pulley.

3. A block, comprising a shell provided with means to connect it to an overhead support, and containing a chambered pulley, field-magnets therein, an armature revoluble in the field of said magnets, the armature-shaft and transmitting mechanism to transmit the angular motion of the shaft to the pulley and cause the two to rotate in opposite directions.

4. A block, comprising a shell provided with means to connect it to an overhead support, and containing a chambered pulley, field-magnets therein, an armature revoluble in the field of said magnets, the armature-shaft and transmitting mechanism to transmit the angular motion of the shaft to the pulley and cause the two to rotate in opposite directions and at different rates of speed.

5. A block, comprising a shell provided with means to connect it to an overhead support and containing a two-part pulley composed of a cylindrical body and a grooved pulley-rim loosely mounted thereon, an electric motor, its armature-shaft and transmitting mechanism to transmit the angular motion of the shaft to the pulley-body; in combination with coupling devices and mechanism to couple the pulley-rim to and uncouple it from its body.

6. A block, comprising a shell provided with means to connect it to an overhead support and containing a two-part pulley composed of a cylindrical body and a grooved pulley-rim loosely mounted thereon, an electric motor, its armature-shaft and transmitting mechanism to transmit the angular motion of the shaft to the pulley-body; in combination with coupling devices and mechanism to couple the pulley-rim to and uncouple it from its body, said mechanism organized to be operated by variations of the tension on the hoisting-cable.

7. A block, comprising a shell provided with means to connect it to an overhead support and containing a two-part pulley composed of a cylindrical body and of a grooved rim loosely mounted on said body, an electric motor, its armature-shaft and transmitting mechanism to transmit the angular movement of the shaft to the pulley-body; in combination with a clutch-ring on each side of the pulley-rim, said rings revoluble with and slidable axially on the pulley-body and having clutch-faces adapted to act on corresponding faces on opposite sides of the pulley-rim, and means to move said rings toward and from the pulley-rim to couple the latter to and uncouple it from its body portion.

8. A block, comprising a shell provided with means to connect it to an overhead support and containing a two-part pulley composed of a cylindrical body and of a grooved rim loosely mounted on said body, an electric motor, its armature-shaft and transmitting mechanism to transmit the angular movement of the shaft to the pulley-body; in combination with a clutch-ring on each side of the pulley-rim, said rings revoluble with and slidable axially on the pulley-body and having clutch-faces adapted to act on corresponding faces on opposite sides of the pulley-rim, mechanism to move said rings toward and from the pulley-rim to couple the same to or uncouple it from its body portion, said mechanism organized to be operated by variations of the tension on the hoisting-cable.

9. A block, comprising a shell provided with means to connect it to an overhead support and containing a chambered pulley provided with tubular journals revoluble in bearings in the shell, and an electric motor comprising field-magnets arranged in the chamber of the pulley, an armature revoluble in the field of said magnets, and an armature-shaft revolubly mounted in the tubular journals of the pulley, and transmitting mechanism to transmit the angular motion of the shaft to the pulley and cause the two to rotate in opposite directions.

10. A block, comprising a shell provided with means to connect it to an overhead support and containing a two-part pulley composed of a hollow cylindrical body provided with tubular journals revoluble in bearings in the shell and of a grooved pulley-rim loosely mounted on said body, an electric motor comprising field-magnets on the inner periphery of the pulley-body and an armature revoluble in the field of said magnets, and an armature-shaft revoluble in the tubular journals of said pulley-body, and transmitting mechanism to transmit the angular motion of said shaft to the pulley-body; in combination with friction-clutch devices acting on the pulley-rim to couple the same to its body, means to automatically move said devices out of contact with the pulley-rim, and mechanism organized to be operated by variations of the tension on the hoisting-cable to move the clutch devices into contact with said pulley-rim.

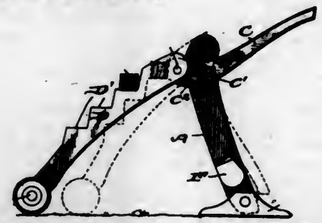
11. The combination with a cylindrical, revoluble pulley-body, two friction clutch-rings revoluble with and slidable axially thereon, and springs acting on said rings to move the same from each other; of a grooved pulley-rim loosely mounted on roller-bearings on said body and having a circular friction clutch-face on either side acted upon by corresponding faces of the clutch-rings, and means to move the clutch-rings toward each other into contact with the clutch-faces of the rim, consisting of horizontal levers, *m*, on either side of the pulley-rim at different points of its perimeter, links, *n*, connecting two oppositely-arranged levers, *m*, and vertical levers *p*, one arm of which is in contact with the clutch-rings, said levers *p* also fulcrumed to the pulley-rim and operated by the levers *m* to move the clutch-rings against the stress of their springs when pressure is applied to the links *n* by the hoisting-cable.

785,140. CHAIN AND BUTTON FOR PUMPS. JACOB F. WILLIAMSON, St. Louis, Mo. Filed July 11, 1904. Serial No. 216,003.



Claim.—In a chain and button for pumps: the button-body 5 pear-shaped in elevation and having an annular groove 6 around its upper end and largest diameter, and there being a pocket 7 extending downwardly from its upper end; the rubber gasket 8 mounted in the groove 6; said gasket being flat on its bottom and having a substantially vertical inner wall and the upper sides of the gasket being rounded; the chain-link 9 extending through the body 5, the upper eye of the chain-link being in the pocket 7; and the lower eye of the chain-link being below the body and the chain-link 10; there being a pocket 11 extending downwardly in the upwardly-extending end of the link 10; substantially as specified.

785,141. LIFTING-JACK. GEORGE C. WIEPER, Rome, Ga. Filed Feb. 24, 1904. Serial No. 195,067.



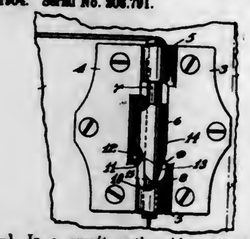
Claim.—A lifting-jack comprising a standard having a curved upper end, a foot-piece pivotally connected to the lower end of the standard, a stop-block attached to the standard, adjacent its lower end, a lever pivotally connected to the standard adjacent its upper end, and curved as described, the lifting-leg pivotally connected at its upper end to the end of the lever, and the rollers arranged upon opposite sides of the lower end of the lifting-leg, said rollers being beveled for the purpose set forth.

785,142. HINGE. RUDOLPH G. WINTER, Milwaukee, Wis. Filed Dec. 7, 1903. Serial No. 184,086.

Claim.—1. A hinge, the members of which have detachable hub-sections, said hub-sections being formed with coöperating cam-surfaces, adapting it to close under the action of gravity.

2. A hinge, having detachable hub-sections interlocked with the respective hinge members, and having coöperating cam-surfaces, adapting the hinge to close under the action of gravity.

785,143. HINGE. RUDOLPH G. WINTER, Milwaukee, Wis. Filed May 7, 1904. Serial No. 206,791.

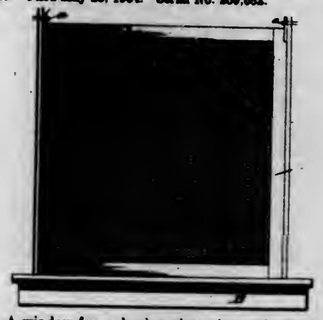


Claim.—1. In a gravity-acting hinge, coöperating cam-surfaces constructed and operating to raise the door gradually under an initial opening movement, and to cause the same to rise more rapidly under continued opening movement, substantially as described.

2. In a gravity-acting hinge, the combination with the hinge members, one thereof having a cam-surface 8 9, the other member having a cam-nose 13 and cam-surface 14, which nose 13 and cam-surface 8 engage in one extreme position of the hinge, and hold the cam-surfaces 9 and 14 out of contact, but which cam-surfaces 9 and 14 are brought into engagement by movement of the hinge members on their pivot, substantially as described.

3. In a gravity-actuated hinge, the combination with a pair of hinge members, the one having perforated lugs 5, and the other having a perforated lug 6 connected by a bolt 7, one of said lugs 5 having the cam-surfaces 8 9 and 11, and depression 10, and the said lug 6 having the cam-nose 13, cam-surface 14 and cam-surface 15, said nose 13 and cam-surface 8 adapted to normally engage and hold said cam-surfaces 9 and 14 out of contact, said surfaces 9 and 14 being engageable by a pivotal movement of one hinge member with respect to the other, and said cam-surfaces 11 and 15 being engageable by an extreme pivotal movement of one of the said hinge members, substantially as described.

785,144. WINDOW-FRAME SCREEN. WILLIAM WISE, Kansas City, Mo. Filed May 26, 1904. Serial No. 209,682.



Claim.—A window-frame having pivot-pins projecting horizontally inward from its side rails, combined with a screen having at its upper end at one side an eye to engage one of said pins by a sidewise movement only, and at the opposite edge at the upper end a hook with inclined open-ended slot to engage the other pin by a sliding movement at right angles to the first movement, and a locking device for holding the lower end of the screen closed, all substantially as and for the purpose specified.

785,145. SIGNAL-LAMP. FREDERICK K. WRIGHT, Syracuse, N. Y. Filed May 21, 1904. Serial No. 209,133.



Claim.—1. The combination of a lamp, a signal-plate, an upright guideway for said plate, a link pivoted at one end to the side of the guideway and at the other end to the signal-plate, and means for moving said link up or down, substantially as set forth.

2. The combination of a lamp, a signal-plate, an upright housing and guideway for said plate, a link pivoted at one end to the side of the guideway and at the other end to the signal-plate, and an actuating-lever journaled in said housing and having its inner arm connected with said link, substantially as set forth.

3. The combination of a lamp, a signal-plate, an upright guideway for said plate, a link fulcrumed at one end and pivoted at the other end to said signal-plate, and an actuating-lever fulcrumed out of line with the fulcrum of said link and provided with a slot which receives a projection on said link and moves said link up or down, substantially as set forth.

4. The combination of a lamp, a signal-plate, an upright guideway for said plate, a link fulcrumed at one end and pivoted at the other end to said signal-plate, and an actuating-lever provided with a slot which receives a projection on said link and moves said link up or down and with a shoulder at the outer end of said slot on which said projection is supported when the link and plate are in the elevated position, substantially as set forth.

5. The combination of a lamp, a signal-plate, an upright housing and guideway for said plate, a link pivoted at one end to the side of the guideway and at the other end to the signal-plate, and an actuating-lever journaled in said housing and having its inner arm composed of a disk having a radial slot which receives a projection on the link, substantially as set forth.

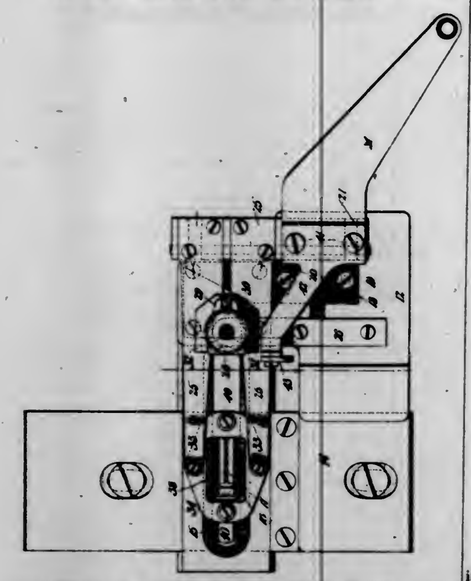
6. The combination of a lamp-body having a light-opening in its side, an upright signal-plate housing arranged on the outer side of said lamp-body and having its rear wall permanently secured to said lamp-body around said light-opening, a signal-plate and actuating mechanism mounted in said housing, and a lens-frame secured to the front wall of said housing, substantially as set forth.

7. The combination of a lamp-body having a light-opening in its side, an upright signal-plate housing arranged on the outer side of said lamp-body and having its rear wall permanently secured thereto around said light-opening, and its front wall detachably secured to said rear wall, and a lens-frame secured to said detachable front wall, substantially as set forth.

8. The combination of a lamp-body having a light-opening in its side, an upright signal-plate housing arranged on the outer side of said lamp-body and having its rear wall permanently secured thereto and its front wall composed of an upper and a lower portion both detachably secured to said rear wall, and a lens-frame secured to said lower detachable front wall, substantially as set forth

9. The combination of a lamp-body having a light-opening in its side, an upright signal-plate housing arranged on the outer side of said lamp-body and having its rear wall permanently secured thereto and its front wall composed of an upper and a lower portion both detachably secured to said rear wall, a lens-frame and lens secured to said lower detachable portion, a rear signal-plate and actuating mechanism mounted on said permanent rear plate, and a front signal-plate and actuating mechanism mounted on the upper detachable portion of said front wall, substantially as set forth.

785,146. **BUTTONHOLE-CLAMP.** EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, a Corporation of New Jersey. Filed Sept. 28, 1904. Serial No. 226,405.



Claim.—1. In a work-clamp, the combination with a base-plate and a throat-plate having a fixed relation thereto, of an upper clamping part or foot adjustably connected with said base-plate, so that its working position, lengthwise of a buttonhole to be stitched, may be changed, as may be desired.

2. In a work-clamp, the combination with a base-plate and a throat-plate having a fixed relation thereto, of a fulcrum-block adjustably mounted on said base-plate, a clamp-frame hinged to said fulcrum-block, clamp-arms carried by said clamp-frame, and an upper clamp element or elements carried by said clamp-arms, and which upper clamp element or elements may thus be adjusted to different working positions, lengthwise of the buttonholes to be stitched.

3. In a work-clamp, the combination with a base-plate, of an upper clamp device or foot, clamp-arms by which the latter is carried, a rigid support for said clamp-arms which is above said base-plate in a direction lengthwise and rearward of the said clamp device or foot, to afford a clearance for a rearwardly-extending strip of work, a post in said support centrally behind the clamp foot or feet, and a clamp-spring encircling said post.

4. In a work-clamp, the combination with a base-plate, of an upper clamp device or foot, clamp-arms by which the latter is supported, a spring for yieldingly forcing said clamp-arms downward and which is located centrally of said arms in the longitudinal line of the buttonhole-slit in the throat-plate, and a rigid support for said spring above said base-plate in a direction lengthwise and rearward of said clamp device or foot, to afford a clearance for a rearwardly-extending strip of work.

5. In a work-clamp, the combination with a base-plate, of an upper clamping device comprising two clamp-arms, a spring for yieldingly forcing said arms downward and centrally arranged relative to said arms and in the line of the cutter-receiving slit in the throat-plate, and a post supported above said plate and encircled by said spring; whereby an even pressure on said arms may be exerted by said spring, and a work clearance lengthwise of the buttonholes and rearward of the clamp foot or device will be afforded.

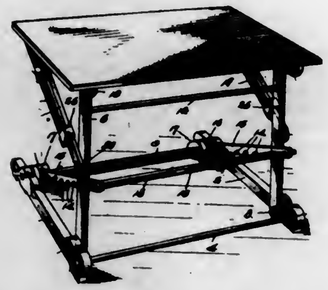
6. In a work-clamp, the combination with two clamp-arms and a support or carrier therefor, of a clamp-spring centrally arranged relative to said arms and in the line of the cutter-receiving slit in the throat-plate, so as to exert an even pressure on said arms, and a clamp-foot having a universal-joint connection with said arms.

7. In a work-clamp, the combination with two clamp-arms and a support or carrier therefor, of a spring for yieldingly forcing said arms downward, and a clamp-foot frame having ball-joint connections with said arms, and a clamp-foot jointed to said frame.

8. In a work-clamp, the combination with clamp-arms and a support or carrier therefor, of a clamp-foot frame jointed to said arms and comprising two plates, one of which is adjustably attached to the other, and a clamp-foot jointed to said frame.

9. In a work-clamp, the combination with clamp-arms and a support therefor, of a clamp-foot frame jointed to said arms and comprising two plates one of which is superposed relative to the other, the uppermost of said plates being jointed to said arms and the lowermost of said plates being adjustably secured to the upper plate so as to be capable of a limited horizontal adjustment relative to the said upper plate, and a clamp-foot pivotally attached to said lower plate.

785,147. **ADJUSTABLE TABLE.** GEORGE W. BARNETT, Chicago, Ill. Filed Nov. 14, 1904. Serial No. 232,703.



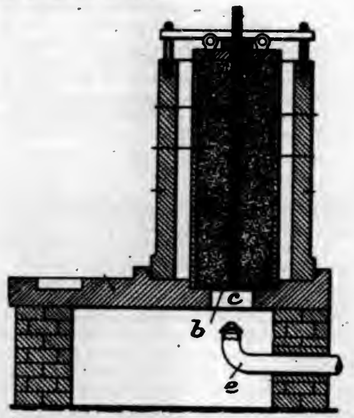
Claim.—1. In a folding table, the combination with a supporting-base, of legs pivotally secured at their lower ends to the base, adjusting-braces pivotally secured at their lower ends to the base, a table-top having cleats secured to its under side to which the upper ends of the table-legs are pivotally secured, extensible braces each comprising two members one of which is pivotally secured to one of the table-legs, and the other similarly secured to the adjacent cleat of the table-top, and means for connecting and adjusting said members.

2. In a folding table, the combination with a supporting-base, of legs pivotally secured at their lower ends to said base, a cross-rod connecting said legs, parallel notched braces pivotally secured at their lower ends to the base and connected at their opposite ends by a cross-rod serving as a handle, a table-top having parallel cleats secured to its under side to which the upper ends of the table-legs are pivotally secured, and extensible braces each comprising two members, one of which is pivotally secured to one of the table-legs while the other is pivotally connected to the adjacent cleat of the table-top, and means for adjusting and connecting said members.

785,148. **CORE FOR USE IN CASTING HOLLOW CYLINDERS IN BLOCK-MOLDS.** HUGO BRAUNS, Düsseldorf, Germany. Filed Sept. 5, 1903. Serial No. 172,074.

Claim.—1. A core for use in casting hollow cast iron or steel cylinders in block-molds, consisting of a cylinder, whose wall is weak enough to yield as the casting contracts, a filling material for strengthening the cylinder during the casting operation, and means for removing the filling material without varying the position of the

cylinder when the casting has solidified, substantially as described and for the purpose set forth.



2. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, and a mold having means adapted to support said core-body and means, separable from those aforesaid, for supporting the removable core-filling, whereby said filling may be removed without disturbing the body of the core.

3. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, a mold adapted to support said core-body, and means for supporting the core-filling and permitting removal of said filling without moving the support for the body of the core.

4. In a core for the purpose described, the combination of a tubular body, a frangible plate covering an aperture at the lower end of said body, and means for breaking said plate.

5. In a core for the purpose described, the combination of a tubular casing, a body of granular material within said casing, and means independent of the support for the core for opening a passage through which said filling material can pass from the casing.

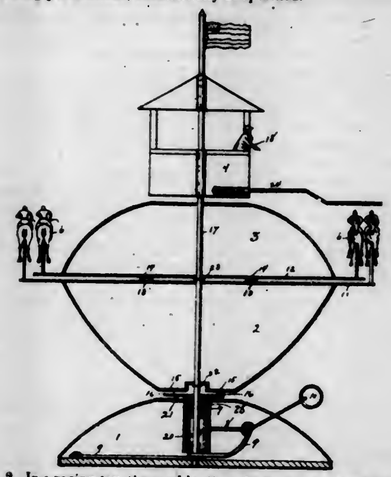
6. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, a mold having means adapted to support said core-body and means, separable from those aforesaid, for supporting the removable core-filling, whereby said filling may be removed without disturbing the body of the core, and means for cooling the inner surface of said core-body when the filling is withdrawn therefrom.

7. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, a mold having means adapted to support said core-filling and means, separable from those aforesaid, for supporting the removable core-filling, whereby said filling may be removed without disturbing the body of the core, and means for forcing air into said core-body after the filling is withdrawn therefrom.

8. The combination of a mold having an aperture in its bottom wall, a tubular casing arranged within the mold about said aperture in the bottom thereof, a frangible plate covering said aperture, a body of granular material within said core-casing, means for breaking said frangible plate, and a blast-pipe arranged below the material and adapted to deliver air to the interior of the core, through said aperture in the bottom of the material.

785,149. **RACING TOY.** ROBERT W. BROOKS, Louisville, Ky. Filed July 27, 1903. Serial No. 167,174.

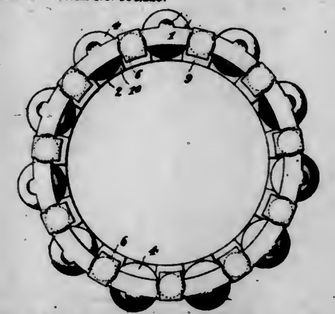
Claim.—1. In a racing toy, the combination of a base, a standard mounted on said base, a top-shaped body divided on its equatorial plane into two independent parts mounted on said standard, peripheral extensions on said parts of said top-shaped body forming a race-course, horses mounted on said peripheral extensions, and means for spinning said top-shaped body comprising a winding-drum mounted on the lower end of said standard, a cord wound on said drum, a coil-spring for turning said drum and winding said cord on said drum attached to said drum, catches and corresponding perforations on said top-shaped body and said drum, and a lever mounted under said drum for the purpose of lifting said drum and said top-shaped body and causing said catches to engage with said corresponding perforations, substantially as specified.



2. In a racing toy, the combination of a base, a standard mounted on said base, a top-shaped body divided into two parts on its equatorial plane mounted rotatably and slidably on said standard, said parts having equal and independent bearings on said standard and being normally out of contact with each other, figures mounted on peripheral extensions of said parts of said top-shaped body, spinning mechanism comprising a drum and a cord, corresponding catches and perforations on said drum and said top-shaped body parts, and means for throwing said corresponding catches and perforations into engagement, substantially as specified.

3. In a racing toy, the combination of a base, a standard mounted on said base, a top-shaped body divided horizontally and mounted on said standard, racing figures mounted on peripheral extensions of the parts of said body, means for spinning the parts of said top-shaped body comprising a drum mounted on said standard, a cord wound on said drum, catches on said drum, and corresponding perforations in the bottom of the lower part of said body, corresponding catches and perforations on the upper surface of the lower part and on the bottom of the upper part respectively of said body, and means for throwing said catches into and out of engagement with said perforations, substantially as specified.

785,150. **RETAINER AND SPACER FOR BALL-BEARINGS.** CHARLES H. CHAPMAN, Groton, Mass. Filed Dec. 18, 1902. Renewed Dec. 7, 1903. Serial No. 184,288.



Claim.—1. A ball-retainer, composed of two pieces of sheet metal provided with sockets to receive the load-carrying balls and tubular connections alternating with the sockets to receive and sustain the separating-balls in their relative positions with the load-carrying balls.

2. A ball-retainer, composed of two pieces of sheet metal provided with sockets to receive the load-carrying balls, and tubular connections projecting from one of the pieces and alternating with

the sockets to receive and sustain the separating-balls, and interlocked with the other piece.

3. A ball-retainer, comprising sheet-metal halves, constructed with curved portions to receive the load-carrying balls, and one of said halves constructed with tubular portions alternating with the curved portions to receive the separating-balls.

4. A ball-retainer, comprising front and back sides, the former constructed with curved portions each having a lip, and tubular-lipped portions, and the latter having curved portions to match the curved portions of the front side, and slots to receive the lips of the tubular portions of said front side.

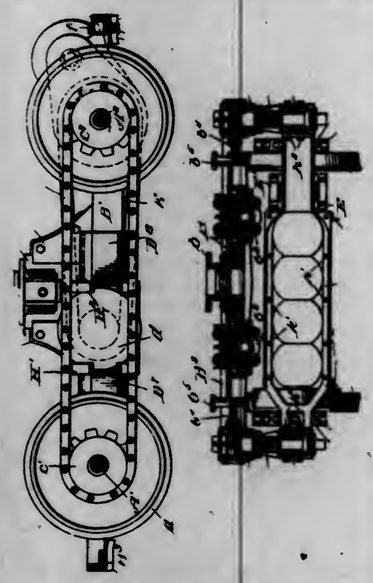
5. A ball-retainer, comprising essentially a front side of sheet metal, with lipped curved portions, and projecting tubular portions having lips, and a back side having curved portions complemental to the curved portions of the front side, and slotted straight portions arranged next the tubular portions of the front side and adapted to be engaged by the lips of said tubular portions and thereby unite the two sides.

6. A ball-retainer, comprising sheet-metal valves, constructed with curved portions to receive the load-carrying balls, and one of said halves constructed with tubular portions alternating with the curved portions to receive the separating-balls, the other half having an interior bearing-surface.

7. In a ball-bearing, a ball-carrier consisting of members of shaped sheet metal and secured to each other, leaving bearing-ball pockets with connecting spacing-ball pockets between, said spacing-ball pockets extending concentrically of said carrier.

8. A ball-carrier, for ball-bearings, comprising a frame provided with bearing-ball pockets and spacing-ball pockets connecting said bearing-ball pockets and so arranged relatively to the latter that the center of each spacing-ball will be at all times in alinement with the centers of the adjacent bearing-balls.

785,151. **CAR-TRUCK.** FRANK L. CRANE and BERTRAND M. YOUNG, Jamestown, N. Y. Filed May 28, 1904. Serial No. 210,183.



Claim.—1. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, means for securing the engine to the truck-frame, and means for operatively connecting the engine to an axle of the truck.

2. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, transverse hangers supporting the engine and secured at their ends to the side sills of the truck-frame, and means for operatively connecting the engine to an axle of the truck.

3. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, transverse hangers supporting the engine and secured at their ends to the side sills of the truck-frame, longitudinal bars secured at their ends to the end sills of the truck-frame and extending beneath and supporting the engine, and means for operatively connecting the engine to an axle of the truck.

4. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a truck-bolster supported by the transom and adapted to pivotally support the car-body a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, means for securing the engine to the truck-frame, and means for operatively connecting the engine to an axle of the truck.

5. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, means for securing the engine to the truck-frame, a transmission mechanism mounted upon an axle of the truck and adapted to rotate the same, and power connections interposed between the engine and transmission mechanism.

6. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, means for securing the engine to the truck-frame, a transmission mechanism mounted upon an axle of the truck and adapted to rotate the same, a casing surrounding the transmission mechanism through which the axle extends, and means for yieldingly connecting said casing to the adjacent end sill of the truck-frame.

7. In a car-truck, the combination with a truck-frame, of a multiple-cylinder explosive-engine located between the side sills of the truck-frame, a transmission mechanism mounted upon an axle of the truck and adapted to drive the same, a casing surrounding the transmission mechanism through which the axle extends, means for yieldingly connecting said casing to the adjacent end sill of the truck-frame, and power connections interposed between the engine and transmission mechanism.

8. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, transverse hangers supporting the engine and secured at their ends to the side sills of the truck-frame, a transmission mechanism mounted upon an axle of the truck-frame and adapted to drive the same, a casing surrounding the transmission mechanism through which the axle extends, means for yieldingly connecting said casing to the adjacent end sill of the truck-frame, and power connections interposed between the engine and transmission mechanism.

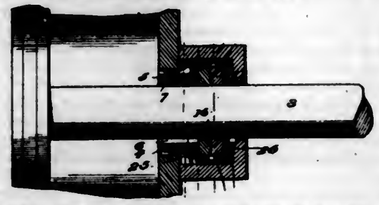
9. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, transverse hangers supporting the engine and secured at their ends to the side sills of the truck-frame, longitudinal bars secured at their ends to the end sills of the truck-frame and extending beneath and supporting the engine, a transmission mechanism mounted upon an axle of the truck-frame and adapted to drive the same, a casing surrounding the transmission mechanism through which the axle extends, means for yieldingly connecting said casing to the adjacent end piece of the truck-frame, and power connections interposed between the engine and transmission mechanism.

10. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, means for securing the engine to the truck-frame, a transmission mechanism mounted upon an axle of the truck and adapted to rotate the same, and power connections interposed between the axles of the truck whereby the engine drives both axles.

11. In a car-truck, the combination with a truck-frame, of a transom mounted above the side sills of the truck-frame, a multiple-cylinder explosive-engine located beneath the transom and between the side sills of the truck-frame, means for securing the engine to the truck-frame, a transmission mechanism mounted upon an axle of the truck and adapted to rotate the same, power connections interposed

between the engine and transmission mechanism, sprocket-wheels fixed upon each axle, and sprocket-chains connecting corresponding sprocket-wheels on the axles.

785,152. **PISTON-ROD PACKING.** WALTER P. CHRYSLER, Trinidad, Colo. Filed Apr. 14, 1904. Serial No. 203,149.



Claim.—1. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein and transversely-contracting packing-rings in said retainer.

2. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein and having steam passage-ways extending through its periphery and transversely-contracting packing-rings in said retainer.

3. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein and having steam passage-ways extending through its periphery, transversely-contracting packing-rings in said retainer, and a cone-shaped member bearing against the stuffing-box casing and having a flat-face bearing against the packing-ring retainer.

4. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein, transversely-contracting packing-rings within said retainer, and cone-shaped members bearing against the ends of said casing and having straight flat faces bearing against the ends of said packing-ring retainer.

5. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein, transversely-contracting packing-rings within said retainer, a bushing within the inner end of said stuffing-box casing, and having steam passage-ways therein, and cone-shaped members bearing against said bushing and the end of the stuffing-box casing and having straight faces bearing against the ends of the packing-ring retainer.

6. A steam-pressure-actuated packing, comprising a stuffing-box casing, a packing-ring retainer therein, and contracting packing-rings within said retainer.

7. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein and packing-rings in said retainer.

8. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein, steam-compressed packing-rings within said retainer, and a cone-shaped member bearing against the stuffing-box casing and having a flat face bearing against the packing-ring retainer.

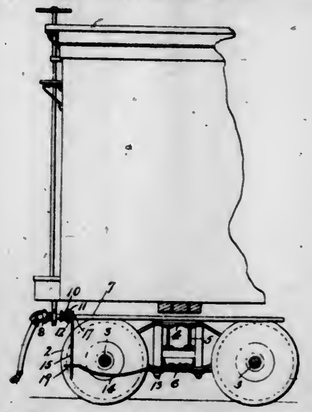
9. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein, packing-rings within said retainer, a bushing within the inner end of said stuffing-box casing and having steam passage-ways therein, and cone-shaped members at each end of the retainer and having flat faces bearing against the same and the cone faces of the same bearing respectively against the bushing and stuffing-box casing.

10. A steam-pressure piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein, packing-rings within said retainer, and a cone-shaped member bearing against the stuffing-box casing and having a flat face bearing against the packing-ring retainer.

11. A steam-pressure piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer therein, packing-rings within said retainer, a bushing within the casing, and cone-shaped members on each side of the retainer, and having cone-shaped outer faces bearing against the bushing and the casing.

12. A steam-pressure-actuated piston-rod packing, comprising a stuffing-box casing, a transversely-movable packing-ring retainer, therein and having steam passage-ways in its outer periphery, steam-compressed packing-rings within said retainer, a bushing within the inner end of said stuffing-box casing and having steam passage-ways therein, and cone-shaped members at each end of the retainer and having flat faces bearing against the same and the cone-shaped faces of the same bearing respectively against the bushing and stuffing-box.

785,153. **MEANS FOR AUTOMATICALLY APPLYING AIR-BRAKES IN DERAILMENTS.** EDWARD S. COFFMAN, Cliftonforge, Va. Filed Nov. 15, 1904. Serial No. 232,865.



Claim.—1. The combination with the train-pipe having a valve with a handle, of a bar loosely engaging the handle and having a rotary motion about the same as a center; and an operating bar or rod secured at one end to the truck-frame and at the other end loosely engaging the bar which is secured to the handle of the valve.

2. The combination with the train-pipe having a valve with a handle located at the side of the pipe, of a bar suspended from the handle; and an operating-bar rigidly secured at one end to the truck-frame and at the other end loosely engaging the bar which is suspended from the handle of the valve.

3. The combination with the train-pipe provided with a valve having a handle, of a bar secured at one end to the handle, the opposite end of the said bar being slotted; and an operating-bar secured at one end to the truck-frame and the free end thereof located within the slot of the first-mentioned bar.

4. The combination with a train-pipe having a valve with a handle, of an operating-bar rigidly secured at one end to the truck-frame between the pairs of wheels; and means interposed between and loosely uniting the handle and the end of the operating-bar, said means being movable relative to both the handle and the bar, so that the truck may swivel and move the operating-bar in a horizontal plane for a limited distance without rotating the valve-handle.

5. The combination with a train-pipe having a valve with a handle for operating a valve-plug, of an operating-bar secured at one end to the spring-plank of a truck-frame and between the pairs of wheels; and means yieldingly connecting the valve-handle and the free end of the operating-bar, for the purpose set forth.

785,154. **HAND AIR-PUMP.** GASTON E. CORDEAU, New York, N. Y. Filed Feb. 17, 1904. Serial No. 194,044.

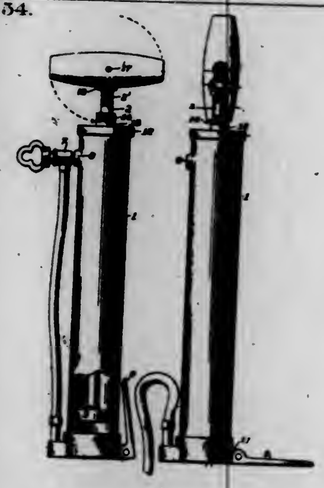
Claim.—1. In an air-pressure pump, a folding handle pivotally mounted on the plunger-rod, said handle being appropriately slotted on its lower side, and an adjustable bushing mounted on said plunger-rod to engage said handle, all constructed substantially as described.

2. In an air-pump the combination with a cylinder having a threaded nipple on its cap, of a piston-rod, and a handle pivotally attached to the piston-rod, and formed with a screw-threaded opening on one end adapted to engage said nipple.

3. In a pump the combination of a cylinder a piston-rod and piston, a handle pivotally attached to the piston-rod, means for securing the handle in a position at right angles to the rod, and means for attaching the handle to the cylinder when the handle is arranged in alinement with the rod.

4. In a pump, the combination with a cylinder, a piston and piston-rod, of a handle secured to the piston-rod and means for attaching the handle to the cylinder.

785,154.



785,155. LOOSE-LEAF BINDER. JOHN T. CORDES, Chicago, Ill. Filed July 19, 1902. Serial No. 116,144.



Claim.—1. In a device of the class described, the combination with a clamping-plate apertured to receive the impaling-posts of a binder, of locking-bolts slidably secured on the clamping-plate and having apertures therein adapted to receive the impaling-posts, the inner ends of said bolts lying in close proximity with each other, a wedge member acting to force said locking-bolts into positive engagement with the impaling-posts, and means positively secured on the clamping-plate and acting to limit the adjustment of the wedge member.

2. In a device of the class described, the combination with a clamping-plate, apertured to receive the impaling-posts of a binder, of a central threaded shaft thereon, locking-bolts slidably secured on the clamping-plate and each apertured to receive one of the impaling-posts, the inner ends of said bolts lying in close proximity with each other on each side the threaded shaft, a rotative wedge member comprising a conical nut engaging on the threaded shaft between the ends of the locking-bolts and forcing the same into locking engagement with the impaling-posts and a casing rigidly engaged on the plate and adapted to cover the joint between the inner ends of said bolts and limit the outward movement of said wedge member.

3. In a device of the class described, the combination with a clamping-plate apertured to receive impaling-posts, of apertured locking-bolts slidably engaged thereon, a threaded shaft rigidly engaged on said plate and projecting between said bolts, a wedge member rotatively engaged on said shaft adapted to force said bolts outwardly and an apertured casing carried on said plate above the wedge member and adapted to hold said wedge member in place.

4. The combination with the impaling-posts of a binder, of a clamping-plate adapted to receive said impaling-posts therethrough, locking-bolts permanently but slidably secured on the clamping-plates, a threaded shaft engaged on the clamping-plate between the bolts, a wedge-shaped nut on said shaft adapted to oppositely engage the ends of said locking-bolts and acting to move said bolts oppositely into positive engagement with the impaling-posts and a casing secured on the clamping-plate above said nut acting to limit the upward movement thereof.

5. The combination with a binding-plate of the class described, of impaling-posts detachably secured thereon, a clamping-plate adapted to receive the impaling-posts therethrough having longitudinally-movable locking-bolts secured thereon and held permanently in alinement, an upwardly-extending threaded shaft rigidly secured on said binding-plate and a rotary cam-nut engaged on the shaft and adapted to be forced toward the clamping-plate and acting to move said locking-bolts into positive engagement with the impaling-posts, and an apertured casing partly inclosing said cam and limiting the outward movement thereof.

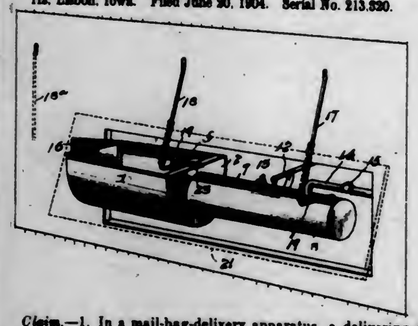
6. In a binder of the class described, the combination with a binding-plate, of a plurality of impaling-posts removably secured thereon, a clamping-plate apertured to receive the impaling-posts, locking-bolts slidably secured on the clamping-plate and adapted to lock the impaling-posts in the clamping-plate, a screw-shaft between the adjacent ends of the locking-bolts, a wedge-shaped nut on said screw-shaft acting when screwed inwardly to force said bolts oppositely into positive engagement with the impaling-posts and when turned outwardly to release the bolts therefrom, an apertured casing rigidly secured upon said clamping-plate adapted to limit the upward movement of said nut, and detachable means on the impaling-posts acting to prevent the clamping-plate falling therefrom when the locking-bolts are released.

7. In a temporary binder, the combination with a binding-plate and impaling-posts secured thereon, of a clamping-plate apertured to receive the impaling-posts, locking-bolts slidably secured on said clamping-plates in alinement, the adjacent ends of said bolts being chamfered to provide downwardly-inclined surfaces, a screw-shaft between the ends of said bolts and a nut engaged on said screw-shaft and tapering complementally with the ends of the bolts and acting when screwed inwardly to force the bolts oppositely into positive engagement with the impaling-posts, a peripheral flange on said nut and a covering-plate extending upwardly and partly inclosing said nut and limiting the unscrewing of the same from the screw-shaft.

8. In a device of the class described, the combination with a binding-plate and the impaling-posts thereon, of a clamping-plate apertured to receive the impaling-posts, an apertured casing rigidly secured thereon, a plurality of bolts slidably secured in alinement on said clamping-plate, a plurality of studs extending through slotted apertures in the bolts and permanently securing the same to the clamping-plate, an upwardly-extending threaded shaft secured on the clamping-plate between the adjacent ends of said bolts, and a conical nut thereon movable inwardly toward the clamping-plate acting to force said bolts into engagement with the impaling-posts and limited in its outward movement by said casing.

9. A clamping-plate of the class described apertured to receive a plurality of impaling-posts therethrough and comprising in combination a lower plate, an upper covering-plate, locking-bolts slotted longitudinally and concealed between said plates and rivets passing through said slots and permanently engaging the base-plate and covering-plate together and holding said locking-bolts permanently in alinement and slidable between said upper and lower plates, an upwardly-extending screw-shaft between the adjacent ends of the said locking-bolts and a wedge-shaped nut having threaded engagement thereon and adapted when screwed inwardly to force the locking-bolts outwardly, a peripheral flange on said nut above the wedge portion, said covering-plate being provided with a central aperture through which the upper portion of said nut projects, and a raised inwardly-inclined flange surrounding said aperture and engaging over said flange on said nut and limiting the outward movement thereof.

785,156. MAIL-BAG-DELIVERY APPARATUS. NIMROD J. CURTIS, Lisbon, Iowa. Filed June 20, 1904. Serial No. 213,320.



Claim.—1. In a mail-bag-delivery apparatus, a delivering device having bag-ejecting means, spring-actuated deflecting means carried by said device, and means for holding said device in position for the delivery of the bags in a direction contrary to the movement of the train.

2. In a mail-bag-delivery apparatus, a delivering device arranged longitudinally of the car and having its discharge end disposed in the opposite direction to the movement of the car, bag-ejecting means carried by said device, and spring-actuated deflecting means also carried by said device.

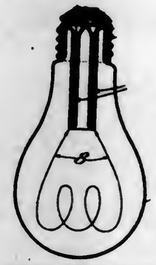
3. In a mail-bag-delivery apparatus, a delivering device arranged longitudinally of the car and comprising means for discharging the bags in a direction contrary to the movement of the train and spring-actuated deflecting means for deflecting the bags off from the side of the car.

4. In a mail-bag-delivery apparatus, the combination with a car-body having a side opening therein, of a delivering device movable through said side opening and having bag-ejecting means, and means for swinging said device into and out of the car.

5. In a mail-bag-delivery apparatus, the combination with a car-body having a side opening therein, and a self-acting shutter for said opening, of a delivering device arranged to be moved through said opening to a position within and outside of the car-body, said device comprising means for ejecting the bags in a direction contrary to the movement of the train, and swinging hangers connected with said device and with the car-body, said hangers being provided with a controlling-lever disposed within the car-body.

6. In a mail-bag-delivery apparatus, a delivering device comprising an open delivery-chute provided with a deflecting-gate at its discharging end and supporting at its opposite end a pressure-cylinder having an air-chamber extension, a valved feeding-head or partition separating the pressure-cylinder from the air-chamber extension, an ejecting-plunger slidably mounted within the chute, and an actuating-piston working within the pressure-cylinder and having a rod connection with said plunger.

785,157. VACUUM-LAMP. JOSEPH M. DAVEY, St. Louis, Mo. Filed June 27, 1903. Serial No. 163,377.

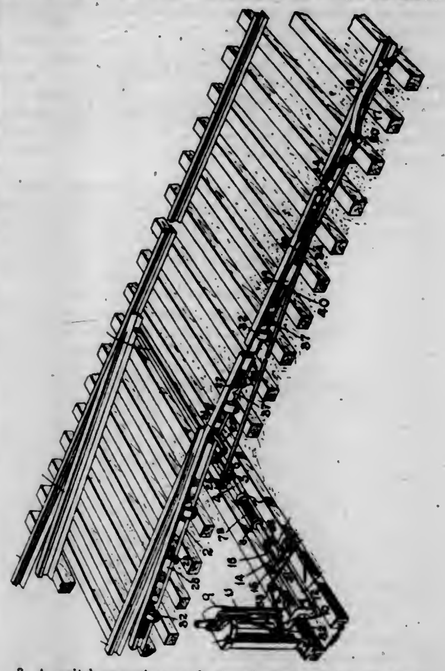


Claim.—In a vacuum-lamp, the combination with a bulb having a neck portion, of a tube 2 of smaller diameter than said neck extending into said bulb and having its outer end flared outwardly as at 3, said flared portion being of larger diameter than the interior diameter of the neck and connected at its edge to the outer end of said neck, the inner or lower end of said tube being substantially flat, an inner tube 5 of smaller diameter than the tube 2 and of greater length, said inner tube 5 having its inner end flared outwardly as at 6 and of a diameter to directly underlie the inner end of the tube 2 and connected directly thereto, and leading-in wires secured in position intermediate the flared end 6 and the inner end of the tube 2 by the union therebetween.

785,158. SWITCH-OPERATING MECHANISM. GEORGE M. DERICKSON, St. Louis, Mo. Filed Nov. 25, 1904. Serial No. 234,192.

Claim.—1. A switch-operating mechanism having a switch-operating means, a longitudinally-arranged bar located beside one of the rails and normally extending above the same for coöperating with the car-wheel for temporarily rendering the tripping means inoperative, one edge of said bar being provided with notches, and means beneath the bar for engagement with the notches; substantially as described.

2. A switch-operating mechanism having a curved tripping means provided with an inherent yielding tendency, said tripping means being distant from the switch-point and being adapted to be depressed downwardly, and means for automatically rendering the tripping means inoperative when a car-wheel is on the rail between the tripping means and the switch-point; substantially as described.



3. A switch-operating mechanism having a yielding switch-tripping device alongside of one of the rails, said tripping device being bow-shaped and having an inherent yielding tendency, said tripping device being pivoted, and means for automatically moving said tripping device away from the side of the rail and out of operative position; substantially as described.

4. A switch-operating mechanism having a tripping means distant from the switch-point, a bar located beside a track-rail and normally extending above the same, said bar being operative for rendering said tripping means inoperative when a car-wheel is on the rail between the tripping means and the switch-point, and means for moving the tripping means away from the side of the rail to prevent operation thereof; substantially as described.

5. A switch mechanism including a transversely-slidable switch-bar, means for preventing movement of the switch-bar including a bar connected to the switch-bar and having a vertically-swinging movement, said bar having notches in its lower edge, and devices for engagement with the notches to temporarily prevent movement of said bar; substantially as described.

6. A switch mechanism including a transversely-slidable switch-bar, means for preventing movement of said bar including a bar connected to the switch-bar and having a longitudinal and vertical movement, said bar having notches in its lower edge, rail-braces, rails supported by said braces, and means on the braces for engagement with the notches in the bar; substantially as described.

7. A switch mechanism including a switch-bar, a trip for actuating the switch-bar, means for preventing movement of the switch-bar including a bar having notches in its lower edge, rail-braces, means on the rail-braces for engagement with the notches in the bar, and a device adjacent to the side of one of the track-rails and connected to the trip to move it outwardly in an inoperative position; substantially as described.

8. A switch mechanism including a transversely-slidable switch-bar, means for preventing movement of the switch-bar including a bar having notches in its lower edge, means beneath the second-named bar for engagement with the notches, and a yielding connection between the second-named bar and the trip; substantially as described.

9. A switch mechanism including a transversely-slidable switch-bar, a trip for actuating the switch-bar, a notched bar con-

nected to the switch-bar and movable into two positions for alternately permitting and preventing movement of the switch-bar, and devices for interlocking engagement with the bar to hold it against movement in either of the two positions, substantially as described.

10. A switch mechanism including a transversely-slidable switch-bar, a trip for actuating the switch-bar, a notched bar connected to the switch-bar and movable into two positions for alternately permitting and preventing movement of the switch-bar, and devices for interlocking engagement with the bar to hold it against movement in either of the two positions, said devices comprising a casting having an inverted-V-shaped engaging portion; substantially as described.

11. A switch mechanism including a transversely-slidable switch-bar, a trip for actuating the switch-bar, a notched bar connected to the switch-bar and movable into two positions for alternately permitting and preventing movement of the switch-bar, and devices for interlocking engagement with the bar to hold it against movement in either of the two positions, said devices comprising a casting having an angular portion; substantially as described.

12. A switch mechanism including a transversely-slidable switch-bar, a trip for actuating the switch-bar, means for preventing movement of the switch-bar including a bar connected to the switch-bar and to the trip, means for setting the switch mechanism after each operation, and an outwardly-movable device connected to the trip to move it to an inoperative position; substantially as described.

13. A switch mechanism including a transversely-slidable switch-bar, a trip for actuating the switch-bar, and an outwardly-movable device connected to the trip to move it to an inoperative position; substantially as described.

14. A switch mechanism including a tripping means remote from the switch-points, means for preventing actuation of the tripping means, said second-mentioned means extending from a point between the tripping means and the switch-points to a point beyond the switch-points, and an outwardly-movable device connected to the trip to move it to an inoperative position; substantially as described.

15. A switch mechanism including a tripping means remote from the switch-points, means for preventing actuation of the tripping means, said second-mentioned means comprising a bar, the edge of which is adapted to contact with a wheel on the rail and extending from a point between the tripping means and the switch-points to a point beyond the switch-points, and an outwardly-movable device connected to the trip to move it to an inoperative position; substantially as described.

16. A switch mechanism including a tripping means remote from the switch-points, and a bar for preventing actuation of the tripping means, said bar having notches on one edge, and notch-engaging devices below the bar, the upper edge of said bar being arranged to contact with a car-wheel; substantially as described.

17. A switch mechanism including a tripping means remote from the switch-points, and a bar having connections with the switch-points to prevent movement thereof, said bar being yieldingly connected to the trip; substantially as described.

18. A switch mechanism including a tripping means remote from the switch-points, a spring-actuated means for operating the switch-points, a trigger mechanism coöperating with the spring-actuated means and coöperating with the tripping means, and a resetting mechanism operable before the switch mechanism is set, to reset the trigger mechanism; substantially as described.

19. A switch mechanism including a spring-operated means for closing a switch, a trigger mechanism for throwing the spring-operated means, a switch-stand including a shaft connected to the trigger mechanism, a handle for operating the shaft, and a resetting mechanism connected to the handle and operable before the switch mechanism is set, to reset the trigger; substantially as described.

20. A switch mechanism including a spring-operated means for closing a switch, a trigger mechanism for throwing the spring-operated means, a switch-stand including a shaft connected to the trigger mechanism, a handle for operating the switch, and a resetting mechanism operable before the switch mechanism is set, to reset the trigger mechanism, said resetting mechanism comprising a bolt, a lever and a flexible connection between the lever and the handle; substantially as described.

21. A switch mechanism including a spring-operated means for closing a switch, a trigger mechanism for throwing the spring-operated means, a switch-stand including a shaft connected to the trigger mechanism, a handle for operating the shaft, and a resetting mechanism operable before the switch mechanism is set, to reset the trigger mechanism, said resetting mechanism comprising a bolt, a spring-controlled lever and a flexible connection between said lever and the handle; substantially as described.

22. A switch-operating mechanism including a switch-point-moving bar, a rocking and longitudinally-slidable rod connected to said bar, and means for actuating said rod; substantially as described.

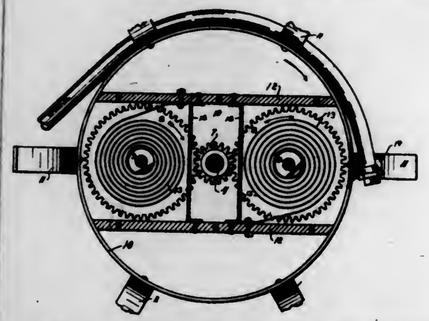
23. A switch-operating mechanism including a switch-point-moving bar, a rocking and longitudinally-slidable, spring-pressed rod connected to said bar, and means for actuating said rod; substantially as described.

24. A switch-operating mechanism including a switch-point-moving bar, a rocking and longitudinally-slidable rod connected to said bar, means for actuating said rod, a notched and slotted sleeve surrounding a portion of said rod, means on the rod for preventing movement thereof with relation to the sleeve, and means for moving the rod in the sleeve; substantially as described.

25. A switch-operating mechanism including a switch-bar, a spring-pressed rod connected to the switch-bar and having rocking and longitudinal movements, a sleeve fitting over one end of the rod and having a longitudinal slot with terminal notches, a projection on the rod movable in the slot and engageable with either of the notches, an operating means connected to the sleeve, means contactable with the projection on the rod to disengage it from one of the notches, and a bridge-piece over the other notch; substantially as described.

26. A switch mechanism including a spring-pressed bar connected to the switch-points, a trigger mechanism for preventing operation of the spring-pressed bar, a trip for the trigger mechanism, a rod connecting the trip and trigger mechanism, a protector-bar for preventing movement of the switch in one position of the bar, and a yielding connection between the rod and the bar; substantially as described.

785,159. HOSE-REEL. EPHRAIM DICE, Canton, Ohio. Filed Jan. 7, 1905. Serial No. 240,023.

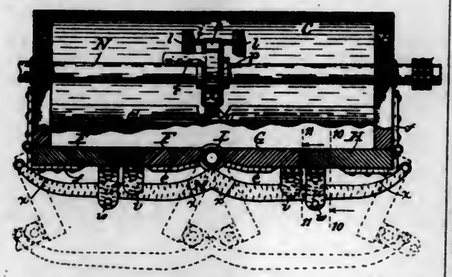


Claim.—1. The combination of a truck-frame consisting of side bars and truck, a fixed rod having mounted thereon a pinion, a reel-band carrying planetary gear-wheels meshing with the pinion upon the fixed rod, springs operatively attached to the planetary gear-wheels, a ratchet-wheel fixed to the reel-rod, and a detent adapted to engage the ratchet-wheel, and the reel-band provided with hose-holding plates and a hose-holding clip, substantially as and for the purpose specified.

2. The combination of a frame consisting of side bars and a truck, a fixed bar provided with a pinion carried by the side bars of the frame, a reel-band provided with planetary gear-wheels meshing with the fixed pinion, springs operatively connected to the planetary gear-wheels, a ratchet-wheel secured to the reel-bar, and a detent to engage the ratchet-wheel, and the side bars of the reel-frame provided with pointed lower ends, substantially as and for the purpose specified.

785,160. DUMPING-BED FOR WAGONS. DANIEL S. EVERETT, Macedon, N. Y. Filed Nov. 10, 1904. Serial No. 232,216.

Claim.—1. A dumping-bed, the same being a rigid body having side-boards, a horizontal, longitudinal shaft at the bottom of the body and midway between the side-boards, floor-sections for the body connected by hinges to the side-boards and to the shaft and adapted to swing thereon, a truss-bar disposed transversely beneath the floor-sections, rollers held by the floor-sections to traverse the truss-bar, bends in the truss-bar to control the rollers, and means for actuating the truss-bar.



2. A dumping-bed for wagons, comprising a holding-body having longitudinal-swinging floor-sections, a transversely-disposed truss-bar beneath the floor-sections, a series of hangers pending from the floor-sections at the sides of the truss-bar carrying rollers to traverse the truss-bar, and elements carried by said hangers beneath the truss-bar.

3. A dumping-bed for wagons, comprising a holding-body with floor consisting of swinging sections, a truss-bar for controlling said swinging sections, a transverse shaft on said holding-body, chains connected with the truss-bar and adapted to be wound upon said shaft, a ratchet rigid on the shaft and a pawl to engage the ratchet, a lever and a link carried by the lever to turn the ratchet and to lift the pawl.

4. A dumping-bed for wagons, comprising a holding-body having a floor consisting of swinging sections, an element beneath the floor-sections for controlling them, a shaft carried by the holding-body, chains joined to said controlling element for the floor-sections, a ratchet rigid on the shaft and a pawl to engage the ratchet, a lever and a link spanning the ratchet, carried by the lever to actuate the ratchet, the link having spurs at the sides of the ratchet to engage the paw.

5. A dumping-bed for wagons, comprising a holding-body having a floor consisting of swinging sections, an element beneath the floor-sections for controlling them, a shaft carried by the holding-body, holding-chains joined to said controlling element for the floor-sections, a ratchet rigid on the shaft and a U-shape pawl to engage the ratchet, a lever and a link on the lever to actuate the ratchet with sides inclosing the latter, the side portions of the link having spurs to lift the pawl, the latter being wider than the adjacent end of the link.

785,161. PROCESS OF MAKING NITROGEN COMPOUNDS. ADOLPH FRANK, Charlottenburg, and NIKODEM CARO, Berlin, Germany. Filed Dec. 20, 1898. Serial No. 699,847.

Claim.—1. The process of producing cyanid from carbids, which consists in heating from a dark-red to a bright-yellow heat, a carbid that will not melt at these temperatures, reacting upon the heated carbid with nitrogen, then melting the product of the reaction and extracting the cyanid in the usual manner, substantially as set forth.

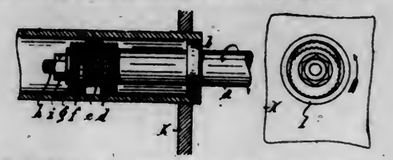
2. The process, which consists in heating to from a dark-red to a bright-yellow heat a carbid that will not melt at these temperatures, reacting upon the heated carbid with nitrogen, then melting the reaction product in the presence of carbon and extracting the cyanid in the usual manner, substantially as set forth.

3. The process, which consists in heating to from a dark-red to a bright-yellow heat a carbid that will not melt at these temperatures, reacting upon the heated carbid with nitrogen, melting the reaction product in the presence of an oxygen compound of an alkaline metal and extracting the cyanid in the usual manner, substantially as set forth.

4. The process, which consists in heating to from a dark-red to a bright-yellow heat a carbid that will not melt at these temperatures, reacting upon the heated carbid with nitrogen, leaching the cyanamid out of the reaction product, then melting the latter and extracting the cyanid in the usual manner.

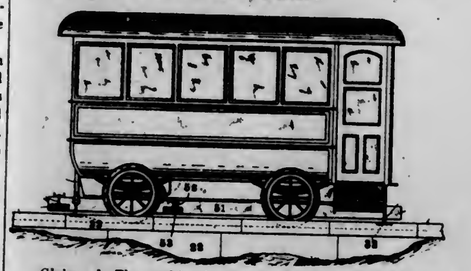
785,162. INTERNAL PIPE-WRENCH. EMANUEL FREYTAG, Hamburg, Germany. Filed Apr. 28, 1904. Serial No. 205,413.

Claim.—1. A pipe-wrench, comprising a shaft, a gripping-disk rigidly and eccentrically secured to said shaft, and a plurality of revoluble gripping-disks eccentrically mounted on said shaft.



2. A pipe-wrench, comprising a shaft, a guide-piece on said shaft, a gripping-disk eccentrically and rigidly secured on said shaft, one or more gripping-disks eccentrically mounted on said shaft and adapted to coact with the first-named disk to engage the interior of a pipe, and means for turning said shaft.

785,163. VEHICLE AND TRACK THEREFOR. JAMES V. GODMAN, Warsaw, Ind., assignor of one-half to John W. Nusbaum, Warsaw, Ind. Filed May 16, 1904. Serial No. 208,274.

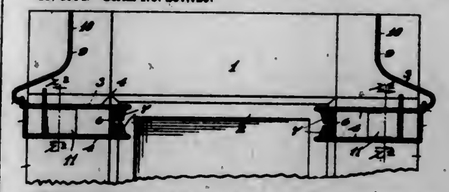


Claim.—1. The combination, with a vehicle, of a suitable track therefor upon which it runs having a vertical member formed integrally therewith and extending above the surface upon which the wheels of the vehicle run, vertical shafts carried by the vehicle, and rollers carried by said shafts and arranged alongside the vertical member of the track, whereby the vehicle is kept on said track and the sides of the ground-wheels thereof kept from contact with the vertical portions of said track.

2. The combination of a vehicle-track having a widened space for passing, and a guide arranged centrally of said space, of a vehicle having depending guides arranged to pass astride of the guide in the roadway and guide said vehicle in a straight line while passing through the widened space.

3. The combination of a vehicle, a roadway therefor having widened spaces for sidings and a vertical guide arranged in the middle of said widened space, guide-plates secured to said vehicle with diverging ends adapted to pass alongside said guide-plates and provided with antifriction-wheels.

785,164. SHADE AND CURTAIN SUPPORTING BRACKET. WILLIAM P. GURR, Minneapolis, Minn., assignor to Rose Manufacturing Company, Minneapolis, Minn., a Corporation of Minnesota. Filed May 13, 1904. Serial No. 207,729.



Claim.—1. A support for shades, curtains, &c., comprising a spring-wire bent to form parallel guide-rods and clamping-sections, and a roller-supporting lug slidably mounted on said guide-rods and frictionally clamped thereby, substantially as described.

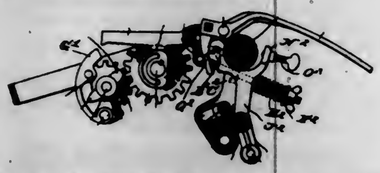
2. A support for shades, curtains, &c., comprising a spring-wire bent to form parallel rods 4, the clamping-sections 5 and 6, and the spring-section 7, substantially as described.

3. In a support for shades, curtains, &c., the combination with

a piece of spring-wire, bent to form the parallel guide-rods 4, laterally offset clamping-sections 5 and 6, and the spring-section 7, of a roller-supporting lug 11, having grooved flanges 12 frictionally engaging with said guide-rods 4, substantially as described.

4. In a support for shades, curtains, &c., the combination with a single piece of spring-wire, bent to form the parallel guide-rods 4, laterally-offset clamping-sections 5 and 6, spring-sections 7, and curtain-rod-supporting extension, of a roller-supporting lug 11, having grooved flanges 12 frictionally engaging with said guide-rods 4, substantially as described.

785,165. GRAIN-BINDER. PAUL HANSON, St. Paul, Minn. Filed Sept. 22, 1902. Serial No. 124,455.



Claim.—1. In a grain-binder, the combination with a needle and knotter mechanism and gearing for actuating the same, of packers, a packer-shaft, a pinion having a bearing in which said packer-shaft is journaled to rotate and having a hub journaled in the frame of the machine, said pinion arranged to operate the needle and knotter actuating gearing, and means for connecting and disconnecting said pinion to revolve with said packer-shaft, as and for the purpose set forth.

2. In a grain-binder, a binder-frame provided with a journal-bearing, a driving-pinion having its hub journaled in said bearing, a packer-shaft journaled in the hub of said pinion, means for coupling and uncoupling said pinion to rotate with said packer-shaft, a needle and knot-tying mechanism, and gearing actuated by said pinion for operating said needle and knot-tying mechanism, as and for the purpose set forth.

3. In a grain-binder, a binder-frame provided with a journal-bearing, a pinion having an extended hub journaled in said bearing, a packer-shaft journaled in the extended hub of said pinion, said pinion provided with a groove or recess in the face thereof, said binder-frame bearing having an extended flange arranged to operate in said groove or seat, means for coupling and uncoupling said pinion to rotate with said packer-shaft, a needle and knot-tying mechanism, and gearing for actuating the same, as and for the purpose set forth.

4. In a grain-binder, a binder-frame, a journal-bearing formed therein, a pinion having its hub received in said bearing, a packer-shaft, the hub of said pinion arranged to form a journal-bearing for said shaft, said frame-bearing arranged to engage said pinion on one face thereof, a shoulder formed on said packer-shaft and arranged to bear against the pinion on the opposite side thereof, a clutch mechanism for connecting and disconnecting said pinion to rotate with said shaft, a needle and knotter operating mechanism, and gearing actuated by said pinion for operating said needle and knotter mechanism, as and for the purpose set forth.

5. In a grain-binder, a binder-frame having a journal-bearing, a pinion having an extended hub-sleeve arranged to be received in the bearing formed in said frame, a packer-shaft journaled in said sleeve and having a shoulder formed thereon arranged to engage one end of said sleeve, said pinion having a seat or groove on the opposite face thereof to receive said frame-bearing, means for connecting and disconnecting said pinion to revolve with said shaft, a needle and knotter mechanism, and gearing actuated by said pinion for driving the same, as and for the purpose set forth.

6. In a grain-binder, a packer-shaft and packer-cranks, said shaft having engaging lugs formed thereon, a drive-pinion loosely sleeved upon said shaft, means for driving said shaft, and a clutch mechanism for coupling and uncoupling said pinion to rotate with said shaft, and including a trip-lever and a dog having an engaging shoulder with which the lugs on the packer-shaft coöperate, a needle and knotter mechanism, gearing including an intermediate gear actuated by said pinion for operating the needle and knotter mechanism, and means carried by said intermediate gear to positively hold said trip-lever out of engaging relation when tripped to permit the needle and knotter mechanism to complete their cycles of movement.

7. In a grain-binder, a packer-shaft having packer-cranks, a drive-pinion loosely sleeved on said shaft, means for driving said pinion, a needle and knotter mechanism, gearing actuated by said pinion for operating said needle and knotter mechanisms, said gearing including an intermediate gear, a clutch mechanism for connecting and disconnecting said pinion from said shaft, and including a dog carried by said pinion, said dog having a shoulder, lugs formed on said packer-shaft and coöperating with the shoulder on said dog and a trip-lever, and means carried by said intermediate gear and engaging said trip-lever, when tripped, to positively hold the same out of uncoupling relation until the needle and knotter mechanisms have completed their cycles of movements, as and for the purpose set forth.

8. In a grain-binder, a packer-crank having an extension, a drive-pinion mounted thereon, a needle and knotter mechanisms, gearing actuated by said pinion for operating said mechanisms, and including an intermediate gear, means for coupling and uncoupling said pinion to rotate with said crank extension and including a trip-lever and a cam carried by said intermediate gear and arranged to engage said trip-lever when tripped and operating to maintain said lever out of engaging or uncoupling relation while the needle and knotter mechanisms are completing their cycles of movements, as and for the purpose set forth.

9. In a grain-binder, a packer-shaft, a drive-pinion mounted thereon, a needle and knotter mechanisms, gearing actuated by said pinion for operating said mechanisms, and means for coupling and uncoupling said pinion to rotate with said shaft, including a trip-lever, in combination with a pawl and a coöperating engaging shoulder, one of these parts carried by said trip-lever, said pawl and shoulder operating to detachably lock said gearing to prevent backlash therein, as and for the purpose set forth.

10. In a grain-binder, a packer-crank having an extension, a pinion mounted thereon, a needle and knotter mechanisms, gearing actuated by said pinion for operating said mechanisms, means for coupling and uncoupling said pinion to rotate with said crank extension and including a trip-lever, a spring-pawl carried by said lever, and a shoulder or projection arranged to be engaged by said spring-pawl to lock said gearing against reverse movement, as and for the purpose set forth.

11. In a grain-binder, a packer-shaft, a pinion mounted thereon, a needle and knotter mechanisms, gearing actuated by said pinion for operating said mechanisms and including an intermediate gear, means for coupling and uncoupling said pinion to rotate with said shaft and including a trip-lever, means carried by said intermediate gear for engaging said trip-lever, when tripped, to hold the same out of engaging relation with respect to said coupling mechanism, and a lock for said gearing to detachably hold the same against reverse movement, including a pawl and a coöperating engaging shoulder therefor, thereby preventing backlash, all combined and arranged as and for the purpose set forth.

12. In a grain-binder, a packer-crank having an extension, a pinion mounted thereon, a counter-shaft having a gear with which said pinion engages, a needle and knotter mechanisms, gearing driven from said counter-shaft for operating the latter, a clutch mechanism for coupling and uncoupling said pinion to rotate with said packer-crank extension and including a trip-lever, a cam mounted on said counter-shaft and arranged to engage said trip-lever when tripped, said cam operating to maintain said trip-lever in disengaged relation with respect to said clutch mechanism during the completion of the cycle of movements of said needle and knotter mechanisms, as and for the purpose set forth.

13. In a grain-binder, a packer-crank having an extension, a pinion mounted thereon, a counter-shaft having a gearing with which said pinion engages, a needle and knotter mechanisms, gearing actuated from said counter-shaft for operating the same, and a clutch-dog and a trip-lever coöperating therewith for coupling or uncoupling said pinion to rotate with said crank extension, a spring-pawl mounted on said lever, and a shoulder or projection carried by the gear on said counter-shaft and arranged to be engaged by said spring-pawl when the latter is engaged with said dog to prevent backlash of the parts, as and for the purpose set forth.

14. In a grain-binder, a packer-shaft, a pinion mounted thereon, a needle and knotter mechanism, gearing driven from said pinion for actuating said needle and knotter mechanism, a clutch including a clutch-dog carried by said pinion, and a trip-lever coöperating therewith, mechanism for operating said trip-lever and including a pivoted bracket to which the packers are connected, said trip-lever having a finger arranged in the path of movement of said bracket to be engaged thereby, and means for clamping said bracket against movement.

15. In a grain-binder, a packer-shaft and packers, needle and knotter mechanism, gearing for actuating the latter, a clutch mechanism, a packer-trip for controlling said clutch mechanism and including a pivotally-mounted bracket, connections between said bracket and the packers, said bracket provided with an engaging shoulder, and a trip-lever for tripping said clutch mechanism, and a finger carried by said trip-lever and arranged in the path of swinging movement of said bracket and with which said shoulder engages when said bracket is rocked, and means for clamping said bracket against rocking movement.

16. In a grain-binder, a packer-shaft and packers, a pinion mounted on said shaft, needle and knotter mechanisms, gearing driven by said pinion for actuating the latter, a clutch mechanism for connecting and disconnecting said gearing, a packer-trip for tripping said clutch mechanism, including a pivotally-mounted bracket, connections between said bracket and the packers, said bracket provided with an engaging shoulder or projection, a trip-lever having a coöperating finger or projection arranged in the path of rocking movement of said bracket and with which said shoulder engages when said bracket is rocked, and means for clamping said bracket against rocking movement, all combined and arranged as and for the purpose set forth.

17. In a grain-binder, a packer-shaft and packers, a needle and knotter mechanisms, gearing for actuating the latter, a clutch mechanism for connecting and disconnecting said gearing, a combined deck and packer trip mechanism, including a trip-lever having a deck-trip arm connected thereto and arranged to project above the surface of the binder-deck, a pivotally-mounted bracket, connections between said bracket and the packers, said bracket provided with an engaging shoulder, said trip-lever having a depending finger arranged to be engaged by the shoulder of said bracket, and an adjustable screw carried by said bracket and operating to clamp said bracket against movement about its pivot, as and for the purpose set forth.

18. In a grain-binder and in combination with packing, needle and knotter mechanisms, a compressing mechanism including a compressor-hook, a pivotally-mounted compressor-arm carrying said hook, and an eccentric bearing for said arm, as and for the purpose set forth.

19. In a grain-binder and in combination with packing, needle and knotter mechanisms, a compressor bar or lever, a compressor-hook carried thereby, an eccentric bearing upon which said compressor bar or lever is mounted, and means for rocking said bar upon said eccentric bearing, all combined and arranged as and for the purpose set forth.

20. In a grain-binder and in combination with packing needle and knotter mechanisms, a compressing mechanism, including a compressor-bar and a hook carried thereby, means for rocking said bar, including a rock-shaft having a crank-arm, a link connecting said crank-arm and bar, a cam mechanism for rocking said shaft, said link and crank-arm being arranged to straighten out to substantial prolongation with respect to each other when said bar and hook are in elevated or raised position, whereby said operating-cam is relieved of undue friction, as and for the purpose set forth.

21. In a grain-binder and in combination with packing, needle and knotter mechanisms, a compressor mechanism, including a compressor-bar, an operating-shaft for holding said bar in raised position, said shaft mounted for slight lateral movement, a spring arranged to oppose the lateral movement of said shaft, means for rocking said shaft, and a link connecting said bar and shaft, as and for the purpose set forth.

22. In a grain-binder and in combination with packing, needle and knotter mechanisms, a compressing mechanism, including a compressor-bar, a compressor-hook mounted thereon, an operating-shaft for rocking said bar and provided with a crank-arm, a link connecting said bar and arm, the parts being so arranged that when said hook and bar are in elevated or raised position said link and crank-arm are substantially in alinement with each other, a laterally-slotted bearing for said shaft, a spring for opposing the lateral movement of said shaft, and a cam mechanism for rocking said shaft, whereby when said bar and hook are raised into elevated position said cam is relieved of undue friction, as and for the purpose set forth.

23. In a grain-binder and in combination with packing, and knotting mechanisms, a needle-shaft and needle and gearing for actuating the same, of a compressing mechanism including a compressor-bar sleeved upon said needle-shaft, said needle-shaft provided with an eccentric bearing to receive the sleeve of said arm, and means for rocking said arm upon its eccentric bearing, as and for the purpose set forth.

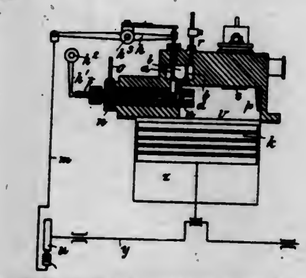
24. In a grain-binder and in combination with packing mechanism, knotting mechanism, needle-shaft and needle, of a compressing mechanism including a compressor-arm, said needle-shaft having an eccentric bearing adapted to receive the hub of said arm, a counter-shaft provided with a crank-arm, a link connecting said crank-arm and compressor-bar, said counter-shaft mounted for slight lateral movement, a spring arranged to oppose said lateral movement, means for rocking said counter-shaft including a cam-surface, said cam-surface having a stud or projection operating to force the parts fully home at the completion of their movements, all combined and arranged as and for the purpose set forth.

25. In a grain-binder, a binder-frame, a breastplate and a supporting-bar therefor, in combination with a brace for said bar, and means for adjusting said brace to raise and lower said bar to regulate the height of said breastplate, as and for the purpose set forth.

26. In a grain-binder, a binder-frame, a breastplate, a supporting-bar for said breastplate, a brace or bracket adjustably connected to said binder-frame and arranged to support said breastplate-supporting bar, all combined and arranged as and for the purpose set forth.

27. In a grain-binder, a main frame, packing, needle and knotter mechanisms, a breastplate, a brace-bracket supported upon the main frame and arranged in a plane parallel with the plane of operation of the packing and needle mechanisms, connections between said breastplate and bracket, and means for adjusting said brace-bracket to raise and lower the breastplate; all combined and arranged as and for the purpose set forth.

785,166. INTERNAL-COMBUSTION ENGINE. FRIEDRICH A. HASELWANDER, Mannheim, Germany. Filed May 23, 1901. Serial No. 61,584.



Claim.—1. In an internal-combustion engine the combination with the cylinder and piston of a small chamber so arranged that it will remain approximately at the temperature of the cylinder during working, a passage connecting said chamber to the cylinder beyond the farthest point reached by the piston during compression, a non-return valve in said passage, a receptacle in the combustion-chamber of the cylinder, means for feeding the combustible to said receptacle, a passage leading from said chamber to the receptacle and means whereby the gases at the pressure of an explosion imprisoned in the said chamber may be allowed to pass out through the latter passage in order to inject the combustible into the fully-compressed charge of air in the combustion-chamber.

2. In an internal-combustion engine the combination with the cylinder and piston of a small chamber so arranged that it will remain during working approximately at the temperature of the cylinder and a passage communicating therewith from the combustion-chamber beyond the farthest point reached by the piston in the compression-stroke, a non-return valve in said passage whereby gases will be allowed to enter said small chamber at the highest explosion-pressure and will be imprisoned therein, and means for injecting the combustible into the fully-compressed air in the combustion-chamber by means of the charge retained in said small chamber.

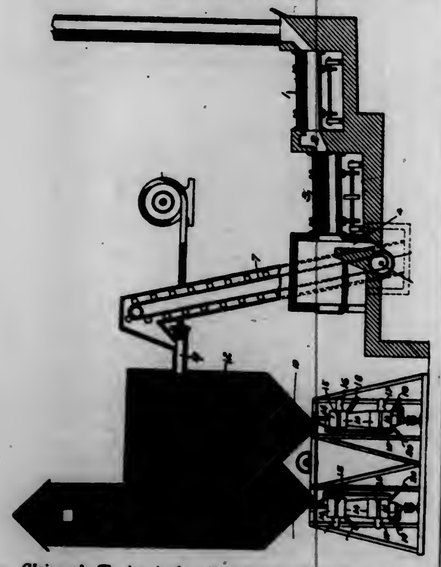
3. In an internal-combustion engine the combination with the cylinder and piston of a small chamber so arranged that it will remain during working approximately at the temperature of the cylinder, a non-return valve adapted to allow gases at the highest pressure of explosion to enter said chamber from the combustion-chamber and to become imprisoned in the chamber, an outlet-pipe leading from said chamber, means for delivering the combustible to the front of said outlet-pipe and means adapted to allow the charge im-

prisoned in said chamber to pass out through said pipe and to inject and spray the combustible into the fully-compressed charge of air in the cylinder.

4. In an internal-combustion engine, the combination with the cylinder and piston of a small chamber so arranged that it will remain approximately at the temperature of the cylinder during working, means for allowing explosion-gases to enter said cylinder at the highest pressure of explosion, means for delivering the combustible into the combustion-chamber when the pressure therein is low, and means adapted to allow the charge of explosion-gases imprisoned in said chamber to spray the combustible into the combustion-chamber when the compression therein is high.

5. In an internal-combustion engine, the combination with the cylinder and piston of a small chamber so arranged that it will remain approximately at the temperature of the cylinder during working, means for allowing explosion-gases to enter said cylinder at the highest pressure of explosion, means for delivering the combustible into the combustion-chamber when the pressure therein is low, means adapted to allow the charge of explosion-gases imprisoned in said chamber to spray the combustible into the combustion-chamber when the compression therein is high, and means for igniting the combustible mixture in the combustion-chamber.

785,167. **PROCESS OF SEPARATING AND REFINING COMPLEX ORES.** ERIC HODBURG, Joplin, Mo., assignor, by mesne assignments, to American Reduction Company, Chicago, Ill., a Corporation of Arizona. Filed Jan. 15, 1904. Serial No. 189,082.



Claim.—1. The herein-described process of treating ores, consisting in, first, drying the ores; second, roasting the same; third, subjecting the heated material to the action of a hydrocarbon gas; fourth, subjecting the material to an air-blast to partially cool the same, and, fifth, passing the same through a magnetic separator.

2. The herein-described process of treating ores consisting in, first, drying crushed ores; second, roasting and heating the same; third, subjecting the heated material to the action of a hydrocarbon gas generated by the heat from the roasted ore; fourth, partially cooling the material, and, fifth, passing the same through a magnetic separator.

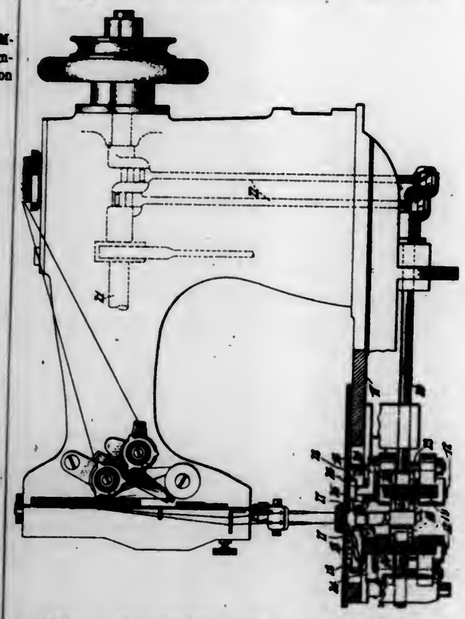
3. The herein-described process of treating ores, consisting in, first, drying the ores; second, roasting the same; third, subjecting the material while heated to the action of a hydrocarbon gas generated by the heat from the roasted ore; fourth, partially cooling the material, and, fifth, separating the magnetic components by passing the ore through magnetic fields of progressively-increased strength, whereby the strongly-magnetic ores are attracted by the lesser-energized magnetic field, and the slightly-magnetic ores by the highly-energized magnetic field, substantially as described.

4. The herein-described process of treating ores, consisting in, first, drying the same; second, roasting the same; third, subjecting the same to an air-blast to partially separate and cool the same, and, fourth, separating the magnetic components by passing the ore through magnetic fields of progressively-increased strength, substantially as described.

5. The herein-described process of treating ores previously reduced to fine particles, consisting in, first, roasting the same; second, subjecting the same while heated to the action of a hydrocarbon gas; third, partially cooling the material, and, fourth, passing the same through two magnetic fields the second of which is more strongly energized than the first, substantially as described.

6. The herein-described process which consists in mixing with crushed ore, a portion of lime, then roasting the mixture, next subjecting the heated material to hydrocarbon gas, subsequently cooling the same partially only, and finally passing the same through a magnetic separator.

785,168. **REVOLVING-HOOK SEWING-MACHINE.** MARTIN HEMLER, Elizabeth, N. J., assignor to The Singer Manufacturing Company, a Corporation of New Jersey. Filed May 7, 1904. Serial No. 206,929.



Claim.—1. In a lock-stitch sewing-machine, the combination with a stitch-forming mechanism comprising a hook or loop-taker rotating in a horizontal plane and a normally stationary bobbin-case within said hook or loop-taker, of a horizontally-swinging bobbin-thread take-up and pull-off device arranged adjacent to the rim of the said horzontally-rotating loop-taker and engaging the lower thread between the bobbin-case and the throat-plate, means for imparting two rotations to the said loop-taker to each reciprocation of the needle, and means for reciprocating said pull-off and take-up device at each rotation of said loop-taker so as to enable it to open a thread-passage at one rotation of the said loop-taker and to perform a take-up and pull-off movement at the next rotation of said loop-taker.

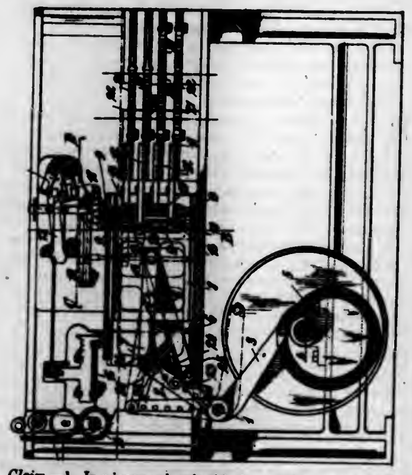
2. In a lock-stitch sewing-machine, the combination with a stitch-forming mechanism comprising a hook or loop-taker rotating in a horizontal plane, of a shaft by which said hook or loop-taker is carried, a bobbin-case in said hook or loop-taker, an adjustable bracket, independent of the bed or work plate of the machine, in which said shaft is mounted, a bobbin-thread-controlling device and means for operating the same, also mounted in said bracket, said controlling device comprising a vertical rock-shaft and a horizontally-vibrating hook moving with said shaft and engaging the bobbin-thread between the bobbin and the work, and means, independent of said controlling device, for restraining rotation of said bobbin-case with said hook or loop-taker.

3. In a lock-stitch sewing-machine, the combination with a stitch-forming mechanism comprising a hook or loop-taker rotating in a horizontal plane, and a bobbin-case in said hook or loop-taker, of a rotating shaft by which said hook or loop-taker is carried, a detachable and adjustable bracket, which is independent of the bed or work plate of the machine, in which said shaft is mounted, a bobbin-thread-controlling device, a rock-shaft also mounted in said bracket and provided with a yoke carrying said thread-controlling device, and an eccentric, on the rotating hook-carrying shaft, embraced by said yoke.

4. In a lock-stitch sewing-machine, the combination with a needle and its operating mechanism, of a hook or loop-taker rotating in a horizontal plane, a bobbin-case in said hook or loop-taker, means for imparting two rotations to said hook or loop-taker to each reciprocation of said needle, a bobbin-case in said hook or loop-taker, a bobbin-thread-controlling device mounted adjacent to said hook or loop-taker, and means for imparting r. vibration to said thread-controlling device to each rotation of said hook or loop-taker.

5. In a lock-stitch sewing-machine, the combination with a stitch-forming mechanism comprising a vertically-reciprocating needle and a horizontally-rotating hook or loop-taker, of a shaft by which said hook or loop-taker is carried, a bobbin-case in said hook or loop-taker, a bracket, separate from the frame of the machine, in which said shaft is mounted, means for imparting two rotations to said shaft to each reciprocation of said needle, a horizontally-vibrating bobbin-thread-controlling device also mounted in said bracket, adjacent to said hook or loop-taker, and an eccentric on said shaft operatively connected with said thread-controlling device and serving to impart a vibration to said thread-controlling device to each rotation of said shaft.

785,169. **JACQUARD EMBROIDERING-MACHINE.** LOUIS HERZOG, Rorschach, Switzerland, assignor to The Firm of Stickerei Feldmühle, vormals Loeb, Schoenfeld & Co., Rorschach, Switzerland. Filed Aug. 4, 1903. Serial No. 168,296.



Claim.—1. In a jacquard embroidering-machine, the horizontal slide-frames, the vertical slide-frames, the jacquard mechanism and the coupling members connecting the said horizontal and vertical frames, in combination with the stepped lever and rods connecting the same with the vertical frames, said connecting-rods provided with means to automatically adjust their effective length, whereby in the event of false coupling of the said vertical and horizontal frames, injury to the machine is prevented, substantially as set forth.

2. In a jacquard embroidering-machine, the horizontal slide-frames, the vertical slide-frames, the jacquard mechanism and the coupling members connecting the said horizontal and vertical frames, in combination with a stepped lever and links connecting the same with the vertical frames, said links consisting of two pivoted parts and a leaf-spring to control the joint at the pivot to admit of the links bending in the manner of a toggle, substantially as set forth.

3. In a jacquard embroidering-machine, the combination with slides, of a stepped lever, links connecting the steps of said lever and slides, and means to automatically adjust the effective lengths of the links when two or more slides have the same travel, substantially as described.

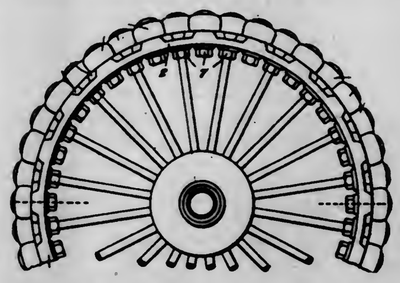
4. In a jacquard embroidering-machine, the combination with vertical slides, of a stepped lever, a rigid link connecting one of the slides to the lever, and a link connecting each of the other slides to the lever and having means to automatically adjust the effective length of said link, substantially as described.

5. In a jacquard embroidering-machine, the combination with slides each having a different travel from the others, of a stepped lever, a rigid link connecting that slide having the greatest travel with the lever, and a link connecting each of the other slides with its respective step on said lever, each of said last-named links having means to automatically adjust its effective length, substantially as described.

6. In a jacquard embroidering-machine, the combination with slides and a stepped lever, of a rigid link connecting the slides having the longest movement with the lever, and a short link pivoted to a long link and a leaf-spring to yieldingly hold the two links to move as a unit, a pair of said links connecting each of said slides to the stepped lever, substantially as described.

7. In a jacquard embroidering-machine, the combination with slides, of a stepped lever, a rigid link connecting that slide having the greatest travel with the lever and each of the other slides connected to said lever by a short link hinged to a long link, the short link having a notch in its hinge end proximate the long link, a spring secured to the long link to normally engage said notch, substantially as described.

785,170. **VEHICLE-WHEEL TIRE.** HENRY DE FOREST HUBBARD, Avalon, Pa. Filed Dec. 30, 1903. Serial No. 187,161.



Claim.—1. The combination with a tire having straight parallel edges and alternately-arranged abutment-receiving recesses arranged upon its tread-surface; of a series of adjacent quadrilateral resilient tread-abutments having metallic bearing-faces alternately arranged out of alinement with each other in the receiving-recesses, substantially as set forth.

2. A wheel-tire provided with adjacent resilient tread-abutments having metallic bearing-faces, alternately arranged out of alinement with each other around the tire-periphery, substantially as set forth.

3. A wheel-tire provided with adjacent quadrilateral resilient tread-abutments having metallic bearing-faces, alternately arranged out of alinement with each other around the tire-periphery, substantially as set forth.

4. A wheel-tire provided with separate adjacent resilient tread-abutments having metallic bearing-faces located centrally within the area of the tread and projecting outwardly beyond thereof, arranged diagnoally across the face of the tire, substantially as set forth.

5. A wheel-tire provided with a series of recesses and a series of separate resilient tread-abutments secured in said recesses, arranged diagonally across the face of the tire, and having metallic bearing-faces, substantially as set forth.

6. A wheel-tire provided with a series of recesses, ground-contact tread-abutments of resilient material mounted therein, and bolts secured in the tire passing through the abutments and provided with bearing-heads extending beyond the abutments, substantially as set forth.

7. A wheel-tire provided with a series of recesses, ground-contact tread-abutments of resilient material mounted therein, and bolts

secured in the tire passing through the abutments and provided with bearing-heads extending beyond the abutments, with intervening bearing-washers, substantially as set forth.

8. A wheel-tire provided with a series of recesses and bolt-openings, ground-contact tread-abutments of resilient material seated in said recesses, and securing-bolts passing through the abutments and tire, provided with bearing-heads extending beyond the abutments, and securing-nuts, and so mounted in the tire as to permit free movement of the bolts, substantially as set forth.

9. A wheel-tire provided with a series of peripheral recesses, ground-contact tread-abutments of resilient material mounted therein, and securing-bolts passing through the abutments and provided with bearing-heads normally extending beyond the faces of the abutments, substantially as set forth.

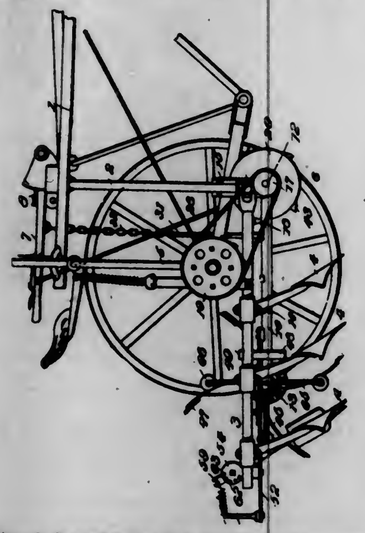
10. The combination with a wheel-tire provided with a series of abutment-receiving cavities having surrounding retaining-flanges, of a series of ground-contact rubber abutments mounted in said recesses, and securing-bolts passing through the abutments and tire provided with bearing-heads extending beyond the bearing-faces of the abutments, and provided with inner securing-nuts, substantially as set forth.

11. The combination with a wheel-tire provided with a series of abutment-receiving cavities having surrounding retaining-flanges, of a series of ground-contact rubber abutments mounted in said recesses, and securing-bolts passing through the abutments and tire provided with bearing-heads extending beyond the bearing-faces of the abutments and provided with inner securing-nuts, said bolts being capable of inward and outward movement through the tire-bearing, substantially as set forth.

12. A wheel-tire provided with a series of alternately-arranged quadrilateral bearing-abutments of resilient material with securing-bolts passing through the abutments and provided with bearing-heads, substantially as set forth.

13. A wheel-tire provided with a series of recesses and a series of separate resilient ground-contact tread-abutments secured in said recesses, with bolts secured in the tire passing through the abutments and provided with bearing-heads arranged to make contact with the ground, substantially as set forth.

785,171. COTTON-CHOPPING ATTACHMENT FOR CULTIVATORS. MARTIN A. JONES, Oglesby, Tex. Filed Apr. 16, 1904. Serial No. 203,507.



Claim.—1. In combination with an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, and spacers at the sides of the attachment for properly positioning the same between the longitudinal bars of the agricultural implement, substantially as set forth.

2. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment to the implement, and spacers projected from the sides of the attachment and having their outer portions upwardly and outwardly inclined to engage with the longitudinal bars of the agricultural implement and properly position the attachment, substantially as set forth.

3. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment of the implement, and spacers projected from the sides of the attachment and having their outer portions upwardly and outwardly inclined and terminating in outer projections to engage over the longitudinal bars of said agricultural implement, substantially as specified.

4. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment to the implement, and spacers projected from the sides of the attachment and having their outer portions made resilient so as to yield and normally exert a lateral pressure upon the longitudinal bars of the agricultural implement, substantially as set forth.

5. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment to the implement, and spacers of approximately V form connected to the sides of the attachment and adapted to engage with the longitudinal bars of the agricultural implement, substantially as specified.

6. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment to the implement, spacers at the sides of the attachment, and means for adjustably connecting said spacers to the attachment, substantially as described.

7. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment to the implement, spacers, and means for connecting the spacers to the attachment and admitting of angular adjustment of the spacers, substantially as set forth.

8. In combination, an agricultural implement of the cultivator type, an attachment provided with mechanism for thinning the rows of cotton-plants, means for coupling the attachment to the implement, spacers, and means adjustably connecting the spacers to the attachment to admit of both lateral and angular adjustment of said spacers, substantially as specified.

9. In combination, an attachment comprising front and rear portions pivotally connected, means applied to the front portion for coupling the same to an agricultural implement, and yielding spacers applied to the rear portion of the attachment and arranged at the sides thereof to come between the attachment and longitudinal bars of the machine to which the attachment is coupled, substantially as set forth.

10. In combination, a rotary chopper for thinning the rows of cotton-plants, a driver, power-transmitting means between said driver and chopper for operating the latter intermittently, and a stop or detent mechanism for positively holding the chopper during the intervals between the periods of movement, substantially as set forth.

11. In combination, a driver, a rotary chopper, power-translating means between the driver and chopper for operating the latter intermittently, a stop mechanism for positively holding the said chopper during its periods of rest, and means actuated by said driver for releasing the stop mechanism prior to imparting movement to the rotary chopper, substantially as set forth.

12. In combination, a driver, a rotary chopper, power-translating means between the driver and chopper for operating the latter intermittently, a stop mechanism for positively holding the said chopper during its periods of rest, and a tappet carried by said driver and arranged to release the stop mechanism prior to positive connection being effected between said driver and the power-translating mechanism, substantially as set forth.

13. In combination, a rotary driver, a rotary chopper, power-translating means between the rotary chopper and said driver including a pinion, cog-teeth carried by said driver and adapted to intermesh with the teeth of said pinion, a stop mechanism for holding the power-translating means against forward movement after the cog-teeth have cleared said pinion, and a tappet projected from the driver to effect release of said stop mechanism prior to engagement of said cog-teeth with the pinion, substantially as set forth.

14. In combination, a rotary driver, a rotary chopper, power-translating means between the rotary chopper and said driver including a pinion, cog-teeth carried by said driver and adapted to intermesh with the teeth of said pinion, a stop forming a part of said pinion, a dog for coöperating with said stop, and a tappet projected from the driver and adapted to disengage the dog from the stop preliminary to engagement of the cog-teeth with the pinion, substantially as set forth.

15. In combination, a rotary driver, a rotary chopper, power-translating means between the rotary chopper and said driver including a pinion, cog-teeth carried by said driver and adapted to intermesh with the teeth of said pinion, a stop mechanism coöperating with the power-translating mechanism to hold the latter stationary during the interval between disengagement of said cog-teeth from the pinion, and a tappet forming a part of the cog-teeth and adapted to effect a release of the stop mechanism prior to engagement of the said cog-teeth with the pinion, substantially as specified.

16. In combination, a rotary driver, a rotary chopper, power-translating means between the rotary chopper and said driver including a pinion, cog-teeth carried by said driver and adapted to intermesh with the teeth of said pinion, a stop connected with the power-translating mechanism, a dog for engagement with said stop and having an extension forming a trip, and a tappet projected from the driver to come in contact with said trip and effect release of the dog from the stop prior to engagement of the cog-teeth with the pinion, substantially as described.

17. In combination, a chopper mechanism, operating means therefor including a shaft, driver and clutch mechanism, a wedge slidably mounted upon the shaft, means mounted upon the shaft for limiting the movement of said wedge in one direction, and actuating means for said wedge to effect unshipping of the power-transmitting mechanism, substantially as set forth.

18. In combination, a chopper mechanism, operating means therefor including a shaft, driver and clutch mechanism, a wedge slidably mounted upon said shaft, means mounted upon the shaft for limiting the movement of said wedge in one direction, an operating-lever for raising and lowering the chopper mechanism, and connecting means between said operating-lever and wedge to effect simultaneous movement of the latter with lifting of the chopper mechanism, substantially as described.

19. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing, and means for intermittently lifting said fenders, substantially as described.

20. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing and mounted for pivotal movement, means for throwing said fenders forward, and means for intermittently elevating said fenders to disconnect them from the ground, substantially as set forth.

21. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing and mounted for pivotal movement, means for regulating the forward movement of the fenders, spring means for normally holding the fenders forward, and means for lifting the fenders to disengage them from the ground, substantially as set forth.

22. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing and adjustable toward and from the chopper mechanism, means for securing the fenders in an adjusted position, and means for elevating the fenders to effect their disengagement from the ground at any adjusted position, substantially as set forth.

23. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing, a support for each fender to admit of varying its lateral inclination, means for securing the fender in the adjusted position, and means for disconnecting the fenders from the ground, substantially as set forth.

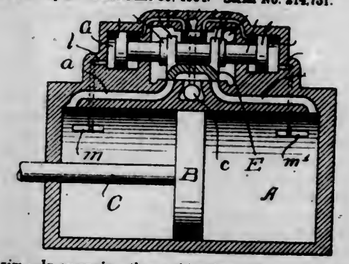
24. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing, plates having the fenders pivotally connected thereto, stops adjustable upon the plates to limit the forward movement of the fenders, springs for holding the fenders in normal position, and means for disconnecting the fenders from the ground, substantially as set forth.

25. In combination, a cultivator, chopping means for thinning the rows of cotton-plants, fenders arranged to come upon opposite sides of the plants left standing, vertically-movable supports for the fenders and having stops, and tappets connected with the chopper mechanism and rotatable therewith to effect vertical movement of the fenders, substantially as specified.

26. In combination, a framework comprising side bars, a chopper mechanism for thinning the rows of cotton-plants, spring-bars extended from said side bars, fenders carried by the spring-bars and arranged to come upon opposite sides of the plants, and a trip mechanism to effect vertical movement of said spring-bars to disconnect the fenders carried thereby from the ground, substantially as set forth.

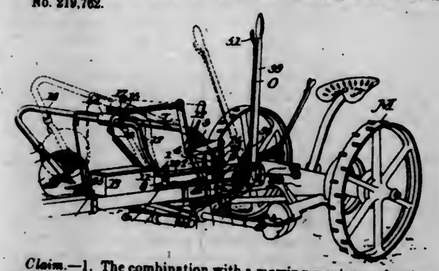
27. In combination, a framework comprising side bars, a chopper mechanism for thinning the rows of cotton-plants, spring-bars extended from said side bars, fenders adjustable upon said spring-bars, spring means for normally throwing the fenders forward, stops upon the spring-bars, and means supported by the side bars of the framework and connected with the chopper mechanism to rotate therewith and adapted to engage with the stops of the spring-bars to move the latter and elevate the fenders, substantially as set forth.

785,172. STEAM-ACTUATED VALVE. TOKUICHIRO KABAI, Aomori, Japan. Filed June 30, 1904. Serial No. 214,731.



Claim.—In an engine, the combination with a primary cylinder, of a reciprocating piston therein, a steam-chest, primary-cylinder ports leading from said chest to said primary cylinder, a main exhaust-port common to said cylinder-ports, a primary slide-valve coöperating with said primary and main exhaust-ports, an auxiliary piston-rod rigidly secured to said primary slide-valve, auxiliary pistons mounted on the opposite end of said rod, auxiliary cylinders for said pistons, said cylinders being formed in compartments separate from the steam-chest, by-pass ports leading from said steam-chest to the inner ends of said auxiliary cylinders, an exhaust K′ adjacent said ports, auxiliary ports leading from the outer ends of said auxiliary cylinders to said primary cylinder, said auxiliary ports terminating in open grooves formed in the wall of said primary cylinder, a steam-balanced auxiliary valve mounted in said steam-chest and actuated by said primary slide-valve, said auxiliary valve coöperating with the chest-terminals of said auxiliary-cylinder ports and said exhaust K′, and a handle for said auxiliary valve projecting through a slot formed in the wall of said valve-chest.

785,173. VINE-CUTTING ATTACHMENT FOR MOWING-MACHINES. JOHN G. KING, Pine Bluff, Ark. Filed Aug. 6, 1904. Serial No. 219,762.



Claim.—1. The combination with a mowing-machine, of a vine-cutting device mounted upon the tongue of the machine and including a rotary cutting-disk, and means for supporting said disk adjacent to the end of the cutter-bar of the machine.

2. The combination with a mowing-machine, of a vine-cutting device mounted upon the tongue of the machine and including a base-plate, means for pivotally supporting said base-plate, means for securing said base-plate against pivotal movement, a rotary cutting-disk, and means for supporting said disk in position for operation.

3. The combination with a mowing-machine, of a vine-cutting

device mounted upon the tongue of the machine and including a base-plate, a pivotal bolt for said base-plate, means for securing said base-plate against pivotal movement, a rotary cutter, means for holding the cutter in operative engagement with the ground, and means for raising the cutter from its operative position.

4. The combination with a mowing-machine, of a vine-cutting device mounted upon the tongue of the machine and including a base-plate, means for pivotally supporting said base-plate, means for securing said base-plate against pivotal movement, a rotary cutter, and spring means for holding the cutter in operative engagement with the ground.

5. The combination with a mowing-machine, of a vine-cutting device mounted upon the tongue of the machine and including a base-plate, means for pivotally supporting said base-plate, means for securing said base-plate against pivotal movement, a spring-actuated frame hingedly connected with said base-plate, a rotary cutter supported by the frame, and means for manipulating said frame.

6. A vine-cutting attachment for mowing-machines including a base, a frame hingedly connected with said base, a rotary cutter supported by said frame, brackets depending from one side of the base, a pivotal bolt for one end of said base, and readily-detachable means for the securement of the opposite end of said base in operative position.

7. In a device of the class described, a base having upward-extending brackets, a rock-shaft journaled in said brackets, curved converging members connected with said rock-shaft, a block connecting the free ends of said curved members, an extension-arm supported adjustably in said block, and a rotary cutting-disk supported at the free end of said extension-arm.

8. In a device of the class described, a base, a bolt constituting a pivot for said base, means for securing said base against pivotal movement, a cutter-carrying frame connected hingedly with said base, a bell-crank lever fulcrumed upon the base, connecting means between one arm of said bell-crank lever and the cutter-carrying frame, and means for manipulating said bell-crank lever and for securing it in adjusted position.

9. In a device of the class described, a base-plate, means for pivotally supporting said base-plate, means for securing said base-plate against pivotal movement, a cutter-carrying frame hingedly connected with said base-plate, a bell-crank lever pivotally connected with a bracket extending upwardly from the base-plate, connecting means between said bell-crank lever and the upper side of the cutter-carrying frame, spring means exerting downward tension upon said cutter-carrying frame, and means for manipulating and adjusting the bell-crank lever.

10. In a device of the class described, a base-plate, means for pivotally supporting said base-plate, means for securing said base-plate against pivotal movement, a frame hingedly connected with said base-plate, a rotary cutting-disk carried by said frame, and means for effecting the upward and downward adjustment of the cutter-carrying frame, said means including a spring movable with the frame and capable of exerting a downward tension upon the latter.

11. In a device of the class described, a hingedly-mounted frame, a rotary cutting-disk carried by said frame, a bell-crank lever fixedly supported with relation to the hinged frame, an operating-lever having an arm or bell-crank, flexible connecting means between the upper arm of the bell-crank lever and the upper side of the cutter-carrying frame, flexible connecting means between the lower arm of the bell-crank lever and the bell-crank-operating lever, and flexible connecting means including a tension-spring, between the bell-crank-operating lever and the under side of the cutter-carrying frame.

12. In a device of the class described, a pivotally-supported base, a cutter-carrying frame hingedly connected with said base, a bell-crank lever pivotally connected with a bracket extending upwardly from said base, an operating-lever supported independently of the pivotally-supported base and having a bell-crank, flexible connecting means between the said bell-crank and the lower end of the bell-crank lever supported upon the base, flexible connecting means between the bell-crank supported upon the base and the upper side of the cutter-carrying frame, a tension-spring connected with the under side of the cutter-carrying frame, suitably-guided flexible connecting means between the lower end of said spring and the bell-crank-operating lever, and means upon the operating-lever for supporting the cutter-carrying frame when the base supporting the same is swung into inoperative position.

13. In a device of the class described, the combination with a mowing-machine, of a base-frame connected pivotally with the tongue of said mowing-machine, a bolt constituting such pivotal connection, readily-detachable means for retaining the base-frame securely in position for operation, a cutter-carrying frame hingedly connected with said base, a clamp mounted adjustably at a point distant from, but in alinement with the base-frame, and a brace connecting said clamp with the hingedly-mounted cutter-carrying frame.

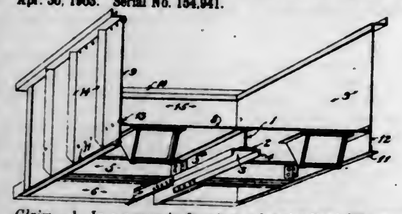
14. In a vine-cutting attachment for mowing-machines, a cutter-carrying frame, a pivotally-supported base-frame supporting said cutter-carrying frame, readily-detachable means for securing the base-frame in position for operation, an operating-lever having a spring-actuated dog and a handle for operating the latter, a segment-rack engaged by said dog, and connecting means between the operating-lever and the cutter-carrying frame, whereby the latter may be adjusted, said operating-lever and dog-operating handle affording a support for the cutter-carrying frame when the latter is in inoperative position.

15. The combination with the tongue of a mowing-machine, of a hingedly-mounted cutter-carrying frame, a suitably-supported bell-crank lever, an operating-lever having a bell-crank, a tension-spring connected with the under side of the cutter-carrying frame, a guide-pulley upon the under side of the tongue, a flexible member guided over said pulley and connecting the lower end of the spring with the bell-crank of the operating-lever, flexible connecting means between said bell-crank and the lower arm of the bell-crank lever, and flexible connecting means between the upper end of said bell-crank lever and the upper side of the cutter-carrying frame.

16. In a device of the class described, a base-plate, vine-cutting mechanism carried by said plate, a pivotal bolt for said base-plate, tongue-engaging hooks depending from the latter, and a drop-pin adapted to engage a perforation in the base-plate.

17. In a device of the class described, a base-plate, vine-cutting mechanism carried by said plate, a pivotal bolt for said base-plate, tongue-engaging hooks depending from the latter, a drop-pin adapted to engage a perforation in the base-plate, and flexible connecting means between said drop-pin and a fixed part of the cutting mechanism.

785,174. RAILWAY-CAR. JOHN W. KING, New York, N. Y. Filed Apr. 30, 1903. Serial No. 154,941.



Claim.—1. In a car-underframing, a longitudinal sill comprising a vertically-disposed member having horizontally-projecting top and bottom flanges, and a horizontally-disposed member secured below the vertically-disposed member and having vertical side flanges.

2. In a car-underframing, a longitudinal sill comprising a vertically-disposed member including a plurality of longitudinal sections, and a horizontally-disposed longitudinal member secured and extending below said vertically-disposed member, said horizontally-disposed member having vertical flanges.

3. In a car-underframing, a longitudinal sill comprising a vertically-disposed I-beam, and a channel below said beam, said channel having its flanges turned downward.

4. The combination in an underframe for cars, with a center sill comprising a vertically-disposed member including a plurality of longitudinal sections having lateral flanges, and a horizontally-disposed member secured and extending continuously relative to said vertically-disposed member, and a bolster against which abut the contiguous ends of the sections of the vertically-disposed member.

5. The combination in an underframe for cars, with a center sill consisting of a vertically-disposed member and a horizontally-disposed member, of a continuous bolster, and plates secured to opposite sides of the center sill.

6. The combination in an underframe for cars, with a center sill consisting of a vertically-disposed member and a horizontally-disposed member, of a continuous bolster, and plates secured to opposite sides of the center sill and extending under the bolster.

7. A car-underframing embodying a center sill comprising a vertically-disposed member provided with laterally-extending flanges,

and a horizontally-disposed member of longitudinally-extended character secured below the vertically-disposed member, and a car-bottom supported directly upon the vertical member.

8. In a car-underframing, a center sill comprising a vertically-disposed member having horizontally-projecting top and bottom flanges, and a horizontally-disposed member secured below the vertically-disposed member and having vertical side flanges.

9. In a car-underframing, a center sill comprising a vertically-disposed member including a plurality of longitudinal sections, and a horizontally-disposed longitudinal member secured and extending below said vertically-disposed member, said horizontally-disposed member having vertical flanges.

10. In a car-underframing, a center sill comprising a vertically-disposed I-beam, and a channel below said beam, said channel having its flanges turned downward.

11. The combination in an underframe for cars, with a center sill comprising a vertically-disposed member including a plurality of longitudinal sections, and a horizontally-disposed member secured and extending continuously relative to said vertically-disposed member, and a continuous bolster against which abuts the contiguous ends of the sections of the vertically-disposed member.

12. The combination in an underframe for cars, with a center sill comprising a vertically-disposed member including a plurality of longitudinal sections having lateral flanges, and a horizontally-disposed member secured and extending continuously relative to said vertically-disposed member, and a continuous bolster against which abut the contiguous ends of the sections of the vertically-disposed member.

13. The combination in an underframe for cars, with a center sill consisting of a vertically-disposed member and a horizontally-disposed member having vertical flanges, of a continuous bolster, and plates secured to opposite sides of the center sill.

14. The combination in an underframe for cars, with a center sill consisting of a vertically-disposed member and a horizontally-disposed member having vertical flanges, of a continuous bolster, and plates secured to opposite sides of the center sill, and extending under the bolster.

15. In a car the combination with a body comprising a floor and sides, the latter depending below the floor plane and forming side sills of continuous bolster provision beneath and connected to the side sills, and a center sill embodying a vertical member disposed in the same horizontal plane as that occupied by the side sills and bolster provision and secured to the latter.

16. In a car, the combination with the center sill and bolsters, of a body, the sides of which intersect the horizontal plane of the center sill and bolsters, and form side sills, said center sill comprising a vertically-disposed member located below the floor plane and provided with laterally-extending flanges, and a horizontally-disposed member secured below the vertically-disposed member.

17. The combination in an underframe for cars, with continuous bolsters, the latter presenting uninterrupted vertical faces at their central portions, and a center sill comprising a vertically-disposed member in a horizontal plane common with that of said central bolster portions, said center sill extending at each end beyond the positions of the continuous bolsters, of diagonal braces at the end portions of the frame, connected at their inner ends with the center sill and suitable side sills to which the outer ends of the braces are connected.

18. The combination with an underframe for cars having a center sill comprising a vertically-disposed member, and bolsters, of body sides depending within the horizontal plane of the center sill, and diagonal braces at the end portions of the frame, connected independently of the floor by being attached at their inner ends directly to the vertical member of the center sill and at their outer ends to the depending parts of the body sides.

19. The combination with an underframe for cars having continuous bolsters and a center sill comprising a vertically-disposed member extending at each end to points beyond the position occupied by the said bolsters, of body sides depending below the floor plane, and diagonal braces at the end portions of the frame and connected independently of the floor by being attached at their ends with the center sill and at their outer ends to the depending body sides.

20. The combination in an underframe for cars, with a center sill consisting of a vertically-disposed member having horizontally-projecting flanges, and a horizontally-disposed member, of a continuous bolster, and parallel side plates secured to opposite sides of the center sill and extending under the bolster.

21. The combination in an underframe for cars, with a center sill consisting of a vertically-disposed member having horizontally-projecting flanges, and a horizontally-disposed member having depending flanges, of a continuous bolster, and parallel side plates secured to opposite sides of the center sill and extending under the bolster.

22. In an underframe for cars, the combination with a continuous bolster, of a center sill consisting of a vertically-disposed member having horizontally-projecting flanges and a horizontally-disposed member extending under and beyond the bolster, and side plates or bars on opposite sides of the center sill connecting the latter to the end sill of the car.

23. The combination in an underframe for cars, with continuous bolsters, the latter presenting uninterrupted vertical faces at their central portions, and a center sill comprising a vertically-disposed member in a horizontal plane common with that of said central bolster portions, metallic sides extending below the floor, such extended portions connected with the center sill, reinforcing angle-bars secured to the top and bottom edges of said sides, and a plurality of vertically-disposed angle-bars secured to the outer surfaces of the sides between said reinforcing angle-bars.

24. The combination in an underframe for cars, with continuous bolsters, the latter presenting uninterrupted vertical faces at their central portions and a center sill comprising a vertically-disposed member in a horizontal plane common with that of said central bolster portions, of a car-body comprising metallic sides extending below the floor, such extended portions connected to the center sill angle-bars connecting the sides and floor at their points of juncture, and reinforcing angle-bars secured to the top and bottom of the sides of the car.

25. The combination in an underframe for cars, with side sills, continuous bolsters the latter presenting uninterrupted vertical faces at their central portions and a center sill comprising a vertically-disposed member, said sills, bolsters and center-sill member connected substantially as described and all lying in a horizontal plane, and a horizontally-disposed member extending longitudinally supplementary to the center sill.

26. The combination in a car, of side sills, end sills continuous bolsters, the latter presenting uninterrupted vertical faces at their central portions and a center sill comprising a vertically-disposed member, said side sills, end sills, bolsters, and center-sill member all connected substantially as described and all lying in a common horizontal plane, and a horizontally-disposed member extending longitudinally supplementary to the center sill connected with the end sills and having provision for attaching the draft-rigging.

27. The combination with the floor of a car-body, of sides connected thereto by lower angle-bars, and Z-bars secured to the sides at their top for coacting with said sides to resist the overturning action of the load, the depending flanges of said bars bearing against vertical surfaces of the sides.

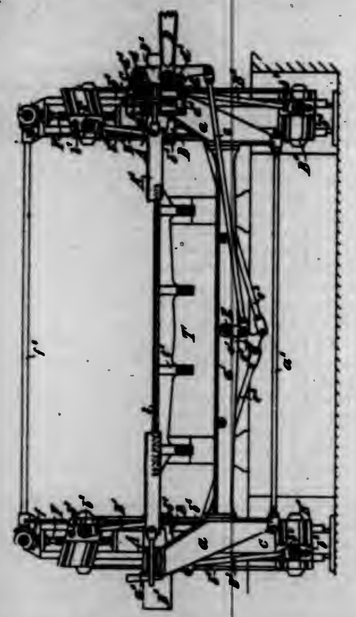
28. The combination with the floor of a car-body, of sides connected thereto by lower angle-bars, Z-bars having their inner depending flanges secured to the sides at their top for coacting with the sides to resist the overturning action of the load, and stiffeners externally on the sides for bracing the latter between the rigid points presented by said upper and lower bars.

785,175. APPARATUS FOR CUTTING OR SAWING SLATE, STONE, METAL, WOOD, OR OTHER MATERIALS. CHARLES LANDALE, Stoke-upon-Trent, England. Filed Nov. 29, 1902. Serial No. 133,272.

Claim.—1. In a machine for cutting or sawing slate, stone, metal, wood and other materials, the combination of a table for supporting the material, a saw-frame provided with one or more saws or cutters, cross-heads suspended between saddles by means of links for carrying said saw-frame, uprights carrying said saddles with screw-spindles working in said saddles and whereby the saws are fed to the work, and means for reciprocating the saw-frame, substantially as herein described.

2. In a machine for cutting or sawing slate, stone, metal, wood and other materials, the combination of a saw-frame provided with one or more cutters, cross-heads suspended between saddles by means of links, pivots eccentrically mounted in said cross-heads for carrying the saw-frame, a lever pivotally mounted on the saw-frame and connected with a thrust-rod, rods and levers connecting said pivotally-mounted lever with the eccentrically-mounted pivots, and means for releasing the pivotally-mounted lever, at the end of the cutting stroke, whereby said lever is vibrated by the thrust-rod and the eccentrically-mounted pivots rotated to remove the saw or saws

from the cut during the return stroke, substantially as herein described.

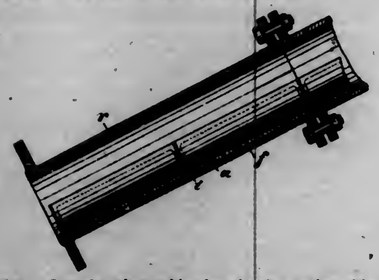


3. In a machine for cutting or sawing slate, stone, metal, wood and other materials, the combination with a saw-frame provided with one or more saws or cutters, adapted to cut in an upward direction, cross-heads and links supporting the frame and means for removing the cutters from the cut during a portion of their stroke, of a table for carrying the material to be operated on formed with longitudinal slots.

4. In a machine for cutting or sawing slate, stone, metal, wood and other materials, the herein-described means for preventing the saw-frame from being raised or lowered before it reaches the end of its stroke, said means comprising a lever pivotally mounted on the saw-frame and connected with a thrust-rod, a bolt connected with said lever, a catch for engaging the bolt, inclined planes on the main frame, and means for operating said catch from the inclined planes at the end of each stroke.

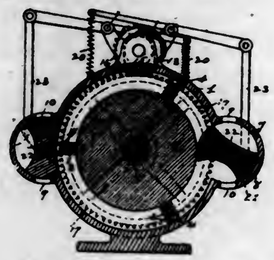
5. In a machine for cutting or sawing slate, stone, metal, wood and other materials the combination with vertically-movable saddles or blocks, of a saw-frame provided with one or more saws, cross-heads supporting the saw-frame, two links pivoted to each cross-head, and holders adjustable in a substantially horizontal direction in the saddles for supporting the other ends of the said links.

785,176. LINED PIPE. PETER MONNERTZ, Marzloh, near Ruhrort, Germany. Filed Sept. 20, 1904. Serial No. 225,230.



Claim.—In a pipe, the combination of a pipe-section with a lining having ribs that engage the pipe-section, and a packing intermediate the ribs, substantially as specified.

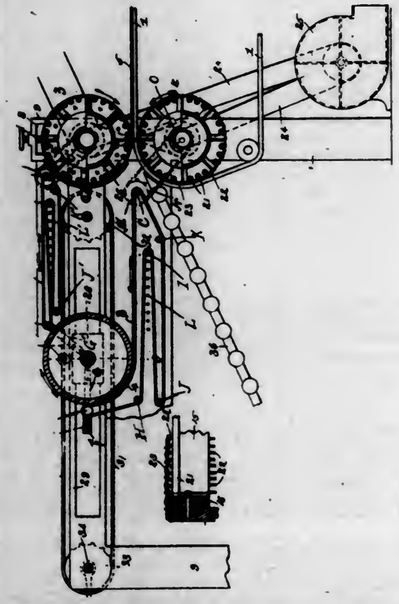
785,177. ROTARY ENGINE. REASON R. MORRISON, Mineral City, Ohio. Filed Nov. 26, 1902. Serial No. 132,964.



Claim.—1. In a rotary engine, the combination with a cylinder, a shaft and piston thereon, of vanes upon the piston, engaging the cylinder, cylindrical valve-seats communicating with said cylinder, doubly-concave valves in said seats, said valves arranged to engage the said piston-periphery at their longest diameters, and the extremities of the vanes with one of their concave surfaces, live-steam and exhaust ports in said valve-seats, and means for reciprocating said valves to admit and exhaust steam from the cylinder, consisting of a gear on the piston-shaft, cams and a cam-shaft, a gear on said cam-shaft adapted to engage said gear on the piston-shaft, levers actuated by said cams, and suitable mechanism connecting the valves and levers, substantially as described.

2. In combination, a cylinder, a piston and shaft thereon, vanes upon said piston, valve-seats on either side of the cylinder, and steam and exhaust ports for said seats, rotary valves doubly concave, valve-stems in said seats, and cam mechanism operated by the rotation of the piston-shafts, constructed and arranged to rotate said valves in opposite directions, whereby the one valve will be closed to admit the passage of one vane, and the other will be open to admit of the steam admission and exhaust between the vanes on the opposite side of the piston, substantially as described.

785,178. MACHINE FOR MAKING PAPER-BOARD. THOMAS W. MCFARLAND, Chicago, Ill. Filed June 29, 1903. Serial No. 163,449.



Claim.—1. In a machine for making paper-board, the combination of two rolls, one of which is movable bodily with reference to the other, means for conveying the web to and around said rolls and means for moving both ends of the adjustable roll simultaneously.

2. In a machine for making paper-board, the combination of two rolls, one of which is movable bodily with reference to the other, means for conveying the web to and around said rolls, slides in which the ends of said movable roll are supported, and endless chains operatively connected together and also connected with said slides for adjusting them simultaneously.

3. In a machine for making paper-board, the combination of the endless web-carrying belt, a roll over which said belt runs, a press-roll engaging said belt on said first roll, and a third roll adjustable bodily with reference to said press-roll and around which press-roll and third roll the web is adapted to pass.

4. In a machine for making paper-board, the combination of the endless web-carrying belt, a roll over which said belt runs, a hollow perforated press-roll engaging said belt on said first roll, and a third roll adjustable bodily with reference to said press-roll, and around which third roll and the press-roll said web is wound, and an exhausting device connected with said press-roll.

5. In a machine for making paper-board, the combination of the endless web-carrying belt, a roll over which said belt runs, a press-roll engaging said belt and first roll, an adjustable cylinder arranged opposite and parallel with said press-roll, and the inclined skid 36 for conveying the sheet away from said press-roll.

6. In a machine for making paper-board, the combination of a pair of rolls, means for conducting a web to the meeting peripheries of said rolls, a cylinder arranged opposite and parallel with one of said rolls, an endless conveyer extending between said cylinder and the latter one of said rolls, and means for driving said cylinder, conveyer and the latter rolls in unison for conducting the web from said pair of rolls around said cylinder.

7. In a machine for making paper-board, the combination of a pair of rolls, means for conducting the web to the meeting peripheries of said rolls, a cylinder arranged opposite and parallel with one of said rolls, means whereby said cylinder may be adjusted relatively to said rolls, an endless conveyer extending from said rolls to and partially around said cylinder, and means for taking up the slack in said conveyer when the cylinder is adjusted.

8. In a machine for making paper-board, the combination of a pair of rolls, means for conducting the web to the meeting peripheries of said rolls, a cylinder adjustable relatively to said rolls, and arranged parallel therewith, an endless conveyer extending from said cylinder to a point contiguous to said rolls and bearing against the under side of the cylinder, means for taking up the slack in said conveyer when the cylinder is adjusted, and a second conveyer extending from the upper side of said cylinder to a point contiguous to one of said rolls.

9. In a machine for making paper-board, the combination of a pair of rolls, means for conducting the web to the meeting peripheries of said rolls, a cylinder arranged parallel with one of said rolls, a conveyer extending from a point contiguous to said rolls and bearing against said cylinder, means for driving said conveyer in unison with said rolls, a second conveyer extending between said cylinder and said rolls on the side of the cylinder opposite said first conveyer, and means for driving said second conveyer in a direction opposite to the direction of movement of said first conveyer and in unison with said rolls.

10. In a machine for making paper-board, the combination of a pair of rolls, means for conducting the web to the meeting peripheries of said rolls, a cylinder adjustable relatively to said rolls and arranged parallel therewith, a roller adjustable in unison with said cylinder and arranged contiguous thereto, an endless conveyer having one end passing around said roller and being thereby held against said cylinder, means for taking up the slack in said conveyer, and means for driving said cylinder, conveyer and rolls in unison.

11. In a machine for making paper-board, the combination of a pair of rolls, means for conductnig the web to the meeting peripheries of said rolls, a cylinder adjustable relatively to said rolls and arranged parallel therewith, a roller movable in unison with said cylinder, a cushion for pressing said roller toward said cylinder, an endless conveyer passing around said roller and being thereby held against said cylinder and extending to a point contiguous to said rolls, and means for driving said rolls and conveyer in unison.

785,179. SHOE-LACING DEVICE. BYRON R. MCINTYRE, Grand Rapids, Mich. Filed Jan. 2, 1904. Serial No. 187,462.

Claim.—1. In combination with a shoe and a ring, a fastening comprising three prongs arranged in triangular relation, one of said prongs extending around the ring and thence between the other two prongs, said prongs being inserted in the shoe and clenched on the inner side of the same.



2. In combination with a shoe and a ring, a fastening comprising three prongs arranged in triangular relation, one of said prongs being bent around the ring and extended between the other two prongs, all of said prongs being inserted in the shoe and bent toward the opening thereof.

3. In combination with a shoe and a ring, a fastener of sheet metal comprising a middle portion, two short prongs and one long prong, the long prong being bent around the ring and extending between the short prongs, and thence parallel therewith, the broad surfaces of all of the prongs being inserted in the shoe and bent in the same direction on the inside thereof.

4. In combination with a shoe and a ring, a fastening consisting of a triangular middle portion, a single long prong at one angle of said middle portion and two shorter prongs spaced apart at the opposite side of the same, said middle portion and long prong being bent around the ring, and the long prong extended between the shorter prongs and engaged by the edge of the triangular middle portion, and thence bent downward parallel with the other two prongs, all of said prongs being arranged in triangular relation and inserted in the shoe and clenched on the inner side of the same.

5. In combination with a ring, a fastener consisting of a triangular middle portion, a long prong extending from one angle of the same, two shorter prongs extending from the opposite side and spaced apart, the long prong and a portion of the middle portion being bent into an eye or loop around the ring, and the long prong extended between the shorter prongs and at right angles thereto, and thence bent in a parallel plane with the shorter prongs.

6. As an article of manufacture, a ring having a fastener attached thereto, said fastener comprising a longer prong, and two shorter prongs spaced apart, the long prong being bent around the ring and extended between the short prongs and at right angles thereto, and thence bent downward parallel therewith.

7. The herein-described fastener comprising a middle portion, a long prong and two short prongs; the long prong being beat in an eye or loop and extended between the shorter prongs, and at substantially right angles thereto, and thence bent downward parallel therewith.

8. The herein-described fastener made of sheet metal and comprising a substantially triangular middle portion, a long prong projecting from one angle thereof, two shorter prongs projecting from the opposite side thereof and spaced apart, said middle portion and a part of the long prong being formed into an eye or loop; and the long prong extended between the short prongs and at right angles thereto, the flat sides of the prongs being arranged in parallel planes and in triangular relation.

9. The herein-described fastener made of sheet metal and comprising a substantially triangular middle portion, a long prong projecting from one angle thereof, two short prongs projecting from the opposite side thereof and spaced apart; the long prong being bent between the short prongs and at substantially right angles thereto and engaged by the edge of the middle portion and thence bent parallel with the short prongs and the flat sides of all the prongs being in parallel planes.

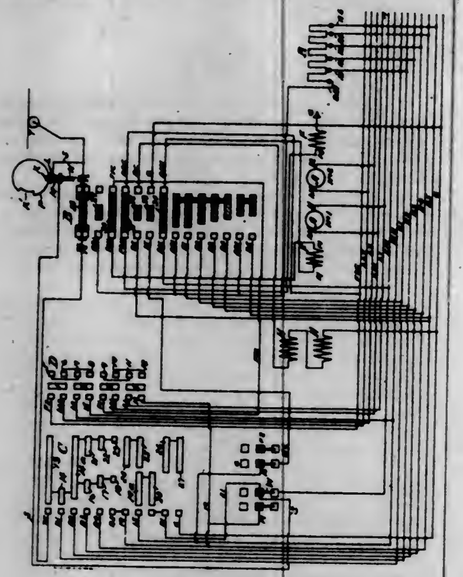
785,180. BRAKE-SWITCH LOCKING DEVICE. FRANK C. NEWELL, Wilkinsburg, Pa., assignor to The Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Mar. 29, 1902. Serial No. 100,567.

Claim.—1. The combination with a running-controller and a brake-switch, of an electrically-actuated locking device for preventing the movement of the brake-switch from its running position when the controller is not in its open position.

2. The combination with a running-controller and a brake-switch, of an automatic electrically-actuated locking device for preventing the brake-switch from being moved to either make or break the line-circuit when the running-controller is not in its open position.

3. The combination with a running-controller and a brake-switch adapted to make and break the supply-circuit to said controller, of an electrically-actuated locking device, operated by the

movement of the running-controller, for preventing the movement of the brake-switch to break the supply-circuit when the controller is not in its open position.



4. The combination with a running-controller and a brake-switch, of an electrically-actuated locking device and means operated by the running-controller when moved to any other than its open position for actuating said device.

5. The combination with a running-controller and a brake-switch adapted to make and break the supply-circuit, of a shunt-circuit around the brake-switch, a locking device actuated by said shunt-circuit, and means operated by the running-controller for making and breaking the shunt-circuit.

6. The combination with a running-controller and a brake-switch, of a shunt-circuit around the brake-switch and electrically connected to one of the contact-fingers of the running-controller, and an electrically-actuated locking device located in the shunt-circuit.

7. The combination with a running-controller and a brake-switch adapted to make and break the supply-circuit to said running-controller, of a circuit independent of the brake-switch, an electrically-actuated locking device located in said independent circuit, and means operated by the running-controller for opening and closing said circuit.

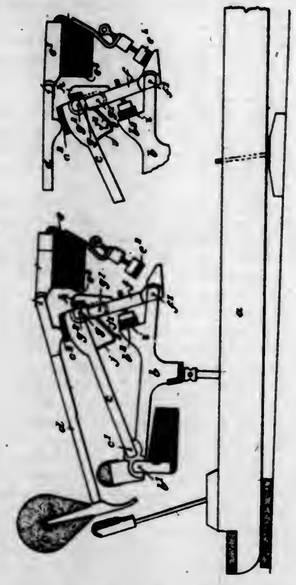
8. The combination with a running-controller and a brake-switch of an electric locking device actuated by current from the line for preventing the movement of the brake-switch from its running position when the running-controller is in one of its live positions.

9. The combination with a running-controller and a brake-switch of a locking device for the brake-switch, electromagnetic means for actuating said lock and means operated by the movement of the running-controller for controlling said electromagnet.

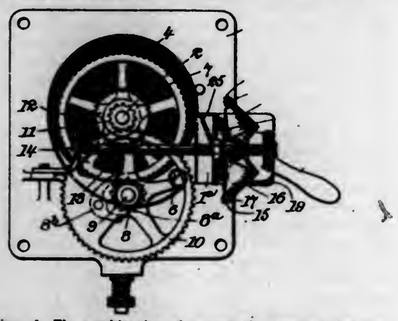
785,181. REPEATING ACTION FOR GRAND PIANOS. ADAM NICKEL, New York, N. Y. Filed Dec. 20, 1904. Serial No. 237,650.

Claim.—1. A repeating action for grand pianos, provided with a support, an elbow-shaped jack pivoted thereto at its bend, and having a beveled lower arm, an escapement-button adapted to operatively engage said arm, a hammer-supporting lever, and a pivoted link which connects the jack to the lever, substantially as specified.

2. A repeating action for grand pianos, provided with a support, an elbow-shaped jack pivoted thereto at its bend, an escapement-button adapted to operatively engage the lower jack-arm, a hammer-rail, a hammer-supporting lever, a pivoted link which connects the jack to the lever, and a nose projecting upwardly from the jack and adapted to engage the hammer-rail and the lever, substantially as specified.



785,182. TALKING-MACHINE MOTOR AND GOVERNOR. WILLIAM S. PERRY, New York, N. Y., assignor to Universal Talking Machine Manufacturing Company, a Corporation of New York. Filed Aug. 3, 1904. Serial No. 219,186.



Claim.—1. The combination of a rotatable governor-shaft, an oblique projection therefrom, a body of material arranged to slide toward and from the shaft on said oblique projection, yielding means tending to force said body toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force.

2. The combination of a rotatable governor-shaft, an oblique projection therefrom, a body of material arranged to slide toward and from the shaft on said oblique projection, yielding means tending to force said body toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force, said friction-pad being adjustable lengthwise of the governor-shaft.

3. The combination of a rotatable governor-shaft, an oblique projection therefrom, a body of material arranged to slide toward and from the shaft on said oblique projection, yielding means tending to force said body toward the shaft, and a frictoin-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force, said slidable body having a portion of its face presented to the friction-pad, parallel thereto.

4. The combination of a rotatable governor-shaft, two oppositely-arranged arms projecting obliquely therefrom at equal angles thereto, a wedge-shaped body mounted and sliding on each arm, springs normally tending to force said wedge-shaped bodies toward the shaft, and a friction-pad whose face forms a plane perpendicular to the axis of rotation of the governor-shaft, and which touches said wedge-shaped bodies when the same are forced away from the governor-shaft.

5. The combination of a rotatable governor-shaft, an arm projecting therefrom, a cone-shaped weight mounted and sliding on said arm with its apex pointing outward, a spring normally tending to force said weight toward the shaft, and a friction-pad whose face is parallel to the adjacent element of the surface of the cone-shaped weight at every position of said weight.

6. The combination of a rotatable governor-shaft, a projecting arm therefrom, an annular friction-pad surrounding said shaft, and a weight mounted and sliding on the projecting arm and adapted to be wedged in between the projecting arm and the friction-pad, when forced away from the governor-shaft.

7. The combination of a revolving wedge-shaped body adapted to move radially of its plane of revolution, a friction-pad with which it may be wedged into contact, and mechanism through which centrifugal force produces such wedging action.

8. The combination of a revolving and rotatable cone-shaped governor-weight, and a friction-pad with which it may be wedged into contact, by the centrifugal force generated by its revolution.

9. The combination of a rotatable governor-shaft, a body of material mounted to slide toward and from said shaft, yielding means tending to force said body toward the shaft, and a friction-pad whose face is inclined to the line of travel of the body toward and from the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force.

10. The combination of a rotatable governor-shaft, a body of material mounted to slide toward and from said shaft, yielding means tending to force said body toward the shaft, and a friction-pad whose face is inclined to the line of travel of the body toward and from the governor-shaft, and is so located as to come in contact with the slidable body when the elastic means controlling the same yields under the influence of centrifugal force, said friction-pad being adjustable lengthwise of the governor-shaft.

11. The combination of a rotatable governor-shaft, two oppositely-arranged arms projecting therefrom at equal angles thereto, a wedge-shaped body mounting and sliding on each arm, springs normally tending to force said wedge-shaped bodies toward the shaft, and a friction-pad whose face is inclined to the line of travel of the two wedge-shaped bodies, and which touches said bodies when the same are forced away from the governor-shaft.

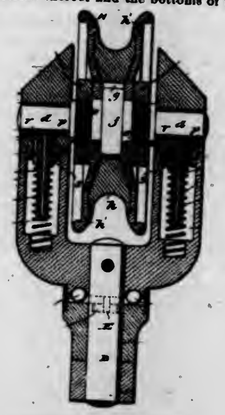
12. The combination with a centrifugal governor of a friction-pad, a slide on which said pad is mounted, and eccentric mechanism for moving said slide, together with a notched disk on said eccentric-shaft and a locking-spring engaging the notches.

785,183. OVERHEAD TROLLEY. FRANK J. PRUE, Woonsocket, R. I. Filed Nov. 7, 1904. Serial No. 231,770.

Claim.—1. In a trolley, journals, and a wheel fixed with respect to the journals, in combination with a head containing lubricant-chambers and having bearings receiving the journals and bores connecting the lubricant-chambers and said bearings, and spring-pressed plungers occupying said bores and having ducts for the passage of lubricant.

2. In a trolley, journals, and a wheel fixed with respect to the journals, in combination with a head containing lubricant-chambers and having bearings receiving the journals and provided with longitudinal grooves and also having bores connecting the lubricant-chambers and said bearings, and spring-pressed plungers occupying the said bores and having bores of their own for the passage of lubricant to the bearings, and also having channels in their sides arranged in alinement with the grooves of the bearing so as to provide for the return of surplus lubricant to the chambers.

3. In a trolley, journals, and a wheel fixed with respect to the journals, in combination with a head comprising a bifurcated body and caps secured thereon; the said head containing lubricant-chambers and having bearings receiving the journals and provided with longitudinal grooves, and also having bores connecting the lubricant-chambers and said bearings, plungers having enlarged portions occupying the said bores, and having channels in the sides of said enlarged portions arranged in alinement with the grooves of the bearings, and also having bores extending throughout their length, and coiled springs receiving the plungers and interposed between the enlarged portions thereof and the bottoms of the chambers.



785,184. MANUFACTURE OF PLAYING-BALLS. ADDISON T. SAUNDERS, Akron, Ohio. Filed May 16, 1903. Serial No. 157,363.



Claim.—1. In a process of producing playing-balls, the following operations which consist in inclosing within a hollow sphere of suitable material a lining of air-proof material in a non-flowing state, heating said sphere, and tumbling the same while hot, substantially as described.

2. In a process of producing playing-balls, the following operations which consist in surrounding a lining of air-proof material in a non-flowing state with a number of segments of rubber or other suitable material having their meeting edges beveled or graduated so as to overlap and form a hollow sphere having walls of uniform thickness, inclosing this sphere in a suitable mold, and tumbling the same while hot, substantially as described.

3. A process in producing playing-balls which consists in forming a unitary air-proof hollow sphere from suitable material, winding about said sphere a shell constituting the body portion of the ball, then charging said inner shell with an aeriform fluid under pressure, and finally surrounding said shell by a wear-resisting covering.

4. A process in producing playing-balls which consists in molding a unitary air-proof hollow sphere from suitable material, winding about the same a fibrous shell constituting the body portion of the ball, and charging said inner shell with an aeriform fluid under pressure, and finally curing upon said shell an outer wear-resisting covering.

5. A process in producing playing-balls which consists in molding a pair of hollow hemispheres from suitable air-proof material, then uniting said hemispheres by edgewise adhesion, then winding about the unitary sphere thus formed a fibrous shell, then charging

the inner air-proof sphere with an aeriform fluid under pressure, and finally applying to said fibrous shell a wear-resisting covering.

6. A process in producing playing-balls which consists in forming a unitary air-proof hollow sphere from suitable material, surrounding said sphere by a form-retaining envelop, winding about said envelop a fibrous shell, charging the ball thus formed with air under pressure, and finally applying thereto an outer wear-resisting covering.

7. A process in producing playing-balls which consists in molding a unitary air-proof hollow sphere from suitable material, surrounding said sphere by a form-retaining envelop, winding about said envelop a fibrous shell, incorporating into the latter during the winding operation an adhering and weight-giving substance, charging the ball thus formed with air under pressure, and finally applying thereto an outer wear-resisting covering.

8. A process in producing playing-balls which consists in molding a hollow sphere from suitable air-proof material, surrounding said sphere by a form-retaining envelop, tumbling the core thus formed on a hot surface to cause the inner sphere and its envelop to adhere, applying to the stiffened core a shell and a wear-resisting covering, and charging said hollow sphere during the process of manufacture with air under pressure.

9. A process in producing playing-balls which consists in molding a pair of hollow hemispheres from suitable air-proof material, placing them edge to edge and inclosing them in a stiffened envelop, tumbling the core thus formed upon a hot surface to adhere the edges of the hemispheres and the contacting surfaces of the latter and the envelop, applying to the stiffened core a shell and a wear-resisting covering, and inflating the hollow sphere during the process of manufacture.

10. A process in producing playing-balls which consists in molding a pair of hollow hemispheres from suitable air-proof material, placing them edge to edge and inclosing them in a stiffened envelop, tumbling the core thus formed upon a hot surface, applying to said envelop a gelatinous coating, winding about the latter a fibrous shell and simultaneously incorporating into the latter an adhering and weight-giving substance, charging the ball thus formed with air under pressure, and finally applying to the fibrous shell an outer wear-resisting covering.

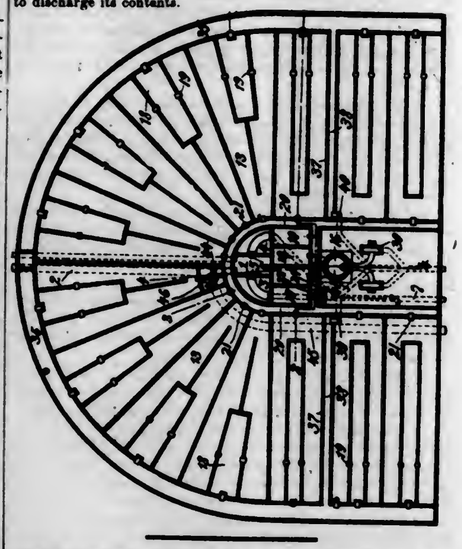
11. A process in producing playing-balls which consists in molding a pair of hollow hemispheres from suitable air-proof material, placing them edge to edge and inclosing them in a stiffened envelop, tumbling the core thus formed upon a hot surface, applying to said envelop a gelatinous coating, winding about the latter a fibrous shell and simultaneously incorporating into the latter an adhering and weight-giving substance, charging the ball thus formed with air under pressure, laying upon the surface of said fibrous shell sheets of rubber compound, and finally curing the latter on under pressure and heat.

12. A process in producing playing-balls which consists in molding a pair of hollow hemispheres from suitable air-proof material, softening their edges by heat and adhering them to form a unitary hollow sphere, inclosing said sphere in a stiffened envelop, tumbling the core thus formed upon a hot surface, coating said envelop with a gelatinous substance, winding about the latter a fibrous shell and simultaneously incorporating therewith an adhering and weight-giving substance, surrounding the latter with a coating of quick-curing cement, inflating the ball thus formed with air under pressure, applying to the outer surface thereof layers of wear-resisting material, and finally curing the latter on under the combined action of pressure and heat.

785,185. APPARATUS FOR HANDLING SEWAGE AND CLARIFYING SEPTIC MATTER. FRED P. SMITH, New York, N. Y., assignor to The Municipal Engineering Company, New York, N. Y., a Corporation of Delaware. Filed Mar. 21, 1904. Serial No. 199,301.

Claim.—1. In an apparatus for handling sewage and clarifying septic matter a series of wells for receiving the crude sewage a series of receptacles located in position to receive the overflow from the wells, in combination with a channel arranged around the receptacles provided with openings to receive the sewage from the receptacles, and openings to discharge the same, a series of septic-tanks radiating from the channel to receive the discharge therefrom and a channel located below the other provided with valved openings into the septic-tanks to receive the drainage therefrom.

2. In an apparatus for handling sewage and clarifying septic matter a series of wells to receive the crude sewage and a series of receptacles to receive the overflow from the wells, in combination with two channels, one above the other, the upper one adapted to receive the sewage and carry off the gases, and the lower one adapted to receive and carry off the drainage from the septic-tanks, a series of septic-tanks radiating from the channels to receive the sewage from the upper channel, valved openings from the septic-tanks into the lower channel to discharge the drainage therein, a well communicating with the lower channel and a pump connected with the well to discharge its contents.



785,186. COFFIN. JAMES M. STAFFORD, Petersburg, Ind. Filed June 11, 1904. Serial No. 212,149.



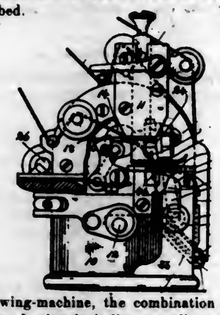
Claim.—1. As a new article of manufacture, a coffin of glass or like material having transverse grooves in its bottom near each end to form seats, said grooves extending part way up the sides and vanishing into the same, and having inner bottom and side ribs opposite to the respective bottom and side grooves for the purpose of strengthening the coffin and providing rests for the corpse, substantially as set forth.

2. In combination, a coffin of glass or like material having transverse grooves in its bottom near each end, slings fitted into said grooves, handles at the ends of the slings, and longitudinal rods connecting corresponding ends of the slings, substantially as set forth.

785,187. NEEDLE-PLATE AND SUPPORT FOR SEWING-MACHINES. WILLIAM H. STEDMAN, Hartford, Conn., assignor to The Merrow Machine Company, Hartford, Conn., a Corporation of Connecticut. Original application filed Aug. 6, 1903, Serial No. 118,680. Divided and this application filed Apr. 28, 1903. Serial No. 154,692.

Claim.—1. In a sewing-machine, the combination with a needle-plate and trimming mechanism including a movable and a co-operating relatively fixed laterally-adjustable cutter, of a carriage for the fixed cutter, a support for the carriage and needle-plate of the machine, a block on the support extending over the path of the carriage and having a thread-passage therethrough extending transversely of the said path, substantially as described.

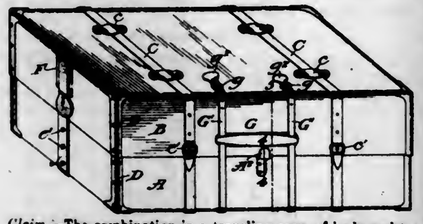
2. In a sewing-machine, the combination of a needle-plate, stitch-forming mechanism including a needle and a looper, trimming mechanism including a vibrating cutter laterally adjustable relatively to the needle, a cooperating relatively fixed cutter, a carriage for the fixed cutter, a common support for the said carriage and the needle-plate, means of adjustment for the carriage relatively to the needle comprising a screw located in the support and engaging the carriage and a block having a thread-passage therein secured to the said support and set into the under face of the needle-plate, substantially as described.



3. In a sewing-machine, the combination of a needle-plate, stitch-forming mechanism including a needle and one or more loopers, trimming mechanism including a vibrating and a relatively fixed cutter, a chute to receive the clippings from the cutters, the lower end of the chute projecting beyond the front face of the machine to protect the threads which pass thereunder, a common support for the fixed cutter and the needle-plate, means for conducting the looper-threads beneath the chute and means on the support for protecting the threads from a point near the lower end of the chute to a point near the under side of the needle-plate, substantially as described.

4. In a sewing-machine, in combination a needle-plate having its under face grooved or channeled, a support therefor, a screw for securing the needle-plate to the support, a separable block or arm secured to the support and let into the groove or channel of the needle-plate to prevent lateral displacement of the latter and extending beneath the needle-plate to a point in proximity to the needle-hole to support the needle-plate near the said needle-hole, substantially as described.

785,188. TRAVELING-CASE. ARMENAG K. TASHJIAN, New York, N. Y. Filed Feb. 5, 1904. Serial No. 192,068.



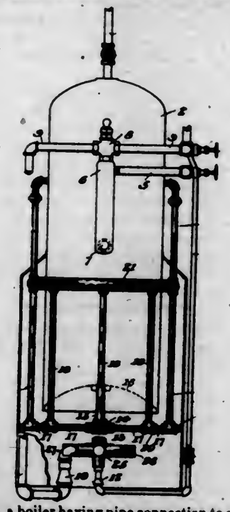
Claim.—The combination in a traveling-case, of body and top telescopic sections equipped with key-actuated provision for locking said sections in any of a plurality of positions, and hinged brackets secured interiorly on the sides of one of said sections, each bracket embodying a shoulder and outer part at an angle thereto, said brackets adapted to be swung to a position to engage the adjacent portions of the adjacent section, when both sections are adjusted for affording a maximum capacity.

785,189. WATER-HEATER. WILLIAM G. TAYLOR, Pittsburg, Pa., assignor to Taylor Burner and Electroplating Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Apr. 22, 1904. Serial No. 204,371.

Claim.—1. A heater having a central reservoir, a water-supply pipe leading into said reservoir, a pipe connection leading down from its lower head to a separate central header, and a hollow ring surrounding the boiler and having pipes leading down to the header, said ring having connections leading into the boiler; substantially as described.

2. A heater having a central reservoir, a water-supply pipe leading into said reservoir, a pipe extending horizontally around at least a part of an intermediate part of the reservoir and having pipe connection therewith, pipes leading down from the curved pipe and entering the bottom of the heater, and a burner arranged to heat the water in said downwardly-extending pipes; substantially as described.

3. A heater having a central reservoir, a water-supply pipe leading into said reservoir, a hot-water pipe leading from its top, a pipe leading from its bottom down to a separate central header, pipes leading from said header up to a ring extending around an intermediate part of the boiler, a pipe connection from said ring into the boiler and a burner beneath the header; substantially as described.

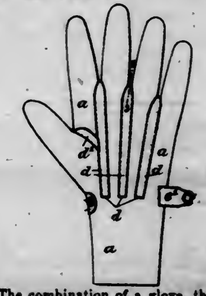


4. In a heater, a boiler having pipe connection to a central lower header, pipes leading outwardly and radially from said header and upwardly to a ring extending at least partially around an intermediate portion of the boiler, and removable cleaning-plugs in the ends of the radial pipes; substantially as described.

5. In a heater a reservoir or boiler having a hot-water outlet at its top, a cold-water inlet leading into its intermediate portion, a hollow ring extending at least partially around the boiler and having depending pipes connected to a central lower header, a connection between the header and lower part of the boiler, and pipes leading from the ring into the boiler; substantially as described.

6. A header having a central reservoir, a cold-water pipe leading to a thermostatic barrel connected to the reservoir, a header below the reservoir and connected thereto, radial pipes leading from the header and connected to a ring extending at least partially around the boiler, pipes leading from said ring into the boiler, a burner below the header and a gas-supply to the burner having a valve connected to the thermostatic device; substantially as described.

785,190. GLOVE. HENRY URWICK, Worcester, England. Filed Feb. 17, 1904. Serial No. 194,084.



Claim.—1. The combination of a glove, the back of which is made of stretchable material, longitudinal strips of comparatively inextensible material sewed to the outside of the glove extending from the back of the wrist and passing between the fingers, a wristband of comparatively inextensible material to the back of which the strips are secured and fastening devices for holding the wristband firmly around the wrist to support the longitudinal strips.

2. The combination of a glove, the back and front of which are made of stretchable material, longitudinal stripe sewed to the outside of the glove passing between the fingers and extending from the back to the front of the wrist, and a wristband of comparatively inextensible material to the back of which the stripe are secured, and fastening devices for holding the wristband firmly around the wrist to support the longitudinal stripe.

3. The combination of a glove and longitudinal stripe applied to the outside of the glove passing between the fingers and extending from the back of the wrist to the front thereof and sewed thereto, substantially as described.

4. The combination of a glove, the back and front of which are made of relatively stretchable material, stripe of relatively inextensible material passing between the fingers and extending from the back to the front of the wrist, and a wristband of comparatively inextensible material to which ends of the stripe are secured.

5. The combination of a glove, the back of which is made of stretchable material, a wristband of comparatively inextensible material, stripe of inextensible material extending from between the fingers to the wristband, and another strip of inextensible material extending from the wristband along the back of the glove between the thumb and the first finger and connected with the front of the glove.

785,191. GRAMOPHONE-RECORD. HERBERT S. BERLINER, Washington, D. C. Filed Dec. 1, 1904. Serial No. 235,067.



Claim.—1. A gramophone-record tablet having a sound-record groove progressing spirally outwardly, substantially as described.

2. A gramaphone-record tablet composed of a disk of hard resisting material having a sound-record groove progressing spirally outwardly, substantially as described.

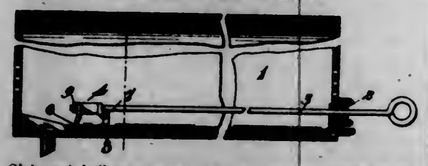
3. A gramophone-record tablet having a sound-record groove progressing spirally outwardly in counter-clockwise direction, substantially as described.

4. A gramophone-record tablet having a sound-record groove progressing spirally outwardly and having for the same sound the same number of undulations in the same angular measure of arc of the spiral, substantially as described.

5. A gramophone-record tablet composed of a disk of hard resisting material having a sound-record groove progressing spirally outwardly and having for the same sound the same number of undulations in the same angular measure of arc of the spiral, substantially as described.

6. A gramophone-record tablet having a sound-record groove progressing spirally outwardly in counter-clockwise direction and having for the same sound the same number of undulations in the same angular measure of arc of the spiral, substantially as described.

785,192. BOILER-SCALE REMOVER. THEARON S. BLY, Webb City, Mo. Filed Aug. 4, 1904. Serial No. 219,575.



Claim.—A boiler scale and sediment remover, consisting of a body portion having at one end a rigid downwardly and forwardly projecting scraping-blade, apertured lugs formed on the opposite end of said body portion, an inwardly-swinging scraping-blade having a curved lower edge and hinged to said lugs, and a rod or bar connected to the inner end of said body portion and adapted to project through one of the heads of said boiler whereby said body portion and said scraping-blade may be reciprocated along the bottom of a boiler, substantially as described.

785,193. WORK-CENTERING ATTACHMENT FOR LATHES. JAMES M. BROWN, Southbend, Wash. Filed Apr. 29, 1904. Serial No. 205,606.



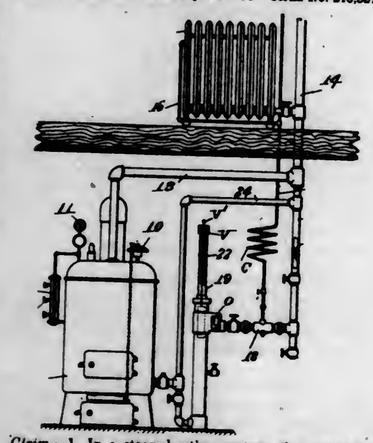
Claim.—1. A work-centering attachment for lathes comprising a standard adapted for connection with the bed of a lathe and provided with two series of spaced openings, a pair of guide members pivotally connected by a pin that engages one of the series of openings, and a lever operatively connected with the guide members and having its fulcrum adapted to engage other series of openings.

2. A work-centering attachment for lathes comprising a standard adapted for connection with the bed of a lathe, a pair of jaws carried by the standard and having oppositely-disposed concaved faces provided with lateral flanges, and face-blocks having grooves to engage the flanges.

3. A work-centering attachment for lathes comprising a standard adapted for connection with the bed of a lathe, a pair of work-supporting jaws mounted thereon and having oppositely-disposed concaved faces provided with lateral angularly-disposed flanges, and face-blocks having grooves corresponding in contour to the flanges.

4. A work-centering attachment for lathes comprising a standard adapted for connection with the bed of a lathe and provided with two series of spaced openings, a pair of guide members connected at one end by a pin that engages one of the series of openings, detachable space-blocks combined with the other ends of the members, and a lever operatively connected with the guide members and having its fulcrum adapted to engage the other series of openings.

785,194. STEAM-HEATING SYSTEM. LOUIS S. BURBANK, Worcester, Mass. Filed May 31, 1904. Serial No. 210,521.



Claim.—1. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, and means for utilizing the energy of the returning water of condensation to exhaust air from the radiators.

2. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, and an air-exhausting passage connected with the return-pipe to utilize the energy of the returning water of condensation to exhaust air from the radiators.

3. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, and an air-exhausting passage connected to the return-pipe below the water-level, whereby the energy of the return stream of water will create suction in the air-exhausting passage.

4. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, an air-exhausting passage connecting to the return-pipe below the water-level, whereby the energy of the return stream of water will create suction in the air-exhausting passage, and an air-outlet pipe opening from the return-pipe between the air-exhausting passage and the boiler.

5. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, an injector in the return-pipe below the water-level, and an air-exhausting passage connected to the injector-casing, whereby the energy of the returning stream of water will create suction in the air-exhausting passage.

6. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, an injector in the return-pipe below the water-level, an air-exhausting passage connected to the injector-casing, whereby the energy of the returning stream of water will create suction in the air-exhausting passage, and an air-outlet pipe opening from the return-pipe between the injector and the boiler

7. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, an air-exhausting passage connected to the return-pipe below the water-level, whereby the energy of the returning stream of water will create suction in the air-exhausting passage, and an overflow-pipe for returning surplus water of condensation to the boiler to prevent the system from flooding.

8. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, an injector in the return-pipe below the water-level, an air-exhausting passage connected to the casing of the injector, whereby the energy of the returning stream of water will create suction in the air-exhausting passage, and an overflow-pipe connected to the return-pipe above the normal level of water therein for returning surplus water of condensation to the boiler to prevent the system from flooding.

9. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, an injector in the return-pipe below the water-level, an air-exhausting passage connected to the injector-casing, whereby the energy of the returning stream of water will create suction in the air-exhausting passage, an air-outlet pipe between the injector and the boiler, and a float-valve for closing the upper end of the air-outlet pipe to prevent water from overflowing therefrom.

10. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, and an air-exhausting passage connected with the return-pipe to utilize the energy of the returning water of condensation to exhaust air from the radiators, said passage having means for cooling its contents.

11. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, an air-exhausting passage connected with the return-pipe to utilize the energy of the returning water of condensation to exhaust air from the radiators, and an air-outlet passage extending upwardly from the return-pipe between the air-exhausting passage and the boiler.

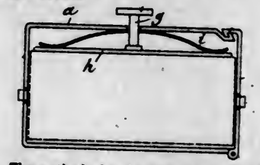
12. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, an air-exhausting passage connected with the return-pipe to utilize the energy of the returning water of condensation to exhaust air from the radiators, an air-outlet extending upwardly, and a float-valve for controlling the upper end of the air-outlet.

13. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, an air-exhausting passage connected with the return-pipe to utilize the energy of the returning water of condensation to exhaust air from the radiators, an air-outlet extending upwardly, a float in said air-outlet pipe, and a pair of valves connected with said float, one valve closing upwardly and the other downwardly.

14. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe for water of condensation, an air-exhausting passage connected with the return-pipe to utilize the energy of the returning water of condensation to exhaust air from the radiators, an air-outlet extending upwardly, and a float in said air-outlet having a downwardly-closing valve, the said return-pipe having a downward extension below the water-level in the boiler.

15. In a steam-heating system, the combination of a boiler supplying steam to radiators, a return-pipe having a head of water maintained therein, a plurality of injectors in the return-pipe below the water-level, and a branched air-exhausting passage connected to the injector-casings.

785,195. PROCESS OF AND APPARATUS FOR SATURATING PAPER-ROLLS. LOUISE BUSCH, Munich, Germany. Filed Dec. 28, 1903. Serial No. 186,862.



Claim.—1. The method of moistening paper, which consists in subjecting the roll to the influence of moisture and at the same time limiting the expansion of the paper lengthwise of the roll.

2. The method of moistening paper-rolls, which consists in subjecting the roll to the influence of moisture while under pressure exerted upon the end of the roll.

3. An apparatus for moistening paper-rolls, comprising a bath, a plurality of plates, and means for holding the plates against the ends of the roll.

4. An apparatus for moistening paper-rolls, comprising a bath, a plurality of plates having apertures forming bearings for the roll, and means for holding the plates against the ends of the roll.

5. An apparatus for moistening paper-rolls, comprising a bath, a plurality of plates, means for holding the plates against the ends of the rolls, a bar, and means for holding the bar against the surface of the roll.

6. An apparatus for moistening paper-rolls, comprising a bath, a plurality of plates, means for holding the plates against the ends of the rolls, a bar, and means for holding the bar against the surface of the roll in line with the axis thereof.

7. An apparatus for moistening paper-rolls, comprising a bath, a plurality of plates, means for holding the plates against the ends of the roll, a bar, and yielding means for holding the bar against the surface of the roll in line with the axis thereof.

8. An apparatus for moistening paper-rolls, comprising a bath, a plurality of plates having apertures for the reception of the axle of the roll, means for holding the plates against the ends of the roll, a bar, and yielding means for holding the bar against the surface of the roll in line with the axis thereof.

9. An apparatus for moistening paper-rolls, comprising a frame, end plates mounted thereon, one of the plates being hinged as a door to permit the insertion of the roll, a catch to hold the hinged plate in its closed position, and a bath arranged to receive the frame.

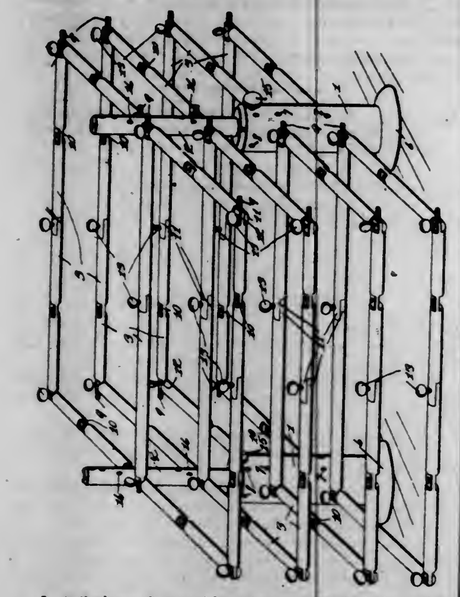
10. An apparatus for moistening paper-rolls, comprising a frame, plates or disks mounted in the ends of said frame, one of the plates being hinged as a door to permit the insertion of the roll, a spring-catch to hold the hinged plate in its closed position against the end of the roll, a bar, yielding means for holding the bar against the surface of the roll in line with the axis thereof, and a bath arranged to receive the frame.

785,196. DISPLAY-RACK. RILEY E. CANNON, Lexington, Ky. Filed Sept. 23, 1904. Serial No. 225,490.

Claim.—1. A display-rack comprising a main hollow standard having a plurality of orifices disposed at different angles with relation to each other, certain of the orifices being threaded, a supplemental standard adapted to engage the main standard and provided also with a plurality of orifices disposed at different angles with relation to each other, certain of which orifices being threaded, means for holding one of the standards at fixed adjustment with relation to the other standard, and arms or supports, each having rabbeted intermediate and terminal portions and a threaded extension to engage with the orifices of either of the standards.

2. A display-rack comprising a standard, provided with a plurality of orifices disposed at different angles with relation to each other, and a plurality of arms or supports, each of which has rab-

boted intermediate and terminal portions, one of the terminal portions being provided with an extension to engage the orifices in the standard, and means for interlocking the rabbeted portions of the arms to form various combinations.



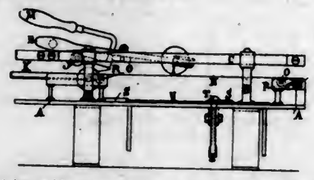
3. A display-rack comprising a two-part standard, the sections of which are adapted for telescopic connection, and each section being provided with a plurality of orifices disposed at different angles, certain of which are threaded, means for holding the sections at any desired adjustment relative to each other, a plurality of arms or supports, each of which has rabbeted intermediate and terminal portions, one of the terminal portions being provided with a threaded extension to engage the orifices, in the standards, and means for interlocking the rabbeted portions of the arms to form various combinations.

785,197. STEP-LADDER. Henry H. Cage, Bisbee, Ariz. Filed Feb. 18, 1904. Serial No. 194,237.



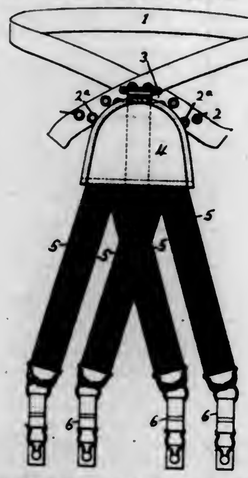
Claim.—A step-ladder, consisting of a lower folding portion, comprising a step-section and a prop-frame hinged to open and close, means for limiting the opening movement of said sections, a vertically-adjustable ladder section or extension mounted to slide in said lower portion, means for guiding said section in its up-and-down movement, means for holding said extension in its adjusted positions, hand-rails arranged on each side of said lower ladder-section, and pivotally connected at their lower ends to the side bars of said ladder-section by a link, curved levers pivoted to said side bars near the upper end of the same one end of said levers being pivoted to said hand-rails and links pivotally connecting the opposite ends of the levers with said hinged prop-frame whereby upon the opening or closing of said ladder-section and prop-frame said hand-rails will be unfolded or folded against the sides of said ladder-section, substantially as described.

785,198. MACHINE FOR PRINTING ON EGGS. Edouard Chirac, Marseilles, France, assignor to Cesar Conne, Marseilles, France. Filed Feb. 24, 1904. Serial No. 195,104.



Claim.—1A machine for printing on eggs and similarly-shaped articles comprising a spring-grip, a slide plate or bar, two slide-pieces or guides, an inking-roller, an inking-table, and a stretched india-rubber band bearing india-rubber characters composing the matter which is to be stamped or printed, substantially as described.

785,199. HOSE-SUPPORTER. Adolph H. Cohn, New York, N. Y. Filed Oct. 24, 1903. Serial No. 178,364.



Claim.—1. In a hose-supporter the combination of a belt, means for joining the ends of said belt together at any desired girth and hose-supporting tapes, said tapes being supported by the means by which the ends of said belt are joined together.

2. In a hose-supporter in combination a belt, a hanger-piece with supporting-tapes attached thereto and means whereby the ends of said belt are adjustably joined together at the point of engagement of said hanger-piece with said belt.

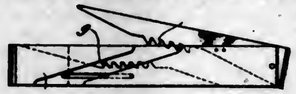
3. In a hose-supporter the combination of a belt, a pad having hose-supporting tapes attached thereto and means whereby the ends of said belt are joined together at any desired girth by means carried by said pad.

4. In a hose-supporter the combination of a belt, a pad to which is attached a hanger-piece and supporting-tapes, and means for attaching said hanger-piece to the belt at the point where the ends thereof are adjustably joined together.

5. In a hose-supporter in combination a belt, a pad having hose-supporting tapes attached thereto, said belt having a series of apertures therein and means carried by said pad whereby the ends of said belt are adjustably joined together.

6. In a hose-supporter in combination a belt, a hanger-piece with supporting-tapes attached thereto, said belt having a series of apertures therein and means carried by said hanger-piece engaging with said apertures to secure the belt at any desired girth.

785,200. BINDER-FRAME FOR TYPE-PAGES. Lawrence A. Costigan, Philadelphia, Pa. Filed Dec. 12, 1904. Serial No. 236,514.



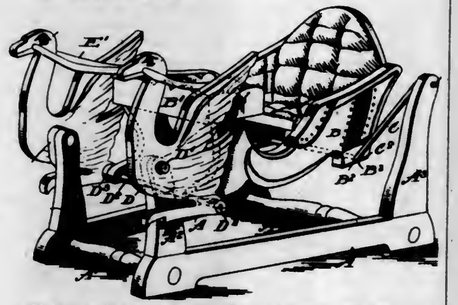
Claim.—1. A binder for type-pages, comprising a number of sections having tongued-and-grooved connections with each other, said sections being provided with slidable members having rack-bars and auxiliary pivotal rack-bars adapted to engage said slidable members, substantially as described.

2. A binder for type-pages, comprising a rectangular frame consisting of sections having tongued-and-grooved connection with each other, said sections consisting of slidable and fixed members, whereof the slidable member is provided with a rack and slot-and-pin connection, and whereof the fixed part is provided with an auxiliary rack pivoted at one of its outer ends, substantially as described.

3. A binder for type-pages comprising a rectangular frame consisting of sections having tongued-and-grooved connection with each other, said sections consisting of slidable and fixed members, whereof the slidable member is provided with a rack and slot-and-pin connection, and whereof the fixed part is provided with an auxiliary rack pivoted at one of its outer ends, substantially as described.

4. A binder for type-pages comprising a rectangular frame consisting of sections having tongued-and-grooved connection with each other, said sections comprising fixed and slidable members, the said slidable members being equipped with rack-bars, and auxiliary rack-bars pivoted to the fixed members, intermediate of their ends, substantially as described.

785,201. SWINGING TOY. Jesse A. Crandall, Brooklyn, N. Y., assignor of one-half to Charles Zornow, Brooklyn, N. Y. Filed Oct. 12, 1904. Serial No. 228,160.



Claim.—1. In a swinging toy, the combination with a base provided with standards, of a seat, a pivoted hanger connecting said seat with one of said standards, and a pivoted hanger connecting the opposite end of the seat to the other standard and of materially greater length than the hanger at the opposite end of the seat.

2. In a swinging toy, the combination with a base provided with standards, of a seat, a pivoted hanger connecting the rear of said seat with a rear standard, a pivoted hanger of materially less length than the rear hanger and connecting the forward end of the seat and front standard, and a lever extending from the upper end of said front hanger.

3. In a swinging toy, the combination with a base provided with standards, of a seat, a pivoted hanger connecting the rear of said seat with a rear standard, a pivoted hanger of materially less length than the rear hanger and connecting the forward end of the seat and front standard, an arm extending from the upper end of said front hanger, a cross-bar connecting the lower ends of the opposite front hangers and upon which the forward end of the seat is pivotally mounted, and means extending from said arm to said seat for actuating the arm.

4. In a swinging toy, the combination with a base having oppositely-located standards at its ends, of a seat lying within said standards, a hanger pivotally connected to the rear standards and seat, front hangers of materially less length than said first-mentioned hangers and located upon the outer face of the front standards, a cross-bar connecting the lower ends of said front hangers and upon which the forward end of the seat is pivotally mounted, an arm extending above the pivotal point of the front hangers, and means extending from said arm to the seat for actuating the same.

5. In a swinging toy, the combination with a base composed of opposite side pieces having front and rear standards rising therefrom, cross-bars connecting said side pieces at the front and rear, of a seat, a pivoted hanger connecting said seat with the rear standards, a pivoted hanger of materially less length than the rear hanger connecting the front portion of the seat with the front standards, spacer-blocks between said forward hangers and front standards, and spacer-blocks between the forward hangers and the front supports of the swinging seat.

6. In a swinging toy, the combination with a base of greater width at its rear than at its forward portion, oppositely-located standards at each end of the base, of a seat lying within said standards, hangers connected to the rear standards and seat, and hangers pivoted to the front standards and seat and disposed in substantially the vertical plane of the rear standards.

7. In a swinging toy, the combination with a base provided with standards, of a seat, a pivoted hanger connecting said seat with one of said standards, and a figure pivotally mounted upon the front standards and comprising at its lower portion a hanger of materially different length from the rear hanger and at its upper portion an arm extending above the pivotal point of the figure.

785,202. BRAKE FOR FIRE-ESCAPES. Laurentius Dahlquist, Salt Lake City, Utah. Filed Aug. 22, 1904. Serial No. 221,757.

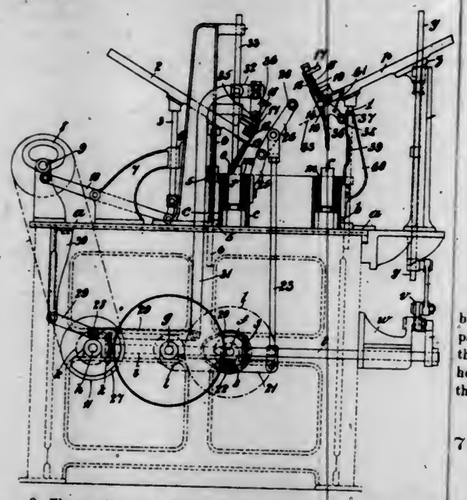


Claim.—A brake mechanism for fire-escapes comprising, in combination with a boxing closed upon three sides and open at its ends, a series of rounds supported by the opposite walls of said boxing, a rope passing zigzag fashion between said rounds, said rope adapted to frictionally engage, at a plurality of locations, the wall of the boxing which is parallel with said rounds, a cam-lever pivotally mounted between the parallel walls of the boxing and having a corrugated edge adapted to hold the rope frictionally against the wall of the boxing, as set forth.

785,203. PACKAGING-MACHINE. Charles H. Day and Albert Day, Leeds, England. Filed Mar. 7, 1904. Serial No. 196,982.

Claim.—1. In a packaging-machine, the combination with a table mounted upon framework, and four guide-troughs arranged in a rectangle thereon, of a card-receiving chute mounted at an angle over one of the said troughs, a bracket fixed to the under side of the said chute, a vertical rod to which said chute and bracket are connected, a standard fixed to the table provided with bearings in which the vertical rod reciprocates, and means for intermittently operating the same and for feeding the cards, as and for the purposes set forth.

2. The combination of a card-receiving chute having a trough for receiving the cards mounted upon vertical guides, a weight sliding therein for pressing the cards to the delivery end of the chute, a curved pendant projection fixed to the delivery end of the chute, a bracket provided with a vertical recess, said bracket being fixed to the chute at the rear of the pendant projection, a slide fixed to guides and arranged to work in the end of the chute behind the upper part of the pendant projection, springs for keeping the slide in a raised position, and means for intermittently actuating the slide independently of the rise and fall of the chute, as and for the purposes set forth.

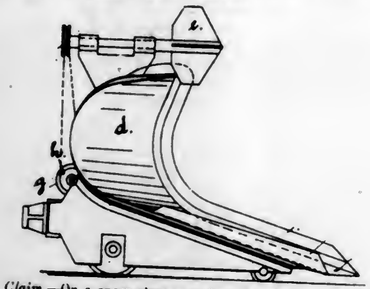


3. The combination of a card-receiving chute having a trough for receiving the cards mounted upon vertical guides, a weight sliding therein for pressing the cards to the delivery end of the chute, a curved pendant projection fixed to the delivery end of the chute, a bracket provided with a vertical recess, said bracket being fixed to the chute at the rear of the pendant projection, a slide fixed to guides and arranged to work in the end of the chute behind the upper part of the pendant projection, springs for keeping the slide in a raised position, means for intermittently actuating the slide independently of the rise and fall of the chute, a movable pendant-piece provided with an arm and pivoted to the delivery end of chute, a runner mounted on said arm, a vertical cam-path, and a spring for retaining the runner in contact with said cam-path, as and for the purposes set forth.

4. The combination of a table mounted upon framework, four guide-troughs arranged in a rectangle an said table, boxes having an intermittent and progressive motion in said troughs, a card-receiving chute having a trough for receiving the cards mounted upon vertical guides, a weight sliding therein for pressing the cards to the delivery end of the chute, a curved pendant projection fixed to the delivery end of the chute, a bracket provided with a vertical recess, said bracket being fixed to the chute at the rear of the pendant projection, a slide fixed to guides and arranged to work in the end of the chute behind the upper part of the pendant projection, springs for keeping the slide in a raised position, means for intermittently actuating the slide independently of the rise and fall of the chute, a movable pendant-piece provided with an arm and pivoted to the delivery end of chute, a runner mounted on said arm, a vertical cam-path, a spring for retaining the runner in contact with said cam-path, and means for intermittently reciprocating the chute as and for the purposes set forth.

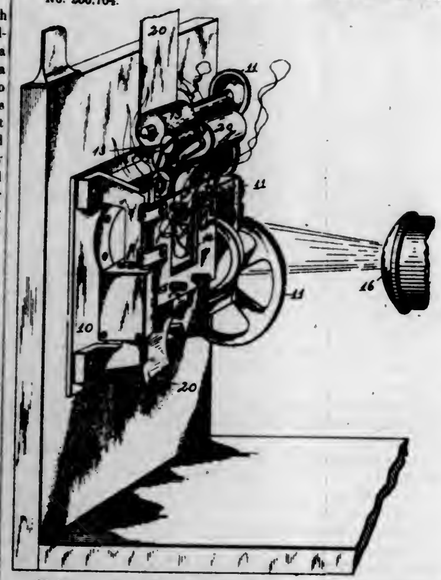
5. In a packaging-machine, the combination of a table mounted upon framework, four guide-troughs arranged in a rectangle thereon, boxes having an intermittent progressive motion in said troughs, a pair of card-receiving chutes arranged opposite each other over two of said troughs, means for alternately and intermittently raising and lowering the said chutes to and from their work, weights for pressing the cards down the chutes to the delivery end of the same, a slide arranged in the delivery end of each chute for discharging a card into a bag, springs for keeping the slide in a raised position, means for operating the said slide independently of the rise and fall of the chute to which it is attached, a pendant projection fixed to the end of the chutes, a recessed bracket fixed to the end of one of the said chutes at the rear of its pendant projection, a movable pendant-piece provided with an arm and pivoted to the end of said chute, a runner mounted on end of said arm, a vertical cam-path, and a spring for retaining the runner in contact with said cam-path, as and for the purposes set forth.

785,204. SNOW-PLOW. CARL DIETRICH, Schönebeck, Germany. Filed Dec. 15, 1904. Serial No. 237,040.



Claim.—On a snow-plow a surface rising at an incline, knife-blade-like side rims on the same, plates bent like plowshares as upper continuation of said inclined surface, a knife-blade-like rib on the surface and continuing between the plowshare-like plates, a heated compartment under said surfaces, and shovel-wheels above the same, substantially as described and for the purpose set forth.

785,205. FLAME-SHIELD FOR KINETOSCOPES. WILLIAM ELLWOOD, Brooklyn, N. Y., assignor to The Vitagraph Company of America, a Corporation of New York. Filed Mar. 30, 1904. Serial No. 200,704.



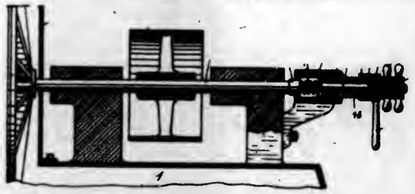
Claim.—1. A moving-picture apparatus or the like, provided with a flame-shield comprising a substantially horizontal plate extending at an angle with the film and provided with one or more depending flanges, the whole placed above the danger-point and in close proximity thereto.

2. The combination with a kinetoscope comprising a film-propelling mechanism of a plurality of flame-shields placed in close proximity to the path of the film and extending outwardly therefrom.

3. The combination with a kinetoscope comprising a film-propelling mechanism of a plurality of flame-shields placed in close proximity to the path of the film and extending outwardly therefrom, one of said shields being provided with depending flanges.

4. A moving-picture apparatus provided with a plurality of flame-shields, arranged at opposite sides of the path traversed by the film in its passage across the light-aperture and in proximity to the latter and extending at an angle to the film and out of contact therewith throughout their length, said flame-shields comprising non-inflammable plates adapted to prevent the spread of the flame from the portion of the film in front of said aperture to that above the same.

785,206. QUICK-RELEASE MECHANISM FOR GRINDING-MILLS. WILLIAM A. FARRAR, Utica, N. Y., assignor to Munson Bros. Co., Utica, N. Y. Filed Mar. 30, 1903. Serial No. 150,117.



Claim.—1. The combination in a grinding-mill of a frame, a rotary shaft and grinding-disk mounted thereon, a thrust-bearing box on the frame at the end of the grinding-disk, a bushing screw-threaded into the thrust-bearing, the thrust-shaft mounted in the thrust-bearing bushing, and engaging the end of the grinding-disk shaft, and having a head thereon, a spring confined between the head on the thrust-shaft and the end of the bushing, a manually-operatable plate or ring axially mounted with reference to the thrust-shaft and having cam faces or projections engaging the end of the bushing, and means for adjustably locating the position of said thrust plate or ring with reference to the thrust-shaft, substantially as set forth.

2. The combination in a grinding-mill of a frame, a rotary shaft and grinding-disk mounted thereon, a thrust-bearing box on the frame at the end of the grinding-disk, a bushing adjustably mounted in the thrust-bearing shaft, a thrust-shaft mounted in the thrust-bearing bushing, and engaging the end of the grinding-disk shaft, and having a head and shank, a spring confined between the head on the thrust-shaft and the end of the bushing, a manually-operatable plate or ring mounted on the thrust-shaft and having cam faces or projections engaging the end of the bushing, and means for adjustably locating the position of said thrust plate or ring on the thrust-shaft, substantially as set forth.

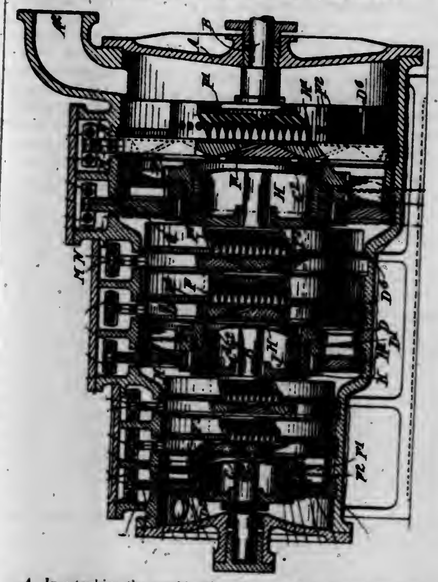
3. The combination with a grinding-mill having a frame, grinding-shaft and disk of a quick-release mechanism consisting of a thrust-box on the frame, a bushing for the thrust-box threaded therein, a thrust-shaft arranged to engage the end of the grinding-disk shaft, having a head or shoulder thereon, a manually-operatable rocking plate or ring mounted on the thrust-shaft, having cam faces or projections, a ring or plate having coöperating cam faces or projections and means for securing same in sundry positions of adjustment on the end of the bushing, and means for adjusting the location of the manually-operatable plate or ring on the thrust-shaft, substantially as set forth.

785,207. TURBINE-MOTOR. GEREMIAS FERRI, Birkenhead, England, assignor of one-half to John Forster, St. Helens, Lancashire, England. Filed Aug. 29, 1904. Serial No. 222,600.

Claim.—1. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, a ring of vanes mounted upon the shaft and a ring or disk valve controlling the amount and direction of the operating fluid admitted to the vanes, said valve consisting of a casing and valve-rings within the casing movable relatively to each other and to the casing substantially as set forth.

2. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, a plurality of sets of vanes mounted upon said shaft, a valve controlling the admission of the operating fluid to each set of vanes, said valve consisting of a casing and valve-rings within the casing movable relatively to each other and to the casing, substantially as set forth.

3. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, a plurality of sets of vanes mounted upon said shaft, a valve controlling the admission of the operating fluid to each set of vanes, said valve consisting of a casing, valve-rings within the casing movable relatively to each other and to the casing, and means for moving the valve-rings to reverse the direction or regulate the amount of the operating fluid admitted to the vanes substantially as set forth.



4. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, vanes mounted upon said shaft, such vanes comprising two portions movable relatively to each other, a valve to admit the operating fluid to the vanes and means for reversing the vanes substantially as set forth.

5. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, vanes mounted upon said shaft, such vanes comprising two portions movable relatively to each other and a valve to control the amount and direction of the operating fluid admitted to the vanes, substantially as set forth.

6. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, a vane-carrying member mounted on said shaft, such member being in two portions one fixed and the other movable relatively to it, vanes mounted upon the member such vanes comprising two portions movable relatively to each other and a valve to control the amount and direction of the operating fluid admitted to the vanes, substantially as set forth.

7. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, vane-carrying members in two portions supported on said shaft one portion fixed relatively to the shaft and the other partially rotatable, vanes each in two parts one fixed and the other pivoted mounted in said members, a valve controlling the amount and direction of the operating fluid admitted to each set of vanes, said valve consisting of a casing and valve-rings within the casing movable relatively to each other and to the casing, and gear for moving the valve-rings to reverse the direction and regulate the amount of the operating fluid admitted, said gear being coupled together to secure simultaneous operation of the valves, substantially as set forth.

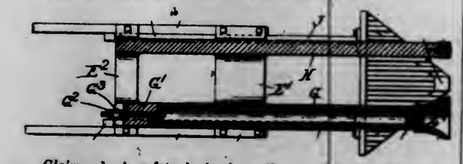
8. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, vane-carrying members in two portions supported on said shaft one portion fixed relatively to the shaft and the other partially rotatable, means for partially rotating the movable portion of the vane-carrying member, vanes each in two parts one fixed and the other pivoted mounted in said members, a valve controlling the amount and direc-

tion of the operating fluid admitted to each set of vanes, said valve consisting of a casing and valve-rings within the casing movable relatively to each other and to the casing, and gear for moving the valve-rings to reverse the direction and regulate the amount of the operating fluid admitted, said gear being coupled together to secure the simultaneous operation of the valves substantially as set forth.

9. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, drums on such shaft, vane-carrying members in two portions mounted on said drums, one portion of each member being fixed to the drum and the other partially rotatable thereon, means for partially rotating the movable portion of the vane-carrying member, vanes each in two parts one fixed and the other pivoted mounted in said members, a valve controlling the amount and direction of the operating fluid admitted to each set of vanes said valve consisting of a casing and valve-rings within the casing movable relatively to each other and to the casing and gear for moving the valve-rings to reverse the direction and regulate the amount of the operating fluid admitted, said gear being coupled together to secure the simultaneous operation of the valves, substantially as set forth.

10. In a turbine the combination of a casing, an inlet and outlet for the operating fluid, a shaft rotatably mounted in said casing, drums on such shaft, vane-carrying members in two portions mounted on said drums one portion of each member being fixed to the drum and the other partially rotatable thereon, means for partially rotating the movable portion of the vane-carrying member, vanes each in two parts one fixed and the other pivoted mounted in said members, a valve controlling the amount and direction of the operating fluid admitted to each set of vanes, said valve consisting of a casing and valve-rings within the casing movable relatively to each other and to the casing, gear for moving the valve-rings to reverse the direction and regulate the amount of the operating fluid admitted, said gear being coupled together to secure the simultaneous operation of the valves and steam-tight rings between the stationary valve-casings and the rotatable portion adjacent thereto, substantially as set forth.

785,208. **RAILWAY SAFETY DEVICE.** PERLING C. FOSTER, Chicago, Ill. Filed Oct. 31, 1904. Serial No. 230,875.



Claim.—1. A safety device for railway-vehicles comprising a ram on one of such vehicles, a cylinder on the other vehicle, a flexible air-cushion in the cylinder with the end of which the ram comes in contact, such devices adapted to be brought into operation one with the other to lessen the shock to such vehicles in the case of collision.

2. A safety device for railway-vehicles comprising a ram on one of such vehicles, a cylinder on the other vehicle, such cylinder having a flaring end, a flexible air-cushion in such cylinder with the end of which the ram comes in contact, such devices being adapted to be brought into operation one with the other to lessen the shock to such vehicles in the case of collision.

3. A safety device for railway-vehicles comprising a ram on one of such vehicles, a cylinder on the other vehicle, an air-cushion of elastic material in the cylinder, and a plunger adapted to act against the air-cushion, such devices adapted to be brought into operation one with the other to lessen the shock to such vehicles in the case of collision.

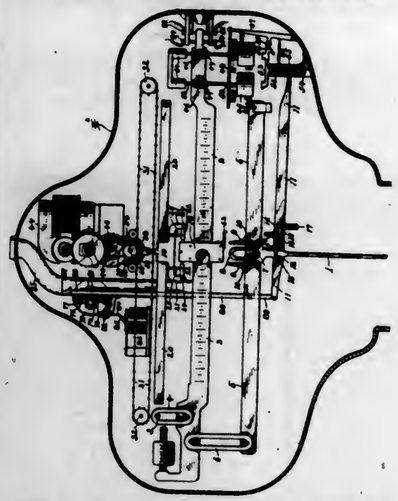
4. A safety device for railway-vehicles comprising a ram and an air-cushioning device arranged one on each vehicle and adapted to coact with the corresponding devices on other vehicles so as to lessen shock to such vehicles in case of collision.

5. A safety device for railway-vehicles comprising a ram and an air-cushioning device arranged on each vehicle and adapted to coact each with the corresponding device on other vehicles, a sliding device at the end of such vehicle, and an air-cushioning device interposed between such sliding device and the body of the vehicle.

6. A safety device for railway-engines and the like, comprising a ram device and an air-cushioning device arranged on each engine so as to coact with similar correspondingly-arranged devices on other vehicles in combination with a sliding pilot and an air-cushioning device interposed between such pilot and the framework on its engine.

7. A safety device for railway-engines and the like, comprising a ram and an air-cushion adapted to coact with corresponding devices on other vehicles in combination with a sliding pilot, a ram device on such pilot, and an air-cushioning device on the main body of the engine with which the ram device is adapted to coact in case of collision.

785,209. **AUTOMATIC BEAM-SCALE.** GUY HAMILTON, Detroit, Mich., assignor to The Calle Bros. Company, Detroit, Mich., a Corporation of Michigan. Filed Jan. 11, 1904. Serial No. 188,483.



Claim.—1. In a scale, the combination with a beam and a sliding poise on said beam, of a counterweight, a support for said counterweight, and means for moving said poise and thereby releasing the weight to operate in conjunction with the poise.

2. In a scale, the combination with a beam and a sliding poise on said beam, of a counterweight normally held in an inoperative position, and means operating in relation to the movement of said poise for releasing the weight to allow the same to operate.

3. In a scale, the combination with the scale-beam, of a sliding poise on said beam, a counterweight normally held in an inoperative position, and means controlled by the deflection of said beam for moving the poise and operating, in relation to the position of the poise, to release the weight.

4. In a scale, the combination with the scale-beam, of a sliding poise on said beam, a counterweight, and means for supporting said weight in an inoperative position adjacent to the end of the beam and adapted to be moved by the poise to release the weight.

5. In a scale, the combination with the scale-beam, of a series of counterweights, means for normally holding said weights in an inoperative position and for releasing the same, one at a time, and means controlled by the position of the beam for operating the holding means, whereby one or more of the weights will be released to operate, according to the number required to deflect the beam.

6. In a scale, the combination with the scale-beam, of a series of counterweights, means for supporting said weights in an inoperative position adjacent to the end of said beam and for releasing the same, one at a time, a sliding poise on said beam, and means controlled by the deflection of the beam for moving the poise and operating in relation to the position of the poise to move the supporting means to release one or more of the weights.

7. In a scale, the combination with the scale-beam, of a counterweight, a bearing-pin on the beam, an extended loop on the weight to receive said pin, a table to support the weight with its loop out of engagement with the pin to allow the beam to freely move and adapted to be moved to release the weight, means for moving the table, and means for raising the weight to reengage the table therewith.

8. In a scale, the combination with the scale-beam, of counterweights, bearing-pins on the beam, hangers on the weights provided with extended loops to receive the pins, a longitudinally-movable table provided with openings having lateral extensions through

which the hangers pass, transverse pins on the hangers to engage the upper side of the table, means for moving the table longitudinally, and means for raising the weights to reengage the transverse pins with the table.

9. In a scale, the combination with the scale-beam, of counterweights, a supporting-table for said weights formed with openings having lateral slots, guide-arms extending downward from the edge of the openings at the side of the slots, hangers on the weights provided with extended loops, bearing-pins on the beam extending through said loops, transverse pins on the hangers, a vertically-movable lifter to engage the lower ends of the weights, means for raising said lifter, a lever adapted to engage and move the table when the lifter is raised, and a spring to operate said lever.

10. In a beam-scale, the combination with the beam thereof, of a sliding poise consisting of a block embracing the beam, rolls on the block engaging the upper edge of the beam, a brake-lever pivoted to the block to engage one of the rolls, a spring to hold the brake in contact with the roll, and levers adapted to be engaged to hold the brake out of contact with the roll, and means for moving said poise provided with push-bars to engage the levers for holding the brake out of contact with the roll.

11. In a beam-scale, the combination with the beam thereof, of a sliding poise on said beam, a stationary track-bar adjacent to the beam, a carriage on said track, push-bars on said carriage pivoted to freely move vertically and extending horizontally toward the poise at each side thereof to engage and move the same, means for supporting said bars in a substantially horizontal position and means for moving the carriage.

12. In a beam-scale, the combination with the beam thereof, of a sliding poise on said beam consisting of a block embracing said beam and provided with a chamber, rolls pivotally secured within said chamber to engage the edge of the beam, a brake-lever in said chamber, a spring to hold the brake against one of the rolls, levers at each edge of the poise connected to the brake to operate the same, a stationary track adjacent to the beam, a carriage movable on said track, downwardly-curved arms on each end of said carriage, push-bars having pointed ends and provided with transverse bearing-pins to engage the arms, springs to support said push-bars in a substantially horizontal position with the upper end of the poise between, and means for moving the carriage.

13. In a scale, the combination with a beam and a sliding poise on said beam, of a motor-circuit, an electric motor in said circuit for moving said poise and means controlled by the balancing of the beam for breaking the motor-circuit.

14. In a scale, the combination with a beam and a sliding poise on said beam, of an electric motor for moving said poise, a motor-circuit, means for breaking the motor-circuit, and means controlled by the balancing of the beam for releasing the motor-circuit-breaking means.

15. In a scale, the combination with a beam and a sliding poise on said beam, of an electric motor for moving said poise, a motor-circuit, means for breaking the motor-circuit, a circuit closed by the balancing of the beam, and means in the last-named circuit for releasing the motor-circuit-breaking means.

16. In a scale, the combination with a beam and a sliding poise on said beam, of an electric motor for moving said poise, a motor-circuit, means for breaking the motor-circuit, a circuit closed by the balancing of the beam, and an electromagnet in said circuit for releasing said means.

17. In a scale, the combination with a beam and a sliding poise on said beam, of an electric motor for actuating the poise, a motor-circuit, means for breaking the motor-circuit, an electromagnet for releasing said means, an electromagnet-circuit, supports above and below the end of the beam and having openings and contact-pins to which the terminals of the magnet-circuit are attached, said pins being adapted to slide in said openings and having a limited movement therein, whereby the contact-pins will both contact the beam and close the circuit only when the beam is in its balanced position.

18. In a scale, the combination with automatic weighing mechanism and an electric circuit governing the operation of said mechanism, of contacts in said circuit, means for moving one of said contacts to break the circuit, an electromagnet to release said means, an electric circuit for the magnet, and means whereby the balancing of the beam operates to close the circuit of the magnet.

19. In a scale, the combination with automatic weighing mechanism and an electric circuit governing the operation of said mechanism, of contacts in said circuit, a pawl carried by one of said contacts, a gear, a pin on said gear to engage the pawl and move the contact when the gear is turned in one direction, a coiled spring to actuate said gear in one direction, means for turning the gear to put a tension on the spring, a dog to hold the gear from being turned by the spring, an electromagnet to operate the dog to release the gear, and an electric circuit for said magnet closed by the balancing of the weighing mechanism.

20. In a scale, the combination with automatic weighing mechanism and an electric circuit governing the operation of said mechanism, of contacts in said circuit, a pawl on one contact, a gear, a pin on said gear to engage the pawl, a coiled spring to actuate said gear in one direction, a pawl and ratchet to actuate the gear in the opposite direction to wind the spring, means for operating said pawl and ratchet, a shaft, a fan on said shaft, a pinion on the shaft in engagement with the said gear, a dog to hold the fan and gear from turning in one direction, an electromagnet to operate said dog to release said gear and fan, a circuit for the magnet, and means operated by the weighing mechanism to close the circuit when the mechanism comes to a balance.

21. In a scale, the combination with the beam and sliding poise on said beam, of an electric motor for actuating said poise, a motor-circuit, contacts in said circuit, a pawl on one of the contacts, a gear, a pin on said gear to engage said pawl, a spring to actuate said gear in one direction, a rack and pinion to actuate the gear in the opposite direction to wind the spring, a fan to retard the movement of said gear, a dog to hold said gear from being turned by the spring, an electromagnet for releasing the dog, a normally open circuit for the magnet closed by the beam when it comes to a balance, a draft-rod to actuate the beam, means for providing a limited movement of the draft-rod independently of the beam, and means actuated by said movement of the rod for moving the rack.

22. In a scale, the combination with the beam, of a sliding poise on said beam, counterweights normally supported out of operative contact with the beam, an electromagnetic clutch for controlling the movement of said poise and releasing said weights, an electric motor for rotating the clutch, means for controlling the clutch by the movement of the beam, a motor-circuit, contacts in said circuit, spring-actuated mechanism for moving one of the contacts to break the motor-circuit, a rack-bar and pinion to wind said spring, a draft-rod to operate the scale-beam, an operating-bar connected to the draft-rod and operated thereby and to which the rack-bar is connected, means for providing a limited movement of the draft-rod independently of the beam, and a lifter beneath the weights operated by said operating-bar.

23. In a scale, the combination with a scale-beam, of a sliding poise on said beam, a motor, an electromagnetic clutch rotated by said motor, a sprocket-chain to move the poise along the beam, a sprocket-wheel actuated through the clutch to engage the chain, contacts supported adjacent to one end of the beam above the same, an electric circuit connecting said contacts and one coil of the clutch, contacts supported adjacent to the end of the beam below the same, and an electric circuit connecting the contacts below the beam with the other coil of the clutch.

24. In a scale, the combination with a scale-beam, of a sliding poise on said beam, a sprocket-chain connected to said poise to move the same, a shaft, a sprocket-wheel on said shaft to drive the sprocket-chain, two electromagnetic coils on said shaft spaced apart and free to turn thereon, a clutch-disk splined on the shaft between said coils, a motor, means for transmitting motion from said motor to turn one of said coils in one direction and to turn the other coil in the opposite direction, contacts supported above and below the scale-beam, and an electric circuit connecting the terminals of one of the coils with the contacts above the beam and a circuit connecting the terminals of the other coil with the contacts below the beam.

25. In a scale, the combination with a scale-beam, of a sliding poise on said beam, a track adjacent to said beam, a carriage on said track adapted to engage and move the poise, idlers near each end of the track, a sprocket-chain secured to the carriage and engaging the idlers, a shaft, a sprocket-wheel on said shaft engaging the chain to drive the same, electromagnetic coils loosely mounted on said shaft and spaced apart thereon, a clutch-disk splined on the shaft between said coils, gears on the coils, a counter-shaft, pinions on said counter-shaft one of which engages and drives the gear on one of the coils, an intermediate pinion to transmit motion from the other pinion to the gear on the other coil, a motor, a train of gearing to transmit motion from the motor to the counter-shaft, contacts supported above and below the beam adjacent to its end, an electric circuit connecting the contacts above the beam with the terminals of one of the coils of the clutch, and a circuit connecting the contacts below the beam with the terminals of the other coil.

26. In a scale, the combination with the beam, of a sliding poise on said beam, counterweights normally supported adjacent to the

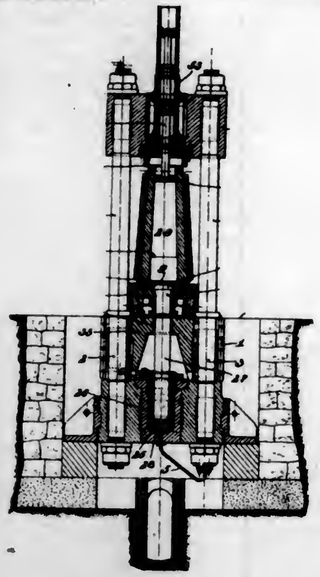
end of said beam and out of contact therewith, means for moving the poise along the beam and for moving the support to release the weights, means for controlling the poise-operating means, a draft-bar pivotally supported at one end, a link connecting the opposite end of said draft-bar with the short arm of the scale-beam, a bearing-pin on the draft-bar intermediate its ends, a draft-rod, loops on the upper end of the draft-rod through which the bearing-pin extends, springs attached to the draft-bar and draft-rod to hold the latter raised relative to the former, an operating-bar pivoted intermediate its ends below the draft-bar, a rack-bar attached at its lower end to one end of the operating-bar, means operated by said rack-bar for operating the controlling means, a vertically-movable lifter to engage and raise the said weights and engaged and operated by the opposite end of the operating-bar, a lever pivoted intermediate its ends to the draft-rod, a similar lever pivoted intermediate its ends to the operating-bar with one end normally extending beneath the adjacent end of the other lever, stops to limit the movement of said levers, springs for holding the levers in engagement with the stops, a hook to engage and hold the lever on the operating-bar against its stop, and a lug to engage and operate the hook to release said lever.

27. In a scale, the combination with a beam, a sliding poise on said beam, a track-bar supported adjacent to said beam, a carriage slidable on said track, pusher-bars pivotally secured to the carriage and supported with the poise between their adjacent ends, an electro-magnetic clutch, a sprocket-wheel driven by said clutch, a sprocket-chain driven by said wheel and secured to the carriage, an electric motor, a train of gearing to transmit motion from the motor to the clutch, a motor-circuit, contacts in said circuit, a pawl carried by said spring-contact, a stop-pin for said pawl, a shaft supported in bearings adjacent to the spring-contact, a sleeve on said shaft, a gear secured to one end of said sleeve and a ratchet-wheel secured to the opposite end thereof, a pin on the gear to engage the pawl, an arm secured on the shaft and carrying a spring-pawl to engage the ratchet, a pinion frictionally secured to said shaft, a rack to engage said pinion, a counter-shaft, a pinion on said counter-shaft in engagement with said gear, a fan on said counter-shaft, an electromagnet, a dog carried by the armature of the magnet to engage the fan, a draft-bar provided with a bearing-pin, a draft-rod having loops to engage said pin, an operating-bar connected at one end to said rack-bar and forked at its opposite end, means carried by the draft-rod for engaging and operating the operating-bar, transverse bearing-pins on the beam near one end, counterweights provided with hangers having loops to receive said pins, guide-arms on said loops, guide-sockets to receive said guide-arms, a supporting-table provided with openings having lateral extensions through which the hangers of the weights extend, transverse pins on the hangers to engage the top of the table, a lifter provided with a sleeve engaged and operated by the forked end of the operating-bar, a spring sleeved on said stem, a lever to engage and move the table operated by the lifter in one direction, a spring to operate the same in the opposite direction, a stationary arm above and a stationary arm below the vibratory end of the beam, a contact-point on each of said arms, a contact-spring to engage each of said points, a circuit connecting the contact point and spring above the beam with one coil of the clutch and with the binding-posts of the said contacts, a circuit connecting the contact point and spring below the beam with the other coil of the clutch and with the binding-posts of the contacts, a sliding contact-pin extending through each of the arms above and below the beam and having a limited movement, and an electric circuit connecting the contact-pins with the electromagnet and with the blading contacts.

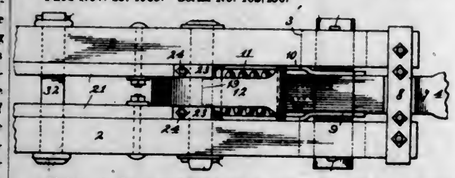
785,210. PRESS FOR COMPRESSING AND DRAWING INGOTS INCONICAL MOLDS. HENRI HARMET, St. Etienne, France. Original application filed Mar. 21, 1902. Serial No. 99,335. Divided and this application filed Nov. 23, 1904. Serial No. 233,973

Claim.—1. In a press, two rams arranged to press in opposite directions upon the ingot within a conical mold, a plug connected with one of said rams and arranged to enter the smaller end of the mold to guide said mold in proper vertical position, a support or head carrying the ram to which the plug is connected, an abutment projecting below the head and surrounding the plug to form a space for the reception of the plug, and a washer arranged in the head above the plug and forming a limitation for the upward movement of the plug in said head.

2. In a press, an ingot-mold having a frusto-conical interior for the formation of the ingot, two rams arranged to press in opposite directions upon the ingot within the mold, a head carrying one of said rams, and means for permitting the smaller end of the mold to bear upon said head, in combination with means controlled by the other of said rams for raising the ingot-mold against said head, and means for correspondingly depressing the ram in said head to eject the ingot from the mold.



785,211. DRAFT-RIGGING. EDWARD W. HARTOUGH, Thayer, Mo. Filed Nov. 23, 1903. Serial No. 182,436.



Claim.—1. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of a yoke encircling one end of the draft-springs and provided at its forward ends with slots through which a key passes that secures it to the draw-head, a member secured to the car, and a loop passing around the opposite ends of the draft-springs and the member secured to the car and provided with notches in one end which engage the sides of the yoke.

2. In a draft-rigging for cars the combination with the draw-head and draft-springs, of a yoke encircling one end of the draft-springs and suitably secured to the draw-head, a member secured to the car, a loop encircling said member and the opposite ends of the draft-springs, and a guide on the loop which slidingly engages the member secured to the car.

3. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of a yoke encircling one end of the draft-springs and suitably secured to the draw-head, filling-blocks secured to the car and against which one end of the yoke abuts, a member secured to the car, and a loop encircling said member and the opposite ends of the draft-springs.

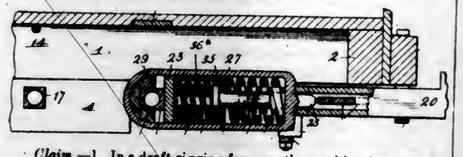
4. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of a yoke encircling one end of the draft-springs and suitably secured to the draw-head, a member secured to the car, a loop encircling said member and the opposite ends of the draft-springs, and guides on one end of the yoke which slidingly engage the member secured to the car.

5. In a draft-rigging for cars, the combination with the draw-head and the tandem draft-springs, of a yoke encircling one end of one of said draft-springs and suitably secured to the draw-head, a back-stop secured to the car, a loop passing around the draft-springs and back-stop, a partition in the loop, and a plunger operatively connected to the loop and partition and which bears against the end of one of the draft-springs.

6. In a draft-rigging for cars, the combination with the draw-head and the tandem draft-springs, of a yoke encircling one end of one of said draft-springs and suitably secured to the draw-head, a back-stop secured to the car, a main loop passing around the draft-springs and the back-stop, an auxiliary loop slidingly arranged in the main loop and engaging one end of each spring, and a plunger operatively arranged in the auxillary loop and adapted to bear against one end of the springs.

7. In a draft-rigging for cars, the combination with the draw-head, draft-springs, draft-sills and draft-timbers, of a yoke encircling one end of the draft-springs and suitably secured to the draw-head, a key extending transversely through the draft-timbers, a loop encircling the key and the draft-springs, and a yoke secured to the upper surface of the draft-sills and the opposite ends of the key.

785,212. DRAFT-RIGGING. EDWARD W. HARTOUGH, Thayer, Mo. Filed Apr. 30, 1904. Serial No. 205,681.



Claim.—1. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of means for initially compressing the draft-springs simultaneously, means for holding one spring at the point of initial compression while its companion is undergoing intermediate compression, and means for finally compressing both springs simultaneously.

2. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of a yoke and a loop for initially compressing the springs simultaneously, means supported by the loop for holding one spring at the point of initial compression while its companion is undergoing intermediate compression, and means for finally compressing both springs simultaneously.

3. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of means for initially compressing the draft-springs simultaneously, a cage slidingly arranged on the draft-rigging and carrying one of the springs for the purpose of holding the same at the point of initial compression while its companion is undergoing intermediate compression, and means for finally compressing both springs simultaneously.

4. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of means for initially compressing the draft-springs simultaneously, means for holding one spring at the point of initial compression while its companion is undergoing intermediate compression, and a piston adapted to abut at its opposite ends against a part of the rigging and one of the springs to effect the final compression of the latter simultaneously with that of its companion.

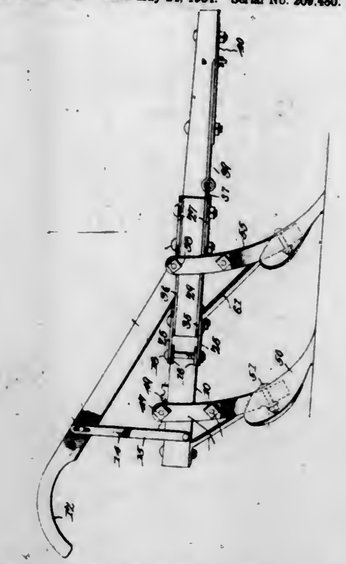
5. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of a yoke and a loop for initially compressing the springs simultaneously, a cage slidingly arranged in the loop and carrying one of the springs for the purpose of holding the latter at the point of initial compression while its companion is undergoing intermediate compression, and means for finally compressing both springs simultaneously.

6. In a draft-rigging for cars, the combination with the draw-head and draft-springs, of means for initially compressing the springs simultaneously, a cage slidingly arranged on the rigging and carrying one of the springs for the purpose of holding the latter at the point of initial compression while its companion is undergoing intermediate compression, and a piston slidingly arranged in the closed end of the cage adapted to contact with a part of the rigging and effect the final compression of the spring in the cage simultaneously with the final compression of its companion.

7. In a draft-rigging for cars, the combination with the draft-sills secured to the car, of draft-arms secured to said draft-sills, each having apertures at their rear ends and depending arms at their forward ends, and a U-shaped brace secured to the lower ends of the depending arms and two of the car-sills.

8. In a draft-rigging for cars, the combination with the draft-timbers and the draw-head the latter having a rear open end, of a loop having a rounded rear end, a lug on the forward end of the loop engaging the opening in the rear end of the draw-head, a hollow key extending through the rear portion of the loop and suitably secured to the car-timbers, and a back-stop interposed between the rear end of the loop and the rear side of the key, provided with an intermediate curved portion to fit the rear end of the loop, integral shoulders which abut against the adjacent ends of the draft-timbers and a notch in its front side to engage the key.

785,213. PLOW AND CULTIVATOR. THOMAS HENDERSON, Blackfoot, Tex. Filed May 24, 1904. Serial No. 209,480.



Claim.—In a device of the class described, a central or main beam, bearing-plates sunk in transverse recesses in the upper and lower sides of the beam and extending laterally from the same, pairs of radius-bars connected pivotally with said bearing-plates, side beams mounted pivotally between the outer ends of the radius-bars, plates connected with said side beams and having forwardly-extended perforated ends, a plate connected with the beam and having laterally-extending side portions each provided with a plurality of perforations arranged in a longitudinal row, draft-bars provided with hooks at their front ends for adjustable engagement with said rows and perforation, said draft-rods being linked at their rear ends to the perforated extended front ends of the plates connected with the side beams, and blade-carrying standards connected with the main and side beams.

785,214. APPARATUS FOR EXTRACTING METALS FROM THEIR ORES. WILBUR A. HENDRYX, Los Angeles, Cal. Filed Aug. 29, 1904. Serial No. 222,618.

Claim.—1. An apparatus for treating ores, comprising a tank, means for continuously aerating the contents of said tank by lifting portions and distributing them in contact with the atmosphere, and electrodes within said tank.

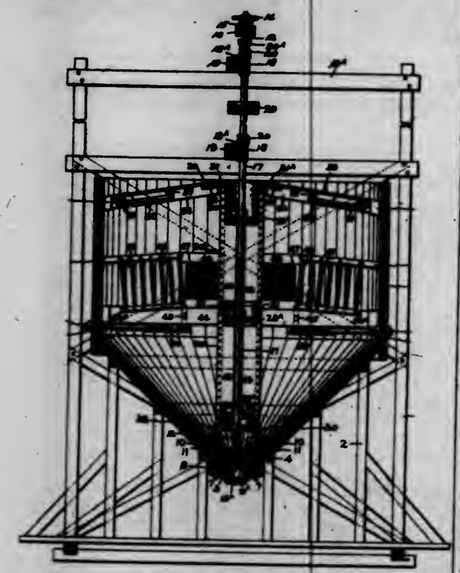
2. An apparatus for treating ores, comprising a tank, means for continuously aerating the contents of said tank by lifting portions and moving them in a thin sheet in contact with the atmosphere, and electrodes within said tank.

3. An apparatus for treating ores, comprising a tank, a spreader for aerating the ore-pulp, a passage-way leading from the lower portion of said tank and discharging upon said spreader, means for circulating pulp through said passage-way, and electrodes within said tank.

4. An apparatus for treating ores, comprising a tank, a conical spreader above said tank, a central passage-way communicating with the lower portion of said tank and discharging upon said spreader, means for circulating pulp through said passage-way and electrodes within said tank.

5. An apparatus for treating ores, comprising a tank, means

for continuously aerating the contents of said tank by lifting portions and distributing them in contact with the atmosphere, and non-vertical, spaced electrodes within said tank.



6. An apparatus for treating ores, comprising a tank, means for continuously aerating the contents of said tank by lifting portions and moving them in a thin sheet in contact with the atmosphere, and non-vertical, spaced electrodes within said tank.

7. An apparatus for treating ores, comprising a tank, a spreader for aerating the ore-pulp, a passage-way leading from the lower portion of said tank and discharging upon said spreader, means for circulating pulp through said passage-way, and non-vertical, spaced electrodes within said tank.

8. In an apparatus for the treatment of ores, an ore-pulp-holding tank, an independent passage-way connected to said tank and provided with an inwardly-extending partition member, and a rotary pumping member in said casing arranged and adapted to move ore-pulp in a continuous stream through said passage-way and through the body of said tank.

9. In an apparatus for the treatment of ores, an ore-pulp-holding tank, an independent passage-way connected to said tank, a plurality of partition members in said passage-way, and means connected with and including a rotating shaft for agitating and bodily lifting ore-pulp in a continuous endless stream up said passage-way between said partitions, and down through said tank.

10. In a tank for holding a supply of solution, an independent passage-way connected at its lower end to the bottom of said tank, and arranged and adapted to discharge at its top and within said tank, a rotary device within said passage-way for pumping said solution through said passage-way and said tank, and means including a vertically-disposed rib or ribs within said passage-way for preventing said rotary pumping device from imparting a rotary movement to said supply of ore-pulp during its movement through said passage-way.

11. In an apparatus for treating ores, a tank having a conical bottom and constructed to hold a supply of ore-pulp, a vertical independent passage-way for said ore-pulp through the body of said tank to the atmosphere, channeled spaces in said passage-way, an aerating-plate surrounding the top of said passage-way, a rotating shaft connected to said tank, and means connected with said shaft for moving said supply of ore-pulp up said passage-way and channeled spaces and over said aerating-plate and down through said tank in a continuous, endless stream.

12. In an ore-treating apparatus, a tank, a cylindrical casing within said tank extending from its bottom up through said tank, and open at its top to the atmosphere, an ore-pulp inlet at the bottom of said casing within said tank, a shaft rotatably mounted in said casing, screw-propellers secured to said shaft and arranged to fit rotatably in said casing, and a channeled passage or passages in said casing around said shaft, between said screw-propellers.

13. In an ore-treating apparatus, a tank, a casing connected to said tank and forming an inclosed ore-pulp passage-way, and communicating with said tank at its upper and lower end, a shaft rotatably mounted in said casing, a rotating device connected to said shaft adapted to move ore-pulp through said casing, and a rib or ribs extending inwardly from the inner peripheral surface of said casing close to said shaft.

14. In an ore-treating apparatus, the combination of a tank having a conical bottom, and constructed to hold a supply of ore-pulp, a passage-way connected to said tank and independent of the body of said tank and connected to it at its lower end and extending a predetermined distance upwardly, a power-driven shaft within said passage-way, screw-propellers secured to said shaft within said passage-way, a partition or partitions extending inwardly from the inner surface of said passage-way close to said shaft, between said propellers, and operatively-arranged electrodes arranged within the body of said tank in said ore-pulp.

15. In an ore-treating apparatus, a tank constructed to hold a supply of chemical ore-pulp, means for moving said ore-pulp, and electrodes operatively supported in said tank to electrically recover the metallic values from said chemical ore-pulp, and arranged to stand at an oblique angle to the movement of said ore-pulp.

16. In an ore-treating apparatus, a tank constructed to hold a supply of ore-pulp, electrodes operatively arranged in said tank in said ore-pulp at a slight angle to the path of the flow of the ore-pulp, and means for moving said chemical ore-pulp in a vertical path in contact with said electrodes.

17. In an ore-treating apparatus, a tank having a conical bottom, an independent ore-passage in said tank connected at its bottom portion with said tank, and having its top portion exposed to the atmosphere, electrodes in said tank positioned at a slight angle to the vertical axis of said tank and operatively connected to a source of electrical-current supply and comprising groups of anodes and cathodes, a supply of chemical ore-pulp solution in said tank, and means including an operative shaft for moving and agitating said chemical ore-pulp solution in a continuous endless stream through said tank and its independent passage-way and in contact with said electrodes.

18. In an ore-treating apparatus, the combination with a tank, of the vertical passage-way, the channeled passage-ways in said passage-way, the screw-propellers and shaft in said passage-way, said tank and passage-way being provided with a supply of chemical ore-pulp solution, electrodes in said tank operatively connected to a source of current-supply, arranged at an oblique angle to the axis of said tank and arranged and adapted to electrically precipitate metals from said solutions onto said electrodes, means for introducing oxygen into said chemical ore-pulp solutions, and means for moving said ore-pulp in contact with said electrodes.

19. In an ore-treating apparatus, a tank constructed to hold a supply of cyanid ore-pulp solution, means including an independent passage-way connected to said tank for moving said cyanid ore-pulp solution in a continuous stream through said passage-way, a plurality of anodes and cathodes arranged around the interior of said tank in said supply of cyanid ore-pulp solution, means for flowing said cyanid ore-pulp solutions in a continuous circumferential showering stream into the body of ore-pulp in said tank, means for drawing said ore-pulp down through said anodes and cathodes with a slow current movement in contact with said anodes and cathodes, means for moving said ore-pulp with a more rapid movement through said passage-way than through the body of said tank, whereby said endless moving current of ore-pulp flows in contact with said anodes and cathodes with a slow gentle movement to lessen the attrition of the ore-pulp against the anodes and cathodes.

20. In an ore-treating apparatus, a tank provided with a sloping bottom and constructed to hold a supply of cyanid ore-pulp solutions, an open platform in said tank, a plurality of groups of anodes and cathodes resting on said platform at an oblique angle to the axis of said tank around the interior of said tank and in said cyanid ore-pulp solutions, means including a vertically-disposed channeled independent passage-way connected with said tank for moving said cyanid ore-pulp in a substantially vertical plane through said passage-way, and means connected with said passage-way for spreading said cyanid ore-pulp solutions in a thin circumferential stream in contact with the atmosphere and for flowing in a circumferential stream said cyanid ore-pulp solutions in contact with said plurality of groups of anodes and cathodes.

21. In an ore-treating apparatus, a tank constructed to hold a supply of cyanid ore-pulp solutions, means including an independent passage-way connected to said tank for moving said cyanid ore-pulp solutions through said passage-way, a plurality of anodes and cathodes connected to a source of current-supply, and means for discharging the ore-pulp from said passage-way into the body of ore-pulp in said tank in a finely-divided showering stream or spray of large enough area to fall into the body of ore-pulp in said tank in such a manner as not to disturb the slow even gentle downward-flowing movement of the supply of ore-pulp in said tank in contact with said electrodes.

22. In an ore-treating apparatus a tank, an inclosed passage-way connected with the body of the tank at its lower end, an ore-pulp-distributing platform connected with the top portion of said inclosed passage-way and arranged to discharge ore-pulp into said tank, and suitable electrolytic electrodes within said tank below said ore-pulp-distributing platform, operatively connected to a suitable current-generator.

23. In an apparatus for treating ores, an ore-pulp-holding tank having a conical bottom and provided with a supply of ore-pulp, a vertical independent passage-way provided with a plurality of introverted ribs arranged to divide said independent passage-way into a plurality of passages for said ore-pulp through the body of said tank to the atmosphere, an aerating-plate surrounding the top of said passage-way, a rotating shaft connected to said tank and means connected with said shaft for moving said supply of ore-pulp up said passage-way and passages and over said aerating-plate and down through said tank in a continuous endless stream, and an operative electrolytic deposition apparatus arranged in the body of said tank in the downward-flowing path of said ore-pulp.

24. In an ore-treating apparatus, a tank having a conical bottom, a valved controlled discharge-passage in the bottom of said tank, means including a valve-stem for operating said valve, an inclosed passage-way surrounding said valved discharge-aperture, a power-driven shaft connected to said tank, a supply of ore-pulp in said tank and means connected to said power-shaft for moving said ore-pulp up through said inclosed passage-way and down through said tank in a continuous stream.

25. In an ore-treating apparatus, a tank having a conical bottom, a valve-controlled discharge-aperture in said bottom, a casing surrounding said valve-controlled passage-way, and extending up to the atmosphere, pulp-inlet apertures at the lower end of said casing, a supply of chemical ore-pulp in said tank and casing, a power-shaft connected to said tank and means connected to said power-shaft for moving said ore-pulp up through said casing into contact with the atmosphere and down through said tank to said pulp-inlet apertures at the lower end of said casing and means for separating said chemical ore-pulp into a thin stream as it discharges from said casing and falls back into said tank.

26. In an ore-treating apparatus, a tank having a conical bottom, a valve-controlled discharge-aperture in said tank, a supply of chemical ore-pulp in said tank, a cylindrical casing extending from the bottom of said tank to its top and open to the atmosphere and arranged to form a passage-way in said tank independent of its body portion and provided with ore-pulp-inlet apertures, means connected with the top of said casing for exposing said ore-pulp to the atmosphere, a shaft rotatably mounted in said casing, and means connected to said shaft for moving said chemical ore-pulp up through said cylindrical casing and down through the body of said tank in a continuous endless stream, a plurality of electrolytic anodes and cathodes operatively connected to a suitable current-generator and positioned in the body of said tank in the downward vertical flowing path of said stream of ore-pulp.

27. In an ore-treating apparatus, the combination with a tank having a conical bottom, provided with a discharge-aperture, of a cage-shaped valve-seat secured to said discharge-aperture, a cylindrical casing projecting from said valve-seat a predetermined distance in said tank, a valve operatively arranged in said valve-seat and tank to control said discharge-aperture, a shaft rotatably supported in said casing screw-propellers on said shaft fitting rotatably in said casing, and vertical blades projecting from said casing to said shaft between said screw-propellers, substantially as described.

28. In an ore-treating apparatus, the combination with a tank having a conical bottom and a discharge-aperture at its lowest point, a caged valve-seat secured around said discharge-aperture, a valve seated in said valve-seat, a hollow valve-stem extending above said tank, means for operating said valve-stem and valve to control said discharge-aperture, a cylindrical casing secured to said caged valve-seat, a hollow shaft around said valve-stem, means for rotatably supporting said hollow shaft around said valve-stem and in said casing, a plurality of screw-propellers on said shaft fitting said casing and radial partitions in said casing, substantially as described.

29. In an ore-treating apparatus, the combination with the tank having a conical bottom and a discharge-aperture in said bottom, of a valve-seat casing secured to said discharge-aperture, slideways in said seat, a valve fitting said seat and slidably connected to said slideways and means for raising and lowering said valve, substantially as described.

30. In an ore-treating apparatus, the combination with the tank having a conical bottom and a discharge-aperture, of a valve-seat secured to said discharge-aperture, a valve slidably mounted in operative relation to said valve-seat, a stem secured to said valve and extending above said tank, a support for said valve-stem and a hand-wheel threaded to said stem and arranged to open and close said valve, substantially as described.

31. In an ore-treating apparatus, the combination with the tank having a conical bottom, provided with a central discharge-aperture, of a cap-ring surrounding the outside of the inverted apex of said conical bottom and its discharge-passage, a caged valve-seat casting surrounding said discharge-passage on the inside of the inverted apex of said conical bottom, means for securing said cap-ring and said valve-seat casting and said inverted apex of said conical bottom together, a valve slidably mounted in said valve-seat casting, a valve-stem secured to said valve, and means for opening and closing said valve, substantially as described.

32. In an ore-treating apparatus, the combination with the tank having a conical bottom, and a discharge-aperture in its inverted apex, of the cap-ring and the caged valve-seat, the valve slidably seated in said caged valve-seat, the valve-stem and the hand-wheel arranged to open and close said valve, of a hollow shaft surrounding loosely said valve-stem, a suitable support in said caged valve-seat for the lower end of said shaft, means including ball-bearing boxes operatively arranged to journal said shaft and to support its vertical thrust, means for rotating said propellers on said shaft, and the casing surrounding said propellers and secured to said caged valve-seat.

33. In an ore-treating apparatus, the combination with the tank, the caged valve and the valve-stem operatively arranged in said tank, of a hollow shaft surrounding loosely and rotatably said valve-stem, a suitable support for said shaft adjacent to said caged valve, journal-boxes arranged to support said shaft above said tank, collars secured to said shaft and transversely-arranged ball-bearings arranged in said journal-boxes in engagement with said collars, screw-propellers on said shaft, the casing surrounding said screw-propellers and means for rotating said shaft, substantially as described.

34. In an ore-treating apparatus, the combination with the tank, the caged valve-seat, the valve-stem, the tubular propeller-shaft mounted loosely on said valve-stem, the casing surrounding said propeller-shaft, the bearings arranged to operatively support said propeller-shaft, and means for rotating said shaft, of a suitable packed joint between the open top end of said tubular shaft and said valve-stem comprising a cap fitting on the top of said tubular shaft, and an operative packing-receptacle in said cap surrounding said valve-stem, substantially as described.

35. In an ore-treating apparatus, the combination of the tank, the tank-supporting frame, the discharge-aperture in said tank provided with a valve-seat, a valve operatively supported in said valve-seat, a valve-stem secured to said valve, means for supporting the upper end of said valve-stem above said tank, means for operating said valve; a tubular propeller-shaft surrounding loosely said valve-stem, a casing surrounding said propeller-shaft, the ball-bearing and collar for supporting said shaft and a pulley secured to said shaft, with a gland stuffing-box on the top of said shaft, and mounted on and provided with suitable packing arranged to pack said valve-stem and to close the opening into said shaft, substantially as described.

36. In an ore-treating apparatus the combination with the tank having a conical bottom, provided with a valve-controlled discharge-aperture, and an independent passage-way in the tank, a supply of chemical ore-pulp solution in said tank, electrodes in said tank comprising alternate anodes and cathodes arranged at the four quarter-points of said tank and connected to a supply of electric current, means for moving said chemical ore-pulp solutions in a continuous endless stream through said tank and passage-way, and means for supporting said electrodes in said tank to bring the surfaces of said anodes and cathodes in contact with said moving stream of chemical ore-pulp solution.

37. In an ore-treating apparatus, the combination with the tank

having a conical bottom provided with a discharge-outlet, a caged valve-seat secured to said discharge-outlet, a valve operatively arranged in said valve-seat to control said discharge-outlet, a casing secured to the top of said caged valve-seat, and inlet-passages in the sides of said caged valve-seat to said valved discharge-outlets and to said casing, of adjustable gates secured to said caged valve-seat and arranged to control said inlet-passages, substantially as described.

38. In an ore-treating apparatus the combination with the tank provided with a discharge-outlet, the caged valve-seat secured to said discharge-outlet provided with side inlet-apertures, and the casing secured to the top of said caged valve-seat, of means including gates for adjustably controlling the area of said inlets into said caged valve-seat, and said casing.

39. In an ore-treating apparatus the combination with the tank provided with a conical bottom and a discharge-aperture therein, a caged valve-seat arranged to control said discharge-aperture, a valve operatively arranged in said caged valve-seat, inlet-apertures in the sides of said caged valve-seat, and a casing secured to said caged valve-seat, of the plates adapted to partially close said inlet-apertures in said caged valve-seat, and means including bolts for adjustably securing said plates in predetermined positions to govern the area of said caged valve-seat inlet-apertures, substantially as described.

40. In an ore-treating apparatus, the combination with the tank provided with a discharge-aperture, a caged valve-seat arranged to control said discharge-aperture, a valve seated in said valve-seat, a valve-stem secured at one end to said valve and extending above said tank, a casing around said valve-stem and secured to said caged valve-seat, a tubular shaft surrounding loosely said valve-stem and rotatably mounted in said casing, a thread on the lower end of said shaft, a cap threaded partially on the threaded end of said shaft, a tubular rubber washer in said cap extending up into said shaft and arranged to surround and bear against said valve-stem, and a steadying-support for said cap in said caged valve-seat, substantially as described.

41. In an ore-treating apparatus, the combination with the tank provided with a tubular casing extending from its bottom to its top portion and connected at its bottom portion with the body of said tank, of a flanged ring secured to the top of said casing, a plurality of conically-arranged joists extending from said flanged ring to the inner periphery of said tank and spaced equidistant apart around the periphery of said flanged ring and said tank and segment-shaped doors removably secured between said joists, and arranged to form a space between their peripheral edges and the inner periphery of said tank, substantially as described.

42. In an ore-treating apparatus, a tank provided with a discharge-valve and an inclosed passage-way connected with the body of the tank at its lower portion with an ore-pulp-distributing platform connected with the top portion of said inclosed passage-way and arranged to discharge ore-pulp into said tank, and provided with independent removable sections having convexed surfaces.

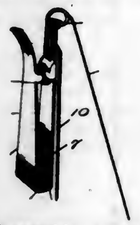
43. In an ore-treating apparatus, an ore-pulp-holding tank provided with a casing arranged to form an independent passage-way in said tank for said ore-pulp, a conical, disk-shaped pulp-distributing surface connected to the upper portion of said ore-pulp independent passage-way and arranged to discharge said ore-pulp into said tank, and provided with door-controlled apertures.

44. In an ore-treating apparatus, the combination with an ore-pulp-holding tank provided with a conical bottom having a valve-controlled discharge-aperture therein, a cylindrical casing in said tank arranged to form an independent passage-way for said ore-pulp and extending from the bottom of said tank into the atmosphere, of a conical, ore-pulp-distributing surface connected to the top of said casing and adapted to distribute ore-pulp in a thin stream over its conical surface in contact with the atmosphere and to discharge said ore-pulp into said tank and having said conical ore-pulp-distributing surface provided with doors having convex surfaces registering with the curve of the said conical ore-pulp-distributing surface, and means connected with said casing and tank for moving said ore-pulp up through said casing.

45. In an apparatus for the treatment of solution, a solution-holding tank, an independent vertical passage-way in said tank having independent channel-ways therein, and means including a propeller-pump for moving said solutions in a continuous vertical stream through said passage-way and the body of said tank.

46. In an apparatus for agitating solutions, a solution-holding tank, a vertical passage-way in said tank, the cage at the bottom of said passage-way provided with adjustable gates, an operative discharge-valve in said cage, a deflector at the top of said passage-way, and means, including a suitable pumping or solution-lifting device, for moving said solutions up through said passage-way and through the body of said tank.

785,215. BOOK-MARK. GEORGE W. HILL, Brookfield, Wash. Filed Aug. 3, 1904. Serial No. 219,336.



Claim.—A book-mark comprising a spring-clip including two hinged members and a spring arranged to hold the forward ends of the members yieldably in mutual engagement, a ring attached to the rearward end of one of the members, a pin secured at one end to one of the members adjacent to its rearward end and extending longitudinally of the member and spaced therefrom and projecting beyond the forward end thereof, and a cord secured at one end to the ring.

785,216. STARCH MATERIAL. JULIUS KANTOROWICS, Breslau, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Apr. 8, 1904. Serial No. 202,961.

Claim.—The herein-described new modified form of starch being, when dried and pulverized, a white powder which exhibits the characteristic property of swelling up with cold water to a viscous-mass-like starch-paste, but not dissolving in water like water-soluble starch, substantially as hereinbefore described.

785,217. SLEEVE-EXPANDER. ANNA KAUFMANN, New York, N. Y. Filed Jan. 13, 1905. Serial No. 240,872.



Claim.—1. A sleeve-expander composed of a textile body having transverse stays, an upper pocket, an inclosed elastic band, and clasps secured to the pocket, substantially as specified.

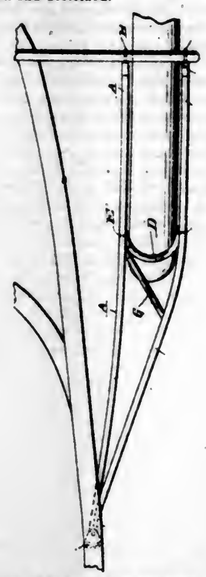
2. A sleeve-expander composed of a textile body having transverse stays, an upper pocket and a lower pocket, inclosed elastic bands that terminate at points above the armpit, and clasps secured to the upper pocket, substantially as specified.

785,218. DRAW-BRACE FOR SULKIES. HARRY D. KEELER, Marion, Ohio. Filed July 9, 1904. Serial No. 215,913.

Claim.—1. In joints for tubing having converging members, the meeting ends of the tubes bent or swaged to form a conical opening, a conical plug to fit said opening, and means to secure said parts together, substantially as shown and described.

2. A brace-fork for sulkies comprising two arms adapted to be secured at one end on opposite sides of the wheel, an arch-shaped brace secured to the two arms of the fork in front of said wheel, and a straight brace secured in the angle, formed by the inner arm and the arch-shaped brace and to the outer arm, said arms being converged at their free ends and secured to the sulky-thill, substantially as shown and described.

3. A brace-fork for sulkies comprising two arms adapted to be secured at one end on opposite sides of the wheel, an arch-shaped brace secured to the two arms of the fork in front of said wheel, the two arms bent inwardly in front of said arch-shaped brace, in converging lines, and a straight brace secured in the angle formed by the inner arm and the arch-shaped brace and to the outer arm, substantially as shown and described.



4. In a tubular wheel-fork, the head provided with a conical extension, the ends of the fork-arms bent or swaged to fit said conical extension, and said conical extension and tube ends riveted and brazed together, substantially as shown, and described.

5. A brace-fork for sulkies comprising two arms adapted to be secured at one end on opposite sides of the wheel, an arch-shaped brace having its ends bent or swaged to conform to the inner surfaces of the two arms of the fork and secured in front of said wheel by riveting and brazing the ends of said arch-shaped brace to the arms of the fork, the two arms of the fork bent inwardly in front of said arch-shaped brace in converging lines, and a straight brace secured in the angle formed by the inner arm and the arch-shaped brace and to the outer arm, substantially as shown and described.

785,219. COLOR-SENSITIVE PHOTOGRAPHIC EMULSION AND PROCESS OF MAKING SAME. KARL KIESER, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Oct. 30, 1903. Serial No. 179,183.

Claim.—1. In the art of producing color-sensitive photographic emulsions the process which consists in first treating silver compounds sensitive to light with suitable sensitizing-dyestuffs and then emulsifying the so-dyed products, substantially as described.

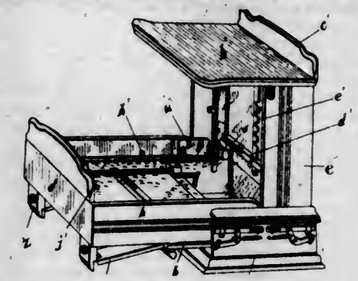
2. The herein-described color-sensitive photographic materials which, as the spectroscopic test shows, contain colored grains of silver salt, while the emulsifying agent itself remains uncolored, substantially as described.

785,220. FOLDING BED. GEORGE KNAGGS, Toronto, Canada. Filed Sept. 5, 1903. Serial No. 172,085.

Claim.—1. In a folding bed the combination of the base element having hinged side members, two pivoted bed-sections maintained in their closed position by their engagement with the hinged side members of the base element, a locking mechanism to hold the bed-sections in their adjusted position and means actuated by the locking mechanism to displace the hinged side members from their locking contact with the bed-sections, when in their closed position.

2. In a folding bed the combination of the base element having hinged side members, two bed-sections having their inner ends pivotally connected to the base element and when closed together partly supported by the hinged side members, a locking mechanism for the bed-sections to hold them in their folded and extended positions, and means actuated by the locking mechanism to open the hinged side members to release the bed-sections.

3. In a folding bed the combination of the base element having hinged side members, two bed-sections having their inner ends pivotally connected to the base element and when closed together partly supported by the hinged side members and a locking mechanism for the bed-sections to hold them in their folded and extended positions and when actuated to open the hinged side members to release the bed-sections, and means to hold one of the sections at an inclination to the other assisted by one of the hinged side members.



4. In a folding bed the combination of a base element having hinged side members, two bed-sections the inner ends of which are pivotally connected to the base elements, said bed-sections arranged to be folded together vertically and partly supported by the hinged side members when folded and to be extended longitudinally, foldable feet positioned by the adjustment of the bed-sections to support their outer ends when extended, the inner ends of the bed-sections being supported by their pivotal connections with the base element, a locking mechanism to hold the bed-sections in their adjusted position, and means actuated by the locking mechanism to displace the hinged side members from engagement with the bed-sections when in their closed position.

5. In a folding bed the combination of the base element having hinged side members, two bed-sections having their inner ends pivotally connected thereto, a mattress-section for each bed-section, links connecting the inner ends of the mattress-sections whereby they are arranged to relax the mattress-bottom as the bed-sections are folded together and stretch it as they are extended, the bed-sections when in their folded position being supported by the hinged side members of, and their pivotal connections with, the base element.

6. In a folding bed the combination of the base element having hinged side members, two bed-sections having their inner ends pivotally connected thereto, a mattress-section for each bed-section, links connecting the inner ends of the mattress-sections whereby they are arranged to relax the mattress-bottom as the bed-sections are folded together and stretch it as they are extended, the bed-sections when in their folded position being supported by the hinged side members of, and their pivotal connections with, the base element, and a locking mechanism for the bed-sections to hold them in their adjusted position.

7. In a folding bed the combination of a base element two bed-sections having their inner ends pivotally connected to the base element, hinged front and rear side members for the base element, locking-bolts to engage the inner ends of the bed-sections and hold them in their folded and extended positions, locking-bars to actuate the locking-bolts, and means to actuate the locking-bars, substantially as described.

8. In a folding bed the combination of a base element two bed-sections having their inner ends pivotally connected to the base element, hinged front and rear side members for the base element, locking-bolts to engage the inner ends of the bed-sections and hold them in their folded and extended positions, locking-bars to actuate the locking-bolts, means connected to the locking-bars to engage and displace the front and rear side members as the locking-bolts are actuated to release the bed-sections, substantially as described.

9. In a folding bed, the combination of a base element having movable front and rear side members, two bed-sections pivotally connected to the base element and arranged to open the hinged side members of the base element as they move into their extended position, adjustable feet to support the outer ends of the bed-sections when in their extended position, and feet-operating levers actuated by the hinged side members to adjust the feet to support the bed-sections as they move to their extended position, substantially as described.

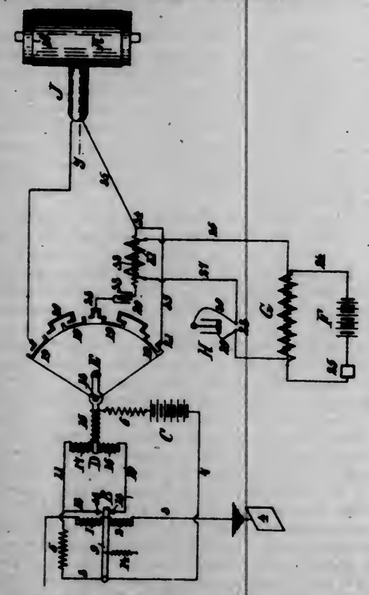
10. In a folding bed the combination of a base element having movable front and rear side members, two bed-sections pivotally connected to the base element and arranged to open the hinged side members as they move into their extended position, adjustable feet to support the outer ends of the bed-sections in their extended position, foot-operating levers actuated by the hinged side members to adjust the feet to support the bed-sections as the bed-sections move to their extended positions and means to return the feet and foot-operating levers to their normal position as the bed-sections are folded together, substantially as described.

11. In a folding bed, the combination of a base element having movable front and rear side members, two bed-sections pivotally connected to the base element and arranged to open the hinged side members as they move into their extended position, adjustable feet to support the outer ends of the bed-sections in their extended position, foot-operating levers actuated by the hinged side members to adjust the feet as the bed-sections move to their extended position, spring-tensioned cross-heads for the bed-sections, and links connected to the cross-heads and foot-operating levers, substantially as described.

12. In a folding bed, the combination of a base element having movable front and rear side members, two bed-sections pivotally connected to the base element and arranged to open the hinged side members as they move into their extended position, adjustable feet to support the outer ends of the bed-sections in their extended position, foot-operating levers actuated by the hinged side members to adjust the feet as the bed-sections move to their extended position, spring-tensioned cross-heads for the bed-sections, links connected to the cross-heads and foot-operating levers, and a stopping means for one of the cross-heads to hold it in an adjusted position to prevent the outward movement of the foot-operating levers, substantially as described.

13. In a folding bed the combination of the base element having hinged side members, two bed-sections pivotally connected to the inner surfaces of the end members for the base element and supported in their closed position by the hinged side members, a locking mechanism to hold the bed-sections in their adjusted position and means actuated by the locking mechanism to displace the hinged side members from engagement with the bed-sections during the actuation of the locking mechanism to release the bed-sections.

785,221. AUTOMATIC TELEGRAPHY. ARTHUR KORN, Munich, Germany. Filed Nov. 9, 1903. Serial No. 180,494.



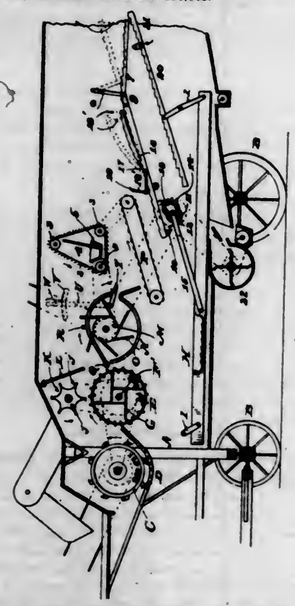
Claim.—1. The method of registering telegraphic electrical impulses or disturbances, which consists in circulating a high-tension current, for instance Tesla currents, in a receiving-circuit, and causing each of the telegraphic electrical impulses or disturbances coming from the line to insert in said receiving-circuit a windowed cathodic tube, so that by the transmission of a radiation through the window of this tube an impression is produced on a moving sensitive film, paper or the like.

2. The method of registering telegraphic electrical impulses or disturbances, which consists in circulating a high-tension current, for instance Tesla currents, in a receiving-circuit, and causing each of the telegraphic electrical impulses or disturbances coming from the line to insert in said receiving-circuit either one or two windowed cathodic tubes according to the impulses or disturbances being of the one or opposite polarity, so that by the transmission of a radiation through the window of either or each of these tubes an impression is produced on a moving sensitive film, paper or the like.

3. The method of registering telegraphic electrical impulses or disturbances, which consists in circulating a high-tension current, for instance Tesla currents, in a receiving-circuit, and causing each of the telegraphic electrical impulses or disturbances coming from the line to insert in said receiving-circuit a windowed cathodic tube by means of a relay-armature with a plurality of insulated metallic conductors, so that by the transmission of a radiation through the window of the cathodic tube an impression is produced on a moving sensitive film, paper or the like.

4. The method of registering telegraphic electrical impulses or disturbances, which consists in circulating a high-tension current, for instance Tesla currents, in a receiving-circuit, and causing each of the telegraphic electrical impulses or disturbances coming from the line to insert in said receiving-circuit by means of either of two relay-armatures with a plurality of insulated metallic conductors either one or two windowed cathodic tubes according to the impulses or disturbances being of the one or the opposite polarity, so that by the transmission of a radiation through the window of either or each of the cathodic tubes an impression is produced on a moving sensitive film, paper or the like.

785,222. GRAIN-SEPARATOR. EMIL M. KRAMER, Cissnapark, Ill. Filed July 15, 1904. Serial No. 216,640.



Claim.—1. In a grain-separator, the combination with the shelling-cylinder and its concave, of a seed-catching cylinder behind the first, the same adapted to receive the grain and deposit it in quantities to the grain-cleaning mechanism, a beater above the grain-catching cylinder, a second beater behind the grain-catcher, and a vertically-adjustable grating above said second beater and means for adjusting it for the purposes set forth.

2. In a grain-separator, the combination of the shelling-cylinder and its concave, a revoluble beater rearward of the said cylinder and acting with the cylinder to separate the grain, said beater comprising a series of fingers, a vertically-adjustable grating for the beater through which the fingers extend, and means for adjusting the grating to expose more or less of the length of said fingers.

3. In a grain-separator, the combination of the shelling-cylinder and its concave, a revoluble beater located rearward of the cylinder and comprising a series of fingers, a grating above said beater capable of vertical adjustment for exposing more or less length of the fingers, means for adjusting said grating, a revoluble grain-catching cylinder interposed between the shelling-cylinder and the beater consisting of a series of substantially horizontal slats placed tangential to a circle concentric with and smaller than the outer surface circle of said grain-catching cylinder, substantially as shown and described to form a hollow open cylinder, there being a series of pockets within the cylinder for catching the grain entered between the slats from the shelling-cylinder substantially as set forth.

4. In a grain-separator, the combination of the shelling-cylinder and its concave, a beater above and rearward of the said cylinder, a revoluble grain-catching cylinder beneath said beater, the same comprising a series of substantially horizontal slats tangential to a circle concentric with and smaller than the outer surface circle of said grain-catching cylinder, substantially as shown, partitions placed within the cylinder thus constructed substantially parallel with the said axis to form longitudinal pockets for the purposes explained, a beater rearward of the grain-catching member, and a vertically-movable grating through which the teeth of the beater extend, said grating adapted to expose more or less length of the fingers.

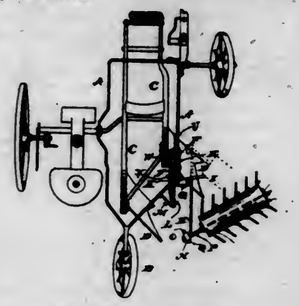
5. In a grain-separator, the combination of the shelling-cylinder and its concave, a beater above and rearward of the said cylinder, a revoluble grain-catching cylinder beneath said beater, the same comprising a series of substantially horizontal slats placed tangential to a circle concentric with and smaller than the outer surface circle of said grain-catching cylinder, substantially as shown, partitions placed within the cylinder thus constructed substantially parallel with the said axis to form longitudinal pockets for the purposes explained, a beater rearward of the grain-catching member, a vertically-movable grating through which the teeth of the beater extend, said grating adapted to expose more or less length of the fingers, and means for imparting vertical movement to the grating and sustaining it wherever placed.

6. In a grain-separator the combination of the shelling-cylinder and its concave, a revoluble beater located rearward of the cylinder and comprising a series of fingers, a grating capable of vertical adjustment for exposing more or less length of the fingers, means for adjusting said grating, a revoluble grain-catching cylinder interposed between the shelling-cylinder and the beater consisting of a series of substantially horizontal slats placed tangential to a circle concentric with and smaller than the outer surface circle of said grain-catching cylinder substantially as shown and described and forming a hollow open cylinder, a series of partitions within the cylinder each extending from the vicinity of the axis of the cylinder toward the slats to form grain-receiving pockets, one of the slats constituting the peripheral termination of each said partition.

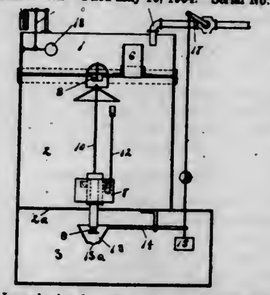
7. In combination with the threshing-cylinder, concave and beater of a grain-separator, a pair of straw-racks arranged in tandem in substantially the same plane for vibratory movement, a shaft for imparting vibrating movement to the rack nearest the shelling-cylinder and by which the said rack is supported at that end, the second rack having pivotal connection at one end with the opposite end of the first, a pair of arms hung from the sides of the separator and affixed to the said second rack, each movement of the first rack in the direction of the second imparting a vertical vibratory motion to the latter as described, a rock-shaft carried by the first rack across the same, a series of serrated arms rigidly secured to the said rock-shaft, an arm secured at each end of the shaft and extending in an opposite direction from the said serrated arms, and a hanger at each side of the separator and pivoted thereto at one end, the opposite ends of the hangers having pivotal connection with the free ends of the arms on the ends of the rock-shaft as shown and for the purposes described.

785,223. COMBINED PLOW AND HARROW. EMIL M. KRAMER, Cissnapark, and JOSEPH B. KRAMER, Peoria, Ill. Filed July 20, 1904. Serial No. 217,343.

Claim.—In a riding-plow, the frame and wheels thereof, a rock-arm journaled on the frame and adapted to be raised and lowered, a harrowing member carried at the free end of the arm at an acute angle to the line of movement of the plow, a hand-lever pivoted on the plow-frame for raising and lowering the rock-arm and its harrowing member, a spring connected at one end with the rock-arm and at the other to the blow-frame for yieldingly holding the harrowing member in contact with the ground, a notched sector in the vicinity of the hand-lever and a spring-catch on the lever for engaging the sector substantially as set forth.



785,224. AUTOMATIC MEASURING-TANK. FREDERICK N. LOWRY, Midland, Mich. Filed May 16, 1904. Serial No. 208,253.



Claim.—1. In a device for automatically measuring fluids, the combination with a receiving-compartment, a measuring-compartment and a discharge-chamber; of an inlet-valve connecting the receiving-compartment with the measuring-compartment; a discharge-pipe connecting the measuring-compartment with the discharge-chamber; a discharge-valve located in said pipe; an inverted cup inclosing the upper end of said pipe; a rod secured to said cup and adapted to actuate said inlet-valve; an upright cup within said inverted cup; and a U-shaped pipe connecting with said upright cup and projecting above the discharge-level of the liquid.

2. In a device for automatically measuring fluids the combination with a measuring-compartment; of a receiving-compartment having a valve communicating with the measuring-compartment; a discharge-pipe located in the bottom of the measuring-compartment; a discharge-valve in said pipe; an inverted cup inclosing the upper end of said pipe; a rod secured to said cup and adapted to actuate said inlet-valve; a rod secured at its upper end to said inverted cup and at its lower end to the discharge-valve; an upright cup within said inverted cup; and a U-shaped pipe connecting with said upright cup and projecting above the discharge-level of the liquid.

3. In a device for automatically measuring liquids, the combination with a receiving-compartment, a measuring-compartment and a discharge-chamber; of an inlet-valve connecting the receiving-compartment with the measuring-compartment; a discharge-pipe connecting the measuring-compartment with the discharge-chamber; a discharge-valve located in said pipe; an inverted cup within the measuring-compartment and adapted by its buoyancy when filled with air to hold open the inlet-valve and to hold closed the discharge-valve; together with means for automatically discharging the air from said inverted cup when the level of the liquid in the measuring-tank has reached a predetermined position.

4. In a device for automatically measuring liquids, the combination with a receiving-compartment, a measuring-compartment and a discharge-chamber; of an inlet-valve connecting the receiving-compartment with the measuring-compartment; a discharge-pipe connecting the measuring-compartment with the discharge-cham-

ber; a discharge-valve located in said pipe; an inverted cup within the measuring-compartment and adapted by its buoyancy when containing air to hold open the inlet-valve and to hold closed the discharge-valve; together with a pipe connecting the air-space of said inverted cup with the air-space of said measuring-tank; the upper end of said pipe being located near the predetermined discharge-level of the measuring-tank.

5. In a device for automatically measuring liquids, the combination with a receiving-compartment, a measuring-compartment and a discharge-chamber; of an inlet-valve connecting the receiving-compartment with the measuring-compartment; a discharge-pipe connecting the measuring-compartment with the discharge-chamber; a discharge-valve located in said pipe; an inverted cup within the measuring-compartment and adapted by its buoyancy when containing air to hold open the inlet-valve and to hold closed the discharge-valve; together with an upright cup inclosed within said inverted cup, said upright cup being provided with a pipe, the upper end of said pipe being located near the predetermined discharge-level in said tank; substantially as described.

6. A valve-actuating float for devices of the class described, comprising an inverted annular cup; an upright cup inclosed within said inverted cup; a U-shaped pipe communicating with said upright cup and projecting up above the inverted cup, for the purposes set forth.

7. A valve-actuating float for devices of the class described, comprising an inverted cup; an upright cup inclosed within said inverted cup; a U-shaped pipe communicating with said upright cup and projecting up above the inverted cup, for the purposes set forth.

8. In a liquid-measuring device, means for actuating the inlet and discharge openings of said device, said means comprising in combination with an air-chamber subjected to hydrostatic pressure of the liquid being measured, a pipe communicating with said chamber said pipe being adapted to automatically release air from said chamber when the pressure produced therein by the hydrostatic head of the liquid being measured reaches a predetermined amount, for the purpose set forth.

9. In a liquid-measuring device, means for actuating the inlet and discharge valves of said device, said means comprising in combination with an air-chamber subjected to hydrostatic pressure of the liquid being measured, a pipe communicating with said chamber and adapted to automatically form a water seal in said pipe to automatically release air from said chamber when the pressure produced therein by the hydrostatic head of the liquid being measured reaches a predetermined amount, for the purposes set forth.

10. In a liquid-measuring device, an air-chamber having its upper part air-tight, the air contained therein being subject to the hydrostatic pressure of the liquid being measured; together with a liquid-containing pipe communicating with said air-chamber and adapted to automatically release the air therefrom when the pressure exerted upon the air in said chamber by the liquid being measured exceeds the counter-pressure of the liquid in said pipe.

785,225. BAND-CUTTER. JAMES S. MANLY, Taylor, Tex. Filed Nov. 27, 1903. Serial No. 183,762.

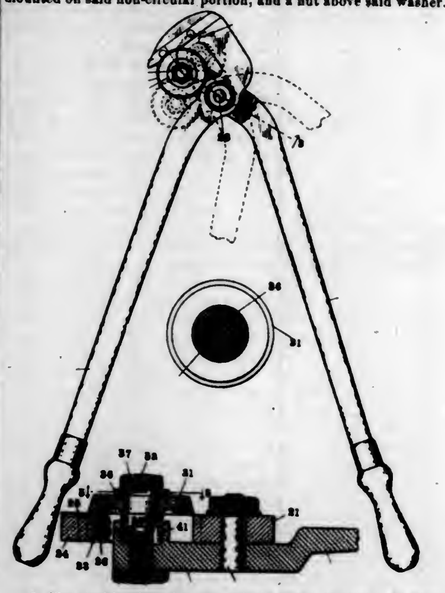
Claim.—1. A band-cutter comprising pivotally-connected handles, a cutting edge carried by the outer end of one of the handles and a laterally-adjustable cutting-disk mounted upon the other handle, substantially as and for the purposes specified.

2. A band-cutter comprising pivotally-connected handles, a cutting edge carried by the outer end of one of the handles, and a laterally-adjustable cutting-disk mounted upon the outer end of the other handle, the cutting edge being provided with a notch adapted to receive and hold the band which is to be cut.

3. In a band-cutter, a cutting-disk mounted upon the outer end of one of the handles, the disk being beveled toward its base, and provided on its lower face with a concentric circular depression, an axle screwed through the handle and upon which the disk is rotatably mounted, a thread and nut on the axle to hold the disk thereon, and a nut whereby the axle is locked to the handle, substantially as described.

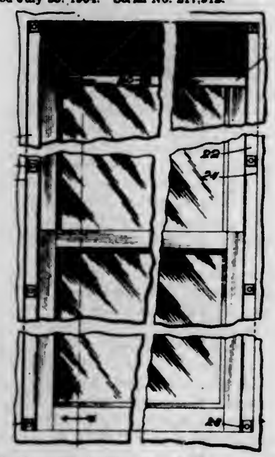
4. The combination of a supporting member having a chamber, a spindle mounted in said supporting member and having a portion fitted into said chamber, a rotary cutter mounted on said spindle, means for adjusting said spindle longitudinally, the enlarged portion of said spindle fitting within said chamber and supporting the spindle and cutter at all points of adjustment.

5. The combination of a supporting member, a spindle carried thereby and provided with a bearing for a cutter and with a collar on one side of said bearing and a non-circular portion on the other side of said bearing, a rotary cutter mounted on said bearing, a washer mounted on said non-circular portion, and a nut above said washer.



6. The combination of a supporting member having a chamber on one side and a screw-threaded perforation arranged centrally of said chamber and extending through said support, a spindle having a screw-threaded portion entering said screw-threaded perforation and a collar fitting within the surrounding chamber, a rotary cutter mounted on said chamber, and means for adjusting said spindle longitudinally.

785,226. WINDOW-SCREEN. BARNEY MCCOY, St. Louis, Mo., assignor of two-thirds to W. L. Beecher and Charles G. Woods, St. Louis, Mo. Filed July 25, 1904. Serial No. 217,913.

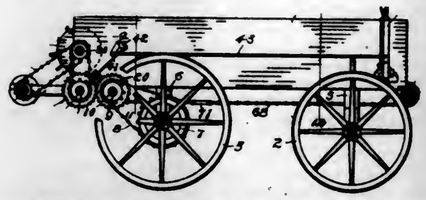


Claim.—1. In a window-screen: rigid rear guide-plates 25; rigid front guide-plates in apposition to the rear guide-plates; a window-screen mounted to move up and down between the front and rear guide-plates; a movable binding-strip upon the lower edge of the screen; there being slits 32, 33, 34, 35, 36, and 37 formed through the rear rigid guide-plates 25; the portion 38 between the slits 34 and 35 being cut away; and the portion 39 and 40 between the slits 32 and 33, and the slits 36 and 37 being pressed backwardly; and stops

formed of leaf-springs comprising the central portions 21 extending through the openings 38; and in position to engage the ends of the movable binding-strip; and the end portion 42 extending through the slits 32 and 33; and the end portion 43 extending through the slits 36 and 37; substantially as specified.

2. In a window-screen: the rigid binding-strips 22 and 23, each comprising the rear guide-plate 25; the front guide-plate 26; the U-shaped portion 27 connecting the plates 25 and 26; the brackets 28 secured to the front plate and adapted to be secured to the window-frame; the upper end of each plate 25 being cut short: a spring-roller; a screen attached to and wound upon the spring-roller; a guide-bar above the spring-roller; said screen extending over the guide-bar and over the short ends of the plate 25 and downwardly between the plates 25 and 26; a movable binding-strip upon the lower edge of the screen; there being slits 32, 33, 34, 35, 36 and 37 formed through the plates 25; the portion 38 between the slits 34 and 35 being cut away; and the portions 39 and 40 between the slits 32 and 33, and 36 and 37 being pressed backwardly; and stops formed of leaf-springs comprising the central portions 21 extending through the openings 38; and the end portion 42 extending through the slits 32 and 33; and the end portion 43 extending through the slits 36 and 37; substantially as specified.

785,227. MANURE-SPREADER. JAMES S. PATCH, Milledgeville Ill. Filed July 18, 1904. Serial No. 216,931.



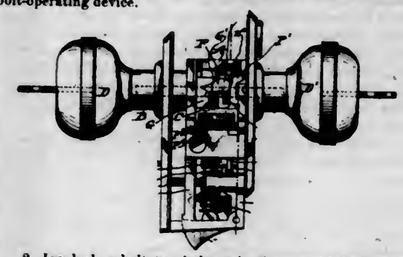
Claim.—1. In a machine of the class named, the combination with a wagon-box of the shaft 10, journaled on the under side of the box, near the rear end thereof, mechanism for suitably rotating such shaft from either of the rear driving-wheels, independently of the other; the gear-wheel 20, fixed on the shaft 10; the rotary shaft 22, journaled on the under side of the box 1, at the rear end thereof; the gear-wheel 21, supported on the shaft 22, so as to rotate independently thereon, and provided with the clutch 26; the sprocket-wheel 23, also supported on the shaft 22, so as to rotate independently thereon, and provided on its inner face with the clutch 25; such clutch being normally in engagement with the clutch 26; the shaft 30, journaled in the sides of the box 1, above the shaft 22; the cylinder 29, fixed on the shaft 30; means for imparting rotation from the wheel 23 to the shaft 30; and means for throwing the clutches 25 and 26 out of engagement, substantially as shown and described.

2. In a machine of the class named, the combination with a wagon-box of the rotary shaft 30, provided on one end with the crank 47; the rotary shaft 22, provided on one end with the ratchet-wheel 45; the arms 46 pivotally secured to, and depending from the crank 47, the lower ends of such arms engaging the ratchet-face of the wheel 45; the bracket 48, secured to the side of the box 1; the frame 50, projected rearwardly from the bracket 48 and provided with slots 51; the movable box 49, supported on the bracket 48; springs 53, fixed in the box 49, and loosely engaging the arms 46 at their free ends; and means for suitably operating the box 49 from the forward end of the wagon-box, substantially as shown and for the purpose named.

3. The combination of a wagon-body the rotary shaft 22, supported at the rear end of the wagon-body; the ratchet-wheel 45, on the end of such shaft; the rotary shaft 30, supported in the end of the wagon-body, above the shaft 22; a pair of arms 46, eccentrically supported on the end of the shaft 30, and engaging the wheel 45, alternately; the movable box 49, supported on the side of the wagon-body; a pair of springs 53, secured in the box 40, and connected with the arms 46; and means for automatically operating the box 49 from the movement of the conveying mechanism, substantially as shown and described.

785,228. LOCK AND LATCH. BYRON PHELPS, Seattle, Wash. Filed Apr. 29, 1904. Serial No. 205,445.

Claim.—1. In a lock, a bolt, two independent rotatable bolt-actuating devices accessible from opposite sides of the door, a key-passage leading thereto at the outer and at the inner sides of the lock and means for holding one of said bolt-actuating devices against rotation when the bolt has been advanced by the rotation of the other bolt-operating device.



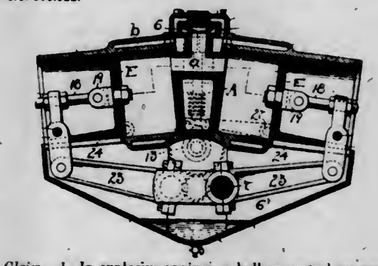
2. In a lock, a bolt, two independently-rotatable bolt-actuating devices, a key-passage at the outer and inner sides of the lock, means for holding the outer bolt-actuating device against rotation when the bolt has been advanced by the rotation of the inside bolt-operating device.

3. In a lock, a bolt, a bolt-actuating device accessible from the inside of the door and operative by means of a key, and means coöperating therewith to prevent the removal of the key when the bolt is advanced.

4. In a lock, a bolt, bolt-actuating devices operable from both sides of the lock by means of a key and means coöperating therewith to prevent the removal of a key introduced at the inner side of the lock and rotated to throw the bolt said means being in operation only when the bolt is advanced.

5. In a lock, a bolt, a bolt-actuating device accessible from both sides of the door and operative by means of a key and means coöperating therewith to prevent the removal of the key inserted from the inside of the door when said bolt is advanced.

785,229. EXPLOSIVE-ENGINE. WILLIAM C. RISBRIDGER and MILTON W. RISBRIDGER, Cleveland, Ohio. Filed Oct. 28, 1903. Serial No. 178,922.



Claim.—1. In explosive-engines, a hollow central supporting head and water-chamber provided with opposite walls forming the inner ends of the explosion-chambers, and a cylinder at either side of said central head closed against said walls and having a water-jacket open to said water-chamber, pistons within said cylinders and connecting-rods and means therefrom uniting the same to said pistons and constructed to travel bodily back and forth with the pistons, and a crank-shaft and cranks for said connecting-rods.

2. In explosive-engines, a central supporting-head provided with a water-chamber, a pair of cylinders mounted on opposite sides of said head at a downward inclination therefrom at their outer ends and provided with a slot at their lower and outer portions, pistons for said cylinders, a centrally-arranged crank-shaft between said pistons, and connecting-rods and parts therefrom to said pistons constructed and arranged to travel bodily back and forth with said pistons and connecting-rods, said rods arranged on converging lines with said cylinders and said parts adapted to travel and be guided within said slots.

3. In explosive-engines, the combination of a pair of cylinders oppositely disposed and a central supporting member provided with walls forming the inner heads for said cylinders, and a cross-passage between said cylinders in said supporting member, a water-chamber surrounding said cross-passage, a removable cap upon said member having a port open to said passage and provided with a water-passage open to said chamber, an inlet and exhaust valve mounted in

said port, pistons for said cylinders and a crank-shaft and connecting-rods to operate same.

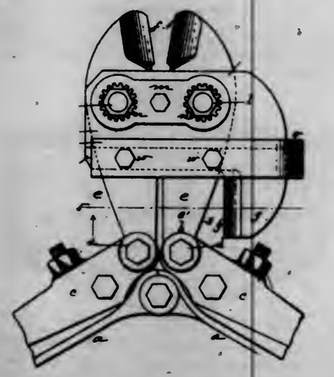
4. In engines, a set of oppositely-disposed cylinders and a support therefor, a centrally-arranged crank-shaft, pistons for said cylinders, and adjustable crank connections for said pistons to change the degree of compression, said connections comprising the connecting-rods, and an arm pivotally supported on the piston and adapted to travel bodily with the piston and connected at one end with the connecting-rods and at the other end adjustably connected by a threaded part with the piston, said arm forming a rigid part of said piston when adjusted.

5. In engines, a set of oppositely-disposed cylinders and pistons therein, water-jackets for said cylinders, a separate central supporting member for said cylinders having inner heads therefor and provided with a central water-chamber open to said water-jackets, an inlet and outlet valve in the top of said member for both cylinders, a crank-shaft at the bottom of said member, an adjustable arm operatively connected with each piston and forming a rigid part thereof when adjusted, and connecting-rods engaging said arms and crank-shaft.

6. In engines, the cylinders provided with slots at their bottom, a crank-shaft, pistons within said cylinders and an arm mounted upon and adjustably connected with each piston, means to adjust the piston in respect to said arm and fix the compression-space, and a connecting-rod between said crank-shaft and said arm.

7. In engines, a central supporting-head having oppositely-inclined faces, a set of cylinders mounted at right angles to said faces and pistons in said cylinders, a crank-shaft supported in the bottom of said head, slots within said cylinders and arms mounted upon said pistons and adapted to travel within said slots and connecting-rods for said cranks and arms.

785,230. COMBINED BOLT-CLIPPER AND SHEARS. FREDERICK A. ROBERTS, Somerville, Mass. Filed Jan. 12, 1905. Serial No. 240,670.



Claim.—1. A combined bolt-clipper and shear, comprising the cutting-jaws *e*, operating-handles for spreading and closing the cutting edges on said jaws, a top strap extending from one of said jaws to the other and pivoted thereto, and a shear-blade extending from said top strap along and with relation to the outer edge of one of the cutting-jaws whereby the inner edge of the shear-blade and the outer edge of said cutting-jaw are both utilized as blades for cutting metallic plates and the like, and operated by said handles.

2. A combined bolt-clipper and shear, comprising the cutting-jaws *e*, operating-handles for spreading and closing the cutting edges on said jaws, a top strap extending from one of said jaws to the other and pivoted thereto, and the shear-blade *g* provided with the inner cutting edge *g'*, said shear-blade extending from the top strap at approximately right angles therewith along the outer edge of the cutting-jaw on that side whereby the cutting-jaw and shear-blade are both operated as cutting-blades by the handles.

3. In a combined bolt-clipper and shear, the combination with one of the cutting-jaws *e* and a shear-blade extending along the outer edge of said cutting-jaw whereby the said jaw and blade are operated to produce a shear cut, and the top strap; of a keeper comprising the shank *p* secured to the top strap, the portions *v* and *t* bent around said cutting-jaw to the opposite side thereof, and the arm *v* adapted to engage the article to be cut and prevent it from bending up or spreading the said jaw and blade.

785,231. COMPOSITION FOR POLISHING AND ABRADING TOOLS. WELDON ROBERTS, Glenridge, and GEORGE S. COXE, Newark, N. J., assignors to C. Roberts Rubber Company, a Corporation of New Jersey. Filed Feb. 27, 1904. Serial No. 196,535.

Claim.—1. A composition for polishing or abrading or relieving tools, composed of rubber, sulfur, hair, and an abrading or polishing substance.

2. A composition for polishing or abrading or relieving tools, consisting of a mass of vulcanized rubber having hair and a polishing or abrading material incorporated in such mass.

3. A composition for polishing or abrading and relieving tools, consisting of a mass of rubber to which is added and thoroughly incorporated therein, sulfur, hair, coloring material, a hardening material, and a quantity of abrading or polishing material.

4. A composition for polishing or abrading and relieving tools consisting of a mass of rubber to which is added and thoroughly incorporated therein, sulfur, hair, coloring material, a hardening material, a body-making or burnishing material, and a quantity of abrading or polishing material.

5. A polishing or abrading tool having as its constituent elements a mass of soft vulcanized rubber having incorporated within such mass a quantity of polishing or abrading and burnishing material, hair and coloring-matter.

6. A polishing or abrading tool, having as its constituent elements a mass of soft vulcanizing rubber having incorporated within such mass a quantity of polishing or abrading material, hair, coloring-matter, and a hardening material.

7. A polishing or abrading tool having as its constituent elements a mass of soft, vulcanizing rubber, having incorporated within such mass a quantity of emery, hair, rouge, and zinc sulfite.

8. A polishing or abrading tool having as its constituent elements rubber, sulfur, lime, emery, hair, rouge, and zinc sulfite.

785,232. DISPLAY-BIN. HENRY G. ROTH, Minneapolis, Minn. Filed Dec. 2, 1904. Serial No. 235,248.



Claim.—1. The combination with a bin or can having in its top plate a three-sided opening, two of which sides are curved outward and one of which sides is curved inward, of a lid or door of approximately the same form as said opening, pivoted at one corner in the vicinity of one corner of said opening, substantially as described.

2. The combination with a bin or can having an inclined top formed with an opening, of a lid pivoted at one side of said top and arranged to work in the plane of said top, whereby it will be closed by gravity, substantially as described.

3. The combination with a bin having an inclined top formed by two plates, spaced apart and having an opening, of a lid coöperating with said opening, working between the plates of said top, and arranged to be closed by gravity, substantially as described.

4. The combination with a bin having a top formed by a pair of plates, spaced apart and having a passage therethrough, of a lid coöperating with said passage and working between the plates of said top, and an open frame secured on the bin-top, and a drawer working in said frame and coöperating therewith to hold one or more cards exposed to view, and to hold a plurality of cards within it, substantially as described.

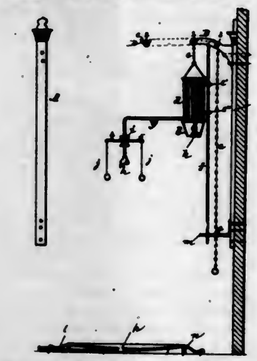
5. A bin or can having one wall terminated short of the bottom thereof and turned horizontally inward at 2 and then downward to join the bottom of the said bin or can, substantially as described.

6. A bin or can having front walls bent on lines of intersecting arcs having a radius of approximately the transverse dimension of the bin or can, and having a three-sided opening following the lines of said curved front walls, in combination with a three-sided cover, hinged at one corner in the vicinity of one corner of said opening, substantially as described.

7. A bin or can having front walls bent on lines of intersecting arcs having a radius of approximately the transverse dimension of the bin or can, and having an inclined top formed with a three-sided opening following the lines of said curved front walls, in combination with a three-sided cover, hinged at one corner in the vicinity of one corner of said opening, substantially as described.

8. A bin or can having front walls bent on lines of intersecting arcs having a radius of approximately the transverse dimension of the bin or can, and having an inclined top formed with a three-sided opening following the lines of said curved front walls, substantially as described.

785,233. SHOWER-BATH APPARATUS. JAMES SIMPSON, Jr., Hamilton, Canada. Filed June 21, 1904. Serial No. 213,455.



Claim.—1. In a shower-bath apparatus the combination of a supporting-board, a bracket attached to it provided with pulleys, a water-tank with spraying-nozzle constructed with eyes on its side, a vertical rod made to pass through the said eyes, and fastened vertically at its top and bottom ends to supports, so that the tank will slide vertically on said rod, a chain or cord secured to the tank and made to pass over the pulleys on the bracket, down to a notch in a horizontally-projecting plate attached to the supporting-board, by which this tank is held at any desired height from the floor, substantially as specified.

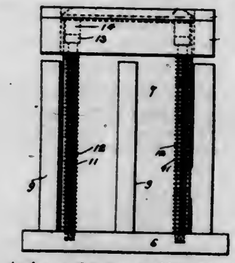
2. In combination with the shower-bath tank and its attachments, a water-receiving waterproof cloth having a central orifice and a bag cemented to the cloth around the said orifice on the under side, and the said bag having a device at its lower end to retain the water until the sides of the cloth are elevated and the retaining device opened to allow the water to escape into a sink or desired receptacle, after use, substantially as specified.

785,234. MANUFACTURE OF ARTICLES FROM HARD RUBBER. WILLIAM R. SIMS, Williamsport, Pa. Filed Apr. 16, 1903. Serial No. 153,972.

Claim.—As a new article of manufacture, a material having a fabric interior saturated and covered with a hard vulcanized compound of india-rubber and sulfur, substantially as described.



785,235. PLUNGER FOR PRESS-MOLDS. CHAS. H. SLATTERY, Southpark, Ohio. Filed May 31, 1904. Serial No. 210,514.



Claim.—1. A plunger for press-molds, comprising a body having a central panel part and projecting stops beside said part, and an outer spring-supported frame or part around said part and normally projected flush with the face thereof, and capable of depression against said stops.

2. A plunger for press-molds, comprising a base having thereon a central panel part and stops beside the same, an outer frame or border slidable on the panel part and constructed to abut the stops when depressed, bolts extending between the said outer frame and the base and having means to limit the lift of the frame, and springs between the frame and base, tending to lift the frame.

785,236. BURNER. WILLIAM SMETHURST, Dolgelly, England, assignor to The Smethurst Furnace & Ore Treatment Syndicate Limited, London, England. Filed Nov. 18, 1904. Serial No. 233,341.

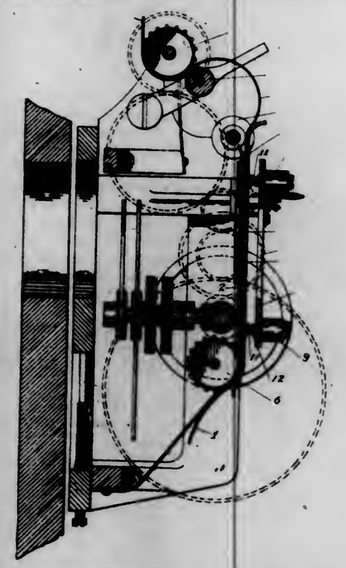


Claim.—1. An inflammable gas-burner having its incasing pipes gradually enlarged from a minimum at the inlet to a maximum at the outlet and having within such incasing pipes a double series of nests of metallic tubes, of which the first series are of considerable number and length, and of a fractional diameter to the gas-inlet, and the second series shorter and of larger diameter than the first, containing within them sectional smaller tubes with transverse diaphragms of gauze to prevent back-firing, substantially as described.

2. In a device of the class described, a trumpet-shaped extension, having lateral inlets, issuing-nozzles having contracted ends opening into said extension and an inwardly-coned shield about said nozzles, said shield being adjustable as to position relatively to the said inlets, substantially as described.

3. In a burner, the combination with a trumpet-shaped extension of the burner, of lateral pipe-inlets from the surrounding liquid such pipe-inlets being inserted in the throat of the trumpet-shaped extension and being bent over, so that their lower mouths are situated below the edge of the trumpet-shaped extension, to determine a more effective circulation of the submerging liquid through the said trumpet-shaped extension of the burner, substantially as described.

785,237. FILM-HOLDER FOR KINETOSCOPES. ALBERT E. SMITH, Brooklyn, N. Y., assignor to The Vitagraph Company of America, a Corporation of New York. Original application filed Apr. 24, 1903. Serial No. 153,354. Divided and this application filed Apr. 2, 1904. Serial No. 201,277.



Claim.—1. In a kinetoscope, means adapted to hold the film in its passage across the light-aperture, comprising a friction-plate having an aperture to register with said light-aperture and provided at opposite sides of said aperture with a pair of relatively movable vertically-placed strips and with a plurality of springs arranged at different places in the length of each of said strips and pressing the same against said film, said strips engaging the edges of the film throughout their length and exerting a continuous pressure thereon.

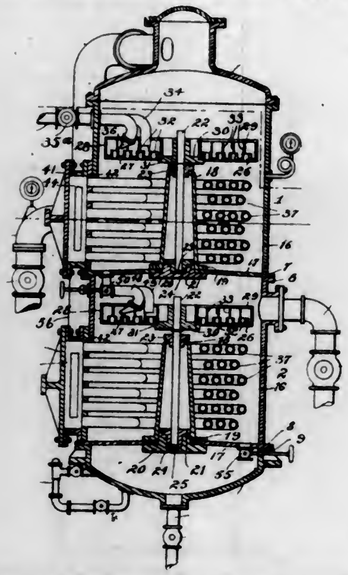
2. In a kinetoscope, means adapted to hold the film in its passage across the light-aperture, consisting of a pair of continuous vertically-placed strips arranged at opposite sides of said aperture and engaging the edges of the film throughout their length, so as to exert a continuous pressure thereon, guiding means for said strips comprising posts arranged at right angles to said strips and connected therewith, and coiled springs mounted on said posts and engaged with said strips.

3. The combination with the frame of a kinetoscope, of the friction-plate provided with an aperture to register with the light-aperture of said frame, casings carried by said plate, spring-pressed posts in said casings and a pair of continuous strips each arranged at one side of said aperture and attached to a pair of said posts, said strips exerting a continuous pressure against the edges of the film at opposite sides of said aperture.

4. The combination with the frame of a kinetoscope, having a light-aperture, and means for feeding the film across the same comprising a sprocket to engage the film, of the friction-plate provided with an aperture to register with that of the frame, casings carried by said plate, spring-pressed posts in said casings, and a pair of continuous strips each arranged at one side of said aperture and extending above and below the same and attached to a pair of said posts, said strips exerting a continuous pressure against the edges of the film at opposite sides of said aperture and each having a bent and slotted end portion contiguous to said sprockets.

5. The combination with the frame of a kinetoscope, having a light-aperture, and means for feeding the film across the same, comprising a sprocket to engage the film, of a plate provided with an aperture to register with that of the frame, casings carried by said plate and having open outer ends, a post extending from each of said casings, a pair of continuous strips each arranged at one side of said aperture and attached to a pair of said posts, a coiled spring mounted on each post and engaging said strip, and an adjustable head for each post mounted in the open outer end of each casing and engaging the spring therein, substantially as described

785,238. VACUUM EVAPORATING APPARATUS. TOZABURO SUZUKI, Sunamura, Japan. Filed Oct. 17, 1904. Serial No. 228,772.



Claim.—1. The combination, in a composite evaporating apparatus including a series of evaporating-chambers, perforated distributing-disks for said chambers, and means whereby liquid may be supplied to said disks to effect rotation thereof.

2. The combination, in a composite evaporating apparatus including a series of evaporating-chambers, perforated distributing-disks therefor having impact-blades, and liquid-supply nozzles adapted to direct liquid against said blades thereby effecting rotation of said disks.

3. The combination, in a composite evaporating apparatus including a series of evaporating-chambers, perforated distributing-disks having impact-surfaces, and a liquid-supply nozzle adapted to direct liquid against said surfaces thereby effecting rotation of said disks.

4. The combination, in a composite evaporating apparatus including a series of evaporating-chambers having rotary shafts, perforated distributing-disks separably mounted on said shafts, said disks having impact-blades, and a liquid-supply nozzle adapted to direct liquid against said blades thereby effecting rotation of said disks.

5. The combination, in a composite evaporating apparatus comprising a series of evaporating-chambers, operative distributing means therefor, and mechanism whereby liquid supplied to said distributing means serves to effect operation thereof

6. The combination, in an evaporating apparatus, of evaporating-chambers, distributing-disks for said chambers, and means whereby liquid may be supplied to said disks to effect rotation thereof.

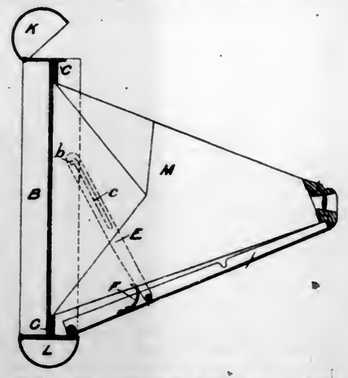
7. The combination, in an evaporating apparatus, of evaporating-chambers, distributing-disks therefor, having impact-blades, and a liquid-supply nozzle adapted to direct liquid against said blades thereby effecting rotation of said disks.

8. The combination, in an evaporating apparatus, of evaporating-chambers, distributing-disks having impact-surfaces, and a liquid-supply nozzle adapted to direct liquid against said surfaces thereby effecting rotation of said disks.

9. The combination, in an evaporating apparatus, of evaporating-chambers having rotary-shafts, distributing-disks separably mounted on said shafts, said disks having impact-blades, and a liquid-supply nozzle adapted to direct liquid against said blades thereby effecting rotation of said disks.

10. The combination, in an evaporating apparatus of evaporating-chambers, operative distributing means therefor, and mechanism whereby said liquid supplied to said distributing means serves to effect operation thereof.

785,239. PHOTOGRAPHIC CAMERA. JOHN E. THORNTON, Altrincham, England, assignor to John Owden O'Brien, Manchester, England. Filed Sept. 15, 1902. Serial No. 123,529.



Claim.—1. A camera constructed with a body, a base-board pivoted thereto, an optical carrier attached to the base-board, a slotted stretcher pivoted to the base-board and by a pin to the body, folding inside the body, and a single-fold bellows attached to the optical carrier and to the body, substantially as described.

2. The combination with a camera-body and a single-fold bellows of a base-board pivoted to the body, and a slotted stretcher pivoted to the base-board, and to the body to fold inside the body, and of such a length to prevent the base-board being extended to an angle of ninety degrees, and allow it to be extended to an angle of sixty degrees relative to the body and be locked in that position, substantially as described.

3. The combination with a camera-body, a single-fold bellows and base-board hinged thereto, of an optical carrier attached to the extreme end of the base-board to fold outside the body, a slotted stretcher pivoted to the base-board and the body, a rounded end to one end of camera and a rounded cap at the other end to inclose and protect the optical carrier when in a closed position, substantially as described.

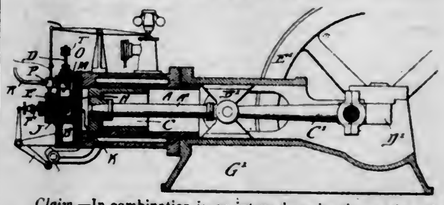
4. The combination with a camera-body, single-fold bellows and base-board hinged thereto, of an optical carrier attached to the extreme end of the base-board to fold outside the body, a slotted stretcher pivoted to the base-board and the body to fold inside, a cap to cover one end of the camera, a cap to cover the optical carrier, and chambers to contain the rolls of a roll-film, substantially as described.

5. The combination with a camera-body, single-fold bellows and base-board hinged thereto, of an optical carrier attached to the extreme end of the base-board to fold outside the body, a slotted stretcher pivoted to the base-board and the body to fold inside, a cap to cover one end of the camera, a cap to cover the optical carrier, and a blind-shutter, substantially as described.

6. The combination with a camera-body, single-fold bellows, and base-board hinged thereto, of an optical carrier attached to the extreme end of the base-board to fold outside the body, a slotted stretcher pivoted to the base-board and the body to fold inside, a cap to cover one end of the camera, a cap to cover the optical carrier, and a blind-shutter and chambers for rollers of film-holders, substantially as described.

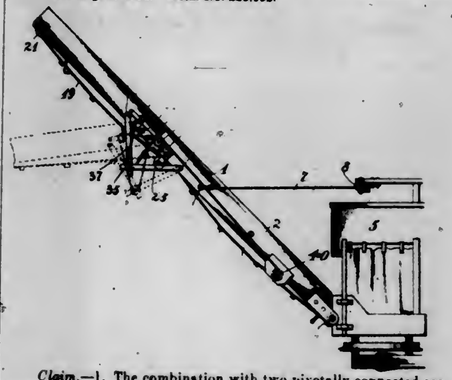
7. The combination with a camera-body, single-fold bellows and base-board hinged thereto, of an optical carrier attached to the extreme end of the base-board to fold outside the body, a slotted stretcher pivoted to the base-board and the body to fold inside, a cap to cover one end of the camera, a cap to cover the optical carrier, and a pivoted fork pivoted to the body and to the base-board, substantially as described.

785,240. THERMIC MOTOR. GUSTAF TRINKLER, St. Petersburg, Russia. Filed Sept. 29, 1899. Serial No. 732,107.



Claim.—In combination in an internal-combustion engine, the cylinder and piston, a chamber connected with the cylinder by a pair of ports, means for supplying fuel to the chamber, and a piston controlling one of the ports and means for actuating said piston at the end of the compression-stroke to create a pressure in the chamber in excess of that in the cylinder and force the fuel through the remaining port into the cylinder.

785,241. STRAW-STACKER. TOMEY D. ULRICH, Marion, Ohio. Filed Aug. 3, 1904. Serial No. 220,062.



Claim.—1. The combination with two pivotally-connected sections of a straw-stacker or the like, of pairs of toggle-levers having their respective members respectively pivotally connected to the said sections, a cross-bar pivotally connecting the members of the toggle-levers, a cable attached to the said cross-bar, a direction element on one of said sections and engaged by said cable, and means to operate the said cable to adjust said sections, substantially as described.

2. The combination with two pivotally-connected sections of a straw-stacker or the like, of toggle-levers connecting said sections, a winding-drum, guide devices carried by said toggle-levers and said sections, a flexible connection passed about said guide devices and having one of its ends fixed and its other end wound upon said drum, and means for operating said drum, substantially as described.

3. The combination with two pivotally-connected sections of a straw-stacker or the like, of a pair of toggle-levers pivotally connected together and to said sections upon opposite sides of their pivot, a guide-pulley carried by the connected ends of said levers, a guide-pulley upon each of said sections, a drum upon one of said sections, a cable passed under said pulley upon said levers and over said

pulleys upon said sections, one end of said cable being fixed and its other end being wound around said drum, and means for rotating said drum, substantially as described.

4. In a straw-stacker or the like, the combination of a lower section, an upper section pivoted thereto, a pair of toggle-levers connecting said sections upon each side of the same, a cross-bar uniting said pairs of toggle-levers and forming a pivot for the same, guide-pulleys upon said cross-bar, guide-pulleys upon said sections, a transverse shaft mounted in said lower section, a cable upon each side of said sections passed around said guide-pulleys and having one of its ends fixed adjacent to the pivot of said sections and its other end wound upon one end of said shaft, and means for operating said shaft to wind or unwind said cables, substantially as described.

5. The combination with two angularly-adjustable sections of a straw-stacker or the like, of a supporting-frame pivotally connected to one of said sections and adapted to loosely engage the other, and a flexible covering upon said frame, having one of its ends attached to one of said sections and its opposite end free to cover the opening between said sections, substantially as described.

6. The combination with two hingedly-connected sections of a straw-stacker or the like, of a finger-bar pivotally mounted upon one of said sections, and a flexible covering supported upon said finger-bar and adapted to close the opening between the joint of said sections, substantially as described.

7. In a straw-stacker or the like, the combination of two pivotally-connected sections, an endless conveyer mounted upon said sections, two sets of guide-pulleys disposed adjacent to one end of one of said sections to support the upper stretch of said conveyer, and a set of guide-pulleys disposed adjacent to one end of the other of said sections to support the lower stretch of said conveyer, substantially as described.

785,242. **LUBRICATOR FOR AXLE-SPINDLES.** WALTER VANDENBURGH, Melrose, Mass. Filed Apr. 8, 1903. Serial No. 151,636.



Claim.—1. A lubricating device for an axle-spindle, consisting of an axle-spindle having a groove extending longitudinally upon the upper surface thereof and from the outer end of the spindle, a wick of absorbent material saturated with a lubricant, said wick filling the entire length, width, and substantially the depth of the groove in the spindle with its outer edge in engagement with the inner surface of the box used upon the spindle, a stiffening-strip on one side of the wick extending the entire length of the wick and longitudinally thereto, and means to attach said strip to said wick whereby the wick may be withdrawn from the groove in the spindle or reinstated therein from the outer end of the spindle while the box is upon the same and the entire groove be used to contain the lubricant.

2. A lubricating-wick for an axle-spindle, made from absorbent material and a stiffening-strip on one side only of the wick but extending the entire length of the wick and longitudinally thereto, and means to attach said strip to said wick whereby the wick may be removed from or reinstated within a groove in the spindle of an axle from the outer end of the groove while the box is upon the axle-spindle and the wick may be made the same size as the groove in the spindle.

3. A lubricating-wick for an axle-spindle, made from absorbent material, a stiffening-plate upon one side only of said wick but extending the entire length of the wick, and projecting points upon said plate which points enter the wick and attach the wick to the stiffening-plate, whereby the lubricating-wick may be inserted or removed from a groove on the surface of an axle-spindle from the end of the groove and the wick be made sufficiently large to fill the entire groove in the spindle.

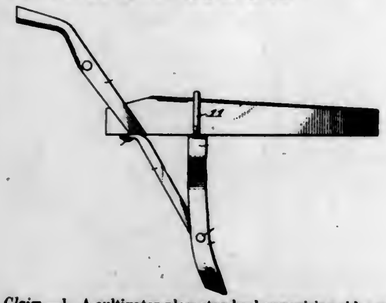
785,243. **AXLE-BEARING.** FRED J. WEBB, Flint, Mich. Filed Aug. 5, 1904. Serial No. 219,049.

Claim.—1. The combination, with an axle-spindle provided with a collar at one end and a screw-threaded projection at its other end, of a spindle-sleeve provided with a circumferential groove in its end portion near the said collar and spiral grooves extending from the said circumferential groove to its other end, packing around the said spindle between the end portion of the sleeve and the said collar, a nut screwed on the said projection and preventing the said sleeve from sliding endwise, oil-passages being provided between the face of the nut and the end of the sleeve, and a cap which incloses the said nut and which forms an oil-chamber for supplying the said grooves with oil.



2. The combination, with an axle-spindle provided with a collar at one end having an annular groove in one face, and a screw-threaded projection at the other end of the spindle, of a spindle-sleeve provided with a projecting portion which forms a packing-chamber and the end of which engages with the said groove, said sleeve having also a circumferential groove near the said chamber and spiral grooves extending from the said circumferential groove to its other end, packing in the said annular groove and chamber, a nut screwed on the said projection and permitting oil to pass into the said sleeve, and a cap which incloses the said nut and which forms an oil-chamber for supplying oil to the sleeve.

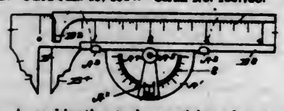
785,244. **PLOW-STOCK.** GEORGE W. WHITEHURST, Ellisville, Miss. Filed Apr. 25, 1904. Serial No. 204,848.



Claim.—1. A cultivator-plow standard comprising sides spaced apart to form a vertical slot between them and having their upper ends extended laterally and vertically and a bar connecting the said lateral and vertical extensions of the sides and forming a head, said head having outer openings 10, a central opening 8 and intermediate openings 9, for the purposes set forth, substantially as described.

2. In combination with a plow-beam, a cultivator-standard comprising sides spaced apart to form a vertical slot between them and having their upper ends extended laterally and vertically and a bar connecting the said lateral and vertical extensions of the sides and forming a head having outer openings, a central opening and intermediate openings, said head bearing against the under side of the beam, a brace having its lower end pivotally secured between the sides of the standard and its upper end pivotally connected to the beam at a point in rear of the standard, and a clip-bolt arranged astride of the beam and engaging appropriate adjusting-openings in the head of the standard to set the latter either at right angles or obliquely with reference to the beam, substantially as described.

785,245. **COMBINATION GAGE-TOOL.** EUGENE WIST, Sacramento, Cal., assignor to Wist-Goethe Company, Sacramento, Cal., a Corporation. Filed Jan. 19, 1904. Serial No. 189,735.



Claim.—1. A combination-tool comprising a base having a protractor thereon, a sheath supported thereby, a second sheath pivotally mounted on said base, and a sliding blade adapted to work in either of said sheaths.

2. A combination-tool comprising a sheath formed of a single piece of metal having its edges bent to form flanges, one of said flanges being provided with an index, the bottom of said sheath being extended laterally adjacent one end of the other flange to form a head, and a blade slidingly mounted in said sheath and provided with a head opposing the head of said sheath both of said heads being provided with pointed extremities.

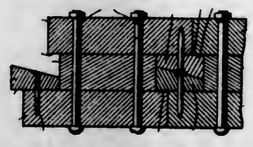
3. A combination-tool comprising a base having a protractor formed thereon, said base being provided with clips and an angle-flange, a sheath supported between said clips and said angle-flange, a second sheath pivotally mounted on said base, and a sliding blade adapted to work in either of said sheaths.

4. A combination-tool comprising a base having a protractor thereon, a sheath supported thereby, a second sheath pivotally mounted on said base, an index for said protractor adapted to swing with said pivoted sheath, and a sliding blade adapted to work in either of said sheaths.

5. A combination-tool comprising a base having a protractor thereon, a sheath supported thereby and formed of a single piece of metal having its edges bent to form flanges, one of said flanges being provided with an angular extension, a caliper-blade slidingly mounted in said sheath, and a second sheath pivoted to said base and adapted to receive said blade.

6. A combination-tool comprising a base having a protractor thereon, a sheath removably held in said base, a second sheath pivoted to said base, and a sliding blade adapted to work in either of said sheaths.

785,246. **WOODEN SHEET-PILING.** HENRY WITTEKIND, Chicago, Ill. Filed May 31, 1904. Serial No. 210,390.



Claim.—1. A wooden sheet-piling comprising a plurality of interlocked vertical sections each section consisting in a plurality of pieces of timber rigidly secured together and having a tenon projecting laterally from one edge of greater thickness at its outer edge than adjacent the section and a groove in its opposite edge corresponding in cross-section to the cross-section of said tenon.

2. In a wooden sheet-piling, a section comprising a plurality of vertical pieces of timber rigidly secured together having a tenon projecting laterally and of greater thickness at its edge than adjacent the section and a groove in the other edge of the section corresponding to the cross-section of said tenon.

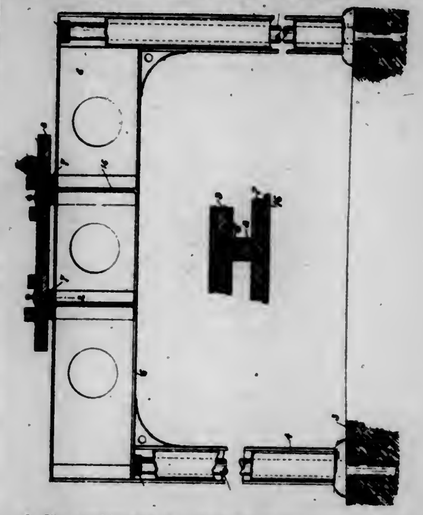
3. In a section for wooden sheet-piling, the combination with a plurality of vertical planks one of which projects laterally to one side of the section, means for rigidly securing said planks together, a vertical strip secured to said laterally-projecting portion of one of said planks and forming therewith a tenon, the opposite side edge of the section having a groove of a cross-section corresponding to said tenon.

4. In a section for wooden sheet-piling, the combination with a plurality of vertical planks one of which projects laterally to one side of the section and another of which projects laterally to the opposite side of the section, means for rigidly securing said planks together, a vertical strip secured to each of said laterally-projecting portions of the planks and forming therewith tenons, the side edges of the section having grooves corresponding in cross-section to said tenons.

5. In a section for sheet-piling, the combination with three vertical planks the intermediate one of which being of less width than the outer planks, means for rigidly securing said planks together, a vertical strip secured to the inner surface of the portion of one of said outer planks which projects to one side of the section, a second vertical strip secured to the inner surface of the portion of the other outer plank which projects to the opposite side of the section, the strip on one plank forming with the projecting portion of the other plank a groove corresponding in cross-section to the tenon formed by the other strip and the projecting portion of the plank to which it is secured.

785,247. **NOISE-DEADENING MEANS.** CHARLES D. WOOD, Boston, Mass., assignor of one-half to Benjamin Everett, Boston, Mass. Filed Jan. 2, 1904. Serial No. 187,523.

Claim.—1. The combination in a railroad structure, of a series of vertical supports, horizontal girders supported by the vertical supports, trestles connecting the horizontal girders, insulating material covering the upper portion of the trestles, cross-ties upon the insulating material, and rails supported upon the cross-ties.



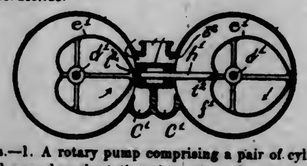
2. The combination in a third-rail electric road of a series of vertical supports, horizontal girders carried by the vertical supports, trestles connecting the horizontal girders, insulating material covering the upper portion of the trestles, cross-ties upon the insulating material, insulating material covering the upper portion of the cross-ties, and running-rails and a third rail upon the upper insulating material, substantially as shown and described.

3. The combination in a railroad structure of a series of vertical supports, a series of horizontal girders carried by the vertical supports, and a hollow pipe within the vertical supports and having its lower portion extending downward into the ground, substantially as shown.

4. The combination in a railroad structure of a series of vertical supports, a series of horizontal girders carried by the vertical supports, and a pipe within each vertical support and having its upper portion covered with insulating material which insulating material is inserted between the pipe and a portion of the girder, substantially as shown.

5. The combination in a third-rail electric road of a series of vertical supports, hollow pipes within said vertical supports having their lower ends extending downward into the earth, horizontal girders carried by the vertical supports, insulating-buffers covering the upper portion of the pipes and the horizontal girders partly resting upon said insulating material, trestles connecting the horizontal girders, insulating material covering the upper portion of the trestles, cross-ties upon the insulating material, insulating material covering the upper portion of the cross-ties, and rails upon the upper insulating material, substantially as shown and described.

785,248. **ROTARY PUMP.** NAMIJIRO YOKOUCHI and KOSUKE ABE, Tokio, and ALIJI MATSUBAKI, Nagano, Japan. Filed Apr. 30, 1904. Serial No. 206,755.



Claim.—1. A rotary pump comprising a pair of cylinders rigidly united, cam-shaped rotating pistons in each, in contact with the inner periphery of their respective cylinders along one line only, suction and discharge ports for said cylinders, a guide-casing connecting the two cylinders on a line uniting the axes of rotation of the two pistons and between the suction and discharge ports, and a one-piece water-gate extending through said casing from the periphery of one

piston to the periphery of the other and traveling back and forth with the rotation of the pistons in constant contact with the periphery of each.

2. A rotary pump comprising a pair of cylinders rigidly united, suction and discharge ports therefor, a heart-shaped piston rotating in each cylinder with its apex in constant contact with the peripheral wall thereof, a guide-casing connecting the two cylinders on a line uniting the axes of rotation of the two pistons and between the suction and discharge ports, and a water-gate extending through said casing from the periphery of one piston to the periphery of the other and traveling back and forth with the rotation of the pistons in constant contact with the periphery of each.

3. A rotary pump comprising a pair of cylinders rigidly united, cam-shaped rotating pistons in each, in contact with the inner periphery of their respective cylinders along one line only, suction-ports for each cylinder, independent discharge-ports, a common chamber to which said latter ports deliver, valves preventing the return of the water from said chamber, a lead opening from said chamber, a guide-casing connecting the two cylinders on a line uniting the axes of rotation of the two pistons and between the suction and discharge ports, and a water-gate extending through said casing from the periphery of one piston to the periphery of the other and traveling back and forth with the revolution of the pistons in constant contact with the periphery of each.

785,249. MIXING DEVICE. NAOMI C. BURNHAM, Johnstown, N. Y. Filed June 11, 1904. Serial No. 212,115.



Claim.—1. In a mixing device, the combination with a rotary part, provided with a series of parallel blades, located at different distances from the axis of rotation of said rotary part, and disposed obliquely to a radial line passing through said axis, of a series of independent vertically-disposed cleaner-bars arranged at different distances from the axis of rotation of said rotary part, the said blades being arranged to pass between said cleaner-bars, whereby the material treated will be cut by the leading edge of each of said blades and mixed by the lateral faces thereof, substantially as described.

2. In a mixing device, the combination with a rotary part provided with a series of parallel blades located at different distances from and on both sides of the axis of rotation of said rotary part and disposed obliquely to a radial line passing through said axis, of a series of independent, vertically-disposed cleaner-bars, located at different distances from the axis of rotation of said rotary part and on both sides of the same, the said blades being arranged to pass between the said cleaner-bars, whereby the material will be cut by the leading edge of each of said blades and mixed by the lateral faces thereof, and whereby concentration of the material treated, at the center or outer edges of the rotary part, is avoided, substantially as described.

3. In a mixing apparatus, the combination with a vertically-disposed standard, provided at its upper end with a handle for holding it stationary and in a vertical position, of laterally-extending arms connected to the said standard at its lower end, and provided with upwardly-extending stationary cleaner-bars, of a sleeve mounted on said standard, a cross-bar secured thereto and a series of knives or blades secured to said cross-bar and extending downwardly therefrom and alternating with the said cleaner-bars, said knives or blades being parallel and disposed obliquely to a radial line from their axis of rotation and means for rotating said sleeve and knives, substantially as described.

4. In a mixing apparatus, the combination with the standard provided with a bearing portion, terminating at its upper end in a shoulder and a detachable lower portion provided with a shoulder adapted to engage the lower end of said bearing portion and having a threaded connection with the upper part of said standard, of lateral arms secured to the lower end of said standard and provided with a series of vertically-disposed cleaner-bars, a sleeve mounted on said bearing portion of the standard and having a polygonal portion at its lower end, a cross-bar having a polygonal aperture engaging the polygonal portion of the sleeve, a series of depending knives or blades secured to said cross-bar, and alternating with said cleaner-bars, said blades being disposed obliquely to a radial line from the axis of rotation of said sleeve and means for rotating said sleeve, substantially as described.

785,250. CAR-COUPLING. ISAAC I. CASKEY, Columbus, Ohio, assignor of one-half to Marion L. Gaskill, Columbus, Ohio. Filed July 12, 1904. Serial No. 216,250.



Claim.—1. In a car-coupling, the combination of a draw-head, a knuckle hinged thereto, a lock movable vertically and rotatable horizontally in said draw-head adapted to be lifted by the knuckle, and adapted to be lifted independently of and without acting on the knuckle into position to permit the knuckle to be opened, and a seat to support the lock when so lifted.

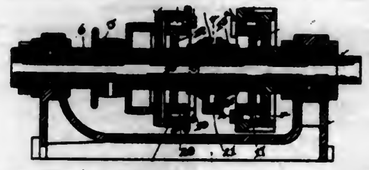
2. In a car-coupling, the combination of a draw-head, a knuckle hinged thereto, a lock movable vertically and rotatable horizontally in said draw-head adapted to be lifted by the knuckle, and adapted to be lifted independently of action on the knuckle into position to permit the knuckle to be opened, a seat to support the lock when so lifted, means for throwing the lock when lifted off said seat into contact with the knuckle to throw the latter into open or coupling position.

3. In a car-coupling, the combination of a draw-head, a knuckle hinged thereto, a lock movable vertically and rotatable horizontally in said draw-head adapted to be lifted by the knuckle, and adapted to be lifted independently of action on the knuckle into position to permit the knuckle to be opened, a seat to support the lock when so lifted, means for throwing the lock when lifted off said seat into contact with the knuckle to throw the latter into open or coupling position and a second seat for the lock in its further raised position.

4. In a car-coupling of the kind described, the combination with a draw-head having a cam-surface 1^b, the knuckle hinged to said draw-head having its inner arm provided with a cavity 2^d, the vertically-movable and horizontally-rotatable lock having a member to extend into said cavity 2^d and act on the inner arm of the knuckle beyond said cavity, substantially as described.

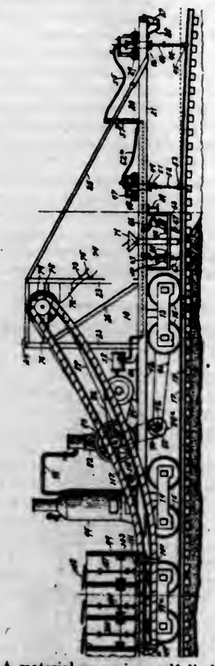
785,251. CLUTCH. NICHOLAS D. CHARD and WILLIAM LODGE, Cincinnati, Ohio, assignors to The Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, a Corporation. Filed Jan. 3, 1905. Serial No. 239,483.

Claim.—1. In combination with the spindle of a machine-tool, a loose wheel thereon for driving the spindle, an internal wheel fixed to the spindle, and concentric with the first-named wheel, said internal wheel being formed with an angular grooved periphery, two friction-segments located in said groove, an expanding device between two of the abutting ends of said segments, means for actuating the said device, and a wedge between the other two abutting ends of said segments for taking up wear and lost motion, substantially as described.



2. In combination with the spindle of a machine-tool, a loose wheel thereon for driving the spindle, an internal wheel fixed to the spindle, and concentric with the first-named wheel, said internal wheel being formed with an annular grooved periphery, two friction-segments located in said groove, an expanding device between two of the abutting ends of said segments, means for actuating the said device, a wedge between the other two abutting ends of said segments for taking up wear and lost motion, and bolts taking through said annular periphery and into said segments holding them slightly movable in position, substantially as described.

785,252. APPARATUS FOR RAISING SUPERSTRUCTURES AND BALLASTING RAILWAY ROAD-BEDS. GRAHAM H. CRAVENS, De Queen, Ark. Filed May 6, 1904. Serial No. 206,699.



Claim.—1. A material-conveying, self-discharging vehicle for ballasting road-beds, separate feeding-conduits for the material and a distributer of the material yieldingly connected with the separate conduits.

2. A material-conveying, self-discharging vehicle for ballasting road-beds, separate receiving-conduits for the material thereon, and an elevated support upon the vehicle therefor, means for conveying the material to the separate conduits, a laterally-extended hopper upon the vehicle, and a spout for the material yieldingly connected with the separate conduits and movably connected with the hopper.

3. A railroad-ballasting apparatus, comprising a track-supported vehicle, means thereon for suspending a portion of the railroad superstructure in advance of the vehicle above the road-bed, and means for discharging the material from the vehicle beneath the suspended superstructure.

4. A railroad-bed-ballasting apparatus comprising a track-supported vehicle, motor-operated devices thereon for raising and suspending a portion of the railroad superstructure above the bed of the road, and motor-operated devices on the vehicle for discharging the material upon the bed of the road beneath the suspended superstructure.

5. A railroad-bed-ballasting apparatus comprising a motor-propelled, rail-supported vehicle, motor-operated devices thereon for raising and suspending a portion of the railroad superstructure above the bed of the road, and motor-operated devices for discharging the material upon the bed of the road beneath the suspended superstructure and tamping the ballasting material.

6. In a railroad-bed-ballasting apparatus, a motor-propelled vehicle upon the track-rails, a self-discharging receptacle for the ballasting material, and a motor-operated conveyer of the material from the receptacle to the track.

7. In a railroad-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a frame extending from the end of the platform above to the track-rails, and track-rails on said frame, and motor-actuated raising and lowering devices, and track-grasping devices upon the rails of said frame.

8. In a railroad-ballasting apparatus, the combination with a motor-propelled vehicle, of a longitudinally-extended frame extending forwardly from the end of the vehicle, and means on the vehicle for supporting said frame, track-rails on said frame, a carriage upon said track-rails raising and lowering devices on the carriage for raising the superstructure of the railroad above the road-bed, and material-discharging devices upon the vehicle discharging beneath the elevated superstructure.

9. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled vehicle, of a longitudinal frame upon the forward end of the vehicle, and suitable supports upon the vehicle therefor, and track-rails upon said frame, a carriage upon said track-rails, and motor-energized raising and lowering devices on said frame for raising the superstructure of the railroad above the road-bed, means for discharging the ballast material from the vehicle beneath the elevated superstructure, and motor-energized tamping devices on the vehicle for tamping the ballast material upon the road-bed.

10. In a railroad-bed-ballasting apparatus, the combination with a propelled platform-vehicle, of a longitudinally-extended frame on the forward end of the platform and track-rails upon said frame, means upon said frame and track-rails for suspending a raised portion of the superstructure of the railroad, and means for adjusting the position of said track-rails on said frame at a tangent to the offset in the railroad track-rails.

11. In a railroad-track-ballasting apparatus the combination with a propelled platform-vehicle which consists of a longitudinally-extended suspended frame on the forward end of the platform, outer longitudinal track-rails, and separate inner longitudinal track-rails upon said suspended frame, separate carriages for raising a portion of the superstructure of the railroad above the bed of the railroad mounted upon the respective inner and outer track-rails and alternately telescoping with each other.

12. In a railroad-bed-ballasting apparatus, the combination with a parallel platform-vehicle, of a longitudinally-extended suspended frame on the forward end of the platform and a series of track-rails upon said suspended frame, carriages mounted on said track-rails and alternately telescoping with each other, and motor-energized raising and lowering devices on said carriages for suspending a portion of the superstructure of the railroad above the bed of the railroad to be ballasted.

13. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a longitudinally-extended suspended frame on the forward end of the platform, and a series of track-rails upon said suspended frame, a pivotal support for the rear ends of said track-rails and devices connecting the forward ends of said rails with each other, said rails being movable upon the said supporting-frame, and its pivotal support, at a tangent to the offset in the curved track-rails of the railroad and carriages upon said track-rails, and motor-energized raising and lowering devices on said carriages for suspending a portion of the railroad superstructure.

14. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a longitudinally-extended frame upon the forward end of the platform, and an elevated support on the said platform, and suspension devices for the said frame

connected with the elevated support, track-rails on said suspended frame and carriages on said track-rails, motor-energized raising and lowering devices on said carriages for raising a portion of the railroad superstructure above the road-bed, and motor-actuated material-conveying devices on said elevated support, discharging the material beneath the superstructure.

15. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a supply-receptacle for the material, and gates to said receptacle, and an endless motor-operated conveyer, movable beneath the gates and extending to the forward end of said platform, and discharging the material upon the bed of the road.

16. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a discharging-receptacle for the ballasting material, gates in the sides of said receptacle and roller-hangers in the said receptacle beneath said gates, an elevated structure on the platform of the vehicle, and a power-driven shaft thereon, and an endless conveyer extending over the roller in the roller-hangers, and over the shaft on said elevated support and discharging the material upon the bed of the railroad.

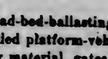
17. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a discharging-receptacle for the ballasting material, hinged gates in the sides of said receptacle, and lever operating devices for operating the gates, roller-hangers on the said receptacle beneath said gates, an elevated structure on the platform of said vehicle, and a power-driven shaft thereon, an endless material-conveyer extending over the roller-hangers in said receptacle and also over the shaft on said elevated support, and material-distributing conductors leading to the bed of the railroad from said elevated support.

18. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a material-supply receptacle, a false inclined bottom in said receptacle, said receptacle having material-discharging openings between the inclined bottom and the sides of said receptacle, hinged gates in the sides of the receptacle movable upon the inclined surfaces of the bottom, roller-hangers upon said receptacle beneath the said discharge-openings, an elevated structure upon the said platform, and a power-driven shaft thereon, an endless conveyer of the material extending over said rollers in the roller-hangers and over the shaft in said elevated support, conductors for the material on said support leading to the road-bed, and means for opening and closing the gates in the sides of the material-supply receptacle.

19. In a railroad-ballasting apparatus, the combination with a propelled platform-vehicle, of motor-operated devices thereon for raising and suspending a portion of the railroad superstructure above the bed of the road, motor-operated devices for discharging the material upon the bed of the road beneath the superstructure upon said vehicle.

20. In a railroad-bed-ballasting apparatus, the combination with a motor-propelled platform-vehicle, of a supply-receptacle for the material, and devices actuated by the motor for conveying the material from the supply-receptacle to the forward end of the vehicle, means on the platform for raising a portion of the railroad superstructure above the bed of the road, motor-actuated material-tamping devices oppositely suspended beneath the platform of the vehicle, and a hopper for the ballasting material leading to the road-bed between the tamping devices.

785,253. DISPLAY-HOLDER. OSCAR A. DE LONG, New York, N. Y. Filed May 4, 1904. Serial No. 206,558.

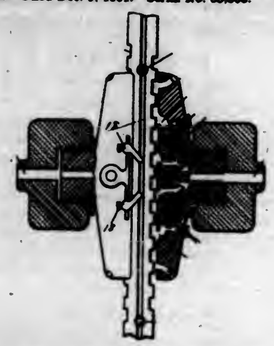


Claim.—1. A display-holder for pencils or the like comprising a plurality of hollow members, each member having base, top, and intermediate stripe spaced in parallelism, said intermediate and top stripe being provided with a series of alined apertures; and said members being hinged to each alternately at opposite ends.

2. A display-holder for pencils or the like comprising a plurality of hollow members, each member having base, top, and intermediate stripe spaced in parallelism, said intermediate and top stripe being provided with a series of alined apertures; and said members being connected to each other in pairs by double-acting hinges, the hinges of adjacent members being at opposite ends when the members are arranged in parallelism.

3. A display-holder comprising a plurality of hollow stripe hinged together, said stripe each consisting of a sheet of material scored into nine different parts, said parts when folded together forming an inclosed hollow oblong structure with an internal partition, the top and partition of said structure being provided with a row of alined apertures adapted to receive and support pencils or the like.

785,254. MOTOR. CHARLES O. DEUTSCHMANN, Hampstead Heath, England. Filed Dec. 9, 1901. Serial No. 85,308.

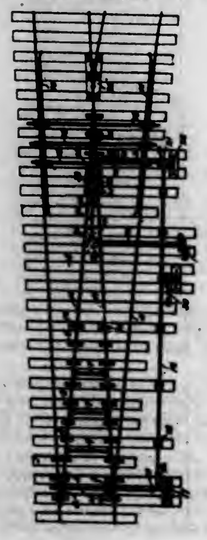


Claim.—1. The combination of one or several valved peripherical power-chests, provided internally with channelings, valves, expansion-chambers, and valved by-pass; said power-chests mounted movably in stuffing-boxes, and actuating between them a sliding bar provided with cavities all as set forth and described.

2. In a reciprocating motor the combination of a slide provided with cavities; one or several movable blocks with interior channelings, valves and expansion-chambers, closing up with the sides of the slide and actuating same by fluid-pressure striking into the cavities of said slide; a reversing-valve inside each power-chest and adjustable stops fitted to slide to limit motion of same all as set forth and described.

3. In a reciprocating motor the combination of a slide with cavities pressed upon by one or several channeled pressure-chests; said pressure-chests partially or entirely recessed and embedded into the frame supporting said slide; valved channels within the frame alternately guiding the pressure fluid through the pressure-chests upon the slide in opposite directions, all substantially as set forth and described.

785,255. FROGLESS SWITCH. ALLEN FALKNER, Gate City, Ala. Filed May 5, 1904. Serial No. 206,513.



Claim.—1. In a frogless switch, the combination of main and siding rails and intermediate fixed rails, of a movable switch-point to connect with one or the other of said fixed rails and complete the main or siding rails, a spring-pressed locking device to hold said movable switch-point in one or the other of its operating positions, and means to shift said locking device.

2. In a frogless switch, the combination of main and siding rails and two cross-switch rails, of a flexible switch-rail having a movable portion adapted to complete the main or siding rails when disposed opposite one or the other of said cross-rails, a locking-tongue disposed between said cross-rails and adapted to lock said single switch-rail in alinement with one of said cross-rails, and independent means to actuate said tongue and lock it so as to set the switch.

3. In a frogless switch, the combination of main and siding rails, of intermediate switch-rails one of which is movable relative to the other two, means to lock said movable rail in alinement with one of said other switch-rails, a spring to normally hold said means in its operating position, and actuating means to move said locking means.

4. In a switch, the combination with rails for the main line and siding, of switch-points terminating in two adjacent stub-rails, a flexible stub switch-rail, and a sliding tongue disposed between said stub-rails to hold said switch-rail in alinement with one of said stub-rails.

5. In a switch, the combination with rails for the main line and siding, of switch-points terminating in two adjacent stub-rails, a movable stub switch-rail, guides disposed between said stub-rails, a longitudinally-shouldered plate movable in said guides and adapted, in its normal operating position to engage said movable rail to hold it in alinement with one of said stub-rails, said plate being adapted to serve as a guard-rail for the switch-joint.

6. In a switch, the combination with rails for the main line and siding, of double switch-points engaging one or the other of said main-line rails and terminating in fixed stub-rails between the outer rails of main and siding lines, a stub switch-rail, a sliding joint between the inner rails of the main and siding lines and said switch-rail, and means to shift said latter rail opposite one or the other of said fixed stub-rails according to the position of said switch-points.

7. In a switch, the combination with main and side line rails, of two movable switch-points, two fixed stub-rails connected to or forming a continuation of said points, and a movable stub-rail adapted to assume positions in alinement with one of said fixed stub-rails and to be free of a positive connection to rails of either the main or side line which abut against it.

8. In a switch, two switch-points, two stub-rails forming continuations of said points and terminating adjacent to each other between the outer rails of main and side lines, a flexible stub switch-rail rigidly mounted on the rail-supports at its outer end, means to bend the free end of said switch-rail into alinement with one of said stub-rails, stops disposed in advance of and adjacent to outside ends of said two stub-rails and adapted to limit the throw of said flexible rail, a movable locking device disposed between said two stub-rails and adapted in its locking position to extend in advance of them to lock said flexible switch-rail in alinement with one or the other of said stub-rails, and inner rails of the main and side lines which engage said switch-rail.

9. In a switch, main and side line rails, switch-points, intermediate rails and a switch-rail connecting said main and side line rails, an expansion-joint between said latter rails and said switch-rail, and means to shift said switch-rail and switch-points together.

10. In a switch, main and side line rails, switch-points, intermediate rails and a switch-rail connecting said main and side line rails, an expansion-joint between said latter rails and said switch-rail, means to shift said switch-rail and switch-points together, and a movable tongue to lock said switch-rail in its operating position.

11. In a switch, main and side line rails, switch-points, intermediate rails and a flexible switch-rail connecting said main and side line rails, said switch-rail being connected to the proper main and side line rails by an expansion-joint which makes it insensible to the movement of said rails.

12. In a switch, main and side line rails, switch-points, intermediate rails and a flexible switch-rail connecting said main and side line rails, said switch-rail being connected to the proper main and side line rails by an expansion-joint which makes it insensible to the movement of said rails, means to secure one end of said flexible rail rigidly to the rail-supports to prevent its crawling, and guide-plates for its flexing end.

13. In a frogless switch, the combination with main and siding rails, intermediate switch-rails, one of which is movable relative to the other two, of means to lock said movable rail in alinement with one of said other switch-rails, said locking means comprising a movable element adapted to serve as a guard-rail for the joint between the intermediate switch-rails.

14. In a frogless switch, the combination with main and side line rails, of two movable switch-points, two fixed stub-rails connected to or forming a continuation of said points, a movable stub-rail adapted to assume positions in alinement with one or the other of said fixed stub-rails, means to simultaneously shift said switch-points and movable stub-rail to set the switch for the main line or the siding, a sliding tongue to lock said movable stub-rail in one of its switching positions, spring means tending to move said tongue to its locking position, and means to operate and lock said tongue independently of said switch-operating means.

785,256. SHEET-METAL PULLEY. GEORGE C. GARDNER, Chicago, Ill. Filed Aug. 12, 1904. Serial No. 220,451.

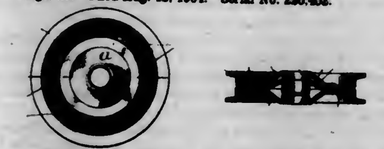


Claim.—1. A sheet-metal pulley formed of two main middle plates and two hub-plates upon the opposite sides thereof, all of said plates being secured together, the central portions of the middle plates being stamped outward in the form of annular flanges and the central portions of the hub-plates being stamped inward in the form of annular flanges corresponding thereto, said four flanges being arranged in line to form the walls of the central perforation of the pulley, substantially as described.

2. The combination with two middle plates having central annular flanges stamped outwardly therefrom, of two hub-plates having central annular flanges stamped inwardly therefrom and arranged in line with those of the middle plates, the outer portions of said hub-plates being brought inward and secured to the middle plates.

3. The combination with two middle plates, of two hub-plates upon opposite sides thereof, all having central bearing-surfaces arranged in line, said middle plates being perforated around the margins of the hub-plates, and said hub-plates having tongues extending through these perforations and clenched upon the opposite sides of the middle plates and against the margins of the hub-plates.

785,257. SHEET-METAL PULLEY. GEORGE C. GARDNER, Chicago, Ill. Filed Aug. 12, 1904. Serial No. 220,452.



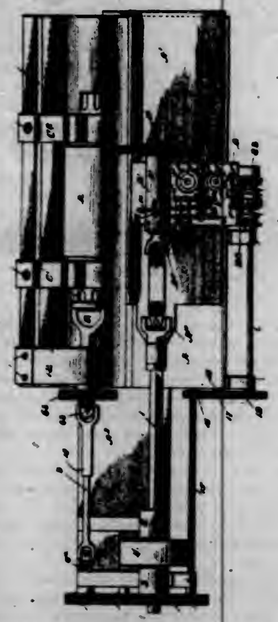
Claim.—1. In a device of the class described the combination with two opposing side plates bent outward at their periphery to form a groove and stamped apart at their center, each plate being provided with an inwardly-extending cylindrical bead at its inner edge, of a middle plate having a cylindrical bead in line with the beads on said side plates and a web embraced between said side plates.

2. The combination with two opposing side plates stamped outward at their margin to form a groove and separated at their centers, of a middle plate having a web embraced by said side plates, inwardly-extending cylindrical beads on said side plates, a cylindrical bead on said middle plate in line with the beads on said side plates and tongues on the side plates clenched through corresponding perforations to lock the plates together.

3. The combination with two plates having central annular beads stamped therefrom, of a hub-plate secured between said main plates and tongues on one of said main plates clenched through perforations in the other plate to lock the plates together.

785,258. GRINDING-MACHINE. ABRAHAM B. LANDIS, Waynesboro, Pa. Filed Feb. 12, 1904. Serial No. 193,284.

Claim.—1. In a grinding-machine, the combination of the frame, the carriage, the slide on said carriage, the grinding-wheel base mounted on said slide to move toward and from the work, the grinding-wheel thereon, mechanism for feeding said wheel-base, a spring for taking up the backlash and means for connecting and disconnecting said spring to said mechanism at will, substantially as set forth.



2. In a grinding-machine the combination with the feeding mechanism for the grinding-wheel of a spring for holding said wheel away from the work and means for throwing said spring into or out of operation at will, substantially as set forth.

3. In a grinding-machine the combination with the feeding mechanism for the grinding-wheel, means for holding said wheel away from the work and mechanism for throwing said means into and out of operation at will, substantially as set forth.

4. In a grinding-machine, the combination with the feeding mechanism for the grinding-wheel of a spring for normally holding said wheel away from the work, means for throwing said spring into or out of operation at will, and means for adjusting the tension of said spring, substantially as set forth.

5. In a grinding-machine, the combination with the mechanism for feeding the grinding-wheel to th work of a spring mounted to be connected to said mechanism to normally hold the wheel away from the work or be disconnected to leave said mechanism free from said spring, and means for throwing said spring into or out of operation, substantially as set forth.

6. In a grinding-machine, the combination of the grinding-wheel base, the slide upon which said base is mounted, gearing for feeding said base to carry the wheel to and from the work, part carried by said base and part by said slide, a spring adapted to be connected to said mechanism to interpose between said base and slide to normally hold said base away from the work, substantially as set forth.

7. In a grinding-machine, the combination, of the wheel-base, the slide on which it is mounted, the mechanism for feeding said base to carry the wheel to and from the work, a spring for holding said mechanism under a tension and take up all slack, and means for connecting and disconnecting said spring at any point along the line of movement of said base, substantially as set forth.

8. In a grinding-machine, a backlash attachment for the grinding-wheel to prevent said wheel from approaching the work further than predetermined by the feeding mechanism, means for making such attachment inactive at will at any point along the line of movement and means for varying its force, substantially as set forth.

9. In a grinding-machine, the combination, of the carriage, the slide, the wheel-base, the grinding-wheel thereon, the work-holding devices, the driving mechanism, and feeding mechanism for the grinding-wheel comprising a shaft journaled in said base, means for operating said shaft, a pinion thereon engaging a rack-bar secured to said slide, said rack-bar, a second shaft journaled in said base and having a pinion engaging said rack-bar, a wheel on the outer end of said shaft, a friction-band adapted to be clamped to or released from the rim of said wheel, a sliding rod mounted to bear against a projection on one side of said band, a spring for holding said rod to said projection and means for adjusting the tension of said spring, substantially as set forth.

10. In a grinding-machine, the combination with the wheel-base of mechanism for feeding said base to carry the wheel to and from the work said mechanism comprising a shaft journaled in said base having a pinion thereon, a rack-bar secured to slide on which said base is mounted with which said pinion engages, means for operating said shaft, a second shaft with pinion engaging said rack-bar, a wheel on said shaft, a band mounted to be clamped to or released from said wheel, and a yield tension device bearing against said band, substantially as set forth.

11. In a grinding-machine the combination of the grinding-wheel base mounted to slide to and from the work, mechanism for moving said base, and gearing connecting said mechanism with the grinding-wheel spindle, whereby said base is moved by power taken from said spindle, substantially as set forth.

12. In a grinding-machine, the combination, of the wheel-base, means for feeding said wheel-base, gearing for operating said feeding mechanism connected with the grinding-wheel spindle, and means for throwing the same into and out of gear at will, substantially as set forth.

13. In a grinding-machine, the combination, of the grinding-wheel base mounted to move on a slide mounted upon the carriage, feeding mechanism for feeding said base to and from the work, gearing connecting said mechanism with the spindle of the grinding-wheel, and a clutch for throwing the same into gear to drive said mechanism in either direction, or hold it out of gear, substantially as set forth.

14. In a grinding-machine, the combination, of the base mounted upon a slide on the carriage, bearings for the wheel-spindle on said base, said wheel-spindle with the grinding-wheel thereon journaled in said bearings, a feed-shaft for feeding said base in either direction, gearing connecting said shaft with said wheel-spindle, a clutch for throwing the same into gear to drive said shaft in either direction and means for holding said clutch out of engagement to disconnect said gear, substantially as set forth.

15. In a grinding-machine, the combination, of the grinding-wheel base mounted to move on a slide, feeding mchanism for feeding said base to and from the work, gearing connecting said mechanism with the spindle of the grinding-wheel, and a clutch for throwing the same into gear to drive said mechanism in either direction, or hold it out of gear, substantially as set forth.

16. In a grinding-machine, the combination, of the base mounted upon a slide, bearings for the wheel-spindle on said base, said wheel-spindle with the grinding-wheel thereon journaled in said bearings, a feed-shaft for feeding said base in either direction, gearing connecting said shaft with said wheel-spindle, a clutch for throwing the same into gear to drive said shaft in either direction and means for holding said clutch out of engagement to disconnect said gear, substantially as set forth.

17. In a grinding-machine, the combination with the bed, of a table for supporting the work mounted on said bed by a horizontal pivot, means for securing said table in the desired adjustment, work-holding devices mounted on said table, a bracket containing a bearing also mounted on said table, a spindle mounted in said bearing having a work-engaging part on its inner end and a gear-wheel on its outer end, the main driving-shaft journaled in bearings on the bed of the machine and a train of gearing embodying a universal coupling and a telescopic shaft connecting said main driving-shaft and the gear of said spindle, substantially as set forth.

18. In a grinding-machine, the combination with the bed of the machine, of a tilting table for supporting the work mounted on said bed, work-holding devices mounted on said table, a work-engaging device on the end of a spindle or short shaft journaled in a bearing mounted on said table, the main driving-shaft mounted on the bed of the machine, a train of gearing connecting said main driving-shaft with a telescopic shaft and a universal coupling between said telescopic shaft and a gear on said work-driving spindle, substantially as set forth.

19. In a grinding-machine, the combination, of the bed, the carriage, the slide, the wheel-base mounted on said slide, means for feeding said slide, the grinding-wheel, the work-holding devices, the main driving-shaft, a train of gearing connecting said main driving-shaft with the work-driving shaft, another train of gearing connecting said main shaft with the carriage-operating mechanism, a connection between said main shaft and the wheel-spindle, and a train of gearing connecting said spindle with the wheel-base feeding mechanism, substantially as set forth.

20. In a grinding-machine, the combination, of the bed, the carriage mounted to reciprocate in ways thereon, the grinding-wheel mounted on a base mounted to slide transversely on said carriage, the main driving-shaft mounted in bearings on said bed to one side of said wheel and a universal connection between said shaft and the spindle of said wheel, substantially as set forth.

21. In a grinding-machine, the combination of the grinding-wheel mounted to slide transversely on a reciprocating carriage and the driving-shaft connected to the spindle of said wheel by a universal connection, substantially as set forth.

22. In a grinding-machine, the combination, of the bed, a carriage mounted to reciprocate in ways thereon, a spindle mounted on said carriage, said spindle connected by devices to a longitudinally-grooved shaft and said shaft arranged to slide through a driving-wheel mounted on one end of the bed or extension thereof, substantially as set forth.

23. In a grinding-machine, the combination, of the bed, a carriage mounted to reciprocate in ways thereon, a spindle mounted on said carriage, said spindle connected at one end by universal connections to a shaft made to slide with said carriage through a driving-wheel at the end of said bed and said driving-wheel connected to turn with said shaft, substantially as set forth.

24. In a grinding-machine, a bed, a carriage mounted to reciprocate thereon, a spindle mounted on said carriage and connected to a shaft made to slide with said carriage through and turn with a driving-wheel at the end of said bed, in combination with work-holding devices mounted upon a pivoted table, substantially as set forth.

25. In a grinding-machine, the combination of the bed, the reciprocating carriage carrying the grinding-wheel, the driving-shaft mounted in bearings to one side of said wheel and connected to the wheel-spindle by a universal coupling, and the driving-pulley mounted on said shaft to permit said shaft to slide therethrough, substantially as set forth.

26. In a grinding-machine, the combination of the bed, the reciprocating carriage mounted thereon, the grinding-wheel mounted on said carriage, the driving-shaft, said driving-shaft being connected to the spindle of said wheel to reciprocate therewith, a pulley mounted on said shaft to permit said shaft to slide therethrough, and means for holding said pulley in a fixed position, substantially as set forth.

27. In a grinding-machine the combination, of the bed, the reciprocating carriage, the grinding-wheel mounted thereon to slide transversely thereof, the driving-shaft coupled to the spindle of the grinding-wheel by a universal coupling, the work-holding table mounted on the bed to tilt vertically, the work-driving shaft, a universal coupling between said shaft and a train of gearing connecting it with the main driving-shaft, and said gearing, substantially as set forth.

28. In a grinding-machine, the combination of the bed, the reciprocating carriage, the grinding-wheel thereon, the driving-shaft coupled to the spindle of said grinding-wheel by a universal coupling, the driving-wheel on said shaft connected thereto by means of grooves in said shaft and wheels on said driving-wheel which engages therewith, substantially as set forth.

29. In a grinding-machine, the combination, of the bed, the reciprocating carriage, the grinding-wheel thereon, the driving-shaft coupled to the spindle of said grinding-wheel and arranged to slide therewith, the driving-wheel mounted thereon and connected therewith by grooves formed in said shaft and wheels journaled on said wheel and adapted to travel in said grooves, substantially as set forth.

30. In a grinding-machine, the combination of a grinding-wheel mounted to reciprocate and coupled to a driving-wheel by means of a shaft coupled to its spindle and mounted to slide through said driving-wheel, substantially as set forth.

31. In a grinding-machine, the combination, of the grinding-wheel mounted on a reciprocating carriage and geared to a driving-wheel hy a shaft coupled to its spindle by a universal coupling and mounted to slide through said driving-wheel, substantially as set forth.

32. In a grinding-machine, the combination, of the bed, the reciprocating carriage, the grinding-wheel on said carriage, the driving-shaft mounted to slide in bearings and coupled to the spindle of said grinding-wheel, the main driving-wheel on said shaft mounted between fixed bearings, said shaft being provided with longitudinal grooves and said wheel being provided with small wheels on its sides which engage and are adapted to run in said grooves, and another gear-wheel on the outer end of said shaft connecting with the several operating mechanisms, substantially as set forth.

33. In a grinding-machine, the combination, of the bed, the reciprocating carriage thereon, the transversely-sliding grinding-wheel base on said carriage, the driving-shaft coupled to the spindle of said wheel and mounted to slide therewith through suitable bearings, the driving-wheel mounted on said shaft and connected therewith by a groove-and-wheel connection, a second wheel on said shaft through which it may slide connected to the work-driving shaft and the carriage-driving shaft by appropriate trains of gearing, substantially as set forth.

34. In a reversing-gearing for grinding-machines, the combination of the feed-shaft, a gear-wheel mounted on said feed-shaft to have a limited independent movement, an elastic connection between said gear-wheel and shaft, means for locking said wheel and shaft rigidly together after the limited movement, other gear-wheels meshing with opposite sides of said first-named gear-wheel and having clutch parts on the adjacent faces of their hubs, a double-faced clutch part interposed between them and mounted to turn with a power-driven shaft, and means for throwing said clutch part at the end of each movement of the carriage, substantially as set forth.

35. In a grinding-machine, a cushioning mechanism for the reversing-clutches comprising an elastic connection adapted to permit a limited independent movement of the driving-wheel and feed-shaft, substantially as set forth.

36. In a grinding-machine, a cushioning mechanism for the reversing-clutches comprising a spring interposed between a part of the gear-wheel on the driving-shaft and said driving-shaft, whereby said parts are permitted a limited iudependent movement and the spring thereby compressed to store a tension which will start the wheel in a reverse direction immediately upon being released from the power-driven shaft, substantially as set forth.

37. A cushioning mechanism for the clutches of the reversing-gear comprising a shaft geared to the reciprocating carriage, a gear-wheel mounted thereon to have a limited indepedent rotary movement, a spring connected at one end to said gear and at its other end to said shaft, whereby as said gear is turned on said shaft said spring will be compressed to store a tension which will operate to reverse the motion of the gear-wheel immediately upon its being released from the power-driven shaft, substantially as set forth.

38. In a grinding-machine, a cushioning mechanism for the reversing-clutches comprising the shaft for driving the carriage, a gear mounted thereon having a transverse slot in its hub, a pin secured in said shaft and extending into said slot, a spring secured at one end in said hub and at its other end in a collar locked to said shaft in a position to normally hold said pin midway in said slot, whereby as said wheel is rotated in either direction, said spring is compressed until said pin reaches one end of said slot and a tension thus secured which will operate to start the wheel in the reverse direction immediately upon its connection with the driving-power being broken, substantially as set forth.

39. In a grinding-machine, a reversing mechanism for the carriage comprising two gears having clutch parts running in opposite directions, a double-faced clutch part interposed bewteen them to engage therewith alternately, a gear-wheel engaging said first-named gears, mounted on the shaft for driving said carriage, said shaft, said gear-wheel being connected thereto by an elastic connection which permits a limited independent movement and by a positive connection at the end of said limited movement, substantially as set forth.

40. In a grinding-machine, a reversing mechanism for the carriage comprising the shaft geared thereto, a gear-wheel mounted thereon and secured thereto by means of an elastic connection which permits a limited independent movement in both directions, and a positive connection which locks the two parts together at the end of the limited movement, whereby upon the release of the clutch, said gear-wheel and the clutch parts geared thereto will be started in the reverse direction by the tension of said elastic connection, and the inertia of the carriage overcome gradually without undue strain, substantially as set forth.

41. In a grinding-machine, a carriage-reversing mechanism comprising a driving-shaft driven through reversing-clutches and means for storing power under elastic condition in both directions of motion, whereby when one clutch is released to engage the clutch

for the opposite motion said stored power rotates said last-named clutch through said gear in the direction of said opposite motion, thereby eliminating the shock otherwise occasioned, substantially as set forth.

785,259. FENCE-POST. WILLIAM G. LINDER, Bolivar, Ohio. Filed July 21, 1904. Serial No. 217,514.

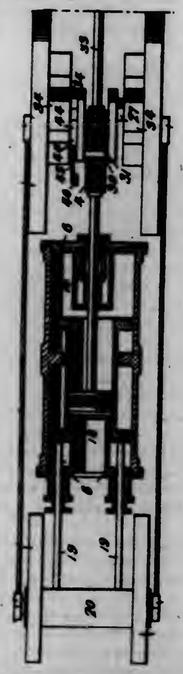


Claim.—1. A fence-post having slotted parallel flanges, a locking-plate arranged between said flanges and also provided with slots together with means for fastening said locking-plate as described.

2. A sheet-metal fence-post having parallel flanges provided with T-shaped openings, a locking-plate arranged between the flanges and also provided with T-shaped openings and means for locking said flanges and plate together as set forth.

3. A sheet-metal post having parallel flanges provided with T-shaped openings, a locking-plate arranged between the flanges and also provided with T-shaped openings, means connected to the plate for moving it vertically, and fastening-bolt passing through the flanges and locking-plate and provided with a nut as set forth.

785,260. ENGINE. EWALD E. LINDE, Sinter, Colo. Filed Mar. 3, 1904. Serial No. 196,367.



Claim.—1. In a steam-engine, a cylinder, a high-pressure piston movable therein, said piston being interiorly cored to serve as a cylinder for a low-pressure piston, and means for controlling the admission of steam to said cylinders.

2. A compound engine comprising a cylinder, a hollow cylinder-piston mounted therein, and having a cylindrical bore from end to end, a secondary piston mounted within the cylinder-piston, means for admitting steam to the cylinder so as to operate the primary and secondary pistons out of unison, and means interposed between said pistons and the engine-shaft for transmitting the combined power of the pistons to said shaft, substantially as described.

3. In a steam-engine, a cylinder, divided by circumferential abutment, a high-pressure piston movable in the cylinder, said piston being cored to form an auxiliary cylinder, a low-pressure piston within said auxiliary cylinder, and a valve for controlling the admission of steam each side of said abutment to operate the high-pressure piston and the low-pressure piston.

4. In a steam-engine having a cylinder, a high-pressure piston working therein, said piston being cored to form an auxiliary cylinder, a low-pressure piston operative within said cylinder, and means for admitting steam to the cylinder to operate said pistons out of unison.

5. A compound engine comprising a cylinder, a crank-shaft, a cylinder-piston working in the cylinder, a secondary piston working in the cylinder-piston, clearance-reducing extensions between the heads of the cylinder and the secondary piston, and suitable connections for transmitting the motion of both pistons to the crank-shaft.

6. A compound engine comprising a cylinder, a cylinder-piston mounted therein and constructed to leave an annular space between it and the inner wall of the main cylinder, heads or flanges at opposite ends of the cylinder-piston, a stationary abutment within the main cylinder in contact with the cylinder-piston, and dividing said annular space into two high-pressure chambers, a secondary piston mounted within the cylinder piston, a crank-shaft, and connections between the two pistons and the crank-shaft whereby the combined power of the pistons is transmitted to the crank-shaft, substantially as described

7. A compound engine comprising a cylinder, a cylinder-piston mounted therein to leave an annular space between it and the inner wall of the cylinder, heads or flanges at opposite ends of the cylinder-piston which define low-pressure chambers at opposite ends of the main cylinder, a stationary abutment located centrally of the main cylinder, and dividing the annular space into separate high-pressure chambers, a steam-chest provided with two sets of ports leading to the high and low pressure chambers, and a slide-valve operatively connected with the crank-shaft and adapted to alternately open and close said steam-ports, substantially as and for the purpose described.

8. A compound engine comprising a cylinder, a crank-shaft having balance-wheels, a cylinder-piston working in the cylinder, and having rods extending through one head of the cylinder, a sliding cross-head to which said rods are attached, operative connections between said cross-head and balance-wheels, a secondary piston working in the cylinder-piston, with its rod extending through the other end of the cylinder, and a slotted sliding cross-head in movable connection with this rod and operated directly from the crank-shaft.

785,261. BUTTON. FRANK J. LOWERY, Fort Fairfield, Me. Filed July 9, 1904. Serial No. 215,931.



Claim.—1. In a button, a body portion, a shank member inserted through an opening in the base of the body portion, a locking-slide inserted in the body portion through an opening in its top and having an offset in contact with the head of the shank member, said locking-slide adapted when in locking position to entirely close the openings in the body portion, substantially as shown and described.

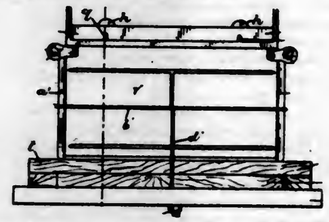
2. In a button, the combination with a shank member of a head member for receiving the shank, a latch partly inserted within the head, and having a flattened head normally in contact with the outer side of the head member, a spring pivoted upon the head and pressing against the flattened head of the latch for holding the latch in locking position, substantially as shown and described.

3. In a button, the combination with the body portion, one side of which is a flat disk, of a pin having a pointed head inserted within the body portion, a latch inserted through the disk for holding the pin in locking position and provided with a series of projections for holding it within the disk when withdrawn from contact with the pin, substantially as shown and described.

4. A button consisting of a male member provided with a pointed head, a female member for receiving the head, a latch provided with projections and arranged to hold the members in locking position, a detent on the inner side of the female member for engaging one of the projections on the latch, and a pivoted spring for holding the latch in locking position, substantially as shown and described.

785,262. MOLDING-MACHINE. JOHN LUND, Woodstock, Canada, assignor of one-half to Frederick W. Dunn, Woodstock, Canada, and William B. Dunn, Chicago, Ill. Filed Mar. 30, 1904. Serial No. 200,676

Claim.—1. In a molding-machine the combination of a stationary core, a flask inclosing the stationary core consisting of side members and end members articulatingly connected to the side members, a lid for the flask and a removable core member consisting of two side members articulatingly connected to the lid.



2. In a molding-machine the combination of a stationary core, a flask inclosing the stationary core consisting of side members and end members articulatingly connected to the side members, a lid for the flask, a removable core member consisting of two side members articulatingly connected to the lid, and springs connected to the side members of the removable core to cause their contraction.

3. In a molding-machine the combination of a base member, a core member therefor, and a flask consisting of side members, and end members having transversely-disposed slots therein opposed to and extending beyond each side of the core member.

4. In a molding-machine the combination of a base element, a substantially Y-shaped core member therefor, and a flask consisting of side and end members articulatingly connected together, and centering means therefor connected to the end members to engage the core member and correctly position the flask.

5. In a molding-machine the combination of a flask consisting of side members having longitudinally-disposed apertured lugs and end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together, a stationary core contained within the flask and a removable core consisting of two articulating members to be expanded by the stationary core as the removable core enters the flask.

6. In a molding-machine the combination of a flask consisting of side members having longitudinally-disposed apertured lugs and end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together, a stationary core contained within the flask, a removable core consisting of two articulating members to be expanded by the stationary core as the removable core enters the flask, and transversely-disposed slots in the end members extending beyond the core members to permit of the bond-irons being inserted into the flask.

7. In a molding-machine the combination of a flask consisting of side members having longitudinally-disposed apertured lugs and end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together, a stationary core contained within the flask and a removable core consisting of two articulating members to be expanded by the stationary core as the removable core enters the flask, and tension-springs for the articulating core members.

8. In a molding-machine the combination of a flask consisting of side members having longitudinally-disposed apertured lugs and end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together, a stationary core contained within the flask, a removable core consisting of two articulating members to be expanded by the stationary core as the removable core enters the flask, transversely-disposed slots in the end members extending beyond the core members to permit of the bond-irons being inserted into the flask, and tension-springs for the articulating core members.

9. In a molding-machine the combination of a flask, a stationary core therefor, a removable lid for the flask and a removable core consisting of two articulating core-sections connected thereto to be expanded into position by the stationary core as the removable core enters the flask.

10. In a molding-machine the combination of a flask, a stationary core therefor, a removable lid for the flask and a removable core consisting of two articulating core-sections connected thereto to be expanded into position by the stationary core as the removable core enters the flask, and tension-springs to contract the articulating core-sections as the removable core is withdrawn from the flask.

11. In a molding-machine the combination of a flask, a lid therefor, transversely-disposed hinge-pins supported by the lid and core-sections articulatingly mounted on the pins.

12. In a molding-machine the combination of a flask, a lid therefor, transversely-disposed hinge-pins supported by the lid and core-sections articulatingly mounted on the pins, and tension-springs to contract the core-sections as they are withdrawn from the flask.

13. In a molding-machine the combination of a flask, a lid therefor, having alining slots at each side, and vertically-disposed lugs at the outer sides of the slots, core-sections having lugs projecting through the alining slots and hinge-pins projecting through the lugs of the core-sections and removable lid.

14. In a molding-machine the combination of a flask, a lid therefor, having alining slots at each side, and vertically-disposed lugs at the outer sides of the slots, core-sections having lugs projecting through the alining slots and hinge-pins projecting through the lugs of the core-sections and removable lid and tension-springs to contract the core-sections as they are withdrawn from the flask.

15. In a molding-machine the combination of two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

16. In a molding-machine the combination of two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask, and a tension-spring to return the actuating-lever to its inoperative position.

17. In a molding-machine, a flask consisting of side members having longitudinally-disposed apertured lugs, end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together so as to cause their united assembly and separation, in combination with two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

18. In a molding-machine, a flask consisting of side members having longitudinally-disposed apertured lugs, end members having transversely-disposed slots therein to permit of the bond-irons being inserted into the material to be molded, and laterally-disposed hooked lugs for the end members to extend through the apertured lugs and articulatingly connect the side and end members together so as to cause their united assembly and separation, in combination with two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

19. In a molding-machine the combination of a base element and a flask consisting of side members having longitudinally-disposed apertured lugs, end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together so as to cause their united assembly and separation, in combination with two bell-crank levers positioned to engage the opposite side of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

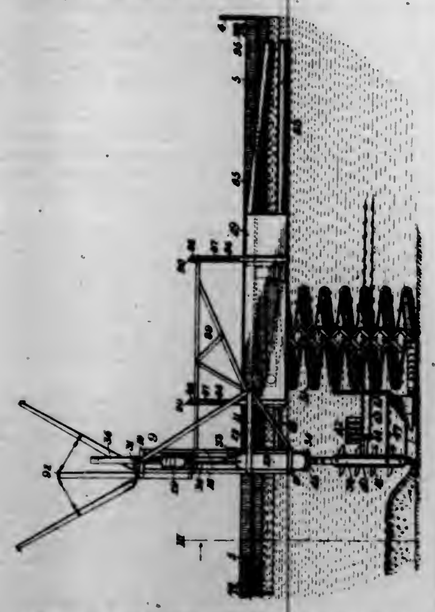
20. In a molding-machine the combination of a base element, a core element therefor, a flask consisting of side members having longitudinally-disposed apertured lugs, end members having laterally-disposed hook-lugs to extend through the apertured lugs and articulatingly connect the side and end members together so as to cause their united assembly and separation, two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

21. In a molding-machine the combination of a base element, a flask consisting of side members having longitudinally-disposed apertured lugs, end members having transversely-disposed slots therein to permit of the bond-irons being inserted into the material to be molded, laterally-disposed lugs for the end members to extend through the apertured lugs and articulatingly connect the side and end members together so as to cause their united assembly and separation, two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever

with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

22. In a molding-machine the combination of a base element, a core element therefor, a flask consisting of side members having longitudinally-disposed apertured lugs, end members having transversely-disposed slots therein to permit of the bond-irons being inserted into the material to be molded, laterally-disposed hooked lugs for the end members to extend through the apertured lugs and articulatingly connect the side and end members together so as to cause their united assembly and separation, two bell-crank levers positioned to engage the opposite sides of the flask, an operating-lever, links connecting the operating-lever with the bell-crank levers, and flask-clamps carried by the bell-crank levers to engage the ends and sides of the flask.

785,263. MINING-DREDGE. ALLAN G. MACDONELL, Chevy Chase, Md. Filed June 4, 1903. Serial No. 160,125.



Claim.—1. A dredge, comprising spaced floats and a transverse bridge carrying a rigid ladder-excavator, the bridge being longitudinally movable in the space between the floats, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

2. A dredge, comprising spaced floats and a transverse bridge carrying a rigid ladder-excavator, the bridge being longitudinally movable in the space between the floats and the excavator being vertically movable on the bridge, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

3. A dredge, comprising spaced floats and a transverse bridge carrying a rigid ladder-excavator, the bridge being longitudinally movable in the space between the floats and the excavator being transversely movable on the bridge, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

4. A dredge, comprising spaced floats and a transverse bridge carrying a rigid ladder-excavator, the bridge being longitudinally movable in the space between the floats and the excavator being vertically and transversely movable on the bridge, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

5. A dredge, comprising spaced floats having rails on their adjacent faces, a transverse bridge longitudinally movable on said rails, a rigid ladder-excavator vertically and transversely movable on the bridge, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

6. A dredge, comprising spaced floats, a transverse bridge longitudinally movable in the space between the floats, a frame having transverse rails and vertically movable on the bridge, a rigid ladder-excavator transversely movable on said rails, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

7. A dredge, comprising spaced floats, a transverse bridge longitudinally movable in the space between the floats, a frame having transverse rails and vertically movable on the bridge, a sleeve transversely movable on said rails, and an excavator-ladder vertically movable in said sleeve, as set forth.

8. A dredge, having a rigid ladder-excavator which is movable longitudinally, transversely and vertically on the dredge, and means for moving the ladder forward and thereby forcing the excavator against the material to be dredged, as set forth.

9. A dredge, having a ladder carrying a chain of excavators, said ladder being movable longitudinally, transversely and vertically on the dredge, as set forth.

10. A dredge, having an excavator arranged to lift and discharge excavated material beneath the surface of the water, and means, beneath the surface of the water, for receiving and discharging the material delivered by the excavator, as set forth.

11. A dredge, having an excavator arranged to lift and discharge excavated material beneath the surface of the water, and a conveyer, beneath the surface of the water, for receiving and discharging the material delivered by the excavator, as set forth.

12. A dredge, having an excavator arranged to lift and discharge excavated material beneath the surface of the water, an inclined screen beneath the surface of the water in position to receive the material delivered by the excavator, and a conveyer in position to receive and discharge the coarse material thrown from the screen, as set forth.

13. A dredge, having an excavator arranged to lift and discharge excavated material beneath the surface of the water, a screen beneath the surface of the water in position to receive the material delivered by the excavator, and a suction-pipe arranged to withdraw the fine material which passes through the screen, as set forth.

14. A dredge, having an excavator arranged to lift and discharge excavated material beneath the surface of the water, an inclined screen beneath the surface of the water in position to receive the material delivered by the excavator, a conveyer in position to receive and discharge the coarse material thrown from the screen, and a suction-pipe arranged to withdraw the fine material which passes through the screen, as set forth.

15. A dredge, having a suction-pipe with a suction-head, and a plow over the suction-head and having its lower edge above the bottom of the suction-head, as set forth.

16. A dredge, having a suction-pipe with a flexible suction-head, as set forth.

17. A dredge, having a suction-pipe with a flexible suction-head comprising nested and slotted metal rings, as set forth.

18. A dredge, having a suction-pipe with a flexible suction-head comprising nested and slotted metal rings, and a flexible lip extending from one edge of the slots, as set forth.

19. A dredge, having a suction-head consisting of two connected members, each member having an inlet and an independent suction-pipe, and a one-way valve closing the passage between the two members, as set forth.

20. A dredge, having a suction-head and a brush adjacent to said head, as set forth.

21. A dredge, having a suction-head and a revoluble brush adjacent to said head, as set forth.

22. A dredge, having a suction-pipe consisting of a series of superposed sections connected at alternate ends by adjustable joints, as set forth.

23. A dredge, having a suction-pipe consisting of a series of superposed sections with matched flanges at alternate ends, and means for coupling the flanges together but permitting them to slide on each other, as set forth.

24. A dredge, having a suction-pipe consisting of a series of superposed sections connected at alternate ends by adjustable joints, and a lazy-tongs having its points of intersection pivoted to the alternate sections, as set forth.

25. A mining-dredge, having an inclined suction-pipe extending downward to a mouth in position to receive the deposit, and means for recovering gold from material delivered from said pipe, as set forth.

26. A mining-dredge, having an inclined, vertically-adjustable suction-pipe extending downward to a mouth in position to receive the deposit, and means for recovering gold from the material delivered from said pipe, as set forth.

27. A mining-dredge, having an inclined, collapsible suction-pipe extending downward to a mouth in position to receive the deposit, and means for recovering gold from the material delivered from said pipe, as set forth.

28. A mining-dredge, comprising an inclined suction-pipe extending downward to a mouth in position to receive the deposit, a conduit connected to said pipe and containing a gold-saving device, and a pump connected to the discharge end of said conduit, as set forth.

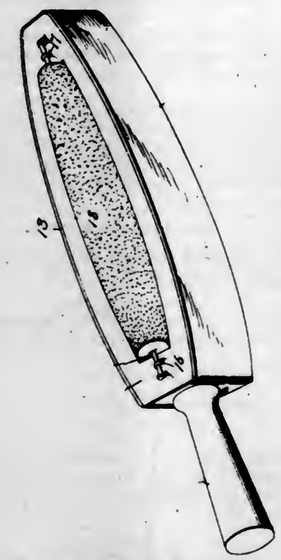
29. A mining-dredge, comprising an inclined suction-pipe, a conduit connected to said pipe and containing a mercury-pocket, a magnetic iron-separator and a gold-saving device, and a pump connected to the discharge end of said conduit, as set forth.

30. A mining-dredge, comprising a collapsible suction-pipe, a floating box receiving the upper end of said pipe, and a conduit containing a gold-saving device, said conduit supported in said box and connected to said pipe, as set forth.

31. A mining-dredge, comprising an excavator, a collapsible suction-pipe, a floating box receiving the upper end of said pipe, said box movable with said excavator and on transverse guides, and a conduit containing a gold-saving device, said conduit supported in said box and connected to said pipe, as set forth.

32. A mining-dredge, comprising a collapsible suction-pipe, a floating box receiving the upper end of said pipe, a conduit containing a gold-saving device, said conduit supported in said box and connected to said pipe, a pump connected to the discharge end of said conduit, a well to receive the material from said pump, and means for separating and separately delivering the coarser and finer portions of said material, as set forth.

785,264. RAZOR-STROP. GEORGE E. MAIER, Troy, Ohio. Filed June 20, 1904. Serial No. 213,371.

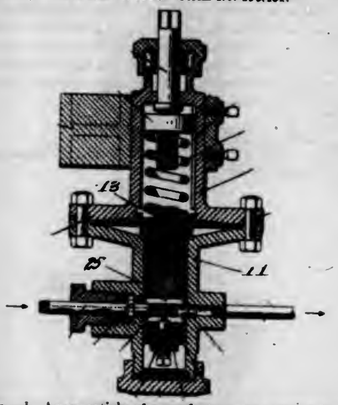


Claim.—1. In a razor-strop, a base-block having a longitudinal cavity in one side, and a sharpening medium formed of a roller having longitudinally-convex sides and mounted for rotation in said cavity.

2. A razor-strop comprising a stock having three of its sides longitudinally bowed and provided with sharpening-surfaces, and its fourth side provided with a longitudinal cavity, and a fusiform sharpening element mounted for rotation within the cavity.

3. In a razor-strop, a base-block with a plurality of its sides as sharpening mediums and longitudinally convex and with a longitudinal cavity in one of its sides, and a sharpening medium formed of a roller having longitudinally-convex sides and mounted for rotation in said cavity.

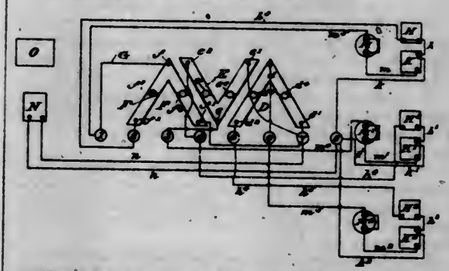
785,265. EXPANSION-VALVE FOR REFRIGERATING APPARATUS. ALBERT T. MARSHALL, Swampscott, Mass., assignor to Federal Automatic Refrigerating Co., New York, N. Y., a Corporation of New Jersey. Filed Mar. 4, 1904. Serial No. 196,481.



Claim.—1. As an article of manufacture, an automatic expansion-valve for refrigerating apparatus comprising a diaphragm-casing, a diaphragm mounted therein and acted upon on one side by the pressure of the refrigerating medium, and upon the other side by a spring inclosed within the diaphragm-casing and tending to move the diaphragm in the opposite direction, a pipe extending transversely into the diaphragm-casing and containing both the inlet and outlet passages for the refrigerating medium, a collar upon the pipe with a pin extending therefrom which engages a socket in the casing to hold the pipe from turning, an operating-piece or plunger extending down from the diaphragm, said operating-piece or plunger having a cylindrical hole through which the pipe passes, and a valve-stem threaded into the operating-piece and having a pointed valve at its upper end so as to be self-centering with respect to its valve-seat.

2. As an article of manufacture, an automatic valve for refrigerating apparatus comprising a diaphragm-casing, a diaphragm mounted therein and acted upon on one side by pressure of the refrigerating medium, a coiled spring inclosed within the diaphragm-casing and tending to move the diaphragm in the opposite direction, an adjusting-collar for said spring and having a key engaging a slot extending part way through the walls of the diaphragm-casing, a pipe extending transversely into the diaphragm-casing and containing both the inlet and outlet passages for the refrigerating medium, a collar on the pipe with a pin extending therefrom and engaging a socket in the casing to prevent the pipe from turning, an operating-piece or plunger extending down from the diaphragm, said operating-piece or plunger having a cylindrical hole through which the pipe passes and a valve-stem threaded into the operating-piece and having a pointed valve so as to be self-centering with respect to the valve-seat.

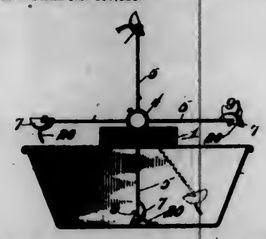
785,266. RESONATOR-SWITCH. HAROLD C. MOYER, Springfield, Ill. Filed Feb. 8, 1904. Serial No. 192,549.



Claim.—In an apparatus of the class described, the combination of a number of V-shaped conducting-plates each consisting of three electrically-separate members; a corresponding number of batteries having one terminal connected with a member of said plates respectively, a corresponding number of relays respectively con-

nected with the other terminal of said batteries; a corresponding number of sounders connected with said relays respectively and also connected with one member of said conducting-plates respectively; a common conductor such as a post 7, connected with one member of each of said conducting-plates, a common conductor such as a post 8 connected with each of said relays, and a resonator having one terminal connected with the conductor common to the conducting-plates and the other terminal connected with the conductor common to said relays, and plugs fitting in the openings between the members of said conducting-plates, as set forth.

785,267. BASTING DEVICE. HUGH MCPHAILL, Visalia, Cal. Filed Dec. 29, 1903. Serial No. 187,008.



Claim.—1. In a basting device, a rotary element having a spoke, an arm extending laterally from one side of said spoke and having a stop, and a tilting bucket mounted upon the said arm with its upper edge in the path of said stop.

2. In a basting device, a rotary element comprising a hub mounted detachably upon a driven shaft and having radiating spokes, arms extending laterally from said spokes, swinging buckets mounted upon said arms and stops formed at the extremities of said arms and extending over the upper edges of the buckets.

785,268. GAS-FURNACE-RETORT SETTING. GLENN H. MILES, New York, N. Y. Filed Apr. 4, 1904. Serial No. 201,491.



Claim.—1. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column and coöperating binder-blocks.

2. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, keys, and coöperating binder-blocks.

3. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their lower portions with projections, and binder-blocks receiving said projections.

4. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their lower portions with projections, keys between the upper ends of said wing-blocks, and binder-blocks receiving the projections of the wing-blocks.

5. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their upper ends with recesses, keys seated at their ends in said recesses, and binder-blocks at the lower ends of the wing-blocks.

6. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, binder-blocks, and shoulders on said wing-blocks engaging said binder-blocks.

7. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, keys between the upper ends of said wing-blocks, projections at the lower portions of said wing-blocks, binder-blocks receiving said projections of the wing-blocks, and shoulders on the wing-blocks engaging said binder-blocks.

8. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their lower portions with projections, and binder-blocks receiving said projections and provided each with a projection engaging the wing-blocks below the same.

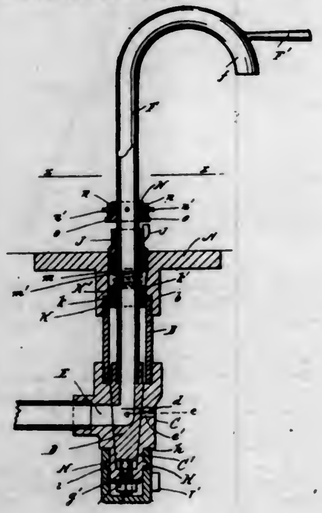
9. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, keys between the upper ends of said wing-blocks, projections at the lower portions of said wing-blocks, binder-blocks receiving said projections of the wing-blocks, shoulders on the wing-blocks engaging said binder-blocks, and projections on each binder-block engaging the wing-blocks below the same.

10. In a retort-setting, column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column.

11. The combination of retorts arranged in tiers, means for supporting said retorts at their outer sides, and a supporting-column extending vertically between the tiers and comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column.

12. The combination of retorts arranged in tiers, means for supporting said retorts at their outer sides, and a supporting-column extending vertically between the tiers and comprising binder-blocks and column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column.

785,269. HYDRANT. ROBERT L. POLLOCK, Sterling, Kans. Filed Feb. 17, 1904. Serial No. 193,967.



Claim.—In a hydrant, the combination, with a ground-plate, a valve-casing, and a tubular distance-piece connecting the said casing and plate; of a valve in the said casing, a revoluble delivery-pipe secured to the said valve and having a delivery-spout at its upper end, a vertically-movable bearing J in which the middle part of the delivery-pipe is journaled, said bearing having a projection *j* and being screwed into the said ground-plate, a collar secured on the delivery-pipe below the said bearing, a spring between the said collar and bearing, a collar adjustably connected to the delivery-pipe above the said bearing, and catches pivoted to the last said collar and arranged to engage with the said projection *j*.

785,270. FENCE-POST. ARON O. REAMS, Concord, Ill. Filed Aug. 8, 1904. Serial No. 219,960.



Claim.—1. The combination with a fence-post, of a base consisting of top and bottom plates having projecting lugs, bricks arranged between the same, tie-bolts adapted to be passed through said plates to hold and clamp the same together, a socket formed on said upper plate to receive the lower end of said post and brace-bars connected to said plate and to said post whereby the latter is supported on said base, substantially as described.

2. The combination with a fence-post, of a base consisting of top and bottom plates, bricks or blocks arranged between the same, tie-bolts adapted to be passed through said plates to hold and clamp the same together, lugs formed on the edges of said plates and projecting toward each other, to prevent said bricks or blocks from slipping, a socket formed on said upper plate to receive the end of said post, brace-bars connected to said plate and post to hold the latter in place, and means whereby the fence is connected to said posts, substantially as described.

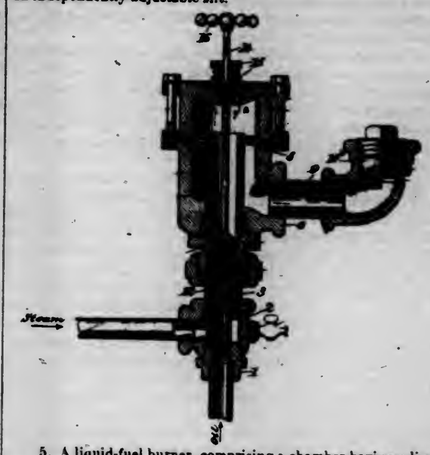
785,271. LIQUID-FUEL BURNER. WILLIAM F. RICHEY and THOMAS DALY, Paris, Tex.; said Richey assignor to said Daly. Filed Mar. 18, 1904. Serial No. 198,758.

Claim.—1. A liquid-fuel burner comprising a chamber having a tube for admitting steam entering it near one end of the chamber, a liquid-fuel inlet within said tube, means for mixing the fluid and fuel comprising a tortuous passage surrounding said tube, and having an outlet near the end of the chamber at which said tube enters the chamber.

2. A liquid-fuel burner, comprising a chamber having a liquid fuel inlet, a steam-inlet, and means for intimately mixing the steam and fuel, said last-mentioned means comprising a surface opposite said fuel-inlet, and an apertured plate within said chamber out of the direct path of the fuel from the inlet to said surface.

3. A liquid-fuel burner, comprising a chamber having a liquid-fuel inlet, a steam-inlet, means for regulating the admission of fuel, and means for intimately mixing the steam and fuel, said last-mentioned means comprising a convex surface and a plate having corrugations on one surface and surrounding said inlets.

4. A liquid-fuel burner comprising a chamber having a fluid-inlet, a regulatable liquid-fuel inlet within said fluid-inlet, a baffle-plate opposite said fluid-inlet at one end of the chamber, and an outlet at the other end of the chamber comprising a nozzle provided with an independently-adjustable slit.



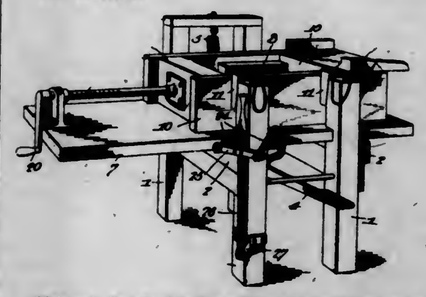
5. A liquid-fuel burner, comprising a chamber having a liquid-fluid inlet, an inlet for vaporizing fluid, and means for intimately mixing the fluid and fuel, comprising a convex surface closing the end of said chamber opposite said inlets, and a mixing-plate within said chamber; said chamber having an outlet near the end opposite said convex surface, and a pipe leading from said outlet and provided with a nozzle.

6. The combination of a liquid-fuel pipe, a steam-pipe, a connection attached to both of said pipes and having a steam-chamber, a mixing-chamber, connections from said steam-chamber to said mixing-chamber, comprising an adjustable nut, a tube extending from said connections into the interior of the mixing-chamber, a tube extending from said fuel-pipe into said connections toward said mixing-chamber, and a baffle-plate in the mixing-chamber and surrounding said first-mentioned tube.

7. A liquid-fuel burner comprising a chamber having a liquid-fuel inlet, a steam-inlet, and means for intimately mixing the steam and fuel, comprising a convex surface opposite said inlets, and a slotted plate surrounding said inlets.

8. A liquid-fuel burner comprising a chamber having a liquid-fuel inlet, a steam-inlet, and means for intimately mixing the steam and fuel, comprising a convex surface closing the end of said chamber opposite said inlets, and a slotted plate within said chamber and adjacent to said inlets, said chamber having an outlet near the end opposite said convex surface, and a pipe leading from said outlet and provided with a nozzle having an adjustable slot.

785,272. MACHINE FOR MOLDING HOLLOW CEMENT BLOCKS. HEZEKIAH A. ROBBINS, Bedford, Iowa. Filed May 19, 1904. Serial No. 208,738.



Claim.—1. In a machine for molding hollow concrete blocks, a mold having a rigid side wall and a rigid end wall and provided with movable side and end walls, a movable bottom plate, means for moving the bottom plate outwardly from the mold, and devices for guiding such means in a direction diagonal of said mold.

2. In a machine for molding hollow concrete blocks the combi-

nation with a mold having a movable side and a movable end member, of a diagonally-movable bottom plate having bottom openings, an operating-lever, and a pair of rods connected to said lever and having pins or lugs extending into said openings.

3. In a machine for molding hollow concrete blocks, the combination with a mold having movable side and end members, of a diagonally-movable bottom plate having bottom openings, a mold-supporting table having obliquely-arranged slots, bars guided in said slots and provided at their inner ends with pins or lugs for engaging the openings in the bottom plate, and a lever connected to said bars or rods.

4. In a machine for forming hollow concrete blocks, the combination with a supporting table or frame, of a mold including a stationary side member and stationary end member, a movable end member, and a detachable side member, a screw for operating the movable end member, wedges for the support of the detachable side member, a treadle and a core carried by the treadle and extending upward through an opening in the table to a position within the mold.

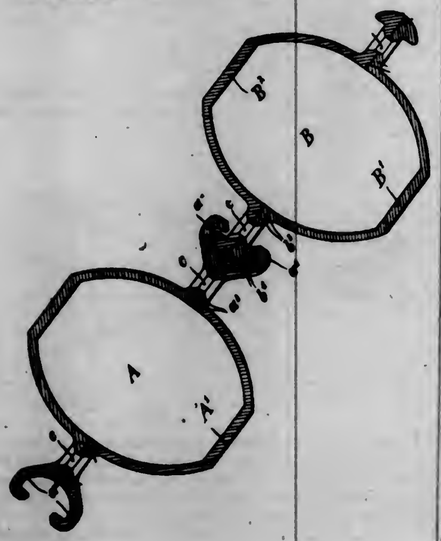
5. In a machine for forming hollow concrete blocks, the combination with a frame including a pair of rear uprights, and a pair of front uprights, the latter being provided with inclined or beveled inner faces, a stationary table having a core-receiving opening, a core, a treadle connected to the core, a spring tending normally to elevate the treadle, a back plate detachably secured to the rear pair of uprights, a detachable front plate, wedges for insertion between said plate and the inclined walls of the front pair of uprights, a stationary end block detachably secured to the table, a movable end block, a screw having swiveled connection with said movable end block, and a bracket having a threaded opening for the passage of said screw.

785,273. **BRUSH.** PAUL A. SIRCHINGER, Plauen, Germany. Filed June 6, 1904. Serial No. 211,402.



Claim.—An improved brush comprising in combination a frame, bristle-holders rotatably mounted in said frame at uniform distances from each other, an angular rack at each side of the frame pivoted with one edge to the same and teeth at the other edge of the angular rack adapted to project into the intervals between the bristle-holders, substantially as described and shown and for the purpose set forth.

785,274. **METALLIC PILING.** MORITZ SCHLEUSSNER, Bredeney, near Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed Sept. 29, 1904. Serial No. 226,598.



Claim.—1. A piling comprising a pair of symmetrical channel members, each member having a pair of outwardly-extending flanges consisting of a straight inner portion abutting against and riveted to the flange of the opposing channel member and a bent outer portion forming with the flange of the opposing channel member an interlocking member adapted to engage an adjacent piling.

2. A piling comprising a pair of symmetrical channel members, each member having a pair of oppositely-extending flanges integral therewith, said flanges having a bent outer end, means for securing the flanges of the two members together intermediate of the channel portion and the bent flange portion to form a tubular member and a pair of oppositely-extending interlocking members, the last-named members being adapted to interlock with the interlocking members of the adjacent pilings.

785,275. **SELF-LOADING SMALL-ARMS.** JENS T. S. SCHOUBOE, Copenhagen, Denmark. Filed June 25, 1901. Serial No. 66,009.



Claim.—1. In a recoil-operated firearm, the combination with the rearwardly-sliding barrel, and barrel extension, of a tubular breech-bolt coöperating therewith, a hollow firing-pin, having its forward end located within the breech-bolt, a spring partly located within the hollow pin, and a handle-piece encircling the rear portion of the firing-pin and the breech-bolt and only connected with the latter by means of screw-formed grooves and ribs to effect a turning of the breech-block in the handle-piece, the turning being only limited by horizontal grooves in the barrel extension, substantially as described.

2. In a recoil-operated firearm, the combination with the sliding barrel, and tubular breech-bolt, of a hollow firing-pin, a stationary lock-cover, a second lock-cover within the same having circumferential movement, a rigid part closing the rear end of said stationary cover, a locking-knob carried by said rigid part, a guide-pin carried by said locking-knob in line with the hollow firing-pin, and a percussion-spring encircling said pin and projecting into the firing-pin, substantially as described.

3. In a recoil-operated firearm, the combination with the sliding barrel, breech-bolt, firing-pin and handle-piece, of trigger mechanism comprising a pivoted three-armed lever, one of said arms forming the trigger, stops and a cocking-block carried by one of the other arms, a rocking piece pivoted to the other arm having an upwardly-projecting hook, and a spring acting on said rocking piece, substantially as described.

785,276. **SYSTEM OF WIRELESS TELEGRAPHY WITH TUNED MICROPHONE-RECEIVERS.** ADOLF SLABY, Charlottenburg, and GEORG G. ARCO, Berlin, Germany. Filed Sept. 27, 1901. Serial No. 76,813.



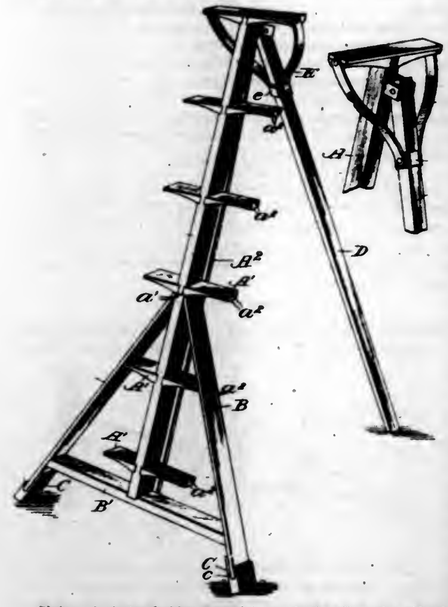
Claim.—1. A microphone-receiver comprising two recessed conducting-bodies, and a conducting-ball located between said bodies and engaging them at their recesses.

2. A receiving system for wireless telegraphy which comprises an aerial conductor, adapted to receive the electrical impulses and connected to the earth, and a branch circuit connected with said aerial conductor, said branch circuit including a microphone and means for so transforming the energy received by the aerial conductor as to decrease the potential and increase the current.

3. A receiving system for wireless telegraphy, comprising an aerial conductor connected to the earth and a branch circuit connected with said aerial conductor and having a rate of oscillation equal to that of the aerial conductor, a microphone included in said branch circuit and means likewise included in the branch circuit, for so transforming the energy received from the aerial conductor as to diminish the tension and increase the strength of the current.

4. A transmitter for wireless telegraphy comprising a continuous aerial conductor connected with the earth, and an exciting branch circuit containing the spark-gap and connected with said aerial conductor and having the same product of self-induction and capacity as said conductor, the capacity of the branch circuit being larger than that of the aerial conductor and the self-induction of the branch circuit being correspondingly smaller.

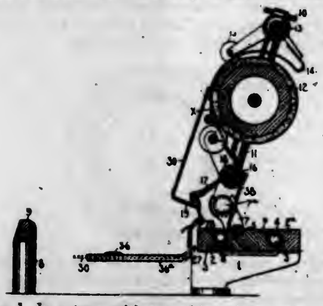
785,277. **STEP-LADDER.** ANDREW A. SMITH, Paonia, Colo. Filed Aug. 25, 1904. Serial No. 222,078.



Claim.—1. A step-ladder comprising a single stile, pairs of horizontally-alined steps secured to the opposite sides of said stile, a single prop pivoted to the upper end of the stile, a yoke pivoted at its upper ends to the top step and provided at its lower converging ends with a collar through which said stile slides.

2. A step-ladder consisting of a single stile, pairs of horizontally-alined steps secured to the opposite sides of the stile, a strengthening-strip along the rear side of the stile and overlapping the rear edges of the steps, diverging braces secured to the stile, a cross-piece on the lower end of the stile to the end of which said braces are secured, feet on the lower end of the braces, and a single prop secured at the upper end to the upper end of the stile.

785,278. **TYPE-WRITING MACHINE.** ARTHUR W. SMITH, New York, N. Y., assignor to Yost Writing Machine Company, Ilion, N. Y., a Corporation of New York. Filed Sept. 4, 1903. Serial No. 171,884.



Claim.—1. In a type-writing machine, the combination of a swinging platen, an indicator, means for positively moving the indicator to the indicating position when the platen is turned back, said means being constructed to enable the indicator to remain in the normal or non-indicating position if desired when the platen is in the turned-back position.

2. In a type-writing machine, the combination of a swinging platen, an indicator that is connected to be positively moved to the indicating position when the platen is turned up, and means for at will releasing the indicator from its moving means.

3. In a type-writing machine, the combination of a swinging platen, an indicator that is connected to automatically move to the indicating position when the platen is turned back, and hand-operated means for disconnecting said indicator from its moving means so that the indicator may be in the normal or non-indicating position when the platen is turned back.

4. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a pivoted indicator, connections between the indicator and the platen-frame, so that a swinging movement of the platen-frame will cause the indicator to move to the indicating position, and hand-actuated means for disconnecting the indicator from the platen-frame, so as to enable the indicator to drop by gravity from the indicating position when desired.

5. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a pivoted indicator, connections between the indicator and the platen-frame, so that a swinging movement of the platen-frame will cause the indicator to move to the indicating position, hand-actuated means for disconnecting the indicator from the platen-frame, so as to enable the indicator to drop by gravity from the indicating position when desired, and means for automatically connecting the platen-frame to the indicator by a movement of the platen-frame down to the normal position.

6. In a type-writing machine, the combination of a swinging platen, a printing-point indicator, and releasable connecting devices between the platen and the indicator whereby the indicator may either be drawn up into operative position through said connections by the movement of the platen or may be disconnected from the platen and left in its normal non-working position when the platen is in upturned position.

7. In a type-writing machine, the combination of a swinging platen, a movable automatically-actuated indicator controlled by the swinging movement of the platen, means for rendering the indicator inoperative to automatically indicate, and means for automatically engaging the indicator to render it operative.

8. In a type-writing machine, the combination of a swinging platen, an indicator operatively connected to and adapted to be controlled by the swinging movement of the platen, a catch for operatively connecting said indiator, and hand-operated means for releasing said catch.

9. In a type-writing machine, the combination of a swinging platen, an indicator operatively connected to and adapted to be controlled by the swinging movement of the platen, a catch for operatively connecting said indicator, hand-operated means for releasing said catch, and means for automatically effecting an engagement of said catch after it has been released and the platen is turned down.

10. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, an actuator carried by said frame, an indicator, and a releasable catch between said indicator and actuator.

11. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a bar carried by said platen-frame, a movable indicator that is operatively connected to and is adapted to be controlled by said bar, and means for disconnecting the indicator from the bar.

12. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a bar carried by said platen-frame, an indicator pivoted to a fixed portion of the machine and with relation to which the said bar is adapted to move in the direction of the travel of the platen-frame, and a releasable catch between the bar and indicator.

13. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, an actuator that is pivoted to said platen-frame and is substantially coextensive with the travel of the carriage, an indicator pivoted to a fixed portion of the machine, and means for effecting a connection between the said pivoted actuator and the indicator and for affording a lost motion between said parts.

14. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a bar that is pivoted to said platen-frame and extends substantially throughout the travel of the carriage and has a hook-like flange on one edge thereof, and an indicator pivoted to a fixed portion of the machine and having an engaging member that is adapted to engage the hook-like flange on the bar.

15. In a type-writing machine, the combination of a swinging carriage, a movable indicator, and a pivoted actuator and coöperating catch member interposed between said carriage and indicator, whereby the indicator may be connected to or disconnected from the carriage at will.

16. In a type-writing machine, the combination of a swinging carriage, and an indicator operatively connected to be moved to the indicating position by a swinging movement of the carriage and automatically released from the carriage by a travel thereof beyond the normal limits.

17. In a type-writing machine, the combination of a swinging carriage, an indicator pivoted to a fixed portion of the machine and operatively connected to be moved to the indicating position by a swinging movement of the carriage, and a catch that forms the operative connection between the carrriage and indicator and which is automatically released when the carriage travels beyond its normal limits.

18. In a type-writing machine, the combination of a swinging carriage, a bar pivoted to said carriage and having an engaging member, and a pivoted indicator having an engaging member that coöperates with the engaging member on the bar and adapted to be released therefrom and to afford a movement of the bar with relation thereto during the travel of the carriage.

19. In a type-writing machine, the combination of a swinging carriage, a platen, a pivoted printing-point indicator that is operatively connected to the carriage to be positively moved to the indicating position by the swinging movement of the carriage and is at all times out of contact with the platen or the paper thereon, and means for detaching the indicator from the carriage.

20. In a type-writing machine, the combination with a swinging carriage, a platen, and margin feed-rollers, of a printing-point indicator which is operatively connected to the carriage to be positively moved to the indicating position by the swinging movement of the carriage and is at all times maintained out of contact with the platen or the paper thereon and with the paper-feed rollers, and means for detaching the indicator from the carriage.

21. In a type-writing machine, the combination of a swinging platen, and a pivoted printing-point indicator that is free from contact with the platen or the paper thereon during the swinging movements of the platen and is operatively connected to the carriage so as to be positively moved in both directions by the swinging movement of the platen, and means for disconnecting the indicator from its moving means.

22. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a printing-point indicator pivoted to a fixed portion of the machine and positively moved in both directions by the swinging movements of the platen-frame, a bar, and means for engaging said bar, one of said bar and engaging means elements being carried by and swinging with the platen-frame and the other being connected to the printing-point indicator.

23. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a printing-point indicator pivoted to a fixed portion of the machine and positively moved in both directions by the swinging movements of the platen-frame, an actuator connected to the platen-frame, and means for disengageably connecting the printing-point indicator and said actuator.

24. In a type-writing machine, the combination of a swinging platen-frame, a platen carried thereby, a printing-point indicator pivoted to a fixed portion of the machine, the swinging movement of which is controlled by a swinging bar that is controlled by the swinging movement of the platen-frame, and means for disconnecting said indicator from said bar.

25. The combination with a type-writing machine having interchangeable carriages, of an indicator pivoted to a fixed portion of the machine, engaging means carried by the carriages and coöperating with the indicator for automatically moving the indicator to an indicating position by a swinging movement of the carriage on the machine, and means for readily effecting a disengagement between the engaging means on the carriages and the indicator.

785,279. **SHEET-METAL BOX.** LOUIS STEINER, New York, N. Y. Filed Sept. 9, 1904. Serial No. 223,816.

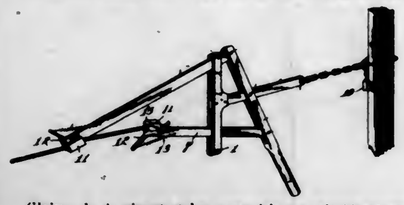


Claim.—1. The sheet-metal box herein described having cap hinged upon one end to lock the cover-plate, and the opposite end entirely closed to form a receptacle with an opening in the front of the box above such receptacle, a flat cover-plate hinged to the top edge of such receptacle, and the cap arranged and operated to engage the free end of the cover-plate when closed, and provided with the thumb-piece *k* for lifting the cap.

2. The sheet-metal box herein described having a cap hinged upon one end to lock the cover-plate, and the opposite end entirely closed to form a receptacle with an opening in the front of the box above such receptacle, a flat cover-plate hinged to the top edge of the receptacle and extended upwardly to the free edge of the cap, and said free edge provided with a sloping lip to be pressed back by the edge of the cover-plate.

3. The sheet-metal box herein described having a cap hinged upon one end to lock the cover-plate, and the opposite end entirely closed to form a receptacle with an opening in the front of the box above such receptacle, a flat cover-plate hinged to the top edge of the receptacle and extended upwardly to the free edge of the cap, a spring to hold the cover-plate normally open, a spring to hold the cap normally closed, and the free edge of the cap provided with a sloping lip to be pressed back by the edge of the cover-plate, whereby the cap is automatically locked when closed and automatically opened when the cap is raised.

785,280. **WIRE-STRETCHER.** RALPH H. TURLEY and REID K. GAMBRELL, Greeley, Colo. Filed Dec. 20, 1904. Serial No. 237,625.



Claim.—1. A wire-stretcher comprising a suitably-pivoted lever, arms loosely secured to the lever, gripping means carried by and forming a part of the free end of each arm for retaining and clutching the wire, and yokes in which the arms are received and guided during their reciprocations.

2. A wire-stretcher comprising a suitably-secured rigid center bar, a lever pivotally secured thereto intermediate the ends of the bar, the lever extending on each side of the bar, an arm loosely secured to the lever on each side of its pivotal point, oppositely-extending yokes secured to the center bar, the arms received in and guided by the yokes, and gripping means carried by the free ends of the arms for engaging and alternately gripping the wire.

3. A wire-stretcher comprising a rigid center bar, a flexible connection secured to one end thereof, guiding means secured near the opposite end thereof, a lever pivotally secured to the center bar in rear of the guiding means, arms loosely connected to the lever and engaged by the guiding means, and gripping means carried at the free end of each arm.

785,281. **EYELET.** HENRY WALDEN, Philadelphia, Pa., assignor to United Fast Color Eyelet Company, Portland, Me., a Corporation of Maine. Filed Jan. 9, 1905. Serial No. 240,245.



Claim.—1. An eyelet provided with a head comprising a covering of wear-resisting material and having alternate depressions and raised portions formed on said head.

2. An eyelet provided with a head of wear-resisting material and having corrugations extending transversely of said head.

3. A circular eyelet provided with a head of wear-resisting material and having alternate depressions and raised portions extending across said head, each being approximately in a chord of the circle in which the eyelet is formed.

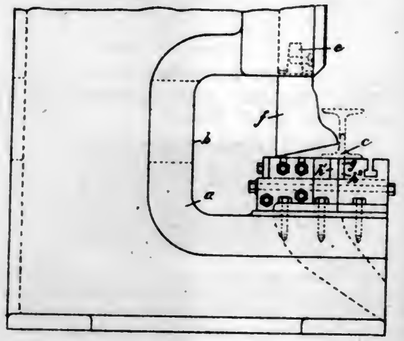
4. An eyelet comprising a barrel portion and a head of plastic material in which the upper end of said barrel portion is embedded, said plastic material having molded therein alternate depressions and raised portions extending across the head of the eyelet.

5. An eyelet having a head comprising a flange provided with a covering of wear-resisting material and having alternate depressions and raised portions formed on said head.

6. An eyelet having a head comprising a flange provided with a covering of wear-resisting material, said covering having corrugations extending transversely thereof.

7. An eyelet comprising a metallic body having an outwardly-extending flange and a covering of plastic material surrounding and inclosing said flange, said covering being formed with alternate depressions and raised portions.

785,282. **MACHINE FOR CUTTING OR PUNCHING GIRDERS, ANGLE-IRONS, &c.** ARTHUR J. WARD and CHARLES WRAGG, Sheffield, England. Filed Dec. 22, 1903. Serial No. 186,219.



Claim.—In a machine for punching and cutting metal and like bars, the combination with the cutters, a pair of movable blocks forming a recess adjustable as to its width, and a movable block forming a recess extending at right angles to the first-mentioned recess, said second recess being also adjustable as to its width.

785,283. **DYEING APPARATUS.** DANIEL F. WATERS, Philadelphia, Pa. Filed June 11, 1904. Serial No. 212,179.

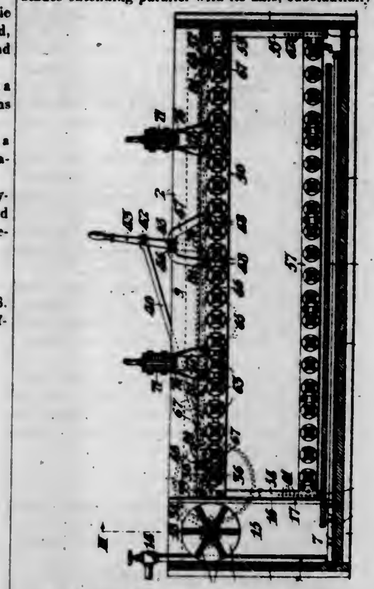
Claim.—1. In a dyeing apparatus, the combination with a vat; of a frame; a series of yarn-sticks mounted to rotate in said frame; means arranged to intermittently rotate said sticks, comprising ratchet-wheels upon the individual sticks; pawls in operative relation with said ratchet-wheels; a bar common to said pawls; a lever connected with said bar; an eccentric arranged to oscillate said lever; and, a liquor-circulating wheel in said vat, connected to rotate in definite relation with the movement of said eccentric, substantially as set forth.

2. In a dyeing-machine, the combination with a vat; of a frame; a series of yarn-sticks mounted to rotate in said frame; a liquor-circulating wheel in said vat; and, means connecting said wheel with said sticks, arranged to rotate said wheel and sticks in definite relation, substantially as set forth.

3. In a dyeing-machine, the combination with a vat; of a frame; a series of yarn-sticks mounted in said frame; a liquor-circulating wheel in said vat; and, means operatively connecting said wheel with said sticks, arranged to shift the latter in definite relation to the movement of said wheel, substantially as set forth.

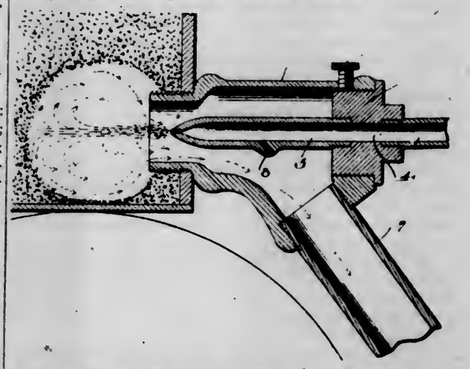
4. In a dyeing-machine, the combination with a vat; of a frame for the yarn; a heating-pipe in the bottom of said vat; an imperforate false floor between said pipe and said frame, terminating short of the opposite ends of said vat; and, a paddle-wheel mounted on a horizontal axis in said vat, arranged to circulate liquor therein above and below said floor, substantially as set forth.

5. In a dyeing-machine, the combination with a vat; of a frame for the yarn; a heating-pipe in the bottom of said vat; an imperforate false floor between said pipe and said frame, terminating short of the opposite ends of said vat; and, a liquor-circulating paddle-wheel mounted on a horizontal axis in said vat, and comprising a series of blades extending parallel with its axis, substantially as set forth.



6. In a dyeing-machine, the combination with a vat; of a frame for the yarn; a heating-pipe in the bottom of said vat; an imperforate false floor between said pipe and said frame, terminating short of the opposite ends of said vat; and, a liquor-circulating paddle-wheel mounted on a horizontal axis in said vat, and comprising a series of radial blades extending parallel with its axis, substantially as set forth.

785,284. **TRACK-SANDING DEVICE.** JOHN H. WATTERS, Augusta, Ga. Filed Oct. 10, 1904. Serial No. 227,927.



Claim.—1. In track-sanders, a sand-box, a discharge-tube leading therefrom to a point adjacent to the track, and means for directing a jet of fluid into the body of sand in a direction opposite to that in which the sand flows to the discharge-point.

2. In track-sanders, a sand-box having a discharge-pipe and means adjacent to the mouth of the pipe for directing a jet of fluid into the body of sand in a direction opposite to that in which the sand must flow in discharging.

3. In a sander, a sand-box having a discharge-mouth, and means for directing a jet of fluid into the body of the sand in the box in a direction away from said discharge-mouth and opposed to the general direction of flow of the sand in discharging.

4. A sand-box having a discharge-pipe, and means for directing a jet of fluid into the body of sand in the box in a direction opposed

to the direction in which the sand must flow in discharging, the diameter of the pipe being greater than that of the jet.

5. A sand-box having a discharge-pipe, and a jet-nozzle disposed in the mouth of the pipe and serving to direct a jet of fluid against the sand in the box, the direction of the jet being opposite to that in which the sand must flow to be discharged through said pipe.

6. In a track-sander, a sand-box having a discharge-pipe, and means for directing two jets of fluid, one against the body of sand at the mouth of the pipe, and the other within the pipe to create a partial vacuum therein.

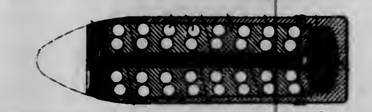
7. In track-sanders, a sand-box having a discharge-pipe, means for creating a partial vacuum within said pipe, and means for directing a jet of fluid against the body of sand at a point adjacent to the mouth of the pipe.

8. In track-sanders, a sand-box having a discharge-pipe, and a nozzle disposed adjacent to the mouth of the pipe and provided with openings for directing jets of fluid in different directions.

9. In a track-sander, a sand-box having a discharge-pipe, and a nozzle member disposed within the mouth of the pipe and provided with openings for directing two jets of fluid, one in the direction of flow of the sand through the discharge-pipe, and the other in the opposite direction.

10. In a track-sander, a casing coupled to the side of the sand-box, a discharge-pipe connected to the lower side of the casing, a threaded plug fitting in a threaded opening at the outer end of the casing, a nozzle carried by and removable with said plug, and a fluid-pressure pipe connected to the plug.

785,285. **SHRAPNEL.** ALFRED WRATHKE, Ruttenscheid, near Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed May 2, 1904. Serial No. 206,046.



Claim.—1. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of a fire-tube in said chamber having recesses producing weakened portions therein.

2. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of an imperforate tube extending through said chamber and having its wall reduced in thickness in places to weaken the tube.

3. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of a fire-tube extending through said chamber, formed with a longitudinal groove providing a weakened portion therein.

4. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of a fire-tube extending through said chamber, and having a weakened portion near one end.

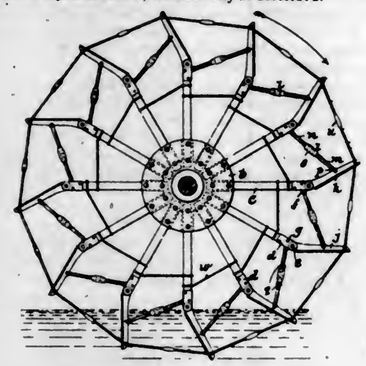
5. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of a fire-tube extending through said chamber and having weakened portions formed by longitudinal grooves near one end.

6. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of a fire-tube extending through said chamber constructed of a plurality of conforming members and having slots in one member covered by the other member.

7. In a shrapnel, the combination with the charge at the base of the shell, and the chamber containing smoke-producing substance interposed between the charge and the fuse-opening, of a fire-tube extending through said chamber and constructed of a plurality of conforming members, one of which is slotted.

785,286. **PADDLE-WHEEL.** JOHN BEST, Jeannette, Pa. Filed Aug. 2, 1904. Serial No. 219,161.

Claim.—In a paddle-wheel, the combination of a hub structure, spokes projecting from said hub structure, blades or paddles, means for pivotally supporting said blades on the spokes, longitudinally-adjustable braces connecting each blade with one of the two next adjacent pairs of spokes, and adjustable bracing means connecting each two adjacent blades, substantially as described.



785,287. **FISH-TRAP.** ADAM J. BROOME, Madison, Fla. Filed Sept. 26, 1904. Serial No. 225,953.



Claim.—A fish-trap comprising a series of hoops, rods connecting the hoops, an outer wire-gauze forming the body of the trap, funnels formed by the ends of the gauze and pointing inwardly toward each other, an inner gauze lining for part of said body, and an intermediate funnel formed by one end of the said inner gauze, all of said funnels being in horizontal alinement and having graduated openings to permit fish of all size to pass into the trap from one end and to afford a passage for small fish into the trap from the other end, substantially as shown and described.

785,288. **ROTARY PUMP.** FIRMIN BRÜCKERT, Rousies-Maubeuge, France. Filed Jan. 3, 1903. Serial No. 137,691.



Claim.—1. In a rotary motor, an outer stationary ring, an inner eccentric rotary ring in contact therewith, a central shaft in engagement with the eccentric ring, and wings hinged loosely to the central shaft and extending to the outer ring, said wings passing through the eccentric ring and having freedom of motion therein in the plane of rotation.

2. In a rotary motor, a stationary ring, an internal rotary ring in contact with and eccentric to the same, a central shaft geared to the eccentric ring, wings connected to the said shaft and extending through the eccentric ring to the stationary ring, and swivels seated in the eccentric ring through which said wings pass.

3. In a rotary motor, a stationary ring, an internal rotary ring in contact with and eccentric to the same, a central shaft geared to the eccentric ring, wings hinged to said shaft and extending through the eccentric ring to the stationary ring, and swivels seated in the eccentric ring through which said wings pass.

4. In a rotary motor, a stationary ring, an inner rotary ring eccentric relatively thereto, a central shaft geared to the eccentric ring,

and wings loosely connected to the central shaft and passing loosely through the eccentric ring.

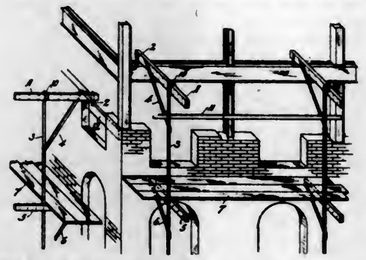
5. In a rotary motor, a stationary ring, recessed casing-heads secured thereto, a two-part eccentric ring within and in contact therewith, a central shaft, pinions on said shaft, and spur-gears secured to the parts of said eccentric ring, and held within the recesses of the casing-heads and engaging with said pinions.

6. In a rotary motor, a two-part ring adapted to form an eccentric abutment within a stationary casing, annular internally-toothed gears secured to said ring and forming with it a rotary structure, swivel-joints held and working between the approaching ends of said two-part ring, a shaft having pinions engaging said internally-toothed gears, and wings connected to said shaft and passing through said swivels.

7. In a rotary motor, two rings, one external and stationary and the other internal, rotary and relatively eccentric, a shaft geared to the internal ring, inlet and discharge passages opening through the stationary ring, and wings or pistons hinged upon the shaft and swiveled in the eccentric inner ring.

8. A pump comprising a cylinder, two blades mounted upon a shaft, a hollow rotatory body surrounding the shaft eccentrically, the blades passing through the said body, means driving the rotatory body by the shaft, whereas the rotatory body is operating the said blades.

785,289. **OUTSIDE HANGING SCAFFOLD.** THOMAS J. CAMPBELL, San Francisco, Cal. Filed Apr. 28, 1904. Serial No. 205,341.



Claim.—1. The combination in an outside hanging scaffold, of a plurality of horizontal outriggers provided with means at one end for engaging them loosely with a part of the building inside of the wall, bars rigidly secured to the outer portions of the outriggers, approximately horizontal brackets secured to the bars and having their inner ends to abut against the outside of the wall, diagonal braces fixed to the bars and to the inner ends of the outriggers and brackets, and a flooring laid on said brackets.

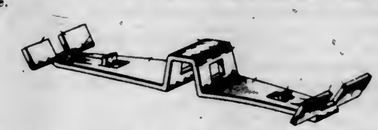
2. The combination in an outside hanging scaffold, of a plurality of horizontal outriggers provided with means at the inner ends for engaging them loosely with a beam or fixed part of the building inside of the wall, vertical bars rigidly fixed to the outer portions of the outriggers, approximately horizontal brackets having outer portions fixed to the bars and inner portions to abut against the outside of the wall, said outriggers, bars and brackets provided with perforations whereby the parts are adjustable relative to the wall of the building and diagonal braces connecting the inner portions of the outriggers with the bars and other braces connecting the inner portions of the brackets with said bar, flooring laid on the brackets, and a rail laid in the angle between the bars and upper braces.

3. The combination of a plurality of outriggers provided with means to attach them to a fixed part of the framework, bars suspended from said outriggers, the latter and said bars having corresponding perforations, a U-shaped clip slipped over an outrigger and the end of a corresponding bar and a pin or bolt passed through said perforations, said U-shaped clip serving to relieve the strain of said pins or bolts on the outriggers, brackets carried by said suspended bars and a flooring or equivalent carried by said brackets.

785,290. **BRAKE-SHOE.** PAUL CARPENTER, Chicago, Ill., assignor to American Brake Shoe & Foundry Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 3, 1904. Serial No. 206,136.

Claim.—1. A brake shoe comprising a body portion and a separable back, the two parts respectively being provided with co-operating tongue-and-groove connections, and a wedge for fixing the same in place.

2. A brake shoe having a binding back thereon removably attached by means of co-operating wedge-shaped tongue-and-groove connections, and means for tightening and retaining the tongue in place.



3. The combination with a brake shoe body having on each side a pair of centrally converging engaging surfaces, and a back having its two wings movable with respect to each other, and each provided with a pair of engaging surfaces to co-operate with said surfaces on the body, substantially as described.

4. A brake shoe comprising a body portion and a removable binding back, the body and back on each side of the center engaging each other by inclined tongue-and-grooves, and a wedge for spreading the two sides of the back to engage the body, substantially as described.

5. The combination with a brake shoe body having upon its surface two undercut grooves converging from the center toward the ends, and a steel back having two wedge-shaped wings movable with respect to each other longitudinally of the shoe to engage said grooves, and means for spreading the said two wings.

6. The combination of a shoe body having upon its back a pair of undercut grooves converging from the center toward the ends, and a converging cross groove near the center, and a removable binding back engaging said grooves.

7. The combination with a shoe body having a pair of converging undercut grooves therein, of a removable back comprising a plate with an upturned bent loop at the center and two wedge-shaped side wings adapted to fit the grooves of the shoe body, and a wedge for separating the said two wings, substantially as and for the purpose described.

8. The combination with a steel back having an upward bent loop at the center and two wedge-shaped wings, of a body having on each side of the center an outwardly tapering undercut groove, and means for spreading and holding the wings of the back in said grooves.

9. A brake shoe comprising a back and a body attached to each other by an inclined tongue-and-groove connection and a wedge for fixing and retaining the parts together.

10. A brake shoe comprising a back and a body, means for attaching the same, and a separate key engaging therewith for retaining the parts together.

11. A brake shoe back having at each end a pair of spurs punched out of the back to form seats for the key.

12. The combination, with an attaching key, of a shoe back plate having at each end a pair of oppositely inclined spurs punched out of the plate and resiliently engaging the key.

13. The combination with the attaching key for a brake shoe, of a back plate having at each end a pair of equalizing spurs carried by the plate and resiliently engaging the key whereby the key is firmly held in position.

785,291. **COMBINATION STATEMENT AND COLLECTION RECORD.** MAX M. COHN, San Francisco, Cal. Filed May 5, 1904. Serial No. 206,431.



Claim.—1. A combination statement and collecting record comprising independent members arranged in succession with alternate members constituting the original or customer's statement-blank and the other member constituting the merchant's filing-blank, said original blank printed in the usual manner with reserved spaces for the name and for the account and said filing-blank having reserved spaces registrable with the corresponding spaces of the original blank and having thereon in permanent form a variety of legal ex-

cuses of selective character any one or more of which may be resorted to by the collector to indicate the disposal of the original statement.

2. A combination statement and collection account comprising original and duplicate sheets, said original sheet printed in the usual manner and said duplicate sheet having areas registrable with the name and account spaces of the original, and said duplicate blank having, also, in permanent form a variety of legal excuses any one or more of which may be resorted to by the collector to indicate the disposal of the account.

3. A combination statement and collection record comprising original and duplicate sheets, said original sheet having a reserved area suitably designated for the customer's name, a reserved area designated for the account and an intermediate area printed with the merchant's name, and said duplicate sheet having reserved areas registrable with the said areas of the original sheet which are designated for the customer's name and the account and having, also, an area registrable with the said intermediate area of the original sheet, provided with notation in permanent form which is resorted to by the collector to indicate the disposal of the account.

785,292. **GAS-COCK.** GEORGE CRETER, New York, N. Y. Filed Nov. 29, 1904. Serial No. 234,692.



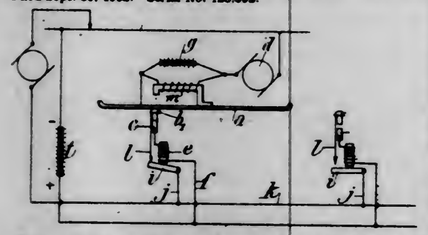
Claim.—1. In a gas-fixture and the like, a gas-cock, a valve portion, a handle secured thereto but capable of limited independent rotative movement relatively to said valve portion.

2. In a gas-fixture and the like, a gas-cock, a valve portion, means for rotating said valve, said means being connected to said valve in such a manner as to permit limited independent movement relatively to said valve.

3. In a gas-fixture and the like, a gas-cock, a valve therefor, a handle for said valve, one of said parts providing a socket, the other part providing a shank arranged to project into said socket, said shank and socket being secured against accidental disengagement, but being permitted to rotate to a limited extent relatively to and independent of each other.

4. A valve for gas and other fixtures, a handle for said valve, said handle being secured thereto, a means to permit said handle to have limited independent movement relatively to the valve in a direction to operate the same.

785,293. **ELECTRIC TRAMWAY.** ALFREDO DIATTO, Turin, Italy. Filed Sept. 30, 1902. Serial No. 125,392.

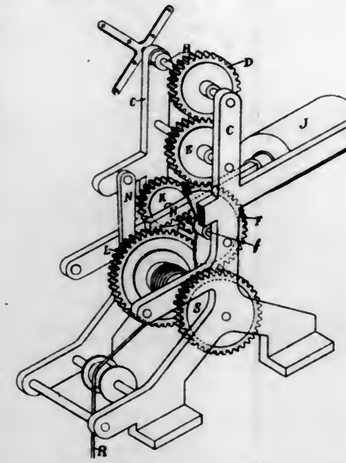


Claim.—1. In an electrical-railway system, a magnetized contact-bar carried by the car, superficial contact devices along the road adapted to be closed by said bar, an electromagnetic circuit-closing device for the motive circuit and means for sending a weak current from the magnetized bar through said superficial contact devices to operate the electromagnetic devices and close the main circuit, substantially as described.

2. In an electrical-railway system, a main conductor and a suitable generator for supplying current thereto, superficial contact devices along the line, a bar carried by the car adapted to close said contacts, said bar having electrical connections with the motor, a secondary conductor, a current-generator therefor for producing a current of approximately half the voltage of the main line, branch connections from said secondary conductor to said contact devices, relays included in said branch connections for electrically connecting the main conductor with said superficial contacts, substantially as described.

3. In an electrical-railway system, a main conductor and a suitable generator for supplying current thereto, superficial contact devices along the line, a bar carried by the car adapted to close said contacts, said bar having electrical connections with the motor, a secondary conductor, a current-generator therefor for producing a current of approximately half the voltage of the main line, branch connections from said secondary conductor to said contact devices, a plurality of relays included in said branch connections for electrically connecting the main conductor with said superficial contacts, and an electromagnet around which said relays are grouped and which is included in the main circuit, substantially as described.

785,294. **RAILWAY-SIGNAL.** PHILIP S. DORLON, Troy, N. Y., assignor of one-half to Charles B. McMurray, Troy, N. Y. Filed Apr. 23, 1904. Serial No. 204,574.

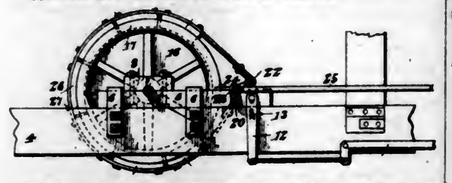


Claim.—1. In a signal device adapted for use in electric-railway systems; a signal-wheel having its face divided into sections differing in color; a number of gears adapted to rotate said signal; a cam-wheel connected with one of said gears; an arm arranged to engage said cam-wheel; an armature on said arm; a magnet in position to attract said armature, when said magnet is energized; a means for rotating said signal when said magnet is energized; a solenoid; a rack connected with the plunger of said solenoid; a pinion with which said rack engages, substantially as described.

2. In a signal device adapted for use in electric-railway systems; two contact-plates placed a distance apart; each of said contact-plates connected at each end with a trolley-wire of a railway system; each of said contact-plates containing a wire connecting a trolley-wire at the ends of said contact-plates; each of said contact-plates containing a wire insulated from the trolley-wire; one of said insulated wires connected with two magnets, arranged in parallel; the other of said insulated wires connected with two solenoids in parallel; a railway-signal adapted in rotation to display different colors; a means for rotating said signal; a means for holding said signal in position when said magnets are demagnetized; said magnets and solenoid and apparatus operating said signal so connected up that when said magnets are energized the "danger-signal" is shown and when the solenoid is energized the "clear-signal" is displayed.

3. In a signal device adapted for use in electric-railway systems; a means for conveying through the trolley-wheel of an electrically-propelled car a current to a wire insulated from the trolley-wire; with a means for carrying the current from said insulated wire to a magnet; an armature; a cam-wheel; an arm carrying said armature and engaging with the cam-wheel; a signal-wheel, having sections of different colors; gear-wheels connected with said signal-wheel; a weight secured to a rope wound about the axle of said cam-wheel; a solenoid; a means for energizing said solenoid, by a current passing through said trolley, substantially as described.

785,295. **BRAKE MECHANISM.** ROBERT M. DOWNIE, Beaverfalls, Pa., assignor to Keystone Driller Company, Beaverfalls, Pa. Original application filed Sept. 17, 1903, Serial No. 173,604. Divided and this application filed June 20, 1904. Serial No. 213,362.



Claim.—1. In brake mechanism, the combination with a support having a bearing, of a brake-wheel, a brake coacting with the wheel, and an actuating device for the brake constructed of a single rod, an intermediate portion of said rod forming a pivot and being journaled in the bearing, one of the terminal portions of said rod being offset from the pivot and constituting a crank-arm that is connected to the brake, said crank-arm being located at one side of the bearing, the other terminal of the arm being also offset from the pivot and constituting an operating-lever, said lever being located on the opposite side of the bearing to the crank-arm.

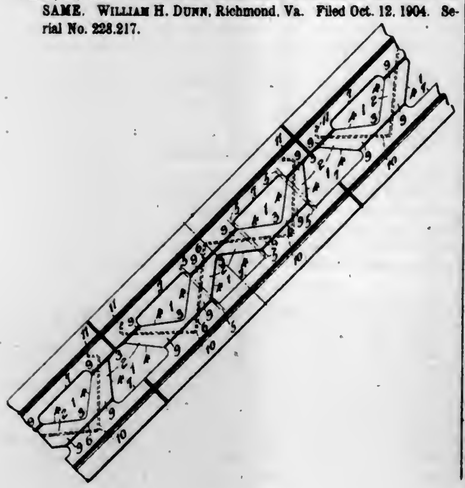
2. In brake mechanism, the combination with a support having a boxing located thereon, of a brake-wheel, a brake-band coacting with the wheel, and an actuating device formed from a single rod or bar and comprising a pivot journaled in the boxing, an integral crank-arm carried by one end of the pivot, said arm being located at one side of the boxing and connected to the band, and an integral offset lever carried by the other end of the pivot, said lever being located at the other side of the boxing to the arm.

3. In brake mechanism the combination with a support, of a carrier movably mounted thereon, a brake-wheel having a journal on the carrier and movable therewith, and a brake coacting with the wheel, said brake being attached to and movable with the carrier.

4. In brake mechanism, the combination with a support, of a carrier movably mounted thereon, a brake-wheel having a journal mounted on the carrier and movable therewith, a brake coacting with the wheel, said brake being attached to and movable with the carrier, and operating means for the brake attached to the same, said operating means being also mounted on the carrier and movable therewith.

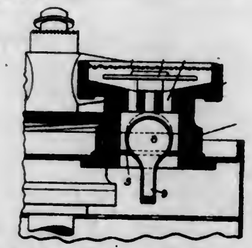
5. In brake mechanism, the combination with a supporting-beam, of a carrier-block slidably mounted on the supporting-beam, a brake-wheel having a journal-bearing on the carrier-block and movable therewith, a brake-band surrounding and coacting with the wheel, one end of said band being attached to the carrier-block, and an operating device journaled on the carrier-block and having a connection with the other end of the band.

785,296. **BUILDING-WALL AND CONCRETE BLOCK FOR SAME.** WILLIAM H. DUNN, Richmond, Va. Filed Oct. 12, 1904. Serial No. 228,217.



Claim.—A building-block comprising a body portion having a single row of vertical air-spaces and oblique walls forming a truss along the middle of the block separating said air-spaces, and horizontal depressions in the upper and lower faces of the block communicating with said vertical air-spaces.

785,297. **GAS-SEPARATOR FOR STORAGE BATTERIES.** THOMAS A. EDISON, Orange, N. J., assignor to Edison Storage Battery Company, Orange, N. J., a Corporation of New Jersey. Filed Aug. 16, 1904. Serial No. 220,911.



Claim.—1. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable valve normally engaging said seat, substantially as set forth.

2. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a hollow floatable valve normally engaging said seat, substantially as set forth.

3. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, of a hollow spherical glass valve normally engaging said seat, substantially as set forth.

4. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable valve having a spherical head normally engaging said seat, substantially as set forth.

5. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable valve having a hollow spherical head normally engaging said seat, substantially as set forth.

6. In a gas-separator for storage batteries, the combination with a can or receptacle, of a seat surrounding a vent therefrom, and a floatable glass valve having a hollow spherical head normally engaging said seat, substantially as set forth.

785,298. **EYEGLASS-MOUNTING.** IVAN FOX, Philadelphia, Pa., assignor to Fox Optical Manufacturing Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Aug. 8, 1904. Serial No. 219,837.



Claim.—1. In eye glasses, the combination of the lenses and a one piece eye glass mounting, the said mounting consisting of a bow spring, legs, and nose pieces, and being provided with loops intermediate the opposite ends of the said bow spring and the said legs, the limbs of the said loops occupying a plane which is substantially at a right angle to a line which is perpendicular to the plane of the lenses.

2. A one piece eye glass mounting comprising a bow spring, legs which are adapted to engage the inner edges of the lenses of a pair of eye glasses, nose pieces which are integral with the said legs, and loops connecting the opposite ends of the said bow spring and the said legs.

3. A one piece eye glass mounting comprising nose pieces, legs, clasps integral with the said legs and located upon opposite sides of the lenses for the purpose of securing the said mounting to the said lenses, a bow spring, and inwardly extending loops intermediate the said legs and the opposite ends of the said bow spring and forming connections between the said legs and the said bow spring.

4. In eye glasses, the combination of the lenses and a one piece eye glass mounting, consisting of a bow spring, legs and nose pieces, the said lenses, bow spring and legs being in the same plane, and the said mounting being provided with loops intermediate the opposite ends of the said bow spring and the said legs.

785,299. **EYEGLASS-MOUNTING.** IVAN FOX, Philadelphia, Pa., assignor to Fox Optical Manufacturing Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Nov. 16, 1904. Serial No. 232,933.



Claim.—1. As an article of manufacture, an eye glass mounting comprising a bow spring and nose guards, the said guards being integral with the said bow spring, posts or standards connected to the said bow spring, and U-shaped springs integral with the said mounting and located upon opposite sides of the said posts or standards.

2. As an article of manufacture, an eye glass mounting comprising a bow spring and nose guards, the said guards being integral with the said bow spring, posts or standards connected to the said bow spring, and springs formed integral with the said mounting and located upon opposite sides of the said posts or standards.

3. In eye glasses, the combination of the lenses and a one piece eye glass mounting consisting of a bow spring, nose pieces or nose guards, posts or standards connective of the lenses and the bow spring, and U-shaped springs located upon opposite sides of the said posts or standards and adapted to contact with the said lenses.

4. In eye glasses, the combination of the lenses with an eye glass mounting, the said mounting comprising a bow spring, nose pieces, the said bow spring and nose pieces being integral, posts or standards secured to the opposite ends of the bow spring and connecting the same to the lenses, and bent springs connected to the bow spring and nose pieces upon opposite sides of the said posts or standards, the said springs being located between the ends of the bow spring and nose pieces and the eye glass lenses.

785,300. **EYEGLASS-MOUNTING.** IVAN FOX, Philadelphia, Pa., assignor to Fox Optical Manufacturing Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Dec. 27, 1904. Serial No. 238,351.



Claim.—1. In eye glasses, the combination of a lens, a bow spring, a post or standard connective of the lens and the bow spring, a nose piece or nose guard connected to the said post or standard, and a U-shaped spring located to one side of the said post or standard, the said spring being arranged at right angles to the plane of the lens and adapted to contact with the edge of the said lens.

2. In eye glasses, the combination of lenses, a bow spring, posts or standards connected to the said bow spring and to the said lenses, nose pieces or nose guards connected to the said posts or standards, and U-shaped springs located upon opposite sides of the said posts or standards and adapted to contact with the said lenses.

3. In eye glasses, the combination of lenses, a bow spring, posts or standards, means connecting the said posts or standards and the said lenses, nose pieces or nose guards connected to the said posts or standards and to the said bow spring and U-shaped springs located upon opposite sides of the said posts or standards and adapted to contact with the said lenses, the said springs being respectively arranged at right angles to the plane of the said lenses.

4. In eye glasses, the combination of a lens, a bow spring, a post or standard, means for connecting the said lens to the said post or standard, a nose piece connected to the said post or standard, a device for preventing relative movement between the lens and the means by which it is secured to the said post or standard, the said device comprising a plate or bar which is secured to the post or standard and which is provided with U-shaped springs upon its opposite ends which are adapted to contact with the said lens.

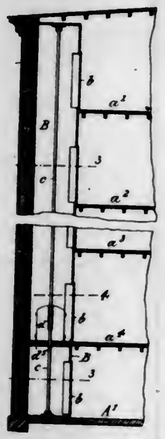
5. In eye glasses, the combination of a lens, a post or standard secured to the said lens and provided with a groove in its inner end, a bow spring having an end located in the said groove, a nose piece or nose guard having its arm located in the said groove, and a device for preventing relative movement between the post or standard and the said lens, the said device consisting of a plate or bar which is also located in the said groove, the said plate or bar being provided with U-shaped springs at its opposite ends, which springs are arranged in planes transverse to the plane of the said lens and are adapted to contact with the said lens, and means for securing the bow spring, nose piece or nose guard and plate or bar within the said groove.

6. In eye glasses, the combination of a lens, a post or standard secured to the said lens and provided with a groove in its inner end, a bow spring having one end located in the said groove, a nose piece or nose guard formed integral with the said bow spring, and means for securing the said bow-spring and nose piece or nose guard to the said post or standard, and U-shaped springs arranged in planes transverse to the plane of the lens and located upon opposite sides of the said post or standard and adapted to contact with the said lens.

7. As an article of manufacture, a device adapted to prevent relative movement between a lens of a pair of eye glasses and the post or standard connecting the said lens and the bow spring, the said device consisting of a plate or bar provided at its opposite ends with U-shaped springs.

8. As an article of manufacture, a device adapted to prevent relative movement between a lens of a pair of eye glasses and the post or standard connecting the said lens to the bow spring, the said device consisting of a plate or bar provided at its opposite ends with U-shaped springs, which springs are arranged in planes extending transversely of the said plate or bar.

785,301. **FIRE-ESCAPE.** JOSEPH FÜGER, New York, N. Y. Filed Sept 19, 1904. Serial No. 224,942.

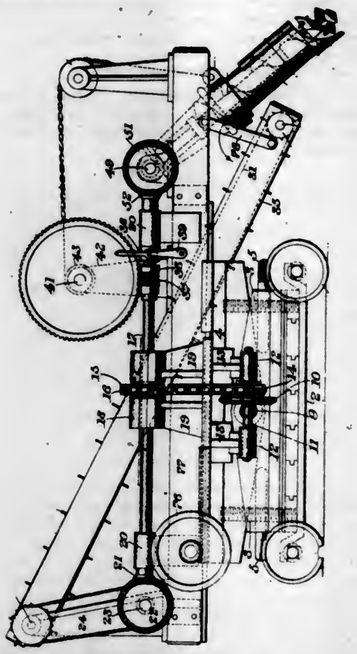


Claim.—A fire-escape composed of a circular fireproof shaft extending through the floors of a building, an inclosed pole, doors at the various floor-levels leading to the shaft, a segmental plate secured to the inner side of the shaft, a trap-door hinged to said plate, and segmental lids hinged to the door, substantially as specified.

785,302. **EXCAVATING AND DREDGING MACHINE.** WILLIAM FULLARD, Plainfield, N. J. Filed Oct. 14, 1904. Serial No. 228,382.

Claim.—1. In a device of the character described, a frame or carriage, a boring-tool, an endless belt or conveyer, means for raising or lowering said frame and means for raising or lowering said boring-tool and conveyer independently of said frame.

2. In a device of the character described, a truck, a frame or carriage carried thereby, means for moving said carriage on said frame, a boring-tool carried by said carriage, a belt or conveyer carried by said carriage, means for supporting one end of said belt in conjunction with said boring-tool and means for elevating or lowering said boring-tool and with it one end of said belt.



3. In a device of the character described, a boring-tool, means for imparting motion thereto, said boring-tool consisting of a rod having screw-threads thereon, a movable cap for said rod having screw-threads thereon and a tube surrounding said threads and having an enlarged extension.

4. In a device of the character described, a boring-tool consisting of a thimble suitably supported, a rod projecting through said thimble, threads on said rod, the pitch of which increases from point to rear end, a movable cap for said rod provided with threads, pins projecting from said threads and a tube suitably connected with said thimble, the threads on said cap extending outwardly therefrom equal to the diameter of said tube.

5. In a device of the character described, a truck, a frame carried thereby and movable on tracks, a rack on said truck, pinions on said frame, means for operating said pinions, a boring-tool carried by said frame, an endless belt carried by said frame one end of which is suitably connected with said boring-tool.

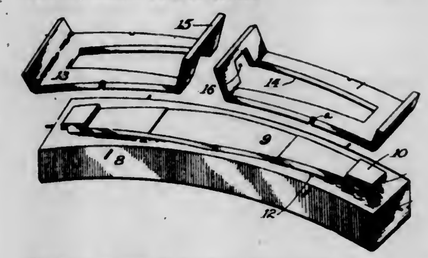
6. In a device of the character described, a truck, a frame carried thereby, means for raising and lowering said frame or either end thereof, a boring-tool carried by said frame, an endless belt carried by said frame, means for imparting motion thereto and a connection between one end of said belt and said boring-tool.

7. In a device of the character described, an endless belt or carrier, means for imparting motion thereto, a boring-tool suitably supported, means for imparting motion thereto, a connection between said boring-tool and one end of said apron and means connected with said boring-tool adapted to be thrown into or out of operation and having a connection with said boring means for raising or lowering said boring-tool and with it one end of said apron.

8. In a device of the character described, an apron suitably supported, means for imparting motion thereto, a boring-tool suitably supported, means for imparting motion thereto, a cable connected with said boring-tool, a drum carrying said cable which latter is adapted to be wound and unwound thereon and means for imparting motion to said drum for raising or lowering said boring-tool.

9. In a device of the character described, a truck, a frame carried by said truck, means for raising or lowering said frame, or either end thereof, a rack carried by said truck, a pinion meshing with said rack to which motion is adapted to be imparted to move said frame on said truck, longitudinally, an endless apron carried by said frame, means for imparting motion thereto, a boring-tool carried by said frame and having a connection with one end of said apron, means for imparting motion to said boring-tool, a cable connected with said boring-tool having one end connected with a drum, a gear connected with the shaft carrying said drum and a clutch adapted to cause said gear to rotate if desired, in order to raise or lower said boring-tool.

785,303. **BRAKE-SHOE.** JOSEPH D. GALLAGHER, Glenridge, N. J. Filed May 3, 1904. Serial No. 206,134.



Claim.—1. A brake shoe having a detachable binding back engaging with the body of the shoe.

2. A brake shoe having a detachable back made in two parts and forming a binder for the shoe.

3. A brake shoe having a back detachably engaging with the wearing sole and provided with lugs to engage the brake head.

4. A brake shoe comprising a cast body portion and a detachable steel back having thereon integral attaching means for the brake-head.

5. A brake shoe composed of a cast body and a two-part detachable back, the several parts having means for fixing them together.

6. A brake shoe having a detachable binding steel back provided with integral key lugs and end lugs for engaging the brake head, substantially as described.

7. The combination in a brake shoe of a wearing sole having an undercut lug thereon, and a removable malleable metal back engaging said lug along its length and ends, and having integral attaching lugs for engagement of the brake head.

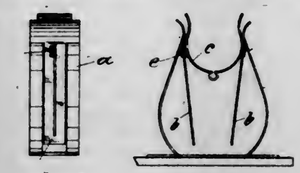
8. A brake shoe body having a tapering undercut lug on its back and a steel binding back attached to the body by wedge-shaped openings engaging said lug, substantially as described.

9. The combination with a brake shoe body having a double wedge-shaped lug on its back, of a steel back provided with wedge-shaped openings to engage said lug and tightened thereon by drawing the two parts toward the center of the shoe, substantially as described.

10. A brake shoe comprising a cast body having a malleable binding-back, the body and back engaging each other by a co-operating tongue-and-groove.

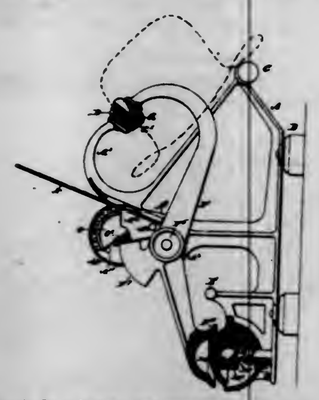
11. A brake shoe having a detachable back with resilient lugs thereon.

785,304. **HOLDER FOR UMBRELLAS, BROOMS, OR THE LIKE.** CARL GILLE, Essen, Germany. Filed July 21, 1904. Serial No. 217,590.



Claim.—A holder of walking-sticks, umbrellas, brooms and similar objects comprising in combination a bracket of rigid material, open at the front end and fixed to the wall, two converging slotted guide-bars extending backwardly from the front end of said bracket, a clamp of sheet metal or other spring-like material open at the front end, and pins laterally projecting from said clamp and inserted in the slots of the guide-bars, substantially as described and shown and for the purpose set forth.

785,305. COAT AND HAT HANGER. WILLIAM GLENN, Mount Vernon, and ADELBERT D. HILL, Cedar Rapids, Iowa; said Glenn assignor to said Hill. Filed Mar. 30, 1903. Received Feb. 13, 1905. Serial No. 245,398.



Claim.—1. In a locker, the combination with lever support, hat-supporting rails and locking mechanism, substantially as described, of a pivoted lock-lever terminating near the lower rail, when in locked position, and a tip therefor of flexible material adapted to retain the hat without pinching it, but to fold under the end of the lever and grip the hat on an attempt to remove the same.

2. In a locker, the combination with lever-support, hat-supporting rails and locking mechanism, substantially as described, of a pivoted lever terminating near the lower rail, when in locked position, and provided with an annular tip of flexible material adapted to fold between the lever end and the hat and grip the same, on an attempt to forcibly remove it.

3. In a locker, the combination with lever-support, hat-supporting rails and locking mechanism, substantially as described, of a pivoted lock-lever terminating in final position near the lower hat-rail, a cup-like tip therefor of flexible material, and with a bead or enlargement adapted to wedge between the end of the lever and the hat on an attempt to remove the latter.

4. In a locker, the combination with suitable lever-support, hat-supports and locking mechanism, of a pivoted lock-lever provided with a cup-like flexible tip mounted near its end, and an inclosing metal case therefor, terminating a little short of the edge of the tip.

5. In a coat-hanger, the combination with a hanger-hook and locking mechanism, of a lock-lever adapted to engage one side of the coat, a gripper set opposite thereto and adapted to rock on a fixed center of motion universally, and a facing of yielding and somewhat clinging material on its coatward face, substantially as and for the purpose set forth.

6. In a coat-locker, the combination with suitable locking mechanism, of a lock-lever terminating in an annular gripping-face, and a convex-faced disk mounted by ball-and-socket joint opposite thereto, and adapted to grip material between them when moved in any direction.

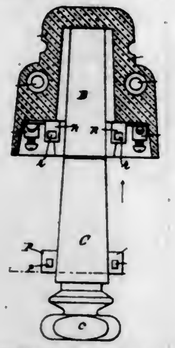
7. In a coat-locker, the combination with suitable locking mechanism and coat-support, of a gripper held to normal position by a strong spring, a lock-lever coacting therewith to grip the coat if tampered with, but not otherwise, and a connection of the gripper with said spring, whereby abnormally thick material may be admitted, as specified.

8. In a coat-locker, the combination of a hanger, a lock-lever, and suitable locking mechanism, and a gripper pivotally mounted to engage the opposite side of the material and pinch it tightly against the lever, if tampered with, a movable support for said gripper, and a light spring to hold the gripper with soft contact against the material and secure quick gripping contact.

9. In a coat-locker, the combination of a hanger, a lock-lever, and suitable locking mechanism, and a gripper pivoted to coact with the lever if the coat is tampered with, a movable support for the gripper, a strong spring adapted to yield under extraordinary pressure, a spring adapted to hold the gripper lightly in contact with the interposed material, and independent connections of said spring with the gripper, whereby the action of either is not affected by the other.

10. In a coat-hanger, the combination with a lock-lever, of a gripper comprising a gripping-disk mounted by ball and socket on a movable spindle, a flange on said spindle, a light spring back of the flange, a sliding washer mounted loosely on the spindle, a support for said spindle and washer adapted to allow the washer to slide a limited distance, and a strong spring mounted between the washer and said support.

785,306. ELECTRICAL FUSE-BOX. GILBERT W. GOODRIDGE, Bridgeport, Conn., assignor to the Bryant Electric Company, Bridgeport, Conn., a Corporation of Connecticut. Filed June 16, 1904. Serial No. 212,788.



Claim.—1. The combination of the insulating-body of a fuse-box having contact-plates with a fuse-plug adapted to be inserted endwise into the box and provided with contact-plates to engage those on the box and means to latch them together by the endwise insertion of the plug into the box and springs to hold them latched.

2. The combination of the insulating-body of a fuse-box having contact-plates provided with jaws open toward the open end of the box with a fuse-plug adapted to be inserted endwise into the box and provided with contact-plates to enter the open jaws of the box-plates by the endwise insertion of the plug and means to latch and lock the plates together by said insertion.

3. The combination of the insulating-body of a fuse-box having contact-plates, with a fuse-plug adapted to be inserted endwise into the box and provided with contact-plates to engage those on the box, and means to latch and lock them together by the endwise insertion of the plug and adapted to be unlocked by the tilting of the plug.

4. The combination of the insulating-body of a fuse-box and an insertible plug with engaging contact-plates on the two parts, one set of contact-plates having projections, and the other having openings to form locking engagements, and springs to hold them in engagement.

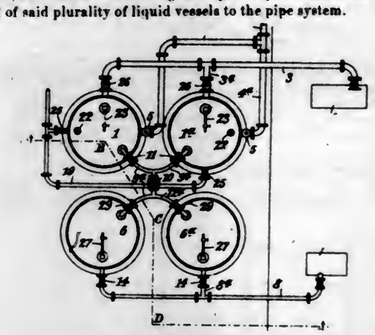
5. The combination of the insulating-body of a fuse-box with an attachable part, the two parts having engaging plates, one set of plates having projections and the other having openings to form locking engagements, and springs to hold them in engagement.

6. The combination of the insulating-body of a fuse-box, having engaging plates provided with open jaws, with an attachable insulating part provided with engaging plates to enter the open jaws of the plates on the body part by the endwise insertion of the attachable part, the plates on the two parts having projections and openings to form locking engagements, and springs to hold them in engagement.

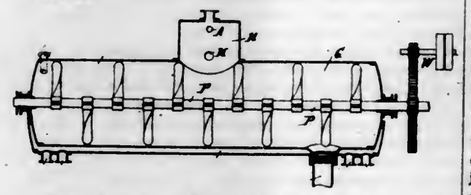
785,307. APPARATUS FOR RAISING LIQUIDS. GUSTAW HANTKE, Warsaw, Russia. Filed Aug. 11, 1904. Serial No. 220,437.

Claim.—1. In a plant for raising liquids with the aid of compressed air, the combination with a plurality of liquid vessels, of means for charging said plurality of liquid vessels alternately or simultaneously with liquid, a plurality of storage vessels, means for charging said plurality of storage vessels alternately or simultaneously with compressed air under a varying comparatively high pressure, a pressure-reducing valve, means for arbitrarily conducting the compressed air from either a part or all of said plurality of storage vessels through said pressure-reducing valve to either a part or all of said plurality of liquid vessels, and means for allowing the liquid to pass from either a part or all of said plurality of liquid vessels to the pipe system.

2. In a plant for raising liquids with the aid of compressed air, the combination with a plurality of liquid vessels, of means for charging said plurality of liquid vessels alternately or simultaneously with liquid, a plurality of storage vessels, means for charging said plurality of storage vessels alternately or simultaneously with compressed air under a varying comparatively high pressure, a plurality of pressure-reducing valves, means for arbitrarily conducting the compressed air from either a part or all of said plurality of storage vessels through either a part or all of said plurality of pressure-reducing valves to either a part or all of said plurality of liquid vessels, and means for allowing the liquid to pass from either a part or all of said plurality of liquid vessels to the pipe system.



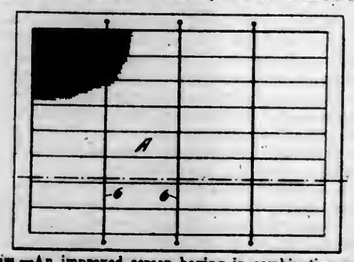
785,308. PROCESS OF RECOVERING SUGAR FROM MASSECUITE. WILHELM HUCH, Helmstedt, Germany; Auguste Baertl executrix of said Wilhelm Huch, deceased. Filed Aug. 27, 1897. Serial No. 649,756.



Claim.—1. A process for recovery of sugar from masse-cuite consisting in mixing the masse-cuite outside of the vacuum-pan with the addition of dilute molasses, so as to cause solution of the microcrystalline sugar, but not the larger crystals in the masse-cuite, and evaporating and concentrating *in vacuo* the product to cause deposition on the larger crystals, thereby adding to the size of the latter at the expense of the microcrystalline sugar in the mass.

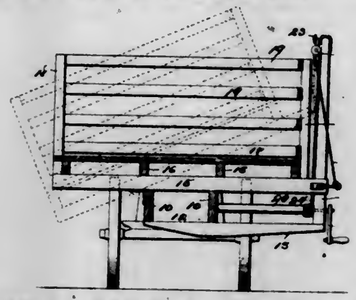
2. A process for the recovery of sugar from masse-cuite, consisting in mixing the masse-cuite outside of the vacuum-pan with the addition of dilute waste molasses of the first jet, after crystallization of residual sugar therefrom so as to cause solution of the microcrystalline sugar but not the larger crystals in the masse-cuite, and evaporating and concentrating *in vacuo* the product to cause deposition of sugar on the larger crystals, thereby adding to the size of the latter at the expense of the microcrystalline sugar in the mass.

785,309. DOOR AND WINDOW FLY-ESCAPE SCREEN. JOSEPH S. JOHNSON, San Francisco, Cal., assignor of one-half to Francis Cutting, San Francisco, Cal. Filed July 13, 1904. Serial No. 216,397.



Claim.—An improved screen having in combination vertical wires forming the warp, horizontal wires forming the filling of the screen, one or more of said filling-wires being omitted at intervals between the top and bottom of the screen, offsets formed by bending the screen at approximately right angles, said offsets including the spaces formed by the omitted filling-wires and the warp-wires being separated within these offsets to form openings and strengthening-ties across the offsets, a frame having the sides formed with inclines and offsets corresponding with the screen to which frame the screen is secured and one or more vertical tension-rods extending between the top and bottom members of the frame, said rods substantially straight, extending from the inner angle of each offset across the space formed by the inclination below, and being attached again to the screen at a point contiguous with the next offset.

785,310. DUMPING WAGON-RACK. ELIAS KOSTENBADER, Grandin, N. D. Filed Nov. 23, 1904. Serial No. 234,078.

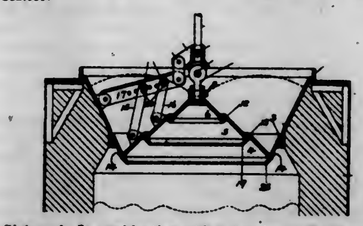


Claim.—1. A portable base for a wagon-rack consisting of an oblong frame, a cross-piece fixed to the bottom and center of the frame and extended outward at one side, a post fixed to said extension, a winch journaled to the frame and the post, a pulley connected with the top of the post and a rope fixed to the winch and extended over the pulley, for the purposes stated.

2. A portable base for a wagon-rack consisting of an oblong frame, a cross-piece fixed to the bottom and center of the frame and extended outward at one side, a post fixed to said extension, a winch journaled to the frame and the post, a pulley connected with the top of the post and a rope fixed to the winch and extended over the pulley, a wagon-rack hinged to the side of the frame and the end of the rope fixed to the rack, arranged and combined to operate as set forth for the purposes stated.

3. A side-delivery tilting wagon-rack consisting of an oblong frame, a cross-piece fixed to the bottom and center of the frame and extended outward at one side, a post fixed to said extension, a winch mounted between the frame and the post, a pulley at the top of the post, a wagon-rack open at one side and hinged to one side of the oblong frame and a rope fixed to the winch and extended over the pulley and connected with the lower end of the wagon-box, arranged and combined to operate in the manner set forth for the purposes stated.

785,311. DISTRIBUTING-BELL. JAMES B. LADD, Wayne, Pa., and DAVID BAKER, Newton, Mass. Filed June 15, 1904. Serial No. 212,659.



Claim.—1. In combination with a chamber, a distributing-bell comprising a plurality of sections and means for causing the simultaneous movement of said sections relatively to the chamber and to each other.

2. In combination with a chamber, a distributing-bell comprising a plurality of concentric sections, one of which is supported by a surrounded section and supports a surrounding section, and means

for causing the simultaneous movement of said sections relatively to the chamber and to each other.

3. In combination with a chamber, a distributing-bell comprising a plurality of concentric sections, one of which is supported by a surrounded section and supports a surrounding section when the bell is in the closed position, and means for causing the simultaneous movement of said sections relatively to the chamber and to each other.

4. A furnace-bell comprising a plurality of concentric sections, means for supporting the central section, and a lever having a pivotal connection with a stationary support at one end, link engagement with the support of the central section at the other end, and lost-motion link engagement with the other sections.

5. A furnace-bell comprising a plurality of concentric sections, means for supporting the central section, and a lever having a pivotal connection with a stationary support at one end, link engagement with the support of the central section at the other end and adjustable lost-motion link engagement with the other sections.

785,312. **PROCESS OF PURIFYING WATER.** JOHN W. LANGLEY, Cleveland, Ohio. Filed July 25, 1904. Serial No. 218,102.

Claim.—1. The process of purification of naturally-acid water, which consists in first mixing it with broken or granular carbonate of calcium, whereby it is partially purified, and then adding lime to obtain a neutral or alkaline reaction, substantially as described.

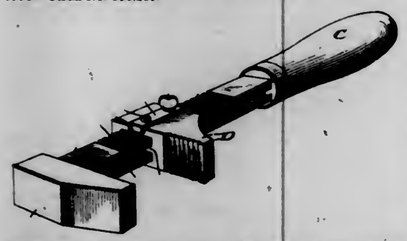
2. The process of purification of naturally-acid water, which consists in first subjecting it to the action of carbonate of calcium, whereby it is partially purified, and then adding lime in sufficient quantity to render the water alkaline, substantially as described.

3. The process of purification of acid water, which consists in first subjecting it to the action of carbonate of calcium, whereby it is partially purified, then to the action of air, and finally to the action of lime, substantially as described.

4. The process of purification of acid water, which consists in first mixing it with broken or granular carbonate of calcium, and then adding air and lime, substantially as described.

5. The herein-described process of purifying a natural water, which consists in first subjecting it to the action of carbonate of calcium, and then to the action of lime.

785,313. **WRENCH.** EDWARD L. LANTZBERRY, McDonaldtown, Pa., assignor of one-half to John Baker, McDonaldtown, Pa. Filed Mar. 15, 1904. Serial No. 198,289.

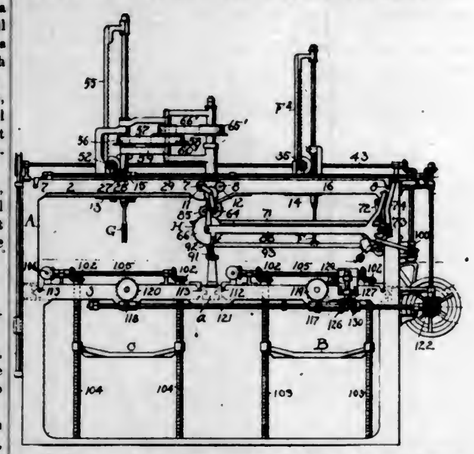


Claim.—1. A wrench comprising a fixed jaw and a shank, said shank being longitudinally and transversely grooved, a sliding jaw movable upon the shank and having a rib adapted to engage the longitudinal groove of the shank and a spring-actuated plate attached to the side of the sliding jaw and having an inwardly-projecting angular end adapted to engage the transversely-grooved portion of the shank, and a thumb-screw carried by the spring-plate, and adapted for bringing said end into engagement with the shank.

2. A wrench comprising a fixed jaw and a transversely-grooved shank longitudinally grooved on one side, a sliding jaw movable upon the shank, a spring-plate having an inwardly-extending angular end adapted to engage the grooved shank and a thumb-screw passing through the spring-plate and engaging a threaded aperture in the sliding jaw whereby the angular end of the said spring-plate is brought into engagement with the grooved portion of the shank.

785,314. **CARVING-MACHINE.** HERMANN LUECHAR, Cleveland, Ohio. Filed Dec. 12, 1904. Serial No. 236,689.

Claim.—1. In a machine for reproducing articles from models, a main frame divided into separate divisions and a laterally-sliding frame in each division, a carrier supported to slide longitudinally on each frame, a vertically-movable tool-support upon each carriage, and means to operate said frames, carriages and tool-supports.



2. In a machine for reproducing articles from models, a main frame and separate frames mounted to slide laterally on said main frame, carriers on said sliding frames adapted to slide longitudinally thereon, a vertically-movable tool-support on each carrier, rack-and-gear mechanisms for operating said tool-supports, connecting mechanism for producing joint action between said carriers, and feed-screw mechanism for said sliding frame.

3. In a machine for reproducing articles from models, a main frame provided with a pair of slidable frames at its top adapted to traverse from side to side thereof over separate divisions of said frame, a sliding carrier on each frame, a vertically-movable tool-support slidably mounted upon each carrier, one of said tool-supports having differential gear-operating connections, means to provide joint action between said carriers, means to produce joint action between said tool-supports, and means to jointly operate said sliding frames back and forth on said main frame.

4. In a machine for reproducing articles from models, a main frame provided with a pair of slidable frames at its top adapted to traverse from side to side thereof, a sliding carrier on each sliding frame, a vertically-movable tool-support slidably mounted upon each carrier, mechanism to produce joint action between said tool-supports, means to jointly operate said sliding frames back and forth on said main frame, an outlining-tool carried by one of said supports and a cutting-tool for the other support, and means to drive said cutting-tool.

5. In a machine for reproducing articles from models, a main frame divided into open divisions at its top and a laterally-movable frame in each division, a longitudinally-sliding carrier on each laterally-movable frame, a tool-supporting shaft and rack-and-gear mechanism therefor on each carrier, power connections for rotating one of said shafts and a train of mechanism between said rack-and-gear mechanism to raise and lower both shafts simultaneously, a train of mechanism between said sliding carriers to jointly operate said carriers, and a train of mechanism between said movable frames to jointly actuate said frames transversely of the main frame.

6. In a machine for reproducing articles from models, a main frame and a pair of frames slidably supported to traverse from side to side thereof, a sliding carrier on each sliding frame adapted to traverse longitudinally thereon, a tool-supporting shaft having rack-and-gear mechanism to raise and lower said shaft mounted on each sliding carrier, a cross-shaft supported in bearings on each carrier having beveled gears at one side of said machine, a longitudinal shaft and beveled gearing splined to slide on said shaft and adapted to mesh with said gears on said cross-shafts, and hand-lever and gear connections to rotate said longitudinal shaft.

7. In a machine for reproducing articles from models, a main frame and a set of tool-supporting frames slidably supported thereon, a set of feed-screws for each sliding frame, and separate drive connections for each set of feed-screws comprising gear-and-ratchet mechanism and hand-operating links and levers therefor.

8. In a machine for reproducing articles from models, a main frame and a set of tool-supporting frames slidably supported thereon, a set of feed-screws for each sliding frame, a separate train of drive-gears for each set of feed-screws, operating-lever connections for said gears, and lever-reversing mechanism for said gears and feed-screws.

9. In a carving-machine, a main frame and a set of tool-supporting frames slidably mounted thereon, a set of feed-screws for each sliding frame, separate trains of drive-gears for each set of screws, separate ratchet-wheels and pawls for said gears, a lever, and individual links for said pawls adjustably connected with said lever.

10. In a machine for reproducing articles from models, a main frame and a set of frames mounted to slide transversely of said frame, and feed-screw mechanism to operate the same, a set of tool-carrier frames mounted to slide longitudinally on said transversely-sliding frame, link-and-lever connections between said tool-carrier frames and rack-and-gear mechanism to move one of said carriers longitudinally of the main frame, a tool-supporting shaft mounted to slide vertically upon each of said carriers and rack-and-gear mechanism to raise and lower said shafts at a predetermined rate of movement in respect to each other.

11. In a machine for reproducing articles from models, a main frame and a set of tool-supporting frames mounted to slide transversely and longitudinally thereon, tool-shafts and mechanism for lowering and raising the same on said sliding frames, and means to move said sliding frames to shift said tool-shafts, in combination with a set of supporting members mounted beneath said sliding frames and adapted to hold the model and the work.

12. In a machine for reproducing articles from models, a main frame and a pair of sliding frames mounted to travel transversely upon said frame, feed-screws for each sliding frame, independent trains of gear-and-ratchet mechanism for each set of feed-screws, link-and-lever connections for said mechanisms, separate slidable carrier-frames and tool-supporting shafts on said sliding frames, link connections between said separate carrier-frames and a rack-and-gear mechanism to shift said carrier-frames longitudinally of the main frame, rack-and-gear mechanisms to raise and lower said tool-supporting shafts, and power connections for rotating one of said tool-shafts, in combination with supporting members for the model and the work mounted beneath said sliding frames.

13. In a machine for reproducing articles from models, a main frame and a pair of transversely-slidable frames thereon and a pair of longitudinally-slidable tool-supports upon said transversely-slidable frames, and a vertically-movable tool-shaft arranged at the top of said main frame, in combination with a set of chuck members for holding the model and work mounted on said main frame, and mechanism for jointly operating said set of chuck members.

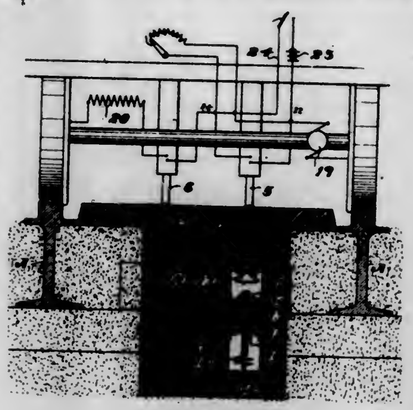
14. In a machine for reproducing articles from models, a main frame and a pair of slidable frames mounted at its top and adapted to slide independently from side to side of said frame, an independent train of screw-feed and gear mechanism for each of said sliding frames and link-and-lever mechanism for operating said feed mechanisms, a tool-shaft and a sliding carrier therefor mounted to travel longitudinally on each sliding frame, means to raise and lower said tool-shafts jointly, means to provide a joint travel of said longitudinally-sliding tool-carriers, and suitable independent supports for both the model and the work under operation.

15. In a carving-machine, a main frame and separate sets of transversely and longitudinally slidable tool-supporting frames mounted thereon, and means to operate like slidable frames of each set back and forth together, in combination with a set of rotatable chuck members mounted upon said main frame beneath said sliding frames, and drive mechanism for said members.

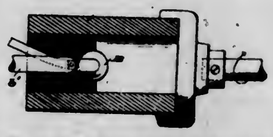
785,315. **ELECTRIC RAILWAY.** TIMOTHY MAHONEY, San Francisco, Cal. Filed Dec. 1, 1903. Serial No. 183,332.

Claim.—1. In an electric-railway system the combination of a motor-car, of a sectional trolley-rail, a sectional conductor, current-collectors on the car contacting with said trolley-rail and sectional conductor, uninterrupted electrical connections between each of the sectional-conductor collectors and the return, a feed-wire, an electromagnetic switch relative to each trolley-rail section for connecting the section to the feed-wire, a motor-circuit, the coils of said electromagnetic switches not being in series with the motor-circuit, an actuating-circuit with which said coils are in series, said actuating-circuit connecting with the advance switch-coil through the car, thence passing to the sectional conductor, thence up through a sectional-conductor collector to return.

2. In an electric-railway system, the combination with a motor-car of a sectional trolley-rail and a sectional conductor abreast of said trolley-rail, a switch-box disposed relative to each trolley-rail section, a solenoid in said box, a feeder, a core reciprocal in said solenoid and adapted to close the circuit between the feeder and trolley-rail and to carry the motor-circuit, current-collectors on the car contacting with the trolley-rail and sectional conductor, the sectional-conductor collectors in constant electrical connection with the return irrespective of the direction of travel, and an actuating-circuit shunted off from the motor-circuit and passing through a solenoid, thence across to a corresponding section of said sectional conductor up into the car through said sectional-conductor collectors to return.



785,316. **PRODUCTION OF SOUND-RECORDS.** GEORGE A. MANWARING, Bayonne, and VICTOR H. EMERSON, Newark, N. J., EUGENE E. NORTON, Nichols, Conn., and FRANK L. CAPPS, London, England, assignors to American Graphophone Company, Bridgeport, Conn., a Corporation of West Virginia. Filed Apr. 14, 1904. Serial No. 203,233.

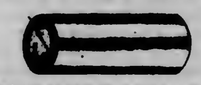


Claim.—1. The method of duplicating sound-records that comprises making a sound-record upon the interior of a cylindrical bore, producing a reversed copy thereof on the external surface of a cylinder, and nurling said reversed copy against a blank cylinder.

2. The method of duplicating sound-records that comprises making a sound-record upon the interior of a cylindrical bore, producing by electrolysis thereupon a cylinder containing on its exterior a reverse copy of said record, and nurling said reverse copy against a blank cylinder.

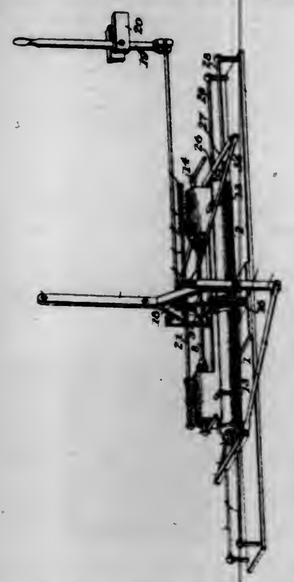
3. The method of duplicating sound-records that comprises engraving an original sound-record upon the interior of a cylindrical bore in a body of wax-like composition, producing by electrolysis thereupon a cylinder containing upon its exterior a reverse copy of said record, and nurling said reverse copy against a blank cylinder.

785,317. **SOUND-RECORD.** GEORGE A. MANWARING, Bayonne, and VICTOR H. EMERSON, Newark, N. J., FRANK L. CAPPS, London, England, and EUGENE E. NORTON, Nichols, Conn., assignors to American Graphophone Company, Bridgeport, Conn., a Corporation of West Virginia. Original application filed Apr. 14, 1904, Serial No. 203,233. Divided and this application filed Oct. 4, 1904. Serial No. 227,170.



Claim.—A seamless cylinder presenting as its exterior surface an electrodeposited sound-record in reverse.

785,318. **RECIPROCATING ENGINE.** VICTOR R. METROD and ALEXANDER W. STEWART, Duluth, Minn., assignors to Charles R. Little, Duluth, Minn. Filed May 14, 1903. Serial No. 157,191.



Claim.—1. In an engine, the combination of oppositely-arranged cylinders, a valve-chamber connected with each cylinder and each provided with ports extending respectively into the opposite ends of the corresponding cylinder and with a port extending to the open air, a valve positioned in each of said valve-chambers and each normally arched in single span over the valve-chamber mouths of the ports extending from its corresponding chamber to the open air and to the inner end of the corresponding cylinder, and when arbitrarily moved from such position one of said valves being arched in single span over the valve-chamber mouths of the ports extending from the corresponding chamber to the open air and to the outer end of the corresponding cylinder, the other of said valves at each time continuing arched in single span over the valve-chamber mouths of the ports extending from its corresponding chamber to the open air and to the inner end of its corresponding cylinder, and means for arbitrarily operating said valves, substantially as described.

2. In an engine, the combination of oppositely-arranged cylinders, a valve-chamber connected with each cylinder and each provided with ports extending respectively into the opposite ends of the corresponding cylinder and to the open air, a valve positioned in each of said valve-chambers and connected with each other, and each normally arched in single span over the valve-chamber mouths of the ports extending from the corresponding chamber to the open air and to the inner end of the corresponding cylinder, and when moved from such normal position one of said valves being arched in single span over the valve-chamber mouths of the ports extending from the corresponding chamber to the open air and to the outer end of the corresponding cylinder, the other valve at such time continuing arched in single span over the valve-chamber mouths of the ports extending from its corresponding chamber to the open air and to the inner end of its corresponding cylinder, means for arbitrarily governing the movement of said valves to admit steam to the outer end of one cylinder and to the inner end of the other cylinder, and means adapted to automatically return said valves to the position for admitting steam to the outer ends of both cylinders when the arbitrary means of operation is idle, pistons within said cylinders, provided with outwardly-extending piston-rods, a rocker pivoted to a suitable fixed support, a lever pivoted intermediate of its ends to said rocker, a link pivoted at one end to one end of said lever and at its opposite end to the outer end of one of said piston-rods, a link pivoted at one of its ends to the opposite end of said lever and pivoted at its opposite end to the outer end of the other of said piston-rods, and means pivoted to said rocker at another point and adapted to be connected to mechanism to be operated by said rocker, substantially as described.

3. In an engine, the combination of oppositely-arranged cylinders provided with feed and exhaust ports, connected valves governing said ports, means for arbitrarily controlling each movement of said valves, pistons within said cylinders, provided with piston-rods extending through the outer ends of said cylinders and provided with cross-heads at their outer ends, a rocker pivoted intermediate of its ends to a suitable fixed support, a lever pivoted intermediate of its ends to one end of said rocker, a link pivoted at one of its ends to one end of said lever and pivoted at its opposite end to the cross-head of one of said piston-rods, and a link pivoted at one of its ends to the opposite end of said lever and pivoted at its opposite end to the cross-head of the other of said piston-rods, substantially as described.

4. In an engine, the combination of oppositely-arranged cylinders, each provided with feed and exhaust ports, coacting valves, governing said ports, means for arbitrarily operating said valves to admit steam to the outer end of one cylinder and to the inner end of the opposite cylinder, means adapted to automatically return said valves to the position for admitting steam to the outer ends of both cylinders when said means for arbitrary operation is idle, a forked swinging arm pivoted to a fixed support, levers pivoted intermediate of their ends to the branches or tines of said forked arm, parallel links pivoted at one of their ends to corresponding ends of said levers and pivoted at their opposite ends to the outer end of one of said pistons, and other parallel links pivoted at one of their ends to the corresponding opposite ends of said levers and pivoted at their opposite ends to the outer end of the other of said pistons, substantially as described.

5. In an engine, the combination with oppositely-extending piston-rods attached to independent pistons, of a swinging arm pivoted to a fixed support, a lever pivoted intermediate of its ends to said arm, a link pivoted to one end of said lever and to the outer end of one of said piston-rods, and a link pivoted to the opposite end of said lever and to the outer end of the other of said piston-rods, substantially as described.

6. In means for the purposes described the combination with a suitable support of a rocker-arm pivoted thereto, a lever centrally pivoted to one end of said rocker, a link pivoted at one end to one end of said lever and extending at an angle thereto, a second link pivoted at one end to the other end of said lever and extending in the opposite direction to the first said link, means interposed between the opposite ends of said links and pivoted thereto and adapted to hold either one of said links against longitudinal movement and to cause the longitudinal movement of the opposite link, and means for operating said intermediate means, substantially as described.

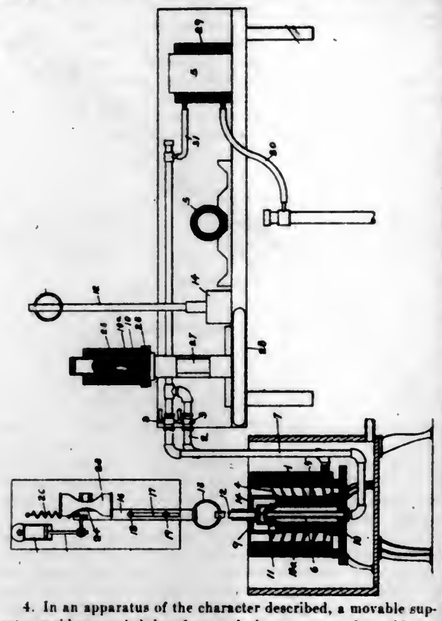
7. In an engine, the combination of oppositely-arranged cylinders, a valve-chamber connected with each cylinder and each provided with ports extending respectively into the opposite ends of the corresponding cylinder and with a port extending to the open air, a valve positioned in each of said valve-chambers and each normally arched in single span over the valve-chamber mouths of the ports extending from its corresponding chamber to the open air and to the outer end of the corresponding cylinder, and when arbitrarily moved from said normal position, one of said valves being arched in single span over the valve-chamber mouths of the ports extending from the corresponding chamber to the open air and to the outer end of the corresponding cylinder, the other of said valves at such time continuing arched in single span over the valve-chamber mouths of the ports extending from its corresponding chamber to the open air and to the inner end of its corresponding cylinder, substantially as described.

785,319. **APPARATUS FOR PRODUCING MOLDED RECORDS AND BLANKS.** WALTER H. MILLER, Orange, and ALEXANDER N. PIERMAN, Newark, N. J., assignors to New Jersey Patent Company, Orange, N. J., a Corporation of New Jersey. Filed May 24, 1904. Serial No. 209,570.

Claim.—1. In an apparatus of the character described, a movable support, a mold suspended therefrom, and means acting in opposition to the weight of said mold to move the support, substantially as set forth.

2. In an apparatus of the character described, a movable support, a mold suspended therefrom, a stop for limiting the movement of said support, and means acting in opposition to the weight of said mold to move the support, substantially as set forth.

3. In an apparatus of the character described, a movable support, a mold suspended therefrom, stops for limiting the movement of said support in each direction and means acting in opposition to the weight of said mold to move the support, substantially as set forth.



4. In an apparatus of the character described, a movable support, a mold suspended therefrom, a dash-pot connected to said support, and means acting in opposition to the weight of said mold to move the support, substantially as set forth.

5. In an apparatus of the character described, a water-supply, a cylindrical water-jacket connected therewith for receiving a mold, a pipe leading from said water-jacket to a second water-jacket, having openings in its interior surfaces which permit the discharge of the water, substantially as set forth.

6. In an apparatus of the character described, a water-supply, a cylindrical water-jacket connected therewith, a pipe leading from said water-jacket to a second cooling device having one or more openings which permit the discharge of the water, substantially as set forth.

7. In an apparatus of the character described, a water-supply, a cylindrical water-jacket connected therewith, pipes leading from said water-jacket to a second cooling device, having an inner, rod-like member situated within an outer surrounding member, both members having openings which permit the discharge of the water.

8. In an apparatus of the character described, a mold having a hollow cylindrical core, provided with a helical groove on its exterior surface, a mandrel inserted within said core, and having means for engaging said core, and means for rotating said mandrel whereby the core may be unscrewed from the blank or record contained in the mold, substantially as set forth.

785,320. **ARTIFICIAL AIGRET.** ROBERT L. MCLAUGHLIN, Lakeview, N. J., assignor to The Aigrette Supply Company, Paterson, N. J., a Corporation of New Jersey. Filed Sept. 23, 1904. Serial No. 225,606.



Claim.—1. As an article of manufacture, an artificial aigret consisting of a shaft formed of an attenuated piece of stiff material, barbs formed of suitable filaments bent in their middle portions and attached in said middle portions to the shaft, substantially as described.

2. As an article of manufacture, an artificial aigret consisting of a shaft formed of an attenuated piece of stiff material, barbs formed of suitable filaments bent in their middle portions and arranged with their bends disposed along the shaft, and an adhesive securing said filaments in their bent portions to the shaft, substantially as described.

3. As an article of manufacture, an aigret consisting of a shaft formed of layers of attenuated stiff material laid one on the other, barbs formed of suitable filaments bent in their middle portions and disposed along the shaft with their bends interposed between the layers of said shaft, and means for securing said layers of the shaft and the interposed barbs together, substantially as described.

4. As an article of manufacture, an aigret consisting of a shaft formed of layers of attenuated stiff material laid one on the other, barbs formed of suitable filaments bent in their middle portions and disposed along the shaft with their bends interposed between the layers of said shaft, and an adhesive, interposed between the layers of the shaft, for securing said layers and the barbs together, substantially as described.

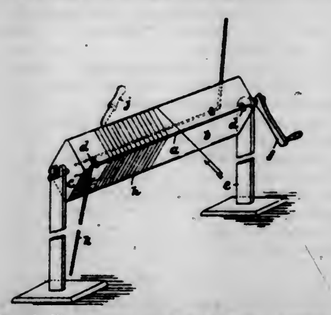
5. As an article of manufacture, an aigret consisting of a shaft formed of layers of attenuated stiff material laid one on the other, each layer having its outer surface cross-sectionally convex, barbs formed of suitable filaments bent in their middle portions and disposed along the shaft with their bends interposed between the layers of said shaft, and means for securing said layers of the shaft and the interposed barbs together, substantially as described.

6. As an article of manufacture, an artificial aigret consisting of a shaft formed of an attenuated piece of stiff material, and barbs formed of suitable filaments attached to said shaft and bent adjacent the shaft into convergence with the latter, substantially as described.

7. As an article of manufacture, an artificial aigret consisting of a shaft formed of layers of stiff material laid one on the other, barbs formed of suitable filaments and disposed along the shaft with portions thereof interposed between the layers of said shaft, and means for securing said layers of the shaft and the interposed portions of the barbs together, said barbs being bent adjacent the shaft into convergence with the latter, substantially as described.

8. As an article of manufacture, an artificial aigret consisting of a shaft formed of layers of stiff material laid one on the other, barbs formed of suitable filaments and disposed along the shaft with portions thereof interposed between the layers of said shaft, and means for securing said layers of the shaft and the interposed portions of the barbs together, substantially as described.

785,321. **PROCESS OF MANUFACTURING ARTIFICIAL AIGRETS.** ROBERT L. MCLAUGHLIN, Lakeview, N. J., assignor to The Aigrette Supply Company, Paterson, N. J. a Corporation of New Jersey. Filed Sept. 23, 1904. Serial No. 225,607.



Claim.—1. The process of manufacturing artificial aigrets which consists in attaching a series of filaments, each in its middle portion, to an attenuated strip at approximately uniform intervals along the latter, and then substantially simultaneously bending the free or projecting portions of said filaments into permanent convergence those on one side of said strip with those on the other, substantially as described.

2. The process of manufacturing artificial aigrets which consists in attaching a series of filaments, each in its middle portion, to an attenuated strip at approximately uniform intervals along the lat-

ter, and then presenting said strip, with said filaments attached, endwise to the action of a fluid-jet, whereby to substantially simultaneously bend the free or projecting portions of said filaments into permanent convergence those on one side of said strip with those on the other, substantially as described.

3. The process of manufacturing artificial aigrets which consists in laying an attenuated strip longitudinally on a suitable mandrel, winding a thread around the mandrel and the strip in substantially uniform coils and attaching the thread to the strip where it intersects the latter, then cutting the coils in a direction substantially parallel with said strip, and then substantially simultaneously bending the free or projecting portions of the filaments formed by cutting the coils into permanent convergence those on one side of said strip with those on the other, substantially as described.

4. The process of manufacturing artificial aigrets which consists in laying an attenuated strip longitudinally on a suitable mandrel, winding a thread around the mandrel and the strip in substantially uniform coils and attaching the thread to the strip where it intersects the latter, then cutting the coils in a direction substantially parallel with said strip, and then presenting said strip, with the filaments formed by cutting the coils attached thereto, endwise to the action of a fluid-jet whereby to simultaneously bend the free or projecting portions of said filaments into permanent convergence those on one side of said strip with those on the other, substantially as described.

5. The process of manufacturing artificial aigrets which consists in attaching a series of filaments to an attenuated strip at approximately uniform intervals along the latter and then substantially simultaneously bending the free or projecting portions of said filaments into permanent convergence with said strip, substantially as described.

6. The process of manufacturing artificial aigrets which consists in attaching a series of filaments to an attenuated strip at approximately uniform intervals along the latter, and then presenting said strip, with said filaments attached, endwise to the action of a fluid-jet, whereby to substantially simultaneously bend the free or projecting portions of said filaments into permanent convergence with said strip, substantially as described.

7. The process of manufacturing artificial aigrets which consists in laying an attenuated strip longitudinally on a suitable mandrel, winding a thread around the mandrel and the strip in substantially uniform coils and attaching the thread to the strip where it intersects the latter, then cutting the coils in a direction substantially parallel with said strip, and then substantially simultaneously bending the free or projecting portions of the filaments formed by cutting the coils into permanent convergence with said strip, substantially as described.

8. The process of manufacturing artificial aigrets which consists in laying an attenuated strip longitudinally on a suitable mandrel, winding a thread around the mandrel and the strip in substantially uniform coils and employing an adhesive to secure said coils to the strip where they traverse the latter, then winding a flexible strip around the winding of thread and maintaining it so until the adhesive sets, and then cutting the winding of thread substantially parallel with the first-named strip, substantially as described.

9. The process of manufacturing artificial aigrets which consists in winding a thread around a mandrel in substantially uniform coils, attaching said coils and an attenuated strip laid transversely of said coils together, and then cutting the coils parallel with the strip, substantially as described

10. The process of manufacturing artificial aigrets which consists in winding a thread around a mandrel in substantially uniform coils, attaching said coils and an attenuated strip laid transversely of said coils together, then cutting the coils parallel with the strip, and then bending the portions of said thread on one side of said strip into permanent convergence with those on the other, substantially as described.

785,322. AUTOMATIC LABEL-AFFIXER. HARRY W. MCMILLAN, Stafford, Kans. Filed July 11, 1904. Serial No. 216,189.

Claim.—1. In an automatic label-affixer, a frame adapted to lock in a form with the type, a movable plate carried by the frame, a cutter operated by the movable plate, means for moving a gummed label-strip a predetermined distance and means for moistening the gummed surface of the label-strip, substantially as described.

2. In an automatic label-affixer, a frame, a top plate movably secured on the frame, a cutter reciprocally secured transversely the frame, means for imparting motion to the cutter, a rack carried by the top plate, a train of gear-wheels meshing with said rack, one of said gear-wheels being provided with a ratchet and said ratchet imparting motion to a corrugated roller, and means for moistening the label-strip, substantially as described.



3. In a device of the character described, a frame, a top plate secured upon the frame, means for holding the top plate in a raised position, a cutter reciprocally secured in the frame, levers operated by the top plate for raising the cutter, springs for imparting a downward movement to the cutter and means for moistening the label-strip as and for the purpose described.

4. In a device of the character described, a frame, a top plate provided with lugs suitably secured on said frame, a rack carried by the top plate, gear-wheels meshing with said rack and a corrugated roller operated by the gear-wheels, and a cutter carried by the frame and means for operating the cutter as and for the purpose described.

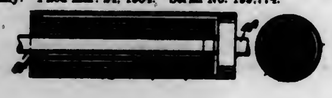
5. In an automatic label-affixer, a frame, a top plate having lugs formed integrally therewith and adapted to seat in apertures in the frame, springs suitably secured beneath each lug, a rack formed integrally with the top plate and meshing with a cog-wheel, a second-named cog-wheel provided with a ratchet said ratchet meshing with teeth on the shaft of a corrugated rubber roller, levers operated by the top plate and a cutter reciprocally mounted in the frame and operated by the levers, and a water-pipe suitably connected to a water-supply substantially as described.

6. In an automatic label-affixer, a frame provided with apertures, a top plate having lugs movably secured on the frame, a rack carried by the top plate, a train of gear-wheels operated by the rack, a corrugated roller operated by the train of gear-wheels, a cutter reciprocally mounted in the frame, levers for imparting an upward movement to said cutter, a spring for returning said cutter to its normally lowered position, and a water-pipe suitably connected to a second water-pipe for moistening the gummed side of a label-strip substantially as described.

7. In an automatic label-affixer, a frame adapted to be locked in a form having a plate movably secured thereon, said plate being provided with lugs and a rack, gear-wheels meshing with the rack, levers pivotally mounted in the frame and connected with said lugs, a cutter secured on the ends of the levers, means for moving a gummed label-strip a predetermined distance, and means for moistening the gummed surface of the label-strip as and for the purpose described.

8. In an automatic label-affixer, a frame adapted to be locked in the form in the space carrying the title-types, a top plate provided with lugs movably secured on the frame, a rack formed integrally with said top plate, gear-wheels mounted in said frame and meshing with the rack carried by the top plate, a corrugated roller mounted in said frame and operated by the gear-wheels, levers having a cutter secured on one end pivoted in the frame, said free ends of the levers bearing against the under surfaces of said lugs, whereby motion is imparted to the cutter, and means for moistening the gummed surface of a label-strip substantially as described.

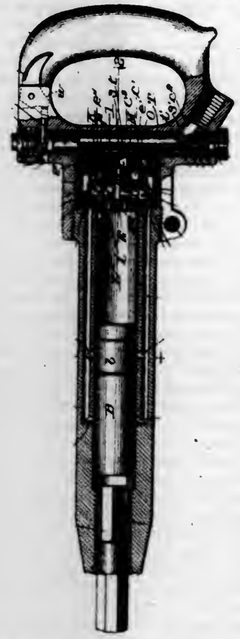
785,323. SPRING-SHAFT. JOHANNES NADROWSKI, Dresden, Germany. Filed Mar. 24, 1904. Serial No. 199,774.



Claim.—1. An elastic shaft consisting of a series of tubular sections arranged one inside the other and having one end of each section fixed to the corresponding end of the next lying outer section, the alternate ends of each section being left free and unattached as regards the next inclosing section or sleeve.

2. An elastic shaft consisting of a series of tubular sections arranged one inside the other and having one end of each section fixed to the corresponding end of the next lying outer section, the alternate ends of each section being left free and unattached as regards the next inclosing section and the innermost section being fixed to the driving and the outermost to the driven shaft in the manner and for the purpose substantially as described.

785,324. PNEUMATIC HAMMER. REINHOLD A. NORLING, Aurora, Ill., assignor to Aurora Automatic Machinery Company, Aurora, Ill., a Corporation of Illinois. Filed Aug. 19, 1904. Serial No. 221,404.



Claim.—1. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and communicating with the inner end of the barrel by two admission-ports and two valve-pistons in said valve-chamber both of which control the admission of air to the inner end of the barrel through said admission-ports, and means for actuating said valve-pistons.

2. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and communicating with the inner end of the barrel by two admission-ports, two valve-pistons in said valve-chamber which severally control the admission of air to the inner end of the barrel through said admission-ports, and means for giving endwise reciprocatory movement to the valve-pistons simultaneously in opposite directions.

3. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and which is connected with the inner and outer ends of the barrel by admission and exhaust ports or passages and two valve-pistons in said valve-chamber both of which control the admission of air to the inner end of the barrel, one of which controls the exhaust from the inner end of the barrel and the other of which controls both the admission of air to and the exhaust of air from the outer end of the barrel, and means for actuating said valve-pistons.

4. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and which is connected with the inner and outer ends of the barrel by admission and exhaust ports or passages, two valve-pistons in said valve-chamber, both of which control the admission of air to the inner end of the barrel, one of which controls the exhaust from the inner end of the barrel, and the other of which controls both the admission of air to and the exhaust of air from the outer end of the barrel, and means for giving endwise reciprocatory movement to the said valve-pistons simultaneously in opposite directions.

5. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and which is connected with the inner and outer ends of the barrel by admission and exhaust ports or passages, two valve-pistons in said valve-chamber both of which control the admission of air to the inner end of the barrel, and means controlled by the movement of said plunger for giving endwise movement to said valve-pistons.

6. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage, and with admission and exhaust ports including two admission-ports located at opposite sides of the air-supply passage and leading to the inner end of the cylinder, two endwise-sliding piston-valves which severally control the passage of air from the air-supply passage to said admission-ports, and means controlled by the movement of said plunger for giving endwise movement to said valve-pistons simultaneously in opposite directions to effect the simultaneous opening and closing of said admission-ports.

7. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage, and with admission and exhaust ports connected with the inner and outer ends of the barrel, two endwise-sliding piston-valves which control said admission and exhaust ports, the outer ends of which are larger in diameter than their inner ends, and the inner ends of which are subject to constant air-pressure from the said air-supply passage, and means for connecting the spaces at the ends of said valve-chamber, exterior to the larger outer ends of said valve-pistons, alternately with said air-supply passage and with the outer air.

8. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage, and with admission and exhaust ports, including two admission-ports located at opposite sides of the air-inlet passage and leading to the inner end of the barrel, two endwise-sliding valve-pistons which are larger in diameter at their outer than their inner ends, and the smaller inner ends of which are subject to constant air-pressure from said air-inlet passage, and means for connecting the spaces in the outer ends of said valve-chamber, exterior to the said larger outer ends of the valve-pistons alternately with the said air-inlet passage and with the outer air.

9. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and with admission and exhaust ports connected with the inner and outer ends of the barrel, two endwise-sliding valve-pistons located in said valve-chamber, said pistons being of larger diameter at their outer than at their inner ends, and having their inner ends subject to constant pressure of air from the said air-supply passage, and means for alternately connecting the spaces at the outer ends of said valve-chamber, exterior to the larger outer ends of the valve-pistons, with the air-supply passage and with the outer air, comprising passages connected with the said spaces, with the air-supply passage and with the outer air, and which communicate with the interior of the barrel by ports which are controlled by the plunger in its endwise movement.

10. The combination with a barrel and a plunger therein, provided with a recess or groove between its ends, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and with admission and exhaust ports connected with the inner and outer ends of the barrel, two endwise-sliding valve-pistons located in said valve-chamber, said pistons being of larger diameter at their outer than at their inner ends, and having their inner ends subject to constant pressure of air from the said air-supply passage, and means for alternately connecting the outer ends of said valve-chamber, exterior to the larger outer ends of the valve-pistons, with the air-supply passage, and with the outer air, comprising passages and ports in the wall of the barrel controlled by the plunger in its endwise movement, said passages including a passage leading from the air-supply passage through the wall of the barrel and opening into the same between its ends, two passages leading from the opposite ends of said valve-chamber and communicating with the interior of the barrel by ports located between its ends, said groove or recess in

the plunger being adapted to establish communication between said air-passages in the wall of the barrel.

11. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and with admission and exhaust ports communicating with the inner and outer ends of the barrel, two endwise-sliding valve-pistons located in said valve-chamber, said pistons being of larger diameter at their outer than at their inner ends, and having their inner ends subject to constant pressure of air from said air-supply passage, and means for alternately connecting the spaces at the outer ends of said valve-chamber exterior to the larger outer ends of the valve-pistons with the air-supply passage and with the outer air, comprising two passages in the wall of the barrel which are severally connected with the said spaces at the outer ends of the valve-chamber and which open into the interior of the barrel through ports that are uncovered when the plunger is at the inward limit of its movement and a passage in the wall of the barrel which communicates with the outer air and which opens into the interior of the barrel by a port which is also uncovered when the plunger is at the inward limit of its movement.

12. The combination with a barrel and a plunger therein, provided with a recess or groove between its ends, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and with admission and exhaust ports connected with the inner and outer ends of the barrel, two endwise-sliding valve-pistons in said valve-chamber, said pistons being of larger diameter at their outer than at their inner ends and having their inner ends subject to constant pressure of air from said air-supply passage, and means for alternately connecting the outer ends of said valve-chamber exterior to the larger outer ends of the valve-pistons, with the air-supply passage and with the outer air, comprising two passages in the wall of the barrel which are severally connected with the outer ends of the said valve-chamber and each of which opens into the barrel through two ports, one of which is uncovered by the plunger when the latter is at the inward limit of its movement, and the other of which communicates with said groove or recess in the plunger when the latter is at the outer limit of its movement, a passage in the wall of the barrel which communicates with the said air-supply passage and opens into the interior of the barrel by a port located in position to communicate with the said groove or recess in the plunger when the latter is at the outer limit of its movement, and a passage in the wall of the barrel which communicates with the outer air and is connected with the interior of the barrel by means of a port located in position to be uncovered by the plunger when the same is at the inner limit of its movement.

13. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage, with two admission-ports located at opposite sides of said air-supply passage and leading to the inner end of the barrel, with an exhaust-port communicating with the inner end of the barrel, and with an admission and exhaust port communicating with the outer end of the barrel, and two endwise-sliding piston-valves, the inner or adjacent parts of which control the passage of air from the air-supply passage to the said admission-ports leading to the inner end of the barrel, one of which controls the exhaust-passage leading from the inner end of the barrel and the other of which controls the passage of air from said air-supply passage to the outer end of the barrel, and also controls the exhaust from the outer end of the barrel.

14. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage, and with two annular recesses located at either side of said air-supply passage and communicating by admission-ports with the inner end of the barrel, said valve-chamber also having between one of said annular grooves and one end of the valve-chamber two annular exhaust-grooves, one of which communicates by an exhaust-port with the inner end of the barrel and the other by an exhaust-port with the outer air, and two endwise-movable valve-pistons in said chamber, the inner ends of which control the passage of air from said air-supply passage to the said admission grooves and ports, one of said valve-pistons having a flange by which the communication between said exhaust-grooves for the inner end of the barrel is alternately opened and closed in the endwise movement of said valve-piston.

15. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage, with two admission-ports located at opposite sides of said air-supply passage and leading to the inner end of the barrel, with an exhaust-port leading from the inner end of the barrel, and with an admission and exhaust port communicating with the outer end of the barrel, and two endwise-sliding piston-valves, the inner or adjacent parts of which control the passage of air from the air-supply passage to the said admission-ports leading to the inner end of the barrel, one of which controls the exhaust-passage leading from the inner end of the barrel and the other of which controls the passage of air from said air-supply passage to the outer end of the barrel and also controls the exhaust from the outer end of the barrel, said second valve-piston being larger in diameter at its outer than at its inner part and provided with a central passage opening through its inner end and with radial openings in said larger outer part, said openings being adapted for communication with the said admission and exhaust port leading to the outer end of the barrel when the piston is at the inward limit of its movement and to be closed by the surrounding wall of the chamber when the piston is at the outward limit of its movement.

16. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and with two annular recesses located at either side of said air-supply passage and communicating by admission-ports with the inner end of the barrel, said valve-chamber also having between one of said annular grooves and the end of the barrel two annular exhaust-grooves, one of which communicates by an exhaust-port with the inner end of the barrel and the other by an exhaust-port with the outer air, said valve-chamber also having between the other of said air-admission grooves or recesses and the opposite end of the barrel, an annular admission and exhaust groove communicating by a passage with the outer end of the barrel and an adjacent annular exhaust-groove communicating with the outer air, and two valve-pistons in said chamber, the inner ends of which control the passage of air from said air-supply passage to the said admission-grooves connected with the inner end of the barrel, one of said valve-pistons having a flange by which the communication between said exhaust-grooves for the inner end of the barrel is alternately opened and closed, and the other end of said pistons having its outer part larger than at its inner part and being provided with a central passage opening through its inner end and with radial passages in its said larger outer part.

17. The combination with a barrel and a plunger therein, of a controlling-valve comprising a valve-chamber provided with an air-supply passage and with two admission-ports located at opposite sides of the air-supply passage and leading to the inner end of the cylinder, said chamber also having an exhaust-port leading from the inner end of the barrel into said chamber, an exhaust-port leading from said chamber to the outer air, an admission and exhaust passage communicating with the outer end of the barrel and an exhaust-passage, adjacent to said admission and exhaust port, leading to the open air, and two valve-pistons in said chamber, the inner ends of which control the passage of air from said air-supply passage to the admission-passage adjacent thereto and which are subject to the constant air-pressure from said air-supply passage, and the outer ends of which are made of larger diameter than their inner parts and are adapted to slide in the outer ends of said chamber, one of said valve-pistons controlling the exhaust-port from the inner end of the barrel, and the other of said valve-pistons controlling the admission of air from said central supply-passage to the outer end of the cylinder, and also the exhaust from the outer end of the cylinder, and means for bringing the outer ends of the said valve-chamber exterior to the larger ends of the valve-pistons alternately into communication with the said air-supply passage and with the outer air.

18. The combination with a barrel, and a plunger therein, of a head attached to the inner end of the barrel, a valve-block located within said head in contact with the inner end of said barrel, said valve-block being provided with a valve-chamber and in its outer face with a central air-supply passage communicating with said chamber; said block having two admission grooves or recesses located at either side of said central air-supply passage, and a plurality of admission-ports leading from each of said grooves or recesses through the inner face of the block, and two endwise-sliding valve-pistons located in said valve-chamber at the opposite sides of said central air-supply passage and which operate to control the passage of air from said air-supply passage to the said admission-ports.

19. The combination with a barrel, and a plunger therein, of a head attached to the inner end of the barrel, a valve-block located within said head in contact with the said inner end of the barrel, said valve-block being provided with a valve-chamber and, in its outer face, with a central air-supply passage in communication with said valve-chamber; said block having two admission grooves or recesses located at either side of said air-supply passage, and a plurality of ports leading from each of said admission grooves or recesses through the inner face of the block, and two endwise-sliding valve-pistons located in said valve-chamber at the opposite sides of said central air-supply passage and which operate to control the passage of air from said air-supply passage to the said admission-ports, said valve-block being provided also with two adjacent annular exhaust grooves or recesses, one of which communicates with the interior of the barrel by a plurality of ports, and the other of which communicates with an exhaust-space within the head by a plurality of ports.

20. The combination with a barrel and a plunger therein, of a head attached to the inner end of the barrel, a valve-block located within said head in contact with the said inner end of the barrel, said valve-block being provided with a valve-chamber and, in its outer face, with a central air-supply passage and having two admission grooves or recesses located at either side of said central air-supply passage, and a plurality of ports leading from each of said grooves or recesses through the inner face of the block, and two endwise-sliding valve-pistons located in said valve-chamber at the opposite sides of said central air-supply passage and which operate to control the passage of air from said central air-supply passage to the said admission-ports, said valve-block being provided also with two adjacent annular exhaust grooves or recesses, one of which communicates with the inner end of the valve-block by a plurality of ports, and the other of which communicates with a space within the head by a plurality of ports, and said valve-block also being provided with an admission and exhaust groove, connected with the outer end of the barrel, and with an exhaust-groove connected by a port with the space between the valve-block and the head, the valve-piston, which operates in connection with said admission and exhaust groove, being provided with a central passage which opens through its inner end, and with radial openings extending from said central passage through the outer surface of the piston.

21. The combination with a barrel, a plunger therein, and a hollow head attached to the plunger, of a valve-block located in said head between the end wall of the same and the inner end of the barrel, said block being provided with a valve-chamber which extends therethrough, cap-plates closing the ends of said chamber and held therein by contact with the opposite walls of the said head, and said valve-block being provided with a central air-supply passage, and with air admission and exhaust ports connected with the opposite ends of the barrel, and two endwise-sliding valve-pistons located in said valve-block for controlling the said air inlet and exhaust passages.

22. The combination with a barrel, a plunger therein, and a hollow head attached to the plunger, of a valve-block located in said head between the end wall of the same and the inner end of the barrel, said block being provided with a valve-chamber, with a central air-supply passage, and with air admission and exhaust ports connected with the opposite ends of the barrel, and two endwise-sliding valve-pistons located in said valve-block for controlling the said air admission and exhaust ports, said valve-block being cut away at the sides of said chamber to form an exhaust-passage between the said valve-block and the head and said head being provided with exhaust-openings.

785,325. **TUBULAR SKATE.** WILLIAM G. NOTT, Toronto, Canada. Filed Nov. 10, 1903. Serial No. 180,542.



Claim.—1. In a tubular skate the combination of a blade; a main tube divided longitudinally to embrace the blade and connected to the upper part of the same, an aperture being formed in its upper surface; a cone brazed to the tube about the aperture; and a connection comprising a split tubular portion brazed within the main tube and lugs formed integral with the tubular portion extending up through the aperture and secured to the sides of the cone, substantially as described.

2. In a tubular skate the combination of a blade; a main tube divided longitudinally to embrace the blade and connected to the upper part of the same, an aperture being formed in its upper surface; a cone brazed to the tube about the aperture; and a connection comprising a tubular portion split longitudinally along its upper side and brazed within the main tube in contact with the upper edge of the blade, and lugs formed integral with the tubular portion extending up through the aperture and secured to the sides of the cone, substantially as described.

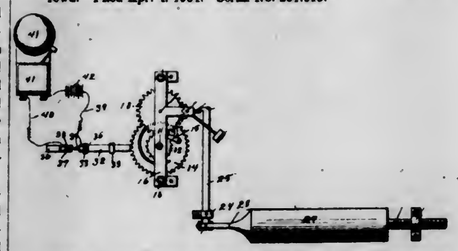
3. In a tubular skate the combination of a blade; a main tube divided longitudinally and having an aperture formed in its upper surface; flanges formed at the divided edges of the tube and secured to the upper part of the blade; a cone brazed to the tube about the aperture; and a connection comprising a tubular portion split longitudinally along its upper side and brazed within the main tube in contact with the upper edge of the blade, and lugs formed integral with the tubular portion extending up through the aperture and secured to the sides of the cone, substantially as described.

4. In a tubular skate the combination of a blade; a main tube divided longitudinally to embrace the blade and connected to the upper part of the same, an aperture being formed in its upper surface; a tubular toe-strut brazed to the tube about the aperture; a connection comprising a split tubular portion brazed within the main tube, and lugs formed integral with the tubular portion and extending up through the tubular strut and peened over at the ends; and a toe-plate held between the end of the strut and the peened-over ends of the said lugs, substantially as described.

5. In a tubular skate the combination of a blade; a main tube divided longitudinally at its under side only to embrace the blade and connected to the upper part of the same; and one or more tubes brazed within the main tube above and in contact with the upper edge of the blade, substantially as described.

6. In a tubular skate the combination of a blade; a main tube divided longitudinally at its under side only to embrace the blade and connected to the upper part of the same; sole and heel cones connected with the main tube; and a tube brazed within the main tube beneath the point of connection of each cone above and in contact with the upper edge of the blade, substantially as described.

785,326. **THERMOSTATIC ALARM.** CHARLIE C. PALMER, Osceola, Iowa. Filed Apr. 4, 1904. Serial No. 201,613.



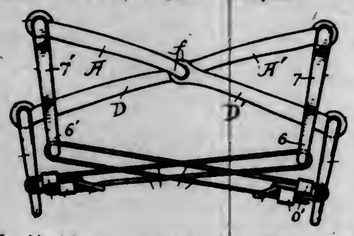
Claim.—1. In a device of the class described, the combination of a spring-rotated escapement-wheel and escapement therefor, a bell-clapper connected with the escapement, a bell to be engaged by the clapper, a trigger connected with the escapement, a trip-lever coacting with the trigger, a thermostatic bar having at one end a screw-threaded extension and at its other end a tapered projection, a screw-threaded bracket supporting the screw-threaded extension and means for rotatably connecting the tapered end of the thermostatic bar to the said trip-lever, whereby the device may be readily and quickly adjusted by rotation of the thermostatic bar.

2. In a device of the class described, the combination of a clock-work mechanism including a convolute spring, an escapement-wheel actuated by the spring, an escapement coacting with the escapement-wheel, a bell-clapper actuated by the escapement, a trigger connected with the escapement, a bell to be engaged by the clapper, a trip-lever coacting with the trigger, a thermostatic bar rotatably connected with the trip-lever, a screw-threaded extension on the thermostatic bar, a screw-threaded bracket to receive the screw-threaded extension, a sliding bar adjacent to the convolute spring moved outwardly when the spring is expanded, an electrode carried by the sliding bar, a second electrode in position to be engaged by the first when the bar is moved away from the clockwork mechanism, a battery, an electric bell and wires connecting the battery, bell and said electrodes.

785,327. **CONTROLLER-BIT.** CHARLES W. PHILLIPS, Omaha, Nebr. Filed Aug. 9, 1904. Serial No. 220,140.

Claim.—1. In a bit of the character described, the combination with two slotted cheek-plates, of a bit member extending from and pivotally secured to each cheek-plate, a second bit member extending from each first-mentioned bit member to form two jointed bits, each rear bit member extending through the slot within each cheek-plate,

upon the side opposite, said jointed bits crossing one another X-shaped, a swivel-loop secured to the end of each bit member projecting through the cheek-plates, and a pliable loop extending from each swivel-loop and secured to the opposite cheek-plate.



2. In a bit of the character described, the combination with two jointed bits, of two slotted cheek-plates, each jointed bit extending from and being secured at one end to one of the said slotted cheek-plates, each jointed bit projecting at the opposite end through the slot within the cheek-plate opposite, so that said jointed bits are held X-shaped, a swivel-loop secured to each bit and projecting through each cheek-plate, a chin-strap extending from each swivel-loop and secured to the cheek-plate opposite so that said chin-straps cross one another, all arranged as set forth.

785,328. **DEVICE APPLIED TO CIRCULAR SAWS.** ANTON PLESS, Karbitz, Austria-Hungary. Filed Dec. 29, 1903. Serial No. 187,067.



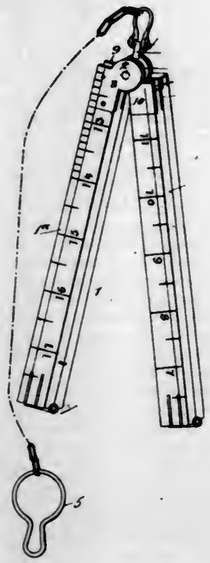
Claim.—1. In a device for circular sawing machines for automatically cutting the sawed-off wood into lengths, the combination with the machine-table having a longitudinally-extending opening and a clearing-wedge carried by the table, of a deflecting-wedge arranged behind the clearing-wedge for deflecting the sawed-off wood through said opening, a shiftable and obliquely-extending conducting means secured to the table and arranged below the said opening and adapted to receive the wood, a plurality of saws, a plurality of tooth conveyer-wheels adapted to convey the wood from said conducting means to said saws, and a yielding shaft for said wheel.

2. In a device for circular sawing machines for automatically cutting the sawed-off wood into lengths, the combination with the machine-table having a longitudinally-extending opening and a clearing-wedge carried by the table, of a deflecting-wedge carried behind the clearing-wedge for deflecting the sawed-off wood through said opening, a shiftable and obliquely-extending conducting means secured to the table and arranged below the said opening and adapted to receive the wood, a plurality of saws, a plurality of tooth conveyer-wheels adapted to convey the wood from said conducting means to said saws, a yielding shaft for said wheel, and a shiftable conveying means for the wood from said saws.

3. In a device for circular sawing machines for automatically cutting the sawed-off wood into lengths, comprising the combination with the machine-table having a longitudinally-extending opening and a clearing-wedge carried by the table, of a deflecting-wedge arranged behind the clearing-wedge for deflecting the sawed-off wood through said opening, a shiftable and obliquely-extending conducting means arranged below the opening and adapted to receive the wood, a conveyer arranged below said obliquely-extending conducting means and adapted to receive the wood therefrom, shiftable means for deflecting the wood from said conveying means, saws, and a conducting means adapted to receive the deflected wood from the conveying means for conducting the wood to said saws.

4. In a device for circular sawing machines for automatically cutting the sawed-off wood into lengths, comprising the combination with the machine-table having a longitudinally-extending opening and a clearing-wedge carried by the table, of a deflecting-wedge arranged behind the clearing-wedge for deflecting the sawed-off wood through said opening, a shiftable and obliquely-extending conducting means arranged below the opening and adapted to receive the wood, a conveyer arranged below said obliquely-extending conducting means and adapted to receive the wood therefrom, shiftable means for deflecting the wood from said conveying means, saws, a plurality of circular saws suitably spaced apart, and a conducting means adapted to receive the deflected wood for conducting it against the saws so that said wood can be cut into suitable lengths.

785,329. **RULE.** CHARLES O. RASMUSSEN, New York, N. Y. Filed Nov. 21, 1904. Serial No. 233,753.



Claim.—1. A rule provided with a stem pivotally connected with the pivot of the main joint or hinge, and means for attaching said stem to a flexible connection, the stem being of such length as not to project beyond the edges of the members of the rule when said members are extended in a straight line for use, substantially as described.

2. A rule provided with a recess in its edge portion adjacent to the pivot of its main joint or hinge, and a stem pivotally connected with said pivot and having a portion entering said recess when the rule is extended, the stem being of such length as not to project beyond the edges of the members of the rule when said members are extended in a straight line for use, substantially as described.

3. A rule provided with a main joint or hinge having a pivot, and a stem provided with a disk-like portion mounted upon said pivot, said stem extending between the abutting ends of the members of the rule, the stem being of such length as not to project beyond the edges of the members of the rule when said members are extended in a straight line for use, substantially as described.

4. A rule provided with a main joint or hinge having a pivot, and a stem provided with a disk-like portion mounted upon said pivot, the stem extending outwardly between the abutting ends of the members of the rule, said members being provided with recesses at the corners of their outer edges to receive said stem when said members are extended, substantially as described.

5. A rule having a main joint or hinge, the members of the rule having recesses at the outer abutting corners, and a stem having a disk portion mounted upon the pivot of the hinge and a head portion having its members lying substantially in the plane of the disk, said head portion of the stem being located in position to lie within said recesses when the members of the rule are extended, substantially as described.

6. A rule having a main joint or hinge, the members of the rule having recesses at the outer abutting corners, a stem having a disk portion mounted upon the pivot of the hinge and a head portion having its members lying substantially in the plane of the disk, said head portion of the stem being located in position to lie within said recesses when the members of the rule are extended, and a yoke detachably connected with said head for attachment to a flexible connection, substantially as described.

7. A rule having two members pivotally connected together, one of said members having two outer plates, the other member having an inner block provided with jaws, a stem having a disk-like portion received between said jaws, and a pivot passing through said plates, jaws and disk, the adjacent end portions of said members being recessed to receive the stem, substantially as described.

785,330. **CHURN-DASHER.** STEPHEN B. RATHBUN, Stockton, Cal., assignor of one-half to James M. Schofield, Stockton, Cal. Filed Oct. 10, 1904. Serial No. 227,806.



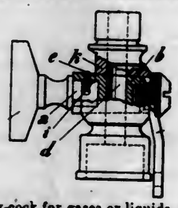
Claim.—1. In a rotary churn, the combination of a vertical shaft, a horizontal arm attached to the bottom of the shaft, a horizontal arm adjustably attached to the shaft above said first-named arm, vertical wires connecting said arms, a tube surrounding said shaft, swinging wings carried by said tube and a disk attached to the bottom of said tube and formed with two diametrically opposite slits, each slit having one edge bent downwardly, substantially as described.

2. In a device of the kind described a vertical shaft stepped in the bottom of the churn-tub, a hollow tube surrounding said shaft and provided with an auger-shaped disk at its lower end, and means attached to said shaft for beating the cream, as set forth.

3. In a device of the kind described the combination of a vertical shaft stepped in the bottom of the churn-tub, a hollow tube surrounding said shaft and provided with an auger-shaped disk at its lower end, having oppositely-inclined downwardly-turned edges at opposite sides of said shaft, flexible wings secured vertically to the outside of said tube, and means attached to said shaft for beating the cream, as specified.

4. In a device of the kind described the combination of a vertical shaft stepped in the churn-tub, a hollow tube surrounding said shaft and provided with an auger-shaped disk at its lower end, said disk having diametrically-opposite slits and each slit having a downwardly-turned edge, slots in the sides of said tube slots extending into the base-disk, horizontal bars secured to said shaft and extending outwardly through said slots, vertical wires strung between and fastened to said bars, and vertical wings secured to the outer ones of said wires, all for the purpose specified.

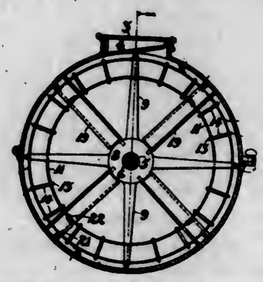
785,331. **SAFETY TAP OR COCK.** FERDINAND SCHMIDT, Breslau, Germany. Filed June 3, 1904. Serial No. 211,018.



Claim.—Safety-cock for gases or liquids, comprising in combination a perforated casing having an aperture, a correspondingly-perforated plug rotatable in said casing and having a slot approximately extending over a quarter-circle and adapted to temporarily register with the said aperture in said casing, a handle freely engaging a recess in said plug, a pin secured to said handle extending into the said slot in said plug, and adapted to travel therein, and means for opening the cock independently of said handle, substantially as set forth.

785,332. **CAKE-MIXER.** FREDRICK R. SCHMIDT, San Francisco, Cal. Filed July 5, 1904. Serial No. 215,316.

Claim.—1. In a cake-mixer, the combination with a container of a rotary mixer having a plurality of annular series of transversely-extending wires or rods and provided with rollers arranged exterior to the wires or rods and contiguous to the inner surface of the container.



2. In a cake-mixer, the combination with a container of a rotary mixer having a plurality of annular series of transversely-extending wires or rods and provided with rollers arranged contiguous to the inner surface of the container, and lateral radial and transverse scrapers carried by said mixer.

3. In a cake-mixer, the combination of a container inclosing a circular chamber, a rotary mixer concentric with said chamber, said mixer comprising plural series of transversely-extending rods disposed in arcs concentric with the chamber, the latter having an ingress-passage and a closure for said passage, said closure having an inclined bottom with its lower edge substantially continuous with the inner periphery of the chamber, and scrapers carried by said mixer and operating against the inner wall of the chamber.

4. In a cake-mixer, the combination of a circular sectional container and an inclosed rotary concentric dasher or mixer, said dasher comprising a hollow hub portion, radially-extending arms from opposite ends of said hub portion, concentric rings supported by said arms, a series of cross-wires connecting opposite rings, and radial scrapers carried by said arms and operating against the ends of the container.

5. In a cake-mixer, the combination of a circular sectional container and an inclosed rotary concentric dasher or mixer, said dasher comprising a hollow hub portion, radially-extending arms from opposite ends of said hub portion, concentric rings supported by said arms, a series of cross-wires connecting opposite rings, rollers supported between the several arms and arranged in close proximity to the inner periphery of the container.

6. In a cake-mixer, the combination of a circular sectional container and an inclosed rotary concentric dasher or mixer, said dasher comprising a hollow hub portion, radially-extending arms from opposite ends of said hub portion, concentric rings supported by said arms, a series of cross-wires connecting opposite rings, rollers supported between the several arms and arranged in close proximity to the inner periphery of the container, and pivotally-supported radially-disposed removable scrapers carried by the dasher and adapted to engage the sides of the container.

7. In a cake-mixer, the combination of a circular sectional container and an inclosed rotary contentric dasher or mixer, said dasher comprising a hollow hub portion, radially-extending arms from opposite ends of said hub portion, concentric rings supported by said arms, a series of cross-wires connecting opposite rings and pivotally-supported radially-disposed removable scrapers carried by the dasher and adapted to engage the sides of the container.

8. In a cake-mixer, the combination of a contalner inclosing a circular chamber, a rotary dasher or mixer concentric with said chamber and mounted on a horizontal axis, said dasher including a plurality of radially-supported rings and cross-wires connecting said rings, and scrapers carried by the mixer exterior to the rings and wires.

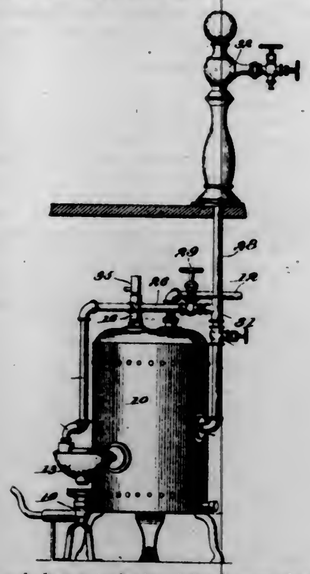
9. In a cake-mixer, the combination of a container inclosing a circular chamber, a rotary dasher or mixer concentric with said chamber and mounted on a horizontal axis, said dasher including a plurality of radially-supported rings, cross-wires connecting said rings, cross-rollers supported between said rings and movable in close proximity to the interior of the chamber.

10. In a cake-mixer, the combination of a container inclosing a circular chamber, a rotary dasher or mixer concentric with said chamber and mounted on a horizontal axis, said dasher including a plurality of radially-supported rings, cross-wires connecting said rings, cross-rollers supported between said rings and movable in

close proximity to the interior of the chamber, and radially-disposed removable scrapers carried by the dasher and adapted to engage the sides of the container.

11. In a cake-mixer, the combination of a container inclosing a circular chamber, a rotary dasher or mixer concentric with said chamber and mounted on a horizontal axis, said dasher including a plurality of radially-supported rings, cross-wires connecting said rings, cross-rollers supported between said rings and movable in close proximity to the interior of the chamber, radially-disposed removable scrapers carried by the dasher and adapted to engage the sides of the container, said container having an ingress-passage and a closure for said passage, said closure having a bottom inclined downwardly in the direction of rotation of the dasher, the lower edge of said inclined bottom being substantially continuous with the inner periphery of the mixing-chamber and means for rotating the dasher.

785,333. **WATER-HEATER.** FRANK O. SODERSTROM, Chicago, Ill. Filed Oct. 24, 1901. Serial No. 79,856.



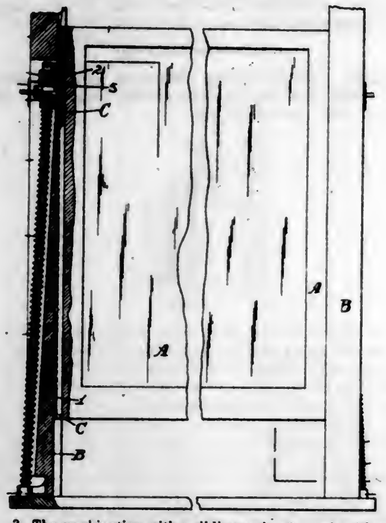
Claim.—1. In a water-heater of the character described, the combination of a pressure-tank, a water-heating box at one side of the tank and connected therewith, a cross at the top of the tank, a pipe connected with the heating-box and said cross to discharge the heated water into the top of the tank and provide a constant circulation through the heating-box and tank, a hot-water-outlet delivery-pipe having one branch connected with said cross and another branch connected with the side of the tank at or about its middle, and valves in said branches.

2. In a water-heater of the character described, the combination of a pressure-tank, a cross at the top of the tank, a cup-shaped heating-box connected with the side of the tank near its bottom, said box being provided with a hemispherical water-chamber and a convex heating-wall, a delivery-pipe for said box arranged above the center thereof and connected with said cross, and a hot-water-outlet delivery-pipe for the tank having one branch thereof connected to the side of the tank at or about its middle and another branch connected with the cross on the top of the tank, and a valve in each of said branches.

785,334. **SASH-BALANCE.** JOSEPH SOSS, New York, N. Y. Filed May 17, 1904. Serial No. 208,412.

Claim.—1. The combination with a sliding sash, of a rack with oblique teeth attached to said sash, a gear-wheel meshing into said rack, a shaft having suitable bearings and upon which shaft the gear-wheel is mounted, a tension-spring in connection with said shaft, and means for yieldably pressing the gear-wheel and rack together.

2. The combination with a sliding sash, of a rack with oblique teeth attached to said sash, a gear-wheel meshing into said rack, a swinging shaft having suitable bearings and upon which shaft the gear-wheel is mounted, a tension-spring in connection with said shaft, and means for yieldably pressing the gear-wheel and rack together.



3. The combination with a sliding sash, of a rack with oblique teeth attached to said sash, a gear-wheel meshing into said rack, a shaft having its lower end pivotally mounted, a movable spring-pressed box supporting the upper end, means for guiding and holding the box, and a spring in connection with said shaft.

4. The combination with a sliding sash, of a rack with oblique teeth attached to said sash, a gear-wheel meshing into said rack, a shaft having its lower end pivotally mounted, a movable spring-pressed box supporting the upper end, means for guiding and holding the box, a spring in connection with said shaft, and means for locking the shaft against turning.

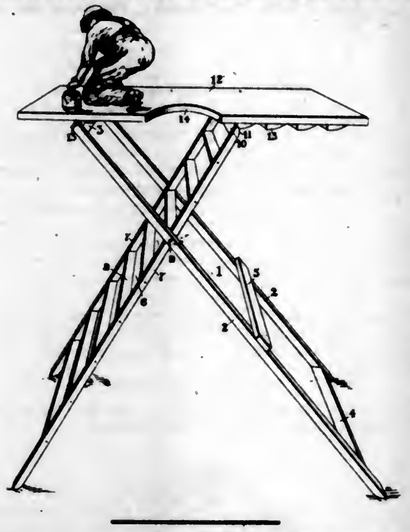
5. The combination with a sliding sash, of a rack with oblique teeth attached to said sash, a gear-wheel meshing into said rack, a shaft having its lower end pivotally mounted, a movable spring-pressed box supporting the upper end, means for guiding and holding the box, a spring in connection with said shaft, and a set-screw passing through the box and engaging the shaft for locking the two together.

785,335. **PLATFORM-LADDER.** DAVID A. SOX, Atlanta, Ga. Filed Oct. 28, 1903. Serial No. 178,867.

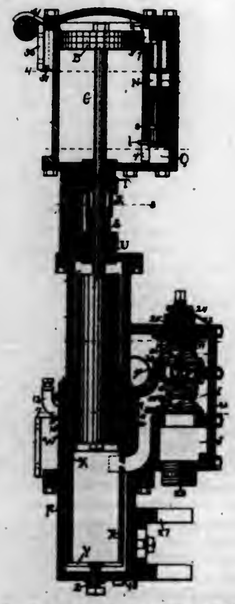
Claim.—1. A platform-ladder comprising a frame, a ladder disposed between and having pivotal connection with the side members of said frame, a platform hinged at the upper end of the frame, and means upon the under side of the platform for engaging a cross-brace at the upper end of the ladder to retain the same in a distended position with relation to the frame, one edge of the platform being provided with an opening located adjacent the ladder and of a size to admit of a person passing through said opening from the ladder to the top of the platform.

2. A platform-ladder comprising a pair of crossed frames which are pivotally connected at their point of crossing, one of said frames having rungs to constitute a ladder, and a platform hinged to one of the frames and having means for engagement with the other frame to support the frames when distended, said platform being provided with an opening located between the two frames and adjacent the ladder-frame and of a size to admit of a person passing therethrough from the ladder to the top of the platform.

3. A platform-ladder comprising a pair of crossed frames which are pivotally connected at their point of crossing, one of the frames having rungs to constitute a ladder, the latter frame being provided at its upper end with a cross-bar having a beveled upper side, and a platform hinged to the top of the other frame member and capable of resting upon the top of the ladder member, the under side of the platform being provided with a longitudinal succession of ratchet-teeth for engagement with the beveled top of the cross-bar, and one side of the platform being provided with an edge opening located adjacent the ladder member and of a size and shape to admit of a person passing therethrough from the ladder to the top of the platform.



785,336. **PUMPING-ENGINE.** OLE O. STORLE, Tacoma, Wash. Filed Dec. 24, 1901. Serial No. 87,058.

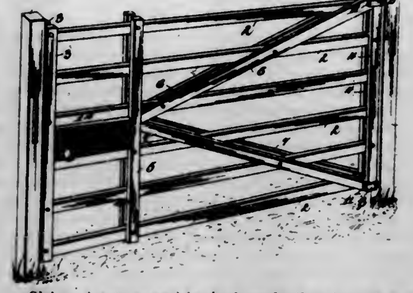


Claim.—1. In a force-pump comprising a plunger-casing, a valve-chamber in communication therewith, a piston-cylinder and a rod connecting the plunger and piston in the casing and cylinder, respectively; an automatic cut-off for the piston-cylinder, comprising a two-part compartment in communication with the cylinder, two cup-shaped slides connected by a rod and fitting one in each of said compartments, and each provided with a stud projecting into the line of travel of the piston, said slides being adapted to be shifted alternately in the control of the live-steam and exhaust parts by contact of the piston with said studs and to have their movement completed by the action of live steam on the slides, substantially as described.

2. The combination with the piston and its cylinder, of an automatic cut-off for the piston-cylinder, comprising a compartment divided centrally by a partition to form two chambers, each communicating with the piston-cylinder and each formed with an inlet and an exhaust port, a rod passing through the central partition and provided in each chamber with a slide having a port adapted to be brought into and out of register with the port leading into the piston-cylinder from the chamber containing the slide, and means for transmitting motion from the piston to said slides, to shift the slides in alternation to admit the pressure agent into one slide-chamber and from thence into the piston-cylinder and cut off the supply to the other chamber and permit exhaust from the piston-cylinder through said chamber, substantially as described.

3. The combination with the piston and its cylinder, of an automatic cut-off for the piston-cylinder, comprising a compartment divided centrally by a partition to form two chambers, each having a port communicating with the piston-cylinder, and each formed with an inlet-port near the partition and an exhaust-port nearer the end of the chamber, a rod passing through the partition and provided in each chamber with a hollow slide open at its inner end and closed at its other end and formed with a port to be brought into and out of register with the port leading into the piston-cylinder in the alternate shifting of the slide, and means in the path of movement of the piston for alternately shifting said slides to control the inlet and exhaust of steam to and from the piston-cylinder through said slide-chambers, substantially as described.

785,337. **GATE.** JAMES W. STRAIT, Bowling Green, Ky. Filed Nov. 27, 1903. Renewed Jan. 14, 1905. Serial No. 241,049.



Claim.—A gate, comprising horizontal rails or bars, three pairs of vertical bars located at opposite sides of the gate, inclined braces arranged in pairs and extending from the upper and lower ends of the rear pair of vertical bars to about the center of the intermediate vertical bars and abutting against the latter and also against each other, and hinge members provided with arms embracing the rear bars of the gate and extending beyond the same and overlapping and connected to the rear ends of the braces, substantially as described.

785,338. **MEANS FOR PROGRESSIVELY ESTABLISHING AND DISSOLVING SPHERES OF MAGNETIC INFLUENCE.** GUION THOMPSON and HUNTINGTON W. MERCHANT, New York, N. Y., assignors to The Thompson Safety Appliance Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 17, 1903. Serial No. 169,788.

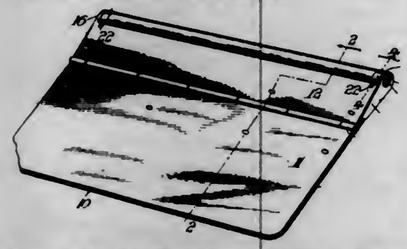


Claim.—1. The combination of a normally open circuit including the coil of an electromagnet a normally open circuit-controlling contact adapted to be governed by said magnet when energized, and a source of electricity; a second normally open circuit including the

coil of said electromagnet, said source of electricity, a normally open circuit-controlling contact and a transient circuit-closing contact adapted to close the normally open contact of said second circuit; a third normally open circuit, including said source of electricity and a normally open contact adapted to be closed by said transient circuit-closing contact, substantially as described.

2. A multiple-electric circuit, including a source of electricity common to each of its branches, the coil of an electromagnet common to two of said branches, a separate normally open circuit-controlling contact in each of said branches, a traveling contact adapted to close the normally open contact of one of said branches in which said electromagnet is included and subsequently to leaving and reopening the latter said contact to close the normally open contact of the branch in which said electromagnet is not included; and means governed by said electromagnet adapted to close the normally open contact of the other electromagnet-containing branch when said electromagnet is energized.

785,339. **LOOSE-SHEET HOLDER.** EMORY A. TRUSSELL, St. Louis, Mo., assignor to Steber & Trussell Mfg. Co., a Corporation of Missouri. Filed May 23, 1904. Serial No. 209,307.



Claim.—1. In a loose-leaf holder, in combination, a back plate having its rear portion bent to form a tube and having its overturned edge secured to its body, a top plate having hinge-lugs opposing the ends of the tube, pintles secured to the lugs and entering the tube, and a torsion-spring housed within the tube, one end thereof being engaged between the overturned edge of the back plate and the body thereof and the other end being secured to one of the pintles.

2. In a loose-leaf holder, in combination, a back plate having its rear portion bent to form a tube and having its overturned edge secured to its body, a top plate having hinge-lugs opposing the ends of the tube, pintles set in the tube and engaging the lugs, a torsion-spring housed within the tube, one end thereof being engaged between the overturned edge of the back plate and the body thereof and the other being connected with one of the pintles, a stop set in the pintle and engaging the top plate, a plurality of apertures being provided in the pintle into any one of which the stop may be set.

3. In a loose-leaf holder, in combination, a back plate having its rear portion bent to form a tube and having its overturned edge secured to its body, a top plate having hinge-lugs opposing the ends of the tube, means for rotatably attaching the hinge-lugs to the tube, and a torsion-spring housed within the tube one end thereof being engaged between the overturned edge of the back plate and the body thereof and the other end being connected with the top plate.

785,340. **SHAFT-SUPPORTER FOR WAGONS.** FREDERICK E. WAHLGREN, New York, N. Y. Filed May 23, 1904. Serial No. 209,171.



Claim.—The combination with the wagon-body and the shafts, of the curved slideway attached to the under side of the body in advance of the axis of the fifth-wheel, and curved to the radius of said axis, slide-piece on said slideway, and two coiled-wire springs both fastened at one end to said slide-piece and attached at the other ends to the shafts respectively forward of the slideway and divergently as to each other and tangentially to the slideway whereby they respectively pull the slide freely and smoothly.

785,341. **SANITARY STALL FOR CATTLE.** MATHIAS WALKER and DANIEL H. MEYER, Dundee Lake, N. J. Filed Aug. 23, 1904. Serial No. 221,811.

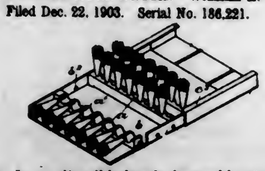


Claim.—1. In a device of the character described the combination of a stall having a flooring provided with grooves inclined toward its outer edge, a drain partly beneath the same and a door in the drain substantially as shown and described.

2. In a device of the character described the combination of a stall having a flooring provided with an inclined section, a drain at the edge of the flooring partly beneath the same and provided with a horizontally-swinging door, and means for preventing the door from swinging inwardly substantially as shown and described.

3. In a device of the character described the combination of a stall having a flooring provided with grooves inclined toward its outer edge, a drain at the edge of the flooring partly beneath the same and provided with a horizontally-swinging door substantially as shown and described.

785,342. **COLLAPSIBLE BRUSH.** WILLIAM A. WEIR, London, England. Filed Dec. 22, 1903. Serial No. 186,221.



Claim.—1. In a collapsible brush, in combination, a plurality of independently-movable and independently-lockable bristle-holding strips each having a plurality of recesses for holding bristles and a single pivot and a locking part at each end, and a brush-back in the sides of which such strips are pivotally mounted, as set forth.

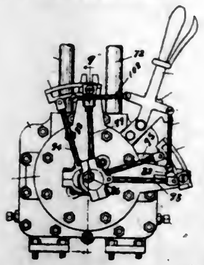
2. In a collapsible brush, in combination with a plurality of independently-movable and independently-lockable bristle-holding strips each having a plurality of recesses for holding bristles and a single pivot and a locking part at each end and a brush-back in the sides of which said strips are pivotally mounted, means for arresting the strips in their usable position when raised from their recumbent position, and a reversible slidable case applied to the brush-back and adapted when slid thereon in the one position to engage the locking parts at the ends of the strips and to independently lock the strips in their usable position and when slid thereon in the other position to inclose and protect the strips, as set forth.

3. In a collapsible brush, in combination with a plurality of independently-movable and independently-lockable bristle-holding strips each having a plurality of recesses for holding bristles and a single pivot and a locking part at each end and a brush-back in the sides of which such strips are pivotally mounted, means for automatically partly raising one brush-strip, means for arresting the strips in their usable position when raised from their recumbent position, and a reversible slidable case applied to the brush-back and adapted when slid thereon in the one position to engage the locking parts at the ends of the strips and to raise and independently lock the strips in their usable position and when slid thereon in the other position to inclose and protect the strips as set forth.

4. In a collapsible brush, in combination with a plurality of independently-movable and independently-lockable bristle-holding strips each having a plurality of recesses for holding bristles and a single pivot and a locking part at each end and a brush-back in the sides of which such strips are pivotally mounted, means for automatically partly raising one brush-strip, means for arresting the strips in their usable position when raised from their recumbent position, a reversible slidable case applied to the brush-back and adapted when slid thereon in the one position to engage the locking parts at the ends of the strips and to raise and independently lock the strips in their usable position and when slid thereon in the other position to inclose and protect the brush-strips, and means for increasing the pressure of the locking parts of the cover on said strip-locking parts, as set forth.

5. In a collapsible brush, in combination with a plurality of independently-movable and independently-lockable bristle-holding strips each having a plurality of recesses for holding bristles and a single pivot and a locking part at each end and a brush-back in the sides of which such strips are pivotally mounted, means for arresting the strips in their usable position when raised from their recumbent position, a reversible slidable case applied to the brush-back and adapted when slid thereon in the one position to engage the locking parts at the ends of the strips and to raise and independently lock the strips in their usable position and when slid thereon in the other position to inclose and protect the brush-strips, and means for increasing the pressure of the locking parts of the cover on said strip-locking parts, as set forth.

785,343. **FLUID-MOTOR.** HENRY E. WERNER, Grand Haven, Mich. Filed Sept. 12, 1904. Serial No. 224,219.



Claim.—1. In a fluid-motor of the type described, in combination, a pair of pistons movable in relatively perpendicular paths, a slide-valve coöperating with each piston, a shiftable link for actuating each valve, a pair of eccentrics, and a pair of eccentric-rods connecting each eccentric with both links.

2. In a fluid-motor, in combination, a power-chamber, a reciprocative piston in the chamber, a second reciprocative piston carried by the first-mentioned piston and the two pistons movable in transverse paths, a crank-shaft having its wrist-pin journaled in the second-named piston, a steam-chest ported to the power-chamber, a pair of valves within the chest one for controlling the ports serving each piston, an oscillatable and longitudinally-shiftable link for actuating each valve, a pair of eccentrics, and rods connecting each eccentric with both of the links.

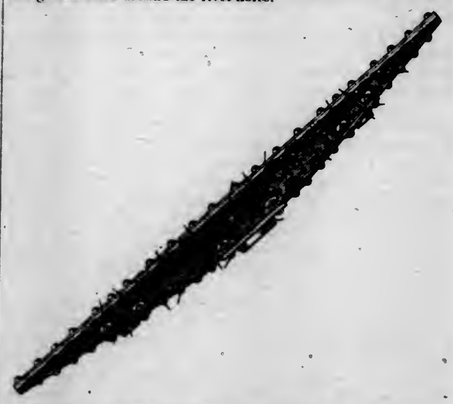
3. In a fluid-motor of the type described, in combination, a power-chest, a pair of pistons movable in transverse paths within the power-chest; a valve-chest adjacent the power-chest; a pair of valves within the valve-chest one for controlling each piston; a power-shaft actuated by the pistons; a supplemental shaft actuated by the pistons and extending through the valve-chest; eccentrics on the supplemental shaft; and connection between the eccentrics and the valves.

4. In a fluid-motor, in combination, a power-chest; a pair of piston within the power-chest and movable in transverse paths; a crank-shaft having its wrist-pin in engagement with one of the pistons; a valve-chest adjacent the power-chest; a pair of valves within the valve-chest, one for controlling each piston; a supplemental crank-shaft extending through the valve-chest and being in alinement with the first-named shaft and having its crank connected with the wrist-pin thereof; eccentrics on the supplemental shaft; and connection between the eccentrics and the valves.

785,344. **BODY-BOLSTER FOR RAILWAY-CARS.** HENRY C. WILLIAMSON and HERMAN PRIES, Michigan City, Ind. Filed Nov. 21, 1904. Serial No. 233,690.

Claim.—1. A body-bolster for railway-cars comprising, in combination, side plates in Z form extending substantially throughout the length of the bolster; a bottom plate secured to the lower flanges of the side plates; and a continuous top plate secured to the upper flanges of the side plates and extending the entire length and entire width of the bolster, the plates being joined by rivets and some of the plates being reinforced around the rivet-holes.

2. A body-bolster for railway-cars comprising, in combination, side plates in Z form extending substantially throughout the length of the bolster; a bottom plate secured to the lower flanges of the side plates and extending the entire length and the entire width of the bolster, the plates being joined by rivets and some of the plates being reinforced around the rivet-holes.

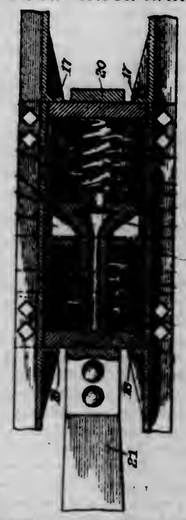


3. A body-bolster for railway-cars comprising, in combination, side plates having apertures for the insertion of rivets and a heading-tool, and continuous top and bottom plates secured to the side plates.

4. A body-bolster for railway-cars comprising, in combination, side plates in Z form extending substantially throughout the length of the bolster and being provided with apertures for the insertion of rivets and a heading-tool; a bottom plate secured to the lower flanges of the side plates; and a continuous top plate secured to the upper flanges of the side plates and extending the entire length and entire width of the bolster.

5. A body-bolster for railway-cars comprising, in combination, side plates in Z form extending substantially throughout the length of the bolster and being provided with apertures for the insertion of rivets and a heading-tool; a bottom plate secured to the lower flanges of the side plates and extending the entire length and the entire width of the bolster; and a continuous top plate secured to the upper flanges of the side plates and extending the entire length and entire width of the bolster.

785,345. **DRAFT-RIGGING.** HENRY C. WILLIAMSON and HERMAN PRIES, Michigan City, Ind. Filed Dec. 17, 1904. Serial No. 237,263.



Claim.—1. In a draft-rigging, in combination, a cylinder having an instanding annular flange intermediate of its ends; springs housed within the cylinder at opposite sides of the flange, one of

such springs projecting beyond the cylinder; followers engaging the outer ends of the springs; and an intermediate follower located between the annular flange and one of the springs and having a central stem projecting through the flange and bearing against an end follower.

3. In a draft-rigging, in combination, a cylinder having an instanding annular flange; ribs extending between one face of the flange and the cylinder-wall; an end follower; and a spring interposed between the end follower and the plain face of the flange.

3. In a draft-rigging, in combination, a pair of end followers; a cylindrical spring-housing of uniform diameter located between the end followers and provided with an instanding annular flange intermediate of its ends for bearing against one of the springs, such flange being reinforced at its rear face by radial flanges having their outer faces oblique to the flange; an intermediate follower located between the reinforced face of such flange and one of the end followers and having a conical face directed toward such flange and a stem leading therethrough to the opposite end follower; and springs interposed between the end followers and the said flange and intermediate follower, respectively.

4. In a draft-rigging, in combination, a pair of end followers; a cylindrical spring-housing abutting against one of the end followers and terminating at the other end approximately at the limit of movement of the other end follower; tandem springs housed within the cylinder; an intermediate annular follower integral with the cylinder; and a second intermediate follower having a stem projecting through the annular follower and abutting against the adjacent end follower.

785,846. FERTILIZER-DISTRIBUTER. Andrew J. Allen, Shadydale, Ga. Filed July 16, 1904. Serial No. 216,831.



Claim.—1. A fertilizer-distributer consisting of a hopper pivotally mounted and counterbalanced, a spring actuating one end of said hopper to depress the same and a means for actuating the opposite end of said hopper to depress the same.

2. A fertilizer-distributer consisting of a hopper pivotally mounted and counterbalanced, a spring actuating one end of said hopper to depress the same, an arm attached to said hopper and engaging a rotating disk to depress the opposite end of said hopper.

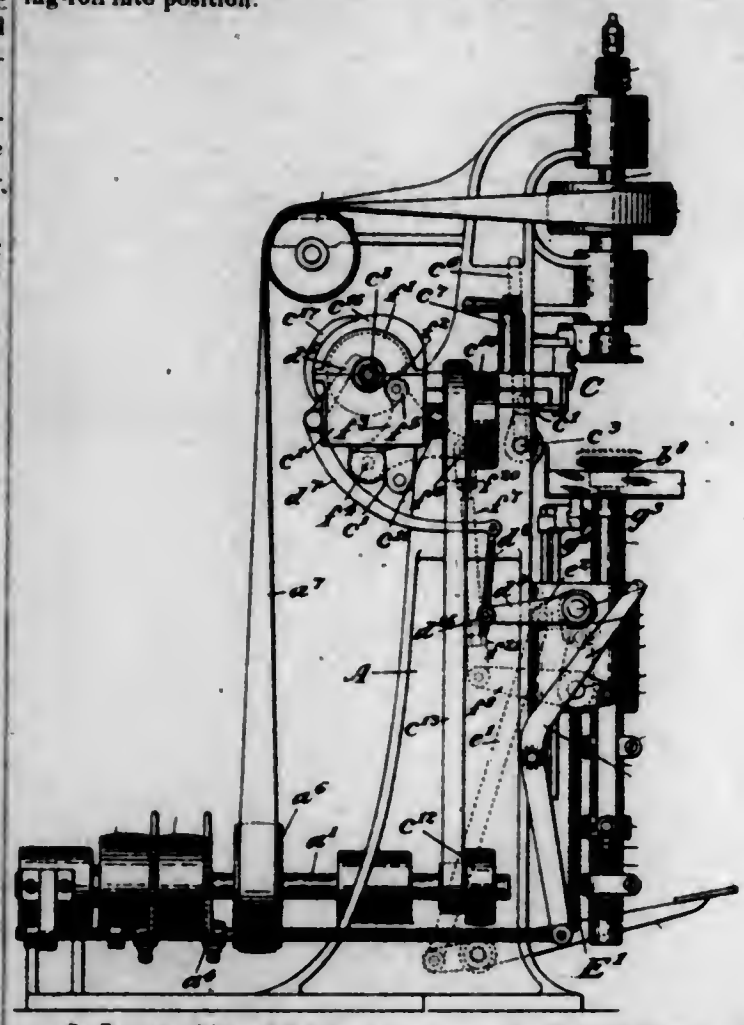
3. A fertilizer-distributer consisting of a hopper pivotally mounted, a spring actuating one end of said hopper to depress the same and a means actuating the opposite end of said hopper to depress the same.

4. A fertilizer-distributer consisting of a hopper pivotally mounted, a spring actuating one end of said hopper to depress the same, an arm attached to said hopper and engaging a rotating disk to depress the opposite end of said hopper.

5. A fertilizer-distributer consisting of a hopper pivotally mounted, a spring actuating one end of said hopper to depress the same, an arm attached to said hopper and adapted to depress the opposite end thereof, a ratchet-disk suitably journaled and engaging said arm said disk having a side collar and a wheel located upon said collar.

785,847. DOUBLE-SEAMING MACHINE. Otto S. Beyer, East Rutherford, N. J., assignor to E. W. Bliss Company, a Corporation of West Virginia. Filed Jan. 9, 1903. Serial No. 138,346.

Claim.—1. In a machine of the character set forth, the combination of a carrier member mounted on a pivot, a crimping-roll, two opposed conical deflecting-rolls, and a finishing-roll all mounted on the said carrier member, means for oscillating the said carrier member and for moving the conical rolls toward and away from each other, the arrangement being such that the said carrier member is automatically turned first in one direction so as to move the crimping-roll into operative position, then in the opposite direction to bring the conical rolls into position, the conical rolls then being moved toward and away from each other, and the carrier member then moving in the same direction as previously to move the finishing-roll into position.



2. In a machine of the character set forth, the combination of a carrier member mounted on a pivot, a crimping-roll, two opposed conical deflecting-rolls, and a finishing-roll all mounted on the said carrier member, means for oscillating the said carrier member, two sliding members located inside the pivot, and cams and connections for operating said sliding members in opposite directions to move the conical rolls toward and away from each other, the arrangement being such that the said carrier member is automatically turned first in one direction so as to move the crimping-roll into operative position, then in the opposite direction to bring the conical rolls into position, the conical rolls then being moved toward and away from each other, and the carrier then moving in the same direction as previously to move the finishing-roll into position.

3. In a machine of the character set forth, the combination of a carrier member, a plurality of seaming members mounted on same, means for oscillating said carrier member, and means for adjusting it in a straight direction.

4. In a machine of the character set forth, the combination with a carrier member of a plurality of seaming members, including conical deflecting-rolls, of means for oscillating said carrier member, and means for moving the conical rolls toward and away from each other, comprising oppositely-sliding members extending through the carrier member but not oscillating with the same.

5. In a machine of the character set forth, the combination with a carrier member of a plurality of seaming members, including conical deflecting rolls, of a hollow pivot on which said carrier member is mounted, means for oscillating the said carrier member, sliding members located inside of the said pivot, and means for moving said sliding members in opposite directions to operate the deflecting-rolls.

6. In a machine of the character set forth, the combination with a crimping-roll, two opposed conical deflecting-rolls, and a finishing-roll, of automatic means to cause the said rolls to act in the order named to form a double seam.

7. In a machine of the character set forth, the combination with an adjustable bracket, of seaming members, and a cam-shaft with cams for operating said seaming members, all carried by said bracket.

8. In a machine of the character set forth, the combination with an adjustable bracket, of seaming members, a cam-shaft with cams and connections for operating the seaming members, and power-transmission mechanism for the cam-shaft, all carried by said bracket.

9. In a machine of the character set forth, the combination with an adjustable bracket, of an oscillating carrier member, seaming members carried by same, a cam-shaft with cams and connections

for operating the seaming members and the carrier member, and power-transmission mechanism for the cam-shaft, all carried by said bracket.

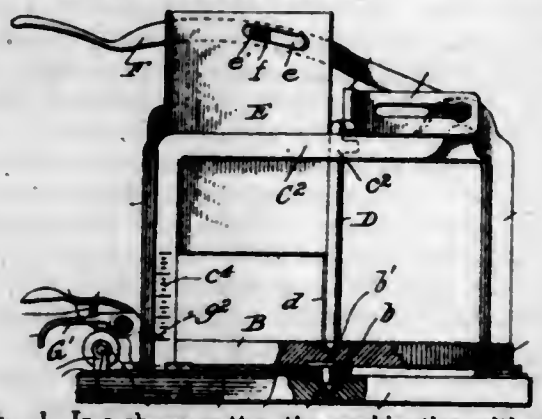
10. In a machine of the character set forth, the combination with an adjustable bracket, of an oscillating carrier member, seaming members including opposed conical deflecting-rolls carried by same, a cam-shaft with cams and connections for operating the deflecting-rolls and the carrier member, and power-transmission mechanism for the cam-shaft, all carried by said bracket.

11. In a machine of the character set forth, the combination of an adjustable bracket, a carrier member mounted on a pivot, a crimping-roll, opposed conical deflecting-rolls, and a finishing-roll on the carrier member, a cam-shaft, a cam and connections for oscillating the carrier member, two sliding members located inside the pivot, and cams and connections for operating said sliding members in opposite directions to move the conical rolls toward and away from each other, all carried by the bracket.

12. In a machine of the character set forth, the combination of an adjustable bracket, a carrier member mounted on a pivot, a crimping-roll, opposed conical deflecting-rolls, and a finishing-roll on the carrier member, a cam-shaft, a cam and connections for oscillating the carrier member, two sliding members located inside the pivot, and cams and connections for operating said sliding members in opposite directions to move the conical rolls toward and away from each other, and power-transmission mechanism for the cam-shaft, all carried by the bracket.

13. In a machine of the character set forth, the combination of two opposed conical deflecting-rolls, pivoted arms carrying said rolls, sliding members located one inside the other, and cams and connections for moving said sliding members in opposite directions so as to operate the rolls.

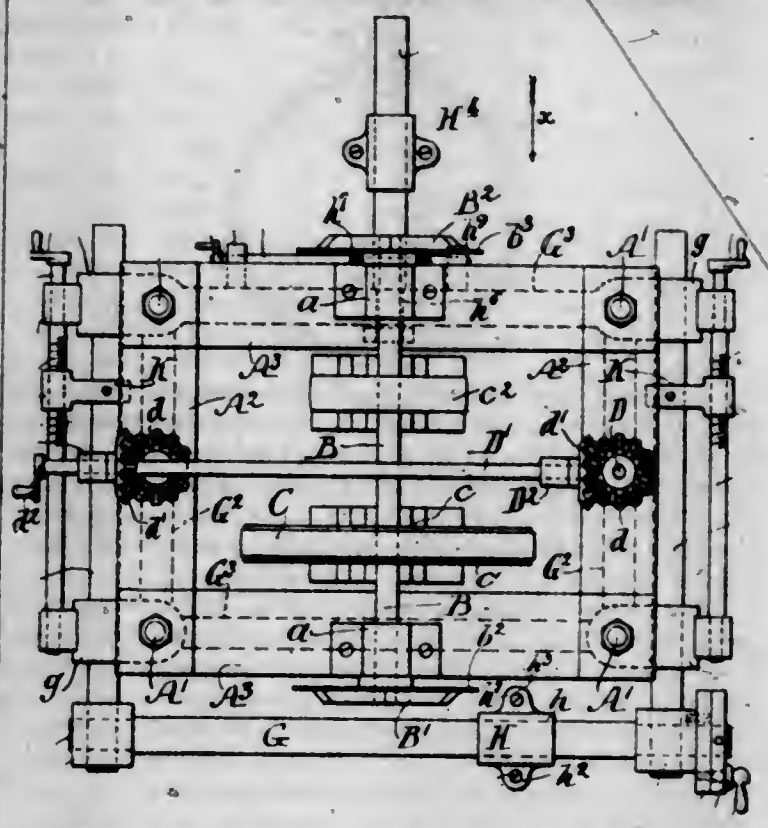
785,348. CHEESE-CUTTER. DORRICK J. BUSHORE, Galena, Kans. Filed June 24, 1904. Serial No. 213,947.



Claim.—1. In a cheese-cutter, the combination with a stand or counter, of an imperforate cheese-block centrally stepped or pivoted to rotate thereon and provided on its upper side with a socket in a vertical plane with its step or pivot, standards secured to the counter, one of which is provided with a guide-groove, a grooved center rod seated at its lower end in the socket of the cheese-block and supported at its upper end laterally and against rotation by connections from the standards, a knife the vertical edges of which move in the guide-grooves of the standard and center rod, a lever fulcrumed on the standards and connected with the upper edge of the knife, a gripping device normally free from the cheese-block but adapted to grasp the same and move it in either direction on its step or pivot, a measuring-scale secured to the counter in the path of the gripping device, and an adjustable stop between the lever and standards to arrest the movement of the lever and knife, substantially as described.

2. In a cheese-cutter, the combination with a stand or counter, of an imperforate cheese-block centrally stepped or pivoted to rotate thereon and provided on its upper side with a socket in a vertical plane with its step or pivot, standards secured to the counter, one of which is provided with a guide-groove, a grooved center rod seated at its lower end in the socket of the cheese-block and supported at its upper end laterally and against rotation by connections from the standards, a knife the vertical edges of which move in the guide-grooves of the standard and center rod, a lever fulcrumed on the standards and connected with the upper edge of the knife, a gripping device normally free from the cheese-block, but adapted to grasp the same and move it in either direction on its step or pivot, a measuring-scale secured to the counter in the path of the gripping device, an adjustable stop adapted to be interposed between the lever and standards to arrest the movement of the lever and knife and a scale on the standard adjacent to the path of the knife-blade whereby the stop may be accurately adjusted to arrest the knife at a determined point, substantially as described.

785,349. MACHINE FOR BEVELING THE EDGES OF ELECTROTYPE OR STEREOTYPE PRINTING-PLATES. FRANK W. CANN, Brooklyn, N. Y. Filed Dec. 30, 1903. Serial No. 187,116.



Claim.—1. In a machine of the character described, the combination with a revoluble bevel-cutter, of a shaft in juxtaposition thereto and revolubly supported in suitable bearings, means for adjustably holding said shaft against turning in said bearing, a carrier supported by the shaft and having a saddle, together with clamping devices for securing a plate on said saddle, the carrier being longitudinally movable relative to said shaft.

2. In a machine of the character described, the combination with a supporting-frame, a shaft revolubly mounted in said frame, and a head comprising a bevel-cutter and a circular-saw mounted thereon, of another shaft in juxtaposition thereto, revolubly supported in bearings on said frame, means for adjustably holding said last-named shaft from turning in its bearings, a carrier longitudinally movable on said last-named shaft, a saddle mounted on said carrier, and a clamp holding a plate on said saddle.

3. In a machine of the character described, the combination with a supporting-frame, a shaft revolubly mounted in said frame and a cutter-head mounted thereon, of another shaft in juxtaposition thereto, revolubly supported in bearings in said frame, means comprising a slotted disk, a disk having a screw-threaded opening, and a set-screw engaging said slot and opening, and adjustably holding said last shaft from turning in its bearings, a carrier longitudinally movable on said last-named shaft, a saddle mounted on said carrier and a clamp detachably holding a plate on said saddle.

4. In a machine of the character described the combination with a supporting-frame, a shaft revolubly mounted in said frame, and a cutter-head on said shaft, of another shaft in juxtaposition thereto revolubly supported in bearings on said frame, means for adjustably holding said last-named shaft from turning in its bearings, a carrier comprising two pieces, embracing said last-named shaft, and longitudinally movable thereon, a saddle comprising an upper curved portion, a lower slotted portion, and a set-screw detachably mounted on said carrier, and a clamp detachably holding a plate on said saddle.

5. In a machine of the character described the combination with a revoluble shaft and supporting-frame therefor, cutter-head on said shaft, said head embodying a bevel-cutter and circular saw, of a rotatable shaft in juxtaposition thereto, means for rotating and adjustably holding said last-named shaft, comprising a crank, a worm and worm-wheel, and a carrier and saddle longitudinally slidable on said last-named shaft, and clamps for detachably holding an electrotype on said saddle.

6. In a machine of the character described the combination with a revoluble bevel-cutter, of a vertically-adjustable and rotatable shaft in juxtaposition thereto, and means for adjusting said shaft

and for adjustably holding it in its bearings, a carrier supported by the said shaft and having a saddle, together with clamping devices for securing a plate on said saddle, the carrier being longitudinally movable on the shaft.

785,350. **PIPE-COUPLING.** ZORA B. CUSTER, Bradford, Pa. Filed Jan. 26, 1904. Serial No. 190,906.



Claim.—1. In a pipe-coupling, a shell or casing made of a single piece of sheet metal, the meeting edges of said shell turned outwardly to form flanges having registering holes therein, the flanges braced by pressing the metal outwardly between said holes, a plate to cover the opening between the ends of the shell, packing-strips secured to the edges of said plate, and means to secure said flanges together, substantially as shown and described.

2. In a pipe-coupling, in combination with the meeting ends of two pipes, packing-rings secured thereto, a shell or casing made of a single piece of sheet metal, the meeting ends of said shell turned outwardly to form flanges having registering holes therein, the flanges braced by pressing the metal outwardly between said holes, depressions formed on the inside of the shell to receive said packing-rings, and means to secure said flanges together, substantially as shown and described.

3. In a pipe-coupling, in combination with the meeting ends of two pipes, packing-rings secured thereto, a shell or casing made of a single piece of sheet metal, the meeting ends of said shell turned outwardly to form flanges having registering holes therein, the flanges braced by pressing the metal outwardly between said holes, a plate to cover the opening between said flanges, depressions in said shell and plate to receive said rings, and means to secure said flanges together, substantially as shown and described.

4. In a pipe-coupling, in combination with the meeting ends of two pipes, packing-rings secured thereto, a shell or casing made of a single piece of sheet metal, the meeting ends of said shell turned outwardly to form flanges having registering holes therein, the flanges braced by pressing the metal outwardly between said holes, a plate to cover the opening between said flanges, packing-strips secured to the edges of said plate, depressions in said shell and plate to receive said rings, and means to secure said flanges together, substantially as shown and described.

5. In a pipe-coupling, in combination with the meeting ends of two pipes, packing-rings secured thereto, having beads on their outer surface, a shell or casing made of a singe piece of sheet metal, the meeting ends of said shell turned outwardly to form flanges having registering holes therein, the flanges braced by pressing the metal outwardly between said holes, a plate to cover the opening between said flanges, packing-strips secured to the edges of said plate, depressions in said shell and plate to receive the beads on said rings, and bolts to secure said flanges together, substantially as shown and described.

785,351. **TOOL-HOLDER.** WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to Crane Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 15, 1903. Serial No. 177,090.



Claim.—1. The combination with a tool having a partially threaded head thereon, of a tool holder comprising a tube provided on opposite sides of its interior circumference with partial threads to engage the threads of the tool head, and separate devices in the holder and on the tool to prevent the rotation of the tool in the holder, substantially as described.

2. In an adjustable tool holder the combination of a tube having two rows of partial threads extending along the inner surface thereof, and a partially threaded head on the tool, the threads on said head and in the tube being so placed that the head in one position may slide in the tube and in another position engages therein at any desired point, and devices upon the tool and within the tube to prevent the rotation of the tool in the holder.

3. In a tool holder the combination of a tube provided with oppositely disposed rows of partial threads therein, a tool having a partially threaded head to engage the threads of the holder at different positions, and means in the holder for retaining the tool and head against rotation therein.

4. In a holder for a fluted drill, the combination with means for holding the drill against longitudinal movement in said holder, a sleeve fitted upon the drill flutes so as to rotate therewith and being adjustable longitudinally in position thereon, and provided with a projecting rib, and an inwardly projecting rib in the drill holder, whereby the drill is prevented from rotating in the said holder.

5. In a tool holder a sleeve adapted to fit the irregular outline of the tool and slide thereon for adjusting its position thereon but not to turn thereon, combined with a holder tube having devices for holding said sleeve therein against rotation and means to prevent longitudinal movement of the tool with respect to the holder.

6. The combination of a tool holder tube having an inwardly projecting lug therein, a retaining sleeve mounted upon the tool and adapted to slide thereon but engaging so as not to rotate with respect to the tool, and said sleeve having upon its outer surface a lug adapted to co-operate with the lug in the holder tube to prevent the sleeve from rotating, and engaging threads between the tool and the holder tube to prevent longitudinal movement of the tool in the holder, substantially as described.

7. The combination with a cylindrical tool holder provided on its interior surface with rows of partial threads, a tool provided with a head having partial threads thereon to co-operate with the threads in the tool holder to prevent longitudinal movement of the tool therein, a sleeve upon the tool mounted to slide along the same and to rotate therewith, and means within the tool holder to prevent the rotation of the retaining sleeve within the said holder when adjusted to position, substantially as described.

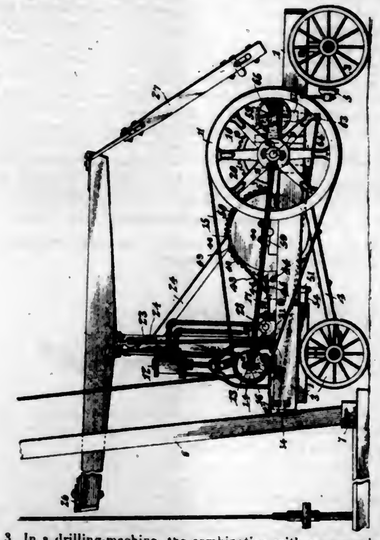
8. In a tool holder, the combination of a tube having devices therein for holding the tool against longitudinal movement and for engaging the tool at different positions longitudinally of the tube, a movable sleeve mounted on the tool so as to move longitudinally thereof but prevented from rotation with respect thereto, and co-operating devices on said sleeve and in the holder tube for preventing turning of the tool and its sleeve within the holder, substantially as described.

9. The combination of an interiorly threaded tube and a tool having an exteriorly threaded plug adjustable thereon, the respective threads being so arranged as to engage in one axial position and disengage in another axial position, and means engaging the tube and tool to prevent the tool from turning in the tube, substantially as described.

785,352. **DRILLING-MACHINE.** ROBERT M. DOWNIE, Beaverfalls, Pa., assignor to Keystone Driller Company, Beaverfalls, Pa. Filed Sept. 17, 1903. Serial No. 173,604.

Claim.—1. In a drilling-machine, the combination with a supporting-frame, of a mast or derrick located at one end of the same, a drive-wheel supported on the frame in rear of the mast or derrick, spudding mechanism mounted on the frame between the drive-wheel and mast and including a crank located in substantially the same plane as the drive-wheel, a pitman for connecting the crank of the spudding mechanism and the drive-wheel, a walking-beam supported on the frame over the spudding mechanism and having its rear end above the drive-wheel, and another pitman for connecting the drive-wheel and the walking-beam.

2. In a drilling-machine, the combination with a supporting-frame, of a mast located at one end of the same, a driving-shaft located on the other end portion of the machine and having a crank at one end that is located at one side of the frame, a rock-shaft journaled on the frame between the mast and driving-shaft and having a crank located at the same side of the frame as the driving-shaft crank, spudding means carried by the rock-shaft, a walking-beam mounted on the frame and having one end extending over the driving-shaft crank, and devices whereby either the walking-beam or the crank of the rock-shaft can be connected to the crank of said driving-shaft.



3. In a drilling-machine, the combination with a supporting-frame, of a mast located at one end of the same, a driving-shaft located on the other end portion of the frame, a crank-wheel secured to said shaft and located at one side of the frame, a rock-shaft journaled on the frame between the mast and driving-shaft and having a crank-arm located at the same side of the frame as the crank-wheel, spudding means carried by the rock-shaft, a walking-beam mounted on the frame over the spudding means and having one end located over the crank-wheel, an upright pitman for connecting the walking-beam to the crank-wheel, and a longitudinally-disposed pitman for connecting the crank-wheel and the crank-arm of the rock-shaft.

4. In a drilling-machine, the combination with a supporting-frame, of a driving-shaft mounted thereon, a drive-wheel carried by the shaft, spudding mechanism mounted on the frame independently of the drive-wheel and having a crank connection directly with said wheel, and a cable-reel movable into and out of coaction with the drive-wheel.

5. In a drilling-machine, the combination with a supporting-frame, of a shaft journaled thereon, a drive-wheel carried by the shaft, a walking-beam having a direct crank connection with one side of the drive-wheel, and a cable-reel movable into and out of coaction with the periphery of the drive-wheel.

6. In a drilling-machine, the combination with a supporting-frame, of a drive-shaft journaled thereon, a drive-wheel carried by the shaft, spudding mechanism having a detachable connection directly with the drive-wheel, said spudding mechanism being mounted on the frame, a walking-beam having a detachable connection directly with the drive-wheel, and a reel movable into and out of coaction with the drive-wheel.

7. In a drilling-machine, the combination with a supporting-frame, of a drive-shaft journaled transversely thereon, a drive-wheel carried by the shaft and having gear-teeth, a reel having a gear movable into and out of mesh with the teeth of the drive-wheel, a walking-beam, spudding mechanism, pitmen connected respectively with the walking-beam and spudding mechanism, and means for detachably connecting the pitmen directly to the drive-wheel at one side of its axis of rotation.

8. In a drilling-machine, the combination with a supporting-frame, of a drive-shaft journaled transversely thereon, a drive-wheel carried by the shaft, said wheel having peripheral gear-teeth and a radial series of openings, a reel having a gear-wheel movable into and out of mesh with the teeth of the drive-wheel, a walking-beam, spudding mechanism, pitmen connected respectively with the spudding mechanism and walking-beam, and means adapted to engage in any of the radial series of openings of the drive-wheel for connecting either of the pitmen thereto.

9. In a drilling-machine, the combination with a support, of a carrier movable on the support, wheels movable into and out of co-acting relation, one of said wheels being mounted on the carrier, and a brake for holding the wheel against movement, said brake being also mounted on the carrier and movable therewith.

10. In a drilling-machine, the combination with a support, of a drive-wheel, a carrier movable on the support toward and from the wheel, a reel mounted on the carrier and having a wheel movable into and out of coactive relation with the drive-wheel, and a brake for the wheel mounted on the carrier and movable therewith.

11. In a drilling-machine, the combination with a support, of a carrier movable on the support, a driving gear-wheel journaled on the support, a reel journaled on the carrier and having a gear-wheel movable into and out of coacting relation with the drive-wheel, and a band-brake mounted on the carrier and coacting with the reel to hold the same against movement.

12. In a drilling-machine, the combination with a support, of a carrier-block slidably mounted on the support, a reel journaled on the carrier-block and having a gear-wheel movable into and out of mesh with the driving-wheel, a band-brake coacting with the reel, said brake having one end anchored to the block, a crank journaled on the block and connected to the outer end of the brake, and means for sliding the block.

13. In a drilling-machine, the combination with a frame including spaced sills, of a driving-shaft journaled on the sills and having a drive-wheel, a carrier-block slidably mounted on one sill, a lever for moving the carrier-block, a reel journaled at one end on one sill and at the other end on the carrier-block, said reel having a gear-wheel movable into and out of coaction with the drive-wheel, and a brake mounted on the carrier-block and coacting with the reel to hold the same against movement.

14. In a drilling-machine, the combination with a frame including spaced sills, of a drive-shaft journaled on the sills, a drive gear-whee carried by one end of the shaft, said wheel being located outside the sills, a reel, a gear-wheel connected with the reel and located outside the sills, said gear-wheel coacting with the drive-wheel, and a brake-wheel for the reel located inside the sills.

15. In a drilling-machine, the combination with a frame including spaced sills, of a drive-shaft journaled transversely of the sills and projecting beyond the same, a hand-wheel located on one end of the shaft outside the sills, a drive gear-wheel carried by the other end of the shaft outside the sills, a reel-shaft journaled transversely of the sills, a gear-wheel carried by oneend of the reel-shaft and located outside the sills, said gear-wheel coacting with the drive-wheel, and a brake-wheel mounted on the reel-shaft between the sills.

16. In a drilling-machine, the combination with a rock-shaft having a crank-arm secured thereto, of a spudding-sheave journaled on the crank-arm, an idler journaled on the shaft, and means connected to the rock-shaft independently of said crank-arm for moving the same.

17. In a drilling-machine, the combination with a rock-shaft having a crank-arm secured thereto, of a spudding-sheave journaled on the crank-arm, an idler journaled on the shaft in line with the spudding-sheave, and means for rocking the shaft and thereby oscillating the arm.

18. In a drilling-machine, the combination with a rock-shaft having angularly-disposed crank-arms secured thereto, of a spudding-sheave journaled on one of the crank-arms, an idler journaled on the shaft, and means connected to the other crank-arm for rocking the shaft.

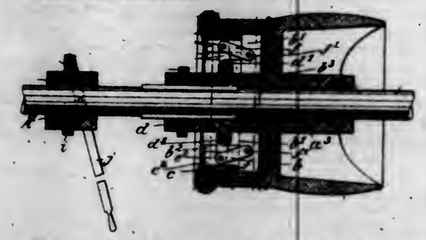
19. In a drilling-machine, the combination with a rock-shaft having independent crank-arms, of a spudding-sheave journaled upon one crank-arm, an idler journaled on the shaft, a drive-wheel, and a pitman connection between the drive-wheel and the other crank-arm.

20. In a drilling-machine, the combination with a support, of a rock-shaft journaled on the support, a crank-arm secured to the rock-shaft, a spudding-sheave journaled on the arm, an idler journaled on the rock-shaft, another crank-arm attached to the rock-shaft, a drive-wheel journaled on the support, a pitman connection between the drive-wheel and the last-mentioned crank-arm, and a reel journaled on the support between the drive-wheel and the rock-shaft.

21. In a drilling-machine, the combination with a frame, of a mast located at one end of the frame, a rock-shaft journaled on said end and having a crank-arm extending toward the mast, a spudding-sheave journaled on the crank-arm, an idler, a reel journaled on the frame in rear of the rock-shaft, a cable wound upon the reel and pass-

ing over the idler, said cable passing beneath the spudding-sheave and in substantially parallel relation to the mast, a depending crank-arm located at one end of the rock-shaft, a driving-shaft journaled on the frame in rear of the reel and having a drive-wheel, and a pitman connection between the drive-wheel and the depending crank-arm.

785,353. CLUTCH. JOHN S. EBERT, New York, N. Y. Filed July 6, 1904. Serial No. 215,473.



Claim.—1. A clutch composed of a threaded box, an inclosed disk having rails and guides, radially-movable threaded jaws engaging the same; a slidable collar, and pivoted links connecting said collar to the jaws, substantially as specified.

2. A clutch composed of a threaded box, an inclosed disk having rails and guides, radially-movable threaded jaws engaging the same, a slidable collar, pivoted links connecting the collar to the jaws, and pivoted links connecting the jaws to the disk, substantially as specified.

3. A clutch composed of a threaded box, an inclosed disk having guides and a notched hub, radially-movable threaded jaws engaging the guides, a slidable sleeve having claws that engage the notched hub, and pivoted links that connect the sleeve to the jaws, substantially as specified.

4. In a clutch, a collar, a yoke engaging the same, a shipping-lever pivoted to the yoke, a ring connected to the shipping-lever, a grooved slidable sleeve upon which the ring is seated, threaded radially-movable jaws, pivoted links for connecting the sleeve to the jaws, and a threaded box engaged by the jaws, substantially as specified.

785,354. STERILIZER. HORACE N. FOWLER, Philadelphia, Pa. Filed Nov. 7, 1904. Serial No. 231,691.



Claim.—1. A sterilizer adapted to be attached to a gas-pipe, comprising a casing, the same being provided in its bottom with an opening adapted to permit of the passage of the nipple end of the gas-pipe, a burner adapted to be screwed onto said nipple end and to securely hold the casing in place, and a fluid-receptacle suspended within said casing and adapted to receive the flame from said burner for heating the fluid therein.

2. A sterilizer adapted to be attached to the nipple end of a gas-pipe, comprising a casing, the same being provided with an opening in its bottom adapted to permit of the free passage of the said nipple end, a Bunsen burner adapted to be screwed onto the nipple end of said gas-pipe, the said burner being adapted to securely hold said casing in position, and a fluid-chamber within said casing adapted to receive the heat from said burner, and a detachable secondary receptacle within said fluid-chamber, substantially as described.

3. A device of the character described, comprising a casing having air-inlet openings at the bottom thereof, air-outlet openings at the upper portion thereof, an ignition-opening intermediate the air inlet and outlet openings, a fluid-receptacle provided with means for suspending the same within the casing, a lid or cover for the fluid-receptacle, the said lid being provided with a vent-opening, combined with a burner adapted to heat the air within the casing, substantially as and for the purpose herein shown and described.

785,355. BRAKE-SHOE. JOSEPH D. GALLAGHER, Glenridge, N. J. Filed May 3, 1904. Serial No. 206,135.



Claim.—1. A brake shoe comprised of a cast body and a ductile binding back, the two parts being attached together by a tongue on the back and a groove in the body.

2. The combination of a cast shoe body having a tapering undercut groove, and a tapering binding back for the shoe having its edges engaging the edges of the groove.

3. The combination of a shoe body having two undercut grooves, each tapering toward the center, and a binding back composed of two movable wings of form to correspond with and wedge into the said grooves when the wings are drawn toward the center.

4. The combination with a detachable binding back therefor, of a cast wearing sole provided on its back with a pair of undercut tapering grooves.

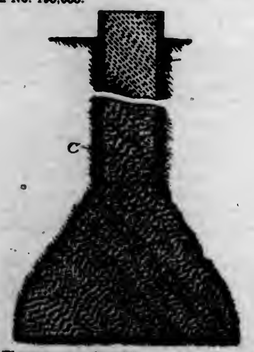
5. The combination with a taper-grooved shoe body, of a detachable steel back having wedge shaped portions adapted to be drawn together to engage said groove.

6. The combination with a shoe body having on its back two tapering undercut grooves, of a binding back engaging the edges of said grooves along the entire length of the shoe, and having integral therewith upturned wings forming attaching lugs for the shoe, substantially as described.

7. In a brake shoe a binding back having a central key lug and resilient rests for the ends of the attaching key.

8. In a brake shoe a ductile steel binding back having spurs punched up in its ends to furnish guides for the brake head and resilient rests for the attaching key.

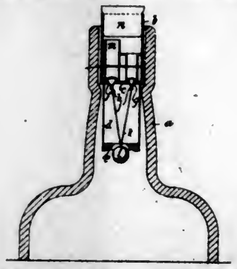
785,356. PROCESS OF MAKING CONCRETE STRUCTURES. CHARLES R. GOW and JOHN E. PALMER, Boston, Mass. Filed Feb. 27, 1904. Serial No. 195,655.



Claim.—1. The process of making a pile or column having an integral enlarged footing, said process consisting in first sinking a shell, then excavating within such shell to a point below the lower end thereof, then laterally enlarging the portion of the excavation below the shell, then filling the enlargement with concrete through the shell to form a base, and finally filling the shell with concrete to form the body of the pile integral with the enlarged base.

2. The process of making a pile or column having an integral enlarged footing, said process consisting in first sinking a shell, then excavating within such shell to a point below the lower end thereof, then enlarging the lower portion of the excavation and forming it with a flat base and conical sides, then filling the enlargement with concrete through the shell to form a base, and finally filling the shell with concrete to form the body of the pile integral with the enlarged base.

785,357. BOTTLE FOR PREVENTING THE FRAUDULENT REFILLING OF SAME. MEREDITH R. GREEN, Kensington Park, South Australia, Australia. Filed Dec. 7, 1903. Serial No. 184,237.



Claim.—1. In a device of the character described, a thimble, comprising a body portion, a plurality of openings therethrough, a valve disposed in each opening, a retaining-plate for said valves and a weight on each valve, and means for securing the thimble in a bottle.

2. In a device of the character described, a thimble comprising a body portion, a plurality of longitudinal openings therethrough, terminating in different planes, a valve disposed in each opening, a retaining-plate for said valves and a weight on each valve, and means for securing the thimble in a bottle.

3. In a device of the character described, a thimble comprising a body portion, a plurality of longitudinal openings of different diameters therethrough, a valve disposed in each opening, a retaining-plate for each valve and a weight on each valve, and means for securing the thimble in a bottle.

4. In a device of the character described, a thimble, comprising a body portion, a plurality of openings therethrough, a valve disposed in each opening, a retaining-plate for said valves, a weight for each valve, and means disposed adjacent to said valves to prevent tampering therewith, and means for securing the thimble in a bottle.

5. In a device of the character described, a thimble, comprising a body portion, a plurality of openings therethrough, a valve disposed in each opening, a retaining-plate for said valves, a weight for each valve, and a pin passed transversely above the valves, and means for securing the thimble in a bottle.

6. In a device of the character described, a thimble comprising a body portion, a plurality of openings therein terminating in different planes, a valve disposed in each opening, a perforated retaining-plate for the valves, a weight, an extension on the body portion of the thimble having an opening therethrough, a flexible connection to the valves passing through the latter opening and connected to the said weight, and means for securing the thimble to a bottle.

7. In a device of the character described, a thimble, comprising a body portion, a plurality of openings therein terminating in different planes, a valve disposed in each opening, a perforated retaining-plate for the valves, a weight, an extension on said body portion of the thimble having a beveled opening therethrough, a flexible connection to the valves passing through said latter opening and connected to the weight, whereby said weight will be seated in the latter opening, and means for securing the thimble in a bottle.

8. In a device of the character described, a thimble, comprising a body portion, an extension thereon adapted to receive a stopper, a plurality of openings in the thimble terminating in different planes, a valve disposed in each opening, a perforated retaining-plate for the valves, a weight, an extension on the lower body portion of the thimble having an opening therethrough, a flexible connection to the valves passing through the latter opening and connected to the weight, and means for securing the thimble in a bottle.

9. In a device of the character described, an oval-shaped thimble, comprising a body portion, a plurality of openings therethrough terminating in different planes, a valve disposed in each opening, a perforated retaining-plate for the valves, a weight, an extension on said body portion of the thimble having an opening therethrough, a flexible connection to the valves passing through said latter opening and connected to the weight, and means for securing the thimble in a bottle, comprising corrugations on the upper portion of the thimble and a body of cementitious material surrounding the same.

785,358. PULLEY-BLOCK. WILLIAM GUTENKUNST, Milwaukee, Wis. Filed Oct. 25, 1904. Serial No. 229,989.



Claim.—1. A device for clamping and releasing the hoisting-rope of a pulley-block, consisting in the combination of a swinging arm pivotally suspended from the pulley-supporting frame; a clamping-block pivotally suspended at one end from said arm and slidably connected at its opposite end by suitable guide-bearings with a stationary part of the pulley-supporting frame and means connected with the hoisting-rope for moving said swinging arm toward and from the vertical and thereby locking and releasing the clamping-block and hoisting-rope, substantially as set forth.

2. In a pulley-block, the device herein described for clamping and releasing the hoisting-rope, consisting in the combination with a pulley-supporting frame, of a swinging arm pivotally connected at its upper end with said frame; a rope-inclosing sleeve formed integrally with said swinging arm; a clamping-block pivotally connected at one end with said swinging arm and slidably connected at its opposite end by suitable guide-bearings with a stationary part of said frame, substantially as set forth.

3. In a pulley-block, a device for clamping and releasing the hoisting-rope, consisting in the combination with a pulley-supporting pin of a swinging arm; a rope-inclosing sleeve formed in connection with said swinging arm; a clamping-block pivotally connected at one end with said swinging arm and slidably connected at its opposite end by slidable guide-bearings with the stationary part of the pulley-supporting frame.

4. In a pulley-block of the class described, the combination with two of the pulley-supporting plates thereof, of two parallel downwardly-extending arms, each provided with corresponding longitudinal guide-bearings for the reception of the connecting-bearings of the clamping-block; a swinging arm comprising two parallel suspension-plates and a rope-inclosing sleeve formed integrally and pivotally suspended from the pulley-supporting pin; a clamping-block pivotally suspended at its upper end between the parallel suspension-plates of said swinging arm and slidably connected at its opposite end with the guide-bearings of said stationary arms, all substantially as and for the purpose specified.

785,359. SHUTTLE-GUARD FOR LOOMS. FRITZ HEINTZE, Greiz, Germany, assignor of one-half to Max Schuhmann, Gera Reuss, Germany. Filed May 31, 1904. Serial No. 210,525.

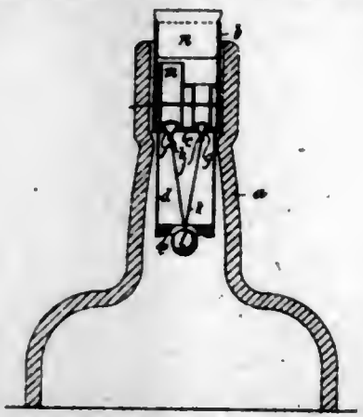


Claim.—The combination, in shuttle-guards for looms, of a guard-rail composed of a flat body portion, a one-sided ledge at the

shell, then excavating within such shell to a point below the lower end thereof, then laterally enlarging the portion of the excavation below the shell, then filling the enlargement with concrete through the shell to form a base, and finally filling the shell with concrete to form the body of the pile integral with the enlarged base.

2. The process of making a pile or column having an integral enlarged footing, said process consisting in first sinking a shell, then excavating within such shell to a point below the lower end thereof, then enlarging the lower portion of the excavation and forming it with a flat base and conical sides, then filling the enlargement with concrete through the shell to form a base, and finally filling the shell with concrete to form the body of the pile integral with the enlarged base.

785,357. **BOTTLE FOR PREVENTING THE FRAUDULENT REFILLING OF SAME.** MEREDITH R. GREEN, Kensington Park, South Australia, Australia. Filed Dec. 7, 1903. Serial No. 184,237.



Claim.—1. In a device of the character described, a thimble, comprising a body portion, a plurality of openings therethrough, a valve disposed in each opening, a retaining-plate for said valves and a weight on each valve, and means for securing the thimble in a bottle.

2. In a device of the character described, a thimble comprising a body portion, a plurality of longitudinal openings therethrough, terminating in different planes, a valve disposed in each opening, a retaining-plate for said valves and a weight on each valve, and means for securing the thimble in a bottle.

3. In a device of the character described, a thimble comprising a body portion, a plurality of longitudinal openings of different diameters therethrough, a valve disposed in each opening, a retaining-plate for each valve and a weight on each valve, and means for securing the thimble in a bottle.

the valves passing through the latter opening and connected to the weight, and means for securing the thimble in a bottle.

9. In a device of the character described, an oval-shaped thimble, comprising a body portion, a plurality of openings therethrough terminating in different planes, a valve disposed in each opening, a perforated retaining-plate for the valves, a weight, an extension on said body portion of the thimble having an opening therethrough, a flexible connection to the valves passing through said latter opening and connected to the weight, and means for securing the thimble in a bottle, comprising corrugations on the upper portion of the thimble and a body of cementitious material surrounding the same.

785,358. **PULLEY-BLOCK.** WILLIAM GUTENKUNST, Milwaukee, Wis. Filed Oct. 25, 1904. Serial No. 229,989.



Claim.—1. A device for clamping and releasing the hoisting-rope of a pulley-block, consisting in the combination of a swinging arm pivotally suspended from the pulley-supporting frame; a clamping-block pivotally suspended at one end from said arm and slidably connected at its opposite end by suitable guide-bearings with a stationary part of the pulley-supporting frame and means connected with the hoisting-rope for moving said swinging arm toward and from the vertical and thereby locking and releasing the clamping-block and hoisting-rope, substantially as set forth.

2. In a pulley-block, the device herein described for clamping and releasing the hoisting-rope, consisting in the combination with a pulley-supporting frame, of a swinging arm pivotally connected at its upper end with said frame; a rope-inclosing sleeve formed integrally with said swinging arm; a clamping-block pivotally connected at one end with said swinging arm and slidably connected at its opposite end by suitable guide-bearings with a stationary part of said frame, substantially as set forth.

3. In a pulley-block, a device for clamping and releasing the

lower end thereof, a longitudinal recess at the juncture of these parts and iron fittings near each end of said rail, guide-straps fixed to the lay-cap to receive the guard-rail, a pair of springs secured at each end of the guard-rail, curved arms connected to said springs and fixed to the lay-cap and batten-heads, and retaining-straps connecting the guard-rail to the breast-beam fixing the said rail to the breast-beam, all substantially as set forth.

785,360. HAND-STAMP. BENJAMIN B. HILL, Philadelphia, Pa. Filed Nov. 9, 1903. Serial No. 180,432.



Claim.—1. In a hand-stamp, a main frame having printing characters supported thereby, in combination with a supplemental frame carried by said main frame, said supplemental frame having a type-base and a series of type-bands and type-drums coacting therewith; the type-bands of the supplemental frame being arranged so as to print parallel to the line printed by the characters supported by the main frame, substantially as described.

2. In a hand-stamp, a main frame, type-drums and a type-base supported by said main frame, type-bands passing around said drums and base, in combination with a supplemental frame adjustably secured to said main frame, drums and a type-base supported by said supplemental frame and type-bands supported by said drums and type-base, substantially as described.

3. In a hand-stamp, a main frame, type-drums and a type-base supported by said main frame, type-bands passing around said drums and base; in combination with a supplemental frame having extensions coacting with the main frame and by which it is secured thereto, said supplemental frame carrying drums, a type-base and type-bands; one of said frames having slots and the other frame pins to permit the adjustment of said supplemental frame, substantially as described.

4. In a hand-stamp, a main frame supporting printing characters, in combination with a supplemental frame also carrying printing characters, said supplemental frame having extensions coacting with the main frame, one of said frames having slots and the other frame pins to permit the adjustment of said supplemental frame, and a pin passing through both of said frames having a set-screw for locking the supplemental frame in position, substantially as described.

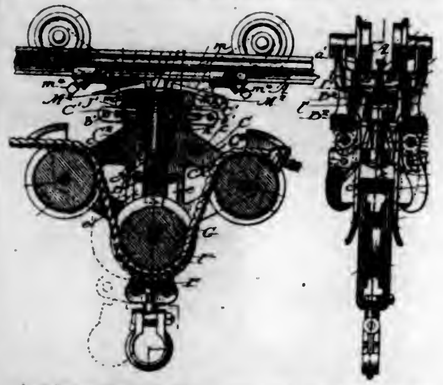
5. In a hand-stamp, a main frame supporting type-bands, and a supplemental frame carried by said main frame and also carrying type-bands; one set of said bands having numbers thereon and the other figures, substantially as described.

6. In a hand-stamp, a main frame carrying type-bands, a supplemental frame adjustably carried by said main frame, and type-bands carried by said supplemental frames, the type-bands on one of said frames having letters thereon and the other figures, substantially as described.

785,361. HAY-CARRIER. WILLIAM F. JACOBS, Ottawa, Ill. Filed Aug. 12, 1904. Serial No. 220,530.

Claim.—1. A hay-carrier comprising a carriage, a pulley-block, locking-dogs on the carriage adapted for engagement with the said pulley-block, a carriage lock-plate provided with oppositely-arranged, downwardly and outwardly inclined, upwardly-facing cam-surfaces and a central locking-notch, and a vertically-moving locking-head on the carriage connected with and actuating the locking-dogs, said head having a locking-lug adapted for engagement with said lock-plate.

2. A hay-carrier comprising a carriage, a pulley-block, locking-dogs on the carriage adapted for engagement with the said pulley-block, a carriage lock-plate provided with oppositely-arranged, downwardly and outwardly inclined, upwardly-facing cam-surfaces, and with a central locking-notch, and having, beneath said upwardly-facing cam-surfaces, downwardly and outwardly inclined, downwardly-facing cam-surfaces and at the central part of the plate, downwardly and inwardly inclined, downwardly-facing cam-surfaces, and a vertically-movable locking-head connected with and actuating the locking-dogs, said locking-head having a locking-lug adapted for engagement with the upwardly-facing cam-surfaces and notch of the lock-plate and having below said lug an upwardly-facing surface adapted for engagement with the downwardly-facing cam-surfaces of said lock-plate.



3. A hay-carrier comprising a carriage, a pulley-block, locking-dogs on the carriage adapted for engagement with the said pulley-block, a carriage lock-plate provided with oppositely-arranged downwardly and outwardly inclined, upwardly-facing cam-surfaces, and with a central locking-notch, and having, beneath said upwardly-facing cam-surfaces, downwardly and outwardly inclined, downwardly-facing cam-surfaces and at the central part of the plate, downwardly and inwardly inclined, downwardly-facing cam-surfaces, and a vertically-movable locking-head connected with and actuating the locking-dogs, said locking-head having a locking-lug adapted for engagement with the upwardly-facing cam-surfaces and notch of the lock-plate and having below said lug an upwardly-facing surface adapted for engagement with the downwardly-facing cam-surfaces of said lock-plate.

4. A hay-carrier comprising a carriage, a pulley-block, locking-dogs on the carriage adapted for engagement with the said pulley-block, a carriage lock-plate embracing a central web having at its lower edge oppositely-extending flanges, said flanges being provided with oppositely-arranged, downwardly and outwardly inclined, upwardly-facing cam-surfaces, and with central, upwardly-facing locking-notches, and said flanges having, beneath said upwardly-facing cam-surfaces, downwardly and outwardly inclined, downwardly-facing cam-surfaces, and, at the central part of the plate, downwardly and inwardly inclined, downwardly-facing cam-surfaces, and a vertically-movable locking-head connected with and actuating the locking-dogs, said locking-head having inwardly-extending locking-lugs adapted for engagement with the upwardly-facing cam-surfaces and notches of the lock-plate, and having below said lugs an upwardly-facing bearing-surface adapted for engagement with the downwardly-facing cam-surfaces of said lock-plate.

5. A hay-carrier comprising a carriage, a pulley-block, locking-dogs on the carriage adapted for engagement with the pulley-block, an actuating-bar having vertically-sliding connection with the carriage and having actuating connection with the locking-dogs, a locking-head having vertically-sliding connection with the carriage above said actuating-bar, said locking-head being connected and moving with said actuating-bar, a carriage lock-plate provided with oppositely-arranged, downwardly and outwardly inclined, upwardly-facing cam-surfaces and with an upwardly-facing central locking-notch, said locking-head being adapted for engagement with said lock-plate.

6. A hay-carrier comprising a carriage, a pulley-block, locking-dogs on the carriage adapted for engagement with the pulley-block, said locking-dogs being pivoted at their upper ends to the carriage and adapted for engagement with said pulley-block by lateral movement of their lower ends, a vertically-movable actuating-bar mounted to slide vertically on the carriage-frame, said actuating-bar having a slot-and-pin connection with said dogs, whereby the lower ends of said dogs are swung inwardly and outwardly through the vertical movement of said actuating-bar, a locking-head on the carriage which is connected and moves with said actuating-bar, and a carriage lock-plate having oppositely-arranged, downwardly and outwardly inclined cam-surfaces and a central locking-notch, said locking-head being adapted for engagement with said lock-plate.

7. A hay-carrier comprising a carriage, a pulley-block, locking-dogs pivoted at their upper ends to the carriage and adapted to swing laterally at their lower ends, an actuating-bar mounted to slide vertically on the carriage, actuating connections between the ends of said bar and the said dog comprising pins on the said bar engaging inclined slots in the dogs, and a locking-head on the carriage which is connected and moves vertically with said actuating-bar.

8. A hay-carrier comprising a carriage having two side plates, a pulley-block, locking-dogs pivoted at their upper ends to the side plates of the carriage and adapted to swing laterally at their lower ends, an actuating-bar the ends of which extend through and slide in the vertical slots in the said side plates of the carriage, actuating connections between the ends of said bar and the said dogs comprising pins on the bar engaging inclined slots in the dogs, and a locking-head on the carriage which is connected and moves vertically with said actuating-bar.

9. A hay-carrier comprising upper and lower carriage members having swiveled connection with each other, a pulley-block, locking-dogs on the lower member of the carriage adapted for engagement with said pulley-block, an actuating-bar on the lower carriage member having actuating connection with said locking-dogs, and a locking-head on said upper member having swiveled connection with said actuating-bar.

10. A hay-carrier comprising upper and lower carriage members having swiveled connection with each other, a pulley-block, locking-dogs on the lower member of the carriage adapted for engagement with said pulley-block, an actuating-bar mounted to slide vertically on the lower carriage member and having actuating connection with said locking-dogs, and a locking-head mounted to slide vertically in the upper carriage member and provided with a depending spindle affording pivotal connection between said locking-head and said actuating-bar.

11. A hay-carrier comprising upper and lower carriage members having swiveled connection with each other, a pulley-block, locking-dogs on the lower member of the carriage adapted for engagement with said pulley-block, an actuating-bar mounted to slide vertically in the lower carriage member and having actuating connection with said locking-dogs, a locking-head mounted to slide vertically in the said upper carriage member and provided with a central depending spindle having pivotal connection at its lower end with the center of said actuating-bar, and a swivel-ring engaging the upper part of the spindle and rigidly attached to the said actuating-bar.

12. A hay-carrier comprising upper and lower carriage members having swiveled connection with each other, said lower carriage member embracing two parallel side frame-plates provided with central, vertically-arranged guide-slots, locking-dogs pivoted to said side plates of the lower member of the carriage and adapted for engagement with said pulley-block, an actuating-bar, the ends of which are adapted to slide vertically in said guide-slots, and which have actuating connection at their outer ends with said locking-dogs, and a locking-head mounted in the upper carriage member and having swiveled connection with the center of said actuating-bar, said upper carriage member being provided with vertical guides for the said locking-head.

13. A hay-carrier comprising upper and lower carriage members having swiveled connection with each other, a pulley-block, locking-dogs on the carriage adapted for engagement with said pulley-block, a vertically-movable actuating-bar on the lower carriage member having actuating connection with said locking-dogs, and a locking-head on the upper carriage member having swiveled connection with the said actuating-bar, said upper carriage member being provided with vertical guides for said locking-head.

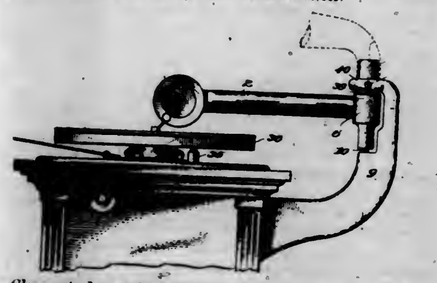
14. A hay-carrier comprising upper and lower carriage members having swiveled connection with each other, said lower carriage member embracing two parallel side frame-plates provided with central, vertically-arranged guide-slots, locking-dogs pivoted to said side plates of the lower member of the carriage and adapted for engagement with said pulley-block, an actuating-bar, the ends of which are adapted to slide vertically in and are guided by the said vertical slots, and which have actuating connection at their outer ends with said locking-dogs, a locking-head mounted in the upper carriage member, said upper carriage member being provided with vertical guides for said locking-head, and said locking-head having swiveled connection with the center of said actuating-bar, said actuating-bar having laterally-extending guide-lugs which bear against the inner faces of the said side frame-plates at either side of the guide-slots therein.

15. A hay-carrier comprising upper and lower carriage members one of which is provided with a swivel-plate and the other with an internally-grooved swivel-ring, said swivel-plate and swivel-ring being engaged with each other to afford a swiveled connection between the said upper and lower carriage members, locking-dogs on the lower member of the carriage adapted for engagement with said pulley-block, a vertically-movable actuating-bar on the lower carriage member, having actuating connection with said locking-dogs, said lower carriage member embracing two side plates which are provided with vertical slots through which the ends of said actuating-bar extend and by which the same is guided in its vertical movement, a locking-head mounted on the upper carriage member and adapted to move vertically thereon, said upper carriage member having vertical guides for the said locking-head, and a spindle connecting the said locking-head with the said actuating-bar and affording swiveled connection between the same.

16. A hay-carrier comprising a carriage embracing two parallel side plates provided with opposite, vertical guide-slots, a pulley-block adapted to enter between the lower ends of said plates when in its elevated position, locking-dogs on said carriage adapted for engagement with the said pulley-block, a vertically-movable actuating-bar which slides in said guide-slots in the side plates and which has actuating connections at its ends with said locking-dogs, a carriage lock-plate, and a locking-head on the carriage which is connected and moves with said actuating-bar and which is movable vertically with respect to said locking-plate to effect its engagement with and disengagement from the same; said pulley-block being provided at its upper end with a locking-plate, the top surface of which is adapted for engagement with the actuating-bar when the pulley-block is drawn upwardly between the side plates of the carriage, and the lower surface of which constitutes bearing-surfaces for engagement with the locking-dogs.

17. The combination with a track provided with a central web having on its lower edge a T-head, of a carriage lock-plate provided at its ends with blocks or heads provided with T-grooves adapted to receive the T-head on the lower edge of the said web and provided with set-screws with which to clamp the same to said track, said set-screws being arranged obliquely with respect to the surface of the track against which they bear.

785,362. TALKING-MACHINE. ELDRIDGE R. JOHNSON, Philadelphia, Pa., assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed Sept. 25, 1901. Serial No. 76,443.



Claim.—1. In a talking-machine, the combination a hollow arm limited to move only in a direction parallel to the record, a sound-box fixed to one end of said arm, an amplifying-horn connected with the other end of said arm, and means to allow of a separation of the sound-box and record.

2. In a talking-machine, the combination, a hollow arm pivoted to move only in a direction parallel to the record, a sound-box fixed to one end of said arm, an amplifying-horn connected with the other end of said arm, and means to allow of a separation of the sound-box and record.

3. In a talking-machine, the combination, a hollow arm pivoted at one end to move only in a direction parallel to the record, a sound-box fixed to the free end of said arm, an amplifying-horn connected with the pivoted end of said arm, a record-support and means for withdrawing the record and record-support from the sound-box.

4. In a talking-machine, the combination, a hollow arm pivoted at one end to move only in a direction parallel to the record, a sound-box fixed to the free end of said arm, an amplifying-horn connected

with the pivoted end of said arm, a record-support, and means for withdrawing the record and record-support from the sound-box.

5. In a talking-machine, the combination of a hollow arm pivoted at one end to move only in a direction parallel to the record, a sound-box fixed to the free end of said arm, a bracket carried by the machine-casing, a rigid connecting-piece carried by said bracket adapted to communicate with the pivoted end of said arm, and a turn-table separable from the sound-box.

6. In a talking-machine, the combination of a hollow arm pivoted at one end to move only in a direction parallel with the record, a sound-box fixed to the free end of said arm, a bracket carried by the machine-casing, a vertical hollow hub pivotally mounted in said bracket and communicating with the inner end of said arm, a hollow stationary section also carried by said arm and communicating with said hub and means to allow a separation of the sound-box and record.

7. In a talking-machine, the combination of a hollow arm pivoted to move only in a direction parallel to the record, a sound-box fixed to the free end of said arm, a bracket rigidly secured to the machine-casing, a hollow hub carried by said bracket and communicating with the interior of said arm, a stationary tube rigidly secured in said bracket and communicating with said hub, sound-conveying means attached to said tube and means to allow a separation of the sound-box and record.

8. In a talking-machine, the combination of a hollow arm pivoted at one end to move only in a direction parallel to the record, a sound-box fixed to the free end of said arm, a bracket rigidly secured to the machine-casing, a tubular section rigidly secured to said bracket, a hollow hub pivotally mounted in said bracket and connecting with said tubular section and having communication with the interior of said arm, an amplifying-horn pivotally connected to said tubular section and means to allow of the separation of the reproducer and record.

9. In a talking-machine, the combination of a hollow arm pivoted at one end to move only in a direction parallel to the record, a sound-box fixed to the free end of said arm, a bracket carried by the machine-casing in which the inner end of the hollow arm is pivoted, a tubular section carried by said bracket, and a part telescoping with said tubular section and having communication with the interior of the hollow arm, and an amplifying-horn carried by said tubular section and means for holding the record in yielding contact with the sound-box and allowing the same to be separated from the sound-box.

10. In a talking-machine, the combination of a hollow arm closed at both ends and pivotally mounted to move in a direction parallel with the record and having an opening adjacent its free end, a sound-box mounted on the free end of said arm and having communication with said opening, a hollow hub secured adjacent the pivoted end of said hollow arm and having communication with the interior thereof, a support in which said hub is vertically pivoted, a fixed tube carried by said support and telescoping with said hub, means for holding said hub in telescoped relation with said tube, a horn pivotally carried by said tube and means to allow separation of the sound-box and record.

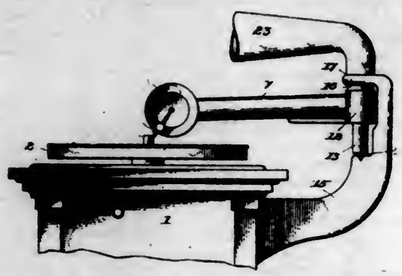
11. In a talking-machine, the combination of a hollow arm, a sound-box connected to one end thereof, a vertical hollow hub connected to the opposite end thereof, a fixed support, a vertical tube carried by said support, and spring-actuated means for keeping said hub in operative connection with one end of said tube.

12. In a talking-machine, the combination with a rigidly-mounted reproducer, of a yieldingly-mounted record-support, a hub pivotally mounted on the machine-casing, a driving-shaft having a cup-shaped top, a stub-shaft having an enlarged head adapted to fit loosely in the cup portion of the driving-shaft, the said stub-shaft passing through the pivoted hub, means for connecting the stub-shaft head with driving-shaft so as to revolve therewith, and a nut adapted to the end of the stub-shaft for clamping the record-support thereto, substantially as described.

13. The combination with a vertically-rigid reproducer of a revolving driving-spindle, an enlarged head formed on the upper end of said spindle having a socket formed therein, a hub-piece adapted to fit loosely over the head, pivotal bearings carried by the machine-frame in which the hub-piece is mounted, a stub-shaft passing through the hub, a head formed on said shaft adapted to fit loosely in the socket of the driving-spindle, means for coupling the said head to the driving-spindle head, a turn-table secured on the upper end of the stub-shaft, ball-bearings between the turn-table and the hub-piece, and means for tilting the hub-piece, for the purpose described.

14. The combination with a vertically-rigid reproducer the driving-spindle having a socket formed in its upper end, a hub-piece pivotally mounted on the machine-casing over the driving-spindle socket, a stub-shaft passing through said hub, an enlarged head formed on the end of the stub-shaft adapted to the socket in the driving-spindle, a coupling-pin between the stub-shaft and driving-spindle, a turn-table secured on the upper end of the stub-shaft, an arm secured to the pivoted hub and extending radially therefrom, a spring for holding said arm down, and a cam located adjacent the arm, adapted to act on the same to raise said arm and tilt the turn-table, substantially as described.

785,363. TALKING-MACHINE. ELDRIDGE R. JOHNSON, Philadelphia, Pa., assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed Sept. 18, 1902. Serial No. 123,865.



Claim.—1. In a talking-machine, the combination of a continuous hollow arm, a sound-box attached to one end thereof, a transverse hub connected at one side of the other end of said arm, there being a swivel-joint between said hub and arm.

2. In a talking-machine, the combination in reproducing mechanism of a continuous hollow arm provided at one end with a sound-box, and at its other end with a short transverse tube having a swivel-joint therein, said tube being pivoted on a transverse axis and adapted to communicate with sound-conducting means.

3. In a talking-machine, the combination in reproducing mechanism of a continuous hollow arm provided at one end with a sound-box, a hollow hub or member adapted to turn about an axis at right angles to the hollow arm and means connecting the end of said hollow arm opposite to the sound-box with said hollow member and including a swivel-joint to permit a movement of the sound-box about an axis transverse to that of the hollow hub or member.

4. In a talking-machine, the combination in reproducing mechanism of a continuous hollow arm provided at one end with the sound-box and at its other end a pivoted transverse hub there being a swivel connection between said hub and arm and affording a continuous closed sound-conducting passage between said sound-box and hub.

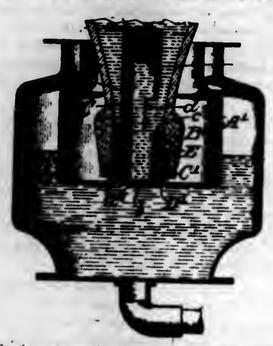
5. In a talking-machine, the combination with the record, of a reproducing mechanism comprising a hollow tubular arm rigid throughout its length and closed at both ends, an opening in the side of said arm adjacent its rear end, a swivel connection between said opening and the pivoted tubular section, a support for said pivoted tubular section, and a sound-box connected with the interior of the tubular arm adjacent its forward end, substantially as described.

6. The combination in a talking-machine, of a rigid tubular arm closed at both ends having an opening in the side thereof adjacent its rear end, a transversely-disposed short tubular section pivoted in a support so as to move on a vertical axis, a tubular connection between the tubular arm and the short section, a swivel-joint provided in said tubular connection, and a sound-box connected with an opening in the side of the tubular arm adjacent its front end, substantially as described.

7. The combination in a talking-machine, of a rigid tubular arm closed at both ends having an opening in its side adjacent its rear end, a transversely-disposed short tubular section pivoted in a support so as to move on a vertical axis, a tubular connection between the tubular arm and the short section, a swivel-joint provided in said tubular connection so as to permit of a substantially vertical movement to the tubular arm, means for holding the two sections together, and a sound-box connected to an opening formed in the side of the tubular arm adjacent its front end, substantially as described.

8. The combination with a talking-machine of a continuous tubular arm closed at both ends and having an opening in its side adjacent its rear end, a short tube or flange surrounding said opening, a transversely-disposed hollow hub pivoted in a support to move on an axis transverse to said arm and having an opening in the side thereof, said opening being surrounded by a short tube or flange which is adapted to telescope with the flange on said arm so as to permit of a movement of said arm on an axis at right angles to the axis of said hub, a spring for holding the two short tubes or flanges in telescoped relation and a sound-box connected with the outer end of said hollow arm.

785,364. VALVED BOTTLE-STOPPER. FRANK G. KAMMERER, Chicago, Ill. Original application filed Nov. 9, 1903, Serial No. 180,312. Divided and this application filed Mar. 30, 1904. Serial No. 200,630.



Claim.—1. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and which is closed at its inner end, said tube being provided with a packing which surrounds the same and fits within the bottle-neck and also with a port located inside of said packing, a sleeve which fits and slides within the tube and is closed at its inner end, said sleeve having a port which registers with the port in the tube when the sleeve is thrust inwardly, and a spring applied between the inner end walls of the tube and sleeve to yieldingly hold the sleeve in its outwardly-extended position.

2. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and is closed at its inner end, a packing which surrounds the outer end of the tube and fits within the bottle-neck, said tube having a lateral port in its part inside of said packing, a tubular sleeve which fits and slides within the said tube and is closed at its inner end, said sleeve having a port which registers with the port in the tube when the sleeve is thrust inwardly, and a spring applied between the inner ends of said tube and sleeve to yieldingly hold the closure in its outwardly-extended position, said sleeve having lugs or projections on its outer end adapted for contact with the support on which the bottle rests.

3. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and is closed at its inner end, a gasket which surrounds the outer end of the tube and fits within the orifice of the bottle, said tube having a lateral port in its part inside of the gasket, a sleeve which slides within said tube and is closed at its inner end, and is provided with a lateral port which registers with the port in the tube when the sleeve is thrust inwardly, and a spring interposed between the inner ends of the tube and sleeve, said sleeve having two outwardly-projecting guide lugs or projections adapted for contact with the side margins of the port in the tube.

4. An automatically-opening stopper for a bottle, comprising a tube which extends into the bottle and is provided with a radial flange at its outer end and is closed at its inner end by an end wall, a packing which surrounds the outer end of the tube and fits within the bottle-neck, said tube having a lateral port located inside of said packing, a sleeve which fits and slides within the tube and which is closed at the inner end by an end wall, and is provided at its outer end with a radial flange, said sleeve having a port which registers with the port in the tube when the sleeve is thrust inwardly, and a spirally-coiled spring applied between the end walls of the tube and sleeve to yieldingly hold the sleeve in its outwardly-extended position.

5. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and has a radial flange at its outer end, a packing which surrounds the tube and fits within the bottle-neck, a sleeve which fits and slides in said tube which is closed at its inner end and provided at its outer end with an outwardly-extending flange, said tube and sleeve having ports which register with each other when the closure is thrust inwardly, a spring applied to yieldingly hold the closure in its outwardly-extended position, said flange on the outer end of the sleeve being provided on its outer face with a plurality of lugs or projections adapted for contact with the surface on which the bottle rests.

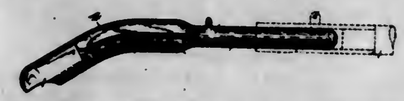
785,365. PENDULUM-REGULATOR. ALMERON M. LANE, Meriden, Conn. Filed May 27, 1904. Serial No. 210,123.



Claim.—1. A wee-wag pendulum comprising a pallet-shaft that serves as the pivot of the pendulum and two parts arranged to slide one upon the other in suitable guides, one part being rigidly connected to the said pivotal pallet-shaft, and adjusting devices connecting the said two parts and located at the upper end of the pendulum adjacent to the said pivot, for moving the said two parts one upon the other, substantially as described.

2. In a wee-wag pendulum, the combination of a two-part pendulum, with the pallet-shaft, a bracket-frame mounted on the said shaft and connected with the upper part of the said two-part pendulum, an adjusting-screw, worm-wheel, and a worm, mounted on the said bracket-frame, with the said screw in engagement with a threaded hole or nut on the lower part of the said pendulum.

785,366. VACUUM-ELECTRODE. ROBERT MACHLETT, New York, N. Y. Filed Dec. 1, 1904. Serial No. 235,080.



Claim.—1. A vacuum-electrode having a contact-surface adapted to apply an electric current direct to the body of a patient, means for concentrating the passage of said current in said contact-surface, substantially as described.

2. A vacuum-electrode having a contact-surface adapted to apply an electric current direct to a body of a patient, means for limiting the passage of said current to said contact-surface, substantially as described.

3. A vacuum-electrode having a contact-surface adapted to apply an electric current direct to the body of a patient, and having an insulated portion adapted to prevent the passage of said current to the body of a patient from that part of the electrode, substantially as described.

4. A vacuum-electrode having a uniform exterior surface with a portion thereof insulated from a current passing through the vacuous space in said electrode, and having a portion of said surface adapted to apply the current direct to the body of a patient, substantially as described.

5. A vacuum-electrode having a portion of the vacuous space therein contracted, and means for insulating said contracted portion from the exterior surface of the electrode, substantially as described.

6. A vacuum-electrode having a portion thereof insulated in such a manner as to prevent the passage of the current from said electrode to that portion of the exterior surface thereof, substantially as described.

7. A vacuum-electrode having a portion thereof adapted to form a contact-surface, a portion thereof forming a handle through which the current passes to the interior of the electrode, and an intermediate portion insulated from the current passing through the electrode, substantially as described.

8. A vacuum-electrode having two vacuum-chambers, a passage connecting said chambers, and means for insulating said passage from the exterior surface of the electrode, substantially as described.

9. A vacuum-electrode containing a vacuum-chamber having a contact-surface adapted to apply an electric current direct to a body

of a patient, and an air-chamber, surrounding a portion of said vacuum-chamber and insulating the same from exterior contact, substantially as described.

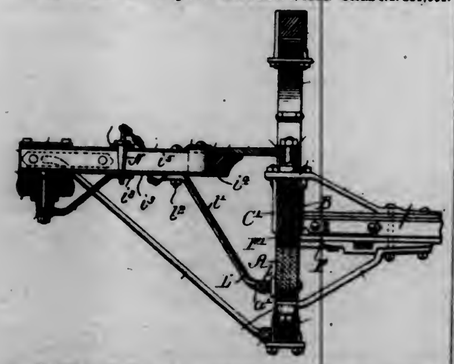
10. A vacuum-electrode containing a vacuum-chamber having a contact-surface adapted to apply an electric current direct to the body of a patient, and an air-chamber having an inclosing wall forming an extension to and surrounding a portion of the inclosing wall of said vacuum-chamber, insulating the same from exterior contact, substantially as described.

785,367. **WINDOW-SASH FASTENER.** REUTOR T. MASON, St. Joseph, Mo. Filed Dec. 3, 1904. Serial No. 235,382.



Claim.—In a sash-fastener the combination with the top and bottom sashes of a window, of a plate rigidly attached to a stile of the top sash provided with a plurality of sockets, a casing open at the back and provided with a slot in its front and a base projecting at the front and side of said casing rigidly attached on the top of the meeting-rail of the bottom sash, a lock-casting pivoted at its bottom and provided with a slot in its upper forward part, a forwardly-projected lug thereon, an upwardly-projected leg on the top of said base at its rear; a spring bearing forwardly against the front of the casing its ends held in position by said lugs, a bar provided with a knob at its outer end its inner end pivoted in the slot in the lock-casting, the lock-bolt adapted to engage with the sockets in the stile-plate, and the catch on said bar to hold said lock-bolt disengaged from said plate-sockets, substantially as set forth and shown.

785,368. **STIFF-POLE ATTACHMENT FOR VEHICLES.** FREDERICK L. MECKEL, Chicago, Ill. Filed Nov. 7, 1904. Serial No. 231,661.



Claim.—1. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame, a doubletree hinged centrally to said frame, and means for removably and rigidly attaching said frame to the gear in front of the front axle thereof.

2. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame and means for attaching the frame to the gear comprising braces provided at their rear ends with eyes designed for detachable connection with the shaft-couplings on the front axle of the gear.

3. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame and means for attaching the frame to the gear comprising braces provided at their rear ends with eyes designed for detachable connection with the shaft-couplings on the front axle of the gear, and upper and lower braces or arms connected at their forward ends with the socket-frame and adapted for connection at their rear ends with rigid parts of the gear located in line with the reach thereof.

4. A stiff-pole attachment for vehicle-gears comprising a pole-receiving socket-frame, and means for attaching the frame to the gear, comprising upper and lower braces extending rearwardly from the frame, the lower brace being provided with an eye designed for connection with a coupling attached to the axle in line with the king-bolt of the frame, and the upper brace or arm being hinged to a stud rigid with the head-block of the frame, and lateral braces attached at their forward ends to and extending rearwardly from the socket-frame and provided with eyes designed for connection with the shaft-couplings on the front axle of the gear.

5. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame, brace-bars attached at their forward ends to said frame and provided at their rear ends with eyes designed for attachment with the shaft-couplings of the front axle of the gear, and an arm or brace extending rearwardly from said socket-frame and adapted for pivotal connection to the gear between the shaft-couplings thereof.

6. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame, side braces attached at their forward ends to the frame and provided at their rear ends with eyes designed for coupling engagement with the shaft-couplings of the front axle of the gear, a brace extending rearwardly from the socket-frame and detachably connected at its rear end to a part of the front axle of the gear in line with the reach of the gear, and an arm projecting rearwardly from the socket-frame and adapted for connection with a part of the gear rigid with the head-block thereof.

7. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame and means for attaching the same to the gear, comprising lateral braces fixed at their forward ends to the socket-frame and provided at their rear ends with eyes designed for connection with the shaft-couplings on the front axle of the gear, and a central rigid connection for said socket-frame comprising upper and lower parts connected rigidly with the rear end of said frame and adapted for connection with the gear at vertically-separated points.

8. In a vehicle-gear, the combination with the axle provided with shaft-couplings, the head-block and the front spring attached to said head-block by clips, of a stiff-pole attachment comprising a pole-receiving socket-frame located in front of the axle, lateral braces attached to and extending rearwardly and laterally from said socket-frame and provided at their rear ends with eyes designed for connection with shaft-couplings on the axle, an arm extending rearwardly from said frame and provided at its rear end with an eye and a stud rising from the cross-bar of said spring-attaching clips and extending through said eye of said arm and attached thereto.

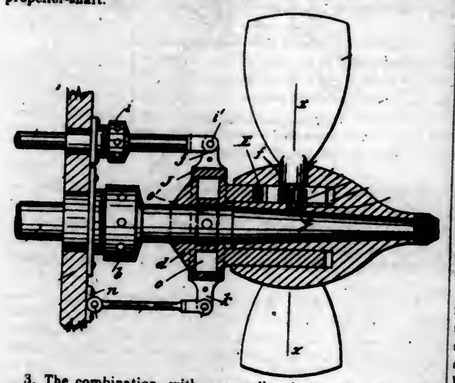
9. In a vehicle-gear, the combination with the axle provided with shaft-couplings, the head-block and the front spring attached to said head-block by clips, of a stiff-pole attachment comprising a pole-receiving socket-frame located in front of the axle, lateral braces attached to and extending rearwardly and laterally from said socket-frame and provided at their rear ends with eyes designed for connection with shaft-couplings on the axle, an arm extending rearwardly from said frame and provided at its rear end with an eye, a stud rising from and integral with the cross-bar of said spring-attaching clips and extending through said eye of said arm and attached thereto, and a second brace or arm extending rearwardly from the lower side of the brace and fixed at its rear end to the front axle in line with the said stud.

10. A stiff-pole attachment for vehicle-gears, comprising a pole-receiving socket-frame, brace-bars attached at their forward ends to said frame and extending laterally therefrom and provided at their rear ends with eyes adapted for detachable connection with shaft-couplings on the front axle of the gear, a rigid connection between the rear end of said frame and the gear in line with said frame, and a doubletree hinged between its ends to the frame near the front end thereof.

785,369. **PROPELLER.** EDWARD G. MEINECKE, Alameda, Cal. Filed May 23, 1904. Serial No. 209,306.

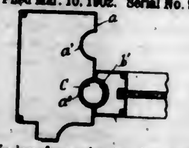
Claim.—1. The combination, with a propeller-shaft, and a propeller-hub secured thereon and provided with an annular chamber and radial bearings; of propeller-blades provided with stems which are journaled in the said bearings and which are provided with toothed pinions arranged in the said chamber, a reversing-sleeve arranged in the said chamber and provided with slots and toothed racks which engage with the said pinions, and means for sliding the said sleeve longitudinally of the propeller-shaft.

2. The combination, with a propeller-shaft, and a propeller-hub secured thereon and provided with an annular chamber and radial holes of different diameter at opposite sides of the said chamber the outer holes being larger than the inner holes; of propeller-blades having stems provided with bearings which are journaled in the said holes and having circumferential slots in the larger bearings, retaining-pins inserted crosswise through the hub and engaging with the said slots, toothed pinions on the said stems between the said bearings, a reversing-sleeve arranged in the said annular chamber and provided with slots and toothed racks which engage with the said pinions, and means for sliding the said sleeve longitudinally of the propeller-shaft.



3. The combination, with a propeller-shaft, and a propeller-hub secured thereon and provided with an annular chamber and radial holes; of propeller-blades provided with stems which are journaled in the said radial holes and which are provided with toothed pinions arranged in the said chamber, a reversing-sleeve arranged in the said chamber and provided with slots and toothed racks which engage with the said pinions, said sleeve having also a hub on its projecting end which is mounted on the said propeller-shaft and provided with a circumferential groove, a ring which encircles the sleeve-hub and which is provided with pivoted blocks which engage with the said groove, arms projecting at the opposite sides of the said ring, a supporting-rod pivoted to one of the said arms, and a slidable reversing-rod pivoted to the other said arm.

785,370. **WINDOW FRAME AND SASH.** LEONARD M. NEABREY, Cincinnati, Ohio. Filed Mar. 10, 1902. Serial No. 97,436.



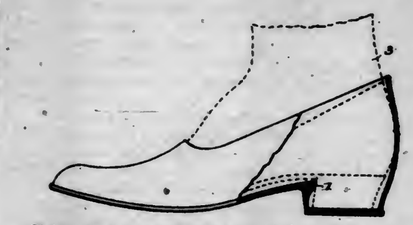
Claim.—1. A window-frame having its sides plain except for vertical semi-elliptical grooves formed therein, in combination with sashes having similar grooves to register with said grooves and removable elliptical retainers to fit into the elliptical ways formed by the grooves in the frames and in the sashes to retain the sashes and to permit of their sliding in the frame substantially as shown and described.

2. A window-frame having vertical semi-elliptical grooves in its sides, in combination with sashes having similar grooves to register with said grooves, and firm removable tubes to fit into the elliptical ways formed by the grooves in the frame and in the sashes to retain the sashes and to permit their sliding in the frame substantially as shown and described.

3. A window-frame having vertical grooves in its sides in combination with sashes having grooves similar to and registering with the grooves in the frame, flanges at the lower ends of the grooves in the sashes and retainers of a length less than the height of the sashes and of the shape and circumference of the ways formed by the grooves in the sashes with those in the frames and resting upon the flanges in the sashes, substantially as shown and described.

4. A window-frame having vertical grooves in its sides in combination with sashes having similar grooves to register with the grooves in the frame and elliptical tubes with free overlapping edges seated in the ways formed by the grooves in the sashes with those in the frame, substantially as shown and described.

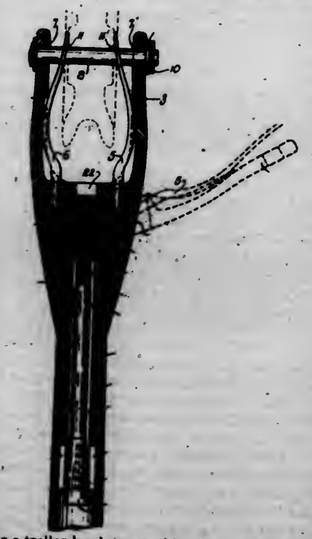
785,371. **OVERSHOE.** HUMPHREY O'SULLIVAN, Lowell, Mass. Filed Feb. 2, 1901. Serial No. 45,760.



Claim.—1. An overshoe, having a lip to engage the breast of the heel and a back of less curvature than the back of a shoe on which the overshoe is normally adapted to fit without constriction of the forward part of the shoe, the back of the overshoe being arranged with respect to the said lip so that the overshoe will grip the shoe firmly between the lip and an intermediate part of the inner surface of the back, while the overshoe fits loosely on the shoe at all other points and flares away therefrom at the upper part of the back, substantially as described.

2. An overshoe in which the space between the upper inner surface of the breast of the heel and an intermediate part of the inner surface of the back is less than the corresponding dimension of a shoe upon which the overshoe is normally adapted to fit without constriction of the forward part of the shoe, while the upper part of the back is less constricted than the counter of the said shoe, so that the overshoe will grip the shoe firmly between the two first-mentioned points while being loose thereupon at all other points and separated therefrom at the upper part of the back, substantially as described.

785,372. **TROLLEY-HEAD.** EUGENE J. PARKER and LOUIS N. COLWELL, Providence, R. I. Filed Apr. 27, 1904. Serial No. 205,180.

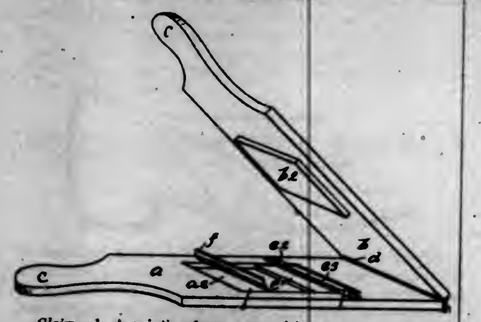


Claim.—1. In a trolley-head, the combination with the body of a trolley-arm mounted upon the body, and expanding means carried by the body for frictionally engaging the body and pole.

2. In a trolley-head, the combination with the body provided with a split shank of a trolley-pole embracing said shank, and means within the body for expanding the split shank into engagement with the trolley-pole.

3. In a trolley-head, the combination with the body provided with a tubular split shank of a trolley-pole embracing said shank, a shaft provided with an inclined extremity traversing the shank, and means in the head and engaging the shaft for elevating the shaft and expanding the shank.

785,373. **PRINTING-FRAME.** EDWARD R. PAYAIR, Brooklyn, N. Y. Filed Jan. 10, 1905. Serial No. 240,491.



Claim.—1. A printing-frame, comprising two separate parts hinged together at one end, one of said parts being adapted to be folded from one side to the other of the other part, one of said parts being also provided with a central opening at each side of which is a rabbet-groove, and the other part being provided on its opposite side with bosses or projections adapted to enter said grooves, substantially as shown and described.

2. A device of the class described, comprising oblong plates hinged together at one end, one of said parts being adapted to be folded around the other so as to lie flush with either side thereof, one of said parts being also provided with a central opening around which at one side of said part is a rabbet-groove and around which at the opposite side of said part are two rabbet-grooves one of which incloses the other and is of greater dimensions, and the other part being provided at its opposite side with bosses or projections adapted to enter the grooves at the opposite sides of said opening, substantially as shown and described.

3. A device of the class described, comprising oblong plates hinged together at one end, one of said parts being adapted to be folded around the other so as to lie flush with either side thereof, one of said parts being also provided with a central opening around which at one side of said part is a rabbet-groove and around which at the opposite side of said part are two rabbet-grooves one of which incloses the other and is of greater dimensions, and the other part being provided at its opposite side with bosses or projections adapted to enter the grooves at the opposite sides of said opening, and one of which is of greater dimensions than the other, substantially as shown and described.

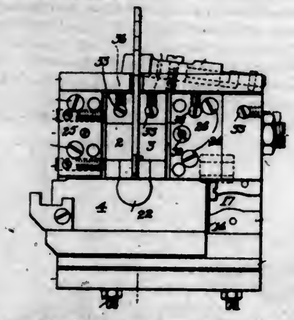
4. A device of the class described, comprising two parts consisting of oblong plates hinged together at one end so that one of said parts may be folded around the other and lie flush with either side thereof, one of said parts being also provided with a central opening around which at each side of said parts is a rabbet-groove, the other part being provided with bosses or projections adapted to enter said grooves and one of which is of less dimensions than the other, and a transverse plate adapted to be secured in one of said first-named grooves, substantially as shown and described.

5. A device of the class described, comprising two plates hinged together at one end in such a manner that one of said plates may be folded entirely around the other so as to lie flush with either side thereof, one of said plates being provided with a central opening around which is a groove and the other with a boss or projection adapted to fit in said groove, substantially as shown and described.

6. A device of the class described, comprising two plates hinged together at one end in such a manner that one of said plates may be folded entirely around the other so as to lie flush with either side thereof, one of said plates being provided with a central opening around which is a groove and the other with a boss or projection adapted to fit in said groove, said plates being also provided at their free ends with handles, substantially as shown and described.

785,374. **TYPE-MOLD.** FRANK H. PIERPONT, Horley, England, assignor to Lanston Monotype Machine Company, Philadelphia, Pa., a Corporation of Virginia. Filed May 5, 1904. Serial No. 206,580.

Claim.—1. A mold for type-machines such as described comprising a supporting frame or base provided with a nozzle-seat, a movable cross-block forming one wall of the mold-cavity, and two side blocks with an intermediate mold-blade forming the remaining side walls of said mold-cavity, said side blocks and mold-blade being attached to a side-block support fastened to the base and without other connection with the latter.



2. The combination, to form a type-mold such as described, of the following elements, to wit: a supporting frame or base provided with a nozzle-seat; a cross-block movable in guides on said base; a side-block support detachably secured to said base; and side blocks and mold-blade mounted upon said side-block support independently of the base.

3. In a mold such as described provided with a base, a cross-block, a side-block support, side blocks and a mold-blade seated upon said support, and adjusting and retaining devices for said side blocks mounted upon said side-block support independently of the base.

4. The combination, to form a mold such as described, of the following elements, to wit: a base provided with a nozzle-seat and an abutment; a side-block support provided with abutments; a cross-block guided between the side-block support and the base-abutment; an elastic bearing interposed between the base-abutment and cross-block; a movable mold-blade guided upon the side-block support; two side blocks seated upon said support; a plurality of bearings carried by one side-block abutment; and an elastic bearing carried by the other side-block abutment.

5. In a type-mold such as described, the combination with the side blocks, gage, and mold-blade, of the side-block support carrying two abutments between which the side blocks are received, one of said abutments provided with a plurality of bearings and the other with a spring-actuated shoe.

6. In a type-mold such as described, the combination with the base, side blocks and interposed mold-blade and gage-block, of a side-block support independent of the base and provided with abutments embracing said side blocks, one abutment carrying a plurality of adjustable bearings and the other a spring-pressed shoe between which members the side blocks and mold-blade are located and take their bearings upon said support.

7. In a mold such as described the combination with the base, the side-block support and the side blocks and mold-blade mounted upon said support, of the gage-block interposed between the side blocks, two abutments detachably secured to said support, a plurality of rigid bearings carried by one of said abutments and a spring-actuated shoe carried by the other abutment, a spring-pin secured to one of said abutments passing through openings in the side blocks and gage and into the opposite abutment in position to be engaged by adjusting devices carried thereby.

8. In a type-mold such as described the combination with the reciprocating cross-block provided with a movable gate, of the grooved cam-plate seated in the base and provided with a nozzle-seat.

9. In a type-mold such as described the combination with the side blocks, mold-blade and gage-block, of the side-block abutments, the spring-pin secured to one of said abutments and extending through the side blocks and gage into the opposite abutment, and the set-screw engaging the free end of said pin, for adjusting the gage-block upon the mold-blade.

10. In a mold such as described the combination with the side blocks adjustably mounted upon the side-block support, of the spring cover-plates engaging said blocks to retain them in position.

11. In a mold such as described the combination with the side blocks and the abutments carrying their adjusting devices all mounted upon an integral support or block, of the spring cover-plates, one for each side block, mounted upon the abutments and overlying their respective side blocks.

12. In a mold such as described the combination with the mold-blade, gage, side blocks, and side-block abutments, of the set-screws carried by one abutment for positioning one side block, and the spring-actuated shoe carried by the other abutment and operating upon its side block, to position the latter.

13. In a type-mold such as described the combination with the side blocks and their support of the eccentrics carried by said side blocks and engaging bearings in the support.

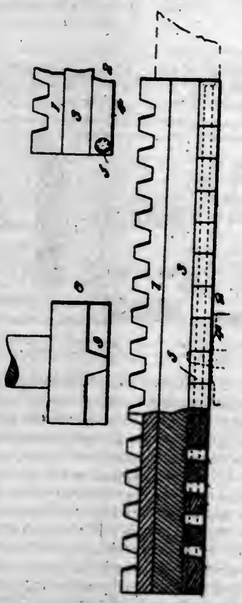
14. In a type-mold such as described the combination with laterally-adjustable side blocks seated upon an integral support, of means for effecting longitudinal adjustments of said blocks the same comprising a revolvable eccentric-pin carried by the block and engaging the support.

15. In a type-mold such as described, the combination of the following elements, to wit: a base; side blocks with interposed mold-blade carried by an integral support detachably secured to the base; adjusting devices carried by said support for positioning the side blocks; a reciprocating cross-block supported upon the base and engaging the side blocks; and an elastic bearing intermediate the base and cross-block for holding the latter to position against the side blocks.

16. In a type-mold such as described the combination with the reciprocating cross-block, the side blocks and the mold-blade forming the side walls of the mold-cavity, of the side-block support provided with a groove parallel with the line of movement of the cross-block, and the eccentrics carried by the side blocks and engaging said groove.

17. In a type-mold such as described, the combination with the cross-block, side blocks and mold-blade, of the side-block support provided with means for positioning the side blocks in a direction parallel with the movement of the cross-block, said support being also provided with a groove parallel with the cross-block in which are engaged eccentrics carried by the side blocks for positioning the latter in a direction substantially parallel with the mold-blade.

785,375. **DIE-CASE EQUIPMENT FOR TYPE-MACHINES.** FRANK H. PIERPONT, Horley, England, assignor to Lanston Monotype Machine Company, Philadelphia, Pa., a Corporation of Virginia. Filed Sept. 15, 1904. Serial No. 224,589.



Claim.—1. A matrix-block for type-machines such as described, provided with a matrix-cavity corresponding to the character and a small section of the body adjacent thereto, combined with a mold the cross-sectional area of whose cavity is greater than that of the matrix-cavity.

2. The combination to form a sectional matrix-block for type-machines such as described, of a matrix-section containing the drive, and a shoulder-section containing a perforation or cavity registering with the drive and of smaller cross-section than the type-body.

3. A matrix-block for type-machines such as described, comprising three plates or sections to wit; a matrix-section containing the drive, a front plate provided with an opening in register with the drive, and a centering or back plate applied to the matrix-section and provided with centering means.

4. A matrix-block for type-machines such as described, provided with an integral matrix-section containing the drive, and a sectional shoulder-section.

5. A matrix-block for type-machines such as described, provided with a matrix-plate containing the drive and a front plate or section secured thereto and containing a shoulder-perforation registering with the drive, said last-named section being divided on a line perpendicular to the face of the matrix-plate.

6. A matrix-block for type-machines such as described provided on its rear face with a plurality of grooves in intersecting planes for coöperation with a ribbed centering-plunger.

7. A matrix-block for type-machines such as described provided with a plurality of character-matrices symmetrically arranged in rows in two directions and with a corresponding series of projections forming intersecting grooves or channels for the reception of the final centering devices.

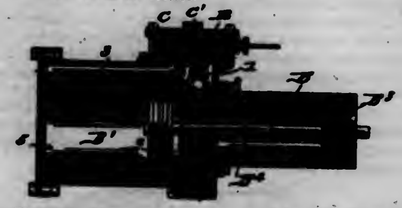
8. A die-case or matrix-block such as described, provided with a series of characters and a complemental series of projections symmetrically arranged in rows in two directions.

9. A die-case or matrix-block such as described provided with a series of characters and a complemental series of pyramidal projections symmetrically disposed in rows in two directions.

10. A die-case or matrix-block provided with a series of characters and a complemental series of pyramidal projections symmetrically arranged in rows in two directions and adapted to move in two directions to bring any character opposite a centering-point in combination with a centering-plunger provided with two or more ribs or projections disposed on intersecting lines and adapted to enter between the projections on the die-case or matrix-block, to position the selected character.

11. In combination with a multiple-character die-case or matrix-block provided with a series of pyramidal projections symmetrically arranged in rows in two directions, of a centering-plunger provided with a plurality of gaging surfaces or ribs registering with the projections in two directions.

785,376. **COMPOUND STEAM-ENGINE.** HERBERT H. PILCHER, Memphis, Tenn., assignor to Memphis Motor Carriage Company, Memphis, Tenn., a Corporation of the District of Columbia. Filed Mar. 24, 1904. Serial No. 199,733.



Claim.—1. A compound engine comprising a high-pressure and a low-pressure cylinder, a common valve-casing, an arched slide-valve adapted to work in the said casing, said casing having a steam-inlet, and having ports leading therefrom and opening respectively into the high and low pressure cylinders, the said cylinders having a central cylinder-head, said head having an auxiliary port formed therein and opening outwardly and also into the valve-casing, a valve in the auxiliary port, and means for admitting steam into said port direct from the boiler.

2. A compound engine comprising a high and a low pressure cylinder arranged tandem and having a central, common cylinder-head, a valve-casing arranged adjacent the said central cylinder-head and having a port leading into the high-pressure cylinder and ports leading to each end of the low-pressure cylinder, the said low-pressure cylinder having an exhaust-port adjacent its rear end, a slide-valve adapted to work in the said casing, means for admitting live steam directly into the said casing, the central cylinder-head having an auxiliary port leading to the valve-casing and opening into said casing between the ports leading to the high and low pressure cylinders respectively, and a hand-controlled valve in the said auxil-

iary port adapted to be opened to admit live steam into the valve-casing through the auxiliary port.

3. A compound engine comprising high and low pressure cylinders, a common central cylinder-head having an auxiliary port therein, a valve-casing, said casing having ports leading from the casing to the high and low pressure cylinders, respectively, means for admitting steam directly into the valve-casing, means for admitting steam from a boiler into the auxilary port, a hand-controlled valve in the said port, and a slide-valve in the casing, said valve when in its rearmost position admitting live steam from the casing to the high-pressure cylinder and permitting passage of steam around the piston of the low-pressure cylinder, and when in its forward position permitting passage of steam from the high-pressure to the low-pressure cylinder, as and for the purpose set forth.

4. A compound engine comprising a high-pressure and a low-pressure cylinder, a valve-casing common to both cylinders, said casing having the steam-inlet C' opening therein, a port 1 leading to the high-pressure cylinder, a port 2 leading to the low-pressure cylinder and opening into the forward end portion of said cylinder, a passage 3 leading to and opening into the rear end portion of the low-pressure cylinder, and an auxiliary port 4 opening into the casing between ports 1 and 2, a slide-valve in the casing, a valve in the auxiliary port 4, and means for admitting steam into the valve-casing through the auxiliary port 4, the said low-pressure cylinder having an exhaust-port adjacent its rear end, the said slide-valve being arched and adapted when in its forward position to span the ports 1, 2 and 4 and close the port 3, when in its rearmost position to span the ports 2 and 3, close the port 4 and clear the port 1, and in an intermediate position to span the ports 2 and 4, as and for the purposes set forth.

785,377. CIGAR-HOLDER AND ASH-RECEPTACLE. JESSE G. POPPERT, Milwaukee, Wis. Filed Mar. 14, 1903. Serial No. 147,867.



Claim.—1. The device herein described for catching and retaining the ashes of a cigar while being smoked consisting in the combination of a receptacle open on one side for a portion of its length, clamping-arms C and D, arm-supporting bracket E rigidly connected with and projecting from the rear vertical end wall of said receptacle; means for connecting said clamping-arms to said bracket, and means for holding said clamping-arms yieldingly against the cigar while the same is being smoked, said arms being adapted to support the cigar above, and free from contact with said receptacle, substantially as, and for the purpose specified.

2. A cigar attachment for catching and retaining the ashes of a cigar while being smoked, consisting in the combination of a cylindrical-shaped ash-receptacle open on one side for a portion of its length; a cylindrical-shaped inclosing cover open on one side for a portion of its length connected with the periphery of said ash receptacle and adapted to be turned on its longitudinal axis from a closed position above the mouth of said receptacle, partially around, and beneath the same, and means for clamping said receptacle to a cigar, substantially as, and for the purpose specified.

785,378. TRACE-LOCK. HERMAN H. GOEBEL, Newport, Ky. Filed Oct. 12, 1903. Serial No. 176,615.



Claim.—1. In a trace-lock, the combination of a trace consisting of two straps stitched to each other and having a lateral opening in it to receive the perforated end of a swingletree and a locking-pin provided with an enlargement at its lower end and inserted between the two parts comprising the trace and entering the perforation in the swingletree, the material of the straps comprising the trace, holding such locking-pin in position by frictional contact.

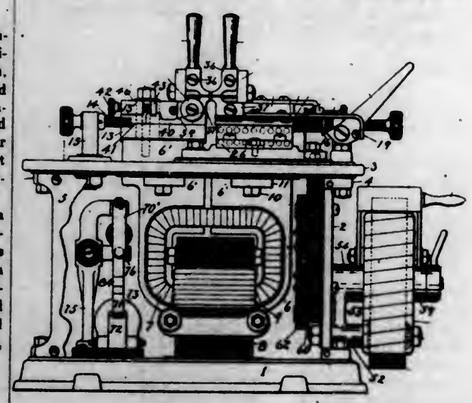
2. In a trace-lock to be used with a vertically-perforated swingletree, the combination with the trace provided with a lateral opening 17 and having a portion of its material above such opening separated edgewise, of a locking-pin seated in this separated portion of the material and hold adjustably in position by the frictional pressure of the separated, opposite parts of the yielding material of the trace which grasp the pin while being held apart by the same and an enlargement at the lower end of this pin to retard its entire withdrawel from the separated part of the trace.

3. In a trace-lock to be used with a vertically-perforated swingletree, the combination with the trace provided with a lateral opening 17 and having a portion of its material above such opening separated edgewise, of a locking-pin seated in this separated portion of the material and adapted to be adjusted so that its lower part projects into opening 17 and into the perforation in the swingletree if properly alined, such lower part being tapered, and an enlargement at the lower end of the pin which retards its entire withdrawal when coming in contact with the inner edges of the separated parts of the yielding material of the trace held apart by the upper part of the pin and closing against the tapering part thereof when the same is raised out of opening 17.

4. In a trace-lock, the combination of a trace consisting of two straps stitched to each other and having a lateral opening in it to receive the perforated end of a swingletree, a locking-pin inserted between the two parts comprising the trace and entering also the perforation in the swingletree and means to hold this pin in position.

5. In a trace-lock to be used with a vertically-perforated swingletree, the combination with the trace provided with a lateral opening 17 and having a portion of its material above such opening separated edgewise, of a locking-pin seated in this separated portion of the material and adapted to be adjusted so that its lower part projects into opening 17 and into the perforation in the swingletree if properly alined and means to hold this locking-pin adjustably in position.

785,379. ELECTRIC WELDING-MACHINE. ADOLPH F. RIETZEL, Lynn, Mass., assignor to Thomson Electric Welding Company, Lynn, Mass., a Corporation of Maine. Filed Nov. 16, 1903. Serial No. 181,419.



Claim.—1. In an electric metal-working apparatus, the combination of a starting device for causing current to flow through the section of work to be heated, an automatic cut-off for stopping the flow of current through the work, means connected with the work-holder for bringing the cut-off into action when, by the softening of the work, said work-holder has been permitted to move to a predetermined extent, and means for resetting the cut-off device by readjustment of the starting device to position for placing the apparatus in condition in which no current will be supplied to the work.

2. In an electric metal-working apparatus, the combination of an automatic cut-off switch, a controlling-magnet therefor, a circuit-closer governing the circuit of said magnet and carried by the work-holder of the apparatus, a starting-switch and means for resetting the automatic cut-off by the starting-switch, when the latter returns to the position in which no current will be supplied to the work.

3. In an electric metal-working machine, an automatic cut-off switch and magnet therefor placed in the base of the machine and a resetting-rod extending through the casing of the machine and means connected with said rod for starting the flow of current through the work when the rod is actuated in one direction and for resetting the cut-off device when the rod is moved in the opposite direction.

4. In an electric metal-working apparatus, the combination substantially as described with the cut-off switch and magnet for releasing the same, a circuit-closer for starting the flow of current through the work, an actuating-rod for operating on said circuit-closer and means connected with said rod for resetting the cut-off switch when the rod is retracted.

5. In an electric metal-working apparatus, the combination substantially as described of a starting-switch or circuit-closer, a spring normally tending to hold the same open, and an automatic cut-off device actuated by said spring for resetting the cut-off.

6. In an electric metal-working apparatus, the combination substantially as described of an inclosed cut-off switch, a starting-switch or circuit-closer, an operating-rod extending through the wall of the inclosure and adapted to engage and close the starting-switch, a spring for actuating said rod and means connected with the rod for engaging and resetting the cut-off switch-lever.

7. In an electric metal-working apparatus, the combination with a work-holding slide mounted on ball or roller bearings adapted to hold the same against both lateral and vertical movement, of an arm, finger or projection extending from said slide into a body of mercury or other good conductor contained in a cup formed in the terminal of a transformer-secondary.

8. In an electric metal-working apparatus, the combination of the work-holding slide or block, of the angular ball-bearing, guide-plates secured to the opposite sides thereof, one or more fingers or projections extending from said slide, and a cup supplied with heating-current and containing mercury or other good conducting liquid in which said fingers or projections are immersed.

9. The combination with a work-holding slide or carrier, of a pressure-spring mounted in a socket in the rear thereof, an adjustable pressure-screw bearing against a headed pin inserted in the end of said spring, a cam-lever for retracting the slide against the pressure of said spring, and an arm or bar fastened to the slide and projecting rearwardly for engagement by the cam-lever.

10. In an electric metal-working apparatus, the combination with a spring-actuated work-holding slide or carrier, of an actuating-cam and a rearwardly-projecting arm or bar having a turned-down end and mounted upon a ledge or offset on the side of the slide.

11. In an electric metal-working apparatus, the combination with a spring-actuated slide and an adjustable pressure-screw, of a post supporting the same on the table of the apparatus, a vertically-swinging cam-lever mounted on the side of said post and a bar or arm projecting rearwardly from the slide for engagement by said cam-lever.

12. In an electric metal-working apparatus, a work-holding slide provided with ball-bearing guideways at its opposite vertical faces, each comprising two longitudinally-extending sets of balls working between ball ways or races adapted to hold said slide against lateral and vertical movement.

13. In an electric metal-working apparatus, the combination with the work-holding slide, of a ball-bearing guide-plate secured to the side thereof and having a lateral projection provided with upper and lower ball-bearing faces.

14. The combination with the work-holding slide, of two rows of balls at each side thereof engaged between the upper and lower ball-bearing faces carried by the slide, and suitable ball ways or races formed on the inside of a bar fastened to the bed of the machine.

15. In an electric metal-working apparatus, the combination with a work-holding slide, of ball-bearing guides adapted to hold the same against both lateral and vertical movement in combination with current-conveying fingers or projections carried by said slide and dipping into a body of conducting liquid.

16. In an electric metal-working apparatus, the combination with the work-holding slide or carrier and suitable guides therefor, of current-bearing fingers extending downward from the slide into a body of conducting liquid, as and for the purpose described.

17. In an electric metal-working apparatus, the combination with a transformer-secondary having a recessed terminal containing mercury or other liquid, of a longitudinally-guided work-holding slide, suitable guides therefor, and fingers or projections extending downward from the slide into said liquid.

18. In an electric metal-working apparatus, a work-holding slide having a clamp-lever mounted on a post or upright so as to swing in a vertical plane transverse to the line of pressure applied to the work, a clamping pressure-spring bearing against said lever at its rear end and adjustable by means of a screw passing through the rear end of said lever and a clamp-jaw at the forward end of said lever, as and for the purpose described.

19. In an electric metal-working apparatus, a clamp-lever mounted upon a suitable pin so as to swing in a vertical plane transverse to the line of pressure applied to the work, and a clamping-jaw upon the forward end of said lever having a longitudinally-extending nose or projection as and for the purpose described.

20. In an electric metal-working apparatus, a clamp-lever mounted upon the work holding or carrying slide and having a vertical operating-handle, and rearwardly and forwardly projecting arms in combination with pressure-spring interposed between the work-holding slide and a pressure-adjusting screw carried by the hand of said lever, and a clamping-jaw carried at the forward end of the lever, as and for the purpose described.

21. In an electric metal-working apparatus, the combination with the lower clamping-jaw, of a longitudinally-adjustable block mounted on the side of the work-holder slide and provided with an inclined face engaged by a correspondingly-inclined foot of said jaw, as and for the purpose described.

22. In an electric metal-working apparatus, the combination with a vertically-adjustable clamp-jaw, of a longitudinally-adjustable cam-plate engaging said jaw, as and for the purpose described.

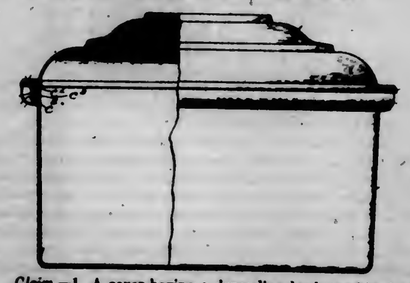
23. In an electric metal-working apparatus, the combination with a work-holding slide or block of a clamp-jaw secured to a lateral face of the block and adjustable vertically thereon, a plate or block working on a ledge or shoulder on the side of the slide and provided with an incline engaged by said jaw and means for adjusting said plate, as and for the purpose described.

24. In an electric metal-working apparatus, the combination of a base having suitable posts or uprights, a table surmounting the same and having the welding-transformer and work-carrying slides fastened to it, and a current-regulating device fastened to the post or upright of the machine and comprising reactive coils and closed-circuit conductor coöperating as a current-regulator and a circuit-changing switch mounted on the opposite face of said upright and adapted to change the connections of the reactive coil, as and for the purpose described.

25. In an electric metal-working apparatus, the combination of the plate or table 3, having the work-holding slides, a transformer mounted upon it, a post or upright 2, a laminated core 5, secured to a frame or plate fastened to said upright, a sectional reactive coil 49 and a circuit-changing switch governing connection of the coil-sections and mounted upon the opposite face of the upright or post, and an actuating handle or device accessible to the operator, as and for the purpose described.

26. In an electric metal-working apparatus, a transformer having work-holders mounted upon its secondary, a suitable base, uprights and table, in combination with a current-regulator, automatic cut-off and starting-switch all mounted on the framework of the apparatus and having their adjusting handles or knobs all accessible from the same side of the machine the whole forming a self-contained metal-working apparatus operable as and for the purpose described.

785,380. CASKET-INCLOSING CASE. JOHN D. RIPSON, East Pepperell, Mass. Filed Sept. 15, 1904. Serial No. 224,513.

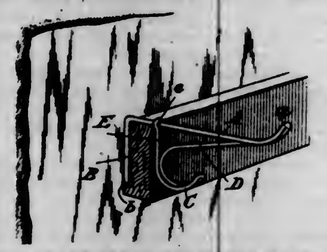


Claim.—1. A cover having a depending hook combined with a casket-inclosing case having a trough free to yield to the passage of the hook and to engage the same and lock the cover on the case.

2. A cover having a flange provided with a downturned lip and a depending hook combined with a casket-inclosing case having a trough one edge of which is sustained by the case, the opposite edge of the trough being inturned and free to yield to the passage of the hook into the trough.

3. A cover having a flange provided with a downturned lip and a depending hook combined with a casket-inclosing case having a trough one edge of which is sustained by the case, the opposite edge of the trough being inturned and free to yield to the passage of the hook into the trough, and luting in said trough to seal the cover air and liquid tight onto the body of said case.

785,381. HOOK OR HANGER. MAX ROSEN, New York, N. Y. Filed May 21, 1904. Serial No. 209,025.

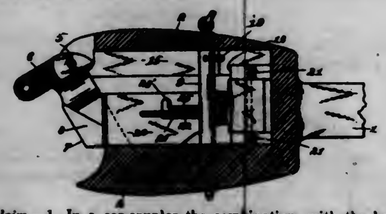


Claim.—1. A hook of the character described, comprising an upper hook member having a depending portion at the rear, a lower hook member, and a resilient member in vertical alinement with the depending portion of the upper hook member and spaced therefrom to form a clamp therewith, said resilient member having an eye formed at one end through which the upper hook member loosely passes whereby the former is free to move forward under pressure throughout its entire length.

2. A hook of the character described, formed of an integral piece of wire, comprising an upper hook member having a depending portion at the rear, a lower hook member, and a resilient member in vertical alinement with the depending portion of the upper hook member and spaced therefrom to form a clamp therewith, said resilient member having an eye formed at one end through which the upper hook member loosely passes whereby the former is free to move forward under pressure throughout its entire length.

3. A hook of the character described, comprising an upper hook member having a depending portion at the rear bent forward at its end, a lower hook member, and a resilient member in vertical alinement with the depending portion of the upper hook member and spaced therefrom to form a clamp therewith, said resilient member having an eye formed at one end through which the upper hook member loosely passes whereby the former is free to move forward under pressure throughout its entire length.

785,382. CAR-COUPLING. THOMAS A. SAVAGE, Kansas City, Mo. Filed June 20, 1904. Serial No. 214,444.

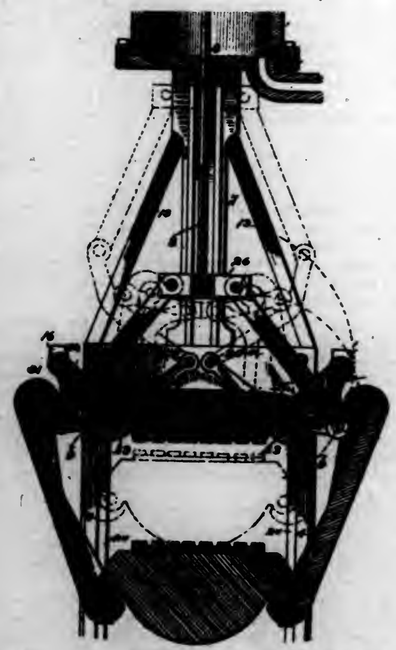


Claim.—1. In a car-coupler the combination, with the body portion, of a knuckle pivotally mounted thereon, the lower face of the knuckle having a shoulder 17 thereon, a longitudinally-slidable bar supported by the bottom of the body portion, one end of said bar being adapted to engage said shoulder of the knuckle, a transverse rockable shaft, a finger carried by the shaft, said finger being adapted to engage the opposite end of the slidable bar, whereby the knuckle may be thrown open by partial rotation of the shaft, substantially as described.

2. In a car-coupler the combination, with the body portion, of a knuckle pivotally mounted thereon, the lower face of the knuckle being provided with a shoulder 17, a longitudinally-slidable bar supported by the bottom of the body portion, one end of said bar being normally in contact with said shoulder, of the knuckle, a transverse rockable shaft, a finger carried by said shaft, said finger being adapted to strike the opposite end of the slidable bar, whereby the knuckle may be thrown open by partial rotation of the shaft, substantially as described.

3. In a car-coupler the combination, with the body portion, of a knuckle pivotally mounted thereon, the knuckle having integral therewith a tail portion 7 and a shoulder 17, a longitudinally-slidable bar one end of which is adapted to engage said shoulder 17, and a transverse rockable shaft carrying a finger which is adapted to strike the opposite end of said slidable bar; in combination with a rearwardly-pivoted lock-block which normally engages the tail of the knuckle and holds the knuckle in closed position, and an arm carried by the shaft and engaging the lock-block in such a manner that when the shaft is turned the lock-block is first lifted, the said finger then causing the knuckle to be thrown open, the tail 7 passing beneath the lock-block, substantially as described.

785,383. COTTON-COMPRESSOR. ARTHUR T. SNODGRASS, Patterson, La., assignor of one-half to Walter C. Snodgrass, Thomasville, Ga. Filed Feb. 9, 1903. Serial No. 142,593.



Claim.—1. In a compound-lever press, the combination with the frame, cylinder, sliding piston, cross-head, and movable and fixed platen, of traction-links connecting said cross-head with main levers, of main levers, of pushing-bars connecting main levers with perpendicular projections of fulcrum-levers, of fulcrum-levers having perpendicular projections and pivoted at their inner end to the frame and connected at their outer end by main traction-links to the movable platen, substantially as shown and described.

2. In a press, the combination, with the frame, the slidable piston, the platens, fulcrum-levers, and main traction-links connecting the said levers with the movable platen, of the main levers pivoted above the fulcrum-levers and below the points reached by the free ends of the latter when raised to vertical position, and means operatively connecting the outer ends of the main levers with the piston, substantially as described.

3. In a press, the combination, with the frame, the sliding piston, the platen, fulcrum-levers, and main traction-links connecting the said levers with the movable platen, of the main levers pivoted to the frame at a point above the fulcrum-levers when they are in a horizontal position and below the upper end of said fulcrum-levers when they are raised to a vertical position, of the pushing-bar connecting the said main levers with the fulcrum-levers, substantially as described.

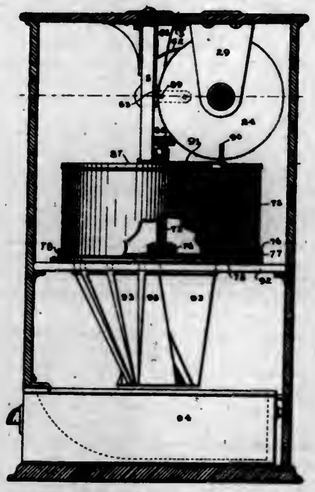
4. In a press, the combination, with the frame, fixed platen,

cylinder, slidable piston, and cross-head, movable platen and main traction-links, of fulcrum-levers having upward projections intermediate their ends, the main levers, pushing-bars pivoted at their respective ends to the main levers and said projections of the fulcrum-levers, and pulling-rods connecting the main levers and cross-head, substantially as described.

5. In a press, the combination, with the frame, the fixed and movable platens, fulcrum-levers having lateral arms or projections, traction-links connecting said levers with the movable platen, the main levers pivoted to the frame, and means for applying upward traction to their outer ends, pushing-bars connecting the said fulcrum and main levers, the said arms of the fulcrum-levers having parts extended beyond their pivots to form abutting or cushion portions when the movable platen is at the highest point of its stroke, substantially as described.

6. In a press of the character indicated, the combination, with frame, the fixed platen, the movable platen, and fulcrum-levers having rounded or cylindrical ends, of lifting-links having their ends made concave to conform to the ends of the said platen and levers, and the main levers, and means for applying upward traction to the main levers, as shown and described.

785,384. CASH-REGISTER. FRANK W. STEINACKER and IRA CULVER, Cleveland, Ohio. Filed July 14, 1904. Serial No. 216,457.



Claim.—1. In a cash-register, the combination of registering mechanism, a receptacle for the money inserted into said register, means for releasing the money from said receptacle after registration has been inaugurated, said releasing means being maintained out of operative condition until money has been inserted into said receptacle and being placed in operative condition by the insertion of the money into said receptacle, substantially as specified.

2. In a cash-register, the combination of registering mechanism, a receptacle for the money inserted into said register, means for releasing the money from said receptacle after registration has been inaugurated, said means being maintained out of operative condition until money has been inserted into said receptacle and being placed in operative condition by the insertion and presence of money in said receptacle, and a common operating means for said registering mechanism and said releasing means, substantially as specified.

3. In a cash-register, the combination of registering mechanism, a receptacle for the money inserted into said register, means for releasing the money from said receptacle after registration has been inaugurated, means for maintaining said releasing means out of operative condition until money has been inserted into said receptacle, and means, dependent upon the presence of money in said receptacle, for placing said releasing means in operative condition, substantially as specified

4. In a cash-register, the combination of registering mechanism, a receptacle for the money inserted into said register, means for releasing the money from said receptacle after registration has been inaugurated, means for maintaining said releasing means out of operative condition until money has been inserted into said receptacle, means, dependent upon the presence of money in said receptacle, for placing said releasing means in operative condition, and a common operating means for said registering mechanism and said retaining means, substantially as specified.

5. In a cash-register, the combination of registering mechanism, a receptacle for the money inserted into said register, means for releasing the money from said receptacle after registration has been inaugurated, means for locking said releasing means against operation until money has been inserted into said receptacle, and means, dependent upon the presence of money in said receptacle, for unlocking said releasing means, substantially as specified.

6. In a cash-register for coins, the combination of a receptacle for the coins, means for engaging opposite portions of the coins in said receptacle, means for registering the values of the coins inserted in said receptacle, means for releasing the coins from said receptacle, means for locking said mechanism and said releasing means against operation, and means for unlocking said mechanism and releasing means when a coin is so engaged.

7. In a cash-register for coins, the combination of a receptacle having an opening for the insertion of coins, a cover for the opening of said receptacle, mechanism for registering the values of the coins in said receptacle, and means for preventing the operation of the registering mechanism when the cover is in a position other than that which closes said opening.

8. In a cash-register for coins, the combination of a receptacle having an opening for the insertion of coins, a cover for the opening in said receptacle, mechanism for registering the values of the coins inserted into said receptacle, and means, carried by said receptacle, for preventing the operation of the registering mechanism except when the cover closes said opening.

9. In a cash-register, the combination of a coin-receptacle, mechanism for registering the value of a coin inserted therein, a shaft for operating said mechanism, a keyway in said shaft, a rotatable member having a projection for engaging said keyway, means for connecting said member and the registering mechanism, and means for throwing said projection into said keyway by the insertion of a coin into said receptacle.

10. In a cash-register for coins, the combination of a receptacle wherein coins are inserted, registering mechanism for said coins, means for releasing said coins from said receptacle after registration has been inaugurated, and operating mechanism for said releasing means, said operating mechanism being rendered effective by the presence of a coin in the receptacle.

11. In a cash-register for coins, the combination of a chute for the coins having therein an abutment and a sliding member between which the coins are inserted, means pressing said member and abutment toward each other to retain the coins in place, and means for moving one of said members to release the coins.

12. In a cash-register for coins, the combination of a receptacle for said coins having therein two members between which the coins are inserted, means for forcing one of said members toward the other to retain the coins in place, mechanism for registering the values of the coins, and means for moving one of said members in a direction to release the coins.

13. In a cash-register for coins, the combination of a receptacle for coins, an abutment and a sliding member in said receptacle between which the coins are inserted, a spring pressing said member toward said abutment to retain the coins in place, registering mechanism, a shaft for operating said mechanism, and means driven by said shaft to actuate the sliding member against the action of said spring to release the coins after the registration has been started.

14. In a cash-register for coins, the combination of a receptacle, an abutment and a sliding member in said receptacle between which the coins are grasped, a shaft, registering mechanism operated by said shaft, means for forcing said sliding member in the direction of the abutment to retain the coins in the receptacle, and means, dependent upon the presence of a coin in the receptacle, for moving the sliding member away from the abutment to release the coins.

15. In a cash-register for coins, the combination of a receptacle, members in said receptacle between which the coins are grasped, one of said members being movable, registering mechanism, a rotating member for actuating said mechanism, and means, carried by said rotating member, engaging the movable member to operate it in a direction to release the coin.

16. In a cash-register for coins, the combination of a receptacle for the coins, registering mechanism, means for actuating the same, means for retaining the coins in said receptacle, means for releasing the coins from said receptacle and means, dependent upon the pres-

ence of a coin in said receptacle for operating such coin-releasing means only after the actuating mechanism has been moved a predetermined distance.

17. In a cash-register for coins, the combination of a receptacle for the coins, registering mechanism, means for actuating the same, means for locking together said receptacle and said actuating means, and means, dependent upon the presence of a coin in the receptacle, for releasing the locking means.

18. In a cash-register for coins, the combination of a receptacle for the coins, an abutment and a sliding member in said receptacle, said abutment and member being normally separated by a space less than the diameter of the smallest coin inserted in said receptacle, a spring resisting the movement of said abutment away from the sliding member, a stronger spring forcing the sliding member toward the abutment, registering mechanism, means for actuating the same, and means for locking together said abutment and said actuating means.

19. In a cash-register for coins, the combination of a receptacle, an abutment and a sliding member in said receptacle between which the coins are inserted, means pressing said sliding member toward said abutment to grip the coins in said receptacle, mechanism for registering the values of said coins, a shaft for actuating said mechanism, and means, operated by said shaft and engaging said sliding member, to move such member away from said abutment and release the coins after registration has been inaugurated.

20. In a cash-register for coins, the combination of a receptacle, an abutment and a sliding member in said receptacle between which the coins are inserted, means pressing said sliding member toward said abutment to grip the coins in said receptacle, mechanism for registering the values of said coins, a shaft for actuating said mechanism, an extension of said sliding member projecting beyond the casing of the receptacle, and means, operated by said shaft and engaging said extension, to move the sliding member away from the abutment to release the coin after registration is inaugurated.

21. In a cash-register for coins, the combination of a receptacle, an abutment and a sliding member within said receptacle between which the coins are inserted into said abutment, and mechanism, including a spiral or cam shaped rib, for engaging said sliding member to move it away from said abutment and release the coins.

22. In a cash-register for coins, the combination of a receptacle, means including a sliding member for retaining the coins in said receptacle, a rotating drum, and a rib carried by said drum and engaging said sliding member to operate in a direction to release the coins.

23. In a cash-register for coins, the combination of a receptacle, means including a sliding member in said receptacle for grasping said coins, a spring for forcing said member against said coins to retain the same in said receptacle, registering mechanism, said mechanism including a rotating drum having thereon a spiral or cam shaped rib engaging said sliding member to move the same against the action of the spring, and means for operating said drum.

24. In a cash-register for coins, the combination of a receptacle, means including a sliding member in said receptacle for grasping said coins, means for forcing said member against said coins to retain the same in said receptacle, registering mechanism, said mechanism including a rotating drum having thereon a spiral or cam shaped rib, an extension on said sliding member projecting beyond the receptacle and adapted, when a coin is in said receptacle, to engage said rib, and means for operating said drum.

25. In a cash-register for coins, the combination of a receptacle for the coins, mechanism for registering the value of the coin inserted in said receptacle, an abutment yieldingly supported in said receptacle and in position to engage a portion of a coin in said receptacle, means for operating the registering mechanism, a connection between said abutment and said operating means, and a member opposite said abutment engaging another portion of said coin and forcing said abutment in a direction to break the connection between the same and the operating means.

26. In a cash-register for coins, the combination of registering mechanism, operating mechanism therefor, a connection between said register and operating mechanism, and means, dependent upon the size of the coin inserted into the register, for breaking the connection between the registering and operating mechanisms when the value of such coin has been registered.

27. In a cash-register for coins, the combination of registering mechanism, operating mechanism therefor, a lever normally connecting said mechanisms, and means, dependent upon the size of the coin inserted into the register, for breaking the connection between the lever and the registering mechanism when the value of such coin has been registered.

28. In a cash-register for coins, the combination of registering mechanism, operating mechanism therefor, a bell-crank lever normally connecting said mechanisms, and means, dependent upon the size of the coin inserted into the register, for breaking the connection between said lever and said registering mechanism when the value of such coin has been registered.

29. In a cash-register for coins, the combination of a register-wheel, differential mechanism, means normally connecting said mechanism to said wheel, and means dependent upon the size of the coin inserted in said register, for breaking such connection when the wheel has registered the value of such coin.

30. In a cash-register for coins, the combination of a register-wheel, differential mechanism, a lever normally connecting said wheel and mechanism, and means, dependent upon the size of the coin inserted in the register, for breaking the connection between the lever and the register-wheel when said wheel has registered the value of such coin.

31. In a cash-register for coins, the combination of a register-wheel, differential mechanism, a bell-crank lever normally connecting said mechanism and wheel, and means, dependent upon the size of the coin inserted in the register, for breaking the connection between the lever and the wheel when the latter has registered the value of such coin.

32. In a cash-register for coins, the combination of a register-wheel, a differential drum, means normally connecting said drum and said register-wheel, and means, dependent upon the size of the coin inserted in said register, for breaking such connection.

33. In a cash-register for coins, the combination of a register-wheel, a differential drum, a lever normally connecting said drum and said register-wheel, and means, dependent upon the size of the coin inserted in said register, for breaking the connection between said lever and said wheel.

34. In a cash-register for coins, the combination of a register-wheel, a differential drum, a bell-crank lever normally connecting said drum and said wheel, and means, dependent upon the size of the coin inserted in said register, for breaking the connection between said lever and said wheel.

35. In a cash-register for coins, the combination of a register-wheel, a lever having an arm connected with said wheel, and a differential drum having its surface provided with elevated portions and recessed portions coöperating with said lever to trip the same and break the connection between said lever and the register-wheel when the value of a coin has been registered.

36. In a cash-register for coins, the combination of a register-wheel, a lever having one arm connected to the wheel to operate the same, a differential drum having its surface provided with elevations and recesses, said recesses being of a length corresponding to the value of a coin inserted in the register, means, dependent on the size of said coin, for placing the opposite arm of the lever in the appropriate recess, and means for rotating said wheel and lever with respect to said drum.

37. In a cash-register for coins, the combination of registering mechanism, a common receptacle wherein all coins are inserted into the register, a receiver for said coins, said receiver having therein compartments for coins of different denominations, a plurality of chutes leading to said compartments, a cut-off device interposed between the common receptacle and the individual chutes, and means, dependent upon the size of the coin in the common receptacle, for operating said cut-off to permit the passage of the coin from the common receptacle into the appropriate individual chute, after the operation of the registering mechanism has been started.

38. In a cash-register for coins, the combination of registering mechanism, a common receptacle wherein all the coins are inserted into the register, a receiver for said coins, said receiver having compartments for coins of different denominations, an individual chute leading to each of said compartments, a cut-off device between the common receptacle and the individual chutes, said device having therein chutes or passages for all coins, said chutes or passages being normally out of alinement with the common receptacle, and means, dependent upon the size of the coin in the common receptacle, for setting said plate to bring the appropriate slot therethrough in alinement with the common receptacle, after the operation of the registering mechanism has been started.

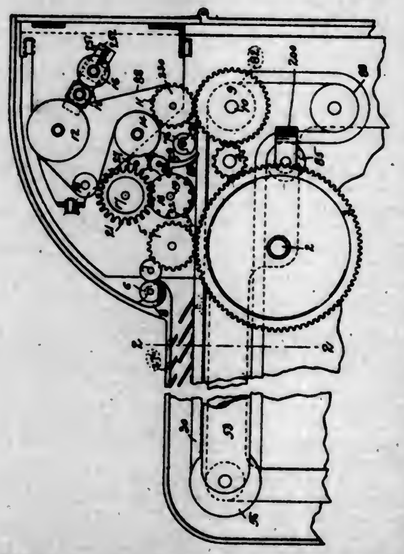
39. In a cash-register for coins, the combination of registering mechanism, a common receptacle for all coins inserted into the register, a plurality of compartments, one for coins of each denomination, a plurality of individual chutes, one for each of said compartments, a member having therethrough a plurality of channels or chutes, one for each of said individual chutes, means for normally holding said member with its channels or chutes out of alinement with the individual chutes, and means dependent upon the size of the coin inserted in the common receptacle, for operating said member to bring the channels or chutes therein into alinement with the appropriate individual chute, after the operation of the registering mechanism has been started.

40. In a cash-register for coins, the combination of a common chute for all coins inserted into said register, registering mechanism, means for operating said mechanism, a plurality of compartments, one for coins of each denomination, an individual chute for each of said compartments, a cut-off device interposed between the common and the individual chutes, and a connection between said device and said operating means whereby the cut-off device is moved to permit the passage thereby of a coin after the operation of the registering mechanism has been started.

41. In a cash-register for coins, the combination of a plurality of compartments, one for each denomination of coin, a common chute into which all coins are inserted, an individual chute leading to each of said compartments, a cut-off member interposed between said common and individual chutes, said cut-off member being provided with channels or chutes extending therethrough and normally out of alinement with said common and individual chutes, means dependent upon the presence of a coin in the common chute for setting said cut-off member to bring a channel or chute therethrough in alinement with the common and the individual chutes, and additional means for cutting off the communication between said common and individual chutes until registration has been started.

42. In a cash-register for coins, the combination of registering mechanism, a plurality of compartments, one for coins of each denomination, an individual chute for each of said compartments, a common chute within the register into which all coins are inserted, a rotary drum interposed between said common and individual chutes, said drum having passages or chutes extending therethrough and corresponding to the individual chutes, means for holding said drum with its passages or chutes out of alinement with the individual chutes until after registration has been started, and means, engaging opposite portions of a coin inserted in the common chute, for rotating said drum to bring its passages and the individual chutes into alinement.

785,385. **CASH-REGISTER.** FRANK W. STEINACKER and IRA CULVER, Cleveland, Ohio. Filed Aug. 26, 1904. Serial No. 222,906.



Claim.—1. In a cash-register for bills, the combination of registering mechanisms, and means, dependent upon the insertion of a bill into said register, for operating said mechanism differentially according to the different denominations of the bills inserted thereinto.

2. In a cash-register for bills, the combination of registering mechanism, holders for the bills, and means for operating the registering mechanism differentially through the bills in such holders.

3. In a cash-register for bills, the combination of registering mechanism, and means, operated by the bills inserted into the register, for operating said mechanism differentially according to the denominations of such bills.

4. In a cash-register for bills, the combination of registering mechanism, means for temporarily retaining the bills inserted into said register, means for operating said mechanism differentially according to the denomination of the bills inserted into said retaining means, and means for releasing said bills after registration has been inaugurated.

5. In a cash-register for bills, the combination of a single registering mechanism, and means, dependent upon the insertion of bills into said register, for operating said mechanism differentially according to the denomination of the bills inserted thereinto.

6. In a cash-register for bills, the combination of registering mechanism, means for receiving a plurality of bills of different denominations inserted into said register, and means for operating said mechanism differentially and successively by the bills so inserted into the register.

7. In a cash-register, the combination of registering mechanism, a carrier, differential mechanism, means on said carrier for receiving money of different denominations, and means for moving said carrier a predetermined distance, the arrangement of parts being such that the different denominations of money on said carrier may be registered during a single operation of the same.

8. In a cash-register, the combination of supporting mechanism for the money inserted into the register, differential mechanism, means for moving one of said mechanisms a predetermined distance, and registering mechanism, the arrangement of parts being such that the different denominations of money inserted into said register may be registered during a single operation of the movable mechanism.

9. In a cash-register, the combination of grippers for receiving the money inserted into said register, registering mechanism, a shaft rigid with one of said grippers and adapted to engage said mechanism, and differential mechanism for causing said shaft to engage said mechanism.

10. In a cash-register, the combination of members between which the money is inserted, registering mechanism, means carried by one of said members for engaging said mechanism, and means, including the other member, for operating the said engaging means to engage the registering mechanism.

11. In a cash-register, the combination of a pair of gripping members between which the money is inserted, registering mechanism, means carried by one of said members adapted to engage said registering mechanism, and mechanism, comprising the other member, for operating the first-mentioned member to place its operating means in engagement with the registering mechanism, such operating mechanism depending for its operation on the presence of money in the grippers.

12. In a cash-register, the combination of a pair of gripping members for the money inserted into the register, a support for said members, differential mechanism, registering mechanism, a connection between one of said members and said registering mechanism adapted to engage said mechanism, and means for obtaining relative movement between the support and the differential mechanism to cause said connection to engage the registering mechanism and register the value of the money inserted between the gripping members.

13. In a cash-register, the combination of gripping members between which the money is inserted into the register, means for spreading said members to permit the insertion therebetween of the money to be registered, means for causing said members to grasp the money inserted therebetween, mechanism operated by said members for registering the value of the money inserted therebetween, and means for spreading said members to release the money after the registering mechanism has been placed in operation.

14. In a cash-register, the combination of registering mechanism, a carrier, a holder supported by said carrier, an operating-shaft connected to said holder, and differential mechanism for placing said shaft into and out of engagement with said registering mechanism.

15. In a cash-register, the combination of registering mechanism, a carrier, a holder supported by said carrier, an operating-shaft connected to said holder and journaled in said carrier, and differential mechanism for placing said shaft into and out of engagement with said registering mechanism.

16. In a cash-register, the combination of a casing having an

opening for the insertion of money therethrough, traveling grippers, means for registering the value of the money inserted between the grippers, and means for separating said grippers when adjacent to the opening in the casing and for closing said grippers when they have been moved out of alinement with said opening.

17. In a cash-register, the combination of a casing having an opening for the insertion of money therethrough, traveling grippers, means operated by said grippers for registering the value of the money therein, means for separating said grippers when in alinement with the opening in the casing and for closing said grippers when they have been moved out of alinement with said opening, and means for subsequently separating said grippers to cause them to release the money contained therein.

18. In a cash-register, the combination of registering-wheels, means for operating said wheels, a carrier, said carrier having an opening therethrough, a pair of grippers pivoted in said opening, a spring for forcing one of said grippers toward the other, means for preventing such movement of the spring-pressed gripper until the carrier has been operated a predetermined distance, and means for thereafter permitting such movement of said gripper.

19. In a cash-register, the combination of a carrier, means for driving said carrier, holders carried by said carrier for the money inserted into the register, registering mechanism operated by said carrier, and a differential device for causing said carrier to operate the registering mechanism to register the value of the money in said holders.

20. In a cash-register, the combination of a carrier, means for driving said carrier, a holder carried by said carrier for the money inserted into the register, registering mechanism, a connection between said carrier and said registering mechanism, and means for breaking such connection when the value of the money has been registered.

21. In a cash-register, a casing having an opening for the insertion of money into the register, an endless carrier in said casing having thereon a holder for the money inserted through the opening in the casing, means for causing said carrier to make a complete revolution, registering mechanism, and means for causing said carrier, during its revolution, to actuate the mechanism to register the value of the money carried by the holder.

22. In a cash-register, the combination of a pair of grippers between which money is inserted, registering mechanism, means connected with one of said grippers for operating said mechanism, and means, comprising the money inserted between the grippers, for actuating said operating means.

23. In a cash-register, the combination of a pair of grippers between which the money is inserted, registering mechanism, means connected with one of said grippers for operating the registering mechanism, means for resisting the movement of the last-mentioned gripper in a direction to place the operating means in engagement with the registering mechanism, and means, comprising the money inserted between the grippers, for causing such gripper to move in a direction to place such operating means in engagement with the registering mechanism.

24. In a cash-register, the combination of registering mechanism, a holder consisting of a pair of members between which money is inserted into the register, one of said members having an opening therethrough and the other member having a projection adapted to project into said opening when the said members are brought into close relation, means connected with one of said members for operating the registering mechanism, means for resisting the movement of such member to place the operating means in engagement with the registering mechanism, and means for forcing the other member toward such register-operating member.

25. In a cash-register, the combination of registering mechanism, an operating-shaft, a clutch for connecting said mechanism to said shaft, operator-recording mechanism, and means for preventing the operation of the clutch until said recording mechanism has been set to a predetermined position.

26. In a cash-register, the combination of registering mechanism, an operating-shaft therefor, a clutch for connecting said mechanism to said shaft, operator-recording mechanism, a shaft for setting said recording mechanism to make a record of the person operating the register, means for operating the clutch to connect the registering mechanism to the shaft, and means for preventing the operation of said last-mentioned means until the other shaft has been operated a predetermined distance.

27. In a cash-register, the combination of registering mechanism, a shaft therefor, a clutch for connecting said mechanism to the said shaft, operator-recording mechanism, a shaft for setting said recording mechanism to make a record of the person operating the register, a dial having thereon operator-identifying characters, an index coöperating with said dial, one of such indicating members being movable with the shaft, means for operating said clutch, and means for preventing the operation of said clutch until said index and an identifying character on the dial have been placed in indicating relation to each other.

28. In a cash-register, the combination of registering mechanism, a carrier for operating said mechanism, recording mechanism, means for placing said recording mechanism in a predetermined position, and means actuated by said carrier for operating said recording mechanism to produce a record.

29. In a cash-register, the combination of registering mechanism, a carrier for operating said mechanism, recording mechanism, means for placing said recording mechanism in a predetermined position, actuating means for said recording mechanism, and a cam on said carrier adapted to engage said actuating means.

30. In a cash-register, the combination of registering mechanism, a record-producing member, means for placing said member in a predetermined position, a record-receiving member, a carrier for the money inserted into the register, and means whereby said carrier may bring said members into operative relation.

31. In a cash-register, the combination of means for registering the value of the money inserted in said register, a roll having thereon suitable record-producing characters, means for supplying a marking fluid to said characters, and means for bringing said roll and money into contact.

32. In a cash-register, the combination of registering mechanism, a pair of juxtaposed rolls having thereon indicating characters, record-receiving devices normally separated from said rolls, and means for separating said rolls to bring the indicating characters thereon into operative relation to the record-receiving devices.

33. In a cash-register, the combination of means for registering the value of the money inserted in said register, and means for obtaining from the money itself a record of the value of the same.

34. In a cash-register, the combination of means for registering the value of the money inserted into said register, and means for placing on the money a record of the operator.

35. In a cash-register, the combination of means for registering the value of the money inserted into said register, means for recording the value of such money, and means for placing on the money a record of the operator.

36. In a cash-register, the combination of means for registering the value of the money inserted into the register, means for obtaining from the money itself a record of its value, and means for making a record of the operator.

37. In a cash-register, the combination of means for registering the value of the money inserted into the register, means for placing on the money a temporary record of the operator, and means for recording the value of the money.

38. In a cash-register, the combination of means for registering the value of the money inserted into the register, means for placing on the money a temporary record of the operator, and means for obtaining from the money itself a record thereof.

39. In a cash-register, the combination of registering mechanism, a carrier, grippers on said carrier for the insertion of money therebetween, actuating means for said registering mechanism connected to said carrier, means for causing said grippers to grasp the money until after registration has been started, and means for causing said grippers to thereafter release the money.

40. In a cash-register, the combination of a casing having an opening therein, a carrier in said casing adjacent said opening, gripping members on said carrier, means for moving said carrier a fixed distance, means for keeping said members separated when adjacent said opening, means for thereafter causing said grippers to approach each other, means for registering the value of the money between said grippers, and means for separating said grippers to cause them to release the money.

41. In a cash-register, the combination of a casing having an opening therein, a carrier in said casing adjacent said opening, a holder on said carrier for the money inserted into the register-opening, registering mechanism, means for operating said mechanism, and means for releasing the money from said holder after registration has been started.

42. In a cash-register, the combination of a carrier, grippers thereon for the money inserted in said register, means for moving said carrier a fixed distance, means for registering the value of the money between the grippers, means for separating said grippers during part of the travel of the carrier, and means for placing said grippers in clamping position during the remainder of the travel of the carrier.

43. In a cash-register, the combination of a carrier for the money inserted into the register, registering mechanism, means on said carrier adapted to operate said registering mechanism, and a fixed member adjacent said carrier having means for placing the operating means of the carrier into and out of engagement with the registering mechanism.

44. In a cash-register, the combination of a carrier for the money inserted into the register, a pair of members on said carrier between which money may be inserted, registering mechanism, means on said carrier adapted to operate said mechanism, and a fixed member adjacent said carrier having means for placing the operating means of the carrier into and out of engagement with the registering mechanism and with means for causing the members on said carrier to approach or recede from each other.

45. In a cash-register, the combination of a carrier for the money inserted into the register, a pair of members on said carrier between which money may be inserted, registering mechanism, a shaft on said carrier connected with one of said members and adapted to operate said registering mechanism, and a fixed member adjacent said carrier having means for causing said members to approach or recede from each other.

46. In a cash-register, the combination of a carrier for the money inserted into the register, a pair of grippers on said carrier between which money may be inserted, registering mechanism, means on said carrier adapted to operate said mechanism, a fixed member adjacent said carrier having means for placing the operating means of the carrier into and out of engagement with the registering mechanism, and means for causing said carrier to invert the grippers and to open the same when so inverted.

47. In a cash-register, the combination of a carrier for the money inserted into the register, a pair of members on said carrier between which money may be inserted, registering mechanism, means for operating said mechanism from said carrier, a fixed member adjacent said carrier and having means for placing the operating means into and out of engagement with the registering mechanism and with means for causing the members on the carrier to grasp the money inserted therebetween, a drum beyond said fixed member around which the carrier passes, and means on said drum for separating the money, carrying members to permit them to release the money.

48. In a cash-register, the combination of registering mechanism, a movable member and a fixed member, means carried by one of said members for temporarily retaining the money inserted into the register and for operating the registering mechanism, and means on said other member for placing said operating means into and out of engagement with the registering mechanism.

49. In a cash-register, the combination of registering mechanism, a movable member for the money inserted into the register and a fixed member, means carried by one of said members for operating the registering mechanism, and means carried by the other member for placing said operating means into and out of engagement with the registering mechanism.

50. In a cash-register, the combination of registering mechanism, a movable member and a fixed member, means carried by one of said members for temporarily retaining the money inserted into the register and for operating the registering mechanism, means carried by the other member for placing the operating means into and out of engagement with the registering mechanism, and means for releasing the money after registration has been started.

51. In a cash-register, the combination of a movable member and a fixed member, one of said members having a pair of grippers thereon, each of said grippers being provided with an extension adapted to engage the other member, and means carried by the latter member and adapted to engage said extensions of the grippers to produce varying movements thereof.

52. In a cash-register, the combination of registering mechanism, a movable member and a fixed member, grippers pivoted to one of said members and having extensions adapted to come into the path of the other member, means for causing one of said grippers to approach the other to grip the money therebetween, and means on the other member adapted to engage said extensions to permit or prevent such movement of the grippers.

53. In a cash-register, the combination of registering mechanism, a movable member and a fixed member, a pair of grippers pivoted to one of said members, each of said grippers having an extension, means for forcing one of said grippers toward the other to grasp the money inserted therebetween, register-operating means carried by the gripper-supporting member, and means, on the other member, for placing said operating means into and out of engagement with the registering mechanism and for resisting or permitting the operation of the gripper-actuating means.

54. In a cash-register, the combination of registering mechanism, a fixed member, a movable member, a pair of grippers carried by one of said members and having each an extension adapted to engage the other member, an operating-shaft connected with one of said grippers, means for resisting the movement of said gripper, means for forcing the other gripper toward the shaft-carrying gripper, and means carried by the other member to permit and prevent the movement of the last-mentioned gripper.

55. In a cash-register, the combination of a carrier, a pair of grippers pivoted to said carrier, one of said grippers having a narrow extension and the other having a relatively wide extension, a fixed member adjacent said carrier and having a narrow slot adapted to receive the depending portion of said former gripper, said slot being of less width than the depending portion of the other gripper.

56. In a cash-register, the combination of a carrier, a pair of grippers pivoted to said carrier, one of said grippers having a narrow extension and the other having a relatively wide extension, means for resisting the movement of the former gripper, means for forcing the other gripper toward said former gripper, a fixed member adjacent said carrier and having therein a slot for the reception of the depending portion of said former gripper, said slot being narrower than the width of the extension of the other gripper, and said fixed member also having a recessed portion for the extension of said other gripper.

57. In a cash-register, the combination of a carrier, a pair of grippers pivoted to said carrier, one of said grippers having a narrow extension projecting beyond said carrier and the other having a wider extension, means for resisting the movement of the former gripper, means for forcing the latter gripper toward the former gripper, a fixed member adjacent said carrier having therein a slot adapted to receive the extension of the former gripper, said slot being narrower than the extension of the latter gripper, said fixed member also having a recess of sufficient width to receive the extension of the latter gripper, and a drum beyond said fixed member around which the carrier is driven, said drum having therein a slot for the reception of the extension of the former gripper, said slot being narrower than the extension of the other gripper.

58. In a cash-register, the combination of a carrier, a pair of grippers pivoted to said carrier, one of said grippers having an extension projecting beyond said carrier and the other having an extension wider than the extension on the former gripper, registering mechanism, a shaft keyed to the former gripper and having means for engaging the registering mechanism, means for forcing the latter gripper toward the former gripper, a fixed member adjacent said carrier and having a slot of sufficient width to receive the extension of the former gripper but of insufficient width to receive the extension of the latter gripper, said fixed member also having a differential recess of sufficient depth and width to enable the latter gripper to rock the former and bring the operating-shaft into engagement with the registering mechanism.

59. In a cash-register, the combination of a carrier, a pair of grippers pivoted to said carrier, one of said grippers having a narrow extension projecting beyond the carrier and the other having a wider extension, registering mechanism, a shaft keyed to said former gripper and having means adapted to engage the registering mechanism, means for forcing the latter gripper toward the former gripper, a fixed member adjacent said carrier, said member having a slot therein adapted to receive the extension of the former gripper but of insufficient width to receive the extension of the latter gripper, said fixed member having a differential recess for permitting the movement of the latter gripper to rock the former gripper and cause its shaft to engage the registering mechanism, and a drum beyond said fixed member around which the carrier is driven, said drum having on its surface narrow slots of sufficient width to receive only the extension of the former gripper and to exclude the extension of the latter gripper.

60. In a cash-register, the combination of registering mechanism, a carrier, a plurality of holders on said carrier for the money inserted into the register, means for operating the registering mechanism from said holders, and a differential device adjacent said carrier having means for actuating the register-mechanism-operating means.

61. In a cash-register, the combination of registering mechanism, a carrier, a plurality of grippers on said carrier, means connected with said grippers for operating the registering mechanism, a fixed member adjacent said carrier, said member having means coacting with said grippers to retain the money therebetween and dif-

ferential means for placing the operating means in engagement with the registering mechanism.

62. In a cash-register, the combination of registering mechanism, pairs of grippers between which money is inserted into the register, means connected with said grippers for operating the registering mechanism, means tending to force one member of each pair of grippers into contact with the other, and a fixed member or platform adjacent said carrier having means for preventing such movement of the gripping members until after the money has been inserted therebetween and having differential means to place the operating means in engagement with the registering mechanism.

63. In a cash-register, the combination of a casing having therein a plurality of openings for the insertion of money into said register, a carrier adjacent said openings and having pairs of grippers each mounted to be brought into alinement with an opening, means for separating the grippers of each pair until after the money has been inserted therebetween, registering mechanism, means for operating said mechanism, and means for causing the grippers to grasp the money until after registration has been started and for thereafter releasing said money

64. In a cash-register, the combination of a casing having therein openings for the insertion of money into the register, an endless carrier below said openings, said carrier having a pair of grippers corresponding to each opening, means for separating said grippers when in alinement with said openings, means for operating the said grippers to grasp the money inserted therebetween, means for registering the value of the money between each pair of grippers, means for retaining the money in place between said grippers until after registration has been started, means for thereafter releasing the money from said grippers.

65. In a cash-register, the combination of a casing having openings therein for the insertion of money into said register, an endless carrier adjacent said openings, pairs of grippers mounted on said carrier and positioned to be brought into alinement with openings in the casing, registering mechanism, means operated by said carrier for engaging said mechanism, means for separating the grippers when in line with the openings to permit the insertion of money therebetween, means for causing said grippers to grasp the money inserted therebetween to retain the same until after registration has been started, and means for thereafter causing said grippers to release the money.

66. In a cash-register, the combination of registering mechanism, a belt for the money inserted into said register, said belt consisting of a thin flexible metallic section and a section of leather or similar material, and a pin-wheel for driving said belt, said belt being provided with openings through the metallic portion thereof for engagement by said pin-wheel.

67. In a cash-register, the combination of registering mechanism, a belt for operating said mechanism, said belt having openings therein provided with thin metallic lining-pieces, grippers for the money inserted into the register, said grippers being pivoted in the metallic linings of the openings, and means for driving said belt.

68. In a cash-register, the combination of registering mechanism, a belt for operating said mechanism, said belt having openings provided with thin metallic lining members, grippers for the money inserted into the register, said grippers being pivoted in said lining members, and means for operating said gripping members to cause them to grasp or release the money inserted therebetween.

69. In a cash-register, the combination of registering mechanism, a belt, said belt having therein openings provided with thin metallic lining members, a pair of grippers mounted in said openings, one of said grippers being keyed to a shaft extending through the lining members and provided with means for engaging the registering mechanism, and differential mechanism, for operating said shaft to engage said registering mechanism.

70. In a cash-register, the combination of registering mechanism, a belt, said belt having therein openings lined with thin metal, a shaft extending through each of said openings and provided with means for engaging the registering mechanism, a gripper mounted on said shaft, a spring supported in said opening and engaging said gripper to resist the movement of the same, another gripper pivoted in said opening, a stronger spring mounted in said opening and forcing the latter gripper toward the former, and a fixed member adjacent to said belt, said fixed member being provided with means for permitting and preventing the spring which is connected with the latter gripper from pressing the same toward the former gripper and with a differential device to permit the shaft to engage the registering mechanism.

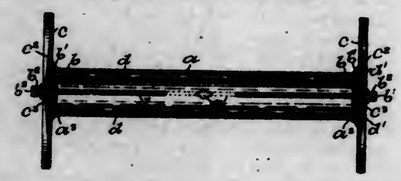
71. In a cash-register, the combination of registering mechanism, a carrier for the money inserted into said register, means supported by said carrier for operating such mechanism, and a platform adjacent said carrier having differential means for placing said operating means into and out of engagement with the registering mechanism.

72. In a cash-register, the combination of registering mechanism, a carrier, means supported by said carrier for operating such mechanism, a pair of grippers on said carrier and a platform adjacent said carrier having differential means for placing said registering mechanism into and out of engagement with the registering mechanism and means for opening and closing said grippers.

73. In a cash-register, the combination of registering mechanism, a carrier for the money inserted into said register, means for actuating said mechanism from said carrier, a pair of grippers on said carrier, one of said grippers being pivoted to said carrier and having an extension projecting beyond said carrier, means for forcing said gripper toward the other gripper, and a platform adjacent said carrier having an elevated portion adapted to engage said extension to prevent movement of its gripper and with a recessed portion to receive said extension and permit movement of its gripper.

74. In a cash-register, the combination of registering mechanism, a carrier for the money inserted into the register, a shaft mounted on said carrier for operating the registering mechanism, a pair of grippers pivoted to said carrier, one of said grippers being rigid with the shaft and the other gripper having an extension adapted to project beyond the carrier, means for forcing said gripper toward the other gripper, and a platform adjacent said carrier having an elevated portion engaging said extension to prevent movement of its gripper and having also a recessed portion to receive the extension and permit movement of its gripper and having a deeper recessed portion to permit movement of the shaft-carrying gripper by the other gripper to place said shaft into and out of engagement with the registering mechanism.

785,886. **WARP-BEAM FOR LOOMS.** ALBERT J. THORNLEY, Pawtucket, R. I., assignor to Narragansett Machine Company, Pawtucket, R. I. Filed Aug. 17, 1904. Serial No. 221,130.



Claim.—1. A warp-beam having a hollow drum constructed from sheet metal, fittings having a circular concentric groove and outwardly-extending shafts, circular ends having a flange and strengthening-ribs stamped from sheet metal, and fastening-bolts extending through the drum, fittings and ends, as described

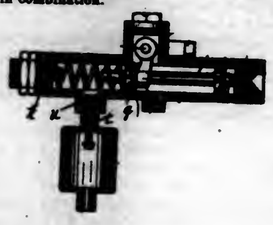
2. In a warp-beam, the combination of a hollow drum constructed from sheet metal the abutting edges of which extend lengthwise of the drum, fittings having a concentric groove and an outwardly-extending shaft in which is a longitudinal hole, circular ends having a central hole, a flange and radial strengthening-ribs stamped from sheet metal, and fastening-bolts extending through the drum, fittings and ends, as described.

3. In a warp-beam, the combination of a sheet-metal drum a having the hole a', the abutting edges a^3 a^3 and the open ends a^2 a^2, the fittings b b each having a circular concentric groove b' and a shaft b^2 in which is the hole b^3, the sheet-metal ends c c each having a flange c', radial strengthening-ribs c^3 c^3 and the central hole c^2, and the fastening-bolts d d extending through the drum, holes in the fittings and ends secured by the nuts d' d', as described.

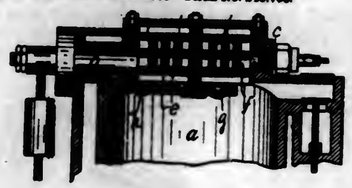
785,887. **FUEL-INJECTOR FOR OIL-ENGINES.** NELSON L. TUCK and WILLIAM W. TUCK, Brooklyn, N. Y. Filed July 22, 1903. Renewed Feb. 21, 1905. Serial No. 246,779.

Claim.—1. In an oil-engine, an oil-injector having an inwardly-opening valve, an oil-reservoir connected with said injector, a check-valve between said reservoir and said injector, and means for maintaining oil-pressure on said valve to keep it seated, in combination with means for opening said valve.

2. In an oil-engine, a closed tubular casing having one end perforated and provided on the inside with a valve-seat, a valve coacting with said seat and provided with a stem wholly within the said casing, perforated guide-disks for keeping the stem and valve centered in the casing, a spring for seating said valve, and means for opening said valve, all in combination.



785,888. **VAPORIZER AND IGNITER FOR OIL-ENGINES.** NELSON L. TUCK and WILLIAM W. TUCK, Brooklyn, N. Y. Filed July 22, 1903. Renewed Feb. 21, 1905. Serial No. 246,780.



Claim.—1. An igniter for hydrocarbon-engines, consisting of a plurality of disks or plates between which are arranged a series of spaced separators or baffles, and made of a material having a small specific heat coefficient.

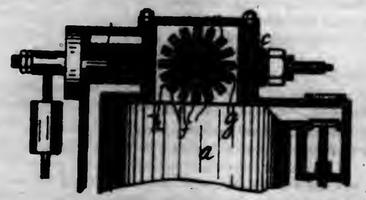
2. An igniter for hydrocarbon-engines, consisting of a plurality of disks or plates between which are arranged a series of spaced separators or baffles, and made of a material having a small specific heat coefficient, combined with a drip-pan arranged below said igniter.

3. An igniter for hydrocarbon-engines, consisting of a plurality of disks or plates between which are arranged a series of spaced separators or baffles, and made of a material having a small specific heat coefficient, combined with a fuel-injector, and an ordinary igniter.

4. An igniter for hydrocarbon-engines consisting of a plurality of parallel separated disks from one or more of which project fingers, lugs, or pins toward the other or others.

5. An igniter for hydrocarbon-engines consisting of parallel horizontal separated disks from the side of one or more of which project fingers, lugs, or pins, in combination with a horizontally-acting injector, and a drip-pan arranged below said igniter.

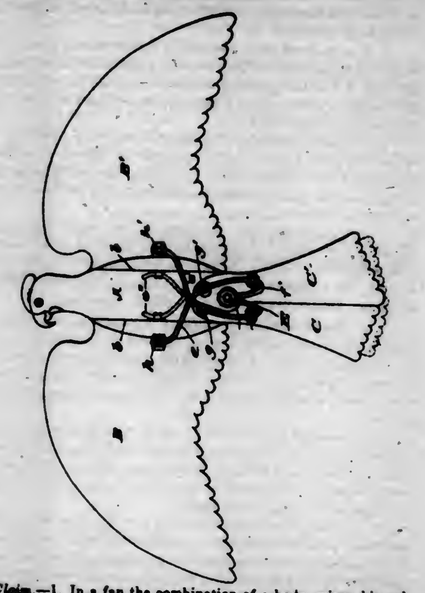
785,889. **VAPORIZER AND IGNITER FOR OIL-ENGINES.** NELSON L. TUCK and WILLIAM W. TUCK, Brooklyn, N. Y. Filed July 22, 1903. Renewed Feb. 21, 1905. Serial No. 246,781.



Claim.—1. A vaporizer and igniter consisting of a retainer and arms or projections extending therethrough and arranged in circular series in planes transverse to the axis of the retainer, the arms or projections in one plane being staggered relatively to the arms or projections in the adjacent planes, combined with means for spraying oil on the exterior of said igniter, said spraying means being independent of the igniter.

2. A vaporizer and igniter consisting of a retainer, cylindrical in form, a rod concentric therewith, rings on said rod, and arms or projections extending from said rings through said retainer, combined with means for spraying oil on said vaporizer, said means being independent of said igniter.

785,890. **FAN.** WILLIAM G. G. WEIDEMANN, Chicago, Ill., assignor of two-thirds to Edn. Weidinger and Emma Weidinger, Chicago, Ill. Filed Aug. 26, 1904. Serial No. 222,311.



Claim.—1. In a fan the combination of a body, wings hinged thereto, handle members pivoted to the body, and means for operatively connecting the wings to the handle members.

2. In a fan the combination of a body, wings hinged thereto, handles pivoted to the body, and means for operatively connecting the wings to the handles.

3. In a fan the combination of a body, wings hinged thereto, handles pivoted to the body, and spring means for operatively connecting the wings and the handles.

4. In a fan the combination of a body, wings hinged thereto, handles pivoted to the body, means for automatically extending the wings, and wing-closing means attached to the handles.

5. In a fan the combination of a body, wings hinged thereto, means for automatically spreading the wings, means for automatically extending the handles, and means for attaching the handles to the wings to close the same by closing the handles.

6. In a fan the combination of a body, wings hinged thereto, a tail portion comprising a plurality of members pivoted to the body and constituting handles, a spring having free ends attached to the wings to hold them normally extended, and so attached to the tail members that pressing said members together will close the wings.

785,891. **MASSAGE-STEAMER.** JOHN P. WEIR, Nyack, N. Y. Filed Mar. 25, 1904. Serial No. 199,305.



Claim.—1. A massage-steamer comprising flexible walls, a chamber formed between said walls for containing fluid, means for allowing the admission of fluid to said chamber and its withdrawal therefrom, and an air-inlet, substantially as described.

2. A massage-steamer comprising flexible walls, a chamber formed between said walls for containing fluid, means for allowing the admission of fluid to said chamber and its withdrawal therefrom, an air-inlet, securing-flaps, and means for connecting said flaps, substantially as described.

3. A massage-steamer comprising a front dished portion provided with inner and outer flexible walls, a chamber formed between said walls for containing fluid, means for allowing the admission of fluid to said chamber and its withdrawal therefrom, and an air-inlet, substantially as described.

4. A massage-steamer comprising flexible walls forming between them a chamber for containing fluid, the edge of the chamber contacting with the head, means for allowing the admission of fluid to said chamber and its withdrawal therefrom and an air-inlet, substantially as described.

5. A massage-steamer comprising flexible walls forming between them a chamber for containing fluid, the edge of the chamber contacting with the head and extending under the chin, means for allowing the admission of fluid to said chamber and its withdrawal therefrom, and an air-inlet, substantially as described.

6. A massage-steamer comprising a front chambered portion adapted to cover the entire face, an inlet and outlet opening thereto, a coiled-spring stopper for closing said opening, a retainer for holding said stopper open, rear flaps connected to said front chambered portion and means for connecting said flaps, substantially as described.

7. A massage-steamer comprising a front chambered portion adapted to cover the entire face, the outer wall being thick, and the inner wall thin, an inlet and outlet opening thereto, rear flaps connected to said front chambered portion, and means for connecting said flaps, substantially as described.

8. A massage-steamer comprising a front chambered portion adapted to cover the entire face, the outer wall being thick and the inner wall thin, an air-tube extending through said walls, an inlet and outlet opening thereto, rear flaps connected to said front chambered portion and means for connecting said flaps.

9. A massage-steamer comprising a front chambered portion adapted to cover the entire face, the outer wall being thick and the inner wall thin, an air-tube extending through said wall, an inlet and outlet opening thereto, rear flaps connected to said front chambered portion, and means for adjustably connecting said flaps together, substantially as described.

10. A massage-steamer comprising a front dished chambered portion having an inner and an outer wall and covering the entire face and extending under the chin, an inlet and outlet opening, an air-tube extending through the walls of said chambered portion and means for securing said chambered portion in place, and a piece of absorbent material interposed between the chambered portion and the face, substantially as described.

11. A massage-steamer comprising a front dished chambered portion having an inner and an outer wall and covering the entire face and extending under the chin, absorbent material interposed between the face and the chambered portion, an air-tube extending through the walls of said chambered portion and the absorbent material, and means for securing the chambered portion in place, substantially as described.

12. A massage-steamer comprising a front dished chambered portion having an inner and an outer wall and spaced from and entirely covering the face and its rear edge contacting with the top and sides of the head, an inlet and an outlet opening thereto, an air-passage through its walls, flaps secured to its rear edge and covering the head, the edges meeting over the top of the head, and means for securing said flaps together, substantially as described.

13. A massage-steamer comprising a front dished chambered portion having an inner and an outer wall and spaced from and entirely covering the face and its rear edge contacting with the top and sides of the head, an inlet and outlet opening thereto, an air-passage through its walls, flaps secured to its rear edge and covering the head, the rear edges being spaced apart at the back of the head and meeting over the top, and means for securing said flaps together, substantially as described.

14. A stopper comprising a coiled spring and a retainer for holding said spring extended provided with a plurality of notches, and means on said stopper for engaging said notches, substantially as described.

15. A stopper comprising a coiled spring having a plate provided with a lug, and a retainer comprising a curved arm having notches with which said lug is designed to engage, substantially as described.

16. A stopper comprising a coiled spring having a ring and a plate provided with a lug, and a retainer comprising an upwardly and rearwardly curved arm having a plurality of notches with which said lug is designed to engage when the stopper is in an extended position, substantially as described.

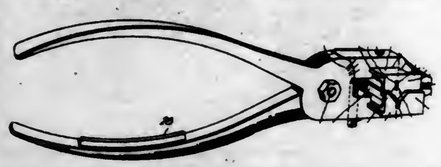
17. A stopper comprising a coiled spring provided with a plate having lugs and a recess in which the upper end of said spring is secured, and a retainer comprising a curved arm provided with a plurality of notches on each side designed to be engaged by the lugs of the stopper, substantially as described.

18. A stopper comprising a coiled spring provided with lugs and a retainer comprising an upwardly-curved arm provided with side plates having a plurality of notches designed to be engaged by the lugs on the stopper, substantially as described.

19. A stopper comprising a covered coiled spring provided with a circular plate having lugs and a ring, and a retainer, for holding said stopper open, comprising an upwardly and outwardly curved arm provided with side plates having a plurality of notches, substantially as described.

785,392. TOOL FOR REMOVING INSULATION FROM WIRES.

JOHN E. WILLIAMS, St. Louis, Mo. Filed Mar. 9, 1904. Serial No. 197,327.



Claim.—1. In a tool for the removal of insulation from wires, a pair of pivotally-connected jaws provided on their inner faces with transversely-disposed grooves, removable cutters disposed in said grooves and having notched cutting edges, and insulation-splitting cutters carried by the laterally-removable cutters.

2. In a tool for the removal of insulation from wires, a pair of pivotally-connected jaws having transversely-disposed undercut grooves in their inner faces, cutters arranged in said grooves and comprising a base provided at each of its ends with a cutting edge, and a binding-screw passing through each jaw and serving to lock the cutter held thereby.

3. In a tool for the removal of insulation from wires, cutters for engaging the insulation transversely of the wires, said cutters being grooved, and insulation-splitting blades detachably mounted in said grooves.

4. In a tool for the removal of insulation from wires, a pair of jaws, cutters supported thereby and provided with grooves having rounded inner walls, and insulation-splitting blades mounted in said grooves and detachable from the cutters.

5. In a tool of the class set forth, a pair of clamping-jaws each provided with an undercut recess, a cutter disposed in each recess and comprising a base-plate, cutting-blades at each end of the plate, each blade having an angular notch, and the base of each cutter being provided with a longitudinally-disposed slot, an auxiliary cutter disposed in the slot, and means for locking the cutters in position.

785,393. MECHANICAL MUSICAL INSTRUMENT.

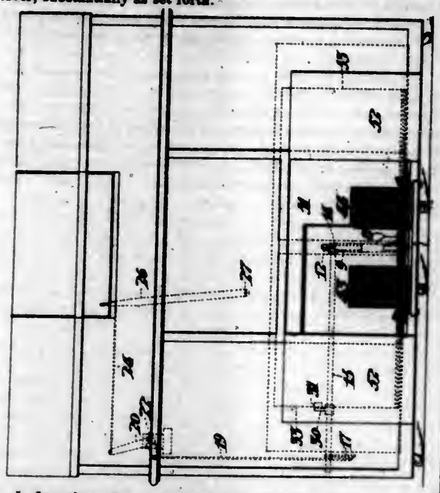
PHILIP WURST, Jr., Philadelphia, Pa. Filed July 20, 1904. Serial No. 217,345.

Claim.—1. In a mechanical musical instrument, the combination with automatic playing mechanism, comprising pumping mechanism; of a member arranged to operatively engage the pedal of a piano or similar instrument; and, means operatively connecting said pumping mechanism with said pedal, substantially as set forth.

2. In a mechanical musical instrument, the combination with automatic playing mechanism, comprising a pumping-pedal; of a member arranged to operatively engage the pedal of a piano or similar instrument; a pneumatic bellows arranged to operate said piano-pedal by said member; and, means operatively connecting said bellows with said pumping-pedal, substantially as set forth.

3. In a mechanical musical instrument, the combination with an automatic playing mechanism, comprising pumping mechanism; of a member arranged to operatively engage the pedal of a piano or similar instrument; and, means operatively connecting said pumping mechanism with said pedal, comprising a bellows-leaf and a lever arranged to be operated by said leaf, substantially as set forth.

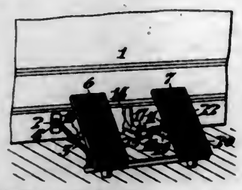
4. In a mechanical musical instrument, the combination with automatic playing mechanism, comprising a pumping-pedal; of a member arranged to operatively engage the pedal of a piano or similar instrument; a hand-lever arranged to operate said piano-pedal by said member; and, means connecting said pumping-pedal with said member, arranged to operate the latter independently of said hand-lever, substantially as set forth.



5. In a piano, the combination with automatic playing mechanism, comprising a pumping-pedal supported by the piano-casing; of a member supported by the loud pedal of the piano, in operative relation with said pumping-pedal, substantially as set forth.

785,394. MECHANICAL MUSICAL INSTRUMENT.

PHILIP WURST, Jr., Philadelphia, Pa. Original application filed July 20, 1904, Serial No. 217,345. Divided and this application filed Oct. 21, 1904. Serial No. 229,367.



Claim.—1. In a piano, the combination with automatic playing mechanism, comprising a pumping-pedal; of a member arranged to operatively engage a pedal of the piano; and, means arranged to detachably secure said member to said piano-pedal in operative relation to said pumping-pedal, substantially as set forth.

2. In a piano, the combination with automatic playing mechanism, comprising a pumping-pedal supported by the piano-casing; of an adjustable member supported by the loud pedal of the piano, in operative relation with said pumping-pedal; and, means arranged to detachably engage said member with said loud pedal, substantially as set forth.

3. In a mechanical musical instrument, the combination with automatic playing mechanism comprising a pumping-pedal; of a member arranged to operatively engage a pedal of said instrument; and, means arranged to detachably secure said member to said instrument-pedal in operative relation to said pumping-pedal, substantially as set forth.

4. In a piano, the combination with automatic playing mechanism comprising a pumping-pedal; of a member arranged to operatively engage a pedal of the piano; means arranged to detachably secure said member to said piano-pedal in operative relation to said pumping-pedal, comprising a set-screw; and, means to adjust said member in operative relation to said pumping-pedal, comprising a set-screw, substantially as set forth.

5. In a piano provided with a pedal, the combination with automatic playing mechanism comprising a pumping-pedal; of means operatively connecting said piano-pedal with said pumping-pedal comprising a member having a set-screw arranged to engage said piano-pedal; an arm having a slotted connection with said member; and, a set-screw arranged to secure said arm and member in adjusted relation, substantially as set forth.

6. In a piano provided with a pedal, the combination with automatic playing mechanism comprising a pumping-pedal; of means operatively connecting said piano-pedal with said pumping-pedal, comprising a member having a set-screw arranged to engage said piano-pedal; an arm having a slotted connection with said member; a set-screw arranged to secure said arm and member in adjusted relation; and, a roller at the free end of said arm arranged to encounter the pumping-pedal, substantially as set forth.

785,395. FIRE-COCK COMBINED WITH THE PIPE.

HJALMAR AABS and JOHAN M. MONSTAD, Christiania, Norway. Filed Apr. 1, 1904. Serial No. 201,140.



Claim.—1. In a fire-cock or the like, the combination of a casing provided with a valve-seat, a slidable valve mounted in said casing, a bush carrying said valve and provided with a groove therein, pivoted levers adapted to lock in said groove to hold the valve closed, a keeper having perforated lugs adapted to slip over the ends of the levers to hold the latter in locking position.

2. The combination of a casing, a valve-seat in said casing, a slidable bush supported in said casing, a threaded valve-stem in said bush carrying a valve adapted to engage with said valve-seat, a groove in said bush, locking devices adapted to engage with said groove and to be forced outward when released, and means for holding said locking devices in locking position.

785,396. BITUMINOUS OR OTHER PITCH CONCRETE PAVEMENT.

JOSEPH H. AMIES, Philadelphia, Pa. Filed July 22, 1904. Serial No. 217,708.

Claim.—1. The herein-described process of procuring compositions for bituminous and other pitch pavements, &c., which consists in using clean, suitably-proportioned mineral matters, then sprinkling or pouring thereon a sufficient amount of water, then stirring them until the surfaces are dampened therewith, then sieving or throwing thereon finely-granulated quicklime and the dust of hard asphalt and the flour of sulfur in due quantities, the said granulated quicklime and the dust of hard asphalt and the flour of sulfur having been previously incorporated together while in a dry state, then when the lime has begun to slake, sprinkling or pouring on the mass the due amount of unheated fluxing element, such as maltha or asphalt or other suitable oil, then mixing these all thoroughly together, then placing the same in a street or road bed or other desirable situation, then subjecting the whole to desired compression, substantially as specified.

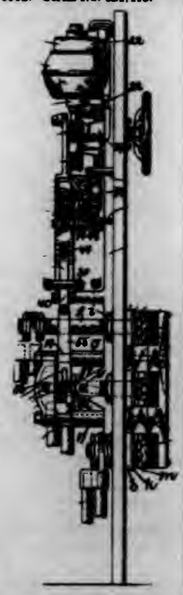
2. The herein-described process of procuring compositions for bituminous or other pitch pavements, &c., which consists in dampening suitable elements with water to a desired extent, then adding therewith mixed granulated quicklime, dust of asphalt and flour of sulfur, in desired proportions, then pouring thereon a due amount of suitable fluxing material, and thoroughly mixing them together, then preserving the mass from exposure to the air to prevent evaporation of inherent moisture, for a deferred desirable time, then when needed for use, adding thereto and mixing therewith the withheld portion of granulated quicklime, for the purpose set forth and specified.

3. The herein-described process of procuring compositions for bituminous or other pitch pavements, &c., which consists in dampening suitable fibrous materials with water to a desired extent, then mixing therewith granulated quicklime, the dust of hard asphalt

and the flour of sulfur, in due proportions, then sprinkling or pouring thereon a due amount of suitable fluxing materials and thoroughly mixing them together, then forming this composition into the shapes desired in molds designed for the purposes, then subjecting it to tamping or pressure to secure desired density, for the purpose set forth and specified.

4. The herein-described process of procuring composition for bituminous pavements, &c., which consists in dampening suitable elements with water, then sieving or throwing thereon mingled granulated quicklime and the flour of sulfur, then sprinkling or pouring thereon hot asphaltic cement, then mixing them together, then subjecting the same to suitable compression under conditions set forth and specified.

785,397. **POWER-OPERATED SWITCH.** JOHAN M. ANDERSEN, Boston, Mass., assignor of one-half to Albert Anderson, Boston, Mass. Filed Aug. 29, 1902. Serial No. 121,415.



Claim.—1. In an apparatus of the class described, the combination with a base or support, of stationary contact members located on one side of said support, a movable contact member coöperating with said stationary contact members, a carrier for said movable contact member, a guide for said carrier extended through said support, an electric motor located on the opposite side of said support and secured thereto, and mechanism connecting said motor with said guide to operate, substantially as described.

2. In an apparatus of the class described, the combination with a base or support, of stationary contact members located on one side of said support, a movable contact member coöperating with said stationary contact members, a carrier for said movable contact member, a guide for said carrier extended through said support, an electric motor located on the opposite side of said support and secured thereto, and mechanism connecting said motor with said guide, and means to move said mechanism independent of said motor, substantially as described.

3. In an apparatus of the class described, the combination with a base or support, of stationary contact members located on one side or face of said support and provided with removable sections, a movable contact member comprising a main member coöperating with said stationary contact members and an auxiliary member coöperating with the removable sections of said stationary members, a carrier for said movable contact member, a guide for said carrier extended through said support, an electric motor located on the opposite side of said support and secured thereto, and mechanism connecting said motor with said guide, substantially as described.

4. In an apparatus of the class described, the combination with a movable contact member, a reciprocating carrier therefor movable bodily in a substantially straight path, a rotary power-operated motor, a reciprocating mechanism movable in a path substantially at right angles to that in which the carrier is moved, means for connecting said reciprocating mechanism with said carrier to positively move the said carrier and its contact member bodily in opposite directions in a path substantially at right angles to that in which said reciprocating mechanism is moved, means for connecting said reciprocating mechanism with said rotary motor, and means for moving said reciprocating mechanism independent of said motor, substantially as described.

5. In an apparatus of the class described, the combination with an electric motor provided with an armature-shaft having a worm, of a worm-gear in engagement with said worm, a shaft on which said worm-gear is loosely mounted, an eccentric disk fast on the shaft on which said worm-gear is mounted, means to detachably connect said worm-gear with said eccentric disk, a movable contact member, and mechanism operatively connected with said contact member and with said eccentric disk, substantially as described.

6. In an apparatus of the class described, the combination with a bodily-movable contact member, a reciprocating carrier therefor movable bodily in a substantially straight path, means to guide said carrier in its bodily movement, a power-operated motor, a reciprocating mechanism operated by said motor and moved by the same for only a portion of its movement in a path substantially at right angles to that in which the said contact member is moved, and positively yet loosely connected with said carrier to move it and said contact member bodily in opposite directions in a path substantially at right angles to the path in which said reciprocating mechanism is moved, and means actuated by partial movement of said mechanism in one direction by said motor to effect movement of the said mechanism in the same direction substantially in an instant and beyond the point to which it is moved by said motor, substantially as described.

7. In an apparatus of the class described, the combination with a movable contact member, and a bodily-movable carrier therefor, toggle-levers connected to said carrier, a slotted link loosely connected with said toggle-levers, a rack-bar loosely connected with said link, toothed levers engaging the opposite sides of said rack-bar, a spring connecting said levers, a slotted eccentric rod or bar loosely connected with said rack-bar, an eccentric disk to which said eccentric bar is connected, a worm-gear, means to detachably connect the said worm-gear with said eccentric disk, and an electric motor having its armature-shaft provided with a worm which meshes with said worm-gear, substantially as described.

8. In an apparatus of the class described, the combination with a movable contact member, a reciprocating bar loosely yet positively connected with said contact member, a power-operated rotary motor, means for connecting said motor with said reciprocating bar, and a spring coöperating with said bar to move it independent of said motor, and means for moving said bar by hand independent of said motor, substantially as described.

9. In an apparatus of the class described, the combination with a bodily-movable contact member, of a reciprocating carrier for said contact member movable bodily in a substantially straight path, means to guide said carrier in its bodily movement, a rotary motor, a reciprocating mechanism actuated by said rotary motor for a predetermined distance in a path substantially at right angles to the path in which said carrier reciprocates, means actuated by said reciprocating mechanism and positively yet loosely connected with said carrier to positively move the latter bodily in opposite directions in a path substantially at right angles to that in which said reciprocating mechanism is moved, and means actuated by movement of the said reciprocating mechanism to effect further movement of said mechanism substantially in an instant and beyond the point to which it is moved by said motor, substantially as described.

10. In an apparatus of the class described, the combination with a movable contact member, a bodily-movable carrier therefor, a rotary power-operated motor, a reciprocating mechanism connected with said carrier to positively move the said carrier and its contact member in opposite directions, and means for connecting said reciprocating mechanism with said rotary motor, and a rotatable device for effecting reciprocation of said mechanism independent of said rotary motor.

11. In an apparatus of the class described, the combination with a movable contact member, a reciprocating bar loosely yet positively connected with said contact member, a power-operated rotary motor, means for connecting said motor with said reciprocating bar, and a spring coöperating with said bar to move it independent of said motor, and a device operated by the movement of the bar to assist the latter in its movement and cause the said spring to become effective at substantially the same time under all conditions, substantially as described.

12. In an apparatus of the class described, the combination with a base or support, of stationary contact members secured to one face of said support, a movable contact member coöperating with said stationary members, a carrier for said movable contact member bodily movable toward and away from said stationary contact members, guide-rods attached to said carrier and extended through said support, a cross-head connecting said guide-rods on the rear side of said support, toggle-levers connected with said cross-head, a slotted link engaging the center pin or pivot of said toggle-levers, a rack-bar connected with said slotted link, toothed levers engaging said rack-bar, a spring connecting said levers, an eccentric-rod connected with said rack-bar, a disk to which said eccentric-rod is attached, a worm-gear, a clutch to connect the worm-gear with the eccentric disk, a shaft provided with a worm in engagement with said worm-gear, means to rotate said shaft, substantially as described.

13. In an apparatus of the class described, the combination with a base or support, of stationary contact members secured to one face of said support, a movable contact member coöperating with said stationary members, a carrier for said movable contact member bodily movable toward and away from said stationary contact members, guide-rods attached to said carrier and extended through said support, a cross-head connecting said guide-rods on the rear side of said support, toggle-levers connected with said cross-head, a slotted link engaging the center pin or pivot of said toggle-levers, a rack-bar connected with said slotted link, toothed levers engaging said rack-bar, a spring connecting said levers, an eccentric-rod connected with said rack-bar, a disk to which said eccentric-rod is attached, a worm-gear, a clutch to connect the worm-gear with the eccentric disk, a shaft provided with a worm in engagement with said worm-gear, means to rotate said shaft, a shaft on which said eccentric disk is mounted, and means accessible from the front of said support for rotating said shaft and eccentric disk independent of the worm-gear, substantially as described.

14. In an apparatus of the class described, the combination with a movable contact member, a carrier for said contact member, a guide-rod attached to said carrier and provided with an enlarged portion forming a piston, a cylinder in which said enlarged portion or piston reciprocates, a power-operated motor, and mechanism connecting said power-operated motor with said guide-rod, substantially as described.

15. In an apparatus of the class described, in combination, a bodily-movable contact member, a reciprocating carrier therefor movable bodily in a substantially straight path, a power-operated motor, a longitudinally-reciprocating mechanism movable in a plane substantially at right angles to that in which the bodily-movable carrier is moved, means movable in the same direction as said reciprocating mechanism for positively yet loosely connecting said reciprocating mechanism with said motor and said carrier, and means actuated by partial movement of said reciprocating mechanism in one direction by said motor to complete the movement of said mechanism substantially in an instant and independent of said motor, substantially as described.

16. In an apparatus of the class described, the combination with a movable contact member, of a bodily-movable carrier therefor, a power-operated motor, and mechanism operatively connected with said power-operated motor and with said bodily-movable carrier, and placed into effective condition by said motor to bodily move said carrier and its contact member substantially in an instant and independent of the said motor, and means to detachably connect said mechanism to said motor to permit the said mechanism to be operated by hand, substantially as described

17. In an apparatus of the class described, the combination with a bodily-movable contact member, a reciprocating carrier therefor movable bodily in a substantially straight path, a rotary power-operated motor, longitudinally-reciprocating mechanism movable in a plane substantially at right angles to that in which the bodily-movable carrier is moved, means for positively yet loosely connecting said mechanism with said motor and said carrier, and means actuated by partial movement of the said reciprocating mechanism in one direction by said motor to complete the movement of said mechanism substantially in an instant and independent of said motor.

18. In an electric switch, a supporting-plate having a plurality of holes through it, stationary contact-plates on one side of said supporting-plate adjacent each hole, a plurality of movable contact members, rods to which said members are secured which pass through said holes, a yoke to which said rods are connected, a supporting-frame at the opposite side of said supporting-plate, a toggle connected at one end with said rods, and at the other end with said supporting-frame, and means for operating said toggle.

19. In an electric switch, a supporting-plate having a hole through it, stationary contact-plates on one side of said supporting-plate, a rod passing through said hole, a movable contact member attached to said rod, a supporting-frame at the opposite side of said supporting-plate having a guideway, a guide-block on the rod movable in said guideway, a toggle connected at one end with said rod and at the other end with said supporting-frame, and means for operating said toggle.

785,398. **BAND-CUTTER AND FEEDER FOR CORN-SHREDDERS.** CHARLES G. BORT, Sterling, Ill. Filed Nov. 4, 1903. Serial No. 179,776.



Claim.—1. In a feed device for shredders, the combination of a hopper, an endless apron arranged in its lower portion and extending longitudinally thereof, a spreading-roller mounted for rotation above the apron, knives carried by said roller, a plurality of knives arranged to the rear of said roller and extending to a point adjacent the upper face of the apron, a curved partition extending from the upper portion of said roller toward the lower portions of said last-named knives, and a guide-roller mounted to the rear of said last-named knives and above said apron, substantially as and for the purpose specified.

2. In a feeder device for shredders, a frame or hopper in combination with a spreading-roller, a curved partition extending about a portion thereof, a fixed cross-piece and a reciprocating cross-bar arranged above said partition, a plurality of agitators pivotally secured to said cross-piece and cross-bar respectively, said agitators having their lower ends disposed below the partition, means for operating said cross-bar, and means for feeding the stalks to said roller.

3. In a feeder device for shredders, a frame or hopper having therein revolving spreading means provided with oppositely-disposed spirals, and a plurality of inclined oscillatory knives arranged in the rear thereof, cutters mounted on the spirals, and an inclined curved partition arranged between said spreading means and oscillatory knives, in combination with a conveyer arranged therebelow, and means for operating the knives and spreading means.

4. In a machine of the type set forth, a hopper having therein a fixed cross-bar, a plurality of inclined agitators, arches mounted on said cross-bar and through which the agitators project, bolts extending through said arches and agitators whereby the latter are pivoted, springs encircling the bolts and bearing on said agitators and arches respectively, and a reciprocating cross-bar to which the upper ends of said agitators are pivoted, in combination with means for operating said cross-bar.

785,399. **IDENTIFICATION-TAG.** EDWARD J. BRANDT, Watertown, Wis., assignor to Brandt Cashier Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 4, 1904. Serial No. 219,464.

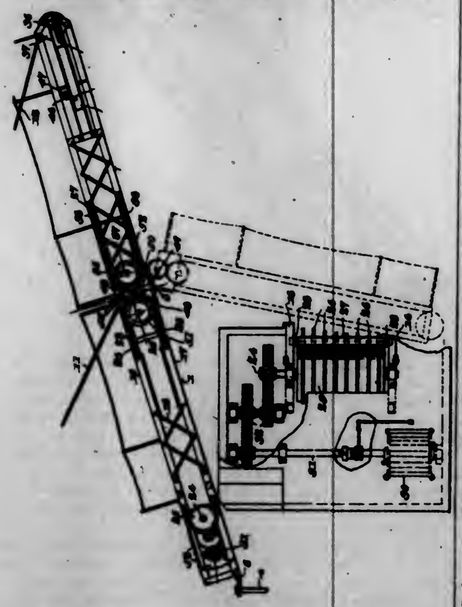
Claim.—1. An identification-tag comprising a flat oval plate of

elastic material slotted across one end and down one side to thereby form an integral elastic tongue, the plate on the inner side of the slot being also notched opposite the free end portion of the tongue to provide space for the reception of fastening means, and the solid portion of the plate being provided with marks of identification, substantially as described.



2. An identification-tag comprising a flat plate of elastic material slotted along one side and across one end of the plate, said slot terminating in an oblique relatively contracted portion extending to the opposite side margin of the plate to thereby form an integral elastic tongue, adapting the tag for attachment to an article or articles to be identified thereby, substantially as described.

785,400. LOADING OR UNLOADING APPARATUS. JOHN D. BUCHANAN, Memphis, Tenn. Filed July 20, 1904. Serial No. 218,719.



Claim.—1. In a device of the class described, a frame formed of pivotally-connected sections, a conveyer carried by each section, and gearing connections between the conveyer-sections, said gearing connections being automatically disconnected when the sections of the frame are folded.

2. In a device of the class described, a foldable frame formed of a plurality of sections, a conveyer mechanism for each section, and gearing carried by the sections, the gearing being automatically disconnected when the sections are folded.

3. The combination in a conveyer, of a frame formed of channel-iron having curved or semicircular end portions, shafts extending between the channel-irons, flanged rollers carried by the shafts and entering the channel-irons, and an endless load-conveyer connecting the several shafts.

4. The combination with a derrick, of a boom connected to the derrick, a pivotally-mounted sectional conveyer, a conveyer carried by the frame, and independent connections between the sections of the conveyer and the boom.

5. The combination with a derrick, of a boom supported thereby, a sectional conveyer-frame, independent conveyers carried by the sections thereof, and independent tackle connections between the sections and the boom thereby to permit independent adjustment of the positions of said sections.

6. In a device of the class specified, a frame having upper and lower sets of bars or rails, an endless conveyer carried by the frame and having rails resting on said bars, gang-planks arranged at opposite sides of the frame, and diagonal supports extending from said frame and carrying said gang-planks.

785,401. FIREPLACE-HEATER. GEORGE W. BUCK, Louisville, Ky. Filed Feb. 17, 1904. Serial No. 194,068.



Claim.—1. In a fireplace-heater, a metallic body in form of an open box, the back plate of said body having grooves extending in a generally vertical direction, a grate in said body, a fireback in rear of said grate and in front of said back plate, said fireback having vertical grooves in its front and rear faces, a bar extending across the body beneath said back plate and having grooves in its front and rear faces, and an inclined deflector above the fireback, all combined.

2. In a fireplace-heater, the body or shell, a grate therein, a fireback of fire-brick in rear of the grate and provided with a series of passages in its rear face which rests against the back plate of the shell, and a metallic supporting-bar for said fireback having notches corresponding to the grooves in the fireback, all combined.

3. In a fireplace-heater, the shell or body, a fireback therein having vertical passages in its rear face next to the back plate of the shell, a deflector-plate above said fireback, and a flue-plate having grooves in its face and forming, with the deflector, flues which are continuations of the passages in the fireback.

4. The combination with the body or shell, the fireback, and the inclined deflector above said fireback, of a ribbed flue-plate resting on said deflector, and having wings extending over the ends of the deflector.

5. The combination with the body or shell and the inclined deflector thereon, of the flue-plate having ribs on its front face and forming with the deflector a series of flues, a damper over said flues, and a damper in front of the deflector.

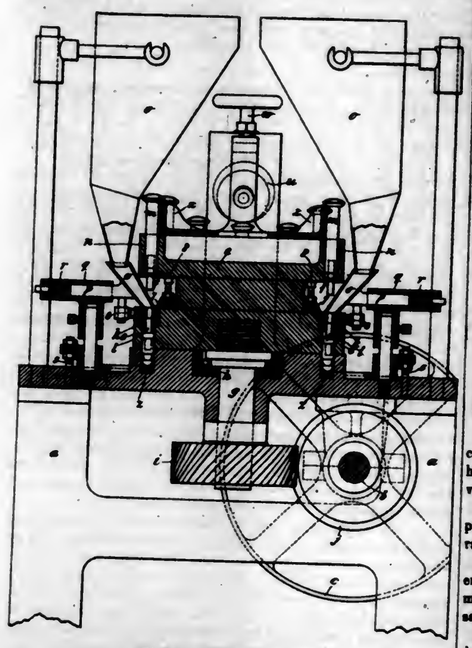
6. The combination with the body or shell, the inclined deflector, and the flue-plate having grooves and forming with the deflector a series of flues, of a damper having its fulcrum on the deflector and extending over said flues, a second damper hinged at the front of the shell and extending back to the deflector, and a link connecting said dampers so that one lifts as the other falls.

785,402. MACHINERY FOR THE MANUFACTURE OF TABLETS FOR MEDICINAL OR OTHER PURPOSES. JAMES F. BUCKLEY, Dartford, England, assignor to Allen and Hanburys, Limited, London, England. Filed June 23, 1903. Serial No. 162,730.

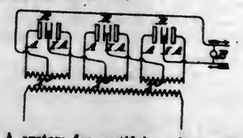
Claim.—1. A machine for compressing tablets comprising a rotating table having dies arranged therein, upper and lower punches sliding in guides in alinement with the dies and with one another, hoppers with loose ends delivering into the dies and means for shaking said ends, stationary conical rollers for bearing on the heads of said punches, inclined axles for said rollers so set that the path of rotation of the latter is in the circle described by the punch-heads, inclined guides for withdrawing the punches from the dies, and a rising surface for operating the lower punches to eject the tablets when compressed, all arranged and operating substantially as described.

2. In a machine for compressing tablets having a rotating die-table and delivery-hoppers for the dies, the combination of movable ends for the hoppers, horizontal sliding supports for said ends, springs for thrusting said supports toward the table and tappets on the edge of the table for acting on said supports to produce a jogging movement of said ends, substantially as described.

785,402.



785,403. SYSTEM FOR THE RECTIFICATION OF ALTERNATING CURRENTS. CHARLES F. BURGESS, Madison, Wis. Filed Aug. 15, 1903. Serial No. 169,622.



Claim.—1. A system for rectifying alternating currents comprising two or more pairs of asymmetric conductors, each pair consisting of two asymmetric conductors arranged in opposition, the outside terminals of each pair being connected to the outside terminals of a corresponding impedance, and the intermediate terminal of each pair being connected to the intermediate terminal of another impedance, as set forth.

2. A system for rectifying alternating currents comprising two or more pairs of asymmetric conductors, each pair consisting of two asymmetric conductors arranged in opposition, the outside terminals of each pair being connected to the outside terminals of a corresponding impedance, and the intermediate terminal of each pair being connected to the intermediate terminal of the next impedance in the series, as set forth.

3. In a system for rectifying alternating currents, a container, and two asymmetric conductors therein arranged in opposition to each other, as set forth.

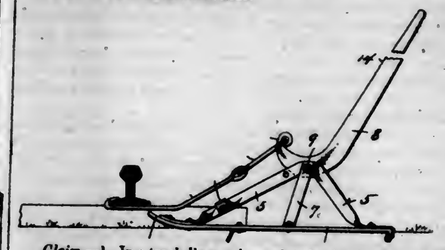
4. In a system for rectifying alternating currents, a container, two asymmetric conductors therein arranged in opposition to each other, and electrical connections to the outside and intermediate terminals of said asymmetric conductors, as set forth.

5. In an electrical converter, a series of coils inductively energized from a source of alternating current, a series of electrolytic cells adapted to pass current of one polarity and to resist the passage of current of opposite polarity, serially connected to said coils to secure an increased voltage in the converted current.

6. In an electrical converter, a source of alternating current, a series of coils inductively energized thereby, a series of electrolytic cells adapted to pass current of one polarity, connections leading from the terminals of said coils to separate electrodes in said cells, and connections leading from intermediate points on said coils to transmitting-electrodes in said cells and connecting said coils and cells in series.

7. In an electrical converter, a source of alternating current, a primary coil traversed thereby, a series of secondary coils inductively energized, a series of electrolytic cells adapted to pass current of one polarity, and electrical connections connecting said secondaries and cells in series, to increase the potential of the converted current.

785,404. TRACK-LINER. HENRY B. CAMPBELL, Oak, Nebr. Filed Aug. 16, 1904. Serial No. 220,926.



Claim.—1. In a track-liner, a base-plate having its forward end curved upwardly, a lever fulcrumed on the base-plate, a rail-engaging hook pivoted to said lever, and means carried by the plate for preventing longitudinal movement of the same.

2. In a track-liner, a base-plate, a lever fulcrumed on said base-plate and having one end thereof bent to form a terminal eye, and a rail-engaging hook pivoted in said eye.

3. A track-rail liner comprising a base-plate having its forward end curved upwardly and its rear end bent downwardly to form a terminal flange, and a depending flange secured to the bottom side of said plate near said curved portion.

4. In a track-rail liner, a base-plate having its rear end extended downwardly to form a terminal flange and a second flange attached to the bottom of the base-plate and removable therefrom.

5. A track-rail liner comprising a base-plate having its rear end extended downwardly to form a terminal flange and its forward end curved upwardly, and a depending flange removably attached to the bottom of said base-plate adjacent the upwardly-curved portion thereof.

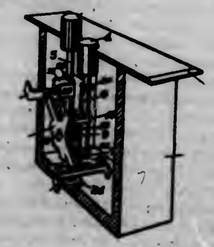
6. In a track-rail liner, a base-plate having a terminal depending flange formed integral therewith and an intermediate flange detachably secured to the bottom of said base-plate.

7. A track-rail liner comprising a plate, supports secured to said plate, and a lever fulcrumed in said supports, a rail-engaging hook attached to the fulcrum end of said lever and means carried by said supports for holding said hook in operative position.

8. A track-rail liner comprising a plate, supports secured to said plate, a lever fulcrumed in said supports, a link attached to the fulcrum end of said lever, a rail-engaging hook pivoted to the link, and a cross-plate secured to said supports and adapted to retain said hook in operative position.

9. A track-rail liner comprising a plate, a lever fulcrumed on said plate, and a rail-engaging hook pivoted to the fulcrum end of said lever, said lever being adapted upon a single downward movement thereof to insert said hook beneath the rail and hold the same in place thereon and upon a single upward movement thereof to detach said hook and withdraw the latter from engagement with said rail.

785,405. ELECTRICAL SWITCH. ROBERT G. CLARK, Brooklyn, N. Y., assignor of one-half to U. L. Laughlin, Schenectady, N. Y. Filed Apr. 16, 1904. Serial No. 203,496.



Claim.—1. In a switch, the combination of a line-terminal, a sliding operating member, a contact member, an operating-spring, an interlocking device forming a part of said operating member to prevent the movement of said contact member until the operating member has reached a predetermined point, a stop carried by said operating member to limit the movement of said contact member, and means for setting said spring in operative position to move the contact member and close the circuit through the line-terminal.

2. In a switch, the combination of a line-terminal, an operating member, a contact member, an operating-spring, an interlocking device carried by said operating member to control the movement of said contact member and allow the spring to return the parts to their original position when the operating force is removed unless the operating member be moved to a predetermined point, a stop forming a part of said operating member to limit the movement of said contact member, and means for setting said spring in operative position, substantially as described.

3. In a switch, the combination of a line-terminal, a sliding operating member, an operating-spring, a rocking contact member pivoted near the middle, having one or more arms acting as contact-blades and also having a third arm engaging a projecting portion of said operating member thereby preventing the movement thereof until the operating member has reached a predetermined point, a stop forming a part of said operating member to limit the movement of said contact member, a coiled spring having a projecting portion thereof engaging said contact member, and means for setting said spring in operative position to move the contact member and close the circuit through the line-terminal, substantially as described.

4. In a switch, the combination of a line-terminal, a pair of sliding operating members, a lever pivoted between and connecting said operating members, a rocking contact member pivoted concentrically with said lever, an operating-spring having the body portion loosely coiled around said pivot and having the ends thereof extending outwardly in opposite directions and adapted to alternately engage one of said operating members on one side and said contact member on the other side of the pivotal point, an interlocking projection forming a part of each of said operating members adapted to alternately engage a coacting projection on said contact member and prevent the movement thereof until one of said operating members has been depressed a predetermined amount, and a stop forming a part of each of said operating members to alternately engage said projection on the contact member and limit the movement thereof, substantially as described.

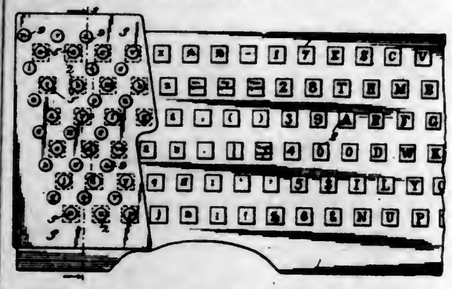
5. In a switch, the combination of a pair of line-terminals, a pair of sliding operating members, a pivoted contact member, a connecting-lever concentrically pivoted with said contact member and connecting said operating members on opposite sides of said pivot, an operating-spring with the body portion thereof loosely coiled around said pivot and the ends extending outwardly in opposite directions, a projection at the lower end of each of said operating members adapted to alternately engage and rotate the projecting ends of said spring, projections on opposite sides of the pivot and forming a part of said contact member adapted to alternately engage the projecting ends of said operating-spring, an interlocking device and a stop forming a part of each of said operating members, an arm forming a part of said contact member having a projection coacting with said interlocking device and stop to prevent the movement of the contact member until the operating-spring has been set in operative position by the movement of one of said operating members and with said stop to limit the movement of said contact member when released by the interlocking device, substantially as described.

785,408. KEYBOARD. CHARLES H. COCHRANE, New York, N. Y. Filed Mar. 10, 1903. Serial No. 97,497.

Claim.—1. The combination with a keyboard provided with a set of main keys, of duplicate keys on the keyboard, corresponding with some of the main keys, which when actuated will actuate the main key of which it is a duplicate.

2. The combination with a main keyboard of a supplemental keyboard, said supplemental keyboard being provided with keys corresponding to the keys in the main keyboard and adapted to actuate the corresponding keys in the main keyboard, said supplemental keyboard also being provided with duplicate keys corresponding to some of the main keys which when actuated will also actuate the corresponding key in the main keyboard.

3. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard and provided with keys corresponding to the keys in the main keyboard and adapted to actuate the corresponding keys in the main keyboard, said supplemental keyboard also being provided with duplicate keys corresponding to some of the main keys which when actuated will also actuate the corresponding key in the main keyboard.



4. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard and provided with a set of main keys corresponding to the keys in said main keyboard and each adapted to operate the key to which it corresponds, said supplemental keyboard being also provided with duplicate keys, each corresponding to a main key in said supplemental keyboard, and connections whereby when one of said duplicate keys is actuated the same key in said main keyboard will be actuated as if the main key in said supplemental keyboard had been actuated.

5. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard, and provided with a set of main keys corresponding to the keys in said main keyboard, and each adapted to operate the key in the main keyboard to which it corresponds, said supplemental keyboard being also provided with duplicate keys each corresponding to a main key in said supplemental keyboard and connections between said main keys and their duplicates, whereby when one of said duplicate keys is actuated it will actuate the main key to which it corresponds, and through the latter the corresponding key in the main keyboard.

6. In a keyboard, the combination with a board having a plain face which is perforated, of a series of pivoted key-levers provided with keys, the heads of which project through said perforations and slightly above said surface whereby the amount which the keys may be depressed is limited.

7. In a keyboard the combination with a set of keys of means for operating a single key by any one of a plurality of keys of the keyboard.

8. In a keyboard the combination with a set of keys of means whereby said keys may be operated from different parts of said keyboard.

9. In a keyboard, the combination with a board having a plain face which is perforated, of a series of pivoted key-levers provided with keys the heads of which project through said perforations and slightly above said surface, whereby the amount which the keys may be depressed is limited, the number of said keys being greater than the number of characters represented by said keys, whereby some of the keys are duplicates of other keys in the keyboard, said keys being so arranged that the keys for the ordinary combinations of letters and characters will be in proximity of each other.

10. In a keyboard the combination with a board having a plain face which is perforated, of a series of pivoted key-levers provided with keys the heads of which project through said perforations and slightly above said surface, whereby the amount which the keys may be depressed is limited, there being a plurality of keys representing a single character, said keys being so arranged with reference to each other that they will be in proximity to each other for the common combinations of letters, the keys for the same letter all actuating the same part.

11. In a keyboard the combination with a board having a plain face which is perforated, of a series of keys the heads of which project through said perforations and slightly above said surface, and means for operating a single key of said series by any one of a plurality of other keys of said series.

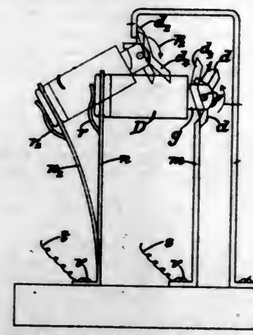
12. In a keyboard the combination with a board having a plain face which is perforated, of a series of keys the heads of which project through said perforations and slightly above said surface, and means whereby said keys may be operated from different parts of said keyboard.

13. In a keyboard, the combination with a set of main keys, of keys which are duplicates of some of said main keys, of means consisting of an arrangement of intersecting levers for said keys bearing on each other at their point of intersection, wherever that point may be, whereby said main keys may be operated from one or more different points in the keyboard by means of said duplicate keys.

14. The combination with a main keyboard of a supplemental keyboard arranged over said main keyboard provided with a set of keys corresponding to the keys of said main keyboard, each adapted to operate the key to which it corresponds, said supplemental keyboard being also provided with duplicate keys, each corresponding to a main key in said supplemental keyboard, and connections consisting of intersecting levers connecting said main and duplicate keys of said supplemental keyboard, whereby when one of said duplicate keys is actuated, it will actuate the main key to which it corresponds and through the latter the corresponding key in the main keyboard.

15. A keyboard provided with a set of main keys each key corresponding to a character in the machine controlled by the keyboard and also provided with keys which are duplicates of some of the main keys, the duplicate keys being arranged between the main keys, whereby the keys for different combinations may be struck with a slight movement of the hand, and connections whereby the same device is operated whether a main key is actuated or a duplicate of the main key.

785,407. SELF-RESTORING HEAT-COIL. FRANK B. COOK, Chicago, Ill. Filed Mar. 9, 1904. Serial No. 197,295.



Claim.—1. The combination with a thermal cut-out or protector for electric circuits, of an oscillating lever normally held in operative position, means for operating the lever upon an abnormally large current in the device, and means apart from the cut-out for restoring the lever to operative position.

2. The combination with a thermal cut-out or protector for electric circuits, of an oscillating member forming a part thereof, a heat-susceptible material holding the said member in an operative position, a circuit-controlling means adapted to engage the said member and to operate the latter when the heat-susceptible material is softened, and means apart from the cut-out for restoring the oscillating member to operative position.

3. The combination of a resistance-body for inclusion in a circuit, an oscillating lever electrically connected with the resistance-body, a circuit-controlling means adapted to engage the lever and tending to oscillate same and thereby break the circuit and cementing material for holding the lever against oscillation, and means apart from the whole for restoring the lever to its normal operative condition after operation.

4. The combination with an excess-current-operable device, of an oscillating member forming a part thereof and secured in an operative position by a heat-susceptible material, suitable stops for limiting the motion of the oscillating member, a suitable support for the device, a circuit-controlling spring adapted to engage the oscillating member and to operate same upon an excess of current in the circuit, and means apart from the device whereby the oscillating member is restored to its normal, relative, operative position after operation.

5. The combination with an excess-current-operable device comprising a heat-producing member, a heat-conducting member, and a lever pivoted to the heat-conducting member and normally secured thereto by a heat-susceptible material, a spring for engaging the excess-operable device and adapted to operate same when the heat-susceptible material is softened, a second spring adapted to engage the said lever and to turn same upon its pivot when the device operates, and a third spring adapted to limit the operation of the said device and thereby restore the said lever to its normal, relative position upon the said pivot, substantially as described.

6. The combination with a thermal cut-out or protector for electric circuits, of a pivoted member normally held in operative position, means for operating the pivoted member upon an excess of current in the circuit, and means apart from the device for restoring the pivoted member to operative position.

7. With a device of the character described, the combination of a pivoted member for inclusion in the circuit, means for operating the device as a whole, means for operating the pivoted member, and means apart from the device for restoring the pivoted member to relative operative position after operation.

8. With a device of the character described, the combination of a pivoted member for inclusion in the circuit, means for holding the pivoted member in operative position, means for operating the pivoted member under abnormal circuit conditions, and means apart from the device for restoring the pivoted member to operative position.

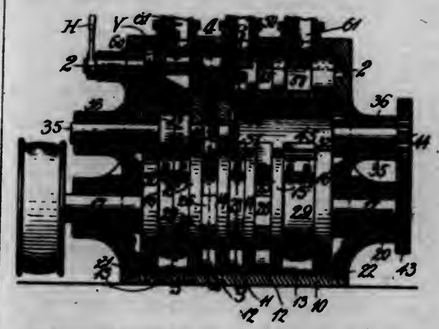
9. The combination with an excess-current-operable device, of a pivoted member electrically connected therewith, a heat-susceptible material normally holding the pivoted member in operative position, means acting on the pivoted member and tending to break the heat-susceptible material, and means apart from the device adapted to reset the pivoted member to operative position.

10. In a thermal cut-out or protector for electric circuits, the combination of a resistance-body for inclusion in the circuit, a pivoted detent for inclusion in the circuit, means for operating the detent upon an abnormal current, and thereby controlling a circuit, and means apart from the whole and adapted to reset the detent to operative position.

11. The combination with a thermal cut-out or protector for electric circuits, of a pivoted detent, means for normally securing the detent in operative position, means for operating the detent under abnormal circuit conditions, means apart from the cut-out and adapted to reset the detent after operation, and suitable stops adapted to limit the motion of the detent.

12. In apparatus of the class specified, the combination of a pivoted detent, means for normally holding the detent in a set position, means for operating the device under abnormal current conditions and means apart from the device for resetting the detent to operative position.

785,408. ROTARY ENGINE. LESLIE A. COOPER, Springfield, Mass. Filed Sept. 14, 1904. Serial No. 224,476.



Claim.—1. The combination with an engine-casing comprising a cylindrical high-pressure chamber and a plurality of cylindrical expansion-chambers disposed at opposite sides of the high-pressure chamber, of a shaft carrying radial pistons in the respective cylindrical chambers, and a valve for connecting the high-pressure chamber with the first-expansion chambers and for connecting one pair of expansion-chambers, with the next pair of expansion-chambers.

2. The combination with an engine-casing, having a cylindrical opening therein, of a piston member, disks carried thereon and rotatable therewith, closely edgewise fitting the said cylindrical opening in the engine-casing, and dividing said casing into a high-pressure chamber and a plurality of expansion-chambers disposed at opposite sides of the high-pressure chamber, and ways for the admission of

steam into the high-pressure chamber, and therefrom to the oppositely-located expansion-chambers.

3. The combination with an engine-casing having a cylindrical opening therein, of a piston-shaft separated disks carried thereon and for dividing said casing into an intermediate high-pressure chamber and a plurality of expansion-chambers disposed at opposite sides of the high-pressure chamber, and piston-wings uniting each pair of adjacent disks.

4. The combination with an engine-casing, of a rotary piston-shaft having separated disks for dividing said casing into an intermediate high-pressure chamber and a plurality of expansion-chambers at opposite sides thereof, and having radial pistons, rotary abutments coöperative with said pistons, and a valve having ducts for connecting the high-pressure chamber with the next, and oppositely-located expansion-chambers.

5. The combination with an engine-casing comprising a high-pressure chamber and pairs of expansion-chambers, one of each pair being disposed at opposite sides of the high-pressure chamber, of a valve having ways for connecting the high-pressure chamber with a pair of oppositely-located expansion-chambers and for connecting such pair of expansion-chambers with the next pair of expansion-chambers.

6. A steam-engine having in its casing: cylindrical rotary-piston space, an adjacent rotary-abutment space, and a cylindrical valve-space, a steam-inlet leading to the valve-space at an intermediate part of the casing, transversely oppositely arranged steam-passages, at the intermediate part of the casing extending from the valve-space to the cylindrical rotary-piston space, further transversely opposite passages, opposite and endwise beyond said first-named passages, and connecting the valve-space and the rotary-piston space, in combination with the engine-shaft carrying the separated partition-forming disks and the radial piston-wings, the shaft carrying the rotary abutments connected to run with the piston-shaft, the stationary partitions in the rotary-abutment space in the planes of the partition-disks, the rotary valve fitted in the valve-space having an intermediate transverse steamway 51, and having the opposite pair of steamways 54, leading from an adjoined port opposite the way 51 through the valve, terminating oppositely endwise beyond the said way, and enabling transfer of steam from the intermediate partitioned cylinder-space to the secondary expansion cylinder-spaces, and means for exhausting the steam from said secondary spaces.

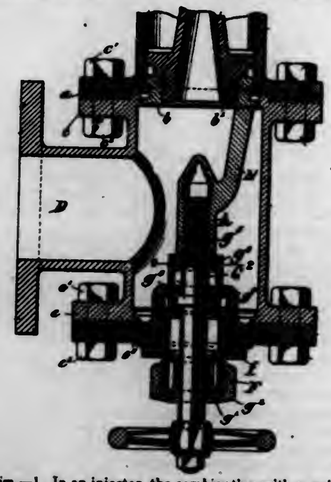
7. In a steam-engine of the rotary concentric piston type, an engine body or casing having longitudinally-ranging and adjoined rotary-piston and rotary-abutment receiving openings, a piston-shaft having a separated pair of high-pressure-chamber-inclosing partitions, and one or more pairs of secondary-expansion-chamber-inclosing partitions arranged oppositely beyond the high-pressure chamber and toward each end of the casing, and having the radial pistons in the respective cylinder-chambers, the rotary abutments arranged in the transverse planes of such cylinder-chambers and coöperating with the pistons therein, and partitions between the rotary abutments in the planes of the chamber-inclosing partitions, the engine-casing furthermore having transversely opposite pairs of steam-passages in the planes of the respective cylindrical steam-chambers and oppositely connecting thereinto, also having a steam-inlet connecting with one side steam-passage leading to the intermediate and high-pressure cylinder-chamber, steamways endwise oppositely arranged and obliquely connecting the other side steam-passage connected with said intermediate chamber with the steam-inlet passages endwise oppositely arranged, and both at the same side of the engine, which lead into the secondary expansion cylinder-chambers and exhaust-ways from the latter chambers.

8. In a steam-engine of the rotary concentric piston type, an engine-body having longitudinally-ranging and adjoined rotary-piston and rotary-abutment receiving openings, a piston-shaft having a separated pair of high-pressure-chamber-inclosing partitions 14, pairs 15 15, of separated secondary-expansion-chamber-inclosing partitions arranged as shown, and having the radial pistons 24 and 26 26, in the respective cylinder-chambers, the rotary abutments 37 and 38 38, and partitions 40 and 41 41, between the rotary abutments, the engine-casing furthermore having the intermediate pairs 52, 52 and 55 56, 55 56, of transversely opposite steam-passages, in the planes of the respective cylindrical steam-chambers, and oppositely connecting thereinto, also having a steam-inlet 51, connecting with one steam-passage 52, steamways 54 54 connecting the steam-passage 53 with the steam-inlet passages 55 55 and exhaust-ways 57 57 in connection with the steam-passages 56 toward opposite ends of the engine.

9. In a steam-engine, in combination, the casing having an intermediate high-pressure cylindrical chamber, and one or more pairs of separated secondary expansion-chambers at either side and in axial alinement therewith, the piston-shaft having the radial piston-wings the rotary abutments coöperating with the piston-wings, and the casing having a steam-inlet passage, and passages at opposite sides of the casing connecting into the respective high and paired secondary chambers, and endwise-located exhaust-passages, a valve having ducts for the passage of steam from the inlet to the high-pressure chamber, from such chamber into the chambers secondary thereto and out from the last pair of chambers to the exhaust-passages, said valve being movably mounted and effective to reverse the steam-inlet into the high-pressure and secondary cylindrical chambers to securing an opposite driving of the pistons and engine-shaft.

10. In a steam-engine of the character described the engine-body having an intermediate inlet-passage and steam-exhaust passages toward the opposite ends of the body, and having longitudinally-ranging rotary-piston, and rotary-abutment receiving openings, partitions in series and separation in the piston-receiving opening, dividing the same into a middle primary and high-pressure chamber and secondary chambers at each side thereof, the piston-shaft having the piston-wings, the rotary abutments and partitions therebetween and in the transverse planes of the cylinder-separating partitions, the engine-casing furthermore having the pairs of transversely opposite steam-passages, in the planes of the respective primary and secondary steam-chambers and oppositely connecting thereinto, a rotatable and reversing valve, located in a valve-chamber intersecting the steam-inlet and steam-exhaust and the transversely opposite cylinder-connecting steam-passages, having a transverse steamway 51, and having obliquely-arranged steamways in pairs and terminating at either side endwise beyond the way 51, and having ways, as 60 for connecting the endwise-located secondary cylindrical chambers with the steam-exhaust passages.

785,409. STEAM-INJECTOR. WILLARD B. CULVER, Carbondale, Pa., assignor to Hendrick Manufacturing Company, Carbondale, Pa., a Corporation of Pennsylvania. Filed Jan. 20, 1904. Serial No. 189,869.

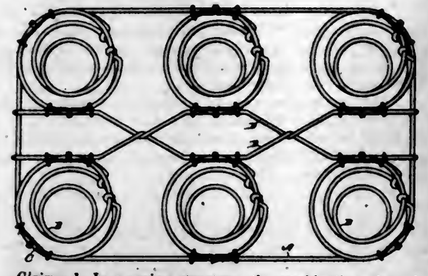


Claim.—1. In an injector, the combination with a main casing, of a combining-tube movably mounted therein, a supplemental casing secured to said main casing and having an orifice communicating with the boiler, said supplemental casing having an additional orifice directly underlying said combining-tube and of a size at least coextensive with the diameter of said tube, a closure for said last-named orifice independent of the combining-tube and when in operative position occupying a fixed relation to said supplemental casing, and a connection, including adjusting mechanism, between said closure and said combining-tube, substantially as set forth.

2. In an injector, the combination with a main casing, of a combining-tube movably mounted therein, a supplemental casing secured to said main casing and having an orifice communicating with the boiler, said supplemental casing having an additional orifice directly underlying said combining-tube and of a size at least coextensive with the diameter of said tube, a closure for said last-named orifice independent of the combining-tube and when in operative position occupying a fixed relation to said supplemental casing, an adjusting-screw carried by said closure, and a connection, including adjusting mechanism, between the same and said combining-tube, substantially as set forth.

3. In an injector, the combination with a main casing, of a sliding collar operable therein, a combining-tube connected with said collar, a supplemental casing and means for securing the same to said main casing, an orifice in said supplemental casing communicating with the boiler, another orifice in said supplemental casing directly underlying said collar and combining-tube and of a size at least coextensive with that of said collar and combining-tube, a closure for said last-named orifice, means for securing said closure in position over said orifice, and an adjusting device carried by said closure and coacting with an appurtenance of said collar, substantially as set forth.

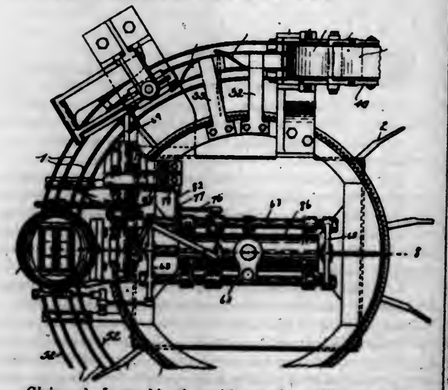
785,410. SPRING. FRANK P. D'ARCY, Kalamazoo, Mich. Filed Feb. 24, 1902. Serial No. 95,336.



Claim.—1. In a spring structure, the combination of a wire frame; spiral springs arranged in said frame, so that portions thereof and portions of said frame overlap, and fasteners for securing said springs in position in said frame consisting of pieces of wire formed into double loops having comparatively wide bases, the central and outer arms of said fasteners being clamped about the overlapped portions of said frame and springs in opposite directions, for the purpose specified.

2. In a spring structure, the combination of a wire frame; spiral springs arranged in said frame, so that portions thereof and portions of said frame overlap; and fasteners for securing said springs in position in said frame consisting of pieces of wire formed into double loops having comparatively wide bases, the arms of said fasteners being clamped about the frame and springs, for the purpose specified.

785,411. MACHINE FOR CLOSING AND SEALING THE ENDS OF CARTONS. WILLIAM H. DOBLE, Quincy, Mass., assignor, by mesne assignments, to Pneumatic Scale Corporation, Limited, a Corporation of Maine. Filed Nov. 6, 1903. Serial No. 180,003.



Claim.—1. In combination with a package-filling machine, an intermittently-moving carrier which moves the packages to and from the place of filling, a vertically-slidable plunger mounted above one of the stopping-places of the filled packages, flap-folding fingers carried by said plunger, and mechanism actuated by said carrier to raise said plunger and release it before the carrier comes to a rest, the descent of the plunger carrying the flap-folding fingers into engagement with and folding two opposite flaps on the upper end of the package, substantially as described.

2. In combination with a package-filling machine, an intermittently-moving carrier which moves the packages to and from the place of filling, a vertically-slidable plunger mounted above one of the stopping-places of the filled packages, flap-folding fingers fulcrumed in said plunger, a bell-crank lever fulcrumed to a fixed support, one arm of said lever having a flexible connection with said plunger and the other arm projecting into the path of a projection on said carrier whereby the moving carrier engages the said lever and raises the plunger and releases it before the carrier comes to a rest, said flap-folding fingers engaging two opposite flaps on the upper end of the carton when the plunger descends, substantially as described.

3. In combination with a package-filling machine, an intermittently-moving carrier which moves the packages to and from the place of filling, a vertically-slidable plunger mounted above one of the stopping-places of the filled packages, flaring flap-folding fingers fulcrumed in said plunger, a lever fulcrumed to a fixed support, one arm of said lever having a flexible connection with said plunger and the other arm projecting into the path of a projection on said carrier, whereby the moving carrier engages the said lever and raises the plunger and releases it before the carrier comes to a rest, means for preventing said flap-folders from spreading until the flaps are partially folded and means for releasing the detent and allowing the folder to spread while completing the folding, substantially as described.

4. In a machine for closing the tops of filled cartons, a vertically-reciprocable plunger moving in a fixed support, flaring flap-folding fingers fulcrumed in said plunger to fold two opposite flaps on the upper end of the carton, mechanism which normally holds the said fingers in a flaring relation to each other, a carrier which moves the filled packages to a position beneath said plunger, a lever fulcrumed in a fixed support, one arm of said lever having a flexible connection with said plunger and the other arm projecting into the path of the carrier, said carrier engaging the said lever and thereby elevating the plunger and releasing it again before the carrier comes to a rest, and a tension-spring connected with said plunger, substantially as described.

5. In a machine for closing the tops of filled cartons, a vertically-reciprocable plunger moving in a fixed support, flaring flap-folding fingers fulcrumed in said plunger to fold two opposite flaps on the upper end of the carton, mechanism which normally holds the said fingers in a flaring relation to each other, a carrier which moves the filled packages to a position beneath said plunger, a lever fulcrumed in a fixed support, one arm of said lever having a flexible connection with said plunger and the other arm projecting into the path of the carrier, said carrier engaging the said lever and thereby elevating the plunger and releasing it again before the carrier comes to a rest, a rod carried by said plunger, said rod and plunger being also movable with relation to each other, a spring which when the plunger rises prevents said rod from rising with the plunger until the plunger has risen a portion of its distance of travel, a cross-pin carried by said rod which engages said flap-folding fingers and prevents them from spreading until the plunger has partially completed its descent and the flaps are partially folded, and a stop-pin which stops the descent of said rod before the plunger has completed its descent and disengages said cross-pin from said flap-folding fingers whereby the continued descent of the plunger while the said fingers engage the flaps causes the spreading of said fingers, substantially as described.

6. In a machine for folding the upper end-closing flaps of filled cartons, a vertically-reciprocable plunger moving in a fixed support, flap-folding fingers fulcrumed in said plunger an intermittently-moving carrier which moves the filled cartons to a position beneath said plunger, a lever fulcrumed in a fixed support, one arm of said lever having a flexible connection with said plunger and the other arm projecting into the path of the carrier, said carrier engaging the said lever and thereby elevating the plunger and releasing it again before the carrier comes to a rest, the said fingers engaging and folding the forward and rear flaps on the upper end of the carton during the descent of the plunger, and guide-plates between which the carrier moves the carton, thereby folding the side flaps, substantially as described.

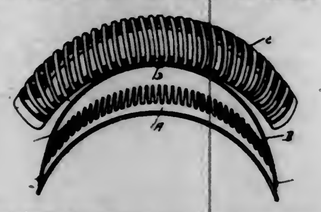
7. In a machine for filling cartons and closing the end flaps, a scale, an intermittently-moving carrier which removes the filled cartons from the scale, carrier-starting mechanism actuated by the tipping of the scale, mechanism for folding end-closing flaps on the carton, and means whereby the moving carrier controls the flap-folding mechanism.

8. A machine for filling and weighing cartons and closing the ends thereof having a scale, end-flap-closing mechanism, and intermediate mechanism actuated by the tipping of the scale which controls the flap-closing mechanism.

9. In a machine for folding the flaps which close the ends of filled cartons, an intermittingly-moving carrier which gives the cartons a step-by-step movement, mechanism for folding two opposite flaps while the carton is at rest and intermediate mechanism actuated by the carrier near the end of its movement to actuate the folding mechanism.

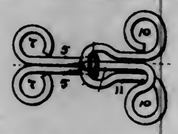
10. In a machine for folding the flaps which close the ends of filled cartons, an intermittingly-moving carrier which gives the cartons a step-by-step movement, mechanism to fold two opposite flaps after the carrier and carton have come to a rest, intermediate mechanism actuated by the carrier near the end of its movement to actuate the said flap-folding mechanism, and flap-folding guides between which the carrier moves the carton to fold the other pair of flaps, substantially as described.

785,412. ADJUSTABLE POMPADOUR-PUFF COMB. BERNARD W. DOYLE, Leominster, Mass. Filed June 21, 1904. Serial No. 213,495.



Claim.—A device of the character described comprising a comb, a curved member pivoted at its ends to the comb, and a hair-support pivotally secured to the member.

785,413. HOOK AND EYE. HARRISON H. RAVEN, Cleveland, Ohio. Filed Sept. 12, 1900. Renewed Aug. 25, 1904. Serial No. 222,110.

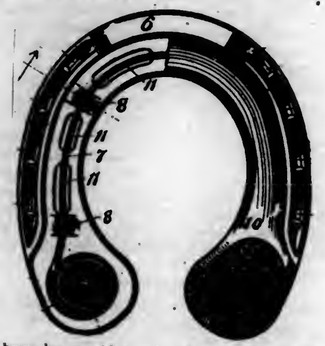


Claim.—1. A hook and eye, having, in combination, a hook member provided with a shank and a hook arranged at right angles to the shank, said hook being provided with a tongue-receiving hole, and an eye member provided with a loop to embrace the hook of the hook member and a tongue extended over and not beyond the end of the said eye-member loop, adapted to enter said tongue-receiving hole in the hook, substantially as described.

2. A hook and eye, having, in combination, a hook member provided with a shank and a hook arranged at right angles to the shank, said hook being provided with a tongue-receiving hole, and an eye member provided with a loop to embrace the hook of the hook member and a tongue extended over and not beyond the end of the said eye-member loop, adapted to enter said tongue-receiving hole in the hook, the base of said hook being contracted to form a shoulder adapted to engage and displace the tongue when the members are turned with relation to each other to facilitate the disengagement of the members in the manner set forth, substantially as described.

785,414. HORSESHOE. JOHN W. FRENCH, Akron, Ohio, assignor of one-half to Frank Reitmeider, Akron, Ohio. Filed Aug. 18, 1904. Serial No. 221,262.

Claim.—1. A horseshoe provided with a channeled under surface, a rod or wire in said channel terminating in a coiled spring end, and a body of resilient material seated in said channel inclosing said wire and coil, said coiled termination of said wire being compressible in unison with said resilient material.



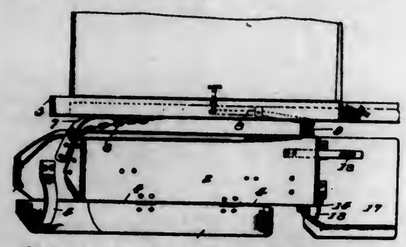
2. A horseshoe provided with a channeled under surface, a rod or wire in said channel terminating in a tapering coiled-spring end, and a body of resilient material seated in said channel inclosing said wire and coil, said coiled termination of said wire being compressible in unison with said resilient material.

3. The combination in a metallic channeled horseshoe, of a body of resilient material vulcanized in said channel, a rod or wire vulcanized in said body of resilient material having a spring-coiled termination compressible with said resilient material and means for attaching said rod or wire to said metallic portion.

4. The combination in a channeled metallic horseshoe, of a body of resilient material vulcanized in said channel, a rod or wire vulcanized in said body of resilient material having a spring-coiled termination formed with its axis, transverse to the main longitudinal line of the shoe and compressible with said resilient material and capable of being attached to said metallic portion.

5. The combination with a channeled metallic horseshoe and a body of resilient material cooperating therewith, of a rod or wire vulcanized in said resilient material provided with a spring-coiled termination compressible in unison with said resilient material and means to attach said rod or wire to said metallic portion so as to inclose a portion of said resilient material between said rod or wire and said metallic portion.

785,415. SNOW-PLOW. CHARLES FREEMAN, Scranton, Pa. Filed Sept. 3, 1904. Serial No. 223,298.



Claim.—1. In a snow-plow, the combination of side wings, a pilot-board, and bars connected at their outer ends to the side wings and pivotally attached at their inner ends to said pilot-board, substantially as specified.

2. In a snow-plow, the combination of side wings, a pilot-board, bars connected at their outer ends to the side wings and pivotally attached at their inner ends to said pilot-board, and guides attached to said pilot-board and cooperating with the respective bars to direct the plow in its vertical movements and prevent appreciable longitudinal play thereof, substantially as specified.

3. In a snow-plow, the combination of side wings, a pilot-board, bars connected at their outer ends to the side wings and pivotally attached at their inner ends to said pilot-board, guides attached to said pilot-board and cooperating with the respective bars to direct the plow in its vertical movements and prevent appreciable longitudinal play thereof, and means between said guides and pilot-board to limit the vertical play of the plow and to fix its position at the outset, substantially as specified.

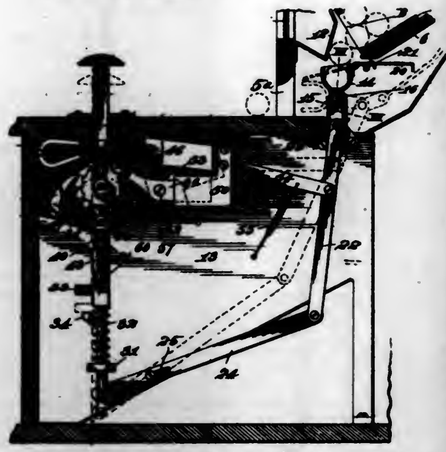
4. In a snow-plow, the combination of side wings, a pilot-board, bars connecting the respective wings to said pilot-board in a manner to admit of vertical play of the plow, an operating-lever and connections between said operating-lever and the aforesaid bars to admit of vertically adjusting the plow, substantially as specified.

5. In combination, a plow comprising side wings, a pilot-board, bars connecting the respective wings to said pilot-board and springs normally exerting a downward pressure upon said bars to hold the plow to its work, substantially as specified.

6. In combination, a plow comprising side wings, a pilot-board, bars connecting the said wings to the pilot-board to admit of the plow having a limited vertical movement, guides between the pilot-board and connecting-bars, means cooperating with said guides to limit the vertical play of the plow and to fix its initial position, springs normally exerting a downward pressure upon said connecting-bars to hold the plow to its work, an operating-lever and bars to admit of vertical adjustment of the plow, substantially as specified.

7. In a snow-plow, the combination of a side wing, a support and cooperating shoes, one of the latter being hingedly connected to said support and the other having adjustable connection with the first-mentioned shoe, substantially as specified.

785,416. CIGAR-VENDING MACHINE. MELVIN L. FRINK, St. Louis, Mo., assignor to Clarence R. Pope, East St. Louis, Ill. Filed July 5, 1904. Serial No. 215,294.



Claim.—1. In a cigar-vending machine, the combination of a movably-mounted cigar-receiving member, a push-rod having connection with said member for operating it, and means for controlling said push-rod; said controlling means consisting of a series of wheels placed side by side and integral as a unit and carried by said push-rod, means mounted independent of said push-rod and wheels for preventing rotation of said wheels in one direction, and a coin-actuated member independent of said push-rod and wheels and engaging one of said wheels to prevent rotation of the wheels in the opposite direction, substantially as set forth.

2. In a cigar-vending machine, the combination of a movably-mounted cigar-receiving member, a push-rod having connection with said member for operating it, and means for controlling said push-rod; said controlling means comprising a series of wheels placed side by side and integral as a unit and carried by said push-rod, a dog mounted independent of said push-rod and wheels for controlling the rotation of said wheels in one direction, and a coin-actuated member independent of said push-rod and wheels, and engaging one of said wheels in a position opposing said dog and serving to prevent rotation of the wheels in a direction the reverse of that in which their rotation is prevented by said dog, substantially as set forth.

3. In a cigar-vending machine, the combination of a movably-mounted cigar-receiving member, a push-rod having connection with said member for operating it, and means for controlling said push-rod; said controlling means consisting of a series of wheels placed side by side and integral as a unit and carried by said push-rod, a dog mounted independent of said push-rod and wheels for engagement with one of said wheels, a coin-actuated member independent of said push-rod and wheels, and engaging one of said wheels in a position opposing said dog and serving to prevent rotation of the wheels in a direction the reverse of that in which their rotation is prevented by said dog, and a lock-bolt carried by said push-rod for engagement with one of said wheels, substantially as set forth.

4. In a cigar-vending machine, the combination of a cigar-receiving member, mechanism for actuating said member, a pivotally-mounted channeled coin-pocket having an open end and provided with means for controlling said cigar-receiving-member-operating mechanism, and a coin-box pivotally mounted independent of said coin-pocket and telescoping the open rear end of said coin-pocket and having connection with said cigar-receiving-member-operating mechanism, substantially as set forth.

5. In a cigar-vending machine, the combination of a cigar-receiving member, mechanism for operating said member, a coin-pocket provided with means for controlling said operating mechanism, a swingingly-mounted coin-box connected to said operating mechanism, and an ejector carried by said coin-box and operating in said coin-pocket, substantially as set forth.

6. In a cigar-vending machine, the combination of a cigar-receiving member, mechanism for operating said member, a channeled pivotally-mounted coin-pocket provided with means for controlling said operating mechanism and open at its rear end, a swingingly-mounted coin-box telescoping the rear open end of said coin-pocket and connected to said operating mechanism, and a trip-arm carried by said coin-box and adapted to engage said coin-pocket, substantially as set forth.

7. In a cigar-vending machine, the combination of a cigar-receiving member, mechanism for operating said member, a ratchet-wheel carried by said mechanism, a coin-pocket mounted independent of and adjacent to said ratchet-wheel and provided with a pawl for engagement with the ratchet-wheel, means for preventing rotation of said ratchet-wheel while said pawl is in engagement therewith, an arm carried by said pawl, and a counterbalance adjustably mounted upon said arm, substantially as set forth.

785,417. FENCE-POST. EDMUND H. GARDNER, Hamler, Ohio. Filed Nov. 2, 1904. Serial No. 231,143.



Claim.—A post of plastic material having embedded therein a flat metallic plate one edge of which projects beyond the face of the post and constitutes wire-supporting means; the embedded portion of said plate being provided with apertures and with binding members consisting of rods extending through said apertures and provided at the ends thereof with inturned hooks to engage said apertures and to resist lateral strain.

785,418. FIRE-BOX BOILER. JOHN S. GLENN, West Covington, Ky., and HARRY HENKE, Cincinnati, Ohio. Filed March 28, 1904. Serial No. 200,317.

Claim.—1. In a locomotive-boiler, a water-space provided with an entry-chamber at each end, water-tubes extending horizontally within the boiler and communicating at each end with said entry-chambers, and a fire-box adapted to communicate heat to the water within the water-tubes and water-space.

2. In a locomotive-boiler, a water-space having entry-chamber at each end, a flue-chamber extending horizontally through said water-space, a series of water-tubes secured at each end and communicating with the entry-chambers, and a fire-box adapted to communicate heat to said water space and tubes respectively.

3. In a locomotive-boiler having a shell and water-space within the same, a flue-chamber within said water-space having its outlet-passage below the front entry-chamber and leading to the smoke-box, water-tubes within said flue-chamber, tube-sheets at each end of the water-tubes to secure same and separate flue-chamber and water-space at the ends, and a fire-box adjacent said water-tubes and water-space.

4. In a locomotive-boiler, a water-space around the outer part thereof provided with entry-chambers at each end, a flue-chamber extending between said entry-chambers and from the fire-box to the smoke-passage, water-tubes extending horizontally in said flue-chamber connecting and communicating with each entry-chamber, a fire-box arranged under one entry-chamber and the adjacent ends

of the water-tubes, a smoke-passage arranged under the other entry-chamber and adapted to communicate with the smoke box and outlet.



5. In a locomotive-boiler, a water-space around the outer part thereof provided with entry-chambers at each end, a flue-chamber extending between said entry-chambers and from the fire-box to the smoke-passage, water-tubes extending horizontally in said flue-chamber connecting and communicating with each entry-chamber, a fire-box arranged under one entry-chamber and the adjacent ends of the water-tubes and smoke-passage arranged under the other entry-chamber and adapted to communicate with the smoke box and outlet and a vertical heat-retainer at the rear of the front entry-chamber and within the flue-chamber.

6. In a locomotive-boiler, a water-space having entry-chambers at each end, a manhole leading into each entry-chamber through the end of the boiler, a flue-chamber extending horizontally through said water-space, a series of water-tubes secured at each end and communicating with the entry-chambers, and a fire-box adapted to communicate heat to said water space and tubes respectively.

7. In a locomotive-boiler, a shell, a fire-box, a smoke-box, a flue-chamber extending and forming the only opening between said fire-box and smoke-box, a water-space surrounding said flue-chamber within said shell, an entry-chamber forming part of said water-space in and above said flue-space adjacent said smoke-box whereby said flue-space is contracted and a heat-retainer is formed therein, an entry-chamber forming part of said water-space in and above said fire-box, manholes communicating with said entry-chambers and a plurality of water-tubes connecting said entry-chambers through said flue-chamber.

785,419. **ELECTRIC SWITCH.** DAVID B. GRAY, New York, N. Y. Filed June 6, 1904. Serial No. 211,261.

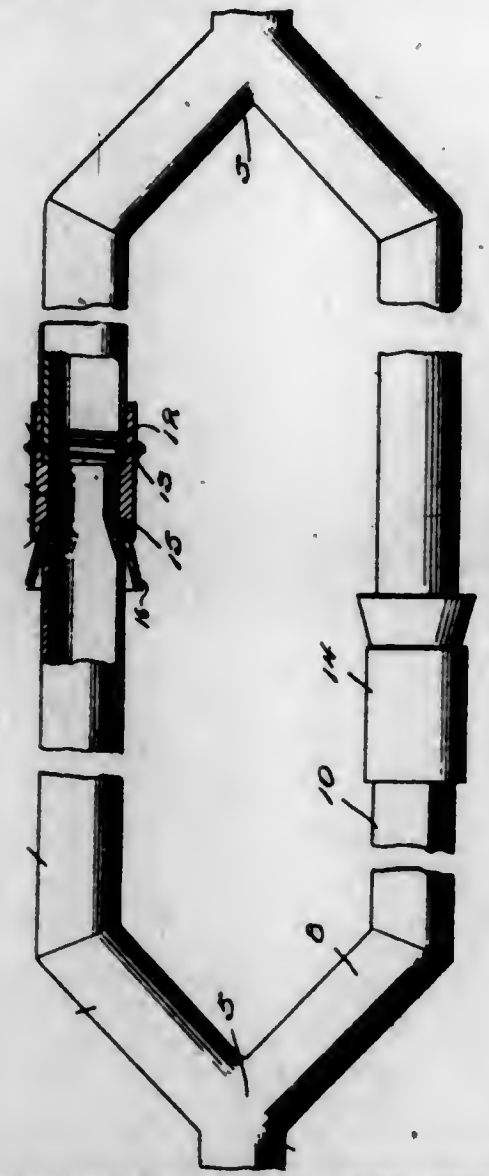


Claim.—1. In an electric switch, the combination of an insulating-base, a stationary electric contact carried thereby, a main contact, a switch-arm, one of said latter parts having an enlarged head or projection and the other having a correspondingly-formed opening, said arm being pivoted on said main contact, movable in a plane parallel to said base and removable after electrical connection is broken with said stationary contact.

2. In an electric switch, the combination of an insulating-base, a main contact, a stationary contact carried by and projecting above the surface of said base, a pivotally-mounted switch-arm rotatable in a plane parallel to said base for affording an electrical connection between said contacts and means for removing said switch-arm by a movement at right angles to said base but only after electrical contact has been broken by a rotative movement.

3. In an electric switch, the combination of an insulating-base, a secondary contact secured thereto, a main contact carried by said base affording an axis at right angles to said base, a switch-arm, one of said elements having an enlarged head or projection and the other having an opening corresponding in form to said enlarged head and spring means for holding said arm in contact with said post, said arm affording electrical connection between said contacts, the enlarged head and the opening being so arranged that said arm may be removed by a rotary and longitudinal movement.

785,420. **AIR-BRAKE COUPLING.** JESSE J. GRIGSBY, Milroy, Ind. Filed July 25, 1904. Serial No. 218,072.



Claim.—A pipe-coupling comprising a tubular section, a helical spring secured within and projecting beyond the end of the tubular section, a funnel secured at its minor end to the outer end of the spring, a resilient sleeve surrounding the spring, a second tubular section arranged for insertion within the spring and of a size to fit snugly therewithin, and a resilient washer surrounding the second tubular section and arranged to fit snugly within the funnel.

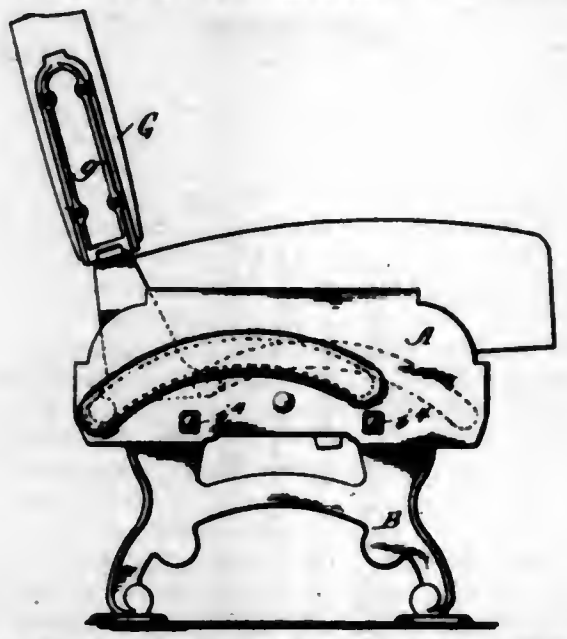
785,421. **CAR-SEAT.** HENRY S. HALE, Philadelphia, Pa. Filed Apr. 29, 1904. Serial No. 205,469.

Claim.—1. In a seat, the combination with a frame, a seat cushion and a back, of a back-arm, and coacting guideways arranged below said back on arcs having independent centers, substantially as described.

2. In a seat, the combination with a frame, a seat cushion and a back, of a back-arm and oppositely-disposed coacting guideways arranged below said back on arcs having independent centers, substantially as described.

3. In a seat, the combination with a frame, a seat cushion and a back, of a back-arm having projections on opposite sides thereof and

coacting guideways arranged below said back on arcs having independent centers, substantially as described.



4. In a seat, the combination with a frame, a seat cushion and a back, of a back-arm and coacting guideways supported by said frame below said back and arranged on arcs having independent centers, substantially as described.

5. In a seat, the combination with a frame including an end plate and a supplemental end plate, of a back-arm and coacting guideways formed in said plates, and arranged on arcs having different centers, substantially as set forth.

6. In a seat, the combination with a frame including an end plate and a supplemental end plate, of a back-arm having sheaves or projections on opposite sides thereof, and coacting guideways formed in said plates, and arranged on arcs having different centers, substantially as set forth.

7. In a seat, the combination with a frame and a back, of a back-arm having a sheave or projection formed on either side thereof below said back, each of said sheaves or projections coacting with a guideway supported by said frame, said guideways being arranged on arcs having independent centers, substantially as set forth.

8. In a seat, the combination with a frame including an end plate and a supplemental end plate, of guideways formed in said plates on arcs having different centers, and a back-arm arranged between said plates and having sheaves or projections coacting with the guideways therein, substantially as set forth.

9. In a seat, the combination with a frame including an end plate, a supplemental end plate and stops or shoulders, of guideways formed in said plates on arcs having different centers, and a back-arm arranged between said plates and having sheaves or projections coacting with the guideways therein and with said stops or shoulders, substantially as set forth.

10. In a seat, the combination with a frame including two parallel plates each having a guideway, such guideways being arranged on arcs having different centers, of a back-arm having a projection near the forward portion of one side and another projection near the rearward portion of the other side, said projections coacting with said guideways to influence its inclination, substantially as set forth.

11. In a seat, the combination with a frame including parallel end plates having guideways arranged on arcs of different centers, of a back-support operating between said plates and coacting with said guideways, substantially as set forth.

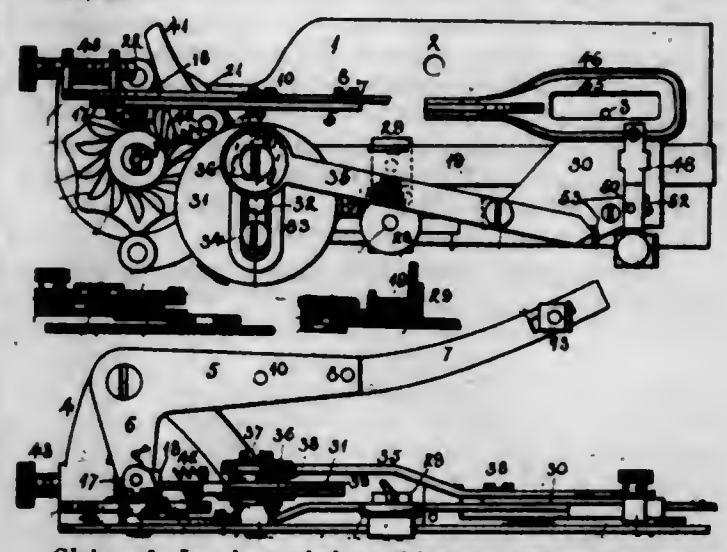
12. In a seat, the combination with a frame including at each end parallel plates having guideways arranged on arcs having different centers, of a walk-over back, and back-supporting arms operating between said parallel plates and influenced in their inclination by said guideways, substantially as set forth.

13. In a seat, the combination with a frame including at each end parallel plates having guideways arranged on arcs having different centers, of a walk-over back, back-supporting arms operating between said parallel plates and influenced in their inclination by said guideways, movably-supported rockers, and a connection between the same and said back-supporting arms, substantially as set forth.

14. In a seat, the combination with a frame including an end plate having a guideway and stops and a supplemental plate parallel thereto and also provided with a guideway, said guideways being arranged on arcs having different centers, of a back-supporting arm provided with a sheave on one side coacting with the guideway in said end plate and on the other side with a sheave coacting with the guideway in said supplemental plate, a back supported at one end by said arm, and means for supporting the other end of said back and permitting reversal thereof, substantially as set forth.

15. In a seat, the combination with a frame including end plates, a back and a seat cushion, of sills extending between said plates and formed of T-iron, clips secured to the ends of said sills by bolts extending through the vertical webs of said sills, and bolts projecting through said plates and coacting with said clips, said last-named bolts being in line with said vertical webs, substantially as set forth.

785,422. ATTACHMENT FOR WORKING BUTTONHOLES. OWEN B. HAMMOND, Belvidere, Ill. Filed Oct. 12, 1903. Serial No. 176,737.



Claim.—1. In a buttonhole-working attachment, the combination of a clamp for holding cloth, means for moving the clamp in its lengthwise direction step by step, comprising a rotatable disk, a plate having a central opening larger than its pivotal support and having two sections engaging the periphery of the disk, a cam-lever carried by the plate and engaging the periphery of the disk about midway between the two sections, means for moving the cam-lever, and a connection between the disk and clamp.

2. In a buttonhole-working attachment, the combination of a clamp for holding cloth, means for moving the clamp in its lengthwise direction step by step, comprising a rotatable disk, a plate having a central opening larger than its pivotal support and having two sections engaging the periphery of the disk, a cam-lever carried by the plate and engaging the periphery of the disk about midway between the two sections, means for moving the cam-lever, an adjustable stop limiting the return movement of the lever, a connection between the disk and clamp and a spring acting upon the lever for returning it.

3. In a buttonhole-working attachment, the combination of a clamp for holding cloth and means for moving the clamp transversely to its length, comprising a support provided with a guideway, a guide located and movable in the guideway and having a connection with the clamp, a trip having a pivotal connection with the support and with the guide, and means for moving the trip.

4. In a buttonhole-working attachment, the combination of a clamp for holding cloth, means for moving the clamp transversely its length, comprising a support provided with a guideway, a guide located and movable in the guideway and having a connection with the clamp, a trip having a pivotal connection with the support, and provided with a radially-extending slot, a plate having a pivotal connection with the guide, means for clamping the plate to the guide in an adjustable manner, a pin extending from the plate entering the slot, and means for moving the trip.

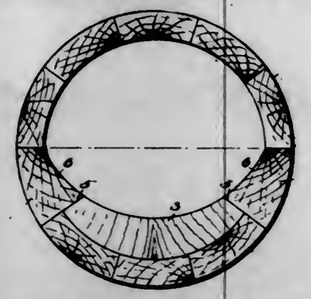
5. In a buttonhole-working attachment, the combination of a clamp for holding cloth, means for moving the clamp transversely to its length, comprising a support provided with a guideway, a guide located and movable in the guideway and having a connection with the clamp, a trip having a pivotal connection with the guide, the trip having a V-shaped recess, a pivoted bar having a pointed end, and the pointed end of the bar located in the recess and movable in a manner to throw the trip, thereby moving the guide and means for moving the bar.

6. In a buttonhole-working attachment, the combination of a base-plate, a lever extending in the lengthwise direction of the plate and having a pivotal connection between its ends with the base-plate, means for oscillating the lever, a slide supported by and movable in the lengthwise direction of the lever, a cloth-clamp located

parallel with the lever and connected to the slide, means for moving the slide step by step, and means for moving the clamp transversely to its length, comprising a support provided with a guideway, a guide located and movable in the guideway and having a connection with the clamp, a trip having a pivotal connection with the support and with the guide, and means for moving the trip.

7. In a buttonhole-working attachment, the combination of a base-plate, a lever comprising a main section and a forked end, a cam-wheel located within the forked end with which the forked ends engage, means for intermittently rotating the cam-wheel, a connection between the lever and base-plate holding the lever against lengthwise movement, a pivotal connection between the main portion of the lever and base-plate, a slide supported by and movable in the lengthwise direction of the main portion of the lever, a cloth-clamp connected to the slide and located to one side of and parallel with the lever, means for moving the slide step by step, and means for moving the clamp transversely to its length, comprising a support provided with a guideway, a guide located and movable in the guideway and having a connection with the clamp, a trip having a pivotal connection with the support and with the guide, and means for moving the trip.

785,423. **STAVE WOODEN PIPE.** JAMES HOPKINS, Seattle, Wash. Filed Sept. 23, 1904. Serial No. 226,406.



Claim.—1. A device of the character described, comprising a plurality of sections, some of said sections provided with inwardly-projecting portions and a removable section secured between the projecting portion of said sections to form a continuous wearing-section of increased thickness.

2. In a device of the character described, the combination of a casing provided with extensions projecting from the sides thereof, and reinforcing means secured between said extensions to form a wearing-section of increased thickness.

3. A device of the character described, comprising a casing, longitudinal extensions projecting inwardly from the sides thereof, and filling means secured longitudinally within said casing between said projections to form a wearing-section of increased thickness.

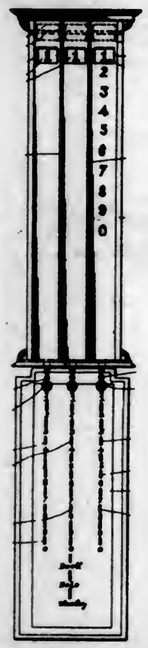
4. A device of the character described, comprising a plurality of sections, one section upon each side of greater width near its lower end than the remaining sections, and filling means positioned between said sections of greater width.

5. In a device of the character described, the combination of a tubular casing, comprising a plurality of sections, a section upon each side provided with a longitudinal extension, and a removable auxiliary section positioned between the extended portion of said side sections to form a wearing-section of increased thickness.

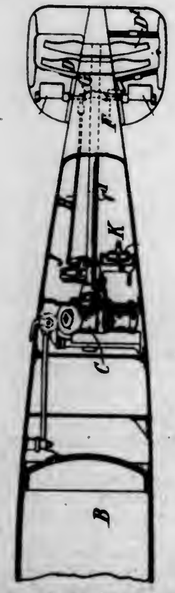
6. A device of the character described, comprising a casing, a removable reinforcing member positioned in the bottom thereof, and beveled extensions formed upon the sides of said casing and positively retaining said reinforcing member in a fixed position therewith, said reinforcing member and the extensions extending throughout the length of the casing to form a wearing-section.

785,424. **ANNUNCIATOR.** ARCHIE T. INGRAM and WALTER L. INGRAM, Destertown, Ga. Filed Nov. 11, 1904. Serial No. 232,336.

Claim.—An annunciator comprising a casing, a numeral or letter carrying band mounted within the casing, a cross-piece fastened to one end of said band, a bail secured to the end of said cross-piece, a chain secured to said bail and guided through an aperture in the bottom of the casing, a vertical series of hooks adapted to be engaged by said chain, said hooks being in alinement with said chain and aperture through which it passes, and a weight fastened to the other end of the said band, as set forth.



785,425. **STEERING MECHANISM FOR TORPEDOES.** FRANK M. LEAVITT, New York, N. Y., assignor to E. W. Bliss Company, Brooklyn, N. Y., a Corporation of West Virginia. Filed Nov. 30, 1903. Serial No. 183,307.



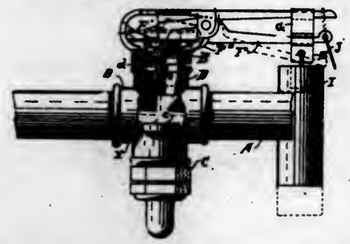
Claim.—1. In a torpedo-steering mechanism, the combination with steering apparatus acting to swing the rudder continually between extreme port and extreme starboard and thereby to steer the torpedo in a sinuous path, of a controlling mechanism acting to prolong the action of the rudder to either port or starboard.

2. In a torpedo-steering mechanism, the combination with steering apparatus acting to swing the rudder continually between extreme port and extreme starboard and thereby to steer the torpedo in a sinuous path, of a gyroscope, circuits controlled thereby, and an electromagnetic controlling mechanism actuated thereby and adapted to arrest the rudder in its port or starboard positions.

3. In a torpedo-steering mechanism, a steering apparatus comprising constantly-reciprocating pawls, a ratchet-wheel propelled thereby and connected to the rudder, a gyroscope, and a controlling mechanism operated thereby and adapted to throw either pawl out of action to stop the rudder in either extreme position.

4. In a torpedo-steering mechanism, the combination of a ratchet-wheel having a toothless space, constantly-reciprocating pawls for propelling it, a gyroscope, and a controlling mechanism operated thereby comprising a pawl-lifter to throw one pawl out of action and thereby stop the wheel when the toothless space comes under the other pawl.

785,426. **SPRINKLER-HEAD FOR AUTOMATIC FIRE-EXTINGUISHERS.** ALLEN D. LINN and ITHIEL J. CILLEY, Grand Rapids, Mich. Filed Aug. 25, 1903. Renewed May 13, 1904. Serial No. 207,692.

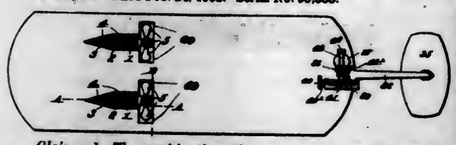


Claim.—1. In combination with the valve and valve-seat of a sprinkler-head for automatic fire-extinguishers, a supporting-frame constructed above the valve, an arm projecting horizontally from the top of the frame, a lever pivoted to the frame below the arm, one arm of said lever projecting to the center of the frame and engaging a countersink in the top of the valve, a second arm extending under and in position to engage the rim of the valve, and the main arm of the lever extending out under and parallel with the arm on the frame, and a fusible link supporting it, substantially as and for the purpose set forth.

2. In combination with the valve and valve-seat of a sprinkler-head, a horizontal supporting-arm, a lever pivoted below the arm and one arm of said lever acting upon the upper surface of the valve, a flange upon the valve, a fusible link securing the outer end of the lever to the supporting-arm, the inner plate of said link forming a bow at the upper end and having a depending lug at the lower end, a weight suspended from said lug, and an arm projecting from the lower surface of the lever to and under the flange on the valve, substantially as and for the purpose set forth.

3. In combination with a sprinkler-head having horizontal supporting-arm and lever, a fusible link formed of two plates, the upper of said plates forming a bow at the upper end and open at the lower end, the lower or inner plate forming a bow at the upper end below the bow of the upper plate and connected at the lower end, said lower plate soldered to the upper plate, and a weight connected with the lower end of said lower plate, substantially as and for the purpose set forth.

785,427. **HYDROMOBILE.** CAREY A. MANKER, Pearl, Ill., assignor to Manker-Heavner Navigation Company, St. Louis, Mo., a Corporation of Arizona. Filed Feb. 24, 1903. Serial No. 95,335.



Claim.—1. The combination with a revoluble propeller-carrier, of means for rotating said carrier, a series of propeller-blades rockingly carried by said carrier, and means having connection with said blades and arranged to control their pitch in variation of each other, and to vary this variation.

2. The combination with a vessel, of a revoluble propeller-carrier, means for rotating said carrier, a series of propeller-blades rockingly carried by said carrier, and a movable cam whereby said blades are caused to be moved into a pitch on their descending strokes to serve as a medium to lift a component of the weight of the vessel, substantially as set forth.

3. The combination with a revoluble propeller-carrier, of means for revolving said carrier, a series of propeller-blades mounted in said carrier to swing in the line of rotation of the propeller, a movable cam, and means of connection between said cam and said blades whereby said blades are moved into varied angles with respect to the axis of said carrier on the movement of said cam, substantially as set forth.

4. The combination with a vessel, of a series of wedge-shaped propeller-blades mounted to swing in the line of rotation of the propeller, and fulcrum mechanism to which said blades are connected, and by which the blades are varyingly moved to support the weight of the vessel by counter-leverage.

5. The combination with a revoluble propeller-carrier, of means for revolving said carrier, oscillatory members mounted in said carrier, means for operating said oscillatory members, stems, sockets applied to said stems, propeller-blades having their stems seated in said sockets, and screws by which their stems are held, substantially as described.

6. The combination with a revoluble propeller-carrier, of means for revolving said carrier, a series of oscillatory members mounted in said carrier, propeller-blades loosely connected to said oscillatory members, means for oscillating said members to vary the movement of said propeller-blades at different periods during the rotation of said carrier, and means for feathering said blades during the rotation of the carrier, substantially as described.

7. The combination with a revoluble propeller-carrier, of means for revolving said carrier, oscillatory members mounted in said carrier, means for oscillating said members, propeller-blades loosely connected to said oscillatory members, reciprocating bars geared to said propeller-blades, a cam arranged to receive said reciprocating bars, and means for actuating said cam to move said bars for the purpose of feathering said propeller-blades, substantially as described.

8. The combination with a revoluble propeller-carrier, of means for revolving said carrier, oscillatory members mounted in said carrier, propeller-blades connected to said oscillatory members, rack-bars arranged in engagement with said propeller-blades, a cam, a support for said cam, and means whereby said cam is rocked on its support to reciprocate said rack-bars for the purpose of feathering said propeller-blades, substantially as described.

9. The combination with a revoluble propeller-carrier, of means for revolving said carrier, oscillatory members mounted in said carrier, propeller-blades connected to said oscillatory members, rack-bars arranged in engagement with said propeller-blades, a cam, a support for said cam, means whereby said cam is rocked on its support for the purpose of feathering said propeller-blades, and pillow-blocks seated in said cam and adapted to receive the rear ends of said rack-bars, substantially as described.

10. The combination with a vessel, of a drag-pole pivotally mounted at the stern of the vessel, an adjustable leveling-plate carried by said pole, substantially as described.

11. The combination with a vessel, of a drag-pole pivotally mounted at the stern of the vessel, a leveling-plate carried by said pole, and a weight carried by the pivot of said pole adapted to control the movement thereof, substantially as described.

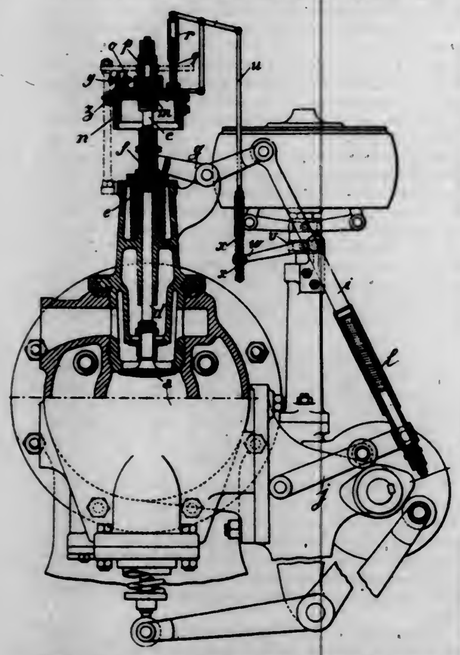
12. The combination with a vessel, of a drag-pole pivotally mounted at the stern of the vessel, a leveling-plate swingingly mounted in the free end of said drag-pole, a shaft geared to said leveling-plate, and a weight suspended from the pivot of said pole and adapted to operate said pivot to impart rotation to said shaft, substantially as set forth.

13. The combination with a vessel, of runners adjustable vertically of the vessel, means for adjusting the runners in unison, propellers carried by said runners, means for driving and varyingly controlling the working force of the blades of each propeller, and means for independently governing the driving and controlling mechanism of each propeller, substantially as described.

14. The combination with a vessel, of a revoluble propeller-carrier, means for revolving said carrier, propeller-blades having their stems swingingly mounted in said carrier, a swinging weight mount-

ed on the vessel, and mechanism actuated by said weight, whereby said blades are moved, to vary their angularity.

785,428. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. AUGUSTIN M. MILSOM, Paris, France, assignor to Maurice Raoul-Duval, Paris, France. Filed Apr. 5, 1902. Serial No. 101,578.



Claim.—1. In combination in a speed-regulator for explosive-engines: an admission-valve, a spring *e* for maintaining said valve normally on its seat, a rod for said valve, a piston fixed on the head of said rod, a vacuum-cylinder mounted on the engine and in which said piston works, a perforated tube attached to the head of said cylinder, and a progressive means for closing the perforations of said tube under the command of the governor.

2. In combination in a speed-regulator for explosive-engines: an admission-valve *a*, a spring for maintaining said valve normally on its seat, an abutment *f* at a certain point on the valve-rod, a lever *g* for operating the valve, a rod *i* in two telescoping pieces attached to said lever, a compressible extension-spring *l* tending to separate the two pieces of the rod *i*, a lever *j* pivoted to the engine and connected with the rod *i*, a cam *k* acting upon the lever *j*, a piston fixed upon the valve-stem, a vacuum-cylinder mounted upon the engine and within which this piston works, a perforated tube fixed in the head of said cylinder, and a progressive means for closing the perforations in said tube under the command of the governor.

3. In combination in a speed-regulator for explosive-engines: an admission-valve, a spring for maintaining said valve normally on its seat, a rod for said valve, a piston *m* fixed upon said rod, a vacuum-cylinder mounted upon the engine and in which said piston works, a perforated tube *q* fixed upon the head of said cylinder, an outer tube *r* fitting said tube *q*, a lever *t* operating said outer tube, a rod *u* connected with said lever, an arm *w* moved upward and downward by the governor and presenting at its extremity an eye through which said rod *u* passes, and two springs *x* fixed upon the rod *u* one above and the other beneath the extremity of the arm *w*.

4. In combination in a speed-regulator for explosive-engines: an admission-valve, a spring for maintaining said valve normally upon its seat, a rod for said valve, a piston *m* fixed upon said rod, a vacuum-cylinder mounted upon the engine and in which said piston works, a perforated tube *q* attached to the head of said cylinder, an outer tube *r* fitting said tube *q*, a lever *t* operating said outer tube, a rod *u* articulated to said lever, a lever *w* moved upward and downward by the governor and presenting at its extremity an eye through which said rod *u* passes, two springs *x x* fixed upon the rod *u* one above and the other beneath the extremity of the lever *w*, and a valve *z* in the cylinder near the head thereof and opening outward.

5. In combination in a speed-regulator for explosive-engines: an admission-valve, a spring for maintaining said valve normally upon its seat, a rod for said valve, a piston *m* fixed upon said rod, a vacuum-cylinder *a* in which this piston works, a spherical joint *p* attaching said cylinder to the engine, a perforated tube *q* fixed upon the head of said cylinder, an outer tube *r* fitting said tube *q*, a lever *t* operating said outer tube, a rod *u* connected with this lever, a lever *w* moved upward and downward by the governor and presenting at its extremity an eye through which said rod *u* passes, and two springs *x x* fixed upon the rod *u* one above and the other beneath the extremity of the lever *w*.

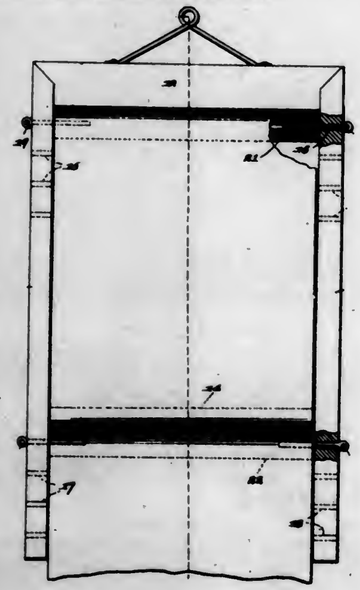
6. In combination in a speed-regulator for explosive-engines: an admission-valve, a spring for maintaining said valve normally upon its seat, a rod for said valve, a piston *m* fixed upon said rod, a vacuum-cylinder *a* in which this piston works, a spherical joint *p* attaching this cylinder to the engine, a perforated tube *q* fixed on the head of said cylinder, an outer tube *r* fitting over the tube *q*, a lever *t* for operating said outer tube, a rod *u* connected with said lever, a lever *w* moved upward and downward by the governor and presenting at its extremity an eye through which the rod *u* passes, two springs *x x* one above and the other below the extremity of the lever *w*, and a valve *z* in the cylinder *a* near the head thereof and opening outward.

785,429. COMB. WALTON J. METCALF, Leominster, Mass. Filed Sept. 29, 1904. Serial No. 226,573.



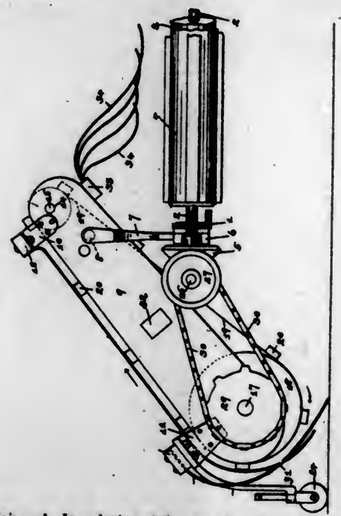
Claim.—In a device of the character described, a comb, a plate arranged a suitable distance above and parallel with the head of the comb, said plate being of greater area than the head, and studs interposed between the head of the comb and plate near each end thereof and secured permanently to the head and plate for holding the plate in its position.

785,430. DISPLAY-RACK. OTTO H. MUEHLER, Mount Vernon, Ind. Filed June 27, 1904. Serial No. 214,406.



Claim.—A display-rack comprising spaced side members connected at one end by a transverse member having suspending means attached thereto, and with a transverse bar connecting the side members at points spaced from their lower ends, said side members having spaced transversely-alined apertures adjacent to said upper connecting-bar and beneath said lower connecting-bar for adjustably supporting suspending pins or rods.

785,431. SWATH-GATHERER ATTACHMENT FOR BINDERS. EDWARD M. NORRIS, Baltimore, Md. Filed Jan. 16, 1905. Serial No. 241,180.



Claim.—1. In a device of the class described the combination with the binder platform-belt, of a swath-gatherer trailing at the rear side of said belt, and having an endless belt traveling in an inclined plane and projecting in a plane above the platform-belt and also having a trailing rake device to lift the grain from the ground and into the path of the endless belt, and means for imparting motion to said inclined endless belt.

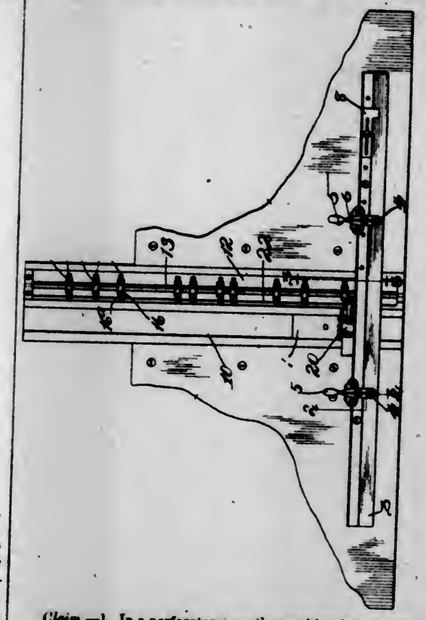
2. In a device of the class described the combination with the binder platform-belt, of a swath-gatherer sustained at one side of said belt and having an inclined endless belt which projects over the platform-belt; means for turning the grain as it discharges from the inclined belt onto the platform-belt; a rake having a plurality of teeth which extend around and curve beneath the lower end of said inclined belt, and means for driving the inclined belt in a direction at right angles to said platform-belt.

3. In a device of the class described the combination with the binder platform-belt, of an inclined frame traveling at the rear side of said belt and having upper and lower rollers; an endless belt passing around said rollers and projecting over said platform-belt; rake-teeth carried by said frame and curving under the lower roller and the endless belt; means at the upper discharge end of said belt for turning the grain at right angles before it is deposited onto the platform-belt and means for driving said rollers and inclined belt.

4. In a device of the class described the combination with the binder-frame, of a belt at the front side of the binder-frame; an inclined frame sustained by the binder-frame and extending above and below the latter with its lower end trailing behind said frame; rollers mounted at the upper and lower ends of said frame; an endless belt passing around said rollers; a guard sustained by said frame above said endless belt and partly surrounding the lower roller and the belt thereon, a rake extending beneath the lower roller; means for revolving the rollers and inclined belt and means adjacent the upper roller for turning the grain after it discharges from the higher end of said belt.

5. In a device of the class described the combination with the binder platform-belt, of inclined parallel end frames sustained so as to project above and below the platform-belt and at the rear of the latter; rollers mounted on shafts at the upper and lower ends of said end frames; an endless belt passing around said rollers; a sprocket-wheel on the shaft of the lower roller; a horizontal shaft at the rear side of the platform-belt; a sprocket on said shaft; a chain passing around said sprockets; a gear also on said horizontal shaft; means for driving said gear and a rake sustained at the lower end of said end frames and projecting beneath said lower roller to lift the grain from the ground and into the path of the endless belt.

785,432. GAGE FOR PERFORATING-MACHINES. CHARLES S. PERKINS, Chicago, Ill. Filed Sept. 13, 1904. Serial No. 224,127.



Claim.—1. In a perforator-gage the combination of a gage-bar, means thereon for holding the paper, a slide upon which said bar is mounted, a table over which said bar travels for supporting the paper, a series of stops arranged below the surface of the table and over which said bar crosses, and means connected with said bar for locking it against any of said stops.

2. In a perforator-gage the combination of a table, a gage-bar slidable thereover, means on said bar for clamping and holding the paper, a rod arranged under said bar holding the surface of the paper, a series of stops on said rod and means on said bar for engaging said stops.

3. In a perforator-gage the combination of a table, a gage-bar, means on said bar for clamping the paper, a bodily-removable series of stops arranged below the surface of the table under said bar, and means in connection with said bar for engaging said stops

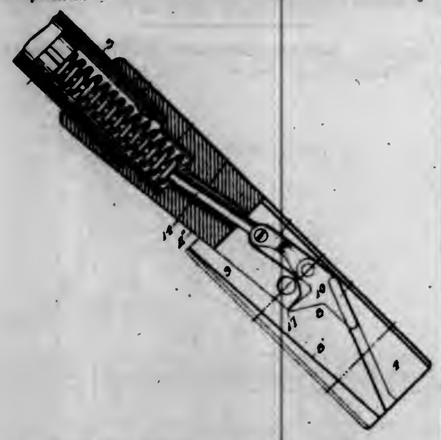
4. In a perforator-gage the combination of a table, a gage-bar movable thereover, a rod arranged below the surface of the table and under said bar, a series of collars movable longitudinally on said rod and each having a stop member, means for adjustably attaching said collar to the rod and means connected with said gage-bar for engaging said stop members.

5. In a perforator-gage the combination of a table, a gage-bar movable thereover, a rod arranged below the surface of the table, a series of stops mounted on said rod, a longitudinal shoulder or support for the ends in said stops and along which said stops are slidable and means in connection with said gage-bar for engaging said stops.

785,433. ROPE-KNIFE. CHARLES R. PHILLIPS, Mannington, W. Va. Filed June 24, 1904. Serial No. 213,231.

Claim.—1. A rope-knife comprising a body having a ropeway, a movable cutter, a spring for holding the cutter normally withdrawn from the ropeway, and operating means constructed and arranged to move the cutter into the ropeway by overcoming the pressure of said spring.

2. A rope-knife comprising a body having a ropeway, means for raising and lowering the body, cutter mechanism operative within the body, means for holding the cutter mechanism normally inactive, and an independently-movable device adapted to be directed by the body raising and lowering means for moving the cutter to operative position.



3. A rope-knife comprising a body having a ropeway, tubing for raising and lowering the body, cutter mechanism operative within the body, means for holding the cutter mechanism normally inactive, and an independently-movable cutter-actuating device operative in said tubing.

4. A rope-knife comprising a body having a ropeway, a cutter, a carrier for the cutter projecting upwardly in the body, a spring for holding the carrier normally elevated, and a weight operative through the tubing for depressing the carrier against said spring and moving the cutter to operative position.

5. A rope-knife comprising a body having a ropeway, the body being recessed adjacent said way and formed with guideways inclined downwardly toward the ropeway, a cutter movable in the body-recess and adapted to be directed by the guideways toward and from the ropeway, means for holding the cutter in elevated and inoperative position, and means for depressing the cutter into engagement with the rope.

6. A rope-knife comprising a body having a ropeway, the body being recessed adjacent the way and formed with guideways inclined downwardly toward the ropeway, a laterally-projecting barb-like cutter projecting laterally within the body-recess and adapted to be directed by the guideways into engagement with the cable, means for holding the cutter normally elevated and in inoperative position, and means for depressing the cutter.

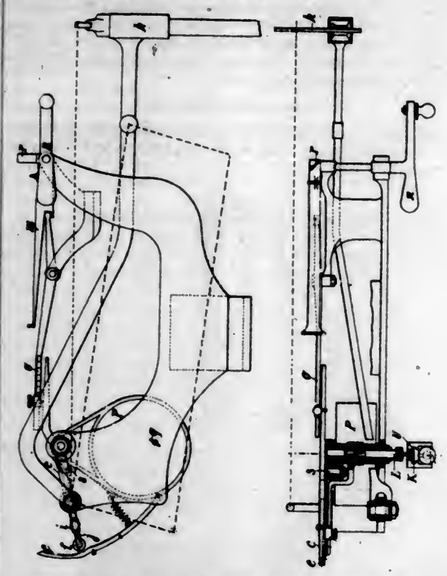
7. A rope-knife comprising a body having a ropeway, the body being recessed adjacent the way and formed with guideways inclined downwardly toward the ropeway, and a cutter operative within the body-recess and adapted to be directed by said guideways into engagement with the rope.

8. A rope-knife comprising a vertically-movable body having a ropeway and a guideway downwardly inclined toward the ropeway, and a cutter device movable in the guideway with its cutting edge disposed toward and adapted to traverse the ropeway, whereby the upward movement of the body on the rope operates to force the cutting edge into and through the rope.

9. A rope-knife comprising a body having its lower portion reduced on one side and formed on said side with a vertical ropeway, said side also being recessed to form an operating-space, a cutter operative in said space, and a body-section removably secured to said reduced portion of the body for inclosing the ropeway and the cutter mechanism.

10. A rope-knife comprising a body having its lower portion reduced on one side and on said side formed with a vertical ropeway, said side also being formed with an operating-recess adjacent the ropeway, a cutter operative within the recess, a body portion removably secured to the reduced portion of the body and inclosing the ropeway and cutter mechanism, the adjacent faces of the body and removable body portion being formed with grooves inclined downwardly toward the ropeway and operating to direct the cutter thereto.

785,434. NAVAL-GUN SIGHT. VICTOR J. POUTET, Marseilles, France. Filed Dec. 11, 1903. Serial No. 184,758.



Claim.—1. In a system of sighting for naval guns, for the correction of the error in elevation of the muzzle of the gun due to the rolling and pitching of the ship in firing at sea, a device adapted to preserve a fixed direction in space, the said device being movable about an axis constantly normal to the plane of fire and adapted to automatically vary the line of sight, an amount proportionate to the angular velocity of the ship in rolling through a given position, substantially as hereinbefore described and illustrated in the drawings.

2. In combination with the sights of naval guns to be mounted upon vessels, a device coacting with the sights for correcting the error in the elevation of the muzzle of the gun due to the rolling and pitching of the vessel in firing at sea, which device has an actuating member arranged to preserve a predetermined fixed direction in space, the sight being held to move about an axis constantly normal to the plane of firing, and means connecting the sight with the actuating member, said actuating member coacting with said means to vary the line of sight an amount in proportion to the angular velocity of the ship in rolling through a given position.

3. The combination with the fore sight or hind sight of a gun, of a rectifying device adapted for action relative to one or the other of said sights, which device has a sight-carrying member movable about an axis normal to the plane of fire, and a member coacting therewith and held by gravity to preserve a fixed direction in space to automatically regulate the position of said sight-carrying member when the gun is tilted, and means for locking said device during a predetermined portion of the tilting movement of the gun.

4. In naval-gun sights, the combination with a pendulum of a fore or hind sight pivotally mounted and which has a pendent arm, said pendulum having a short period of oscillation relative to that of the ship and mounted to swing about an axis parallel to the axis of rotation of the sighting apparatus with which it is used, a roller-contact between the pendulum and the arm of the coacting sight and a locking and releasing device for said arm, substantially as set forth.

5. In naval-gun sights, the combination with a pendulum of a fore or hind sight pivotally mounted and which has a pendent arm, of a pendulum element having a short period of oscillation relative to that of the ship and mounted to swing about an axis normal to the plane of fire, a roller-contact between the pendulum and the arm of the coacting sight, a locking and releasing device for said arm, and a stop for holding said pendulum and arm against operation.

6. In naval-gun sights, the combination with a pendulum of a fore or hind sight pivotally mounted and which has a pendent arm, of a pendulum element having a short period of oscillation relative to that of the ship and mounted to swing about an axis parallel to the axis of rotation of the sighting apparatus in connection with which it is used, a roller-contact between the pendulum and the arm of the coacting sight, and locking and releasing mechanism for the free end of the sight-arm, all operated in the manner specified.

7. In a device of the character described, a sight-point movably mounted, and means for automatically varying the line of sight an amount proportionate to the angular velocity of the ship in rolling through a given position.

8. In a device of the character described, a sight-point movably mounted, means for automatically varying the line of sight an amount proportionate to the angular velocity of the ship in rolling through a given position, whereby to compensate for the length of time required for the gun to discharge a projectile after the firing mechanism has been operated upon, and regulating means for modifying said automatic variation of the line of sight an amount proportionate to the time required for a given gunner to operate the firing mechanism.

9. In a device of the character described, a sight-point movably mounted, and means for automatically raising the line of sight an amount proportionate to the maximum angular velocity of the ship in rolling through its vertical position whereby the elevation of the line of sight compensates for the retarding in firing.

10. In a device of the character described, a sight-point movably mounted, and a pendulum coöperating therewith and adapted to automatically vary the line of sight an amount proportionate to the angular velocity of the ship, in rolling through a given position.

11. In a device of the character described a sight-point movably mounted, a pendulum coöperating therewith and adapted to automatically vary the line of sight an amount proportionate to the amplitude of the ship's roll and the consequent angular velocity of the ship in passing through a given point as it rolls, and means for automatically locking the sight-point when it has been moved by the pendulum a distance proportionate to the roll of the ship in a given direction.

12. In a device of the character described, a sight-point movably mounted, a pendulum coöperating therewith and adapted to automatically vary the line of sight an amount proportionate to the amplitude of the ship's roll and the consequent angular velocity of the ship in passing through a given point as it rolls, means for automatically locking the sight-point when it has been moved by the pendulum a distance proportionate to the roll of the ship in a given direction, and means for automatically unlocking the sight-point when the pendulum has reached a predetermined position in its return movement.

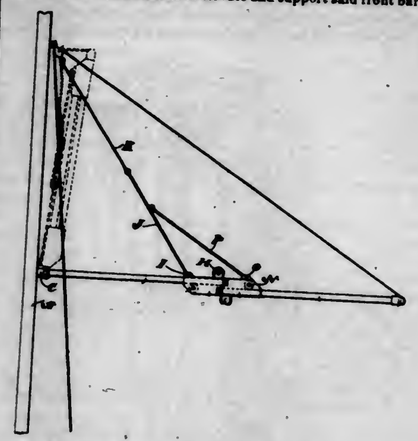
13. In a device of the character described, a sight-point, a movable member upon which said sight-point is supported, a pendulum adapted to turn on its pivot an amount proportionate to the amplitude of the roll of the vessel, and an adjustable connection between said pendulum and said movable sight-supporting member, whereby to adapt the pendulum to move said sight-point a distance proportionate to the position of the adjustable connection between the pendulum and the movable member.

14. In a device of the character described, a sight-point mounted on the cannon to oscillate thereon, and a member adapted to automatically raise said sight-point a distance proportionate to the angular velocity of the vessel in rolling around its vertical position, whereby to compensate for the delay of firing.

15. In a device of the character described, the combination with a sight-point, of a pivoted arm carrying said point to movably support the same, a pendulum adapted to automatically move a distance proportionate to the amplitude of the rolling of the ship, a roller carried by said pendulum and adapted to engage said sight-carrying arm and move the same with the pendulum on the downward roll of the ship to elevate the sight-point a distance proportionate to the movement of the pendulum, and a spring-controlled ratchet-lever for engaging said sight-supporting arm at the downward limit of the roll of the ship, said ratchet-lever having a swell thereon located in the path of the return movement of said roller on the pendulum and adapted to be engaged by said roller at the beginning of the second half-period of upward roll of the ship, whereby to disengage the sight-carrying arm from said ratchet-lever to leave the same free to be operated upon by the next succeeding downward roll of the ship.

785,435. AWNING-FRAME. JAMES R. POWELL, Los Angeles, Cal., assignor of one-half to Henry T. Hazard and George E. Harpham. Filed Aug. 19, 1904. Serial No. 221,495.

Claim.—1. An awning-frame composed of sectional side bars, said sectional side bars having fixtures on the contiguous ends thereof and one member being slidable through the fixture of the other member, the inner member being adapted to be pivotally secured to the front of the building; a front bar secured to the outer ends of the outer sections; brace-rods secured to the fixtures of said sections at the opposite ends thereof and pivotally secured together at a point which will permit the side bars to lie horizontally; means to support said brace-rods; and means to elevate and support said front bar.



2. An awning-frame having the side bars thereof composed of two sections, each section being slidable through a fixture secured to the end of the other section; fixtures having roller-bearings therein upon the ends of said sections; a front bar secured to the outer end of the outer sections of the side bars; a brace-rod secured to the inner end of the inner fixture; a supporting-rope secured to the other end of said supporting-rod and to a support secured to the side of the building; a second brace-rod secured to the first brace-rod and to the outer end of the outer fixture; operating-ropes secured to the outer end of the side bars and passing thence through fixtures secured to the side of the buildings and then down the side of the building, and said fixtures secured to the side of the building above the side bars.

785,436. CONFECTIONERY-COATING MACHINE. CLAUDE POYET and GEORGE B. M. GOODWIN, New York, N. Y., Robert Braasch and Charles Triller executors of said Claude Poyet, deceased. Filed May 10, 1902. Serial No. 106,786.

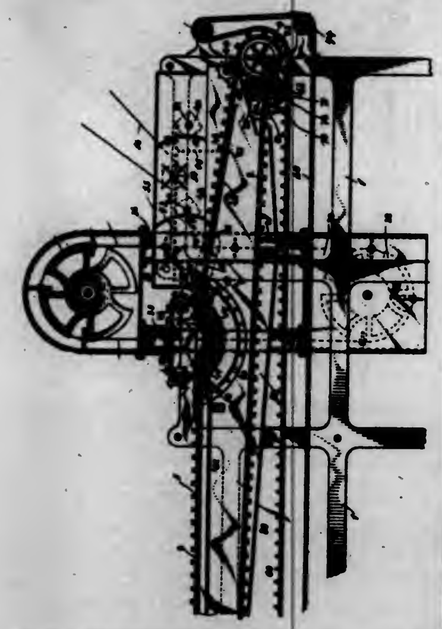
Claim.—1. In a confectionery-coating machine, the combination of a tank for the coating material, an endless flexible carrier having suitable holders for the confectionery, means for supporting and giving it a substantially continuous movement, said means being constructed to direct the holders through the tank so as to coat the confectionery, and means for receiving the coated confectionery from the said holders, said holders and said receiving means coacting to deliver and retain the coated articles on their bases.

2. In a confectionery-coating machine, the combination of a tank for the coating material means for maintaining the coating material at a substantially uniform level in the tank, an endless flexible carrier having suitable holders for the confectionery, means for supporting the carriers and giving them a substantially continuous movement, said means being constructed to direct the holders through the tank so as to coat the confectionery, means for receiving the coated confectionery from the holders, said holders and said receiving means coacting to deliver and retain the coated articles on their bases.

3. In a confectionery-coating machine, the combination of a tank for the coating material, an endless flexible carrier having open skeleton holders for the confectionery, means for supporting the carrier and giving them a substantially continuous movement, said means being constructed to direct the holders through the tank so as to submerge the confectionery in the coating material, means for retaining the confectionery in the holders while the latter are passing through the coating material, and means for receiving the coated confectionery from the holders, said holders and said receiving means coacting to deliver and retain the coated articles on their bases.

4. In a confectionery-coating machine, the combination of a tank for the coating material; an endless flexible carrier having open

skeleton holders for the confectionery, means for supporting and guiding the carrier, said means being constructed to direct the carrier through the tank so as to submerge the confectionery in the coating material, and means for retaining the confectionery in the holders while the latter are passing through the coating material, said retaining means consisting of a second endless carrier arranged above the first carrier and having fingers adapted to close the holders.



5. In a confectionery-coating machine, the combination of a tank for the coating material, means for maintaining the coating material at a substantially uniform level in the tank, an endless flexible carrier having open skeleton holders for the confectionery, means for supporting and guiding the carrier and for giving it a substantially continuous movement, said guiding means being constructed to direct the carrier through the tank so as to submerge the confectionery in the coating material, and means supported independently of the carrier for retaining the confectionery in the holders while the latter are passing through the coating material.

6. In a confectionery-coating machine, the combination of a tank for the coating material, an endless flexible carrier having open skeleton holders for the confectionery, means for supporting the carrier and giving it a substantially continuous movement, said means being constructed to direct the carrier through the tank so as to submerge the confectionery in the coating material and to reverse the carrier after it leaves the tank so as to invert the holders, a conveyer for receiving the coated confectionery from the holders, and means for moving said conveyer with the inverted holders.

7. In a confectionery-coating machine, the combination of a tank for the coating material, an endless flexible carrier having open skeleton holders for the confectionery, means for supporting and guiding the carrier and for giving it a substantially continuous movement, said means being constructed to direct the carrier through the tank so as to submerge the confectionery in the coating material and to reverse the carrier after it leaves the tank so as to invert the holders, means for removing the surplus coating material from the confectionery after it leaves the tank, a conveyer for recieving the coated confectionery from the holders, and means for moving said conveyer with the inverted holders.

8. In a confectionery-coating machine, the combination of an endless flexible carrier having a multiplicity of suitable holders for the confectionery, said holders being closely arranged in both longitudinal and transverse directions on the carrier, means for supporting the carrier and giving it a substantially continuous movement, means for applying a coating material to the confectionery in the holders, and means for receiving the coated confectionery from the holders, said holders and said receiving means coacting to deliver and retain the coated articles on their bases.

9. In a confectionery-coating machine, the combination of an endless flexible carrier having a multiplicity of open skeleton holders for the confectionery, said holders being closely arranged in both longitudinal and transverse directions on the carrier, means for applying a coating material to the confectionery in the holders, means for supporting and continuously moving the carrier, and means for receiving the confectionery from the holders, said holders and said receiving means coacting to deliver and retain the coated articles on their bases.

10. In a confectionery-coating machine, the combination of an endless flexible carrier having open skeleton holders for the confectionery, said holders being closely arranged adjacent to each other throughout the length and breadth of the carrier, means for applying the coating material to the confectionery in the carrier, means for removing the surplus coating material, said means comprising an air-blast, means for supporting and continuously moving the carrier, and a conveyer to receive the coated confectionery from the holders, said holders and said conveyer coacting to deliver and retain the coated articles on their bases.

11. In a confectionery-coating machine, the combination of an endless carrier having skeleton holders for the confectionery, means for applying the coating material to the confectionery in the carrier, means for supporting and moving the carrier, said supporting means being arranged to reverse the carrier so as to invert the holders, a conveyer for receiving the coated confectionery from the holders, and means for supporting said receiving-conveyer so as to cause it to travel in contact with the holders as they are inverted.

12. In a confectionery-coating machine, the combination of an endless flexible carrier having open skeleton holders for the confectionery, said holders being closely arranged adjacent to each other throughout the length and breadth of the carrier, means for applying the coating material to the confectionery in the carrier, means for supporting and continuously moving the carrier, said supporting means being constructed to reverse the carrier so as to invert the holders after the coating has been applied, an endless flexible conveyer for receiving the coated confectionery from the holders, and means for supporting said receiving-conveyer so as to cause it to travel in contact with the holders as they are inverted.

13. In a confectionery-coating machine, the combination of an endless flexible carrier having open skeleton holders for the confectionery, means for applying the coating material to the confectionery in the holders, means for supporting and moving the carrier, said means being constructed to reverse the carrier so as to invert the holders, a conveyer for receiving the coated confectionery from the holders, and means independent of the holder for marking the coated confectionery while on said conveyer.

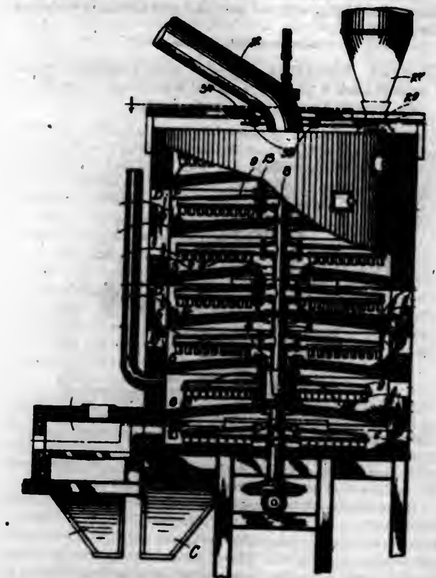
14. In a confectionery-coating machine, the combination of an endless flexible carrier having open skeleton holders for the confectionery, said holders being closely arranged adjacent to each other throughout the length and breadth of the carrier, means for applying the coating material to the confectionery in the holders, means for supporting and continuously moving the carrier, said means being constructed to reverse the carrier so as to invert the holders, a conveyer for receiving the coated confectionery from the holders, and means for marking the coated confectionery while on said conveyer.

15. In a confectionery-coating machine, the combination of an endless flexible carrier having open skeleton holders for the confectionery, means for applying the coating material to the confectionery in the holders, means for supporting and moving the carrier, said means being constructed to reverse the carrier so as to invert the holders, a conveyer for receiving the coated confectionery from the holders, and means independent of the holder for marking the coated confectionery on said conveyer, said marking means being constructed to touch the tops of the freshly-coated pieces and form ridges thereon.

785,437. ROASTING-FURNACE. CHARLES H. REPATH and FRANK B. MABOT, New York, N. Y., assignors to Frank Klepetko, New York, N. Y. Filed May 9, 1904. Serial No. 207,105.

Claim.—1. In a furnace having a plurality of superposed hearths, means for conducting the material from one hearth to the next hearth below in such manner that there is always an uninterrupted body of material connecting the material on one hearth with that on the next adjacent hearth, substantially as set forth.

2. In a furnace having a series of superposed hearths discharging their contents successively into one another, means for conducting said contents in a continuous uninterrupted body throughout the series of hearths, whereby the material on one hearth is connected by a body of material with the material on the next adjacent hearth, substantially as set forth.



3. In a furnace having a series of superposed hearths having means for discharging their contents alternately centrally and marginally into one another, means for conducting the contents in such manner that there is always an uninterrupted body of material connecting the material on one hearth with that of the next adjacent hearth, substantially as set forth.

4. In a furnace having a series of superposed hearths discharging their contents alternately at the center and at the margin into one another, and suitable shields located in alternate hearths below the central discharging-openings of the hearths immediately above for conducting the contents during such discharge from said upper hearths in an unbroken body to the hearths beneath, substantially as set forth.

5. In a furnace having superposed hearths apertured for the passage of the ore, means for crowding the ore toward the apertures, in combination with shields having initial depositing-surfaces, and inclined ways for the subsequent passage of the ore adapted to direct the ore on its way from one hearth to the next hearth below in such a manner as to protect the ore from the influence of the draft, substantially as set forth.

6. In a furnace having superposed hearths apertured for the passage of the ore, means for crowding the ore toward the apertures, in combination with rotating shields having surfaces for the initial deposit of the ore, and inclined ways for the subsequent passage of the ore adapted to direct the ore on its way from one hearth to the next hearth below in such manner as to protect the ore from the influence of the draft, substantially as set forth.

7. In a furnace having superposed hearths apertured for the passage of the ore, means for crowding the ore toward the apertures, in combination with rotating shields having horizontal surfaces for the initial deposit of the ore and inclined ways for the subsequent passage of the ore adapted to direct the ore on its way from one hearth to the next hearth below in such manner as to protect the ore from the influence of the draft, substantially as set forth.

8. In a furnace having superposed hearths apertured for the passage of the ore, means for crowding the ore toward the apertures, in combination with shields adapted to direct the ore from one hearth to the next hearth below outwardly from the center or axis of the furnace, substantially as set forth.

9. In a furnace having superposed hearths, a suitable ore-conveying shield having an upper platform or initial depositing-surface, and an inclined portion for directing the ore from the initial depositing-surface over the hearth below, substantially as set forth.

10. In a furnace having superposed hearths apertured for the passage of the ore, a central stirring-shaft passing through the several hearths, rabble-arms carried by the shaft and extending into the several hearths, and ore-conveying shields coupled to the shaft below the apertures and having each a platform or surface for the initial deposit of the ore, and an inclined portion dipping away from the axis of the shaft and in a vertical plane at right angles to the radius of the cross-section of the shaft, for conducting the ore from one hearth to the next hearth below, substantially as set forth.

11. In a furnace having a series of superposed hearths discharging their contents one into the other, an independent fire-box discharging its products of combustion into the bottom hearth of the series, a draft-diverting and ore-conveying shield located in a hearth above the bottom hearth, and means for conducting the products thus diverted out of the hearth in which the shield is located, substantially as set forth.

12. In a furnace having superposed hearths apertured for the passage of the ore, means for crowding the ore toward the apertures, an independent fire-box for the bottom hearth, in combination with a shield located in a hearth above the bottom hearth for directing the ore from one hearth to the next hearth below, and simultaneously diverting the products of combustion from the fire-box into a discharge opening or flue leading from the hearth containing said shield, substantially as set forth.

13. In a furnace having superposed hearths adapted to alternately discharge centrally and marginally into one another, a central hollow stirring-shaft passing through the several hearths, rabble-arms carried by the shaft and extending into the several hearths, an independent fire-box for the bottom hearth, a shield or drum forming an enlargement of the shaft located in a hearth above the bottom hearth and below an upper centrally-discharging hearth, said drum having inclined peripheral sections for conveying the ore discharging through the adjacent central aperture of the hearth above, and outwardly-swinging aprons mounted on the drum in front of said inclined peripheral sections, the hearth containing said drum being adapted to discharge the products of combustion from the fire-box, substantially as set forth.

14. In a furnace having superposed hearths, a suitable draft-diverting and ore-conveying drum having an upper or initial depositing-surface, a series of inclined peripheral sections for conducting the ore radially outward from the axis of the furnace from one hearth to the next hearth below, and aprons pivoted to the drum in front of the inclined sections, and adapted to swing outwardly therefrom, substantially as set forth.

15. In a furnace, a draft-diverting and ore-conveying shield comprising a rotatable drum, having outwardly-inclined peripheral sections, and an initial depositing-surface to which said inclined sections lead, substantially as set forth.

16. In a furnace having a series of superposed hearths alternately discharging centrally and marginally into one another, the marginal openings or apertures being located in and conforming in general contour to that of the outer peripheral wall of the furnace, substantially as set forth.

17. In a furnace having superposed hearths apertured marginally for the passage of the ore, the said apertures being located within the outer wall of the furnace and having contours following substantially the contour of said outer wall, and having bottoms inclining from one hearth to the next hearth below, substantially as set forth.

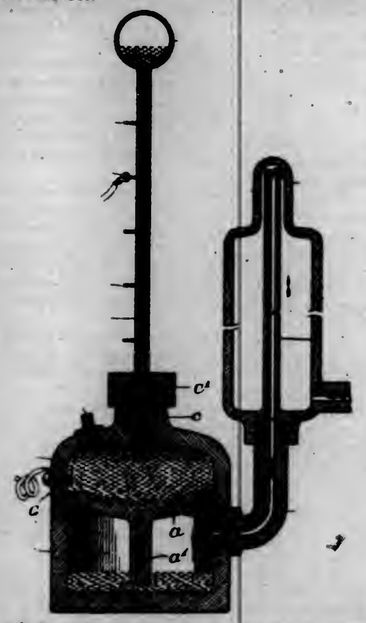
18. In a furnace having superposed hearths apertured marginally for the passage of the ore, said apertures following substantially the contour of the outer wall of the furnace, and a shield or plate located along a portion of the inner edges of the apertures, and terminating at points adjacent to the intake ends thereof for preventing the ore falling thereinto before reaching said intake, substantially as set forth.

19. In a furnace having superposed hearths apertured marginally for the passage of the ore, said apertures having bottoms following substantially the contour of the outer wall of the furnace, said bottoms inclining inwardly and downwardly from the intake end to the discharge end of such aperture, substantially as set forth.

20. In a furnace having superposed hearths apertured centrally and marginally for the passage of the ore, the central apertures directing the ore away from the center of the furnace, and the marginal apertures initially directing it toward the center, substantially as set forth.

785,488. PRESSURE-GAGE. CHARLES H. SARGENT, Chicago, Ill. Filed Sept. 24, 1904. Serial No. 226,734.

Claim.—1. In a device of the class described, the combination with a chamber for containing liquid and an inlet-pipe opening into the same, of a compression-chamber opening into the lower part of the said liquid-chamber, containing a tube extending upward from said compression-chamber, and a comparatively large bulb at the upper end of said tube.



2. In a device of the class described, the combination with a chamber for containing liquid and an inlet-pipe opening into the same, of a compression-chamber opening into the lower part of said liquid-containing chamber, a tube of small diameter extending from the top of said compression-chamber, and a comparatively large bulb at the upper end of said tube.

3. In a device of the class described, the combination with a liquid-containing chamber and an inlet-pipe opening into the same, of a compression-chamber above the liquid-containing chamber, a tube extending downward from the bottom of the compression-chamber to the lower part of the liquid-containing chamber, a tube of small diameter extending from the upper part of the compression-chamber, and a bulb at the end of said second tube.

4. In a device of the class described, the combination with a liquid-containing chamber and an inlet-pipe opening into the same, of a compression-chamber above the liquid-containing chamber, a tube extending downward from the bottom of the compression-chamber to the lower part of the liquid-containing chamber; a tube of small diameter extending from the upper part of the compression-chamber, a bulb at the end of said second tube, and means for adjusting said second tube within said compression-chamber.

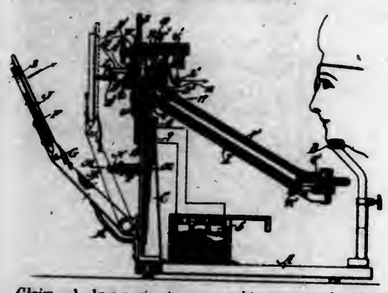
5. In a device of the class described, the combination with a mercury-chamber and inlet-pipe opening into the same, of a compression-chamber above the mercury-chamber a tube extending downward from the compression-chamber to the lower part of the mercury-chamber, a tube extending upward from the upper part of the compression-chamber, a contact-point in the second tube, and a bulb at the upper end of the second tube.

6. In a device of the class described, the combination with a mercury-chamber and inlet-pipe opening into the same, of a compression-chamber above the mercury-chamber, a tube extending downward from the compression-chamber to the lower part of the mercury-chamber, a tube extending upward from the upper part of the compression-chamber, a plurality of contact-points in the second tube, and a bulb at the upper end of the second tube.

7. In a device of the class described, the combination with a mercury-chamber, and an inlet-pipe opening into the same, of a compression-chamber above the mercury-chamber, a tube extending downward from the compression-chamber to the lower part of the mercury-chamber, a tube extending upward from the upper part of the mercury-chamber, a contact-point in the second tube, a bulb at the upper end of the second tube, an inlet-pipe opening into the mercury-chamber, an air-chamber opening into the said inlet-pipe and a tube communicating with the inlet-pipe, and extending to the top of the air-chamber

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785,439. **PERIMETER.** HENRY L. SAYEN, Philadelphia, Pa., assignor to Queen & Co., a Corporation of Pennsylvania. Filed Feb. 1 1902. Renewed Nov. 10, 1904. Serial No. 232,134.



Claim.—1. In a perimeter, a movable arm carrying the recording-chart, and means for alining said arm with the recording-point of the perimeter comprising a projection upon one of said parts and a socket upon the other of said parts to receive said projection when the chart is moved into contact with the recording-point.

2. In a perimeter, a movable arm carrying the recording-chart, and means for alining said arm with the recording-point of the perimeter comprising an adjustable projection upon one of said parts and a socket upon the other of said parts to receive said projection when the chart is moved into contact with the recording-point.

3. In a perimeter, a standard upon which the movable recording-point is mounted, a movable arm provided with means for holding the recording-chart, a socket in said arm, and a projection upon said standard to enter said socket when the recording-chart is moved into contact with said projection.

4. The combination with a perimeter, of a plurality of removable and interchangeable recording-points by means of which indications of varying characteristics may be made upon the recording-chart.

5. In a perimeter, a movable arm or bracket connected with the operative parts thereof and provided with an opening, a recording-point having a screw-shank adapted to pass through said opening, and a nut engaging said screw-shank for supporting said recording-point in position.

6. In a perimeter, an illuminated test object incapable of movement relative to the source of illumination, in combination with a fixing object situated in the path of said test object, whereby the test object may be eclipsed.

7. In a perimeter, a movable test object, and means for illuminating the same movable therewith, in combination with a fixing object situated in the path of said test object, whereby the test object may be eclipsed.

8. In a perimeter, a movable test object, means for illuminating the same situated in the rear thereof, whereby the test object is situated between said means of illumination and the center of the arc described by said test object.

9. In a perimeter, a test object, means for illuminating the same, said test object and illuminating means being immovable relative to each other whereby the illumination of the test object is constant at all points in its movement, in combination with a fixing object situated in the path of said test object, whereby the test object may be eclipsed.

10. A perimeter provided with a self-luminous test object, in combination with a fixing object situated in the path of said test object, whereby the test object may be eclipsed.

11. A perimeter provided with a self-luminous test and fixing objects, said fixing object being situated in the path of the test object, whereby the same may be eclipsed.

12. In a perimeter, a movable arm provided at its free end with means for supporting the different test objects, and a light situated on the outside of and movable with said means, whereby said plate or frame is between said light and the center of the arc described by said plate or frame.

13. In a perimeter, a fixing object consisting of a reflector, and means for illuminating the same, in combination with a movable test object in the path of which said fixing object is situated and by which the test object may be eclipsed.

14. In a perimeter, a fixing object consisting of a reflector, a light, a casing or hood for said light, provided with an opening to throw rays of light upon said reflector, said opening and light being situated approximately at the angle of refraction between said reflector and the center of one of the arcs described by the test object of said perimeter.

15. In a perimeter, a rotatable arm extending at an angle to its axis of rotation, a second arm rotatable upon an axis at a right angle to the axis of rotation of said first-mentioned arm, said second arm extending at an angle to its axis of rotation, a fixing object coincident with the axis of rotation of said first-mentioned arm, a test object carried by said second arm and adapted to intersect the axis of rotation of the first-mentioned arm, a recording-point movable with said test object, and a chart.

16. In a perimeter, a rotatable head mounted upon the frame thereof and provided with a relatively immovable fixing object concentric therewith, an angular arm upon said head, a second arm mounted upon said first-mentioned arm and movable through an arc the plane of which is at right angles to the axis of said head, and a movable test object carried by said second arm and adapted to intersect the axis of said head.

17. In a perimeter, a head mounted to rotate in suitable bearings and provided at one side with an angular arm, a second arm mounted upon said first-mentioned arm and provided with a test object, a fixing object, a movable recording-point mounted upon said head and geared to a shaft extending through said first-mentioned arm, said shaft being geared to said second arm, and a recording-chart.

18. In a perimeter, a standard provided with a bearing, a head rotatably mounted therein and provided with an angular arm, a second arm rotatably mounted upon said angular arm and carrying the test object, a fixing object, a shaft extending through said first-mentioned arm and geared to said second arm, a slide mounted upon said head and connected with said shaft to cause the same to rotate, a recording-point carried by said slide, means for moving said slide longitudinally, and a recording-chart.

19. In a perimeter, a standard provided with a dial, a head rotatable within a bearing in said standard and having an indicator coacting with said dial, an angular arm upon said head, a second arm rotatably mounted upon said angular arm and provided with a test object, a fixing object concentric with said head, a movable recording-point mounted upon said head and connected with said second arm to be movable therewith when the latter moves relative to the first-mentioned arm, and a recording-chart.

20. In a perimeter, a metallic standard having a bearing, a metallic head rotatably mounted therein and carrying the operative parts of the apparatus, an electric-lamp socket mounted upon said head, the inner contact of said socket being electrically connected with said head, a conductor leading from the outer contact of said socket to a brush carried by said head, an annular conductor concentric with said head and engaged by said brush, and binding-posts connected with the standard and with said annular conductor.

21. In a perimeter, a movable test object consisting of an electric lamp, a normally closed circuit therefor, and means for opening said circuit, in combination with a fixing object situated in the path of said test object, whereby the latter may be eclipsed.

22. In a perimeter, a metallic standard, a metallic head mounted in bearings thereon, an arm upon said head, a second arm pivoted upon said first-mentioned arm and carrying a test object comprising an electric lamp, the outer contact-socket of said lamp being electrically connected with a binding-post on said standard through said arms, said head and said standard, and the inner contact of the socket of said lamp being connected with a conductor leading to a circular contact-piece rotatable with said second arm, a brush upon said first-mentioned arm engaging said contact-piece, and a conductor connected with said brush and extending through said first-mentioned arm and then downwardly and to a brush mounted upon said head, a contact-strip concentric with said head with which said brush contacts, and a binding-post connected with said brush.

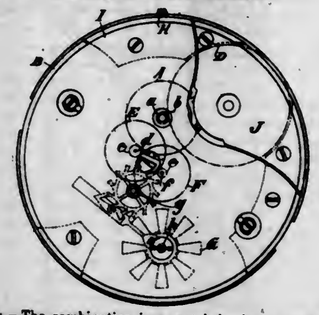
23. In a perimeter, a fixing object, and a test object movable through an arc between which and the center thereof said fixing object is situated, whereby the test object may be eclipsed.

24. In a perimeter, a fixing object, and a test object movable through an arc in the plane of which and between said arc and its center said fixing object is situated, whereby the test object may be eclipsed.

25. In a perimeter, a fixing object, and a movable test object adapted to be moved to the rear of said fixing object, to eclipse said test object.

26. In a perimeter, a rotatable arm extending at an angle to its axis of rotation, a second arm rotatable upon an axis at a right angle to the axis of rotation of said first-mentioned arm, said second arm extending at an angle to its axis of rotation, a fixing object coincident with the axis of rotation of said first-mentioned arm, and a test object carried by said second arm and adapted to intersect the axis of rotation of the first-mentioned arm.

785,440. **WATCH.** ARNOLD S. SCHATZMANN, Chaux-de-Fonds, Switzerland. Filed Aug. 1, 1904. Serial No. 218,997.



Claim.—The combination in a watch having a pendant, of a balance visible from the front of the dial, placed at a point diametrically opposed to that occupied by the pendant, a second-hand wheel having an axle which is arranged close to the center of the watch and in a plane traversing the longitudinal axis of the pendant, the axle of the balance and the axle of the second going-train wheel, an internal disk of large diameter provided with a series of views on its outer face and fixed to said axle of the second-hand wheel, and a case having a window at the back through which the said views become successively visible in a continuous manner when the watch is going, substantially as set forth.

785,441. **PROCESS OF PRODUCING HOLLOW GLASS ARTICLES.** PAUL T. SIEVERT, Dresden, Germany. Filed May 14, 1903. Serial No. 157,101.

Claim.—1. That improvement in the art of treating glass which consists in supporting the edges of a mass of plastic glass, leaving unsupported the central portion of said mass then permitting said unsupported portion to sink by its own weight, then lowering said mass into a reheating-chamber, then withdrawing the same therefrom, and then permitting said unsupported portion to again sink by its own weight.

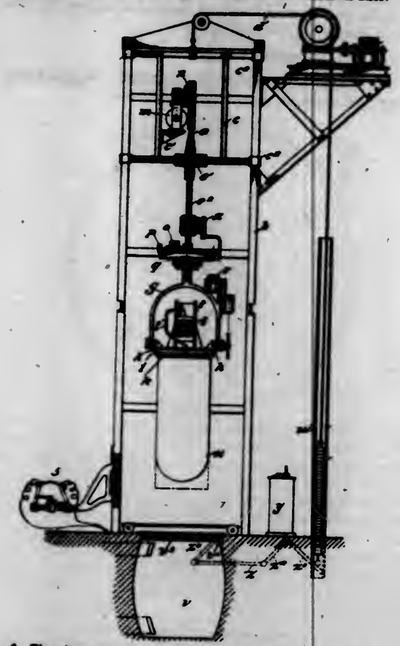
2. That improvement in the art of treating glass which consists in supporting the edges only of a mass of plastic glass, then causing the unsupported portion of said mass to sink, then lowering said mass into a reheating-chamber, then elevating the same therefrom, and then again causing said unsupported portion to sink.

3. That improvement in the art of treating glass which consists in supporting the edges of a mass of plastic glass and leaving unsupported the central portion thereof, then permitting said unsupported portion to sink by its own weight thereby forming said portion into a hollow body and assisting such sinking by the admission of fluid under pressure to the interior of said body, then lowering said body into a reheating-chamber, then elevating the same, then again permitting said portion to sink and admitting fluid under pressure to the interior thereof.

4. That improvement in the art of treating glass which consists in supporting the edges of a mass of plastic glass, leaving unsupported the central portion of said mass then permitting said unsupported portion to sink by its own weight and subjecting said body to centrifugal action, then lowering said mass into a reheating-chamber then withdrawing the same therefrom and then permitting said unsupported portion to again sink by its own weight, and subjecting said body to centrifugal action.

5. That improvement in the art of treating glass which consists in supporting the edges of a mass of plastic glass and leaving unsupported the central portion thereof, then permitting said unsupported

portion to sink by its own weight thereby forming said portion into a hollow body and assisting such sinking by the admission of fluid under pressure to the interior of said body and at the same time subjecting said body to centrifugal action about a vertical axis, then lowering said body into a reheating-chamber, then elevating the same, then again permitting said portion to sink and admitting fluid under pressure to the interior thereof, and at the same time subjecting said body to centrifugal action about a vertical axis.



6. That improvement in the art of treating glass which consists in supporting the edges of a mass of plastic glass, leaving the intermediate portion of said mass unsupported, then repeatedly permitting said unsupported portion to sink by its own weight and lowering and raising the same into and out of a heating-chamber.

7. That improvement in the art of treating glass which consists in supporting the edges only of a mass of plastic glass, then repeatedly permitting the unsupported portion of said mass to sink by its own weight thereby forming said portion into a hollow body and assisting such sinking by the admission of fluid under pressure to the interior of said body, lowering said body into a reheating-chamber, and withdrawing the same therefrom.

8. That improvement in the art of treating glass which consists in supporting the edges only of a mass of plastic glass, then repeatedly permitting the unsupported portion of said mass to sink by its own weight thereby forming said portion into a hollow body and assisting such sinking by the admission of fluid under pressure to the interior of said body, subjecting said body to centrifugal action about a vertical axis, lowering said body into a reheating-chamber, and withdrawing the same therefrom.

785,442. SPECTACLE-FRAME. ROYAL H. SIMONDS, Southbridge, Mass., assignor of one-half to Llewellyn J. Simonds, Southbridge, Mass. Filed Oct. 23, 1904. Serial No. 229,569.



Claim.—1. As an article of manufacture, a spectacle-frame with the ends of the bridge having flat surfaces contacting with flat surfaces formed on the inside of the eye-wires and attached thereto.

2. As an article of manufacture, a spectacle-frame having a pair of grooved eye-wires provided with notches formed on the grooved side of said eye-wires, a bridge provided with ends adapted to enter said notches and contact with the bottom and side walls, with the ends of the bridge and eye-wires soldered together.

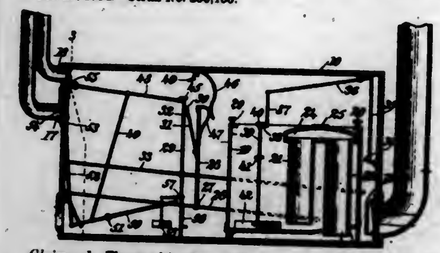
3. As an article of manufacture, a spectacle-frame having a pair of grooved eye-wires provided with notches formed on the grooved side of said eye-wires, a bridge having its ends forked with one of the forks entering the notch in the eye-wire and the other fork of the bridge contacting with the outer side of the eye-wire, with the ends of the bridge and the eye-wires soldered together.

4. As an article of manufacture, a spectacle-frame consisting of a pair of grooved eye-wires provided with notches on their grooved sides to receive the end of a bridge, and a bridge having its ends shaped to fit said notches and inserted therein and soldered to the eye-wires.

5. In a spectacle-frame, the combination of an eye-wire having its inner side grooved to receive the lens, a notch on the grooved side of the eye-wire forming a flat surface on the bottom of the notch for the end of the bridge, and a bridge having its end provided with a flat surface to contact with the bottom of said notch.

6. In a spectacle-frame, the combination of an eye-wire having its inner side grooved to receive a lens, a notch on the inner side of the eye-wire and on one side of the groove, a bridge having its end inserted in said notch and soldered to the eye-wire, with its end swaged to restore the continuity of the groove.

785,443. APPARATUS FOR RAISING LIQUIDS. OSCAR H. STAKEMANN, Christiansted, St. Croix Island, Danish West Indies. Filed Oct. 26, 1904. Serial No. 230,105.



Claim.—1. The combination with a receptacle for liquid having an air-inlet, of an open-top tank adapted to float on the liquid, a valve for said inlet, means for automatically opening said valve when the tank sinks and causing it to remain open for a limited period when the tank rests upon the bottom of the receptacle, and means for automatically closing the valve while the tank remains upon the bottom of the receptacle.

2. The combination with a receptacle for liquid having an air-inlet valve and an air-outlet valve, of a tank adapted to float on the liquid in the receptacle, means for automatically opening said inlet-valve and closing said outlet-valve when the tank sinks, and causing said valve to remain in that position after the tank has sunk to the bottom of the receptacle, and means for thereafter closing the inlet-valve and opening the outlet-valve while the tank rests upon the bottom of the receptacle.

3. The combination with a receptacle for liquid having a water-inlet, a water-outlet, an air-inlet valve and an air-outlet valve, means for automatically opening the air-inlet valve and closing the air-outlet valve, means for locking said means while the water in the tank remains above a certain level, means for unlocking said first-named means when the water recedes from said level, and means for then opening the air-outlet valve and closing the air-inlet valve.

4. In a water-raising apparatus, the combination with a receptacle for water, of a tank adapted to float on the water in the receptacle, and having an inlet in its upper portion to receive water from the receptacle, said tank being adapted to sink when full of water, an air-inlet valve for the receptacle, means for opening said valve when the tank sinks, and causing it to remain open during a part of the time when the tank rests upon the bottom of the receptacle, and means for thereafter closing said valve.

5. In a water-raising apparatus, the combination with a receptacle for water, of a tank adapted to float on the water in the receptacle and having an inlet in its upper portion to receive water from the receptacle, said tank being adapted to sink when full of water, an air-inlet for the receptacle, a valve for said inlet, means for automatically opening said valve when the tank sinks, and causing it to remain open when the tank rests upon the bottom of the receptacle for

a limited period, and automatic means for thereafter closing the valve while the tank remains upon the bottom of the receptacle.

6. In a water-raising apparatus, the combination with a receptacle, of a tank adapted to float on the water in the receptacle and having an inlet to receive water from the receptacle, said tank being adapted to sink when full of water, an air-inlet valve for the receptacle, an air-outlet valve, means for opening said inlet-valve and closing the outlet-valve when the tank sinks, and causing said valves to remain in that position for a limited period after the tank sinks to the bottom of the receptacle, and means for thereafter reversing the positions of said valves.

7. In a water-raising apparatus, the combination with a receptacle for water, of a tank adapted to float on the water of the receptacle and having an inlet for conducting water from the receptacle to the tank, said tank being adapted to sink when full of water, an air-inlet valve and an air-outlet valve for the receptacle, means for automatically opening said inlet-valve and closing said outlet-valve when the tank sinks, and causing said valves to remain in that position after the tank has sunk to the bottom of the receptacle, and means for thereafter automatically closing the inlet-valve and opening the outlet-valve while the tank rests upon the bottom of the receptacle.

8. In a water-raising apparatus, the combination with a water-receptacle having a water-inlet and a water-outlet, of means for conducting compressed air thereto to force water therefrom, a tank in said receptacle adapted to float on the water when empty and to sink when full of water, an air-inlet valve, an air-outlet valve, means for automatically opening the air-inlet valve and closing the air-outlet valve when the tank sinks, means for locking said means while the water in the tank remains above a certain level, means for unlocking said first-named means when the water recedes from said level, and means for then opening the air-outlet valve and closing the air-inlet valve.

9. The combination with a water-receptacle, of a lever therein, a bar pivoted to said lever, a second bar supported in substantially a vertical position, an air-valve for the receptacle, connections between the bar and valve, and means for transmitting motion from the lever, through the other connections specified, to the valve, for operating the latter.

10. The combination with a water-receptacle, of a lever therein, a bar pivoted to the lever, a second bar arranged in substantially parallel position with respect to said first-mentioned bar and having a lug, an arm projecting from the first-mentioned bar and adapted to engage the lug, an air-valve, connections between the valve and the first-mentioned bar, and means for causing motion of the lever to operate the valve to close and open it.

11. The combination with a water-receptacle having an air-valve, of a reciprocable bar in the receptacle, a lever connected with the valve, means on the bar for engaging the lever, means for disengaging said means from the lever, and means for reciprocating the bar to open and close the valve through the connections set forth.

12. The combination with a water-receptacle having an air-valve, of a reciprocable bar mounted in the receptacle, a catch pivotally mounted upon the bar and having a counterweight, a lever connected with the valve and with which said catch is adapted to engage, means for reciprocating the bar in order to move the valve, and means for retaining the bar in an extreme position to prevent the valve from moving.

13. The combination with a water-receptacle having an outlet and an inlet, of a float in the receptacle, a short lever connected with said float, means for causing the lever to assume a horizontal position when the float is elevated and to assume an inclined position when the float is lowered, means for holding the short lever in one of its extreme positions, an air-valve for the receptacle, and means for causing said last-mentioned means to control the operation of said valve.

14. The combination with a water-receptacle, of a tank therein capable of vertical movement, a lever in the receptacle connected with the tank, a bar connected with the lever, a second bar located in substantially vertical position, means connected with the first bar for engaging with the second bar to lift it, an air-valve for the receptacle, and connections between the last-mentioned bar and the valve.

15. In an apparatus for raising liquids, the combination with a water-receptacle, of a tank therein capable of vertical movement, a lever pivotally connected with the receptacle and tank, an air-valve for the receptacle, connections between said lever and valve for operating the latter, and means for locking said connections in extreme position.

16. The combination with a water-receptacle, of a tank therein, capable of vertical movement, a lever pivotally connected with the tank and with the receptacle, a bar pivoted to said lever and extending upwardly therefrom, a second bar located in substantially vertical position and having a lug, an arm pivoted on the first bar and adapted to engage with said lug, an air-valve for the receptacle, and connections between said last-mentioned bar and said valve.

17. The combination with a water-receptacle, of a movable tank therein, a lever pivotally connected with the tank and the receptacle, a bar pivoted to said lever, a second bar arranged in substantially parallel position with respect to said first-mentioned bar and having a lug, an arm projecting from the first-mentioned bar and adapted to engage the lug, a second lever pivoted to the receptacle, connections between said last-mentioned lever and the second bar, an air-valve, and connections between the valve for the receptacle and said last-mentioned lever.

18. The combination with a water-receptacle, of a floating tank therein, a lever pivoted to the tank and receptacle, an air-valve for the receptacle, a second lever pivoted to the receptacle, a link for connecting the last-mentioned lever with the valve, a reciprocable bar, connections between said bar and the second lever, and connections between the bar and the first-mentioned lever.

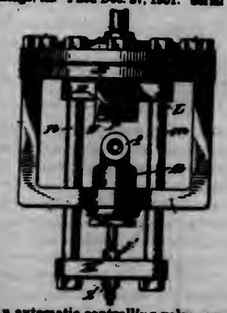
19. The combination with a water-receptacle, of a floating tank therein, a lever pivotally connected with the receptacle and the tank, a second pivoted lever, an air-valve for the receptacle, connections between the second lever and the air-valve, a reciprocable bar, a catch pivotally mounted upon the bar and having a counterweight, said catch being adapted to engage the end of the second lever, and means for retaining the bar in an elevated position.

20. The combination with a water-receptacle having an outlet and an inlet, of a floating tank, a lever pivotally connected with the tank and receptacle, an air-valve for the receptacle, a second pivoted lever, a link connecting one end of said lever with the valve, a third lever, a link connecting said third lever with the second lever at a point between that at which the first-named link is connected with it and its pivotal point, a reciprocable bar, means on said reciprocable bar for operating said second link, means also on said bar for operating the end of the second lever, and connections between said bar and the first-named lever whereby the motion of the bar in one direction will cause the second lever to be moved about its pivot in one direction, and the motion of the bar a farther distance in the same direction will cause the same lever to be turned about its pivot in the opposite direction.

21. The combination with a water-receptacle having an outlet and an inlet, of a floating tank therein, a float in said tank, a short lever connected with the said float whereby the lever is caused to assume a horizontal position when the float is elevated, and to assume an inclined position when the float is lowered, means adapted to move into operative connection with said short lever, an air-valve for the receptacle, and means whereby said means controls the operation of said valve.

22. The combination with a water-receptacle having an air-valve, of a reciprocable bar, a pivoted lever, means for connecting the valve with the lever for causing motion of the latter to be transmitted to the valve to open or close it, means for causing motion of said bar in one direction to turn the lever about its pivot, means for causing further motion of said bar in the same direction to turn said lever about its pivot in the opposite direction, a float, and connections between the float and the bar for causing the bar to move.

785,444. AUTOMATIC CONTROLLING-VALVE. ROBINSON H. TAIT, St. Louis, Mo., assignor of one-half to J. M. Westering and Allen Campbell, Chicago, Ill. Filed Dec. 27, 1901. Serial No. 87,513.



Claim.—1. An automatic controlling-valve, comprising a main frame, a pressure-chamber comprising a concave-convex head and a

resilient diaphragm clamped between said head and frame, an independent valve secured in said frame having a reciprocal valve-stem in alinement with the chamber, connecting-rods reciprocal in and guided by said frame adjustably secured at either end to the diaphragm and stem at a point below the plane of the seat of said valve and a transverse spring supported at both ends in the frame and adjustably bearing against the diaphragm.

2. An automatic controlling-valve, comprising a frame, having an annular head, a pressure-chamber comprising a concavo-convex head and a resilient diaphragm clamped between said head and annular frame-head, an independent valve secured in said frame having a reciprocal valve-stem in alinement with the chamber, connecting-rods reciprocal in and guided by said frame adjustably secured at either end to the diaphragm and stem at a point below the plane of the seat of said valve and a transverse spring supported at both ends in the frame and adjustably bearing against the diaphragm.

3. An automatic controlling-valve, comprising a frame having an annular head and a yoke secured at its ends to opposite points of one side of said head, a pressure-chamber comprising a concavo-convex head and a resilient diaphragm clamped between said head and annular frame-head, an independent valve secured to the cross-arm of the yoke, having a reciprocal valve-stem in alinement with the chamber, connecting-rods reciprocal in the cross-arm of said yoke and guided thereby adjustably secured at either end to the diaphragm and stem at a point below the plane of the seat of said valve, and a transverse spring supported at both ends in the frame and adjustably bearing against the diaphragm.

4. An automatic controlling-valve, having an annular head and a yoke secured at its ends to opposite points on said head, a diaphragm-chamber secured to the head, a valve secured to the cross-arm of said yoke having a reciprocal valve-stem in alinement with the chamber, a cross-head secured to the diaphragm center, a cross-head secured to the stem at a point below the plane of the seat of said valve, rods rigidly connecting the cross-heads reciprocal in and guided by said frame, and a transverse spring secured at its ends to opposite points on the annular head adapted to bear with its middle portion against the diaphragm cross-head.

5. An automatic controlling-valve, having an annular head and a yoke secured at its ends to opposite points on said head, a diaphragm-chamber secured to the head, a valve secured to the cross-arm of said yoke, a reciprocal valve-stem in alinement with the chamber, a cross-bar secured to the diaphragm center, a cross-bar secured to the stem at a point below the plane of the seat of said valve, rods rigidly connecting the cross-bars, a spring secured at its ends to opposite points on the annular head, and a gage-screw adjustably secured in the diaphragm-coupling engaging the middle portion of the spring.

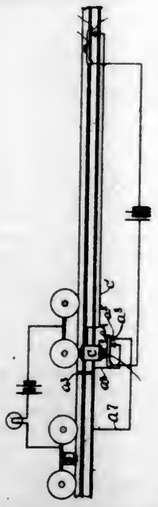
6. An automatic controlling-valve, having an annular head, and a yoke secured at its ends to opposite points on said head, a diaphragm-chamber secured to the head, a valve secured to the cross-arm of said yoke, a reciprocal valve-stem in alinement with the chamber, a cross-bar secured to the diaphragm center, a cross-bar secured to said stem at a point below the plane of the seat of said valve, two parallel rods rigidly connecting the corresponding ends of the cross-bars, reciprocal in the frame and guided thereby, and a spring secured at its ends to opposite points on the annular head adapted to bear with its middle portion against the diaphragm cross-head.

7. An automatic controlling-valve, comprising a main frame, a pressure-chamber consisting of a concavo-convex head, and a resilient diaphragm clamped between said head and frame, a valve secured in said frame, a reciprocal valve-spindle, parallel connecting-rods guided by said frame adjustably secured at either end to the diaphragm and valve-spindle at a point below the plane of the seat of said valve, and a transverse spring supported at both ends in the frame and adapted to resist the movement of said diaphragm.

785,445. BRIDGING CIRCUITS FOR ELECTRIC CIRCUITS. GUION THOMPSON, Duluth, Minn., assignor to The Thompson Safety Appliance Company, a Corporation of New Jersey. Filed Aug. 2, 1902. Serial No. 118,069.

Claim.—1. The combination of a normally open circuit, comprising a source of electricity, an electromagnet and a normally open contact; an armature for said magnet adapted when operated to close said contact; a partial circuit comprising a normally closed contact governed by said armature, and normally open contacts including adjoining sections of a railway-rail insulated from each other at their opposing ends, substantially as described.

2. The combination of a normally open electric circuit, comprising a source of electricity, an electromagnet and a normally open contact; an armature for said magnet adapted when operated to close said contact; a partial circuit comprising a normally closed contact, governed by said armature, and normally open contacts comprising two adjoining and alined sections of a railway-rail insulated from each other at their opposing ends; a conveyance; a partial circuit carried by said conveyance and comprising a source of electricity and conductors of electricity connected with the opposite poles thereof and adapted to be brought by said conveyance into temporary circuital communication with the rail-contacts of the first said partial circuit, substantially as described.



3. The combination of a normally open electric circuit, comprising a source of electricity, an electromagnet and a normally open contact; an armature for said magnet adapted when operated to close said contact; a partial circuit comprising a normally closed contact, governed by said armature, and normally open contacts comprising two adjoining and alined sections of a railway-rail insulated from each other at their opposing ends; a conveyance; a partial circuit carried by said conveyance and comprising a source of electricity and conductors of electricity connected with the opposite poles thereof and adapted to be brought by said conveyance into temporary circuital communication with the rail-contacts of the first said partial circuit; means carried by said conveyance adapted to momentarily operate said armature after the circuital communication established between the partial circuit carried by said conveyance and the first said partial circuit has been terminated, substantially as described.

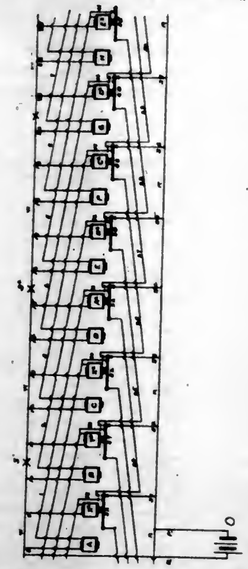
4. The combination of a normally open electric circuit, comprising a source of electricity, an electromagnet, a normally open contact and a distant normally closed contact; a lever adapted in operation to open said normally closed contact; an armature for said electromagnet adapted when operated to close said normally open contact; a partial circuit, comprising a normally closed contact, governed by said armature, and normally open contacts including two adjoining sections of a railway-rail, electrically insulated from each other at their opposing ends; a conveyance; a partial circuit carried by said conveyance and including a source of electricity and conductors of electricity connected to the opposite poles thereof and adapted to be brought by said conveyance into temporary circuital communication with the normally open contacts of the first said partial circuit; means carried by said conveyance adapted to momentarily operate said armature after the circuital communication between the first said partial circuit and the second said partial circuit has ceased, and means carried by said conveyance adapted to subsequently operate said lever, substantially as described.

5. The combination of a normally open electric circuit, comprising a source of electricity, the coil of an electromagnet and a normally open circuit-controlling contact; an armature for said magnet adapted when operated to close said contact; a partial circuit, comprising a normally closed circuit-controlling contact, governed by said armature, and normally open circuit-controlling contacts, substantially as described.

6. The combination of a normally open electric circuit comprising a source of electricity, a normally closed circuit-controlling contact, the coil of an electromagnet and a normally open circuit-controlling contact; a lever adapted when operated to open said normally closed contact; an armature for said magnet adapted when operated to close said normally open contact; a partial circuit comprising a normally closed circuit-controlling contact, governed by said armature, and normally open circuit-controlling contacts, substantially as described

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785,446. ELECTROMAGNETIC BLOCK SYSTEM. GUION THOMPSON, Duluth, Minn., assignor to The Thompson Safety Appliance Company, a Corporation of New Jersey. Filed May 16, 1901. Serial No. 60,427.



Claim.—1. In means for the purposes described, the combination of a series of normally open electric circuits each including a source of electricity the coil of an electromagnet, a normally open circuit-controlling contact adapted to be closed by said electromagnet when said electromagnet is energized, a normally closed circuit-controlling contact adapted to be opened by the magnet, when energized, of another of said circuits, and a derived circuit including an electromagnet shunted onto the coil of the first said electromagnet, substantially as described.

2. In means for the purposes described, the combination of a series of normally open primary electric circuits each comprising a source of electricity, the coil of an electromagnet, a normally open circuit-controlling contact adapted to be closed by said electromagnet when energized, a normally closed circuit-controlling contact adapted to be opened by the electromagnet when energized of another of said circuits; a series of normally open secondary electric circuits each including a source of electricity, the said coil of the electromagnet of a third and preceding one of said primary circuits, a normally open contact governed thereby, the first said normally open contact, and said normally closed contact; and a derived circuit, including an electromagnet and shunted onto the coil of the first said electromagnet, substantially as described.

3. In means for the purposes described, the combination of a normally open electric circuit, comprising a source of electricity the coil of an electromagnet, a normally open circuit-controlling contact governed by said electromagnet and a normally closed circuit-controlling contact; means embodying an armature adapted in operation to open said normally closed contact; a derived circuit includin an electromagnet shunted onto the coil of the first said electromagnet; a traveling magnet, or energized electromagnet, adapted in passage to energize said derived circuit and subsequently to operate said armature to open said normally closed contact, substantially as described.

4. In means for the purposes described the combination of a series of normally open primary electric circuits each including a source of electricity, an electromagnet, a normally open circuit-controlling contact governed by said electromagnet and a normally closed circuit-controlling contact governed by the electromagnet of a relative second one of said circuits; a series of normally open secondary electric circuits, each comprising a source of electricity, the electromagnet of a relative third one of said primary circuits, a normally open contact governed thereby, the respective first said normally open contact and the respective said normally closed contact; a plural number of derived circuits, each including an electromagnet, respectively shunted onto the coils of corresponding said electromagnets of said primary circuits; a traveling magnet, or energized electromagnet, adapted in passage to first energize one of said derived circuits to close the normally open contact of the primary circuit, and subsequently to energize said relative third one of said electromagnets to close the normally open contact governed thereby to close the secondary circuit, and subsequently to energize the derived circuit shunted onto the magnet of said relative second one of said primary circuits to open said normally closed contact, substantially as described

5. In means for the purposes described, the combination of a normally open electric circuit comprising a source of electricity an electromagnet, a normally open circuit-controlling contact governed by said electromagnet and a normally closed circuit-controlling contact; an induction electromagnet adapted when energized to open said normally closed contact; a secondary circuit comprising a source of electricity, an electromagnet, a normally open contact governed thereby, the first said normally open contact and said normally closed contact; a derived circuit including an electromagnet and having two branches shunted onto the coil of the first said electromagnet; a derived circuit including an electromagnet and having two branches shunted onto the coil of the second said electromagnet; a traveling magnet or energized electromagnet adapted in passage to energize the derived circuit shunted onto the coil of the first said electromagnet and subsequently to energize the third said electromagnet and subsequently to energize the derived circuit shunted onto the coil of the second said electromagnet, substantially as described.

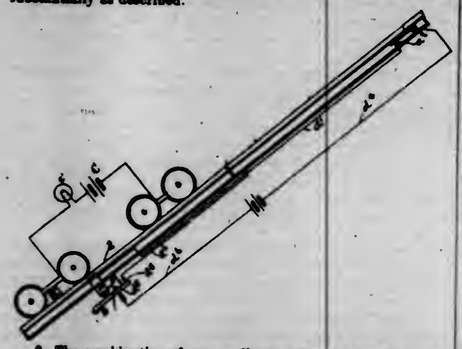
6. In means for the purposes described, the combination of a normally open electric circuit comprising a source of electricity, an electromagnet, a normally open circuit-controlling contact governed by said electromagnet and a normally closed circuit-controlling contact; an electromagnet adapted when energized to open said normally closed contact; a secondary electric circuit comprising a source of electricity, a third electromagnet a normally open circuit-controlling contact governed thereby, the first said normally open contact and said normally closed contact; and traveling means adapted during its progress to energize the first third and second said electromagnets in the order named, substantially as described.

7. In means for the purposes described, the combination of a normally open primary electric circuit including a source of electricity, an electromagnet a normally open contact controlled by said electromagnet and a normally closed contact; a second electromagnet, adapted when energized to open said normally closed contact; a secondary electric circuit including a source of electricity a third electromagnet a normally open circuit-controlling contact governed thereby, the first said normally open contact and said normally closed contact; a derived circuit of relatively high resistance and including an electromagnet shunted on the coil of the first said magnet; a second derived circuit of relative high resistance and including an electromagnet shunted on the coil of the said second electromagnet, substantially as described.

785,447. PARTIAL CIRCUITS FOR ELECTRIC CURRENTS. GUION THOMPSON, Duluth, Minn., assignor to The Thompson Safety Appliance Company, a Corporation of New Jersey. Filed Aug. 2, 1902. Serial No. 118,070.

Claim.—1. The combination of a normally open electric circuit including a source of electricity, an electromagnet and a normally open circuit-controlling contact; an armature for said magnet adapted when operated to close said contact; a partial circuit comprising a normally open circuit-controlling contact governed by said armature, conductors extending from the opposite points of the last said contact and provided at their outer ends with normally open contacts; a conveyance; a normally closed circuit partly carried thereby and including a source of electricity, conductors on said conveyance extending from the opposite poles of said source, adapted to contact

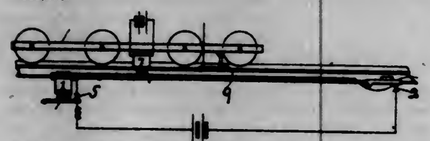
during passage with the outward contacts of said partial circuit to loop said partial circuit into the partial circuit carried by said conveyance; a conductor or conductors adjoining said conveyance and, when said conveyance is in certain positions, including one or both of the outward contacts of said partial circuit and adapted normally to close the partial circuit carried by said conveyance; means carried by said conveyance adapted to operate said armature before said conveyance has reached the position where both of said outward contacts are included in the circuit partly carried by said conveyance, substantially as described.



2. The combination of a normally open electric circuit, including a source of electricity, a normally closed circuit-controlling contact, an electromagnet and a normally open circuit-controlling contact; an armature for said magnet adapted when operated to close said open contact; a lever adapted to open said normally closed contact; a partial circuit comprising a normally open circuit-controlling contact governed by said armature, conductors extending from the opposite points of the last said contact and provided at their outer ends with normally open contacts; a conveyance; a normally closed circuit partly carried by said conveyance and including a source of electricity, conductors extending from the opposite poles thereof, a conductor or conductors adjoining said conveyance and, when said conveyance is in certain positions, including one or both of the outward contacts of said partial circuit; means carried by said conveyance adapted to operate said armature before said conveyance has reached the position where both of said outward contacts are included in the circuit partly carried by said conveyance, and means carried by said conveyance adapted to operate said lever after said conveyance has passed the position in which said outward contacts are included in the circuit partly carried by said conveyance, substantially as described.

785,448. MEANS FOR PROGRESSIVELY ESTABLISHING AND DISSOLVING MAGNETIC SPHERES OF INFLUENCE.

GUION THOMPSON, Duluth, Minn., assignor to The Thompson Safety Appliance Company, a Corporation of New Jersey. Filed Aug. 2, 1902. Serial No. 118,072.



Claim.—1. In means for the purposes described the combination of a normally open electric circuit, comprising a source of electricity, a normally open circuit-controlling contact, the coil of an electromagnet and a distant normally closed contact; an armature for said electromagnet adapted when operated to close said normally open contact; a lever adapted when operated to open said normally closed contact; a traveling magnet adapted in passage to momentarily energize said electromagnet, and a traveling magnet for subsequently operating said lever, substantially as described.

2. In means for the purposes described, the combination of a normally open electric circuit, comprising a source of electricity, a normally open circuit-controlling contact, the coil of an electromagnet and a distant normally closed contact; an armature for said electromagnet adapted when operated to close said normally open contact: a lever, embodying an armature independent of said electromagnet, adapted when operated to open said normally closed contact, a traveling magnet adapted to cause the operation of the first said armature, and to attract and operate the second said armature after the first said armature has been operated, substantially as described.

3. In means for the purposes described, the combination of a normally open electric circuit, including a source of electricity, a normally open contact adapted to be closed by the operation of an armature, the coil of an electromagnet, a normally closed contact adapted to be opened by the operation of an armature; an armature for said electromagnet adapted by its operation to effect the closing of said normally open contact; a second armature independent of said electromagnet adapted by its operation to open said normally closed contact; a core within said electromagnet adapted to be magnetized and when magnetized to attract the first said armature; a traveling magnet adapted to magnetically energize said electromagnet and subsequently to attract said second armature to cause the same to open said normally closed contact, substantially as described.

785,449. ADJUSTABLE RACK AND SHELF-SUPPORT.

THOMAS H. THOMPSON, Starbuck, Minn. Filed Mar. 21, 1904. Serial No. 199,125.



Claim.—1. A device of the class described comprising two telescoping pipe-sections, one having a threaded outer end, a sleeve loosely mounted thereon, an adjusting-nut, and blocks mounted in the outer end of said sleeve and in the corresponding end of the opposite pipe-section and said blocks having surfaces that extend laterally with respect to said pipe-sections, for the purpose specified.

2. A device of the class described comprising a tube, a fixed bearing-block at one end of said tube, a second bearing-block at the other end, a sleeve slidably mounted on said tube and carrying said second bearing-block, and a lock-nut having a threaded connection with said tube and engaging said sleeve.

3. In a device of the class described, a support and means for clamping it upon a wall between two parallel surfaces, hangers loosely mounted on said support and having depending ends to bear upon the wall, arms mounted on the opposite ends of said hangers, and a shelf carried by said arms.

4. A device of the class described, comprising a support, a bearing-block at one end thereof, the other end of said support being exteriorly threaded and provided with a locking-nut, a sleeve arranged to slide on the threaded end of said support and be engaged by said nut, and a second bearing-block carried by said sleeve.

5. A device of the class described comprising a support exteriorly threaded at one end and provided with a lock-nut and a bearing-surface, a sleeve slidably mounted on said threaded end and also provided with a bearing-surface, the inner end of said sleeve being engaged by said nut, and hangers carried by said support.

6. A device of the class described comprising a support, a bearing-block at one end thereof, a second bearing-block at the other end of said support, a movable carrying means for said second block mounted on said support, and a lock-nut having a threaded connection with said support and engaging said carrying means, substantially as described.

785,450. PROCESS OF MANUFACTURING VARNISHES.

AUGUST TIXIER, Billancourt, and LUCIEN RANRAUD, Paris, France. Filed Sept. 22, 1903. Serial No. 174,159.

Claim.—1. The process of manufacture of a solvent for gums consisting in causing an acid to act on the spirit of turpentine, while agitating, so as to produce crystallized terpene, treating the terpene with dilute sulfuric acid to form terpinol and mixing the terpinol with an ordinary varnish solvent.

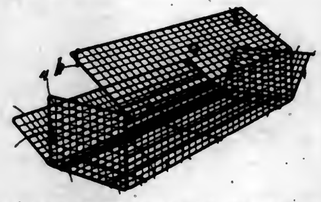
2. The process of manufacture of a solvent for gums consisting in causing dilute nitric acid to act on spirit of turpentine at a temperature about 15° to 20° centigrade to transform the major part of the spirit into crystallized terpene, washing the terpene in water, treating the washed terpene with dilute sulfuric acid to form terpinol and mixing the terpinol with an ordinary varnish solvent.

3. The process of manufacturing varnish consisting in obtaining a solvent with a terpinol base by the action of an acid on the spirit of turpentine, dissolving the varnish-gum in this solvent, filtering the solution thus obtained and adding thereto an ordinary varnish solvent.

4. The process of manufacturing fatty varnish consisting in obtaining a solvent with a terpinol base by the action of an acid on the spirit of turpentine, dissolving a varnish-gum in said solvent, filtering the solution thus obtained, then adding thereto oil acidified by means of a fatty acid soluble therein.

785,451. LIVE-FISH BOX.

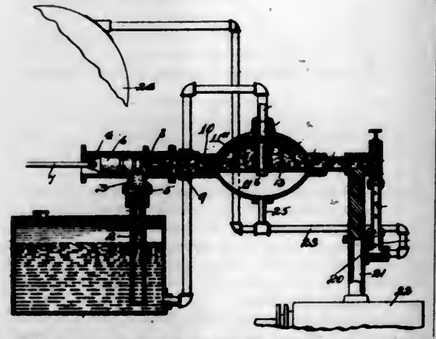
CHARLES B. TOURVILLE, St. Louis, Mo., assignor of one-half to Katie Kuhlmann, St. Louis, Mo. Filed Oct. 3, 1904. Serial No. 227,034.



Claim.—A live-fish box composed of wire, and comprising a bottom having longitudinally and transversely disposed rods terminating in loops, end, front and rear walls having marginal wires passing through the loops of the respective rods, a lid hinged to the rear wall, and locking-hooks looped about the marginal wire of one wall and having bent terminals for engaging the wire of the contiguous wall, the rear ends of the upper portions of the end walls being extended rearwardly and passing under the marginal wire of the rear wall in the assembled position of the several walls, substantially as set forth.

785,452. LUBRICATOR.

JAMES TROTTER, Sycamore, Ill. Filed June 29, 1901. Serial No. 66,476.



Claim.—1. In a device for the purpose described the combination of means for forcing a supply of lubricant, a lubricant-passage communicating therewith and having a feed-contraction arranged to connect with the part to be lubricated, an oil-relief valve in said passage between the supply and said contraction, a pressure-regulator for controlling said relief-valve and a source of fluid-pressure connected with said lubricant-passage between said contraction and the part to be lubricated and also connected with said pressure-regulator for closing said relief-valve, substantially as set forth.

2. In a device for the purpose described the combination of means for furnishing a supply of lubricant, a lubricant-passage leading thereform and arranged to connect with the part to be lubricated, a feed-contraction in said passage, an oil-relief in said passage between the supply and said contraction, and a connection from said oil-relief to said passage between the contraction and the part to be lubricated whereby said oil-relief would be closed by an excess of pressure in said connection, substantially as set forth.

3. In a device for the purpose described the combination of means for furnishing a supply of lubricant, a diaphragm-chamber having an inlet and outlet and an oil-relief, a diaphragm dividing said chamber into two compartments one of which contains said inlet and outlet and oil-relief, a valve secured to said diaphragm for closing said relief, a pump connected to said inlet and to said supply means, a sight-feed connected to said outlet and arranged to connect with the part to be lubricated and a source of fluid under pressure connected with said sight-feed and with the other compartment of said diaphragm-chamber, substantially as set forth.

4. In a device for the purpose described the combination of means for furnishing a supply of lubricant, a diaphragm-chamber having an inlet and an outlet and an oil-relief, a connection between said supply and oil-relief, a diaphragm in said chamber having a valve closing said oil-relief, a pump for forcing said supply into said inlet, a sight-feed connected with said outlet and arranged to connect with the part to be lubricated and a source of fluid under pressure connected with said diaphragm-chamber for holding said valve closed and also connected with said sight-feed, substantially as set forth.

785,453. TEMPORARY BINDER.

EMORY A. TRUSSELL, St. Louis, Mo., assignor to Sieber & Trussell Manufacturing Company, St. Louis, Mo., a Corporation. Filed May 31, 1904. Serial No. 210,337.



Claim.—1. In a temporary binder, the combination of mating arch-prongs swingingly mounted, two series of springs having bearing engagement with said prongs for moving their free ends into separated and meeting positions respectively, and a rock-bar arranged to exert pressure against one series of said springs, substantially as set forth.

2. In a temporary binder, the combination of mating arch-prongs swingingly mounted, springs having engagement with said prongs and arranged to oscillate them and separate their free ends, springs bearing against opposite sides of said prongs from that against which the first-named springs bear, and a rock-bar adapted to exert pressure against said second-named springs, substantially as set forth.

3. In a temporary binder, the combination of pairs of swingingly-mounted arch-prongs, heels on said prongs projecting inwardly from their pivots, springs bearing against the rear sides of the inner ends of said arch-prongs, springs bearing against the outer sides of the inner ends of said arch-prongs, pressure-plates bearing against said last-named springs, and a rock-bar bearing against said pressure-plates, substantially as set forth.

4. In a temporary binder, the combination of pairs of arch-prongs having interlocking heel ends, pivot-studs projecting from said arch-prongs and mounted in suitable bearings, springs bearing against the rear sides of said prong heel ends, and fitted to said pivot-studs, springs seated against the outer sides of said prong heel ends, pressure-plates fitted to said last-named springs, and a non-circular rock-bar bearing against said last-named springs, substantially as set forth.

5. In a temporary binder, the combination with a binder-back, of ears fixed to said back and provided with eyes, arch-prongs arranged in pairs and pivoted to said ears, inner springs bearing against the rear sides of the inner ends of said prongs, outer springs bearing against the outer sides of said ends, pressure-plates fitted to said last-named springs, and a non-circular rock-bar positioned in said ear-eyes, and bearing against said pressure-plates, substantially as set forth.

6. In a temporary binder, the combination of swingingly-mounted spring-controlled mating arch-prongs, a rock-bar for controlling the springs by which said prongs are governed, and a handle swingingly connected to one end of said rock-bar, substantially as set forth.

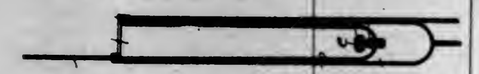
7. In a temporary binder, the combination of swingingly-mounted spring-controlled mating arch-prongs, and a rock-bar for exerting pressure against said prongs against the action of the springs by which they are controlled, substantially as set forth.

8. In a temporary binder, the combination of a pair of swingingly-mounted mating prongs, a spring for moving the free ends of said prongs into separated positions, and means for exerting pressure against the prongs at the opposite sides from those against which the springs bear to actuate them against the action of said springs, substantially as set forth.

9. In a temporary binder, the combination of mating arch-prongs swingingly mounted, two series of springs having bearing engagement with said prongs for moving their free ends into separated and meeting positions respectively, and means arranged to ex-

ert pressure against one series of said springs, substantially as set forth.

785,454. SAFETY-POCKET. WILBERT C. TRUSSELL, Boston, Mass., assignor of one-half to John R. Gross, Somerville, Mass. Filed Oct. 10, 1904. Serial No. 227,838.



Claim.—1. In an article of apparel, a pocket, an inner member or sleeve connected at one end to the pocket adjacent the opening thereinto, its other end being free and adapted to extend into the pocket, and a positive closing means connected to the free end of the sleeve.

2. In an article of apparel, a pocket, an inner member or sleeve connected at one end to the pocket adjacent the opening thereinto, its other end being free and adapted to extend into the pocket, and a positive closure for the free end of the sleeve comprising enlargements connected to the edges thereof and a clip extending over the enlargements.

3. A retaining member for a garment-pocket comprising a sleeve or open sack connected at one end to the pocket adjacent the open end thereof, constituting an inner pocket adapted to lie within the main pocket and to be withdrawn therefrom to permit the insertion of articles through its open end, and a positive closing device for the lower end of the sleeve or sack connected to the interior thereof and adapted to be disconnected only when the sleeve is withdrawn from the main pocket.

4. In a garment-pocket, a retaining member consisting of an inner sleeve or pocket member having its upper edges secured to adjacent edges of the pocket, its lower end being free and extending into the interior of the pocket, the inner member being constructed and attached to the pocket in such manner as to permit its free end being drawn out of the pocket, and a positive closing means removably connected to the lower end of the inner member for holding its edges together.

5. In a garment-pocket, a retaining member consisting of an inner sleeve or pocket member having its upper edges secured to adjacent edges of the pocket and its lower end being free and extending into the interior of the pocket, the inner members being constructed and attached to the pocket in such manner as to permit its free end being drawn out of the pocket, metal strips having enlarged edges attached to the edges of the free end of the inner member, and a tubular retaining device having lips separated by approximately the thickness of the two strips, the said device being adapted to extend over the enlarged edges of the strips and hold them together.

785,455. SUPPORT FOR SHIPS' BERTHS. GEORGES VIGIE, Marseilles, France. Filed June 10, 1904. Serial No. 211,941.



Claim.—1. A support for ships' berths, comprising an upright having resilient means for frictionally engaging a deck floor and ceiling.

2. A support for ships' berths, comprising an upright having spring-actuated means for frictionally engaging a deck floor and ceiling.

3. A support for ships' berths, comprising an upright of adjustable height having spring-actuated means for engaging a deck floor and ceiling.

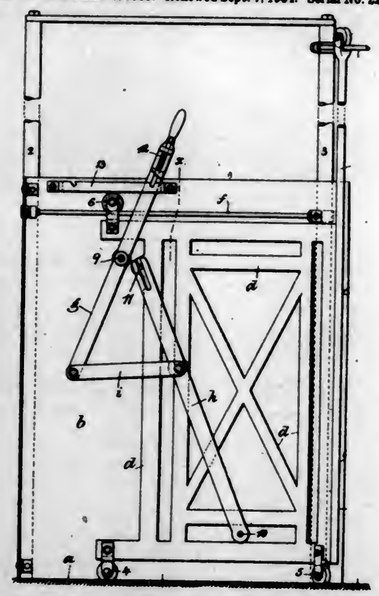
4. A support for ships' berths, comprising an upright embodying telescoping members, and a spring acting upon said members for normally maintaining the upright in extended position.

5. A support for ships' berths, comprising an upright embodying telescoping members, a spring acting upon said members for normally maintaining the upright in extended position, and means for permitting the adjustment of said spring to the required tension.

6. A support for ships' berths, comprising a tubular member, a cylindrical member movable therein, a washer adjustable along said cylindrical member, and a spring surrounding said cylindrical member and interposed between said washer and the inner end of said tubular member.

7. A support for ships' berths, comprising an upright having a terminal shoe for frictionally engaging a deck floor or ceiling.

785,456. RAILWAY-CAR GATE. CHARLES M. WAITE, New York, N. Y. Filed Mar. 6, 1903. Renewed Sept. 7, 1904. Serial No. 223,655.



Claim.—1. The combination with the platform and the curved dash of a railway-car, of a curved gate structure substantially concentric with and lying closely adjacent to the said dash but not extending above the upper edge thereof, and devices secured to and supported by the dash for moving said gate as a substantial prolongation of the said dash to close the gap between the same and the end of the car.

2. The combination with the platform and curved dash of a railway-car, of a gate of curved form substantially coinciding with the curved dash, a curved track for said gate extending across the gap between the dash and the car-body and a manually-operated lever device connected to the dash structure and adapted for moving the gate in opposite directions.

3. The combination with the platform of a railway-car, of a hollow curved dash secured thereto, a gate of curved form substantially coinciding with the curved dash and adapted to be received between the parts thereof, a curved track for said gate extending across the gap between the dash and the car-body and within the hollow dash and a manually-operated lever device connected to the dash structure and adapted for moving the gate in opposite directions.

4. The combination with the platform and curved dash of a railway-car, of a gate of curved form substantially coinciding with the curved dash, a curved track for said gate extending across the gap between the dash and the car-body, a manually-operated lever device connected to the dash structure and adapted for moving the gate in opposite directions, guide-rollers at the bottom edge of the gate, and guide-rollers also above the gate for directing the path thereof and facilitating the movement, a post at the advancing edge of the gate continuing above the gate, a guide-roller at its upper end, a track overhead and devices forming a recess to receive the post at the end of the car.

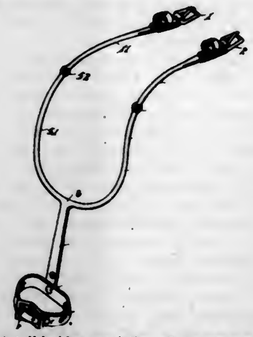
5. The combination with the platform of a railway-car, of a hollow dash comprising adjacent concentric and curved front and back parts, a sliding gate of curved form adapted to be received between said front and back parts, devices for supporting and guiding said gate and other devices connected with the hollow dash for moving said gate to close the gap between the dash and the car-body or to retract the same between the plates of the dash.

6. The combination with the platform of a railway-car, of a dash comprising adjacent concentric and curved front and back plates, a gate of curved form adapted to be received between said front and back plates, a floor-track of curved form secured to the platform, located between the front and back plates and extending across the gap between the dash and the car-body on a prolongation of the same curve, supporting-rollers for the gate resting on said track, a track between the said dash-plates and above the gate, and a guide-roller connected to the gate and running on said track, a post at the edge of the gate adjacent to the edge of the dash at the gap and extending above the gate, a guide-roller and track overhead, and manually-operated devices for imparting backward and forward movements to said gate to project the same across the gap between the dash and the car-body and to retract the same.

7. The combination with the platform of a railway-car, of a dash comprising adjacent concentric and curved front and back plates, a gate of curved form adapted to be received between said front and back plates, a floor-track of curved form secured to the platform located between the front and back plates and extending across the gap between the dash and the car-body on a prolongation of the same curve, supporting-rollers for the gate resting on said track, a track between the said dash-plates and above the gate, and a guide-roller connected to the gate and running on said track, a post at the edge of the gate adjacent to the edge of the dash at the gap and extending above the gate, a guide-roller and track overhead, a rocker-arm pivoted to the back plate of the dash and terminating in a handle above the same, a lever also pivoted to the back plate slightly above the platform and having a bifurcated upper free end, a pin secured to the gate and located in the bifurcated end of the lever, a link connecting the lower end of the rocker-arm to the lever about midway and by which parts the gate is moved out of the dash and across the gap between the dash and the car-body, and is also retracted when desired, and a locking device for holding the gate and said parts in either or both of the positions of the gate.

8. The combination with the platform of a railway-car, of a hollow curved dash, a gate of curved form substantially concentric with the dash and adapted to be received between the parts thereof, a curved track for said gate extending across the gap between the dash and the car-body and upon the platform within the hollow dash, a manually-operated lever device connected to the dash structure, guide-rollers at the bottom edge of the gate and guide-rollers also above the gate for directing the path thereof and facilitating the movement.

785,457. TAIL-HOLDING ATTACHMENT FOR HARNESS. FRANK R. WARWICK, Lapeer, Mich. Filed Apr. 30, 1904. Serial No. 205,643.

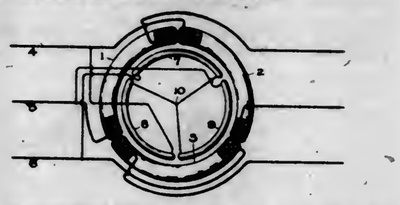


Claim.—1. A tail-holder consisting of a crupper of rigid material bent to conform to the curvature of the animal over the rump, provided with means for attaching it to the back-strap of a harness each branch of the bow being hinged, a projection depending from the bow portion, having at its free end means for attaching the tail to said projection, substantially as described.

2. A tail-holder, consisting of a crupper provided with means for attaching it to the back-strap of a harness; the bow part thereof being hinged and curving downwardly, a projection depending from the bow of the crupper, provided at its free end with means for holding the tail to said projection, substantially as described.

785,458. PHASE-INDICATOR. PENDLETON G. WATHOUGH, Jr., Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Nov. 17, 1900. Serial No. 36,815.

Claim.—1. In an instrument responsive to change in power factor, the combination of current or series coils adapted under the influence of current to develop a rotary magnetic field, potential-coils also adapted to develop a rotating magnetic field, and means for rotatively mounting one set of coils so as to be movable without restraint within the influence of the other set of coils.



2. In an alternating-current instrument, the combination of two members mounted so as to be movable relatively to each other without mechanical restraint, means for developing a rotary field in one member, means for developing in the other member a rotary field having the same direction of rotation as that of the first member, and means for noting the relative movements of said members caused by relative shifting of said fields.

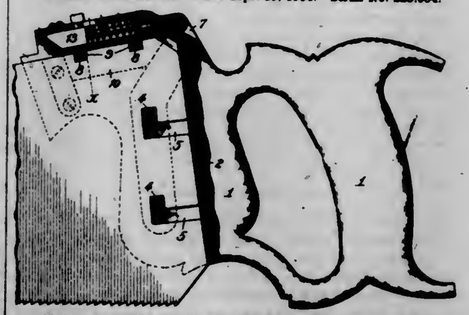
3. An indicator for alternating-current circuits comprising two members movable without restraint relatively to each other, both of which are provided with windings, the windings on one of the members being adapted to be put in circuit with the alternating-current mains and to develop a rotary magnetic field while the windings of the other member are adapted for connection across said mains, and means for indicating angular displacement between said members.

4. A phase-indicator comprising members movable relatively to each other without restraint, means for setting up in said members rotary fields due to currents of the same frequency, said fields having the same direction of rotation, and means for indicating relative displacement of said members.

5. A phase-indicator comprising a set of series coils and a set of potential-coils, each set being mounted so as to be capable of relative motion without restraint, connections between the coils such that current passed through them will act to produce a rotary magnetic field corresponding to each set of coils, and means for indicating relative displacement between the sets of coils.

6. In a phase-indicating instrument the combination of a member provided with means for generating a field depending on current, with a member provided with means for generating a field depending on potential, said members being free to move with reference to each other and to set themselves without restraint at the proper angle.

785,459. DETACHABLE HANDLE FOR HANDSAWS. JOHN WEILER, St. Louis, Mo. Filed Sept. 19, 1904. Serial No. 225,004.



Claim.—1. A detachable saw-handle, comprising a hand-grip provided with a longitudinal saw-seat and with transverse holding-pins for detachable engagement with the saw-blade, a locking member pivotally attached at its rear end to the hand-grip and provided with transverse teeth or ribs intermediate its length adapted to engage corresponding notches in the back of the saw-blade, and a spring-latch for securing said locking member in its engaged condition, substantially as set forth.

2. A detachable saw-handle, comprising a hand-grip provided with a longitudinal saw-seat and with transverse holding-pins for detachable engagement with the saw-blade, a locking member pivot-

ally attached at its rear end to the hand-grip and provided with a channel on its under side and with transverse teeth or ribs in said channel adapted to engage corresponding notches in the back of the saw-blade, and a spring-latch for securing said locking member in its engaged condition, substantially as set forth.

785,460. **MEMORANDUM-BUTTON.** CHARLES T. WHITSETT, Indianapolis, Ind. Filed May 7, 1904. Serial No. 206,871.



Claim.—1. The combination with a button having a concave back and an annular inwardly-extending marginal portion, of a tongue secured beneath said inwardly-extending portion and bent upon itself to form integral opposing jaws adapted to engage the margin of a garment.

2. The combination with a button having a concave back and an annular inwardly-extending marginal portion, of a tongue provided with bends adapted to engage under said inwardly-extending portion at opposite sides of the button, the tongue being bent upon itself to form a clasp adapted to engage the margin of a garment, and then bent upon itself again in an opposite direction to form a second clasp for holding memoranda.

3. The combination with a button, of a resilient tongue secured upon the back thereof and bent upon itself twice to form two clasps one being adapted to receive the margin of a garment and the other a memorandum, said tongue being provided at the junction of the two clasps with an integral loop to receive a pencil.

4. The combination with a button provided with a concave back and having at its rear side an annular inwardly-extending marginal portion, of a tongue provided with bends engaging under said inwardly-extending portion, the portion of the tongue between said bends being arched upwardly, said tongue being then bent to overlap said arched portion to form a clasp for engaging the margin of a garment, and then bent into a portion adapted to receive a pencil and provided at the back of the rear member of the first-named clasp with means for holding memoranda.

5. The combination with a button having a concave back and inturned edges, of an annulus held by said edges, a tongue provided with bends engaging under said annulus, the portion of the tongue between said bends being arched upwardly said tongue being then bent to overlap said arched portion to form a clasp for engaging the margin of a garment, and then bent into a circular portion adapted to receive a pencil, and terminating in a return-section parallel with the section underneath it to form a concealed clasp for holding memoranda.

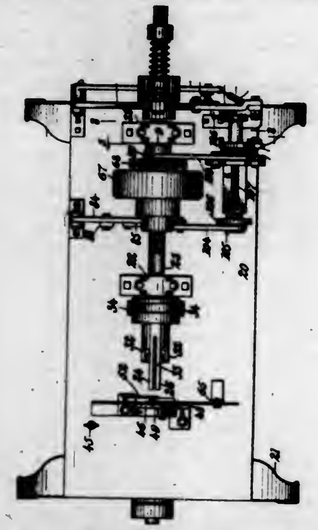
785,461. **MACHINE FOR FORMING WIRE LOOPS.** HENRY P. WILSON, New York, N. Y. Filed May 28, 1904. Serial No. 210,176.

Claim.—1. In a wire-loop-forming machine, a bending and twisting mechanism, and automatic means for stopping the machine after forming a predetermined number of loops.

2. A wire-loop-forming machine comprising a bending and twisting mechanism, a clamping device forward thereof consisting of a fixed jaw and a movable jaw, and an inclined plate for directing a wire to the fixed jaw.

3. In a wire-loop-forming machine, a bending and twisting mechanism, a clamping device forward thereof, and an ejector consisting of a curved wire having a portion extended through the machine bed-plate, a tappet-finger upon the lower end of the ejector, and a rotary tappet-arm for engaging with said finger.

4. In a bending-machine, a bending and twisting mechanism, a clamping device forward thereof, an ejector mounted to swing transversely of the machine and having a portion extended through the machine bed-plate, a finger extended at an outward and downward curve from the lower end of the ejector, a wheel, and a spring-yielding arm carried by the wheel for engaging with said finger.



5. In a bending-machine, a bending and twisting mechanism, a clamping device forward thereof, an ejector mounted to swing transversely of the machine and having a portion extended through the machine bed-plate, a finger extended at an outward and downward curve from the lower end of the ejector, a wheel, a rack mechanism for operating said wheel, and a spring-yielding arm carried by the wheel for engaging with said finger.

6. In a wire-loop-forming machine, a bending and twisting head, a clamping device forward thereof, an ejector consisting of curved wire having a portion extended through the machine bed-plate, a tappet-finger on the lower end of the ejector, a rotary tappet-arm for engaging with said finger, and a receiver for the wires.

7. In a wire-loop-forming machine, a driving-shaft, a bending and twisting head mounted thereon, means for holding a wire while bending and twisting, a collar mounted on said sleeve, a pin slidable in said collar, a pulley loosely mounted on the shaft and adapted for locking engagement with said pin, and an automatically-actuated device for moving the pin out of engagement with the pulley.

8. In a wire-loop-forming machine, a shaft, a bending and twisting head on said shaft, a driving-pulley loosely mounted on the shaft, a sprocket connected to said pulley, a lower shaft, a sprocket-wheel loosely mounted on said lower shaft, driving connections between the two sprockets, an automatically-controlled clutch for engaging the lower shaft, with the sprocket-wheel thereon and disengaging the same, a clutch mechanism between the first-named shaft and the driving-pulley thereon, and means actuated by the lower shaft for controlling said clutch mechanism.

9. In a wire-loop-forming machine, a shaft, a bending and twisting head on said shaft, a lower shaft; a driving-gear loosely mounted on said lower shaft, driving connections between said pulley and said driving-gear, a collar on the lower shaft, a spring-pressed pin movable in said collar, devices on said gear-wheel for engaging with said pin, and devices controlled by movements of the driving-pulley for moving said pin in one direction.

10. A wire-loop-forming machine comprising an upper shaft, a bending and twisting head on said shaft, a driving-pulley loosely mounted on the shaft, means for operatively connecting said pulley and shaft, a lower shaft, a bend-forming device operated from said lower shaft, a driving-gear loosely mounted on said lower shaft and having driving connection with the driving-pulley, a collar mounted on the lower shaft, a spring-pressed pin movable in said collar, and adapted for locking engagement with the gear-wheel on the lower shaft, a blade for engaging with said pin to move it out of its clutch connection, a swinging lever carrying said blade, a shaft arranged above the bed of the machine, a wheel on said shaft having pins for actuating said lever, a ratchet-wheel on said shaft, a disk carried by the shaft and having a notch in its periphery and a curved cam projection on its face opposite the notch, a lever actuated by rotary movements of the driving-pulley, a pawl carried by said lever and engaging with the ratchet-wheel, a pawl-lever mounted to swing on said actuating-lever and adapted to engage with the disk, and in the notch thereof, and a detent for temporarily holding the pawl-lever in inoperative position, said detent being moved out of said engagement with the pawl-lever by a cam carried on the disk.

11. In a wire-loop-forming machine, a main shaft, a driving and twisting head on said shaft, a bend-forming pin movable in said head, a lower shaft, means actuated from said lower shaft for actuating said pin, a driving-pulley loosely mounted on the main shaft, a gear-wheel loosely mounted on the lower shaft, a clutch for connecting said lower shaft to the gear-wheel, means actuated from movements of the driving-pulley for actuating said clutch, a clutch connection between the main shaft and the driving-pulley, and means actuated from said lower shaft for controlling said clutch.

12. A wire-loop-forming machine comprising an upper shaft, a lower shaft, a bending and twisting head on the upper shaft, means controlled from the lower shaft for actuating said upper shaft and head, means for stopping the machine after forming a predetermined number of loops, and means for alternately stopping and starting the machine.

13. In a machine of the character described, a shaft, a driving-wheel loosely mounted thereon, a collar on the shaft and having a longitudinal opening, a spring-pressed pin movable in said opening and adapted for locking engagement with the driving-gear, the said pin being provided with a notch, a curved blade, and means for automatically actuating said blade to engage in said notch, and draw the pin out of its clutch engagement.

14. In a machine of the character described, a main shaft, a turning and twisting head carried by the shaft, a lower shaft for controlling the bending mechanism, a driving-pulley loosely mounted on the main shaft, means controlled by the lower shaft for locking said pulley to the main shaft, a driving-wheel loosely mounted on the lower shaft and having driving connection with the pulley, and means controlled by the pulley for locking said driving-wheel in connection with the lower shaft.

15. In a machine of the character described, a main shaft, means for causing an intermittent rotary motion of said shaft, a bending and twisting head carried by the shaft, the said head comprising a plate having an angular slot, a collar movable on the shaft, a pin extended through the said slot, link connections between said pin and collar, a lug on the plate below said slot, an angle-lever having connection with said collar, a swinging arm at the lower portion of the machine, a rod connection between said angle-lever and said arm, an intermittently-rotated lower shaft, and a cam operated by said lower shaft for causing movements of said arm to move the collar in opposite directions.

16. In a machine of the character described, a main shaft, a bending and twisting head on said shaft, a bending device operating in said head, a lower shaft for operating said bending device, a clamping device actuated from said lower shaft, a sprocket-wheel loosely mounted on the lower shaft, a driving-pulley loosely mounted on the main shaft, means for automatically causing a clutch connection between said driving-pulley and its shaft, a driving connection between said pulley and the sprocket-wheel, a clutch connection between the lower shaft and the sprocket-wheel, the said clutch comprising a longitudinally-movable pin, a blade for moving said pin in one direction, a swinging lever carrying said blade and extended upward through the bed-plate of the machine, a shaft, a disk on said shaft, pins on said disk for causing swinging movements of said lever, a ratchet-wheel on said shaft, a disk mounted on said shaft and having a peripheral notch and a surface cam projection, a lever moved in one direction by said driving-pulley, a pawl carried by said lever and engaging with the ratchet-wheel, a pawl-lever mounted on the actuating-lever, a dog engaging with the ratchet-wheel and having spring connection with the pawl-lever, a detent for the pawl-lever comprising a resilient portion having an extended finger for engaging with the cam on the disk and having a bent finger for engaging with the lower end of the pawl-lever, and an eccentric for throwing said actuating-lever out of operative position.

17. In a machine for the purpose described, a main shaft, a twisting and bending head carried by said shaft, a lower shaft, means actuated by said lower shaft for actuating the bending mechanism, a driving-pulley loosely mounted on the main shaft, a driving-gear loosely mounted on the lower shaft, connections between said pulley and gear, a clutch for connecting the main shaft with the driving-pulley, means for automatically controlling said clutch, a clutch for connecting the driving-gear with the lower shaft, a shaft forward of the main shaft, means actuated by said forward shaft for controlling the clutch connection between the lower shaft and the driving-gear thereon, a ratchet-wheel on said forward shaft, a lever actuated from said driving-pulley for imparting step-by-step motion to said ratchet-wheel, a cam-disk carried by said forward shaft and having a peripheral notch, a pawl-lever carried by said actuating-lever, a detent for holding said pawl-lever out of engagement temporarily with the cam-disk, a cam on the cam-disk for moving the detent out of engagement with the lever, another ratchet-wheel mounted on said shaft and having a greater number of teeth than the first-named ratchet-wheel, a pawl engaging with the last-named ratchet-wheel, and means controlled by the main and lower shafts for causing movements of said pawls.

18. In a wire-loop-forming machine, the combination with a main shaft and a lower shaft, a driving-pulley loosely mounted on the main shaft, a driving-wheel loosely mounted on the lower shaft and having driving connection with the pulley, means controlled by the lower shaft for locking the driving-pulley to the main shaft, a shaft forward of the main shaft, means controlled by said forward shaft for locking the lower shaft to the driving-wheel thereon, a ratchet-wheel on said front shaft, means operated by the driving-pulley for imparting a step-by-step motion to said ratchet-wheel, another ratchet-wheel mounted on said forward shaft and having a greater number of teeth than the first-named ratchet-wheel, a spring-pressed pawl engaged with the other ratchet-wheel, a swinging arm carrying said pawl, a rocker-arm with which said swinging arm has link connection, a roller carried by said arm, a roller carried by the main shaft and having a peripheral notch to receive the roller carried by the said arm, a rocker-arm at the lower portion of the machine, a roller carried by said lower rocker-arm, a roller carried by the lower shaft and having a notch to receive the roller on the lower arm, a rod connection between the two rocker-arms, and a spring for moving said rocker-arms upward.

19. In a wire-loop-forming machine, a bending and twisting mechanism, a clamping mechanism forward thereof, an ejector consisting of resilient wire, a hanger on which the ejector is mounted to swing, a curved finger on the lower end of the ejector, a disk, a pinion on the shaft of said disk, an automatically-actuated rack engaging with said pinion, a tappet-arm mounted to swing on the disk, a spring connection between the arm and disk, and a pin on the disk for engaging with the arm to hold it rigidly when moving in one direction.

20. In a wire-loop-forming machine, a main shaft, a bending and twisting head on the shaft, a bending device movable in the head, a swinging arm mounted in the machine-frame, an operating connection between said arm and said bending device, a clamping device comprising a swinging member, an operating connection between said member and said arm, an intermittently-actuated lower shaft, and a cam carried by said lower shaft for controlling the swinging arm.

21. In a wire-loop-forming machine, a main shaft, a bending and twisting head on the shaft, a bending device movable in the head, a swinging arm mounted in the machine-frame, an operating connection between said arm and said bending device, a clamping device comprising a swinging member, an operating connection between said member and said arm, an ejector controlled from said arm, an intermittently-actuated lower shaft, and a cam carried by said lower shaft for controlling the swinging arm.

22. In a wire-loop-forming machine, a main shaft, a bending and twisting head carried by said shaft, a pulley loosely mounted on the shaft, a lower shaft, a sprocket-wheel on the lower shaft having a driving connection with the pulley, the said sprocket-wheel being loose, a clutch mechanism for engaging the lower shaft with the wheel and comprising a pin, means controlled from the driving-pulley for moving said pin in one direction, a peripherally-notched disk on the lower shaft for controlling the movements of the pin in opposite directions, a clutch connection between the main shaft and the driving-pulley, and a peripherally-notched disk on the lower shaft for moving said clutch connection in one direction.

23. In a wire-loop-forming machine, a bending and twisting mechanism, a wire-clamping device, an ejector operating adjacent to the clamping device, and a wire-receiver consisting of a metal bar curved downward and outward and having its upper end terminating over the clamping device.

785,462. **TONGS.** JONAH G. WIDNER, Grand Valley, Pa. Filed Nov. 25, 1904. Serial No. 234,178.

Claim.—1. Tongs comprising two intermediately-pivoted dogs, and a handle located between the dogs and arranged to swing around an axis crossing the axes of the pivots of said dogs, the handle being capable of being wedged in between the dogs at one end of the dogs to force the dogs toward each other at the other end.



2. Tongs comprising two intermediately-pivoted dogs, and a handle located between the dogs and arranged to swing around an axis crossing the axes of the pivots of said dogs, the handle being capable of being wedged in between the dogs at one end of the dogs to force the dogs toward each other at the other end, the center of the swinging movement of the handle being intermediate the ends thereof, and one end portion of the handle projecting toward the working ends of the dogs to coact with the work.

3. Tongs comprising two intermediately-pivoted dogs, a handle located between the dogs and arranged to swing around an axis crossing the axes of the pivots of said dogs, the handle being capable of being wedged in between the dogs at one end of the dogs to force the dogs toward each other at the other end, the center of the swinging movement of the handle being intermediate its ends and one end of the handle projecting toward the working ends of the dogs, and a gripper mounted on said end of the handle and adapted to engage the work.

4. Tongs comprising two dogs, means extending between the ends and pivotally connected thereto intermediate their ends to allow the dogs to swing toward and from each other, and a handle located between the dogs and pivoted thereto on an axis crossing the axes of the pivots of the dogs, the handle and dogs having coacting surfaces at one end of the dogs whereby upon forcing the handle toward the dogs the dogs are forced together at the opposite end.

5. Tongs comprising two dogs, a link extending between the dogs, pivots connecting the dogs with the link intermediate the ends of the dogs, a handle fitted between the dogs, and a means mounting the handle to swing on an axis crossing the axes of said pivots of the dogs, the handle coacting with the dogs at one end to force the dogs to move toward each other at the other end.

6. Tongs comprising two dogs, a link extending between the dogs, pivots connecting the link with the dogs intermediate the ends of the dogs, studs projecting from the inner sides of the dogs, and a handle fitted between the dogs and having cavities in which the studs are loosely received.

7. Tongs comprising two dogs, a link extending between the dogs, pivots connecting the link with the dogs intermediate the ends of the dogs, studs projecting from the inner sides of the dogs, a handle fitted between the dogs and having cavities in which the studs are loosely received, said cavities in the handle being intermediate the ends thereof, and one end of the handle projecting toward the work, and a gripper attached to one end of the handle and adapted to engage the work.

785,468. BRUSH-BRIDLE. GEORGE R. WINNIE, Traverse City, Mich. Filed May 20, 1903. Serial No. 157,839.



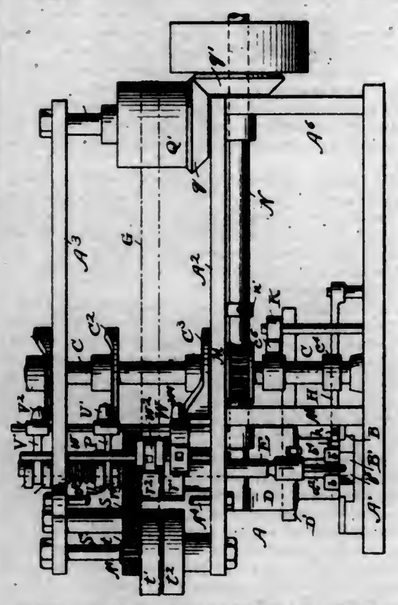
Claim.—1. A brush-bridle, comprising a plurality of bands having their lower edges bent upon themselves to form rounded edges, the bands being arranged upon the brush one below the other and provided with arms graduated in length, the arms overlying one another and all adapted to be pivoted at their upper ends to the brush-head by common pivots, the uppermost band being approximately circular and the others elliptical and gradually increasing in eccentricity from the top to bottom, as and for the purpose set forth.

2. A brush-bridle, consisting of a plurality of bands provided with arms of unequal length and adapted to overlie one another and having at their ends slots adapted to receive fastening-screws, one of the bands being circular and the others elliptical and gradually increasing in eccentricity, as set forth.

3. A brush-bridle comprising a plurality of bands having arms of unequal length adapted to overlie one another, the arms being provided at their ends with registering openings for the purpose set forth.

4. A brush-bridle, comprising a plurality of bands provided with arms of unequal length for securing them to a brush, one of the bands being approximately circular and the others elliptical and gradually increasing in eccentricity, as set forth.

785,464. NUT-THREADING MACHINE. NORMAN B. WOOD, Cuyahoga Falls, Ohio, assignor of two-thirds to Robert J. Rodd and Charles Rodd, Cuyahoga Falls, Ohio. Filed Aug. 13, 1903. Serial No. 169,194.



Claim.—1. In a nut-threading machine, the combination, with the frame, of a spindle rotatably mounted in said frame, a sleeve splined to said spindle, a fast-speed driving-pulley rigid with said sleeve, a loose pulley upon said sleeve, a loose pulley mounted upon an independent shaft, a slow-motion driving-pulley mounted upon said shaft, gearing between said slow-motion driving-pulley and said spindle whereby said pulley may drive said spindle at slow speed to thread the nut, a belt for driving said pulley, and means whereby said belt may be shifted from said slow-speed driving-pulley and whereby another portion of the belt will be shifted onto the pulley keyed to said spindle and thereby rotate the same at high speed and withdraw the tap from the nut.

2. In a nut-threading machine, the combination, with the frame, of a spindle rotatably mounted in said frame, a sleeve splined to said spindle, a fast-speed driving-pulley rigid with said sleeve, a loose pulley upon said sleeve, a loose pulley mounted upon an independent shaft, a slow-motion driving-pulley mounted upon said shaft, a clutch member splined to said spindle, another clutch member loose upon said sleeve for engagement with said first-named clutch member, gearing between the clutch member upon said sleeve and the slow-speed driving-pulley, means for holding said clutch members together, an endless belt, when in one position, being adapted to drive the slow-speed driving-pulley, and when in the other position, adapted to drive the pulley rigid with said sleeve, and means for automatically shifting said belt.

3. In a nut-threading machine, the combination with the frame, of a tap-spindle rotatably mounted therein, a sleeve splined to said spindle, a pulley rigid with said sleeve, another pulley loose upon said sleeve, a gear loose upon said sleeve and having a clutch member rigid therewith, a counter-shaft, a loose pulley upon said counter-shaft in alinement with the pulley tight upon the sleeve, a gear rigid with said second-mentioned pulley upon said counter-shaft,

gearing between said gear and the gear upon said sleeve, a clutch member splined to said spindle and adapted to coöperate with said other clutch member, a spring for retaining the engagement of said clutch members, means for automatically throwing said clutch members apart, means for reciprocating said spindle, a belt for operating said pulleys, and means for shifting said belt from one position to another.

4. In a nut-threading machine, the combination with the frame, of a driving-shaft, a spindle rotatably mounted in said frame, a sleeve splined on said spindle, means for holding said sleeve against endwise movement, a fast-speed pulley rigid with said sleeve, a loose pulley upon said sleeve, a pair of independent pulleys arranged to carry the belt operating upon the aforesaid pulleys, gearing between one of the pulleys of said pair and the spindle whereby said driving-shaft may drive said spindle at slow speed to thread the nut blank, a single driving-belt, and means for shifting said belt from the pulley rigid upon said sleeve to the pulley loose upon the same.

5. In a nut-threading machine, in combination with a frame, a spindle rotatably mounted in said frame, a pulley having a driving connection with said spindle, another pulley adjacent to the same but running loose from said spindle, a pair of pulleys mounted upon an independent shaft and arranged in alinement with said other two pulleys, suitable gearing between one of the pulleys mounted upon said independent shaft and the tap-spindle whereby it may drive the same at slow speed, driving mechanism, an endless belt passing from said driving mechanism to said pulleys, whereby when the belt is upon the pulley which is in direct driving connection with the spindle, it will rotate it at high speed, and when it is upon the loose pulleys upon said spindle it will be driving it through the other one of the gears upon said independent shaft at slow speed, and means for shifting the belt.

785,465. FILE-HOLDER. CATARINO ARMIJO, Las Cruces, N. Mex. Filed Aug. 3, 1904. Serial No. 219,308.

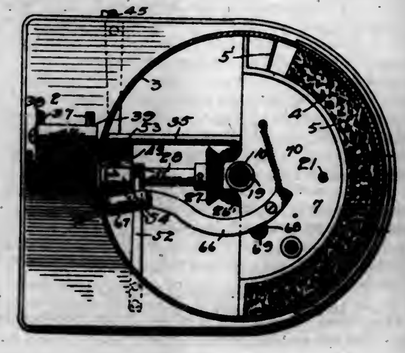


Claim.—1. A file-holder having a rod therein, a series of celluloid cards movably mounted upon and above the rod, a resilient clasp for removably holding the cards to the rod, and an adjustable means for holding said cards securely together.

2. In a file-holder, the combination of a rod, a series of cards mounted thereabove, a resilient clasp for removably holding said cards in position on the rod, and means for forcing said cards together, comprising a plate adapted to bear upon a card at one end of the series, and a hinge secured to the plate and connected with the rod.

3. In a file-holder, the combination of a rod, a series of cards mounted above said rod, means for removably holding said cards in position on the rod, and means for forcing said cards together, comprising a plate, and a hinge having one half thereof secured to the plate, and having a hole through the other half, said rod passing through said hole.

785,466. CHECK-PROTECTOR. GAYLORD W. BEEBE, Minneapolis, Minn., assignor to G. W. Todd & Company, Rochester, N. Y. Filed Dec. 17, 1901. Serial No. 86,253.



Claim.—1. The combination, with a rotating reciprocating die-holder having a hub, of a shaft whereon said hub is secured and a pivoted operating-lever extending across the top of said holder and provided with a loop loosely inclosing said hub.

2. The combination, with a rotating reciprocating die-holder provided with a suitable hub, of a pivoted operating-lever extending across the top of said holder and having a loop loosely inclosing said hub, and an adjustable stop device provided near the free end of said lever.

3. In a check-protector, a die adapted to cut out a portion of the paper to form the figure or character therein and provided with a corrugated inking-shoulder which engages and bruises the surface of the paper around the cut portion thereof, and means for inking said shoulder, whereby the bruised surface of the paper around the cut will be saturated with ink.

4. In a check-protector, a die having a tapered face and adapted to cut out a portion of the paper to form the figure or character therein and provided with a corrugated inking-shoulder that engages and bruises the surface of the paper during the cutting and printing operation, and means for inking said shoulder whereby said surface will be saturated with ink.

5. In a check-protector, a male and a female die coöperating to cut out a portion of the paper to form the figure or character therein, and means for inking the cutting edge and sides of the male die prior to its engagement with the paper, whereby as said male die passes through the paper the exposed cut edges of the figure or character therein will be inked and said inking means being arranged to ink a die after its adjustment over the paper to be marked and to be actuated by the force that moves the die toward the paper.

6. In a check-protector, a male and female die coöperating to cut out a portion of the paper to form the figure or character therein, said male die being provided with a shoulder that engages the surface of the paper during the cutting operation, and means arranged to ink said shoulder after the die has been adjusted over the paper to be marked, and said inking means being actuated by the force that moves the die toward the paper, for the purpose specified.

7. In a check-protector, a male and a female die coöperating to cut out a portion of the paper to form the figure or character therein, said male die being provided with a corrugated or inking shoulder that is adapted to engage and bruise the surface of the paper around the cut portion thereof, and means for inking said shoulder, whereby during the cutting operation the surface of the paper around the figure or character cut therein will be saturated with ink.

8. In a check-protector, a male and a female die coöperating to cut out a portion of the paper to form the figure or character therein, said male die being tapered at its point and provided with a roughened shoulder that engages and bruises the surface of the paper around the character cut therein, and means for inking said shoulder.

9. In a check-protector, a die-holder having a series of dies provided with inking-shoulders, a cylindrical female-die holder carrying a series of dies coöperating with said male dies to cut out a portion of the paper to form a series of figures or characters therein, and means for inking the shoulders on said male dies prior to the engagement of said dies with the paper, whereby during the cutting operation the surface of the paper around the characters cut therein will be impregnated with ink.

10. In a check-protector, a die-holder having a series of male dies, a female-die holder having dies coöperating with said male dies to cut out a portion of the paper to form the figure or character therein, a stationary inking-pad, and a movable inking device for inking the cutting edges of the male dies prior to their engagement with the paper, substantially as described and for the purpose specified.

11. In a check-protector, the combination, with a die-holder carrying a series of male dies provided with inking-shoulders, of a cylindrical female-die holder provided with dies coöperating with said male dies to cut out a portion of the paper to form figures or characters therein, a stationary inking-pad, and a movable inking device actuated by the movement of said holder for inking said shoulders prior to the engagement of said male dies with the paper, whereby during the cutting operation the surface of the paper around the cuts therein will be inked.

12. A die-holder having a series of dies adapted to cut out a portion of the paper to form the figures or characters therein, in combination, with stationary and movable inking devices, the latter being actuated to ink a die by the force that brings the die and paper together, whereby one stroke or movement by the operator will cause inking of a die and engagement of a die and paper.

13. The combination, with a reciprocating die-holder carrying a series of dies, of a shaft whereon said die-holder is mounted, a shaft

35, ratchets secured thereon having oppositely-formed teeth, a casting 31 mounted on said die-holder shaft, a dog 32 adapted to engage the teeth of one of said ratchets upon the return stroke on said die-holder shaft, means for engaging the teeth of the other ratchet to limit the movement of said ratchets, a guide-arm 43 and a feed-roll 37 provided on said shaft 35.

14. In a check-protector, a die having a tapered face and adapted to cut out and detach a portion of the paper corresponding in shape and size to the figure or character represented by the die, and means for inking the cutting edge and sides of the die prior to its engagement with the paper, whereby as the die passes through the paper the exposed cut edges of the figure or character formed therein will be inked.

15. In a check-protector, the combination, with a reciprocating die-holder carrying a series of dies, of a cylindrical holder carrying a series of female dies adapted to coöperate with said male dies to cut out and detach pieces of the paper corresponding in shape and size to the series of figures or characters represented by the dies, and means for inking the cutting edges and sides of said male dies prior to their engagement with the paper, whereby as each die passes through the paper the exposed cut edges of the figure or character formed by the cutting edge of the die will be inked.

16. In a check-protector, the combination, of a reciprocating die-holder provided with a series of dies each adapted to cut out a piece of the paper corresponding in shape and size to the figure or character represented by the die, with horizontal reciprocating means provided between said holder and the paper and actuated by the force that moves the dies toward the paper for inking the cutting edge of each die prior to its engagement with the paper.

17. In a check-protector, the combination, of a reciprocating die-holder rotating in a horizontal plane and provided with a series of male dies having continuous cutting edges, with a female-die holder provided with a series of dies coöperating with said male dies to cut out pieces of paper corresponding in shape and size to the figures or characters represented by the dies, and horizontal reciprocating means provided between said holder and the paper and actuated by the force that moves said die-holder toward the paper for inking the cutting edges of said male dies prior to their engagement with the paper, whereby the exposed cut edges of the paper will be thoroughly inked as the dies pass through the same.

18. In a check-protector, the combination, of a reciprocating die-holder provided with a series of male dies having paper-inking shoulders, with a female-die holder having dies coöperating with said male dies to cut out pieces of the paper corresponding in shape and size to the figures or characters represented by said male dies, and a swinging inking-arm provided beneath said holder and actuated by the movement of the same toward the paper for inking the cutting faces of said male dies and said shoulders prior to the engagement of said dies with the paper, whereby the cut edges of the paper and the surface of the same around said edges will be impregnated with ink.

19. A reciprocating die-holder having a series of male dies adapted to cut out and remove pieces of paper corresponding in shape and size to the figures or characters represented by the dies, in combination, with an inking device actuated to ink a die by the force that moves said holder toward the paper to be cut after the die has been adjusted over the paper whereby said holder will be moved and the die inked by one stroke or operation.

20. A die-holder, carrying a series of male dies that are adapted to cut out and remove pieces of the paper corresponding in shape and size to the figures or characters represented by the dies, in combination, with an inking device actuated to ink a die after its adjustment over the paper to be cut by the force that brings the die and paper together, whereby one stroke or movement of the operator will successively cause the face of the die to be inked, the cutting of the paper and the inking of its exposed cut edges.

785,467. NON-REFILLABLE ATTACHMENT FOR BOTTLES. CAREL BELL, Hoboken, N. J. Filed Dec. 6, 1904. Serial No. 235,673.

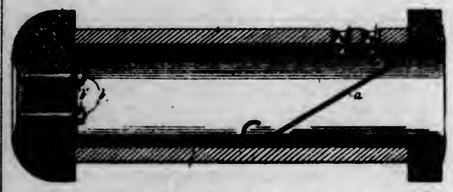
Claim.—1. The combination, with a bottle-neck, of a non-refillable attachment attached thereto and comprising an exterior casing, an extension having a discharge and a vent opening, a valve-seat, a hinged and spring-actuated valve on said valve-seat and a weight connected with said valve and adapted to open the same when tilting and to close the same when placed in upright position.

2. The combination, with a bottle-neck having an exterior rim, of a split sleeve attached to the exterior of the same below said rim, a non-refillable attachment, means for attaching the same to the split sleeve, said attachment consisting of a cylindrical lower portion, a cylindrical extension above the same provided with vent and discharge openings, an interior cylindrical valve-seat, a hinged and spring-actuated valve, and a weight connected with said valve and adapted to open and close the valve according as the bottle is tilted or placed in upright position.



3. The combination, with a bottle-neck having an exterior rim, of a non-refillable attachment, means for attaching the same to the exterior of the bottle-neck below said rim, said attachment comprising a cylindrical lower portion, a cylindrical extension above the same provided with vent and discharge openings, an interior cylindrical valve-seat, a hinged and spring-actuated valve for closing said valve-seat, a weight connected with the valve and adapted to open or close the same according as the bottle is tilted or placed in upright position, and a guard device extending over the valve for limiting the movement thereof.

785,468. PNEUMATIC CARRIER. THOMAS BENIS, Indianapolis, Ind. Filed Feb. 23, 1905. Serial No. 247,015.



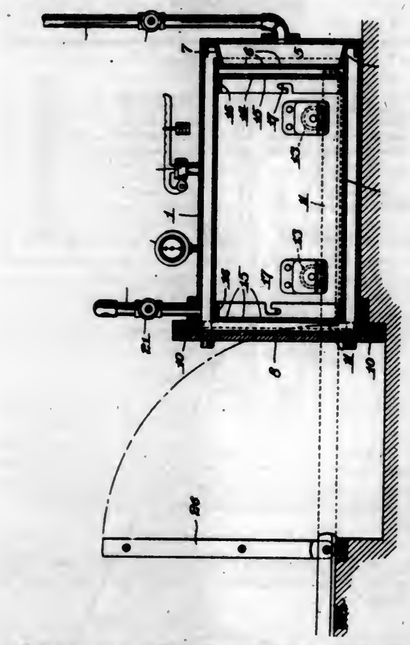
Claim.—1. The combination with a carrier for pneumatic tubes formed with one end open and the other closed, of a spring within said carrier secured at one end to one side of said carrier, its other end being free and extending across to the opposite side in a direction toward the closed end of said carrier, substantially as set forth.

2. The combination in a carrier for pneumatic tubes, of the body having one end closed and the other open with an outturned flange around the open end, a felt on the outside of said body against said flange, another felt secured on the opposite end of said carrier, a distance-brace interposed between said felts, whereby the securing of one secures the other, and the spring-holder secured within the carrier at said open end with its free end extending toward the closed end, substantially as set forth.

3. In a carrier for pneumatic tubes, the combination, of the body formed with one end closed and one end open with a flange around the open end, a felt ring against said flange, a felt secured to the closed end, an outside casing on said body bearing against both of said felts, and a spring-holder within said carrier, substantially as set forth.

785,469. TURPENTINE-STILL. JOSEPH BENNOR, Macon, Ga. Filed Aug. 11, 1904. Serial No. 220,310.

Claim.—1. In a turpentine-still, the combination of a steam-drum, a charging-shell adapted to be placed within the drum and comprising an imperforate body portion having end heads provided with openings therein, and means for introducing steam to said shell through the openings in one of its end heads whereby the steam is caused to pass entirely through the shell before entering the drum.



2. In a turpentine-still, the combination of a steam-drum provided on its interior with a hollow tapering portion, a charging-shell having openings in the ends thereof and adapted to be placed within the drum to open into and fit said tapering portion, and means for introducing steam to said drum within the tapering portion, whereby steam is caused to pass through the shell before entering the drum.

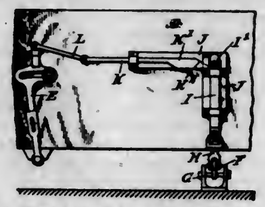
3. In a turpentine-still, the combination of a steam-drum provided with an opening therein and on its interior with a hollow tapering portion, a door to close said opening, a charging-shell provided with supporting-wheels and having openings therein and adapted to be moved into and out of said drum, and means for introducing steam to said drum within said tapering portion, whereby steam is caused to pass through the shell before entering the drum.

4. In a turpentine-still, the combination of a steam-drum provided with an opening therein and on its interior with a hollow tapering portion, a door to close said opening, a trackway within said drum, a charging-shell provided with openings therein and supporting-wheels fitted to said trackway and adapted to be moved into and out of said drums, and means for introducing steam to said drum within said tapering portion, whereby steam is caused to pass through the shell before entering the drum.

5. In a turpentine-still, the combination of a drum or receptacle having an opening therein, a door to close said opening, a charging-shell provided with supporting-wheels and adapted to be moved into and out of said drum, said shell comprising an imperforate body portion having end heads provided with openings therein, and means for introducing steam to said shell through the openings in one of its ends head whereby the steam is caused to pass entirely through the shell before entering the drum.

6. In a turpentine-still, the combination of a drum or receptacle having an opening therein and having on its interior a hollow tapering portion, a door to close said opening, a trackway within said drum, a charging-shell provided with supporting-wheels fitted to said trackway and comprising an imperforate body portion having end heads provided with openings therein, said shell being adapted to be moved into and out of said drum and said trackway being arranged to direct said shell to engage and open into said tapering portion, and means for introducing steam within said tapering portion, whereby steam is caused to pass through the shell before entering the drum.

785,470. ATTACHMENT FOR SPINNING-MULES. JOHN BOND and LEVI H. BOND, Waterloo, N. Y. Filed Apr. 27, 1904. Serial No. 205,066.



Claim.—1. A spinning-mule provided with a locking device for automatically holding the carriage against rebounding when stopped, the said locking device being automatically controlled from the stopping device of the carriage.

2. A spinning-mule provided with a hook mounted to swing on the carriage, means controlled from the stopping device of the carriage for operating the hook, and a fixed keeper at the head-stock of the machine, adapted to be engaged by the said hook.

3. A spinning-mule provided with a locking device for automatically holding the carriage against rebounding when the latter stops, said locking device comprising a fixed keeper near the head-stock, a hook mounted to swing on the carriage, a slide connected with the hook, and mechanism for operating the slide from the stopping device for the carriage.

4. A spinning-mule provided with a locking device for automatically holding the carriage against rebounding, said locking device comprising a fixed keeper near the head-stock, a hook mounted to swing on the carriage, and mechanism connecting the said hook with the stopping device for the carriage, the said mechanism consisting of a slide connected with the free end of the said hook, a bar having a beveled edge, adapted to engage the said slide, to raise and lower the same and a link connecting the said bar with a movable part of the stopping device for the carriage.

5. In a spinning-mule, the combination with the carriage, and a pivoted lever constituting a part of the stopping device for the carriage, of a pivoted hook carried by the carriage, a slide on the carriage and pivotally connected with the hook, a sliding bar having a beveled end adapted to engage the slide to raise the same, the slide falling by gravity when released, a link connecting the bar with the pivoted lever, and a fixed keeper near the head-stock and with which the hook is adapted to engage.

6. In a spinning-mule, the combination with a carriage, and a pivoted lever constituting a part of the stopping device for the carriage, of a pivoted hook on the carriage, a slide pivotally connected with the hook, a sliding bar pivotally connected with the said lever and engaging the slide to raise the same, the slide falling by gravity, when released, and a fixed keeper near the head-stock and with which the hook is adapted to engage.

7. In a spinning-mule, the combination with a carriage, and a movable member constituting a part of the stopping device for the carriage, of a pivoted hook on the carriage, mechanism for operating the hook from the said movable member, and a fixed keeper near the head-stock and with which the hook is adapted to engage.

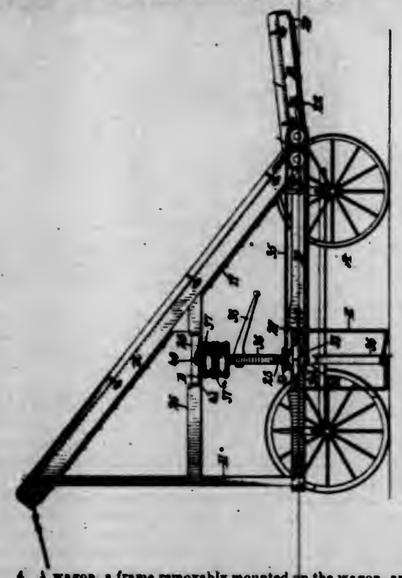
785,471. STACKER. PETER BROUK, Wilson, Kans. Filed Dec. 1, 1904. Serial No. 235,040.

Claim.—1. In stackers, a driving mechanism for the elevator, comprising a shaft, a driving-pulley on the shaft, and an arm carried by the shaft and adapted for connection with a draft-tree, and supports for the shaft, having bearings at one end and clamping mechanism at their opposite ends.

2. A stacker provided with an elevator, a driving mechanism for the elevator, a horse-power attachment for the said stacker, said attachment comprising a vertical shaft carrying a sweep, and a driving connection between the said shaft and the driving mechanism for said elevator.

3. A stacker, consisting of a frame, an elevator supported by the frame, a shaft mounted on the said frame, a gear-and-belt connection between the said shaft and a drum of the elevator, and a horse-power attachment comprising a shaft, upper and lower sup-

ports in which the ends of the said shaft revolve, said supports having means for attachment to the frame in a removable manner, pulley and belt connections between the shaft on the frame and the shaft of the horse-power attachment, and an arm extending from the latter shaft and adapted for attachment to a harness.



4. A wagon, a frame removably mounted on the wagon, an elevator supported by the frame, a conveyer having hinged connection with the lower end of the elevator, a main shaft journaled in the frame, a driving-pulley on the main shaft, sprocket-wheels secured to the shafts of the adjacent drums of the elevator and the conveyer, a sprocket-wheel mounted to turn on the frame, a gear carried by the sprocket-wheel, and a gear meshing therewith and carried by the said shaft, a chain connection between all of the sprocket-wheels, and a horse-power attachment, comprising upper and lower bracket-arms, a shaft mounted to turn at its ends in the outer end portions of the said bracket-arms, clamps carried by the inner end portions of the bracket-arms and arranged for holding engagement with the said frame, a bar extending out from the shaft of the horse-power attachment, a pulley on the said shaft opposite that which is on the shaft carried by the frame, the pulley on the latter shaft being of less diameter than the pulley of the shaft of the horse-power attachment, and a belt connection between the two pulleys.

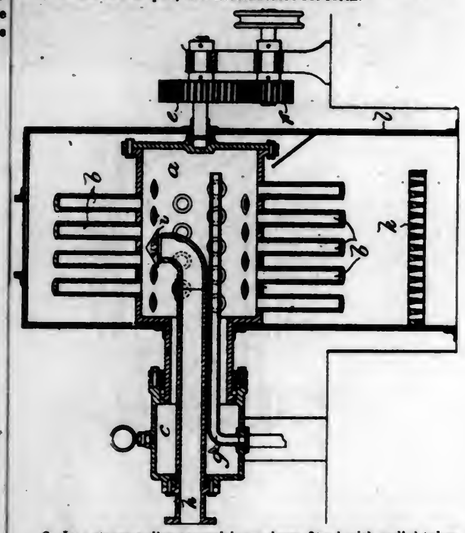
5. The combination with the elevating-section of a stacker and the driving mechanism for the elevator, of a horse-power attachment, said attachment comprising a vertical shaft having a sweep, means for removably connecting the said shaft to the frame of the conveyer, and a driving connection between the shaft and the driving mechanism for the said elevator.

6. In stackers, a horse-power attachment for the same, comprising a shaft, a sweep carried by the shaft, supports in which the shaft is mounted, said supports having means for detachable engagement with the frame of the stacker, and a driving member on the shaft and from which the driving mechanism of the stacker is adapted to be operated.

7. In stackers, a horse-power attachment for the same, comprising brackets having clips at one end for engaging the frame of the stacker and bearings at the other end, one of the brackets having vertical and horizontal members, a vertical shaft mounted in the bearings of the brackets, an arm or sweep secured to the shaft, and a pulley on said shaft.

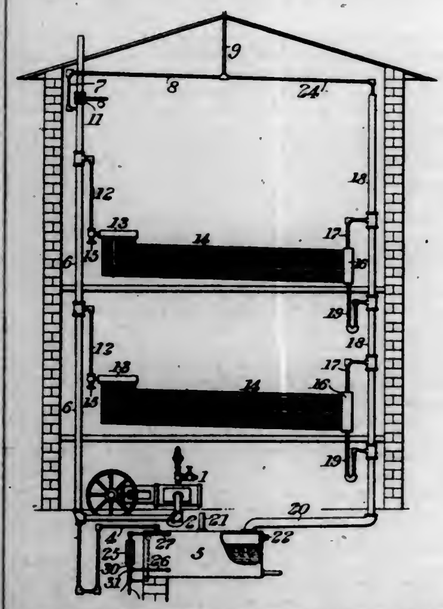
785,472. ROTARY BOILER. Henry Brown, Herne Hill, London, England. Filed July 20, 1904. Serial No. 217,420.

Claim.—1. In a steam-boiler comprising a drum fitted with radial tubes and adapted to be rotated on trunnions over a furnace within a casing, a feed-water pipe and a steam-exit pipe passing through one trunnion the water-pipe being provided with radial jets and the steam-pipe being fitted with a deflecting-cone, substantially as and for the purposes hereinbefore set forth.



2. In a steam-boiler comprising a drum fitted with radial tubes and steam and feed-water connections said drum being adapted to be rotated over a furnace, an enlargement on the drum for the purpose of forming a dry-steam space, substantially as hereinbefore described.

785,473. EXHAUST HEATING OR LOW-PRESSURE SYSTEM. Richard B. Brown, Philadelphia, Pa. Filed Mar. 9, 1903. Serial No. 146,803.



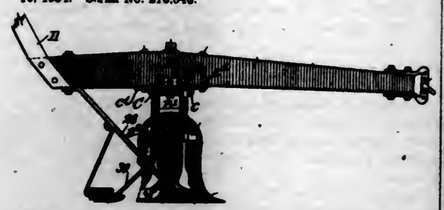
Claim.—1. In an exhaust or low-pressure heating system, a main riser, a radiator, a pipe forming a communication between said riser and said radiator, said pipe opening into said riser some distance above said radiator and means for closing the same adjacent said radiator whereby the water of condensation is collected in said pipe and will act to reduce the pressure in said pipe, to draw in the steam, when said closing means is opened.

2. In an exhaust or low-pressure heating system, a drip-pipe, a radiator, an air-exit pipe leading from the upper portion of said radiator and adapted to discharge into said drip-pipe above said radiator and a water-exit pipe having a trap therein, said water-pipe leading from the lower portion of said radiator and adapted to discharge into said drip-pipe below said radiator, whereby the air and water are positively discharged separately, from said radiator and from the system.

3. In an exhaust or low-pressure heating system, a main riser, a radiator, a pipe forming a communication between said riser and said radiator, means for closing said pipe adjacent said radiator whereby the water of condensation is collected in said pipe and will act to reduce the pressure in said pipe and draw in the steam when said closing means is open, a drip-pipe, an air-exhaust pipe leading from the upper portion of said radiator adapted to discharge into said drip-pipe above said radiator and a water-exit pipe having a trap therein, said water-pipe leading from the lower portion of said radiator and adapted to discharge into said drip-pipe below said radiator.

4. In an exhaust or low-pressure heating system, a radiator, steam-admission means substantially at one end thereof, a drip-pipe, separate air and water exit pipes from said radiator to said drip-pipe, said air-pipe leading upward from the upper portion and said water-pipe leading downward from the lower portion of said radiator whereby the air and water are separately discharged from said radiator and the system, and a trap in said water-pipe.

785,474. PLOW. Daniel G. Burkhart, Dayton, Wash. Filed July 16, 1904. Serial No. 216,846.



Claim.—1. In a plow, a beam, an evener adjustable upon the beam, a plowshare, an inverted-U shank for the said share, the vertical members whereof engage with the evener at its sides and the horizontal portion of the shank with the top of the evener, and a king-bolt having pivotal relation to the said shank, the evener being adjustable on the king-bolt.

2. In a plow, a beam, an evener adjustable upon the beam, a plowshare, an inverted-U shank therefor, the vertical members of which shank engage with the side edges of the evener and the top of the shank with the upper portion of the evener, a king-bolt having pivotal relation with respect to the said shank, means for adjusting the evener, and a plowshare including a moldboard, carried by the lower portion of the said shank, the blade of the said share having diverging points at the extremities of its cutting edge, whereby the said share can be readily reversed while the plow is in action.

3. In a plow, a beam, an evener adjustable upon the beam, the said evener being provided with a central yoke-section having two sets of inclined planes at its side edges, each set of inclined planes converging in direction of the same end of the said yoke, an inverted-U shank, the vertical members whereof engage with the inclined planes of the said yoke, the top of the shank engaging with the upper portion of the yoke, a king-bolt passed loosely through the upper portion of the shank and through the slot in the yoke of the evener, fastening devices for the evener, and a plowshare and moldboard carried by the said shank, the blade of the plowshare having oppositely-extending terminal ends at its cutting edge, whereby to turn the share from one side of the beam to the other while the plow is in action.

4. In a plow, a beam, an evener adjustable upon the beam, the said evener being provided with a central yoke-section having two sets of inclined planes at its side edges, each set of inclined planes converging in direction of the same end of the said yoke, an inverted-U shank, the vertical members whereof engage with the inclined planes of the said yoke, the top of the shank engaging with the upper portion of the yoke, a king-bolt passed loosely through the upper portion of the shank and through the slot in the yoke of the evener, fastening devices for the evener, a plowshare and moldboard carried by the said shank, the blade of the plowshare having oppositely-extending terminal ends at its cutting edge whereby to turn the share from one side of the beam to the other while the plow is in action, a brace attached to the rear portion of the beam and having pivotal connection with the rear portion of the plowshare, and a shoe located at the rear of the said share, supported by the said brace.

5. A plow-beam, a plowshare, a U-shank connected with the plowshare, a king-bolt pivoting the said shank to the beam, and an evener over which the upper portion of the shank passes, the said evener being provided with oppositely-inclined side edges with which the vertical members of the shank engage, so that the angle of inclination of the share may be changed relative to the beam as the evener is adjusted in direction of either end of the beam.

6. In a plow, a beam, an evener having a central downwardly-extending yoke-section provided with double-inclined planes at its side edges, converging in direction of the same end of the yoke-section, and end flange-sections, the yoke-section being provided with a longitudinal slot and each flange likewise with a longitudinal slot, bolts passed through the said beam and the slots in the flange-sections of the evener, a plowshare, an inverted-U-shaped shank connected with the plowshare, the upper bow portion of which engages with the upper face of the yoke-section of the evener, the vertical members of the said shank engaging with the inclined planes of the said yoke-section of the evener, a brace attached to the rear of the beam and pivotally connected with the rear of the share, and a king-bolt loosely passed through the beam and an opening in the upper portion of the said shank and through the slot in the yoke-section of the evener, as set forth.

7. In a plow, a share comprising a wide cutting-blade having rearwardly-inclined cutting edges and an upwardly and rearwardly turned rear portion, a moldboard having a corresponding upward and rearward inclination to that of the blade, a shank connecting the blade and the moldboard, and a triangular plate secured to the bottom of the said blade and extending rearward of said blade.

8. In a plow a reversible share comprising a blade having a wide cutting edge, the side edges of said blade being inclined rearward in direction of a central point at the rear of the blade, the body of the blade being upwardly and rearwardly curved, a moldboard connected with the blade and having a corresponding upward and rearward curvature, a shank connecting the moldboard and the blade, a flat triangular plate secured at its wider end to the bottom portion of the blade, and a marginal frame for the rear portion of the said plate, provided with a socket therein at a rear central point.

9. In a plow, a beam, an evener having end adjustment on the beam, a reversible plowshare, a shank for the plowshare, controlled by the end movement of the evener to change the horizontal inclination of the share, and a king-bolt pivoting the said share to the beam, the said evener being adjustable on the king-bolt and in loose engagement therewith.

10. In a hillside-plow, a beam, a shank mounted to turn on the beam, means for limiting the movement of the shank, and a share carried by the shank, comprising a blade tapered at its side edges and terminating at its rear in a central point, an upwardly-curved moldboard, and a rearwardly-extending horizontal triangularly-shaped plate, so that by turning the team and beam the plow will operate to turn the furrow over upon the one last plowed, obviating the necessity of plowing around a portion of the inclined land.

785,475. FRUIT-PICKER. Isaac Carman, St. Remy, N. Y. Filed Dec. 11, 1902. Renewed Dec. 24, 1904. Serial No. 238,269.



Claim.—1. A fruit-picking device comprising a basket, rocker-bars mounted at the sides thereof, handles for operating said bars, and shear-blades attached to the bars and located at the front portion of the basket, substantially as described.

2. A fruit-picker comprising a basket, shear-blades mounted at the front portion thereof, means for operating said blades, and guard-plates extending from the blades rearwardly, at each side of the basket, substantially as described.

3. In a fruit-picker comprising a basket, rocker-bars mounted at each side thereof, said bars having forwardly and inwardly disposed extensions, shear-blades fastened to said extensions and lying at the front of the basket, and means for operating the rocker-bars, substantially as described.

4. In a fruit-picker comprising a basket, rocker-bars mounted at each side thereof, said bars having forwardly and inwardly disposed extensions, shear-blades fastened to said extensions and lying at the front of the basket, means for operating the rocker-bars, and guards attached to the shear-blades and extending rearwardly at each side of the basket, substantially as described.

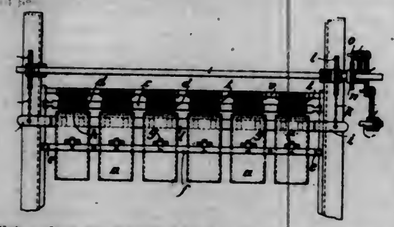
5. A fruit-picker comprising a basket, rocker-bars mounted at each side thereof, said bars having rearward inwardly-disposed extensions pivoted together and forwardly and inwardly direction extensions also pivoted together, handles attached to the rocker-bars, shear-blades mounted on said forward extensions of the rocker-bars, and guard-plates extending from the shear-blades rearward at each side of the basket, substantially as described.

6. A fruit-picker comprising a basket, rocker-bars, rings mounting said bars at each side of the basket, shear-blades supported from the rocker-bars, and means for operating said bars, substantially as described.

7. A fruit-picker, comprising a basket, handles attached to the basket and projecting upward therefrom, said handles being relatively movable, and shear-blades located at the front end of the basket and having connection with the handles, to be operated therefrom.

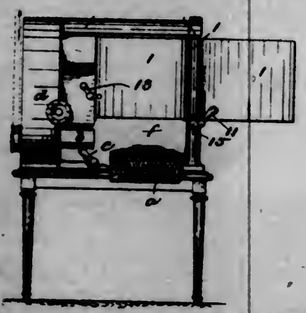
8. A strawberry-picker, comprising a basket, a handle member movably mounted thereon and projected upward therefrom to permit carrying the basket, and means for cutting the strawberry-stem, said means being located at the front end of the basket and connected with the said handle, to be operated therefrom.

785,476. **MATCH-MAKING MACHINE.** FRANZ CHERWENY Deutschbrodsberg, Austria-Hungary. Filed May 27, 1903. Serial No. 159,191.



Claim.—In a match-making machine, the combination with a series of portable boxes, means for detachably supporting same, detachable bottoms adapted to traverse the boxes vertically, a guide-bar with brackets supporting the bottoms while they traverse the boxes, chains or cords carrying the bar, counterweights, pulleys, a ratchet-wheel, a pawl and means for actuating the pawl to operate the ratchet-wheel and allow the bar to drop intermittently.

785,477. **LINOTYPE-MACHINE.** FRITZ C. LUCKE D'AIX, New York, N. Y. Filed June 4, 1904. Renewed Feb. 23, 1905. Serial No. 247,809.

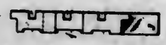


Claim.—1. The combination with a machine of the linotype class having a distributing mechanism for the matrices and an assembling mechanism for the matrices, these two mechanisms being separated by a space for the holder or magazine for the matrices, of a vertically-disposed post or support arranged near the outer ends of these parts of the machine, and a series of magazines mounted upon and radiating from the said support and adjustable about the same, whereby any desired one of the magazines may be moved into the space between the distributing and the collecting parts of the apparatus, substantially as set forth.

2. In combination with a machine of the linotype class, a magazine for the matrices mounted upon an axis about which it is adapted to turn and disposed in position to permit the matrices to be fed therefrom by gravity, an escapement mechanism which is engaged by the lowermost matrices when the magazine is in operative position, and a movable locking device adapted to be seated in suitable bearings in the magazine and engage with said lowermost matrices to hold them in place in the magazine when the latter is moved away from the escapement mechanism, substantially as set forth.

3. In combination with a machine of the linotype class, a plurality of magazines for holding the matrices, a vertically-disposed shaft upon which the magazines are mounted and from which they radiate, the magazines being movable about said shaft into and out of a working position with relation to a linotype-machine, the magazines being also movable longitudinally of the shaft to a limited extent, a lever by which the magazines may be moved longitudinally upon their shaft, means for locking the magazines against rotation when in working position, an escapement mechanism common to all the magazines which is engaged by the lowermost matrices of that magazine which is in operative position, and a movable locking device for each magazine, adapted to be seated in suitable bearings in its magazine and engage with the lowermost matrices of the same to hold them in place in the magazine when the latter is moved away from the escapement mechanism, substantially as set forth.

785,478. **MATRIX FOR LINOTYPE OR LINE-CASTING MACHINES.** FRITZ C. LUCKE D'AIX, New York, N. Y. Filed June 15, 1904. Renewed Feb. 28, 1905. Serial No. 247,801.



Claim.—1. A matrix for line-casting machines provided with a plurality of character-spaces of various widths, the widest character-space at the center and the narrower spaces in pairs for each character; one above and one below the center space, each pair of spaces being narrower than the next adjoining pair which intervenes between it and the central character-space, substantially as and for the purposes hereinbefore set forth.

2. A single-character matrix for line-casting machines provided with a plurality of character-spaces of different widths bearing letters or signs which are the same in all the character-spaces but differ between themselves in style, face, height and width.

785,479. **PIN.** SIMON DANCYGER, Dayton, Ohio. Filed Apr. 12, 1904. Serial No. 202,754.



Claim.—As a new article of manufacture the pin formed of wire comprising the pointed shaft having two symmetrical loops the line joining the centers of which is at a right angle to said shaft, said loops joined by a section crossing the line of said shaft at an acute angle, and the end abutting said joining-section, substantially as described.

785,480. **BLASTING COMPOUND.** FREDERICK G. DOKKENWADEL, Coshocton, Ohio, assignor of one-half to HARRY M. GRANT, New York, N. Y. Filed May 20, 1904. Serial No. 208,914.

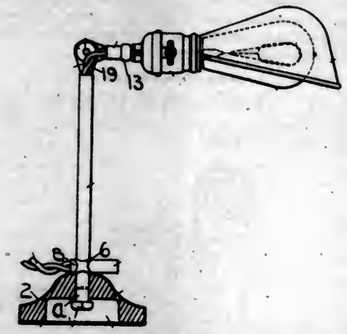
Claim.—1. The method of producing a blasting compound, which consists in shredding vegetable husks to small pieces, soaking them in sugared water, expressing the liquid until the husks are just damp, then covering the shreds with a mixture of pulverized sulfur, nitrate of soda, and nitrate of potash.

2. A blasting mixture consisting of small shreds of vegetable husk to which a compound of nitrate of soda, nitrate of potash, and sulfur is attached by a saccharine binding agent.

3. A blasting compound consisting of shredded maize-husks in small pieces, having attached by a saccharine binder a compound of nitrate of soda, nitrate of potash, and sulfur in about the proportions specified.

785,481. **PORTABLE ELECTRIC LAMP.** HENRY D OLIER, Jr., Philadelphia, Pa. Filed Sept. 30, 1904. Serial No. 226,663.

Claim.—1. In combination, a base member, a lamp-support, a lamp secured to said support, and a plurality of means associated with said support and each adapted to engage said base member whereby said lamp-support may rotate with respect to said base member about any one of a plurality of axes.



2. In combination, a base member, a lamp-support, a lamp secured to said support, and a plurality of members associated with said support and disposed at an angle with respect to each other, any of said members being adapted to engage said base member, whereby said lamp-support may be rotated with respect to said base member.

3. In combination, a base member, a lamp-support, a lamp secured to and movable with respect to said support, and a plurality of members associated with said support, each of said members adapted to engage in said base member, whereby said lamp-support may be adjusted to said base member and adapted to rotate about any one of said members as an axis.

4. In combination, a base member, a lamp-support comprising a tubular member, a lamp secured to and movable with respect to said support, said tubular member being adapted to engage said base member and rotate with respect thereto, and a member secured to and extending at right angles to said tubular member, said member being adapted to engage said base, whereby said lamp may rotate with respect to said base about said member as an axis.

5. In combination, a base, a lamp-support comprising a tube, a second tube embracing and secured to said tube, either of said tubes being adapted to engage said base and to serve as an axis of rotation for said lamp-support.

6. In combination, a base, a lamp-support comprising a tube, a second tube secured at right angles to said tube, either of said tubes being adapted to engage said base and to serve as an axis of rotation for said lamp-support.

7. In combination, a base, a lamp-support comprising a tube, a second tube secured at right angles to said tube, either of said tubes being adapted to engage said base and to serve as an axis of rotation for said lamp-support, and a lamp secured to and movable with respect to said support.

8. In combination, a base, a lamp-support comprising a tube, a second tube embracing said tube and extending at right angles thereto, either of said tubes adapted to engage said base and to serve as an axis of rotation for said lamp-support.

9. In combination, a portable weighted base, a member for supporting an electric lamp, a second member secured at right angles to said supporting member, either of said members being adapted to loosely engage in a socket in said base to permit the rotation of said supporting member, and an electric lamp secured to said supporting member.

10. In combination, a portable weighted base, a lamp-support, an electric lamp supported thereby, and a member secured at right angles to said lamp-support, said lamp-support and said member each being adapted to engage loosely in a socket in said base to permit the rotation of said lamp-support about either one of two axes.

11. In combination, a portable weighted base, a lamp-support, a member secured at right angles to said lamp-support, said lamp-support and said member each being adapted to engage loosely in a socket in said base to permit the rotation of said lamp-support about either one of two axes, and an electric lamp supported by and movable with respect to said lamp-support.

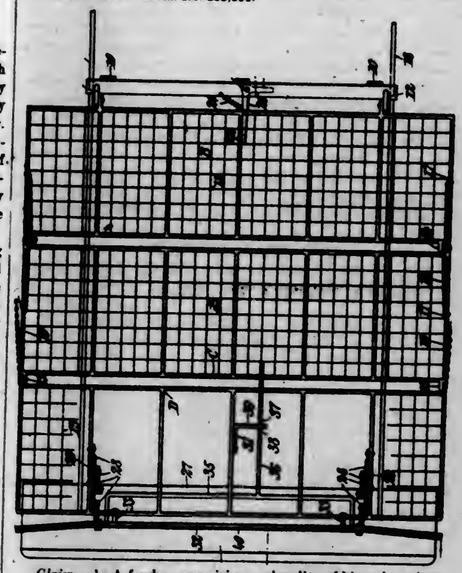
12. In combination, a portable weighted base, a lamp-support comprising a tube, a second tube secured at right angles to said tube, each of said tubes being adapted to loosely engage in a socket in said base to permit the rotation of said lamp-support, and an electric lamp secured to said lamp-support

13. In combination, a portable weighted base, a lamp-support comprising a tube, a second tube secured at right angles to and approximate one end of said tube, either of said tubes being adapted to loosely engage in a socket in said base to permit the rotation of said lamp-support, and an electric lamp secured to and movable with respect to said lamp-support.

14. In combination, a base, a plurality of jointed tubes, one of said tubes being adapted to engage said base, an electric lamp secured to another of said tubes, a concavo-convex hinge element integral with each of said tubes, a pivotal connection securing said elements together, and a washer intervening between said elements.

15. In combination, a plurality of jointed tubes, an electric lamp secured to one of said tubes, another of said tubes serving as a support, a resilient concavo-convex hinge element integral with each of said tubes, a pivotal connection securing said elements together at the concavo-convex portions, and a washer intervening between said elements.

785,482. **FENDER.** RAFFAELA D'ORONZIO, New York, N. Y. Filed Dec. 7, 1904. Serial No. 235,801.



Claim.—1. A fender comprising a plurality of hinged sections, a latch for retaining the sections in a raised position, and means operable by the contact of an object with the fender-sections for moving the latch.

2. A fender comprising a plurality of hinged sections, a spring for extending the sections, a latch for holding the sections against the pressure of the spring, and means operable by the contact of an object with the fender-sections for releasing the latch.

3. A fender comprising a plurality of hinged sections, means for extending the sections, a latch for normally holding the sections against movement, and means carried by one of the sections for releasing the latch.

4. A fender comprising a plurality of hinged sections, means for moving the sections into substantial alinement, a latch for normally holding the sections against movement, and means carried by one of the sections for releasing the latch.

5. A fender comprising a plurality of hinged sections, means for moving the sections into substantial alinement, a latch for normally holding the sections against movement, means carried by one of the sections for automatically releasing the latch, and means associated with the latch for manually releasing it.

6. The combination with a car, of a fender comprising a plurality of hinged sections, means for moving the sections into substantial alinement, a latch pivoted upon the car and serving to normally hold the sections against movement, and means carried by one of the sections for releasing the latch.

7. The combination with a fender, of a portion mounted thereon to move downwardly and forwardly beyond the fender.

8. The combination with a fender, of a portion mounted thereon to move downwardly and forwardly beyond the fender, and a latch upon which the movable portion rests in its raised position.

9. The combination with a fender, of a portion mounted thereon to move downwardly and forwardly beyond the fender, a latch upon which the movable portion rests in its raised position, and means carried by the fender for releasing the latch.

10. The combination with a fender, of a portion mounted thereon to move downwardly and forwardly beyond the fender, a latch upon which the movable portion rests in its raised position, and yieldable means carried by the fender and movable by contact with an object to release the latch.

11. A fender comprising a plurality of hinged sections, means for moving the sections into substantial alinement, and a portion mounted upon one of the sections and movable downwardly and forwardly from said section.

12. A fender comprising a plurality of hinged sections, means for moving the sections into substantial alinement, a portion mounted upon one of the sections and movable downwardly and forwardly from said section, and latches for holding the sections and said portion against movement.

13. A fender comprising a plurality of hinged sections, means for moving the sections into substantial alinement, a portion mounted upon one of the sections and movable downwardly and forwardly from said section, latches for holding the sections and said portion against movement, and releasing means common to both latches.

14. The combination with a car, of a plurality of hinged sections, and supporting means extending from the outer section and coacting with the car.

15. The combination with a car, of a plurality of hinged sections, supporting means extending from the outer section and coacting with the car, and a latch mounted upon the car and engaging the outer section

785,483. INCANDESCENT-LAMP HOLDER. JONAS FRIESNER, Shelby, Ohio. Filed Sept. 23, 1904. Serial No. 225,564.



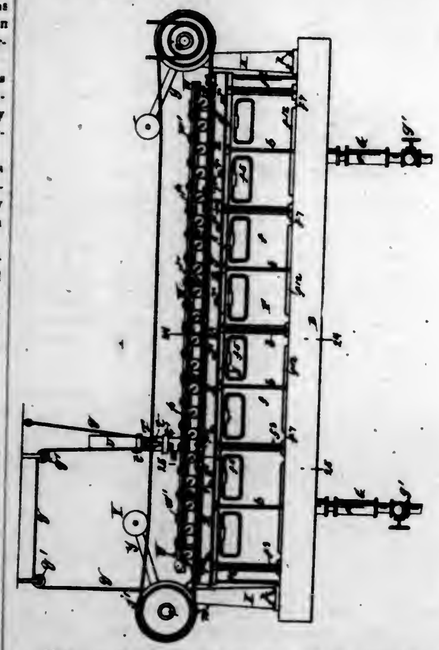
Claim.—1. A member adapted to make electric connection with a socket and itself carrying a socket, and an insulating-sleeve surrounding its socket portion, combined with a globe-holder comprising a metal sleeve, arms secured thereto and an insulating-sleeve surrounding a metal sleeve.

2. The combination of a member adapted to make electrical connection with a socket and itself carrying a lamp-socket, an insulating-sleeve surrounding its socket portion, a globe-holder comprising a collar adapted to engage the said sleeve and depending outwardly-flaring arms adapted to hold a globe, the outer surface of said sleeve and the inner surface of said collar being correspondingly tapered, contracting upwardly.

3. The combination of a member adapted to make electrical connection with a socket and itself carrying a lamp-socket, an insulating-sleeve surrounding its socket portion, a globe-holder comprising a collar adapted to engage the said sleeve and having an insulated exterior and depending outwardly-flaring arms adapted to hold a globe, the outer surface of said sleeve and the inner surface of said collar being correspondingly tapered contracting upwardly, a reflector resting on said arms and having at its upper end a flange adapted to embrace said collar, and a flaring cap extending from the socket over the collar and upper end of the reflector.

4. In a combined support for an inner globe, an outer globe and a reflector, the combination of a male member adapted to enter the socket, a female member to receive the inner globe, and arms formed at their ends to carry the outer globe and having their upper surface arranged to support the reflector.

785,484. CAN-END-SOLDERING APPARATUS. OLIN S. FELLOWS and ARCHIBALD E. HOPKINS, Middletown, N. Y. Filed Nov. 24, 1903. Serial No. 182,469



Claim.—1. In can-end-soldering apparatus, the combination of a rigid metallic base, a solder-trough formed with lateral flanges extending longitudinally on either side above the bottom of the trough, a fire-box interposed between the flanges of said solder-trough and said rigid metallic base, and means for securing the parts named rigidly together, substantially as set forth.

2. In can-end-soldering apparatus, the combination of a rigid metallic base, a solder-trough formed with lateral flanges extending longitudinally on either side above the bottom of the trough, a fire-box formed in sections interposed between the flanges of said solder-trough and said rigid metallic base, and means for securing the parts named rigidly together, substantially as set forth.

3. In can-end-soldering apparatus the combination of a rigid metallic base, a solder-trough formed with lateral flanges extending longitudinally on either side above the bottom of the trough, a fire-box interposed between the flanges of said solder-trough and said rigid metallic base, and bolts connecting the flanges of the solder-trough with said metallic base whereby the parts named are rigidly secured together as and for the purpose set forth.

4. In can-end-soldering apparatus the combination of a rigid metallic base, a solder-trough formed with lateral flanges extending longitudinally on either side above the bottom of the trough, a fire-box formed in sections interposed between the flanges of said solder-trough and said rigid metallic base, and bolts connecting the flanges of the solder-trough with said metallic base, whereby the parts named are rigidly secured together as and for the purpose set forth.

5. In can-end-soldering apparatus, the combination of a rigid metallic base of channel-iron, a flanged solder-trough, a fire-box interposed between said solder-trough and the web of the channel-iron, bolts connecting the flanges of the solder-trough and the web of the channel-iron whereby the parts named are secured rigidly together, and a series of burners supported on and under the web of the channel-iron and between its flanges and projecting up through the said web into the fire-box, for the purpose set forth.

6. In can-end-soldering apparatus, the combination of a rigid metallic base, a flanged solder-trough, a fire-box formed in sections interposed between the flanges of said solder-trough and said rigid metallic base, bolts connecting the flanges of the solder-trough with said rigid metallic base, a series of burners in said fire-box, and a supply and supporting tube for said burners mounted upon said rigid metallic base, substantially as and for the purpose described.

7. In can-end-soldering apparatus the combination of a rigid metallic base, a flanged solder-trough, a fire-box formed in sections interposed between the flanges of said solder-trough and said rigid metallic base, bolts connecting the flanges of the solder-trough with said rigid metallic base, a series of burners in said fire-box, a supply and supporting tube for said burners mounted upon said rigid metallic base, and means for effecting the adjustment of said supporting-tube vertically upon said metallic base for the purpose described.

8. In can-end-soldering apparatus, the combination of a rigid metallic base, a flanged solder-trough, a fire-box formed in sections interposed between the flanges of the said solder-trough and said rigid metallic base, bolts connecting the flanges of the solder-trough with said rigid metallic base, a series of burners in said fire-box supported upon a common supply-pipe, said common supply-pipe supported upon the said rigid metallic base, and a partition of refractory material in said fire-box interposed between the said solder-trough and the said rigid metallic base for the purpose set forth.

9. In can-end-soldering apparatus, the combination of a rigid metallic base of channel-iron, a flanged solder-trough, a fire-box interposed between the said solder-trough and the web of the channel-iron, bolts connecting the flanges of the solder-trough with the web of the channel-iron whereby the parts named are secured rigidly together, a series of burners supported on and under the web of the channel-iron and between its flanges and projecting up through the said web into the fire-box, and means for adjusting said burners vertically with relation to the solder-trough.

10. In can-end-soldering apparatus, the combination of a rigid metallic base of channel-iron, a flanged solder-trough, a fire-box interposed between the said solder-trough and the web of the channel-iron, bolts connecting the flanges of the solder-trough with the web of the channel-iron whereby the parts named are secured rigidly together, a series of burners supported on and under the web of the channel-iron and between its flanges and projecting up through the said web into the fire-box, and a partition of refractory material interposed between said web of the channel and the combustion-chamber, of the fire-box for the purpose set forth.

11. In can-end-soldering apparatus, a soldering-bath trough consisting of a plurality of sections formed with overlapping flanges secured together by bolts engaging the inner flanges and passing through bolt-holes formed in the outer flanges, said bolt-holes being formed of larger area than the area of the bolts in cross-section, for the purpose of compensating for the expansion and contraction of the sections of the trough.

12. In can-end-soldering apparatus, the combination with a soldering-trough, and inflexible supporting-base of a fire-box made in sections, clamped rigidly between the said soldering-trough and the said inflexible base for the purpose set forth.

13. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid base of channel-iron, a fire-box formed in sections, said sections of the fire-box being interposed between the flanges of the solder-trough and the web of the channel-iron, and bolts passing through the flanges of the solder-trough and through the web of the channel-iron for the purpose of securing the parts rigidly together.

14. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid base of channel-iron, a fire-box formed in sections with overlapping edges, said sections of the fire-box being interposed between the flanges of the solder-trough and the web of the channel-iron, and bolts passing through the flanges of the solder-trough and through the web of the channel-iron for the purpose of securing the parts rigidly together.

15. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid base of channel-iron, a fire-box formed in sections interposed between the flanges of the solder-trough and the web of the channel-iron and recessed to form openings above said web of the channel-iron, and bolts passing through the flanges of the solder-trough and through the web of the channel-iron for the purpose of securing the parts rigidly together.

16. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid base of channel-iron, a fire-box formed in sections interposed between the flanges of the solder-trough and the web of the channel-iron, the front plates of said fire-box being formed with damper-openings, removable covers for said damper-openings, and bolts passing through the flanges of the solder-trough and through the web of the channel-iron for the purpose of securing the parts rigidly together.

17. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid base of channel-iron, a fire-box formed in sections interposed between the flanges of the solder-trough and the web of the channel-iron, the rear plates of said fire-box being formed with a series of apertures for the escape of the products of combustion, and bolts passing through the flanges of the solder-trough and through the web of the channel-iron for the purpose of securing the parts rigidly together.

18. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid base of channel-iron, a fire-box formed in sections with internal shoulders for the support of a partition, and between the flanges of the solder-trough and the web of the channel-iron, said partition supported on said internal shoulders and thereby interposed between the fire-chamber and the web of the channel-iron, and bolts passing through the flanges of the solder-trough and through the web of the channel-iron for the purpose of securing the parts rigidly together.

19. In can-end-soldering apparatus, the combination with the solder-trough and inflexible base of a fire-box formed of a series of plates held rigidly in position between said solder-trough and said inflexible base, said plates being formed with internal shoulders for the support of a partition of refractory material, together with said partition of refractory material, for the purpose set forth.

20. In can-end-soldering apparatus, the combination of a solder-trough, an inclined runway consisting of a plurality of sections arranged longitudinally and successively in the same plane parallel to the solder-bath with their adjoining ends abutting each other loosely for the purpose of compensating for longitudinal expansion and contraction and to prevent the warping and buckling of the runway, and means for forwarding cans over said runway for the purpose set forth.

21. In can-end-soldering apparatus, the combination of a solder-trough, an inclined runway consisting of a plurality of sections arranged longitudinally and successively in the same plane parallel to the solder-bath with their adjoining ends loosely abutting to compensate for longitudinal expansion and contraction and prevent warping or buckling, means for adjusting each section independently with relation to the solder-bath, and means for forwarding cans over said runway for the purpose set forth.

22. In can-end-soldering apparatus, the combination of a solder-trough, an inclined can-runway, an opposed can-end support consisting of a plurality of sections arranged longitudinally and successively in the same plane parallel to the solder-bath with their adjoining ends loosely abutting for the purpose of compensating for longitudinal expansion or contraction and to prevent warping or buckling of the can-end support, and means for forwarding cans over said inclined runway and in contact with said can-end support.

23. In can-soldering apparatus, the combination of a solder-trough, an inclined runway, an opposed can-end support consisting of a plurality of sections arranged longitudinally and successively in the same plane parallel to the solder-bath with their adjoining ends loosely abutting for the purpose of compensating for longitudinal expansion and contraction and to prevent warping and buckling, means for adjusting each section of the can-end support independently with relation to the solder-bath, and means for forwarding cans over said inclined runway and in contact with said can-end support.

24. In can-end-soldering apparatus, the combination of the solder-trough, a can-supporting rail formed in sections independently secured to said solder-trough, a runway formed of sections independently secured to said solder-trough, means for adjusting the sections of the runway with relation to the sections of the can-supporting rail, means for adjusting the sections of the said can-supporting rail with relation to the sections of the runway, and means for forwarding cans over said supporting-rail and runway.

25. In can-end-soldering apparatus, the combination with the solder-trough, of an inclined runway the lower edge of which is formed on its under side with an antiripple flange projecting into the solder-bath for the purpose set forth, and means for forwarding cans over said inclined runway

26. In can-end-soldering apparatus, the combination with the solder-trough S of the inclined runway R formed with the antiripple

flange r^2, upon its lower edge, for the purpose set forth, and means for forwarding cans over said runway.

27. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail and inclined runway, of a top-pressure rail on the runway, said top-pressure rail being made in sections for the purpose set forth, and means for forwarding cans over said runway.

28. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail and inclined runway, of a top-pressure rail made in sections independently secured to said runway, means for adjusting said sections independently on said runway, and means for forwarding cans over said runway.

29. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail and inclined runway, of a top-pressure rail on said runway, said top-pressure rail being suspended upon said runway by means which will allow it to yield under pressure, together with means for forwarding cans over said runway.

30. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail and inclined runway, of a top-pressure rail upon said runway arranged to act as a weight to force the cans against the can-supporting rail, together with means for forwarding cans over said runway.

31. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, and inclined runway, of a top-pressure rail formed in sections, the forward edges of which are formed with projections which overlap the adjoining edges of the preceding plates, for the purpose set forth.

32. In can-end-soldering apparatus, the combination with a solder-trough, can-supporting rail, inclined runway, and broad flat can-forwarding belt and connections, of a plurality of pivotally-supported gravity-rollers arranged to trail upon the broad inner surface of the side of the forwarding-belt in contact with the cans, and by their rotation insure a gradual increase and decrease of pressure upon the passing can-bodies and means in position to be engaged by the arms of the rollers to support the latter in absence of cans for the purpose set forth.

33. In can-end-soldering apparatus, the combination with a solder-trough, can-supporting rail, inclined runway, and broad flat can-forwarding belt and connections, of a plurality of pivotally-supported rollers arranged to trail upon the broad inner surface of the side of the forwarding-belt in contact with the cans, and a series of stops, one for each roller, arranged to limit the downward thrust of said rollers and in position to be engaged by the arms of the rollers to support the latter in the absence of cans for the purpose set forth.

34. In can-end-soldering apparatus, the combination of the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, a series of gravity-rollers pivotally connected with a horizontal bar common to all and arranged to trail upon the side of the forwarding-belt in contact with the cans, and means in position to be engaged by the arms carrying the rollers to support the latter in the absence of cans and means for adjusting said horizontal roller-supporting bar both horizontally and vertically for the purpose set forth.

35. In can-end-soldering apparatus, the combination of the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, a series of pivotally-supported gravity-rollers arranged to trail upon the side of the forwarding-belt in contact with the cans, and means in position to be engaged by the arms carrying the rollers to support the latter in the absence of cans and an automatic tension device for bearing against the upper portion of the forwarding-belt and arranged to act in opposition to said series of gravity-rollers for the purpose set forth.

36. In can-end-soldering apparatus, the combination of the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, a series of pivotally-supported gravity-rollers arranged to trail upon the side of the forwarding-belt in contact with the cans, and means in position to be engaged by the arms carrying the rollers to support the latter in the absence of cans and one or more tension weights or rolls arranged to bear against the upper portion of the forwarding-belt to counteract in part the weight of the said series of gravity-rollers, for the purpose set forth.

37. In can-end-soldering apparatus, the combination of the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of means, substantially as herein described, for automatically feeding solder to the bath, and means for actuating said automatic solder-feed through the medium of the can-forwarding mechanism, whereby the feed of solder is governed by and rendered proportionate to the speed of said can-forwarding mechanism, substantially in the manner and for the purpose set forth.

38. In can-end-soldering apparatus, the combination of the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, and means actuated by the can-forwarding mechanism for automatically feeding solder to the bath, whereby the feed of solder is governed by and rendered proportionate to the speed of the can-forwarding surface for the purpose of compensating for the solder taken up by the cans passing over the bath under ordinary conditions of use, together with means for varying the amount of solder so fed automatically to the bath with relation to the size and requirements of the cans to be treated.

39. In can-end-soldering apparatus, the combination of the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, and means for adjusting the pulleys which support the forwarding-belt both vertically and horizontally, for the purpose described.

40. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of a cam carried by the shaft of one of the forwarding-belt-supporting pulleys, a rock-lever interposed in the path of the said cam, a spring-pawl on said rock-lever engaging a ratchet-wheel, said ratchet-wheel attached to a windlass-shaft, said windlass-shaft, a cord or equivalent attached to said windlass-shaft and connected with a solder-carrier, together with said carrier, whereby at each rotation of the forwarder-belt pulley, a prescribed amount of solder is fed to the bath, substantially as set forth.

41. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of a cam carried by the shaft of one of the forwarding-belt-supporting pulleys, a rock-lever interposed in the path of said cam, a spring-pawl on said rock-lever engaging a ratchet-wheel, said ratchet-wheel attached to a windlass-shaft, said windlass-shaft, a cord or equivalent attached to said windlass-shaft and connected with a solder-carrier, said solder-carrier, and an adjustable stop arranged to limit the retractile movement of the said rock-lever for the purpose and substantially in the manner set forth.

42. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of a cam carried by the shaft of one of the forwarding-belt-supporting pulleys, a rock-lever interposed in the path of said cam, a spring-pawl on said rock-lever engaging a ratchet-wheel, said ratchet-wheel attached to a windlass-shaft, said windlass-shaft, a cord or equivalent attached at one end to the said windlass-shaft and at the other to a stationary support, a solder-carrier provided with a pulley, and one or more supporting-pulleys mounted upon fixed supports, the cord or equivalent means of suspension passing over the pulleys named, for the purpose and substantially in the manner described.

43. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of the belt-pulley j', cam j^3, rock-lever L spring-pawl l', retractile spring l^3, ratchet-wheel n, shaft N, cord or equivalent q, one or more supporting-pulleys q', and solder-carriage T connected with and actuated by said cord or equivalent, for the purpose and substantially in the manner described.

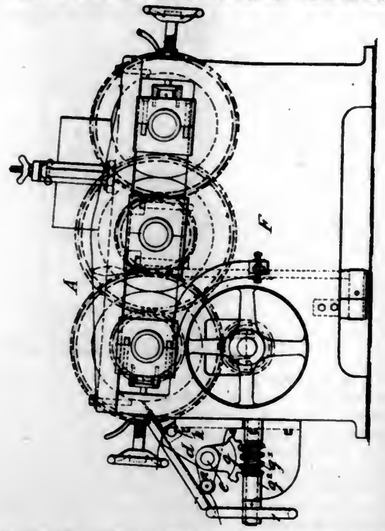
44. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of the belt-pulley j', cam j^3, rock-lever L, spring-pawl l', retractile spring l^3, ratchet-wheel n, shaft N, cord or equivalent q, means for winding said cord or equivalent upon the windlass-shaft N, one or more supporting-pulleys q', and solder-carrier T connected with and actuated by said cord or equivalent, for the purpose and substantially in the manner described.

45. In can-end-soldering apparatus, the combination with the solder-trough, can-supporting rail, inclined runway, can-forwarding belt and connections, of the belt-pulley j', cam j^3, rock-lever L spring-pawl l', retractile spring l^3, adjustable stop o, ratchet-wheel n, shaft N, cord or equivalent q, means for winding said cord or equivalent upon the windlass-shaft N, one or more supporting-pulleys q', and solder-carriage T connected with and actuated by said cord or equivalent, for the purpose and substantially in the manner described.

46. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid metallic base, a fire-box formed in sections, said sections of the fire-box being interposed between the flanges of the solder-trough and the said rigid metallic base, and bolts passing through the flanges of the solder-trough and securing it and the said sections of the fire-box to the said rigid metallic base for the purpose set forth.

47. In can-end-soldering apparatus, the combination of a flanged solder-trough, a rigid metallic base, a fire-box formed in sections with overlapping edges, said sections of the fire-box being interposed between the flanges of the solder-trough and the said rigid metallic base, and bolts passing through the flanges of the solder-trough and securing it and the said sections of fire-box to the said rigid metallic base for the purpose described.

785,485. ROLLER GRINDING-MILL. ALBERT J. FORD, New York, N. Y., assignor to The Fuchst Lang Mfg. Co., New York, N. Y., a Corporation of New York. Filed Oct. 12, 1904. Serial No. 228,171.



Claim.—1. In a roller grinding-mill, the combination, with the delivery-roller, of an inclined delivery-plate pivoted near its upper end in proximity thereto, a shaft extending beneath said delivery-plate and provided with crank-arms operable to abut against the lower end portion thereof in order to pivotally adjust the same upon the rocking of said shaft, and means for actuating said shaft.

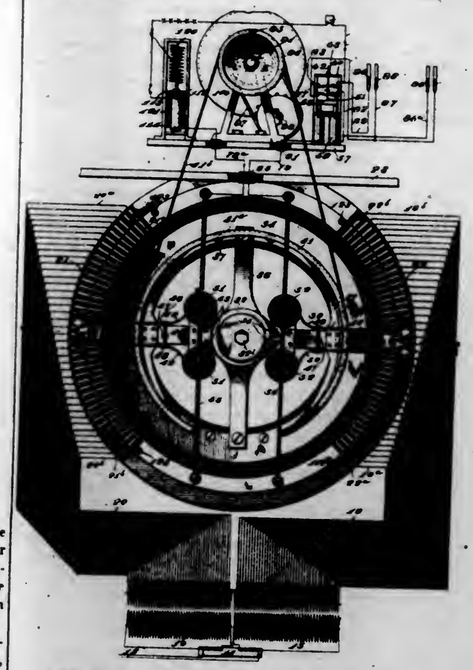
2. In a roller grinding-mill, the combination, with the delivery-roller, of a delivery-plate provided with pivots near its upper end, a scraper secured to the upper end of said delivery-plate, supporting-brackets for supporting the shaft of the latter, a transverse shaft supported in bearings in said brackets, crank-arms mounted on said shaft and provided with antifriction-rollers bearing on the lower end of the delivery-plate, a worm-segment on said shaft, a worm-shaft provided with a worm engaging with the worm-segment, and a hand-wheel at the outer end of said worm-shaft for operating the worm-gear so as to adjust the scraper relatively to the surface of the delivery-roller.

785,486. NIGHT-LAMP. ROBERT P. GIBBS, New York, N. Y. Filed Sept. 30, 1903. Serial No. 174,167.



Claim.—A night-lamp, comprising an animal-shell, means whereon the shell is mounted to stand with its open side upward, whereby said shell may serve as a font for the oil, a wick-floater located in the shell, for the purpose specified, said wick-floater comprising a buoyant body, and a plurality of upright pins carried thereby and arranged to strike the side of the shell to prevent the flame from the wick striking the shell.

785,487. REGULATOR FOR ALTERNATING CURRENTS. EDWARD L. HANEY, Nashville, Tenn. Filed Sept. 3, 1904. Serial No. 223,258.



Claim.—1. In a regulator for alternating currents, the combination of a transformer provided with primary and secondary windings, a commutator connected with the secondary winding and provided with a movable member for changing the voltage supplied by said secondary winding, a plurality of clutches provided with movable members, gearing connecting said members together so that the movements of one control the movements of another, mechanism connecting said clutch members with said revoluble member, and a pulley for conferring a revoluble movement upon one or the other of said clutch members.

2. In a regulator for alternating currents, the combination of a revoluble member driven continuously in a single direction and provided with armatures, revoluble magnetic members geared together and provided with pole-pieces for attracting said armatures, means controllable by the current of the main circuit for energizing said magnetic members, a commutator provided with a movable member, to be actuated by the movements of said members, and a transformer having a plurality of windings, one of which acts inductively upon another and one of said windings being connected with said commutator.

3. In a regulator for alternating currents, the combination of a commutator member provided with sectors, a commutator-bar provided with brushes for engaging said sectors, a transformer connected with said commutator member, and an inductance-coil provided with a movable core and connected with the circuit through said sectors and said commutator-bar for the purpose of alleviating variations in the current due to change in the position of said commutator-bar relatively to said sectors.

4. In a regulator for alternating currents, the combination of a magnetic member provided with a movable core, a plurality of contact-levers, a trigger connected with said core and adapted to open the one or the other of said levers, according to the direction of move-

ment of said core, magnetic clutch mechanism electrically connected with said contact-levers and energized thereby, a pulley adapted to move continuously and to rotate said clutch mechanism in the one direction or in the other, according to the direction of movement of said trigger, a commutator, connections extending therefrom to said clutch members, and a transformer connected with said commutator.

5. In a regulator for alternating currents, the combination of a transformer provided with primary and secondary windings, a commutator provided with a movable member for varying the voltage supplied by the secondary winding, gearing for actuating said member, a reversible clutch connected with said gearing for actuating the same, a pulley adapted to move continuously in the common direction for the purpose of causing the said gearing to actuate said member of said commutator, an electric mechanism controllable automatically by the current of the main circuit, for reversing said clutch.

6. The combination of a transformer provided with a secondary winding and with a movable member for changing the voltage of said secondary winding, mechanism for actuating said movable member, and electrically-operated mechanism connected with said transformer and controllable by currents therefrom for connecting said first-named mechanism with said movable member and for disconnecting the same therefrom.

7. The combination of a transformer provided with a primary winding and with a secondary winding, a commutator connected with said secondary winding and provided with a movable member for changing the voltage supplied by said secondary winding, mechanism for actuating said movable member, and a magnetic clutch controllable automatically by the electric current for connecting said mechanism and said movable member together.

8. The combination of a transformer provided with sectors, a movable arm provided with brushes for engaging said sectors, mechanism provided with a movable member for actuating said arm mechanically, and electrically-operated mechanism connected with said transformer and controllable electrically thereby for automatically connecting said movable member with said arm and disconnecting the same therefrom.

9. The combination of a pair of clamping-rings, means for forcing the same toward each other, a plurality of sectors of conducting material mounted between said rings and insulated therefrom, a transformer provided with primary and secondary windings, said secondary winding being connected with said sectors, a movable arm provided with brushes engaging said sectors, and electrically-operated mechanism connected with said transformer and controllable by currents therefrom for moving said arm.

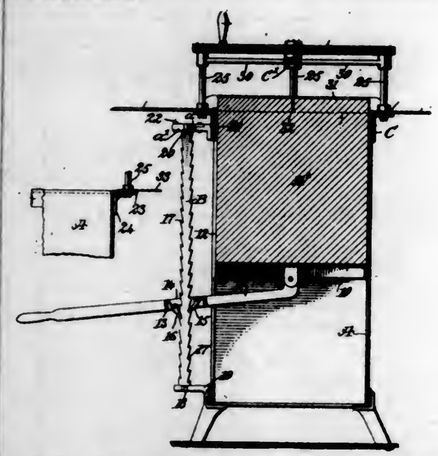
10. The combination of a casing, an annular partition of insulating material mounted therein, a plurality of commutator-segments connected together and formed into substantially arc-shaped members mounted upon said partition, a revoluble arm pivoted at a point concentric with said annular partition and provided with brushes movable angularly in relation to said commutator-segments, a transformer provided with a primary and a secondary winding, said secondary winding being connected with said sectors, means for actuating said revoluble arm, and electrically-operated mechanism connected with said transformer and controllable by currents therefrom for connecting said last-mentioned means with said arm and for disconnecting the same therefrom.

785,488. **MACHINE FOR CUTTING BUTTER.** CHARLES F. HELFLINGER, Elizabeth, N. J. Filed Nov. 1, 1904. Serial No. 230,910.

Claim.—1. A machine for cutting butter, comprising a receptacle, crossed knives vertically disposed with reference thereto, a vertically-adjustable plunger therein, vertically-disposed shafts beyond the sides of the receptacle at the upper part thereof, a horizontal knife carried by each shaft, and means for operating said shafts to swing each horizontal knife back and forth across one of the spaces formed by said crossed knives.

2. A machine for cutting butter, comprising a receptacle, crossed knives vertically disposed with reference thereto, a vertically-adjustable plunger therein, vertically-disposed shafts beyond the sides of the receptacle at the upper part thereof, and a hand-operated gearing for actuating said shafts to swing each horizontal knife back and forth across one of the spaces formed by said crossed knives.

3. A machine for cutting butter, comprising a receptacle, crossed knives vertically disposed with reference thereto, a vertically-adjustable plunger therein, vertically-disposed shafts beyond the sides of the receptacle at the upper part thereof, a pinion and a horizontal knife carried by each shaft, and a single gear-wheel engaging with said pinions for operating said shafts to swing each horizontal knife back and forth across one of the spaces formed by said crossed knives.



4. In a machine for cutting butter, a receptacle, stationary knives crossing one another at the mouth of the receptacle, shafts mounted to turn at the mouth of said receptacle, one at each end of each stationary knife, means for rotating the shafts, horizontal knives secured to the shafts to move therewith, corresponding in shape to the shape of the divisions formed by the stationary knives and arranged for movement toward and from the cutting edges of the stationary knives, a follower within the receptacle, and operating and regulating means for the follower.

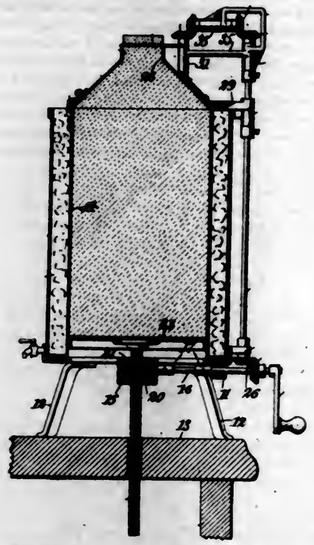
5. A receptacle, a follower therein, a lever connected with the follower, being passed out through a slot in the receptacle, the said lever having an opening therein, brackets located at the exterior of the receptacle at the top and bottom of the slot in which the lever has movement, one of said brackets consisting of a fixed and a movable section, and a locking device for the sections, a gage-bar removably supported at its ends in the said brackets, the said gage-bar having ratchet-teeth, and spring-controlled pawls mounted in the opening in the said lever, for engagement with the ratchet-teeth on the gage-bar.

785,489. **BUTTER-CUTTING MACHINE.** CHARLES F. HELFLINGER, Grand Rapids, Wis. Filed Dec. 9, 1904. Serial No. 236,128.

Claim.—1. In a machine for cutting butter, a receptacle having an outlet-opening, a follower mounted for movement in the said receptacle, a knife adapted for movement over the outlet of the receptacle, a base on which the receptacle rests, a boxing carried by the base, a main shaft journaled in the boxing, a threaded rod extending down from the follower, a driving connection between the main shaft and the threaded rod and located in the boxing, and a driving connection between the main shaft and the said knife.

2. In a machine for cutting butter, a receptacle, a cover for the said receptacle, removable therefrom and provided with a contracted outlet portion, a knife operatively supported above the outlet for the said cover, the knife being capable of horizontal rotary movement, a follower mounted to slide in the body of the receptacle, a base on which the receptacle rests, a boxing carried by the base, a main shaft journaled in the said boxing and provided with a worm within the said boxing, a threaded rod extending down from the follower and through the boxing, a worm-wheel threaded to receive the said rod and located within the boxing, being in engagement with the said worm, and driven shafts operatively connected with the main shaft and with the axis of the said knife, as described.

3. In a machine for cutting butter, a receptacle, a support for the same, a cover for the said receptacle having a contracted opening, a follower located within the receptacle, a main shaft mounted to turn in the support for the receptacle, means for operating the follower from the main shaft, a knife adapted for movement over the contracted outlet of the receptacle, a vertical shaft driven from the main shaft, driving connections between the vertical shaft and the said knife, the said cover for the receptacle having a hinge member mounted to turn on the said vertical shaft, and a catch for securing the cover in position over the receptacle.



4. In a machine for cutting butter, a receptacle open at the top and at the bottom, a cover for the open top of the receptacle having an outlet-opening, a jacket inclosing said receptacle and open at the top and closed at the bottom, the jacket forming an outer chamber for cooling material, a base supporting said jacketed receptacle, a follower located within the receptacle, a knife located at the upper portion of the receptacle and adapted for movement over the outlet thereof, and means for simultaneously operating the knife and the follower.

5. In a machine for cutting butter, a receptacle, a cover for the receptacle having a contracted outlet portion, a follower mounted for movement in the receptacle, a main shaft, connections between the main shaft and follower for operating the latter, a shaft located at one side of the receptacle and driven from the main shaft, the said cover having a hinge member mounted to turn on said shaft, a knife mounted to turn on the cover of the receptacle and having movement over the outlet of the cover, and driving connections between the shaft at the side of the receptacle and said knife.

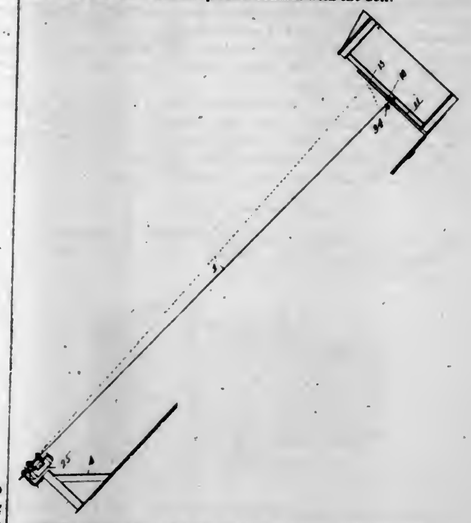
785,490. **TROLLEY MAIL-BOX.** WALLIE HILLS, Kansas City, Kans. Filed Nov. 29, 1904. Serial No. 234,614.

Claim.—1. In an apparatus of the character described, a standard, a pair of rollers arranged to travel thereon, a shaft carried by said rollers, a ratchet-wheel rigidly secured upon said shaft, a pawl-carrier slidably arranged upon the standard and connected to the shaft, a pawl pivoted to said pawl-carrier and engaging the ratchet-wheel, and a wire track suitably secured at one end to the shaft.

2. In an apparatus of the character described, a standard, a pair of rollers arranged to travel thereon, a shaft carried by said rollers, a drum rigidly mounted upon said shaft, a ratchet-wheel also rigidly mounted upon said shaft, a pawl-carrier connected to the shaft, arms on said pawl-carrier slidably engaging the standard, a pawl pivoted to said pawl-carrier and engaging the ratchet-wheel, and a wire track attached at one end to the drum.

3. In an apparatus of the character described, a standard, a pair of rollers arranged to travel thereon, a shaft carried by said rollers, a bail pivotally secured to said shaft, a ratchet-wheel rigidly secured upon said shaft, a pawl-carrier slidably arranged upon the standard and connected to said shaft, a pin carried by said pawl-carrier, a spring also carried by the pawl-carrier for pressing one end of said pin into engagement with openings in the standard, a pawl pivoted to said pawl-carrier and engaging the ratchet-wheel, and a wire track suitably secured at one end to the shaft.

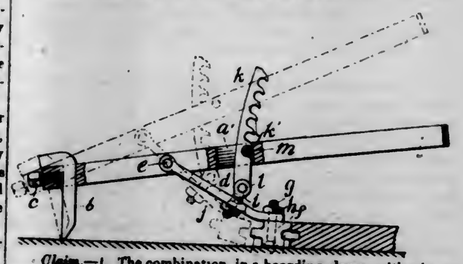
4. An apparatus of the character described consisting of a wire track, a standard to which one end of said track is adjustably secured, an L-shaped bracket suitably supported and provided with an eye to which the opposite end of the track is attached, a gravity-latch pivotally secured to said bracket provided with a handle, a bell attached near one end of the track, a mail-box arranged to travel upon the track, a hook attached near one end of said mail-box adapted to engage the gravity-latch, and a striker secured near the opposite end of the mail-box adapted to contact with the bell.



5. In an apparatus of the character described, a wire track movably arranged at one end so that said end may be raised and lowered, an L-shaped bracket provided with an eye at its upper end to which the opposite end of the track is attached, a gravity-latch pivotally secured to the upper portion of said bracket and provided with an outwardly-extending handle, a mail-box arranged to travel upon the track, and a hook secured to said mail-box and adapted to engage said gravity-latch.

6. In an apparatus of the character described, a mail-box comprising a cylindrical portion, guides secured to said cylindrical portion, a sliding door having its opposite ends arranged in said guides, semispherical terminals closing the ends of the cylindrical portion, semispherical resilient buffers rigidly secured to the semispherical terminals, and a two-wheel truck secured to the top of the cylindrical portion, substantially as shown and described.

785,491. **BOARDING-CLAMP.** HALSEY S. HOLCOMBE, Granby Conn. Filed Aug. 13, 1904. Serial No. 220,664.



Claim.—1. The combination, in a boarding-clamp, with a lever provided at one end with holding means, of an arm pivoted to said lever forward of such means, means at the free end of said arm adapted to bear against a board, and a pawl pivotally connected with the arm and adapted to engage and disengage the lever.

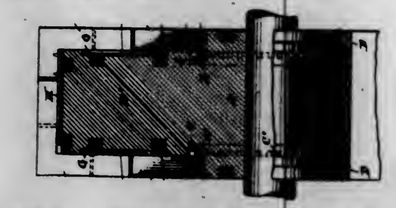
2. The combination, in a boarding-clamp, with a lever provided at one end with holding means, of an arm pivoted to said lever forward of such means, a block at the free terminal of said arm, and a pawl pivotally connected with the arm and adapted to engage and disengage the lever.

3. The combination, in a boarding-clamp, with a lever provided at one end with holding means, of an arm pivoted to said lever forward of such means, an adjustable block fastened to the free terminal of said arm, and a pawl pivotally connected with the arm and adapted to engage and disengage the lever.

4. The combination, in a boarding-clamp, with a lever provided at one end with holding means and having a pawl-slot therein and a pin in said slot, of an arm pivoted at one end between the holding means and pawl-slot and adapted at the other end to bear against a board, and a pawl in pivotal connection with said arm and rising through the slot in the lever, the teeth on said pawl being within engaging distance of said pin.

5. The combination, in a boarding-clamp, of a lever, a spike in one terminal of said lever, a set-screw adapted to hold and release said spike, an arm pivoted at one end to said lever forward of said spike and adapted at the other end to engage a board, and a pawl in pivotal connection with said arm and adapted to engage and release the lever.

785,492. **PACKING.** CHARLES G. HOLMBERG, Woonsocket, S. D., assignor of one-half to Anna Holmberg, Woonsocket, S. D. Filed July 30, 1904. Serial No. 218,791.



Claim.—1. A piston-packing comprising a ring having teeth and fixed on the hub of the piston, and a spring-pressed packing-ring slidable on the piston and having teeth in mesh with the teeth on the said fixed ring.

2. A piston-packing comprising a fixed toothed ring on the piston-hub, spring-pressed rings slidable on the ends of the said hub and having recesses, and spring-pressed bars slidable on the side edges of the piston-wings and having bars provided with lugs engaging the said recesses.

3. The combination with an engine-piston consisting of a hub and diametrical wings having grooves in their edges, of a packing comprising a fixed ring on the said hub and provided with teeth, a toothed ring slidable on the hub and engaging the teeth on the said fixed ring, springs set in the said hub and pressing the said slidable ring, and spring-pressed bars slidable in the said grooves of the piston-wings.

4. The combination with an engine-piston consisting of a hub and diametrical wings having grooves in their edges, of a packing comprising a fixed ring on the said hub and provided with teeth, a toothed ring slidable on the hub and engaging the teeth on the said fixed ring, springs set in the said hub and pressing the said slidable ring, spring-pressed bars slidable in the said grooves of the piston-wings, the bars having halved end portions, and a sustaining-plate secured to one of the bars and overlapping the halved ends of adjacent bars.

5. The combination with an engine-piston consisting of a hub and diametrical wings having grooves in their edges, of a packing comprising a fixed ring on the said hub and provided with teeth, a toothed ring slidable on the hub and engaging the teeth on the said fixed rings, springs set in the said hub and pressing the said slidable ring, and spring-pressed bars slidable in the said grooves of the piston-wings, the bars having halved end portions overlapping each other.

6. The combination with an engine-piston consisting of a hub and diametrical wings having grooves in their edges, of a packing comprising a fixed ring on the said hub and provided with teeth, a toothed ring slidable on the hub and engaging the teeth on the said fixed ring, springs set in the said hub and pressing the said slidable ring, and spring-pressed bars slidable in the said grooves of the piston-wings, the ends of the bars adjacent to the hub having integral lugs projecting into recesses in the slidable packing-rings.

785,493. **SULKY DISK HARROW.** HARLAN S. HOWARD, Madison, Wis. Filed Feb. 5, 1904. Serial No. 192,079.

Claim.—1. In a disk harrow the combination of a main frame, transporting-wheels, a rocker-bar at the forward end of the main frame, depending supporting-irons pivoted to said rocker-bar on horizontal pivots, front bars carried by said supporting-irons, a plurality of disk-carrying arms secured at their forward ends to said front bars, a rear bar corresponding to each of the front bars, means for connecting the rear ends of the disk-carrying arms to the rear bars, means for pivotally supporting the rear bars, and means for vertically moving the rocker-bar and main frame with respect to each other whereby the disk-carrying arms will be vertically adjusted, and means for independently vertically adjusting the rear bars and the rear ends of the disk-carrying arms connected thereto.



2. In a disk harrow the combination, of a supporting-frame and transporting-wheels, a plurality of disk-carrying frames mounted in the main frame, a series of disk-carrying arms in each of said disk-carrying frames, the rear portions of said arms extending inward in the direction of the thrust of the disks, the forward portions thereof extending forward and inward, the front and rear ends of the disk-carrying arms being longitudinally in line with each other, and a pair of disks carried by each arm near the forward end thereof, the axle of said disks being perpendicular to the forward portion the arm and the disks being at an angle to the line of draft.

3. A journal-support for a pair of cultivator-disks comprising, a sleeve formed with an enlargement near one of its ends, a journal-box to receive said enlargement, means for supporting said journal-box whereby the axial line thereof will incline upwardly, a disk connected to each end of said sleeve, a spherical journal-block secured to the outer side of one disk, a journal-box for said block, means for adjustably supporting said spherical journal-box, and a bolt passing through the sleeve and the spherical journal-block and securing the two disks rigidly in position.

4. In a disk harrow the combination, of a supporting-frame, transporting-wheels, a rocker-bar at the forward end of the said frame, depending supporting-irons pivoted on said rocker-bar one on each side of the longitudinal center of the main frame, a pair of disk-carrying frames, the front bar of each disk-carrying frame being rigidly secured to the adjacent supporting-iron, bumper-irons secured to the rocker-bar and extending rearward over the front bars of the disk-carrying frames the lower ends of said bumper-irons extending downward in the rear of said front bars, means for horizontally pivoting the rear ends of the disk-carrying frames and disks carried by said frames.

5. In a disk harrow the combination, of a main frame, transporting-wheels, a rocker-bar forming the front bar of the main frame, depending supporting-irons connected to the rocker-bar on each side of the longitudinal center of the main frame, a pair of disk-carrying frames, one on each side of the longitudinal center of said main frame, the front bars of said disk-carrying frames being rigidly connected to the supporting-irons, a draw-iron connected at its ends to the forward sides of the front bars of the disk-carrying frames, midway the ends thereof, said bar being parallel with the rocker-bar, a tongue connected rigidly to the top of the rocker-bar, and links connecting the ends of the draw-iron to the tongue forward of the rocker-bar.

6. A disk harrow comprising, a supporting-frame, transporting-wheels, a disk-carrying frame mounted in the main frame, rearward-extending disk-supporting arms pivoted at their forward ends in the disk-carrying frame, journal-boxes carried by each pair of disk-supporting arms, one of said boxes of each pair being forward of and slightly higher than the other, a pair of disks supported by said journal-boxes, so that the axial line of disks will be at an angle to the line of draft and one of said disks will be forward of and slightly higher than the other, whereby the thrust of the disks will tend to bring them to the same working level.

7. A disk harrow comprising, a main frame, a disk-carrying frame mounted therein, a series of pairs of disk-supporting arms mounted in the disk-carrying frame, journal-boxes carried by each pair of disk-supporting arms, one of said boxes being forward of the other, the forward one being a long cylindrical box and the other a spherical box, journals corresponding in shape to said boxes, means for securing disks thereto, and means for vertically adjusting the spherical box.

8. A disk harrow comprising, a supporting-frame, a series of disks supported therein and arranged in pairs, two journal-boxes for each pair of disks, one of said boxes being forward of and slightly higher than the other, the forward box being long and cylindrical and the other being spherical, a supporting-sleeve mounted in the long cylindrical box, a spherical journal mounted in the other box, means for securing two disks to the ends of the sleeve and to the spherical journal whereby the axial line of the disks will be at an angle to the line of draft and the forward disk will be slightly higher than the rear one, and the thrust of said disks will tend to bring them to the same working level.

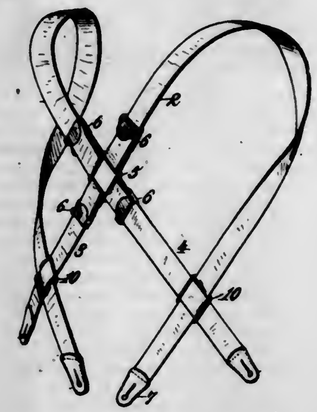
9. In a disk harrow the combination of a main frame, transporting-wheels, a rocker-bar at the forward end of the main frame, depending supporting-irons secured to said rocker-bar, front bars carried by said supporting-irons, a plurality of disk-carrying arms supported at their forward ends on the front bars, the rear portions of said arms extending inward in the direction of the thrust of the disks, the forward portions extending forward and inward, a pair of disks carried by each arm near the forward end thereof, the axle of said disks being perpendicular to the forward portion of the arms and the disks being at an angle to the line of draft, a rear bar corresponding to each of the front bars, means connecting said rear bar to the rear ends of the disk-carrying arms and means for vertically adjusting said rear bars.

10. In a disk harrow the combination of a main frame, transporting-wheels, a rocker-bar at the forward end of the main frame, depending supporting-irons secured to said rocker-bar, front bars carried by said supporting-irons, a plurality of disk-carrying arms supported at their forward ends on the front bars, the rear portions of said arms extending inward in the direction of the thrust of the disks, the forward portions extending forward and inward, a pair of disks carried by each arm near the forward end thereof, the axle of said disks being perpendicular to the forward portion of the arms and the disks being at an angle to the line of draft, a rear bar corresponding to each of the front bars, means connecting said rear bar to the rear ends of the disk-carrying arms, means for vertically adjusting said rear bars, and means for vertically moving the rocker-bar and main frame with respect to each other.

11. In a disk harrow the combination of a supporting-frame and transporting-wheels, a plurality of disk-carrying arms mounted in the main frame, the rear portion of said arms extending inward in the direction of the thrust of the disks the forward portion thereof extending forward and inward, the front and rear ends of the disk-carrying arms being longitudinally in line with each other, a pair of disks carried by each arm near the forward end thereof, the axle of said disks being perpendicular to said forward portion of the bar and inclining upward and forward, whereby the disks will be arranged at an angle to the line of draft and the forward disk of each pair will be higher than the rear disk.

12. In a disk harrow the combination of a supporting-frame and transporting-wheels, a plurality of disk-carrying arms mounted in the main frame, the rear portion of said arms extending rearward and inward in the direction of the thrust of the disks, the forward portion thereof extending forward and inward, the front and rear ends of the disk-carrying arms being longitudinally in line with each other, a pair of disks carried by each arm near the forward end thereof, the axle of said disks being perpendicular to said forward portion of the arm and inclining upward and forward, whereby the disks will be arranged at an angle to the line of draft, and the forward disk of each pair will be higher than the rear disk, and means for vertically adjusting the rear ends of the disk-carrying arms.

785,494. **COMBINED SHOULDER-BRACE AND SUSPENDER.** FREDERICK C. HUNT, Girard, Ohio. Filed Aug. 25, 1904. Serial No. 222,134.



Claim.—1. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps secured at their inner ends and having their outer end portions crossed and connected and provided with buttonhole-tabs.

2. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps adjustably secured at their inner ends and having their outer end portions crossed and connected and provided with buttonhole-tabs.

3. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps secured at their inner ends and having their outer end portions crossed and adjustably connected and provided with buttonhole-tabs.

4. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps secured at their inner ends and having their outer end portions crossed and slidably connected and provided with buttonhole-tabs.

5. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps adjustably secured at their inner ends to a common member and having their outer end portions crossed and connected and provided with buttonhole-tabs.

6. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps secured at their inner ends and having their outer end portions crossed and connected and adapted, in operation, to have the shoulder-straps crossed at the back of the wearer whereby a shoulder-strap and back-strap exerting a pull on the shoulder on one side of the wearer will exert a pull on the trousers at the opposite side.

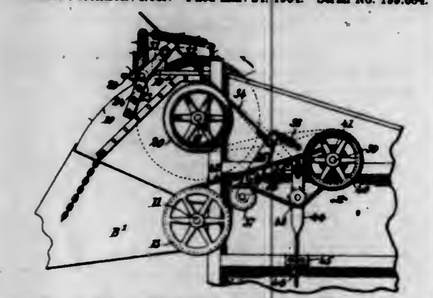
7. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps having their outer end portions crossed, and a connection for said straps at the point of crossing comprising a rectangular wire frame provided with a diagonal member.

8. A combined shoulder-brace and suspender comprising two shoulder-straps and two back-straps having their outer end portions crossed, and an adjustable connection for said straps at the point of crossing comprising a rectangular wire frame made from a single piece of wire having its end portions twisted at one corner and projecting inward diagonally across the frame.

785,495. **PROCESS OF ENRICHING EARTH.** THOMAS C. JEFFRIES, Columbus, Ohio. Filed Mar. 7, 1903. Serial No. 146,761.

Claim.—The herein-described process of enriching earth, consisting in combining with a quantity of earth, predetermined proportions of strong sulfuric acid, lime and salt, the several ingredients being brought together in the proportions of fifty-five per cent. earth, twenty-five per cent. sulfuric acid, fifteen per cent. lime and five per cent. salt, substantially as specified.

785,496. SELF-FEEDER FOR THRESHING-MACHINES. JAMES JESS, Dorchester, Nebr. Filed Mar. 24, 1904. Serial No. 199,684.



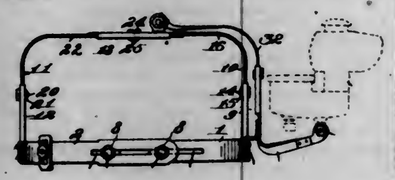
Claim.—1. In a self-feeder for threshing-machines, a frame, a bundle-carrier, a friction-wheel, and a sprocket-wheel mounted on said frame, means for continuously driving said sprocket-wheel, a sprocket-chain passing around said wheels, a pulley over the face whereof said chain passes, governor-forks mounted on said frame and projecting toward said bundle-carrier, means actuated by said forks for displacing said pulley, and means for driving said bundle-carrier

2. In a self-feeder for threshing-machines, a frame, a bundle-carrier mounted thereon, band-cutters cooperating with said carrier, a sprocket-wheel, a friction-wheel, a sprocket-chain passing around said wheels, a pulley disposed normally against said chain, a lever carrying said pulley and holding the face thereof against said chain, governor-forks mounted on said frame and projecting toward said bundle-carrier, and a connection between said governor-forks and said lever controlling said lever.

3. In a self-feeder for threshing-machines, a bundle-carrier, a friction-wheel connected with the driving-shaft of the bundle-carrier, a spring-controlled rock-shaft supported above the bundle-carrier, governing-forks extending from the rock-shaft in direction of the bundle-carrier, a driven shaft, means for driving the said shaft, a belt operated from the driven shaft, being in frictional engagement with the driving-wheel for the conveyer, a spring-controlled lever, a crank-arm extending from one end of the rock-shaft, a connection between the said crank-arm and the spring-controlled portion of the said lever, and a belt-tightener carried by the said lever, adapted for engagement with the said belt, the said rock-shaft when moving in one direction operating to carry the belt-tightener from engagement with the belt, and when acting in an opposite direction serving to bring the belt-tightener in tightening relation to the belt, substantially as described.

4. In a self-feeder for threshing-machines, a bundle-carrier, a friction-wheel connected with the driving-shaft of the bundle-carrier, a spring-controlled rock-shaft supported above the bundle-carrier, governing-forks extending from the rock-shaft in direction of the bundle-carrier, a driven shaft, means for driving the said shaft, a belt operated from the driven shaft, being in frictional engagement with the driving-wheel for the conveyer, a spring-controlled lever, a crank-arm extending from one end of the rock-shaft, a connection between the said crank-arm and the spring-controlled portion of the said lever, a belt-tightener carried by the said lever, adapted for engagement with the said belt, the said rock-shaft when moving in one direction operating to carry the belt-tightener from engagement with the belt, and when operating in an opposite direction serving to bring the belt-tightener in tightening relation to the belt, band-cutters, a drive-shaft on which the band-cutters are mounted, and a connection between the drive-shaft and the driven shaft, operating the belt controlling the operation of the conveyer, as described.

785,497. SUPPORTING AND ATTACHING DEVICE FOR LAMPS. CHARLES JOHNSON, Butte, Mont. Filed June 15, 1904. Serial No. 212,710.



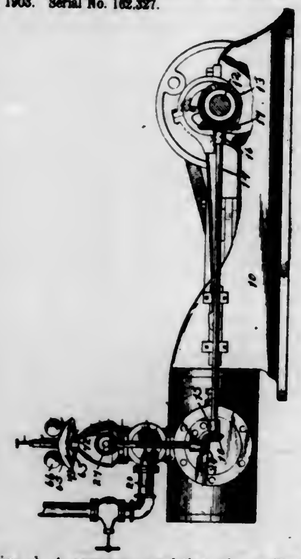
Claim.—1. In a device of the character described, a pair of strips forming a band, a clamp for adjustably connecting said strips together, a pair of sectional standards fixed at one end to said strips and adapted to have the sections thereof extend into one another, a clamp for adjustably connecting the sections of each standard together, the upper end of the upper section of each of said standards enlarged, a clamp for adjustably connecting the enlarged ends of said sections together, and means for adjustably connecting an illuminating device with the enlarged upper end of said standards.

2. In a device of the character described, a pair of strips forming a band, a clamp for adjustably connecting said strips together, a pair of sectional standards secured at their lower ends with said strips and each adapted to have the sections thereof extend into one another, a clamp for adjustably connecting the sections of each of the sections together, a clamp carried by one of the standards, a sectional suspension-arm adapted to be connected with said standards by said clamping device, the sections of said suspension-arm adapted to extend into one another, a clamp for adjustably connecting the sections of the suspension-arm together, and a clamping device carried by one of the sections of said suspension-arm and adapted to secure an illuminating device thereto.

3. In a device of the character described, a pair of strips forming a band, a clamp for adjustably connecting said strips together, a pair of sectional standards fixed at one end to said strips and adapted to have the sections thereof extend into one another, a clamp for adjustably connecting the sections of each standard together, the upper end of the upper section of each of said standards enlarged, a clamp for adjustably connecting the enlarged ends of said sections together, means for adjustably connecting an illuminating device with the enlarged upper end of said standards, and a plurality of attaching devices carried by said band for connecting it to a head-covering.

4. A device of the character described, involving a pair of strips forming a band, clamps for adjustably connecting said strips together, a suspension member for an illuminating device connected with said band, a clamp carried by said member for securing an illuminating device thereto, and a plurality of attaching devices carried by the band and adapted to connect said band with a head-covering

785,498. GOVERNOR. FRANK I. JOYCE, Dayton, Ohio. Filed June 20, 1903. Serial No. 162,327.



Claim.—1. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, means for actuating said valve, means actuated by said controlling mechanism for adjusting said valve, and means for magnifying the adjustment of the valve as compared with the movement of said controlling mechanism, substantially as described.

2. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, means for actuating said valve, a longitudinally-movable member actuated by said controlling mechanism, means operated by longitudinal movement of said member for adjusting said valve, and means for magnifying the adjustment of said valve as compared with the movement of said member, substantially as described.

3. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary member connected with said valve for actuating the same, a longitudinally-movable member actuated by said controlling mechanism for adjusting said valve, and means for magnifying the adjustment of said valve as compared with the movement of said longitudinally-movable member, substantially as described.

4. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary member connected with said valve for actuating the same, a longitudinally-movable member actuated by said controlling mechanism for adjusting said valve, means operated by longitudinal movement of the latter member for rotating one of said members relatively to the other, and means operated by such rotation for adjusting said valve and for multiplying the effect thereof as applied to said valve, substantially as described.

5. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary member connected with said valve for actuating the same, a longitudinally-movable member actuated by said controlling mechanism for adjusting said valve, means for normally rotating said members in unison, means operated by longitudinal movement of said longitudinally-movable member for rotating one of said members relatively to the other, and means operated by such rotation for adjusting said valve and for multiplying the effect thereof as applied to said valve, substantially as described.

6. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary member connected with said valve for actuating the same, a longitudinally-movable member actuated by said controlling mechanism for adjusting said valve, means operated by longitudinal movement of said latter member for rotating the same, and means operated by such rotation for adjusting said valve and for multiplying the effect thereof as applied to said valve, substantially as described.

7. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary member connected with said valve for actuating the same, a longitudinally-movable member actuated by said controlling mechanism for adjusting said valve, an inclined slot in said rotary member, a key carried by said longitudinally-movable member and fitting in said slot, whereby longitudinal movement of said longitudinally-movable member will effect the rotation of one of said members relatively to the other, and means operated by such rotation for adjusting said valve and for multiplying the effect thereof as applied to said valve, substantially as described.

8. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve connected with said valve for actuating the same, a longitudinally-movable sleeve actuated by said controlling mechanism for adjusting said valve, means operated by longitudinal movement of the latter sleeve for rotating said sleeves relatively to each other, and means operated by such rotation for adjusting said valve and for multiplying the effect of such rotation as applied to said valve, substantially as described.

9. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve connected with said valve for actuating the same, a longitudinally-movable sleeve actuated by said controlling mechanism for adjusting said valve, means operated by longitudinal movement of the latter sleeve for rotating the same, and means operated by such rotation for adjusting said valve and for multiplying the effect thereof as applied to said valve, substantially as described.

10. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve connected with said valve for actuating the same, a longitudinally-movable sleeve actuated by said controlling mechanism for adjusting said valve, an inclined slot in said rotary sleeve, a key carried by said longitudinally-movable sleeve and engaging said slot, means operated by the movement of said key in said slot for adjusting said valve, and means for multiplying the effect thereof as applied to said valve, substantially as described.

11. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve connected with said valve for actuating the same; said sleeve having a longitudinally-extending slot, a sleeve arranged adjacent to said first-mentioned sleeve and having an inclined slot, a longitudinally-movable sleeve arranged adjacent to said sleeves and having a key fitting in said slots, and means actuated by said controlling mechanism for moving said longitudinally-movable sleeve longitudinally, substantially as described.

12. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve connected with said valve for actuating the same, said sleeve having a longitudinally-extending slot, a sleeve arranged adjacent to said first-mentioned sleeve and having an inclined slot, a longitudinally-movable sleeve arranged adjacent to said sleeves and having a key fitting in said slots, means actuated by said controlling mechanism for moving said longitudinally-movable sleeve longitudinally, and means for driving said inclined slotted sleeve from the engine, substantially as described.

13. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve connected with said valve for actuating the same, said sleeve having a longitudinally-extending slot, a sleeve arranged adjacent to said first-mentioned sleeve and having an inclined slot, a longitudinally-movable sleeve arranged adjacent to said sleeves and having a key fitting in said slots, means actuated by said controlling mechanism for moving said longitudinally-movable sleeve longitudinally, means for driving said inclined slotted sleeve from the engine, and means for multiplying the effect of the rotation of said first-mentioned sleeve upon the governor-valve, substantially as described.

14. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve having a longitudinal slot, a rotary sleeve having an inclined slot, a rotary and longitudinally-movable sleeve having a key fitting in said slots, means for driving said inclined slotted sleeve from the engine, and means operated by said controlling mechanism for moving said longitudinally-movable sleeve longitudinally, substantially as described.

15. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary sleeve having a longitudinal slot, a rotary sleeve having an inclined slot, a rotary and longitudinally-movable sleeve having a key fitted in said slots, means for driving said inclined slotted sleeve from the engine, means operated by said controlling mechanism for moving said longitudinally-movable sleeve longitudinally, and means for multiplying the effect of the rotation of said first-mentioned sleeve upon the governor-valve, substantially as described.

16. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, means for actuating said valve, means actuated by said controlling mechanism for adjusting said valve, and means operated by said valve-actuating mechanism for multiplying the adjusting effect of said controlling mechanism in transmission to said valve, substantially as described.

17. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, means for actuating said valve, a longitudinally-movable member actuated by said controlling mechanism, means operated by longitudinal movement of said member for adjusting said valve, and means operated by said valve-actuating mechanism for multiplying the adjusting effect of said controlling mechanism in transmission to said valve, substantially as described.

18. A governor, consisting of centrifugally-operated controlling mechanism, a governor-valve, a rotary member connected with said valve for actuating the same, a longitudinally-movable member actuated by said controlling mechanism for adjusting said valve, and means operated by said rotary valve-actuating member for multiplying the adjusting effect of said longitudinally-movable member in transmission to said valve, substantially as described.

19. A governor, consisting of a governor-valve, means for actuating said valve, a rotating member, means for driving said member at a slower speed than that of the engine, and centrifugally-operated mechanism cooperating with said rotating member for adjusting said valve, substantially as described.

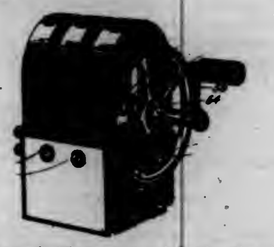
20. A governor, consisting of a governor-valve, means for actuating said valve, a rotating member, means for driving said member at a slower speed than that of the engine, multiplying mechanism adapted to be actuated by said rotating member for adjusting said valve, and centrifugally-operated controlling mechanism therefor, substantially as described.

21. A governor, consisting of a governor-valve, a rotating sleeve, means for driving said sleeve from the engine and at a slower speed, multiplying mechanism adapted to be actuated by said sleeve for adjusting said valve, and centrifugally-operated controlling mechanism therefor, substantially as described.

22. A governor, consisting of controlling mechanism, a governor-valve, means actuated by said controlling mechanism for adjusting said valve, and means for multiplying the adjusting effect

of said controlling mechanism in transmission to said valve, substantially as described.

785,499. ELECTRIC GENERATOR. WILLIAM KAHLING, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed July 20, 1903. Serial No. 166,273.



Claim.—1. In an electric generator of the class described, the combination of a stamped sheet-metal end plate, with a stamped sheet-metal spacing-disk having the same diameter as that of the bore of the pole-pieces secured thereto.

2. In an electric generator of the class described, the combination with a sheet-metal end plate, of a sheet-metal spacing-disk secured thereto.

3. In an electric generator of the class described, the combination with a sheet-metal end plate, of a sheet-metal spacing-disk having the same diameter as that of the bore of the pole-pieces, and an armature-bearing fitting tightly through registering circular openings in said end plate and said spacing-disk.

4. In an electric generator of the class described, the combination with a sheet-metal end plate, of a sheet-metal spacing-disk, and an armature-bearing having a shoulder resting upon said end plate and fitting tightly through suitable openings in said end plate and said spacing-disk.

5. In an electric generator of the class described, the combination with an end plate, of a spacing-disk having the same diameter as that of the bore of the pole-pieces, and a cylindrical armature-bearing having a shoulder resting upon said end plate and fitting tightly through circular openings in said end plate and said spacing-disk.

6. In an electric generator of the class described, the combination with a stamped sheet-metal end plate, of a stamped sheet-metal spacing-disk having the same diameter as that of the bore of the pole-pieces, and a cylindrical armature-bearing having a shoulder resting upon said end plate and fitting tightly through registering circular openings of substantially the same size in said end plate and said spacing-disk, said bearings serving to secure said spacing-disk to said end plate.

7. In a device of the class described, the combination with an armature mounted on an armature-shaft, of a pinion loosely mounted upon said shaft, a driving-washer mounted upon said armature-shaft, yielding spring mechanism connecting said shaft and said pinion, and means whereby an engagement between said washer and said pinion is effected upon a certain degree of relative rotation between said pinion and said armature-shaft.

8. In an electric generator of the class described, the combination with an armature mounted upon an armature-shaft, of a pinion loosely mounted upon said armature-shaft, a driving-gear meshing with said pinion, a driving-washer having a suitable opening engaging a crescent-shaped projection upon the end of said armature-shaft, a spiral spring connected at one end with said pinion and at the other end with said driving-washer, said spring lying in an annular groove in said pinion, and a projection upon said pinion, there being a notch in the periphery of said washer to receive said projection.

9. In an electric generator of the class described, the combination with an armature mounted upon an armature-shaft, of a pinion loosely mounted upon said armature-shaft, a driving-gear meshing with said pinion, a driving-washer having a suitable opening engaging a crescent-shaped projection upon the end of said armature-shaft, a spiral spring connected at one end with said pinion and at the other end with said driving-washer, and a projection upon said pinion, there being a notch in the periphery of said washer to receive said projection.

10. In a device of the class described, the combination with an armature mounted upon an armature-shaft, of a pinion loosely mounted upon said armature-shaft, a driving-washer having a suitable opening engaging a crescent-shaped projection upon the end of the armature-shaft, yielding spring mechanism connecting said driving-shaft and said pinion, and a projection on said pinion lying within a suitable peripheral notch within said washer, the width of said notch being such as to permit a slight degree of relative rotation between said pinion and said armature-shaft.

11. In an electric generator of the class described, the combination of an armature mounted upon an armature-shaft, of a pinion loosely mounted upon said armature-shaft, a driving-gear meshing with said pinion, a driving-washer securely mounted upon the end of the armature-shaft, a spiral spring connected at one end with said pinion and at the other end with said driving-washer, said spring lying in an annular groove in said pinion, and a projection on said pinion resting within a notch in the periphery of said washer, the width of said notch being such as to permit a slight relative movement between said pinion and said armature-shaft.

12. In an electric generator of the class described, the combination of an armature mounted upon an armature-shaft, of a pinion loosely mounted upon said armature-shaft, a driving-gear meshing with said pinion, a driving-washer securely mounted upon the end of the armature-shaft, a spiral spring connected at one end with said pinion and at the other end with said driving-washer, and a projection on said pinion resting within a notch in the periphery of said washer, the width of said notch being such as to permit a slight relative movement between said pinion and said armature-shaft.

13. In a device of the class described, the combination with an armature mounted on an armature-shaft, of a pinion loosely mounted at the end of said shaft, a washer secured to the end of said shaft for holding said pinion thereon, a driving-gear engaging said pinion, a spiral spring connected at one end with said pinion and at the other end with said washer, whereby a yielding driving connection is formed between said shaft and said pinion, and stops for limiting the range of said yielding spring connection and for causing unyielding connection between said shaft and pinion.

785,500. POCKET SAFETY-MATCH HOLDER. JULIUS KARPEN, Chicago, Ill. Filed Feb. 1, 1904. Renewed Feb. 23, 1905. Serial No. 246,917.



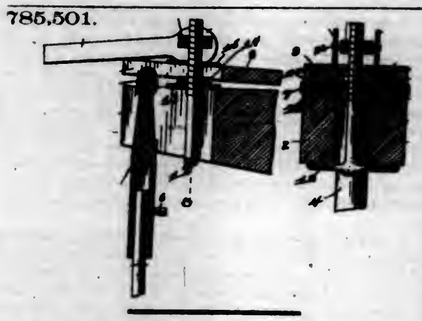
Claim.—1. The herein-described pocket match-holder, the same consisting of a block of wood flattened at opposite sides and provided with a series of bored individual match-receptacles, each receptacle for the major portion of its length being slightly greater in diameter than a match-head and extending parallel with the fiber of the wood and from one end of the block to a point near its opposite end, said receptacle having its lower end tapered or reduced and adapted to frictionally and lightly engage with the match-head and thereby retain said match against accidental displacement.

2. The herein-described match-holder, the same being externally adapted for pocket use, and provided with a series of individual match-receptacles open at one end, such receptacles for the major portions of their lengths being slightly greater in diameter than the match-head and toward their lower ends slightly tapered or reduced to a diameter less than the match-head and adapted thereby to frictionally and lightly engage with the match-heads and by such frictional contact retain the matches against accidental displacement.

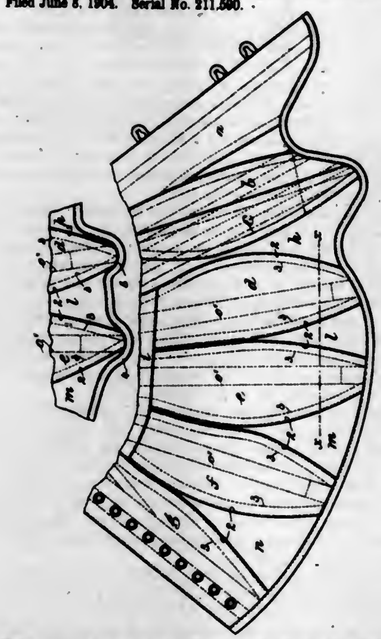
785,501. POLISH-ROD FASTENER. CHARLES L. KENNEDY and JAMES H. MCCONIGAL, Sistersville, W. Va. Filed May 31, 1904. Serial No. 210,567.

Claim.—In a device of the character described, the combination with a walking-beam provided with a slot, of a chuck or holder adapted to fit within said slot and provided with arms to rest upon the top of the beam, an adjusting board or plate adapted to bear upon said arms, a bolt passing upward through the slot in the beam and provided with a cross-head for engaging the under side of the beam, a lock-nut above the same, a clamping-plate on said bolt to bear upon the adjusting board or plate, a nut upon the bolt, and a cam-lever pivotally connected to said nut and having side portions to coact with said plate, substantially as described.

785,501.



785,502. APPAREL-CORSET. DANIEL KOPS, New York, N. Y. Filed June 8, 1904. Serial No. 211,560.



Claim.—1. An apparel-corset, comprising main fabric portions at the front and back parts, other main fabric portions intermediate of the aforesaid portions, the ends of which are pointed and the edges formed convex for about half the distance from the edge of the corset to the waist-line, and gores intervening between the latter fabric portions and having concave edges meeting the said convex edges, and the edges of the gores and latter fabric portions sewed together by double lines of stitches that may be severed to take up or let out the corset adjacent to the bottom or top edge.

2. An apparel-corset, comprising main fabric portions at the front and back parts, other main fabric portions intermediate of the aforesaid portions and closely adjacent to one another along their edges at the waist portion of the corset, the lower ends of which are pointed and the edges formed convex for about half the distance from the edge of the corset to the waist-line, and gores intervening between the latter fabric portions and having concave edges meeting the said convex edges and the edges of the gores and latter main fabric portions sewed together by double lines of stitches that may be severed to take up or let out the corset adjacent to the bottom or top edge.

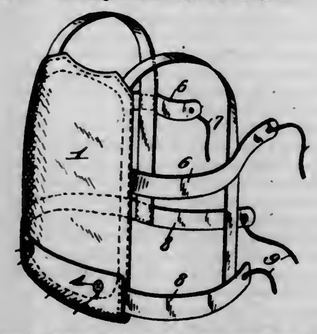
3. An apparel-corset, comprising main fabric portions at the front and back parts, other main fabric portions intermediate of the aforesaid portions, the ends of which are pointed and the edges formed convex for about half the distance from the edge of the corset to the waist-line, bone-pocket strips secured longitudinally and centrally thereto and extending between the bottom and top edges of the corset, and gores intervening between the latter fabric portions and having concave edges meeting the said convex edges and the edges of the gores and latter main fabric portions sewed together by double lines of stitches that may be severed to take up or let out the corset adjacent to the bottom or top edge.

4. An apparel-corset comprising main fabric portions at the front and back parts, other main fabric portions intermediate of the aforesaid portions and closely adjacent to one another along their edges at the waist portion of the corset, the lower ends of which are pointed and the edges formed convex for about half the distance from the edge of the corset to the waist-line, bone-pocket strips secured longitudinally and centrally thereto and extending between the bottom and top edges of the corset, and gores intervening between the latter fabric portions and having concave edges meeting the said convex edges and the edges of the gores and latter main fabric portions sewed together by double lines of stitches that may be severed to take up or let out the corset adjacent to the bottom edge.

5. An apparel-corset, comprising main fabric portions common in each half of the corset to the lower and upper portions, and other main fabric portions *d*, *e*, *f* and *d'*, *e'*, *f'*, bone-pocket strips and bones in the pockets formed thereby extending from near the lower edge of the corset to the upper edge through the main fabric portions *d*, *e*, *f* and *d'*, *e'*, *f'* and triangular gores in the lower portions of the corset and also in the upper portion of the corset between the main fabric portions specified, the parts having folded edges and being connected by lines of sewing 2, 3 that may be separated to be refolded and reconnected at the pleasure of the wearer.

6. An apparel-corset, comprising main fabric portions common in each half of the corset to the lower and upper portions, other main fabric portions *d*, *e*, *f* in the lower half of the corset having convex curved edges, triangular gores *l*, *m* and *n* between these fabric portions widest at the lower edges and gradually tapering toward the waist, and other main fabric portions *d'*, *e'* and *f'* in the upper portion of the half of the corset between which are the triangular gores *l'* and *m'*, the parts having folded edges and being connected respectively by lines of sewing 2, 3 that may be separated to be refolded and reconnected at the pleasure of the wearer.

785,503. LIFE-SAVING APPLIANCE. GUSTAVE KRIEGER, Brooklyn, N. Y. Filed Aug. 4, 1904. Serial No. 219,521.



Claim.—1. An appliance of the character set forth, having a bag-like receptacle adapted to receive a buoyant element and provided with a mouth at its lower extremity, and attaching-straps secured to the upper, intermediate, and lower portions of the receptacle, one of said straps serving to hold the mouth closed.

2. An appliance of the character set forth, having a bag-like receptacle adapted to receive a buoyant element and provided with a mouth at its lower end, a closing-flap for the mouth having securing means, and attaching-straps secured to the upper, intermediate, and lower portions of the receptacle, the lower straps being fastened to the said flap and serving to prevent the latter from becoming accidentally disengaged from closed position.

3. An appliance of the class set forth, having a mouth with a closing-flap provided with fastening means, and means for holding the device applied and for retaining the flap in a closed position.

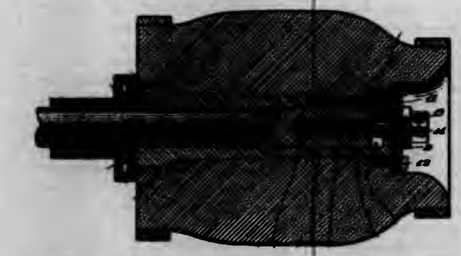
4. An appliance of the class set forth, consisting of a receptacle adapted to receive buoyant means and provided with a lower mouth, and holding-straps applied to the upper, intermediate, and lower portions thereof, the straps attached to the upper part of the receptacle also connecting with the intermediate and lower straps.

5. In an appliance of the class set forth, the combination of a receptacle adapted to contain a buoyant element and having an opening provided with a closure, and supporting and fastening means attached to the upper end, intermediate and lower portions of the said receptacle, one of said means adapted to hold the closures in working relation.

6. A device of the class set forth, consisting of a receptacle having a lower closing-flap, fastenings interposed between said flap and lower end of the receptacle, and fastening-straps attached to the upper, intermediate, and lower portions of the receptacle, the lower straps controlling the closure of the receptacle.

7. An appliance of the character set forth, consisting of a bag-like receptacle having a lower mouth, a flap movable over said mouth and suspending and securing straps attached to the upper, intermediate, and lower portions of the receptacle, the lower straps controlling the closure of the flap.

785,504. VEHICLE-AXLE. PHILIP LE SUEUR, Calabasas, Cal. Filed Oct. 28, 1903. Serial No. 178,834.



Claim.—1. In combination, an axle, a semiblind axle-box thereon, a hub on the box provided with a bearing-plate at its outer end, a retaining-bolt through said plate and into the end of the axle, yielding means at the inner end of the hub for normally forcing said hub outward, and means for holding the bolt against unscrewing from the axle.

2. In combination, an axle having an interiorly-screw-threaded axial recess in its outer end, a semiblind axle-box thereon, a hub on the box provided with a perforated plate at its outer end, a retaining-bolt through said plate and into the end of the axle, a stop adjustably secured to the axle, and yielding means between the stop and the inner end of the hub for forcing the hub outward and holding the plate against the head of the bolt.

3. In combination, an axle having an interiorly-screw-threaded axial recess in its outer end, the outer end of said recess being enlarged, a semiblind axle-box thereon, a hub on the box provided with a perforated plate at its outer end, a retaining-bolt through the plate and into the end of the axle, a retainer in the enlargement of the recess and in engagement with the bolt, and a stop on the axle at the inner end of the hub for holding the hub in position.

4. In combination, an axle having an interiorly-screw-threaded axial recess in its outer end, the outer end of the recess being enlarged and undercut, a semiblind axle-box on the axle, a hub on the box provided with a perforated plate at its outer end, a retaining-bolt through the plate and into the end of the axle, the intermediate portion of the bolt being circumferentially grooved, a spring in the undercut portion of the recess, one end of which fits in the groove of the bolt, and a stop on the axle at the inner end of the hub for holding the hub in position.

5. In combination, an axle having an axial recess in its outer end, the outer end of the recess being enlarged and undercut, a semiblind axle-box on the axle, a hub on the box provided with a perforated plate at its outer end, a bolt through the plate and into the recess of the axle, the head of the bolt being recessed and the intermediate portion grooved circumferentially, a bearing-washer and a spring-washer in the bolt-head, a spring in the undercut portion of the recess and in engagement with the grooved portion of the bolt, a spring in the recess beyond the end of the bolt, a bolt-stop between the spring and the bolt, and a stop on the axle at the inner end of the hub.

6. In combination, an axle, a stop thereon having recessed sides and a flange at one end provided with inwardly-projecting lugs, a set-screw in the stop, a hub on the axle, means for retaining the hub in position and two peripherally-notched washers in the flange of the stop, one of which is provided with springs for forcing the other washer against the end of the hub.

7. In combination, an axle having an interiorly-screw-threaded axial recess in its outer end, a semiblind axle-box on the axle, the outer end of which is normally at a distance from the end of the axle, a hub on the box having a perforated plate at its outer end, a bolt through the plate and into the end of the axle, the head of which is recessed adjacent to the plate, two washers in said recess, one of which is provided with springs to force the other one against the plate, a stop adjustably secured to the axle at the inner end of the hub and provided with a flanged end, two washers in said flanged portion, one of which is provided with springs for holding the other washer against the end of the hub and normally forcing the hub outward.

8. In combination, an axle, a semiblind axle-box thereon inclosing the end of the axle and forming an oil-chamber, a hub carried by the axle-box, a bearing-plate on said hub, the outer end of said axle being drilled and threaded, a solid retaining-bolt passing through said bearing-plate on the hub and engaging with the threads in the axle, said retaining-bolt having a circumferential groove, the end of said axle being recessed to enlarge the oil-chamber, and a circular spring in the recess engaging said groove in the bolt.

9. In combination, an axle, a semiblind axle-box thereon inclosing the end of the axle and forming an oil-chamber, a hub carried by the axle-box, a bearing-plate on said hub, the outer end of said axle being drilled and threaded, a solid retaining-bolt passing through said bearing-plate on the hub and engaging with the threads of the axle, a bolt-stop between the bolt and the bottom of the hole in the axle, said retaining-bolt having a flange on the head thereof, said flange having a recess and a pair of washers within said recess, one of said washers having spring-arms which force the other washer against the bearing-plate on the hub.

10. In combination, an axle, an axle-box thereon, a hub carried by the axle-box, a bearing-plate on said hub, the outer end of said axle being drilled and threaded, a solid retaining-bolt passing through said bearing-plate on the hub and engaging with the threads of the axle, a bolt-stop between the bolt and the bottom of the hole in the axle, said retaining-bolt having a flange on the head thereof, said flange having a recess, a pair of washers within said recess, one of said washers having spring-arms which force the other washer against the bearing-plate on the hub, both of said washers having concave notches in their periphery, said flange being provided with lugs which engage in said notches.

11. In combination, an axle, a semiblind axle-box thereon forming an oil-chamber at the end of the axle, a shoulder on the axle, a washer bearing against the inner end of the axle-box, resilient means between the shoulder and washer for pressing the washer against the axle-box, a retaining-bolt passing through the outer end of the semiblind axle-box, traversing the oil-chamber, the head of the bolt being hollow, a washer bearing against the outer end of the axle-box, and means within the head for resiliently holding said washer against the axle-box.

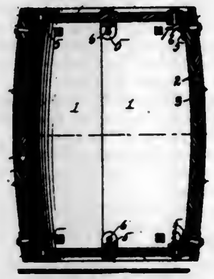
12. In combination, an axle, a semiblind axle-box thereon forming a chamber for the reception of lubricants, a retaining-bolt passing through the hole in the end of the semiblind axle-box closing said hole, traversing the chamber for the reception of lubricants and engaging the end of the axle, the head of the retaining-bolt being hollow, and resilient means within said head for bearing against the end of the semiblind axle-box to prevent the escape of oil from the axle-box.

13. In combination, an axle, a semiblind axle-box thereon forming a lubricant-chamber at the end of the axle, a retaining-bolt passing through the end of the semiblind axle-box, traversing the lubricant-chamber, and engaging the end of the axle, a washer bearing against the end of the axle-box, and means within the head for resiliently holding said washer against the axle-box.

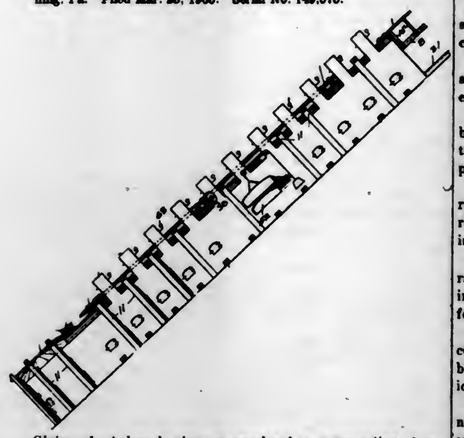
14. In combination, an axle, a semiblind axle-box thereon forming an oil-chamber at the end of the axle, a solid retaining-bolt having a smooth shank passing through the hole in the end of the axle-box thereby closing said hole, and screwed into the end of the axle, a hub on the axle, a washer fastened to the hub and bearing against the outer end of the axle-box and closely fitting the smooth shank of the retaining-bolt, a bearing-plate between the washer and head of the retaining-bolt, said head being hollow, and means within the hollow head for resiliently pressing against the bearing-plate to further prevent escape of oil and ingress of dirt.

785,505. BARREL. LAWRENCE LOVE, Toledo, Ohio. Filed June 6, 1904. Serial No. 211,376.

Claim.—In a barrel, a series of identical staves, each stave having on one of its longitudinal margins an outer flange and having on its other longitudinal margin an inner flange, the outer flanges of said series of staves overlapping the corresponding inner flanges on the adjoining staves, heads for the barrel, hoops near the ends of the barrel, angle-plates disposed in the angles of the head and staves, screws which pass through said overlapping flanges and engage the hoops and angle-plates, and screws which engage the angle-plates with the heads.



785,506. PLATE-GLASS ANNEALING LEER. MICHAEL M. MAHER, East Brady, Pa., assignor of one-half to Robert Barner, Kittanning, Pa. Filed Mar. 23, 1903. Serial No. 149,075.



Claim.—1. A leer having an overhead way extending therethrough, glass-carriers, and carrier-suspending means movable over the way and constructed and arranged to permit the carriers to oscillate.

2. A leer having an overhead way extending therethrough, glass-carriers, carrier-suspending means movable over the way and constructed and arranged to permit the carriers to oscillate, and guides for limiting said oscillating movement.

3. A leer having an overhead way extending therethrough, glass-carriers, carrier-suspending means movable over the way and constructed and arranged to permit the carriers to oscillate, fixed guides within the leer, and rollers on the carriers adapted to engage the guides and limit said oscillating movement.

4. A leer having an overhead way extending therethrough, glass-carriers, and suspending means movable over the way and having central or balanced connection with the carriers.

5. A leer having an overhead way extending therethrough, and glass-carriers suspended at their centers from said way.

6. A leer having an overhead way extending therethrough, glass-carriers suspended at their centers from the way, and carrier-actuating means adjacent the overhead way.

7. The combination of a leer chamber or tunnel, burners within the lower part of the chamber, heat-deflectors positioned above the burners, and plate-carriers movable through the chamber above said deflectors.

8. The combination of a leer chamber or tunnel, hearthstones within the chamber and elevated from the bottom thereof, burners beneath the hearthstones, and plate-carriers movable through the chamber above said stones.

9. An improved glass-annealing leer having a single elevated track, and glass-carriers suspended therefrom and movable thereon.

10. An improved glass-annealing leer having a single elevated track extending through the center thereof, glass-carriers, and a suspension device extending upward centrally from each carrier and adapted to travel on the track.

11. The combination of a leer-chamber, plate-carriers, a driving-cable movable through the chamber and having a lateral turn at the end thereof, projections at intervals on the cable, and devices on the carriers adapted to be engaged by the cable projections, said devices being open on one side whereby they are automatically disengaged from the cable projections when the cable turns laterally.

12. The combination of a leer, a succession of glass-carriers of uniform size movable therein, a series of evenly-spaced separately-controlled heating devices over which the carriers move, and a dampered chimney in the leer-crown above each heating device.

13. A glass-carrier for leers comprising a series of iron frames arranged side by side and having vertical abutting faces, means for securing the frames together with said faces in engagement to form a rigid carrier-body, and a refractory top covering for the body.

14. A glass-carrier for leers comprising a series of iron frames arranged side by side and having vertical abutting faces, means for securing the frames together with said faces in engagement to form a rigid carrier-body, truss-rods beneath and secured to opposite portions of the body thus formed for holding the same level, and a refractory top covering for the body.

15. A glass-carrier for leers comprising a series of iron frames secured together side by side to form a carrier-body, a refractory top covering therefor, and means for sustaining the carrier from above.

16. A glass-carrier for leers comprising a body, and a suspension device arranged centrally thereover and secured to opposite edges thereof.

17. A glass-carrier for leers comprising a body, two horizontal bars above the top plane of the body and secured to opposite edges thereof, a cross-bar connecting the first-mentioned bars, and a suspension device secured to the cross-bar.

18. An improved leer having communicating chambers arranged side by side, glass-carriers movable therein, an endless carrier-actuating cable common to the chambers, and separate actuating means for moving the carriers from one chamber into the other.

19. An improved leer having communicating chambers arranged side by side, glass-carriers movable therein, a cable operating to move the carriers through each chamber, and separate means for moving the carriers from one chamber to the other.

20. An improved leer having straight communicating chambers connected by a curved trackway, glass-carriers movable in the chambers over said trackway, and actuating means operating to automatically engage the carriers and move them over said curved trackway.

21. An improved leer having communicating chambers connected by a trackway, glass-carriers movable in the chambers over said trackway, and endless actuating means operating at the ends of the chambers to move the carriers from one chamber to the other.

22. An improved leer having chambers communicating at one end, glass-carriers movable in the chambers and from one chamber to the other, means for moving the carriers in the chambers, and mechanism at the chamber ends adapted to automatically engage and move the carriers from one chamber to the other.

23. An improved leer having chambers arranged side by side which communicate at one end, glass-carriers in the chambers, an endless cable operative in both chambers between the ends thereof for moving the carriers, and mechanism operative at the connected ends of the chambers for receiving the carriers from the cable in one chamber and delivering them to the cable in the other chamber.

24. An improved leer having movable plate-carriers, equally-spaced cable-engaging devices on the carriers, and a power-cable in the leer carrying equally-spaced devices adapted to automatically engage and disengage said devices on the carriers.

25. An improved leer having two chambers arranged side by side and communicating at one end, glass-carriers provided with cable-engaging devices, an endless cable operative in both chambers between the ends thereof to actuate the carriers, devices on the cable for engaging said devices on the carrier, and endless mechanism at the communicating ends of the chambers operating to automatically engage the carriers at the end of one chamber and deliver them into the end of the other chamber.

26. The combination of a leer, glass-carrying means, heating means, and means for withdrawing heated air from the leer and forcing the same air into the leer adjacent the discharge thereof.

27. The combination of a leer, glass-carrying means, heating

means, and means for forcing hot air into the leer adjacent its discharge.

28. The combination of a leer having two elongated chambers arranged side by side and having, respectively, inlet and discharge ends adjacent each other and communicating at their opposite ends, glass-carrying means, heating means, and means for withdrawing heated air from the leer and for returning the same air into the leer adjacent its discharge end.

29. The combination of a leer, hearthstones arranged at intervals and supported in elevated position above the floor thereof, and heating means beneath each stone.

30. The combination of a leer, a succession of evenly-spaced glass-carriers of uniform size movable intermittently therein, and a series of evenly-spaced separately-controlled hearths in the lower portion of the leer-chamber and of substantially the same size as the carriers, and over which the latter stop between their intermittent movements.

785,507. **MOTHPROOF BAG.** GEORGE M. D. MANAHAN, New York, N. Y. Filed June 10, 1904. Serial No. 211,801.



Claim.—1. A mothproof bag, comprising a bag-body provided with a closing-flap at its mouth, and a garment-support within the bag, provided with means for locking the flap in closed position.

2. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, and a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side.

3. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side, and screw-eyes screwing in the top of the said bar and extending through registering slots in the joints between the sides and their flaps.

4. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side, screw-eyes screwing in the top of the said bar and extending through registering slots in the joints between the sides and their flaps, and tying-strings secured to the side having the inner flap and extending over the outer flap to tie to the said screw-eyes.

5. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side, and corner-clips removably fitting the corners of the mouth of the bag-body.

6. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side, screw-eyes screwing in the top of the said bar and extending through registering slots in the joints between the sides and their flaps, and corner-clips removably fitting the corners of the bag-body.

7. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side, screw-eyes screwing in the top of the said bar and extending through registering slots in the joints between the sides and their flaps, and corner-clips removably fitting the corners of the bag-body and having tying-strings for connection with the next adjacent screw-eyes.

8. A mothproof bag comprising a bag-body provided with flaps at the mouth, one of the flaps being the outer closing-flap and the other an inner supporting-flap, a garment-support within the bag-body and in the form of a bar having hooks at the under side, the bar being held between the said inner flap and its side, screw-eyes screwing in the top of the said bar and extending through registering slots in the joints between the sides and their flaps, and a covering for the said bar, held thereto by the said screw-eyes.

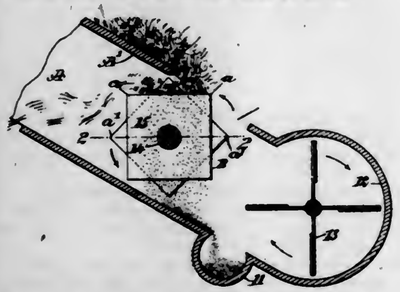
9. A mothproof bag comprising a bag-body having one side provided with a closing-flap at its mouth, a garment-support attached to the inside of the bag at the side opposite the one carrying the flap, pockets spaced on and secured to the inner faces of the sides of the said bag-body, and envelops containing a disinfectant and held within the said pockets.

10. A mothproof bag comprising a bag-body having one side provided with a closing-flap at its mouth, a garment-support attached to the inside of the bag at the side opposite the one carrying the flap, a bottom pocket extending the width of the bag-body, at the bottom thereof, and an envelop containing a disinfectant and held within the said bottom pocket.

11. A mothproof bag comprising a bag-body having one side provided with a closing-flap at its mouth, a garment-support attached to the inside of the bag at the side opposite the one carrying the flap, pockets spaced on and secured to the inner faces of the sides of the said bag-body, envelops containing a disinfectant and held within the said pockets, a bottom pocket extending the width of the bag-body at the bottom thereof, and an envelop containing a disinfectant and held within the said bottom pocket.

12. A mothproof bag, comprising a bag-body provided with a closing-flap at its mouth, a garment-support within the bag, provided with means for locking the transverse portion of the flap in place, and means for securing the free end of the flap to a side of the bag.

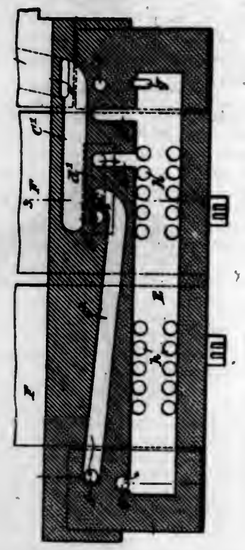
785,508. **GRAIN-SEPARATING DEVICE.** SAMUEL J. MASON, Lincoln, Nebr. Filed Nov. 7, 1904. Serial No. 231,766.



Claim.—The combination in a threshing-machine, of a grain-separating chamber having its bottom inclined downwardly and provided at its lower end with a chute to catch the cleaned grain, a chute-board located above and parallel with said bottom, a casing and a fan therein also located at the lower end of the bottom, said casing having its mouth directed into the chamber, and terminating short of the adjacent end of the chute-board, forming a space leading to the chamber, the said fan delivering a blast of air through the chamber, and rotatable cleaning devices for the grain, mounted within the chamber before said space, comprising a plurality of plates having edges intersecting each other in angles which just clear the edges of the space.

785,509. **COMPENSATING DEVICE.** HERMANN MEYER, New York, N. Y. Filed Dec. 1, 1904. Serial No. 235,043.

Claim.—1. An instrument of the class described provided with a manually-controlled valve having separate connections with the main suction-chamber, one of the connections being direct, and a compensating device in the other connection.



2. An instrument of the class described, provided with a wind-chest, a main suction-chamber, a manually-controlled valve having separate connections with the main suction-chamber for controlling the passage of air from the wind-chest to the main suction-chamber, one of the connections leading directly to the main suction-chamber, and a compensating device in the other connection.

3. An instrument of the class described, provided with a wind-chest, a main suction-chamber, a manually-controlled valve having separate connections with the main suction-chamber for controlling the passage of air from the wind-chest to the main suction-chamber, one of the connections leading directly to the main suction-chamber, a compensating device in the other connection, comprising a pneumatic, and a valve for controlling the passage of the air from the compensating device to the main suction-chamber.

4. An instrument of the class described, provided with a wind-chest, a main suction-chamber, a manually-controlled valve having separate connections with the main suction-chamber for controlling the passage of air from the wind-chest to the main suction-chamber, one of the connections leading directly to the main suction-chamber, and a compensating device in the other connection, the said compensating device comprising a pneumatic, a leaf-spring for holding the pneumatic open and a valve on the said leaf-spring for controlling the passage of air from the pneumatic to the said main suction-chamber.

5. An instrument of the class described, provided with a wind-chest, a main suction-chamber, a manually-controlled valve having separate connections with the main suction-chamber for controlling the passage of air from the wind-chest to the main suction-chamber, one of the connections leading directly to the main suction-chamber, a compensating device in the other connection, the said compensating device comprising a pneumatic, a leaf-spring for holding the pneumatic open and a valve on the said leaf-spring for controlling the passage of air from the pneumatic to the said main suction-chamber, and means for adjusting the tension of the said leaf-spring.

6. An instrument of the class described, provided with a wind-chest, a main suction-chamber, a manually-controlled valve having separate connections with the main suction-chamber for controlling the passage of air from the wind-chest to the main suction-chamber, one of the connections leading directly to the main suction-chamber, and a compensating device in the other connection, the said compensating device comprising a pneumatic, a leaf-spring within the said pneumatic and interposed between the fixed and movable parts thereof and a valve secured on the said leaf-spring and controlling the passage of the air from the pneumatic to the said main suction-chamber.

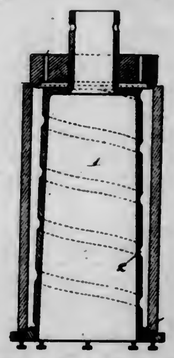
7. An instrument of the class described, provided with a main suction-chamber, a compensating device connected with the suction-chamber, a wind-chest having a suction-duct, a valve-chamber connected with the said duct and provided with spaced ports, one for connection with the said suction-chamber and the other for connection with the said compensating device, and a slide-valve in the said chamber, controlling the said ports, the slide-valve having a recess for connection with the port leading to the main suction-chamber.

8. An instrument of the class described, provided with a main suction-chamber, a compensating device connected with the suction-chamber, a wind-chest having a suction-duct, a valve-chamber connected with the said duct and provided with spaced ports, one for connection with the said suction-chamber and the other for connection with the said compensating device, and a slide-valve in the said chamber, controlling the said ports, the slide-valve having a recess for connection with the port leading to the main suction-chamber, the said recess increasing gradually in depth and in width.

9. An instrument of the class described, provided with a main suction-chamber, a compensating device connected with the suction-chamber, a wind-chest having a suction-duct, a valve-chamber connected with the said duct and provided with spaced ports, one for connection with the said suction-chamber and the other for connection with the said compensating device, the ports being connected with each other by a leak-groove, and a slide-valve in the said chamber, controlling the said ports, the slide-valve having a recess for connection with the port leading to the main suction-chamber.

10. An instrument of the class described, provided with a main suction-chamber, a compensating device provided with a pneumatic having a leaf-spring carrying a valve controlling a port connected with the suction-chamber, a wind-chest having a suction-duct, a valve-chamber connected with the said duct and provided with spaced ports, one for connection with the said suction-chamber and the other for connection with the said compensating device, and a slide-valve in the said chamber, controlling the said ports, the slide-valve having a recess for connection with the port leading to the main suction-chamber.

785,510. **MOLD FOR DUPLICATE PHONOGRAPH-RECORDS.** WALTER H. MILLER, Orange, and ALEXANDER N. PIERMAN, Newark, N. J., assignors, by mesne assignments, to New Jersey Patent Company, West Orange, N. J., a Corporation of New Jersey. Filed Feb. 26, 1903. Serial No. 145,189.



Claim.—1. In apparatus of the character described, the combination with a cylindrical one-piece metal mold, of a core within the same having a tapered shoulder upon which one edge of the mold rests, loosely engaging the same, substantially as set forth.

2. In apparatus of the character described, the combination with a cylindrical one-piece metal mold, of a core within the same having a tapered shoulder upon which the inner edge of the mold rests, loosely engaging the same, substantially as set forth.

3. In apparatus of the character described, the combination with a cylindrical mold, of a core within the same having a tapered shoulder with which one edge of the mold engages, and a heading-disk carried by the core having an inclined shoulder for engaging an opposite edge of the mold, substantially as set forth

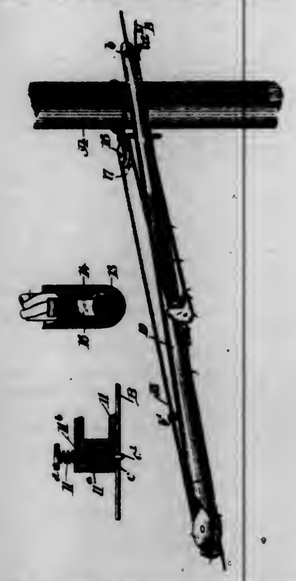
4. In apparatus of the character described, the combination with a cylindrical mold, of a core within the same having a tapered shoulder with which one of the inner edges of the mold engages, and a heading-disk carried by the core having an inclined shoulder

for engaging the opposite inner edge of the mold, substantially as set forth.

5. In apparatus of the character described, the combination with a cylindrical mold, of a core having an inclined shoulder with which one of the edges of the mold engages, and a series of pins for moving the mold longitudinally with respect to the core, substantially as set forth.

6. In apparatus of the character described, the combination with a cylindrical mold, of a core having an inclined shoulder with which one of the edges of the mold engages, a series of pins for moving the mold longitudinally with respect to the core, and a heading-disk carried by the core having an inclined shoulder for engaging an opposite edge of the mold, substantially as set forth.

785,511. **WIRE-STRETCHING DEVICE.** WILLIAM D. MILLER, Saco, Mont. Filed Dec. 20, 1904. Serial No. 237,643.



Claim.—1. A wire-stretcher comprising three bracket-frames, a pulley held to rotate on each bracket-frame, a spar on one end of which is mounted one of said bracket-frames, and a rope engaging the pulley on each bracket-frame, one end of the rope being secured upon one bracket-frame.

2. A wire-stretcher, comprising three bracket-frames, a pulley held to rotate on each bracket-frame, a spar on one end of which is mounted one of the bracket-frames, a clamping device on the other end of the spar, and a rope engaging the pulleys on the bracket-frames, one end of said rope being secured upon an end of one bracket-frame.

3. A wire-stretcher comprising three bracket-frames, each frame supporting a grooved pulley pivoted thereon, an ear on one bracket-frame carrying a support for the wire to be stretched, a spar on one end of which the bracket-frame having the ear is mounted, a clamping device on the other end of the spar, and a rope engaging the pulleys on the bracket-frames, said rope being secured by one end upon an end of one bracket-frame.

4. A fence-wire stretcher comprising a spar, a pulley held to rotate on one end of the spar, a pulley held to rotate on a fence-post, a stretcher-rope, a pulley held to rotate on one end of the rope, the main portion of said rope passing first around the pulley on the end of the spar, thence passing around the pulley on the post and thence to and around the pulley on the end of the rope, and means for connecting the end of a wire to be stretched with the opposite end of the spar.

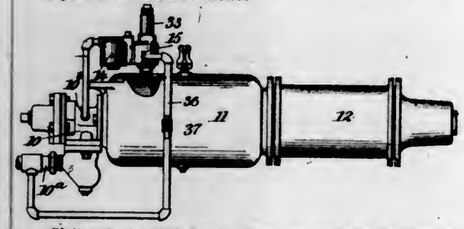
5. A fence-wire stretcher comprising a spar, a bracket-frame carrying a pulley and mounted upon one end of the spar, a wire-supporting hook-bar carried at the end of said bracket-frame, a bracket-supported pulley mounted upon a fence-post, a stretcher-rope, a bracket-frame supporting a pulley and secured on one end of the rope, a spring-pressed dog mounted on said bracket-frame for engaging the rope, the main portion of said rope passing first around the pulley on the spar, thence passing around the pulley on the post, and thence to and around the pulley on the end of the rope, and a clamping device on the opposite end of the spar for engaging the wire to be stretched.

785,512. **BRIDLE-BIT.** THOMAS MILLIGAN, Fortuna, Cal. Filed May 11, 1904. Serial No. 207,389.



Claim.—A bit, guard-plates on the end of the bit and integral therewith, a rigid metal nose-piece above the bit and integral with said guard-plates, and ring members integral with the guard-plates above their connections with the nose-piece, the relation between the bit and nose-piece being such that when the device is drawn upon to force the nose-piece against an animal's nose, the bit will serve as a fulcrum by engaging the roof of the animal's mouth.

785,513. **AIR-BRAKE.** HEZEKIAH MINNICK, Laredo, Tex. Filed Sept. 9, 1904. Serial No. 223,864.



Claim.—1. An air-brake attachment comprising two communicating casings, one casing having atmospheric communication, a communication adapted to be connected to a triple exhaust, a valve controlling said communication, a diaphragm in said casing for actuating the valve, a port connecting said triple-exhaust communication with the other casing, a yieldingly-seated valve controlling said port, the second or other casing having communications adapted respectively to connect with the auxiliary reservoir and train-line, a valve controlling the auxiliary-reservoir connection, a spring-actuated member tending to seat said valve, and a diaphragm connected with the spring-actuated member to move the same in inactive position.

2. An air-brake attachment comprising two communicating casings, one casing having atmospheric communication, a communication adapted to be connected to a triple exhaust, a valve controlling said communication, a diaphragm in said casing for actuating the valve, a port connecting said triple-exhaust communication with the other casing, a yieldingly-seated valve controlling said port, the second or other casing having communications adapted respectively to connect with the auxiliary-reservoir connection, a sprung-actuated member tending to seat said valve, and a diaphragm connected with the spring-actuated member to move the same in inactive position, said train-line communications having a port leading to the atmosphere, a valve commanding the same, means tending yieldingly to seat the valve, and a connection between the valve and the said spring-actuated member of the second casing whereby to open the valve.

3. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for holding said valve yieldingly to its seat, said valve opening by a certain pressure within the auxiliary reservoir, and means for automatically controlling a vent to the atmosphere communicating with the triple exhaust.

4. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservior and the triple exhaust, a valve commanding said communication and opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for holding said valve yieldingly to its seat, said valve opening by a certain pressure within the auxiliary reservoir, and means for automatically controlling a vent to the atmosphere communicating with the triple exhaust, the last-named means being actuated by the fluid-pressure in said communication between the auxiliary reservoir and the triple exhaust.

5. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for holding said valve yieldingly to its seat, said valve opening by a certain pressure within the auxiliary reservoir, means for automatically controlling a vent to the atmosphere communicating with the triple exhaust, and means for exhausting the pressure from the said communication at a point between the valve and the triple exhaust.

6. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for holding said valve yieldingly to its seat, said valve opening by a certain pressure within the auxiliary reservoir, means for automatically controlling a vent to the atmosphere communicating with the triple exhaust, and a second valve connected with the first-named valve and controlling an atmospheric vent from the said communication between the auxiliary reservoir and the triple exhaust.

7. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for holding said valve yieldingly to its seat, said valve opening by a certain pressure within the auxiliary reservoir, means for automatically controlling a vent to the atmosphere communicating with the triple exhaust, and means establishing communication between the train-line and the said communication between the auxiliary reservoir and the triple exhaust at a point between the said valve and the triple exhaust.

8. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for holding said valve yieldingly to its seat, said valve opening by a certain pressure within the auxiliary reservoir, means for automatically controlling a vent to the atmosphere communicating with the triple exhaust, means establishing communication between the train-line and the said communication between the auxiliary reservoir and the triple exhaust at a point between the said valve and the triple exhaust, and a second valve controlling an atmospheric vent from the said communication between the auxiliary reservoir and the triple exhaust at a point between the first-named valve and the triple exhaust, the second-named valve having connection with the first valve for the purpose specified.

9. A recharging mechanism for automatic air-brake systems, comprising means establishing communication between the auxiliary reservoir and triple exhaust, a valve controlling said communication and opening to admit pressure from the reservoir to the exhaust, means for yieldingly seating said valve, the valve opening by the force of a predetermined pressure in the auxiliary reservoir, a valve controlling the vent to the atmosphere from the triple exhaust, and means for actuating the valve by the fluid-pressure in said communication between the auxiliary reservoir and the triple exhaust at a point between the first-named valve and the triple exhaust.

10. A recharging mechanism for automatic air-brake systems, comprising means establishing communication between the auxiliary reservoir and triple exhaust, a valve controlling said communication and opening to admit pressure from the reservoir to the exhaust, means for yieldingly seating said valve, the valve opening by the force of a predetermined pressure in the auxiliary reservoir, a valve controlling the vent to the atmosphere from the triple exhaust, means for actuating the valve by the fluid-pressure in said communication between the auxiliary reservoir and the triple exhaust at a point between the first-named valve and the triple exhaust, and means for exhausting the pressure from said communication at a point between the two valves, and means for automatically controlling an atmospheric vent from the triple exhaust.

11. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication, the valve opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for yieldingly seating the valve, the valve opening automatically when a predetermined pressure has been introduced into the auxiliary reservoir, and means for exhausting the pressure from said communication at a point between the said valve and triple exhaust.

12. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication, the valve opening to admit pressure from the auxiliary reservoir to the triple exhaust, means for yieldingly seating the valve, the valve opening automatically when a predetermined pressure has been introduced into the auxiliary reservoir, means for exhausting the pressure from said communication at a point between the said valve and triple exhaust, and a check-valve introduced in the said communication at a point between the said exhausting means and the triple exhaust, the check-valve seating to prevent backflow from the triple exhaust toward the said exhausting means.

13. A recharging mechanism for automatic air-brake systems, comprising means establishing communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to permit fluid-pressure to pass from the auxiliary reservoir to the triple exhaust, means for yieldingly seating said valve, the valve opening automatically when a predetermined pressure has been introduced into the auxiliary reservoir, a check-valve located in said communication between the first-named valve and the triple exhaust and seating against the flow from the triple exhaust to the first-named valve, means for exhausting the pressure from the said communication at a point between the two valves, and means for automatically controlling an atmospheric vent from the triple exhaust.

14. A recharging mechanism for automatic air-brake systems, comprising means establishing communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to permit fluid-pressure to pass from the auxiliary reservoir to the triple exhaust, means for yieldingly seating said valve, the valve opening automatically when a predetermined pressure has been introduced into the auxiliary reservoir, a check-valve located in said communication between the first-named valve and the triple exhaust and seating against the flow from the triple exhaust to the first-named valve, means for exhausting the pressure from the said communication at a point between the two valves, and means for automatically controlling an atmospheric vent from the triple exhaust, the last-named means being actuated by the fluid-pressure in the said communication at a point between the two valves therein.

15. A recharging mechanism for automatic air-brake systems, comprising means establishing communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to permit fluid-pressure to pass from the auxiliary reservoir to the triple exhaust, means for yieldingly seating said valve, the valves opening automatically when a predetermined pressure has been introduced into the auxiliary reservoir, a check-valve located in said communication between the first-named valve and the triple exhaust and seating against the flow from the triple exhaust to the first-named valve, means for exhausting the pressure from the said communication at a point between the two valves, and means for automatically controlling an atmospheric vent from the triple exhaust, the said means for exhausting the pressure in the communication between the two valves including a connection between said communication and the train-line.

16. A recharging mechanism for automatic air-brake systems, comprising means establishing communication between the auxiliary reservoir and the triple exhaust, a valve commanding said communication and opening to permit fluid-pressure to pass from the auxiliary reservoir to the triple exhaust, means for yieldingly seating said valve, the valve opening automatically when a predetermined pressure has been introduced into the auxiliary reservoir, a check-valve located in said communication between the first-named valve and the triple exhaust and seating against the flow from the triple exhaust to the first-named valve, means for exhausting the pressure

from the said communication at a point between the two valves, and means for automatically controlling an atmospheric vent from the triple exhaust, the said means for exhausting the pressure in the communication between the two valves thereof comprising a connection between said communication and the train-line, a valve commanding an atmospheric vent and a connection between the last-named and first-named valves for the purpose specified.

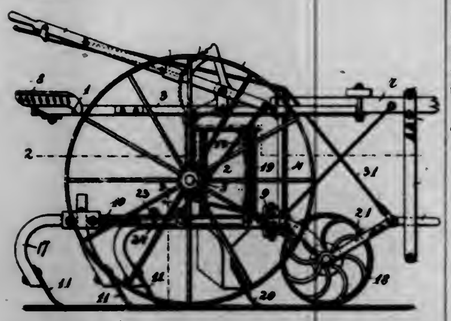
17. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve controlling said means, means for yieldingly seating the valve, the valve opening under the action of a predetermined pressure in the auxiliary reservoir to admit pressure from the reservoir to the triple exhaust, a check-valve located in said communication between the first-named valve and the triple exhaust and seating against the flow from the triple exhaust, means for exhausting the pressure in the said communication between the two valves, and means commanding an atmospheric vent from the triple exhaust.

18. A recharging mechanism for automatic air-brake systems, comprising means establishing a communication between the auxiliary reservoir and the triple exhaust, a valve controlling said means, means for yieldingly seating the valve, the valve opening under the action of a predetermined pressure in the auxiliary reservoir to admit pressure from the reservoir to the triple exhaust, a check-valve located in said communication between the first-named valve and the triple exhaust and seating against the flow from the triple exhaust, means for exhausting the pressure in the said communication between the two valves, and means commanding an atmospheric vent from the triple exhaust, said means being operative by fluid-pressure, and communicating with the said communication between the auxiliary reservoir and the triple exhaust at a point between the two valves in said communication.

19. An air-brake attachment comprising a casing having a passage therethrough, also having two vents communicating with said passage, a valve commanding the passage and located intermediate the vents, a valve commanding each vent, a diaphragm adapted to actuate one vent-valve, a second valve commanding the said passage, a spring pressing the second valve to its seat, and a connection between the said valve and the valve of the second or remaining vent.

785,514. PLANTER ATTACHMENT FOR CULTIVATORS.

WADE H. MITCHELL, Rugby, Tex. Filed June 27, 1904. Serial No. 214,405.

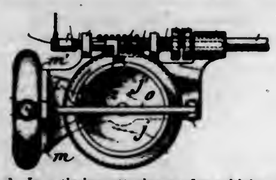


Claim.—1. In a combined cultivator and planter, the combination of a guide-arm depending from the draft-tongue of the cultivator, said guide-arm consisting of spaced bars, a planter-frame supported upon the cultivator-frame and provided with a guide-bar projecting between the spaced bars of the guide-arm, said guide-bar being free to move vertically between said spaced bars but held in alinement therewith, and means for raising the planter-frame, substantially as described.

2. In a combined riding cultivator and planter, the combination of a pair of spaced bars depending from the draft-tongue of the cultivator-frame, a planter-frame mounted upon the cultivator-frame, a guide-wheel in front of the planter, a yoke extending forward from the axle of said wheel, a guide-bar secured to said yoke and extending between the spaced bars to form a guide to hold the planter-frame in alinement with the cultivator-frame, and to permit a free vertical movement of the planter-frame, with respect to the cultivator-frame, substantially as described.

785,515. SPEED-TIMING ATTACHMENT FOR BICYCLES, &c.

ALDEN L. MCMURTRY, New York, N. Y. Filed June 8, 1904. Serial No. 211,686.



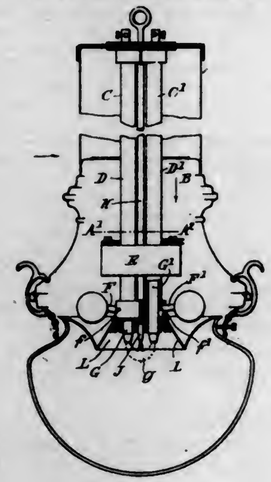
Claim.—1. In a timing attachment for vehicles, the combination of a part adapted to be driven relatively to the speed of the vehicle, a part actuated thereby at the will of the rider, means controlled by the second-named part acting to automatically start a stop-watch and automatically stop it after the vehicle has traveled a determined distance, and means automatically acting to throw the second-named part out of operation when the watch has been stopped.

2. In a timing attachment for vehicles, the combination of a part adapted to be driven relatively to the speed of the vehicle, a part actuated thereby at will of the rider, means controlled by the second-named part acting to automatically reset and start a stop-watch and automatically stop it after the vehicle has traveled a determined distance, and means automatically acting to throw the second-named part out of operation when the watch has been stopped.

3. A timing attachment for vehicles, comprising the combination of a shaft adapted to be rotated relatively to the speed of the vehicle, a member of a normally open clutch carried thereby, a part carrying the second member of the clutch, a rotatable member geared to said part, a spring normally tending to close the clutch, means acting to hold the clutch open when the rotatable member has been driven into normal position, a device under the control of the driver by which said means may be thrown out of action to permit the closing of the clutch, and means controlled by the rotatable member during its return to normal position acting to start a stop-watch and stop it after the vehicle has traversed a determined distance.

4. A timing attachment for vehicles, comprising the combination of a shaft adapted to be rotated relatively to the speed of the vehicle, a member of a normally open clutch carried thereby, a part carrying the second member of the clutch, a rotatable member geared to said part, a spring normally tending to close the clutch, means acting to hold the clutch open when the rotatable member has been driven into normal position, a device under the control of the driver by which said means may be thrown out of action to permit the closing of the clutch, and means controlled by the rotatable member during its return to normal position acting to reset and start a stop-watch and stop it after the vehicle has traversed a determined distance.

785,516. ELECTRIC-ARC LAMP. CHARLES OLIVER, Woolwich, England. Filed Feb. 29, 1904. Serial No. 195,913.



Claim.—1. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of fusible material, means to afford escape of that part of the fusible material which has been sufficiently acted on by the heat from the arc, means which will prevent downward movement of said fusible rod while the latter is in the rigid state, means to cause descent of the electrodes, a connection between the rigid material and the means to cause descent of the electrodes so that such descent is governed by said rigid material, guides for the electrodes, means to normally prevent the electrodes dropping out of their guides, contact-making devices to normally bear against the electrodes and convey current to the latter near their burning-points, and a guide to support the fusible material throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

2. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of glass, means to afford escape of that part of the glass rod which has been sufficiently acted on by the heat from the arc, means which will prevent downward movement of said glass rod while the latter is in a rigid state, a weight to cause descent of the electrodes, a connection between the glass rod and the weight so that such descent is governed by said glass rod, guide-tubes for the electrodes, means to normally prevent the electrodes dropping out of their guide-tubes, contact-making devices to normally bear against the electrodes and convey current to the latter near their burning-points, and a guide-tube to support the glass rod throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

3. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of fusible material, means to afford escape of that part of the fusible material which has been sufficiently acted on by the heat from the arc, means which will prevent downward movement of said fusible rod while the latter is in the rigid state, means to cause descent of the electrodes, a connection between the rigid material and the means to cause descent of the electrodes so that such descent is governed by said rigid material, guides for the electrodes, means to normally prevent the electrodes dropping out of their guides, and a guide to support the fusible material throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

4. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of glass, means to afford escape of that part of the glass rod which has been sufficiently acted on by the heat from the arc, means which will prevent downward movement of said glass rod while the latter is in a rigid state, a weight to cause descent of the electrodes, a connection between the glass rod and the weight so that such descent is governed by said glass rod, guide-tubes for the electrodes, means to normally prevent the electrodes dropping out of their guide-tubes, and a guide-tube to support the glass rod throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

5. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of fusible material, means to afford escape of that part of the fusible material which has been sufficiently acted on by the heat from the arc, a stop such as J comprising a metal tube sleeve or socket having means at the top thereof for attaching same to the lamp and provided at its lower end with a bent tongue or extension such as j' which interposes in the path of travel of the fusible rod such as K through the tubular part of said stop, means to cause descent of the electrodes, a connection between the rigid material and the means to cause descent of the electrodes so that such descent is governed by said rigid material, guides for the electrodes, means to normally prevent the electrodes dropping out of their guides, contact-making devices to normally bear against the electrodes and convey current to the latter near their burning-points, and a guide to support the fusible material throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

6. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of glass, means to afford escape of that part of the glass rod which has been sufficiently acted on by the heat from the arc, a stop such as J comprising a metal tube sleeve or socket having means at the top thereof for attaching same to the lamp and provided at its lower end with a bent tongue or extension such as j' which interposes in the path of travel of the fusible rod such as K through the tubular part of said stop, a weight to cause descent of the electrodes, a connection between the glass rod and the weight so that such descent is governed by said glass rod, guide-tubes for the electrodes, means to normally prevent the electrodes dropping out of their guide-tubes, contact-making devices to normally bear against the electrodes and convey current to the latter near their burning-points, and a guide-tube to support the glass rod throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

7. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of fusible material, means to afford escape of that part of the fusible material which has been sufficiently acted on by the heat from the arc, a stop such as J comprising a metal tube sleeve or socket having means at the top thereof for attaching same to the lamp and provided at its lower end with a bent tongue or extension such as j' which interposes in the path of travel of the fusible rod such as K through the tubular part of said stop, means to cause descent of the electrodes, a connection between the rigid material and the means to cause descent of the electrodes so that such descent is governed by said rigid material, guides for the electrodes, means to normally prevent the electrodes dropping out of their guides, and a guide to support the fusible material throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

8. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward; the combination with such electrodes of a rigid rod of glass, means to afford escape of that part of the glass rod which has been sufficiently acted on by the heat from the arc, a stop such as J comprising a metal tube sleeve or socket having means at the top thereof for attaching same to the lamp and provided at its lower end with a bent tongue or extension such as j' which interposes in the path of travel of the fusible rod such as K through the tubular part of said stop, a weight to cause descent of the electrodes, a connection between the glass rod and the weight so that such descent is governed by said glass rod, guide-tubes for the electrodes, means to normally prevent the electrodes dropping out of their guide-tubes, and a guide-tube to support the glass rod throughout its length in order to prevent buckling or breakage thereof, substantially as and for the purposes hereinbefore set forth.

9. In an electric-arc lamp wherein the electrodes are arranged with their burning-points directed downward the combination therewith of a stop such as J comprising a metal tube sleeve or socket having means at the top thereof for attaching same to the lamp and provided at its lower end with a bent tongue or extension such as j' which interposes in the path of travel of the fusible rod such as K through the tubular part of said stop, substantially in the manner and for the purposes hereinbefore described with reference to and as illustrated in the drawings hereunto annexed particularly Figs. 4, 4^a and 5.

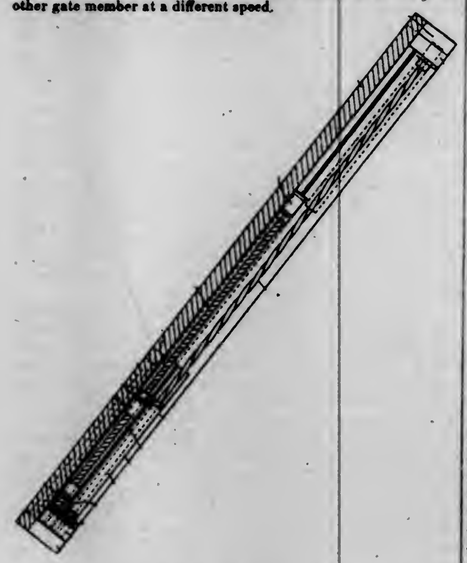
785,517. GATE FOR ELEVATOR-SHAFTS. WILLIAM H. PARTH and CHARLES PHERSICH, Chicago, Ill. Filed July 5, 1904. Serial No. 215,370.

Claim.—1. A gate for elevator-shafts comprising a plurality of members having a combined width substantially equal to the width of the passage to be controlled thereby, a plurality of differential horizontally-disposed parallel screw-shafts geared together and adapted to support said members, and a sleeve on each of said members provided internally with devices for engaging the threads of the shaft supporting said member, said screw-shaft being actuated by the movements of one of the members supported thereby

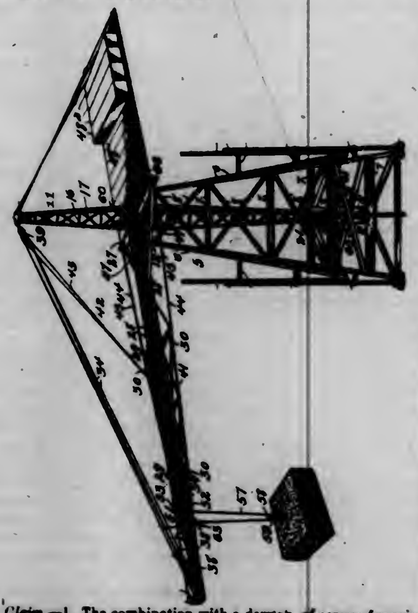
2. A gate for elevator-shafts comprising a plurality of gate members, the combined width of which is substantially equal to the width of the opening controlled thereby, said gate members being disposed parallel with each other, a pair of sleeves mounted on the upper ends of said gate members, a horizontally-disposed revoluble screw-shaft passing through the sleeve of each member and supported at its ends in bearings in the gate-frame, gearing between said screw-shafts for transmitting motion from one to the remainder of the same, and devices in the sleeve of each gate member for engaging the threads of the screw-shafts, said screw-shafts having relatively differential threads and being actuated by the movements of one of said gate members to impart movement at different speed to the remainder thereof.

3. The combination with a gate-frame for elevator-shafts having an opening greater than half its width, of two parallel sliding gate members having a combined width substantially equal to the

width of said opening and adapted to control the same, sleeves mounted upon the upper ends of said gate members, parallel horizontally-disposed screw-shafts passing through said sleeves and journaled at their ends in bearings in the said gate-frame, devices in said sleeves of each gate member engaging the threads of said screw-shafts for gearing said gates thereto, and gearing between said screw-shafts, said shafts and said gearing being relatively so arranged that when one of said shafts is actuated by the movements of one of said gate members, the other of said shafts will transmit the motion to the other gate member at a different speed.



785,518. DERRICK. JAMES L. PARSONS, Washington, D. C. Filed Oct. 24, 1904. Serial No. 229,696.



Claim.—1. The combination with a derrick, of screws for raising and lowering said derrick and braces between said screws, one end of said braces being secured to one of said screws and the other end of said braces being secured to another of said screws.

2. In a derrick, the combination with a tower of a mast mounted for rotation in said tower, a boom carried by said mast, a reciprocatory traveler mounted on said boom, a weighted platform, supports extending from the top of the mast to said boom and weighted platform, and means for raising and lowering the entire structure.

3. In a derrick, the combination with a supporting frame or tower of a mast comprising a plurality of standards, a web or plate extending diagonally between two of said standards, and means for binding all of said standards together.

4. In a derrick, the combination with a supporting frame or tower of a skeleton mast having a longitudinal web extending therethrough, a beam carried by said web, members comprising a boom attached to said beam, and a load-carrying traveler mounted upon said boom.

5. In a derrick, the combination with a hollow mast having a web passing longitudinally therethrough of sheaves mounted upon said web, a load-line passing over one of said sheaves, and a traveler-line passing over the other of said sheaves.

6. In a derrick, the combination with a frame or tower of a mast mounted in said tower, a bearing-block having an annular rib, and a cap carried by the mast and having an annular groove with which the said annular rib of the bearing-block engages.

7. In a derrick the combination with a tower of screws threaded into said tower and plates loosely carried by said screws.

8. In a derrick the combination with a tower of jack-screws threaded into said tower and braces adapted to be secured to said jack-screws.

9. In a derrick the combination with a tower of jack-screws threaded into said tower braces adapted to be secured to said jack-screws and plates loosely carried by said screws.

10. In a derrick, the combination, with a skeleton supporting-tower, of a skeleton mast mounted for rotation in said tower, a boom carried by said mast, a weighted platform also carried by said mast and counterbalancing said boom, diagonal and transverse braces for bracing said boom laterally, a load-carrying traveler mounted upon said boom, traveler and load lines passing longitudinally through said skeleton mast to said traveler, braces extending from the top of the mast to the outer ends of the boom and the weighted platform and means for adjusting the tension of said braces.

11. In a derrick, the combination, with a skeleton supporting-tower, comprising corner-standards, diagonal braces and horizontal braces; of a pair of I-beams extending transversely of said tower and borne by the horizontal braces of the tower, a bearing-block carried by said I-beams, a skeleton mast having its bearing in said bearing-block and in the upper portion of said tower, a boom carried by said mast and a weighted platform also carried by said mast and counterbalancing said boom.

12. In a derrick, the combination with a skeleton supporting-tower, of a skeleton mast rotatively mounted in said tower, a substantially horizontal boom carried by said mast, a weighted platform shorter than said boom also carried by the mast and counterbalancing said boom and jack-screws threaded into the corners of the tower.

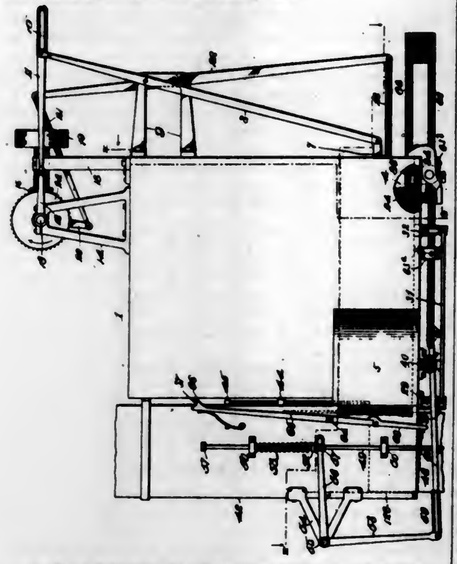
13. In a derrick, the combination with a skeleton supporting-tower, of an angular skeleton mast having its bearings entirely within said tower, means for preventing lifting of said mast, a boom carried by said mast, a weighted platform for counterbalancing said boom, means for supporting the outer ends of said boom and said weighted platform from the top of said mast, sheaves carried by said mast, a load-carrying traveler mounted upon said boom, load and traveler lines passing from said traveler over the sheaves carried by the mast and thence longitudinally through said mast to a source of power.

785,519. FORCE-FEED STACKER. ROBERT C. REDPATH, Johnson county, Kans. Filed May 27, 1902. Serial No. 109,340.

Claim.—1. The combination of a baling-case having a feed-opening, a hopper, a primary plunger therein, a feed-plunger therein and adapted to form a wall for the material condensed by the primary plunger, and to force the condensed material into the baling-case through the feed-opening, and a secondary plunger in the baling-case.

2. The combination of a baling-case having a feed-opening, a secondary plunger therein, a hopper, an oscillatory feed-plunger to force the condensed material into the baling-case, and a primary plunger to condense the material in the hopper that is forced into the baling-case by the feed-plunger.

3. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, means to lock the feed-plunger in such position during the greater portion of the advance stroke of the secondary plunger, a primary plunger to condense material in the hopper, and means to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case.



4. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, means to lock the feed-plunger in such position during the greater portion of the advance stroke of the secondary plunger, a primary plunger to condense material in the hopper, means to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case, means movable with the secondary plunger to release the feed-plunger in the advance of the former, and means whereby the withdrawal of the secondary plunger shall effect the release of the primary plunger.

5. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, a spring-pressed dog to lock the feed-plunger in such position during the greater portion of the advance movement of the secondary plunger, a primary plunger to condense material in the hopper, and a spring-pressed dog to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case.

6. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, a spring-pressed dog to lock the feed-plunger in such position during the greater portion of the advance movement of the secondary plunger, a primary plunger to condense material in the hopper, a spring-pressed dog to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case, means advanced with the secondary plunger for tripping the dog holding the feed-plunger, and means actuated by the withdrawal of the secondary plunger for tripping the dog holding the primary plunger advanced.

7. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, and a lift-plunger operating in the stack and adapted to force such material upward through the same.

8. The combination of a baling-case, a plunger therein, an upright stack to receive material forced through the baling-case, a lift-plunger, and means actuated by the first-named plunger for forcing the material upward in the stack as the said first-named plunger withdraws.

9. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a lift-plunger actuated by the first-named plunger for forcing the material upward in the stack as the said first-named plunger withdraws, and means for depressing the lift-plunger as the baling-case plunger advances.

10. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, and means for forcing upward the material in the stack as such withdrawal action takes place.

11. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, and means, during the withdrawal of the baling-case plunger, for simultaneously lifting the material in the stack and effecting the displacement of the cut-off so as to leave open, communication between the baling-case and stack.

12. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, means, during the withdrawal of the baling-case plunger, for simultaneously lifting the material in the stack and effecting the displacement of the cut-off so as to leave open, communication between the baling-case and stack, and means for holding the cut-off in its inoperative position during the next advance of the baling-case plunger.

13. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, means, during the withdrawal of the baling-case plunger, for simultaneously lifting the material in the stack and effecting the displacement of the cut-off so as to leave open, communication between the baling-case and stack, means for holding the cut-off in its inoperative position during the next advance of the baling-case plunger, and means actuated by the first part of the plunger-withdrawal movement, for tripping the cut-off and causing it to again close communication between the baling-case and stack.

14. The combination with a baling-case, a reciprocating plunger therein, a stack to receive the material from the baling-case, a reciprocating plunger in the stack, connections whereby the advance of the baling-case plunger is accompanied by the descent of the stack-plunger, and the withdrawal of the baling-case plunger by the ascent of the stack-plunger, a cut-off between the baling-case and stack, which is displaced by the ascending plunger, a trigger to drop and hold the cut-off displaced until the next charge is forced from the baling-case into the stack, and means actuated by the initial part of the baling-case-plunger-withdrawal movement, for tripping said trigger and restoring the cut-off to its operative position preliminary to the succeeding ascent of the stack-plunger.

15. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, and a mechanical conveyer extending through the telescopic stack portion.

16. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a mechanical conveyer extending through the telescopic stack portion, and means for varying the length of the telescopic stack portion.

17. In a machine of the character described, an upright stack, a stack portion communicating with and extending at an angle from the upright stack, means for oscillating the stack portion communicating with the upright stack, means for varying its angle to the upright stack, to raise or lower its discharge end, and a mechanical conveyer extending through the oscillating stack portion.

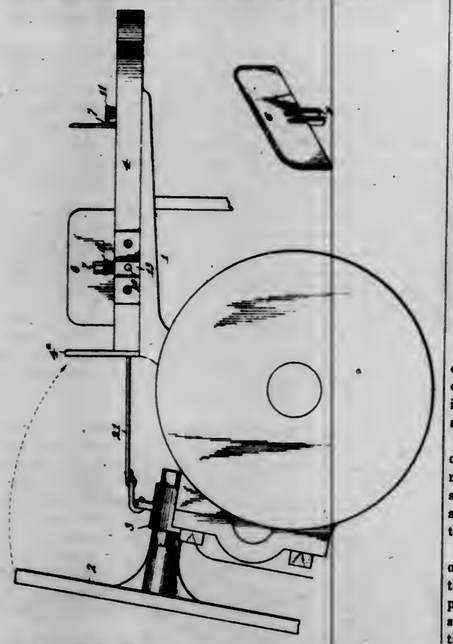
18. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a bar or boom overlying the telescopic stack, provided with a track, a roller carried by the sliding portion of the telescopic stack and engaging said track, means for adjusting the sliding portion of the stack so as to increase or decrease

the length of the latter, and a mechanical conveyer extending through said telescopic portion of the stack.

19. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a bar or boom overlying the telescopic stack, provided with a track, a roller carried by the sliding portion of the telescopic stack and engaging said track, means for adjusting the sliding portion of the stack so as to increase or decrease its length, and a mechanical conveyer supported from the bar or boom and extending through the telescopic portion of the stack.

20. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a bar or boom overlying the telescopic stack, provided with a track, a roller carried by the sliding portion of the telescopic portion of the stack and engaging said track, means for adjusting the sliding portion of the stack to increase or decrease the length of the latter, and a driven endless conveyer supported from the bar or boom and extending through the telescopic portion of the stack.

785,520. PAPER-STRAIGHTENER. FREDERICK L. REINECKER, Kansas City, Mo. Filed Feb. 9, 1904. Serial No. 192,854.



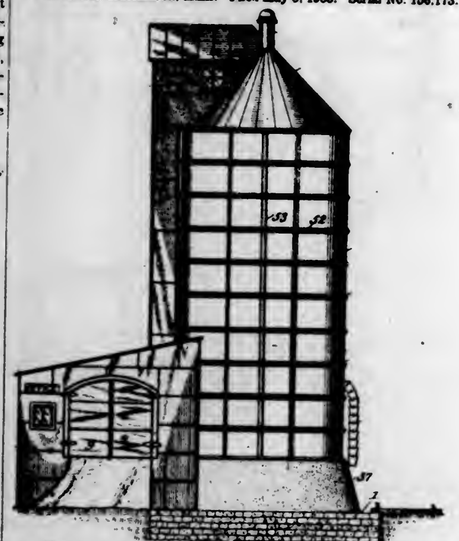
Claim.—1. A paper-straightener consisting of a table, two guides secured thereto, rods reciprocably arranged in the guides, a third rod reciprocably arranged in a slot in the table at right angles to the other two, a cross-head at the outer end of this rod, said cross-head having a base slidably engaging the table, levers for operating said rods, means for operating the levers, paddle-carriers suitably secured to the rods, and paddles suitably secured to the paddle-carriers.

2. A paper-straightener, consisting of a slotted table for receiving the paper, guides arranged transversely of the slots, rods reciprocating in the guides, levers for operating said rods, other guides for the levers, means for operating the levers, paddle-carriers adjustably secured to the rods, and paddles suitably secured to the paddle-carriers and adapted to contact with and even the paper on the table.

3. A paper-straightener consisting of a table, rods slidably supported therein, levers fulcrumed to the table and pivotally secured to the rods, guides supporting the swinging ends of said levers, an operating-lever fulcrumed to the table, means for oscillating the operating-lever, links pivotally secured at their opposite terminals to the first-mentioned levers and the operating-lever, paddle-carriers adjustably secured to the rods, and paddles detachably secured to the paddle-carriers.

4. A paper-straightener consisting of a table for receiving the paper, a straightening-strip secured to one edge of the table, rods operatively secured to the table, levers for reciprocating said rods, means for operating the levers, paddle-carriers suitably secured to the rods, paddles provided with depending arms adapted to be detachably secured to the paddle-carriers, and an apertured plate secured near one end of the table and adapted to receive one of the paddles.

785,521. STOREHOUSE FOR GRAIN OR THE LIKE. ROBERT C. ROACH, Hutchinson, Kans. Filed May 8, 1903. Serial No. 156,173.



Claim.—1. A storehouse for grain, comprising a substantially circular outer structure, and a central internal structure, a plurality of diametrically-disposed brace-rods, connecting the two structures interiorly, and strengthening-cables also connecting said structures and braces.

2. A storehouse for grain, comprising a substantially circular outer structure, and a central internal structure, a plurality of diametrically-disposed brace-rods connecting the two structures, yokes supported by said structures and braces, each carrying a pulley, and strengthening-cables passing about said pulleys in different directions between the points of support thereof.

3. A storehouse for grain, comprising a substantially circular outer structure, and a central internal structure, the space between the two structures being divided vertically by radial partitions, a plurality of diametrically-disposed brace-rods connecting the two structures, and strengthening-cables connecting said structure and the said partitions and braces, substantially as shown and described.

4. A structure for grain and similar substances, constructed of steel or the like and having its inner surface provided with an adhesive, and an applied lining of non-conducting material.

5. A storehouse for grain and like material, comprising a substantially circular outer structure consisting of curved plates, vertical strips on the outer sides of said plates and covering the vertical joints between the plates, pairs of metallic angle-strips extending vertically on the inner side of the structure and secured to the same and to the outer vertical strips, a central internal structure, vertical radial partitions extending between the central and the outer structure and each held at its outer vertical edge between the members of a pair of said angle-strips, and braces and strengthening-cables connecting the structures.

6. A storehouse for grain and like material, comprising a substantially circular outer structure, vertical angle-irons arranged in pairs and secured to the inner surface of said structure, a central internal structure, radial partitions dividing vertically the space between the two structures and each held at its outer vertical edge between the members of a pair of said angle-irons, braces connecting the structures, and strengthening-cables connecting the structures and braces, as set forth.

7. A storehouse for grain and like material, comprising a substantially circular outer structure, and a central internal structure the space between the two structures being divided vertically by radial partitions, braces connecting the structures, yokes supported by said structures and braces, a pulley carried by each yoke, and strengthening-cables passing about said pulleys, as set forth.

8. A storehouse for grain and like material comprising a substantially circular outer structure consisting of curved plates, supported one above the other edge to edge, double angle straps or bands located at the horizontal joints between the curved plates on the outer side thereof, vertical strips on the outer sides of said plates and covering the vertical joints between the plates, pairs of metallic angle-strips extending vertically on the inner side of the structure, a central internal structure, vertical partitions extending between the central and the outer structure and each held at its outer vertical edge between the members of a pair of said angle-strips, a plurality of brace-rods connecting the structures and strengthening-cables connecting the structures and braces, as set forth.

9. A storehouse for grain and similar substances, comprising an outer structure constructed of steel or the like and having a lining of non-conducting material, and a central internal structure, the space between the two structures being divided vertically by radial partitions, and brace-rods connecting the structures, as set forth.

10. A storehouse for grain and the like, comprising an outer structure, a central internal structure, pairs of angle-strips extending vertically and secured to the inner surface of the outer structure, similar pairs of angle-strips secured to the outer surface of the internal structure, vertical partitions extending between the structures and held by said angle-strips, and brace-rods and strengthening-cables connecting the two structures, as set forth.

11. A storehouse for grain and similar substances, comprising a substantially circular outer structure consisting of curved plates, vertical strips on the outer sides of said plates and covering the vertical joints between the plates, pairs of metallic angle-strips extending vertically on the inner side of the structure, waterproof material on the inner and outer surfaces of the structure between the same and the said strips, a central internal structure, vertical partitions extending in the space between the structures and held at their outer edges by said angle-strips, brace-rods connecting the two structures, and strengthening-cables connecting the said structures and the said partitions and brace-rods, as set forth.

12. In a storehouse for grain and similar substances, a substantially circular outer structure comprising curved plates, double angle-irons secured thereto at the horizontal joints between the plates, metallic bands on the inner surface of said plates at the horizontal joints, bolts extending through one of the said angle-irons and the corresponding plate and band at the upper part of the structure and each provided at its inner end with a yoke carrying a pulley, a central internal structure, brace-rods connecting the two structures interiorly, yokes supported by said braces and the internal structure and each carrying a pulley, and strengthening-cables passing about said pulleys and the pulleys on the outer structure, as set forth.

785,522. ORE AGITATOR AND FILTER. VERNER A. ROBINSON, Florence, Colo. Filed Nov. 3, 1904. Serial No. 231,292.

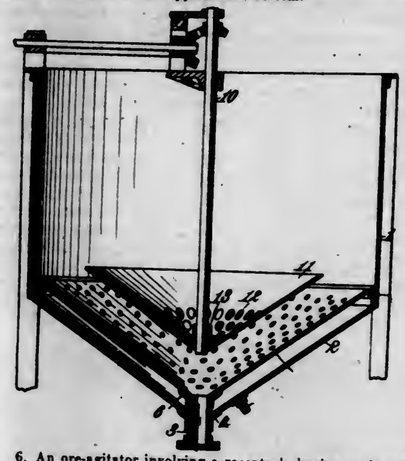
Claim.—1. An ore-agitator involving a receptacle, and an inverted-cone-shaped perforated rotatable agitator arranged within said receptacle.

2. An ore-agitator involving a receptacle having an inverted-cone-shaped bottom, an inverted-cone-shaped foraminous supplemental bottom arranged in said receptacle, and an inverted-cone-shaped perforated agitator arranged in said receptacle in operative relation with respect to said supplemental bottom.

3. An ore-agitator involving a receptacle having an inverted-cone-shaped bottom, an inverted-cone-shaped foraminous supplemental bottom arranged in said receptacle, an inverted-cone-shaped perforated agitator arranged in said receptacle in operative relation with respect to said supplemental bottom, a pipe extending and opening in said receptacle above said supplemental bottom, and said receptacle further provided with an outlet below said supplemental bottom.

4. An ore-agitator involving a receptacle, a supplemental bottom therefor, and a pair of outlets for said receptacle, one of said outlets opening into said receptacle above said supplemental bottom and the other of said outlets opening in said receptacle below said supplemental bottom; combined with an agitator arranged in said receptacle in operative relation with respect to said supplemental bottom.

5. An ore-agitator involving a receptacle, a foraminous supplemental bottom for said receptacle, a pair of outlets for said receptacle, one of said outlets opening into said receptacle above said supplemental bottom and the other of said outlets opening in said receptacle below said supplemental bottom, and a preforated agitator rotatably mounted in said receptacle and arranged in operative relation with respect to said supplemental bottom.

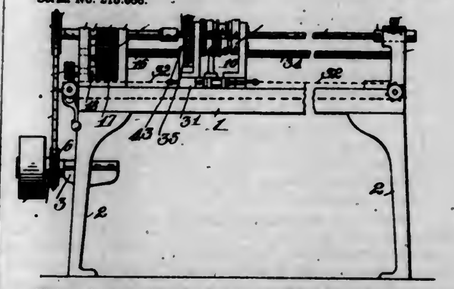


6. An ore-agitator involving a receptacle having an inverted-cone-shaped bottom provided with an outlet, an inverted-cone-shaped foraminous supplemental bottom for said receptacle secured a suitable distance above the bottom proper of said receptacle, a pipe extending through the said bottoms, means for securing said pipe to the bottom proper of said receptacle, means carried by said pipe for supporting said supplemental bottom centrally, and a perforated inverted-cone-shaped agitator suspended in said receptacle and arranged in operative relation with respect to said supplemental bottom.

7. An ore-agitator involving a receptacle having a bottom provided with an outlet, a foraminous supplemental bottom for said receptacle secured a suitable distance above the bottom proper of said receptacle, a pipe extending through said bottoms, means for securing said pipe to the bottom proper of said receptacle, means carried by said pipe for supporting said supplemental bottom centrally, and a perforated agitator suspended in said receptacle and arranged in operative relation with respect to said supplemental bottom.

8. An apparatus of the character described, comprising a receptacle having an inverted-cone-shaped bottom, and an inverted-cone-shaped and perforated agitator arranged within said receptacle.

785,523. MACHINE FOR FORMING FLEXIBLE TUBING. SALVATORE SCOGNAMILLO, New York, N. Y., assignor to Automobile Supply Manufacturing Company, Brooklyn, N. Y. Filed June 23, 1904. Serial No. 213,688.



Claim.—1. A machine for forming flexible tubing, having supporting means, a removable mandrel, a shaft arranged below the mandrel, a carriage movable longitudinally on the shaft and carrying bending and feeding devices, and mechanism for operating the several parts.

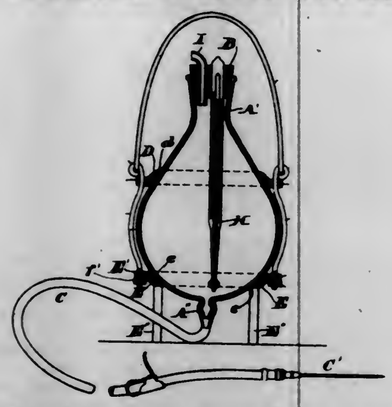
2. A machine for forming flexible tubing, having a removable mandrel, a supporting-bed, a carriage movable longitudinally of the bed, and carrying bending and feeding devices, a controlling-shaft, a rotatable element slidable on the controlling-shaft and loosely attached to the carriage and also connected to the operative parts of the latter, and means for actuating the several mechanisms.

3. A machine for forming flexible tubing, having a bed, a carriage movable longitudinally of the bed and supporting bending and feeding devices, an actuating element movable longitudinally with the carriage for imparting motion to the bending and feeding devices of the latter, a shaft on which said element is slidably mounted, means terminally connected to the carriage for moving the latter over the bed, and mechanism for operating the several parts.

4. A machine for forming flexible tubing, having a bed, a carriage movable longitudinally of the bed, a removable mandrel above the carriage, devices on the carriage for successively feeding the constituents of the tubing to the mandrel, bending devices supported on the carriage, and an edge-former on the carriage between the bending devices and mandrel, and means for operating the several parts.

5. A machine for forming flexible tubing having supporting means, a removable mandrel, a carriage movable longitudinally of the supporting means below the mandrel and supporting bending and feeding devices including bending-rolls, an edge-former, and rotatable members holding wire and a metal strip, a packing-strip-feeding means, and mechanism for operating the several parts.

785,524. SURGICAL SALINE-INFUSION APPARATUS. JOHN J. SHEA, Beverly, Mass. Filed Jan. 16, 1904. Serial No. 189,253.

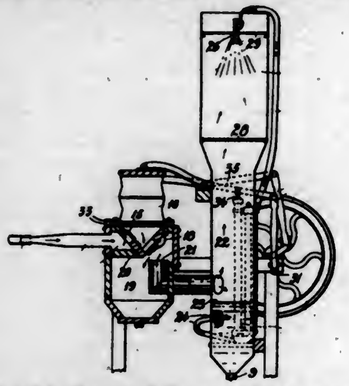


Claim.—1. In a device of the character described, a transparent receptacle having an open neck at its upper end and a discharge-nozzle at its lower end, a plurality of holding-rings surrounding said receptacle, supports carried by the lower of said rings, clamping-rods extending through said rings, take-up nuts for said rods and a carrying means suitably connected with said rings.

2. In a device of the character described, a transparent receptacle having an open neck at its upper end and a discharge-nozzle at its lower end, a plurality of holding-rings surrounding said receptacle, supports carried by the lower of said rings, clamping-rods extending through said rings and provided at their upper ends with eyes, take-up nuts carried by the lower end of said rods, and a bail connected to the eyes of the rods.

785,525. DUST-COLLECTOR. GEORGE SIMPSON, Richmond, near Melbourne, and WILLIAM J. BURTON, Richmond, Victoria, Australia. Filed Dec. 29, 1903. Serial No. 187,054.

Claim.—1. A dust-collector involving a casing having a V-shaped partition provided with openings closed by flap-valves and forming a pump-chamber, a horizontally-extending partition arranged in said casing and forming in connection with one side of said V-shaped partition a dust-expansion chamber, an inlet for said expansion-chamber, said horizontally-extending partition in connection with the other side of said V-shaped partition forming a dust-settling chamber within said casing, an outlet for said settling-chamber, a cylinder communicating with said outlet and containing a body of water in the lower portion thereof, diaphragms arranged in said cylinder at the upper portion thereof, a spraying device arranged in the upper portion of said cylinder, and means communicating with said spraying device and the liquid at the lower portion of said cylinder for forcing said liquid through said spraying device.



2. A dust-collector involving a casing having a sectional partition provided with openings closed by flap-valves and forming a pump-chamber, a partition arranged in said casing and forming in connection with one section of the first-mentioned partition, a dust-expansion chamber, an inlet for said expansion-chamber, said second-mentioned partition in connection with the other section of said first-mentioned partition forming a dust-settling chamber within said casing, and an outlet for said settling-chamber.

3. A dust-collector involving a casing having a central partition provided with openings closed by flap-valves and forming a pump-chamber, a partition arranged in said casing and forming in connection with one section of the first-mentioned partition a dust-expansion chamber, an inlet for said expansion-chamber, said second-mentioned partition in connection with the other section of said first-mentioned partition forming a dust-settling chamber within said casing, an outlet for said settling-chamber, and a dust-arresting means communicating with said outlet.

4. A dust-collector involving a casing having a sectional partition provided with openings and forming a pump-chamber, valves for closing said openings, a partition arranged in said casing and forming in connection with one of the sections of the first-mentioned partition a dust-expansion chamber at the front of and communicating with the pump-chamber, an inlet for said expansion-chamber, said second-mentioned partition in connection with the other section of said first-mentioned partition forming a dust-settling chamber within said casing at the rear of and communicating with the pump-chamber, and an outlet for said settling-chamber.

785,526. SEAL-LOCK FOR PIPE-COUPLINGS. ROBERT D. SIMPSON, Columbus, Ohio, assignor, by mesne assignments, to The Columbus Meter Seal Manufacturing Company, Columbus, Ohio, a Corporation of Ohio. Filed July 20, 1903. Serial No. 166,243.



Claim.—1. In a seal-lock for pipe-couplings, the combination with two coöperating semicylindrical sections having means for engagement on corresponding ends, one of said sections having a hollow extension and an inclined spring-strip fixed therein, of a locking-key having a hook termination, said key adapted to pass through a projection on one of said sections and to have its inner end engage the end of said spring-strip in the extension of the remaining section, substantially as specified.

2. In a seal-lock for pipe-couplings, the combination with the lock-section 2 having a yoke-like projection at one end and having a hollow extension at its opposite end, an inclined spring-strip secured in its upper end portion within said extension and having its free end depending in the lower portion of said extension, of a semi-cylindrical section 1 having a lug 7 projecting from one end and a lip 6 projecting from the opposite end, said lip adapted to fit over the mouth of the extension 2 and having an opening, and a locking-key having an enlarged head, said key adapted to be inserted through said lip-opening and to engage the lower end of the spring-strip, substantially as specified.

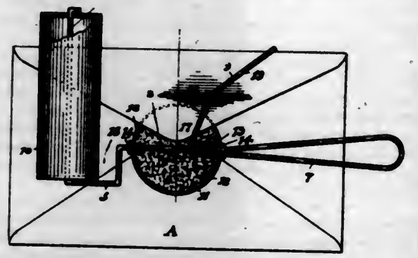
3. A seal-lock for pipe-couplings and the like, comprising a two-part casing adapted to fit around the coupling, the two members of the casing having a jointed connection on one side of the coupling, one of said members having secured thereto on the other side of the coupling a spring, and the other member carrying a frangible seal member adapted to engage with said spring, substantially as described.

4. A seal-lock for pipe-couplings and the like, comprising a two-part casing adapted to fit around the coupling, the two members of the casing having a jointed connection on one side of the coupling, one of said members having secured thereon on the other side of the coupling a spring-keeper, and a frangible seal member in the form of a key adapted to be inserted through the other member after the two members are in position and to engage said spring-keeper to lock the parts together, substantially as described.

5. In a seal-lock of the character described, a two-part casing adapted to fit around the coupling, one of the members being provided with a spring-keeper, the other member being provided with an opening adjacent to said keeper, and a frangible seal member in the form of a key, having a body adapted to be inserted through the said opening and to engage the spring-keeper, and a head which will not pass through said opening, substantially as described.

6. In a seal-lock of the character described, a two-part casing adapted to fit around the coupling, one of the members being provided with a spring-keeper, the other member being provided with an opening adjacent to said keeper, and a frangible seal member in the form of a key, having a body adapted to be inserted through the said opening and to engage the spring-keeper, and a head which will not pass through said opening, said key being weak at the junction of the head and body to cause the key to break at that point, substantially as described.

785,527. MEANS FOR MOISTENING AND SEALING ENVELOPS. GEORGE H. SWEENY, Irvington, N. J. Filed May 9, 1904. Serial No. 207,065.



Claim.—1. The improved moistening and sealing implement for envelops, comprising a body or frame of bent wire having a looped handle at one end, a pivotal extension at the other end and a shank intermediate of said handle and extension, said body or frame having a presser-arm at one side thereof, a pan and sponge suspended from said shank and a roller arranged on said pivotal extension.

2. The improved moistening and sealing implement for envelops, comprising a body or frame of bent wire having a shank, a looped handle at one end and a pivotal extension at the other end perpendicular to said shank, the wire being extended from the looped handle laterally and bent upwardly and downwardly on inclined lines, a pan suspended from said shank, means contained in said pan for applying moisture to the flap, and a roller mounted on said pivotal extension, substantially as set forth.

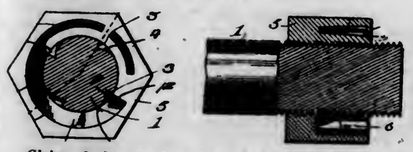
3. The improved moistening and sealing implement for envelops, comprising a body or frame of bent wire having a shank, a looped handle at one end and a pivotal extension at the other end perpendicular to said shank, the wire being extended from the looped handle laterally and bent upwardly and downwardly on inclined lines, a pan having a beveled upper edge suspended from said shank, means contained in said pan for applying moisture to the flap, and a roller mounted on said pivotal extension, substantially as set forth.

4. The improved moistening and sealing implement for envelops, comprising a body or frame of bent wire having a shank, a looped handle at one end and a pivotal extension at the other end perpendicular to said shank, the wire being extended from the looped handle spirally around the shank, and laterally, and bent upwardly and downwardly on inclined lines, a pan suspended from said shank, means contained in said pan for applying moisture to the flap, and a roller mounted on said pivotal extension, substantially as set forth.

5. The improved moistening and sealing implement comprising a frame having a shank, an extension at one end of and perpendicular to said shank, carrying flap-sealing means, a handle in the line of said shank, a presser-arm having a downward inclination, and a pan with a beveled upper edge inclined approximately in the direction of the downward inclination of the presser-arm, substantially as set forth.

6. The improved moistening and sealing implement, comprising a frame having a shank, a roller at one end of and perpendicular to said shank, for flap-sealing means, a handle in the line of said shank, a presser-arm inclined downward, and a pan with a beveled upper edge inclined approximately in the direction of the downward inclination of the presser-arm, substantially as set forth.

785,528. NUT-LOCK. CHARLES R. THOMPSON, Pocatello, Idaho. Filed Feb. 8, 1904. Serial No. 192,679.



Claim.—1. In a nut-lock, a bolt having longitudinal notches, combined with a nut having a concentric groove or depression in one face, said groove being narrower at one part than at another and a bridge across said narrow part, and a spring in said groove or depression beneath said bridge, one end of said spring being arranged to engage the notches in said bolt.

2. In a nut-lock, a bolt having longitudinal grooves combined with a nut having a concentric groove of different widths formed in one face thereof, the bottom of said groove being inclined upwardly at one end toward the face of said nut, a spring in said groove, and a bridge spanning the groove formed by bending a lug on the face of the nut over said groove.

3. In a nut-lock, a bolt having longitudinal grooves combined with a nut having a concentric groove formed in one face thereof, and a bridge integral with the nut extending across said groove, and a curved spring in said groove held in place by said bridge.

785,529. DENTAL JAW-BRACE. CHARLES A. THOMSON, Belleville, N. J. Filed June 16, 1903. Serial No. 161,657.



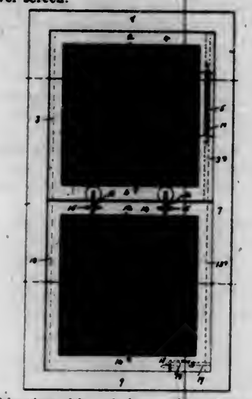
Claim.—1. A dental jaw-brace comprising toggle-joint members hinged together and being free to collapse in one direction, one of said members being extended at its inner end past the point of hinging and adapted to engage the other member to prevent bending in that direction.

2. A dental jaw-brace comprising toggle-joint members hinged together and being free to collapse in one direction, one of said members being extended at its inner end past the point of hinging and adapted to engage the other member to prevent bending in that direction, and flexible draft means secured to the extension.

785,530. WINDOW-SCREEN. ROBERT P. WAKEMAN, Southport, Conn. Filed Sept. 29, 1904. Serial No. 226,490.

Claim.—1. The combination with a window-casing, of an upper window-sash and a lower window-sash, screen-runners located upon the uprights of the said casing and situated outside of the said upper and lower sash, a vertically-movable upper screen applied to the said runners, an outwardly-swinging lower screen located outside of the said upper and lower sash and the said runners and sus-

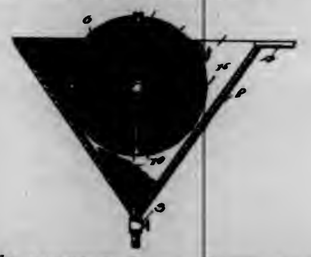
pended by its upper end from the lower end of the said upper screen and adapted to be removed at pleasure from the said upper screen to permit the same to be slid downward upon the said runners into the place of the lower screen.



2. The combination with a window-casing, of an upper window-sash and a lower window-sash, screen-runners consisting of strips located upon the uprights of the said casing and situated outside of the said upper and lower sash, a vertically-movable upper screen applied to the said runners, a lower screen located outside of the said upper and lower sash and the said runners, and suspension eyes and hooks applied to the lower end of the upper screen and to the upper end of the lower screen, whereby the latter is suspended from the former and adapted to be swung outward and free to be removed at pleasure from the upper screen to permit the same to be moved down upon the said runners into the place of the lower screen.

3. The combination with a window-casing, of screen-runners applied to the uprights of the said casing, an upper screen confined by and sliding upon the said runners from which it is removable, and an outwardly-swinging lower screen suspended by its upper end from the lower end of the upper screen so as to be removed therefrom at pleasure, and when closed bearing upon the outer edges of the said screen-runners.

785,531. **ORE-CONCENTRATOR.** CALVIN G. WELLER, Idaho Springs, Colo. Filed Apr. 20, 1904. Serial No. 204,093.

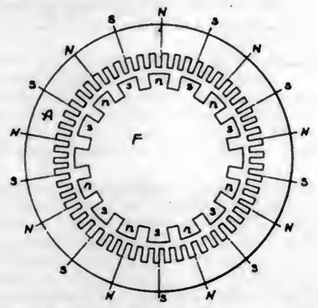


Claim.—In an ore-concentrator, the combination of a box for receiving the pulp, slime or material to be separated, a perforated pipe journaled in the box, arms projected from said pipe and forming open-work end supports, a rotary separating-screen mounted upon said end supports, the end supports being provided with grooved rims and hubs, the fabric of the screen extending over the grooved rims and hubs, annular binders for clamping said fabric to said rims and to said hubs, and means for feeding pulp to the box externally of the screen.

785,532. **SYNCHRONOUS MOTOR.** ERNST F. W. ALEXANDERSON, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 12, 1904. Serial No. 220,478.

Claim.—1. In a synchronous motor, an armature structure adapted to receive a distributed winding, and a field structure having projecting poles of a polar pitch unequal to the pitch of the poles produced by the armature-winding.

2. In a synchronous motor, an armature having a distributed winding connected to produce equally-distributed poles, and a field structure having projecting poles of a pitch unequal to the polar pitch of the armature.



3. In a synchronous motor, a field structure having projecting poles unequal in number to the poles produced by the armature-winding.

4. In a synchronous motor, an armature structure adapted to receive a distributed winding, and a field structure having projecting poles differing in number by a multiple of two from the number of poles produced by the armature-winding.

5. In a synchronous motor, a field structure having projecting poles, an armature structure adapted to receive a distributed winding, and means for connecting the armature-winding to produce a number of poles differing by a multiple of two from the number of poles of the field structure.

6. In a synchronous motor, a field structure having projecting poles, and means for connecting the armature-winding for two different numbers of poles each differing by a multiple of two from the number of poles of the field structure.

7. In a synchronous motor, a field structure having projecting poles of a polar pitch unequal to the pitch of the poles produced by the armature-winding, the coils on one-half the field structure being wound opposite to normal.

8. In a synchronous motor, a field structure having projecting poles unequal in number to the poles produced by the armature-winding, the coils on one-half the field structure being wound opposite to normal.

9. In a synchronous motor, a field structure having projecting poles differing in number by two from the number of poles produced by the armature-winding, the coils on one-half the field structure being wound opposite to normal.

10. In a synchronous motor, a field structure having projecting poles of a polar pitch unequal to the pitch of the poles produced by the armature-winding, and means for short-circuiting the field-winding through a variable resistance to start the motor.

11. In a synchronous motor, a field structure having projecting poles of a polar pitch unequal to the pitch of the poles produced by the armature, whereby a portion of the field-poles are at any instant ahead of the corresponding armature-poles and a second portion are behind, said two portions being connected in separate groups, and means for short-circuiting said groups independently at starting.

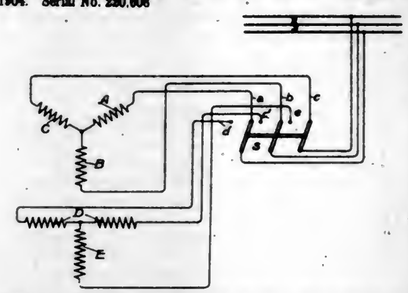
12. In a synchronous motor, a field structure having projecting poles of a polar pitch unequal to the pitch of the poles produced by the armature, whereby a portion of the field-poles are at any instant ahead of the corresponding armature-poles and a second portion are behind, said two portions being connected in separate groups, means for short-circuiting said groups independently at starting, and means for connecting the two groups in series to a source of direct current when the motor is up to synchronism.

13. In a synchronous motor, a field structure having projecting poles of a polar pitch unequal to the pitch of the poles produced by the armature-winding, whereby a portion of the field-poles are at any instant ahead of the corresponding armature-poles and a second portion are behind, said two portions being connected in separate groups and the groups being connected in series, and means for connecting the terminals of the field-winding to the terminals of a resistance and connecting the point of connection between the groups to an intermediate point on the resistance whereby said field-winding operates as a short-circuited two-phase winding at starting.

14. In a synchronous motor, a field structure having projecting poles of a polar pitch unequal to the pitch of the holes produced by the armature, whereby a portion of the field-poles are at any instant

ahead of the corresponding armature-poles and a second portion are behind, said two portions being connected in separate groups, and means for short-circuiting each group through a resistance at starting, whereby said groups operate as the two phases of a short-circuited two-phase winding to start the motor.

785,533. **TWO-SPEED WINDING FOR THREE-PHASE MOTORS.** ERNST F. W. ALEXANDERSON, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 13, 1904. Serial No. 220,606.



Claim.—1. In an alternating-current motor, a three-phase winding, a two-phase winding in the same slots therewith, and means for connecting either winding to a source of three-phase current.

2. In an alternating-current motor, a three-phase winding, a two-phase winding of different pitch in the same slots therewith, and means for connecting either winding to a source of current.

3. In an alternating-current motor, a three-phase winding, a two-phase winding of a different number of poles in the same slots therewith, and means for connecting either winding to a source of three-phase current.

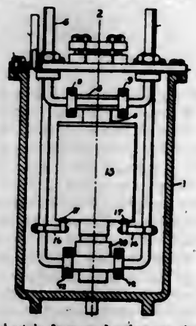
4. In an alternating-current motor, a three-phase winding, and a T-connected two-phase winding in the same slots therewith.

785,534. **DECORATED ARTICLES OF CERAMIC OR VITRIFIED WARE.** JOSEPH R. ANDERSON, Philadelphia, Pa. Filed Jan. 8, 1903. Serial No. 138,262.



Claim.—An article of vitreous or ceramic ware having a glazed face with depression therein, and a picture contained in the said depression, and having a face of celluloid or like smooth, flexible and transparent material, whereby it simulates the glazed surface of the article, substantially as specified.

785,535. **ELECTRIC FURNACE.** WILLIAM C. ARSEM, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 12, 1904. Serial No. 220,449.



Claim.—1. An electric furnace having an air-tight chamber, a refractory heater therein, means for supporting material to be heated in close proximity to said refractory heater, and means for exhausting the air from said chamber.

2. An electric furnace having an air-tight chamber, heating means therein inclosing a heating-space, means for supporting material to be heated within the space inclosed by said heater, and means for exhausting the air from said chamber.

3. An electric furnace having an air-tight chamber, and a refractory heater within said chamber, said heater consisting of a helix of conducting material.

4. A heating member for electric furnaces consisting of a helix of graphite.

5. The combination with a helical heating member for electric furnaces, of a screen surrounding said heating member, said screen serving to retain heat in the space inclosed by said heating member.

6. In an electric furnace, the combination of a refractory heater inclosing a heating-space, a screen surrounding said heater in close proximity thereto, said screen having inner and outer walls, and a heat-insulating material between said walls.

7. In an electric furnace, the combination of a helical refractory heater of graphite, a screen surrounding said heater in close proximity thereto, thereby serving to reflect heat to the space within the spiral, terminals for said heater, and means for cooling said terminals.

8. In an electric furnace, the combination of an air-tight chamber, a refractory heater within said chamber, terminals for said refractory heater, and means for cooling said terminals.

9. In an electric furnace, the combination of a refractory heater, a screen surrounding said heater, terminals for said heater, and means for cooling said terminals.

10. In an electric furnace, the combination of an air-tight chamber, a refractory heater within said chamber, said heater inclosing a heating-space, means for supporting material to be heated within said heating-space, and a sight-opening in said chamber whereby the changes in said material may be observed.

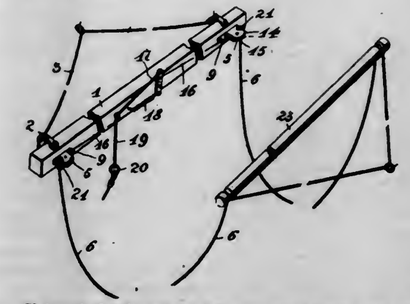
11. An electric furnace having an air-tight chamber, a heater therein, a refractory screen surrounding said heater, and means for exhausting the air from said chamber.

12. An electric furnace having an air-tight chamber, a refractory heater therein, terminals for said refractory heater, tubular conductors leading to said terminals, means for circulating a cooling fluid through said conductors, and means for exhausting the air from said chamber.

13. An electric furnace having an air-tight chamber, a heater within said chamber, means for exhausting air from said chamber, and means for cooling said chamber.

14. An electric furnace having an air-tight chamber, a refractory heater within said chamber, means for exhausting air from said chamber, and means for introducing an inert gas into said chamber.

785,536. **HAY-SLING.** WALTER A. BADGER, Bellefontaine, Ohio, assignor of one-half to Philena Pegg, Quincy, Ohio. Filed Dec. 22, 1904. Serial No. 238,016.



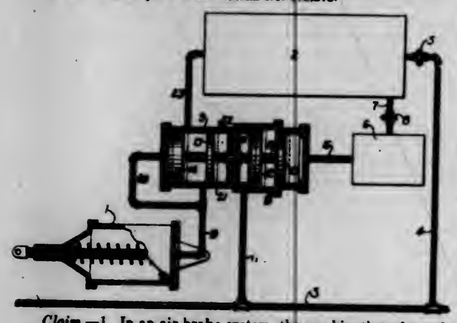
Claim.—1. In a hay or grain sling, the combination with a main cross-bar or spreader having arranged on each end a clevis, of short sling-ropes connected to said clevises, spring-latches arranged on the ends of said spreader, said latches consisting of a casing, a hook pivotally mounted in said casing, a spring-projected locking-pawl adapted to engage said hook and lock the same in a closed position, long, parallelly-disposed sling-ropes, adapted to be engaged with said hooks, a pivotally-mounted releasing-lever, releasing-rods connecting said locking-pawls with said lever, one above and the other below the pivotal point of the latter, and means whereby an operating-rope may be connected with said releasing mechanism without

the necessity of the operator going beneath the draft, substantially as described.

2. In a hay or grain sling, the combination with a main crossbar or spreader having arranged on each end a clevis, of short sling-ropes connected to said clevises, spring-latches arranged on the ends of said spreader, said latches consisting of a casing, a hook pivotally mounted in said casing, a spring-projected locking-pawl adapted to engage said hook and lock the same in a closed position, long, parallelly-disposed, sling-ropes adapted to be engaged with said hooks, a pivotally-mounted spring-retracted operating-lever, releasing-rods connecting said locking-pawls with said lever, one above and the other below the pivotal point of the latter, a short rope or cable connected to said operating-lever, and means whereby an operating-cable may be attached to said short rope by the operator on the load, substantially as described.

3. In a hay or grain sling, the combination with a main crossbar or spreader, having arranged on each end a clevis, of short sling-ropes connected to said clevises, a hoisting-ring connected to the opposite ends of said ropes, spring-latches arranged on the ends of said spreader, long sling-ropes having secured to one of their ends rings whereby the same are attached to said latches, rings secured to their opposite ends whereby they may be secured to a hoisting device, a supplemental spreader-bar arranged between said ropes to hold the same in parallel relation, where they engage the load, a double-acting releasing-lever, means whereby the same is connected to said latches, and means whereby said lever is operated from the load, substantially as described.

785,537. TRIPLE VALVE. CHARLES E. BARRY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 8, 1903. Serial No. 172,272.



Claim.—1. In an air-brake system, the combination of a train-pipe, a brake-cylinder, an auxiliary reservoir, a valve adapted to connect brake-cylinder to auxiliary reservoir or to atmosphere, a piston controlling said valve and comprising two heads of unequal areas subjected to train-pipe pressure and to brake-cylinder pressure respectively, and means for impressing on said piston a constant force opposing said pressures.

2. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston comprising two heads of unequal areas subjected to train-pipe pressure and to brake-cylinder pressure respectively, means for impressing on said piston a constant force opposing said pressures, and means operatively connected to said piston for varying the pressure of the air in the brake-cylinder.

3. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder and mechanism connected therewith, comprising a movable member having abutments of unequal areas subjected, the larger to train-pipe pressure and the smaller to brake-cylinder pressure, and means coöperating therewith for varying the pressure of the air in the brake-cylinder.

4. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder and valve mechanism comprising a casing connected therewith and provided with an exhaust-port and a piston having a plurality of heads, means for entrapping compressed air in a portion of said casing adjacent to one of said heads, other heads being subjected to brake-cylinder and train-pipe pressure, and means coöperating therewith for controlling the flow of air from the auxiliary reservoir to the brake-cylinder and from the brake-cylinder to atmosphere.

5. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder, and valve mechanism for controlling the flow of air to and from the brake-cylinder, comprising means normally cutting off the brake-cylinder supply and exhaust-passages under the equal opposing effects of a constant pressure on one side and combined train-pipe and brake-cylinder pressures on the other and operating upon an increase or decrease of train-pipe pressure to establish a communication to produce a decrease or an increase respectively of the brake-cylinder pressure to restore the equality.

6. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve for controlling the flow of air to and from the brake-cylinder, comprising a movable member subjected to a practically constant pressure tending to move it in one direction and brake-cylinder and train-pipe pressures tending to move it in the opposite direction, the member being so constructed and arranged that a variation of one kind in the train-pipe pressure will establish a connection to bring about a variation of the opposite kind in the brake-cylinder.

7. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder, a valve-casing, a piston therein having an upper and a lower head, means for entrapping compressed air in said casing at the upper side of the upper head, a port for supplying train-pipe air to said casing at the lower side of the upper head, a port for supplying brake-cylinder air to said casing at the lower side of the lower head, an exhaust-port in said casing adjacent to the brake-cylinder port and adapted to be closed by the lower head when the combined train-pipe and brake-cylinder pressures equal the pressure of the entrapped air and to be opened to establish communication with the brake-cylinder port when the train-pipe pressure is increased, a port for supplying auxiliary-reservoir air to said casing at a point below said brake-cylinder port, and means for closing said auxiliary-reservoir port when the combined train-pipe and brake-cylinder pressures equal the pressure of the entrapped air and for opening it to establish communication with the brake-cylinder port when the train-pipe pressure is reduced.

8. In an air-brake system, the combination of a train-pipe, an auxiliary reservoir, a brake-cylinder, a cylindrical valve-casing comprising an upper and a lower compartment, a piston therein having a head in each compartment, means for entrapping compressed air at the upper side of the upper head, a port for supplying train-pipe air to the upper compartment at the lower side of the upper head, a port for supplying brake-cylinder air to the lower compartment at the lower side of the lower head, an exhaust-port leading from the lower compartment adjacent to the brake-cylinder port and adapted to be closed by the lower head when the combined train-pipe and brake-cylinder pressures equal the pressure of the entrapped air and to be opened to establish communication with the brake-cylinder port when the train-pipe pressure is increased, a port for supplying auxiliary-reservoir air to said lower compartment at a point above the brake-cylinder port, and means moved by said piston to close said auxiliary-reservoir port when the combined train-pipe and brake-cylinder pressures equal the pressure of the entrapped air and to open said port to establish communication with the brake-cylinder port when the train-pipe pressure is decreased.

785,538. SNAP-HOOK. DELBERT E. BARTON, Minneapolis, Minn. Filed Oct. 27, 1903. Serial No. 178,668.

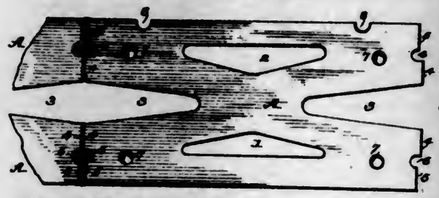


Claim.—1. The combination with a hook and a tongue pivoted thereto at its intermediate portion, said tongue having a perforation in that end thereof which moves outward when the body of the tongue is moved inward to open the hook, and a spring insertible into working position through said perforation and interlocking therewith, substantially as described.

2. The combination with a hook and a tongue pivoted thereto at its intermediate portion, said tongue having at that end which moves outward when the body of the tongue is moved inward to open the hook, a perforation 7 and countersunk seat 8, and a spring 6 insertible into working position through said perforation 7 the said spring when in working position pressing with one end against the body of said hook, with its other end resting in said seat 8 and interlocked therewith, substantially as described.

3. The combination with a double-eaded hook, of a double-ended tongue pivoted at its intermediate portion to the intermediate portion of said hook, for coöperation with both hooks, one end of said tongue moving outward to open one of said hooks, and the other end moving inward to open the other of said hooks, and a spring anchored at one end to that end of said tongue which moves outward, to open the hook, and the other end of said spring pressing against said hook on the opposite side of the pivot of said tongue, substantially as described.

785,539. BUILDING-BLOCK. ELWOOD E. BENNER, Sargent, Nebr. Filed Nov. 7, 1904. Serial No. 231,767.



Claim.—1. The improved building-block having a substantially rectangular form and provided at its ends with an open air-space and on opposite sides thereof with vertical grooves, the portion exterior to the grooves being cut away or made shorter than the portion which intervenes said grooves and the end air-space, as described.

2. A wall composed of building-blocks each having a substantially rectangular form and provided with open air-spaces in the ends, and a mortar-lock formed by coincident grooves, the juxtaposed portions of the blocks exterior to said grooves being separated so that mortar introduced into the grooves will flow outward substantially as described.

3. A wall composed of a series of blocks having a substantially rectangular form and provided with body air-spaces 1 2 and end air-spaces 3, the blocks being laid one directly upon the other so that the several openings coincide and form so many vertical air chambers or passages extending through an entire wall, the end spaces 3 coinciding and forming a double air-space, and a mortar-lock applied at the ends of the blocks in the manner described.

785,540. PERCUSSION-FUSE. DAVID J. CARTWRIGHT, Hull, Mass., assignor of one-half to Walter S. Wait, Newton, Mass. Filed Aug. 19, 1903. Serial No. 170,062.



Claim.—1. A fuse for explosive projectiles comprising a fuse-case; a percussion member; means for detonating said percussion member; and a weighted, annular, locking-strip to lock said detonating means in safe position, said strip being expansible under centrifugal action to release said detonating means.

2. A fuse for explosive projectiles, comprising a fuse-case; a percussion member; means longitudinally movable within said fuse-case for detonating said percussion member; and a weighted annular, locking-strip to lock said detonating means against longitudinal movement, said strip being expansible under centrifugal action to release said detonating means.

3. A fuse for explosive projectiles comprising a fuse-case; a percussion member; means for detonating said percussion member; and a one-piece annular locking-strip to lock said detonating means in safe position, said strip being expansible under centrifugal action to release said detonating means.

4. A fuse for explosive projectiles comprising a fuse-case; a percussion member; longitudinally-movable means for detonating said percussion member; and a one-piece annular locking-strip to lock said detonating means against longitudinal movement, said strip being expansible under centrifugal action to release said detonating means.

5. A fuse for explosive projectiles comprising a fuse-case; a percussion member; means for detonating said percussion member; and a one-piece annular locking-strip to lock said detonating means in safe position, said strip being expansible under centrifugal action to distended position to release said detonating means, and in which distended position it is itself locked against contraction.

6. A fuse for explosive projectiles comprising a fuse-case; a percussion member; longitudinally-movable means for detonating said percussion member; and a one-piece annular locking-strip to lock said detonating means against longitudinal movement, said strip being expansible, under centrifugal action, to distended position to release said detonating means, and in which distended position it is itself locked against contraction.

7. A fuse for explosive projectiles, comprising a fuse-case; a percussion member; means for detonating said percussion member; and a one-piece annular locking-strip, normally contracted so that its ends overlap, to lock said detonating means in safe position, said strip being expansible under centrifugal action to a position with its ends abutting and in locked engagement to release said detonating means.

8. A fuse for explosive projectiles comprising a fuse-case; a percussion member; longitudinally-movable means for detonating said percussion member; and a one-piece annular locking-strip, normally contracted so that its ends overlap, to lock said detonating means against longitudinal movement, said strip being expansible under centrifugal action to a position with its ends abutting and in locked engagement to release said detonating means.

9. A fuse for explosive projectiles comprising a fuse-case; a percussion member; a longitudinally-movable plunger to detonate said percussion member having a groove or recess formed therein; and a one-piece annular locking-strip engaging the groove in said plunger to lock the same normally against longitudinal movement, said strip being expansible under centrifugal action to release said plunger.

10. A fuse for explosive projectiles comprising a fuse-case having an annular groove or recess formed in its inner wall; a percussion member; a longitudinally-movable plunger to detonate said percussion member having an annular groove or recess formed therein and adapted to register with the groove or recess in the inner wall of the fuse-case; and an annular locking-strip engaging the groove in said plunger to lock the same normally against longitudinal movement, said strip being expansible under centrifugal action within the groove of the fuse-case to release said plunger.

11. A fuse for explosive projectiles comprising a fuse-case having an annular recess or groove formed in its inner wall; a percussion member; a longitudinally-movable plunger for detonating said percussion member having an annular groove or recess formed therein and adapted to register with the groove or recess in the inner wall of said fuse-case; and an annular locking-strip having inwardly-projecting lugs to engage the groove in said plunger and lock the same normally against longitudinal movement, said strip being expansible under centrifugal action within the groove in the fuse-case to withdraw said locking-lugs and release said plunger.

12. In a fuse for explosive projectiles, the combination with a fuse-case; of a percussion member; a longitudinally-movable plunger for detonating said percussion member; means for locking said detonating-plunger normally in safe position; and a hammer-block suspended between the rear end of said detonating-plunger and a hinged bearing at the rear end of the fuse-case, whereby the forward end of said hammer-block is free to move transversely of the fuse-chamber and impart a longitudinal movement to said detonating-plunger.

13. In a fuse for explosive projectiles; the combination with a fuse-case; of a percussion member; a longitudinally-movable plunger for detonating said percussion member having a coned rear end; means for locking said plunger normally in safe position; and a hammer-block engaging the coned end of said plunger and having a hinged bearing at the rear end of the fuse-case, whereby the forward end of said hammer-block is free to move transversely of the fuse-case and impart longitudinal movements to said detonating-plunger.

14. Locking means for safety-fuses comprising a one-piece divided annular strip expansible under centrifugal action.

15. Locking means for safety-fuses comprising a one-piece divided annular strip normally contracted and having its ends lapped upon each other, but expansible under centrifugal action to distended position with its ends abutting and in locked engagement.

16. Locking means for safety-fuses comprising a one-piece divided annular strip expansible under centrifugal action and having radially-projecting locking-lugs.

17. Locking means for safety-fuses comprising a one-piece divided annular locking-strip normally contracted with its ends lapped upon each other, but expansible to distended position with its ends abutting and in locked engagement, said strip having radial locking-lugs.

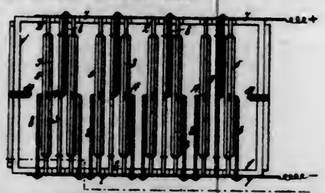
18. In a fuse for explosive projectiles, the combination with a fuse-case; of a percussion member; a longitudinally-movable plunger for detonating said percussion member; a one-piece annular lock-

ing-strip for locking said plunger normally in safe position; and a cylindrical hammer-block suspended between the rear end of said detonating-plunger and the rear wall of the fuse-case, said hammer-block being transversely movable to impart a longitudinal movement to the said detonating-plunger.

19. In a fuse for explosive projectiles, the combination with a fuse-case; of a percussion member; a longitudinally-movable plunger for detonating said percussion member having a coned rear end, a one-piece annular locking-strip for locking said detonating-plunger normally in safe position; and a hammer-block engaging the coned end of said plunger and movable transversely of the fuse-chamber, whereby transverse movements of said hammer-block will impart a longitudinal movement to said plunger.

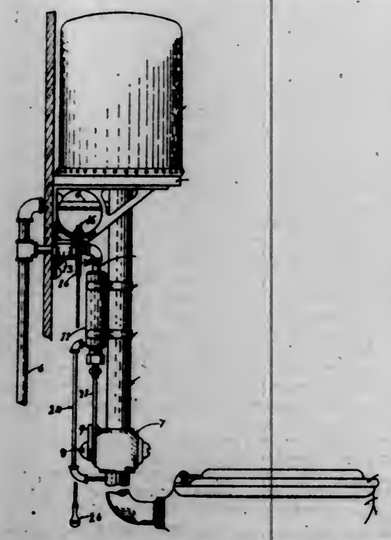
20. In a fuse for explosive projectiles, the combination with a fuse-case; of a percussion member; a longitudinally-movable plunger for detonating said percussion member having a coned rear end; a one-piece annular locking-strip for locking said detonating-plunger normally in safe position; and a hammer-block suspended between the conical rear end of said plunger and the rear wall of the fuse-case, whereby transverse movements of said hammer-block will impart longitudinal movements to said detonating-plunger.

785,541. PROCESS OF METALLIZING FABRICS. CONSTANTIN DANILEVSKY and STEPHAN TOURCHANINOFF, St. Petersburg, Russia. Filed July 20, 1901. Serial No. 69,060.



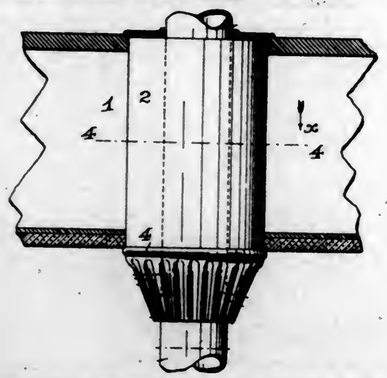
Claim.—The process of metallizing fabric which consists in first impregnating the fabric by the deposition of metal by electrolysis, and after the metallization has been completed, washing the fabric and subjecting it to the action of an aqueous solution of chlorid of tin and cyanid of potassium.

785,542. NOISELESS FLUSHING APPARATUS FOR CLOSETS. LOUIS F. DE MAY, Toledo, Ohio. Filed Nov. 21, 1904. Serial No. 233,588.



Claim.—In a flushing apparatus for closets, the combination with a water-supply under pressure of a pressure-tank having its lower end portion connected with the water-supply; a flushing-pipe connecting the pressure-tank with a closet-bowl; a flushing-valve connected in the flushing-pipe between the bowl and the tank; a lever adapted to operate the flushing-valve; means to operate the lever of the flushing-valve, comprising a cylinder, a piston in the cylinder connected with and adapted to operate the lever of the flushing-valve, a spring adapted to resist the opening of the flushing-valve by the piston and to automatically move the piston to close the valve; a branch pipe connecting the cylinder with the water-supply; a release-valve controlling the branch pipe; means to automatically close the release-valve when opened; means to open the release-valve and admit water from the branch pipe under pressure of the supply into the cylinder and oppose the pressure of the water on the piston to the pressure of the spring; a small open port in the piston; and a drain-pipe from the cylinder to the flushing-pipe below the flushing-valve, substantially as set forth.

785,543. PIPE-THIMBLE. CHARLES A. DUNBAR, Newark, N. J. Filed Nov. 19, 1903. Serial No. 181,751.



Claim.—1. An adjustable resilient pipe-thimble formed with overlapping meeting edges, and comprising a cylindrical body portion and a reduced frusto-conical end portion the smallest diameter of said end portion being less than that of the smallest pipe with which the device is designed to be used, said end portion having longitudinal corrugations, and a fastening means adapted to coöperate with said corrugations to retain the edges of the thimble in adjusted relation.

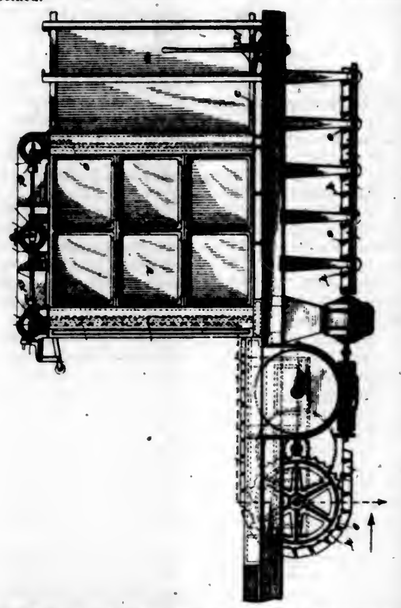
2. An adjustable resilient pipe-thimble formed with overlapping meeting edges, and comprising a cylindrical body portion and a reduced frusto-conical end portion the smallest diameter of said end portion being less than that of the smallest pipe with which the device is designed to be used, said end portion having longitudinal corrugations, and a cotter-pin slipped over the overlapping meeting edges of the reduced frusto-conical end portion adapted to coöperate with said corrugations to retain the edges of the thimble in adjusted relation.

3. An adjustable resilient pipe-thimble formed with overlapping meeting edges, and comprising a cylindrical body, a bead at each end of the said body, and a reduced frusto-conical end portion extending from each bead, the smallest diameter of each end portion being less than that of the smallest pipe with which the device is designed to be used, said end portions having longitudinal corrugations and fastening means adapted to coöperate with said corrugations to retain the edges of the thimble in adjusted relation.

4. An adjustable resilient pipe-thimble formed with overlapping meeting edges, and comprising a cylindrical body portion and a reduced frusto-conical end portion the smallest diameter of said reduced portion being less than that of the smallest pipe with which the device is designed to be used, and a fastening means slipped over the overlapping meeting edges of the reduced frusto-conical end portion to retain the overlapping meeting edges of the thimble in adjusted relation.

785,544. HEATING AND EVAPORATING APPARATUS. RALPH W. ROBINSON, Niagara Falls, N. Y., assignor to The Natural Food Company, Niagara Falls, N. Y. Filed Jan. 26, 1904. Serial No. 190,767.

Claim.—1. The long oven-closure provided at each end with a vestibule having at each end a vertically-shifting gate and carrier-operative means for raising and lowering the same, substantially as specified.



2. The long oven-closure provided at each end with a vestibule, and having endless moving chain-tracks extending through the oven, the vestibules, and beyond the latter, substantially as specified.

3. The combination with the long oven-closure, and its endless moving trackways, of the shifting gates, the carrier, and automatic devices for operating the gates, substantially as specified.

4. The combination with the long oven-closure and the trackways in its floor, of the parallel endless chains of channeled links forming a continuous channel-trackway, substantially as specified.

5. The combination with a long oven-closure, and its end gates, of endless moving chain-tracks, the trackways in the floor of said closure, the rolling carriers, and a carrier-stop device, substantially as specified.

6. The combination with the oven-floor, and the sprockets below the floor, of the depressed trackways in the floor and the parallel endless chains of track-links having upward and outward lateral flanges forming a continuous moving channeled trackway, substantially as specified.

7. The combination with the oven-closure, and the end curtain-gates, of the rollers thereof, third-bevel wheels, the reciprocating drive-shaft, the loose clutch-pinions thereon, the reversing-clutch, the reversing-pinions of said clutch, the drive-wheel, the driving-clutch, the reversing-nuts, the sliding reversing-bar engaging the reversing-clutch, and its springs, substantially as specified.

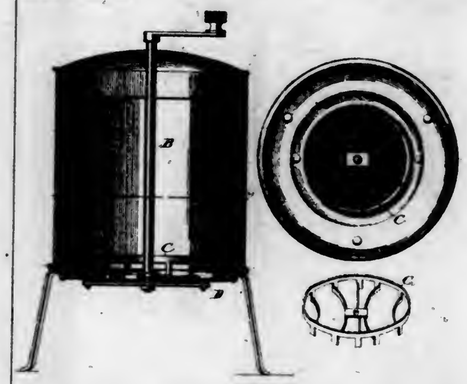
8. The combination with the oven-closure, its vestibules and trackway, and the carrier, of the traveling chain-tracks, the front and rear curtain-gates of each vestibule, and means for automatically opening and closing said gates, substantially as specified.

9. The combination with a long oven-closure, its trackways, and end vestibules, of the front and rear gates of each vestibule, the carrier, the operating-gear of each gate, and the reversing-clutch devices, substantially as specified.

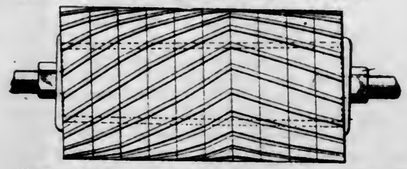
10. The combination with a long oven-closure, its endless channel link trackway, the end gates, their operating-gearing and reversing devices, the trip-carrier, and means for moving the link trackway, substantially as specified.

785,545. FLOUR-SIFTER. WILLIAM G. GADUE, Burlington, Vt. Filed June 13, 1903. Serial No. 111,307.

Claim.—A receptacle having a screen at the bottom, and an outlying surrounding gutter for the reception of refuse, said receptacle provided with an agitator moved by a crank connected with a shaft loosely attached in the middle of the same, said agitator having curved bars on the under side of the same, and on each side of the shaft whereby open-ended spaces are formed for the passage of refuse, said refuse going under the rim which is raised on the bent-up ends of said curved spokes a little above the screen aforesaid as herein described.



785,546. LEATHER-POLISHING ROLL. WILLIAM H. GERRITY, New York, N. Y. Filed May 3, 1904. Serial No. 206,143.



Claim.—1. A leather-working roll comprising a central shaft, a yielding sleeve thereon, and a plurality of glass disks encircling the sleeve and shaft and means for fastening the disks in place.

2. A leather-working roll comprising a central working shaft, and glass disks mounted thereon.

3. A leather-working roll comprising a central shaft, and glass disks mounted thereon side by side, and having lugs or teeth on their peripheries to produce ribs on the periphery of the roll.

4. A leather-working roll comprising a central shaft, and glass disks mounted thereon, said disks lying side by side and having lugs or teeth on their peripheries, the teeth extending diagonally and matching to produce spiral ribs on the periphery of the roll.

5. A polishing-roller comprising a plurality of disks fastened together side by side, said disks being disposed diagonally of the axis of the roller.

6. A polishing-roller comprising a plurality of disks fastened together side by side, said disks being disposed diagonally of the axis of the roller, and the disks having spirally-disposed peripheral ribs matching to form spiral ribs on the roller.

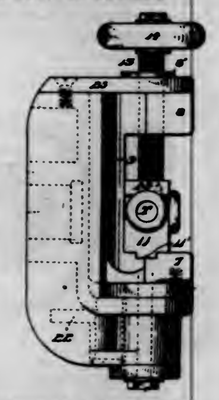
7. The combination of a shaft, a number of disks mounted on the shaft side by side and extending diagonally of the shaft, and means for holding the disks in place.

8. A polishing-roller having a central shaft, a number of friable disks mounted on the shaft side by side said disks having sunken portions in their sides causing the disks to lie out of contact with each other at said sunken portions and the sides of the disks being ground at points outward from the sunken portions, and means for exerting pressure on the disks longitudinally of the shaft for clamping the ground portions of the disks together.

785,547. REVOLVING OR THREE-WAY CHUCK. ISRAEL B. GILBERT, Pittsburg, Pa. Filed Mar. 5, 1903. Serial No. 146,314.

Claim.—1. The combination of a chuck-head having a spindle connection, the head being heavier at one side of the connection than at the opposite side, the heavier side being formed with a journal-bearing, an angularly-adjustable work-holder carried by the head and having a journal which fits said bearing, the end of the work-holder opposite said journal extending toward the lighter side of the

chuck-head, and adjustable work-clamping means carried by the end of the work-holder thus extended and operating to counterbalance the heavier side of the chuck-head.

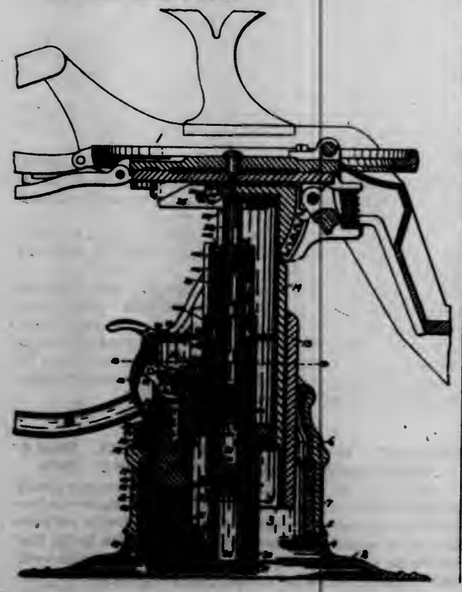


2. The combination of a chuck-head having a spindle connection, a U-shaped work-holder angularly adjustable in the head in a plane at right angles to the spindle-axis, and stop means to prevent the body of the holder from turning into the path of the lathe-tool.

3. The combination of a chuck-head having a spindle connection, a U-shaped work-holder rotatably adjustable in the head, the axis of rotation being at right angles to the spindle-axis, and work-clamping means having position in the work-holder eccentric to the holder-axis and diametrically opposite the side member 9 of the holder for the purpose of counterbalancing the latter.

4. The combination of a chuck-head having a spindle connection, the head being heavier at one side of said connection than at the opposite side and at the heavier side formed with a journal-bearing, a U-shaped work-holder, a journal projecting from one end of the holder and fitting said bearing, a work-clamping stem adjustable through the opposite end of the holder, and an operating-handle carried by the outer end of the stem and forming a portion of the counterbalance for the heavier side of the chuck-head.

785,548. DENTAL CHAIR. AARON P. GOULD, Canton, Ohio. Filed July 2, 1900. Serial No. 22,303.



Claim.—1. In a dental chair, a revolving base resting on a relatively fixed base, concave telescoping extension parts in the revolving base supporting the chair-body, a reservoir resting in the revolving base and extending within the concave sections and being adapted to be removed from the base without removing the extension parts.

2. In a dental chair, a reservoir with a cover attached thereon, a pump composed of a valve-case carrying suitable valves and removably attached within the reservoir, a cylinder having fixed attachment to the valve-case and extending through and above an opening in said cover adapted to pass the parts, with means thereabove for attaching and detaching said cylinder and case without removing said cover, and a plunger with means for operating the same, substantially as specified.

3. A pump-actuating device composed of a push-bar having a stop-pin in a shoulder on one edge, from which said bar curves in opposite direction to a pivotal connection with the ends of arms extending from a rocker-shaft located adjacent to the stop-pin, with means for journaling and turning said shaft, a reciprocating plunger acting in the pump-cylinder, the free end of the push-bar actuating positively said plunger, substantially as specified.

4. In a dental chair, a reservoir having a tight bottom and a diaphragm thereabove with space between, a pump extending through said diaphragm forcing oil from the reservoir proper into said space, and a discharge-pipe also extending through said diaphragm leading from said reservoir receiving oil from said space, with means for controlling the outlet of said pipe, substantially as specified.

5. In a dental chair, a reservoir, a release-valve attached therein composed of a valve-casing containing a valve-seat and having an upwardly-projecting collar carrying vertical slots, and a rod-valve provided with lateral pins adapted to enter and travel in said slots, with means for closing and releasing said rod-valve, substantially as specified.

6. In a dental chair, a reservoir with a cover attached thereon, a release-valve having its case removably attached within the reservoir, said valve extending through and above an opening in the cover adapted to pass the valve and its case, with means for attaching and detaching said valve and its case without removing said cover, substantially as specified.

7. In a dental chair, a reservoir with a cover thereon, and a release-valve composed of a valve-case attached in said reservoir and a relatively non-rotatable valve-stem extending through and above an opening in said cover adapted to pass the parts of the valve, without removing the cover thereof.

8. In a dental chair, a reservoir with a cover attached thereon, a discharge-pipe having its inlet end removably attached near the bottom of the reservoir and extending through and above an opening in said cover adapted to pass said pipe, substantially as specified.

9. In a dental chair, a relatively fixed base, a cylindrical revolving base on said fixed base, semicircular extension parts in said revolving base, a section of the upper part of the revolving base corresponding to the open side of said extension parts being detachable, substantially as specified.

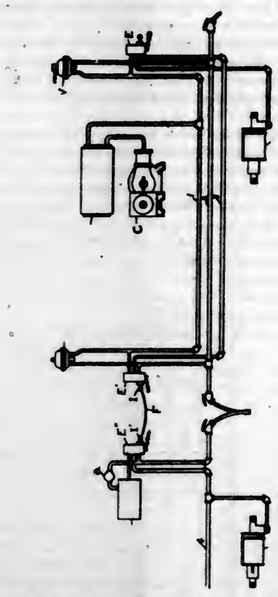
10. In a dental chair, a relatively fixed base, a cylindrical revolving base on said fixed base, semicircular extension parts in said revolving base, a section of the upper part of the revolving base corresponding to the open side of said extension parts being detachable, and journal-bearings located in the reinforced sides of said detachable section, substantially as specified.

11. In a dental chair, a reservoir with a cover attached thereon, a pump, a piston-cylinder, a release-valve and a discharge-pipe, respectively having their lower ends removably attached near the bottom of said reservoir, and extending through and above openings in said cover adapted to pass them respectively, substantially as specified.

785,549. AIR-BRAKE SYSTEM AND EMERGENCY-VALVE. LAURENCE A. HAWKINS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 30, 1904. Serial No. 218,583.

Claim.—1. In a train of cars equipped with a "straight" air-brake system, an emergency-valve adapted and arranged to disconnect brake-cylinder from train-pipe and to connect brake-cylinder to main reservoir, and means operative upon a breaking apart of the train for actuating said valve.

2. In a train of cars equipped with a "straight" air-brake system, an emergency-valve adapted and arranged to disconnect brake-cylinder from train-pipe and to connect brake-cylinder to reservoir, a spring tending to move said valve to emergency position, means for normally restraining said valve, and means for releasing said valve upon a breaking apart of the train.



3. In a train of cars equipped with a "straight" air-brake system, an emergency-valve adapted and arranged to disconnect brake-cylinder from train-pipe and to connect brake-cylinder to a source of pressure, means tending to move said valve to emergency position, means for normally restraining said valve, and means for releasing said valve upon a breaking apart of the train.

4. In a train of cars equipped with a "straight" air-brake system, an emergency-valve adapted and arranged to disconnect brake-cylinder from train-pipe and to connect brake-cylinder to reservoir, a spring tending to move said valve to emergency position, a lock for said valve, and means connected to another car of the train for tripping said lock.

5. In a train of cars equipped with a "straight" air-brake system, emergency-valves on adjacent ends of adjacent cars, each valve being adapted and arranged to disconnect the brake-cylinder on its car from train-pipe and to connect it to a source of pressure, springs tending to move said valves to emergency position, a pin for each valve adapted to restrain it against the pressure of its spring, and a cord connecting the two pins.

6. In a train of cars equipped with a "straight" air-brake system, emergency-valves on adjacent ends of adjacent cars, each valve being adapted and arranged to disconnect the brake-cylinder on its car from train-pipe and to connect it to a source of pressure, springs tending to move said valves to emergency position, a pin for each valve adapted to restrain it against the pressure of its spring, a cord connecting the two pins, and means for preventing the total withdrawal of said pins.

7. In a vehicle equipped with a "straight" air-brake system, two emergency-valves at opposite ends of said car inserted in series in the connection between brake-cylinder and motorman's valves.

8. In a vehicle equipped with a "straight" air-brake system, two emergency-valves at opposite ends of said car inserted in series in the connection between brake-cylinder and motorman's valves, and a connection to another car from between said emergency-valves and said motorman's valves.

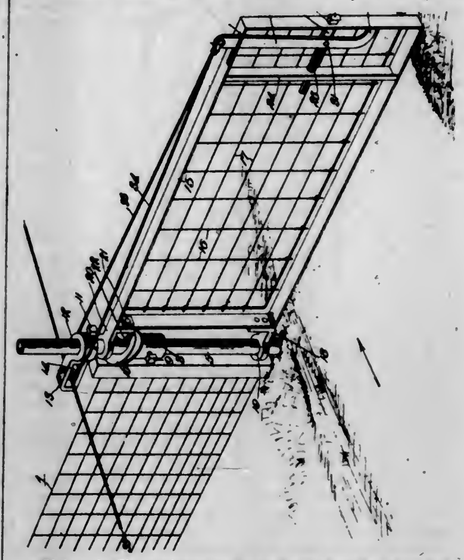
9. In a train of cars equipped with a "straight" air-brake system, two emergency-valves at opposite ends of a vehicle inserted in series between brake-cylinder and train-pipe.

10. In a train of cars equipped with a "straight" air-brake system, two emergency-valves at opposite ends of a vehicle inserted in series in the connection between brake-cylinder and train-pipe and each adapted by its movement to break said connection and to connect brake-cylinder to a source of pressure.

11. In a vehicle equipped with a "straight" air-brake system, two emergency-valves at opposite ends of said car inserted in series in the connection between brake-cylinder and motorman's valves and each adapted by its movement to break said connection and to connect brake-cylinder to reservoir.

12. In a train of cars equipped with a "straight" air-brake system, an emergency-valve adapted and arranged to disconnect brake-cylinder from train-pipe and to connect it to a source of pressure, and an operating-cord connecting said valve to another car.

785,550. SELF-CLOSING GATE. CHARLES W. HESS and JAMES F. MATTHEWS, Hireno, Okla. Filed May 19, 1904. Serial No. 208,657.



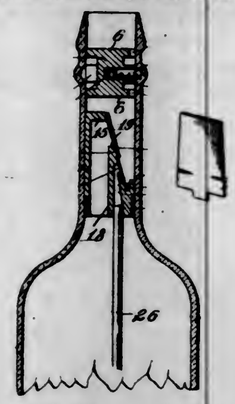
Claim.—1. The combination of a latch-post having a channeled catch at its roadway side; a hinge-post at the opposite side of the roadway; a vertically-movable collar on the hinge-post provided with an upwardly-disposed cam-face pitched downwardly toward the roadway; a gate pivoted for vertical movement on the hinge-post and provided with a roller resting upon the cam-face of said collar; and a spring-actuated reciprocatory latch carried by the gate and provided with a head beveled from each side to a point and normally engaging the catch.

2. The combination of a latch-post having a vertically-channeled catch at its roadway side; a hinge-post at the opposite side of the roadway; a pair of vertically-movable collars on the hinge-post, one of them provided with an upwardly-disposed cam-face pitched downwardly toward the roadway; a gate having brackets pivoted on the post, one of them below the cam-face collar and the other between said collar and the companion collar; a horizontally-disposed pulley supported from the last-named collar rearward of the hinge-post; a spring-actuated reciprocatory latch carried by the gate and terminating in a beveled head; a lever pivoted to said latch and fulcrumed at its lower end against the gate; and cables extending around said pulley from opposite sides and secured at one end to the lever at the opposite side of the same from said fulcrum-point.

3. The combination of a latch-post having a vertically-channeled catch at its roadway side; a hinge-post at the opposite side of the roadway; a pair of vertically-movable collars on the hinge-post, one of them provided with an upwardly-disposed cam-face pitched downwardly toward the roadway; a gate having brackets pivoted on the post, one of them below the cam-faced collar and the other between said collar and the companion collar; a horizontally-disposed pulley supported from the last-named collar rearward of the hinge-post; a spring-actuated reciprocatory latch carried by the gate and terminating in a beveled head; a lever pivoted to said latch and fulcrumed at its lower end against the gate; cables extending around said pulley from opposite sides and secured at one end to the lever at the opposite side of the same from said fulcrum-point; and posts at opposite sides of and at the same side of the roadway as the hinge-

post and provided with vertically-channeled catches for engagement at times by the latch.

785,551. STOPPER FOR BOTTLES. EDWARD HOBRICHS, Baltimore, Md., assignor of two-thirds to Thomas A. Bryan and Charles H. Boone, Baltimore, Md. Filed July 5, 1904. Serial No. 215,343.



Claim.—1. A stopper involving a hollow plug provided with an outlet for the contents of a vessel and an inlet for supplying air to the body of the vessel, and a strip of flexible material secured to said plug and adapted to normally close said outlet and inlet.

2. A stopper involving a hollow plug closed at its top and open at its bottom and provided with an outlet for the contents of a vessel and with an inlet for supplying air to the interior of the vessel, and a strip of flexible material suitably secured to said stopper and adapted to normally close said outlet and said inlet.

3. A stopper involving a hollow plug provided with an outlet for the contents of a vessel and an inlet for supplying air to the interior of the vessel, and a strip of suitable material secured to said plug and adapted to normally close said outlet and inlet.

4. A stopper involving a hollow plug having a cut-away portion and provided with a partition having an air-inlet adapted to communicate with the interior of a vessel, said partition closing a part of said cut-away portion and forming in said plug an outlet for the contents of a vessel, and a strip of material secured to the plug and adapted to simultaneously close said outlet and inlet.

5. A stopper involving a hollow plug having a cut-away portion and provided with a partition having an air-inlet adapted to communicate with the interior of a vessel, said partition closing a part of said cut-away portion and forming in said plug an outlet for the contents of a vessel, and a strip of material having its lower end secured to said plug and constituting a valve for closing said outlet and a valve for closing said inlet.

6. A stopper involving a resistance member and a member having an outlet and an inlet, and a strip of material secured to said last-mentioned member and constituting a valve for normally closing said outlet and a valve for normally closing said inlet.

7. A stopper for vessels involving a hollow plug closed at its top and open at its bottom and having a portion cut away at an inclination, said cut-away portion extending from a point removed from the lower end of said plug to the top thereof, a partition secured in said plug and having the upper portion cut away to conform to the cut-away portion of said plug, said partition forming said plug with an outlet for the contents of a vessel, said partition provided with an air-inlet and an air-channel, and a strip of suitable material secured to said plug and constituting a valve for closing said outlet and inlet.

8. A stopper for vessels involving a hollow plug closed at its top and open at its bottom and having a portion cut away at an inclination, said cut-away portion extending from a point removed from the lower end of said plug to the top thereof, a partition secured in said plug and having the upper portion cut away to conform to the cut-away portion of said plug, said partition forming said plug with an outlet for the contents of a vessel, said partition provided with an air-inlet and an air-channel, and a strip of material having a weighted upper end and a slitted lower portion, said weighted upper end constituting the valve for closing said outlet and said slitted lower portion constituting a valve for closing said inlet.

9. A stopper for vessels comprising the combination with a resistance member adapted to be mounted in the neck of a vessel, of a plug secured within the neck of the vessel and having one side cut away, said plug provided in its cut-away side with an outlet for the contents of the vessel and an air-inlet for supplying air to the interior of the vessel, an air-tube connected to said plug and communicating with said inlet and a strip of flexible material secured to said plug and constituting a valve for closing said outlet and a valve for closing said inlet.

10. A stopper involving a hollow plug closed at its top and open at its bottom and provided with an outlet for the contents of a vessel and with an inlet for supplying air to the interior of the vessel, and a T-shaped strip of flexible material suitably connected to said stopper and adapted to normally close said outlet and said inlet.

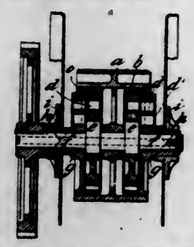
11. A stopper involving a plug closed at its top and open at its bottom and provided with an outlet for the contents of a vessel, a partition extending upwardly into said plug and provided with an inlet for supplying air to the interior of the vessel, and a T-shaped strip of material bearing against said plug and said partition and adapted to normally close said outlet and said inlet.

12. A stopper involving a hollow plug provided with an outlet for the contents of a vessel and an inlet for supplying air to the interior of the vessel, and a T-shaped strip of suitable material secured to said plug and adapted to normally close said outlet and inlet.

13. A stopper involving a hollow plug having a cut-away portion and provided with a partition having an air-inlet adapted to communicate with the interior of a vessel, said partition closing a part of said cut-away portion and forming in said plug, an outlet for the contents of the said vessel, and a strip of material secured within said plug and constituting a valve for closing said outlet and a valve for closing said inlet.

14. A stopper involving a hollow plug having a cut-away portion and provided with a partition having an air-inlet adapted to communicate with the interior of a vessel, said partition closing a part of said cut-away portion and forming in said plug, an outlet for the contents of the said vessel, and a T-shaped strip of material secured within said plug and constituting a valve for closing said outlet and a valve for closing said inlet.

785,552. DRIVING-GEAR FOR ELEVATING MACHINERY, &c. GERALD E. HOLLAND and HENRY JOHNSTON, Rangoon, Burma, India, assignors to The Holland Johnston Patents Limited, London, England. Filed July 25, 1904. Serial No. 218,101.



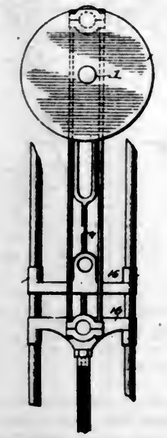
Claim.—1. An inclosed driving mechanism involving a driving-shaft, a fixed frame, non-revoluble disks mounted in bearings attached to said frame, a drum revolving on said disks and provided with internal circular racks, toothed pendulum-pinions carried by said disks and adapted to gear with said racks, and eccentrics keyed to said shaft and operating the pinions.

2. In driving mechanism such as herein described, a driving-shaft, a circular rack revoluble about the axis of the said shaft, an eccentric fixed on the said shaft, a toothed pinion operated by said eccentric to gear with said rack, a pivot-pin supporting the said pinion and mounted to slide in fixed guides, substantially as described.

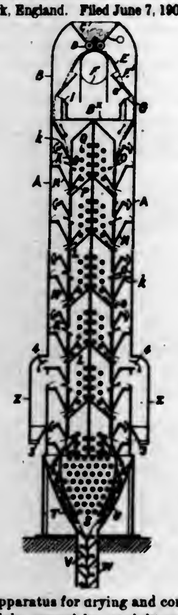
3. Inclosed driving-gearing comprising a driving-shaft, eccentrics keyed thereon, sliding blocks, pins carried thereby, toothed pendulum-pinions mounted on said pins, non-revoluble disks mounted in suitable bearings, a drum mounted on non-revoluble disks and having internal racks gearing with the said toothed pendulum-pinions to give intermittent movements of rotation of the drum on the said non-revoluble disks, substantially as described.

785,553. DOUBLE-ACTING PUMP MECHANISM. EUGENE HOORNBEEK, Riverside, Cal. Filed Sept. 19, 1904. Serial No. 225,026.

Claim.—In a mechanism of the class described, the combination with parallel guide-rods, of alining cross-heads interposed therebetween, sleeves integral therewith and surrounding and movably mounted in the guide-rods, a tubular pump-rod connected to the lower cross-head, a plurality of rotatable disks arranged in pairs, parallel rods connected to each pair of disks and pivotally secured to opposite sides of the lower cross-head, a pump-rod movably mounted in the tubular rod and secured to the upper cross-head, a bifurcated extension upon said cross-head, an annulus pivoted within said extension, and a rod detachably secured to the annulus and having a forked end between and pivotally connected to the pairs of disks whereby the parallel rods and the forked rods are adapted to move in opposite directions simultaneously.



785,554. APPARATUS FOR CONDITIONING GRAIN, &c. RICHARD HORNER, York, England. Filed June 7, 1904. Serial No. 211,559.



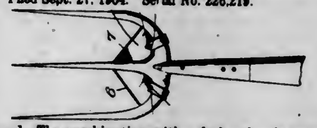
Claim.—1. An apparatus for drying and conditioning wheat or other granular materials, comprising upright casings, a middle upright chamber between, hinged doors or valves in the casings sloping downward from the hinge in such manner as to allow the granular material to descend in thin streams, holes or passages into said middle chamber located at intervals, through which a current of hot air, reheated at intervals, is passed back and forth across these descending streams, in such a manner as to extract moisture therefrom and effect the drying of the granular material substantially as described.

2. An apparatus for drying and conditioning grain and other granular material, having straight upright trunks for the streams of descending material, said trunks being provided with holes or passages for air, sloping hinged plates or partitions which divide the said trunks into compartments, leaving passages sufficient to enable thin, approximately vertical descending streams of granular material to pass, heating-chambers located in close proximity to the trunks, also divided into compartments and so connected to the trunks at intervals by said holes or passages that currents of air drawn upward through the trunks will be obliged to pass through these holes and the descending streams of material into said heating-chambers, and from these out through succeeding holes and the descending streams of material, again into the trunks, and so on, the air being reheated in the heating-chambers every time after its passage through the material, substantially as described.

3. In apparatus for conditioning and drying grain or other granular material, the combination with the upright trunks through which the material descends, of a receiving-chamber at top thereof, means for feeding in wet material, combs or grids over which the wet material is caused to flow in thin streams, so as to permit water to drain from the material before being delivered into the trunks, and through which and through the thin stream of material an air-current is passed by a fan, to further draw off water from the material and the said fan, substantially as described.

4. In drying or conditioning apparatus of the kind mentioned, a receiving-chamber formed at each side with fixed combs or grids E, and combs or grids hinged so as to be adjustable to enable them to be set at an angle relative to the adjacent stationary combs and leave an opening between, over which the descending produce will fall, and through which and the descending stream of granular material, air-currents are passed laterally, substantially as described.

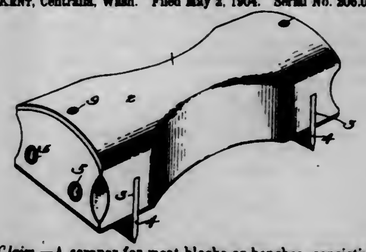
785,555. FORK ATTACHMENT. HENRY M. KARSTEN, Clearlake Minn. Filed Sept. 27, 1904. Serial No. 226,219.



Claim.—1. The combination with a fork, of a tie-cutter therefor, said cutter comprising a plate having a central convolution with which the central tine of the fork is engaged, and having upwardly-slanting sharpened edges, said plate having also looped tabs engaged with the side tines of the fork.

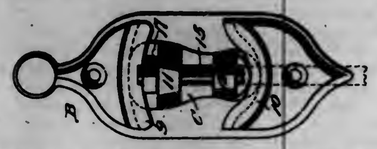
2. An attachment for forks, comprising a plate having slanting sharpened edges and looped tabs, said tabs being arranged for engagement with the side tines of a fork with the sharpened edges between said tines, and means for holding the tabs in engagement with the tines.

785,556. MEAT BLOCK AND BENCH SCRAPER. GEORGE E. KENT, Centralia, Wash. Filed May 2, 1904. Serial No. 206,062.



Claim.—A scraper for meat blocks or benches, consisting of a suitably-shaped block having formed in its under side and near each end vertical transversely-disposed slots or grooves, vertical transversely-disposed scraping-blades arranged in said grooves, holes formed in the ends of said block, and communicating with said slot, nuts countersunk in the wall of said slot at the end of said holes, clamping-screws adapted to be passed into said holes and screwed through said nuts and into engagement with recesses formed in said scraping-blades, thereby removably clamping the same in place, substantially as described.

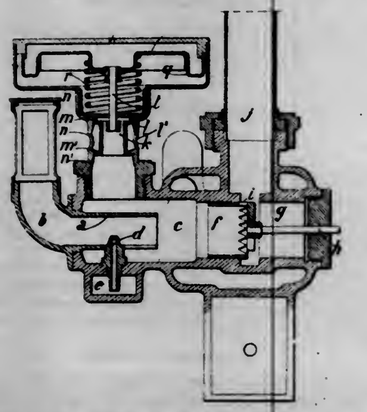
785,557. SWING. WILLIAM J. KINRACK, Dunmore, Pa. Filed Nov. 12, 1904. Serial No. 232,446.



Claim.—1. A swing comprising supports, bearing-plates on said supports, segmental flanges on said bearing-plates, bearing members adapted to be fitted between said flanges when in one position and to be locked between said flanges when moved to another position, hangers detachably connected with said bearing members, and swing-seats supported by said hangers.

2. A swing comprising a stationary frame having uprights, bearing-plates on said uprights, segmental guide-flanges on said bearing-plates, bearing members adapted to be fitted between said guide-flanges when in one position and to be held therein when moved to another position, perforated ears on said bearing members, U-shaped hangers detachably connected with said ears, a swinging frame supported by said hangers, swing-seats on said swinging frame, links pivotally connected with said swinging frame, a pair of platforms connected with said links and adapted to be swung down upon said swinging frame or to be moved thereabove, and a catch for locking said platforms together when in raised position.

785,558. OIL-ENGINE. ARTHUR KREBS, Paris, France, assignor to Société Anonyme des Anciens Etablissements Panhard et Levassor, Paris, France. Filed Sept. 26, 1903. Serial No. 174,827.

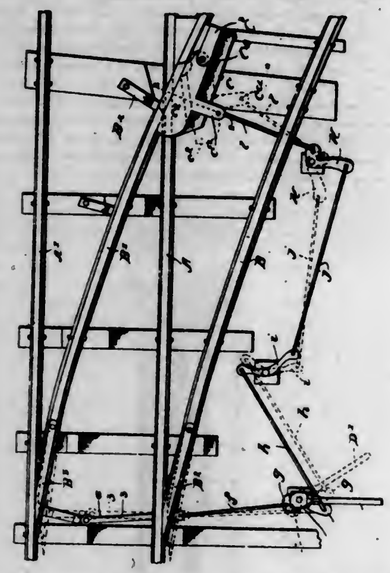


Claim.—1. In a vaporizer for oil-engines, the combination of a main air-supply, fuel-injecting means coactive therewith, an atomizing-chamber, an exhaust-conduit, a second chamber provided with air-inlets and having an inclined inner wall, and a suction-operated valve situated in said second chamber, said valve, when opened, being out of contact with said inclined wall to thereby provide a space between the valve and second chamber.

2. In a vaporizer for oil-engines, the combination of a main air-supply, fuel-injecting means coactive therewith, an atomizing-chamber, an exhaust-conduit, a second chamber provided with air-inlets and having an inclined inner wall, and a suction-operated valve situated in said second chamber, said valve, when opened, being out of contact with said inclined wall to thereby provide a space between the valve and second chamber, and means for limiting the upward movement of the valve.

3. In a vaporizer for oil-engines, the combination of a main air-supply, fuel-injecting means coactive therewith, an atomizing-chamber, an exhaust-conduit, a second chamber provided with air-inlets and having an inclined inner wall, and a suction-operated valve situated in said second chamber, said valve, when opened, being out of contact with said inclined wall to thereby provide a space between the valve and second chamber, and bosses in the second chamber for limiting the upward movement of the valve.

785,559. RAILROAD-FROG. PRESTON KYLE and JOHN R. CREES, Coalbluff, Ind. Filed Nov. 17, 1904. Serial No. 233,130.



Claim.—1. A railway-frog comprising a support adapted to be fixedly secured to the track, a plate having a section of railway-track and mounted to move horizontally outward on said support and interlocking means between said support and plate, designed to come into engagement with each other when the plate is moved to its inward position on the block.

2. A railway-frog comprising a block adapted to be fixedly secured to the track, a track-plate pivoted to the top of said block to swing horizontally thereupon, and interlocking means between said block and plate.

3. A railway-frog comprising a block adapted to be fixedly secured to the track, a plate pivoted to the top of said block to swing horizontally thereupon, a track-flange at one side of said plate, and interlocking means between the plate and block, at the other side of the plate.

4. A railway-frog comprising a block having a recess at its inner side and adapted to be fixedly secured to the track, a plate pivoted to the top of said block to swing horizontally thereon and carrying a section of railway-track at its forward side and means at the rear side of said plate for engaging said recess in the block.

5. A railway-frog comprising a block having a recess at its rear inner side provided with a top wall inclined downwardly and inwardly, said block being adapted to be fixedly secured to a railway-track, a plate pivoted to the top of said block to swing horizontally thereon and carrying a section of railway-track at its forward side, and a hook at its rear under side for engaging said recess, said hook having an inclined upper face adapted to fit the inclined top wall of the recess.

6. A railway-frog comprising a block provided with a recess at its rear inner side having its top wall inclined downwardly and inwardly, said block being adapted to be fixedly secured to a railway-track, a plate pivoted to the top of said block to swing horizontally thereon and carrying a section of railway-track at its forward side, a hook at the rear under side of said plate for engaging said recess, said hook having an inclined upper face adapted to fit the inclined top wall of said recess, and an arm extending rearwardly from said plate and provided with means for connection with an operating means.

7. A railway-frog comprising a block having a recess at its rear inner side with the top wall of said recess inclined downwardly and inwardly, and an upwardly-projecting portion at its rear end, provided with a horizontal slot, the lower side of said slot forming a continuation of the top surface of the block, said block being adapted to be fixedly secured to the track, a plate pivoted at its rear end in said horizontal slot to swing on the top of the block, said plate being provided at its inner side with a section of track, a hook at the rear under side of said plate for engaging said recess in the block and having an inclined upper face adapted to fit the inclined face of said recess to cause the plate to be clamped upon the block when said parts are forced into engagement with each other, and an arm forming a rearward extension from said plate and hook and provided with means for connection with switch-operating mechaniem.

8. The combination with a main railway-track and a switch-track having its intersecting rail elevated somewhat above the main track at its point of intersection therewith, and having a section of its tread portion cut away at said intersecting-point, of a switch-frog comprising a block adapted to be fixedly secured to the railway-track between the sides of the switch and fitting in the angle formed at the inner side of the intersecting rail opposite said cut-away portion thereof with the top of the block flush with the top of the main-track rail, a plate supported on the top of said block and adapted to be moved horizontally thereupon, said plate being provided with a section of track adapted to supply the cut-away portion of the intersecting switch-rail, when the plate is moved inwardly, means for utilizing the lateral outward force of the car-wheels to automatically clamp said plate into binding engagement with said block and means for operating said plate.

9. The combination with a main railway-track, a switch having its intersecting rail elevated somewhat above the main track at its point of intersection therewith, and having a section of its tread portion cut away at said intersecting-point, and a switch-operating means, of a block rigidly secured to the track at one side of the intersecting-point of the rails, a movable member pivoted to said block and adapted to swing into position to supply said cut-away portion in the intersecting rail, and an operative connection between said movable member and the switch-operating means.

10. The combination with the movable points of a railway-switch having its inner rail elevated above the rail of the main train-track with which it intersects, and having a portion of its tread cut away at said intersecting-point, of a switch-frog, comprising a block adapted to be fixedly secured to the track between the sides of the switch and fitting in the angle formed at the inner side of the intersecting rails opposite said cut-away portion, with the top of the block flush with the top of the main-track rail, a plate pivoted to the top of said block to swing horizontally thereon, said plate being provided at its inner side with a section of track adapted to supply the cut-away portion of the intersecting switch-rail when the plate is moved inwardly, interlocking means between said block and plate, a plurality of bell-crank levers and links connecting said swinging plate with the switch-points, and a switch-lever secured to one of said bell-crank levers for simultaneously operating said connected parts.

785,560. CURTAIN-HANGER. ABRAM LA RUE, Danville, Pa. Filed Aug. 4, 1904. Serial No. 219,471.



Claim.—1. The curtain-holding and shade-holding fixture, consisting of a bracket having reverse extending slide-lugs embracing a supporting-bar, a forward inner shade-holding extension, and a forward outer vertical extension parallel to said inner extension and provided with a vertical channel-bearing at its free end, and a detachable pole-holder having a rear hook-arm engaging said channel-bearing and composed of upward and downward extending branches lying close together and adapted to embrace said channel-bearing, substantially as specified.

2. The curtain-holding and shade-holding fixture consisting of a slidable bracket composed of an integral body stamped from a single piece of sheet metal and having reversely-bent slide-lugs for engagement with a supporting-bar, an outward-bent shade-holding lug struck from said body at one end thereof, and an outward-bent terminal extension having a reversely-bent vertical channel-bearing at its free end, and a detachable pole-holder having a rear vertical hook-arm engaging said channel-bearing, substantially as specified.

3. The curtain-holding and shade-holding fixture provided with a shade-holding extension and having a second extension provided with a reversely-bent vertical channel-bearing at its free end, and a detachable pole-holder having a rear hook-arm engaging said channel-bearing and composed of upward and downward extending branches lying close together and adapted to embrace said channel-bearing, substantially as specified.

785,561. WIRING-CLEAT. JOHN M. LATIMER, Weehawken, N. J., assignor to Consolidated Fire Alarm Company, New York, N. Y., a Corporation of New York. Filed July 23, 1904. Serial No. 217,811.



Claim.—1. A cleat comprising the combination of a body portion having two pairs of outwardly and upwardly projecting ears, one pair at each end, with spaces between the ears of each pair and lugs in line with said spaces at each end and projecting downward from the bottom of said body portion, substantially as described and for the purpose specified.

2. A cleat formed of insulating material and comprising a flat-topped body portion formed with two outwardly-extending ears below the top plane of said body portion and spaced apart and having a recess in their upper surfaces for the reception of a wire and a lug projecting downwardly from said body portion substantially at right angles to said ears and to said body portion, for the purpose specified.

3. A cleat formed of insulating material and comprising the combination of the body 1, a pair of outwardly-extending ears 3 and 4 having a space between them and a downwardly-projecting lug 7 having a curved outer surface substantially tangential to the end of said body portion between said ears, and an inner surface substantially perpendicular to said body portion, substantially as described.

4. A cleat for electric wiring comprising the combination of a body portion formed of insulating material and having a pair of outwardly-projecting ears at each end with spaces between the ears of each pair and a downwardly-projecting lug at each end adjacent the spaces between the corresponding ears, for the purposes specified.

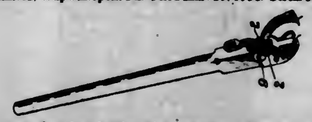
785,562. COMPOSITION OF MATTER ENTERING INTO THE CONSTRUCTION OF FOUNDRY APPLIANCES. AARON R. MARSTELLER, St. Louis, Mo. Filed Jan. 5, 1904. Serial No. 187,789.

Claim.—1. The improved composition of matter for foundry use and the like, consisting of sand, oil, litharge and asphaltum.

2. The improved composition of matter for foundry use and the like, consisting of coarse sand, fine sand, linseed-oil, litharge and asphaltum.

3. The improved composition of matter for foundry use and the like consisting of coarse sand, fine sand, linseed-oil, litharge, asphaltum and turpentine.

785,563. CLAW-BAR FOR RAILROAD-SPIKES. HENRY A. MEIKRANTS, Wapwallopen, Pa. Filed Mar. 29, 1904. Serial No. 200,551.

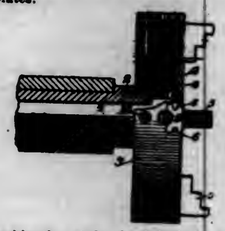


Claim.—A claw-bar having the opposite sides of its operating end provided with recesses, detachable side claws fitting in the recesses and having shoulders abutting against the upper walls of the recesses, said side claws being extended upward along the sides of the bar and having pivot-bolt-receiving openings in alinement with a similar opening in the bar, a pivot-bolt extending through said opening and serving as a securing device for the side claws, and an auxiliary claw-member mounted on said pivot-bolt.

785,564. CHUCK. OLIVER M. MOWAT, McKeesport, Pa. Filed Oct. 14, 1903. Serial No. 177,023.

Claim.—1. The combination of a chuck-body having a plurality

of radially-disposed slots, jaws slidably mounted in said slots, a plurality of screws equal in number to the jaws and disposed in the rear of and in alinement with the slots in which the jaws are mounted and engaging the jaws, said screws being each formed with a peripheral groove, sliding locking-plates engaging the peripheral grooves in the screws, revoluble pins arranged in the chuck-body, eccentrically-disposed studs carried by said pins, said studs working in slots in the said sliding plates.

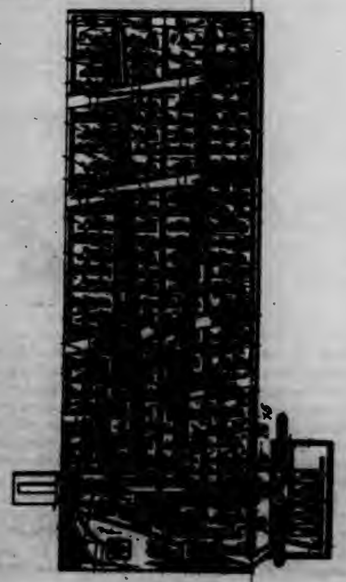


2. The combination of the chuck-body having a plurality of radially-disposed slots, jaws slidably mounted in said slots, a plurality of screws equal in number to the jaws and disposed at the rear of and in alinement with the slots in which the jaws are mounted and engaging said jaws, said screws being each formed with a peripheral groove, sliding plates arranged in the chuck-body and formed with lateral notches, the ends of said plates engaging the peripheral grooves in the screws, revoluble locking-pins mounted in recesses in the chuck-body and formed with peripheral grooves, screws engaging the peripheral grooves in said locking-pins, eccentrically-disposed studs carried by said locking pins and working in the notches in said plates.

3. A chuck-body formed with radial ways, jaws working in said ways, screws mounted in the rear of said jaws and engaging teeth on the jaws, said screws being formed with peripheral grooves, locking-plates engaging said grooves, means for actuating said locking-plates to engage and disengage them from said grooves.

4. In a chuck, the combination of a chuck-body, having a plurality of radial ways, jaws mounted in said ways, means removably mounted in the chuck-body for independently moving each jaw, locking-plates for holding the jaw-moving means in the body and means for causing said locking-plates to be engaged with and disengaged from the jaw-moving means.

785,565. **AMALGAMATOR.** PATRICK MCENTEE, Spokane, Wash. Filed Jan. 13, 1904. Serial No. 188,574.



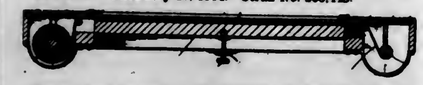
Claim.—1. An amalgamator comprising a sluice having amalgamating-plates, means for feeding material to be treated, together with water and mercury, to the sluice, a collector into which the sluice discharges, said collector having means for separating the water and tailings from the amalgam, and the free mercury from the latter, and means to return the recovered mercury to the sluice for reuse therein.

2. In an amalgamator, the combination of a sluice, amalgamating plates arranged in rows upon said sluice, each of said plates being provided with transverse riffles arranged in staggered relation, and said plates having at their upper end sheds and at their lower end an inclined divider for separating the amalgam and free mercury from the tailings, a conductor for conveying said amalgam and mercury from the sluice, means for supplying mercury at the upper end of the sluice to traverse the same with the water and material to be treated, a collector at the lower end of the sluice receiving the amalgam from said conductor, said collector being provided with means for separating the free mercury from the amalgam, means for returning the free mercury from the collector to the upper end of the sluice, and dividers coacting with said sheds to properly divide the mercury between the rows of amalgamator-plates, substantially as described.

3. In an amalgamator, the combination with a sluice, of means for supplying mercury to traverse the sluice together with the water and material to be treated, means for separating the water and tailings from the amalgamated and free mercury, a collector for receiving the amalgamated and free mercury and separating the same, said collector comprising a chamber having an inlet for the mercury, a receiving-space for the free mercury, and an interposed passage communicating with said inlet and receiving-space, a floating retarder in said passage adapted to allow the free mercury to pass to its receiving-space but to prevent the amalgamated mercury from passing thereto, and means for collecting the free mercury from said receiving-space and returning the same to the upper end of the sluice to be employed again, substantially as described.

4. In an amalgamator, the combination of an inclined sluice, reversely-inclined troughs leading from the lower to the upper end of the sluice, said troughs adapted to supply mercury to different portions of the sluice to traverse the sluice-course with the material to be treated, means for recovering the mercury at the lower end of the sluice, a hollow shaft having a discharge-opening located to discharge into the receiving end of the troughs, a gatherer operated by said shaft to take up and convey the recovered mercury thereto, a power-wheel connected to said shaft and adapted to be operated by the flowing current of material, and a divider for separating the mercury discharged from the shaft and supplying the same in proper proportions to the troughs, substantially as described.

785,566. **ROLLER PRINTING-FRAME.** GUSTAV C. OLSEN, Medina, N. D. Filed May 17, 1904. Serial No. 208,443.



Claim.—1. A printing-frame comprising a box including a central compartment and end compartments, the central compartment being rabbeted at its upper edges to receive and support a negative, a frame hinged to the box and movable into and out of clamping relation to the rabbet, means for holding the frame in clamping position, a roller journaled in each end compartment and having means for rotating them, guide-rollers in the end compartments, a roll of paper mounted upon one roller and attached to the other roller, said paper passing over the guide-rollers, and a removable backing disposed in the central compartment in position to hold the paper against a negative disposed upon the rabbet.

2. A roller printing-frame comprising a box including central and end compartments communicating at their upper portions, the end compartments being slotted, winding-rollers having trunnions removably engaged in the slots, means for rotating the rollers, a closure for each end compartment, guide-rollers in each end compartment, a strip of paper mounted upon one winding-roller and passed over the guide-rollers and attached to the opposite winding-roller, the central compartment being rabbeted at its upper edge to receive and support a negative, a frame hinged to the box and movable into and out of clamping relation to the rabbet, means for holding the frame in clamping position, and a removable back disposed against the paper in position to hold it against a negative on the rabbet, said back when in position, being adapted to close the communication between the compartments in connection with the paper.

785,567. **MOLDING-PRESS.** GEORGE J. OTTO, Rochester, N. Y. Filed Aug. 17, 1904. Serial No. 221,226.



Claim.—1. A molding-press comprising a table, a presser-plate, spaced rack-bars connected to the presser-plate and mounted for movement with the presser-plate toward and away from the table, a presser-shaft having pinions engaged with the rack-bars respectively, a presser-lever pivoted upon the presser-shaft between the rack-bars and having a slotted head, a clutch-wheel in said slot fixed to the presser-shaft, a bolt slidably mounted in the head of the lever and disposed to engage the clutch-wheel, means for holding said bolt normally and yieldably in engaging position, and means connected with the lever for holding the latter yieldably with the presser-plate raised.

2. A molding-press comprising a table, a presser-plate, a presser-shaft, connections between the shaft and plate for moving the latter toward and away from the table, a presser-lever, a clutch mechanism between the lever and shaft, means for rotating the shaft independently of the lever, and means for limiting rotary movement of the shaft with the lever.

3. A molding-press comprising a table, a presser-plate, a presser-shaft, connections between the shaft and plate for moving the latter toward and away from the table, a presser-lever, a clutch mechanism between the lever and shaft, means for rotating the shaft independently of the lever, and means in the path of the lever for limiting rotation of the shaft when connected with the lever.

4. A molding-press comprising a table, a presser-plate, a presser-shaft, connections between the shaft and plate for moving the latter toward and away from the table, a presser-lever, a clutch mechanism between the lever and shaft, means for rotating the shaft independently of the lever, an adjustable stop in the path of its movement with the presser-plate toward the table, and means for limiting the return of the lever.

5. A molding-press comprising a table, a frame supported from the table and including spaced brackets projecting over the table and having vertical tubular bearings in their free ends, a presser-plate, cylindrical rack-bars connected to the end portions of the presser-plate and slidably engaged in the bearings, said brackets having recesses communicating with the bearings, a presser-shaft journaled in the brackets, pinions fixed upon the shaft and engaged with the racks, a presser-lever having a head comprising spaced sleeve-sections rotatably engaged with the presser-shaft and fitted between the brackets, a clutch-wheel fixed upon the shaft between the sleeve-sections, a clutch-bolt slidably mounted upon the lever for movement into and out of engagement with the clutch-wheel, means for holding the bolt normally and yieldably in engaging position, stop-lugs upon the sleeve-sections, stop-plates in the paths of movement of the lugs and slidably mounted upon the brackets, means for holding the plates at different points of their sliding movement, and means for holding the lever normally with the presser-plate in raised position.

785,568. **SEAL-LOCK.** WILLIAM T. PERCIVAL, Penshurst, New South Wales, Australia, assignor to James Channon, Pakenham, New South Wales, Australia. Filed Sept. 10, 1903. Serial No. 172,660.

Claim.—1. The combination with a device to be protected, of a casing having a cover, a bolt carried by one of the members comprised by the casing and the cover, a keeper for said bolt on the other member, and a flexible sealing-piece engaging the bolt and one of the members for retaining said bolt in engagement with its keeper, substantially as described.



2. The combination with a device to be protected, of a casing, a cover therefor, a bolt for locking the cover to the casing, a keeper for said bolt, a sealing-piece confined between a portion of the bolt and one of the members comprised by the casing and its cover, for retaining the bolt in engagement with its keeper, there being an opening in the cover through which the sealing-piece is free to yield to a limited extent, substantially as described.

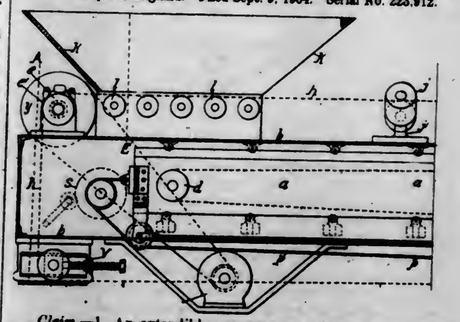
3. The combination with a device to be protected, of a casing, a cover therefor having an opening, a bolt for locking the cover to the casing, and a sealing-piece of flexible material interposed between the bolt and the opening and engaged by said bolt and a portion of the cover, said sealing-piece being of such a size as to retain the bolt in a position to lock the casing, substantially as described.

4. The combination with a device to be protected, of a casing having a cover, and a keeper having an inclined portion, a bolt for locking the cover to the casing and also having an inclined portion, with abutments respectively on the cover and on the bolt, and a piece of flexible sealing material confined between said two abutments and of a length to retain the bolt in a projected position, substantially as described.

5. The combination of a casing with a device to be protected inclosed by said casing, a cover hinged to the casing, a slidable bolt carried by the cover, said bolt and the casing having inclined portions placed to coact with each other to move the bolt, and a piece of resilient sealing material placed between a portion of the bolt and a portion of the cover for retaining the bolt in engagement with the casing, substantially as described.

6. The combination with a device to be protected, of a casing inclosing the same, a cover hinged to the casing, a bolt slidably mounted on the cover and having means for limiting its motion, a keeper on the casing for said bolt, an opening in the cover, and a piece of resilient sealing material between the opening and the bolt and confined between said bolt and a portion of said cover, said piece being of a length to retain the bolt in its projected position, substantially as described.

785,569. **EXTENSION-CONVEYER.** DAVID D. D. PLUNKET, New Southampton, England. Filed Sept. 9, 1904. Serial No. 223,912.



Claim.—1. An extendible conveyer comprising a movable or extendible frame mounted and free to telescope on a main or carrying frame, said extendible frame being of such length that its discharge end projects beyond said main frame even in its most retracted position, two or more rollers mounted on said extendible frame separated by a distance greater than the telescopic travel thereof and the level of the outer or discharge roller being coincident with that of the inner roller and below the line of the rollers which support the material to be conveyed, a receiving-roller at the rear

end of said main frame, troughing rollers or idlers spaced along the line of the conveyer-frames so mounted as to slide or be movable out of the way of the contiguous discharge or fixed troughing-rollers as the case may be and lie close together when the conveyer is at its shortest and move out on the extension of the same, back-bend and other lead-rollers mounted on the main frame, and an endless conveyer-belt adapted to travel on said conveyer supported by said rollers as set forth.

2. An extendible conveyer comprising a movable or extendible frame mounted and telescoping on a carrying-frame said extendible frame being of such length that its discharge end projects beyond said main frame even in its most retracted position, a discharge-roller at the outer end and a return lead-roller at the rear end of said extendible frame, a receiving-roller at the rear end of the carrying-frame, movable compensating troughing-rollers on said carrying-frame, fixed compensating troughing-rollers on said extendible frame, back-bend and other lead-rollers on said carrying-frame, and an endless conveyer-belt supported by and led over and round said rollers as set forth.

3. In an extendible conveyer as herein described the combination with an extendible frame having discharge and return lead-rollers mounted as described, and fixed troughing-rollers as described, of a carrying-frame provided with movable troughing-rollers adapted to slide out of the way of the fixed troughing-rollers on the retraction of said extendible frame and move out on the extension of said frame, receiving and return lead-rollers, a sliding feeding-hopper provided with rollers placed close together adapted to receive any shock due to the material being thrown onto the endless conveyer-belt which is led and runs over the rollers of the apparatus as set forth.

4. In a portable extensible conveyer, the combination with an extensible frame, of a series of troughing-rollers, each comprising an intermediate roller and yieldably-mounted rollers on opposite sides thereof, the axes of which are oblique to the intermediate roller, and means for controlling the operation of the troughing-rollers, the latter being movable automatically by the expansion and contraction of the frame.

5. The combination in a portable extendible conveyer substantially as herein described of an extendible frame free to telescope on a carrying-frame, troughing-rollers adapted to slide out of the way of contiguous fixed rollers on the conveyer, receiving and lead rollers, an endless belt supported and traveling on the several rollers of the apparatus, a sliding hopper having rollers adapted to receive the impact of the material thrown on said belt, a wheeled carriage adapted to slide on said conveyer and whereby it can be set to work at varying inclines or on the level, as set forth.

785,570. **CAR-BRAKE.** HENRY POTE, Elliott, Pa., assignor of one-half to Hermann Lobes, Knoxville, Pa. Filed Nov. 28, 1904. Serial No. 234,596.

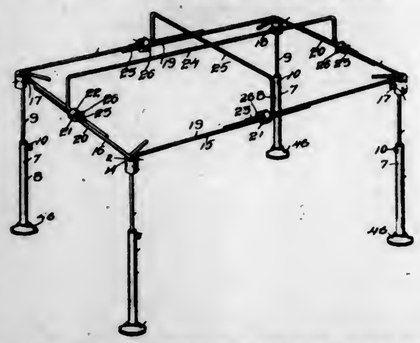


Claim.—1. In a device of the character described, a rocking shaft mounted on the bottom of the car, a lever mounted on said shaft and extending through the platform of the car, a crank-arm carried by said shaft, a link pivotally attached to said crank-arm, toggle-levers pivotally attached to said link, one of said toggle-levers being pivotally attached to the bottom of the car, and a brake-arm carrying a brake-shoe, said brake-arm being pivotally attached to the bottom of the car and pivotally attached to one of said toggle-levers, and a spring surrounding said shaft and adapted to return the brake-arm to its normal position after it has been depressed.

2. In a device of the character described, the combination with a car, of a beam attached to the bottom of the car, a rocking shaft mounted in said beam, a lever attached to said shaft, a spring surrounding the shaft, and connected at one end to said beam and at the other end to said lever, crank-arms carried by said shaft, toggle-levers pivotally secured to said beam, a link connecting said toggle-levers with said crank-arms, the lower of said toggle-levers being provided with a serrated head, a brake-arm pivotally mounted on said shaft and pivotally connected to said toggle-levers, the lower surface of said brake-arm being formed with a curved surface adapted to contact with the road-bed.

3. In a car-brake, the combination with a car-body, of a curved brake-arm pivotally supported from the car-body, a slotted bracket carried by said brake-arm, a pair of toggle-levers pivotally attached to the car-body and pivotally attached to said bracket, elastic material arranged in the bearings of said toggle-arms, a rocking shaft mounted on the car-body, connections between said shaft and said toggle-levers, and a lever connected to said shaft and extending above the bottom of the car.

785,571. **CANOPY-SUPPORT.** HENRY RAINES and BENJAMIN F. GOOCH, Mason, Tex. Filed May 6, 1904. Serial No. 206,680.



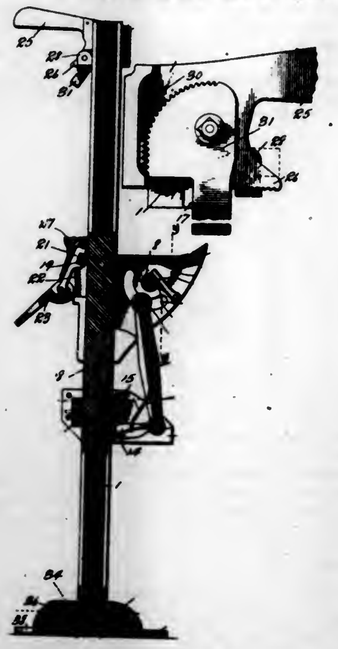
Claim.—1. A canopy-support comprising corner-uprights having heads upon their upper ends, said heads having slots in their upper faces opening at one end through their peripheries and also having longitudinal passages communicating with the inner ends of the slots, side and end pieces having downwardly-turned ends disposed in the longitudinal passages and lying with their portions adjacent to the ends in the slots, plates pivoted to the upper faces of the heads, said side and end pieces comprising two overlapping rods, a clamping-collar having a triangular passage therethrough with which the overlapping portions of the rods are engaged, said collar having a threaded opening communicating with one of the angles of its passage, rods disposed with their ends in the triangular passages and thumb-screws engaged in the threaded openings and arranged for operation to bear against the ends of the last-named rods to force said rods between the overlapping ends of the side and end rods and to force the latter against the ends of the passages to prevent movement of the several parts with respect to each other.

2. A canopy-support comprising corner-uprights, extensible side and end pieces removably connected at their ends to the upper ends of the uprights, each of said side and end pieces comprising two rods overlapping at their inner ends, a clamping-collar having a triangular passage therethrough with which the overlapping ends are engaged, said collar having a threaded opening communicating with one of the angles of the passage, canopy-supporting yokes disposed with their ends in the triangular passages of the collars, and thumb-screws engaged with the threaded openings of the collars and arranged for operation to bear against the ends of the yokes to force said ends between the overlapping ends of the rods and to force the latter into the angles of the passages and against the sides thereof to prevent movement of the several parts with respect to each other.

3. A canopy-support comprising corner-uprights having heads upon their upper ends, said heads having slots in their upper faces communicating at one end with their peripheries and having also longitudinal passages communicating with the inner ends of the slots, side and end pieces having downwardly-turned ends disposed with said ends in the longitudinal passages and lying with their portions adjacent to said ends in the slots, and plates pivoted to the upper faces of the heads and having notches therein, said plates being movable to bring their notches into and out of registration with the slots.

4. A canopy-support comprising corner-uprights, side pieces secured at their ends to the uprights, end pieces connected at their ends with the uprights and each including two rods overlapping at their inner ends, a collar having a triangular passage therein with which the overlapping ends of the rods are engaged, other rods engaged in the triangular passages, each of said collars having a threaded perforation therein communicating with their outer faces and with an angle of its passage, and a set-screw engaged in each of the threaded perforations, said screws being arranged for operation to bear against the last-named rods and to force the latter between the overlapping rods to clamp the latter in the angles of the passages.

785,572. **LIFTING-JACK.** MILFORD RIDDLE, Bloomfield, Ind., assignor of one-third to John F. Slinkard and one-third to John A. Phillips, Bloomfield, Ind. Filed Mar. 16, 1904. Serial No. 198,470.



Claim.—1. In a tool of the class described, the combination of a main bar, an elevating head movably mounted upon said bar, a lever mounted upon the head, a journal member projected from the lever and received by the head, a latch carried by the head and engaging the journal member aforesaid to prevent displacement thereof, and the lift-bar coöperating with the lever.

2. In a tool of the class described, the combination of a main bar, a head movably mounted upon said bar and comprising spaced members, a lever pivoted to the head, a journal member projected from the lever and received by the head, a lock device disposed between the spaced members of the head and engaging the journal member, and a lift-bar connected with the lever aforesaid.

3. In a tool of the class described, the combination of a main bar, a head movably mounted upon said bar and comprising spaced members, a lift-bar coöperating with the head, a lever pivoted to the head, a journal member projected from the lever and received by the head, connecting means between the lever and the lift-bar, and a latch device disposed between the spaced members of the head and interlocking with the journal member of the lever aforesaid.

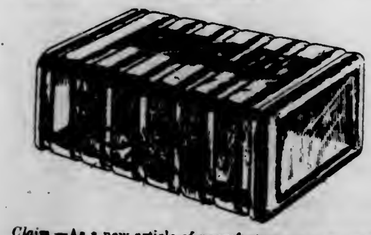
4. In a tool of the class described, the combination of a main bar, a head slidably mounted upon said bar and comprising spaced members, a frame slidably mounted upon said bar, a lift-bar pivoted to the frame, a lever pivoted to the head, means connecting the lift-bar and the lever, a journal member projected from the lever and received by the head, said bar being provided with an interlocking groove or depression, and a latch device disposed between the spaced members of the head and engaging the grooved portion of the journal member.

5. In a tool of the class described, the combination of a main bar, a head movable along said bar and comprising spaced members, a frame on the bar, engaging means between the main bar and the head and frame, a lift-bar pivoted to the frame at its lower end, a lever pivoted to the head, the spaced members of the head being provided with arcuate slotted openings, a journal-pin projected from the lever and connected with the upper end of the lift-bar, said pin operating in the slotted portions of the head aforesaid, and a roller mounted upon the outer end of the pin and operating in the slotted opening of the adjacent spaced member of the head.

6. In a tool of the class described, the combination of a main bar, a base removably applied to the bar, a pivoted latch carried by the base and interlocking with the lower end of the bar, a frame and head slidably mounted upon the bar, engaging members carried by the frame and head and coöperating with the bar to fix the adjustment of said head and bar, a lift-bar pivoted to the frame, a lever pivoted to the head, and connecting means between the lever and the lift-bar.

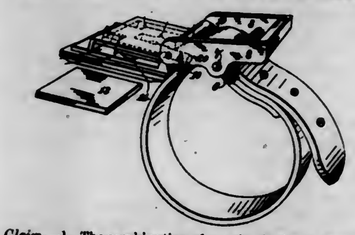
7. In a tool of the class described, the combination of a main bar, a head slidably mounted upon said bar, a frame movably mounted upon said bar, a lift-bar pivoted to the frame, a lever pivoted to the head and operably connected with the lift-bar, engaging means between the frame and the main bar, an engaging member carried by the head and coöperating with the main bar, a spring coöperating with the engaging bar aforesaid to normally hold same in engagement with the main bar, and a lever for actuation of the engaging bar carried by the head to effect a locking of the head at an ascertained adjustment upon the main bar.

785,573. **PAPER-WEIGHT.** CLAUDE T. RINGO, Little Rock, Ark. Filed Nov. 10, 1904. Serial No. 232,192.



Claim.—As a new article of manufacture, a paper-weight consisting of a hollow transparent sealed body containing an article of vegetation, the exterior of the body being provided with continuous peripheral grooves to constitute pen or pencil rests.

785,574. **SEAL-LOCK.** JOHN J. RUSSELL, Milton, New South Wales, Australia, assignor to James Channon, Petersham, New South Wales, Australia. Filed Sept. 10, 1903. Serial No. 172,659.



Claim.—1. The combination of a casing having a movable cover portion, a locking-bolt for said portion, a catch for said bolt on one of the members comprised by the casing and the bolt, and an abutment on the other member, with a seal of flexible material protecting said catch, said seal being free to yield to permit the catch to pass the abutment, substantially as described.

2. The combination of two members detachably fastened together, a casing covering the same and made with a movable cover portion, a locking-bolt for said portion, a pivoted catch, an inclined abutment therefor, and a sealing-piece covering said catch, said piece being free to yield to permit the catch to pass the abutment when said bolt is moved in one direction, substantially as described.

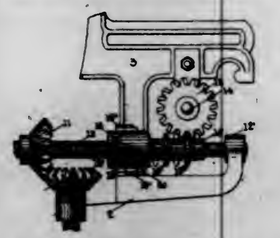
3. The combination of a device to be protected with a casing made in two parts, lock mechanism for holding said parts together including a yieldable sealing-piece, a catch placed to be held in its locking position by said sealing-piece, and locking means coacting with said catch to hold the parts of the casing together, substantially as described.

4. The combination of a frame, a cover hinged thereto, a sliding bolt having a portion free to be moved into a position to project beyond the frame, a flexible sealing-piece, a catch pivoted to said bolt and covered by said sealing-piece, said frame having a portion placed to force the catch into engagement with the sealing-piece and thereby move said piece when the device is being brought to its locked position, substantially as described.

5. A device to be protected in combination with a frame having a movable cover, an abutment on the frame, a bolt carried by the cover for locking it to the frame, a catch on said bolt, with a sealing-piece of flexible material placed over said catch and free to yield to permit the catch to pass the abutment, substantially as described.

6. A device to be protected in combination with a frame having a movable cover and an abutment provided with an inclined face, a bolt carried by the cover for locking it to the frame, a catch on said bolt also provided with an inclined face, with a sealing-piece of flexible material placed over said catch and free to yield to permit the catch to pass the abutment, substantially as described.

785,575. **PICK-FINDER MECHANISM.** EPPA H. RYON, Worcester, Mass., assignor to Crompton & Knowles Loom Works, a Corporation of Massachusetts. Filed Oct. 31, 1904. Serial No. 230,826.



Claim.—1. The combination with a shaft, and a worm-gear mounted thereon, of a worm having threads adapted to mesh with said worm-gear to rotate the same, and said worm mounted on a driven shaft, and said driven shaft, and means to cause said worm to slide longitudinally, to communicate an additional rotary movement to said worm-gear, when the direction of rotary movement of the shaft carrying said worm is reversed, substantially as shown and described.

2. The combination with a shaft, and a worm-gear mounted thereon, of a worm having threads adapted to mesh with said worm-gear to rotate the same, and said worm mounted on a driven shaft, and having a sleeve or hub thereon, and two oppositely-extending projections on said sleeve, and a cam-slot in said sleeve, and said driven shaft having a collar secured thereon, and a stud or screw on said collar extending into said cam-slot, and means to cause said worm and sleeve to slide longitudinally on the driven shaft, said means comprising two fingers or pawls, located upon opposite sides of said sleeve, and held in yielding engagement therewith, with their free ends extending in the path of and adapted to engage the projections on said sleeve, for the purpose stated, substantially as shown and described.

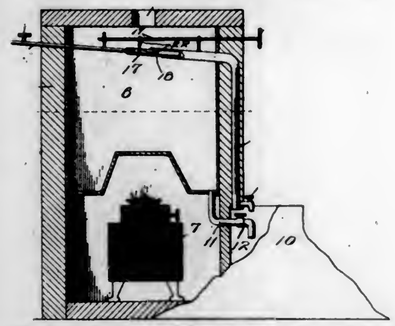
3. The combination with the driving mechanism of a pattern-chain-cylinder shaft, of mechanism automatically operated on the reversing of the movement of the pattern-chain-cylinder shaft, to give to the pattern-chain cylinder an additional rotary movement, in addition to the ordinary rotary movement of the pattern-chain cylinder, substantially as shown and described.

4. In a pattern mechanism of a loom, the combination with the mechanism for operating the pattern-chain-cylinder shaft, of supplemental mechanism combined therewith to automatically communicate to the pattern-chain cylinder an additional rotary motion, on the reversing, or the starting up of the pattern-chain mechanism, substantially as shown and described.

5. In a pattern mechanism, the combination with the driving mechanism of a pattern-chain-cylinder shaft, comprising therein a shaft having a worm thereon, to engage and operate a worm-gear on the pattern-chain-cylinder shaft, of mechanism for communicating a movement to said worm, in addition to the movement thereof by the revolution of the shaft on which it is mounted, said additional movement acting to give to the pattern-chain cylinder, an additional rotary movement, substantially as shown and described.

6. In a pattern mechanism, the combination with the driving mechanism of a pattern-chain-cylinder shaft, comprising a shaft, a worm loosely mounted thereon to operate the pattern-chain-cylinder shaft, of mechanism for communicating a movement to said worm, in addition to the movement communicated by the rotation of the shaft on which it is mounted, said mechanism comprising a sleeve connected with said worm, means for holding said sleeve to prevent the rotation thereof, and means, intermediate said shaft and said sleeve, to communicate a sliding and a rotary motion to said sleeve, substantially as shown and described.

785,576. **WATER-HEATER.** LINUS H. SALSGIVER, Salem, Ohio. Filed Nov. 19, 1904. Serial No. 233,443.

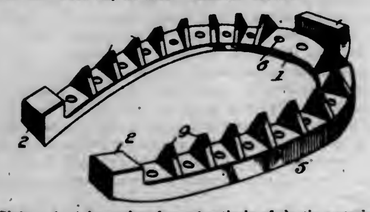


Claim.—1. In a water-heater, the combination with a tank, of spaced alining pipes disposed within the tank and passing outwardly thereof, one of said pipes being arranged for connection with a water-supply, a pipe-section disposed for communication with the first-mentioned pipes and arranged for rotation with respect thereto, said pipe-section having an opening between the first-mentioned pipes, a closure for the opening disposed to lie at times in operative position, and at times out of such position as the pipe-section is rotated, a discharge-pipe connected with the tank, and means for heating the contents of the tank.

2. A water-heater comprising a tank, pipes communicating with the interior of the tank, one of said pipes being arranged for connection with a water-supply, a pipe-section disposed within the tank and communicating with the first-mentioned pipe, said pipe-section being arranged for movement with respect to the first-mentioned pipes, and having an opening in its side, a closure for the opening, and means for heating the contents of the tank, said pipe-section being movable to bring its opening into and out of position to be closed by the closure.

3. In a device of the class described, the combination with a tank, of a fluid-supply pipe communicating with the tank, a discharge-pipe communicating with the tank, a pipe-section disposed within the tank and communicating with the supply and discharge pipes, said pipe-section having an opening in one of its sides, a closure for the opening, said section being arranged for movement with respect to the supply and discharge pipes to bring its opening into and out of position to be closed by the closure, and means for moving the pipe-section.

785,577. **RUBBER HORSESHOE.** AUGUSTE SANDFIELD, Swissvale, Pa. Filed July 25, 1903. Serial No. 166,971.

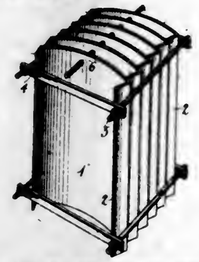


Claim.—1. A horseshoe formed entirely of elastic material and composed of a body having an upwardly-extending flange around its outer edge, a toe-calk on the edge of said body connected to the periphery thereof, heel-calks on the end extremities of said body and formed integral with the under face thereof, a series of flat triangular

projections on each side of the body between the ends of said toe-calk and said heel-calks, said projections having their bases extending from edge to edge of the body in a plane transverse thereof and each projection being disposed with its flat sides at substantially a right angle to the edges of the body part, the body between said projections being flat.

2. A horseshoe composed of a single piece of rubber and having a body part pierced for the passage of nails, the body part having a flange at the edge of its upper side, flat-faced heel and toe calks, and intermediate pointed elastic calks having bases extending from edge to edge of the body and having their points in a plane with the flat surfaces of the heel and toe calks.

785,578. **MOLD.** FRANK M. SAWYER, Charlotte, N. C. Filed Jan. 12, 1905. Serial No. 240,822.



Claim.—1. A mold of the class described comprising a plurality of separable transverse mold-pieces formed with side walls or flanges, said side walls or flanges of each mold-piece bearing against the next adjacent mold-piece, whereby non-communicating mold-spaces are formed between the several mold-pieces.

2. A mold of the class described comprising a plurality of transverse mold-pieces formed with side walls or flanges, and clamping means separable from said mold-pieces to detachably secure said mold-pieces together with the side walls of one mold-piece bearing against the next adjacent mold-piece to close the spaces between them and to permit of the separation of the mold-pieces to release the molded article.

785,579. **FIREPROOF BUILDING CONSTRUCTION.** JULIUS SCHIRRA, Pittsburg, Pa., assignor of one-half to George S. Wilson, Pittsburg, Pa. Filed June 18, 1904. Serial No. 213,057.



Claim.—1. A structural studding member provided with a longitudinally-adjustable shoe consisting of a surrounding ferrule member and a supplemental plate extending upwardly and downwardly therefrom, substantially as set forth.

2. A structural studding member provided with a longitudinally-adjustable shoe consisting of a surrounding ferrule member, and a supplemental plate extending upwardly and downwardly therefrom, and bent over at the top at right angles to itself, substantially as set forth.

3. A structural studding member provided with a longitudinally-adjustable shoe having a laterally-extending tongue and a spring-clip adapted to bear against the studding member, substantially as set forth.

4. A structural studding member provided with a longitudinally-adjustable shoe having a laterally-extending tongue, and a strip connected with said tongue adapted to be folded around and secured to an adjacent structural member, substantially as set forth.

5. The combination with a metallic studding, of a surrounding shoe of sheet metal adapted to be adjusted longitudinally of the studding member, and provided with a lateral bearing-tongue and a spring extension adapted to bear frictionally against the stud member, substantially as set forth.

6. The combination with a structural studding member having a recessed portion, of a longitudinally-adjustable shoe formed of sheet metal bridging said recessed portion adapted to be tightened upon the studding member by bending it inwardly toward said recessed portion, substantially as set forth.

7. The combination with a structural studding member having a recessed portion, of a longitudinally-adjustable clip entirely surrounding said member provided with lateral flanges and bent inwardly toward said recessed portion, substantially as set forth.

8. A structural studding member provided with a longitudinally-adjustable shoe consisting of an embracing rectangular ferrule, one portion of which consists of an upwardly and downwardly extending supplemental plate, substantially as set forth.

9. A structural studding member provided with a longitudinally-adjustable shoe consisting of an embracing rectangular ferrule, one portion of which consists of an upwardly and downwardly extending supplemental plate, constituting an upper attaching portion and a lower resilient friction portion, substantially as set forth.

10. An adjustable shoe for studding consisting of a surrounding ferrule member, and a supplemental plate secured thereto and extending upwardly and downwardly therefrom, substantially as set forth.

11. An adjustable shoe for studding consisting of a surrounding ferrule member, and a supplemental plate secured thereto extending upwardly and downwardly therefrom, and provided with deflected terminals, substantially as set forth.

12. An adjustable shoe for studding consisting of a surrounding ferrule member, and a supplemental plate secured thereto extending upwardly and downwardly therefrom, and provided with deflected terminals, said ferrule member being connected with the supplemental plate by its terminal edges passing through a slot in the plate and bent thereon, substantially as set forth.

13. A longitudinally-adjustable shoe for structural studding consisting of a sheet-metal body portion having embracing wings arranged to be clamped around the studding and to be tightened thereon, and provided with a spring-clip adapted to bear against the studding member, substantially as set forth.

14. A longitudinally-adjustable shoe for structural studding consisting of a sheet-metal body portion having embracing wings arranged to be clamped around the studding and to be tightened thereon, and provided with a laterally-extending tongue and a spring-clip adapted to bear against the studding members, substantially as set forth.

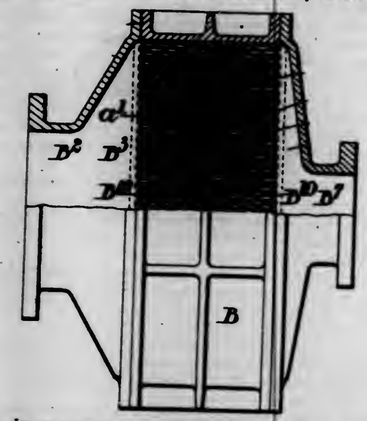
785,580. **APPARATUS FOR CONDENSING PURPOSES.** ALEXANDER SHIELS and JOHN S. L. ALEXANDER, London, England. Filed Nov. 7, 1904. Serial No. 231,802.

Claim.—1. In apparatus for heating, cooling, condensing, evaporating, and similar purposes, the combination with a casing having therein a chamber provided with channels or grooves in opposite walls, of a metal sheet extending from one end of said chamber to the other and bent or folded upon itself in opposite directions alternately, the edges of said sheet extending into the aforesaid channels in the walls of the chamber, whereby said sheet forms within the chamber two independent series of passages, substantially as described.

2. In apparatus for heating, cooling, condensing, evaporating, and similar purposes, the combination with a casing, of a metal sheet bent or folded upon itself in opposite directions alternately and forming within the casing two independent series of chambers, said sheet having oppositely-extending nodules formed thereon between successive bends, substantially as described.

3. In apparatus for heating, cooling, condensing, evaporating, and similar purposes, the combination with a casing, of a metal sheet bent or folded upon itself in opposite directions alternately and forming within the casing two independent series of chambers, said sheet having oppositely-extending nodules formed thereon be-

tween successive bends, the nodules on one section of said plate contacting with another section thereof, substantially as described.



4. In apparatus for heating, cooling, condensing, evaporating, and similar purposes, the combination with a casing, of a metal sheet bent or folded upon itself in opposite directions alternately and forming within the casing two independent series of chambers, said sheet having oppositely-extending nodules formed thereon between successive bends, the nodules on one section of the plate contacting with nodules on adjacent sections, substantially as described.

5. In apparatus for heating, cooling, condensing, evaporating and similar purposes, the combination with a casing of a sheet bent or folded upon itself to form within the casing two independent series of chambers, nodules on the sheet projecting into the chambers, side walls to the casing bearing against the folds of the sheet, grooved or recessed end walls to the casing for the reception of the edges of the sheet, and a hermetic joint between the grooves and the sheet, substantially as described.

6. In apparatus for heating, cooling, condensing, evaporating, and similar purposes, the combination of a casing having inlet and outlet openings formed in the side walls thereof and extending entirely across said walls, means dividing the interior of the casing into a plurality of passages, each series extending from one of said inlets to one of the outlets and being independent of the other series of passages, and a conduit communicating with each of said inlets and outlets throughout the length thereof, substantially as and for the purpose described.

785,581. **LEVEL.** ALVERTUS V. SHORTS, Allegheny, Pa. Filed Apr. 6, 1904. Serial No. 201,806.



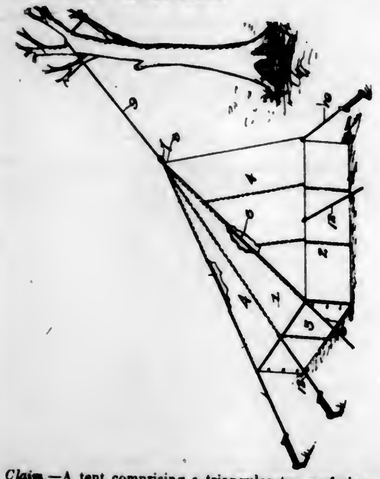
Claim.—1. In a spirit-level, the combination with a level-body, of an annular tube revolubly mounted in the body, spirit-glasses carried by said tube, a rack carried by said tube, and a worm engaging with said rack.

2. In a level, the combination with a level-body having an opening and a recess, of an annular tube mounted in the opening in said body, spirit-glasses carried by said tube, and an annular rack carried by said tube, a worm mounted in the recess adjacent to said rack, and a spring-pressed door covering said recess.

3. In a device of the character described, the combination with the level-body, of a ring secured on one side of the same and having a depending lip, a ring secured on the other side of the level-body and having a vertical flange a tube having a flange embracing said lip, glasses carried by said tube, a rack carried by said tube, the tube being supported by said rings, and means engaging with the rack for turning the tube.

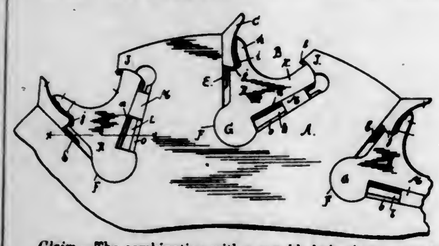
4. The combination with a level-body having an opening extending from side to side of the body, of glass-supporting means revolubly mounted in said opening, a ring attached to the level-body at each end of said opening, each ring having an inwardly-extending flange engaging the glass-supporting means, a spirit-glass carried in the glass-supporting means and means for revolving the glass-supporting means.

785,582. **TENT.** CARL H. STEMPEL, Fort Madison, Iowa. Filed Sept. 12, 1904. Serial No. 224,196.



Claim.—A tent comprising a triangular top roof-piece, cords at the side edges and longitudinal center thereof and projecting beyond the transverse or base portion thereof, to form guys, triangular side roof-pieces arranged in reverse order with reference to the top roof-piece and each having its upper edge secured to one side edge of the top roof-piece, side and rear walls having their respective upper edges secured to the side roof-pieces, and to the said top roof-piece at points spaced from the lower edges thereof, so that the lower portion of the top roof-piece and of the side roof-pieces project downwardly and outwardly beyond the said side and rear walls to form eaves, and guys attached to the lower front corners of the side roof-pieces, substantially as described.

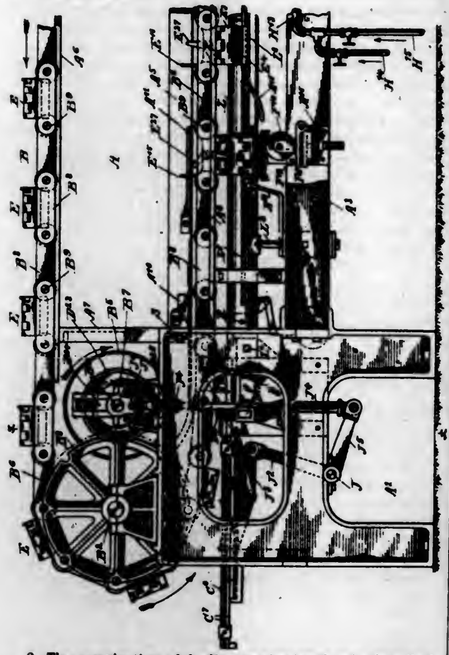
785,583. **SAW.** PATRICK THOMPSON, Beaverfalls, Pa. Filed Nov. 14, 1904. Serial No. 233,639.



Claim.—The combination with a saw-blade having a cut-away portion at its edge of substantial V shape terminating at the apex of its edges in a segment-shaped recess, one edge of said cut-away portion terminating within the periphery of the saw and leaving an arm or projection with a concave edge, of a holding member of substantially triangular form having a segment-shaped portion at its inner end fitting the said segment-shaped recess, the angle of the edges of said holding member being less acute than the angle of the edges of said cut-away portion, a tooth interposed between one edge of said cut-away portion and said holding member and a wedge fitting between the other edge of said holding member and the edge of said cut-away portion, said wedge serving when moved outwardly, to bind the tooth between the holding member and one edge of the cut-away portion of the saw.

785,584. **MACHINE FOR MANUFACTURING SHEET-METAL CAN-BODIES.** MILTON A. WHEATON, San Francisco, Cal. Filed Jan. 2, 1903. Serial No. 137,575.

Claim.—1. The new and improved can-body machine, constructed with a single long horn over which the can-bodies are formed while sliding along over the horn, and having folding wings made with a base, and two hinged wings on each side of the base, and moving continuously while the can-body is being formed, substantially as herein described.



2. The combination of feeding mechanism herein described, consisting of the shaft B^4, the crank-arm J^4, carried thereby and slotted so that the wrist-pin carried therein may be adjusted at any desired distance from the shaft B^4, and thereby regulate the distance that the pitman J^4 will be moved up and down, the pitman D^{23}, the turnbuckle J^5 for regulating the length of the pitman J^4, the pivot-shaft J, the arm J^3, upon the pivot-shaft J, the arm J^2, the reciprocating carrier C^2, the link J^2, that connects the arm J^2, with the reciprocating carrier, the guide-bars C^7, one above the other and side guides C^9, and C^{10}, all arranged and operating substantially as described.

3. In a can-body machine, the combination of the continuously-rotating pear-shaped cam with the slotted oscillating folders and intervening mechanism constructed and arranged as herein described, including a pitman reciprocated only by the abrupt portion of said cam, so that while the blanks are being moved into and out of the folders the latter will remain stationary and their slots will register with the guide-openings through which the blanks are moved into and out of the folders, and the blanks in their turn will remain stationary while the folders oscillate and form the hooks on the ends of the blanks.

4. In a can-body machine, the combination of the oscillating folders, the continuously-rotating pear-shaped cam and the straight-moving pitman engaging said cam, with the transverse racks and intermediate gearing arranged so that the metal blanks and the oscillating folders will assume fixed immovable positions, and also their moving actions, alternately with each other, all substantially as herein set forth.

5. In a can-body machine, the combination of the guide-bars C^7 one above the other over the feeding-table, the reciprocating feeder, and the intermittingly-oscillated folders, with the channeled guideways through the folders registering with said guide-bars, and the side guides C^9 and C^{10} substantially as herein described.

6. In a can-body machine a series of five-part formers carried on a double sprocket-chain combined with a stationary horn over and along which said formers successively pass substantially as herein described.

7. In a can-body machine a series of formers carried upon a constantly-moving double sprocket-chain, each former being composed of a middle or base piece, and double wings hinged to each of its sides, substantially as herein described.

8. In a can-body machine a series of five-part winged formers carried by a double sprocket-chain moving continuously forward in one direction, and means for closing the formers in successive steps while they are moving forward, substantially as herein described.

9. In a can-body machine, a series of five-part hinged formers carried upon a double sprocket-chain moving continuously forward and means for successively closing and releasing the respective parts of each former substantially as herein described.

10. In a can-body machine, a series of formers each containing two sets of hinged wings, a horn common to all of them, and means for continuously moving the formers along the horn, substantially as described.

11. In a can-body machine, a series of winged formers each containing two sets of hinged wings, a horn common to all of them, means for continuously moving the formers along the horn, and means for closing each former around the horn as it is moved forward, substantially as described.

12. In a can-body machine an overhanging horn a series of five-part formers carried constantly in one direction upon an endless double sprocket-chain with means for closing the formers around the horn while they are moving forward substantially as herein described.

13. In a can-body machine an overhanging horn, a series of five-part hinged formers carried constantly forward upon a double sprocket-chain and means for gradually closing each former around the horn while the former is moving forward substantially as herein described.

14. In a can-body machine, a series of winged formers each containing two sets of hinged wings, each provided with projections, a longitudinally-grooved overhanging horn, and means for continuously moving the formers forward with the projections in said grooves and gradually closing the formers around the horn, substantially as described.

15. In a can-body machine, a series of hinged formers each containing two sets of hinged wings, inwardly-projecting pins mounted on the hinges, a longitudinally-grooved horn, and means for moving the formers forward and closing them around the horn with the pins in the grooves, substantially as described.

16. In a can-body machine a series of five-part winged formers carried upon a double sprocket-chain, means for closing the formers in successive steps, and means for applying a flux between two of said steps substantially as herein described.

17. In a can-body machine, a series of winged formers, an overhanging horn, a support therefor adjacent to its inner end, means for partially closing the formers before they have passed the support and finishing the operation after they have passed it, substantially as described.

18. In a can-body machine, a series of five-part formers carried upon a double sprocket-chain, an overhanging horn, and means for adjusting the horn at its inner end substantially as herein described.

19. In a can-body machine, a series of five-part formers carried upon a double sprocket-chain, an overhanging horn and an adjustable pillar adjacent to its inner end for supporting the horn, substantially as described

20. In a can-body machine, a supporting-table for the blanks that are to be operated upon, an overhanging horn secured at one end close to the inner end of the supporting-table and a series of forwardly-moving five-part formers carried upon a double sprocket-chain substantially as herein described.

21. In a can-body machine, a supporting-table having oscillating folders at its inner end, an overhanging horn projecting from said end, means for feeding blanks to the folders and a series of five-part continuously-moving formers carried upon a double sprocket-chain for taking the blanks after the hooks are formed upon their ends and bending the blanks around the horn while they are moving forward, substantially as herein described.

22. In a can-body machine, oscillatory folders arranged and adjusted to form hooks upon the blanks by making sharp bends in the blanks along the center line of the folders' oscillations, an overhanging horn, and means for taking the blanks from the folders with the hooks formed upon them, and bending them downward around the horn while they are moving forward, substantially as herein described.

23. In a can-body machine, longitudinally-slotted oscillatory

folders, the intermediate portion of each of which is cut away, means for simultaneously oscillating the folders, a horn, means for intermittently feeding blanks to the folders, and continuously-moving formers for taking the blanks from the folders and folding them around the horn, substantially as described.

24. In a can-body machine, longitudinally-slotted folders, the intermediate portion of each of which is cut away and provided with a butting-bar, means for oscillating the folders, a horn, means for intermittently feeding blanks to the folders with their ends in engagement with said bars, and continuously-moving means for taking the blanks from the folders and bending them around the horn, substantially as described.

25. In a can-body machine, longitudinally-slotted oscillatory folders, the intermediate portion of each of which is cut away and shouldered, a longitudinally-shouldered butting-bar in the cut-away portion, and screws for adjusting the shoulder of each bar relatively to the axis of its folder, means for feeding blanks to said folders, and means for removing them from the folders and forming them into can-bodies, substantially as described.

26. In a can-body machine, oppositely-located oscillating folders, each of which is provided with a pinion and a reciprocating rack-bar, operated by a continuously-rotating pear-shaped cam and a pitman operatively associated with said cam whereby the oscillating folders are made to oscillate during a part of the time and to remain in a fixed position during another part of the time when the machine is in operation, substantially as herein described.

27. In a can-body machine, oppositely-located oscillatory folders, each of which is provided with a pinion, a rack-bar in engagement with said pinion, a segmental rack for moving the bar, and adjustable means for moving the bar variable distances, substantially as described.

28. In a can-body machine, oscillating folders, a reciprocating rack-bar meshing with pinions on each of the folders for operating them, a segmental rack having a slot for moving the rack-bar, a block adjustably mounted in said slot and a reciprocating pitman operated by a pear-shaped can so as to produce an alternate moment of action and moment of rest for the said racks and folders, substantially as herein described.

29. In a can-body machine, oscillatory folders, a reciprocatory bar for operating the folders, a rack and a reciprocatory pitman for operating the bar, the upper end of the pitman being slotted and provided with a pin, and a shaft through the slot provided with a cam for engaging with said pin, substantially as described.

30. In a can-body machine, pairs of plates and caps secured thereto, the inner ends of which are cut away to furnish space for the blanks to pass through, oppositely-located longitudinally-slotted oscillating folders having bearings in said plates and caps and means for adjusting each pair, said folders being operated through the medium of a pear-shaped cam, so as to cause the folders to act a part of the time and to remain stationary a part of the time when the machine is at work, substantially as herein described.

31. In a can-body machine, a frame, a support adjustably mounted thereon, and folders adjustably mounted on the support, said folders being operated by a continuously-rotating pear-shaped cam and intervening mechanism comprising a pitman reciprocated only by the abrupt portion of said cam and provided with means for causing it to move in a straight line, the whole being so arranged that the folders will act a part of the time and will remain stationary a part of the time when the machine is at work, substantially as herein described.

32. In a can-body machine, a frame, a support with flanges adjustably mounted thereon, pairs of plates and caps adjustably mounted on said flanges and oscillating folders mounted in said pairs, said folders being operated by a pear-shaped cam, with intervening mechanism, so arranged that the folders will act a part of the time and will remain stationary another part of the time when the machine is at work, substantially as herein described.

33. In a can-body machine, a frame provided with recessed brackets, a flanged support adjustably mounted in the recesses of said brackets, screws in the brackets for adjusting the support, pairs of folder-supports adjustably mounted on said flanges, and folders mounted in the inner ends of said folder-supports, substantially as described.

34. In a can-body machine, a frame provided with brackets, one of said brackets being provided with a pocket-like projection, a supporting-table having folders, and a longitudinal guiding-groove in its upper surface, an overhanging horn having its inner end rigidly secured in said projection, the top of the horn being in the same horizontal plane with the upper surface of the said table, and the horn having a guiding-groove along its top that registers with, and is a continuation of the said guiding-groove in the upper surface of the supporting-table, substantially as herein set forth.

35. In a can-body machine, a grooved supporting-table, folders adjustably mounted on opposite sides of the groove thereof each of said folders being slotted longitudinally and having its intermediate portion cut away, pairs of plates and caps for supporting the folders, a folding-plate in front of each folder, the inner edge of which is provided with an adjustable wear-plate, substantially as described.

36. In a can-body machine, a supporting-table, spaced bars extending longitudinally along each side thereof, U-shaped brackets secured to said bars, guides adjustably secured in said brackets, and means for moving blanks over the supporting-table and between the bars and the guides, substantially as described.

37. In a can-body machine, a supporting-table, bars at the sides thereof, U-shaped brackets secured at their ends to the bars, guides in the brackets, screws through the bottom of each bracket, two of which enter the guide and the other of which abuts against it, and means for feeding blanks forward between the bars and the guides, substantially as described.

38. In a can-body machine, a frame provided with a feeding mechanism, an overhanging horn, a track over the horn extending rearwardly from the feeding mechanism a series of five-part formers carried upon a double sprocket-chain between the horn and the track, substantially as herein described.

39. In a can-body machine, a frame provided with feeding mechanism at one end, two sprocket-wheels mounted at the ends of the frame, a double sprocket-chain, moving continuously forward along the horn, carried upon the wheels and provided with five-part formers, an overhanging horn projecting to the rear from the feeding mechanism, substantially as herein described.

40. In a can-body machine, a frame provided with a feeder at one end and a horn projecting therefrom, sprocket-wheels at the ends of the machine, a carrier on the wheels provided with formers, one end of each of said formers being vertically movable, and means for raising said end of the former as it passes over the rear end of the feeder, substantially as described.

41. In a can-body machine, a frame provided with a feeder at one end and a horn projecting therefrom, sprocket-wheels at the ends of the machine, a carrier on the wheels provided with formers, one end of each of said formers being vertically movable and provided with a projection, and a guide for engaging with said projection and raising said end of the former as it passes over the rear end of the feeder, substantially as described.

42. In a can-body machine, a frame provided with a feeder at one end and a horn projecting therefrom, sprocket-wheels at the ends of the frame, a linked carrier on the wheels, formers on the link-rods, one end of each of which is provided with a projection and an elliptical perforation, and an inclined guide for engaging with said projection and raising said end of the former as it passes over the rear end of the feeder, substantially as described.

43. In a can-body machine, a frame provided with a reciprocating feeder at one end, a horn, rigidly fixed in its place, and having a guide-groove along its top for holding the formers in place while they are moving forward, oscillating folders at the rear end of the feeder for forming the hooks on the ends of the blanks, and continuously-moving formers each having a lug or stud at its rear end for engaging with the guiding-groove in the top of the horn, and also engaging with the blanks so as to move the latter forward and bend them around the horn, substantially as herein described.

44. In a can-body machine, a frame provided with a reciprocatory feeder at one end and a horn projecting therefrom, folders at the rear of the feeder, a continuously-moving linked carrier provided with formers, the formers being so spaced on the carrier as to cause a former to pass the folders between each reciprocation of the feeder, substantially as described.

45. In a can-body machine, a frame provided with a feeder at one end, a fixed overhanging horn projecting therefrom, and having a guiding-groove along its top, the tracks A^5 and A^6 fixed to the frame, one of the tracks being above the other, and both tracks being over the horn, sprocket-wheels at the ends of the frame, a double sprocket-chain carried upon the wheels, the five-part folding formers carried upon the double sprocket-chain the wings of which are open while passing back over the upper track, and are made to close and bend the blank around the horn while they are moving forward between the lower track and the horn, substantially as herein described.

46. In a can-body machine, a frame, the guide-track A^5, flanged guide-rollers E^{25}, mounted upon the link-rods B^5, the rails A^6, the double sprocket-chain moving constantly forward and having the link-rods B^5 extending over the rails A^6, flanged guide-rollers mounted on said link-rods and running underneath the guide-track A^5, and engaging therewith, and the formers mounted upon and carried by said double sprocket-chain, substantially as described.

47. In a can-body machine, a frame, tracks thereon, one above the other, wheels at the ends of the frame, a linked carrier on the wheels, formers secured at their respective ends to the link-rods, one of said ends being movable vertically, means for moving said end, and a guide secured upon each side of the other end to engage with the track and prevent lateral movement of the former, substantially as described.

48. In a can-body machine, a frame, the lower track A^5, the double sprocket-chain having the link-rods B^5, folding formers carried upon said double sprocket-chain, each former comprising a middle or base piece, and having double wings hinged upon each side thereof, each end of the middle or base part of the former having perforated ears through which the link-rods of the double sprocket-chain passes, the double-flanged guiding-rollers E^{25}, running underneath the said track A^5 and engaging therewith, means for locking the wings open independently of each other, and means for successively releasing the open wings substantially as described.

49. In a can-body machine, a frame provided with tracks, a carrier provided with folding winged formers movable along said tracks, longitudinally-movable locking-bars at one end of each former for one set of wings and swinging levers at the other end for the other set, and means for closing said wings after they have been released from said bars and levers, substantially as described.

50. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side thereof, pins in the ends of the wings, longitudinally-movable notched bars moving crosswise of the machine at one end of the base for engaging with the pins of two of the wings, and notched levers at the other end for engaging with the pins of the other wings, and means for withdrawing the bars and levers from said pins, substantially as described.

51. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, two longitudinally-movable locking-bars moving crosswise of the machine for two of the wings, and notched levers for the other wings, a spring connected with and common to both of said bars, and means for withdrawing said bars and levers from engagement with said wings, substantially as described.

52. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, two longitudinally-movable locking-bars for two of the wings, each provided with a pin, a spring engaging at its ends with said pins, means for moving the bars outward against the tension of said spring, and means for locking and releasing the other wings, substantially as described.

53. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, and each wing being provided with a pin at one end, two superimposed longitudinally-movable bars for two of the wings, the outer end of each bar being notched and provided with an inclined nose and one of them being slotted, a pin projecting outwardly from each bar, one pin projecting through the slot in said bar, a spring secured at its ends to the two pins in said bars, means for moving the bars outward against the tension of said spring, and means for locking and releasing the other wings, substantially as described.

54. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, pins projecting from the base and from one end of each of the wings, two superimposed longitudinally-slotted spring-actuated locking-bars on the pins at one end of the base, the outer ends of which bars engage with the pins of two of the wings, a recessed bracket on the end of the base and overhanging said bars, means for moving the bars outward against the tension of the spring, and means for locking and releasing the other wings, substantially as described.

55. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, the base being provided with laterally-extending brackets, locking-bars at one end of the base for engaging with two of the wings, and notched levers on the brackets for engaging with the other two wings, said levers and bars being spring-actuated, and means for moving them against the action of said springs to release the wings, substantially as described.

56. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, the base being provided at one end with laterally-projecting brackets, a notched lever on each bracket having its inner portion slotted and provided with a projection, a screw through the slot and a spring engaging with the projection, spring-actuated locking-bars at the opposite end of the base, and means for moving the levers and bars against the action of said springs to release the wings, substantially as described.

57. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, a bracket adjustably secured to each end of the base and provided with an antifriction-roller, means for locking and releasing said wings, a horn, and means for moving the formers along the same, substantially as described.

58. In a can-body machine, a frame, forwardly-moving formers thereon, each former comprising a base and two hinged wings at each side, spring-actuated means for locking the wings open, each spring being arranged to be above the hinge when the wings are open, and means for releasing the wings from said locks, substantially as described.

59. In a can-body machine, a frame provided with the lower track A^5, the double-flanged guide-rollers E^{25}, the double sprocket-chain carried upon four sprocket-wheels, a fixed horn with a longitudinal guide-groove in its top surface, trippers, guides and seam-forming mechanism, five-part formers carried by said double sprocket-chain moving continuously forward and carrying the formers in position to be closed as they pass the trippers, guides and seam-forming mechanism, substantially as described.

60. In a can-body machine a frame with the lower track A^5 fixed therein, the double-flanged guide-rollers running underneath the same and engaging therewith, the fixed horn common to all the formers with a guide-groove along its top surface and also guide-grooved along each of its sides, a series of five-part formers moving continuously forward along the horn with means for causing the formers to take the metal blanks after the hooks are formed thereon from the oscillating folders and bend each one into a cylinder by the time it reaches the seam-former, substantially as herein described.

61. In a can-body machine, a frame provided with a horn and with trippers and guides adjacent thereto, an anvil in the horn, a bumper below the anvil, a series of folding formers provided with means for engaging with the trippers, the guides and the bumper, and means for moving said formers forward continuously, substantially as described.

62. In a can-body machine, a frame provided with a fixed horn having a longitudinal guide-groove in its upper surface and which horn and groove is common to all of the formers, five-part formers moving continuously forward along the horn, each former having a guiding lug or stud that engages with the guide-groove in the top surface of the horn, and means for operating each former so that it will bend a blank into a cylinder at successive steps and form the seam upon the interior of the can after the last step, substantially as described.

63. In a can-body machine, a frame provided with a horn, deflectors adjacent thereto, forwardly-moving hinge-winged folders, locking-bars for two of the wings and levers for the other two, the bars being provided with handles for engaging with a portion of the deflectors and the extended ends of the levers being adapted to engage with the others, and means below the anvil for forming the seam, substantially as described.

64. In a can-body machine, a frame provided with a horn, cam-grooves adjacent thereto, forwardly-moving folding formers, a portion of the wings of each of which is provided with means for entering said grooves and holding the wings closed, and means for forming the seam while the wings are so held, substantially as described.

65. In a can-body machine, a frame provided with a horn, grooves adjacent thereto, each of said grooves being provided with a cam-like curve, one of the curves being in advance of the other, forwardly-moving folding formers, a portion of the wings of each of which is provided with pins for entering said grooves and closing the wings, and means for forming the seam while the wings are closed, substantially as described.

66. In a can-body machine, a frame provided with a horn, grooves adjacent thereto, each of said grooves being provided with a cam-like curve, one of the curves being in advance of the other, forwardly-moving folding formers, a portion of the wings of each of which is provided with rollers for entering said grooves and closing the wings and means for forming the seam while the wings are closed, substantially as described.

67. In a can-body machine, a frame provided with a horn, trip-

pers and guides adjacent thereto, forwardly-moving hinge-winged formers provided with means for engaging with the trippers and guides, and levers on the formers for engaging with the trippers and with the wings before the wings engage with the guides, substantially as described.

68. In a can-body machine, a frame provided with a horn, trippers and guides adjacent thereto, forwardly-moving hinge-winged formers provided with means for engaging with the trippers and guides, a rock-shaft journaled in each former, a lever on each end of the shaft, one end of which is adapted to engage with the trippers and the other end with the wings, and a spring for returning the levers to their normal position, substantially as described.

69. In a can-body machine, a frame provided with a horn, and channel-guides adjacent to the horn, a spring in one of the guides, forwardly-moving hinge-winged formers provided with means for engaging with the guides whereby each former is closed around the horn, and means for forming the seam while the wings are closed, substantially as described.

70. In a can-body machine, a frame provided with folders and a horn, forwardly-moving hinge-winged formers, means for closing one of the wings of the former before the other one, means for subsequently moving the other wing outward, and means for forming the seam while the second wing is so held outward, substantially as described.

71. In a can-body machine, a frame provided with folders and a horn, an anvil in the horn provided with a projection, forwardly-moving hinge-winged formers, one wing of each of which is provided with a projection that is adapted to pass beyond the projection of the anvil, means for closing the wings one in advance of the other and subsequently moving the one outward that is provided with the projection, and a hammer for forming the seam, substantially as described.

72. In a can-body machine, a frame provided with folders and a horn, an anvil in the horn provided with a longitudinally-recessed blade, forwardly-moving hinge-winged formers, one wing of each of which is provided with a blade that is adapted to be carried outside of and beyond the blade of the anvil, a hammer between said wing and its blade, means for closing the wings and subsequently moving the one with the hammer outward from the other so as to draw the folds together and means for operating the hammer, substantially as described.

73. In a can-body machine, a frame provided with folders and a horn, an anvil in the horn, the face of which is grooved longitudinally, a blade on the side of the anvil adjacent to said groove, forwardly-moving hinge-winged formers, one wing of each of which is provided with a projection and a hammer, means for closing said wings one in advance of the other, means for subsequently moving one of said wings outward from the other and means for operating the hammer, substantially as described.

74. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers provided with means for engaging with the anvil to move it forward, and a hammer adapted to be operated during said movement of the anvil, substantially as described.

75. In a can-body machine, a frame provided with folders and a horn having a slot, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, a base adjustably secured below said slot, and adjustable means on the base for engaging with the hammer, and forcing it upward, substantially as described.

76. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, a bar, and means for moving it upward and forward in contact with the hammer, substantially as described.

77. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, adjustable standards, a bar pivotally secured at its ends to said standards, and means for simultaneously forcing the bar upward and forward in contact with the hammer, substantially as described.

78. In a can-body machine, a frame provided with folders and a horn having a slot, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, a bar on the frame below said slot, a base adjustably secured thereto, standards adjustably secured to the base, links pivotally secured to the standards, a bar secured at its ends to the ends of the links, a support for the bar, means for moving the bar forward in contact with the hammer, and means for returning it to its normal position, substantially as described.

79. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, a base below the slot in said horn and provided with standards and an adjustable stop, links secured to the standards, a notched bar on the links, one end of which is adapted to rest on the stop, a spring for returning the bar to its normal position, and a pin on the former for engaging with the shoulder of the bar and moving the bar upward and forward, substantially as described.

80. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, a base adjustably secured below the slot, in the horn and a wheel journaled in the base for engaging with the hammer and forcing it upward, substantially as described.

81. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, a leaf-like base below the slot, a set-screw through one of the leaves of the base and in engagement with the other leaf, and a wheel journaled in the upper leaf in position to engage with the hammer and force it upward, substantially as described.

82. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each provided with a hammer, the central portion of which is wider than either end, and a wheel adjustably mounted in position for engaging with the hammer and forcing it upward, substantially as described.

83. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving hinge-winged formers, a blade adjustably secured to the free edge of one of said wings, a hammer between the blade and said wing, and means for forcing the hammer upward, substantially as described.

84. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving hinge-winged formers, a slotted blade adjustably secured on the free edge of one of said wings, a hammer between the blade and said wing, pins in the hammer projecting through the slots of the blade, and means for forcing the hammer upward, substantially as described.

85. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, a notched blade on the anvil, forwardly-moving folding formers, a latch thereon for engaging with the blade, a hammer and means for operating it while the anvil is being moved, substantially as described.

86. In a can-body machine, a frame provided with folders, and a slotted horn, a bracket in the horn, a longitudinally-slotted anvil on the bracket, a spring-pressed blade on the side of the anvil, forwardly-moving folding formers, each provided with a hammer and means for engaging with said blade, means for operating the hammer, and means for returning the anvil to its normal position, substantially as described.

87. In a can-body machine, a frame provided with folders and a slotted horn, a longitudinally-movable anvil in the horn, forwardly-moving formers, each of which is provided with a hammer and with means for moving the anvil forward, and adjustable means below the anvil for forcing the hammer upward, substantially as described.

88. In a can-body machine, a frame provided with folders and a horn, said horn being slotted longitudinally along its top and bottom, a bracket in the horn, a longitudinally-movable anvil supported by said bracket with its top and bottom fitting in said slots, forwardly-moving folding formers, each provided with a hammer, and means for forcing each hammer upward as it passes said anvil, substantially as described.

89. In a can-body machine, a frame carrying folders and a horn, said horn being slotted along both its top and bottom, a bracket in the horn, a longitudinally-moving two-part anvil supported by said bracket and being divided longitudinally and horizontally into an upper and a lower part, the two parts being adjustably connected together as by screws or their equivalents, the said anvil being adapted to move back and forth in said slots in said horn, forwardly-moving formers, each provided with a hammer and means for forcing each hammer upward and pressing together the folds of the blanks and forming the side seams of the can-bodies, substantially as described.

90. In a can-body machine, a frame provided with folders and a horn, folding formers, means for closing the formers and forming the seam and means for opening the lower wings of the formers without releasing the upper wings from the can-body, substantially as described.

91. In a can-body machine, a frame provided with folders and a horn, folding formers, means for closing the formers and forming the seam, and a wedge-like separator for opening the lower wings of the formers and holding them open, substantially as described.

92. In a can-body machine, a frame provided with folders and a horn, folding formers, means for closing the formers and forming the seam, diverging rods for opening the lower wings of the formers and holding them open during the soldering operation, substantially as described.

93. In a can-body machine, a frame provided with folders and a horn, folding formers, means for closing the formers and forming the seam, diverging rods for partially opening the formers, the rear ends of which extend beyond the rear end of the horn and are curved upward, substantially as described.

94. In a can-body machine, a frame provided with oscillating folders that form hooks on the ends of the blanks, a long fixed horn that is common to all of the formers, folding formers that move constantly forward along the horn, a flux-receptacle, means for applying the flux to the blank as it is carried forward by the former, means for forming the seam, and means for soldering the body before it leaves the horn, substantially as described.

95. In a can-body machine, a frame provided with oscillating folders that form hooks on the ends of the blanks, a long fixed horn that is common to all of the formers, folding formers that move constantly forward along the horn, a flux-receptacle provided with two discharges, means for partially closing the formers before they reach said discharges, means for applying flux to one of the folded ends of the blank by one of the discharges and to the other folded end of the blank by the other discharge, means for completely closing the formers and forming the seam, and means for soldering the body before it leaves the horn, substantially as described.

96. In a can-body machine, a frame provided with oscillating folders that form hooks on the ends of the blanks, a long fixed horn that is common to all of the formers, folding formers that move constantly forward along the horn, a flux-receptacle provided with two discharge-pipes, a mass of fibrous material at the end of one of the pipes for applying flux to one surface only of the hook on the end of the blank, means for forming the seam and soldering the body before it leaves the horn, substantially as described.

97. In a can-body machine, a frame provided with oscillating folders that form hooks on the ends of the blanks, a long fixed horn that is common to all of the formers, folding formers that move constantly forward along the horn, means for forming a locked side seam in the can-body, means for partially opening the folding formers after the said side seam is formed and means for soldering the said side seam before the body leaves the horn, substantially as described.

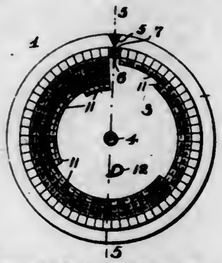
98. In a can-body machine, a frame provided with a horn, a soldering-box adjacent thereto, soldering-wheels journaled in the box, means for rotating them at different speeds, and means for forming the body and moving it forward in contact with said wheels, substantially as described.

99. In a can-body machine, a frame provided with a horn, a soldering-box adjacent to the horn, a series of soldering-wheels journaled in the box, each of which is provided with a gear-wheel for rotating it, some of the gear-wheels being larger than the others, a shaft adjacent to the gear-wheels and provided with wheels of different diameters for engaging with said gear-wheels, and means for rotating said shaft and moving the can-body forward in contact with the soldering-wheels, substantially as described.

100. In a can-body machine, a frame provided with a horn, a soldering-box adjacent to the horn provided with a shaft extending longitudinally thereof, gear-wheels of different diameters on said shaft, soldering-wheels journaled in the box, each provided with a gear-wheel in engagement with one of the wheels on the shaft, an operating-shaft provided with a sprocket-wheel, sprocket-wheels on the frame, a carrier thereon provided with formers, and a sprocket-chain from one of the wheels on the frame to the sprocket-wheel on the operating-shaft for rotating the soldering-wheels simultaneously with the forward movement of the formers, substantially as described.

785,585. AGE AND NUMBER INDICATOR. ROBERT WILSON, Newark, N. J., assignor of one-fourth to F. Liberty U. McCarroll, Newark, N. J., and three-fourths to Nelson P. Brower, Rahway, N. J. Filed Dec. 1, 1904. Serial No. 234,866.

Claim.—1. An age or number finding and indicating device, comprising rotatively-arranged disks, one of said disks bearing upon its back columns containing numbers, and having upon its opposite face a circular division divided into number-bearing spaces, said other disk being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, substantially as and for the purposes set forth.



2. An age or number finding and indicating device, comprising rotatively-arranged disks, one of said disks bearing upon its back columns containing numbers, and having upon its opposite face a circular division divided into number-bearing spaces, said other disk being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, and a finger-piece for rotating the said disk which is provided with said concentric divisions, substantially as and for the purposes set forth.

3. An age or number finding and indicating device, comprising rotatively-arranged disks, one of said disks bearing upon its back columns containing numbers, and having upon its opposite face a circular division divided into number-bearing spaces, and an index on said disk, said other disk being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, substantially as and for the purposes set forth.

4. An age or number finding and indicating device, comprising rotatively-arranged disks, one of said disks bearing upon its back columns containing numbers, and having upon its opposite face a circular division divided into number-bearing spaces, and an index on said disk, said other disk being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, and a finger-piece for rotating the said disk which is provided with said concentric divisions, substantially as and for the purposes set forth.

5. An age or number finding and indicating device, comprising a pair of disks 2 and 3, and an eyelet connection between said disks, by means of which said disks are rotatively connected, said disk 2 bearing on its back columns containing numbers, and having on its opposite face a circular division divided into number-bearing spaces, said disk 3 being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, substantially as and for the purposes set forth.

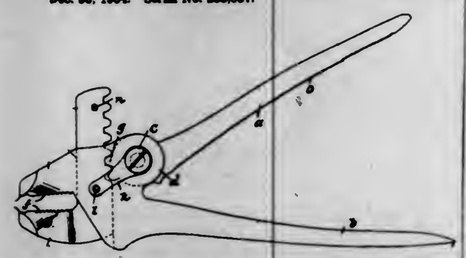
6. An age or number finding and indicating device, comprising a pair of disks 2 and 3, and an eyelet connection between said disks, by means of which said disks are rotatively connected, said disk 2 bearing on its back columns containing numbers, and having on its opposite face a circular division divided into number-bearing spaces, said disk 3 being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, and a finger-piece on said disk 3 for rotating said disk, substantially as and for the purposes set forth.

7. An age or number finding and indicating device, comprising a pair of disks 2 and 3, and an eyelet connection between said disks, by means of which said disks are rotatively connected, said disk 2 bearing on its back columns containing numbers, and having on its opposite face a circular division divided into number-bearing spaces, and an index on said disk 2, said disk 3 being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, substantially as and for the purposes set forth.

8. An age or number finding and indicating device, comprising a pair of disks 2 and 3, and an eyelet connection between said disks, by means of which said disks are rotatively connected, said disk 2 bearing on its back columns containing numbers, and having on its opposite face a circular division divided into number-bearing spaces,

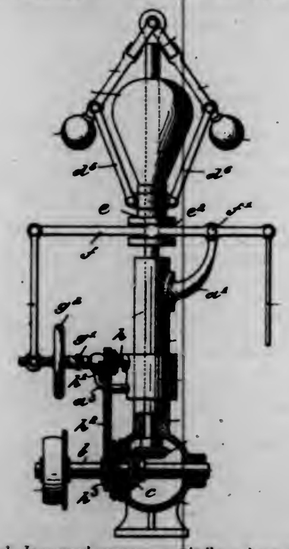
and an index on said disk 2, said disk 3 being provided with a reading-opening, and a series of concentric divisions, each division being divided into spaces bearing a column-indicating number, and a finger-piece on said disk 3 for rotating said disk, substantially as and for the purposes set forth.

785,586. WRENCH. CARL WULST, Paterson, N. J., assignor of two-thirds to Paul W. Topsters and Robert P. Geyer, Paterson, N. J. Filed Dec. 30, 1904. Serial No. 238,897.



Claim.—The combination of two members one of which has a rigid jaw and the other teeth, a screw forming the fulcrum for one of said members in the other, a sliding jaw arranged in said first-named member having teeth adapted to be engaged by the teeth of the other member, a plate-spring carried by said screw, and a pintle on the plate-spring, said sliding jaw being engaged by the pintle and having a notch adapted to receive the same, substantially as described.

785,587. MECHANICAL SPEED-GOVERNOR. NICHOLAS W. AKIMOFF, Philadelphia, Pa. Filed Jan. 21, 1905. Serial No. 242,050.



Claim.—1. In a speed-governor, a spindle, a sleeve slidably arranged on said spindle, means having centrifugal balls connecting said sleeve with said spindle, means adapted to rotate said spindle, sleeve and balls, a disk, a shaft carrying said disk, means adapted to connect said shaft with said sleeve, means adapted to rotate said shaft and disk, and said disk when rotated adapted to prevent sudden movements of said sleeve on said spindle.

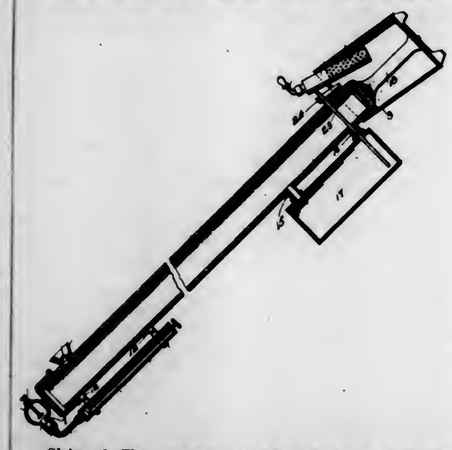
2. In a speed-governor, a spindle, a sleeve slidably arranged on said spindle, means having centrifugal balls connecting said sleeve with said spindle, means adapted to rotate said spindle, sleeve and balls, a disk, a shaft adapted to hold said disk in varying angular and parallel positions with respect to said spindle, means adapted to connect said shaft with said sleeve, means adapted to rotate said shaft and disk, and said disk when rotated adapted to control the sudden movement of said sleeve on said spindle by its resistance to change in its plane of rotation.

3. In a speed-governor, a spindle, a sleeve slidably arranged on said spindle, means having centrifugal balls connecting said sleeve with said spindle, means adapted to rotate said spindle, sleeve and balls, shafts flexibly connected with each other, a disk arranged on one of said shafts and held by the same parallel and in varying angular positions with respect to said spindle, means adapted to connect said disk-shaft with said sleeve, means adapted to rotate said shafts and disk, and said disk when rotated adapted to prevent sudden movement of said sleeve on said spindle.

4. In a speed-governor, a spindle, a sleeve slidably arranged on said spindle, means connecting said sleeve with said spindle, shafts flexibly connected with each other, a disk carried by one of said shafts and held by the same parallel and in varying angular positions with respect to said spindle, means adapted to connect said disk-shaft with said sleeve, means adapted to rotate said shafts and disk and said spindle independently of each other, and said disk, when rotated, adapted to control the sudden movement of said sleeve on said spindle by its resistance to change in its plane of rotation.

5. In a speed-governor, a housing, a spindle arranged therein, a sleeve slidably arranged on said spindle, means connecting said sleeve with said spindle, shafts partially supported by said housing, a universal joint connecting the shafts with each other, a disk carried by one of said shafts and held by the same parallel and in varying angular positions with respect to said spindle, means adapted to connect said shafts with said sleeve to partially support one of said shafts and its disk by said sleeve, a driving-shaft supported by said housing adapted to rotate said spindle, sleeve and balls, means connecting the driving-shaft with one of the disk-shafts and adapted to rotate the same and disk with a speed greater than that of said spindle, and said disk when rotated adapted to check the sudden movements of said sleeve on said spindle by its resistance to change in its plane of rotation.

785,588. BRANDING-IRON. HARRY W. BRENT and CHARLES H. SESSIONS, Topeka, Kans. Filed May 10, 1904. Serial No. 207,261.



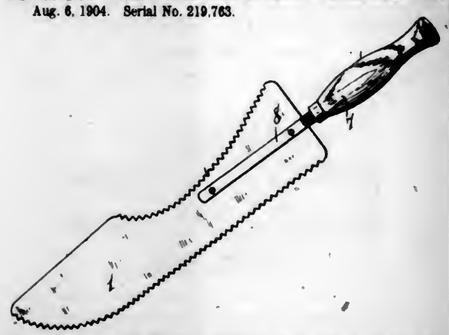
Claim.—1. The combination in a branding-iron, of an elongated reservoir, a supplemental reservoir carried thereby and having a plurality of connections with the main reservoir, arms extending from the main reservoir, a hood carried by said arms, a burner extending within the hood and connected to the supplementary reservoir, and a branding-plate secured to the outer end of said hood.

2. The combination in a branding-iron, of a main reservoir, a branding-plate support, a burner, air-pump-supporting clips secured to the reservoir, and an air-pump detachably mounted in the clips and having a flexible connection with said reservoir.

3. In a self-heating branding-iron, a main reservoir, a pump, a flexible tube placing the pump in communication with the reservoir, pump-supporting means carried by the reservoir and to which the pump may be readily connected, a burner, and a supplemental reservoir connected to the main reservoir and to the burner.

4. A self-heating branding-iron comprising a main reservoir, having a funnel-shaped inlet, screw-caps on the main reservoir, a globular chamber on one of the screw-caps, an adjusting-screw therein, an inwardly-opening valve, an air-pump removably connected to the globular chamber, spring-clips on the main reservoir to hold the air-pump in position, a supplemental reservoir, pipes connecting the main and supplemental reservoir and holding the latter reservoir upon the former, a hood attached to one of the end caps, arms on said end cap within the hood, a branding-plate removably attached to the arms, a burner within the hood, a supply-pipe for the burner, said pipe extending transversely across the main reservoir, through one of the pipes thereon and terminating within the supplemental reservoir, and a drip-pan supported by the supply-pipe beneath the burner.

785,589. CURRYCOMB. JOHN K. BROWN, Wichita, Kans. Filed Aug. 6, 1904. Serial No. 219,763.



Claim.—1. A currycomb, consisting of a single elongated flat blade having a straight serrated edge continuing into a convex terminal edge which is also serrated, a concave recess in a portion of the back adjacent to the handle having a serrated front edge of substantially elliptical contour, the said concave recess having its greatest depth adjacent to its front terminal and from this latter point gradually inclining upwardly and rearwardly to the rear end of the blade, and a handle attached to the terminal of the blade adjacent to the elongated concave recess.

2. A currycomb, consisting of an elongated blade having varying curved serrated edges, and a handle with an extension projecting longitudinally over and in close contact with the latter.

3. A currycomb, having a flat blade with varying curved and straight serrated edges, and a handle having a stiffening extension projecting longitudinally over and in close contact with the blade, the grip portion of the handle being deflected at an angle to the blade.

4. A currycomb, consisting of a flat blade having scraping edges, and a handle attached to one end thereof and provided with an extension projecting longitudinally over a portion of the center of one side of the blade, the handle having a flat shank continuous with the extension and a terminal grip device.

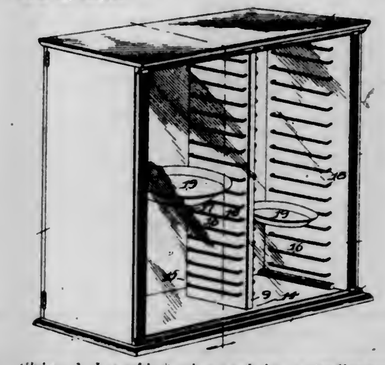
785,590. OVERALLS. GEORG BÜCKING VIII, Alsfeld, Germany. Filed Apr. 20, 1904. Serial No. 204,104.



Claim.—1. In apron-overalls, the combination with the breast-piece, of rear suspender-ends, a slotted member and elastic connections between said member and said suspender-ends, a horizontally-disposed roller extending across said slotted member and operating in said slot, a supporting-band permanently secured to said breast-piece at one end, thence reeving through said slotted member around said roller and adapted to be detachably secured at its free end to said breast-piece and when so secured to lie between the body of the wearer and the garment, substantially as described.

2. In apron-overalls, the combination with the breast-piece, of rear suspender-ends, a slotted member and elastic connections between said member and said suspender-ends, a horizontally-disposed roller extending across said slotted member and operating in said slot, a supporting-band permanently secured to said breast-piece at one end, thence reeving through said slotted member around said roller, and means for detachably securing the free end of said band to the garment, comprising a double-barred buckle at the opposite side of said breast-piece, whereby the free extremity of said band may be first passed forwardly through said buckle and back again and held in position between the body of the wearer and the garment, substantially as described.

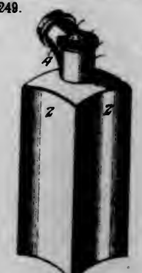
785,591. CABINET FOR PIES. GERMAIN CONEZ, St. Louis, Mo., assignor to John Gabriel Conez, St. Louis, Mo. Filed Nov. 22, 1904. Serial No. 233,923.



Claim.—1. In a cabinet, a base; end pieces extending upwardly from the base; a top upon the end pieces; a center piece narrower than the end pieces and extending from the base to the top; a glass-plate front; a foraminous hinged back; and suitable supporting brackets.

2. In a cabinet; a base; end pieces extending upwardly from the base; a top upon the end pieces; a center piece narrower than the end pieces and extending from the base to the top; a glass-plate front; a foraminous hinged back; and suitable supporting-brackets; each of said brackets comprising a wire having a straight central portion and having ends bent at right angles to the central portion; said ends being driven into the material of the cabinet.

785,592. BOTTLE. RUTH E. CORE, Boulder, Colo. Filed Sept. 20, 1904. Serial No. 225,249.

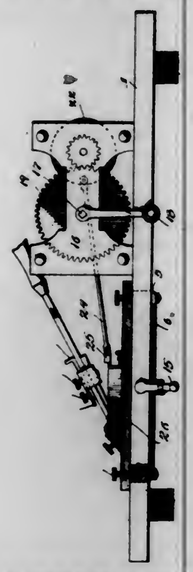


Claim.—1. A bottle for the purpose specified having a curved neck, one portion of said neck being thickened to provide a vertically-extending offset adapted to receive a sign-mark.

2. A bottle having curved walls, a neck curving toward one of said walls, the wall of said neck being thickened to provide an offset to receive a sign-mark.

3. A bottle having curved walls, a neck projecting from the bottle and curving toward one of said walls, a portion of the wall of said neck being thickened to provide an offset extending vertically from the bottle.

785,593. **GRINDING-MACHINE.** WILLIAM M. CRAIG, Marion, Ohio. Filed June 4, 1904. Serial No. 211,186.



Claim.—1. In a device of the character described, the combination with a bed having a laterally-adjustable grinding-surface thereon; of a carriage mounted above said surface, means upon the carriage for holding a tool at a desired inclination to the grinding-surface, and mechanism for operating the carriage.

2. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface thereon; of a carriage movably mounted above said surface, an adjustable tool-supporting block within the carriage, means for holding a tool thereon, and operating mechanism connected to the carriage.

3. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface thereon; of a carriage movably mounted above said surface, a tool-supporting block pivoted within the carriage, means for holding the block in adjusted position, tool-holding devices connected to the block, and means for operating the carriage.

4. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface; of a carriage movably mounted above the surface, a pivoted block therein, means for securing a tool thereon, locking devices for holding the block and tool against movement, and mechanism for reciprocating the carriage upon the bed.

5. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface; of a carriage movably mounted thereabove, adjustable means for securing a tool within the carriage, and mechanism for operating the carriage.

6. In a machine of the character described, the combination with a bed having a vertically and laterally adjustable grinding-surface; of a carriage movably mounted in the bed, adjustable means for securing a tool within the carriage, and mechanism for operating the carriage.

7. In a machine of the character described, the combination with a bed having an adjustable grinding-surface; of guide-strips adjacent said surface, a carriage slidably mounted therebetween, adjustable means for securing a tool within the carriage, and mechanism for operating the carriage.

8. In a machine of the character described, the combination with a bed having an adjustable grinding-surface; of guide-strips adjacent said surface, a carriage slidably mounted therebetween, a block pivoted within the carriage, means for locking the block against movement, securing devices for holding a tool upon the block, and mechanism for operating the carriage.

9. In a machine of the character described, the combination with a bed having an adjustable grinding-surface; of guide-strips adjacent said surface, a carriage slidably mounted between the strips, a block pivoted within the carriage, an adjusting device bearing upon one face of the block, an arm extending from the block, a sleeve thereon, tool-clamping devices within the sleeve and upon the carriage adjacent the block, and mechanism for reciprocating the carriage.

10. In a machine of the character described, a carriage comprising side strips, a block pivoted therebetween, an adjusting device bearing upon one face of the block and engaging the carriage, an arm extending from the block, a tool-receiving sleeve thereon, a clamping-plate adjacent the block and within the carriage, and clamping devices adjacent said plate and within the sleeve.

785,594. **VALVE.** CLARENCE G. CRISPIN, Berwick, Pa. Filed Nov. 11, 1904. Serial No. 232,340.



Claim.—1. A device of the character described, having a chamber within a chamber, and a valve initially closing a port or opening in the lower portion of the inner chamber, the outer chamber having communication with said inner chamber, at a point above said valve.

2. A device of the character described, having a chamber within a chamber, and a valve initially closing a port or opening in the lower portion of the inner chamber, the outer chamber communicating with the inner chamber at a point above said valve, said inner chamber having air-egress openings or outlets also arranged above said valve.

3. A device of the character described, having a chamber within a chamber, and a valve initially closing a port or opening in the lower portion of the inner chamber; the outer chamber having openings communicating with the inner chamber at a point above said valve, and said inner chamber having a seat in its upper portion to receive said valve when removed from over the port or opening initially closed thereby.

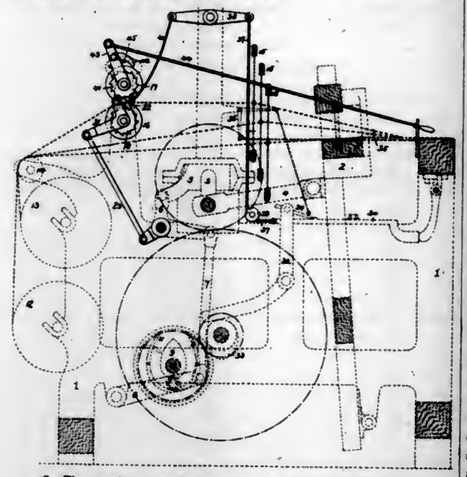
4. A device of the character described comprising upper and lower casing-sections, a cylindric coupling member for said sections, said upper section having a downward extension, in continuation of its inner surface, provided with orifices or openings, a cup-like member connected to said downward extension and having a bottom opening, said coupling member having its inner surface spaced off or offset from said downward extension and cup-like member, and a valve initially closing said bottom opening, said upper section adapted to form at its inner upper end a seat for said valve when the latter is lifted from its initial position.

5. A device of the character described, employing two casing-sections coupled together by a cylindric or connecting member, the upper section having a downward extension, in continuation of its inner surface, provided with orifices or openings, said upper section also having an upward capped tubular extension also provided with orifices or openings, a cup-like member connected to said downward extension and having a bottom opening or port, said coupling member having its inner surface spaced off, or offset from said downward extension and cup-like member, and a valve or ball initially closing said bottom opening, said upper section adapted to form at its inner upper end a seat for said valve when the latter is lifted from its initial position.

785,595. **TERRY-LOOM.** JOHN H. CROWLEY, Charlotte, N. C. Filed Jan. 20, 1904. Serial No. 189,900.

Claim.—1. The combination, in a terry-loom, of means for imparting alternate partial and full beats to the lay, with a positive let-off device for the terry warp-threads operative on each full beat of the lay, but inoperative on the short beats or during the weaving of plain fabrics, substantially as specified.

2. The combination, in a terry-loom, of mechanism for imparting alternate partial and full beats to the lay, with a positive let-off device for the terry warp-threads of the loom, and a connection between said let-off device and the mechanism which governs the beat of the lay, whereby said let-off device is operative on each full beat of said lay, but is inoperative on the short beats or during the weaving of plain fabric, substantially as specified.



3. The combination in a terry-loom, of mechanism for imparting alternate partial and full beats to the lay, let-off rolls acting upon the terry warp-threads, ratchet-and-pawl mechanism for imparting intermittent forward movements to said let-off rolls, and a connection between said pawl-and-ratchet mechanism, and the mechanism which governs the beat of the lay, whereby the desired let-off of terry warp-threads will be effected on each full beat of the lay, there being no positive let-off of terry warp-threads on the short beats of the lay or during the weaving of plain fabric, substantially as specified.

4. The combination, in a terry-loom, of means for imparting alternate partial and full beats to the lay, a positive let-off for the terry warp-threads, a weft stop-motion device and connection between said let-off device and the weft stop-motion device, whereby the former will be rendered inoperative, when the latter stops the loom, substantially as specified.

5. The combination in a terry-loom, of means for imparting alternate partial and full beats to the lay, a terry-warp let-off having as elements a ratchet-wheel and pawl, a weft-stop knock-off slide, and a connection between said slide and the pawl, whereby the latter will be freed from engagement with the ratchet-wheel when the slide moves to stop the loom, substantially as specified.

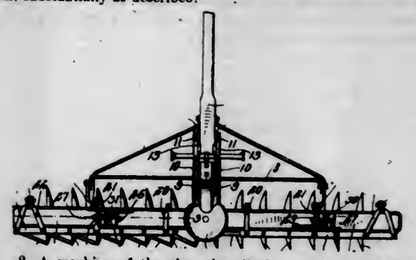
6. The combination, in a terry-loom, of means for imparting alternate partial and full beats to the lay, a positive let-off for the terry warp-threads, and means for backing off the same to take up slack, substantially as specified.

7. The combination in a terry-loom, of means for imparting alternate partial and full beats to the lay, a positive let-off for the terry warp-threads, a weft stop-motion device, a connection between the same and the let-off whereby the latter is rendered inoperative when the stop-motion operates, and means for backing off the let-off rolls to take up slack, substantially as specified.

8. The combination of the let-off rolls, ratchet-and-pawl mechanism on the shaft of each roll, means for rendering inoperative the mechanism of one roll, and a device for automatically lifting the other pawl out of engagement with its ratchet-wheel when the pawl-carrier moves backward, substantially as specified.

785,596. **CLEANING ATTACHMENT FOR DISK HARROWS OR THE LIKE.** MICHAEL H. DALEY, Charles City, Iowa. Filed July 18, 1904. Serial No. 217,109.

Claim.—1. A machine of the class described, comprising a suitable frame, a shaft, earth-working disks upon said shaft, a bar mounted to swing upon said frame, cleaner-bars secured to said bar and adapted to engage said disks, a crank-shaft mounted upon said frame, a connection between the crank of said crank-shaft and said swinging bar, gearing between said crank-shaft and said disk-shaft, and a lever and link for throwing said gearing into and out of operation, substantially as described.



2. A machine of the class described, comprising a suitable frame, a shaft, earth-working disks upon said shaft, a bar mounted to swing upon said frame, cleaner-bars secured to said bar and adapted to engage said disks, a crank-shaft mounted upon said frame, a connection between the crank of said crank-shaft and said swinging bar, an eccentric upon said disk-shaft, and a driving connection between said eccentric and said crank-shaft for intermittently rotating the latter, substantially as described.

3. A disk harrow, cultivator, or the like, comprising a suitable frame, a disk-shaft mounted in bearings upon said frame, earth-working disks upon said shaft, a swinging bar upon said frame, disk cleaner-bars upon said swinging bar, a crank-shaft mounted in bearings upon said frame, a link connection between the crank of said crank-shaft and said swinging bar, a ratchet-wheel upon said crank-shaft, an eccentric upon said disk-shaft and a connecting-rod having at one end a strap to coact with said eccentric and at its other end a spring-seated dog to coact with said ratchet-wheel, substantially as described.

4. A disk harrow, cultivator, or the like, comprising a frame, a disk-shaft, disks upon said shaft, cleaners for said disks, a drive-shaft, an operating connection between said drive-shaft and said cleaners, a ratchet-wheel upon said drive-shaft, an eccentric upon said disk-shaft, a strap upon said eccentric, a connecting-rod secured to said strap, a dog upon said rod adapted to engage said ratchet-wheel, and a spring for holding said dog in engagement with said ratchet-wheel, substantially as described.

5. A disk harrow, cultivator, or the like, comprising a frame, a disk-shaft, disks upon said shaft, cleaners for said disks, a drive-shaft, an operating connection between said drive-shaft and said cleaners, a ratchet-wheel upon said drive-shaft, an eccentric upon said disk-shaft, a strap upon said eccentric, a connecting-rod secured to said strap, a dog upon said rod adapted to engage said ratchet-wheel, a spring for holding said dog in engagement with said ratchet-wheel, a lever connected to said connecting-rod for moving said dog into and out of engagement with said ratchet-wheel, substantially as described

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785,597. **WARP-DYEING MACHINE.** THEODORE E. DAVIS, Winston Salem, N. C. Filed May 17, 1904. Serial No. 208,411.

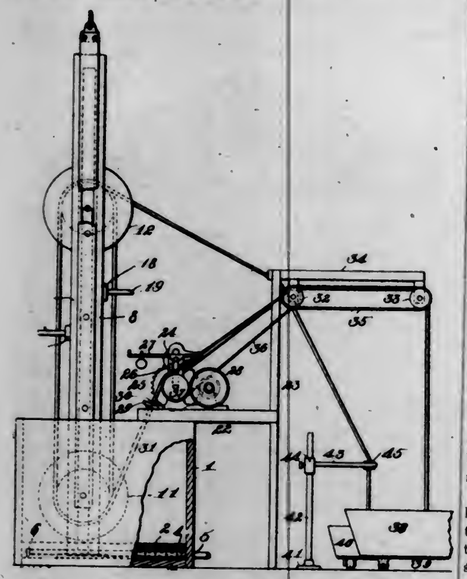
Claim.—1. A warp-dyeing machine having a stationary frame, a pair of warp-reels, means arranged in said frame for spacing said reels apart, means connected to said spacing means for vertically adjusting said reels simultaneously, said spacing means movable in unison with said vertically-movable means, and guide-pins secured to each side of the frame and coöperating with said reels.

2. A warp-dyeing machine including a dye-liquor receptacle, a stationary frame extending upwardly therefrom, a pair of bodily and vertically movable warp-reels slidably supported within said frame, means disconnected from the frame and adapted when operated to vertically and bodily move said reels, a combined warp drawing and compressing device, and guide and spacing pins carried by the frame.

3. A warp-dyeing machine including a dye-liquor receptacle, a stationary frame extending upwardly therefrom, a pair of bodily and vertically movable warp-reels slidably supported within said frame, means disconnected from the frame and adapted when operated to vertically and bodily move said reels, a combined warp drawing and compressing device, guide and spacing pins carried by the frame, and a guide for said device.

4. A warp-dyeing machine including a dye-liquor receptacle, a stationary frame extending upwardly therefrom, a pair of bodily and vertically movable warp-reels slidably supported within said frame, means disconnected from the frame and adapted when oper-

ated to vertically and bodily move said reels, a combined warp drawing and compressing device, guide and spacing pins carried by the frame, a guide for said device, and a warp-feeding guide arranged in suitable relation to one of said reels.



5. A warp-dyeing machine including a dye-liquor receptacle, a stationary frame extending upwardly therefrom, a pair of bodily and vertically movable warp-reels slidably supported within said frame, means disconnected from the frame and adapted when operated to vertically and bodily move said reels, a combined warp drawing and compressing device, guide and spacing pins carried by the frame, a guide for said device, a warp-feeding guide arranged in suitable relation to one of said reels, and a conveying means coöperating with said device.

6. A warp-dyeing machine including a dye-liquor receptacle, a stationary frame extending upwardly therefrom, a pair of bodily and vertically movable warp-reels slidably supported within said frame, means disconnected from the frame and adapted when operated to vertically and bodily move said reels, a combined warp drawing and compressing device, guide and spacing pins carried by the frame, a guide for said device, a warp-feeding guide arranged in suitable relation to one of said reels, a conveying means coöperating with said device, and an adjustable warp-feeding guide coöperating with said first-mentioned warp-feeding guide.

7. A warp-dyeing machine including a dye-liquor receptacle having a perforated false bottom, a heating-medium feed-pipe extending in said receptacle below said false bottom, an upwardly-extending frame secured to said receptacle, a pair of reels mounted in said frame, a pair of spacing-bars for said reels, means connected with the spacing-bars and when operated adapted to bodily and vertically move said reels, said spacing-bars and vertically-adjustable means moving in unison, said means acting as a bearing for said reels, and a warp-drawing means coöperating with the reels.

8. A warp-dyeing machine including a dye-liquor receptacle having a perforated false bottom, a heating-medium feed-pipe extending in said receptacle below said false bottom, an upwardly-extending frame secured to said receptacle, a pair of reels mounted in said frame, a pair of spacing-bars for said reels, means connected with the spacing-bars and adapted when operated to bodily and vertically move said reels, said spacing-bars and vertically-adjustable means moving in unison, said means acting as a bearing for said reels, and a combined warp drawing and compressing means coöperating with said reels.

9. A warp-dyeing machine including a dye-liquor receptacle having a perforated false bottom, a heating-medium feed-pipe extending in said receptacle below said false bottom, an upwardly-extending frame secured to said receptacle, a pair of reels mounted in said frame, a pair of spacing-bars for said reels, means connected with the spacing-bars and adapted when operated to bodily and vertically move said reels, said spacing-bars and vertically-adjustable means moving in unison, said means acting as a bearing for said reels, a combined warp drawing and compressing means coöperating with said reels, and a plurality of combined warp guiding and spacing pins secured to each side of said frame.

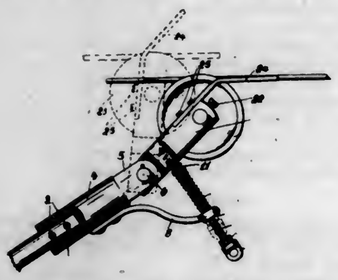
10. A warp-dyeing machine including a dye-liquor receptacle having a perforated false bottom, a heating-medium feed-pipe extending in said receptacle below said false bottom, an upwardly-extending frame secured to said receptacle, a pair of reels mounted in said frame, a pair of spacing-bars for said reels, means connected with the spacing-bars and adapted when operated to bodily and vertically move said reels, said spacing-bars and vertically-adjustable means moving in unison, said means acting as a bearing for said reels, a combined warp drawing and compressing means coöperating with said reels, a plurality of combined warp guiding and spacing pins secured to each side of said frame, and a warp-feeding guide carried by said frame coöperating with one of said reels.

11. A warp-dyeing machine including a dye-liquor receptacle having a perforated false bottom, a heating-medium feed-pipe extending in said receptacle below said false bottom, an upwardly-extending frame secured to said receptacle, a pair of reels mounted in said frame, a pair of spacing-bars for said reels, means connected with the spacing-bars and adapted when operated to bodily and vertically move said reels, said spacing-bars and vertically-adjustable means moving in unison, said means acting as a bearing for said reels, a combined warp drawing and compressing means coöperating with said reels, a plurality of combined warp guiding and spacing pins secured to each side of said frame, a warp-feeding guide carried by said frame coöperating with one of said reels, and a warp-guiding means coöperating with said device.

12. A warp-dyeing machine including a dye-liquor receptacle having a perforated false bottom, a heating-medium feed-pipe extending in said receptacle below said false bottom, an upwardly-extending frame secured to said receptacle, a pair of reels mounted in said frame, a pair of spacing-bars for said reels, means for bodily and vertically moving said reels, said spacing-bars and vertically-adjustable means moving in unison, said means acting as a bearing for said reels, a combined warp drawing and compressing means coöperating with said reels, a plurality of combined warp guiding and spacing pins secured to each side of said frame, a warp-feeding guide carried by said frame coöperating with one of said reels, a warp-guiding means coöperating with said device, and an adjustable warp-feeding guide coöperating with the feed-guide carried by the frame.

13. A warp-dyeing machine including a dye-liquor receptacle, an upwardly-extending stationary frame secured to said receptacle and provided with a pair of elongated openings, a pair of reels having their shafts extending through said frame, spacing-bars mounted in the openings and interposed between the shafts of the reels for retaining the reels a fixed distance apart, means for vertically moving said reels in unison, said means acting as a bearing for the shafts of the reels and secured to the spacing-bars, guide-pins secured to each side of the frame, and a warp-feeding guide arranged in suitable relation to one of said reels.

785,598. **TROLLEY.** CLEMENS DILLHOFF and JOSEPH HASTREITER, Morgantown, W. Va. Filed Dec. 13, 1904. Serial No. 236,689.



Claim.—1. The combination of a trolley-body having a bifurcated end and a rearwardly-extending arm having an aperture at its end, with a trolley-harp pivotally mounted in the bifurcated end of said body, a trolley which is journaled in said harp, a rod pivotally attached to said harp and passing through the aperture in said arm, a spiral spring surrounding said rod and an eyelet-nut carried on the end of said rod and adapted to receive a trolley-rope.

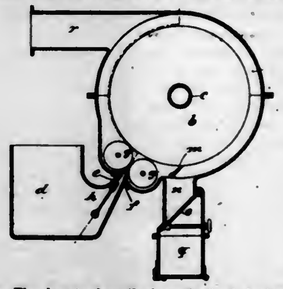
2. The combination of a trolley-body, a harp pivotally mounted thereon, a rearwardly-extending arm carried by the body, a rod pivotally attached to said harp and passing through said arm and provided with means for the attachment of a trolley-rope, a spiral spring surrounding said rod and L-shaped arms secured to the harp and extending rearwardly therefrom.

785,599. **VEGETABLE-CUTTER.** WARD D. EARL, Lead, S. D. Filed June 22, 1904. Serial No. 213,701.



Claim.—A vegetable-cutter comprising an oblong rectangular box, formed with a flanged circular opening in its bottom, a follower vertically disposed in the box and having a vertical concave front face, a rod secured to the back of the follower and slidably projected through the end of the box and formed with notches at determined distances, a pawl secured to the box to engage the notches of the rod and hold it at the outer and the inner limit of its movement, a conical spiral spring on the rod bearing with its larger or base spiral against the back of the follower and its apex spiral against the end of the box, a bottom cap revolubly seated in the flanged opening of the bottom of the box, a cutting-cylinder detachably locked to the bottom cap, a top plate on the box formed with a circular opening into which the upper end of the cutting-cylinder projects, a circular plate secured to the upper end of the cutting-cylinder with its perimetral edge extending over on the top plate, a crank secured to the circular plate, and cutting-knives vertically disposed in the cylinder.

785,600. **METHOD OF DRYING PASTY SUBSTANCES.** MARTIN EKENBERG, Stockholm, Sweden, assignor to Martin Ekenberg's Aktiebolag, Stockholm, Sweden. Filed Feb. 10, 1903. Serial No. 142,720.



Claim.—1. The herein-described method of drying pasty or plastic substances on a heated body continuously moving in a vacuum-chamber, which consists in feeding the said substance in a continuous manner by pressure through a passage leading to the said chamber, the substance serving to prevent the entry of air at said passage, and in forming the said substance into a thin band which is then taken up by the heated body.

2. The herein-described method of drying plastic or pasty substances on a heated body continuously moving in a vacuum-chamber, which consists in forcing the said substance in a continuous manner and in an upward direction through a narrow passage to the said heated body, the substance being formed into a thin band in its movement under the feeding pressure.

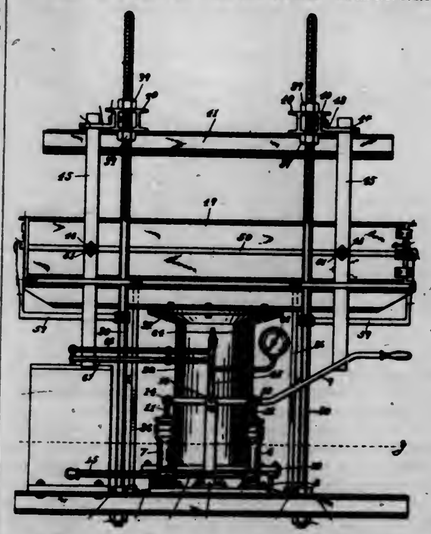
785,601. **CASTER.** WILLIAM C. FISCHER, New York, N. Y. Filed Mar. 3, 1904. Serial No. 196,331.

Claim.—1. A caster comprising a spindle-plate having upper and lower horizontal arms and a vertical intermediate portion, a roller-frame comprising a vertical plate having its intermediate portion disposed between the horizontal arms of the spindle-plate and bearing against and pivoted to the intermediate portion of the spindle-plate at a point midway between said arms and having its ends bent to form bearing-bars, said roller-frame having vertical angular movement limited by the upper and lower arms of the spindle-plate, a spindle carried by the lower arm of the spindle-plate and extending upwardly through and above the upper arm thereof and a sleeve on the spindle, between and bracing the arms of the spindle-plate, substantially as described.



2. A caster comprising a spindle-plate having right-angularly-disposed bearing-brackets formed on the same, alined openings formed in said brackets, a spindle mounted in said openings, a ball-race having one member secured to one of said brackets and the other member formed on said spindle, bearing-balls disposed in said race, a sleeve arranged on said spindle between said brackets to brace the same, a roller-frame pivoted to said spindle-plate between said bearing-brackets to have a lateral rocking movement, said movement being limited by said brackets, an axle or shaft mounted in the horns of said frame, rollers journaled on said axle and a sleeve arranged thereon to space said rollers apart, substantially as described.

785,602. **HYDRAULIC PRESSING-MACHINE.** WILLIS H. FISHER, Los Angeles, Cal. Filed Nov. 24, 1903. Serial No. 182,474.



Claim.—1. In a hydraulic pressing-machine of a suitable frame, a hydraulic ram mounted and carried by said frame, pumps adapted to actuate said ram, a movable top carried by the ram adapted to move upward and downward, I-beams mounted on said movable top, a table carried by said I-beams, rectangular openings in said table, rollers adapted to pass through said openings, stationary curved standards extending upward adapted to carry said rollers, vertical strain-rods mounted on the foundation-sills, cross-beams adjustably carried by said strain-rods, extending brackets 43, mounted to said cross-beams, substantially as described.

2. In a hydraulic pressing-machine of the character described, of a suitable frame, a hydraulic ram mounted and carried by said frame, pumps adapted to actuate said ram, a lever adapted to actuate said pumps, a table mounted over said ram, strain-rods adapted to adjustably carry cross-beams and guide said table on its upward

and downward movements, depending guide-rods adapted to loosely engage elongated openings in said table and extended brackets carried by said cross-beams, substantially as described.

3. In a hydraulic pressing-machine, adapted for the manufacture of artificial stone of a suitable frame, a hydraulic ram mounted and carried by said frame, pumps adapted to actuate said ram, a lever adapted to actuate said pumps, vertical strain-rods, I-beams mounted on the ram, a table resting on the I-beams, cross-beams adjustably carried by said strain-rods, guide-bars adapted to engage extended brackets and elongated openings in said table, adjustable arms carried by said guide-bars, box-supporting side bars connected to and actuated by said adjustable arms, adjustable end supporting-gates secured to said side bars, substantially as described.

4. In a hydraulic pressing-machine of a suitable frame comprising longitudinal sills, cross-beams mounted on said sills a hydraulic ram mounted on said cross-beams, pumps adapted to actuate said ram, a lever 9 adapted to actuate said pumps, vertical strain-rods mounted and carried by the foundation-sills, cross-beams carried by the hydraulic ram and adapted to move upward, a table mounted on said cross-beams, a supporting-frame resting on said table, adjustable arms secured to the supporting-frame, supported by guide-rods, cross-beams adjustably carried by the strain-rods, longitudinal I-beams dependingly carried by said adjustable cross-beams, a plate carried by said depending beams, substantially as described.

5. In a hydraulic pressing-machine of the character described, a suitable frame, a hydraulic ram mounted on the foundation of said frame, pumps adapted to actuate said ram, I-beams mounted thereon, a table carried by said I-beams, a supporting-box carried by said table, adjustable swinging ends mounted to the sides of said box, latch-bars mounted to said supporting-box adapted to secure the end of said box in position, cross-beams, arms mounted to said strain-rods and adapted to disengage said latch-bars, depending I-beams carried by said cross-beams, a plate carried by said depending beams and adapted to come in engagement with a suitable molding-box substantially as described.

785,603. **VEHICLE-TIRE.** JOHN J. FITZSIMMONS, Paterson, N. J. Filed Sept. 24, 1904. Serial No. 225,819.



Claim.—1. The combination with a tire having an outer tube and an inner core, of a clamp adapted to engage a wheel-spoke, a retaining element designed to extend transversely through the tire, and connections between the retaining element and clamp.

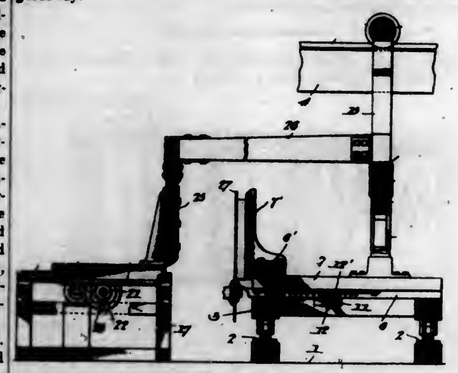
2. A tire-fastening device comprising a clamp, a pair of arms carried thereby, links pivotally connected with the arms and having perforated heads, and an element extended between the heads and adapted to pass transversely through the tire.

3. A tire-fastening device comprising a clamp composed of a fixed and a relatively movable section, a pair of oppositely-disposed outwardly-divergent arms carried by the fixed section, links pivotally connected respectively with the arms and terminating in perforated heads, and an element adapted to pass transversely through the tire and be engaged with the heads.

785,604. **SAWMILL SET-WORKS.** FORTUNE A. FLOYD, Merrill, Miss. Filed July 1, 1904. Serial No. 214,946.

Claim.—1. The combination with a sawmill-carriage having a shiftable knee, an overhead carriage mounted independently of the sawmill-carriage and working transversely thereof, and means connecting the overhead carriage with the knee to shift the latter transversely of the sawmill-carriage, there being a slidable connection between the knee and the overhead carriage to permit reciprocation of the sawmill-carriage independently of the movement of the overhead carriage.

2. The combination with a sawmill-carriage having a shiftable knee, of a post rising from the knee, a guideway carried by the post and supported in an elevated position longitudinally above the sawmill-carriage, and knee-setting means mounted independently of the carriage and having a reciprocal connecting member working transversely to the movement of the carriage and slidably engaging the guideway.



3. The combination with a sawmill-carriage having a shiftable knee, of a guideway carried by the knee and disposed longitudinally of the carriage, and knee-shifting means mounted independently of the carriage and having a reciprocal connecting member slidably engaging the guideway to permit reciprocation of the carriage.

4. The combination with a sawmill-carriage having a shiftable knee, of a guideway carried by the knee and disposed longitudinally of the carriage, and an overhead carriage mounted independently of the sawmill-carriage and working transversely thereof and having a slidable connection with the guideway.

5. The combination with a sawmill-carriage having a shiftable knee, of a guideway carried by the knee longitudinally of the carriage, an overhead carriage working transversely of the sawmill-carriage and having a slidable connection with the guideway, and means mounted independently of the sawmill-carriage and connected to the overhead carriage for actuating the latter to set the knee.

6. The combination with a sawmill-carriage having a shiftable knee, of a guideway carried by the knee longitudinally of the carriage, an overhead track supported independently of the carriage and extending transversely across the same, an overhead carriage mounted upon the track and having a slidable connection with the guideway, and means mounted independently of the sawmill-carriage for actuating the overhead carriage.

7. The combination with a sawmill-carriage having a shiftable knee thereon, of a guideway carried by the knee longitudinally of the carriage, an overhead track supported independently of the sawmill-carriage and extending transversely across the same, an overhead carriage mounted to travel upon the track with its lower end slidably engaging the guideway, and means for actuating the overhead carriage to set the knee.

8. The combination with a sawmill-carriage having a shiftable knee, of a guideway carried by the knee longitudinally of the carriage, an overhead carriage mounted to travel transversely across the sawmill-carriage and having a slidable connection with the guideway, and means mounted independently of the sawmill-carriage for actuating the overhead carriage and disposed for control from the position of the sawyer.

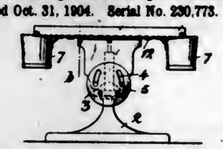
9. The combination with a sawmill-carriage having a shiftable knee, of a guideway carried by the knee longitudinally of the carriage, an overhead carriage mounted to travel transversely of the sawmill-carriage and slidably engaging the guideway, a frame mounted independently of the sawmill-carriage, a slide supported upon the frame and working transversely of the direction of the sawmill-carriage, a standard rising from the slide, a connection between the standard and the overhead carriage, and means for operating the slide.

10. The combination with a sawmill-carriage having a shiftable knee thereon, an overhead carriage mounted to work transversely across the sawmill-carriage independently thereof and slidably connected to the knee, a frame mounted independently of the sawmill-carriage, a slide mounted upon the frame and working transversely of the sawmill-carriage, a connection between the slide and the overhead carriage, slide-operating means, and a gage upon the frame and including a shiftable stop in the path of a portion of the slide to limit the movement thereof and to predetermine the set of the knee.

11. The combination with a sawmill-carriage having a series of shiftable knees, of posts rising from the knees, a guideway carried by the posts and connecting the knees for simultaneous movement, an overhead carriage mounted to work transversely across the sawmill-carriage independently thereof and having its lower end slidably engaging the guideway, and means mounted independently of the sawmill-carriage for actuating the overhead carriage.

12. A sawmill-carriage having a shiftable knee, a support independent of the carriage, a slide mounted upon the support and having a slidable connection with the knee to set the latter and permit reciprocation of the carriage, a rack upon the slide, a shaft carried by the support and provided with a pinion engaging the rack, an engine connected to the shaft and having its throttle accessible from the position of the sawyer, and a gage including an adjustable stop located in the path of the slide to adjustably limit the setting of the knee.

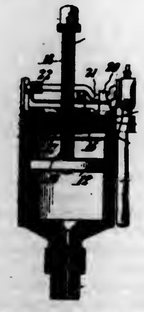
785,605. **COIN-DELIVERING DEVICE.** MAGNI G. FRÖBERG, Stockholm, Sweden, assignor to Sam Lagerlöfs Maskinbyra, Stockholm, Sweden. Filed Oct. 31, 1904. Serial No. 230,773.



Claim.—1. A coin-delivery device consisting of a support, a tray pivoted to said support, so as to be tipped in different directions, tubes pivoted to said tray at opposite sides, a slide normally covering the tubes and means for causing said slide to uncover one of said tubes when the tray is tilted.

2. A coin-delivery device consisting of a support, a tray pivoted to said support so as to be tilted in different directions, tubes pivoted to said tray, a slide normally covering the upper ends of said tubes and a rod guided vertically in the support and connected to the slide so that when the tray is tilted said slide will be moved to uncover one of the tubes, substantially as described.

785,606. **LUBRICATOR.** CHRISTIAN G. GLASRUD, Sheyenne, N. D. Filed Apr. 30, 1904. Serial No. 205,819.



Claim.—1. In combination, a lubricant-containing cup having an open top and provided with a discharge-opening, a split cap-piece fitting over the cup and confined in place on the cup, a nut-disk secured to the cap-piece and resting on top of the cup, a plunger fitting within the cup, a threaded plunger-rod secured to the plunger and extending through the nut-disk, a plurality of ratchet members supported in part by the nut and cap-piece, and means for operating said ratchet members.

2. In combination, a lubricant-containing cup, a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning said rod and having an unthreaded opening for the passage of the rod, a pawl for engaging and turning the ratchet, a cranked shaft carrying said pawl, and an oscillatory pendulum for rocking said shaft.

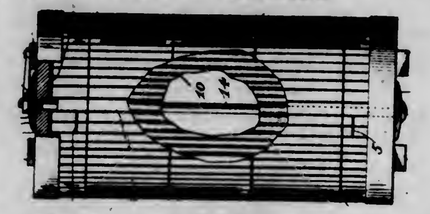
3. The combination with a lubricant-containing cup, of a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning said rod and having an unthreaded opening for the passage of the rod, a pawl for engaging and turning the ratchet, means for permitting engaging movement of the pawl with said ratchet only at intervals with respect to the operation of the pawl, and means for operating said pawl.

4. The combination with a lubricant-container, of a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning said rod and having an unthreaded opening for the passage of the rod, a pawl for engaging said ratchet-disk, and a loose ratchet-ring also engaged by the pawl, the depth of the space between the teeth of the ring serving, except at intervals, to prevent engagement of the pawl with the teeth of the ratchet-disk.

5. The combination with a lubricant-container, of a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning the rod and having an unthreaded opening for the passage of the rod, a pair of loose ratchet-rings adjacent to the disk one of the rings having a greater number of teeth than the other, and the notches between the teeth of said rings being of unequal depth, and a pawl for engaging all three sets of ratchet-teeth.

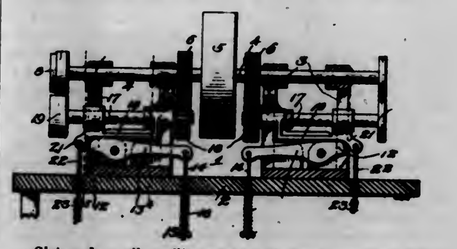
6. The combination with a lubricant-containing cup having at its top a pair of seating-flanges of unequal diameter, a disk supported on the smaller seat and having a threaded opening, a plunger, a threaded plunger-rod extending through said threaded opening, a ratchet-disk for turning the rod, a pair of ratchet-rings surrounding the ratchet-disk, and supported on the seat of largest diameter, the spaces between the teeth of said ratchet-rings being of unequal depth, and a pawl for engaging all three sets of ratchet members.

785,607. **KNOCKDOWN VESSEL.** CHARLES H. GLEASON, Smethport, Pa. Filed Apr. 18, 1904. Serial No. 203,662.



Claim.—A knockdown vessel comprising a flexible body portion, heads to engage the ends of the same and provided with central openings, plates bearing on the outer sides of the heads and having openings coincident with those of the heads, a rod connecting the heads together and extending through the openings therein and in the said plates, and a nut screwed on the rod and bearing against the outer side of one of the said plates, said nut having an arm, a cleat on the outer side of one of the heads, and means to secure the arm of the nut on the said cleat, substantially as described.

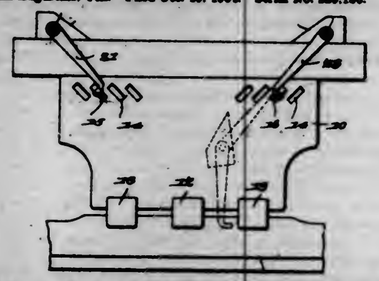
785,608. **HORSE-COLLAR-ROLLING MACHINE.** FOREST E. GOODMAN, Waco, Tex. Filed Sept. 1, 1904. Serial No. 223,036.



Claim.—In a collar-rolling machine, the combination of a drive-shaft, fixed bearings therefor, a counter-shaft, a pivoted bearing therefor, intermeshing gears on the said shafts, coacting rollers also on the said shafts, a lever, a link including a spring connecting the pivoted bearings to the said lever, whereby the counter-shaft may be moved to cause its roller to move from that of the drive-shaft, a lever having a cam-bearing under the free end of the pivoted bearing, a spring connected to the said lever, and means to vary the tension of the said spring, said spring-pressed cam-lever normally acting to

close the roller of the counter-shaft against the roller of the drive-shaft, substantially as described.

785,609. WAGON-BOLSTER ATTACHMENT. JAMES A. GOODWIN, San Augustine, Tex., assignor of one-half to Geo. W. Slaughter, San Augustine, Tex. Filed Oct. 19, 1904. Serial No. 229,186.



Claim.—1. The combination with a wagon-bolster having a plurality of spaced transverse apertures disposed upon each side of the center of the bolster and reversely inclined to the longitudinal plane of the latter, of bars detachably engaging said apertures and provided with end perforations, chock-blocks bearing upon the bolster, and links pivoted to the chock-blocks and provided with terminal hooks for engagement with the perforations in said bars.

2. The combination with a wagon-bolster provided with a plurality of spaced transverse apertures, of bars engaging said apertures and having their protruding ends provided with perforations, chock-blocks bearing upon the bolster, and independently-swinging links pivoted to said chock-blocks and provided with terminal hooks adapted to detachably engage the perforations in said bars.

785,610. FIRE-EXTINGUISHER. THOMAS F. HANDLY, Allegheny, Pa. Filed June 15, 1904. Serial No. 212,696.

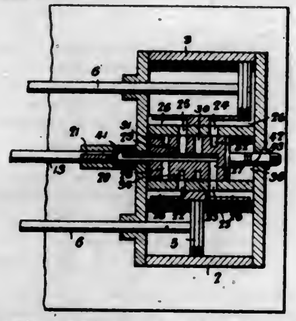


Claim.—1. In a fire-extinguisher, the combination with a tank, a closure-cap secured upon said tank, of a sealing device secured to said cap, said device having a recess formed therein to receive the neck of a receptacle, clamping-arms carrying balls seating in sockets in said sealing device, means carried by said arms for supporting a receptacle in said recess, means for locking said arms in engagement with said receptacle, and means for unlocking said arms when the tank is inverted.

2. In a fire-extinguisher, the combination with a tank, a closure-cap secured upon said tank, of a sealing device secured to said cap, said device having a recess formed therein to receive the neck of a receptacle, clamping-arms mounted in slots in said sealing device, said clamping-arms being formed with globular lugs engaging recesses in said sealing device, T-shaped heads formed integral with said clamping-arms and adapted to engage the neck of said receptacle, an annular collar supported upon said T-shaped heads, and means whereby when said tank is inverted said arms will be released from engagement with the receptacle.

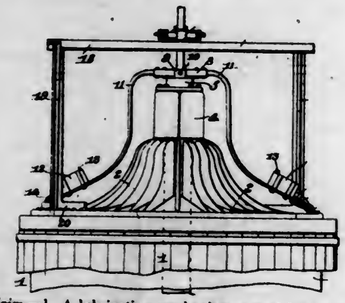
785,611. ENGINE. CHARLES B. HASTINGS, Griffin, Cal. Filed May 7, 1904. Serial No. 206,915.

Claim.—1. An engine comprising a steam-chest, steam-cylinders arranged on opposite sides thereof and communicating therewith, a longitudinally-shiftable and rotary valve-stem extending into the steam-chest and having a longitudinal passage formed with a lateral vent, a steam-chamber surrounding the stem and communicating with the lateral vent, said chamber being elongated to maintain connection with the lateral vent, under any longitudinal adjustment of the stem, and the rotary valve shiftable in the steam-chest and mounted on the valve-stem, said valve having a plurality of inlet-ports communicating with the end of the steam-chest and a plurality of exhaust-ports communicating with the longitudinal passage in the valve-stem.



2. An engine comprising a steam-chest, steam-cylinders arranged at opposite sides thereof and communicating therewith, a rotary valve working in the steam-chest and shiftable endwise therein, a valve-stem provided with a steam-exhaust passage leading from the valve outward and provided with a lateral vent, and a steam-chamber surrounding the stem and communicating with the lateral vent, said chamber being elongated to maintain communication with the exhaust-passage under any adjustment of the valve.

785,612. OILER. JOHN C. HAYWARD, Selma, Ala. Filed Nov. 18, 1904. Serial No. 233,349.



Claim.—1. A lubricating mechanism comprising an actuating member, lubricant-holders secured to the said actuating member, and means for causing the rotation of the actuating member but permitting of its reciprocation.

2. A lubricating mechanism comprising a reciprocating member and means having a sliding engagement therewith causing its rotation, arms carried thereby, and lubricating applying devices mounted upon the said arms.

3. A lubricating mechanism comprising a reciprocating and a fixed member engaging the shaft and causing its rotation as it reciprocates, lubricant-applying means carried by the said shaft and engaging the surface to be lubricated.

4. A lubricating mechanism comprising a reciprocating shaft having spiral grooves formed therein, lubricant-applying means connected with the said shaft, and stationary means engaging the grooves of the shaft for causing its rotation when it is reciprocated.

5. A lubricating mechanism comprising a rotatably-mounted shaft having actuating-grooves formed in its periphery, lubricant-applying means connected with the shaft and moved thereby, and stationary means engaging the grooves of the shaft for causing its rotation upon its movement longitudinally.

6. A lubricating mechanism comprising a shaft having spiral grooves formed therein, a bearing supporting the shaft upon a piston, arms projecting from the said shaft, lubricant-applying means secured to the arms and capable of engaging the inner surface of the cylinder in which the piston moves, and means engaging the grooved shaft for rotating it when it is moved by the piston.

7. A lubricating mechanism comprising a shaft mounted upon a piston and having a movable engagement therewith, the said shaft having oppositely-arranged spiral grooves in its periphery, a yoke keyed to the shaft, arms projecting from the said yoke and extending to points near the surface of the cylinder to be lubricated, lubricating applying means carried by the said arm comprising receptacles, means for controlling the discharge from the same, and brushes arranged beneath the discharge-outlets for receiving the lubricant and spreading it upon the inner surface of the cylinder, and means engaging the spiral grooves of the shaft for causing its rotation when it is reciprocated.

8. A lubricating mechanism for a compress-cylinder comprising a shaft movably mounted upon the piston, arms keyed to the said shaft and projecting to points adjacent to the surface of the cylinder, lubricant-containing receptacles secured to the arms, nozzles in the end of the said receptacles, a valve or stop-cock for controlling the discharge of material from the nozzles, and spreading means for receiving the drip from the nozzles and applying it to the surface of the cylinder.

9. A lubricating mechanism for cylindrical surfaces comprising a reciprocating shaft, lubricating means carried thereby, an actuating means for the shaft comprising shaft-engaging points and stationary means for holding the same, the said shaft-engaging points engaging grooves formed in the shaft.

10. A lubricating mechanism for cylindrical surfaces comprising a reciprocating and rotating shaft having spiral grooves formed in its periphery, means for engaging the grooves comprising bolts, a casing for holding the said bolts, and a rigid frame for supporting the bolts and holding them in proper position with relation to the shaft.

11. A lubricating mechanism for cylindrical surfaces comprising a reciprocating shaft having spiral grooves formed in its periphery, lubricating means connected with the said shaft and supported near the cylindrical surface to be lubricated, means for causing the rotation of the shaft comprising a casing surrounding the shaft and having compartments formed therein, shaft-engaging bolts mounted in the compartments, and means for holding the bolts stationary, the movement of the shaft with respect thereto causing the rotation of the said shaft.

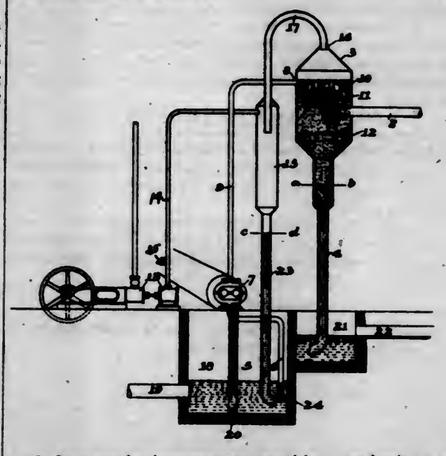
12. A lubricating mechanism for cylindrical surfaces comprising a reciprocating and rotating shaft having actuating grooves in its surface, lubricating means connected rigidly with the shaft and extending to the cylindrical surface to be lubricated, a hollow casing surrounding the shaft and formed with radiating recesses or pockets, bolts mounted in the said pockets and projecting at their inner ends into the grooves of the shaft, nuts for adjusting said bolts, a cross-head supporting the said casing and standards rigidly mounted with respect to the cylindrical surfaces and connected with the said cross-head for holding it fixedly in place.

13. A lubricating means for a cylinder comprising a rigid frame mounted upon the end of the cylinder, a casing secured to the rigid frame, adjustable bolts mounted in the casing and having inwardly-projecting tapered ends, a shaft having V-shaped spiral grooves formed in its surface and engaging the tapered ends of the bolts, set-screws engaging the ends of the bolts for adjusting them longitudinally and set-screws engaging the sides of the bolts for clamping them in their adjusted positions, lubricating means secured to the shaft and extending to points adjacent to the inner surface of the cylinder, and means for connecting the shaft with a piston moving in the cylinder the reciprocation of the shaft causing its rotation.

14. A lubricating mechanism for cylinders comprising a frame secured to the cylinder made up of angle-iron standards, and a channel-iron cross head or bar, adjustable means secured to the cross-head for engaging a lubricant-carrying shaft, a shaft passing through said adjustable means and provided with spiral grooves by which it may be rotated, radiating arms secured to the said shaft and lubricant-applying means secured to the ends of the arms and engaging the surface of the cylinder, and means for communicating motion from the piston of the cylinder to the said shaft.

785,613. STEAM-CONDENSER. AXEL H. HELANDER, Pueblo, Colo., assignor to Mesta Machine Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Aug. 3, 1904. Serial No. 219,280.

Claim.—1. Steam-condensing apparatus comprising a condensing vessel, and means for automatically regulating the condensation by introducing heated water into the condensing-chamber; substantially as described.



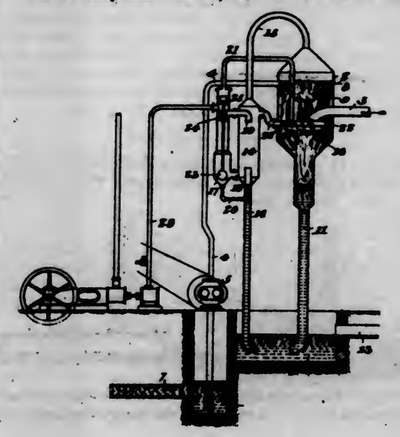
2. Steam-condensing apparatus comprising a condensing vessel, an air-exhausting pump, and means for automatically introducing heated water into the condensing vessel for decreasing the vacuum therein; substantially as described.

3. Steam-condensing apparatus comprising a condensing vessel, a water-supply pump discharging water thereinto and having connection with a cold-water supply, a separating-chamber, and a passage leading from the separating-chamber to the inlet of the pump, whereby the temperature of the water supplied to the condensing-chamber is automatically controlled by the accumulation of hot water in the separating-chamber; substantially as described.

4. Steam-condensing apparatus comprising a condensing vessel, means for discharging cold water thereinto, a separating-chamber, and means for discharging the hot water from the separating-chamber into the condensing-chamber, whereby the temperature of the water supplied to the condensing-chamber is automatically controlled by the accumulation of hot water in the separating-chamber; substantially as described.

5. The combination of a condensing vessel 3, a drain-pipe 4, a separating-chamber 15, an exhaust-pump 13, a cold-water-supply pump 7, and means conducting the water of condensation from the chamber 15 to the water-supply pump; substantially as described.

785,614. STEAM-CONDENSER. AXEL H. HELANDER, Pueblo, Colo., assignor to Mesta Machine Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Sept. 2, 1904. Serial No. 223,127.



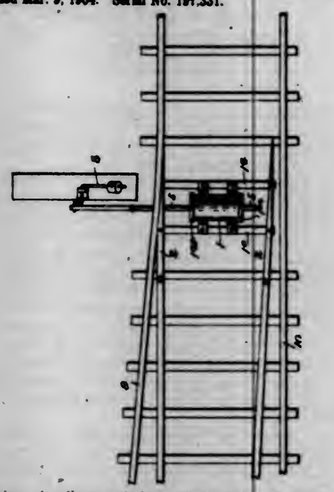
Claim.—1. In a steam-condenser, the combination with an exhauster and a condensing vessel, of means for automatically regulating the condensation by reheating the vapors supplied by the condensing vessel and thereby decreasing the vacuum in the condensing vessel; substantially as described.

2. A steam-condenser having a condensing vessel, an exhauster, a separating-chamber and means controlled by the level of the water in the separating-chamber for shifting the path of the vapors from the condensing vessel to or from a reheating device; substantially as described.

3. A steam-condenser having a condensing-chamber, a separating-chamber, an exhauster, passages extending to the exhauster respectively directly from the separating-chamber and indirectly through a hot part of the condensing-chamber, and means for diverting the connection of the pump from one passage to the other; substantially as described.

4. A steam-condenser having a condensing-chamber, a separating-chamber, an exhauster, and means whereby the vapors may be led to the exhauster from the separating-chamber through a reheating device; substantially as described.

785,615. **RAILWAY-SWITCH.** BECA W. HENRY, Glasgow, Mo. Filed Mar. 9, 1904. Serial No. 197,331.



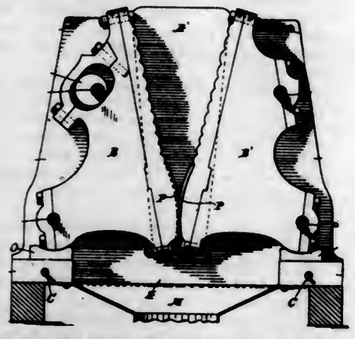
Claim.—A railway-switch, employing pivoted switch-rails, tie-bars rigidly connecting the latter, a cylindric closure having fixed connection with said tie-bars and openings in their heads, a rod or bar passing freely through said openings with its free end projecting beyond one head of said closure and the other end portion likewise projecting beyond the other head of said closure and connected to a switch-lever, said rod or bar having screwed thereon stop-nuts entering or receiving in said cylinder-head openings, disks arranged upon said rod interiorly of said stop-nuts, and a spring encircling said rod and delivering its pressure or stress upon said disks and, through them, to said closure, whence said pressure is transmitted via said tie-bars to said switch-rails as set forth.

785,616. **PROCESS OF BURNING THE ROOTS OF STUMPS.** WILLIAM KEYWOOD and VIRGIL BLINER, Tacoma, Wash. Filed June 23, 1903. Serial No. 163,572.



Claim.—The process of burning the roots of stumps, which consists in forming a cavity in the body of the stump to be treated, providing a vent for said cavity, igniting the stump in said cavity, closing the cavity, and introducing a blast of air to said cavity, said blast prior to its delivery to said cavity being charged with an ignitible fluid, whereby the combined mixture is designed to act upon the stump for the dual purpose of drying and burning the same.

785,617. **STONE-CRUSHER.** GEORGE S. KNAPP, Grand Rapids, Mich., assignor to Differential Ore Crushing Machine Company, Limited, Grand Rapids, Mich., a Corporation of Michigan. Filed Dec. 10, 1903. Serial No. 184,649.



Claim.—1. In a stone-crusher, opposing pivoted jaws, one of said jaws having a slotted or elongated opening, a driving-shaft and eccentric in said opening, adjustable eccentrics on the shaft and means for connecting said adjustable eccentrics with the other jaw to operate the same.

2. In a stone-crusher, pivot-bolts connected by longitudinally-adjustable rods, opposing jaws pivoted on said bolts, one of said jaws also having an elongated opening, a driving-shaft, an inner eccentric on said shaft and in said opening, two outer eccentrics on said shaft, straps on the outer eccentrics and rods connecting the straps and the other jaw.

3. In a stone-crusher, opposing jaws having engaging and co-acting convex surfaces, a pivot for each jaw, located at the axis of the convex surface of the same, a driving-shaft, an inner eccentric on the driving-shaft and connected to one jaw to operate the same, and outer eccentrics on the driving-shaft, said outer eccentrics being adjusted in angular relation to the inner eccentric, and connected to the other jaw to operate the same.

4. In a stone-crusher, opposing pivoted jaws having engaging and coacting convex surfaces at their adjacent sides, and separate convex surfaces at their respective under sides, both of said convex surfaces of each jaw being concentric with the axis of the pivot for said jaw, a plate at each side of said jaw, separate concave blocks engaging the convex surfaces at the under sides of the jaws, a hopper connected to the plates and blocks, and means for operating the jaws.

5. In a stone-crusher, opposing pivoted jaws having convex surfaces beneath their pivots and concentric therewith, adjustable pivots for said jaws, a plate at each side of said jaws, spacing-blocks between the plates, and spaced apart, concave blocks engaging the convex surfaces of the jaws and slidably supported on the spacing-blocks, a hopper attached to the side plates and spacing-blocks, and means for operating the jaws.

6. In a stone-crusher, the combination of pivot-bolts, blocks on the respective ends of said bolts, connecting-rods extending through said block, said rods being provided with adjusting-nuts, opposing jaws pivoted on said bolts, and having adjacent and coacting surfaces concentric with the axis of said bolts, a driving-shaft extending through one of said jaws, an inner eccentric fixed on said shaft to operate said jaw, outer eccentrics adjustable on said shaft, a bolt extending through the other jaw, blocks on the respective ends of said bolt, straps surrounding the outer eccentrics, and rods adjustably connecting the straps to said last-named blocks.

7. In a stone-crusher, side plates, spacing-blocks between the side plates, bolts connecting said plates, jaws pivotally supported between said plates, said jaws having convex under surfaces concentric with the axis of the pivots means for operating said jaws, means for adjusting the pivots, adjustable blocks having concave surfaces engaging the convex surfaces of the jaws, and a hopper attached to the spacing-blocks and side plates.

8. In a stone-crusher, the combination of side plates spacing-blocks between the same, bolts connecting the side plates, pivoted jaws between the plates, pivot-bolts extending through said plates and jaws, rods connecting the pivot-bolts, a driving-shaft journaled in said plates, an inner eccentric on said shaft to operate one of the jaws, outer eccentrics on the shaft to operate the other jaw, and means for connecting the outer eccentrics to the said other jaw.

9. In a stone-crusher, the combination of side plates, spacing-blocks and bolts connecting said plates, opposing jaws between said plates, said jaws having convex under surfaces, adjustable blocks having concave surfaces engaging the same, a hopper attached to the side plates and spacing-blocks, pivot-bolts extending through the plates and jaws, rods adjustably connecting said pivot-plates, a driving-shaft extending through one of said jaws, an inner eccentric on the shaft, said eccentric also engaging a slot in the jaw, outer eccentrics on the shaft, a bolt in the other jaw, blocks on the bolt, and means for connecting the outer eccentrics and the bolt.

785,618. **PROCESS OF RETTING FIBROUS STOCK.** JAMES B. LAPPEN, Decorah, Iowa, assignor to Lorenzo L. C. Brooks and Frederick M. Catlin, St. Paul, Minn. Filed July 16, 1901. Serial No. 68,501.

Claim.—1. The process of retting fibrous stock, such as flax, whether in the form of straw or tow, which process consists in first cooking the stock in a solution of lime, under direct steam-pressure, and then, subsequently, cooking the same stock in a solution of caustic soda, under direct steam-pressure, substantially as described.

2. As a new article of manufacture, a fibrous product resulting from the treatment of a fibrous stock, such as flax straw or tow, by cooking the same first in a solution of lime, under direct steam-pressure, and then subsequently in a solution of caustic soda, under direct steam-pressure; substantially as described.

785,619. **DENTAL MATRIX-RETAINER.** CLOSSON M. LEFFINGWELL, Littlefalls, Minn. Filed June 22, 1904. Serial No. 213,746.



Claim.—1. A dental matrix-retainer comprising a block having pivoted clamping-arms, a matrix-retaining band held by the clamping-arms, a screw-shaft extending through the block, and a head swiveled upon the end of the screw-shaft and adapted to abut against the tooth encircled by the band.

2. A dental matrix-retainer comprising a block having shouldered recesses in its sides, a clamping member pivoted in each of the recesses and having a shoulder thereon, a band surrounding the block and the clamping members and movable longitudinally thereon to hold the clamping members in closed position, a matrix-retaining band held by the clamping members, a screw-shaft extending through the block, and a channeled head swiveled upon the end of the shaft and adapted to abut against the convex surface of the tooth encircled by the matrix-retaining band.

3. A dental matrix-retainer comprising a matrix-retaining band, a head adapted to abut against a tooth, and having channels therein crossing each other at an angle, and means for adjusting the head against one side of the tooth and for drawing the retaining-band against the opposite side thereof.

785,620. **EYEGLASSES.** BENJAMIN M. LEVOY, New York, N. Y. Filed May 2, 1904. Serial No. 206,948.

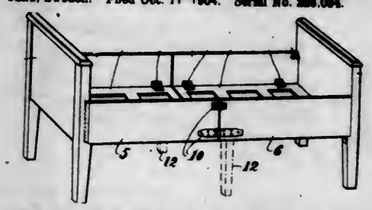


Claim.—1. A nose-guard of the character described provided with an inwardly and upwardly inclined arm formed with a forwardly-directed disk, the periphery of the disk and the upper edge of the arm joining to form a substantially inverted-V-shaped space therebetween within which the flesh of the nose may be caught.

2. A nose-guard of the character described provided with an inwardly and upwardly inclined arm formed with a forwardly-directed disk, the periphery of the disk and the upper edge of the arm joining to form a substantially inverted-V-shaped space therebetween within which the flesh of the nose may be caught, and said disk being formed of springy material and having its forward or free portion bent inwardly relative to its point of attachment with the arm.

3. A nose-guard of the character described provided with an arm formed with a forwardly-directed disk of springy material having its forward or free portion bent inwardly relative to its point of attachment with the arm.

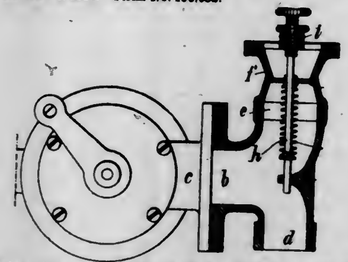
785,621. **FOLDING BEDSTEAD.** HERMAN A. LINDBOTH, Stjernsund, Sweden. Filed Oct. 11, 1904. Serial No. 228,094.



Claim.—1. In a folding bedstead the combination of, a divided bottom, end pieces hinged to the same and foldable outward, transversely-divided side pieces hinged to the parts of the bottom and foldable inward, and hinges connecting the parts of the said side pieces, substantially as and for the purpose set forth.

2. In a folding bedstead the combination of, a divided bottom, transversely-divided end pieces hinged to the said bottom, hinges connecting the parts of the said end pieces, the latter being foldable outward, transversely-divided side pieces hinged to the parts of the bottom and foldable inward, and hinges connecting the parts of the said side pieces, substantially as and for the purpose set forth.

785,622. **CARBURETER FOR HYDROCARBON-ENGINES.** AMÉLIE A. LONGUEMARE, FERNAND LONGUEMARE, and GEORGES LONGUEMARE, Paris, France, assignors to said Amélie A. Longuemare. Filed Mar. 4, 1904. Serial No. 196,632.



Claim.—1. An automatically-acting air-inlet device for carbureters comprising a three-way tubular connection comprising a normal air-inlet opening, an auxiliary automatically-adjustable air-inlet opening, a valve therein and an intermediate air-inlet conduit leading to the carbureting-chamber, substantially as set forth.

2. In an automatically-acting air-inlet device for carbureters a three-way connection comprising a normal air-inlet opening, an auxiliary automatically-adjustable air-inlet opening, a valve therein, and an intermediate air-inlet conduit leading to the carbureting-chamber of slightly-larger area than the normal air-inlet opening, substantially as set forth.

3. In an automatically-acting air-inlet device for carbureters a three-way connection comprising a normal air-inlet opening *d*, an auxiliary automatically-adjustable air-inlet opening *c*, a valve therein, and an intermediate air-inlet conduit *b* leading to the carbureter-chamber of slightly-larger area than the normal air-inlet opening, substantially as described.

4. In an automatically-acting air-inlet device for carbureters a three-way connection comprising a normal air-inlet opening, an auxiliary automatically conical adjustable air-inlet opening, a valve therein, and an intermediate air-inlet conduit leading to the carbureting-chamber of slightly-larger area than the normal air-inlet opening, substantially as set forth.

5. Apparatus for the automatic regulation of the air-supply to a carbureter comprising a three-way casing, a conical valve-casing in one opening thereof, a valve therein, a spring-valve mounted thereon and means for regulating the tension of the valve-spring, substantially as set forth.

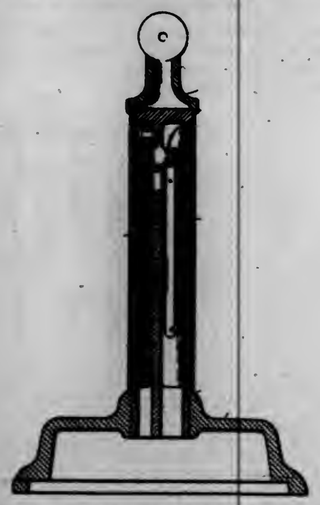
6. Apparatus for the automatic regulation of the air-supply to a carbureter comprising a three-way casing *a*, a conical valve-casing *f* in one opening thereof, a valve therein, a spring-valve mounted thereon and means for regulating the tension of the valve-spring, substantially as set forth.

785,623. RAIL-JOINT. DANIEL J. MACDONALD, Groton, Conn. Filed July 1, 1904. Serial No. 215,099.



Claim.—In a rail-joint, the combination of two rails, having their opposing ends overlapping and having flat meeting faces beveled and terminating at each end in an offset having a flat abruptly-beveled face, each meeting face being provided with a protruding portion having a perforation, and a depression corresponding to the protruding portion and adapted to receive the protruding portion of the adjoining rail, said depression having a perforation therein, and bolts extending through the perforations for securing the rails together, substantially as set forth.

785,624. TELPHONE DESK SET. CHARLES T. MASON, Sumter, S. C. Filed Nov. 29, 1904. Serial No. 234,756.



Claim.—1. In a stand for desk-telephones, a central core, switch apparatus supported thereby, and a tubular casing formed of independently-movable sections secured to and surrounding said core.

2. In a stand for desk-telephones, a central core, switch apparatus supported thereby, and a tubular casing formed of relatively movable sections secured to and surrounding said core.

3. In a stand for desk-telephones, a central core, switch apparatus supported thereby, and a tubular casing formed of independently-movable sections surrounding the casing, and means for separately securing said sections to the core.

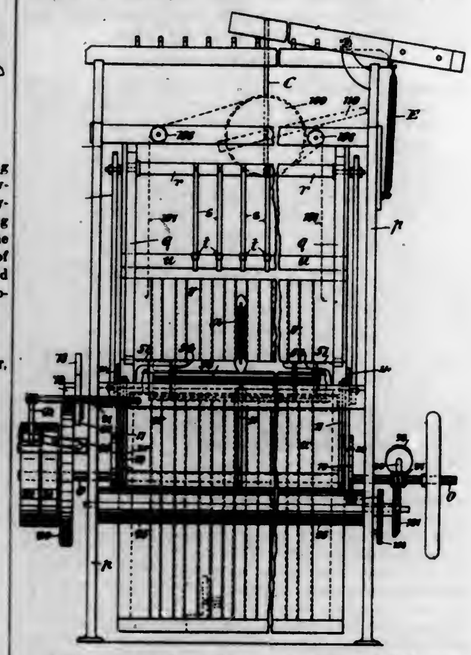
4. In a stand for desk-telephones, a central core, switch apparatus supported thereby, and a tubular casing formed of semicylindrical sections secured to and surrounding said core.

5. In a stand for desk-telephones, a central core, a base and a cap secured to the core, switch apparatus supported by the core, and a tubular casing formed of independently-movable sections surrounding the core and secured between the cap and the base.

6. In a stand for desk-telephones, a central core, a base and a cap secured to the core, switch apparatus supported by the core and a tubular casing formed of semicylindrical sections surrounding the casing and secured between the cap and the base.

7. In a stand for desk-telephones, a central core, a switch apparatus supported thereby and a removable longitudinally-divided shell or casing surrounding the core.

785,625. LOOM FOR WEAVING NARROW FABRICS. CHARLES H. MALSTED, Oakland, Windermere, England. Filed Jan. 28, 1904. Serial No. 191,041.



Claim.—1. In looms for weaving tapes, ribbons and small wares generally the vertically-actuated shuttle and fixed vertical guides for said shuttle for the purposes substantially as described.

2. In looms of the indicated nature the combination of large vertically-actuated shuttles, the harness-guides for such shuttles arranged above and below the harness and means for reciprocating the same in such guides substantially as described.

3. The combination of parts for actuating the vertically-thrown shuttles in looms for weaving tapes, ribbons and other small wares comprising the upper and lower shuttle-boxes, the series of upper and lower pickers means for actuating such pickers and means for obtaining a dwell or pause of the shuttles in their respective boxes to provide time for the changing of the shed substantially as described.

4. In a picking motion of the indicated nature, the combination with the upper and lower shuttle-boxes, and shuttles, of upper and lower pickers and means for operating them and means for deflecting the upper pickers to prevent their coming in contact with the shuttles when held in said upper box so as to enable a broken weft-thread to be pieced or the shuttle to be removed to renew the weft without stopping the loom, substantially as described.

5. In a loom of the indicated nature the reed or beating-up mechanism consisting of a pivoted angle-plate, a comb adjustably secured to such plate a bar on which such plate is pivoted means to reciprocate such bar consisting of rods connected to pivoted levers double-acting oval or elliptical cams and springs or loads to rock the levers in a forward and backward direction twice during one revolution of the cam-shaft, means for vibrating the comb-plate through an arc to beat up the inserted pick and retract it when the shed is changed and a pillar around which the tape or the like is deflected to take up slack in the warp-threads substantially as described.

6. The shedding motion consisting of horizontally-reciprocated harness having a number of vertically-arranged tapes of metal or other material formed with eyes for the warp-threads with means for reciprocating the harness horizontally, said means consisting of two treadle-levers, cams for vibrating such levers, two straps or bands secured to each treadle-lever, one of each pair of straps being connected to each harness and guide-pulleys for the straps substantially as described.

7. In combination in a loom for weaving tapes, ribbons and small ware, a driving-shaft, upper and lower pickers actuated from such shaft, vertical guides or shuttle-boxes the shuttles *a* means for raising and lowering them vertically in such guides or boxes by one revolution of the driving-shaft, the harness, and means for actuating the same, the reed for beating up and means for actuating same, means for stopping the loom on the breakage of a weft or warp thread and taking-down mechanism for the woven tape substantially as described.

8. In combination in a loom of the indicated nature, a driving-shaft, eccentrics mounted on such shaft, levers vibrated in one direction by such eccentrics during the revolution of the driving-shaft, upper and lower pickers connected to the levers, springs or loads to obtain reverse movement of the levers vertical guides or shuttle-boxes, large shuttles actuated vertically in such guides by the pickers, means for obtaining a dwell of the shuttles at the end of each stroke, and means for rendering any one of the upper pickers inoperative, and means for carrying and weighting the warps, the harness and means for actuating the same and for changing the shed twice during one revolution of the driving-shaft the reeds for beating up the inserted pick and actuating means for the same, means for stopping the loom on the breakage of a warp or weft thread, the taking-down mechanism for the woven tape and means for raising the upper shuttle-boxes or guides to afford access to the harness or to facilitate the piecing of a broken warp-thread substantially as described.

785,626. SOCKET FOR ELECTRIC LAMPS. JAMES A. MEBANE, South Boston, Va. Filed Apr. 30, 1904. Serial No. 205,739.



Claim.—1. In an electrical-lamp socket of the class described, the combination, with a casing formed of two separable parts and having lateral openings which are brought into coincidence when the parts are adjusted together, and a spring connecting device formed independently of the casing and held within one of its parts, its end portions being bent laterally and adapted to project through the openings in the casing so as to lock the two parts together substantially as described.

2. In an electrical-lamp socket, the improved casing comprising a body portion, and a cap, and a bushing inserted in the latter and provided with a groove as specified, a spring-clamp arranged and held within the cap and having jaws adapted to engage the bushing, its end portions being adapted to project through coincident openings in the body and cap, substantially as described.

3. The improved casing for the purpose specified, comprising two separable parts one of which is provided with a circumferential groove, and both having lateral openings adapted to be brought into coincidence and a spring-wire clamp having a circular portion adapted to lie in the aforesaid groove and its ends adapted to project through the coincident openings, substantially as described.

4. In a casing for an electric lamp, the combination, with the body and cap, of a spring-wire clamp having jaws provided with opposite curved portions and a bushing inserted in the cap of the casing, and provided with lateral recesses adapted to receive the jaws of the clamp when the latter are duly separated in the manner described.

5. The improved casing for an electric-lamp socket, the same being formed of two separable parts, a bushing inserted in the cap portion, and a spring-wire clamp adapted to engage the bushing and hold the two parts together detachably, substantially as described.

6. In an electrical-lamp socket, the combination, with the non-conducting block having a screw-threaded shank provided with a lateral recess and an electrical connection arranged in said block, of the lamp-socket proper which is screw-threaded its entire length, to adapt it for attachment to the block and a lamp-bulb for connecting them, the said socket having a lip or flange adapted to be bent laterally into the recess in the block and thus embrace a portion of the latter whereby the block and socket are held immovably connected and an electrical connection is established through said flange, substantially as described.

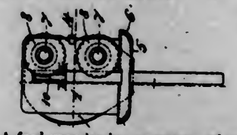
7. The combination, with the non-conducting block, a line-wire, and a socket proper into which the lamp-bulb is screwed, of an electrical connection having a pendent portion which extends down through the block into contact with the lamp, and a lateral clamp formed of a spring-metal plate which is bent upon itself and provided with notches for holding the line-wire, the said connection being duly secured in the block, substantially as described.

8. In an electrical-lamp socket, the combination with the non-conducting block, and a screw-socket engaged therewith and having a lip or flange inturned as specified, of the electrical connection including a switch-key journaled in the block, a lateral wire-holding clamp and a spring adapted to bear upon the switch when duly adjusted, and means for securing the said connection in the block, substantially as described.

9. In an electrical-lamp socket, the combination, with the non-conducting block, and the lamp-socket proper having a top flange or lip bent inward over a shoulder of the block, a wire connection comprising a pendent portion, a spring arranged beneath the horizontal portion and a lateral wire-clamp having notches for holding the wire, and a switch-key which is journaled at one end in the pendent portion of the said connection, and whose switch-block is arranged for contact with the aforesaid flange of the socket proper and the spring, substantially as described.

10. The electrical connection for electrical-lamp sockets comprising a rotatable switch-key a right-angular metal strip, a lateral wire-holding clamp, and a spring for contact with the adjustable switch, said clamp and spring being arranged with the body of the connection, and the parts secured together, substantially as described.

785,627. FEED-GAGE. EDWARD L. MEGILL, New York, N. Y. Filed Apr. 25, 1903. Serial No. 154,214.



Claim.—1. A feed-gage having an upper and under clamping-plate coupled loosely together at one side so that they may move toward each other for clamping, a screw on the under plate which projects upward through the upper plate, a nut on the said screw which bears on the upper plate for clamping the plates together on the margins of a slit in the tympan, and a gage-head carried by the upper plate, the face of said gage-head being disposed at an angle with the slit in the tympan.

2. A feed-gage, having an upper and an under clamping-plate, hinged together at their sides, a gage-head integral with the upper clamping-plate and movable therewith for adjustment, and non-yielding means for pressing said plates together for securing the gage in place.

3. A feed-gage, having an upper and an under clamping-plate, hinged together at their sides, a gage-head integral with the upper clamping-plate and movable therewith for adjustment on the plates, and two screws which clamp the said plates, the screws being at substantially equal distances from the hinging axis.

4. A feed-gage comprising a gage-plate provided with a gage-head at its end, a clamping-plate beneath the gage-plate and having a hinged connection thereto at one side of the plates, screws for pressing said plates together, and a spring device which holds the jaws open normally.

5. A feed-gage comprising the gage-plate 1, provided with a gage-head at its end and bent up at *y* on its hinging margin, the clamping-plate 2, provided with a spring-finger 4, which extends over the margin of the gage-plate at *y*, the screws 7, fixed in the plate 2 near its hinged side and extending up through apertures in the gage-plate, and the nuts on said screws, said plate having a part 3 projecting beyond the lateral margin of the gage-plate.

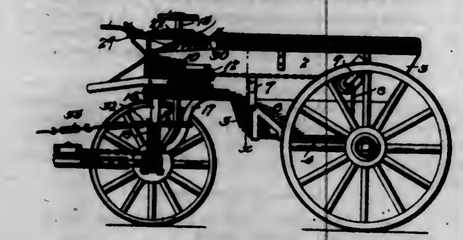
6. A feed-gage having a gage-plate, a gage-head thereon, a clamping-plate under the gage-plate, the forward end of which is adapted to engage a recess in the under side of the gage-head, and means for clamping said plates together, the clamping-plates being hinged together at one side and having the hinging axis at an angle to the face of the gage-head.

7. A feed-gage having a gage-plate, a clamping-plate beneath the gage-plate and hinged thereto, a gage-head connected to and moving with the gage-plate for adjustment, the face of said gage-head being disposed at an angle to the plane of the hinging axis of the plates, and a plurality of screws which clamp the plates together, said screws being disposed in a line which is at an angle to the face of the gage-head, substantially as set forth.

8. A feed-gage, having an upper and under clamping-plate, said plates being connected along one side by two clamping-screws, and adapted to embrace the tympan-sheet along the margin of a slit therein, and the said screws, disposed in a line substantially parallel to said slit and at an angle to the sheet fed to the gage.

9. A feed-gage having an upper and under clamping-plate coupled loosely together at one side so that they will be parallel at all times in clamping, a screw on the lower plate and extending through the upper plate, a nut on said screw which bears on the upper plate for clamping the plates on the margin of a slit in the tympan, and a gage-head on the forward end of said upper plate.

785,628. WAGON. JOSEPH B. MOWRY, Cleveland, Ohio, assignor of ninety-eight two-hundredths to William Larson and Joseph B. Smith, Cleveland, Ohio. Filed July 8, 1904. Serial No. 215,771.



Claim.—1. In a wagon, the combination with the body, of a hinged bottom plate, a chain fastened to said plate, the body having an opening for the passage of said chain, a guide for said chain to said opening comprising an angular piece having an outwardly-projecting flange extending along from each side of the opening, and means for actuating said chain to raise and lower said plate.

2. In a wagon, the combination with the body having a forward extension, of a support for the forward end of said body comprising a V-shaped bracket secured to said forward extension and having a cross-piece, a single-armed bracket secured to the front of the body, and a king-bolt secured to the axle and passing up through apertures in said brackets and having its upper end journaled in a rod connecting said brackets.

3. In a wagon, the combination with the body having a forward extension, of a hinged bottom plate, a support, for the forward end of said body, comprising a V-shaped bracket secured to said forward extension and having a cross-piece and a single-armed bracket secured to the front of the body, a bar connecting said single-armed bracket with said cross-piece, a king-bolt fastened to the front axle and passing up through apertures in said brackets, its upper end being journaled in said connecting-bar, a standard seated in another aperture in said connecting-bar, a chain fastened to said standard and to said bottom plate, and means to actuate said standard to raise and lower said plate.

4. In a wagon, the combination with the body, of a hinged bottom plate, a standard mounted in an extension of said body, a chain connecting said standard and plate, a ratchet-wheel on said standard, a pawl adapted to engage said wheel to retain the plate in its raised position, and a brake, arranged on the other side of said wheel and connected to said pawl, adapted to check the drop of said plate.

785,629. VEHICLE-WHEEL. GEORGE D. MUNRIVE, New York, N. Y. Filed Nov. 18, 1904. Serial No. 233,331.

Claim.—1. In a wheel, the combination with a hub and felly, of a member having a serrated face hinged to the hub, a spoke having a lug to engage a serration in said member and means to adjustably hold the lug in engagement with said member, substantially as described.



2. In a wheel, the combination with a hub and felly, of a member having a serrated face and hinged to the hub, a spoke having its end bent over to form a lug, and a plate adapted to hold the lug in engagement with a serration, substantially as described.

3. In a wheel, the combination with a felly and hub, of curved spring-spokes having one end rigidly secured to the felly, and two-part hinge members secured at both ends of the hub, the hub ends of the spokes adjustably secured between the parts of the hinge member, substantially as described.

4. In a wheel, the combination with a felly, spokes and a flanged hub; of hinge members, and bolts passing through a flange of the hub and through the hinge member to hinge the latter to the hub-flange, said member having a serrated portion engaged by the hub end of the spoke, and a plate adapted to take over the end of the spoke, substantially as described.

5. In a wheel, the combination with a felly, spokes and a flanged hub; of hinge members each comprising a pair of ears to straddle a flange of the hub and terminating in a serrated portion, a plate to cover the end of the spoke engaging the serrated portion, and a bolt passing through the plate, spoke and serrated portion, substantially as described.

6. In a vehicle-wheel, the combination with a curved spoke having forked hub ends provided with lugs; of a spool-shaped hub, a hinge member between each spoke and a hub-flange comprising a pair of perforated ears to straddle the flange of the hub, a bolt passing through the perforations and hub-flange, said hinge member having a serrated portion to be engaged by the lugs on the spoke, a plate to take over the hub end of the spoke and serrated portion of said member, and a bolt passing through the plate, forked end of the spoke and serrated portion of the member, substantially as described.

7. In a vehicle-wheel, the combination with a felly, a hub having a central flange; and spring-spokes between the felly and hub; of a friction device connected to the felly and in frictional engagement with the flange to retard the radial displacement of said hub, substantially as described.

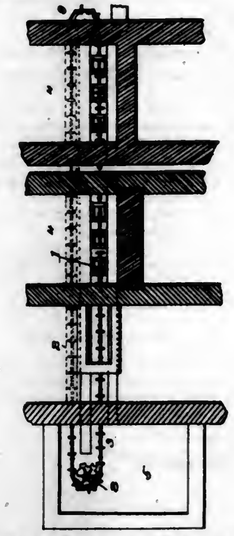
8. In a vehicle-wheel, the combination with a felly and a hub having a central flange, and spring-spokes between the felly and hub; of a friction device secured to the felly and in frictional engagement with said flange, substantially as described.

9. In a vehicle-wheel, the combination with a felly and hub having a central flange; of spring-spokes connected to the felly and adjustably hinged to the hub, and a friction device secured to the felly and in frictional engagement with the flange to retard the radial displacement of the latter, substantially as described.

10. In a vehicle-wheel, the combination with a felly and a spool-shaped hub having a central flange; of spring-spokes secured to the felly, hinge members between the hub ends of the spokes and the heads of the spool-shaped hub and in which said spokes are radially adjustable, and a rigid friction member secured at one end to the felly and having a forked end in frictional engagement with the central flange of the hub, substantially as described.

785,630. CONVEYING MECHANISM FOR FURNACES. WILLIAM MCCLAVE, Scranton, Pa., assignor to McClave-Brooks Company, a Corporation of Pennsylvania. Filed June 22, 1904. Serial No. 213,714.

Claim.—1. A conveying mechanism comprising a duct, approximately U-shaped in cross-section having a bottom formed with a central curved portion, and inclined side portions extending therefrom and side walls extending upwardly from the inclined portions of the bottom, the side walls affording ample capacity for material above the conveyer, a conveyer moving in the duct, the said conveyer engaging only the curved portion of the floor, and means for operating the conveyer.



2. A conveying mechanism comprising a partially-covered duct, the duct having a bottom formed with a centrally-curved portion and inclined side portions extending therefrom, side walls extending upwardly in approximately vertical positions from the inclined portions of the floor, a conveyer moving upon the floor and engaging only the curved portion thereof, the extension of the side walls above the conveyer affording ample room for accommodating foreign materials which may fall into the duct without the danger of clogging the same, and means for operating the conveyer.

3. A conveying mechanism comprising a duct having a number of inlet-apertures in the top wall thereof, slides for controlling the passage of material through said apertures and hopper cover-plates mounted upon the duct above the apertures, for holding the said slides in position and directing material through the said apertures.

4. A conveying mechanism comprising a duct having inwardly-projecting lugs upon its walls, slides for controlling the inlet of materials to the duct, the said lugs supporting the slides in their movement and yet permitting materials which work around the edges of the slide to fall into the said duct, and a conveyer moving in the said duct.

5. A conveying mechanism comprising ducts formed with inclined upper edges upwardly-projecting lugs formed thereon, reciprocating bars traveling upon the said lugs and slides carried by the said bars and controlling the inlet of material to the duct.

6. A conveying mechanism comprising a conveying trough or duct U-shaped in cross-section, a series of inlet-apertures formed in the upper surface thereof, longitudinally-moving bars mounted in the duct, upwardly-projecting lugs upon the sides of the chute for supporting the bars, cut-off slides carried by the bars and a rack connected with the bars for reciprocating them.

7. A conveying mechanism comprising a duct formed with inclined upper edges, inwardly and upwardly extending lugs projecting from the surface of said inclined edges, reciprocating slides mounted on the said lugs and controlling the inlet of materials to the duct, and means for moving the material deposited within the duct.

8. An ash-removing conveying mechanism comprising a receiving-duct extending beneath the ash-pits of furnaces, a return-duct arranged parallel thereto, a traveling conveyer extending through the ducts comprising a series of links connected together to form a chain and integral flights, carried by the bars forming each of said links, for propelling the material collected in the receiving-duct.

9. An ash-removing conveying mechanism comprising a duct extending beneath the ash-pits of furnaces, a traveling conveyer mounted therein and made up of a series of links having pivotal connections, and integral link-supporting flights formed upon the said links of the chain just in front of each pivotal connection for propelling the material through the duct, the flights projecting radially in all directions from the links and covering the pivotal connections.

10. An ash-conveying apparatus comprising a duct and an endless chain moving therein, slides for controlling the admission of material to the duct, bars carrying the said slides and provided with upwardly-projecting lugs or studs the slides having apertures therein for fitting upon the said studs, and hopper-plates arranged above the slides and preventing the same from becoming disengaged from the said studs.

11. An ash-conveying mechanism for furnaces comprising a duct and an endless conveyer-chain traveling therein, the chain being made up of a number of monobars, hinged connections interposed between the monobars and supporting flights formed on the monobars and radiating in all directions therefrom, the flights being approximately at the ends of the links and immediately in front of the hinged connections for displacing a large portion of the material in the duct and covering and protecting the said pivotal connections.

12. An ash-removing mechanism for furnaces comprising an endless conveyer-chain and ducts for receiving the same, the said ducts having inlet-ports at suitable points, reciprocating slide-changing bars operating adjacent to said ports, cut-off slides carried by the said bars, a rack for moving the bars, a pinion engaging the same and means extending above the floor-line for operating the said pinion.

13. An endless conveyer comprising a chain made up of a succession of corrugated monobars having articulating connections and a flight arranged approximately at one end of each monobar, the said flights surrounding the monobars and formed upon the corrugated portions thereof.

14. An endless conveyer comprising a chain made up of a succession of single bars pivotally connected at their ends and integral flights formed upon each bar and extending beyond the bar entirely around the same.

15. An endless conveyer for ducts comprising a chain formed of a series of single bars bifurcated at one end and flattened at the other, flights carried by each bar, a sprocket-wheel engaging the conveyer at each end, the said sprocket-wheels having a single tooth for projecting into the bifurcated portion of a link and engaging the flattened end of the adjacent link and a bifurcated tooth for engaging the bifurcated ends of the links.

16. An endless conveyer comprising a chain formed of successively-connected monobars, and integral flights formed upon the bars near the ends thereof and adjacent to the connections between each bar and its adjacent bar.

17. In a conveying mechanism, the combination with a duct, of a conveyer moving therein formed of a succession of single bars pivotally connected, flights formed upon said bars adjacent to their pivoted connections so as to properly support the bars in the duct, the location of the flights making it possible to support each bar without the liability of tipping by means of a single flight.

785,631. RAIL-JOINT. CHARLES W. MCCOY, Redbank Furnace, Pa. Filed Nov. 22, 1904. Serial No. 233,900.



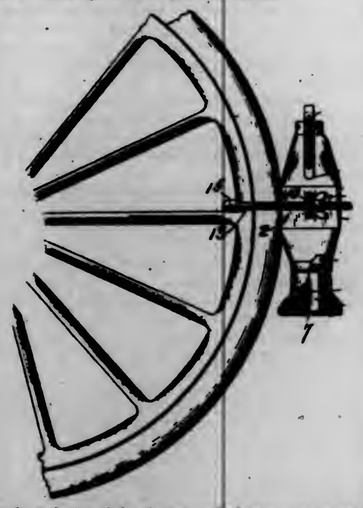
Claim.—In a rail-joint, a rail-section having its web enlarged adjacent its end and provided with a recess approximately triangular in cross-section and of a greater width than the normal portion of the web, another rail-section having its web increased in thickness adjacent its end and provided with a forwardly-projecting tenon approximately triangular in cross-section and of a greater thickness than that of the normal portion of the web, said tenon being provided with a recess, and a key adapted to pass through the first-named rail-section to engage in said recess.

785,632. CLIP FOR HOLDING PROGRAMS FOR USE IN THEATERS, &c. JAMES OGILVIE and JOHN D. LOWE, Glasgow, Scotland. Filed Feb. 10, 1904. Serial No. 193,942.

Claim.—In clips for holding programs for use in theaters and other places, the dish-shaped frame B containing within it the pivoted gripping-plate A formed with the lugs a^3, the said pivoted plate being actuated by the spiral spring c and having its jaw A′ pressing against the flange a^2 of the frame B, as set forth.



785,633. **RUBBER-TIRE REPAIRER.** JAMES M. PADGETT, Topeka, Kans. Filed Apr. 2, 1904. Serial No. 201,206.



Claim.—1. A device of the class described comprising a body formed with a flue extending therethrough from end to end, said body having one side, at a point between its ends, formed to fit against the work.

2. A device of the class described comprising a body having its end portions tapered, said body having a flue extending therethrough from end to end, and having one of its sides, at a point between the tapered ends, formed to fit against the work.

3. A device of the class described, comprising a body having a flue extending therethrough from end to end and having one of its sides, at a point between its ends, formed to fit against the work, and a heating device, at one end of the body, having a flue forming a prolongation of the body-flue.

4. A device of the class described comprising a body formed with a flue extending therethrough from end to end, and having one of its sides, at a point between its ends, formed to fit against the work, and a heating device at one end of the body having a flue forming a prolongation of the body-flue, and a damper, substantially as described.

5. A device of the class described comprising a body formed with a flue extending therethrough from end to end, having one of its sides, at a point between its ends, formed to fit against the work, and further formed with an inclined side converging upwardly toward one end of the flue and an upwardly-opening recess in said side, to receive a thermometer, substantially as described.

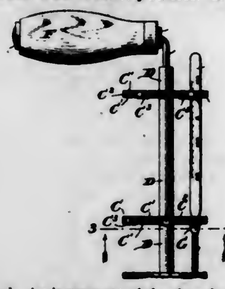
6. A rubber-tire repairer comprising a vulcanizer-body to fit against a rubber tire and having a flue, and further provided with oppositely-extending arms, and a yoke to engage the inner side of a wheel-felly and having arms connected to the arms of the vulcanizer-body, the latter being adjustable on and detachable from the arms of the yoke.

785,634. **WATER-JACKETED BLAST OR OTHER FURNACE.** ANTHONY PATTERSON, Cardiff, England. Filed June 9, 1904. Serial No. 211,839.



Claim.—The combination with the casing or wall of a furnace, of a series of troughs adapted to be secured thereto, each trough being so shaped as to fit against the wall of said furnace and open at the top and one side and provided with a depression at its top for overflow purposes located near one end thereof, and a channeled plate secured to the outside of said trough substantially parallel to said trough and of substantially the same depth, whereby a conduit for the overflow water is formed, said troughs being so arranged that said conduits are located at opposite ends of the troughs located in successive rows around the casing of the furnace, whereby a circulation of the water in a zigzag path is effected, substantially as described.

785,635. **INSTRUMENT FOR SHAKING DOWN THE MERCURIAL COLUMNS IN CLINICAL THERMOMETERS.** JENS PETERSON, Tacoma, Wash. Filed July 24, 1903. Serial No. 166,906.



Claim.—1. An instrument of the class described, comprising a stem, and a carrier slidably mounted thereon and comprising a tubular shank incasing said stem, and holding-disks carried by said tubular shank for receiving the thermometers.

2. An instrument of the class described, comprising a stem, and a carrier slidably mounted thereon and comprising a tubular shank incasing the stem, holding-disks carried by said shank for receiving the thermometers, and means for limiting the movement of the carrier upon the stem.

3. An instrument of the class described, comprising a handle, a stem connected thereto, a tubular shank incasing said stem, holding-disks carried by said shank and adapted to receive the thermometers, and a supporting-disk also carried by said shank and upon which the points of the thermometers are adapted to rest.

4. An instrument of the class described, comprising a handle, a stem connected thereto, a tubular shank incasing said stem, holding-disks carried by said shank and adapted to receive the thermometers, a supporting-disk also carried by said shank and upon which the points of the thermometers are adapted to rest, and means carried by said holding-disks for frictionally engaging the thermometers to retain the latter therein.

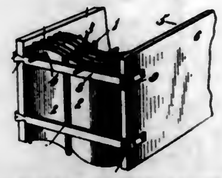
5. An instrument of the class described, comprising a handle, a stem connected thereto, a tubular shank incasing said stem, holding-disks carried by said shank and each comprising a pair of perforated plates and a pad interposed therebetween, and a supporting-disk carried by said shank and upon which the points of the thermometers are adapted to rest.

6. An instrument of the class described, comprising a handle, a stem connected thereto, a head carried by said stem, a tubular shank incasing said stem and provided with a flange adapted to coöperate with the head of the stem for limiting movement of the tubular shank on the latter, a series of holding-disks carried by said shank for the reception of the thermometers, and a supporting-disk also carried by said shank and upon which the points of the thermometers are adapted to rest.

7. An instrument of the class described, comprising a handle, a stem connected thereto, a shank slidably mounted upon said stem, holding-disks carried by said shank and adapted to receive the thermometers, a supporting-disk also carried by said shank, and a pad carried by said supporting-disk and upon which the points of the thermometers are adapted to rest.

8. An instrument of the class described, comprising a handle, a stem connected thereto, a shank slidably mounted upon said stem, means for limiting the movement of said shank upon said stem, perforated holding-disks carried by said shank and adapted to receive the thermometers, means for engaging the thermometers to retain the same in said disks, and a supporting-disk also carried by said shank and upon which the points of the thermometers are adapted to rest.

785,636. **MOLD FOR MOLDING ROOFING OR OTHER TILES.** FRANK M. SAWYER, Charlotte, N. C. Filed Dec. 22, 1904. Serial No. 237,948.



Claim.—1. A mold of the class described comprising pieces provided with notches in their opposing sides and transverse pieces to connect the first-named pieces and adapted to have their edges inserted in the notches of the first-named pieces, whereby said transverse pieces are spaced apart by the said notched pieces, the width of the notches of the latter exceeding the thickness of the transverse pieces and thereby serving to form the side edges of the molded articles.

2. A mold of the class described comprising fluted longitudinal pieces and intermediate transverse pieces having their edges inserted in the flutes of the said longitudinal pieces, the width of the said flutes exceeding the thickness of the said transverse pieces and serving to form the side edges of the molded articles.

3. A mold of the class described, comprising longitudinal pieces, transverse pieces to connect them together, means to space said transverse pieces, the latter having openings and a rod in said openings and removable from said transverse pieces to form openings in the articles molded in the spaces between said longitudinal pieces and said transverse pieces, substantially as described.

785,637. **PEAT-COMPRESSING MACHINE.** CARL SCHLICKEYSEN, Steglitz, Germany. Filed Oct. 7, 1903. Serial No. 176,107.

Claim.—1. In a peat-compressing machine, the combination of a feed-hopper, bow-shaped means arranged in said hopper for separating portions of peat from the peat mass fed into the hopper, and means for kneading and compressing the peat.

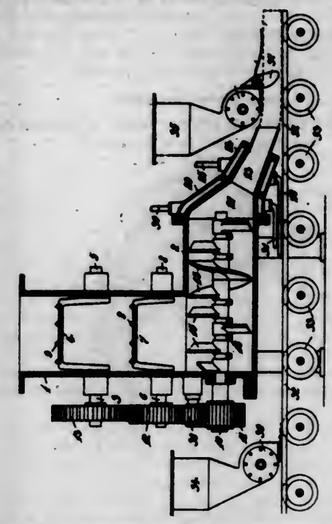
2. In a peat-compressing machine, the combination, with a feed-hopper, means arranged in said hopper for separating portions of peat from the peat mass fed into the hopper and for scraping the peat from the walls of the hopper, and means for kneading and compressing the peat and transforming it into bars.

3. In a peat-compressing machine, the combination of a feed-hopper, rotary bow-shaped means arranged in said hopper for separating portions of peat from the peat mass fed therein, and means for kneading and compressing the peat.

4. In a peat-compressing machine, the combination of a feed-hopper, a shaft extending therethrough and having a deflected portion forming a scraper for separating portions of peat from the peat mass fed therein and for removing the peat from the walls of the hopper, and means for kneading and compressing the peat.

5. In a peat-compressing machine, the combination, with a feed-hopper, of a plurality of rotary shafts extending through the hopper at different heights and provided with deflected portions for scraping the peat from the walls of the hopper, and means for kneading and compressing the peat and shaping it into bars.

6. In a peat-compressing machine, the combination, with a feed-hopper, crooked shafts located in the feed-hopper and adapted to scrape the peat off the walls of the same, pointed projections provided upon said crooked shafts, and means for kneading and compressing the peat and shaping it to bars.



7. In a peat-compressing machine, the combination, with a feed-hopper, means arranged in said feed-hopper and adapted to remove the peat from its walls, means for kneading the peat, a nose-roller located between said two means and adapted to transport the peat from the means first mentioned to the other one, and means for compressing the peat and turning it into bars.

8. In a peat-compressing machine, the combination, with a feed-hopper, two crooked shafts adapted to rotate in opposite directions and located the one in the upper and the other in the lower portion of the feed-hopper, a nose-roller located in proximity to the lower crooked shaft and adapted to be rotated in a direction opposite to that of this shaft, and means for kneading and compressing the peat and transforming it into bars.

9. In a peat-compressing machine, the combination, with a feed-hopper, a cylinder communicating with said feed-hopper, a shaft extending longitudinally through said cylinder, knives secured to said shaft, bars extending across the cylinder and arranged so as to allow of the knives rotating between them, and means for compressing the peat and turning it into bars.

10. In a peat-compressing machine, the combination, with a feed-hopper, a cylinder communicating with the hopper, a shaft extending longitudinally through said cylinder, knives secured to said shaft, bars extending across the cylinder and taking into grooves provided in the hubs of said knives, and means for compressing the peat and transforming it into bars.

11. In a peat-compressing machine, the combination, with a feed-hopper, a cylinder communicating with said feed-hopper, a shaft extending longitudinally through the same, knives and wings attached to said shaft, means for regulating the pressure of the peat before entering the said cylinder, and means for turning the peat into bars.

12. In a peat-compressing machine, the combination, with a feed-hopper, a cylinder communicating with said hopper, a nose-roller located between the hopper and said cylinder, rotary disks taken from the outside of the machine between the noses of said roller and adapted to give way, means for supporting said disks, and means for kneading and compressing the peat and turning it into bars.

13. In a peat-compressing machine, the combination, with a feed-hopper, a cylinder communicating with said feed-hopper, a nose-roller located between the hopper and said cylinder, an aperture provided in the wall of the casing of the machine near to said roller, rotary disks taking from the outside of the machine through said aperture between the noses of the said roller, means for supporting said disks and adapted to give way, and means for kneading and compressing the peat and transforming it into bars.

14. In a peat-compressing machine, the combination, with a feed-hopper, a cylinder communicating with said hopper, a nose-

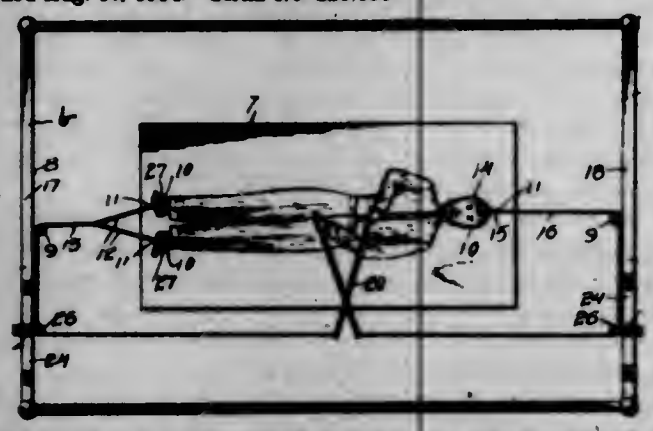
roller located between the hopper and said cylinder, rotary disks adapted to give way and taking between the noses of said roller from the outer side of the machine, means for supporting said disks, means for removing from them the peat carried by them from the inner space to the outside of the machine, and means for kneading and compressing the peat and transforming it into bars.

785,638. HOT-WATER BOTTLE. AMOS J. SCRITCHFIELD, Janesville, Wis. Filed June 2, 1904. Serial No. 210,901.



Claim.—A hot-water bottle having an inner cover formed of sheets of cork and fabric secured on opposite sides thereof, said inner cover being open on one side and having means to close and fasten said open sides, intermediate and outer covers each comprising an inner and an outer fabric and a non-conducting elastic filling between them, said covers being telescopically related and successively removable, the said intermediate and outer covers being each open at one end and having means to close and fasten the said open end, substantially as described.

785,639. BODY-STRETCHER. WILLIAM W. SEDLER, Bowie, Tex. Filed Aug. 17, 1904. Serial No. 221,136.

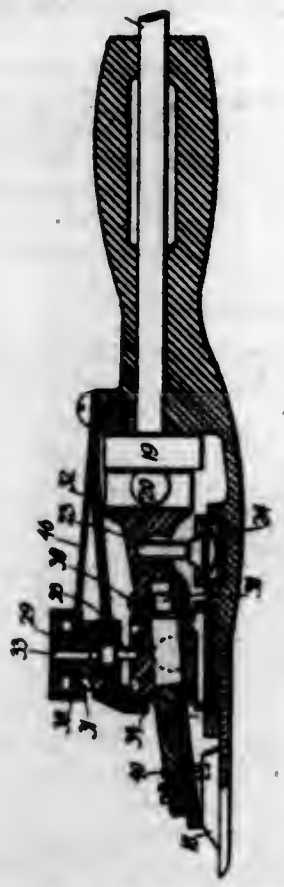


Claim.—1. An apparatus of the class described comprising a frame, pulleys mounted in the frame, cables engaged with the pulleys, means for attaching the cables at one end to the human body, means for moving the cables through the pulleys to stretch the body, and means independent of the cable-moving means for taking up slack in the cables.

2. An apparatus of the class described, comprising a frame including upright portions arranged for disposal at opposite sides of a table, a pulley secured to each upright portion, a cable engaged with each pulley, means carried by one end of each cable for attachment to the body of a patient lying upon the table, a lever connected to the remaining end of each cable, said levers being pivoted together for movement to draw the cables to stretch the body of the patient, said levers being disposed for operation by the patient.

785,640. SHEEP-SHEARING MACHINE. WILLIAM SILVER, Tamworth, New South Wales, Australia. Filed Sept. 27, 1904. Serial No. 226,171.

Claim.—1. In a sheep-shearing machine, a main lever supported at the rear end and set up between two segmental pieces to which it is trunnioned, said pieces with the lever passing therethrough forming a hub rotatable vibratorily in a journal or bearing in the machine-case and capable of sliding vertically therein to allow for alternation of tension and wear and tear on the cutter-plate, the tensional pressure being applied through points to the lever upon its axis of vibration, substantially as described.



2. In a sheep-shearing machine, a mounting for the fulcrum of the vibrating lever consisting of segmental cheek-pieces 26 movable vertically and rotatable in a vertical bearing 27, substantially as described.

3. In a sheep-shearing machine, a vibrating lever to the stock of which vibratory movement is applied at the back end and which is mounted at its front end in segmental cheek-pieces 26 adapted to bearings 27, in combination with a rear rocker-support and a forward end consisting of a shanked fork capable of rocking motion, carried by the lever, substantially as described.

4. In a sheep-shearing machine a main lever of the first class with rear end supported and moving in a fixed plane and capable of vertical adjustment at the fulcrum to regulate tension, of segmental cheek-pieces (forming a hub) working in a vertical bearing, and tension-applying mechanism consisting of a cone-pointed screw working in the case and acting on said lever at its axial point, substantially as described.

5. In a sheep-shearing machine wherein the lever is of the first class with rear end supported and moving in a fixed plane and capable of vertical adjustment at the fulcrum to regulate tension, mechanism for applying tension thereto consisting of conical points, one of which is on the lever and the other carried by a spring-plate 50 controlled by a thumb-screw 54, substantially as described.

6. In a sheep-shearing machine wherein vibratory motion and tension are applied to a fork acting upon a three-pronged cutter-plate, mechanism for adjusting the tension on the center prong of the cutter consisting of a flexible plate forming the middle finger of the fork and an inverted screw acting thereon and working in the wrist of the fork, the head of said screw being serrated radially and the upper surface of said flexible plate being also serrated to engage with the serrations on the screw-head locking the same to prevent change of tension while the machine is working, substantially as described.

7. In a sheep-shearing machine, a removable fork for conveying vibratory motion and tensional pressure to the cutter, having a serrated disk with screw-stem mounted in the center finger of the fork, adapted to vary the pressure on the center finger of the cutter by screwing adjustment, and provided with a shank with bayonet-catch for retaining same in working position in the lever-stock, substantially as described.

8. In a sheep-shearing machine, in combination with a vibrating lever having tension-adjusting mechanism, a tension-distributing fork 35 with cylindrical shank 37 locked by a bayonet-pin 39 and provided above the center finger with a disk 42 serrated radially to

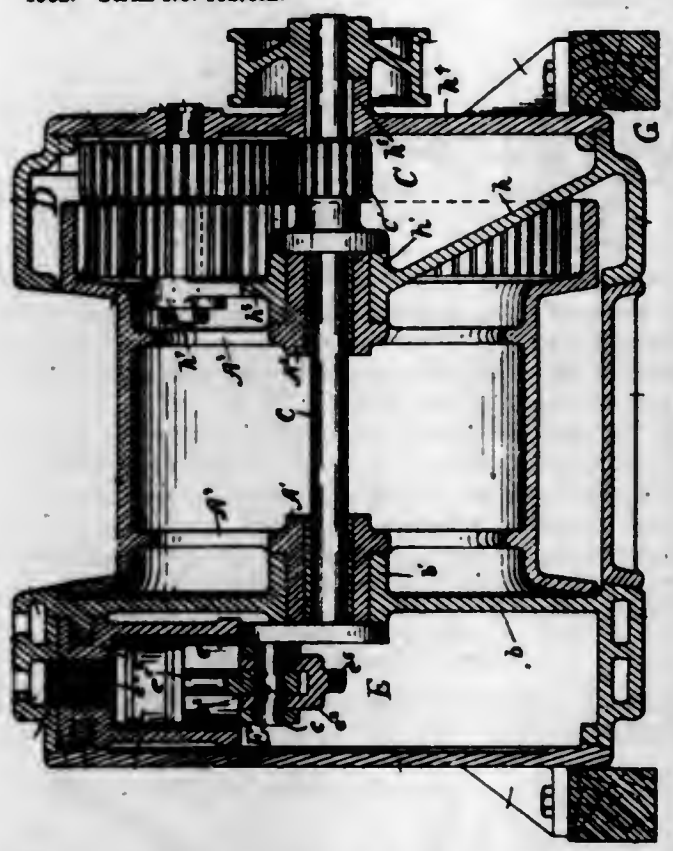
form a lock with corresponding serrations on said center finger and having a screw-stem 41 for adjusting the tensional pressure as between the center and two outer fingers of the fork, substantially as described.

9. In a sheep-shearing machine, the combination of vibrating lever with trunnion-pins 25 fitted to segmental cheek-pieces 26 forming a hub journals or bearings 27 therefor in the casing, spring-tension plate 50 acted upon by thumb-screw 54, tension-points 53, distributing-fork 35 with cylindrical stem 37, and bayonet-catch, and serrated disk 42 with screw-carrier 41 for justifying the tension on middle finger of the cutter-fork, substantially as described.

10. In a sheep-shearing machine, a vibrating lever carried rearwardly on a rocker and at its fulcrum in a hub vertically movable for tension-adjusting purposes and acted on by a tension-screw working in the machine-case, said hub closing the mouth of the case, substantially as described.

11. For the tail-end universal joint of a sheep-shearing machine, a protecting-gauntlet having a middle tongue adapted to cover the back of the joint-case and two wing-pieces adapted to be laced together to form an upstanding guard for the front and sides of said joint-case, substantially as described.

785,641. **HOISTING APPARATUS.** JOHN C. SLOCUM, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Nov. 22, 1902. Serial No. 132,462.



Claim.—1. A hoisting apparatus having in combination a rope-winding drum, an engine or motor mechanism, gearing or power-transmitting devices connecting the motor with the drum, and a housing inclosing the motor and the power-transmitting devices, said parts being related substantially as set forth, whereby a unitary structure is provided which can be rolled from place to place as desired.

2. In a hoisting apparatus the combination of a rope-winding drum, a motor, gearing interposed between the motor and the drum, and the housing or casing inclosing said motor and gearing and forming with the drum a unitary structure, the parts of which remain in operative relationship to each other as the apparatus is revolved bodily.

3. The combination of a rope-winding drum, bearings for said drum, a bearing-carrying frame having parts arranged at either side of the drum concentric therewith and of greater diameter than the drum and adapted to afford supporting-surfaces for bodily rolling the hoisting apparatus when desired, an engine or motor supported by said frame and power-transmitting devices interposed between said motor and the drum, said motor and power-transmitting devices being arranged inside of the periphery of the aforesaid circular supporting parts, substantially as set forth.

4. In a hoisting mechanism, the combination of the rope-winding drum, an engine or motor, power-transmitting devices connecting the motor with the drum, a framework which provides supports and bearings for all of said parts, whereby they can be rotated as a unitary structure without varying their working relations to each other, substantially as described.

5. In a hoisting mechanism, the combination of a rope-winding drum, the shaft at the axis of the drum, the framework having sections arranged at either side of said drum concentric therewith and of greater diameter than said drum, the engine or motor secured to one of said sections and connected with said shaft and power-transmitting devices interposed between said shaft and said drum, substantially as set forth.

6. A bodily-rotatable hoisting apparatus, comprising a winding-drum, a motor and power-transmitting devices, and a supporting frame or casing, all adapted to rotate while maintaining the same operative relations to each other, substantially as set forth.

7. A bodily-rotatable hoisting apparatus, comprising a winding-drum, and a frame or support for the drum having two substantially circular end portions adapted to roll along a support while resting peripherally thereon, substantially as set forth.

8. A hoisting apparatus having a winding-drum, a driving-motor, and power-transmitting devices between the motor and the drum, and a supporting-frame for said parts formed with two substantially circular sections, one at each end of the drum, whereby all of said parts as a unitary structure are adapted to roll without varying their working relations with each other, substantially as set forth.

9. In a hoisting apparatus the combination of a rope-winding drum, a supporting-frame therefor having circular portions arranged at either side of the drum concentric therewith and of greater diameter than the drum and adapted to provide bearing-surfaces for supporting the apparatus when it is desired to roll it bodily, a motor or engine carried by said framework and power-transmitting devices interposed between said motor and drum, said motor and power-transmitting devices being arranged within circles of shorter radius than the radius of the periphery of the supporting parts with which the said circles are concentric, substantially as set forth.

10. In a hoisting apparatus, the combination of a rope-winding drum, a casing or housing arranged at either side thereof concentric therewith and of greater diameter than the drum, means connecting said casings together, a motor or engine secured within one of said casings and power-transmitting devices interposed between said motor and the drum, substantially as set forth.

11. In a hoisting apparatus, the combination of a winding-drum, a framework supporting said drum, and having sections arranged at either side thereof concentric therewith and of greater diameter than said drum, a motor or engine supported by said framework at points inside of the periphery of said sections, and power-transmitting devices interposed between the motor and the drum, substantially as set forth.

12. In a hoisting apparatus the combination of the framework having circular bearing-surfaces at either side thereof adapted to support said apparatus when it is rolled from place to place, a driving-shaft mounted in bearings in said framework, a rope-winding drum mounted on said shaft, a motor or engine for operating said driving-shaft and secured to said framework and power-transmitting devices interposed between said driving-shaft and the drum, substantially as set forth.

13. In a bodily-rotatable hoisting apparatus the combination of a framework having circular bearing-surfaces at either side thereof adapted to support the apparatus when it is rolled from place to place, a driving-shaft mounted in bearings in said framework, a winding-drum loosely mounted on said driving-shaft, a motor or engine for actuating said driving-shaft secured to said framework at one side thereof and power-transmitting devices interposed between said driving-shaft and the drum, substantially as set forth.

14. A bodily-rotatable hoisting apparatus, comprising a framework having circular supporting-surfaces at either side thereof adapted to support the apparatus when it is rolled from place to place, a driving-shaft mounted in bearings in said framework, a rope-winding drum loosely mounted on said shaft, a motor for actuating said shaft secured to one side of said framework and power-transmitting devices arranged at the other side of the framework and interposed between said driving-shaft and the drum, substantially as set forth.

15. In a bodily-rotatable hoisting apparatus, the combination of the framework having circular supporting-surfaces arranged at either side thereof adapted to support the apparatus when it is rolled from place to place, the drum mounted on said framework, the motor secured on said framework, the power-transmitting mechanism interposed between said motor and the drum and means for securing

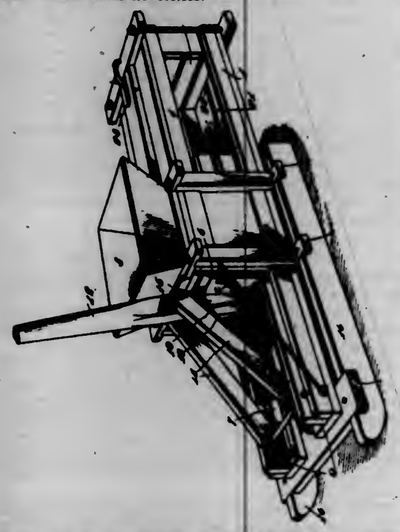
the hoisting apparatus rigidly in a fixed position, said means being arranged at the ends of the rotatable framework and at points nearer the axis thereof than the peripheries of said circular supporting-surfaces, substantially as set forth.

16. In a hoisting apparatus, the combination of a winding-drum, a framework supporting said drum and having a casing at one side thereof arranged concentric with said drum, an engine or motor arranged within said casing and power-transmitting devices interposed between said engine or motor and the drum, substantially as set forth.

17. In a hoisting apparatus, the combination of a winding-drum, a framework supporting said drum and having a casing at one side thereof arranged concentric with said drum, a plurality of oscillating engines arranged in said casing and power-transmitting mechanism interposed between said engines and the drum, substantially as set forth.

18. In a hoisting apparatus, the combination of the rope-winding drum, the framework supporting said drum and having a housing at one side thereof, the walls of said housing having fluid supply and exhaust ducts formed therein, an oscillating engine having its outer end pivotally mounted in said housing, and having a port arranged longitudinally of the engine-cylinder and adapted to communicate alternately with said fluid supply and exhaust ducts, and power-transmitting mechanism interposed between said engine and the drum, substantially as set forth.

785,642. **BALING-PRESS.** JOHN J. STOFFLE, Dallas, Tex. Filed Nov. 4, 1903. Serial No. 179,333.



Claim.—1. In a baling-press, the combination with a compression-chamber and a plunger therefor, of rearwardly-projecting guides connected to the same, guideways limiting said guides against lateral play, one of the walls of each of said guideways constituting an abutment for limiting said plunger in its rearward movement, a discharge-opening being formed between the base of said chamber and the end of each guideway, and means for reciprocating said plunger.

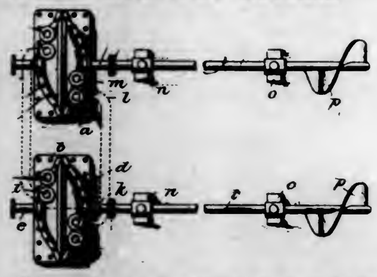
2. In a baling-press, the combination with a compression-chamber and a plunger therefor, of guides projecting rearwardly from said plunger, guideways limiting said guides against lateral play and extending into said chamber, the ends of said guideways within the chamber being cut away and an aperture being formed between the said end of each guideway and the bottom of said chamber, and means for reciprocating said plunger.

3. In a baling-press, the combination with a compression-chamber formed with longitudinal grooves in its walls, a plunger for said chamber, and means for reciprocating the same, of a movable block within said chamber, spurs projecting from said block into said grooves, and means for engaging said spurs for retaining the block against movement.

4. In a baling-press, the combination with a compression-chamber formed with grooves in its walls, a plunger for said chamber, and means for reciprocating the same, of a block within said chamber, spurs projecting from said block into said grooves, means within one of said grooves for limiting one of said spurs against movement, and movably-mounted means within another of said grooves for limiting another of said spurs against movement.

5. In a baling-press, the combination with a compression-chamber formed with a longitudinal groove in each of its upper and lower walls, a plunger for said chamber, and means for reciprocating the same, of a block within said chamber, a spur projecting from said block into each of said grooves, a drag-pin extending transversely of one of said grooves, a pivotally-mounted latch normally extending into the other of said grooves, and means projecting beyond the wall of said chamber for facilitating removing said latch from said groove.

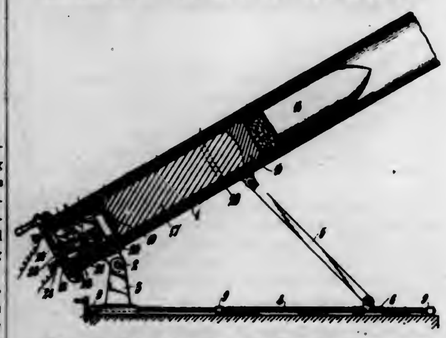
785,643. **STEAM-TURBINE.** MARINUS J. TROOST, Rotterdam, Netherlands. Filed Nov. 10, 1904. Serial No. 232,153.



Claim.—1. In a steam-turbine, the combination of a shell made in two parts and provided with two sets of inlet and exhaust ports, a shaft provided with a web made integral therewith and terminating in a tapered edge, and vanes secured to said shaft on each side of said web, substantially as described.

2. The combination of a pair of steam-turbines, a propeller-shaft running through each turbine, and a propeller attached to each propeller-shaft, each turbine being composed of a shell made in two parts and provided with two sets of inlet and exhaust ports, the propeller-shaft in each turbine being provided with a web made integral therewith and terminating in a tapered edge, and vanes secured to said shaft on each side of said web, substantially as described.

785,644. **SELF-ROTATING AIR-TORPEDO.** WILHELM T. UNGE, Stockholm, Sweden. Filed May 18, 1904. Serial No. 208,594.



Claim.—1. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition and a balance-ring mounted round the torpedo at or near its center of gravity, substantially as described and for the purpose set forth.

2. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition and a balance-ring which is mounted round the torpedo at or near its center of gravity and the periphery of which is at a distance from the surface of the torpedo greater than the distance between the points in which the geometrical axis of the torpedo and the axis of rotation assumed to have the greatest deviation cut the back end plane of the torpedo, substantially as described and for the purpose set forth.

3. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition, a balance-ring mounted round the torpedo near its center of gravity and another balance-ring mounted round the torpedo on the opposite side of the said center and near the same, substantially as described and for the purpose set forth.

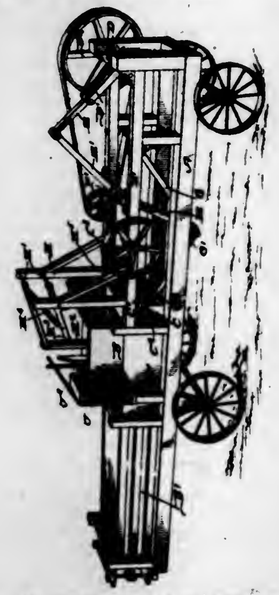
4. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition, and a balance-ring made of soft material and mounted round the torpedo at or near its center of gravity, substantially as described and for the purpose set forth.

5. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition and a balance-ring mounted round the torpedo at or near its center of gravity and having a sharp-edged bearing portion, substantially as described and for the purpose set forth.

6. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition, a balance-ring made of soft material and mounted round the torpedo near its center of gravity and another balance-ring made of soft material and mounted around the torpedo on the opposite side of the said center and near the same, substantially as described and for the purpose set forth.

7. The combination of a self-rotating air-torpedo provided with continuously-burning motive composition, a balance-ring mounted round the torpedo near its center of gravity, and another balance-ring mounted round the torpedo on the opposite side of the said center and near the same said balance-rings having a sharp-edged bearing portion, substantially as described and for the purpose set forth.

785,645. **HAY-PRESS.** CHARLES E. WEHRENBERG, Mound City, Ill. Filed Mar. 18, 1904. Serial No. 198,308.

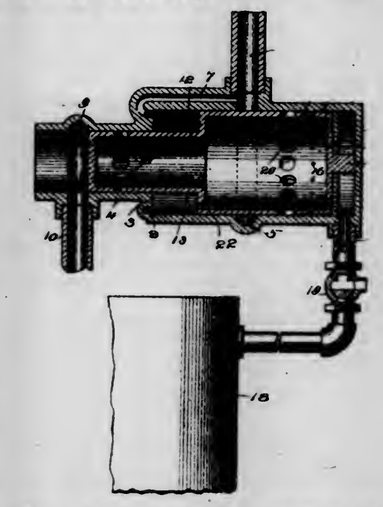


Claim.—1. The combination with the plunger of a baling-press, of a shaft having a cranked portion, a toggle pivoted at one end to the plunger, a link having a loop portion and adapted to work upon a fulcrum-point the said link being pivoted at one end to the toggle, and a link connecting the opposite end of the link having the loop portion to the cranked portion of the shaft.

2. A hay-press comprising a plunger, a toggle, a shaft having a cranked portion, a link pivoted to said cranked portion, a shaft parallel to the crank-shaft, a roller on said shaft, a link having a loop portion adapted to travel on the said roller, said link being pivoted to the link connected to the crank-shaft and to the toggle.

3. The combination with a hay-press hopper having a cut-out portion on one side, of a block-holder open on opposite sides and hinged to the lower edge of said cut-out portion, a spring in the said block-holder adapted to engage a block, and means for swinging the block-holder through the cut-out portion of the hopper into the path of a feeder-board, as and for the purpose set forth.

785,646. **VALVE.** JAMES G. WHITBROOK, Ogdensburg, N. Y. Filed Jan. 17, 1905. Serial No. 241,500.



Claim.—1. In a valve mechanism, the combination with a casing, of a hollow valve slidably mounted therein, pipes communicating with said casing and adapted to have communication established therebetween through said valve, and means for supplying pressure to the interior of said casing for throwing said valve from its seat, said valve being formed with a port establishing communication between the interior of said valve and the interior of said casing for supplying pressure from the valve to the interior of the casing for throwing the valve to its seat.

2. In a valve mechanism, the combination with a casing formed with an annular shoulder, of a hollow valve arranged within said casing and formed with a shoulder opposing the shoulder of said casing, pipes communicating with said casing and adapted to have communication therebetween established through said valve, and means for supplying pressure to said casing for moving said valve from its seat, a port being formed in said valve communicating between said shoulders for supplying pressure from the valve for throwing the valve to its seat.

3. In a valve mechanism, the combination with a casing formed with a shoulder, of a valve arranged therein and formed with an opposing shoulder, pipes communicating with said casing and adapted to have communication established therebetween through said valve, and means for supplying pressure to said casing for moving said valve from its seat, said valve being formed with a port through its shoulder establishing communication between the interior of the valve and the casing between said shoulders.

4. In a valve mechanism, the combination with a casing, of a hollow valve movably mounted therein, pipes communicating with said casing and adapted to have communication established therebetween through said valve, and means for supplying pressure to one end of said casing for throwing said valve from its seat, a port being formed in the valve for establishing communication between the interior of the valve and the other end of said casing.

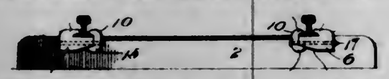
5. In a valve mechanism, the combination with a casing, of a pressure-supply pipe communicating therewith, a pipe leading from said casing, a hollow valve movably mounted within said casing and adapted to establish communication between said pipes, and means for supplying pressure to said casing in the rear of said valve for moving the valve from its seat, a port being formed for establishing communication between said supply-pipe and said casing in front of said valve, and a port being formed in said valve for establishing communication between the interior of the valve and the casing in front of the valve.

6. In a valve mechanism, the combination with a casing formed with a shoulder, of a reduced casing extending from said shoulder, a hollow valve slidably mounted within said first-mentioned casing, a reduced, hollow extension projecting from said valve into said reduced casing, a pressure-supply pipe communicating with said first-mentioned casing, and a discharge-pipe communicating with the reduced casing, said valve and extension being formed with apertures for establishing communication between said supply and discharge pipes when said valve is off its seat, a by-pass being arranged to communicate between said supply-pipe and said first-mentioned casing through the shoulder thereof, and a port being formed in said valve for establishing communication between the interior thereof and said casing.

7. In a valve mechanism, the combination with a casing, a supply-pipe communicating therewith, and a discharge-pipe leading therefrom, of a hollow valve slidingly mounted in said casing, means for supplying pressure between the casing and valve from said supply-pipe, a port being formed in said valve for establishing communication between that portion of the casing supplied with pressure from said supply-pipe and the interior of the valve, apertures being formed in said valve for establishing communication between said pressure-supply pipe and said discharge-pipe, and means for supplying pressure from an independent source to the opposite side of the valve from that supplied with pressure from said supply-pipe for moving the valve against such pressure.

8. In a valve mechanism, the combination with a casing and pressure supply and discharge pipes communicating therewith, of a valve adapted to establish communication between said pipes, means for supplying pressure from said supply-pipe to the interior of said valve and to a portion of the exterior thereof for normally retaining the valve in position for closing communication between said pipe, and means for supplying pressure from an independent source to an exterior portion of said valve opposing the pressure on the first-mentioned exterior portion of the valve for moving the valve to a position for establishing communication between said pipe.

785,647. RAIL TIE AND FASTENING. WILLIAM G. WILLCOXEN, Burlington, Iowa. Filed Aug. 4, 1904. Serial No. 219,478.



Claim.—1. A metallic railway-tie having laterally-projecting rail-chairs offset from the sides thereof, and rail-clamps arranged outside of the plane of the tie and connected with said chairs.

2. A metallic railway-tie, provided with integral laterally-projecting rail-chairs offset from the sides of the tie-body, and rail-clamps arranged outside of the plane of the tie-body and having separate portions respectively engaging the chairs and the rail-base.

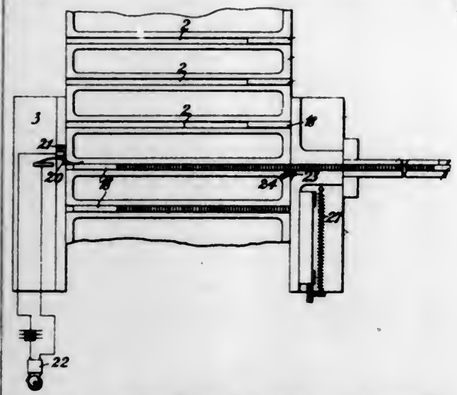
3. A metallic railway-tie, provided with laterally-projecting rail-chairs offset from the sides thereof and having inclined faces, and separate rail-clamps arranged outside of the plane of the tie-body and provided with rail-engaging portions and also with inclined portions having wedging engagement with the inclined faces of said chairs.

4. A metallic railway-tie, provided at the sides thereof with laterally-offset rail-chairs having upstanding rail-engaging portions and at their under sides provided with inclined faces, upright rail-clamps arranged outside of the plane of the tie-body and provided at their upper ends with rail-engaging members and at their lower ends with inclined portions having a wedging engagement with the inclined faces of the chairs, and bolt connections between the clamps and the rail-chairs.

5. A metallic railway-tie provided at its sides with laterally-offset rail-chairs, rail-clamps arranged without the plane of the tie-body and having chair and rail engaging portions, and bolts connecting the clamps with the rail-chairs.

785,648. TYPE-SETTING MACHINE. EDWARD A. ADCOCK, Reading, England, assignor to Pulsometer Engineering Company, Limited, Reading, England. Filed May 31, 1904. Serial No. 210,555.

Claim.—1. In a type-setting machine, the combination of a stationary type-trough, a type-magazine comprising a number of type-troughs and mounted and arranged to be moved so that any of its type-troughs can be brought into a position in which it can receive types from said stationary type-trough, feeding means for feeding types from said stationary type-trough into one of said type-troughs of said magazine so brought into position, means for moving said magazine so as to take one of its type-troughs out of said position and to bring another of its type-troughs thereinto, projections at the delivery end of said stationary trough, means for forcing said projections toward said stationary trough so as to cause them to extend across a gap between said magazine and the forward wall of said stationary trough, means for preventing said projections from being pressed against type opposite to them and fully located in said stationary trough so as to impede the lateral movement of such type, and means for causing a type partly in said stationary trough and partly in one of said troughs in said magazine and bearing against one or more of said projections to be by the moving of said magazine as aforesaid moved along in said magazine-trough until fully located therein.



2. In a type-setting machine, the combination of a stationary type-trough, a type-magazine comprising a number of type-troughs and mounted and arranged to be moved so that any of its type-troughs can be brought into a position in which it can receive types from said stationary type-trough, feeding means for feeding types from said stationary type-trough into one of said type-troughs of said magazine so brought into position, means for moving said magazine so as to take one of its type-troughs out of said position and to bring another of its type-troughs thereinto, projections located at the delivery end of said stationary trough and adapted to guide types being fed by said feeding means toward a type-trough of said magazine brought into said position, means for forcing said projections separately toward said stationary type-trough, and an incline adapted to cause a type partly in said stationary trough and partly in one of said troughs of said magazine and bearing against one or more of said projections to be by the moving of said magazine as aforesaid moved along in said magazine until fully located therein.

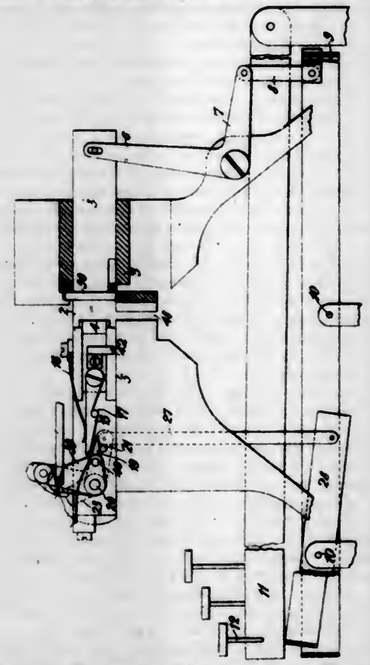
3. In a type-setting machine, the combination of a stationary type-trough, a type-magazine comprising a number of type-troughs and mounted and arranged to be moved so that any of its type-troughs can be brought into a position in which it can receive types from said stationary type-trough, feeding means for feeding types from said stationary type-trough into one of said type-troughs of said magazine so brought into position, means for moving said magazine so as to take one of its type-troughs out of said position and to bring another of its type-troughs thereinto, an incline at the end of said stationary trough adjacent to said magazine and leading from said stationary trough to said magazine, parallel projections extending across said incline, means for forcing said projections separately toward type being fed by said feeding means toward one of the troughs of said magazine, and means for preventing said projections from impeding types being so fed, said projections being adapted, by a type situate partly in one of said troughs of said magazine and moved forward by the moving of said magazine as aforesaid, to be moved forward by said type so as to allow said type to bear against said incline and to be by it forced along in the trough of said magazine in which it is partly located until fully located therein.

4. In a type-setting machine, the combination of a stationary type-trough, a type-magazine comprising a number of type-troughs and mounted and arranged to be moved so that any of its type-troughs can be brought into a position in which it can receive types from said stationary type-trough, feeding means for feeding types from said stationary type-trough into one of said type-troughs of said magazine so brought into position, means for moving said magazine so as to take one of its type-troughs out of said position and to bring another of its type-troughs thereinto, parallel projections located at the delivery end of said stationary trough and adapted to guide types being fed by said feeding means toward a type-trough of said magazine brought into said position, slides equal in number to said projections, a connection between each of said projections and one of said slides, a spring connected to each of said slides and adapted thereby to force the corresponding one of said projections toward types being fed toward said stationary trough as aforesaid, and an incline adapted to cause a type partly in said stationary trough and partly in one of said troughs of said magazine and bearing against one or more of said projections to be by the moving of said magazine as aforesaid moved along in said magazine until fully located therein.

5. In a type-setting machine, the combination of a stationary type-trough, a type-magazine compriaing a number of type-troughs and mounted and arranged to be moved so that any of the type-troughs can be brought into a position in which it can receive types from said stationary type-trough, feeding means for feeding types from said stationary type-trough into one of said type-troughs of said magazine so brought into position, and in each of said type-troughs of said magazine a block adapted by friction therein to prevent types therein from falling in the direction of their motion when forced along therein by said feeding means.

6. In a type-setting machine, the combination of a cylindrical type-magazine comprising a number of parallel peripheral type-troughs and mounted and arranged to be turned about its axis, and a stationary support adapted to prevent types from falling out of any of said troughs of said magazine when such trough is partly or wholly inverted.

785,649. TYPE-DISTRIBUTING MACHINE. EDWARD A. ADCOCK, Reading, England, assignor to Pulsometer Engineering Company, Limited, Reading, England. Filed May 31, 1904. Serial No. 210,556.



Claim.—1. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, and means for causing said pusher and movable abutment to support on opposite sides the foremost type of said line, said pusher to move said foremost type while so supported through said opening, and said foremost type to be liberated by said pusher and movable abutment after being so moved.

2. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, means for causing said pusher to push the foremost type of said line through said opening, means for pressing said movable abutment against said foremost type during its movement by said pusher, means for holding back said movable abutment when said pusher has completed its forward movement, and means for then drawing back said pusher and so liberating said type.

3. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, means for normally forcing said movable abutment toward said trough, retaining means for normally holding said movable abutment out of contact with the foremost type of said line, and key mechanism adapted to be caused by the depression of a key both to liberate said movable abutment so as to allow it to be moved into contact with said foremost type and also to move said pusher so as to push said foremost type through said opening and thereby said movable abutment into a position for engagement by said retaining means.

4. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, means for normally forcing said movable abutment toward the foremost type of said line, a catch adapted normally to hold said movable abutment away from said foremost type, a tappet adapted to move said catch so as to disengage said movable abutment, and key mechanism adapted to be caused by the depression of a key both to operate said tappet so as to move said catch as aforesaid and also to move said pusher so as to push said foremost type through said opening and thereby said movable abutment into a position for engagement by said retaining means.

5. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a support leading from said opening to a point of discharge, means for moving the foremost type of said line through said opening and to said point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, and a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge.

6. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a support leading from said opening to a point of discharge, a device for moving the foremost type of said line through said opening and to said point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, and means for moving said movable guide away from said fixed guide and for then causing said device to move said foremost type through said opening and to said point of discharge.

7. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a support leading from said opening to a point of discharge, a device for moving the foremost type of said line through said opening and to said point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, and means for moving said movable guide away from said fixed guide, for then causing said device to move said foremost type through said opening and to said point of

discharge, and for moving said movable guide near to said foremost type before said foremost type has been completely ejected from said line of types.

8. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, a support leading from said opening to a point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, means for moving said movable guide away from said fixed guide, for then moving said movable abutment up to said foremost type, and for then causing said pusher to move said foremost type through said opening and to said point of discharge, and means for causing said movable guide to move near to the rear face of said foremost type before said foremost type has been completely ejected from said line of types.

9. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, a support leading from said opening to a point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, means for forcing said movable guide toward said fixed guide, means for moving said movable guide away from said fixed guide, for then moving said movable abutment up to said foremost type, and for causing said pusher to move said foremost type through said opening and to said point of discharge, means for holding back said movable guide after said movable abutment has been moved as aforesaid up to said foremost type and until said foremost type has substantially as set forth been moved sufficiently through said opening, and means for then liberating said movable guide to allow said movable guide to be forced near to said foremost type so as to guide it in its further movement.

10. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, a support leading from said opening to a point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, means for forcing said movable guide toward said fixed guide, and means for moving said movable guide away from said fixed guide, for then moving said movable abutment up to said foremost type, and for causing said pusher to move said foremost type through said opening and to said point of discharge, said movable abutment and said movable guide being adapted when said movable abutment has moved up to said foremost type to engage with each other so as to prevent further movement of said movable guide toward said fixed guide until said foremost type has substantially as set forth been moved sufficiently through said opening and then to become disengaged so as to allow said movable guide to be moved up to said foremost type.

11. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, a support leading from said opening to a point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, a shaft, a ratchet device and a cam both fixed to said shaft, a pawl-lever mounted to be turned to and fro about said shaft, a pawl mounted on said pawl-lever and adapted to engage said ratchet device, a disengaging device adapted to disengage said pawl from said ratchet device, a catch adapted normally to retain said movable abutment away from said foremost type and to liberate said movable abutment on being operated by said cam, means for connecting together said shaft and said movable guide so that rotation of the former will move the latter away from said fixed guide, means for automatically moving said movable abutment and said movable guide toward said type-trough and said fixed guide respectively, and key mechanism adapted to be caused by the depression of a key to move said pawl-lever so as by turning said shaft by means of said ratchet device first to liberate said catch and so allow said movable abutment to move up to said foremost type, then to hold said movable guide back from said fixed guide, and finally to liberate said movable guide by the disengagement of said pawl by said disengaging device and so allow said movable abutment to move up to said foremost type after owing to the action of said key mechanism said pusher has substantially as set forth moved said foremost type sufficiently through said opening.

12. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of types along in said trough, a fixed abutment arranged to limit the movement of said types by said means, a pusher and a movable abutment on opposite sides of said trough, a support leading from said opening to a point of discharge, a fixed guide forming a continuation of said fixed abutment and adapted to guide the front face of said foremost type while it is being moved over said support to said point of discharge, a movable guide adapted to guide the rear face of said foremost type while it is being so moved to said point of discharge, means for forcing said movable abutment and said movable guide toward said type-trough and said fixed guide respectively, a catch adapted normally to retain said movable abutment away from said foremost type, a shaft, a cam and a ratchet device both fixed to said shaft, a pawl-lever mounted to be turned to and fro about said shaft, means for connecting said shaft with said movable guide so that rotation of the former will move the latter away from said fixed guide, key mechanism adapted to be caused by the depression of a key first to turn said pawl-lever and thereby to disengage said catch and allow said movable abutment to move up to said foremost type, and then to move said pusher so as to eject said foremost type through said opening, and also adapted after the liberation of said movable abutment as aforesaid to hold back said movable guide, and means for disengaging said pawl from said ratchet device when said foremost type has substantially as set forth been sufficiently moved through said opening, said movable abutment being adapted to prevent said movable guide from moving up to said foremost type until said foremost type has been sufficiently moved as aforesaid and then to allow said movable guide to move up to said foremost type.

13. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of type along said trough, a fixed abutment arranged to limit the movement of the type by said means, a pusher and a movable abutment on opposite sides of said trough, means for causing said pusher and movable abutment to support on opposite sides the foremost type of said line of type, said pusher to move said foremost type while so supported through said opening, and an elastic device which is arranged normally to bear against types located in said trough and opposite to said opening but is adapted when said foremost type is being moved through said opening by said pusher to allow the exit of said foremost type through said opening and at the same time to retain in said trough the type or types adjacent to said foremost type and opposite to said opening.

14. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of type along said trough, a fixed abutment arranged to limit the movement of the type by said means, a pusher and a movable abutment on opposite sides of said trough, means for causing said pusher and movable abutment to support on opposite sides the foremost type of said line of type, said pusher to move said foremost type while so supported through said opening, and a flexible elastic device which is arranged normally to bear against types located in said trough and opposite to said opening but is adapted when said foremost type is being moved through said opening by said pusher to be bent thereby and so allow the exit of said foremost type through said opening and at the same time to retain in said trough the type or types adjacent to said foremost type and opposite to said opening.

15. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of type along said trough, a fixed abutment arranged to limit the movement of the type by said means, a pusher and a movable abutment on opposite sides of said trough, means for causing said pusher and movable abutment to support on opposite sides the foremost type of said line of type, said pusher to move said foremost type while so supported through said opening, and a device comprising holding means

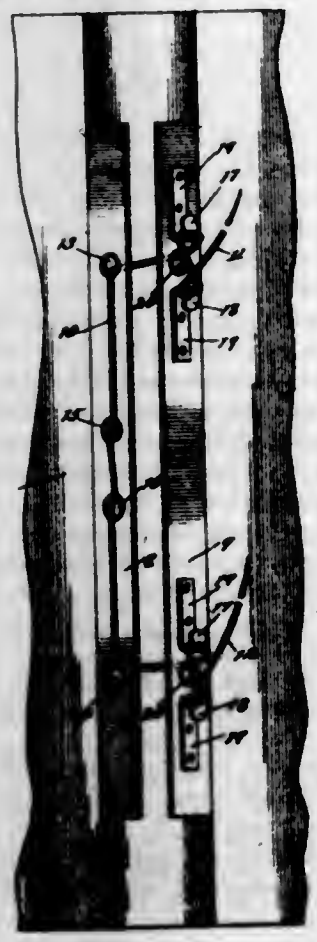
and flexible projections which extend therefrom and are adapted to bear elastically and separately against said foremost type and the adjacent type located in said trough and opposite to said opening and of which one or more is or are adapted when said foremost type is being moved through said opening by said pusher to be bent thereby and so allow the exit of said foremost type through said opening and of which others or another are or is adapted when said foremost type is being moved through said opening by said pusher to retain said adjacent type in said trough.

16. In a type-distributing machine, a type-trough having a type-exit opening at one side thereof, means for forcing a line of type along said trough, a fixed abutment arranged to limit the movement of the type by said means, a pusher and a movable abutment on opposite sides of said trough, means for causing said pusher and movable abutment to support on opposite sides the foremost type of said line of type, said pusher to move said foremost type while so supported through said opening, and a device comprising holding means and flexible projections of which one or more extends or extend therefrom and is or are adapted to bear elastically against said foremost type but to be bent thereby and so allow the exit of said foremost type through said opening and of which others or another extend or extends therefrom and are or is adapted to bear elastically against the type adjacent to said foremost type but not against said foremost type and to retain said adjacent type in said trough when said foremost type is being moved through said opening by said pusher.

785,650. **PITCH-CEMENT CONCRETE PAVEMENT.** JOSEPH H. AMES, Philadelphia, Pa. Filed Jan. 30, 1904. Serial No. 191,379.

Claim.—The herein-described improvement in procuring compositions for pavements which consists in securing a practical method of combining desired elements in necessary proportions to secure needed results, viz: taking a due quantity of granulated quicklime and mixing it with a sufficient amount of water, then adding thereto and mixing therewith a required measure of the described asphaltic cement, thus producing the active fomentations desired, then immediately taking advantage thereof to make it possible to add thereto and mix therewith the necessary quantity of mineral matters, thereby enabling the practical mingling of the said ingredients, in batch quantities, and by hand-labor, if desired, then at once placing this mass upon a properly-prepared street or road bed, rolling and tamping it to secure desired compression as particularly and for the purpose set forth and specified.

785,651. **BINDER.** JOHN R. BARRETT, Chicago, Ill. Original application filed Oct. 13, 1897, Serial No. 655,063. Divided and this application filed Jan. 2, 1903. Serial No. 137,533.



Claim.—1. In a binder, the combination of covers, a binder-strip, cord-retaining devices carried by said binder-strip comprising a pair of separate oppositely-arranged hooks, arranged adjacent to each other and spaced a distance apart to provide an open space between them, and a perforation through said strip adjacent to said hooks for the passage of the cord, substantially as described.

2. In a binder, the combination of covers, a binder-strip, and cord-retaining devices carried by said binder-strip, comprising a pair of oppositely-disposed hooks arranged adjacent to each other and spaced a distance apart to provide an open space between them, said hooks having attaching portions which also extend away from each other and are secured to the binder-strip, substantially as described.

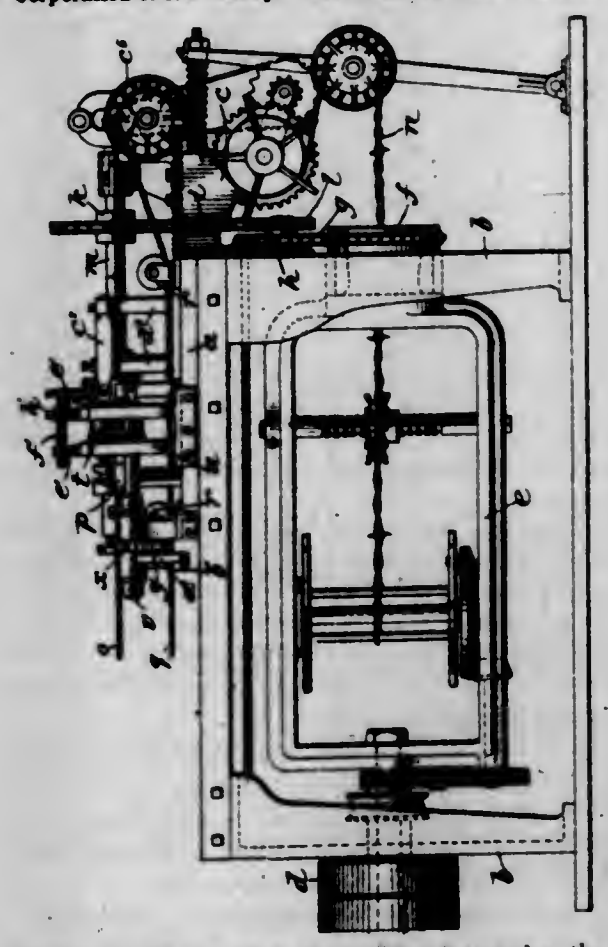
3. In a binder, the combination of covers, a binder-strip, cord-retaining devices carried by said binder-strip comprising a pair of oppositely-disposed hooks arranged adjacent to each other, and a perforation between said hooks for the passage of the cord, substantially as described.

4. In a binder, the combination of covers, a binder-strip, cord-retaining devices carried by said binder-strip, comprising a pair of oppositely-disposed hooks arranged adjacent to each other and spaced a distance apart to provide an open space between them, said hooks having attaching portions which also extend away from each other and are secured to the binder-strip, and a perforation between said hooks for the passage of the cord, substantially as described.

5. A cord-retaining device for binders, comprising a pair of separate oppositely-arranged hooks, arranged adjacent to each other and spaced a distance apart to provide an open space between them in combination with a suitable support having a perforation adjacent to said hooks for the passage of the cord, substantially as described.

6. The combination with a suitable support, of a cord-retaining device comprising a pair of oppositely-disposed hooks arranged adjacent to each other and spaced a distance apart to provide an open space between them, and a perforation in said support between said hooks, substantially as described.

785,652. **WIRE-BARBING MACHINE.** ALBERT J. BATES, Joliet, Ill., assignor to American Steel & Wire Company, Worcester, Mass., a Corporation of New Jersey. Filed Dec. 12, 1903. Serial No. 184,941.



Claim.—1. In a machine for barbing fence-wire, the combination of means for feeding the fence-wire, means for feeding a barbing-wire across the fence-wire, a combined cutter and die for severing the barbs, and bending them over the fence-wire, and a guide located obliquely to the barbs on the opposite side of the fence-wire to keep the ends of the barbs apart.

2. In a machine for barbing fence-wire, the combination of means for feeding the fence-wire, means for feeding a barbing-wire

over and across the fence-wire, a combined cutter and die for severing the barbs, and bending them down over the fence-wire, a guide located obliquely to the barbs and perpendicular to and under the fence-wire, and dies moving toward each other from opposite sides of the fence-wire to wrap the bent barbs around the wire, said dies working on opposite sides of the guide.

3. In a machine for barbing fence-wire, the combination of means for feeding the fence-wire, means for feeding a barbing-wire transversely across and above the fence-wire, a combined cutter and die for severing the barbs, and bending them down upon the fence-wire, and a support for holding up the fence-wire while the barb is being pressed down upon it.

4. In a machine for barbing fence-wire, the combination of means for feeding the fence-wire, means for feeding a barbing-wire transversely across and above the fence-wire, a combined cutter and die for severing the barbs, and bending them down upon the fence-wire, a support to hold up the fence-wire while the barb is being pressed down upon it, dies moving toward each other from opposite sides of the fence-wire to wrap the bent barbs around the wire, and means for withdrawing the wire-support out of the way of the dies.

5. In a machine for barbing fence-wire, the combination of means for feeding the fence-wire, a pair of rolls for feeding and flattening the barbing-wire, and means for adjusting the rolls comprising right and left screws e' e', intermeshed gears f' f' connecting the screws, and means for operating one of the screws whereby the operation of one screw adjusts both bearings of the upper roll.

6. In a machine for barbing fence-wire, the combination of a combined cutter and die for severing the barbs and bending them over the fence-wire, dies moving toward each other from opposite sides of the fence-wire, and a pair of bell-crank levers for operating the dies, said levers being connected together and operated by a single cam.

7. In a machine for barbing fence-wire, the combination of a combined cutter and die for severing the barbs and bending them over the fence-wire, dies moving toward each other from opposite sides of the fence-wire, bell-crank levers connected to the dies by their arms r', v', a cam n', an arm o' projecting from one of the levers to the cam, and the levers being connected together by arms o', t'.

8. In a machine for barbing fence-wire, the combination of a support for the fence-wire, a combined cutter and die for severing the barbs and bending them over the fence-wire, dies for wrapping the bent barbs around the fence-wire, a pair of connected bell-crank levers one arm of which operates the dies, the other arms of the levers being connected to the wire-support to move it out of the way of the dies.

9. In a machine for barbing fence-wire, the combination of a grooved covered guide p for the fence-wire sliding in ways in the brackets, a nipple-like wire-support m' projecting from the end of the guide, a combined cutter and die to sever the barbs and bend them down over the fence-wire and around the support m', and means to withdraw the support when the barb has been applied.

10. In a machine for barbing fence-wire, the combination of a grooved, covered guide for the fence-wire, a pair of rolls parallel with the fence-wire for flattening a barb-wire and bending it across the fence-wire, and a covered guide inclined forward from the rolls in the direction of the moving fence-wire for delivering the barb-wire obliquely thereto.

11. In a machine for barbing fence-wire, the combination of brackets l', l' uprising from the machine-bed, a guide p and support m' for the fence-wire sliding in ways in the brackets, a combined cutter and die for severing the barb-wire and bending it around the fence-wire, a guide n^3 located under and transverse to the support m', and a clamp w^3 secured to the brackets to hold the guide in place.

12. In a machine for barbing wire fence, the combination of a guide for the fence-wire, a fixed cutting edge adjacent the end thereof, a reciprocating cutter cooperating with the fixed edge, a pivoted frame c^3 in which the reciprocating cutter is mounted, and a rotary cam f^3, the frame having a fork h^3 the arms of which are located on both sides of the cam.

785,653. FOUNTAIN-PEN. CLARE W. BOMAN, New York, N. Y., assignor to Eagle Pencil Company, New York, N. Y. Filed Dec. 21, 1904. Serial No. 237,779.

Claim.—In a fountain-pen, the combination with the tubular handle and the collapsible ink bag or reservoir therein, of a laterally-movable presser interposed between the ink-bag and the handle, a longitudinally-movable plunger mounted in the rear end of the handle, and having an external head or cap, and connections between the plunger and the presser, whereby the outward movement of the plunger shall cause the presser to move laterally in a direction to press the walls of the ink-bag together or toward each other, substantially as hereinbefore set forth.



785,654. FOUNTAIN-PEN. CLARE W. BOMAN, New York, N. Y., assignor to Eagle Pencil Company, New York, N. Y. Filed Dec. 21, 1904. Serial No. 237,780.

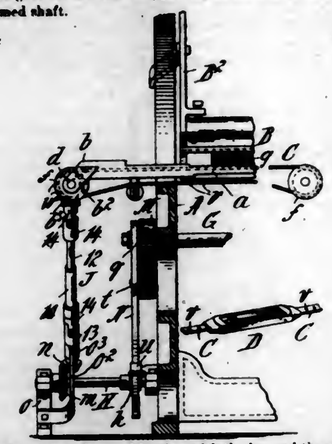


Claim.—1. In a fountain-pen, the combination with the tubular handle and the collapsible ink-bag therein, of a laterally-movable presser interposed between the collapsible reservoir and the handle, a rotatable operating-cap mounted on the exterior of the handle and connections between the presser and the rotatable operating-cap whereby the rotation of the cap shall cause the lateral movement of the presser in a direction to squeeze the walls of the ink-bag together or toward each other, substantially as hereinbefore set forth.

2. In a fountain-pen, the combination with the tubular handle and the collapsible ink-bag therein, of a laterally-movable presser interposed between the handle and the ink-bag, a rotatable operating-cap mounted on the exterior of the handle, connections between the presser and the cap whereby the rotating movement of the cap shall effect the lateral movement of the presser, and means for automatically locking the cap in normal position, substantially as and for the purposes hereinbefore set forth.

785,655. SHUTTLE-MOVING DEVICE FOR WIRE-LOOMS. HIRAM A. BOND, Springfield, Mass. Filed July 18, 1904. Serial No. 217,035.

Claim.—1. In a loom, the combination with the lay having supporting-wheels at opposite ends thereof, and one thereof provided with a gear-wheel, the band for the shuttle-carrier, arranged to run around said supporting-wheels backwardly and forwardly, another gear-wheel rotatably mounted on the lay in mesh with the gear of the band-supporting wheel, of a shaft and means for imparting intermittently rotary reciprocatory movements thereto, a gear-wheel on said shaft, and another gear-wheel in mesh therewith, and a shaft comprising telescopic sections endwise movable but non-rotatable relatively to each other, and having respectively universal-joint connections with the arbors of the aforesaid gear-wheels stated as in mesh with the gear on the band-supporting wheel and the gear on the first-named shaft.



2. In a loom, the combination with the lay and the supporting-wheels at its opposite ends for the shuttle-carrier band, and a gear-wheel having driving connection with one of the band-wheels, mounted on, and bodily movable with, the lay, and having an arbor, of a shaft and means for imparting back-and-forth rotary movements intermittently thereto, and a gear-wheel in connection with, and driven by, said shaft also having an arbor, and a shaft consisting of two sections relatively non-rotatable but telescopically arranged for distention and contraction, and respectively endwise universal-joint-connected with the arbors of the aforementioned gear-wheels.

3. In a loom, the combination with the lay and the supporting-wheels at its opposite ends for the shuttle-carrier band, and a gear-wheel having driving connection with one of the band-wheels, mounted on, and bodily movable with, the lay, and having an arbor, of a shaft having a spur-gear thereon, a rack-bar in mesh with such spur-gear and means for intermittently imparting back-and-forth movements to the rack-bar, and a gear-wheel in connection with, and driven by, said shaft, having an arbor, and a shaft consisting of two sections relatively non-rotatable but telescopically arranged for distention and contraction, and respectively endwise universal-joint-connected with the arbors of the aforementioned gear-wheels.

4. In a loom, the combination with the lay and the supporting-wheels at its opposite ends for the shuttle-carrier band, and a gear-wheel having driving connection with one of the band-wheels, mounted on, and bodily movable with, the lay, and having an arbor, of a shaft, having a spur-gear thereon, a cam-shaft and cam-wheel thereon having a groove comprising diametrically opposite concentric and non-effective portions with relatively intermediate eccentric groove portions oppositely uniting the concentric groove portions, a rack-bar in mesh with said spur-gear, and having a stud engaging in the groove of the cam-wheel, and a gear-wheel in connection with, and driven by, said spur-gear-carrying shaft, having an arbor, and a shaft consisting of two sections relatively non-rotatable but telescopically arranged for distention and contraction, and respectively endwise universal-joint-connected with the arbors of the aforementioned gear-wheels.

5. In a loom, the combination with the lay and the supporting-wheels at its opposite ends for the shuttle-carrier band, and a gear-wheel having driving connection with one of the band-wheels, mounted on, and bodily movable with, the lay, and having an arbor, of a shaft, having a spur-gear thereon, a cam-shaft and cam-wheel thereon having a groove comprising diametrically opposite concentric and non-effective portions with relatively intermediate eccentric groove portions oppositely uniting the concentric groove portions, and said cam-shaft having a portion axially projecting beyond the outer face of the cam-wheel, a rack-bar in mesh with said spur-gear, and having a stud engaging in the groove of the cam-wheel, and formed with a longitudinal slotted portion having a guiding engagement about the said projecting shaft portion, and a gear-wheel in connection with, and driven by, said spur-gear-carrying shaft, having an arbor, and a shaft consisting of two sections relatively non-rotatable but telescopically arranged for distention and contraction, and respectively endwise universal-joint-connected with the arbors of the aforementioned gear-wheels.

6. In a loom, in combination, the lay carrying at its ends the wheels f f, one thereof having on its arbor the bevel gear-wheel h, and an arbor i having the bevel gear-wheel j in mesh with the gear-wheel h and bodily movable with the lay, the driving-shaft G having the cam M thereon and the counter-shaft H having the spur-pinion gear-wheel k and the bevel gear-wheel m thereon, an arbor p^3 journaled for rotation about a stationary axis and having the bevel gear-wheel n, the shaft J comprising the sections 10 and 12 combined as described, and each having at its extremity a universal-joint member 14, complementary universal-joint members 13 respectively on the arbors i and p^3, and the rack-bar N engaging the cam M, and in mesh with the gear-wheel k, substantially as described and shown.

7. In a loom, the combination with the lay, the supporting-wheels at the opposite ends, one or both thereof having radially-projecting studs, the shuttle-carrier band, having regularly-spaced perforations, and a gear-wheel having driving connection with one of the band-wheels, mounted on, and bodily movable with, the lay, and having an arbor, of a shaft having a spur-gear thereon, a rack-bar in mesh with such spur-gear, and means for intermittently imparting back-and-forth movements to the rack-bar, and a gear-wheel in connection with, and driven by, said shaft, having an arbor, and a shaft consisting of two sections relatively non-rotatable but telescopically arranged for distention and contraction, and respectively endwise universal-joint-connected with the arbors of the aforementioned gear-wheels.

785,656. BOTTLE. NATHANIEL E. BOOTH, Southold, N. Y. Filed May 7, 1904. Serial No. 206,962.

Claim.—The combination with a receptacle having a neck extending therefrom, of a jacket integral with the receptacle and inclosing the neck, said jacket having a shoulder therein above the end of the neck, a sealing device within the neck, a disk arranged in the jacket and seated upon the neck over the sealing device, said disk having a passage therethrough, and oppositely-extending spring-pressed locking-pins within the passage and adapted to engage the shoulder in the jacket to hold the disk upon the neck.

785,657. INSULATED STEP-JOINT. BANCROFT G. BRAINE, New York, N. Y., assignor to The Continuous Rail Joint Company of America, a Corporation of New Jersey. Filed Feb. 10, 1904. Serial No. 192,897.

Claim.—1. The improved rail, in which are combined rails of varying cross-section, connecting-plates having stepped bearings to oppose the head and base flanges of said rails and interposed insulation, the said stepped bearings being reduced to permit the insertion of the insulation between the rails and connecting-plates, substantially as set forth.

2. The improved rail-joint herein described in which are combined with the alined rail ends varying in cross-section, connecting-plates arranged and secured on opposite sides of said rail ends and having bearings which are offset or stepped in correspondence with the variations in the opposite rail ends, the bearings of the steps or offsets being partly reduced and having insulation therebetween to insulate one rail end from the other.

3. The insulated step-joint herein described, comprising the rails varying in cross-section, connecting-plates having bearings to oppose the under sides of the heads of the rails and both the upper and under sides of the base-flanges of the said rails, said connecting-plates being offset or stepped on correspondence with the variation in the rail ends and the offsets or steps being reduced to receive insulation, and said insulation being interposed between the rails and connecting-plates to electrically insulate one rail from the other, substantially as set forth.

785,658. FOLDING UMBRELLA. ISIDOR D. BRAUNS, New York, N. Y., assignor of one-third to Henry M. Brauns, New York, N. Y., and one-third to Samuel J. Brauns, Newark, N. J. Filed Dec. 29, 1903. Serial No. 186,972.



Claim.—1. In a folding umbrella, the combination with a stick comprising longitudinal sections, a notch fixed upon one of said sections, and a runner slidable upon the stick, of an upper rib-section comprising a rod hinged at one end to said notch and having at its opposite end a stop projecting laterally toward the stick, a lower rib-section having an eye projecting laterally toward the stick and receiving the upper section, said lower section being longitudinally grooved between said eye and its outer end at the side next the stick and having a slot in the bottom of said groove adjacent to the eye, a leaf-spring mounted on the lower rib-section and normally lying in said slot with its extremity projecting therethrough in front of the end of the upper rib-section, stretchers each pivoted at one end to the said runner and hinged at its other end between the side walls of a grooved lower rib-section at the opposite side of the said leaf-spring extremity from the upper rib-section, and adapted to fold into said groove, and a cover.

2. In a folding umbrella, the combination with a sectional stick having a notch and a runner thereon, and a cover, of an upper rib-section hinged to the notch and having at its opposite end a lateral stop, a lower rib-section lying at the opposite side of said upper section from the stick and having a lateral eye receiving said upper section and being longitudinally slotted adjacent to said eye, a leaf-spring mounted on said lower rib-section and normally lying in the said slot thereof with its extremity projecting transversely in front of the end of the upper rib-section, and stretchers each extending from the runner to a lower rib-section at a point on the opposite side of the said leaf-spring extremity from the upper rib-section.

785,659. COFFEE-CARTRIDGE. GODWIN BROWN, Yonkers, N. Y. Filed Jan. 17, 1903. Renewed Sept. 17, 1904. Serial No. 224,856.



Claim.—1. The hereinbefore-described coffee-percolating cartridge, having a paper shell with a pervious and filtering bottom, and a strengthening-top, substantially as described.

2. The hereinbefore-described coffee-percolating cartridge, having a shell, the parts of which are united by a soluble adhesive, whereby the cartridge is constructed and adapted to be ruptured under the action of boiling water, substantially as described.

3. The hereinbefore-described coffee-percolating cartridge, having a shell, with a pervious bottom and a top united thereto by a soluble adhesive, substantially as described.

4. The hereinbefore-described coffee-percolating cartridge having a shell consisting of a pervious body portion with its edges bent inwardly, and a strengthening-cover united thereto by a soluble adhesive, substantially as described.

5. The hereinbefore-described coffee-percolating cartridge, having a shell consisting of a pervious-paper body-blank, having its edges bent inwardly, and a strengthening-cover therefor united to the body-blank by a soluble adhesive, substantially as described.

6. The hereinbefore-described coffee-percolating cartridge, having a shell consisting of a pervious-paper disk having its edges bent inwardly, and a cover of paper provided with a handle, united to the inwardly-bent edges of the pervious disk, substantially as described.

7. The hereinbefore-described coffee-percolating cartridge, having a shell composed of a pervious and filtering body portion, and a paper cover therefor having a handle formed integral therewith, the cover being folded to form the handle, substantially as described.

785,660. HANDLE FOR DEMIJOHNS, &c. WILLIAM H. BROWN, Los Angeles, Cal., assignor of one-half to James M. Bowman, Los Angeles, Cal. Original application filed Jan. 9, 1904, Serial No. 188,372. Divided and this application filed May 6, 1904. Serial No. 206,703.



Claim.—1. A demijohn-handle having a lower ring and an eye in its upper end, an upper ring having one of its ends secured in said eye and the other end designed to be passed through said eye and secured therein after being positioned on the vessel.

2. A handle having eyes at its ends, rings passed through said eyes, one ring being bent at one end, its other end being straight and designed to be bent or crooked after the ring is positioned so as to prevent such end moving through the eye of the handle in which it is fitted.

3. A metallic handle having upper and lower curved portions and eyes formed in the free ends of said curved portions, rings passed through said eyes, one ring being bent or crooked at one end, its other end being free and designed to be bent or crooked, after being drawn around the vessel, on the side of the eye opposite its other end.

4. The combination with a vessel having an upper lip or shoulder, of a metallic handle having upper and lower eyes, rings passed through said eyes and bent or crooked at their ends on opposite sides of the eyes, said upper ring being designed to fit beneath such lip or shoulder.

5. The combination with a vessel having an upper lip or shoulder, of a metallic handle having eyes at its upper and lower ends, a lower ring formed of wire passed through one of said eyes and bent or crooked at its ends on opposite sides of such eye, and an upper ring designed to fit beneath said lip or shoulder likewise formed of wire bent or crooked at one end on one side of the other eye, the other end of such ring being passed through said eye and designed to be bent or crooked on the other side thereof.

785,661. BEARING. CHARLES H. CHAPMAN, Groton, Mass. Original application filed Feb. 28, 1900, Serial No. 6,859. Divided and this application filed Mar. 21, 1901. Renewed Mar. 26, 1904. Serial No. 200,193.



Claim.—1. A ball retainer and spacer, constructed with series of holes, combined with and adapted to receive the bearing-rollers and separating-balls, and serving to sustain the separating-balls at or near the dead-center line of the bearing-rollers, substantially as described.

2. A ball retainer and spacer, apertured to receive bearing-rollers, and perforated between the apertures to receive separating-balls to retain them at or near the center line of the bearing-rollers, combined with such separating-balls and bearing-rollers, substantially as described.

3. In a roller-bearing, the combination of bearing-rollers, an annular member supporting the bearing-rollers, said member comprising apertured cross-pieces retaining the bearing-rollers and annular member in relative position, and spacing-rollers radially inclosed in the apertures of the cross-pieces to engage the bearing-rollers, substantially as specified.

4. In a ball retainer and spacer, an annular member, bearing-rollers supported therein, said member comprising apertured partitions arranged transversely therein between the bearing-rollers, and separating or spacing rollers radially inclosed loosely in the apertures in said partitions and in contact with adjacent bearing-rollers.

5. In a ball-bearing, a retaining-ring formed in one piece, said retaining-ring having a series of openings forming a series of projections, there being passages in said projections between said openings, antifriction-balls in said openings, and antifriction spacing-rollers in said passages, substantially as specified.

6. A ball-carrier, for ball-bearings, comprising a frame provided with bearing-ball pockets and spacing-ball pockets so relatively arranged that the center of each spacing-ball will be maintained at all times in alinement with the centers of the adjacent bearing-balls.

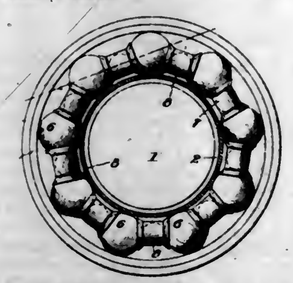
785,662. BEARING. CHARLES H. CHAPMAN, Groton, Mass. Original application filed Feb. 28, 1900, Serial No. 6,859. Divided and application filed Mar. 21, 1901, Serial No. 52,200. Again divided and this application filed Aug. 13, 1903. Renewed Feb. 24, 1905. Serial No. 247,141.



Claim.—1. In a roller-bearing, the combination of the bearing-rollers, retaining-rings for the bearing-rollers, apertured cross-ties for holding the retaining-rings relatively to the bearing-rollers, and spacing-rollers radially inclosed in the apertures of the cross-ties to engage the bearing-rollers, substantially as specified.

2. In a roller-bearing, the combination of the bearing-rollers, parallel retaining-rings for the bearing-rollers, apertured cross-ties for holding the retaining-rings relatively to the bearing-rollers, and separating-rollers radially inclosed in the apertures of the cross-ties to engage the bearing-rollers, and serving to sustain the separating-rollers at or near the dead-center line of the bearing-rollers.

785,663. BALL-RETAINER FOR BALL-BEARINGS. CHARLES H. CHAPMAN, Winchester, Mass. Filed Apr. 18, 1904. Renewed Feb. 6, 1905. Serial No. 244,301.



Claim.—1. A ball-bearing, comprising load-carrying balls, a separating-ball, and an independent tubular retainer within which the separating-ball is loosely confined, said separating-ball and its retainer interposed between two adjacent load-carrying balls, in superficial contact therewith, and on a dead-center line therewith.

2. A ball-bearing, comprising load-carrying balls, a separating-ball, and an independent retainer for said separating-ball of a length greater than the diameter of the separating-ball and interposed between two adjacent load-carrying balls and in superficial contact therewith, the retainers and their separating-balls automatically adjusting themselves onto a dead-center line relatively to said load-carrying balls.

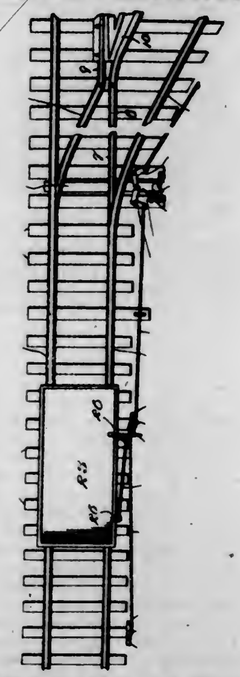
3. In a ball-bearing, load-carrying balls, a separating-ball, a retainer for said separating-ball, having flared ends, said separating-ball and its retainer being interposed between adjacent load-carrying balls.

4. In a ball-bearing, load-carrying balls, a separating-ball, and a retainer for said separating-ball, provided with means for confining said separating-ball within it, said separating-ball and its retainer being interposed between and in contact with adjacent load-carrying balls.

5. In a ball-bearing, load-carrying balls, a separating-ball, a retainer for said separating-ball, provided with means for loosely confining the separating-ball therein, and also provided with flared ends, said separating-ball and its retainer being arranged between and in contact with adjacent load-carrying balls.

6. A ball-bearing, comprising a series of load-carrying balls, a separating-ball interposed between each adjacent two load-carrying balls, and an independent tubular retainer for each of said separating-balls within which retainer the separating-ball is confined, said retainer supported by and between the load-carrying balls and adapted to automatically maintain the separating-balls on a dead-center line between adjacent load-carrying balls.

785,664. RAILWAY-SWITCH. ERNEST G. CLIFT and EMERY E. WOODLEY, Mountainview, Mo. Filed Mar. 9, 1904. Serial No. 197,338.

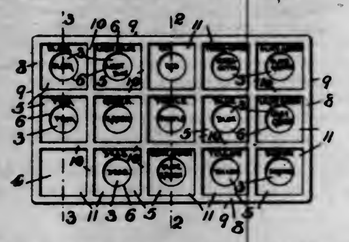


Claim.—1. The combination with a railway including a main track, a siding and movable switch-rails, of a rocker having spaced arms and connected with the switch-rails to move them into and out of position to open the siding, said arms being positioned to project alternately one above the other as the switch-rails are moved to open and closed positions, a second rocker having spaced arms and connected with the first-named rocker for swinging the latter oppositely to itself, and a third rocker adjacent to the siding and connected with the switch-rails for shifting the latter oppositely to the first-named rocker when moved in the same direction, the third rocker having also upwardly-directed spaced arms positioned to lie alternately one above the other when the rocker is rocked.

2. The combination with a railway including a main track, a siding and movable switch-rails, of a rocker having spaced arms and connected with the switch-rails to move them into and out of position to open the siding, said arms being positioned to project alternately one above the other as the switch-rails are moved to open and closed positions, a second rocker having spaced arms and connected with the first-named rocker for swinging the latter oppositely to itself, and a third rocker adjacent to the siding and connected with the switch-rails for shifting the latter oppositely to the first-named

rocker when moved in the same direction, the third rocker having also upwardly-directed spaced arms positioned to lie alternately one above the other when the rocker is rocked, and a cam having a rock-shaft provided with means for oscillating it and having an arm disposed for movement with the shaft into position to engage the arm of the rocker having the greater elevation.

785,665. **PUZZLE OR GAME APPARATUS.** ADDISON COE, Newark, N. J. Filed Nov. 17, 1904. Serial No. 233,063.



Claim.—1. A puzzle or game apparatus, comprising a playing-board divided into variously-colored spaces, and a set of movable playing-pieces arranged upon said playing-board, the number of said playing-pieces being one less than the number of spaces upon said playing-board, each playing-piece having a color corresponding to the color of a space upon said board, and each playing-piece being provided with an opening through which the color of the space over which the playing-piece is moved will be exposed, substantially as and for the purposes set forth.

2. A puzzle or game apparatus, comprising a playing-board divided into variously-colored spaces, a set of vertically and horizontally movable playing-pieces arranged upon said playing-board, the number of said playing-pieces being one less than the number of spaces upon said board, each playing-piece having a color corresponding to the color of a space upon said board, and a grid or frame connected with said board and forming with the spaced face of said board a chamber in which the playing-pieces are movably arranged, and said grid preventing the removal of said playing-pieces from said board, substantially as and for the purposes set forth.

3. A puzzle or game apparatus, comprising a playing-board divided into variously-colored spaces, a set of vertically and horizontally movable playing-pieces arranged upon said playing-board, the number of said playing-pieces being one less than the number of spaces upon said board, each playing-piece having a color corresponding to the color of a space upon said board, means for preventing the removal of said playing-pieces from said board, and each playing-piece being provided with an opening through which the color of the space over which the playing-piece is moved will be exposed, substantially as and for the purposes set forth.

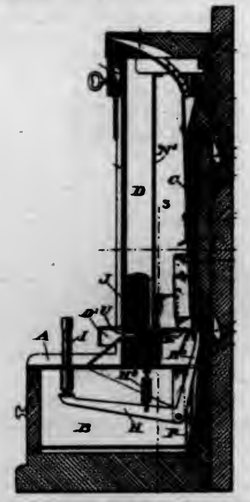
4. A puzzle or game apparatus, comprising a playing-board divided into variously-colored spaces, a set of vertically and horizontally movable playing-pieces arranged upon said playing-board, the number of said playing-pieces being one less than the number of spaces upon said board, each playing-piece having a color corresponding to the color of a space upon said board, a grid or frame connected with said board and forming with the spaced face of said board a chamber in which the playing-pieces are movably arranged, said grid preventing the removal of said playing-pieces from said board, and each playing-piece being provided with an opening corresponding to the openings in the said grid or frame through which the color of the space over which the playing-piece is moved will be exposed, substantially as and for the purposes set forth.

5. In a puzzle or game apparatus, the combination, with a board divided into variously-colored spaces, and having sides 2, of a grid or frame 8, comprising flanges 9 arranged and secured over said sides 2, said frame or grid being provided with cross-bars 10 forming openings 11 corresponding to the number of said colored spaces upon said board, and playing-pieces movably arranged upon the said board and behind said frame 8, substantially as and for the purposes set forth.

6. In a puzzle or game apparatus, the combination, with a board divided into variously-colored spaces, and having sides 2, of a grid or frame 8, comprising flanges 9 arranged and secured over said sides 2, said frame or grid being provided with cross-bars 10 forming openings 11 corresponding to the number of said colored spaces upon said board, and playing-pieces movably arranged upon the said board and behind said frame 8, the number of said playing-pieces being one less than the number of spaces upon said board, and each playing-piece having a color corresponding to the color of a space upon said board, substantially as and for the purposes set forth.

7. In a puzzle or game apparatus, the combination, with a board divided into variously-colored spaces, and having sides 2, of a grid or frame 8, comprising flanges 9 arranged and secured over said sides 2, said frame or grid being provided with cross-bars 10 forming openings 11 corresponding to the number of said colored spaces upon said board, and playing-pieces movably arranged upon the said board and behind said frame 8, the number of said playing-pieces being one less than the number of spaces upon said board, each playing-piece having a color corresponding to the color of a space upon said board, substantially as and for the purposes set forth, and each playing-piece being provided with an opening through which the color of the space over which the playing-piece is moved will be exposed, substantially as and for the purposes set forth.

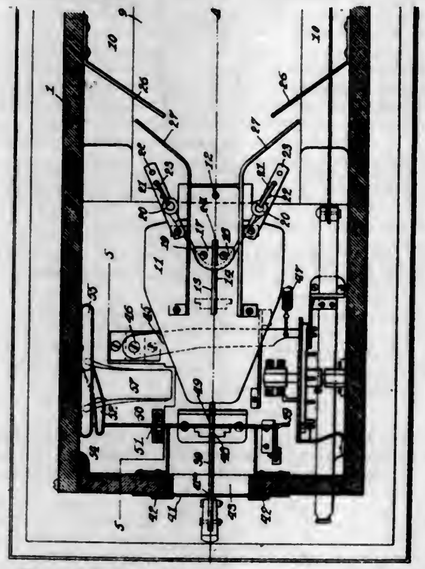
785,666. **COIN-OPERATED VENDING-MACHINE.** WILLIAM DIEBEL, Philadelphia, Pa., assignor to National Vending Machine Company, Philadelphia, Pa. Filed Dec. 23, 1903. Serial No. 186,277.



Claim.—1. In a coin-actuated vending-machine, a body, a vertical coin-chute arranged within said body, a vertical merchandise-holder, a horizontally-reciprocating delivery-slide, the lower package of merchandise normally lying forward of the delivery-slide so as to be pushed outward by said slide when the same is moved forward, the delivery-slide being provided with an opening slightly narrower in width than the proper-size coin, said opening normally lying underneath the lower end of the coin-chute so that the coin will drop into the delivery-plate and be held in said opening, a bell-crank lever pivoted to the body, one member of said bell-crank lever adapted to lie behind the lower portion of the coin when it drops into the delivery-plate, a vertically-sliding plunger contacting the other member of the bell-crank lever, a spring for returning the bell-crank lever to its normal position, a beveled slide adapted to be pushed upward by the upper portion of the coin when said coin and delivery-plate are pressed forward by the lever, said delivery-plate provided with an opening located forward of the opening in which the coin drops, said forward opening being wider than the diameter of the coin, the upper portion of said coin adapted to come in contact with the vertical face of the beveled slide on the return movement of the delivery-plate so as to cause the coin to tip over and fall through the forward opening of the slide, and springs for returning the delivery-plate to its normal position, as specified.

2. In a coin-actuated vending-machine, the combination of a body having a base, a vertical merchandise-holder and a coin-chute arranged therein with a horizontally-reciprocating delivery-slide lying normally at the rear of the bottom package of merchandise, said delivery-plate being cut inward from the rear, said cut-away portion being narrower in width than the diameter of the proper-size coin and located normally directly underneath the coin-chute so that the coin will fall into the cut-away portion and be held therein extending partially through the plate, a bell-crank lever pivoted to the base, the vertical member of said bell-crank lever extending upward, the upper end of this vertical member lying in such a position normally that the lower portion of the coin extending through the delivery-plate will lie forward of this member, a vertically-reciprocating plunger, the lower end of which contacts the upper surface of the outer end of the other member of the bell-crank lever, a spring for returning the lever to its normal position, a vertically-sliding plate adapted to slide in suitable guideways secured to the forward plate of the coin-chute, the lower surface of said sliding plate being beveled downward and forward, the upper portion of the coin adapted to strike the beveled surface and force this vertically-sliding plate upward when the coin and delivery-slide are forced forward by the lever, the delivery-plate provided with an opening forward of the cut-away portion, said opening being larger than the diameter of the proper-size coin, said coin adapted to contact the forward vertical edge of the vertically-sliding plate on the rearward movement of the coin so as to tip the coin over and allow the same to fall through the forward opening of the delivery-slide, a spring for returning the delivery-slide to its normal position, a spring normally held under tension by the bell-crank lever, said spring adapted to spring underneath the lower end of the coin-chute when the bell-crank lever travels forward, and a spring-latch adapted to snap behind the coin on its first forward movement before it has passed the vertically-sliding plate so as to prevent the return of the coin after passing said spring-latch, as specified.

785,667. **SLING MECHANISM FOR TENPIN GAMES.** ALBERT FERLAND, Lawrence, Mass. Original application filed Nov. 10, 1903, Serial No. 130,683. Divided and this application filed Nov. 20, 1903. Serial No. 181,936.



Claim.—1. In a tenpin-game apparatus, in combination, an alley, depressed runways at the sides thereof adapted to return the ball, inclined guides at the end of said alley and adapted to deflect said ball toward the center of said alley, a movable plate, ball-projecting mechanism carried thereby, and inclined guides carried by said plate and adapted to guide the ball into said ball-projecting mechanism.

2. In a tenpin-game apparatus, a sling comprising a pivoted plate having a longitudinal slot, a trigger pivotally supported by and beneath said plate and extended upward through said slot and adapted to engage a projectile, means for constraining said trigger, a catch adapted to engage said trigger so as to draw back the same, and a member adapted to deflect said catch to release said trigger.

3. In a tenpin-game apparatus, a sling comprising a pivoted plate having a longitudinal slot, a trigger pivotally supported by and beneath said plate and projected upward through said slot, means for constraining said trigger to throw a projectile, a catch adapted to engage said trigger to draw the same back, said catch having an inclined face, and a member adapted to engage said inclined face to deflect said catch and release said trigger.

4. In a tenpin-game apparatus, a sling comprising a pivoted plate, a trigger pivotally supported thereby, a catch adjacent to said trigger and having a tooth adapted to engage therewith, means for constraining said trigger to throw a projectile, a bracket constituting a guide for said catch and having inclined faces, said catch also having inclined faces coöperating therewith to deflect said catch laterally.

5. In a tenpin-game apparatus, a sling comprising a plate adapted to move about a substantially vertically pivot, a trigger supported by said plate and adapted to move about a substantially horizontal pivot, means for constraining said trigger to throw a projectile, a pull-bar, means for guiding said pull-bar upon said plate, a catch pivotally carried by said pull-bar and adapted to engage said trigger, and means for deflecting said catch in its path of movement.

6. In a tenpin game, in combination, an alley-body having an opening through the wall thereof, pivoted sling mechanism, a reciprocatory pull-rod operatively connected with said mechanism, and guide-brackets for the pull-rod movable with the sling mechanism, said body having an elongated opening through which said pull-rod passes and which permits of its lateral movements.

7. In a tenpin game, in combination, pivoted sling mechanism, an alley-body having an elongated opening therethrough, a pull-rod operatively connected with said sling mechanism and laterally movable in said opening, a plate slidably mounted upon the outer side of said body at said opening, said plate having an opening through which said pull-rod passes.

785,668. **REGISTERING MECHANISM FOR TENPIN GAMES.** ALBERT FERLAND, Lawrence, Mass. Original application filed Nov. 10, 1903, Serial No. 130,683. Divided and this application filed Nov. 20, 1903. Serial No. 181,936.



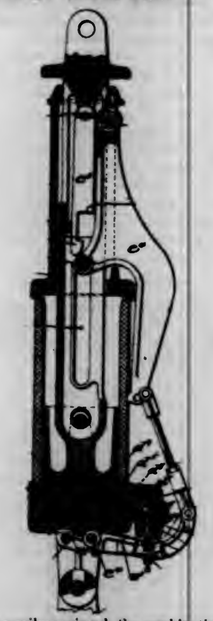
Claim.—1. In a tenpin game apparatus, in combination, an alley, a sling adapted to project a ball down said alley, a rotatable member, means whereby the operation of said sling will advance said rotatable member, means for resetting the pins, mechanism whereby said last means may also advance said rotatable member, and means whereby a predetermined advance of said rotatable member may lock said sling against further operation.

2. In a tenpin game apparatus, in combination, an alley, a sling adapted to project a ball down said alley, a rotatable member

means for resetting the pins collectively, means actuated by said sling for advancing said rotatable member a definite amount for each shot, and mechanism connected with said resetting mechanism adapted to advance said rotatable member a predetermined complementary amount.

3. In a tenpin game apparatus, the combination of an alley, ball-projecting mechanism, a rotatable member, actuating mechanism connecting said ball-projecting mechanism with said rotatable member, means for locking the ball-projecting mechanism, means for resetting the pins collectively, means actuated by the ball-projecting mechanism for advancing said rotatable member a definite amount for each shot, and means connected with the resetting mechanism for advancing said rotatable member a predetermined complementary amount.

785,669. RAILWAY-SIGNAL. MARQUIS D. HANLON, Wilkinsburg, Pa. Filed July 9, 1904. Serial No. 215,573.

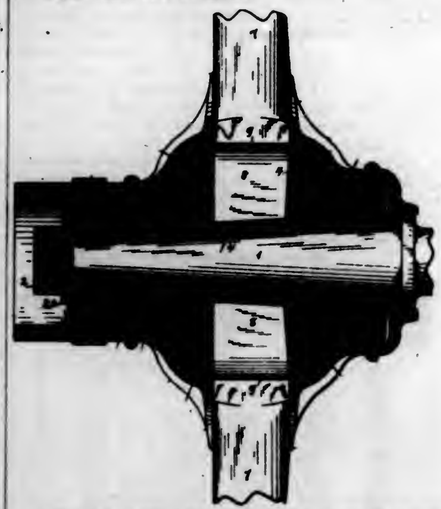


Claim.—1. In a railway-signal, the combination with a signal, of a fluid-pressure apparatus for moving it from one position of indication to another; means for locking the signal in the position to which it has been moved comprising a pawl movable with the signal, a lever for engaging the pawl during the pawl's movement and moving beneath it after an operation of the fluid-pressure apparatus and a second lever operatively connected with the first-mentioned lever; a diaphragm for operating the second lever; a fluid-pressure supply for the fluid-pressure apparatus and the diaphragm; a valve for controlling the supply of fluid-pressure to the fluid-pressure apparatus; and means for moving said valve to cut off the supply of fluid-pressure to the fluid-pressure apparatus which means are operated from the second lever.

2. In a railway-signal, the combination with a signal; of a fluid-pressure apparatus for moving it from one position of indication to another; means for locking the signal in the position to which it has been moved comprising a pawl movable with the signal, a lever for engaging the pawl during the pawl's movement and moving beneath it after an operation of the fluid-pressure apparatus and a second lever operatively connected with the first-mentioned lever; a diaphragm for operating the second lever; a fluid-pressure supply for the fluid-pressure apparatus and the diaphragm; a valve for controlling the supply of fluid-pressure to the fluid-pressure apparatus; and a spring connected with the second lever for moving said valve to cut off the supply of fluid-pressure to the fluid-pressure apparatus.

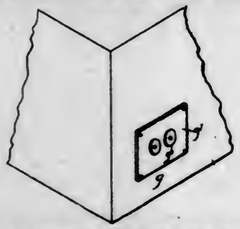
3. In a railway-signal, the combination with a signal; of a fluid-pressure apparatus for moving it from one position of indication to another; means for locking the signal in the position to which it has been moved comprising a pawl movable with the signal, a lever for engaging the pawl during the pawl's movement and moving it beneath it after an operation of the fluid-pressure apparatus and a second lever operatively connected with the first-mentioned lever; a diaphragm for operating the second lever; a fluid-pressure supply for the fluid-pressure apparatus and the diaphragm; a valve for controlling the supply of fluid-pressure to the fluid-pressure apparatus; and means, comprising a spring connected with the second lever and a stirrup connected with the valve and in which the end of the spring fits, for moving said valve to cut off the supply of fluid-pressure to the fluid-pressure apparatus.

785,670. WHEEL. CHARLES H. S. HELLING, Alameda, Cal. Filed Aug. 17, 1904. Serial No. 221,152.



Claim.—In a wheel, a hub, spokes therein, a front and rear shell fitting on the hub, a series of ears on each shell bearing against the spokes, stiffening-ribs for the ears, the said rear shell having notches in its rear edge, an axle-box having a curved flange adapted to overlie the rear end of the hub, but normally suitably spaced therefrom to allow adjustment of the said flange, projections on the flange, fitted in the recesses of the shell, threads on the outer end of the axle-box, a hub-band threaded on the axle-box and having its edge bearing against the front shell, the said band being normally spaced from the end of the hub when the edge of said band engages the shell, to permit adjustment of said band, the relation of parts being such that the hub-band causes pressure of the flange and band on the opposing shells, substantially as described.

785,671. DETONATOR OR AUXILIARY PROTECTIVE ALARM SPARK-GAP FOR HIGH-FREQUENCY APPARATUS. HOWARD JACKSON, Newton, Mass. Filed July 27, 1904. Serial No. 218,438.



Claim.—1. An apparatus of the kind described, comprising an electric circuit, a cabinet, containing means for impressing thereon a high-frequency current, and a translating device, and means mounted on said cabinet in open view for giving instant visual warning upon the flow of destructive abnormal current, said means being protected from accidental contact.

2. A high-frequency cabinet for therapeutical work and the like, containing circuit-wires leading from a suitable source of current, a high-frequency high-potential disruptive discharge mechanism within said cabinet to operate in connection with said circuit, and an auxiliary detonator in parallel with said mechanism at the high-frequency high-potential end of said circuit, for giving instant audible warning upon the flow of destructive abnormal current.

3. A high-frequency cabinet for therapeutical work and the like, containing circuit-wires leading from a suitable source of current, a high-frequency high-potential disruptive-discharge mechanism within said cabinet to operate in connection with said circuit, and means responsive to the flow of destructive abnormal current for generating instantly a volume of bad-smelling gas or smoke capable of immediately permeating the atmosphere to the distance usually occupied by the operator, for giving warning to said operator by the sense of smell, said gas-generating means being mounted in an exposed position on said cabinet whence the said gas can freely escape in large volumes for the purpose set forth.

4. A high-frequency device for therapeutical work and the like, comprising a cabinet, containing a transformer, a condenser, a spark-gap device, and a translating device, and an electric circuit connecting said apparatus for producing a high-frequency high-potential disruptive discharge, and an auxiliary spark-gap device mounted on the outside of said cabinet and connected across said circuit between said transformer and said translating device, said auxiliary device being normally inactive but capable of instant operation upon the flow of abnormal current for giving warning to the operator for preventing damage to the transformer.

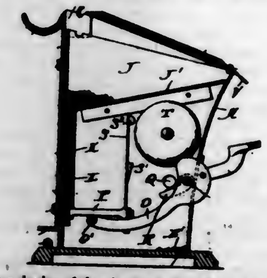
5. A case containing electrical apparatus and having an aperture therethrough, a non-inflammable insulating-plate secured thereto, a spark-gap device mounted on said plate, and overhanging protecting means for said spark-gap.

6. A spark-gap device, comprising a support of non-inflammable insulating material, opposite electrodes mounted flat against the top surface thereof, and overhanging protectors mounted directly on said electrodes for preventing accidental contact therewith while leaving the spark-gap exposed and visible.

7. A spark-gap device, comprising a support of non-inflammable insulating material, opposite electrodes mounted thereon, and protectors mounted on said electrodes projecting over the discharge-gap, said protectors being composed of odoriferous material becoming active in the presence of the arc from said electrodes.

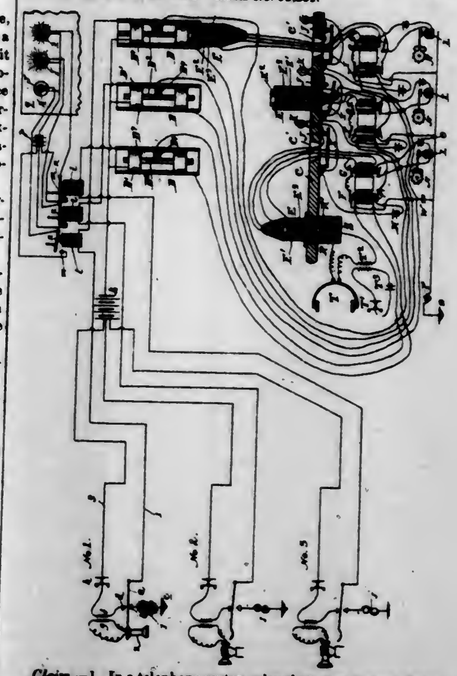
8. A spark-gap device, having separated electrodes provided adjacent their discharge ends with material capable of emitting an odoriferous smoke when heated by the discharge, for giving warning to the operator.

785,672. CIGAR-CUTTER AND MATCH-DELIVERER. OTTO JABSEN, Philadelphia, Pa. Filed May 7, 1904. Serial No. 206,801.



Claim.—In a device of the character described, a casing, a base, an inturned lip formed at the lower end of the front of the casing, a clip secured to the base adapted to receive the inturned lip, a vertically-sliding strip secured to the rear of the casing, means for locking said strip to the base when the strip is in its lowest position, the casing being open at its upper end, a transparent plate adapted to normally close the upper end, except for a slot through which the delivery-slide is adapted to protrude, a channeled bar at the forward end of the machine into which the forward edge of the plate is adapted to fit, a channeled bar in which the rearward end of the plate is adapted to rest, said channeled bar secured to the sliding strip, the distance between the channeled bars adapted to be increased when the strip is raised to allow the removal of the transparent plate, a match-receptacle located directly below the transparent cover, the bottom of said match-receptacle inclining toward the rearward wall, a delivery-slide adapted to slide in contact with the rearward wall, the upper edge of said delivery-slide being beveled or inclined toward the rearward wall to form a pocket for one match, said delivery-slide when operated adapted to extend upward above the rearward wall, a match-receiver for receiving the match after being delivered, a finger-lever for operating the machine, a shaft adapted to be rocked by said finger-lever, an arm extending from said shaft and engaging the delivery-slide for raising the same, the casing provided with an opening formed therethrough through which the cigar-tip may be inserted, a knife secured to the shaft and adapted to cross said opening when the shaft is rocked, and an alarm adapted to be sounded each time the finger-lever is depressed, as and for the purpose specified.

785,673. TELEPHONE SYSTEM. ISIDOR KITSEE, Philadelphia, Pa. Filed Feb. 24, 1902. Serial No. 96,231.



Claim.—1. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, the coils of which inductorium are conductively independent, one of the coils of each inductorium being at all times electrically connected to its outlying circuit, and a connecting-plug also at said desk for each of said circuits and in inductive relation to said coil.

2. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an annunciating-lamp for each of the circuits in the charge of the operator at said desk, a shunt-circuit related to each of said lamps, means for lighting said lamps through the closing of the circuits at the outlying stations, and a connecting-plug for each of said circuits operatively related to the lamp thereof, said plugs being adapted to extinguish the lamps of the respective circuits by the removal of the plugs from their normal positions in the desk, whereby said shunt-circuits are established around said lamps.

3. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, the primaries of said inductoriums being normally connected to their respective circuits, a second inductorium one coil of which is connected to the secondary of the first-mentioned inductorium, and a plug connected to the termi-

nals of the other coil of the second inductorium for connecting said terminals with a second outlying circuit.

4. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, a circuit containing a source of current, an annunciating-lamp, means influenced by said inductorium for closing said circuit, a plug, a seat therefor, and means for extinguishing the lamp by the removal of the plug from its seat.

5. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, a ringing-circuit, a signaling mechanism at a subscriber's station, and means influenced by said inductorium for closing said ringing-circuit to operate said signaling mechanism.

6. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, a ringing-circuit, a circuit containing a source of current and an annunciating-lamp, and means influenced by said inductorium for closing the ringing and lamp circuits.

7. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, a second inductorium in inductive relation to the first-mentioned inductorium, a ringing-circuit, a plug for connecting said second inductorium with a second outlying circuit, and means influenced by said second inductorium for closing and opening the ringing-circuit through said plug.

8. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, the primaries of said inductoriums being normally connected to their respective circuits, a second inductorium in inductive relation to the first-mentioned inductorium, and a plug connected to one of the coils of said second inductorium for connecting the latter with the outlying circuit.

9. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, a connecting-plug at said desk for each of the circuits in the charge of the operator at said desk, an electromagnet in the circuit of said connecting-plug, a pair of armatures for said electromagnet, a ringing-circuit in which one of said armatures is included and by which said circuit is opened and closed, and a circuit including the other armature and in which are included means to record the fact that the circuit called has answered.

10. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, an inductorium at said desk for each of the circuits in the charge of the operator at said desk, and a connecting-plug also at said desk for each of said circuits, said plug having an electromagnet and means connected to the terminals of one coil of said inductorium for connecting the latter to the jack of a called circuit.

11. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, electromagnetic means at said desk for each of said circuits, a plug having an electromagnet, a local circuit in which said electromagnet is included, and means also included in said local circuit and adapted to be influenced by the electromagnetic means of the outlying circuits for closing said local circuit.

12. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, an operator's desk for said switchboard, a connecting-plug for each of the circuits in the charge of the operator at said desk, an electromagnet for each of said plugs, a local circuit including said electromagnet and an annunciating-lamp, and means also included in said local circuit and influenced by the outlying circuit for closing the local circuit.

13. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, a series of jacks for said switchboard each of which is provided with a soft-iron core, each of said outlying circuits being connected to one of said jacks and to a source of energy common to all of said circuits, an inductorium at said switchboard for each of said circuits, a plug at said switchboard for each of said circuits the circuit of which is in inductive relation to one coil of the inductorium of that circuit, and electromagnetic means carried by each of said plugs and adapted to be attracted by the soft-iron core of the jacks in which said plugs are inserted.

14. In a telephone system, a series of incoming circuits connected to the switchboard, part of said circuits being connected to one coil of an inductorium in inductive relation to a second inductorium, and a connecting-plug connected to one coil of said second inductorium and adapted to adhere to any of the jacks in the switchboard through electromagnetic action to thereby inductively connect two of said incoming circuits.

15. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard for said exchange, a series of jacks for said switchboard, each jack connected to the terminals of an outlying circuit, a series of plugs for said switchboard, each plug in inductive relation to one of the outlying circuits, an inductorium for each of said circuits, an annunciating-lamp for each of said circuits, means in operative relation to said circuit to light said annunciating-lamp, and means in operative relation to the normal positions of said plugs to extinguish said annunciating-lamps.

16. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard, a series of jacks for said switchboard, each of said jacks connected to the terminals of one of the outlying circuits, a series of plugs in inductive relation each to one of the outlying circuits, said plugs adapted to connect with the jacks of said switchboard and retain their position therein through electromagnetic action, a series of inductoriums one coil of each of which is connected to one of the outlying circuits, means operatively connected to each of said circuits to annunciate the calling of said circuit, and means in operative relation to the normal position of the plug to terminate said annunciation.

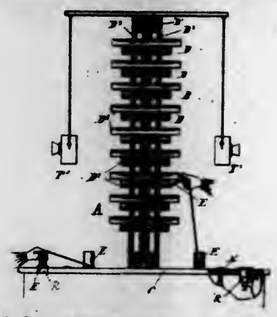
17. In a telephone system embracing a series of outlying stations connected with their circuits to one central or exchange, a series of switchboards located at said exchange, each of said switchboards provided with terminals connected to the incoming circuits, a jack for each of said circuits consisting essentially of a soft-iron core and movable means to change the electrical connection of the circuit to which it pertains, a series of operators' desks each provided with a series of plugs connected each inductively to one of the incoming circuits, said plugs provided with electromagnetic means adapted to be energized when placed in connection with one of the jacks on the switchboard and to remain energized throughout the period during which the circuit calling remains electrically closed, and an annunciating-lamp for each of said plugs, said annunciating-lamp being in operative relation to the circuit to which said plug pertains and adapted to be made operative through the closing of said circuit and inoperative through the removing of the plug from its normal position.

18. In a telephone system embracing a series of outlying stations connected with their circuits to one central or exchange, a series of switchboards located at said exchange, each of said switchboards provided with terminals connected to the incoming circuits, a jack for each of said circuits consisting essentially of a soft-iron core and movable means to change the electrical connection of the circuit to which it pertains, a series of operators' desks each provided with a series of plugs connected each inductively to one of the incoming circuits, said plugs provided with electromagnetic means adapted to be energized when placed in connection with one of the jacks on the switchboard and to remain energized throughout the period during which the circuit calling remains electrically closed, an annunciating-lamp for each of said plugs, said annunciating-lamp in operative relation to the circuit to which said plug pertains and adapted to be made operative through the closing of said circuit and made inoperative through the removing of the plug from its normal position, and a light-board provided with a series of indicating-lamps, each lamp being in operative relation to one of the incoming circuits and adapted to remain operative as long as said circuit remains closed.

19. In a telephone system embracing an exchange wherein the circuits of a series of outlying stations center, a source of electric current common to two or more of said electric circuits, jacks for said circuits adapted to change their electrical connection, means operatively related to each of said circuits to light two lamps, a light-board at which one of said lamps is located, an operator's desk at which the other lamp is located, a plug for each of said circuits, said plug normally inductively related to said circuit, and adapted to connect inductively said circuit with a second circuit, a ringing-circuit, means operatively related to said plug to connect said ringing-circuit to said second circuit, and means operatively related to said second circuit and plug-circuit respectively to disconnect automatically said ringing-circuit.

20. In a telephone system embracing an exchange wherein the circuits of a series of outlying stations center, a source of electric current common to two or more of said electric circuits, jacks for said circuits adapted to change their electrical connection, means operatively related to each of said circuits to light two lamps, one located at a light-board, and one located at or near an operator's desk, a plug for each of said circuits, said plug inductively related to said circuit, and adapted to connect inductively said circuit with a second circuit, a ringing-circuit, means operatively related to said plug to connect said ringing-circuit to said second circuit, means operatively related to said second circuit and said plug-circuit respectively to disconnect automatically said ringing-circuit, a call-registering device, and means operatively related to said second circuit to make operative said registering device to thereby indicate the successful call of the first-named circuit.

785,674. **TELEPHONE SYSTEM.** ISIDOR KITSEE, Philadelphia, Pa. Original application filed Feb. 24, 1903, Serial No. 95,261. Divided and this application filed Aug. 4, 1903. Serial No. 116,336.



Claim.—1. In a telephone system, a switchboard, a series of jacks for said switchboard, consisting each of a soft-iron core provided with a movable device adapted to connect normally with one part of the circuit to which said jack is connected, and adapted to be moved out of contact with said part through the insertion of the connecting-plug, and a conductor connected to a second part of the circuit, said conductor insulated from said core.

2. In a telephone system, a spring-jack consisting of a stationary soft-iron core provided with a movable pin, a contact-plate secured to but insulated from said soft-iron core, and a conductor in proximity to said soft-iron core, the movable pin provided with means to electrically connect with said conductor.

3. In a telephone system, a spring-jack consisting of a semicircular conductor insulated from but partially inclosing a soft-iron core, said soft-iron core provided with a movable pin centered with the aid of springs, said core also provided with an insulated contact-plate normally contacted with said movable pin.

4. In a telephone system, a spring-jack consisting of a stationary conducting-plate, a stationary soft-iron core in proximity to said conducting-plate, a contact-plate normally in electrical contact with said soft-iron core through movable means, but adapted to be brought out of contact with said core through the insertion of a connecting-plug.

5. A telephonic switchboard provided with a series of spring-jacks, each of which is provided with a shield extending beyond the face of the switchboard, substantially as and for the purpose specified.

6. In a telephonic system wherein two or more outlying circuits center in one exchange, a switchboard for said exchange, said switchboard provided with a series of jacks, said jacks consisting of two stationary conductors and a movable pin adapted to be pushed inward through the insertion of a connecting-plug and adapted to break the circuit through this inward movement, one of said stationary conductors being of soft iron.

7. A telephonic switchboard provided with a series of jacks, each of which is provided with a protecting-shell extending beyond the face of the switchboard, substantially as and for the purpose specified.

8. A telephonic switchboard provided with a series of jacks, each of said jacks consisting of a stationary conductor, a stationary soft-iron core insulated from said conductor, said iron core provided with movable means normally in contact with a second stationary conductor, in combination with a series of plugs for said switchboard, each of said plugs provided with an electromagnet and adapted to break the electrical connection between the movable means and the second stationary conductor.

9. In combination with a telephonic switch-jack having a stationary soft-iron core and movable contact means, an electromagnetic plug adapted to adhere to the soft-iron core through its magnetic force and adapted thereby to actuate the movable means with which said switch-jack is provided.

10. In a telephonic exchange a switchboard, a series of jacks for said switchboard, each jack consisting of two stationary conductors insulated from each other, one of said stationary conductors connected directly to one part of a subscriber's circuit, each of said jacks also provided with a stationary soft-iron core in electrical contact with a second part of said subscriber's circuit, said soft-iron core provided with movable means to electrically connect with the second stationary conductor, said stationary conductor in electrical contact with one coil of an inductorium.

11. In a telephonic exchange, a switchboard, a series of jacks for said switchboard, each jack consisting of two stationary conductors insulated from each other, one of said stationary conductors connected directly to one part of a subscriber's circuit, each of said jacks also provided with a stationary soft-iron core in electrical contact with a second part of said subscriber's circuit, said soft-iron core provided with movable means to electrically connect with the second stationary conductor, said stationary conductor in electrical contact with one coil of an inductorium, in combination with an electromagnetic plug adapted to adhere to the soft-iron core through its magnetic property and adapted thereby to move out of contact with the second conductor the movable means with which the soft-iron core is provided.

12. In a telephonic switchboard, a switch-jack and a plug for said jack, the switch-jack adapted to normally connect parts of a subscriber's circuit, and the plug adapted to disconnect said connected parts, the switch-jack provided with a soft-iron core and movable means for said core, and the plug provided with an electromagnet.

13. In a telephone system wherein two or more circuits center in one exchange, a switchboard for said exchange, terminals of the outlying circuits connected to said switchboard, a jack for each of said circuits, said jack consisting essentially of a soft-iron core and means in proximity to said core to change the electrical connection of the circuit to which said jack relates, in combination with a connecting-plug, said connecting-plug consisting essentially of an electromagnet.

14. In a telephone system wherein two or more circuits center in one exchange, a switchboard for said exchange, terminals of the outlying circuits connected to said switchboard, a jack for each of said circuits, said jack consisting essentially of a soft-iron core and means in proximity to said core to change the electrical connection of the circuit to which said jack relates, in combination with a connecting-plug, said connecting-plug consisting essentially of an electromagnet, said electromagnet adapted to be energized and to remain energized throughout the period during which the circuit calling remains electrically closed.

15. In a telephone system wherein two or more circuits center in one exchange, a switchboard for said exchange, a series of circuits connected to said switchboard, a jack for each of said circuits, said jack consisting essentially of a soft-iron core, and means in operative relation to said core to change the connection of the circuit to which said jack relates, in combination with a plug, said plug consisting essentially of an electromagnet and means to connect one circuit to a second circuit, said means including a coil in inductive relation to the outlying circuit to which said plug pertains.

16. In a telephone system, two or more outlying circuits centering in one exchange, a switchboard provided with terminals for each of said outlying circuits, said terminals in electrical connection with a jack consisting essentially of a stationary soft-iron core and movable means adapted to change the electrical connection of said circuit, in combination with a series of plugs each of which is in inductive relation with one outlying circuit, each of said plugs consisting essentially of terminals adapted to connect one circuit to a second circuit and an electromagnet adapted to be energized when the plug is placed in position and to remain energized throughout the period during which the calling-circuit is closed.

17. In a telephone system, an exchange provided with a switchboard containing the terminals of two or more incoming circuits, a jack for each of said circuits, said jack consisting essentially of a soft-iron core, and means to change the connection of said circuit, and a series of plugs for said switchboard, each of said plugs being in inductive relation to one of the incoming circuits and consisting

essentially of an electromagnet and connecting means, said plugs being adapted to adhere to said jacks as long as said electromagnets are energized.

18. In a telephone system wherein two or more outlying circuits center in one exchange, a switchboard for said exchange, terminal connections on said switchboard for the incoming circuits, jacks for each of said connections, and a series of plugs each inductively connected to one incoming circuit and adapted to adhere through electromagnetic action to said jacks when placed in position thereon, said jacks consisting essentially of soft-iron cores, and means to change the electrical connection of the circuits to which said jacks are operatively related.

785,675. ORANGE SULFUR DYE AND PROCESS OF MAKING SAME. AUGUST L. LASKA, Offenbach-on-the-Main, Germany, assignor to The Firm of K. Oehler, Anilin- & Anilinfarben-Fabrik, Offenbach-on-the-Main, Germany. Filed Dec. 1, 1904. Serial No. 235,603. (Specimens.)

Claim.—1. The process of making orange sulfur dyes, consisting in heating the azo dyestuffs, resulting from the combination of the diazo compounds from easily-volatile aromatic amins and mono-acetyltolylenediamin ($CH_3:NH_2:NH.COCH_3$—1:2:4) together with sulfur at an elevated temperature in the presence of bases of the diphenyl series and subsequently treating with alkali compounds, substantially as described.

2. The process of making orange sulfur dyes, consisting in heating the azo dyestuffs, resulting from the combination of the diazo compounds from easily-volatile aromatic amins and mono-acetyltolylenediamin ($CH_3:NH_2:NH.COCH_3$—1:2:4) together with sulfur at an elevated temperature in the presence of benzidin and subsequently treating with caustic alkalies, substantially as described.

3. As a new article of manufacture, the sulfur dye, which is formed by heating together with sulfur at an elevated temperature in the presence of benzidin the azo dyes resulting from the combination of the diazo compounds from easily-volatile aromatic amins and mono-acetyltolylenediamin ($CH_3:NH_2:NH.COCH_3$—1:2:4) and subsequently treating with caustic alkalies, forming a reddish-brown powder, being insoluble in alcohol and diluted alkali carbonates, slightly soluble in concentrated sulfuric acid and diluted caustic alkalies, soluble in alkali sulfids with a yellowish-brown color, and dyeing on cotton from a bath containing sodium sulfid orange-yellow shades, all substantially as hereinbefore described.

785,676. ARCH. DANIEL B. LUTEN, Indianapolis, Ind. Original application filed May 17, 1902, Serial No. 107,812. Divided and this application filed July 25, 1904. Serial No. 217,626.



Claim.—1. An arch having a hinge of relatively hard and soft plates, substantially as described.

2. An arch having a hinge of lead and steel plates, substantially as described.

3. An arch having a hinge of relatively hard and soft plates interposed in the crown of the arch, substantially as described.

4. An arch having a hinge of lead and steel plates interposed in the crown of the arch, substantially as described.

5. An arch having a hinge composed of a pair of hard-metal plates and an interposed filling-plate of soft metal, substantially as described.

6. An arch having a hinge composed of a pair of steel plates and an interposed lead filling-plate, substantially as described.

7. An arch having a transversely-apertured hinge, and tension-rods in said arch passing through the apertures of said hinge substantially as described.

8. An arch having a transversely-apertured hinge formed of hard and soft metal plates interposed in the crown of the arch, and tension-rods in said arch passing through the apertures of said hinge, substantially as described.

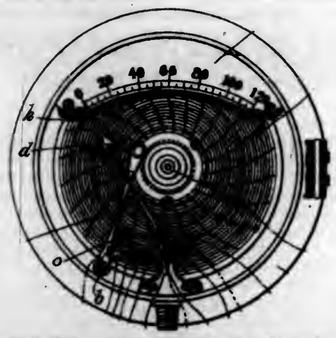
9. An arch of concrete or other material having a hinge and a continuous reinforcement passing through the hinge, substantially as described.

10. Two curved structural members with ends abutting and each reinforced by rods along the extrados against the thrust of the other, substantially as described.

11. Two curved structural members with ends abutting and each reinforced against the thrust of the other by rods passing along the extrados and thence across the arch to resist a load at the crown, substantially as described.

12. Two curved structural members with abutting ends, and each reinforced against the thrust of the other, and a tie to take the thrust of both, substantially as described.

785,677. RECORDING-GAGE. COLEMAN J. MANNING, Medford, Mass., assignor to American Steam Gauge and Valve Manufacturing Company, Boston, Mass., a Corporation of New Jersey. Filed Oct. 19, 1904. Serial No. 229,051.



Claim.—1. In a recording-gage having a continuously-rotating disk, a pivoted arm carrying a marking-point in contact with the surface of the disk and actuated by variations in conditions of pressure, &c., to record such conditions on the disk, an auxiliary pointer separately pivoted at one side of the arm to the casing of the gage and having connections with the arm whereby the pointer is oscillated about its pivot, and a stationary scale curved to correspond to the path of movement of the pointer connected to the gage in the same case with the disk and projecting over a portion of the disk, the scale being suitably graduated, and the pointer coöperating therewith, to indicate the present condition of pressure, &c., at any particular instant.

2. In a recording-gage having a continuously-rotating disk, a pivoted arm carrying a marking-point in contact with the surface of the disk and actuated by variations in conditions of pressure, &c., to record such conditions on the disk, an auxiliary pointer pivoted to the gage-casing adjacent the periphery of the gage, an adjustable linkage connected to the arm and pointer, whereby motion may be given the latter by the former, and an auxiliary scale fixed to the casing of the gage on the side opposite to that where the pointer is pivoted and provided with graduations arranged on a line curved to correspond with the path of movement of the end of the pointer, the pointer and scale coöperating to indicate the present condition of pressure, &c., at any particular instant.

3. In a recording-gage, a continuously-rotating disk, a casing concentric with the disk and closely adjacent the periphery thereof, a pivoted arm carrying a marking-point in contact with the surface of the disk and actuated by variations in conditions of pressure, &c., to record such conditions on the disk, a segmental graduated scale affixed to the casing and projecting over a portion of the disk, a pointer pivotally connected to the casing beside the arm and diametrically opposite the central portion of the scale, the graduations of the scale being concentric with the pivot of said pointer and the distance between them greater than between the graduations of the disk, and a linkage adjustable in length and adjustably connected to the arm and pointer, whereby motion of the former is communicated to the latter, the pointer and segmental scale coöperating to indicate the present condition of pressure, &c., at any particular instant.

4. In a recording-gage, a continuously-rotating disk, a casing concentric with the disk and closely adjacent the periphery thereof, a pivoted arm carrying a marking-point in contact with the surface of the disk and actuated by variations in conditions of pressure, &c., to record such conditions on the disk, a segmental graduated scale affixed to the casing and projecting over a portion of the disk, a bracket mounted on the casing beside the arm and diametrically opposite the central portion of the scale, a pointer pivotally connected to said bracket, the graduations of the scale being concentric with the pivot of said pointer, and a linkage adjustable in length and adjustably connected to the arm and pointer, whereby motion of the former is communicated to the latter, the pointer and segmental scale coöperating to indicate the present condition of pressure, &c., at any particular instant.

5. In a recording-gage, a continuously-rotating disk, a casing concentric with the disk and closely adjacent the periphery thereof, a pivoted arm carrying a marking-point in contact with the surface of the disk and actuated by variations in conditions of pressure, &c., to record such conditions on the disk, a segmental graduated scale affixed to the casing and projecting over a portion of the disk extending substantially perpendicularly to a radius of the disk from one side to the other of the casing, a pointer pivotally connected to the casing beside the arm and diametrically opposite the central portion of the scale, the graduations of the scale being concentric with the pivot of said pointer, and a linkage adjustable in length and adjustably connected to the arm and pointer, whereby motion of the former is communicated to the latter, the pointer and segmental scale coöperating to indicate the present condition of pressure, &c., at any particular instant.

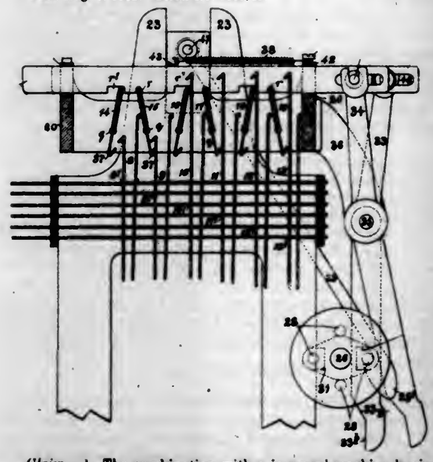
785,678. AUXILIARY JOURNAL FOR AXLES. GRANT NEWLAND, Panora, Iowa, assignor of one-third to John W. Dalzell and one-third to Ira E. Dalzell, Panora, Iowa. Filed Sept. 13, 1904. Serial No. 224,353.



Claim.—1. An auxiliary journal for axles consisting of a ring, two mating and tapering integral extensions from the ring, flat on their inside faces and convex on their outside faces and connected at their small and front ends by an integral collar, as shown and described.

2. An auxiliary journal for axles consisting of a ring, two mating and tapering integral extensions from the ring, flat on their inside faces and convex on their outside faces and connected at their small and front ends by an integral collar, in combination with an axle-journal having two flat faces extended from end to end, as shown and described.

785,679. JACQUARD LOOM. CLAUDE NOVET, Zurich, Switzerland. Filed Aug. 8, 1902. Serial No. 118,941.



Claim.—1. The combination with a jacquard-machine having the blades for raising the lifting-wires movably mounted in a frame and mechanism for reciprocating the frame, of means for operatively connecting the blades in series, of mechanism for moving the blades in such series, one series after each lifting of the frame, following the setting of the lifting-wires by the pattern-card, and of means for actuating the mechanism for moving the blades.

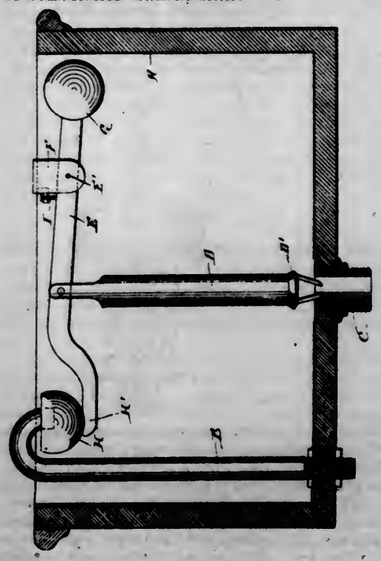
2. The combination with a jacquard-machine having the blades for raising the lifting-wires movably mounted in the frame and mechanism for reciprocating the frame, of means for operatively connecting the blades in series and for moving the series of blades successively, one series after each lifting of the frame, following the setting of the lifting-wires by the pattern-card, and of means for actuating the mechanism for moving the blades.

3. A jacquard-machine comprising a needle-frame, needles set in and horizontally movable therein and vertically-movable lifting-wires, having hooks on their upper ends, engaged with the needles; a pattern-prism rotatably and movably mounted on one side of the needle-frame, opposite the ends of the needles; a train of pattern-cards hung to travel over the prism, a frame set above the needle-frame, lifting-blades pivoted in the frame in position to engage with the hooks of the lifting-wires; bars movably mounted on the frame approximately at right angles to, and engaging each with a series of, the lifting-blades; mechanism for reciprocating the bars successively, one after each lifting of the frame, following the setting of the lifting-wires by the pattern-card; and means for actuating the mechanism reciprocating the bars.

4. A jacquard-machine comprising a stationary needle-frame, needles set in and horizontally movable therein; and vertically-movable lifting-wires, having hooks on their upper ends; engaged with the needles; a pattern-prism rotatably and movably mounted on one side of the needle-frame, opposite the ends of the needles; a train of pattern-cards hung to travel over the prism, a frame set above the needle-frame, lifting-blades pivoted in the frame in position to engage the hooks of the lifting-wires with their upper edges, and having their lower edges angularly deflected toward the hooks of the lifting-wires; bars movably mounted on the frame approximately at right angles to, and engaging each with a series of, the lifting-blades; and mechanism for reciprocating the bars successively, one after each lifting of the frame, following the setting of the lifting-wires by the pattern-card.

5. A jacquard-machine comprising a stationary needle-frame, needles set in and horizontally movable therein, and vertically-movable lifting-wires, having hooks on their upper ends engaged with the needles; a pattern-prism rotatably and movably mounted on one side of the needle-frame, opposite the ends of the needles; a train of pattern-cards hung to travel over the prism, a frame set above the needle-frame, lifting-blades pivoted in the frame in position to engage the hooks of the lifting-wires with their upper edges, and having their lower edges angularly deflected toward the hooks of the lifting-wires; bars movably mounted on the frame approximately at right angles to, and engaging, each with a series of the lifting-blades; mechanism for reciprocating the bars successively, one after each lifting of the frame, following the setting of the lifting-wires by the pattern-card, and means for actuating the mechanism reciprocating the bars.

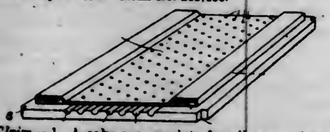
785,680. FLUSH-TANK. ALBERT W. OBERLIES, Philadelphia, Pa. Filed June 23, 1904. Serial No. 213,787.



Claim.—1. In a flush-tank, a reservoir, an inlet-pipe adapted to direct the flow of water downward, an outlet-pipe leading from the bottom of the reservoir, a pipe having a valve around its lower end adapted to close the outlet when the pipe is lowered, the upper end of the pipe being opened for an overflow, a lever to which the pipe is secured, a weight normally holding the pipe upward, a cup secured to the lever and arranged below the inlet adapted to force the pipe downward when the cup is filled, and a small opening provided through the bottom of the cup, as and for the purpose specified.

2. In a flush-tank, a reservoir, an inlet-pipe adapted to direct the flow of water downward, an outlet-pipe leading from the bottom of the reservoir, a valve adapted to close the outlet when lowered, an overflow, a lever to which the valve is connected, a bracket to which the lever is pivoted, a weight normally holding the valve upward off of its seat, a cup secured to the lever and arranged below the inlet, said cup being of such a size as to overbalance the weight and force the valve downward upon its seat when full of water, a small opening through the bottom of the cup, and means for adjusting the movement of the lever, as and for the purpose specified.

785,681. OIL-PRESS PAN. PATRICK O'BRIEN, South Bend, Ind. Filed July 6, 1904. Serial No. 215,466.

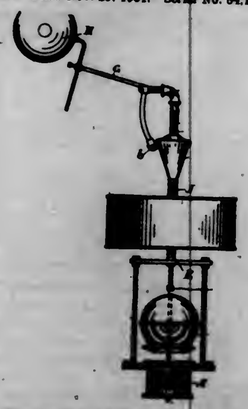


Claim.—1. A cake pan or plate for oil-expressing presses having a perforated portion on which the cake is formed, and also having its side edges bent upwardly and outwardly to form raised sides, and a reinforcing-strip fitted under each raised side.

2. In a device of the class described, the combination with a press-frame having superposed press-plates slidably mounted therein and each provided with a grooved or corrugated upper face, of a perforated cake-pan removably positioned on each press-plate with its perforations in alinement with the grooves or corrugations of the press-plate, said pan having its side edges bent upwardly and outwardly with the extremities of such edges bent downwardly to provide recesses on the bottom of the pan at each side thereof, a reinforcing-strip positioned in said recesses, a cover-plate for the cakes, and means for compressing the cakes, substantially as specified

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785,682. AUTOMATIC FLUSHING APPARATUS. MARTIN J. QUINN, Toronto, Canada, assignor of one-half to Peter H. Bryce, Toronto, Canada. Filed Nov. 20, 1901. Serial No. 84,113.



Claim.—1. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float and a lifting means for the float-valve engaged by the lifting float as it rises to raise the float-valve from its seat and be disengaged by the lifting float as the latter descends.

2. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, a lifting means for the float-valve engaged by the lifting float as it rises to raise the float-valve from its seat and be disengaged by the lifting float as the latter descends, and means for locking the lifting float in its depressed position released when the water within the flushing apparatus has attained a predetermined level.

3. In automatic flushing apparatus a discharge-pipe; a float-valve normally closing the said pipe; and a valve-stem extending up from the said valve; in combination with a stationary frame; a tube connected to the said frame into which the valve-stem extends and having a slot therein; a pin on the valve-stem extending into the said slot; a float having a sleeve surrounding the said tube below the pin; a catch shaped as a cone, base up, secured to the said sleeve above the float and below the pin; a lever pivoted at the upper end of the tube and having one end adapted normally to rest above the cone; and a trip-float connected to the other end of the lever, substantially as described.

4. In automatic flushing apparatus a discharge-pipe; a float-valve normally closing the said pipe; and a valve-stem extending up from the said valve; in combination with a stationary frame; a tube connected to the said frame into which the valve-stem extends and having a slot therein; a pin on the valve-stem extending into the said slot; a float having a sleeve surrounding the said tube below the pin; a catch shaped as a cone, base up, secured to the said sleeve above the float and below the pin; a lever pivoted at the upper end of the tube and having one end adapted normally to rest above the cone; and a vertically-adjustable trip-float connected to the other end of the lever, substantially as described.

5. In automatic flushing apparatus a discharge-pipe; a float valve normally closing the said pipe; and a valve-stem extending up from the said valve; in combination with a stationary frame; a tube connected to the said frame into which the valve-stem extends and having a slot therein; a pin on the valve-stem extending into the said slot; a float having a sleeve surrounding the said tube below the pin; a catch shaped as a cone, base up, secured to the said sleeve above the float and below the pin; a lever pivoted at the upper end of the tube; a roller pivoted at one end of the lever and normally resting against the tube above the cone; and a trip-float connected to the other end of the lever, substantially as described.

6. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, and means connecting the lifting float with the float-valve when the former rises but not connecting them when it descends.

7. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, means connecting the lifting float with the float-valve when the former rises but not connecting them when it descends, and means for locking the lifting float in its depressed position released when the water actuating the lifting float has attained a predetermined level in the flushing apparatus.

8. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, and means connected to the float-valve constructed and arranged to be engaged by the lifting float as it rises and disengaged from it as it descends.

9. In a flushing apparatus having a source of water-supply and an outlet-port, the combination of a float-valve to govern the outlet-port, a lifting float, means connected to the float-valve constructed and arranged to be engaged by the lifting float as it rises and disengaged from it as it descends, and means for locking the lifting float in its depressed position released when the water actuating the lifting float has attained a predetermined level in the flushing apparatus.

785,683. HOLLOW PULP ARTICLE. JULIAN H. RIVERS, St. Louis, Mo., assignor to United States Fiber Stopper Company, St. Louis, Mo., a Corporation of South Dakota. Original application filed Feb. 6, 1904. Serial No. 192,577. Divided and this application filed Nov. 2, 1904. Serial No. 231,106.

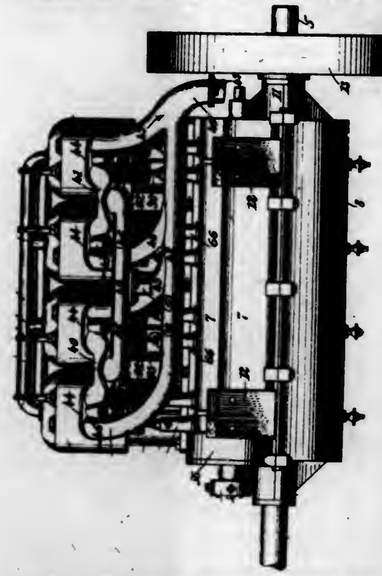


Claim.—1. As a new article of manufacture, a hollow pulp article having an integral bottom whose principal fibers lie in spiral lines; substantially as described.

2. As a new article of manufacture, a hollow pulp article having an integral bottom whose principal fibers lie in spiral lines, the principal fibers of the side walls lying in helical lines; substantially as described.

3. As a new article of manufacture, a bucket or the like composed of fibrous material, the fibers in whose side walls lie principally in a helical direction, said side walls being integrally connected to a bottom; substantially as described.

785,684. INTERNAL-COMBUSTION ENGINE. EDWIN A. RUTENBER, Logansport, Ind., assignor to The Western Motor Company, Logansport, Ind. Filed June 29, 1903. Serial No. 163,458.



Claim.—1. A multiple-cylinder engine provided with a plurality of valve-chests, inlet and exhaust valves therein, and a combined feed and exhaust connection, said connection comprising exhaust-legs and feed members integral one with the other, and said connection being removable as an entirety from the valve-chests, whereby access is obtainable to all the inlet and exhaust valves.

2. A multiple-cylinder engine provided with a series of valve-chests, inlet and exhaust valves in each chest of the series, and a combined feed and exhaust connection removably secured to said chests; said connection comprising a plurality of exhaust-legs all integral with each other, and said connection being removable in its entirety from the valve-chests, whereby all the valves may be exposed.

3. A multiple engine provided with a series of valve-chests, each chest having separate inlet and exhaust openings on one side of the engine and in the same plane, inlet and exhaust valves in each chest of the series, and a combined feed and exhaust connection removably secured to said chests; said connection comprising a series of individual exhaust-legs and individual feed members all of which are integral; the several legs and members having openings which respectively register with the inlet and exhaust openings of the valve-chests of the series, and the connection being applied and removed in its entirety, whereby all the valves may be inclosed or exposed.

4. A multiple-cylinder engine provided with a plurality of valve-chests, inlet and exhaust valves in each chest, and a two-part combined inlet and exhaust connection removably secured to said chests; one part of said connection having a plurality of exhaust-legs and a plurality of feed members formed in one piece, and the other part of said connection having communication with the feed members of the first-named part; whereby the entire connection may be applied or removed for inclosing or exposing all the valves.

5. A multiple-cylinder engine provided with individual valve-chests, inlet and exhaust valves in each chest, and a two-part feed and exhaust connection for said valves; one part of said connection comprising a plurality of individual exhaust-legs and a plurality of feed members all made in one piece, and the other part of said connection having communication with the feed members of the first-named part; said connection being removable in its entirety from the valve-chests for exposing all the valves, and the second-named part being removable from the first part to allow access only to the inlet-valves.

6. A multiple-cylinder engine provided with individual valve-chests, inlet and exhaust valves in each chest, and a two-part feed and exhaust connection, one part of which is secured as an entirety to the valve-chests for direct individual communication with the respective inlet and exhaust valves, and the other part is secured to the first part for communication with the entire series of inlet-valves only; said parts of the connection being removable collectively and the second-named part being also removable independently of the first-named part.

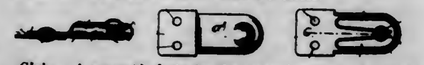
7. A multiple-cylinder engine provided with a plurality of valve-chests, inlet and exhaust valves in each chest, and a combined feed and exhaust connection; said connection consisting of two parts, one of which comprises a plurality of inlet-hoods and a plurality of exhaust-legs all made in one piece, and the other part of said connection consisting of a single hollow piece secured removably to the inlet-hoods; said connection being detachably secured as an entirety to the chests for the legs and the hoods to communicate respectively, with the exhaust and inlet valves.

8. An integral feed and exhaust connection for multiple-cylinder engines comprising a plurality of hollow feed members and a plurality of exhaust-legs, said legs and members provided with open sides disposed in the same plane, said legs being united by a common discharge member.

9. A feed and exhaust connection for multiple-cylinder engines comprising a plurality of inlet-hoods and a plurality of exhaust-legs all cast in a single piece, said hoods and the legs having open sides lying in the same plane.

10. A feed and exhaust connection for multiple-cylinder engines comprising two parts, one of which consists of a plurality of exhaust-legs and a plurality of inlet-hoods all formed in one piece, and the other part is a hollow branch united to the inlet-hoods for communication therewith.

785,685. CORSET-FASTENING. HARRY W. THURLOW, San Francisco, Cal. Filed Dec. 10, 1901. Serial No. 85,413.



Claim.—A separable fastening for corset-busks, consisting of a stud member having a shank with a straight neck and an enlarged head thereon; and a socket member comprising a base-plate having a flat bottom and terminating at one end in a flange for securing it to the corset-busk, and a rounded outer end, a standing rim on the said base-plate around the sides thereof, and an aperture in the bottom of the plate to admit the head of the stud member, the said socket member being provided with a standing rim concentric with the said aperture and also supported above said aperture clear of the said plate; and a top plate having a depending rim on the sides adapted to fit over the sides of the base-plate and provided with a flange on the inner end to lie over the corresponding flange of the base-plate; the said plates of the socket member being secured in place on the busk by rivets passing through the said flanges.

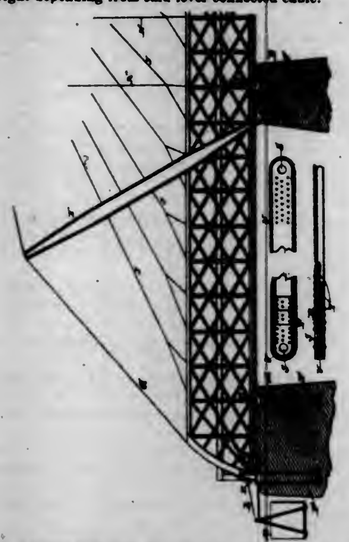
785,686. CANTALIVER SUSPENSION-BRIDGE. JOSEPH TONLINSON, Cedar Rapids, Iowa. Filed Jan. 3, 1905. Serial No. 239,515.

Claim.—1. In a cantaliver-bridge, of the type specified, the combination with the main truss and cable, of an inclined boom to carry up the cable in the stretch between its shore end and the first tower.

2. In a cantaliver suspension-bridge, the combination of a main truss, a supporting-cable, stays connecting with different panels of the truss and converging to a common supporting-tower for said stays and cable, and a boom inclined at an angle transverse to the stays and carrying the cable up in the stretch between the tower and the cable end, substantially as and for the purpose set forth.

3. In a cantaliver suspension-bridge, the combination of a main truss and cable made conterminous at the shore abutment, a shore abutment to which the truss is anchored by suitable links to allow for expansion and contraction, a saddle-plate and bearing or pivot-pins for said links, a lever pivoted thereto and to the cable and truss, and a weight depending from its longer arm.

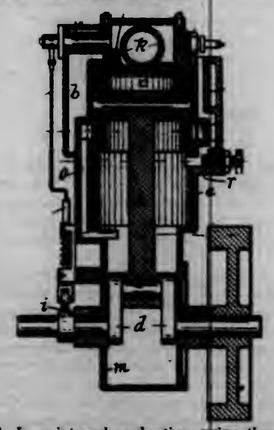
4. In a cantaliver suspension-bridge, the combination with supporting-piers and abutments, of a main truss and cable terminating at the shore abutment, linked anchorages therefor, comprising links, pins and saddle-plates, substantially as described, a lever pivoted at one point to the truss and cable, at another point to the saddle, and adapted to rise as regards its longer arm, with the expansion of the truss, a sheave mounted on the truss, a cable passing over the same and connecting at one end with the long arm of said lever, and a weight depending from said lever-connected cable.



5. An improved cable for suspension-bridges and the like, composed of band-steel folded over in successive layers from end to end with terminal loops, the ends of the sections of band fastened together, and the outer end secured to the cable, with inclosing bands or housings, substantially as described.

6. An improved tension-brace for bridges and the like, composed of an inner bar, with terminal pin-holes and adjacent reinforcing-plates, and an outer wrapping along the sides and over the ends of said bar, of band-steel, substantially as described.

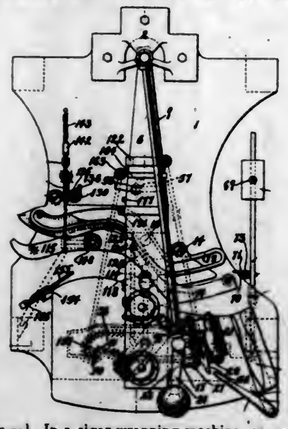
785,687. **INTERNAL-COMBUSTION ENGINE.** NELSON L. TUCK and WILLIAM W. TUCK, Brooklyn, N. Y. Filed July 22, 1903. Renewed Feb. 21, 1905. Serial No. 246,782.



Claim.—1. In an internal-combustion engine, the combination of the cylinder and its piston, with a casing in which the piston compresses air, a by-pass connecting said casing-chamber and the cylinder, an air-inlet in the cylinder which the piston covers and uncovers and through which air is drawn into said casing, means for regulating the amount of air drawn through said inlet, and means supplying fuel in invariable amount directly at the combustion end of the cylinder whereby the speed of the engine may be regulated by varying said air-inlet.

2. In an internal-combustion engine, the combination of the cylinder and its piston, with a casing into which the piston draws and compresses air, a by-pass connecting said casing and the cylinder, an air-inlet lying against said cylinder, whereby the intaken air may be heated, said inlet being covered and uncovered by the piston, means for regulating the amount of air drawn through said inlet, and means supplying fuel in invariable amount directly at the combustion end of the cylinder whereby the speed of said engine may be varied by regulating the amount of air taken in.

785,688. **CIGAR-ROLLING MACHINE.** ANTHONY F. WALLBILLICH, Princebay, N. Y. Filed May 9, 1904. Serial No. 207,034.



Claim.—1. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm and a wrapper-cutter and wrapping-table arranged to coact with the pressure-rollers and wrapping-rollers to cut the wrapper when the arm is swung in one direction and wrap the cigar when the arm is swung in the opposite direction.

2. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and a table arranged to coöperate respectively with the pressure-rollers and the wrapping-rollers and means for adjusting the table with respect to the cutting edge of the wrapper-cutter.

3. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and adjustable table arranged to coöperate with the wrapper-cutter and wrapping-rollers respectively and means for varying the position of the wrapping-rollers with respect to the longitudinal axis of the pressure-rollers during the wrapping operation.

4. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and adjustable table arranged to coact with the pressure-rollers and wrapping-rollers respectively and means under the control of the swinging arm for placing a cigar-bunch between the wrapping-rollers in position to be wrapped.

5. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a cutter and an adjustable table arranged to coöperate with the pressure-rollers and wrapping-rollers respectively and means for throwing the pressure-rollers into pressing engagement when the arm is swung in one direction and for throwing the said pressure-rollers out of pressing engagement when the arm is swung in the opposite direction.

6. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a cutter and a wrapping-table arranged to coöperate with the pressure-rollers and wrapping-rollers respectively, a lever mounted on the swinging arm and having a limited movement with respect thereto and a cam under the control of said lever for swinging the pressure-rollers out of pressing engagement when the arm is swung in one direction and permitting the pressure-rollers to move into pressing engagement when the arm is swung in the opposite direction.

7. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers mounted in a frame hinged to said arm, wrapping-rollers mounted in a frame pivoted to said arm, a cutter and a table arranged to coöperate with the pressure and wrapping rollers respectively, means for throwing the pressure-rollers out of pressing engagement during the swinging of the arm in one direction and a cam for swinging the wrapping-rollers on their pivotal connection with the arm during the swinging movement of the arm.

8. In a cigar-wrapping machine, an arm mounted to swing back and forth, a carriage mounted to slide longitudinally along the arm, pressure-rollers carried by the arm, wrapping-rollers carried by the sliding carriage, means for throwing the pressure-rollers into and out of pressing engagement, a cam for controlling the sliding movement of the carriage as the arm is swung, a rack bar and gear for operating the wrapping-rollers during the swinging movement of the arm and a cutter and table arranged to coöperate with the pressure-rollers and wrapping-rollers respectively.

9. The combination with the wrapping-rollers and means for operating them, of a sectional wrapping-table and means for temporarily tilting a section of the table out of the general plane of the table at the beginning of the wrapping operation.

10. The combination with the wrapping-rollers, a swinging arm forming a support for the rollers and means for operating the rollers, of a wrapping-table including a hinged section and a lever under the control of the swinging arm for tilting the hinged section of the table at the beginning of the wrapping operation.

11. The combination with wrapping-rollers and a swinging arm for carrying the rollers, of gearing operated by the swinging arm for imparting a rotary movement to the rollers, a table along which the rollers travel, a foot-treadle and gearing under the control of the foot-treadle for operating the wrapping-rollers while the swinging arm is temporarily at rest.

12. The combination with the wrapping-rollers, a swinging arm for carrying them and gearing under the control of the swinging arm for operating them, of a table along which the wrapping-rollers travel, a stop for arresting the swinging movement of the arm, gearing for operating the rollers while the swinging arm is temporarily at rest, and a treadle for operating said gearing and releasing the said stop.

13. The combination with wrapping-rollers, a swinging arm for carrying them and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the wrapping-rollers travel, auxiliary gearing for operating the rollers while the arm is temporarily at rest, a cutter for trimming the end of the cigar while the swinging arm is at rest and a treadle for operating the said auxiliary gearing and cutter.

14. The combination with the wrapping-rollers, a swinging arm for carrying the rollers and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the rollers travel, a stop for arresting the swinging movement of the arm, auxiliary gearing for operating the rollers while the swinging arm is temporarily at rest, a cutter for trimming the cigar while the swinging arm is temporarily at rest and a treadle for releasing the stop operating auxiliary gearing and operating the cutter.

15. The combination with wrapping-rollers, a swinging arm for carrying the rollers and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the rollers travel, auxiliary gearing for operating the rollers while the swinging arm is temporarily at rest, a tip-guide and means for lifting the tip-guide above the surface of the table during the operation of the auxiliary gearing while the swinging arm is at rest.

16. The combination with the wrapping-rollers, a swinging arm for carrying the rollers and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the rollers travel, a bunch-receiving pocket at one end of the table, a plunger forming the bottom of said pocket, means for automatically lifting the plunger up into the plane of the table and a trip-lever for holding the plunger depressed, the said trip-lever being under the control of the swinging arm to release the plunger when the wrapping-rollers are over the pocket.

17 The combination with the swinging arm, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and a table, the said cutter and table being arranged to coöperate with the pressure-rollers and wrapping-rollers, of a vertically-reciprocating frame forming a support for the table, means for holding the table with its surface in the plane of or above the cutting edge of the wrapper-cutter during the swinging movement of the arm in one direction and means under the control of the swinging arm for depressing the table below the cutting edge of the wrapper-cutter during the swinging movement of the arm in the opposite direction.

18. The combination with the swinging arm, the wrapper-cutter and rolling-table, of pressure-rollers for pressing the wrapper against the edge of the wrapper-cutter, a frame for supporting the rollers on the swinging arm, yokes in which the rollers are mounted and means for adjusting the yokes and hence the rollers in normally different tilted adjustments with respect to the frame.

19. The combination with the swinging arm, the pressure-rollers and wrapping-rollers carried thereby, the vertically-adjustable sectional wrapping-table and the wrapper-cutter, of a lever for controlling the vertical adjustment of the table as a whole, a lever for tilting a section of the table and a lever for elevating the tip-guide, the said levers being under the control of the swinging arm to be operated during its swinging movement.

20. The combination with the wrapping mechanism including a swinging operating-arm, of a bunch-pocket for retaining the bunch which is to be wrapped, an upright shaft having an arm in the path of the said swinging operating-arm to cause the shaft to rock when the operating-arm is swung and a bunch-trimmer attached to said upright shaft in position to be swung through the end of the said bunch-pocket when the shaft is rocked.

785,689. **SMOKELESS COMBUSTION-FURNACE.** CARL WEGENER, Berlin, Germany. Original application filed October 17, 1900, Serial No. 33,389. Divided and this application filed Oct. 30 1902. Serial No. 129,358.

Claim.—1. In a smokeless combustion-furnace in which the fresh fuel is fed from underneath below the layer of live fuel, the combination with a combustion-chamber, of a pipe opening upward to the combustion-chamber for introducing the fuel into the said chamber, a conical step-grate consisting of a number of rings and arranged about the feed-pipe, a movable annular plate arranged beneath and extending beyond the conical step-grate, the grate and said annular plate forming the sole of the combustion-chamber, a flue for drawing off the combustion-gases, and means for forcing the fuel through the said feed-pipe, substantially as described.

2. In a smokeless combustion-furnace in which the fresh fuel is fed from underneath below the layer of live fuel, the combination with a combustion-chamber, of a pipe opening upward to the combustion-chamber for introducing the fuel into the said chamber, a conical step-grate consisting of a number of rings and arranged about the feed-pipe, a movable annular plate arranged beneath and extending beyond the conical step-grate, the grate and said annular plate forming the sole of the combustion-chamber, a flue for drawing off the combustion-gases, openings in the said flue, and means for forcing the fuel through the said feed-pipe, substantially as described.

3. In a smokeless combustion-furnace in which the fresh fuel is fed from underneath below the layer of live fuel, the combination with a combustion-chamber, of a pipe opening upward to the combustion-chamber for introducing the fuel into said chamber, a conical step-grate consisting of a number of rings and arranged about the feed-pipe, a movable annular plate arranged beneath and extending beyond the conical step-grate, said plate sloping down-

wardly toward its outer edge, and said plate and the conical grate forming the sole of the combustion-chamber, a flue for drawing off the combustion-gases, and means for forcing the fuel through the feed-pipe, substantially as described.

4. In a smokeless combustion-furnace in which the fresh fuel is fed from underneath below the layer of live fuel, the combination with a combustion-chamber, of a pipe opening upward to the combustion-chamber for introducing the fuel into said chamber, a conical step-grate consisting of a number of rings and arranged about the feed-pipe, a movable annular plate arranged beneath and extending beyond the conical step-grate, the grate and said annular plate forming the sole of the combustion-chamber, a flue for drawing off the combustion-gases, means for forcing the fuel through said feed-pipe, and means for moving said annular plate continuously for conducting away the clinkers and ashes, substantially as described.

785,690. **WINDOW BAR OR GRATING.** CLINTON L. WOLFE, New York, N. Y. Filed June 26, 1904. Serial No. 214,212.



Claim.—1. In a grating for the protection of windows and doors, the combination with the sides or casings of the frame, of vertical locking members adapted to engage and confine the ends of the bars composing the grating, and means for laterally moving the locking members into engagement with the ends of said bars.

2. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical locking members adapted to engage and confine the ends of the bars composing the grating, means for laterally moving the locking members into engagement with the ends of said bars, and means for locking the locking members.

3. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical locking members, means for raising and lowering the grating, said locking members being provided with means for engaging the ends of the bars composing the grating, and means for laterally moving the locking members into engagement with the ends of said bars.

4. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical locking members, means for raising and lowering the grating, said locking members being provided with means for engaging the ends of the bars composing the grating, means for laterally moving the locking members into engagement with the ends of said bars, and means for locking the locking members to secure the grating.

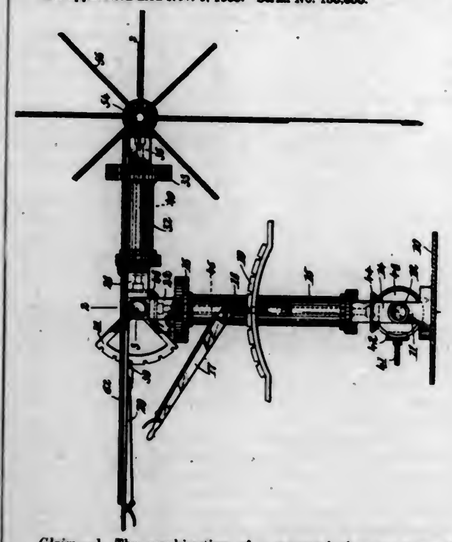
5. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical slotted casings, slotted locking members mounted within the slotted casings, said locking members being provided with recesses adapted to engage the ends of the bars composing the grating, and means for moving the locking members laterally to engage the ends of said bars.

6. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical slotted casings, slotted locking members mounted within the slotted casings, means for raising and lowering the grating, said locking members being provided with recesses adapted to engage the ends of the bars composing the grating, and means for moving the locking members laterally to engage the ends of said bars.

7. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical slotted casings, slotted locking members mounted within the slotted casings, said locking members being provided with recesses adapted to engage and confine the ends of the bars composing the grating, means for moving the locking members into engagement with the ends of said bars, and means for locking the locking members to secure the grating.

8. In a grating for windows and doors, the combination with the sides or casings thereof, of vertical slotted casings, slotted locking members mounted within the slotted casings, said locking members being provided with recesses adapted to engage the ends of the bars composing the grating, means for raising and lowering the grating, means for moving the locking members into engagement with the ends of said bars, and means for locking the locking members to secure the grating.

785,691. **HARVESTER-REEL.** CHARLES O. WYMAN, Anoka, Minn. Original application filed July 1, 1903, Serial No. 163,872. Divided and this application filed Nov. 6, 1903. Serial No. 180,050.



Claim.—1. The combination of a mounted sleeve, a second sleeve loosely mounted in the first sleeve, a yoke carried by the second sleeve, means for releasably holding the two sleeves against independent movement, a shaft mounted in the yoke, a reel carried by the shaft, a second shaft extending through the interior of said sleeves, and gearing connecting the two shafts.

2. The combination with a reel and its shaft, of a yoke arranged to support the same, a sleeve to which said yoke is fixed, a second sleeve through which the first-named sleeve is passed, means for releasably holding the two sleeves against independent movement, and means extending through said sleeves for driving the reel.

3. The combination with a reel and its shaft, of a yoke arranged to support the same, a sleeve to which said yoke is fixed, a second sleeve through which the first-named sleeve is passed, means for releasably holding the two sleeves against independent movement, means extending through said sleeves for driving the reel, the said means for releasably holding the two sleeves comprising an orificed disk on the outer sleeve, a dog mounted on the yoke and coacting with the disk, and means for operating the dog.

4. The combination with a reel, of a yoke mounting the same, a sleeve to which said yoke is fixed, a second sleeve through which the first-named sleeve is passed, means for releasably holding the two sleeves against independent movement, a yoke connected to the second sleeve, a shaft extending through said sleeves, gearing connecting the shaft with the reel to drive the latter from the shaft, a third yoke on which the second-named yoke is mounted to swing, a sleeve attached to the third yoke, a shaft extending through said sleeve, gearing connecting the shaft with the shaft of the two first-named sleeves, a fourth sleeve through which the third sleeve is loosely passed, means for releasably holding the third and fourth sleeves against independent movement, a pivotally-mounted yoke to which the fourth sleeve is attached, means for adjustably holding said yoke and the fourth-named sleeve, and means for driving the second-named shaft independently of the adjustment of the said third sleeve.

5. The combination with a reel, of means for mounting the same, a yoke on which said means are mounted, a sleeve to which the yoke is attached, a second sleeve in which the first-named sleeve is mounted to turn, means for releasably holding the said sleeves against independent movement, means extending through the sleeves for driving the reel, means for mounting the said sleeves to swing, and devices for adjustably holding the sleeves in the desired position.

6. The combination with a reel, of means for mounting the same, a yoke on which said means are mounted, a sleeve to which the yoke is attached, a second sleeve in which the first-named sleeve is mounted to turn, means for releasably holding the said sleeves against independent movement, means extending through the sleeves for driving the reel, means for mounting the said sleeves to swing, and devices for adjustably holding the sleeves in the desired position, said devices comprising a toothed quadrant, and a dog mounted on the outer of said sleeves and coacting with the quadrant.

7. The combination with a reel, of a member arranged to mount the same, a sleeve to which said member is fixed, a second sleeve through which the first-named sleeve is passed, means for releasably holding the two sleeves against independent movement, and means extending through said sleeves and having connection with the reel, to drive the same.

8. The combination with a reel, of a member arranged to mount the same, a sleeve to which said member is fixed, a second sleeve through which the first-named sleeve is passed, means for releasably holding the two sleeves against independent movement, means extending through the sleeves and having connection with the reel, to drive the same, and means for mounting said second-named sleeve to swing.

9. The combination with a reel, of a member arranged to mount the same, a sleeve to which said member is attached, a second sleeve through which the first-named sleeve is passed, means for releasably holding the two sleeves against independent movement, means extending through said sleeves and having connection with the reel to drive the same, and means for mounting the sleeves to swing around either of two crossing axes.

10. The combination of a reel, means for mounting the same, a tubular member movably carrying said means, means for releasably holding the tubular member and said means against independent movement, and means for mounting said tubular member to swing.

11. The combination of a reel, means for mounting the same, a tubular member movably carrying said means, means for releasing holding the tubular member and said means against independent movement, and means for mounting said tubular member to swing around either of two crossing axes.

12. The combination of a reel, means for mounting the same, a member in which said means are mounted to turn, means for releasably holding said member and said means against independent movement, a second member on which the first-named member is mounted to swing around either of two crossing axes, means for mounting the second member to swing, and means for releasably holding said second member.

13. The combination of a reel, means for mounting the same, a member in which said means are arranged to turn around a horizontal axis, means for releasably holding said member and said means against independent movement, a second member, means for mounting the first member on the second member to swing around horizontal and vertical axes, and means for releasably holding the second member against said swinging movements.

14. The combination of a reel, means for mounting the same, a member in which said means are arranged to turn around a horizontal axis, means for releasably holding said member and said means against independent movement, a second member, means for mounting the first member on the second member to swing around horizontal and vertical axes, means for releasably holding the second member against said swinging movements, said means for mounting the second member allowing the same to swing around a horizontal axis, and means for releasably holding said member against the said swinging movement.

15. The combination of a shaft, means for revolubly mounting the same, two hubs secured to the shaft, arms pivotally mounted to the hubs, reel-blades pivoted to the arms, links pivoted to the arms of one hub and extending past the arms of the other hub, a runner mounted to slide on the shaft and pivoted to said links, a collar having revoluble connection with the runner, and an operating means connected to the collar.

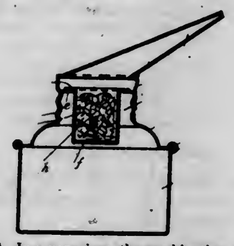
16. The combination of a shaft, means for revolubly mounting the same, two hubs secured to the shaft, arms pivotally mounted to the hubs, reel-blades pivoted to the arms, links pivoted to the arms of one hub and extending past the arms of the other hub, a runner mounted to slide on the shaft and pivoted to said links, a collar having revoluble connection with the runner, and an operating means connected to the collar, the said means for mounting the shaft comprising a sleeve, means for removably securing the shaft in the sleeve, and boxes revolubly carrying the sleeve.

17. The combination of a reel, horizontally-extending supporting means to which the reel is connected to permit vertical adjustment thereof, and a vertically-extending supporting means to which the horizontal supporting means are connected, the vertical supporting means being turnable around a vertical axis to permit of horizontal adjustment of the reel and horizontally-extending supporting means.

18. The combination of a reel, horizontally-extending supporting means to which the reel is connected to permit vertical adjustment thereof, and a vertically-extending supporting means to which the horizontal supporting means are connected, the vertical supporting means being turnable around a vertical axis to permit of horizontal adjustment of the reel and horizontally-extending supporting means, both of said supporting means comprising tubular members and reel-driving mechanism, having elements extending centrally through said tubular members.

19. The combination of a reel, a vertically-extending hollow supporting part, a horizontally-extending hollow supporting part, the horizontally-extending supporting part having connection with the vertically-extending supporting part to enable the former to swing in a horizontal plane around a vertical axis, and the reel having connection with the horizontally-extending supporting part, and means for driving the reel comprising transmitting elements passed through said hollow supporting parts.

785,692. **VAPORIZER.** GEORGE H. BELL, Brooklyn, N. Y., assignor to Hattie L. Bell, Brooklyn, N. Y. Filed May 7, 1903. Serial No. 156,084.



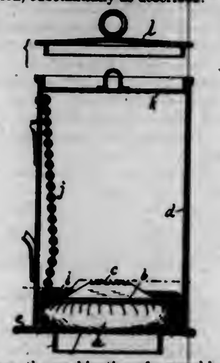
Claim.—1. In a vaporizer, the combination, with a boiler provided with a steam-tight cover which has a screw-threaded nozzle and an inwardly-projecting flange at the top of the nozzle; of a perforated cup for medicament having an outwardly-projecting flange at its top which rests on the aforesaid flange, and a screw-threaded cap which engages with the said nozzle and which is provided with an outlet-tube.

2. In a vaporizer, the combination, with a boiler provided with a steam-tight cover which has a screw-threaded nozzle and an inwardly-projecting flange at the top of the nozzle; of a perforated cup for medicament having an outwardly-projecting flange at its top which rests on the aforesaid flange, and a screw-threaded cap which engages with the said nozzle and which is provided with a conical outlet-tube which projects from its top in an upwardly-inclined position.

785,693. **COFFEE-DRIPPER.** GODWIN BROWN, Yonkers, N. Y. Original application filed Jan. 17, 1903, Serial No. 89,170. Divided and this application filed June 7, 1903. Renewed Sept. 17, 1904. Serial No. 224,857.

Claim.—1. In a dripper, the combination of a vessel having a centrally-perforated bottom surrounded by an imperforate portion, and means for pressing the outer portion of a percolating-cartridge firmly upon the imperforate portion, substantially as described.

2. In a dripper, the combination of a vessel having a bottom consisting of a perforated central portion and a surrounding imperforate portion, and a ring adapted to rest upon the said bottom over the imperforate portion, substantially as described.



3. In a dripper, the combination of a vessel having a centrally-perforated bottom surrounded by an imperforate portion, a ring adapted to rest within the vessel about the imperforate portion, and suitable means for securing the ring to the vessel, substantially as described.

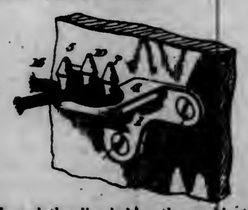
4. The combination, with a vessel having a centrally-perforated bottom surrounded by an imperforate portion, of a percolating-cartridge containing a substance to be extracted, and means for pressing the outer portion of the cartridge firmly upon the said imperforate portion, substantially as described.

5. The combination, with a vessel having a centrally-perforated bottom surrounded by an imperforate portion, of a percolating-cartridge containing a substance to be extracted, such cartridge fitting snugly against the inner wall of the vessel and resting on the perforate and imperforate portions, substantially as described.

6. The combination, with a vessel having a centrally-perforated bottom surrounded by an imperforate portion, of a percolating-cartridge containing a substance to be extracted, and means for forcing the outer portions of the cartridge against the inner wall of the vessel and upon the imperforate portion, substantially as described.

7. The combination, with a vessel having a centrally-perforated bottom surrounded by an imperforate portion, of a ring adapted to rest within the said vessel and above the imperforate portion, and a percolating-cartridge, the edges of the said cartridge being contained between the imperforate portion and the ring, substantially as described.

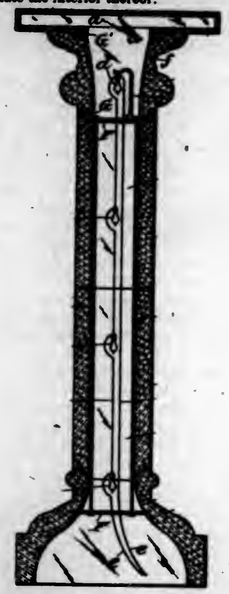
785,694. CLOTHES-LINE HOLDER. JOHN F. MOSEL, Pittsburg, Pa., assignor of one-half to Harry C. Ganster, Pittsburg, Pa. Filed Sept. 23, 1904. Serial No. 226,338.



Claim.—In a clothes-line holder, the combination of a bracket comprising a vertical body portion having apertures for the reception of screws, and a horizontal ledge portion, said ledge portion and said body portion being formed with a slot, and the said slot being widened in the said body portion, integral posts arranged at the sides of the slot in said ledge portion, and a casting having a contracted lower end adapted to enter the slot in the ledge portion, and an annular shoulder adapted to pass through the widened slot in the said vertical portion.

785,695. COLUMN, PEDESTAL, OR SIMILAR DECORATIVE ARCHITECTURAL STRUCTURE. ERNEST A. HOUSE, New York, N. Y., assignor to The Marsie Company, New Brighton, N. Y., a Corporation. Filed Nov. 1, 1904. Serial No. 230,502.

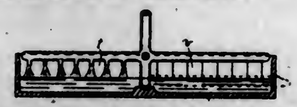
Claim.—1. As a new article of manufacture a hollow structure made from translucent rock, such as gypsum in its natural state, and means to illuminate the interior thereof.



2. As a new article of manufacture a hollow structure made from translucent rock, such as gypsum in its natural state, coated with translucent material, such as paraffin, and means to illuminate the interior thereof.

3. As a new article of manufacture a hollow structure made from translucent rock, such as gypsum in its natural state, means to illuminate the interior thereof and means to ventilate the interior thereof.

785,696. PROCESS OF PRODUCING BLACK OR DARK CARBONACEOUS PIGMENTS. DAVID J. OSELVY, Cincinnati, Ohio. Original application filed Aug. 13, 1897, Serial No. 648,167. Divided and this application filed July 10, 1903. Serial No. 115,049.



Claim.—1. The process of producing black or dark-colored pigments by impinging carbonaceous flames produced on a moving source, on water in a stationary condition.

2. The process of producing black or dark pigments by impinging carbonaceous flame in motion on an aqueous solution containing soluble material necessary in the operation to overcome the repellent nature of the carbonaceous deposit toward the water.

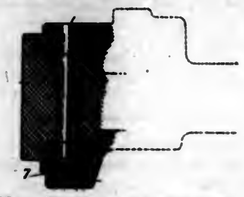
3. The process of making black or dark-colored pigments by impinging carbonaceous moving flames on the surface of a fluid which is practically stationary for receiving and removing the carbonaceous deposit.

785,697. PROCESS OF PRODUCING BLACK OR DARK CARBONACEOUS PIGMENTS. DAVID J. OSELVY, Cincinnati, Ohio. Original application filed Aug. 13, 1897, Serial No. 648,167. Divided and this application filed July 28, 1903. Serial No. 117,288.

Claim.—1. The process of producing black or dark-colored carbonaceous deposits, by impinging carbonaceous flame (produced on a stationary source) on water in a stationary or quiet condition.

2. The process of producing black and dark-colored deposits by impinging carbonaceous flames, produced on a stationary source, on water in a quiet or stationary condition, said water containing suitable material whereby the repellent nature of the carbonaceous deposit toward the water is overcome.

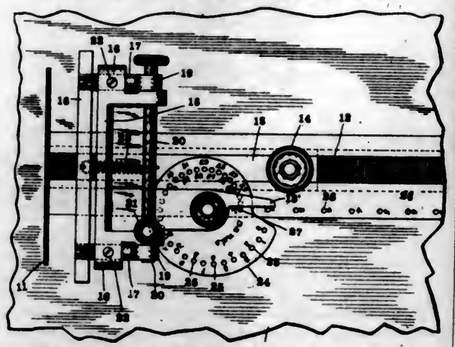
785,698. DEVICE FOR SUPPORTING PIVOT-PINS IN COUPLINGS. CLINTON A. TOWER, Cleveland, Ohio, assignor to The National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 30, 1904. Serial No. 234,896.



Claim.—1. Means for supporting a pivot-pin of a coupler-knuckle, consisting in a coupler having a pin-hole and in the lower lug of the coupler a transverse slot extending through the pin-hole, and extending also to the bottom of the lug; substantially as described.

2. Means for supporting a pivot-pin of a coupler-knuckle, consisting in a coupler having a pin-hole and in the lower lug of the coupler a transverse slot extending through the pin-hole, and extending also to the bottom of the lug, and a cotter which is inserted through the pin in said slot; substantially as described.

785,699. ADJUSTABLE FENCE FOR SAWS. THOMAS BURNS, Indianapolis, Ind. Filed Sept. 23, 1904. Serial No. 225,652.



Claim.—1. The combination, with a fence-carriage, of a fence, a pair of pins threaded into said fence and slidably mounted in suitable bearings in the fence-carriage parallel with the line of movement thereof, a shaft, a pair of cams carried by said shaft and engaging said pins, and means for holding the fence in desired positions of adjustment.

2. The combination, with a saw-table, of a fence-carriage movable along said table at an angle to the saw, two sets of position-finding means one set carried by the table and extending away from the saw and the other set carried by the carriage and independently movable with relation thereto, whereby any part of the position-finding set carried by the carriage may be brought into registry with any part of the position-finding set carried by the table, each change of registry of the position-finding means involving a change of position of the carriage, and means for holding the fence-carriage in any desired position of adjustment on the table.

3. The combination, with a saw-table, of a fence-carriage movable along said table at an angle to the saw, two sets of position-finding means one set carried by the table and extending away from the saw and the other set carried by the carriage and independently movable with relation thereto, whereby any part of the position-finding set carried by the carriage may be brought into registry with any part of the position-finding set carried by the table, each change of registry of the position-finding means involving a change of position of the carriage, means for holding the fence-carriage in any desired position of adjustment on the table, and independent means for adjusting the fence with relation to its carriage.

4. The combination, with a saw-table having a suitable guide extending away from the saw and a set of pin-holes arranged parallel with the guide, of a fence-carriage mounted in said guide, a fence carried thereby, a gage-plate rotatably mounted upon said fence-carriage and provided with a plurality of pin-holes varying in distance from the center of said plate, and a pin adapted to pass through any hole of the gage-plate and into any hole in the table.

5. The combination, with a saw-table having a suitable guide extending away from the saw and a set of pin-holes arranged parallel with the guide, of a fence-carriage mounted in said guide, a fence carried thereby, a gage-plate movably mounted upon said fence-carriage and provided with a plurality of pin-holes varying in effective distance from the fence, and a pin adapted to pass through any hole of the gage-plate and into any hole in the table.

6. The combination, with a saw-table having a suitable guide extending away from the saw and a set of pin-holes arranged parallel with the guide, of a fence-carriage mounted in said guide, a gage-plate rotatably mounted upon said fence-carriage and provided with a plurality of pin-holes varying in distance from the center of said plate, a pin adapted to pass through any hole of the gage-plate and into any hole in the table, a pair of pins mounted in said fence-carriage and movable parallel with the line of movement thereof, a fence carried by said pins, a shaft journaled on the fence-carriage, and a pair of cams carried by said shaft and engaging said fence-pins, substantially as and for the purpose set forth.

7. The combination, with a saw-table having a suitable guide extending away from the saw and a set of pin-holes arranged parallel with the guide, of a fence-carriage mounted in said guide, a gage-plate movably mounted upon said fence-carriage and provided with a plurality of pin-holes varying in effective distance from the fence, a pin adapted to pass through any hole of the gage-plate and into any hole in the table, a pair of pins mounted in said fence-carriage and movable parallel with the line of movement thereof, a fence carried by said pins, a shaft journaled on the fence-carriage, and a pair of cams carried by said shaft and engaging said fence-pins, substantially as and for the purpose set forth

8. The combination, with a movable fence-carriage, of a pair of pins carried by said carriage and having threaded outer ends, a fence carried by said pins and having threaded engagement therewith, and means for adjusting said pins and the attached fence simultaneously with relation to the fence-carriage, for the purpose set forth.

REISSUES.

12,326. GLOBE. SOLON O. RICHARDSON, Jr., Toledo, Ohio. Filed Jan. 20, 1905. Serial No. 242,006. Original No. 777,142, dated Dec. 13, 1904.



Claim.—1. An inner globe for arc-lamps, comprising a plain, vertically-extending rim or top to engage the gas-plug, or other suitable socket, the globe extending downwardly from said top into the body portion, and thence narrowing toward its lower end, said body portion being smooth and plain and said globe being provided with corrugations, immediately below said rim, to provide an increased radiating-surface, substantially as described.

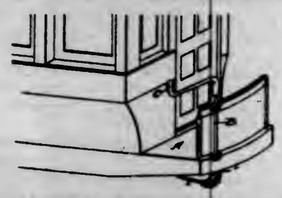
2. An inner globe for arc-lamps, comprising a vertically-extending rim or top adapted to engage the gas-plug, or other suitable socket, the globe swelling out from the lower part of said top to form a shoulder, from which shoulder the body portion extends downwardly, said body portion being smooth and plain and said shoulder being provided with corrugations, immediately below said top, to provide an increased radiating-surface, substantially as described.

3. In an arc-lamp, the combination with the inner globe, of a support therefor, a plug engaging the top of said globe, said globe having a plain, substantially cylindrical rim or top, a swelled portion extending from the lower edge of the top, forming a shoulder, a body portion narrowing downwardly toward the lower end of the globe, said body portion being smooth and plain, and said shoulder being corrugated to provide an increased radiating-surface, substantially as described.

4. In an arc-lamp, the combination with the inner globe, of a

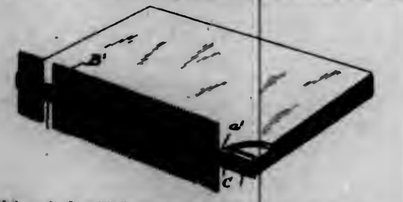
support therefor, a plug resting upon and carried by said globe, said globe having a plain, substantially cylindrical rim or top upon which said plug rests, a swelled portion extending from the lower edge of the top forming a shoulder, the body portion tapering downwardly from the shoulder to a narrow neck, said body portion being smooth and plain and said shoulder being corrugated to provide an increased radiating-surface, substantially as described.

12,327. CAR-BRAKE APPLIANCE. DANIEL TAGGART, Indianapolis, Ind., assignor, by mesne assignments, to The Cincinnati Car Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Jan. 23, 1905. Serial No. 242,420. Original No. 662,055, dated June 19, 1900.



Claim.—An improved drum for brake-staffs, consisting of a hub, having a thickened portion projecting laterally at one end thereof and terminating in a broad blade, the upper face of which recedes conically to the opposite or upper end of the hub, said thickened portion also extending eccentrically about the hub, a channel in said thickened portion, and the flange extending outwardly so as to gradually guide chain-links smoothly into the channel, substantially as shown for the purpose set forth.

12,328. PERPETUAL OR TEMPORARY BINDER FOR BOOKS, MUSIC, &c. ROBERT H. COLLINS, Toronto, Canada. Filed Oct. 26, 1904. Serial No. 230,040. Original No. 770,711, dated Sept. 20, 1904.



Claim.—1. In a binder a woven back having any suitable warp and a metal weft-rod held therein, having its ends bent and turned back parallel to the body of the rod, substantially as described.

2. In a binder a woven back having any suitable warp and a metal weft-rod held therein, having its ends bent and turned back parallel to the body of the rod, in combination with a retaining-wire having detachable connections with the said bent ends, substantially as described.

3. In a binder a woven back having any suitable warp and a metal weft-rod held therein, the rod being provided with means whereby it may be detachably engaged with the leaves to be bound, substantially as described.

4. In a binder the combination with folded leaves or sections, each having a slot cut through it at the fold, of a woven back; rods connected with the said back; loops embracing the rods and extending through the slots; and retaining-wires extending through the loops at the inside of the folds, substantially as described.

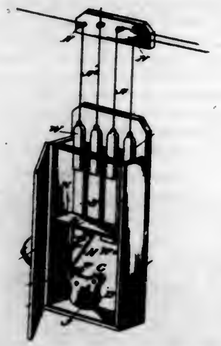
5. In a binder the combination with a folded leaf or set of leaves having a slot extending through the leaves at the fold of a rod having bent ends, said ends having sockets therein; a loop embracing the weft-rod and extending through the slot at the fold; and a retaining-wire extending to the inside of the fold and through the inner end of the loop into the sockets at the ends of the rod, substantially as described.

6. In a binder the combination with the woven back having metal weft-rods held therein and provided with bent ends, said ends having sockets therein and a set of leaves extending under the bent ends of the rods and folded opposite the rods; and a retaining-wire for each section extending into the sockets in the bent ends of the rod, substantially as described.

7. In a binder the combination with the woven back having metal weft-rods held therein and provided with bent ends, said ends having sockets therein and a set of leaves extending through the bent ends of the rods and folded opposite the rods, and provided with a slot at the fold; a loop embracing the rods, and extending through the slot; and a retaining-wire extending through the loop at the inside of the fold and fitting into sockets in the bent ends of the rod, substantially as described.

8. In a binder a woven back having any suitable warp and metal weft-rods held therein, each rod having its ends bent and turned back parallel to the body of the rod, substantially as described.

12,329. FIRE AND BURGLAR ALARM. IRA S. BUNKER, Freewater, Oreg. Filed Mar. 1, 1904. Serial No. 196,252. Original No. 719,563, dated Feb. 3, 1903.



Claim.—1. An alarm comprising a case, sliding weights independently supported in the case, a plate pivoted at its ends in the case with its rear portion lying directly beneath the body of the weights, a finger carried by said plate, and an alarm mechanism having a post arranged to engage said finger and maintain the alarm mechanism inoperative.

2. An alarm mechanism comprising a case, vertical ways therein, a weight suspended in each of said ways, a plate pivoted at its ends in the case, said plate being slotted to extend rearward into said ways to position its rear edge directly beneath the body of the weights, a finger carried by the forward edge of said plate, and an alarm mechanism having a post arranged to engage said finger and maintain the alarm mechanism inoperative.

3. A fire or burglar alarm, comprising a case, vertical ways therein, sliding weights W suspended in said ways, and a plate pivoted at its two ends in said case under said weights, so as to be adapted to be tilted by any of the weights W falling upon the same, a weight to hold said pivoted plate in its normal position, an alarm mechanism comprising a vibrating-hammer mechanism and a bell, a finger on the pivoted plate adapted to engage and hold said hammer mechanism of the alarm against vibration, while the pivoted plate remains in its normal position, but releasing the same upon said pivoted plate being tilted, by any of the weights W falling thereon; and means for operatively suspending said weights W, substantially as described.

12,330. AZO COMPOUND AND PROCESS OF MAKING SAME. EMILE A. FOURNEAUX, New York, N. Y., assignor to Herman A. Metz, Brooklyn, N. Y. Filed Sept. 30, 1904. Serial No. 227,023. Original No. 723,455, dated May 19, 1903.

Claim.—1. The process herein described of making an azo compound suitable for the manufacture of lake and pigment colors, which consists in coupling a diazo compound with a mixture of beta-naphthol and other phenolic compounds as herein specified, in such proportion that the resulting insoluble azo compound is formed in such an extremely finely divided condition as to be suitable as such for the manufacture of lake and pigment colors, substantially as set forth.

2. The process herein described of making an azo compound suitable for the manufacture of red lake and pigment colors, which consists in coupling a nitrodiazo compound with a mixture of beta-naphthol and other phenolic compounds as herein specified in such proportions that the resulting insoluble azo compound is formed in such an extremely-divided condition as to be suitable for the manufacture of lake and pigment colors, substantially as set forth.

3. The process herein described of making an azo compound suitable for the manufacture of red lake and pigment colors, which consists in combining a nitrodiazo body and another diazo body with a mixture of beta-naphthol and other phenolic compounds as herein specified in such proportions that the resulting insoluble azo compound is formed in such an extremely-divided condition as to be suitable for the manufacture of lake and pigment colors, substantially as set forth.

4. An azo compound suitable for the manufacture of lake and pigment colors, containing an insoluble beta-naphtholazo compound, produced by coupling a diazo compound with a mixture of beta-naphthol and other phenolic compounds as herein specified, and being a gelatinous paste which is insoluble in water but so finely divided as to react readily with metallic salts, producing lakes having great fastness to light, substantially as described.

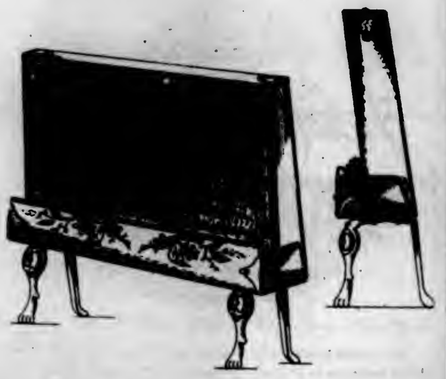
5. An azo compound suitable for the manufacture of red lake and pigment colors, obtained by combining diazotized paranitranilin with a mixture of beta-naphthol and other phenolic bodies, and consisting essentially of paranitrobenzolazobeta-naphthol, or a mixture of this body with other beta-naphtholazo compounds, forming a gelatinous paste which is insoluble in water and so finely divided as to react readily with metallic salts and produce red lakes with a bluish undertone having a great fastness to light, substantially as set forth.

DESIGNS.

37,377. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. EDWARD TODD, Jr., New York, N. Y., assignor to Edward Todd & Company, a Firm, New York, N. Y. Filed Feb. 6, 1905. Serial No. 244,522. Term of patent 14 years.

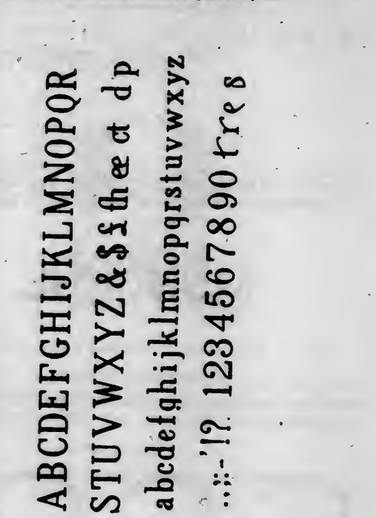
Claim.—The ornamental design for the handle of a spoon, fork or similar article, as shown.

37,378. GAS-STOVE. SAMUEL C. GRAY, Pittsburg, Pa., assignor of one-half to John O'Donovan, Pittsburg, Pa. Filed Jan. 27, 1905. Serial No. 242,980. Term of patent 14 years.



Claim.—The ornamental design for a gas-stove, as herein shown.

37,379. FONT OF TYPE. CHARLES WILLIAM SMITH, Philadelphia, Pa., assignor to Keystone Type Foundry, Philadelphia, Pa. Filed Nov. 15, 1904. Serial No. 232,900. Term of patent 7 years.



Claim.—The ornamental design for a font of printing-type as shown in the accompanying drawing.

37,380. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, Brooklyn, N. Y. Filed Dec. 17, 1904. Serial No. 237,345. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown

TRADE-MARKS

REGISTERED MARCH 21, 1905.

44,325. WATCHES, PARTS OF WATCHES, AND WATCHCASES. A. Wittnauer Co., New York, N. Y. Filed Feb. 25, 1905.

MONOPOL

The word "Monopol." Used since June 1, 1901.

44,326. CLOCKS, THEIR PARTS, REPAIRS, AND FINDINGS. Chelsea Clock Company, Boston, Mass. Filed Feb. 25, 1905.

C C Co

The letters and abbreviation "C C Co." Used since March, 1900.

44,327. CONCERTINAS AND ACCORDIONS, THEIR CASES, FITTINGS, AND PARTS. Lyon & Healy, Chicago, Ill. Filed July 29, 1904.

MAJESTIC

The word "Majestic." Used since July 1, 1904.

44,328. CERTAIN NAMED DRY GOODS. B. H. Behrens & Co., New York, N. Y. Filed Dec. 24, 1904.



The representation of the upper half of a bear standing upright and resting on a roll. Under the bear and roll is placed a streamer or band with its ends extending up on each side of the bear, and above the bear is the word "Berenco." Used since December 15, 1904.

44,329. CORSETS. Joseph Buckel & Co., New York, N. Y. Filed Feb. 27, 1905.

LOMA

The word "Loma." Used since August 27, 1904.

44,330. HAMMOCKS AND HAMMOCK SUPPORTS AND CANOPIES. Isaac B. Palmer, Middletown, Conn. Filed Feb. 27, 1905.

CUPID

The word-symbol "Cupid." Used since February 11, 1906.

44,331. REMEDY FOR INDIGESTION, DYSPEPSIA, AND SIMILAR COMPLAINTS. The Grove Co., Salem, Ohio. Filed Jan. 30, 1905.



The word "Jumbo," associated with the illustration of an elephant. Used since February, 1899.

44,332. RHEUMATIC TONIC. John F. Finke, St. Louis, Mo. Filed Jan. 3, 1905.



The representation of a serrated seal in red having a central circular background in black and crossed by a panel bearing a facsimile of the signature of the registrant in the possessive form. Used since December 1, 1904.

44,333. TONIC. Carl Reinschild, New York, N. Y. Filed Jan. 18, 1905.

Bromo-Mangan

The compound word "Bromo-Mangan." Used since August, 1904.

44,334. IRISH WHISKY. Lyle & Kinahan, Limited, Belfast, Ireland. Filed Feb. 20, 1905.



The representation of a square label having a double-lined border. In the center of the label is a double-lined circle having horizontally across it a band containing the signature of the registrants, "Lyle & Kinahan," followed by the abbreviation "Ltd." Within the circle just described is another circle broken by the band above described. In the upper portion thereof is a monogram formed of the letters and character "L & K." The space outside the outer circle is occupied by a fancy taped design and leaf ornamentation. Used since May 31, 1893.

44,335. MILK-CHOCOLATE PREPARATIONS. Trowbridge Chocolate Chip Co., Boston, Mass. Filed Nov. 16, 1904.

SWISS-ETTS

The hyphenated word "Swiss-Etts." Used since April, 1904.

44,336. COFFEE. Saville, Sohrs & Co., Boston, Mass. Filed Feb. 6, 1905.

ROBINHOOD

The words "Robin Hood." Used since June 7, 1904.

44,337. TEA. Saville, Sohrs & Co., Boston, Mass. Filed Feb. 6, 1905.

AMRITA

The word "Amrita." Used since November 20, 1904.

44,338. CERTAIN NAMED LIQUID DRESSING. Edwin M. Bradley, New Haven, Conn. Filed Dec. 27, 1904.



The letters "C A," arranged as a monogram on the center background of a double circle, said circle being surmounted by outspreading branches of oak having thereon leaves and acorns. Used since July 1, 1904.

44,339. LIQUID PETROLEUM. Joseph Edward Huard, Fall River, Mass. Filed Feb. 14, 1905.

NARINE

The word "Narine." Used since September 1, 1902.

44,340. LUBRICATING OILS AND GREASES. The Hughes Anti-Friction Company, Boston, Mass. Filed Feb. 11, 1905.



The representation of a pair of outspread wings with a shield between them and upon which shield a sprocket-wheel is displayed and a banner partially overlapping the said sprocket-wheel. Used since April 1, 1904.

44,341. ENAMELS. Gerstendorfer Bros., New York, N. Y. Filed Feb. 20, 1905.



The representation of a rectangular field having at the top an ornamental horizontal band and at the bottom another horizontal band. Between these two bands is the representation of a lady seated at a table in the act of enameling an article standing on said table and draped curtains in the background. To the right of the female figure is an inclosed panel and a ribbon tied in a bow-knot. Used since 1887.

44,842. PAINTS. O'NEIL OIL & PAINT CO., Milwaukee, Wis. Filed Jan. 29, 1904.

DURO

The word-symbol "DURO." Used since February, 1900.

44,843. STOVEPIPE-THIMBLES. HENRY R. SCHMIEDENDORF, Buffalo, N. Y. Filed Feb. 4, 1905.

O.K.

The letters "O. K." Used since 1898.

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NEW YORK

LABELS

REGISTERED MARCH 21, 1905.

11,964.—*Title:* "EL MITO" (For Cigars.) M. KLINE & Co., New York, N. Y. Filed February 25, 1905.

11,965.—*Title:* "KA-BE." (For Stomach-Bitters.) CRYSCO DRUG COMPANY, Harrisburg, Pa. Filed February 25, 1905.

11,966.—*Title:* "PARAMEL." (For Medicine.) ANTON V. KOUBA, Boulder, Colo. Filed February 17, 1905.

11,967.—*Title:* "FITZPATRICK'S RHEUMATIC CURE." (For Medicine.) LAWRENCE L. FITZ PATRICK, Milwaukee, Wis. Filed February 23, 1905.

11,968.—*Title:* "HEAL-QUICK." (For an External Remedy.) FIDELITY CO., Philadelphia, Pa. Filed February 7, 1905.

11,969.—*Title:* "HAND & HOME MADE FRENCH DAINTIES." (For Dainties.) ANNA M. LAMBERT, St. Paul, Minn. Filed February 17, 1905.

11,970.—*Title:* "BUTTERCUP BREAD." (For Bread.) EDMOND C. HURTH, Los Angeles, Cal. Filed February 13, 1905.

11,971.—*Title:* "KENTUCKY." (For Breakfast-Bacon.) KENTUCKY PACKING & PROVISION CO., Louisville, Ky. Filed February 25, 1905.

11,972.—*Title:* "KENTUCKY." (For Hams.) KENTUCKY PACKING & PROVISION CO., Louisville, Ky. Filed February 25, 1905.

11,973.—*Title:* "YORKSHIRE." (For Hams.) KENTUCKY PACKING & PROVISION CO., Louisville, Ky. Filed February 25, 1905.

11,974.—*Title:* "KENTUCKY." (For Lard.) KENTUCKY PACKING & PROVISION CO., Louisville, Ky. Filed January 20, 1905.

11,975.—*Title:* "WIRTHMOR." (For Toilet-Paper.) SCOTT PAPER CO., Philadelphia, Pa. Filed February 24, 1905.

11,976.—*Title:* "E-Z-OLA." (For Polish.) WILLIAM E. MARTIN, Chicago, Ill. Filed February 23, 1905.

11,977.—*Title:* "BUCKSKIN." (For Building or Sheathing Paper.) CALVIN RUSSELL, Penn Yan, N. Y. Filed February 15, 1905.

PRINTS

REGISTERED MARCH 21, 1905.

1,245.—*Title:* "BLUE RIBBON HAIR RESTORER." (For Hair-Restorer.) ELIZABETH MCELROY, Cincinnati, Ohio. Filed February 13, 1905.

1,246.—*Title:* "WEARING APPAREL." (For Wearing-Apparel.) B. KUPPENHEIMER & Co., Chicago, Ill. Filed February 25, 1905.

1,247.—*Title:* "ADLER'S LATEST SPRING CLOTHES." (For Spring Apparel.) DAVID ADLER & SONS CLOTHING CO., Milwaukee, Wis. Filed February 23, 1905.

1,248.—*Title:* "TYPICAL COLLEGE CLOTHES." (For Spring Apparel.) DAVID ADLER & SONS CLOTHING CO., Milwaukee, Wis. Filed February 27, 1905.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

LAVERY v. HEENE.

Decided January 5, 1905.

1. INTERFERENCE—PRIORITY.

Held that as the testimony presented by L. fails to establish that he had a conception of the invention prior to the date on which H. filed his application, H. is entitled to the award of priority of invention.

2. SAME—SAME.

Held that H. should be awarded priority of invention, as he is not only the first to reduce the invention to practice, but also the first to conceive.

APPEAL from Examiners-in-Chief.

STAMPING-PRESS.

Application of Henry C. Lavery. Application of George W. Heene.

Mr. D. P. Wolhaupter for Lavery.

Mr. William E. Donnelly and *Messrs. H. C. Evert & Co.* for Heene.

ALLEN, *Commissioner:*

This is an appeal by Lavery from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Heene as to the issue of this interference, which is defined in ten counts. These counts appear in the decision of the Examiner of Interferences, and it is deemed unnecessary, therefore, to refer specifically to more than counts 1 and 10. These counts are as follows:

1. In a stamping-press, printing mechanism having individual die elements, mechanism comprising means for positioning, temporarily holding, releasing, and delivering a blank, and means for effecting a stamping of the characters in a circle upon the blank while temporarily held.

10. In a machine of the class described, printing mechanism having individual die elements, blank-handling mechanism including an anvil-support for the blank and comprising means for positioning and delivering the blank, a holding device for clamping and releasing the automatically-positioned blank upon the anvil, and controlling mechanism comprising means for setting and releasing the holding device respectively after the positioning of a blank and at the completion of the stamping operation.

The invention relates to machines for stamping characters in a circle upon metal disks, and it is to be distinguished from those machines in the prior art in which the characters are stamped upon metal plates or strips. The allegations of the respective parties made in their preliminary statements are as follows:

	Lavery	Heene.
Conception	Spring of 1901	April, 1902
Disclosure	January, 1902	April, 1902
Drawings	February, 1902	June, 1902
No model		No model
Reduction to practice	August, 1902	May, 1902

It is to be noted that Heene, the senior party, filed his application June 14, 1902, and that he alleges an actual reduction to practice of the invention in May, 1902. For the purposes of this interference it does not matter which of these dates is regarded as the date of reduction to practice by Heene, for both of them are prior to August, 1902, which is set up by Lavery in his preliminary statement as his date of an actual reduction to practice. Heene's allegation of his actual reduction to practice in May, 1902, is, however, shown by the testimony submitted in his behalf to be warranted by the actual facts. It is satisfactorily established that in May, 1902, he had succeeded in completing a machine which was operative for the purpose for which it was built and that this machine embodied the invention of the issue.

Both of the tribunals below have found that Lavery has failed to satisfactorily show that he had a complete conception of the invention of the issue prior to May, 1902. The testimony as to Lavery's alleged conception has been carefully analyzed at length by the Examiner of Interferences, and it is not deemed necessary to again analyze the same. To do so would be mere repetition. The analysis of the testimony by the Examiner of Interferences is believed to be right, and his conclusions, as well as those of the Examiners-in-Chief, that Lavery has failed to establish a conception of the invention prior to May, 1902, are fully warranted by the facts as shown by his testimony.

There is another aspect of this case, however, from that considered by the tribunals below which, in my opinion, also requires that judgment of priority of invention should be awarded to Heene. Lavery alleges a conception of the invention in the spring of 1901 and a disclosure of the invention in January, 1902. In view of these allegations the earliest date that can be awarded to Lavery for a conception of the invention is January, 1902, should his testimony establish this fact, though it is believed that it does not. Lavery's alleged reduction to practice is August, 1902. As Heene filed his application in June, 1902, he is therefore the first to reduce the invention to practice. Heene's testimony, (Qs. 32 and 36,) which is supported by the testimony of his brother John E. Heene and that of William J. Rodda, the machinist who assisted Heene in building the machine and whose testimony is very short and to the point, (pp. 73 to 78 of the record,) satisfactorily establishes the fact that Heene had a conception of the invention as early as November, 1901. Heene, therefore, as shown by the record, is the first to conceive and the first to reduce to practice. In view of these facts it follows that he should be adjudged the prior inventor.

The decision of the Examiners-in-Chief awarding priority of invention to George W. Heene is affirmed.

EX PARTE GALLY.

Decided February 25, 1905.

1. ABANDONMENT OF APPLICATION—SUFFICIENCY OF APPLICANT'S ACTION.

Where a proposed amendment was refused entry, under practice then existing, as one which would necessitate the requirement of division and attention was also directed to the fact that portions of said proposed amendment constituted new matter and the only action by the applicant in the ensuing year discusses the question of new matter, but ignores the question of division, *Held* that the case is abandoned.

2. SAME—SAME.

Where the applicant directs matter to be inserted in his specification from the specification of a patent, but does not quote such matter, and the Examiner refuses to insert the matter until presented by amendment, *Held* that the statement by the applicant that the objection will be attended to at some future time is no proper response to save the case from abandonment.

3. SAME—SAME—PROPOSED AMENDMENT NECESSITATING DIVISION.

Where the only attempt to prosecute an application within the year following an Office action was by a proposed amendment, which was refused admission, under practice than existing, as one which would necessitate division, *Held* that the case became abandoned at the expiration of said year, providing that the Examiner's position holding claims in the proposed amendment to be drawn to independent inventions was well taken.

4. AMENDMENT TO APPLICATION—NECESSITATING DIVISION—INDEPENDENCE OF INVENTION NOT REVIEWED ON PETITION OR WITHOUT RECONSIDERATION.

Where the question of abandonment of an application for failure to act responsively depends upon the correctness of the Examiner's conclusion that claims in a proposed amendment are drawn to independent inventions, *Held* (1) that the question of independence of invention is not reviewable on petition, (*Steinmetz* v. *Allen*, 109 O. G., 549,) and (2) that this question should at no time be reviewed upon either petition or appeal except after reconsideration by the Examiner in connection with the specification of errors required by Rule 69.

ON PETITION.

MUSIC-RECORDS, DIAGRAMS, AND PATTERNS.

Mr. Robert A. Gally pro se.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner holding that the prosecution of the case by the applicant has not been responsive to the official actions and that the case has become abandoned under Rule 171.

The first action by the Examiner upon this application was taken March 24, 1903. Objections to language were made, division was required, and the claims were rejected on references. On October 22, 1903, the applicant filed a proposed amendment directing changes in the description, these changes including, among other things, the insertion of matter which was not stated, but which was to be taken from the specification of a patent. The proposed amendment also directed the substitution of new claims for those then in the case and was accompanied by argument. The Examiner informed the applicant in Office letter dated November 10, 1903, that the proposed amendment filed October 22, 1903, had not been entered, as it would necessitate division. The claims which the Examiner considered to be drawn to independent inventions were specified. The applicant was further informed in this letter that certain of the proposed claims and portions of the proposed additions to the specification were regarded as new matter. It was also stated that the direction to insert matter from a publication, which matter was not set forth, would not be complied with. The applicant's next action was filed November 10, 1904, and consisted entirely of explanation and argument. The Examiner thereupon informed the applicant (Office letter dated December 27, 1904) that the argument filed November 10, 1904, was largely irrelevant, that no proper response to Office action of March 24, 1903, had been made, and that the case must therefore be held to have become abandoned. The present petition was taken from this action.

The only attempt to prosecute the application within the year following the Office action of March 24, 1903, is found in the proposed amendment and argument filed October 22, 1903. The Examiner's refusal to admit this proposed amendment and argument was proper under the practice then existing, and his conclusion that the application became abandoned upon the expiration of the year following the Office action of March 24, 1903, is correct, providing in each case that his position holding the claims presented in said proposed action by the applicant to be drawn to independent inventions was well taken. The questions of division and independence of inventions raised by the proposed amendment of October 22, 1903, and the Examiner's position relative thereto will not be considered here, however, for the following reasons, each of which is in itself sufficient to prevent or dispense with such consideration: In the first place, the questions of independence of invention and division of applications are no longer considered on petition. (*United States, ex rel. Steinmetz*, v. *Allen, Commissioner of Patents*, 109 O. G., 549.) In the second place, these questions have not been presented for reconsideration by the Primary Examiner with the specification of errors required by Rule 69, and without reconsideration the applicant is not entitled to have the Examiner's action reviewed either upon petition or upon appeal to the Examiners-in-Chief. (Rules 133 and 145.) In the third place, it is not necessary to pass upon the questions of independence of invention and division raised by the proposed amendment of October 22, 1903, and the Examiner's action thereon of November 16, 1903, in order to determine the status of this case, for the reason that the application became abandoned upon the expiration of the year following the action of November 10, 1903, regardless of the merits of the Examiner's position upon the questions of independence of inventions and division.

The only action by the applicant following the Office action of November 10, 1903, was that taken November 10, 1904. In this action the applicant argued upon the question of new matter at some length, but made no reference whatever to the question of division raised by the prior Office action. The applicant's contention to the contrary in his brief on petition is in error. The statements concerning division found in his action of November 10, 1904, refer exclusively to the division of the present case from an earlier application and were evidently made in answer to the Examiner's statements concerning new matter. They have no conceivable bearing upon the question of division raised in this application. The applicant's statement in the letter filed November 10, 1904, that the Examiner's objections concerning the insertion of matter from a patent will be attended to at some future time, is likewise no proper response to the Examiner's objection. The application is clearly abandoned.

The petition is denied.

DURYEA AND WHITE v. RICE.

Decided February 25, 1905.

1. MOTION TO DISSOLVE — EXAMINER SHOULD DECIDE ALL GROUNDS—REFUSAL TO SET A LIMIT OF APPEAL.

Where a motion to dissolve alleges no interference in fact and irregularity, *Held* that the Examiner is not at liberty to hold that it relates to the merits and refuse to set a limit of appeal from his decision merely because, in his opinion, the reasons given in support of the motion relate to the question of patentability.

2. SAME—ACTION ON MERITS NOT APPEALABLE—APPEAL DISMISSED.

If an appeal is taken which in terms relates to appealable grounds, but in reality seeks to have reviewed the favorable decision of the Primary Examiner upon the merits, *Held* that the appeal will be dismissed.

3. SAME—SAME—RULE 124—FAVORABLE AND ADVERSE DECISIONS—APPEALS FROM.

Held that a favorable decision by the Primary Examiner that a party has the right to make the claim does not warrant entertaining an appeal from the other party upon the ground that such decision is adverse to him, for the present practice does not permit either party to appeal from a favorable decision upon the right to make the claim.

ON PETITION.

SELF-CONTAINED POWER-DRILLS.

Application of Otho C. Duryea and Morris C. White. Application of John V. Rice, Jr.

Mr. James R. Townsend for Duryea and White.

Mr. Fred E. Tasker for Rice.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner refusing to set a limit of appeal from his decision on two questions, irregularity and interference in fact.

It appears that during the time for bringing motions petitioners moved that the interference be dissolved upon three grounds mentioned in Rule 122. In the decision on their motion the Examiner stated:

The motion for dissolution is denied. From this decision there is no appeal, since the sole ground of the motion is inoperativeness.

In the similar case of *Hinkley* v. *Barker* (97 O. G., 2742) the Examiner refused to set a limit of appeal, stating that while the motion was brought in terms upon all the grounds provided for in Rule 122 the only grounds urged before him were want of patentability and of Barker's right to make the claim. It was, however, stated that—

When a motion to dissolve is brought upon the grounds specified in Rule 122, the Examiner should decide the motion on all grounds, and if this decision is of such a nature that appeal therefrom may be taken he should fix a limit of appeal. To refuse to do so would nullify Rule 124 and make the Primary Examiner the sole tribunal to determine whether or not an interference should continue. (*Silverman* v. *Hendrickson*, C. D., 1899, 173; 88 O. G., 1703.)

As the practice outlined in this decision has not been followed in this case, that portion of the petition requesting that the Examiner be directed to set a limit of appeal from his decision upon the question of irregularity and interference in fact is granted. It is not thought necessary to add the twelve days asked to the usual twenty days permitted, as the interference has already been subjected to considerable delay, and if it is the intention to appeal from the decision of the Examiner from this part of the motion twenty days is ample time within which to take such action.

Upon filing such an appeal if it should be found that it in terms relates to appealable grounds, but in reality seeks to have reviewed the favorable decision of the Primary Examiner upon the patentability of the claims or upon Rice's right to make them, the appeal will be dismissed without considering the merits. (*Wilkinson* v. *Junggren*, 112 O. G., 252; *Forsyth* v. *Emery*, 113 O. G., 2215.)

Petitioners further seek to have the practice changed under that portion of Rule 124 which reads as follows:

From a decision of the Primary Examiner affirming the patentability of the claim or the applicant's right to make the same no appea can be taken.

The present practice does not permit either party to appeal from a favorable decision upon the right to make the claim. It is the petitioners' contention, however, that a favorable decision, for instance, affirming Rice's right to make the claim, is a decision adverse to them, and for this reason a limit of appeal should be set permitting them to appeal the question to a higher tribunal. Such construction of the rule is contrary to the well-established practice of the Office. No reason is seen at this late day to change this practice, and the petition that the Examiner be directed to set a limit of appeal upon the other ground of their motion to dissolve is denied.

HUMPHREY v. FICKERT.

Decided March 2, 1905.

INTERFERENCE—PRIORITY—DECISION BASED UPON EVIDENCE—NOT SET ASIDE UPON SUBSEQUENT CONCESSION OF PRIORITY.

Where a decision on the question of priority of invention based upon the evidence has been rendered in favor of one party and that decision has become final, *Held* that the decision will not be set aside and priority of invention awarded to the other party in view of a concession of priority subsequently filed.

REQUEST for rehearing.

GAS-LAMPS.

Application of Alfred H. Humphrey. Application of Gustav R. Fickert.

Mr. Fred L. Chappell for Humphrey.

Mr. Joseph H. Freeman for Fickert.

ALLEN, *Commissioner:*

This is a petition for a rehearing of a petition that the decision in this case awarding priority of invention to Fickert be set aside and that judgment be rendered in favor of Humphrey in view of a concession of priority filed after the decision in favor of Fickert.

The decision in favor of Fickert as the first inventor was rendered April 28, 1904, and was an affirmance of the decisions of the Examiner of Interferences and the Examiners-in-Chief, based upon the testimony taken. This Office will not reverse its deliberate judgment based upon the evidence at the mere request of the parties.

It is now alleged that there was error in the decision; but if so it should have been corrected by rehearing or by appeal. The decision has become final by the expiration of the limit of appeal, and it is now too late to raise the question of error.

The petition is denied.

EX PARTE DUKES.

Decided March 2, 1905.

INTERFERENCE—PATENTEE—APPLICANT—CLAIMS UNDER REJECTION—INTERFERENCE NOT DECLARED.

Held that an interference should not be declared between a pending application and an unexpired patent when the claims corresponding to the proposed issue are under final rejection.

ON PETITION.

VERTICAL-PLANE TYPE-WRITER.

Mr. D. P. Wolhaupter for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to declare an interference between this application and Patent No. 677,746, granted to George H. Smith on July 2, 1901.

The Examiner has refused to declare the interference because, in his opinion, the claims in question are not patentable over the prior patent granted to another party in 1893. He has rejected the claims and suggests that the applicant's remedy is by an appeal to the Examiners-in-Chief from that rejection rather than by this interlocutory petition. It is very clear that the Examiner is right in his suggestion, since if the claims are not patentable the question of priority of invention as to them is a moot one. It is immaterial which of the two parties to the proposed interference made the invention first if some other party had made it before either of them. It is the uniform practice of this Office to refuse to declare an interference as to an issue which is not regarded as patentable, and this practice was approved by the Court of Appeals of the District of Columbia in *Neill* v. *Commissioner of Patents* (82 O. G., 749) under circumstances similar to those in the present case.

The petition is dismissed.

IN RE DOMAN.

Decided March 2, 1905.

1. COPIES OF ABANDONED APPLICATION—PATENT GRANTED ON CONTINUOUS APPLICATION—RULE OF SECRECY NOT APPLICABLE TO ABANDONED FILE.

Where a patent is granted on an application filed as a substitute or a continuation of an application subsequently abandoned, *Held* that the proceedings in the abandoned application are, in fact, a part of the proceedings which led to the grant of the patent, and upon the grant of this patent the rule of secrecy no longer applies to these proceedings, and copies of the abandoned application should be furnished upon request.

2. SAME—PROCEEDINGS PUBLIC AFTER GRANT OF PATENT.

Where a patent is granted on an application filed as a substitute for an application subsequently abandoned, *Held* that the record made in the abandoned application should be as much open to the inspection of the public as the record in the patented file, and copies of the abandoned application should be furnished upon request.

IN the matter of the petition by Lewis B. Doman for permission to inspect and be furnished copies of file-wrapper and contents of abandoned application of Francis L. Young.

Messrs. H. C. Evert & Co. for Doman.

Messrs. Dickerson, Brown, Raegener & Binney for Young.

ALLEN, *Commissioner:*

This is a petition by Lewis B. Doman that he be permitted to inspect and be furnished copies of file-wrapper and contents of an abandoned application of Francis L. Young for a mechanical musical instrument, Serial No. 73,644, filed August 29, 1901, which application is assigned to The Aeolian Company of New York.

It appears that a patent for a mechanical musical instrument, No. 692,968, was granted February 11, 1902, to Francis L. Young and assigned to The Aeolian Company of New York. In the record of this patent is a reference by serial number and date of filing to the abandoned application, and it appears that the only action made by the Office prior to the grant of the patent was as follows:

The case is now in condition for allowance, but is withheld from issue until there shall be an abandonment of applicant's case, Serial No. 73,644, now in issue, which embraces the same indivisible subject-matter, as both cases cannot be allowed.

In compliance with that letter an amendment was filed, and under the head of "Remarks" the applicant made the following statement:

Applicant has filed of even date herewith an abandonment of his application, Serial No. 73,644, filed August 29th, 1901. It is, therefore, requested that the present application be passed to issue immediately.

Upon examination of the abandoned file it appears that the Examiner rejected the three claims presented upon certain references. An amendment was subsequently filed canceling the claims and substituting two claims in lieu thereof, and the application was passed to issue on October 29, 1901. It therefore appears that on November 15, 1901, when the application Serial No. 82,393 was filed, which resulted in Patent No. 692,968, of February 12, 1902, the Examiner found that the only bar to the allowance of that application was the indivisible application Serial No. 73,644 then in issue. The Examiner's letter, which has been quoted above, was, in effect, a notice to the applicant that if the application in issue was not abandoned the second application would under the practice be rejected upon the application then in issue, as obviously two patents could not be granted to the same applicant for one invention. It appears from consideration of the files of the abandoned application that the applicant did not traverse the action of the Examiner, but accepted his ruling and filed a letter of abandonment in the following language:

I hereby abandon my application, Serial No. 73,644, filed August 29, 1901, for tempo mechanism for mechanical musical instruments, having filed another application for the invention covered by said application.

From the record of the patented file it appears that the Examiner had allowed the application without the citation of a single reference. The proceedings in the abandoned application are, in fact, a part of the proceedings which led to the grant of the patent. As stated in the case of *Lewis and Unger*, (106 O. G., 543:)

* * * the Office should not under any technical construction of the the rule of secrecy conceal from the public the proceedings which lead to the grant of a patent. When a patent is granted, all proceedings leading to its grant should be public property. The rule of secrecy no longer applies to those proceedings.

The proceedings in this Office leading to the grant of a patent are regarded by the courts as having an important bearing upon the validity and scope of the claims. (*Shepard* v. *Carrigan*, C. D., 1895, 116; 34 O. G., 1157; 116 U. S., 593; *McCormick* v. *Graham*, 129 U. S., 1; *Roemer* v. *Peddie*, C. D., 1899, 682; 49 O. G., 2151; 132 U. S., 313.)

Applying the principles in that case to the present one, it is clear that the record made in the abandoned application should be as much open to the inspection of the public as the record in the patented file.

The application upon which the patent was granted was clearly filed as a continuation of the abandoned application. The petition is granted.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

HAMMOND *v.* BASCH

Decided January 3, 1905

1. INTERFERENCE—PRELIMINARY STATEMENT—AMENDMENT

Whether an amendment to preliminary statement shall be allowed in an interference proceeding under the rules of practice of the Patent Office calls for the exercise of a wide latitude of discretion by the Commissioner, and certainly nothing less than an abuse of that discretion, causing a palpable miscarriage of justice, would warrant the review and reversal of his action. (*Cross* v. *Phillips*, 14 App. D. C., 228, 237, 238.)

2. SAME—SAME—PARTIES HELD TO DATES GIVEN THEREIN.

The sworn preliminary statements required when an interference has been declared constitute the pleadings of the parties, and we have had occasion several times, and for reasons satisfactory now as then, to approve the practice of holding the parties strictly to the dates given therein. (*Bader* v. *Vajen*, 14 App. D. C., 241, 254; *Stevens* v. *Silker*, 11 App. D. C., 245, 251; *Cross* v. *Phillips*, 14 App. D. C., 228, 236.)

3. SAME—SAME—SAME.

Where the allegation of the construction of a model is followed by a separate allegation of reduction to practice in a full-sized device upon a later date, the idea of intention to claim for the first construction anything more than conception is precluded. The opposing party may have rested his case on later dates in view of such statement, and to admit proof of an earlier date of reduction than that given would seriously impair, if not destroy, the rule of certainty in pleading long maintained in the Patent Office.

4. SAME—REDUCTION TO PRACTICE—DEVICE INTENDED AS MODEL MAY BE.

There is no doubt that the construction of a full-size device capable of use to a sufficient extent to demonstrate the practical utility of the invention may often be regarded as a reduction to practice, notwithstanding it may have been called a model, as well as intended by the inventor to be used as a model for the construction of a like device of better and different materials, when there has been some test or application to use. (*Norden* v. *Spaulding*, present term; *Mason* v. *Hepburn*, 13 App. D. C., 86, 89.)

5. SAME—SAME—SAME—BUT MUST BE DIFFERENT FROM ORDINARY MODEL.

Such a model, so called, must be quite different from the ordinary model which, while it may show the invention, is incapable of operation to effect its purpose, and the cases must be few, if any indeed, in which the construction and disclosure of a device intended as an illustrative model merely without some test of its capacity to perform the service intended could be accepted not only as evidence of conception, but of reduction to practice also.

6. SAME—SAME—DILIGENCE.

Where a party presents evidence of completion of the invention prior to the date to which he is restricted by his preliminary statement, *Held* that such evidence is entitled to some consideration upon the question of diligence as tending to show that he had some reason to be satisfied with the practicability of his device.

7. SAME—SAME—DILIGENCE—OPPONENT ESTOPPED FROM DENYING.

When the lapse of time between H.'s conception and his date of reduction to practice would be fatal if unexplained, but his delay is claimed to have been caused by an infringement suit and the same suit is relied upon by B. to explain delay, *Held* that B. is in no condition to take advantage of the omission to show what there was in that suit to excuse delay in the matter of this invention.

Mr. J. Edgar Bull for the appellant.

Mr. James C. Chapin for the appellee.

SHEPARD, *J.:*

This is an appeal from the decision of the Acting Commissioner of Patents in an interference case having the following issue:

A hose-supporting device composed of two parts, each having a flange adapted to embrace one of the corset-steels, one of said parts being adapted to engage the eye of the corset-clasp and the other of said parts being adapted to engage the stud of the corset-clasp, as and for the purpose described.

The application of the appellant, Hammond, was filed March 26 1902, and that of the appellee, Basch, on April 29, 1902.

Basch claimed conception December 1, 1899, and reduction to practice January 3, 1901.

In his preliminary statement Hammond said:

I conceived the invention set forth in the declaration of interference as early as May 1, 1900, and on that day I made a model showing such invention, and on said date showed and explained said invention and model to others. * * * I reduced said invention to practice by making a full-size device and successfully tested and operated the same as early as February 1, 1901.

Both parties explain their delay by referring to a pending suit for infringement of a hose-supporter patent, against Hammond's associate, Thomas P. Taylor, which was finally determined adversely to them about March 12, 1902.

Hammond was the manager of the hose-supporter department of said Taylor who was a manufacturer. The patent established in the suit was called the Parramore patent.

Hammond conceived the invention of the issue about May 1, 1900, in an attempt to produce a supporter that would not infringe the Parramore patent. What he called his model consisted of a pair of hose-supporters which were worn by a female employee for a week and found to be satisfactory. Nothing more was done until the decision of the Parramore suit. Immediately thereafter preparations were made for the manufacture of the new device, and on March 29, 1902, they were advertised in the New York *Dry Goods Economist*. April 3, 1902, the first shipment of them was made, and during that month some three thousand dozen were sold. On September 13, 1902, and before any testimony had been taken in this case, Hammond moved for leave to amend his preliminary statement, his object being to change the date of reduction to practice from February 1, 1901, to May 1, 1900, which was the date of the construction and use of the "model."

The ground of the motion was the alleged mistake of his attorney growing out of the preparation of a preliminary statement filed at the same time in another case of interference. The motion was denied by the Examiner of Interferences, whose ruling was affirmed on appeal to the Commissioner, and one of the reasons of appeal is based on that ruling.

Whether an amendment shall be allowed in an interference proceeding, under the rules of practice of the Patent Office, calls for the exercise of a wide latitude of discretion by the Commissioner, and certainly nothing less than an abuse of that discretion, causing a palpable miscarriage of justice, would warrant the review and reversal of his action. (*Cross* v. *Phillips*, 14 App. D. C., 228, 237, 238.)

We are unable to say that there was such an abuse of discretion in refusing the leave to amend in this case, though it would seem from all that is disclosed on the face of the record, that the rule was enforced with much strictness. There is practically no evidence that either party had a conception of the invention prior to the date of his construction of the device upon which he relies for reduction to practice.

Considering the case upon the original statement, the Examiner of Interferences confined Hammond to the date therein alleged, namely, February 1, 1901, and his decision turned upon the single question, whether the evidence of Basch showed actual reduction to practice on January 3, 1901. Being of the opinion that this showed nothing more than an abandoned experiment, he awarded priority to Hammond who was the first to enter the Patent Office with an allowable application. He was reversed on appeal to the Examiners-in-Chief, and their decision having been affirmed by the Commissioner, priority was finally awarded to Basch.

There seems to be no reasonable doubt that had Hammond's amendment been allowed, the final decision would have been in his favor, for whatever objections may be raised to the completeness of his first construction apply

with equal, if not greater force to that of Basch. The sufficiency of Hammond's evidence to show reduction of his invention to practice in May, 1900, need not be determined in our view of the question, whether that evidence can be considered under the allegations of his preliminary statement without amendment. The sworn preliminary statements required when an interference has been declared constitute the pleadings of the parties, and we have had occasion several times, and for reasons satisfactory now as then, to approve the practice of holding the parties strictly to the dates given therein. (*Bader* v. *Vajen*, 14 App. D. C., 241, 254; *Stevens* v. *Seher*, 11 App. D. C., 245, 251; *Cross* v. *Phillips*, 14 App. D. C., 228, 236.)

The appellant contends that the evidence ought all to be received and considered on the ground that the allegation of the construction of his model on May 1, 1900, is substantially a statement of reduction to practice on that day, and hence that the subsequent allegation of a later date of actual reduction to practice may be disregarded.

The argument is that the allegation of the construction of a "model," illustrating so simple an invention as a hose-supporter, implies a reduction to practice.

There is no doubt that the construction of a full-size device, capable of use to a sufficient extent to demonstrate the practical utility of the invention, may often be regarded as a reduction to practice, notwithstanding it may have been called a model, as well as intended by the inventor to be used as a model for the construction of a like device of better and different materials, when there has been some test or application to use. (*Norden* v. *Spaulding*, present term; *Mason* v. *Hepburn*, 13 App. D. C., 86, 89.)

Such a model, so called, must be quite different from the ordinary model which, while it may show the invention, is incapable of operation to effect its purpose. However, the cases must be few, if any indeed, in which the construction and disclosure of a device intended as an illustrative model, merely, without some test of its capacity to perform the service intended, could be accepted not only as evidence of conception, but of reduction to practice also.

It is sufficient to say that this "model" was not of that character.

Whether the allegation, in a preliminary statement, of the construction of a model showing this invention, simple as it may be, and its exhibition to others on a certain day, would, without anything more, reasonably indicate to the opposing party that it was then and there actually reduced to practice, is not the question. Hammond did not content himself with such an indefinite statement, but went on to say:

> I reduced said invention to practice by making a full-sized device and successfully tested and operated the same as early as February 1, 1901.

This direct and certain allegation of actual reduction to practice upon a later date, following the other in due order, cannot be disregarded as matter of surplusage. It precludes the idea of an intention to claim for the first construction anything more than a conception of the invention; hence it would be unreasonable to expect his opponent to anticipate the introduction of evidence tending to show reduction to practice, also, at that time. It may be, therefore, that this is the reason why the latter was content to rest his cause upon evidence tending to show an earlier date of reduction to practice than that alleged by Hammond, and did not try to prove with any certainty an earlier conception prosecuted with due diligence.

To admit the contention of the appellant would seriously impair, if not destroy the rule of certainty in pleading long maintained in the Patent Office.

Though we have grave doubts whether Basch's evidence is sufficient to show a successful reduction to practice on January 3, 1901, we will assume that it is. Upon this assumption the only question that remains to be considered is, whether Hammond, having been the first to conceive the invention, has lost his right thereto, as against Basch, through failure to exercise reasonable diligence in its prosecution. Our conclusion is that he has not. No invariable rule of diligence can be prescribed for the government of all cases. Whether it has been exercised in a particular case must depend upon its special circumstances. The lapse of time between Hammond's conception and the only act of reduction to practice that we are at liberty to consider under the allegations of his preliminary statement, was great and would be fatal if unexplained. His delay, it appears, was caused by the Parramore infringement suit. It is true that it does not clearly appear what there was in that suit to excuse delay in the matter of this invention, but Basch is in no condition to take advantage of the omission to show it. He, like Hammond, was watching the proceedings in that suit and waiting for its final determination. Having acted upon the assumption that there was something involved in its issue to account reasonably for his own delay, he cannot be heard to deny the reasonableness of that of Hammond. Although what Hammond did in the way of testing his so-called model in May, 1900, cannot be received as showing reduction to practice at that time, it is entitled to some consideration, under the peculiar circumstances, as bearing upon the question of his exercise of reasonable diligence. It tends, at least, to show that he had some reason to be satisfied with the practicability of his model, and that it was only held in abeyance until it could be definitely ascertained whether or not it would be covered by the Parramore patent when the scope of the latter should be finally determined.

Immediately, then, upon the establishment of the Parramore patent by a decision rendered March 12, 1902, and believing that his model was not covered by its determined claims, he went energetically to work.

The manufacture was begun at once, and patent was applied for on March 26, 1902. The product was brought to the attention of the trade by advertisement, on March 29, and the first shipment was made April 3, 1902. During April about three thousand dozen were sold. This was in marked contrast with the action of Basch who had no lack of means to do the same thing. Under the special circumstances of the case we think that his previous delay should in justice be excused.

For this reason the decision appealed from will be reversed. It is so ordered, and the clerk is directed to certify this decision to the Commissioner of Patents.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4	.....	Nevada	.....	.....
Alaska Territory	.....	.....	New Hampshire	2	.....
Arizona Territory	.....	.....	New Jersey	16	.....
Arkansas	3	.....	New Mexico Ter't'y	.....	.....
California	16	.....	New York	98	10
Colorado	7	1	North Carolina	6	.....
Connecticut	15	.....	North Dakota	.....	.....
Delaware	.....	.....	Ohio	37	2
District of Columbia	4	.....	Oklahoma Territ'y	2	.....
Florida	3	.....	Oregon	.....	.....
Georgia	5	.....	Pennsylvania	57	3
Hawaii Territory	.....	.....	Porto Rico	.....	.....
Idaho	1	.....	Rhode Island	4	.....
Illinois	59	7	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	2	.....
Indiana	10	.....	Tennessee	6	.....
Iowa	9	1	Texas	9	.....
Kansas	10	.....	Utah	2	.....
Kentucky	3	.....	Vermont	2	.....
Louisiana	1	.....	Virginia	8	.....
Maine	3	.....	Washington	5	.....
Maryland	3	.....	West Virginia	5	.....
Massachusetts	30	6	Wisconsin	10	2
Michigan	10	3	Wyoming	1	.....
Minnesota	10	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	19	1	Total to citizens of the United States	504	36
Montana	.....	.....			
Nebraska	6	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Netherlands	.....	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Belgium	2	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
British West Indies	.....	.....	Norway	.....	.....
Canada	13	.....	Persia	.....	.....
Cape Colony	.....	.....	Queensland	.....	.....
Chile	.....	.....	Roumania	.....	.....
China	.....	.....	Russia	1	.....
Costa Rica	.....	.....	San Salvador	.....	.....
Cuba	.....	.....	Scotland	1	.....
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	9	2	Sweden	3	.....
France	4	.....	Switzerland	.....	.....
Germany	19	.....	Transvaal, South Africa	.....	.....
India	.....	.....	Victoria	.....	.....
Ireland	.....	.....	Western Australia	.....	.....
Italy	.....	.....	Total to citizens of foreign countries	56	2
Japan	1	.....			
Java	.....	.....			
Mexico	1	.....			

Trade-Marks.

It is proposed to publish after April 1, 1905, an additional number of separate leaflets containing the trade-mark portion of the OFFICIAL GAZETTE for more convenient examination and to sell such copies at the rate of five cents for each weekly issue. Coupons will be taken in payment therefor.

Attorneys.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 23, 1905.

This Office has been advised by the Secretary of the Interior of the disbarment of the following attorneys from practice before the Department or any Bureau thereof: William F. Savage, San Francisco and Los Angeles, Cal., March 16, 1905; John Ryan, San Jacinto, Cal., March 21, 1905.

C. M. IRELAN,
Chief Clerk

Disclaimer.

756,673.—*Carl J. Mellin*, Richmond, Va. COMPOUND ENGINE. Patent dated April 5, 1904. Disclaimer filed March 18, 1905, by the patentee.

Enters his disclaimer—

"To that part of the specification which consists of the word 'further,' being the first word in the third line of page 2 of the amendment dated October 14, 1902." (Line 1, page 2, of the printed specification.)

"Also to those parts of the claims consisting of the words 'opening of the reducing-valve and the' in the second and third lines from the bottoms of claims 1 and 2, as amended July 14, 1903." (Lines 101–102 and 114–115, page 2, of the printed specification.)

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 21, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators Lamps and Gas-Fittings.	Mar. 2	Mar. 1	156
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 27	Feb. 23	267
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Feb. 23	Feb. 24	256
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Feb. 23	Feb. 6	393
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Surgery, Tents, Toilet, Umbrellas.	Feb. 23	Feb. 1	467
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels, Photography.	Feb. 21	Mar. 7	281
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Feb. 21	Feb. 16	179
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Store-Service, Tobacco, etc.	Feb. 21	Feb. 7	280
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 21	Dec. 6	422
	Between one and two months.			
329	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Feb. 18	Jan. 6	602
327	XVIII. Steam-Engineering, etc....	Feb. 17	Feb. 23	239
304	XXXIV. Railways, Railway-Brakes, Rolling-Stock.	Feb. 17	Feb. 14	389
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Feb. 16	Jan. 18	623
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Feb. 11	Feb. 21	340
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Feb. 10	Jan. 16	347
321	I. Tillage, etc., Fences, and Railway Draft Appliances.	Feb. 8	Feb. 6	333
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Feb. 7	Feb. 13	205
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Harness, Ladders, Mechanical Motors, and Paper Manufactures.	Feb. 4	Jan. 3	502
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Jan. 26	Feb. 4	376
148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Jan. 23	Feb. 20	372
109	XVI. Telegraphy and Telephony..	Jan. 23	Jan. 5	232
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Optics, Signals, Time Controlling Mechanism.	Jan. 21	Jan. 23	496
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Jan. 21	Jan. 17	590
	Between two and three months.			
332	X. Carriages and Wagons.....	Jan. 18	Feb. 23	436
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Jan. 13	Jan. 3	410
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working.	Jan. 11	Feb. 1	448
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Jan. 11	Jan. 16	329
154	XI. Boot and Shoe Making, Boots, Shoes; and Leggings, Button, Eyelet, and Rivet Setting, Leather Manufacturing, Nailing and Stapling, Check-Controlled Apparatus Whips and Whip Apparatus.	Jan. 11	Jan. 4	373
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks, Sheet-Metal Ware, Making, Tools, Wire-Working.	Jan. 11	Dec. 5	389
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 10	Dec. 31	606
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Jan. 9	Nov. 15	615
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Jan. 7	Jan. 14	336
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Jan. 6	Nov. 2	750
137	VIII. Beds, Chairs, Furniture, Kitchen and Table Articles, Store Furniture.	Jan. 3	Jan. 11	691
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Dec. 30	Dec. 5	748
	Between three and four months.			
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors Pumps, Sewerage, and Water Distribution.	Dec. 20	Jan. 26	571
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Cutlery, Dentistry, Locks and Latches, Safes, Undertaking.	Nov. 14	Nov. 7	628

Applications Under Examination—Continued.

Total number of applications awaiting action..... 15,668

	Under one month.			
159	XXXIII. DESIGNS, TRADE-MARKS, LABELS AND PRINTS.			
	Designs.....	Mar. 13	Mar. 14	16
	Trade-Marks.....	Mar. 8	Mar. 20	23
	Labels and Prints.....	Mar. 21	Mar. 21	....

Renewal of Forfeited Cases.

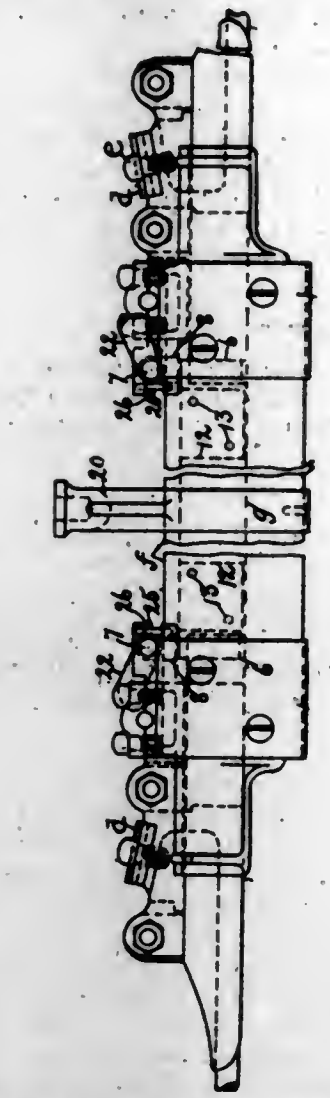
RULE 175. When the patent has been withheld by reason of non-payment of the final fee, any person, whether inventor or assignee, who has an interest in the invention for which such patent was ordered to issue may file a renewal of the application for the same invention; but such second application must be made within two years after the allowance of the original application. * * *

RULE 176. In such renewal the oath, petition, specification, drawing, and model of the original application may be used or the second application: but a new fee ($15) will be required. * * *

PATENTS

GRANTED MARCH 28, 1905.

785,700. **ELECTRIC-CONDUCTOR SUPPORT.** JOHAN M. ANDERSEN, Boston, Mass., assignor to Albert and J. M. Anderson Manufacturing Company, Portland, Me. Filed Jan. 5, 1905. Serial No. 239,712.



Claim.—1. In an electric-conductor support, in combination, line-terminals, interposed strain-insulators connected to said line-terminals, a hanger connected with said strain-insulators, an insulating-bridge interposed between said line-terminals and provided with metallic end pieces, and rotatable shafts supported by said line-terminals above the end pieces of said bridge and provided with cranks which are adapted to be brought into engaging and disengaging position with relation to said end pieces by rotation of said shafts, substantially as described.

2. In an electric-conductor support, in combination, line-terminals, an interposed bridge-piece of insulating material, and crank-shafts provided with cranks separated to permit the passage of said bridge between them when said shafts are turned into one position and adapted to be brought into line with said bridge when said shafts are rotated in another direction, substantially as described.

3. In an electric-conductor support, in combination, line-terminals, an interposed bridge-piece movable bodily in a vertical direction with relation to said terminals and supported thereby, and a device coöperating with said bridge to secure the same to said line-terminals against upward movement when said device is in one position and to permit of said upward movement when said device is in another position, substantially as described.

4. In an electric-conductor support, in combination, line-terminals, an interposed insulating-piece coöperating with said line-terminals, and rotatable locking devices coöperating with said insulating-piece to secure the same to said line-terminals against upward movement with relation to said line-terminals, substantially as described.

5. In an electric-conductor support, in combination, a line-terminal, an insulating-piece coöperating therewith and bodily movable upward therefrom, and a locking device carried by said line-terminal and coöperating with said insulating-piece to secure it to said line-terminal, substantially as described.

6. In an electric-conductor support, in combination, a line-terminal, an insulating-piece coöperating therewith and bodily movable upward therefrom, and a rotatable locking device carried by said line-terminal and coöperating with said insulating-piece to secure it to said line-terminal, substantially as described.

7. In an electric-conductor support, in combination, line-terminals, an interposed insulating-piece coöperating with said terminals and bodily movable upward therefrom, and locking devices carried by said terminals and coöperating with the upper surface of said insulating-piece to secure said insulating-piece to said terminals, substantially as described.

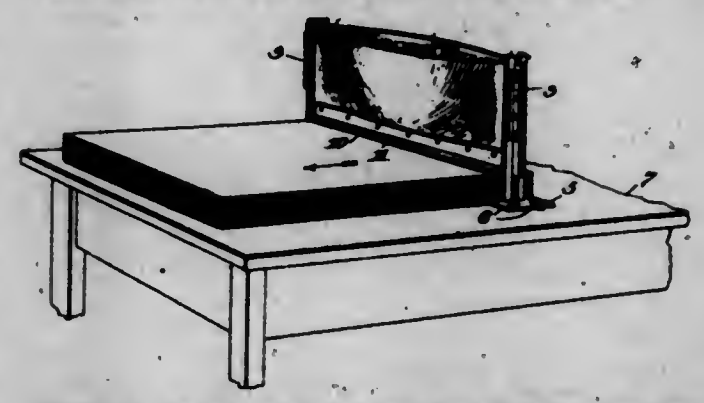
8. In an electric-conductor support, in combination, a line-terminal, an insulating-piece coöperating therewith to form an extension thereof and movable bodily in a vertical direction to disengage it from said line-terminal, and a locking device located above said insulating-piece and coöperating therewith to hold said insulating-piece down against upward movement, substantially as described.

9. In an electric-conductor support, in combination, a line-terminal provided with a pocket or socket open at its upper end, an insulating-piece having its end fitted into said pocket, and a locking device to close the open upper end of said socket and secure said insulating-piece to said line-terminal, substantially as described.

10. In an electric-conductor support, in combination, a line-terminal, an insulating-piece extended therefrom, and a rotatable locking device for said insulating-piece and comprising a shaft having a double crank adapted to engage the said insulating-piece, substantially as described.

11. In an electric-conductor support, in combination, line-terminals, an interposed piece forming a path for the trolley-wheel between said line-terminals and bodily movable from said terminals in a direction substantially at right angles thereto, and locking devices coöperating with the upper surface of said interposed piece to secure the same to said terminals against bodily movement, substantially as described.

785,701. **WRAPPER-PASTING DEVICE.** JOSEPH G. ANDREU, Jacksonville, Fla. Filed Jan. 30, 1904. Serial No. 191,300.



Claim.—1. In a device of the class described, a pair of slotted uprights, and a paste-receptacle having ends extended into the slots in said uprights and flanges abutting upon the outer sides of the latter.

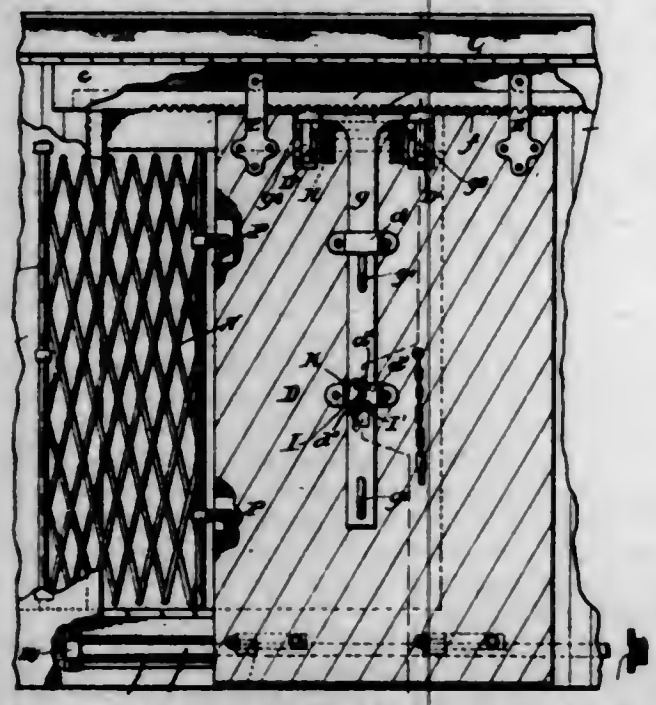
2. In a device of the class described, a vertically-movable paste-receptacle having a plurality of escape-tubes extending through the bottom thereof, and a spreader attached to the receptacle in front of

said tubes, the lower edge of said spreader being level with the lower edges of said tubes.

3. In a device of the class described, a vertically-movable paste-receptacle having escape-openings in the bottom thereof, and a spreader attached to said receptacle and having a forwardly-bent lower end, the under side of the bent portion of said spreader being level with the lower edges of the escape-openings.

4. In a device of the class described, a pair of uprights having vertical slots open at their upper ends, a paste-receptacle having tapering ends extended into said slots and flanges abutting exteriorly upon said uprights, escape-tubes in the bottom of said receptacle, and spreading means attached to the latter, the lower edges of said spreading means being level with the lower ends of the tubes.

785,702. **FREIGHT-CAR-DOOR FASTENER.** ANDREW O. ARNOLD, Galesburg, Ill. Filed Dec. 19, 1901. Renewed Feb. 12, 1903. Serial No. 143,089.



Claim.—1. In a freight-car-door fastener, the combination of a horizontal rail secured to the car above the doorway and having a toothed rack, hangers secured to the door and supported by the rail, a vertically-movable detent adapted to engage said rack, a vertically-disposed rod or bar carrying said detent, means for securing said rod or bar to the door and supporting it against lateral movement while permitting its endwise movement vertically, whereby when the detent is disengaged from the rack said rod or bar affords means for moving the door in either direction, and a spring for holding said detent normally in engagement with the rack, substantially as described.

2. In a car-door fastener, the combination of a horizontal rail secured to the car above the doorway and having on its under side a toothed rack, the teeth of which are presented downward, hangers secured to the door and supported by said rail, a detent, under the control of the operator, adapted to engage said rack, a spring for holding said detent normally in engagement with the rack, a vertically-movable rod or bar carrying said detent, means for securing said rod or bar to the door and supporting it against lateral movement while permitting its free endwise movement, whereby, when the detent is disengaged from the rack-bar, said vertically-movable bar affords means for moving the door laterally in either direction, and means under the control of the operator for securing said vertically-movable rod or bar against endwise movement, the door being provided with a socket in which the spring fits, substantially as described.

3. In a car-door fastener, the combination of a rack carried by the car, a detent carried by the door and having a vertical pull-rod slidably mounted upon the door, guiding fingers or tongues carried by the detent, the door being provided with sockets in which said fingers work, and means for holding the detent in engagement with the rack, substantially as described.

4. In a car-door fastener, the combination of a rack carried by the car, a detent carried by the door and adapted to engage the rack, springs interposed between the detent and the door, the door being provided in its upper edge with sockets in which said springs fit, and means for disengaging the detent from the rack, substantially as described.

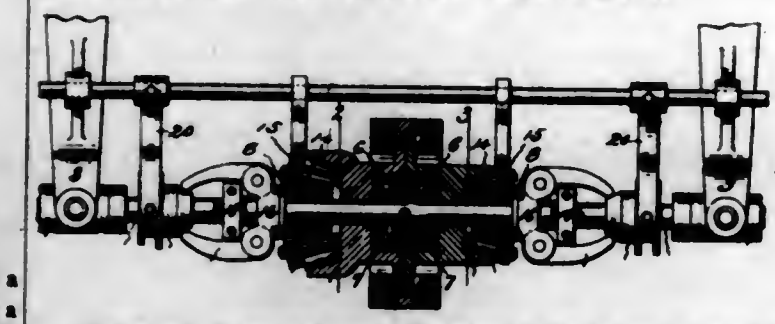
5. In a car-door fastener, the combination of a rail secured to the car above the doorway and having on its under side a rack, and in its rear side a groove, hangers secured to the door and having rollers running upon said rail and having also dependeng portions entering the groove in the back of the rail, a detent carried by the door and adapted to engage the rack, and means for operating said detent, substantially as described.

6. In a car-door fastener, the combination of a rail secured to the car above the doorway, hangers secured to the door and engaging said rail whereby the door is supported, said hangers having portions which project downward behind the rail for preventing the door from moving outward, said hangers having also fingers which project forward and engage the rail whereby the door is prevented from moving outward, and means for preventing the bottom of the door from moving outward, substantially as described.

7. In a car-door fastener, the combination with the door, of a rail secured to the car, the car being provided with a groove or channel in which said rail is located, said groove or channel being open only at its outer side, and hooks carried by the door and engaging said rail, substantially as described.

8. In a car-door fastener, the combination of a rack secured to the car above the doorway and having its teeth presented downward, a detent carried by the car-door and having teeth presented upward and adapted to engage the teeth of the rack, a flange projecting downward from the detent and engaging the back of the door and a pull-rod slidably mounted upon the front side of the door, and means for locking or sealing the detent in engagement with the rack, substantially as described.

785,703. **POWER-TRANSMITTING MECHANISM.** WILLIAM J BAYER, Hartford, Conn., assignor of one-half to Frederick R. Boynton Hartford, Conn. Filed Feb. 29, 1904. Serial No. 196,765.



Claim.—1. A power-transmitting mechanism having a driving part, a driven part, rollers in a single ring located between the driving and the driven parts, rollers in two rings located between the driving and the driven parts, and means for engaging and disengaging the rollers between the driving and the driven parts, substantially as specified.

2. A power-transmitting mechanism having a driving part, a driven part, rollers in a single ring located between the driving and the driven parts, rollers in two rings located between the driving and the driven parts, means movable along and rotatable with the driving part for causing the single ring of rollers to engage between a part that rotates with the driving part and also with the driven part, and means movable along and rotatable with the driving part for causing the two rings of rollers to engage between a part that rotates with the driving part and also with the driven part, substantially as specified.

3. A power-transmitting mechanism having a driving part with tapering recesses, a driven part, cones movable along and rotatable with the driving part, a single ring of rollers between the surface of one of the cones and the wall of one tapering recess, two rings of rollers between the surface of the other cone and the wall of the other tapering recess, and means for moving the cones, substantially as specified.

4. A power-transmitting mechanism having a driving part with tapering recesses, a driven part, cones movable along and rotatable with the driving part, a single ring of rollers between the surface of one cone and the wall of one tapering recess, a frame holding these rollers against revolution, two rings of rollers between the surface of the other cone and the wall of the other tapering recess, a frame holding one ring of these rollers against revolution, and means for moving the cones, substantially as specified.

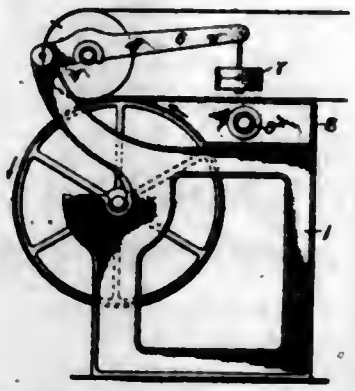
5. A power-transmitting mechanism having a driving part with tapering recesses, a driven part, a single ring of rollers located in one recess, two rings of rollers located in the other recess, and means for driving the rollers into the recesses and causing them to engage between the driving and the driven parts, substantially as specified.

6. A power-transmitting mechanism having a shaft, a pulley loosely mounted on the shaft and having tapering recesses in its hub, cones mounted on the shaft in the recesses, a single ring of tapering rollers located between the surface of one cone and the wall of one recess, two rings of tapering rollers located between the surface of the other cone and the wall of the other recess, means for preventing the revolution of the rollers, and means for forcing the cones into engagement with the rollers and the rollers into engagement with the walls of the recesses, substantially as specified.

7. A power-transmitting mechanism having a shaft, a collar fixed on the shaft, a pulley rotatable on the shaft and having tapering recesses in its hub, balls arranged between the pulley and the collar, cones rotatable with the shaft in the recesses, a single ring of tapering rollers located between the surface of one cone and the wall of one recess, two rings of tapering rollers located between the surface of the other cone and the wall of the other recess, and means for causing the rollers to engage between the surfaces of the cones and the walls of the recesses, substantially as specified.

8. A power-transmitting mechanism having a shaft, a collar fixed on the shaft, a pulley rotatable on the shaft and having tapering recesses in its hub, cones rotatable with the shaft, tapering rollers at each end of the hub between the surfaces of the cones and the walls of the recesses, and means for causing the tapering rollers to engage between the surfaces of the cones and the walls of the recesses, substantially as specified.

785,704. **PAPER-MAKING MACHINE AND PROCESS.** ROBERT BINNS, South Windham, Conn. Filed June 18, 1904. Serial No. 213,058.



Claim.—1. In a paper-making apparatus, a cylinder having a porous screened periphery, a blanket, a pulp-tank arranged below the top of the cylinder, one side of the tank only opening against the screened portion of said cylinder, the said parts being so arranged that when the web is deposited on the cylinder it is lifted thereby from the pulp-suspending medium in the tank and conveyed without alining the fibers directly to said blanket.

2. In a paper-making apparatus a cylinder having a porous screened periphery, a blanket, a pulp-tank arranged below the top and adjacent to the screened surface of said cylinder, said screened surface forming one side of said tank, said parts being so arranged that the pulp is deposited by percolation in one continuous layer or web on that portion of the screen forming a wall of the tank, and is lifted thereby from the pulp-suspending medium in said tank and conveyed without alining the fibers directly to said blanket.

3. The method of manufacturing paper which includes the uninterrupted deposit by percolation of a continuous web upon the rising surface of a rotating cylindrical screen, said deposit being made below the level of a liquid-pulp-suspending medium, then lifting the web thus formed immediately from the liquid pulp to a substantially horizontal plane above said pulp and conveying it, without alining the fibers, directly to a web-removing blanket.

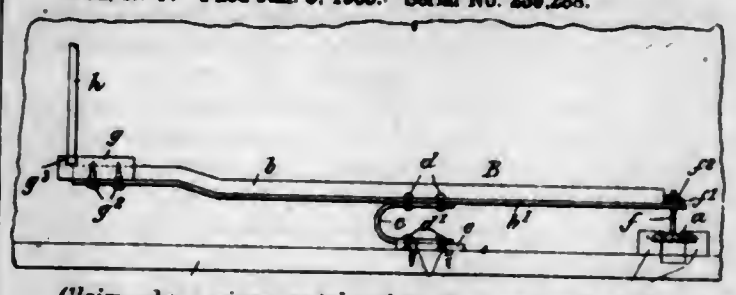
785,705. **PORTABLE MOLD.** JOHN T. BOWEN, Napoleon, Ohio. Filed May 26, 1904. Serial No. 209,788.



Claim.—1. In a mold, an outer shell or jacket formed in two sections hinged together and adapted to swing laterally to open position, an inner removable core member comprising a plurality of hollow detachable sections, a plurality of wedge-shaped keys or slides connecting the latter sections, means for fastening the outer shell or jacket, and an auxiliary fastening means arranged within the hollow core-sections for connecting said sections.

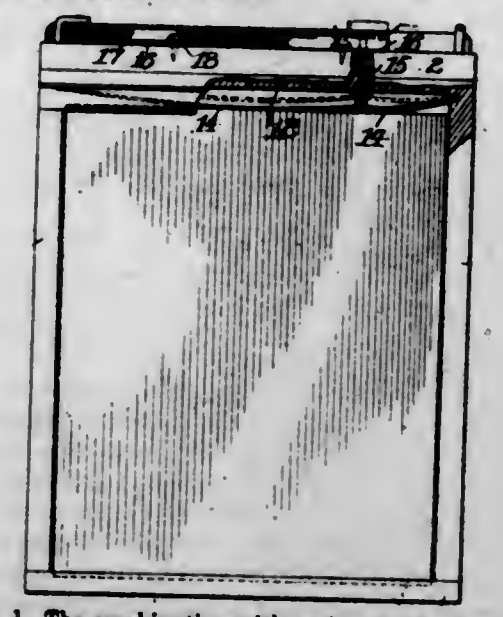
2. In a mold, an outer shell or jacket formed in two sections hinged together, a metallic casing surrounding the inner walls of said shell, an inner removable core member comprising a pair of detachable sections having their adjacent edges grooved or recessed, wedge-shaped keys or slides provided with corresponding tongues adapted to engage said grooves or recesses, a metallic casing surrounding the outer walls of the core member, and means for fastening the sections comprising the outer shell or jacket.

785,706. **PIANO PEDAL-ACTION.** EDWARD BORNHORST, New York, N. Y. Filed Jan. 3, 1905. Serial No. 239,288.



Claim.—In a piano pedal-action, the combination of a pedal with a lever T-shaped in cross-section and operatively connected thereto, a horizontally-placed U-shaped spring, means for connecting the upper spring-shank to the lever, a grooved block straddling the lever, and a lifter-rod engaging said block, substantially as specified.

785,707. **PHOTOGRAPHIC-PLATE HOLDER.** FRANK A. BROWNELL, Rochester, N. Y., assignor, by mesne assignments, to Eastman Kodak Company, Rochester, N. Y., a Corporation of New York. Filed Dec. 22, 1902. Serial No. 136,140.



Claim.—1. The combination with a plate-holder having an exposing-slide and plate-retaining devices, of means for controlling the operation of the plate-retaining devices operable from the exterior of the holder and held from operation by the slide to prevent the disengagement of the plate when the slide is in position in the holder.

2. The combination with a plate-holder having the plate-retaining ledge and an exposing-slide, of a movable member for retaining the plate beneath the ledge having a controlling portion at the exterior of the holder and adapted to be held from operation by the exposing-slide to prevent the release of the plate while the slide is in the holder.

3. In a plate-holder, the combination with the frame having the ledges at the end for retaining a photographic plate and an exposing slide or cover, of a movable member for retaining the plate beneath one of the ledges operable from the exterior of the holder coöperating with and controlled by the exposing-slide.

4. The combination with a plate-holder having the exposing-slide, the plate-retaining ledge at one end and the movable member, of a controlling part for the member coöperating with the slide to prevent the movement of said member when the slide is in the holder.

5. The combination with a plate-holder having the exposing-slide, the plate-retaining ledge and the automatically-movable plate-engaging member, of means for holding the member in engagement with the plate and adapted to be held from operation by the slide when the latter is in the holder to prevent the release of the plate.

6. The combination with a plate-holder having the exposing-slide, the plate-retaining ledge and the automatically-movable plate member opposite the ledge, of the catch for holding the member in engagement with the plate, operable from the exterior of the holder and prevented from operation by the slide when the latter is in the holder.

7. The combination with a plate-holder having the plate-retaining ledge and the plate-engaging spring, of the catch-plate connected to the spring and the catch projection with which it is adapted to engage.

8. The combination with a plate-holder having the ledge and the plate-engaging spring, of the pin connected to the spring and extending outside the holder, the movable plate thereon and the catch projection with which the plate engages.

9. The combination with a plate-holder having the exposing-slide, the plate-engaging ledge and the plate-engaging spring, of the pin connected to the spring and extending outside of the holder, the movable plate on the spring, and the catch projection with which the plate engages said plate being adapted to engage the exposing-slide when the latter is in the holder.

10. The combination with a plate-holder having the overhanging ledges, the plate-engaging spring pressing normally away from the plate, of means operable from the exterior of the holder for moving the spring toward the plate and holding it in adjusted position.

11. The combination with a plate-holder having the overhanging ledges with which the plate engages, of the plate-engaging spring operating beneath one of the ledges and normally bowed away from the plate, means for flexing the spring into engagement with the plate and means for securing it.

12. The combination with a plate-holder having the overhanging ledge at one end with which the plate engages and a spring operating when free to move away from the ledge, of means for operating the spring toward the ledge to hold the plate yieldingly beneath the former.

13. The combination with a plate-holder having an overhanging ledge at one end with which the plate engages and a spring operating when free to move away from the ledge, of the pin engaging the spring, the catch-plate thereon and the catch projection with which the plate engages.

14. The combination with a plate-holder having an overhanging ledge at one end with which the plate engages, of a spring-operated member operating when free to move away from the ledge, and means for holding said member in yielding engagement with the plate operable from the exterior of the holder.

15. The combination with a plate-holder having the opposing slide and an overhanging ledge at one end with which the plate engages, of a spring-operated member operating when free to move away from the ledge, means for holding the member in yielding engagement with the plate operable from the exterior of the holder and controlled by the slide when in position in the holder.

16. A plate-holder having a normally retracted spring and means for expanding the spring to cause it to advance and secure the sensitized plate.

17. A plate-holder having a normally receding spring upon which one edge of the sensitized plate rests, and means for advancing the spring to cause it to advance and secure the plate in the holder, said spring automatically receding to release the plate when the advancing means are withdrawn.

18. A plate-holder having a normally withdrawn spring forming a seat for one edge of the sensitized plate said spring capable of expansion to advance the plate relative to the holder and secure it therein.

19. A plate-holder having a normally withdrawn spring forming a seat for one edge of the sensitized plate, and means for moving the spring relative to the holder to cause it to advance the plate and secure it within said holder.

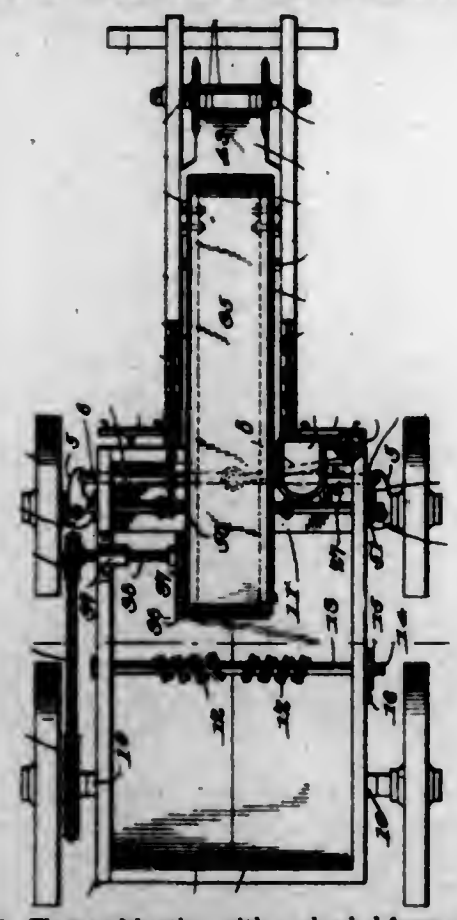
20. A plate-holder having a normally depressed member forming a support for one edge of the sensitized plate and pressure means for expanding the support to cause it to advance the plate in the holder, said member automatically resuming a normal position when the pressure thereon is removed.

21. A plate-holder having a centrally-bowed spring forming a support for one edge of the sensitized plate, and means for expanding the spring to cause it to advance and secure the sensitized plate.

22. A plate-holder having a spring extending across it from side to side and with its ends secured in said sides, said spring forming a support for one edge of the sensitized plate, and means for expanding the central portion of the spring to cause the plate to be advanced and secured in the holder, said plate being released by the retraction of said spring.

23. A plate-holder having a reversely-bowed spring forming a support for one edge of the sensitized plate and having its ends fixed in opposite sides of the holder, and means for expanding the spring to cause it to advance and secure the plate in the holder, said plate being released by the retraction of the spring.

785,708. **EXCAVATING-MACHINE.** JOHN D. BUCHANAN, Memphis, Tenn. Original application filed July 29, 1904. Serial No. 218,718. Divided and this application filed Oct. 24, 1904. Serial No. 229,788.



Claim.—1. The combination with a wheeled frame having stud-axles projecting from its opposite sides for the reception of the rear wheels, and a pair of hinged members forming the bottom of the dirt-receptacle, said members extending across a plane including the axes of said rear wheels.

2. In a device of the class described, a frame including a receptacle, hinged members forming the bottom of said receptacle, front wheels, and rear wheels for supporting the frame, and studs forming journals for said rear wheels, said studs being secured to the opposite sides of the frame.

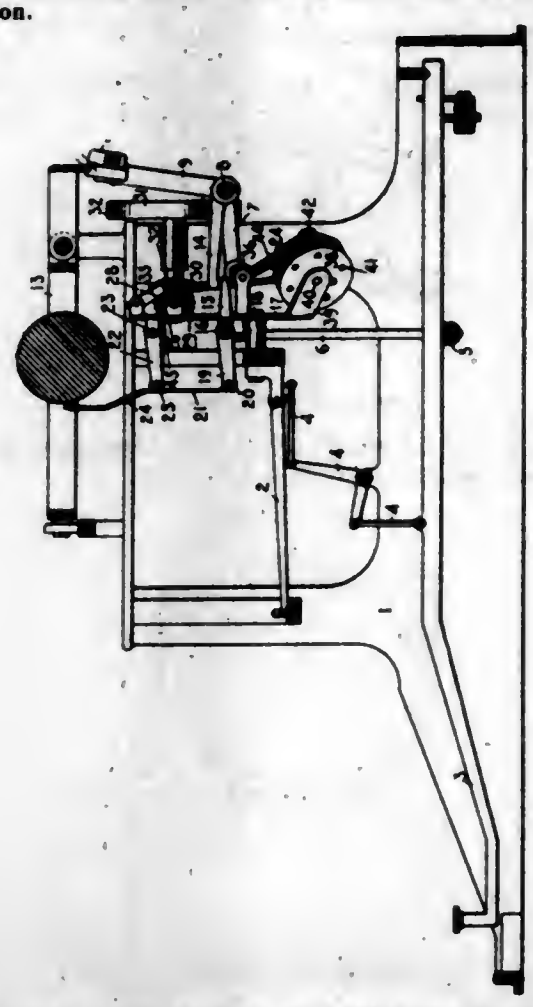
3. In a device of the class specified, a frame including side and front and rear walls, studs secured to the opposite side walls, rear wheels mounted on said studs, bolsters at the front of the frame, front wheels carried by the bolsters, and hinged bottom members extending from said bolsters to the rear wall of the receptacle and extending across the vertical plane of the studs.

785,709. **TYPE-WRITING MACHINE.** LEE S. BURRIDGE, New York, N. Y., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 3, 1901. Serial No. 70,770.

Claim.—1. In a type-writing machine, the combination of an endless inking-ribbon, means for effecting an intermittent feed of said ribbon continuously in one direction and at all points throughout the length thereof to the same extent, and supporting means for the ribbon, which supporting means maintains the ribbon taut at all points throughout and maintains a portion of the ribbon in a coil.

2. In a type-writing machine, the combination of a carriage, an endless inking-ribbon, a supporting device upon which said ribbon is wound, and means controlled by the feed movement of the carriage for feeding the ribbon, whereby one layer of ribbon is being wound upon said supporting device as another layer is being unwound therefrom.

3. In a type-writing machine, the combination of printing instrumentalities, an endless inking-ribbon, means for supporting a portion of said ribbon in a coil or a plurality of convolutions, and for affording a simultaneous feed of every portion of said ribbon in the direction of its length, and for conveying the ribbon to one side of said coil while it is being withdrawn from the other, and means operable at each operation of a printing instrumentality for feeding said ribbon.



4. In a type-writing machine, the combination of printing instrumentalities, an endless inking-ribbon, a supporting device cooperating with said ribbon and supporting a plurality of layers or a coil of said ribbon, means for feeding said ribbon in the direction of its length at each operation of a printing instrumentality, and means for guiding the ribbon to the outside of the coil as ribbon is delivered from the inside thereof.

5. In a type-writing machine, the combination of a carriage, an endless inking-ribbon, a portion of which is maintained in a coil or a plurality of superposed layers, and means for delivering ribbon to one portion of the coil at the same rate of speed that it is delivered from another portion thereof, and means controlled by said carriage for simultaneously moving said coil.

6. In a type-writing machine, the combination of printing instrumentalities, an endless inking-ribbon, means for guiding the ribbon in its movement, means for supporting a portion of the endless ribbon in the form of a coil, the plane of said coil being disposed at an angle to the plane of the ribbon where it coöperates with the guides, and means for intermittently feeding said ribbon in the direction of its length at each operation of a printing instrumentality.

7. In a type-writing machine, the combination of an endless inking-ribbon, means for supporting a portion of the endless ribbon in the form of a coil, means for delivering ribbon to one portion of the coil as ribbon is withdrawn from another portion thereof, means for guiding the ribbon as it is being fed to and from the coil, and means for supporting the coil in a plane that is disposed at an angle to the line of the effective faces of the ribbon-guiding means.

8. In a type-writing machine, the combination of an endless inking-ribbon which is taut throughout its length and a portion of which forms a plurality of superposed convolutions or layers, an automatically-operating feed-roller, a second loosely-mounted feed-roller which coöperates with the first-mentioned roller, and means for maintaining a pressure of one of said rollers upon the other in order to feed the interposed ribbon.

9. In a type-writing machine, the combination of an endless inking-ribbon, a supporting device upon which a portion of said inking-ribbon is wound or coiled, and a movable ribbon-guide through which the ribbon is threaded.

10. In a type-writing machine, the combination of an endless inking-ribbon, a supporting device upon which a portion of said inking-ribbon is wound or coiled, and a movable ribbon-guide through which the ribbon is threaded, the relation of the parts being such that the ribbon is free from strain or from being slackened when the movable ribbon-guide is operated.

11. In a type-writing machine, the combination of a movable ribbon-guide, and suitable fixed ribbon-guides coöperating therewith, the arc in which that portion of the ribbon moves which swings with the movable guide and around the fixed guides being substantially the same as the arc in which the movable guide moves, whereby no appreciable tightening or slackening of the ribbon is produced through the movement of the movable ribbon-guide.

12. In a type-writing machine, the combination of printing instrumentalities, a platen, an endless inking-ribbon, a ribbon-guide that positions the ribbon between the printing instrumentalities and platen, a plurality of rollers upon which a portion of the ribbon is coiled, means for conducting the ribbon to and from the coil, the ribbon passing in one direction to or from the inside of the coil while it is passing from or to the outside of the coil in an opposite direction.

13. In a type-writing machine, the combination of a carriage, an endless inking-ribbon, a plurality of ribbon-rollers supported upon but one side and arranged to support the ribbon, means for conducting the ribbon to said supporting-rollers in one direction as the ribbon is being withdrawn therefrom in another direction, and means controlled by said carriage for feeding the ribbon in the direction of the length thereof.

14. In a type-writing machine, the combination of an endless inking-ribbon, a plurality of ribbon-rollers supported upon but one side and arranged to support the ribbon, means for conducting the ribbon to said supporting-rollers in one direction as the ribbon is being withdrawn therefrom in another direction, a ribbon-guide that coöperates with the ribbon, and guide-rollers which maintain the ribbon in substantial parallelism in its movements to and from the supporting-rollers and to and from the ribbon-guide.

15. In a type-writing machine, the combination of a type-carrier, an endless inking-ribbon, a portion of which is maintained in a coil, means for feeding the inking-ribbon in the direction of its length at each operation of a type-carrier, and so that the ribbon will be fed to the coil at the same rate of speed that it is withdrawn therefrom, a movable ribbon-guide, and mechanism for moving the movable guide at each operation of a type-carrier to interpose the ribbon in the path of the type on the type-carrier.

16. In a type-writing machine, the combination of a type-carrier, an endless inking-ribbon, means for supporting a portion of said ribbon in a coil, means for feeding the inking-ribbon in the direction of its length at each operation of a type-carrier, a movable ribbon-guide, and mechanism for moving the movable ribbon-guide at each operation of a type-carrier to interpose the ribbon in the path of the type on the carrier.

17. In a type-writing machine, the combination of a type-carrier, an endless inking-ribbon, a plurality of ribbon-rollers each of which is supported upon but one end, said rollers having a plurality of superposed layers of said ribbon supported thereon, and means for moving ribbon on said rollers at each operation of a type-carrier.

18. In a type-writing machine, the combination of an endless inking-ribbon, a ribbon-supporting device therefor, and means for enabling the said device and the endless ribbon to be removed together from the machine.

19. In a type-writing machine, the combination of an endless inking-ribbon, a supporting device which supports a portion of the ribbon in a coil made up of superposed layers of ribbon, and means for affording a removal of the ribbon-supporting device from the machine with the coil of ribbon in place on said device.

20. In a type-writing machine, the combination of an endless inking-ribbon, a ribbon-support, a plurality of ribbon-supporting rollers carried by said support, and means for removably securing said ribbon-support in place, whereby the said rollers with the ribbon coiled thereon and said support may be removed as an entirety from the machine.

21. In a type-writing machine, the combination of an endless inking-ribbon, a ribbon-support, pintles projecting from said support, ribbon-supporting rollers carried by said pintles, and means for removably securing said ribbon-support in place, whereby the said rollers with the ribbon coiled thereon and said support may be removed as an entirety from the machine.

22. In a type-writing machine, the combination of an endless inking-ribbon, a supporting-plate, means for removably securing said plate in place, ribbon-supporting rollers carried by said plate, said rollers having unsupported free ends, and guiding means for

guiding the ribbon in its movement to and from the supporting-rollers, the plane of said supporting-plate being at an angle to the plane of the ribbon where it coöperates with the guiding means.

23. In a type-writing machine, the combination of a type-carrier, an endless inking-ribbon, a movable ribbon-guide which conducts the ribbon to the printing-point in the form of a loop, means for supporting a portion of the ribbon in a coil, means for feeding all portions of the ribbon at each operation of the type-carrier, and mechanism for moving the movable guide.

24. The combination of an endless inking-ribbon, a ribbon spool or device upon which said endless ribbon is coiled or wound, and means for affording a removal of said device from the machine with the coil of ribbon thereon.

25. The combination of an endless inking-ribbon, a ribbon spool or device upon which said endless ribbon is coiled or wound, the ribbon unwinding from said spool on one side of the coil as it is wound on at the other side thereof, and means for affording a threading of the ribbon in the machine without disconnecting the ends thereof.

26. The combination of an endless inking-ribbon, a ribbon spool or device upon which said endless ribbon is coiled, the ribbon unwinding from the inside of the coil as it winds on the outside thereof, means for affording a removal of the said spool or device with the coil of ribbon thereon, and means for affording a threading of the ribbon in the machine without disconnecting the ends of the endless ribbon.

27. In a type-writing machine, the combination of an endless inking-ribbon, means for supporting a portion of said ribbon in a coil, and means for intermittently and simultaneously feeding all portions of said ribbon in the direction of its length and for turning the said coil at each intermittent feed movement of the ribbon.

28. In a type-writing machine, the combination of an endless inking-ribbon, means for effecting an intermittent longitudinal feed of said ribbon, coil-supporting means for the ribbon, and means for maintaining the ribbon taut at all points throughout its extent.

29. In a type-writing machine, the combination of an endless inking-ribbon having single layer or ply portions adapted to be fed toward and from the printing-point and having an intermediate coil comprising a plurality of portions wound circularly one upon another, and means for affording a withdrawal of the ribbon from the machine without disconnecting the ends thereof.

30. In a type-writing machine, the combination of an endless inking-ribbon, a removable support 38 that carries a portion of said ribbon in a coil, and a ribbon-guide 21 that receives said ribbon and coöperates therewith in the movement of the ribbon to and from the coil.

31. In a type-writing machine, the combination of an endless inking-ribbon, a support 38 that carries a portion of said ribbon in a coil, a ribbon-guide 21 that receives said ribbon and coöperates therewith in the movement of the ribbon to and from the coil, and means for affording a removal of said ribbon-guide and support from the machine.

32. In a type-writing machine, the combination of an endless inking-ribbon, means for supporting a portion of said ribbon in a coil, conoidal guide-rollers 36 and 42ª coöperating with the coil in its movement to and from the coil, and a ribbon-guide 21 that coöperates with the ribbon.

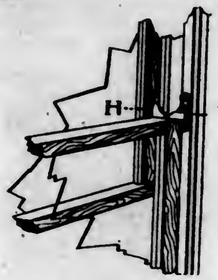
33. In a type-writing machine, the combination of an endless inking-ribbon, means for supporting a portion of said ribbon in a coil, a ribbon-guide 21, guide-rollers 25, 26 and 27, and means for affording a threading of the ribbon on or a dismounting of it from said guide and rollers without dismounting the parts or disconnecting the ends of the ribbon.

34. In a type-writing machine, the combination of an endless inking-ribbon, a device for supporting a portion of said ribbon in a coil, a ribbon-guide 21, guide-rollers 25, 26 and 27, means for affording a threading of the ribbon on or a dismounting of it from said guide and rollers without dismounting the parts or disconnecting the ends of the ribbon, and means for affording a removal of said coil-supporting device.

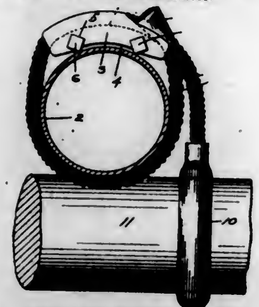
785,710. WINDOW-FASTENER FOR VENTILATION. LUELLA C. CARNOW and CHARLES K. MORRIS, Chicago, Ill. Filed June 20, 1904. Serial No. 213,626.

Claim.—1. The combination with a window, of a fastener comprising a base-plate, a leaf hinged thereto and swinging in a horizontal plane into and out of the path of the window, and a latch for holding the leaf in either position.

2. The combination with a window, of a fastener comprising a base-plate having a recess on one side, a leaf hinged in said recess and swinging in a horizontal plane into and out of the path of the window, and a latch pivoted to the base-plate for holding the leaf in either position.



785,711. PIPE-WRENCH. CHARLES C. CHAMBERLIN, Washington, Pa. Filed Dec. 31, 1904. Serial No. 239,303.



Claim.—1. A device for wrenching casing, or other cylindrical objects, comprising a shoe having gripping means on its inner face, a cable connected to said shoe adapted to completely encircle the casing, said shoe having a seat on its outer face to receive said cable, and means for connecting a lever to the free end of said cable.

2. A device for wrenching casing, or other cylindrical objects, comprising a shoe having an inner concave face with gripping means thereon, a cable connected to said shoe adapted to completely encircle the casing, said shoe having a seat on its outer face to receive said cable, and means for connecting a lever to the free end of said cable.

3. A device for wrenching casing, or other cylindrical objects, comprising a shoe having an inner concave face with gripping means thereon, a cable connected to said shoe adapted to completely encircle the casing, said shoe having a curvilinear groove formed therein to receive said cable, and means for connecting a lever to the free end of said cable.

4. A device for wrenching casing, or other cylindrical objects, comprising a shoe having an inner concave face, a removable gripping-jaw inserted in a seat in said shoe, a cable connected to said shoe adapted to completely encircle the casing, said shoe having a seat on its outer face to receive said cable, and means for connecting a lever to the free end of said cable.

5. A device for wrenching casing, or other cylindrical objects, comprising a shoe having an inner concave face a polygonal gripping-die inserted in a seat in said shoe, a cable connected to said shoe adapted to completely encircle the casing, said shoe having a seat on its outer face to receive said cable, and means for connecting a lever to the free end of said cable.

6. A device for wrenching casing, or other cylindrical objects, comprising a shoe having an inner concave face provided with gripping means, a cable connected to one side of the axial line of said shoe adapted to completely encircle the casing, said shoe having a seat to receive said cable, and means for connecting a lever to the free end of said cable.

7. A device for wrenching casing, or other cylindrical objects, comprising a shoe having an inner concave face, a socket formed in said shoe to one side of the axial line of said shoe, a cable secured in said socket adapted to completely encircle the casing, said shoe having a groove formed on its outer face to receive said cable, and means for connecting a lever to the free end of said cable.

8. In a device for wrenching casing, or other cylindrical objects, comprising a shoe having gripping means on its inner face, a cable connected to said shoe adapted to completely encircle the casing, said shoe having a seat on its outer face to receive said cable, and a ring on the free end of said cable.

785,712. ELECTRIC-CABLE JOINT. DONALD J. CHISHOLM, East Hampton, N. Y. Filed May 11, 1904. Serial No. 207,421.



Claim.—1. An electric-cable joint, comprising a coupling-box, cables entering one end thereof filling material around said cables in the box, the ends of the cables extending beyond the insulating material, a sheet of insulating material between the exposed ends of said cables, a cap for the coupling-box removably secured to the box, and a lining of insulating material for said cap, for substantially the purposes set forth.

2. An electric-cable joint, comprising a coupling-box, cables entering one end thereof, filling material around said cables in the box, the ends of the cables extending beyond the filling material, and a cap for the coupling-box removably secured to the box and formed in removable sections, for substantially the purposes set forth.

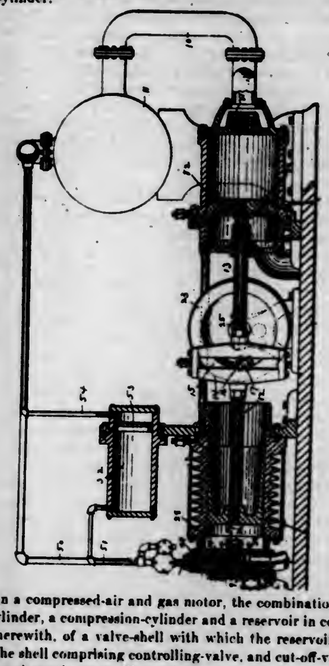
3. An electric-cable joint, comprising a coupling-box, cables entering one end thereof, filling material around said cables in the box, and a sectional cap for the coupling-box removably secured thereto, for substantially the purposes set forth.

4. An electric-cable joint, comprising a coupling-box, cables entering one end thereof, filling material around said cables in the box, and a sectional cap for the coupling-box removably secured thereto, with suitable insulation between the ends of the cables and in said sectional cap, for substantially the purposes set forth.

785,713. COMPRESSED-AIR AND GAS MOTOR. MERRILL E. CLARK, Worcester, Mass. Filed Feb. 26, 1899. Serial No. 707,166.

Claim.—1. In a compressed-air and gas motor, the combination with a motor-cylinder, a corresponding compression-cylinder, and a reservoir in communication with the compression-cylinder, of a fuel-holder, a cut-off-valve chamber and a valve in said chamber, a piston-chamber and a piston therein, the piston connected with the cut-off valve, the holder and cut-off-valve chamber in communication with the reservoir, a communication between the cut-off-valve chamber and the motor-cylinder, a controlling-valve chamber, communications between the controlling-valve chamber and the piston-chamber and a controlling-valve for controlling the said communications.

2. In a compressed-air and gas motor, the combination with a motor-cylinder, a corresponding compression-cylinder and a reservoir in communication with the compression-cylinder, of a fuel-holder, a cut-off-valve chamber, a cut-off valve located in the chamber, means for automatically actuating the cut-off valve, the reservoir being in communication with the holder and valve-chamber, and a communication between the cut-off-valve chamber and the motor-cylinder.



3. In a compressed-air and gas motor, the combination with a motor-cylinder, a compression-cylinder and a reservoir in communication therewith, of a valve-shell with which the reservoir is connected, the shell comprising controlling-valve, and cut-off-valve and piston chambers, the controlling-valve chamber provided with a plurality of air-inlets, a valve normally located between the air-inlet ports, the valve controlling an exhaust-port, a piston in the piston-chamber and a communication between the controlling-valve and piston chambers on either side of the piston, a movable member in the cut-off-valve chamber connected with the piston, the cut-off-valve chamber provided with fuel and air inlet ports, and means for conveying the air and fuel to the motor-cylinder.

4. The combination with a motor, of a cut-off mechanism comprising a shell divided into a controlling-valve, a cut-off-valve and a piston chamber, the cut-off-valve chamber provided with air and fuel inlet ports, a cut-off valve located in the cut-off-valve chamber, the valve comprising the connected members 59 and 60, a piston in the piston-chamber and connected with the cut-off valve, the controlling-valve and piston chambers provided with a plurality of intercommunicating ports, a controlling-valve located in the controlling-valve chamber, the last-named valve consisting of a plurality of connected members, means for applying air under pressure to the controlling-valve chamber to actuate the controlling-valve in one direction, means engaging the controlling-valve to counterbalance the air-pressure, the controlling-valve chamber provided with an exhaust-opening which together with the intercommunicating ports are controlled by the controlling-valve.

5. In a compressed-air and gas motor, the combination with a motor-cylinder, a compression-cylinder and a reservoir connected therewith, of a shell with which the reservoir is in communication, the shell comprising controlling-valve, cut-off-valve and piston chambers, the controlling-valve chamber provided with air-ports, a valve in the controlling-valve chamber, normally located between the air-ports, means in the controlling-valve chamber for normally retaining the valve in normal position, the piston and controlling-valve chambers in intercommunication by means of a plurality of openings, a piston in the piston-chamber normally located between the communicating openings, the valve provided with an exhaust-port normally out of communication with the openings between the controlling-valve and piston chambers, the cut-off-valve chamber provided with air and gas ports, a valve in the outlet-chamber connected with the piston and normally uncovering the inlets, means extending between the shell and the motor-cylinder for conveying a charge thereto, the means adapted to be automatically closed by an excess pressure of air.

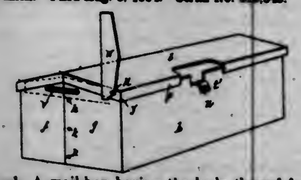
6. In a compressed-air and gas motor, the combination with a motor-cylinder, a compression-cylinder and a reservoir in communication with the compression-cylinder, of a fuel-holder, a cut-off-valve chamber, the reservoir being in communication with the cut-off-valve chamber and with the fuel-holder, means for automatically actuating the cut-off valve, a communication between the cut-off-valve chamber and the motor-cylinder, a valve-casing provided with air and fuel inlet ports, the casing interposed in the communication between the cut-off-valve chamber and the motor-cylinder, an oscillating valve located in the casing, the valve-casing provided with a single outlet-port, the oscillating valve provided with a plurality of inlet-ports intermittently in communication with the inlet-ports of the casing and provided with a single outlet-port into which the inlet-ports merge which outlet-port intermittently registers with the outlet-port of the valve-casing.

7. In a compressed-air and gas motor, the combination with a motor-cylinder, a compression-cylinder, a motor-shaft, and a reservoir in communication with the compression-cylinder, of a fuel-holder, a cut-off-valve chamber, a cut-off valve located in the chamber, means for automatically actuating the cut-off valve, the reservoir being in communication with the valve-chamber, a communication between the cut-off-valve chamber and the motor-cylinder, an oscillating valve located in the communication between the valve-chamber and motor-cylinder, and controlling the communication, a cam-shaft operated by the motor-shaft and means extending between the cam-shaft and oscillating valve for actuating the latter.

8. In a compressed-air and gas motor, the combination with a motor-cylinder, a compression-cylinder, a motor-shaft and a reservoir in communication with the compression-cylinder, off a cut-off-valve chamber, a cut-off valve located therein, means for automatically operating the valve, the reservoir communicating with the cut-off-valve chamber, means for feeding fuel to the valve-chamber, a communication extending between the valve-chamber and motor-cylinder, an oscillating valve located in the communication and controlling the same, a stem secured to the oscillating valve, a valve-shaft operated by the motor-shaft and means connecting the valve-stem, and valve-shaft to permit the rotation of the motor-shaft to control the movement of the oscillating valve.

9. In an engine, the combination with a cylinder, of a valve-shell, comprising a controlling-valve chamber, a cut-off-valve chamber and a piston-chamber, a valve in the inlet-chamber, the controlling-valve chamber provided with an exhaust-opening normally covered by the valve, means for admitting a motive fluid on either side of the valve to balance the latter, the controlling-valve and piston chambers connected by means of a plurality of openings normally out of communication with the exhaust-opening, the motive fluid admitted to the piston-chamber through the openings at either side of the piston to balance the latter, the cut-off-valve chamber provided with ports for admitting an explosive charge thereto, a valve in the cut-off-valve chamber connected with and controlled by the piston, the valve normally uncovering the ports, and communicating means connecting the cut-off-valve chamber and the cylinder, a surplus amount of motive fluid adapted to move the valve in the controlling-valve chamber to permit communication between the exhaust and the piston chamber causing the movement of the piston and its connected valve to close the communication with the cylinder.

785,714. RURAL-DELIVERY MAIL-BOX. WALTER CLEMENT, Adrian, Mich. Filed Aug. 3, 1904. Serial No. 219,843.



Claim.—1. A mail-box having the body thereof formed of a single piece of sheet metal having a base, side, and end portions, said body having its sides upturned to form the sides of the box, and its end portions upturned to form overlapping ends of the box, substantially as shown and described, said end portions formed with slits therebetween, the lateral end portions being cut away at an angle at the outer lateral edges thereof.

2. A mail-box having the body thereof formed of a single piece of sheet metal having a base, side, and end portions, said body having its sides upturned to form the bottom and sides of the box, the extremities of the bottom portion of the box bent upward, and the extremities of the sides of the box bent over the extremities of the bottom portion and forming overlapping ends of the box, and means to secure the overlapping ends of the box together substantially as shown, said end portions formed with slits therebetween, the lateral end portions being cut away at an angle at the outer lateral edges thereof.

3. A blank of sheet metal for forming the body of a mail-box, said blank slitted at its ends to form intermediate portions projecting from the central portions of the blank, and to form lateral end portions projecting from the marginal portions of the blank, said lateral end portions cut away at an angle at the outer lateral edges thereof, the body of the blank projecting laterally at each side beyond the inner angles of said cut-away portions to form turnover portions at the upper side edges of the box.

4. A blank of sheet metal for forming a mail-box, said blank slitted at its opposite ends to form intermediate portions projecting from the central portion of the blank, and to form lateral end portions projecting from the marginal portions of the blank, said lateral end portions cut away at an angle at the outer lateral edges thereof, the body of the blank projecting laterally at each side beyond the inner angles of said cut-away portions to form turnover portions at the upper side edges of the box.

5. A mail-box having the body thereof formed of a single piece of sheet metal having a base, side, and end portions, said body having its sides upturned to form the bottom and sides of the box, the extremities of the bottom portion of the box bent upward, and the extremities of the sides of the box cut away at an angle at the outer lateral edges thereof and bent over the extremities of the bottom portion and forming overlapping ends of the box, and means to secure the overlapping ends of the box together, the body of the blank projecting laterally at each side beyond the inner angles of the cut-away portions to form turnover portions at the upper side edges of the box.

6. The combination with a mail-box having the body thereof formed with an opening to receive the mail, and provided with a flanged cover of an indicator-arm, pivotally connected with the flange of the cover, said arm constructed with a flange projecting at essentially right angles to the face of the arm, said flange engaging the under edge of the flange of the cover to prevent the arm being thrown too far in either direction.

7. A metal box having an opening to receive the mail and provided with a flanged cover having in combination therewith an indicator-arm pivotally connected with the flange of the cover, said arm provided with a flange extending essentially at right angles to the face of the arm, the upper edge of the flange contacting with the under edge of the flange of the cover to limit the downward movement of the arm, and a face of the flange engaging the under edge of the flange of the cover to limit the arm being moved too far in the opposite direction.

8. A sheet-metal box provided with a flanged cover, the body of the box cut down from its upper edge intermediate its ends thereof and bent over to form a staple, said staple provided with an orifice for the engagement of a lock therewith.

785,715. MANUFACTURE OF ARTIFICIAL TEETH OR THE LIKE. FRÉDÉRIC A. J. COURMAND, Paris, France, assignor to Ste. Ame. de Commentry-Tourchambault et Decazeville, Paris, France. Filed Apr. 22, 1904. Serial No. 204,368.



Claim.—1. An artificial tooth having partially incorporated therein a wire for fixing it to its supports, said wire being an alloy of iron and nickel having substantially the same coefficient of expansion as the material of which the tooth is made, said material being fusible only at a high temperature and said wire having a protecting-coating.

2. An artificial tooth having partially incorporated therein a wire for fixing it to its supports, said wire being an alloy of iron and nickel having substantially the same coefficient of expansion as the material of which the tooth is made, said material being fusible only at a high temperature and said wire having a protecting-coating of platinum.

785,716. WRENCH. OWEN B. CRAFT, Hawthorn, Pa., assignor of three-eighths to J. A. F. Hoy, Clarion, Pa. Filed July 1, 1904. Serial No. 214,962.

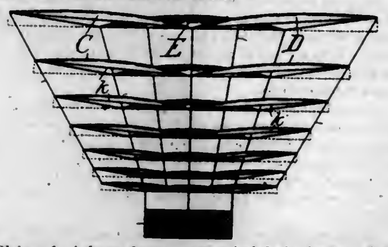
Claim.—1. In a wrench, a shank and rigid jaw, a sliding jaw on the shank having an opening in an edge thereof, said jaw also having a plurality of longitudinal grooves formed in one of its faces, a lever having a cam projection pivoted within the opening in the movable shank, the cam projection being adapted to bind against the shank, a lug depending from an end of the lever and a rib on the inner face of the lug adapted to engage one of the plurality of grooves.



2. In a wrench, a shank and rigid jaw, a sliding jaw on the shank having an opening in an edge thereof, a lever having a cam projection loosely pivoted within the opening whereby a lateral movement is permitted, said projection being adapted to engage the shank, a depending lug on an end of the lever adapted to engage one of the grooves in the movable jaw, and a spring secured at one end to the movable jaw and having its free end bearing against the depending lug on the lever.

3. In a wrench, a shank and rigid jaw, a sliding jaw on the shank having an opening in an edge thereof, said jaw also having a plurality of grooves formed in one of its faces, a lever having a cam projection loosely pivoted within the opening whereby a lateral movement is permitted, said projection being adapted to engage the shank, a depending lug on an end of the lever adapted to engage one of the grooves in the movable jaw, and a spring secured at one end to the movable jaw and having its free end bearing against the depending lug on the lever.

785,717. AEROPLANE. ALEXANDER P. CRISWELL, Chicago, Ill. Filed Dec. 28, 1903. Serial No. 186,765.



Claim.—1. A frame for an aeronautical device having a body-frame portion, formed of approximately triangular and parallel skeleton plane-frames disposed one above another and spaced apart in substantially rigid relation, and approximately triangular skeleton wing-frames hinged thereto, substantially as and for the purpose set forth.

2. A frame for an aeronautical device having a body-frame portion formed of parallel skeleton plane-frames, disposed one above another and spaced apart in substantially rigid relation, and skeleton wing-plane frames hinged to three sides of each of said body-plane frames and spaced apart, the plane-frames of each of the wings being connected to move together, substantially as and for the purpose set forth.

3. In a frame for an aeronautical device, a body-frame consisting of a series of braced and parallel skeleton plane-frames disposed one above another and spaced apart in rigid relation, and gradually diminishing in length from the top to the bottom of the series, with correspondingly-diminishing spaces between them, substantially as and for the purpose set forth.

4. In a frame for an aeronautical device, a body-frame consisting of a series of braced and skeleton plane-frames disposed one above another and spaced apart in rigid relation, and gradually diminishing in length from the top to the bottom of the series with correspondingly-diminishing spaces between them, and wing-frames, secured to said body-frame, and consisting each of a corresponding series of skeleton plane-frames connected to move together, substantially as and for the purpose set forth.

5. In a frame for an aeronautical device, a body-frame consisting of a series of braced and parallel skeleton frames of approximately triangular shape disposed one above another, spaced apart in rigid relation and gradually diminishing in length from the top to the bottom of the series, with correspondingly-diminishing spaces between them, and wing-frames comprising series of plane-frames pivotally secured to said body plane-frames, substantially as and for the purpose set forth.

6. In a frame for an aeronautical device, a body-frame consisting of a series of braced and parallel skeleton plane-frames disposed one above another and spaced apart in substantially rigid relation, a car suspended from the lower said plane-frame, wings each formed of spaced and parallel plane-frames connected to move together and hinged to said body plane-frames, and means upon the car for raising and lowering said wings, substantially as and for the purpose set forth.

785,718. BOBBIN-CARRIER. GUSTAV DIEGENDAHL, West Reading, Pa., assignor to Fleetwood Foundry and Machine Company, Fleetwood, Pa. Filed Jan. 24, 1905. Serial No. 242,496.



Claim.—1. A bobbin-carrier, comprising a base, a tension-weight standard projecting upward therefrom and having a horizontal arm, a tension-weight and pawl slidingly mounted on said standard, a thread-guide centrally pivoted on the horizontal arm of the standard, and a locking device disposed on one side of the central pivot of the thread-guide, and a guide-eye in the opposite end of said thread-guide, whereby an upward thrust against the guide-eye end of the thread-guide will tend to maintain the locking device in its locked position.

2. A bobbin-carrier, comprising a base, a tension-weight standard projecting upward therefrom and having a horizontal arm provided with a top bearing for the bobbin, a tension-weight and pawl slidingly mounted on the standard, a thread-guide centrally pivoted on said horizontal arm and having a guide-eye at one end projecting over the standard, and a locking device disposed on the side of the pivotal mounting of the thread-guide opposite the guide-eye end thereof.

3. A bobbin-carrier, comprising a base, a tension-weight standard projecting upward therefrom and having a horizontal arm provided with a top bearing or stud for the bobbin, a thread-guide centrally pivoted upon the horizontal arm and having a guide-eye projecting over the standard, and a locking device disposed at the end of the thread-guide on the side of the pivotal connection thereof opposite the guide-eye, said locking device comprising a projection on the under side of the tail end of the thread-guide and an indent in the top of the horizontal arm.

785,719. BOLL-WEEVIL OR OTHER INSECT DESTROYER. JOHN S. DOAK, Brookwood, and ALEXANDER G. FARRINGTON, Yoakum, Tex. Filed Apr. 11, 1904. Serial No. 202,649.

Claim.—1. An insect-destroying machine comprising a wheeled truck carrying troughs flexibly connected thereto and adapted to reach under growing plants as said truck passes over the plants, said troughs having flexible strips on their inner edges, and means for agitating the plants as said truck is passed over them.

2. An insect-destroying machine comprising a wheeled truck

carrying a pair of troughs flexibly connected thereto and adapted to reach under each side of a row of the plants, means for agitating the plants, and means for forcing the insects from among the plants down into said troughs.



3. An insect-destroying machine comprising a wheeled truck carrying troughs flexibly connected thereto, means for holding said troughs yieldingly in close proximity to each row of plants, means for agitating the plants, and means for forcing the insects from said plants into said troughs.

4. An insect-destroying machine comprising atwheeled truck carrying troughs flexibly connected thereto and adapted to reach under the plants, a rotary fan for forcing insects from the plants into said troughs, means for permitting said troughs to yield to pressure, and means for returning said troughs to their normal position.

5. In a device of the character indicated, troughs and yielding strips attached to the edges of said troughs to prevent the bruising of the growing plants by said troughs.

6. In a device of the character indicated troughs and yielding strips of the character of rubber attached to the adjacent edges of said troughs and projecting beyond the edges of said troughs.

7. In a device of the character indicated troughs and yielding strips attached to the inner edges of said troughs and projecting beyond the edges of said troughs and being inclined to aid in throwing insects in said troughs.

8. An insect-destroying machine comprising a wheeled truck, troughs hung thereon and swinging in close proximity to each other, a rotary fan for forcing insects from the plants into said troughs, and springs attached to said truck adapted to hold said troughs yieldingly in their normal position and capable of forcing said troughs back to their normal positions.

9. An insect-destroying machine comprising a truck having an arched axle, wheels supporting said axle, a frame mounted on and connected to said axle, means for bracing said frame consisting of castings mounted on said axle, braces attached to said frame and to said castings, swinging troughs supported by said frame, and means for forcing insects from the plant into said troughs.

10. An insect-destroying machine comprising a wheeled truck, a pair of troughs flexibly connected to said truck, spring-arms attached to said truck and pressing normally against the outside parts of said troughs, spiral springs adjustably mounted on said truck and pressing against said spring-arms, and means for forcing insects from growing plants into said troughs.

11. An insect-destroying machine comprising a wheeled truck, carrying troughs adjustably connected thereto, a rotary agitator and a rotary fan mounted on said truck, and suitable driving-gear for said agitator and fan operatively connected to one of the wheels of said trucks.

12. In a wheeled truck of the character described a rotary agitator provided with a vertical shaft, a spider-bearing for said shaft, bevel-gearing for driving said agitator, and gearing operatively connected to one of the wheels of said truck for driving said bevel-gearing.

13. In an insect-destroying machine of the character indicated a rotary agitator having a plurality of removable fingers mounted therein.

14. In an insect-destroying machine, a truck consisting of an arched axle, wheels supporting said axle, a frame attached to and supported on said axle, and means for destroying insects comprising troughs adapted to carry liquid poison flexibly connected to said frame and flexibly connected to said axle, and means for forcing the insects from the plants into said troughs.

15. In a device of the class described, the combination with suitable supporting means, of a pair of troughs suitably spaced apart and adjustable spacing means including a screw-threaded rod, a sleeve upon the latter, springs disposed between the ends of said sleeve and the adjacent parts of the troughs, and nuts upon the ends of the screw-threaded rods.

16. In a device of the class described, a supporting-frame, a pair of gathering-troughs, flexible supporting means for said troughs connected with the frame, and stalk-engaging means upon the inner adjacent edges of said members.

17. An insect-destroying machine comprising a wheeled truck, a pair of troughs flexibly connected to said truck and provided with upwardly-projecting wings on their outer edges, spring-arms attached to said truck and pressing normally against said wings and the outside parts of said troughs, spiral springs adjustably mounted on said truck and pressing against said spring-arms, and means for forcing insects from growing plants into said troughs.

785,720. CLASP. WILLARD D. DORENUS, Washington, D. C. Filed Mar. 28, 1904. Serial No. 200,377.



Claim.—1. As an article of manufacture, a clasp comprising a plate having a slot formed therein, and a tongue which overlaps a portion at least of said slot, an edge of which tongue coöperates with an edge of the slot to grip the material to which the device is to be applied.

2. As an article of manufacture, a clasp comprising a plate having an open slot formed in one side and a spring-tongue which overlaps said slot, one edge of which tongue coöperates with an edge of the slot to grip the material to which the device is to be applied.

3. As an article of manufacture, a clasp comprising a plate having an open slot formed in one side and a flange bent upwardly along one edge thereof to form a lip, and a spring-tongue connected at one end only with one end of the clasp, and lying parallel with the lip and adapted to receive and hold the fabric to which the clasp is attached therebetween.

4. As an article of manufacture, a clasp comprising a plate having an open slot formed in one side and a flange bent upwardly along one edge thereof to form a lip, and a spring-tongue connected at one end only with one end of the clasp, and lying parallel with the lip and adapted to receive and hold the fabric to which the clasp is attached therebetween, a V-shaped throat being formed at the entrance of the slot.

5. As an article of manufacture, an open-sided clasp comprising a plate having an open slot formed in one side and a flange bent upwardly along one edge thereof to form a lip, and a tongue connected with one end of the clasp, and lying parallel with the lip and adapted to receive and hold the fabric to which the clasp is attached therebetween, a V-shaped throat being formed at the entrance of the slot, the edge of the tongue forming one side of the V-shaped throat being flanged.

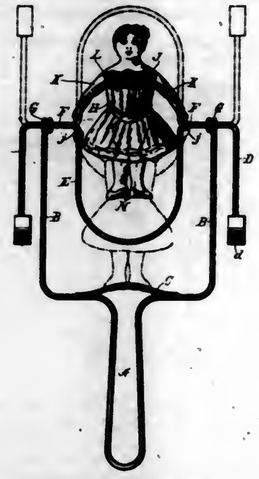
6. As an article of manufacture, an open-sided clasp provided with an open slot whereby it is given the general form of a hook, and a spring-tongue connected to the free end of the hook and overlapping the opening therein, and parallel with one edge of the latter.

7. As an article of manufacture, a clasp having a slot therein and provided with yielding means located in a different plane from that of the body of the clasp between one edge of which and an edge of the slot the article to be held is gripped.

785,721. JUMPING-ROPE FIGURE TOY. OWEN T. DOUGHERTY, Chicago, Ill. Filed June 22, 1904. Serial No. 213,625.

Claim.—1. In a figure toy, the combination with the fork-shaped handle, of weighted side arms pivotally supported by the sides of said forked handle and adapted to be swung in a circular path by hand movement of the handle, a yoke located between said side arms and connected to them and moving with them, a figure within said yoke, the arms of said figure being independently movable, and a bow inverted with respect to said yoke and secured thereto, said bow passing through the arms and movable in the body of the figure.

2. In a figure toy, the combination with the fork-shaped handle, of weighted side arms pivotally supported by the sides of said forked handle and adapted to be swung in a circular path by hand movement of the handle, a yoke located between said side arms and connected to them and moving with them, a figure within said yoke, the arms of said figure being independently movable, a bow inverted with respect to said yoke and secured thereto, said bow passing through the arms and movable in the body of the figure, and a spring foot-plate secured to the handle and arranged to be touched by the feet of the figure.



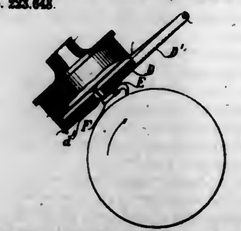
785,722. CORK-EXTRACTOR. HERBERT H. DUNN, Dayton, Ohio. Filed Sept. 23, 1904. Serial No. 225,595.



Claim.—1. A cork-extractor consisting of a metallic member of a pliable nature inclosed with packing material and adapted to inclose the lower end of a cork and extend up the opposite sides thereof beyond the upper end of the cork, substantially as set forth.

2. As a new article of manufacture, a cork-extractor consisting of a pliable metallic member adapted to lie across the lower end of a cork and to extend up the opposite sides of said cork, the portion of said member lying between the interior sides of the bottle-neck and the exterior sides of the cork being provided with suitable material which forms a packing at such points, the extreme ends of said member being carried upwardly and united above the cork to provide a suitable finger-hold, substantially as set forth.

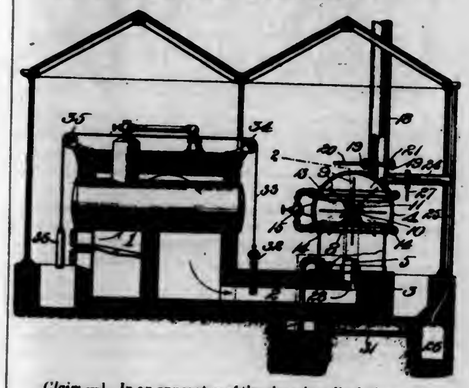
785,723. GRAPHOPHONE-REPRODUCER. VICTOR H. EMERSON, Newark, N. J., assignor to The American Graphophone Company, Bridgeport, Conn., a Corporation of West Virginia. Filed Sept. 7, 1904. Serial No. 223,643.



Claim.—1. The combination with a sound-box and its diaphragm, of a floating weight pivoted to said sound-box at a point beyond the peripheries of said box and weight, and a stylus mounted on said weight and connected with said diaphragm.

2. The combination with a sound-box and a floating weight pivoted together beyond their peripheries, of a stylus-bar pivoted upon said weight between the geometrical center and the pivot-point of said weight.

785,724. FURNACE SMOKE-PREVENTING DEVICE. PETER EYERMANN, St. Louis, Mo., assignor of one-fourth to Carl Huber, St. Louis, Mo. Filed May 23, 1904. Serial No. 209,280.



Claim.—1. In an apparatus of the class described, the combination with a gas-receiving casing, a rotating fan in the casing adapted to separate foreign particles from the gas and precipitate them against the side of the casing by centrifugal force, a receptacle at the bottom of the casing for receiving the precipitated matter, fluid-injectors coöperating with the fan, an overflow leading from the receptacle in the bottom of the casing, an escape main flue leading from the casing, and a secondary escape-flue; substantially as described.

2. The combination with a gas-receiving casing, a plurality of rotating fan-blades in the casing, means for introducing liquid sprays between the fan-blades, a primary flue leading from the casing, a secondary flue leading from the casing, and a reversible device in the secondary flue for opening and closing said secondary flue; substantially as described.

3. In a device of the class described, the combination with a gas-receiving casing, means for precipitating foreign substances from the gases, a main escape-flue leading from the casing, a secondary escape-flue having a removable and reversible plate, one end of which is perforate and the other imperforate whereby the passage in the flue may be opened and closed; substantially as described.

4. In an apparatus of the class described, the combination with a furnace, a gas-receiving casing remote from the furnace and communicating therewith, a rotating fan in the casing adapted to separate foreign particles from the gas and precipitate them against the side of the casing by centrifugal force, a receptacle at the bottom of the casing for receiving the precipitated matter, fluid-injectors coöperating with the fan, an overflow-pipe leading from the receptacle in the bottom of the casing, said overflow-pipe and receptacle being remote from the furnace, and an escape-flue, leading from the casing direct to outside atmosphere, whereby the gases may pass from the casing; substantially as described.

5. The combination with a gas-receiving casing, a hollow shaft within the casing provided with perforations, fan-blades carried by the hollow shaft and alternating with the perforations, whereby a liquid spray can be introduced between the fan-blades, means for spraying liquid from the walls of the casing toward the shaft, an overflow-pipe leading from the receptacle in the bottom of the casing, and a gas-escape pipe leading from the top of the casing; substantially as described.

785,725. LIME-DIGESTER. LINCOLN B. PERRACK, Toledo, Ohio. Filed Feb. 17, 1904. Serial No. 193,941.

Claim.—1. In a lime-digester, an inclosing shell or casing, a series of gratings of increasing fineness from the top toward the bottom arranged within the casing, and sprinklers arranged to direct a spray on the lime as it falls from grating to grating, all combined.

2. In a lime-digester, an inclosing shell or casing, a series of

gratings consisting of parallel bars without cross-bars arranged within the casing, the gratings increasing in fineness toward the bottom of the digester, and means for conveying a spray to the lime on the gratings, all combined.



3. In a lime-digester, an inclosing shell or casing, a series of gratings within the casing and increasing in fineness toward the bottom, openings in the casing at the end of each grating whereby debris may be removed, and means for introducing water to the lime on the gratings, all combined.

4. In a lime-digester, the combination of an inclosing casing, a series of gratings in the casing increasing in fineness toward the bottom, means for introducing water in regulated quantities to lime on the gratings, and means for removing slaked lime from the bottom of the digester.

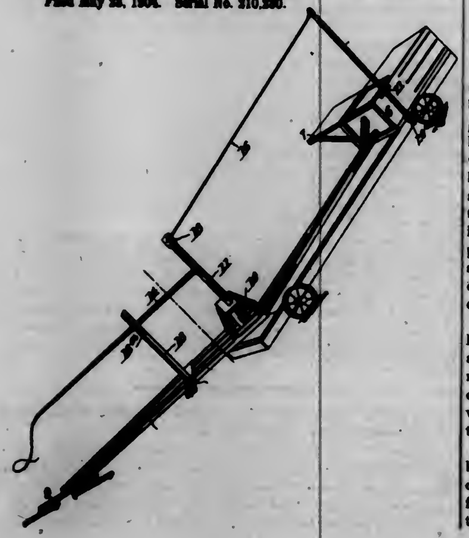
5. In a lime-digester, an inclosing shell or casing, a series of gratings of increasing fineness toward the bottom and inclosed in said casing, a hopper at the bottom and a conveyer in said hopper, and means for supplying water in regulated quantities to lime on the gratings.

6. In a lime-digester, an inclosing casing, a series of gratings in said casing increasing in fineness toward the bottom, means for supplying water in regulated quantities to lime on the gratings, a flooring of pivoted slats below the gratings and means for turning said slats, and a hopper below said flooring, all combined.

7. An organized structure for digesting lime, consisting of a casing or housing to substantially prevent escape of steam, a series of gratings increasing in fineness toward the bottom and inclosed in said casing or housing, and means for feeding water in regulated quantities to lime resting on said gratings; all combined.

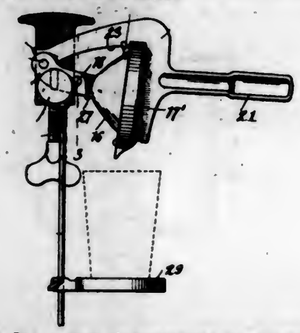
8. An organized structure for digesting lime, consisting of a casing or housing to confine steam to a considerable extent therein, a series of gratings within the casing, means for removing slaked lime from below the lower grating, and means for feeding water in regulated quantities to the lime on the gratings, all combined.

785,726. **WHIPPING DEVICE.** THOMAS J. POOS, Marion, Ohio. Filed May 26, 1904. Serial No. 210,280.



Claim.—The combination with a sweep of a horse-power, of a hollow post projecting upwardly from, and turning with, its pivot, a whip carried by the sweep with its butt projecting within the post directly over said pivot, an operating-rope having a swiveling connection with the butt and extending thence upwardly over the top of the post, and a spring connected between the whip and the sweep, to return the former to its normal position.

785,727. **SQUEEZER.** RAYMOND B. GILCHRIST, Newark, N. J. Filed May 26, 1904. Serial No. 210,161.



Claim.—1. In a squeezer, the combination of two compressing members, pivoted relatively, eccentric with respect to each other, a lever whereto one of the members is secured, the other member being also shifted in one direction by the lever and means yieldingly holding the latter member in position with respect to the lever-sustained member.

2. In a squeezer, the combination of two compressing members, pivoted relatively, eccentric with respect to each other, a lever whereto one of the members is secured, and means whereby both members will be simultaneously shifted, one of said members being movable about its pivot independently of the other member.

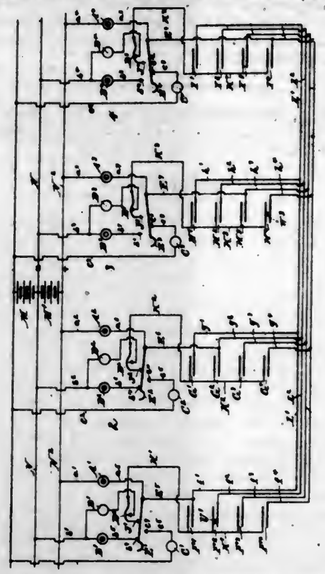
3. In a squeezer, the combination of two compressing members, pivoted relatively, eccentric with respect to each other, a lever whereto one of the members is secured, an abutment on the other member, whereby the lever will shift said latter member in one direction, and a spring pressing said latter member in the other direction, and whereby said latter member will be free to be shifted about its pivot independently of the member sustained by the lever.

785,728. **TELEPHONE SYSTEM.** ADOLPH C. GILGEN, Passaic, N. J., assignor to The New York Automatic Telephone Company, Passaic, N. J., a Corporation of New Jersey. Filed June 11, 1904. Serial No. 212,104.

Claim.—1. In a telephone system comprising a plurality of stations, a battery common to all such stations, and at each station a bell, a return-alarm, a receiver-hook normally depressed, a contact-piece controlled by the movements of said hook and arranged to break contact with said hook and to contact with said return-alarm when said hook is depressed and to contact with said hook and to break contact with said return-alarm when said hook is raised, and a plurality of jacks, and a calling-circuit from one pole of said battery through the bell and hook at the called station to a line connecting said called and calling stations, through one of the jacks, contact-piece and return-alarm at the calling-station, to the opposite pole of said battery, whereby the called bell and calling-alarm both are conditioned to ring when said hooks are depressed and to cease when either hook is raised.

2. In a telephone system comprising a plurality of stations, lines between such stations, a battery common to all such stations, and at each station a transmitter, receiver, receiver-hook, and a plurality of jacks, a talking-circuit from one pole of said battery at each of two communicating stations, through its transmitter, hook, line-wire, and jack at one station, and hook and receiver at the other station, to the opposite pole of said battery.

3. In a telephone system comprising a plurality of stations, a battery common to all such stations, a transmitter, a receiver, receiver-hook and a plurality of jacks at each station, a connection from one pole of said battery to the transmitter at the talking-station, a connection from the same pole to the transmitter at the receiving-station, a connection from each of said transmitters to its receiver-hook, a connection at each station from the opposite pole of said battery to the receiver at such station and from each of said receivers to its receiver-hook, and a line between said hooks, whereby the current through said transmitter at said talking-station divides beyond such transmitter, one portion traversing the line to and through the receiver at said receiving-station, and the other portion traversing said receiver-hook and receiver at said talking-station.

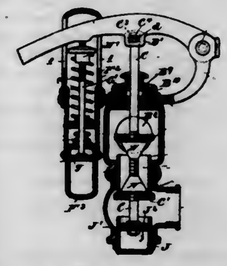


4. In a telephone system comprising a plurality of stations, a battery common to all such stations and consisting of two series of cells, a single wire in connection with the two similar poles of both series, two independent wires, one connected to the opposite pole of one series and the other to the same pole of the other series, one of said independent wires serving for the calling-circuits and the other for the talking-circuits, a transmitter, receiver, receiver-hook, a plurality of jacks and a bell at each station, line-wires connecting said stations and controlled by said jacks, connections from one of said independent wires to said bells, connections from the other independent wire through said transmitters, receiver-hooks and line-wires to said receivers, and connections from said bells and from said receivers to said single wire, whereby the latter serves as a common return for both calling and talking circuits.

5. In a telephone system comprising a plurality of stations, a battery common to all such stations and consisting of two series of cells, a single wire in connection with the two similar poles of both series, two independent wires, one connected to the opposite pole of one series and the other to the same pole of the other series, one of said independent wires serving for the calling-circuits and the other for the talking-circuits, a transmitter, receiver, receiver-hook, a plurality of jacks and a bell and return-alarm at each station, line-wires connecting said stations and controlled by said jacks, connections from one of said independent wires to said bells and through said line-wires to said return-alarms, connections from the other of said independent wires through said transmitters, receiver-hooks and line-wires to said receivers, and connections from said return-alarms and from said receivers to said single wire, whereby the latter serves as a common return for both calling and alarm, and talking-circuits.

6. In a telephone system comprising a plurality of stations, a battery common to all such stations, and at each station a bell, a return-alarm, a receiver-hook arranged to be depressed by a receiver, a transmitter, a contact-piece controlled by the movements of said hook and arranged to break contact with said hook and to contact with said alarm when said hook is depressed, and to contact with said hook and to break contact with said alarm when said hook is raised, and a plurality of jacks, a calling-circuit completed through one of said jacks with a called station, and comprising a wire as c^6 from one pole, as +, of said battery to a bell C^4, a wire c^9 from the latter to contact c^{12} with hook E^4 when said hook is depressed, a wire E^6 f^4 at the called station to a line L^6, thence by wire h^4 at calling-station to jack H^4, through wire K^2 to contact-piece J^2, contact D^7, return-alarm D^8 and wire b^2 to the opposite pole, as −, of said battery; a wire a^4 at said called station from said + pole of said battery to transmitter A^4, wire a^3 and said hook E^4 at said called station, a connection from wire b^4 to receiver B^4, wire b^3 and contact-point b^{11} arranged to contact with said hook E^4 at said called station when said hook is raised, a wire a^5 at said calling-station from said + pole of said battery to transmitter A^3, wire a^7 and said hook E^5 at said calling-station, a connection from said wire b^2 to receiver B^3, wire b^7 and contact-point b^{11} arranged to contact with said hook E^3 at said calling-station when such hook is raised, all combined and arranged to serve substantially as and for the purposes herein specified.

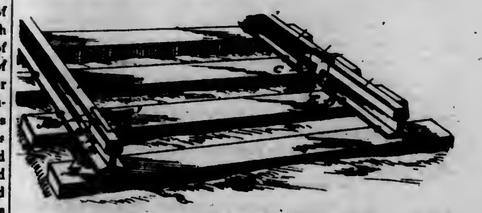
785,729. **SELF-CLOSING VALVE.** ROBERT F. GILLIN, New York, N. Y. Filed Mar. 10, 1904. Serial No. 197,427.



Claim.—1. A valve-casing containing a valve, a lever for operating the latter, and means for inducing a return movement of the lever and valve, in combination with a closed cylinder independent of said casing, a plunger disposed parallel with the valve-stem and arranged to move quickly in one direction in said cylinder and slowly in the opposite direction, and loose connections in said cylinder from said plunger to said lever.

2. A valve-casing, a valve therein, a valve-stem for said valve, a yoke on the casing having a bifurcated arm, a lever fulcrumed on said arm and having loose connection intermediate its ends with said stem, a cylinder parallel with and by the side of said casing, and supported by said yoke and slotted for the passage of the lever, a spring in said cylinder beneath the lever, a cup detachably depending from the cylinder, and a plug in said cup and having a stem under the lever and surrounded by said spring, all as and for the purpose specified.

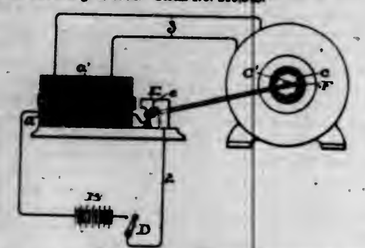
785,730. **RAIL-JOINT.** HARMEST G. GRALAPP, Cleveland, Ohio. Filed June 24, 1904. Serial No. 214,003.



Claim.—1. In a rail-joint the combination with the rails having their ends recessed as described, of the splice-bar upon which the ends of the rails rest, said splice-bar having an upward extension adapted to fit the recessed portions of the rails, said bar having a reinforcement below the extension for the purpose specified.

2. In a rail-joint the combination with the rails having recessed ends, the webs and base-flanges of said rails having elongated bolt-openings, of the splice-bar comprising the top and bottom flanges provided with bolt-openings, the upward extension at one side also provided with bolt-openings and the reinforced portion below the extension and coextensive therewith, all of said parts being arranged substantially as described.

785,731. **MEANS FOR CONVERTING ELECTRICAL CURRENTS FOR INDUCTION-MOTORS.** CHRISTIAN F. HEINKEL, Cleveland, Ohio. Filed Aug. 4, 1904. Serial No. 219,545.

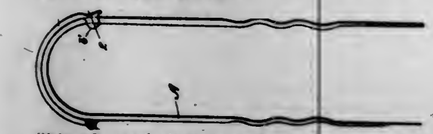


Claim.—1. A transformer and a source of continuous current therefor and a circuit-breaker for said transformer, in combination with an induction-motor mechanically connected with said breaker to produce a timed movement with said motor.

2. An induction-coil and a source of continuous current therefor, make-and-break mechanism in the primary circuit of said coil, an induction-motor electrically connected with the secondary winding of said coil, and means for operating said make-and-break mechanism in timed movement with said motor.

3. A transformer and a source of current therefor, a circuit-breaker for said transformer, a motor electrically connected with said transformer, and synchronizing mechanism for said motor and transformer.

785,732. **HAIR-PIN.** GEORGE A. HENDERSON, Chicago, Ill. Filed Oct. 27, 1904. Serial No. 230,296.



Claim.—1. A hair-pin having at its rear bend a clasp bent to substantially the same contour as the said bend, to fit around the outer side thereof, said clasp being attached to the outer side of pin and openable to allow hair to be placed between the clasp and the pin, on the outer side of the latter.

2. A hair-pin having at its rear bend a clasp hinged at one end to the pin and extending around outside said bend, and means to hold the clasp closed.

785,733. **PROCESS OF OBTAINING THE CONTENTS OF YEAST-CELLS.** WILHELM HESS, Frankfort-on-the-Main, Germany. Filed Oct. 26, 1901. Serial No. 80,128.

Claim.—1. The process of separating the contents of yeast-cells from the cells which consists in mixing with moist yeast a comparatively small quantity of ethyl ester of acetic acid allowing it to act upon the cells to produce liquefaction of the mass and then separating the liquid constituent thereof from the empty yeast-cells.

2. The process of separating the contents of yeast-cells from the cells by means of a small quantity of an organic liquid indifferent to the protoplasm of yeast which consists in making a mixture of the moist yeast and the organic liquid required for the operation allowing the liquid to act upon the cells to produce liquefaction of the mass and then separating the liquid constituent of the mass from the empty yeast-cells.

785,734. **PROCESS OF OBTAINING THE CONTENTS OF YEAST-CELLS.** WILHELM HESS, Frankfort-on-the-Main, Germany, assignor to Ludwig Wilhelm Gans, Frankfort-on-the-Main, Germany. Filed Aug. 20, 1903. Serial No. 121,541.

Claim.—1. The process of separating the contents of yeast-cells from the cells, which consists in forming a semifluid mixture of moist yeast-cells, water and a relatively small quantity of ethyl ester of acetic acid, allowing the latter to act upon the cells to separate their contents therefrom and produce liquefaction of the mass, and then separating the liquid constituent of the mixture from the empty yeast-cells.

2. The process of separating the contents of yeast-cells from the cells, which consists in mixing moist yeast, water and an organic liquid indifferent to the protoplasm of yeast, allowing the organic liquid to act upon the cells to separate therefrom their contents and produce liquefaction of the mixture, and then separating the fluid constituent of the mixture from the empty cells.

3. The process of separating the contents of yeast-cells from the cells, which consists in making a mixture of yeast, water to the extent of from fifty to one hundred per cent. by weight of the yeast, and five per cent., more or less, by weight of the yeast of an organic liquid indifferent to the protoplasm of the yeast, allowing the organic liquid to act upon the yeast to separate the contents of the cells from the cells, and then separating the liquid constituent of the mixture from the empty yeast-cells.

785,785. **PHOTOMECHANICAL PRINTING.** JOHN W. IPPERS, New York, N. Y., assignor to Albert Henry Walker, trustee, New York, N. Y. Filed Dec. 30, 1904. Serial No. 238,928.

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Claim.—1. The following process of photomechanical printing: making a sensitive gelatin plate, on a flexible celluloid base, which base is temporarily glued down upon a flat and horizontal plate while the gelatin is setting: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: drying that developed gelatin plate in air: stripping that gelatin plate, with its flexible base, away from that flat plate: applying glycerin solution to those parts of the surface of that developed gelatin plate which will take it: applying ink to the other parts of the surface of that developed gelatin plate: transferring ink from that inked flexible gelatin plate to a metal surface, by pressing the inked flexible gelatin plate directly against the metal surface: etching away the uninked parts of that metal surface: applying printing-ink to the printing parts thus produced on that metal surface: and transferring ink from those printing parts directly to the surface of whatever material constitutes the base of the picture which results from the process: all substantially as described.

2. The following process in photomechanical printing: making a sensitive gelatin plate, on a flexible celluloid base, which base is temporarily glued down upon a flat and horizontal plate while the gelatin is setting: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: drying that developed gelatin plate in air: stripping that gelatin plate, with its flexible base, away from that flat plate: applying glycerin solution to those parts of the surface of that developed gelatin plate which will take it: applying ink to the other parts of the surface of that developed gelatin plate: transferring ink from that inked flexible gelatin plate to a metal surface, by pressing the inked flexible gelatin plate directly against the metal surface: and etching away the uninked parts of that metal surface: all substantially as described.

3. The following process in photomechanical printing: making a sensitive gelatin plate, on a flexible celluloid base, which base is temporarily glued down upon a flat and horizontal plate while the gelatin is setting: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: drying that developed gelatin plate in air: stripping that gelatin plate, with its flexible base, away from that flat plate: applying glycerin solution to those parts of the surface of that developed gelatin plate which will take it: applying ink to the other parts of the surface of that developed gelatin plate: and transferring ink from that inked flexible gelatin plate to a solid surface, by pressing the inked flexible gelatin plate directly against the solid surface: all substantially as described.

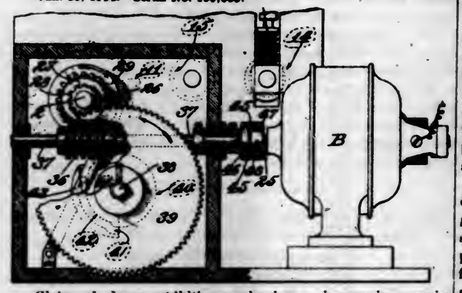
4. The following process in photomechanical printing: making a sensitive gelatin plate, on a flexible celluloid base, which base is temporarily glued down upon a flat and horizontal plate while the gelatin is setting: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: drying that developed gelatin plate in air: stripping that gelatin plate, with its flexible base, away from that flat plate: applying glycerin solution to those parts of the surface of that developed gelatin plate which will take it: applying ink to the other parts of the surface of that developed gelatin plate: and transferring ink from that inked flexible gelatin plate to a solid surface, by pressing the inked flexible gelatin plate directly against the solid surface: all substantially as described.

5. The following process in photomechanical printing: making a sensitive gelatin plate, on a flexible celluloid base, having a gelatin coat of uniform thickness: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: drying that developed gelatin plate in air: applying glycerin solution to those parts of the surface of that developed gelatin plate which will take it: applying ink to the other parts of the surface of that developed gelatin plate: transferring ink from that inked flexible gelatin plate to a metal surface, by pressing the inked flexible gelatin plate directly against the metal surface: and etching away the uninked parts of that metal surface: all substantially as described.

6. The following process in photomechanical printing: making a sensitive gelatin plate, on a flexible celluloid base, having a gelatin coat of uniform thickness: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: drying that developed gelatin plate in air: applying glycerin solution to those parts of the surface of that developed gelatin plate which will take it: applying ink to the other parts of the surface of that developed gelatin plate: and transferring ink from that inked flexible gelatin plate to a solid surface, by pressing the inked flexible gelatin plate directly against the solid surface: all substantially as described.

7. The following process in photomechanical printing: making a gelatin plate, on a flexible celluloid base, having a gelatin coat of uniform thickness sensitized with bichromate of ammonia and chlorid of calcium: exposing that sensitive gelatin plate to light through a translucent picture: developing that exposed gelatin plate by bathing it in water, and thereby making numerous irregular, and irregularly-distributed cracks in its surface: and drying that developed gelatin plate in air: all substantially as described.

785,786. **EXHIBITING MECHANISM.** WILLIAM H. JACOBS, St. Louis, Mo., assignor of one-half to Jacob Rans, St. Louis, Mo. Filed Jan. 18, 1904. Serial No. 189,605.



Claim.—1. In an exhibiting mechanism, a sign-carrier, a main shaft in driving connection therewith, a constantly-rotating driving-shaft, driving connection between said shafts and including a movable clutch member provided with a projection, an arm movable into and out of the path of movement of said projection, and means controlled by said driving-shaft for so moving said arm; substantially as described.

2. In an exhibiting mechanism, a movable sign-carrier, a main shaft in driving connection therewith, a constantly-rotating driving-shaft, a gear-block rotatably mounted upon said main shaft, a pin slidably but non-rotatably mounted upon said main shaft and adapted to move into and out of connection with said gear-block, connection between said constantly-rotating shaft and said gear-block, a cam driven by said constantly-rotating shaft, and an arm controlled by said cam and adapted to move into and out of the path of movement of a part upon said pin for causing movement of the latter with relation to said gear-block; substantially as described.

3. In an exhibiting mechanism, a movable sign-carrier, a main shaft in driving connection therewith, a gear-block rotatably mounted upon said main shaft, a pin slidably but non-rotatably mounted upon said main shaft and adapted to be connected to and disconnected from said gear-block, a constantly-rotating driving-shaft in driving connection with said gear-block, a counter-shaft, driving connection between said counter-shaft and said gear-block, an arm movable into and out of the path of movement of a projection upon said pin for moving said pin with relation to said gear-block, and a cam upon said counter-shaft and controlling said arm; substantially as described.

4. In an exhibiting mechanism, a movable sign-carrier, a main shaft in driving connection therewith, a constantly-rotating element, a peripherally-grooved block non-rotatably mounted upon said main shaft, a pin slidably mounted in said block and adapted to move into and out of connection with said constantly-rotating element, a projection upon said pin extending into the peripheral groove of said block, an arm received in said groove and movable into and out of the path of movement of said projection, and means for so moving said arm; substantially as described.

5. In an exhibiting mechanism, a movable sign-carrier, a driven shaft for imparting motion to the sign-carrier, a driving-shaft, gearing for imparting motion to the driven shaft from the driving-shaft, a clutch mechanism on the driven shaft comprising a reciprocating element having a head provided with a cam-face, and an independently-mounted arm having means for automatically engaging the cam-face of the reciprocating element to prevent rotation of the driven shaft by the driving-shaft; substantially as described.

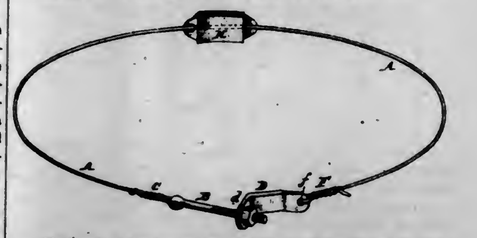
6. In an exhibiting mechanism, a movable sign-carrier, a shaft in driving connection therewith, a constantly-rotating shaft, gears on the respective shafts and in mesh with each other, a clutch mechanism for intermittently causing the first-named shaft to rotate, said clutch mechanism coöperating with the constantly-driven shaft and comprising two members adjacent to each other, a reciprocating element having a head provided with a cam-face, and an independently-mounted arm having means for automatically engaging the cam-face of the reciprocating element to disconnect the clutch element to prevent rotation of the driven shaft by the driving-shaft; substantially as described.

7. In an exhibiting mechanism, a movable sign-carrier, a main shaft in driving connection therewith, a constantly-rotating driving-shaft, a clutch mechanism on the main shaft including a transversely-movable element carried by one element of the clutch mechanism, and a pivoted arm having a cam-face coöperating with a similar face on the transversely-movable element of the clutch mechanism for automatically and intermittently preventing rotation of the driven shaft by the driving-shaft; substantially as described.

8. In an exhibiting mechanism, a sign-carrier, a main shaft in driving connection therewith, a constantly-rotating driven shaft, a clutch connection between said shafts, means for automatically and intermittently breaking said clutch connection and for maintaining the clutch in disconnected position, said clutch mechanism including a transversely-movable pin having a head, and an independently-mounted arm for intermittently contacting with the head to move the pin out of engagement with one of the clutch elements; substantially as described.

9. In an exhibiting mechanism, comprising a sign-carrier, a driving-shaft for imparting motion to the sign-carrier, a driven shaft, gearing for imparting motion to the driven shaft from the driving-shaft, a clutch mechanism on the driven shaft comprising a spring-pressed reciprocating element having a head provided with a cam-face, and an independently-mounted means for automatically engaging the cam-face of the reciprocating element to prevent rotation of the driven shaft by the driving-shaft; substantially as described.

785,737. **DEVICE FOR STOPPING LEAKS.** LLOYD JONES, Philadelphia, Pa. Filed Sept. 3, 1904. Serial No. 223,192.



Claim.—1. A device for stopping leaks consisting of a band to encircle the boiler or pipe in which the leak occurs, combined with a packing-plate arranged intermediate of its ends and having means for preventing lateral displacement upon the band, and an adjustable clamping device independent of the packing-plate for detachably connecting the ends of the band and putting it under tension.

2. A device for stopping leaks consisting of a band to encircle the boiler or pipe in which the leak occurs, combined with a packing-plate arranged intermediate of its ends and adjustable longitudinally

on the band, and an adjustable clamping device for detachably connecting the ends of the band and putting it under tension.

3. A device for stopping leaks consisting of a band to encircle the boiler or pipe in which the leak occurs, combined with a packing-plate arranged intermediate of its ends and formed of a metal plate threaded on the band and faced with a soft packing material, and an adjustable clamping device for detachably connecting the ends of the band and putting it under tension.

4. A device for stopping leaks consisting of a band to encircle the boiler or pipe in which the leak occurs, combined with a packing-plate upon the band provided with means to prevent lateral displacement and arranged intermediate of its ends, and an adjustable clamping device for detachably connecting the ends of the band and putting it under tension consisting of an eye structure secured to one end of the band, a bolt secured to the other end of the band and a nut on the bolt resting against the eye structure.

5. A device for stopping leaks consisting of a band to encircle the boiler or pipe in which the leak occurs, combined with a packing-plate upon the band provided with means to prevent lateral displacement and arranged intermediate of its ends, and an adjustable clamping device for detachably connecting the ends of the band and putting it under tension consisting of an eye structure adjustably secured to one end of the band, a bolt adjustably secured to the other end of the band and a nut on the bolt resting against the eye structure.

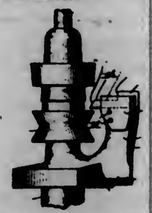
6. A device for stopping leaks consisting of a band adapted to encircle the boiler or pipe in which the leak occurs provided with means to shorten its encircling length to put it under tension so as to clamp tightly to the boiler or pipe and also having a packing-surface to fit over the leak secured to the band so as to be held against lateral displacement.

7. A device for stopping leaks consisting of a band adapted to encircle the boiler or pipe in which the leak occurs provided with means to put it under tension so as to clamp tightly to the boiler or pipe and also having a packing-surface adjustably supported by the band and faced with a soft packing material to fit over the leak.

8. A device for stopping leaks consisting of a band adapted to encircle the boiler or pipe in which the leak occurs provided with means to put it under tension so as to clamp tightly to the boiler or pipe and also having an adjustable curved packing-surface faced with soft packing material to fit over the leak.

9. A device for stopping leaks consisting of a packing-plate having a curved packing-surface, combined with a band encircling the boiler or pipe in which the leak occurs provided with adjustable tension devices to draw the packing-plate tightly against the boiler or pipe to cover the leaking spot and in which the packing-plate is adjustable longitudinally upon the band to or from the devices for creating the tension.

785,788. SPINNING-SPINDLE. HAROLD KELLY, Biddeford, Me., assignor to Sawyer Spindle Company, a Corporation of Maine. Filed Oct. 20, 1904. Serial No. 230,447.



Claim.—1. In a spinning-spindle, a supporting-case having an upturned oil-snout provided with an inlet-opening in its head, a retaining device secured rigidly to the sides of and crossing the head, a flat, apertured closure laterally slidable on the head between the sides and under the top of said retaining device and having a whirl-downhold at its inner end, and a spring to normally maintain said closure with its aperture out of alinement with the inlet-opening and the downhold in operative position.

2. In a spinning-spindle, a supporting-case having an upturned oil-snout provided with an inlet-opening, a flat closure mounted to slide on the top of the head and having an aperture to register with the inlet-opening, the inner end of said closure forming a downhold for the whirl, a transverse shoulder on said closure, means to guide and retain the latter on the head, comprising depending rings and a connecting-bridge crossing the closure in front of the shoulder, and a spring to cooperate with the closure and normally maintain the shoulder against the bridge of the guiding and retaining means, the inlet-opening being at such time covered by the closure and the downhold yieldingly maintained in operative position.

3. In a spinning-spindle, a supporting-case having an upturned oil-snout provided with an inlet-opening in its head, a retaining device secured thereto and comprising depending wings and a connecting-bridge crossing the top of the head, a sliding closure having an apeture and reduced in thickness to extend beneath the bridge and project beyond it to form a whirl-downhold, and a spring to act upon the closure and maintain it in position to shut the inlet-opening and project the downhold.

785,789. TAPER-GAGE. ALBERT KETTNICH, New York, N. Y. Filed Aug. 15, 1904. Serial No. 220,713.

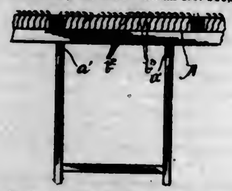


Claim.—1. A taper-gage, comprising a handle member having a scale, and two transversely-arranged members connected therewith, one of which is adjustable toward and from the other, said transversely-arranged members being provided with holes of different sizes, substantially as shown and described.

2. A taper-gage, comprising a handle member having a scale, and two disks mounted thereon one of which is adjustable toward and from the other and also rotatable on the handle member, said disks being provided with circularly-arranged holes of different sizes, substantially as shown and described.

3. A gage, comprising a handle member, having a scale thereon, and two disks connected therewith at right angles thereto, and one of which is adjustable toward and from the other and adapted to be turned on the handle member, each of said disks being provided with a series of circularly-arranged holes, the holes in one disk being smaller than those in the other and said holes in each series decreasing in size corresponding to a predetermined scale, substantially as shown and described.

785,740. COVERING FOR AEROPLANES. ISRAEL LANCASTER, Chicago, Ill. Filed July 13, 1904. Serial No. 216,276.



Claim.—1. A covering for an aeroplane, consisting of a series of plates or spicules arranged closely together to leave interstices or spaces between them each of the spicules having its discharging edge bent toward the rear and having its under or intake edge provided with a series of teeth to disintegrate the currents of air entering therethrough, substantially as described.

2. A covering for an aeroplane, consisting of a series of plates or spicules closely arranged in parallel relation to leave interstices or spaces between them, each of the plates or spicules formed of a thin sheet of metal having an angularly-formed body portion and having its discharge edge bent toward the rear to discharge currents of air in a rearward direction, substantially as described.

3. A covering for an aeroplane, consisting of a series of plates or spicules closely arranged in parallel relation to leave interstices or spaces between them, each of the plates or spicules having an angularly-formed body portion such portion consisting of a straight section and a forwardly-bent section, the latter section terminating in a rearwardly-bent discharging edge and a series of teeth along the intake edge for disintegrating the currents of air passing therethrough, substantially as described.

4. A covering for an aeroplane, consisting of a series of plates or spicules closely arranged in parallel relation to leave interstices or spaces between them, each of the plates or spicules having an angularly-formed body portion consisting of a straight section and a forwardly-bent section, the latter section terminating in a rearwardly-bent discharging edge, and a series of teeth along the opposite or intake edge of the spicules for disintegrating the currents of air and allowing said currents to enter through the interstices between the spicules, said teeth consisting of adjacent wires of alternating lengths closely arranged along the edge, substantially as described.

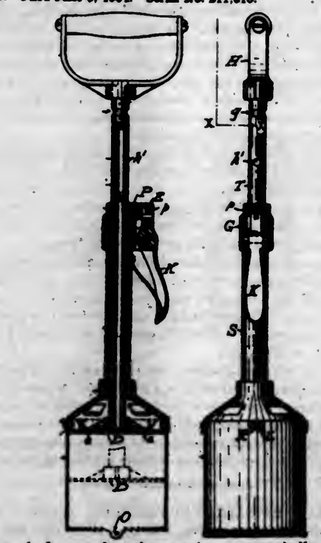
785,741. FINGER-RING. LOUIS LEER, New York, N. Y. Filed Jan. 14, 1905. Serial No. 240,901.



Claim.—1. A finger-ring having a chamber portion toothed sliding plates in said chamber, a pinion engaging with the teeth, means for operating the pinion, and a setting-holder having means for interlocking with said plates.

2. A finger-ring having a chambered portion, locking-plates arranged to slide in the chamber and having reduced portions provided with teeth, a pinion engaging the teeth, a spindle of the pinion being extended to the inner side of the ring, a notched disk on the inner end of the spindle and a setting-holding collar adapted to be seated in the chamber and having inward projections for engaging the plates.

785,742. GRADUATED MEASURE. LOUIS P. LUPP, Cleveland, Ohio. Filed June 8, 1904. Serial No. 211,618.



Claim.—1. In a graduated measuring scoop or ladle, the combination of a hollow stem, a cylinder detachably connected thereto, a plunger within said cylinder having a plunger-rod extending upwardly through said stem, a cut-off bar or blade transversely of the mouth of said cylinder and fastened to the same, suitable means for setting said plunger-rod at predetermined points with respect to said stem and suitable means for locking the same against longitudinal and rotary movement in said stem, all substantially as shown and described.

2. In a graduated measuring scoop or ladle, the combination of a hollow stem, a cylinder detachably connected thereto, a plunger within said cylinder having a plunger-rod extending upwardly through said stem, a cut-off bar or blade transversely of the mouth of said cylinder and fastened to the same, suitable means for setting said plunger-rod at predetermined points with respect to said stem and suitable means for locking the same against longitudinal and rotary movement in said stem, together with one or more upwardly-opening valves in the top of said plunger; all substantially as shown and described.

3. In a graduated measuring scoop or ladle, the combination of a hollow stem, a cylinder detachably connected thereto, a plunger within said cylinder having a plunger-rod extending upwardly through said stem, a cut-off bar or blade transversely of the mouth of said cylinder and fastened to the same, suitable means for setting said plunger-rod at predetermined points with respect to said stem and suitable means for locking the same against longitudinal and rotary movement in said stem, together with suitable means for detachably connecting said cylinder to said stem, all substantially as shown and described.

4. In a graduated measuring scoop or ladle, the combination of a hollow stem, a cylinder detachably connected thereto, a plunger within said cylinder having a plunger-rod extending upwardly through said stem, a cut-off bar or blade transversely of the mouth of said cylinder, and fastened to the same, and suitable means for locking said plunger-rod against longitudinal movement in said stem when its plunger is in bearing against said cut-off bar or blade, substantially as shown and described.

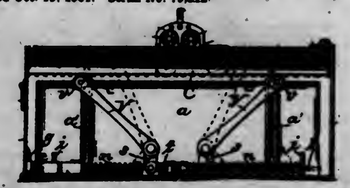
785,743. CLAMPING DEVICE. ALBERT D. LOCKE, Newton, Mass. Filed Aug. 30, 1901. Serial No. 73,642.



Claim.—1. A clamp composed of a resilient U-shaped member and a clamping member, the latter consisting of a portion 7 adapted to provide a flat clamping-surface, a connecting portion 8 making an acute angle therewith and hinged at its free end to one end of the U-shaped member, with the vertex of said angle normally pointing away from the bend of said U-shaped member, and a free end portion 9 normally located adjacent to said bend, all substantially as described.

2. A spring-clamp composed of a U-shaped member provided with a perforation, and a clamping member hinged thereto and comprising the parts 7, 8 and 9 substantially as described, the free end of said clamping member being bent over toward said U-shaped member and terminating adjacent to the bend in the same, thereby forming in connection with said bend a nearly-closed hook located in alinement with said member.

785,744. DEVICE FOR HOLDING AND HANDLING TICKETS. JOHN W. LUTZ, Trotwood, and JOHN B. BERLSFORD, Dayton, Ohio. Filed Oct. 19, 1901. Serial No. 79,212.



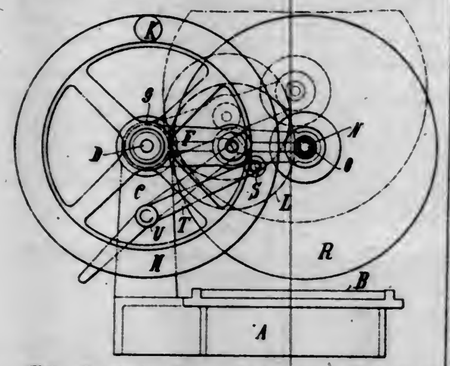
Claim.—1. In a receptacle for tickets, the combination of a casing or receptacle, fixed bearings within the receptacle, rods movably journaled in said fixed bearings, movable bearings fixed on said rods, springs between said movable and fixed bearings, shafts journaled in another set of fixed bearings, arms on the shafts and antifriction-rollers on the arms, a cross-bar and connecting-links between the arms and the cross-bar to which the links are pivoted.

2. In a device of the character described, a sliding bar to rest on the tickets, antifriction-wheels journaled in the side portions of said bar, long rollers *x* journaled in the side portions of said bar, a handle-piece on the top of the bar, and a cutting edge on one side of the bar, substantially as described.

3. A device of the character described, comprising a receptacle, a sliding bar provided with antifriction-wheels seated in recesses

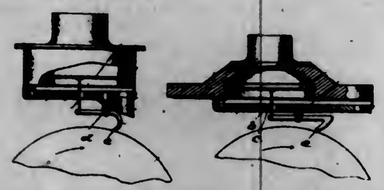
in said receptacle, a movable platform having guides and stops to prevent lateral movement of the tickets, rods, springs which surround them, a cross-bar connected to the rods, links for supporting the platform, and antifriction-rollers on the upper ends of the links, substantially as described.

785,745. MACHINE FOR SLICING MEAT, HAM, SAUSAGE, OR THE LIKE. ALBERT LUTEMANN, Wins. near Hattingen, Germany, assignor to The Firm of Vereinigte Flaschenfabriken & Stanzwerke Aktien-Gesellschaft, Hattingen, Germany. Filed Jan. 5, 1905. Serial No. 239,700.



Claim.—In a machine for cutting meat, sausages, ham and like materials in slices a frame A, a movable table B on said frame, a pedestal C fixed on one side of the frame A, a boss E on the top of said pedestal, a shaft D carried in said boss a crank-wheel H K or its equivalent fixed at the outer end of shaft D, in combination with an arm F held movably outside the boss E on shaft D, a pinion G keyed to said shaft, a pin M fixed to said arm F and carrying a wheel L meshing with the pinion G, a spindle O carried at the outer end of said arm F in bosses P, P, a pinion N on said spindle between the two bosses P, a circular knife fixed to the inner end of the spindle O, a crank-pin S on the face of wheel L, a fast pin U fixed to the pedestal C and a connecting-rod T connecting the pin S on wheel L to the pin U, the whole as described and illustrated and for the purpose set forth.

785,746. GRAPHOPHONE-REPRODUCER. THOMAS H. MACDONALD, Bridgeport, Conn., assignor to American Graphophone Company, Bridgeport, Conn., a Corporation of West Virginia. Filed Sept. 7, 1904. Serial No. 223,640.



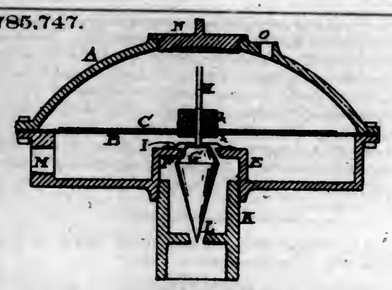
Claim.—1. In a reproducer for graphophones or other talking-machines, a head carrying a diaphragm, a floating weight pivoted to said head, a fulcrum-post located at the center of gravity of said weight, and a stylus-bar pivoted on said post and connected to said diaphragm.

2. A floating weight for reproducers, having a stylus-lever pivoted thereto at the center of gravity of said weight, substantially as described.

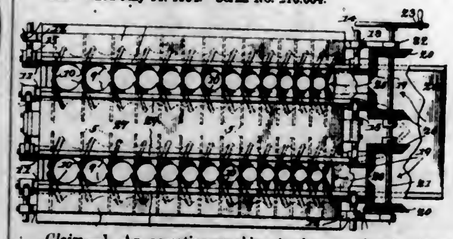
785,747. GAS-PRESSURE GOVERNOR. JUAN V. MATHIVET, Cleveland, Ohio. Filed Dec. 19, 1904. Serial No. 237,602.

Claim.—The combination of valve G having a short tapering upper member and a long tapering lower member, with neck E, valve-seat F in said neck, and the extension K having seat L, a stem H, and a diaphragm B, to which the valve G is suspended, and adapted to operate substantially as and for the purpose specified.

785,747.



785,748. FRUIT-GRADER. EDWARD N. MAULL, Crescent City, Fla. Filed July 14, 1904. Serial No. 216,604.



Claim.—1. An assorting-machine having a pair of substantially parallel assorting-rollers respectively provided with right and left spiral grooves increasing in depth from the front ends of the rollers and providing a series of openings between the rollers and increasing in size from the front ends thereof.

2. An assorting-machine comprising a frame having a longitudinal series of compartments which are open at their tops and are inclined transversely of the machine, and a pair of assorting-rollers mounted longitudinally above the compartments and respectively provided with right and left spiral grooves increasing in depth from the front end of the machine and forming a longitudinal series of openings registered with the respective compartments and increasing in size from the front of the machine.

3. An assorting-machine having a pair of substantially parallel assorting-rollers respectively provided with right and left spiral grooves increasing in depth from the front ends of the rollers and providing a series of openings between the rollers and increasing in size from the front ends thereof, and yieldable buffer-strips embracing the flanges produced by the grooves of the rollers.

4. In an assorting-machine, the combination with a frame, of a pair of spirally-grooved assorting-rollers having a groove increasing in depth from the front of the machine, bearing-brackets carried by the frame, forks adjustable endwise upon the brackets, and sockets pivotally supported between the members of the forks and receiving the journals of the rollers.

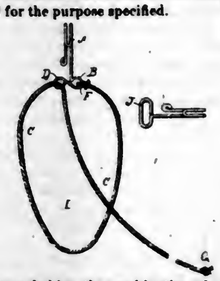
5. In an assorting-machine, the combination with a frame, of assorting means mounted thereon, a plurality of spaced upright partitions forming compartments below the assorting means and provided with corresponding incisions inclined to the vertical, and a strip of flexible material inserted in the incisions and secured to the frame to form inclined yieldable bottoms for the compartments.

785,749. METALLIC CORD-FASTENER. CHARLES F. METHVEN and WILLIAM J. HARTSON, Milwaukee, Wis. Filed Mar. 14, 1904. Serial No. 198,117.

Claim.—1. In a package-holder, the combination of a fastening-cord and a metallic cord-fastener having fixed connection with one end of the cord and loose engagement with the intermediate portion thereof, said cord-fastener being also provided with a primary hook adapted to loosely receive the cord and a device coöperative with the primary hook for locking the cord in position therein.

2. In a package-holder, the combination of a fastening-cord and a metallic cord-fastener having fixed connection with one end of the cord and loose engagement with the intermediate portion thereof, said cord-fastener being also provided with a primary hook adapted to loosely receive the cord and a fastening-hook arranged to coöperate with the primary hook in securing the cord thereto.

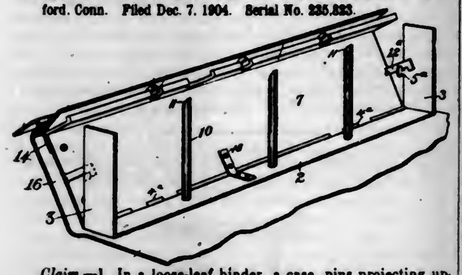
3. In a package-holder, a metallic cord-fastener comprising a loop for the permanent attachment of one end of the fastening-cord; a separate loop for the reception of a slip-noose formed by the intermediate portion of the cord; a primary hook through which the cord is drawn preparatory to being tied and a fastening-hook for the reception of the end of the cord when tied, in combination with a fastening-cord permanently attached at one end to said cord-retaining loop, having its intermediate portion slidably connected with said noose-retaining loop and means for preventing the free end of said cord from being withdrawn from said noose-retaining loop, all substantially as and for the purpose specified.



4. In a package-holder, the combination of a fastening-cord; a primary hook adapted to loosely engage the cord and provided with a shank having fixed connection with one end of the cord and a loop in loose engagement with the intermediate portion thereof; a fastening-hook having its free end extended along the shank of the primary hook and provided with an outwardly-curving extremity, said fastening-hook being arranged to permit an initial independent engagement of the cord in the primary hook.

5. In a package-holder, the combination of a fastening-cord, and a metallic cord-fastener comprising a primary hook having a shank provided with a loop in a plane substantially at right angles to the plane of the primary hook; said cord having one end permanently connected with the shank and an intermediate portion extending from said fixed end loosely through said loop from beneath and forming a slip-noose; said primary hook being adapted to loosely receive the cord and provided with means for locking the cord in position therein.

785,750. LOOSE-LEAF BINDER. PHILIP MONTGOMERY, Hartford, Conn. Filed Dec. 7, 1904. Serial No. 235,833.



Claim.—1. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the case and consisting of a back and a top rigidly secured thereto to overlie the top of the case, said top having slots for the reception of the pins, means for locking the cover and case together, and self-acting means for swinging the cover from the case.

2. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the case and including a back and top rigidly secured thereto to overlie the case, said top having slots for the reception of the pins, means for locking the top in engagement with the pins, and a stop to limit backward swinging movement of the cover.

3. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover including a back and a top rigidly secured thereto to overlie the top of the case, said top having slots for the reception of said pins, means for locking the pins and top in engagement, self-acting means for swinging the cover away from the case, and stops to limit the swinging movement of the cover.

4. In a loose-leaf binder, a case, a cover pivoted to the case and including a back and top rigidly secured thereto to overlie the case, said top having slots for the reception of pins, pins projecting upward from the bottom of the case to engage said slots, and a lock-plate pivotally united to the cover and having openings to receive the ends of the pins.

5. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover including a back and a top rigidly secured thereto to overlie the case, said top having slots for the reception of the pins, self-actuating means for swinging the cover away from the case, and a lock-plate hinged to said top and having openings for the reception of the ends of the pins.

6. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover including a back and a top rigidly secured thereto to overlie the case, said top having slots to receive said pins, a lock-plate pivoted to the top and having openings to receive the ends of the pins, and a stop to limit the backward swinging movement of the cover.

7. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the bottom of the case for backward swinging movement and including a back and top rigidly secured thereto to overlie the case, said top having slots for the reception of the pins, and a lock-plate pivoted to the back of the top whereby force applied to lift the plate is also applied to swing the cover backward, said lock-plate having openings for the reception of the ends of the pins.

8. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the back of the bottom of said case and including a back and a top rigidly secured thereto to overlie the case, said top having slots for the reception of said pins, a lock-plate pivoted to the back of the top whereby force applied to lift the plate will be transmitted to the cover to cause it to swing backward, said lock-plate having openings for the reception of the ends of the pins, and means for holding the lock-plate normally against the top of the cover.

9. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover including a back and a top rigidly secured thereto to overlie the case, said cover having slots for the reception of the pins, a plate secured to the back of the top of the cover by a spring-hinge tending to hold the plate normally in engagement with the cover whereby force applied to lift the plate will be transmitted to the cover to cause it to swing backward, said plate having openings for the reception of the pins

10. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover pivoted to the back of the bottom of the case and including a back and a top rigidly secured thereto, the latter having slots for the reception of said pins, a lock-plate pivoted to the back of the top whereby force applied to the plate to lift it will be transmitted to the cover to swing it backward, self-actuating means for swinging the cover backward, and means for holding said plate against the top of the cover.

11. In a loose-leaf binder, a case, a cover pivoted to the back of the bottom of the case and including a back and a top rigidly secured thereto to overlie the case, said top having slots for the reception of the pins, self-actuating means for swinging the cover backward, means for limiting the backward swinging movement of the cover, and a lock-plate pivoted to the back of the top of the cover whereby force applied to lift the plate will be transmitted to the cover to swing it backward, said plate having openings for the reception of the ends of the pins, and means for holding the plate against the top of the cover.

12. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the case and including a back and a top rigidly secured thereto with slots for the reception of the pins, self-actuating means for swinging the cover away from the case, and interengaging hooks on the case and cover for limiting the backward movement of the latter.

13. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the case and including a back and a top rigidly secured thereto to overlie the top of the case, said top having slots for the reception of pins, and means for locking the cover and case together.

14. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the case and including a back and a top rigidly secured thereto to overlie the top of the case, said top having slots for the reception of pins; and a lock-plate movably supported by the cover and adapted to engage the pins to lock the cover and case together.

15. In a loose-leaf binder, a case, pins projecting upward from the bottom of the case, a cover hinged to the case and including a back and a top rigidly secured thereto with slots for the reception

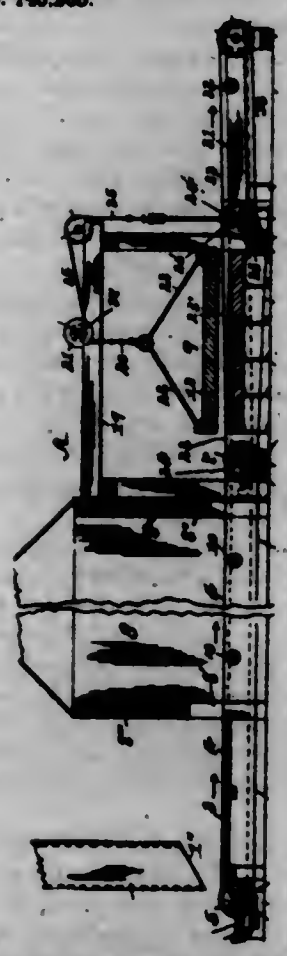
of the pins, and interengaging hooks on the case and cover for limiting the backward movement of the latter.

16. In a loose-leaf binder, a case consisting of a piece of metal having its ends upturned to form the ends of the case, pins projecting upward from the bottom of the case, a cover including a back constituting one wall of the case and a top rigidly secured to the back and forming the top of the case, said top having slots for the reception of pins, means for locking the cover in its closed position, and means for limiting the backward movement of the cover.

17. In a loose-leaf binder, a case including a bottom with its ends upturned to form the ends of the case, pins projecting upward from the bottom of the case, a cover hinged to the case and constituting the back thereof, and with a top rigidly secured thereto constituting the top of the case, said top having slots for the reception of the pins, a lock-plate movable supported by said top and having openings for the reception of the pins to lock the cover in its closed position, and means for limiting the backward swinging movement of the cover.

18. In a loose-leaf binder, a case composed of a piece of metal having its ends upturned to form the ends of the case, pins projecting upward from the bottom of the case, a cover hinged to the bottom of the case to form one wall thereof and having a top rigidly secured thereto to overlie and form the top of the case, said top having slots for the reception of pins, a lock-plate pivoted to the back of the top and overlying the same and having openings for the reception of said pins, and means for limiting the backward movement of the cover.

785,751. **APPARATUS FOR THE MANUFACTURE OF FELT.** GEORGE W. MOSER, Pittsburg, Pa., assignor to Hiram W. French Company, Allegheny, Pa., a Corporation of Pennsylvania. Filed Jan. 23, 1903. Serial No. 140,265.



Claim.—1. In apparatus for the manufacture of felt, the combination of the felter, and means for raising the felt within the felter and withdrawing the same therefrom.

2. In apparatus for the manufacture of felt, the combination of the felter, means for raising the felter, and means for raising the felt within the same to permit the latter to be withdrawn from said felter.

3. In apparatus for the manufacture of felt, the combination of the felter composed of upper and lower platens, means for raising the upper platen and means for raising the felt from the lower platen to permit the latter to be withdrawn from said felter.

4. In apparatus for the manufacture of felt, the combination of the felter, means for carrying the material to and within the felter to be felted, and means for raising said carrying means within the felter to permit the felt to be withdrawn from said felter after being felted.

5. In apparatus for the manufacture of felt, the combination of the felter, means for carrying the material to and within the felter to be felted, means for raising the felter, and means for raising said carrying means within the felter to permit the felt to be withdrawn from said felter after being felted.

6. In apparatus for the manufacture of felt, the combination of the felter composed of upper and lower platens, means for carrying the material to and between the platens to be felted, means for raising the upper platen, and means for raising the carrying means within the felter to permit the felt to be withdrawn from above the lower platen after being felted.

7. In apparatus for the manufacture of felt, the combination of the felter, a series of belts for carrying the material to and within the felter to be felted, and means for raising said belts within the felter to permit the felt to be withdrawn from said felter after being felted.

8. In apparatus for the manufacture of felt, the combination of the felter, a series of belts for carrying the material to and within the felter to be felted, means for raising the felter, and means for raising said belts within the felter to permit the felt to be withdrawn from said felter after being felted.

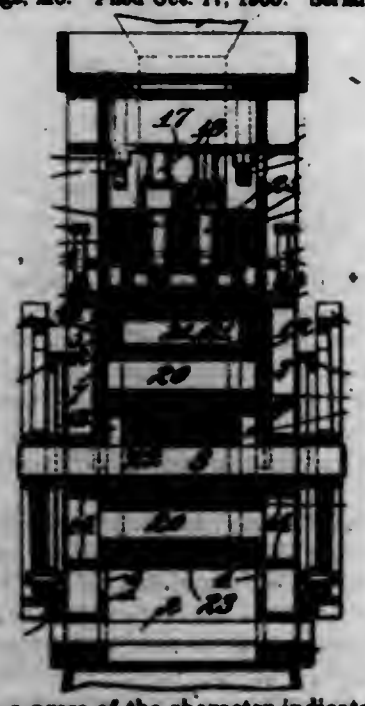
9. In apparatus for the manufacture of felt, the combination of the felter composed of upper and lower platens, a series of belts carrying the material to and between the platens to be felted, means for raising the upper platen, and means for raising said belts within the felter to permit the felt to be withdrawn from above the lower platen after being felted.

10. In apparatus for the manufacture of felt, the combination of the felter composed of upper and lower platens, a series of endless belts passing around shafts on each side of said felter for carrying the material to and between the platens to be felted, connections between said upper platen and belt-shafts for raising said upper platen, and means for raising said belts to permit the felt to be raised from the lower platen so that said felt can be withdrawn from said felter after being felted.

11. In apparatus for the manufacture of felt, the combination of the felter composed of upper and lower platens, a power-shaft supported above said upper platen, a series of endless belts passing around shafts on each side of said felter for carrying the material to and between the platens to be felted, connections from said power-shaft to the upper platen and the belt-shafts for raising said platen, and means for raising said belts to permit the felt to be raised from the lower platen so that said felt can be withdrawn from said felter after being felted.

12. In apparatus for the manufacture of felt, the combination of the felter composed of upper and lower platens, a supporting-frame above said felter, a power-shaft carrying drums on said frame, a pulley on said frame, a series of endless belts passing around shafts on each side of said felter for carrying the material to and between the platens to be felted, chains passing from said drums to said upper platen and over said pulley to the belt-shafts for raising said platen, and chains passing from said drums for raising said belts to permit the felt to be raised from the lower platen so that said felt can be withdrawn from said felter after being felted.

785,752. **PRESS.** MAX MUELLER, St. Louis, Mo., assignor to John B. Bush, Jennings, Mo. Filed Oct. 17, 1903. Serial No. 177,416.



Claim.—1. In a press of the character indicated, a ram, a second ram coöperating therewith, a frame by which said second ram is

carried, two cams upon said frame, and a third cam connected to said first-mentioned ram and intermediate said two cams carried by said frame, said two cams upon said frame and said intermediate cam being similar and having a rapidly-rising portion diametrically opposite a rapidly-falling portion and a slightly-rising portion diametrically opposite a slightly-falling portion, and a second cam connected to said first-mentioned ram and having a low concentric portion which, with respect to the time of operation, extends from a point in the rear portion of said slightly-rising portion of said intermediate cam to the rear end of said rapidly-falling portion of said intermediate cam, a slightly-rising portion extending through the arc corresponding to the arc through which said rapidly-rising portion of said intermediate cam extends, a high concentric portion extending through an arc corresponding to the forward portion of the arc through which extends said slowly-rising portion of said intermediate cam, and a rapidly-falling portion connecting the rear of said high concentric portion with the forward end of said low concentric portion; substantially as described.

2. In a press of the character indicated, a main frame, a support thereon, a lower ram-frame supported upon said main frame, a shaft supported upon said ram-frame, a cam upon said shaft bearing upon said support, an upper ram-frame slidable with relation to said lower ram-frame, a second cam upon said shaft, and a member upon said upper ram-frame coacting with said second cam; substantially as described.

3. In a press of the character indicated, a main frame, a support thereon, a lower ram-frame supported upon said main frame, a shaft supported upon said ram-frame, a cam upon said shaft bearing upon said support, an upper ram-frame slidable with relation to said lower ram-frame, a second cam upon said shaft, and a cam upon said upper ram-frame upon each side of said second cam and coöperating with the latter, said second cam and each of said cams upon said upper ram-frame being similar and having a slightly-rising surface diametrically opposite a slightly-falling surface, and a rapidly-rising surface diametrically opposite a rapidly-falling surface; substantially as described.

4. In a press of the character indicated, a main frame, a support thereon, a lower ram-frame slidable upon said main frame, a ram carried by said lower ram-frame, a shaft carried by said lower ram-frame, a cam upon said shaft engaging said support, an upper ram-frame telescoping within said lower ram-frame and slidable therein, a second cam upon said shaft, and a member upon said upper ram-frame with which said second cam engages; substantially as described.

5. In a press of the character indicated, a lower ram-frame, a ram carried thereby, a shaft supported in said lower ram-frame, an upper ram-frame telescoping in said lower ram-frame, an upper ram carried by said upper ram-frame, a cam upon said shaft, and a member upon said upper ram-frame with which said cam engages for moving said upper ram-frame with respect to said lower ram-frame; substantially as described.

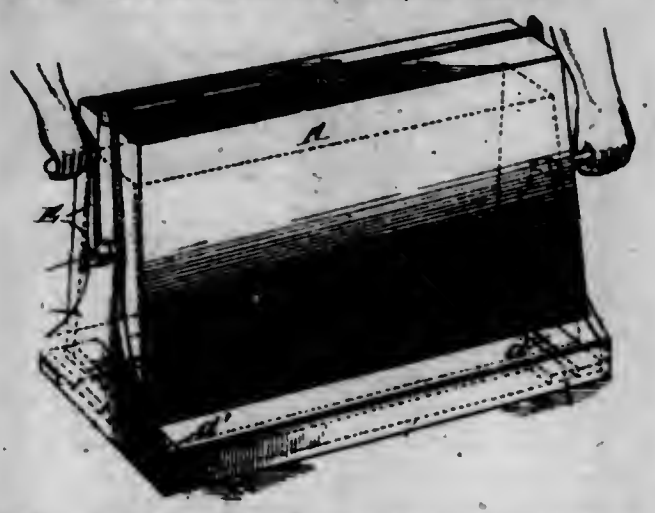
6. In a press of the character indicated, a lower ram-frame having a head and side walls, a ram supported upon said head, a shaft journaled in said side walls, an upper ram-frame telescoping in said lower ram-frame and having a head and side walls, said side walls having elongated slots for receiving said shaft, an upper ram carried by said upper ram-frame, a cam upon said shaft, counter-shafts extending across said upper ram-frame and carried thereby upon opposite sides of said cam, and rollers upon said last-mentioned shafts and engaged by said cam; substantially as described.

7. In a brick-press, the combination with a mold-box, an upper ram, and a lower ram, sliding frames for carrying said rams, a cam mounted in the frame which carries the lower ram, means for driving said cam, cams mounted in the frame which carries the upper ram and coöperating with said first-mentioned cam, and a gearing between all of said cams; substantially as described.

8. In a brick-press, the combination with a frame, a mold-box carried thereby, a ram above the mold-box, a second ram coöperating with the first-named ram and movable in the mold-box, a movable frame on which said second ram is carried, cams upon said frame, an intermediate cam between the first-named cams, all of said cams being similar to each other and each of them having a slightly-rising surface diametrically opposite a slightly-falling surface, and a rapidly-rising surface diametrically opposite a rapidly-falling surface, and extending through substantially the same number of degrees as that through which said rapidly-falling surface extends; substantially as described.

9. In a brick-press, the combination with a mold-box, a ram above said mold-box, a second ram coöperating with the same, a bolow frame for supporting the second ram, a plurality of cams within the hollow frame and supported thereby, the gear-teeth on one cam meshing with those on the adjacent cam, each of said cams having a slightly-rising surface diametrically opposite a slightly-falling surface, and a rapidly-rising surface diametrically opposite a rapidly-falling surface, whereby the rams are caused to rapidly compress the material, then slowly and powerfully compress said material, and then rapidly move apart; substantially as described.

785,753. MOLD. JOHN MCMULLIN, Burlington, Iowa. Filed Feb. 13, 1904. Renewed Jan. 19, 1905. Serial No. 241,785.



Claim.—1. In a device of the class described, the combination of a truck, an open frame removably supported by the truck, and an invertible mold having trunnions supported by the frame, said frame being open at bottom to permit the molded cake to pass through it and on to the truck when the mold is inverted, substantially as described.

2. In a device of the class described, the combination of a truck having longitudinal side bars and superposed transverse end bars, an open frame removably supported by said truck, said truck and frame having engaging features for preventing their relative horizontal displacements, and an invertible mold having trunnions supported by frame, said frame being open at bottom to permit the molded cake to pass through it and on to a truck, substantially as described.

3. In a device of the class described, the combination of a mold, trunnions by which it is adapted to be supported, a frame adapted to support the trunnions, the trunnions being extended beyond the frame far enough to provide gripe for the hands of the operator, and a truck by which the frame is supported, said truck being adapted to receive the discharged cake when the mold is inverted, substantially as described.

785,754. TELEPHONE-EXCHANGE APPARATUS. JAMES L. MCQUARRIE, Chicago, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed May 27, 1901. Serial No. 62,017.

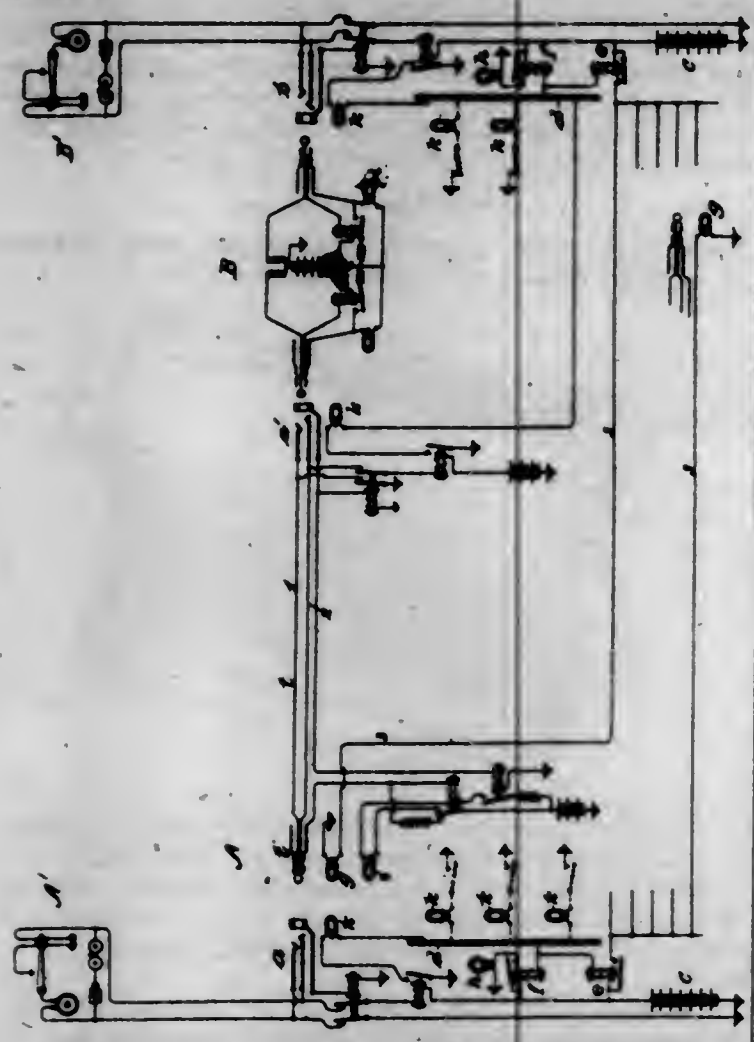
Claim.—1. The combination with the several sections of a switchboard, of overflow trunk-lines between the sections, busy-signals for each section at the other sections, and magnetically-actuated apparatus at each section for controlling the busy-signals thereof at the other sections, whereby each operator is automatically informed which of the other sections is at liberty to receive overflow calls.

2. The combination with two sections of a switchboard, of line-signals for the telephone-lines at one of said sections, a busy-signal at the distant section, and means controlled by the joint operation of a predetermined number of said line-signals, for controlling said busy-signal, whereby the busy-signal is displayed at the distant section when a given number of calls are received.

3. The combination with two switchboards and telephone-lines centering at each board, of line-signals for the telephone-lines, connecting appliances at each board for answering calls, a trunk-line between the boards, a busy-signal for one board located at the other board, and means controlled by the joint operation of a predetermined number of line-signals at the board to which the busy-signal corresponds, for causing the display of said signal, whereby the operator at the board where the busy-signal is located is informed whether or not calls may be trunked to the distant board.

4. The combination with several telephone-lines, of switches for said lines operated from the substations of the lines, circuits controlled by the switches, a device responsive only to current existing simulta-

neously in several of said circuits, and mechanism controlled by said device.



5. The combination with two switchboards and telephone-lines having multiple connections on both boards, connecting appliances at each board for answering calls, an overflow trunk-line between the boards, means for transmitting call-signals from the substations of the lines, responsive devices one for each line at one of the switchboards, adapted to be set by a call-signal transmitted from the substation of such line, means actuated in answering a call, for restoring said responsive devices, and a signal at the distant board controlled by the joint actuation of a predetermined number of said responsive devices

6. The combination with a switchboard and telephone-lines centering therein, of a source of current, a circuit for the same, multiple branches for said circuit, line-signals for the telephone-lines in the several multiple branches, switches controlling said multiple branches, a magnet included serially in the circuit with all the multiple branches and adjusted to respond when a predetermined number of said branches are closed, and a signal controlled by said magnet, substantially as described.

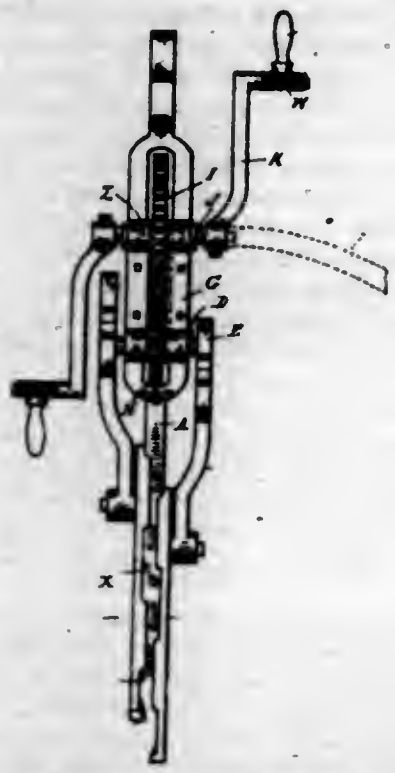
7. The combination with a switchboard and telephone-lines centering therein, signals for the lines, a source of current, and a circuit therefor adapted to be completed in switch-contacts controlling said signals, of a relay included in said circuit responsive to the joint operation of a predetermined number of said signals, and mechanism controlled by said relay, substantially as described.

785,755. TAMPER. LEVI P. HORMANDIN, Jackson, Mich., assignor of three-fourths to William F. Cowham, Jackson, Mich. Filed Mar. 28, 1904. Serial No. 200,309.

Claim.—1. A tamper comprising a vertically-adjustable hanger and a reciprocatory tamping member depending from the lower end of said hanger, said hanger having a yielding portion, said tamper being free to be swung around within a limited radius relative to said hanger into operative relation to the work.

2. A tamper comprising a vertically-extending pendent bar, a pair of reciprocating tamping members slidingly interlocked with the lower end of said bar, a rotary member journaled in said bar above said reciprocating members and connections between said rotary member and reciprocating members for operating the latter by the former.

3. A tamper comprising a pendent vertically-extending bar, reciprocatory tamping members having a slidable engagement with the lower end of said bar, a vertically-rotatable member journaled within an intermediate slotted portion of said bar above said reciprocatory members, connections between said rotatable member and said reciprocatory members, and means for operating the rotatable members.



4. A tamper comprising a vertically-extending pendent bar a reciprocating tamping member slidingly secured to the lower end of said bar, a double crank journaled to said bar and connected to reciprocate said member and vertically-extending handles swiveled to said cranks and adapted to enable the operator to simultaneously rotate the cranks and bear down on the bar.

5. A tamper comprising a vertically-extending pendent bar having a bifurcated portion, reciprocating tamping members slidingly secured to the lower end of said bar below said bifurcated portion, gearing journaled in said bar, and arranged between the furcations thereof, double cranks for operating said gearing, and eccentrics operatively associated with said reciprocating members.

6. A tamper comprising a vertically-extending pendent bar, tamping members slidingly secured to said bar, and projecting below the lower end thereof, adjacent feet for said tampers, cut away above their lower faces to provide clearance-spaces and means secured to said bar for reciprocating said tamping members.

7. A tamper comprising an overhead track, a trolley thereon, a hanger depending from said trolley, a bar yieldably secured to the lower end of said hanger, a reciprocating member slidingly secured to said bar, and mechanism on said bar for reciprocating said member permitting of the free lateral movement of the bar.

8. A tamper comprising a bar, a reciprocating member secured thereto, mechanism for reciprocating said member carried by the bar, a pendent hanger for supporting said bar, and a spring in said hanger for permitting of vertical adjustment.

9. In a tamper, a hanger and a tamper resiliently suspended therefrom.

10. A tamper comprising a flexible pendent hanger having a yieldable portion and a tamper freely suspended therefrom

11. A tamper comprising a flexible pendent hanger, a bearing yieldably suspended therefrom, and members reciprocatively secured to said bearing.

12. In a tamper, a counterweight, tampering devices, and a yieldable hanger secured at its respective ends to said counterweight and devices, the tampering devices being freely movable relative to the hanger.

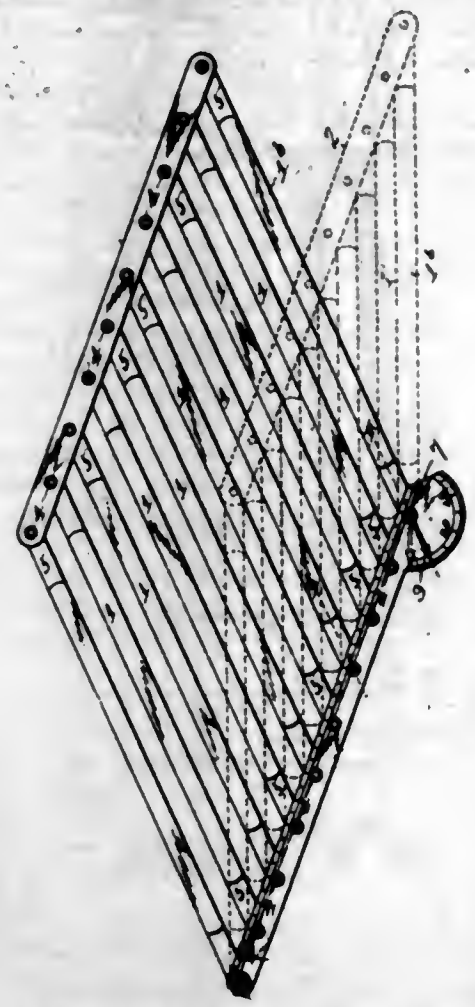
13. A tamper comprising a vertically-extending pendent bar, a reciprocating tamping member slidingly secured to the lower end of said bar, a double crank journaled to said bar and connected to reciprocate said member, and vertically-extended handles swiveled to said cranks and adapted to enable the operator to simultaneously rotate the cranks and bear down on the bar.

14. A tamper comprising an overhead track, a trolley thereon, a flexible hanger depending from said trolley, said hanger havin ag resilient portion, and a reciprocating member operatively associated with said hanger.

15. In a tamper, a depending hanger, a tamper suspended from the lower end thereof, and a breastplate.

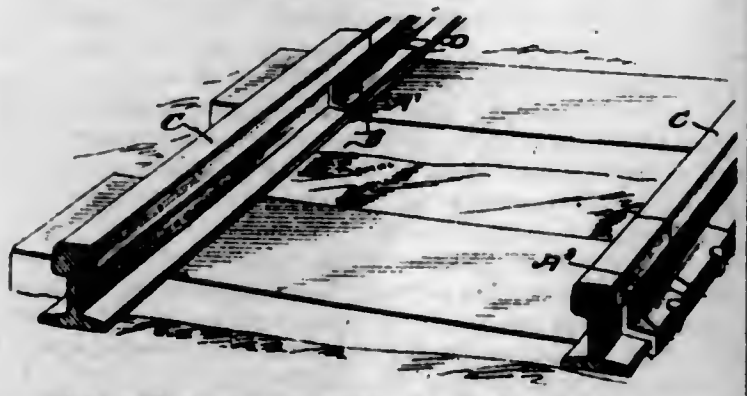
16. In a tamper, a hanger, a bar bifurcated intermediate its ends and having a bearing member at its upper end, reciprocatory members secured to the bar, gearing within said bifurcated portion for operating the reciprocatory members, and means for operating the gearing.

785,756. **ADJUSTABLE MEASURING AND RULING DEVICE.** SUSANNA N. NUTS, Kansas City, Mo. Filed Nov. 1, 1904. Serial No. 230,936.



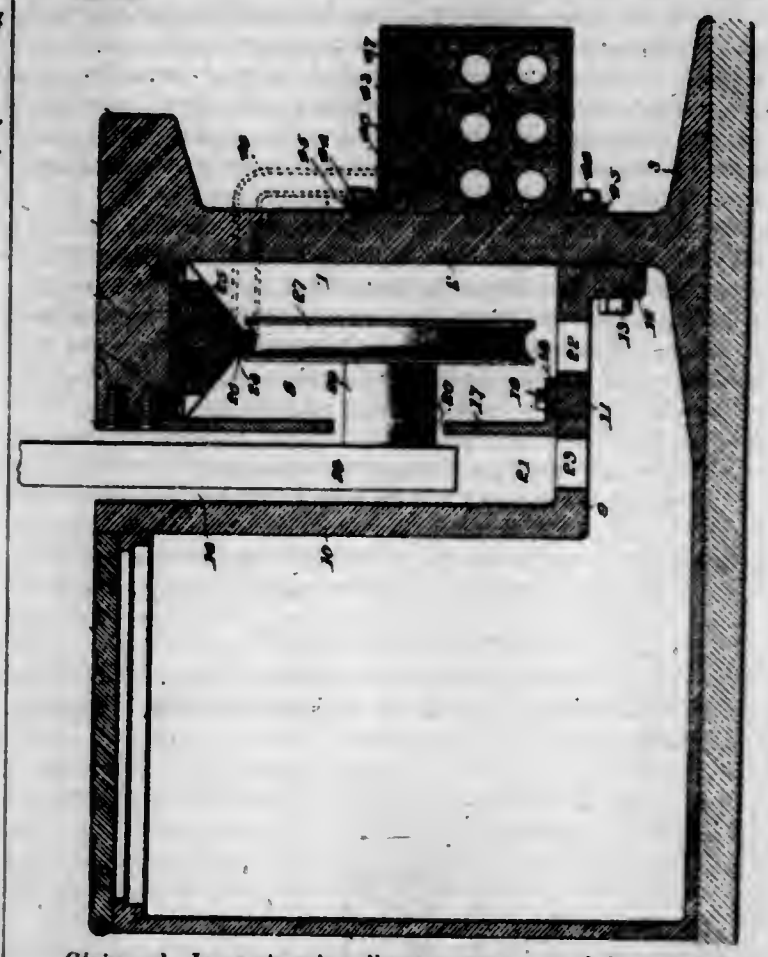
Claim.—A device of the character described comprising a series of parallel rulers scarfed at their opposite ends, links scarfed at their under sides, tubular rivets pivotally connecting a number of the scarfed ends of the rulers to the scarfed under sides of said links, a screw pivotally connecting the ends of one of said rulers and links, a thumb-nut adjustably engaging the upper end of said screw, a graduated segment formed integral with one end of one of said links, a pin rigidly secured to the end of one of said rulers and extending upwardly through the central portion of the segment, and a pointer rigidly secured to the upper end of said pin.

785,757. **RAIL SPLICE-BAR.** HENRY ODENDAHL, Paterson, N. J. Filed Apr. 22, 1904. Serial No. 204,360.



Claim.—The combination with a T-rail, of a splice-bar having a vertical portion adapted to bear against the side of the rail, a base portion adapted to fit under the base of the rail, and an integral connecting portion, the inner longitudinal edge of the base portion being parallel with and flush with the inner edge of the rail-base, and a fish-plate adapted to fit the side of the rail opposite the vertical portion of the splice-bar and to have its lower longitudinal edge flush with the inner edge of the base portion of the splice-bar, as and for the purpose set forth.

785,758. **ELECTRIC-RAILWAY SYSTEM AND CONDUIT.** GEORGE W. OLINGER, Orchard, Ohio. Filed June 19, 1903. Serial No. 162,191.



Claim.—1. In an electric-railway system, a conduit comprising a main longitudinal member or beam consisting of a vertical web with lateral extensions at its bottom to form a base, and a lateral extension at its top to form the top of the conduit, a second longitudinal member or beam composed of a horizontal portion secured to the main member and forming the bottom of the conduit, and a vertical portion extending upward to a level with the top of the main member, and separated from the lateral extension thereof to form a slot or opening, and a partition dividing the conduit thus formed and consisting of a plate extending downward from the lateral extension at the top of the main member, and a plate extending upward from the horizontal portion of the second member, the adjacent edges of said plates being separated to form a slot, substantially as described.

2. In an electric-railway system, a conduit comprising a main longitudinal member or beam consisting of a vertical web with lateral extensions at its bottom to form a base, and a lateral extension at its top to form the top of the conduit, a second longitudinal member or beam composed of a horizontal portion secured to the main member and forming the bottom of the conduit, and a vertical portion extending upward to a level with the top of the main member, and separated from the lateral extension thereof to form a slot or opening, and a partition dividing the conduit thus formed and consisting of a plate extending downward from the lateral extension at the top of the main member, and a plate extending upward from the horizontal portion of the second member, the adjacent edges of said plates being separated to form a slot, the horizontal portion of the second member being provided with outlet-openings on each side of the plate arising therefrom, substantially as described.

3. In an electric-railway system, a conduit comprising a main longitudinal member or beam consisting of a girder-rail having a tread-surface at the top, one side of its overhanging head forming the top of the conduit, the vertical web of said rail forming one side of the conduit, and a second longitudinal member or beam secured to said rail and comprising a horizontal portion forming the bottom of the conduit, and a vertical portion forming the other side wall of the conduit, said vertical portion extending upward to a level with the top of the rail and being separated therefrom to form a slot or opening, substantially as described.

4. In an electric-railway system, a conduit for the trolley-wire comprising a main longitudinal member or beam consisting of a vertical web with lateral extensions at its bottom to form a base, and a lateral extension at its top to form the top of the conduit, a second longitudinal member or beam, L-shaped in cross-section, secured to one side of the main member to form the base and outer side of the conduit, and separated therefrom at the top to form a slot or opening,

and a third member of trough-like form secured to the other side of the main member and forming an auxiliary conduit for the feed and other wires, substantially as described.

5. In an electric-railway system, a conduit comprising main girder members, secondary members L-shaped in cross-section and secured to the side of the main members to form the bottom and outer side of the conduit, and a combined guard and tie plate, channel-shaped in horizontal section, and connecting the ends of the secondary members to form a lateral space for the insertion and removal of the trolley arm and wheel, substantially as described.

6. In an electric-railway system, a conduit comprising a main longitudinal member, a beam consisting of a vertical web with lateral extensions at its bottom to form a base, and a lateral extension at its top to form the top of the conduit and a second longitudinal member or beam composed of a horizontal portion secured to the vertical web of the main member of the base and forming the bottom of the conduit, and a vertical portion extending upward to a level with the top of the main member, and separated from the lateral extension thereof to form a slot, a partition extending from the lateral extension of the main member to the horizontal portion of the second member, said partition being provided with a longitudinally-disposed slot therein, and outlet-apertures in the horizontal portion of the second member on both sides of the partition.

785,759. METAL-TIRED CAR-WHEEL. ADAM J. O'NEIL and FRANK L. WRENN, Scranton, Pa. Filed Sept. 24, 1904. Serial No. 226,863.



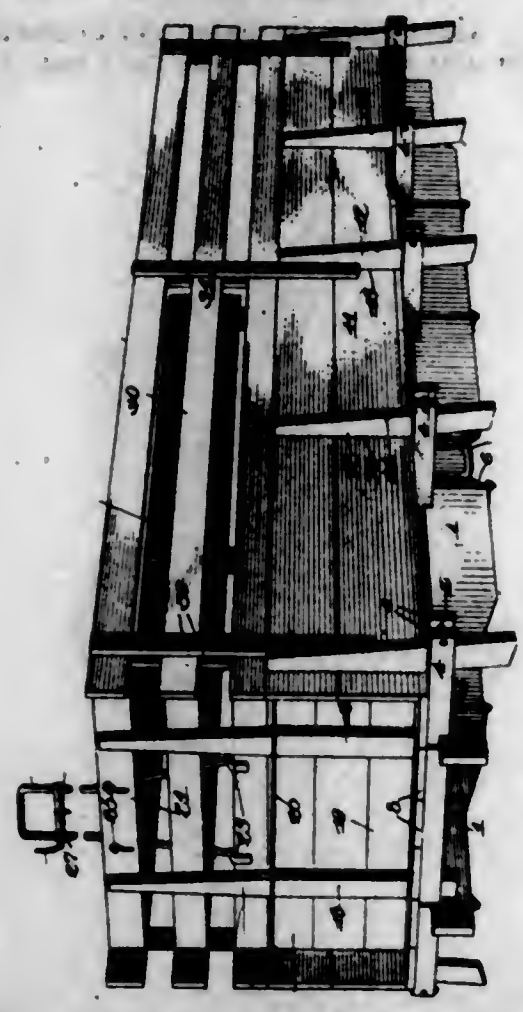
Claim.—1. In a wheel having a metal center with a metal tire, means for fastening said tire to said center consisting of a dovetail projection on one side on center and a shrunk ring having a dovetail face fitting closely to the other side.

2. In a wheel having a metal center with a metal tire, means for fastening said tire to said center consisting of a dovetail projection on the one side of center and a shrunk ring having a dovetail face fitting closely to the other side and an annular projection on the inside surface of said tire fitting closely to an annular space on the outside surface of the said center.

3. In a wheel having a metal center with a metal tire, means for fastening said tire to said center consisting of shrunk rings on either side of said center and tire with their inside faces forming a dovetail which grips said tire and secures the same in place.

4. In a wheel having a metal center with a metal tire, means for fastening said tire to said center consisting of shrunk rings on either side of said center with their inside faces forming a dovetail which grips a corresponding projection on said tire and secures the same in place and annular projections on the inside surface of said rings fitting closely to corresponding spaces on the outside surface of said center.

785,760. WAGON-RACK. JOHN H. PRICE, near Mount Cory, Ohio. Filed Dec. 13, 1904. Serial No. 236,718.



Claim.—1. In a device of the class described, a pair of sills, a plurality of pairs of transverse braces supported upon said sills, the braces of each pair being suitably spaced apart, and obliquely-disposed clips connecting the braces with the sills.

2. In a device of the class described, a pair of sills, a plurality of pairs of cross-braces mortised in the said sills and spaced apart, and obliquely-disposed clips connecting each sill with each pair of braces.

3. In a device of the class described, a pair of sills, a plurality of pairs of transverse braces supported upon and extending beyond the sills, the braces of each pair being spaced apart and connected by bolts near the ends thereof, flooring constituting a bed supported upon said braces, and side members having arms extending downwardly between said braces.

4. In a device of the class described, a pair of sills, pairs of braces supported transversely upon said sills, bolts connecting the braces of each pair near the ends thereof, flooring supported upon the braces, side members having arms or brackets extending downwardly and outwardly, said brackets being provided with notches adapted to engage the connecting-bolts at the ends of the braces and with oblique lower ends adapted to abut upon the sides of the sills.

5. In a wagon-rack, a pair of sills, pairs of braces supported transversely upon said sills, means for securing said braces upon the sills and against longitudinal movement upon the latter, and an end-gate having downwardly-extended vertical members adapted to engage between the pairs of braces.

6. In a wagon-rack, a pair of sills, a plurality of pairs of braces secured transversely upon said sills, flooring constituting a bed supported upon said braces, and an end-gate having vertical members extending downwardly through the flooring and between the pair of braces, adjacent to the sills.

7. In a wagon-rack, a plurality of pairs of braces, a pair of sills supporting said braces, flooring supported upon said braces, side members having downwardly-extended brackets, bolts connecting the ends of the pairs of braces and adapted to support the brackets of the side members, and end-gates having vertical members extended through the flooring and between pairs of braces.

8. In a wagon-rack, a plurality of pairs of braces, sills supporting the same, bolts extending vertically through said braces near the extremities thereof, horizontally-disposed bolts connecting the pairs

of braces near the ends thereof, side members having brackets extending downwardly between the pairs of braces and having notches adapted to engage the horizontal connecting-bolts, said brackets having oblique lower ends, end-gates adapted to space the side members, and means for connecting said side members.

9. An end-gate having upright members and spaced planks connecting the same, in combination with a boom-piece consisting of a yoke having shoulders or offsets engaging one of the spaced planks, and means for securing said boom-piece upon the end-gate.

10. In a device of the class described, the combination with an end-gate, of a booming-piece consisting of a yoke detachably connected with said end-gate and a clamp adjustably mounted upon and connecting the side members of said yoke.

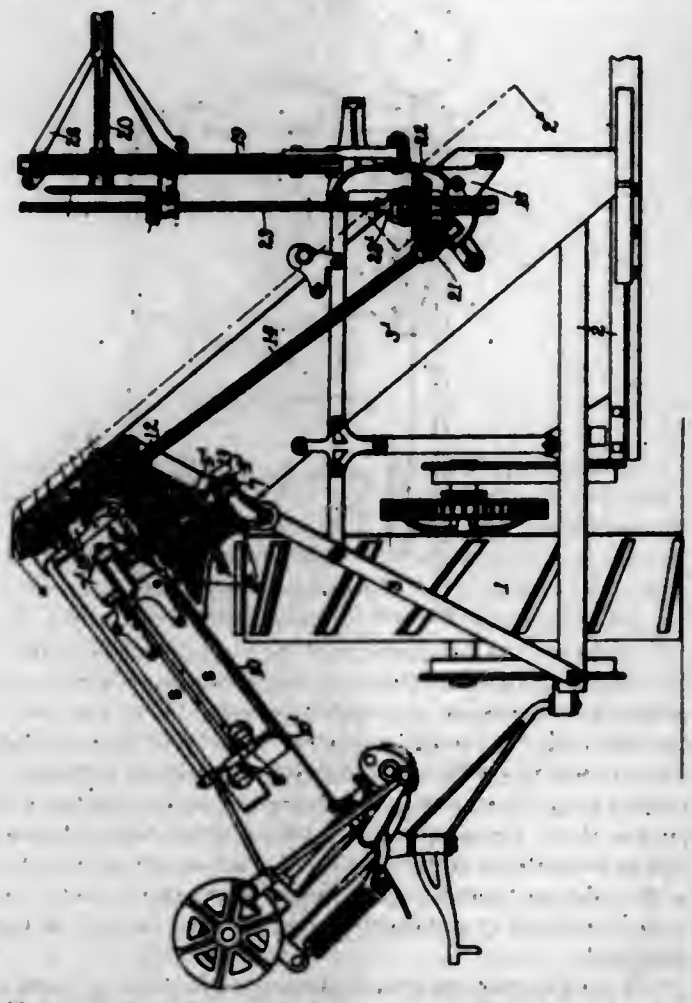
11. In a device of the class described, the combination with an end-gate, of a booming-piece consisting of a yoke detachably connected with said end piece, and a clamp adjustably mounted upon and connecting the side members of said yoke, said clamp being extended at one end to form a hook constituting a line-support.

12. The combination with an end-gate, of a booming-piece having an adjustable cross-brace.

13. The combination with an end-gate, of a booming-piece consisting of a yoke detachably connected with said end-gate, and a cross-brace vertically adjustable upon said yoke.

14. In a device of the class described, a pair of sills, a plurality of pairs of cross-braces supported upon said sills and having extended ends, bolts connecting said extended ends, a flooring supported upon the sills, end-gates having vertical members extending through the flooring and between the cross-braces, side members having arms or brackets engaging between the pairs of braces and provided with notches, means for connecting the side members in a raised position, and extension-racks detachably connected with said side members.

785,781. HARVESTER. CHARLES A. A. RAND, Chicago, Ill. Filed Feb. 4, 1905. Serial No. 244,096.



Claim.—1. In a harvester, in combination, a lower elevator-roller acting as a driving member for the coöperating parts, an upper elevator-roller, a reel-shaft, a driving connection interposed between said upper elevator-roller and reel-shaft, an adjuster-shaft having a gear connection with said lower elevator-roller, an adjuster mounted thereon and operated thereby, and a gear connection between the said adjuster-shaft and the said driving connection which is interposed between the upper elevator-roller and reel-shaft.

2. In a harvester, in combination, a lower elevator-roller acting as a driving member for the coöperating parts, an upper elevator-roller, a reel-shaft, an adjuster-shaft, an adjuster mounted thereon and operated thereby, and single means driven from said adjuster-shaft for imparting motion to said upper elevator-roller and reel-shaft.

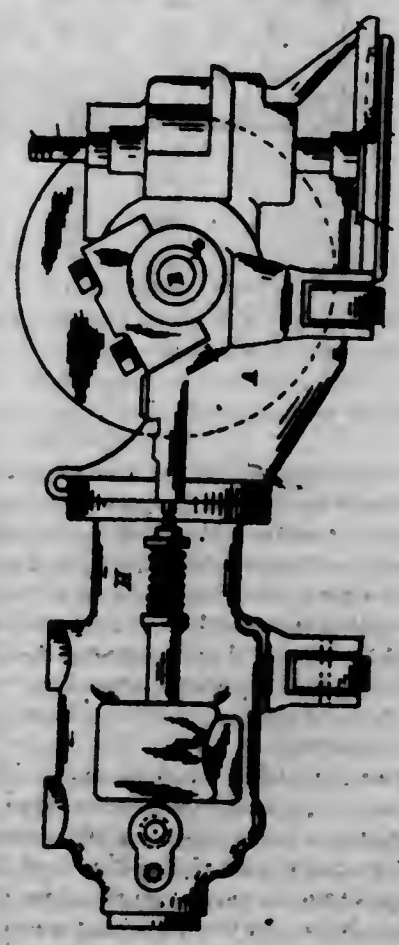
3. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with one of said elevator-rollers, a reel-driving shaft having a bevel-gear connection with the other one of said elevator-rollers, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means for operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

4. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with the lower elevator-roller, a reel-driving shaft having a bevel-gear connection with the upper elevator-roller, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means for operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

5. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with the lower elevator-roller, a reel-driving shaft having a bevel-gear connection with the upper elevator-roller, a single casting secured to the frame of the harvester, said casting forming bearing-supports for the said elevator-rollers, the adjuster-shaft, and the reel-driving shaft, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means for operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

6. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with the lower elevator-roller, a reel-driving shaft arranged parallel with the said adjuster-shaft and having a bevel-gear connection with the upper elevator-roller, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

785,782. FLOOR-POLISHING APPARATUS. JACOB RISCHER, Idlewood, Pa., assignor of one-third to Julius Gottfried, Pittsburg, Pa. Filed Apr. 5, 1904. Serial No. 201,742.



Claim.—1. In a floor-polishing apparatus, the combination with a frame, casters supporting the same, a motor, vertical shafts driven by the motor, and means for adjusting the shafts vertically, of polishing-disks having a yielding oscillating connection with the lower ends of the shafts, and a central bearing interposed between the disks and shafts, and means for adjusting the shafts vertically.

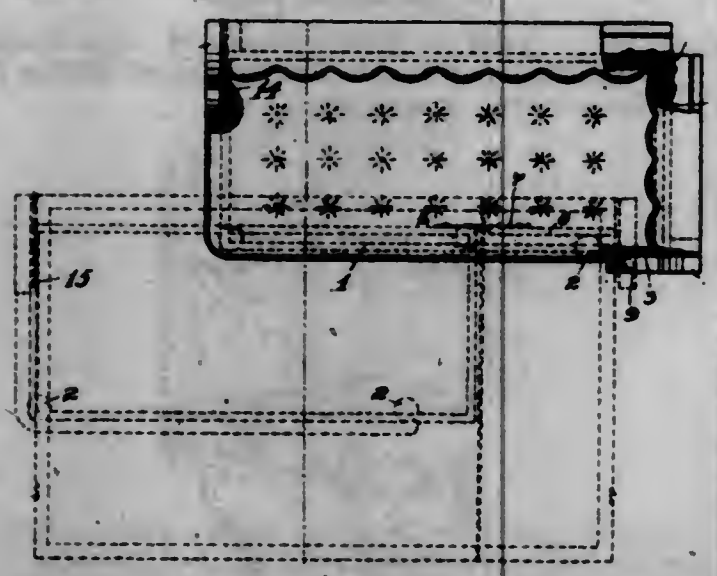
2. In a floor-polishing apparatus, the combination with a frame movably mounted, a motor carried thereby, vertical shafts mounted in the frame, and driven by the motor, and plates carried by the lower ends of the shafts, and provided with apertures, of polishing-disks, sleeves within the apertures of the plates, bolts secured to the disks and passing through the sleeves, nuts upon the bolts, and coiled springs arranged within the sleeves and engaging with the nuts.

3. In a floor-polishing apparatus, the combination with a frame, casters supporting the same, a motor, vertical shafts driven by the motor, and means for adjusting the shafts vertically, of polishing-disks having an upper convex face, means for securing the disks to the lower ends of the shafts, and a hardened bearing interposed between the crest of the convex face of each disk and its shaft.

4. In a floor-polishing apparatus, the combination with a frame, casters supporting the same, a motor, vertical shafts driven by the motor, and means for adjusting the shafts vertically, of polishing-disks mounted upon the lower ends of the shafts with their peripheries in close proximity to each other, a hardened central bearing interposed between the disks and shafts, and fenders arranged adjacent to the outer portion of the periphery of the disks.

5. In a floor-polishing apparatus, the combination with a frame, casters supporting the same, a motor, vertical shafts driven by the motor, and movable longitudinally, a lever fulcrumed on the frame, one arm of the lever connected with the shaft, a threaded standard on the frame, the other arm of the lever embracing the standard, and a thumb-screw on the standard, whereby the shafts may be adjusted to a nicety longitudinally, of polishing-disks having an upper convex face, means for yieldingly securing the disks to the lower ends of the shafts with their peripheries in close proximity to each other, a hardened bearing interposed centrally between the crest of the convex face of each disk and its shaft, and fenders arranged adjacent to the outer portion of the periphery of the disks.

785,768. **COMBINATION COZY-CORNER SEAT AND BED.** ALBERT J. RITCHIE, Minneapolis, Minn. Filed June 20, 1904. Serial No. 213,440.



Claim.—1. The combination with a seat-body, of a back member of greater length than said body, made up of hinged sections, the shorter of which is adapted to fold against one end of said body member, to form a cozy-corner seat, substantially as described.

2. The combination with a seat-body, of a back-forming member of greater length than the said body, made up of hinged sections, the shorter of which is adapted to fold against the end of said body, and which back member, when straightened out, is adapted to be turned into a horizontal position over the said body, to afford a bed, substantially as described.

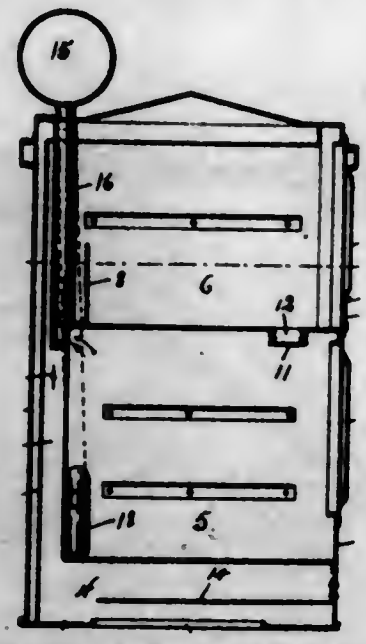
3. The combination with a seat-body and an end wing hinged to one corner thereof, for folding movements against the end of said body, of end supports, one of which is rigidly secured to the free end of said wing, and a back member hinged to said end supports, for folding movements from an upright position into a horizontal position over said seat-body, and vice versa, and which back member is made up of hinged sections, one of which is adapted to be folded against the end of said seat-body, when in an upright position, substantially as described.

4. The combination with a seat-body and an end wing hinged to one corner thereof, of end supports, one of which is rigidly secured to the free end of said wing, and a back member hinged to said end supports, by offset arms or projections, adapting it to be turned in a horizontal position over said seat-body, to afford a bed, and which back-forming member is formed by sections hinged approximately at one end of said seat-body, with the shorter section thereof adapted to be folded against the end of said seat-body, to afford a cozy-corner seat, when the said back member is in an upright position, substantially as described.

5. The combination with a seat-body, of a back member of greater length than said body, made up of sections hinged approximately at one end of said seat-body, with the shorter section adapted to fold against one end of said seat-body, to form a cozy-corner seat, said seat-body being movable over the floor, and the shorter section of said back member being supported by a floor-pivot, substantially as described.

6. The combination with a seat-body, and an end wing hinged to one corner thereof for folding movements against the end of said seat-body, of end supports, one of which is rigidly secured to the free end of said wing, and is pivoted to the floor, and a back-forming member hinged to said end supports for folding movements from an upright position into a horizontal position over said seat-body, and vice versa, and which back-forming member is made up of sections hinged approximately at one extremity of said seat-body, and with one section adapted to fold against the end thereof, when in an upright position, substantially as described.

785,764. **COMBINED STEAM-COOKER AND HOT-AIR OVEN.** HARRY S. ROBINSON, Toledo, Ohio. Filed Apr 25, 1904. Serial No. 204,740.



Claim.—1. In an apparatus of the class described, a fire-chamber having an opening therein for receiving the blaze of a fire, a steaming-compartment arranged immediately over said fire-chamber and adapted to hold a supply of water in its lower portion, an oven arranged immediately above said steaming-compartment, a flue leading to said oven from said fire-chamber and extending around a portion of said steaming-compartment, a partition in said oven adjacent to the outlet of said flue for causing the heated air to be directed to the upper part thereof, and a damper-controlled opening provided in the lower part of said oven opposite said partition for the purpose described.

2. In a cooker, the combination of a fire-chamber, a steaming-compartment and a baking-oven in superimposed position, communication between said fire-chamber and oven, a partition within said oven adapted to direct the heated air to the upper part thereof, and an opening at the lower portion of one of the sides of said oven for the exit of heated air, substantially as described.

3. In a vessel of the class described, the combination of a fire-chamber, a baking-oven having communication with said chamber, a steaming-compartment interposed between and entirely separated from said former compartments and adapted to receive a supply of water in its lower portion, a baffle-plate in said fire-chamber adapted to direct the flames away from the under side of said steamer, and an

opening in said oven for the exit of heated air therefrom and a damper for regulating said opening.

785,765. PIPE-COVERING. ALBERT B. ROSVENS, New Orleans, La. Filed Aug. 5, 1904. Serial No. 219,694.

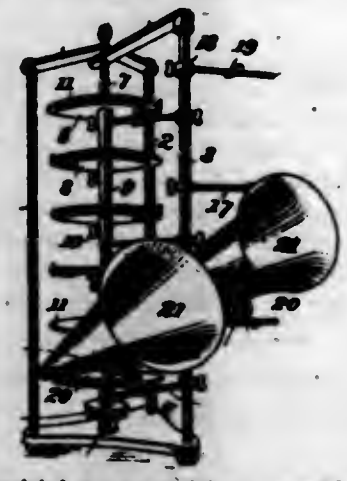


Claim.—1. A pipe-covering comprising wool-felt paper, saturated in a mixture of pitch, rosin, sulfur, and asphalt.

2. A pipe-covering comprising wool-felt paper saturated in a mixture of pitch, rosin, sulfur, and asphalt, the said saturated wool paper being enveloped by a plurality of layers of wool-felt paper, as set forth.

3. A pipe-covering consisting of wool-felt paper, saturated in a mixture of pitch, rosin, sulfur and asphalt, the said impregnated wool-felt paper being covered by a plurality of layers of wool-felt paper, and the whole surrounded by a felt jacket, covered with the before-mentioned mixture, as set forth.

785,766. GRAMOPHONE. JOSEPH SANDERS, Washington, D. C. Filed Dec. 13, 1904. Serial No. 236,725.



Claim.—1. A multiphone comprising a number of rigidly-connected supports for a like number of identical gramophone record-tablets, means for rotating said supports and tablets synchronously about a common axis, and a number of sound-reproducers, one for each tablet, and all adapted to be placed in and to maintain the same operative relation to identical parts of the records, substantially as described.

2. A multiphone comprising a number of rigidly-connected supports for a like number of identical gramophone record-tablets, arranged for rotation about a common vertical axis, and a number of sound-reproducers, one for each tablet, and all adapted to be placed in and to maintain the same operative relation to identical parts of the records, substantially as described.

3. A multiphone comprising a number of rigidly-connected supports for a like number of identical gramophone record-tablets, arranged for rotation about a vertical axis and provided with means for locating and maintaining the several record-tablets in definite relation to each other, and a number of sound-reproducers, one for each tablet, all adapted to be placed in and to maintain the same operative relation to identical parts of the records, substantially as described.

4. A multiphone comprising a shaft, a number of supports for identical gramophone record-tablets, removably but rigidly mounted upon said shaft for synchronous rotation, and a like number of sound-reproducers each adapted to be placed in and to maintain the same operative relation to the same parts of a record as all the others, substantially as described.

5. A multiphone comprising a suitable frame, a removable, vertical shaft mounted therein, a series of supports for identical gramophone record-tablets, rigidly but removably secured on said shaft, and a like number of sound-reproducers each adapted to be placed in and to maintain the same operative relation to the same parts of a record as all the others, substantially as described.

6. A multiphone comprising a suitable frame, a removable vertical shaft mounted therein, a series of supports for identical gramophone record-tablets rigidly but removably secured on said shaft, a corresponding series of sound-reproducers arranged alternately upon opposite sides of said shaft, and means for establishing and maintaining the several record-tablets in definite relation to each other and all in identical relation to the corresponding reproducers, substantially as described.

7. An exchangeable element for a multiphone consisting of a shaft and a number of supports for gramophone record-tablets, rigidly but removably secured upon said shaft, substantially as described.

8. An exchangeable element for a multiphone consisting of a shaft and a number of record-tablet supports rigidly but removably secured thereon in definite relation to each other, and means on each support for locating and maintaining a record-tablet in definite position thereon, substantially as described.

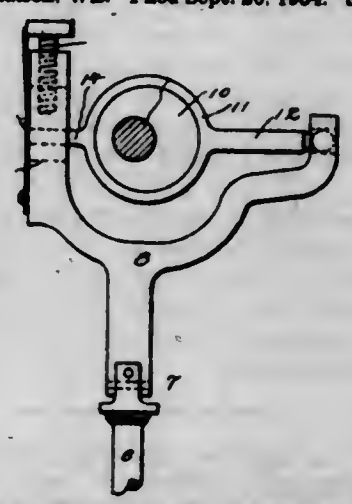
9. A supporting-table for a gramophone record-tablet having an adjustable stop for determining the position of record-tablets of different sizes on the said table, substantially as described.

10. A supporting-table for a gramophone record-tablet having a peripheral, radially-adjustable stop for determining the position of record-tablets of different sizes on said table, substantially as described.

11. In a multiphone, the combination of a number of supporting-tables each having a stop for determining the position of a record-tablet on the table, with an identical record-tablet for each table and each provided with a notch identically located in relation to the same selected portion of the record-groove and adapted for engagement by the stop, substantially as described.

12. The combination of a gramophone record-tablet formed with a peripheral notch, with a supporting-table for the tablet provided with a stop for engagement with the notch in the tablet, substantially as described.

785,767. SHAFT AND PLUNGER CONNECTION. WILLIAM C. SCHOELKOPF, Madison, Wis. Filed Sept. 26, 1904. Serial No. 226,095.



Claim.—1. The combination with a shaft and an eccentric and its strap thereon, of a reciprocating element, and a connecting member pivoted to the said element and to the eccentric-strap, the pivotal connection between said member and strap being adjustable to vary the stroke of said element.

2. The combination with a shaft, and a reciprocating element driven thereby, of a flexible connection therebetween adjustable to vary the length of stroke of the latter and having vibration or oscillation in a plane parallel to the axis of the shaft.

3. The combination with a shaft, of a reciprocating element having a slot at the head thereof, a device for converting the rotary motion of the shaft into reciprocating motion, having a pin working in said slot, to lose motion, and means to vary the length of the slot, to change the amount of lost motion.

4. The combination with a shaft, and a reciprocating element driven thereby, of a device between the former and the latter, constructed to convert and transmit the motion, and to produce lost motion, and means to vary the amount of such lost motion.

5. The combination with a shaft, and an eccentric thereon, of a reciprocating element having a yoke at the head thereof, and an eccentric-strap on the eccentric, pivoted between the branches of the

yoke, to permit variation in the angle between the shaft and said element.

6. The combination with a shaft and an eccentric thereon, of a reciprocating element, a yoke flexibly joined thereto, and a strap on the eccentric, pivoted to and extending between the branches of the yoke.

7. The combination with a shaft and a reciprocating element, of a yoke connected to the latter and having a slot in one of its branches, an eccentric and its strap between the shaft and the yoke, the eccentric-strap being pivoted to one branch of the yoke and having a pin slidable in the said slot in the other.

8. The combination with a shaft and a reciprocating element, of a yoke connected to the latter, an eccentric and its strap between the shaft and yoke, the eccentric-strap being pivoted to one branch of the yoke and having a slot-and-pin connection with the other, permitting lost motion, by slide of the pin in the slot and means to vary the extent of said slide.

9. The combination with a shaft and a reciprocating element, of a yoke pivotally connected to the latter and having a slot in one of its branches, an eccentric and its strap on the shaft, the strap having a universal joint with one branch of the yoke and a pin slidable in the slot in the other, and an adjusting-screw extending into the slot, to vary the extent of said slide.

785,768. COLLAR-BUTTON. CHARLES B. SIPPEL, Chicago, Ill. Filed June 27, 1904. Serial No. 214,226.



Claim.—1. In a collar-button, the combination with base, stem and head portions stamped integrally from sheet material, of an arm pivoted at one end to the head and provided with an extension from its pivoted end, and a spring forming part of the stem for engaging said extension to lock said arm.

2. In a collar-button stamped integrally and formed of sheet material, of an arm pivoted at one end to the head provided with a hook at its free end for engaging the edge of a collar and provided with an extension from its pivoted end, and a spring forming part of the stem portion for engaging said extension to lock the arm.

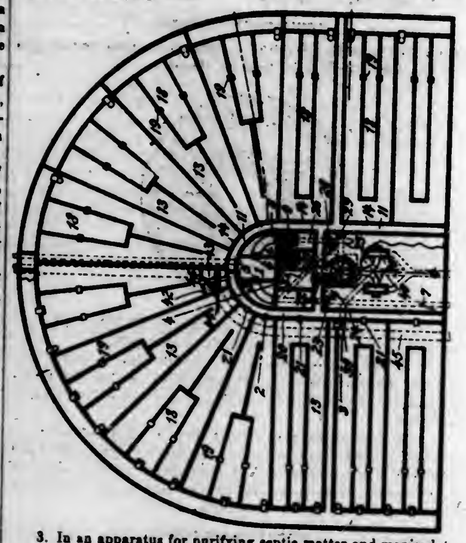
3. In a collar-button, the combination with a spherical head and cylindrical stem portion stamped integrally from sheet material, of an arm pivoted at one end to the head and provided with an extension from its pivoted end, a spring forming part of the stem for engaging said extension to lock said arm, and a dish-shaped base for said button.

4. In a collar-button, the combination with a head 8, stem 7 and base 6 stamped integrally and formed of sheet material, of an arm 4 pivoted at one end to the head, a tongue 11 extending from the pivoted end of said arm, and a leaf-spring 12 forming part of the stem of the button, said spring serving to engage said tongue to lock said arm in a horizontal position.

785,769. APPARATUS FOR PURIFYING SEPTIC MATTER AND MANIPULATING SEWAGE. FRED P. SMITH, New York, N. Y., assignor to The Municipal Engineering Company, New York, N. Y., a Corporation of Delaware. Filed Mar. 21, 1904. Serial No. 199,382.

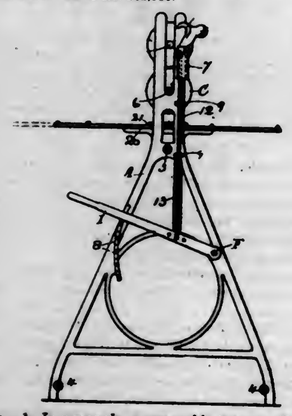
Claim.—1. In an apparatus for purifying septic matter and manipulating sewage two or more wells for receiving sewage provided with openings for the overflow of the liquid, means for separating and carrying off the solid matter therein and a series of receptacles for receiving the liquid in combination with a channel surrounding the wells and receptacles to receive the liquid from the reservoirs a series of septic-tanks radiating from the channel to receive the liquid therefrom, means for carrying off the gases escaping from the septic-tank through the channel, a channel located below the other to receive the drainage, connected with a well, and a pump to discharge the matter from the well.

2. In an apparatus for purifying septic matter and manipulating sewage, a well to receive the sewage connected with a pump-well wherein the sewage enters and rises to the water-level, a series of wells adjacent to the receiving-well and communicating therewith, a series of communicating receptacles septic and clarifying tanks to receive the liquid from the wells, the septic-tanks provided with a drain into the pump-well and a pump for discharging the liquid from the pump-well back into the receiving-well to be passed through the septic and clarifying tanks.



3. In an apparatus for purifying septic matter and manipulating sewage a series of communicating receiving-wells one of which is connected with a pump-well, and an overflow from the others into a series of receptacles, two channels located one above the other and surrounding the wells and reservoirs, the upper one to receive the liquid from the reservoirs, discharge it into a series of septic-tanks and carry off the gases arising therefrom, the lower one to receive the drainage from the septic-tanks and carry it to the pump-well in combination with a series of clarifying-tanks located within the septic-tanks, a series of vessels to receive the discharge from the clarifying-tanks, provided with a bed of suitable material to arrest the sludge, a channel located below the sludge-arresters to receive the liquid from the vessels and carry it off and a connecting-pipe from the vessels into the channel to discharge the purified liquid.

785,770. MANGLE. CHARLES R. STAKE, Worcester, Mass. Filed Apr. 11, 1904. Serial No. 202,500.



Claim.—1. In a mangle, a removable top mangling-roller having its axles loosely confined within open slots formed in the frame; in combination with pivoted overbalanced draft-hooks adjacent to the slots, means for automatically engaging the hooks with the roller-axles when the hooks are depressed and for permitting them to be moved out of alinement with the axles when the hooks are elevated, and suitable actuating means for raising and yieldably depressing said hooks.

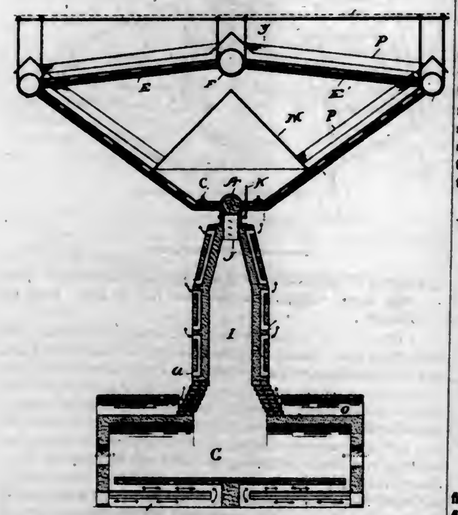
2. In a mangle, in combination with the removable mangle-roller having extended axles, of the axle-engaging hook formed with a preponderant head that tends to throw the hook rearward, an incline on the body of said hook, and a hook-guiding device that forces the hook forward over one of the roller-axles when the hook is depressed; and means for operating the hook.

3. The combination, of the frame provided with upright open slots and horizontal table-supporting guides, the mangling-rollers having their axles mounted in said slots, the upper roller readily removable therefrom, the table supported adjacently below said rollers, means for applying pressure on said rollers consisting of a tiltable hook, a guide supporting said hook, a connection-rod, a spring, and a hand-lever, and means for retaining the lever at position of adjustment, substantially as set forth.

4. The combination with the mangle-roller axle, the slotted frame, the axle-engaging hook and the operating-lever, of the flanged hook-guiding device, the coiled spring connected with said lever, the rod connecting said spring with the hook, and stationary guide-eyes fixed on the frame and supporting said rod for direct endwise movement.

5. A mangle comprising the connected end frames formed with upwardly-extending open slots, a pair of rollers having projecting axles that are removably supported within said slots, depressible hooks that automatically engage and disengage the top roller-axles, guides for said hooks, a rocker-shaft provided with a hook-actuating arm and a latchable hand-lever, yieldable connections uniting said arm and lever with the respective hooks, means for latching the lever, and a slidable table beneath said rolls.

785,771. SYSTEM OF PIPES WITH FURNACE FOR DRYING SPROUTED GRAIN. CHARLES W. F. STEINHAUS, San Francisco, Cal. Filed July 14, 1904. Serial No. 216,533.

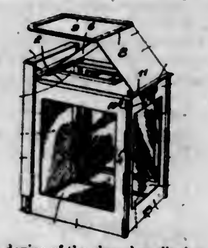


Claim.—1. A device of the class described consisting of a receiving-header, a plurality of equalizing-headers, a series of inclined pipes connecting said headers, a series of dampers arranged to regulate the temperature of each pipe independently, and a diverting-plate arranged to guide the air as it enters the receiving-header for the purpose set forth.

2. A device of the class described consisting of a receiving-header, equalizing-headers arranged on opposite sides of said receiving-header, a series of inclined pipes connecting said receiving-header with said equalizing-headers, a stack-header above said former headers and connected to said equalizing-headers by a series of heating-pipes, and a series of dampers arranged to regulate the temperature of said inclined pipes, for the purpose set forth.

3. A device of the class described consisting of a suitable fire-box, a conduit leading upward from said fire-box, a receiving-header above said conduit and opening therefrom, a diverting-plate between said header and said conduit, and a series of air-channels opening outward from the walls of said conduit substantially as and for the purpose set forth.

785,772. COLLAPSIBLE BOX. CHARLES H. STONEBRIDGE, New York, N. Y. Filed June 10, 1903. Renewed Aug. 30, 1904. Serial No. 222,753.

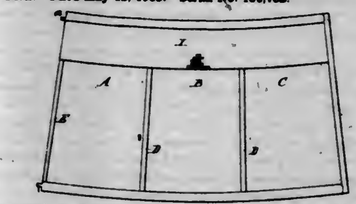


Claim.—1. In a device of the class described, a body member, a top member, and a guard for an opening in the top member; and securing devices for detachably uniting the same, comprising a member mounted upon said guard and arranged for projection through an opening in said top member, and a member mounted upon said body member and arranged for engagement with said member which is mounted upon said guard and provided with a finger-piece for disconnecting the two members of said securing devices.

2. In a device of the class described, a body portion consisting of a plurality of body members pivotally connected together and capable of folding in a flat condition, and a casing or locking device slidably connected with one of said body members when the body portion is in operative condition exteriorly of the same and which is slidably connected with said body member exteriorly of the other body members when the body portion is in folded condition.

3. In a device of the class described, a body portion consisting of a plurality of body members pivoted together and capable of folding into flat condition, said body members being pivotally connected by means of knuckles and pintles, and a casing or locking device normally connected with one of said body members exteriorly of the same and by means of the knuckles and pintles associated with the same and similarly connected with said body member exteriorly of the other of said body members when the device is in folded condition.

785,773. LANTERN-GLOBE. AARON P. STORRS, Owego, N. Y., assignor to Storrs Mica Company, Owego, N. Y., a Corporation of New York. Filed May 12, 1903. Serial No. 156,752.



Claim.—1. A mica lantern-globe having at one or at each end a flanged ring for engaging the globe-holding ring of the lantern, such flanged ring having a lateral flange, an inwardly-beveled outward flange, and an inward flange secured to the globe, substantially as set forth.

2. A mica globe or chimney of conical form made up of panels of mica each occupying the entire length of the globe or chimney but only part of its circumference, such panels having straight side edges converging upwardly and curved top and bottom edges, straight folded metal strips running lengthwise of the globe or chimney and joining the mica panels together, and folded curved top and bottom metal strips binding the mica panels at their top and bottom edges and conforming to the curves of such edges, substantially as set forth.

3. A mica globe or chimney of conical form made up of mica panels secured together by folded straight metal strips and bound at their top and bottom edges by folded curved metal strips, and provided with a wide band of perforated metal having curved top and bottom edges secured to one of the end bindings and extending inwardly therefrom over a portion of the mica, substantially as set forth.

4. A mica globe or chimney having mica panels, top and bottom rings and connecting metal stripe, with a flanged ring at each end within the top and bottom rings, and a wide ring at the top outside of the mica, the said ring being perforated, substantially as set forth.

5. A mica lantern-globe of conical form composed of the mica panels A B C, longitudinal binding-strips D E F, top and bottom metal bindings G H, perforated metal band I, and flanged rings K, substantially as set forth.

6. In a mica lantern-globe, the flanged ring K having a lateral folded flange and outward and inward flanges, and provided with the tongue *f* locking the lateral flanges together, substantially as set forth.

785,774. CLOTHES-POLE TIP. THEODOR H. STREHLOW, Chicago, Ill. Filed Jan. 23, 1904. Serial No. 190,417.



Claim.—1. A tip for a clothes-pole comprising a body having a socket for attaching the same to a pole, the axis of said body being inclined with respect to the axis of said socket, an integral spur at the edge of said body and projecting downwardly, an integral horn at the opposite edge of said body and projecting upwardly and a nose projecting upwardly between said horn and said spur, said spur and said horn being adapted to receive a line between the same and said body.

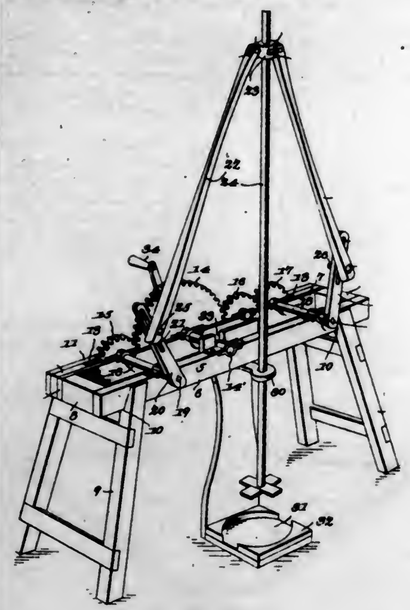
2. As an improved article of manufacture, the herein-described clothes-pole tip, the same comprising a body portion having a socket to receive the end of a post, and oppositely-disposed legs rising integrally from the opposite sides of the socket, said body portion being provided with a deep recess on its upper edge, an upwardly-projecting horn having an enlargement and substantially horizontal shoulders upon the under side of the enlargement, the axis of the body and the horn inclining to one side, the said body being also formed integrally at the edge opposite the said horn with an inclined downwardly-projecting spur with an intervening deep recess, and a rounded nose above said spur, all substantially as shown and described.

785,775. CHURNING-MACHINE. CHRIS S. STRICKLAND, Cooper, Tex. Filed Oct. 5, 1903. Serial No. 176,911.

Claim.—1. The combination with a supporting-frame, of a reciprocating dasher, a pair of shafts journaled in the frame and each provided at one end with a pinion and at the other with a slotted crank-arm, a collar adjustably secured to the dasher, pitman-rods having their upper ends pivoted to the collar and their lower ends adjustably secured to said slotted crank-arms, means for guiding the dasher, and an intermediate master-gear meshing with said pinions for reciprocating said dasher.

2. The combination with a supporting-frame, of a reciprocating dasher, a pair of shafts journaled in the frame and each provided at one end with a pinion and at the other with a slotted crank-arm, a collar provided with oppositely-disposed ears or lugs adjustably secured to the churn-dasher, pitman-rods having their upper ends pivoted to said ears or lugs and their lower ends adjustably secured to said slotted crank-arms, a master-gear meshing with one of the pinions and an intermediate gear meshing with the master-gear and the opposite pinion.

3. The combination with a supporting-frame having its longitudinal side beams spaced apart to form a housing, a main shaft journaled in the frame and provided with a master-gear mounted for rotation in said housing, a pair of auxiliary shafts arranged one on each side of the main shaft and provided with terminal slotted crank-arms, a reciprocating churn-dasher, pitman-rods adjustably secured to the slotted crank-arms and pivotally connected to the upper end of the dasher, pinions secured to the auxiliary shafts and rotated by the master-gear, and a table provided at its base with vessel-supporting means and having an angularly-disposed arm extending in a vertical plane at the rear of the dasher and provided with a terminal slot adapted to receive the main shaft.



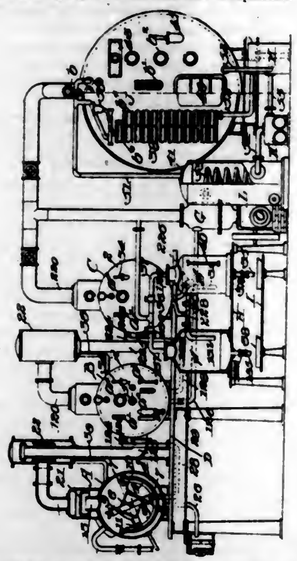
785,776. APPARATUS FOR MAKING SOY EXTRACTS. TOSABURO SUZUKI, Sunamura, Japan. Filed July 28, 1904. Serial No. 218,456.

Claim.—1. An apparatus for manufacturing soy extract and condensing other juices, comprising a primary evaporating-pan, means for heating said pan by steam, means for stirring the juices in said pan, a second evaporating-pan of lower pressure than the first pan, means for utilizing vapor from the first pan as the source of heat from the second pan, means for stirring the juices in the second pan, a third vacuum evaporating-pan of lower pressure than the second pan, and means for heating the third pan by using the vapor from the second pan as the source of heat, and a vacuum finishing-receptacle adapted to be heated by warm water, and means within said receptacle for receiving vessels filled with the juice to be evaporated, and means for evacuating said finishing-receptacle.

2. An apparatus of the character set forth, comprising a plurality of vacuum evaporating-pans, vacuum juice-receptacles adapted to receive the juice from the last of said pans, a vacuum finishing-receptacle, an air-pump connected with said finishing-receptacle, and said pans for exhausting the same, and means for heating said vacuum-pans and said vacuum finishing-receptacle.

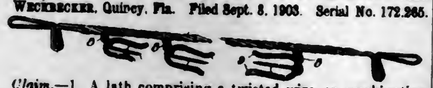
3. An evaporating device, comprising a cylindrical drum provided with a double bottom, means for introducing steam into the chamber formed by said double bottom, means for introducing the liquid to be evaporated into the main portion of said cylinder, a rotary stirring device in said cylinder, a brush on said device, said cylinder having an air-exhaust outlet and a hood over said outlet to prevent the discharge of the fluid.

4. The combination of a plurality of vacuum evaporating-pans, means for heating the first of said pans, means for introducing the fluid to be condensed into the first of said pans, an air-exhaust pipe from the first of said pans leading to the heating-chamber of the second pan, a fluid-separator in said exhaust-pipe, a pipe for conducting the partially-evaporated fluid from the first pan to the evaporating-chamber of the second pan, similar connections between the second pan and the third pan, means for exhausting the air from said third pan, receptacles for receiving the condensed fluid and means for alternately discharging the fluid into said receptacles.



5. A vacuum evaporating finishing-receptacle comprising a closed cylinder divided into two sections, shelves in said sections formed of connected pipes adapted to be heated from a source of heat-supply, fluid-containing vessels adapted to be inserted on said shelves and means for exhausting the air from either of said chambers.

785,777. TOBACCO-HANGER. JOSEPH H. SYLVESTER and PETER WECKBECKER, Quincy, Fla. Filed Sept. 8, 1903. Serial No. 172,965.



Claim.—1 A lath comprising a twisted wire, in combination with wire hangers woven into the twists.

2. The combination with a twisted-wire lath, of wire hangers secured thereto and having pins projecting horizontally and lengthwise of the lath.

3. The combination with a wire lath having depending shoulders near the ends thereof, of hangers depending from the lath and having pins projecting lengthwise thereof.

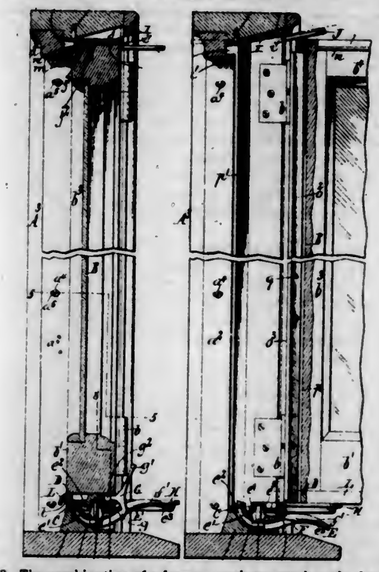
4. The combination with a lath, of a series of hangers depending therefrom, each hanger having a pin projecting horizontally, the pins of the hangers on each side of the middle part of the lath being oppositely presented toward each other.

5. The combination with a lath, of a hanger made of a piece of wire bent and twisted to form a vertical stem, and bowed horizontal arms extending laterally therefrom, and terminating at one end in a pin projecting horizontally between the arms, and wound at the other end around said stem.

785,778. WINDOW. CLINTON D. TABOR, New York, N. Y., assignor to Tabor Sash Company, Newark, N. J. Filed Oct. 25, 1902. Serial No. 128,791.

Claim.—1. The combination of a frame, a sash mounted in said frame to turn horizontally and slide vertically, the faces on the opposing lower parts of the frame and sash having shoulders which cooperate in the lowered or closed position of the sash, and an automatic locking device constructed to hold the sash in its lowered position and operated by the descent of the sash, substantially as set forth.

2. The combination of a frame, a sash mounted in the frame to turn horizontally and slide vertically, said frame and sash having shoulders which coöperate in the lowered or closed position of the sash, and a lifting-lever pivoted on the frame so as to turn in a vertical plane and having one of its arms movable into and out of engagement with the sash, substantially as set forth.



3. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, said frame and sash having shoulders which coöperate in the normal closed position of the sash, a lifting device for raising the sash and disengaging its shoulder from the shoulder of the frame, and a catch which engages with said lifting device and locks the sash in its lowered position, substantially as set forth.

4. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, said frame and sash having shoulders which coöperate in the normal closed position of the sash, a lifting-lever on the frame for raising the sash and disengaging its shoulder from the shoulder of the frame, and a catch on the sash for engaging with said lever and locking the sash in its lowered position, substantially as set forth.

5. The combination of a frame having a longitudinal rib on the upper side of its stool, a sash mounted on the frame to turn horizontally and slide vertically and provided in the under side of its lower rail with a longitudinal groove which is adapted to receive said rib, a vertically-swinging lever mounted on the frame and adapted to raise the sash for disengaging its groove from said rib, and a vertically-swinging catch pivoted on the sash and adapted to engage with said lever for holding the sash in its lowered position, substantially as set forth.

6. The combination of a frame having a stool, a face-plate applied to said stool and provided on its upper side with a longitudinal rib, a sash mounted on the frame to turn horizontally and slide vertically, a face-plate applied to the lower rail of the sash and provided on its under side with a longitudinal groove which is adapted to receive said rib, a lifting-lever for raising the sash pivoted on the under side of the stool face-plate so as to swing in a vertical plane, and having a rear arm which projects upwardly through an opening in the stool face-plate into engagement with the sash face-plate and a front arm which is provided with an opening, a guideway leading to the front edge of the lever-opening and a shoulder underneath the rear edge of the lever-opening, and a catch pivoted on the inner side of the sash-plate so as to turn in a vertical plane and having an upwardly-projecting operating-arm or toe-piece and a depending hook which is adapted to pass over the guide of said lever into the opening thereof and engage with the shoulder of the same, substantially as set forth.

7. The combination of a frame, a sash mounted on the frame to turn in one direction and slide in another direction, said frame and

sash having shoulders which coöperate in the normal or closed position of the sash, and an arm or guide which supports the sash in its abnormal or open position, substantially as set forth.

8. The combination of a frame, a sash connected on one side with the frame to turn horizontally and also sliding vertically, the stool of the frame and the lower rail of the sash having shoulders which coöperate in the normal lowered or closed position of the sash, and a supporting arm or guide curved concentric with the sash-pivot and supporting the sash while turned open, substantially as set forth.

9. The combination of a frame provided on the upper side of its stool with a longitudinal rib, a sash pivotally connected on one of its vertical sides with the frame so as to be capable of turning horizontally and also sliding vertically and provided on the under side of its lower rail with a longitudinal groove which is adapted to receive said rib in the normal closed and lowered position of the sash, and a stationary arm or guide which supports the sash while turned open in a raised position and which is curved from said rib concentrically with the sash-pivot and has its top flush with the top of said rib, substantially as set forth.

10. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, and a locking-plate resting on the top of the sash and pivotally connected with the frame adjacent to one side of the sash and provided with a flange engaging with the opposite side of the sash, whereby upon raising the sash the latter turns said locking-plate and disengages its flange from the sash, substantially as set forth.

11. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, a locking-plate arranged lengthwise between the top of the frame and the sash and pivoted at one end on the frame adjacent to one side of the sash while its opposite end is provided with a flange engaging with the opposite side of the sash, and a vertically-adjustable bearing arranged on top of the sash and engaging with the under side of the locking-plate, substantially as set forth.

12. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, a locking-plate pivoted to the upper part of the frame and provided with a flange engaging with the sash, and a supporting-arm on said plate for engaging with the top of the sash when the latter is open for holding the plate in an elevated position, substantially as set forth.

13. The combination of a frame, a sash pivotally connected at one side to the frame so as to be capable of turning horizontally and sliding vertically, a locking-plate arranged between the top of the sash and the frame and pivoted at one end to the frame and provided at its opposite end with a flange engaging with the sash, and a supporting-arm on said plate arranged concentric with said pivotal connection and adapted to engage with the top of said sash when the latter is open for holding the plate in an elevated position substantially as set forth.

14. The combination with a frame having the under side of its top provided with a recess, a sash mounted on the frame to turn horizontally and slide vertically and having the outer edge of its top beveled, and a locking-plate pivoted on the frame opposite the bevel edge on the sash and arranged at its free end between the opposite edge of the sash and said recess, substantially as set forth.

15. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, a rib arranged on the stool of the frame and interlocking with a groove in the bottom of the sash when the latter is in its lower closed position, a supporting-arm projecting from said rib and supporting the sash in its open turned position, a locking-plate pivoted on the upper part of the frame and engaging with the top of the sash, and a supporting-arm projecting from the locking-plate and engaging with the sash when the latter is swung open, substantially as set forth.

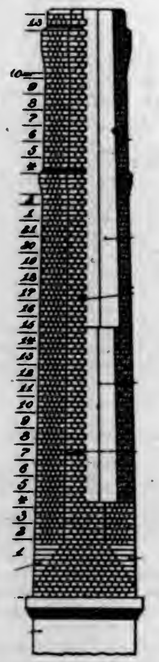
16. The combination of a frame provided on the under side of its head with a rabbet and a horizontal flange below the rabbet, and a vertically and horizontally movable sash mounted on the frame and provided at its upper end with a horizontal flange which projects over the flange on the frame and into said rabbet in the closed position of the sash, said rabbet being of sufficient height to permit the sash to effect the requisite vertical movement, substantially as set forth.

17. The combination of a frame, a sash pivoted on the frame, one of said members having a groove and the other member a slit opposite said groove, and a weather-strip consisting of a plate pivoted centrally at one side in said slit and provided at its opposite side with a trough which engages said recess in the closed position of the sash, substantially as set forth.

18. The combination of a frame provided on the inner side of one of its side jambs with a vertical groove, a sash pivoted at one side to the grooved jamb of the frame and provided opposite said groove with a vertical slit, and a weather-strip consisting of a vertical plate pivoted centrally at one side in said slit and provided at its opposite side with a trough which engages said groove and opens toward that side of the joint between the sash and frame opposite the pivotal connection between the same, substantially as set forth.

19. The combination of a frame provided on the inner side of one of its side jambs with a stop having a vertical slit on its face, a sash pivoted on one side to the opposite side jamb of the frame and having a vertical groove in its free end which faces said slitted stop, and a weather-strip consisting of a vertical plate pivoted centrally at one side in said slit and provided at its opposite side with a trough which engages said groove and opens toward the outer side of said stop, substantially as set forth.

785,779. **ART OF CONSTRUCTING CHIMNEYS OR STACKS.** GEORGE H. THIRSK, Philadelphia, Pa. Filed Dec. 5, 1904. Serial No. 235,530.



Claim.—1. A chimney or stack composed of angular brick, each brick slightly less in size than the preceding one to form the corners of the chimney or stack and taper therein, rectangular brick to form the sides of the chimney or stack, and said angular brick and rectangular brick arranged in courses adapted to provide a true bond throughout of the structure.

2. A chimney or stack composed of angular brick in series, each brick in series slightly less than the preceding one to form the corners of the chimney or stack and taper therein, rectangular brick of two fixed sizes to form the sides of the chimney or stack and said angular brick and the two types of rectangular brick arranged in courses adapted to provide a true bond throughout of the structure.

3. A chimney or stack, composed of two types of brick, one type consisting of rectangular brick and the other consisting of angular brick, the angular brick adapted to form the inner and outer corners and the rectangular brick in conjunction with the angular brick adapted to form the sides of the chimney and by the courses of brick formed to provide a true plumb bond throughout of the structure.

4. A chimney or stack, composed of two types of brick, one type consisting of angular bricks and the other consisting of rectangular brick, the angular bricks in series superposed adapted to form the external and internal corners or angles and taper of the stack, and the rectangular brick in conjunction with the angular bricks adapted to form the sides of the stack and by the courses of brick formed to provide a true plumb bond throughout of the structure.

5. A chimney or stack, composed of two types of brick, one type consisting of angular bricks and the other consisting of two different size rectangular bricks, the angular bricks in series superposed adapted to form the external and internal corners or angles and taper of the stack, and the rectangular bricks adapted to form intermediate of said angular corner-bricks and in conjunction therewith the sides of the stack, and by the courses of bricks formed to provide a true plumb bond throughout of the structure.

6. A chimney or stack, composed of two types of brick, one type consisting of angular bricks and the other consisting of two different size rectangular bricks, the angular bricks superposed and each brick of slightly less size than the preceding one adapted to form the external and internal angles or corners and taper of the stack, and the rectangular bricks adapted to form intermediate of said angular bricks and in conjunction therewith the sides of the stack, and by the courses of bricks formed to provide a true lateral and plumb bond throughout of the structure.

7. A chimney or stack, composed of two types of brick, one type consisting of two different size angular bricks and the other consisting of two different size rectangular bricks, the angular bricks adapted to form the external and internal corners or angles of the chimney and the rectangular bricks intermediate of said angular corner-bricks and at the point of junction with the same adapted to form courses of brick to provide a true lateral and plumb bond throughout of the structure.

8. A chimney or stack, composed of two types of brick, one type consisting of two different size angular bricks and the other type consisting of two different size rectangular bricks, the angular bricks in series adapted to form the external and internal corners or angles of the chimney and the rectangular bricks to form intermediate of the angular corner-bricks and at the point of junction therewith courses whereby is provided a true lateral and plumb bond throughout of the structure.

9. A chimney or stack, composed of two types of brick, one type consisting of two different size angular bricks and the other type consisting of two different size rectangular bricks, the angular bricks, in series superposed, and each brick in the series of slightly less size than the preceding one adapted to form the external and internal corners of the stack and the taper thereof and the rectangular bricks adapted to form intermediate of the angular bricks and at the point of junction with the same, courses, whereby is provided a true lateral and plumb bond throughout of the structure.

785,780. **RAILWAY-SWITCH.** FREDERICK UNTERBRUCK, New York, N. Y. Filed May 20, 1904. Serial No. 208,973.



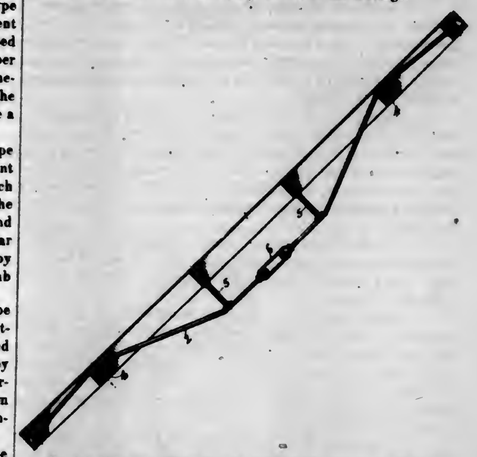
Claim.—1. In railway-switch-operating mechanism: a switch-point, connected with the switch-point a cogged arm or plate operated by a cog-wheel engaged by cogged bars, cogged bars with segmentary heads engageable by tappets, said tappets mounted on the car, substantially as described.

2. In railway-switch-operating mechanism: a switch-point, connected with the switch-point a cogged arm or plate engaged by a cog-wheel, said cog-wheel balancing on an axis, two cogged bars vertically slidable in a box and set into the cogs of the cog-wheel, with segmentary heads, tappets mounted on the car and severally engageable with the segmentary heads of the cogged bars, all substantially as described.

3. In railway-switch-operating mechanism: a switch-point, connected with the switch-point a cogged arm or plate, a box fixed below the track, in this box balancing on an axis a cog-wheel standing at right angles to the plane and direction of the track, in engagement with said cog-wheel two vertical slidable cogged bars with segmentary heads engageable by tappets mounted on the car, all substantially as described.

785,781. **CAR CONSTRUCTION.** WILLIAM B. WAGGONER, Chicago, Ill., assignor of two-thirds to William S. Bidle and George L. Weiss, Cleveland, Ohio. Filed Oct. 12, 1904. Serial No. 228,111.

Claim.—1. A hollow car-sill made of metal, castings secured in the ends of the sill, and a truss-rod running from end to end of the sill, the ends of the truss-rod being secured in the castings.



2. A hollow car-sill made of metal and of a box or trough shape and comprising channel, angle, Z bars or I-beams, with a truss-rod arranged partially within the interior of the sill and extending from end to end thereof, castings fixed in each end of the sill, to which castings the truss-rod is secured, and struts engaged by the truss-rod to support the middle of the sill.

3. A car-sill made of metal and having a box or trough shape, a casting fixed in each end of the sill, a truss-rod extending partially within the interior of the sill and from end to end thereof, and saddle-blocks and struts engaging the rod.

4. A car-sill in the form of a channel-bar, and having its open side downward, blocks secured in the sill near its ends, struts secured in the sill near its middle, a truss-rod secured in the end blocks and engaging the lower ends of the struts, and a turnbuckle in the truss-rod.

5. A car-sill in the form of a channel-bar and having its open side downward, blocks secured in the ends of the sill, flanges on the blocks and engaging the ends of the sill, a truss-rod secured in the blocks and struts secured in the sill and engaging the truss-rod.

6. A car-sill having the form of a channel-bar, and arranged with its open side downward, end blocks, saddle-blocks and struts secured in the sill and a truss-rod secured in the end blocks and extending over the saddle-blocks and under the struts.

7. A car-sill having the form of a channel-bar and arranged with its open side downward, end blocks secured in the sill and having flanges engaging the ends of the sill, saddle-blocks secured in the sill and at a distance from the ends thereof, struts secured in the sill near the middle thereof and spaced apart, and a truss-rod secured in the end blocks and extending over the saddle-blocks and under the struts.

8. The combination of a longitudinal car-sill having the form of a channel-bar, end blocks in the sill, a cross-sill abutting against the end blocks and bolted thereto, and a truss-rod extending through the cross-sill and end blocks.

785,782. **COMBINED RAIL JOINT AND CHAIR.** JOHN S. WEBB, Disputanta, Va. Filed July 20, 1904. Serial No. 217,377.



Claim.—1. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending but partially therethrough and the other a coöperating projection, said depression and projection extending entirely transversely across the member having the recess, substantially as described.

2. A combined rail joint and chair comprising two opposit y-disposed rail-engaging members having base portions, one of said

the rectangular brick in conjunction with the angular bricks adapted to form the sides of the stack and by the courses of brick formed to provide a true plumb bond throughout of the structure.

5. A chimney or stack, composed of two types of brick, one type consisting of angular bricks and the other consisting of two different size rectangular bricks, the angular bricks in series superposed adapted to form the external and internal corners or angles and taper of the stack, and the rectangular bricks adapted to form intermediate of said angular corner-bricks and in conjunction therewith the sides of the stack, and by the courses of bricks formed to provide a true plumb bond throughout of the structure.

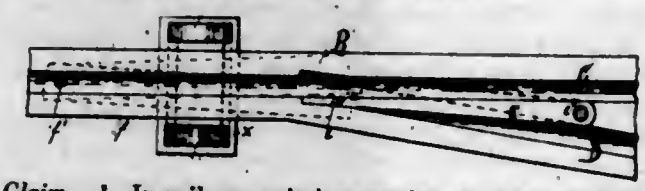
6. A chimney or stack, composed of two types of brick, one type consisting of angular bricks and the other consisting of two different size rectangular bricks, the angular bricks superposed and each brick of slightly less size than the preceding one adapted to form the external and internal angles or corners and taper of the stack, and the rectangular bricks adapted to form intermediate of said angular bricks and in conjunction therewith the sides of the stack, and by the courses of bricks formed to provide a true lateral and plumb bond throughout of the structure.

7. A chimney or stack, composed of two types of brick, one type consisting of two different size angular bricks and the other consisting of two different size rectangular bricks, the angular bricks adapted to form the external and internal corners or angles of the chimney and the rectangular bricks intermediate of said angular corner-bricks and at the point of junction with the same adapted to form courses of brick to provide a true lateral and plumb bond throughout of the structure.

8. A chimney or stack, composed of two types of brick, one type consisting of two different size angular bricks and the other type consisting of two different size rectangular bricks, the angular bricks in series adapted to form the external and internal corners or angles of the chimney and the rectangular bricks to form intermediate of the angular corner-bricks and at the point of junction therewith courses whereby is provided a true lateral and plumb bond throughout of the structure.

9. A chimney or stack, composed of two types of brick, one type consisting of two different size angular bricks and the other type consisting of two different size rectangular bricks, the angular bricks, in series superposed, and each brick in the series of slightly less size than the preceding one adapted to form the external and internal corners of the stack and the taper thereof and the rectangular bricks adapted to form intermediate of the angular bricks and at the point of junction with the same, courses, whereby is provided a true lateral and plumb bond throughout of the structure.

785,780. **RAILWAY-SWITCH.** FREDERICK UNTERBROCK, New York, N. Y. Filed May 20, 1904. Serial No. 208,973.

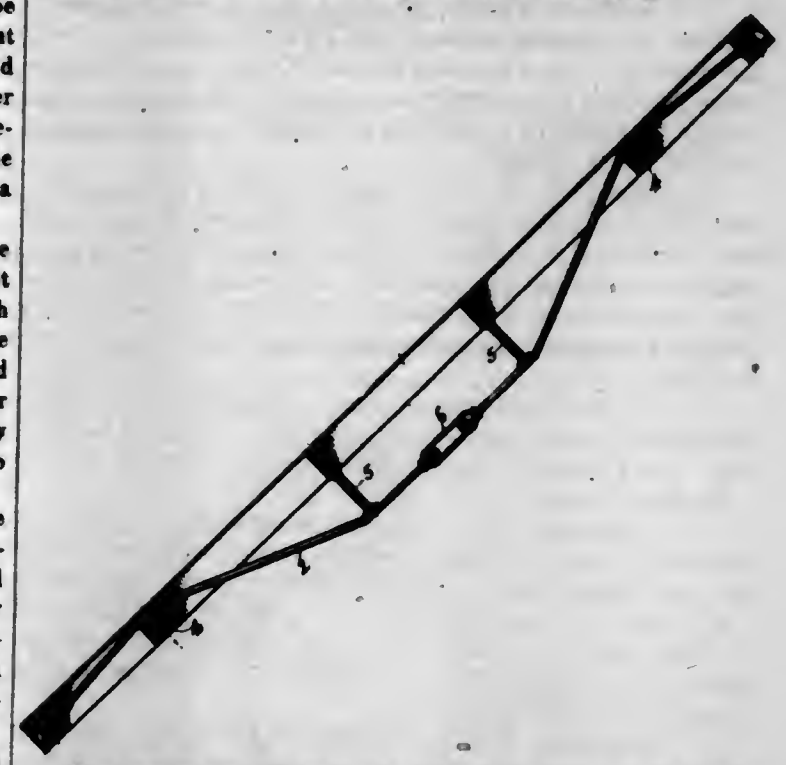


Claim.—1. In railway-switch-operating mechanism: a switch-point, connected with the switch-point a cogged arm or plate operated by a cog-wheel engaged by cogged bars, cogged bars with segmentary heads engageable by tappets, said tappets mounted on the car, substantially as described.

2. In railway-switch-operating mechanism: a switch-point, connected with the switch-point a cogged arm or plate engaged by a cog-wheel, said cog-wheel balancing on an axis, two cogged bars vertically slidable in a box and set into the cogs of the cog-wheel, with segmentary heads, tappets mounted on the car and severally engageable with the segmentary heads of the cogged bars, all substantially as described.

3. In railway-switch-operating mechanism: a switch-point, connected with the switch-point a cogged arm or plate, a box fixed below the track, in this box balancing on an axis a cog-wheel standing at right angles to the plane and direction of the track, in engagement with said cog-wheel two vertical slidable cogged bars with segmentary heads engageable by tappets mounted on the car, all substantially as described.

Claim.—1. A hollow car-sill made of metal, castings secured in the ends of the sill, and a truss-rod running from end to end of the sill, the ends of the truss-rod being secured in the castings.



2. A hollow car-sill made of metal and of a box or trough shape and comprising channel, angle, Z bars or I-beams, with a truss-rod arranged partially within the interior of the sill and extending from end to end thereof, castings fixed in each end of the sill, to which castings the truss-rod is secured, and struts engaged by the truss-rod to support the middle of the sill.

3. A car-sill made of metal and having a box or trough shape, a casting fixed in each end of the sill, a truss-rod extending partially within the interior of the sill and from end to end thereof, and saddle-blocks and struts engaging the rod.

4. A car-sill in the form of a channel-bar, and having its open side downward, blocks secured in the sill near its ends, struts secured in the sill near its middle, a truss-rod secured in the end blocks and engaging the lower ends of the struts, and a turnbuckle in the truss-rod.

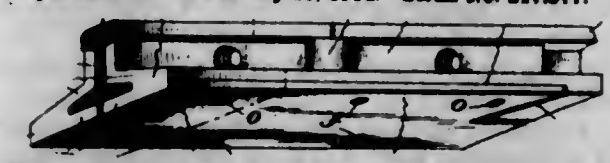
5. A car-sill in the form of a channel-bar and having its open side downward, blocks secured in the ends of the sill, flanges on the blocks and engaging the ends of the sill, a truss-rod secured in the blocks and struts secured in the sill and engaging the truss-rod.

6. A car-sill having the form of a channel-bar, and arranged with its open side downward, end blocks, saddle-blocks and struts secured in the sill and a truss-rod secured in the end blocks and extending over the saddle-blocks and under the struts.

7. A car-sill having the form of a channel-bar and arranged with its open side downward, end blocks secured in the sill and having flanges engaging the ends of the sill, saddle-blocks secured in the sill and at a distance from the ends thereof, struts secured in the sill near the middle thereof and spaced apart, and a truss-rod secured in the end blocks and extending over the saddle-blocks and under the struts.

8. The combination of a longitudinal car-sill having the form of a channel-bar, end blocks in the sill, a cross-sill abutting against the end blocks and bolted thereto, and a truss-rod extending through the cross-sill and end blocks.

785,782. **COMBINED RAIL JOINT AND CHAIR.** JOHN S. WEBB, Disputanta, Va. Filed July 20, 1904. Serial No. 217,377.



Claim.—1. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending but partially therethrough and the other a coöperating projection, said

base portions having a dovetail projection and the other a coöperating depression, the inclined edges of said projection and depression being at the ends thereof.

3. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending substantially transversely thereacross and for but a part of its length and the other a coöperating projection, one of the end edges of said depression and projection being inclined.

4. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a dovetail receiving depression extending substantially thereacross and the other a coöperating dovetail projection, said depression and projection being of a length substantially that of the rail-engaging members and having their inclined edges at their sides.

5. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, said base portions having broad flat interlocking members extending entirely transversely thereacross.

6. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending but partially therethrough, a coöperating projection operatively associated with said other base portion and adapted to fit said depression, said depression and projection extending entirely transversely across the member having the depression.

7. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending but partially therethrough one of the end edges of which is inclined, and a coöperating projection operatively associated with the other of said base portions and adapted to engage said depression.

8. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending entirely thereacross, and a coöperating projection operatively associated with the other of said base portions, said projection and the member having the depression being provided with alined spike-apertures at their free edges.

9. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, said base portions being provided with a broad flat side interlocking member arranged transversely thereof and but partially therethrough.

10. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending substantially thereacross and for but a part of its length, and a coöperating end interlocking projection operatively associated with the other of said base portions, said depression and projection being of a length substantially that of the rail-engaging members.

11. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending for but a part of its length and the other a coöperating projection, said projection and the member having the depression being provided with coöperating instrumentalities whereby they may be secured in place and also having inclined interlocking end edges.

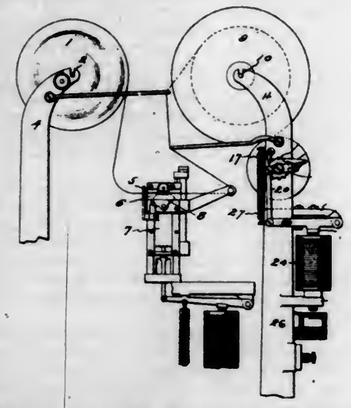
12. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending but partially therethrough and for but a part of its length, and the other a coöperating projection, said depression and projection having interlocking end edges.

13. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending but partially therethrough and for but a part of its length, and the other a coöperating projection, one of the end edges of said depression and projection being inclined.

14. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a dovetail receiving depression extending but partially therethrough and for but a part of its length, and the other a coöperating projection, the inclined edges of said depression and projection being at their ends.

15. A combined rail joint and chair comprising two oppositely-disposed rail-engaging members having base portions, one of said base portions having a receiving depression extending substantially transversely thereacross and for but a part of its length, and the other a coöperating projection, one of the ends of said depression and projection being inclined.

785,788. PAPER SLACK PROVIDER AND WINDING MECHANISM. KIRBY WEST, New York, N. Y., assignor to The United States Graphotype Company, New York, N. Y., a Corporation of New York. Filed Jan. 20, 1904. Serial No. 191,176.



Claim.—1. A paper-winding mechanism having a reel, a feed-roll with its periphery engaging the periphery of the reel, a feed-shaft supporting the feed-roll, a ratchet connected with the feed-shaft, a pawl engaging the ratchet, and an electromagnet adapted to actuate the pawl, substantially as specified.

2. A paper-winding mechanism having a reel, a feed-roll with its periphery engaging the periphery of the reel, a feed-shaft supporting the feed-roll, a helical spring connecting the feed-roll and the feed-shaft, a ratchet connected with the feed-shaft, a pawl engaging the ratchet, and an electromagnet adapted to actuate the pawl, substantially as specified.

3. A paper slack providing and winding mechanism having a reel, a feed-roll with its periphery engaging the periphery of the reel, a feed-shaft supporting the feed-roll, a spring connecting the feed-roll and the feed-shaft, a ratchet connected with the feed-shaft, a pawl engaging the ratchet, an electromagnet adapted to actuate the pawl, a perforating mechanism, mechanism for feeding paper through the perforator, and means for providing slack paper for the feeding mechanism connected to and moving synchronously with the feeding mechanism, substantially as specified.

4. A paper slack providing and winding mechanism having a fork, a reel supported by the fork, a feed-roll supported by the fork and adapted to rotate the reel, a feed-shaft supporting the feed-roll, an elastic connection between the feed-roll and the feed-shaft, mechanism for intermittently rotating the feed-shaft and a slack-provider movable synchronously with the feeding mechanisms, substantially as specified.

5. A paper slack providing and winding mechanism having a reel, a feed-roll engaging with and adapted to rotate the reel, a feed-shaft supporting the feed-roll, a ratchet connected with the feed-shaft, a pawl engaging the ratchet, an electromagnet adapted to actuate the pawl, a perforating mechanism, means connected to and operating synchronously with the feeding mechanism for providing slack paper for the feeding mechanism, and an electromagnet for operating the perforating mechanism and slack-provider, substantially as specified.

785,784. VALVE-GUIDE FOR MECHANICAL MUSICAL INSTRUMENTS. FRANK C. WHITE, Meriden, Conn., assignor to Wilcox & White Company, Meriden, Conn., a Corporation of Connecticut. Filed Dec. 17, 1904. Serial No. 237,946.

Claim.—1. In an automatic music-playing instrument, in combination with a puppet-valve, and the opening controlled by said valve, a valve-guide for the purpose specified, consisting of a centrally-perforated disk associated with the face of the valve and having portions of its periphery formed to present guiding-surfaces in a direction approximately perpendicular to the plane of the valve and disposed within and near the walls of the valve-controlled opening.



2. A valve-guide device for the purpose specified, made from a star-shaped thin metal blank, comprising a series of projecting arms and a central portion having an opening to receive a valve-stem, the series of projecting arms being bent in dishing form and their extremities turned slightly inward and disposed for guiding engagement within a valve-controlled passage.

3. In combination with a musical-instrument valve, a valve-guide consisting of a thin metal body having a central opening, and a series of radially-disposed arms, the ends of said arms forming guiding-surfaces concentric with the axis of the valve.

4. In a pneumatic musical instrument, in combination, with the valve-seat opening, a puppet-valve, valve-stem and the valve-actuating pneumatic; of a valve-guide consisting of a plate provided with a centering-eye mounted upon the valve-stem, and having a series of prongs or arms that coact with the sides of the valve-seat opening to effect a concentric seating of the valve.

5. In a pneumatic music-playing instrument, the combination, with the air-inlet opening leading to an operative pneumatic, of a puppet-valve comprising a central stem with a valve-faced disk fixed thereon, and a movable valve-guide that travels with the valve and which is centered on the valve-stem and guided within the air-inlet opening.

6. In a musical-instrument action, in combination with opposite valve-seats, a free-moving puppet having a pair of valve-disks, a valve-guiding means disposed between said valve-disks and movable therewith, said guiding means coacting with the valve-seat opening to maintain the valve-disks in approximate alinement with the valve-seats.

7. In a pneumatic musical instrument in combination with valve-seats and ports, a valve-puppet provided with a pair of valve disks or buttons, and a pair of valve-guides consisting of centering-disks having peripheral guiding-prongs oppositely arranged upon the valve-stem adjacent to the faces of the valves, and movable with the valve-puppet, for the purpose set forth.

8. In a musical instrument, a detached valve-guide device for the purpose specified, consisting of a thin disk or body having a central opening and a series of peripherally-disposed guiding-prongs; in combination with a valve, and means for sustaining said valve-guide in adjacent relation to the face of the valve.

9. In a musical instrument, the combination with the valve-seat, and valve-seat opening; of a valve-disk having a central stem, a valve-guide arranged on the valve-stem, unattached to the valve-disk and having peripheral guidance within the valve-seat opening, and a spring that presses said valve-guide toward the face of the valve-disk.

10. In a musical-instrument action, the combination with opposite air-inlet ports and valve-seats, the puppet-valve stem having a plurality of valves thereon, and a puppet-actuating pneumatic; of a guide for each of said valves, consisting of a centrally-perforated plate having guiding-prongs that extend within said air-inlet ports, said valve-guides being loosely mounted upon the valve-stem, and means for yieldingly sustaining the valve-guides against their respective valves.

11. In an automatic musical instrument, in combination with the valve-board provided with opposite valve-seats and air-ports therein, a valve-stem having a pair of valve-disks mounted thereon for controlling said ports, means for operating said valves, valve-guides mounted on said valve-stem, each comprising a number of prongs or arms that engage and center said valve-guide within the air-port, and a spring coiled about the valve-stem with its ends resting against the opposite valve-guides, for the purpose set forth.

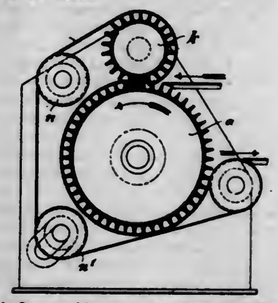
785,785. HOOK AND EYE. WILLIAM C. WILLIAMSON, Chicago, Ill. Filed June 20, 1904. Serial No. 214,564.

Claim.—1. As an article of manufacture, a hook composed of a single wire doubled upon itself to form the hook and shank portions, the end of one strand of the wire terminating in an eye and the other end being bent to form an eye and carried beyond said eye in the form of a tongue, terminating at a point adjacent to the end of the hook portion, all of the parts lying in one and the same plane.



2. As an article of manufacture, a hook composed of a single wire doubled upon itself to form the hook and shank portions, the end of one strand of the wire terminating in an eye and the other end being bent to form an eye and carried beyond said eye in the form of a tongue, terminating at a point adjacent to the end of the hook portion, and bent back upon itself to form a rounded edge.

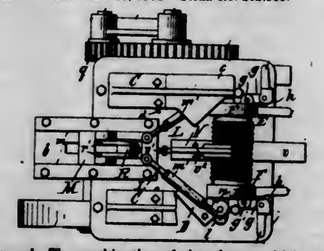
785,786. MACHINE FOR MAKING CORRUGATED WOOD SLIVER. EDUARD WOLFF, Habelschwerdt, Germany. Filed Mar. 25, 1904. Serial No. 200,014.



Claim.—1. In a machine for corrugating wood sliver, the combination with corrugating cylinders or drums, of an apron arranged to pass with the sliver between the corrugating-cylinders to form a cushion between the sliver and the corrugating or pressing roll to prevent tearing or breaking of the fiber, and means for guiding the apron so that it embraces the major portion of the periphery of the drying-drum and retains the sliver in the grooves of the drying-drum, substantially as described.

2. A machine for corrugating wood sliver, comprising a drying and corrugating drum grooved longitudinally, a roll adapted to press the sliver into the grooves of the drying-cylinder to corrugate it, an endless apron arranged to travel with the sliver between the drying and pressing cylinders and to retain the sliver in the grooves of the drying-cylinder after being acted upon by the pressing-cylinder, and guide-rollers arranged to hold the apron in contact with the drying-cylinder over a greater portion of its circumference.

785,787. CORRUGATED-PIPE-BENDING MACHINE. EDMUND ZEH, Buffalo, N. Y., assignor to Niagara Machine & Tool Works, Buffalo, N. Y. Filed June 13, 1904. Serial No. 212,310.



Claim.—1. The combination of pipe-clamps which are secured to the opposite ends of the pipe, inclined faces, means for causing a relative movement between said clamps and said inclined faces, said inclined faces causing said clamps to assume an angular position relative to each other whereby the pipe is bent, substantially as set forth.

2. The combination of pipe-clamps which are secured to the opposite ends of the pipe, means for moving said clamps in one direction, and means against which said clamps are moved and which turn them into an angular position relative to each other, substantially as set forth.

3. The combination of pipe-clamps which are secured to the opposite ends of the pipe, means for moving said clamps, and stationary parts against which said clamps are moved by said means and which parts turn the clamps into angular position relative to each other to bend the pipe, substantially as set forth.

4. The combination of pipe-clamps which are secured to the opposite ends of the pipe, means for moving said clamps and pipe, and stationary inclined faces which are engaged by said clamps and turn the latter into angular position relative to each other to bend the pipe, substantially as set forth.

5. The combination of pipe-clamps which are secured to the opposite ends of the pipe, a reciprocating operating device, swinging links connecting said operating device and clamps for moving the latter, and parts against which the clamps are moved and which turn the clamps into angular position relative to each other, substantially as set forth.

6. The combination of pipe-clamps which are secured to the opposite ends of the pipe, fixed arms projecting from said clamps, a reciprocating slide, swinging links connecting said reciprocating slide and said fixed arms of the clamps, and stationary inclined faces which are engaged by said clamps and turn the latter into angular position relative to each other, substantially as set forth.

7. The combination of pipe-clamps which are secured to the opposite ends of the pipe, means for moving said clamps and pipe, a pair of separated inclined faces for each of said clamps which are engaged by parts at the opposite sides of said clamps and turn the clamps into angular position relative to each other, substantially as set forth.

8. The combination of pipe-clamps which are secured to the opposite ends of the pipe, inclined faces, power-operated mechanism for causing a relative movement between said clamps and said inclined faces, and means under the control of the operator for setting said mechanism in motion and automatically stopping the same, substantially as set forth.

9. The combination of pipe-clamps which are secured to the opposite ends of the pipe, power-operated mechanism for moving said clamps and pipe, means engaged by said clamps for causing them to assume an angular position relative to each other, and means under the control of the operator for setting said mechanism in motion and automatically stopping the same, substantially as set forth.

10. The combination of pipe-clamps which are secured to the opposite ends of the pipe, a reciprocating slide to which said clamps are movably connected, stationary parts which are engaged by said clamps to turn the latter into angular position relative to each other, a shaft and connections for reciprocating said slide, a driving element, and a clutch for connecting said driving element to said shaft and automatically disconnecting said driving element from the shaft, substantially as set forth.

11. The combination of pipe-clamps which are secured to the opposite ends of the pipe, means for moving said clamps and pipe in one direction, means against which the clamps are moved for causing them to assume an angular position relative to each other, and a horn which engages the pipe between said clamps, substantially as set forth.

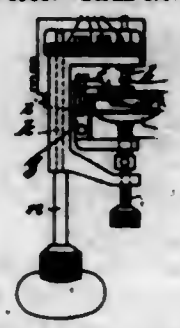
12. The combination of pipe-clamps which are secured to the opposite ends of the pipe, inclined faces, means for causing a relative movement between said clamps and said inclined faces, said inclined faces causing said clamps to assume an angular position relative to each other, and a relatively stationary horn which engages the pipe between said clamps, substantially as set forth.

13. The combination of clamps for the ends of the pipe, one of said clamps comprising a head having a flange to embrace the pipe, a clamping-jaw movably mounted on said head to engage the inside of the pipe, and a lever for operating said clamping-jaw, and means for operating the clamps to bend the pipe, substantially as set forth.

14. The combination of clamps for the ends of the pipe, one of said clamps comprising a head provided with a flange which embraces the pipe, a clamping-jaw, an arm pivoted to said clamp-head and carrying said jaw, an operating-lever for said jaw pivoted to said arm and having a cam-shaped portion which engages a part on said clamp-head, and means for operating the clamps to bend the pipe, substantially as set forth.

15. The combination of clamps for the ends of the pipe, one of said clamps comprising a head having a circular flange which surrounds the pipe, a segmental circular guide secured to said head inside of said flange, and a clamping-jaw arranged inside of said flange, an arm carrying said jaw and pivoted to said clamp-head, an operating-lever for said clamping-jaw, and means for operating the clamps to bend the pipe, substantially as set forth.

785,788. **DENTAL TOOL.** RAIMUND ZENTNER, Wiesbaden, Germany. Filed Oct. 26, 1903. Serial No. 178,555.



Claim.—1. In a dental tool for attaching teeth to a backing, the combination of a screw-clamp for pressing the tooth against the backing, one shank of said clamp being provided with holes for taking up the pins fixed to the teeth, a U-shaped frame, a riveting-stud journaled in one shank of said frame, means for rotating said riveting-stud and a screw situated in the other shank of the frame opposite to the riveting-stud, substantially as described and for the purpose set forth.

2. In a dental tool for attaching teeth to a backing, the combination of a U-shaped frame, one shank of said frame consisting of two parts, each of which is provided with a hole for taking up the pins of the teeth, means for adjusting the distance between these two parts a set-screw situated in the other shank of said frame, a second U-shaped frame adapted to be placed around the first frame, a riveting-stud journaled in one shank of said second frame, means for rotating said riveting-stud, and a set-screw situated in the other shank of the second frame opposite to the riveting-stud, substantially as described and for the purpose set forth.

3. In a dental tool for attaching teeth to a backing, the combination of a U-shaped frame, one shank of said frame consisting of two parts, each of which is provided with a hole, for taking up the pins of the teeth, means for adjusting the distance between these two parts, a hollow set-screw situated in the other shank of said frame, a cup provided with a pin fitting into the bore of said set-screw, a second U-shaped frame adapted to be placed around the first frame, a riveting-stud journaled in one shank of said second frame, means for rotating said riveting-stud and a set-screw situated in the other shank of the second frame opposite to the riveting-stud, substantially as described and for the purpose set forth.

4. In a dental tool for attaching teeth to a backing, the combination of a U-shaped frame, one shank of said frame consisting of two parts, each of which is provided with a hole, for taking up the pins of the teeth, a hollow set-screw situated in the other shank of said frame, a cup-provided with a pin fitting into the bore of said screw, a second U-shaped frame adapted to be placed around the first frame, a riveting-stud journaled in one shank of said second frame, a shaft provided with a handle journaled in the bottom of this second frame, gearings transferring the rotations of said shaft to the riveting-stud, and a set-screw situated in the other shank of the second frame opposite to the riveting-stud, substantially as described and for the purpose set forth.

785,789. **SHOE-FASTENER.** JOSEPH W. BARNA and VALENTINE HOFFMAN, Chicago, Ill. Filed Aug. 15, 1904. Serial No. 220,735.

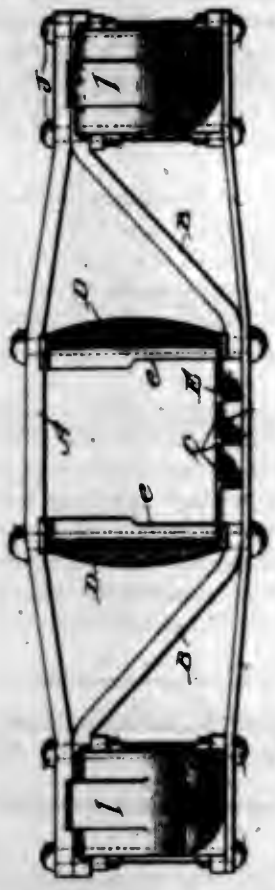


Claim.—1. A shoe-fastener made from a single blank of sheet metal and comprising a pair of side members provided with hooks adapted to engage the eyelets of a shoe-upper and connected at their ends by a resilient web standing in a plane substantially at a right angle to the plane of the side members, and means for detachably connecting the free ends of the side members together.

2. A shoe-fastener comprising a pair of side members connected at one end by a resilient web and provided with curved hooks adapted to enter the eyelets of a shoe-upper and having laterally-extending ends to engage the inner face of the upper, and means for detachably connecting the free ends of the side members together, the said side members, web and hooks being made from a single blank of sheet metal.

3. A shoe-fastener made from a single blank of resilient sheet metal and comprising a pair of side members provided at the outer edges with curved hooks adapted to enter the eyelets of a shoe-upper and having laterally-extending ends to engage the inner face of the upper, a resilient web connecting the side members at one end of the fastener and standing in a plane substantially at a right angle to the side members, the free end of one of the side members being provided with an opening, and a hook at the free end of the other side member to engage such opening.

785,790. SIDE FRAME FOR CAR-TRUCKS. WILLIAM P. BETTENDORF, Davenport, Iowa. Filed June 22, 1904. Serial No. 213,661.



Claim.—1. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar, guide-columns, the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges, and rivets extending longitudinally through said guide-columns and headed at each end.

2. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; independent guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portions of said edges. and rivets extending longitudinally through said guide-columns and headed at each end.

3. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges, a spring-seat secured upon and straddling the lower arch-bar between the guide-columns, and rivets extending longitudinally through said guide-columns and headed at each end.

4. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; independent guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges, a spring-seat secured upon and straddling the lower arch-bar between the guide-columns, and rivets extending longitudinally through said guide-columns and headed at each end.

5. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges, a spring-seat having downwardly-projecting parallel flanges, and seated upon the lower arch-bar between the guide-columns and lapping against each side of said bar, and rivets extending longitudinally through said guide-columns and headed at each end.

6. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; and guide-columns suitably secured between the same, and a spring-seat secured upon the lower arch-bar between said guide-columns and having a depression in its upper surface, and a spring-plank having projections on the under surface of its ends and adapted to interlock with said depression.

7. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar: guide-columns, the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges; a spring-seat secured upon the lower arch-bar between the guide-columns and having a depression in its upper surface, and a spring-plank having a projection on the under surface of its ends and adapted to interlock with said depression.

8. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; independent guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portions of said edges; a spring-seat secured upon the lower arch-bar between the guide-columns and having a depression in its upper surface, and a spring-plank having a projection on the under surface of its ends and adapted to enter said depression.

9. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; column-guides, having vertical longitudinal perforations and vertical rivets extending through the same and through said arch-bars and headed at each end.

10. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; a tie-bar; column-guides having vertical longitudinal perforations, and vertical rivets extending through the perforations in said arch-bars and tie-bar and headed at each end.

11. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; a tie-bar; journal-boxes between the ends of said arch-bars and tie-bar; column-guides having vertical longitudinal perforations, and vertical rivets extending through said perforations and on either side of said journal-boxes and having their ends pass through said bars and headed.

12. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; guide-columns, the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges, and have vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

13. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges; a spring-seat secured upon and straddling the lower arch-bar between the guide-columns, said guide-columns having vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

14. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; independent guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of the said edges; a spring-seat secured upon and straddling the lower arch-bar between the guide-columns, said guide-columns having vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

15. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portion of said edges; a spring-seat having downwardly projecting parallel flanges, and seated upon the lower arch-bar between the guide-columns and lapping against each side of said bar, said guide-columns having vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

16. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; and guide-columns suitably secured between the same, and a spring-seat secured upon the lower arch-bar between said guide-columns and having a depression in its upper surface; a spring-plank having projections on the under surface of its ends and adapted to interlock with said depression, said guide-columns having vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

17. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; guide-columns, the lower portions of the edges thereof facing each other being cut away

and are farther apart than the upper portion of said edges; a spring-seat secured upon the lower arch-bar between the guide-columns and having a depression in its upper surface; a spring-plank having a projection on the under surface of its ends and adapted to interlock with said depression, said guide-columns having vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

18. A side frame for car-trucks made of distinctive parts comprising an upper arch-bar; a lower arch-bar; independent guide-columns the lower portions of the edges thereof facing each other being cut away and are farther apart than the upper portions of said edges; a spring-seat secured upon the lower arch-bar between the guide-columns and having a depression in its upper surface; a spring-plank having a depression on the under surface of its ends and adapted to enter said depression, said guide-columns having vertical longitudinal perforations, and rivets which extend through said perforations and bars and have their ends headed.

19. In a car-truck, a side frame comprising an upper arch-bar; a lower arch-bar; a tie-bar; column-guides; journal-boxes; and vertical rivets securing said parts together in proper relation and having their lower ends extend through the tie-bar and headed.

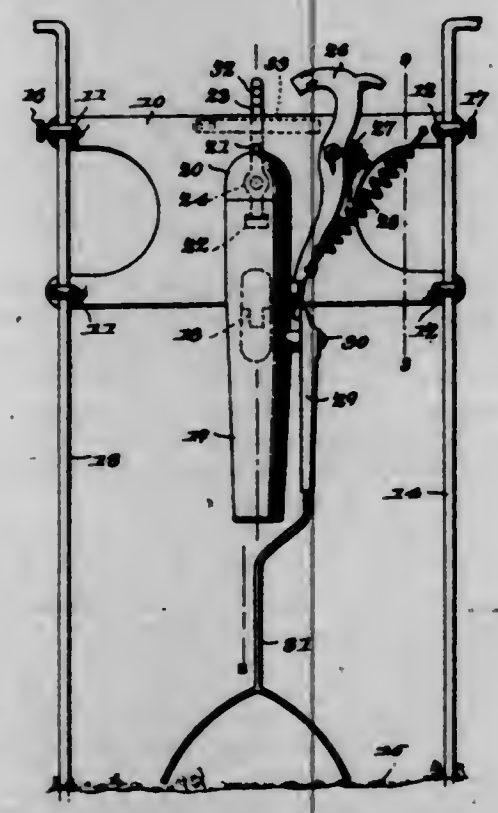
785,791. **PROCESS OF MAKING LEAD DITHIONATE.** ANSON G. BETTS, Troy, N. Y. Filed Apr. 11, 1904. Renewed Feb. 20, 1905. Serial No. 246,496.

Claim.—1. The process of making lead dithionate which consists in decomposing a solution of manganese dithionate with lead peroxid.

2. The process of making lead dithionate which consists in reacting on manganese peroxid with sulfur dioxid decomposing sulfates in the solution with lead dithionate, and precipitating the manganese with lead peroxid.

3. The process of making lead dithionate which consists in treating native manganese dioxid with sulfur dioxid, and precipitating purified manganese peroxid from the solution with lead peroxid.

785,792. **TRAP-GUN.** HENRY P. BOSSE, Mountertown, Pa. Filed Aug. 3, 1904. Serial No. 219,375.



Claim.—1. In a trap-gun, a supporting-frame carrying a breech-block with a firing-pin therein, a gun-barrel mounted to swing upon said frame for position into engagement with said breech-block, means carried by said frame for detachably locking said barrel in operative position relative to said breech-block, a hammer-spring supported in position to strike said firing-pin, a trigger pivoted upon said barrel for holding said hammer in poised position, and trip members extending from said trigger into the path of the animal to be trapped.

2. In a trap-gun, a supporting-frame carrying a breech-block with a firing-pin therein, a gun-barrel mounted to swing upon said frame for position into engagement with said breech-block, a hammer-spring supported in position to strike said firing-pin, a trigger detachably engaging said hammer for holding the same in poised position, trip members extending from said trigger, and means for adjustably supporting said frame whereby the same may be adjusted to cause said trip members to extend into the path of the animal to be trapped.

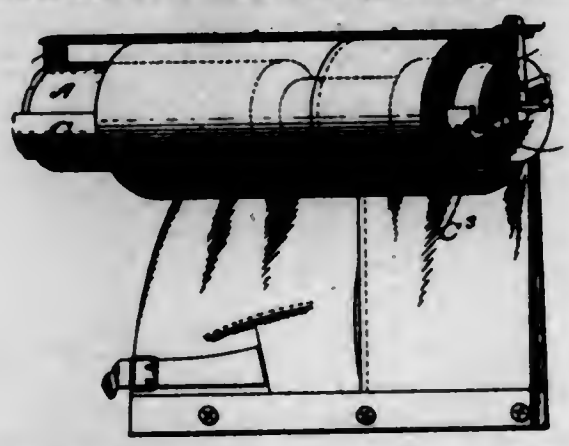
3. In a trap-gun, a supporting-frame having means for adjustment relative to the ground, a gun-barrel carried by said frame, a hammer in position to actuate the firing means in said barrel, and trip means connected to said hammer-actuating means and adjustable with said frame.

4. In a trap-gun, a supporting-frame having means for adjustment relative to the ground, a gun-barrel carried by said frame, a hammer in position to actuate the firing means in said barrel, trip means connected to said hammer-actuating means and adjustable with said frame, and a stop member movable upon said frame for projection into the path of said hammer for locking the same in poised position.

5. In a trap-gun, a supporting-frame having means for adjustment relative to the ground, a gun-barrel carried by said frame, a hammer pivoted to said frame in position to engage the firing means of said gun-barrel, a spring connected to operate said hammer, a trigger connected to hold said hammer in poised position and having trip means extending therefrom into the path of the animal to be trapped.

6. In a trap-gun, a supporting-frame having spaced perforated lugs, leg members movably disposed in said lugs and held therein adjustably as by set-screws, a gun-barrel hinged to said frame for engagement with a breech-block upon said frame, said breech-block having the charge-firing means, a hammer-spring supported in position for striking said firing means when depressed, a trigger pivoted in position to engage said hammer and hold it poised and with trip members extending therefrom into the path of the animal to be trapped.

785,793. **TROUSERS-CREASER.** JOSEPH H. BRADLEY, National Soldiers Home, Va. Filed Sept. 14, 1904. Serial No. 224,416.



Claim.—1. In a trousers-creaser, a roll and a plurality of binding-strips connected to the ends of said roll.

2. A trousers-creaser comprising a cylindrical roll, and a plurality of binding-strips detachably connected to the ends of the roll.

3. A trousers-creaser, comprising a cylindrical roll and a plurality of binding-strips detachably and adjustably connected with the ends of the roll.

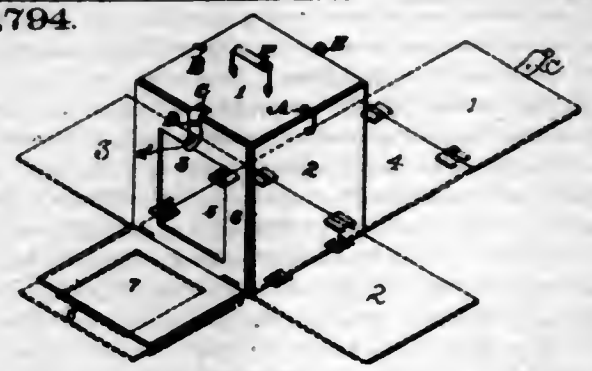
4. A trousers-creaser comprising a cylindrical roll provided with a pin at each end, binding-strips having a perforated arm at one end and a finger at the opposite end, and plates provided with perforations as set forth.

5. A trousers-creaser comprising a hollow cylindrical roll, provided with pins at its opposite ends, said roll having a detachable cap-piece, the binding-strip having a perforated arm at one end, and a finger at the opposite end, and a plate having a plurality of perforations adjacent one end and a single perforation at the opposite ends, substantially as described.

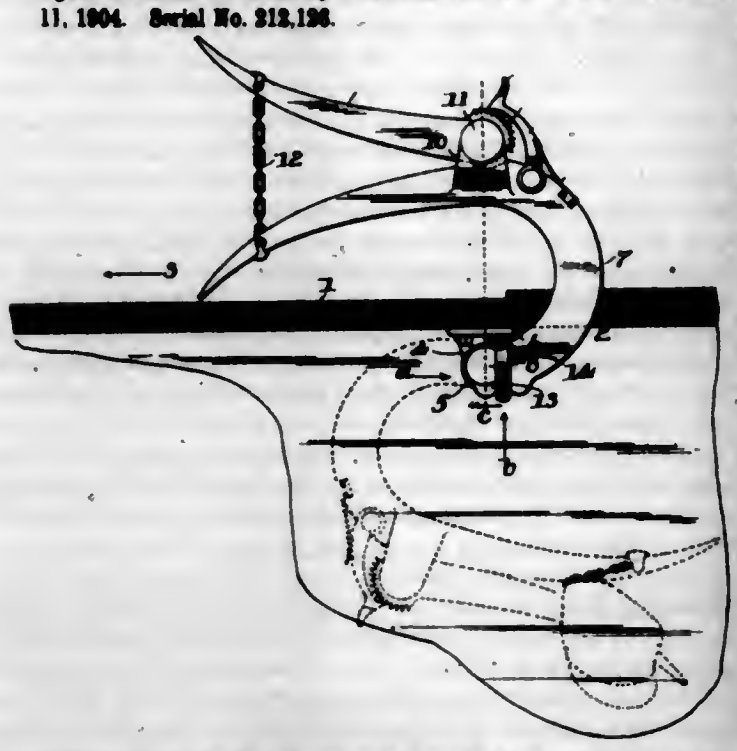
785,794. **HEN'S NEST.** GEORGE H. BUCKINGHAM, Pico Heights, Cal. Filed Aug. 3, 1904. Serial No. 219,368.

Claim.—A folding hen's nest comprising a base, sides hinged to each edge thereof, one side having an opening, a door hinged in place to close said opening or when open to constitute a platform in front of the opening, and a top removably connected with the upper edges of the sides and door.

785,794.



785,795. **MAIL-CATCHER.** EDWARD A. BUELL, DeKalb, Ill., assignor of one-half to Timothy F. McDermott, DeKalb, Ill. Filed June 11, 1904. Serial No. 212,126.



Claim.—1. A mail-sack-catching mechanism carried upon a mail-car having a mounting permitting it to swing or rotate when engaged by a mail-sack, said catching mechanism including relatively movable jaws between which the mail-sack is received, substantially as described.

2. A mail-sack-catching mechanism carried upon a mail-car having a mounting that permits it to rotate or swing in a substantially horizontal plane when engaged by a mail-sack, said catching mechanism including relatively movable jaws between which the mail-sack is received, substantially as described.

3. A mail-sack-catching mechanism carried upon a mail-car having a mounting permitting it to swing or rotate when engaged by a mail-sack, said mounting being located adjacent to the forward vertical margin or meeting edge of the doorway of the car, said catching mechanism including relatively movable jaws between which the mail-sack is received, substantially as described.

4. A mail-sack-catching mechanism carried upon a mail-car having a mounting that permits it to rotate or swing in a substantially horizontal plane when engaged by a mail-sack, said mounting being located adjacent to the forward vertical margin or meeting edge of the doorway of the car, said catching mechanism including relatively movable jaws between which the mail-sack is received, substantially as described.

5. A mail-sack-catching mechanism carried upon a mail-car having a mounting permitting it to swing or rotate when engaged by a mail-sack, said catching mechanism including a pair of relatively movable jaws, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

6. A mail-sack-catching mechanism carried upon a mail-car having a mounting that permits it to rotate or swing in a substantially horizontal plane when engaged by a mail-sack, said catching mechanism including a pair of relatively movable jaws, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

7. A mail-sack-catching mechanism carried upon a mail-car having a mounting permitting it to swing or rotate when engaged by a mail-sack, said mounting being located adjacent to the forward vertical margin or meeting edge of the doorway of the car, said catching mechanism including a pair of relatively movable jaws, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

8. A mail-sack-catching mechanism carried upon a mail-car having a mounting that permits it to rotate or swing in a substantially horizontal plane when engaged by a mail-sack, said mounting being located adjacent to the forward vertical margin or meeting edge of the doorway of the car, said catching mechanism including a pair of relatively movable jaws, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

9. A mail-sack-catching mechanism carried upon a mail-car having a mounting permitting it to swing or rotate when engaged by a mail-sack, said catching mechanism including relatively movable jaws between which the mail-sack is received, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

10. A mail-sack-catching mechanism carried upon a mail-car having a mounting that permits it to rotate or swing in a substantially horizontal plane when engaged by a mail-sack, said catching mechanism including relatively movable jaws between which the mail-sack is received, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

11. A mail-sack-catching mechanism carried upon a mail-car having a mounting permitting it to swing or rotate when engaged by a mail-sack, said mounting being located adjacent to the forward vertical margin or meeting edge of the doorway of the car, said catching mechanism including relatively movable jaws between which the mail-sack is received, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

12. A mail-sack-catching mechanism carried upon a mail-car having a mounting that permits it to rotate or swing in a substantially horizontal plane when engaged by a mail-sack, said mounting being located adjacent to the forward vertical margin or meeting edge of the doorway of the car, said catching mechanism including relatively movable jaws between which the mail-car is received, and a link uniting the said jaws adapted to be engaged by the mail-sack to effect the relative approach of the jaws, substantially as described.

13. A mail-sack-catching mechanism carried upon a mail-car and including two pivotally-united jaws, and also a link connection between the jaws to be engaged by the mail-sack, substantially as described

14. A mail-sack-catching mechanism carried upon a mail-car and including two relatively movable jaws, a link connection between the jaws to be engaged by the mail-sack, and a locking device to hold the jaws in engagement with the sack, substantially as described.

15. A mail-sack-catching mechanism carried upon a mail-car and including two relatively movable jaws, a link connection between the jaws to be engaged by the mail-sack, a locking device to hold the jaws in engagement with the sack, and a mounting for the catching mechanism permitting its bodily movement within the car when engaged by a mail-sack, substantially as described.

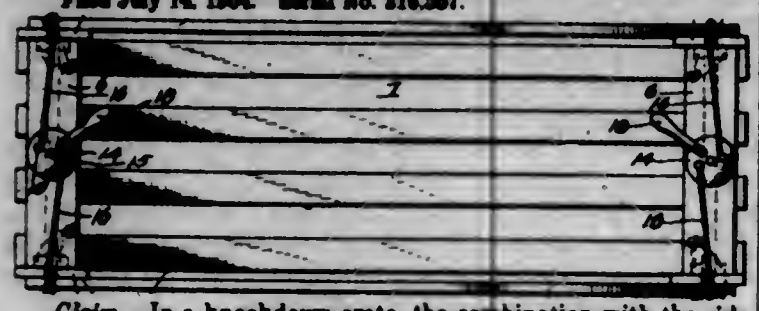
16. A mail-sack-catching mechanism carried upon a mail-car and including two pivotally-united jaws, a locking device for holding the said jaws in engagement with the sack, and a mounting for the catching mechanism permitting its bodily movement within the car when engaged by a mail-sack, substantially as described.

17. A mail-sack-catching mechanism carried upon a mail-car and including two pivotally-united jaws, a link connection between the jaws to be engaged by the mail-sack, a locking device to hold the jaws in engagement with the sack, and a mounting for the catching mechanism permitting its bodily movement within the car when engaged by a mail-sack, substantially as described.

18. A mail-sack-catching mechanism carried upon a mail-car and including two pivotally-united jaws, a locking device for holding the jaws in engagement with the sack, and a mounting for the catching mechanism permitting its bodily movement within the car when engaged by a mail-sack, substantially as described.

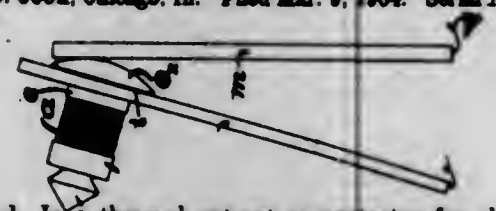
19. A mail-sack-catching mechanism carried upon a mail-car and including two relatively movable jaws together forming the mail-catch and between and with which the sack is initially engaged, a locking device for holding the jaws in engagement with the sack, and a mounting for the catching mechanism permitting its bodily movement within the car when engaged by a mail-sack, substantially as described.

785,796. CRATE. ALONZO C. BUTTRAM, Columbus City, Iowa. Filed July 14, 1904. Serial No. 216,557.



Claim.—In a knockdown crate, the combination with the side and end pieces, of corner-posts secured to the ends of said side pieces, top and bottom pieces arranged on said side and end pieces, cross-bars secured to the ends of said top and bottom pieces, said cross-bars being provided with end notches, pins secured to the ends of said corner-posts whereby a lateral movement of the parts is prevented, cleats for securing the end pieces in place, disks pivotally mounted on said corner-posts and provided with eccentrically-arranged oppositely-disposed stud-bolts, clamping-rods each pivotally connected at one end to one of said stud-bolts, a clamping-head formed on the opposite ends of said rods for engagement with the notches in the cross-bars of said top and bottom pieces, so that when said disks are turned, said clamping-heads will engage said bars and securely hold the parts of the crate together, and a handle whereby said disks are turned and locked, substantially as described.

785,797. THERMAL CUT-OUT FOR ELECTRICAL CIRCUITS. FRANK B. COOK, Chicago, Ill. Filed Mar. 9, 1904. Serial No. 197,283.



Claim.—1. In a thermal cut-out or protector for electric circuits, the combination of a piece of resistance material for inclusion in a circuit, means for displacing same upon an abnormal current in the circuit, and means for restoring the device to operative condition.

2. The combination of a piece of resistance material for inclusion in an electric circuit, means for opening the circuit through same upon an excess current therein, and external means for restoring the device to operative condition after operation.

3. The combination of a piece of resistance material for inclusion in an electric circuit, means for grounding the circuit upon an excess current therein, and external means for restoring the device to operative condition after operation.

4. In a thermal cut-out or protector for electric circuits, the combination of a homogeneous resistance-body for inclusion in the circuit, means for displacing same upon an abnormal current therein, and an external automatic means for restoring the device to operative condition.

5. In a thermal cut-out or protector for electric circuits, the combination of a homogeneous resistance-body for inclusion in the circuit, a circuit-controlling means adapted to displace the resistance-body upon an excess of current therein, and an automatic means for restoring the device to operative condition.

6. In apparatus of the class specified, a homogeneous resistance-body for inclusion in a circuit, a circuit-controlling means tending to break the circuit and heat-susceptible material for holding the device against operation, and means apart from the device for restoring the latter to operative condition after the operation of same permitted by the softening of the heat-susceptible material.

7. In apparatus of the class specified, a homogeneous resistance-body for inclusion in a circuit, a circuit-controlling means adapted to displace the resistance-body upon an excess of current in same, a heat-susceptible material normally holding the resistance-body against displacement, and means for restoring the latter to operative condition after operation.

8. In apparatus of the class specified, the combination of a piece of graphite for inclusion in a circuit, a circuit-controlling means adapted to open the circuit through the said graphite when an abnormal electric current traverses the latter, and means apart from the device for automatically restoring the latter to operative condition after operation.

9. In apparatus of the class specified, the combination of a piece of graphite adapted to be included in a circuit, a circuit-controlling means adapted to move the said graphite bodily and thereby open the circuit through same, when an excess of current traverses the circuit, and means for automatically restoring the device to operative condition after operation.

10. In a thermal cut-out or protector for electric circuits the combination of a piece of resistance material adapted to be included in the circuit, a metallic plating covering one end of the resistance material, a circuit-controlling means to which the said plating is secured by a heat-susceptible material, the resistance material being moved bodily by the circuit-controlling means when the heat-susceptible material is softened, and means apart from the device whereby the latter is restored to operative condition after operation.

11. In a thermal cut-out or protector for electric circuits, the combination of a homogeneous resistance-body, means for retaining same in the circuit, a metallic plating covering one end of the resistance-body, a circuit-controlling spring, a fusible material for normally securing the metallic plating to the said spring, and a restoring means for the device, the circuit-controlling spring causing the resistance-body to be displaced and come in contact with the restoring means, upon the softening of the fusible material, and thereby restoring the device to operative condition, substantially as described.

12. In a thermal cut-out or protector for electric circuits, the combination of a graphite block provided with a flange on one end and adapted to be normally retained in the circuit, a metallic plating covering the said flange, a circuit-controlling spring, a heat-susceptible material normally securing the metallic plating to the said spring, and a restoring means for the device, the circuit-controlling spring being adapted to displace the graphite block and bring same against the restoring means, upon the heat-susceptible material becoming softened, and thereby restore the device to operative condition where it is secured by the heat-susceptible material becoming cool, substantially as described.

13. In apparatus of the class specified, an excess-current-operable device comprising a cylindrical, homogeneous, resistance-body provided with a flange on one end and a conical projection on the other, a metallic plating for the said flange, a circuit-controlling spring, a heat-susceptible material normally securing the said flange to the said spring, a contact member provided with a conical-shaped hole therein and adapted to engage the said conical projection, and a ground-plate, the conical projection releasing itself from the said hole when an excess current traverses the resistance-body, and thereby allowing the latter to be moved by the circuit-controlling spring and the said flange to strike the ground-plate and thereby restore the excess-operated device to operative condition, substantially as described.

14. In apparatus of the class specified, an excess-current-operable device comprising a cylindrical piece of graphite provided with a flange on one end thereof and a conical projection on the other, a copper plating covering the said flange and conical projection, a circuit-controlling spring provided with a hole therein near its free end, through which hole the cylindrical portion of the graphite is inserted, a fusible material normally securing the said flange to the said spring, a second spring provided with a conical-shaped hole therein adapted to engage the said conical projection when the device is in an operative position, a third spring adapted to be used as a ground-spring, and suitable circuit-conductors conductively connected with the said first and second springs, respectively, an abnormally large current traversing the said graphite causing the fusible material to soften and thereby allow the said graphite to move within the first-mentioned hole and the conical projection thereon to release itself from the said conical hole, the circuit-controlling spring bringing the said flange in contact with the ground-spring and thereby restoring the said graphite to its normal position within the first-mentioned hole where it is again secured in this operative condition by the cooling of the fusible material, substantially as described.

15. In a device of the character described, the combination of a piece of resistance material, means for normally retaining same in circuit, a restoring means, and means for moving the said resistance material, under abnormal circuit conditions, against the restoring means, after operation, and thereby restoring the device to operative condition.

16. In a device of the character described, the combination of a homogeneous resistance material for inclusion in a circuit, means for normally retaining the resistance material in circuit, means for operating the device under abnormal circuit conditions, and means apart from the device for restoring the latter to operative condition.

17. In a thermal cut-out or protector for electric circuits, the combination of a piece of resistance material, a metallic plating covering portions of the resistance material, a heat-susceptible material normally holding the device in operative condition, means for nor-

mally retaining the resistance material in circuit, and means apart from the device and adapted to restore the latter to operative condition after operation, substantially as described.

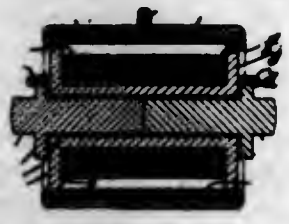
18. In a thermal cut-out or protector for electric circuits, the combination of a piece of resistance material normally held in the circuit, a restoring means apart from the device, and a circuit-controlling means adapted to abnormally move the resistance material bodily, out of the circuit and against the restoring means, and thereby restore the device to operative condition.

19. In a thermal cut-out or protector for electric circuits, the combination of a piece of graphite, means for normally retaining the same in circuit, a ground-plate, a circuit-controlling spring, and a heat-susceptible material normally securing the piece of graphite to the said spring, the latter being adapted to bodily move the said graphite, upon an abnormally large current therein, and thereby open the circuit and ground a portion thereof, substantially as described.

20. In a device of the character described, the combination of a pair of springs, a piece of homogeneous resistance material normally completing the circuit between the said springs, and a restoring means apart from the device, one of the said springs being adapted to move the resistance material bodily, against the said restoring means, under abnormal circuit conditions, to open the circuit through the resistance material and to cause the device to be restored to operative condition after operation.

21. In a device of the character described, the combination with a pair of springs, a graphite block normally inserted through a hole in one spring and forming a catch with a hole in the other spring, to complete the circuit between the said springs, a fusible material normally securing the graphite block to one spring, one of the said springs being adapted to move the resistance material bodily, under abnormal circuit conditions, and thereby open the circuit, and means apart from the device for restoring the latter to operative condition after operation, substantially as described.

785,798. **SELF-SOLDERING HEAT-COIL.** FRANK B. COOK, Chicago, Ill. Filed Mar. 9, 1904. Serial No. 197,294.



Claim.—1. In apparatus of the class specified, the combination of means for controlling a circuit, a device operable upon an excess of current and adapted to engage the circuit-controlling means, and a plurality of engaging devices each adapted to normally hold the excess-operable device against rotation, the latter device disengaging the circuit-controlling means when operated.

2. In apparatus of the class specified, the combination of means for controlling a circuit, a device operable upon an excess of current in the circuit and adapted to engage the circuit-controlling means, and a plurality of engaging devices each adapted to engage a catch and thereby hold the excess-operable device against rotation, the circuit-controlling means being adapted to bring said engaging devices into engaging position one after another, upon each resetting of the excess-operated device after operation.

3. In apparatus of the class specified, the combination of a heat-concentrating device, a conducting portion, a plurality of engaging devices adapted to hold said conducting portion against rotation, a heat-susceptible material securing the heat-concentrating device to the said conducting portion, and a circuit-controlling means adapted to engage the heat-concentrating device and to open the circuit through same when the heat-susceptible material is softened.

4. In apparatus of the class specified, the combination of a heat-concentrating device, a conducting portion provided with a plurality of engaging devices adapted to hold the said device and conducting portion against rotation, the said conducting portion being secured within the heat-concentrating device by a heat-susceptible material, a circuit-controlling means adapted to engage the heat-concentrating device and to turn same when the latter is released by the softening of the heat-susceptible material, the said circuit-controlling means being also adapted to bring the said engaging devices successively into engaging position when the apparatus is reset.

5. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, a rotary detent electrically connected with the resistance-body, means acting upon the said detent and holding the cut-out against rotation, and means for turning the resistance-body under abnormal circuit conditions.

6. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, a rotary detent electrically connected with the resistance-body, means for holding the said detent against rotation, and a circuit-controlling means electrically connected with the resistance-body and tending to break the circuit and cementing material for holding the resistance-body against rotation under normal circuit conditions, the cementing material becoming softened under abnormal circuit conditions to permit the circuit-controlling means to turn the said resistance-body and break the circuit, the said circuit-controlling means turning the rotary detent into a new engaging position when the cut-out is reset.

7. In apparatus of the class specified, the combination of a device operable upon an excess of current, a rotary detent for holding the device against rotation in one direction, and means for turning the whole in the opposite direction and thereby bringing the rotary detent into a new holding position.

8. In apparatus of the class specified, the combination of a device operable upon an excess of current, a portion provided with a plurality of engaging devices, means for engaging an engaging device and thereby holding the excess-operable device against movement in one direction, and means for bringing the said engaging devices into successive engaging position with their engaging means when the apparatus is reset.

9. In apparatus of the class specified, the combination of a heat-concentrating device, a wheel provided with a plurality of engaging devices and secured to the heat-concentrating device by a heat-susceptible material, means for engaging one of the engaging devices of said wheel and thereby holding the wheel normally in position, a circuit-controlling spring arranged to engage the heat-concentrating device and adapted to turn the said wheel so as to bring another engaging device thereof into engaging position, after the operation of the apparatus permitted by the heat-susceptible material becoming softened.

10. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, a rotary detent conductively connected with said resistance-body, a catch adapted to engage the said detent and hold it against rotation in one direction, and means for turning the detent in the opposite direction to a new engaging position with the catch, when the protector is reset.

11. In apparatus of the class specified, the combination of a device operable upon an excess of current, a plurality of engaging devices adapted to hold the excess-operable device against rotation in one direction, and means for turning the whole in the opposite direction and thereby bringing the said engaging devices into new engaging positions.

12. In apparatus of the class specified, the combination of a device operable upon an excess of current, a rotary detent at each end of the said device, means for engaging the rotary detents to hold the said device against a force tending to rotate same in one direction, and to permit the said device to be rotated in the opposite direction, for the purposes substantially as described.

13. In apparatus of the class specified, the combination of a device operable upon an excess of current, a plurality of engaging devices at opposite ends of the said device, means for engaging the said engaging devices to hold the said excess-operable device against a force tending to rotate same in one direction, and to permit the said excess-operable device to be rotated in the opposite direction, for the purposes substantially as described.

14. In apparatus of the class specified, the combination of a heat-concentrating device, conducting portions each provided with a plurality of engaging devices adapted to hold the said device and conducting portions against rotation, the said conducting portions being secured within the heat-concentrating device by a heat-susceptible material, a circuit-controlling means adapted to engage the heat-concentrating device and to turn same when the latter is released by the softening of the heat-susceptible material, the said circuit-controlling means being also adapted to bring the said engaging devices successively into engaging positions when the apparatus is reset.

15. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, rotary detents electrically connected with the resistance-body, means for normally holding the resistance-body and detents against rotation, and means for turning the resistance-body under abnormal circuit conditions.

16. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, rotary detents electrically connected with the resistance-body, means for holding the device as a whole against rotation, and a circuit-controlling means electrically connected with the resistance-body and tending to break the cementing material for holding the resistance-body against rotation under normal circuit conditions, the cementing material becoming softened under abnormal circuit conditions to permit the circuit-controlling means to turn the said resistance-body and break the circuit, the said circuit-controlling means turning the rotary detents into new engaging positions when the cut-out is reset.

17. In apparatus of the class specified, the combination of a device operable upon an excess of current, rotary detents for holding the device against rotation in one direction, and means for resetting the device after operation and thereby bringing the rotary detents into new engaging positions.

18. In apparatus of the class specified, the combination of a device operable upon an excess of current, conductive portions each provided with a plurality of engaging devices, means for engaging an engaging device of each conductive portion and thereby holding the excess-operable device against movement in one direction, and means for bringing the said engaging devices into successive engaging positions with their engaging means.

19. In apparatus of the class specified, the combination of a heat-concentrating device, wheels each provided with a plurality of engaging devices and secured to the heat-concentrating device by a heat-susceptible material, a suitable support for the device, means for engaging the said wheels and thereby holding the device normally in position, a circuit-controlling spring arranged to engage the heat-concentrating device and adapted to turn the said wheels so as to bring other engaging devices thereof into engaging positions, after the operation of the apparatus permitted by the heat-susceptible material becoming softened.

20. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, rotary detents conductively connected with said resistance-body, means for holding the said detents against rotation in one direction, and means for turning the detents in the opposite direction to new engaging positions with their engaging means, when the protector is reset.

21. In apparatus of the class specified, the combination of means for controlling a circuit, a device operable upon an excess of current in the circuit and adapted to engage the circuit-controlling means, and a plurality of engaging devices each adapted to engage a catch and thereby hold the said device against rotation, the circuit-controlling means being adapted to produce successive engaging positions between the engaging devices and catch, upon each resetting of the excess-operated device after operation.

22. In apparatus of the class specified, the combination of an excess-current-operable device for inclusion in the circuit, a plurality of engaging devices each adapted to engage a catch and thereby hold the excess-operable device against rotation, and means for producing successive engaging positions between the engaging devices and catch.

23. In apparatus of the class specified, the combination of an excess-current-operable device for inclusion in the circuit, a plurality of catches adapted to engage respective series of engaging devices and thereby hold the excess-operable device against rotation in one direction and means for rotating the excess-operable device in the opposite direction and thereby producing successive engaging positions between the said catches and their respective series of engaging devices.

24. The combination of mechanism for controlling a circuit, a heat-producing means operable upon an excess of current, said means being arranged to govern the circuit-controlling mechanism and being arranged to be turned upon its support by such mechanism when the latter is operated, and a portion of the latter adapted to turn such excess-current-operated device upon its support to operative position after operation.

25. In a thermal protector for electric circuits, an excess-current-operable device comprising a heat-concentrating means, a heat-conducting means, and an engaging means, an axis to which the excess-operable device is normally secured, holding devices adapted to prevent the axis from being turned in one direction but allowing it to be turned in the opposite direction, a suitable support for the axis, and a circuit-controlling means adapted to engage the said engaging means and to operate the excess-operable device upon an excess of current in same.

26. In a thermal protector for electric circuits, an excess-current-operable device comprising a heat-concentrating means, a heat-conducting means and an engaging means, an axis to which the whole is secured by a heat-susceptible material, a plurality of engaging devices adapted to prevent the axis from being turned in one direction but allowing it to be turned in the opposite direction, a suitable support for the axis, and a circuit-controlling spring adapted to engage the said engaging means and to operate the excess-current-operable device when the heat-susceptible material is softened.

27. In a thermal protector for electric circuits, the combination of an excess-current-operable device comprising a heat-concentrating means, a hollow heat-conducting means and an engaging means, pins inserted into the respective opposite ends of the heat-conducting means and secured thereto by a heat-susceptible material, a plurality of engaging devices for each pin and adapted to prevent the said pins from being turned in one direction but allowing them to be turned in the opposite direction, a spring-support formed so as to engage both said pins and adapted to coöperate with the said pins and thereby make effective the plurality of engaging devices, and a circuit-controlling spring adapted to engage the said engaging means and to operate the excess-operable device when the heat-susceptible material is softened.

28. In a thermal protector for electric circuits, the combination of a hollow heat-conducting spool, a heat-producing winding wound upon the spool, an insulating-sleeve inclosing the said spool and winding and secured to the said spool, a conducting-sleeve inclosing the insulating-sleeve and secured thereto, the terminals of the said winding being conductively connected to the said spool and conducting-sleeve, respectively, a conducting-pin for each end of the hollow spool and inserted therein, a heat-susceptible material normally securing the said spool to the said pins, but being softened by the heat produced in the said winding by an abnormally large current therein and thereby permitting the spool to turn upon the said pins, an annular projection on each pin, between which projections the said spool is placed, a series of holes in each annular projection, a spring-support formed with ears thereon at its free end, the said ears being adapted to engage the respective pins, a projection on each ear adapted to engage respective holes in the respective series of holes and thereby prevent the said pins from being turned in one direction but permitting them to be turned in the opposite direction, a circuit-controlling spring adapted to engage the said conducting-sleeve, tending to turn the device as a whole against the projections on the said ears which hold the device from turning, and turning the device upon the said pins when the heat-susceptible material is softened, and means whereby the circuit-controlling spring turns the device as a whole back to an operative position when the heat-susceptible material has cooled, the said projections on the said ears slipping from their respective engaging holes and engaging other holes of the said series, to hold the device in its reset operative position.

29. In a thermal protector for electric circuits, the combination of a hollow heat-conducting spool, a heat-producing winding wound upon the said spool, an insulating-sleeve inclosing the said spool and winding and secured to the said spool, a conducting-sleeve inclosing the insulating-sleeve and secured thereto, a conducting-pin for each end of the hollow spool and inserted therein, a heat-susceptible material normally securing the said spool to the said pins, but being softened by an abnormally large current traversing the device and thereby permitting the spool to be turned upon the said pins, an annular projection on each pin, a series of engaging devices associated with each annular projection, a spring-support formed with slotted ears thereon, the said ears being adapted to receive the respective pins and thereby support the device, an engaging device on each ear adapted to engage the respective series of engaging devices and thereby prevent the said pins from being turned in one direction but permitting them to be turned in the opposite direction, a hole in the said conducting-sleeve, a circuit-controlling spring adapted to engage the said hole, tending to turn the device as a whole against the engaging devices of the said ears which hold the protective device from turning, and turning the protective device upon the said pins when the heat-susceptible material is softened, and a projection on the said conducting-sleeve against which the circuit-controlling spring presses to reset the protective device to an operative position, the said engaging devices of the said ears slipping from their respective engaging devices of the said pins and engaging other engaging devices of the said pins, to hold the protective device in its reset operative position against the tension of the circuit-controlling spring.

30. In apparatus of the class specified, the combination of an electrothermally-operable device, means for holding same in operative position, and means for turning the device back to operative position after operation.

31. In apparatus of the class specified, the combination of an electrothermally-operable device, means for holding same in operative position, and a circuit-closing means adapted to turn the device to operative position and thereby close the circuit.

32. In a device of the character described, means operable upon an abnormal current, means adapted to hold the abnormally operable means against rotation in one direction but allowing same to turn in the opposite direction, and a circuit-controlling means adapted to turn the abnormally operable means in either direction, under favorable circuit conditions.

33. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, a rotary detent connected therewith, means adapted to hold the detent against rotation in one direction but allowing same to turn in the opposite direction, and means adapted to turn the resistance-body in either direction, under favorable circuit conditions.

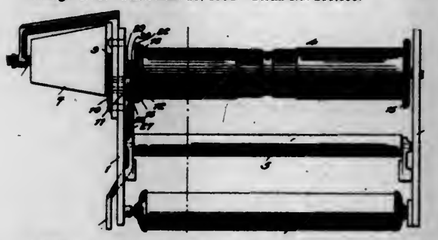
34. In a cut-out or protector for electric circuits, a resistance-body for inclusion in the circuit, a rotary detent connected therewith, means adapted to hold the detent and resistance-body against rotation in one direction but allowing same to turn in the opposite direction, and a circuit-controlling means adapted to turn the resistance-body in one direction, under favorable circuit conditions, and the resistance-body and detent in the opposite direction to reset the device

35. In apparatus of the class specified, the combination of a device operable upon an abnormal current, a portion provided with a plurality of engaging devices, means for engaging an engaging device and thereby holding the excess-operable device against movement in one direction, and means for moving the excess-operable device in the opposite direction, when the apparatus is reset, and thereby bringing the said engaging devices successively into engaging position with their engaging means.

36. The combination in an excess-current-operable device, of means engaging same and tending to break the circuit, a series of engaging devices adapted to hold the excess-operable device in operative position, and means for bringing the engaging devices successively into engaging position for holding the excess-operable device.

37. The combination of mechanism for controlling a circuit, and an excess-current-operable device arranged to govern the circuit-controlling mechanism and to be turned upon its support by such mechanism when the latter is operated, the latter being also adapted to turn the excess-operated device to operative position after operation.

785,799. **NOTE-SHEET WINDING AND CONTROLLING MECHANISM FOR MUSICAL INSTRUMENTS.** GEORGE H. DAVIS, West Orange, N. J. Filed Mar. 29, 1904. Serial No. 200,633.



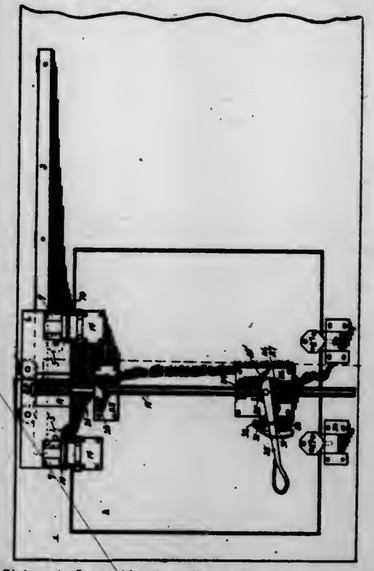
Claim.—1. In a note-sheet-winding mechanism for musical instruments, the combination with a take-up roll, a rotatable element adapted to engage the roll to rotate the same, means for driving said element, and manually-operable means under the control of the operator to move said element into and out of operative relation to the roll.

2. In a note-sheet-winding mechanism for musical instruments, the combination with a take-up roll, of a rotatable element normally engaging said roll to impart rotation thereto, said element being movable toward and away from the roll, means to maintain the element in engagement with the roll, manually-operable means under the control of the operator to move the element out of engagement with the roll and means to drive the element.

3. In note-sheet-winding mechanism for musical instruments, the combination with a take-up roll having end flanges one of which is provided with a clutch element, a rotatable element loosely mounted on the shaft of the take-up roll and having a clutch element coöperating with the aforesaid clutch element, means to drive the rotatable element, and manually-operable means under the control of the operator for throwing the clutch elements out of engagement without stopping the driving means for the rotatable element.

4. In note-sheet-winding mechanism for musical instruments, the combination with a take-up roll having end flanges one of which is provided with a clutch element, a gear loosely mounted on the shaft of the take-up roll and provided with a clutch element coöperating with the corresponding element on the take-up roll, means for driving the said gear, and manually-operable means under the control of the operator for disengaging the clutch elements without interfering with the said driving means.

785,800. **CAR-DOOR.** OVID S. DAVIS, Wynne, Ark. Filed Nov. 15, 1904. Serial No. 232,836.

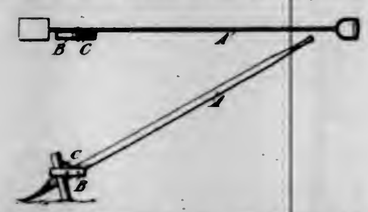


Claim.—1. In combination with a sliding door, a horizontally-arranged track secured to the side of the car above the door-casing; grooved wheels adapted to run on said track, the said wheels being secured within, and protected by a casing; two supports, secured to the outer lower edge of the said casing, and having at their outer lower ends outwardly-extending projections, perforated for the reception of bolts; two hangers secured to the upper end of the car-door; slotted sliding hinges, hinged to the upper end of the said hangers, and having elongated slots therein; grooved wheels journaled in said casing, and adapted to run against the lower edge of said track; a vertically-arranged operating-rod, journaled at its upper end to the said casing; an arm secured to said rod, and adapted to throw said door outwardly, the said rod extending downward and passing through two braced eyes secured to a plate having a depression formed therein, and a lever pivoted to the said operating-rod near its lower end, substantially as shown and described and for the purposes set forth.

2. In a sliding car-door the combination of a track 3, secured to the outer face of the car and above the door-facing; grooved wheels 4, journaled in a casing 6, and running on the upper edge of said track; grooved wheels 5, journaled in said casing and running against the lower edge of said track; projections 10, extending outwardly from the lower edge of said casing, and provided with perforations for the reception of bolts 13; hangers 14, secured to the upper end of the car-door; slotted sliding hinges 15, hinged to said hangers, said hinges sliding on said bolts 13, by means of their slots 17; a loop 22, secured to the car-door 2; a plate 26, bearing eyes 24 and 25; a rod 18, hinged to said casing and said door, and passing through said loop 22, and brace-eyes 24 and 25; arm 21, extending from said rod and working in loop 22; a lever 28, hinged near the lower end of said rod, its beveled end working against eye 25, and adapted to raise the door when the free end of the lever is pressed down, said lever adapted to be locked in place, substantially as shown and described and for the purposes set forth.

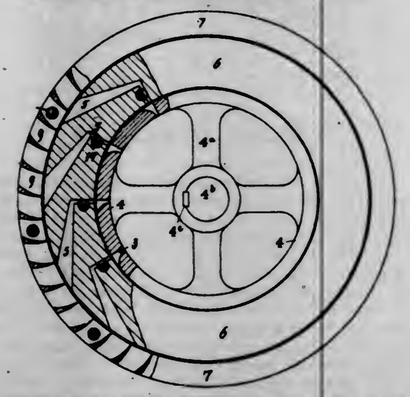
3. In combination with a sliding car-door, a horizontally-arranged track secured to the side of the car, above the door-casing; grooved wheels adapted to run on said track, said wheels being secured within, and protected by a casing; two supports, secured to the outer lower edge of the said casing, and having at their outer lower ends outwardly-extending projections perforated for the reception of bolts; two hangers secured to the upper end of the car-door, and slotted sliding hinges, hinged to the upper end of the said hangers, and to the lower ends of said supports, substantially as shown and described and for the purposes set forth.

785,801. **COMBINED INTRENCHING IMPLEMENT AND TENT-PIN PULLER.** SAMUEL D. DAVIS, Wilber, and JACOB H. CULVER, Lincoln, Nebr. Filed Sept. 19, 1904. Serial No. 225,155.



Claim.—The combination of a lever with a link pivoted thereto, and a dog pivoted within and to the link, the pivot connecting the link to the lever constituting a stop for the dog and a portion of the link constituting an abutment between which and the dog an object may be clamped.

785,802. **STEAM-TURBINE.** CHARLES S. DRUMMOND, London, England. Filed Feb. 27, 1905. Serial No. 247,398.



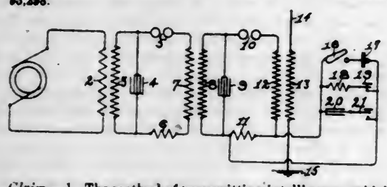
Claim.—1. A steam-turbine comprising a central steam-chest and two relatively rotatable elements, one consisting of two rigidly-connected concentric drums provided with ports, the ports of the inner drum flaring outwardly, and the other element consisting of a single drum intermediate between the rigidly-connected drums and provided with outwardly-flaring passages, substantially as described.

2. A steam-turbine comprising a central steam-chest, and two relatively movable elements one consisting of two rigidly-connected concentric drums provided with ports, the ports of the inner drum flaring outwardly, and the other element consisting of a single drum intermediate between the rigidly-connected drums and provided with outwardly-flaring passages, the ports of the inner drum being so spaced as to close the steam-passages to the intermediate drum at regular intervals, substantially as described.

3. A steam-turbine comprising a central steam-chest, a rotating member consisting of two rigidly-connected concentric rotating drums provided with ports, the ports of the inner drum flaring outwardly, and a stationary drum intermediate between the two rotating drums and provided with outwardly-flaring passages, substantially as described.

4. A steam-turbine comprising a central steam-chest, a rotating member consisting of two rigidly-connected concentric rotating drums provided with ports, the ports of the inner drum flaring outwardly; and a stationary drum intermediate between the two rotating drums and provided with outwardly-flaring passages; and regulating throttle-valves for the steam-passages in the stationary drum, substantially as described.

785,803. **ART OF TRANSMITTING INTELLIGENCE.** CORNELIUS D. EHRET, Philadelphia, Pa. Filed Feb. 10, 1902. Serial No. 93,296.



Claim.—1. The method of transmitting intelligence, which consists in generating electroradiant energy, modifying the frequency of said energy in accordance with the signal to be sent and receiving the energy in a device responsive to changes in the frequency of the transmitted energy.

2. The method of transmitting sounds which consists in generating electroradiant energy, modifying the frequency of said energy by and in accordance with sound-waves, and receiving energy in a device responsive to changes in the frequency of the transmitted energy.

3. The method of transmitting intelligence, which consists in generating electroradiant energy, modifying the frequency of said energy in accordance with the signal to be sent and operating the signal-reproducing device by changes in frequency of the transmitted energy.

4. The method of transmitting sounds, which consists in generating electroradiant energy, modifying the frequency of said energy by and in accordance with sound-waves and controlling a sound-reproducing device by changes in frequency of the transmitted energy.

5. The method of transmitting intelligence which consists in generating electroradiant energy, modifying the frequency of said energy in accordance with the signal to be sent, and causing the received energy to reproduce the signal.

6. The method of transmitting intelligence, which consists in generating electroradiant energy, varying the frequency of said energy by and in accordance with the message to be sent, and reproducing the message by the varying effects of the received energy.

7. The method of transmitting speech electrically, which consists in generating electroradiant energy, modifying the frequency of said energy by and in accordance with speech, and receiving the energy in a device responsive to changes in the frequency of the transmitted energy.

8. The method of transmitting speech electrically, which consists in generating electrical energy, modifying the frequency of said energy by and in accordance with speech, and causing the received energy to vary the condition of a circuit to reproduce speech.

9. The method of transmitting speech electrically, which consists in genrating electrical energy, modifying the frequency of said energy by and in accordance with speech, subjecting a wave-responsive device to the varying effects of the received energy, and reproducing speech by the effect of the variations in condition of said wave-responsive device.

10. The method of transmitting speech electrically, which consists in genrating electroradiant energy, modifying the frequency of said energy by and in accordance with speech, transforming said energy into the energy of electric currents of varying frequency, and controlling the reproduction of speech by said currents.

11. The method of transmitting intelligence, which consists in generating electrical energy, modifying the frequency of said energy in accordance with the signal to be sent, subjecting a wave-responsive device to the effects of the received energy, and controlling a signal-producing circuit by said wave-responsive device.

12. The method of transmitting intelligence, which consists in generating electrical energy of normally practically constant frequency, modifying the frequency of said energy in accordance with the signal to be sent, and causing the reproduction of a signal by the effects of the change in frequency of the received energy.

13. The method of transmitting intelligence, which consists in generating electrical energy, modifying the frequency of said energy in accordance with the signal to be sent, subjecting a wave-responsive device to the varying effects of the received energy, and controlling the reproduction of the signal by said wave-responsive device.

14. The method of transmitting speech electrically, which consists in generating electroradiant energy, modifying the frequency of said energy by and in accordance with speech, subjecting a wave-responsive device to the varying potential differences resulting from the variation of the frequency of the received energy, and controlling the reproduction of speech by said wave-responsive device.

15. The method of transmitting intelligence electrically, which consists in generating electrical energy, modifying the frequency of said energy in accordance with the signal to be sent, and reproducing the signal at the receiver by the effects of the variation in frequency of the received energy.

16. The method of transmitting intelligence electricallv, which consists in generating electrical energy, impressing said energy upon a freely-oscillating circuit, modifying the natural period of said circuit in accordance with the signal to be sent, impressing the energy of resulting modified frequency upon a medium, and reproducing the signal at the receiver by the effects of the variation in frequency of the energy received from said medium.

17. The method of transmitting speech electrically, which consists in generating electrical energy, impressing said energy upon a circuit, modifying the natural period of said circuit by and in accordance with speech, impressing the energy of said circuit upon a medium, and operating a speech-reproducng means by changes in the frequency of the energy received from said medium.

18. The method of transmitting speech electrically, which consists in generating electrical energy, impressing said energy upon a circuit, modifying the natural period of said circuit by and in accordance with speech, impressing the energy of said circuit upon a medium, and reproducing speech at the receiver in virtue of the effects of the variations in frequency of the energy received from said medium.

19. The method of transmitting speech electrically, which consists in generating electrical energy fluctuating at a rate higher than the rate of fluctuation of the more essential components of human speech, impressing said energy upon an oscillating circuit, modifying the natural period of said circuit by and in accordance with speech, impressing the energy of resulting modified frequency upon a medium, and reproducing the speech at the receiver by the effects of the variation in frequency of the energy received from said medium.

20. The method of transmitting messages or signals which consists in continuously generating trains of waves of electroradiant energy of practically uniform frequency, modifying the frequency of said waves in accordance with the message or signal to be transmitted, and reproducing the message or signal by the effects of the modification of the frequency of the received electroradiant energy.

21. The method of transmitting speech electrically, which consists in continuously generating trains of waves of electroradiant energy, said wave-trains succeeding each other at a rate high as compared with the frequencies found in speech and said waves having practically uniform frequency, modifying the frequency of said waves by and in accordance with speech, and reproducing speech at a receiver by the effects of the modification of the frequency of the received electroradiant energy.

22. The method of transmitting signals electrically, which consists in generating primary electrical energy, converting said energy into electroradiant energy, and changing the frequency of said electroradiant energy in accordance with the signal to be sent without interrupting the generation of said primary energy.

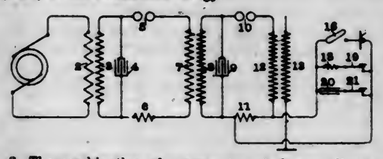
23. As an improvement in the art of electrical signaling, the method which consists in producing electroradiant energy, and changing the frequency of said energy in accordance with a signal to be sent.

24. As an improvement in the art of electrical communication, the method which consists in producing electroradiant energy, and varying the frequency of said energy by and in accordance with speech.

25. As an improvement in the art of electrical signaling, the method which consists in continuously producing trains of electroradiant-energy waves, and changing the frequency of said waves to represent a signal.

785,804. **SYSTEM OF TRANSMITTING INTELLIGENCE.** CORNELIUS D. EHRET, Rosemont, Pa. Original application filed Feb. 10, 1902, Serial No. 93,296. Divided and this application filed July 8, 1903. Serial No. 114,753.

Claim.—1. The combination of a generator of electroradiant energy, means for varying the frequency of said energy in accordance with the signal to be sent, and a receiver responsive to changes in the frequency of the transmitted energy.



2. The combination of a generator of electroradiant energy, means for modifying the frequency of said energy by and in accordance with sound-waves, and a receiver responsive to variations in the frequency of the transmitted energy.

3. The combination of a generator of electroradiant energy, means for varying the frequency of said energy by and in accordance with sound-waves, and a receiver responsive to variations in the frequency of the transmitted energy to reproduce sound-waves.

4. The combination of a source of fluctuating electric currents, means for increasing the potential and frequency of said currents, means for varying the frequency of the transformed energy in accordance with the signal to be sent, and a receiver responsive to variations in the frequency of the transmitted energy.

5. In a signaling system, the combination of a generator, means for varying the frequency of energy derived from said generator in accordance with a signal to be sent, and a receiver responsive to changes in the frequency of the received energy.

6. In a signaling system, a source of electric energy, means for impressing said energy upon a circuit, means for varying the natural period of said circuit in accordance with a signal to be sent, and means at the receiver responsive to the resulting variations in the frequency of the transmitted energy to reproduce a signal.

7. In a signaling system, a circuit, means for supplying energy thereto, means for varying the natural period of said circuit in accordance with a signal to be sent, and means at the receiver responsive to the resulting changes in the frequency of the received energy for reproducing a signal.

8. In a signaling system, a radiating-circuit, means for supplying energy thereto, means for changing the frequency of the energy radiated from said circuit in accordance with a signal to be sent, and means at the receiver, responsive to changes in the frequency of the transmitted energy for reproducing a signal.

9. In a signaling system, a radiating-circuit, an oscillating circuit in inductive relation therewith, means for supplying energy to said oscillating circuit, means for changing the natural period of said oscillating circuit in accordance with a signal to be sent, and means at the receiver responsive to the resulting changes in the frequency of the transmitted energy for reproducing a signal.

10. In a signaling system, means for generating electroradiant energy, means for changing the frequency of said energy in accordance with a signal to be sent, means at the receiver subjected to the changing effects of the received energy, and a signal-producing means controlled thereby.

11. In a signaling system, means for generating electroradiant energy, means for varying the frequency of said electroradiant energy in accordance with a signal, a receiving-circuit including an inductance, and a wave-responsive device subjected to the varying potential differences obtaining at the terminals of said inductance.

12. In a signaling system, a circuit, means for supplying energy thereto, a capacity included in said circuit as a frequency-determining element thereof, means for varying the magnitude of said capacity in accordance with a signal to be sent, and means at the receiver responsive to the resulting changes in the frequency of the received energy for reproducing a signal.

13. In a signaling system, a circuit, means for supplying energy thereto, a capacity in said circuit, a variable capacity in parallel with said capacity, and means at the receiver responsive to changes in the frequency of the received energy for reproducing a signal.

14. In a signaling system, an oscillating circuit, means for supplying energy thereto, means for varying the effect of a frequency-determining element of said circuit in accordance with a signal to be sent, and means at the receiver responsive to the resulting changes in the frequency of the received energy for reproducing a signal.

15. In a telephone system, means for generating electroradiant energy, means for varying the frequency of said energy by and in accordance with speech, and means at the receiver responsive to variations in the frequency of the transmitted energy to reproduce speech.

16. In a telephone system, means for generating electroradiant energy of normally practically uniform frequency, means for varying the frequency of said energy by and in accordance with speech, and means at the receiver responsive to variations in the frequency of the transmitted energy to reproduce speech.

17. In a telephone system, a circuit, means for supplying energy thereto, means for varying the natural period of said circuit by and in accordance with speech, and means at the receiver responsive to the resulting changes in the frequency of the received energy for reproducing speech.

18. In a telephone system, an oscillating circuit, means for supplying energy thereto, a telephone-transmitter as means for varying the natural period of said circuit, and means at the receive responsive to the resulting changes in the frequency of the received energy for reproducing speech.

19. In a telephone system, an oscillating circuit, means for supplying energy thereto, a capacity in said circuit, and means for varying the capacity of said circuit by and in accordance with speech, and means at the receiver responsive to the resulting changes in the frequency of the received energy for reproducing a signal.

20. In a telephone system, a radiating-conductor, an oscillating circuit in inductive relation therewith, means for supplying energy to said oscillating circuit, means for varying the natural period of said circuit by and in accordance with speech, and means at the receiver responsive to variations in the frequency of the transmitted energy to reproduce speech.

21. In a telephone system, a transmitting-station comprising means for generating electroradiant energy and means for modifying the frequency of said energy in accordance with speech, and a receiving-station, the latter comprising a receiving-conductor, and means responsive to variations in the frequency of the received electroradiant energy for reproducing speech.

22. In a telephone system, a transmitter of electroradiant energy, means for modifying the frequency of said energy in accordance with speech, a receiving-conductor, an inductance associated therewith, and means responsive to the varying potentials at the terminals of said inductance for reproducing speech.

23. In a signaling system, means for generating electroradiant energy, means for modifying the frequency of said energy in accordance with a signal, a receiving apparatus comprising a receiving-conductor, and means responsive to variations in the frequency of the received energy for reproducing a signal.

24. In a telephone system, means for generating electroradiant energy of practically uniform frequency, means for varying the frequency of said energy by and in accordance with speech, a receiving-conductor, a self-restoring wave-responsive device subjected to the effects of the varying frequency of the received energy and a telephone-receiver controlled by said wave-responsive device.

25. In a telephone system, means for generating electroradiant energy, means for modifying the frequency of said energy by and in accordance with speech, a receiver comprising a conductor, an inductance associated therewith, a self-restoring wave-responsive device subjected to the effects of varying potential differences at the terminals of said inductance, and a local telephone-circuit controlled by said wave-responsive device.

26. In a telephone system, means for generating electroradiant energy, means for modifying the frequency of said energy by and in accordance with speech, a receiver comprising a conductor, an inductance associated therewith, a plurality of self-restoring wave-responsive devices arranged in parallel series and connected across the terminals of said inductance, and a local telephone-circuit controlled by said wave-responsive devices.

27. In a telephone system, means for generating electroradiant energy, means for modifying the frequency of said energy by and in accordance with speech, a receiver comprising a plurality of wave-responsive devices arranged in series and in parallel, means for applying to the terminals of said wave-responsive devices the varying potentials due to the varying frequency of the received electroradiant energy, and a local telephone-circuit including said wave-responsive devices.

28. In a telephone system, means for generating electroradiant energy, means for varying the frequency of said energy by and in accordance with speech, and means at the receiver responsive to variations in the frequency of the received energy for reproducing speech comprising a self-restoring wave-responsive device, and a telephone-circuit controlled by said wave-responsive device.

29. In a wireless signaling system, means for generating electrical energy, means for impressing said energy upon an oscillating circuit, means for varying the effect of a frequency-determining element of such circuit in accordance with a signal to be sent, means for impressing the energy upon the natural media, and means at the receiver responsive to variations in frequency for reproducing a signal.

30. In a wireless signaling system, means for generating electroradiant energy, means for modifying the frequency of said energy in accordance with a signal, a receiver responsive to variations in the frequency of the received energy, comprising an inductance, and a wave-responsive device subjected to the varying potentials existing at the terminals of said inductance.

31. In a wireless signaling system, means for generating electroradiant energy, means for modifying the frequency of said energy in accordance with a signal, a receiver responsive to variations in the frequency of the received energy, comprising an inductance, and a plurality of wave-responsive devices in series-parallel grouping, subjected to the varying potentials existing at the terminals of said inductance.

32. In wireless telephony, means for generating electroradiant energy, means for modifying the frequency of said energy in accordance with speech, a receiver responsive to variations in frequency of the received energy, comprising a receiving-conductor, a self-restoring wave-responsive device associated therewith and subjected to the effects of the varying frequency of the received energy, and a telephone-receiver included in a circuit controlled by said wave-responsive device.

33. In wireless telephony, means for generating electroradiant energy, means for modifying the frequency of said energy in accordance with speech, a receiver responsive to the varying effects of the received energy comprising a self-restoring wave-responsive device, a circuit controlled thereby, and a telephone-receiver included in said circuit.

34. In a signaling system, means for generating electroradiant energy, and means for varying the frequency of said energy in accordance with a signal to be sent.

35. In a signaling system, means for generating electroradiant energy, and means for varying the frequency of said energy by and in accordance with speech.

36. In a signaling system, means for generating trains of electroradiant energy-waves, the rate of succession of said wave-trains being high as compared with the frequency found in speech, and means for varying the frequency of said waves by and in accordance with speech.

37. In a signaling system, transmitting apparatus comprising an oscillating circuit for impressing electroradiant energy upon the natural media, and a telephone-transmitter for varying the effect of a frequency-determining element of said oscillating circuit, whereby the frequency of the electroradiant energy varies in accordance with speech.

38. In a signaling system, a source of primary electrical energy, means for converting said energy into electroradiant energy, and means for varying the frequency of said electroradiant energy in accordance with the signal to be sent, said frequency variation being effected without interrupting or breaking the continuity of said primary energy.

39. In a signaling system, a radiating-conductor, an oscillating circuit associated therewith, means for supplying energy to said oscillating circuit, and means for changing the frequency of the radiated energy in accordance with a signal to be sent.

40. In a signaling system, a radiating-conductor, an oscillating circuit inductively connected therewith, means for supplying energy to said oscillating circuit, and means for changing the frequency of the radiated energy in accordance with a signal to be sent.

41. In a telephone system, a radiating-conductor, an oscillating circuit associated therewith, means for supplying energy to said oscillating circuit, and means for varying the frequency of the radiated energy by and in accordance with speech.

42. In a telephone system, a radiating-conductor, an oscillating circuit associated therewith, means for supplying energy to said oscillating circuit, and a telephone-transmitter for controlling the frequency of the radiated energy by and in accordance with speech.

43. In a telephone system, a radiating-conductor, an oscillating circuit associated therewith, and means for supplying electrical energy to said oscillating circuit, all in combination with a telephone-transmitter which controls the frequency of the electrical energy existing in said oscillating circuit.

44. In a telephone system, a radiating-conductor, an oscillating circuit inductively connected therewith, means for supplying electrical energy to said oscillating circuit, all in combination with a telephone-transmitter for controlling the frequency of the electrical energy existing in said oscillating circuit.

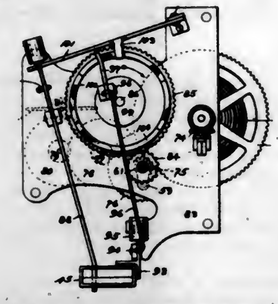
45. In a telephone system, a radiating-conductor, an oscillating circuit associated therewith, means for supplying electrical energy to said oscillating circuit, a telephone-transmitter for controlling the frequency of the radiated energy, a receiving-conductor, a self-restoring wave-responsive device associated therewith, and a telephone-receiver included in a circuit with said wave-responsive device.

46. In a telephone system, a radiating-conductor, an oscillating circuit in inductive relation therewith, means for supplying electrical energy to said oscillating circuit, a telephone-transmitter for controlling the frequency of the radiated energy, a receiving-conductor, a self-restoring wave-responsive device associated therewith, and a telephone-receiver included in a circuit with said wave-responsive device.

785,805. VENDING-MACHINE.

CHARLES T. FRANTZ, Chicago, Ill., assignor, by mesne assignments, to The National Vending-Machine Company, a Corporation of Maine.

Filed Sept. 23, 1902. Serial No. 124,340.



Claim.—1. In an automatic vending-machine, in combination, a motor provided with a stationary coin-chute, a trip-lever passing through a slot in said chute and operated by the coin within said chute, means for discharging said coin from said chute, and means operating intermittently to sustain said trip-lever in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

2. In an automatic vending-machine, in combination, a motor provided with a stationary coin-chute, a trip-lever operated by the coin within said chute, means for discharging said coin from said chute, and means operating intermittently to retain said trip-lever in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

3. In an automatic vending-machine, in combination, a motor provided with a stationary coin-chute, a trip-lever operated by the coin within said chute, a gateway and gate adapted to discharge said coin from said chute, and means operating intermittently to sustain said trip-lever in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

4. In an automatic vending-machine, in combination, a motor provided with a stationary coin-chute, a trip-lever operated by the coin within said chute, means for discharging said coin from said chute, an accessory lever adapted to retain said trip-lever in its release position for a succession of different and definitely-limited periods so as to effect definite multiple discharge of the vended acticles at regular periodic intervals in the succession of coins deposited, and cams irregularly arranged and adapted to actuate said accessory lever and aforesaid means for discharging the coin, substantially as specified.

5. In an automatic vending-machine, in combination, a motor provided with a stationary coin-chute, a trip-lever passing through a slot in said chute and operated by the coin within said chute, a gateway and gate adapted to discharge said coin from said chute, an accessory lever adapted to retain said trip-lever in its release position for a succession of different and definitely-limited periods so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, and cams irregularly arranged and adapted to actuate said gate and said accessory lever, substantially as specified.

6. In an automaltc vending-machine, in combination, a motor adapted to operate automatically upon the deposit of proper coins in the machine, means for discharging the articles vended, means for controlling the acceleration of said motor, a coin-actuated trip device, and means intermittently cooperating with said trip device to effect a definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

7. In an automatic vending-machine, in combination, a motor adapted to automatically discharge the articles vended upon the deposit of proper coins in the machine, and automatic cam-operated mechanism whereby definite multiple discharge, induced and determined by said cam action, is effected at regular periodic intervals in the succession of coins deposited, substantially as specified.

8. In an automatic vending-machine, in combination, a motor provided with a coin-actuated trip-lever, and means operating intermittently to sustain said trip-lever in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

9. In an automatic vending-machine, in combination, a motor provided with a coin-actuated trip-lever, and irregularly-disposed cams whereby said trip-lever is sustained in its release position for a succession of different and definitely-limited periods, so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

10. In an automatic vending-machine, in combination, a motor provided with a coin-actuated trip-lever, an accessory lever adapted to sustain said trip-lever in its release position, and a system of cams whereby said accessory lever is actuated for a succession of different and definitely-limited periods, so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

11. In an automatic vending-machine, in combination, a motor provided with a coin-actuated trip-lever, an accessory lever adapted to sustain said trip-lever in its release position, and a rotary cam-wheel geared to the motor-shaft and adapted to actuate said accessory lever for a succession of different and definitely-limited periods, so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

12. In an automatic vending-machine, mechanism adapted to discharge the articles vended, and, coöperating therewith, a system of irregularly-disposed controlling-cams whereby definite multiple discharge of the said articles is effected at regular periodic intervals in the succession of coins deposited, substantially as specified.

13. In an automatic vending-machine, in combination, ejecting means for discharging the articles vended, a motor adapted to automatically actuate said ejecting means, a coin-actuated trip device adapted to be moved to release said motor, and means operating intermittently to sustain said trip device in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

14. In an automatic vending-machine, in combination, motor-actuated ejecting means for discharging the vended articles, and coin-actuated mechanism adapted to release said ejecting means intermittently to multiply separate non-continuous movements thereof so as to effect definite multiple discharge at regular periodic intervals in the succession of coins deposited, substantially as specified.

15. In an automatic vending-machine, in combination, a motor provided with a coin-actuated trip device, means whereby said trip device is sustained in its release position for a succession of definitely limited periods, and a cam whereby said trip device is intermittently-sustained for a longer period so as to effect definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

16. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to discharge the vended articles by reciprocatory strokes, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to multiply the reciprocatory strokes thereof so as to effect definite multiple discharge at regular periodic intervals in the succession of coins deposited, substantially as specified.

17. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to discharge the vended articles by horizontal movements, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to mul-

tiply the horizontal movement thereof so as to effect definite multiple discharge at regular periodic intervals in the succession of coins deposited, substantially as specified.

18. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to separately discharge the vended articles from a plurality of separate magazines, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to multiply the said separate movements thereof so as to effect definite multiple discharge at regular periodic intervals in the succession of coins deposited, substantially as specified.

19. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to completely discharge each vended article before removing the next one from its magazine, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to multiply the said complete movements thereof so as to effect definite multiple discharge at regular periodic intervals in the succession of coins deposited, substantially as specified.

20. In an automatic vending-machine, in combination, a delivery mechanism, a trip mechanism adapted to be released upon the deposit of a coin, and means operating intermittently to retain said trip mechanism in its release position during a given number of successive operations of the said delivery mechanism, so as to allow definite multiple discharge of the vended articles at regular periodic intervals in the succession of coins deposited, substantially as specified.

21. In an automatic vending-machine, in combination, a motor adapted to operate automatically upon the deposit of proper coins in the machine, means for discharging the articles vended, means for controlling the acceleration of said motor, a coin-actuated trip device, and means cooperating with said trip device and adapted to multiply successive movements of said discharging means so as to effect definite multiple discharge upon the deposit of a coin, substantially as specified.

22. In an automatic vending-machine, in combination, a motor provided with a stationary coin-chute, a trip-lever operated by the coin within said chute, means for discharging said coin from said chute, and means operating intermittently to retain said trip-lever in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at intervals in the succession of coins deposited, substantially as specified.

23. In an automatic vending-machine, in combination, a motor provided with a coin-actuated trip-lever, and means operating intermittently to sustain said trip-lever in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at intervals in the succession of coins deposited, substantially as specified.

24. In an automatic vending-machine, in combination, ejecting means for discharging the articles vended, a motor adapted to automatically actuate said ejecting means, a coin-actuated trip device adapted to be moved to release said motor, and means operating intermittently to sustain said trip device in its release position for a lengthened period so as to effect definite multiple discharge of the vended articles at intervals in the succession of coins deposited, substantially as specified.

25. In an automatic vending-machine, in combination, motor-actuated ejecting means for discharging the vended articles, and coin-actuated mechanism adapted to release said ejecting means and intermittently to multiply separate non-continuous movements thereof so as to effect definite multiple discharge at intervals in the succession of coins deposited, substantially as specified.

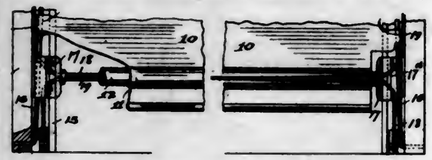
26. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to discharge the vended articles by reciprocatory strokes, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to multiply the reciprocatory strokes thereof so as to effect definite multiple discharge at intervals in the succession of coins deposited, substantially as specified.

27. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to discharge the vended articles by horizontal movements, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to multiply the horizontal movement thereof so as to effect definite multiple discharge at intervals in the succession of coins deposited, substantially as specified.

28. In an automatic vending-machine, in combination, motor-actuated ejecting means adapted to completely discharge each vended article before removing the next one from its magazine, and coin-actuated mechanism adapted automatically to release said ejecting means and intermittently to multiply the said complete movements thereof so as to effect definite multiple discharge at intervals in the succession of coins deposited, substantially as specified.

29. In an automatic vending-machine, in combination, a delivery mechanism, a trip mechanism adapted to be released upon the deposit of a coin, and means operating intermittently to retain said trip mechanism in its release position during a given number of successive operations of the said delivery mechanism, so as to allow definite multiple discharge of the vended articles at intervals in the succession of coins deposited, substantially as specified.

785,806. **CURTAIN-FIXTURE.** CHARLES L. HOPKINS, Chicago, Ill., assignor to The Curtain Supply Company, Newark, N. J., a Corporation of New Jersey. Filed June 13, 1904. Serial No. 212,365.



Claim.—1. The combination of a curtain-stick, a guideway adjacent to the curtain-stick having overhanging retaining-flanges, a head carried by the stick having an enlarged portion within the guideway and a reduced portion between the flanges of said guideway, and a squaring-cord having a portion of its length within the guideway and adapted to enter the stick.

2. The combination of a stick, a groove adjacent to the end thereof having overhanging flanges, a head at the end of the stick extending into the groove between the flanges and having an enlarged portion within the groove, and squaring-cords for preventing tilting of the stick.

3. The combination of a stick, a groove adjacent to the end thereof having retaining-flanges, a head at the end of the stick extending into the groove between the flanges thereof and having an enlarged portion within the groove, and squaring-cords for maintaining the stick in a horizontal position.

4. The combination of a stick, a guideway adjacent to the end of the stick having overhanging retaining-flanges, a head at the end of the stick extending into the guideway, said head having an enlarged portion within the guideway and a reduced portion between the flanges of said guideway, and flexible guiding members for guiding the stick.

5. The combination of a curtain-stick, a guideway adjacent to the curtain-stick having an overhanging retaining-flange, a head carried by the stick having an enlarged portion within the guideway and a reduced portion adjacent to the flange of said guideway, and a squaring-cord having a portion of its length within the guideway and adapted to enter the stick.

6. The combination of a stick, a groove adjacent to the end thereof having a retaining-flange, a head at the end of the stick extending into the groove and having an enlarged portion within the groove, and squaring-cords for maintaining the stick in a horizontal position.

7. The combination of a stick, a guideway adjacent to the end of the stick having an overhanging retaining-flange, a head at the end of the stick extending into the guideway, said head having an enlarged portion within the guideway and a reduced portion adjacent to the flange of said guideway, and flexible guiding members for guiding the stick.

8. The combination of a curtain-stick and curtain, a guideway adjacent to the curtain-stick having an overhanging retaining-flange, a head carried by the stick having an enlarged portion within the guideway and a reduced portion adjacent to the flange of said guideway, a squaring-cord having a portion of its length within the guideway and adapted to enter the stick, and means for preventing withdrawal of the edges of the curtain from the guideway.

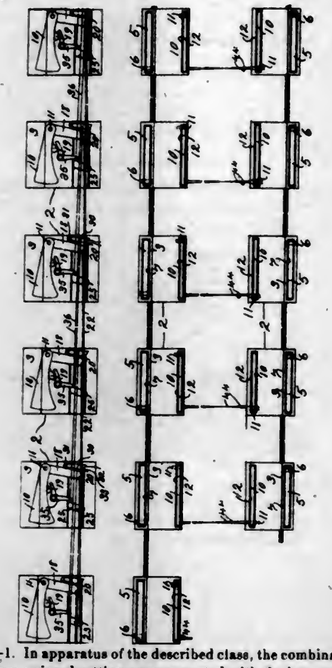
9. The combination of a stick and a curtain, a groove adjacent to the end thereof having a retaining-flange, a head at the end of the stick extending into the groove and having an enlarged portion within the groove, squaring-cords for maintaining the stick in horizontal position, and means for preventing withdrawal of the edges of the curtain from the guideway.

10. The combination of a stick and curtain, a guideway adjacent to the end of the stick having an overhanging retaining-flange, a head at the end of the stick extending into the guideway, said head having an enlarged portion within the guideway and a reduced portion adjacent to the flange of said guideway, flexible guiding members for guiding the stick, and means for preventing withdrawal of the edges of the curtains from the guideway.

11. In combination with a guideway, a curtain, a rod engaging the side edge of the curtain to prevent its withdrawal from the guideway, and a squaring-cord for preventing uneven movement of the lower edge of the curtain, said guideway being formed for the reception of both said rod and squaring-cord.

12. In combination with a curtain, instrumentalities for preventing withdrawal of the side edge thereof from its guideway and for preventing uneven movement of the lower edge of the same, and the guideway formed for the reception of said instrumentalities.

785,807. **BLOCK-SIGNAL SYSTEM FOR RAILWAYS.** AUGUST HORSTSCHAFER, Milwaukee, Wis. Filed Aug. 17, 1904. Serial No. 221,011.



Claim.—1. In apparatus of the described class, the combination of a signal-box; a signal-setting arm connected with the box and arranged to project normally therefrom in a raised position and with an angular pitch along the trackway; a signal-conveying arm connected with said box and normally in lowered position; and mechanism for raising the signal-conveying arm to an angular position and with a pitch in the opposite direction from that of the signal-setting arm.

2. In apparatus of the described class, the combination of a signal-box; a signal-setting arm connected with the box and arranged to project normally therefrom in a raised position and with an angular pitch along the trackway; a signal-conveying arm connected with said box and normally in lowered position; and mechanism for raising the signal-conveying arm to an angular position and with a pitch in the opposite direction from that of the signal-setting arm; together with means for locking the signal-setting and signal-conveying arms when out of normal position; and means for unlocking said arms from a distant point.

3. In apparatus of the described class, the combination with a railway-track, of a series of signal-boxes arranged at the side thereof; a set of movable signal-setting and signal-conveying arms pertaining to each box and adapted to project angularly in opposite directions and along the trackway; motion-transmitting connections between the signal-setting arm of each box and the signal-conveying arms of other boxes; said arms being adapted to be adjusted in position for contacting with coöperative devices carried by vehicles on the track.

4. In apparatus of the described class, the combination with a railway-track; of a series of signal-boxes arranged along the trackway; movable signal-setting and signal-conveying arms pertaining to each box and adapted to project angularly in opposite directions along the trackway; motion-transmitting connections between the signal-setting arm of each box and the signal-conveying arms of distant boxes; and devices carried by moving vehicles on the track for contacting with the signal-setting and signal-conveying arms respectively; together with connections pertaining to each box for maintaining each of said arms in horizontal position when the other arm is raised.

5. In apparatus of the described class, the combination with a railway-track, of a series of signal-boxes at each side thereof; each such box being provided with signal-setting and signal-conveying arms adapted to project angularly from the box in opposite directions and at different levels; levers in each box adapted to move the signal-conveying arm thereof to operative position; connections between one such lever and the signal-setting arm of another box in the same series; and connections between another such lever and the signal-setting arm of a box in the other series; whereby movements of the signal-setting arms of either series, are transmitted to signal-conveying arms in both series.

6. In apparatus of the described class, the combination with a railway-track, of a series of signal-boxes at each side thereof; each such box being provided with signal-setting and signal-conveying arms adapted to project angularly from the box in opposite directions and at different levels; levers in each box adapted to move the signal-conveying arm thereof to operative position; connections between one such lever and the signal-setting arm of another box in the same series; and connections between another such lever and the signal-setting arm of a box in the other series; whereby movements of the signal-setting arms of either series are transmitted to signal-conveying arms in both series; together with devices, carried by moving vehicles on the track, for locking the signal-setting arms, and the connected signal-conveying arms of some of the boxes in signal-conveying position, and other devices, carried by said vehicles, for receiving such signals.

7. In apparatus of the described class, the combination with a railway-track, of a series of signal-boxes at each side thereof; each such box being provided with signal-setting and signal-conveying arms adapted to project angularly from the box in opposite directions and at different levels; levers in each box adapted to move the signal-conveying arm thereof to operative position; connections between one such lever and the signal-setting arm of another box in the same series; and connections between another such lever and the signal-setting arm of a box in the other series; whereby movements of the signal-setting arms of either series are transmitted to signal-conveying arms in both series; together with devices, carried by moving vehicles on the track, for locking the signal-setting arms, and the connected signal-conveying arms of some of the boxes, in signal-conveying position, and other devices, carried by said vehicles, for receiving such signals, said signal-setting arms of each box being also connected with unlocking devices in other boxes adapted to release signal setting and conveying arms.

8. In apparatus of the described class, the combination with a railway-track, of a series of signal-boxes at each side thereof; each such box being provided with signal-setting and signal-conveying arms adapted to project angularly from the box in opposite directions and at different levels; levers in each box adapted to move the signal-conveying arm thereof to operative position; connections between one such lever and the signal-setting arm of another box in the same series; and connections between another such lever and the signal-setting arm of a box in the other series; together with devices, carried by moving vehicles on the track, for locking the signal-setting arms, and the connected signal-conveying arms of some of the boxes, in signal-conveying position, and other devices, carried by said vehicles, for receiving such signals, said signal-setting arms of each box being also connected with unlocking devices in other boxes adapted to release the signal setting and conveying arms, and each such box being provided with means for automatically restoring said arms to normal position when unlocked.

9. In apparatus of the described class, a signaling-block, comprising two series of signaling-boxes; each box being provided with signal setting and conveying arms, a pair of actuating levers for each signal-conveying arm, a pair of motion-transmitting arms arranged to be actuated by the signal-setting arm, and locking and unlocking mechanisms for the arms; connections between one of said motion-transmitting arms and an actuating-lever of a signal-conveying arm in another box of the same series; connections between

another of said motion-transmitting arms and the unlocking mechanism of a third box in the same series; and motion-transmitting connections between said signal-setting arm and the signal-conveying arm of a box in the other series; together with means for automatically restoring the parts to normal position after the operation of said unlocking mechanism.

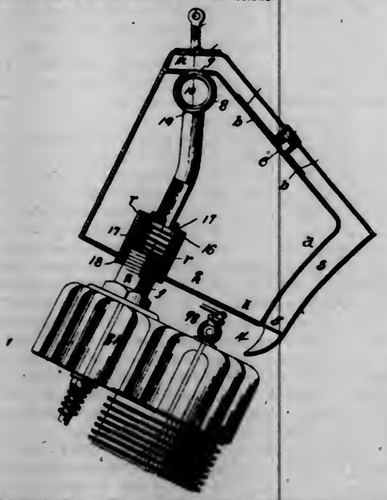
10. In apparatus of the described class the combination with a railway-track, of a series of signal-setting arms arranged in angular positions on each side of the track, with those on one side extending in a direction opposite that of the similar arms on the other side of the track: a series of signal-conveying arms on each side of the track, each adapted to be adjusted to angular positions corresponding in direction of inclination with the signal-setting arms on the other side of the track; and connections between the signal-setting and certain of the signal-conveying arms in the same, and the other series: the signal-setting arms on one side of said track and the connected signal-conveying arms being arranged for simultaneous movement in opposite directions.

11. In apparatus of the described class, the combination with a railway-track, of a series of signal-setting arms arranged in angular positions on each side of the track, with those on one side extending in a direction opposite that of the similar arms on the other side of the track; a series of signal-conveying arms on each side of the track, each adapted to be adjusted to angular positions corresponding in direction of inclination with the signal-setting arms on the other side of the track; and connections between the signal-setting and certain of the signal-conveying arms in the same, and the other series; the signal-setting arms on one side of said track and the connected signal-conveying arms being arranged for simultaneous movement in opposite directions; said signal setting and conveying arms being arranged at different levels, and adapted for contact with different devices carried by vehicles moving on the track.

12. In apparatus of the described class, the combination with a railway-track; of a series of movable signal-setting and signal-conveying arms, arranged in pairs at the side of the track and at different levels; and connections between the signal-setting arms of one pair and the signal-conveying arms of other pairs adapted to communicate a reverse motion from the arms of one kind to those of the other; and means, controlled by the signal-setting arms, for locking and releasing the same and similar arms at the same and distant points.

785,808. CARBURETER FOR HYDROCARBON-ENGINES.

ROBERT M. KEATING, Middletown, Conn., assignor to The R. M. Keating Motor Company, Portland, Me., a Corporation of Maine. Original application filed Dec. 8, 1900, Serial No. 39,174. Divided and this application filed Feb. 8, 1901. Serial No. 46,510.



Claim.—1. In combination with the cylinder-head of a gasolene-engine, a fuel-supply tank arranged above said cylinder, an air-trunk having an open mouth in proximity to the cylinder-head, said trunk extending along one side of the supply-tank and having an opening into the tank, a transverse tube into the tank having openings both into the supply-tank and the air-trunk, a pipe leading from this tube to the engine, and a valve in the transverse tube controlling both the air-supply from the air-trunk and the gas-supply from the tank.

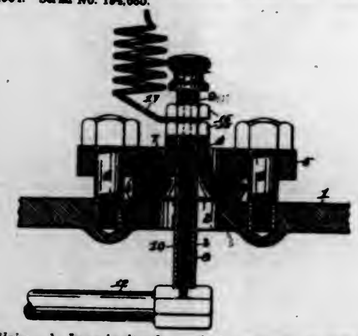
2. In combination with the cylinder-head of a gasolene-engine, the sheet-metal supply-tank arranged above the same to be heated by radiation, an air-trunk extending in contact with one side of the tank and having an open mouth in proximity to the engine-cylinder, a transverse tube in the tank having openings both into the tank and into the air-trunk, both openings adjustably controlled by a single valve, and a pipe connecting said transverse tube to the engine.

3. The combination with the gasolene-tank above the engine-cylinder head, so the gasolene is heated by the radiation from the cylinder, of a hot-air passage extending from near the cylinder-head along one side and the top of the tank, and separate connecting-passages from the tank and hot-air passage to the mixing-chamber, all substantially as described.

4. The gasolene-tank arranged above the engine, a valve in the head of the engine opening toward the gasolene-tank, an air-supply pipe with a mouth near said valve and leading inside the gasolene-tank, said supply-pipe having gauze shields as described, mixing-chamber extending toward the engine, and mechanism for introducing heated air from the supply-pipe and vapor from the gasolene-tank together into the mixing-chamber, all combined substantially as described.

785,809. SPARKING IGNITER FOR EXPLOSIVE-ENGINES.

LOUIS D. KIMMS and GEORGE C. RIDER, Dayton, Ohio. Filed Feb. 23, 1904. Serial No. 194,665.

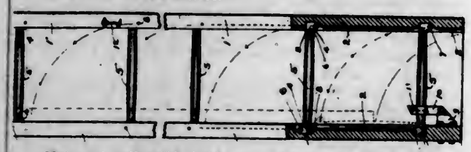


Claim.—1. In an igniter for explosive-engines, the combination with a bridge and means for securing said bridge to the wall of a combustion-chamber, of an exteriorly-screw-threaded electrode-tube mounted in said bridge and projected into the combustion-chamber, an electrode in the form of a rod which is loosely confined within the electrode-tube, a head on the outer end of said rod, and a screw-cap inclosing the outer end of said tube and bearing upon said head to hold it against the outer extreme end of said tube.

2. In an explosive-engine sparking igniter a tubular exteriorly-screw-threaded electrode-holder, an electrode supported therein with its sparking end projected beyond the inner end of said tubular holder and its outer end turned on an angle to engage the upper end of said tubular holder, a screw-cap engaging the upper or exposed end of said tubular holder and binding the end of the electrode firmly in position, substantially as set forth.

785,810. LADDER.

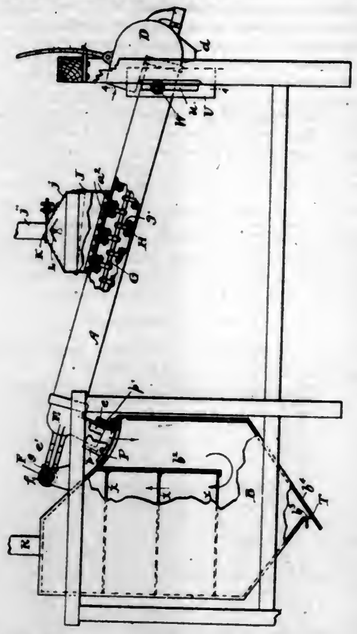
PETER KOOPMAN, Omaha, Nebr. Filed July 19, 1904. Serial No. 217,186.



Claim.—A collapsible ladder comprising grooved side pieces, suitable rounds connecting the side pieces, pivot-blocks on the ends of the rounds, said blocks being pivotally secured to the side pieces and adapted to permit the folding of the side pieces toward each other so as to inclose the rounds in the grooves therein, and a spring-actuated latch secured to one of the side pieces and adapted to engage one of the rounds when the ladder is opened, all substantially as and for the purpose set forth.

785,811. AIR-SEPARATOR.

CHARLES H. LANE, Cleveland, Ohio. Filed Feb. 20, 1904. Serial No. 194,236.



Claim.—1. The combination of an inclined cylinder having, through its top, holes for the admission of the material to be acted upon, a cap secured over the lower end of said cylinder having an admission-opening out of line with the cylinder and having a downwardly-directed discharge-orifice, a cap closing the discharge end of the cylinder and having a discharge-spout out of line with the cylinder, an agitator-shaft in said cylinder passing through said caps and mounted in bearings outside of the caps and rigid therewith, driving means out side of said cylinder for rotating said shaft, agitator-arms secured to the shaft within the cylinder, and means for causing an air-current to flow upwardly through said cylinder, substantially as and for the purpose specified.

2. The combination of an inclined cylinder having through its top holes for the admission of the materials to be acted upon, a cap secured over the lower end of said cylinder, having an admission-opening out of line with the cylinder and having a downwardly-directed discharge-orifice, a cap closing the upper end of the cylinder and having a discharge-spout out of line with the cylinder, an agitator-shaft in said cylinder passing through said caps and mounted in bearings outside of the caps and rigid therewith, a driving-shaft outside of said cylinder, meshing beveled gears secured to it and to the agitator-shaft, arms secured to the cylinder and loosely embracing said driving-shaft, and means for adjusting the other end of said cylinder to various elevations.

3. The combination of an inclined cylinder, a rotating agitator-shaft therein, and agitator-arm secured to said shaft, with a feed-box over said cylinder, there being a plurality of small openings leading from said feed-box to the interior of the cylinder, an inlet-pipe to said feed-box, a deflector-plate below said inlet-pipe, and means for causing air to flow through said cylinder, substantially as and for the purpose specified.

4. The combination of an inclined cylinder, a rotating agitator-shaft therein, and agitator-arm secured to said shaft, with a feed-box over said cylinder, there being a plurality of small openings leading from said feed-box to the interior of the cylinder, an inlet-pipe to said feed-box, and a deflector-plate below said inlet-pipe, and a valve in said inlet-pipe, substantially as and for the purpose specified.

5. The combination of an inclined cylinder having in its top side a plurality of small admission-openings for the material to be acted upon, and having at its lower end an opening for the admission of air, and having its upper end closed by a cap which is provided with a downwardly-extended discharge-tube, and supporting-arms secured to the upper end of the cylinder, with a driving-shaft which is loosely embraced by said arms, an agitator-shaft in said cylinder extending through said cap and operatively connected with the driving-shaft, a settling-box having an inlet-opening through its top, which opening is surrounded by a curved surface, a curved plate adjustably secured upon said curved surface and having a sleeve into which said outlet-pipe is fitted, and a suction-fan acting to withdraw air from said box, and means for supporting the other end of said cylinder at any desired height, substantially as and for the purpose specified.

6. The combination of an inclined cylinder having in its top side a plurality of small admission-openings for the material to be acted upon, and having at its lower end one opening for the admission of air and another for the discharge of the material, and having its other end closed by a cap which is provided with a downwardly-extended discharge-tube, supporting-arms secured to the upper end of the cylinder, a driving-shaft which is loosely embraced by said arms, an agitator-shaft in said cylinder extending through said cap and operatively connected with the driving-shaft, a settling-box having an inlet-opening through its top which opening is surrounded by a curved surface, a curved plate adjustably secured upon said curved surface and having an upwardly-extended sleeve into which said outlet-pipe is fitted, said box having an outlet near its top, a suction-fan connected with said outlet, and a downwardly-extended partition between the inlet and outlet openings of said box whereby the air passing through said box is compelled to dive beneath said partition and then flow upward to the outlet, substantially as and for the purpose specified.

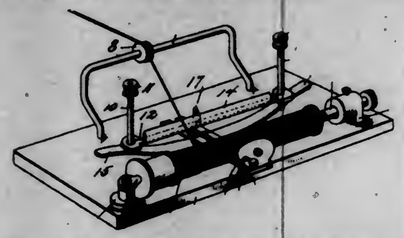
7. The combination of an air-separator cylinder having in its top side a plurality of small admission-openings for the material to be acted upon and having one opening for the admission of air and having its other end closed by a cap which is provided with a downwardly-extended discharge-tube, supporting-arms secured to the upper end of the cylinder, a driving-shaft in said cylinder extending through said cap and operatively connected with the driving-shaft, a settling-box having an inlet-opening through its top which opening is surrounded by a curved surface, a curved plate adjustably secured upon said curved surface and having an upwardly-extended sleeve into which said outlet-pipe is fitted, said box having an outlet near its top, a suction-fan connected with said outlet, and a downwardly-extended partition between the inlet and outlet openings of said box whereby the air passing through said box is compelled to dive beneath said partition and then flow upward to the outlet, a screen secured across the upward path of said air, substantially as and for the purpose specified.

8. The combination of an inclined air-separator cylinder having a recurved open lower end and a downwardly-extended discharge-spout at said end, the upper end of said cylinder being closed by a cap having a downwardly-extended discharge-tube, and said cylinder being also provided with a plurality of small admission-orifices through its upper side, with a rotatable agitator-shaft extending axially through said cylinder and projecting from the ends thereof and mounted in bearings outside of the cylinder but rigid therewith, and means for causing an upwardly-flowing current of air through said cylinder, substantially as and for the purpose specified.

9. The combination of a plurality of separably-connected air-separator cylinders having openings through their tops for the admission of the pulverized material to be treated and having recurved open lower ends and having downwardly-extended discharge-tubes at their upper ends, agitator-shafts in said cylinders, settling-boxes into which said discharge-tubes severally discharge, and means for withdrawing the air from said boxes, substantially as and for the purpose specified.

10. The combination of a plurality of inclined parallel cylinders connected together, each having at its lower end an opening for the admission of air, and having at its upper end an air-discharge spout, clamping-rings secured upon said cylinders and connected together, a horizontal driving-shaft on which the upper ends of said cylinders are swingingly supported, and a rotating agitator-shaft in each cylinder carrying agitator-arms, meshing beveled gears secured to said driving-shaft and agitator-shafts, and means for supporting the lower ends of said cylinders at any desired elevation, substantially as and for the purpose specified.

785,812. **BOBBIN-WINDER.** ROLAND H. LEGG, Carthage, Mo. Filed Mar. 7, 1904. Serial No. 197,094.



Claim.—1. The combination with bobbin supporting and revolving means, of a spring-pressed thread-cutter, a catch for holding the cutter, a catch-releasing lever, and an adjustable disk or plate carried by the lever and disposed in position adjacent to the thread.

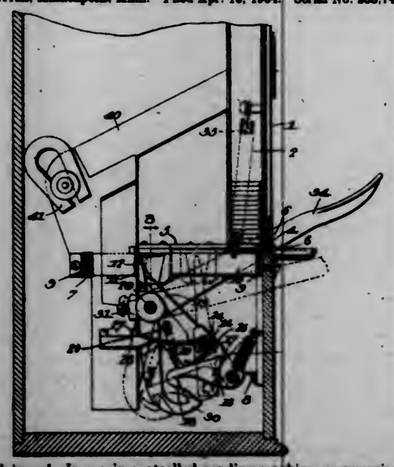
2. The combination with bobbin supporting and rotating means, of a knife, means for impelling the same in the direction of the thread, a catch for holding the knife, a lever for releasing the catch, a disk having an adjustable connection with the lever and disposed in position to be engaged by the thread on the bobbin, and a screw carried by the lever and serving as an adjusting means for the disk.

3. The combination with bobbin supporting and rotating means, a knife-carrier, knife-guiding posts, removable stops at the ends of the posts for limiting movement of the knife, a spring for impelling the knife-carrier in the direction of the thread, a catch for holding the knife, and means for releasing said catch.

4. The combination with bobbin supporting and rotating means, of a knife-carrier, vertically-disposed guiding-posts for the knife-carrier, said posts having threaded upper ends, nuts arranged on the threaded ends of the posts, a knife supported by the carrier, a spring for moving the knife-carrier in the direction of the thread, a catch for engaging the knife-carrier, and means for automatically releasing said catch and permitting movement of the knife into engagement with the thread.

5. The combination with bobbin supporting and rotating means, of a thread-cutting knife, means for impelling the knife toward the thread, a catch for holding the knife, a thread-engaged lever for releasing the catch, and means adjustable into the path of movement of said lever for preventing outward movement of the latter to an extent sufficient to release the catch.

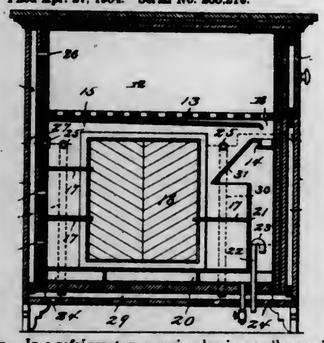
785,813. **COIN-CONTROLLED VENDING-MACHINE.** JOHN LITTLE, Minneapolis, Minn. Filed Apr. 18, 1904. Serial No. 203,743.



Claim.—1. In a coin-controlled vending-machine, a magazine, a delivery-slide, a delivery-slide-engaging lever fulcrumed at a point intermediate of its length, a pivotally-mounted latch carried by said lever, a spring tending to maintain the latch in inoperative position, a spring for restoring the lever and slide to initial position, a rock-shaft, an operating-lever connected thereto, a hooked rocker-arm secured to the rock-shaft and arranged to be engaged by the latch, a pivotally-mounted sleeve, a cam-arm carried thereby and resting on the latch, a coin-chute, and an arm secured to the sleeve and provided at its free end with a coin-receiving pocket for the reception of coins deposited in said chute.

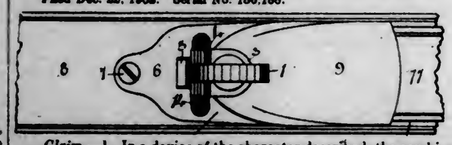
2. The combination with a rock-shaft, of an operating-lever secured thereto, a plurality of magazines or reservoirs, a plurality of slides for said magazines or reservoirs, a transverse shaft or bar arranged parallel with the operating-shaft, a series of operating-levers pivotally mounted on said transverse shaft, there being one of such levers for each of the said slides, a recessed lug carried by each slide and serving to receive one of the levers, a spring engaging the lower end of each lever and serving to restore the slide and lever to initial position, a latch carried by the lower end of each lever, springs for holding the latches in inoperative position, a plurality of hook-shaped rocker-arms carried by the shafts and arranged to be engaged by the latches, a plurality of sleeves mounted on said transverse shaft, a cam secured to each sleeve and in engagement with one of the latches, levers projecting from the sleeves and formed of an inherently-elastic material, coin-receiving pockets disposed at the outer ends of said levers, and a cross-bar arranged adjacent to the rock-shaft and serving by engagement with such inherently-elastic levers to disengage the coins from the pockets.

785,814. **REFRIGERATOR.** JOSEPH W. MALLETT, Terre Haute, Ind. Filed Apr. 27, 1904. Serial No. 205,216.



Claim.—In a refrigerator, a casing having walls provided with air-spaces and a bottom provided with an air-space separated from the air-spaces in the walls, an ice-chamber and a cooling-chamber within said casing, apertures in the walls connecting the ice-chamber and the cooling-chamber with the wall air-spaces, ducts extending through the wall air-spaces and connecting the upper end of the cooling-chamber with the air-space in the bottom, apertures in the bottom connecting the bottom air-space with the outer atmosphere, an inclosed water-receptacle disposed in the bottom of the cooling-chamber and having an upward extension adjacent to one of the side walls, a drippings-trough disposed above said upward extension to convey the drippings from the ice-chamber into said upward extension of the water-receptacle, a drainage-pan below the ice-chamber and discharging into the drippings-trough, a deflector extending from said drippings-trough downwardly into the cooling-chamber, and an overflow-pipe extending through the bottom and through the air-chamber in said bottom into the upward extension of the water-receptacle and terminating in a bent portion forming a seal.

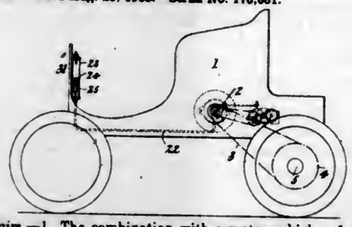
785,815. **HARNESS-PAD.** GEORGE E. MARTIN, Ceresco, Nebr. Filed Dec. 22, 1903. Serial No. 136,188.



Claim.—1. In a device of the character described, the combination of the following instrumentalities to wit: a holder provided with an upper perforated ear portion near one end, and a perforated bottom portion near the opposite end, a projecting pin extending from the bottom of said holder, flanges projecting upward from said holder, a perforated cap provided with inwardly-extending lugs, said lugs being adapted to work below the ends of said flanges, a pad, said holder being secured at the ear end to said pad, a nut secured to said pad, and a screw passing through the bottom of said holder and into the nut secured to said pad.

2. The combination with a suitable harness-pad, of a holder secured to said pad, said holder being provided near one end with a perforated ear, intermediately with an opening, and at the remaining end with upwardly-extending flanges, a screw passing through aforesaid perforated ear and entering said pad, a second screw passing through the bottom of said holder and being suitably secured to aforesaid pad, a pin extending upward from the bottom of said holder, a cap provided with an opening registering with aforesaid intermediate opening, lugs secured to said cap adapted to work below aforesaid flanges, and a screw-provided terret-ring adapted to pass through said cap, holder, and adapted to thread into aforesaid pad, all arranged substantially as and for the purpose set forth.

785,816. **INDICATING APPARATUS FOR MOTOR-VEHICLES.** DAVID MASON, New York, N. Y., assignor to John A. Woods, Brooklyn, N. Y. Filed Aug. 25, 1903. Serial No. 170,681.



Claim.—1. The combination with a motor-vehicle, of a visual speed-indicator consisting in part of a transparent tube, a flexible liquid-containing bag, pipe-connected with said tube, a governor operatively connected with the motor of the vehicle, and means actuated by said governor for compressing said bag and for forcing the liquid therefrom into the transparent tube.

2. In an apparatus of the character described, the combination with a driven shaft, of a sleeve longitudinally movable on said shaft, a governor having a connection with said sleeve and arranged to move the same longitudinally, a disk secured to the sleeve and adapted to partake of the longitudinal movement thereof, guides for said disk, a fixed disk, a compressible liquid-containing bag located between said disks, and a transparent sight-tube pipe-connected with the bag, substantially as described.

3. In an apparatus of the character described, the combination with a driven shaft and a governor operatively connected thereto, of an annular liquid-holder of compressible material surrounding said shaft and containing a liquid, a fixed and a movable plate between which the liquid-holder is located, a transparent sight-tube having communication with the liquid-holder and constituting a visual indicator, and means actuated by the governor for moving said movable plate to and from the fixed plate and for compressing the said holder to force the liquid therefrom into the sight-tube.

4. In an apparatus of the character described, the combination with a driven shaft, of a sleeve longitudinally movable on said shaft, a governor having a connection with said sleeve and arranged to move the same longitudinally, a disk secured to the sleeve and adapted to partake of the longitudinal movements thereof, guides for said disk, a fixed disk, an annular compressible liquid-containing bag located between said disks and surrounding the sleeve, and a transparent sight-tube pipe-connected with the said bag, the parts operating in the manner and for the purpose described.

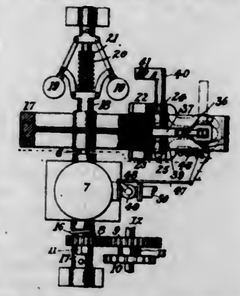
5. In an apparatus of the class described, the combination with a driven shaft and a governor operatively connected thereto, of a flexible bag containing a liquid, a transparent sight-tube having communication with said bag and constituting a visual indicator, means operated by the said governor for forcing the liquid from the bag into the said transparent tube, and an audible signal controlled in its operation by the liquid in the tube.

6. In an apparatus of the class described, the combination with a driven shaft and a governor operatively connected thereto, of a flexible liquid-containing bag, a transparent sight-tube having communication with said bag and constituting a visual indicator, and means operated by said governor for collapsing the said flexible bag to force the liquid therefrom into the sight-tube.

7. In an apparatus of the class described, the combination with a driven shaft and a governor operatively connected thereto, of a flexible liquid-containing bag, a fixed and a movable plate between which the bag is located, a transparent sight-tube having communication with the bag and constituting a visual indicator, and means actuated by the governor for moving said movable plate to and from the fixed plate and for compressing the flexible bag to force the liquid therefrom into the said sight-tube.

8. The combination with a motor-vehicle, of a driving-shaft therefor, a sleeve longitudinally movable on the said driving-shaft, a disk adapted to partake of the longitudinal movement of the said sleeve, an annular elastic liquid-holder surrounding said sleeve and adapted to be compressed or released by the movements of the disk, and an indicating device consisting of a vertical transparent tube-pipe connected with the said liquid-holder.

785,817. **CONTROLLING APPARATUS FOR MOTOR-VEHICLES.** DAVID MASON, New York, N. Y., assignor to John A. Woods, Brooklyn, N. Y. Filed Aug. 25, 1903. Serial No. 170,682.



Claim.—1. In mechanism of the character described, the combination with a driven shaft, and a governor actuated thereby, of a motor, a spring-impelled rotatable shaft, means normally acting to hold the latter-named shaft against rotation, means actuated by the governor for releasing the said holding means to permit the spring-impelled shaft to rotate, and means operated by said spring-impelled shaft for controlling the supply of motive energy to the motor.

2. In mechanism of the character described, the combination with a driven shaft, and a governor actuated thereby, of a motor, a spring-impelled rotatable shaft, a lever pivoted to said latter-named shaft, means controlled by the governor for holding and releasing said lever to control the rotation of the spring-impelled shaft, and means actuated by the rotation of the latter-named shaft for controlling the supply of motive energy to the motor.

3. In mechanism of the character described, the combination with a driven shaft and a governor actuated thereby, of a motor, a spring-impelled rotatable shaft, means normally acting to hold the latter-named shaft against rotation, means actuated by the governor for releasing the said holding means to permit the spring-impelled shaft to rotate, a valve for controlling the supply of motive fluid to the motor, and means operated by the said spring-impelled shaft for actuating the said valve.

4. In mechanism of the character described, the combination with a driven shaft and a governor operated thereby, of a motor, a spring-impelled shaft provided with a projecting catch, means normally acting to hold said shaft against rotation, means actuated by the governor for releasing said holding means to permit the spring-impelled shaft to rotate, a valve for controlling the supply of motive fluid to the motor, and a pivoted lever having a connection at one end with the valve and having its other end lying in the path of movement of the catch on the spring-impelled shaft, for the purpose specified.

5. In mechanism of the character described, the combination with a driven shaft, of a brake-wheel and a governor on said shaft, pivoted brake-shoes adapted to be brought into contact with opposite sides of the rim of said brake-wheel, restraining means normally acting to hold said brake-shoes out of contact with the brake-wheel, and means actuated by the governor for releasing said restraining means to permit the brake-shoes to act when the driven shaft exceeds a predetermined rate of speed.

6. In mechanism of the character described, the combination with a driven shaft, of a brake-wheel and a governor, on said shaft, a brake-shoe pivoted on each side of the brake-wheel and normally

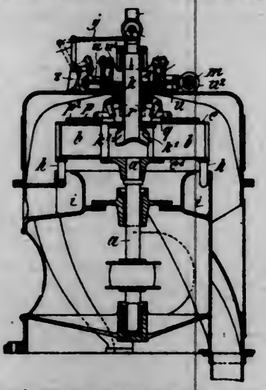
held out of contact therewith, each brake-shoe having a rearwardly-extending arm, a spring-impelled rotary cam embraced by said arms, means normally acting to hold said cam against rotation, and means actuated by the governor for releasing said cam-holding means to permit the cam to rotate whereby the brake-shoes will be brought into contact with the brake-wheel when the driven shaft exceeds a predetermined rate of speed.

7. In mechanism of the character described, the combination with a driven shaft, of a brake-wheel and a governor on said shaft, a pair of pivoted brake-shoes adapted to be brought into contact with opposite sides of the brake-wheel, but normally held out of contact therewith, each brake-shoe having a rearwardly-extending arm, a spring-impelled rotatable shaft, a cam on said shaft embraced by said rearwardly-extending arms, means normally acting to hold said shaft and its cam against rotation, and means actuated by the governor for releasing said shaft-holding means to permit the cam to rotate, whereby the brake-shoes will be brought into contact with the brake-wheel when the driven shaft exceeds a certain predetermined rate of speed.

8. In mechanism of the character described, the combination with a driven shaft, of a brake-wheel and a governor on said shaft, a pair of pivoted brake-shoes adapted to be brought into contact with opposite sides of the brake-wheel, but normally held out of contact therewith, each brake-shoe having a rearwardly-extending arm, a spring-impelled rotatable shaft, a cam on said shaft embraced by said rearwardly-extending arms, an arm on said spring-impelled shaft, means engaging said last-named arm to normally hold the spring-impelled shaft and its cam against rotation, and means actuated by the governor for releasing said arm-engaging means to permit the spring-impelled shaft with its cam to rotate, whereby the brake-shoes will be forced into contact with the brake-wheel when the driven shaft exceeds a certain predetermined rate of speed.

9. In mechanism of the character described, the combination with a driven shaft, of a brake-wheel and a governor on said shaft, a brake device adapted to be brought into contact with said brake-wheel, but normally held from contact therewith, a spring-impelled rotary shaft carrying a cam adapted to actuate said brake device, a pivoted arm on said rotary shaft, a rotatable sleeve having a seat therein to receive said pivoted arm and hold the latter against lateral movement and the rotary shaft against rotation, and means actuated by the governor for rotating the sleeve to free the pivoted arm from its seat whereby the spring-impelled shaft will be free to rotate and cause the cam to actuate the brake device.

785,818. **CENTRIFUGAL MACHINE.** GUSTAV TER MEER, Hanover, Germany. Filed Mar. 4, 1904. Serial No. 196,589.



Claim.—1. A centrifugal machine comprising a series of wedge-shaped chambers, one at least of the lateral walls of each chamber being formed of a pivoted plate and one at least of said walls having a sieve-surface, in combination with means for opening said chambers while the machine is running, substantially as set forth.

2. A centrifugal machine comprising a series of wedge-shaped chambers, the lateral walls of each chamber being formed of one fixed plate and one pivoted plate, one at least of said plates having a sieve-surface, in combination with means for operating the pivoted plate, substantially as set forth.

3. A centrifugal machine comprising a radially-compartmented drum, an expansible filter-wall chamber within each compartment and a liquid collecting and discharge space outside each of said chambers and within its respective compartment, substantially as set forth.

4. A centrifugal machine comprising a series of radial compartments, an expansible filter-chamber within each compartment, said chamber having a fixed perforated lateral rear wall, substantially as set forth.

5. A centrifugal machine comprising a series of radial compartments, a filter-chamber within each compartment and a movable wall for each of said chambers, in combination with automatic means for cutting off supplies of liquid to said chambers and for opening the same, substantially as set forth.

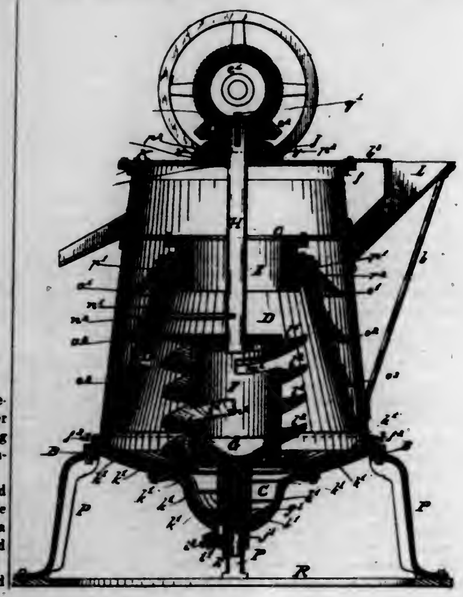
6. A centrifugal machine comprising a series of radial compartments, an expansible filter-chamber within each of said compartments, a central liquid-supply tube, a vertically-movable sleeve around said supply-tube combined with mechanism for simultaneously cutting off the central liquid-supply and opening said expansible filter-chamber substantially as set forth.

7. A centrifugal machine comprising a series of radial compartments, an expansible filter-chamber within each compartment, a central liquid-supply tube, automatic means for periodically cutting off the central liquid-supply and automatic means for simultaneously opening the expansible chambers comprising a rotatory cam device, a vertically-movable central sleeve, a lever-arm q' operated from said sleeve and a slide and pin operating the movable wall of each expansible chamber, substantially as set forth.

8. In a centrifugal machine of the kind described, expansible filter-chambers, supply-pipes for said chambers, a worm-wheel, a wheel-disk operating said chambers and controlling said supply-pipes, and circular cam-tracks on said disk, in combination with mechanism for opening and closing the liquid-supply pipes and expansible filter-chambers respectively from said tracks, substantially as set forth.

9. In a centrifugal machine of the kind described, expansible filter-chambers, supply-pipes for said chambers, a worm-wheel, a wheel-disk operating said chambers and controlling said supply-pipes, circular cam-tracks on said disk and mechanism for opening and closing the liquid-supply pipes and expansible filter-chambers, in combination with a hand-operated cam-disk-adjusting worm, substantially as set forth.

785,819. **MACHINE FOR SEPARATING GOLD FROM SAND, &c.** CHARLES O. MICHAELSEN, Salt Lake City, Utah. Filed Sept. 24, 1903. Serial No. 174,390.



Claim.—1. The combination with a vertical shell, built of any suitable material, with a cap, and a concave bottom; of a rotatably-movable and vertically-adjustable worm-cylinder, provided with two concavo-convex screw-blades, firmly attached on the outside of said cylinder and starting from opposite sides of said cylinder; said cylinder being provided with ingress-ports in its wall, and a funnel firmly attached to, and forming the bottom of the worm-cylinder, to which funnel, are firmly secured, at varying distances, agitating-arms, of suitable length, and bent to correspond with the concave bottom, of the shell, and curved in the direction of the motion of the screw-blades, substantially as described.

2. A vertical shell built of suitable material, with a top, and a diaphragm, and provided with concave bottom, to which is secured a pocket, and tap-off with plug; within which shell, is fitted antifriction-ball-bearing-supported feed-distributer, with petticoat-distributers, and provided with clutch-pin, substantially as described.

3. A vertical shell provided with a feed-hopper and a concave bottom, to which bottom is attached a pocket provided with an opening and a closure therefor, distributers within the shell, and provided with clutch, a vertically-adjustable and rotatably-movable shaft, and a cylinder provided with ingress-ports in its wall, and with a funnel-shaped bottom with agitator-arms curved forwardly and bent to conform with the concave bottom of the shell.

4. The combination of an upright shell, provided with top feed, and bottom discharge, within which shell is operated rotating distributer, with petticoat extensions; and a worm-cylinder, with two concavo-convex screw-blades secured thereon, with means for operating them; the worm-cylinder being provided with ingress-openings in its wall, and a bottom funnel with a discharge-tube, the said shell being provided with a concave bottom, within which is operated agitating-arms, said bottom resting upon a ring-support, that is provided with feet, substantially as described.

5. The combination of a vertical shell, provided with a feed-hopper, and the rotating pulp-distributer, with petticoat extensions, operating within said shell, the vertical shell, being provided with cap and concave bottom, agitating-arms within the concave bottom, said arms being forwardly curved and bent to conform to the concave bottom; a pocket in the concave bottom; a worm-cylinder provided with concavo-convex screw-blades, said cylinder having ingress-openings and funnel-discharge, a discharge-pipe attached to the funnel-discharge; a diaphragm within the shell, and an overflow-cylinder attached thereto, substantially as and for the purpose described.

785,820. **VENTILATOR.** MATTHEW MILLER, Jr., Trenton, Ill. Filed Aug. 1, 1904. Serial No. 219,118.

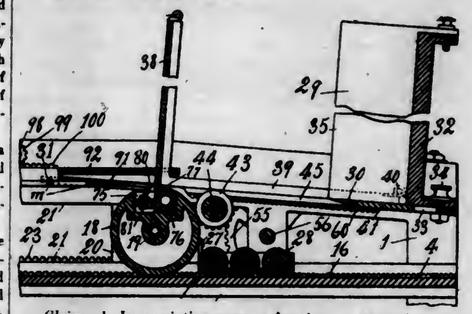


Claim.—1. A ventilator, consisting of inner and outer telescopically-arranged tubular sections, adapted to be extended through and fitted in the walls of a building and provided at their opposite ends with outwardly-projecting flanges, said inner tubular section having a closure also at its inner end, and a tapered sleeve in said inner section having its inner end extending through said closure and provided with a damper.

2. A ventilator consisting of inner and outer telescopically-arranged tubular sections adapted to be extended through and fitted in the walls of a building, said inner section having an inwardly-tapering wall thereby preventing the passage of rain or water through the same, a screen removably attached to the outer end of said inner section, annular flanges formed on the ends of said sections whereby the same may be attached to the inner and outer sides of said building-walls, and means whereby the passage of air through said sections may be controlled, substantially as described.

3. A ventilator consisting of inner and outer telescopically-arranged tubular sections adapted to be extended through and fitted in the walls of a building, said inner section having an inwardly-tapering wall thereby preventing the passage of rain or water through the same, a screen removably attached to the outer end of said inner section, annular flanges formed on the ends of said sections whereby the same may be attached to the inner and outer sides of said building-walls, and a damper arranged on the inner end of said inner section whereby the passage of air through said sections may be regulated, substantially as described.

785,821. **PRINTING-PRESS.** EDWARD N. MILLS, San Francisco, Cal., assignor of one-half to N. H. Smith, San Francisco, Cal. Filed Aug. 3, 1904. Serial No. 219,283.



Claim.—1. In a printing-press, a feed-box, a separating-carriage having an advancing edge to be interposed between the lowest sheet and the superincumbent sheets and rollers behind said edge upon which said superincumbent sheets travel, a suction device for drawing down the lowest sheet of the pile, and means for moving said feed-box and separating-carriage toward each other, substantially as described.

2. In a printing-press, a suction-cylinder having suction-holes for the paper, and short rubber tubes in said holes projecting slightly above the surface of the cylinder, in combination with means for producing an exhaust in said cylinder, substantially as described.

3. A printing-press having a reciprocating rotary impression-cylinder with suction-holes in its periphery, a feed-box for holding the sheets of paper, means for moving the feed-box and cylinder in harmony so that the front edge of the paper in the feed-box is brought over the suction-holes, at the begininng of the reciprocation of the cylinder, means for exhausting the cylinder, means for moving the cylinder and feed-box in the same general direction of the machine from the position in which the front edge of the paper is brought over the suction-holes, means for guiding said cylinder and feed-box in their movements whereby they are separated vertically while moving in the same general direction, a separator, and means for moving the separator in the opposite direction to the feed-box and between the bottom of the feed-box and the cylinder, substantially as described.

4. In a printing-press, in combination with the frame of the press, a feed-box movable over said frame, rollers revolving on a shaft in stationary bearings in said frame below said feed-box, the bottom of said feed-box being cut away at its front portion and the front edge of the rear portion of the box being cut away to form recesses to pass around said rollers as the box moves forward, in combination with means for taking the lower sheet from the feed-box, and means for raising the superincumbent sheets therefrom, substantially as described.

5. In a printing-press, in combination, a frame, a box moving longitudinally over said frame, the bottom of the box being cut away at its front portion, rollers on a shaft in stationary bearings over which rollers the box moves, the front edge of the rear portion of the bottom being cut away to form recesses, the front of the box being supported upon arms pivoted near the rear side of the box, whereby said front can swing upwardly, means for taking the lowest sheet from the box to the impression-cylinder, and means for raising the remaining sheets, substantially as described.

6. In a printing-press, in combination, a feed-box sliding in suitable guides, and having a rack secured thereto, a spur-gear engaging said rack and means for operating said spur-gear comprising a segment-gear having a slotted arm a pitman connected with said arm and means for reciprocating said pitman, substantially as described.

785,822. **REMNANT-TUBE.** CHARLES E. MITCHEM, Harvard, Ill. Filed Mar. 15, 1904. Serial No. 198,261.

Claim.—1. A package comprising a terminally open split tube, and a fabric rolled exteriorly thereon and having a sample portion disposed within the tube.

2. A package comprising a terminally open split tube, fabric rolled exteriorly thereon and having a sample portion disposed within the tube, and means for holding the fabric from unwinding.

3. A package comprising a terminally open split tube, and fab-

ric rolled exteriorly thereon with its wrong side outward and having a sample portion disposed within the tube.

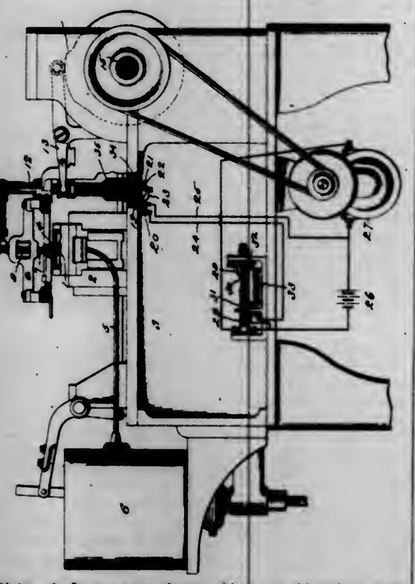


4. A package comprising a terminally open split tube, fabric rolled exteriorly thereon with its wrong side outward and having a sample portion disposed within the tube, and means for holding the fabric from unwinding.

5. A package comprising an inner tubular member split longitudinally, a fabric rolled thereon, and an outer spring clamping member for maintaining the fabric in place.

6. A package comprising an inner elastic receiving member or core, a fabric rolled thereon, and an outer spring clamping member for maintaining the fabric in place.

785,823. SQUIRT-PREVENTER FOR TYPE-CASTING MACHINES. WILLIAM NICHOLAS, Thompsonville, Conn., assignor to The United States Graphotype Company, New York, N. Y., a Corporation of New York. Filed Jan. 29, 1904. Serial No. 191,184.



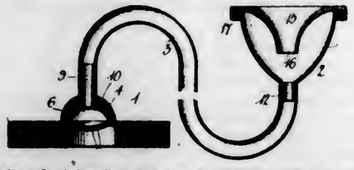
Claim.—1. In a type-casting machine, a mold and a matrix movable with relation to each other, mechanism for centering the movable part, an electric circuit, mechanism operated by the movable part for closing the electrical circuit if the matrix-surface and the mold-surface are not tight together when in casting position, a translating device actuated by the closing of the electrical circuit, a motor for driving the machine, and mechanism controlled by the translating device for cutting off the power which energizes the motor, substantially as specified.

2. In a type-casting machine, a mold, a matrix movable with relation to the mold, a centering-pin adapted to locate the matrix in casting position, an electrical circuit, mechanism actuated by the centering-pin for closing the electrical circuit if the centering-pin cannot properly locate the matrix, a translating device actuated by the closing of the circuit, a motor for driving the machine, and mechanism controlled by the translating device for cutting off the power that energizes the motor, substantially as specified.

3. In a type-casting machine, a mold, a matrix movable with relation to the mold, a centering-pin adapted to locate the matrix in casting position, a lever adapted to be moved by the centering-pin, a rod adapted to be moved by the lever, an electrical circuit adapted to be closed by the movement of the rod if the matrix is not properly located by the centering-pin, a translating device actuated by the closing of the electrical circuit, a motor for driving the machine, and mechanism controlled by the transmitting device for cutting off the power that energizes the motor, substantially as specified.

4. In a type-casting machine, a mold and a matrix movable with relation to each other, an electrical circuit, mechanism for closing the electrical circuit if the matrix-surface and the mold-surface are not tight together when in casting position, a translating device in the electrical circuit that is actuated when the circuit is closed, and mechanism controlled by the translating device for cutting off the power that operates the machine, substantially as specified.

785,824. SPRAY BATH-BRUSH AND CONNECTION. ALBERT W. NICHOLLS, Chicago, Ill. Filed Aug. 1, 1904. Serial No. 219,122.

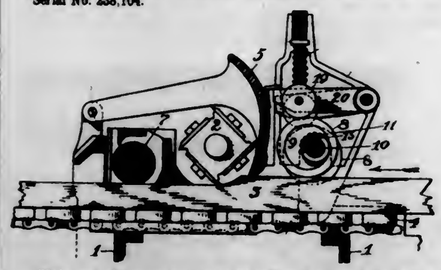


Claim.—1. A brush of the class described, having a sprinkler-head formed with a tubular portion for connection with a flexible feed-tube, a flange extending around and projecting from the sprinkler-head, and a rubbing portion on the said flange, substantially as described.

2. A brush of the class described, having a sprinkler-head provided with a tubular portion for connection with a flexible feed-tube, a flange formed integrally with and extending around the sprinkler-head, and a rubbing portion on the said flange, substantially as described.

3. A brush of the class described, having a sprinkler-head formed integrally with a tubular portion for connection with a flexible feed-tube, a flange extending around the sprinkler-head, and a rubbing portion on the said flange, substantially as described.

785,825. PRESSURE-ROLLER FOR WOOD-PLANING MACHINES. COLLINS K. ORTON, San Francisco, Cal. Filed Dec. 23, 1904. Serial No. 238,104.

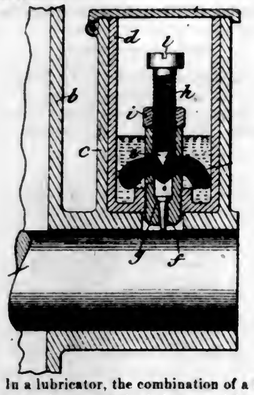


Claim.—1. In sectional pressing-rollers for wood-planing machines, a series of roller-sections independently mounted on oscillating cams or eccentric bearings supported loosely on a continuous shaft, means to stop and determine separately the oscillating range of these eccentric bearings, about the shaft on which they are supported, and means to apply elastic pressure severally on the roller-sections and press them down on the surface of the wood, the whole combined and operating in the manner substantially as specified.

2. In a sectional pressing-roller for wood-planing machines, a series of roller-sections revolubly mounted on cams or eccentric bearings loosely supported on a continuous shaft, stops to determine the rotation of these eccentric bearings each way about the shaft and means to turn and adjust the central shaft and raise or lower coincidently all the eccentric bearings and the pressing-rollers thereon, in the manner and for the purposes substantially as specified.

3. In sectional pressing-rollers for wood-planing machines, a series of rollers of like diameter loosely mounted on eccentric bearings, the latter loosely mounted on an oscillating shaft with a limited range about the same and means to turn and adjust the shaft so all the pressing-rollers can be raised or lowered at the same time, substantially as specified.

785,826. LUBRICATOR. WILLIAM H. PAPE, Franklin, Pa., assignor to Galena-Signal Oil Company, Franklin, Pa. Filed Dec. 8, 1904. Serial No. 236,020.

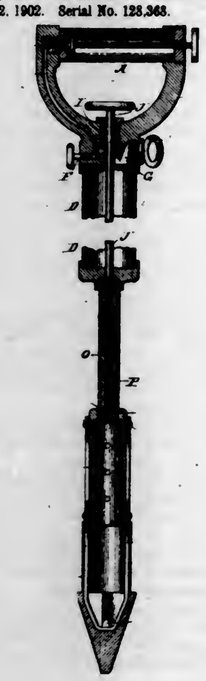


Claim.—1. In a lubricator, the combination of a tubular wick-holder, a valve at the bottom of the holder, a wick passing transversely through the holder above the valve, and a choking-screw threaded into the holder and adjustably compressing the wick.

2. In a lubricator, the combination of an oil-cup, a tubular wick-holder having a valve-seat in the bottom thereof, a valve resting loosely on the seat, a wick passing transversely through the holder and dipping into the oil in the cup, and a choking-screw in the holder above the wick, said screw being threaded into the holder so as to permit its point to exert a regulable choking pressure on the wick.

3. In a lubricator, the combination of an oil-cup, a tubular wick-holder therein having a valve-seat in its bottom, a wick dipping into the oil in the cup and delivering into the holder, and a valve resting loosely on the seat in the holder and adapted to close automatically and to be opened by being jarred off its seat.

785,827. SELF-HEATING BRANDING-IRON. HARRY G. PARKER, Liberty, Mo., and EDWARD V. GARNETT, Pueblo county, Colo. Filed Oct. 22, 1902. Serial No. 128,368.

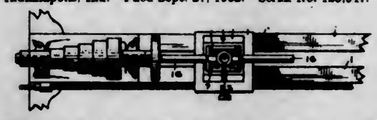


Claim.—1. A self-heating branding implement, comprising, a cylindrical barrel containing the fuel, to which is attached at one end an air-compression pump, and terminating at the other end in a projection carrying a generating-chamber and an oil-burner to which is secured a branding-head, in combination with a valve for regulating the supply of fuel, the stem of which passes longitudinally through the fuel-reservoir and generating-chamber, substantially as described.

2. A self-heating branding implement, comprising a cylindrical barrel containing the fuel to which is attached at one end an air-compression pump, and terminating at the other end in a projection carrying an oil-burner to which is secured a branding-head, in combination with a valve in which the externally-threaded valve-stem engages an internally-threaded sleeve and through which the supply of fuel passes, for the purposes specified.

3. A self-heating branding implement, comprising, a cylindrical barrel containing the fuel terminating at one end in a projection carrying an oil-burner to which is secured a branding-head, in combination with an air-compression pump attached to the other end of the barrel by projecting lugs, serving as a transverse handle for manipulating the branding implement, substantially as set forth.

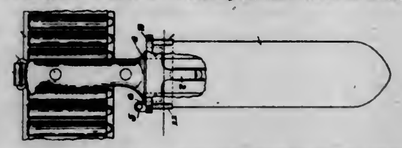
785,828. BORING ATTACHMENT FOR LATHES. JOHN PERLLE, Indianapolis, Ind. Filed Sept. 27, 1902. Serial No. 125,047.



Claim.—1. In a tool-holder of the kind specified, a base having an under side flange to fit in the slot of the slide-rest of a lathe, a longitudinally-split sleeve integral with the base, inverted-U-shaped supports placed transversely of the sleeve, a tool-post passing through the said flange, base and sleeve, having a head to engage the shoulder of the slide-rest slot, a bar passing transversely through the post and resting upon the said U-shaped supports, and a set-screw through the top of the tool-post bearing against the said bar.

2. In a tool-holder, a base having an under side flange to fit the slot of the slide-rest of a lathe, a sleeve integral with the base having a longitudinally-split side with flanges on each side of the split, inverted-U-shaped supports placed transversely of the sleeve with their stems resting upon the said base, a tool-post passing through the flange, base and sleeve, having a flanged head engaging the shoulder of the slide-rest slot, a bar passing transversely through the post and resting upon the said U-shaped supports, a set-screw screwing through the top of the post against the transverse bar and means for expanding and contracting the bore of the split sleeve.

785,829. COMBINED KNIFE AND INTRENCHING-TOOL. GRAHAME H. POWELL, Buffalo, N. Y., assignor to Henry C. Wilson, trustee, New York, N. Y. Filed July 26, 1904. Serial No. 218,304.



Claim.—1. An article of manufacture comprising the combination of a knife with a sheath therefor constructed for use as a tool and means to lock the knife-blade within the sheath in such manner that the knife-handle may serve as a handle for the tool and to prevent withdrawal of the knife when the tool is in use.

2. A knife-sheath comprising a hollow body of rigid material adapted to receive a knife-blade, a pair of fingers within said body, and means upon opposite sides of said knife-blade adapted to receive said fingers to maintain the knife-edge from contact with said body.

3. A combined knife, knife-sheath and intrenching-tool comprising the combination of a knife with a sheath therefor, means to secure a contained knife therein and means to maintain the edge of said knife out of contact with said body.

4. The combination of a combined knife, knife-sheath and intrenching-tool with a supporting-clasp therefor adapted detachably to engage said combined sheath and tool.

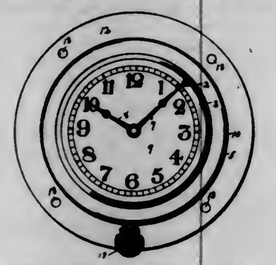
5. The combination of a combined knife, knife-sheath and in-

trenching-tool with a detachable supporting member therefor adapted frictionally to engage said tool.

6. The combination of a combined knife, knife-sheath and intrenching-tool with a swivel supporting member therefor adapted frictionally to engage said combined sheath and tool.

7. The combination of a combined knife, knife-sheath and intrenching-tool with a supporting-clasp therefor, said clasp constructed to engage said sheath and tool with sufficient force to hold the latter against withdrawal of the knife therefrom but to release said sheath and tool upon a direct pull thereon.

785,830. **AUTOMOBILE-CLOCK.** WILSON E. PORTER, New Haven, Conn., assignor to The New Haven Clock Co., New Haven, Conn., a Corporation. Filed Oct. 6, 1904. Serial No. 227,418.



Claim.—1. In an automobile-clock, the combination with the case and dial thereof, the case being formed with an annular peripheral groove, of a rotary sash provided with an index or marker and furnished with an inwardly-extending flange, screws mounted in the said flange and entering the groove in the case for securing the sash to the case, and friction-springs located in the said groove and confined therein by the said flange for holding the sash in any position in which it may be set.

2. In an automobile-clock, the combination with the case and dial thereof, the case being formed with an annular peripheral groove, of a rotary sash provided with an index or marker and formed with an inwardly-extending flange, screws mounted in the said flange and entering the groove in the case for securing the sash to the case, and means for holding the sash in any position in which it may be set.

785,831. **AUTOMOBILE-CLOCK.** WILSON E. PORTER, New Haven, Conn., assignor to The New Haven Clock Co., New Haven, Conn., a Corporation. Filed Nov. 28, 1904. Serial No. 234,535.



Claim.—1. In an automobile-clock, the combination with the case, rotary sash and dial thereof, of a radially-arranged frictionally-held marker mounted in the dial concentric with the hour and minute hands of the clock and adapted at its outer end to be engaged with the rotary sash, whereby the rotary sash is held in any desired position by the said marker.

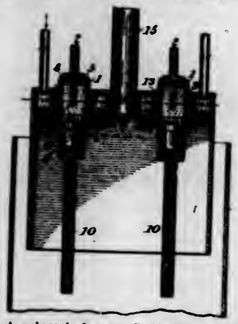
2. In an automobile-clock, the combination with the case, rotary sash and dial thereof, of a marker mounted in the dial concentric with the hour and minute hands of the clock and adapted at its outer end to be engaged with the rotary sash, and a friction-spring connected with the inner end of the marker for holding it and hence the sash, in any predetermined position.

3. In an automobile-clock, the combination with the case, rotary sash and dial thereof, of a radially-arranged marker, a hub mounted in the center of the dial and having the inner end of the marker attached to it, and a friction-spring applied to the inner face of the dial and having the inner end of the said hub connected with it.

4. In an automobile-clock, the combination with the case and dial thereof, of a rotary sash formed with a marker-notch, of a marker frictionally held in the center of the dial concentric with the hour and minute hands of the clock and having its outer end adapted to enter the said notch in the sash which the marker holds in any predetermined or set position.

5. In an automobile-clock, the combination with the case-ring thereof, of a rotary sash formed with an inwardly-extending flange sleeved over the forward edge of the said case-ring and furnished with a peripheral groove, and two or more springs secured to the said case-ring and having their outer ends shaped to form hooks entering the said groove for securing the sash to the ring with capacity for rotation thereupon.

785,832. **ELECTRODE FOR ELECTRIC FURNACES.** EDGAR F. PRICE, GEORGE H. COX, and JAMES G. MARSHALL, Niagara Falls, N. Y., assignors to Union Carbide Company, Niagara Falls, N. Y., a Corporation of Virginia. Filed Oct. 19, 1903. Serial No. 177,807.



Claim.—1. An electric furnace having an opening, an electrode having a holder in said opening, means for directly cooling said holder, and means for cooling that portion of the furnace adjacent to said opening and thereby indirectly cooling said holder, as set forth.

2. In an electric furnace, a hood having an opening, an electrode having a holder in said opening, means for directly cooling said holder, and means for cooling that portion of the hood adjacent to said opening and thereby indirectly cooling said holder, as set forth.

3. An electric furnace having an opening, an electrode having a holder passing loosely through said opening, a refractory luting around said holder, means for directly cooling said holder, and means for cooling that portion of the furnace adjacent to said opening and thereby indirectly cooling said holder, as set forth.

4. In an electric furnace having a working chamber, a hood depending into said chamber, an electrode or electrodes within the hood, electrode-holders passing loosely through openings in the top of the hood, means for cooling said holders, and a refractory luting between said holders and the top of the hood, as set forth.

5. In an electric furnace having a working chamber, a hood depending into said chamber, an electrode or electrodes within said hood, each electrode comprising a plurality of graphite rods, a holder receiving said rods and passing through an opening in the top of the hood, and means for cooling said holder, as set forth.

6. In an electric furnace having a working chamber, a hood depending into said chamber and means for cooling the top of said hood; an electrode or electrodes within the hood, electrode-holders passing loosely through openings in the top of the hood, means for cooling said holders, and a refractory luting between said holders and the top of the hood, as set forth.

7. In an electric furnace having a working chamber, a hood depending into said chamber and means for cooling the top of said hood; an electrode or electrodes within said hood, each electrode comprising a plurality of graphite rods, a holder receiving said rods and passing through an opening in the top of the hood, and means for cooling said holder, as set forth.

8. An electrode, comprising a series of carbon rods, a holder having an internally-threaded socket for each rod, and means for cooling said holder and sockets, as set forth.

9. An electrode, comprising a series of carbon rods, a holder having an internally-threaded socket for each rod, and a water-chamber in said holder and arranged to cool each socket, as set forth.

10. An electrode, comprising a series of carbon rods, a holder having a socket for each rod, and a baffled water-chamber in said holder and receiving each socket, as set forth.

11. An electrode-holder, sockets for the electrodes removably secured in said holder, and a water-chamber in said holder and receiving each socket, as set forth.

12. An electrode-holder, having a water-chamber, a nipple or nipples opening into said chamber, and an electrode-socket in each nipple with a space between it and the nipple, as set forth.

13. An electrode-holder, having a water-chamber with a depending baffle, a nipple or nipples opening into said chamber, and an electrode-socket in each nipple with a space between it and the nipple, as set forth.

14. An electrode, comprising a series of carbon rods, a holder for said rods, and a reinforcing-body of refractory cement of relatively high resistance between said rods, as set forth.

15. An electrode, comprising a series of carbon rods, a holder for said rods, and a reinforcing and protecting body of refractory cement of relatively high resistance between and around said rods, as set forth.

16. An electrode, comprising a series of carbon rods, a holder for said rods, a body of refractory cement between and around said rods, and a support of foraminous metal in said cement, as set forth.

17. An electrode, comprising a series of carbon rods, a holder for said rods, means for cooling said holder, and a reinforcing-body of refractory cement of relatively high resistance between said rods, as set forth.

18. An electrode, comprising a series of carbon rods, a holder for said rods, means for cooling said holder, and a reinforcing and protecting body of refractory cement of relatively high resistance between and around said rods, as set forth.

19. An electrode, comprising a series of graphite rods, a holder for said rods, means for cooling said holder, and a reinforcing and protecting body of refractory cement between and around said rods, as set forth.

20. An electrode, comprising a holder having a water-chamber, nipples opening into said chamber, a socket in each nipple with a space between it and the nipple, an electrode-rod depending from each socket, and a body of cement between and around the electrode-rods, as set forth.

21. An electrode, comprising a holder having a water-chamber, nipples opening into said chamber, a socket in each nipple with a space between it and the nipple, a graphite electrode-rod depending from each socket, and a body of cement between and around the electrode-rods, as set forth.

22. An electric furnace having an electrode projecting into the working chamber and comprising one or more carbon rods, a holder for said rods, and a metal sheath closely fitting upon and protecting the projecting portion of one or more of said rods, as set forth.

23. An electrode, comprising one or more carbon rods, a holder for said rods, a metal sheath closely fitting one or more of said rods, and a carbonaceous cement between said rod and sheath, as set forth.

24. An electrode, comprising a plurality of graphite rods, and means for mechanically reinforcing the rods and protecting them from oxidation, as set forth.

25. An electrode, comprising a water-jacketed holder, a plurality of graphite rods, and means for mechanically reinforcing the rods and protecting them from oxidation, as set forth.

26. An electrode, comprising a water-jacketed holder having depending nipples, a graphite rod secured in each nipple, and means for mechanically reinforcing the rods and protecting them from oxidation, as set forth.

27. An electrode, comprising one or more graphite rods, a holder having an internally-threaded socket for each rod, and means for cooling said holder and sockets, as set forth.

28. An electrode, comprising a series of graphite rods, a holder having an internally-threaded socket for each rod, and a water-chamber in said holder and arranged to cool each socket, as set forth.

29. An electrode, comprising a series of graphite rods, and a holder having a separate internally-threaded socket for each rod, as set forth.

30. An electrode, comprising a series of graphite rods, a holder for said rods, and a reinforcing-body of refractory cement between said rods, as set forth.

31. An electrode, comprising a series of graphite rods, a holder for said rods, and a reinforcing and protecting body of refractory cement between and around said rods, as set forth.

32. An electrode, comprising a series of graphite rods, a holder for said rods, a body of refractory cement between and around said rods, and a support of foraminous metal in said cement, as set forth.

785,833. **HOOK AND EYE.** FRANK L. PRIEST, Houston, Tex. Filed May 6, 1904. Serial No. 206,653.

Claim.—1. In a hook and eye, an eye bent from a resilient wire at its center of length, forming an elongated loop at the front of the eyehole, said eyehole being triangular and produced by bending the wire strand in opposite directions from the base of the loop, then toward each other an equal degree, producing like acute angles, then bending each member of the wire strand to form equal obtuse angles and disposing said members parallel with each other, forming a shank that is provided with loops formed of the remaining portions of the wire strand.



2. In a hook and eye, the combination with an eye bent from resilient wire, having an essentially triangular eye member, a resilient loop extended at the front of said eye member, a shank and lateral loops on the ends of the shank, of a hook formed of wire having two short hook members spaced apart by a straight head-bar, said hook members each having an indent in its outer side at the lower end thereof, the material being bent at the indents so as to provide two divergent head members, ending in acute angular bends providing two other head members that trend toward each other and terminate in obtuse angular bends, from which extend two straight shank members, at opposite ends of which the end portions of the wire are bent into lateral loops, the hook members entering the triangular hole in the eye, and the resilient members of said eye having a snapped engagement within the indents in the hook members and holding said hook from accidental release.

785,834. **COMBINATION-LOCK.** ELSWORTH E. QUAINTANCE, Como, Colo. Filed May 12, 1904. Serial No. 207,677.



Claim.—1. In a lock, the combination of a hollow spindle having a knob at one extremity provided with a transverse recess open at its outer end, a locking-bar located within the hollow of the spindle and having a transverse tube entering the recess of the knob extremity of the spindle, a coil-spring located in said tube and of sufficient tension to have a tendency to cause the tube to protrude through the open extremity of the recess, the locking-bar being provided with pins of different shape adapted to enter openings formed in the spindle, a number of tumblers mounted on the said spindle, each tumbler having a number of openings one of which is adapted to receive a pin of the locking-bar when the tumbler is properly adjusted, a knob applied to the extremity of the spindle remote from the knob extremity of the latter, a hasp pivotally connected with the knob extremity of the spindle and adapted to enter an opening formed in the detachable knob of the spindle, the extremity of the hasp remote from its pivoted end having an offset adapted to be engaged by the locking-bar when in the locked position.

2. In a lock, the combination of a hollow spindle having a knob at each extremity, tumblers mounted on the spindle between the knobs, each tumbler being provided with a number of recesses, a locking-bar located and having a transverse movement within the hollow of the spindle, the said bar having a number of pins of different shape located in the zones of the recesses of the respective locking-bars, the spindle being provided with openings to receive the pins of the locking-bar, one recess of each tumbler being shaped to receive a pin of the locking-bar, a spring acting on the locking-bar with a tendency to normally cause its pins to enter the recesses of the different tumblers by a transverse movement within the spindle, and a hasp pivotally connected with one extremity of the spindle, the opposite extremity being provided with an opening to allow the opposite end of the hasp to enter, the last-named end of the hasp being shaped to engage the locking-bar when the latter is in the locked position.

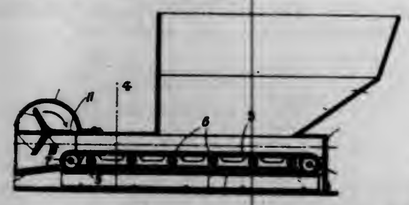
3. In a lock, the combination of a hollow spindle having a knob at each extremity, one knob being detachable, a number of tumblers revolubly mounted on the spindle and having a number of recesses, a spring-actuated locking-bar located within the hollow of the spindle and provided with pins shaped to enter one recess of each tumbler, the spindle also having openings to receive the respective pins of the locking-bar, the latter having a transverse movement within the spindle to allow it to assume the locked or unlocked position, a hasp pivotally connected with one extremity of the spindle, the opposite extremity of the latter having an opening to receive the free ex-

tremity of the hasp which is shaped to interlock with the locking-bar when the latter is in the locked position.

4. In a lock, the combination of a hollow spindle having enlarged shouldered extremities, tumblers revolubly mounted on the spindle between the said shoulders, each tumbler being provided with a plurality of recesses, a spring-actuated locking-bar located within the hollow of the spindle and having a number of pins one for each tumbler, the said pins being located to enter the recesses of the tumblers, one recess of each tumbler being adapted to receive the pin of the locking-bar located in the zone of the recesses of the said tumbler, the said bar having a transverse movement within the spindle to allow it to assume the locked or unlocked position, and a hasp movably connected with the spindle extremities, one extremity being shaped to engage the locking-bar.

5. The combination of a hollow spindle having enlarged shouldered extremities, tumblers located between the extremities of the spindle and revolubly mounted thereon, each tumbler having a number of recesses, a spring-actuated locking-bar located within the spindle and having a pin for each tumbler, the pins being shaped to enter one recess of each tumbler, each tumbler having also a circumferential groove surrounding the spindle, and a number of recesses formed in the outer wall of the groove, and a number of leaf-springs corresponding with the number of tumblers, the said springs being attached to the spindle and protruding into the said grooves.

785,835. **MECHANICAL STOKER.** LUDWIG ROTH, St. Louis, Mo. Filed July 30, 1904. Serial No. 218,803.



Claim.—1. A mechanical stoker comprising a casing, means for feeding coal thereto, a traveling conveyer in the casing for advancing the coal fed into the casing toward the fire-box of the boiler, a revolving blade arranged to remove the coal from the conveyer, located at a point between the fire-box and the discharge end of the conveyer, and having a peripheral velocity in excess of the belt conveyer whereby the coal is forcibly injected into the furnace, substantially as set forth.

2. A mechanical stoker comprising a hopper, a casing at the base thereof, a traveling belt conveyer for advancing the coal toward the fire-box of the boiler, a revolving series of blades located at the forward end of the conveyer and between the latter and the fire-box and arranged to remove the coal from the conveyer, said blades having a peripheral velocity in excess of the belt conveyer whereby the coal is forcibly injected into the furnace, substantially as set forth.

3. A mechanical stoker comprising a hopper, a casing at the base thereof, a traveling belt conveyer in said casing, a motor for imparting motion to the conveyer, a series of revolving blades disposed about a shaft at one end of the conveyer for removing the coal therefrom and injecting it into the fire-box, and suitable speed-multiplying gear interposed between said motor and the shaft of the blades for rotating the latter at an increased speed over the conveyer, substantially as set forth.

4. A mechanical stoker comprising a hopper, a casing at the base thereof, a traveling belt conveyer in said casing, a motor for imparting motion to the conveyer, a gear-wheel on the motor-shaft, a series of revolving blades located at the forward end of the conveyer and arranged to remove the coal therefrom, a speed-multiplying pinion on the shaft of the blades meshing with the aforesaid gear-wheel, a platform for guiding the coal impelled by the blades, the latter having a peripheral velocity in excess of the belt conveyer, whereby the coal is forcibly injected into the furnace, substantially as set forth.

785,836. **BLOTTER.** ALFRED N. SILL, Philadelphia, Pa. Filed July 23, 1904. Serial No. 217,675.

Claim.—1. In a blotter, a holder comprising an arched plate having bearings at the ends thereof, clasps connected with and adapted for engaging the ends of the pad to said bearings, and a pad drawn across said arch and secured to said bearings by said clasps, substantially as specified.



2. In a blotter, a holder comprising a plate having an arch terminating in reverse curves, in combination with a pad drawn across said arch and over said reverse curves, and clasps for holding said pad, substantially as specified.

3. In a blotter, a holder comprising an arched plate having its ends bent back to form bearings for a pad, in combination with clasps for engaging and holding said pad to said bearings, substantially as specified.

4. In a blotter, a holder comprising an arched plate terminating in reversed curves having their ends bent back to form pad-bearings, in combination with clasps for holding said pad to said bearings, substantially as specified.

5. In a blotter, a holder comprising an arched plate having its ends bent back to form bearings for a pad and folded to form substantially triangular hinge-bearings, in combination with clasps having hinge members controlled by said hinge-bearings and jaws for engaging said pad, substantially as specified.

6. In a blotter, a holder comprising an arched plate, a screw connection fixed to said plate, a cap bearing on said plate, a handle, and a screw connection passing through said cap and engaging said handle to said first screw connection, substantially as specified.

785,837. **NECKTIE-FASTENER.** WILLIAM B. SMITH, Buffalo, N. Y. Filed July 21, 1904. Serial No. 217,561.

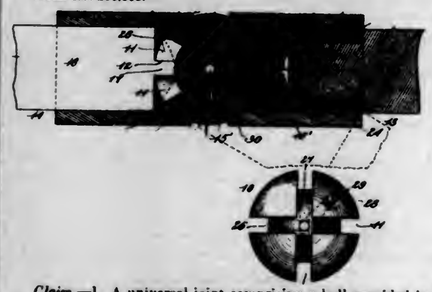


Claim.—A necktie-fastener consisting of an upper loop open at its lower end and adapted for the upward insertion of the shank of the collar-button, side steadying-loops in spring contact with each other, arms extending upwardly from the side steadying-loops and between which the shank of the collar-button travels to its position in the upper loop, and penetrating prongs substantially parallel to the plane of the loops, such prongs being adapted for downward holding insertion within the material of the tie, as and for the purpose stated.

785,838. **MANUFACTURE OF SANITARY ANTISEPTIC MATS.** JOHN P. SUTOR, Scarsdale, N. Y. Filed Nov. 14, 1903. Serial No. 181,243.

Claim.—An antiseptic mat, or matting, composed of wood-pulp manufactured into thick sheets of one-eighth to one-quarter of an inch thick, rendered bulky, porous and absorbent by proper treatment in the drying and pressing of the same, and also treated with antiseptics during the process of formation.

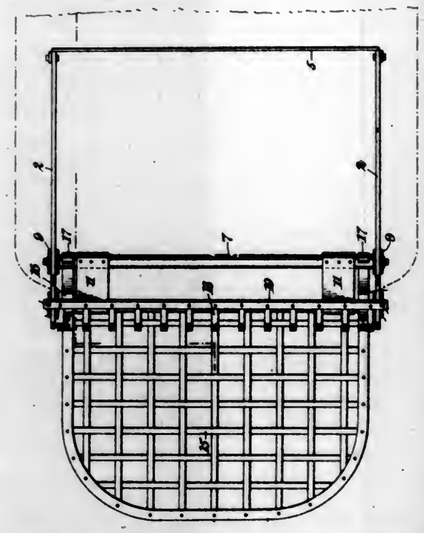
785,839. **UNIVERSAL JOINT.** GEORGE W. TONEY, Waltham, Mass., assignor to Frank Burgess, Quincy, Mass. Filed July 11, 1904. Serial No. 216,008.



Claim.—1. A universal joint comprising a ball provided in its periphery with two annular grooves at right angles to each other, two yokes each consisting of an annular ring portion located in said grooves, respectively, and a cylindrical shank portion; each of said shank portions divided in two parts by planes at right angles to each other, and a cylindrical sleeve encircling and fast to each of said cylindrical shanks.

2. A universal joint comprising a ball provided in its periphery with two annular grooves at right angles to each other, two yokes each consisting of an annular ring portion located in said grooves, respectively, and a cylindrical shank portion; each of said shank portions divided in two parts by planes at right angles to each other, and a cylindrical sleeve encircling and fast to each of said cylindrical shanks, said sleeves each provided with a concavo-conical end formed to fit the periphery of said ball and the outer peripheral edge of said annular ring portions.

785,840. **CAR-FENDER.** CHARLES H. TURNER, New York, N. Y., assignor of one-half to Will C. Turner, New York, N. Y. Filed June 25, 1904. Serial No. 214,109.



Claim.—1. The combination with a car, of a track secured to the under side thereof, a truck movable on the track, and a fender having swinging connection with the truck whereby the fender may be swung to vertical position in front of the car.

2. The combination with a car, of a track secured to the under side thereof, a truck movable on the track, and a fender having swinging and removable connection with the truck.

3. The combination with a car, of a runway or track comprising upper and lower members, a truck consisting of a pair of shafts, grooved rollers on said shafts engaging with the upper and lower members of the runway or track, the lower members of said track being provided near the forward end with depressions, and the upper members being provided near the rear end with depressions, and a fender having swinging connection with the front shaft and having portions engaging with the rear shaft.

4. The combination with a car, of track members secured to the under side thereof, a truck movable on the track members and having front and rear shafts, a fender comprising a frame, the side members of which at the rear end are curved upward and then extended horizontally, hook portions on the rear ends of the side members for engaging with the front shaft, and arms on said horizontally-disposed portions for engaging against the rear shaft.

5. The combination with a car, of track members secured to the under side thereof a fender movable on the track members, a buffer comprising a plurality of spring-plates, a cross-bar with which the lower ends of the plates are connected, the said cross-bar having perforations at its ends, fingers on the track members for engaging in said perforations, and a cross-bar connecting the upper ends of the said plates.

785,841. **MATERIAL FOR FURNACE-LININGS.** HENRY G. TURNER, London, England. Filed Apr. 24, 1903. Serial No. 154,139.

Claim.—1. The process of heating magnesite in an electric furnace at the temperature of the electric arc to a point where the material crystallizes, cooling the resulting product, grinding the same and mixing it with a suitable binding material which will harden and cause the mixture to set.

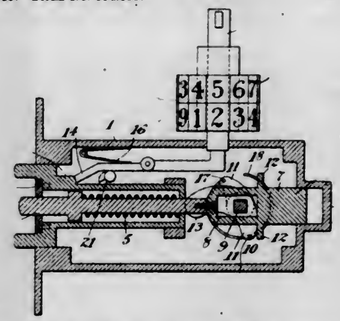
2. The process of heating magnesite in an electric furnace at the temperature of the electric arc to a point where the material crystallizes, cooling the resulting product, grinding the same, mixing it with a suitable binding material, making it into a paste with water and applying it as a coating to the furnace-lining.

3. The process of heating magnesite in an electric furnace at the temperature of the electric arc to a point where the material crystallizes, cooling the resulting product, grinding the same, mixing it with a suitable binding material which will harden and cause the material to set, mixing the same with water and pressing it into the form of bricks or plates and baking the bricks or plates in a suitable kiln, substantially as described.

4. The herein-described paste composed of powdered crystallized magnesite mixed with a suitable binding material and water.

5. The brick or plate composed of crystallized magnesite mixed with a suitable binding material and water, substantially as described.

785,842. **LOCK.** FRED J. VIEWEG, Plainfield, N. J. Filed Apr. 28, 1903. Serial No. 154,695.



Claim.—1. In a lock, the combination with two bolts, of a common operating means for both capable of withdrawing one bolt independently of the other at all times.

2. In a lock, the combination with two bolts, one of which is normally held in its closed position, of a common operating means for both capable of withdrawing the normally closed bolt independently of the other at all times.

3. In a lock, the combination with two bolts, of means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, and a knob and connections for withdrawing the normally closed bolt when turned a distance, and for closing the normally open bolt when turned another distance.

4. In a lock, the combination with two bolts, means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, and a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt.

5. In a lock, the combination with two bolts, of means for normally holding one bolt in its closed position and the other bolt in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, and means for determining when the knob has been turned the proper distance.

6. In a lock, the combination with two bolts, of means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, and means whereby the bolt so closed will remian in its closed position.

7. In a lock, the combination with two bolts, of means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt, and means whereby the bolt so closed will remian in its closed position.

8. In a lock, the combination with two bolts, of means for nor-

mally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt, and means whereby the bolt so closed will remain in its closed position and the bolt so opened will return to its closed position.

9. In a lock, the combination with two bolts, means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, means for determining when the knob has been turned the proper distance, and means whereby the bolt so closed will remain in its closed position.

10. In a lock, the combination with two bolts, means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, means for determining when the knob has been turned the proper distance, and means whereby the bolt so closed will remain in its closed position and whereby the bolt so opened will return to its closed position.

11. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, and a knob and connections for withdrawing the normally closed bolt when turned a distance, and for closing the normally open bolt when turned another distance.

12. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, and a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to lock the normally open bolt.

13. In a lock, the combination with two bolts, of a single means for normally holding one bolt in its closed position and the other bolt in its open position, a knob and connection for withdrawing the normally closed bolt when turned a distance and for locking the normally open bolt when turned another distance, and means for determining when the knob has been turned the proper distance.

14. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, and means whereby the bolt so closed will remain in its closed position.

15. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, and means whereby the bolt so closed will remain in its closed position and the bolt so opened will return to its closed position.

16. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt, and means whereby the bolt so closed will remain in its closed position.

17. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt, and means whereby the bolt so closed will remain in its closed position and the bolt so opened will return to its closed position.

18. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, means for determining when the knob has been turned the proper distance, and means whereby the bolt so closed will remain in its closed position.

19. In a lock, the combination with two bolts, of a single means for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, means for determining when the knob has been turned the proper distance, and means whereby the bolt so closed will remain in its closed position and whereby the bolt so opened will return to its closed position.

20. In a lock, the combination with two bolts, one of which is located inside of the other, of a common operating means for both capable of withdrawing one bolt independently of the other at all times.

21. In a lock, the combination with two bolts, one of which is located inside of the other and one of which is normally held in its closed position, of a common operating means of both capable of withdrawing the normally closed bolt independently of the other at all times.

22. In a lock, the combination with two bolts, one of which is located inside of the other of a spring for normally holding one bolt in its closed position and the other bolt in its open position.

23. In a lock, the combination with two bolts, one of which is located inside of the other of a spring for normally holding one of said bolts in its closed position and the other bolt in its open position, and a knob and connections for withdrawing the normally closed bolt.

24. In a lock, the combination with two bolts, one of which is located inside the other, of a spring for normally holding one of said bolts in its closed position and the other bolt in its open position, and a knob and connections for withdrawing the normally closed bolt and for closing the normally open bolt.

25. In a lock, the combination with two bolts, one of which is located inside the other, of a spring for normally holding one of said bolts in closed position and the other of said bolts in its opened position, and a knob and connections for withdrawing the normally closed bolt when turned a distance, and closing the normally open bolt when turned another distance.

26. In a lock, the combination with two bolts, one of which is located inside the other, of a spring for normally holding one of the said bolts in its closed position and the other of said bolts in its open position, and a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt.

27. In a lock, the combination with two bolts, one of which is located inside the other, of a spring for normally holding one bolt in its closed position and the other bolt in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance, and for closing the normally open bolt when turned another distance, and means for determining when the knob has been turned the proper distance.

28. In a lock, the combination of two bolts, one of which is located inside the other, of a spring for normally holding one of said bolts in its closed position and the other bolt in its open position, a knob and connections for withdrawing the normallly closed bolt and for closing the normally open bolt, and means whereby the bolt so closed will remain in its closed position.

29. In a lock, the combination with two bolts, one of which is located inside of the other, of a spring for normally holding one of said bolts in its closed position and the other bolt in its open position, a knob and connections for withdrawing the normally closed bolt and for closing the normally open bolt, and means whereby the bolt so closed will remain in its closed position and whereby the bolt so opened will return to its closed position.

30. In a lock, the combination with two bolts, one of which is located inside of the other, of a spring for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, and means whereby the bolt so closed will remain in its closed position.

31. In a lock, the combination with two bolts, one of which is located inside of the other, of a spring for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, and means whereby the bolt so closed will remain in its closed position and the bolt so opened will return to its closed position.

32. In a lock, the combination with two bolts, one of which is located inside of the other, of a spring for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt, and means whereby the bolt so closed will remain in its closed position.

33. In a lock, the combination with two bolts, one of which is located inside of the other, of a spring for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections which when uninterruptedly operated serves first to open the normally closed bolt and then to close the normally open bolt, and means whereby the bolt so closed will remain in its closed position and whereby the bolt so opened will return to its closed position.

34. In a lock, the combination with two bolts, one of which is located inside the other, of a spring for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally open bolt when turned another distance, means for determining when the knob has been turned the proper distance, and means whereby the bolt so closed will remain in its closed position and whereby the bolt so opened will return to its closed position.

35. In a lock, the combination with two bolts, one of which is located inside the other, of a spring for normally holding one of said bolts in its closed position and the other of said bolts in its open position, a knob and connections for withdrawing the normally closed bolt when turned a distance and for closing the normally opened bolt when turned another distance, means for determining when the knob has been turned the proper distance, and means whereby the bolt so closed will remain in its closed position and whereby the bolt so opened will return to its closed position.

36. In a lock, the combination with two bolts, one of which is located inside the other, of means for withdrawing each bolt independently of the other.

37. In a lock, the combination with two bolts, one of which is located inside the other, of a cam adapted to move said bolts in opposite directions.

38. In a lock, the combination with two bolts, one of which is located inside of the other, of a cam adapted to open one of said bolts and to close the other of said bolts.

39. In a lock, the combination with two bolts, one of which is located inside the other, of a shaft extending through the inner bolt, two cams mounted on said shaft one on each side of the inner bolt and adapted to act in conjunction on both of said bolts.

40. In a lock, the combination with a bolt of a knob and connections adapted to move said bolt into its closed position but not adapted to return it to its open position and means for maintaining the bolt in its closed position adapted to be released independently of the knob.

41. In a lock, the combination with two bolts, of a knob and connections whereby one of said bolts can be opened from the knob on either side of the door, and whereby the other of said bolts can be closed from the same knob on either side of the door, and means on the inside of the door for opening the second bolt at all times, and means whereby the said second bolt can be opened from the outside by means of a key.

42. In a lock, the combination with the bolt a spring for normally holding said bolt in its open position, means for moving said bolt into its closed position from its open position, one or more dogs for maintaining said bolt in its closed position, and a key adapted to lift said dogs, and adapted further to engage with said bolt to move it into its open position.

43. In a lock, the combination with a bolt, of means for moving said bolt into its closed position from its open position, one or more dogs for maintaining said bolt in its closed position, and a key adapted to lift said dogs, and adapted further to engage with said bolt to move it into its open position.

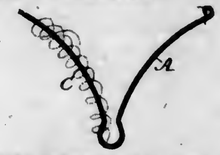
785,843. **GARMENT-PIN.** ROBERT WEIGEL, Passaic, N. J. Filed Jan. 11, 1905. Serial No. 240,553.



Claim.—A garment-pin provided with a curved semicylindrical casing having a squared opening, a fixed hook secured to one end of the casing and having an inwardly-projecting shank, a movable hook having a squared shank that engages the squared opening, and a spring connecting the hook-shanks, substantially as specified.

785,844. **HAIR CURLER OR CRIMPER.** AUGUSTUS A. WEST, New York, N. Y. Filed Dec. 22, 1903. Serial No. 186,205.

Claim.—1. In a hair-curler formed of one piece of elastic material, two flat smooth arms of unequal length, conditioned to curve gently apart when free, and to lie approximately straight when forcibly confined together, the end of the shorter arm being received and confined within a smooth bend formed in the end of the longer arm, so that the junction shall serve both as a coupling means and as a guard, substantially as herein specified.



2. A hair-curler comprising a flat smooth arm C curved junction B and longer arm A, the latter formed with a locking end $A' A^2$, the short arm being narrowed and the locking end of the long arm correspondingly notched and curled inward, all in a single piece of elastic metal, adapted to serve substantially as herein specified.

785,845. **FISHING-ROD.** WILLIAM R. WHEELER, Hartford, Conn., assignor to The Anglers Company, Hartford, Conn., a Corporation of Connecticut. Filed Aug. 10, 1904. Serial No. 220,218.



Claim.—A fishing-rod having its surface whipped with oppositely-extending open spiral coils of thin flat narrow metal ribbon and having the spaces on the surface of the rod between the ribbons filled with varnish whereby the entire surface is smooth and the wood protected and the ribbons cemented to the wood by the varnish, substantially as specified.

785,846. **IMPACT-FUSE.** KARL WIESER, Rüttenscheid, near Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed Mar. 9, 1904. Serial No. 197,236.



Claim.—1. In an impact-fuse, the combination with a longitudinally-movable detonating-bolt, of a centrifugally-operated securing device movable transversely of the bolt to release said bolt and rotating during such movement on an axis transverse of the bolt.

2. In an impact-fuse, the combination with a longitudinally-movable detonating-bolt, of a centrifugally-operated securing device having a screw movement transversely of the bolt to release said bolt.

3. In an impact-fuse the combination of a securing device movable transversely of the longitudinal axis of the fuse by centrifugal force and means imparting a rotating movement to the securing device as it moves to release the fuse consisting of a screw, the pitch-angle of which is greater than its friction-angle, whereby the releasing of the movable part of the fuse is retarded and the bursting of the shell in the barrel is prevented.

4. In an impact-fuse, the combination of the longitudinally-movable detonating-bolt, having a transverse bore, the fuse-body having a screw-threaded transverse bore in line with the bore of the detonating-bolt, and the locking-bolt having a threaded portion engaging in the threaded bore of the fuse-body and having a portion moving by centrifugal force out of locking relation with the bore of the detonating-bolt.

5. In combination with the centrifugally-actuated securing device of a fuse, a locking means F normally engaging the securing device to prevent release of the fuse, but moving longitudinally of the

fuse by its own inertia, when the shell is fired, out of locking relation to said securing device, said securing device having a groove d^3 and said locking means comprising the annular plate-spring fitting the longitudinal bore of the fuse and movable into and out of the groove of the securing device.

785,847. **BUTT-HINGE GAGE.** SAMUEL W. AKINS, Denver, Colo. Filed Jan. 23, 1905. Serial No. 242,263.

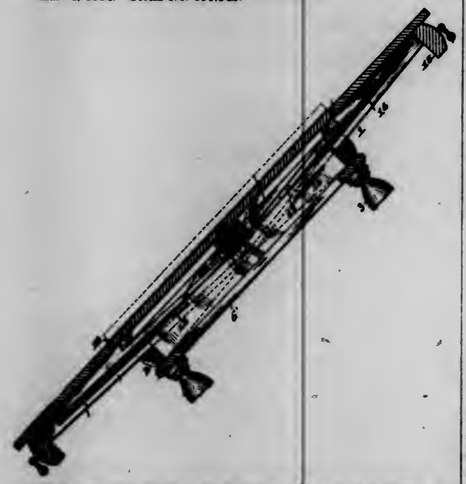


Claim.—1. A butt-hinge gage provided with side and end knives to indicate the size of the mortise, and another side knife disposed at right angles to the first-named knives, to indicate the depth of the mortise.

2. A butt-hinge gage composed of a body part, vertical side and end knives to indicate the size of the mortise, the end knives decreasing in width as described, the said knives being adapted to indicate the size of the mortise, and another side knife disposed at right angles to the first-named knives and arranged to indicate the depth of the mortise, substantially as described.

3. The combination with a block, of knives applied to three of its sides and protruding from its upper surface, and a fourth knife applied to the upper surface of the block and occupying a position at right angles to the other knives, the edge of the top knife being far enough from the upper surface of the block to indicate the depth of the hinged mortise, substantially as described.

785,848. **EXTENSION-TABLE.** MARCELL ALBERTY, Braddock, Pa., assignor of one-half to John A. Ferienak, Pittsburg, Pa. Filed Mar. 4, 1904. Serial No. 196,543.



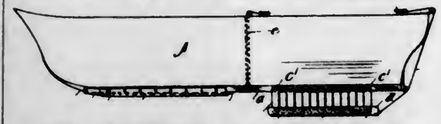
Claim.—1. An extension-table, comprising a table-frame, a cross-piece on said frame, lugs on said cross-piece having inclined faces thereon, a central or main section movably secured above and to said cross-piece, inclined side rails within said frame, extension-sections adapted to fit under and be extended beyond the main section, and slanting bars on said extension-sections for traveling along said slide-rails in moving said sections and having undercut faces thereon, said bars being adapted to come in contact in their closed positions and engage by their undercut faces with the inclined faces of the said lugs to hold said sections in position.

2. An extension-table, comprising a table-frame, a cross-piece on said frame, a central or main section movably secured above and to said cross-piece, inclined slide-rails within said frame, extension-sections adapted to fit under and be extended beyond the main section, slanting bars on said extension-sections for traveling along said slide-rails in moving said sections, and means on said bars contiguous to the inner edges of the extension-sections for fitting under said cross-piece and for supporting the ends of said main section.

3. An extension-table, comprising a table-frame, a cross-piece on said frame, a central or main section movably secured above and to said cross-piece, inclined slide-rails within said frame, extension-sections adapted to fit under and be extended beyond the main section, slanting bars on said extension-sections for traveling along said slide-rails in moving said sections, and projections on said bars contiguous to the inner edges of the extension-sections for fitting under said cross-piece and for supporting the ends of said main section.

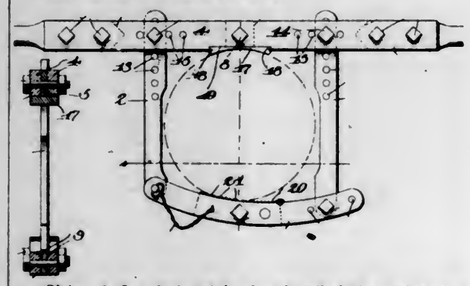
4. An extension-table, comprising a table-frame, a cross-piece on said frame, lugs on said cross-piece having inclined faces thereon, a central or main section movably secured above and to said cross-piece, inclined slide-rails within said frame, extension-sections adapted to fit under and be extended beyond the main section, slanting bars on said extension-sections for traveling along said slide-rails in moving said sections, and projections on said bars contiguous to the inner edges of the extension-sections having inclined faces thereon for fitting under said cross-piece and against the inclined faces on said lugs and for supporting the ends of said main section.

785,849. **ADJUSTABLE KEEL FOR SHIPS OR BOATS.** CHARLES ALBRECHT, Chicago, Ill. Filed May 28, 1904. Serial No. 210,148.



Claim.—An adjustable keel comprising a series of plates pivoted to the bottom of a boat, said plates being bent to overlap one another when folded up, a channel-bar, to which said plates are pivoted, adapted to inclose said plates when folded, and a rope or the like for drawing up said channel-bar to fold said adjustable keel.

785,850. **WRENCH.** NOAH W. ATHEY, Williamstown, W. Va. Filed June 13, 1904. Serial No. 212,367.



Claim.—1. In a device of the class described, the combination with a primary jaw provided with longitudinal recesses, of a pair of spaced connecting-links having their ends seated and pivotally secured respectively within the recesses, and a secondary jaw pivotally connected with the links, said jaws being provided with active or gripping portions disposed between the links.

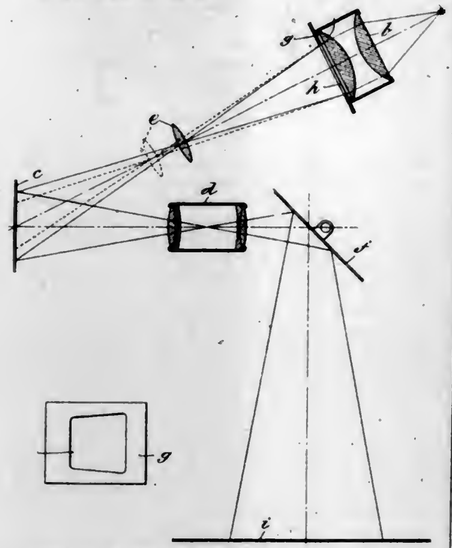
2. In a device of the class described, the combination with a primary jaw, of a secondary jaw, and a pair of spaced elements connecting the jaws, said elements being adjustable toward and from each other and in the direction of their length relative to one of the jaws, and the latter having active or gripping portions disposed between the elements.

3. In a device of the class described, the combination with a primary jaw having longitudinal recesses and a series of transverse openings spaced in the direction of length of the jaw, of a secondary jaw, a pair of spaced links pivotally connected therewith and each having a series of openings spaced in the direction of its length, and attaching-bolts designed for engagement with one of the openings in the links and primary jaw for pivotally and adjustably connecting said parts, said jaws being provided with active or gripping portions disposed between the links.

4. In a wrench, a handle-section, a jaw-section substantially parallel therewith, said sections being provided with gripping portions, and a pair of substantially parallel spaced links connecting the sections and disposed respectively on opposite sides of the gripping portions.

5. In a wrench, a handle-section, a jaw-section substantially parallel therewith, said sections being provided with gripping portions, and a pair of substantially parallel spaced links connecting the sections, said links being adjustable in the direction of their length and disposed respectively on opposite sides of the gripping portions.

785,851. **REFLECTING-LANTERN.** CALEB C. BALDERSTON, Colora, Md., and NATHANIEL H. BROWN, Philadelphia, Pa., assignors to Henry S. Williams, Nathaniel Howland Brown, and Morris Earle, Philadelphia, Pa., trading thereat as Williams, Brown & Earle. Filed Sept. 28, 1904. Serial No. 226,349.



Claim.—1. The combination, in a reflecting-lantern, of a source of light, condensing-lenses arranged in proximity to the source of light, an illuminating-lens, a picture or object to be illuminated arranged adjacent to the illuminating-lens, and an objective-lens adapted to project the image of the picture or object.

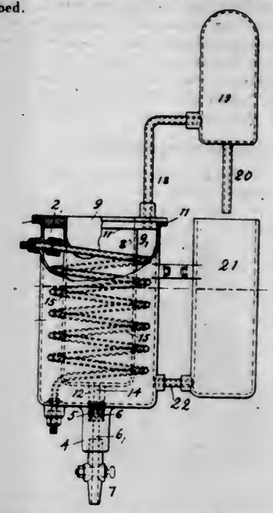
2. The combination, in a reflecting-lantern, of a source of light, condensing-lenses for a picture or object to be illuminated, a diaphragm arranged between the picture or object and the condensing-lenses, and an illuminating-lens disposed between the condensing-lenses and picture or object, substantially as and for the purposes described.

3. The combination, in a reflecting-lantern, of a source of light, condensing-lenses for a picture or object to be illuminated, an illuminating-lens interposed between said condensing-lenses and the picture or object, a diaphragm disposed between the picture or object and the condensing-lenses and an objective-lens for throwing the image of the picture or object upon a screen or other structure, substantially as and for the purposes described.

4. The combination, in a reflecting-lantern, of a source of light, condensing-lenses for a picture or object to be illuminated, an illuminating-lens disposed between the condensing-lenses and the picture or object, a diaphragm having a defined opening, said diaphragm disposed between the picture or object and said condensing lenses and an objective-lens for throwing the image of the picture or object upon a screen or other structure, substantially as and for the purposes described.

785,852. **WAXING APPARATUS FOR SEWING-MACHINES.** HENRY BRIGGS, Hasbrouck Heights, N. J. Filed July 29, 1904. Serial No. 218,612.

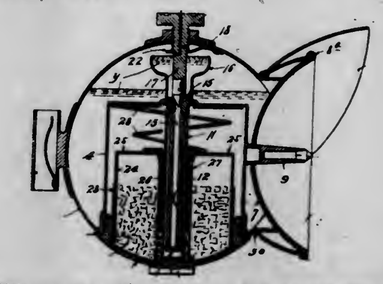
Claim.—1. In a waxing apparatus for sewing-machines in combination, a wax-receptacle, a water-jacket surrounding the same, means for heating the water contained in said water-jacket, a condenser, a steam-outlet leading from the water-jacket to said condenser, a reservoir into which said condenser discharges and a connection between said reservoir and the water-jacket, substantially as described.



2. In a waxing apparatus for sewing-machines, in combination, a wax-receptacle, a water-jacket surrounding said receptacle, a steam-coil entering the water-jacket near one end surrounding the wax-receptacle and discharging near the opposite end, a condenser, connections between the water-jacket and the condenser, a water-reservoir into which the water discharges and a connection between the water-reservoir and the water-jacket, substantially as described.

3. In a waxing apparatus for sewing-machines, in combination, a wax-receptacle, a closed water-jacket surrounding said wax-receptacle, means for heating the water in the water-jacket, a condenser, a steam-outlet leading from the water-jacket to the condenser, a water-reservoir into which the condenser discharges and a connection between the water-reservoir and the water-jacket, substantially as described.

785,853. **ACETYLENE-GAS GENERATOR.** LEROY S. BUFFINGTON, Minneapolis, Minn., assignor to The Northern Light Company, Minneapolis, Minn., a Corporation of Minnesota. Filed Feb. 6, 1904. Serial No. 192,345.



Claim.—1. A portable gas-generator of the character described, having within its water-chamber an open-topped feed-cup projecting above the normal water-level and adapted to be filled by water splashed about within said water-chamber, substantially as described.

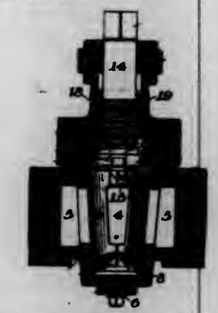
2. A generator of the character described, having the dome-like top, and having within its water-chamber an open-topped feed-cup adapted to be filled with water splashed about within said water-chamber, substantially as described.

3. A generator of the character described having within its water-chamber an open-topped feed-cup adapted to be filled with water

splashed about within said water-chamber, and a depending water-delivery tube leading downward from the bottom of said feed-cup into the generating-chamber, substantially as described.

4. In a generator of the character described, the combination with a spherical shell having an interior vertically-disposed cylindrical generating-chamber, and a removable bottom section normally closing the lower end of said generating-chamber, of an elevated centrally-located open-topped feed-cup located within the water-chamber formed within said shell outside of said generating-chamber, a carbid-holder within said generating-chamber, and a water-delivery tube depending from the bottom of said feed-cup into said generating-chamber and into said carbid-holder, substantially as described.

785,854. PLUG-VALVE. RALPH W. CADMAN, Pittsburg, Pa. Filed Feb. 4, 1904. Serial No. 191,918.



Claim.—1. A plug-valve having a split tapering plug with a passage through it, a bottom expander engaging the plug parts and means for forcing the plug downwardly as it is turned to closed position; substantially as described.

2. A plug-valve having a split tapering plug, a separate stem arranged to turn the plug, means for expanding the plug as it is turned to closed position, and a connection between the stem and plug arranged to give sidewise lost motion and release the jamming pressure before the plug is turned to open position; substantially as described.

3. A plug-valve having a tapering expansible plug, a valve-stem arranged to lift the valve as it is turned to open position, and a lost-motion connection between the stem and plug arranged to allow a slight turn of the stem before it turns the valve toward the open position; substantially as described.

4. A plug-valve having a tapering expansible plug, a stem arranged to turn the plug, an expander for expanding the plug as it is turned to closed position, and a lost-motion connection between the stem and plug arranged to release the jamming pressure before the stem turns the plug toward open position; substantially as described.

5. A plug-valve having a tapering expansible plug with a hole extending therethrough, a stem arranged to turn the plug, and a stationary expander in the casing independent of the stem and arranged to act upon the expansible plug as it is turned to closed position; substantially as described.

6. A plug-valve having a split tapered plug, a bottom expander engaging the plug parts, recesses in the top of the plug, a screw-threaded stem having lugs engaging the plug-slots, this lug and slot connection being arranged to exert a lifting tendency on the plug as it is turned toward open position; substantially as described.

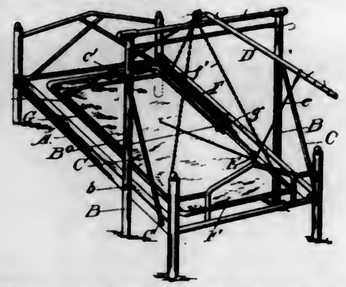
7. A plug-valve having a rotary expansible plug, means for expanding the plug as it is turned to closed position, and a screw-threaded stem having a lost-motion connection with the plug arranged to turn the plug after the jamming pressure is released; substantially as described.

8. A plug-valve having a tapering expansible plug, an outer expander in the casing, a stem having an expanding device engaging the plug, a lug and slot connection between the stem and plug arranged to give lost motion sidewise, and a screw-threaded bearing engaging screw-threads on the stem; substantially as described.

9. A plug-valve having a split tapering plug with a passage through it, a bottom expander engaging the plug parts, a stem arranged to force the plug downwardly as it is turned to closed position, and an expander on said stem arranged to act upon the upper part of the plug; substantially as described.

10. A plug-valve having a rotary expansible plug, means for expanding the plug as it is turned to closed position, a screw-threaded stem having a connection arranged to turn the valve, a cap having screw-threaded engagement with the stem, and means for adjusting the cap by rotary movement to different positions to change the stroke of the plug and cause it to seat properly when in closed position; substantially as described.

785,855. INVALID-LIFTER. HENRY P. CAMP, Maysville, Ga. Filed Jan. 30, 1904. Serial No. 191,366.



Claim.—1. In a bed attachment, the combination with suitable uprights and a support carried thereby adapted to extend transversely of the bed, of a lever fulcrumed on said transverse support adapted to be operated in a vertical plane disposed substantially longitudinal of the bed, and a stretcher adapted to be suspended from said lever and to normally rest on the made-up bed.

2. In a bed attachment, the combination with a suitable support, of a lever fulcrumed on said support, and adapted to be operated in a vertical plane extending longitudinally of the bed, a stretcher adapted to be detachably suspended from said lever, an independent movable back-supporting member adapted to be connected to said lever, and means connected to the power-arm of the lever and extending in proximity to the occupant of the bed, whereby the back-rest may be operated by the occupant.

3. In a bed attachment, the combination with the uprights and cross-piece connecting said uprights, the whole forming a support adapted to straddle the bed with said cross-piece extending transversely thereof, of a lever of the first class fulcrumed on said cross-piece operative in a vertical plane substantially longitudinal of the bed, an independently-movable back-supporting member adapted to be detachably connected to the weight-arm of said lever, a locking-pulley mounted on a suitable support at the power end of said lever, and flexible means secured to the power end of said lever, reeving through said pulley and extending in proximity to the occupant of the bed.

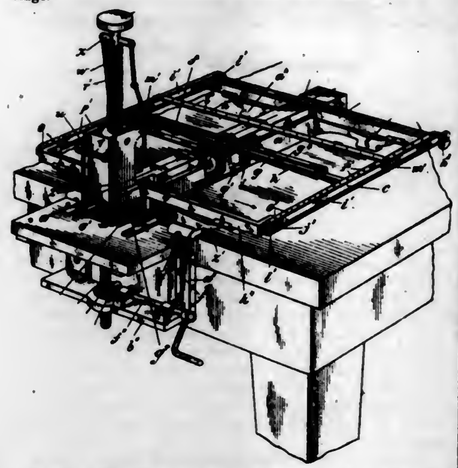
4. In a folding attachment for beds, the combination with the uprights pivotally secured to the sides of the bed, brace-rods therefor, and a cross-piece connecting said uprights, the whole forming a support adapted to straddle the bed, of a lever fulcrumed on said cross-piece, a stretcher adapted to rest normally on the made-up bed, and flexible means on said stretcher adapted to be attached to said lever for suspending said stretcher therefrom.

5. In a folding attachment for beds, the combination with the uprights pivotally secured to the sides of the bed, pivoted brace-rods secured at one end thereto and a cross-piece connecting said uprights the whole forming a support adapted to straddle the bed, a lever fulcrumed on said cross-piece, a stretcher adapted to rest normally on the made-up bed, and flexible means on said stretcher adapted to be attached to said lever for suspending said stretcher therefrom.

6. In a folding attachment for beds, the combination with the uprights pivotally secured to the sides of the bed and provided with a slotted guideway, brace-rods pivotally secured at one end to the bed and adjustably connected at their other end to said uprights through said slotted guideways, cross-pieces connecting said uprights, said uprights and cross-pieces forming a support adapted to straddle the bed, of a lever fulcrumed on said cross-piece and normally disposed longitudinally of the bed, and a stretcher adapted to be suspended from said lever.

785,856. STAMP AFFIXING AND CANCELING MACHINE. DANIEL CARTER and ROBERT MACKENROW, Toronto, Canada. Filed Sept. 26, 1903. Serial No. 174,874.

Claim.—1. In a stamp affixing and canceling machine the combination of a stamp-affixing mechanism, and a longitudinally-movable stamp-feeding carriage having stamp-carrying belts revoluble transversely to the longitudinal motion of the stamp-feeding carriage.



2. In a stamp affixing and canceling machine the combination of a stamp-affixing mechanism; a longitudinally-movable stamp-feeding carriage and stamp-carrying belts for the carriage revoluble transversely to the longitudinal motion of the stamp-feeding carriage and having stamp-engaging spikes.

3. In a stamp affixing and canceling machine the combination of a stamp-affixing mechanism, a longitudinally-movable stamp-feeding carriage having stamp-carrying belts revoluble transversely to the longitudinal motion of the stamp-feeding carriage, and means for intermittently actuating the stamp-feeding carriage.

4. In a stamp affixing and canceling machine the combination of a stamp affixing mechanism, a longitudinally-movable stamp-feeding carriage having stamp-carrying belts revoluble transversely to the longitudinal motion of the stamp-feeding carriage and having stamp-engaging spikes, and means for intermittently actuating the stamp-feeding carriage.

5. In a stamp affixing and canceling machine the combination of a stamp-affixing mechanism, a longitudinally-movable stamp-feeding carriage having stamp-carrying belts revoluble transversely to the longitudinal motion of the stamp-feeding carriage, means for actuating the stamp-feeding carriage and a detent mechanism to cause its intermittent movement.

6. In a stamp affixing and canceling machine the combination of a stamp-affixing mechanism, a longitudinally-movable stamp-feeding carriage having stamp-carrying belts revoluble transversely to the longitudinal motion of the stamp-feeding carriage and having stamp-engaging spikes, means for actuating the stamp-feeding carriage, and a detent mechanism to cause its intermittent movement.

7. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, the plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a moistener, and moistener-carrier arms connected to the rock-shaft arms.

9. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, the plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a moistener, and spring-tensioned moistener-carrier arms connected to the rock-shaft arms.

9. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, the plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a moistener, moistener-carrier arms connected to the rock-shaft and a spring to maintain the moistener-carrier arms in a position to hold the moistener in contact with the surface to be moistened.

10. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, plunger-guides therefor, a rock-shaft journaled in bearings forming part of the plunger-guides, a jointed pitman for the stamp-affixing plunger to actuate the rock-shaft, depending arms for the rock-shaft, an inking-pad normally opposed to the stamp-affixing plunger and spring-tensioned pad-carrying arms hinged to the rock-shaft arms.

11. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, plunger-guides therefor, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft depending arms for the rock-shaft, a moistener, moistener-carrier arms connected to the rock-shaft arms, a moistener-reservoir and a stationary moistener contained in the moistener-reservoir to engage the movable moistener.

12. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, plunger-guides therefor, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a moistener, moistener-carrier arms connected to the rock shaft arms, a moistener-reservoir, a stationary moistener contained in the moistener-reservoir to engage the movable moistener, and an inclined face for the moistener-reservoir opposed to the movable moistener.

13. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, the plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft depending arms for the rock-shaft, a moistener, spring-tensioned moistener-carrier arms connected to the rock-shaft arms, a moistener-reservoir and a stationary moistener contained in the moistener-reservoir to engage the movable moistener.

14. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, the plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a movable moistener, spring-tensioned moistener-carrier arms connected to the rock-shaft arms, and a moistener-reservoir having an inclined face opposed to the movable moistener.

15. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, the plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a moistener, moistener-carrier arms connected to the rock-shaft, a spring to maintain the moistener-carrier arms in a position to hold the moistener in contact with the surface to be moistened, a moistener-reservoir and a stationary moistener contained in the moistener-reservoir to engage the movable moistener.

16. In a stamp affixing and canceling machine the combination of the stamp-affixing plunger, plunger-guides, a rock-shaft journaled in bearings forming part thereof, a pitman for the stamp-affixing plunger to oscillate the rock-shaft, depending arms for the rock-shaft, a moistener, moistener-carrier arms connected to the depending arms, a spring to maintain the moistener-carrier arms in a position to hold the moistener in contact with the surface to be moistened, and an inclined face for the moistener-reservoir opposed to the movable moistener.

17. In a stamp affixing and canceling machine the combination of a stamp-affixing mechanism, a longitudinally-movable stamp-feeding carriage having stamp-carrying belts revoluble transversely to the longitudinal motion thereof, a vertically-movable plunger located above the path of the stamp-feeding carriage, a knife slidably connected to the plunger to sever the positioned stamp from the sheet of which it forms a part as the plunger descends normally projecting below the stamp-engaging face of the plunger, a tension-spring to maintain the knife in its normal position and means to slidably connect the knife to the plunger.

18. In a stamp affixing and canceling machine, a stamp-carriage comprising a substantially rectangular frame, pulleys journaled therein and arranged in oppositely-disposed pairs, stamp-carrying belts passing around the pulleys and means for rotating the pulleys and belts, in combination with the stamp-affixing plunger and means for intermittently actuating the stamp-carriage, substantially as specified.

19. In a stamp affixing and canceling machine, a stamp-carriage comprising a substantially rectangular frame, spiked wheels journaled therein, apertured belts passing around the spiked wheels having stamp-engaging spikes on its outer surface to engage the rows of perforations between the stamps and a spiked cross-piece to

engage the row of perforations between the last row of stamps and selvage, and means for rotating the spiked wheels and belts, substantially as specified.

20. In a stamp affixing and canceling machine, a stamp-carriage comprising a substantially rectangular frame, spiked wheels journaled therein, apertured belts passing around the spiked wheels having stamp-engaging spikes on its outer surface to engage the rows of perforations between the stamps, a spiked cross-piece to engage the row of perforations between the last row of stamps and selvage, means for rotating the spiked wheels and belts, in combination with a motor for actuating the stamp-carriage, a detent mechanism to arrest the carriage to position the stamps and a stamp-affixing plunger actuating the detent mechanism on each operation, substantially as specified.

21. In a stamp affixing and canceling machine, a stamp-carriage comprising a substantially rectangular frame, spiked wheels journaled therein, apertured belts passing around the spiked wheels having stamp-engaging spikes on its outer surface to engage the rows of perforations between the stamps a spiked cross-piece to engage the row of perforations between the last row of stamps and selvage, means for rotating the spiked wheels and belts, a supporting-frame for the stamp-carriage, a rotatable shaft journaled in the supporting-frame, a drum mounted thereon, a spring to actuate the rotatable shaft and a strap connected to the drum and to the carriage, substantially as specified.

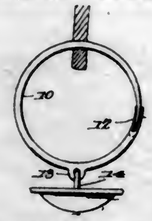
22. In a stamp affixing and canceling machine, a stamp-carriage comprising a substantially rectangular frame, spiked wheels journaled therein, apertured belts passing around the spiked wheels having stamp-engaging spikes on its outer surface to engage the rows of perforations between the stamps a spiked cross-piece to engage the row of perforations between the last row of stamps and selvage, means for rotating the spiked wheels and belts, a supporting-frame for the stamp-carriage, a rotatable shaft journaled in the supporting-frame, a drum mounted thereon, a spring to actuate the rotatable shaft, a strap connected to the drum and to the carriage, a detent-rack connected to the carriage, a spring-tensioned check-rack connected to the detent-rack, a stop carried by the detent-rack contained in an elongated slot in the check-rack, a reciprocating pawl to engage the teeth of the detent and check racks and a lever for the pawl in combination with the stamp-affixing plunger and means actuated by the stamp-affixing plunger to operate the reciprocating pawl, substantially as specified.

23. In a stamp affixing and canceling machine, a stamp-carriage comprising a substantially rectangular frame, spiked wheels journaled therein, apertured belts passing around the spiked wheels having stamp-engaging spikes on its outer surface to engage the rows of perforations between the stamps a spiked cross-piece to engage the row of perforations between the last row of stamps and selvage, means for rotating the spiked wheels and belts, a supporting-frame for the stamp-carriage, a rotatable shaft journaled in the supporting-frame, a drum mounted thereon, a spring to actuate the rotatable shaft a strap connected to the drum and to the carriage, a detent-rack connected to the carriage, a spring-tensioned check-rack connected to the detent-rack, a stop carried by the detent-rack contained in an elongated slot in the check-rack, a reciprocating pawl to engage the teeth of the detent and check-racks, a lever for the pawl in combination with the stamp-affixing plunger, a moistener-carrier, a rock-shaft for the moistener-carrier journaled in bearings connected to the machine-frame, and a toggle-jointed lever connected to the rock-shaft and to the stamp-affixing plunger, substantially as specified.

24. In a stamp affixing and canceling machine, the combination of the machine-frame, a plunger-guide, a stamp-affixing plunger movable therein, an apron depending from the machine-frame having at its lower end a horizontal offset, a crank-shaft journaled in bearings carried by the horizontal offset, a bevel-pinion mounted on the crank-shaft, a pinion rotatable in a vertical bearing in the horizontal offset and having a screw-threaded bore, a vertically-adjustable table opposed to the stamp-affixing plunger, a screw-threaded standard for the table vertically movable through the screw-threaded bore of the bevel-pinion and guide-heads for the table vertically movable in vertical sots formed in the apron, substantially as specified.

785,857. BUTTON-LINK. ANNA V. CASSETT, Kansas City, Mo. Filed Dec. 15, 1903. Serial No. 185,306.

Claim.—1. A spring-pin consisting of a lap-ring formed from a resilient bar which is tapered from one end to the other to form a pointed terminal capable of piercing the material to which the pin is to be applied, with its larger end provided with a longitudinal socket open at its outer end and also opening laterally throughout its length, the pointed terminal being normally seated in the socket and capable of being sprung laterally out of the same to separate the terminals of the ring for applying and removing the device, and said pointed terminal capable of snapping back into the socket when released.



2. A spring-pin consisting of a lap-ring formed from a resilient bar which is tapered from one end to the other to form a pointed terminal capable of piercing the material to which the pin is to be applied, with its larger end provided with a longitudinal socket open at its outer end and also opening laterally throughout its length, the pointed terminal being normally seated in the socket and capable of being sprung laterally out of the same to separate the terminals of the ring for applying and removing the device, and said pointed terminal capable of snapping back into the socket when released, and an eye carried by and projected externally of the ring for the attachment of a button.

785,858. CURTAIN-POLE. EMORY O. CASTNER, Sprucecreek, Pa. Filed Apr. 30, 1904. Serial No. 205,687.



Claim.—1. As a curtain-pole, the combination, with the pole-section having the front recess and elongated groove, and extensions having sockets therein for engaging brackets, of the front section fitting within the recess of the rear section and having a corrugated tongue extended within the said groove, and the spring-tongues for clamping the two sections together, substantially as shown and described.

2. As a means for suspending curtains, the combination with the rear pole-section having the end extensions and sockets, and the front recess and longitudinal groove, and the front section having the corrugated tongue fitted within the said groove of the rear section, and the spring-clamps in pivotal connection with the rear pole-section, of the supporting-brackets engaging the said sockets of the rear pole-section, substantially as shown and described.

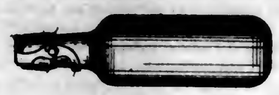
3. In a curtain-pole, the combination with the pole-section A, having a face comprising recess a', and groove a^3, of the pole-section A', fitting into said recess and having a face registering with the face of said pole-section A, through the entire length of said recess, the tongue B, on the said pole-section A', and extending into the said groove a^3, a resilient clamp detachably holding said pole-sections together, and means for mounting said pole.

4. In a curtain-pole, the combination with the pole-section A, having a face comprising the recess a, and groove a^3, of the pole-section A', fitting into said recess, and having a face registering with the face of said pole-section A, through the entire length of said recess, the tongue B, on the said pole-section A, and extending into the groove a^3, clamps comprising loops, and coils, of resilient material pivotally attached to said pole and detachably holding said pole-sections together, and means for mounting said pole.

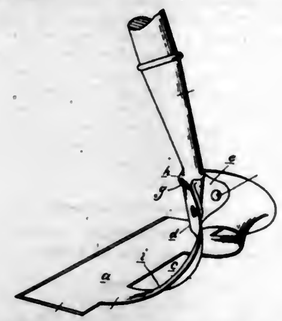
785,859. MEANS FOR SECURING CORKS OR LIKE STOPPERS IN BOTTLES. JAMES J. CRAVASSE, Birmingham, England. Filed June 10, 1903. Serial No. 160,233.

Claim.—1. In combination with a hand encircling a bottle-neck a sheet-metal cork-holder pivoted thereto having a portion to rest on the cork and having a loop part below said pivots adapted to come in contact with the bottle-neck to form a stop to prevent the cork-holder from being turned up or down too far.

2. In combination with a band encircling the bottle-neck a sheet-metal holder pivoted thereto having arms below said band and having a portion to rest on the cork said holder having also projections d^7 d^8 to be pressed by the fingers.



785,860. HOE. CHARLES N. CHOATE, Windsor, Canada, assignor of one-half to Fred E. Atchison, Detroit, Mich. Filed June 27, 1904. Serial No. 214,331.



Claim.—1. A hoe comprising a handle-socket and a combined blade and shank struck up from sheet metal in a return-bent form, the shank being of segmental form and secured to said socket.

2. A hoe comprising a blade and shank struck up from sheet metal, the shank being of segmental form and return-bent.

3. A hoe comprising a blade and shank struck up from an integral sheet-metal blank, the shank being of segmental form, bent at the center to form oppositely-angling portions and each portion being return-bent and of a channeled cross-section.

4. A hoe comprising a blade and shank struck up from an integral sheet-metal blank, the shank being of segmental form, bent at the center to form oppositely-angling portions, each of said portions being return-bent and formed of a channel-shaped cross-section, and a handle-socket secured to said shank at the central angle thereof.

5. A hoe comprising a blade and shank struck up from an integral sheet-metal blank, the shank being of segmental form, bent at its center to form oppositely-angling portions, each of which is return-bent and formed of channel-shaped cross-section, and a handle-socket having angling-lugs secured to said shank at the central bend therein, forming a reinforcement for said handle.

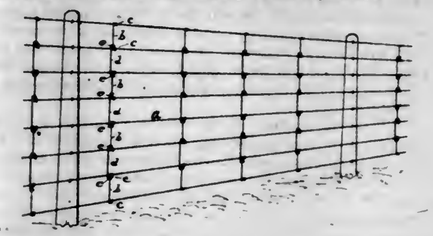
6. A hoe comprising a blade and shank struck up from an integral sheet-metal blank, the shank portion being cut out at its center to form a semi-annular shape, and being bent at its center to form oppositely-angling portions, each of which is return-bent and of channel-shaped cross-section, a handle-socket secured in the bend of said shank and having a rib engaging with the upper edge of the shank, and a lug turned over the front face thereof.

7. A hoe comprising a handle-socket and a combined blade and shank struck up from an integral sheet-metal blank, the shank being of segmental form and return-bent, and end projection of the blade portion beyond the point of union with said shank, forming narrow cutting-blades.

785,861. WIRE FENCE. WALTER CLEMENT, Adrian, Mich. Filed Nov. 23, 1903. Serial No. 182,214.

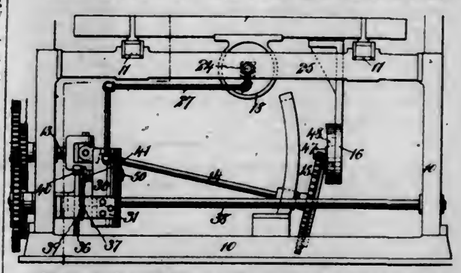
Claim.—1. A wire fence comprising upper, lower and intermediate rigid sections each composed of a plurality of horizontal line-wires and rigid stays having their ends respectively rigidly secured to the adjacent line-wires whereby the horizontal line-wires of the rigid sections will be held by each of said stays from yielding vertically throughout their length, and looped stays formed with loops at their extremities respectively, yieldingly connecting each of said rigid sections with the adjacent section, the rigid stays having their extremities passed through the loops on the adjacent extremities of the looped stays, whereby each rigid section of line-wires may yield independently of the remaining sections of line-wires.

2. A wire fence comprising rigid sections each composed of a plurality of horizontal line-wires and vertical wire stays all rigidly connected at each extremity thereof with the adjacent line-wire, and looped stay-wires yieldingly connecting said rigid sections with the next adjacent rigid section, said looped stay-wires constructed with loops at the extremities thereof, said loops both offset from the plane of the body of stay-wires, and the rigid stays having their extremities passed through the adjacent loops of the looped stays.



3. A wire fence comprising rigid sections each composed of a plurality of horizontal line-wires and vertical rigid stays having their extremities both twisted upon the adjacent line-wires to form a rigid connection of said stays with said wires, and looped stay-wires yieldingly connecting adjacent rigid sections, said looped stay-wires constructed with loops at the opposite extremities thereof, the loops of the looped stays encircling the adjacent rigid stays whereby each rigid section of line-wires may yield independently of the remaining sections of line-wires.

785,862. SPRING-CONTROLLING MECHANISM FOR THE BEDS OF PRINTING-PRESSES. CHARLES P. COTTRELL, Westerly, R. I., assignor to C. B. Cottrell & Sons Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 27, 1904. Serial No. 195,526.



Claim.—1. In combination with a spring for counteracting or reducing the momentum of the reciprocating bed of a printing-press, means timed to the travel of the bed for first retaining the resistance of the spring during a certain portion of said travel and for afterward from a predetermined point in said travel so controlling said resistance as to restrict the further increase thereof during a further travel.

2. In combination with a spring for counteracting or reducing the momentum of the reciprocating bed of a printing-press, means timed to the travel of the bed for first retaining the resistance of the spring to counteract or overcome the momentum acquired by the bed during a portion of said travel and for afterward, while reducing such resistance during a further travel beyond a predetermined point, retaining sufficient resistance at the end of the travel to assist in starting the bed in the reverse direction.

3. In combination with a spring for counteracting or reducing the momentum of the reciprocating bed of a printing-press, means for first retaining the resistance of the spring to counteract or reduce the momentum acquired by the bed in its travel, and cam-actuated mechanism deriving motion from the press for afterward so controlling such resistance as to restrict the further increase thereof during the further travel.

4. The combination with the cylinder and piston of an air-spring for a reciprocating printing-press bed, of an outlet-valve and mechanism timed to the travel of the bed for opening said valve at a predetermined point in said travel for releasing air from said cylinder to prevent a further increase of compression during the further travel.

5. The combination with the cylinder and piston of an air-spring for a reciprocating printing-press bed, of an outlet-valve and mechanism timed to the travel of the bed for keeping said valve closed to retain the air in the cylinder to a predetermined point in said travel and afterward opening said valve to restrict the further compression of air in the cylinder during the further travel.

6. The combination with the cylinder and piston of an air-spring for a reciprocating printing-press bed, of an outlet-valve and cam-actuated mechanism timed to the travel of the bed for keeping the valve closed during an earlier stage of the entering movement of the piston into the cylinder and afterward opening said valve at a predetermined point in the travel of the bed and thereby providing for the escape of air from said cylinder during a further portion of said travel.

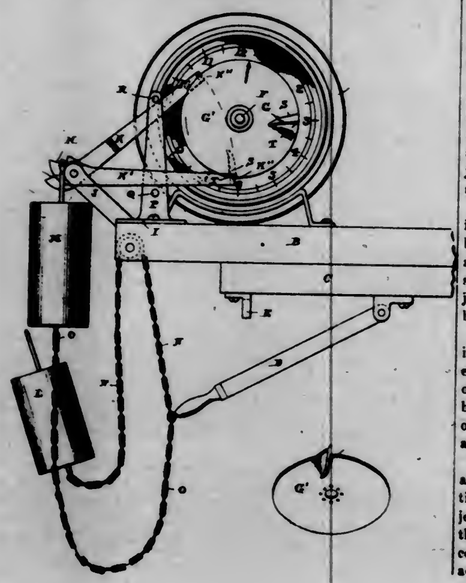
7. The combination with the cylinder and piston of an air-spring for a reciprocating printing-press bed, of an outlet-valve and cam-actuated mechanism timed to the travel of the bed for first keeping the valve closed during an earlier stage of the entering movement of the piston into the cylinder, then opening said valve at a predetermined point in said travel in one direction and afterward closing said valve before the termination of said travel in the same direction.

8. The combination with a printing-press bed and mechanism for giving said bed a reciprocating movement retarded at a certain stage of its progress, of a spring for counteracting the momentum of the bed and means for restricting the resistance of said spring from and beyond that point in said movement at or near which the retardation takes place.

9. The combination with a printing-press bed and mechanism for giving said bed a reciprocating movement retarded at a certain stage of its progress, of an air-spring comprising a cylinder and piston for counteracting the momentum of the bed, an outlet-valve to said cylinder, and mechanism deriving motion from the press for opening said valve at or near that point in said movement in either direction at which the retardation takes place.

10. The combination with a printing-press bed and mechanism for giving said bed a reciprocating movement retarded at a certain stage of its progress, of an air-spring comprising a cylinder and piston for counteracting the momentum of the bed, an outlet-valve to said cylinder and mechanism deriving motion from the press for opening said valve at or near that point in said movement in either direction at which the retardation commences and closing it before the termination of the movement.

785,863. ELECTRIC TIME-SWITCH. WILLIAM B. COULTER, Waterbury, Conn. Filed Nov. 11, 1904. Serial No. 232,275.



Claim.—1. In an electric time-switch, the combination with a movement bearing an arbor, of disks mounted on such arbor each having a peripheral engaging edge with an end thereof deflected to one side of the disk, levers for engagement with said engaging edge adapted to be released from the free end and become entirely disengaged from the disk, weights detachably connected to the opposite end of the levers in a manner to hold them in engagement with the disks, a switch and connections intermediate of the switch and weights whereby said switch is automatically operated by the drop of the weights.

2. In an electric time-switch, the combination with a time-movement, of rotary disks carried thereby bearing peripheral engaging edges having ends disposed to one side of the disks, loosely-pivoted levers adapted to engage the edge of the disks in a manner to be shifted out of alinement with the disks and be entirely released from engagement therewith, weights to hang upon the opposite ends of the levers with connections with the switch whereby the latter is closed by the fall of one weight and opened by the drop of the other.

3. An electric time-switch comprising a movement carrying disks bearing engaging edges having ends disposed to one side of the disks, loosely-pivoted levers the forward ends of which are bent to form a shoulder to engage the edges of the disks and the outer ends having a shoulder therein, weights to suspend from the short ends of the levers and connections therefrom to the weights whereby they serve to close and open the switch.

785,864. HARROW ATTACHMENT. JUSTUS A. DAVIS, Rome, Kans. Filed Oct. 15, 1904. Serial No. 228,604.



Claim.—1. In a harrow attachment for plows, the combination of a bar provided at one end with an extension having an elongated slot therein, means for adjustably attaching said extension, a plurality of teeth carried by the bar, and an attaching-arm located between the ends of the bar and slotted for adjustable connection with a supporting part.

2. In a harrow attachment for plows, the combination of a plow of the gang type embodying supporting-standards, spaced bars extended from said standards, each of said bars having vertically-adjustable connection at one end to a respective standard, and a bar connecting the opposite ends of said spaced bars.

3. In combination, a plow of the gang type embodying supporting-standards and mold boards carried by said standards, spaced bars provided at respective ends with extensions, means for adjustably connecting the extension of each of said bars with a respective standard, adjustable connecting means between each bar and an adjacent moldboard, and teeth mounted upon the spaced bars aforesaid.

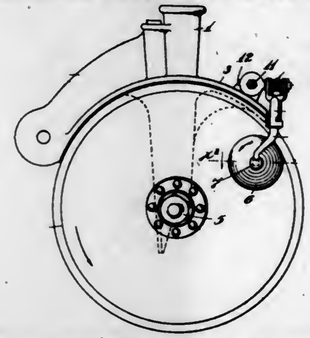
4. In combination, a plow of the gang type embodying supporting-standards and moldboards carried by said standards, spaced bars provided at respective ends with extensions, means for adjustably connecting the extension of each of said bars with a respective standard, adjustable connecting means between each bar and an adjacent moldboard, a bar connecting the outer ends of the spaced bars aforesaid, and teeth carried by the spaced bars.

5. In combination, a plow of the gang type embodying supporting-standards and moldboards carried by the said standards, a bar extended from each standard and curved to conform with the shape of the adjacent moldboard, means for adjustably connecting each bar with the adjacent standard and moldboard, a bar connecting the outer ends of said spaced bars, and teeth carried by the spaced bars and the connecting-bar aforesaid.

6. In combination, a plow of the gang type, supporting-standards and moldboards carried thereby, spaced bars carried by respective standards and provided at respective ends with downwardly-projected extensions having vertical slots therein, fastenings passing through the slots of the extensions and through the standards adjacent, adjustable arms carried by the spaced bars and attached to the adjacent moldboard, a bar connecting the outer ends of the spaced bars, and a plurality of teeth carried by the spaced and connecting bars aforesaid.

7. In combination, a plow of the gang type embodying spaced standards, spaced bars extending from respective standards and connected therewith at one end, a bar connecting the outer ends of said spaced bars, a bar having loose or flexible connection with the bars aforesaid, and teeth carried by the last-mentioned bar.

785,865. SCRAPER FOR DISK DRILLS. SPENCER E. DAVIS, Minneapolis, Minn. Filed Sept. 6, 1904. Serial No. 223,334.



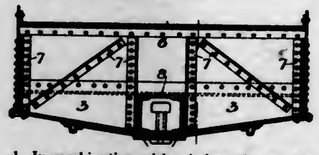
Claim.—1. The combination with a disk, of a disk-like scraper having a convex outer face and having continuous marginal engagement with said disk, substantially as described.

2. The combination with a disk, of a disk-like rotary scraper having continuous marginal engagement therewith, and with its axis eccentric to the axis of said disk, substantially as described.

3. The combination with a rotary disk, of a concavo-convex rotary scraper having continuous marginal engagement therewith, and having its axis eccentric to the axis of said disk, substantially as described.

4. The combination with a disk, of a concavo-convex rotary scraper having continuous marginal engagement with said disk at one side of the disk-pivot, and a spring-pressed arm loosely pivoted to said scraper, and pressing the same into frictional engagement with said disk, substantially as described.

785,866. CAR-FRAME. ETHAN I. DODDS, Avalon, Pa., assignor to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Jan. 29, 1904. Serial No. 191,117.



Claim.—1. In combination with a bolster flanged at its lower side only, a tension strut-plate secured directly to the web of the bolster and extending upwardly therefrom; substantially as described.

2. In combination with a bolster flanged at its lower side only, a tension strut-plate secured directly to the web of the bolster, extending upwardly therefrom and secured to the car-floor; substantially as described.

3. A bolster having an integral flange at its lower edge only, and a parallel tension strut-plate secured to the upper portion of its web; substantially as described.

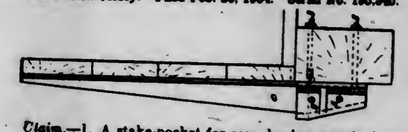
4. A car-sill, a bolster having an integral lower flange and a web extending above the sill, and a tension strut-plate secured directly to the projecting portion of the bolster; substantially as described.

5. In combination with a bolster, a tension strut-plate extending upwardly therefrom, and flanged braces connecting the bolster with the plate; substantially as described.

6. In combination with a bolster, a tension strut-plate extending upwardly therefrom, and flanged braces connecting the bolster with the plate; said braces extending diagonally and adapted to distribute the load; substantially as described.

7. In combination with a bolster having a flanged member adjacent to its upper edge, of a tension strut-plate interposed between the flanged member and the bolster and extending upwardly therefrom and flanged braces connecting the bolster with the plate; substantially as described.

785,867. STAKE-POCKET FOR CARS. ETHAN I. DODDS, Avalon, Pa., assignor to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Feb. 26, 1904. Serial No. 196,345.

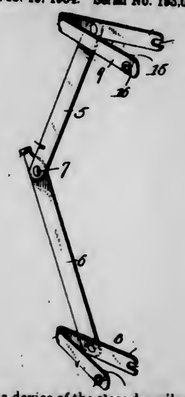


Claim.—1. A stake-pocket for cars, having marginal securing means and a rearwardly-opening, taper recess of substantially T-section to receive the stake; substantially as described.

2. A pressed, plate-metal stake-pocket for cars, having lateral bolting-flanges and a stake-receiving recess of substantially T-section, the web-receiving portion of said recess being narrowed at its lower end; substantially as described.

3. A stake-pocket for cars having bolting-flanges and an interior recess of T form, the web portion of the recess tapering downwardly to receive the stake; substantially as described.

785,868. TROUSERS-STRETCHER. HENRY H. EWING, Wichita, Kans. Filed Feb. 10, 1904. Serial No. 193,001.



Claim.—1. In a device of the class described, a pair of stretcher-bars having their overlapping ends pivoted together, one of said bars being extended to form a hook adapted to engage a slot in the opposite bar for locking said bars in alinement with each other.

2. In a device of the class described, a plurality of pivoted clamping members, and a pair of stretcher-bars pivoted thereto and having their overlapping ends pivoted together and arranged to break in a direction parallel with said members, the pivotal connection between the stretcher-bars and clamping members being arranged at points adjacent the pivoted ends of the latter in order to exert unequal stress at opposite ends of said clamping members.

785,869. FAUCET. JOHN J. FITZGIBBON and JOHN M. TRAVIS, St. Louis, Mo. Filed July 8, 1904. Serial No. 215,532.



Claim.—1. A faucet comprising a body portion, having suitable syrup-receptacles, discharge-passages leading therefrom to a common discharge-nozzle, means for connecting the latter with a source of carbonated-water supply, feed-passages leading from the receptacles to suitable sources of syrup-supply, a horizontally-swinging

operating-lever, and vertically-reciprocating spring-controlled valves located in position to admit the syrup or water from their respective sources of supply and permit their discharge through the nozzle upon swinging of the lever in the proper direction, substantially as set forth.

2. A faucet comprising a body portion, a centrally-disposed operating-lever mounted on the same and swinging horizontally thereover, a cam connected to said lever, a syrup-receptacle at either end of the body portion, a chamber located between the receptacles, pipe-sections leading from the chamber and receptacles to suitable sources of syrup and water, supply-passages leading to the receptacles, a discharge-passage for the water, connecting-passages between the chamber and the last-named discharge-passage, discharge-passages leading from the bottoms of the receptacles to the water-discharge passage, vertically-reciprocating spring-controlled valves normally projecting above the body portion and distributed in the path of travel of the cam carried by the lever, said valves being located in the line of the supply and discharge passages leading from the receptacles, and in the path of the passages leading from the chamber aforesaid, said valves having reduced portions for permitting the flow of the liquid past the same by the depression thereof by the cam upon the oscillation of the lever in proper direction, substantially as set forth.

785,870. **BAG-FASTENER.** ALBERT F. FULLER, Newark, N. J., assignor to The J. E. Mergott Company, a Corporation of New Jersey. Filed June 7, 1904. Serial No. 211,460.



Claim.—1. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, a fixed casing on said plate, said casing being provided in one of its faces with an opening, a spring-controlled push-button extending from said opening, said button being substantially in cross-section of the same marginal configuration as the opening in the casing, so as to practically close said opening, and said button having a movement laterally across the said casing in a plane parallel to the plane of the face of said supporting-plate, a catch-plate within said casing with which the said push-button is connected to actuate the said catch-plate, and means on said catch-plate adapted to be brought in engagement with a holding-plate upon another frame-section, substantially as and for the purposes set forth.

2. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, a fixed casing on said plate, said casing being provided in one of its faces with an opening, a spring-controlled push-button extending from said opening, said button being substantially in cross-section of the same marginal configuration as the opening in the casing, so as to practically close said opening, and said button having a movement laterally across the said casing in a plane parallel to the plane of the face of said supporting-plate, a catch-plate within said casing with which the said push-button is connected to actuate the said catch-plate, a chambered holding-plate upon another frame-section having a depression and an inclined surface portion and said holding-plate being provided with lug-receiving openings, and retaining-lugs on said catch-plate adapted to be brought in holding engagement with the said lug-receiving openings, substantially as and for the purposes set forth.

3. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, said plate being provided with pintle-receiving portions, a fixed casing on said plate, said casing being provided in one of its faces with an opening, a spring-controlled push-button extending from the said opening, said button being substantially in cross-section of the same marginal configuration as the opening in the casing, so as to practically close said opening, and said button having a movement laterally across the said casing in a plane parallel to the plane of the face of said supporting-plate, an oscillatory catch-plate within said casing provided with pintles arranged in the pintle-receiving portions of said supporting-plate, a connecting means between said catch-plate and push-button for actuating said catch-plate, and means on said catch-plate adapted to be brought in holding engagement with a holding-plate upon another frame-section, substantially as and for the purposes set forth.

4. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, said plate being provided with pintle-receiving portions, a fixed casing on said plate, said casing being provided in one of its faces with an opening, a spring-controlled push-button extending from said opening, said button being substantially in cross-section of the same marginal configuration as the opening in the casing, so as to practically close said opening, and said button having a movement laterally across the said casing in a plane parallel to the plane of the face of said supporting-plate, an oscillatory catch-plate within said casing provided with pintles arranged in the pintle-receiving portions of said supporting-plate, a connecting means between said catch-plate and push-button for actuating said catch-plate, a chambered holding-plate upon another frame-section having a depression and an inclined surface portion and said holding-plate being provided with lug-receiving openings, and retaining-lugs on said catch-plate adapted to be brought in holding engagement with the said lug-receiving openings, substantially as and for the purposes set forth.

5. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, a fixed casing on said plate, said casing being provided in one of its faces with an opening, a push-button extending from said opening, said button being substantially in cross-section of the same marginal configuration as the opening in the casing, so as to practically close said opening, and said button having a movement laterally across the said casing in a plane parallel to the plane of the face of said supporting-plate, a curved spring in said casing, said spring being provided with a perforated portion, a catch-plate within said casing, a post on said catch-plate extending into the perforated portion of said spring, and means on said catch-plate adapted to be brought in engagement with a holding-plate upon another frame-section, substantially as and for the purposes set forth.

6. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, a fixed casing on said plate, said casing being provided in one of its faces with an opening, a push-button extending from said opening, said button being substantially in cross-section of the same marginal configuration as the opening in the casing, so as to practically close said opening, and said button having a movement laterally across the said casing in a plane parallel to the plane of the face of said supporting-plate, a curved spring in said casing, said spring being provided with a perforated portion, a catch-plate within said casing, a post on said catch-plate extending into the perforated portion of said spring, a chambered holding-plate upon another frame-section having a depression and an inclined surface portion and said holding-plate being provided with lug-receiving openings, and retaining-lugs on said catch-plate adapted to be brought in holding engagement with the said lug-receiving openings, substantially as and for the purposes set forth.

7. A bag-fastener comprising a supporting-plate adapted to be secured upon a frame-section, said plate being provided with pintle-receiving portions, a casing on said plate, said casing being provided in one of its faces with an opening, a push-button extending from said opening, a curved spring in said casing, said spring being provided with a perforated portion, a catch-plate within said casing, pintles or journal portions on said catch-plate extending into said pintle-receiving portions of said supporting-plate, a post on said catch-plate extending into the perforated portion of said spring, and means on said catch-plate adapted to be brought in engagement with a holding-plate upon another frame-section, substantially as and for the purposes set forth.

8. A bag-fastener, comprising a supporting-plate adapted to be secured upon a frame-section, said plate being provided with pintle-receiving portions, a casing on said plate, said casing being provided in one of its faces with an opening, a push-button extending from said opening, a curved spring in said casing, said spring being provided with a perforated portion, a catch-plate within said casing, pintles or journal portions on said catch-plate extending into said pintle-receiving portions of said supporting-plate, a post on said catch-plate extending into the perforated portion of said spring, a chambered holding-plate upon another frame-section having a depression and an inclined surface portion and said holding-plate being provided with lug-receiving openings, and retaining-lugs on said catch-plate adapted to be brought in holding engagement with the said lug-receiving openings, substantially as and for the purposes set forth.

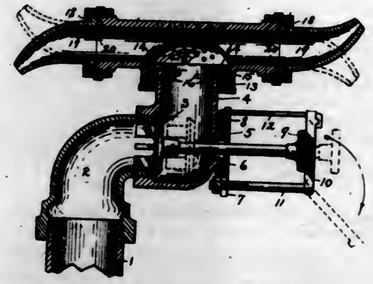
9. In a bag-fastener, the combination, with a casing, of a curved spring in said casing, said spring having its end portions in engagement with parts of said casing, a perforated extension extending at right angles from one of the marginal edges of said spring, a catch-plate in said casing, and an upwardly-extending post on said catch-plate extending loosely into said perforated extension and in engagement therewith, substantially as and for the purposes set forth.

10. In a bag-fastener, the combination, with a casing, of a curved spring in said casing, said spring having its end portions in engagement with parts of said casing, a perforated extension extending at right angles from one of the marginal edges of said spring, a catch-plate in said casing, an upwardly-extending post on said catch-plate extending loosely into said perforated extension and in engagement therewith, and a finger-piece extending from the central portion of said spring, substantially as and for the purposes set forth

11. In a bag-fastener, the combination, with a casing, of a supporting-plate, upwardly-extending posts on said plate and a bent end portion on each post, said posts and end portions forming bearings, a catch-plate in said casing, and pintles or journal portions extending from said catch-plate and arranged in said bearings, substantially as and for the purposes set forth.

12. In a bag-fastener, the combination, with a casing, of a supporting-plate, upwardly-extending posts on said plate and a bent end portion on each post, said post and end portions forming bearings, a catch-plate in said casing, pintles or journal portions extending from said catch-plate and arranged in said bearings, an upwardly-extending post on said catch-plate, an actuating-spring connected with said post, and means for actuating the said spring to bring said catch-plate in jts raised position, substantially as and for the purposes set forth.

785,871. **ROTARY HEAD.** JOHN T. GLAZIER and CHARLES C. GLAZIER, Indianapolis, Ind., assignors, by direct and mesne assignments, to Glazier Nozzle and Manufacturing Company, Indianapolis, Ind., a Corporation of Indiana. Filed Apr. 9, 1904. Serial No. 202,368.



Claim.—1. A rotary head having rotary adjustable discharge ends, a one-piece body connecting said ends, a supply-pipe leading into said body, said body having perforations opposite the mouth of the supply-pipe, an internal valve in the supply-pipe having a stem extending to the outside and a fusible tie for holding said stem.

2. A rotary head having rotary adjustable discharge ends, a one-piece body connecting said ends, a supply-pipe leading into said body having an elbow-bend, a valve seated against an end of said elbow having a stem terminating outside of the pipe, and means held by a fusible tie for holding said stem.

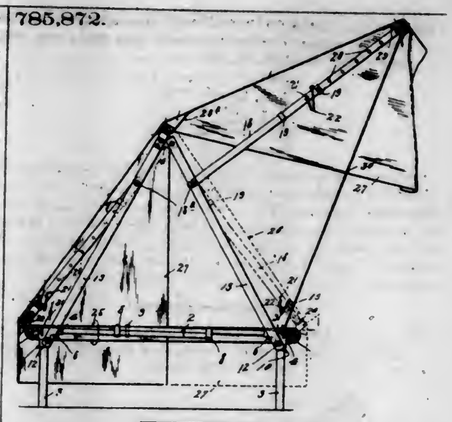
3. A pipe having an end collar with half-round inner edge, a sleeve on the pipe surrounding the collar, a wire packing-ring between the collar and the sleeve and a rotary head secured to said sleeve said head having rotary adjustable discharge-tips.

785,872. **COMBINED COT AND TENT.** IRA L. GLEASON, Hutchinson, Minn. Filed June 10, 1903. Serial No. 160,786.

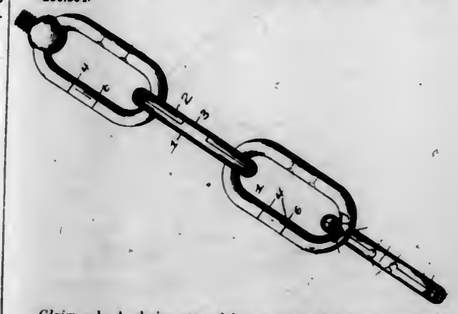
Claim.—1. A tent-frame comprising a ridge-pole, downwardly-converging end-supporting bars, longitudinally-extensible wing-bars pivoted to said end bars, and side bars connected to the free ends of the extensible sections of the corresponding wing-bars, in combination with a tent-cover having means for attaching it to said ridge-pole and to said side bars, substantially as described.

2. The combination with a base-frame, of a ridge-pole, downwardly-converging end-supporting bars supporting said ridge-pole from said base-frame, said end-supporting bars being pivoted for folding movements to and from each other and against said ridge-pole, longitudinally-extensible wing-bars pivoted to said end-supporting bars, side bars attached to the ends of the extensible section of said wing-bars, and a tent-canvas applicable to said ridge-pole and having means for attaching it to said side bars, substantially as described.

785,872.



785,873. **CHAIN.** RUTHERFORD G. GOLDMAN, Los Angeles, Cal., assignor of one-half to C. R. Harris. Filed May 2, 1904. Serial No. 206,004.



Claim.—1. A chain, comprising a series of hollow communicating links and electric wires concealed in said links, substantially as set forth.

2. A chain, comprising a series of hollow communicating links consisting each of two longitudinal half-sections secured together, substantially as set forth.

3. A chain, comprising a series of hollow links, consisting each of two longitudinal half-sections, means for locking said sections together, electric wires in said links, and openings at the ends of the links permitting the electric wires to pass from link to link, substantially as set forth.

4. A chain, comprising a series of hollow links, each having an opening on its inner side at one end and a nipple at its other end to enter the opening in the adjacent link, and electric wires passed through and concealed in said links, substantially as set forth.

5. A chain-link, comprising two longitudinal half-sections with ends spaced apart and having locking-tongues, tubular intermediate portions of the link-sections having recesses to receive the locking-tongues, and spring-nipples projecting beyond the ends of the tubular portions to secure by their spring tension, the locking-tongues in the recesses.

6. A chain, comprising a series of hollow links, electric wires passed through and concealed in the links of said chain, an end fitting, comprising a hollow eye made up of two hollow half-sections surrounding the end link and having a threaded nipple or extension thereon, substantially as set forth.

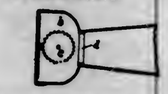
7. A chain comprising a series of communicating hollow open or separable links and electric wires concealed in said links, substantially as set forth.

8. A conduit for electric wires comprising a series of connected hollow communicating links.

9. A conduit for electric wires comprising a series of hollow links, each link passing through and communicating with the adjacent links.

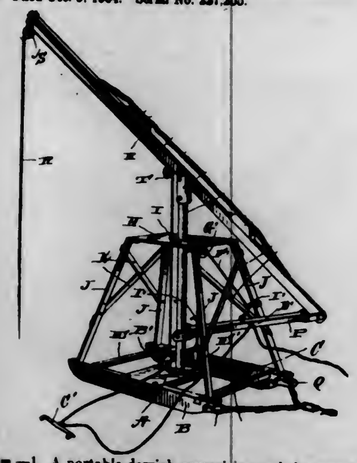
10. A conduit for electric wires comprising a series of hollow separable links connected together end to end.

785,874. CAMPAIGN INSTRUMENT. ALEXANDER H. GOULD, Toledo, Ohio, assignor of one-third to Samuel A. Snell, Elyria, Ohio. Filed June 2, 1904. Serial No. 210,774.



Claim.—An instrument comprising a chamber having an opening therein a diaphragm secured within said chamber, a rib on said diaphragm, a transversely-toothed member rotatably mounted within said chamber in position for its teeth to engage said rib, a flexible shaft on which said member is mounted adapted to permit of a vibratory movement of said member as its teeth move in and out of engagement with said rib, and means for rotating said shaft.

785,875. PORTABLE DERRICK. ELIAS GRAHAM, Casey, Ill., assignor of two-thirds to Ralph E. Graham and Frank Schmoyer, Casey, Ill. Filed Oct. 5, 1904. Serial No. 227,255.



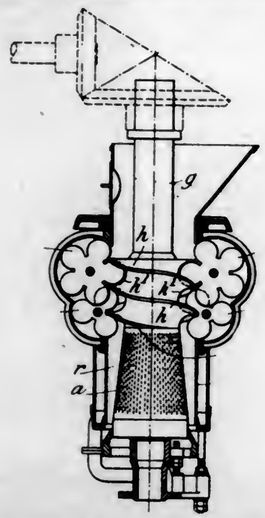
Claim.—1. A portable derrick comprising a sled, supports rising therefrom, a table at the upper end of said supports, a shaft mounted upon a cross-piece of the sled and having a bearing in said table, the upper end of said shaft being bifurcated, a beam pivotally mounted in the bifurcated end of said shaft, an arm having bifurcated ends, one of which is connected to said shaft and its other end pivotally connected to said beam, pulleys one secured to one of said supports and the other to said table, a rope secured to said bifurcated arm and passing over said pulleys, and a weight secured to the ends of said rope, and a hoisting-cable passing about suitable pulleys upon said beam, as set forth.

2. A portable derrick comprising a sled, supports secured thereto, a table fastened to the upper ends of said supports, a shaft resting upon a cross-piece of said sled and passing through an aperture in said table, the upper end of said shaft being bifurcated, a beam pivotally mounted in the bifurcated end of said shaft, a truss secured to said beam and passing over its pivotal center, an arm having bifurcated ends, one of which is pivotally connected to said shaft and its other end to said beam, pulleys one secured to one of said supports and the other to said table, a cable secured at one end of said arm and passing about said pulleys, and a weight secured to the cable, as set forth.

785,876. SCREW-PRESS. GUSTAV GROPP, Nieuychowo, near Weissenhöhe, Germany. Filed Sept. 18, 1903. Serial No. 173,682.

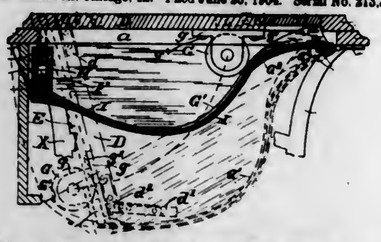
Claim.—1. A press for sliced beet-roots and the like, comprising a feed-chamber, a solid feeding-screw mounted to rotate in the chamber, rotary shutting-off parts or stops engaging in the spaces between the threads of the screw, a conical open-work support or bearing for the screw, an inner sieve or perforated plate carried on the open-work support, and an outer sieve-casing surrounding the inner sieve, the two sieves being arranged to form a pressing-chamber separate from the feed-chamber and which diminishes downwardly, substantially as described.

2. In a screw-press for pressing sliced beet-roots or the like in which the beet-roots are fed into a pressing-chamber, a pressing device consisting of a rotary screw-spindle and a fixed conical bearing for the screw arranged to form the inner wall of the pressing-chamber, substantially as described.



3. In a screw-press for pressing sliced beet-roots or the like, a pressing device consisting of a rotary screw-spindle, and a fixed conical open-work support in which the screw-spindle is guided, and an undivided or smooth sieve-casing arranged on the open-work support, and forming the inner wall of the pressing-chamber, substantially as described.

785,877. CABINET-HEAD FOR SEWING-MACHINES. ANTON HACKENBROCH, Chicago, Ill. Filed June 20, 1904. Serial No. 213,343.



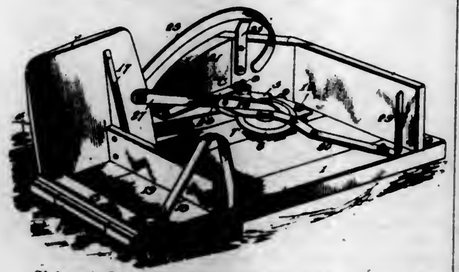
Claim.—1. In a cabinet-head for sewing-machines, the combination of a table provided with an aperture therethrough, a machine base-board pivotally attached to the table, a leaf pivotally attached to the forward edge of the machine base-board and tracks underneath the table pivotally connected at one end thereof, respectively, to the table, such tracks and pivotally-attached leaf related so that when the machine base-board is in a horizontal plane the forward edge of such leaf rests on the tracks and the leaf is maintained in a horizontal plane thereby; substantially as described.

2. In a cabinet-head for sewing-machines, the combination of a table provided with an aperture therethrough, a leaf above the table, hinges, to attach one edge of the leaf to the table, tracks below the table, a panel between the tracks to move therewith, hinges to attach one end of the tracks to the table, a bar attached to the end of the tracks which are not hinged to the table, a roller rotatably mounted on such bar, a flexible chain or cord extending under the roller, such flexible connection attached at one end to the table and at the other end to the top leaf, a machine base-board pivotally attached to the table, and rollers rotatably mounted on the under side of the base-board to travel on the tracks; substantially as described.

3. In a cabinet-head for sewing-machines, the combination of a table provided with an aperture therethrough, a leaf above the table, hinges connecting one edge of the leaf to the table, tracks below the table, a panel between the tracks, such panel constituting the front and bottom of a receptacle when the cabinet-head is closed, hinges attached to the table and to one end of the respective tracks, a bar attached to the other end of the tracks, a roller rotatably mounted on the bar, a flexible connection extending under the roller such connection attached at one end thereof to the table and at the other end to the leaf which is hinged above the table, a second leaf pivotally attached to the forward edge of the machine base-board, the position of such second leaf controlled by a connection between the forward edge thereof and the tracks, and rollers rotatably mounted on the under side of the machine base-board; substantially as described.

4. In a cabinet-head for sewing-machines, a table-top provided with an aperture therethrough and a leaf hinged to the upper surface of the table-top in combination with a receptacle, hinges attached to the forward edge of the receptacle and to the under surface of the table-top adjacent to the forward edge of the aperture therethrough, tracks in the receptacle, a machine base-board pivotally attached to the table-top adjacent to the rear edge of the aperture therethrough, rollers pivotally attached to the under surface of the machine base-board to rest on the tracks in the receptacle, and a flexible connection between the hinged top leaf and the free end of the receptacle; substantially as described.

785,878. CORN-HARVESTER. ABRAHAM G. HEISEY, Cushing, Okla. Filed Dec. 8, 1904. Serial No. 236,023.



Claim.—1. In combination, a platform having a longitudinal passage, cutting mechanism at the inner or rear end of said passage, a butt-board at the rear end of the platform, a fender at the outer side of the passage opposite to the cutting mechanism, front and rear standards at the outer side of the platform for supporting the stalks thereon, a guard upon the inner side of the passage near the front end and acting jointly with the front standard to hold the stalks in place, a rest between the front standard and guard, and a transverse bar inclined outward and downward toward the rear standard.

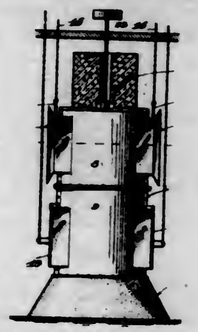
2. In a corn-harvester, the combination of a platform having a longitudinal passage near one side, coöperating rotary cutters at the inner end of said passage, a guard 16 upon the inner side of said passage at the front end thereof and inclined toward its upper end to overhang the passage, a standard 18 opposite to the guard 16, a rest 19, a guard 23 upwardly and rearwardly inclined and laterally curved, bar 27 inclined rearwardly and downwardly, bar 28 attached to the bar 27 and extended over the topmost fastening of the journal of the rotary cutter at the inner side of the aforesaid passage, upwardly and rearwardly inclined bar 26, fender 21, butt-board 20, inclined wall 22, standard 29, and transverse bar 30, the parts being arranged to operate substantially in the manner set forth.

785,879. TIDE-MOTOR. GEORGE M. HELVIE, Longbeach, Cal. Filed Oct. 31, 1904. Serial No. 230,574.

Claim.—1. A retaining-wall; a hollow cylinder mounted in said wall; said cylinder having a plurality of inlet and outlet openings; means for controlling said openings; a shaft mounted in said cylinder and a revoluble water-wheel secured to said shaft intermediate the inlets and outlets.

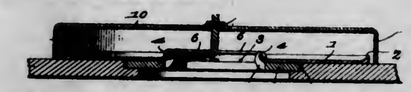
2. A retaining-wall; a hollow cylinder mounted in said wall; said cylinder having a plurality of inlet and outlet openings; means for controlling said openings; a shaft mounted in said cylinder and a revoluble water-wheel secured to said shaft intermediate the inlets and outlets; a deflector secured in said cylinder above and adjacent said water-wheel.

3. In a retaining-wall; a hollow body mounted in said wall; said hollow body having a plurality of oppositely-disposed inlet and outlet openings; means for controlling said openings; a deflector secured in said body intermediate said inlets and outlets; a shaft revolubly mounted in said body and a revoluble water-wheel secured to said shaft below and adjacent said deflector.



4. In a dam to control the flow of tides; a plurality of inlet and outlet openings in said structure; means to control said openings; a deflector secured in said structure intermediate said inlets and outlets; a shaft revolubly mounted in said structure and a revoluble water-wheel secured to said shaft below and adjacent said deflector.

785,880. GRIDDLE. CHARLES E. HILL, Millington, Mich. Filed Oct. 11, 1904. Serial No. 228,074.



Claim.—1. A cooking utensil of the class described having an opening and a reinforcement upon its under side around the opening to take wear and to fit within a stove-hole.

2. A cooking utensil of the character described having an opening in the bottom thereof and a reinforcing-ring applied to the under side of the utensil around the opening therein to take wear and to fit within a stove-hole.

3. A cooking utensil of the character described having an opening in the bottom thereof surrounded by an upstanding rim, and a reinforcing-ring applied to the under side of the utensil around the opening therein and provided upon its inner periphery with projections which rise through the opening in the utensil and are connected to the rim thereof.

4. A cooking utensil of the character described having a central opening in the bottom thereof, and an upstanding handle formed of twisted strands which are spread at their lower ends and connected to the bottom of the utensil with the handle located centrally above the opening.

5. A cooking utensil of the character described having a central opening in the bottom thereof, a handle rising centrally above the opening and provided with legs arching across the opening and connected to the bottom of the utensil, and a cover supported centrally over the opening and pierced by the handle to form a deflector for directing currents of air to and downwardly through the opening.

6. A cooking utensil of the character described comprising a base having a central opening, a reinforcing-ring applied to the under side of the base around the opening therein to take wear and to fit within a stove-hole, and a handle rising centrally above the opening and formed of twisted strands which are spread at their lower ends to form legs arched across the opening and connected to the base.

7. A cooking utensil of the character described comprising a base, a cover having a pendent peripheral rim of greater diameter than the base for engagement with the top of the stove to support the cover independently of the base, said cover having an opening to expose a portion of the base, and a handle carried by the base and passing through the cover, the base being rotatable independently of the cover by manipulation of the handle.

8. A cooking utensil of the character described comprising a substantially circular base having a central opening, a cover having a pendent peripheral rim of greater diameter than the base for engagement with the top of a stove to support the cover independently of the base, said cover being provided with an opening exposing a portion of the base, and a handle rising centrally from the base and

through the cover, the base being rotatable within the cover by manipulation of the handle.

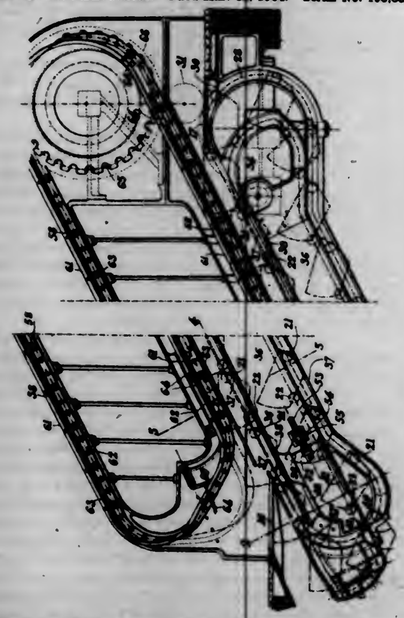
785,881. **CONNECTING-LINK FOR CHAINS AND CHAIN CABLES.** JOSEPH W. HILL, Stourbridge, England, assignor to Stanley Charles Paul, Stourbridge, England. Filed Apr. 12, 1904. Serial No. 202,962.



Claim.—1. A connecting-link for chains and chain cables consisting essentially of two U-shaped half-links made with enlarged heads which abut together where they meet on the shorter diameter of the link, and a box-like part made in halves which meet together on the central longitudinal plane of the link and inclose the heads and end portions of the half-links, said halves of the box-like part being recessed to fit the heads and end portions of the half-links and means for connecting the halves of the box-like part together, substantially as set forth.

2. In a connecting-link for chains the combination of the two half-links having enlarged heads abutting each other, a box-like part made in two parts each of said parts having a recess therein in which the heads lie, and a bolt connecting the halves of the box-like part together.

785,882. **TRAVELING STAIRCASE OR THE LIKE.** EDOUARD L. HOCQUART, Paris, France. Filed Mar. 14, 1904. Serial No. 198,333.

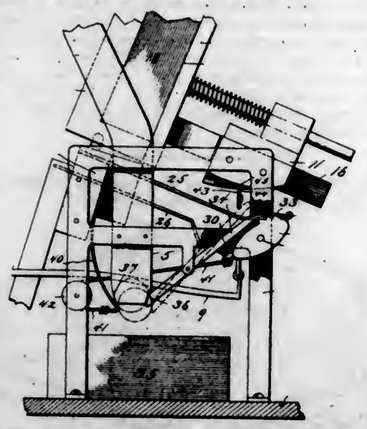


Claim.—1. In a traveling staircase having laterally-disposed tracks for receiving the rollers of the movable steps, the combination with said tracks, of a lower plate carrying a portion of said tracks, a frame integral with said plate, guides integral with the tracks and means for shifting the plate in the guides, switches with springs actuated automatically by the passage of the rollers of the steps for the purpose of insuring proper direction of the same and of other tracks for the rollers of a movable hand-rail, substantially as and for the purposes specified.

2. In a traveling staircase of the class described a flexible hand-rail comprising metallic strips provided with elastic connections the whole being inclosed in a suitable covering, a driving-chain to which the hand-rail is connected, running in a track and driven at a linear speed equal to that of the staircase, and devices for insuring that the hand-rail and the staircase shall remain parallel for use, substantially as described.

3. In a traveling staircase, a movable railing comprising a flexible portion provided with slides, gearings for engaging with said slides, and a stationary portion along which said slides are adapted to travel.

785,883. **VENDING-MACHINE.** JOHN A. HONABARGER, Warsaw, Ohio. Filed May 4, 1904. Serial No. 206,394.



Claim.—1. In a vending-machine, an inclined support having a delivery-slot, an obliquely-disposed magazine slidably mounted on the support, auxiliary guiding means for the magazine, and mechanism for automatically advancing the magazine across the point of delivery after the delivery of each successive layer which it contains.

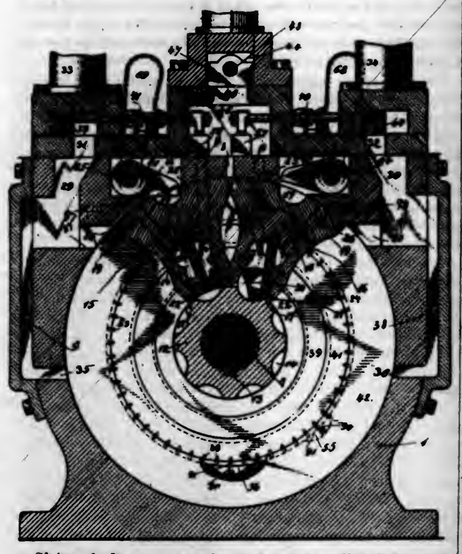
2. In a vending-machine, an inclined support, an obliquely-disposed magazine arranged to contain layers of articles to be delivered, a delivery-trough, an escapement-arm pivotally connected to the rear of the magazine and provided with a plurality of escapement-teeth, a fixed tooth with which the teeth successively engage, a plurality of studs extending from the arm, means for successively engaging said studs to release the teeth, a spring for restoring the arm to initial position, and means for feeding the magazine forward when the escapement-teeth are released.

3. The combination in a vending-machine, of a magazine, a pivotally-mounted escapement-arm having a series of teeth, a fixed stud or tooth with which the teeth successively engage, a spring tending to force the escapement-arm into engagement with said stud or tooth, a plurality of pins extending from the escapement-arm, a spring tending to feed the magazine toward a delivery-point, a delivery mechanism, a ratchet-wheel, a pawl connected to the delivery mechanism and actuating said ratchet-wheel, lugs extending from said ratchet-wheel, and a rod operable by said lugs and serving to engage the pins of the escapement-arm and move the latter to release position.

4. The combination in a vending-machine, of a magazine, a toothed escapement-arm, a fixed stud or tooth with which said teeth engage, a spring tending to force the arm into engagement with the teeth, a spring tending to force the magazine toward a delivery-point, a delivery mechanism, a ratchet-wheel, a pawl connected to the delivery mechanism and actuating on the ratchet-wheel, a plurality of lugs extending from said ratchet-wheel, a pivotally-mounted lever having two arms, one of which is cranked, and the other disposed in the path of movement of the lugs, pins projecting at intervals from the escapement-arm, and a guide-rod connected to the cranked arm and adapted to engage said pins.

5. The combination in a vending-machine, of a delivery-trough, a frame, a pair of cross-bars carried by the frame, a magazine-carrying plate, a guiding-bar secured thereto and extending through a guiding-recess in one of the arms, and a sheet-metal magazine-carrier secured to the plate and having movable flange portions for contact with a member of the magazine.

785,884. **ROTARY ENGINE.** THOMAS S. HUNTINGTON, New York, N. Y., assignor, by direct and mesne assignments, of one-third to John P. Munn, New York, N. Y., and one-third to Howard A. Pardee, New York, N. Y. Filed Apr. 5, 1902. Renewed Aug. 25, 1904. Serial No. 223,109.



Claim.—1. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and each piston adapted before reaching the end of its stroke to push the one ahead of it on its initial movement, and means within the cylinder or piston-casing for locking each piston to the shaft after its initial movement, and of unlocking each piston before said initial movement, whereby the shaft is alternately locked with said pistons and is thereby rotated.

2. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and each piston adapted before reaching the end of its stroke to push the one ahead of it on its initial movement, and means within the cylinder or piston-casing for automatically locking each piston to the shaft after its initial movement, and of unlocking each piston before said initial movement, whereby the shaft is alternately locked with said pistons and is thereby rotated.

3. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and to alternately impart rotary motion to the shaft, means for admitting with force an elastic fluid within the cylinder to one side or the other of said pistons, means for shutting off said fluid from said action at any desired point, and means secured to said pistons for operating said shutting-off means, whereby said pistons are first driven by the active force of such fluid, and then continued on their course by the elastic force of such fluid.

4. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and to alternately impart rotary motion to the shaft, means for admitting live steam, within the cylinder to one side or the other of said pistons, means for shutting off the steam from said action at any desired point, and means secured to said pistons for operating said shutting-off means, whereby said pistons are first driven by the active force of the steam and then continued on their course by the expansive force of the steam.

5. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and each piston adapted before reaching the end of its stroke to push the one ahead of it on its initial movement, means for locking the pistons to the shaft, and means for causing entering elastic fluid to operate such mechanism to lock each piston to the shaft after its initial movement, and to unlock each piston before said initial movement, whereby the shaft is alternately locked with said pistons and is thereby rotated.

6. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and to alternately impart rotary motion to the shaft, an inlet-port in the cylinder for the admission of an elastic fluid, to one side or the other of said pistons, a valve to said port, means for operating said valve to open said port about the beginning of the movement of the pistons, and means for operating the valve to close the port at any desired point in its revolution, whereby the active entering force of said fluid may enter the cylinder and drive the pistons, and afterward be shut in the cylinder, and caused to force the pistons farther by the elastic force of the fluid, and means for causing each piston before reaching the end of its stroke to push the one ahead of it on its initial movement.

7. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and to alternately impart rotary motion to the shaft, an inlet-port in the cylinder for the admission of an elastic fluid to one side or the other of said pistons, a valve to said port, means for operating said valve to open said port before the beginning of the movement of the pistons, means for operating the valve to close the port at any desired point in its revolution, whereby the active entering force of said fluid may enter the cylinder and drive the pistons, and afterward be shut in the cylinder and caused to force the pistons farther by the elastic force of the fluid, and means for causing each piston before reaching the end of the stroke to push the one ahead of it on its initial movement and means for exhausting the fluid from the cylinder.

8. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and each piston adapted, before reaching the end of its stroke, to push the one ahead of it on its initial movement, means for locking the pistons to the shaft, means for causing the entering elastic fluid to operate such mechanism to lock each piston in the shaft after its initial movement, an inlet-port in the cylinder for the admission of an elastic fluid to one side or the other of said pistons, a valve to said port, means for operating said valve to open said port about the beginning of the movement of the pistons, means for operating the valve to close the port at any desired point in its revolution, whereby the active entering force of said fluid may enter the cylinder and drive the pistons, and afterward be shut in the cylinder and caused to force the pistons farther by the elastic force of the fluid, and means for exhausting the fluid to unlock the piston from the shaft, whereby said shaft may be operated by the other piston.

9. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and each piston adapted, before reaching the end of its stroke, to push the one ahead of it on its initial movement, means for locking the pistons to the shaft, means for causing the entering elastic fluid to operate such mechanism to lock each piston in the shaft after its initial movement, an inlet-port in the cylinder for the admission of an elastic fluid to one side or the other of said pistons, a valve to said port, means for operating said valve to open said port about the beginning of the movement of the pistons, means for operating the valve to close the port at any desired point in its revolution, whereby the active entering force of said fluid may enter the cylinder and drive the pistons, and afterward be shut in the cylinder and caused to force the pistons farther by the elastic force of the fluid, means for exhausting the fluid from the cylinder, and means for exhausting the fluid to unlock the piston from the shaft, whereby said shaft may be operated by the other piston.

10. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and to alternately impart rotary motion to the shaft, an inlet-port in the cylinder for the admission of an elastic fluid to one side or the other of said pistons, a valve to said port, means for operating said valve to open said port about the beginning of the movement of the pistons, means for operating the valve to close the port at any desired point in its revolution, whereby the active entering force of said fluid may enter the cylinder and drive the pistons, and afterward be shut in the cylinder and caused to force the pistons farther by the elastic force of the fluid, means for exhausting the fluid from the cylinder, and means for admitting a slight portion of the exhaust fluid in front of the cylinder, whereby the piston may, before reaching the end of its stroke, be cushioned, and then push the one ahead of it on its initial movement.

11. In a rotary engine, two or more radial pistons journaled concentrically with the shaft and in the cylinder, and adapted to revolve in the same, and to alternately impart rotary motion to the shaft, an inlet-port in the cylinder for the admission of an elastic fluid to one side or the other of said pistons, a slide-valve to said port, a slide, a

slide-rod connected to said valve, bell-crank levers pivoted to said rod, cams connected with said pistons, an intermediate connection between said bell-crank levers and cams, and said cams arranged to operate said connections, bell-crank levers, slide rod and valve, to open the inlet-port about the beginning of the movement of the pistons, and to close said port at one period of the revolution of the pistons, whereby the active entering force of said fluid may enter the cylinder and drive the pistons, and afterward be shut in the cylinder, and caused to force the pistons farther by the elastic force of the fluid, and each piston adapted, before reaching the end of its stroke, to push the one ahead of it on its initial movement.

12. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, an inlet-port in the cylinder, and an inlet-passage extending from the outer periphery of the piston to said device, and arranged to register with said port in the cylinder about the beginning of the movement of the piston, whereby an elastic fluid may pass through said port and passage and operate the locking device to lock the piston to the shaft.

13. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, an inlet-port in the cylinder, an inlet-passage extending from the outer periphery of the piston to said device, and arranged to register with said port in the cylinder about the beginning of the movement of the piston, whereby an elastic fluid may pass through said port and passage and operate the locking device to lock the piston to the shaft, and means for closing said passage in the piston as soon as it has passed said port, whereby the elastic quality of the fluid will keep the locking device in the position to lock the piston to the shaft until the passage in the piston meets an outlet-port to enable the fluid to escape.

14. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, a movable device in the piston for operating said locking device, an inlet-port in the cylinder, and an inlet-passage extending from the outer periphery of the piston to said device, and arranged to register with said port in the cylinder about the beginning of the movement of the piston, whereby an elastic fluid may pass through said port and passage and operate the locking device to lock the piston to the shaft.

15. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, a movable device in the piston for operating said locking device, an inlet-port in the cylinder, an inlet-passage extending from the outer periphery of the piston to said device, and arranged to register with said port in the cylinder about the beginning of the movement of the piston, whereby an elastic fluid may pass through the port and passage and operate the locking device to lock the piston to the shaft, and means for closing said passage in the piston as soon as it has passed said port, whereby the elastic quality of the fluid will keep the locking device in the position to lock the piston to the shaft, until the passage in the piston meets an outlet-port to enable the fluid to escape.

16. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, two passages extending from the outer periphery of the piston to said device, and corresponding ports in the cylinder with which said passages are arranged to register about the beginning of the movement of the piston, and means for closing the outlet of one of said ports and passages, while the other is open, whereby an elastic fluid may pass only through the open port and passage and operate the locking device to lock the piston to the shaft, when the piston is to be moved in the direction that the elastic fluid meets the locking device.

17. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, a movable device in the piston for operating said locking device, two passages extending from the outer periphery of the piston to said device, and corresponding ports in the cylinder with which said passages are arranged to register about the beginning of the movement of the piston, means for closing the outlet of one of said ports and passages, while the other is open, whereby an elastic fluid may pass only through the open port and passage and operate the locking device to lock the piston to the shaft, when the piston is to be moved in the direction that the elastic fluid meets the locking device.

18. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, a movable device in the piston for operating said locking device, two passages extending from the outer periphery of the piston to said device, and corresponding ports in the cylinder with which said passages are arranged to register about the beginning of the movement of the piston, means for closing the outlet of one of said ports and passages, while the other is open, whereby an elastic fluid may pass only through the open port and passage and operate the locking device to lock the piston to the shaft, when the piston is to be moved in the direction that the elastic fluid meets the locking device, and means for closing said passage in the piston as soon as it has passed said port, whereby the elastic quality of the fluid will keep the locking device in the position to lock the piston to the shaft until the passage in the piston meets an outlet-port to enable the fluid to escape.

19. In a rotary engine, the combination with the shaft, of a radial piston in the cylinder, a device for locking the piston to the shaft, two passages extending from the outer periphery of the piston to said device, and corresponding ports in the cylinder with which said passages are arranged to register about the beginning of the movement of the piston, valves for closing and opening said ports, a device for locking the pistons from movement in one direction, and means connected with said device for operating it and said valves to simultaneously lock or unlock the piston, close one port and open the other, all as and for the purposes set forth.

20. In a rotary engine, a radial piston, constructed for concentric connection with the shaft and provided with a recess or chamber near its center of revolution, a device in said chamber for locking the piston to the shaft, and inlet and exhaust passages leading from the outer surface of said piston to said chamber, whereby an elastic fluid may pass through one of said passages to operate said locking device, to lock or unlock the same, and permit of the withdrawal of the exhaust of said fluid from said chamber through the other passage.

21. In a rotary engine, a radial piston constructed for concentric connection with the shaft and provided with a recess or chamber near its center of revolution, a device in said chamber for locking the piston to the shaft, a gate suspended within said chamber, and with its free end engaging with said locking device, inlet and exhaust passages leading from the outer surface of said piston to said chamber on opposite sides of said gate, whereby an elastic fluid may pass through one of said passages to operate the gate to lock or unlock the device and permit of the withdrawal of the exhaust of said fluid from said chamber through the other passage.

22. In a rotary engine, in combination with a radial piston constructed for concentric connection with the shaft, two rings secured respectively to the opposite ends of the piston, and adapted to surround the shaft and revolve in annular guides in the piston-heads, all substantially as and for the purposes set forth.

23. In a rotary engine, in combination with a radial piston constructed for concentric connection with the shaft, two rings secured respectively to the opposite ends of the piston, and adapted to surround the shaft and revolve in annular guides in the piston-heads, and said rings provided with cams for operating the inlet-valve of the engine, substantially as and for the purposes set forth.

24. In a rotary engine, in combination with a radial piston constructed for concentric connection with the shaft, two rings secured respectively to the opposite ends of the piston, and adapted to surround the shaft and revolve in annular guides in the piston-heads, and said rings provided with adjustable cams for operating the inlet-valve of the engine, substantially as and for the purposes set forth.

25. In combination with the shaft of a rotary engine, a radial piston journaled concentrically with said shaft, and provided with a recess or chamber adjoining said shaft, a device in said chamber bearing on said shaft for locking the piston to the same, and inlet and exhaust passages leading from the outer surface of said piston to said chamber, whereby an elastic fluid may pass through one of said passages to operate said locking device to lock the same to or unlock it from the shaft, and permit of the withdrawal of said fluid from said chamber through the other passage.

26. In combination with the shaft of a rotary engine, a radial piston journaled concentrically with said shaft, and provided with a recess or chamber adjoining said shaft, a device in said chamber bearing on said shaft for locking the piston to the same, a gate suspended within said chamber, and with its free end engaging with said locking device, inlet and exhaust passages leading from the outer surface of said piston to said chamber on opposite sides of said gate, whereby an elastic fluid may pass through one of said passages to operate the gate to lock the same, or to unlock it from the shaft, and permit of the withdrawal of said fluid from said chamber through the other passage.

27. A device for locking a rotary piston to its shaft, and for unlocking it from the same, said device having two opposite convex sides, and a concave side for resting on the periphery of the shaft, or upon a sleeve secured to the same, whereby the shaft may revolve independently, and when one of the convex sides is turned into a depression of the shaft, the piston will be locked to it, and cause it to revolve.

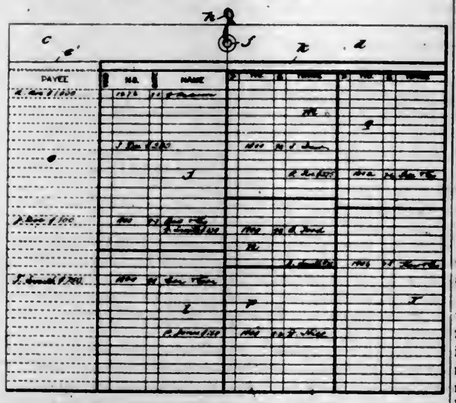
28. A device for locking a rotary piston to its shaft and for unlocking it from the same, said device having two opposite convex sides, and a concave side for resting on the periphery of the shaft, or upon a sleeve secured to the same, and a recess opposite said concave side for the engagement of an operating device, whereby the shaft may revolve independently, and when one of the convex sides is turned into a depression of the shaft, the piston will be locked to it, and cause it to revolve.

29. In a rotary engine, in combination with the shaft, or with a sleeve secured thereto, and said shaft or sleeve provided with longitudinal grooves, a radial piston journaled concentrically with said shaft and provided with a recess or chamber adjoining said shaft, a locking device in said chamber having two opposite convex sides and a concave side for resting on the periphery of the shaft or sleeve, whereby the shaft may revolve independently, and when one of the convex sides is turned into one of said grooves, the piston will be locked to the shaft, and cause it to revolve.

30. In a rotary engine, the combination of two rotary pistons, each provided with leg portions at its ends journaled loosely on the shaft, means for removably securing each piston to said shaft, and the legs of one piston riding on the corresponding legs of the other piston, whereby the pistons will be prevented from passing each other, but will permit of either piston coming into contact with the other before it has completed its revolution.

31. In combination with the inlet-pipe of a rotary engine, an auxiliary pipe leading from said inlet-pipe above the inlet-valve of the engine, to the lower portion of the cylinder, means for directing the steam away from the main cylinder-valve and through the auxiliary pipe, and means for opening and closing the lower portion of said pipe, whereby steam or other hot elastic fluid may be caused to enter the cylinder at the bottom and heat the cylinder, and means be provided for withdrawing the water of condensation from the cylinder.

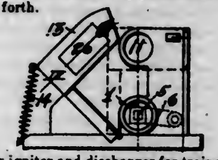
785,885. RECORD DEVICE. CLAUDE L. HUTCHISON, St. Joseph, Mo. Filed Oct. 4, 1904. Serial No. 227,165.



Claim.—The herein-described record device comprising a plurality of superposed leaves connected together at the upper edge of the device; the relative shapes of the leaves being such that each leaf is partially hidden by the next forward leaf and serves, in turn, to partially hide the next leaf toward the back, and the exposed portions of the leaves being arranged in columns from top to bottom with the exposed portion of the foremost partially-hidden leaf in the upper left corner of the exposed area of the device and the exposed portion of the rear partially-hidden leaf in the lower right corner of the said exposed area, and each leaf being provided on its hidden portion and exposed portion with continuous lines and being also provided on its exposed portion with columns from top to bottom thereof.

785,886. AUTOMATIC FUSEE IGNITER AND DISCHARGER. WILLIAM M. JACKSON, Jonesboro, Ark. Filed Dec. 12, 1904. Serial No. 236,041.

Claim.—1. In a fusee igniter and discharger for trains, the combination with the train air-brake pipe of an air-chamber connected therewith a fusee-discharge chamber, a spring-actuated plunger in said chamber, a door closing said chamber and means actuated by the reduction in pressure in said air-pipe for releasing said door, for the purposes set forth.



2. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door, normally holding same open and means actuated by the reduction of pressure in said air-pipe for releasing said door.

3. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door normally holding the same open, a latch to hold said door closed, and means actuated by the reduction in pressure in said air-pipe for releasing said door.

4. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch and means controlled by the air-pressure in said air-pipe for operating said latch.

5. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch, a trip-rod attached to said trigger, a plunger in said air-chamber, a spring against said plunger normally compressed by the air-pressure in said chamber, a rod extending backward from said plunger, and an arm carried by said rod, having one end extending over into line with said trip-rod, substantially as and for the purposes set forth.

6. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a door closing said chamber, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch, a trip-rod attached to said trigger, a plunger in said air-chamber, a spring against said plunger normally compressed by the air-pressure in said chamber, a rod extending backward from said plunger, an arm carried by said rod having one end extended into line with said trip-rod and an adjustable bar in said extended end, substantially as and for the purposes set forth.

7. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a spring attached to said door normally holding same open, a strip of friction-paper on said door, and means actuated by the reduction of pressure in said air-pipe for releasing said door.

8. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a strip of friction-paper on said door, a spring attached to said door normally holding same open, a latch to hold said door closed, and means actuated by the reduction in pressure in said air-pipe for releasing said door.

9. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a sliding door closing said chamber, a strip of friction-paper on said door, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch and means actuated by the air-pressure in said air-pipe for operating said latch.

10. In a fusee igniter and discharger for trains, the combination with the air-brake pipe, of an air-chamber connected therewith, a fusee-discharge chamber, a spring-actuated plunger therein, a slid-

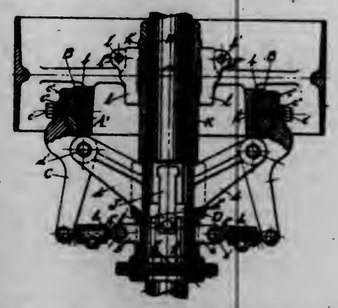
ing door closing said chamber, a strip of friction-paper on said door, a spring attached to said door and normally holding same open, a latch holding said door closed, a trigger operatively connected to said latch, a trip-rod attached to said trigger, a plunger in said air-chamber, a spring against said plunger normally compressed by the air-pressure in same, a rod extending backward from said plunger, and an arm carried by said rod, having one end extending over into line with said trip-rod, substantially as and for the purposes set forth.

11. In a fusee-discharger for trains, the combination with a discharge-chamber, a spring-operated plunger in said chamber and a door closing said chamber, of a release for said door, a connection between said release and the air-brake train-pipe.

12. In a fusee-discharger for trains, the combination with a discharge-chamber, a spring-operated plunger in said chamber, a spring-operated door closing said chamber, and a lug holding said door closed, of an air-chamber, a connection between said chamber and the train air-brake pipe, a plunger in said chamber, a spring against said plunger compressed by the air-pressure in said train-pipe, and a connection between said plunger and said lug to withdraw said lug and release said door when the air-pressure against said plunger is released.

13. In a fusee igniter and discharger for a train, the combination with a discharge-chamber, a spring-actuated discharge-plunger, a door closing said chamber, a lug engaging said door, a trip-rod carrying said lug, a trigger engaging said rod and a rod attached to said trigger, of an air-chamber, a connection from said chamber to the air-brake pipe-line on said train, a plunger in said chamber, a plunger-rod extending through the rear end of said chamber, a spring against the rear side of said plunger, an arm on said plunger-rod, having one end extending into the path of said trip-rod, substantially as and for the purposes set forth.

785,887. CLUTCH. CHARLES JACOBSON, Warren, Pa. Filed Apr. 17, 1901. Renewed July 15, 1904. Serial No. 216,693.



Claim.—1. In a clutch, the combination of a shaft; a pulley having a ring; segmental blocks to engage said ring; levers to which the blocks are fitted; screws by which the blocks are secured to the levers; a pin-and-hole connection between said levers and the blocks whereby the block and lever are guided into proper position and maintained in position; means for supporting the levers; and means for actuating said levers.

2. In a clutch, the combination of a shaft; a pulley having an annular friction-surface; segmental blocks to engage said surface; a spider on the shaft; levers fulcrumed on the spider and carrying said blocks; a collar slidable on the shaft, and means connecting the collar with the levers; spaced lugs on the spider; and a stop-bar secured to and guided in its movements by said lugs, said bar contacting with the lugs to limit the outward movement of said collar.

3. In a clutch the combination of a driving-shaft; a loose pulley thereon and provided with a ring; a spider having radial arms; levers fulcrumed in said arms; segmental blocks seated in one end of the levers and provided with friction-faces to engage said ring; means for detachably securing the blocks to the lever, each of said levers having a projecting pin and each of said blocks having a hole to receive the pin whereby the block and levers are guided into proper relative position and maintained firmly in position.

4. An improved clutch comprising a driving-shaft; a pulley loose thereon having radial arms; a ring rigid with and projecting at right angles to the arms, a spider having radial arms; levers fulcrumed to the arms of the spider; friction-blocks carried by one end of the levers and a pin-and-hole connection between the blocks and levers; cap-screws securing the blocks to the levers; a collar slidable on the shaft; adjustable connections between said collar and the levers; a stop-bar secured to the collar parallel with the shaft; and spaced lugs on the spider forming a guide for the stop-bar said bar contacting with the lugs to limit the outward movement of the collar.

785,888. TIGHTENING DEVICE FOR BOILER-TUBES. FRANS J. E. JOHANSSON, Stockholm, Sweden. Filed Feb. 8, 1904. Serial No. 192,689.



Claim.—1. The combination with a group of tubular conduits for a fluid under pressure; of expansible and compressible headers, means to limit the compression thereof and means to connect the tubes thereto, for the purpose set forth

2. The combination with a group of tubular conduits for a fluid under pressure; of expansible and compressible headers, means to limit the compression thereof, and means to compress the headers and to simultaneously secure the tubes thereto, for the purpose set forth.

3. The combination with a group of tubular conduits for a fluid under pressure, said conduits provided near each end with a peripheral seat and with peripheral ports intermediate said seats and ends of the conduits; of expansible and compressible headers having apertures for the ends of the conduits and seating on the seats thereon, and means to compress the headers and close the ends of the tubes, for the purpose set forth.

4. The combination with a group of tubular conduits for a fluid under pressure, said conduits externally threaded at each end and provided with a peripheral seat and with peripheral ports intermediate said seats and threaded ends; of expansible and compressible headers having apertures for the ends of the conduits and seating on the seats thereon, and screw-caps screwing onto the tube ends to close the same and to compress the headers, for the purpose set forth.

5. The combination with a group of tubular conduits for a fluid under pressure, said conduits provided near each end with a peripheral seat and with peripheral ports intermediate said seat and ends of the conduits; of expansible and compressible headers having apertures for the ends of the conduits and seating on the seats thereon, means to compress the headers and to close the conduit ends and means to limit the degree of compressibility of the headers, for the purpose set forth.

6. The combination with a group of tubular conduits for a fluid under pressure, said conduits provided near each end with a peripheral seat and with peripheral ports intermediate said seats and ends of the conduits; of expansible and compressible headers having apertures for the ends of the conduits and seating on the seats thereon, means to compress the headers and to close the conduit ends and means within the headers to limit the degree of compression of the headers, for the purpose set forth.

7. The combination with a group of tubular conduits for a fluid under pressure, said conduits provided near each end with a peripheral seat and with peripheral ports intermediate said seats and ends of the conduits; of expansible and compressible headers having apertures for the ends of the conduits and seating on the seats thereon, means to compress the headers and to close the conduit ends, and bracing-sleeves within the headers encompassing the tubes and having ports registering with those in the tubes, substantially as and for the purpose set forth.

8. The combination with a group of tubular conduits for a fluid under pressure; of expansible and compressible headers of substantially elliptical form in cross-section, means to connect the conduits to and to compress the headers and means to limit the compression thereof, for the purpose set forth.

9. The combination with a group of concentric boiler water and fire tubes, said water-tubes provided with externally-threaded ends, with peripheral seats near said ends and with peripheral ports intermediate said seats and ends; of expansible and compressible headers provided with apertures for the tube ends and seating on the seats thereon, means to compress the headers and means to center the fire-tubes within the water-tubes and close the ends of the latter, for the purpose set forth.

10. The combination with the steam-drum, the downtake, the uptake and the circulation-pipe; of separate groups of boiler-tubes and their headers, separate connections connecting opposite ends of the end tube of each group with the uptake and the circulation-pipe respectively, and cut-off valves interposed between said connections and said uptake and circulation-pipe respectively, whereby any one of the group of tubes may be removed and replaced without interfering with the other groups, substantially as set forth.

11. The combination with a group of boiler-tubes, of headers made of resilient sheet metal, means to connect the tubes to the headers and an external protective covering for said headers; for the purpose set forth.

12. The combination with a group of boiler-tubes; of resilient headers whose top and bottom walls are thicker than the side walls, means to connect the tubes to said thicker walls and to compress the headers, and protective shields applied externally to the thinner side walls thereof, for the purpose set forth.

13. The combination with a group of boiler-tubes; of resilient headers whose top and bottom walls are thicker than the side walls thereof, means to connect the tubes to said thicker walls and to compress the headers into a substantially elliptical form in cross-section, and sheet-metal protective shields secured externally to said side walls so as to leave a space between the two, for the purpose set forth.

785,889. HYDRAULIC AIR-COMPRESSOR. CLARENCE R. JONES, Pittsburg, Pa. Filed July 21, 1904. Serial No. 217,471.



Claim.—1. In a hydraulic air-compressor, a main cylinder, a piston therein, a water-controlling-valve chamber having different diameters, a motor-valve having pistons of different size fitting in the valve-chamber, a primary valve located wholly within the movable motor-valve and at an angle to the axis of the motor-valve, and a stem arranged to actuate the primary valve; substantially as described.

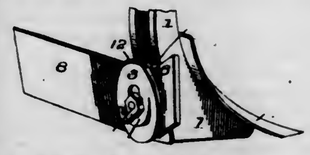
2. A hydraulic air-compressor comprising a main cylinder, a piston therein, a water-controlling-valve chamber having different diameters and extending across one end of the main cylinder, a motor-valve having pistons of different size fitting in the valve-chamber, a primary valve located within the motor-valve structure and extending at an angle to the axis of the motor-valve, a stem actuated by the piston and sliding connections between such stem and the primary valve; substantially as described.

3. In a hydraulic air-compressor, a main cylinder, a piston therein, a water-controlling-valve chamber having different diameters and extending across the main cylinder, a motor-valve having pistons of different size fitting in the valve-chamber, a removable closure for the larger end of the motor-valve chamber, and a primary valve located in the valve structure and removable therewith through the larger bore of the motor-valve chamber; substantially as described.

4. In a hydraulic air-compressor, a main cylinder, a piston therein, a water-controlling-valve chamber having different diameters and extending across the main cylinder, a motor-valve having pistons of different size fitting in the valve-chamber, a primary valve located in the motor-valve structure, and a stem arranged to actuate the primary valve, the motor-valve having passages leading from the outer faces of its piston to the primary valve therein; substantially as described.

5. A hydraulic air-compressor comprising a main cylinder, a piston therein, a water-controlling-valve chamber having different diameters and transversely of the main cylinder, a motor-valve having pistons of different size fitting in the valve-chamber, a primary valve located wholly within the motor-valve structure and extending at an angle to the axis of the motor-valve, a stem actuated by the piston, and a connection between said stem and the primary valve arranged to allow movement of the primary valve transversely to the axis of the stem; substantially as described.

785,890. PLOW. REUBEN JONES, Chamblee, Ga., assignor of one-half to F. I. Stone & Co., Atlanta, Ga., a Partnership. Filed Sept. 20, 1904. Serial No. 225,193.



Claim.—1. In a plow, a heel-sweep stiffener comprising a washer having an elongated slot, a cam located on one side beneath the slot, and a projection on the opposite side, substantially as described.

2. In a plow, a heel-sweep stiffener comprising a cam-shaped washer or plate, an outwardly-projecting lug on the upper end thereof, an auxiliary plate having a cam or stepped surface on one side thereof, and a plurality of outwardly-projecting lugs arranged on both sides thereof, substantially as described.

3. In a plow, a heel-sweep stiffener comprising a cam-shaped plate or washer arranged to engage with one side of the heel-sweep, an outwardly-projecting lug on its upper end, an auxiliary plate arranged to engage with the opposite side of the heel-sweep, said auxiliary plate being provided with a cam or stepped surface on one of its sides, and having a plurality of outwardly-projecting lugs arranged on both sides thereof, substantially as described.

4. In a plow, a heel-sweep stiffener comprising a washer or plate having an elongated slot therein, and an inclined or cam surface on one of its sides, a lug or projection on the opposite side at the upper end, an auxiliary plate having an elongated slot therein, and a cam or stepped surface on one of its sides terminating in a plurality of lugs, and a plurality of lugs arranged on the opposite side of said plate, substantially as described.

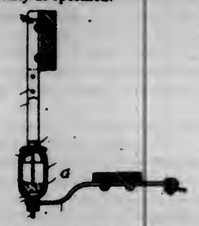
5. In a plow, a heel-sweep stiffener comprising a washer or plate having an elongated slot therein, and an inclined or cam surface on one of its sides, a lug or projection on the opposite side at the upper end, said plate being arranged to engage one side of the heel-sweep, an auxiliary plate having an elongated slot therein, and a cam or stepped surface on one of its sides, said auxiliary plate being arranged to engage the other side of the heel-sweep, and a plurality of outwardly-projecting lugs arranged on each side of said auxiliary plate, substantially as described.

785,891. RAILWAY BLOCK-SIGNAL APPARATUS. ALLEN B. KENDALL, Maywood, Ill. Filed Oct. 17, 1904. Serial No. 228,797.

Claim.—1. In a block railway signal apparatus or system, the combination with the signaling or controlling relays and the signal-circuit, each of said relays having a metal contact-piece and an opposing loose metal contact-piece, and a mercury connection normally in connection with said loose metal contact-piece, whereby the fusing or freezing of said metal contact-pieces together is prevented from interfering with the normal operation of the signal system or apparatus, substantially as specified.

2. In a block railway signal system or apparatus, the combination with the signal-circuit, of a metal contact-piece, an opposing loose metal contact-piece and a mercury connection with which said

loose metal contact-piece is normally in connection whereby the signal-circuit may be closed and broken at the mercury connection when the metal contact-pieces are fused or stuck together or in any manner made one, substantially as specified.



3. In a block railway signal system or apparatus, the combination with a signal-circuit, of a movable metal contact-piece, a normally stationary and loose metal contact-piece, and a stationary mercury connection normally in electric contact with said loose metal contact-piece, substantially as specified.

4. The combination with a metal contact-piece, of a loose metal contact-piece, one movable in respect to the other for normally opening and closing the circuit and a mercury connection normally in contact with said loose metal contact-piece whereby the circuit may be closed and broken at the mercury connection when said metal contact-pieces are fused or stuck together, or in any manner made one, substantially as specified.

5. The combination with a movable contact-piece, of a stationary loose contact-piece, said movable contact-piece and said loose contact-piece operating to normally open and close the circuit and a stationary mercury connection normally in electric contact with said loose metal contact-piece whereby the circuit may be closed and broken at the mercury connection when said movable and loose contact-pieces are fused or stuck together or in any manner made one, substantially as specified.

785,892. **TUBE-EXPANDER.** WILLIAM H. KINNEY, Carbondale, Pa., assignor to Russell B. Williams, Scranton, Pa. Filed Apr. 9, 1904. Serial No. 202,477.



Claim.—In a tube-expander, the combination with a central spindle having a cone-shaped body portion, of disk-like heads of different diameter provided with bearings and mounted on said spindle, means for securing the same in position, and cone-shaped rollers, arranged in planes parallel, and in contact, with said spindle and having trunnions mounted in said bearings, said rollers having open and unobstructed spaces between them and being longitudinally fixed relatively to said spindle, substantially as set forth.

785,893. **REAR SIGHT FOR GUNS.** HANS A. VON KRETSCHMAR and JOHN KURIS, Essen-on-the-Ruhr, Germany, assignors to Fried. Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed Oct. 17, 1904. Serial No. 228,821.



Claim.—1. A protecting-piece for gun rear sights with detachable sight device, said piece having a face corresponding to the interlocking face of one of the separable parts.

2. A protecting-piece for gun rear sights with detachable sight device, said piece comprising two parts adapted to be interlocked, and having interlocking faces correspond ng to the interlocking faces of the gun rear sight and the sight device.

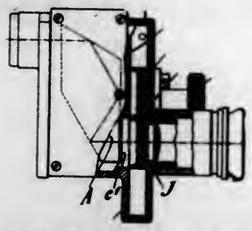
3. A protecting-piece for gun rear sights with detachable sight device, said piece comprising two parts adapted to be interlocked and having interlocking faces corresponding to the interlocking faces of the gun rear sight and the sight device, one of said parts being provided with a supplemental sight device.

4. A pair of protecting-pieces for gun rear sights with detachable sight device, said pieces being connected with each other and each of said pieces comprising two parts adapted to be interlocked and having interlocking faces corresponding to the interlocking faces of the gun rear sight and the sight device.

5. A pair of protecting-pieces for gun rear sights with detachable sight device, said pieces being connected with each other and each of said pieces comprising a fixed part having interlocking faces corresponding to the interlocking faces of the rear sights so as to receive the sight devices in interlocking engagement.

6. A pair of protecting-pieces for gun rear sights with detachable sight device, said pieces being connected with each other capable of adjustment toward each other and each of said pieces comprising a fixed part and a detachable part having interlocking engagement, said fixed parts having interlocking faces corresponding to the interlocking faces of the rear sights so as to receive the sight devices in interlocking engagement.

785,894. **SIGHTING-TELESCOPE.** HANS A. VON KRETSCHMAR and JOHANNES KRONE, Essen-on-the-Ruhr, Germany, assignors to Fried. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed Oct. 17, 1904. Serial No. 228,834.



Claim.—1. A sighting-telescope having a plurality of points fixed in the rear focal plane of the objective, the height of which with relation to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances, and having in addition to the sighting-mark provided by these points, a second sighting-mark so arranged that with the introduction of one sighting-mark into the sighting-field the other disappears from said field.

2. A sighting-telescope having a plurality of points fixed in the rear focal plane of the objective, the height of which with relation to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances, and having in addition to the sighting-mark provided by these points, a second sighting-mark so arranged that with the introduction of one sighting-mark into the sighting-field the other disappears from said field, both said sighting-marks consisting of a series of points.

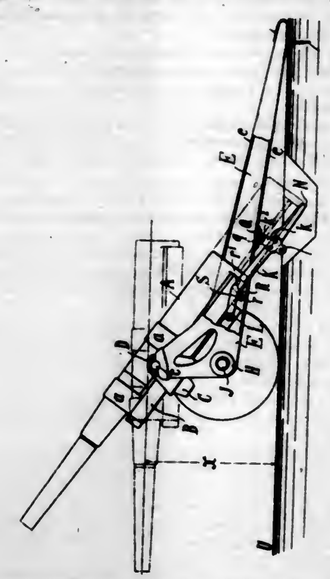
3. A sighting-telescope having a plurality of points fixed in the rear focal plane of the objective, the height of which with relation to the optical axis of the telescope corresponds to the angles of elevation of the gun-barrel required for different distances, and having in addition to the sighting-mark provided by these points, a second sighting-mark so arranged that with the introduction of one sighting-mark into the sighting-field the other disappears from said field, both said sighting-marks consisting of a series of points, and the said points being obtained by the intersection of a line with a row of horizontal lines, and the spaces thus demarcated being distinguished one from another by transparent coloring.

785,895. **PORTABLE RECOIL-GUN.** JOHANNES KRONE, Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp, Essen-on-the-Ruhr, Germany. Filed Aug. 20, 1902. Serial No. 120,417.

Claim.—1. In a portable gun, the combination of the gun-barrel, a mount for said barrel upon which it may be elevated and recoil means permitting the barrel to recoil beyond the plane of the surface upon which the mount stands when the barrel is elevated to extreme elevation, thereby permitting better protection, increased efficiency and stability, reduction in weight and greater facility for serving the gun.

2. In a portable recoil-gun, the combination with the mount, of the gun-barrel and recoil means permitting the gun-barrel to recoil;

the gun-barrel being supported upon said mount, with the axis of its bore, when in horizontal position, at a height above the plane of the surface upon which the gun stands, less than the vertical distance below said horizontal position of the axis, reached by the lowermost part of the barrel in recoiling, when the gun is fired at extreme elevation, thereby permitting better protection, increased efficiency and stability, reduction in weight, and greater facility for serving the gun.



3. In a portable gun, the combination of the gun-barrel, a mount for said barrel upon which it may be elevated and recoil means permitting the barrel to recoil beyond the plane of the surface upon which the mount stands, when the barrel is elevated to extreme elevation, for the purposes set forth, and means preventing the elevation of the barrel to an extreme angle which would cause it to intersect the plane of the surface upon which the gun-carriage rests, said means being adjustable to permit such extreme elevation at will.

4. In combination with a portable recoil-gun, the firing height of which is below that size, at which in its greatest firing elevation, the gun-barrel, in recoiling, would just strike the plane of the surface upon which the trail of the gun and the wheels rest; a swinging member mounted upon the gun-carriage providing an abutment in the path of parts adjusted in elevating the gun, and restricting the elevation within the limit beyond which the breech of the gun will strike the surface of the ground in recoiling; said swing being adjustable to a lower position which permits the elevation of the gun beyond said limit, and projecting below the surface of the ground when so adjusted, so as to compel the forming of a recess within which the breech of the gun-barrel may recoil.

5. In combination with a portable recoil-gun, the firing height of which is below that size, at which in its greatest firing elevation, the gun-barrel, in recoiling, would just strike the plane of the surface upon which the trail of the gun and the wheels rest; the swing K, N, mounted on the gun-carriage and means whereby said swing is fixed upon the gun-carriage in an upper position which limits the elevation of the gun, and in a lower position, which permits the extreme elevation of the gun; said lower position of the swing causing it to intersect the plane of the surface upon which the wheels and trail, of the gun rest.

6. In combination with a portable recoil-gun, the firing height of which is below that size, at which in its greatest firing elevation, the gun-barrel, in recoiling, would just strike the plane of the surface upon which the trail of the gun and the wheels rest; the swing K, N, mounted on the gun-carriage, and means whereby said swing is fixed upon the gun-carriage in an upper position which limits the elevation of the gun, and in a lower position which permits the extreme elevation of the gun; said lower position of the swing causing it to intersect the plane of the surface upon which the wheels and trail of the gun rest, and the longitudinal and transverse dimensions of said swing being such that the breech of the gun-barrel when the latter is in position of extreme elevation, nowhere overreaches the swing in a direction perpendicular to the axis of the bore of the gun.

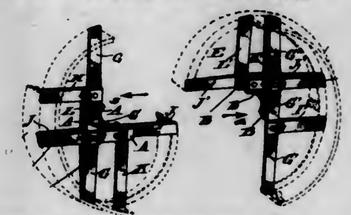
785,896. **CANDLE HOLDER AND EXTINGUISHER.** HUGO KÜNNERT, Berlin, Germany. Filed July 5, 1904. Serial No. 215,344.



Claim.—1. A candle holder and extinguisher, comprising a support or socket for the candle, a pair of superposed sliding plates arranged above the support and provided with openings for receiving the candle when such openings coincide, and a bow-shaped spring-strip connected with the plates and support in such manner that when the openings coincide the spring is in tension and is adapted to cause said plates to grip the candle and eventually to extinguish same, substantially as described.

2. A candle holder and extinguisher, comprising a support or socket for the candle, a pair of superposed sliding plates arranged above the support and provided with openings for receiving the candle when such openings coincide, stops or projections on the plates adjacent the openings arranged to prevent the plates from being drawn entirely apart and also to act as grippers for the candle, and a spring connected with the plates and support in such manner that when the openings coincide the spring is in tension and is adapted to cause said plates to grip the candle and eventually extinguish same, substantially as described.

785,897. **PULLEY OR WHEEL.** LAURENCE S. LACHMAN, New York, N. Y. Filed Apr. 28, 1904. Serial No. 206,330.



Claim.—1. A wheel or pulley, comprising coöperating parts each having a portion of the hub and spokes, and each lacking a portion of the body in the form of a sector, whereby when the parts of the wheel are assembled, the body portions of the wheel fall opposite the lacking sector portions to complete the body.

2. A wheel or pulley, comprising coöperating parts each having a portion of the hub and spokes, and each lacking a portion of the body in the form of a sector, said coöperating parts being provided with portions adapted to overlap when the parts are assembled, whereby the body portions of the wheel fall opposite the lacking sector portions to complete the body.

3. A wheel or pulley, comprising coöperating parts, each having continuous and sectional spokes so arranged that when the parts of the wheel are assembled, the joints of the sectional spokes fall opposite the continuous spokes, for substantially the purposes set forth.

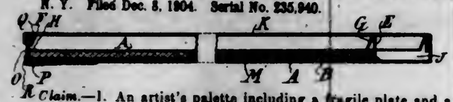
4. A wheel or pulley, comprising a two-part hub having sectional spokes and continuous spokes secured thereto on opposite sides of the parts of the hub, each portion of the wheel so formed lacking a portion of the body in the form of a sector, whereby when the two parts of the wheel are assembled, the spoke portions of the wheel fall opposite the lacking sector portions to complete the body.

5. A wheel or pulley, comprising a sectional hub, continuous and sectional spokes secured on the sides of the sections of said hub, in such manner that when the parts of the wheel are assembled to form the complete wheel, portions of the spokes of one part overlap those of the other, whereby the two parts of the wheel may be secured together, for substantially the purposes set forth.

6. A wheel or pulley, comprising two coöperating part having continuous spokes and sectional spokes angularly arranged, the intersections of said spokes falling outside of the center of the wheel, each coöperating part lacking portions in the form of sectors, where-

by when the parts of the wheel are assembled, the spoke portions of the wheel fall opposite the lacking sector portions to form a complete wheel

785,898. ARTIST'S PALETTE. MOSES V. LARKIN, New York, N. Y. Filed Dec. 8, 1904. Serial No. 235,940.



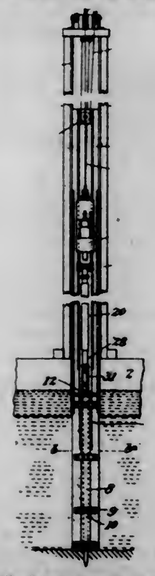
Claim.—1. An artist's palette including a fragile plate and a sheet-metal frame having a back and three sides projecting upward from said back and bent over at their upper edges to form flanges G for engaging the plate, said frame having a fourth side F arranged above said back to leave a slot through which the plate may pass, and having a flange H on its lower edge for engaging the plate.

2. An artist's palette of suitable size to be carried in the hand when in use and including a plate of fragile material and a light frame in which said plate is carried, said frame comprising sides embracing the edges of the plate and having a slot through a side for permitting withdrawal or replacement of a plate, and a member for closing the slot and embracing the side to reinforce the same.

3. A palette-frame comprising sides for embracing the edges of a plate, and having a slot through a side for permitting withdrawal or replacement of a plate, and a member O for closing the slot having a flange P for engagement on the under side of the frame, and a flange Q for engagement over the upper edge of the slotted side of the frame.

4. A palette-frame comprising sides for embracing the edges of a plate, and having a slot through a side for permitting withdrawal or replacement of a plate, and a member O for closing the slot having a flange P for engagement on the under side of the frame, and a flange Q for engagement over the upper edge of the slotted side of the frame, and a stop R for preventing movement of said member O endwise of the frame.

785,899. PILE-DRIVER. WILLIAM J. LAWLER, Charlestown, Mass. Filed Oct. 21, 1904. Serial No. 229,489.



Claim.—1. In a pile-driver, extension-gins, means for moving the same vertically, and pile-guiding means carried by said extension-gins, substantially as described.

2. In a pile-driver, extension-gins, means for moving the same vertically and adjustable pile-guiding means carried by said extension-gins, substantially as described.

3. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins and a follower, substantially as described.

4. In a pile-driver, extension-gins, means for moving the same vertically, a follower and means carried by said extension-gins, for guiding the pile and follower, substantially as described.

5. In a pile-driver, extension-gins, means for moving the same vertically, and pile-guiding means consisting of a tube, carried by said extension-gins, substantially as described.

6. In a pile-driver, extension-gins and means for moving the same vertically, pile-guiding means carried by said extension-gins, consisting of a tube and adjustable with relation to said extension-gins, substantially as described.

7. In a pile-driver, extension-gins and means for moving the same vertically, pile-guiding means consisting of a tube, secured to said extension-gins and adjustable with relation thereto, substantially as described.

8. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins consisting of a tube, and a guide-tube funnel, substantially as described.

9. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins, consisting of a tube and a separable guide-tube funnel, substantially as described.

10. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins and a follower with a reinforcing-ferrule at its upper end, substantially as described.

11. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins and a follower with reinforcing-ferrules at its upper and lower ends, substantially as described.

12. In a pile-driver, a follower with a main body portion, a reinforcing-ferrule at its upper end and impact-plates therein, substantially as described.

13. In a pile-driver, a follower with a main body portion, a reinforcing-ferrule at its upper end and impact-plates therein and a further impact-plate outside of said ferrule, substantially as described.

14. In a pile-driver, a follower with a main body portion, a reinforcing-ferrule surrounding the lower end thereof, a collar embracing said ferrule and adapted to receive the end of the pile, substantially as described.

15. In a pile-driver, a follower with a main body portion, a reinforcing-ferrule at the lower end of said follower, a collar embracing said ferrule and adapted to receive the upper end of the pile, a plug in said ferrule adapted to bear upon the pile, substantially as described.

16. In a pile-driver, a follower with a main body portion, a reinforcing-ferrule at its upper end and a collar on said ferrule projecting above the same and a series of impact-plates, the upper plate lying within said collar and out of contact with said ferrule, substantially as described.

17. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins, consisting of a tube and adjustable relatively thereto, and means upon said sliding gins for holding said tube in place, substantially as described.

18. In a pile-driver, extension-gins, means for moving the same vertically, pile-guiding means carried by said extension-gins, consisting of a tube adjustable with relation to said extension-gins, and means upon said extension-gins for holding said tube in place, and removable means for securing said tube to said holding means, substantially as described.

19. In a pile-driver, extension-gins, means for guiding the same vertically, pile-guiding means carried by said extension-gins, consisting of a tube, a separable guide-tube funnel, and means for holding said funnel, substantially as described.

20. In a pile-driver, a follower with a reinforcing-ferrule at its upper end, a steam-hammer, and connections between said hammer and said ferrule, substantially as described.

21. In a pile-driver, a follower with a reinforcing-ferrule at its upper end, a steam-hammer, and connections between said hammer and said ferrule, a collar on said ferrule projecting above the same, and a perforated base upon said steam-hammer recessed to receive said collar, substantially as described.

22. In a pile-driver, stationary gins provided with metal channel-beams on their bearing-faces, sliding gins provided with metal I-beams on their bearing-faces and means for imparting vertical movement to said sliding gins, substantially as described.

23. In a pile-driver, the combination with a hammer, of stationary gins, extension-gins, a follower and means for guiding the pile and follower, substantially as described.

24. In a pile-driver, the combination with a hammer, of stationary gins, a follower and adjustable means for guiding the pile and follower, substantially as described.

25. In a pile-driver, a follower with a main body portion, reinforcing-ferrules at the upper and lower ends, a series of impact-plates partly within the upper ferrule and a metal plug within the lower ferrule, substantially as described.

26. In a pile-driver, a follower with a main body portion, reinforcing-ferrules at the upper and lower ends, collars on said ferrules and projecting beyond the same, a series of impact-plates at the upper end partly inclosed by said ferrule and partly inclosed by said collar, a metal plug within said lower ferrule, substantially as described.

27. In a pile-driver, extension-gins, a follower, and means for guiding said follower and the pile, substantially as described.

28. In a pile-driver, extension-gins, a follower and adjustable means for guiding said follower and the pile, substantially as described.

785,900. REGULATOR FOR WATER-WHEELS. JAS. W. MACFARLANE, Glasgow, Scotland. Filed May 27, 1901. Serial No. 62,110.



Claim.—1. In a device of the class described, the combination with a casing, having an opening in its bottom the rotary wheel, mounted on a horizontal axis therein, and a nozzle located upon one side of the axis of the wheel, delivering fluid tangentially thereto on the top of the wheel and in a line central to the periphery thereof, of an oscillatory device circular in cross-section, provided with blades around its entire periphery, located upon the other side of the axis of the wheel and in alinement with the periphery of the wheel and the nozzle and moved in one direction only by the spent fluid, a lever connected at one end to the nozzle and at the other end with the oscillatory device which raises the same, and a weight carried by the lever for lowering the end of the lever connected with the oscillatory device to open the nozzle.

2. In a device of the class described, the combination with the rotary wheel, and a nozzle located upon one side of the axis of the wheel, of an oscillatory device located upon the other side of the axis of the wheel, a lever connected at one end to the nozzle, a rack provided upon the other end of the lever, a gear moving with the oscillatory device, and meshing with the rack upon the lever to move said lever in one direction to close the nozzle, and automatic mechanical means for moving the lever in the other direction when the spent fluid ceases to play upon the oscillatory device.

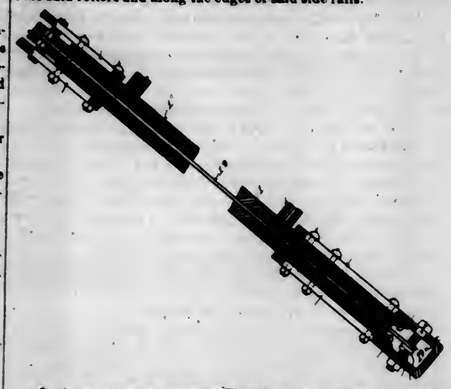
3. In a device of the class described, the combination with the rotary wheel, and fluid-delivering means, of an oscillatory helicoidal device in the path of the spent fluid, and connections between the oscillatory helicoidal device and the fluid-delivering means.

4. In a device of the class described, the combination with a casing, a rotary motor and fluid-delivering means, of an oscillatory helicoidal device, a vertical shaft on which the oscillatory device is mounted, a coiled spring secured to the casing, and to the shaft, a worm-gear moving with the oscillatory device, and a lever secured at one end to the fluid-delivering means and provided at its other end with a rack which meshes with the worm-gear.

785,901. LADDER. CHARLES M. MALLORY, Albion, N. Y. Filed Apr. 25, 1904. Serial No. 204,836.

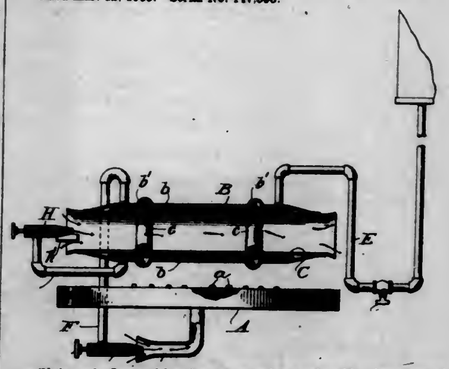
Claim.—1. As an article of manufacture, a ladder, comprising, in combination with side rails and rungs, two metallic strands each one of which extends freely along two opposite edges of one of said side rails and has its ends rigidly secured at one of the ends of one of said side rails and has its medial portion passed freely over the other end of one of said side rails, and means secured at one of the ends of each of said side rails for adjusting the tension on said metallic strands.

2. As an article of manufacture a ladder comprising, in combination with side rails and rungs, shoes, provided with free spaces in their lower ends, secured to one of the ends of each of said side rails, inside brackets in said shoes and above said free spaces, tension-bolts passing through said free spaces on each side of said shoes, rollers suitably secured and journaled at the opposite ends of said side rails, and metallic strands, suitably secured to said tension-bolts passing over said rollers and along the edges of said side rails.



3. As an article of manufacture a ladder comprising, in combination with side rails and rungs, shoes, provided with free spaces in their lower ends, secured to one of the ends of each of said side rails, tension-bolts passing from the said free spaces on each side of said shoes, rollers suitably secured and journaled at the opposite ends of said side rails, metallic strands suitably secured to said tension-bolts passing over said rollers and along the edges of said side rails, and suitable means for securing the desired tension on said metallic strands.

785,902. VAPOR-BURNER. HARRY J. MARKS, New York, N. Y. Filed Mar. 12, 1903. Serial No. 147,396.



Claim.—1. In combination, a vapor-burner head having a broad upper face arranged substantially horizontally and provided with a plurality of perforations in said face, a tube arranged substantially horizontally above and close to said burner-head, a vaporizing-casing upon said tube, means to feed a liquid fuel into said casing, a torch directed into said tube, means to supply fuel to said torch, and means to lead vaporized fuel from said casing to said burner.

2. In combination, a vapor-burner head having a broad upper face arranged substantially horizontally and provided with a plurality of perforations in said face, a tube arranged substantially horizontally above and close to said burner-head, a vaporizing-casing upon and surrounding said tube, means to feed a liquid fuel into said casing, a torch directed into said tube, means to supply fuel from said casing to said torch, and means to lead vaporized fuel from said casing to said burner.

3. In combination, a vapor-burner head having a broad upper face arranged substantially horizontally and provided with a plurality of perforations in said face, a tube lying substantially horizontally close to and above said burner, a vaporizing-casing upon and surrounding said tube, means to feed a liquid fuel into said casing,

a torch directed into said tube, means to supply fuel to said torch, and means to lead vaporized fuel from said casing to said burner.

4. In combination, a vapor-burner head having a broad upper face arranged substantially horizontally and provided with a plurality of perforations in said face, a tube open at both ends and lying substantially horizontally close to and above said burner, a vaporizing-casing upon and surrounding said tube, means to feed a liquid fuel into said casing and in part located in front of one end of said tube, a torch directed into the other end of said tube, a pipe extending from said casing to said torch to supply fuel thereto, and a pipe leading from said casing to said burner to supply vaporized fuel thereto, said pipe having an opening therein to admit air thereto.

5. In combination, a vapor-burner, a tube open at both ends and located above said burner, an elongated vaporizing-casing upon and surrounding said tube, metallic wires located in said casing between the interior of said casing and the exterior of said tube and adapted to assist in vaporizing the fuel, a fuel-tank and means to lead a liquid fuel from said tank into said casing, said pipe passing in front of one of the open ends of said tube, a torch-nozzle directed into the other end of said tube and adapted to cause a flame to pass into said tube, a pipe connected with said casing and leading to said torch to supply fuel thereto, and a pipe leading from said casing to said burner and having an opening therein to admit air thereto.

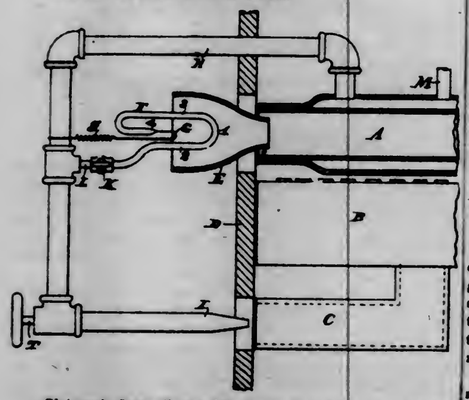
6. A vaporizer for liquid hydrocarbons comprising a central tube, a tube about said central tube of sufficient size to form an annular passage, said tubes at their ends being worked into contact with each other to form a closed annular chamber, one of said tubes having peripheral corrugations forming a yielding section to accommodate unequal expansions of the two tubes.

7. A vaporizer for liquid hydrocarbons comprising a central tube, a tube about said central tube of sufficient size to form an annular passage, said tubes at their ends being joined to form an annular passage, one of said tubes having peripheral corrugations compensating for unequal expansion of the two tubes.

8. In combination, a vapor-burner, a vaporizer consisting of an annular tubular casing extending across the face of the burner and having a central through-passage, means for supplying a liquid hydrocarbon to the annular space in said vaporizer, means for conveying the gas generated by said vaporizer to the burner, and a pilot burner or torch discharging into the central opening in said vaporizer.

9. The combination of a main burner, a vaporizer above and substantially parallel to said burner, said vaporizer being composed of inner and outer tubes spaced apart to form a vaporizing-channel, means to conduct vaporized fuel from said vaporizer to said burner, a torch directed into said inner tube, and means to supply fuel to said torch.

785,903. **VAPOR-BURNER.** HARRY J. MARES, New York, N. Y. Filed Nov. 25, 1903. Serial No. 183,583.



Claim.—1. In an oil-vaporizing burner in combination, a burner, a vaporizer therefor heated by said burner and having an inner and an outer wall, a vapor-conveying pipe from said vaporizer to said burner, and a second vapor-conveying pipe bent upon itself and discharging into said vaporizer and also discharging upon itself whereby the same is heated by its own flame.

2. In an oil-vaporizing burner in combination, a burner, a vaporizer therefor heated by said burner and having an inner and an outer wall forming an opening into the same, an oil-supply connection for said vaporizer, a vapor-conveying pipe extending from said vaporizer and discharging into said burner, a second vapor-conveying pipe discharging into the opening into said vaporizer and also upon itself, and a valve for closing the vapor-supply to said burner without closing the supply to said second pipe.

3. In an oil-vaporizing burner, in combination, a burner, a vaporizer therefor heated by said burner and having an inner and an outer wall, said inner wall forming a chamber, an oil-supply connection for said vaporizer, a vapor-conveying pipe extending from said vaporizer and terminating in a nozzle discharging into said burner, and a tube supplied from the said vapor-conveying pipe and bent to discharge upon a portion of itself and discharging into the chamber of said vaporizer.

4. The combination with a discharge-nozzle for oil-vaporizing burners, of a clearing member therefor comprising a wire bent backward or upon itself and having one end lying within the discharge-orifice, the other end having a spring formed therein and fixedly supported.

785,904. **WAXING-UP TOOL FOR DENTAL TRIAL-PLATES.** ANDREW MAY, St. Catherines, Canada. Filed Aug. 15, 1904. Serial No. 220,849.



Claim.—1. In a waxing-up tool for dental trial-plates, the combination with the casing having a reduced tubular extension at one end curved upwardly and the perforations at the opposite end and in the periphery of the casing near such end, of a nozzle fitting into the interior of the casing and provided with an internal orifice at the inner end as specified.

2. In a waxing-up tool for dental trial-plates, the combination with the casing having a reduced tubular extension at one end curved upwardly and the perforations at the opposite end and in the periphery of the casing near such end, of a nozzle fitting into the interior of the casing and provided with an internal orifice at the inner end and the legs secured to the head of the casing extending laterally therefrom and curved downwardly and rearwardly as specified.

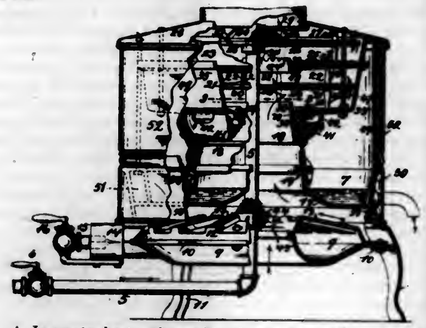
785,905. **WATER-HEATER.** WILLIAM L. MERSPELDER, Norwood, Ohio. Filed Dec. 21, 1904. Serial No. 237,765.

Claim.—1. In a water-heater, the combination of a series of circular spreaders, means whereby water is discharged upon them, tangentially-arranged ridges on these spreaders whereby their upper surface is subdivided into gutters by which the water is distributed, the edge of these spreaders being notched out between alternate gutters, a collecting-chamber below these spreaders, an outlet therefrom and a burner to supply heat to the device.

2. In a water-heater, the combination of a series of spreaders and collectors alternately directing the water in opposite directions, the water passing over the outer edge of the spreaders onto the collectors and through central openings in these collectors, a marginal curb surrounding each of these openings, notches in the upper edge of these curbs whereby the water is discharged in jets, a collecting-chamber below these devices, an outlet therefrom and means to supply heat to the device.

3. In a water-heater, the combination of a pan-shaped collector

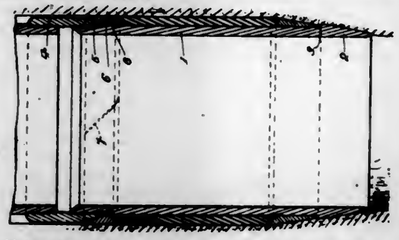
with a central discharge-opening, means to supply water to it, a flue below it and extending with its upper end through this opening and of a size to leave a space between it and the margin of this opening, drip-noses directing the water from this collector across this space and against the outer surface of this flue, a collecting-chamber which receives this water, an outlet therefrom and a burner below the flue.



4. In a water-heater, the combination of a central flue, a burner below, a pan-shaped device above it and adapted to discharge water against the outer side of this flue, a curved wall supported on this flue in a manner to form an annular chamber around the same and provided with outlets for the water, a collecting-chamber below and an outlet therefrom for the heated water.

5. In a water-heater, the combination of an inclosing shell, an annular burner, an annular collecting-chamber above the same, an outlet therefrom, a central flue projecting upwardly from this chamber, alternately-arranged circular spreaders and collectors with imperforate bottoms supported above this flue, and vertically spaced between their outer edges, the water passing down over the outer edge of the spreaders, onto the collectors, a central supply-pipe passing upwardly through all these devices and a distributing-head at the upper end of the same discharging the water laterally over the topmost spreader.

785,906. **CASING PACKER AND SHOE FOR GAS OR OIL WELLS.** ALBERT P. MCBRIDE, Independence, Kans. Filed Dec. 6, 1904. Serial No. 235,683.

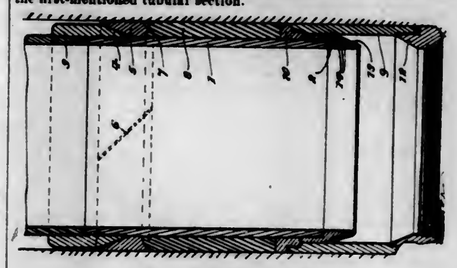


Claim.—In combination, a tubular section having its lower end tapered and formed with an outer shoulder at the base of the taper, a band at the upper end of the tubular section having its outer lower end tapered, upper and lower rings loose upon the tubular section and having their inner or opposing ends outwardly flared, the upper ring having its inner side flared to conform to the tapered portion of the aforementioned band and made expansible, and packing loose upon the tubular section and confined between the rings thereof.

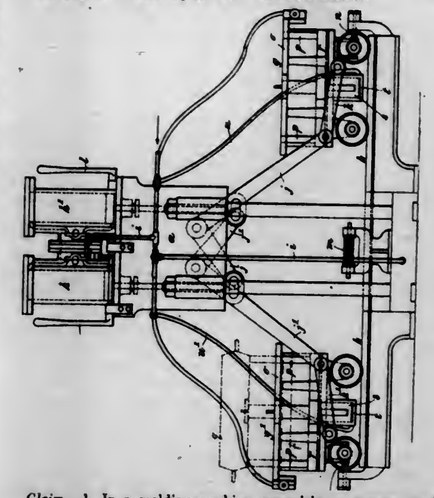
785,907. **WALL-ANCHOR AND PACKER FOR GAS OR OIL WELLS.** ALBERT P. MCBRIDE, Independence, Kans. Filed Dec. 6, 1904. Serial No. 235,684.

Claim.—1. In combination, a tubular section having upper and lower outer extensions, rings loose upon said tubular section, the upper ring being expansible, a packing loose on the tubular section and confined between said rings, a tubular section connected with the lower loose ring and having an annular shoe at its lower end, and a packing at the lower end of the first-mentioned tubular section to make a tight joint with said annular shoe.

2. In combination, a tubular section having an outer tapered portion at its upper end, a ring fitted to the lower end of the tubular section and tapered upon its outer lower portion, a wall-anchor telescoping with the lower portion of said tubular section and comprising a section of tubing and upper and lower rings, the latter constituting an annular shoe and having its inner upper portion flared to form a seat for the tapered ring at the lower end of the first-mentioned tubular section, and a packing between the wall-anchor and the first-mentioned tubular section.



785,908. **SAND-MOLDING MACHINE.** JOHN J. MCCLELLAND, London, England, assignor to The Safety Thread Syndicate Ltd., London, England. Filed July 26, 1904. Serial No. 218,366.



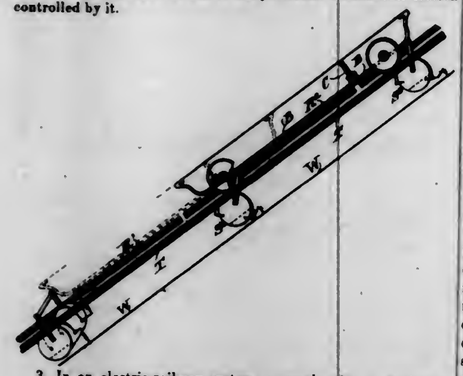
Claim.—1. In a molding-machine comprising a rammer and trolleys for carrying mold-boxes beneath the said rammer, the combination with said trolleys of motive-power cylinders and pistons working therein, one such cylinder and piston for each trolley, and independent connections between each piston and its respective trolley.

2. In a sand-molding machine comprising a rammer and trolleys for carrying mold-boxes beneath the said rammer, the combination with said trolleys of motive-power cylinders and pistons, one such cylinder and piston for each trolley, a lever connected with each of said pistons and a link-rod connecting said lever with its respective trolley.

785,909. **ELECTRIC-RAILWAY SYSTEM.** JOHN C. MCDONALD, New York, N. Y. Filed Feb. 9, 1904. Serial No. 192,773.

Claim.—1. In an electric-railway system, a supply-wire; a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor, switches mechanically operated by a member attached to the car, said switches controlling the supply of current to said contact-rail, said switches consisting of a conducting-terminal; another conducting-terminal insulated from the first-named terminal; a freely-flowing conducting material; and rotary means which when operated results in the freely-flowing conducting material connecting or falling short of connecting said terminals.

2. In an electric-railway system, a supply-wire; a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switches for controlling the supply of current to said contact-rail; said switches comprising a conducting-terminal; another conducting-terminal insulated from the first-named terminal; a freely-flowing conducting material; and rotary means which when operated results in the freely-flowing conducting material connecting or falling short of connecting said terminals; and switch-controlling means consisting of a bar disposed longitudinally in relation to the car and carried thereby, and adapted by mechanical contact to throw each switch and maintain same in circuit throughout the time that current needs to be fed through that switch to the particular contact-rail section controlled by it.



3. In an electric-railway system, a supply-wire; a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switches for controlling the supply of current to the contact-rail; said switches comprising a conducting-terminal; another conducting-terminal insulated from the first-named terminal; a freely-flowing conducting material; and rotary means which when operated results in the freely-flowing conducting material connecting or falling short of connecting said terminals; and switch-operating means carried by the car consisting of a long bar disposed lengthwise of the car adapted by mechanical contact to throw in circuit and maintain in circuit each switch successively along the line of travel, throughout the time that the traveling contact needs current for the motor from the particular contact-section controlled by that switch, said switch-controlling means being adapted subsequently to release said switch.

4. In an electric-railway system, a supply-wire; a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switches for suitably controlling the supply of current to the contact-rail; and switch-controlling means carried by the car consisting of a long bar disposed lengthwise of the car adapted by mechanical contact to throw in circuit and maintain in circuit each switch successively along the line of travel, throughout the time that said traveling contact needs current for the car-motor from the particular contact-section controlled by that switch, said switch-controlling means being adapted subsequently to release said switch.

5. In an electric-railway system, two tracks for supporting the car-wheels consisting respectively of an ordinary continuous rail and a sectional contact-rail; insulating means to prevent electrical connection between said tracks through the car-wheels and axle; a traveling contact for feeding current from said contact-rail to the motor and car-controlled switches for suitably controlling the supply of current to the said contact-rail, said switches consisting of a conducting-terminal; another conducting-terminal insulated from the first-named terminal; a freely-flowing conducting material, and rotary means which when operated results in the freely-flowing conducting material connecting or falling short of connecting said terminals.

6. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switch-operating means carried by the car operating by mechanical contact switches for controlling the supply of current to the contact-rail, said switches comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which the switch-operating means on the car contacts to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected by said material when the receptacle is in its abnormal position, but not to be so connected when the receptacle is in its normal position.

7. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switch-operating means carried by the car operating by mechanical contact switches for controlling the supply of current to the contact-rail; said switches comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which the switch-operating means on the car contacts to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected by said material when said receptacle is in its abnormal position, but not to be so connected when the receptacle is in its normal position.

8. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switch-operating means carried by the car operating by mechanical contact switches for controlling the supply of current to the contact-rail; said switches comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between abnormal positions on both sides of its normal position; means on the switch with which the switch-operating means on the car contacts to move the receptacle into one abnormal position or the other, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected by said freely-flowing material when the receptacle has been moved into one of its abnormal positions, but not to be so connected when the receptacle is in its normal position.

9. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switch-operating means carried by the car operating by mechanical contact switches for controlling the supply of current to the contact-rail; said switches comprising a hollow receptacle, supporting means for said receptacle whereby it forms part of a pendulum, and tends at all times to assume a normal position, but can be moved into abnormal positions to either side of its normal position; means on the switch with which the switch-operating means on the car contacts to move the receptacle into one abnormal position or the other, depending upon the direction in which the switch-operating means acts, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected by said freely-flowing material when the receptacle has been moved into an abnormal position, but not to be so connected when the receptacle is in its normal position.

10. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switch-operating means carried by the car operating by mechanical contact switches for controlling the supply of current to the contact-rail; said switches comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which the switch-operating means on the car contacts to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted each to be in electrical contact with said freely-flowing material in an abnormal position of the receptacle, but neither to be in such contact in the normal position of the receptacle.

11. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switches for controlling the supply of current to the contact-rail; said switches comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which the switch-operating means on the car contacts to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected by said freely-flowing material when the receptacle has been moved into its abnormal position, but not to be so connected when the receptacle is in its normal position; and switch-operating means carried by the car comprising a long member which is adapted to contact at successive parts of its length with said means on the switch whereby said receptacle is moved into its abnormal position and continuously maintained in such position as long as said contact continues.

12. In an electric-railway system, a stationary contact-rail formed in sections insulated from each other; a traveling contact for feeding current from the contact-rail to the car-motor; switches for suitably controlling the supply of current to the contact-rail; said switches comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between abnormal positions on both sides of a normal position; means on the switches with which switch-operating means on the car contacts to move the receptacle into one abnormal position or the other, depending upon the direction in which the switch-operating means acts, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected by said freely-flowing material when the receptacle has been moved into one of its abnormal positions, but not to be so connected when the receptacle is in its normal position; and switch-operating means carried by the car comprising a long member which is adapted to contact at successive parts of its length with said means on the switch, whereby the receptacle is moved into an abnormal position and continuously maintained in such position as long as such contact continues.

13. The combination of a switch comprising a hollow receptacle, supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which switch-operating means can contact to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means causing said receptacle to resume its normal position as soon as said switch-operating means ceases to contact with said means on the switch; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected or disconnected by said freely-flowing material when the receptacle has been moved into its abnormal position, but not to be so connected when the receptacle is in its normal position; and switch-operating means carried by the car comprising a long member which is adapted to contact at successive parts of its length with said means on the switch whereby said receptacle is moved into its abnormal position and continuously maintained in such position as long as such contact continues.

14. The combination of a switch comprising a hollow receptacle; supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which switch-operating means can contact to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted each to be in electrical contact with said freely-flowing material in the abnormal position of the receptacle, but neither to be in such contact in the normal position of the receptacle; and said switch-operating means adapted as it moves past the switch to operate it by mechanical contact.

15. The combination of a switch comprising a hollow receptacle; supporting means for said receptacle upon which it can oscillate between abnormal positions on both sides of a normal position; means on the switch with which switch-operating means can contact to move said receptacle into one abnormal position or the other, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending upon the position of the receptacle; and switch-operating means comprising a long member which is adapted to contact at successive parts of its length with said means on the switch, whereby the receptacle is moved into one of its abnormal positions and continuously maintained in such position as long as such contact continues.

16. The combination of a switch comprising a hollow receptacle; supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which switch-operating means contacts to move the receptacle into said abnormal position, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending upon the position of the receptacle; and switch-operating means comprising a long member which is adapted to contact at successive parts of its length with said means on the switch, whereby the receptacle is moved into its abnormal position and continuously maintained in such position as long as such contact continues.

17. The combination of a hollow receptacle; supporting means whereby the receptacle can freely oscillate into abnormal positions to either side of a normal position; means on the switch with which switch-operating means can contact to move the receptacle into either of said abnormal positions, said means oscillating as part of the receptacle upon the same supporting means as the receptacle; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending upon the position of the receptacle; and said switch-operating means adapted as it moves past the switch to operate it be mechanical contact.

18. In an electric switch, the combination of a hollow receptacle; supporting means for said receptacle upon which it can oscilllate free and unimpeded like a pendulum between a normal position and an abnormal position; means automatically operating to restore the receptacle to its normal position when the switch is not being operated; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted each to be in electrical contact with said freely-flowing material in one position of the receptacle, but neither to be in such contact in the other position of the receptacle.

19. In an electric switch, the combination of a hollow receptacle; supporting means for said receptacle upon which it can oscillate free and unimpeded like a pendulum between abnormal positions on both sides of a normal position; means automatically operating to restore the receptacle to its normal position when the switch is not being operated; freely-flowing conducting material within the receptacle; and conducting-terminals borne by the receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending on position of the receptacle.

20. In an electric switch, the combination of a hollow receptacle; supporting means for said receptacle whereby it forms part of a pendulum and automatically assumes a normal position when the switch is not being operated, but can be moved into abnormal positions to either side of its normal position; freely-flowing conducting material within the receptacle; and conducting-terminals borne by the receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending upon the position of the receptacle.

21. In an electric switch, the combination of a hollow receptacle; supporting means for said receptacle upon which it can oscillate free and unimpeded like a pendulum between abnormal positions on both sides of a normal position; means automatically operating to restore the receptacle to its normal position when the switch is being operated; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be both in electrical contact, or to be both out of electrical contact with said freely-flowing material, depending upon the position of the receptacle.

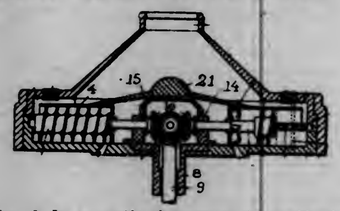
22. In an electric switch, the combination of a hollow receptacle; pivotal supporting means for said receptacle whereby, like a pendulum, it automatically, when not being operated, assumes a normal position, but can freely oscillate into abnormal positions to one side or the other of said normal position; freely-flowing conducting material inside the receptacle; conducting-terminals borne by said receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending upon the position of the receptacle.

23. In an electric switch, the combination of a hollow receptacle; supporting means whereby said receptacle, like a pendulum, tends to assume a normal position, but can be moved to one side or the other of said normal position; freely-flowing conducting material within said receptacle; a layer of oil upon said freely-flowing conducting material; and conducting-terminals borne by said receptacle and adapted to be electrically connected or disconnected by said freely-flowing material, depending upon the position of the receptacle.

24. In an electric-railway system, two tracks for supporting the car-wheels, consisting respectively of an ordinary continuous rail and a contact-rail consisting of sections insulated from each other; insulating means to prevent electrical connection between said tracks through the car wheels and axles; means for conveying the current from the contact-rail to the motor; switches for controlling the supply of current to said contact-rail; said switches comprising a hollow receptacle; supporting means for said receptacle upon which it can oscillate between a normal position and an abnormal position; means on the switch with which switch-operating means on the car contacts to move the receptacle into said abnormal position; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; conducting-terminals borne by the receptacle and adapted to be connected or disconnected by said freely-flowing material, depending upon the position of the receptacle; and switch-operating means carried by the car and operating the switches by mechanical contact.

25. In an electric-railway system, two tracks for supporting the car-wheels, consisting respectively of an ordinary continuous rail and a contact-rail formed in sections insulated from each other; insulating means to prevent electrical connection between said tracks through the car wheels and axels; means for feeding the current from said contact-rail to the motor; switch-operating means carried by the car for operating switches which control the supply of current to said contact-rail; said switches consisting of a hollow receptacle; supporting means for said receptacle upon which it can oscillate between a normal and an abnormal position; means operating to restore the receptacle to its normal position; freely-flowing conducting material within the receptacle; and conducting-terminals borne by the receptacle and adapted to be connected or disconnected, depending upon the position of the receptacle.

785,910. **CENTRIFUGAL MACHINE.** KARL P. NILSSON, Stockholm, Sweden. Filed Mar. 19, 1903. Serial No. 148,537.



Claim.—1. In a centrifugal separator the combination of a bowl provided with an inlet for the liquid to be separated and with outlet-openings for the separated liquid and with discharge-openings for the slime at shorter radial distance from the shaft of the bowl than the said outlet-openings for the liquid to be separated, screws inside the said bowl, means for rotating the said screws in such direction that the same will force the slime toward the center of the bowl, and means for inclosing the said screws, substantially as and for the purpose set forth.

2. In a centrifugal separator the combination of a bowl provided with an inlet for the liquid to be separated, and with outlet-openings for the separated liquid, and with discharge-openings for the slime at shorter radial distance from the shaft of the bowl than the said outlet-openings for the liquid to be separated, screws, means for rotating the said screws, means for inclosing the latter, and toothed disks engaging the same, substantially as and for the purpose set forth.

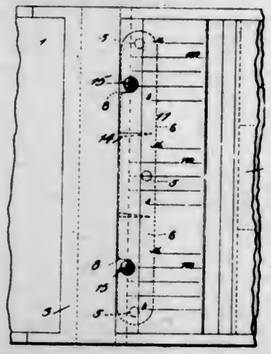
3. In a centrifugal separator the combination of a bowl provided with an inlet for the liquid to be separated, and with outlet-openings for the separated liquid, and with discharge-openings for the slime at shorter radial distance from the shaft of the bowl than the said outlet-openings for the liquid to be separated, chambers projecting radially from the bowl, screws in said chambers, and means for rotating the said screws, substantially as and for the purpose set forth.

4. In a centrifugal separator the combination of a bowl provided with an inlet for the liquid to be separated, and with outlet-openings for the separated liquid, and with discharge-openings for the slime at shorter radial distance from the shaft of the bowl than the said outlet-openings for the liquid to be separated, chambers projecting radially from the bowl, casings in the said chambers, screws within the said casings, and means for rotating the said screws, substantially as and for the purpose set forth.

5. In a centrifugal separator the combination of a bowl provided with an inlet for the liquid to be separated, and with outlet-openings for the separated liquid, and with discharge-openings for the slime at shorter radial distance from the shaft of the bowl than the said outlet-openings for the liquid to be separated, chambers projecting radially from the bowl, screws in the said chambers, means for rotating the said screws, and toothed disks engaging the same, substantially as and for the purpose set forth.

6. In a centrifugal separator the combination of a bowl provided with an inlet for the liquid to be separated, and with outlet-openings for the separated liquid, and with discharge-openings for the slime at shorter radial distance from the shaft of the bowl than the said outlet-openings for the liquid to be separated, screws, means for rotating the said screws, wings on the shafts of said screws, and means for inclosing the latter and the said wings, substantially as and for the purpose set forth.

785,911. **TEMPORARY BINDER.** FRANK L. NOLD, Louisville, Ky. Filed Nov. 10, 1904. Serial No. 232,197.



Claim.—1. The combination with front and back covers, of a pair of seats carried by one of the covers with the entrances of the seats at the inner ends thereof, a plurality of sheets, and fasteners piercing the sheets and projected at the back thereof with their projected ends formed for detachable engagement with the respective seats, said fasteners being separated by a space greater than that which separates the entrances of the seats.

2. The combination with front and back covers, of a plate secured to one of the covers and provided with substantially L-shaped slots intersecting one edge thereof with the transverse members of the slots extending outwardly toward the respective ends of the plate, a plurality of sheets, and a pair of fastenings piercing the sheets and projected at the back thereof with the projected portions formed for engagement with the L-shaped slots, said fasteners being separated by a space exceeding that which separates the entrance members of the slots.

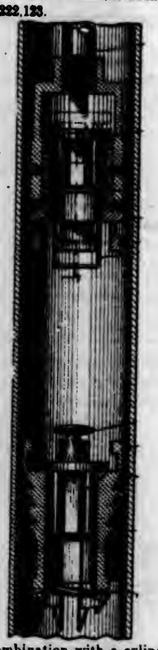
3. The combination with front and back covers, of a plate secured to one of the covers and provided with offset portions spaced from the adjacent cover, the back edges of the offset portions having L-shaped slots formed therein with the transverse members of the slots extending outwardly toward the respective ends of the plate, a plurality of sheets, and fasteners piercing the sheets and projected at the back thereof with the projected portions formed for engagement with the slots, said fasteners being separated by a space greater than that which separates the entrances of the slots.

4. The combination with front and back covers, of a pair of offset seat members carried by one of the cover members and provided with L-shaped slots with their transverse members directed outwardly toward the top and bottom edges of the cover, a plurality of sheets, and a pair of split and headed fastenings piercing the sheets with the projected ends of the members of each fastener bent back against the back of the sheets and entered beneath one of the seats with the shank portion engaged with the transverse member of the slot thereof, said fasteners being separated by a space greater than the space which separates the entrances of the slots.

5. A temporary binder including a cover and a seat member secured thereto and provided with a pair of offset portions spaced from the cover, each offset portion being provided with a substantially L-shaped slot intersecting the inner edge thereof, and the transverse members of the slots being directed outwardly toward the respective ends of the seat member.

6. A temporary binder including a cover and a seat member secured thereto and provided with a pair of offset portions spaced from the cover, each offset portion being provided with a substantially L-shaped slot intersecting the inner edge thereof, the transverse members of the slot being directed outwardly toward the respective ends of the seat member, and the outer edge of each slot being beveled inwardly from the adjacent end of said seat member.

785,912. **PUMP.** JOHN W. PARF, Kendallville, Ind. Filed Aug. 25, 1904. Serial No. 222,123.



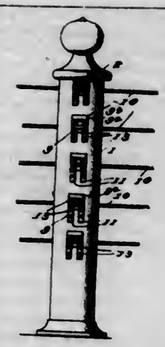
Claim.—1. The combination with a cylinder of a check-valve casing having a ring transversely arranged therein; a puppet-valve therefor having depending spring-arms adapted to extend through said ring, said arms having projecting portions at their lower ends whereby said puppet is held normally in position; and a grappling device for said puppet and casing, coacting for the purpose specified.

2. In a pump, the combination of a piston or plunger; a puppet-valve for said plunger; a rod transversely arranged in said plunger; and a trip for said valve having upwardly-projecting corrugated spring-arms engaging said rod, for the purpose specified.

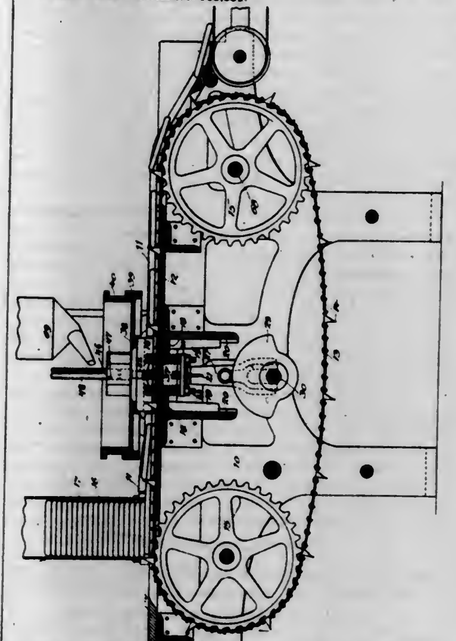
785,913. **FENCE-POST.** ROBERT M. PATTERSON, Athens, Ohio. Filed Aug. 18, 1904. Serial No. 221,393.

Claim.—In combination, a fence-post provided with lateral openings therethrough, bars passed through said openings, each of said bars being provided with a hook at one end and a head at the other, the hook being adapted to receive a line-wire, and a wedge provided with spaced members receiving the head of the bar aforesaid therebetween, said wedge having the outer and inner portions thereof spaced from each other, the outer portion having spring movement toward the inner portion when the wedge is driven into position, said outer portion being provided upon its outer face with transverse grooves to receive the head and effect positive interlocking of the wedge with said head.

785,913.



785,914. **CAKE-MACHINE.** FRANK M. PETERS, Chicago, Ill. Filed June 9, 1902. Serial No. 110,851.



Claim.—1. In a cake-machine, the combination with a chamber having an apertured bottom and adapted to contain material to be applied to the surface of the cake, of means for introducing the cake to said aperture, and a rotatable sweep operating within the chamber to spread the material over the cake through said aperture, substantially as described.

2. In a cake-machine, the combination with a chamber having an apertured bottom and adapted to contain material to be applied to the surface of the cake, of a vertically-reciprocating table adapted to receive and present the cake to said aperture, and a rotatable sweep operating within the chamber to spread the material over the cake through said apertnre, substantially as described.

3. In a cake-machine, the combination with a traveling carrier, of a vertically-reciprocating table adapted to lift the cakes from the carrier, and a chamber to contain a material to be applied to the surface of the cake, said chamber having an aperture to which the cake is lifted by the table, and means for applying the material contained within the chamber to the surface of the cake, substantially as described.

4. In a cake-machine, the combination with a traveling carrier, of a vertically-reciprocating table, a chamber to contain a material to

be applied to the surface of the cake, and a rotatable sweep operating within the chamber to apply said material, substantially as described.

5. In a cake-machine, the combination with an endless carrier, of a receptacle to contain the cakes to be operated upon and from which they are successively withdrawn by the carrier, a reciprocating table adapted to lift the cakes from the carrier, a chamber to contain a material to be applied to the surface of the cakes, a rotary sweep operating within the chamber and the latter having an aperture to which the cake is lifted and through which the material is discharged by the sweep, substantially as described.

6. In a cake-machine, the combination with a suitable framework, of a receptacle to contain cakes to be operated upon, a carrier to withdraw the cakes from the receptacle and advance them singly, a reciprocating table adapted to lift the cakes from the carrier, guides mounted upon the framework, said guides being interrupted to permit the reciprocation of the table above and below the plane thereof, guide-sections upon the table, a chamber to contain a material to be applied to the cakes, and means for discharging the material through an aperture in said chamber and upon the cakes, substantially as described.

7. In a cake-machine, the combination with a carrier for moving the cakes, a chamber to contain a material to be applied to the surface of the cakes, and a reciprocating table adapted to lift the cakes from the carrier and present them to an aperture in the chamber, said table being yieldingly supported, substantially as described.

8. In a cake-machine, the combination with a carrier for the cakes, of a reciprocating table having vertically-sliding clips adapted to engage the top of a cake and clamp the same to the table during the reciprocating movement of the latter, substantially as described.

9. In a cake-machine, the combination with a carrier, track-supports for the carrier, guides for the cakes, a table having its central portion cut away to receive the carrier, guide-sections on the table, clips adapted to hold the cakes upon the table, and a stop to release the clips, substantially as described.

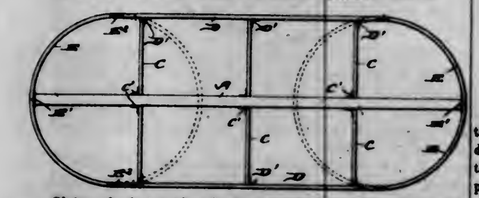
10. The combination with a cake-reservoir, of an icing-table, a feeding-belt for conveying the cakes from the reservoir to the icing-table, a supporting-table slotted for the passage of the belt, and a pair of adjustable strips carried by the icing-table and forming side guards for preventing lateral displacement of the cakes.

11. The combination with an icing-support having an opening for the passage of icing, a yieldably-mounted cake-receiving table, and means for moving the table upward to press the cake against the bottom of said icing-support, the distance to which the table is moved being determined by the thickness of the cake.

12. The combination with an icing-support having an opening, of a yieldably-mounted cake-receiving table, an endless conveyer having feeding-pins extending through a central opening in the table, and means for moving the table independently of the feeding-chain.

13. The combination with an icing-support having an opening, of a slotted cake-receiving table, means for moving the table toward and from the opening, and an intermittently-actuated feed-belt extending through the slot of the table.

785,915. **FOLDING AWNING AND FRAME.** JOHN A. POLTOCK, East Rutherford, N. J. Filed June 1, 1904. Serial No. 210,707.

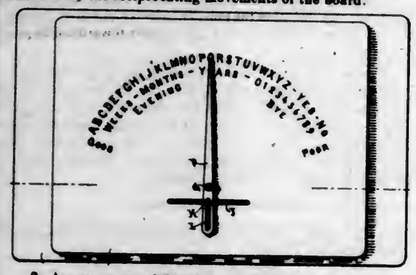


Claim.—1. An awning-frame comprising a center bar, arms hinged thereto, bars hinged to the arms, and sectional, segmental bars hinged together and hinged to the parallel bars.

2. A device of the kind described comprising sectional, foldable standards, a center bar pivoted to the said standards, arms pivoted to each side of the center bar, parallel bars hinged to the outer ends of the arms, segmental bars formed in sections, hinges connecting the sections of each bar, and hinges pivoted to the parallel bars and secured to the segmental bars, as and for the purpose set forth.

785,916. **TALKING-BOARD.** JEREMIAH B. RANDALL, Hinsdale, N. Y. Filed Mar. 18, 1904. Serial No. 198,722.

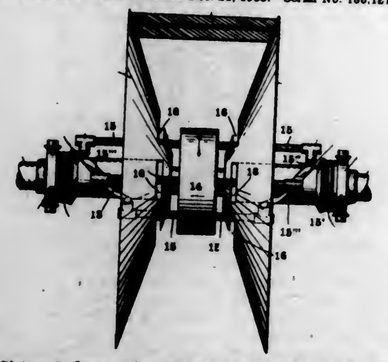
Claim.—1. An apparatus of the character described comprising a board with letters, signs or figures displayed thereon in concentric curves, a base upon which said board is mounted to reciprocate, a pointer pivoted above the board at the center of said curves, and connections between said pointer and base, whereby the pointer will be oscillated by the reciprocating movements of the board.



2. An apparatus of the character described comprising a board with letters, signs or figures displayed thereon in concentric curves, a stationary base, guides depending from the board through slots in the base whereby the board is restricted to a reciprocating motion on the base, ball-bearings between the board and the base, means for holding the board upon said bearings, a pointer pivoted above the board at the center of said curves, and connections between said pointer and base, whereby the pointer will be oscillated by the reciprocating movements of the board.

3. An apparatus of the character described comprising a board with letters, signs or figures displayed thereon in concentric curves, a stationary base upon which said board is mounted to reciprocate, a slotted pointer pivoted on the board at the center of said curves, and a pin projecting from the base through a slot in the board and engaging the slot in the pointer whereby the pointer is oscillated in conformity with the reciprocations of the board.

785,917. **SPEED-VARYING MECHANISM.** MILTON O. REEVES, Columbus, Ind., assignor to Reeves Pulley Company, Columbus, Ind., a Corporation of Indiana. Filed Dec. 21, 1903. Serial No. 186,121.



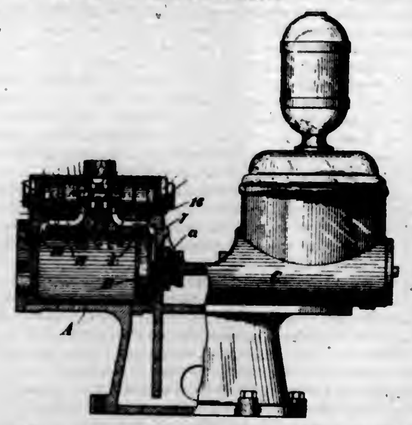
Claim.—1. In a speed-varying mechanism of the type described, the combination with a shaft, and a pair of cone-shaped driving-disks mounted thereon and both axially and angularly movable relatively thereto, of a driving connection between the shaft and disk capable of relative angular displacement, whereby relative angular displacement between the disks and shaft will cause opposite axial movement of the two disks upon the shaft.

2. In a speed-varying mechanism of the type described, the combination, with a pair of parallel shafts, of two pairs of cone-shaped driving-disks one pair mounted upon each of said shafts, an intermediate driving connection between the driven shaft and its pair of disks tending upon forward rotation of said driving-shaft to angularly displace the shaft within the disks and consequently draw the disks together, a driving connection between the driven disks and the driven shaft tending upon driving of the driven disks to displace said driven disks upon the driven shaft angularly and consequently to draw the driven disks together, and a belt running between the two pairs of disks.

3. In a speed-varying mechanism, the combination, with a shaft and a pair of cone-shaped driving-disks sleeved thereon, and having a pair of oppositely-arranged screw-threads one formed on each of the disks, and a pair of shoes carried by the shaft and mounted one in each of said threads, for the purpose set forth.

4. In a speed-varying mechanism, the combination, with a shaft, and a pair of cone-shaped driving-disks sleeved thereon and each having a thread 13, and a belt running between said disks, of a collar carried by the shaft between the disks, arms carried by the collar and extending through the disks, and a shoe carried by each arm and engaging the adjacent thread, for the purpose set forth.

785,918. **FLUID-ACTUATED VALVE.** JAY B. RHODES, Harvey, Ill. Filed May 12, 1902. Serial No. 106,886.



Claim.—1. The combination of a cylinder, a piston inclosed in said cylinder, a valve-casing, a live-steam port leading to the valve-casing, exhaust-ports, a reciprocating valve inclosed in said valve-casing, ports connecting the interior of the valve-casing with that of the cylinder, passages through the reciprocating valve adapted to register with the live-steam port and the ports connecting the interior of the valve-casing with the cylinder, said ports and passages being so related and located that the valve is initially actuated by live steam taken from between the piston and one end of the cylinder at the end of each stroke, and by a partial movement in either direction to cut off the admission of the steam from the cylinder to the valve-chamber.

2. The combination of a suitable cylinder, a piston reciprocating therein, a suitable valve-casing having a centrally-arranged portion dividing the valve-chamber into two compartments, a valve having a reduced middle portion adapted to alternately close one and the other of two admission-ports formed in said central portion, said valve having a plurality of disks at each end, the cylinder and valve-casing being provided with a pair of ports adapted to be alternately covered and uncovered by the said end disks, one port being covered by one end disk while the other port is in communication with the space between the two disks at the other end of the valve, whereby the live steam driving the piston is admitted to the valve-chamber to initially actuate the valve at the end of each piston-stroke, and the said valve-casing being provided with a pair of annular grooves or recesses serving as exhaust-passages and controlled by the intermediate disks of said valve, one annular groove or recess being covered by one intermediate disk while the other groove or annular recess is uncovered by the other intermediate disk, and said valve being provided with passages adapted to open prior to the cutting off of steam from the cylinder, so as to admit live steam directly to the valve chamber to complete the stroke of the valve.

3. In a steam-pump, the combination of a suitable cylinder, a piston reciprocating therein, a valve-casing mounted upon the cylinder, a reciprocating valve inclosed by the casing, said cylinder and casing having two admission-ports at opposite ends adapted to cooperate with two longitudinal ports in the opposite ends of the valve, so as to admit the live steam driving the piston into the valve-chamber to actuate the valve at the end of each piston-stroke, said valve having a central portion for controlling the admission of live steam through suitable ports both to the cylinder and to the ends of the valve, and said valve being provided with a pair of disks adapted to alternately cover and uncover exhaust-passages in the valve-casing, one exhaust-passage being covered while the other is uncovered.

4. The combination of a suitable cylinder, a single-headed reciprocating piston inclosed therein, a suitable valve-casing, a live steam port leading to the valve-casing, an exhaust-port, ports connecting the interior of the valve-casing with that of the cylinder, a reciprocating valve inclosed in said valve-casing provided at each end with disks and passages and having a central portion adapted to control the admission of steam through the ports of the cylinder, the said disks being adapted to control the exhaust from the cylinder through the ports and passages, and the said ports and passages being so related and located that the reciprocating valve is actuated at the end of each stroke by the live steam driving the piston.

5. The combination of a suitable cylinder, a piston reciprocating therein provided with a single disk or head, a valve-casing, a reciprocating spool-shaped valve inclosed by said casing, said cylinder and casing being provided with a pair of ports adapted to admit the live steam driving the piston into the valve-chamber to initially actuate the valve at the end of each piston-stroke, the valve being provided with a pair of end ports through which the steam is allowed to pass into the end of the chamber, the said valve being also provided with a pair of longitudinally-extending ducts or passages, each pair of ducts opening laterally into the middle portion of the valve, whereby each stroke of the valve is completed by direct admission of steam to the valve-chamber from the main inlet, and the cylinder and casing being constructed with a pair of ports connecting the extreme end portions of the valve-chamber with the cylinder.

6. The combination of a suitable cylinder and piston, a valve and valve-casing, the cylinder and casing being constructed with suitable ports and passages through which the steam driving the piston is admitted to the valve-chamber to initially actuate the valve, the valve being constructed with passages through which steam is admitted directly from the main steam-inlet to the valve-chamber to complete the stroke of the valve, and the cylinder and casing being constructed with relief-ports to prevent the valve from centering.

7. The combination of a valve having a pair of disks at each end, and having also a middle portion, a cylinder and piston, a valve-casing inclosing said valve, said casing being provided with a central portion having two recesses separated by a partition in which the said middle portion of the valve slides or reciprocates, suitable ports or passages for admitting live steam from the cylinder to the valve-chamber to initially actuate the valve, suitable ports or passages for admitting steam directly from the main steam-inlet to the valve-chamber for the purpose of completing the stroke of the valve, and a pair of relief-ports for preventing the valve from centering.

8. In a steam-pump, the combination of a suitable cylinder, a piston, a suitable valve and valve-casing, the cylinder and valve-casing having ports through which the steam driving the piston is admitted to the valve-chamber to initially actuate the valve at the end of each piston-stroke, the valve being provided with passages through which steam is admitted directly from the main steam-inlet to the valve-chamber to complete the stroke of the valve, and the cylinder and valve-casing being also provided with suitable ports and passages through which the steam entering the valve-chamber directly from the main steam-inlet may pass to the cylinder and thence back to the valve-chamber, thereby maintaining the preponderance of pressure on the valve in the desired direction.

9. In a steam-pump, the combination of a suitable piston and cylinder, a suitable valve and valve-casing, the cylinder and valve-casing being provided with a pair of ports through which the steam driving the piston is admitted to the valve-chamber to initially actuate the valve at the end of each piston-stroke, said valve being provided with a pair of passages through which steam is admitted directly from the main steam-inlet to the valve-chamber to complete the stroke of the valve, the cylinder and casing being provided with a pair of main ports for admitting and exhausting the steam to and from the cylinder, and the cylinder and casing being further provided with a pair of ports through which the steam entering the valve-chamber directly from the main steam-inlet passes into the piston-chamber and thence back to the valve-chamber through the said main ports, substantially as and for the purpose set forth.

10. In a steam-pump, the combination of a piston and valve, a cylinder and valve-casing, passages controlled by both the piston and said valve for admitting working steam from the cylinder to the valve-chamber to initially actuate the valve at the end of each piston-stroke, the valve cutting off the admission of steam from the cylinder before it reaches the end of its stroke, passages in the said valve opening to admit steam directly from the main supply-inlet to complete the stroke of the valve, a pair of ports for admitting and ex-

hausting steam to and from said piston and coöperating with the valve to establish an exhaust from the cylinder subsequent to the cutting off of the admission of working steam from the cylinder to the valve-chamber, said last-mentioned passages being each adapted to open just prior to the cutting off of steam from the cylinder.

11. In a steam-pump, the combination of a piston and valve, a cylinder and valve-casing, passages opened by the piston to admit working steam from the cylinder to the valve-chamber to initially actuate the valve at the end of each piston-stroke, passages for establishing direct admission of steam from the main supply-inlet to the valve-chamber upon a partial movement of the valve in either direction, means for cutting off the admission of working steam from the cylinder to the valve-chamber subsequent to the said direct admission of steam and prior to the completion of the valve-stroke, suitable ports and passages for admitting and exhausting steam to and from the cylinder, and means whereby the exhaust from the cylinder is established subsequent to the cutting off of the admission of working steam from the cylinder to the valve-chamber.

12. The combination of a piston and cylinder, a reciprocating valve having each end provided with a head, a valve-casing inclosing said valve, said casing or cylinder being provided with suitable ports for admitting and exhausting motive fluid to and from said cylinder, and the said cylinder and valve-casing having also suitable ports or passages adapted to admit cylinder-steam to the valve-chamber to exert pressure upon one of said heads to initially actuate the valve at the end of each piston-stroke and while the other head of the valve is subject to motive fluid pressure in the same direction, and said valve having a pair of live-steam-admission ports each adapted to open just prior to the cutting off of steam from the cylinder, so as to complete the stroke of the valve in each direction.

13. The combination of a piston and cylinder, a reciprocating valve having each end provided with a head, a valve-casing inclosing said valve, said casing and cylinder being provided with suitable ports for admitting and exhausting motive fluid to and from said cylinder, and the said cylinder and valve-casing having also suitable ports or passages adapted to admit working cylinder-steam to the valve-chamber to exert pressure upon either one of said heads to initially actuate the valve at the end of each piston-stroke and while the other head of the valve is subject to motive fluid pressure in the same direction, the valve being adapted by a partial movement to cut off the admission of cylinder-steam, and said valve having a pair of live-steam-admission ports each adapted to open just prior to the cutting off of steam from the cylinder, so as to complete the stroke of the valve in each direction.

14. The combination of a piston and cylinder, a reciprocating valve provided at each end with a head, and a valve-casing inclosing said valve, said cylinder and casing being provided with piston-controlled ports for admitting working cylinder-steam to the valve-chamber to initially actuate the valve, in each direction, said casing having live-steam-admission ports adapted to maintain a direct live-steam pressure upon either head of the valve while the other head is subject to cylinder-steam pressure in the same direction, the direct and cylinder pressures exerted simultaneously on the two heads giving the necessary preponderance of pressure in the desired direction to initially actuate the valve at the end of each piston-stroke, in each direction, means for cutting off the admission of cylinder-steam upon a partial movement of the valve in each direction, and means for admitting live steam to the valve-chamber before the cutting off of the cylinder-steam to complete the stroke of the valve, in each direction.

15. In a motive-fluid-actuated engine, the combination of a piston and cylinder, a reciprocating motive-fluid-actuated valve, and a casing inclosing said valve, said cylinder and casing being provided with piston-controlled ports for admitting working cylinder-steam to the valve-chamber to initially actuate the valve at the end of each piston-stroke, in each direction, means for cutting off said admission of cylinder-steam upon a partial movement of the valve, in each direction, the engine structure as a whole being provided with live-steam-admission passages adapted to open prior to the said cutting off of cylinder-steam and before the said valve completes its stroke, in each direction, and adapted to thus admit live steam directly to the valve-chamber to complete the stroke of the valve, in each direction.

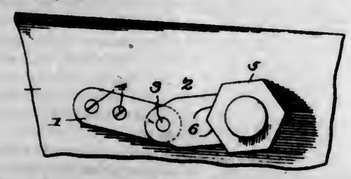
16. In a steam-pump, the combination of a piston and cylinder, and a reciprocating valve and a valve-casing, the pump structure as a whole having suitable ports for admitting working steam from the cylinder to the valve-chamber to initially actuate the valve at the end of each piston-stroke, said ports being so located that said valve is adapted by a partial movement in each direction to cut off the admission of steam from the cylinder to the valve-chamber, the engine structure as a whole being also provided with suitable ports adapted to open just prior to the cutting off of steam from the cylinder, and adapted to thereby admit live steam to the valve-chamber to complete the stroke of the valve in each direction, and the pump structure as a whole being further provided with ports for admitting and exhausting steam to and from the cylinder for the purpose of actuating the piston, said last-mentioned ports being adapted to coöperate with the valve in establishing an exhaust from the cylinder just after the cutting off of the admission of cylinder-steam to the valve-chamber.

17. The combination of a cylinder, a reciprocating piston in said cylinder, a reciprocating valve provided at each end with a cylindric head, said valve having also a reduced cylindric middle portion, and a valve-casing inclosing said valve, said cylinder and casing connected with piston-controlled ports for admitting the working cylinder-steam to the valve-chamber to initially actuate the valve in each direction, live-steam-admission ports adapted to maintain a direct live-steam pressure upon the heads of the valve, ports connecting the heads of the valve with the cylinder, the direct and cylinder pressures thus exerted simultaneously on the two heads giving the necessary preponderance of pressure in the desired direction to initially actuate the valve at the end of each piston-stroke, the ports in the valve-casing, valve and to the cylinder being such that the stroke of the valve in each direction being completed by the admission of live steam to the valve-chamber just prior and subsequent to the cutting off of the admission of working steam thereto from the cylinder.

18. In a motive-fluid-actuated engine, the combination of a cylinder, a reciprocating piston in said cylinder, a reciprocating motive-fluid-actuated valve, and a casing inclosing said valve, said cylinder and casing being provided with piston-controlled ports for admitting working cylinder-steam to the valve-chamber to initially actuate the valve at the end of each piston-stroke, live-steam-admission passages connecting the cylinder with the valve-casing and adapted to open before the said valve completes its stroke in each direction, and adapted to thus admit live steam directly to the valve-chamber to complete each stroke of the valve, said passages being so arranged and constructed to also open just before the admission of cylinder-steam is cut off, whereby the stroke of the valve in each direction is completed by the admission of live steam to the valve-chamber just prior and subsequent to the cutting off of admission of working steam thereto from the cylinder.

19. A motive-fluid-actuated engine comprising a suitable cylinder, a live-steam connection, a reciprocating piston in said cylinder, a suitable valve-casing, reciprocating motive-fluid-actuated valve in the valve-casing, suitable ports connecting the cylinder with the valve-casing for admitting working steam from the cylinder to the valve-chamber to initially actuate the valve at the end of each piston-stroke, and whereby the admission of steam from the cylinder to the valve-chamber is cut off upon a partial movement of the valve in each direction, suitable ports and passages having a direct connection with the live-steam connection end of the casing to effect a direct admission of live steam to the valve-chamber to complete the stroke of the valve in each direction, the different ports and passages being so relatively disposed that the said direct admission of live steam to the valve-chamber is established just prior to the cutting off of steam from the cylinder, and suitable ports and passages adapted to coöperate with said valve in admitting and exhausting steam to and from the cylinder for the purpose of actuating the piston.

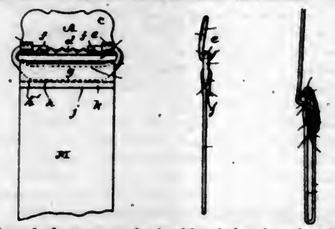
785,919. NUT-LOCK. GEORGE F. ROBERTSON, Paris, Tex., assignor of one-half to Archie N. Rodgers, Paris, Tex. Filed May 20, 1904. Serial No. 208,922.



Claim.—1. A nut-lock consisting of a supporting-plate adapted to be secured in variable relation to the position of the nut, and a locking-plate pivoted thereto and having a plurality of faces adapted to engage the nut.

2. A nut-lock consisting of a supporting-plate adapted to be secured in variable relation to the position of the nut, and a locking-plate pivoted thereto and having a depressed extremity provided with a plurality of faces adapted to engage the nut.

785,920. SUSPENDER-BUCKLE. MOSES L. ROTHSCHILD, New York, N. Y. Filed June 20, 1904. Serial No. 214,679.



Claim.—1. In a suspender-buckle of the class described, the combination of a frame member formed of wire and comprising an upper side forming round pintles, a lower flat side thinner than the upper side and formed by swaging the wire thereof, an opening intermediate of said sides, a lever member pivotally mounted on said pintles and having two arms at an angle with respect to each other, one an operating-arm and the other a clamping-arm, the clamping-arm being so proportioned and disposed as to be extended toward the flattened side of the frame member.

2. A suspender-buckle consisting of two members, one member formed of wire and comprising a loop having an upper and a lower side, the former being of round wire to form pintles for a lever member, and the lower side being formed of wire flattened and thinned out relative to the upper side for the compact attachment of a web, said sides forming an opening for the passage of the web, and a lever member pivotally mounted on said pintles and having two arms at an angle with respect to each other, one an operating-arm and the other a clamping-arm, the clamping-arm being so proportioned and disposed as to extend toward the flattened bar of the loop member.

3. A buckle of the class described, the same comprising a sheet-metal lever member and a wire loop frame member, the latter member consisting of round pintles formed of the ends of wire and comprising the upper side of the loop and a lower side having oppositely-flattened surfaces and thinned out relative to the upper side for the attachment of a web, a web-opening intermediate of said sides of the loop, a lever member pivotally mounted on said pintles, and having two arms at an angle with respect to each other, one an operating-arm and the other a clamping-arm, the clamping-arm being so proportioned and disposed as to be extended toward the flattened bar of the loop member.

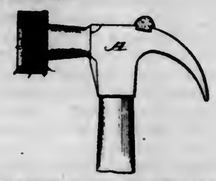
4. In a rustless buckle, the combination with a wire loop frame having an upper and a lower side with an opening between the same, the lower side of said frame being thinned out relative to the upper side and broadened in substantially the plane of the loop, of a lever having a clamping edge and pivoted to the upper side of the frame, the lever being in a position to have its clamping edge coact with the upper edge or top of the lower side of the frame, and a piece of web having its upper reach passed from front to rear through said opening and engaged by the clamping edge of the lever which deflects it over or approximately over the upper edge or top of the lower side of the frame, whereby the upper reach of the web is extended from the back of the buckle when the web is under draft as in use.

5. In a rustless suspender-buckle, the combination with a wire frame having an upper and lower side with an opening between the same, said lower side being broader and thinner than the upper side to form a thin attachment for the web, of a lever having a clamping edge and pivoted on the upper and round side of the frame, the lever in position to have its clamping edge coact with the top or upper edge of the lower side of the frame, and a piece of webbing having its lower reach attached to the lower side of the frame and its upper reach passed from front to rear through the said opening and engaged by the clamping edge of the lever which deflects the webbing over or approximately over the upper edge or top of the lower side of the frame.

6. In a suspender-buckle of the class described, the combination of a frame member formed of wire, and comprising an upper side forming round pintles, a lower side having a serrated edge and flattened to form a broad flat side and thinner than the upper side, an opening intermediate of said sides, a lever member pivotally mounted on said pintles and having two arms at an angle with respect to each other, one an operating-arm and the other a clamping-arm, the clamping-arm being so proportioned and disposed as to extend toward the flattened side of the frame member.

7. In a non-rusto suspender-buckle, the combination of a frame member formed of wire, and comprising an upper side forming round pintles, a lower side broadened and thinned out relative to the upper side and being thickest through its upper edge, an opening intermediate of said sides, a lever member pivotally mounted on said pintles and having two arms at an angle with respect to each other, one an operating-arm and the other a clamping-arm, the clamping-arm being so proportioned and disposed as to extend toward the broadened side of the frame member.

785,921. HAMMER. SAMUEL SPRINGER, Alton, Ill. Filed Dec. 27, 1904. Serial No. 238,437.



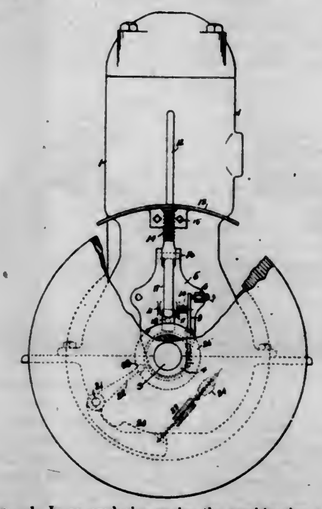
Claim.—1. The combination with a hammer-head of an annular adjustable cushion mounted on the exterior of the head and through which the striking-face of the head is exposed, and means for adjusting the cushion longitudinally of the head.

2. A hammer provided on its head with an adjustable annular carrier and an annular cushion mounted on the said carrier exterior to the striking-face of the hammer-head.

3. A hammer provided on its head with an adjustable annular carrier having an outwardly-projecting flange at its rear end and a cushion mounted on the outer side of the said carrier and resting at its inner edge against said shoulder.

4. A hammer provided with a circumferentially-threaded head, and an internally-threaded annular cushion-carrier on said head and adjustable rearwardly beyond the face of the hammer-head to leave the same wholly exposed and uncushioned.

785,922. REVERSING MEANS FOR EXPLOSIVE-ENGINES. JOHN D. TERMAAT and LOUIS J. MONAHAN, Oshkosh, Wis., assignors to Termaat and Monahan Company. Filed Mar. 5, 1904. Serial No. 196,749.



Claim.—1. In an explosive-engine the combination with a fly-wheel, a centrifugally-acting weight pivoted thereon, a sliding collar mounted on the hub of said wheel, means for connecting the said collar and weight to cause them to move in unison, an electric igniting circuit, an electric terminal insulated from the said engine and adapted to be in contact with the said sliding collar when the engine is at rest and out of contact when a definite rotative speed is attained due to the action of centrifugal force upon the said weight, an auxiliary connecting means between the engine and the said insulated terminal for the purpose set forth.

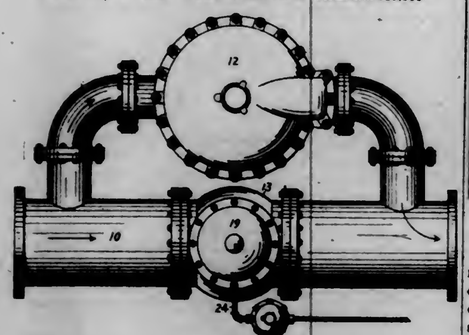
2. In an explosive-engine the combination with a fly-wheel, of a

weight pivotally mounted thereon and having an extending arm at right angles to the said weight, an adjustable spring to normally hold the weight toward the center of the said wheel, a flanged collar loosely mounted on the fly-wheel hub and having a spiral slot in one side, a screw or pin loosely fitted to the said slot and secured to the fly-wheel hub, a recess in the said flange of the collar loosely fitted to the end of the extending arm of the said weight adapted to connect the weight and collar loosely together when the swinging movement of the weight causes a partial revolving and sliding movement of the said collar, a casting or bracket arranged at the end of the said collar and capable of a partial revoluble movement around the fly-wheel axis, a lug mounted on and insulated from the said bracket and in the range of the endwise travel of the said collar whereby connection is made between the collar and the said insulated lug, an auxiliary switch or connecting means adapted to make contact between the said bracket and the insulated lug and under control of a handle or lever, a rigid slotted guide arranged to limit the movements of the said handle for the purpose set forth.

3. In a gas or explosive engine having an electric ignition-circuit, the combination of a movable bracket mounted axially with a shaft of the said engine, a cam secured to the said shaft and having a flattened portion on its periphery, a contact finger or lever pivotally connected to the said bracket and having one end resting on the cam and the other end adapted to make contact with an insulated piece on the said bracket, a spring adapted to hold the said contact-finger against the cam, another lug of suitable form mounted on and insulated from the bracket, a handle or lever pivoted to the bracket and capable of a movement to connect and disconnect with the last said insulated lug, of centrifugal mechanism suitably attached to the said engine and capable of making contact with the last said insulated lug at definite points in the rotative velocity of the centrifugal mechanism for the purpose set forth.

4. The combination in a gas-engine of a revoluble shaft, of a bracket 5 movably mounted thereon, an insulated electrode 18 passing through the said bracket, a handle 12 pivoted to the bracket and having a spring extension 17 adapted to make contact with the insulated electrode 18, a collar 25 arranged to make and break contact with the said insulated electrode and depending on the speed of the engine for its position of touching or separating from the said insulated electrode.

785,923. **METER SYSTEM.** JAMES A. TILDEN, Hydepark, Mass., assignor to Hersey Manufacturing Company, South Boston, Mass., a Corporation of Maine. Filed Oct. 24, 1904. Serial No. 229,866.



Claim.—1. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, and a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and controlled by the movement of the valve.

2. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, and a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and with which the valve coacts.

3. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, and a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and with which the valve coacts at the side toward the induction-opening of the by-pass.

4. A meter system comprising a main conduit, a by-pass opening therefrom, a controlling device in the main conduit between the by-pass openings, means for normally maintaining an excess of fluid-pressure upon one side of the controlling device, and an indicator under the influence of the controlling device.

5. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and controlled by the movement of the valve, and an indicator connected with the passage.

6. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and controlled by the movement of the valve, and mechanism connected with the passage and furnishing an indication after the flow through said passage has ceased.

7. A meter system comprising a main conduit, a by-pass opening therefrom, a controlling device in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and under the influence of the controlling device, and indicating mechanism connected with the passage.

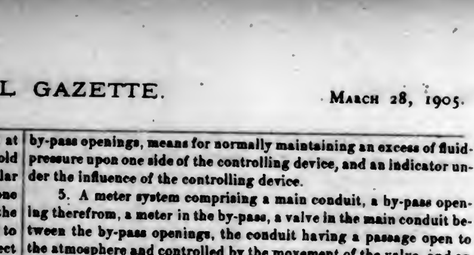
8. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and with which the valve coacts at the side toward the induction-opening of the by-pass, and indicating mechanism connected with the passage.

9. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, a valve in the main conduit between the by-pass openings, and a chamber in the conduit with which the valve coacts at the side toward the induction-opening of the by-pass.

10. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, a valve in the main conduit between the by-pass openings, a chamber in the conduit with which the valve coacts, and a meter connected with the chamber.

11. A meter system comprising a main conduit, a by-pass opening therefrom, a meter in the by-pass, a valve in the main conduit between the by-pass openings, the conduit having a passage open to the atmosphere and with which the valve coacts, and a meter connected with the passage.

785,924. **BINDER-FRAME.** WILLIAM J. WATTERS, Chicago, Ill. Filed Sept. 26, 1904. Serial No. 226,931.



Claim.—1. A binder-frame comprising a back member and two relatively movable members, parallel cross-pieces pivotally mounted on the back member and connected at their ends to each other and operatively engaged with the movable members, and means for swinging said cross-pieces on their pivots to move the movable members toward or away from each other.

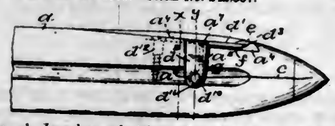
2. A binder-frame comprising a back member and two relatively movable members, parallel cross-pieces pivotally mounted on the back member and operatively engaged with the movable members, bars connecting the ends of said cross-pieces, and means for swinging said cross-pieces on their pivots to move the movable members toward or away from each other.

3. A binder-frame comprising a back member and two relatively movable members, parallel cross-pieces pivotally mounted on the back member, pivot-pins working in slots in the movable members and connected to the ends of the cross-pieces, bars connected to said pivot-pins, and means for swinging said cross-pieces on their pivots to move the movable members toward or away from each other.

4. A binder-frame comprising a back member and two relatively movable members, parallel cross-pieces pivotally mounted on the back member and operatively engaged with the movable members and connected together at their ends, and a screw-rod mounted on one of the movable members and operatively connected with one end of one of the cross-pieces.

5. A binder-frame comprising a back member and two relatively movable members, parallel cross-pieces pivotally mounted on the back member, pivot-pins at the ends of said cross-pieces arranged to work in slots in the movable members, bars connected to said pivot-pins to connect the ends of the cross-pieces, a threaded collar on one of said pins, and a screw-rod mounted on one of the movable members and operating in said threaded collar to swing said cross-pieces on their pivots to move the movable members toward or away from each other.

785,925. **LOOM-SHUTTLE.** ALFRED WHITEHEAD, Fall River, Mass. Filed Jan. 24, 1905. Serial No. 242,537.

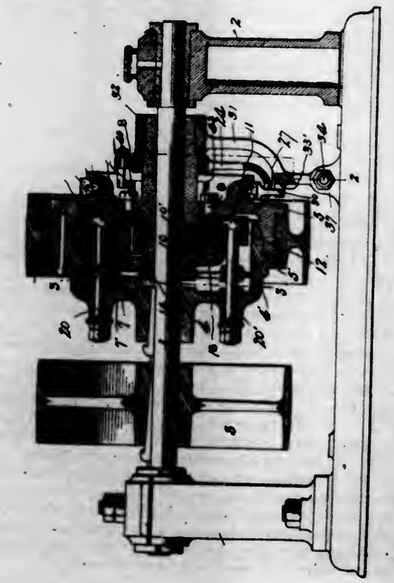


Claim.—1. In a loom-shuttle, a threading device formed from sheet metal to have a flat body portion, a tension-arm, and a delivery-eye arm all formed integral, a shuttle having a depressed portion for the body, a cavity for the tension-arm, and a recess for the delivery-eye arm of the threading device, and means for securing the threading device to the shuttle, as described.

2. In a loom-shuttle, a threading device *d* formed from sheet metal to have the flat body portion d', the screw-hole d^2, the pointed end d^3, the rounded corner d^4, the tension-arm d^5 having the wings d^6 d^6, the loop d^7, and the curved end d^8, and the delivery-eye arm d^9 having the aperture d^{10} and the slot d^{11} all formed integral, as described.

3. The combination with a loom-shuttle *a* having the cavity a', the notch a^2 in the side wall of the cavity, the groove a^3, the depressed portion a^4, the recess a^5, the transverse hole a^6, and the slot a^7, of a threading device *d* having the flat body portion d', the screw-hole d^2, the pointed end d^3, the rounded corner d^4, the tension-arm d^5 having the wings d^6 d^6, the loop d^7 and the curved end d^8, and the delivery-eye arm d^9 having the aperture d^{10} and the slot d^{11} all formed integral from sheet metal, the shuttle and threading device being shaped to form the space *e*, the space *f*, and the space *g* for the entrance of a weft or filling thread, and means for securing the threading device *d* to the shuttle *a* consisting of the screw d^{12}, as described.

785,926. **FRICTION-CLUTCH.** HARRY A. WILLIAMS, Akron, Ohio. Filed May 12, 1904. Serial No. 207,961.



Claim.—1. The combination with a shaft, a driving clutch member and a driven clutch member mounted rigidly and loosely respectively thereon, a magnet on the driven member and an element adapted to be attracted by the magnet and to operate mechanical means whereby said clutch members are brought into engagement.

2. In a clutch mechanism, a shaft, a driving member and a driven member, said members provided with complementary inclined frictional contact-surfaces and the driven member provided with a pulley, a magnet on the driven member and an element located on the shaft adapted to be attracted by said magnet and to operate means whereby said inclined surfaces are brought into frictional contact.

3. In a clutch mechanism, a shaft, a driving member and a driven member, a magnet consisting of a coil surrounding the shaft and a metallic ring rigid with the driven member, and an armature-disk adjacent said ring and connected with means, whereby, when said disk is attracted to said ring and brought into frictional contact therewith, said clutch members are brought into engagement.

4. In a clutch mechanism, a shaft, a driven member and a driving member, a cam-ring located on the driven member, means connecting said cam-ring with the driving member, and mechanism adapted to be operated by electrical connections in connection with the cam-ring, for engaging said clutch members.

5. In a clutch mechanism, a shaft, a driving member and a driven member, a cam ring on the driven member connected by a shaft having a cam-head to the driving member, and means connected with said shaft and operated by a magnet located on the driven member for bringing said clutch members into frictional engagement.

6. In a clutch mechanism, a shaft, a driving member and a driven member, a cam-ring on the driven member, shafts having cam-heads connecting said cam-ring with the driving member, a pinion on the shaft connected with pinions on the cam-shafts and means operated by a magnet on the driven member for rotating said pinion and through the described connections bringing the clutch members into engagement.

7. A clutch mechanism consisting of a driving member and a driven member located on a shaft as described, a cam-ring on one member connected by shafts having cam-heads to the other member, segmental gears on said shafts and a pinion on the shaft meshing therewith, an armature-disk connected with said pinion, and a magnet, whereby when said disk is attracted to frictional contact with a moving part of the magnet, the described connections are operated to bring the clutch members into engagement.

8. In a clutch mechanism, a shaft, a driven member and a driving member, a magnet and an element adapted to be attracted by the magnet and to operate means whereby the clutch members are brought into engagement; and a brake-band surrounding a portion of the driven member provided with a spring for disengaging said brake, and electrical connections for operating said brake.

9. The combination of two clutch members, rock-shafts connecting said members, a main shaft and a pinion thereon, means connecting said pinion with said rock-shafts, and means whereby, when said shafts are rocked by said pinion, said clutch members are brought into contact.

10. A shaft, a driving and a driven clutch member, rock-shafts connecting said members, a pinion on the shaft and a gear on each rock-shaft meshing with said pinion, means for holding said gears in normal position, connections between the rock-shafts and driven member, whereby, when said pinion is rotated, the clutch members are brought into engagement.

11. A shaft, a driving and a driven clutch member, rock-shafts connecting said members, a pinion on the shaft and a gear on each rock-shaft meshing with said pinion, springs for holding said gears in normal position, and connections between the rock-shafts and driven member, whereby, when said pinion is rotated, the clutch members are brought into contact.

12. The combination of two clutch members, rock-shafts connecting said members, a main shaft and a pinion thereon, a gear on each rock-shaft connected with said pinion, an armature-disk also connected to said pinion and a magnet for operating said disk, and means, whereby, when said disk is operated, the clutch members are brought into engagement through the described connections.

13. The combination of two clutch members, a cam-ring on one member, rock-shafts having cam-head seated in said cam-ring and connecting the two members, a gear on each rock-shaft, and a shaft having a pinion thereon meshing with said gears, springs for holding said gears in normal position, and means for operating said pinion whereby the clutch mechanism is brought into engagement.

14. The combination of two clutch members, a cam-ring on one member, rock-shafts having cam-heads seated in said cam-ring and connecting the two members, a gear on each rock-shaft, and springs for holding said gears in normal position, the main shaft having a pinion meshing with said gears, and an armature-disk connected with said pinion; a magnet located to rotate with one of said members and adapted to rotate said disk, thus bringing the clutch mechanism into engagement through the described connections.

15. The combination of two clutch members located on a shaft as described, a magnet and an element adapted to be attracted by the magnet whereby the clutch members are brought into contact; a groove in one of the members having therein a brake-band, lugs on the ends of said brake-band, and a sleeve surrounding said shaft having an extension or arm provided with lugs located in the path of said lugs on the brake-band, and means for bringing said pairs of lugs in contact for engaging the brake-band with the clutch member.

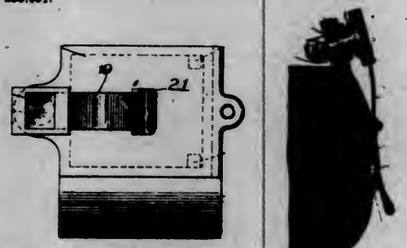
16. In a clutch as described, a shaft having thereon an arm provided with magnets adapted to frictionally contact with the driven member of the clutch, lugs on said arm, and a brake-band adapted for engagement with the driven member provided with lugs on its end in the path of movement of said lugs on the arm, and a second arm located on the shaft and provided with lugs in the path of movement of said brake-band lugs, and electrical connections for operating said first-mentioned arm to close the brake mechanism.

17. The combination in a clutch as described, a shaft, having thereon an arm provided with magnets, said magnets adapted to frictionally contact with one member of the clutch, lugs on said arm; and a brake-band adapted to frictionally contact with said clutch member having lugs in the path of movement of the lugs on said arm, electrical connections for operating said magnets to close the brake mechanism, and means for cushioning the movement of said arm and brake-band.

18. The combination in a clutch as described, a shaft having thereon an arm provided with magnets adapted to frictionally contact with a part of said clutch, a brake-band on the clutch having projections at each end, lugs on the arm located in position to strike said projections when said arm is turned through the means of said magnets, electrical connections for operating said magnets, and a second arm located on the shaft having lugs in the path of movement of said brake-band lugs, and means connected to said second arm for cushioning the movement of the described elements.

19. The combination in a clutch as described, a shaft, an arm provided with magnets located on said shaft, said magnets adapted to frictionally contact with a part of the clutch, a brake-band on the clutch having projections on each end, lugs on said arm located in position to strike said projections when said arm is turned through the action of said magnets, and a second arm located on the shaft having lugs in the path of movement of said brake-band lugs, and springs connected to said second arm for cushioning the movement of the described elements.

785,927. JOURNAL-BOX COVER. HENRY C. WILLIAMSON and HERMAN PRIES, Michigan City, Ind. Filed Nov. 21, 1904. Serial No. 233,691.





Claim.—1. In a journal-box cover, in combination, a pivot-bolt adapted to be secured to a journal-box and having a shoulder for bearing against the face of the box; a headed sleeve fitting loosely on the bolt and countersunk to receive its head and having a socket extending transversely within its head; a cover apertured to fit upon the body of the sleeve; and a bow-spring having one end seated within the socket of the sleeve and the other end bearing on the cover.

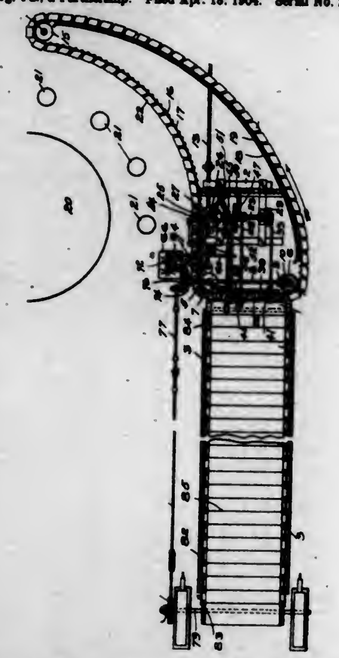
2. In a journal-box cover, in combination, a pivot-bolt adapted to be secured to a journal-box; a headed sleeve fitting loosely on the bolt and countersunk to receive its head and having a socket extending transversely within its head; a cover apertured to fit upon the body of the sleeve; and a bow-spring having one end seated within the socket of the sleeve and the other end bearing on the cover.

3. In a journal-box cover, in combination, a pivot-bolt adapted to be secured to a journal-box; a headed sleeve fitting loosely on the bolt and countersunk to receive its head; a cover apertured to fit upon the body of the sleeve; and a bow-spring having one end secured to the sleeve and the other end bearing on the cover.

4. In a journal-box cover, in combination, a pivot-bolt adapted to be secured to a journal-box; a headed sleeve fitting loosely on the bolt; a cover apertured to fit upon the body of the sleeve; and a bow-spring having one end secured to the sleeve and the other end bearing on the cover.

5. In a journal-box cover, in combination, a cover-plate; a pivot for securing the cover to a box to allow it to swing laterally; a spring bearing the cover against its seat, and a lug formed on the inner face of the cover for engaging the side wall of the box-aperture.

785,928. APPARATUS FOR HANDLING GLASSWARE. ALFRED M. ACKLIN, Pittsburg, Pa., assignor to Heyl & Patterson, Pittsburg, Pa., a Partnership. Filed Apr. 18, 1904. Serial No. 203,727.



Claim.—1. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer transversely to the direction of travel of said movable carrier, and mechanism for automatically transferring the ware from said ware-carrier to said movable carrier.

2. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer transversely to the direction of travel of said movable carrier, and a pusher adapted to automatically move the ware from said ware-carrier to said movable carrier.

3. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer transversely to the direction of travel of said movable carrier, and a reciprocating pusher adapted to automatically move the ware from said ware-carrier to said movable carrier.

4. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer transversely to the direction of travel of said movable carrier, a pusher, and mechanism for advancing said pusher each time to the full extent of its movement, whereby the ware in the path of said pusher is advanced onto the movable carrier.

5. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, and mechanism for transferring a plurality of said ware from said ware-carrier to said movable carrier.

6. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, and mechanism for transferring a line of ware extending across said opening to said movable carrier.

7. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar extending across said receiving-opening, mechanism for advancing and withdrawing said pusher-bar, and mechanism for lifting said pusher-bar on its return movement.

8. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher extending diagonally of said ware-carrier, and means for operating said pusher.

9. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer transversely to the direction of travel of said movable carrier, a pusher-bar extending across said receiving-opening, and cam mechanism for advancing and withdrawing said pusher-bar.

10. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar extending diagonally of said ware-carrier, means for throwing said pusher-bar on a substantially parallel line with reference to said ware-carrier and for advancing same in that position.

11. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar extending diagonally of said ware-carrier, a shaft, cams on said shaft, and connections between said pusher-bar and said cams, whereby said pusher-bar is advanced thereon on a substantially parallel line with reference to said ware-carrier and advanced in that position.

12. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar extending diagonally of said ware-carrier, a shaft, cams of different size on said shaft having camways formed therein, rods connected to said pusher-bar, the opposite ends of said rods engaging said camways, whereby said pusher-bar is thrown in a substantially parallel line with reference to said ware-carrier and advanced in that position.

13. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar, rods connected to said pusher-bar, means for advancing and withdrawing said rods, upright rods supporting said rods, and mechanism for raising said upright rods.

14. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar, rods connected to said pusher-bar, means for advancing and withdrawing said rods, upright rods supporting said rods, levers connected to said upright rods, and means for operating said levers.

15. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving opening of said leer, a pusher-bar, rods connected to said pusher-bar, means for advancing and withdrawing said rods, upright rods supporting said rods, levers connected to said upright rods, a rod connected to said levers, and means for moving said rod.

16. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar, rods connected to said pusher-bar, means for advancing and withdrawing said rods, upright rods supporting said rods, levers connected to said upright rods, a plate on said rod, and a projection moving in the path of said plate.

17. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a pusher-bar extending across said receiving-opening, mechanism for advancing said pusher-bar, and mechanism for withdrawing and lifting the same simultaneously.

18. The combination with a leer, of an intermittently-movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a power-driven shaft, a loosely-mounted member on said shaft, connections between said loosely-mounted member and said intermittently-movable carrier, mechanism for throwing said member into operative engagement with said shaft, a lever connected to said last-named mechanism, a rod engaging the opposite end of said lever, means for advancing said rod, an arm adapted to contact with said rod to depress same, and means for raising and lowering said arm.

19. The combination with a leer, of an intermittently-movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a power-driven shaft, a loosely-mounted member on said shaft, connections between said loosely-mounted member and said intermittently-movable carrier, mechanism for throwing said member into operative engagement with said shaft, a lever connected to said last-named mechanism, a rod engaging the opposite end of said lever, means for advancing said rod, a second shaft, a pin carried by said shaft, a swinging frame, a notched wheel on said frame having notches of varying depth adapted to be engaged by said pin, a rod connected to said wheel, and means for depressing said rod.

20. The combination with a leer, of an intermittently-movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a power-driven shaft, a loosely-mounted member on said shaft, connections between said loosely-mounted member and said intermittently-movable carrier, a ratchet-wheel rigidly secured to said shaft, a pawl, one finger of said pawl adapted to engage said ratchet-wheel, a latch engaging the other finger of said pawl, and mechanism for releasing said last-named finger.

21. The combination with a leer, of an intermittently-movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a power-driven shaft, a loosely-mounted member on said shaft, connections between said loosely-mounted member and said intermittently-movable carrier, a ratchet-wheel rigidly secured to said shaft, a pawl, one finger of said pawl adapted to engage said ratchet-wheel, a latch engaging the other finger of said pawl, a bell-crank connected to said latch, and mechanism for withdrawing said latch.

22. The combination with a leer, of a movable carrier arranged within said leer, a chain ware-carrier adapted to travel across the receiving-opening of said leer, mechanism for transferring the ware from said ware-carrier to said movable carrier, and means for operating said mechanism by the travel of said chain.

23. The combination with a leer, of an intermittently-movable carrier arranged within said leer, a chain ware-carrier adapted to travel across the receiving-opening of said leer, mechanism for imparting an intermittent movement to said movable carrier, and means for operating said mechanism by the travel of said chain.

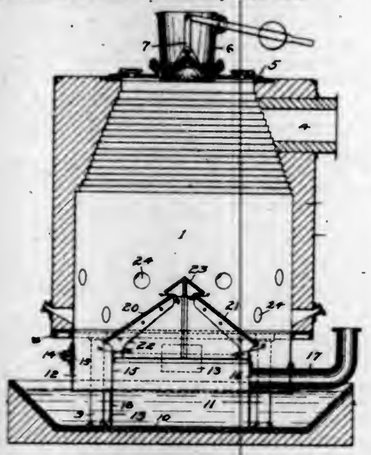
24. The combination with a leer, of a movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a series of trays on said ware-carrier and arranged at an angle thereto, a pusher-bar extending diagonally of said ware-carrier, and mechanism for operating said pusher-bar.

25. The combination with a leer, of an intermittently-movable carrier arranged within said leer, a ware-carrier adapted to travel across the receiving-opening of said leer, a power-driven shaft, a loosely-mounted member on said shaft, and connections between said loosely-mounted member and said intermittently-movable carrier, mechanism for throwing said member into operative engagement with said shaft, a lever connected to said last-named mechanism, a rod engaging the opposite end of said lever, means for advancing said rod, a second shaft, a pin carried by said shaft, a forwardly-movable notched wheel on said shaft having notches of varying depth adapted to be engaged by said pin, a rod connected to said wheel and means for depressing said rod.

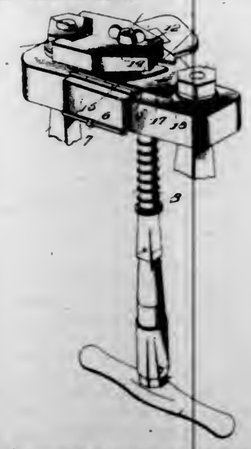
785,929. GAS-PRODUCER. WALTER O. AMSLER, Pittsburg, Pa., assignor to The Amsler Engineering Company, Pittsburg, Pa. Filed May 28, 1904. Serial No. 210,205.

Claim.—In a gas-producer, the combination, with the combustion-chamber having a series of poke-holes in the clinker-zone, of a circular water-sealed trough below the combustion-chamber, a cylindrical apron extending downwardly from the combustion-chamber into the trough to a line below the water seal having its inner surface in line with the line of the inner surface of the wall of the combustion-chamber and provided with a series of openings located adjacent to the lower end of the wall of the combustion-chamber, said openings of sufficient size to permit the removal of clinkers therethrough, a stand-pipe of large area having closed sides and its lower end resting on the bottom of the trough and extending upwardly to a line intermediate of the lower end of the wall of the combustion-chamber and the water seal, a fluid-supply pipe passing through the apron and in communication with an opening in the stand-pipe im-

mediately above the water seal, a hood of large area above the stand-pipe formed of a series of non-perforated plates, means for supporting the hood above the upper end of the stand-pipe to form a fluid-passaga between the upper end of the stand-pipe and hood, and a non-perforated hood above the first hood supported so as to form a fluid-passage between the hoods, substantially as set forth.



785,930. MACHINE-WRENCH. ANDREW C. ANDERSON, Jackson, Minn., assignor of one-half to Hans H. Anderson, Jackson, Minn. Filed Apr. 14, 1904. Serial No. 203,169.



Claim.—1. In a wrench of the class described, the combination of a head or support, a shaft mounted thereon, a crank extending from said shaft, a crank-pin carried by the crank, and a nut-engaging actuator connected with the crank-pin and movable in the plane of rotary movement of said pin.

2. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, and an oscillatory actuator adapted to engage the nut and operated by the crank-shaft aforesaid.

3. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, and a movable actuator provided with a nut-engaging jaw or like part and slidably connected with the crank of the shaft aforesaid.

4. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator provided with a nut-engaging jaw, and a pin-and-slot connection between the actuator and the crank-arm of the shaft aforesaid.

5. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator operably connected with the crank-shaft, and independent guide means directing the movement of said actuator.

6. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator operably connected with the crank-shaft, and guide means carried by the head or support and coöperating with the actuator to direct the movement of the latter.

7. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted on said head or support, an engaging member carried by the support, a movable actuator operably connected with the crank-shaft and adapted to engage a nut, and guide means coöperating with the engaging member and movable actuator.

8. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted on said head or support, an engaging member carried by the support, a movable actuator operably connected with the crank-shaft and adapted to engage a nut, and a movable guide member coöperating with the engaging member and movable actuator.

9. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted on said head or support, an engaging member carried by the support, a movable actuator operably connected with the crank-shaft and adapted to engage a nut, and a movable guide member engaging the movable actuator and the engaging member aforesaid to direct the movement of said actuator.

10. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging member carried by the head or support, guide means coöperating with said engaging member, and a reversibly movable actuator operably connected with the crank-shaft and adapted to engage a nut.

11. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging plate carried by the support, independent engaging members projected from the engaging plate aforesaid, a guide member coöperating with the engaging members of the engaging plate aforesaid, and a reversibly-mounted nut-actuator operably connected with the crank-shaft.

12. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging plate carried by the support, independent engaging members projected from the engaging plate aforesaid, a guide member coöperating with the engaging members of the engaging plate aforesaid, and a reversibly-mounted nut-actuator coöperating with the independent engaging members of the engaging plate.

13. In a wrench of the class described, the combination of a support or head, a crank-shaft mounted thereon, a guide member, an adjustable guide member coöperating with the engaging member, and a movable nut-actuator actuated with the guide member and operably connected with the crank-shaft aforesaid.

14. In a wrench of the class described, the combination of a head or support, an oscillatory actuator mounted upon said head or support and provided with an opening therein, and a crank-shaft having a crank-pin received by the said opening of the actuator for actuation thereof.

15. In a wrench of the class described, the combination of a head or support, an engaging plate mounted upon said head or support and movable toward and from the same, a movable actuator, means for fixing the position of the actuator relative to the engaging plate aforesaid, and means for operating said actuator.

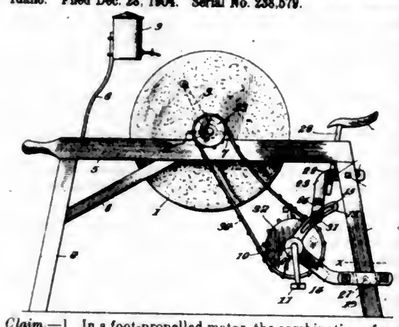
16. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator operably connected with the crank-shaft, and detachable clamp members secured to the head or support.

17. In a wrench of the class described, the combination of a support or head, an engaging plate carried by said head or support, a movable guide member coöperating with the engaging plate, and a movable nut-actuator coöperating with the guide member aforesaid and operably connected with the crank-shaft.

18. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging plate carried by the head or support, a guide member coöperating with said engaging plate, and a nut-actuator slidably engaging the guide member aforesaid and operated by the crank-shaft.

19. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted upon said head or support, an engaging plate carried by said head or support, engaging members projected from the engaging plate, a guide member movably engaging the engaging members of the engaging plate, a movable nut-actuator slidably connected with the guide member aforesaid and directed in its movement thereby, the crank-shaft being operably connected with the actuator and guide member aforesaid.

785,931. MECHANICAL MOTOR. DALE W. AXE, Threecreek, Idaho. Filed Dec. 28, 1904. Serial No. 238,579.



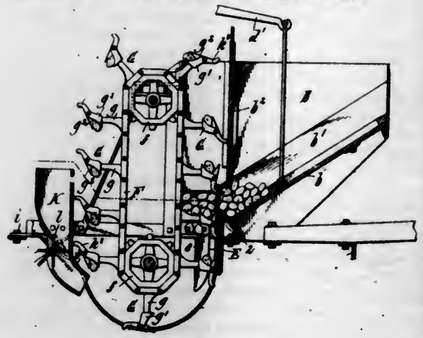
Claim.—1. In a foot-propelled motor, the combination of upper and lower frame-sections, means for adjustably connecting said sections to a support, other means for adjustably connecting said sections, a seat attached to the upper frame-section, a crank-shaft journaled in the lower frame-section, and means for transmitting motion from the said crank-shaft to the part to be operated, substantially as set forth.

2. In a foot-propelled motor, the combination of an upper frame-section provided with a seat and having a pendent portion, a lower frame-section provided with a crank-shaft and having a slotted arm, means for adjustably connecting the frame-sections to a support, and other means for adjustably connecting the pendent portion of the upper frame-section to the slotted arm of the lower frame-section, substantially as set forth.

3. In a foot-propelled motor, the combination of an upper frame-section comprising a head, a pendent portion, rear extensions, a seat adjustably connected with said head, means for adjustably connecting the rear extensions to a support, a lower frame-section comprising a crank-hanger, an upper curved arm, and a lower fork, means for adjustably connecting said curved arm to the pendent portion of the upper frame-section, means for pivotally and adjustably connecting the members of the fork to a support, and a crank-shaft mounted in said crank-hanger, substantially as set forth.

4. In a foot-propelled motor, the combination of an upper frame-section provided with a seat, a lower frame-section provided with a crank-shaft and comprising a fork, the fork members having depressions to form seats and having the shoulders at the ends of the depressions oppositely curved, clamp-plates recessed upon their inner sides and having the shoulders at the ends of the recess curved, and pivot-points extended inward from the recess of the clamp-plates and fork members for pivotally connecting the lower frame-section to a support, and means for connecting the upper and lower frame-section in an adjusted position, substantially as specified.

785,932. POTATO-PLANTER. HENRY P. BALTZER and JACOB JOHENGEN, Hamburg, N. Y., assignors to Hamburg Planter Company, Hamburg, N. Y. Filed Aug. 29, 1904. Serial No. 222,504.



Claim.—1. In a potato-feed mechanism, the combination of a hopper, an endless carrier, potato-holders connected to said carrier by relatively long thin arms and each comprising a hollow jaw fixed on and projecting from one of said arms, and a jaw pivoted to said fixed jaw to swing toward the latter in a direction substantially at right angles to the direction of movement of the holder with the carrier, and means for opening and closing said potato-holders, substantially as set forth.

2. In a potato-feed mechanism, the combination of a hopper, an endless carrier, potato-holders connected to said carrier by relatively long thin arms and each comprising a hollow jaw fixed on one of said arms and having sides which project outwardly from the arm, and a jaw pivoted to the outer ends of the sides of the fixed jaw to swing toward and from the arm carrying the holder, and means for opening and closing the potato-holders, substantially as set forth.

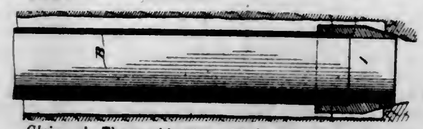
3. In a potato-feed mechanism, the combination of a hopper, an endless carrier, potato-holders connected to said carrier by relatively long thin arms and each comprising a jaw fixed on and projecting from one of said arms, and a jaw pivoted to the outer portion of said fixed jaw to swing toward and from the arm carrying the holder, a spring for closing said jaws, and a stationary guide which is engaged by a part of said pivoted jaw to open the jaws, substantially as set forth.

4. The combination with a carrier provided with a potato-holder having a movable part, of a potato-receptacle, a discharge device therefor, and a part which is engaged by said movable part of the potato-holder when in one position to operate said discharge device to discharge a potato, substantially as set forth.

5. The combination with a carrier provided with a potato-holder having a movable jaw, of a potato-receptacle, a discharge-gate therefor provided with an operating-arm, and a finger connected to the movable jaw of the potato-holder which in one position of said jaw engages said arm and operates said gate to discharge a potato, substantially as set forth.

6. The combination with a hopper, and a carrier provided with potato-holders which have movable jaws and take the potatoes from said hopper, of a potato-receptacle, a pivoted discharge-gate therefor provided with radial operating-arms, and projecting fingers on said movable jaws of the potato-holders which in one position of said jaws engage said arms and operate said gate to discharge the potatoes from said receptacle, substantially as set forth.

785,933. CASING PACKER-SHOE. ORVIS M. BLOOM, Independence, Kans., assignor of one-half to Independence Iron Works Company, Lima, Ohio, a Corporation of Ohio. Filed Jan. 16, 1905. Serial No. 241,282.

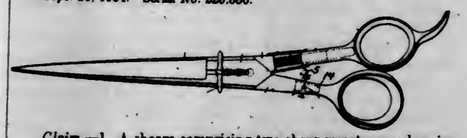


Claim.—1. The combination with a well-casing, of a packer-shoe adapted to engage and pack with the lesser diameter bore of an oil or Artesian well, substantially as and for the purposes specified.

2. A packer-shoe for well-casing, said shoe of tapering form and having one diameter corresponding to the lesser diameter of a well with the bore of which said packer-shoe is adapted to engage, substantially as and for the purposes specified.

3. A packer-shoe for well casing or tubing, said shoe having the form of a frustum of a hollow cone the lesser diameter of which approximates the lesser diameter of the well in which the same is adapted to be used, substantially as and for the purposes specified.

785,934. SHEARS. ALBERT E. BORDER, Los Angeles, Cal. Filed Sept. 21, 1904. Serial No. 225,330.



Claim.—1. A shears comprising two shear members and a pivotal connection for said members shiftable along the members to vary the movement of the blades.

2. The combination with two shear members provided with se-

ries of sockets in their inner faces, a ball interchangeably located in said sockets, and a clamp movable along the members and adjustably engaging the same to press them against each other and against the ball.

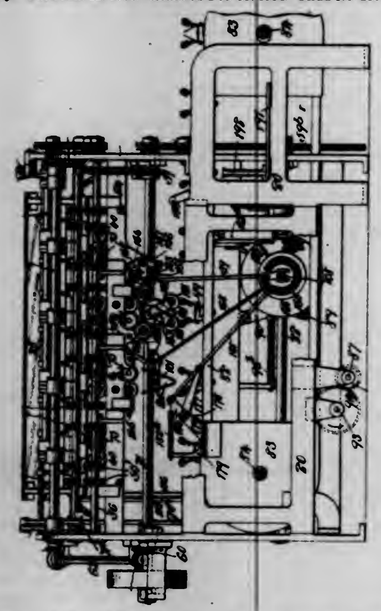
3. The combination with two shear members provided with series of sockets in their inner faces, a ball interchangeably located in said sockets, a clamp movable along the members and adjustably engaging the same to press them against each other and against the ball, one of the shear members having an inclined groove on its outer face and depressions in said groove and the clamp having a projection to engage in said groove and depressions.

4. In a shears, a handle-ring movably mounted on the handle for adjustment longitudinal of the handle.

5 In a shears, a handle member and a handle-ring screwing on said member to move adjustably thereon longitudinally of the handle member.

6. In a shears, a handle member and a handle-ring screwing on said member to move adjustably thereon longitudinally of the handle member, and a shield covering the joint between the handle member and the handle-ring.

785,935. **MACHINERY FOR FOLDING PAPER OR OTHER FABRICS.** EDGAR H. COTTRELL, Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 12, 1904. Renewed Dec. 30, 1904. Serial No. 238,877.



Claim.—1. In a folding-machine, the combination of folding mechanism for separately forming signatures, means for collecting the so-formed signatures in twos one inset within the other and means for insetting one of the said collected twos into the other of said collected twos.

2. In a folding-machine, the combination of a carrier, folding mechanism for forming signatures, pockets between said folding mechanism and carrier for the reception of signatures from said folding mechanism, and means for opening the bottoms of said pockets for the delivery of said signatures to the carrier.

3. In a folding-machine, the combination of a carrier comprising pockets for signatures, folding mechanism for forming signatures intermediate pockets between said folding mechanism and said carrier for the reception of signatures from said folding mechanism, and means for opening the bottoms of said pockets for the delivery of said signatures to the pockets of the carrier.

4. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier, pockets between said folding mechanism and carrier, means for collecting the separately-formed signatures and insetting one within another in said pockets, and means for opening the bottoms of said pockets for delivering the so-inset collections from said pockets inset one within another to the carrier.

5. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier comprising pockets, intermediate pockets between said folding mechanism and carrier, means for collecting the separately-formed signatures and insetting one within another in said intermediate pockets, and means for delivering the so-inset collections from the intermediate pockets and insetting one within another in the carrier-pockets.

6. In a folding-machine, the combination of a carrier comprising pockets, folding mechanism for separately forming signatures of smaller numbers of pages, two intermediate pockets between said folding mechanism and said carrier for receiving from said folding mechanism a plurality of such separately-formed signatures inset one within another, and means for first delivering into a carrier-pocket the so-inset signatures from one intermediate pocket and afterward delivering the so-inset signatures from the other intermediate pocket into the same carrier-pocket inset within those first delivered thereinto, thereby obtaining in one carrier-pocket a signature consisting of duplicated pluralities of such signatures of the smaller number of pages.

7. In a folding-machine, the combination of mechanism for separately forming four signatures, a carrier comprising pockets, two intermediate pockets between said mechanism and said carrier, means between said mechanism and said intermediate pockets for depositing two of said separately-formed signatures one after another inset in each of said pockets, and means for first delivering into a carrier-pocket the two so-inset signatures from one intermediate pocket and afterward delivering the two so-inset signatures from the other intermediate pocket into the same carrier-pocket thereby forming in said carrier-pocket a signature of sixty-four pages.

8. In a folding-machine, the combination of a folding mechanism for forming signatures, a carrier, a pocket between said mechanism and carrier, and means for producing both the closing of said pocket for the reception of signatures from the folding mechanism and the opening of said pocket for the delivery of said folded sheets to the carrier.

9. In a folding-machine, the combination of folding mechanism for forming signatures, a carrier, a pocket between said mechanism and carrier, a spring for closing the bottom of said pocket for the reception of signatures from the folding mechanism and cam-actuated mechanism for opening the bottom of said pocket for the delivery of the signatures to the carrier.

10. In a folding-machine, the combination of mechanism for forming signatures, a carrier comprising pockets, an intermediate pocket between said mechanism and the carrier for the reception of signatures from said mechanism, means for opening and closing said intermediate pocket, and rolls between said intermediate pocket and the carrier for closing the leaves of the signatures as they pass from the open intermediate pocket to a carrier-pocket.

11. In a folding-machine, the combination of a carrier comprising pockets, folding mechanism for separately forming signatures, two intermediate pockets between said mechanism and carrier, means located between said mechanism and said intermediate pockets for depositing two of said separately-formed signatures one after another inset one within the other in each of said pockets, means for first delivering into a carrier-pocket the two so-inset signatures from one intermediate pocket and afterward delivering the two so-inset signatures from the other intermediate pocket into the same carrier-pocket, and rolls between the last-mentioned intermediate pocket and the carrier-pocket for holding together the leaves of the signatures passing from the last-mentioned intermediate pocket into those previously delivered into the carrier.

12. In a folding-machine, the combination of signature-folding mechanism, a signature-carrier, stationary pockets having opening and closing bottoms between said folding mechanism and carrier, and rolls between said folding mechanism and pockets for transferring folded signatures from the folding mechanism to said stationary pockets.

13. In a folding-machine, the combination of mechanism for forming signatures, a carrier comprising pockets, an intermediate pocket having an opening and closing bottom between said mechanism and the carrier, rolls between said pocket and the carrier for closing the leaves of the signatures as they pass from the open intermediate pocket to a carrier-pocket, crossed levers carrying said rolls, and cam-actuated mechanism for actuating said levers to draw together and spread apart said rolls.

14. In a folding-machine, the combination of a carrier and attached pockets for the reception in each of a plurality of signatures one after another, holding devices pivoted to the sides of said pocket for holding the edges of signatures therein and means for throwing said devices aside from the pocket preparatory to the reception of a signature and of returning them over the edges of the pocket and the edges of the signature therein before the insertion thereinto of another signature.

15. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier furnished with pockets, a stationary pocket having an opening bottom and arranged between said mechanism and carrier for the reception of folded signatures, means for giving said carrier an intermittent movement whereby its pockets are presented successively under said stationary pocket, and means for opening the bottom of said stationary pocket while a carrier-pocket is so presented.

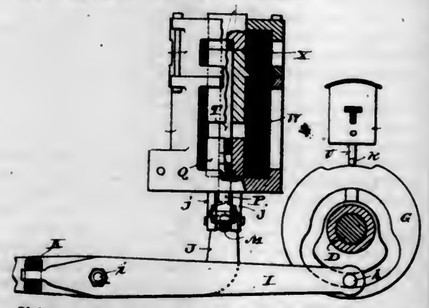
16. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier furnished with pockets, stationary pockets having opening bottoms and arranged between said mechanism and carrier for the reception of folded signatures, means for giving said carrier an intermittent movement whereby a certain number of its pockets are brought together one under each of said stationary pockets, and means for opening the bottoms of the stationary pockets while the carrier is so under them.

17. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier furnished with pockets, stationary pockets having opening bottoms and arranged between said mechanism and carrier, means for collecting from said folding mechanism two pluralities of signatures with those of one plurality inset within those of the other and depositing said two pluralities one in each stationary pocket, means for giving said carrier an intermittent movement whereby two of its pockets are brought together stationary under said two stationary pockets, and means for opening the bottoms of said stationary pockets while the carrier is so stationary for the delivery of the plurality from one stationary-pocket inset into the plurality from the other.

18. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier comprising pockets, means for collecting a plurality of so-formed signatures inset one within another and depositing them so inset in the carrier-pockets, and a stapler adapted for stapling together a collected plurality of signatures while in a carrier-pocket which is presented to said stapler.

19. In a folding-machine, the combination of folding mechanism for separately forming signatures, a carrier comprising pockets, means for collecting a plurality of so-formed signatures inset one within another and depositing them so inset in the carrier-pockets, a stapler whose clenching member is adapted to enter the carrier-pockets, and means for placing and holding said member in the pockets for clenching and withdrawing it therefrom to permit the movements of the carrier.

785,936. **ELEVATOR MECHANISM.** JOHN DILLON, Milwaukee, Wis. Filed July 22, 1904. Serial No. 217,690.



Claim.—1. An elevator mechanism embodying a brake, and combined mechanical and electric means for automatic predetermined application of the brake.

2. An elevator mechanism embodying a brake, and combined mechanical and electric means for automatic predetermined application of the brake and gradual increase of its pressure.

3. An elevator mechanism embodying a brake, combined mechanical and electric means for automatic predetermined application of the brake, and mechanical means for automatically increasing pressure of the applied brake.

4. An elevator mechanism embodying a brake, an electromagnet, means in connection with the brake and magnet for applying said brake, and means for automatic predetermined energization of said magnet.

5. An elevator mechanism embodying a brake, an electromagnet, means in connection with the brake and magnet for applying said brake, means for automatic predetermined energization of said magnet, and means for automatically increasing pressure of the applied brake.

6. An elevator mechanism embodying a brake, an electromagnet having a sliding core, a system of levers connecting the brake and said core of the magnet, and means for automatic predetermined energization of said magnet to apply the brake.

7. An elevator mechanism embodying a brake, an electromagnet having a sliding core, a system of levers connecting the brake and said core of the magnet, means for automatic energization of said magnet to apply the brake, and means independent of the magnet for gradually increasing leverage on the applied brake.

8. An elevator mechanism embodying a brake, an electromagnet, means in connection with the brake and magnet for applying said brake, a switch for closing a circuit through said magnet, and means for automatic predetermined closing of the switch.

9. An elevator mechanism embodying a brake, an electromagnet, means in connection with the brake and magnet for applying said brake, a switch for closing a circuit through said magnet, means for automatic predetermined closing of the switch, and means independent of the magnet for gradually increasing pressure of the applied brake.

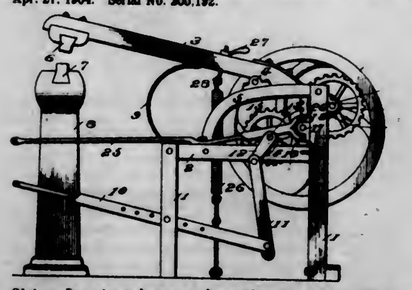
10. An elevator mechanism embodying a brake, an electromagnet, means in connection with the brake and magnet for applying said brake, a switch for closing a circuit through said magnet, means for automatic predetermined closing of the switch, and another switch by which to manually break and reverse said circuit.

11. An elevator mechanism embodying a brake, an electromagnet having a sliding core, means in connection with the brake and magnet-core for applying said brake, a switch for closing a circuit through the magnet, means for automatic predetermined closing of the switch, another switch by which to manually break and reverse said circuit, and means for insuring release of the aforesaid brake when the aforesaid circuit is broken.

12. An elevator mechanism embodying a brake, an electromagnet in loop-circuit and having a sliding core, means in connection with the brake and said magnet-core for applying said brake, an auxiliary electromagnet connected in the loop and main circuit and having a sliding core coupled to the one aforesaid, a switch for closing circuit through the magnet in loop-circuit, means for automatic predetermined closing of the switch, and another switch by which to manually break and reverse the local circuit.

13. An elevator mechanism comprising a brake, a traveling clutch on a drum-shaft between clutch devices fast on the same shaft, a cam loose on said shaft, a clutch-guide extending laterally from the cam, a cam-controlled system of levers in connection with the brake, a yielding resistance in connection with one of the levers in the system, an electromagnet having a sliding core connected to another lever in said system, a switch controlled by the aforesaid cam to close a circuit through the magnet, and another switch by which to manually break and reverse said circuit.

785,937. **POWER-HAMMER.** HENRY DUBBS, Decatur, Ill. Filed Apr. 27, 1904. Serial No. 205,192.



Claim.—In a power-hammer, the combination of a suitable support, a treadle, a drive-shaft mounted upon said support, a drive-gear carried by said shaft, a second shaft adjacent the drive-shaft

aforesaid, a positively-driven pinion keyed to the shaft and meshing with the drive-gear for actuation thereby, a clutch element carried by the positively-driven pinion, a loosely-mounted pinion disposed upon the second shaft aforesaid and provided with a clutch element cooperating with the clutch element of the positively-driven pinion, means for shifting the loosely-mounted pinion, a power-shaft, a power-gear carried by the power-shaft and meshing with the loosely-mounted pinion above mentioned, and means for shifting the loosely-mounted pinion so as to engage and disengage the clutch element of same with the clutch element of the positively-driven shaft.

785,938. TELESCOPIC DUST-PROTECTOR. ABRAHAM N. EPSTEIN, Tompkinsville, N. Y., assignor of one-half to Weinberg, Heyman & Company, New York, N. Y., a Firm. Filed May 16, 1904. Serial No. 208,145.

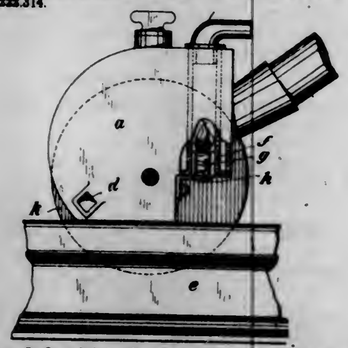


Claim.—1. A dust-protector fitted to receive an article such, for instance, as an umbrella, parasol or the like, and a cover hinged to the protector for opening and closing the mouth of the protector, said cover having a hole therethrough for permitting the rod of the article to extend through the cover when the cover is closed.

2. A dust-protector fitted to receive a plurality of articles, such as umbrellas, parasols and the like, and a cover for closing the mouth of the protector, the said cover having holes therethrough for permitting the rods of the articles to extend through the cover when the cover is closed.

3. A dust-protector fitted to receive an article such as an umbrella, parasol or the like, and a cover composed of sections hinged to the protector for closing the mouth of the same, said sections being provided with corresponding recesses for permitting the rod of the article to extend through the cover when the cover is closed.

785,939. DEVICE FOR LUBRICATING RAILS. ROBERT FALLNICHT, Hamburg-Eidelstedt, Germany. Filed Aug. 26, 1904. Serial No. 223,314.



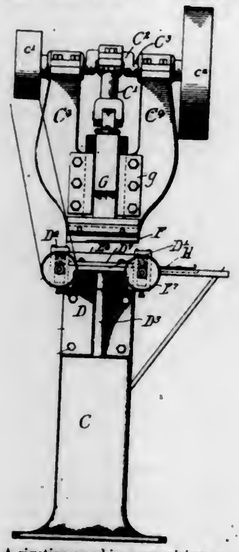
Claim.—1. In a lubricating device the combination of a case containing a lubricant, two guiding-disks running one on each side of the rail to be lubricated arranged on the flat sides of the case, a handle fastened to said case for moving it forward, means for greasing the one side of the rail and means for heating the contents of the case, as and for the purpose specified.

2. In a lubricating device the combination of a flat case to contain a lubricant, two guiding-disks one on each side of the rail to be lubricated arranged on the flat sides of the case, an opening at one flat side near the bottom of the case, a handle fastened to said case and means for heating the contents of the latter, as and for the purpose specified.

3. In a lubricating device the combination of a flat case, an opening at one flat side near the bottom of the case, a rotatably-arranged disk on the one flat side, a rotatable disk on the other side running close to the lubricating opening thereof, a spiral spring on the axis of this disk keeping the disk in position, a handle fastened to the case, and means for heating the contents of the latter, as and for the purpose specified.

4. In lubricating devices the combination of a case of suitable form, guiding-disks arranged thereon, a lubricating opening near the bottom of the case and in contact with one of the guiding-disks, a spring-coil engaging this latter disk, a handle fastened to the case, a pipe passing through the latter and a receptacle filled with solid saponified alcohol inserted in the same.

785,940. RIVETING-MACHINE. CHARLES H. FENTON, Chicago, Ill., assignor to The N. K. Fairbank Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 30, 1904. Serial No. 205,749.


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3. The combination with a car-body, a truck-frame and a draw-bar pivotally mounted at a point coincident or substantially coincident with the axis of the king-bolt, of connections between said truck-frame and draw-bar for actuating the latter laterally and imparting thereto on other than straight tracks an angular movement relatively to the longitudinal median line of the car greater than the angular movement of the truck-frame relatively to the car-body.

4. The combination with a car-body, a truck-frame and a draw-bar pivotally mounted at a point coincident or substantially coincident with the axis of the king-bolt, of connections between said truck-frame and draw-bar for actuating the latter laterally and imparting thereto on curves an angular movement relatively to the longitudinal median line of the car greater than the angular movement of the truck-frame relatively to the car-body and proportional to the degree of curvature of the track.

5. The combination with a car-body, a truck-frame and a draw-bar pivotally mounted at a point coincident or substantially coincident with the axis of the king-bolt, of connections between said truck frame and draw-bar for actuating the latter laterally and imparting thereto on curves an angular movement relatively to the longitudinal median line of the car proportional to the degree of curvature of the track and such as to maintain the draw-bar coincident with the line of draft between adjacent king-bolts.

6. The combination with a car-body, a truck-frame and a draw-bar, of a pulley carried by said truck-frame and so connected thereto as to be rotated by the angular movements of the truck-frame relatively to the car-body, another pulley rotatably mounted on an axis which is fixed relatively to the car-body, a driving connection between said pulleys, and connections between said last-named pulley and the draw-bar through which the rotative movement of the former imparts an angular lateral movement to the latter.

7. The combination with a car-body, a truck-frame and a draw-bar pivotally connected to the car-body at a point coincident with the axis of the king-bolt, of a pulley carried by the truck-frame and so mounted thereon as to be rotated by the angular movements of the truck-frame relatively to the car-body, another pulley rotatably mounted on an axis which is fixed relatively to the car-body, a driving-belt connecting said pulleys, and connections between said last-named pulley and the draw-bar through which the rotative movement of the former imparts an angular lateral movement to the latter exceeding the angular movement of the truck-frame relatively to the car-body.

8. The combination with a car-body, a truck-frame and a draw-bar pivotally connected to the car-body at a point coincident with the axis of the king-bolt, of a pulley carried by the truck-frame and so mounted thereon as to be rotated by the angular movements of the truck-frame relatively to the car-body, another pulley rotatably mounted on an axis which is fixed relatively to the car-body, a driving-belt connecting said pulleys, and connections between said last-named pulley and the draw-bar through which the rotative movement of the former imparts an angular lateral movement to the latter proportional to the degree of curvature of the track.

9. The combination with a car-body, a truck-frame and a draw-bar pivotally connected to the car-body at a point coincident with the axis of the king-bolt, of a pulley rigidly mounted on the truck-frame concentric with the axis of the king-bolt, another pulley rotatably mounted in advance of said first-named pulley on an axis which is fixed relatively to the car-body, a driving-belt connecting said pulleys, and connections between said last-named pulley and the draw-bar through which the rotative movement of the former imparts an angular lateral movement to the latter exceeding the angular movement of the truck-frame relatively to the car-body.

10. The combination with a car-body, a truck-frame and a draw-bar pivotally connected to the car-body at a point coincident with the axis of the king-bolt, of a pulley rigidly mounted on the truck-frame concentric with the axis of the king-bolt, another pulley rotatably mounted in advance of said first-named pulley on an axis which is fixed relatively to the car-body, a driving-belt connecting said pulleys, a radially-extending arm rigid with said last-named pulley, and a saddle carried by said arm and itself constituting a seat for the draw-bar, substantially as described.

11. The combination with a car-body, a truck-frame and a draw-bar pivotally connected to the car-body at a point coincident with the axis of the king-bolt, of a pulley formed rigid with the truck-bolster and concentric with the axis of the king-bolt, another pulley rotatably mounted in advance of said first-named pulley on an axis which is fixed relatively to the car-body, a driving-belt connecting said pulleys, a radially-extending arm rigid with said last-named pulley, and a saddle pivotally mounted on said last-named arm and itself seating the draw-bar, substantially as described.

12. The combination with a draw-bar and its yoke, of a casing in which said yoke is slidingly contained said casing having lateral openings and rigid abutment members, an elastic medium, and a pair of follower-blocks insertible through the openings of said casing the ends whereof are adapted to abut said abutment members of the casing, substantially as described.

13. The combination with a draw-bar and its yoke, of a skeleton casing in which said yoke is slidingly contained, said casing having rigid abutment members, an elastic medium, a pair of follower-shells within the yoke receiving the thrust of the elastic medium, and a pair of laterally-insertible follower-blocks in said follower-shells the ends whereof are adapted to abut said abutment members of the casing, substantially as described.

14. The combination with a draw-bar and its yoke, of a skeleton casing in which said yoke is slidingly contained, said casing comprising a pair of channel-beams placed face to face and rigidly united, substantially as described.

15. The combination with a draw-bar and its yoke, of a skeleton casing in which said yoke is slidingly contained, said casing comprising a pair of channel-beams placed face to face and rigidly united at their ends, the intermediate portions of the abutting flanges of said channel-beams being cut out to permit the lateral insertion of the follower blocks or plates, substantially as described.

16. The combination with a draw-bar and its yoke, of a casing in which the yoke is slidingly contained, said casing having lateral openings and rigid abutment members, an elastic medium, a pair of follower-blocks insertible through the openings of said casing the ends whereof are adapted to abut said abutment members of the casing, and means for preventing accidental displacement of said follower-blocks, substantially as described.

17. The combination with a draw-bar and its yoke, of a skeleton casing in which said yoke is slidingly contained, said casing having rigid abutment members, a draft-spring, a pair of follower-shells within the yoke at opposite ends thereof and receiving the thrust of the draft-spring, and a pair of laterally-insertible follower-blocks in said follower-shells the ends whereof are adapted to abut said abutment members of the casing, said follower-shells and follower-blocks being provided on their contacting faces with interlocking means preventing the accidental displacement of the follower-blocks, substantially as described.

18. The combination with a draw-bar and its yoke, of a skeleton casing in which said yoke is slidingly contained, said casing comprising a pair of channel-beams placed face to face and rigidly united at their opposite ends by tie-plates which constitute abutments for the follower-blocks, a draft-spring, a pair of follower-shells within the yoke at opposite ends thereof and receiving the thrust of the draft-spring, and a pair of laterally-insertible follower-blocks in said follower-shells, one of said follower members having a protuberance and the other a correspondingly-shaped depression in their contacting faces, respectively, whereby said elements are locked against accidental separation, said parts being assembled and coöperating substantially as described.

19. The combination with a laterally-movable draw-bar, of a pivoted actuating-arm supported by the car-body, and a saddle actuated by said arm and engaging the draw-bar, substantially as described.

20. The combination with a laterally-movable draw-bar, of a truck-operated arm supported by the car-body, and a saddle actuated by said arm and engaging the draw-bar, substantially as described.

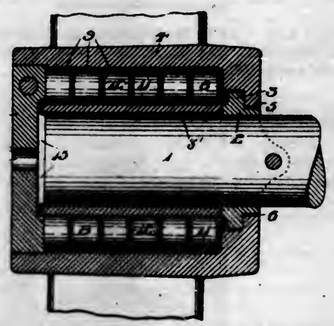
21. The combination with a laterally-movable draw-bar, of a pivoted actuating-arm, and a saddle mounted on said arm with freedom of pivotal movement and embracing the sides of the draw-bar, substantially as described.

22. The combination with a laterally-movable draw-bar, of a truck-operated arm, and a saddle mounted on said arm with freedom of pivotal movement and embracing the sides of the draw-bar, substantially as described.

23. The combination with a laterally-movable draw-bar, of a pivoted actuating member therefor, and a saddle actuated by said actuating member with freedom of pivotal movement relative thereto and engaging said draw-bar, substantially as described.

24. The combination with a laterally-movable draw-bar, of a truck-operated actuating member therefor, and a saddle actuated by said truck-operated actuating member with freedom of pivotal movement relative thereto and engaging said draw-bar, substantially as described.

785,944. **ROLLER-BEARING.** WILLIAM C. FOWNES, Jr., Pittsburg, Pa. Filed Nov. 15, 1904. Serial No. 232,894.



Claim.—1. In a roller-bearing, an axle, a hub thereon, a plurality of annular rows of rollers arranged around the axle and within the hub, and means for maintaining the axes of the rollers parallel to the axle, said means composed of annular spacers between the adjacent rows and annular treads for the rows between the hub and the said rows.

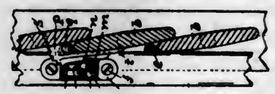
2. In a roller-bearing, an axle, a hub thereon, a series of races within the hub and surrounding the axle, each race having an annular tread parallel to the axle and an annular flange extending toward the axle, in combination with an annular series of rollers confined transversely between the axle and tread and longitudinally between adjacent flanges.

3. In a roller-bearing, an axle, a hub thereon, a series of cup-shaped races concentric with the axle and within the hub, the edges of the races extending toward the bottoms of adjacent races, and a series of rollers in the annular raceways within the flanges of the races.

4. In a roller-bearing, an axle, a hub thereon, a plurality of annular rows of rollers between the hub and the axle, spacers between the rows, and treads integral with the spacers between the hub and the rows.

5. In a roller-bearing, an axle, a hub thereon, a plurality of annular rows of rollers arranged around the axle and within the hub, means for maintaining the axes of the rollers parallel to the axle, said means composed of annular spacers between the adjacent rows and annular treads for the rows between the hub and the said rows, and a sleeve between the axle and the rollers.

785,945. **SLAT-ADJUSTER.** IRAD L. GARSIDE, Paterson, N. J., assignor to The Garside Manufacturing Company, Paterson, N. J., a Corporation of New Jersey. Filed Aug. 18, 1904. Serial No. 221,194.

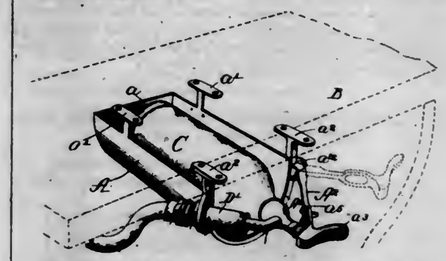


Claim.—1. The combination of a blind having pivoted slats, a rod pivotally connected to each of said slats, coengaging parts, one of which has a series of teeth and the other of which is engageable with any one tooth in said series of teeth, and a bracket secured to said rod, one of said parts being movably mounted in said bracket and spring-actuated and the other being rigidly fixed to one of said slats, substantially as described.

2. The combination of a blind having pivoted slats, a rod pivotally connected to each of said slats, a segment secured to one of said slats substantially at right angles thereto and having a toothed periphery, a bracket secured to said rod, and a pawl pivoted in the bracket and engageable with the teeth of said segment, substantially as described.

3. The combination of a blind having pivoted slats, a rod pivotally connected to each of said slats, coengaging parts, one of which has a series of teeth and is secured to one of the slats and the other of which is engageable with any one tooth in said series of teeth and is movable laterally with reference to said rod, and a bracket secured to said rod and serving as a mounting for said last-named part, substantially as described.

785,946. **DEVICE FOR FILLING VALVED RECEPTACLES WITH CHARGED LIQUIDS.** PETER P. GORSKI, Chicago, Ill., assignor of one-half to John Cederstrom, Chicago, Ill. Filed Apr. 14, 1904. Serial No. 203,174.



Claim.—1. A device for the purpose set forth comprising a generally horizontal holder and shield which is open at its forward end for receiving and holding a seltzer-bottle, means for attaching said holder to the lower face of a bar or like support, a stationary self-closing valve adapted to be attached to a filling-pipe, and a rigid lever which is hinged to said holder and adapted to engage at its free end the lever-valve of the seltzer-bottle in a manner to open the valve of said bottle and also the head of the bottle in a manner to force the nozzle of the bottle against the self-closing valve and open the latter.

2. A device for the purpose set forth comprising a holder for a bottle or the like, a self-closing valve adapted for connection with a filling-pipe and fixed on said holder in position to receive the nozzle of said bottle, and a lever hinged to said holder and provided at its free end with a seat which engages the head of the bottle in a manner to force the nozzle of the bottle against the self-inclosing valve in a manner to open the same and adapted to also open the valve of the bottle.

3. A device for the purpose set forth comprising a holder, a self-closing valve fixed to the holder and a lever hinged at one end to the holder and provided at its free end with a seat adapted to engage the bottle-head in a manner to force the nozzle of the bottle into said self-closing valve to open the latter, and provided between said seat and its hinge with a slot adapted to receive the lever of the bottle-valve, the lever at the outer end of the slot engaging the bottle-valve lever in a manner to open the bottle-valve when forced against the bottle to open the self-closing valve.

4. A device for the purpose set forth comprising a holder and a self-closing valve fixed to the holder in position to receive the open end of the nozzle of a bottle supported in said holder, comprising a casing having therein a restricted longitudinal passage, and provided at the ends of said passage with forwardly and rearwardly facing annular seats, a tubular stem sliding in said passage and having at its ends closures adapted to engage said seats, a spring for holding the rear closure against its seat, said stem being provided near the rear closure with radial ports opening into the bore of the stem and the forward closure of the stem engaging the forwardly-facing seat in the casing when the rear closure is unseated.

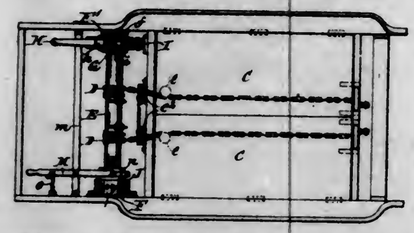
5. A device for the purpose set forth comprising, in combination with a holder for the bottle or the like, a valve so fixed with respect to said holder as to receive the nozzle of a bottle in the holder, the valve having a casing open at its front end to receive said nozzle and provided with an endwise spring-pressed, tubular stem having at its front and rear ends closures adapted to engage annular seats in said casing and near its rear end with a port or ports opening into the bore of the stem, the rear closure being seated to close the valve and the front closure being seated when the rear closure is unseated.

6. A device for the purpose set forth comprising, in combination with a holder for the bottle or the like, a valve so fixed with respect to said holder as to receive the nozzle of a bottle in the holder, the valve having a casing open at its front end to receive said nozzle and provided with an endwise spring-pressed, tubular stem having at its front and rear ends closures adapted to engage annular seats in said casing and near its rear end with a port or ports opening into the bore of the stam, the rear closure being seated to close the valve and the front closure being seated when the rear closure is unseated, the tubular stem and casing being provided with vent-openings in front of the forward seat.

7. A device for the purpose set forth comprising, in combination with a holder for the bottle or the like, a valve so fixed with respect to said holder as to receive the nozzle of a bottle in the holder, the valve having a casing open at its front end to receive said nozzle

and provided with an endwise spring-pressed, tubular stem having at its front and rear ends closures adapted to engage annular seats in said casing and near its rear end with a port or ports opening into the bore of the stem, the rear closure being seated to close the valve and the front closure being seated when the rear closure is unseated, the forward open end of the tubular stem being adapted to enter said nozzle and provided around said open end with a yielding seat adapted for engagement by the nozzle of the bottle.

785,947. DUMPING-WAGON. CHRISTOPHER J. HANDEL, Buffalo, N. Y. Filed Dec. 9, 1904. Serial No. 236,097.



Claim.—1. In a dumping-wagon, the combination of a box having a vertically-swinging bottom, a horizontal drum connected by a chain with said bottom, a ratchet mechanism for operating said drum forwardly, and means for preventing backward movement of the drum comprising a locking member which is movable in a direction parallel wi h the drum, substantially as set forth.

2. In a dumping-wagon, the combination of a box having a vertically-swinging bottom, a horizontal drum connected by a chain with said bottom, a ratchet mechanism for operating said drum forwardly comprising a ratchet-wheel on the drum, a lever having an actuating-pawl engaging with said ratchet-wheel, and a detent-pawl mounted on a stationary support and engaging with said ratchet-wheel, and separate means for preventing backward movement of the drum comprising a locking member which is movable lengthwise of the drum into engagement with a stationary shoulder, substantially as set forth.

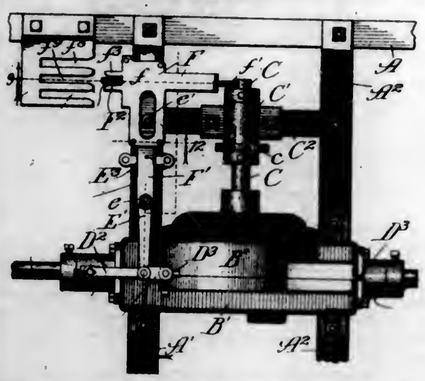
3. In a dumping-wagon, the combination of a box having a vertically-swinging bottom, a horizontal drum, a chain connecting said bottom and drum, a ratchet-wheel rigid on said drum, a lever having a vertically-swinging pawl engaging with said ratchet-wheel for moving the drum forward, and means for preventing backward movement of said drum comprising a fixed member, and a horizontally-movable locking member splined on said drum and adapted to engage with said fixed member, substantially as set forth.

4. In a dumping-wagon, the combination of a box having a vertically-swinging bottom, a horizontal drum, a chain connecting said bottom and drum, a ratchet-wheel rigid on said drum, a lever having a vertically-swinging pawl engaging with said ratchet-wheel for moving the drum forward, and means for preventing backward movement of said drum comprising a fixed clutch-head arranged at one end of the drum and provided with an annular series of teeth, and a horizontally-movable clutch-collar splined on the drum and having an annular series of teeth adapted to engage with the teeth of said head, substantially as set forth.

5. In a dumping-wagon, the combination of a box having a vertically-swinging bottom, a horizontal drum, a chain connecting said bottom and drum, a ratchet-wheel rigid on said drum, a lever having a vertically-swinging pawl engaging with said ratchet-wheel for moving the drum forward, and means for preventing backward movement of said drum comprising a fixed clutch-head arranged at one end of the drum and provided with an annular series of teeth, a horizontally-movable clutch-collar splined on the drum and having an annular series of teeth adapted to engage with the teeth of said head, a shifting-lever connected with said collar, and a catch for holding said shifting-lever in its operative position, substantially as set forth.

6. In a dumping-wagon, the combination of a box having a vertically-swinging bottom, a drum connected by a chain with said bottom, a ratchet-wheel connected with the drum, a lever, an actuating-pawl pivoted on the lever and normally engaging with said ratchet-wheel, a detent-pawl normally engaging said ratchet-wheel and provided with a tail, said tail being arranged in the path of said lever and adapted to be turned thereby for lifting said detent-pawl out of engagement with the ratchet-wheel and said detent-pawl being arranged in the path of the actuating-pawl and adapted to lift the same out of engagement with the ratchet-wheel, substantially as set forth.

785,948. POWER-TRANSMISSION MECHANISM. MAGNUS HENDRICKSON, Chicago, Ill., assignor to Jacob Lauth, Chicago, Ill. Filed Apr. 4, 1904. Serial No. 201,428.



Claim.—1. In mechanism of the character described, the combination of a plurality of members for shifting power-transmission members, and controlling means therefor, including a spring-actuated device serving when moving under the action of the spring to operate any selected one of said first-named members, for the purpose set forth.

2. In mechanism of the character described, shifting means comprising a plurality of levers, a shiftable controller provided with means for actuating any selected lever in one direction, and a controller-shifting lever serving to retract the selected lever and shift the controller, for the purpose set forth.

3. In mechanism of the character described, shifting means comprising a plurality of levers, a shiftable lever-controller equipped with spring-actuated means for automatically actuating any selected lever in one direction, and a hand-lever having a compound movement and serving to retract the automatically-actuated lever in one movement and to shift the controller in another movement, for the purpose set forth.

4. In mechanism of the character described, shifting means comprising a plurality of shifting members for shifting clutch members or the like, a controller equipped with spring-actuated means serving when moving under the action of its spring to operate said shifting members, a hand-lever mounted to swing toward and away from said controller and transversely to shift the controller, and a guard located adjacent to said hand-lever and provided with a plurality of sockets for receiving the same, for the purpose set forth.

5. In mechanism of the character described, shifting means comprising a plurality of levers having heads located in different planes, a shiftable controller equipped with a spring-actuated plunger having means for engaging any one of said heads according to the position of the controller, and a hand-lever capable of swinging in a plane parallel with said plunger and operating to retract the clutch-shifting lever which chances to be in use and capable of swinging in a plane perpendicular to said plunger to shift the controller when said plunger is retracted, for the purpose set forth.

6. In mechanism of the character described, shifting means comprising levers, a lever-controller comprising a slide constituting a guard for the levers, and a spring-actuated member serving to engage any selected lever, according to the position of the slide, and, when moving under the action of its spring, to operate the selected lever, and a hand-lever acting in opposition to said spring-actuated member and serving also to shift said controller, for the purpose set forth.

7. In mechanism of the character described, the combination of a shaft, power-transmission members movable longitudinaly with relation thereto, levers extending transversely with relation to said shaft and connected with said power-transmission members, a controller shiftable transversely with relation to said shaft and equipped with lever-actuating means, and a hand-lever coacting with said controller and equipped with lever-retracting means, for the purpose set forth.

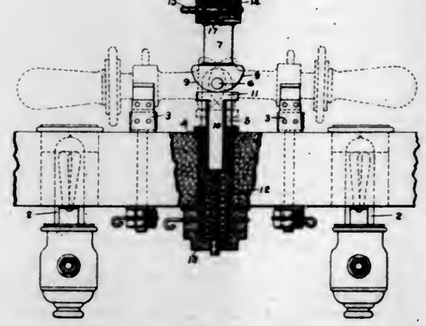
8. In mechanism of the character described, the combination of a lever connected with a stationary pivot, and serving to shift a power-transmission member, a second lever connected with said first-named lever and with a stationary pivot, a shiftable lever-controller equipped with means for actuating either one of said levers, according to the position of the controller, and a hand-lever coacting with said controller and equipped with lever-controlling means, for the purpose set forth.

9. In mechanism of the character described, the combination of a shaft, power-transmission members movable longitudinally thereof, a plurality of superposed levers extending transversely with relation to said shaft and provided with heads lying in different planes parallel with said shaft, a lever-controller equipped with a spring-actuated lever-actuating member, and a hand-lever pivoted to swing in two planes and serving to shift said controller and equipped with lever-retracting means, for the purpose set forth.

10. In mechanism of the character described, the combination of a shaft, power-transmission members movable longitudinally thereof, a plurality of superposed levers extending transversely with relation to said shaft and provided with heads lying in different planes parallel with said shaft, a lever-controller equipped with a spring-actuated lever-actuating member, a hand-lever pivoted to swing in two planes and serving to shift said controller and equipped with lever-retracting means, and a guard provided with a plurality of sockets for said hand-lever.

11. A lever-controller comprising a slide having a slot for receiving a controller-shifting lever and a slot for receiving the arm of a clutch-shifting lever, and a spring-actuated member equipped with means for engaging a clutch-shifting lever, for the purpose set forth.

785,949. DOUBLE-THROW ELECTRIC SWITCH WITH INDICATOR. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 11, 1903. Serial No. 165,104.



Claim.—1. The combination with a double-throw switch, of an indicator carried by the switch-blade to show which way the switch was last closed.

2. The combination with a normally open double-throw switch, of an indicator carried by the switch-blade and showing which way the switch was last closed.

3. The combination with a double-throw switch, of means for automatically returning it to "off" position when released, and an indicator carried by the switch-blade, showing which way the switch was last closed.

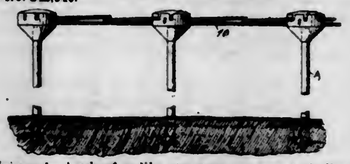
4. The combination with a double-throw switch, of an operating-handle and an indicator slidable transverse to the switch-blade.

5. The combination with a double-throw switch having a transverse hole in its blade, of an indicating-pin slidable in said hole and long enough to project beyond the blade.

6. The combination with a double-throw switch having a transverse hole in its blade, of an indicating-pin slidable in said hole and projecting therefrom, and a frictional retaining device for said pin.

7. The combination with a double-throw switch having a transverse hole in its blade, of an indicating-pin slidable in said hole and provided with inclined notches, and a spring-plunger engaging with said notches.

785,950. WHARF OR PIER. STETSON G. HINDES, San Francisco, Cal., assignor of one-half to Atlantic Gulf and Pacific Co., San Francisco, Cal., a Corporation of West Virginia. Filed Jan. 21, 1905. Serial No. 242,046.



Claim.—1. A wharf or like structure composed of piles having enlarged caps fitted to the upper ends, and means for securing horizontal beams thereto.

2. In a wharf or like structure, vertically-disposed piles, hollow caps having peripheral slots adapted to receive transverse floor-beams, and diagonal braces uniting said caps and means for securing said braces.

3. In a wharf or like structure, piles, hollow caps having channels at right angles, means for securing the caps upon the heads of the piles, slotted plates formed in the heads intermediate of the channels, diagonal bars adapted to hook into the slots and wedges by which the bars are locked in position.

4. A wharf or like structure comprising piles having hollow shoes with enlarged supporting-heads, chambers and connections through which a hydraulic jet may be delivered to sink the piles, said shoe serving as a support for the pile and superstructure, enlarged caps having channels upon the edges at right angles with each other, beams crossing each other through said channels and bolted to the pile-heads, diagonal braces extending between the piles and a filling of plastic material which will afterward set.

5. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the peripheries of said caps, horizontal beams extending through the channels and means securing said beams.

6. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the upper edges of the caps, beams crossing each other through said channels, flanges located within the heads and diagonal brace-rods connecting said flanges.

7. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the upper edges of the caps, beams crossing each other through the channels and secured therein, radially-slotted flanges located within the heads, rods extending diagonally and engaging with the slots and means whereby said rods are locked to the flanges.

8. In a wharf and like structure, vertical piles having enlarged hollow caps fixed to the upper ends, channels made in the upper edges of the caps, beams crossing each other through said channels, flanges located within the heads, diagonal brace-rods connecting said flanges, and a concrete filling within which the beams and braces are embedded.

9. In a wharf or like structure, piles, enlarged hollow caps rigid therewith, transverse beams and braces crossing and united within the cap, and a concrete filling within which the beams and braces are embedded and rigidly locked.

785,951. POWDER-PUFF. NELLIE R. HULL, Asheville, N. C. Filed Jan. 13, 1904. Serial No. 188,721.



Claim.—1. A powder-puff formed with a plurality of pockets and provided with mouths or entrances all arranged at a common

point, and a plurality of foldable flaps arranged to close the mouths or entrances of the pockets or compartments, substantially as described.

2. A powder-puff comprising a plurality of flexible pieces secured together and forming a plurality of superimposed pockets and having entrance-openings thereto arranged at a common point, and foldable flaps arranged at the entrance-openings for closing the pockets, substantially as described.

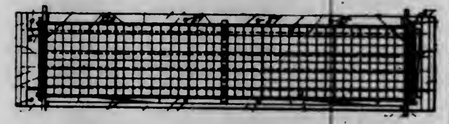
3. A powder-puff comprising a plurality of pieces secured together and forming a plurality of pockets having entrance-openings arranged at a common point, and a plurality of foldable inwardly-tapered flaps for closing the entrance-openings, substantially as described.

4. A powder-puff comprising a plurality of flexible pieces secured together and forming a plurality of pockets, said pockets having entrance-openings which are outwardly tapered, and inwardly-tapered foldable flaps for closing the pockets, substantially as described.

5. A powder-puff comprising a plurality of flexible pieces secured together and forming a plurality of pockets and having entrance-openings at one edge of the powder-puff at a common point, and a plurality of integral foldable flaps extending from the flexible pieces at the entrance-openings and adapted to close the same, substantially as described.

6. A powder-puff, comprising a plurality of superimposed pieces of flexible material secured together by marginal stitches spaced apart at one point to provide an entrance, the material being provided beyond the stitches with angularly-disposed approximately-radial cuts forming a wedge-shaped flap, said flap being insertible in the entrance to close the powder-puff and being retained within the puff by its wedge shape.

785,952. **BUTTER-TRAY.** ARTHUR C. HUBNER, Seattle, Wash. Filed Mar. 30, 1904. Serial No. 200,769.



Claim.—1. In a butter-tray, the combination with a base, and a platform, of vertical cutter-guides transferable on the base, horizontal cutter-guides, and means to removably attach said horizontal guides to the vertical guides.

2. In a butter-tray, the combination with a base, of a platform comprising a plurality of removable lifting-sections, vertical cutter-guides transferable on the base, horizontal cutter-guides, and means to adjustably secure the horizontal guides to said vertical guides.

3. In a butter-tray, the combination with a base, of a platform comprising a plurality of removable lifting-sections, vertical cutter-guides transferable on the base and acting as standards adjacent the ends thereof, horizontal cutter-guides, and means to adjustably secure the horizontal guides to said vertical guides for vertical adjustment.

4. In a butter-tray, the combination with a base, of a platform comprising a plurality of removable lifting-sections, horizontal cutter-guides comprising opposite bars, and means to removably mount said guides on the base.

5. In a butter-tray, the combination with an elongated, rectangular base having opposite socket-holes adjacent the corners thereof and at suitable intervals along the side edges, of a platform comprising a plurality of removable square lifting-sections, vertically-disposed transferable cutter-guides having stems fitting in said holes, and horizontal cutter-guides mounted on the transferable guides when they are engaged with the holes adjacent said corners.

6. In a butter-tray, the combination with a rectangular base having opposite socket-holes arranged at suitable intervals along the edges, of a platform comprising a plurality of removable lifting-sections arranged on said base with the abutting edges adjacent said holes, and transferable cutter-guides having stems fitting in said holes.

7. In a butter-tray, the combination with an elongated base, having opposite cleats along the edges, of a platform comprising a plurality of removable lifting-sections, a casing fitting about said platform and comprising removable side and end walls, wedges arranged in pairs between said cleats and casing at one end and one side of the casing, and cutter-guides arranged on said base in position for cutting at the abutting edges of said sections when said casing is removed.

8. In a butter-tray, the combination with an elongated base, of a platform comprising a plurality of removable lifting-sections, a separable casing removably fitting about said platform, vertical cutter-guides transferable on the base, horizontal cutter-guides, and means to secure the horizontal guides to said vertical guides.

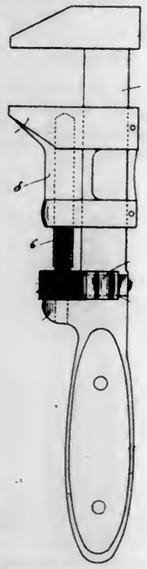
9. In a butter-tray, the combination with a base, a platform, and a removable casing, of vertical cutter-guides transferable on said base, horizontal cutter-guides, and means to removably mount said horizontal guides on the vertical guides.

10. In a butter-tray, a base, vertical cutter-guides on the base, removable horizontal cutter-guides connected to the same, and means whereby the vertical cutter-guides can be adjusted along the base when the horizontal cutter-guides are removed.

11. In a butter-tray, a base, vertical cutter-guides mounted at each end thereof, and longitudinal horizontal cutter-guides disposed between the same.

12. In a butter-tray, in combination with a base, and vertical cutter-guides mounted thereon, a plurality of adjustable horizontal disposed cutter-guides.

785,953. **MONKEY-WRENCH.** JOEL JARNBERG, Minneapolis, Minn. Filed Jan. 3, 1905. Serial No. 239,349.

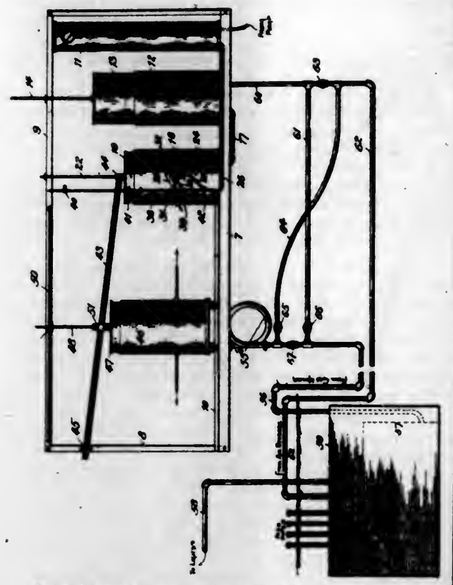


Claim.—1. The combination with a monkey-wrench having an adjusting-screw 6 provided with a head 8, having peripheral notches 9, and a lock 10 slidably mounted on the body of the wrench for engagement with said peripheral notches to lock said screw against rotation, and a yielding device applied to said lock for holding the same, in its locking and in its unlocking position, substantially as described.

2. The combination with a monkey-wrench having an adjusting-screw 6 provided with a head 8, having peripheral notches 9, and a slidable lock 10 in dovetailed engagement with the body of said wrench, and engageable and disengageable with said notches 9, and the spring-pressed plunger 13 mounted in said lock, and engageable with either of two depressions 15 formed in the body of said wrench, substantially as described.

785,954. **PUMPING AND MIXING APPARATUS FOR CARBURETERS.** PETER B. JOHNSON and JAMES E. MCCOY, Hegewich, Ill. Filed Jan. 20, 1903. Serial No. 139,806.

Claim.—1. In a mixing apparatus the combination of two air pumps mounted at different points upon an oscillating pivoted arm, one of which pumps is shiftable on said arm in order to vary the proportional length of stroke of the two pumps, for the purposes set forth.



2. In air mixing apparatus for carbureters the combination with a supply of actuating fluid, of an air pump driven by means of said fluid in one direction and by gravity in the other, a lever arm attached to the movable part of said pump, and a second pump communicating with a common receptacle with the first pump and having its moving part attached to said lever and adjustable in position thereon.

3. In an air mixer for carbureters the combination with an air pump and supply tank for the carbureter of a second pump actuated by the motions of the first pump and having communication with a common receptacle therewith, and means for graduating the proportion between the strokes of the two pumps, substantially as described.

4. The combination with a carbureter of an air supply tank therefor, an air pump for feeding said tank, comprising a reciprocating bell, and an air pump for supplying fresh air to the saturated vapor of the carbureter, said pump being driven by a reciprocating lever arm attached to the bell of the first mentioned pump and being shiftable on said lever arm in order to vary the length of stroke of the said air supply pump, the tank and both pumps communicating with a common receptacle so as to be under constant pressure.

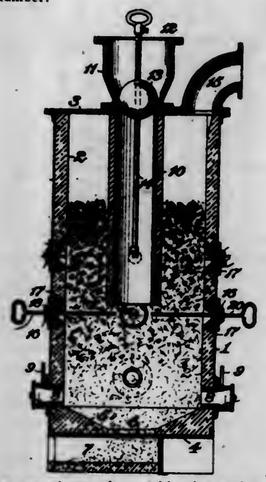
5. In air mixing apparatus in combination with a carbureter, a primary air pump for feeding the same, an auxiliary air pump for diluting the carbureted air, an operating lever to move the movable portion of the auxiliary pump, the same being attached to the primary pump and the auxiliary pump being shiftable in position on said lever to alter the relative length of stroke of the auxiliary pump, substantially as described.

6. In combination with an actuating pump, and a lever attached to its movable part, of an auxiliary reciprocating bell pump movably mounted and actuated by said lever, so that its stroke may be regulated by moving the point of attachment to said lever.

785,955. **GAS-PRODUCER.** FRANCIS W. JOHNSTONE, Mexico, Mexico. Filed Oct. 27, 1904. Serial No. 230,162.

Claim.—1. In a gas-producer, the combination, substantially as set forth, of a vertical fire-chamber an open-bottomed retort depending therein throughout the major portion of its height, means for supplying fuel to the retort, means for raising fuel which passes out of the bottom of the retort into the surrounding fire-chamber space between the walls of the producer and the retort, and a gas-discharge pipe leading out of the upper portion of the fire-chamber.

2. In a gas-producer, the combination, substantially as set forth, of a vertical fire-chamber, an open-bottomed retort depending therein throughout the major portion of its height, means for supplying fuel to the retort, a plurality of sockets or openings in the walls of the fire-chamber below the level of the bottom of the retort, a plurality of lifter-bars insertible through said sockets for raising fuel in the fire-chamber space between the walls of the producer and the retort, and a gas-discharge pipe leading out of the upper portion of the fire-chamber.



3. In a gas-producer, the combination, substantially as set forth, of a vertical fire-chamber, an open-bottomed retort depending therein throughout the major portion of its height, means for supplying fuel to the retort, a plurality of lower sockets or openings in the walls of the fire-chamber below the level of the bottom of the retort, a plurality of upper sockets or openings in the walls of the fire-chamber above the level of the bottom of the retort, lifter-bars insertible through either set of sockets for raising fuel in the fire-chamber space, and a gas-discharge pipe leading out of the upper portion of the fire-chamber.

4. In a gas-producer, the combination, substantially as set forth, of a vertical fire-chamber, an open-bottomed retort depending therein throughout the major portion of its height, means for supplying fuel to the retort, a plurality of seat-blocks fixed in the walls of the fire-chamber below the level of the bottom of the retort, joint-blocks fitted movably in the seat-blocks and having openings for the passage of lifter-bars, lifter-bars insertible through said openings for raising fuel in the fire-chamber space between the walls of the producer and the retort, and a gas-discharge pipe leading out of the upper portion of the fire-chamber.

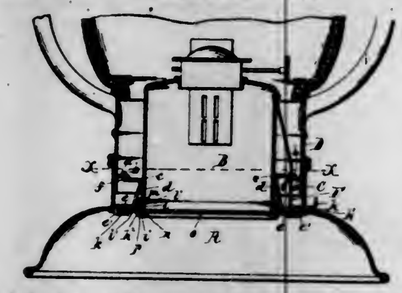
5. In a gas-producer, the combination, substantially as set forth, of a vertical fire-chamber, an open-bottomed retort depending therein throughout the major portion of its height, a feed-hopper communicating with the upper portion of the retort, a movable cover closing the top of the feed-hopper, a gate controlling communication between the feed-hopper and retort, a poker-bar passing through the feed-hopper cover and connected to the gate and extending downwardly into the retort, means for raising fuel which passes out of the bottom of the retort into the surrounding fire-chamber space, and a gas-discharge pipe leading out of the upper portion of the fire-chamber.

6. In a gas-producer, the combination, substantially as set forth, of a vertical fire-chamber, an open-bottomed retort depending therein throughout the major portion of its height, means for supplying fuel to the retort, means for raising fuel which passes out of the bottom of the retort into the surrounding fire-chamber space, tuyers passing through the lower portion of the walls of the fire-chamber and concaved or recessed on their lower sides to form water-cups, and a gas-discharge pipe leading out of the upper portion of the fire-chamber.

785,956. **LANTERN.** RICHARD J. KELLEY, Syracuse, N. Y. Filed Mar. 10, 1904. Serial No. 197,483.

Claim.—1. In a lantern, the combination with the frame comprising a lower cylindrical member provided with a pair of oppositely-disposed horizontal studs on its interior, of a detachable oil-pot provided with a rim embracing said cylindrical member, means

secured to the oil-pot and formed separate therefrom and engaged by said studs, and an upright spring secured to the oil-pot proper and locking said studs in their engagement as set forth.



2. In a lantern, the combination with the frame comprising a bottom cylindrical member provided with a pair of oppositely-disposed horizontal studs on its interior, of a detachable oil-pot provided with a rim embracing said cylinder, a pair of guards carried on the oil-pot and arranged to be engaged by the studs during the rotation of the oil-pot, and a suitably-supported spring disposed between the oil-pot and frame member and locking said studs in their engagement as set forth.

3. In a lantern, the combination with the frame comprising a bottom cylinder provided with a pair of oppositely-disposed horizontal studs on its interior, of a detachable oil-pot formed with a ring embracing said cylinder, a pair of separately-formed guards on said oil-pot disposed between the oil-pot and cylinder and arranged to be engaged by the studs during the rotation of the oil-pot, stops in the path of the studs and limiting the movement of said oil-pot, and a spring attached to the said oil-pot and locking the studs in their engagement as set forth.

4. In a lantern, the combination with the frame comprising a bottom cylinder provided with a pair of oppositely-disposed horizontal studs on its interior, of a detachable oil-pot formed with a rim embracing said cylinder, a pair of guards secured to the oil-pot and arranged to be engaged by said studs during the rotation of the oil-pot, stops formed on the guards in the path of the studs and serving to limit the rotation of the oil-pot, and an upright spring attached to the oil-pot and automatically engaging one of the studs to lock the studs in their engagement with the guards, and a thumb-piece secured to spring and projecting at the exterior of the aforesaid rim and operable for releasing the studs as set forth.

5. In a lantern, the combination with the lower frame member provided with a pair of oppositely-disposed studs projecting horizontally therefrom, of a detachable oil-pot provided with a pair of wire guards disposed between the oil-pot and frame member and arranged to be engaged by the aforesaid studs, and a spring automatically locking said studs in their engagement as set forth.

6. In a lantern, the combination with the frame provided with a pair of inwardly-projecting horizontal studs, of a detachable oil-pot provided with a pair of wire guards arranged to be engaged by said studs in the rotation of the oil-pot, stops formed on said guards in the path of the studs, an upright spring attached to the oil-pot and arranged to automatically engage one of said studs to lock the studs in their engagement, and means for operating said spring to release the studs as and for the purpose set forth.

7. In a lantern, the combination with the frame provided with a pair of inwardly-projecting horizontal studs, of a detachable oil-pot provided with a pair of guards arranged to be engaged by said studs during the rotation of the oil-pot, stops in the path of the studs, and an upright spring attached to the oil-pot and disposed in the path of the studs and provided at one side edge with a depression for the passage of a stud and adapted to engage the stud with its opposite edge for the purpose set forth.

8. In a lantern, the combination with the frame provided with a pair of inwardly-projecting horizontal studs, of a detachable oil-pot provided with a pair of wire guards arranged to be engaged by said studs in the rotation of the oil-pot and formed at one end with stops disposed in the path of the studs, and an upright spring attached to the oil-pot back of one of the guards to engage one of the studs to lock the studs in their engagement with the guards as set forth.

9. In a lantern, the combination with the frame comprising a bottom cylinder provided with a pair of oppositely-disposed horizontal studs on its interior, of a detachable oil-pot formed with a rim embracing said cylinder, an aperture in said rim, a pair of rigid guards formed of wire and disposed between the oil-pot and rim and arranged to be engaged by the aforesaid studs, and an upright spring attached to the oil-pot and adapted to engage one of said studs and formed with a thumb-piece projecting through the aforesaid aperture for the purpose set forth.

10. In a lantern, the combination with the frame comprising a bottom cylinder provided with a pair of oppositely-disposed horizontal studs on its interior, of a detachable oil-pot formed with a rim embracing said cylinder, a pair of wire guards secured to the oil-pot and each composed of a horizontally-disposed bar and attaching-arms, a stop formed at one end of the bar of each guard and disposed in the path of the studs, and a spring attached to the oil-pot adjacent to one of the guards and engaging the stud thereat to lock the studs in their engagement with the guards as set forth.

11. In a lantern, the combination with the frame comprising a bottom cylinder provided on its interior with a pair of oppositely-disposed horizontal studs, of a detachable oil-pot, the base permanently secured to said oil-pot, a rim permanently secured to the top of the base and surrounding the oil-pot and embracing the aforesaid cylinder, a pair of guards fastened rigidly to the top of the base and disposed between the oil-pot and cylinder and engaging said studs, and a spring locking said studs in their engagement as set forth.

12. In a lantern, the combination with the frame comprising a bottom cylinder provided on its interior with a pair of oppositely-disposed horizontal studs, of a detachable oil-pot, the base permanently secured to the oil-pot, a rim permanently secured to the top of the base and surrounding the oil-pot and embracing the aforesaid cylinder, an aperture in said rim, a pair of guards rigidly secured between said oil-pot and rim and arranged to be engaged by said studs in the rotation of the oil-pot, stops disposed in the path of said studs to limit the rotation of the oil-pot, and an upright spring secured to the oil-pot and arranged to automatically engage one of the studs to lock the studs in their engagement with the guards, and means for operating said spring to release said studs as set forth.

13. In a lantern, the combination with the bottom cylindrical frame member, of a detachable oil-pot provided with a rim engaging said frame member, said rim being formed with a bottom plate provided with a central annular opening and with an upwardly-projecting flange surrounding the opening, the oil-pot disposed in said opening and formed with an external bead bearing upon said flange and having its lower end portion clenched onto the under side of said plate as set forth.

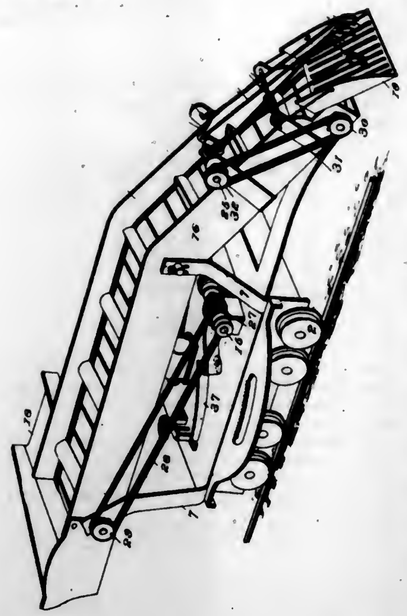
14. In a lantern, the combination with the bottom cylindrical frame member, of a detachable oil-pot provided with a rim engaging said frame member, said rim being formed with a bottom plate provided with a central annular opening and with an upwardly-projecting flange surrounding the opening, the oil-pot disposed in said opening and formed with an external bead bearing upon said flange and having its lower edge clenched onto the under side of said plate, and the bottom of the oil-pot formed separate and clenched onto the same as set forth.

15. In a lantern, the combination of the base formed with a central annular opening in its top and with an upwardly-projecting flange surrounding said opening, a rim formed with a bottom plate having a coinciding opening and seated upon the base and formed with a flange embracing the aforesaid flange, the oil-pot disposed in said openings and formed with an external bead bearing upon said flanges and having its lower end portion clenched onto the under side of the base as set forth.

16. In a lantern, the combination of the base formed with a central annular opening and with an upwardly-projecting flange surrounding said opening and an annular depression surrounding said flange, a rim formed with a bottom plate seated in said depression and provided with a coinciding opening and an upwardly-projecting flange embracing the aforesaid flange, the oil-pot disposed in said openings and formed with an external bead bearing upon said flanges and having its lower end clenched onto the under side of the base, and the oil-pot bottom formed separate and suitably secured in its position as set forth.

785,957. LOADING-MACHINE. FRANK R. KENT, Montvale, Va. Filed Apr. 4, 1904. Serial No. 201,623.

Claim.—1. In a loading-machine, the combination of a truck, wings extended laterally therefrom in opposite directions, each wing having a curved slot toothed upon one edge, a frame mounted upon the truck and pivotally connected thereto for angular adjustment about a vertical axis and provided with elevating mechanism, a shaft journaled to said frame, and a pinion attached to the shaft and adapted to mesh with the toothed edge of either of the aforesaid slots, substantially as set forth.



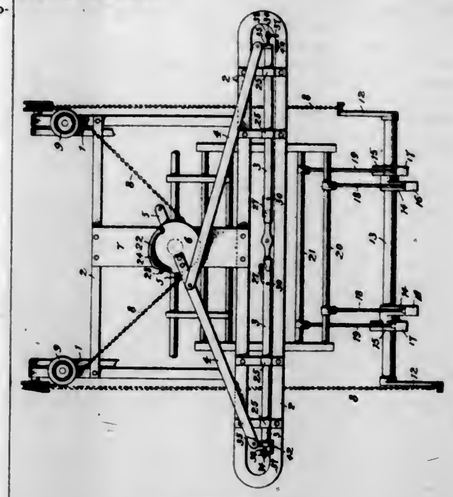
2. In a loading-machine, the combination of a truck, a frame mounted upon the truck and pivoted thereto for angular adjustment about a vertical axis, cooperating means between the said frame and truck to effect a turning of the frame, an elevator carried by said frame, a chute and gathering means at the receiving end of the elevator, a counter-shaft, a motor connected to said counter-shaft for driving the same, connections between said counter-shaft and the elevator and between said counter-shaft and an axle of the truck, and a clutch device for throwing either set of connections into gear either to operate the elevator or to propel the machine, substantially as specified.

785,958. SHUTTLE-MOTION FOR LOOMS. WILLIAM F. KENTNER, New Freedom, Pa. Filed Mar. 2, 1903. Serial No. 145,790.

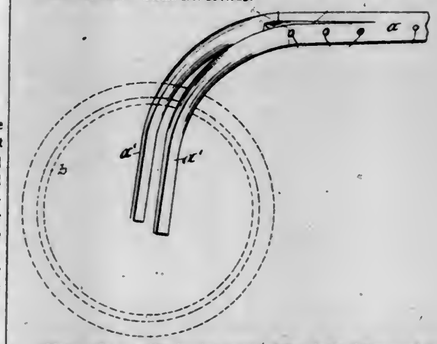
Claim.—1. In a shuttle-motion for looms, the combination of the reciprocating shuttle-bars, pitmen for transmitting motion to said bars, rotatable chain-receiving wheels connected with said pitmen, each wheel having a pivoted cam, and chains connected with driving mechanism and attached to said rotatable wheels, the chain of each wheel passing over the pivoted cam, whereby slack in the chain is taken up and a uniform tension obtained, substantially as described.

2. In a shuttle-motion for looms, the combination of the reciprocating shuttle-bars, pitmen for transmitting motion to said bars, rotatable chain-receiving wheels connected with said pitmen, each wheel having a spring-influenced pivoted cam, and chains connected with driving mechanism and attached to said rotatable wheels, the chain of each wheel passing over the spring-influenced pivoted cam, whereby slack in the chain is taken up and a uniform tension obtained through the instrumentality of the spring-influenced cam, substantially as described.

3. In a shuttle-motion for looms, the combination of the reciprocating shuttle-bars, pitmen for transmitting motion to said bars, rotatable chain-receiving wheels connected with said pitmen, each wheel being provided with a cam pivoted at one end thereto and provided with means for limiting the movement of its free end, a spring acting upon each of said cams, and chains connected with driving mechanism and attached to said rotatable wheels, the chain of each wheel passing over the spring-influenced cam, whereby slack in the chain is taken up by the cam and a uniform tension obtained, substantially as described.



785,959. SULKY-SHAFT. ROBERT LAASS, Lyons, N. Y. Filed Mar. 12, 1904. Serial No. 197,783.



Claim.—In a sulky having each of its shafts bifurcated and straddling one of the wheels, the shaft having the two arms of its bifurcation spread apart at the same angle from the central longitudinal line of the shaft, and the crotch portion of each arm formed oval in cross-section, a wedge inserted into the crotch of the bifurcation and formed with concaved sides corresponding to the convexity of the shaft-arms and with forwardly-vanishing grooves on top and bottom, and rivets passing transversely through the arms and intervening wedge and retaining the said arms in their uniformly-inclined and equally-bracing position as set forth and shown.

785,960. HAIR-CLIPPER. WILLIAM T. LEES, Pawtucket, R. I. Filed Aug. 5, 1904. Serial No. 219,658.



Claim.—1. In a hair-clipper, an upper cutter-plate, a lower cutter-plate, said lower plate having downwardly-projecting teeth and a bearing back of the point of said teeth arranged to assist in raising the hair to the cutting-point.

2. In a hair-clipper the combination of a fixed plate, a movable

plate, said fixed plate having its outer edge formed into teeth and extending forward and downward of the cutting-point, a second bearing located back of the point of said teeth to assist in raising the hair and causing the same to be cut evenly.

3. In a hair-clipper the combination of a fixed plate, a movable plate, said fixed plate having its outer edge formed into teeth and extending forward and downward of the cutting-point, a bearing located back of the point of the downwardly-projecting teeth, said bearing having a plurality of downwardly-extending fingers and secured to said fixed plate to assist in raising the hair and causing the same to be cut evenly.

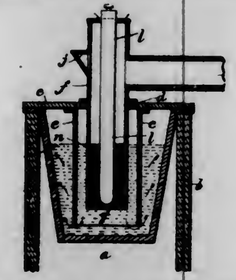
4. In a hair-clipper, a fixed handle, a movable handle, a coil-spring acting on the handles to return them when pressed together, a fixed cutter-plate, a movable cutter-plate, said fixed plate having its outer edge formed into teeth and extending forward and downward of the cutting-point, a bearing back of the downwardly-projecting point of said teeth to assist in raising the hair and causing the same to be cut evenly.

5. In a hair-clipper, a fixed handle, a movable handle, a coil-spring acting on the handles to return them when pressed together, a fixed plate, a movable plate, said fixed plate having its outer edge formed into teeth which teeth extend forward and downward of the cutting-point, a downwardly-projecting bearing located back of the point of the downwardly-projecting teeth, said bearing having a plurality of fingers and secured to said fixed plate to assist in raising the hair and causing the same to be cut evenly.

6. In a hair-clipper, a fixed handle, a movable handle pivotally mounted on a trunnion, a coil-spring acting on the handles to return them when pressed together, said coil-spring also acting on said pivoted handle to hold it up on said trunnion, a fixed plate, a movable plate, said fixed plate having its outer edge formed into teeth and extending forward and downward of the cutting-point, a bearing located back of the point of the downwardly-projecting teeth, said bearing having a plurality of fingers and secured to said fixed plate to assist in raising the hair and causing the same to be cut evenly.

785,961. MANUFACTURE OF CARBON-TETRAFLUORID GAS.

JOHN A. LYONS and EDWARD C. BROADWELL, Chicago, Ill. Filed Sept. 16, 1903. Serial No. 173,386.



Claim.—1. The process of producing carbon-tetra-fluorid gas from the fluorids of the electro positive metals, consisting in passing a current of electricity through a fused bath of the fluorid of such metal in the presence of a cathode and an anode and subjecting the fluorin gas liberated at the anode to the action of carbonaceous material immediately surrounding the anode.

2. The process of producing carbon-tetrafluorid gas from the fluorids of the electropositive metals, which consists in passing a current of electricity through the fluorid of any of said metals in the presence of a suitable cathode and a carbon anode and subjecting the fluorin gas liberated at the anode to a separate body of carbonaceous material immediately surrounding the anode, whereby carbon-tetrafluorid gas will be instantly produced and any molecular fluorin that may be created will be converted to said carbon-tetrafluorid gas, and the metals of the fluorids will be deposited at the cathode.

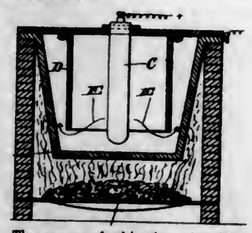
3. The process of producing carbon-tetrafluorid gas which consists in passing an electrolytic current through a fused bath of the fluorid of one of the electropositive metals and subjecting the fluorin gas liberated at the anode to a body of carbonaceous material having an affinity for fluorin.

4. The process of producing carbon-tetrafluorid gas which consists in passing an electrolytic current through a fused bath of a fluorid of an electropositive metal and subjecting the fluorin liberated at the anode to a mass of carbonaceous material having an affinity therefor, and immediately surrounding the anode.

5. The process of producing carbon-tetrafluorid gas which consists in passing an electrolytic current through metallic fluorid in a state of fusion and subjecting the fluorin liberated at the anode to a body of carbonaceous material having an affinity for fluorin immediately surrounding the anode.

785,962. PRODUCTION OF BORON BY ELECTROLYSIS.

JOHN A. LYONS and EDWARD C. BROADWELL, Chicago, Ill. Filed Sept. 16, 1903. Serial No. 173,387.



Claim.—1. The process of subjecting a fused bath of the borates of electropositive metals to electrolytic action and subjecting the anion produced thereby to a reducing action at the anode which is maintained at an intense heat.

2. The process of producing boron from the borates of electropositive metals, consisting in subjecting a fused bath of said borates to electrolytic action establishing an incandescent heat at the anode and subjecting the electrolyzed anion to a reducing action at the anode.

3. The process of producing boron from the borates of electropositive metals which consists in subjecting the borate in a fused bath to electrolytic action between a cathode, and an anode reductive of boric anhdyrid, with a relatively great current density at the anode, whereby an intense heat is generated at the anode and subjecting boric anhydrid brought to the anode to such heat whereby boron is produced.

4. The process of producing boron from the borates of the electropositive metals which consists in subjecting a fused bath of said borates to electrolytic action between a cathode and a carbon anode subjected to an intense heat.

5. The process of producing boron from the borates of the electropositive metals which consists in subjecting a fused bath of said borates to electrolytic action between a cathode, and an anode of reductive capacity, separated in such manner as to prevent the floating of the boron to the cathode and creating an auxiliary heat at the anode whereby the boron is produced from the anion brought there by the electrolytic action.

6. The process of producing boron which consists in subjecting a fused bath of the borate of an electropositive metal to electrolytic action between a cathode and a carbon anode, with a relatively great current density at the anode.

785,963. REVERSIBLE DISK PLOW.

EPHRAIM MANES, Chattanooga, Tenn. Filed May 5, 1904. Serial No. 206,542.

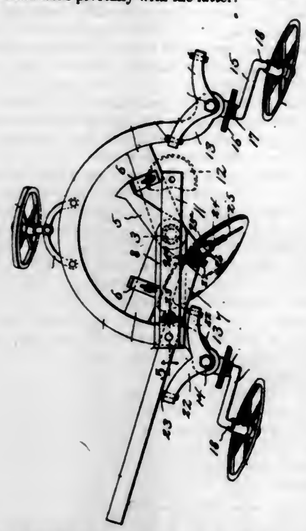
Claim.—1. In a reversible disk plow, a plow-carrying shank mounted for rotation, a crank upon said shank, a tongue pivoted upon said crank, and stops disposed in the path of said crank.

2. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, a crank upon said shank, whereby the latter may be turned, stops secured upon the frame in the path of said crank, and a tongue pivoted upon the latter.

3. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, an arm mounted securely upon said shank, a tongue connected pivotally with said arm at one side of the shank, and stops mounted upon the frame in the path of the extension of the arm at the opposite side of the shank.

4. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, a crank upon said shank, a tongue connected pivotally with said crank, and stops mounted adjustably upon the frame in the path of the crank.

5. In a device of the class described, a segmental frame, arms extending from said frame and converging at a point concentric therewith, a plow-carrying shank journaled at said concentric point, a crank upon said shank, stop members mounted adjustably upon the converging arms of the frame in the path of the crank, and a tongue connected pivotally with the latter.



6. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, means for limiting the rotary movement of said shank, a crank upon the latter, and a tongue pivotally connected with said crank.

7. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, a crank upon said shank, a tongue connected pivotally with said crank, and guiding means for said tongue.

8. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft-bar connected pivotally with said crank, and guiding means for said draft-bar connected pivotally with the plow-carrying shank.

9. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft-bar connected pivotally with said crank, guiding means for said draft-bar connected pivotally with the shank, and means for limiting the rotation of the latter.

10. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft-bar connected pivotally with said crank, guiding means for said draft-bar connected pivotally with the plow-carrying shank, and stops mounted upon the frame in the path of the crank upon the plow-carrying shank.

11. In a device of the class described, a frame having a segmental body forming an arc of a circle, a disk-carrying shank mounted for rotation concentrically with the arc of the frame, a crank upon said shank, a draft member pivoted upon said crank, and guiding means for said draft member pivoted concentrically with the shank and having means engaging the arc of the frame.

12. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft member pivotally connected with said crank, guiding means for the draft member connected pivotally with the shank, and a seat-supporting bar upon said guiding means.

13. In a device of the class described, a supporting-frame, a disk-carrying standard mounted pivotally in the same, an arm connected rigidly with said standard, a subbeam connected pivotally with the standard above said arm, and a draft member connected pivotally with the arm and slidably with the subbeam.

14. In a device of the class described, a frame, a disk-carrying standard connected pivotally with said frame, an arm connected rigidly with said standard, a subbeam connected pivotally with said standard, a draft member connected pivotally with the arm and slidingly with the subbeam, and stop means connected adjustably with the frame in the path of the arm with which the draft member is pivotally connected.

15. In a device of the class described, a frame, a disk-carrying standard connected pivotally with said frame, an arm connected rigidly with said standard, means for limiting the movement of said arm, a subbeam connected pivotally with the standard and having a loop formed thereon, a draft member connected pivotally with the arm and extending slidably through the loop of the subbeam.

16. A frame having a segmental body forming an arc of a circle, and arms converging at a point concentric with said arc, a disk-carrying standard pivoted concentrically with the arc of the frame, an arm connected with said standard, a subbeam connected loosely with the latter and having an arc-engaging hook, and a draft member connected pivotally with the arm and connected slidingly with the subbeam.

17. In a device of the class described, a frame having a segmental portion, a disk-carrying standard pivoted concentrically with said segmental portion, an arm connected rigidly with said disk-carrying standard, a subbeam connected pivotally with the latter and having a frame-engaging hook, a seat-carrying bar connected with said subbeam, a draft member connected pivotally with the arm and slidingly with the subbeam, and means disposed in the path of the arm to limit the movement of the latter and the disk-carrying standard.

18. In a device of the class described, a frame, rotary supporting means for said frame including furrow-wheels having swiveled shanks, stop members connected with said shanks, a pivoted disk-carrying standard, a crank upon the latter, and a draft member connected pivotally with said crank and disposed in the plane of the stop members upon the swiveled shanks of the supporting-wheels.

19. In a device of the class described, a frame, rotary supporting means for said frame, including furrow-wheels having swiveled shanks, a pivoted disk-carrying standard, a crank upon the latter, a draft member connected pivotally with said crank, stop members connected with the swiveled shanks of the furrow-wheels and disposed in the path of the draft member, and stops disposed upon the frame in the path of the crank upon the plow-carrying shank.

20. In a device of the class described, a frame, rotary supporting means for said frame, including furrow-wheels having swiveled shanks, a pivoted reversible draft member, and divergent stop means upon each of the swiveled shanks of the furrow-wheels.

21. In a device of the class described, a frame, a plow-carrying standard mounted for rotation therein, a crank upon said standard, a draft member pivoted upon said crank, guiding means for said draft member connected pivotally with the standard, and rotary supporting means including furrow-wheels having swiveled shanks and stop means upon said shanks disposed in the path of the draft member.

22. In a device of the class described, a plow-carrying frame, rotary supporting means for said frame, including furrow-wheels having swiveled shanks, divergent arms upon each of said shanks and constituting stops, and a reversible draft member mounted pivotally and adapted for engagement with the divergent stop means upon said furrow-wheels.

23. A frame, rotary supporting means for said frame, including furrow-wheels having vertically-disposed, pivotally-mounted caster-shanks, arms diverging from the latter and having adjustable stop members, a pivoted disk-carrying standard, an arm connected rigidly with the latter, and a draft member connected pivotally with said arm and disposed in the plane of the stop members borne by the diverging arms of the caster-stems of the furrow-wheels.

24. In a device of the class described, a wheel-supported and pivoted disk-carrying standard, an arm connected rigidly with said standard, a subbeam connected pivotally with the latter, a draft member connected pivotally with said arm and slidingly with said subbeam, front and rear rotary supporting members having caster-shanks, arms diverging from said caster-shanks, and stop members connected adjustably with said arms and disposed in the path of the draft member of the device.

25. In a device of the class described, a frame, a disk-carrying shank mounted pivotally in said frame, an arm connected rigidly with said shank, a draft member connected pivotally with said arm to reverse the position of the shank by a direct pull upon the arm, a scraper-carrying member connected pivotally with said arm, and tension-springs abutting upon the draft member to reverse the position of said scraper and to hold the latter resiliently in contact with the face of the disk.

26. In a device of the class described, a pivotally-mounted disk-carrying shank having an arm constituting a crank, a scraper-carrying member connected pivotally with the latter, a draft member connected pivotally with said arm or crank, and springs connected with the scraper-carrying member and having upturned ends abutting upon opposite sides of the draft member.

27. In a device of the class described, a pivotally-mounted disk-

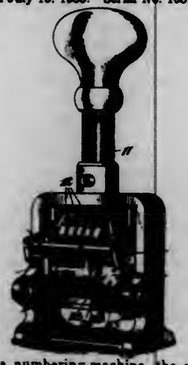
carrying shank having an arm constituting a crank, a scraper-carrying member connected pivotally with the latter, a draft member connected pivotally with the arm or crank, and spring means connected with the scraper-carrying member and having engagement with the draft member.

28. In a device of the class described, a non-reversible frame, a reversible draft member, a plow-carrying standard mounted for rotation, and a member constituting a link connection between the draft member and the plow-carrying standard to effect reversal of the position of the latter by direct draft upon the draft member.

29. In a device of the class described, a non-reversible frame, rotary supporting means for said frame, including furrow-wheels, a draft member pivotally mounted to swing in a horizontal plane to project at either end of the frame, a member constituting a link connection between said draft member and the plow-carrying standard for reversing the latter by direct draft upon the draft member, and stops connected with the furrow-wheels, disposed in the path of the draft member, to change the position of the furrow-wheel near the draft member when the latter is reversed.

30. In a reversible disk plow, a disk-carrying standard, an arm extending radially from said standard at an angle from the normal line of draft, and draft means connected pivotally with said arm, the latter constituting a link connection whereby reversal of the disk is accomplished by direct draft upon the said draft member.

785,964. **NUMBERING-MACHINE.** FLORIAN J. MARTIN, Milwaukee, Wis. Filed July 15, 1903. Serial No. 165,654.



Claim.—1. In a numbering-machine, the combination with a numbering-wheel, of relatively movable pawl elements mounted independently of each other, means connecting the elements for automatically moving one pawl element with relation to the other in one direction, and means connecting the elements for preventing such movement.

2. In a numbering-machine, the combination with a numbering-wheel, of relatively movable pawl elements mounted independently of each other, means associated with each element for automatically moving each element independently of and relatively to the other, and a device carried by one element and detachably engaging the other element for preventing such movement and holding the elements in different relative positions.

3. In a numbering-machine, the combination with a frame including a journal-rod, of numbering-wheels mounted in the frame, pawls separately journaled on the rod, a spring coiled upon the rod and having its opposite ends acting upon the pawls to relatively move them in opposite directions, and means connecting the pawls for holding the same against such movement.

4. In a numbering-machine, the combination with the numbering-wheels, of relatively movable pawl elements, one of which is provided with a plurality of shoulders, a connecting device carried by the other element and arranged to bear against the shoulders, and a spring bearing in opposite directions against the elements and serving to hold the connecting device in engagement with the shoulders.

5. In a numbering-machine, the combination with the numbering-wheels, of swinging pawl elements, one of which is provided with a series of radially-disposed shoulders, a connecting device carried by the other element and arranged to bear against the different shoulders, and a spring serving to swing the members in opposite directions and thereby hold the device in engagement with the different shoulders.

6. In a numbering-machine, the combination with the numbering-wheels, of a support, separately-swinging pawl elements, one of said elements having shoulders arranged at different distances from the axis of movement of the same, and a connecting device movably mounted upon the other element and coacting with the shoulders.

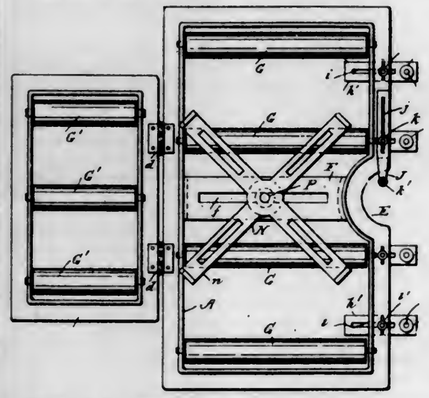
7. In a numbering-machine, the combination with the numbering-wheels, of a supporting-rod, separately-swinging pawl elements journaled on the rod, one of said elements having shoulders on its peripheral edge that are arranged at different distances from the axis of movement of said element, and a connecting-dog pivoted upon the other element and coacting with the shoulders.

8. In a numbering-machine, the combination with the numbering-wheels, of a pawl-block, an independently-movable pawl having shoulders, a spring bearing in opposite directions against the block and pawl to move the latter, and a dog pivoted upon the block and engaging the shoulders to prevent such movement.

9. In a numbering-machine, the combination with the numbering-wheels, of a supporting-rod, a pawl-block journaled on the rod, an independently-movable pawl also journaled on the rod and having shoulders, a spring coiled upon the rod and bearing in opposite directions against the block and pawl to move the latter, and a dog pivoted upon the block and engaging the shoulders to prevent such movement of the pawl.

10. In a numbering-machine, the combination with the numbering-wheels, of a pawl-block coacting therewith, an independently-movable pawl mounted independently of the pawl-block, means for automatically moving the pawl away from the numbering-wheels, and a holding device carried by the pawl-block and engaging the pawl to prevent said movement thereof.

785,965. **WORK-TABLE.** MICHAEL F. MEAGHER, Pittsfield, Mass. Filed Nov. 9, 1904. Serial No. 232,020.



Claim.—1. In a work-table, the combination, with a supporting-frame provided with an inwardly-projecting portion which forms a gap at one of the side edges of the frame, of rollers journaled in the said frame on each side of the said projection and gap, and guides for the plate connected to the said frame.

2. In a work-table, the combination, with a main frame supported on legs and provided with a gap at one side, and rollers journaled in the said frame on each side of the gap; of an extension-frame provided with legs and hinged to the opposite side of the main frame from the said gap, and rollers journaled in the said extension-frame, one of the last said rollers being arranged in line with the said gap.

3. In a work-table, the combination, with a frame provided with a gap at one side, of extensible legs which support the said frame at various elevations, and rollers journaled in the said frame on each side of the said gap.

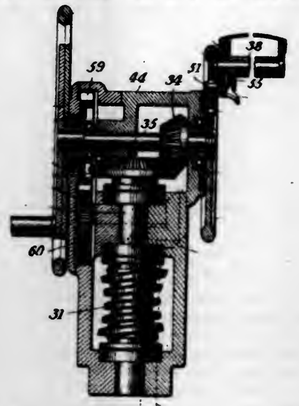
4. In a work-table the combination, with a frame supported on legs and provided with a gap at one side, of rollers journaled in the said frame on each side of the said gap, and adjustable guides for the plate connected to the side of the said frame adjacent to the said gap.

5. In a work-table, the combination, with a frame supported on legs and provided with a gap at one side, of rollers journaled in the said frame on each side of the said gap, and a spring spacer-gage adjustably connected to the frame at one end adjacent to the said gap and provided with a projecting portion at its free end.

6. In a work-table, the combination, with a frame supported on legs and provided with a gap at one side, of rollers journaled in the said frame on each side of the said gap, a spring spacer-arm secured at one end to the said frame adjacent to the said gap, and a removable cylindrical projection provided with a beveled portion at one edge and connected to the free end portion of the said arm which projects over the said gap.

7. In a work-table, the combination, with a frame supported on legs and provided with a gap at one side and a cross-bar having a longitudinal slot and arranged in line with the said gap, of a vertically-adjustable spindle provided with means for securing it to the said cross-bar in various positions, and a support journaled on the upper end portion of the said spindle.

785,966. **TRAINING AND ELEVATING MECHANISM FOR GUNS.** JOHN F. METOS and SIGARD A. S. HAMMAR, South Bethlehem, Pa., assignors to Bethlehem Steel Company, South Bethlehem, Pa., a Corporation of Pennsylvania. Filed July 21, 1904. Serial No. 217,487.



Claim.—1. The combination with a gun and its sighting device, of means for moving the gun comprising suitable gearing and two handles arranged adjacent to the sighting device, said handles being connected to said gearing and adapted to move in opposite directions with respect to the operator when operating the gearing, whereby the operator may move the gun and sight the same simultaneously.

2. The combination with a gun and its sighting device, of means for moving the gun comprising suitable gearing and two handles arranged adjacent to the sighting device, said handles being connected to said gearing and adapted to move in opposite directions with respect to the operator when operating the gearing, an electric firing-circuit, and a circuit-closer mounted on one of said handles, whereby the operator may adjust and sight and fire the gun simultaneously.

3. The combination with a gun and with means for moving the gun comprising suitable gearing, a crank-shaft, and two diametrically opposite handles connected to said shaft, of a sighting device adjacent to said handles, an electric firing-circuit, and a circuit-closer mounted on one of said handles, whereby the operator may adjust and sight and fire the gun simultaneously.

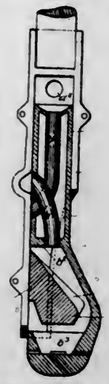
4. The combination with a gun and its sighting dev ce, of mechanism for elevating the gun comprising two handles arranged adjacent to the sighting device and adapted to move in opposite directions with respect to the operator when the elevating mechanism is operated, a training mechanism and a handle for operating said training mechanism said handle being also arranged adjacent to the sighting device, whereby a single operator may sight the gun and simultaneously move the training and elevating mechanism.

5. The combination with a gun and its sighting device, of suitable gearing for elevating the same comprising a crank-shaft and two crank-handles fixed thereon adjacent to the sighting device and arranged to move simultaneously in opposite directions with respect to the operator, a hand-wheel turning freely about said shaft, and gearing connecting said hand-wheel with the pedestal of the gun for training the gun.

6. The combination with a gun and its sighting device, of suitable gearing for moving the gun, a crank-shaft for operating said gearing, and two crank-handles connected with said shaft on opposite sides of the same, said handles being adapted to be grasped by a single operator and arranged to move simultaneously in opposite directions with respect to the operator and one of said handles being elongated and adapted to be grasped by one or more additional operators.

7. The combination with a gun and with means for moving the gun comprising suitable gearing, and a crank having a rotatable handle for operating the same, of stationary conducting-rings concentric with the axis of said crank, conducting-rings carried by said handle, brushes carried by the crank and bearing on both sets of said rings for electrically connecting the stationary rings with the rings on the handles, and a circuit-closer carried by said handle.

785,967. **MAGAZINE DETONATING DEVICE.** ARTHUR E. MERKEL, Cleveland, Ohio, assignor to The Lake Shore Novelty Company, Findlay, Ohio, a Corporation of Ohio. Filed Dec. 10, 1903. Serial No. 184,610.



Claim.—1. In a detonating device, the combination of a handle, a member fixed relatively thereto and provided with a bore and detonating-head, and a second member reciprocable in said bore and having a duct therein forming a magazine, said duct intersecting the lateral face of said second member, such second member provided with a second duct intersecting its lateral and bottom faces and forming a feeding-duct, said first member provided with a pocket located so as to register successively with the lateral extremities of said magazine and feeding-ducts.

2. In a detonating device, the combination of a handle, an outer shell or casing fixed thereto, and a plunger reciprocable in said shell or casing and provided with a magazine, said casing and plunger arranged to automatically feed ammunition from said magazine.

3. In a detonating device, the combination of a handle, an outer shell or casing provided with an exploding-head and fixed to said handle, a plunger reciprocable in said shell or casing and provided with a magazine, said casing and plunger arranged to form an explosion-chamber, and to feed ammunition automatically from said magazine to said chamber.

4. In a detonating device, the combination of a handle, an outer shell or casing fixed relatively to said handle and provided with an exploding-head, a plunger reciprocable in said shell or casing and provided with a magazine, said casing and plunger arranged to automatically feed ammunition from said magazine and to jointly form an explosion-chamber.

5. In a detonating device, the combination with a hollow shell or casing composed of two juxtaposed parts, one of such parts provided with an exploding-head, of a reciprocating member provided with an explosion-head forming with said first-named head an explosion-chamber, and a magazine-duct intersecting the lateral surface of said reciprocating member on the same side of the interior of the casing as that to which said exploding-head is attached, said exploding-head thus being interposed between the end of said duct and the explosion-chamber, thereby interrupting direct communication between the magazine and said chamber.

6. In a detonating device, the combination with an outer shell or casing provided with an exploding-head fixed relatively thereto, detached from one side of the interior of such casing and attached to the other side of such interior, of a member mounted in said casing, relatively reciprocable therein and provided with a magazine-duct

arranged to discharge laterally and on the same side of the casing as that to which said head is attached and provided with an explosion-head.

7. In a detonating device, the combination of an outer shell or casing provided with an exploding-head fixed relatively thereto, detached from one side of the interior of the casing and attached to the other side of such interior; a pocket in said casing on the same side as that to which said exploding-head is attached; a member, provided with an explosion-chamber, mounted in said casing, relatively reciprocable therein, and provided with a magazine-duct arranged to discharge ammunition into said pocket, and a feeding-duct arranged to discharge ammunition from said pocket to said chamber.

8. In a detonating device, the combination of an outer shell or casing provided with an exploding-head fixed relatively thereto, detached from one side of the interior of the casing and attached to the other side of such interior; a pocket in said casing on the same side as that to which said exploding-head is attached; a member, provided with an explosion-chamber, mounted in said casing, relatively reciprocable therein, and provided with a magazine-duct and a feeding-duct arranged to register alternately with said pocket to convey ammunition from said magazine-duct to said chamber, and to shut off direct communication between said magazine-duct and said chamber.

785,968. **FLY-FRIGHTENER.** THOMAS J. MERRYMAN, Lincoln, Nebr. Filed Dec. 12, 1903. Serial No. 184,934.



Claim.—1. In a device of the class described, the combination with a door-frame and door, of an insect-frightening device mounted on the door-frame, an insect-frightening device mounted on the door, one of said devices consisting of a shaft, spiral wings arranged longitudinally of and secured to the shaft, said wings having looped portions projecting on opposite sides of the shaft, and means for simultaneously operating the frightening devices upon the opening of the door, said means having an engagement with the shaft for actuating the same.

2. In a device of the class described, the combination with a door-frame and door, of a plurality of rotatable insect-frightening devices mounted one upon the door and the other upon the door-frame, and common means for simultaneously rotating said devices.

3. In a device of the class described, the combination with a door-frame and door, of a movable insect-frightening device separately mounted on each, each of said devices including a rotary shaft having a pulley, and a single cable passing about the pulleys of both shafts and having a movable resistance at one end.

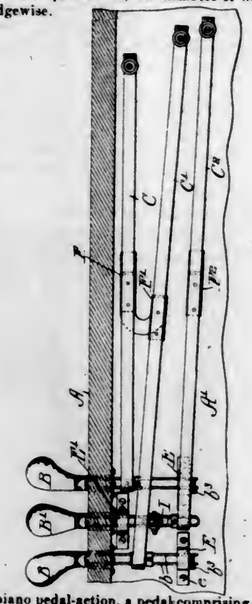
4. In a device of the class described, the combination with a door-frame and door, of an insect-frightening device mounted on the door-frame and including a vibratory shaft having a drum, another insect-frightenidg device mounted on the door and including a shaft having a pulley, a cable having one end wrapped upon the drum, said cable passing about the pulley, and a weight attached to the other end of the pulley.

5. In a device of the class described, the combination with a door-frame and door, of a shaft journaled along the top of the frame and having wings secured thereto, an upright shaft journaled along one side of the frame and having wings, a shaft journaled upon the door and having wings, and a cable having a movable end, said cable passing about the various shafts to simultaneously operate the same when the door is moved.

6. In a device of the class described, the combination with a door-frame and door, of movable insect-frightening devices, one mounted upon the vertical side of the door-frame and outside thereof, and the other mounted upon the top of said door-frame and outside thereof, and a continuous cable wound around both said devices and attached to said door.

785,969. **PEDAL-ACTION.** RUDOLF MOS, Chicago, Ill., assignor to American Industrial Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 15, 1904. Serial No. 203,381.

Claim.—1. In a piano pedal-action, a pedal comprising a foot portion and a multipart shank, the members of which are disposed vertically edgewise.



2. In a piano pedal-action, a pedal comprising a solid foot portion and a metal multipart shank, the members of which are fastened in the foot portion.

3. In a piano pedal-action, a pedal comprising a foot portion, and a shank made from a single strip of wrought metal bent between its ends to constitute two parallel shank members, said strip being fastened to the foot portion at one end of the shank.

4. In a piano pedal-action, the combination with a pedal comprising a foot portion and a multipart shank the members of which are arranged vertically edgewise, of a fulcrum therefor comprising a stationary part, bearing-studs on one of the parts adapted to engage sockets in the other part, and means for laterally adjusting the bearings toward and from each other.

5. In a piano pedal-action, the combination with a pedal provided with a multipart shank, the members of which are arranged vertically edgewise, of a fulcrum therefor comprising a bracket the arms of which are located laterally outside of said shank members, conical bearing-studs on one of said parts adapted to enter corresponding sockets in the other part, and screw-threaded means for adjusting the parts of the bearings toward and from each other.

6. In a piano pedal-action, the combination with a pedal provided with a multipart shank, the members of which are arranged vertically edgewise, of a fulcrum-mounting therefor comprising laterally-extending, conical bearing-studs on said members, and parts located laterally outside of said members and provided with tapered sockets adapted to receive said bearing-studs, and means acting on said shank members for pressing the bearing-studs outwardly into bearing relation with said sockets.

7. In a piano pedal-action, the combination with a pedal provided with a multipart shank, the members of which are arranged vertically edgewise, of a fulcrum-mounting therefor comprising laterally-extending, conical bearing-studs on said members, and parts located laterally outside of said members provided with tapered sockets adapted to receive said bearing-studs, and a spreading-screw extending through one of the members of said shank and bearing at its end against the other member for spreading said shank members apart.

8. In a piano pedal-action, a pedal comprising a solid portion, and a shank foot portion made of a single strip of metal and bent to form two parallel shank members disposed vertically edgewise, the curved or looped part of the strip being embedded in the foot portion, and means for spreading the free ends of said shank members apart.

9. In a pedal-action for pianos, the combination with a pedal provided with a multipart shank, the members of which are arranged vertically edgewise, a lever adapted for connection at one end with the mechanism which is controlled by the pedal, and means for connecting the lever with said pedal comprising a rod or link connected at its upper end with the lever, a plate extending across and engaging the margins of the shank members, and means for clamping said plate in place.

10. In a pedal-action for pianos, the combination with a pedal provided with a multipart shank, the members of which are arranged vertically edgewise, a lever adapted for connection at one end with the mechanism which is controlled by the pedal, and means for connecting the lever with said pedal comprising a rod or link connected at its upper end with the lever, a plate extending across and engaging the margins of the shank members, said rod or link being connected with said plate, means for clamping said plate in place, and interfitting connections between the plate and the margins of the shank members.

11. In a pedal-action for pianos, the combination with a pedal having a multipart shank, the members of which are arranged vertically edgewise, a lever adapted for connection at one end with the mechanism which the pedal controls, of connections between said lever and pedal, comprising a rod or link connected at its upper end with one end of the lever, a plate engaged by said rod or link and extending across the members of the pedal-shank and engaging the margins thereof, means for clamping said plate on said shank members comprising a bar extending across and engaging the margins of the said members, and a bolt extending through said bar and the plate, and a lug on said plate adapted to engage the nut of said bolt to prevent the same from turning on the bolt.

12. In a piano-action, the combination with the toe-rail having a pedal-opening and a pedal, the shank of which extends therethrough, of a mouse-guard comprising a plurality of vertical, laterally-separated members extending across the said pedal-opening, and forming spaces between the same to receive the parts of the pedal-shank.

13. In a piano pedal-action, the combination with a pedal, the shank of which has a vertical opening, of a mouse-guard for the opening in the toe-rail for the pedal, embracing a part which extends across said opening and through the opening of the shank.

14. In a pedal-action for pianos, the combination with a pedal having a multipart shank, the members of which are arranged edgewise vertically, of a mouse-guard embracing a part which extends vertically through the space between said shank members.

15. In a pedal-action for pianos, the combination with a toe-rail provided with a pedal-opening and a pedal provided with a shank extending through said opening, comprising two members arranged vertically edgewise, of a mouse-guard attached to the toe-rail comprising two side parts located one at each side of the shank, and a central part located between the shank members.

16. In a pedal-action for pianos, the combination with a toe-rail provided with a pedal-opening and a pedal provided with a multipart shank extending through said opening, the members of which are arranged vertically edgewise, of a plate affixed to the inner face of the toe-rail at the opening through which the pedal extends and provided with notches which receive the members of the shank.

17. In a pedal-action for pianos, the combination with a pedal, of a lever adapted for connection with the part which the pedal controls, and at its other part with the pedal, said lever being made of truss shape, and the longitudinal members thereof being made of a single strip of metal.

18. In a pedal-action for pianos, the combination with a pedal, of a lever adapted for connection at one end with the pedal and at its other end with the mechanism which the pedal controls, and said lever comprising an upper tension member and a lower compression member and fulcrumed near the lowest part of its compression member.

19. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which is controlled by the pedal, said lever comprising an upper tension member and a lower compression member and fulcrumed at the lower part of said compression member, the tension member being arranged horizontally edgewise and the compression member vertically edgewise.

20. In a pedal-action, the combination with a pedal, of a lever connected at one end with a pedal and adapted for connection at its other end with the mechanism which the pedal controls, said lever being made of truss shape, and embodying a strut which constitutes an integral portion of the fulcrum of the lever.

21. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, said lever being made of truss shape, comprising an upper tension member and a lower compression member, and a strut extending between the compression and tension members and comprising an integral part of the fulcrum of the lever.

22. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, said lever being made of truss shape, and comprising a single strip of metal which is bent to form at its central part a tension member and at its end parts a compression member, and a strut connecting the tension and compression members and comprising an integral part of a combined restoring-spring and fulcrum for the lever

23. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, of a restoring-spring for the lever provided with a shank which constitutes a structural part of said lever.

24. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, of a restoring and fulcrum spring for the lever, said spring being provided at its lower end with a foot and at its upper end with a laterally-turned part by which it is attached to the lever and extending in the same direction as the foot.

25. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, and a spring embracing a shank which is attached to the lever, and a lower foot portion, one of said parts of the spring being provided with an auxiliary curved portion by which is enhanced the resiliency of the spring.

26. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, of a restoring and fulcrum spring for the lever, said spring being provided at its lower end with a foot and at its upper end with a laterally-turned part by which it is attached to the lever and extending in the same direction as the foot, and the spring embracing as a part of one of its members an auxiliary curved portion acting to enhance the resiliency of the spring.

27. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the pedal controls, said lever comprising an upper tension member and a lower compression member, and a restoring-spring constituting also the fulcrum for the lever comprising a shank which is provided at its lower end with an attaching-foot, and at its other end with a laterally-turned part extending in the same direction as the foot and adapted for connection with the tension member, the compression member being attached to the shank of said spring and one of the parts of the spring being provided with an outwardly-curved portion which enhances the resiliency of the spring.

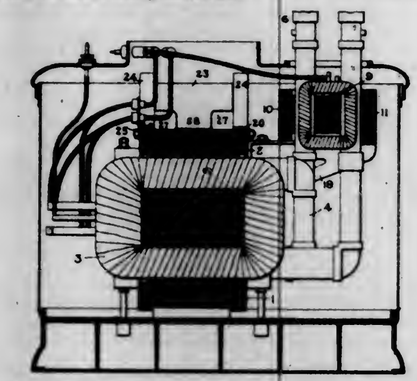
28. In a pedal-action for pianos, the combination with a pedal, of a lever connected at one end with the pedal and adapted for connection at its other end with the mechanism which the piano controls, comprising an upper tension member and a lower compression member, and a restoring and fulcrum spring provided with a laterally-turned attaching-foot and with a shank which is connected at its upper end with the tension member and near its lower end with the compression member, the shank of the spring being joined to the foot portion by an outwardly-curved part.

29. In a pedal-action for pianos, the combination with two pedals, of two levers connected with said pedals and extending in the same direction therefrom, and adapted for connection at their other ends with the mechanism which the pedals control, and restoring and fulcrum springs for said levers, each comprising a shank which is attached to the lever and a laterally-extending attaching-foot, the feet of the two springs being joined by an integral connecting part.

30. In a pedal-action for pianos, the combination with the pedal-levers, of two restoring and fulcrum springs for two of the levers, the two springs being made of a single strip of metal and having parts comprising component parts of said levers.

785,970. **MEANS FOR REGULATING ELECTRIC CIRCUITS.** WALTER S. MOODY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 26, 1902. Serial No. 117,099.

Claim.—1. The combination of a main transformer, an auxiliary transformer arranged so that one of its current-carrying members includes incoming and outgoing leads of one of the windings of the main transformer, and means for varying the current in the other member of the auxiliary transformer.



2. The combination of a main transformer, an auxiliary transformer arranged so that its secondary member forms a continuation of incoming and outgoing leads of the secondary member of the main transformer, and means for supplying the primary of the auxiliary transformer with current variable in amount and reversible in polarity.

3. The combination of a main transformer, an auxiliary transformer arranged so that its secondary member forms a continuation of the leads of the secondary member of the main transformer, and connections between the primary of the auxiliary transformer and points in the primary winding of the main transformer.

4. The combination of a transformer having low-potential and high-potential windings, leads extending from the low-potential winding, a core of magnetic material located around said leads, and a primary winding carried by said core in inductive relation to said leads.

5. The combination of a transformer having low-potential and high-potential windings, leads extending from the low-potential winding, a core of magnetic material located around said leads, a primary winding carried by said core in inductive relation to said leads, and means for supplying said primary winding with current of variable voltage.

6. The combination of a transformer having a high-potential and low-potential windings, a plurality of pairs of leads extending from the low-potential winding and constituting terminals of portions of said winding whereby the said portions may be connected in series or in multiple or otherwise as desired, a core of magnetic material arranged in proximity to said terminals or leads, and an inducing-winding on said core in inductive relation to said leads.

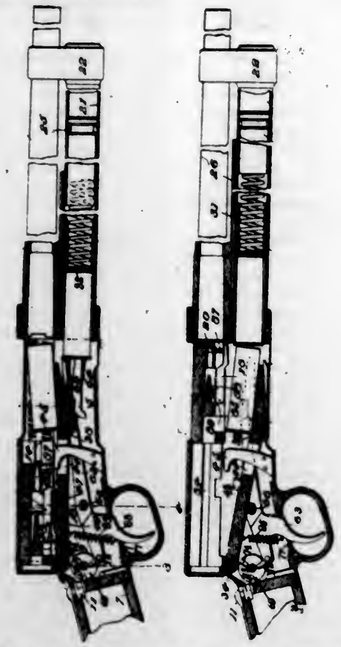
7. The combination of a transformer having a winding formed of portions the interconnection of which may be varied, leads for said portions, and means for inducing in said leads a regulating electromotive force or electromotive forces.

8. The combination of a transformer having a magnetic core upon which are mounted high-potential and low-potential windings, terminals or extensions for one of said windings, a core of magnetic material arranged in proximity to said terminals or extensions and mechanically supported by the structure of the transformer, and a regulating winding in inductive relation to said terminals or extensions.

785,971. GAS-ACTUATED MAGAZINE-GUN. SAMUEL N. MCCLEAN, Cleveland, Ohio. Filed Dec. 12, 1901. Serial No. 85,688.

Claim.—1. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block, a gas-driven slide engaging said block to reciprocate and rotate it to open and close the breech, a magazine-tube beneath the barrel, and a cartridge-carrier receiving cartridges from the magazine and actuated by said slide while under the influence of the gases of discharge to present said cartridges to the breech of the barrel.

2. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block, a gas-driven slide engaging said block to reciprocate and rotate it to open and close the breech, a tubular magazine beneath the barrel, and a cartridge-carrier engaged by said slide to elevate it while under the influence of the gases of discharge and depress it on the return movement.



3. In a gun, the combination of a barrel, a breech-block, a magazine-tube beneath the barrel and communicating at its forward end with the bore thereof, a piston and a cartridge-follower in the magazine-tube, a spring interposed between said piston and follower and operative connections between said piston and breech-block.

4. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block, a magazine-tube beneath the barrel and communicating at its forward end with the bore thereof, a piston and a cartridge-follower in the magazine-tube, a spring interposed between said piston and follower and operative connections between said piston and breech-block.

5. In a gun, the combination of a barrel, a breech-block, a magazine, and a cartridge-carrier, with a gas-actuated slide engaging and operating the breech-block and carrier while under the influence of the gases of discharge.

6. In a gun, the combination of a barrel, a breech-block, a magazine, and a cartridge-carrier, with a gas-actuated slide having a cam engagement with the breech-block and a cam engagement with the carrier, whereby said block and carrier are actuated by the slide while it is under the influence of the gases of discharge.

7. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block, a magazine, and a cartridge-carrier, with a gas-actuated slide engaging and operating the breech-block and carrier while it is under the influence of the gases of discharge.

8. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block, a magazine, and a cartridge-carrier, with a gas-actuated slide having a cam engagement with the breech-block and a cam engagement with the carrier, whereby said block and carrier are actuated by the slide while it is under the influence of the gases of discharge.

9. In a gun, the combination of a barrel, a breech-block, a magazine, and a cartridge-carrier, with a gas-actuated slide engaging and operating the breech-block and carrier while under the influence of the gases of discharge, and means positively clamping the cartridge in the carrier during the movement of the carrier from the magazine to the barrel.

10. In a gun, the combination of a barrel, a breech-block, a magazine, and a carrier oscillating between the magazine and barrel, and a gas-actuated slide operatively connected to the block and having a cam engagement with the carrier, whereby the latter is actuated by the movement of the slide while under the influence of the gases of discharge.

11. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block carrying extractors, an ejector pivoted to the breech-block, an abutment in the path of the ejector when the block is moved rearward, a magazine, a pivoted cartridge-carrier oscillating between the magazine and the barrel, and a gas-actuated slide operatively connected to the breech-block and carrier.

12. In a gun, the combination of a barrel, a reciprocatory and rotary breech-block, cartridge-extracting means mounted on the block, an ejector pivoted to the block, an abutment in the path of the rearward movement of the ejector and a gas-actuated slide operatively connected to said breech-block.

13. In a gun, the combination of a barrel, a breech-block and a magazine, with a cartridge-carrier, and a gas-actuated slide having a cam acting to shift the carrier from the magazine to the barrel as the slide is driven rearward by the gases of discharge.

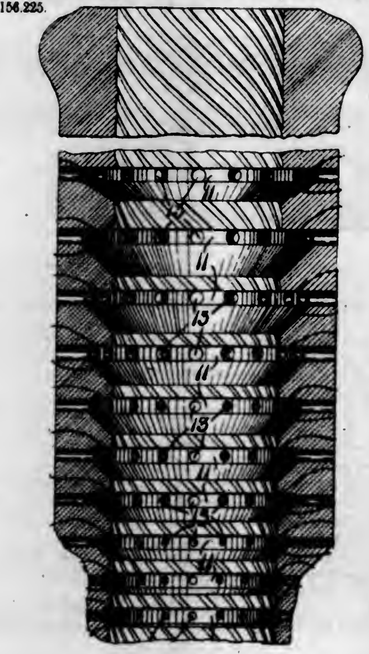
14. In a gun, the combination of a barrel, a breech-block and a magazine under the barrel, with a pivoted cartridge-carrier and a gas-actuated slide having a cam engaging the carrier to elevate it from the magazine to the barrel and a reverse cam engaging the carrier to depress it from the barrel to the magazine.

15. In a gun, the combination of a barrel, a breech-block, a magazine, and a cartridge-carrier, with a bifurcated gas-actuated slide operatively engaging the carrier on opposite sides thereof as it moves rearward under the influence of the gases of discharge and also operatively engaging the breech-block.

16. In a gun, the combination of a barrel, a breech-block, a magazine, a cartridge-carrier, with a bifurcated gas-actuated slide having cam engagement with the carrier on opposite sides thereof as it moves rearward under the influence of the gases of discharge and also operatively engaging the breech-block.

17. In a gun, the combination of a receiver, a barrel, a breech-block and a magazine, with a cartridge-carrier oscillating between the magazine and barrel, a bifurcated gas-actuated slide whose bifurcations travel in ways on the walls of the receiver, cam engagements between the bifurcations of the slide and the carrier as the slide moves rearward under the influence of the gases of discharge and a cam engagement between the slide and the breech-block.

785,972. MEANS FOR PREVENTING RECOIL OF GUNS. SAMUEL N. MCCLEAN, Cleveland, Ohio. Filed May 8, 1903. Serial No. 156,225.



Claim.—1. A gun-barrel having a plurality of interior circumferential grooves and lateral vents extending through the walls of the barrel from said grooves.

2. A gun-barrel formed with a plurality of grooves on its interior surface near but to the rear of the muzzle, and lateral vents extending through the barrel in proximity to said grooves.

3. A gun-barrel provided on its interior with a series of resistance-surfaces for the powder-gases, associated with a series of vents in proximity to each surface of resistance, the aggregate areas of the several series of vents decreasing from the muzzle rearward.

4. A gun-barrel provided with a plurality of rearwardly-facing surfaces on its interior, and a plurality of vents in proximity to each surface.

5. A gun-barrel having a plurality of rearwardly-facing surfaces disposed on its interior in planes normal to the axis of the barrel, and a plurality of vents in proximity to each surface.

6. A gun-barrel provided with a plurality of rearwardly-facing surfaces on its interior, and a plurality of radial vents in proximity to each surface.

7. A gun-barrel having a plurality of rearwardly-facing surfaces disposed on its interior in planes normal to the axis of the barrel and a plurality of radial vents in proximity to each surface.

8. A gun-barrel having a plurality of rearwardly-facing resistance-surfaces on its interior; the areas of the several surfaces decreasing from the muzzle rearward.

9. A gun-barrel having a plurality of rearwardly-facing resistance-surfaces on its interior, the areas of the several surfaces decreasing from the muzzle rearward and a plurality of vents in proximity to each resistance-surface.

10. A gun-barrel having a plurality of rearwardly-facing resistance-surfaces on its interior, the areas of the several surfaces decreasing from the muzzle rearward and a plurality of vents in proximity to each resistance-surface, the aggregate area of the vents associated with the respective surfaces decreasing from the muzzle rearward.

11. A gun-barrel having a series of annular rearwardly-facing surfaces on its interior, the area of each surface being less than the one in front of it, and a series of vents located to the rear of each surface.

12. A gun-barrel having a series of annular rearwardly-facing surfaces on its interior, the area of each surface being less than the one in front of it, and a series of vents located to the rear of each surface, the aggregate area of each series of vents being less than that of the series next in front of it.

13. A gun-barrel having a series of annular grooves formed on its interior near the muzzle, each of said grooves being of less diameter than the one immediately in front of it, and the forward surface of the grooves being normal to the axis of the gun while the rear surface is inclined at an angle thereto.

14. A gun-barrel having a rifle-groove on its interior, a second groove on its interior extending across the rifle-groove, and vents extending through the walls of the barrel.

15. A gun-barrel having a series of resistance-surfaces formed on its interior, the areas of the several surfaces increasing from one end of the series to the other.

16. A gun-barrel having a series of vents formed in its walls the cross-sectional area of the vents in the series increasing from one end of the series to the other.

17. A gun-barrel having a series of resistance-surfaces formed on its interior, and a series of vents associated therewith, the areas of the several surfaces increasing from one end of the series to the other and the cross-sectional area of the vents in the series increasing from one end of the series to the other.

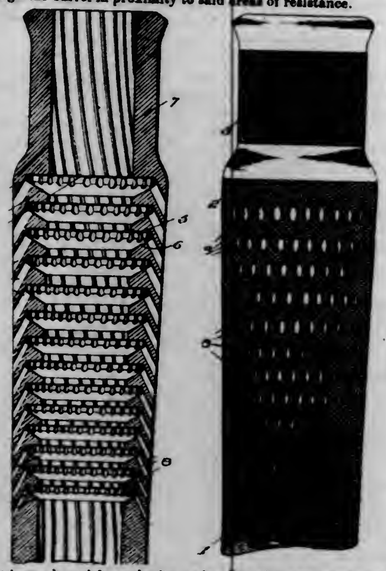
18. A gun-barrel having a series of resistance-surfaces formed on its interior, and vents associated with said surfaces, the combined cross-sectional area of the vents associated with any one surface of the series being less than the combined cross-sectional area of the vents associated with the surface next above it in the series.

785,973. DEVICE FOR COUNTERACTING RECOIL IN GUNS. SAMUEL N. MCCLEAN, Cleveland, Ohio. Filed Jan. 26, 1904. Serial No. 190,741.

Claim.—1. A gun-barrel having interior circumferential areas of resistance to the flow of the gases of discharge and rearwardly-inclined lateral vents extending through the walls of the barrel from points adjacent to, but to the rear of said areas of resistance.

2. A gun-barrel having interior circumferential grooves and rearwardly-inclined lateral vents extending through the walls of the barrel from said grooves.

3. A gun-barrel formed with areas of resistance to the forward flow of the gases of discharge on its interior surface near, but to the rear of the muzzle, and rearwardly-inclined lateral vents extending through the barrel in proximity to said areas of resistance.



4. A gun-barrel formed with a plurality of grooves on its interior surface near, but to the rear of the muzzle, and rearwardly-inclined lateral vents extending through the barrel in proximity to said grooves.

5. A gun-barrel provided with a plurality of resistance-surfaces for the powder-gases, associated with a series of rearwardly-inclined lateral vents in proximity to said resistance-surfaces, the aggregate area of the several series of vents decreasing from the muzzle rearward.

6. A gun-barrel provided with a plurality of rearwardly-facing surfaces on its interior, and a plurality of rearwardly-inclined vents in proximity to said surfaces.

7. A gun-barrel having a plurality of rearwardly-facing surfaces disposed on its interior in planes substantially normal to the axis of the barrel, and a plurality of rearwardly-inclined vents in proximity to said surfaces.

8. A gun-barrel provided with a plurality of rearwardly-facing surfaces on its interior, and a plurality of rearwardly-inclined symmetrically-arranged vents in proximity to said surfaces.

9. A gun-barrel having a plurality of rearwardly-facing resistance-surfaces on its interior, the areas of the several surfaces decreasing from the muzzle rearward, and rearwardly-inclined vents in proximity to said surfaces.

10. A gun-barrel having a plurality of rearwardly-facing resistance-surfaces on its interior, the areas of the several surfaces decreasing from the muzzle rearward, and a plurality of rearwardly-inclined vents in proximity to said resistance-surfaces, the aggregate area of the vents associated with the respective surfaces decreasing from the muzzle rearward.

11. A gun-barrel having a plurality of annular rearwardly-facing surfaces on its interior, the area of each surface being less than that of the one in front of it, and a series of rearwardly-inclined vents located to the rear of each surface

12. A gun-barrel having a plurality of annular rearwardly-facing surfaces on its interior, the area of each surface being less than that of the one in front of it, and a series of rearwardly-inclined vents located to the rear of each surface, the aggregate area of each series of vents being less than that of the series next in front of it.

13. A gun-barrel having a plurality of annular grooves formed on its interior near the muzzle, each of said grooves being of less depth than the one immediately in front of it, and the forward surface of the grooves being normal to the axis of the gun, while the rear surface is inclined at an angle thereto, and rearwardly-inclined vents in proximity to said surfaces.

14. A gun-barrel having a series of spirally-arranged rearwardly-inclined vents in the walls thereof.

15. A gun-barrel having a plurality of resistance-surfaces formed on its interior, and a spirally-arranged series of rearwardly-inclined vents each of which is in proximity to one of said resistance-surfaces.

16. A rifled gun-barrel having a plurality of resistance-surfaces formed on its interior, and a plurality of rearwardly-inclined vents in the walls of the gun opposite the grooves of the rifling.

17. A gun-barrel having several series of rearwardly-inclined vents formed in its walls, the vents of each series being symmetrically arranged in a plane at right angles to the bore of the gun.

18. A gun-barrel having several series of rearwardly-inclined vents formed in its walls, the angle of inclination of the vents of one series differing from the angle of inclination of the vents of another series.

19. A gun-barrel having a plurality of series of rearwardly-inclined vents formed in its walls, the angle of inclination of the vents of any series being less than the corresponding angle of the series of vents adjacent thereto on its muzzle side.

20. A gun-barrel having a series of rearwardly-inclined vents in the walls thereof, and a second series of rearwardly-inclined vents between the muzzle and the first-named series, the angle of inclination of the vents of the first series being less than that of the second.

21. A gun-barrel having its walls thickened near its muzzle portion and an interior circumferential groove formed in said thickened portion with lateral vents leading through said portion.

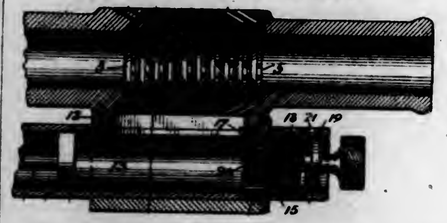
22. A gun-barrel having its walls thickened near its muzzle portion and an interior circumferential groove formed in said thickened portion with lateral rearwardly-inclined vents leading through said portion.

23. A gun-barrel having its walls gradually thickened near the muzzle and a series of interior circumferential grooves the grooves of the series gradually increasing in depth with the increase in the thickness of the walls, and lateral vents associated with said grooves, the cross-sectional areas of said vents gradually increasing as the thickness of the walls and the depth of the grooves increase.

24. A gun-barrel having a groove on its interior and a series of obliquely-inclined vents leading through the walls of the gun from said groove.

25. A gun-barrel having a groove on its interior and a series of rearwardly-inclined vents leading through the walls of the gun from said groove.

785,974. GAS-OPERATED GUN. SAMUEL N. MCCLEAN, Cleveland, Ohio. Filed Feb. 17, 1904. Serial No. 193,972.



Claim.—1. In a gun, a gas-cylinder, a barrel having resistance-surfaces formed on its interior, vent-ports associated with said surfaces, some of said ports venting into the gas-cylinder and some of them to the atmosphere.

2. In a gun, a gas-cylinder, a barrel having resistance-surfaces formed on its interior, and rearwardly-inclined vent-ports formed in the walls of the barrel and associated with said surfaces and venting into said cylinder.

3. In a gun, a gas-cylinder, a barrel having resistance-surfaces formed in its interior, and vent-ports symmetrically arranged around the gun-barrel, some of said ports venting to the cylinder and some of them to the atmosphere.

4. In a gun, a gas-cylinder, a barrel having resistance-surfaces formed on its interior, and rearwardly-inclined vent-ports symmetrically arranged around the gun-barrel, some of said ports venting to the cylinder and some of them to the atmosphere.

5. In a gun, a barrel, a gas-cylinder, a piston therein, and means interrupting and deflecting a portion of the gas-current into said cylinder and a portion into the atmosphere.

6. In a gun, a barrel, a gas-cylinder, a piston therein, means interrupting and deflecting a portion of the gas-current into said cylinder and a portion into the atmosphere, and means limiting the pressure in said cylinder.

7. In a gun, a gas-cylinder, a barrel having interior circumferential grooves and rearwardly-inclined lateral vents extending through the walls of the barrel from said grooves to said cylinder.

8. In a gun, a gas-cylinder, a barrel having interior circumferential grooves and rearwardly-inclined lateral vents extending through the walls of the barrel from said grooves to said cylinder, and other rearwardly-inclined lateral vents extending through the walls of the barrel from said grooves to the atmosphere.

9. In a gun, a gas-cylinder, a barrel having interior circumferential grooves and lateral vents extending through the walls of the gun-barrel from said grooves to said cylinder, and other lateral vents extending through the walls of the gun-barrel to the atmosphere.

10. In a gun, a gas-cylinder, a barrel having a plurality of rearwardly-facing surfaces on its interior, and a plurality of lateral vents in proximity to said surfaces and leading from the interior of said barrel to said cylinder, and a plurality of other lateral vents leading from the interior of the barrel in proximity to said surfaces to the atmosphere.

11. In a gun, a gas-cylinder, a barrel having a plurality of rearwardly-facing surfaces disposed on its interior in planes substantially normal to the axis of the barrel, and a plurality of rearwardly-inclined vents passing through the walls of the barrel in proximity to said surfaces, and leading from the interior of the barrel to the gas-cylinder.

12. In a gun, a gas-cylinder, a barrel having a plurality of rearwardly-facing surfaces disposed on its interior in planes substantially normal to the axis of the barrel, and a plurality of rearwardly-inclined vents in proximity to said surfaces, some of said vents leading from the interior of the barrel to the gas-cylinder and some of them leading from the interior of the barrel to the atmosphere.

13. In a gun, a gas-cylinder, and a barrel having several series of lateral vents formed in its walls, the vents of each series being arranged in a plane substantially at right angles to the axis of the barrel, some of the vents leading to the gas-cylinder and some of them to the atmosphere.

14. In a gun, a gas-cylinder, and a barrel having several series of rearwardly-inclined lateral vents formed in its walls, the vents of each series being symmetrically aranged in a plane substantially normal to the bore of the gun, some of said vents emptying to the atmosphere and some of them to said cylinder.

15. In a gun, a gas-cylinder, a barrel having its walls thickened near its muzzle, and a flange-and-groove connection between said thickened barrel portion and said gas-cylinder.

16. In a gun, a gas-cylinder, a barrel having a thickened portion near the muzzle with longitudinally-extending grooves formed therein, and means supporting said cylinder and having flanges engaging said grooves.

17. In a gun, a barrel having means reducing the gas energy within the barrel, a cylinder communicating with the bore of the barrel, and an automatic pressure-relief device connected to said cylinder.

18. In a gun, a barrel having its walls thickened near the muzzle, interior grooves and vent-ports formed in said thickened portion, and a gas-cylinder secured to said thickened portion and communicating with the gun-bore.

19. In a gun, a barrel having its walls thickened near the muzzle, interior grooves and vent-ports formed in said thickened portion, the barrel being prolonged in front of said grooves and ports, and a gas-cylinder secured to said thickened portion and communicating with the gun-bore.

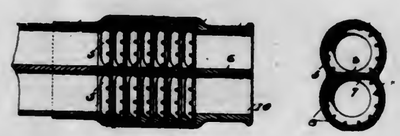
20. In a gun, a barrel having a thickened portion near its muzzle, dovetailed grooves in said thickened portion open at their rear ends and having abutments at their front ends, a gas-cylinder, and cylinder-supporting means having flanges entering said grooves and bearing against said abutments.

785,975. MEANS FOR CONTROLLING THE RECOIL AND MUZZLE-BLAST OF GUNS. SAMUEL N. MCCLEAN, Cleveland, Ohio. Filed July 1, 1904. Serial No. 214,906.

Claim.—1. A gun-barrel having an area of resistance to the gas-current on its interior, vents associated with said areas and a contraction or "choke" of the bore in advance of said area of resistance.

2. A gun-barrel having an area of resistance to the gas-current on its interior, and a plurality of vents associated with said area of resistance and a contraction or "choke" of the bore in advance of said area of resistance.

3. A gun-barrel having an area of resistance to the gas-current on its interior, a plurality of rearwardly-inclined vents associated with said area of resistance and a contraction or "choke" of the bore in advance of said area of resistance.



4. A gun-barrel having an area of resistance to the gas-current on its interior, a plurality of radially-inclined vents associated with said area of resistance, and a contraction or "choke" of the bore in advance of said area of resistance.

5. A gun-barrel having an area of resistance to the gas-current on its interior, a plurality of rearwardly-inclined vents and a plurality of radial vents associated with said area of resistance, and a contraction or "choke" of the bore in advance of said area of resistance.

6. A double-barreled gun having a plurality of areas of resistance in each barrel, said areas in the two barrels being in staggered relation to each other.

7. A double-barreled gun having a plurality of areas of resistance in each barrel, said areas in the two barrels being in staggered relation to each other, and lateral vents associated with said areas of resistance.

8. A double-barreled gun having a plurality of areas of resistance in each barrel, said areas in the two barrels being in staggered relation to each other, and radial lateral vents associated with said areas of resistance.

9. A double-barreled gun having a plurality of areas of resistance in each barrel, said areas in the two barrels being in staggered relation to each other, and rearwardly-inclined lateral vents associated with said areas of resistance.

10. A double-barreled gun having a plurality of areas of resistance in each barrel arranged in staggered relation to each other in the two barrels, and a plurality of alternately-arranged radial and rearwardly-inclined vents associated with said areas of resistance.

11. A gun-barrel having an area of resistance formed on its interior and a plurality of alternately-arranged radial and rearwardly-inclined vents associated with said area of resistance.

12. A gun-barrel having a groove on its interior said groove being flattened or having its depth decreased on one side of the barrel.

13. A gun-barrel having an area of resistance to the gas-current on its interior, said area being in the form of a groove flattened or of decreasing depth on opposite sides of the barrel.

14. A gun-barrel having a groove on its interior said groove being flattened or having its depth decreased on one side of the barrel, and a plurality of vents associated with said area of resistance.

15. A gun-barrel having an area of resistance to the gas-current on its interior, said area being in the form of a groove flattened or of decreasing depth on opposite sides of the barrel, and a plurality of vents associated with said area of resistance.

16. A double-barreled gun having an area of resistance on the interior of one of its barrels, said area diminishing in cross-sectional area adjacent to the midrib or metal between the barrels.

17. A double-barreled gun having an area of resistance in the form of a groove on the interior of each barrel, said grooves diminishing in depth adjacent the midrib or metal between the barrels.

18. A double-barreled gun having an area of resistance on the interior of each barrel and a vent associated with each area of resistance and passing through the midrib or metal between the barrels.

19. A double-barreled gun having a plurality of areas of resistance to the gas-current on the interior of each barrel, said areas being in staggered relation in the two barrels, and a vent associated with each area of resistance and passing through the midrib or metal between the barrels.

20. A gun-barrel having a plurality of areas of resistance to the gas-current on its interior and a plurality of vents associated with said areas, some of the vents directing jets of escaping gas across or at an angle to jets escaping from other vents.

21. A gun-barrel having a plurality of areas of resistance to the gas-current formed on its interior wall, and a plurality of vents associated with said areas of resistance, vents associated with one of said areas directing the escaping gas at an angle to the line of direction of gas escaping from vents associated with an area of resistance to the rear of said first area of resistance.

785,976. DUST-GUARD FOR JOURNAL-BOXES. JAMES S. PATTEN, Baltimore, Md. Filed May 31, 1904. Serial No. 210,560.



Claim.—1. A dust-guard for use on journal-boxes, comprising a single board perforated to snugly fit the axle and provided with grooves at the top and bottom extending laterally thereof substantially the width of said board, in combination with transversely-extending resilient metallic strips let into said grooves and bent over inwardly toward each other at their ends to form resilient arms adapted to engage said journal-box at their extreme ends only for forming a pivotal connection therebetween, substantially as described.

2. A dust-guard for use in journal-boxes comprising a board perforated to fit snugly over the axle, and provided with openings extending laterally of the top and bottom of said board, and inwardly-disposed notches adjacent the ends of said openings, in combination with resilient strips embedded within said openings, extending longitudinally therethrough and having their ends bent into said notches and projecting inwardly toward each other to form resilient arms adapted to engage said journal-box and form a pivotal connection therewith, substantially as described.

3. A dust-guard for use in journal-bearings, comprising a wooden board perforated to fit snugly over the axle, with grooves in the top and bottom of said board, and notches at the ends of said grooves, and a resilient strip secured in each of said grooves and having its ends bent into said notches and inwardly toward the center of the board to form resilient arms, substantially as described.

4. The combination with a journal-box provided with a recess for the dust-guard, said recess having parallel walls transverse to the axle, of a dust-guard comprising a board perforated to snugly fit the axle and provided with openings extending transversely of the top and bottom thereof, substantially the width of said board, resilient metallic strips embedded in said openings and extending longitudinally therealong and bent upon themselves at their ends to form resilient arms projecting inwardly toward each other on the inner face of said board, the said resilient arms bearing at their free ends only against the inside face of one of the walls of said recess for forming a pivotal connection therewith, and pressing said board against the other wall, substantially as described.

5. The combination with a journal-box provided with a recess for the dust-guard, said recess having parallel walls transverse to the axle, of a dust-guard comprising a wooden board perforated to snugly fit the axle and provided with grooves at the top and bottom, extending laterally thereof, substantially the width of said board, and transversely-extending resilient metallic strips let into said grooves and bent over inwardly at the ends to form resilient arms, the said resilient arms bearing at their free ends only against the inside face of one of the walls of said recess for forming a pivotal connection therewith, and pressing said board against the other wall, substantially as described.

6. The combination with a journal-box provided with a recess for the dust-guard, said recess having parallel walls transverse to the axle, of a dust-guard comprising a wooden board perforated to fit snugly over the axle, with grooves in the top and bottom of said board, and notches at the ends of said grooves, and a resilient strip secured in each of said grooves and having its ends bent into said notches and inwardly toward the center of the board to form resilient arms, the said resilient arms bearing against one of the walls of said recess at their free ends only, and pressing said board against the other wall, substantially as described.

785,977. HORSE-BOOT. GEORGE W. PHILLIPS and WILLIAM H. WAY, Cleveland, Ohio. Filed June 16, 1904. Serial No. 212,826.

Claim.—1. A horse foot-pad provided with projections top and front to confine the hoof of the foot at the front and a pair of perforated studs centrally on the rear portion of the pad, in combination with a bracket and a screw engaged through said bracket centrally and said perforated studs, said bracket constructed with raised end projections to engage over the ends of a horseshoe, substantially as described.



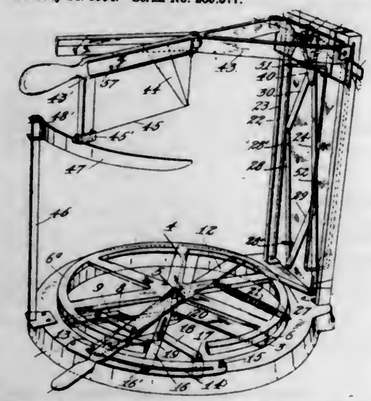
2. In foot-pads for horses, a pad having spurs at its front and top to engage upon the hoof of the horse, and a set of studs centrally at its rear and spaced apart, in combination with a bracket on the rear of the pad, and a screw loosely engaged through said bracket and threaded through one of said studs, and a device between said studs on said screw having its ends lapping over upon the sides of the bracket, substantially as described.

3. In foot-pads for horses, a pad having a pair of studs at its center and rear provided with holes horizontally, in combination with a bracket having parallel sides extending past said studs and raised lateral projections at its rear to engage over the ends of the horse's shoe, a screw through said bracket and studs, and a device on said screw between said studs overlapping the parallel sides of the bracket, substantially as described.

4. In foot-pads for horses, a pad having inclined spurs at its front to engage over the hoof of the foot and a set of studs centrally at its rear and a depression with parallel side walls at the sides of said spurs, in combination with a bracket having side extensions resting between said side walls and studs and a screw through said bracket and studs, and means between said studs on said screw to hold the said extensions down on the pad, said bracket having raised side projections to engage over the ends of the horse's shoe, substantially as described.

5. A horse foot-pad provided with means at its front to engage upon the front of the foot of the horse and means at its rear to confine the pad on the foot, said means comprising a pair of separate studs centrally on the pad at its rear, a bracket resting on the pad transversely at its rear and provided with raised extremities and inclined shoulders at the base of said extremities, and a screw through said bracket and located in said pair of studs, substantially as described.

785,978. BUTTER-CUTTER. CHARLES P. ROSS, Seattle, Wash. Filed May 24, 1904. Serial No. 209,577.



Claim.—1. In a machine for cutting butter, in combination with a vertically-swinging support, a cutter hinged thereto for an angular swing independent thereof, said cutter having vertical and horizontal cutting edges, the vertical edge being in alinement with the point of swing.

2. In a machine for cutting butter, in combination with a support, a cutter-frame hinged thereto, and a cutting-wire having one end secured to the outer end of the frame and a portion of its length held by the support in line with the point of swing of the frame.

3. In a machine for cutting butter, in combination with a support, a cutter-frame having a hinged connection therewith, a depending stationary finger secured to the support, and a wire engaging said finger and having one end secured at a point in alinement with the inner portion of the cutter-frame and the other end secured to the outer portion of said frame.

4. In a machine for cutting butter, in combination with a support, a cutter-frame hinged thereto and being provided with a cutter, and a depending finger secured to the support, said cutter being secured to said frame and engaged at an intermediate point with said finger.

5. In a machine for cutting butter, a cutter comprising a frame, and a cutter-wire disposed to form a plurality of cutting edges extending at an angle to each other, in combination with a means for supporting the wire at the point of angle.

6. In a machine for cutting butter, a support, a swinging cutter-frame hinged thereon, a relatively fixed inclined finger having its lower end in line with the point of swing of said frame, and a wire engaged with the lower end of said finger and having one end secured at the point of swing and the other to the outer portion of said frame.

7. In a machine for cutting butter, in combination with a support, a cutter-frame embodying a top bar hinged at one end to said support, and a depending bar secured to the other end of said top bar, a cutter-wire having angularly-disposed cutting edges, and means carried by said support for supporting the wire at the point of angle.

8. In a machine for cutting butter, in combination, a rotary platform, a vertically-movable support arranged thereabove, and a cutter of open form hinged to said support and having vertical and horizontal cutting edges, the vertical edge being in alinement with the center of the platform.

9. In a machine for cutting butter, a perpendicular frame, a carrier slidably supported thereon, a support mounted on said carrier for independent vertical movement, and a swinging cutter connected with said support, in combination with a rotary platform having its center in alinement with the inner edge of said cutter

10. In a machine for cutting butter, in combination, an adjustable cutter, a movable platform, means for moving the same, an indicator for indicating the movement of said platform relative to the adjustment of the cutter, and means for moving said indicator as the cutter is adjusted.

11. In a machine for cutting butter, in combination with a vertically-adjustable cutter, an intermittently-rotated means underlying the same, means for rotating the said means, an indicator for determining the movement of said means, and means for moving said indicator as the cutter is adjusted.

12. In a machine for cutting butter, in combination, a rotary platform, a cutter spaced from the platform and movable in concentric relation thereto, means whereby the space between said cutter and platform is varied, an operating-handle for moving said platform, and means to indicate the variations of the movement of said handle relative to the position of the cutter to the platform.

13. In a machine for cutting butter, a rotary platform, a handle for moving the same, an indicator means for controlling the throw of said handle, a cutter adjustable to and from the platform, and means whereby the indicator means is adjusted when the cutter is thus adjusted.

14. In a machine for cutting butter, a rotary platform, a cutter adjustable to and from the platform, means whereby the platform is rotated, indicators disposed on opposite sides of said means, and means for adjusting one indicator to and from the other as the cutter is adjusted.

15. In a machine for cutting butter, a platform mounted for rotation, a movable handle, means whereby the platform moves with said handle in one direction, said handle moving independently of the platform in the reverse direction, a cutter adjustable to and from the platform, and means adjustable simultaneously with the cutter as adjusted for indicating variations in the maximum throw of the handle.

16. In a machine for cutting butter, in combination, a perpendicular frame, a carrier adjustable longitudinally thereof, a support movable with said carrier, a cutter carried by said support and having a movement independent thereof, and an adjustable track for supporting the free end of said cutter during its independent movement.

17. In a machine for cutting butter, in combination with a support, a cutter hinged at its inner end thereto, and a track for supporting the outer end of said cutter during its swinging movement.

18. In a machine for cutting butter, in combination, a support and a track adjustable in similar planes, a cutter carried by said support and movable independently thereof, said cutter during its independent movement bearing on said track.

19. In a machine for cutting butter, in combination with a rotary platform, a support movable to and from the platform and extending thereacross and normally lying parallel thereto, and a cutter having a hinged connection with said support whereby it is capable of an independent movement, said hinged connection being in alinement with the center of the platform.

20. In a machine for cutting butter, in combination with a rotary platform, a support extending thereacross and being mounted for a swinging movement to and from the platform, and a cutter hinged to said support at a point in alinement with the center of the platform, whereby it can be swung independently of the support.

21. In a machine for cutting butter, in combination with a perpendicular frame, and an upright, a platform movable therebetween, a support adjustably mounted on said frame, a cutter on said support having a swinging movement independent thereof, and an adjustable track on said upright for supporting the free end of said cutter during its independent movement.

22. In a machine for cutting butter, in combination with a rotary platform, a handle for moving the same, an adjustable cutter mounted for vertical and horizontal cutting, and means whereby the throw of said handle is varied at different adjustments of the cutter.

23. In a machine for cutting butter, in combination with a rotary platform, a cutter adjustable to and from the platform, a handle for moving said platform, an indicator for indicating the maximum throw of said handle, means whereby said indicator is adjusted by the adjustment of the cutter, and means for manually setting said indicator to vary the maximum throw of said handle.

24. In a machine for cutting butter, in combination with a rotary platform, a handle for operating the same, an adjustable cutter, indicating means acting in conjunction with the cutter as adjusted for varying the maximum throw of the handle, and a means adjustable independently of the cutter for adjusting said indicating means.

25. In a machine for cutting butter, in combination, a rotary platform, a cutter adjustable to and from the same, an operating-handle for said platform, an indicating means for indicating the maximum throw of said handle, a set mechanism acting in conjunction with the cutter as adjusted for varying the set of the indicating means, and an auxiliary set mechanism operating in conjunction with the first-named set mechanism to adjust the position thereof when the cutter is in a predetermined position.

26. In a machine for cutting butter, a movable platform, means for indicating the movement thereof, a movable carrier, a cutter movable with said carrier, a set mechanism operatively connected to said means for moving the same, and means movable with said carrier for operating said set mechanism.

27. In a machine for cutting butter, a movable indicator, an adjustable carrier, and a set mechanism for operating said indicator controlled from said carrier, in combination with a cutter movable with said carrier, a rotatable platform, and means for rotating said platform, the movement of said last-named means being controlled by said indicator.

28. In a machine for cutting butter, a movable platform, a carrier adjustable to and from the platform, means for moving the platform, a movable indicator for indicating the movement of said means as the carrier is adjusted, a set mechanism operatively connected to said indicator, means disposed on the carrier for actuating said set mechanism as the carrier is adjusted and a manually-operative set mechanism connected to said first-named set mechanism for adjustment thereof and being adapted to coöperate with said means.

29. In a machine for cutting butter, in combination, a rotary platform, an operating-handle therefor, an indicating means for indicating the maximum throw of said handle, a movable carrier, a cutter carried thereby, a means for adjusting said indicating means, means for controlling said last-named means from the carrier, and means independent of said indicator-adjusting means acting in conjunction with said last-named means for increasing the movement of said indicator at a predetermined point in the travel of said carrier.

30. In a machine for cutting butter, a set mechanism, a movable carrier, a cutter mounted on the carrier, an adjustable means for controlling said set mechanism from the carrier, in combination with a rotary platform, an operating-handle therefor, and an indicating means acting in conjunction with said handle and being operated by said set mechanism.

31. In a machine for cutting butter, a movable carrier, a set mechanism operated by the carrier during its movement in one direc-

tion and adjustable independently thereof in the reverse direction, a gage for determining the set of said set mechanism, and means supported on the carrier acting in conjunction with said set mechanism, in combination with an indicator controlled by said set mechanism.

32. In a machine for cutting butter, in combination with a rotary platform, an operating-handle therefor, and a movable indicator acting in conjunction with said handle, a carrier adjustable to and from the platform, a cutting means mounted on the carrier, means for effecting a uniform adjustment of said indicator by the adjustment of the carrier, and means for varying the uniform adjustment of the indicator at a predetermined point of travel of the carrier.

33. In a machine for cutting butter, a set mechanism, a movable carrier, a cutter mounted thereon, a platform underlying the carrier, means for moving the platform, a movable indicator for indicating the movement of said platform as the carrier is moved, said indicator being connected to said set mechanism, a set-pin supported on the carrier for directly operating said set mechanism during a portion of the travel of the carrier, adjustable means acting in conjunction with said set-pin for moving said set mechanism during the remaining portion of the travel of the carrier, and means whereby the set mechanism is automatically reset to its normal position when said set-pin moves out of engagement with said adjustable means.

34. In a machine for cutting butter, a primary set mechanism and an auxiliary set mechanism operatively connected to, and disposed at one end thereof, a movable platform, a carrier adjustable to and from the platform, means for moving the platform, a movable indicator connected to the primary set mechanism, means supported on the carrier for adjusting said primary set mechanism as the carrier is adjusted, and being related to said auxiliary mechanism for varying the adjustment of the primary set mechanism, and means for returning said primary set mechanism to its normal set when said adjusting means passes out of operative relation to the auxiliary set mechanism

35. In a machine for cutting butter, in combination, an adjustable carrier, a cutter mounted thereon, a movable platform beneath the cutter, means for moving the same, a bar movable laterally of the carrier, means mounted on the carrier for moving said bar when the carrier is adjusted, and an indicator actuated by said bar for indicating the movement of the platform-moving means.

36. In a machine for cutting butter, an adjustable carrier, a rotary platform beneath the same, means for moving the platform, a cutter mounted on the carrier, an inclined bar movable laterally of the carrier, means for adjusting the inclination of said bar, means mounted on the carrier for moving said bar, and an indicator actuated by said bar for indicating the movement of said platform-moving means.

37. In a machine for cutting butter, an adjustable carrier, a movable bar arranged in juxtaposition thereto, a pin on the carrier engaging said bar for effecting the movement thereof when the carrier is adjusted, and an indicator actuated by said bar, in combination with a platform disposed beneath the carrier, a cutter mounted on said carrier, and a handle for moving said platform, the movement of said handle being indicated by said indicator.

38. In a machine for cutting butter, an adjustable carrier, a rotary platform beneath the same, a movable handle for operating the same, a bar movable laterally of the platform, a pin on said carrier engaged with said bar for moving the same, means for adjusting said pin laterally of the carrier, and an indicator actuated by said bar for indicating the throw of said handle.

39. In a machine for cutting butter, in combination with a rotary platform and a handle for moving the same, a movable indicator for indicating the throw of the handle, an adjustable carrier having a cutter mounted thereon, a bar operatively related to said indicator for moving the same and being movable laterally of the carrier, and means mounted on the carrier for moving said bar.

40. In a machine for cutting butter, a pair of indicators, one of which is movable relatively to the other, an adjustable carrier, an inclined movable bar for adjusting the movable indicator, and means mounted on the carrier for moving said bar when the carrier is adjusted in combination with a rotary platform, a handle for moving the platform, said handle extending between the indicators, and a cutter carried by the carrier.

41. In a machine for cutting butter, in combination with a movable platform, and a means for operating the same, a movable indicator for indicating the throw of said platform-moving means, an adjustable carrier, a cutter carried thereby, a bar movable laterally of the carrier and being operatively connected to said indicator for moving the same, a means mounted on the carrier for moving said bar, a wing pivoted to said bar for engagement with said means, means for adjusting said wing, and means for holding said wing in adjusted position.

42. In a machine for cutting butter, in combination with a movable platform, and a handle for operating the same, a movable indicator for indicating the movement of said handle, an adjustable carrier, a cutter mounted on the carrier, a movable bar for adjusting said indicator, a pin on the carrier, means for adjusting said bar relatively to the line of movement of the carrier, means for adjusting said pin, a wing pivoted to said bar for engagement with said pin, means for swinging said wing, a gage movable with said last means, and means for holding said last-named means in its adjusted position.

43. In a machine for cutting butter, in combination with a movable platform and a handle for operating the same, a movable indicator for indicating the throw of the handle, a movable bar, and means for setting the indicator embodying a wing pivoted to said bar, a means for swinging said wing, and a gage movable with said last-named means, in combination with an adjustable carrier and a means mounted on said carrier for engagement with said bar and wing respectively.

44. In a machine for cutting butter, in combination, a movable platform, means for moving the same, and an indicator for indicating the throw of said means, a set mechanism for moving said indicator, a gage for determining the set of said set mechanism, said gage having an open body, an adjustable carrier projecting therethrough and a cutter mounted on said carrier.

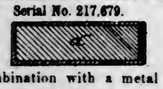
45. In a machine for cutting butter, in combination, a movable platform, means for moving the seam, an indicator for indicating the throw of said means, a set mechanism for moving said indicator, a gage for determining the set of said set mechanism, said gage having an approximately U-shaped body, and an outwardly-projecting arm secured thereto, an adjustable carrier projecting therethrough and a cutter mounted on said carrier.

46. In a machine for cutting butter, in combination with a movable platform and a handle for moving the same, a movable indicator for indicating the throw of the handle, a movable bar operatively connected thereto, a wing hinged to said bar, a lever operatively connected to said wing for swinging the same, and means for holding said lever in its adjusted position, in combination with an adjustable carrier, a pin mounted thereon for engagement with said bar and wing respectively for moving said bar, and a gage movable with said lever for indicating the movement thereof and being provided with a horizontally-projecting arm.

47. In a machine for cutting butter, a movable platform, a movable indicator for indicating the movement of the platform, a set mechanism operatively connected to the indicator, means for adjusting said set mechanism, and a gage movable with said means for determining the set of the set mechanism.

48. In a machine for cutting butter, a rotary platform, a handle for operating the same, a fixed indicator, a pair of pivoted arms, indicators mounted on the outer ends of said arms, said handle being disposed between the outer movable and stationary indicator, a pair of links having their inner ends slidably connected to the inner of said arms, and one link having its outer end connected to the outer movable indicator-arm, and the outer end of the other link engaging a fixed pivot.

785,979. METAL-PLATING. ALBERT SCHMIDT, Rome, N. Y. Filed July 22, 1904. Serial No. 217,679.

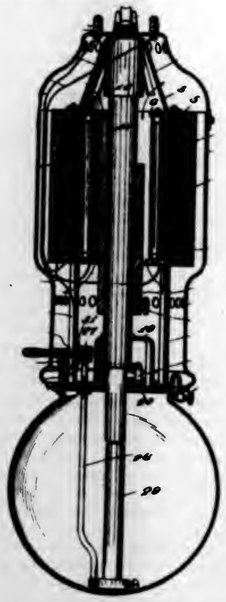


Claim.—The combination with a metal body, of a plating formed from a blank composed of a main portion covering two opposite sides and one end of the body to be plated; flaps of reduced thickness extending from the sides and ends of the main portion, each of said flaps being of a width equal to twice the thickness of the aforesaid body and folded hook shape and reverse from the hook of the opposite flap and interlocked therewith substantially as set forth and shown.

785,980. ELECTRIC-ARC LAMP. RALPH SCOTT, Wilkesbarre, Pa., assignor of one-half to Marcus A. Miller, New York, N. Y. Filed Oct. 14, 1903. Serial No. 177,011.

Claim.—1. In an arc-lamp, the combination with a plurality of carbon-supports and means for spacing the same apart, of a circuit for said supports, a helix interposed in said circuit for controlling said spacing means, and a resistance-bar interposed in the circuit and inclosed by said helix and spaced therefrom.

2. In an arc-lamp, the combination with a movable carbon-support and a fixed carbon-support, of a plunger on said movable support, a circuit for said carbon-supports, a helix interposed in said circuit and surrounding said plunger for controlling the position of the same, and a non-metallic resistance interposed in said circuit and positioned between said plunger and helix.



3. In an arc-lamp, the combination with a movable carbon-support and a fixed carbon-support, of a plunger carried by said movable support, a circuit for said support, a helix interposed in said circuit and surrounding said plunger for controlling the position of the same, and a bar of resistance material interposed in the circuit and arranged between said helix and plunger.

4. In an arc-lamp, the combination with a movably-mounted carbon-tube and a carbon-support beneath the same, of a circuit for said tube and support, a spool surrounding said tube, an internal, annular flange formed on said spool, a coil surrounding said spool and interposed in said circuit, and a non-metallic resistance carried by said flange interposed in the circuit.

5. In an arc-lamp, the combination with a movably-mounted carbon-tube and a carbon-support beneath the same, of a circuit for said tube and support, a spool surrounding said tube, an internal, annular flange upon the upper end of said spool, a bar of non-metallic, conductive material of high specific resistance secured to and depending from said flange and interposed in said circuit, and a coil surrounding said tube and also interposed in the circuit.

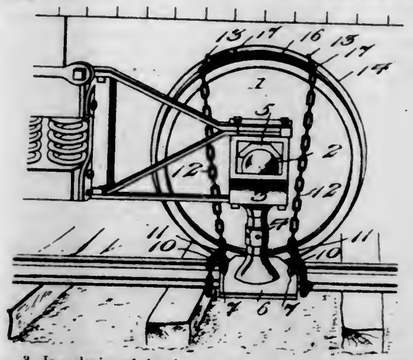
6. In an arc-lamp, the combination with a movably-mounted carbon-tube and a carbon-support beneath the same, of a circuit for said tube and support, a spool surrounding said tube, a flange formed on said spool, a coil surrounding said spool and interposed in said circuit, and a resistance interposed in the said circuit and carried by said flange.

7. In an arc-lamp, the combination with a movably-mounted carbon-support and a fixed carbon-support, of a circuit for said supports, a spool surrounding said movable support, a coil carried by said spool and interposed in said circuit, and a resistance interposed in the circuit and arranged within the spool.

785,981. LIFTING-JACK. JOHN J. SHANNON, Bangor, Me. Filed Nov. 12, 1904. Serial No. 232,507.

Claim.—1. In a device of the character described, a block, said block being adapted to support a jack and being independent thereof, and connections on the block adapted to engage the rim of a wheel.

2. In a device of the character described, a block adapted to support a jack and being independent thereof, and connections on the block adapted to engage a wheel and suspend said block therefrom.



3. In a device of the character described, a block adapted to support a jack and being independent thereof, and connections on the block adapted to engage a wheel, said connections being adjustable.

4. In a device of the character described, a block adapted to support a jack and being independent thereof, links carried by the block, and connections adjustably engaging the links at one end, the opposite end of the connections engaging a wheel.

5. In a device of the character described, a block adapted to support a jack and being independent thereof, links rotatably held by the support, and connections held adjustably at one end by the links, the opposite end of the connections being adapted to engage a wheel.

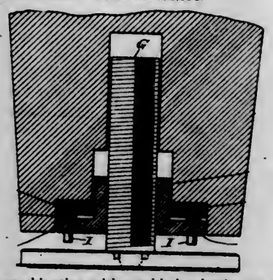
6. In a device of the character described, a block adapted to support a jack, links held by the block, said links having an end portion reduced, chain connections held by the links, the links of said chain connections being free to pass through a portion of the links of the block but effectually held by the reduced portion of the links of the blocks, said chain connections being adapted to engage a wheel.

7. In a device of the character described, a block adapted to support a jack and being independent thereof, connections held at one end by the block, the opposite end of the connections engaging the rim of a wheel, and means for preventing the slipping of the connections on the wheel.

8. In a device of the character described, a block adapted to support a jack and being independent thereof, connections held at one end by the block, the opposite end of the connections engaging the rim of a wheel, and means for limiting the movement of the connections in one direction.

9. In a device of the character described, a block adapted to support a jack, connections held at one end by the block, the opposite end of the connections being adapted to engage a rim of a wheel, and adjustable means for limiting the movement of the connections in one direction.

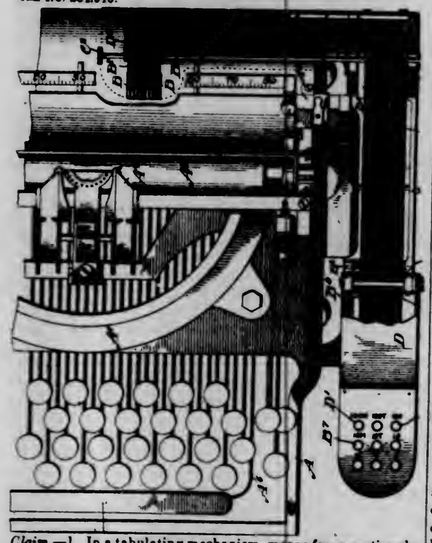
785,982. TABLE-ADJUSTER. CHARLES A. SMITH, Philadelphia, Pa. Filed Feb. 4, 1904. Serial No. 192,054.



Claim.—In combination with a table-leg having a stepped recess in its lower end, a plate having recesses, a threaded bolt resting on the plate and extending loosely into the upper portion of the stepped recess, lugs on the bottom of the bolt engaging the recesses

of the plate, whereby said bolt is held against rotary movement, an upper bearing-ring tightly secured within the lower portion of the stepped recess and having an annular groove in its under face, a lower bearing-ring threaded on the bolt having an annular groove in its upper face coinciding with the groove in the upper ring and forming therewith a raceway, and having a boss extending upwardly from the center of the lower ring within the next section of the stepped recess, said boss being threaded to engage the bolt, balls in the raceway, and studs projecting downwardly from and at right angles to the under surface of the lower ring.

785,983. **TABULATING ATTACHMENT.** WALTER J. SPIRO, New York, N. Y., assignor to Columbia Typewriter Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Apr. 25, 1904. Serial No. 204,918.



Claim.—1. In a tabulating mechanism, means for operating denomination-stops, separate means for releasing an escapement mechanism independently of any denomination-stop and arranged for simultaneous operation with any one of the denomination-stop-operating mechanisms to release the escapement and means for permitting a continued movement of the stop-operating means subsequently to the completion of the travel of a denomination-stop.

2. In a tabulating mechanism, means for operating denomination-stops, separate means for releasing an escapement mechanism arranged for simultaneous operation with any one of the denomination-stop-operating mechanisms to release the escapement, and means for permitting a continued movement of the stop-operating means subsequently to the completion of the travel of a denomination-stop.

3. In a tabulating attachment, a stop mechanism, pivoted keys for operating the stops thereof, an escapement-releasing key independent of any stop of said mechanism and disposed adjacent to the stop-key for joint movement therewith, and means to permit a continued pivotal movement of the stop-key with the release-key after the stop has reached the limit of its travel into operative position.

4. In a tabulating attachment, a stop mechanism comprising a series of stops and keys extending therefrom, an escapement-releasing mechanism, a key extending therefrom, a pressure-plate carried by said key, finger-pieces from each of the stop-keys extending through said plate, and means to permit a continued travel of the stop-keys with the release-key after the stop has reached the limit of its travel into operative position.

5. In a tabulating attachment, a stop mechanism comprising a series of stops and keys extending therefrom, an escapement-releasing mechanism, a key extending therefrom, a pressure-plate carried by said key, finger-pieces from each of the stop-keys extending through said plate, a common pivot for said stop-keys extending through a vertically-disposed slot therein, and independent springs for supporting each of said stop-keys in a raised position.

6. In a tabulating attachment, a stop mechanism comprising a series of stops and keys extending therefrom, an escapement-releasing mechanism, a key extending therefrom, a pressure-plate carried by said key, finger-pieces from each of the stop-keys extending through a vertically-disposed slot therein, independent springs for supporting each of said stop-keys in a raised position, angular levers carrying said stops at one end and pivotally mounted at the opposite end, and connecting-links extending from the stop-keys to said levers.

7. In a tabulating mechanism, a stop-operating key, means for permitting a continued movement of the stop-key after the stop has reached the limit of its travel into operative position, and a separate releasing-key constructed and arranged for travel either independently of the stop-key to release a carriage or for simultaneous movement with the stop-key to set a stop and, subsequently, release a carriage.

8. In a tabulating mechanism, a stop-operating key, a separate releasing-key constructed and arranged for simultaneous movement with the stop-key, and means for permitting a continued movement of the stop-key with the release-key after the stop has reached the limit of its travel into operative position.

9. In a tabulating mechanism, a series of stop-keys, a releasing-key constructed and arranged to travel independently of the stop-keys to release a carriage or be operated simultaneously with any one of said stop-keys to set a stop and subsequently release a carriage, and means for permitting a continued movement of the stop-keys with the release-key after the stop has reached the limit of its travel into operative position.

10. In a tabulating mechanism, a series of stop-keys, an independent release-key constructed and arranged to be operated independently of any stop or simultaneously with any one of said stop-keys to release the escapement mechanism after the stop has reached the limit of its travel into operative position, and means for permitting a continued movement of a member of the stop-keys simultaneously with the release-key after the stop has reached the limit of its travel into operative position.

11. In a tabulating mechanism, a rock-lever having opposite angularly-disposed end portions, a supporting-pivot extending through said end portions, a stop carried by one of said end portions, and means connected to the opposite end portion to oscillate the lever.

12. In a tabulating mechanism, a series of rock-levers having angularly-disposed end portions, means for pivotally supporting said end portions, a stop carried by one of said end portions, and means connected to the opposite end portions to oscillate the levers, said levers being nested one within the other.

13. In a tabulating mechanism, a series of rock-levers having angularly-disposed end portions, a stop carried by one of said end portions, means connected to the opposite end portions to oscillate the levers, said levers being nested one within the other, and a common pivot for the end portions of all of said levers.

14. In a tabulating mechanism, a series of substantially U-shaped rock-levers nested together and provided at one end with independent stops, and means for oscillating said levers.

15. In a tabulating mechanism, a series of substantially U-shaped rock-levers nested together and provided at one end with independent stops, pivoted operating-keys for said levers disposed in a different plane therefrom, and ligaments pivotally connecting said keys and levers.

16. In a tabulating mechanism, a series of substantially U-shaped rock-levers nested together and provided at one end with independent stops, pivoted operating-keys for said levers disposed in a different plane therefrom, ligaments pivotally connecting said keys and levers, a release-key, a rock-lever parallel with the stop-levers and connected with said key, and means adapted to be engaged by the stop rock-lever to release the escapement mechanism.

17. In a tabulating mechanism, a series of substantially U-shaped rock-levers nested together and provided at one end with independent stops, pivoted operating-keys for said levers disposed in a different plane therefrom, ligaments pivotally connecting said keys and levers, a release-key, a rock-lever parallel with the stop-levers and connected with said key, a release-lever pivotally mounted between its ends and having at one end an arm to engage the release rock-lever and at the other end an arm to engage the dog-releasing mechanism.

18. In a tabulating mechanism, a series of substantially U-shaped rock-levers nested together and provided at one end with independent stops, pivoted operating-keys for said levers disposed in a different plane therefrom, ligaments pivotally connecting said keys and levers, a release-key, a rock-lever parallel with the stop-levers and connected with said key, a release-lever pivotally mounted between its ends and having at one end an arm to engage the release rock-lever and at the other end an arm to engage the dog-releasing mechanism, a pivoted dog mechanism, and a dog-releasing lever provided with an angular lip adapted to engage the arm from the release-lever, and a finger to engage the tail from the dog.

19. In a tabulating mechanism, a series of pivoted stop-keys and stops controlled thereby, a pivoted releasing-key, a plate connected with said releasing-key and provided with a series of apertures to receive the posts from the stop-keys, and means for normally retaining the posts and plate in a raised position.

20. In a tabulating mechanism, a series of pivoted stop-keys and stops controlled thereby, a pivoted releasing-key, a plate connected with said releasing-key and provided with a series of apertures to receive the posts from the stop-keys, means for normally retaining the posts and plate in a raised position, and a series of rock-levers carrying at one end a stop and connected at their opposite ends with the stop-keys, said stops being disposed in parallel planes.

21. In a tabulating mechanism, a series of pivoted stop-keys and stops controlled thereby, a pivoted releasing-key, a plate connected with said releasing-key and provided with a series of apertures to receive the posts from the stop-keys, means for normally retaining the posts and plate in a raised position, a series of rock-levers carrying at one end a stop and connected at their opposite ends with the stop-keys, said stops being disposed in parallel planes, a rock-lever connected to the release-key, and means disposed beneath said release rock-lever to control the escapement mechanism.

22. In a tabulating mechanism, a release-key, a release-lever adapted to be operated therefrom, a yoke-arm disposed at an angle to one end of said lever to receive motion from said key, and an arm extending from the opposite end of said lever to control an escapement mechanism.

23. In a tabulating mechanism, a release-key, a release-lever adapted to be operated therefrom, a yoke-arm disposed at an angle to one end of said lever to receive motion from said key, an arm extending from the opposite end of said lever to control an escapement mechanism, a pivot for said lever between the opposite ends, and a restoring-spring encircling said pivot and engaging the under face of said lever at opposite sides of the pivot.

24. In a tabulating mechanism, a release-key, a release-lever adapted to be operated therefrom, a yoke-arm disposed at an angle to one end of said lever to receive motion from said key, an arm extending from the opposite end of said lever to control an escapement mechanism, a pivot for said lever between the opposite ends, a restoring-spring encircling said pivot and engaging the under face of said lever at opposite sides of the pivot, a pivoted dog-lever having an angular lip depending therefrom to be engaged by the end of the release-lever, and a dog-finger disposed at the opposite side of the pivots of the dog-lever from said lip.

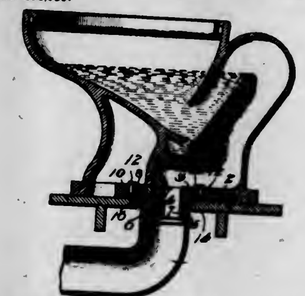
25. In a tabulating mechanism, a release-key, a release-lever adapted to be operated therefrom, a yoke-arm disposed at an angle to one end of said lever to receive motion from said key, an arm extending from the opposite end of said lever to control an escapement mechanism, a pivot for said lever between the opposite ends, a restoring-spring encircling said pivot and engaging the under face of said lever at opposite sides of the pivot, a pivoted dog-lever having an angular lip depending therefrom to be engaged by the end of the release-lever, a dog-finger disposed at the opposite side of the pivots of the dog-lever from said lip, a pivoted primary dog having a tail to be engaged by said dog-finger, and a secondary dog pivotally mounted upon the primary dog to travel in the movement thereof.

26. In a tabulating mechanism, means for operating column-stops, means independent of a column-stop and movable with its operating means for releasing an escapement mechanism after said stop has reached the limit of its travel and disposed to be operated by a single finger simultaneously with the operation of a column-stop, and means for permitting a continued movement of the stop-operating means subsequently to the completion of the travel of a denomination-stop.

27. In a tabulator for type-writers, the combination with a suitable stop means and a series of keys for actuating the same, to stop the carriage in proper position for the arrangement of a column of figures, means to permit a continued movement of the stop-keys after the stop has reached the limit of its travel into operative position, of a release-key perforated for the free passage of the tabulator-keys and movable therewith, connection from said release-key to the carriage-feed mechanism whereby the carriage may be released to permit it to move into contact with the stop after it has reached the limit of its travel, as specified.

28. In a tabulator for type-writers, the combination with a suitable stop means and a series of keys for actuating the same to stop the carriage in proper position for the arrangement of a column of figures, means to permit a continued movement of the stop-keys after the stop has reached the limit of its travel into operative position, of a transverse release-bar perforated for the free passage of the tabulator-keys and movable therewith; connections from said bar to the carriage-feed mechanism whereby the carriage may be released to permit it to move into contact with the stop after it has reached the limit of its travel, as specified.

785,984. **CONNECTION OR JOINT FOR WATER-CLOSET BOWLS.** EDGAR L. STALLINGS, Columbia, S. C. Filed Apr. 7, 1904. Serial No. 201,959.



Claim.—1. A waste-pipe connection for water-closet bowls, comprising a bowl having an integral base portion, a threaded flange formed in said integral base, a threaded thimble engaging the screw-threads on the integral base, said thimble having a tapered and ground surface, a threaded ring fitted in a recess in the under side of the base, a threaded pipe-section having a tapered or ground surface to fit upon the thimble, and means for connecting the upper end of the waste-pipe to the ring and for attaching the bowl to said ring.

2. In a water-closet connection, a threaded thimble connected to the bowl and having a tapered lower end provided with a smoothly-ground surface, a short pipe-section having a reversely-tapered surface ground to fit upon the thimble, a waste-pipe fitted upon the short pipe-section and secured in place by solder, substantially as described.

3. In a water-closet connection, a threaded thimble connected to the bowl and provided with a tapered lower end, a short pipe-section having a tapered upper end fitted upon the thimble, a waste-pipe fitted to said short pipe-section and provided with an outwardly-flaring upper end, forming a recess between the short pipe-section and the waste-pipe, and solder in the recess to unite said parts and form a tight joint.

4. A waste-pipe connection for water-closets, comprising a threaded thimble secured to the bowl and provided with a tapered lower end, a short pipe-section fitted to said thimble by a tapered upper end and a bayonet-joint, and a waste-pipe connected to the short pipe-section by a solder joint.

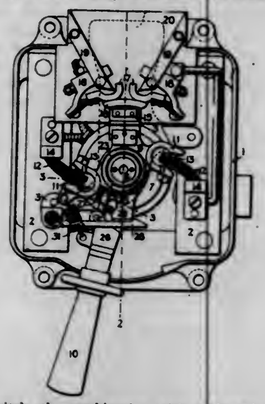
5. In a water-closet connection, a threaded thimble connected to a water-closet bowl and provided with a tapered lower end, a short pipe-section provided with a tapered upper end and fitted to the thimble, a waste-pipe soldered to the short pipe-section, a ring seated in a recess in the base-flange of the bowl and connected by screw-threads to the short pipe-section, and a series of bolts for connecting the bowl-flange to the ring or annulus, substantially as described.

785,985. **SWITCH.** SAMUEL B. STEWART, Jr., Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 15, 1903. Serial No. 165,564.

Claim.—1. In a switch, the combination with a pivoted three-armed contact-carrier, provided with two main brushes arranged on opposite sides of its pivot and a bridging-contact, of two main contact-blocks, and two contacts in a shunt around said blocks.

2. In a switch, the combination with a pivoted three-armed contact-carrier, of main and shunt contacts coöperating therewith, a helical spring in permanent connection with said contact-carrier for

urging said carrier away from said contacts, and a spring-catch adapted to detain said carrier against the tension of said spring.



3. In a switch, the combination with a pivoted three-armed contact-carrier, of a spring urging said carrier in a given direction, a spring-catch detaining it against the tension of said spring, a handle pivoted concentric with said carrier, and a projection on said handle for disengaging said catch.

4. In a switch, the combination with a pivoted three-armed contact-carrier, of a handle pivoted concentric therewith and having a lug adapted to engage with said carrier for setting the same, a spring-catch for holding said carrier when set, a helical spring for opening said carrier, and a pin on said handle for tripping said catch.

5. In a switch, the combination with a blow-out magnet having a stationary core extended to form a pivot-stud, of a three-armed contact-carrier pivoted on said stud, main and shunt contacts coöperating therewith, a handle independently pivoted on said stud and yieldingly connected with said carrier, coöperating lugs on the handle and carrier, a spring-catch engaging with the carrier, and a pin on the handle for tripping said catch

6. In a switch, the combination with a blow-out magnet having a pole-piece provided with an offset wide end, of an arc-chute carried by said wide end, a core projecting from said pole-piece, and a contact-carrier pivoted on the outer end of said core in line with said arc-chute.

7. In a switch, the combination with a blow-out magnet having a pole-piece, of a core projecting therefrom, a contact-carrier pivoted on the outer portion of said core, a retainer fastened to the outer end of said core, and a helical spring having one end anchored in said retainer and the other in said carrier.

8. In a switch, the combination with a casing, of a blow-out magnet having a pole-piece serving as a support for the coil, the arc-chute and the movable elements of the switch.

9. In a switch, the combination with a metallic casing, of a blow-out magnet supporting the working elements of the switch, and insulation interposed between said magnet and the casing.

10. An electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, an operating-handle therefor, and fixed and movable shunt-contacts arranged to break after the main contacts, said movable shunt-contact being rotatable about the same center as said carrier.

11. An electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, coöperating fixed contacts, an operating-handle therefor having a movement independent of said carrier, and shunt-contacts arranged to break after the main contacts.

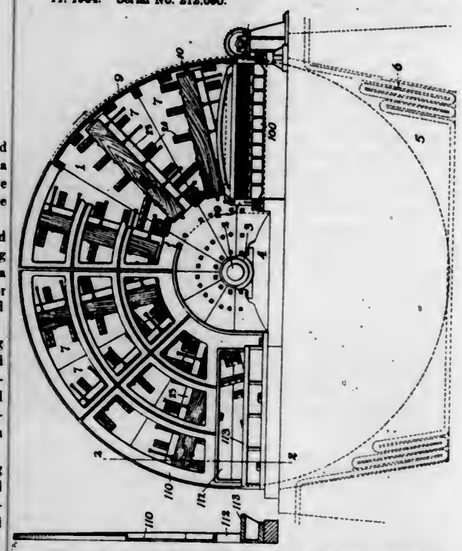
12. An electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, an actuating-spring therefor, an operating-handle movable in one direction to force said carrier against the tension of said spring, a catch for holding said spring under strain, and means actuated by said handle in its movement in the opposite direction to release said catch.

13. In an electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, coöperating fixed contacts, a spring tending to rotate said carrier to open the switch, a catch for holding the parts under strain, an operating-handle, and means thereon for releasing said catch.

14. An electric switch comprising stationary contact-blocks, a contact-carrier pivoted between said blocks, contacts carried thereby and adapted to engage the upper and lower faces of said blocks respectively, a spring urging said carrier in a given direction, and an operating-handle having a movement independent of said carrier for setting and releasing the same.

15. An electric switch comprising stationary contact-blocks, a contact-carrier pivoted between said blocks, contacts carried thereby and adapted to engage the upper and lower faces of said blocks respectively, a spring urging said carrier in a given direction, and an operating-handle having a lost-motion connection with said carrier.

785,986. VENEER-CUTTING MACHINE. Cisco R. Traxler, Winston Salem, N. C., assignor to United States Veneer Company, Winston Salem, N. C., a Corporation of North Carolina. Filed June 11, 1904. Serial No. 212,095.



Claim.—1. In a veneer-cutting machine, the combination with a slicing-knife, of a rotary block-carrier, a series of integral stay-logs each of substantially the length of the block to be cut and arranged radially on the carrier, a series of chucks carried by each stay-log and projecting from its front face for rigidly securing a block thereto, cylinders mounted on the rear face of each stay-log, and devices working in said cylinders operated by fluid-pressure and connected with the chucks for the purpose specified.

2. In a veneer-cutting machine, the combination with a slicing-knife, of a rotary block-carrier, a series of integral stay-logs each of substantially the length of the block to be cut and arranged radially on the carrier, set-works for advancing the stay-logs, means for retracting the stay-logs, a series of chucks carried by each stay-log and projecting from its front face for rigidly securing a block thereto, two sets of cylinders mounted on opposite sides of the rear face of each stay-log, devices working in said cylinders operated by fluid-pressure and connected with the chucks, and means for admitting to and exhausting fluid from said two sets of cylinders independently.

3. In a veneer-cutting machine, the combination of a rotary block-carrier, a series of stay-logs arranged radially on the carrier each of substantially the length of the block to be cut, a series of independently-movable chucks carried by each stay-log for rigidly securing a block thereto, and mechanism carried by each stay-log and operated by fluid-pressure for simultaneously actuating the chucks while permitting them to move independently of each other to different extents thereby equalizing the holding power of the chucks on the blocks.

4. A stay-log of substantially the length of the block to be cut, having on opposite sides of its front face two sets of sliding chucks and having on its rear side two sets of cylinders supplied with fluid under pressure, pistons working in said cylinders and a separate sliding connection between each piston and a single chuck whereby the chucks may be operated simultaneously but independently and thus equalize the holding power of the chucks on the block.

5. A stay-log provided with chucks sliding transversely to the axis of the stay-log, a series of long cylinders secured to the stay-log and having pistons working in them connected with the chucks on one side of the stay-log, and short cylinders secured to the stay-log having pistons connected with the other set of chucks.

6. The combination of a block-carrier, a stay-log mounted thereon, brackets projecting from the block-carrier between which the stay-log moves, a series of chucks on opposite sides of the stay-log, steam-cylinders attached to the stay-log and having pistons connected with the chucks and means for admitting steam to and exhausting it from the cylinders.

7. In a veneer-cutting machine, the combination of a rotary carrier, a series of stay-logs mounted radially thereon, set-works for advancing the stay-logs, devices for arresting the forward movement of the stay-logs, an engine mounted on the carrier and revolving therewith about its axis, and means for connecting the engine with a plurality of stay-logs to cause them to return to their retracted position.

8. In a veneer-cutting machine, the combination of a rotary carrier, stay-logs mounted radially thereon, set-works for advancing the stay-logs, devices for automatically arresting the forward movement of the stay-logs, a rotary engine mounted on the carrier and revolving therewith about its axis, and means for connecting said engine with a plurality of stay-logs to cause them to retrekt at the will of the operator.

9. In a veneer-cutting machine, the combination of a rotary carrier, stay-logs mounted thereon, screw-rods engaging the stay-logs, radial shafts with which the screw-rods are geared, tangential shafts gearing with said radial shafts, shafts parallel with the axis of the carrier which gear with the tangential shafts, pawl-and-ratchet mechanism for operating said parallel shafts, means for operating said pawl-and-ratchet mechanism for advancing the stay-logs, engines mounted on the carrier and gearing between said engines and said parallel shafts to return the stay-log.

10. In a veneer-cutting machine, the combination of a rotary carrier, stay-logs mounted radially thereon, arms projecting rearwardly from the stay-logs, sockets into which the arms project and which are secured to the carrier, screw-rods connected with said arms, pawl-and-ratchet mechanism and connections between said pawl-and-ratchet mechanism and said screw-rods for advancing the stay-logs.

11. In a veneer-cutting machine, the combination of a carrier, a stay-log mounted thereon, pawl-and-ratchet mechanism, connections between the pawl-and-ratchet mechanism and the stay-log whereby the latter is advanced, a sliding block normally holding the pawl out of engagement with the ratchet-wheel, and connections between the stay-log and the block whereby the latter is shifted when the stay-log is advanced to its limit to cause the disengagement of the pawl with its ratchet-wheel.

12. The combination of a rotary carrier, a stay-log thereon, pawl-and-ratchet mechanism, connections between the pawl-and-ratchet mechanism and stay-log for causing the latter to advance, a block normally permitting the engagement of the pawl with its ratchet-wheel, a lever to which said block is connected and rods having sliding yielding connections which connect the stay-log with the lever whereby the sliding block is shifted to cause the pawl to disengage from its ratchet-wheel to arrest the forward movement of the stay-log.

13. The combination with a stay-log carrying chucks for attaching a bolt or block of wood thereto, of cylinders secured directly to the rear face of the stay-log and opposite the area in which the bolt lies, pistons operating in the cylinders and connected with the chucks, and means for supplying steam to the cylinders.

785,987. ATTACHMENT FOR THEATER-SEATS. Samuel W. Van Nostran, Minneapolis, Minn. Filed Sept. 29, 1904. Serial No. 226,427.

Claim.—1. In a device of the character described, the combination with a relatively fixed member, of a movable member hinged thereto, said hinged member being formed from thin sheet metal and having on one face, flanges for holding a mirror, and having on its other face, a seat for a card, formed by slitting the plate thereof between the points 12^a 12^b, and pressing inward the intervening portion of said plate, substantially as described.

2. In a device of the character described, the combination with the relatively fixed member 3 formed from a single piece of sheet metal, and having the ears 3^a and inturned flanges 3^b, of the hinged member 4 formed from a single piece of sheet metal bent to form the ears 4^a and inturned flanges 4^b, the plate of said member 4 being slit between the points 12^a and 12^b, and the intervening portion thereof being pressed inward to afford seats 12^c, the hinge-rod 5 rotatively mounted in said ears 3^a, and fixed to said ears 4^a, a coiled spring anchored at one end to said rod, and at its other end to said relatively fixed member 3, and the mirror 11 held to said member 4 by the flanges 4^b thereof, substantially as described.



3. In a device of the character described, the combination with a fixed member 3 and a hinged member 4, the said members having pivotally-connected ears 3^a and 4^a respectively, said member 3 having the curved upper end plate extension 13 formed with a detent-bulge 14, which bulge 14 is frictionally engageable with the adjacent transverse edged portion of said member 4 to hold the latter in a raised position, substantially as described.

785,988. SIGN-LETTER. John C. Wands, St. Louis, Mo. Filed Nov. 14, 1904. Serial No. 232,629.



Claim.—1. A sign comprising a sheet having marginal flanges except on one edge, and a spacing depression in the sheet at the flangeless edge thereof; substantially as described.

2. A sign comprising a sheet having marginal flanges on three edges, the top edge having means for preventing the introduction of moisture between the sign and its support; substantially as described.

3. A sign comprising a sheet having a sign character embossed thereon, the sheet being of a color different from that of the embos-

ment, marginal flanges carried by the sheet, ventilating-openings at one edge of the sheet, and means carried by one end flange for preventing the introduction of moisture between the sheet and its support; substantially as described.

4. A sign comprising a sheet having marginal flanges on three edges and an offset on the remaining edge, the floor of said offset being in the same plane as the planes of the flanges; substantially as described.

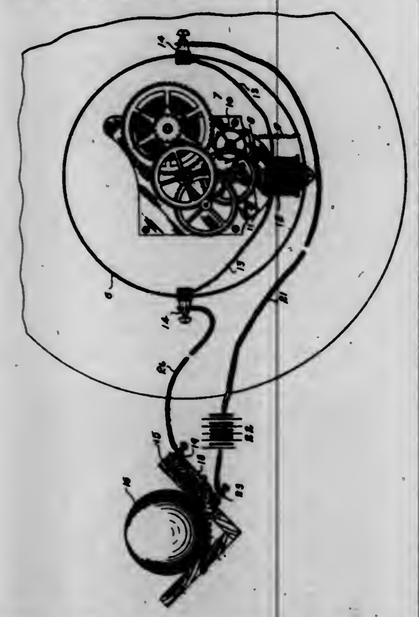
5. A sign comprising a sheet having a sign character thereon, marginal flanges on three edges of the sheet, said flanges being in a plane different from the plane of the sheet, and a flange on one of the marginal flanges and arranged to prevent the introduction of moisture between the sign and its support; substantially as described.

6. A sign comprising a sheet having a sign character thereon, marginal flanges on three edges of the sheet and in planes different from that of the sheet, and a flange carried by one of the marginal flanges and in a plane different from the plane of the marginal flanges; substantially as described.

7. A sign unit comprising a sheet having a sign character thereon, a marginal flange on three edges of the sheet, a flange carried by one of the marginal flanges, and a depressed offset carried in the sheet at the flangeless edge thereof; substantially as described.

8. A sign comprising a sheet having backwardly-bent marginal flanges in a plane different from the plane of the sheet, an outstanding flange carried by the upper marginal flange, and a depression at the flangeless edge of the sheet, the floor of said depression being in the same plane as the plane of the marginal flanges; substantially as described.

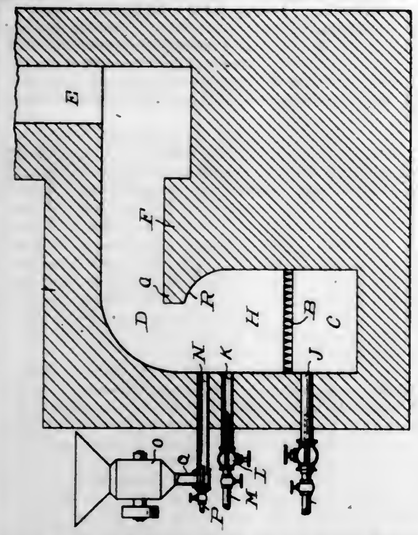
785,989. **COUNTING APPARATUS.** WALTER P. WATTS, Covina, Cal. Filed Mar. 26, 1904. Serial No. 200,133.



Claim.—A counting apparatus provided with a runway, electric terminals secured upon the exterior thereof having connection with the source of supply, a circuit-closing plate secured to one of said terminals, a resilient rod extending through said runway and plate, whereby the weight of an article in said runway will bend said rod and draw said plate against the other terminal, an indicating mechanism and means operated by the closing of said circuit to actuate said mechanism.

785,990. **METHOD OF FIRING.** GEORGE S. WELLES, Chicago, Ill. Filed June 8, 1904. Serial No. 211,663.

Claim.—1. The method of firing granulated fuel in a furnace, consisting in maintaining the combustion-chamber at a temperature to decompose the granulated fuel as injected therein, and to ignite the constituents thereof, injecting the fuel into the chamber under pressure and simultaneously supplying oxygen for its combustion, directing the solid constituents upon a grate and there providing oxygen for the complete combustion of such solid constituents.



2. The method of firing granulated fuel in a furnace, consisting in maintaining the combustion-chamber at a temperature to decompose the granulated fuel, as injected therein, and to ignite the constituents thereof, injecting the fuel into the chamber under pressure and simultaneously supplying oxygen for its combustion, directing the solid constituents upon a grate, maintaining a fire at said grate of a character such that the solid constituents projected thereon are completely burned.

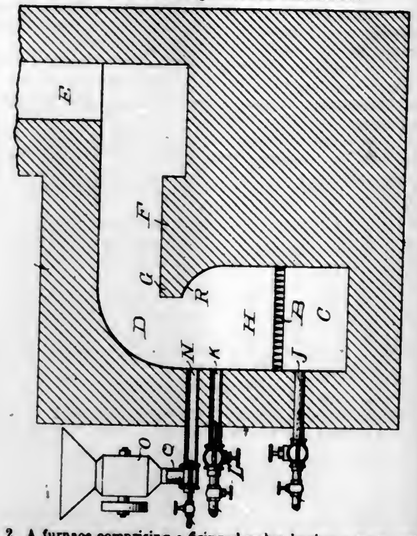
3. The method of firing in a furnace which consists in first heating said furnace to a high temperature, then introducing into said furnace at one side a continuous jet of commingled granulated coal and compressed air, the heat of said furnace being adapted to free the volatile constituents of the coal and ignite the same together with the resulting coke particles, directing said jet of coal and air against the opposite wall of the furnace and deflecting same downwardly to cause said coke particles to deposit in the lower portion of the furnace, and introducing compressed air below the bed of coke particles to maintain combustion thereof.

4. The method of firing in a furnace which consists in first building a fire therein and introducing compressed air below said fire to force combustion and produce a high temperature, then introducing above said fire a continuous supply of commingled combustible fluid and air, maintaining the said supply until the walls of said furnace have attained a high temperature, then introducing into said furnace above said fire a continuous jet of commingled granulated coal and air, the high temperature being adapted to free the volatile constituents of said coal and ignite the same and the resulting coke particles, and causing said coke particles to be deposited upon the fire to continuously feed the latter.

5. The method of firing in a furnace which consists in first heating said furnace to a high temperature, then introducing into said furnace a continuous jet of commingled granulated coal and air under pressure, the heat of the furnace serving to free the volatile constituents of the coal and ignite the same together with the resulting coke particles, causing said coke particles to be deposited on a grate or the like, and introducing below said grate or the like a constant supply of combustible fluid commingled with an excess of compressed air.

785,991. **FURNACE.** GEORGE S. WELLES, Chicago, Ill. Filed June 8, 1904. Serial No. 211,664.

Claim.—1. A furnace comprising a firing-chamber contracted at its upper end and communicating at said upper end with a flue leading to a chimney or the like, a grate in said firing-chamber, connection between said chamber and a source of supply of compressed air below said grate, connection between said chamber and a source of supply of commingled compressed air and combustible fluid above said grate, and connection between said chamber and a source of supply of commingled compressed air and finely-divided coal above said grate, and valves controlling all of said connections.

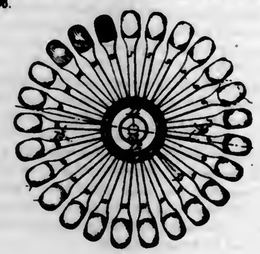


2. A furnace comprising a firing-chamber having a grate and connected below said grate with a source of supply of compressed air, connection between said firing-chamber above said grate with a source of supply of commingled compressed air and combustible fluid and with a source of supply of commingled compressed air and finely-divided coal, said connections being so disposed as to introduce said fuel horizontally into said firing-chamber from one side and impinge against the opposite wall thereof, said wall being so formed as to deflect the impinging flame downwardly, and valves controlling all of said connections.

3. A furnace comprising a firing-chamber, a grate in same, connection between said firing-chamber below and above said grate with a source of supply of commingled compressed air and combustible fluid, valves controlling said connections to regulate the relative proportions of combustible fluid and air admitted at each point, and connection between said firing-chamber above said grate and a source of supply of commingled compressed air and granulated coal.

4. A furnace comprising a firing-chamber having a grate and connected below said grate with a source of air, connections between said firing-chamber above said grate with a source of combustible fluid and with a source of finely-divided fuel, under pressure, a wall in said firing-chamber opposed to said fuel connection and against which said fuel impinges on introduction to the chamber, said wall being designed to deflect the impinging fuel toward the grate.

785,992. **SHADE-GUIDE FOR ARTIFICIAL TEETH.** GEORGE H. WHITELEY, York, Pa., assignor to Dentists' Supply Company, New York, N. Y., a Corporation of New York. Filed Oct. 26, 1904. Serial No. 230,106.



Claim.—1. A shade-guide for artificial teeth comprising a central support, and a plurality of radial arms having teeth at their outer ends and having different designating characters.

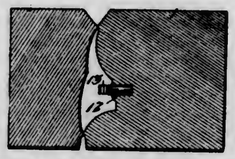
2. A shade-guide for artificial teeth comprising a central support, a plurality of radial arms, and teeth rotatably mounted upon said arms.

3. A shade-guide for artificial teeth comprising a central support and a plurality of radial arms having teeth at their outer ends and having different designating characters, the said arms being hingedly connected with said central support whereby they may be turned in different directions relatively to said support.

4. A folding shade-guide for artificial teeth comprising a pair of disks, a threaded central stud connected with one of the disks and passing freely through the other, a nut on said threaded stud and adapted to clamp the disks toward each other, a ring between the outer peripheries of the disks, and a plurality of tooth-carrying arms mounted on said ring.

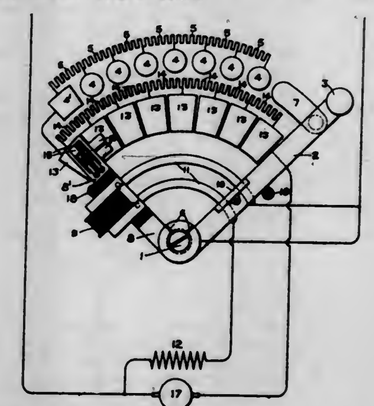
5. A folding shade-guide for artificial teeth comprising a pair of disks, a threaded central stud connected with one of the disks and passing freely through the other, a nut on said threaded stud and adapted to clamp the disks toward each other, the outer edges of the disks being inclined to form jaws, a ring between said jaws, a plurality of arms mounted on said ring and having flattened portions adapted to be engaged by said jaws, and sample teeth carried by said arms.

785,993. **MOLD FOR ARTIFICIAL TEETH.** GEORGE H. WHITELEY, York, Pa., assignor to Dentists' Supply Company, New York, N. Y., a Corporation of New York. Filed Oct. 26, 1904. Serial No. 230,107.



Claim.—A dental mold having an anchor-supporting post adapted to be destroyed by high temperature, said post being removably connected with the mold whereby it will be carried by the tooth when the latter is removed from the mold and then destroyed during the baking of the tooth.

785,994. **RHEOSTAT FOR STARTING AND CONTROLLING ELECTRIC MOTORS.** WILLIAM C. YATES, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 14, 1904. Serial No. 224,378.



Claim.—1. The combination with a rheostat having starting and controlling resistances arranged parallel with each other, of a starting-arm coöperating with the starting resistance, a controlling-arm coöperating with the controlling resistance, and means for connecting said arms when the former has cut out the starting resistance.

2. The combination with a rheostat having starting and controlling resistances arranged parallel with each other, of a starting-arm and a controlling-arm each standing normally at the beginning of the respective resistances, and means for connecting them mechanically and electrically when the starting-arm has been swung over to cut out the starting resistance.

3. The combination with a motor-starting resistance and a motor-controlling resistance, of contact-arms coöperating therewith, and a magnetic clutch for connecting said arms.

4. The combination with a motor-starting resistance and a motor-controlling resistance arranged in parallel lines and connected in series, of two contact-arms each coöperating with one of said resistances, a magnetic clutch for connecting said arms, and a spring urging them apart.

5. The combination with a motor-starting resistance and a motor-controlling resistance connected in series, of contact-arms respectively coöperating with said resistances, and an electromagnetic clutch for connecting said arms, responsive to change in line-voltage.

6. The combination with a motor-starting resistance and a motor-controlling resistance connected in series, of contact-arms respectively coöperating with said resistances, an electromagnetic clutch for connecting said arms, responsive to change in line-voltage, and a spring urging said arms apart.

7. The combination with a motor-starting resistance and a motor-controlling resistance arranged in parallel lines and connected in series, of contact-arms respectively coöperating with said resistances, a clip on one arm receiving the other, an electromagnetic clutch for connecting said arms, and a spring urging them apart.

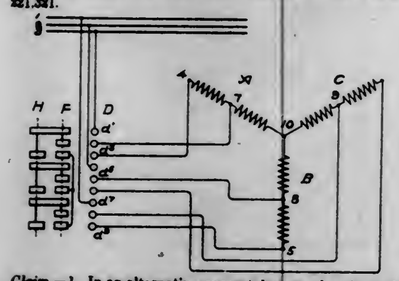
8. The combination with a motor-starting resistance and a motor-controlling resistance arranged in parallel lines and connected in series, of two contact-arms respectively coöperating with said resistances, one of said arms having an insulated contact-making portion, means for electrically connecting said portion with the other arm, and an electromagnetic clutch carried on said arms and responsive to a failure in line-voltage.

9. The combination with a motor-starting resistance and a motor-controlling resistance arranged in parallel lines and connected in series, of two contact-arms respectively coöperating with said resistances, one of said arms having an insulated contact-making portion, means for electrically connecting said portion with the other arm, an electromagnetic clutch carried on said arms and responsive to a failure in line-voltage, and two parallel conducting-segments with which the clutch-magnet terminals make sliding contact.

10. A motor starting and controlling rheostat having a contact-arm movable in one direction to start the motor, and then in a reverse direction to control the speed of said motor.

11. The combination with a motor-starting resistance and a motor-controlling resistance arranged in concentric rows and connected in series, of two contact-arms pivoted concentrically with said rows and standing normally at opposite ends thereof, a spring urging them apart, means for connecting them electrically when brought together, and a no-voltage release-magnet for clutching them together so long as there is no failure in voltage.

785,995. **WINDING FOR THREE-PHASE MOTORS.** ERNST F. W. ALEXANDERSON, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 19, 1904. Serial No 221,321.



Claim.—1. In an alternating-current dynamo-electric machine, a three-phase winding composed of coils having a width equal to twice the distance between adjacent coils of the same phase.

2. In an alternating-current dynamo-electric machine, a three-phase winding each phase of which is composed of coils spaced by a distance equal to one-half the coil width.

3. In an alternating-current dynamo-electric machine, a three-phase winding disposed in slots, each slot containing conductors of two different phases.

4. In an alternating-current dynamo-electric machine, a three-phase winding composed of coils each disposed in two slots each common to another phase.

5. In an alternating-current dynamo-electric machine, a three-phase winding composed of coils having a width equal to twice the distance between adjacent coils of the same phase and each coil being disposed in two slots each common to another phase.

6. In an alternating-current dynamo-electric machine, a three-phase winding disposed in slots, each slot containing conductors of two different phases and each phase being composed of coils spaced by a distance equal to one-half the coil width.

7. In an alternating-current dynamo-electric machine, a three-phase winding composed of coils having a width equal to twice the distance between adjacent coils of the same phase and means for varying the connections of said winding to vary the number of its poles.

8. In an alternating-current dynamo-electric machine, a three-phase winding composed of coils each disposed in two slots each common to another phase, and means for varying the connections of said winding to vary the number of its poles.

9. In an alternating-current dynamo-electric machine, a three-phase winding disposed in slots, each slot containing conductors of two different phases and each phase having its alternate coils connected in groups, and means for reversing the relative connections of said groups.

785,996. **PUMP-VALVE.** OTTO ARENDT, Newark, N. J., and PHILIP HOLTEMANN, New York, N. Y. Filed June 13, 1904. Serial No. 212,442.



Claim.—1. As a new article of manufacture, a pump-valve comprising a metallic disk having a continuous body of vulcanizable material molded about and inclosing said disk, and radial projections from said disk extending out to the peripheral surface of said rubber body to avoid "cupping" and afford gripping-points whereby the valve may be held between the jaws of a chuck.

2. A pump-valve which consists of an apertured metallic disk provided with a central bore and having radial projections extending from its periphery, together with a continuous valve-body of vulcanizable material molded about said disk, the peripheral surface of said body being flush with the outer concentric plane of said projections.

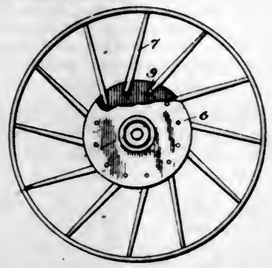
785,997. **INCANDESCENT-ELECTRIC-LAMP SOCKET.** GEORGE C. BAILLARD, Brooklyn, N. Y., assignor to General Electric Company, a Corporation of New York. Filed May 28, 1903. Serial No. 159,302.



Claim.—1. A lamp-socket having a base of insulating material, lamp-contacts secured to said base, tubular terminals permanently electrically connected with the respective contacts, and a clamping device having clamping edges adapted to be moved across the terminals at right angles to their axes and past which the bared ends of the circuit-wires extend when inserted into the terminals whereby, when the wires are inserted, the clamping device may be moved transversely and its edges caused to clamp or pinch the wires against the sides or edges of the terminals.

2. A lamp-socket having a base consisting of a single piece of insulating material with a reduced upper end provided with peripheral screw-threads, a screw-shell and center contacts mounted on the lower end of said base, line-terminals comprising apertured metallic pieces secured to the upper end of said base and electrically connected with the respective contacts, and a cap of insulating material screw-threaded to the end of said base over the line-terminals and provided with slots adapted to aline with the apertures in the metallic pieces when said cap is in one position and to disaline therewith when the cap is partially rotated.

785,998. **WHEEL.** JOHN BEVINGTON, Cordova, Nebr. Filed July 19, 1904. Serial No. 217,264.



Claim.—1. In a device of the character described, the combination of a hub, comprising a body portion provided with two parallel sides, removable, comparatively narrow, disk-shaped plates having apertures positioned upon said hub, the apertured portion of the plates provided with parallel portions adapted to be positioned upon similar portions of the hub, a comparatively narrow annulus having a central aperture interposed between said plates and positioned upon the hub, the apertured portion of the annulus provided with parallel portions adapted to engage the similar portion of the hub, said annulus provided with approximately parallel, tangentially-arranged recesses upon one side, each of the recesses provided with an enlarged portion at its outer end, said annulus having an aperture formed in each of the recessed portions thereof, a tapering spoke provided with a reduced inner end positioned in each of the tangentially-positioned recesses of the annulus, said plates provided with apertures registering with the apertures of the annulus when the parts are in an assembled position, transverse connecting and securing means positioned within the apertured portion of said plates and annulus for retaining the same in a fixed position, and a tire secured upon the ends of said spokes.

2. In a device of the character described, the combination of a hub provided with parallel sides, parallel, movable plates provided with a squared, apertured portion positioned upon said hub, a removable, annulus interposed between said plates, said annulus having a squared, central, apertured portion and tangentially-positioned recesses formed upon one side thereof and near its edge, the recesses of the annulus provided with enlarged portions near one end, said annulus having an aperture formed in each of the recessed portions thereof, spokes positioned within the recesses of said annulus, a tire positioned upon said spokes, and transverse means positioned within the apertured portions of the recesses and connected to and retaining the plates and spokes in an assembled position with said annulus.

3. A metal wheel, comprising a hub structure, said hub structure comprising a hub member provided with parallel sides, an integral shoulder formed upon one end of said member, said hub member provided with a reduced end of less width than said shouldered portion, a pair of disk-shaped plates having central, squared, apertured portions positioned upon said hub member, a flat annulus having a squared, central, apertured portion interposed between said plates, said annulus provided with tangentially-arranged recessed portions formed upon one side thereof and near the outer edge, said recessed portions of the same depth throughout their entire length and width, each of the recessed portions provided with an aperture formed therein near the inner end thereof, each of said recessed portions provided with an outer, enlarged end, a flat, tapering spoke provided with a tenon of the same width and thickness throughout its entire length, positioned within each of said recessed portions and having a part of the main body portion of the spoke extending into the enlarged portion of the recess, each of the tenons of the spokes having an aperture formed therein, said aperture of each of the tenons registering with the aperture of the recess, when positioned within said recess, said plates provided with apertures registering with each of the apertures of the tenons of the spokes and annulus, transverse securing means positioned within the apertured portion of the plates, tenons, and annulus, and a tire secured to the outer end of the flat spokes.

785,999. **CONNECTION FOR ARTIFICIAL TEETH AND DENTAL PLATES.** SAMUEL S. BLOOM, Philadelphia, Pa. Filed Oct. 28, 1904. Serial No. 230,351.

Claim.—1. A separable connection for artificial teeth comprising a plate or bridge-piece, having holding-ribs, a pair of platinum anchors embedded in the tooth, the latter having recesses adjacent to the anchors, and plates of relatively inexpensive metal fitting said recesses and soldered to the anchors, the said plates projecting from the back of the tooth and formed with flanges to engage the ribs of said bridge-piece or plate when slid longitudinally thereof.



2. The combination with a dental plate, of a backing-piece having parallel offset flanges secured to said dental plate, and a tooth having ribs adapted to engage said flanges of the backing-piece by an endwise movement of the ribs relatively to said flanges, the said ribs projecting from the back of the tooth and soldered to platinum anchoring means embedded within the tooth.

3. The combination with a dental plate, of a backing-piece having parallel offset flanges secured to said dental plate and having an upper flange projecting forwardly therefrom, of a tooth having ribs projecting from its back and adapted to be engaged with the parallel flanges of the backing-piece, the upper end of the tooth being adapted to abut against said forwardly-projecting flange of the backing-piece.

786,000. **SEWING-AWL.** MURRAY R. BOTKIN, Denver, Colo. Filed Aug. 14, 1903. Serial No. 169,518.



Claim.—1. In a sewing-awl, the combination with a handle, of a jaw-head spaced from the handle, jaws carried by the head, means connecting the head and handle, and a spool located in the space between the jaw-head and handle, said head having a thread-passage extending through the same from said space between the head and handle to a point between the jaws.

2. In a sewing-awl, the combination with a handle, of spaced arms carried by the handle, jaw-supporting means connecting the arms, jaws projecting from the outer side of the jaw-supporting means and having a space between their inner ends, said means having a thread-passage extending through the same and to the space between the inner ends of the jaws, and a thread-spool journaled to and between the arms.

3. In a sewing-awl, the combination with a handle, of spaced arms projecting from the end of the handle, jaw-supporting means connected to the outer ends of the arms, and needle-holding jaws carried by the jaw-supporting means and having a needle-socket between them, the inner end of which constitutes an abutment-shoulder, said jaw-supporting means having a thread-passage leading from the space between the jaws and handle to the inner end of the needle-socket, said passage being of less diameter than the socket.

4. In a sewing-awl, the combination with a handle, of spaced arms projecting from one end of the handle, a bridge connecting the arms, a jaw-head secured in the bridge and having spaced jaws at its outer end, said head having a flared thread-passage extending from its inner end to a point between the jaws.

5. In a sewing-awl, the combination with a handle, of spaced

arms projecting from one end of the handle, a transverse bridge connecting the outer ends of the arms, a jaw-head riveted in the bridge and having a flared passage-way therethrough, jaws carried by the head and projecting beyond the outer face of the bridge, and a thread-spool journaled to and between the spaced arms.

6. In a sewing-awl, the combination with a handle, of a sleeve surrounding one end of the handle and having spaced arms, a bridge connecting the outer ends of the arms, needle-receiving jaws projecting from the bridge, and a spool journaled between the arms.

7. In a sewing-awl, the combination with a handle, of spaced arms projecting from one end of the handle and having alined openings, a spool located between the arms, and a journal-pin passing through the openings in the arms and through the spool, said pin having outwardly-urged spring members provided in their free ends and in their outer sides with seats that receive the edge of the adjacent opening.

8. In a sewing-awl, the combination with a handle, of relatively movable jaws spaced from the handle, connections between the jaws and handle, a spool located in the space between the jaws and handle, said connections having a thread-passage leading from said space to a point between the inner ends of the jaws, and a needle fitted in the jaws and having a channel that extends to its inner end and alines with the thread-passage.

9. In a sewing-awl, the combination with a handle, of spaced arms carried by the handle, a bridge connecting the arms, a jaw-head secured to the bridge, jaws carried by the head and having a space between their inner ends, said head having a thread-passage therethrough that extends from the space between the arms to the space between the jaws for the purpose of directing thread to said latter space, and a thread-spool journaled to and between the spaced arms.

786,001. **CARD-HOLDER ATTACHMENT FOR UMBRELLAS, &c.** RILEY E. CANNON, Lexington, Ky. Filed Oct. 31, 1904. Serial No. 230,787.



Claim.—1. A device of the class described comprising a barrel provided with oppositely-disposed heads defining an intermediate recess, an inscription-card seated in said recess, and a transparent medium secured to the barrel and covering the card.

2. A device of the class described comprising a barrel provided with oppositely-disposed heads defining an annular recess, an inscription-card seated in said recess, a longitudinal rib connecting said heads and engaging one edge of the card, and a transparent medium covering the card and serving to retain the latter in said recess.

3. A device of the class described comprising a barrel provided with oppositely-disposed heads defining an annular recess, an inscription-card seated in said recess, a frame secured to the barrel, and a transparent medium seated in the frame and covering the card.

4. A device of the class described comprising a barrel provided with oppositely-disposed heads defining an annular recess, an inscription-card seated in said recess, a frame secured to the heads of the barrel and provided with guiding-flanges, a transparent medium seated in said flanges, and a spring-tongue carried by the frame and adapted to engage the inscription-card.

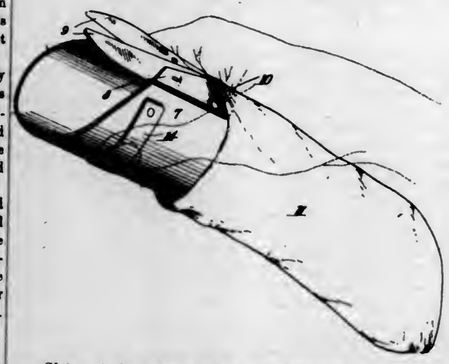
5. A device of the class described comprising a barrel provided with oppositely-disposed heads defining an annular recess, an inscription-card seated in said recess, a frame secured to the heads and having its adjacent ends spaced apart, a longitudinal rib connecting said heads and engaging one edge of the card, and a transparent medium carried by the frame, one end of said frame being provided with a notch or recess to facilitate the removal of the inscription-card.

6. A device of the class described comprising a barrel provided with an annular recess defining a longitudinal rib, an inscription-card seated in said recess and engaging the longitudinal rib, a frame secured to the barrel and having its adjacent ends spaced apart and provided with a spring-tongue adapted to engage the card, and a transparent medium carried by the frame.

7. A device of the class described comprising a barrel provided with an annular recess defining a longitudinal rib, an inscription-card seated in said recess, a frame secured to the barrel and having its opposite ends spaced apart and provided with guiding-flanges, a spring-tongue secured to one of said flanges and adapted to engage the inscription-card, and a notch or recess formed in the adjacent flange to facilitate the removal of said card.

8. The combination with a handle having a socket formed therein, of a barrel having a reduced extension adapted to engage said socket and provided with an annular recess defining a longitudinal rib, an inscription-card seated in the recess in the barrel and engaging the longitudinal rib, and a transparent medium secured to the barrel and serving to retain the card in said annular recess.

786,002. **FRUIT-GATHERER.** JAMES M. CHRITTON, Rockyford, Colo., assignor of two-thirds to Charles L. Hushaw and Jose B. Chritton, Rockyford, Colo. Filed Aug. 10, 1904. Serial No. 220,249.



Claim.—1. In a device of the class described, a split receiver having its adjacent edges bent to form laterally-extending flanges, and cutting-blades carried by said flanges.

2. In a device of the class described, a split receiver provided with inwardly-extending flanges, cutting-blades secured to said flanges and a spring secured to the receiver and encircling the same.

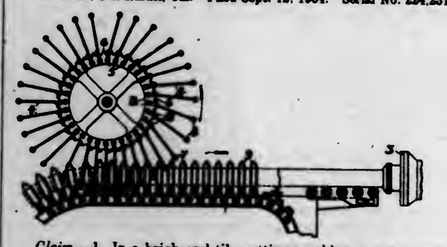
3. In a device of the class described, a split receiver provided with inwardly-extending flanges, cutting-blades secured thereto, and a pin or rivet passing through said flanges at the bottom of the receiver and engaging the cutting-blades.

4. In a device of the class described, a split receiver formed of a single piece of spring metal the opposite ends of which are bent to form laterally-extending flanges, vertically-disposed cutting-blades secured to said flanges, and a pin passing through said flanges and cutting-blades and forming a pivotal connection for both.

5. In a device of the class described a split receiver having its adjacent longitudinal edges bent inwardly and provided with cutting-blades.

6. In a device of the class described a split receiver provided with a laterally-projecting flange and having its adjacent longitudinal edges bent inwardly and provided with cutting-blades, and a fruit-containing receptacle engaging the annular flange of the receiver.

786,003. **BRICK OR TILE CUTTING MACHINE.** CHARLES R. CODDING, San Rafael, Cal. Filed Sept. 12, 1904. Serial No. 224,231.



Claim.—1. In a brick and tile cutting machine, a cutter comprising a rotatable support, radially-disposed frames pivoted on said support, cutting-wires carried by said frames, means for limiting the arc of movement of the frames about their pivots and springs fixed to and removable with the frames as a unitary structure, said springs coacting with the support to turn the frames on their pivots.

2. In a brick and tile cutting machine, a cutter comprising a rotatable support, radially-disposed frames pivoted on said support, cutting means carried by the frames, stop means intermediate of the several frames to limit the movements of each frame about its pivot, and springs fixed to and removable with the frames as a unitary structure and coacting with the said stop means to turn the frames about their pivots.

3. In a brick and tile cutting machine, a cutter comprising a rotary support having radially-disposed pivoted frames, cutting means carried by the frames, said frames having a limited arc of movement about their pivots independent of the movement of their support and spring-actuated means fixed to and removable with the frames as a unitary structure and coacting with the frames and support and independent of the force of gravity to turn the frames about their pivots in the direction of rotation of the support.

4. In a brick and tile cutting machine, a cutter comprising a rotary support having radially-disposed pivoted frames, cutting means carried by the frames, said frames having a limited arc of movement about their pivots independent of the movement of their support and springs fixed to and removable with the frames as a unitary structure and coacting with the support and independent of the force of gravity to turn the frames about their pivots in the direction of rotation of the support.

786,004. **METHOD OF PREPARING DRESSINGS FOR BANDAGES.** MAX COHN, Berlin, Germany. Filed July 1, 1904. Serial No. 215,038.

Claim.—1. The method of preparing a dressing for bandages or the like which consists in suspending bole in a resin-soap solution, impregnating the gauze or fabric therewith and drying the same.

2. The method of preparing a dressing for bandages or the like which consists in suspending bole in a mixture of alkali and resin, and impregnating the gauze or fabric therewith, and then drying the same.

3. The method of preparing a dressing for bandages or the like, which consists in suspending bole in a resin-soap solution containing caustic soda in water, adding thereto benzoic acid, impregnating the gauze or fabric therewith, and then drying.

786,005. **ELECTRIC PROTECTOR APPARATUS.** FRANK B. COOK, Chicago, Ill. Filed Apr. 11, 1904. Serial No. 202,652.



Claim.—1. A device for protecting electrical circuits against excessive current, comprising a spring member, a small block of insulation removably mounted upon said spring member, said block of insulation being provided with a metallic handle portion and also with an opening or socket, a separable conductor seated in said socket and provided with a heat-concentrating member, the sections of said separable conductor being held together by solder, a switch-spring engaging the metallic handle portion, and a spring normally under tension and arranged to engage the projecting end portion of said separable conductor, the said solder and heat-concentrating member and second and third mentioned springs all being connected in series, and the said metallic contact and second-mentioned spring constituting a normally closed spring-socket switch adapted to receive the connecting-plug of a testing instrument.

2. Apparatus for protecting electrical apparatus against excessive current, comprising a pair of springs, a block of insulation removably mounted upon one of said springs, and provided with a metallic contact normally engaging the other of said springs, a thermal protector seated in a socket in said block of insulation, and a line-spring normally subjecting the projecting end portion of said thermal protector to lateral pressure, the said metallic contact and its adjacent spring constituting a normally closed socket-switch for receiving the contact-plug of a testing instrument.

3. A combined lightning-arrester and thermal-protector apparatus comprising a metallic support, a number of carbon lightning-arresters mounted along the edge of said support, auxiliary line-springs holding said carbon lightning-arresters in place, a block of insulation removably mounted upon each auxiliary line-spring, a heat-coil device removably mounted in each block of insulation, line-springs normally subjecting the projecting end portions of said thermal protectors to lateral pressure, contacts on said blocks of insulation, and switchboard-springs engaging said contacts, said contacts and switchboard-springs constituting normally closed switches, and each switch being adapted to receive the connecting-plug of a testing instrument.

4. The combination of a thermal protector comprising a block of insulation, a spring upon which said block of insulation is mounted, a heat-concentrating member and separable conductor mounted on said block of insulation, fusible material connecting the sections of said separable conductor and adapted to be fused by the heat of said heat-concentrating member, a spring normally exerting a lateral pressure upon one section of said separable conductor, a flat contact mounted on said block of insulation and connected with said heat-concentrating member, and another spring normally bearing against said contact, said last-mentioned spring and said contact constituting a normally closed switch-socket adapted to receive a testing-plug.

5. A thermal protector comprising a block of insulation, and a pair of springs between which said block of insulation is removably inserted, a heat-concentrating member and a separable conductor mounted in said block of insulation, a contact mounted on said block of insulation and connected with said heat-concentrating member, fusible material connecting the sections of said separable conductor and adapted to be fused by the heat of said heat-concentrating member, said contact being normally engaged by the outer of said springs, and a third spring normally exerting lateral pressure upon one section of said separable conductor, said last-mentioned spring, heat-concentrating member, the contact, and said outer spring, being adapted to be connected in series in a circuit.

6. Apparatus for protecting electrical apparatus against excessive current, comprising a thermal cut-out and a spring-socket switch in circuit therewith, said switch having normally closed contacts and being adapted to receive the connecting-plug of a testing instrument, a support upon which the whole is mounted, and the structure including portions of insulation projecting at each side of said contacts to prevent lateral displacement of the plug.

7. A protective apparatus constructed with a plurality of spring-socket switches, each having normally closed contacts adapted to be included in a line-circuit, and each adapted to receive the connecting-plug of a testing instrument, protective devices in circuit with the said switches, a support upon which the whole is mounted, and portions of insulation projecting at each side of said contacts to prevent lateral displacement of the plug.

8. Apparatus for protecting electrical circuits against excessive current, comprising thermal cut-outs and spring-socket switches, the said switches having normally closed contacts and being adapted to receive the connecting-plug of a testing instrument, and portions of insulation projecting at each side of the said contacts to prevent lateral displacement of the plug.

9. A protective apparatus constructed with a plurality of spring-socket switches adapted to receive the connecting-plug of a testing instrument, each said switch having normally closed contacts adapted to be included in a circuit, and portions of insulation projecting at each side of the said switches and adapted to prevent lateral displacement of the plug.

10. The combination with a ground-plate, of a pair of spring members for each side thereof, mounted thereon and insulated therefrom and from each other, a block of insulation removably inserted between each pair of springs, a thermal protector comprising a heat-producing member, a separable conductor, and a contact member, mounted on each block of insulation, the said contact member forming a normally closed socket-switch with the outer spring of the pair, a grooved lightning-arrester removably mounted between the inner spring of each pair and the ground-plate, a third spring for each separable conductor and adapted to engage the latter and thereby subject same to a lateral pressure, a test-plug adapted to be inserted into the socket-switches and grooves of the lightning-arresters, and

held against lateral displacement by the said grooves and means at each side of the said switches, and means for grounding one spring of a pair and closing an alarm-circuit, upon the operation of a thermal protector, substantially as described.

11. In protective apparatus for electrical circuits, the combination of a supporting-plate; a pair of springs mounted upon said plate but insulated therefrom and from each other; a thermal protector comprising a heat-producing member, a separable conductor and a contact member; said protector being removably inserted between said pairs of springs so that the said contact member forms a normally closed socket-switch with one of said springs; a third spring adapted to engage a portion of said separable conductor and to laterally separate same under abnormal conditions; and an alarm-spring between the said pair of springs and adapted to control a circuit when the said protector operates.

12. In protective apparatus for electrical circuits, the combination of a ground-plate; a pair of springs mounted upon said plate but insulated therefrom and from each other; a thermal protector comprising a heat-concentrating member, a separable conductor and a metallic handle portion; said protector being removably inserted between the said pair of springs so that the said handle portion forms a normally closed socket-switch with one of said springs; a lightning-arrester inserted between one of said springs and the ground-plate, a third spring adapted to engage a portion of said separable conductor and to laterally separate same under abnormal conditions; and an alarm-spring between said pair of springs and adapted to close an alarm-circuit and ground one of said pair of springs, when the thermal protector operates.

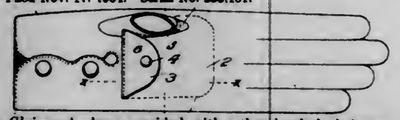
13. In apparatus of the class described, a pair of conducting members, a piece of insulating material mounted upon one of said conducting members and provided with a conductive portion normally engaging the other conducting member, a thermal protector seated in said piece of insulation, and a spring member engaging said protector and being adapted to control a circuit under abnormal conditions.

14. In apparatus of the class specified, a block of insulation suitably mounted on a support, a thermal protector seated in said insulation, and a conducting member and a spring member in circuit with said protector, the said spring member being allowed to control a circuit upon an abnormal current in the protector.

15. In apparatus of the class specified, a conducting member and a piece of insulation carried thereby, a spring member, and a thermal protector seated in said insulation and electrically in circuit with said conducting member and said spring member, the device being adapted to open the said circuit upon an abnormal current therein.

16. In apparatus of the class specified, a conducting member and a piece of insulation carried thereby, a spring member, and an excess-current operable device seated in said insulation and electrically in circuit with said conducting member and said spring member, the latter being arranged to control a circuit upon the operation of the device.

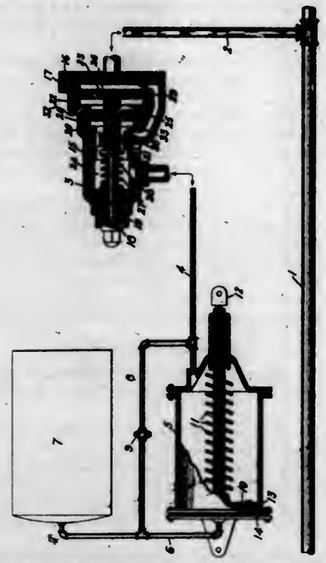
786,006. **POCKETED GLOVE.** JOHN W. COOPER, Boston, Mass. Filed Nov. 17, 1904. Serial No. 233,181.



Claim.—A glove provided with a thumb stitched thereto, and having an approximately transverse slit forming an opening, an extra piece attached to the inner side of the front of the glove and to the inner edge portion of the thumb to form a pocket and to reinforce and strengthen the thumb-seam, and a flap for closing the opening of the pocket attached to the front of the glove at the side of the slit adjacent to the wrist and at one end to the thumb, substantially as specified.

786,007. **AUTOMATIC AIR-BRAKE SYSTEM.** FRED B. COREY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 21, 1903. Serial No. 166,486.

Claim.—1. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, and means responsive to an increase in train-pipe pressure for admitting air from said train-pipe to said cylinder at opposite sides of said piston and responsive to subsequent variations of train-pipe pressure for causing variations in pressure at one side of said piston greater than the train-pipe-pressure variations which produce them.



2. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, means for entrapping compressed air in the cylinder at one side of said piston, and means responsive to a variation of train-pipe pressure for causing a variation in pressure at the other side of said piston greater than the train-pipe-pressure variation which produces it.

3. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, means responsive to an initial increase in train-pipe pressure for causing an equal increase of pressures on opposite sides of said piston and responsive to subsequent variations of train-pipe pressure for causing corresponding variations in pressure on one side of said piston greater than the train-pipe-pressure variations which produce them.

4. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston in said cylinder, connections for admitting air from the train-pipe to opposite ends of said cylinder, a check-valve in the connection leading to one end of the cylinder, and means in the connection between the train-pipe and the other end of said cylinder responsive to variations in the train-pipe pressure for producing corresponding but relatively greater variations of pressure in that end of the brake-cylinder.

5. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston in said cylinder, an auxiliary reservoir communicating with one end of said cylinder, connections for admitting air from the train-pipe to opposite ends of said cylinder, a check-valve in the connection leading to that end of the cylinder with which the auxiliary reservoir communicates, and means in the connection between the train-pipe and the other end of said cylinder responsive to variations in the train-pipe pressure for producing corresponding but relatively greater variations of pressure in that end of the brake-cylinder.

6. In an air-brake system, the combination of a train-pipe, a brake-cylinder, means operable by a reduction in train-pipe pressure to vary the pressure in the brake-cylinder to apply the brakes to produce "service" and "emergency" stops according to the amount of said reduction, and an auxiliary means for applying said brakes independent in its operation of the aforesaid means and operable upon a still further reduction of train-pipe pressure.

7. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, means for admitting compressed air from the train-pipe to opposite sides of said piston, means operable upon a reduction in train-pipe pressure to reduce the air-pressure at one side of said piston to apply the brakes, and means independent in its operation of the aforesaid means and operable upon a further reduction in train-pipe pressure for making said brake-cylinder reduction.

8. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, a valve located between said train-pipe and said brake-cylinder and operable upon variations of train-pipe pressure to control the flow of air to and from said brake-cylinder, and a check-valve located in an otherwise unobstructed passage between said brake-cylinder and said train-pipe and arranged so as to permit a flow of air only toward the train-pipe and adjusted to open only upon a variation in train-pipe pressure greater than is necessary to operate the first-mentioned valve.

9. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, an equalizing-valve connected between said train-pipe and said brake-cylinder to vary the pressure at the lower side of the brake-piston in accordance with corresponding variations in the train-pipe pressure, and a check-valve located in an otherwise unobstructed passage between the lower end of said brake-cylinder and said train-pipe and adjusted so as to permit a flow of air only toward the train-pipe and only upon a reduction in train-pipe pressure greater than is necessary to operate the equalizing-valve.

10. In an air-brake system the combination of a train-pipe, a brake-cylinder, a piston therein, and valve mechanism connected between said brake-cylinder and said train-pipe and comprising a double-headed piston having heads of different diameters subjected, the one to train-pipe pressure and the other to opposing brake-cylinder pressure, and means operated thereby for controlling the flow of air from the train-pipe to the brake-cylinder and from said brake-cylinder to atmosphere.

11. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a piston therein, means for permitting a flow of air from the lower to the upper side of said piston and preventing a flow in the opposite direction, and valve mechanism connected between said train-pipe and the lower end of said brake-cylinder and comprising a double-headed piston having heads of different diameters subjected, the one to train-pipe pressure and the other to opposing brake-cylinder pressure, and means operated thereby for controlling the flow of air from the train-pipe to the cylinder and from said brake-cylinder to atmosphere.

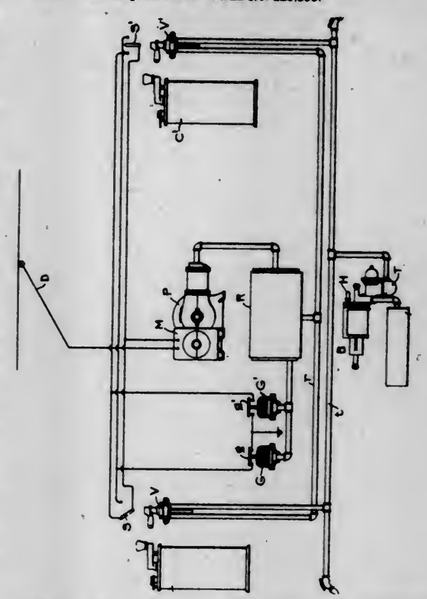
12. An equalizing-valve comprising a casing provided with train-pipe and brake-cylinder connections and an interior chamber having cylindrical portions of different diameters, and valve mechanism coöperating with ports in said casing to control the passage of air to and from the brake-cylinder, said valve mechanism comprising a double-headed piston having heads of different diameters located within the cylindrical portions of said interior chamber and subjected, the one to train-pipe pressure and the other to opposing brake-cylinder pressure, and means tending to move the piston in opposition to one of said pressures.

13. An equalizing-valve comprising a casing provided with train-pipe and brake-cylinder connections and an interior chamber having cylindrical portions of different diameters, and valve mechanism comprising a double-headed piston having heads of different diameters located within the cylindrical portions of said interior chamber and subjected, the one to train-pipe pressure and the other to opposing brake-cylinder pressure, valves operated thereby, one of said valves controlling a passage between the train-pipe and the brake-cylinder and another controlling a passage between the brake-cylinder and atmosphere.

14. An equalizing-valve comprising a casing provided with train-pipe and brake-cylinder connections and an interior chamber having cylindrical portions of different diameters, and valve mechanism comprising a double-headed piston having heads of different diameters located within the cylindrical portions of said interior chamber and subjected, the one to train-pipe pressure and the other to opposing brake-cylinder pressure, slide-valves coöperating with ports in said casing to control the flow of air from the train-pipe to the brake-cylinder and from the brake-cylinder to atmosphere, said valves being arranged on the piston-rod and having a short range of motion independent of said rod, and a graduating-valve for each slide-valve operated by the same rod to open and close ports in the slide-valves without necessarily moving said slide-valves.

15. In a valve mechanism, the combination of a piston and its rod, slide-valves arranged on said rod and having a short range of motion independent of said rod, a graduating-valve for each slide-valve operated by the same rod to open a port in one slide-valve and close a port in the other when said piston is moved in one direction and to close the former port and open the latter when said piston is moved in the opposite direction, said graduating-valves being operated without necessarily operating said slide-valves, supply and exhaust ports coöperating with said slide-valves, the exhaust-port and its slide-valve being so arranged that when said piston is moved to the limit of its travel in one direction said slide-valve will be drawn beyond the exhaust-port, and spring mechanism placed under stress by such extreme movement of the piston and serving to return the piston so as to bring the exhaust slide-valve and its graduating-valve into a position to cut off the exhaust.

786,008. **AIR-BRAKE CONTROL.** FRED B. COREY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 13, 1904. Serial No. 220,560.



Claim.—1. In a vehicle, an electric motor, an air-compressor driven thereby, a plurality of governors responsive to different pressures and each adapted to control said motor, and means under the control of the motorman for cutting either of said governors into circuit with said motor.

2. In a vehicle, an electric motor, an air-compressor driven thereby, a plurality of governors responsive to different pressures and each adapted to control said motor, and a switch adjacent to the motorman's valve adapted to cut either of said governors into circuit.

3. In a vehicle, an electric motor, an air-compressor driven thereby, a plurality of governors responsive to different pressures and each provided with contacts adapted to control said motor, and a switch arranged to close the motor-circuit through the contacts of either one of said governors.

4. In a vehicle, an electric motor, an air-compressor driven thereby, a reservoir charged by said compressor, a plurality of devices connected to said reservoir and responsive to different pressures therein, switch-contacts operatively connected to said devices respectively, and a switch adjacent to the motorman's valve, adapted to cut either of said switch-contacts into the motor-circuit.

786,009. **PROCESS OF CASTING.** FREDERICK COWDEN, Montreal, Canada, assignor of one-half to Robert Samuel Logan, Montreal, Canada. Filed May 21, 1904. Serial No. 209,068.



Claim.—1. The process of casting metallic articles consisting in causing the molten metal being cast to come into contact with an unprotected loose heap of granular substance adapted to change the

chemical and physical properties of the portion of the molten metal coming into contact therewith..

2. The process of casting an article with a portion thereof different in chemical and physical properties from the remainder, such process consisting in supporting a substance in contact with one of the walls of the mold such substance being of different chemical composition from the walls of the mold, and locating a second substance in the path of the molten material, the second-mentioned substance having an affinity for the material being cast and such substances having an affinity for one another.

3. The process of casting a metal article with a portion thereof of a different degree of hardness from the remainder, such process consisting in heaping an unprotected loose granular substance in the path of the molten metal as it flows toward the matrix, and such unprotected heap of substance being adapted to be gradually taken up and absorbed by and change the degree of hardness of the molten material which comes in contact therewith as it flows from the ingate to the wall of the matrix.

4. The process of casting an article with a portion different in chemical and physical properties from the remainder, such process consisting in supporting an unprotected loose granular substance in close proximity to one of the walls of the mold, such substance being of different chemical composition to the walls of the mold and locating a second substance above the bottom of the mold and in the path of the material being cast, the second-mentioned substance having an affinity for the material being cast and said substances having an affinity for one another.

5. The process of casting a metallic article with a portion of a different degree of hardness from the remainder, such process consisting in supporting a substance consisting of a mixture of sand pulverized carboniferous substance and molasses-water in close proximity to one of the walls of the matrix, and locating a substance in the path of the molten material, the second-mentioned substance having an affinity for the material being cast and said substances having an affinity for one another.

6. The process of casting a metallic article with a portion of a different degree of hardness from the remainder, such process consisting in supporting a substance consisting of a mixture of sand pulverized coke and molasses-water in close proximity to one of the walls of the matrix, and locating a substance in the path of the molten material, the second-mentioned substance having an affinity for the material being cast and said substances having an affinity for one another.

7. The process of casting a metallic article with a portion of a different degree of hardness from the remainder, such process consisting in supporting a substance consisting of a dampened mixture of sand and pulverized carboniferous substance in close proximity to one of the walls of the matrix, and locating a substance in the path of the molten material, the second-mentioned substance consisting of manganese.

8. The process of casting a metallic article with a portion of a different degree of hardness from the remainder, such process consisting in supporting a substance consisting of a dampened mixture of sand and pulverized coke in close proximity to one of the walls of the matrix, and locating a substance in the path of the molten material, the second-mentioned substance consisting of manganese, and said substances having an affinity for one another.

9. The process of casting which consists in filling apertures in one of the walls of the mold with a mixture of sand one (1) part and pulverized carboniferous subetance two (2) parts made damp with molasses-water, then washing the surface of such wall with a mixture of manganese one (1) part and pulverized carboniferous substance two (2) parts with molasses-water added to make a consistency of a liquid, then placing dry pulverized manganese in the mold between the ingate and the wall thus prepared, then pourning the molten metal, as set forth.

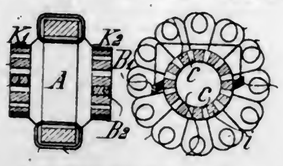
10. The process of casting which consists in filling apertures in one of the walls of the mold with a mixture of sand one (1) part and pulverized coke two (2) parts made damp with molasses-water, then washing the surface of such wall with a mixture of manganese one (1) part and pulverized coke two (2) parts with molasses-water added to make a consistency of a liquid, then placing dry pulverized manganese in the mold between the ingate and the wall thus prepared, then pouring the molten metal, as set forth.

11. The process of casting which consists in filling apertures in one of the walls of the mold with a mixture of sand one (1) part and pulverized carboniferous material two (2) parts made damp with molasses-water, then washing the surface of such wall with a mixture of manganese one (1) part and pulverized coke two (2) parts with molasses-water added to make a consistency of a liquid, then placing dry pulverized manganese in the mold between the ingate and the wall thus prepared, then pouring the molten metal, as set forth.

12. The process of casting which consists in filling apertures in one of the walls of the mold with a mixture of sand one (1) part and pulverized coke two (2) parts made damp with molasses-water, then washing the surface of such wall with a mixture of manganese one (1) part and pulverized coke two (2) parts with molasses-water added to make a consistency of a liquid, then placing dry pulverized manganese in the mold between the ingate and the wall thus prepared, then pouring the molten steel, as set forth.

13. The process of casting which consists in filling apertures in one of the walls of the mold with a mixture of sand one (1) part and pulverized coke two (2) parts made damp with molasses-water, then washing the surface of such wall with a mixture of manganese one (1) part and pulverized coke two (2) parts with molasses-water added to make a consistency of a liquid, then placing dry pulverized manganese in the mold between the ingate and the wall thus prepared, then pouring molten open-hearth steel, as set forth.

786,010. **COMMUTATING DEVICE FOR ARMATURES OF ALTERNATING-CURRENT MACHINES.** MAX DERI, Vienna, Austria-Hungary, assignor to Stanley Electric Manufacturing Company, a Corporation of New Jersey. Filed Mar. 31, 1903. Serial No. 150,487.



Claim.—1. In an alternating-current dynamo-electric machine, independent windings on the armature, and an independent commutator and brushes for each winding, said commutators and brushes being arranged to close and break the circuits of said windings alternately.

2. In an alternating-current dynamo-electric machine, independent windings on the armature, and an independent commutator and brushes for each winding arranged to make and break the circuit of said winding.

3. In an alternating-current dynamo-electric machine, independent windings on the armature, a commutator for each winding having alternate conducting and insulating segments, and a set of brushes for each commutator so positioned that one set of brushes is on conducting-segments at the instant the other set is on insulating-segments.

4. In an alternating-current dynamo-electric machine, independent windings on the armature, and a commutator and set of brushes for each winding, the insulation between adjacent commutator-segments being wider than a brush.

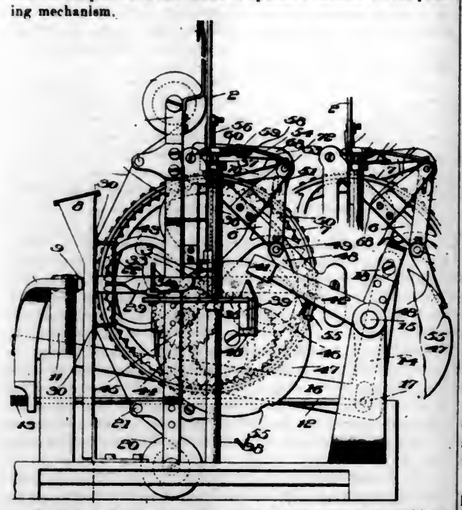
5. In an alternating-current dynamo-electric machine, independent armature-windings, and a commutator and set of brushes for each winding, the insulation between adjacent commutator-segments being wider than a brush, and said brushes being so positioned that one set is on the insulation between segments when the other set is in contact with the segments of its commutator.

6. In a commutating device for armatures of alternating-current machines, the combination with the armature, of a plurality of separate armature-windings, a plurality of commutators, one for each armature, each of said armature-windings being connected to the collectors of a corresponding armature, and brushes and brush connections for each commutator, said sets of windings, collectors, brushes and brush connections forming independent circuits, the insulating-strips of the armatures being broader than the brushes, substantially as described.

786,011. **TIME-RECORDER.** JOHN DEY and ALEXANDER DEY, Syracuse, N. Y. Filed Nov. 15, 1904. Serial No. 232,782.

Claim.—1. In combination, a platen, printing mechanism, a ribbon interposed between said platen and said printing mechanism, and clock-controlled means for shifting said ribbon laterally with respect to its direction of travel.

2. In combination, a platen, printing mechanism, a multicolored ribbon interposed between said platen and said printing mechanism, and clock-controlled means for shifting said ribbon laterally with respect to its direction of travel in such manner as to change the color of the portion of the ribbon in operative relation to said printing mechanism.



3. In combination, a type-bearing member, a printing-ribbon and clock-controlled means adapted to control mechanism for shifting said ribbon laterally with respect to said type-bearing member.

4. In combination, a type-bearing member, a multicolored printing-ribbon, and automatic means adapted to control mechanism for shifting said ribbon laterally so as to change the color of the portion thereof opposite said type-bearing member.

5. In combination, a type-bearing member, ribbon-spools, a slidably-mounted ribbon-bar to which said spools are rotatably secured, a printing-ribbon upon said spools opposite said type-bearing member, and automatic means adapted to control mechanism for sliding said ribbon-bar and changing the portion of said printing-ribbon opposite said type-bearing member.

6. In combination, a type-bearing member, a printing-ribbon opposite thereto, spools upon which said printing-ribbon is mounted, a slidably-mounted bar having parts secured thereto upon which said spools are mounted, a lever connected with said ribbon-bar, automatically-actuated means for setting said lever, and means adapted to throw said lever to one extreme of its path of travel and shift said printing-ribbon laterally with respect to said type-bearing member.

7. In combination, a type-bearing member, a multicolored printing-ribbon in operative relation thereto, spools upon which said printing-ribbon is mounted, a slidably-mounted ribbon-bar having parts secured thereto upon which said spools are mounted, a lever having a connection with said ribbon-bar, automatically-controlled means for setting said lever in operative condition, and means adapted to throw said lever to one extreme of its path of travel and shift said ribbon laterally with relation to said type-bearing member so as to bring a portion thereof of different color into operative relation thereto.

8. In apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a printing-ribbon in operative relation to said type-wheel, and means automatically controlled by said minute-wheel adapted to shift laterally said printing-ribbon with respect thereto.

9. In apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a multicolored printing-ribbon in operative relation to said type-wheel, and means automatically controlled by said wheel adapted to shift laterally said printing-ribbon with relation thereto so as to bring a portion thereof of different color into operative position.

10. In apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a slidably-mounted multicolored printing-ribbon in operative relation to said type-wheel, and means automatically controlled by parts fixed upon said wheel adapted to shift laterally said printing-ribbon and bring a portion thereof of different color into operative position.

11. In apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a slidably-mounted multicolored printing-ribbon in operative relation to said wheel, a lever connected with the part upon which said ribbon is mounted, a pivotally-mounted member connected with said lever, parts fixed upon said minute-wheel adapted to engage and swing said pivotally-mounted member and throw said lever into operative condition, and means adapted to engage said lever when in operative condition and throw the same to one extreme of its path of travel and shift said ribbon laterally so as to bring a portion thereof of different color into operative relation to said minute-wheel.

12. In an apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a slidably-mounted multicolored printing-ribbon in operative relation to said type-wheel, a ribbon-bar affixed to the mounting of said ribbon, a pivotally-mounted lever connected with said ribbon-bar, a pivotally-mounted member having a connection with said lever, parts fixed upon said minute-wheel adapted to engage and swing said pivotally-mounted member and throw said lever into operative condition, means adapted to engage said lever when in operative condition and throw the same to one extreme of its path of travel and slide said ribbon laterally with respect to said minute type-wheel in such manner as to bring a portion thereof of different color into operative position, and means automatically controlling the engagement of said parts upon said minute-wheel with said pivotally-mounted member.

13. In an apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a slidably-mounted multicolored printing-ribbon in operative relation to said type-wheel, a ribbon-bar affixed to the mounting of said ribbon, a pivotally-mounted lever connected with said ribbon-bar, a pivotally-mounted member having a connection with said lever, parts fixed upon said minute-wheel adapted to engage and swing said pivotally-mounted member and throw said lever into operative condition, means adapted to engage said lever when in operative condition and throw the same to one extreme of its path of travel and slide said ribbon laterally with respect to said minute type-wheel in such manner as to bring a portion thereof of different color into operative position, a disk driven by said minute-wheel-operating mechanism having a recessed outer surface, a member adapted to rest against said outer surface, and a connection between said last-mentioned member and said pivotally-mounted member whereby the engagement of said parts upon said minute-wheel with said pivotally-mounted member is determined by the contour of said disk.

14. In combination, a type-bearing member, a platen, manually-actuated means adapted to bring said type-bearing member and said platen into operative condition with relation one to another, a printing-ribbon between said type-bearing member and said platen, clock-controlled ribbon-shifting mechanism, and a connection between said ribbon-shifting mechanism and said manually-actuated means whereby the latter is adapted to shift laterally said printing-ribbon.

15. In combination, a type-bearing member, a platen, manually-actuated means adapted to bring said type-bearing member and said platen into operative relation one to another, a multicolored slidably-mounted printing-ribbon between said type-bearing member and said platen, shifting mechanism adapted to shift laterally said slidably-mounted printing-ribbon with respect to said type-bearing member, and a connection between said shifting mechanism and said manually-actuated means whereby the latter is adapted to operate said shifting mechanism and bring a portion of ribbon of different color into operative position.

16. In combination, a type-bearing member, a platen, manually-actuated means adapted to bring said type-bearing member and said platen into operative condition with relation one to another, a multicolored slidably-mounted printing-ribbon between said platen and said printing mechanism, shifting mechanism adapted upon operation to slide said ribbon laterally with respect to said type-bearing member and bring a portion thereof of different color into operative position, and means whereby said manually-actuated means is adapted to operate said shifting means upon the latter being set in operative condition.

17. In combination, a type-bearing member, a platen, manually-actuated means adapted to bring said type-bearing member and said platen into operative position with relation one to another,

a multicolored slidably-mounted printing-ribbon between said platen and said type-bearing member, shifting mechanism adapted to slide said printing-ribbon laterally with relation to said type-bearing member and bring a portion thereof of different color into operative position, means automatically controlled by said type-bearing member adapted to set said shifting mechanism in operative condition, and means whereby said manually-actuated means is adapted to operate said shifting mechanism upon the same being set in operative condition.

18. In combination, a type-bearing member, a printing-ribbon in operative relation thereto, manually-actuated means adapted to cause said type-bearing member to make an impression, means for shifting said printing-ribbon laterally with respect to said type-bearing member, automatic means for setting said shifting means in operative condition, and means whereby said manually-actuated means is adapted to operate said shifting mechanism upon the same being set in operative condition.

19. In combination, printing mechanism, a printing-ribbon, means adapted to shift said printing-ribbon with respect to said printing mechanism, automatic means for controlling said shifting means, and means adapted to lock said controlling means in each of its extreme positions.

20. In combination, printing mechanism, a multicolored printing-ribbon, means adapted to shift said printing-ribbon laterally with respect to said printing mechanism so as to bring a portion thereof of different color into operative position, automatic means for controlling said shifting mechanism, and means adapted to lock said controlling means in each of its extreme positions.

21. In combination, a type-bearing member, a printing-ribbon in operative relation thereto, means adapted to shift laterally said printing-ribbon with relation to said type-bearing member, means actuated by parts upon said type-bearing member controlling said shifting mechanism, and means adapted to lock said controlling means in each of its extreme positions.

22. In combination, a type-bearing member, a printing-ribbon in operative relation thereto, means adapted to shift laterally said printing-ribbon with relation to said type-bearing member, means actuated by parts upon said type-bearing member controlling said shifting mechanism, and means adapted to lock said controlling means in each of its extreme positions and to lock the same against movement in one direction when in an intermediate position.

23. In combination, printing mechanism, a multicolored slidably-mounted printing-ribbon in operative relation to said printing mechanism, a lever adapted to shift the same laterally with respect to said printing mechanism, a pivotally-mounted member connected with said lever and adapted to set the same in operative condition, automatic means for controlling the movement of said pivotally-mounted member, and means adapted to lock the same in each of its extreme positions against movement in either direction and in an intermediate position against movement in one direction.

24. In combination, printing mechanism, a multicolored slidably-mounted printing-ribbon in operative relation thereto, a lever adapted to shift said printing-ribbon laterally with respect to said printing mechanism so as to bring a portion thereof of different color into operative position, a pivotally-mounted member connected with said lever and adapted to set the same in operative condition, automatic means adapted to actuate said pivotally-mounted member, a plurality of locking-levers adapted to control the position thereof, one of said levers being provided with teeth adapted to prevent the movement of said pivotally-mounted member in one direction and the other of said levers being provided with oppositely-directed teeth adapted to lock said pivotally-mounted member against movement in the opposite direction, and means for releasing said levers.

25. In combination, printing mechanism, a multicolored slidably-mounted printing-ribbon in operative relation thereto, a lever adapted to shift said printing-ribbon laterally with respect to said printing mechanism so as to bring a portion thereof of different color into operative position, a pivotally-mounted member connected with said lever and adapted to set the same in operative condition, automatic means adapted to actuate said pivotally-mounted member, a plurality of locking-levers adapted to control the position thereof, one of said levers being provided with teeth adapted to prevent the movement of said pivotally-mounted member in one direction and the other of said levers being provided with oppositely-directed teeth adapted to lock said pivotally-mounted member against movement in the opposite direction, and means for releasing said levers, said automatic means comprising parts upon said printing mechanism adapted to engage and swing said pivotally-mounted member.

26. In combination, a type-bearing member, a multicolored printing-ribbon, mechanism adapted to shift said printing-ribbon laterally with respect to said type-bearing member so as to bring a portion thereof of different color into operative position, automatic means adapted to control said shifting means, and a visual indicator connected with said shifting mechanism and adapted to change from one to another of two alternative positions when said ribbon is shifted.

27. In combination, a type-bearing member, a multicolored printing-ribbon, means adapted to shift said printing-ribbon laterally with respect to said type-bearing member so as to bring a portion thereof of different color into operative condition, and a visual indicator connected with said shifting mechanism adapted to move from one to another of two alternative positions when said ribbon is shifted and display a surface of a color substantially identical with that of the portion of the printing-ribbon which is in operative position.

28. In combination, a type-bearing minute-wheel, a platen, means adapted to bring said wheel and said platen into operative relation one to another, a multicolored slidably-mounted printing-ribbon between said platen and said type-bearing minute-wheel, a lever connected with a part upon which said ribbon is mounted and adapted to shift the same laterally with respect to said type-bearing minute-wheel so as to bring a portion thereof of different color into operative position, a pivotally-mounted member connected with said lever, parts upon said minute-wheel adapted to engage and swing said pivotally-mounted member and set the same in operative condition, and a part upon said manually-actuated means adapted to strike and actuate said lever and shift said ribbon upon said lever being set in operative condition.

29. In apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a slidably-mounted multicolored printing-ribbon in operative relation to said type-wheel, means automatically controlled by said minute-wheel adapted to shift laterally said printing-ribbon and bring a portion thereof of different color into operative position, and means adapted to lock said controlling mechanism in each of its two alternative positions.

30. In apparatus of the class described, in combination, printing mechanism comprising a minute type-wheel and mechanism for operating the same, a slidably-mounted multicolored printing-ribbon in operative relation to said type-wheel, means automatically controlled by said minute-wheel adapted to shift laterally said printing-ribbon and bring a portion thereof of different color into operative position, and positive means adapted to lock said controlling mechanism in each of its two alternative positions and to lock the same against movement in one direction when in an intermediate position.

31. In combination, a type-bearing member, a platen, manually-actuated means adapted to bring said type-bearing member and said platen into operative relation one to another, a slidably-mounted multicolored printing-ribbon between said platen and said type-bearing member, means adapted to shift said printing-ribbon in relation to said type-bearing member in such manner as to bring a portion thereof of different color into operative position, automatic means adapted to set said shifting means in operative condition, means adapted to lock said automatic means in its two extreme positions, and a connection whereby said manually-actuated means is adapted to cause the operation of said shifting means when the latter is in operative condition.

32. In apparatus of the class described, in combination, printing mechanism comprising a minute-wheel and mechanism for operating the same, manually-actuated means adapted to cause the operation of said printing mechanism, a multicolored slidably-mounted ribbon in operative relation to said printing mechanism, means adapted laterally to shift said ribbon and bring a portion thereof of different color into operative position, automatic means adapted to set said shifting mechanism in operative condition, means adapted to lock said setting means in each of its two extreme positions, and a member upon said manually-actuated means adapted to engage and operate said shifting mechanism upon the latter being set in operative condition.

33. A clock-controlled time-recorder comprising time-printing mechanism adapted to print records of different classes in distinctive impressions.

34. A clock-controlled time-recorder comprising time-printing mechanism adapted automatically to print records of different classes in distinctive colors.

35. A clock-controlled time-recorder having automatically-acting time-printing means adapted to print regular records in a certain color and irregular records in a certain other color.

36. In a time-recorder, in combination, a type-bearing member, a multicolored printing-ribbon in operative relation thereto, means adapted to shift said ribbon to bring a portion thereof of different color into operative position with respect to said type-bearing member, and a power-actuated disk adapted automatically to control said ribbon-shifting mechanism.

37. In a time-recorder, in combination, a type-bearing member, a multicolored printing-ribbon in operative relation thereto, means adapted laterally to shift said printing-ribbon to bring a portion thereof of different color into operative position with respect to said type-bearing member, and a power-actuated disk having irregularities in the outer surface thereof adapted to control said ribbon-shifting mechanism in accordance with the form and position of said irregularities.

38. In a time-recorder, a type-bearing member, a multicolored printing-ribbon in operative relation thereto, means adapted laterally to shift said printing-ribbon to bring a portion thereof of different color into operative position with respect to said type-bearing member, a disk having irregularities in the outer surface thereof, and a wiper-arm resting upon said disk adapted to control said ribbon-shifting mechanism in accordance with the position and form of said irregularities.

39. In a time-recorder, in combination, a type-bearing minute-wheel, a power-transmitting member adapted to drive the same, a multicolored printing-ribbon in operative relation to said wheel, a lever adapted to shift said printing-ribbon laterally to bring a portion of said printing-ribbon of different color in operative relation to said wheel, a disk driven from said power-transmitting member and having irregularities in its surface, and a wiper-arm resting upon said disk and adapted to control the position of said lever in accordance with the form and position of said irregularities upon said disk.

40. In combination, a platen, printing mechanism, a vertical multicolored printing-ribbon interposed between said platen and said printing mechanism, and automatic means for shifting said ribbon laterally with respect to its direction of travel in such manner as to change the color of the portion of the ribbon in operative relation to said printing mechanism.

41. In a time-recorder, in combination, a type-bearing member, a card-receiver having a closed back, a multicolored printing-ribbon in operative relation to said type-bearing member and positioned between the same and said closed card-receiver, and automatic means adapted to control mechanism for shifting said ribbon laterally so as to change the color of the portion thereof opposite said type-bearing member.

42. In a time-recorder, in combination, a type-bearing member, a card-receiver having a closed back, a multicolored vertical printing-ribbon positioned between the back of said card-receiver and said type-bearing member, and automatic means adapted to control mechanism for shifting said ribbon laterally so as to change the color of the portion thereof opposite said type-bearing member.

43. In a time-recorder, printing mechanism, a multicolored printing-ribbon adapted to travel in operative relation thereto, said ribbon being mounted movable in a lateral direction with respect to its direction of travel, and a single means adapted to actuate said printing mechanism and to move said printing-ribbon laterally so as to bring a portion thereof of different color into operative position.

44. In a time-recorder, printing mechanism, a multicolored printing-ribbon adapted to travel in operative relation thereto, said ribbon being mounted movable in a lateral direction with respect to its direction of travel, means adapted to move said ribbon laterally, automatic means adapted to set the same in operative condition, and manually-actuated means adapted to actuate said printing mechanism and to move said printing-ribbon laterally so as to bring a portion thereof of different color into operative position upon said first-mentioned means being set in operative condition.

45. In a time-recorder, printing mechanism, a multicolored printing-ribbon adapted to travel in operative relation thereto, said ribbon being mounted movable in a lateral direction with respect to its direction of travel, means adapted to actuate said printing mechanism and to move said printing-ribbon laterally so as to bring a portion thereof of different color into operative position, and an automatically-actuated visual indicator adapted to indicate the color which the recorder is in condition to print.

46. In a time-recorder, printing mechanism, a multicolored printing-ribbon adapted to travel in operative relation thereto, said ribbon being mounted movably in a lateral direction with respect to its direction of travel, means adapted to move said printing-ribbon laterally, automatically-actuated means adapted to set said first-mentioned means in operative condition, manually-actuated means adapted to actuate said printing mechanism and to actuate said ribbon-moving mechanism so as to bring a portion of said ribbon of different color into operative position upon said ribbon-moving mechanism being set in operative condition, and an automatically-actuated visual indicator adapted to indicate the color which the recorder is in condition to print.

47. In a time-recorder, in combination, a platen, printing mechanism, a ribbon interposed between said platen and said printing mechanism, and automatic clock-controlled means for shifting said ribbon laterally with respect to its direction of travel.

48. In a time-recorder, in combination, a platen, printing mechanism, a multicolored ribbon interposed between said platen and printing mechanism, and automatic clock-controlled means for shifting said ribbon laterally with respect to its direction of travel in such manner as to change the color of the portion of the ribbon in operative relation to said printing mechanism.

49. In a time-recorder, in combination, a type-bearing member, a printing-ribbon, and automatic clock-actuated means adapted to control mechanism for shifting said ribbon laterally with respect to said type-bearing member.

50. In a time-recorder, in combination, a type-bearing member, a multicolored printing-ribbon, and automatic clock-actuated means adapted to control mechanism for shifting said ribbon laterally so as to change the color of the portion thereof in operative relation to said type-bearing member.

51. In a time-recorder, in combination, a type-bearing member, a printing-ribbon in operative relation thereto, manually-actuated means adapted to cause said type-bearing member to make an impression, means for shifting said printing-ribbon laterally with respect to said type-bearing member, automatic means for setting one of the two last-mentioned means in operative condition, and means whereby said manually-actuated means is adapted to operate said shifting mechanism upon such setting taking place.

52. A clock-controlled time-recorder comprising time-printing mechanism adapted to print records of different classes with the colors of the impressions distinctive of each class.

53. A clock-controlled time-recorder comprising time-printing mechanism adapted automatically to print records of different classes with the impressions in distinctive colors.

54. A clock-controlled time-recorder having automatically-actuated time-printing means adapted to print regular records with an impression of a certain color, and irregular records with an impression of a certain other color.

55. In a time-recorder, a printing mechanism, a multicolored printing-ribbon adapted to travel in operative relation thereto, said ribbon being mounted movably in a lateral direction with respect to its direction of travel, means adapted to move said printing-ribbon laterally, automatically-actuated means adapted to set said first-mentioned means in operative condition, and manually-actuated means adapted to actuate said printing mechanism and to actuate said ribbon-moving mechanism so as to bring a portion of said ribbon of different color into operative relation to said printing mechanism upon said ribbon-moving mechanism being set in operative condition.

56. In a time-recorder, in combination, a type-bearing member, a multicolored printing-ribbon in operative relation thereto, a clock-driven member, a lever adapted to be actuated by said clock-driven member, means adapted to shift said printing-ribbon laterally in such manner as to bring a portion thereof of different color in operative relation to said type-bearing member, a manually-actuated lever, and means controlled by said first-mentioned lever whereby a subsequent actuation of said manually-actuated lever will shift said ribbon.

57. In a time-recorder, in combination, a type-bearing member, a multicolored printing-ribbon in operative relation thereto, means adapted to shift said ribbon in such manner as to bring a portion thereof of different color in operative relation to said type-bearing member, a clock-actuated member, a lever controlled by said clock-actuated member, a manually-actuated lever, and means automatically controlled by said first-mentioned lever whereby, upon actuation thereof, a subsequent actuation of said manually-controlled lever will shift said ribbon.

58. In a time-recorder, in combination, a type-bearing member, a movable printing-ribbon adapted to travel adjacent thereto, means adapted to shift said printing-ribbon laterally with respect to its normal direction of travel, clockwork, a rotary member driven from said clockwork, a pivotally-mounted lever adapted to be contacted and actuated by parts upon said rotary member, a hand-lever, and means adapted to be set in operative condition by said first-mentioned lever,

said means being adapted, upon being set in operative condition, operatively to connect said hand-lever and said shifting mechanism.

59. In a time-recorder, in combination, a type-bearing member, a multicolored printing-ribbon adapted to travel in operative relation thereto, means adapted to shift said ribbon laterally with respect to its direction of travel in such manner as to bring a portion of different color in operative relation to said type-bearing member, a hand-lever, a clock-actuated rotary disk, a pivotally-mounted lever adapted to be actuated by parts upon said disk, and means adapted to be set in operative condition by said last-mentioned lever, said hand-lever being adapted to be actuated without affecting said ribbon-shifting mechanism when said last-mentioned means is in inoperative condition and being adapted, upon actuation, to operate said ribbon-shifting mechanism when said means is in operative condition.

60. A time-recorder including, in combination, time-controlled printing mechanism, means for taking impressions from said printing mechanism upon a record-surface, and means whereby the impressions made by said printing mechanism during different predetermined intervals are made in different colors.

61. A time-recorder including, in combination, time-controlled printing mechanism, means for taking impressions from said printing mechanism upon a record-surface, and automatic time-controlled means adapted to cause the impressions made by said printing mechanism during different predetermined intervals of time to appear in different colors.

62. In a time-recorder, in combination, time-controlled printing mechanism, means for taking impressions from said printing mechanism upon a record-surface, and automatic means whereby said impressions of different classes are made in colors distinctive of said classes.

63. In a time-recorder, in combination, time-controlled printing mechanism, means for taking impressions from said printing mechanism upon a record-surface, and automatic time-controlled means adapted to cause such impressions of different classes to appear in colors distinctive of said classes.

64. In a time-recorder, in combination, time-controlled printing mechanism, means for taking impressions from said printing mechanism upon a record-surface, and automatic means whereby irregular records formed by said impressions are made in a certain color and regular records in a certain other color.

65. A time-recorder, including, in combination, time-controlled marking devices, means for producing records therefrom, and means whereby records of different classes are made by marks having distinguishing characteristics.

66. A time-recorder including, in combination, time-controlled marking devices, means for producing records therefrom, and means whereby records of regular and of irregular character are made by marks having distinguishing characteristics.

786,012. TOY CIGAR FOR BLOWING SMOKE RINGS. NOBLE J. DILDAY, Indianapolis, Ind. Filed Mar. 5, 1904. Serial No. 196,642.



Claim.—1. A device for blowing smoke rings comprising a body having a continuous passage therethrough, the middle portion of the passage being a chamber greater in diameter and relatively shorter than the end portions of the passage, one end portion having less diameter than the other, and also having a restricted inlet-orifice, the other end portion having a uniform diameter extending straight from the chamber unobstructedly to the end of the body.

2. A device for blowing smoke rings comprising a body having a blast-passage the inlet-orifice of which is short and of considerably less diameter than that of the passage, a chamber communicating with the blast-passage, an outlet-barrel having less internal diameter than that of the chamber and having unobstructed communication directly therewith, and an annular device at the inner end of the outlet-barrel having identical diameter and concentric with the axis of the inner end of the blast-passage.

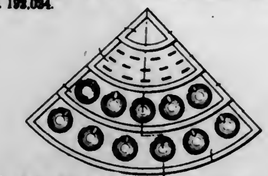
3. A device for blowing smoke rings comprising a body having a chamber therein partially closed at its ends, a partition in the chamber having a central aperture and otherwise imperforate, an inlet-passage to the chamber, and an outlet-passage in alinement with the aperture in the partition and having a diameter less than that of the chamber and in unobstructed communication therewith.

4. A device for blowing smoke rings comprising a body having therein a small inlet-orifice, a blast-passage greater in diameter throughout than the orifice and communicating directly therewith, a chamber in direct unobstructed communication with the blast-passage, an annular device situated in the chamber coöperating with the blast-passage serving to form smoke in the chamber into rings when acted on by air-blasts, and an outlet-passage for the smoke rings coöperating with the annular device in perfecting the smoke rings.

5. A device for blowing smoke rings comprising a body having a chamber therein, an inlet-passage to the chamber restricted at the outer or inlet orifice thereof, and a relatively long outlet-passage from the chamber and the wall of the passage extending into the chamber toward the inner end of the inlet-passage forming a short annular projection, the outlet-passage being greater in diameter than the inlet-passage and less in diameter than the chamber.

6. A new article of manufacture consisting of a body having a passage therethrough through which smoke may be blown, the passage comprising a short inlet part having a small diameter at one end of the body a relatively long blast-passage part having a greater diameter than the short part and communicating therewith, a relatively short chamber part having a greater diameter than the blast-passage part and communicating therewith, and a relatively long outlet-passage part having less diameter than the chamber part and communicating therewith, the outlet-passage part being greater in diameter than the blast-passage part, the walls of the body extending into the chamber part at opposite ends thereof as short annular projections, substantially as and for the purposes shown and described.

786,013. JEWELER'S DISPLAY-STAND. CHARLES F. DOMANN, Chicago, Ill., assignor to Peter Berns, Chicago, Ill. Filed Feb. 4, 1904. Serial No. 192,034.



Claim.—1. A jeweler's display-stand comprising in combination, a plurality of hollow units open on one side, said units being adapted to be disposed one above the other to present display-surfaces of various shapes and sizes, said units being provided interiorly adjacent the open sides thereof with supports, and display-plates adapted to be inserted in said open sides, and rest upon said supports, said display-plates being provided with devices adapted for displays of special forms of jewelry.

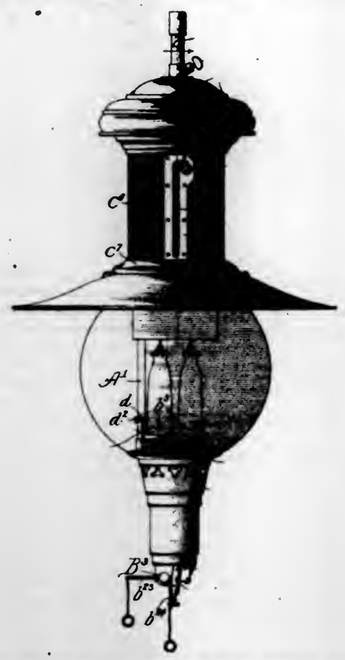
2. A jeweler's display-stand, comprising in combination, a plurality of hollow units open on one side, said units being adapted to be disposed one above the other to present display-surfaces of various shapes and sizes, said units being provided interiorly adjacent the open sides thereof with supports, and display-plates adapted to be inserted in said open sides and rest upon said supports, said display-plates being provided with devices adapted for displays of special forms of jewelry, and cushioned horizontal walls in the upper units provided with recesses for the reception of rings and adapted to receive pins and the like.

3. A jeweler's display-stand comprising one or more sets of hollow units, each set comprising a plurality of hollow segmental receptacles of successively smaller radius open on one of their segmental faces and adapted to be mounted one upon the other to form display-surfaces of various sizes and contour, display-plates provided with devices adapted for the display of special forms of jewelry adapted to be removably mounted in the said open sides of said receptacles, said receptacles being adapted to be mounted one within the other for shipment, and several sets of said units being adapted to be set up side by side to form display-stands of various shapes and sizes.

786,014. GAS-LAMP. JOHN DOORENDOS, New York, N. Y. Filed May 12, 1904. Serial No. 207,594.

Claim.—1. In a lamp, the combination of a chimney-cylinder having a perforate upper end, an inner downturned hollow frusto-conical top member secured thereon and depending into said perforate end, a surmounting hood encircling said perforate end, and a pipe extending through said hood and inner top member and supporting the chimney structure, for the purpose set forth.

2. In a lamp, the combination of a chimney-cylinder having a perforate upper end, a wind-shield encircling said cylinder below its perforate portion, and a hood surmounting said cylinder and having an annular flange inclosing said wind-shield and separated therefrom by a short space, for the purpose set forth.



3. The combination of a chimney-cylinder, equipped near its upper end with an encircling wind-shield, a hood having an annular flange encompassing said wind-shield, a protecting-cylinder of non-corrosive material inclosing said first-named cylinder beneath said wind-shield, said cylinders being provided with a vertical slot, a cylindrical mantle-shield within said first-named cylinder and equipped with a handle projecting at said slot, and an annular hood encircling the lower portion of said first-named cylinder, for the purpose set forth.

4. The combination of a chimney-cylinder having a perforate upper end, a downturned cone-frustum supported on the upper end of said cylinder and provided centrally with a perforation, a hood surmounting said cylinder and having a central perforation, an upturned hollow cone-frustum within said cylinder and connected therewith beneath its perforate portion, an inner cylindrical mantle-shield, and pin-and-slot connection between said mantle-shield and said cylinder, for the purpose set forth.

5. The combination of a chimney-cylinder having a surmounting hood, an annular hood encircling the lower portion of said cylinder and having its lower portion separated therefrom by a short space, said last-named hood having an annular shoulder for receiving a shade, a shade supported beneath said annular shoulder, and a Bunsen burner and a vertically-movable globe thereon having its upper end sheltered beneath said second-named hood, for the purpose set forth.

6. The combination of a supporting-pipe having a closed lower end, a parallel non-axial branch pipe connected therewith near the lower end thereof, mantle-supports connected with said supporting-pipe, a Bunsen burner supported by said branch pipe, a vertically-movable globe supported on said burner, a chimney cylinder having a surmounting hood with a central perforation receiving said supporting-pipe, said chimney-cylinder being fixed to said supporting-pipe, and a shade supported by said chimney, for the purpose set forth.

7. The combination of a chimney-cylinder having a vertical slot, a protecting-envelop of sheet material having its vertical edges joined by a binding-strip equipped with a slot registering with said first-named slot, a surmounting hood for said first-named cylinder, an annular hood having a flange confined by the lower end of said protecting-envelop, and a mantle-shield within said chimney-cylinder and equipped with a handle projecting through said slots, substantially as and for the purpose set forth.

8. The combination of a supporting-pipe, a burner-body connected therewith, a globe-support guide, a vertically-movable globe-support on said guide comprising an inner and outer member, the outer member being perforate in its upper portion and imperforate at its lower portion, a screen between the outer and inner members of the globe-support below the perforate portion of said outer member, and a globe resting upon said globe-support, for the purpose set forth.

9. The combination of a Bunsen burner equipped at its upper end with a plurality of burner-orifices, a tubular guide inclosing the burner-body and provided at its lower end with a plurality of perforations, a globe-support comprising an inner member equipped at its lower end with a plurality of perforations, and an outer member having a perforate upper portion and imperforate lower portion, and a screen confined between the members of said globe-support and located above the perforations of the inner member and below the perforations of the outer member of the globe-support, for the purpose set forth.

10. The combination of a burner-body equipped at its upper end with a plurality of burner-orifices, a guide-cylinder connected with said burner-body and provided at its lower end with perforations, and a globe-support comprising an inner member fitting upon said guide-cylinder and provided at its lower portion with perforations registering with the perforations of the guide-cylinder, and an outer member formed integrally with the inner member and provided at its upper portion with perforations, the junction between the outer and inner members being at the lower ends thereof, for the purpose set forth.

11. The combination of a burner-body provided at its upper end with a plurality of burner-orifices, a base detachably connected with said burner-body and equipped with a yielding catch for a globe-support, a cylindrical guide connected with said burner-body, and provided at its lower portion with perforations, and a globe-support resting upon said catch and comprising an inner member slidable upon said cylindrical guide and provided at its lower portion with perforations, and an outer member connected at its lower portion with the lower portion of said inner member, and flaring upwardly, said outer member being provided at its upper portion with perforations, for the purpose set forth.

12. In a street-lamp, the combination of a burner-body, a vertically-depressible globe-support thereon, a globe depressible therewith, and a fixed chimney equipped with a surmounting hood and a screen thereat, said globe-support comprising an inner member provided at its lower end with air-inlets, an outer member provided at its upper end with air-inlets, and an annular screen confined between said inner and outer members beneath said last-named perforations, for the purpose set forth.

13. The combination of a Bunsen burner equipped with a main burner, a gas-conduit through which gas is supplied to the mixing-chamber of said Bunsen burner, a pilot-burner having a passage of adjustable size located adjacent to the main burner and external thereto, said pilot-burner having a passage connecting at the base of the burner-body with said gas-conduit, and a valve at the base of the burner-body controlling the passage of gas to the mixer-chamber and to the lower end of said second-named passage of the pilot-burner, substantially as and for the purpose set forth.

786,015. REINFORCEMENT FOR CONCRETE STRUCTURES. ARTHUR N. DOUD, North Stockholm, N. Y. Filed Apr. 21, 1904. Serial No. 204,255.

Claim.—1. The herein-described reinforcement for concrete construction, comprising a tension-bar having retaining-arms formed on opposite sides thereof extending upward, and a compression-bar anchored at its ends in the tension-bar and having its central portion arched.

2. The herein-described reinforcement for concrete construction, comprising a tension-bar having retaining-arms formed on opposite sides thereof extending upward, and a compression-bar between the retaining-arms anchored at its ends in the tension-bar, and having its central portion arched.

3. The herein-described reinforcement for concrete constructions, comprising a tension-bar having retaining-arms extending upward therefrom, a compression-bar arched at its center and having

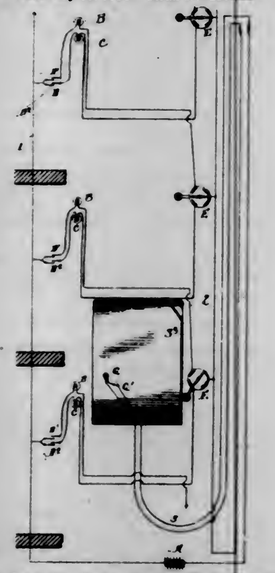
its ends anchored to the ends of the tension-bar, and clips connecting the center of the tension and compression bars.



4. The herein-described reinforcement for concrete construction, comprising a tension-bar having retaining-arms extending upward therefrom, said retaining-arms being wedge-shaped with their greatest width at their free ends, and a compression-bar anchored at its ends in the tension-bar, and having its central portion arched.

5. The herein-described reinforcement for concrete construction, comprising a tension-bar having retaining-arms extending upward therefrom at acute angles, the arms on one half of the bar being inclined in the opposite direction from those on the other half, and a compression-bar anchored at its ends in the tension-bar, and having its central portion arched.

786,016. COMBINED ELECTRIC AND MECHANICAL SIGNAL APPARATUS FOR ELEVATORS. WILLIAM T. DULANY, Jr., Brooklyn, N. Y. Filed May 11, 1904. Serial No. 207,885.



Claim.—1. In a signaling system for elevators, two lamps located in the hall of each floor, a double-throw switch located between each floor, a lamp traveling with the car of the elevator, a push-button electromagnetic switch apparatus located on each floor, each push-button electromagnetic switch apparatus containing two push-buttons, one marked "Up" and the other "Down," two switches located in each push-button electromagnetic switch apparatus, each switch adapted to be closed and locked by the pushing in of the push-button, one terminal of each of the lamps in the hall being connected to one member of one switch in the electromagnetic switch apparatus upon the same floor, the other members of said switches being connected to the source of electrical supply, the other terminal of one of the lamps being connected to one binding-post of the double-throw rheostat-switch above, the other terminal of the other lamp connected to the binding-post of the double-throw rheostat-switch below, all of said double-throw switches being connected to a wire extending through a suitable fuse-box, flexible cable and signal in the car to the source of electricity, a movable switch-arm provided upon each double-throw switch, said switch-arms adapted to be moved upward when the car is traveling upward, and moved downward when the car is descending, as and for the purpose specified.

2. In a signaling system for elevators, a push-button switch apparatus located on each floor, each push-button apparatus consisting of two push-buttons, one marked "Up" and the other "Down," two switches located in each push-button apparatus, one switch operated by each push-button, said switches adapted to be closed and locked by the pressing inward of the push-button, two signals located in the hall in front of each elevator upon each floor, one marked "Up" and the other "Down," one terminal of each signal in the halls connected in multiple to one source of electricity, the switch controlled by the push-button marked "Up" included in the circuit from the signal marked "Up" to the source of supply, and the switch controlled by the push-button marked "Down" included in the circuit from the signal marked "Down" to the source of supply, a series of double-throw rheostat-switches located between each floor, the other terminal of the signal marked "Up" being connected to one binding-post of the double-throw switch next below, and the other terminal of the signal marked "Down" being connected to one binding-post of the double-throw switch next above, one binding-post of each double-throw switch being connected to a return-wire extending to the source of electricity, said return-wire extending through a flexible cable to an elevator-car, an electric signal and switch included in said circuit within the car, a movable contact-arm carried by each double-throw switch which are adapted to be raised or lowered as the car ascends or descends to establish a circuit through one or the other of the signals or alarms located in the hall, according to the push-button which is actuated, magnetic means located in each push-button apparatus for releasing the locking arrangement of the switch as soon as the current is established but holding the switch closed as long as the current continues to flow, the parts automatically returning to their normal position when the current is broken by the double-throw switch returning to its normal position, as specified.

3. In a signaling system for elevators, two lamps located in the hall upon each floor in front of each elevator, a source of electricity, an automatic push-button electromagnetic switch apparatus located upon each floor, each push-button apparatus containing two push-buttons, one marked "Up" and the other "Down," a switch controlled by each push-button, a series of two-way switches located between each floor, each two-way switch composed of three contacts, a movable-arm carried by each switch, one contact of each two-way switch being connected to a return-wire extending to the source of electricity, the second contact of each two-way switch being connected through one of the lamps on the floor above to the switch controlled by the push-button marked "Up" on the floor above, and the third contact being connected through one of the lamps on the floor below to the switch controlled by the push-button marked "Down" on the floor below, each of said switches in the push-button apparatus being connected to the other terminal of source of electricity, a spring normally holding the movable arm of each two-way switch out of contact with any of the three contacts, a shoe or friction-surface arranged upon the car adapted to come in contact with the movable arm of the two-way switches as the car ascends or descends to raise or lower said contact-arms and thus establish a circuit through either one of the switches and lamps upon each floor according to the push-button that is actuated and according to the direction in which the car is traveling, means for unlocking the push-button switch apparatus and allowing the parts to return to their normal position as the circuit is made and broken in the two-way switches, and a signal and switch carried by the car included in the return-wire, as specified.

4. In a signaling system for elevators, the combination of the source of electricity, two signal-lamps located on each floor in front of each elevator, a series of two-way switches located a slight distance below each floor, one binding-post of each two-way switch being connected to the other source of electricity, said two-way switches adapted to be operated by the ascending and descending of the elevator with a push-button switch apparatus located on each floor, each push-button apparatus consisting of two push-buttons, two electromagnets in each apparatus, two switches located in each apparatus, one member of one switch being connected to one terminal of one half of the lights in the same hall after passing through the magnet controlling said switch in the push-button apparatus, one member of the other switch being connected to one terminal of the other half of the lamps in the same hall after passing through the magnet controlling said switch in the push-button apparatus, the other members of the switches being connected to the source of electricity, the other terminals of half of the lights being connected to one binding-post of their respective two-way switches directly below, the other terminals of the other half of the lights being connected to their respective two-way switches next above, two movable armatures, one for each magnet, said armatures adapted to close the switches when operated, springs normally holding the armatures in their normal positions with the switches open, means for operating either one of these armatures by the pressing inward of their respective push-buttons, means for locking these armatures in this position against the tension of their springs, springs for returning the push-buttons to their normal position after being released, locking devices, one for each magnet, said locking devices adapted to hold the armatures in the position placed by the push-buttons by means of the tension of the armature-springs, said locking devices so constructed that they will automatically release and unlock the armatures when the magnets are energized, said armatures then remaining in their operated position by the attraction of the magnets as long as the current is flowing through said magnets, the armature-springs returning said armatures to their normal position when the current is broken, the two-way switches adapted to be operated by the car when the car is ascending to establish a circuit through all the lamps upon the floors marked "Up" upon those floors in which the push-button marked "Up" has been pressed inward when the car actuates the two-way switches directly below said floors and the circuit is established through the lamps marked "Down" upon each floor on which the push-button marked "Down" has been pressed inward by the actuating of the two-way switches directly above these floors as the car descends, as specified.

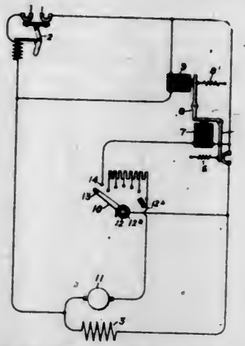
5. In combination with a signaling system of the character described, a push-button apparatus consisting of a double push-button, one marked "Up" and the other "Down," two electromagnets, one opposite each push-button, a plunger extending through each magnet, a spring normally holding said plunger in its forward position, the forward end of said plunger being in contact with the push-buttons, an armature pivoted to each magnet, springs normally forcing said armatures away from the magnets, two spring-contacts arranged in juxtaposition to each armature, a metallic connector insulated from each armature and adapted to connect the two spring-contacts when the armature is depressed, a locking device pivoted above each armature, a weighted extension extending downward from the rear end of each latch or locking device within the path of travel of the plunger, the nose of said locking device being pressed downward when the weighted portion is pressed outward by the plunger, the nose of the locking device when pressed downward also pressing the armatures toward the magnets, lugs extending upward from each of the said armatures behind which the nose of the locking devices are adapted to lodge when said nose has pressed the armature a predetermined distance downward bringing the connector in contact with the two springs, said locking device adapted to return automatically to its normal position by gravity when the magnet is energized and the armature attracted toward the magnet thus releasing the tension between the lug and the nose of the locking device, as specified.

786,017. STARTING-RHEOSTAT. EDGAR F. DUTTON, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Nov. 13, 1902. Serial No. 131,161.

Claim.—1. The combination with a motor-rheostat, of a circuit-breaker, a coil for holding said circuit-breaker closed, and a circuit-closer on the rheostat-arm in circuit with said coil.

2. A motor-controlling rheostat comprising a circuit-closer, a control-magnet governing its closure, and means governing the circuit connections of said magnet dependent upon the return of the rheostat-arm to the "off" position.

3. The combination with a rheostat, of an automatic circuit-breaker in the motor-circuit, a control-coil for the breaker, and a contact at or near the off position of the rheostat-arm for energizing the coil.



4. The combination with a motor-rheostat, of a circuit-closer on the rheostat-arm, a contact adjacent to the off position of said arm cooperating with said circuit-closer, and a coil in circuit with said contact and controlling the closing of the circuit-breaker.

5. The combination with a motor-rheostat, of a motor-switch, a circuit-closer on the rheostat-arm, a contact adjacent to the off position of said arm coöperating with said circuit-closer, a coil in circuit with said contact and controlling the closing of said switch, and means whereby after the switch has been closed the circuit-closer may be opened without affecting the circuit-breaker.

6. The combination with a motor-rheostat, of a circuit-breaker, a no-voltage coil for locking said circuit-breaker when closed, and a circuit-closer on the rheostat-arm controlling the closing of the circuit-breaker.

7. The combination with a motor-rheostat, of a circuit-breaker, a no-voltage coil for locking said circuit-breaker when closed, a control-coil for the circuit-breaker, and a circuit-closer on the rheostat-arm controlling said control-coil.

8. The combination with a motor-rheostat, of a circuit-breaker, a no-voltage coil for locking said circuit-breaker when closed, a control-coil for said circuit-breaker, a circuit-closer on the rheostat-arm, and a contact adjacent to the off position of said arm with which said circuit-closer coöperates.

9. The combination with a motor-rheostat, of a circuit-breaker, a circuit-closer on the rheostat-arm, and means whereby said circuit-closer permits the closing of the circuit-breaker when the rheostat arm is in the off position only.

10. The combination with an electric motor, of a controlling-rheostat having a spring-controlled arm, a control-coil for the motor-circuit, a contact at or near the off position of the rheostat governing said coil, and a detent for the rheostat-arm at "full-on" position.

11. The combination with an electric motor, of a controlling-rheostat, an overload-breaker, a switch in the motor-circuit, a control-coil therefor, a contact at or near the off position of the rheostat governing said coil, and an underload-magnet for opening the switch.

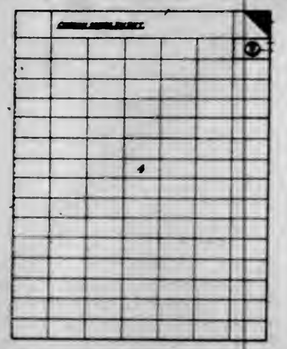
12. The combination with an electric motor, of a controlling-rheostat, a circuit-breaker having overload and underload coils and a hand-set switch for the motor, a lock obstructing the closure of the switch controlled by the underload-magnet, and a contact at or near the off position of the rheostat-arm for energizing the underload-magnet.

13. The combination with an electric motor, of a controlling-rheostat, a combined underload and overload breaker mechanically independent of the rheostat movements, overload and underload magnets acting on a common spring-switch arm, the former locking it under normal loads and the other locking it against closure under no voltage, and means dependent on the off position of the rheostat-arm for opening the no-voltage lock.

786,018. ADVERTISING DEVICE. LOUIS A. FARNSWORTH and STEPHEN G. MARTIN, Grand Rapids, Mich., assignors of one-third to Albert W. Hine, Grand Rapids, Mich. Filed Mar. 18, 1904. Serial No. 198,617.

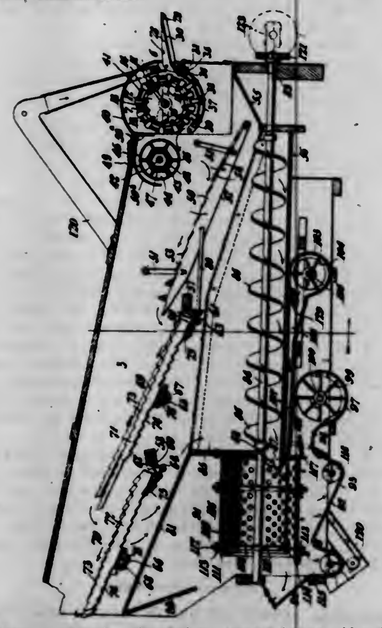
Claim.—1. A paper, magazine, or periodical, comprising a page having a portion perforated and detachable, said portion also being gummed on one side and printed on the other side in such manner as to adapt it to be used as a trade-stamp.

2. A paper, magazine, or periodical comprising a page having a distinguishing-mark on one corner, said page also having a portion perforated and detachable, said detachable portion also being gummed and printed to adapt it for use as a trade-stamp, and other pages each having a portion removed opposite said mark to expose the mark when the paper, magazine, or periodical is closed.



3. A paper, magazine, or periodical comprising a page divided into rectangular portions by ruled lines, said page also having a portion perforated and gummed, said portion also being adapted for use as a trading-stamp of the dimensions of said rectangular portions, said page also having a colored triangular distinguishing-mark on one corner, and other pages each having one corner removed to expose said mark, when the paper, periodical, or magazine is closed.

786,019. GRAIN-SEPARATOR. PAUL FLEMMER, Braman, Okla., assignor of one-half to Paul Henry Elgin, Braman, Okla. Filed June 9, 1904. Serial No. 211,847.



Claim.—1. A casing, throat-plates supported upon said casing and having shoulders or offsets, a yoke connected with one of said throat-plates, journal-boxes supported upon said yoke and upon the throat-plates, a cylinder-carrying shaft journaled in said boxes, a frame supported upon the shoulder of one of the throat-plates having the shaft-supporting yoke, a pulley upon said shaft between the arms of the yoke, a driving-belt engaging said pulley, an idler journaled in the frame supported upon the shoulder of the throat-plate and supporting the lower lead of the driving-belt, and vertically-disposed idlers supported by said frame and engaging the sides of the belt.

2. In a threshing-machine, a casing having a trough-shaped bottom, a downwardly and rearwardly inclined deflector at the front end of the casing, a downwardly and forwardly inclined stationary grain-board at the rear end of the casing, straw carrying and agitating means within the casing above the trough-shaped bottom and above the inclined grain-board, and grain-conveying means in the trough-shaped bottom.

3. In a threshing-machine, a casing having a trough-shaped bottom, a downwardly and rearwardly inclined deflector at the front end of the casing, a downwardly and forwardly inclined grain-board at the rear end of the casing, straw carrying and agitating means disposed longitudinally within the casing, grain-conveying means in the trough-shaped bottom of the casing, a partition coöperating with the grain-board and with the sides of the casing to form an auxiliary chamber at the rear end of the casing beneath the grain-board, and grain-separating means within said chamber adapted to receive the discharge from the grain-conveyer.

4. In a machine of the class described, a casing having a trough-shaped bottom, an inclined grain-board and a partition coöperating with the sides of the casing to form an auxiliary chamber at the rear end of the casing, a longitudinally-disposed driven shaft extending through the casing and the auxiliary chamber, a screw-flange upon said shaft disposed in the trough-shaped bottom of the casing, and a cylindrical separating-screen mounted upon said shaft within the auxiliary chamber.

5. In a machine of the class described, a casing containing a main chamber and an auxiliary chamber, said main chamber having a trough-shaped bottom and said auxiliary chamber having a downwardly and forwardly inclined top constituting a grain-board and adapted to discharge into the main chamber, straw agitating and feeding mechanism disposed within the main chamber and above the grain-board, a longitudinally-disposed driven shaft extending through the main and auxiliary chambers, a screw conveyer upon said shaft within the main chamber, and a cylindrical separating-screen upon said shaft within the auxiliary chamber.

6. In a machine of the class described, a casing containing a main chamber and an auxiliary chamber, said main chamber having a trough-shaped bottom and said auxiliary chamber having an inclined top constituting a grain-board and discharging into the main chamber, a longitudinally-disposed shaft extending through the main and auxiliary chambers, a screw conveyer upon said shaft within the main chamber, a cylindrical separating-screen upon said shaft within the auxiliary chamber, and means for setting up a blast of air and for discharging the same into the auxiliary chamber.

7. In a machine of the class described, a casing containing a main chamber and an auxiliary chamber, said main chamber being provided with a trough-shaped bottom and said auxiliary chamber being provided with an inclined top constituting a grain-board and discharging into the main chamber, straw feeding and agitating means within the main chamber, means for conveying the grain from the bottom of the main chamber into the auxiliary chamber, grain-separating means arranged within said auxiliary chamber, and means disposed below the bottom of the main chamber for setting up a blast of air and for discharging the same into the auxiliary or separating chamber.

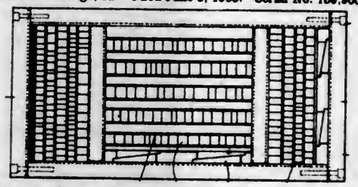
8. In a machine of the class described, a casing containing a main chamber and an auxiliary chamber, said main chamber being provided with a trough-shaped bottom and said auxiliary chamber being provided with an inclined top constituting a grain-board and discharging into the main chamber, straw feeding and agitating means within the main chamber, a longitudinally-disposed shaft extending through the main and auxiliary chambers, a screw conveyer upon said shaft within the main chamber, a spout or chute forming a continuation of the bottom of the main chamber and extending through an aperture in the partition-wall into the auxiliary chamber, a cylindrical separating-screen supported upon the longitudinal shaft within the auxiliary chamber and receiving the material discharged over said chute or spout, and means disposed below the bottom of the main casing for setting up a blast of air and for discharging the same into the cylindrical separating-screen beneath said chute or spout.

9. A casing containing an inclosed chamber having a trough-shaped bottom, threshing means at the front end of said chamber, a straw-discharge opening at the rear end of the same, an inclined grain-board extending forwardly and downwardly from the straw-

discharge and connected at its lower front end with the trough-shaped bottom, carrying and separating means within said chamber, a conveyer in the trough-shaped bottom of said chamber, for conveying material contained in the latter to a discharge-opening in the rear wall, a chute extending rearwardly from said discharge-opening, a cylindrical sieve mounted for rotation in rear of the discharge-opening and adapted to receive material discharged over the chute, means for setting up a current of air and for discharging the same below the chute, longitudinally through the cylindrical sieve, and an adjustable tail-board constituting a deflector in rear of the discharge end of the cylinder-sieve.

10. In a machine of the class described, a cylindrical sieve mounted for rotation, a spiral conveyer upon the extended axis of the cylinder for discharging threshed values into the front end of said sieve, means for setting up a current of air and for discharging the same longitudinally through the sieve, an adjustable tail-board constituting a deflector, a tailings-spout at the lower edge of said tail-board, a forwardly and downwardly inclined bottom plate disposed below the sieve, a grain-spout at the lower end of said bottom plate, means for setting up a current of air and for directing the same rearwardly between the rotary sieve and the bottom plate, and means for directing and regulating said air-current.

786,020. TYPE-CHASE AND FURNITURE THEREFOR. HARRY S. FOLGER, Chicago, Ill. Filed June 3, 1903. Serial No. 159,903.



Claim.—1. The combination with a chase having shallow grooves formed in the inner faces of the opposite sides thereof, of leads having projections on their ends adapted to fit into said grooves, said grooves and projections being so arranged that they will support said leads upright in said chase.

2. The combination with a type-chase having two parallel grooves in each of two opposite walls, of leads having projections on their ends adapted to fit into the grooves of opposite walls.

3. The combination with a chase having grooves formed in the inner faces of its opposite sides, of a bridge-bar having similar grooves on its opposite sides and having projections on its ends adapted to fit into the grooves in said chase, and leads having projections on their ends adapted to fit into grooves of either said chase or said bridge-bar whereby said leads are prevented from displacement.

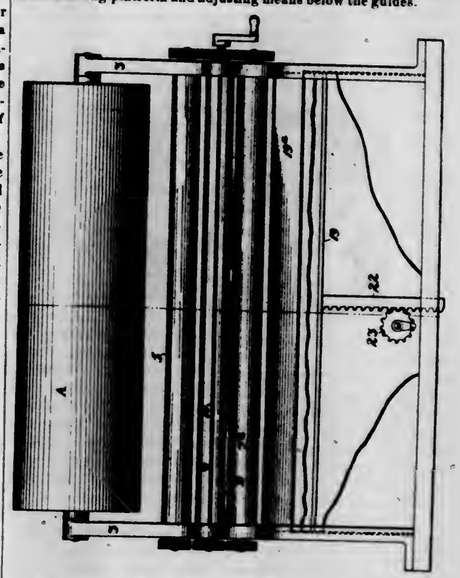
786,021. PAPER FOLDING AND PACKAGING MACHINE. ROGER B. FRIEND, Oakland, Cal. Filed Jan. 6, 1904. Serial No. 187,914.

Claim.—1. An apparatus for folding and packaging paper consisting of a source of supply, feed-rollers between which the paper is drawn and by which it is delivered, creasing and cutting rollers between which the sheets pass, guide-channels into which the sheets are alternately delivered and means by which said sheets are delivered upon a surface and alternately folded and interlocked with each other.

2. An apparatus for folding and packaging paper, said apparatus consisting of a source of supply, feed-rollers between which the paper is delivered, other rolls located below the feed-rollers and from which the paper is directed between said second rollers, cutters carried upon said rollers whereby the sheets are cut preparatory to folding and creasing, devices by which the sheets are folded at substantially equal distances from the ends.

3. A paper folding and packaging apparatus consisting of a source of supply, feed-rollers by which the paper is delivered from said source, rollers located below the feed-rollers and from which the paper is delivered between said rollers, cutters carried by the rollers whereby the paper is secured transversely at substantially equal distances from the ends, guides located below the cutting-rollers and rollers with creasing devices between which the sheets are alternately delivered, folded and interlocked.

4. In an apparatus for folding and packaging paper, a source of supply, feed-rollers by which the paper is taken from said source, cutting and folding rollers and guides by which the paper is delivered from said cutting to the folding rollers, guides located below the folding-rollers and convergent downwardly therefrom, and an adjustable receiving-platform and adjusting means below the guides.



5. A paper folding and packaging apparatus consisting of a supply means, rollers between which the paper is delivered therefrom, said rollers having cutting and folding devices whereby the paper is successively severed into lengths and folded, guide-channels into which the sheets are alternately delivered from the folding-rollers and alternately laid across the packaging-floor from opposite sides and folded and interlocked to form a package.

6. In a device for folding and packaging paper, feeding, cutting and folding means, direction-chutes by which the paper is delivered from the cutting to the folding rollers, with the ends of each sheet registering with the fold of an adjacent opposed sheet, guides by which the folded and interlocked sheets are deposited with the folds upon opposite sides of a packaging-floor, and the sheets interlocked from opposite sides to form a package.

7. An apparatus for folding and packaging paper consisting of feeding, cutting and folding rollers, guides and interlocking means by which the folded and interlocked sheets are delivered, a floor upon which said folding and interlocked sheets are received, and a vertically-movable standard supporting the floor, said standard being gradually depressed in unison with the formation of the package upon the floor.

8. In a paper folding and packaging apparatus, feeding, cutting and creasing means, devices by which the sheets are alternately folded and interlocked upon a packaging-floor, a toothed vertically-guided rack upon which said floor is carried, a pinion engaging and revolving with the depression of the rack and floor in unison with the increase of the package upon said floor, and a crank or means for returning the rack and floor to normal position after the package has been completed and removed

9. In a paper folding and packaging apparatus, feeding, cutting and creasing devices and means by which the sheets are folded and interlocked upon a receiving-floor, said floor being depressed as the package increases thereon; and a supplemental presser-plate against which the package may be compressed during its formation.

786,022. GAME APPARATUS. PATTIE W. GEE and IDA CARPENDER, New York, N. Y. Filed Jan. 23, 1904. Serial No. 190,344.

Claim.—1. A game apparatus consisting of cards divided into groups representing reigning sovereigns or rulers of a country and their consorts, said cards bearing respectively, the portraits, names, and consecutive numbers of the sovereigns and consorts printed thereon and the cards belonging to each dynasty group being printed in a color special to that group, substantially as set forth.

2. A game apparatus consisting of cards divided into groups representing reigning sovereigns or rulers of a country and their consorts, each of said cards bearing a portrait in profile and silhouette of a sovereign or consort, the name of said personage, and the consecutive chronological number of the reign of that sovereign, all of the cards of each dynasty group of rulers being printed in a color special to that group, and having the portraits of the rulers facing in a direction opposite to those of the consorts, substantially as set forth.



3. A game apparatus consisting of cards divided into groups representing reigning sovereigns or rulers of a country and their consorts, each of said cards bearing a portrait in profile and silhouette of a sovereign or consort, with the sovereigns facing to the right and the consorts to the left, the name of said personage, and the consecutive chronological number of the reign of that sovereign, all of the cards of each dynasty group of rulers being printed in a color special to that group, the portraits of the founders of dynasties being light on a dark ground, and those of other sovereigns and consorts being dark on a light ground substantially as set forth.

4. A game apparatus consisting of cards having a portrait on the face of each card and divided into groups, one group having on the respective cards thereof the portraits of the sovereigns originating the dynasties, another group having on the respective cards thereof the portraits of the other sovereigns of the dynasties, another group having on the respective cards thereof the portraits of the consorts of the respective sovereigns and another group having on the respective cards thereof portraits of rulers not belonging to the dynasties, all the cards of each dynasty group being printed in a color special to that group, and the cards bearing portraits of the sovereigns being numbered consecutively in the order of the reigns of the sovereigns.

786,023. PAINT. GEORGE W. GESNER, New York, N. Y. Filed June 21, 1904. Serial No. 213,554.

Claim.—1. The paint described, composed of a liquid vehicle with a drier, and an alloy of hydrogen and iron in a pulverized state, the hydrogen being in such proportion as to prevent oxidation or corrosion in said alloy.

2. A paint composed of a pulverized alloy of hydrogen and iron, the hydrogen being present in such proportion as to prevent oxidation or corrosion in the said alloy, and linseed-oil.

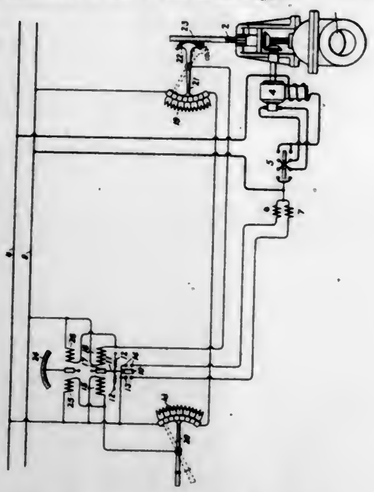
3. A paint composed of a pulverized alloy of iron and hydrogen, the hydrogen being present in the alloy in the proportion of about eleven one-hundredths of one per cent. and upward, a vehicle and a drier.

786,024. SYSTEM OF DISTANT ELECTRICAL CONTROL. JOEL GOMBOROW, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Sept. 15, 1904. Serial No. 224,541.

Claim.—1. In a control system for a distant object, the combination with two rheostats, of a hand switch-arm for one, a switch-arm for the other geared to said object, an electric motor for moving said object, and a switch for controlling the motor comprising two opposed electromagnets respectively in shunt to variable portions of the rheostats.

2. In a control system for a distant object, the combination with supply-mains, of two rheostats connected across said mains, a switch-arm for each rheostat, one movable by hand and the other geared to said object, an electric motor for moving said object, and a switch for reversing the motor comprising two opposed electromagnets respectively in shunt to those portions of the rheostats between the switch-arms and the mains.

3. In a control system for a distant object, the combination with supply-mains, of two rheostats connected across said mains, a switch-arm for each rheostat, one movable by hand and the other geared to said object, an electric motor for moving said object, a switch for reversing the motor comprising two opposed electromagnets respectively in shunt to those portions of the rheostats between the switch-arms and the mains, and a differential voltmeter having opposed coils respectively in shunt to said electromagnets.



786,025. FENCE-SIGN. CHARLES F. HAAS, Orwell, Ohio. Filed June 30, 1904. Serial No. 214,787.



Claim.—1. A sign-suspension device formed from a single piece of wire having spaced elongated loops for engaging the strand-wires of a fence and adapted to have a display-sign connected to said loops at one side and provided with a transverse stay extending intermediately between the loops at the other side, the extremities of the wire being entwisted into the loops at the juncture of the same with the stay-wire.

2. A sign-suspension device comprising spaced elongated loops for engaging the strand-wires of a fence and adapted to have a display-sign connected to said loops at one side, and a stay-wire connected intermediately to the other sides of said loops.

3. A device of the class described comprising spaced elongated loops with coils at the ends for inclosing the strand-wires of a fence and with a transverse stay intermediately connecting the loops on one side and a display-sign connecting the loops at the other side.

4. A device of the class described comprising spaced elongated loops for engaging the strand-wires of a fence with a transverse stay connecting the loops intermediately at one side and a display-sign connected to the loops at the other side.

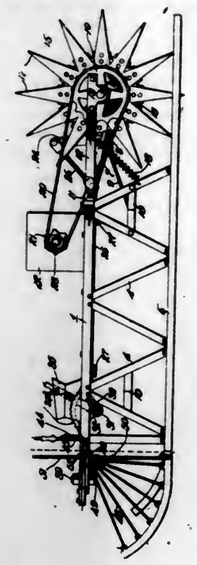
5. A sign-suspension device comprising spaced loops for engaging the strand-wires of a fence and adapted to have a display-sign connected to said loops and an intermediate stay for connection to the display-sign and attached by its ends to said strand-wires.

6. A device of the class described comprising spaced loops for engaging the strand-wires of a fence, a display-sign connected to said loops and provided with spaced intermediate clefts, and a stay member passed through said clefts and connected by its ends to said strand-wires.

7. A device of the class described comprising spaced loops for engaging the strand-wires of a fence, a display-sign connected to said loops by bending the ends around the same and provided with spaced intermediate clefts therethrough, and a stay member threaded through said clefts and connected by its ends to said strand-wires.

8. A device of the class described comprising spaced elongated loops with coils at their ends for engaging the strand-wires of a fence, a display-sign connected to said loops at one side and a stay-wire connected intermediately to the other sides of said loops.

786,026. SNOW OR ICE VEHICLE. CHARLES B. HALDEMAN, Aurora, Kans. Filed July 11, 1904. Serial No. 216,065.



Claim.—1. A snow and ice vehicle, comprising a sled, a spur-wheel connected thereto, means for operating said wheel, a guide-runner at the front end of the sled, means for turning said guide-runner to one side or the other, and means for turning said runner so that one lower corner or the other shall be embedded in the snow or ice traversed by the vehicle.

2. A snow and ice vehicle, comprising a sled, a spur-wheel connected thereto, means for operating said wheel, a guide-runner at the front end of the sled, means for turning said guide-runner to one side or the other, means for turning said runner so that one lower corner or the other shall be embedded in the snow or ice traversed by the vehicle, and means for holding the spur-wheel yieldingly depressed.

3. A snow and ice vehicle, comprising a sled, a spur-wheel connected thereto, means for operating said wheel, a guide-runner at the front end of the sled, means for turning said guide-runner so that one lower corner or the other shall be embedded in the snow or ice traversed by the vehicle, means for holding the spur-wheel yieldingly depressed, and means for raising the spur-wheel to inoperative position.

4. A snow and ice vehicle, comprising a sled, a yieldingly-depressed spur-wheel connected to the sled to propel the same, means to operate said spur-wheel, means to elevate the spur-wheel, a frame pivoted for horizontal movement, at the front end of the sled, a guide-runner braced from said frame, a lever for pointing said runner in the direction in which it is desired to turn the sled, means to lock the lever in such position, a lever extending through said pivoted frame and connected to the guide-runner to twist or turn it slightly, and means for locking said lever in the desired position.

5. The combination in a snow and ice vehicle; of a sled; a cross-bar at its front end; a frame pivoted for horizontal movement, to the cross-bar; a runner; upwardly-diverging braces pivoted at their lower ends to said runner and secured at their upper ends to the ends of said frame; a lever having its lower end bifurcated and engaging said runner; and means for securing said lever vertically or at an angle to the vertical.

786,027. TYPE-CLEANING ATTACHMENT FOR TYPE-WRITING MACHINES. ALFRED HALL, Chicago, Ill. Filed May 2, 1904. Serial No. 205,884.



Claim.—1. The combination with the ribbon-shield of a type-writing machine, of a frame supported thereby, and a brush loosely mounted thereon in the path of the type so as to be struck off center thereby and capable of universal movement.

2. The combination with the ribbon-shield of a type-writing machine, of a frame supported thereby and having a portion horizontally projected beneath the shield to underlie the ribbon, and a brush loosely mounted on the said projected portion in the path of the type so as to be struck off center thereby and capable of universal movement.

3. The combination with the ribbon-shield of a type-writing machine, of a frame detachably mounted thereon and having means to prevent its lateral movement, and a brush loosely mounted on the frame in the path of the type so as to be struck off center thereby and capable of universal movement.

4. The combination with a recessed ribbon-shield of a type-writing machine, of a frame secured thereon at the rear of said recess and having portions projected between the edges of the recess and horizontally beneath the shield to underlie the ribbon, and a brush loosely mounted on the horizontally-projected portion in the path of the type so as to be struck off center thereby and capable of universal movement.

5. The combination with a type-writing machine, of a frame suitably supported thereon, and a brush loosely mounted on said frame in the path of the type so as to be struck off center thereby and capable of universal movement.

6. The combination with a type-writing machine, of a frame suitably supported thereon and having a portion projected to underlie the ribbon, and a brush loosely mounted on the projected portion of the frame in the path of the type so as to be struck off center thereby and capable of universal movement.

786,028. PROCESS OF MANUFACTURING BRICKS FROM REFUSE FROM COAL OR COKE. JOHANN HAMMERSCHLAG, Strassburg, and HERMANN S. GERDES, Jr., and OSCAR DROSTE, Bremen, Germany. Filed Feb. 24, 1904. Serial No. 196,138.

Claim.—The process for manufacturing coal bricks, which consists in mixing coal or cokes smalls with peat and solutions of alkalies or of ammonia, drying the mass if necessary, and pressing the same in a suitable manner.

786,029. TIE FOR WIRE FENCING. NEIL B. HAYES, Adrian, Mich. Filed Nov. 9, 1904. Serial No. 232,001.



Claim.—1. A tie for wire fencing, comprising in combination with the crossed wires of the fabric, a staple having its loop end contacting the strand-wire, its legs passing in the rear of the stay-wire, the terminal of one leg being bent upwardly across the strand-wire and downwardly upon the opposite side thereof, the terminal of the other leg crossing the downwardly-bent portion of the first-mentioned leg and also crossing the strand-wire in a rounded bend contiguous to but more remote from the stay-wire than the terminal portion of the first-mentioned leg, the terminal portion of the last-mentioned leg after crossing the strand-wire, being bent inwardly and downwardly to contact the strand-wire substantially as set forth.

2. A tie for wire fencing, comprising in combination with the crossed wires, a staple having its loop portion engaging the strand-wire, legs passing in the rear of the stay-wire, the terminal of one leg curving upwardly across the strand-wire and having a hook-shaped end which embraces said strand-wire, the terminal of the other leg curving upwardly and passing over the hook-shape terminal of the first-mentioned leg and crossing the strand-wire, its extreme end portion being bent downwardly between the strand-wire and the other leg of the staple and contiguous to both.

786,030. **RAIL-JOINT.** GEROUS T. HAYGOOD, Mobile, Ala. Filed Nov. 21, 1904. Serial No. 233,715.



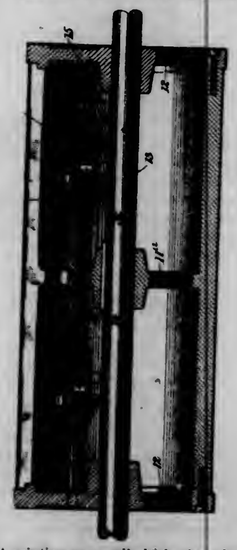
Claim.—1. In combination, rails, extensions projected downwardly from the end portions of the rails, and a chair receiving said extensions.

2. In combination, rails or like parts, extensions projected downwardly from the end portions of said rails and having portions inclined in opposite directions, and a chair receiving the extensions aforesaid.

3. In combination, rails or like parts, extensions projected downwardly from the end portions of said rails and having portions inclined in opposite directions, and a chair provided with a recess receiving the extensions aforesaid, the ends of the recess being undercut so as to snugly engage the inclined portions of said extensions.

4. In combination, rails or like parts having their meeting ends scarfed, extensions projected downwardly from the ends of the rails, the opposite ends of said extensions being inclined in opposite directions, and a chair provided with a recess having its end portions undercut and snugly receiving the extensions of the rails.

786,031. **PRINTING-PRESS CYLINDER.** GEORGE K. HENDERSON, New York, N. Y., assignor of one-half to Frederick W. Nerge, New York, N. Y. Filed Mar. 1, 1904. Serial No. 196,045.



Claim.—1. A printing-press cylinder having a longitudinal slot, guide-rods extended lengthwise in the cylinder, carrier-plates adjustable on said guide-rods, tension-hooks movable vertically in the carrier-plates and having rack portions, and worms supported in the plates and engaging with said rack portions.

2. A printing-press cylinder having a longitudinal slot, guide-rods extended lengthwise in said cylinder, carrier-plates movable on said guide-rods and detachably connected one with the other, tension-hooks movable in the plates, and worm-gearing for adjusting the hooks.

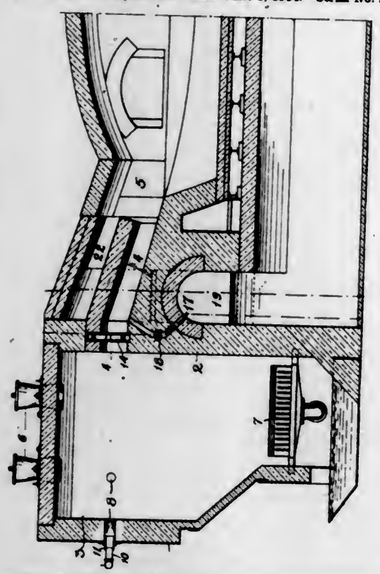
3. A printing-press cylinder having a longitudinal slot, guide-rods extended lengthwise of said cylinder, carrier-plates movable on said rods, a screw-rod for causing the movements of the plates, a bridge-plate removably connected to the carrier-plates, and tension-hooks carried by the carrier-plates.

4. A printing-press cylinder having a longitudinal slot, a central spider in the cylinder, removable end spiders, a shaft extended through the several spiders, guide-rods extended through the several spiders and having threaded connection with the center spider, carrier-plates movable on said rods, means for causing the movements of said plates, and tension-hooks carried by the plates.

5. A printing-press cylinder having a longitudinal slot, guide-rods extended lengthwise through the cylinder, carrier-plates movable on said rods, the said carrier-plates being recessed at the under side, tension-hooks movable vertically through said plates and having rack portions, worms arranged in the recesses and engaging with the rack portions of the hooks, the said worms having upwardly-extended bearings adapted to be engaged by a turning tool, and means for moving the carrier-plates on the guide-rods.

6. The combination with a printing-press cylinder, of a printing-plate tension device comprising a plate, a plurality of tension-hooks movable lengthwise in said plate, and worm mechanism carried by the plate for adjusting the hooks independently one of another.

786,032. **SYSTEM FOR THE COMBUSTION OF GAS.** JAMES A. HERRICK, Philadelphia, Pa. Filed June 2, 1904. Serial No. 210,825.



Claim.—1. In a system for burning gas, a gas-producer, means for introducing air and burning ungasified matter in the top of said producer, a furnace-chamber, a passage leading from said gas-producer to said furnace-chamber, a regenerator-chamber, and a passage leading from said regenerator-chamber to said furnace-chamber, substantially as specified.

2. In a system for burning gas, a gas-producer having means for introducing air and gasifying ungasified products of combustion, said means comprising a blast-pipe exterior to said producer, a furnace-chamber, a passage leading from said producer to said chamber, a regenerator-chamber, and a passage for conducting hot air from said regenerator-chamber to said furnace-chamber, substantially as specified.

3. In a system for burning gas, a gas-producer having a port in the upper part thereof for supplying air thereto, a blast-pipe having a part adapted for connection with said port, a furnace-chamber into which said producer discharges, and a regenerator which discharges into said furnace-chamber, substantially as specified.

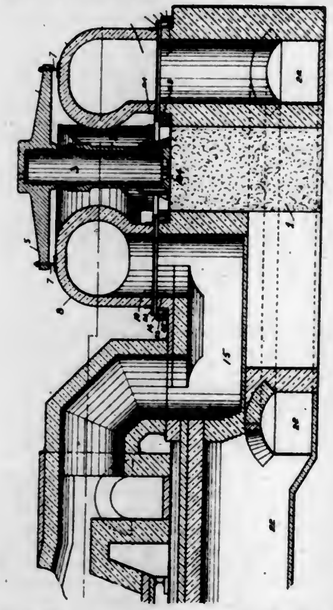
4. In a system for burning gas, a gas-producer, means for effecting combustion of ungasified matter in the top of said producer, a furnace-chamber, a gas-passage leading from said gas-producer to said furnace-chamber, a regenerator, an air-passage leading from said regenerator to said furnace-chamber, and an air-duct leading from said air-passage to said gas-passage, substantially as specified.

5. In a system for burning gas, a gas-producer, means for effecting combustion of ungasified matter in the top of said producer, a furnace-chamber, a gas-passage leading from said gas-producer to said furnace-chamber, means for throttling the gas in said gas-passage, a regenerator, an air-passage leading from said regenerator to said furnace-chamber, an air-duct leading into said gas-passage, and means for throttling the air in said air-duct, substantially as specified.

6. In a system for burning gas, a gas-producer, means for effecting combustion of ungasified matter in the top of said producer, a furnace-chamber, a gas-passage leading from said gas-producer to said furnace-chamber, means for throttling the gas in said gas-passage, a regenerator, an air-passage leading from said generator to said furnace-chamber, means for throttling the air in said air-passage, an air-duct leading into said gas-passage, and means for throttling the air in said air-duct, substantially as specified.

7. In a system for burning gas, a furnace-chamber, a downwardly-extending gas-passage leading to and contracting toward said chamber, an air-passage extending in substantially the same direction, said air-passage leading to and contracting toward said chamber, and being disposed above said gas-passage so as to cause the air to partially envelop the gas, and a regenerator connected with said air-passage, substantially as specified.

786,033. **REVERSING-VALVE.** JAMES A. HERRICK, Philadelphia, Pa. Filed July 5, 1904. Serial No. 215,452.



Claim.—1. The combination of a plurality of flues each having a port, with a rotary valve having passes with independent walls exposed to the free circulation of air entirely around said passes, said passes being adapted for registration in alternation with the corresponding ports of said flues, substantially as specified.

2. The combination of a plurality of flues each having a port, a water-channel surrounding each of said ports, a pair of rotary passes circular in cross-section provided with independent walls each having a pair of ports adapted to register with a pair of said flue-ports, and aprons surrounding said rotary passes and dipping into said water-channels, substantially as specified.

3. The combination of a plurality of flues each having a port, a water-channel surrounding each of said ports, a plurality of rotary passes each having a pair of ports adapted to register with said flue-ports, aprons surrounding said rotary passes and dipping into said water-channels, and means for elevating and lowering said aprons independently of said passes, substantially as specified.

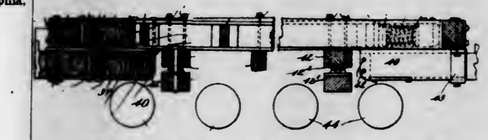
4. The combination of a plurality of flues having ports, with a pair of separated drums having ports adapted for registration with alternate ports of said flues, a column, and means for permitting said drums to rotate independently of the movement of said column, substantially as specified.

5. The combination of a plurality of flues having ports, with a pair of separated drums exposed to the free circulation of air entirely around them, said drums having ports adapted for registration with alternate ports of said flues, a column, and a frame rotatably supported on said column and supporting said drums, substantially as specified.

6. The combination of a plurality of flues having ports, with a pair of revoluble drums having ports adapted for registration with alternate ports of said flues, means for rotatably supporting said drums, and sealing mechanism movable independently of the movement of said drums, substantially as specified.

7. The combination of a plurality of flues having ports, channels surrounding said ports, a pair of rotary drums having ports adapted for registration with said flue-ports, aprons sleeved on said drums and registering with said channels, and lever mechanism connected with said aprons for operating them, substantially as specified.

786,034. **CONTINUOUS DRAFT-RIGGING FOR CARS.** ANDREW JOHNSON, Concord, N. H. Filed Jan. 28, 1905. Serial No. 243,044.



Claim.—1. A car-frame, a draft-beam extending longitudinally of said car-frame and adapted to slide thereon, a draw-bar at each of the opposite ends, respectively, of said draft-beam, adapted to slide upon said draft-beam, and a spring interposed between said car-frame and each of the opposite ends, respectively, of said draft-beam, both of said springs adapted to receive simultaneously an endwise thrust imparted to said draft-beam.

2. A car-frame, a draft-beam extending longitudinally of said car-frame and adapted to slide thereon, a draw-bar at each of the opposite ends, respectively, of said draft-beam, adapted to slide upon said draft-beam, and a spring interposed between said car-frame and each of the opposite ends, respectively, of said draft-beam, both of said springs adapted to receive simultaneously an endwise thrust imparted to said draft-beam in opposite directions.

3. A car-frame, a draft-beam extending longitudinally of said car-frame and adapted to slide thereon, a draw-bar at each of the opposite ends, respectively, of said draft-beam, adapted to slide upon said draft-beam, a spring-holder fast to said car-frame, said holder provided with a recess extending laterally therethrough, two followers extending through said holder, slidable therein, and abutting at their opposite ends against said draft-beam, and a spring located between and bearing at its opposite ends, respectively, against said followers.

4. A car-frame, a draft-beam extending longitudinally of said car-frame and adapted to slide thereon, a draw-bar at each of the opposite ends, respectively, of said draft-beam, adapted to slide upon said draft-beam, said draft-beam formed of two channel-bars fast together with their flanged sides toward each other, stop-plates fast to said channel-irons between said flanges, a spring-holder fast to said car-frame, said holder provided with a recess extending laterally therethrough, two followers extending through said holder, slidable therein, and abutting at their opposite ends against said stop-plates, and a spring located between and bearing at its opposite ends, respectively, against said followers.

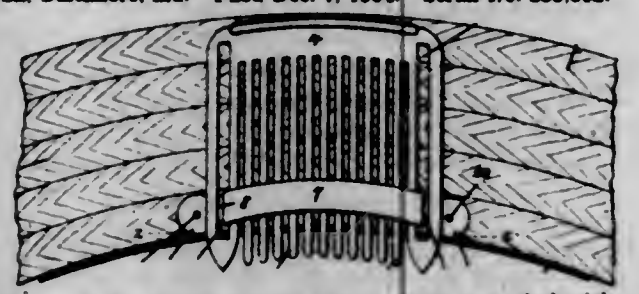
5. A car-frame, a draft-beam supported upon, extending longitudinally of, and adapted to slide upon said car-frame, a draw-bar attached to each of the opposite ends, respectively, of said draft-beam, adapted to slide upon said draft-beam, a spring interposed between each of said draw-bars and said draft-beam, respectively, and a spring interposed between said car-frame and each of the opposite ends, respectively, of said draft-beam, both of said springs adapted to receive simultaneously an endwise thrust imparted to said draft-beam.

6. A car-frame, trucks pivoted thereto, a draft-beam supported upon, extending longitudinally of and adapted to slide upon said car-frame, a draw-bar at each of the opposite ends, respectively, of said draft-beam, and a spring interposed between said car-frame and each of the opposite ends, respectively, of said draft-beam, both of said

springs adapted to receive simultaneously an endwise thrust imparted to said draft-beam.

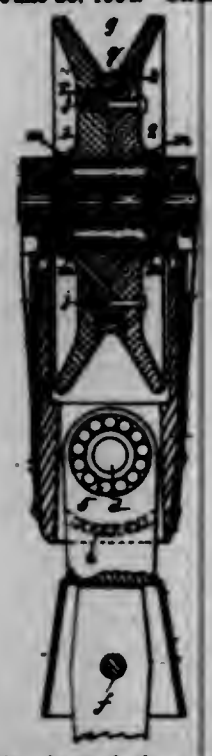
7. A car-frame comprising in its construction two center sills extending longitudinally thereof, body-bolsters extending transversely of and fast to said center sills, a draft-beam located between said center sills and adapted to slide upon said body-bolsters, a draw-bar at the opposite ends, respectively, of said draft-beam, and a spring interposed between said car-frame and each of the opposite ends, respectively, of said draft-beam, said springs adapted to receive simultaneously an endwise thrust imparted to said draft-beam.

786,035. **HAT-FASTENER.** JULIUS KEMPER and ADOLPH KEMPER, Baltimore, Md. Filed Dec. 7, 1904. Serial No. 235,802.



Claim.—A hat-fastener comprising a plate provided with a plurality of teeth and having a slot adjacent its opposite side edges, and a keeper-plate extending in a direction crosswise of and at one side of said teeth and plate and the ends of said keeper-plate extending inwardly through said slots to the opposite side of said plate and extending laterally from said slot at said opposite side of the plate.

786,036. **TROLLEY-WHEEL AND HOLDER.** HENRY N. KING, Adrian, Mich. Filed June 20, 1904. Serial No. 213,423.



Claim.—1. In combination a fork, a trolley-wheel journaled in the fork, said trolley-wheel comprising two parts, each formed with a web and with a central chambered hub, the webs of the wheel bolted together, and a hardened peripheral ring engaged between said parts, and serving as a tire to hold the chambers of the hubs in proper position.

2. In combination a fork, a trolley-wheel journaled in the fork, said wheel comprising two parts, each formed with a web, and with a central chambered hub, the webs of the wheel bolted together, said parts formed with adjacent recesses on their periphery, and a hardened peripheral metal ring located in the said recesses between said parts.

3. In combination a fork, a trolley-wheel journaled in the fork, said trolley-wheel comprising two parts, each formed with a web and with a chambered central hub, the webs of the wheel bolted together, a hardened peripheral ring engaged between said parts, and roller-bearings journaled at their extremities within the hubs of the wheel.

4. The combination of a fork, a trolley-wheel journaled in the fork, roller-bearings for the journal of the wheel, a pole-socket journaled in the fork, and ball-bearings between the pole-socket and the fork, said fork chambered at its lower end to receive the pole-socket, the chamber of the fork being of greater diameter than the diameter of the pole-socket to allow a vibratory movement of the fork, for the purpose described.

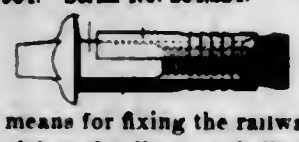
5. The combination of a fork, a trolley-wheel journaled in the fork, antifriction-bearings for the journal of the wheel, a pole-socket journaled in the fork, antifriction-bearings for the journal of the pole-socket, and antifriction-bearings between the pole-socket and the fork, the antifriction-bearings for the said journal, and the antifriction-bearings between the pole-socket and the fork being on opposite sides of the pole-socket.

6. The combination of a fork, a trolley-wheel journaled in the fork, roller-bearings for the journal of the wheel, a pole-socket journaled in the fork, antifriction-bearings for the journal of the pole-socket and ball-bearings between the pole-socket and the fork, said antifriction-bearings and said ball-bearings being on opposite sides of the pole-socket, the antifriction-bearings on one side of the pole-socket being located about one end of the pole-socket journal, and the ball-bearings on the other side of the pole-socket being located toward the lower end of the pole-socket.

7. In combination a fork, a trolley-wheel journaled in the fork, said wheel comprising two parts, each formed with a hub bolted to the adjacent web, and with a central hub chambered lengthwise of the journal of the wheel, wearing-rings located in the chambered hubs, respectively, end to end, and provided with thrust-collars at their outer extremities, and roller-bearings about the journal of the wheel, said bearings journaled at their extremities in said thrust-collars, a pole-socket journaled on the fork, antifriction-bearings between the pole-socket and the fork on opposite sides thereof.

8. In combination a fork, a trolley-wheel journaled in the fork comprising two parts, each formed with a web bolted to the adjacent web, and with a central hub chambered lengthwise of the journal of the wheel, wearing-rings located in the chambers of the hubs respectively, end to end, provided with thrust-collars at their outer extremities, a washer encircling the journal of the wheel to contact with the adjacent thrust-collar, and an electrical contact-spring provided to hold the washer in electrical contact with the thrust-collar, said washer formed with a shoulder engaged by said spring to hold the washer from turning.

786,037. **MEANS FOR FASTENING IN POSITION RAILWAY-SPIKES OR THE LIKE.** GEORGES G. LAKHOVSKY, Paris, France. Filed Apr. 21, 1904. Serial No. 204,234.



Claim.—1. In means for fixing the railway-spikes and particularly spikes of broad-footed rails, two shells of different length arranged in such a manner that the longer one projects with relation to the other one which latter is situated beneath the foot of the rail, constituting a firm seat for the head of the spike thereby preventing any inclination of the latter outside the rail and means traversed by the threaded spike for expanding the same substantially as herein shown and described and for the purpose stated.

2. In a device for securing the railway-spikes and more particularly the spikes for broad-footed rails, a fitting intended to metallize the hole of the sleeper, consisting of two semicylindrical entirely independent shells of different length so that the upper edge of the shortest will be placed under the foot of the rail while the longer one projecting beyond the former will offer a resisting seat to the head of the spike and will thus oppose itself to any inclination of the latter outside the rail, substantially as described.

3. The combination with a rail and a support therefor which is provided with a bore, of an expansible sleeve situated within the bore, a nut at the lower end of the sleeve, and a bolt engaging the nut and coöperating with the rail.

4. The combination with a rail and a support therefor which is provided with a bore, of a divided sleeve situated within the bore, a nut at the lower end of the sleeve having inclined faces coacting with said sleeve, and a bolt engaging the nut and coöperating with the rail.

5. The combination with a rail and a support therefor which is provided with a bore, of an expansible sleeve situated within the bore and having upper surfaces lying in different planes, a nut at the lower end of the sleeve, and a bolt engaging the nut and coöperating with the rail.

6. The combination with a rail and a support therefor which is provided with a bore, of an expansible sleeve situated within the bore and having upper surfaces lying in different planes, one of which surfaces is located beneath the rail, a nut at the lower end of the sleeve, and a bolt engaging the nut and coöperating with the rail.

7. The combination with a rail and a support therefor which is provided with a bore, of an expansible sleeve situated within the bore and having upper surfaces lying in different planes, one of which surfaces is located beneath the rail, a nut at the lower end of the sleeve, and a bolt engaging the nut and coöperating with the rail and with the other sleeve-surface.

8. The combination with a rail and a support therefor which is provided with a bore, of an expansible sleeve situated within the bore and having exterior teeth, a nut at the lower end of the sleeve, and a bolt engaging the nut and coöperating with the rail.

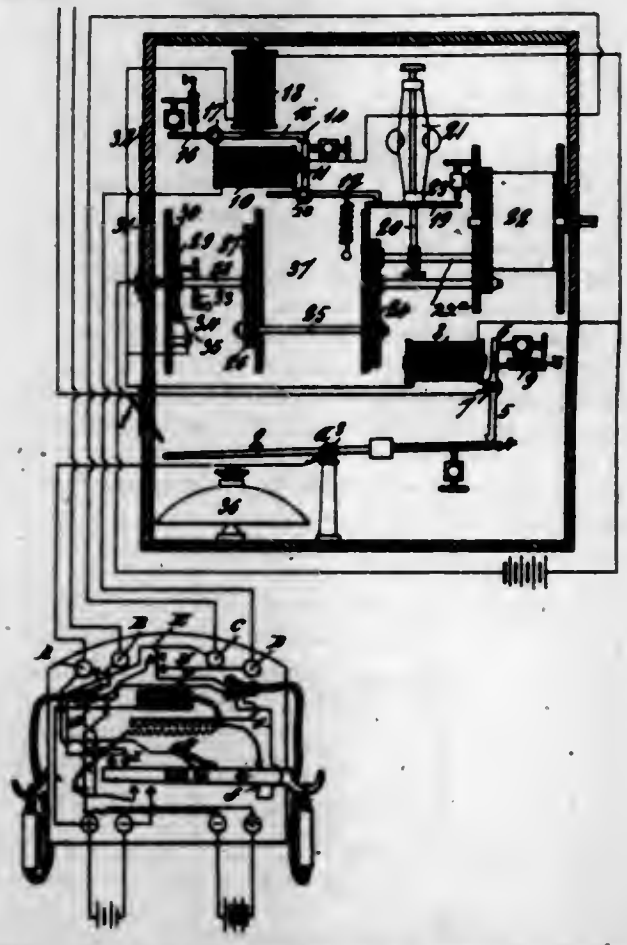
9. A fastening for rails comprising a bolt, a sleeve which may surround said bolt, and a nut for coöperation with the bolt and with the interior of the sleeve.

10. A fastening for rails comprising a bolt, a divided sleeve which may surround said bolt, and a nut for coöperation with the bolt and with the interior of the sleeve, said nut having inclined faces which may enter the sleeve.

11. A fastening for rails comprising a bolt, a sleeve which may surround said bolt and having end surfaces lying in different planes, and a nut for coöperation with the bolt and with the interior of the sleeve.

12. A fastening for rails comprising a bolt, a sleeve provided with exterior teeth and which may surround said bolt, and a nut for coöperation with the bolt and with the interior of the sleeve.

786,038. **APPARATUS FOR CLOSING ELECTRIC CIRCUITS.** RODOLPHE DE LAMPRECHT, Paris, France, assignor to The Firm of R. De Lamprecht et Cie., Paris, France. Filed Aug. 22, 1900. Serial No. 27,705.



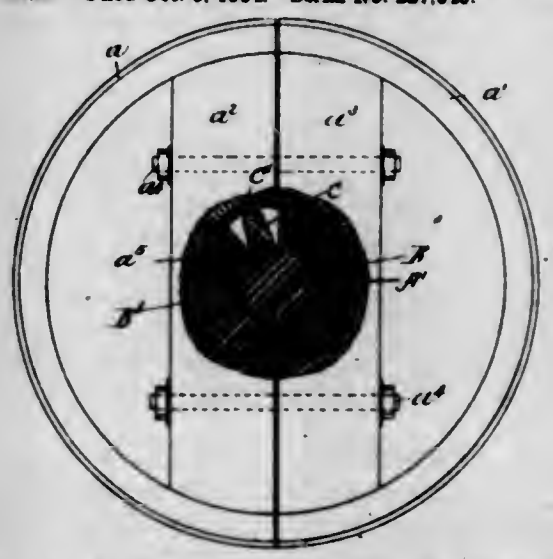
Claim.—1. A coin-controlled electrical apparatus, comprising a movable coin-actuated part, a contact member arranged to be engaged by said part to establish a contact for an electric circuit, an electromagnet in said circuit, a motor, a stop mechanism for normally keeping the motor inactive, said mechanism being under the influence of the said electromagnet to release the motor when the electromagnet is energized, a latch for locking the stop mechanism after it has been thrown off, a circuit-closer operated by the motor, and electromagnetic means, included in the circuit of said circuit-closer, for allowing the coin-actuated part to return to its first position, and for actuating the latch so as to allow the stop mechanism to again render the motor inactive.

2. A coin-controlled electrical apparatus, comprising a movable coin-actuated part, a motor, a stop mechanism for normally keeping the motor inactive, a circuit controlled by the movement of the said coin-actuated part, an electromagnet included in said circuit and arranged, when excited, to release the motor from the stop mechanism, a latch for locking the stop mechanism after it has been thrown off, a circuit-closer operated by the motor, and electromagnetic means, included in the circuit of said circuit-closer, for allowing the coin-actuated part to return to its first position, and for actuating the latch so as to allow the stop mechanism to again render the motor inactive.

3. A coin-controlled electrical apparatus, comprising a movable coin-actuated part, a motor, a stop mechanism for normally keeping the motor inactive, a circuit controlled by the movement of the said coin-actuated part, an electromagnet included in said circuit and arranged, when excited, to release the motor from the stop mechanism, a latch for locking the stop mechanism after it has been thrown off, a mutilated gear operated by the motor and carrying a circuit-closer, a pivoted spring-pressed pointer or indicator having a gear-wheel engaging the mutilated gear and arranged to spring back when the blank portion of the mutilated gear comes in registry with the pointer gear-wheel, and electromagnetic means, included in the circuit of said circuit-closer, for allowing the coin-actuated part to return to its first position, and for actuating the latch so as to allow the stop mechanism to again render the motor inactive.

4. A coin-controlled electrical apparatus, comprising a movable coin-actuated part, a latch arranged to lock said part when it is operated by a coin, and to close a call-circuit thereby, a motor controlled electrically, and electric-actuating devices, operated by said motor, for releasing the coin-actuated part from its latch and for effecting a stoppage of the mechanism.

786,039. **KEYING DEVICE FOR PULLEYS.** DANIEL G. LANGLANDS, Winthrop, Mass., assignor to James H. Roberts & Company, Boston, Mass. Filed Oct. 8, 1904. Serial No. 227,640.



Claim.—1. In a keying device for pulleys, the combination with a shaft and a pulley loosely fitting thereon of a cam inside said pulley facing said shaft and movable with said pulley, and a key between said cam and shaft, one edge of which key is adapted to engage said shaft and the other edge thereof to engage with the inside surface of said cam upon said pulley or shaft turning independently of one another.

2. In a keying device for pulleys, the combination with a shaft and a pulley loosely fitting thereon of a sectional bushing inside the bore of said pulley, said bushing being cut away in part leaving a keyway or opening through the bore of the pulley alongside the shaft, a cam inside said pulley, occupying a portion of the opening therein and facing said shaft, and a key between said cam and shaft, one edge of said key being adapted to engage said shaft and the other edge thereof to engage with the inside surface of said cam upon said pulley or shaft turning independently of one another.

3. In a keying device for pulleys, the combination with a pulley and a shaft, said pulley having clamp members for securing it to the shaft, of a sectional bushing interposed between said clamp members and said shaft, said bushing being cut away in part leaving an opening through the bore of the pulley and between one of its clamp members and the shaft, a key inside said opening, said key being adapted to engage with the shaft, a plate likewise within said opening interposed between the back edge of said key and the adjacent wall of the clamp member, said plate being adapted on the outside to bear against said portion of the wall of the clamp member and on the inside concaved to form a cam-surface against which the back edge of the key may have bearing, substantially as described.

4. In a keying device for pulleys, the combination with a pulley and a shaft, said pulley having clamp members for securing it to the

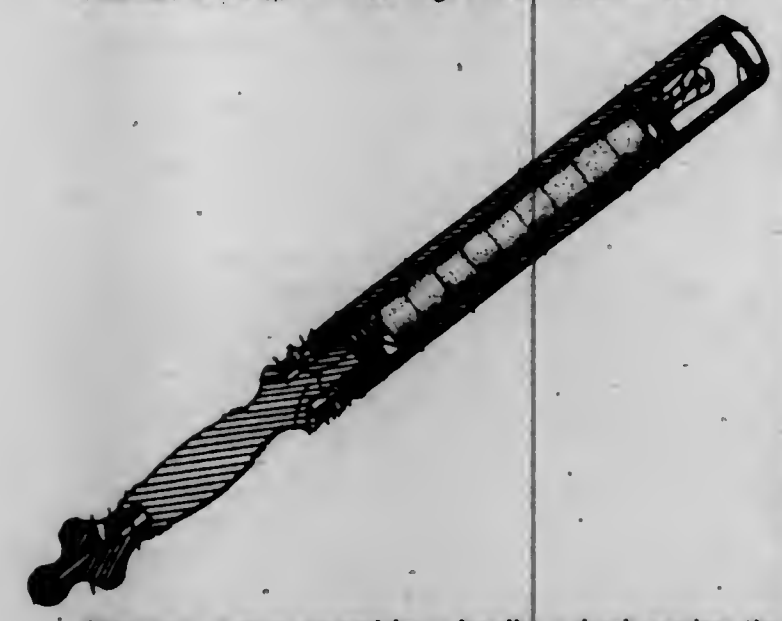
shaft, of a sectional bushing interposed between said clamp members and said shaft, said bushing being cut away in part leaving an opening through the bore of the pulley and between one of its clamp members and the shaft, a key inside said opening, said key being provided with gripping edges, which engage with the shaft and having a rounding back edge, a plate likewise within said opening interposed between the rounding back edge of said key and the adjacent wall of the clamp member, said plate on the outside being adapted to bear against said portion of the wall of the clamp member without slipping and on the inside made concaved to form opposite cam-surfaces against either one of which the rounding back edge of the key may have bearing, substantially as described.

5. In a keying device for pulleys, the combination with a pulley and a shaft, said pulley having clamp members for securing it to the shaft, of a sectional bushing interposed between said clamp members and said shaft, said bushing being cut away in part leaving an opening through the bore of the pulley and between one of its clamp members and the shaft, and a key inside said opening, said key being provided with gripping edges on its one side which engage with the shaft and having a rounding back edge, a plate likewise within said opening interposed between the rounding back edge of said key and the adjacent wall of the clamp member, said plate on the outside being adapted to bear against said portion of the wall of the clamp member and provided with projections which engage with the same, which plate on the ends is formed with depending flanges preventing lateral displacement of said key and on the inside made concave to form opposite cam-surfaces against either one of which the rounding back edge of the key may have bearing, substantially as described.

6. In a keying device for pulleys, the combination with a shaft and a pulley loosely fitting thereon, of cam and key members inside said pulley and between it and said shaft, one of which members is adapted to engage with said pulley and the other with said shaft and which are so coördinated that said key member will engage with the cam-surface of said cam when said pulley and shaft turn independently of one another, substantially as and for the purposes set forth.

7. In a keying device for pulleys, the combination with a shaft and a pulley loosely fitting thereon, of a sectional bushing inside the bore of said pulley, said bushing being cut away in part leaving a keyway or opening through the bore of the pulley alongside the shaft, cam and key members inside said pulley, occupying a portion of the opening therein, one of which members is adapted to engage with said pulley and the other with said shaft, and which are so coordinated that said key member will engage with the cam-surface of said cam when said pulley and shaft turn independently of one another.

786,040. POLICEMAN'S MACE. OSCAR LIBERMAN and TIMOTHY SCANLON, Pittsburg, Pa. Filed Aug. 9, 1904. Serial No. 220,061.

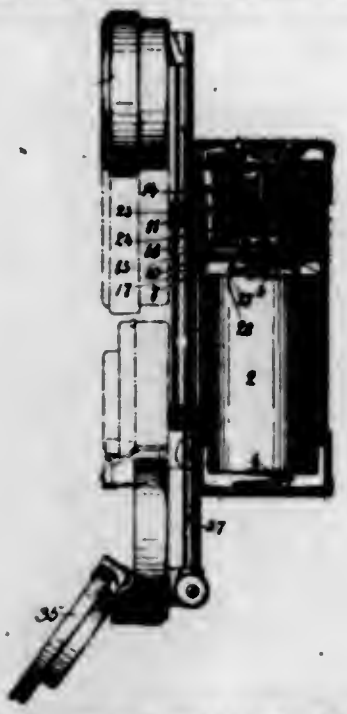


Claim.—1. A mace comprising a handle, a shank portion, the end of said handle having a whistle formed therein, an incandescent globe mounted in said shank portion, a battery carried by said shank portion, a lens mounted in the one end of said shank portion, and means carried by said handle whereby said incandescent globe may be illuminated at predetermined times.

2. In a mace of the character described, the combination with a handle, of a shank portion, said shank portion having a battery mounted therein, an incandescent globe mounted in said shank portion, a lens carried by said shank portion, a plurality of spring-pressed buttons mounted in said handle, all in circuit with said battery and with said globe whereby when either one of said buttons is depressed said incandescent globe will be illuminated.

3. In a mace of the character described, the combination with a handle having a shank portion, a collar mounted on said shank portion, a tubing screwing on said collar, a battery arranged in said tubing and an incandescent globe arranged in the tubing, a plurality of contact-plates arranged on said shank portion, a plurality of springs carried by the handle and adapted to be put into contact with said plates, said plates and said springs being in electrical circuit with the said battery and the said globe.

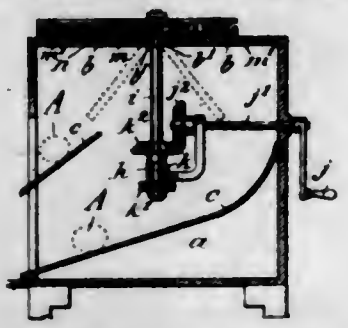
786,041. VIBRATOR FOR SOUND-TELEGRAPH APPARATUS. ARVID A. LIND, Stockholm, Sweden, assignor to Elektromilitara Aktiebolaget, Stockholm, Sweden. Filed July 17, 1903. Serial No. 165,979.



Claim.—1. A vibrator for a sound-telegraph apparatus, having a guide, an electromagnet, its armature, and the contact for said armature, connected to form the key of the apparatus and mounted slidably in said guide.

2. A vibrator for a combined telephone and sound-telegraph apparatus, having a hollow iron core for the induction-coil of the telephone device, an electromagnet, its armature, and the contact for said armature, connected to form the key of the telegraph device and mounted slidably in said core.

786,042. DOUGH-SHAPING MACHINE. VINZENZ LONCARIC, New York, N. Y. Filed May 11, 1904. Serial No. 207,386.

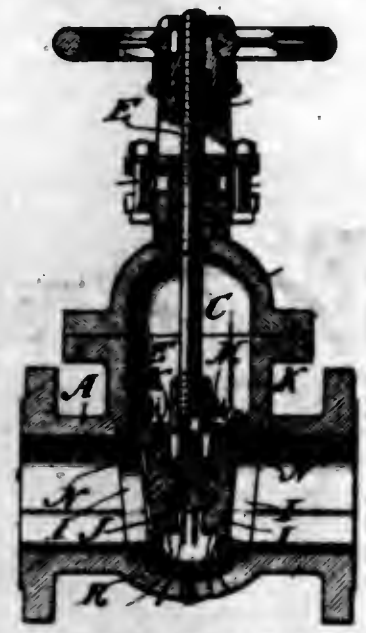


Claim.—1. The combination in a dough-shaping machine of a perforated slide having a pair of recesses, with a pair of eccentrics engaging the same, means for simultaneously rotating the eccentrics, a hinged lid below the slide, and a chute below the lid, substantially as specified.

2. The combination in a dough-shaping machine of a perforated slide having a pair of recesses, with a pair of eccentrics engaging the same, means for simultaneously rotating the eccentrics, a hinged lid below the slide, a spring-influenced cross-head operatively connected the lid, a guide-rod, and a lever for operating the cross-head, substantially as specified.

786,043. GATE-VALVE. GUSTAVUS T. LUCKETT, New York, N. Y., assignor to Morris W. Kellogg, Elizabeth, N. J., and William B. Osgood Field, New York, N. Y., composing the firm of M. W. Kellogg & Company, New York, N. Y. Filed Apr. 26, 1904. Serial No. 204,950.

Claim.—1. A gate-valve having a stem and means to actuate it, guides at each side of the gate which extend at least to its axial line when closed, a cross-head on the stem which engages with the guides and disk valves movably attached to the stem by a ball-and-socket joint and each supported at three points by stay-bars carried by the stem.



2. A gate-valve having a stem and means to actuate it, guides at each side of the gate which extend at least to its axial line when closed, a cross-head on the stem which engages with the guides, disk valves movably attached to the stem by a ball-and-socket joint and each supported at three points by stay-bars carried by the stem, and rigid devices on the disks which engage with other rigid devices on the body of the gate during the seating and unseating of the valve, whereby the disks are positively revolved.

3. A gate-valve having a stem and means to actuate it, a cross-head on the stem which engages with guides on the body of the gate, disk valves supported centrally by a ball-and-socket device upon the stem and additional supports or stays for the disks likewise carried by the stem and which engage with the disks at three separated points.

4. A gate-valve having a stem and means to actuate it, disk valves supported by a centrally-located ball-and-socket device upon the stem and additional supports or stays for the disks likewise carried by the stem and which engage with the disks at three separated points.

5. A gate-valve having disk valves set at an angle to each other and supported upon a stem which moves transversely of the gate, the means of attaching the disks to the stem being such as to support them centrally and also at three separated points near their edges and to permit universal movement of the disks within defined limits.

6. A gate-valve having a stem and means to actuate it, disk valves carried by the stem and movably held to it at three separated points and guiding devices for the disks and stem located transversely of the gate, about on its axial line when closed and about midway between the disks

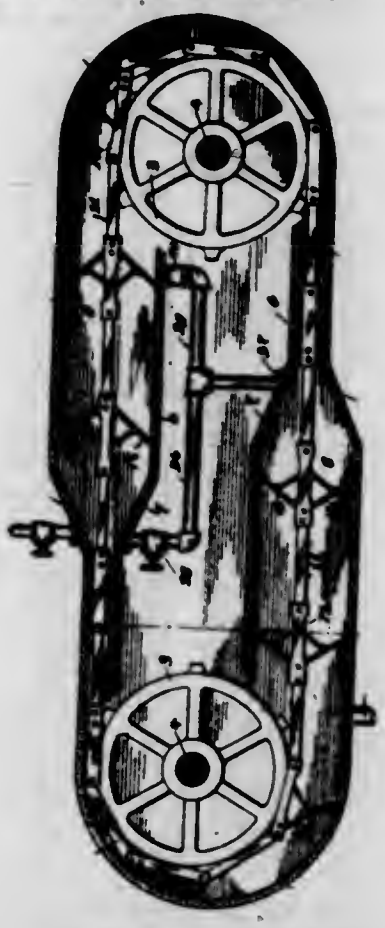
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786,044. **ROTARY MOTOR.** JAMES M. MAXWELL, Pittsburg, Pa. Filed Sept. 17, 1904. Serial No. 224,784.

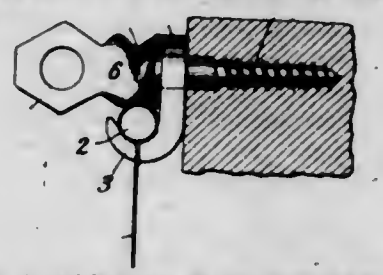
Claim.—1. In a motor of the type set forth, the combination with a suitable supply of steam, of a casing, steam-compartments formed in said casing, sprocket-wheels mounted in said casing, a supply-pipe connecting said compartments, an exhaust-pipe from one compartment communicating with the other of said compartments, an exhaust-pipe for said last-named compartment, and means whereby when steam is admitted to said compartments said sprocket-wheels will be rotated.

2. A motor comprising a casing, an upper and lower steam-compartment formed in said casing, sprocket-wheels mounted in said casing, an endless chain carried by said sprocket-wheels and adapted to pass through said compartments, a plurality of spring-actuated wings carried by said chain, the exhaust of the upper compartment communicating with the supply of the lower compartment.

3. In a motor of the type set forth, the combination with a steam-supply, of a casing, an upper and a lower steam-compartment formed in said casing, sprocket-wheels mounted in said casing, an endless chain carried by said sprocket-wheels, a plurality of spring-actuated wings carried by said chain, a supply-pipe leading from the upper compartment to the lower compartment, an exhaust-pipe leading from said upper compartment to said supply-pipe, and an exhaust-pipe for the lower compartment.



786,045. **ROD-HOLDER.** WILLIAM E. METZGER and CHARLES A. METZGER, Rutland, Vt. Filed Sept. 27, 1904. Serial No. 226,156.



Claim.—1. A rod-holding device comprising, in combination, a hook having an apertured shank, and a head rotatable relative to the hook, said head having a circumferential cam-groove, whereby a rod may be removably locked in the hook, as set forth.

2. A rod-holding device comprising, in combination, a hook having an apertured shank, a screw extending through said shank and adapted to enter a wall or other object, and a cam-head on said screw, whereby rotation of the screw will lock or release a rod supported by the hook, as set forth.

3. A rod-holding device comprising, in combination, a hook having an apertured shank, a screw extending through said hook and adapted to enter a wall or other object, and a head on the screw having a circumferential cam-groove, whereby rotation of the screw will lock or release a rod supported by the hook, as set forth.

786,046. **GARMENT-SUPPORTER.** JULIETTE MORGAN, Suffield, Conn. Filed Sept. 17, 1903. Serial No. 173,509.

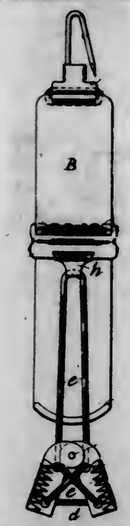
Claim.—1. In a garment-supporter, the combination with a cord, of a clasp thereon adapted to be closed and held closed by tension on said cord, said clasp being provided with fabric-engaging parts entirely behind the front portions thereof.

2. As a new article of manufacture, a garment-supporter clasp comprising pivotally-attached plates having inturned fabric-engaging edges arranged back of and substantially parallel with the front portions of said plates and hidden by such portions.

3. In a garment-supporter, the combination with a clasp comprising pivotally-attached perforated plates having inturned serrated edges entirely back of the front portions of said plates, of a cord passing through the perforations in said plates and adapted when under tension to draw the adjacent edges of the plates into contiguity.

4. The combination, in a garment-supporter, with two pivotally-attached perforated plates having inturned serrated edges to form a

clasp, of a cord passing through the perforations in said plates, and a band having means of attachment for said cord.



5. The combination, in a garment-supporter, with a band doubled or folded upon itself, of a buckle on said band, provided with a hook for said cord and with auxiliary teeth on its flap, a cord removably connected with said hook, and a clasp on said cord, adapted to be closed and held by tension on the cord.

6. The combination, in a garment-supporter, with two pivotally-attached perforated plates having inturned serrated edges to form a clasp, of a cord passing through the perforations in said plates, a band having means of attachment for said cord, and a safety-pin attached to said band.

7. The combination, in a garment-supporter, with a safety-pin, of a band connected with said safety-pin, a cord, means to attach said cord to said band, means to adjust the cord-holding means relative to the safety-pin, and a clasp on said cord, adapted to be closed and held closed by tension on the cord.

8. The combination, in a garment-supporter, of a safety-pin, a band connected with said safety-pin, a buckle attached to said band and provided with a hook, a cord detachably held by said hook, and a clasp on said cord, adapted to be closed and held by tension on the cord.

786,047. **LASTING-MACHINE.** RONALD F. MCFEELY, Beverly, Mass., assignor to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed July 14, 1900. Serial No. 23,569.

Claim.—1. A machine for working an upper over a last, comprising a cutting device and means to actuate said device to cut the upper with a twisting cut.

2. A machine for working an upper over a last, comprising a cutting device and means to actuate said device to cut the upper during a portion of its operation with a square cut and during a portion of its operation with a skiving cut.

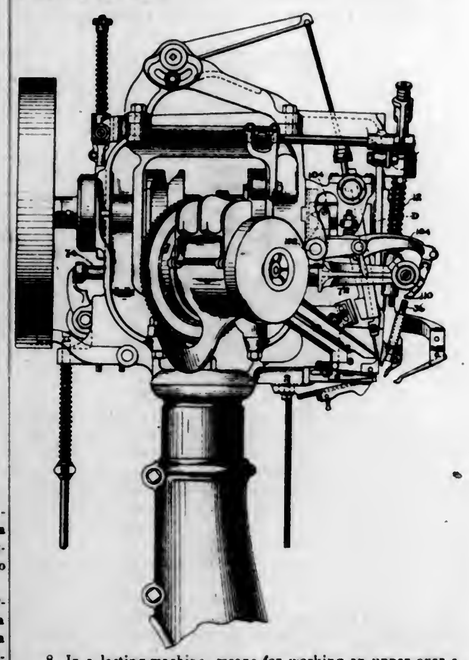
3. A machine for working an upper over a last, comprising a cutting device and means to actuate said device to cut the upper at first with a square cut and then with a skiving cut.

4. A machine for working an upper over a last, comprising pincers, means for actuating said pincers to grip the upper, a cutter, means to actuate it for cutting the upper while it is gripped, and means to turn the cutter during the cutting operation.

5. A machine for working an upper over a last, comprising a cutter, actuating mechanism to advance the cutter for slitting the upper, and means to turn the cutter, said means operating to begin the turning of said cutter after the slitting operation is begun.

6. A machine for working an upper over a last, comprising a cutter, means to advance the cutter for slitting the upper, and means codperating with the cutter for turning it during its advancing movement.

7. A machine for working an upper over a last, comprising pincers, means for actuating said pincers to grip the upper, a cutter, means to advance the cutter for slitting the upper, and means carried by the pincers and codperating with the cutter for turning it during the cutting operation.



8. In a lasting-machine, means for working an upper over a last, a cutting device, mechanism for actuating the cutting device to slit the upper, and means adapted to become operative during the action of the cutting device for changing its path of movement.

9. In combination with the pincers, the shaft 38 arranged for movement endwise and axially and provided with a spiral slot, the cutter 48 carried by said shaft, a part 42 on the pincers and extending through the spiral slot in said shaft, and mechanism for moving said shaft endwise in opposite directions.

10. In combination with the pincers, the shaft 38 arranged for movement endwise and axially and provided with a spiral slot, the cutter 48 mounted in said shaft, the part 42 mounted on said pincers and projecting through the spiral slot in said shaft, a cam-actuated lever for moving said shaft endwise in one direction, and a spring for reversely moving the shaft.

11. A machine for working an upper over a last, comprising pincers, supporting means therefor, mechanism for closing said pincers to grip the upper and for turning the pincers, a cutting device also carried by said supporting means, and means for actuating the cutting device to slit the upper.

12. A machine for working an upper over a last, comprising pincers, means for actuating the pincers to grip the upper, a cutting device, means for actuating the cutting device to slit the upper, and means for turning the pincers.

13. In a machine for working an upper over a last, pincers for gripping the upper, a cutting device, means for actuating the cutting device to slit the upper, and mechanism for actuating the pincers to grip and stretch the upper and twist it with relation to the slit formed by the cutting device.

14. A machine for working an upper over a last, comprising pincers adapted for gripping the upper, means to move the pincers laterally, means to turn the pincers, a cutter, and means to actuate the cutter for slitting the upper.

15. In a machine for working an upper over a last, pincers for gripping the upper, a cutter, means for operating the cutter to cut a slit in the upper, mechanism for actuating the pincers to grip a section of upper and superimpose it upon an adjacent section, and means for turning the pincers to twist the gripped section of upper about a center located substantially at the inner end of the slit formed in the upper.

16. A machine for working an upper over a last, comprising pincers, means to actuate the pincers to grip the upper, means for relatively moving the last and pincers for stretching the upper, a cutting device, means for actuating the cutting device to slit the upper, and means for turning the pincers about an axis approximately perpendicular to the bottom of the shoe.

17. A machine for working an upper over a last, comprising pincers adapted for gripping the upper, a cutting device, means to turn the pincers, and means to actuate the cutting device for slitting the upper, said cutter-actuating means being constructed and arranged to be operative when the pincers-turning means is operative.

18. A machine for working an upper over a last, comprising pincers adapted for gripping the upper, means for simultaneously moving the pincers laterally and turning them, a cutter for slitting the edge of the upper, and cutter-actuating means constructed and arranged to be operative when the means for moving the pincers laterally and turning them is operative.

19. A machine for working an upper over a last, comprising pincers adapted for gripping the upper, a cutting device, means to turn the pincers and means to actuate the cutting device for slitting the upper, the cutter-actuating means being constructed and arranged to be operative when the pincers-turning means is operative and to be inoperative when the pincers-turning means is not operative.

20. In a machine for working an upper over a last, the combination with pincers that are adapted to be moved laterally from a central position and turned into an angular position, of a cutter mounted thereon, and means for actuating said cutter when the pincers are in their angular position, the cutter being inoperative when the pincers are in their central position.

21. In a machine for working an upper over a last, the combination with turning and laterally-moving pincers, an upper-slitting device movable with said pincers, means located out of alinement with the normal position of the slitting device for actuating said device, and means for moving the pincers laterally and thereby establishing operative relationship between the upper-slitting device and the part by which it is actuated.

22. A machine for working an upper over a last, comprising pincers for gripping and stretching the upper, a cutting device, means to actuate said device for slitting the upper, actuating mechanism for closing and lifting said grippers, and mechanism adapted to be rendered operative at the will of the workman for putting the cutting device into operative relation to its actuating mechanism and for turning and moving the pincers laterally to plait the upper.

23. A machine for working an upper over a last, comprising pincers, a cutting device, means to actuate the cutting device for slitting the upper, and means to turn the pincers and move them laterally in one direction to grip the upper and thereafter turn the pincers and move them laterally in the opposite direction for plaiting the upper.

24. A machine for working an upper over a last, comprising pincers, means for turning the pincers and moving them laterally into position to grip the upper and thereafter turning and moving them laterally in the opposite direction for plaiting the upper, a cutting device movable with the pincers, and means for actuating said device while the pincers are in position for gripping the upper.

25. A machine for working an upper over a last, comprising pincers, means for moving the pincers laterally and turning them to set them in position for gripping the upper, a cutting device, means for closing the pincers, and means to actuate the cutting device after the pincers have gripped the upper.

26. A machine for working an upper over a last, comprising pincers adapted for gripping the upper, a cutting device, means to set the pincers in position to grip the upper, means to actuate said cutting device for slitting the upper, and means for simultaneously moving the pincers laterally and turning them with relation to the slit formed by the cutting device.

27. A machine for working an upper over a last, comprising pincers adapted for gripping the upper, a cutting device, means to set the pincers and cutting device in position to grip and slit the upper, means to actuate the cutting device for slitting the upper, and means for simultaneously moving the pincers laterally and turning them with relation to the slit formed by the cutting device.

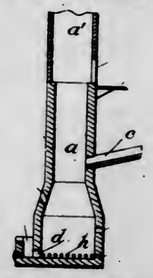
28. In a machine of the class described, pincers, a carrier, a spring, and means to actuate said carrier, said means acting upon one end of said spring to move the carrier in one direction and upon the other end of said spring to move the carrier in the opposite direction.

29. In a machine of the character indicated, in combination, the pincers, and a carrier connected therewith, a spring, a positive connection between said carrier and one end of said spring, also a positive connection between said carrier and the other end of said spring, and means to move said connections whereby the pincers are yieldingly carried at one time in one direction and at another time in the opposite direction.

30. In a machine of the class described, pincers, a carrier connected therewith, a spring supported by said carrier, and means acting through the length of said spring to move the carrier at one time in one direction and at another time in the opposite direction.

31. In a machine of the class described, pincers, a carrier connected therewith, a telescoped connection in said carrier, a spring between said connection and the carrier, and means to actuate said connection whereby the pincers are yieldingly carried at one time in one direction and at another time in the opposite direction.

786,048. **PROCESS OF PURIFYING PIG METALS.** JOHN B. NAU, New York, N. Y. Filed Apr. 27, 1903. Serial No. 154,456.



Claim.—1. A process of purifying and enriching metals, which consists in pouring liquid metal upon a mass of broken pieces of solid oxidizing material in such manner that the liquid metal will be broken up and descend in small streams through the spaces between and in contact with the pieces of oxidizing material, causing a bath of the liquid metal to accumulate, maintaining immersion of the oxidizing material in the bath, so that the bath fills the spaces in the immersed mass of oxidizing material, for the period desired, and then separating the liquid purified metal from the oxidizing material, substantially as and for the purpose set forth.

2. A process of purifying pig-iron, which consists in pouring liquid pig-iron upon a mass of broken pieces of solid metallic ore in such manner that the liquid pig-iron will be broken up and descend in small streams through the spaces between and in contact with the pieces of ore, causing a bath of the poured liquid pig-iron to accumulate, maintaining immersion of the metallic ore in the bath, so that the bath fills the spaces in the immersed mass of ore, for the period desired, and then separating the liquid-purified iron from the metallic ore, substantially as and for the purpose set forth.

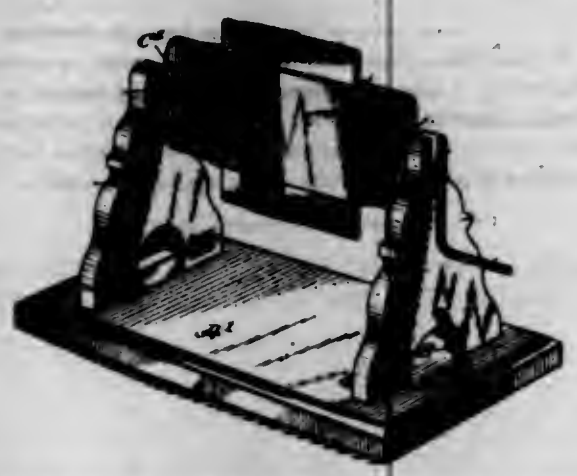
3. A continuous process of purifying pig-iron, which consists in bringing liquid pig-iron into contact with the lower part of a body of broken pieces of solid metallic ore, heating the upper part of the body of ore by means of heat generated during the reaction in and rising from the purifying zone, drawing off the liquid-purified iron from the purifying zone, drawing off the slag formed during the reactions, introducing additional liquid pig-iron to the lower part of the body of ore and adding additional metallic ore at the top of the body of ore.

4. A continuous process of purifying pig-iron, which consists in bringing liquid pig-iron into contact with the lower part of a body of broken pieces of solid metallic ore, causing a bath of the liquid pig-iron to accumulate, maintaining immersion of the lower part of the ore-body in the bath by the weight of the ore-body above, drawing off the liquid-purified iron from the lower part of the body of ore, drawing off the slag formed by the reactions, introducing additional pig-iron to the lower part of the ore-body and adding metallic ore at the top of the ore-body.

786,049. **HAND-OPERATED WINDING APPARATUS.** EDWIN C. NAYLOR, Gloversville, N. Y. Filed Sept. 16, 1904. Serial No. 224,700.

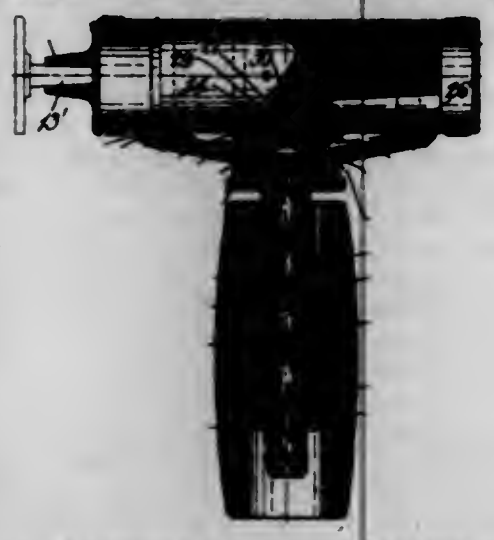
Claim.—1. A hand-operated winding apparatus, consisting of a support formed of a base and standards hinged to the base to fold one upon the other and having bearings at their upper ends, one bearing being open and the other closed, means for holding the standards in vertical positions, and a reel comprising flat and com-

paratively wide spring members secured together at one end and provided at said end with a trunnion adapted to enter the open bearing, a two-part trunnion being secured to the free ends of the members at the center of width thereof and adapted to enter the closed bearing, said members clamping and holding a card or board between them when the trunnions are in their bearings, substantially as herein shown and described.



2. A hand-operated winding apparatus comprising a stand having a closed bearing and an open bearing, and a revoluble reel for holding the card or board on which the article is to be wound, the reel consisting of a pair of comparatively wide clamping-plates fastened together at one end in flat engagement, the plates being of thin spring material and even width throughout, a trunnion attached to the plates at the ends secured together and provided with a crank-arm, and adapted to engage the said open bearing, and a trunnion for engagement with the said closed bearing, said trunnion being in sections, one on each free end of the said clamping-plates, and holding the free ends of the plates in flat engagement when in its bearing.

786,050. **FLUID-ACTUATED VIBRATOR.** CLARENCE H. RICHWOOD, Dorchester, Mass. Filed Sept. 19, 1904. Serial No. 224,651.



Claim.—1. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a hollow handle into which the stem is received, and means within the handle to support the stem at a point intermediate the ends of the latter to permit of a relative rocking movement between said stem and handle.

2. In a device of the character described, the combination with a vibrator and stem secured thereto, of a hollow handle into which the stem is secured, means within the handle to support the stem at a point intermediate the ends of the stem and cushioning devices disposed on opposite sides of said support and between the stem and the handle.

3. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a hollow handle into which the stem is received; and means within the handle for supporting the stem to permit a rocking movement of the stem and handle relative to each other.

4. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a hollow handle into which the stem is received, supporting means for the stem within the handle to permit a rocking movement of the stem and handle relative to each other, and cushioning means also within the handle.

5. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a hollow handle into which the stem is received, a projection within the handle having a line edge upon which the stem is supported, and cushioning devices between the stem and handle and adjacent the support.

6. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a hollow handle into which the stem is received, an annular projection within the handle having a line edge upon which the stem is supported, and cushioning devices between the stem and handle and adjacent the support.

7. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a hollow handle into which the stem is received, an annular projection within the handle having a line edge upon which the stem is supported at a point intermediate its ends and cushioning means between the stem and handle and on opposite sides of the point of support of the stem.

8. In a device of the character described, the combination of a cylinder closed at its ends and having air-supply ducts, a piston mounted in the cylinder for reciprocation, means for closing the ducts in the cylinders alternately by the movement of said piston in opposite directions, an exhaust-chamber arranged exterior to the cylinder and having apertures communicating therewith, outlet-ports from the exhaust-chamber, and a screw-plug coöperating with said outlet-ports to vary the opening thereof.

9. In a device of the character described, the combination of a cylinder closed at its ends, and having a piston therein for reciprocation, a projection on the side of the cylinder having inlets therethrough into the cylinder, an exhaust-chamber carried by the cylinder and surrounding said projection and having communication with the cylinder, said chamber also having exhaust-ports, and a rotatable plug mounted on said projection and coöperating with the exhaust-ports to vary the size of the opening therethrough.

10. In a device of the character described, the combination of a cylinder closed at its ends, and having a piston therein for reciprocation, a projection on the side of the cylinder having inlets therethrough into the cylinder, an exhaust-chamber carried by the cylinder and surrounding said projection and having communications with the cylinder, said chamber also having exhaust-ports and a rotatable plug surrounding said projections and having screw-threaded connections therewith and provided with means coöperating with the exhaust-ports of the exhaust-chamber to vary the size of the opening therethrough.

11. In a device of the character described, the combination of a cylinder closed at its ends, and having a piston therein for reciprocation, a projection on the side of the cylinder having inlets therethrough into the cylinder, an exhaust-chamber carried by the cylinder and having a hub surrounding said projection, said chamber having communication with the cylinder, and having exhaust-ports through the wall of the hub, and a rotatable plug arranged between said projection and hub and coöperating with the exhaust-ports to vary the size of the openings therethrough.

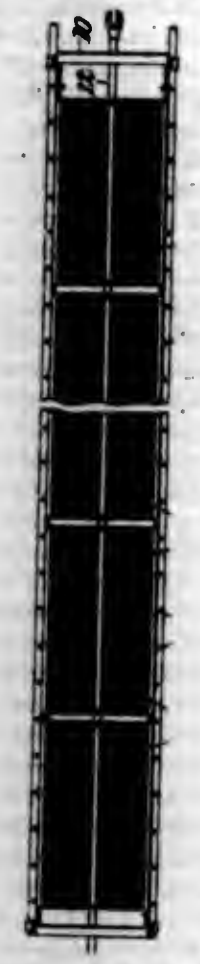
12. In a device of the character described, the combination of a cylinder closed at its ends and having a piston therein for reciprocation, a projection on the side of the cylinder having inlet-openings into the cylinder, said projection being provided with a hollow extension interiorly and exteriorly screw-threaded, an exhaust-chamber carried by the cylinder and provided with a hub surrounding said projection, said chamber having communication with the cylinder and exhaust-ports through the hub, a rotatable plug arranged between the extension of the cylinder and said hub being threaded to said extension and coöperating with the exhaust-port to vary the size of the opening therethrough, and a hollow stem threaded to the interior of said extension.

13. In a device of the character described, a cylinder, a piston therein for reciprocation, a hollow handle attached to said cylinder and having a fluid-supply passage communicating with the cylinder on opposite sides of the piston, said cylinder having exhaust-ports, and a cut-off for said ports rotatably mounted on the handle and having its axis of rotation coincident with the longitudinal axis of the handle.

14. In a device of the character described, the combination with a vibrator and a stem secured thereto, of a handle having a longitudinal opening therethrough of greater diameter than said stem and into which said stem is received, and means within the opening for supporting said stem for a rocking movement relative to the handle.

15. In a device of the character described, the combination with a fluid-operated vibrator and a stem secured thereto through which the fluid finds access to the vibrator, of a handle having a longitudinal opening of greater diameter than the stem and means within the opening for supporting the stem for a rocking movement relative to the handle.

786,051. PROCESS OF REDUCING ORES. DENNIS R. ROBERTSON, Leadville, Colo. Filed Aug. 30, 1904. Serial No. 222,722.



Claim.—1. The process for reducing ore, which consists in subjecting the finely-divided material in the presence of water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding salts of iron and an acid and again agitating, allowing the mixture to rest, and removing the separated values.

2. The process for reducing ores, which consists in subjecting the finely-divided material in the presence of water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding salts of iron and an acid and again agitating, allowing the mixture to rest and the values and pulp to separate, precipitating the values upon the pulp, and washing this solid matter.

3. The process for reducing ores, which consists in subjecting the finely-divided material in the presence of water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding salts of iron and an acid and again agitating, allowing the mixture to rest and the values and pulp to separate, precipitating the values upon the pulp, draining and cooling this solid matter, and then washing it.

4. The process for reducing ores, which consists in subjecting the finely-divided material in the presence of water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding salts of iron and an acid and again agitating, allowing the mixture to rest and the values and pulp to separate, precipitating the values upon the pulp, draining and cooling this solid matter, then washing it, and finally drying it preparatory to smelting.

5. The process for reducing ore, which consists in subjecting the finely-divided material in the presence of soft water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding salts of iron and an acid and again agitating, allowing the mixture to rest, and removing the separated values.

6. The process for reducing ore, which consists in subjecting the finely-divided material in the presence of water to the action of ammonia, a sodium salt and a potassium salt, heating and agitating the mixture, adding salts of iron and an acid and again agitating, allowing the mixture to rest, and removing the separated values.

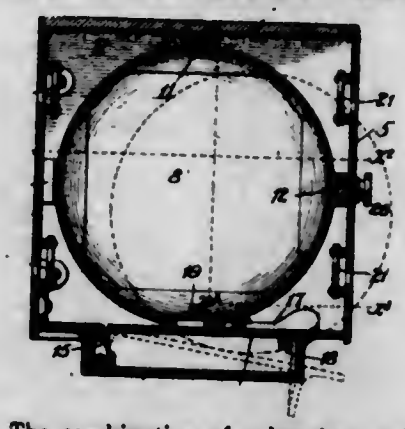
7. The process for reducing ore, which consists in subjecting the finely-divided material in the presence of water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding sulfate of iron, iron-water and an acid and again agitating, allowing the mixture to rest, and removing the separated values.

8. The process for reducing ore, which consists in subjecting the finely-divided material in the presence of water to the action of a sodium salt and a potassium salt, heating and agitating the mixture, adding sulfate of iron, iron-water and nitric acid and again agitating, allowing the mixture to rest, and removing the separated values.

9. The process of reducing ore, which consists in subjecting the finely-divided material in the presence of water to the action of ammonia, saltpeter and rock-salt, heating and agitating the mixture, adding sulfate of iron, iron-water and nitric acid and again agitating, allowing the mixture to rest, and removing the separated values.

10. The process of reducing ore, which consists in subjecting the finely-divided material in the presence of water to the action of ammonia, saltpeter and rock-salt, heating and agitating the mixture, adding sulfate of iron, iron-water and nitric acid and again agitating, allowing the mixture to rest and the values and pulp to separate, precipitating the values upon the pulp by agitation, and washing this solid matter.

786,052. LENS-BOX FOR STEREOPTICONS, &c. ALVAH C. ROEBUCK, Chicago, Ill. Filed July 5, 1904. Serial No. 215,447.



Claim.—1. The combination of a lens-box, a lens-supporting platform pivoted in the lower portion of said box, and means to secure said platform in a horizontal position.

2. The combination of a lens-box, a lens-supporting platform pivoted at one end in the lower portion of said box, and a locking means engaging the free end of said platform to hold the same in a horizontal position.

3. The combination of a lens-box having a chambered bottom, a lens-supporting platform pivoted by means of depending lugs and a pintle-pin in said chambered bottom, and a spring-catch on the lens-box adapted for engagement beneath said lens-supporting platform.

4. The combination of a lens-box, a lens-supporting platform pivoted in the lower portion of said box, a spring on said platform the free end of which is adapted to have yielding engagement with the lower end of the lens, and means for securing said platform in a horizontal position.

5. The combination of a lens-box having a door at one side, a central projection on the inside of the box forming an abutment for the side edge of the lens, and a spring on said door adapted to have yielding engagement with the side of the lens opposite to the aforesaid abutment projection.

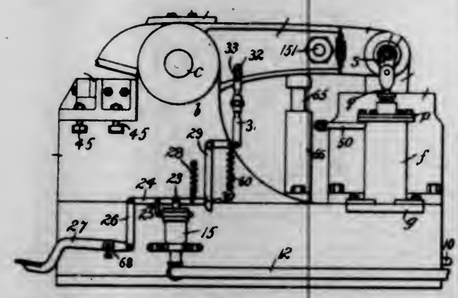
6. The combination of a lens-box having a door at one side, a central projection on the inside of the box forming an abutment for the side edge of the lens, a spring on said door adapted to have yielding engagement with the side of the lens opposite to the aforesaid abutment projection, and a spring secured within the lens-box and adapted to have yielding engagement with the top edge of the lens.

7. The combination of a lens-box, a lens-supporting platform pivoted in the lower portion of said box, a spring on said platform having its free end adapted to yieldingly engage the lower end of the lens, means for securing said platform in a horizontal position, a door at one side of the lens-box, a central projection on the inside of the lens-box forming an abutment for the side edge of the lens, a spring on said door adapted to have yielding engagement with the side of the lens opposite the aforesaid abutment projection, and a spring secured within the lens-box and adapted to have yielding engagement with the top edge of the lens.

786,053. METAL-SHAPING MACHINE. WILLIAM ROSS, Montreal, Canada. Filed Feb. 9, 1903. Serial No. 142,683.

Claim.—1. In a metal-cutting machine, a work-supporting member presenting a transverse vertical punch-blade parallel to and between two of the side edges thereof, said blade presenting shearing edges at its top, a movable die having a pair of cutting members rigidly mounted thereon with a space between them adapted to receive said punch-blade and having the side edges of the slot therein provided with shearing edges to coact with the shearing edges upon said blade, and means for moving said movable die to and from engaging position with said blade.

2. In a metal-cutting machine, a work-supporting member presenting a pair of side walls, a wall extending from the end of one of such side walls toward the corresponding end of the other, a metal punch-blade extending at an angle to the last-mentioned wall and between the pair of walls, shearing-blades carried upon the inside edges of the walls and formed upon both sides of the top of the punch-blade, a movable die having a pair of cutting members rigidly mounted thereon with a space between them to receive the punch-blade and being of a width to fit into the space inclosed by the walls, a series of shearing-blades mounted upon the sides of the slot and upon the sides of the die corresponding to such walls, the shearing-blades of said die being adapted to coact with the shearing-blades upon the walls and punch-blade of the work-support, and means for moving said die to and from engaging position with said walls and punch-blade of the work-support.



3. In a metal-cutting machine, a work-supporting member presenting a pair of side walls, a wall extending from the end of one of such side walls toward the corresponding end of the other, a vertical punch-blade extending at right angles to the last-mentioned wall and between the pair of walls, shearing-blades carried upon the inside edges of the walls and formed upon both sides of the top of the push-blade, a movable die having a pair of cutting members rigidly mounted thereon with a space between them adapted to receive the punch-blade and being of a width to fit into the space inclosed by the walls, a series of shearing-blades mounted upon the sides of the slot and upon the sides of the die corresponding to said walls, the shearing-blades of the die being adapted to coact with the shearing-blades upon the walls and punch-blade of the work-support, and means for moving the die to and from engaging position with the walls and punch-blade of the work-support.

4. In a metal-cutting machine, an open work-supporting member presenting a pair of side walls and a wall extending from the end of one of the side walls to the corresponding end of the other, a rib extending from the last-mentioned wall and between the pair of walls, shearing-blades carried upon the inner sides of the walls and upon both sides of the central rib, the work-support having passages extending downwardly therethrough from the spaces inclosed by the walls and rib, a movable die having a pair of cutting members rigidly mounted thereon with a space between them adapted to receive the rib and being of a width to fit between the walls, a series of shearing-blades mounted upon the sides of the slot and upon the sides of the die corresponding to the walls, the shearing-blades of the die being adapted to coact with the shearing-blades upon the walls and rib of the work-support, and means for moving the die to and from engaging position with the walls and rib of the work-support.

5. In a metal-cutting machine, an open work-supporting member presenting a pair of side walls and a wall extending from the end of one of such side walls to the corresponding end of the other, a rib extending at right angles to the last-mentioned wall and between the pair of walls, shearing-blades carried upon the inner sides of the walls and upon both sides of the central rib, such work-support having open passages extending downwardly therethrough from the spaces inclosed by the walls and rib, a movable die having a pair of cutting members rigidly mounted thereon with a space between them adapted to receive the rib and being of a width to fit between the walls, a series of shearing-blades mounted upon the sides of the slot and upon the sides of the die corresponding to the said walls, the shearing-blades of the die being adapted to coact with the shearing-blades upon the walls and rib of the work-support, and means for moving the die to and from engaging position with the walls and rib of the work-support.

6. In a metal-cutting machine, a work-supporting member presenting a pair of side walls disposed at an angle to one another, a wall extending from the end of one of the side walls to the corresponding end of the other, a rib extending at right angles to the last-mentioned wall between such pair of walls and parallel to one of them, shearing-blades carried upon the inside edges of the said walls and upon both sides of the rib, a movable die having a pair of cutting members rigidly mounted thereon with a space between them adapted to receive said rib and conforming in contour to the space inclosed by said walls, a series of shearing-blades mounted upon the sides of the slot and upon the sides of the die corresponding to the said walls, the shearing-blades of the die being adapted to coact with the shearing-blades upon the walls and rib of the work-support, and means for moving the die to and from engaging position with the walls and rib of the work-support.

7. In a metal-cutting machine, the combination with a work-supporting member presenting a metal-working tool of a divided oscillatory member, a pair of metal-working tools, one mounted on each of the divided parts of the oscillatory member, and said last-mentioned tools being adapted to coact with the metal-working tool of the work-support, and means for oscillating one or both of the divided parts of the oscillatory member to and from the work-support.

8. In a metal-cutting machine, the combination with a work-supporting member presenting a shearing device of a divided movable member having the divided parts thereof rigidly secured thereto, a pair of shearing devices, one mounted on each of the divided parts of such movable member, and the last-mentioned shearing devices being adapted to coact with the shearing device of said work-support, and means for moving one or both of the divided parts of the movable member to and from the work-support.

9. In a metal-cutting machine, the combination with a work-supporting member presenting a series of shearing edges, of a divided movable member, a pair of shearing devices, one mounted on each of the divided parts of the movable member, and the shearing devices being adapted to coact with the shearing edges of the work-support, and means for moving one or both of the divided parts of the movable member to and from the work-support.

10. The combination with a stationary part carrying a cutting device and a reciprocative part carrying a cutting device to coact with the first-mentioned cutting device, of a cylinder, a piston slidable therein, an operative connection between the piston and reciprocative part, a device for supplying water under pressure, a water-conductor leading from such device to the cylinder, a second water-conductor leading from the cylinder back to the water-supplying device thus forming a complete circuit, a valve controlling the last-mentioned pipe at a point near its junction with the cylinder, a cylinder, a piston located in the cylinder last mentioned, means operatively connecting the piston to the reciprocative part, a compressed-air supply and an air-conductor leading from the air-supply to the cylinder last mentioned, for the purpose set forth.

11. The combination with a stationary part carrying a cutting device, and a reciprocative part carrying a cutting device to coact with the first-mentioned cutting device, of a cylinder, a piston slidable therein, an operative connection between the piston and the reciprocative part, a device for supplying water under pressure, a water-conductor leading from the supplying device to the cylinder, a second water-conductor leading from the cylinder back to the water-supplying device thus forming a complete circuit, a valve controlling the last-mentioned pipe at a point near its junction with the cylinder, a cylinder, a piston located in the cylinder last mentioned, means operatively connecting the piston to the reciprocative part, a compressed-air supply and an air-conductor leading from such air-supply to the cylinder last mentioned, for the purpose set forth.

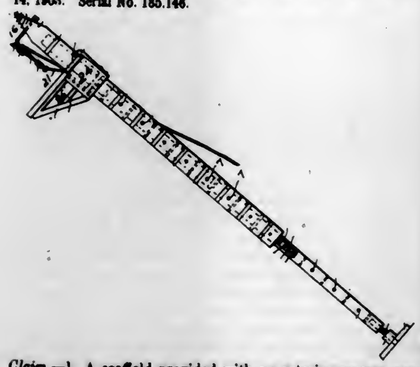
12. In a metal-cutting machine, the combination with a work-support consisting of a female die, of a lever fulcrumed adjacent to one end comprising a main part and an auxiliary part, the short ends of the main and auxiliary parts of the lever conjointly constituting a male die adapted to coact with the female die, means operatively connected to the opposite end of said lever for rocking the same, and means detachably securing the auxiliary part to the main part to cause the main and auxiliary parts to act in unison or one without the other.

13. In a metal-cutting machine, the combination with a work-support consisting of a female die, of a lever fulcrumed adjacent to one end and comprising a main part and an auxiliary part, the short ends of the main and auxiliary parts of the lever conjointly constituting a male die adapted to coact with the female die, means operatively connected to the opposite ends of said lever for rocking the same, and means detachably securing the auxiliary part to the main part to cause the main and auxiliary parts to act in unison or one without the other the abutting faces of the short ends of the main and auxiliary parts being slotted, and a gage carried by the main part and projecting into the said slot, and means for adjusting the gage relatively to the slot for the purpose set forth.

14. The combination with a stationary part carrying a cutting device, and a reciprocative part carrying a cutting device to coact with said first-mentioned cutting device, of a cylinder, a piston slidable therein, an operative connection between said piston and said reciprocative part, a device for supplying water under pressure, a water-conductor leading from said device to said cylinder, a second water-conductor leading from said cylinder back to said water-supplying device thus forming a complete circuit, a valve controlling said last-mentioned pipe at a point near its juncture with the cylinder, a pair of cylinders parallel to said first-mentioned cylinder and located one at each side thereof, a pair of pistons located in said pair of cylinders, means operatively connecting said pair of pistons to said reciprocative part, a compressed-air supply, and an air-conductor leading from said air-supply to each of said pair of cylinders, for the purpose set forth.

15. In a metal-cutting machine, comprising a frame, a work-support, a lever fulcrumed adjacent to said support between its ends, metal-cutting means upon one end of said lever and means operatively connected to the opposite end of said lever for rocking same, said means consisting of a hydraulic-pressure device having a water-conducting pipe leading thereto and a second water-conducting pipe leading therefrom, the combination with said lever and hydraulic-pressure device, of a valve controlling the pipe leading from said hydraulic-pressure device, a lever extending across said valve, means effecting a loose pivotal connection between said lever and frame, an operative connection between said valve and said last-mentioned lever, a retractile helical spring connected at one end to the frame and at its other end to said last-mentioned lever, a bell-crank lever fulcrumed at its angle to the frame and having one arm notched to engage one end of said last-mentioned lever, a link pivotally connected at one end to the end of the other arm of said bell-crank lever and having its other end slotted, a stud upon said main lever and projecting into the slot in said link, a treadle fulcrumed between its ends to the frame, a link pivotally connected at one end to said treadle and at its other end to said valve-operating lever, and a retractile helical spring connected to one of the frames and at its other end to the arm of the bell-crank lever to which said first-mentioned link is connected, substantially as described and for the purpose set forth

786,054. SCAFFOLD. CHARLES J. ROY, Pasadena, Cal. Filed Dec. 14, 1903. Serial No. 185,146.



Claim.—1. A scaffold provided with an exterior portion constructed of a plurality of sections, rings or bands thereon to secure said sections together and to receive a latch, a bracket movable on said portion carrying a latch constructed to automatically engage said bands successively as said bracket is elevated and an interior portion engaging said exterior portion.

2. A scaffold provided with an exterior portion constructed of a plurality of sections, rings or bands on said portion adapted to retain said sections together and to receive and support a latch, a bracket encircling said portion and carrying a spring-latch constructed to engage said bands successively as said bracket is progressed, an interior portion adjustable within said exterior portion and means for effecting such adjustment.

3. A scaffold provided with adjustable members, one whereof is constructed of sections, rings or bands on one of said members, constructed to secure the sections together and to receive a latch, a bracket, a latch carried by said bracket and adapted to engage said rings or bands automatically and means for raising and lowering the bracket.

4. A scaffold provided with bands or rings, a bracket carrying a latch constructed to automatically engage said bands, means for operating the bracket, whereby the latch can be disengaged and prevented from accidental reëngagement by the rotation of the bracket.

5. A scaffold provided with an exterior portion having recesses in the same longitudinal plane, supporting devices below said recesses, a support carrying an engaging portion constructed to enter said recesses and engage said devices successively and to be moved out of the plane of said recesses to prevent accidental reëngagement whereby said support may be lowered from below and an interior portion.

6. A scaffold provided with an exterior portion having openings, a bar or rod having openings and provided with a threaded end and constructed to enter said portion, an interior portion carrying a threaded projection and having openings and being adapted to enter said exterior portion, pins or bolts to pass through said portions and bar, to retain said parts in the desired position and means on the scaffold to support the operator or user.

7. A scaffold provided with an exterior portion having openings, a bar or rod constructed to enter said portion and having openings and a threaded end, an interior portion constructed to enter said exterior portion and having openings and a threaded projection, pins or bolts adapted to pass through said parts to retain the same in the desired relative position and an adjustable bracket upon the scaffold.

8. A scaffold provided with an exterior portion having openings, a bar having openings and a threaded end and constructed to enter said portion, an interior portion constructed to enter said exterior portion and having openings and a threaded end, devices to enter said openings to retain said parts in the desired relative position, a bracket slidably mounted on said scaffold and a threaded socket or base upon said projection, whereby the scaffold may be extended after adjustment and secured into the building.

786,055. FISH-NET. KARL RÜDIGER, Obermassfeld, Germany. Filed Aug. 26, 1904. Serial No. 222,281.



Claim.—1. A fish-net embodying a wire-net casing provided with an entrance, a support arranged therein, a grating suspended from said support and adapted to close said entrance, said grating opening inwardly, a pair of wire-net walls detachably hinged to said entrance, a pair of foldable wire-net walls detachably hinged to the first-mentioned pair of wire-net walls, and means for detachably connecting said foldable wire-net walls to said casings.

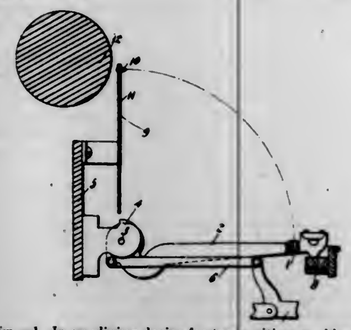
2. A multiple fish-net embodying a plurality of interchangeable hinged wire-net casings each provided with an entrance, wire-net walls detachably hinged to the entrance of each of said casings, a transverse support arranged in each of said casings, gratings sus-

pended from said support and adapted to close the entrances of the casings, said gratings opening inwardly, and hoppers detachably connected to said casings.

3. A fish-net embodying a wire-net casing provided with an entrance, a support arranged therein, a grating suspended from said support and adapted to close said entrance, said grating opening inwardly, a pair of wire-net walls detachably hinged to said entrance, and a hopper detachably connected to said casing.

786,056. ALINING DEVICE FOR TYPE-WRITING MACHINES.

JEROME B. SHOOR, Derby, Conn., assignor to The Williams Typewriter Company, Derby, Conn., a Corporation of Iowa. Filed Oct. 28, 1903. Serial No. 178,810.



Claim.—1. In an alining device for type-writing machines, the combination of a type-bar and an alining-bar one of said members provided with a globular pin and the other with a curved parallel-sided perforation in which the globular pin fits and travels during the latter part of the type-bar movement so as to guide the same toward the end of the stroke, substantially as described.

2. In an alining device for type-writing machines, the combination of a type-bar having a curved aperture provided with parallel guiding-walls and a support bearing a globular pin adapted to fit and move within said aperture in order to guide the type-bar in the latter part of its movement, substantially as described.

3. In an alining device for type-writing machines, the combination of a type-bar having a curved aperture having parallel guiding-walls and a support bearing an alining-pin of globular form, adapting it to fit and travel within said guiding-aperture, and with a tapering point to facilitate its engagement with the guiding-aperture, substantially as described.

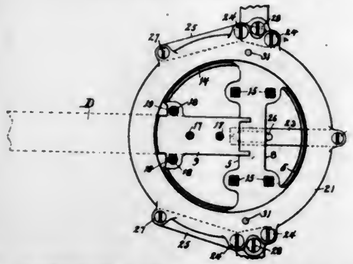
4. In an alining device for type-writing machines, the combination of a pin of globular form with a tapering point mounted on the frame of the machine and type-bar pivoted in the frame having a perforation to receive and guide said pin, having its guiding-walls curved on an arc concentric with the pivot on which the type-bar moves, substantially as described.

5. In an alining device for type-writing machines, the combination with a bracket, a leaf-spring on said bracket having a perforation therein and a rounded or acorn-shaped pin seated in said bracket and projecting through said perforation, of a type-bar provided with a curved hole struck in the arc of a circle centering at the pivotal point of the said type-bar, said hole adapted to engage the said rounded or acorn-shaped pin.

6. In a type-writing machine, a pivoted type-bar and a support; one of said parts being provided with an opening formed with opposite parallel guiding-walls normal to the plane in which the type-bar swings and formed in arcs having their centers at the type-bar pivot; the other of said parts being provided with a pin fitting between said guiding-walls in a line radial to the type-bar pivot; said guiding-walls continuing a distance sufficient to insure continuing alinement of the type-bar during the latter part of its stroke so that it is alined when arrested at different distances from the platen.

786,057. FIFTH-WHEEL. WILLIAM SHAW, West Allis, Wis. Filed Sept. 9, 1904. Serial No. 223,833.

Claim.—1. In a fifth-wheel, a circle-way comprising substantially flat upper and lower opposite and complementary circle-way members in a generally annular form, each member being recessed in its inner edge adjacent and opposite to the recess in the other member forming when secured together an annular channel or circle-way between the two members and above and below the plane of their junction, means securing the two members together, means for securing the thus united circle-way members to an axle, a circle having a peripheral horizontal marginal rim fitting into the circle-way, a downwardly-projecting annular flange at a distance from and of less diameter than the aforesaid peripheral marginal rim fitting to the inner edge of the lower member of the circle-way, and an elevated radial portion for receiving the reach thereon and securing it thereto above the plane of the circle and the circle-way.

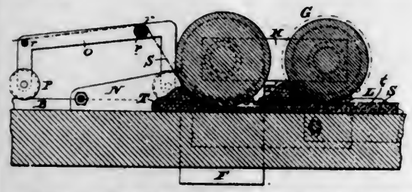


2. In combination in a fifth-wheel, a circle provided with an annular oil-groove in its upper surface, means for securing the circle to a bolster, upper and lower members together forming a circle-way adapted to receive the circle therein revolubly the lower member being provided in its upper circle-way surface with an annular oil-holding groove, and means for securing the upper and lower members to each other and to an axle.

3. In combination in a fifth-wheel, a circle provided with an annular oil-groove in its upper surface and with oil-feed holes and dams in the groove, means for securing the circle to a bolster, upper and lower members together forming a circle-way adapted to receive the circle therein revolubly the lower member being provided in its upper circle-way surface with an annular oil-holding groove and the upper member with oil-feed holes, and means for securing the upper and lower members to each other and to an axle.

786,058. PROCESS OF MANUFACTURING WIRE-GLASS.

FRANK SHUMAN, Philadelphia, Pa. Filed Apr. 7, 1904. Serial No. 201,946.



Claim.—1. The method of making sheet-glass with a metallic center portion, consisting in depositing a single batch of glass upon a suitable support, then dividing it into a front and a rear portion, introducing the metallic center at the divided point, then spreading the front portion of the glass below the metallic center and the rear portion above the metallic center.

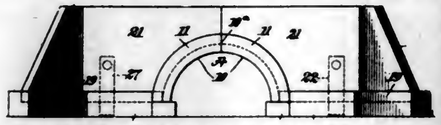
2. The method of making sheet-glass with a metallic center portion which consists in depositing a single batch of glass upon a suitable support, then dividing it into a front and a rear portion, introducing the metallic center at the divided point, and simultaneously spreading the front portion of the glass under the metallic center and the rear portion above the metallic center.

786,059. SUBWAY STRUCTURE.

JAMES SIMPSON, Veedersburg, Ind., assignor of one-half to William H. Mallory, Veedersburg, Ind. Filed Aug. 26, 1904. Serial No. 222,239.

Claim.—1. A structure comprising an arch member, a main wing-sill projecting therefrom, an extension wing-sill lying at an angle to the main wing-sill, and main and extension wing-walls resting upon the sills.

2. A structure comprising an arch member, a main wing-sill projecting therefrom, an extension wing-sill lying at an angle to the main wing-sill, one of said sills having a recess into which the other extends, and main and extension wing-walls resting upon the sills.

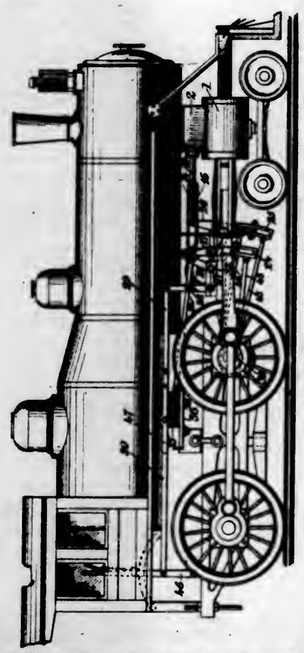


3. A structure comprising an arch member, a main wing-sill projecting therefrom, an extension wing-sill lying at an angle to the main wing-sill, and main and extension wing-walls resting upon the sills, one of said wing-walls having a recess into which the other extends.

4. A structure comprising an arch member, a main wing-sill projecting therefrom, an extension wing-sill lying at an angle to the main wing-sill, main and extension wing-walls resting upon the sills, and braces lying along the inner side of the main wing-wall and projecting substantially at right angles therefrom.

786,060. SLIDE-VALVE MECHANISM FOR STEAM-ENGINES.

FRANK E. SMITH, Munnsville, N. Y. Filed Apr. 30, 1904. Serial No. 205,715.



Claim.—1. The combination with a cylinder having inlet and exhaust ports, of separate inlet and exhaust valves, a reversing mechanism for each valve, a reversing-lever common to both reversing mechanisms, and means whereby the reversing mechanism for the exhaust-valve will only be operated during the movement of said lever from the center of its movement to the end thereof.

2. The combination with the steam-engine cylinder having steam inlet and exhaust ports, of separate inlet and exhaust valves slidable over said ports, means for reversing the stroke of each of said valves, said reversing means comprising a movable lever which is constantly connected with said inlet-valve, and automatically-operative devices for connecting said lever with said exhaust-valve intermediate of the ends of the stroke of the lever.

3. The combination with a steam-engine cylinder having inlet and exhaust ports, of separate inlet and exhaust valves coöperating with said ports, and mechanism for reversing the stroke of both of said valves, said mechanism comprising a lever operative upon the inlet-valve throughout its entire stroke and connections between said lever and the exhaust-valve, whereby the reversal of the exhaust-valve is accomplished during the latter half of the stroke of the lever.

4. The combination with a steam-engine cylinder having inlet and exhaust ports, of separate inlet and exhaust valves coöperating with said ports, separate means for imparting reciprocatory movement to each of said valves, means for reversing the movement of each of said valves, said means comprising a crank-arm for each valve, the crank-arm for the inlet-valve being twice the length of the crank-arm for the exhaust-valve, and a lever for imparting movement to said crank-arms, said lever being connected directly with the crank-arm for the inlet-valve at all times, and being automatically connected with the crank-arm of the exhaust-valve during the latter half of its stroke only.

5. The combination in locomotive-valve mechanism, of separate steam inlet and exhaust valves, separate means for imparting reciprocatory motion to each of said valves, separate means for reversing the stroke of each of said valves, the reversing means for the inlet-valve being adapted to vary the stroke thereof, and connections between the reversing means of the inlet and exhaust valves automatically operative during the latter half of the stroke of the reversing means for the inlet-valve, whereby the reversal of the stroke of the exhaust-valve is accomplished during the latter half of the stroke of the reversing means for the inlet-valve.

6. The combination with a steam-engine cylinder having inlet and exhaust ports, of an inlet-valve coöperating with the inlet-ports, a separate exhaust-valve coöperating with the exhaust-ports, mechanism for imparting reciprocatory movement to the inlet-valve, means for reversing the stroke of the inlet-valve, said means being adapted to vary the stroke of the inlet-valve, mechanism for imparting reciprocatory movement to the exhaust-valve, and mechanism for reversing the stroke of the exhaust-valve, said reversing mechanism being adapted for automatic connection with the means for reversing the stroke of the inlet-valve substantially in the middle of its movement, whereby the reversal of the stroke of the exhaust-valve is accomplished during the latter half of the stroke of the reversing means for the inlet-valve.

7. The combination with a cylinder having inlet and exhaust ports, of separate inlet and exhaust valves for said ports, a reversing mechanism for each valve, said mechanisms having a common reversing-lever and means whereby the reversing mechanism for the exhaust-valve will be operated intermediate of the ends of the stroke of the reversing-lever.

8. The combination with a cylinder having inlet and exhaust ports, of separate inlet and exhaust valves, a reversing mechanism for each valve, said mechanism having a common reversing-lever, and a locking device for locking the exhaust-valve-reversing mechanism during the adjustment of the inlet-valve-operating mechanism to reduce the stroke of the inlet-valve.

9. The combination with a cylinder having inlet and exhaust ports, of separate inlet and exhaust valves, a reversing mechanism for each valve, said mechanisms having a common reversing-lever, a connection between the said lever and the exhaust-valve-reversing mechanism, whereby the said exhaust-valve mechanism will be operated intermediate of the ends of the stroke of the reversing-lever, and means for locking the said connection in position.

10. The combination with separate inlet and exhaust valves, of a reversing mechanism for each valve, said mechanisms having a common reversing-lever, a sliding member loosely connected with the reversing-lever, and means for locking said sliding member in position.

11. The combination with separate inlet and exhaust valves, of a reversing mechanism for each valve, said mechanisms having a common reversing-lever, a sliding casing having a loose connection with the reversing-lever, and a locking mechanism within the casing for locking the said casing in position at the ends of its movements.

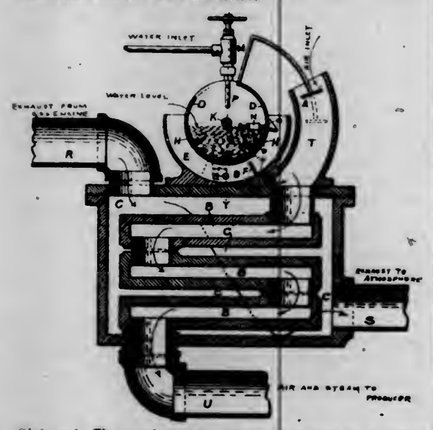
12. The combination with separate inlet and exhaust valves, of a reversing mechanism for each valve, said mechanisms having a common reversing-lever, a sliding casing having a loose connection with the reversing-lever, and a locking mechanism within the casing and controlled by the connection between lever and casing, for locking said casing in position at the ends of its movements.

13. The combination with separate inlet and exhaust valves, of a reversing mechanism for each valve, said mechanisms having a common reversing-lever, a sliding casing, having slotted sides, a pin carried by the lever and working in the slots of the casing, a spring-pressed locking member in the casing, and bell-crank levers in the casing and each having one member engaging the locking member and the other extending into the path of the pin connecting the casing and lever.

14. The combination with separate inlet and exhaust valves, of a reversing mechanism for each valve, said reversing mechanisms having a common reversing-lever, a support provided with openings, a sliding casing on said support and having slotted sides, a pin carried by the reversing-lever and working in the slots of the casing, a spring-pressed block having a projection on its bottom for entering the openings of the support, and bell-crank levers in the casing and each having one member engaging the block and the other extending into the path of the pin connecting the lever and casing.

15. The combination with separate inlet and exhaust valves, of a reversing mechanism for each valve, said mechanisms having a common reversing-lever, a support provided with openings, a sliding casing on the support and having slotted sides, a pin carried by the reversing-lever and working in the slots of the casing, a spring-pressed block in the casing and provided with a projection engaging openings in the support, bell-crank levers in the casing and each having one member engaging the block and its other member extending into the path of the pin connecting the casing and lever, spring-pressed bolts in the casing and entering openings in the support and a bar connecting the upper ends of the bolts.

786,061. PROCESS OF REGULATING AIR AND STEAM SUPPLIED TO GAS-PRODUCERS. HARRY F. SMITH, Lexington, Ohio. Filed June 16, 1904. Serial No. 212,887.



Claim.—1. The art of supplying steam and heated air to suction gas-producers, which consists in causing the air and water to be heated to pass through an air-tube, interposing a vane in said tube to be acted upon and moved by the air as well as to control the water-supply by its movements, and heating the air and converting the water into steam and supplying the steam and air to the producer, as set forth.

2. The art of supplying air to be heated and water to be converted into steam to be supplied to suction gas-producers, which consists in causing the air to pass through an air-tube, interposing a vane in said tube to be acted upon and moved by the air as well as to control the water-supply by its movements, as set forth.

3. In the art of supplying steam and heated air to suction gas-producers, the improvement in the step of supplying water to generate steam proportioned to the load on the engine and in time with the changes occurring in the load, consisting in arranging a vane in the air-tube in such manner as that it may be moved coincident in time and distance with the time and strength of the air-current causing its movements, and employing said movements to control the water-supply.

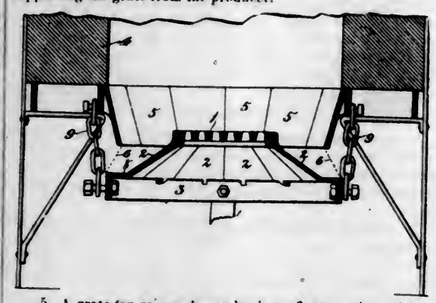
786,062. GRATE FOR GAS-PRODUCERS. HARRY F. SMITH, Lexington, Ohio. Filed June 16, 1904. Serial No. 212,888.

Claim.—1. A grate for gas-producers having a flat grated top, smooth imperforate sloping sides, and a horizontal ledge or rim at its bottom.

2. A grate for gas-producers having a flat grated top, imperforate sides in the form of a frustum of a cone, and a horizontal ledge or rim at the base.

3. A grate for gas-producers, having a flat grated top, imperforate sloping sides, and an imperforate horizontal base.

4. A grate for gas-producers, having a flat grated top, imperforate sloping sides and an imperforate horizontal base, in combination with the supports for the body of the gas-producer, and chains, supporting the grate from the producer.

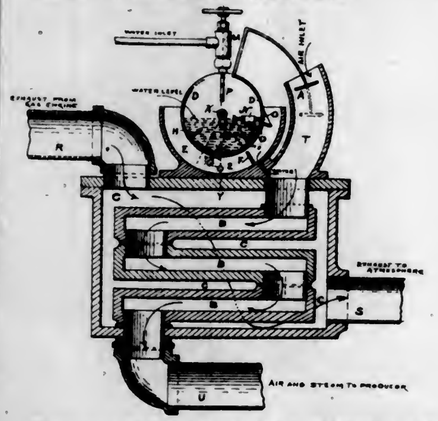


5. A grate for gas-producers having a flat grated top, imperforate sloping sides, and a horizontal ledge or rim at the base, in combination with the lower portion of a gas-producer, having bosh-plates that slope inwardly toward the junction of the ledge with the sides of the grate.

6. The combination, in a gas-producer of the inwardly-sloping bosh-plates, and a frusto-conical grate loosely suspended at the bottom of the producer, the outer edges of the grate below the lower edges of the bosh-plates being substantially horizontal in form, and the grate being imperforate excepting on its top.

7. A grate for gas-producers, having a flat grated top, imperforate sloping sides and a horizontal ledge at its bottom, in combination with the supports for the producer proper, and means for loosely suspending the grate from the latter.

786,063. SUCTION GAS-PRODUCER. HARRY F. SMITH, Lexington, Ohio. Filed June 16, 1904. Serial No. 212,889.



Claim.—1. A means for supplying steam and heated air to suction gas-producers, consisting of a movable weighted water-holding vessel, provided with an orifice through which the water may be discharged; an air-pipe; a vane in the air-pipe, adapted to be moved by the action of the air thereon when passing into the pipe; connections between the vane and water-supply vessel, whereby by the movement of the former a predetermined and constant supply of water may be discharged from the water-supply vessel into the air-pipe, and means for heating the air and water to convert the latter into steam, and means for conducting the air and steam to the producer, all substantially as described.

2. A means for supplying steam and heated air to suction gas-producers, consisting of a movable weighted water-holding vessel, provided with an orifice through which the water may be discharged; an air-pipe; a vane in the air-pipe adapted to be moved by the action of the air thereon when passing into the pipe; connections between the vane and water-supply vessel, whereby by the movement of the former a predetermined and constant supply of water may be discharged from the water-supply vessel into the air-pipe; a series of hollow disks to receive the water and air, means for conveying the exhaust from the gas-engine to heat the disks to convert the water into steam, and means for conducting the air and steam into the producer, all substantially as set forth.

3. The combination with a cylindrical weighted water-supply vessel, movable on knife-edge bearings; a valve-controlled orifice in said vessel; an overflow-port consisting of an enlarged hole surrounding the knife-edge journaled over the weight; means for conducting the waste water away; means for constantly supplying the vessel with water; an air-pipe; a vane in the air-pipe adapted to be moved by the action of the air thereon when passing into the pipe; connections between the vane and water-supply vessel, whereby by the movement of the former a predetermined and constant supply of water may be discharged from the water-supply vessel into the air-pipe, all substantially as described.

4. The combination, with a movable water-supply vessel; of an air-pipe; a vane in the air-pipe adapted to be moved by the air passing into the pipe; means connecting the vane with the water-supply vessel to move it to discharge water from the water-supply vessel into the air-pipe, all substantially as described.

5. The combination, with a movable water-supply vessel; of an air-pipe; a vane in the air-pipe adapted to be moved by the air passing into the pipe; means connecting the vane with the water-supply vessel to move it to discharge water from the water-supply vessel into the air-pipe, a series of hollow disks to receive the water and air, means for conveying the exhaust from the gas-engine to heat the disks to convert the water into steam, and means for conducting the air and steam into the producer, all substantially as set forth.

6. The combination, with the producer proper, of a movable water-supply means from which water is supplied to generate steam proportioned to the load on the engine, and in time with the changes of the load; the air-pipe; a vane in the air-pipe, and movable therein coincident with the air acting thereon and the aforesaid demands on the engine; and means connecting the vane with the water-supply, whereby the latter may be moved by the former, all substantially as and for the purposes hereinbefore set forth.

7. The combination, with the producer proper, of an oscillating water-supply means and its knife-edge bearings, from which water is supplied to generate steam proportioned to the load on the engine, and in time with the changes on the load; the air-pipe, curved concentrically with the said knife-edge bearings; a vane in the air-pipe, and movable therein coincident in time and distance with the strength of the air-current acting thereon; and an arm also curved concentric with the said knife-edge bearings, connecting the vane with the water-supply, all substantially as set forth.

8. A means for heating air and water to convert the latter into steam for suction gas-producers, consisting of a chamber, a series of hollow disks in said chamber connecting with the air and water supply at one point and with the producer at another point, a conduit for the exhaust from the gas-engine connected with the air-chamber, and an exhaust-port leading from the said chamber, all substantially as set forth.

786,064. TOOL FOR OPERATING UPON BOILER-TUBES. JOHN L. SMITH, Eureka Springs, Ark. Filed May 14, 1904. Serial No. 207,953.



Claim.—1. A tool for operating upon boiler-tubes comprising a rotatable stock having an eccentric portion, an operating member surrounding said eccentric portion, and an adjusting member situated adjacent to the operating member and connected therewith by a coöperating projection and recess.

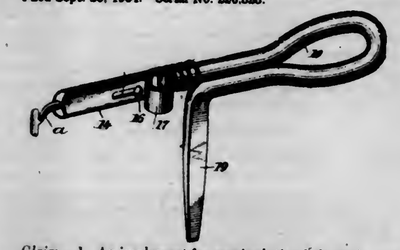
2. A tool for operating upon boiler-tubes comprising a rotatable stock having an eccentric portion, an operating member surrounding said eccentric portion, an adjusting member situated adjacent to the operating member and connected therewith, and handholds projecting from the adjusting member.

3. The combination with a stock, of a spindle fixed to the stock and having an eccentric portion, a sleeve provided with a contact projection carried by the eccentric, and a sleeve having handholds situated adjacent thereto.

4. The combination with a stock, of a spindle fixed to the stock and having an eccentric portion, a sleeve provided with a contact projection carried by the eccentric, and a sleeve having handholds situated adjacent thereto, said sleeves being provided with a coöperating projection and recess.

5. The combination with a stock, of a spindle fixed to the stock and having an eccentric portion and portions situated at each side of the eccentric portion which are concentric with one another, a sleeve provided with a contact projection surrounding the eccentric portion, and adjusting and guide sleeves situated upon the concentric portions.

786,065. BELT-STUD TOOL. JOHN STOCKER, Muscatine, Iowa. Filed Sept. 26, 1904. Serial No. 226,333.



Claim.—1. An implement for manipulating belt-studs, comprising a handle having means for receiving and holding the end of a belt-stud, a slide for locking the stud in position, and a spring for normally holding the slide in locking position.

2. An implement for holding belt-studs comprising a handle having a groove near the end thereof for receiving a belt-stud, a slide, means for normally forcing said slide into position to cover the groove, and a stop secured to the handle for limiting the movement of said slide in both directions.

3. An implement comprising a jaw having a transverse groove across its face, a plate adapted to cover said groove, and means for locking the plate against motion transverse to the jaw.

4. An implement comprising a jaw having a transverse groove across its face, and a plate slidably mounted with respect to the jaw and adapted to cover the groove.

5. An implement comprising a jaw having a transverse and a longitudinal groove adapted to receive and hold an article, and a plate mounted on the jaw, said plate having a slot and said jaw a headed element passing through the slot for guiding the plate and preventing it from moving transverse to the jaw, said plate being adapted to cover said grooves.

786,066. EDGE-PROTECTOR. OSCAR STROMBORG, Chicago, Ill. Filed May 16, 1904. Serial No. 208,163.



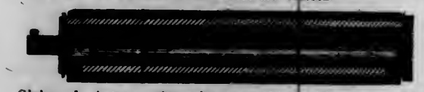
Claim.—1. An edge-protector of the character described, comprising two counterpart members in angular relation and having their connecting-bend scored or weakened and adapted to be easily

separated along the line of said bend after being secured in place, for the purpose set forth.

2. An edge-protector of the character described, comprising a plate-like body having upwardly-projecting prongs on its upper edge and downwardly-projecting prongs near its lower edge, the said prongs being adapted for insertion in opposite directions in the pantaloons-lining to secure the protector in place, and means for preventing independent vertical movement of the protector with relation to the leg of the pantaloons, the same comprising slots in the protector for the passage of folds of the pantaloons-lining, intersecting pins, and depressions at the sides of said slots for receiving said pins.

3. An edge-protector of the character described, comprising a plate-like body portion having an outturned flange at its upper end, upwardly-projecting prongs at said upper end, and downwardly-projecting prongs near its lower end, said prongs being adapted for insertion in opposite directions in the pantaloons-lining to secure the protector in place, with the outturned flange at top adapted to embed itself in said lining to prevent any tearing engagement with the protector in the operation of drawing on the pantaloons.

786,067. **TYPE-WRITER PLATEN.** CHARLES H. STUART, Newark, N. Y. Filed Mar. 19, 1904. Serial No. 199,002.

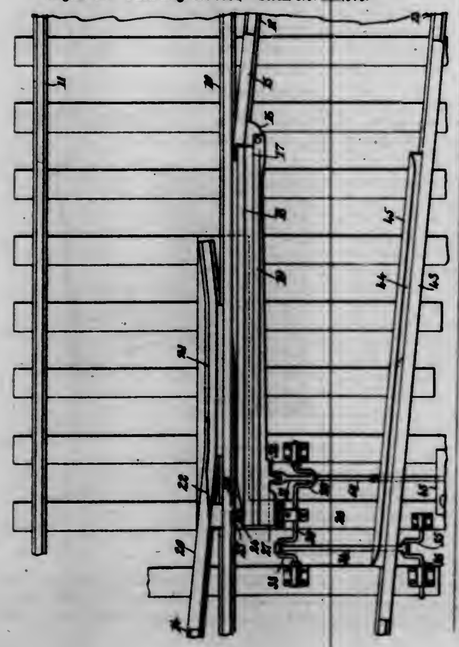


Claim.—1. A type-writer platen provided with a core and a loose covering, the core being arranged to roll on the inside surface of the covering, and being shorter than the core to allow it to slide longitudinally thereon.

2. A type-writer platen provided with a core and a loose covering, the core being arranged to roll on the inside surface of the covering, and the covering being capable of longitudinal adjustment on the core to allow the type to strike longitudinally in different places on the platen.

3. A type-writer platen having a wooden core, a flexible covering shiftable relatively to the core, and a removable rubber backing sheet upon said covering.

786,068. **RAILWAY FROG AND GUARD-RAIL.** DAVID J. SWING, Hagan, Ga. Filed Aug. 25, 1904. Serial No. 222,076.



Claim.—1. In a railway the combination with main-line rails and siding-rails, of a frog having swinging relation with one of the siding-rails and adapted to pass over the adjacent main-line rail, and a rail-section extended over the other of said siding-rails.

2. In a railway, the combination with a main-line rail and a siding-rail, of a frog-plate having swinging relation with the siding-rail and adapted to pass over the main rail, a track-section on said plate, and rollers supporting the free end of said frog.

3. In a railway, the combination with a main-line rail and a siding-rail, of a frog-plate having swinging relation with the siding-rail and adapted to pass over the main rail, means for causing the swinging movements of said plate, and a signal operated by movements of said plate.

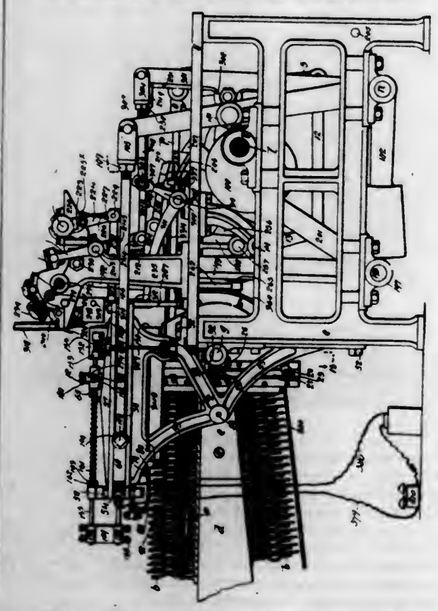
4. In a railway, the combination of a main-line rail and a siding-rail, of a block secured to the siding-rail, a frog having swinging connection with said block and adapted to pass over the main rail, a block having connection with a switch-rail and adapted for engagement with the free end of said frog, means for swinging the frog on a horizontal plane and a signal operated by movements of said frog.

5. In a railway, the combination with a main-line rail and a siding-rail, of a frog having swinging relation to the siding-rail, a frame arranged underneath the free end of said frog, rollers in said frame with which the free end of the frog engages, an arm carried by the frog for engaging against the under side of said frame, and means for moving the frog over the main rail.

6. In a railway, the combination with a main-line rail and a siding-rail, of a frog having swinging relation with the siding-rail and adapted to pass over the main rail, a crank-shaft having two cranks arranged in reverse order, a link connection between said frog and one of the cranks, an operating crank-lever, and a rod connection between the crank thereof and the other crank of the first-named crank-lever.

7. In a railway, the combination with a main-line rail and siding-rails, of a frog having swinging relation with one of the siding-rails and adapted to pass over said main rail, a guard-rail, a plate secured over the other of said siding-rails, and a rail-section on said plate.

786,069. **PRINTING-MACHINE.** JOHNSTON A. THOMSON, Montreal, Canada; Edwin J. Prindle administrator of said Johnston A. Thomson, deceased. Filed Nov. 21, 1900. Serial No. 37,307.



Claim.—1. The combination with the carrier for completed envelops of an envelop-making machine, of means for intermittently moving said envelop-carriers; and means actuated by said envelop-making machine for removing one of the envelops from said carrier,

printing said envelop and returning said envelop to the carrier during each period of intermission.

2. The combination with the carrier for completed envelops of an envelop-making machine; means for intermittently moving said envelop-carrier; means actuated by said envelop-making machine for printing one of the envelops carried by said carrier during each period of intermission, and means under the control of a completed envelop being fed for causing the operation of said printing means.

3. The combination of the envelop-carrier of an envelop-making machine; an envelop-printer located above said carrier; means for automatically lifting the enevlop from the carrier to the printer, and means for returning the printed envelop from the printer to the carrier.

4. The combination of the envelop-carrier of an envelop-making machine: an envelop-printer located above said carrier; means for automatically lifting the envelop from the carrier to the printer, means for returning the printed envelop to the carrier, and means for causing the envelop to start the envelop-printer, for the purpose set forth.

5. The combination with the carrier for completed envelops of an envelop-making machine, an envelop-printing machine to work in unison with said envelop-making machine, and comprising a form; means for carrying the form; a platen; means for carrying the platen; form-inking mechanism; means for feeding the envelops made by said envelop-making machine after they are completed one at a time to a position between said platen and the form; means for causing said platen and form to come into contact with one another with the completed envelop between them; and means for receiving the printed envelop from the printer and conducting them back to the counting-table of the envelop-making machine, substantially as described.

6. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for carrying the form; a platen; means for carrying the platen; form-inking mechanism; means for feeding the envelops made by said envelop-making machine after they are completed one at a time to a position between said platen and the form; means for causing said platen and form to come into contact with one another with the completed envelop between them; means for receiving the printed envelop; and means under the control of an envelop being fed for causing the said form and form-inking mechanism to act, substantially as described.

7. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for carrying the form; a platen; means for carrying the platen; form-inking mechanism; means for feeding the envelops made by said envelop-making machine after they are completed one at a time to a position between said platen and the form; means for causing said platen and form to come into contact with one another with the envelop between them; means for receiving the printed envelop and means under the influence of the fed envelop for causing the said form and form-inking mechanism to print, substantially as described.

8. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for supporting said form in a perpendicular position; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; means for feeding the envelops one at a time from said envelop-making machine to a position between said form and cross-head; means for retaining said envelop upon said cross-head during a portion of the stroke of the cross-head; and means for displacing the envelop from between said form and cross-head, substantially as described.

9. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for moving said form to and supporting same in a perpendicular position; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; means for feeding the envelops one at a time from said envelop-making machine to a position between said form and cross-head; means for retaining said envelop upon said cross-head during a portion of the stroke of the cross-head; and means for displacing the envelop from between said form and cross-head, substantially as described.

10. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for supporting said form in a perpendicular position; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for feeding the envelops one at a time to a position between said cross-head and retaining-frame; means for supporting said envelop upon said cross-head; means for retaining the envelop in said retaining-frame; means for displacing the envelop from said retaining-frame; and means for receiving said envelop, substantially as described.

11. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for moving said form to and supporting same in a perpendicular position; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for feeding the envelops one at a time to a position between said cross-head and retaining-frame; means for supporting said envelop upon said cross-head; means for retaining the envelop in said retaining-frame; means for displacing the envelop from said retaining-frame; and means for receiving said envelop, substantially as described.

12. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for supporting said form in a perpendicular position; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for feeding the envelops one at a time to a position between said cross-head and retaining-frame; means for supporting said envelop upon said cross-head; means for retaining the envelop in said retaining-frame; means for displacing the envelop from said retaining-frame; means for receiving said envelop, and means under the control of an envelop being fed for causing said form-moving means to move the form and form-making mechanism to ink the form

13. An envelop-printing machine to work in unison with an envelop-making machine, comprising a form; means for moving said form to and supporting same in a perpendicular position; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for feeding the envelops one at a time to a position between said cross-head and retaining-frame; means for supporting said envelop upon said cross-head; means for retaining the envelop in said retaining-frame; means for displacing the envelop from said retaining-frame; means for receiving said envelop, and means under the control of an envelop being fed for causing said form-moving means to move the form and form-inking mechanism to ink the form, substantially as described and for the purpose set forth.

14. The combination of the envelop-carrier of an envelop-making machine; means for intermittently moving said envelop-carrier; an envelop-printer located out of the path of said carrier; and means for feeding an envelop from the carrier to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said carrier all during each period of intermission.

15. The combination of the envelop-carrier of an envelop-making machine; means for intermittently moving said envelop-carrier; an envelop-printer located out of the path of said carrier; and means for feeding an envelop from the carrier to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said carrier all during each period of intermission; and means under the control of an envelop being fed for causing said printer to print, for the purpose set forth.

16. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain; an envelop-printer located out of the path of said drying-chain; and means for feeding an envelop from the drying-chain to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said drying-chain all during each period of intermission, substantially as described.

17. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain; an envelop-printer located out of the path of said drying-chain; and means for feeding an envelop from the drying-chain to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said drying-chain all during each period of intermission; and means under the control of an envelop being fed for causing said printer to print, substantially as described, and for the purpose set forth.

18. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain consisting of a shaft, a sprocket toothed roll upon said shaft and over which the adjacent loop of said drying-chain takes, a ratchet-wheel mounted rigidly upon said shaft, a lever, a cam actuating said lever, a lever fulcrumed upon said shaft, and a pawl pivotally carried by said last-mentioned lever and engaging the teeth of said ratchet-

wheel; a brake for retarding the rotation of said shaft; an envelop-printer located out of the path of said drying-chain; and means for feeding an envelop from the drying-chain to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said drying-chain all during each period of intermission, substantially as described.

19. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain consisting of a shaft a sprocket toothed roll upon said shaft and over which the adjacent loop of said drying-chain takes, a ratchet-wheel mounted rigidly upon said shaft, a lever, a cam actuating said lever, a lever fulcrumed upon said shaft and a pawl pivotally carried by said last-mentioned lever and engaging the teeth of said ratchet-wheel; a brake for retarding the rotation of said shaft; an envelop-printer located out of the path of said drying-chain; and means for feeding an envelop from the drying-chain to the printer, means for causing the printer to print said envelop, means for returning said envelop to said drying-chain all during each period of intermission; and means under the control of an envelop being fed for causing said printer to print, substantially as described and for the purpose set forth.

20. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain; an envelop-printer located above said drying-chain; means for lifting an envelop from the drying-chain consisting of a pair of fingers normally located beneath the level at which the envelops are supported by the drying-chain, means for lifting said fingers, means for conveying the envelop from said fingers when lifted to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said drying-chain, substantially as described.

21. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain; means for lifting an envelop from the drying-chain consisting of a pair of fingers normally located beneath the level at which the envelops are supported by the drying-chain, means for lifting said fingers, means for conveying the envelop from said fingers when lifted to the printer, means for causing the printer to print said envelop, and means for returning said envelop to said drying-chain; and means under control of an envelop being fed for causing the printer to print, substantially as described, and for the purpose set forth.

22. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain; an envelop-printer located above said drying-chain; means for lifting an envelop from the drying-chain consisting of a pair of fingers normally located beneath the level at which the envelops are supported by the drying-chain, a lever, a cam for actuating said lever, a pair of vertical guides located one on each side of and extending above said drying-chain, a pair of sliding blocks carried in said guides and having said fingers rigidly connected thereto, means for operatively connecting said lever to said sliding blocks; means for conveying said envelop from the fingers when lifted to the printer; means for causing the printer to print the envelop and means for returning said envelop to the drying-chain, substantially as described.

23. The combination of the drying-chain of an envelop-making machine; means for intermittently moving said drying-chain; an envelop-printer located above said drying-chain; means for lifting an envelop from the drying-chain consisting of a pair of fingers normally located beneath the level at which the envelops are supported by the drying-chain, a lever, a cam for actuating said lever, a pair of vertical guides located one on each side of and extending above said drying-chain, a pair of sliding blocks carried in said guides and having said fingers rigidly connected thereto, means for operatively connecting said lever to said sliding blocks; means for conveying said envelop from the fingers when lifted to the printer; means for causing the printer to print the envelop and means for returning said envelop to the drying-chain, and means under the control of an envelop being printed for causing said printer to print, substantially as described, and for the purpose set forth.

24. The combination with the frame of an envelop-printing machine, of an envelop-lifter comprising a pair of outwardly-facing vertical guides secured to said frame; a pair of blocks sliding in said guides; a pair of fingers secured rigidly to said blocks and bent around said guides to the insides thereof; a lever fulcrumed at its upper end to the frame of the machine; a cam for actuating said lever; an oscillatory counter-shaft mounted intermediate said lever and guide; an arm mounted rigidly at its upper end upon said counter-shaft; a link connected at one end pivotally to the lower end of said first-mentioned lever and at its other end pivotally to the lower end of said arm; a pair of arms rigidly secured at one end to said counter-shaft and projecting toward said guides; and a pair of links pivotally connected at one end to said pair of arms and at their other ends to said blocks, substantially as described.

25. The combination with the frame of an envelop-printing machine, of an envelop-lifter comprising a pair of outwardly-facing vertical guides secured to said frame; a pair of blocks sliding in said guides; a pair of fingers secured rigidly to said blocks and bent around said guides to the insides thereof and having the upper sides of their inner ends notched; a lever fulcrumed at its upper end to the frame of the machine; a cam for actuating said lever; an oscillatory counter-shaft mounted intermediate said lever and guides; an arm mounted rigidly at its upper end upon said counter-shaft; a link connected at one end pivotally to the lower end of said first-mentioned lever and at its other end pivotally to the lower end of said arm; a pair of arms rigidly secured at one end to said counter-shaft and projecting toward said guides; and a pair of links pivotally connected at one end to said pair of arms and at their other ends to said blocks, substantially as described.

26. The combination with the frame of an envelop-printing machine, of an envelop-lifter comprising a pair of outwardly-facing vertical guides secured to said frame; a pair of blocks sliding in said guides; a pair of fingers secured rigidly to said blocks and bent around said guides to the insides thereof and having the upper sides of their inner ends notched; an upwardly-projecting rigid pin upon each finger adjacent to said notches; a lever fulcrumed at its upper end to the frame of the machine; a cam for actuating said lever; an oscillatory counter-shaft mounted intermediate said lever dna guides; an arm mounted rigidly at its upper end upon said counter-shaft; a link connected at one end pivotally to the lower end of said first-mentioned lever and at its other end pivotally to the lower end of said arm; a pair of arms rigidly secured at one end to said counter-shaft and projecting toward said guides; a pair of links pivotally connected at one end to said pair of arms and at their other ends to said bocks, substantially as described.

27. The combination with the frame of an envelop-printing machine, of an envelop-lifter comprising a pair of outwardly-facing vertical guides secured to said frame; a pair of blocks sliding in said guides; a pair of fingers secured rigidly to said blocks and bent around said guides to the insides thereof; a lever fulcrumed at its upper end to the frame of the machine; a cam for actuating said lever; an oscillatory counter-shaft mounted intermediate said lever and guides; an arm mounted rigidly at its upper end upon said counter-shaft; a link connected at one end pivotally to the lower end of said first-mentioned lever and at its other end pivotally to the lower end of said arm; a pair of arms rigidly secured at one end to said counter-shaft and projecting toward said guides; a pair of links pivotally connected at one end to said pair of arms and at their other ends to said blocks; and means for guiding the envelop while being lifted, substantially as described.

28. In an envelop-printing machine to work in unison with an envelop-making machine the combination with the drying-chain of said envelop-making machine of a form; means for supporting said form in a perpendicular position above said drying-chain; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for lifting the envelops one at a time from said drying-chain to a position between said cross-head and retaining-frame; means for guiding the envelops as they are lifted; means for supporting the lifted envelops upon said cross-head; means for retaining the envelops in the retaining-frame; means for displacing the envelops from the retaining-frame, and means for guiding the falling envelops to the drying-chain, substantially as described, and for the purpose set forth.

29. In an envelop-printing machine to work in unison with an envelop-making machine the combination with the drying-chain of said envelop-making machine, of a form; means for moving said form to and supporting same in a perpendicular position above said drying-chain, means for inking said form; means under the control of an envelop being fed for causing said form-moving means to move the form and the inking mechanism to ink; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for lifting the envelops one at a time from said drying-chain to a position between said cross-head and retaining-frame; means for guiding the envelops as they are lifted; means for supporting the lifted envelops upon said cross-head; means for retaining the envelops in the retaining-frame; means for displacing the envelops from the retaining-frame, and means for guiding the falling envelops to the drying-chain, substantially as described, and for the purpose set forth.

30. In an envelop-printing machine to work in unison with an envelop-making machine the combination with the drying-chain of said envelop-making machine of a form; means for moving said form to and supporting same in a perpendicular position above said drying-chain; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for shifting the envelops one at a time from said drying-chain to a position between said cross-head and retaining-frame; means for guiding the envelops as they are lifted; means for supporting the lifted envelops upon said cross-head; means under the control of the supported envelop for causing the said form-moving means to move the form, and form-inking means to ink the form; means for retaining the envelops in the retaining-frame, means for displacing the envelops from the retaining-frame, and means for guiding the falling envelops to the drying-chain, substantially as described and for the purpose set forth.

31. In an envelop-printing machine to work in unison with an envelop-making machine the combination with the drying-chain of said envelop-making machine of a form; means for supporting said form in a perpendicular position above said drying-chain; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for lifting the envelops one at a time from said drying-chain to a position between said cross-head and retaining-frame; means for guiding the envelops as they are lifted; means for supporting the lifted envelops upon said cross-head; means for retaining the envelops upon said cross-head, means for retaining the envelops in the retaining-frame; means for displacing the envelops from the retaining-frame, and means for guiding the falling envelops to the drying-chain, substantially as described, and for the purpose set forth.

32. In an envelop-printing machine to work in unison with an envelop-making machine the combination with the drying-chain of said envelop-making machine of a form; means for moving said form to and supporting same in a perpendicular position above said drying-chain; means for inking said form; a cross-head; means for reciprocating said cross-head toward and from said form; a retaining-frame; means for yieldingly supporting said retaining-frame in the path of said cross-head; means for lifting the envelops one at a time from said drying-chain to a position between said cross-head and retaining-frame; means for guiding the envelops as they are lifted; means for supporting the lifted envelops upon said cross-head; means for retaining the envelop upon said cross-head; means under the control of the supported envelop for causing the said form-moving means to move the form, and form-inking means to ink the form; means for retaining the envelop in the retaining-frame; means for displacing the envelops from the retaining-frame, and means for guiding the falling envelops to the drying-chain, substantially as described and for the purpose set forth.

33. The combination of the envelop-carrier of an envelop-making machine; an envelop-printer located above said carrier and consisting of a form, means for inking said form, a platen, and means for causing said form and platen to press one upon the other; means for lifting the envelops individually from said carrier to a position between said platen and form; means for guiding said envelops while being lifted consisting of a pair of vertical plates into contact with which said carrier feeds the envelops to be lifted; a pair of envelop-guides located above said vertical plates; means for moving said envelop-tilting guides to and from a position between said platen and form; means for supporting the envelop in its tilted position upon the removal of said guides; and means for returning the envelop to the carrier, substantially as described and for the purpose set forth.

34. The combination of the envelop-carrier of an envelop-making machine; an envelop-printer located above said carrier and consisting of a form, means for inking said form, a platen, and means for causing said form and platen to press one upon the other; means for lifting the envelops individually from said carrier to a position between said platen and form; means for guiding said envelop while being lifted consisting of a pair of vertical plates into contact with which said carrier feeds the envelops to be lifted; a pair of envelop-tilting guides located above said vertical plates; means for moving said envelop-tilting guides to and from a position between said platen and form; means for supporting the envelop in its tilted position upon the removal of said guides consisting of a yielding part projecting between said form and platen; means for causing the printer to print, and means for returning the envelop to the carrier, substantially as described and for the purpose set forth.

35. In an envelop-printing machine comprising a perpendicular form, and a cross-head reciprocating toward and from said form, the combination with said cross-head of a pair of horizontal levers fulcrumed about midway of their length and extending parallel to and outside of the path of said cross-head and each having one end offset to be engaged by said cross-head; pair of plates carried by the opposite ends of said levers and having their adjacent sides formed with diagonal flanges; and a spring for causing said offset ends to be yieldingly held toward one another, substantially as described and for the purpose set forth.

36. In an envelop-printing machine, a reciprocating platen and means for carrying it consisting of a cross-head; a platen upon said cross-head; a tympan upon said platen; a pair of screws taking through said cross-head and platen into said tympan; a pair of dowel-pins projecting at right angles to said platen from the cross-head, substantially as described and for the purpose set forth.

37. The combination with the frame of a printing-machine having a pair of cross-head guides, of a cross-head consisting of a pair of slides taking into said guides, a vertical portion, a web connecting said vertical portion to said slides, a platen and a tympan carried by said cross-head, a pair of dowel-pins carried by said cross-head at right angles to said platen, said cross-head having a pair of laterally-projecting portions a pair of levers fulcrumed at their lower ends to the frame of the machine, a pair of cams actuating said levers, and a pair of links connecting the upper ends of said levers to said diminished portions of the cross-head, substantially as described and for the purpose set forth.

38. The combination with the frame of a printing-machine, and a cross-head, of a yielding retainer-frame consisting of a pair of angular plates a wing of each whereof coincides with a wing of the other, said coinciding wings extending across the face of said cross-head from opposite sides and having the middle of their adjacent portions cut away, the other wings of said angular plates receiving the cross-head between them and extending from said first-mentioned wings toward said cross-head, guiding-sleeves integral with the frame of the machine, sliding rods taking through said sleeves, means for limiting the movement of said rods in both directions, said rods being connected to and supporting said angular plates, and means for yieldingly retaining said angular plates in a predetermined position, substantially as described, and for the purpose set forth.

39. The combination with the frame of a printing-machine, and a cross-head, of a yielding retainer-frame consisting of a pair of angular plates a wing of each whereof coincides with a wing of the other, said coinciding wings extending across the face of said cross-head from opposite sides and having the middle of their adjacent portions cut away, the other wings of said angular plates receiving the cross-head between them and extending at an obtuse angle from said first-mentioned wings toward said cross-head, a flat spring on the inside of each of said last-mentioned wings, guiding-sleeves integral with the frame of the machine, sliding rods taking through said sleeves, means for limiting the movement of said rods in both directions, said rods being connected to and supporting said angular plates, and means for yieldingly retaining said angular plates in a predetermined position, substantially as described, and for the purpose set forth.

40. The combination with the frame of a printing-machine and a cross-head guided in said frame, of a yielding retainer-frame consisting of a pair of angular plates a wing of each whereof coincides with a wing of the other, said coinciding wings extending across the face of said cross-head from opposite sides and having the middle of their adjacent portions cut away, the other wings of said angular plates receiving the cross-head between them, a series of guiding-sleeves integral with said frame, a series of rods secured at one end to said angular plates and guided in said sleeves, a series of stops rigidly upon said rods, a coiled spring encircling each of said rods and bearing at one end upon the frame and at their other ends upon said stops, substantially as described and for the purpose set forth.

41. The combination with a moving part of an envelop-printing machine and an envelop-carrier, of means for replacing in the carrier endwise-displaced envelops, consisting of a pair of levers fulcrumed between their ends and normally having one arm of each extending across the path of said movable part and the other arm extending parallel to said envelop-carrier, a pair of curved stripa located adjacent to the ends of said envelops and extending parallel to said envelop-carrier, a pair of rods connecting said curved stripa to said last-mentioned arms of the levers, a retractile helical spring yield-

ingly connecting said lever-arms to one another, and stops for limiting the movement of said levers under the influence of said spring, substantially as described and for the purpose set forth.

42. The combination with a moving part of an envelop-printing machine and an envelop-carrier, of means for replacing in the carrier sidewise-displaced envelops, consisting of a lever fulcrumed between its ends and normally having one arm extending across the path of said movable part and the other arm being in the form of a curved strip and extending parallel and in close proximity to the sides of the envelops carried by said envelop-carrier, a retractile helical spring yieldingly retaining said curved strip away from said envelops, and a stop for limiting the movement of said lever under the influence of said spring, substantially as described and for the purpose set forth.

43. The combination with a machine-frame and a yielding retainer-frame of a pair of spring-latches carried by said machine-frame adjacent to said retainer-frame, substantially as described and for the purpose set forth.

44. The combination with a machine-frame, an envelop-lifting device and a yielding retainer-frame normally located a short distance from said lifting device, of a pair of rigid arms extending from said machine-frame in the transverse plane of said lifting device to said retainer-frame in its normal position, and a pair of spring-latches carried by and projecting below said rigid arms adjacent to said retainer-frame, substantially as described and for the purpose set forth.

45. The combination with a machine-frame comprising a bridge-piece, and a yielding retainer-frame normally located a short distance from said bridge-piece, of a pair of rigid arms extending from said bridge-piece to within a short distance of the top of said retainer-frame and having slots near the ends thereof adjacent to said retainer-frame, a flat spring secured to the top of each of said arms and bent to form a latch which protrudes downwardly through the opening in each arm, substantially as described and for the purpose set forth.

46. In an envelop-printing machine the combination with a cross-head, means for reciprocating said cross-head, and means for feeding an envelop to said cross-head of a series of fingers, adapted to bear upon said envelop during a portion of the travel of said cross-head, and means for yieldingly retaining said fingers in a position to be engaged by said cross-head, substantially as described and for the purpose set forth.

47. In an envelop-printing machine the combination with a cross-head, means for reciprocating said cross-head, and means for feeding an envelop to said cross-head of a series of fingers adapted to bear upon said envelop during a portion of the travel of said cross-head, means for yieldingly retaining said fingers in a position to be engaged by said cross-head, and means for automatically dipping said fingers upon the approach of the cross-head, substantially as described and for the purpose set forth.

48. In an envelop-printing machine the combination with a cross-head, means for reciprocating said cross-head, and means for feeding an envelop to said cross-head, of an oscillatory spindle extending transversely of and beneath said cross-head; a series of upwardly-projecting fingers mounted rigidly upon said spindle and adapted to bear upon said envelop during a portion of the travel of said cross-head; means for yieldingly retaining said spindle against oscillation, substantially as described and for the purpose set forth.

49. In an envelop-printing machine the combination with a cross-head, means for reciprocating said cross-head, and means for feeding envelops to said cross-head, of an oscillatory spindle extending transversely of and beneath said cross-head; a series of upwardly-projecting fingers mounted rigidly upon said spindle, and adapted to bear upon said envelops during a portion of the travel of said cross-head; means for yieldingly retaining said spindle against oscillation, and means for oscillating said spindle upon the approach of the cross-head, substantially as described and for the purpose set forth.

50. In an envelop-printing machine the combination with a cross-head, of an oscillatory spindle extending transversely of and beneath said cross-head; a series of upwardly-projecting fingers mounted rigidly upon said spindle; a downwardly-projecting finger mounted rigidly upon said spindle; a retractile helical spring connected at one end to said downwardly-projecting finger and at its other end to the frame of the machine, and means for oscillating said spindle upon the approach of the cross-head, substantially as described and for the purpose set forth.

51. In an envelop-printing machine the combination with a cross-head, of an oscillatory spindle extending transversely of and beneath said cross-head; a series of upwardly-projecting fingers mounted rigidly upon said spindle; means for yieldingly retaining said spindle against oscillation, and means for oscillating said spindle upon the approach of the cross-head causing a downwardly-projecting arm rigidly mounted upon said spindle and having a lateral pin projection, a vertical lever fulcrumed adjacent to the said upper end thereof engaging said lateral pin projection, a reciprocating rod connected to the lower arm of said lever, a cam intermittently reciprocating said rod, and a spring maintaining said rod in engagement with said cam, substantially as described and for the purpose set forth.

52. In an envelop-printing machine the combination with a cross-head, of an oscillatory spindle extending transversely of and beneath said cross-head; a series of upwardly-projecting fingers mounted rotatably upon said spindle; a series of stops for limiting the movement of said fingers around said spindle, a series of bow-springs between said stops and fingers; means for yieldingly retaining said spindle against oscillation, substantially as described and for the purpose set forth.

53. The combination with an oscillatory spindle of a finger mounted rotatably upon said spindle, a finger mounted rigidly upon said spindle in line with said rotatable finger, a bow-spring between said fingers and yieldingly maintaining same apart and a stop for limiting the movement of said rotatable finger away from said rigid finger, substantially as described.

54. The combination with an oscillatory spindle of a finger mounted rotatably upon said spindle, a finger mounted rigidly upon said spindle in line with and curved at its end toward said rigid finger, a bow-spring between said fingers yieldingly maintaining same apart and a stop limiting the movement of said rotatable finger away from said rigid finger, substantially as described.

55. In a printing-machine the combination with a chase, means for moving said chase to and from a printing position; means for automatically disconnecting said chase-moving means from the chase after each movement thereof; and means for at times effecting the operative connection of said chase-moving means and chase, for the purpose set forth.

56. In a printing-machine the combination with a chase, of a lever fulcrumed at its lower end and carrying said chase at its upper end, a cam for moving said lever and chase to a printing position; a spring for returning said lever and chase from said printing position, an intermediary for connecting said cam to said lever; means for automatically breaking the operative connection between said intermediary and cam after each cycle of rotation of the cam; and means for at times effecting the operative connection of said intermediary and cam, for the purpose set forth.

57. In an envelop-printing machine the combination with a chase, of a lever-arm fulcrumed at its lower end and carrying said chase at its upper end; a lever fulcrumed at its lower end at the same point as said lever-arm; a cam for actuating said lever; an intermediary carried by said lever-arm for connecting the upper end thereof to said lever; means for automatically breaking the operative connection between said intermediary and lever after each cycle of rotation of the cam; and means for at times automatically effecting the operative connections between said intermediary and lever, substantially as described and for the purpose set forth.

58. In an envelop-printing machine the combination with a chase, of a lever-arm fulcrumed at its lower end and carrying said chase at its upper end; a lever fulcrumed at its lower end at the same point as said lever-arm and having a lateral tongue projecting a short distance from its upper end; a cam for actuating said lever; a pawl pivoted to the upper end of said lever-arm and adapted to rest upon said tongue and receive the impact of said lever; movable means for automatically temporarily retaining said pawl out of operative connection with said lever; and means whereby the operative connections between said pawl and lever can at times be automatically effected, substantially as described and for the purpose set forth.

59. The combination with a form-carrying device, a lever for moving said device, and a pawl pivoted to said device and adapted to rest upon and receive the impact of said lever, of a cam for supporting said pawl out of engaging position relatively to said lever; and means whereby said cam can at times be moved and the pawl be allowed to assume an engaging position relatively to said lever, substantially as described.

60. In an envelop-printing machine, the combination with a form-carrying device, a lever for moving said device, and a pawl pivoted to said device, and adapted to rest upon and receive the impact of said lever, means for carrying the envelop to be printed to the form carried by said device; a horizontal spindle; a cam mounted rigidly upon said spindle in a position to support said pawl out of engaging position relatively to said lever; an arm rigidly upon said spindle; a vertical spindle, an arm rigidly mounted upon said vertical spindle; a link connecting said last-mentioned arm to the arm upon the horizontal spindle; a second arm upon said vertical spindle and intersecting the path of said envelop as it is carried to be printed; and means for returning said cam to its normal position, substantially as described.

61. In an envelop-printing machine, the combination with a form-carrying device, a lever for moving said device, and a pawl pivoted to said device, and adapted to rest upon and receive the impact of said lever, means for carrying the envelop to be printed to the form carried by said device; a horizontal spindle; a cam mounted rigidly upon said spindle in a position to support said pawl out of engaging position relatively to said lever; an arm rigidly upon said spindle; a vertical spindle, an arm rigidly mounted upon said vertical spindle; a link connecting said last-mentioned arm to the arm upon the horizontal spindle; a second arm upon said vertical spindle and intersecting the path of said envelop as it is carried to be printed; and means actuated by said envelop-carrying means for returning said cam to its normal position, substantially as described.

62. In an envelop-printing machine, the combination with a form-carrying device, a lever for moving said device, and a pawl pivoted to said device, and adapted to rest upon and receive the impact of said lever, means for carrying the envelop to be printed to the form carried by said device; a horizontal spindle; a cam for supporting said pawl out of engaging position relatively to said lever; means actuated by the envelop carried by said envelop-carrying means for moving said cam away from said pawl; and means actuated by said envelop-carrying means for returning said cam to its normal position, substantially as described.

63. In an envelop-printing machine, the combination with a form-carrying device, a lever for moving said device, and a pawl pivoted to said device, and adapted to rest upon and receive the impact of said lever, means for carrying the envelop to be printed to the form carried by said device; a horizontal spindle; a cam for supporting said pawl out of engaging position relatively to said lever; means actuated by the envelop carried by said envelop-carrying means for moving said cam away from said pawl; a sliding rod mounted in the frame of the machine; a laterally-projecting finger upon said rod in a position to engage said cam-moving means when the cam is moved; a laterally-projecting adjustable dog upon said rod in a position to be engaged by said envelop-carrying means; and a spring for causing said rod to follow said envelop-carrying means for a limited distance, substantially as described, and for the purpose set forth.

64. The combination with an envelop-retaining frame and a vertically-reciprocating device of a pair of vertically-arranged curved rods secured rigidly at one end to said reciprocating device and having their other ends of inverted-V form and in line with the inside of the adjacent face of said retaining-frame, substantially as described, and for the purpose set forth.

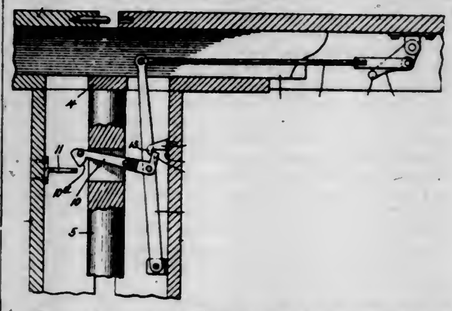
65. In an envelop-printing machine the combination with printing means, means having a separate place for each envelop for carrying the envelops from the envelop-making machine to the printing means, means for raising the envelops to be printed and means for dropping the printed envelops, of means for guiding the dropping envelop to its proper space in the carrying means.

66. In an envelop-printing machine the combination with printing means, means for carrying the envelops from the envelop-making machine to the printing-machine, means for raising the envelops to be printed and means for dropping the printed envelops, of a pair of envelop-guiding wires secured to the frame of the machine and projecting between the dropping envelop and the envelop being raised, substantially as described, and for the purpose set forth.

786,070. PEDESTAL-TABLE LOCKING DEVICE. EMIL TYDEN, Hastings, Mich. Filed June 26, 1903. Serial No. 113,075.

Claim.—1. A pedestal-extension-table locking device comprising, in combination with the separable table members and the pedestal members pertaining thereto respectively, a vertically-disposed lever fulcrumed to one pedestal member; an actuating device connectd to said levers; a latch carried by the lever; means on the opposite pedestal member for engaging the latch, and means for holding said latch in position to be thus engaged, but out of such engagement, until the lever is actuated in the direction for closing the pedestal members together.

2. A pedestal-extension-table locking device comprising, in combination with the separable members and the pedestal members pertaining thereto respectively, a vertically-disposed lever fulcrumed to one pedestal member; an actuating device connected to said lever; a latch pivoted to the lever; means on the opposite pedestal member for engaging the latch, and means for retaining said latch in position to engage said first-mentioned means when the lever is actuated after the pedestal members are closed together.



3. A pedestal-extension-table locking device comprising, in combination with the separable table members and the pedestal members pertaining thereto respectively, a vertically-disposed lever fulcrumed to one pedestal member; an actuating device connected to said lever; a latch pivoted to the lever projecting therefrom toward the opposite pedestal member; a device on said opposite member for engaging the latch, said latch having a projection transverse with respect to its pivot and with respect to the movement which that pivot derives from the lever; means on the pedestal member to which the lever is fulcrumed encountering such projection to cause the latch, when the lever is moved about its fulcrum in the direction for drawing the table members together, to be rocked about its pivot in direction for making its engagement with the device on the opposite member.

4. A pedestal-extension-table locking device comprising, in combination with the separable table members and the pedestal members pertaining thereto respectively, a vertically-disposed lever fulcrumed to one pedestal member; an actuating device connected to said lever; a latch pivoted to the lever; means on the opposite pedestal member for engaging the latch, the lever being movable in direction for drawing the pedestal members together after the latch is engaged, and means on the pedestal member to which the lever is fulcrumed operating on the latch when the lever is moved in the opposite direction to disengage the latch.

5. A pedestal-extension-table locking device comprising in combination with the separable table members and the pedestal members pertaining thereto, respectively; a lever fulcrumed on one of the pedestal members at the lower part and extending upward within the pedestal; connections for operating the lever extending off therefrom at the upper end toward the end of the table, and means for securing the same in retracted position; a latch pivoted to the lever and projecting therefrom at a substantial distance below the top of the table within the pedestal toward the opposite pedestal member; a device on said opposite member for engaging the latch, the latch having near its pivot a finger; an abutment on the pedestal member on which the lever is fulcrumed, protruding in position to be encountered by the finger when the lever is moved away from locking position; whereby the latch is rocked at its pivot to the lever upon such encounter; the latch having at its free end as the means of engaging the device on the opposite pedestal member, a nose or projection extending in direction to be withdrawn from such engagement by such rocking of the latch.

6. In a pedestal-extension-table locking device in combination with the separable members of the table and the pedestal members pertaining thereto, respectively; a lever fulcrumed on one of the pedestal members toward the lower end extending upward within the pedestal and provided at the upper end with means for rocking it over its fulcrum; a latch pivoted tos uch lever and extending within the pedestal toward the opposite pedestal member and provided with a hooked end; a device on said opposite member for engagement with the hooked end of the latch, the latch having near its pivot to the lever a projection extending in the opposite direction from the hooked end; an abutment on the pedestal member on which the lever is fulcrumed, protruding in front of said projection so as to be encountered thereby when the lever moves the latch outward from the member on which it is fulcrumed, whereby such movement operates

to disengage the hooked end of the latch from the opposite pedestal member.

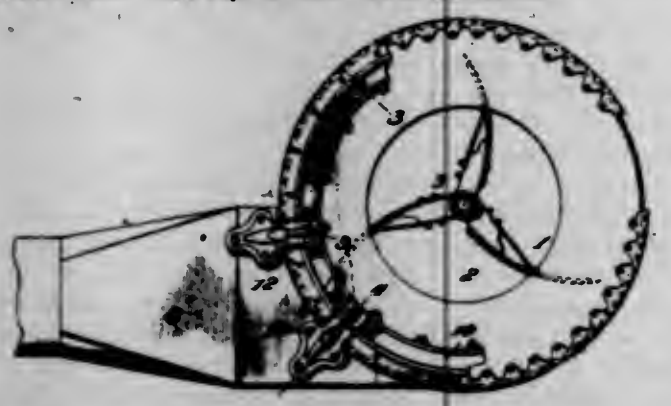
7. In a pedestal-extension-table locking device in combination with the separable members of the table and the pedestal members pertaining thereto, respectively; a lever fulcrumed on one pedestal member toward the lower part and extending up within the pedestal toward the upper end to provide with connections at the upper end for operating it; a latch pivoted to such lever and extending toward the opposite pedestal member and having a hooked end, said opposite member having a device for engagement with said hooked end, one of said two engaging elements having a sloping edge facing toward the other element in the engagement, whereby the pedestal members way be drawn together when such engagement is forced, the latch having a projection near its pivot extending in the opposite direction from the hooked end, and an abutment on the pedestal member to which the lerer is fulcrumed in position to be encountered by said projection when the lever is swung in toward the pedestal member; whereby upon such encounter the latch is forced about its pivot in the direction to move the hooked end into engaged position with the device on the opposite pedestal member.

8. A pedestal-extension-table locking device comprising a central leg, the separable members of the table, adapted to be withdrawn in opposite directions from the leg in extending the table, and the pedestal members pertaining thereto respectively; a loop or staple on one of the pedestal members; a curved latch or bolt pivoted on the other pedestal member, and being adapted to "clear around" the leg, and means for rotating the latch or bolt to engage the loop or staple.

9. In a pedestal-extension-table locking device in combination with the table members and the pedestal members pertaining thereto respectively, a hook-latch pivotally supported on one of the pedestal members for swinging horizontally and projecting therefrom toward the other pedestal member; a loop or staple on the opposite member for engagement of the latch; and means for operating said latch for engagement with such loop or staple on the opposite member.

10. In an extension-table, a center leg; separable members of the table operating opposite ways from the leg in extending; pedestal members pertaining to said table members respectively; a connecting element pivotally mounted on one pedestal member for horizontal movement; an engaging device for the same on the opposite member, said connecting element being curved horizontally to clear around the center leg, and means for swinging it about its pivot for engagement with the opposite member.

786,071. **STRAW-STACKER.** EDWARD J. VRAALSTAD, Buffalo, N. Y., assignor to Buffalo Pitts Company, Buffalo, N. Y., a Corporation of New York. Filed Sept. 2, 1904. Serial No. 223,118.



Claim.—1. The combination with a threshing-machine, of a pneumatic elevator and stacker comprising a fan, a shaft therefor, a stationary casing inclosing the fan having a discharge-opening, and a second casing to which the stacker-trunk is secured adjustable concentrically to the fan and its casing but independently of the fan-shaft.

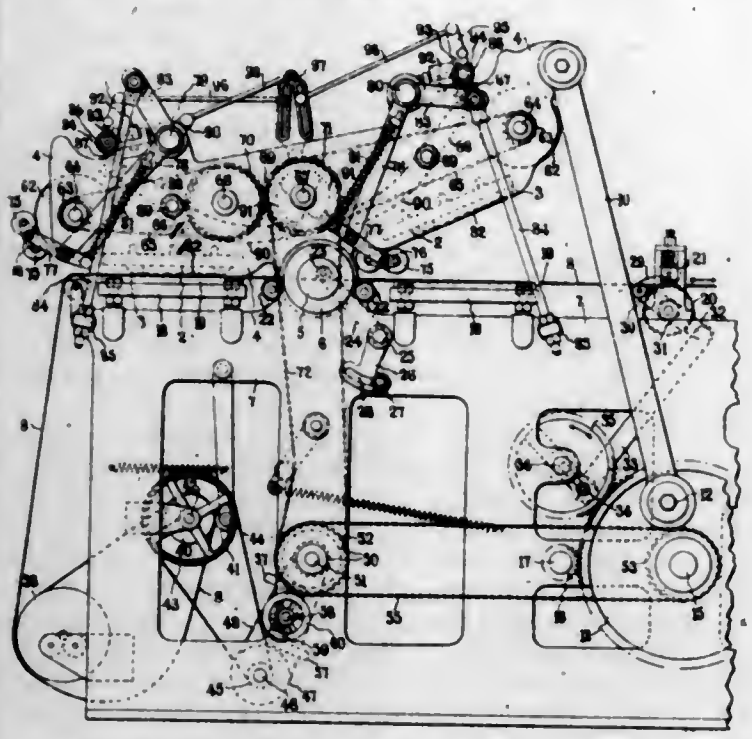
2. The combination with a threshing-machine, of a pneumatic elevator and stacker comprising a rotary fan and shaft therefor, a stationary circular casing for said fan having in its side an extended discharge-opening, and a second circular casing to which the stacker-trunk is secured, said second casing partly surrounding and adjustable axially on the stationary fan-casing and designed at all times to extend over a portion or portions of said discharge-opening.

3. The combination with the fan and its circular casing, the latter having a discharge-opening, of the trunk, and means axially mounted on and partly surrounding the fan-casing, permitting it to be turned axially thereon, said discharge-opening being always in line with said trunk.

4. The combination with the circular fan-casing having a discharge-opening therein and upper and lower guides, of the stacker-trunk, a second casing to which the trunk is secured encircling a portion of the fan-casing and working in said guides, a portion or portions of such trunk-casing always extending over said discharge-opening.

5. The combination with the circular fan-casing having a discharge-opening therein and upper and lower guides, of the stacker-trunk, a second casing to which the trunk is secured encircling a portion of the fan-casing and working in said guides, upper and lower retaining-tracks secured to the top and bottom of said fan-casing, and brackets carried by the trunk having rollers fitted in said retaining-tracks.

786,072. **PLATEN PRINTING-PRESS.** FRED WAITE, Otley, England. Filed July 15, 1903. Serial No. 165,672.



Claim.—1. A platen printing-machine intermittently fed for each impression from a roll, two platens arranged in the same horizontal plane, and having two type-beds arranged to give alternate impressions, substantially as herein shown and described.

2. A platen printing-machine intermittently fed for each impression from a roll, two platens arranged in the same horizontal plane, and having two type-beds arranged to balance each other and give alternate impressions substantially as herein shown and described.

3. A platen printing-machine intermittently fed for each impression from a roll, two platens arranged in the same horizontal plane, and having two type-beds arranged to vibrate on the same center and give alternate impressions, substantially as herein shown and described.

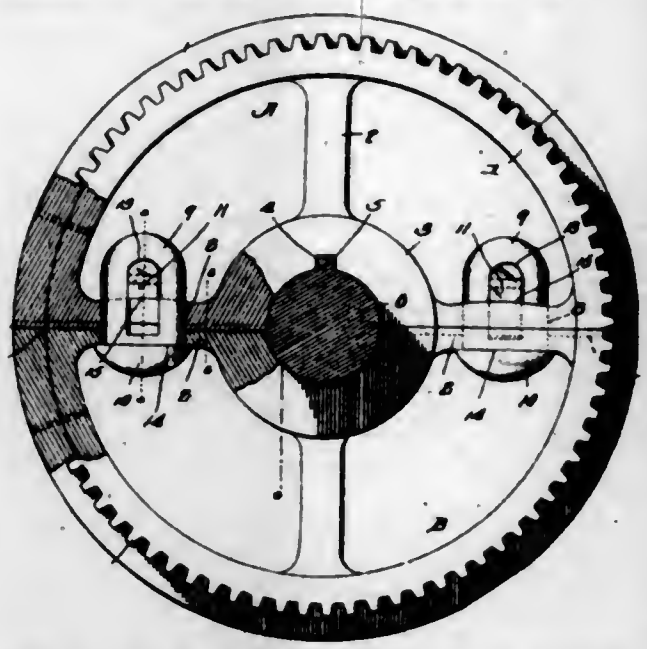
786,073. **SPEED-INDICATOR.** STAFFORD P. WALSH, San Francisco, Cal., assignor to L. S. Starrett Co., Athol, Mass., a Corporation of Massachusetts. Filed Jan. 13, 1905. Serial No. 240,892.



Claim.—1. In a speed-indicator, an inclosing case, a projecting, rotatable spindle and a worm gear-wheel engaging with the threaded spindle, in combination with a stationary front plate or ring graduated near its margin, a rotatable indicating-disk overlapping the inner portion of said plate and normally held free from contact therewith, and an inclosed spring tending to separate said disk and plate, but compressible to permit their contact, for the purpose set forth.

2. The recessed casing 5, the threaded spindle 7 and worm gear-wheel 9 engaging each other therein, the annular flange 10, integral with said casing, and the internally-threaded hub 11 carrying said gear-wheel and having a tubular portion extending through the case, within said flange, in combination with the graduated ring 16 secured marginally to the casing, the rotatable indicating-disk 17 and the annular spring 20, covering the head of hub 11, and yielding to permit contact of said disk and ring, for the purpose set forth.

786,074. SECTIONAL GEAR-WHEEL. FREDERICK G. WARD, Pittsburg, Pa. Filed Aug. 18, 1904. Serial No. 221,276.



Claim.—1. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with corresponding mortises, a slotted link fitted in the mortises and provided with a fixed head engaging the back of one of the arms and its slotted portion projected at the back of the other arm, and a key driven through the slotted portion of the link and in engagement with the back of the adjacent arm.

2. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with corresponding mortises, a slotted and headed link fitted in the mortises with its head engaging the back of the adjacent arm and its slotted portion projected at the back of the other arm, a bifurcated key driven into the slotted portion of the link and in engagement with the back of the adjacent arm, and a yieldable cushion fitted in the bifurcation of the key to prevent crushing thereof when being driven into place.

3. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with corresponding mortises, a slotted and headed link fitted in the mortises with its head engaging the back of the adjacent arm and its slotted portion projected at the back of the other arm, a bifurcated key driven into the slotted portion of the link and in engagement with the back of the other arm, and copper strip fitted in the bifurcation of the key to form a cushion to prevent crushing of the key when being driven into place.

4. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with corresponding mortises a slotted link fitted in the mortises and provided with a fixed head engaging the back of one of the arms and extending throughout approximately the entire length thereof from the hub to the rim of the wheel, the slotted portion of the link being projected at the back of the other arm, and a key driven into the slot of the link and engaging the back of the other arm.

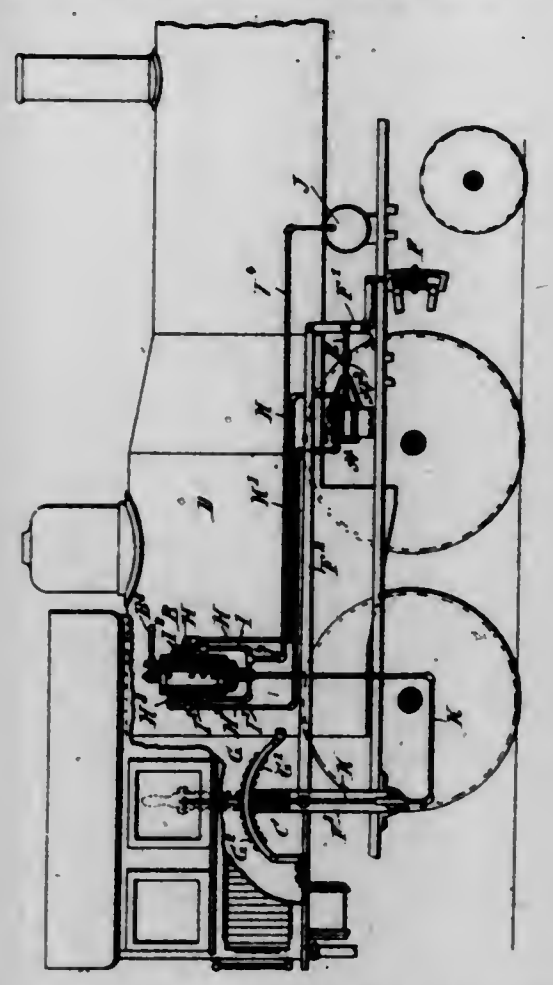
5. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with corresponding mortises, the back of one of the arms being flat and the back of the other arm being convexed longitudinally from end to end thereof, a slotted and headed link fitted in the mortises with its head fitting flat against the back of the arm having the flat back and extending throughout approximately the entire length of the arm, the slotted portion of the link being projected at the back of the other arm, and a key driven into the slot of the link and engaging across the convexed back of said other arm.

6. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with longitudinal corresponding mortises with their end walls concaved, a slotted link fitted in the mortises and provided with a head engaging the back of one of the arms, the slotted portion of the link being projected at the back of the other arm, opposite edges of the link being convexed externally to fit the concaved end walls of the mortises, and a key driven through the slotted portion of the link and engaging the back of said other arm.

7. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement, means for connecting the sections, each section being provided with two peripheral sets of gear-teeth separated by an annular space, and a flange secured to the rim of each section between the sets of teeth thereon and projected beyond the crowns of said teeth, the ends of the flanges being abutted and provided with a tongue-and-groove connection to produce a continuous annular flange.

8. A divided wheel having its sections provided with corresponding arms to lie in mutual engagement and provided with a tongue-and-groove connection, two sets of gear-teeth upon the rim of each section and separated by an interspace, a flange extending throughout the rim of each section and projected beyond the crowns of the teeth thereof, the corresponding ends of the two flanges being abutted to form a continuous annular flange and the tongue-and-groove connection of the arms extending throughout the widths of the flanges, and means carried by the arms to connect the sections.

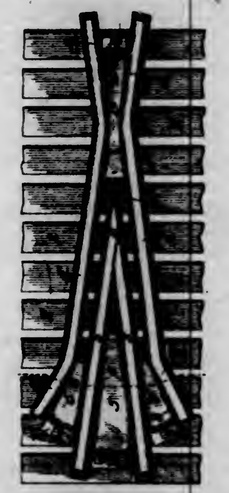
786,075. PNEUMATIC ACTUATING DEVICE FOR THE REVERSING-GEARS OF LOCOMOTIVES. FRED WARTHER, Canal Dover, Ohio. Filed Aug. 6, 1904. Serial No. 219,772.



Claim.—1. A pneumatic actuating device for the reversing-gear of a locomotive, comprising an air-cylinder containing a piston connected with the reversing-gear for actuating the same, a controlling-valve having a valve-casing and a single valve-plug adapted to be turned in the casing by the engineer, pipes connecting the ends of the air-cylinder with the said valve-casing, and a compressed-air supply connected with the said valve-casing, the latter having admitting-ports and exhaust-ports at varying heights thereof, and the valve-plug having connecting-channels at correspondingly varying heights for connecting the proper ports with each other on turning the valve-plug.

2. A pneumatic actuating device for the reversing-gear of a locomotive, comprising an air-cylinder containing a piston connected with the reversing-gear for actuating the same, a controlling-valve having a valve-casing and a valve-plug adapted to be turned in the casing by the engineer, pipes connecting the ends of the air-cylinder with the said valve-casing, a compressed-air supply connected with the said valve-casing, a locking device having a cylinder fixed to a part of the reversing-gear, a piston movable in the said locking-device cylinder, a spring-pressed toothed locking-block carried by the piston-rod of the said piston, a toothed fixed segment adapted to be engaged by the said locking-block, and a pipe leading from the said locking-device cylinder and connected by branch pipes with the said valve-casing, the latter having admission-ports and exhaust-ports and the valve-plug having connecting-channels for the said ports, to admit compressed air from the said air-supply to the locking-device cylinder immediately previous to admitting air to either end of the said air-cylinder.

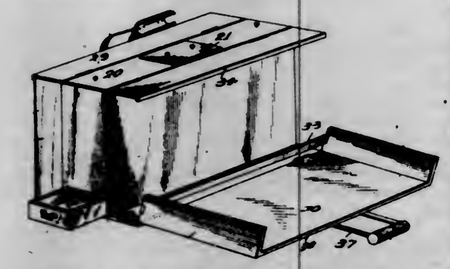
786,076. FOOT-GUARD FOR RAILWAY FROGS AND GUARD-RAILS. MIDOR WATERS, New Albany, Ind., and WILLIAM M. MITCHELL, Louisville, Ky. Filed Nov. 20, 1904. Serial No. 234,708.



Claim.—1. A foot-guard of the class and for the purpose specified, comprising a V-shaped sheet-metal plate portion 5, resilient upwardly-turned flanges 6, 6 formed on said plate portion and of less length than said portion, narrow end portions, downwardly-turned leg portions 7 and 8 at the ends of the plate portion and feet portions 7', 8', substantially as described.

2. A foot-guard of the class and for the purpose specified, comprising a plate portion 5 of double V-shape to fit between oppositely-converging rails, the upwardly-turned resilient flanges 6, 6 conforming to the shape of the plate portion but of less length and the leg portions provided with feet and narrower than the plate portion, said leg portions being formed by turning the ends of the plate portion downwardly at right angles thereto, substantially as described.

786,077. SPORTSMAN'S PACKING-CASE. FREDRICK WEHMEIER and HENRY STICKFORT, St. Louis, Mo. Filed July 5, 1904. Serial No. 215,457.



Claim.—1. In a device of the class described: a plurality of rigid vertical compartments; a horizontal compartment under the rigid vertical compartments; and hinged means forming compartments connected to the rigid vertical compartments, one on each side; substantially as specified.

2. In a device of the class described: a plurality of rigid vertical compartments; a cover for all of said rigid vertical compartments; a second cover providing access through the first cover to one of said compartments; a horizontal compartment below the rigid vertical compartments; hinged means forming compartments upon each side of the rigid vertical compartments; and a handle comprising two pieces, one piece connected to one hinge-compartment; and the other piece connected to the other hinge-compartment; substantially as specified.

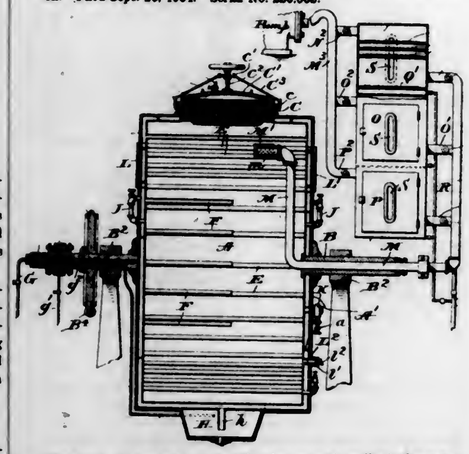
786,078. ATTACHMENT FOR SMOKING-PIPES. ISAAC N. WEITZEL, Rochester, N. Y. Filed Jan. 11, 1905. Serial No. 240,614.



Claim.—1. An attachment for a smoking-pipe, consisting of a circular perforated concavo-convex disk having an annular border in a plane at right angles to the axis of the disk, arms extending in slightly-divergent lines from the edge of said border, the latter being formed with a serrated periphery.

2. A smoking-pipe having, within the bowl, a sheet-metal concavo-convex perforated disk crossing its axis, and having a serrated edge, and provided with two oppositely-disposed narrow arms extending toward the mouth of the bowl, one formed with a spur, said arms pressing the walls of the bowl with elastic pressure throughout their lengths.

786,079. DRYING APPARATUS. WILLIAM J. WELLS, Decatur, Ill. Filed Sept. 26, 1904. Serial No. 226,062.



Claim.—1. In an apparatus of the character described, the combination with a hollow-walled rotary container, means for introducing steam into the hollow walls, a drip-trap outside the container communicating with the interior of the hollow wall, and a discharge leading from the drip-trap, substantially as described.

2. In a drier, the combination with a rotary container having hollow walls, of a drip-trap communicating with the interior of the hollow walls and located outside of the container, and a pipe leading from said trap, substantially as described.

3. In a drier, the combination with a rotary container having hollow walls, of a drip-collecting receptacle carried by the outer wall of the container, a steam-pipe leading from the interior of the hollow walls into the receptacle, and a discharge-pipe leading from the receptacle.

4. In a drier, the combination with a rotary container having hollow walls, of a drip-collecting receptacle carried by the container, a steam-pipe leading from the interior of the hollow walls into the receptacle, and a discharge-pipe having branches leading from opposite sides of the receptacle.

5. In a drying apparatus the combination with a rotary container having a series of air-inlet openings interspersed at different points in its walls, means for governing the openings, means for causing currents of air to forcibly enter the container through the openings during the rotation of the container, and means whereby the contents of the container can be heated.

6. In a rotary drier, the combination with a container, having a hollow wall, a steam-passage to the hollow wall, steam-inlets to the container, a series of valved air-inlets arranged at different points in the walls of the container, and means for causing currents of air to forcibly enter the container through the air-inlets.

7. In a rotary drier, the combination with a rotary container having a fixed upwardly-extending vent-pipe leading therefrom and a series of air-inlet openings, valves for the openings, means for heating the interior of the container, and a suction device connected with the vent.

8. In a drier, the combination with a rotary container, of valve-controlled means for supplying steam to the interior of the container during rotation, air-inlet valves located at various points in the container, and means for creating a suction communicating with the interior of the container and operating during the rotation.

9. In a drier, the combination with a rotary container, of a series of air-inlet valves in the walls thereof, means for heating the container, and a suction-pump for creating a suction within the container during the rotation thereof.

10. In a rotary drier, the combination with a container, of a separator comprising a plurality of independent chambers, a vent communicating with the interior of the container and having valve communications with the separators, a valve drip-pipe communicating with the separator, and valve discharge-openings for the respective separators.

11. In a rotary drier, the combination with a container, of a vent-pipe leading therefrom having a perforated end, a hood over the perforated end, and a baffle extension at the end of the hood, and means for ejecting steam into the container.

12. In a rotary drier, the combination with a container having an opening therein, of a cover therefor, and a cup-shaped disk carried by the cover having a netted covering thereon.

13. The combination with a casing having hollow walls, of means for introducing steam into the walls, a drip-stem leading from the space within the walls, a collecting-compartment into which the drip-stem leads, a discharge leading therefrom, and means for rotating the casing.

14. In a drier, the combination with a rotary container, of a vent-pipe therefor, means for introducing air into the container, means for creating a suction through the pipe, and a series of separators interposed between the suction means and the container provided with means for cutting off circulation therethrough, and each having removable separating means therein.

15. In a drier, the combination with a rotary container, of a vent-pipe therefor, means for introducing steam and air into the container, means for creating a suction through the pipe, and a series of separators interposed between the suction means and the container provided with means for cutting off circulation therethrough, and each having removable separating means therein.

786,080. HITCHING-STRAP. CHARLES P. WING, Hinsdale, Ill. Filed Oct. 17, 1903. Serial No. 177,467.



Claim.—1. In a device of the character described, the combination with a flexible strap comprising a covering and an inclosed reinforcement, an expansible metallic loop composed of two hinged portions fastened to one end of said strap through which the strap is adapted to pass, and a lock secured to the opposite end of said strap adapted to pass through said loop when the latter is expanded.

2. In a device of the character described, the combination with a flexible strap comprising a covering and an inclosed reinforcement, said covering and reinforcement having registering holes therethrough, a metallic loop composed of two relatively movable parts secured to one end of said strap through which the strap is adapted to pass, a reciprocating tongue mounted upon said loop and adapted to pass through one of said holes in the strap into engagement with and thereby lock the two parts of the loop against relative movement.

3. In a device of the character described, the combination with a flexible strap comprising a covering and an inclosed reinforcement, said covering and reinforcement having registering holes therethrough, a lock secured to one end of said strap the bow of which is adapted to pass through one or more of the holes in said strap, and an expansible metallic loop secured to the other end of said strap through which said lock is adapted to pass.

4. In a device of the character described, the combination with a flexible strap comprising a covering and an inclosed reinforcement, said covering and reinforcement having registering holes therethrough, an expansible metallic loop secured to one end of said strap through which the strap is adapted to pass, a reciprocating tongue mounted upon said loop and adapted to pass through one of said holes in the strap, a lock fastened to the opposite end of said strap from said loop and adapted to pass through said loop when expanded, the bow of said lock adapted to pass through one or more of the holes in said strap.

5. In a device of the character described, the combination with a strap, of a metallic collapsible loop composed of two hinged portions secured to one end of said strap through which when expanded the strap is adapted to pass and when contracted adapted to pass through the aperture in a stationary hitching device.

6. In a device of the character described, the combination with a strap having holes therethrough, of a two-part collapsible metallic loop secured to one end of said strap through which the strap is adapted to pass, and a reciprocating tongue mounted upon said loop adapted to engage said holes through the strap into engagement with and thereby lock the two parts of the loop against relative movement.

7. In a device of the character described, the combination with a strap having holes therethrough, of a collapsible loop having overlapping relatively movable parts between which the strap is adapted to pass, and a reciprocating tongue mounted upon said loop adapted to engage and relatively lock the movable parts of said loop.

8. The combination with a hitching-strap, of a stationary hitching device, a metallic loop composed of two hinged parts secured to said strap through which the strap is adapted to pass, whereby the loop may be restricted in width to pass through the stationary hitching device, and expanded in width to permit the passage therethrough of the strap.

9. The combination with a hitching-strap composed of a covering, and an inclosed reinforcement, a snap-lock secured to one end of said strap, a metallic loop composed of two hinged parts secured to the other end of said strap, whereby the loop may be restricted in width to pass through a hitching device and expanded in width to permit the passage therethrough of said lock.

786,081. WEIGHING-MACHINE. ANTHONY G. WITEK, New York, N. Y., assignor of one-fifth to John T. Witek, New York, N. Y. Filed July 20, 1904. Serial No. 217,304.



Claim.—1. A weighing-machine comprising a stand, a spring-controlled platform slidably mounted thereon, a scale and an indicator movable with the platform, a spring-controlled shaft for the indicator, and a cord connected to the shaft and stand and normally retaining the indicator at zero of the scale.

2. A weighing-machine comprising a stand, a spring-controlled platform slidably supported thereby, a scale and an indicator movable with the platform, a spring-controlled shaft for the indicator, and a normally taut flexible member between the shaft and stand, permitting the registering movement of the indicator under weight applied to the platform.

3 A weighing-machine comprising a stand, a platform, spring-supported on the said stand, and an indicator mounted on and moving bodily with the said platform, the indicator having a shaft, means for turning the shaft in one direction during the downward movement of the said platform and means for holding the shaft against return motion during the return movement of the platform.

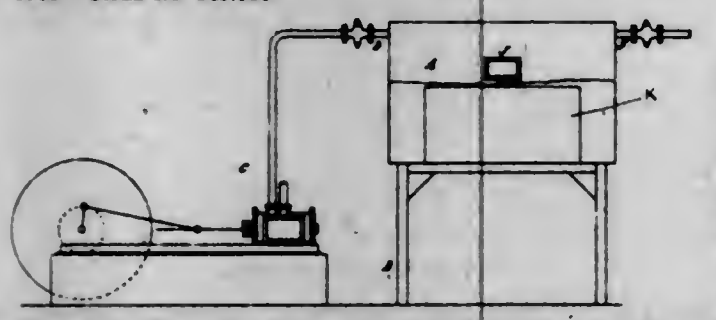
4. A weigning-machine comprising a stand, a platform spring-supported on the said stand, and an indicator mounted on and moving bodily with the said platform, the indicator having a shaft, means for turning the shaft in one direction during the downward movement of the said platform, a drum mounted to turn loosely on the said shaft and on which wind cords in opposite directions, one of the cords being spring-pressed and the other cord fixed at its free end to the said stand, a ratchet-wheel secured on the said shaft, a pawl for

engaging the said ratchet-wheel and hung on the said platform, a spring-pressed arm pivotally connected with the said pawl and having a shoulder, a lug turning with the said shaft and a lug turning with the said loose drum, the lugs being adapted to engage the said shoulder.

5. A weighing-machine provided with a support, a platform having a stem mounted to slide on the said support, a strong spring and a light spring coiled on the said stem and connected with each other at adjacent ends, the strong spring having its other end secured to the said support and the light spring being connected at its other end with the said stem, and a detent on the said support, adapted to engage the strong spring at the end connected with the light spring.

6. A weighing-machine provided with a support, a platform having a stem mounted to slide on the said support, and a strong spring and a light spring coiled on the said stem and connected with each other at adjacent ends, the strong spring having its other end secured to the said support and the light spring being connected at its other end with the said stem, the latter having a shoulder for engagement with the strong spring at the end connected with the light spring.

786,082. **PROCESS OF COLORING NATURAL COMPACT CRYSTALLINE STONES.** ADOLPH WULTER, Charlottenburg, Germany, assignor to The Firm of Chemisch-Technische Fabrik, Dr. Alb. R. W. Braud & Co., G. M. B. H., Charlottenburg, Germany. Filed Feb. 25, 1903. Serial No. 145,010.



Claim.—1. Process for coloring natural crystalline compact stones which consists in freeing the stone from air, forcing by pressure a solution of a suitable compound into the stone, evaporating the solvent, again freeing the stone from air, forcing by pressure a solution of a compound able to give colored precipitates with the substance firstly introduced into the stone and evaporating the solvent.

2. Process for coloring natural crystalline compact stones which consists in freeing the stone from air, forcing by pressure a solution of a compound able to give colored precipitates with the substance firstly introduced into the stone, the solvent of the secondly-introduced substance being unable to dissolve the substance firstly introduced, evaporating the solvent, freeing the stone from air and forcing by pressure a solvent able to dissolve both the substances introduced into the stone.

786,083. **ROTARY STEAM-ENGINE.** JOSEPH A. AMBROZ, Chicago, Ill. Filed Oct. 7, 1904. Serial No. 227,556.



Claim.—1. In a rotary engine, the combination of a main body A having attached heads B, and a supply-pipe C′ and exhaust-pipe E^7, a cylindrical steam-chest C within said main body and said heads B, entered by the supply-pipe C′ and having steam-ports C^8, a slide-valve C^2 within said steam-chest composed of a central shaft C^4 and two drums C^5, affixed on said shaft, said drums having apertures C^6, said shaft extending through one of the heads B, a governor D supported in suitable bearings and connected with the shaft C^4 by a sleeve C^7, secured on said shaft by two collars D^5, means for rotating said governor and thereby moving said slide-valve over and from the ports C^8 in said steam-chest C, an intermediate cylinder E within said main body and heads B, connected with the steam-chest C by the ports C^8, and having an exhaust-port E^7, and a longitudinal steam-port F′, a cylindrical rotatable valve E′ within said cylinder E, having a central shaft E^8 supported in suitable bearings in the heads B, a longitudinal curved recess E^2 and a longitudinal angular recess E^3 in said valve and a lip E^4 formed by the relative positions of said recesses, and ports E^5, extending through said valve into the recess E^2 and registering with the ports C^8 as the valve is rotated, a main cylinder F within said main body and heads, said cylinder being connected with the cylinder E by the port F′, a rotatable piston F^6 within the cylinder F, having a central shaft F^8 supported in suitable bearings in the heads B, a longitudinal projection F^7 forming part of said piston, said projection having a face F^9 forming a tangent with the periphery of the cylindrical part F^6 of said piston and also a radial face F^{11}, and a top F^{10} adapted to fit the internal periphery of said main cylinder and curved recess E^2 in the valve E′ and to engage the lip E^4 thereby rotating the valve E′ and closing the ports C^8, E^5, E^7 and F′, a crank E^{10}, rod G and dash-pot G′ attached to and connected with the shaft E^8 and a lever E^{11} and weight E^{13} attached to and connected with said shaft, the said crank, connecting-rod, dash-pot, lever and weight being adapted to rotate said valve E′ in the opposite direction and to thereby operate the said ports in the cylinders E and F and to thereby admit steam into the cylinder F against the face F^{11} of the projection F^7 and to thereby cause said piston F^6 to rotate, substantially as and for the purposes specified.

2. In a rotary engine, the combination of a main body A and heads B, said body having a suitable inlet and exit for the passage of steam, a cylindrical steam-chest entered by said steam-inlet and having steam-ports C^8, a cylindrical slide-valve within said steam-chest adapted to slide over said steam-ports and regulate the passage of steam therethrough, a number of holes extending through the body of said valve adapted to admit the free passage of steam through said valve to all parts of the steam-chest and to equalize the steam-pressure on said valve, means for operating said valve and regulating thereby the passage of steam through the said ports, an intermediate cylinder within said main body parallel with and adjoining said steam-chest and connected therewith by the ports C^8, said intermediate cylinder having a longitudinal steam-port for the passage of steam therefrom and an exhaust-port for the passage of steam through said main body, a rotatable cylindrical valve within said cylinder pierced with steam-ports adapted to correspond and register with the steam-ports C^8, said valve also having a longitudinal recess into which the steam-ports in said valve open, and a longitudinal curved recess in said valve adapted to open and close said exhaust-port as said valve is rotated, a longitudinal lip on said valve formed by the said longitudinal recesses in said valve, said lip being adapted to open and close the longitudinal steam-port in said cylinder as said valve is rotated therein, means for rotating said valve in said cylinder and thereby regulating the passage of steam therefrom and through said exhaust passage-way, a main cylinder within said main body parallel with and adjoining said intermediate cylinder and connected therewith by the longitudinal steam-port in said intermediate cylinder, a cylindrical rotatable piston within said main cylinder adapted to admit the passage of steam into said cylinder between the periphery of said piston and the periphery of said cylinder, a longitudinal projection forming part of said piston, having one of its faces tangential to the periphery of said valve and adapted to engage the longitudinal lip on the valve in the intermediate cylinder and to thereby move said lip and rotate said valve and close said longitudinal steam-port, said projection having a radial face, adapted to allow the release of said lip and thereby open said steam-port and to receive the full pressure of steam, said piston being revolved thereby and means for supporting said piston in said main cylinder, substantially as described and for the purposes specified.

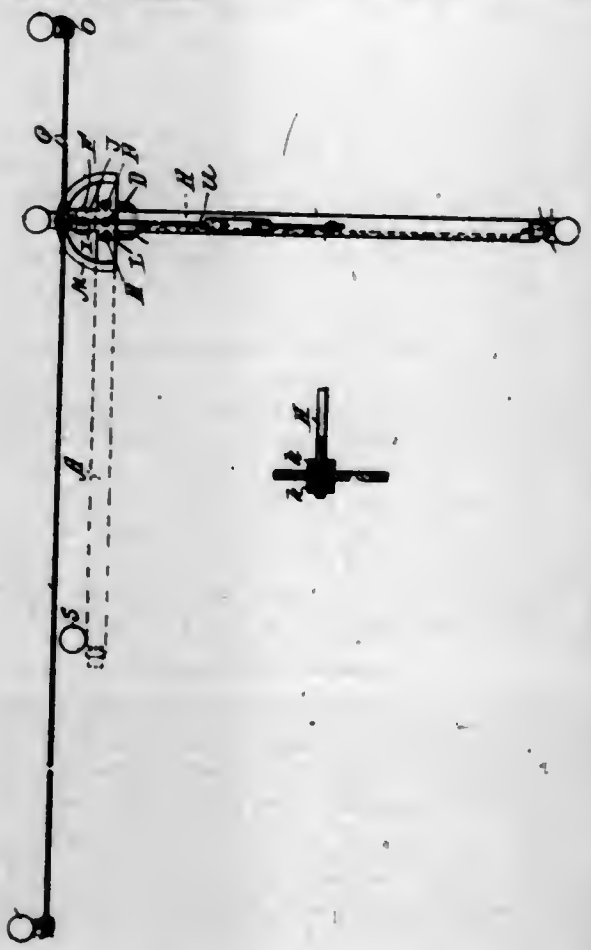
3. In a rotary engine, the combination of a main body A and heads B with a cylindrical steam-chest and a cylindrical slide-valve, said steam-chest having a suitable steam-inlet and steam-ports, means for operating and regulating the movements of said slide-valve, and an intermediate cylinder adapted to receive the steam from said steam-chest, and having a suitable steam-port and an exhaust-port, and a rotatable valve within said cylinder adapted to control and regulate the passage of steam through said steam-port and exhaust-port, said valve having a longitudinal lip adapted to close and open said steam-ports, means for rotating said valve, a main cylinder having a steam-port adapted to receive steam from the intermediate cylinder, a rotatable piston arranged within said main cylinder, having a projection adapted to fit said cylinder and to engage the said lip, and thereby rotate said rotatable valve and close

said port and permit said valve to immediately reverse its motion and open said port and thereby admit steam into said main cylinder and against said projection, thereby rotating said piston, and suitable means for supporting said piston in said cylinder, substantially as and for the purposes specified.

4. In a rotary engine, the combination of a main body A and heads B, having a suitable steam inlet and exit, and a steam-chest and slide-valve, with an intermediate cylinder connected with the said steam-chest by suitable steam-ports and with the exit in said main body and a rotatable valve arranged within said cylinder, said valve having suitable passage-ways for the admission and exit of steam, and a lip adapted to be moved and to thereby open and close said steam-port and to open and close said exit through said main body, and means for rotating said valve and a main cylinder connected with said intermediate cylinder by a steam-port, said port being opened and closed by said intermediate valve, and a cylindrical piston arranged and suitably supported in said cylinder, said piston having a longitudinal projection on its periphery adapted to fit said cylinder and to engage and move said lip on said valve and thereby close said steam-port, and to receive the full pressure of steam from said port as said projection passes said lip and thereby permits said valve to be rotated in the reverse direction and thereby open said port for the admission of steam against said projection and to open the exhaust-port and permit the escape of steam from said cylinder.

5. In a rotary engine, the combination of a main body A and heads B, said body having a steam-chest and valve and suitable steam-inlets and steam ports and means for operating said valve and an intermediate cylinder connected with said steam-chest by said ports, and having a steam-port and exhaust-port for the passage of steam from said cylinder and a rotatable valve arranged in said cylinder having steam-passage-ways and a longitudinal lip adapted to close and open said port, and a curved recess adapted to open said exhaust-port and means for rotating said valve, with a main cylinder connected with said intermediate cylinder by said steam-port, and a cylindrical rotatable piston suitably supported in said main cylinder, said piston having a longitudinal projection adapted to fit the diameter of said cylinder, and to engage and move said lip and thereby rotate said valve and close said steam-port and to release said lip and thereby open said steam-port and admit steam into said cylinder against said piston and said projection and to thereby rotate said piston, and mechanism connecting said piston with the slide-valve in said steam-chest, and regulating the passage of steam through said chest, intermediate cylinder and valve and main cylinder and speed of said piston, substantially as and for the purposes specified.

786,084. GATE. John Anderson, Chicago, Ill. Filed Mar. 21, 1904. Serial No. 199,191.



Claim.—1. In a gate of the kind described, the combination comprising the gate A having a hinge-bar B and plate C; a supporting-post F having lugs E and a connecting pivotal bar D; a circular arc lever I connected with gate A by the bar D and pin J and having a grooved rim M; a pair of chains N attached to said lever in said rim; a pair of operating-levers O connected with said chains and pivotally supported on a pair of posts P; a tension-rod Q connecting said operating-levers; a spring-bar H connecting the circular arc lever I with a spring G affixed to the free end of the gate A and means for adjusting said spring on said bar, substantially as described and for the purposes specified.

2. In a gate of the kind described, the combination comprising a gate A hinged to a supporting-post F; a circular arc lever I pivotally attached to said gate, connected thereto by a pin J, a connecting-rod H attached to the lever I, and a spring G attached to said gate and the rod H; a pair of cables attached to the lever I; a pair of operating-levers connected to said cables; a pair of posts P supporting said levers, and a tension-cable connecting said levers, substantially as described and for the purposes specified.

3. In a gate of the kind described the combination comprising a gate A and supporting-post F; a circular arc lever I pivotally attached to the gate A by a pin D and connected with the forked end K of the top rail of said gate by an operating-pin J; and a rod H attached to said lever, through apertures L in said lever; and means for operating said lever and said rod; and a spring-catch attached to said rod, substantially as described and for the purposes specified.

4. In a gate of the kind described the combination comprising a gate A and means for supporting said gate; a circular arc lever I pivotally connected with said gate, and having an operative pin J; and a rod H loosely attached to said lever, and means for operating said lever and said rod substantially as described and for the purposes specified.

786,085. VIOLET ANTHRACENE DYE AND PROCESS OF MAKING SAME. Oscar Bally, Mannheim, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Nov. 17, 1904. Serial No. 233,161.

Claim.—1. The hereinbefore-described process for the production of anthracene compounds by condensing a beta-amido-anthrachinon body with glycerin in the presence of sulfuric acid.

2. The hereinbefore-described process for the production of anthracene compounds by condensing beta-amido-anthrachinon with glycerin in the presence of sulfuric acid.

3. The anthracene compounds obtainable by condensing a beta-amido-anthrachinon body with glycerin in the presence of sulfuric acid, which compounds, when dry, are soluble in concentrated sulfuric acid yielding fluorescent solutions, and which on melting with caustic alkali yield coloring-matters possessing properties similar to those of indanthrene.

4. The anthracene compound obtainable by condensing beta-amido-anthrachinon with glycerin in the presence of sulfuric acid, which compound, when dry, is an olive-yellow powder, which is soluble in concentrated sulfuric acid yielding a reddish-brown solution with a green fluorescence, which is soluble in concentrated hydrochloric acid yielding a yellow solution, and which on melting with caustic alkali yields a violet coloring-matter possessing properties similar to those of indanthrene.

786,086. EXTENSION-TABLE. Thaddeus C. Brach, St. Johns, Mich., assignor to St. Johns Table Co., St. Johns, Mich., a Corporation of Michigan. Filed July 18, 1903. Serial No. 166,069.

Claim.—1. In an extension-table the combination with a stationary section, of an extensible section provided with sliding rails having plural separated upright recesses on their lateral faces each independently extending at an angle to the perpendicular and provided with marginal grooves, an independent angle-plate located in the grooves of each of said recesses of the rails, and forming a space between the slotted plate and the adjacent wall of the recess, each plate constructed with a single upright slot having laterally-extended portions at its extremities, movable leaves provided with cleats, and means connected with said cleats and projecting through and movable in the corresponding slotted plate, said leaves arranged to be raised and lowered in their engagement with said plates, substantially as and for the purpose described.

2. In an extension-table the combination with a stationary section, of an extensible section provided with sliding rails having plural separated upright recesses on their lateral faces extending at an angle to the perpendicular and provided with marginal grooves, an

end rail carried by said sliding rails, an independent angle-plate located in the grooves of each of the recesses of the sliding rails, each plate constructed with a single upright slot having laterally-extended portions at its extremities, and a movable leaf provided with means engaged with the corresponding angle-plates and arranged to be elevated and lowered in said plates and held in raised and lowered position substantially as and for the purpose described.



3. In an extension-table the combination with a stationary section, of an extensible section provided with sliding rails having plural separated upright recesses on their lateral faces extending at an angle to the perpendicular and provided with marginal grooves, an end rail carried by said sliding rails, an independent angle-plate carried in the grooves of each of the recesses of the sliding rails, each plate constructed with a single upright slot having laterally-extended portions at its extremities, and a movable leaf provided with means engaged with the corresponding plates and arranged to be elevated and lowered in said plates, said movable leaf when in elevated position, supported at its outer edge upon the end rail, substantially as and for the purpose described.

4. In an extension-table the combination with a stationary section provided with side rails, a transverse connecting-bar, and fixed rails secured to said connecting-bar, of an extensible section provided with sliding rails on opposite sides thereof having a movable engagement with the corresponding fixed rails and constructed with plural separated recesses on one of the lateral faces thereof and provided with marginal grooves, an independent metal plate located in the grooves of each of said recesses, each plate constructed with a single upright slot having laterally-extended portions at its extremities, movable leaves provided with cleats, and independent means connected with said cleats and passed through the corresponding independent slotted plates whereby the leaves may be raised and lowered in said slotted plates.

5. In an extension-table the combination with a stationary section provided with side rails, a transverse connecting-bar, and fixed rails secured to said connecting-bar, of an extensible section provided with sliding rails having a movable engagement with a corresponding fixed rail, and constructed with recesses on one of the lateral faces thereof, said recesses provided with marginal grooves, independent slotted metal plates located in the grooves of said recesses and forming a space between the slotted plate and the adjacent wall of the recess, movable leaves provided with cleats, and screws engaged with said connecting-cleats having their heads projecting through the corresponding slotted plates whereby the leaves may be raised and lowered in said slotted plates.

6. In an extension-table the combination with a stationary section provided with side rails, a transverse connecting-bar, and fixed rails secured to said connecting-bar, of an extensible section provided with sliding rails having a movable engagement with a corresponding fixed rail and constructed with recesses on one of the lateral faces thereof, said recesses provided with marginal grooves, independent slotted metal plates located in the grooves of said recesses and forming a space between the slotted plate and adjacent wall of the recess, movable leaves provided with cleats, a screw engaged with said connecting-cleats having their heads projecting through the corresponding slotted plates whereby the leaves may be raised and lowered in said slotted plates, the slots in said plates provided with lateral extensions at the top and at the bottom thereof.

7. In an extension-table the combination with a stationary section provided with side rails, a fixed table-top, a transverse connecting-bar, fixed rails secured to said connecting-bar and spaced from the fixed table-top, of an extensible section provided with sliding rails having a movable engagement with the corresponding fixed rails and constructed with plural separated recesses on one of the lateral faces thereof and provided with marginal grooves, an independent metal plate located in the grooves of each of the said recesses, each plate constructed with a single upright slot having laterally-extended portions at its extremities, and movable leaves provided with cleats, said leaves provided with means separably connecting the cleats with the corresponding slotted plates whereby the leaves may be raised and lowered in said plates, and whereby the leaves may be passed under the fixed table-top, between the top and the fixed rails.

8. In an extension-table the combination with a stationary section provided with side rails, a transverse connecting-bar, and fixed rails secured to said connecting-bar, of an extensible section provided with sliding rails on opposite sides thereof having a movable engagement with the corresponding fixed rails, and constructed with plural separated recesses on one of the lateral faces and provided with marginal grooves, an independent metal plate located in the grooves of each of said recesses, each plate constructed with a single upright slot having laterally-extended portions at its extremities, movable leaves provided with cleats, means connected with said cleats and passed through the slots in the corresponding metal plates whereby the leaves may be raised and lowered in said plates, a transverse supporting-bar connecting the sliding rails upon opposite sides of the table, and legs connected with the said supporting-bar.

9. In an extension-table the combination with a stationary section provided with fixed rails, of an extensible section provided with sliding rails having a movable engagement with the corresponding fixed rails and constructed with plural separated recesses on one of the lateral faces thereof and provided with marginal grooves, an independent slotted metal plate located in the grooves of each of said recesses, each plate constructed with a single upright slot having laterally-extended portions at its extremities, and movable leaves provided with means connected with said leaves and with said independent plates whereby the leaves may be raised and lowered in said plates, said plates on the same side of the table made in duplicate.

10. In an extension-table the combination with a stationary section provided with side rails, and transverse connecting-bar, and fixed rails secured to said connecting-bar, of an extensible section provided with sliding rails having a movable engagement with the corresponding fixed rail and constructed with recesses on one of the lateral faces thereof, said recesses provided with marginal grooves, independent slotted metal plates located in the grooves of said recesses and forming a space between the sloted plate and the adjacent wall of the recess, movable leaves provided with cleats, and means engaged with said connecting-cleats having heads projecting therefrom through the corresponding slotted plates whereby the leaves may be raised and lowered in said slotted plates.

11. In an extension-table the combination with a stationary section provided with side rails, a transverse connecting-bar, and fixed rails secured to said connecting-bar, of an extensible section provided with sliding rails having a movable engagement with a corresponding fixed rail and constructed with recesses on one of the lateral faces thereof, said recesses provided with marginal grooves, independent slotted metal plates located in the grooves of said recesses and forming a space between the slotted plate and adjacent wall of the recess, movable leaves prov ded with cleats, means engaged with said connecting-cleats having heads projecting therefrom through the corresponding slotted plates whereby the leaves may be raised and lowered in said slotted plates, the slots in said plates provided with lateral extensions at the top and at the bottom thereof.

786,087. STOP ATTACHMENT FOR SHADES. FRED L. BENEDICT, Jersey City, N. J., assignor of one-half to James Henry Cornell, Jersey City, N. J.; Harriet L. Cornell administratrix of said James Henry Cornell, deceased. Filed Oct. 21, 1903. Serial No. 177,939.

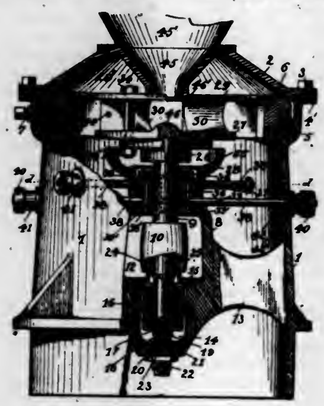
Claim.—1. A stop attachment for shades, comprising an attaching portion adapted for connection with the shade-stick and an outwardly-disposed stop extension designed for contact with the shade when the latter is rolled and curved to conform substantially to the

arc of the same, whereby the lower end of the shade is caused to hang substantially vertical.



2. The combination with a spring-actuated shade, of a stop attachment for the same comprising a sheet-metal plate having punched therefrom the stick-engaging tooth *f'* and below the same having a screw-receiving hole, and at its upper end laterally bent at an angle to form a stop extension, and the screw passed through the hole and into the stick.

786,088. ORE-PULVERIZING APPARATUS. EDWARD H. BENJAMIN, Oakland, Cal. Filed May 11, 1904. Serial No. 207,425.



Claim.—1. In an apparatus for the described purpose, the combination with the shell or casing, of a central guide-pillar within the shell or casing, an oil-well in the lower end of the said pillar, an adjustable plug working through the bottom of the pillar, a central drive-shaft working within the pillar, a universal ball-bearing joint between the lower end of the drive-shaft and the adjustable plug, a thimble fitted within the oil-well, a convex bearing-sleeve secured to the drive-shaft to work against the thimble, a spring-held bearing interposed between the upper portion of the drive-shaft and the central pillar, means for exerting lateral spring-pressure tension on the floating bearing, and devices carried by the drive-shaft for creating an upward air-draft through the said bearing during rotation of the said shaft.

2. In an apparatus for the described purpose, the combination with an outer inclosing shell or casing, of a die-ring held within the upper portion thereof, of a central guide-pillar within the shell or casing, of a central drive-shaft extending through said guide-pillar, of a spring-held bearing interposed between the shaft and the guide-pillar, of means secured to the upper end of the central shaft for receiving the ore to be pulverized and directing the same against the die-ring, and devices carried by the said means for creating an upward air-draft through the bearing for maintaining cool the working parts during rotation of the shaft.

3. In an apparatus for the described purpose, the combination with the outer shell or casing, of a central guide-pillar arranged therein, a rotatable drive-shaft working within the pillar, a ball-bearing for the lower end of the shaft, a yielding bearing interposed between the upper portion of the shaft and the guide-pillar, of means for maintaining lateral spring tension on the said yielding bearing, a receiving-disk and a retaining-disk carried by the drive-shaft, guide-shoes held between the said disks, means for holding the disks locked to the head of the drive-shaft, a die-ring located within the upper portion of the outer casing or shell, and means for supplying material through the retaining-disk onto the receiving-disk.

4. In an apparatus for the described purpose, the combination with the outer inclosing shell or casing, of a die-ring held within the upper portion thereof, of a guide-pillar within the said shell or casing, of a central drive-shaft extending through the guide-pillar, a spring-held bearing interposed between the said guide-pillar and the central shaft, of a receiving-disk mounted on the upper end of the central shaft, a retaining-disk located above the receiving-disk, a series of slots cut in each disk, of a series of guide-shoes held between the disks, lugs projecting from the shoes which fit within the slots of the receiving and retaining disks, and means for holding the disks locked to the head of the drive-shaft.

5. In an apparatus for the described purpose, the combination with an outer shell or casing, of a guide-pillar arranged therein, of a drive-shaft extending through said guide, of a yielding bearing interposed between the upper portion of the drive-shaft and the guide-pillar, of means for maintaining lateral spring tension on the said yielding bearing, of a receiving-disk and a retaining-disk carried by the drive-shaft, a series of guide-shoes held between the said disks, and a die-ring located within the upper portion of the outer shell or casing.

6. A guide-shoe for an apparatus for the described purpose having a grooved wearing-face, and provided with a bore to indicate when the face of the shoe has become worn to a predetermined depth.

7. In an apparatus for the described purpose, the combination with the outer shell or casing, of a die-ring held within the upper portion thereof, a guide-pillar within the shell or casing, of a rotatable drive-shaft extending through said guide-pillar, of a yielding bearing interposed between the guide-pillar and the drive-shaft, of means for maintaining lateral tension on the said yielding bearing, and a receiving-disk secured on the upper end and carried by the drive-shaft, said disk receiving the ore to be pulverized against the die-ring.

8. In an apparatus for the described purpose, a series of guide-shoes, securing-lugs carried by each shoe, a curved grooved wear-face to each shoe, and a bore in each shoe to indicate when the shoe has become worn to a predetermined depth.

9. In an apparatus for the described purpose, the combination with an outer inclosing casing, of a die-ring held within the upper portion thereof, of a vertical drive-shaft working within the casing, a yielding bearing for the drive-shaft, devices for maintaining a spring tension on the said bearing, of means on the upper end of the drive-shaft for receiving the ore to be pulverized and delivering the same against the die-ring, of devices carried by said means for creating an upward air-draft through the bearing during rotation of the drive-shaft, and means for protecting the bearing against the admission of dust thereto.

10. In an apparatus for the described purpose, the combination with an outer casing, of a die-ring held within the upper portion thereof, of a drive-shaft working in the casing, a floating bearing for the drive-shaft, devices for maintaining a spring tension on the said bearing, of means on the upper end of the drive-shaft for receiving the ore to be pulverized and delivering the same against the die-ring, of devices carried by said means for creating an upward air-draft through the bearing during the rotation of the drive-shaft, and means for protecting the bearing against the admission of dust thereto.

11. In an apparatus for the described purpose, the combination with an outer shell or casing, of a die-ring arranged within the upper portion thereof, of a central guide-pillar within the casing, of a drive-shaft working in the guide-pillar, an oil-well into which the lower end of the shaft extends, of a ball-bearing for the drive-shaft, of a spring-held or tension bearing interposed between the upper portion of the shaft and the guide-pillar, of means for maintaining a uniform tension on the spring-held or tension bearing, of a receiving-disk and a spaced retaining-disk held locked to the head of the drive-shaft, a series of guide-shoes held between the disks, means for supplying material to the receiving-disk through the retaining-disk, devices for creating an upward air-draft through the spring-held or tension bearing during rotation of the drive-shaft, devices for protecting the shaft-bearings against the admission of dust, and a vibratory screen-table onto which the treated material is discharged.

786,089. APPARATUS FOR DIPPING ANIMALS. EDWIN W. BENNETT, Rawlins, Wyo.; Duncan Clark administrator of said Edwin W. Bennett, deceased. Filed Aug. 24, 1903. Serial No. 170,584.

Claim.—1. An apparatus comprising a tank designed to contain a solution, a hollow platform movable in said tank, an air-storage tank, a tubular connection between the air-tank and the hollow platform for supplying air to said platform, a heating-chamber communicating with the tank, a heater in said chamber, a steam-generator, means for conducting steam from the generator to the heater, a pump for forcing heated solution from the heating-chamber to the solution-tank and the cooled solution from the tank to the chamber, a steam-pipe leading from the generator to the pump for operating the latter, and a mercurial governor-valve for said steam-pipe designed to regulate the steam admitted to the pump.



2. The combination of a solution-containing tank, a platform movable therein, guide-rollers carried by said platform, and means adapted to be thrust between certain of said rollers for locking the platform stationary within the tank.

3. The combination of a solution-containing tank, means for supplying a heated solution thereto, means for removing solution from the tank, a support movable within the tank, and means including a lever-operated latching device for locking the support against movement.

4. The combination of a tank designed to contain a solution, a hollow platform movable therein and having openings in one of the faces thereof whereby the solution may enter the platform to assist in sinking the same, means for forcing air into the platform for raising the latter, and means for locking the platform against movement, said means including a lever, a relatively long sliding rod connected to said lever and latch-bars connected with said rod.

5. The combination of a solution-containing tank, a platform movable therein, rollers carried by the platform, and means for locking the platform stationary in said tank, such means including a lever-operated latching device adapted to be interposed between certain of said rollers.

6. An apparatus comprising a tank, a platform movable therein, vertically-arranged tracks forming guideways secured to the side walls of said tank, rollers carried by the platform and adapted to engage said guideways for directing the movement of the platform within the tank, pneumatic mechanism for raising said platform by the buoyancy of air forced thereinto, and a lever-operated latching device for locking the platform against movement.

7. An apparatus comprising a solution-containing tank, a hollow platform movable therein and having openings for the admission of a solution to the interior of the platform when the latter is submerged, an air-storage tank, a tube on the top of the hollow platform and communicating with the interior thereof, a flexible valve-controlled tubing between the air-tank and the tube on said platform for conducting air to the platform, thereby causing said air to displace said solution within said hollow platform, and inclosing mechanism mounted upon said platform.

8. An apparatus comprising a solution-containing tank, a platform movable therein and adapted to be submerged in a solution, movable gate members for said platform, means for raising and lowering said gate members, and mechanism for supplying air to the interior of the platform.

9. The combination of a solution-containing tank, a platform disposed therein and movable relatively thereto, a heating-chamber disposed adjacent to the tank and adapted to supply a heated solution thereto, means for returning said solution from the tank to the heating-chamber, and means for admitting air to said platform for the purpose of raising the same.

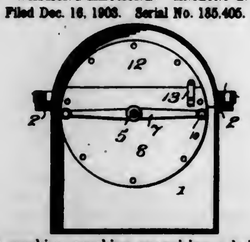
10. The combination of a tank adapted to contain a solution, a hollow platform adapted to be submerged in said solution, a heated chamber communicating with said tank and adapted to supply a solution thereto, means for returning the solution from the tank to the heating-chamber, a heating-coil disposed within said chamber, means for supplying steam to said coil, mechanism for supplying air to the hollow platform, thus causing the same to partially emerge from the general body of said solution, and means for locking said platform against movement.

11. The combination of a tank adapted to contain a solution, a platform disposed within said tank and movable relatively thereto, means for guiding movements of said platform within said tank, mechanism for locking the platform against movement, inclosing gates mounted upon said platform and movable relatively thereto, means for heating a solution supplied to said tank, and mechanism for returning said solution from said tank to its source of supply.

12. The combination of a tank adapted to contain a solution, a hollow platform disposed within said tank and movable relatively thereto, hinged inclosing gates for said platform, a chamber disposed adjacent to said tank and adapted to supply a solution thereto, a heater for the liquid contained in said chamber, a steam-generator, means for conducting steam from the generator to the heater, mechanism for supplying air to the platform to raise the same relatively to said tank, means for removing air from the platform to lower the same relatively to said tank, and mechanism for locking the platform against movement.

13. The combination with a tank adapted to contain a solution, of a hollow platform movable in said tank, an air-storage tank, a tubular connection between the air-tank and the hollow platform for supplying air to said platform, a heating-chamber communicating with said tank for supplying the solution thereto, means for heating the solution in the heating-chamber, means for forcing the heated solution from the heating-chamber to the said solution-tank, and the cooled solution from the tank to the heating-chamber, and a controlling device for said means.

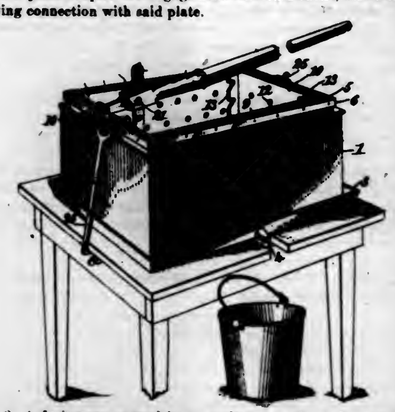
786,090. **WASHING-MACHINE.** ANTHONY L. BEYER, Kansas City, Mo. Filed Dec. 16, 1903. Serial No. 185,405.



Claim.—A washing-machine comprising a boiler having an angular flange at its upper edge and forming a gutter; a detachable cylinder revolubly mounted within the boiler and having perforations therein, cross-stripe at the ends of the cylinder, sleeves interposed between the cross-stripe and connecting the same, trunnions extending from the cross-stripe, and bearing in the opposite ends of the boiler, a hinged cover on the cylinder and having perforations therein, a closure for the boiler having its walls in alinement with the walls of said boiler, and laterally-extending flanges integral with said closure at the edges thereof and adapted to bear upon the bottom of the gutter formed by the angular flange of the said boiler, substantially as specified.

786,091. **FRUIT-PRESS.** HERMAN BOLLWIEBER, Spokane, Wash. Filed Oct. 12, 1904. Serial No. 228,231.

Claim.—1. A fruit-press comprising a casing, a perforated fruit-receptacle in the casing, vertical racks in the receptacle, a presser-plate adapted for engagement with said racks, and a lever having connection with said plate.

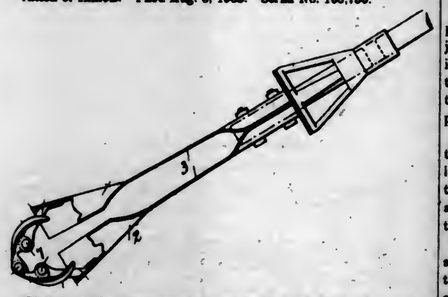


2. A fruit-press comprising a casing, a perforated receptacle removably arranged in the casing, racks secured to the inner side of said receptacle, a presser-plate having trunnions at one end for engaging with said racks, an operating-lever, and an adjustable connection between said lever and the presser-plate.

3. A fruit-press comprising a casing open at the top and bottom, a tray in which the casing is placed, said tray having an outlet, a perforated fruit-receptacle arranged in the casing, racks secured in said receptacle at one end, a presser-plate having trunnions at one end for engaging with said racks, a bar attached to the receptacle, a lever fulcrumed on said bar, a link having pivotal connection with the presser-plate near its free end, and an adjustable connection between said link and the lever.

4. A fruit-press comprising a casing open at the top and bottom, a tray in which the casing is arranged, a fruit-receptacle consisting of angle-iron corner-posts, a metal frame connecting the top ends of the posts, perforated side, end and bottom plates removably placed in the frame, racks secured to the inner sides of the side plates, a presser-plate having trunnions for engaging with said racks, an operating-lever, an adjustable connection between said lever and presser-plate, and means for locking the operating-lever in downward position.

786,092. **BOILER-FLUE SCRAPER.** WILLIAM G. BOLUS, Peoria, Ill., assignor to Aromas Manufacturing Company, Peoria, Ill., a Corporation of Illinois. Filed Aug. 8, 1903. Serial No. 168,730.



Claim.—1. In a scraper, the combination of a pair of scraping-blades, an arm connected to the inner faces of each of the blades and extending forwardly thereof, and a pair of oscillating members connected with said arms and having a pivotal connection with each other, adapted when entering a tube to contract the blades.

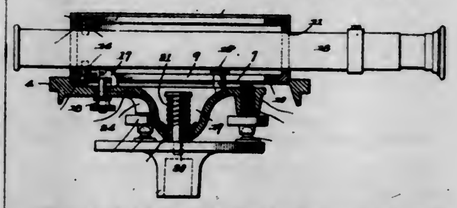
2. In a scraper, the combination of a pair of scraper-blades having cutting edges, arms having a fixed connection with said blades, bowed members pivoted to each other in advance of the ends of the arms, and having the ends of the arms pivoted to the bodies of said members, substantially as specified.

3. In a scraper, the combination of spring scraping-blades having cutting edges, arms attached to the inner faces of the blades and extending forward and inward therefrom, members pivoted to each other and to the said arms, and said members provided with bowed portions adapted to engage with the wall of a tube when entering the same to contract the blades, in manner and for the purposes set forth.

4. In a scraper, the combination with scraping-blades, two oscillatory members having a common pivot in advance of the blades, arms from the blades converging toward the pivot of the members and pivoted to said members at a point between their common pivot and the edges of the blades.

5. In a scraper, the combination with scraping-blades, arms extending forwardly of the blades having their outer ends attached to the blades, and members connected with said arms and pivoted to each other, the said members having a pair of fingers normally engaging the cutting edge of the blades, adapted when engaging a tube to contract the blades, in manner and for the purposes set forth.

786,093. **DITCHING AND TERRACING LEVEL.** ERNST A. BOSTROM, Atlanta, Ga. Filed Aug. 11, 1904. Serial No. 220,398.



Claim.—1. In a device of the class described, a platen, a turret supported thereon and having upper and lower inwardly-projecting marginal flanges and a pair of opposite openings, a sight-tube extended through said openings, and adjusting-screws extended through the flanges for acting upon the tube.

2. In a device of the class described, a platen, a turret seated thereon and having an internal flange, a sight-tube carried by the turret, and retaining devices carried by the platen and engaging the flange to maintain the turret in position.

3. In a device of the class described, a platen, a turret seated thereon and having an internal flange, a sight-tube carried by the turret, retaining members carried by the platen for detachably engaging the turret-flange, and a clamping device also carried by the platen and engaging said flange.

4. In a device of the class described, a supporting-base, a platen arranged above the base and having a concavity, a stem arising from the base within the concavity, a semispherical bearing member seated upon the stem within the concavity, adjusting-screws in threaded engagement with the platen and having universal-joint connections with the base, and a turret seated upon the platen.

5. In a device of the class described, a supporting base and platen, a yieldable universal-joint connection between said parts, adjusting-screws in threaded engagement with one of the parts and having ball-and-socket connection with the other, a turret seated upon the platen, a sight-tube carried by the turret, and means carried by the platen and engaging the turret for clamping the latter in adjusted position.

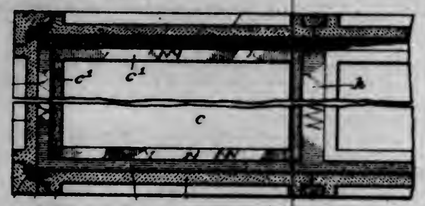
6. In a device of the class described, a base, a platen connected therewith and comprising an outer ring, an inner spider, and connecting-webs between the spider and ring, said webs being provided near the inner margin of the ring with raised portions or seats, a turret adapted to rest upon said seats, and a sight-tube carried by the turret.

7. In a device of the class described, a platen, a reversible turret seated thereon and having upper and lower internal flanges, a sight-tube carried by the turret, and retaining devices carried by the platen and designed for engagement with either of the flanges to maintain the turret in position.

786,094. **BURIAL-VAULT.** FRED G. BOYDEN, Bradford, Ill. Filed July 7, 1904. Serial No. 215,673.

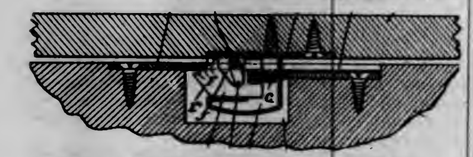
Claim.—1. A receptacle having vertical walls formed with slabs meeting each other at right angles at the corners of the receptacle, each of said slabs being provided with a vertical outwardly-extending projection near its edge and a series of pins extending from said projections in a direction parallel with the plane of the faces of the slab, and a filling of plastic material introduced between

the adjacent projections of the two slabs at the corner of the receptacle, said filling surrounding said pins and constituting the outside corner of the receptacle.



2. The combination of a plurality of slabs forming the top, bottom, side and end walls of a receptacle, said slabs being provided with external projections near their edges, a series of pins extending outwardly from the edges of said slabs in a direction parallel with the plane of the faces thereof, and plastic fillings between each two adjacent projections, said slabs forming the sides and ends each having a projection along the bottom thereof, and said slabs forming the bottom having grooves near their edges larger than said last-named projections, for the reception of said projections, and a filling of plastic material in said grooves and surrounding said projections.

786,095. COFFIN-FASTENER. FRANK P. BRINING and JOHN STACKHOUSE, Philadelphia, Pa. Filed Oct. 27, 1904. Serial No. 230,191.

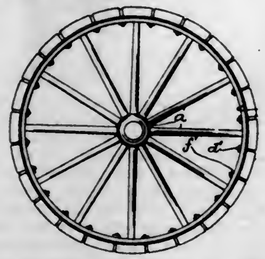


Claim.—1. In a lock for coffins or caskets, a lock-casing secured to and depending from the top, a retaining-plate secured to the top edge of the body provided with an opening formed therethrough large enough to allow for the passage of the lock-casing, a horizontally-sliding bolt arranged within the casing, the nose of which is adapted to normally protrude from the casing, a spring for holding the bolt in its normal position, the nose of the bolt provided with a beveled edge upon its lower side, the top of the nose of the bolt being formed with a series of shoulders or steps, one above the other, adapted to engage the under side of the retaining plate so as to lock the top to the body when said top is removed more or less from the body by the upholstering material, and means for retracting the bolt from the exterior of the coffin or casket, as specified.

2. In a lock for coffins or caskets, a plate secured to the under side of the top, a lock-casing depending therefrom, a retaining-plate secured to the upper edge of the body, said retaining-plate provided with an opening formed therethrough large enough to allow for the passage of the lock-casing, a longitudinally-sliding bolt arranged within the lock-casing, the nose of the bolt normally protruding forward from the casing, a spring interposed between the rear of the bolt and the rear of the casing for holding the bolt in its normal position, the nose of the bolt beveled from its outer forward end inward and downward so that the bolt will be pressed inward when it is forced through the retainer-plate, the top edge of the nose of the bolt provided with a series of shoulders or notches adapted to engage the retaining-plate when the top is more or less removed from the body by different thicknesses of upholstering material, a rock-lever provided transversely through the lock-casing and extending to the outside of the coffin or casket, a lug or web formed with the rock-lever upon the inside of the lock-casing, the bolt provided with a recess or notch in which the lug is adapted to operate to retract the bolt when the rock-lever is rocked, as and for the purpose specified.

3. In a lock for coffins or caskets, plates secured to the under side of the top of the coffin on each side near one end thereof, a lock-casing depending from each plate, retaining-plates secured to the top edge of the body upon each side, each retaining-plate provided with an opening formed therethrough large enough to admit the passage of the lock-casing, a longitudinally-sliding bolt arranged within the lock-casing, the nose of which normally protrudes forward of the casing, a spring for holding the bolt in its normal position, means extending to the exterior of the coffin or casket for retracting the bolt, the nose of the bolt being beveled upon its lower side from its outer forward point inward and downward so that the bolt will be pressed inward when the lock-casing is forced through the retaining-plate, the upper surface of the nose of the bolt being provided with a series of shoulders or notches adapted to engage the retaining-plate when the top is more or less removed from the body by upholstering material, plates secured to the under side of the top upon each side near the other end of the coffin, a hook-shaped nose depending from and curving forward from each plate, retaining-plates secured to the top edge of the coffin provided with openings formed therethrough through which the hook-shaped noses are adapted to pass so that the top of the coffin will not only have to be raised but must be pulled rearward to disengage the hook-shaped noses from the retaining-plates, and longitudinal grooves formed in the upper surface of both sets of retaining-plates at the rear of the openings for guiding the hook-shaped noses and the lock-casing to said openings, as and for the purpose specified.

786,096. TIRE. JOHN F. BYERS, Ravenna, Ohio. Filed Nov. 21, 1904. Serial No. 233,664.

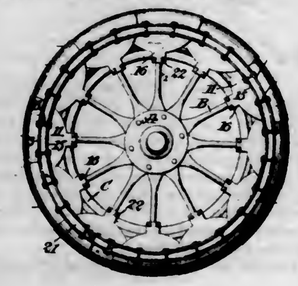


Claim.—1. The combination with the felly of the wheel, of a plurality of tire-sections arranged around said felly, plates arranged between the adjacent ends of the tire-sections, and rigidly supported on the rim of the wheel, means for clamping said plates to the rim of the wheel and prongs secured to said plates at a distance from the rim of the wheel, and arranged to enter the tire-sections.

2. The combination with the felly of the wheel, of a plurality of tire-sections arranged around said felly so as to leave a space between each tire-section, said tire-sections being provided with bores in line with each other, plates arranged between the tire-sections and resting on the rim of the wheel, said plates having openings in line with the bores in the said tire-sections, metallic bars mounted in the openings in said plates and arranged to extend into the bores in the tire-sections and means for securing said plates to the felly of the wheel.

3. The combination with the felly of the wheel, of a plurality of tire-sections spaced around said felly, plates arranged between the tire-sections and resting on the rim of the wheel and provided with prongs arranged to extend into the tire-sections, screw-threaded stems formed integral with said plates and arranged to extend through openings in the felly of the wheel, and nuts arranged to engage the ends of said stems for clamping said plates against the rim of the wheel, substantially as described and for the purpose set forth.

786,097. TIRE-PROTECTOR. NEWTON CAMPBELL, Elizabethtown, Ohio, assignor of one-half to Benjamin Hayhurst, Elizabethtown, Ohio. Filed Nov. 28, 1904. Serial No. 234,529.



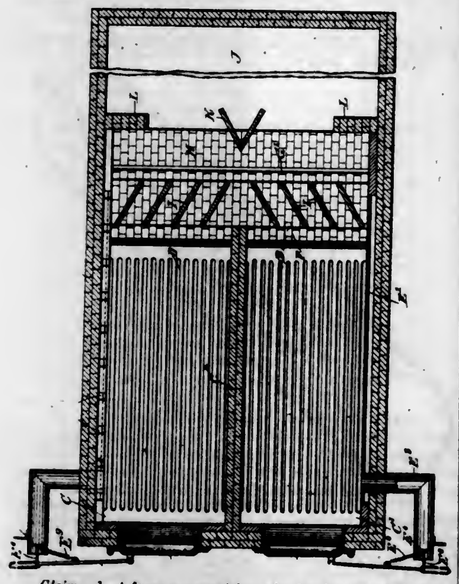
Claim.—1. A protector for rubber tires, consisting of independent sections, each section comprising a tread member and side members, the adjacent portions of the tread and side members being normally spaced apart when the section is in position on the tire, means for loosely connecting the tread member and side members of each section, the said connecting means permitting of the sliding movement of the tread member, and means for securing the sections to a wheel.

2. A protector for rubber tires, consisting of a series of independent sections arranged to overlap, each section comprising a tread member and side members, flanges formed upon the tread and side members at their opposing edges, bolts loosely connecting said flanges, and means for connecting the side members of the sections to a wheel.

3. A protector for rubber tires, consisting of a series of independent sections overlapping at their ends, each section comprising a tread member and side members, the side members being provided with lugs at their inner edges, opposing flanges located at the opposing edges of the side and the tread members of a section, and bolts loosely passed through opposing flanges, the lugs on the side members being apertured to receive bolts, as set forth.

4. The combination with a wheel and a rubber tire thereon, of a protector consisting of a series of independent sections covering the said tire and arranged to overlap, each section comprising a tread member conforming to the tread-section of the tire, and opposing side members, flanges located at the opposing edges of the side and the tread members of the sections, bolts loosely passed through opposing flanges, lugs extending from the inner edges of the side members of the sections, which lugs engage with the spokes of the wheel, and fastening devices passed through the said lugs at opposite sides of the spokes, as described.

786,098. FURNACE. EBEN S. CHASE, Salt Lake City, Utah, assignor to The Chase Smokeless Furnace Co., a Corporation of Utah. Filed July 14, 1904. Serial No. 216,523.



Claim.—1. A furnace comprising a fire-box having a fuel-chamber and an ash-pit connected by channels in the side walls of the fire-box with the fuel-chamber, a bridge-wall having an air-supply chamber, a mixing-chamber connected by a transverse slot with the top of said air-supply chamber, and deflectors set at angles between the mixing-chamber and the rear end of the fuel-chamber.

2. A furnace comprising a fire-box having a fuel-chamber and an ash-pit connected by channels in the side walls of the fire-box with the fuel-chamber, a bridge-wall having an air-supply chamber, a mixing-chamber above the air-supply chamber and connected by a transverse slot with the top of said air-supply chamber, deflectors set at angles between the mixing-chamber and the rear end of the fuel-chamber, a boiler, and a combustion-chamber in the rear of the mixing-chamber and connected with the flues of the boiler.

3. A furnace comprising a fire-box having a fuel-chamber and an ash-pit connected by channels in the side walls of the fire-box with the fuel-chamber, a bridge-wall having an air-supply chamber, a mixing-chamber connected with the said air-supply chamber, deflectors set at angles between the mixing-chamber and the rear end of the fuel-chamber, a boiler, a combustion-chamber in the rear of the mixing-chamber and connected with the flues of the boiler, and a spreader between the mixing-chamber and the combustion-chamber.

4. A furnace comprising a fire-box having a fuel-chamber and an ash-pit connected by channels in the side walls of the fire-box with the fuel-chamber, a bridge-wall having an air-supply chamber, a mixing-chamber connected with the said air-supply chamber, deflectors set at angles between the mixing-chamber and the rear end of the fuel-chamber, a boiler, a combustion-chamber in the rear of the mixing-chamber and connected with the flues of the boiler, and a spreader and wing-walls between the mixing-chamber and the combustion-chamber.

5. A furnace comprising two fire-boxes arranged one alongside the other, a bridge-wall for the said fire-boxes and provided with an air-supply chamber, a mixing-chamber in communication with the rear ends of both fire-boxes and located above the bridge-wall and connected at its bottom by a slot with the said air-supply chamber, the mixing-chamber having an arched roof and deflectors extending from the bridge-wall to the arched roof of the mixing-chamber, the deflectors being arranged between the slot and the rear ends of the fire-boxes.

6. A furnace comprising two fire-boxes arranged one alongside the other, a bridge-wall for the said fire-boxes, provided with an air-supply chamber, a mixing-chamber in communication with the rear ends of both fire-boxes and located above the bridge-wall and connected at its bottom by a slot with the said air-supply chamber, the mixing-chamber having an arched roof and deflectors extending from the bridge-wall to the arched roof of the mixing-chamber, the deflectors being arranged between the slot and the rear ends of the fire-boxes, the deflectors standing obliquely and the deflectors in the rear of one fire-box being arranged in an opposite direction to the deflectors in the rear of the other fire-box.

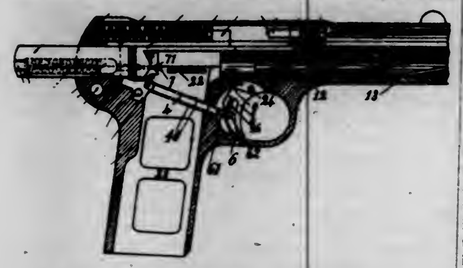
7. A furnace comprising two fire-boxes arranged one alongside the other, a bridge-wall for the said fire-boxes, provided with an air-supply chamber, a mixing-chamber in communication with the rear ends of both fire-boxes and located above the bridge-wall and connected at its bottom by a slot with the said air-supply chamber, the mixing-chamber having an arched roof, deflectors extending from the bridge-wall to the arched roof of the mixing-chamber, the deflectors being arranged between the slot and the rear ends of the fire-boxes, the deflectors standing obliquely and the deflectors in the rear of one fire-box being arranged in an opposite direction to the deflectors in the rear of the other fire-box, a combustion-chamber in the rear of the mixing-chamber, and a V-shaped spreader disposed vertically in the middle of the furnace, between the mixing-chamber and the combustion-chamber.

8. A furnace comprising two fire-boxes arranged one alongside the other, a bridge-wall for the said fire-boxes, provided with an air-supply chamber, a mixing-chamber in communication with the rear ends of both fire-boxes and located above the bridge-wall and connected at its bottom by a slot with the said air-supply chamber, the mixing-chamber having an arched roof, deflectors extending from the bridge-wall to the arched roof of the mixing-chamber, the deflectors being arranged between the slot and the rear ends of the fire-boxes, the deflectors standing obliquely and the deflectors in the rear of one fire-box being arranged in an opposite direction to the deflectors in the rear of the other fire-box, a combustion-chamber in the rear of the mixing-chamber, a V-shaped spreader disposed vertically in the middle of the furnace, between the mixing-chamber and the combustion-chamber, and wing-walls at the sides of the furnace, in transverse alinement with the said spreader.

786,099. REPEATING PISTOL. CHARLES P. CLEMENT, Liege, Belgium. Filed Apr. 3, 1903. Serial No. 150,930.

Claim.—1. A repeating pistol, comprising a frame, a cover-piece having a slot therein, downwardly-extending lugs at the rear of said cover-piece, a breech-block movable between said cover-piece and said frame and having upwardly-extending lugs entering the slot in the former, side lugs on said breech-block coöperating with said downwardly-extending lugs of the cover-piece for limiting the

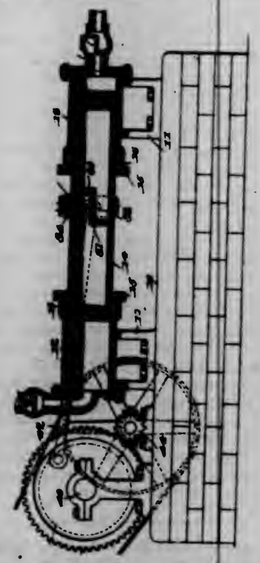
movement of said breech-block, a spring-actuated firing-pin in said breech-block, means for releasing the spring thereof, and a spring in said cover-piece for moving said breech-block in a forward direction.



2. A repeating pistol, comprising a frame, a cover-piece having a slot therein, a breech-block movable between said cover-piece and said frame and having upwardly-extending lugs slidable in said slot, a spring in said cover-piece for moving said breech-block in a forward direction, a stop at the front portion of said cover-piece, said stop having a flat tail passing between the upwardly-extending lugs on said breech-block for guiding the latter, a spring-actuated firing-pin in said breech-block, and means for releasing said firing-pin.

3. A repeating pistol, comprising a frame, a cover-piece, a breech-block movable between said cover-piece and said frame, a firing-pin movable in said breech-block, a spring interposed between the rear end of said firing-pin and the rear end of said breech-block, a lug on said firing-pin, a spring-actuated sear for engaging said lug, a rod pivoted to said sear and slidable in an opening in said frame, a spring-controlled trigger, a spring-actuated pawl pivoted to said trigger and operable to abut against the end of said rod, and a spring in said cover-piece for moving said breech-block in a forward direction and compressing the spring of said firing-pin when the lug on the latter is engaged by said sear.

786,100. PUMP. JAMES R. COMPTON, Alexandria, Tenn. Filed Dec. 16, 1904. Serial No. 237,097.

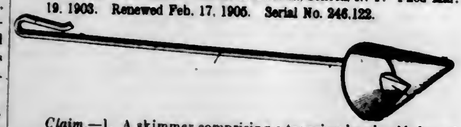


Claim.—1. In a pump, a pair of connected cylinders, open at their adjacent ends and provided with ports or piping connections at their outer ends, a plunger fitting within the two cylinders and provided with a partition having a fluid-passage, detachable valves arranged for closing the opposite ends of the plunger, and the passage of the central partition, and means for reciprocating said plunger.

2. The combination with a pump, of a pair of cylinders open at their adjacent ends and having piping connections at their outer ends, a reciprocating plunger fitting within both cylinders, a partition extending transversely of the plunger and provided with a fluid-passage, said plunger being further provided with a discharge-outlet in alinement with said fluid-passage, detachable valves at the opposite ends of the plunger, and a removable valve for closing the fluid-passage of the partition.

3. The combination in a pump structure, of a pair of axially-alined cylinders open at their outer ends, a plunger fitting within both cylinders, a partition dividing the plunger into two compartments, said partition having a fluid-passage, and the plunger being provided with an opening in alinement with the fluid-passage, a check-valve insertible through said plunger-opening and arranged to close the fluid-passage of the partition, a removable plug for closing the plunger-opening, removable valves for the opposite ends of the plunger, and a reversible check-valve disposed in one of the piping connections of the cylinders.

786,101. SKIMMER. LOUIS A. COOPER, Seneca, N. Y. Filed Mar. 19, 1903. Renewed Feb. 17, 1905. Serial No. 246,122.

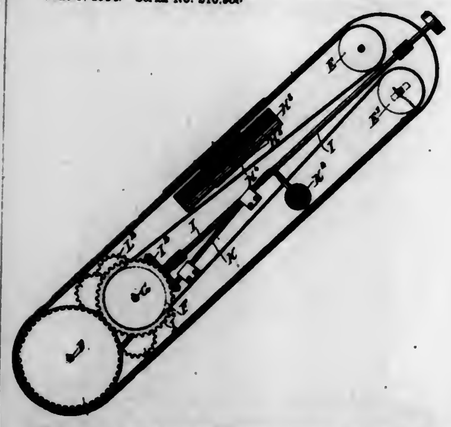


Claim.—1. A skimmer comprising a tapering bowl, a V-shaped inlet at one side thereof below the upper edge thereof, and a handle secured to said bowl, substantially as described.

2. A skimmer comprising a conical bowl, a trough-shaped inlet projecting into said bowl from one side thereof, and a handle secured to said bowl, substantially as described.

3. A skimmer comprising a tapering bowl with a trough-shaped inlet projecting into said bowl, and slanting downward, and a handle secured to said bowl, substantially as described.

786,102. CALCULATOR. ROBERT N. COOPER, Saybrook, Ill. Filed June 3, 1904. Serial No. 210,953.



Claim.—1. A calculator comprising a plurality of endless scale-tapes arranged one alongside the other, and manually-controlled means for imparting a traveling motion to the said tapes at the same or different speeds.

2. A calculator comprising a plurality of endless scale-tapes arranged one alongside the other, and means operated from a common source for imparting a traveling motion to the said tapes at the same or a different speed.

3. A calculator comprising a plurality of endless scale-tapes arranged one alongside the other, manually-controlled means for imparting a traveling motion to the said tapes, and means for holding either of the tapes against movement while the other travels.

4. A calculator comprising endless scale-tapes arranged side by side, means for operating the said tapes at the same or different speeds, and manually-controlled means for stopping the travel of either tape while the other tape is traveling.

5. A calculator comprising endless scale-tapes arranged one alongside the other, and a gearing for imparting a traveling motion to both tapes, provided with means for changing the traveling speed of the tapes, to cause the tapes to travel at the same speed or at a different rate of speed.

6. A calculator comprising endless scale-tapes arranged one alongside the other, and a gearing for imparting a traveling motion to both tapes, provided with means for changing the traveling speed of the tapes, to cause the tapes to travel at a ratio of two to one.

7. A calculator comprising endless scale-tapes arranged one alongside the other, and a gearing for imparting a traveling motion to both tapes, provided with means for changing the traveling speed of the tapes, to cause the tapes to travel at a ratio of three to one.

8. A calculator comprising a casing having a viewing-pane in the top and a like pane in the side, endless scale-tapes arranged one alongside the other and mounted to travel in the said casing, the upper faces of the tapes being viewable at the top viewing-pane, and a mirror in the casing for reflecting the under faces of the scale-tapes through the side pane.

9. A calculator comprising a casing having a viewing-pane in the top and a like pane in the side, endless scale-tapes arranged one alongside the other and mounted to travel in the said casing, the upper faces of the tapes being viewable at the top viewing-pane, a mirror in the casing for reflecting the under faces of the scale-tapes through the side pane, and means for imparting a traveling motion to the said tapes at the same or at a different speed, the said means being arranged within the casing and having manually-controlled parts extending to the outside of the casing for actuating the said means.

10. A calculator comprising a casing having a viewing-pane in the top and a like pane in the side, endless scale-tapes arranged one alongside the other and mounted to travel in the said casing, the upper faces of the tapes being viewable at the top viewing-pane, a mirror in the casing for reflecting the under faces of the scale-tapes through the side pane, means for imparting a traveling motion to the said tapes at the same or at a different speed, the said means being arranged within the casing and having manually-controlled parts extending to the outside of the casing for actuating the said means, and manually-controlled means within the casing and extending to the outside thereof to be within convenient reach of the operator, for stopping one of the tapes while the other is traveling.

11. A calculator comprising a casing having a viewing-pane in the top and a like pane in the side, endless scale-tapes arranged one alongside the other and mounted to travel in the said casing, the upper faces of the tapes being viewable at the top viewing-pane, a mirror in the casing for reflecting the under faces of the scale-tapes through the side pane, means for imparting a traveling motion to the said tapes at the same or at a different speed, the said means being arranged within the casing and having manually-controlled parts extending to the outside of the casing for actuating the said means, and manually-controlled means within the casing and having parts extending to the outside thereof to allow of varying the speed of the tapes.

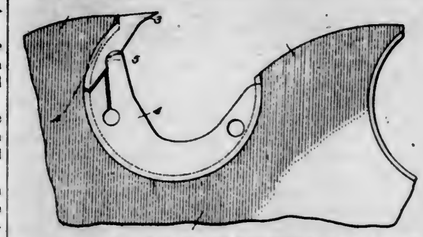
12. A calculator comprising a casing having a viewing-pane provided with a reading hair-line, endless scale-tapes arranged one alongside the other and mounted to travel in the said casing, and a mirror in the casing, to reflect the scales on the tapes through the said pane.

13. In a calculator, endless scale-tapes, wheels around which the tapes pass, a driven shaft, means for operating the said wheels from said shaft, pinions arranged one above the other and geared with the tape-carrying wheels, and a swinging pinion geared with the driven shaft and carrying a gear-wheel adapted to mesh with either of the first-named pinions.

14. In a calculator, endless scale-tapes, wheels around which the tapes pass, one of the wheels carrying a gear-wheel, a driven shaft, means for operating the wheels from the driven shaft, pinions arranged one above the other and each carrying a gear-wheel meshing with the gear-wheel of the tape-carrying wheel, an arm mounted to swing on the driven shaft, a pinion mounted in the said arm and carrying a gear-wheel adapted to mesh with either of the first-named pinions, and a gear-wheel on the driven shaft and meshing with the pinion on the swinging arm.

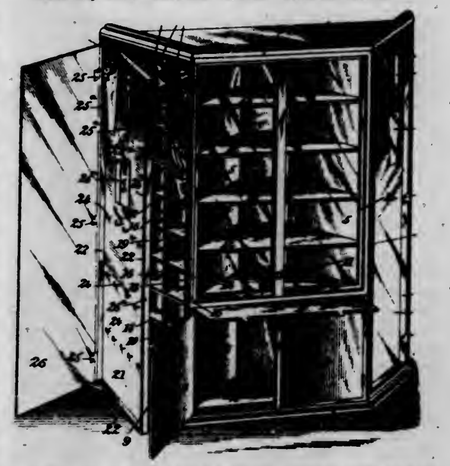
15. In a calculator, endless scale-tapes, wheels around which the tapes pass, means for operating the said wheels, spiders secured to the axis of the wheel, arms mounted to slide on the said axis, friction-bands having one end secured to the spiders and the other ends to the arms, said bands being adapted to engage the inner faces of the wheels, and operating-rods connected with the said sliding arms.

786,103. INSERTED-TOOTH SAW. WILLIAM J. CUMMINGS and SAMUEL ABERNETHY, Port Moody, Canada. Filed Apr. 13, 1904. Serial No. 203,979.



Claim.—An inserted saw-tooth comprising in combination with the saw-blade having a circular tooth-receiving portion provided with a V-shaped rib, said saw-tooth comprising a bit and a lock portion, said bit and said lock portion having V-shaped grooves to cooperate with the V-shaped rib of the saw-blade, said lock portion having a heel terminating in the circular end, a V-shaped groove extending in a circular direction in the end of the heel, the lowermost line of said heel-groove lying in the arc of a circle having a greater diameter than the arc of the circle of the extreme end of the heel portion, said tooth having a circular cut-away portion to receive the circular end of the heel portion of the lock, a V-shaped rib extending across said circular cut-away portion, the projecting edge of said rib forming a chord to the arc of the circle containing said circular cut-away portion of the tooth, said projecting edge of the rib adapted when the tooth and lock are in their normal position to enter the V-shaped circular groove of the heel and lie tangent to the curve of the groove, all being arranged substantially as shown and for the purposes described.

786,104. DISPLAY CABINET OR STAND. FRANK R. CURRIE, Mason City, Iowa. Filed Mar. 18, 1904. Serial No. 198,760.



Claim.—1. A display-cabinet having a compartment provided with a closure, said closure having in its outer face a compartment provided with means for supporting tools and the like, and a transparent closure for said latter compartment.

2. A display-cabinet constructed of a front compartment having a closure, and a side compartment having a closure, the latter comprising an inner door having outwardly-extending flanges at the edges thereof, and an outer glass door.

3. A display-cabinet, comprising a compartment having a closure, the latter being constructed of an inner door having outwardly-extending flanges at its edges, and an outer glass door.

4. A display-cabinet, comprising a compartment having a closure constructed of an inner swinging door having outwardly-extending flanges at its edges, and an outer glass door having swinging support upon the inner door.

5. A display-cabinet constructed with a compartment having a

closure, the latter compriaing an inner door having swinging support at the front of the compartment, and an outer door of glass, having awinging support on said first-named door.

6. A display-cabinet constructed with a compartment having a closure, the latter comprising an inner door having swinging support at the front of the compartment, and provided with suspending devices for articles, and an outer door of glass, having swinging support on said first-named door.

7. A display-cabinet, constructed with a front compartment having a closure, and a compartment on either side thereof also having a closure, the latter comprising an inner door having swinging support; and an outer door of glass having awinging support upon the inner door.

8. A display-cabinet, constructed with a front compartment having a closure, and a compartment on either side thereof also having a closure, the latter comprising an inner door having swinging support, and an outer door of glass having hinge connection with said inner door, said front compartment being provided with shelves.

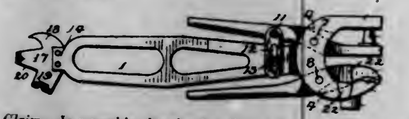
9. A display-cabinet, constructed with a front compartment having a closure, and a compartment on either side thereof also having a closure, the latter comprising an inner door having swinging support, and an outer door of glass having swinging support upon said inner door, each side compartment being provided with shelves.

10. A display-cabinet, constructed with a front compartment having a closure, and a compartment on either side thereof also having a closure, the latter comprising an inner door having swinging support, and an outer door of glass having swinging support upon said inner door, each side compartment being provided with pigeonholes.

11. A display-cabinet, constructed with a front compartment having a closure, and a compartment oneither side thereof also having a closure, the latter comprising an inner door having swinging support, and an outer door of glass for said swinging door, each side compartment being provided with pigeonholes, and the inner door of the closure thereof with suspending devices for articles.

12. A display-cabinet constructed with a front compartment having a closure, a cupboard beneath the same, and a compartment on either side thereof, also having a closure, the latter comprising an inner door having swinging support, and an outer door having swinging support upon said inner door.

786,105. **COMBINED TOOL.** JOHN W. CURRIER, North Troy, Vt., assignor to Evander F. Powers, Leominster, Mass. Filed Mar. 18, 1904. Serial No. 198,742.



Claim.—In a combined tool, a handle member provided with an offset jaw, a lever carrying a pivoted link and a removable punch extending in opposite directions from said lever, the lever being pivoted intermediate said link and punch to the handle member and adjustably connected to the handle member by a set-screw passing through said link, whereby the jaws of the handle member and lever may be used as a wrench when the punch is removed.

786,106. **TRANSOM-OPERATOR.** WILLIAM BOKSTEIN, London, England. Filed Oct. 14, 1904. Serial No. 228,423.

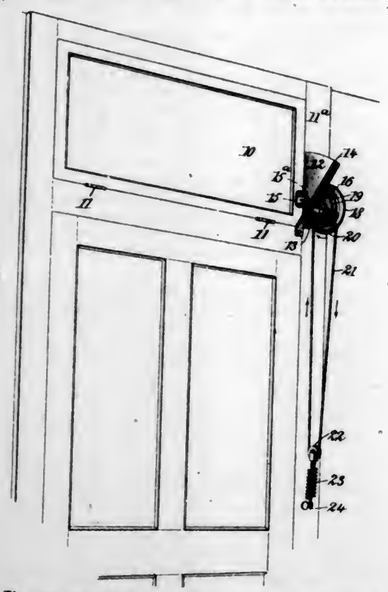
Claim.—1. The combination with a pivotally-mounted closure having a projection, of a member situated adjacent thereto and rotatable about a relatively fixed axis, said member being provided with a spiral groove into which the projection extends.

2. The combination with a pivotally-mounted closure having a projection, of a rotatable disk situated adjacent thereto and being provided at one side with a spiral groove into which the projection extends.

3. The combination with a pivotally-mounted closure having a projection, of a member situated adjacent thereto and rotatable about a relatively fixed axis, said member being provided with a spiral groove into which the projection extends, and a wheel attached to the rotatable member.

4. The combination with a pivotally-mounted closure provided with a projection, of a member rotatable about an eccentric axis and having a spiral groove into which the projection extends, and a wheel fixed to the member concentric with the axis.

5. The combination with a closure having a projection, of a bracket mounted adjacent to the closure, and a member rotatable upon the bracket and having a groove into which the projection extends.



6. The combination with a closure having a projection, of a bracket mounted adjacent to the closure and having a curved slot through which the projection extends, and a member rotatable upon the bracket at the opposite side from the closure and being provided with a groove to receive the projection.

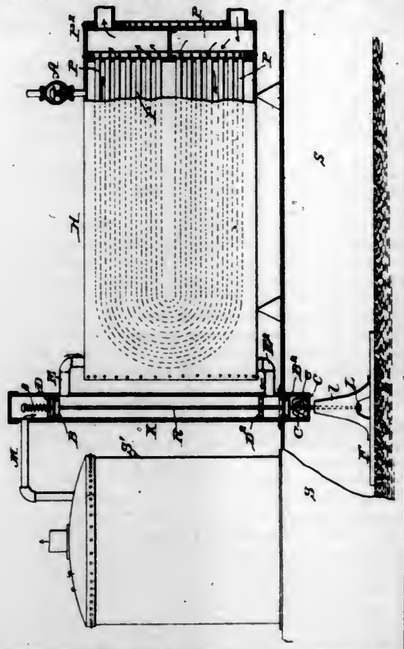
7. The combination with a closure having a projection, of a bracket mounted adjacent to the closure and being provided with a stop portion with which the closure may contact, and a member rotatable upon the bracket and having a groove into which the projection extends.

786,107. **BOILER-FEEDER.** CLARK E. FINCH, Forney, Tex. Filed Oct. 10, 1904. Serial No. 227,860.

Claim.—1. An automatic boiler-feed, comprising an upright valve-chamber having its lower end opening into the boiler, a feed-water chamber having an inlet check-valve for water, said feed-water chamber having a pipe connecting its upper part with the valve-chamber and another pipe connecting its lower part with the valve-chamber, a pipe connecting the steam-space of the boiler with the upper part of the valve-chamber, a valve-stem arranged in the valve-chamber and carrying two downwardly-opening valves, the upper one being located between the steam-pipe leading from the boiler and the steam-pipe leading to the feed-water chamber, and the lower valve being located between the boiler and the water-pipe leading from the feed-chamber and a float arranged in the boiler and connected to the valve-stem to operate the same by the rise and fall of the water-level as described.

2. An automatic boiler-feed, comprising an upright valve-chamber having its lower end opening into the boiler, a feed-water chamber having an inlet check-valve for water, said feed-water chamber having a pipe connecting its upper part with the valve-chamber and another pipe connecting its lower part with the valve-chamber, a pipe connecting the steam-space of the boiler with the upper part of the valve-chamber, a valve-stem arranged within the valve-chamber and carrying two downwardly-opening valves, the upper one being located between the steam-pipe leading from the boiler and the steam-pipe leading to the feed-water chamber, and the lower valve being located between the boiler and the water-pipe leading from the feed-chamber, a float arranged in the boiler and connected to the valve-stem, catches for holding the valve-stem down and the valves open and a spring for lifting and closing the valves substantially as described.

3. An automatic boiler-feed, comprising an upright valve-chamber having its lower end opening into the boiler, a feed-water chamber having an inlet check-valve for water, said feed-water chamber having a pipe connecting its upper part with the valve-chamber and another pipe connecting its lower part with the valve-chamber, a pipe connecting the steam-space of the boiler with the upper part of the valve-chamber, a valve-stem arranged within the valve-chamber and carrying two downwardly-opening valves, the upper one being located between the steam-pipe leading from the boiler and the steam-pipe leading to the feed-water chamber and the lower valve being located between the boiler and the water-pipe leading from the feed-chamber, a float arranged in the boiler and connected to the valve-stem and sliding thereon, catches for holding the valve-stem and valves down, a spring for raising and opening the valves, said float being provided with a projection adapted to strike and release the catches substantially as described.



4. In an automatic boiler-feed of the kind described, an upright valve-chamber having its lower end opening into the boiler, a valve-stem arranged within the valve-chamber, a locking device arranged in the valve-chamber to engage the valve-stem and hold open the valves, and a float arranged in the boiler and sliding on the valve-stem and having a central projection adapted to enter the valve-chamber and to strike against and release the locking devices substantially as shown and described.

5. The combination with a steam-boiler, and a feed-water-supply chamber; of an upright valve-chamber having its lower end opening into the boiler and also into the lower portion of the feed-water chamber and its upper end opening into the steam-space of the boiler and also into the upper portion of the feed-water chamber, a valve-stem completely housed within the valve-chamber and bearing at its upper end a valve controlling the flow of steam to the top of the water-supply chamber, and at its lower end another valve controlling the flow of water from the water-supply chamber to the boiler and a float arranged in the boiler and operating the valve-stem and valves substantially as described.

786,108. **ROAD-SMOOTHER.** JEFFERSON FORCE, Craig, Nebr. Filed July 30, 1904. Serial No. 218,350.

Claim.—1. A road-smoother, comprising a pair of frames detachably connected together end to end at one point, having an adjustable connection with each other at another point, and adapted to assume a position in tandem, or at a slight angle to each other.

2. The combination of a pair of frames each having longitudinal scraping-blades or runners, and means for holding said frames end to end in a straight line or at any desired angle to each other.



3. The combination of a pair of frames each having parallel longitudinal scraping-blades or runners secured to its lower surface, a universal joint for connecting them together, and means for holding said frames end to end at any desired angle to each other.

4. The combination of a pair of frames each having longitudinal scraping-blades or runners, and means for holding said frames end to end in a straight line or at any desired angle to each other, said means comprising a pivotal connection with the frames at one side thereof and an adjustable connection at the other side.

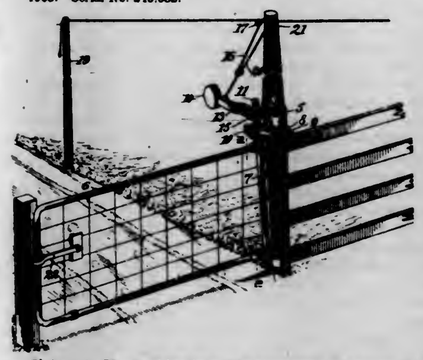
5. The combination of a pair of frames each having longitudinal scraping-blades or runners, and means for holding said frames end end to in a straight line or at any desired angle to each other, said means comprising a pivotal connection between adjacent ends of the frames at one side but near the same end, an eye on each frame at the other side, a chain connecting said eyes, and means for adjusting the length of the chain between the eyes.

6. A device of the class described, comprising a plurality of frames having blades on their bottoms arranged in tandem and having a draft device secured to the side thereof, and another draft device secured to the end of one of the sections.

7. A device of the class described, comprising a plurality of frames having parallel blades upon their lower surfaces arranged in tandem, and having a draft-chain secured to one side of each of the frames, another draft device secured at the front end of one of the frames, and means for adjustably securing said frames together.

8. A scraper comprising a frame having a pair of blades projecting downwardly from the bottom thereof, fixed in parallel position and adapted to serve as scrapers when the frame is drawn sidewise and as runners when it is drawn lengthwise.

786,109. **GATE.** PETER C. FORRESTER, Streator, Ill. Filed Jan. 7, 1905. Serial No. 240,052.

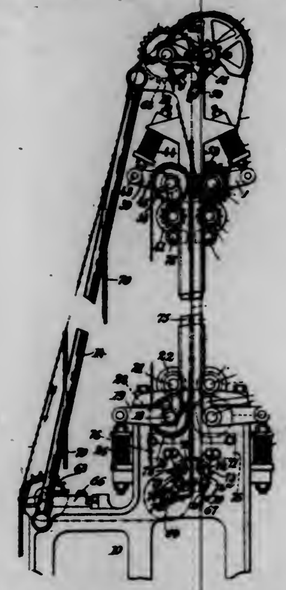


Claim.—1. The combination with a gate-post, of a hinge-plate, link connections between said plate and the post, a weighted lever mounted to swing on the post, a yoke pivoted to said lever between its free end and fulcrum, a gate having a pintle-stile extended through said hinge-plate and yoke, a bearing for the lower end of the pintle-stile, and means for swinging said lever.

2. The combination with a gate-post, of a band secured to the post, a hinge-plate, link connections between said band and plate at opposite sides of the post, a weighted lever mounted to swing on the post above the hinge-plate, a yoke pivoted to said lever between its free end and fulcrum, a gate having a pintle-stile, the upper end of which above the gate extends loosely through said hinge-plate and the yoke, and a bearing on the gate-post receiving the lower end of the pintle-stile.

3. The combination with a gate-post and a gate, of a hinge-plate through which the gate-stile loosely passes, links pivoted to the hinge-plate and having swinging connection with the gate-post, a weighted lever mounted to swing on the gate-post, and a yoke pivoted to the lever and through which the gate-stile loosely passes.

786,110. LEATHER-POLISHING MACHINE. WILLIAM H. GEARY, New York, N. Y. Filed Aug. 15, 1903. Serial No. 169,610.



Claim.—1. A leather-working machine, comprising an upright frame, endless chains, sprockets for the chains mounted on shafts at the upper and lower part of the frame, one run of the chains passing vertically, leather-carrying boards carried by said chains, sets of leather-working devices arranged one set above the other, and comprising rolls mounted in said frame and between which said boards are adapted to pass, scrapers located below the lower set of rolls and between which the boards pass, arms arranged to swing on the shafts carrying the upper sprockets for the endless chains, a shaft carried by the arms, a sprocket-wheel and chain for driving said shaft, the chain being driven from the leather-working devices, adjusting devices for the arms carrying the shaft to regulate the tension of the chain driving said shaft, a driving connection between the said shaft and the upper sprockets for the carrier-chains, and means for driving the leather-working devices.

2. A leather-working machine, comprising a frame, endless chains mounted on the frame with one run in a vertical plane, a leather-carrying board carried by said chains, two sets of leather-polishing rolls mounted in said frame one set above the other, the members of each pair of rolls being located respectively on opposite sides of the path of said board, a tension device for the respective rolls of each set, to press the rolls of a set toward each other, scrapers located below the lower set of rolls and between which the board passes, tension devices for the scrapers, means for driving the sets of leather-polishing rolls, and means for driving the endless chains from said polishing-rolls as set forth.

3. A leather-working machine comprising an upright frame, endless chains mounted on the frame with one run in a vertical plane, leather-carrying boards carried by said chains, pairs of vertical guide-rails located respectively at the sides of the frame and having their members spaced from each other and between which members the boards are adapted to pass, brackets for holding the guide-rails in position on the frame, two sets of leather-working rolls mounted in said frame, one set above the other, the said boards being adapted to pass between the pairs of rolls of each set, a tension device for each roll to press the rolls of a set toward each other, means for driving the chains carrying the boards from the leather-working devices, and means for operating the rolls.

4. In a leather-working machine, the combination of two leather-working rolls, swinging arms mounting said rolls to move toward and from each other, the arms being mounted on separate axes, a gear arranged to turn around the axis of each of said arms, the gears being intermeshed, a sleeve carrying one of said gears and mounted loosely on the said axis, means for driving said sleeve, a gear in connection with each leather-working roll and meshed respectively with the first-named gears, similar leather-working rolls mounted on swinging arms and located above the first-mentioned set of rolls, a driving connection between the said sleeve and a similar sleeve mounted loosely on the axes of one of said last-mentioned swinging arms, means for driving the said rolls from the last-mentioned sleeve, a sprocket-wheel, means for driving the same from said last-mentioned sleeve, chains driven by said sprocket-wheel, and leather-carrying boards carried by the chains and arranged to pass between the leather-working rolls of each pair.

5. In a leather-working machine, the combination with a shaft, of a driving-sleeve loosely mounted on one end of the shaft, an arm at the other end of the shaft, two elbow-levers attached to the shaft near the first-mentioned end, a leather-working roll having its shaft journaled in corresponding arms of the elbow-levers and the arm attached to the shaft, a rod extending between the other arms of the elbow-levers, a tension device connected with said rod, and means for driving the leather-working roll from the said sleeve.

6. In a leather-working machine, the combination with a frame, and leather-working devices mounted thereon of arms arranged to swing at the upper end of the frame, a shaft carried by the arms, means including a chain for driving said shaft from the leather-working devices, a sprocket-wheel driven from the said shaft, a chain driven by the sprocket-wheel, leather-carrying means attached to the chain, adjusting devices for the arms carrying the shaft to regulate the tension of the chain driving said shaft, and means for operating the leather-working devices.

7. In a leather-working machine, the combination with a frame, and with leather-working devices mounted thereon, of arms arranged to swing at the upper end of the frame, a shaft carried by the arms, means including a sprocket-wheel and chain for driving said shaft from the leather-working devices, adjusting devices for said arms by which to regulate the tension of the chain, a gear in connection with the shaft, a second gear meshed with the first-named gear, a sprocket-wheel connected with the second-named gear, a chain driven by the sprocket-wheel, and a leather-carrying means attached to the chain.

8. In a leather-working machine, the combination with a shaft, of a driving-sleeve loosely mounted on one end of the shaft, a vertically-extending arm at the other end of said shaft, two elbow-levers attached to the shaft near the first-mentioned end, and having vertical and horizontal arms, a leather-working roll having its shaft carried by the several vertical arms, a rod extending between the horizontal arms of the elbow-levers, a tension device connected with the said rod and comprising an expansive spring pressing on the horizontal arms of the elbow-levers, a gear in connection with the loosely-mounted driving-sleeve, and a second gear in connection with the leather-working roll and meshed with the first-named gear.

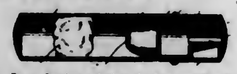
9. In a leather-polishing machine, the combination of a skin-carrying table, means for mounting and moving the same, a leather-polishing roll mounted at each side of the path of the table, means for driving said rolls, scrapers located at each side of the path of the table below the said rolls, rock-shafts carrying said scrapers, elbow-levers carried by said rock-shafts, screws connected with said levers and passing loosely through fixed lugs on the frame, springs encircling said screws between the levers and the lugs, and means carried by the screws for limiting the inward movement of the scrapers.

786,111. ALIMENTARY COMPOSITION. BARTH GOLLWITZER, Antwerp, Belgium. Filed Sept. 22, 1904. Serial No. 225,398.

Claim.—1. An alimentary composition, containing a mixture of cow's milk, pig's blood, spinach, butter, sugar and calcium phosphate.

2. A cake or zwieback made from an alimentary composition containing a mixture of cow's milk, pig's blood, boiled and finely-chopped spinach, butter, sugar, calcium phosphate, a suitable seasoning, and flour.

786,112. INHALER. MILTON D. GOOD, Kansas City, Mo. Filed Sept. 13, 1904. Serial No. 224,291.



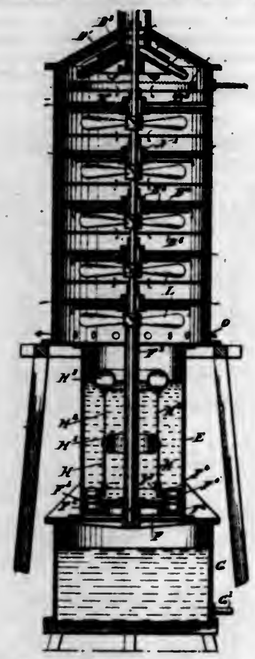
Claim.—1. In a device of the class described, a hollow body, a removable and reversible nozzle therefor, said nozzle being provided with an air-passage therethrough, and a cap adapted to seat over one end of the nozzle and provided with an air-opening.

2. In a device of the class described, a hollow body, a removable nozzle therefor, said nozzle having an air-passage therethrough and being provided with a mouthpiece, and a cap adapted to seat over one end of the nozzle and having an air-opening.

3. In a device of the class described, a nozzle having a passage therethrough and a projecting mouthpiece, and a cap adapted to seat over one end of the nozzle and having a lateral opening, said cap being provided in its end wall with an air-opening.

4. In a device of the class described, a tubular body having one of its walls provided with an air-opening, and a nozzle-section having a passage therethrough and adapted to be removably seated in one end of the body, said nozzle being reversible and provided with a mouthpiece and a nose-piece oppositely disposed and extended.

786,113. APPARATUS FOR COOLING LIQUIDS. CHARLES GROSMAN, Carteret, N. J. Filed Jan. 20, 1904. Serial No. 189,810.



Claim.—1. An apparatus for cooling liquids, comprising a turbine, a reservoir above the turbine for the accumulation of the cooled water, and for forming a head for the turbine, a cooling-chamber above the reservoir for the downflow of the water to be cooled, and means driven by the turbine and located in the upper part of the cooling-chamber for forcing air and the vapors rising during the cooling process in a downward direction in the cooling-chamber.

2. An apparatus for cooling liquids comprising a turbine, a reservoir above the turbine for the accumulation of the cooled water, and for forming a head for the turbine, a cooling-chamber above the reservoir and having means for a zigzag downflow of the water, fans in the said cooling-chamber and secured to the extended shaft of the turbine to be driven by the latter, and air-supply devices for the said fans, as set forth.

3. An apparatus for cooling liquids comprising a turbine, a reservoir above the turbine for the accumulation of the cooled water, and for forming a head for the turbine, a cooling-chamber above the reservoir and having means for a zigzag downflow of the water, fans in the said cooling-chamber and secured to the extended shaft of the turbine to be driven by the latter, and air-supply devices for the said fans, and consisting of sets of pipes each set leading from the outside of the cooling-chamber to an air-chamber opening at its open lower end onto a corresponding fan, as set forth.

4. An apparatus for cooling liquids comprising a turbine, a reservoir above the turbine, for the accumulation of the cooled water and for forming a head for the turbine, means for controlling the admission of the water to the turbine, a cooling-chamber above the reservoir, means driven from the turbine for forcing air in the cooling-chamber to cool the liquid flowing down the cooling-chamber, and means located in the upper part of the cooling-chamber and driven from the turbine, for forcing the vapors, rising during the cooling process, in a downward direction in the cooling-chamber, as set forth.

5. An apparatus for cooling liquids, comprising a turbine, a reservoir above the turbine, for the accumulation of the cooled water and for forming a head for the turbine, a cooling-chamber through which flows the liquid to be cooled, means driven from the turbine for forcing outside air through the cooling-chamber, and a blower at the top of the cooling-chamber for forcing the vapors rising during the cooling process in a downward direction in the chamber, the said blower having its movable member secured to the shaft of the turbine, as set forth.

6. An apparatus for cooling liquids, comprising a turbine, a reservoir above the turbine, for the accumulation of the cooled water and for forming a head for the turbine, means for controlling the admission of the accumulated water to the turbine, a cooling-chamber above the reservoir through which flows the water to be cooled, means driven by the turbine for forcing a current of air in the cooling-chamber, to cool the liquid flowing down the cooling-chamber, a receiving-chamber into which discharges the turbine, and means located in the upper part of the cooling-chamber for forcing the vapors rising during the cooling process in a downward direction in the cooling-chamber, as set forth.

7. An apparatus for cooling liquids comprising a cooling-chamber having a circuitous passage for the downflow of the liquid, a blower connected with said chamber, and comprising a shell having air-inlets and a conical flange, and a revolving member in the shell having spaced cones and curved wings between the cones, and means for driving the blower, as set forth.

8. An apparatus for cooling liquids, comprising a cooling-chamber having a circuitous passage for the downflow of the liquid, means for forcing outside air through the chamber, and a blower in the upper end of the chamber, having its inlet and outlet in the chamber, for forcing vapors in a downward direction in the chamber, as set forth.

9. An apparatus for cooling liquids provided with a cooling-chamber having a water-inlet at its upper end, sets of plates in the chamber for causing the water to flow from one plate onto the other in a zigzag direction, fans under alternate plates, and air-supply pipes for delivering fresh air from the outside to the fans, as set forth.

10. An apparatus for cooling liquids provided with a cooling-chamber having a water-inlet at its upper end, sets of plates in the chamber for causing the water to flow from one plate onto the other in a zigzag direction, fans under alternate plates, and air-supply pipes for delivering fresh air from the outside to the fans by way of air-chambers open at the bottom and leading to the top of the fans at the hubs thereof, as set forth.

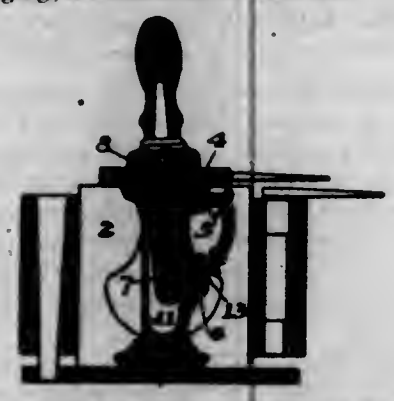
11. An apparatus for cooling liquids comprising a cooling-chamber having a circuitous passage for the downflow of the liquid, means for forcing air through the chamber, and a blower at the top of the chamber comprising a shell having air-inlets and a conical flange, and a revolving member in the shell having spaced cones, and curved wings between the spaced cones, as set forth.

12. An apparatus for cooling liquids comprising a turbine, a reservoir above the turbine for the accumulation of the cooled water and for forming a head for the turbine, a cooling-chamber above the reservoir, fans in the said cooling-chamber and secured to the extended shaft of the turbine to be driven by the latter, air-supply pipes for delivering air from the outside of the apparatus to the fans, and a blower in the upper part of the cooling-chamber and having its movable member secured to the shaft of the turbine, as set forth.

13. An apparatus for cooling liquids provided with a cooling-chamber having an outlet in its bottom for the cooled liquid and provided with a circuitous passage for the downflow of the liquid, an overflow-plate at the upper part of said chamber having a central discharge-opening and a raised overflow edge on said plate surrounding the opening, an inlet-pipe for the liquid extending into the side of the chamber directly above the overflow-plate, means for forcing outside air through the cooling-chamber, and a flue at the top of the cooling-chamber for the passage of air, as set forth.

786,114. BLOW-MOLD FOR HANDLED GLASSWARE. ALBERT R. GROTE, Wellsburg, W. Va., assignor of one-half to Eagle Glass and Manufacturing Company, Wellsburg, W. Va., a Corporation of West Virginia. Filed Nov. 1, 1904. Serial No. 230,941.

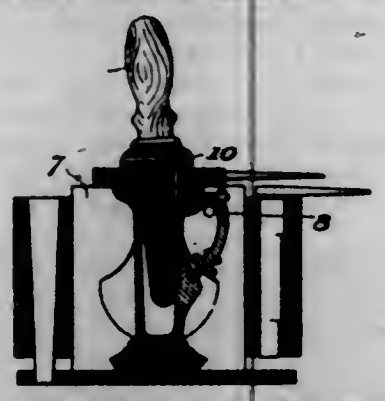
Claim.—1. A blow-mold for handled ware having a pin projecting from one half of the mold and a recess in the other half arranged to receive the same, said pin being adapted to support the pressed handle against sagging; substantially as described.



2. In the manufacture of handled ware, a blow-mold, and hand chilling device arranged to enter the mouth of the mold and chill at least a portion of the pressed blank thereon; substantially as described.

3. In the manufacture of handled ware, a blow-mold and a hand chilling device arranged to enter the mold-opening and chill and press the glass therein; substantially as described.

786,115. METHOD OF MAKING HANDLED GLASSWARE. ALBERT R. GROTZ. Wellsburg, W. Va., assignor of one-half to Eagle Glass and Manufacturing Company, Wellsburg, W. Va., a Corporation of West Virginia. Filed Nov. 1, 1904. Serial No. 230,942.



Claim.—1. The method of forming handled glassware, consisting in pressing a hollow blank with a continuous wall having a thickened portion under the lower end of the handle, and then expanding the lower part of the hollow blank to final form; substantially as described.

2. The method of making handled glassware, consisting in pressing a blank with a small pin connection between the lower end of the handle and the blank, and then expanding the blank to final form; substantially as described.

3. The method of forming handled glassware, consisting in pressing a blank with a thick wall on one or more sides and a small pin connection between said walls, and the lower end of the handle, then expanding the blank, and forcing the pin upwardly into the lower end of the handle; substantially as described.

4. The method of forming handled glassware, consisting in pressing a blank with a thicker wall beneath the handle, chilling this thicker portion, and then expanding the blank; substantially as described.

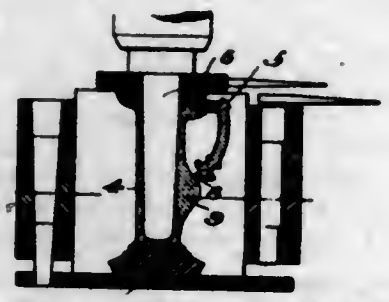
5. The method of forming handled glassware, consisting in pressing a blank with a thicker wall beneath the handle, chilling and partially expanding this thicker portion, and then expanding the blank; substantially as described.

6. The method of forming handled glassware, consisting in pressing a hollow blank with an integral handle, inserting the blank in a blow-mold, and supporting the handle against sagging, and then blowing the blank to final form; substantially as described.

7. The method of forming handled glassware, consisting in pressing a blank with a bridge connection between the lower end of the handle and the blank-body, and then expanding the body in a blow-mold; substantially as described.

786,116. PRESS-MOLD FOR HANDLED GLASSWARE. ALBERT R. GROTZ. Wellsburg, W. Va., assignor of one-half to Eagle Glass and Manufacturing Company, Wellsburg, W. Va., a Corporation of West Virginia. Filed Nov. 1, 1904. Serial No. 230,943.

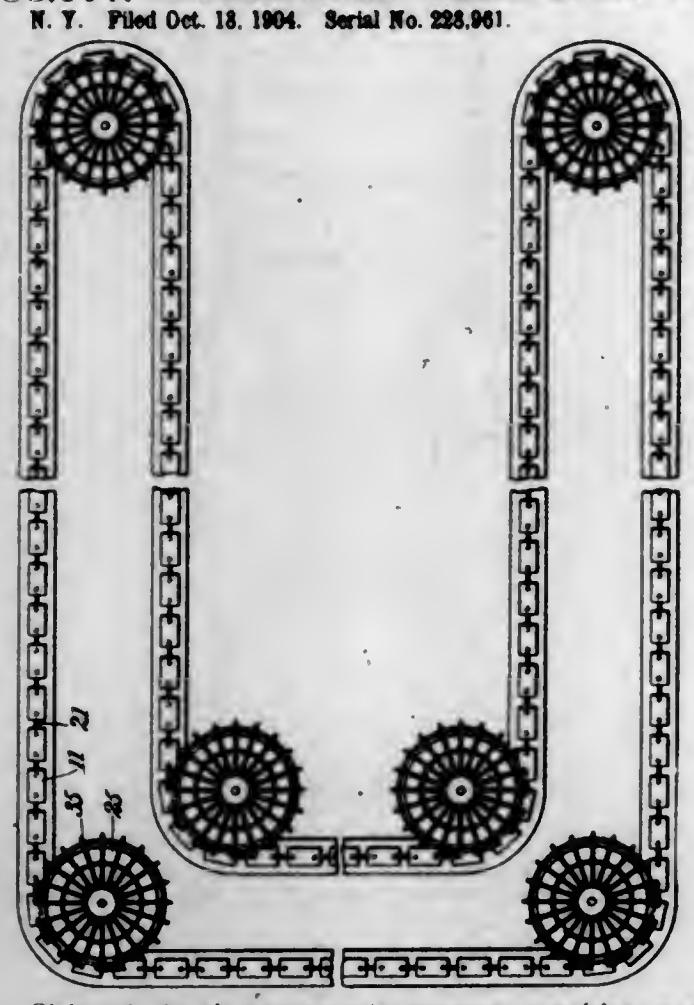
Claim.—1. A press-mold for handled glassware having a handle-forming cavity connected at both ends with the body-forming cavity, said connection at the lower end of the handle being reduced in size to form a relatively small neck or channel; substantially as described.



2. A press-mold for handled ware, having a body-forming cavity recessed or cut away at the lower end of the handle-forming cavity, and arranged to form a thicker wall of the glass article in this portion; substantially as described.

3. A press-mold for handled ware having its body-forming portion recessed to form a thick wall of glass at one or more sides, and a handle-forming cavity connecting therewith by a narrow neck or channel; substantially as described.

786,117. OBSERVATION-TRAIN. CLAUDE L. HAGEN. New York, N. Y. Filed Oct. 18, 1904. Serial No. 228,961.



Claim.—1. An observation-train structure comprising an elevated endless track, cars movable along the track, a rotary platform arranged at a curve in the track and a part rotating with the platform for moving the cars.

2. An observation-train comprising an elevated endless track, an endless chain of cars movable along the track, the said cars being arranged in pairs at opposite sides of the track, and link connections between adjacent pairs of cars.

3. An observation-train comprising an elevated endless track, fixed platforms extending along portions of said track, an endless chain of cars movable along the track, the said track having curved portions, rotary platforms at said curved portions, and parts carried by said rotary platforms for engaging the parts carried by the cars for imparting movement to said cars along the track.

4. An observation-train comprising an endless track having curves or turns, an endless chain of cars movable along the track, rotary masts arranged at the curves or turns, platforms carried by said masts, means for imparting rotary motion to the masts, and arms extending from the masts for engaging with parts attached to the cars.

5. An observation-train comprising posts, a track-rail support-

ed on the upper ends of said posts, a lower rail attached to said posts, rollers engaging with the upper rail, hangers depending from said rollers, cars attached to said hangers, rollers on said cars for engaging the outer sides of the lower rail, and means for moving the cars along the track.

6. An observation-train comprising an elevated endless track cars arranged in pairs, rollers for supporting the cars of a pair and engaging with said track, link connections between pairs of cars, holding-guards connected to the adjacent ends of pairs of cars, platform-sections carried by the cars, platform-sections carried by the guards, and engaging with the first-named sections, and means for moving the cars along the track.

7. An observation-train comprising an endless elevated track-rail having curves, an endless chain of cars movable along the track-rail, masts arranged to rotate at the curves, flooring-platforms carried by said masts, landing-platforms carried by the masts, stairway connections between the platforms, platforms carried by the cars and substantially on a plane with said landing-platforms, and radial arms on the masts for engaging with parts attached to the cars.

8. An observation-train comprising an elevated endless track, an endless chain of cars movable along said track, the said cars being arranged in pairs back to back, and yielding roof members over each pair of cars.

9. An observation-train comprising an elevated endless track, an endless chain of cars, sleeves to which said cars are connected, a pair of rollers for each pair of cars having stem portions extending from their frames into said sleeves, springs arranged between the frames and sleeves, platform-sections carried by the cars, fixed platform-sections arranged along the track, and means for moving the sections along the track.

10. An observation-train comprising an elevated endless track, cars arranged in pairs and having roller connections with said track, the cars of one pair having link connection with the cars of another pair, a lower endless track, rollers carried by the cars for engaging with the said lower track, guard-nettings at the ends and back of each car, and means for moving the cars along the track.

786,118. RAIL-JOINT. ELMER E. HARRISON, Herington, Kans. Filed Dec. 9, 1904. Serial No. 236,196.



Claim.—1. The combination with a pair of rails, of a splice-bar fitted between the meeting ends thereof and having integral fish-plates bearing against said rails, said splice-bar being separated longitudinally into two parts.

2. The combination with a pair of rails, having cut-away meeting ends, of a splice-bar fitted between and conforming to said meeting ends, said splice-bar having integral fish-plates bearing against the rails.

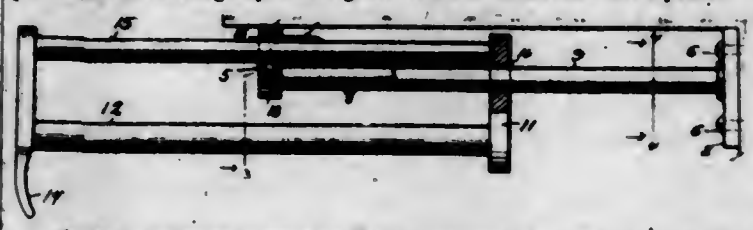
3. The combination with a pair of rails, having cut-away meeting ends, of a wedge-shaped splice-bar fitted between said meeting ends and having integral fish-plates resting against the webs and covering the base portions of said rails.

4. The combination with a pair of rails, each cut away on an incline from its base portion to its head, of a wedge-shaped splice-bar fitting into and filling the cut-away portions of said rails, and having integral fish-plates resting against the webs and covering the base portions of said rails, said fish-plates having shoulders disposed beneath the heads of said rails and being formed with inclined ends.

5. The combination with a pair of rails, of a splice-bar fitted between the ends thereof and having integral fish-plates bearing against said rails, said splice-bar being separated longitudinally into two parts.

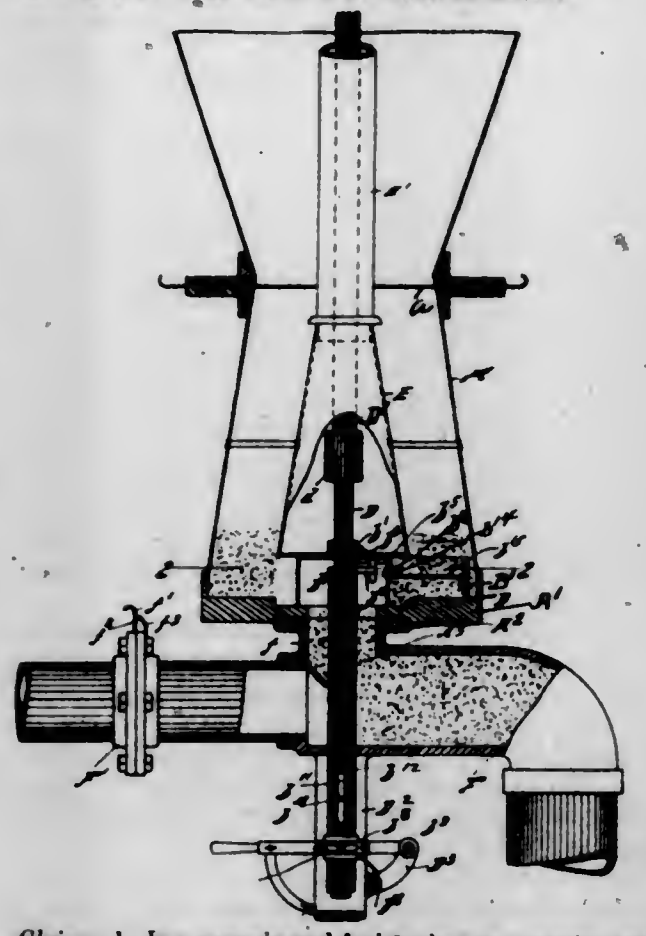
786,119. GARMENT-SUPPORTER FOR TRUNKS, &c. EUGENE W. HAWLEY, Milwaukee, and GEORGE H. WEBARY, Racine, Wis., assignors to The Hartmann Trunk Company, Racine, Wis. Filed Dec. 1, 1904. Serial No. 235,020.

Claim.—1. A garment-supporter for receptacles comprising rear and top attaching-plates for direct attachment to the top and rear walls of said receptacles, guide-rods rigidly connecting said attaching-plates; a plate movable on said guide-rods; a front plate; an upper guide-rod rigidly uniting the front and movable plates, and passing through the top attaching-plate, and a lower garment-supporting rod also rigidly uniting the said front and movable plates.



2. In a garment-supporter for receptacles, the combination with rear and top supporting-plates and guide-rods rigidly uniting them, of a movable plate and front plate, and upper and lower rods rigidly uniting them, the said movable plate having reciprocative movement on the said guide-rods, and the said upper rod passing through the top attaching-plate against an antifriction-ball supported within the latter, while the said lower rod affords a support for the suspension of the garments.

786,120. COMMINUTED-FUEL-FEEDER DEVICE. JOHN F. HAY, Erie, Pa. Filed Oct. 17, 1902. Serial No. 127,676.



Claim.—1. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; and a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis.

2. In a comminuted-fuel feeder, the combination with a blast; a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening radially to its axis; and means for extending said flight to vary the amount fed.

3. In a comminuted-fuel feeder, the combination with a blast; a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening radially to its axis; and means for extending said flight vertically to vary the amount fed.

4. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; and a cover carried by said flight and extending radially therefrom.

5. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; and a wall for checking the direct flow of fuel from the platform to the opening, said wall having an opening adjacent to the flight.

6. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; a wall for checking the direct flow of fuel from the platform to the opening, said wall having an opening adjacent to the flight; and means for varying the area of opening adjacent to the flight.

7. In a comminuted-fuel feeder the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; a cover extending radially from the flight and forming a web for supporting the flight; a wall carried by said cover, the cover and wall being arranged to prevent the flow of fuel to discharge-opening.

8. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; and a second flight arranged to actuate fuel moved by the first flight in a radial direction.

9. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; and a second flight arranged to actuate fuel moved by the first flight in a radial direction; and a cover bridging the space between the first and second flight.

10. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; and a second flight arranged to actuate fuel moved by the first flight in a radial direction; a wall extending from the second flight and preventing the direct flow of fuel to the discharge-opening.

11. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; a second flight arranged to actuate fuel moved by the first flight in a radial direction; a wall for preventing the direct flow of fuel through the discharge-opening, said wall having an opening adjacent to the said flights; and means for moving one of said flights to vary the extent of said opening adjacent to said flights.

12. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; and a second flight arranged to actuate fuel moved by the first flight in a radial direction; a wall for preventing the direct flow of fuel through the discharge-opening, said wall having an opening adjacent to the said flights; and means for extending one of said flights to vary the feed.

13. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered, having an opening leading to the blast; a flight rotatively mounted and arranged to move fuel on said platform toward said opening and radially to its axis; a second flight arranged to actuate fuel moved by the first flight in a radial direction; a wall for preventing the direct flow of fuel through the discharge-opening, said wall having an opening adjacent to the said flights; means for moving one of said flights to vary the extent of said opening adjacent to said flights; and a dial for indicating the amount of opening adjacent to said flights.

14. In a comminuted-fuel feeder the combination with a blast; of a platform onto which fuel is delivered; a connection between the platform and the blast arranged at the center of the platform; a flight rotatively mounted and arranged to move fuel on said platform toward the connection at the center; and a wall for checking the direct flow of fuel from the platform to the connection.

15. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which the fuel is delivered; a connection between the platform and the blast, said connection being arranged at the center of the platform; a flight rotatively mounted and arranged to move fuel on said platform toward said connection at the center; a wall for checking the direct flow of fuel from the platform to the connection, said wall having an opening adjacent to the flight and means for varying the area of the opening.

16. In a comminuted-fuel feeder the combination with a blast; of a platform onto which fuel is delivered; a connection between the platform and the blast arranged at the center of the platform; a flight rotatively mounted and arranged to move fuel toward said connection on said platform; and the second flight arranged to actuate fuel, moved by the first flight, into the connection.

17. In a comminuted-fuel feeder, the combination with a blast; of a platform onto which fuel is delivered; a connection between the platform and the blast, said connection being arranged at the center of the platform; a flight rotatively mounted, and arranged to move fuel on said platform toward said connection; a second flight arranged to actuate fuel moved by the first flight into said connection; a wall for preventing the direct flow of fuel through the discharge-opening, said wall having an opening adjacent to said flights, and means for extending one of said flights to vary the quantity fed by it

18. In a comminuted-fuel feeder the combination of a platform onto which fuel is delivered; a flight arranged to sweep said platform; an auxiliary flight adjacent to the main flight; and means for adjusting one of said flights relative to the other to vary the working area of the combined flight.

19. In a comminuted-fuel feeder, the combination of a receptacle A; the flight mechanism comprising the flights B and C; the flight C being arranged to move fuel disposed by B, the flight B and the flight C being arranged to move on said platform; the auxiliary flight B; and the cover B secured thereto; and means for adjusting the auxiliary flight on the flight B.

20. In a comminuted-fuel feeder, the combination of a receptacle A; the flight mechanism comprising the flights B and C; the flight C being arranged to move fuel disposed by B, the flight B and the flight C being arranged to move on said platform; the auxiliary flight B; and the cover B secured thereto; a shaft carrying the flight B; a sleeve on said shaft and carrying the auxiliary flight; means for adjusting the sleeve on the shaft to adjust the auxiliary flight.

21. In a comminuted-fuel feeder, the combination of a receptacle A; the flight mechanism comprising the flights B and C; the flight C being arranged to move fuel disposed by B, the flight B and the flight C being arranged to move on said platform; the auxiliary flight B, and the cover B secured thereto; a shaft carrying the flight B; a sleeve on said shaft and carrying the auxiliary flight; and means for adjusting the sleeve on the shaft with the shaft in motion to adjust the auxiliary flight.

22. In a comminuted-fuel feeder, the combination of a receptacle A; the flight mechanism comprising the flights B and C; the flight C being arranged to move fuel disposed by B, the flight B and the flight C being arranged to move on said platform; the auxiliary flight B; and the cover B secured thereto; a shaft carrying the flight B; a sleeve on said shaft and carrying the auxiliary flight; means for adjusting the sleeve on the shaft with the shaft in motion to adjust the auxiliary flight; and an indicator for indicating the adjustment of the auxiliary flight.

23. In a comminuted-fuel feeder, the combination of a receptacle A having the platform A and step A^2; the flight mechanism comprising the flights B and C, the flight C being arranged to move on the step A^2, and the flight B arranged to move on the platform A'; a cover bridging the space between said flights; the discharge connection A^3; the blast arranged to cross said discharge connection.

24. In a comminuted-fuel feeder the combination with a platform having a feed-outlet at the center; a flight arranged to sweep said platform with a rotary motion, said flight having the front part of its operating-wall extending in a substantially straight line and in a tangent to the path of travel of a point on the flight whereby the material lying in its path may be forced in a radial direction toward the center as the flight is rotated.

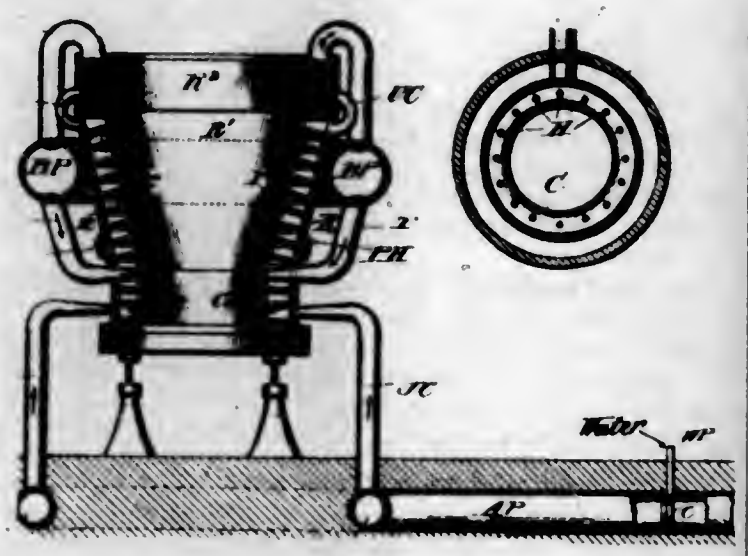
786,121. SMELTING-FURNACE. PATRICK HEALEY, Campbird, Colo., assignor of one-half to James D. Ireland and Avery Buckingham, Campbird, Colo. Filed Aug. 23, 1904. Serial No. 221,729.

Claim.—1. The combination with a double-walled blast-furnace; of an air-pipe for introducing air between the walls, and a spraying device in the air-pipe located at a point outside of the point where the air-pipe enters the outer wall of the furnace for charging the air with an atomized spray of water and cooling the inner wall thereby substantially as described.

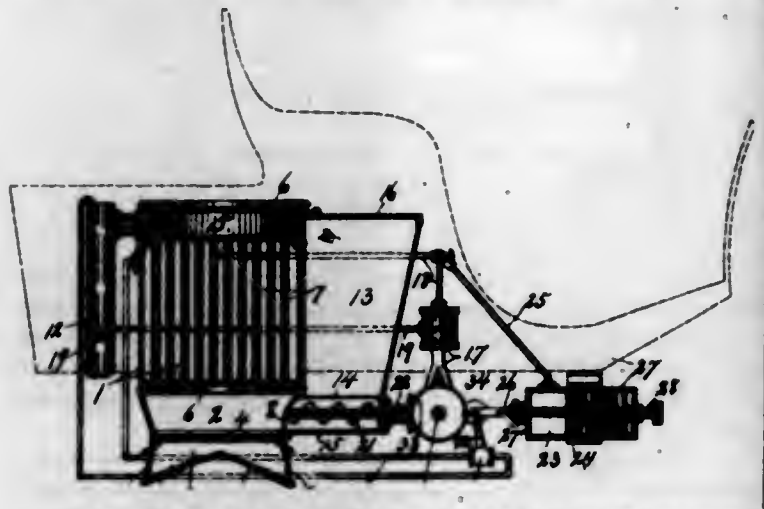
2. The combination with a double-walled blast-furnace having projections on the inner side of the outer wall; of an air-pipe for introducing air between the walls, and a spraying device for water located in the air-pipe outside the point where the air-pipe enters the outer wall substantially as described.

3. In a blast-furnace as described, the combination of the ribbed lower jacket, a separable upper jacket, connecting-pipes for the two, and a bustle-pipe and twyers for carrying the air from the upper

jacket to the interior of the furnace, said bustle-pipe being arranged in the plane of the ribbed jacket and having a pipe connecting it with the upper jacket substantially as described.

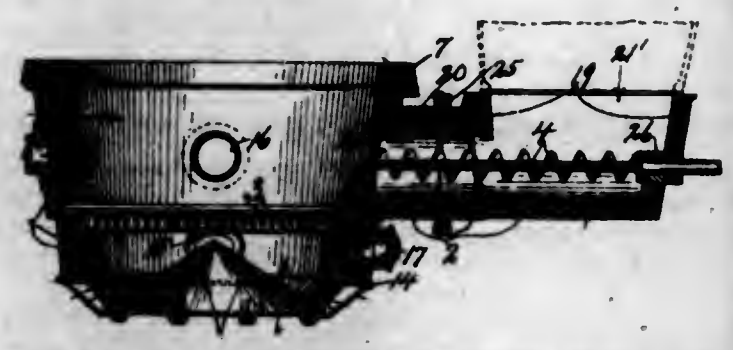


786,122. STEAM MOTIVE POWER. HENRY K. HESS, Philadelphia, Pa. Filed Apr. 10, 1902. Serial No. 102,199.



Claim.—In combination with a vehicle-body, a steam-generator mounted on the body and provided with a draft-pipe, a fuel-reservoir located at the side of the generator, a feeding mechanism in the base of the reservoir for feeding fuel therefrom into the combustion-chamber of the generator, a steam-chamber and a steam-conduit on the body and both connected to the generator and receiving steam therefrom, the conduit leading into the draft-pipe, a valve in the conduit, and a piston in the steam-chamber acting to control the fuel-feed and the valve in the conduit simultaneously according to the pressure in the generator.

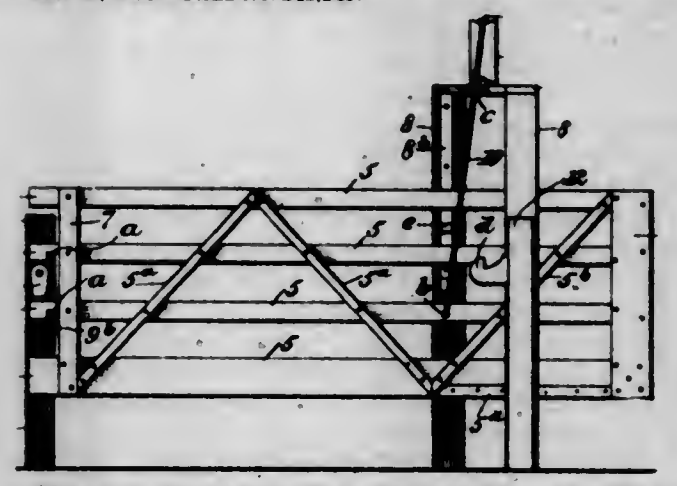
786,123. BURNER. HENRY K. HESS, Philadelphia, Pa. Filed June 14, 1902. Serial No. 111,757.



Claim.—1. In an attachment for upright-flue boilers, a coal-burner comprising an upright shell having an open top and a conical bottom with its apex central and uppermost, said bottom having an opening and a closure for the opening, a fuel-box secured to and opening into one side of the shell, and a screw in the opening.

2. In an attachment for upright-flue boilers, a coal-burner comprising an upright shell having an open top, a conical bottom with its apex uppermost, said bottom being formed with an opening, a door for said opening, a fuel-box secured to and opening into the side of the shell, and a screw in the fuel-box of less diameter than the fuel-opening of the box to form a space around the screw.

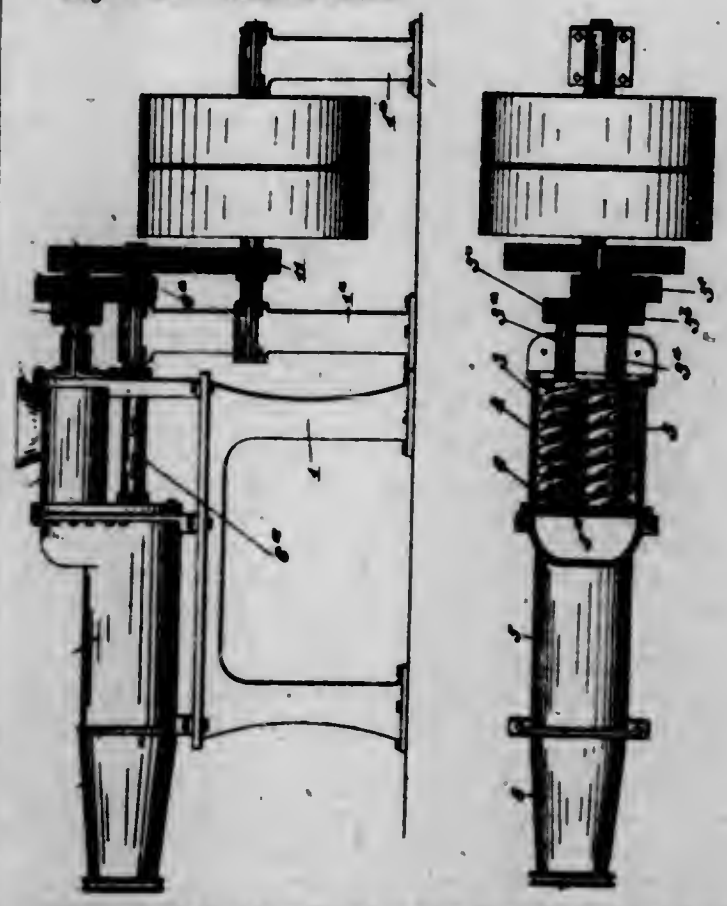
786,124. FARM-GATE. JACOB J. HINER, Woodstock, Ill. Filed Jan. 16, 1905. Serial No. 241,243.



Claim.—1. The combination with a gate having rails, means for spacing the rails apart, and batten-pieces at one end of the rails, that are counterweights, of two spaced upright hanger-posts having their upper ends joined together with a transverse cap-piece, a doubled hanger formed of wire, one doubled end of the wire having looped engagement with a rail of the gate near the lower rail thereof, the upwardly-trending ends of said doubled wire loosely passing through spaced perforations in the cap-piece and connected above it, and a prop-block introduced between the loop formed by connecting said ends and the cap-piece, thus raising the gate and holding it suspended above the ground.

2. The combination with spaced hanger-posts, a gate formed of rails spaced apart by batten-pieces, two of said battens at one end of the gate serving as counterweights, and means for supporting the gate nearly level and free to turn between the hanger-posts, said means comprising a pliable hanger which depends from the upper ends of the posts and engages the gate below its transverse center near the end that is counterweighted, and a stud projecting from the inner side of one hanger-post above but near the gate, of holder-posts, spaced apart and receiving the unweighted end of the gate between them, a transverse latch-bar on these holder-posts, the intermediate rails of the gate each having a notch in the lower edge which may receive the latch-bar, and a weighty button pivoted by one end on the inner side of one of the holder-posts for loose engagement with the upper edge of one of the notched gate-rails.

786,125. SOAP-MILL. JOHN N. HINKLE, Columbus, Ohio. Filed Aug. 19, 1904. Serial No. 221,411.



Claim.—1. In a soap-mill, the combination of a first and a second chamber, the first located above the second, a hopper or supply opening to the first chamber, feeding-screws in both said chambers,

a perforated plate between the discharge end of the first chamber and the inlet end of the second chamber, and a perforated plate at the discharge end of the second chamber.

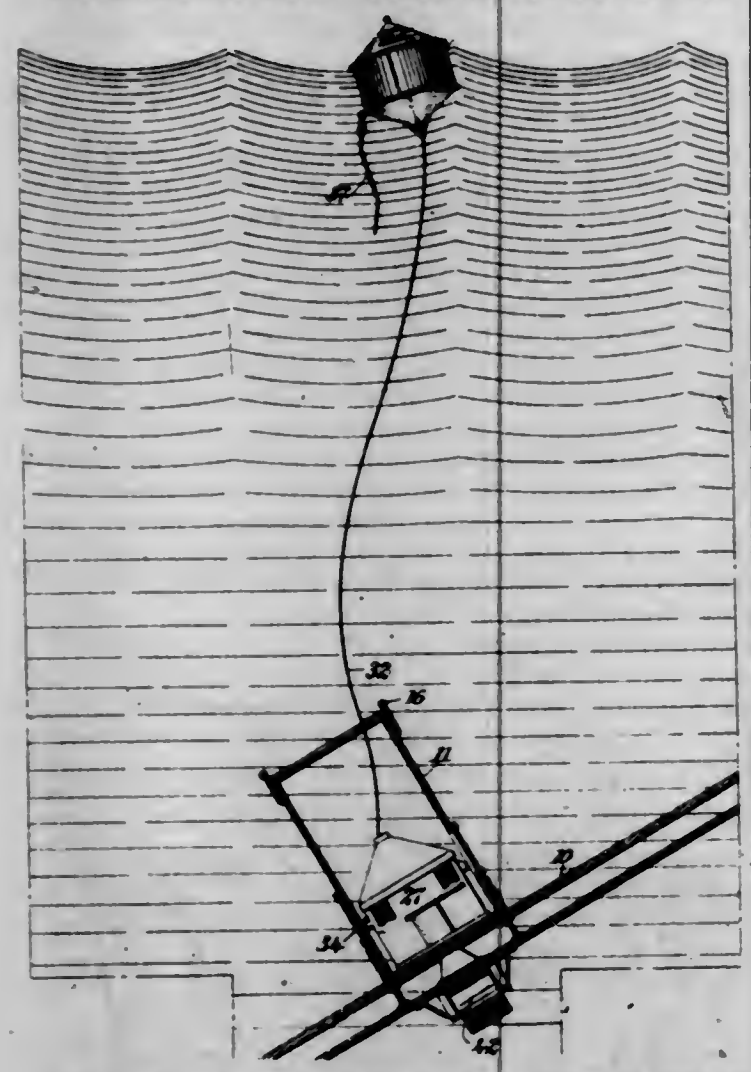
2. In a soap-mill the combination of a first and a second chamber the first of which has an opening through which soap can be supplied thereto, a perforated plate or diaphragm between and dividing said chambers, feed-screws in said chambers for forcing the soap out of the same and through the perforated plate or diaphragm.

3. In a soap-mill, the combination of a series of three chambers, perforated plates between the adjoining chambers and at the end of the third chamber, feed-screws in the first and second chambers and a stirring-wheel in the third chamber.

4. In a soap-mill, the combination of two chambers, the first arranged above the second and the second provided with an enlargement in line with the exit end of the first, a perforated plate at the exit end of the first and feed-screws in said chambers.

5. In a soap-mill, the combination of two chambers, the first arranged above the second and the second provided with an enlargement in line with the exit end of the first, a perforated plate at the exit end of the first chamber, feed-screws in both chambers and means for simultaneously operating the screws of both chambers.

786,126. **APPARATUS FOR MARKING SUNKEN VESSELS.** FREDERICK W. JOHNSON, Dawson, Canada, assignor of one-half to John P. Peterson, Dawson, Canada. Filed Sept. 23, 1903. Serial No. 174,309.



Claim.—1. A buoy, constructed of a bell, means for sounding the same, and a releasable means for restraining the sounding means, comprising flexibly-connected slings.

2. A buoy, constructed of a bell, a ball to sound the bell, and a releasable means for normally restraining the ball, comprising flexible slings and a flexible connection between the same.

3. The combination with a vessel, of a buoy, a bell thereon, a means for sounding the bell, and a releasable means for restraining the sounding means, said restraining means having communication with the vessel.

4. The combination with a vessel, of a buoy, a bell thereon, a sounding means therefor, means for restraining the sounding means, and a connection between said restraining means and the vessel, for the purpose specified.

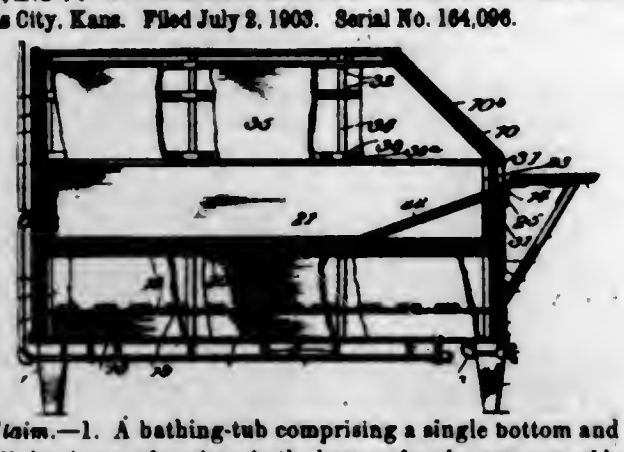
5. The combination with a buoy, of an annular bell therein, a ball arranged to sound the bell, slings arranged normally to carry the ball, and means connected with the slings for relatively moving them.

6. The combination with a vessel, and a housing thereon, of a buoy supported by the housing, a bell on the buoy, a ball arranged to sound the bell, means for normally holding the ball inactive, and a connection between the said means and the housing for releasing the ball when the buoy rises from the housing.

7. The combination with the deck of a vessel, and a housing built thereon, of a buoy supported by the housing, a line connected with the buoy, a bell on the buoy, a ball arranged to sound the bell, slings arranged normally to hold the ball inactive, and a readily-breakable cord connected with the slings and attached to the housing and serving to move the slings to release the ball when the buoy rises from the housing.

8. A buoy having a partition therein forming a bell-chamber in the upper part of the buoy, an annular bell in said chamber, above and adjacent to the partition, a ball adapted to roll on the partition and sound the bell, slings arranged normally to hold the ball in the upper part of the bell-chamber above the partition, and means connected with the slings for moving the same to release the ball.

786,127. **BATHING APPARATUS.** CHASING H. C. JORDAN, Kansas City, Kans. Filed July 2, 1903. Serial No. 164,096.



Claim.—1. A bathing-tub comprising a single bottom and double walls having perforations in the bottom for the entrance of heated air, upright cleats on the inner wall parts of the tub, two rows of slats supported by said cleats and arranged one above the other, the upper row of slats being removable, and a removable tray supported by the upper row of slats.

2. A bathing-tub comprising a single bottom and double walls, a hinged top having double walls, and perforations in the bottom of the tub between the two parts of each double wall and in the top joint for the passage of air.

3. A bathing-tub comprising a single bottom and double walls, a hinged top having double walls, perforations in the top and bottom of each of the double side walls between the two parts thereof, and perforations between the two parts of the double wall of the cover registering with the perforations in the side walls providing a continuous passage of air around the tub.

786,128. **SWITCH-THROWING DEVICE.** CHARLES J. KINSOLVING, Jr., Syosset, N. Y. Filed Aug. 8, 1904. Serial No. 219,963.



Claim.—1. In a switch-throwing device, the combination with a point-throwing plate or bar, of wiper-arms adapted to engage and reciprocate said plate or bar, an operating-block connected with and adapted to rotate said wiper-arms and means carried by a car to engage and turn said operating-block, substantially as described.

2. In a switch-throwing device, the combination with a point-throwing plate or bar, of triple wiper-arms adapted to engage and reciprocate said plate or bar, a six-pointed operating block or wheel connected to and adapted to rotate said wiper-arms, an operating-rod carried by a car and adapted to be engaged with the points of said operating-block and to thereby turn the same, and means whereby said operating-rod is guided into engagement with the arms of said block, substantially as described.

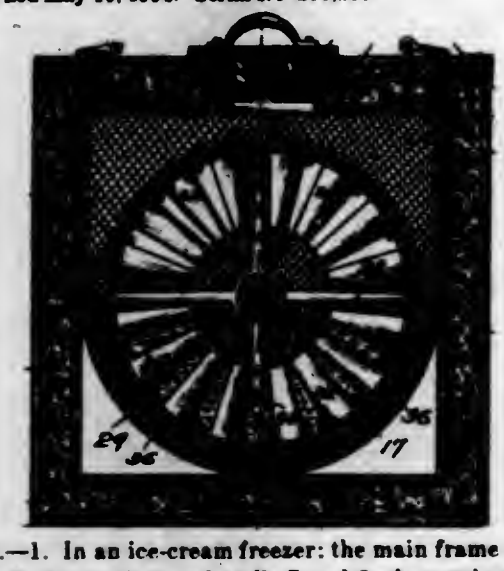
3. In a switch-throwing device, the combination with a box or casing, of an apertured switch-throwing plate, slidably mounted to reciprocate in said box, a vertically-disposed shaft rotatably mounted in said box or casing, triple wiper-arms mounted on said shaft to engage the walls of the aperture in said plate, and thereby recipro-

cate the same, and means whereby said shaft is rotated by a passing car, substantially as described.

4. In a switch-throwing device, the combination with a box or casing, of an apertured switch-throwing plate, slidably mounted to reciprocate in said box, a vertically-disposed shaft rotatably mounted in said box or casing, triple wiper-arms mounted on said shaft to engage the walls of the aperture in said plate, and thereby reciprocate the same, a six-pointed operating-block fixed on the upper end of said shaft a spring-retracted operating-rod carried by a car and adapted to be projected by the motorman to engage and turn said operating-block and thereby rotate said shaft and wiper-arms to throw said switch and means whereby the motorman may be warned to release said operating-rod, substantially as described.

5. In a switch-throwing device, the combination with a box or casing, of an apertured switch-throwing plate, slidably mounted to reciprocate in said box, a vertically-disposed shaft rotatably mounted in said box or casing, triple wiper-arms mounted on said shaft to engage the walls of the aperture in said plate, and thereby reciprocate the same, a plate arranged above said box or casing, a longitudinally-disposed guide-channel arranged in said plate, the bottom of said channel being inclined upwardly at one end, a circular bearing-recess formed on said plate, through the center of which projects the upper end of said operating-shaft, a six-pointed operating-block arranged in said recess and fixed on the upper end of said shaft, the point of said block being adapted to project across the channel in said plate, and a spring-retracted operating-rod carried by a car and adapted to be projected into said channel and brought into engagement with said arms, substantially as described.

786,129. **ICE-CREAM FREEZER.** MORRIS LICHTENTAG, St. Louis, Mo. Filed May 16, 1904. Serial No. 208,233.



Claim.—1. In an ice-cream freezer: the main frame comprising the bottom 6, the vertical end walls 7 and 8, the vertical side walls 9 and 10, the removable top 11 the full size of the receptacle formed by the walls 7, 8, 9 and 10; the removable cover 12 fitting in a central opening in the top 11; a waterproof lining mounted in the receptacle and comprising the sides 13 and 14, the ends 15 and 16, and the curved bottom 17; the partition-grates 21 and 22 dividing the receptacle into three parts; the bearing 23 attached to the inner face and near the center of the side 13; the bearing 24 extending through the side 14; the wheel-hub 25 placed between the grates 21 and 22; and the operating crank-shaft 26 inserted through the bearing 24, through the hub 25 and into the bearing 23; substantially as specified.

2. In an ice-cream freezer: the main frame comprising the bottom 6, the vertical end walls 7 and 8, the vertical side walls 9 and 10; the removable top 11 the full size of the receptacle formed by the walls 7, 8, 9 and 10; the removable cover 12 fitting in a central opening in the top 11; a waterproof lining mounted in the receptacle; partition-grates dividing the receptacle into three parts; and a carrier rotatably mounted in the central part of the receptacle.

786,130. **PENCIL.** JOSEPH MAKANT, North Adams, Mass. Filed Aug. 22, 1904. Serial No. 221,690.



Claim.—1. A pencil comprising independent stock-sections, each provided with a longitudinal channel, a marking member coacting with the channels and holding the sections apart, means for pressing the sections against the marking member, and a movable member extending through the space between the sections and contacting with the marking member.

2. A pencil comprising independent stock-sections, each provided with a longitudinal tapered channel, a marking member coacting with the channels and holding the sections apart, and means for pressing the sections against the marking member.

3. A pencil-stock having a divided end in which is a recess, an erasing member situated within the recess, and a sleeve movable upon the stock and serving to press it against the erasing member.

4. A pencil-stock having a divided end in which is a recess, an erasing member situated within the recess, and a sleeve movable upon the stock and serving to press it against the erasing member, said sleeve being of sufficient length to project beyond the outer end of the erasing member while clamping it between the divided stock.

5. A pencil comprising independent stock-sections, a lead holding the said sections apart at one end, a rubber separating them at the opposite end, and clamping members surrounding the stock and bearing upon it adjacent to the ends.

6. A pencil comprising independent stock-sections, a lead holding the said sections apart at one end, a rubber separating them at the opposite end, clamping members surrounding the stock and bearing upon it adjacent to the ends, and an operating member surrounding the stock and having a portion extending between the sections.

786,131. **HAT-FASTENER.** SINGLETON MACDONALD, Sherwood, Tex. Filed Sept. 13, 1904. Serial No. 224,261.



Claim.—1. The combination with a hat, of a fastener therefor, comprising a pin member adapted to transfix and pass through the hat and an arm, to one end of which the pin member is pivotally secured, the arm passing outside of and lying in engagement with the hat for assisting the pin in retaining the hat in position, the pin member releasably engaging the opposite end of the arm.

2. The combination with a hat, of a fastener for retaining the hat on the head, the fastener comprising a pin member passing through the hat and an arm of suitable ductile material passing exteriorly of the hat and in engagement therewith to assist the pin member in retaining the hat in position, the pin member being pivotally connected to one end of the arm and releasably engaging the opposite end of the arm, the arm adapted to conform to the configuration of the hat.

3. The combination with a hat, or a fastener therefor, comprising a pin member passing through the hat, a rigid arm pivotally connected with the pin member and passing exteriorly of and in engagement with the hat to assist the pin member in retaining the hat in position, and means carried by the arm and engaged by the pin member for securing the fastener in position.

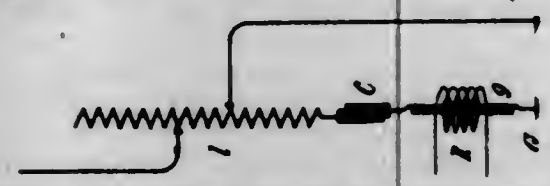
4. The combination with a hat, of a fastener comprising a bowed member extending exteriorly of and in engagement with the hat, a pin member pivotally connected intermediate its ends with one end of the bowed member, the pin member adapted to pass through the hat to coöperate with the bowed member in retaining the hat in position, and a fastening means carried by one of the members for releasably securing the free ends of the members together.

5. A hat-fastener comprising a bow of substantially U shape, adapted to pass exteriorly of and in engagement with a hat, and a pin provided with a head, the pin pivotally connected with one end of the bow near one end and a clasp at the opposite end of the bow adapted to releasably engage the pin, the pin passing through the hat and assisting the bow to retain the hat on the head.

6. A hat-fastener comprising a bent member extending exteriorly of a hat, a link pivotally connected to one end of the bent member a pin secured to the link and extending between the ends of the bent member, and means located at the opposite end of the bent member, for releasably engaging and retaining the pin.

7. A hat-fastener comprising a rigid arm adapted to pass over a hat and a pin movably connected to one end of the arm, the pin adapted to pass through the hat, and means at the opposite end of the arm for releasably engaging the free end of the pin.

786,132. **WIRELESS TELEGRAPHY.** GUGLIELMO MARCONI, London, England, assignor to Marconi's Wireless Telegraph Company, Limited, a Corporation of Great Britain. Filed Oct. 13, 1903. Serial No. 176,844.



Claim.—1. At a receiving-station employed in wireless telegraphy, the combination of an open circuit containing an oscillation-receiving conductor and inductance in circuit therewith, and a closed oscillation-circuit containing inductance and a condenser, and an adjustable contact arranged to alter the inductance of the two circuits, substantially as described.

2 At a receiving-station employed in wireless telegraphy, the combination of an open circuit containing an oscillation-receiving conductor and inductance in circuit therewith, in combination with a closed oscillation-circuit containing a condenser and including a contact for adjustably including the inductance in both circuits, substantially as described.

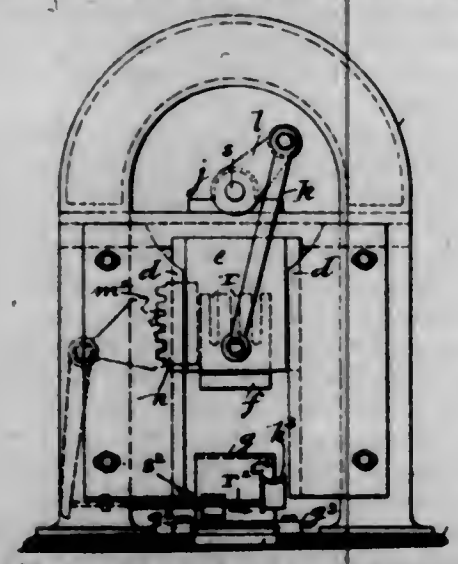
3. At a receiving-station employed in wireless telegraphy, the combination of an open circuit containing an oscillation-receiving conductor and inductance in circuit therewith, in combination with a closed oscillation-circuit containing inductance and a condenser, an adjustable contact arranged to alter the inductance of the two circuits, and a receiving-circuit magnetically connected with the closed circuit, substantially as described.

4. At a receiving-station employed in wireless telegraphy, the combination of a receiver or responder earthed at one end and joined at the other end to a condenser and variable inductance in series, the free end of said inductance being earthed and also connected to an oscillation-receiving conductor having variable inductions in series with it, substantially as described.

5. At a receiving-station employed in wireless telegraphy, the combination of a receiver or responder earthed at one end and connected with a condenser and inductance joined in series, the free end of the inductance being earthed, and an oscillation-receiving conductor, adjustably connected with said inductance, substantially as described.

6. At a receiving-station employed in wireless telegraphy, the combination of an open oscillation-receiving circuit containing inductance, a closed oscillation-circuit containing inductance and a condenser, and means for altering the inductance of both of said circuits without altering the sum of the inductance of the two circuits, substantially as described.

786,133. **MACHINE FOR BEVELING SPRING-HEELS.** JOHN A. MILLS, New York, N. Y. Filed Mar. 3, 1904. Serial No. 197,084.



Claim.—1. In a machine for beveling spring-heels, the combination of a bed-plate, guideways upon said bed-plate, a reciprocating slide-block in said guideways, a knife on said slide-block, a feed-plate in proximity to said knife, a clearer-plate guided on said feed-plate, a slide-block-actuating means, and means operated by said slide-block for actuating said clearer-plate.

2. In a machine for beveling spring-heels, the combination of a bed-plate, guideways supported on said bed-plate, a reciprocating slide-block in said guideways, a knife on said slide-block, a feed-plate in proximity to said knife, a clearer-plate on said feed-plate, a slide-block-actuating means, means operated by the slide-block for actuating said clearer-plate to remove the spring-heel after the descent of the knife, and means for returning said clearer-plate to its first position.

3. In a machine for beveling spring-heels, the combination of a bed-plate, vertical guideways on said bed-plate, a reciprocating slide-block in said guideways, a knife on said slide-block, a feed-plate in proximity to said knife, a clearer-plate guided on the feed-plate, a guard-plate attached to the end of said clearer-plate, means for operating said slide-block, and means actuated by said slide-block for actuating the clearer-plate simultaneously with the upward movement of said slide-block.

4. In a machine for beveling spring-heels, the combination of a bed-plate, guideways on said bed-plate, a reciprocating slide-block in said guideways, a rack on said slide-block, a knife on said slide-block, a feed-plate in proximity to said knife, a clearer-plate guided on said feed-plate, means for actuating said slide-block, a lever pivoted to one of said guideways and engaging said clearer-plate at one end, and a toothed segment at the other end of said lever for engagement with the rack on said slide-block, whereby said clearer-plate is actuated by said slide-block.

786,134. **BOTTLE.** ROBERT J. MODERBACHER, Hoboken, N. J. Filed May 10, 1904. Serial No. 207,241.



Claim.—1. A bottle having two necks, and valves for closing the said necks, one of the necks extending in alinement with the body of the bottle and having a vent-opening and the other neck extending from the side of the air-vent neck at an angle thereto and having a filling and pouring opening.

2. A bottle having two necks, and valves for closing the said necks, one of the necks having a vent-opening and the other neck having a filling and pouring opening of an inverted-U shape.

3. A bottle having two necks standing at an angle one to the other, one of the necks having an air-vent opening and the other neck being provided with a filling and pouring opening, and valves connected with each other for opening and closing the said neck-openings.

4. A bottle having two necks standing at an angle one to the other, one of the necks having an air-vent opening and the other neck having a beveled face and being provided with a filling and pouring opening, and valves connected with each other for closing and opening the said neck-openings.

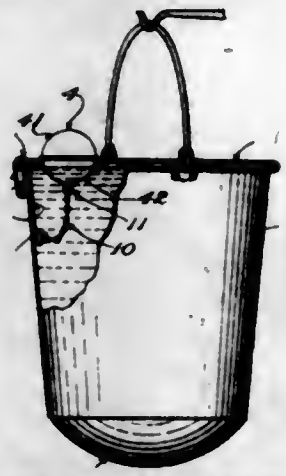
5. A bottle having a body, an air-vent neck extending from the body at one side thereof, a filling and pouring neck extending from the side of the said air-vent neck and at an angle thereto, and connected valves for closing and opening the said necks.

6. A bottle having a body, an air-vent neck extending from the body at one side thereof, a filling and pouring neck extending from the side of the said air-vent neck and at an angle thereto, the face of the filling and pouring neck being beveled downwardly and inwardly, and connected valves for closing and opening the said necks.

7. A bottle having a body, an air-vent neck extending from the body at one side thereof, a filling and pouring neck extending from the side of the said air-vent neck and at an angle thereto, the face of the filling and pouring neck being beveled downwardly and inwardly and the opening in the said filling and pouring neck being of an inverted-U shape, and connected valves for closing and opening the said necks.

8. The combination with a bottle, having two necks, one in alinement with the body of the bottle and the other extending from the side of the first-mentioned neck, of a closure comprising two valves, a neck-wire for the first-mentioned neck, an L-shaped bail hung on the neck-wire and on which one of said valves is hung for closing the side neck, and a second bail on which the other valve for closing the first-mentioned neck is hung, the said second bail being fulcrumed on the L-shaped bail.

786,135. **FIRE-PAIL INDICATOR.** HENRY T. MOODY, Newburyport, Mass., assignor of one-half to Frank M. Edmonds, Holyoke, Mass. Filed Nov. 30, 1903. Serial No. 183,158.



Claim.—1. A visual indicator for fire-pails comprising a float, securing means by which said float may be attached to the side of a pail, and connecting means between said float and securing means which will permit said float to lie in proximity to the side of the pail when the pail is full, and be readily visible above the top thereof.

2. A visual indicator for fire-pails comprising a float, means for detachably securing the float to the side of a pail, and a flexible cord or chain connecting said float with said securing means so that when the pail is full the float will lie in proximity to the side of the pail and be readily visible above the rim thereof.

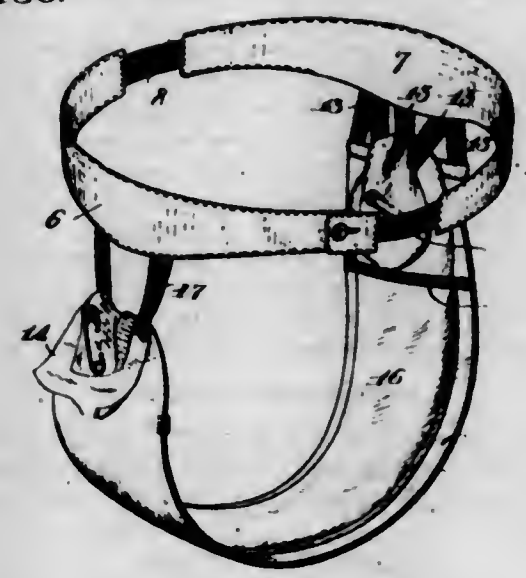
3. A visual indicator for fire-pails comprising a float, a spring-clasp adapted to clip over the rim of the pail and having an inner portion depending to a considerable distance within the pail, and a flexible connection such as a chain or cord between said float and the inner portion of said clasp whereby when the pail is full the float will lie in proximity to the side of the pail and be visible above the rim thereof.

786,136. **CATAMENIAL BANDAGE.** EMMA C. MORISON, New York, N. Y. Filed Sept. 21, 1904. Serial No. 225,340.

Claim.—1. A catamenial bandage including a waistband, a pad-holder, a plurality of elastic strips connected each permanently at one end with the rear end of said pad-holder, the opposite ends of said strips being permanently connected to and depending from the rear of the waistband, an elastic loop depending from the rear of the waistband, and an elastic loop depending from the front of said waistband, the front end of the pad-holder being adapted to pass through the front loop.

2. A catamenial bandage comprising a pad-holder composed of an upper thickness of waterproof material and a lower thickness of textile fabric united together along their side edges, and lines of cement between the said two thicknesses for holding them together, to prevent puckering of the waterproof material, the latter serving to directly support a pad.

786,136.



786,137. **DRILL-BIT.** EDMUND MOSER, East Mineral, Kans. Filed Nov. 17, 1904. Serial No. 233,211.



Claim.—1. A drill-bit having a central cutter mounted for limited receding movement, side cutters pivoted at one end and having cutting edges at their free ends adapted to normally lie in the plane of the central cutter, engaging devices on the inner end of the central cutter, and corresponding engaging devices on the pivoted ends of the side cutters for swinging said side cutters to project the cutting edges thereof beyond the plane of the central cutter upon the receding movement of said central cutter.

2. In a drill-bit, the combination of a drill-head, a stem passing therethrough, a central cutter having an elongated opening for the passage of said stem to permit the cutter to have limited rearward movement, side cutters pivotally mounted upon said stem and normally adapted to lie in the plane of the main cutter, and means for laterally swinging said side cutters to project the cutting-surfaces thereof beyond the central cutter when the latter moves rearwardly.

3. In a drill-bit, the combination of a head, a stem mounted therein, a central cutter having an elongated slot through which the stem passes to permit said cutter to have limited longitudinal movement, side cutters pivotally mounted on said stem and adapted to normally lie in the plane of the central cutter, and coacting projections upon the central cutters and side cutters for swinging said side cutters to project the cutting-surfaces thereof beyond the central cutter when the latter moves rearwardly, substantially as described.

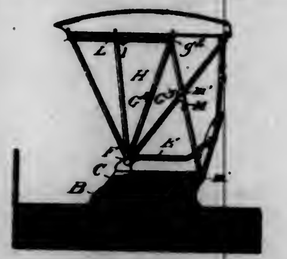
4. The combination with a head, of a central cutter having a slot-and-pin connection with the head to adapt it to have a limited receding movement, side cutters pivoted on the pin of such connection, and engaging devices upon said central and side cutters respectively for swinging said side cutters into cutting position upon the receding movement of the central cutter.

5. A drill-bit comprising a socketed head, a stem extending therethrough, a central cutter having its inner end arranged within the head and provided with a slot receiving said stem, said slot being of a length to permit said cutter to have longitudinal movement, said central cutter also being provided adjacent to said slot with cam projections, side cutters pivotally mounted upon said stem and provided with projections adapted to be engaged by said projections on said central cutter to swing the side cutters to cutting position when the

central cutter moves rearwardly, and means for limiting the swinging movement of said side cutters.

6. In a drill-bit, the combination with a socketed head having a stem extending therethrough, of a central cutter having its inner end seated in the socket in the head and provided with a slot receiving said stem and adapted to permit longitudinal movement of said cutter, cam-lugs on opposite sides of the inner end of the central cutter, and side cutters pivotally mounted upon said stem on opposite sides of the central cutter and adapted to be projected in opposite directions, said side cutters being provided with projections adapted to be engaged by the cam projections on the central cutter to throw them outwardly when the central cutter moves rearwardly and having shoulders to engage the head to limit their outward movement.

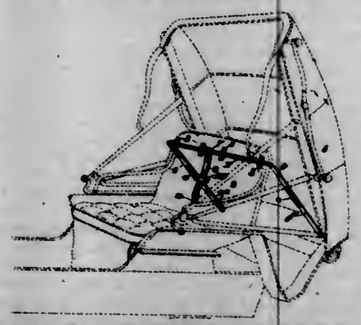
786,138. **BUGGY-TOP BRACE.** PERRY W. MOYER and DOCTOR D. MOYER, Luray, Va., assignors, by direct and mesne assignments, to The Moyer Buggy Corporation, Luray, Va. Filed June 1, 1904. Serial No. 210,625.



Claim.—1. The combination with a seat, a rigid back therefor, and a folding top pivoted to the seat at the point F, of a rear brace or stay O which is pivotally connected with the rear portion of the top and also with the seat-back at a point above the plane of the top pivot, and provided with a rule-joint as shown and described, whereby the said brace is adapted to support the top and hold it rigid in either the raised or lowered position, substantially as described.

2. The combination with the seat and a folding top pivoted to the seat, of a rear brace or stay O which is pivotally connected at its lower end to a rigid support in rear and above the plane of the pivot of the top and is pivoted at its upper end to the rear portion of the top and is provided between its ends with a rule-joint, said brace or stay being movable freely at said rule-joint in the arc of a circle, the center of which is the pivot of the lower end of the brace, all substantially as described, whereby the brace may be set with its sections in alinement to support the top when raised and to hold the top when lowered, whereby the top may be rigidly held in either raised or lowered position, substantially as set forth.

786,139. **BUGGY-TOP BRACE.** PERRY W. MOYER and DOCTOR D. MOYER, Luray, Va., assignors to The Moyer Buggy Corporation, Luray, Va. Filed Aug. 10, 1904. Serial No. 221,357.



Claim.—1. The combination, with a vehicle seat-back and a folding top applied to the seat, of a support for said top which comprises a rock-shaft journaled on the seat-back and having lever-arms secured to its ends and braces forming extensions thereof and pivotally connected with the top at one end and by a rule-joint with the lever-arms at the other end, and means applied to the rock-shaft for holding it in either of the two positions assumed when the top is raised or lowered, substantially as described.

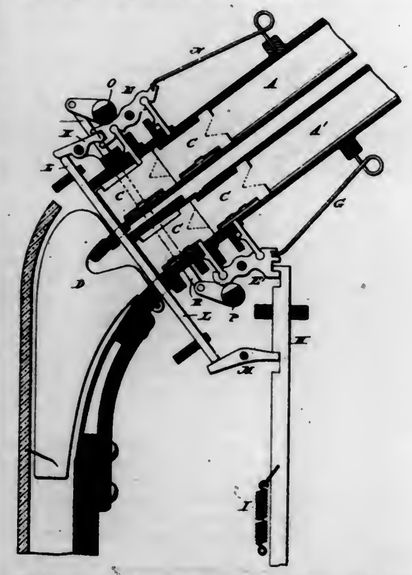
2. The combination, with a vehicle seat-back and a folding top, a rock-shaft journaled on the seat-back and having a lug as specified, and jointed arms connected with the top, of a spring arranged to bear on said lug and thus practically to lock the shaft in position for holding the top elevated or folded.

3. The combination, with a vehicle-top and a support arranged on the body thereof, of means for supporting and practically locking the top, the same comprising a rock-shaft journaled on the said support and jointed braces which are pivotally connected with the top and rigidly connected with the rock-shaft, and a spring attached to the support and engaging the rock-shaft for locking it as described.

4. The combination with a folding top and the rigid vehicle seat-back, of a rock-shaft journaled on the back and having a lug projecting from its front side and jointed braces connecting it with the top as described, of a plate-spring secured at its lower end to the seat-back, its free end bearing upon the aforesaid lug and means arranged intermediately of the ends of the spring for varying the tension of the latter substantially as described.

5. The combination with a support on the body of the vehicle and a pivoted top adapted to be lowered, of a rock-shaft journaled on said support, and having rigid arms and extensions thereof connected with the arms by a rule-joint and pivotally connected with the top, substantially as described.

786,140. **LINOTYPE-MACHINE.** CARL MUEHLEISEN, Berlin, Germany, assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Jan. 7, 1905. Serial No. 240,049.



Claim.—1. In combination with the parallel magazines having their respective escapements on the outer sides, the actuating-rod H, directly engaging the lower escapement, the two levers and the slide connecting the bar H with the upper escapement, and means for locking the escapements alternately.

2. In a linotype-machine, the lower magazine having escapements in the bottom side, the upper magazine having escapements on the top side, the springs acting on the escapements to reverse their positions, the lever K, slide L and lever M, connecting with the upper escapement, the actuating-bar H engaging the lower escapement and the lever M, with lost motion between them, a spring I, acting to carry the bar H downward in opposition to the escapement-springs, and means for locking one escapement or the other at will.

3. In a linotype-machine, the combination of a magazine having the escapement on the upper side, a spring for reversing the position of the escapement, an actuating-bar H, the two levers and the slide connecting said bar with the escapement, and a spring to move the bar H downward.

786,141. **HONE.** THOMAS MCGRAIL and JOHN OWENS, Centralia, Wash. Filed Nov. 1, 1904. Serial No. 230,986.



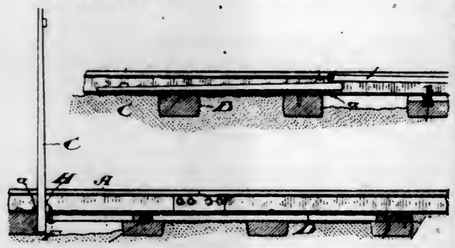
Claim.—1. A hone having a magnetic body portion and non-magnetic parts arranged near each end of the same.

2. A hone having a magnetic body portion, and non-magnetic plates or blocks inserted and countersunk into the same near each end, substantially as described.

3. A hone having a magnetic body portion, one end of which is divided longitudinally to form magnetic poles, substantially as described.

4. A hone having a magnetic body portion divided longitudinally at one end and provided with horizontal transversely-disposed dovetail grooves, one side of said body portion being polished and the opposite side grooved, and non-magnetic blocks having dovetailed edges adapted to be inserted in said dovetail grooves the upper surface of said blocks being flush with the surface of said body portion, substantially as described.

786,142. **CATTLE-GUARD.** THOMAS K. MCQUEEN, Elora, Canada, assignor of one-half to Abraham Groves, Fergus, Canada. Filed Sept. 6, 1904. Serial No. 223,412.



Claim.—1. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks; a stop with which the lower end of the gate is adapted to engage to limit its upward swing, in combination with a platform horizontally pivoted at one end transversely of the tracks, the other end engaging the end of the gate behind or below its pivot, the platform being so located and proportioned that when depressed its end comes below the line of the pivot of the gate and platform and holds the former securely between the stop and platform end; and a spring tending to raise the platform, substantially as described.

2. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks; a stop with which the lower end of the gate is adapted to engage to limit its upward swing, in combination with a platform horizontally pivoted at one end transversely of the tracks, the other end engaging the end of the gate behind or below its pivot, the platform being so located and proportioned that when depressed its end comes below the line of the pivot of the gate and platform and holds the former securely between the stop and platform end; a spring tending to raise the platform; and a contact-piece on the back or upper side of the gate adapted to engage the upper side of the end of the platform when the latter is depressed to its lowest position, substantially as described.

3. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks; in combination with a platform horizontally pivoted at one end transversely of the tracks, the other end resting on the end of the gate behind or below its pivot; a spring tending to raise the platform; and a contact-piece on the back or upper side of the gate adapted to engage the upper side of the end of the platform when the latter is depressed to its lowest position, substantially as described.

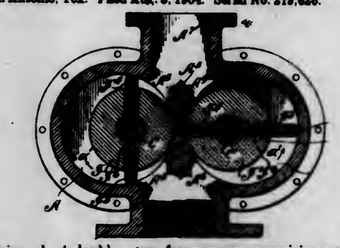
4. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks in combination with a platform having one end resting on a tie; a slat secured to the tie behind the end of the platform and serving as a pivot, the other end engaging the end of the gate behind or below its pivot, the platform being so located and proportioned that when depressed its end comes below the line of the pivot of the gate and platform and holds the former securely between the stop and platform end; and a spring tending to raise the platform, substantially as described.

5. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks; a stop with which the lower end of the gate is adapted to engage to limit its upward swing, in combination with a platform horizontally pivoted at one end transversely of the tracks, the other end engaging the end of the gate behind or below its pivot, the platform being so located and proportioned that when depressed its end comes below the line of the pivot of the gate and the platform and holds the former securely between the stop and platform end; and a contact-piece on the back or upper side of the gate adapted to engage the upper side of the end of the platform when the latter is depressed to its lowest position, substantially as described.

6. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks; in combination with a platform horizontally pivoted at one end transversely of the tracks, the other end resting on the end of the gate behind or below its pivot; and a contact-piece on the back or upper side of the gate adapted to engage the upper side of the end of the platform when the latter is depressed to its lowest position, substantially as described.

7. In a cattle-guard a gate horizontally pivoted near its lower or inner end and transversely of the tracks in combination with a platform having one end resting on a tie; and a slat secured to the tie behind the end of the platform and serving as a pivot, the other end engaging the end of the gate behind or below its pivot, the platform being so located and proportioned that when depressed its end comes below the line of the pivot of the gate and platform and holds the former securely between the stop and platform end, substantially as described.

786,143. **DOUBLE ROTARY FORCE-PUMP.** JULIUS R. NORTON, San Antonio, Tex. Filed Aug. 5, 1904. Serial No. 219,626.



Claim.—1. A double rotary force-pump, comprising spaced cylinders having an inlet and an outlet common to both cylinders, a partition separating the cylinders and extending into the inlet and outlet and dividing the same into branches opening into the cylinders, the said partition forming part of the cylinders, and pistons mounted to turn eccentrically in the said cylinders, each piston having a cylindrical body in peripheral contact with the partition at a point between the inlet and outlet, and each piston having a piston-head diametrically slidable in the said piston-body, the ends of the piston-head being in engagement with the inner surface of the cylinder.

2. A double rotary force-pump, comprising parallel cylinders spaced and separated by a partition, an inlet having branches opening into the cylinders at each side of the lower part of the partition separating the cylinders, an outlet having branches opening into the cylinders at each side of the upper part of the partition, and pistons mounted to turn eccentrically in the said cylinders, each piston having a cylindrical body in rolling contact with the said partition, and each piston having a piston-head slidable diametrically in the piston-body.

3. A double rotary force-pump, comprising parallel cylinders spaced and separated by a partition, an inlet having branches opening into the cylinders at opposite sides of the lower part of the partition separating the cylinders, an outlet having branches opening into the cylinders at opposite sides of the upper part of the partition, and pistons mounted to turn eccentrically in the said cylinders, each piston having a cylindrical body in rolling contact with the said partition, and each piston having a piston-head slidable diametrically in

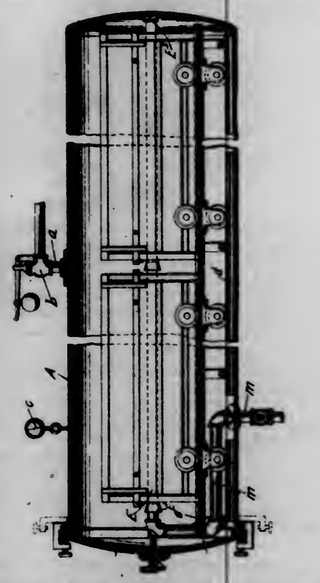
the piston-body, the piston-head being made in sections pressed apart by interposed springs.

4. A double rotary force-pump, comprising parallel cylinders spaced and separated by an integral partition, an inlet having branches opening into the cylinders at each side of the bottom of the partition separating the cylinders, an outlet having branches opening into the cylinders at each side of the top of the partition, pistons mounted to turn eccentrically in the said cylinders, each piston having a cylindrical body in rolling contact with the said partition, and each piston having a piston-head slidable diametrically in the piston-body, the piston-head being made in sections pressed apart by interposed springs, shafts for the said pistons, and a gearing connecting the shafts with each other to rotate the pistons in unison.

5. A double rotary force-pump, comprising parallel cylinders spaced and separated by a partition and having an inlet and an outlet common to both cylinders, the said partition extending into the inlet and outlet and dividing the same into branches opening into the cylinders, pistons mounted to turn eccentrically in the said cylinders, each piston having a cylindrical body in rolling contact with the said partition, and each piston having a piston-head slidable diametrically in the piston-body, the piston-head being made in sections pressed apart by interposed springs, shafts for the said pistons, and a gearing connecting the shafts with each other to rotate the pistons in unison, the piston-heads of the piston being set in quarter position one relatively to the other.

6. A double rotary force-pump, comprising cylinders having an inlet and outlet common to both cylinders, a partition separating the cylinders, the lower and upper ends of the partition dividing the inlet and outlet into branches opening into the cylinders, and pistons mounted to turn eccentrically in the said cylinders, each piston having a cylindrical body in peripheral contact with the partition at a point between the inlet and outlet, and each piston having a piston-head diametrically slidable in the said piston-body, the ends of the piston-head being in engagement with the inner surface of the cylinder, a false head in one end of each cylinder, and means for adjusting the false head.

786,144. **WOOD-DISTILLING PLANT.** CHARLES M. PALMER, New London, N. C. Filed Aug. 20, 1904. Serial No. 221,456.



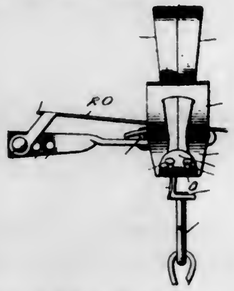
Claim.—1. In a distilling plant, a retort; a series of cars for carrying material into said retort each provided with a central perforated steam-pipe; means for connecting the steam-pipes on adjacent cars in the retort; an adjustable steam-pipe for introducing steam to said retort adapted to be connected with the steam-pipe of the outermost car in the retort, and a source of steam outside said retort with which the steam-pipe connects, substantially as described.

2. A distilling plant having a retort; cars adapted to be run into said retort; a perforated pipe longitudinally disposed and centrally located in each of said cars and having its ends projecting beyond the ends of the car, the end of the pipe on one car being adapted to fit the end of a like pipe on the next adjacent car when positioned within the retort; means for closing said retort when the cars have been introduced thereto, and means whereby steam may be introduced into said pipes of the cars within said retort from a steam-supply exterior to the retort, substantially as described.

3. In a distilling plant, a retort; a track within said retort; cars adapted to be run into said retort on said track; a perforated pipe longitudinally disposed and centrally located in each of said cars, its ends projecting beyond the ends of said car the meeting end of such pipes on adjacent cars fitting each other when the cars are positioned within the retort; means for closing said retort when cars have been introduced therein; means whereby steam may be introduced into the pipe on the outermost car within said retort from an exterior steam-supply, substantially as described.

4. A distilling plant having, in combination, a retort; cars adapted to be run into said retort, a perforated pipe longitudinally disposed and centrally located in each of said cars, its ends projecting beyond the ends of said car, the ends of the pipe on one car fitting to the ends of the like pipes on the adjacent cars, so that steam may circulate directly through all such pipes in the retort; and an adjustable steam-supply pipe within the retort adapted to be connected with the pipe on the outermost car in the retort, and a steam-supply pipe on the outside of said retort connected to said adjustable pipe.

786,145. **STEEL TRAP.** JAMES W. PARSONS, Slater, Colo. Filed June 20, 1904. Serial No. 213,390.



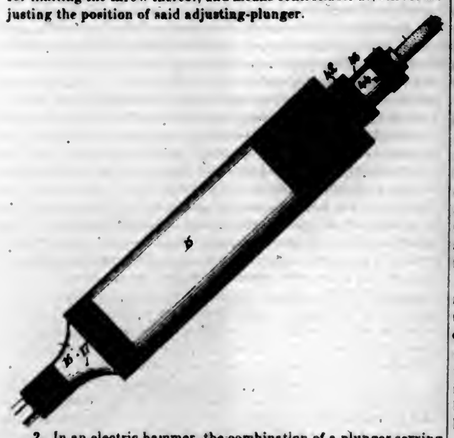
Claim.—1. A trap comprising a plate having upwardly-turned ends provided with keyhole-slots, jaws having their extremities engaged with the slots and having heads upon their ends, said heads being of a size to pass through the slots, said heads lying transversely of the slots when the jaws are in operative position, means for holding the jaws yieldably in operative position, and means for holding the jaws against the action of the first-named holding means.

2. A trap comprising a plate, a spring-plate disposed upon the first-named plate and having openings in its ends, a loop engaged with the two plates and extending beyond one side thereof, the lower portion of the loop having a chain engaged therewith, the upper and lower portions of the loop being connected beyond the plates, jaws pivotally connected with the ends of the first-named plate and engaged with the openings of the second-named plate, said second-named plate being arranged for movement to disengage its openings from the jaws to permit of separation thereof, and a trip-plate pivoted to the loop and having a finger for engagement with one of the jaws to hold the jaws separated.

3. A trap comprising coöperating jaws for movement into inoperative and operative positions, means for moving the jaws into their operative positions and for holding them in such positions, a pivotally-mounted plate having a finger arranged for engagement with one of the jaws to hold it in inoperative position, said plate being adjustable toward and away from the jaw.

786,146. **ELECTRIC HAMMER.** LOUIS PAULERO, Petersburg, Va. Filed Sept. 22, 1904. Serial No. 225,473.

Claim.—1. In an electric hammer, the combination of a movable plunger, electric mechanism for actuating said plunger, an adjusting-plunger disposed adjacent to said first-mentioned plunger for limiting the throw thereof, and means controllable at will for adjusting the position of said adjusting-plunger.



2. In an electric hammer, the combination of a plunger serving as an armature and as a hammer-head, magnetic mechanism for energizing said plunger, electric mechanism for controlling said magnetic mechanism, an adjusting-plunger for limiting the throw of said first-mentioned plunger, and means controllable at will for governing the position of said adjusting-plunger.

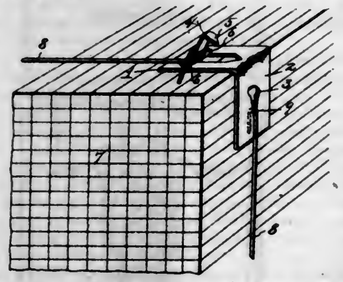
3. In an electric hammer, the combination of a plunger, a member disposed adjacent to said plunger and movable in the general longitudinal direction thereof for the purpose of limiting the play of said plunger, and a revoluble cap for adjusting the relative position of said member.

4. In an electric hammer, the combination of a plunger, a solenoid for actuating the same, a casing inclosing said plunger and said solenoid, a member provided with a cushion for limiting the play of said plunger, a revoluble cam connected with said member provided with said cushion, and a revoluble handpiece connected with said cam and provided with a roughened surface affording a grip whereby it may be rotated at will.

5. In an electric hammer, the combination of a reciprocating plunger, an adjustable member disposed adjacent thereto, a spring for cushioning said plunger relatively to said adjustable member, another spring for pressing upon said adjustable member, and means for tensioning said last-mentioned spring.

6. In an electric hammer, the combination of a magnetic plunger, a solenoid for actuating the same, contact mechanism for throwing said solenoid into and out of action, a casing for containing said plunger, said solenoid and said contact mechanism, and a revoluble handpiece for opening and closing said contact mechanism, said revoluble handpiece being provided with a roughened surface whereby it may be grasped.

786,147. **BALE-TIE.** EDWARD L. PENCE, Memphis, Tenn., assignor of one-half to John F. Boland, Memphis, Tenn. Filed Apr. 22, 1904. Serial No. 204,465.



Claim.—1. A bale-band tie consisting of a plate which is bent to produce angularly-related members, one of which members is provided with a substantially V-shaped slot having its walls converging outwardly, the other member having a tongue cleft therefrom and extended outwardly, the base of the tongue being next the outer end of the member and the extremity of the tongue being pointed and bent inwardly to produce a spur, the slot produced by the displacement of the tongue from the tie being enlarged at opposite sides of the base of the tongue, said tongue capable of being forced inwardly toward the slot to permit of the spur being sunk into a bale.

2. A bale-band tie consisting of a plate having angularly-related members, one of the members having means for connection with one end of a bale-band, and the other member having a tongue cleft therefrom with its base next the outer end of the member, said tongue being projected upon the outer side of the member at an inclination thereto with its free extremity formed into a pointed spur and bent inwardly toward the member and capable of being driven through the opening in the adjacent member produced by the tongue and into a bale to anchor the tie, said tongue also constituting means for connection with the opposite end of a bale-band.

3. A bale-band tie comprising a plate provided at one end with means for connection with one end of a bale-band, and also having means to anchor the tie to a bale consisting of a tongue cleft from the opposite end portion of the plate at the outer side thereof with its base next to the said opposite end of the plate and inclined outwardly toward the first-mentioned end of the plate with its free extremity bent inwardly toward the plate and formed into a pointed spur capable of being driven through the opening produced by the tongue and into a bale to anchor the tie.

4. The combination with a bale-band, of a tie therefor consisting of a plate having one end connected to one of the ends of the band, and its opposite end portion provided with a tongue cleft therefrom and projected upon the exterior of the plate at an inclination thereto, the other end of the band being connected to the tongue, and the free extremity of the tongue being bent inwardly toward the plate and formed into a pointed spur which is capable of being driven through the opening produced by the tongue to engage the bale and anchor the tie.

5. A bale-band tie having a tongue cleft therefrom with its free extremity bent inwardly toward the tie and formed into a pointed spur capable of being driven through the opening produced by the tongue and into a bale to anchor the tie.

6. A bale-band tie having a tongue bent therefrom with its outer end bent to form a pointed spur, the tie also being provided with an opening through which the pointed spur is capable of being driven into a bale to anchor the tie.

7. As a new article of manufacture, a blank for a bale-band tie having a slot formed in one end thereof, the opposite end of the blank being cleft to form a pointed tongue having its free extremity extending toward the slot.

8. As a new article of manufacture, a blank for a bale-band tie having a longitudinal slot formed in one end thereof with the edges of the slot converged toward the adjacent end of the tie, the opposite end of the tie being cleft to form a longitudinal pointed tongue having its free extremity extending toward the slot and the tie also being provided with openings intersecting the clefts at the base of the tongue.

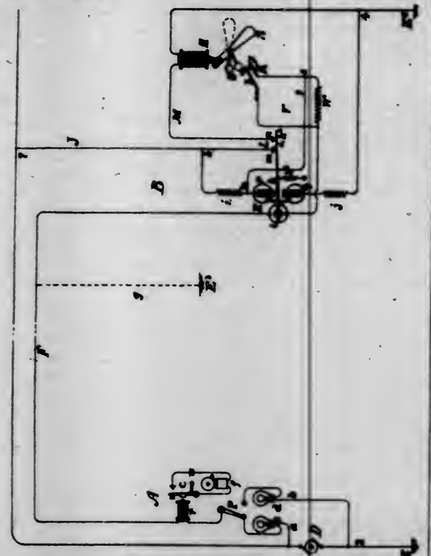
786,148. **SIGNAL SYSTEM FOR ELECTRIC RAILWAYS.** GREENLEAF W. PICKARD, Amesbury, and HAROLD J. W. FAY, Westboro, Mass., assignors to American Telephone and Telegraph Company, a Corporation of New York. Filed Jan. 28, 1905. Serial No. 243,060.

Claim.—1. In a signaling system for electric railways, the combination at a principal or despatching station, with the railway main supply or feed conductor; and its source of current; of an associated signal-circuit conductor also receiving current from said source; safety and danger signals arranged for alternative connection in circuit with said associated conductor; and means for transferring said conductor from either of said signals to the other, and for simultaneously reversing the direction of the current circulating therein; substantially as set forth.

2. In a signaling system for electric railways, a signal controlling or transmitting apparatus, comprising the railway power transmission or feed conductor; an associated signal-circuit conductor; a dynamo supplying current to both of said conductors; safety and danger signal lamps connected in alternative terminal branches of said signal-circuit conductor extending from the opposite poles of said dynamo respectively; and a switch device placed between said signal-current conductor and said terminal branches thereof, and adapted to connect said conductor through either signal-lamp to the corresponding dynamo-pole; substantially as described.

3. In a signaling system and at an outlying station or point thereof, the combination of a power-transmission or feed circuit con-

ductor; a signal-circuit conductor; a polarized relay having magnet and armature helices connected in circuit with said conductors respectively; a semaphore or similar visible signal; a solenoid actuating said semaphore in a branch of said power-transmission-circuit conductor controlled by said relay; and means actuated by said semaphore when moved to its position of display for increasing the current in said signal-circuit conductor; substantially as and for the purposes specified.



4. In a signaling system for electric railways, a signal receiving and displaying apparatus, consisting of a conductor extending from the feed or power-transmission railway circuit; a signal-circuit conductor; a semaphore or similar visible signal; an actuating-solenoid for said semaphore in a branch of said railway-circuit conductor; a polarized relay having magnet and armature helices included in said railway-circuit and signal-circuit conductors respectively, controlling said solenoid; a resistance device connected in the said signal-circuit conductor; a shunt round said resistance; and a circuit-closer for said shunt actuated by said semaphore when moved to its danger position, to short-circuit said resistance; substantially as set forth.

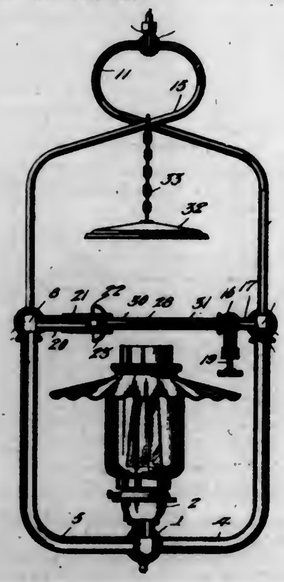
5. In a signaling system for electric railways, the combination of a current-generator; a main supply or feed conductor, and an associated signal-conductor connected with said generator and extending between a principal station and an outlying or road station; a current-reversing switch device at said principal station placed between said signaling-conductor and the poles of said generator and organized to transfer said conductor from either pole to the other; a polarized relay at the said outlying station having magnet and armature exciting coils connected with said main and associated conductors respectively, said relay being responsive to the operation of said reversing-switch; a semaphore or similar visible signal also at said outlying station; and an actuating electromagnetic helix therefor, in a branch of said main conductor controlled by said relay; substantially as set forth.

6. In a signaling system for electric railways, a return-signal apparatus to indicate at a despatching-station the position of a semaphore-signal at a road-station, consisting of a signal-circuit conductor extending between said stations; a source of current for said conductor, alternative terminal branch connections from said conductor to the two poles respectively of said source, and a signal glow-lamp in each of said alternative branches, at the said despatching-station; a semaphore or similar visible signal at said road-station; a resistance device, also at said road-station, connected in the said signal-conductor; a short-circuiting shunt round said resistance; and a circuit-closer for said shunt actuated by said semaphore in its changes of position, to close or open said shunt round said resistance, and, by the consequent differences in available current volume, to vary the display of the said signal-lamps at the transmitting-station; substantially as specified.

7. A signaling system for electric railways, consisting of the railway main supply or feed conductor and an associated signal-circuit conductor both extending between a principal or despatching station and an outlying station; a current-generator common to both; a road or outlying signal apparatus comprising a semaphore-signal, an actuating-magnet therefor in an earth branch of said main conductor, a polarized relay controlling said actuating-magnet having magnet and armature exciting helices connected in a second earth branch of said main conductor and in said associated conductor respectively, said relay being responsive to the reversal and cessation of current in either of said helices, all at said outlying station, and at the principal station, alternative circuit-terminal connections from the two poles of said generator for said signal-circuit conductor, and a switch device for the transfer of said conductor from either to the other to reverse the current in said conductor; and a despatching-station return-signal apparatus comprising glow-lamp signals one in each of said alternative circuit connections at said despatching-station, together with a resistance device in said signal-circuit conductor, a short-circuiting shunt therefor, and a circuit-closer for said shunt actuated by said semaphore to establish and disestablish said shunt according as the said semaphore is displayed or withdrawn, all at said outlying station; substantially as set forth.

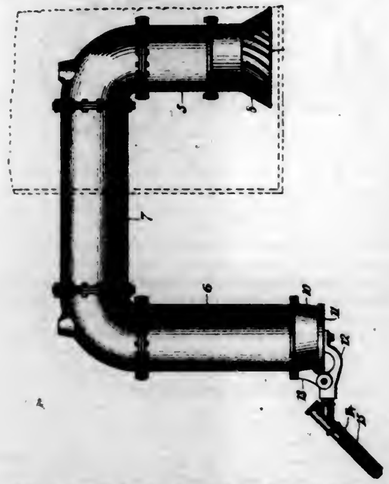
8. A signaling system for electric railways, consisting of the railway main supply or feed conductor, and an associated signal-circuit conductor both extending between a principal or despatching station and an outlying or road signal station; a current-generator common to both; a road-station signal apparatus comprising a high-resistance earth branch of said main conductor, a polarized relay having magnet-coils in said earth branch and an armature-magnetizing coil connected between said associated conductor and an approximately mid-resistance point of said earth branch, said relay being responsive to the reversal or cessation of current in either magnet or armature coils, a semaphore-signal and an actuating magnet-helix for said signal in a separate earth branch of said main conductor controlled by said relay, all at said road-station, and a switch device at said principal station for the transfer of said conductor from either pole of said generator to the other; and a principal-station return-signal apparatus comprising a resistance device in said associated conductor at said road-station, together with means actuated by said semaphore-signal in its position of display for short-circuiting said resistance and for thereby increasing the strength of current in the said associated conductor; and an electric lamp responsive by its full glow to such increased current in the circuit of said associated conductor at said principal station; substantially as specified.

786,149. VAPOR-LAMP. MARION W. PITNER, Chicago, Ill. Filed Oct. 22, 1904. Serial No. 229,656.



Claim.—In a device of the class described, a burner, a hanger-frame including a pair of lower frame-sections disposed on opposite sides of the burner, one of said sections being tubular and adapted for communication with the burner, a tube extended across the frame above the burner and constituting a vaporizing-chamber, a pair of upper frame-sections connected respectively with the lower frame-sections, one of the upper sections being tubular and adapted for communication with the lower tubular section through the medium of the vaporizing-chamber, the upper sections being crossed at a point above the burner and having their upper portions returned toward each other to form an open eye above the burner, a coupling member connecting the adjacent terminals of the upper frame-sections, a feed-tube connected to said coupling member and communicating therethrough with the upper tubular section, and a valve for controlling the flow of liquid from the upper tubular frame-section to the vaporizing-chamber.

786,150. SIPHON. JAMES J. POWERS, Centralpark, N. Y., assignor to Joseph G. Powers and George V. Powers, Centralpark, N. Y. Filed June 11, 1904. Serial No. 212,130.



Claim.—A siphon having the end of its short arm flared or bell shape, and provided on its inner face with spiral ribs and the end of its long arm contracted, and provided with lugs projecting below the same, an arm pivoted between its ends to the lugs of the long arm of the siphon, a plate-valve secured to one end of the pivoted arm and adapted to seat on the contracted end of the long arm to close the same, a tubular lever having at one end an angular member secured to the other end of the pivoted arm, whereby the tubular lever is inclined to the plane of the valve, and shot in the said tubular arm, as set forth.

786,151. COFFEE-MILL. JOSEPH M. RIBERT, New York, N. Y., assignor to National Novelty Corporation, New York, N. Y., a Corporation of New Jersey. Filed Oct. 5, 1904. Serial No. 227,363.

Claim.—1. In a coffee-mill or like device, the combination with the mill-casing proper having the vertical flange with internal groove, a canister having its neck provided with a rib registering with said groove, and an intermediate gasket or washer between the flange and the said neck and covering said rib, and entirely preventing contact of the flange with the neck of the canister; substantially as described

2. In a coffee-mill or the like, the combination of the shell and vertical back plate, means for securing them together, the back plate, and shell each having upwardly-projecting semicylindrical flanges with an internal groove forming between them a circular canister-supporting opening, said canister having its neck inclosed between said flanges and having a rib, registering with the groove in the flanges, and a gasket or washer intermediate the flange and canister-neck and entirely encircling the latter and covering said rib; substantially as described.

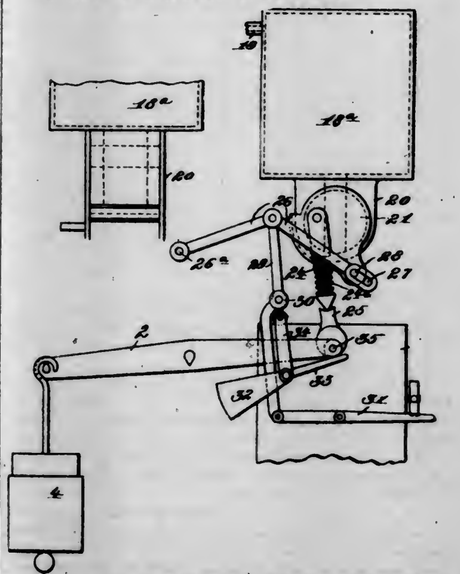
3. In a coffee-mill or the like, the combination of the shell and the vertical back plate, means for securing said parts together around the canister-neck, and means for securing them to a wall or other object, and the removable casting attached to the shell and back plate and forming a portion of the cover-plate for the ground-coffee-holding receptacle, and a spring-supported receptacle-holding frame; substantially as described.



4. In a coffee-mill or the like, the combination with the mill proper, carrying the cover-plate for the ground-coffee receptacle, a holding-frame for said receptacle, spring-supported from said mill proper, and adapted to clamp said receptacle firmly against the cover-plate, said holding-frame being slidable with respect to the mill proper to facilitate packing; substantially as described.

5. In a coffee-mill or the like, the combination with the mill proper, carrying the cover-plate for the ground-coffee receptacle, the holding-frame for said receptacle having rods guided in lugs on the mill proper, springs acting upon said rods when they are withdrawn slightly to allow the placing of the receptacle on the frame, and means for permitting longitudinal movement of the rods, when the receptacle is removed to facilitate packing; substantially as described.

786,152. WEIGHING-MACHINE. HENRY RICHARDSON, New York, N. Y. Filed Dec. 2, 1904. Serial No. 235,233.



Claim.—1. In a weighing-machine for liquids, the combination of a bucket having a discharge-spout, a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, means for locking the valve closed, and a weighted lever in the bucket, connected with the valve for closing the same.

2. In a weighing-machine, the combination of a bucket having a discharge-spout, a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, means for locking the valve closed, a weighted lever in the bucket, connected with the valve for closing the same, and a pan connected with and located below said valve, said pan having a discharge-orifice.

3. In a weighing-machine, the combination of a bucket having a discharge-spout, a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, means for locking the valve closed, a weighted lever in the bucket, connected with the valve for closing the same, and a pan connected with and located below said valve, said pan having a discharge-orifice and the bucket having a flange extending below its bottom and surrounding said pan and spout.

4. In a weighing-machine, the combination of a bucket having a discharge-spout depending from its bottom, and a flange surrounding said spout, also depending from said bottom, and a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, means for locking the valve closed, a weighted lever in the bucket, connected with the valve, for closing the same, a pan connected with and located below said valve, said pan having a discharge-orifice and the bucket having a flange below the bottom thereof and surrounding said other flange and pan.

5. In a weighing-machine, the combination of a bucket having a discharge-spout, a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, a link connected with the upper side of the valve and extending upward therefrom, a rock-shaft supported by the bucket and extending diametrically thereof, a crank-arm on the rock-shaft, jointed to said link and constituting with the latter a toggle for locking the said valve closed, and a weighted lever in the bucket, connected with the valve, for closing the same.

6. In a weighing-machine, the combination of a bucket having a discharge-spout, a valve arranged for movement in the spout, the latter having an outlet controlled by the valve, a toggle for locking the valve closed, a weighted lever mounted in the bucket, and a link pivotally connected with the weighted lever and valve, the weighted lever serving, through the link, to close the valve.

7. In a weighing-machine, the combination of a bucket having a discharge-spout, a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, means for locking the valve closed, a weighted lever in the bucket, connected with the valve, for closing the same, a supply-spout having a valve, a scale-beam for supporting the bucket, the scale-beam controlling the closing of the second valve, and means, coöperative with the second valve, for effecting the release of the first valve.

8. In a weighing-machine, the combination of a scale-beam and a bucket, the latter having a discharge-spout, a valve arranged for movement in said spout, the latter having an outlet controlled by the valve, means for locking the valve closed, a weighted lever in the bucket, connected with said shaft, a link connecting the crank-arm and valve and constituting, with said crank-arm, a toggle for locking the valve closed, a weighted lever in the bucket, a link connecting the weighted lever and valve, a weighted lever outside the bucket, connected to said crank-shaft, a supply-spout having a valve, means coöperative with the bucket for controlling the closing of said second valve, and means coöperative with the second valve for operating the lever connected with said rock-shaft to throw the toggle-centers out of line.

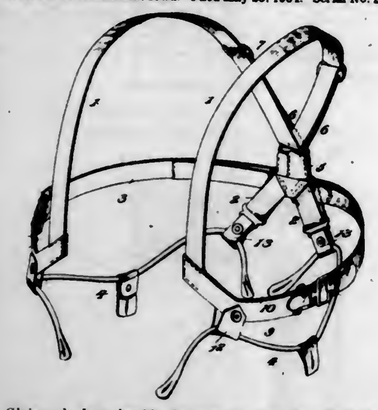
9. In a weighing-machine, the combination of a bucket, a liquid-discharge-controlling valve for the bucket, means for locking the valve closed, and a weighted lever in the bucket, connected with the valve, for closing the same.

10. The combination of weighing mechanism including a bucket and a beam, a tank having a valve-casing, a valve in said casing, the opposite ends of the valve projecting outside of the casing, plates connected with the projecting ends of the valve, a plate connecting the other plates and constituting a means for catching drip from the valve when the latter is closed, and means coöperative with the weighing mechanism for controlling the closing of said valve.

11. The combination with weighing mechanism including a bucket and a beam, a tank having a valve-casing, a valve in said casing, the opposite ends of the valve projecting outside the casing, plates connected with the projecting ends of the valve, a curved plate connecting the other plates and constituting a means for catching the drip from the valve when the latter is closed, and also weighted to cause the closing of said valve, and means coöperative with the weighing mechanism for controlling such closing.

12. The combination of weighing mechanism including a bucket and a beam, a tank having a valve-casing depending therefrom and provided with a vertical passage, and with a bore entirely through the same, a valve in said bore and projecting at its opposite ends thereform, the valve having a transverse port to register with said passage, plates connected with the projecting ends of the valve, a curved plate connecting the other plates, constituting a means for catching drip from the valve when the latter is closed, and serving to also close the valve, and means for controlling such closing.

786,153. **SHOULDER-BRACE AND SUSPENDERS.** REXFORD B. RICHMOND, Malvern, Iowa. Filed May 20, 1904. Serial No. 208,930.



Claim.—1. In a shoulder-brace of the class described, the combination of shoulder-straps, side straps and back straps, attaching-cords connecting the respective back straps and side straps, button-attaching means at the ends of the attaching-cords, and button-tabs adjustable upon said attaching-cords.

2. In a shoulder-brace of the class described, the combination of a back-pad, shoulder-straps connected at their rear ends with the back-pad, side straps connected at their rear ends with the back-pad, plates connecting the front ends of the side straps with the front ends of the shoulder-straps, back straps connected with the back-pad, and attaching-cords connected with the back straps and the connecting-plates aforesaid.

3. In a shoulder-brace of the class described, the combination of a back-pad, shoulder-straps connected at their rear ends with the back-pad, side straps connected at their rear ends with the back-pad, plates connecting the front ends of the side straps with the front ends of the shoulder-straps, back straps connected with the back-pad, and attaching-cords connected with the lower ends of the back straps and with the connecting-plates aforesaid at a point between the ends of said connecting-plates.

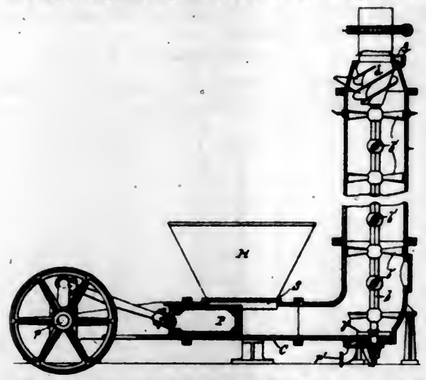
4. In a shoulder-brace of the class described, the combination of shoulder-straps, side straps, back straps, plates connecting corresponding ends of the side straps with corresponding ends of the shoulder-straps, and attaching-cords connected with the back straps and with the connecting-plates aforesaid.

5. In a shoulder-brace of the class described, the combination of a back-pad, shoulder-straps connected at their rear ends with the back-pad, side straps having a running connection with the back-pad, back straps forming continuations of the side straps, connecting means between the front ends of the side straps and the shoulder-straps, and an attaching-cord connected with the back straps and with the side straps.

6. In a shoulder-brace of the class described, the combination of a back-pad, shoulder-straps connected at their rear ends with the back-pad, side straps having a running connection with the back-pad, back straps forming continuations of the side straps, connecting-plates between the front ends of the side straps and the front ends of the shoulder-straps, and attaching-cords connected with the lower ends of the back straps and the connecting-plates aforesaid.

7. In a shoulder-brace of the class described, the combination of a back-pad, shoulder-straps connected at their rear ends with the back-pad, side straps having a running connection with the back-pad, back straps forming continuations of the side straps and having a running connection with the back-pad, connecting-plates between the front ends of the side straps and the front ends of the shoulder-straps, an attaching-cord loosely connected with the lower ends of the back-straps, and securing means carried by the connecting-plates aforesaid and connected with the attaching-cords.

786,154. **APPARATUS FOR EXTRACTING SUGAR-JUICE.** JOSEPH RIGNEY, New York, N. Y. Filed Sept. 23, 1904. Serial No. 225,643.



Claim.—1. Apparatus for extracting juice from bagasse or the like, comprising a stand-pipe provided with water-inlets near the upper part and a screened outlet for liquid near the bottom, a rotary shaft in the stand-pipe, carrying a series of pitched blades adapted to advance the material up through the stand-pipe as a loosened mass, a scraper-blade on the shaft adapted to clean the screened outlet and means for feeding the material to the lower part of the stand-pipe.

2. Apparatus for extracting juice from bagasse or the like, comprising a stand-pipe provided with water-inlets near the top and an outlet for liquid near the bottom, a rotary shaft in the stand-pipe, carrying a series of pitched blades adapted to advance the material up through the stand-pipe as a loosened mass in combination with a cone-shaped squeezing-screw on the upper end of the shaft at the outlet leaving an annular discharge-opening, as and for the purpose described.

3. Apparatus for extracting juice from bagasse or the like, comprising a stand-pipe, a shaft therethrough with a number of pitched blades thereon of such a number and pitch as to advance the material slowly up through the stand-pipe as a loosened mass, the stand-pipe having water-inlets near the top of the stand-pipe and an outlet for the liquid near the bottom thereof, in combination with a short horizontal member open to said stand-pipe, a solid-ended piston therefor and a hopper in the wall of said member.

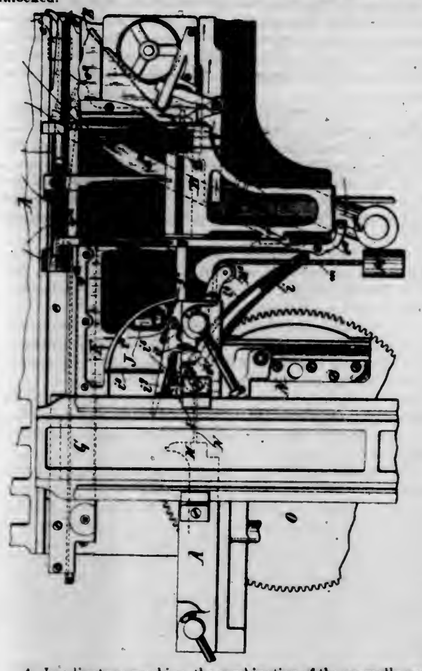
4. Apparatus for extracting juice from bagasse or the like, comprising a stand-pipe, a shaft therethrough with a number of pitched blades thereon of such a number and pitch as to advance the material slowly up through the stand-pipe as a loosened mass, the stand-pipe having water-inlets near the top of the stand-pipe and a liquid-outlet at the bottom thereof, in combination with a short horizontal member open to said stand-pipe, a solid-ended piston therefor and a hopper in the wall of said member, adjacent to the shaft, a screen for said outlet, and a scraper-blade on the shaft adapted to clean said screen.

786,155. **LINOTYPE-MACHINE.** JOHN R. ROGERS, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Oct. 22, 1904. Serial No. 229,362.

Claim.—1. In a linotype-machine, the combination of a line-transfer carriage, two line-confining jaws, one of which is moved toward the other by the advance of the carriage, and means for locking the jaw.

2. In a linotype-machine, the combination of a line-transfer carriage, two line-confining jaws, one of which is advanced toward the other to its operative position by the carriage, means for transferring the line from the carriage to the casting position between the jaws, and means for locking the jaw during the casting action and thereafter retracting it.

3. In a linotype-machine, the combination of line-confining jaws normally separated beyond the working limit, line-transferring devices acting to set one jaw in operative relations to the other, the line-elevator, jaw locking and unlocking devices controlled by the line-elevator, and means for automatically retracting the jaw when unlocked.



4. In a linotype-machine, the combination of the normally open jaw to confine the matrix-line, the line-carrying finger acting to close the jaw, a pawl to lock the jaw when closed, spring connections tending to disengage the pawl, the life-elevator, means controlled by the line-elevator to throw the pawl into action, and means for retracting the jaw when the pawl is disengaged.

5. In a linotype-machine, the movable line-confining jaw having a toothed rear extension to cover the mold, in combination with means constantly tending to open the jaw, a locking device to hold the jaw closed, and means for automatically closing the jaw according to the varying length of the lines presented thereto.

6. In a linotype-machine and in combination with the line-confining jaw H, the movable, opposing, mold-covering jaw I, means tending constantly to retract the latter, and means for automatically locking it when it is advanced to its operative position.

7. In a linotype-machine, the line-confining jaw, provided with a hinged tail to cover and close the mold whereby the tailpiece is permitted, on the retreat of the jaw, to turn out of the path of the parts behind the jaw.

8. In a linotype-machine, a movable line-confining jaw, operative in different positions, in combination with a pump-stopping device and devices connecting the same with the jaw in the various positions of the latter.

9. In a linotype-machine, the sliding jaw and the pump-controlling lever, in combination with a pawl-and-ratchet connection between said parts.

10. In combination with the sliding toothed jaw and means tending constantly to retract or open the jaw, the pawl to hold the same forward, the arm i' adapted to lift the pawl out of action, the spring tending to raise the arm, and line-carrier G acting to depress the arm.

11. In combination with the jaw H and movable jaw I, the line-transferring carriage having two fingers arranged to engage the respective jaws.

12. The line-transferring carriage having the rigid and the hinged fingers, in combination with the normally fixed jaw engaging the rigid finger, and the normally open jaw engaged and moved by the hinged finger.

13. In a linotype-machine, adjustable devices to confine matrix-lines of different lengths, in combination with line-transferring de-

vices arranged to automatically close the confining devices to suit the length of each line.

14. In a linotype-machine, the combination of two confining-jaws for the matrix-line, a line-transfer carriage having two fingers which connect with the inner ends of the jaws, and means for lowering the line between the fingers to its place between the jaws, whereby the line is confined and held in close order as it enters between the jaws.

15. In a linotype-machine, the two jaws and two matrix-guiding fingers arranged to connect with and form continuations of the inner ends of the jaws, whereby they are adapted to confine and guide the entering line.

16. The line-transfer carriage provided with a hinged finger arranged to follow the matrix-line and to swing forward in the direction in which the line advances, substantially as described and shown.

17. In a linotype-machine, the assembling-elevator D, the star-wheel and the spacer-chute as usual, in combination with the line-delivery carriage having the two long fingers, one rigid and the other hinged to swing away from the incoming spaces.

18. In combination, the line-transfer carriage having a finger e^3 and a relatively movable finger e^4, and means for closing the fingers on the matrix-line controlled by the assembling-elevator D, whereby the rise of the elevator causes the clamping of the line.

19. The carriage having two fingers, movable one toward the other to confine the matrix-line, in combination with a spring tending to draw the fingers together, a latch to hold them apart, and the assembling-elevator arranged to disengage the latch.

20. In a linotype-machine, two line-confining jaws at the casting-point, and the line-transfer carriage and its two movable fingers, e^3 and e^4, to grasp the matrix-line, in combination with a spring tending to approximate the fingers, means for maintaining their separation during the introduction of the line, means for moving the left finger to confine the line between the fingers, means for advancing the carriage to the left to a constant point, and means for further advancing the two fingers in relation to the carriage until the left end of the line is in alinement with its confining-jaw, whereby the matrix-line is permitted to elongate during justification from the fixed left-hand jaw.

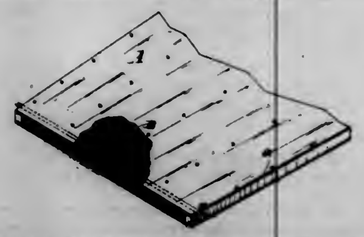
21. In combination with the carriage-frame, the two fingers movable laterally in relation to each other and to the frame, the springs tending to approximate the fingers and move both toward one end of the carriage, and means for shifting the carriage and for shifting, separating and holding the fingers.

22. The carriage-frame, its two sliding fingers, the two springs and the two levers acting respectively to move the carriage and to separate the fingers.

23. In a linotype-machine, the two line-confining jaws in combination with a line-transfer carriage provided with two line-transferring fingers, one adapted to pass freely over the first jaw and slide against the second, and the other arranged to engage and advance the first jaw.

24. In a linotype-machine and in combination with means for assembling the matrices, a laterally-swinging carriage-finger, e^2, terminating, in its normal position, immediately above the point at which the matrices and spacers enter the line, whereby it is adapted to aid in guiding them to their places.

786,156. **LINOTYPE-MACHINE.** JOHN R. ROGERS, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Oct. 27, 1904. Serial No. 230,220.



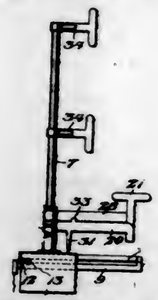
Claim.—1. The longitudinally-channeled magazine having a transverse opening in one side adjacent to the body-plate, substantially as shown; whereby it is adapted to receive a locking-bar to engage the edges of the matrices.

2. In combination with the magazine comprising channeled body-plates, the removable transverse bar lying adjacent to the inner side of one of said plates.

3. In combination with the channeled magazine and the contained matrices with ears at their ends, the transverse sliding locking-bar seated between the ears.

4. In combination with the channeled magazine, the transverse sliding bar, beveled at one end to engage the matrix-ears and draw them back within the magazine.

786,157. **MUSIC-LEAF TURNER.** LAWRENCE J. ROSE, St. Louis, Mo. Filed May 24, 1904. Serial No. 209,469.



Claim.—1. In a music-leaf turner, the combination with a casing; of a revoluble rod journaled therein, a gear secured thereon, a coiled spring secured at opposite ends to the gear and casing, a rack meshing with the gear and slidably mounted within the casing, means for locking the rack against movement, a clip secured to and revoluble with the rod, a second clip loosely mounted upon the rod, and means for automatically locking said clip to the rod.

2. In a music-leaf turner, the combination with a casing having a revoluble rod journaled therein and extending therefrom; of a gear secured to the rod, a coiled spring adapted to be wound upon the rod, a laterally-movable rack engaging the gear, means for locking the rack in one position, a slide mounted within the casing and movable with the rack in one direction, a sleeve inclosing the rod and having a cam-face, a slotted collar loosely mounted upon the rod and bearing upon said face, a clip connected to the collar, and means operated by the rack and slide for rotating the collar in opposite directions, respectively.

3. In a music-leaf turner, the combination with a casing having a revoluble rod therein and projecting therefrom, a coiled spring secured to the rod, and means for rotating the rod to tension the spring; of a sleeve inclosing the rod and having a cam-face, a collar revolubly mounted upon the rod and supported by the sleeve, said collar having an angular slot and a recess therein, studs upon the rod adapted to engage the slot and the recess, a second collar revolubly mounted upon the rod and having a recess adapted to receive one of the studs, arms extending from the collars, and clips secured to the arms.

4. In a music-leaf turner, the combination with a casing having a revoluble rod therein and extending therefrom; of a coiled spring connected at opposite ends to the rod and casing, a gear revoluble with the rod, the rack meshing therewith, a slide within the casing movable in one direction with the rack, an extension upon the slide, a sleeve surrounding the rod and having a cam-face, a collar revolubly mounted upon the rod and bearing on the cam-face, said collar having an L-shaped slot and a recess therein, studs upon the rod adapted to engage the slot and recess for locking the collar to the rod, a clip connected to the collar, and a depending arm connected to the collar and adapted to project into the path of the extension.

5. In a music-leaf turner, the combination with a casing having a rod revolubly mounted therein and extending therefrom, and a gear secured to the rod; of a rack meshing with the gear and projecting laterally from the casing, a slide mounted within the casing and extending laterally therefrom, a head upon one end of the rack for contacting with and operating the slide in one direction, a sleeve surrounding the rod and having a cam-face, a collar revolubly mounted upon the rod and having a lower face similar to the cam-face of the sleeve, said collar being provided with an L-shaped slot and a recess-studs upon the rod adapted to engage the slot and recess, a second collar revolubly mounted upon the rod, a recess therein for receiving

one of the studs, arms extending from the collars, clips thereon, an arm depending from the arm of the lower collar, an extension upon the slide for contacting therewith, and an ear upon the arm of the lower collar.

786,158. **DOOR-STOP.** HENRY W. ROSS, Springfield, Mass. Filed Nov. 28, 1904. Serial No. 234,537.



Claim.—1. In a device of the class described, a guiding member adapted to be attached to a swinging body, a yielding buffing-plate carried by said member, a buffer-head mounted for sliding movement in the guiding member and having an inclined face adapted to make contact with said buffing-plate, and a link connected at one end to the buffer-head and adapted to be connected at its opposite end to a fixed support.

2. In a device of the class described, the combination with a swinging body, of a buffing element mounted thereon for a swinging movement, means to resist said movement in one direction, a buffer-head mounted for sliding movement on said body to and from said element and having an inclined face adapted to engage the buffing element, and a link connection between said head and a fixed support.

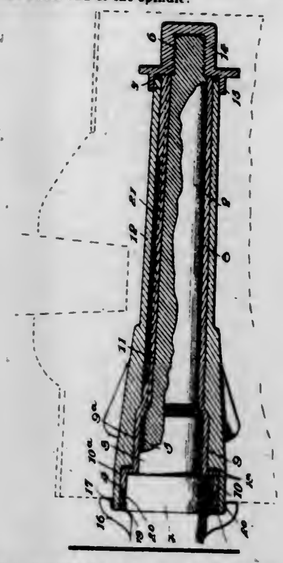
3. In a device of the class described, the combination with a swinging body, of a buffing element pivotally mounted on said body and adapted to have a swinging movement thereon, a spring engaging one side of the element to resist movement of the latter in one direction, a buffer-head mounted for a sliding movement on said body toward and away from the buffing element and having an inclined face adapted to engage the latter on the side opposite to the spring, and a link connection between said head and a fixed support.

4. In a device of the class described, the combination with a swinging body, of a guiding and supporting member consisting of a casing having an elongated slot and provided with a socket-piece, a pivoted buffing element mounted on the casing, a spring disposed in the socket-piece and engaging the element to resist movement thereof in one direction, a sliding buffer-head mounted in the casing for movement to and from said element, and having an inclined face adapted to engage the latter, and a link connection between said head and a fixed support, the connection with the head being made through the slot in the casing.

5. In a device of the character described, the combination with a swinging body, of a guiding and supporting means consisting of a casing having an elongated slot therein and provided with a socket-piece, a buffing element pivoted in the casing, a spring disposed in the socket-piece to resist movement of the element in one direction, a buffer-head slidably mounted in the casing to and from said element and having an inclined face adapted to engage the latter, said head being provided with an ear projected through the slot in the casing, and a link secured at one end to the ear and at the opposite end to a fixed support adjacent the swinging body.

786,159. **AXLE-SKEIN.** GUY U. ROUNDS, Maryville, Mo. Filed July 14, 1904. Serial No. 216,639.

Claim.—In combination with an axle, a spindle provided at its inner end with a collar, an annular flange projected from the axle adjacent the collar and provided upon its outer side with an annular groove, the spindle being provided with a groove longitudinally thereof, a skein disposed upon the spindle and provided at its inner end with an enlargement conforming to the shape of the collar and having an annular groove surrounding said enlargement aforesaid, set-screws threaded into the inner end of the skein and engaging the collar of the spindle, a longitudinal rib projecting from the skein in the bore thereof and received by the groove in the spindle, the skein being provided with a longitudinal groove upon its outer side just above the rib in the bore thereof, said groove terminating adjacent the ends of the skein, absorbent material disposed in the longitudinal groove of the skein, an axle-box disposed upon the skein, the groove of the annular flange projected from the axle receiving the inner ends of the axle-box and skein, the inner end of the axle-box extending over the said screws securing the skein, and a nut threaded upon the outer end of the spindle.



786,160. **MACHINE FOR AUTOMATICALLY FOLDING CLOTHS IN VATS.** SAMUEL C. ROWE, Somersworth, N. H. Filed Aug. 19, 1903. Serial No. 170,065.



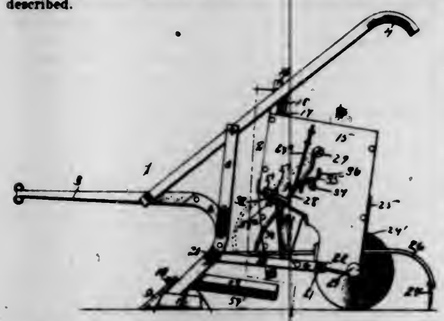
Claim.—1. In a machine for automatically piling cloth in a vat, the combination with a longitudinally-movable cloth-delivering reel, of levers fulcrumed in the path of the reel, a pawl-and-ratchet mechanism actuated by the levers, a support therefor, bevel-gears intermittently rotated by the ratchet mechanism, an endless chain operated by the gears, and a laterally-movable post connected to the chain and provided with cloth-guide apertures.

2. In a machine for automatically piling cloth in a vat, the combination with the rotative and longitudinally-movable cloth-reel and its shaft, of an endless chain mounted across the machine, a vertical post movable laterally and provided with cloth-guide apertures and connected to the chain, and means actuated by the reel to move the chain intermittently.

3. In a machine for automatically piling cloth in a vat, the combination with the rotative and longitudinally-movable cloth-reel and its shaft, of an endless chain mounted across the machine, parallel bars mounted across the machine, a vertical cloth-guide post slidably secured to the parallel bars, and formed with a vertical slot at its lower end portion, a pin loosely projected through the slot and fastened to a link of the chain, and mechanism actuated by the reel to impart intermittent movement to the chain.

786,161. **SEEDER AND PLANTER.** OLLIVER P. SANFORD, Dadeville, Ala., assignor of one-fifth to J. H. Ellis, one-fifth to C. H. Ellis, and one-fifth to S. O. Sanford, Dadeville, Ala. Filed Aug. 26, 1904. Serial No. 222,150.

Claim.—1. In a machine of the class described, a hopper having a discharge, a shaft having a stirring device in the hopper and a tappet on one side of the hopper, means to actuate said device, a valve for the discharge, a lever to operate said valve, and a spring to engage said lever with the tappet, said spring and tappet coacting to impart reciprocating motion to said lever and valve, substantially as described.



2. In a machine of the character described, the combination of a hopper, a discharge therefor, a valve for said discharge, a lever for operating said valve, a shaft extending through said hopper, a double-end tappet upon said shaft and adapted to coact with said lever, a crank upon said shaft, a second shaft, a traction-wheel upon the latter, a crank upon the latter-mentioned shaft of less length than the crank upon the first-mentioned shaft, and a rod connecting said cranks, substantially as described.

3. The combination of a hopper, a discharge therefor, a valve for said discharge, an element for operating said valve, a shaft, a double-end tappet upon said shaft for operating said element, a crank upon said shaft, a drive-shaft, a crank on said drive-shaft of less length than the first-mentioned crank, and a connection between said cranks, whereby when said drive-shaft is rotated said tappet-shaft will be oscillated, substantially as described.

4. The combination of a hopper, a discharge therefor, a valve for said discharge, an element for operating said valve, a double-end oscillatory tappet for operating said element, and means for holding said element out of the path of said tappet, substantially as described.

5. In a machine of the class described, the combination of a suitable frame, a hopper mounted thereon, having depending arms, a guide-plate carried by said hopper and depending between its arms, and shovel-beams pivotally connected to said frame and adapted to swing freely and independently between said arms and said guide, substantially as described.

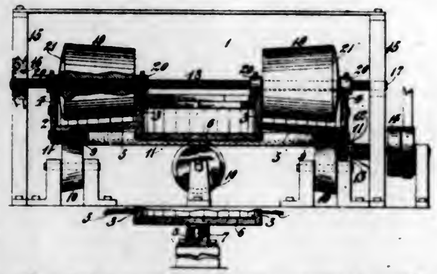
6. In a machine of the class described, the combination of a suitable frame, a hopper slidably connected to said frame and having depending arms, links pivotally connected to said arms, a supporting-wheel for said hopper mounted between said arms, a guide upon said hopper, covering-shovel beams projecting between said arms and said guide, and a pivot for connecting the forward ends of said beams and said links to said frame, substantially as described.

7. In a machine of the class described, the combination of a hopper having a discharge-opening in its bottom, a sliding cut-off plate having lugs upon opposite edges to project through said opening and engage the inner face of said hopper-bottom, and lugs upon said edges to engage the outer face of said hopper-bottom, and means for adjustably securing said plate upon said bottom, substantially as described.

786,162. **DYEING-MACHINE.** MAX SARPERT, Philadelphia, Pa. Filed Aug. 3, 1900. Serial No. 25,827.

Claim.—1. In a dyeing and saturating apparatus, an annular trough, the base thereof inclining downwardly and outwardly, a shaft mounted above said trough and capable of movement relative thereto, rollers loosely mounted on said shaft and having their outer ends curved to correspond with the contour of said trough, said shaft being supported to normally hold the rollers above and separated from the bottom of said trough, a rack attached to the bottom of the latter, a pinion engaging said rack, a ring secured to said trough, rollers or antifriction devices adapted to coact with said ring, a central plate secured to the inner wall of said trough, a pin depending from said plate and a seat or socket for the reception of said pin.

2. In a dyeing and saturating apparatus, an annular trough, a shaft mounted above said trough and capable of movement relative thereto, rollers loosely mounted on said shaft, and having their outer ends curved to correspond to the contour of said trough, said shaft being supported to normally hold the rollers above and separated from the bottom of said trough, a rack attached to the bottom of the latter, a pinion engaging said rack, a ring secured to said trough, rollers or antifriction devices adapted to coact with said ring, and a central pivot for rotatably supporting said trough.

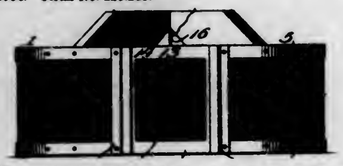


3. A dyeing or saturating apparatus comprising a trough, a roller, means for positively supporting said roller out of contact with the bottom of said trough and means for giving said trough and said roller relative rotary motion about the axis of said trough.

4. A dyeing or saturating apparatus comprising a rotatable trough, a roller in said trough and means for positively supporting said roller out of contact with the bottom of said trough.

5. A dyeing or saturating apparatus comprising a trough, a roller, means for positively supporting said roller out of contact with the bottom of said trough, means for increasing the distance between said roller and the bottom of said trough and means for giving said trough and roller a relative rotary motion about the axis of said trough.

786,163. **TRAP.** GEORGE SCHNITTLE, Altoona, Pa. Filed Oct. 12, 1904. Serial No. 228,210.



Claim.—1. A roach-trap having an entrance in the top thereof, and grooves leaning toward said entrance.

2. A roach-trap having an entrance in the top thereof, and grooves inclined downwardly toward said entrance.

3. A roach-trap having an entrance in the top thereof, and radial grooves leading toward the entrance.

4. A roach-trap having an entrance in the top thereof, and radial grooves inclined downwardly toward said entrance.

5. A roach-trap having an entrance in the top thereof and grooves arranged about said entrance, guide-flanges secured to the top and a pin secured to said guide-flanges above said opening.

6. A roach-trap having its top provided with an entrance and grooves arranged about said entrance, guide-flanges secured to said top, a pin secured to said flanges and arranged above said opening, and a guard secured to the top about said opening.

7. A roach-trap having an entrance in the top thereof, and radial grooves inclined downward toward said entrance, and guide-flanges se ured to said top and intersecting the spaces between the grooves.

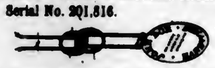
8. A roach-trap comprising a top and bottom, said top being provided with an entrance, wire-cloth, channel-strips secured to the edges and terminals of said cloth, said terminals being spaced apart to provide an opening, and a removable panel or door slidably secured in front of said opening.

9. A roach-trap comprising a top and bottom, said top being provided with an entrance and grooves leading thereto, guide-strips secured to said top, means for preventing the escape from the trap, wire-cloth, channeled strips secured to the ends and terminals of said cloth and means for engaging the strips to secure the cloth in applied position.

10. A roach-trap having an entrance in the top thereof, and radial grooves inclined downwardly toward said entrance, guide-flanges secured to said top, and a pin secured to said guide-flanges above said opening.

11. A roach-trap having an entrance in the top thereof, guide-flanges secured to said top, and a pin secured to said guide-flanges above said opening.

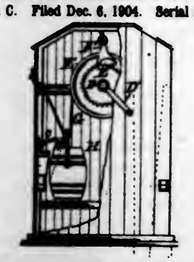
786,164. **PUZZLE.** ISAIAH C. SCUDDER, Middletown, N. Y. Filed Apr. 6, 1904. Serial No. 201,816.



Claim.—1. A puzzle comprising two members each consisting of a single length of wire having a double spirally-disposed loop, the ends of one member being curved outward in opposite directions, the said members adapted to be placed together or separated without springing.

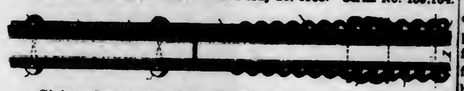
2. A puzzle comprising two members each consisting of a single length of wire, turned to form a double spirally-disposed loop, the ends of one member being curved outward in opposite directions, and a plate connecting the ends of the other member.

786,165. **WATER ELEVATOR AND PURIFIER.** JAMES B. SELLS, Greensboro, N. C. Filed Dec. 6, 1904. Serial No. 235,701.



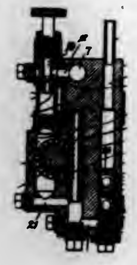
Claim.—In combination with a water-elevator mechanism, a well-bucket having a bail, a supplemental chamber attached to the inner side of the bucket, such chamber extending from the rim of the bucket and converging toward the bottom of the same, the smaller end thereof having a vent, substantially as shown.

786,166. **HANDLE ATTACHMENT FOR BROOMS.** LIBBIE SHAFFNER, Vanwert, Ohio. Filed May 28, 1903. Serial No. 159,184.



Claim.—In a device of the class described, a broom and its handle, a handle extension-section, a tubular sleeve mounted upon one end of and projecting from the handle-section, said sleeve having its extended portion screw-threaded and slit longitudinally to produce clamping members, internal beads provided at the outer ends of the clamping members to bear upon the surface of the broom-handle and maintain the clamping members in relative divergence from their inner toward their outer ends, and a screw-threaded collar mounted upon the sleeve and operable for compressing the clamping members.

786,167. **OIL-PUMP.** WILLIS S. SHERMAN, Milwaukee, Wis., assignor to Sight Feed Oil Pump Co., a Corporation of Wisconsin. Filed Jan. 15, 1903. Serial No. 139,216.



Claim.—1. In an oil-pump, the combination of a frame provided with an oil-chamber and with a plunger-chamber having communication at a point removed from its outer end with the oil-chamber, and said frame also provided with a valve-controlled outlet-passage leading from the plunger-chamber, means for feeding oil into the oil-chamber, means for conducting the oil from the outlet-passage to the machinery to be lubricated, a plunger in the plunger-chamber and provided with teeth forming a rack, a shaft extending across the frame and through the oil-chamber and provided with short gear-teeth therearound, said gear-teeth projecting through an opening in the wall between the oil-chamber and the plunger-chamber and engaging the rack-teeth of the plunger and the remainder of said teeth being located in the oil-chamber, the metal of the shaft on one side of said gear-teeth being cut away, and means for rocking the shaft.

2. In an oil-pump, the combination of a frame provided with an oil-chamber and with a plunger-chamber having communication at a point removed from its outer end with the oil-chamber, and said frame also provided with a valve-controlled outlet-passage leading from the plunger-chamber, means for feeding oil into the oil-chamber, means for conducting the oil from the outlet-passage to the machinery to be lubricated, a plunger in the plunger-chamber and provided with teeth forming a rack, a shaft extending across the frame and through the oil-chamber, and provided with short gear-teeth therearound forming a gear member which projects through an opening in the wall between the oil-chamber and the plunger-chamber, said gear member engaging the rack-teeth of the plunger, the remainder of said gear member being within the oil-chamber, and the metal of the shaft to one side of the gear member being cut away, a bushing mounted on the cut-away portion of the shaft, and means for rocking the shaft.

3. In an oil-pump, the combination of a frame provided with oil-chambers, and with plunger-chambers having communication at points removed from their outer ends with the oil-chambers, and said frame also provided with valve-controlled outlet-passages leading from the plunger-chambers, means for conducting the oil from the outlet-passages to the machinery to be lubricated, plungers in the plunger-chambers and provided with teeth forming racks, a shaft extending across the frame and through the oil-chambers and provided with separated gear members located in the oil-chambers and projecting through openings in the wall between the oil-chambers and the plunger-chambers, and engaging the rack-teeth of the plungers, the metal of the shaft between the gear members being cut away, the said cut-away portion being located between the oil-chambers, and means for rocking the shaft.

4. In an oil-pump, the combination of a frame provided with oil-chambers, and with plunger-chambers having communication at points removed from their outer ends with the oil-chambers, and said frame also provided with valve-controlled outlet-passages leading from the plunger-chambers, means for feeding oil into the oil-chambers, means for conducting the oil from the outlet-passages to the machinery to be lubricated, plungers in the plunger-chambers provided with teeth forming racks, a shaft extending across the frame and through the oil-chambers and provided with separated gear-teeth forming separate gear members located in the respective oil-chambers and projecting through openings in the wall between the oil-chambers and the plunger-chambers and engaging the rack-teeth of the plungers, the metal of the shaft between the gear members being cut away, the said cut-away portion being located between the oil-chambers, a bushing mounted on the cut-away portion of the shaft between the gear members and in the space between the oil-chambers, and means for rocking the shaft.

5. In an oil-pump, the combination of a frame provided with an oil-chamber, a plunger-chamber, and a valve-controlled outlet-passage, said oil-chamber, plunger-chamber, and outlet-passage being in communication, means for conducting the lubricating-oil from the oil-passage to the machinery to be lubricated, a plunger in the plunger-chamber and provided with teeth forming a rack, a transverse shaft provided with teeth forming a gear member meshing with the rack of the plunger, a crank connected to the shaft, means for adjusting the angle of the crank with respect to the shaft, an arm connected at one end to the crank, means for changing the angle of said arm with respect to the crank, and a connection extending from the other end of said arm and adapted to rock the arm and the crank.

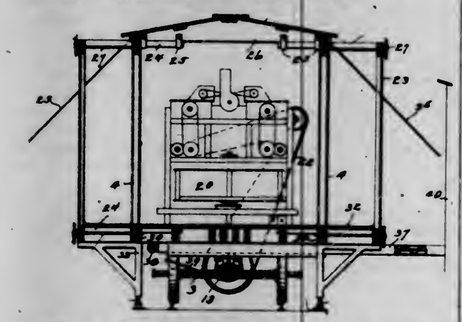
6. In an oil-pump, the combination of a frame provided with an oil-chamber, a plunger-chamber, and a valve-controlled outlet-passage, said oil-chamber, plunger-chamber, and outlet-passage being in communication, means for conducting the lubricating-oil from the

latter passage to the machinery to be lubricated, a plunger in the plunger-chamber, provided with teeth forming a rack, a transverse shaft provided with teeth forming a gear member meshing with the rack of the plunger, a crank fitted on the end of the shaft, a pin passing through an opening in the crank, said pin provided with a curved shoulder bearing against the shaft, a nut on a threaded end of said pin adapted to draw said shoulder against the shaft, an arm fitted to a lug projecting from the crank, a pin passing through the arm and provided with a curved shoulder bearing against the lug, a nut turning on said pin and adapted to draw the shoulder of the same against said lug, and a connection extending from the arm and adapted to rock the same, together with the crank.

7. In an oil-pump, the combination of a frame provided with an oil-outlet passage, and an oil-inlet passage, a drip-nozzle carried by the frame and in communication with the oil-inlet passage, a transparent sight-tube extending from the discharge end of the drip-nozzle, forcing mechanism adapted to receive the oil dripped from the sight-tube, said forcing mechanism being constructed to force the oil from the outlet-passage to the machinery to be lubricated, and a reflecting medium movably fitted in grooveways back of the sight-tube, and a handle for moving said reflecting medium in and out in its guideways.

8. In an oil-pump, the combination of a frame provided with plunger-chambers, and with means for feeding oil to and conducting the same from said chambers, the plungers within the plunger-chambers provided with gear-teeth forming racks, a shaft mounted in bearings in the frame, said shaft having separated gear-teeth therearound forming separate gear members meshing with the racks, the metal of the shaft between the gear members being cut away, and a bushing mounted on the cut-away portion of the shaft between the gear members.

786,168. **PORTABLE FLOUR-MILL.** CHARLES A. SMITH, Crandon, S. D. Filed June 30, 1904. Serial No. 214,699.



Claim.—1. The combination, with a box-car, of a flour-mill arranged therein, mechanism for operating said mill, and the side walls of said car opposite said mill being movable laterally with respect to the car to temporarily increase the floor-space around the mill.

2. The combination, with a box-car, of a flour-mill arranged therein, mechanism for operating said mill, the side walls of said car having sections that are movable toward or from each other to vary the width of the car at that point, mechanism for moving said sections, and suitable supports for said sections when they are moved outwardly from the car-body.

3. The combination, with a box-car, of a mill arranged therein, said car having side-wall sections that are adjustable toward or from each other to increase or decrease the width of the car, a suitable mechanism for operating said side-wall sections, brackets provided beneath said sections and engaging the same and the car-sill, and jack-screws for raising said brackets.

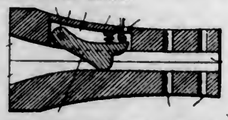
4. The combination, with a box-car, of a flour-mill arranged in one end thereof, a line-shaft suspended beneath the car-platform and having a pulley and a belt connection with said mill, a grain-bin in the opposite end of the car, a separator, and an engine connected with said separator and with the line-shaft, and suitable conveyers connecting said separator with the grain-bin and with said mill, substantially as described.

5. The combination, with a box-car, of a mill located therein, mechanism for operating said mill, the side walls of said car opposite said mill having sections that are adjustable horizontally toward and from each other to increase or decrease the floor-space around the mill, mechanism for operating said sections, and plates hinged at their lower edges to said sections and arranged to swing inwardly when said sections are moved out and cover the space between them and the car-floor.

6. The combination, with a box-car, of a flour-mill arranged in one end thereof, the sides of said car having sections that are movable horizontally toward and from each other to increase or decrease the floor-space around the mill, mechanism for operating said sections, a line-shaft suspended beneath the car-platform, an engine mounted on said platform, pulley-and-belt connections provided between said line-shaft and said mill, a bin, a grain-separator connected with said engine and bin, and suitable conveyers connecting said separator with said bin and with said mill.

7. The combination, with a box-car, of a flour-mill arranged in one end thereof, a line-shaft suspended beneath the car-platform, an engine mounted on said platform, operative connections provided between said shaft and said engine and said mill, a grain-bin, a grain-separator operatively connected with said engine and said bin, and suitable conveyers leading from said bin to said separator and from said separator to said mill.

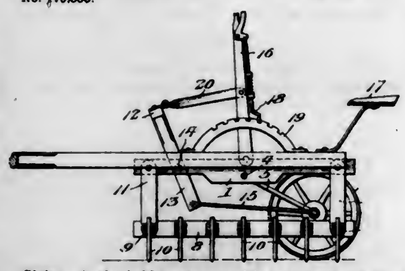
786,169. **CAR-COUPLING.** SIM R. SMITH, Ashville, Ala. Filed July 25, 1904. Serial No. 218,062.



Claim.—1. The combination with a draw-bar, of a car-coupler comprising two separable sections having coinciding recesses in their meeting faces, one of said sections having a recess communicating with its first-mentioned recess, a latch removably pivoted in the second-named recess and movable thereinto, said latch being arranged for engagement by a link disposed in the first-named recesses, means for holding the latch yieldably in position to engage the link, and means for holding the two sections together, and for holding the coupler to the draw-bar.

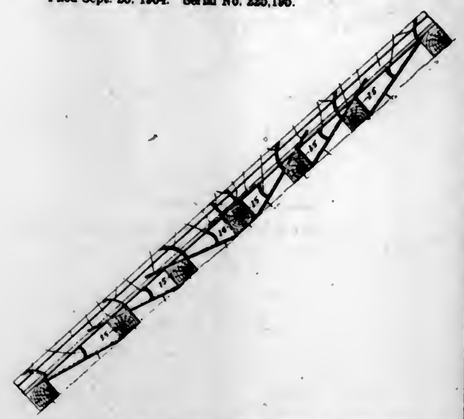
2. As an article of manufacture, a car-coupler comprising two sections, each of said sections having a longitudinal recess in one of its faces extending from end to end thereof, one of said sections having a longitudinal recess communicating with the horizontal wall of its first-named recess, said sections being disposed one against the other and with their first-named recesses in communication with each other, a latch disposed in the second-named recess, a spring disposed between the latch and horizontal wall of the second-named recess to hold the latch yieldably in position to engage a link disposed in the first-named recesses, and a link connected with the latch and passed through one of the sections and arranged for movement to move the latch against the action of the spring, said sections having alining vertical passages therethrough for the reception of bolts to hold the two sections together, and to hold the sections in engagement with a draw-bar.

786,170. **HARROW.** SIMON K. STANLEY, WILLIE C. MAYNARD, and WILLIAM T. MAYNARD, Rhea Mills, Tex. Filed Aug. 19, 1903. Serial No. 170,055.



Claim.—A wheeled harrow comprising a main frame, an arched axle pivotally connected with said main frame and having crank-terminals, wheels on said crank-terminals, a yoke comprising a horizontal cross-bar having pendent arms pivotally connected intermediate their ends to opposite sides of the main frame, links connecting the lower ends of said pendent arms with the crank-terminals of said arched axle, a hand-lever having a thumb-latch, a toothed rack adapted to be engaged by said thumb-latch, a link connecting said hand-lever with the cross-bar of said yoke, links pivotally connected with said main frame, and a harrow pivotally connected with said last-mentioned links.

786,171. **CATTLE-GUARD.** GEORGE W. STEGALL, Paris, Tenn. Filed Sept. 20, 1904. Serial No. 225,195.



Claim.—1. A cattle-guard strip, made of sheet metal and formed with series of transversely-arranged depressed parts, each having a row of longitudinally-extending teeth, a sunken row of upwardly-extending teeth in the body, and an elevated row of teeth.

2. A cattle-guard strip, made of sheet metal, and formed with series of transversely-arranged depressed parts, each having a row of longitudinally-extending teeth, a sunken row of upwardly-extending teeth in the body, an elevated row of teeth at the front, and a plain part located between the longitudinally-extending and the elevated rows of teeth.

3. A cattle-guard strip, made of sheet metal, and formed with a central part having rows of vertically-arranged teeth, and series of transversely-arranged depressed parts, extending in opposite directions from the central part, each having a row of longitudinally-extending teeth, a sunken row of upwardly-extending teeth in the body, an elevated row of teeth, and a plain part located between the longitudinally-extending and elevated rows of teeth.

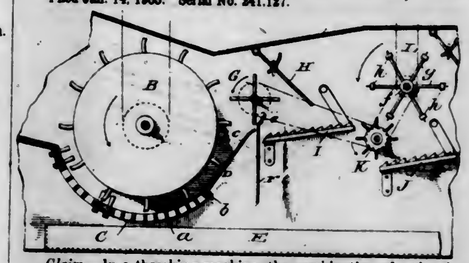
4. A cattle-guard strip, made of sheet metal, and formed with series of transversely-arranged depressed parts, of acute-angle shape in cross-section, each having a row of longitudinally-extending teeth struck up therefrom, a sunken row of upwardly-extending teeth struck up from the body, and an elevated row of teeth struck up therefrom.

5. A cattle-guard strip, made of sheet metal, and formed with series of transversely-arranged depressed parts, of acute-angle shape in cross-section, each having a row of longitudinally-extending teeth struck up therefrom, a sunken row of upwardly-extending teeth struck up from the body, an elevated row of teeth struck up therefrom, and a plain part located between the longitudinally-extending and elevated rows of teeth.

6. A cattle-guard strip, made of sheet metal, and formed with a central part having rows of vertically-arranged teeth struck up therefrom, and series of transversely-arranged depressed parts of acute-angle shape in cross-section and extending in opposite directions from the central part, each having a row of longitudinally-extending teeth struck up therefrom, a sunken row of upwardly-extending teeth struck up from the body, an elevated row of teeth struck up therefrom and a plain part located between the longitudinally-extending and elevated rows of teeth.

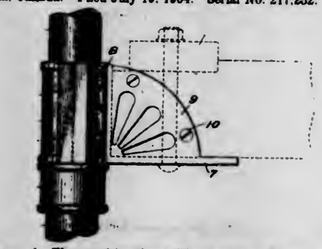
7. The combination, with the ties and the rails supported upon the ties, of the intermediate supports having inclined tops, and a cattle-guard strip, made of sheet metal, and formed with a central part having rows of vertically-arranged teeth and located upon the middle tie and series of transversely-arranged depressed parts located between the ties and supports and extending in opposite directions from the central part, each having a row of longitudinally-extending teeth, a sunken row of upwardly-extending teeth in the body, an elevated row of teeth, and plain parts located between the longitudinally-extending and elevated rows of teeth and seating upon the inclined tops of the intermediate supports and end ties.

786,172. **THRESHING-MACHINE.** CHARLES SYKORA, Amo, Minn. Filed Jan. 14, 1905. Serial No. 241,127.



Claim.—In a threshing-machine, the combination of a threshing-cylinder and concave, a straw-slide extending upwardly and rearwardly from the rear end of the concave and having spaces for the downward passage of grain, a grain-stopping board arranged behind the straw-slide, a rotary straw-feeder disposed above the straw-slide and grain-stopping board, a straw-rack arranged behind the upper portion of the grain-stopping board, a straw-rack arranged below and in rear of the first-mentioned rack, a rotary, toothed cylinder arranged transverse of the machine and between the rear end of the first-mentioned rack and the forward end of the second-mentioned rack, a rotary beater adapted to be rotated at a higher rate of speed than the toothed cylinder and disposed above and to the rear of the same, and deflectors arranged behind the rotary straw-feeder and the rotary beater.

786,173. **BEDSTEAD CONSTRUCTION.** ALFRED TAYLOR, Victoria, Canada. Filed July 19, 1904. Serial No. 217,252.

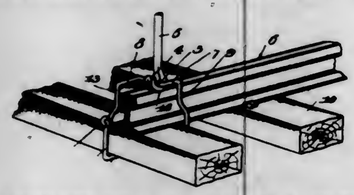


Claim.—1. The combination with a mattress-frame and corner-posts, said posts each having a horizontal bearing-shoulder, of clasping members adapted to fit around the outer faces of the posts and rest upon the bearing-shoulders thereof, each of said clasping members having wedge-shaped lateral projections, a bracket secured to each end of the mattress-frame and each having a portion adapted to clasp around the inner faces of the several posts and rest upon the horizontal bearing of the posts, said clasping portions of the brackets having wedge-shaped recesses to engage the wedge-shaped projections on the outer clasp members, all being arranged substantially as shown and described.

2. In a bedstead, the combination with a corner-post having a collar thereon, clasping members adapted to partially encircle said posts and rest upon said collar, each of said clasping members having wedge-shaped lugs on each side and formed with a flat face on each side, a mattress-frame, a bracket at the corner of said mattress-frame, said bracket having a portion to encircle the corner-posts and engage the first-mentioned clasp member, said bracket portion also having overlapping side portions to overlap the flat faces of the clasping members, the inner or clasp-engaging faces of said overlapping portions of the bracket being flat and formed with internal wedge-shaped recesses to receive the wedge-shaped lugs of the first-mentioned clasp member, the post-engaging portion of said bracket resting on said post-collar, all being arranged substantially as shown and for the purposes described.

786,174. **CLAMP.** FRANC O. WOOD, South Pasadena, Cal. Filed Jan. 23, 1905. Serial No. 242,427.

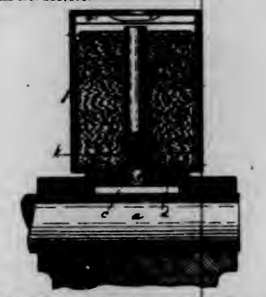
Claim.—1. A clamp having a body adapted to pass across the tread of a rail; legs secured to said body at each side thereof having holding members at the lower ends of said legs, said holding members being adapted to pass under a tie and a lever having a cam-faced hook on the end thereof adapted to engage the body over the rail and to be turned so as to clamp the rail and tie together.



2. A clamp comprising a transverse body portion; side members secured thereto; leg members having holding members adapted to be passed under the tie at each side thereof and on each side of the rail; and a clamping-lever having a cam-faced hook on the end thereof, said hook being adapted to pass upon the transverse portion and to be turned to securely hold the tie in engagement with the rail.

3. A clamp comprising a body adapted to pass across the tread of a rail; side members secured to said transverse body, one extending forwardly and one extending rearwardly; leg members secured to said side members, one of said leg members being jointed; holding members secured to said leg members adapted to pass under and hold a tie; and a lever having a cam-faced hook on the end thereof, said hook being adapted to engage the transverse body and when turned to clamp the rail and tie together.

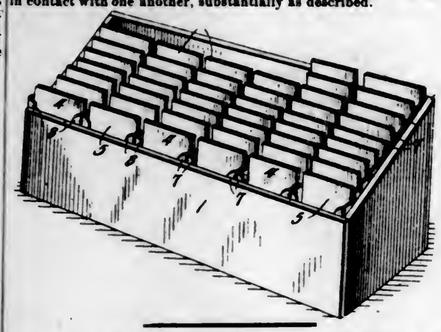
786,175. OIL-CUP. GEORGE A. WOOD, Worcester, Mass., assignor of three-fourths to Charles S. Young, Newton, Mass. Filed Nov. 19, 1904. Serial No. 233,470.



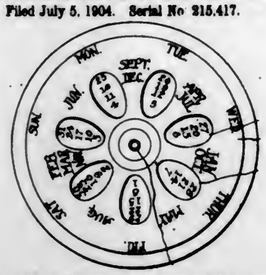
Claim.—In an oil-cup of the character described, the combination with the substantially rectangular reservoir or tank provided with the outlet-hole *g* through the bottom, and the internally-screw-threaded hollow post *h* extending up from the bottom around said outlet-hole and provided with the ports *k*; of the valve or spindle *a* screwing into said hollow post and provided near its upper end with a substantially horizontal hole extending through the valve or spindle, and the locking device consisting of the two spring members *p'* and *p''* connected at their rear ends by the spreading curved portion *p* greater in diameter than the hole, said members springing normally apart at their outer ends, whereby when the said locking device is pushed into the hole up to or near said portion *p* the outer ends of the spring members extend into a corner of the rectangular box and prevent rotation of the spindle and are prevented by their spread condition from sliding back through said hole, substantially as set forth.

786,176. CABINET. CHARLES P. ADAMS, Topeka, Kans. Filed Sept. 26, 1903. Renewed Oct. 26, 1904. Serial No. 230,425.

Claim.—An outer case open on its upper side and having an inclined bottom, and a plurality of inner unit-cases in said outer case, projecting above the open upper side thereof, and supported on the inclined bottom thereof in ascending series to display their upper portions, said unit-cases being independently removable from the outer case through the open upper side thereof and each comprising a wall or body portion having side and bottom portions projecting from one side thereof and provided with flanges lying in a common plane parallel with said body portion, said unit-cases being directly in contact with one another, substantially as described.



786,177. DATE REFERENCE DEVICE. JAMES ANDREW, Sayleville, R. I. Filed July 5, 1904. Serial No. 215,417.



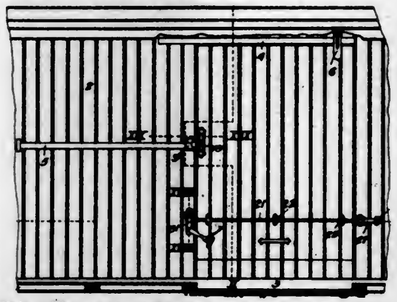
Claim.—1. A date reference device comprising a member having columns of numerals or symbols representing the years of a century, each column having a code-symbol and said member having on its reverse side code-symbols corresponding with those on the columns, and numerals or symbols representing the days of the month; and a disk revoluble upon the first-mentioned member and containing symbols or words representing the months of the year and the days of the week, whereby when the year of a century is selected in one of the columns and the second disk is revolved upon the first until a selected month covers the symbol corresponding with the symbol of the selected year, the selected day of the month will lie beneath the symbol indicating the day of the week.

2. A date reference device comprising a member having radiating columns of numerals representing the years of a century, each numeral exceeding the next lower numeral by twenty-eight units and each column being designated by a code-symbol, the member having on its reverse side a series of code-symbols corresponding with those on the columns, and numerals or symbols representing the days of the month; and a disk having perforations and being revoluble upon the first-mentioned member, said perforated disk containing symbols or words representing the months of the year and the days of the week; whereby when the year of a century is selected in one of the columns and the disk is revolved upon the first-mentioned member until a selected month covers the symbol corresponding with the symbol of the selected year, the selected day of the month will lie beneath the symbol indicating the day of the week.

3. A date reference device comprising a disk having radiating columns containing numerals indicating the years of a century, one of the columns representing the year 1900, a plurality of concentric series of symbols representing the common years and the leap years of two centuries, and a symbol representing the year 1900; the reverse side of said disk having symbols corresponding with the symbols representing the common and leap years, a symbol representing the year 1900, and concentrically-arranged numerals representing the days of a month; and a perforated disk revolubly mounted upon the reverse side of the first-mentioned disk and having words or symbols indicating the days of the week and words or symbols arranged thereon between the perforations and indicating the months of a year.

4. A date reference device having columns of numerals or symbols representing the years of a century, each column having a code-symbol, an arrangement of code-symbols corresponding with those on the columns, and numerals or symbols representing the days of the month; and a disk revoluble adjacent to said last-named arrangement of code symbols and numerals, said disk containing symbols or words representing the months of the year and the days of the week, whereby when the year of a century is selected in one of the columns and the disk is revolved until a selected month covers the symbol corresponding with the symbol of the selected year, the selected day of the month will lie beneath the symbol indicating the day of the week.

786,178. CAR-DOOR. NEWTON F. ARBLE, Pittsburg, Pa. Filed May 25, 1904. Serial No. 209,809.



Claim.—The combination with a car provided with a recessed socket having a retaining-bridge at one side of the door-opening, and a tapered socket at the other side thereof; of a shaft carried by the door and having one of its ends fitting in the socket when the door is closed; and a hooked lever on the opposite end of the shaft to engage under the retaining-bridge.

786,179. VEHICLE-BODY. SAMUEL R. BAILEY, Amesbury, Mass. Filed Oct. 28, 1904. Serial No. 230,390.



Claim.—1. In a vehicle-body having side and end panels, and a bottom, a reinforcing-frame intermediate the edges of said panels and the bottom, and terminating exteriorly at the under side of the latter, and means for securing the said frame to the body.

2. The combination in a vehicle-body of side and end panels, and a bottom board, an angular or T-shaped reinforcing metal frame attached to the interior of the panels, and to the under side of the bottom board as set forth.

3. The combination in a vehicle-body of side and end panels and a bottom board, a metal reinforcing angular frame secured intermediate the edges of said panels and the bottom board and to the under side of the latter, and a corner-molding arranged in the angle between the panels and bottom board as set forth.

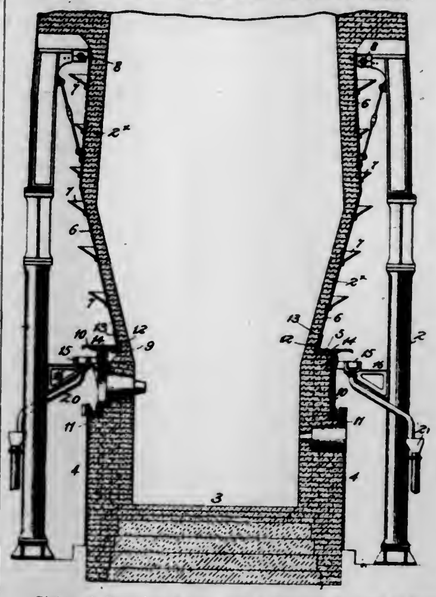
4. The combination in a vehicle-body of side and end panels and a bottom board, a metal reinforcing-frame secured between the edges of the panels and bottom board and extending exteriorly of the latter to the under side thereof, a corner-molding secured to the bottom board and metal frame and having a groove or recess for receiving a matting or carpet substantially as described.

5. The combination in a vehicle-body of side and end panels and a bottom board of a reinforcing T-shaped or angle-iron reinforcing-frame secured to said parts and hanger-irons or body-loops secured to said metal frame, the latter having recesses for receiving nuts adapted to engage headed bolts located in perforations in said body-loops substantially as described.

6. The combination in a vehicle-body of side panels, a T-shaped or angular metal reinforcing-frame secured thereto and having recesses for receiving nuts, body-loops secured to said nuts and headed screw-threaded bolts inserted in perforations of the body-loops and engaging said nuts substantially as set forth.

7. In a vehicle-body having side and end panels and a bottom, a reinforcing-frame intermediate the said panels and the edge of the bottom, and terminating exteriorly at the under side of the latter, means for securing the said frame to the body and a corner-molding arranged at the interior of said body in the angle between the panels and a bottom.

786,180. COOLING-JACKET FOR BLAST-FURNACES. DAVID BAKER, Newton, Mass. Filed Mar. 14, 1904. Serial No. 198,162.



Claim.—1. In a blast-furnace and in combination with the bosh-wall, a cooling-jacket surrounding the same and provided at its lower end with a horizontal flat annular plate forming a continuation of the outer surface of the jacket and having its edge terminating beyond the body of the furnace, said plate adapted to receive without interruption the water flowing downward over the exterior of the jacket and adapted to permit it to be discharged freely outward, and a receiving-trough sustained free of the furnace-wall vertically beneath the discharge edge of the plate in position to receive the water flowing over said plate.

2. In a blast-furnace and in combination with the bosh-wall, a cooling-jacket surrounding the same and provided at its lower end with a horizontal flat annular discharge-plate with its edge turned downwardly and terminating beyond the body of the furnace, said plate adapted to receive the water flowing downward over the jacket and to permit it to be freely discharged outward, and a receiving-trough sustained free of the furnace-wall vertically beneath the edge of the discharge-plate to receive the water flowing over said plate.

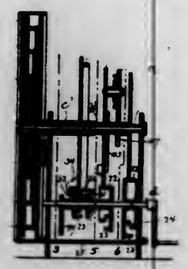
3. In a blast-furnace and in combination with the bosh-wall, a cooling-jacket surrounding the same, an angular annular plate at the base of the jacket, comprising an upright portion closely surrounding the jacket and forming a continuation of the same and a horizontal portion, forming a continuation of the upright portion and projecting outward beyond the furnace-wall and forming a discharge-plate over which the water is adapted to freely flow, and a receiving-trough in position to receive the water flowing over the discharge-plate.

4. In a blast-furnace and in combination with the bosh-wall, a cooling-jacket surrounding the same, a wall inclosing the hearth of the furnace and supporting the bosh-wall, a band or ring encircling said hearth-wall, and a plurality of supports or brackets fixed to the inner face of said band and extending inwardly beneath the lower end of the cooling-jacket and giving support to the same.

786,181. AUTOMATIC PERPETUAL CALENDAR. JAMES BALLANTINE, Boston, Mass. Filed June 22, 1904. Serial No. 213,628. (Model.)

Claim.—1. An automatic calendar comprising a series of intermittent gear-wheels including a week-day wheel, a month-wheel and

a month-day wheel, a driving-shaft, a driving member affixed thereto and engaging the week-day wheel, connected driving members having a sliding and rotative engagement with the shaft, and adapted to engage the month-wheel and the month-day wheel alternately, an arm affixed to said connected members and adapted to coöperate with a projection on the month-day wheel, and means operated by the rotation of the month-day wheel for shifting said driving members and arm.



2. An automatic calendar comprising a week-day wheel, a month-wheel and a month-day wheel, a driving-shaft engaged with the week-day wheel, connected driving members slidingly and rotatively engaged with the shaft and adapted to engage the month-wheel and the month-day wheel alternately, a supplemental month-day-wheel-operating arm connected with said members, and means for shifting the driving members and arm, said means including a fixed or non-adjustable ear carried by the month-day wheel, and operating at the close of a period of maximum length, a normally loose ear also carried by the month-day wheel, and a series of lugs carried by the month-wheel, and adapted to coöperate successively with the said loose member at the close of periods of shorter duration.

3. An automatic calendar comprising a week-day wheel, a month-wheel and a month-day wheel, a driving-shaft engaged with the week-day wheel, connected driving members slidingly and rotatively engaged with the shaft and adapted to engage the month-wheel and the month-day wheel alternately, a supplemental month-day-wheel-operating arm connected with said members, and means for shifting the driving members and arm, said means including a fixed or non-adjustable ear carried by the month-day wheel, and operating at the close of a period of maximum length, a normally loose ear also carried by the month-day wheel, and a series of lugs carried by the month-wheel, and adapted to coöperate successively with the said loose member at the close of varying periods of shorter duration, one of said lugs being adjustable, and means operated by the rotation of the month-wheel for adjusting said lug.

4. An automatic calendar comprising a week-day wheel, a month-wheel and a month-day wheel, a driving-shaft engaged with the week-day wheel, connected driving members slidingly and rotatively engaged with the shaft, a month-day-wheel-rotating arm affixed to said members, a pair of cams also affixed to said members, ears affixed to the month-day wheel and projecting from opposite sides thereof for engaging said cams and shifting the said driving members and arm, a swinging ear carried by the month-day wheel and having an enlargement, a series of lugs on the month-wheel, adapted to coöperate successively with said enlargement, one of said ears being adjustable, and means operated by the rotation of the month-wheel for adjusting said lug.

5. In an automatic calendar, a month-wheel having a series of lugs one of which is adjustable, a lever carrying said adjustable lug and adapted to oscillate on the axis of the month-wheel, a fixed gear concentric with the axis of the month-wheel, and a planet-gear meshing with said fixed gear and rotatively connected with the month-wheel, said planet-gear having a cam-groove engaging a stud on the said lever, one gear having a greater number of teeth than the other.

6. An automatic calendar, comprising a week-day wheel, a month-wheel and a month-day wheel, shiftable driving members for impelling the month and month-day wheels alternately, and automatic means actuated by the rotation of the said month and month-day wheels, for shifting said members.

7. An automatic calendar comprising a week-day wheel, a month-wheel and a month-day wheel, shiftable driving members for impelling the month and month-day wheels alternately, a supplemental month-day-wheel-impelling member connected with said driving members, and automatic means actuated by the rotation of the said month and month-day wheels for shifting said members.

786,182. CUT-OFF ATTACHMENT FOR GAS-STOVES. CLIFFORD BARGAMIN, Newport News, Va., assignor to The Novelty Manufacturing Corporation, Newport News, Va. Filed June 24, 1904. Serial No. 214,005.



Claim.—1. An automatic cut-off attachment for gas-stoves comprising a manually-operated main cut-off valve having a gas passage-way therethrough, an auxiliary valve carried by the main valve, valve-operating connections for the auxiliary valve, means for normally holding the auxiliary valve partially closed, and means for automatically setting said valve-operating connections in operative or inoperative position through the adjustment of the main valve.

2. An automatic cut-off attachment for gas-stoves comprising a manually-operated main cut-off valve having a gas passageway therethrough, an auxiliary valve carried by the main valve, means for automatically operating the auxiliary valve, and a valve-adjusting screw mounted in the main valve and operating beneath the auxiliary valve.

3. An automatic cut-off attachment for gas-stoves comprising a valve-casing, a manually-operated main cut-off valve mounted in said casing and having a diaphragmed gas-chamber within the top portion thereof and also provided with oppositely-arranged gas-passages communicating with said chamber and in one of which passages is formed the valve-seat, a spring-actuated auxiliary valve arranged to work over said seat, and means for automatically operating the auxiliary valve.

4. An automatic cut-off attachment for gas-stoves comprising a manually-operated main cut-off valve, an auxiliary cut-off valve carried by the main valve, automatic valve-operating connections for the auxiliary valve, and means for setting said connections in operative and inoperative position through the adjustment of the main valve.

5. An automatic cut-off attachment comprising a valve-casing, a manually-operated main cut-off valve mounted in said casing, a spring-actuated auxiliary valve carried by the main valve and arranged to control the flow of gas therethrough, said auxiliary valve having a carrying-stem provided with an exterior cam or wedge bearing-lip, a valve-adjusting screw mounted in the main valve and operating beneath the auxiliary valve, and an adjustable valve-operating device including a bracket carrying an adjustable presser-foot, and a rock-shaft member carrying a tappet operating beneath said cam or wedge bearing-lip.

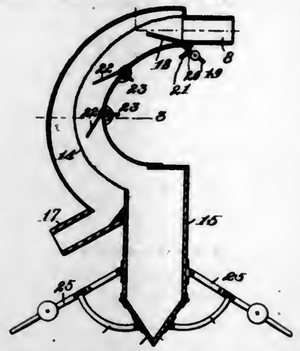
786,183. SEPARABLE BUTTON. WILLIAM B. BEND, St. Paul, Minn. Filed Nov. 3, 1904. Serial No. 231,248.



Claim.—A separable button comprising a stud having a segmental head with an annular groove at the base of the head and also provided with attaching means at the base of the stud, a tubular socket member to receive the head of the stud and provided with a base-flange and a notch in one side of the socket, a cap surrounding and spaced from the socket and crimped upon the flange thereof, said flange being substantially flush with the open bottom of the cap and constituting a base-closure therefor, the cap being provided with attaching means independent of the socket, and a spring embracing the socket with a portion in the notch to snap into the groove of the stud.

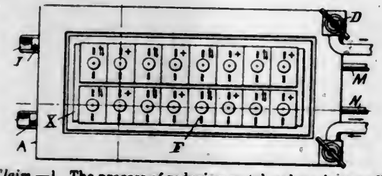
786,184. COTTON-SEED CLEANER. CHAUNCEY R. BENEFIELD, Dallas, Tex. Filed Mar. 1, 1904. Serial No. 196,962.

Claim.—1. In an apparatus of the class described, the combination of an arcuate casing, a seedbox connected with the casing, automatic means for closing the delivery end of said seedbox, an arcuate screen in the casing, separating he same into dust and seed chambers, the lower end of the seed-chamber opening directly into the upper end of the seedbox, an air-blast pipe for delivering air and a mass containing cotton-seed into the upper open end of said casing and against the screen, an adjustably-supported spreader located at the entering end of the casing and serving to spread the material on its entrance thereinto, and a plurality of angularly-disposed plates within the seed-chamber for holding the mass of cotton in contact with said screen during its travel therealong.



2. In an apparatus of the class described, the combination of an arcuate casing, a seedbox connected with the casing, having doors arranged to close against each other, weighted levers fulcrumed on the seedbox, links connecting the doors and levers, the latter serving to transmit, through the links, a closing force to the doors, an arcuate screen in the casing, separating the same into dust and seed chambers, the lower end of the seed-chamber opening directly into the upper end of the seedbox, an air-blast pipe for delivering air and a mass containing cotton-seed into the upper open end of said casing and against the screen, an adjustably-supported spreader located at the entering end of the casing and serving to spread the material on its entrance thereinto, and a plurality of angularly-disposed plates within the seed-chamber for holding the mass of cotton in contact with said screen during its travel therealong.

786,185. PROCESS OF PRODUCING METALS AND ALLOYS. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed Nov. 15, 1904. Serial No. 232,828.



Claim.—1. The process of reducing metal and producing alloys thereof which consists in fusing an oxy compound of a metal or metals having greater affinity for oxygen than the metal desired, adding thereto an oxy compound of the metal desired with another metal an alloy with which is sought and subjecting the mass to the action of an electrolytic current capable of liberating the metals desired and replenishing the mass with more metal oxy compound from time to time as the bath is depleted thereof by reduction.

2. The process of reducing metals and producing alloys thereof which consists of fusing an oxy compound of a metal or metals having a greater affinity for oxygen than the metals an alloy of which is desired adding thereto a double oxid of the metals an alloy of which is desired and subjecting the mass to the action of an electrolytic current capable of liberating the said metals and producing an alloy thereof and replenishing the mass with more metal oxids from time to time as the bath becomes depleted thereof by reduction.

3. The process of reducing aluminium and other metals and producing alloys thereof which consists in fusing an oxy compound of a metal or metals having greater affinity for oxygen than aluminium or the metal an alloy of which is desired, adding thereto an aluminate of the metal an alloy of which is sought and subjecting the mass to the action of an electrolytic current capable of liberating the aluminium and other metal thereby producing alloy thereof and replenishing the mass with more aluminate from time to time as the bath becomes depleted thereof by reduction.

4. The process of reducing aluminium and producing alloys thereof which consists in fusing an oxy compound of a metal or metals having greater affinity for oxygen than aluminium, and adding thereto an aluminate of a metal having less affinity for oxygen than aluminium, and subjecting the mass to the action of an electrolytic current capable of liberating the aluminium and metal having lesser affinity for oxygen, thereby producing alloys thereof, and replenishing the mass with more aluminate from time to time as the bath becomes depleted thereof by reduction.

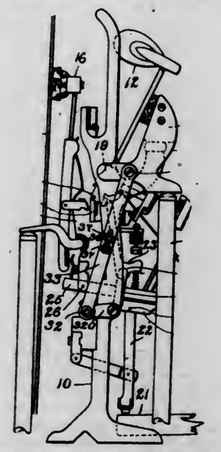
5. The process of reducing metals and producing alloys thereof which consists in fusing an oxy compound of a metal or metals having greater affinity for oxygen than the metals an alloy of which is desired, the said fused mass containing oxy compounds of the metals an alloy of which is desired and subjecting the mass to the action of an electrolytic current capable of liberating the desired metals, thereby producing alloys thereof.

6. The process of producing an alloy of aluminium and copper which consists in fusing an oxy compound of a metal or metals having greater affinity for oxygen than aluminium or copper adding thereto copper aluminate and subjecting the mass to the action of an electrolytic current capable of liberating the aluminium and copper therefrom thereby producing alloys thereof.

7. The process of reducing metal from substances containing the same which consists in exposing a fused metal-containing substance to the action of a metal-yielding electric current while subjecting the fused substance to the action of a non-metal-yielding current passed through the same between electrodes, one electrode of which is in common with the metal-yielding-current electrode.

8. The process of reducing metal from substances containing the same which consists in exposing a fused metal-containing substance to the action of a metal-yielding electric current while subjecting the fused substance to the action of a non-metal-yielding current passed through the same between electrodes at an angle to the path of the metal-yielding current, and one of which electrodes is in common with the metal-yielding-current electrode.

786,186. PIANISSIMO DEVICE. CHARLES P. BLINN, Boston, Mass. Filed Jan. 9, 1904. Serial No. 188,270.

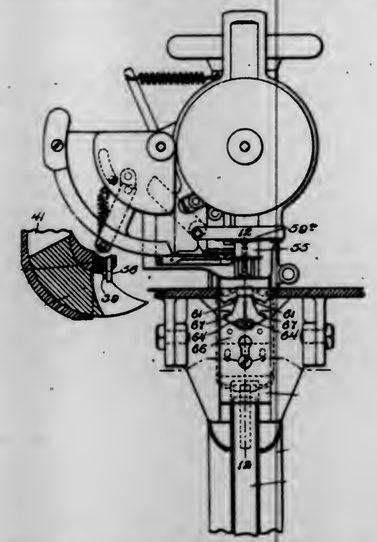


Claim.—1. In a piano-action, the combination with a main rail, an adjustable hammer-rail, a hammer, a jack and an extension, of a jack-lever composed of two members superposed relatively to each other, a connection between the jack and lower member, said connection embracing the upper member and being pivotally connected with the jack and lower member whereby the pivot-points of said jack and lower member will be maintained at a fixed distance, one of said members being pivotally connected with the main rail, said jack and lower member having their movements in common, a movable fulcrum supporting one of the members of the jack-lever, and longitudinally-adjustable links or hangers connecting said fulcrum with the supports of the adjustable hammer-rail.

2. The combination with a main rail, a hammer, an extension, an adjustable hammer-rail, and a jack, of a combined jack-lever composed of two members, the upper member being pivotally connected to and at one side of the main rail of the action, a connecting

link or ear pivotally connecting the jack and the lower member of the jack-lever whereby the distance between the pivots of the jack and lower member is maintained against change, said ear embracing the upper member, the lower member being pivotally connected to the extension, and a movable fulcrum or support for the lower member; said support being adjustably connected to the hammer-rail.

786,187 **STAPLING-MACHINE.** THOMAS A. BRIGGS, Arlington, Mass., assignor to Boston Wire Stitcher Company, East Greenwich, R. I., a Corporation of Maine. Filed Feb. 13, 1904. Serial No. 193,307.



Claim.—1. In a stapling-machine, a wire-feeding mechanism comprising an arm or carrier having a forward-and-backward movement, an inner jaw carried by the arm, a jaw-holder also carried by the arm and having an inward-and-outward movement thereon toward and from the inner jaw, and a circular outer jaw journaled in said holder with its axis of rotation substantially parallel with the path of the wire, the said outer jaw being rotatable in its holder to bring different portions of its periphery into operative relation to the inner jaw.

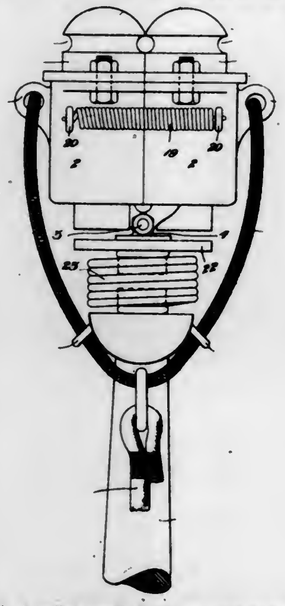
2. In a stapling-machine, a wire-feeding mechanism comprising an arm or carrier having a forward-and-backward movement, an inner jaw carried by the arm, a jaw-holder movable on the arm toward and from the inner jaw, and a rotatable circular outer jaw journaled in the holder with its axis of rotation substantially parallel with the path of the wire, the said outer jaw having peripheral corrugations which extend crosswise of the said path.

3. In a stapling-machine, in combination, a presser, an anvil carried by the presser and movable independently thereof, said anvil having wire-supporting shoulders which are operative when the anvil is in its normal position, the anvil having also two horns with inclined outer faces and an inclined face between said horns, a bending-bar having grooves to receive the legs of a staple, and an intermediate face to coöperate with the face between the staple-prongs in forcing the shoulders of the anvil out of the path of the formed staple, a driver movable in the grooves of the bending-bar, the inclined outer faces of the anvil-horns being in the path of the driver, and a wire-retaining finger carried by the bending-bar and having an independent endwise movement, said finger being displaceable from its acting position by contact with the work.

4. In a stapling-machine, in combination, a presser, an anvil carried by the presser and movable independently thereof, said anvil having wire-supporting shoulders which are operative when the anvil is in its normal position, the anvil having also two horns with inclined outer faces and an inclined face between said horns, a bending-bar having grooves to receive the legs of a staple, and an intermediate face to coöperate with the face between the staple-prongs in forcing the shoulders of the anvil out of the path of the formed staple, a driver movable in the grooves of the bending-bar, the inclined outer faces of the anvil-horns being in the path of the driver, a wire-retaining finger carried by the bending-bar and having an independent endwise movement, and a spring arranged to exert downward pressure on the finger, and through the latter on the bending-bar to hold the finger against the wire on the said shoulders, said finger being displaceable from its acting position by contact with the work.

5. In a stapling-machine, the combination of a work-support having a staple-receiving throat, staple forming and driving mechanism above said throat, said support comprising a relatively fixed body portion having vertical guides, and a yieldingly-supported section which is independently movable on said guides and adapted to yield downwardly from the said mechanism clencher-supporting levers having arms formed thereon and pivoted to said yielding section, clenching-jaws pivoted to said levers and adapted to enter the throat, an operating-slide engaged with arms on said levers and adapted to oscillate the latter, and a reciprocating arm engaged with the slide, the throat and jaws being permitted to yield in unison by said yielding section.

786,188. **TROLLEY.** JAMES L. BROWNLEE, Pittsburg, Pa. Filed June 10, 1904. Renewed Jan. 31, 1905. Serial No. 243,466.



Claim.—1. A trolley provided with separable spindle-supporting devices and spindles rotatably mounted therein provided with contacting devices, substantially as set forth.

2. A trolley provided with separable spindle-supporting devices and spindles rotatably mounted therein provided with rotating contacting devices, substantially as set forth.

3. A trolley provided with separable spindle-supporting devices and spindles rotatably mounted therein provided with rotating contact devices provided with annular grooves adapted to engage the trolley-wires.

4. A trolley provided with separable spindle-supporting devices and spindles rotatably mounted therein provided with rotating contact devices provided with annular grooves adapted to engage the trolley-wires with upwardly-tapering terminals.

5. A trolley provided with separable spindle-supporting devices and spindles rotatably mounted therein provided with rotating contact devices provided with annular grooves adapted to engage the trolley-wires with upwardly-tapering longitudinal terminals, substantially as set forth.

6. A trolley provided with separable spindle-supporting chambers provided with oil-cavities and spindles rotatably mounted therein provided with rotatable contacting knobs, substantially as set forth.

7. The combination of a trolley-pole, a resilient base-support, a base and separable hinge spindle-supporting chambers mounted thereon carrying spindles provided with contacting knobs, substantially as set forth.

8. The combination of a trolley-pole a resilient base-support, a base and separable hinged spindle-supporting chambers mounted thereon carrying spindles provided with contacting knobs with means for separating the chamber and knobs and spring devices adapted to draw them together, substantially as set forth.

9. The combination with a supporting-base, of separable hinged chambers, spindles rotatably mounted therein provided with bearing-peripheries and terminal contacting knobs provided with annular walls engaging the grooves, substantially as set forth.

10. The combination with a base, of separable hinged chambers mounted thereon, hollow spindles mounted in said chambers provided with oil-cavities, and carrying grooved rotatable contact-knobs, substantially as set forth.

11. The combination with a supporting-base, of separable hinged chambers, spindles rotatably mounted therein provided with bearing-peripheries and terminal contacting knobs provided with annular walls engaging the grooves, with means for separating the chambers and spindles, and retracting springs adapted to hold them into operative engagement substantially as set forth.

12. The combination with a base, of separable hinged chambers mounted thereon, hollow spindles mounted in said chambers provided with oil-cavities, and carrying grooved rotatable contact-knobs means for separating the chambers and spindles, and means for retracting the contacting knobs, to operative position, substantially as set forth.

786,189. **WATCHMAKER'S AND JEWELER'S PLIERS.** BRITTON E. BYRD, Durham, N. C., assignor of one-half to F. L. Walker and John I. Rose, Durham, N. C., and V. G. Davis, Bracey, Va. Filed June 22, 1904. Serial No. 213,626.



Claim.—1. In an implement of the character described, the combination with the plier-legs *a* and *b* the leg *b* having a forward extension, the leg *a* being pivotally connected to the leg *b* and having a cam-head at its pivoted point, and an anvil or lower jaw detachably and adjustably mounted on the forward extension of the leg *b* and projected beyond the front end of the said extension; of an upper jaw pivotally mounted in the extension of the leg *b*, the said upper jaw having a gripping-face for opposing the gripping-face of the anvil and having a rearwardly-extending member that coöperatively engages the cam-head of the leg *a*, and a means for holding the detachable and adjustable lower jaw in position, as set forth.

2. A jeweler's pliers which comprises the legs *a* and *b*, the lower one *b* having a forward extension provided with a longitudinal socket, the upper leg having a cam-head that fits in and is pivotally mounted in the rear end of the aforesaid socket, an anvil having a gripping-surface at each end detachably and reversibly mounted on one side of the extension of the lower leg and projected beyond the front end thereof, and an upper jaw pivotally mounted in the socket of the lower leg *b* and having a gripping portion for opposing the gripping-face of the lower gripping-jaw or anvil.

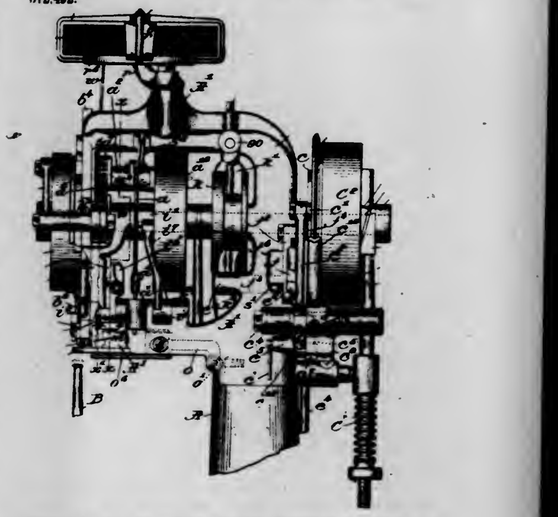
3. An implement of the character described comprising a pair of plier-legs *a* and *b*, a lower jaw on the leg *b* having a flat gripping-face disposed at an angle to the front end of the leg *b* and in close proximity thereto, an upper jaw that extends in the longitudinal plane of the legs *a* and *b* and is pivotally mounted on the front end of the lower leg *b*, and toggle connections that join the rear end of the lower jaw and the upper leg and arranged whereby when the upper leg *a* is closed in the said upper jaw is moved to its gripping position, said upper jaw also having a flat gripping-face disposed at an outwardly-extending angle and projected over the angle-face of the lower jaw, as specified.

4. In combination with the plier-legs *a* and *b*, the leg *b* having a forward extension provided with a longitudinal socket in the upper end, the leg *a* being pivotally mounted in the rear end of the said socket and having a cam-head at its fulcrum-point, a supplemental jaw pivotally mounted on the front end of the said extension and in the socket thereof and having movement in the longitudinal plane of the said socket, the said jaw having a gripping member that projects down at an angle of about forty-five degrees the outer extremity of said gripping member being inclined upwardly at an angle to the gripping-face to form a swaging-shoulder, the extension of the leg *b* having an inclined socket that extends downwardly from the front edge to the bottom edge thereof; a supplemental double-ended jaw or anvil adapted to be reversibly and detachably mounted in the said socket, the ends of the said anvil having gripping-faces at an angle to the body thereof, said gripping-faces being grooved longitudinally, and a means for locking the said anvil in the socket from lateral endwise movement, as set forth.

5. An implement of the character described, the combination with the legs *a* and *b*, a fixedly-held gripping-jaw on the lower leg having its face at an angle to the front end of the said leg, an upper jaw pivotally mounted on the lower leg *b* and having a gripping member projected at an angle and opposing the gripping-surface of the lower jaw, said gripping member having its front edge inclined upwardly at an angle to its gripping-surface to form a shoulder, and a means for imparting a gripping motion to the upper jaw as the two legs are closed.

6. In an implement of the character described, the combination with the plier-legs *a* and *b*, the leg *b* having a forwardly-extending member, an upper gripping-jaw pivotally mounted on said extended member to rock in the longitudinal plane thereof, and connections that join the said supplemental jaw with the upper leg *a*, and a lower jaw which consists of a double-ended anvil having a gripping-face at each end at right angles to the body thereof, and a means for adjustably and reversibly mounting said lower jaw on the front end of the leg *b* to alternately bring the gripping end of the said jaw to oppose the gripping-face of the upper jaw, as set forth.

786,190. **NAILING-MACHINE.** LOUIS A. CASGRAIN, Winchester, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, a Corporation of New Jersey. Filed Dec. 18, 1895. Serial No. 572,492.



Claim.—1. In a machine of the class described, a main shaft, mechanism for inserting fastenings, a clutch and a brake, means governed by rotation of said shaft to effect release of the clutch, operating devices actuated from the main shaft and arranged to derive their final movement from the main shaft after release of the clutch, whereby the momentum of said shaft is taken up and utilized prior to application of the brake, and means to maintain the brake in inoperative position until after such utilization of the momentum, to prevent shock as the machine is stopped.

2. In a nailing-machine, a main shaft, a clutch therefor and a brake, means governed by rotation of said shaft to effect release of the clutch and subsequently apply the brake to stop rotation of the shaft, nail-driving devices arranged to derive their final movement from the main shaft after release of the clutch, whereby the momentum of the shaft is taken up and utilized prior to application of the brake, and positive means to hold the brake from movement to operative position until after such utilization of the momentum, to prevent shock as the machine is stopped.

3. In a nailing-machine, a main shaft, a clutch therefor and a brake, means to effect the release of the clutch and the application of the brake, nail-driving devices arranged to derive their final movement from the main shaft after release of the clutch, whereby the momentum of the shaft is taken up and utilized prior to the application of the brake, and positive means, including a member rotatable with the shaft and independent of the clutch, for governing the clutch-releasing and brake-applying means to hold the brake from movement to operative position, after release of the clutch, until the momentum of the shaft is taken up and utilized.

4. In a nailing-machine, a main shaft, a clutch therefor and a brake, mechanism to release the clutch and apply the brake successively, means governed by rotation of the shaft to maintain the brake in inoperative position through a predetermined angular movement of the shaft following clutch release, and nail-driving devices to derive their final movement from the main shaft during such predetermined angular movement thereof, whereby the momentum of the shaft is taken up and utilized prior to the application of the brake.

5. In a nailing-machine, a main shaft, a clutch therefor and a brake, mechanism, including a common actuator, to release the clutch and apply the brake successively, means to arrest the operation of said mechanism automatically after release of the clutch and during a predetermined angular movement of the main shaft, and nail-driving devices to derive their final movement from the shaft during such arrest of said mechanism, whereby the momentum of the shaft is taken up and utilized prior to the application of the brake.

6. In a nailing-machine, a horn, a main shaft, means, including a governing member, operated by said shaft, to periodically depress the horn for feeding the work, and a device between said shaft and said governing member, to give to the latter an additional movement, and thereby impart to the said horn a final depression when the machine is stopped.

7. In a nailing-machine, a horn, a main shaft, means, including a rocking lever, operated thereby to periodically depress said horn for feeding the work, and devices between said shaft and said rocking lever, to give to the latter an additional rocking movement to impart to said horn a final depression and leave it down for the removal or application of the work.

8. In a nailing-machine, a horn, a main shaft, means operated thereby to periodically depress said horn for feeding the work, and devices between said shaft and said means, to give to the latter an additional movement to impart to said horn a final depression and leave it down for the removal or application of the work, combined with a brake, and a brake-controller to put into or out of operative relation the said devices located between the main shaft and the means for periodically depressing the horn, whereby the brake is also applied to the main shaft to restrain its rotation.

9. In a nailing-machine, the following instrumentalities, viz: a horn, a main shaft, a cam and a clutch thereon, a clutch-rod, a brake, and a brake-controller coöperating with the cam, and means operated by the cam to periodically depress the horn for feeding the work, combined with devices governed by said brake-controller, and located between the cam and the means for periodically depressing the horn to finally depress the latter, a starting and stopping mechanism, adapted when operating to stop the machine to cause the brake-controller to put into operative relation the said devices located between the cam and the means for periodically depressing the horn, to thereby impart an additional final movement to said horn.

10. In a nailing-machine, a horn, a controller-lever, connections between said lever and horn, and a cam to act on said lever at one side of its fulcrum, combined with a pawl-carrier having a pawl, means to move said pawl-carrier, and means to move the pawl on the said carrier, whereby it may at times engage the opposite end of said lever and impart to it an additional movement in a direction to finally depress the horn and leave it down for the removal of the work.

11. A hollow sleeve, a movable cutter connected therewith, a fixed coöperating cutter, a shaft longitudinally movable within said sleeve and provided with a nail receiving throat, an arm to rock said sleeve, a spline connecting said shaft, sleeve and arm, and means to clamp the arm upon the sleeve and thereby clamp the spline.

12. A cutter-carrying shaft, a toothed block to receive the end of the shaft and leave a clearance between the upper part of the shaft and the block, clamping devices to hold said block in adjusted position upon the shaft, a toothed actuating-lever for said block, and an adjustable stud upon which said lever is mounted, whereby wear of the block may be taken up by adjustment of said lever and clamping devices.

13. In a nailing-machine, wire-receiving devices, a movable nail-receiving throat therebelow, a presser upon which the lower end of a nail loose in said throat rests during movement of the latter, said presser having a nail-discharge opening, and an auxiliary opening below the wire-receiving devices, and means to normally bar the passage of a nail through the auxiliary opening.

14. A presser for nailing-machines, having a passage for the nail and an auxiliary passage, and a cover-plate mounted to swing laterally upon the presser, to normally cover the auxiliary passage.

15. In a nailing-machine, a horn, mechanism, including a lever, to depress the horn, a cam to rock said lever periodically to depress the horn and permit feed of the work, a pawl to coöperate with and rock said lever when the machine is about to be stopped, to finally depress the horn, a pawl-carrier and means to move it, and a pawl-controller to disengage the pawl and lever when the machine is running continuously.

16. In a nailing-machine, a main shaft, a horn and means normally acting to raise it, a treadle by which it may be depressed, mechanism, operatively connecting the main shaft and the horn and including a movable connecting member, for giving a final depression to the horn as the machine comes to a stop, and means for automatically moving said connecting member, when the treadle is actuated to depress the horn, thereby to render inoperative said mechanism for giving a final depression to the horn.

17. In a nailing-machine, feeding mechanism for the wire, comprising a feed-wheel, its actuating-pawl and pawl-carrier, a feed cam having a feed-releasing portion, connections between said cam and pawl-carrier, to actuate the latter, cutting devices to sever a nail or fastening from the wire, and actuating mechanism therefor, the feed-releasing portion of the cam permitting slight retrograde movement of the wire and feed-wheel when the cutters operate, to release the latter and the cutter-actuating mechanism from strain.

18. In a machine for inserting nails into boots and shoes, the combination of the following instrumentalities, viz: a vertically-movable horn or work-support; a rotatable shaft; a cam on said shaft to effect movement of the horn downward a sufficient distance to permit the work thereon to be taken from or applied to the said horn; intermediate mechanism connecting said horn with said cam; and a brake mechanism to stop the rotation of the cam-shaft, adjusted with relation to the said cam to operate to stop rotation of the said shaft when the point of greatest throw of the horn-lowering cam is acting upon the said intermediate mechanism to lower the horn, whereby the work may be taken off and placed on the horn.

19. In a machine for inserting nails into boots and shoes, a horn or work-support; a lever, means to connect said horn with one arm of said lever; a pivoted cam-operated lever; means to connect the cam-operated lever with the lever to which the horn is connected; and a rotatable shaft; a cam mounted on said shaft and provided with a cam-surface of a throw sufficient to lower the horn enough to permit the work to be removed from or applied to the horn; a stud or roller located at one side of the fulcrum of the cam-operated lever and acted upon by said cam-surface to actuate the cam-operated lever, to positively lower the said horn; and a brake mechanism to stop the rotation of the cam-shaft, and adjusted to operate with relation to the said cam-surface to stop rotation of the said shaft when the greatest throw of the cam-surface is in engagement with said stud or roller and the horn is in its lowered position, whereby the work may be taken off and placed on the horn.

20. In an apparatus of the class described, means to hold the work in position to be operated upon, a rotatable shaft, mechanism connective of the shaft and said means, actuated by the former, to govern completely the operation of said work-holding means, and brake mechanism constructed and arranged to stop rotation of the said shaft when the work-holding means is in position to permit removal of the work.

21. In an apparatus of the class described, means for holding the work in position to be operated upon, a rotatable shaft, mechanism connecting said shaft and said means and actuated by the shaft to control the depression of the work-holding means for permitting the removal of the work, and brake mechanism constructed and arranged to stop rotation of said shaft when the work-holding means is in a position to permit removal of the work.

22. In an apparatus of the class described, a vertically-movable horn or work-support, a rotatable shaft, means intermediate said shaft and the horn, actuated by the former, to depress the horn, and a brake mechanism constructed and arranged to stop rotation of said shaft when the horn is depressed by said means, whereby the horn is left in such position as to allow the work to be removed.

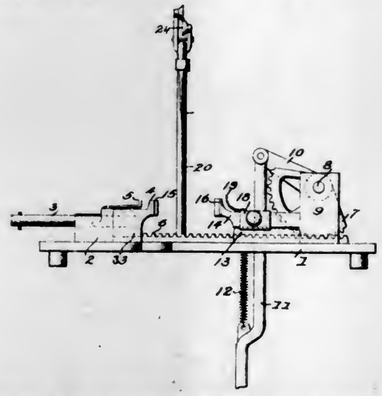
23. In a machine of the class described, a main shaft, a clutch, a brake, means for releasing the clutch and applying the brake, and a horn, in combination with mechanism arranged to be operated independently of the regular operation of the machine for depressing the horn to permit removal of the work, and means connected with the main shaft for actuating said mechanism automatically after the clutch is released and before the brake becomes effective, whereby the momentum of the shaft is utilized for depressing the horn.

24. In a machine of the class described, a main shaft, a clutch, a brake, means for releasing the clutch and applying the brake, and a horn, in combination with mechanism arranged to be rendered operative when the clutch is released for depressing the horn to permit removal of the work, said mechanism being actuated by the momentum of the main shaft after clutch release and before the brake is applied.

25. In a machine of the class described, a main shaft, a clutch, a brake, mechanism for releasing the clutch and applying the brake, a horn and means operated from the main shaft independently of the machine's regular operation for automatically depressing the horn after clutch release and before the brake becomes effective, whereby the momentum of the shaft is utilized.

26. In a machine of the class described, a main shaft, a clutch, a brake, mechanism to release the clutch and apply the brake, in combination with means governed by rotation of the shaft to maintain the brake in inoperative position through a predetermined period after clutch release, a horn and means for depressing the horn for removal of the work, said means being arranged to be actuated from the main shaft after the clutch is released, whereby the momentum of the shaft is utilized before the brake becomes effective.

786,191. MACHINE FOR TYING UP THE HEADS OR TOPS OF MANTLES. SAMUEL COHN, New York, N. Y. Filed May 21, 1903. Serial No. 158,092.



Claim.—1. In a machine adapted for use in tying up the heads of mantles, the combination of means for engaging the shirring-string of the mantle, and movable means for shirring or folding the head of the mantle, substantially as described.

2. The combination in a machine adapted for use in tying up the heads of mantles, of a means for supporting and gathering a mantle-head and means for opening up the head after it has been gathered.

3. In a machine adapted for use in tying up the heads of mantles, the combination of means for engaging the shirring-string, means for shirring the mantle-head and means for opening out the shirred mantle-head as and for the purposes set forth.

4. In a machine adapted for use in tying up heads of mantles, the combination of means for engaging a loop of the mantle-string, means for engaging the free ends of the string and means for shirring the mantle-head.

5. In a machine adapted for use in tying up heads of mantles, the combination of means for engaging a loop of the mantle-string, means for engaging the free ends of the string and means for shirring the mantle-head, and means for opening up the shirred mantle-head.

6. In a machine adapted for use in tying up the heads of mantles, the combination of means for supporting the mantle-head by engaging the strings, and mantle-head-shirring means substantially as described.

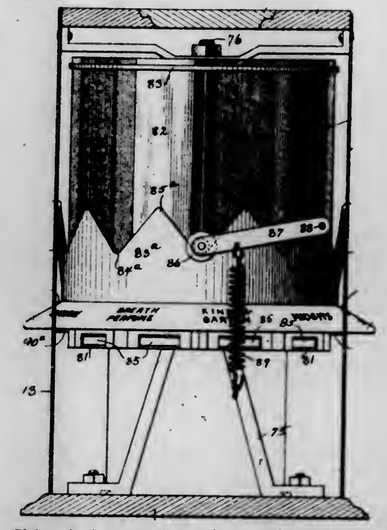
7. In a machine adapted for use in tying up the heads or tops of mantles, the combination of means for supporting one end of the loop of the shirring-string, means for engaging the free ends of the loop and for supporting the mantle.

8. In a machine adapted for use in sewing the heads of mantles comprising in its structure means for supporting the mantle and the plurality of means for engaging the shirring-string, whereby tying up may be effected.

9. In a machine adapted for use in tying up the heads of mantles, the combination of a mantle-head, string-engaging means and mantle-head-shirring means comprising in its structure a plurality of mantle-engaging jaws, one of which is movable.

10. In a machine adapted for use in shirring or condensing the heads of mantles, the combination of a plurality of jaws, one of which is movable, said jaws being spaced apart at a sufficient distance to receive between them, when opened, a mantle-head in an open condition and containing a shirring-string and means for moving a jaw to cause the head of the mantle to be condensed or shirred while supported from the shirring-string.

786,192. MULTIVENDING-MACHINE. FRED T. CONKLIN, Chicago, Ill., assignor, by mesne assignments, to Multi-Vending Company, Chicago, Ill., a Corporation of South Dakota. Filed Feb. 2, 1903. Serial No. 141,462.



Claim.—1. A commodity-carrier provided with receptacles, means having yielding engagement with said carrier to retain said receptacles respectively in discharging positions, said means comprising a corrugated track and a spring-pressed roller engaging said track.

2. A rotatable commodity-carrier provided with receptacles, means having yielding engagement with said carrier to retain said receptacles respectively in discharging positions, said means comprising a corrugated track connected to said carrier and a roller engaging said track mounted on a spring-pressed lever.

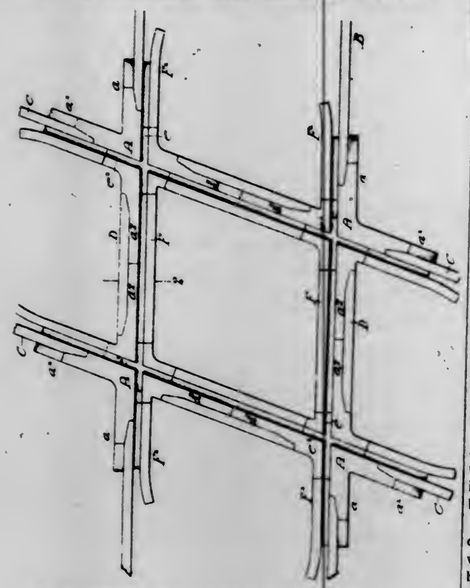
3. In a vending-machine, the combination of a rotatable commodity-carrier and a case inclosing said carrier; an annular slot extending only a portion of the way around said case; and a rim attached to said carrier extending through said slot.

4. A commodity-carrier provided with receptacles, means having yielding engagement with said carrier to retain said receptacles respectively in discharging positions, and a corrugated track wherewith said means operates.

786,193. RAILWAY-CROSSING STRUCTURE. WARNER B. COOKE, Jenkintown, Pa., assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 21, 1904. Serial No. 237,806.

Claim.—1. The combination in a railroad-crossing, of two intersection body portions, each having intersecting grooves for the wheel-flanges and each having an arm, the said arms, when the por-

tions are in place, abutting one another, with a bridge-rail running parallel with the said arms and bridging the joint between the arms, the arms and bridge-rail together forming a continuous bearing-surface for the tread of the car-wheels, substantially as described.



2. The combination in a railroad-crossing, of two intersection body portions, each having intersecting grooves for the wheel-flanges and each having an arm forming a continuation of a track-rail, and the arms of the two portions abutting each other, with a bridge-rail secured at one side of the said arms and bridging the joint between the arms, substantially as described.

3. The combination in a railroad-crossing, of two intersection body portions, each having intersecting grooves for the wheel-flanges and each having an arm forming a continuation of a track-rail, the said arms abutting each other, a bridge-rail secured at one side of the said arms and bridging the joint between the arms, with a guard-rail situated on the inner side of the two arms, substantially as described.

4. The combination in a railroad-crossing, of two intersection body portions, each having intersecting grooves for the wheel-flanges, and each intersection portion having two arms abutting arms of other intersection portions of the crossing, with bridge-rails secured to the arms and bridging the joints between the arms, the arms and bridge-rail together forming a continuous bearing-surface for the tread of the car-wheels, substantially as described.

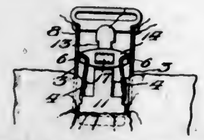
5. The combination in a railroad-crossing, of two intersection body portions, each having intersecting grooves for the wheel-flanges and each body portion having an arm abutting the arm of the other body portion, a bridge-rail mounted at one side of said arms and bridging the joint between the arms, a guard-rail mounted on the inner side of the arms, and means for securing the parts together, substantially as described.

6. The combination in a railroad-crossing, of two intersection body portions, each body portion having an arm abutting the arm of the other body portion, a bridge-rail mounted at one side of said arms and bridging the joint between the arms, a guard-rail extending across the joint between the arms, and means for securing the parts together, substantially as described.

7. The combination in a railroad-crossing, of two intersection body portions of manganese steel or other hard metal, each body portion having an arm abutting the arm of the other body portion, a bridge-rail mounted at one side of said arms and bridging the joint between the arms, a guard-rail extending across the joint between the arms, and means for securing the parts together, substantially as described.

786,194. GARMENT-SUPPORTER. JAMES C. COPELAND, Pottsville, Pa. Filed May 24, 1904. Serial No. 209,589.

Claim.—1. A supporter having a resilient frame with a clamping-bar, a clamping member pivotally held by parts of the said frame and movable through the latter, and a locking-slide carried by the clamping member to engage portions of the frame, said slide being disengaged from and out of contact with the frame when the clamping member is unlocked.



2. A supporter having a resilient frame with legs and a clamping-bar, a clamping member movably held by the said legs and provided with a shank, and a locking-slide mounted on the said shank to engage portions of the legs, the resiliency of the frame serving to move the clamping member out of clamping position when the slide is disengaged from and out of contact with the frame.

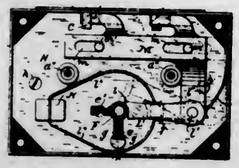
3. A supporter having a resilient frame with a lower clamping-bar and legs, a clamping member pivotally held by the terminals of the legs and movable through the frame, the legs having atop-bends, and a locking-slide carried by a part of the clamping member to removably engage the said atop-bends, the resiliency of the frame serving to move the clamping member out of clamping position when the slide is disengaged from the bends.

4. A supporter having a resilient wire frame bent to form legs and a lower clamping-bar, a clamping member pivotally held by the terminals of the legs and movable through the frame, the legs having inwardly-projected bends at intermediate points, and a slide carried by a part of the clamping member to engage the said bends.

5. A supporter having a resilient frame with a clamping-bar, a clamping member pivotally held by parts of the said frame and provided with a shank, a locking-slide carried by the shank of said member, and a clasp for holding the slide in movable relation to the shank.

6. A supporter having a frame with a clamping-bar, a clamping member pivotally held by parts of the frame and provided with a shank formed with recesses in the opposite edges, and a slide mounted on the shank and having means engaging the said recesses to retain said slide in operative relation to the shank.

786,195. LOCK. HONORÉ COUDYSER, Milwaukee, Wis. Filed Dec. 12, 1903. Serial No. 184,912.



Claim.—1. A lock having front and rear chamber separated by a partition-plate having an aperture fitting the key-bit and making an angle with the keyhole proper, means for guiding the key-bit through the keyhole proper into the rear chamber, and locking mechanism contained completely in the front chamber.

2. A lock having a front and rear chamber, means for guiding the key into the rear chamber, an aperture in the partition separating the chambers, locking mechanism in the front chamber, and false locking mechanism in the rear chamber.

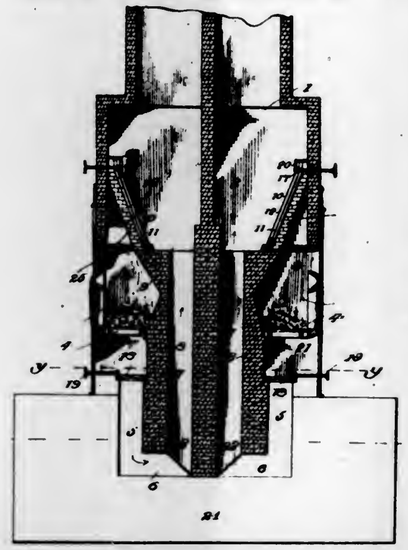
3. A lock having a front and rear chamber, locking mechanism in one chamber, false locking mechanism in the other, means for admitting and guiding the key-bit into the last-named chamber, and means for guiding the key-bit from the last-named chamber into the first-named chamber after it has been rotated through a given angle in the former.

4. A lock having a front and rear chamber, means for guiding the key into one of said chambers, false locking mechanism in this chamber, locking mechanism in the other, and means for guiding the key from the first chamber into the second after it has been rotated through a given angle in the first.

5. In a lock, locking mechanism comprising a bolt, a tumbler connected with and operating it and having a substantially blunt end and a slight lug or projection adapted to be engaged by the key when in a certain exact position, the tumbler causing the bolt to be pushed back when the key in this position and so engaging the end and lug of the tumbler is rotated against said tumbler; in combination with a lock-case having a front and a rear chamber in one of which said locking mechanism is located, and means for guiding the key-bit into the other chamber.

6. In a lock, locking mechanism comprising a sliding bolt, a tumbler pivoted thereto and having a blunt end and a slight lug or projection on said end, said end projecting directly in the path of the key-bit and longitudinally with the motion of its pivot, and means for holding said tumbler yieldingly in said position permitting it to oscillate out of the path of the key, whereby the key can operate the bolt only when occupying a position in which said lug rests upon the key-bit and the latter against said blunt end; in combination with a lock-case having a front and a rear chamber, means for guiding the key into one chamber only, false locking mechanism in this chamber, a hidden passage-way permitting the passage of the key-bit from this into the other chamber, and hidden obstructions to the passage of the key-bit through said passage-way, said obstructions preventing also the location of said passage-way by a false key.

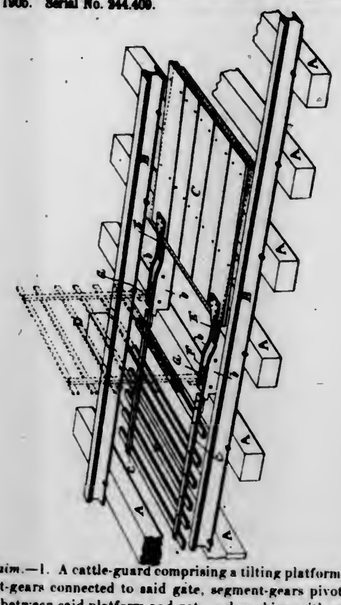
786,196. CHIMNEY CONSTRUCTION. WILLIAM T. COUGHLIN, Bessemer, Ala. Filed June 2, 1904. Serial No. 210,882.



Claim.—1. In chimney construction, and in combination, a heater, a chimney extending upwardly from the heater, a transverse partition-wall disposed in rear of the heater, vertical downdraft-flues extending downwardly from beneath the heater in front of the partition-wall aforesaid, vertical updraft-flues extending from the downdraft-flues aforesaid and located in rear of the partition-wall above mentioned, a damper resting at its lower end upon the upper portion of the partition-wall and having the upper end resting against the front wall of the chimney, said damper being disposed above the heater and adapted to establish or cut off a direct draft therefrom, spaced fire-brick partitions beneath the said damper, and a second damper disposed beneath the heater to establish or cut off a downdraft therefrom.

2. In chimney construction, the combination of the heater 3, the chimney 1 extending upwardly from the heater 3, the vertical downdraft-flue 5 extending from beneath the heater 3 and extending rearwardly at its lower end at 6, the damper 18 at the upper end of the flue 5, the vertical updraft-flue 7 extending from the portion 6 of the flue 5, the vertical partition-wall 8 separating the flues 5 and 7 and forming a fireback for the heater 3, the spaced fire-brick partitions 25 projected upwardly from the upper portion of the partition 8 to the front wall of the chimney 1, the damper 10 above the fire-brick partitions 25, and the ash-pit 21 situated below the portion 6 of the flues 5 and communicating with the space immediately under the heater.

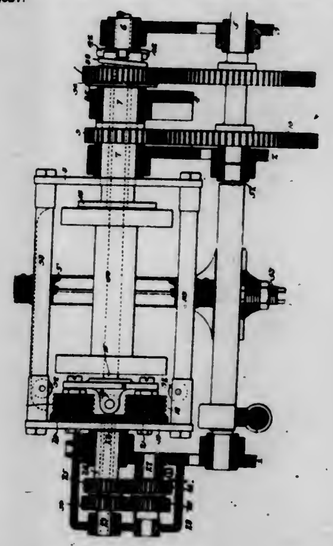
786,197. CATTLE-GUARD. EDGAR J. CRANDELL, Memphis, Tenn., assignor of one-half to Henry M. Thomas, Memphis, Tenn. Filed Feb. 6, 1905. Serial No. 244,409.



Claim.—1. A cattle-guard comprising a tilting platform, a gate, segment-gears connected to said gate, segment-gears pivotally arranged between said platform and gate and meshing with said first-named gears, and arms connected to one set of said gears and operated by said platform to oscillate both sets of gears.

2. A cattle-guard comprising a platform supported on railways-ties so as to be tilted, a gate, segment-gears secured to said gate, similar gears meshing with the first-named gears and pivotally supported between the platform and the gate, and arms secured to the platform and pivotally connected to said last-named gears, whereby the tilting of the platform imparts a rotary motion to both sets of gears.

786,198. SPINNING, TWISTING, AND WINDING MACHINE. ROBERT DAWES, Philadelphia, Pa. Filed Jan. 14, 1904. Serial No. 189,027.



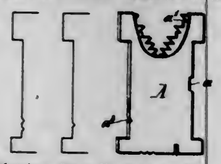
Claim.—1. The combination, in a spinning or like machine, of a spool-driving shaft, a rotated member thereon, a ring having frictional connection with said rotated member, a spring acting upon said ring, and a nut adjustable on the shaft and bearing upon said spring, said nut being also in engagement with the ring whereby joint and simultaneous rotation of the two is effected, substantially as specified.

2. The combination, in a spinning or like machine, of a spool-driving shaft, having a flange thereon, a rotated member on said shaft, having frictional connection with said flange, a ring also having frictional connection with said rotated member, a spring acting upon said ring, and a nut adjustable on the shaft, said nut bearing upon said spring and engaging said ring, substantially as specified.

3. The combination, in a spinning or like machine, of a spool-driving shaft, a rotated member thereon, a ring having frictional connection with said rotated member, and having a slotted hub, a nut engaging a threaded portion of the shaft, and having arms engaging said slotted portion of the hub of the ring, and a spring interposed between said ring and said arms of the nut, substantially as specified.

4. The combination, in a spinning or like machine, of a spool-driving shaft, having a rotated member thereon, a ring having frictional connection with said rotated member and having also a slotted hub, a nut adapted to a threaded portion of the shaft and having arms engaging said slotted portion of the hub, one of said arms being split and provided with a clamp-screw whereby the nut may be tightened upon the shaft, and a spring interposed between said ring and the arms of the nut, substantially as specified.

786,199. LINOTYPE-MACHINE. PHILIP T. DODGE, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Dec. 31, 1904. Serial No. 239,117

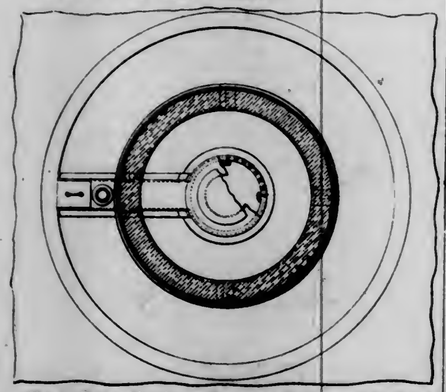


Claim.—1. Matrices for a linotype-machine, provided in the exposed edges with face-distinguishing notches, substantially as described and shown.

2. A matrix for a linotype-machine, provided in one edge with a matrix character "a," and in the opposite edge with a face-indicating mark a^3.

3. The matrix for a linotype-machine, provided with the usual matrix character "a," in one vertical edge, distributing-teeth at the upper end, a font-distinguishing notch a^2 in the lower end, and a face-distinguishing notch a^3

786,200. GAS-PRODUCER. ALFRED B. DUFF, Pittsburg, Pa. Filed Sept. 19, 1903. Serial No. 173,867.



Claim.—In combination, a gas-producer, a water-sealed ash-trough therefor, an air-receiving casing in the ash-trough, substantially vertical gratings carried on the casing and distributed over a large area, a free space for the fall of ashes between the air-casing and producer walls, a louvered cone superimposed on the gratings, said cone consisting of a louvered ring of the casing, and a cover superimposed thereon so as to leave air-space in the wall of the cone, said air-spaces in the cone and grating being so proportioned that a sufficient quantity of air is made to act on the upper part of the fuel and light that part up to incandescence, while the lower grating causes the air to act upon such ignited fuel as it descends with a finer distribution and without raising the temperature at any point too high.

786,201. DISPLAY-RACK. HERMAN FRANKENTHAL, New York, N. Y. Filed Oct. 15, 1904. Serial No. 228,583.



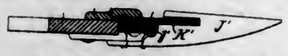
Claim.—1. An extension display-rack composed of a suitable support, and a lazy-tongs body having as viewed from the front a cruciform shape and adjustable to simultaneously extend two of its members and to shorten the other two.

2. An extension display-rack composed of a portable support comprising a horizontal pivot, an arm supporting said pivot, a vertical standard on the front of which said arm is supported and a base for said standard, and a lazy-tongs body movable on said pivot having a cruciform shape as viewed from the front and adjustable to simultaneously extend two of its members and to shorten the other two.

3. An extension display-rack composed of a portable support comprising a horizontal pivot, an arm supporting said pivot, a vertical standard on the front of which said arm is supported and a quadrangular base with one of its angles in front, above which angle said pivot is located, and a lazy-tongs body movable on said pivot having a cruciform shape as viewed from the front and adjustable to simultaneously extend two of its members and to shorten the other two.

4. The combination in an extension display-rack of three sets of pieces connected with each other by pivotal joints and forming a lazy-tongs body having, as viewed from the front, a cruciform shape, and movable to simultaneously extend two of its members and to shorten the other two, substantially as hereinbefore specified.

786,202. MOWER OR REAPER. JULES GAGNÉ, Jackfish Lake, Canada, assignor of one-half to Albert Edward Dunn, Battleford, Canada. Filed July 27, 1904. Serial No. 218,377.



Claim.—1. In a mower, reaper or harvester, the combination with the finger-bar of a double-bladed cutter consisting of an upper and a lower blade in close contact with each other, each having large triangular-shaped teeth, the upper one with plain beveled edges and the lower one having the edges of the teeth finely serrated, a guide-strip on the lower side of the upper blade having its rear edge set forward from the rear edge of the blade and the front edge rabbeted to form a groove with the blade adapted to receive the rear edge of the lower blade as a tongue and a tongue adapted to enter a groove, a guide-strip on the lower blade extending under the upper strip and rabbeted to form a groove with the lower blade into which the tongue formed by the upper strip enters and means of giving a longitudinal reciprocating movement to each blade in opposite directions, substantially as set forth.

2. In a mower, reaper or harvester, the combination with the finger-bar of a double-bladed cutter consisting of an upper and a lower blade held in close contact by a guide-strip secured to the bottom of each and rabbeted to form groove and tongue and interlock vertically, each blade formed with large triangular teeth having cutting edges which in the upper one are beveled and in the lower one serrated and means to give a reciprocating motion in opposite directions to said blades, substantially as set forth.

3. In a mower or harvester, the combination with the finger-bar and guards shaped to form a slide-bed for the cutter-bar, guide-brackets secured to the top of the finger-bar to hold said bar, a cutter-blade having large triangular pieces cut out of its front and the edges beveled to a cutting edge and having a guide-strip secured to the bottom near the rear edge said strip being rabbeted to form a groove and a tongue at its front edge, a cutter-blade having its upper face in contact with the lower face of the top blade and kept in contact by a rabbeted guide-strip secured to the bottom set forward from the rear edge and extending under the guide-strip of the top plate, the rear edge of said bottom blade forming a tongue and entering the groove between the top blade and guide-strip and the tongue of the latter entering the groove formed by the bottom blade and its guide-strip, said bottom blade having its front formed into teeth the edges of which are serrated and means of giving a reciprocating motion to said blades in opposite directions, substantially as set forth.

4. In a mower or harvester, the combination with the finger-bar and shoe, of a double-bladed cutter bedded and guided thereon, tongued end plates at the operating ends, grooved guide-brackets secured to the shoe and receiving the tongues of the end plates, a ball secured to each end plate, pitmen connecting said balls by split cups and buckles and cranks upon which the opposite ends of the pitmen are journaled, said cranks receiving motion to give a reciprocating movement in opposite directions to said pitmen, substantially as set forth.

5. In a cutter for mowers, reapers and harvesters, the combination of two blades in close contact one above the other and both having large triangular teeth, the upper one plain and the lower one serrated and the two blades vertically interlocked one with the other by rabbeted guide-strips secured to the rear of their lower faces, the rabbeted faces of the strips facing and engaging each other as tongues and grooves, the lower blade being narrower than the top blade and its rear edge forming a tongue entering the groove formed by the top blade and its rabbeted guide-strip and the lower guide-strip extending under and being in contact with the upper guide-strip, substantially as set forth.

786,203. COVER FOR DRAINS, VENT-BOXES, WASHPAVES, &C. DANIEL GAILEY, Philadelphia, Pa. Filed Oct. 1, 1904. Serial No. 226,823.



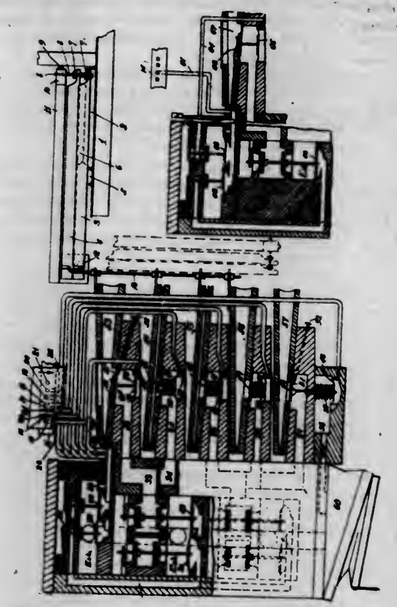
Claim.—1. In a cover for drains, vent-boxes, washpaves and the like, the combination of the upper or main surface-plate having apertures, and reversely-disposed projections arranged beneath the same and forming a zigzag passage.

2. In a cover for drains, vent-boxes, washpaves and the like, the combination of the upper or main surface-plate having apertures, ribs disposed on the under side of said plate, and two sets of lateral projections carried by said ribs and guarding said apertures.

3. In a cover for drains, vent-boxes, washpaves and the like, the combination of the upper or main surface-plate having a series of apertures, and a series of reversely-disposed projections arranged beneath said plate and forming zigzag passages with respect to the apertures in the same.

4. In a cover for drains, vent-boxes, washpaves and the like, the combination of the upper or main surface-plate having apertures, depending ribs disposed on the under surface of said plate, and lateral projections extending on both sides of said ribs and guarding said apertures.

786,204. SELF-PLAYING MUSICAL APPARATUS. ROBERT A. GALLY, Brooklyn, N. Y. Filed July 7, 1904. Serial No. 215,603.



Claim.—1. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby and having its key-striker part intermediate its length, its fulcrum rearward of such striker part, and automatically-controlled downwardly-operative means connected to it forward of such striking part.

2. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby and having its key-striker part intermediate its length, its fulcrum rearward of such striker part, and a vertical tracker-pull connected to the said lever forward of its striker part.

3. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby and having its key-striker part intermediate its length, its fulcrum rearward of such striker part, and a vertical striker-pull connected to the said lever forward of its striker part and principally below the level of said lever.

4. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby and having its key-striker part intermediate its length, its fulcrum rearward of such striker part, and a downwardly-acting pneumatic motor connected to said lever forward of said striker part.

5. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby and having its key-striker part intermediate its length, its fulcrum rearward of such striker part, and two or more horizontal rows of downwardly-acting pneumatic motors, each motor connected to its corresponding key-striker lever at a point forward of the key-striker part of said lever.

6. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby and each said lever having its fulcrum at its rear end, and supporting means for all said fulcra adapted to swing downwardly and forwardly and thereby bring all said levers to a vertical position with all their fulcra below when said levers are not in use.

7. In a self-playing musical apparatus, a plurality of key-actuating levers, a corresponding plurality of pitmen or tracker-rods at an obtuse angle to said levers when both are in operative position,

means arranged to change the relative positions of said levers and the pitmen or rods to substantially parallel positions one to the other when not in use, and an offset connection means where each pitman or rod engages its corresponding lever, each said means so arranged that its offset allows the clearance of its said engaged parts when in their substantially parallel positions.

8. In a self-playing musical apparatus, a plurality of key-actuating levers arranged in two or more groups in direction of the scale of manual-keys to be operated thereby, one group movable relatively to another in direction of said scale to justify said levers to various lengths or spacings of manual-key scales.

9. In a self-playing musical apparatus, a plurality of key-actuating-levers arranged in two or more groups in direction of the scale of manual-keys to be operated thereby, a unitary supporting member for each said group, and means arranged to adjust said members and their groups of levers one to another lengthwise of said scale and lock them in such adjusted positions.

10. In a self-playing musical apparatus, a plurality of horizontal key-striker levers each arranged in position to lie over the respective manual-key of the instrument to be operated thereby, a fulcrum-rail above said levers, and to each lever a fulcrum engaged therewith extending upward through said rail for adjustment from above the rail to level its striker-lever to its key.

11. In a self-playing musical apparatus, a plurality of key-actuating-levers arranged in two or more groups in direction of the scale of manual-keys to be operated thereby, each alternate group comprising the C♯ and D♯ levers and adjacent natural-note levers, and each other alternate group comprising the F♯, G♯ and A♯ levers and adjacent natural-note levers, a unitary supporting member for each said group, and means arranged to adjust said members and their groups of levers one to another lengthwise of said scale and lock them in such adjusted positions.

12. In a self-playing musical apparatus, a note-actuating power-pneumatic having valve means to effect its positive operation, pneumatic motor means to control said positive valve means, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, air-duct connection to said motor means from the corresponding note-aperture of the tracker-bar, air-flow-modifying means between said positive valve means and the power-pneumatic, an extra pneumatic motor means connected to said modifying means for control of the modifying operation, and air-duct connection to said extra motor means from the same aforesaid note-aperture of the tracker-bar.

13. In a self-playing musical apparatus, a note-actuating power-pneumatic having valve means to effect its positive operation and its release, pneumatic motor means to control said valve means, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, air-duct connections to said motor means from the corresponding note-aperture of the tracker-bar, air-flow-modifying means between said valve means and the power-pneumatic, an extra pneumatic motor means connected to said modifying means for control of the modifying operation, and air-duct connection to said extra motor means from the same aforesaid note-aperture of the tracker-bar.

14. In a self-playing musical apparatus, a note-actuating power-pneumatic having valve means to effect its positive operation, pneumatic motor means to control said positive valve means, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, air-duct connection to said motor means from the corresponding note-aperture of the tracker-bar, air-flow-modifying means in the air-channel connecting said positive valve means and the power-pneumatic, an extra pneumatic-motor means in a space subject to the air service of said air-channel and connected to said modifying means for control of the modifying operation, and connection to said extra motor means from the same aforesaid note-aperture of the tracker-bar.

15. In a self-playing musical apparatus, a note-actuating power-pneumatic having valve means to effect its positive operation, pneumatic motor means to control said positive valve means, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, air-duct connection to said motor means from the corresponding note-aperture of the tracker-bar, air-flow-modifying means between said positive valve means and the power-pneumatic, an extra pneumatic motor means in a space atmospherically affected by the positive valve means and connected to said modifying means for control of the modifying operation, and air-duct connection to said extra motor means from the same aforesaid note-aperture of the tracker-bar.

16. In a self-playing musical apparatus, a note-actuating power-pneumatic having a pneumatically-controlled valve means to directly effect its positive operation, and an extra pneumatic motor means within a space atmospherically affected by the aforesaid valve means and arranged to vary speed or power of operation of the power-pneumatic.

17. In a self-playing musical apparatus, a note-actuating power-pneumatic, valve means arranged to effect the exhaust of said power-pneumatic, a modifier means arranged to modify and regulate the flow of said exhaust to different degrees, a pneumatic controlling means to the aforesaid valve means and another to the modifier means, a tracker-bar having an aperture, and air connections from said one aperture to both said pneumatic controlling means, the said controlling means to the exhaust-valve means arranged to operate from less air service of the tracker-bar than the controlling means to the modifier means.

18. In a self-playing musical appratus, a note-actuating power-pneumatic having a pneumatically-controlled valve means to directly effect its positive operation and an extra pneumatic motor means within a space atmospherically affected by the aforesaid valve means, and a return-vent connection from said air-space to the interior of said extra motor means.

19. In a self-playing musical apparatus, continuous air-tension-producing means, a note-actuating power-pneumatic having valve means to alternately connect the said power-pneumatic to the air tension and to the normal air, a primary pneumatic constantly in the air tension and arranged to control the aforesaid valve means, a return-vent from the continuous air tension to the interior of said primary pneumatic, a pneumatic motor disposed subject to the action of the alternate tension-air and normal air served by the aforesaid valve means, a return-vent from the alternate tension-air and normal-air service to the interior of said pneumatic motor, a tracker-bar having a note-aperture adapted to be controlled by a perforated music-sheet, air-duct connections from the interior of the aforesaid primary pneumatic and the interior of the aforesaid pneumatic motor to the aforesaid one note-aperture, and an air-check means disposed in the said air-duct connections between the two return-vents and arranged to close the connection between the two said vents when the said pneumatic motor is subject to the normal-air condition.

20. In a self-playing musical apparatus, continuous air-tension-producing means, a note-actuating power-pneumatic having valve means to alternately connect the said power-pneumatic to the air tension and to the normal air, a primary pneumatic constantly in the air tension and arranged to control the aforesaid valve means, a pneumatic motor disposed subject to the action of the alternate tension-air and normal air served by the aforesaid valve means, a tracker-bar having a note-aperture adapted to be controlled by a perforated music-sheet, air-duct connections from the interior of the aforesaid primary pneumatic and the interior of the aforesaid pneumatic motor to the aforesaid one note-aperture, and an air-check means disposed in the said air-duct connections between the primary pneumatic and the pneumatic motor and arranged to close the connection between the two said pneumatics when the said pneumatic motor is subject to the normal-air condition.

21. In a self-playing musical apparatus, a note-actuating power-pneumatic, an air-port thereto, an air-flow-modifying means consisting of a modifier normally located within the port but of less diameter, to partly reduce the flow of air through said port yet always allow some flow, and means arranged to move said modifier to allow a greater flow of air through said port when a quicker stroke is desired.

22. In a self-playing musical apparauts, a pneumatic having an air-port thereto and a modifier operating therein and of substantially cylindrical form at one end but tapered away in polygonal form toward its other end to facilitate its operation and the free flow of air at its tapered end.

23. In a self-playing musical apparatus: a note-actuating power-pneumatic having pneumatically-controlled valve means for effecting its operation; one constantly-open passage from said valve means to said power-pneumatic; additional optionally opened, or closed or restricted, passage between said parts; and a regulating means for adjusting the degree of opening of the said constantly-open passage to effect the exact minimum stroke.

24. In a self-playing musical apparatus, two or more parallel rows of bellows-shaped pneumatics, a tracker-bar above said rows and intermediate their length, and leaders or tubes from the several pneumatics carried lengthwise of the rows and between said rows to and around the ends of said rows and continued to and connected with the ducts of said tracker-bar.

25. In a self-playing musical apparatus a note-actuating power-pneumatic having pneumatic means for effecting its operation, additional pneumatic means for optionally modifying said operation, both said pneumatic means being individual to the one power-pneumatic, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and air-duct connection to both said pneumatic means of the one power-pneumatic from the corresponding single note-aperture of the tracker-bar.

26. In a self-playing musical apparatus, a note-actuating power-pneumatic having pneumatic means for effecting its operation and for optionally modifying said operation, the complete said means being individual to the one power-pneumatic, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and air-duct connection to the said effecting and modifying pneumatic means of the one power-pneumatic from the corresponding single aperture of the tracker-bar.

27. In a self-playing music apparatus, a note-actuating power-pneumatic having pneumatic means for effecting its operation and for optionally modifying said operation, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and air-duct connection to the said effecting and modifying pneumatic means of the one power-pneumatic from the corresponding single aperture of the tracker-bar.

28. In a self-playing musical apparatus, a power-pneumatic having valve means and a plurality of primary pneumatics thereto for controlling its positive operation, said primary pneumatics being of varied ratios of power one to another as compared to their respective valve resistance, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and air-duct connection directly to each of the said plurality of primary pneumatics of the one power-pneumatic from the single aperture of the tracker-bar corresponding to that particular power-pneumatic.

29. In a self-playing musical apparatus, a power-pneumatic having a plurality of primary pneumatics for controlling its positive operation, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and an air-duct connection directly to each of the said plurality of primary pneumatics of the one power-pneumatic from the single aperture of the tracker-bar corresponding to that particular power-pneumatic.

30. In a self-playing musical apparatus, a power-pneumatic having a plurality of primary pneumatics and valves for controlling its positive operation, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and air-duct connection directly to each of the said plurality of primary pneumatics of the one power-pneumatic from the single aperture of the tracker-bar corresponding to that particular power-pneumatic.

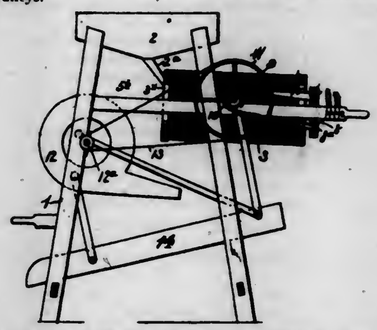
31. In a self-playing musical apparatus, a note-actuating power-pneumatic having a plurality of actuating air-passages connected thereto for its positive operation, and means for adjustably regulating the relative sizes of the said several passages to determine the exact relative speeds of strokes to be controlled thereby.

32. In a self-playing musical apparatus, a tracker-bar adapted to be controlled by a perforated music-sheet; a note-actuating power-pneumatic having valve means controlled by said tracker-bar for effecting the operation of said power-pneumatic; and air-flow-modifying means between said power-pneumatic and its said valve means, individual thereto, and controlled by said tracker-bar to optionally vary the stroke of said power-pneumatic.

33. In a self-playing musical apparatus, a power-pneumatic having a plurality of primary pneumatics and valves for controlling its operation, intermediate pneumatic and valve means between one of said primary pneumatics and its valve and the said power-pneumatic, direct air connection from the valve of another of the primaries to the said power-pneumatic, a tracker-bar having apertures adapted to be controlled by a perforated music-sheet, and air-duct connection directly to each one of the said plurality of primary pneumatics of the one power-pneumatic from the single aperture of the tracker-bar corresponding to that particular power-pneumatic.

786,205. **FANNING-MILL.** AUGUST GERTH, Estelline, S. D., assignor of one-half to Morton S. Liebenstein, Estelline, S. D. Filed Sept. 1, 1904. Serial No. 223,009.

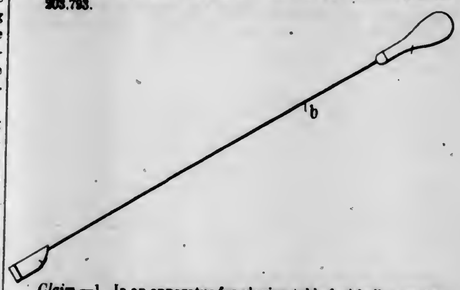
Claim.—1. A device of the character described, employing a sieve or screen rotatably mounted in position, a shaft for said sieve or screen, upstanding arms suitably secured in position, and bearings for said shaft or journal, one being a cross-piece received in vertical slots of said upstanding arms, said arms and said shaft-bearing having adjusting perforations, and adjusting-pins adapted to engage said perforations, said cross-piece bearing a shaft equipped with pulleys, a handle-shaft carrying a pulley, and an endless belt engaging said pulleys.



2. A device of the character described, employing a sieve mounted in position, a shaft for said sieve or screen, and bearings for the sieve-shaft suitably supported in position, one being adjustable, said rotary sieve or screen having fixed to its shaft a pulley and said adjustable bearing carrying a vertical shaft equipped with pulleys, a handled shaft carrying a pulley, and an endless belt engaging said pulleys and the pulley of the sieve-shaft.

3. A device of the character described, employing a rotary sieve or screen, means for actuating said sieve, a shaft carrying said rotary sieve, bearings for said shaft, one of which is adjustable, a vibrating screen arranged below said rotary sieve, a rotary fan delivering its blast upon the chaff falling from said rotary sieve, the adjustable shaft-bearing supporting an additional shaft equipped with pulleys, a handled shaft carrying a pulley, and an endless belt engaging said pulleys.

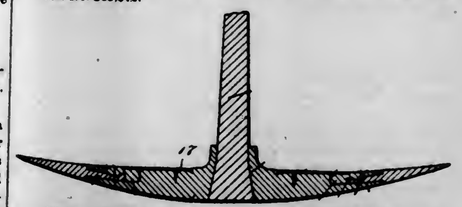
786,206. **APPLIANCE FOR PLAYING TABLE FOOT-BALL.** MAY GILLETT, London, England. Filed Apr. 18, 1904. Serial No. 203,793.



Claim.—1. In an apparatus for playing table fool-ball, a pusher comprising a substantially sector-shaped head, and a flexible-wire handle attached to the apex thereof, substantially as described.

2. In an apparatus for playing table foot-ball a pusher comprising a substantially sector-shaped head having a substantially flat bottom with an upwardly-slanting rear portion, and a flexible-wire handle attached to the apex thereof, substantially as described.

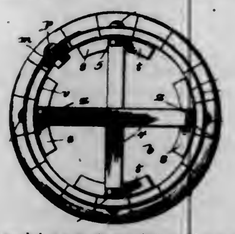
786,207. **PICK.** WILLIAM F. GILLOOLY, Coalton, W. Va., assignor of one-half to Patrick F. King, Monroe, W. Va. Filed June 20, 1904. Serial No. 213,378.



Claim.—As an article of manufacture, a head for picks comprising a body portion having a socket therein for the reception of a

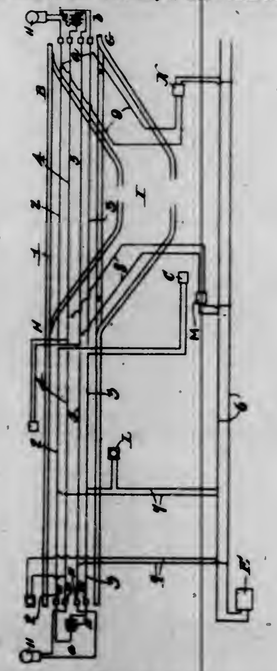
handle and including laterally-extending arms, said arms having sockets in their ends and having recesses therein communicating with the sockets, points having stems engaged in the sockets and extending into the recesses, said stems having upwardly-extending lugs at their free ends, latches removably disposed in the recesses and having notches therein in which the lugs are engaged to prevent disengagement of the points, said arms having depressions therein communicating with the recesses, springs disposed in the depressions and extending over the recesses and lying in engagement with the latches to hold the latter yieldably in engagement with the stems, and screws passed through the springs and engaged in the arms, said screws being adapted for operation to permit of lateral movement of the springs to disengage them from the latches.

786,208. CASK. JOHN GILMOUR and RICHARD O'FLYNN, Jr., Owensboro, Ky. Filed Aug. 11, 1904. Serial No. 220,377.



Claim.—A knockdown cask consisting of a series of flexibly-connected staves, exterior slotted hoop-straps, removable heads, interior removable arc-form chime-flanges, removable flanged straps extending at right angles to each other over each head between the chime-flanges and removable bolts connecting the exterior hoop-straps, staves, chime-flanges and flanged straps, substantially as specified.

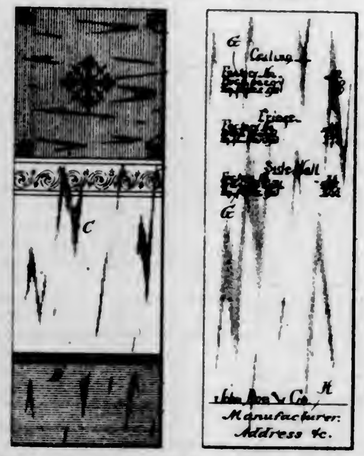
786,209. ELECTRIC RAILWAY SIGNALING SYSTEM. JOHN D. GORDON, Riverside, Cal. Filed May 5, 1904. Serial No. 206,568.



Claim.—1. An electric railway signaling system having open-circuit block-conductors for the several blocks, and fixed signaling devices connected to said conductors, said conductors for each block being disconnected from those of the other blocks, and extending past the junctions with the next adjacent blocks, a generator, carried by a train, and connections between said generator and the said conductors, whereby the latter are charged by such generator when the train enters a block and operates the fixed signal or signals for such block, substantially as described.

2. An electric railway signaling system having open-circuit block-conductors for the several blocks and fixed signaling devices connected to said open-circuit conductors, relatively constantly charged conductors connected, in open circuit with the open-circuit conductors of the several blocks, and a circuit-closer device carried by a train, coacting with the open-circuit block-conductors and the relatively constantly charged conductors, to successively cut in the said fixed signaling devices as the train proceeds, substantially as described.

786,210. METHOD OF AND DEVICE FOR ADVERTISING COLORING MATERIALS, PAINT, &c. JOHN F. GOULD, New York, N. Y., assignor to The Muralo Company, New Brighton, Staten Island, N. Y., a Corporation. Filed Nov. 3, 1904. Serial No. 231,864.



Claim.—1. A suitable card or sheet having produced thereon in the actual materials a facsimile in miniature of the color scheme for a room or apartment.

2. A suitable card or sheet having produced thereon in the actual materials a facsimile in miniature of the color and stencil scheme for a room or apartment.

3. A suitable card or sheet having produced thereon in the actual materials a facsimile in miniature of the walls, ceiling and stencil color scheme of a room or apartment, the areas, size and location of the various colored and decorated surfaces being proportioned relative to each other, although greatly reduced, the same as in the room or apartment.

4. A suitable flexible card or sheet having produced thereon in the actual materials a facsimile in miniature of the color scheme for the walls and ceiling of a room or apartment.

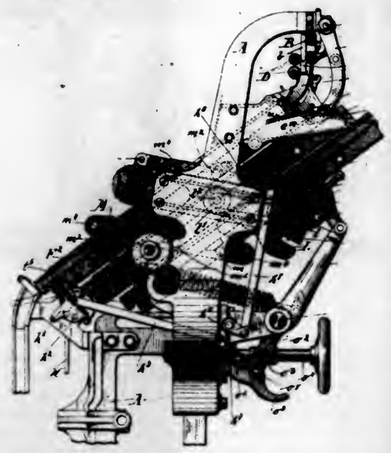
5. A suitable flexible card or sheet having produced thereon in the actual materials and by the tools and processes actually used in doing the work, a facsimile in miniature of the color scheme for a room or apartment.

6. A suitable card or sheet having produced thereon in the actual materials a facsimile in miniature of the color scheme for a room or apartment and bearing also suitable data whereby the colors may be identified and their cost and other information desired readily ascertained.

786,211. LINOTYPE-MACHINE. CARL L. GROHMANN, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Nov. 12, 1904. Serial No. 232,453.

Claim.—1. In a linotype-machine, plural magazines, facing in the same direction and mounted to move jointly forward and backward and also rock on a horizontal axis, whereby either one of the magazines may be brought into operative position at will.

2. In a linotype-machine, a sliding and rocking support, having a number of magazines mounted rigidly therein whereby any desired one of the magazines may be brought to the operative position at will without inversion.



3. In a linotype-machine, the combination of a main frame, supports mounted to slide forward and backward therein, a rocker-frame carried by said supports, and magazines rigidly mounted in the rocker-frame.

4. In a linotype-machine, a fixed distributing mechanism, a fixed mechanism to receive and assemble the released matrices, plural intermediate magazines, rigidly united and mounted to rock and also to shift bodily, whereby either magazine may be brought at will into operative relation to the other parts.

5. In a linotype-machine, a rigid main frame A, with its fixed track-plates K, in combination with the sliding plates L, sustained by the track-plates, the rocker-frame M, carried by the sliding plates, and a series of magazines fixed in the rocker-frame, whereby the adjustment of one magazine or another in operative position is permitted.

6. In combination with a series of rigidly-united magazines and the rocking and shifting supports therefor, means for shifting the supports to predetermined positions, whereby one magazine or another may be definitely placed to admit of its rocking into operative position.

7. In a linotype-machine, a magazine, a horizontal axis whereon the magazine is mounted to turn, said axis movable to different positions to permit change of location of the magazine, and means for positively turning the magazine on its axis in its different locations.

8. In a linotype-machine, plural magazines rigidly united and mounted to turn about an axis and also to move bodily, in combination with means for positively effecting the turning movement, and means for positively effecting the movement bodily.

9. In a linotype-machine, a series of magazines, each provided with escapement devices to control the release of the matrices, rocking and shifting supports permitting any one of the magazines to be brought into operative position, means for actuating the escapements of the operative magazine, and means for automatically disengaging said actuating devices preparatory to the shifting of a magazine.

10. In a linotype-machine, a magazine mounted to rock to and from its operative position and provided with escapements to control the discharge of the matrices, in combination with escapement-actuating devices, mounted in the main frame, and means for rocking the magazine and for automatically engaging and disengaging said actuating devices.

11. In a linotype-machine, a series of magazines, a rocker-frame M wherein they are rigidly secured, sliding supports for said rocker-frame, vibratory arms o and connections therefrom to move the sliding supports, the screw o^4, the connections between the screw and the arm o, and the locking device o^5.

12. In a linotype-machine, the series of magazines, the rocker-frame wherein they are rigidly supported, sliding supports for said rocker-frame, and connections between the rocker-frame and the sliding supports to effect the positive tilting or rocking of the magazine.

13. The rocking magazine-support M and the sliding support therefor, in combination with the rotary disks m'', carried by the rocker-frame and adapted to engage the sliding frame, substantially as shown.

14. In combination with a sliding magazine-support L, having notches therein, and a rocknig magazine-support carried thereby, the rotary disks or heads m'' carried by the rocking support and provided with studs to enter notches in the sliding support, whereby the positive rocking of the magazine is effected.

15. In a linotype-machine, the main frame, plural magazines facing in one direction, supporting devices permitting the magazines to be moved jointly forward and backward and also to be rocked about a horizontal axis, in combination with mechanisms for effecting said movements.

16. In combination with the magazines and the rocking and sliding supports therefor, the escapement-actuating rods, their movable guide, the arm h^8 connected with said guide, and disks m'', acting to rock the magazine-support and also to actuate the arms h^8 and thereby control the engagement and disengagement of the escapement-actuating rods.

17. In combination with the rocking magazines, shiftable forward and backward, the escapement-actuating rods, a movable guide therefor, and means substantially as shown for engaging and disengaging said rods and for holding them out of action during the shifting movement of the magazines.

18. In combination with magazines mounted on horizontal axes, pivotal supports, movable forward and backward, and means for positively locking said pivotal supports in different positions

19. In combination with magazines, shiftable forward and backward, that one or another may be brought into operative position, a fixed distributer and an intermediate throat-plate or channel-entrance, movable supports to which said throat-plate is pivoted to turn rearward, and means for automatically shifting said support backward and forward as the throat-plate is turned on its pivot.

20. In a linotype-machine, the hinged throat-plate E, for guiding the matrices into the magazine, swinging arms e to which said throat is pivoted, and connections between the throat and the main frame to effect the movement of the throat and its supports bodily backward and forward as it is turned to and from its operative position.

21. In combination with the throat-plate E, the swinging arms e to which it is jointed, and the arm e^{13} carried by the throat-plate and engaging the main frame, substantially as described and shown, whereby the throat-plate is caused to move bodily forward or backward in addition to its pivotal motion.

22. In combination with a movable magazine, the throat-plate, supports to which the throat-plate is hinged, said supports movably connected to the main frame, and a spring-actuated device U, to hold the throat-plate away from the magazine during movement of the latter.

23. In a linotype-machine, the combination of a magazine provided with escapements and a locking device therefor, rods for actuating the escapements and a movable guide for said rods, provided with means for actuating the escapement-locking device, whereby the disengagement of the rods and the locking of the escapements, and vice versa, may be effected as a single operation.

24. In combination with a magazine, its escapements, the locking-rod S with its crank-arm, the escapement-actuating rods H and their rocking support h', having a hook T to actuate the locking device.

25. In a linotype-machine, the magazine and its escapement and the escapement-actuating rods H, in combination with the rocking guide h' and a spring mechanism l^{18}, acting on said guide to keep the rods in engagement.

786,212. RECEPTACLE FOR MILK-BOTTLES OR THE LIKE. FRANK HAMMOND, Washington, D. C. Filed June 27, 1904. Serial No. 214,313.

Claim.—1. A receptacle having a hinged door, a stationary bottle-holder in said receptacle, and means carried by the door into which the bottle is received when the door is closed.

2. A receptacle having a hinged door, a stationary bottle-holder within the receptacle, and a locking-keeper carried by the door and into which the bottle is received when the door is closed.

3. A receptacle provided with an open side, and having a hinged

door, stationary bottle-holding means within the receptacle, comprising a horizontal partition with a hole in the center, and locking means operable by the door coacting with the bottle to lock the door.



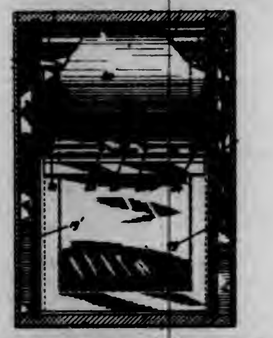
4. A receptacle having an open side and provided with a hinged door, a bottle-holder within the receptacle and on which the bottle is temporarily supported, means carried by the door for forcing the bottle into the bottle-holder, and locking means coacting with the bottle to lock the door.

5. A milk-receptacle adapted to be removably secured to a door-jamb, and comprising a box having an open side and a hinged door, a bottle-holder within the receptacle, and a keeper carried by the door and adapted to surround the bottle and coacting with the bottle when the latter is in position in the bottle-holder to lock the door.

6. In combination with a bottle-holding receptacle removably secured to the jamb of a door, said receptacle having an open side and a hinged door, a keeper adapted to be engaged by the bottle and carried by the hinged door to lock the same.

7. A receptacle for bottles having an open side, a hinged door, a bottle-support having a central opening therein and a keeper carried by the said door and coacting with the bottle to lock the door.

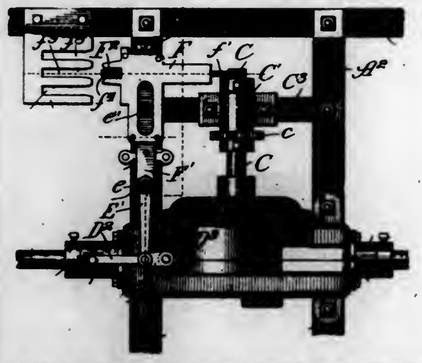
786,213. **WINDOW.** WILLIAM J. HEIM, Butler, Pa., assignor of one-half to William W. Lesher, Mosserville, Pa. Filed July 18, 1904. Serial No. 217,078.



Claim.—The combination with a window-frame, of racks provided with inclined ratchet-teeth and carried by the jambs of said frame, a curtain-shade mounted in said frame, means for automatically raising said shade, and locking mechanism carried by said shade and adapted to engage said racks, said locking mechanism comprising horizontally-disposed spring-pressed rods having teeth on their inner ends, a pinion engaging said teeth and a knob attached to said pinion.

786,214. **GEARING.** MAGNUS HENDRICKSON, Chicago, Ill., assignor to Jacob Lauth, Chicago, Ill. Original application filed Apr. 4, 1904. Serial No. 201,498. Divided and this application filed July 1, 1904. Serial No. 214,996.

Claim.—1. In mechanism of the character described, the combination of a casing comprising two members meeting in a vertical longitudinal plane and equipped at its ends with bearings, a longitudinal shaft extending through said casing and journaled in said bearings, a plurality of bevel-gears journaled on said shaft, clutch members corresponding with said gears, a shaft at right angles to said first-named shaft and projecting through one side of the casing, bevel-gears fixed to said second-named shaft and meshing with said first-named gears, longitudinally-slidable members projecting into said casing, means for actuating said last-named members, and clutch-shifting yokes carried by said last-named members, substantially as and for the purpose set forth.



2. In mechanism of the character described, the combination of a shaft equipped with a plurality of bevel-gears, a shaft perpendicular to said first-named shaft, gears journaled on said second-named shaft and engaging said first-named gears, clutch members shiftable longitudinally on said second-named shaft, levers for actuating said clutch members extending transversely with relation to said second-named shaft, a controller shiftable transversely with relation to said second-named shaft, lever-actuating means carried by said controller, a hand-lever pivoted to swing in longitudinal and transverse planes, and a guard provided with a plurality of sockets for said hand-lever.

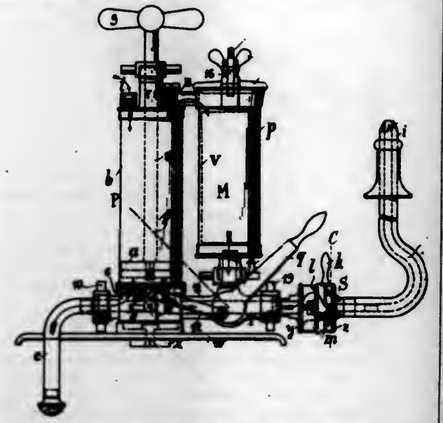
3. In mechanism of the character described, the combination of speed and reversing-gear mechanism, comprising pairs of intermeshing-gears, suitable clutching members therefor, levers serving to actuate said clutch members, a shiftable lever-controller, a hand-lever coacting therewith and having universal connection at its lower end with a support, and a rod connected with said hand-lever above said universal connection and adapted to shift a power-transmission member, for the purpose set forth.

4. The combination of a casing equipped at its ends with bearings, a shaft extending through said casing and journaled in said bearings, a plurality of bevel-gears journaled on said shaft, clutch members corresponding therewith, longitudinally-shiftable links extending into said casing, clutch-shifting yokes carried by said links, a shaft perpendicular to said first-named shaft and projecting through one side of the casing, bevel-gears secured on said second-named shaft and meshing with said first-named gears, a guide extending parallel with said second-named shaft, a plurality of levers extending parallel with said guide and connected with said links, a lever-controller movable on said guide, and a controller-shifting hand-lever having a movement in a plane parallel to said second-named shaft in shifting the controller, and in a plane parallel to said first-named shaft in retracting a lever, substantially as and for the purpose set forth.

786,215. **APPARATUS FOR TREATING ANIMAL COLICS OR GRIPES.** ANTON HEPNAR, Cassel, Germany. Filed June 14, 1904. Serial No. 212,569.

Claim.—1. The combination with a pump arranged for sucking and expelling water at the one end and air at the other end, of a mixing vessel connected with the air delivery of said pump and arranged for developing smoke or gases from drugs or medicaments and mixing same with the air, two hoses one within the other, a mouthpiece connected with said two hoses and adapted to be introduced into an animal-anus, and means for arbitrarily turning on the water from said pump or the mixture of air and smoke or gas from said mixing vessel to the internal hose or to the space between said two hoses and either allowing the dirty water or gases to return from the large intestine through the space between said two hoses or through the internal hose respectively to without or not.

2. In an apparatus for treating animal colics or gripes, the combination with a pump arranged for sucking and expelling water at the one end and air at the other end, of a mixing vessel connected with the air delivery of said pump and arranged for developing smoke or gases from drugs or medicaments and mixing same with the air, two hoses one within the other, a mouthpiece connected with said two hoses and adapted to be introduced into the animal-anus, a switching device connected with the other ends of said two hoses, and a three-way cock adapted to conduct either the water from said pump or the mixture of air and smoke or gas from said mixing vessel to said switching device, the latter being adapted to turn on the water or mixture either to the internal hose or to the space between said two hoses while either allowing the dirty water or gases from the large intestine to return through the space between said two hoses or the internal hose respectively or not.



3. In a portable apparatus for treating animal colics or gripes, the combination with a folding base, of a vertical hand-pump on said folding base and arranged to suck and expel water at the bottom and air at the top, a vertical mixing vessel connected at the top with the air delivery of said vertical hand-pump, a three-way cock connected with the water delivery of said vertical hand-pump and with the bottom of said vertical mixing vessel, a perforated box in said vertical mixing vessel for containing drugs or medicaments, a switching device connected with the outlet of said three-way cock, two hoses one within the other and connected with said switching device, and a mouthpiece connected with the other ends of said two hoses and adapted to be introduced into the animal-anus.

4. In a portable apparatus for treating animals colic or gripes, the combination with two plates forming a folding base, of a water-valve box on said folding base and comprising two chambers for an inlet-valve and an outlet-valve, a suction-hose attached to said water-valve box by a threaded coupling, a vertical cylinder on said water-valve box, a piston therein, a cover on said cylinder and comprising a stuffing-box, an air-inlet valve and an air-delivery valve on said cover, a piston-rod passing through said stuffing-box and adapted to be moved by a handle, a vertical mixing-cylinder connected at the top with said air-delivery valve, a three-way cock connected with the outlet-valve chamber of said water-valve box and with the bottom of said vertical mixing-cylinder, a lever connected with the plug of said three-way cock, means controlled by said lever for opening and releasing the inlet-valve in said water-valve box, a switching device connected with said three-way cock, two hoses one within the other and connected with said switching device, a mouthpiece connected with the other ends of said two hoses and adapted to be introduced into the animal-anus, a cover adapted to close and open said vertical mixing-cylinder, and a perforated box within said vertical mixing-cylinder and adapted to contain drugs or medicaments.

5. In a portable apparatus for treating animal colics or gripes, a switching device comprising a stationary member and a turnable member in contact with each other, said stationary member being provided in the contact-face with two holes on opposite sides of the center, of which the one hole leads to the three-way cock and the other hole through a lateral passage to without, said turnable member being provided in the contact-face with three holes at ninety degrees from each other and adapted to register severally with either or both of said two holes of said stationary member, a handle on said turnable member, a partition-wall dividing said turnable member into two chambers, of which the one communicates on the one hand with two of said three holes and on the other hand with a central tubular piece integral with said partition-wall and the other chamber communicates on the one hand by a passage with the third of said three holes and on the other hand with the annular space around said tubular piece.

786,216. **WIRE-STRINGER.** WALTER H. HORNER, Seattle, Wash. Filed Jan. 15, 1904. Serial No. 189,135.



Claim.—1. In a wire-stringer for use in conduits, the combination with a wheeled casing, of a motor disposed therein and connected with the wheels for operation thereof, a tension-arm pivoted on the casing and arranged to bear against the inner face of the conduit, means connected with the tension-arm for stopping the motor when the tension-arm is moved in one direction and flexible connections attached to the casing.

2. A wire-stringing device for use in conduits, comprising a self-propelled car, a tension-arm pivoted in the casing and adapted to bear at one end against the inner face of the conduit, means connected with the tension-arm to stop the propelling mechanism when the arm is moved upon its pivot, means for holding the arm at times in position to stop the propelling means, and flexible connections attached to the car.

3. In a wire-stringing device, the combination with a wheeled casing, of a motor disposed within the casing for operation of the wheels, a lever pivoted in the casing for movement into and out of position to engage the top of a conduit to hold the wheels against the bottom thereof, and means for holding the lever yieldably in such position, said lever having a projection arranged for engagement of the motor to stop the latter when the lever is moved against the action of the last-named means.

786,217. **WATCH-PROTECTOR.** JAMES K. HOWARD, Brooklyn, N. Y. Filed July 30, 1904. Renewed Mar. 8, 1905. Serial No. 248,967.



Claim.—1. As a new article of manufacture, a wire having a loop at each end, one of the terminals having double prongs projecting outwardly, and having an opening between the prongs and the opposite end of the wire as set forth.

2. A watch-protector comprising a wire having a loop at each end, one of the terminals having two sharpened prongs projecting therefrom, in combination with a watch and chain, the lower loop of said protector being attached to the watch-ring and the other loop attached to the chain, as set forth.

786,218. **FERTILIZER-DISTRIBUTER.** CHARLES JOHNSON and OREN C. RAWLEY, Cortland, N. Y., assignors to Cortland Implement Company, Cortland, N. Y., a Corporation of New York. Filed Sept 5, 1903. Serial No. 172,133.



Claim.—1. The combination with an axle in a device of the kind described, of a cam on said axle, a link fitting over said cam, pivoted adjacent to it and reciprocated by it and having a vertical slot to one side of the cam, an apron-shaft, a ball-clutch on said shaft, bars adapted to rock said clutch and pivoted to the opposite sides of

same, the free ends of the bars converging and being secured together by a pivotal bolt, said bolt sliding in the slot of the link, means for sliding said bolt, and means for rotating the cam.

2. The combination with an apparatus of the kind described, of a pivoted link having a central opening and a slot adjacent the opening, a pointed cam rotatably mounted within said opening in the link, a rotatable apron-shaft, a clutch thereon, bars pivoted at one end to the clutch and having their opposite ends pivoted together, the pivotal bolt working in the slot, means for sliding said bolt along the slot, and means for rotating the cam.

3. An apparatus of the kind described comprising a wagon-body having front and rear wheels, a clutch carried by the hub of one of the wheels, a gear-wheel mounted loosely on the axle and adapted to be rotated by said clutch, a clutch carried by the gear-wheel, a cam journaled loosely on said axle and adapted to be rotated by the clutch of the gear-wheel, a cam-link pivoted adjacent said cam and adapted to be reciprocated by same, a stub-shaft, a disk eccentrically journaled thereon, a sprocket-wheel having a spur-gear loosely journaled on the disk and means for rotating the disk on the stub-shaft and throwing the spur-gear into engagement with the gear-wheel on the axle.

4. An apparatus of the kind described comprising an axle-hanger secured to a wagon-sill, an axle journaled in the hanger, a cam-link pivoted to the hanger, a cam on the axle adapted to reciprocate the link, said link having a slot formed therein, a rotatable shaft parallel with the axle, a rocking clutch on said shaft adapted to rotate same step by step, bars pivoted at their rear ends to opposite sides of the clutch and pivoted together at their forward ends, said pivotal bolt working in the link-slot, a bell-crank pivoted to the hanger, a bar pivoted at one end to an arm of the bell-crank and at the opposite end to the bolt working in the link-slot, a lever at the forward end of the wagon, and a rod pivoted to one end of the lever and at the opposite end to the remaining arm of the bell-crank.

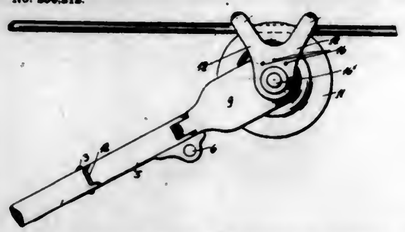
5. An apparatus of the kind described comprising an end-board of a wagon-body, brackets having serrated edges fixed on the outer sides of the wagon-body, brackets secured to the end-board and extending downward over the sides of the wagon and having serrated edges working on the edges of the fixed brackets, bars pivoted at one end to the fixed brackets and at the opposite end to the end-board brackets, an arm pivoted adjacent the wagon-sill, a bar pivoted at one end to one of the end-board brackets and at the opposite end to the arm, a lever adjacent the front of the wagon, and a rod pivoted at one end to the lever and at the opposite end to the arm.

6. A fertilizer-distributer comprising a wagon-body, an axle-hanger, an axle journaled thereon, a gear-wheel on said axle, a stub-shaft on the hanger, a disk eccentrically mounted on said shaft, said disk having a projecting flange, a wheel journaled on said disk, said wheel having a spur-gear, an arm pivoted adjacent the axle-hanger, a rod pivoted at one end to the flange of the disk and at the opposite end to the arm, a lever adjacent one end of the wagon, and a rod pivoted at one end to the arm and at the opposite end to the lever, said lever, arm and rods being adapted to rotate the disk and throw the spur-gear into and out of engagement with the axle-gear.

7. In a manure-spreader, the combination with the body, of a rearwardly-movable conveyer located at its bottom, a beater journaled at the rear end of the body, a shield pivotally secured at the rear end of the body, a crank adapted to turn the shield, a rear axle journaled on the rear lower portion of the body, a stub-shaft fixed on the body near said axle, an eccentric sleeve rotatably mounted on the stub-shaft and provided with an arm, a main sprocket-wheel on the sleeve and geared to the beater-shaft, a pinion mounted on said sleeve so as to turn thereon in unison with the sprocket-wheel, a main gear on the rear axle to engage said pinion, a hand-lever fulcrumed on the front of the body, and a bifurcated connection uniting the crank of the shield and the arm of the sleeve with the hand-lever, whereby the driving mechanism for the beater will be thrown out of gear when the shield is lowered and in gear when it is raised, substantially as described.

8. In a manure-spreader, the combination with the body, of a conveyer located at its bottom, a beater journaled at the rear end of the body, a shield pivotally secured at the rear end of the body, a rear axle journaled on the rear lower portion of the body, a stub-shaft fixed near said axle, an eccentric sleeve rotatably mounted on said shaft and provided with an arm, a main sprocket-wheel and a pinion rigid therewith mounted on the sleeve, a main gear on the rear axle to engage the pinion, gearing connecting the beater-shaft and main sprocket-wheel, a hand-lever fulcrumed on the body, and a bifurcated connection uniting the shield and the arm of the sleeve with the hand-lever, whereby the said pinion and the gear on the rear axle may be thrown out of gear when the shield is lowered and in gear when it is raised, substantially as described.

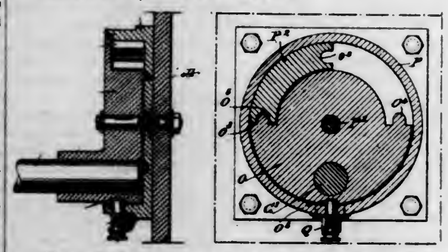
786,219. **TROLLEY.** SANDO KACSO, Allegheny, Pa., assignor of one-half to David Hollander, Allegheny, Pa. Filed Dec. 9, 1904. Serial No. 236,212.



Claim.—1. The combination with a trolley-pole, and wire, of an extension pivotally connected to said pole, arms pivotally mounted upon said extension, a trolley-wheel journaled between said arms and adapted to engage said wire, a member carried by each arm, each member consisting of inwardly-extending prongs adapted to overlie said trolley-wire, and means carried by said arms to hold said members in close proximity to one another, substantially as described.

2. The combination with a trolley-pole and a trolley-wire, of an extension pivotally connected to said trolley-pole, arms pivotally connected to said extension, a pin mounted in said arms, a trolley-wheel journaled upon said pin, members carried by said arms and adapted to overlie said trolley-wire, and means carried by said pin to normally hold said members in close proximity to one another, substantially as described.

786,220. **PRINTING-COUPLE APPLIANCE.** FREDERICK E. KEMPF, Boston, Mass. Original application filed May 7, 1903. Serial No. 156,043. Divided and this application filed Sept. 12, 1903. Renewed Dec. 3, 1904. Serial No. 235,302.



Claim.—1. In a printing-press, a printing-cylinder having annular grooves in its rim, and an impression-cylinder having annular guides on its periphery adjacent to the ends thereof and entering the grooves of the printing-cylinder, as set forth.

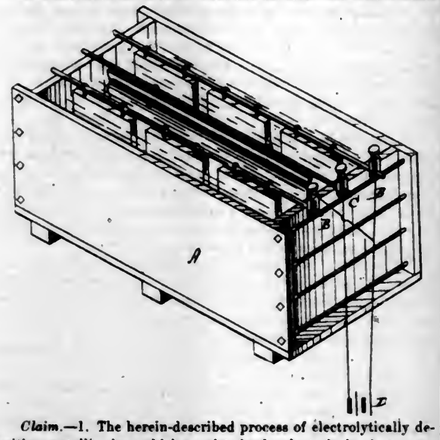
2. A multicolor-printing press having a printing-cylinder, revoluble disks in which the cylinder is eccentrically journaled, fixed casings in which the disks are mounted to turn, and means for locking the disks against movement in the casings, as set forth.

3. A multicolor-printing press provided with a fixed casing having a cylindrical recess, a disk mounted to turn in the said casing and having an eccentric bearing for a printing-cylinder shaft, the disk having a portion of the peripheral face cut out, and a fixed segment in the casing, extending into the cut-out portion, to limit the turning of the disk within the casing, as set forth.

4. A multicolor-printing press provided with a fixed casing having a cylindrical recess, a disk mounted to turn in the said casing and having an eccentric bearing for a printing-cylinder shaft, the disk having a portion of the peripheral face cut out, a fixed segment in the casing, extending into the cut-out portion, to limit the turning of the disk within the casing, and a spring-catch slidable on the casing and adapted to engage and lock the disk in either of its two positions, as set forth.

5. A multiprinting-press, a printing-cylinder, fixed casings, disks mounted to turn on a central axis in the casings, each disk being provided with an eccentric bearing in which the printing-cylinder is mounted, means for locking the disk to the casing, and means for limiting the turning movement of said disks, as set forth.

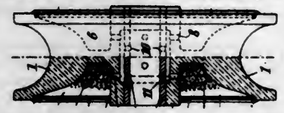
786,221. **PROCESS OF ELECTRODEPOSITING METALS.** EDWARD D. KENDALL, Brooklyn, N. Y., assignor of one-third to Edward N. Dickerson, Stovall, N. C. Filed Oct. 28, 1903. Serial No. 178,883.



Claim.—1. The herein-described process of electrolytically depositing metallic zinc, which consists in the electrolysis of an aqueous solution containing zinc-sulfoglycerate by means of a suitable body acting as the cathode opposed to a suitable anode, both electrodes being electrically connected with the source of an electric current, substantially as described.

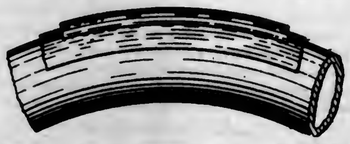
2. The herein-described process of electrolytically depositing metallic zinc in the form of a hard adherent coating or plating on surfaces of iron, steel or other metal, or other electrically-conductive surfaces, so electrically connected with the source of an electric current as to constitute the cathode or cathodes, the same being opposed to an anode or anodes of suitable character correspondingly electrically connected, the said electrodes being immersed in an aqueous solution containing zinc sulfoglycerate, substantially as described.

786,222. **TROLLEY-WHEEL.** SIGMUND KLAMBOROWSKI, Lodz, Russia. Filed Feb. 16, 1905. Serial No. 245,886.



Claim.—A trolley-wheel comprising a hub and a rim connected by an integral web, side plates connecting said hub near the outer ends thereof with said rim and forming oil-chambers on opposite sides of said web, and a bushing extending through said hub; said hub having a recess in its central portion forming with said bushing an annular oil-chamber and being provided with ducts leading from said annular oil-chamber to said side oil-chambers and said bushing having ducts leading from said annular oil-chamber to the inner face of the bushing.

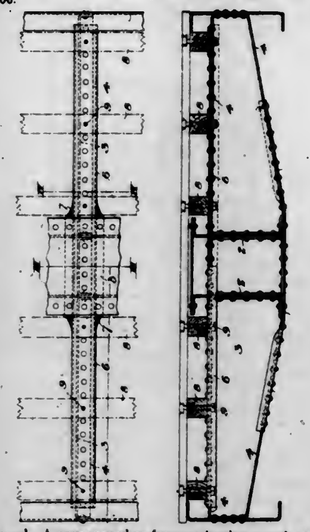
786,223. **WHEEL.** EDWARD KREBS, Albany, N. Y. Filed May 31, 1904. Serial No. 210,479.



Claim.—1. A tire for a wheel consisting of a main resilient tire; a supplemental resilient tire consisting of separate strips passing circumferentially over and in frictional connection only with the said main tire, the supplemental tire arranged to act in unison with the main resilient tire; an outer resilient covering-tire sprung on and over the supplemental tire running circumferentially over the two under tires and holding the supplemental tire and itself in place by pressure and friction only substantially as described.

2. A tire for a wheel consisting of a main resilient tire; a supplemental resilient tire composed of separated strips passing circumferentially over and in movable connection with the said main tire; an outer resilient tire sprung on the supplementary tire and running circumferentially over the two under tires and holding itself in place by pressure and friction only substantially as described.

786,224. **CAR.** CHARLES A. LINDSTRÖM, Allegheny, and JOHN F. STREIB, Avalon, Pa., assignors to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Apr. 25, 1904. Serial No. 204,706.



Claim.—1. A cross member for cars having a web composed of a vertical member flanged at the top and having also an attached flanged cap member; substantially as described.

2. A car having a center sill, a cross member composed of a vertical web attached at the ends to the center sill, and having an attached flanged member extending along the margin and through the center sill; substantially as described.

3. A car having a center sill, a cross member composed of a vertical web having integral flanges at the inner ends and margin, attached at the said ends to the center sill, and having an attached flanged member extending along the margin and through the center sill; substantially as described.

4. A car having a center sill, a cross member composed of a vertical web having an attached flanged member extending along a margin and through the center sill; substantially as described.

5. A car having a center sill, a cross member composed of a vertical web having flanges at the inner ends and margin, attached at the said ends to the center sill, and having an attached channel extending along the margin and through the center sill; substantially as described.

6. A car having a center sill, a cross member composed of a vertical web having flanges at the inner ends and margin, attached at the said ends to the center sill, and having an attached channel extending along the margin and through the center sill, and stringers supported on the channel; substantially as described.

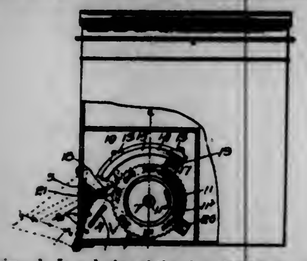
7. A car having a center sill, a cross member composed of a vertical web having flanges at the ends, attached at the ends to the center sill and side sill below the level of the center sill, and a marginal flanged member extending through the center sill; substantially as described.

8. A car having a center sill, a cross member composed of a vertical web having flanges at the ends, attached at the ends to the center sill and side sill below the level of the center sill, and a marginal channel member extending through the center sill; substantially as described.

9. A car having a center sill, a cross member composed of a vertical web, and channels applied to the top and bottom of the diaphragm, the upper channel extending through the center sill; substantially as described.

10. A car having a center sill, a cross member composed of a vertical web, and channels applied to the top and bottom of the diaphragm, the upper channel extending through the center sill and the lower channel having flattened flanges at the place of attachment to the center sill; substantially as described.

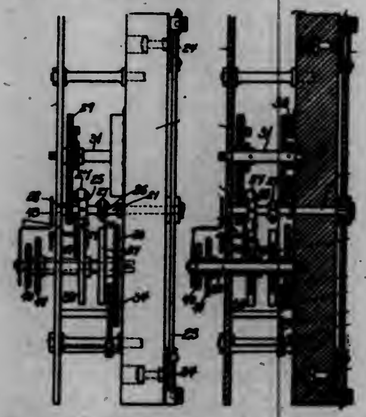
786,225. INDICATOR FOR LETTER-BOXES. JOHN L. LESTER, St. Louis, Mo. Filed Oct. 13, 1904. Serial No. 228,282.



Claim.—1. In a device of the class described, a box having a partition therein forming a compartment, and also provided with a door and an indicator-opening; an indicating-dial arranged within the said compartment and provided with graduations for registration with the said indicator-opening; a guideway arranged above the dial; a sliding block arranged for travel in said guideway, the block being adapted to engage the dial; and a connection between the said block and the door for moving the dial through a portion of a revolution when the door is opened.

2. In a device of the class described, a box having a partition therein forming a compartment and also provided with a door and an indicator-opening; a dial arranged within said compartment for step-by-step movement and provided with graduations for registration with the indicator-opening; a guideway arranged above the dial; a sliding block arranged for travel in said guideway, the block being adapted for engagement with the dial; a connection between the said block and the door for causing the said step-by-step movement of the dial when the door is opened; and a brake arranged within the compartment for contact with the dial to prevent the latter being reversed in movement when the said door is closed, forcing the sliding block back in its normal position in the said guideway.

786,226. ELECTRIC TIME-SWITCH. HENRY C. LITTLE, Boston, Mass. Filed Aug. 26, 1903. Serial No. 170,227.



Claim.—1. The combination of a rotary shaft, motor mechanism for operating the same, timing mechanism, and coöperating escape devices connected respectively with the timing mechanism and the shaft, one of said devices being a member having a concentric portion and a notch, the other device being a revoluble dog held by said concentric portion and permitted to revolve by said notch.

2. The combination in a controlling apparatus of a rotating shaft, motor mechanism for rotating the same, escape devices mounted on said shaft, coöperating rotating escape devices adapted to arrest and release the first said escape devices, and timing mechanism controlling said coöperating devices.

3. In a controller, the combination of a rotary shaft adapted to operate changing devices, motor mechanism for rotating said shaft, escape-arms mounted on said shaft, coöperating rotatable notched disks arranged to alternately arrest and release said arms, mechanism for rotating said disks at a uniform, predetermined speed, and provisions whereby the relative adjustment of the disks may be varied.

4. In a switch-controlling apparatus, a circuit-controlling movable switch member, motor mechanism for operating the same, timing mechanism, and coöperating escape devices connected respectively with the timing mechanism and the switch member, one of said devices being a wheel having a concentric portion and a notch, the other device being a completely-revolving dog held by said concentric portion and permitted to revolve by said notch.

5. In a switch-controlling apparatus, a pair of completely-revolving dogs, a pair of wheels having concentric portions and notches controlling said dogs, said wheels being relatively adjustable rotatively, circuit-controlling means controlled by said dogs, and timing mechanism controlling said wheels.

6. In a switch-controlling apparatus, a completely-rotating shaft, motor mechanism for rotating the same, a switch member actuated by said shaft, escape devices mounted on said shaft, coöperating completely-rotating escape devices adapted to arrest and release the first-said escape devices, and timing mechanism controlling said coöperating devices.

7. In a switch-controlling apparatus, a completely-revolving switch member, a constantly-impelling motor for revolving said member, timing mechanism for intermittently releasing said member, a stationary switch member, and an automatic catch to retain said revolving member against rebound after contact with said stationary member.

8. In a switch-controlling apparatus, a pair of wheels each having detent-arresting and detent-releasing means, a pair of detents controlled by said wheels, a switch member connected with said detents, and means for rotating said wheels and detents always in one direction.

9. In a switch-controlling apparatus, a shaft, a switch connected for operation by said shaft, motive mechanism for rotating the shaft to open and close the switch, mechanical escape devices comprising a plurality of members, one of which is carried by the shaft, adapted to secure the periodical operation of said switch by its motive mechanism, and timing mechanism controlling the action of said escape devices.

10. In a switch-controlling apparatus, a switch, motive mechanism for opening and closing the same, mechanical escape devices adapted to secure the periodical operation of said switch by its motive mechanism, timing mechanism controlling the action of said escape devices, and mechanism carried by the escape devices and automatically acting at predetermined intervals to prevent said operation of the switch.

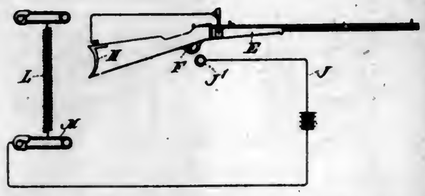
11. In a switch-controlling apparatus, a switch member, a controller-wheel for permitting intermittent actuation of said member, said wheel having a concentric portion and a notch, a filler for the notch of said wheel, means for actuating said filler at predetermined intervals, and a completely-revolving escape member coöperating with said wheel and connected with the switch member.

12. In a switch-controlling apparatus, a rotary switch member, means for rotating the same, a completely-revolving detent connected with said member, a notched wheel for arresting and releasing said detent, a rotary filler for the notch of said wheel mounted to revolve with the wheel, and a stationary trip for rotating said filler.

13. In a switch-controlling apparatus, a completely-revolving dog, a switch controlled thereby, a wheel having a concentric portion to arrest said dog and a notch to release the same, a filler for said notch to prevent the release of the dog, and automatic means for operatively positioning said filler at predetermined intervals.

786,227. SIGHT-ILLUMINATOR. ROBERT R. LOGAN and SAMUEL P. WETHERILL, Jr., New York, N. Y. Filed July 20, 1904. Serial No. 217,208.

Claim.—1. A sight-illuminator for guns and rifles comprising an electric lamp, a carrier for said lamp adapted for conducting engagement with a metallic part of the gun, a metallic contact-plate on the butt-end of the stock, a connection from said contact-plate to that terminal of the electric lamp which is not connected with the other metallic parts of the gun, a source of electricity adapted for connection with said other metallic parts and a contact device connected with said source of electricity and adapted to be engaged by said metallic contact-plate and to be secured to the clothing of the person.



2. A sight-illuminator for guns and rifles comprising an electric lamp adapted to be carried by the gun or rifle, a contact-plate on the butt-end of the stock, a contact device adapted to be engaged by said contact-plate and to be secured to the person's clothing, a source of electricity and connections for closing the circuit through said lamp when the butt-end of the gun is brought against said contact device.

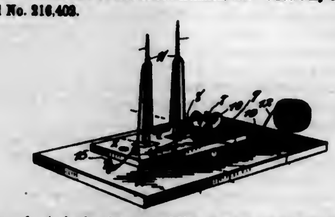
3. A sight-illuminator for guns and rifles comprising an electric lamp adapted to be secured to the gun or rifle, a source of electricity, and a circuit-closer arranged to be operated by the pressure of the butt-end of the gun against the shoulder to light said lamp

4. A sight-illuminator for guns and rifles comprising an electric lamp adapted to be carried by the gun or rifle, a source of electricity, a metal coil adapted to be secured to the person's clothing in position to be engaged by the butt-end of the stock when aiming, and connections for bringing about the operation of said lamp when the gun engages said coil.

5. A sight-illuminator for guns and rifles comprising a source of electricity, a contact device adapted to be secured to the person's clothing and connected with one pole of said source of electricity, a contact-ring connected with the other pole of said source of electricity and adapted to engage a metallic part of the gun or rifle, an electric lamp one terminal of which is connected with such metallic part, and a separate metallic part arranged on the butt-end of the stock and connected with the other terminal of said lamp, said metallic part on the butt-end of the stock being adapted to engage the contact device secured to the person's clothing.

6. A sight-illuminator for guns and rifles, comprising an electric lamp adapted to be secured to the gun or rifle, a source of electricity, and a circuit-closer for lighting said lamp, said circuit-closer comprising a finger-piece adapted to be slipped on a finger of the same hand which presses the trigger.

786,228. DEVICE FOR ASSEMBLING BROOMS INTO BUNDLES. ALEXANDER P. LONGDON, Atlanta, Ga. Filed July 13, 1904. Serial No. 216,403.

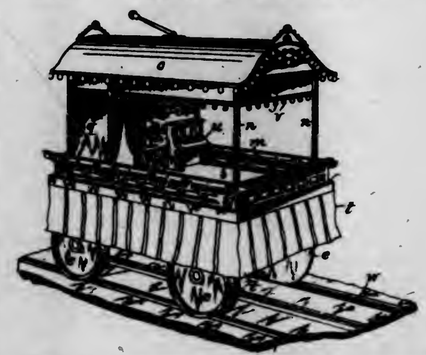


Claim.—1. A device for assembling brooms into bundles comprising a base, a clamping-plate removably mounted thereon, a plurality of vertically-disposed needles having enlarged bases seated in corresponding recesses in said clamping-plate, said bases and said recesses having corresponding inclined sides.

2. A device for assembling brooms into bundles comprising a base, a clamping-plate removably mounted thereon, a plurality of vertically-disposed needles removably mounted in said clamping-plate, said needles having enlarged bases of the contour of the frustum of a pyramid, said bases being seated in recesses of corresponding contour in said clamping-plates.

3. A device for assembling brooms into bundles comprising a base-plate, a clamping-plate removably mounted thereupon, a plurality of vertically-disposed needles removably mounted in said base-plate, said needles being formed with bases of the contour of the frustum of a pyramid, said base-plate having openings of corresponding contour to accommodate the bases of the needles, one of said openings being of greater length than the needle-base corresponding thereto to permit of a lateral adjustment of the needle-base therein, the said needle-base being formed with a lateral extension, the said base-plate being formed with a slot adjacent said greater opening to receive said extension, a vertical threaded stud mounted upon said extension, a pair of guide-plates mounted upon said base-plate, said guide-plates being oppositely disposed on each side of said stud and overlapping said slot, an extension seated therein and a thumb-nut carried by said stud and bearing upon said guide-plates.

786,229. AMUSEMENT APPARATUS. SIHAN MIYATA, West Orange, N. J. Filed Oct. 23, 1904. Serial No. 230,433.



Claim.—1. An amusement apparatus comprising a section of railway-track, a wheeled truck with electric motor for propelling the same, a dancing-platform pivoted to turn upon the truck with anti-friction-wheel for steadying the same, a railing only, surrounding the platform, a roof carried by the platform to protect the dancers, a musical instrument upon the platform to direct the dancing, electric lights for decorating the roof, and an electric-trolley connection for supplying the motor and lights with electric current.

2. An amusement apparatus comprising a dancing-platform, wheels to support the same movably, a partition forming a dressing-room at one end of the platform, with a railing around the edge of the platform, and interchangeable scene-frames forming one side of the partition for varying the decoration of the platform.

3. An amusement apparatus comprising a railway-track, a dancing-platform movable thereon, a railing only, at the edge of the platform, means for propelling the platform upon a truck, a roof upon the platform to protect the dancers, and a dressing-room and musical instrument upon the platform.

4. An amusement apparatus comprising a wheeled truck with electric motor for propelling the same, a dancing-platform pivoted to turn upon the truck with antifriction-wheels for steadying the same, a railing only, surrounding the platform, a roof carried by the platform to protect the dancers, a musical instrument carried by the platform, electric lights for decorating the roof, and an electric-trolley connection for supplying the motor and lights with an electric current.

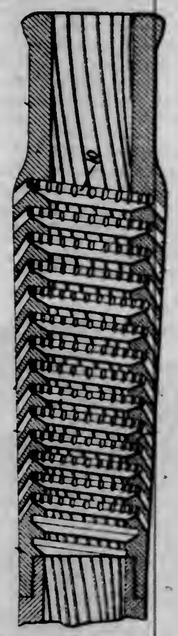
5. An amusement apparatus comprising a railway-truck, a dancing-platform pivoted upon the truck, antifriction-wheels to support the platform upon the truck and gearing connected with a hand-crank x for turning the platform upon the truck.

6. An amusement apparatus comprising a dancing-platform, wheels to support the same movably, a dressing-room inclosed by partition at one end of the platform, and interchangeable scene-frame forming one side of the partition for varying the decoration of the platform.

786,230. RECOIL-CONTROLLING MEANS FOR GUNS. SAMUEL M. MCCLEAN, Cleveland, Ohio. Original application filed Jan. 26, 1904. Serial No. 190,741. Divided and this application filed Feb. 18, 1904. Renewed Mar. 8, 1905. Serial No. 248,966.

Claim.—1. A gun-barrel having an interior spiral groove and

lateral vents extending through the walls of the barrel from said groove.



2. A gun-barrel having an interior spiral groove and lateral rearwardly-inclined vents extending through the walls of the barrel from said groove.

3. A gun-barrel having an interior spiral groove gradually increasing in depth from one end to the other, and a series of lateral vents associated with said groove the cross-sectional area of the vents increasing from one end of the series to the other.

4. A gun-barrel having an interior spiral groove and a series of lateral vents associated with said groove, the cross-sectional area of the vents increasing from one end of the series to the other.

5. A gun-barrel having an interior spiral groove and a series of lateral vents associated with said groove said vents being oblique to the gun's axis.

6. A gun-barrel having an interior spiral groove and a plurality of lateral vents associated with said groove and symmetrically arranged around the barrel.

7. A gun-barrel having a portoin of its walls near the muzzle progressively thickened in a forward direction, and an interior circumferential spiral groove gradually increasing in depth in a forward direction and located in the said thickened portion of the gun-barrel.

8. A gun-barrel having an interior spiral groove and a series of lateral vents associated with said groove said vents being inclined rearwardly at an oblique angle to the axis of the gun, the angle of obliquity increasing from the rear end of said series forward.

9. A gun-barrel having an interior spiral groove and a series of obliquely-inclined vents leading through the walls of the gun from said groove.

786,231. **ELECTRIC LAMP.** GEORGE P. MCDONNELL, St. Louis, Mo., assignor to American Electric Company, East Orange, N. J., a Corporation of New Jersey. Filed Jan. 5, 1905. Serial No. 239,817.



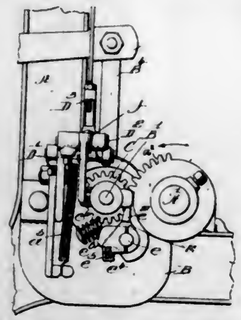
Claim.—1. As a new article of manufacture, an electric-lamp bulb having the material composing the teat located partially within the lamp or bulb; substantially as described.

2. As a new article of manufacture, an electric-lamp bulb having a sunken, blunted teat; substantially as described.

3. As a new article of manufacture, an electric-lamp bulb having a circular cavity at one end, in which cavity is located a blunted teat; substantially as described.

4. As a new article of manufacture, an electric-lamp bulb having a sunken, blunted teat with material for strengthening said teat located within the inner peripheral lines of the lamp or bulb; substantially as described.

786,232. **SHUTTLE-BOX-ACTUATING MECHANISM.** ANTHONY J. O'REILLY, Worcester, Mass., assignor to Randolph Crompton, George Crompton, Edward D. Thayer, and William B. Scofield, Worcester, Mass., doing business under the firm-name of Crompton-Thayer Loom Company, Worcester, Mass. Filed Nov. 14, 1904. Serial No. 232,595.



Claim.—1. In a shuttle-box-moving apparatus for looms, the combination with a shaft having a mutilated gear, a coacting forked gear having teeth out of line one with the other, and means for moving the forked gear to place either tooth thereof in line with the teeth of the mutilated gear, of a stop adapted to be struck by that one of the teeth of the forked gear which occupies its inoperative position with relation to the mutilated gear.

2. In a shuttle-box-moving apparatus for looms, the combination with a shaft having a mutilated gear, a forked gear having teeth at different distances from the hub of said gear, and means to slide the forked gear with relation to the mutilated gear to place either tooth of the forked gear in its operative position with relation to the teeth of the mutilated gear, of a stop having two arms and adapted to stop said mutilated gear and shaft at each semirotation by acting directly against one or the other of the teeth of the mutilated gear.

3. A shuttle-box-moving apparatus, a rotatable shaft having a partial gear, a shuttle-box lever, a shaft, means between said shaft and shuttle-box lever to move the latter, a mutilated gear fast on the latter shaft, a forked gear having legs engaged loosely with said mutilated gear, each leg having a tooth, said teeth occupying positions in different vertical planes, means to put either tooth of the forked gear in line with the series of teeth of the mutilated gear to be engaged by the teeth of the partial gear to rotate the mutilated gear and its shaft for a distance of one hundred and eighty degrees, and a stop having two arms, one or the other arm being interposed in the path of movement of one or the other of the teeth of the forked gear then in its inoperative position to stop said gear at the end of each semirotation thus insuring the absolute alinement of the shuttle-box with the race of the lay.

4. In a shuttle-box-operating mechanism for looms, the following instrumentalities, viz: a crank-wheel, a shuttle-box lever, an intermediate connector between said crank and lever, a stop device at rest during the operation of the box motion, and acting to arrest said crank-wheel, as the latter completes its full movement.

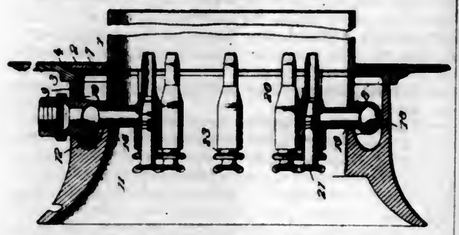
786,233. **CLASP FOR STOCKING-SUPPORTERS.** WALTER W. PALMER, Erie, Pa. Original application filed May 3, 1903. Serial No. 156,238. Divided and this application filed July 28, 1903. Serial No. 167,295.



Claim.—A spring-metal clasp adapted for holding the fabric of the stocking or other garment, such clasp comprising two separate

members, one a metallic frame bent to form opposite open recesses into which the fabric is crowded, the other member being pivoted thereto and comprising two diverging spring-arms, adapted for holding engagement with the fabric in the said recesses of the first member.

786,234. **BLOWER.** HENRY B. PARSON, New York, N. Y. Filed Nov. 28, 1903. Renewed Mar. 6, 1905. Serial No. 248,656.



Claim.—1. In a steam-blower, the combination with a bell having a central aperture, of a circular steam-pipe outside of the bell and surrounding the same and having radial inwardly-projecting branches extending into the bell, each branch being provided with a steam-nozzle.

2. In a steam-blower, the combination with a face-plate having a central aperture, of a bell having a central aperture secured to the face-plate, a circular steam-pipe surrounding the bell and having radial inwardly-projecting branches extending into the bell, each branch being provided with a steam-nozzle.

3. In a steam-blower, the combination of a face-plate having a central aperture, and provided with a series of lugs surrounding the aperture and projecting at right angles therefrom, with a removable bell, having a central aperture and a series of notches of a size equal to and adapted to fit over the projecting lugs upon the face-plate, and a circular steam-pipe surrounding the bell and having radial inwardly-projecting branches so located as to rest upon the lugs of the face-plate and within the notches of the bell, substantially as described.

786,235. **SCRAP-BOOK.** ALDEN M. PETTENGILL, Portland, Me., assignor to The Pine Tree Book Company, Portland, Me., a Corporation of Maine. Filed Nov. 13, 1903. Renewed Aug. 31, 1904. Serial No. 223,873.

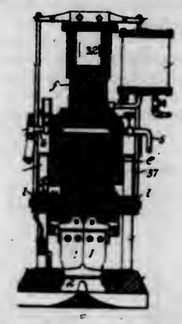


Claim.—1. The herein-described book for holding newspaper-clippings and the like consisting of a pair of covers united by an accordion-plaited back-piece, a lining for said back-piece consisting of a single thickness of material glued together at the inner apex of the folds to form leaves of double thickness, double leaves at the outer apex of each fold, an envelop inclosed within the inner leaf and stitching passing through the lower edge of the envelop the fold of the leaves and the outer apex of the back-piece.

2. The herein-described book for holding newspaper-clippings and the like consisting of a pair of covers, an accordion-plaited back-piece joining the covers, a lining for said back-piece consisting of a single thickness of material extending beyond the inner apex of each fold and being three cemented together to form leaves of double thickness, and stiffening-pieces inserted between the lining and the back-piece from the inner apex toward the outer apex on each fold.

786,236. **HYDRAULIC MOTOR FOR PRESSES.** WILLIAM ROSS, Montreal, Canada. Original application filed Sept. 29, 1902. Serial No. 125,269. Divided and this application filed Feb. 27, 1903. Serial No. 145,494.

Claim.—1. In a low-speed motor the combination with an abutment member, a movable member adjacent to said abutment member and means inclosing the space between said movable and abutment members, a conductor for a liquid flowing under pressure, said conductor communicating with said space, means for allowing the liquid to flow through said space continuously while the machine is at rest and means for actuating said last-mentioned means and for arresting the flow of said liquid from and accumulating the pressure thereof in said space thereby moving said movable member from said abutment member, a second abutment member, a second movable member adjacent to said last-mentioned abutment member, means inclosing the space between said last-mentioned abutment and movable members, a tank adapted to hold compressed air, and a constantly-open conductor leading from said tank to said last-mentioned space.



2. In a metal-working machine the combination with an abutment member, a movable member adjacent to said abutment member, means inclosing the space between said movable and abutment members, and movable means upon the movement whereof said movable member is moved, of a receptacle adapted to hold compressed air and a constantly-open communicating duct between said receptacle and said space.

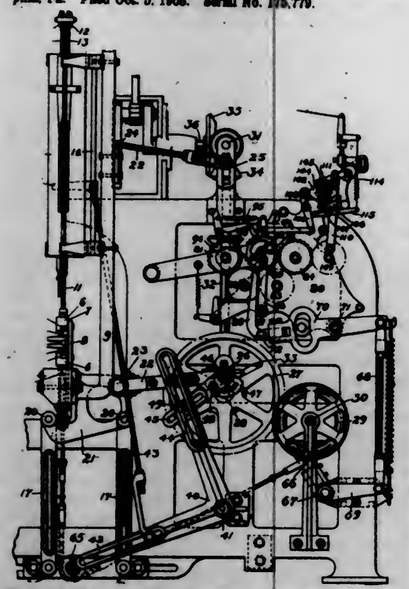
3. In a metal-working machine the combination with an abutment member, a movable member adjacent to said abutment member, means inclosing the space between said movable and abutment members, and movable means upon the movement whereof said movable member is moved, of a receptacle for compressed air said receptacle being carried by and movable with said metal-working machine and a constantly-open communicating duct between said receptacle and said space.

4. In a metal-working machine the combination with an abutment member, a movable member adjacent to said abutment member and means inclosing the space between said movable and abutment members, of a receptacle adapted to hold compressed air, a constantly-open communicating duct between said receptacle and said space; a second member, a second movable member adjacent to said second abutment member, means inclosing the space between the last-mentioned movable and abutment members, a conductor for a liquid flowing under pressure, said conductor communicating with said last-mentioned space, means for allowing the liquid to flow through said space continuously while the machine is at rest, means for actuating said last-mentioned means and for arresting the flow of said liquid from and accumulating the pressure thereof in said space thereby moving said second movable member from its abutment member, means for releasing said liquid from said space when said movable member has moved a predetermined extent and means connecting said movable members together to move in unison.

5. In a metal-working machine the combination with a support for the metal to be worked, of a cylinder supported in line with said work-support and having the end thereof adjacent thereto open and its other end closed, a piston slidable within said cylinder, a supply-port leading into the upper end of said cylinder, an exhaust-port leading therefrom, an exhaust-pipe communicating with the said exhaust-port of said cylinder, a valve controlling said exhaust-pipe, said port and cylinder and exhaust-pipe being for conducting an inelastic fluid flowing constantly under pressure therethrough and while the valve is open, and adapted to be checked and the pressure thereof accumulated in said cylinder when the valve is closed, a stationary piston mounted rigidly upon the closed end of said cylinder, a cylinder slidable upon said piston, a compressed-air supply, a duct leading from said compressed-air supply to said last-mentioned cylinder, and means connecting said last-mentioned cylinder to said first-mentioned piston, substantially as described and for the purpose set forth.

6. In a metal-working machine the combination with a support for the metal to be worked and stationary metal-working means carried by said support, of a cylinder supported in line with said stationary working means and having the end thereof adjacent to said working means open and its other end closed, a piston slidable within said cylinder, a working tool in line with said stationary metal-working means and adapted to coact with the latter, means connecting said working tool to said slidable piston, a supply-port leading into the upper end of said cylinder, an exhaust-port leading therefrom, an exhaust-pipe communicating with the said exhaust-port of said cylinder, a valve controlling said exhaust-pipe, said port, cylinder, and exhaust-pipe being for conducting an inelastic fluid flowing constantly under pressure through said cylinder while the valve is open, and adapted to be checked and the pressure thereof accumulated in said cylinder when the valve is closed, a stationary piston mounted rigidly upon the closed end of said cylinder, a cylinder slidable upon said piston, a receptacle adapted to hold compressed air a duct leading from said compressed-air receptacle to said last-mentioned cylinder, and means connecting said last-mentioned cylinder to said first-mentioned piston substantially as described and for the purpose set forth.

786,237. **NARROW-WARE LOOM.** OTTO W. SCHAUM, Philadelphia, Pa. Filed Oct. 5, 1903. Serial No. 175,779.



Claim.—1. In a narrow-ware loom having two or more banks of shuttles the combination with the batten and shuttle-races vertically movable thereon of a longitudinally-movable chain connection arranged parallel with the batten and operatively connected at intervals with said shuttle-races.

2. In a narrow-ware loom having two or more banks of shuttles the combination with the batten and shuttle-races vertically movable thereon of a bottom lift mechanism for said races comprising a series of lifting devices pivoted at intervals to the batten and connected to said races and a properly-timed operating mechanism for said lifting devices.

3. In a narrow-ware loom having two or more banks of shuttles the combination with the batten and shuttle-races vertically movable thereon, of a bottom lift mechanism for said races comprising a series of lifting devices pivoted at intervals to the batten and operatively connected to said races a chain connection arranged parallel with the batten and engaging each of said devices, and a change-motion for operating said chain connection.

4. In a narrow-ware loom having two or more banks of shuttles the combination with the batten, shuttle-races with shuttles therein adjustably mounted thereon, and a bracket secured thereto, and carrying a shuttle-operating mechanism, of a parallel-motion mechanism for reciprocating the batten and attached parts.

5. In a narrow-ware loom having two or more banks of shuttles the combination with the batten, shuttle-races with shuttles therein adjustably mounted thereon, and a vertical bracket secured thereto and carrying a shuttle-operating mechanism, of a parallel-motion mechanism for reciprocating the batten and attached parts comprising a supporting means for the batten, and top and bottom crank connections to the latter coöperatively driven through a vertical shaft.

6. In a narrow-ware loom having two or more banks of shuttles the combination with the batten, shuttle-races with shuttles therein adjustably mounted thereon, and a vertical bracket secured thereto, and carrying a shuttle-operating mechanism, and a movable device engaging the same, of a parallel-motion mechanism for reciprocating the batten and attached parts, and an adjustable crank mechanism comprising an intermediate bell-crank connected to said movable device.

7. In a narrow-ware loom having two or more banks of shuttles the combination with the batten, shuttle-races with shuttles therein adjustably mounted thereon, and a vertical bracket secured thereto, and carrying a shuttle-operating mechanism, of a parallel-motion mechanism for reciprocating the batten and attached parts, a crank mechanism arranged to operate said shuttle-operating mechanism and a change-motion for adjusting the shuttle-races, all coöperatively arranged.

786,238. **BALANCED STEAM-TRAP.** FRANK A. SIMONDS, Grand Rapids, Mich., assignor of one-third to Clara D. Burnop, Albany, N. Y. Filed May 6, 1904. Renewed Dec. 27, 1904. Serial No. 238,419.



Claim.—1. The combination of a case, openings in the top and bottom of the case, valves to close said openings and connected to each other, a float to operate the valves, a closed chamber above the upper valve, an exit below the lower valve, and a passage extending from the chamber to the exit.

2. The combination of a case having top and bottom openings, valves to close the said openings, means for adjustably connecting the valves to each other, a closed chamber above the upper valve, an exit below the lower valve, a passage extending from the chamber to the exit, and a float to operate the valves.

3. The combination of a case having top and bottom openings, valves to close said openings, means for connecting said valves, an opening extending through the valves and connecting means, a closed chamber above the upper valve, and a float to operate the valves.

4. The combination of a case having top and bottom openings, valves for closing said openings and connected to each other to move simultaneously, a float to operate said valves, a chamber above the upper valve and an exit below the lower valve, a passage extending from the chamber to the exit, and means for adjusting the opening of said passage.

5. The combination of a case having top and bottom openings, valves to close said openings, a tube connecting said valves, a central opening through the lower valve, diagonal openings through the upper valve, a disk rotative on the upper valve and having corresponding openings, a closed chamber above the upper valve, and a float to operate the valves.

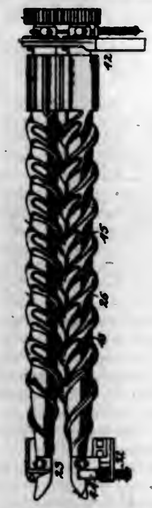
6. The combination of a case having top and bottom openings, valves to close said openings, longitudinally-adjustable means for connecting said valves, a closed chamber above the upper valve, an exit below the lower valve, and a passage extending from the chamber to the exit.

7. The combination of a case having upper and lower openings, valves to close said openings, transversely-divided means for connecting said valves and having screw-threads, a screw-threaded band surrounding said means, means for holding one of the valves to its seat, and means for rotating the other valve and a part of the connecting means.

8. The combination of a case having top and bottom openings, an exit-passage below the case, valves to close said openings, a screw-threaded opening in one valve, a removable plug opposite said opening, a stem on the other valve and a nick in the stem, a closed chamber above the upper valve, means for connecting the valves, an opening through the upper valve and said means, and a float to operate the valves.

9. The combination of a case having top and bottom openings, valves to close said openings and adjustably connected to each other, a tube connecting said valves and transversely divided, a coupling-band adjustably connecting the tube, diagonal openings through the upper valve, and an axial opening in the lower valve, a disk rotative on the upper valve and having corresponding openings, a chamber inclosing the upper valve, and a float to operate the valves.

786,239. **CORN HARVESTER AND HUSKER.** JOHN A. STONE, Chicago, Ill. Filed Oct. 22, 1904. Serial No. 229,526.



Claim.—1. In a machine of the class described, in combination, coacting snapping-rollers provided with spirally-arranged ribs adapted to convey the stalks rearward, said ribs having branch spirals offset therefrom.

2. In a machine of the class described, the combination of coacting snapping-rollers provided with spirally-arranged ribs adapted to convey the stalks rearward, said ribs having branches offset therefrom, and having their terminals arranged substantially parallel with the carrying-ribs.

3. In a machine of the class described, the combination of coacting snapping-rollers provided with spirally-arranged ribs adapted to convey the stalks rearward, said ribs having branches offset therefrom that are gradually reduced in height as they recede therefrom.

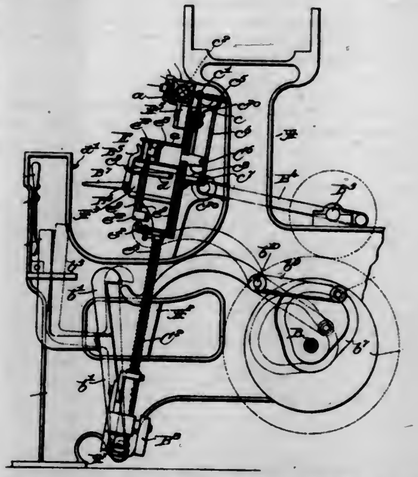
4. In a machine of the class described, the combination of coacting snapping-rollers provided with spirally-arranged ribs adapted to convey the stalks rearward, said ribs having substantially parallel branches offset therefrom that are gradually reduced in height as they recede therefrom.

5. In a machine of the class described, the combination of coacting snapping-rollers provided with spirally-arranged ribs adapted to convey the stalks rearward, said ribs having a series of branch spirals offset therefrom said series being substantially in a line parallel with the axes of the rollers.

6. In a machine of the class described, the combination of coacting snapping-rollers provided with spirally-arranged ribs adapted to convey the stalks rearward, said ribs having one or more series of branch spirals offset therefrom said series being substantially in a line parallel with the axes of the rollers.

7. In a machine of the class described, the combination of coacting snapping-rollers adapted to detach the ears from the stalks, an ear-conveying chute at one side of the said snapping-rollers to receive the ears therefrom, a shelled-corn receptacle beneath the said snapping-rollers, an endless moving conveyer in said receptacle, said endless conveyer operating to convey the shelled corn from said receptacle into said ear-conveying chute.

786,240. **WEFT-REPLENISHING MECHANISM FOR LOOMS.** EDWARD D. THAYER, Worcester, Mass., assignor to Randolph Crompton, George Crompton, Edward D. Thayer, and William B. Scofield, Worcester, Mass., doing business under the firm-name of Crompton-Thayer Loom Company, Worcester, Mass. Filed Aug. 25, 1904. Serial No. 223,086.



Claim.—1. In a loom, a lay, filling-changing mechanism comprising a shifting shuttle-box, manually-controlled means for operating the same, and independent means to stop the loom on the occurrence of fault in the filling.

2. In a loom, a lay, a spare-shuttle-carrying cage mounted thereon and movable with the lay, a movable shuttle-box to contain a running shuttle, and manually-controlled means for raising the movable shuttle-box in line with said cage to receive a spare shuttle to be delivered to the race of the lay at the descent of the shuttle-box.

3. In a loom, a lay provided with a spare-shuttle cage mounted on and movable with the lay, and having a movable shuttle-box for sustaining a running shuttle, means to move said shuttle-box in position of alinement with the spare-shuttle cage, and devices to cause the spare shuttle in said cage to be transferred to the said shuttle-box.

4. In a loom, a lay, a spare-shuttle cage and a movable shuttle-box carried thereby, and manually-controlled means for causing the movable shuttle-box to be placed in position opposite said cage for the reception of a spare shuttle and to then place said shuttle at the level of the race of the lay, and independent means to stop the loom on the occurrence of fault in the filling.

5. In a loom, a lay, a spare-shuttle cage, a movable shuttle-box to contain a running shuttle, means to throw the running shuttle across the lay, manually-controlled means to move said shuttle-box when the running shuttle is in the opposite box into position opposite the spare-shuttle cage, and automatic means operating as the lay retires from the breast-beam to throw the spare shuttle into the cell of the moving shuttle-box.

6. In a loom, a lay, a spare-shuttle cage, a movable shuttle-box to contain a running shuttle, means to throw the running shuttle across the lay, manually-controlled means to move said shuttle-box when the running shuttle is in the opposite box into position opposite the spare-shuttle cage, and automatic means operating as the lay retires from the breast-beam to throw the spare thread into the cell of the moving shuttle-box, said movable shuttle-box having a cham-

ber for the reception of the spent shuttle from the plain shuttle-box of the lay while the cell of the shuttle-box is opposite said cage.

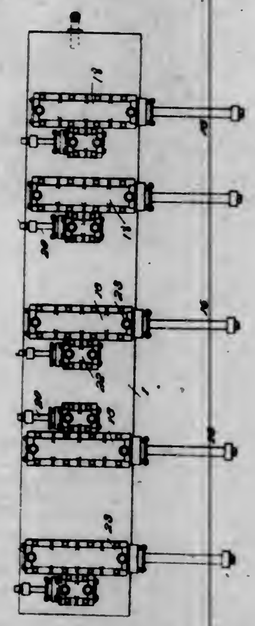
7. In a loom, a lay, and a spare-shuttle cage sustained thereby combined with a movable shuttle-box having a cell at its upper end cut out at its top next the inner end of the spare-shuttle cage whereby the spare shuttle in said cage may be maintained therein with its outer end extended into the plane of the vertical movement of said shuttle-box substantially as described.

8. In a loom, a lay, a spare-shuttle cell mounted on and movable with the lay, a movable shuttle-box, means to lift an empty cell thereof opposite the spare-shuttle cage, and means carried by the lay to move the spare shuttle from said spare-shuttle cage into the inner end of the empty cell of the movable shuttle-box

9. In a loom, a movable shuttle-box having at its upper end a cell for a running shuttle, and having below said cell a shelf to sustain a spent shuttle, and a binder-finger, a propeller-shaft sustaining the same, combined with a binder having its inner end downturned that the binder-finger may continue to bear thereon in any position occupied by the movable shuttle-box.

10. In a loom, a lay, a running and a spare shuttle box, filling-changing means, and manually-controlled means for effecting the operation of the filling-changing means.

786,241. **STAY-LOG FOR VENEER-CUTTING MACHINES.** CISCO R. TRAXLER, Winston Salem, N. C. Filed Mar. 6, 1905. Serial No. 248,375.



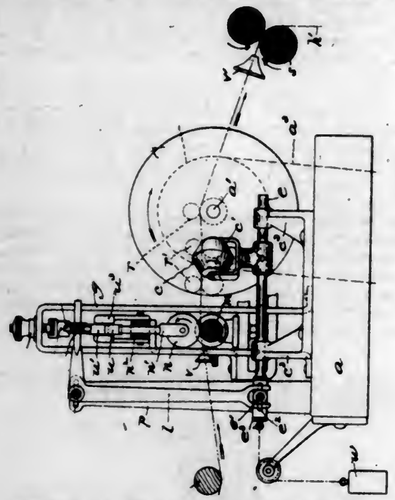
Claim.—1. A stay-log for veneer-cutting machines equipped with means for heating it, to thus maintain a sufficiently high temperature in the bolt or block to be cut, substantially as described.

2. A stay-log for veneer-cutting machines provided with means for securing a bolt of wood thereto and carrying means for raising its temperature to enable it to impart heat to the bolt or block which it carries.

3. A stay-log for veneer-cutting machines equipped on one side with chucks for securing a bolt of wood thereto and carrying on its opposite side steam-cylinders having pistons connected to and operating the chucks and arranged, when steam at sufficiently high temperature is admitted, to heat the bolt carried by the stay-log.

4. A stay-log for veneer-cutting machines, carrying on one side means for securing a bolt or block of wood thereto and having means in rear of its front face within the area in which the bolt lies for heating the stay-log from one end thereof to the other whereby the bolt to be cut may be uniformly heated.

786,242. **SLIVER-EVENING DEVICE FOR DRAWING-FRAMES.** VALORUS S. WESTCOTT, Pawtucket, and FRANK W. POTTER, Central Falls, R. I. Filed May 31, 1904. Serial No. 210,351.



Claim.—1. In a sliver-evening device for drawing-frames, having front or delivery drawing-rolls, driving mechanism for revolving them at a substantially uniform rate of speed, and rear rolls r' for feeding a plurality of independent slivers between them to said front rolls, the combination therewith of sliver-evening mechanism comprising a revoluble evener-roll m, a revoluble yieldingly-mounted wheel for each sliver, said wheel being actuated by said roll m, variable driving means taking its motion from the said front driving mechanism for rotating the said rear and evener rolls, and an automatic equalizing device having its movements controlled by variations in the thickness of any one of the slivers while the latter are passing between the said evener-roll and wheels.

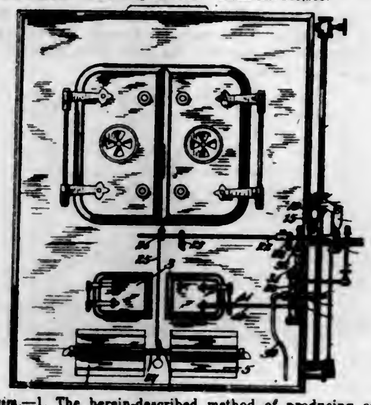
2. In a drawing-frame having front drawing-rolls and mechanism for rotating them at a uniform or invariable rate of speed, said mechanism including a driving-disk d revolving in unison with the same, the combination therewith of a plurality of pairs of rear rolls which deliver the slivers to said front drawing-rolls, a yieldingly-mounted oppositely-disposed fellow disk d' revoluble in the same direction as the said driving-disk a freely-turning beveled-faced wheel e interposed between and in frictional engagement with the working faces of both the said disks, an evener-roll and revoluble independent wheels n coacting therewith, between the adjacent peripheral surfaces of which the slivers pass to the said rear rolls, means connected with the disk d' for rotating said evener and rear rolls, and a device operatively connected with said revoluble members e and n for automatically changing the speed of said rolls, substantially as hereinbefore described and for the purpose set forth.

3. In a drawing-frame, the combination with the front drawing-rolls and driving mechanism therefor arranged to revolve them at a uniform rate of speed, of a plurality of pairs of rear rolls between which the sliver passes, means for revolving said rear rolls, said means being operatively driven by the first-named driving mechanism, and suitably-mounted compound or multiple levers adapted in their movements to automatically change the speed of the said mechanism which rotates the rear rolls, one of the latter rolls being provided with a guided and weighted freely-turning wheel for each sliver, whereby variations in the thickness of the slivers while passing between the adjacent peripheral surfaces of said roll and wheels cause the levers and connected mechanism to become operative.

4. In a sliver-evening device for drawing-frames, the combination with the evener-roll m and mechanism adapted for driving the same at variable rates of speed, of a plurality of independent freely-turning yieldingly-mounted wheels between the peripheral surfaces of which and the said roll the slivers pass, and a speed-changing device operatively connected with said wheels and with the roll-driving mechanism for automatically changing the speed of rotation of the roll, slower or faster as the case may be, whenever the thickness of any of the passing slivers varies from the normal.

5. In a drawing-frame provided with uniformly-driven front drawing-rolls between which the slivers pass, and rear sliver-feeding rolls adapted to be driven at varying rates of speed, the combination therewith of a friction-driving disk d revolving in unison with said first-named rolls, a spring-pressed endwise-movable revoluble fellow disk d' oppositely disposed with respect to said disk d, said two disks being arranged to turn in one direction, a freely-revoluble wheel e interposed between and in continuous frictional engagement with the working faces of both disks, and means including independent yieldingly-mounted disks n arranged with respect to said rear rolls and operatively connected with the wheel e, whereby variations in the thickness of the passing slivers, greater or less than the normal thickness, causes the said wheel to be automatically advanced or retracted, thereby respectively decreasing or increasing the speed of the rear rolls, substantially as described.

786,243. **METHOD OF PRODUCING COMPLETE COMBUSTION OF FUELS.** JAMES B. BARRETT, Washington, D. C., assignor to International Boiler Improvement Company, Pierre, S. D., a Corporation of South Dakota. Filed May 28, 1904. Serial No. 210,289.



Claim.—1. The herein-described method of producing complete combustion of fuels, which consists in passing a current of air through said fuels to cause incomplete combustion thereof, charging additional fresh fuel from time to time, reversing the direction of the current of air through the fuel during such charging operation, and intimately intermixing fluids capable of sustaining combustion with the hot products of incomplete combustion, substantially as described.

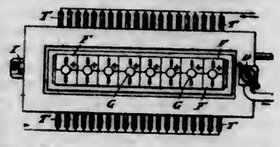
2. The herein-described method of producing complete combustion of fuels, which consists in passing a current of air through said fuels to cause incomplete combustion thereof, charging additional fresh fuel from time to time, reversing the direction of the current of air through the fuel during such charging operation, and intimately intermixing heated fluids capable of sustaining combustion with the hot products of incomplete combustion, substantially as described.

3. The herein-described method of producing complete combustion of fuels, which consists in passing a current of air through said fuels to cause incomplete combustion thereof, charging additional fresh fuel from time to time, reversing the direction of the current of air through the fuel during such charging operation, and intimately intermixing air and steam with the hot productions of incomplete combustion, substantially as described.

4. The herein-described method of producing complete combustion of fuels, which consists in passing a current of air through said fuels to cause incomplete combustion, charging additional fresh air from time to time, reversing the direction of the current of air through the fuel during such charging operation, and intimately intermixing heated air and steam with the hot products of incomplete combustion, substantially as described.

5. The herein-described method of producing complete combustion of fuels, which consists in passing a current of air through said fuels to cause incomplete combustion thereof, charging additional fresh fuel from time to time, reversing the direction of the current of air through the fuel during such charging operation, and intimately intermixing heated air and superheated steam with the hot products of incomplete combustion, substantially as described.

786,244. **PROCESS OF EXTRACTING ALUMINIUM OR OTHER METALS.** HENRY S. BLACKMORE, Mount Vernon, N. Y. Original application filed Sept. 12, 1903, Serial No. 172,960. Divided and this application filed Jan. 7, 1905. Serial No. 240,022.



Claim.—1. The process of reducing metal which consists in exposing a fused substance containing only one metal combined with one halogen, fluorin, and one or more non-metallic elements other than a halogen, to the action of an electric current of a voltage below that necessary to liberate fluorin therefrom, but capable of liberating one or more non-metallic elements.

2. The process of reducing metals which consists in exposing a fused substance consisting of one metal combined with one halogen, fluorin, and one or more non-metallic elements other than a halogen, to the action of an electric current of a voltage below that necessary to liberate fluorin but of sufficient intensity to selectively liberate the less electronegative non-metallic element or elements.

3. The process of reducing metal which consists in exposing a fused substance consisting of one metal combined with one halogen, fluorin, and one or more non-metallic elements other than a halogen, to the action of an electric current in the presence of a substance capable of uniting with a non-metallic constituent of the compound while subjecting the material to the action of an electric current of a voltage below that necessary to liberate fluorin, but capable of liberating the less electronegative non-metallic element or elements in the presence of the combining substance.

4. The process of reducing metal which consists in mixing two or more compounds composed of a single metal combined with one halogen, fluorin, and different non-metallic elements other than halogens, and exposing the substance consisting of the metal combined with fluorin and one or more non-metallic elements other than a halogen in a fused state, to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate one of the non-metallic elements.

5. The process of reducing metal which consists in mixing two or more binary compounds composed of a single metal combined with one halogen, fluorin, and different non-metallic elements other than halogens, and exposing the substance consisting of the metal combined with fluorin and one or more non-metallic elements other than halogens, in a fused state, to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate one of the non-metallic elements.

6. The process of reducing metal which consists in exposing a fused substance consisting of one metal united with one halogen, fluorin, and one or more non-metallic elements other than halogens, to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate a portion of the metal and one non-metallic element, and supplying to the undecomposed composition, portions of a compound of the same metal with a non-metallic element similar to that previously liberated from time to time while maintaining the electric current and withdrawing the reduced metal at intervals, as described.

7. The process of reducing aluminium which consists in exposing a fused substance consisting of one metal, aluminium, united with one halogen, fluorin, and one or more non-metallic elements other than a halogen, to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate the less electronegative non-metallic element or elements.

8. The process of reducing aluminium which consists in exposing a substance consisting of one metal, aluminium, combined with oxygen and one halogen, fluorin, to the action of an electric current of a voltage below that necessary to liberate fluorin, but of such tension as to induce the selective liberation of oxygen.

9. The process of reducing aluminium which consists in exposing a fused substance consisting of one metal, aluminium, combined with oxygen and one halogen, fluorin, to the action of an electric current of a voltage below that necessary to liberate fluorin, but capable of liberating oxygen in the presence of carbon.

10. The process of producing aluminium and carbon oxid which consists in exposing a fused substance consisting of one metal, aluminium, combined with one halogen, fluorin, and one or more non-metallic elements other than a halogen, one of which is oxygen,

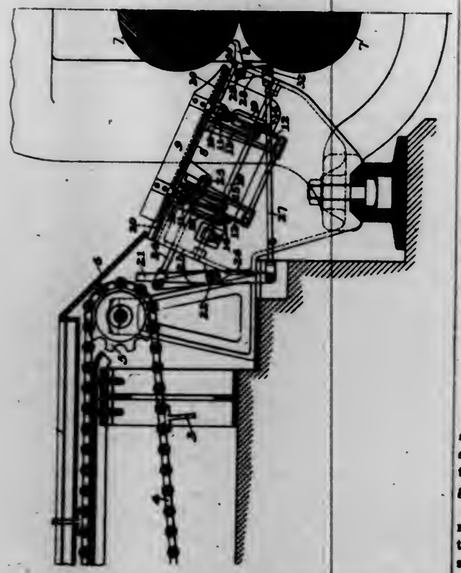
to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity, while employing a carbon anode, to liberate oxygen in the presence of the carbon whereby the oxygen unites with the carbon of the anode, evolving carbon oxid and liberating aluminium.

11. The process of reducing aluminium which consists in exposing a fused mixture of aluminium fluorid and aluminium oxid to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate oxygen from the oxid in the presence of a combining agent with the simultaneous production of aluminium and supplying aluminium oxid to the composition from time to time while maintaining the electric current and withdrawing the aluminium reduced at intervals, as desired.

12. The process of reducing aluminium which consists in exposing a fused mixture of aluminium fluorid and aluminium oxid to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate the oxygen from the oxid in the presence of carbon with the simultaneous production of aluminium and supplying aluminium oxid to the mixture from time to time while maintaining the electric current and withdrawing the aluminium reduced at intervals, as desired.

13. The process of reducing aluminium which consists in exposing fused compounds of one halogen, fluorin, and different non-metallic elements other than halogens with aluminium only, to the action of an electric current of a voltage below that necessary to liberate fluorin, but of sufficient intensity to liberate one of the electro-negative non-metallic elements from the composition with the simultaneous separation of aluminium.

786,245. **MATCHING DEVICE.** CHARLES W. BRAY, Pittsburg, Pa., assignor to American Tin Plate Company, Orange, N. J., a Corporation of New Jersey. Filed Jan. 3, 1903. Serial No. 137,714.



Claim.—1. A matcher having squaring-up mechanism for the sides and end of a plate-pack, mechanism for feeding separate plates one upon the other into the matcher, and mechanism for feeding the squared-up pack out of and forwardly from the matcher; substantially as described.

2. A matcher having an inclined table, a movable stop at one end thereof, movable side guides arranged to square up the sides of a plate-pack and mechanism for feeding the pack forwardly out of the matcher; substantially as described.

3. A matcher having a movable front stop in the line of feed, mechanism for feeding plates into the matcher, means for squaring up the sides of the pack, mechanism for operating the stop, and mechanism for feeding the pack forwardly out of the matcher; substantially as described.

4. A matcher having front movable stops in the line of feed, movable side guides, and mechanism for dropping the stops and moving the pack forwardly out of the matcher; substantially as described.

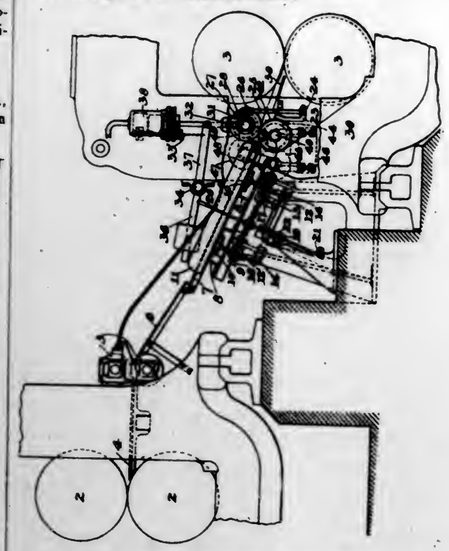
5. A matcher having mechanism for gripping a pack of plates therein, and means for feeding forward the gripped pack; substantially as described.

6. A pair of working rolls, and pack-feeding mechanism comprising means for gripping a pack of plates and means for feeding the gripped pack forwardly into the bite of the rolls; substantially as described.

7. A matcher having squaring-up mechanism, grippers arranged to engage the side edges of the pack, and mechanism for feeding the grippers and gripped pack forwardly; substantially as described.

8. A matcher having a forwardly and downwardly inclined support, mechanism for feeding the separate plates forwardly and dropping them upon each other on the support, squaring-up mechanism, and mechanism for feeding the squared-up pack out of the matcher; substantially as described.

786,246. **MATCHING DEVICE FOR METAL SHEETS.** CHARLES W. BRAY, Pittsburg, Pa., assignor to American Tin Plate Company, Orange, N. J., a Corporation of New Jersey. Filed Jan. 31, 1903. Renewed Aug. 15, 1904. Serial No. 220,710.



Claim.—1. A matching device for metal sheets or plates having squaring-up mechanism, mechanism for pinching or applying pressure to the face of the squared-up pack, and mechanism for feeding the pack out of the matcher while the plates are pinched or held together; substantially as described.

2. A matcher having mechanism for squaring up the pack, mechanism for pinching or applying pressure to the upper face of the pack, and feed-out mechanism for the pack; substantially as described.

3. A matcher having pinch-rollers arranged to engage the pack, and means for driving at least one of said rollers; substantially as described.

4. A matcher having end stops, pinch-rolls in front of the stops, mechanism for driving at least one of the pinch-rolls, and means for retracting the stops; substantially as described.

5. A matcher having pinch-rollers arranged to engage the top and bottom faces of the pack, mechanism for feeding sheets one upon the other into the matcher and between the rollers, and mechanism for driving at least one of said pinch-rollers to feed out the pack; substantially as described.

6. An inclined matching device having squaring-up mechanism for the side edges of the sheets, front stops, pinch-rolls in front of the stops, and mechanism for retracting the stops and driving at least one of the pinch-rollers; substantially as described.

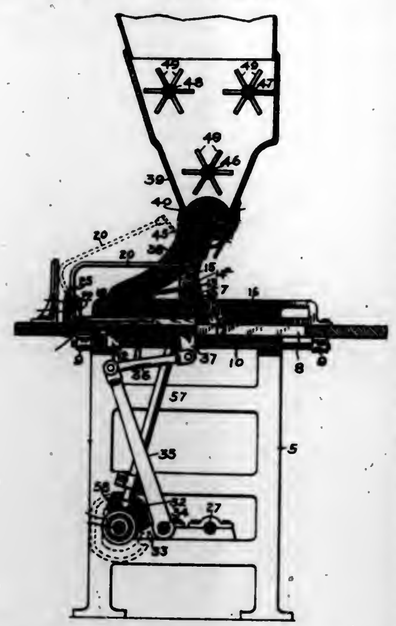
7. A matcher having upwardly-inclined guides leading to its front end, and having mechanism for piling the upwardly-directed plates, and mechanism for feeding out the pack in a forward direction; substantially as described.

8. A matcher having forwardly and upwardly inclined guides leading thereto, mechanism for moving the plates up over the guides and piling them in the matcher, and mechanism for feeding out the pack; substantially as described.

9. A matcher having a pair of feed-out rolls, stops beyond the rolls, and mechanism for raising and lowering one of the feed-out rolls and the stops; substantially as described.

10. A matcher having feed-out rolls, connections for driving at least one of said rolls, vertically-movable stops beyond the rolls, and mechanism for simultaneously moving the stops and one of the rolls vertically; substantially as described.

786,247. **CIGAR-BUNCHING MACHINE.** NATHAN CALOOFF, Indianapolis, Ind., assignor of one-half to Morris Krauss, Indianapolis, Ind. Filed Oct. 15, 1904. Serial No. 228,593.



Claim.—1. In a cigar-bunching machine, a horizontal table, an auxiliary table above said first table, an apron attached to the front edge of the auxiliary table and passing back over the latter table and supported in a loose condition near the rear of the table, a roller transversely of and under said apron having a horizontal reciprocatory travel in a plane with the top of said auxiliary table and including said auxiliary table in the limits of its movement, means for depressing the apron between the roller and the auxiliary table when the roller is at its normal position at the inner end of its travel to thereby form a receptacle or pocket from said apron, said means being operated by an extension from the roller-carrying means, a hopper located above said pocket having a lower outlet, a revolving cylinder closing said hopper-outlet, said cylinder having a cavity or depression to form a receptacle to receive a regulated quantity of the contents of said hopper at each revolution of the cylinder and to discharge said quantity into the cavity of the apron by the rotation of said cylinder.

2. In a cigar-bunching machine, a table supported on legs, said table having an extended opening, hangers depending from said table, bars supported by said hangers, a carriage supported and guided by said bars, said carriage having parallel vertical standards which extend up through the opening in said table and said carriage having a rearwardly-extended bar, said standards having vertical slots, boxes mounted in said slots, springs in the slots above the boxes to depress them, set-screws to regulate the tension of said springs, a horizontal roller mounted in said boxes, said roller being gradually reduced in diameter toward its center, an auxiliary table supported above the first table, track-plates supported by said first table and bridging the opening in said first table, said track-plates having a cross-bar at their ends opposite said auxiliary table, an apron attached to said auxiliary bar at one end and extending loosely to and attached to the front edge of said auxiliary table at its other end, a rocking shaft having a lug in the path of said bar which is projected rearwardly from said carriage, an arm fixed to said rocking shaft and extending forward therefrom over said apron and terminating with a plate which when the arm is lowered will depress the apron between the roller and auxiliary table, a spring to elevate the arm, a hopper supported above the apron having an outlet which discharges into the pocket formed in said apron, means to regulate the time and quantity of said discharge, and means to impart a reciprocating movement to said carriage.

3. In a cigar-bunching machine, a table, an apron secured to the front edge of said table and extending back over the table and secured remote from said table at the opposite end of said apron, the apron being full and loose between its end supports, a roller extending transversely of the apron under the apron and having a reciprocating horizontal travel longitudinally of said apron including the area of said table in its travel, means for depressing the apron between the roller and table while the roller is at the inner end of its travel in order to form a pocket in the apron by said depression, a hopper located above the apron having a lower outlet discharging into said pocket, a revolving cylinder closing said hopper-outlet, said cylinder having a cavity to receive a regulated quantity of the tobacco contents of said hopper and deposit it by gravity into said apron-pocket, and a door hinged at its upper edge to said hopper and extending when closed down in contact with a front portion of said cylinder, said door remaining closed during the operation of the machine and having that portion of it above its lower edge including said edge bent out away from said cylinder to provide a permanent opening opposite the lower part of the cylinder.

4. In a cigar-bunching machine, a table, a roller having a horizontal reciprocating movement covering the area of said table during the forward or outer portion of the travel of said roller, an apron having one of its ends fastened to the front edge of the table and extending back over the table and over the roller and having its other end fastened on the opposite side of the roller from the table, said apron being loose between its ends, a plate adapted to move down against the apron and depress it between the roller and the table to form a pocket, a hopper supported above the apron having a bottom outlet over said pocket, a horizontal cylinder revolubly mounted so as to form a closure to said outlet, a longitudinal groove in said cylinder, a false bottom in said groove adjustable radially of the groove to regulate its holding capacity, a door hinged to the front of the hopper and closing the upper front portion of the hopper-outlet, said door having its lower portion bent outwardly away from the cylinder, horizontal shafts passing through the hopper above the cylinder and parallel therewith, said shafts having radial fingers, means providing a driving connection between the said shafts and the cylinder whereby the rotary movement of the cylinder will be transmitted to said shaft, means for rotating the cylinder and means for intermittently moving said roller in its horizontal reciprocating travel.

5. In a cigar-bunching machine, a horizontal table supported on legs, said table having an extended opening approximately through its middle portion, track-plates secured to said table and bridging said opening, hangers on the under side of said table approximately under said track-plates, guide-bars secured in said hangers, a carriage slidingly mounted on said guide-bars, standards from said carriage extending up through the opening in the table on the outside of said track-plate, said standards having longitudinal end slots, boxes adjustably mounted in said slots, springs to press said boxes downwardly, set-screws to adjust the tension of said springs, a roller resting upon said track-plate having bearings in said boxes, said carriage having a rearwardly-extended bar, an auxiliary table supported between the front ends of said track-plates by the plates, an apron having one end fastened to the front edge of the auxiliary table and its other end fastened to a cross-bar at the rear ends of said track-plates, said apron passing loosely over the table and over said roller, an arm pivoted beyond the rear end of said apron and extending above and forward to near the middle of the apron and having a downwardly-projected end plate or extension, a spring to normally elevate the arm, a lug extending into the path of said bar extension from the rear of the carriage, said lug being integral with said arm, a hopper above the apron having an under-discharge end, means for

regulating the time and quantity of the discharge from said hopper and means for reciprocating said carriage.

6. In a cigar-bunching machine, a table, a horizontally-reciprocating and intermittently-moving roller which covers the area of said table at each forward end of its travel, a carriage having standards which support said roller, said carriage having a rearwardly-extended bar, a rock-shaft having a lug in the path of said bar and also having a forwardly-projected arm terminating with a downward extension, a spring to normally elevate the arm, an apron fastened at one of its ends to said table and passing back over the table and over said roller and having its other end secured between said roller and said rock-shaft, and a hopper to contain the filling-tobacco located above the table and having a discharge-opening, and means for regulating the time and amount of said discharge.

7. In a cigar-bunching machine, a table supported on legs and having a middle opening, hangers depending from said table, guide-bars secured to said hangers, a carriage moving on said guide-bars, said carriage having standards which extend through said table-opening, an auxiliary table above the first table, a horizontal roller mounted on said carriage-standards and adapted to cover the area of the table in a part of its travel, an apron fastened to the auxiliary table at its front end and passing back over the table and over the roller and fastened at its rear end so as to be in a loose condition between its ends, means when the roller is at the inner end of its travel for depressing the apron between the roller and auxiliary table to form a pocket, said means being controlled from said carriage, a hopper above the apron to contain the filling-tobacco and having a discharge by gravity into said pocket, the discharge-opening of the hopper having a valve mechanism to automatically control the time and quantity of each discharge, and means for reciprocating said carriage, said means comprising a rotating plate having a cam-groove in its side, a shaft adjacent to said plate having a crank, said crank having a pin seated in said cam-groove, said shaft also having an arm, and a link-bar connecting said arm with an ear depending from said carriage.

8. In a cigar-bunching machine, a horizontal table having a middle opening, legs to support said table, track-plates secured to the top of the table and bridging said opening, an auxiliary table supported between the front ends of said track-plates, hangers depending from the first table approximately under said track-plates, guide-bars mounted in said hangers, a carriage mounted on said guide-bars having vertical standards which extend through the opening in the table outside of said track-plates, a horizontal roller having its bearing on said track-plates, said roller being mounted in said standards, means for permitting a vertical adjustment of said roller in said standards, a bar extending to the rear from the back of said carriage, an apron having one end fastened to the front edge of the auxiliary table, said apron passing back over the auxiliary table and over said horizontal roller and having its opposite end made fast to a cross-bar supported by rear ends of said track-plates, a rock-shaft mounted in a horizontal position back of said last-mentioned cross-bar, said rock-shaft having an arm which extends upwardly and forwardly over said apron and terminates with a downward extension or head to depress the apron between the roller and auxiliary table when the roller is at the inner end of its travel, a spring to normally raise the said arm, a lug extending from said rock-shaft into the path of the bar from the rear of the carriage, a shaft supported by the table-legs having a plate with a cam-groove in its side, a second shaft parallel with the first one, a crank on said shaft having a pin entering said cam-groove, an arm on said second shaft, a link-bar connecting the end of said arm with an ear on the under side of said carriage, a hopper supported above said apron from said track-plates, said hopper containing the tobacco filling material and having a bottom opening which discharges into the pocket formed in said apron, a cylinder revolubly mounted below said opening to form a closure therefor, said cylinder having a groove with a radially-adjustable false bottom, shafts supported by said hopperp arallel with and above said cylinder, said shafts having radial fingers to act as stirrers to stir the tobacco filling material, suitable gears connecting said shafts with each other and with the trunnions of said cylinder, and means for continuously rotating said cylinder.

786,248. CASTING. FREDERICK COWDEN, Montreal, Canada, assignor of one-half to Robert Samuel Logan, Montreal, Canada. Original application filed May 21, 1904. Serial No. 209,068. Divided and this application filed July 15, 1904. Serial No. 216,758.

Claim.—1. A cast manganiferous-steel article a portion whereof contains a higher percentage of carbon than the remainder such portion also containing a higher percentage of manganese than the remainder.



2. A cast-steel article a portion whereof contains carbon from 0.75 per cent. to one per cent. approximately and the remainder a lower percentage, and such portion also containing manganese from one per cent. to two per cent. approximately.

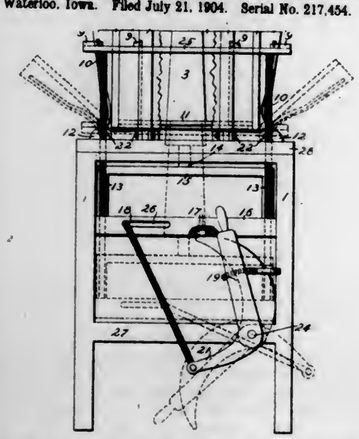
3. A cast manganiferous-steel article, a portion whereof contains carbon from 0.75 per cent. to one per cent. approximately and manganese from one per cent. to two per cent. approximately and the remainder of the article containing carbon from 0.25 per cent. to 0.35 per cent. approximately.

4. A cast manganiferous-steel car-wheel the tread whereof contains a higher percentage of carbon than the remainder such tread also containing a higher percentage of manganese than the remainder.

5. A cast-steel car-wheel the tread whereof contains carbon from 0.75 per cent. to one per cent. approximately and the web and hub a lower percentage, and such tread also containing manganese from one per cent. to two per cent. approximately and the web and hub containing a lower percentage.

6. A cast manganiferous-steel car-wheel the tread whereof contains carbon from 0.75 per cent. to one per cent. approximately and manganese from one per cent. to two per cent. approximately and the web and hub of the wheel containing carbon from 0.25 per cent. to 0.35 per cent. approximately and a lower percentage of manganese than contained in the tread and web.

786,249. MACHINE FOR FORMING CONCRETE BUILDING-BLOCKS. JAMES F. DUNHAM, Waterloo, Iowa, assignor, by mesne assignments, to Waterloo Concrete Brick & Block Machine Company, Waterloo, Iowa. Filed July 21, 1904. Serial No. 217,454.



Claim.—1. A machine for forming concrete building-blocks, consisting of a mold having pivoted sides and ends, a removable bed-plate, grooved ribs on said side and end plates, a frame surrounding said mold, studs connected to said frame and adapted to move within the grooves on said ribs, and means for reciprocating said frame, substantially as described.

2. A machine for forming concrete building-blocks, consisting of a mold having pivoted sides and ends, a removable bed-plate, grooved ribs on said side and end plates, a frame surrounding said mold, studs connected to said frame and adapted to move within the grooves in said ribs, means for reciprocating said frame, and adjustable bearings for said side plates, substantially as described.

3. A machine for forming concrete building-blocks, consisting of a mold having pivoted drop sides and ends, a removable perforated

bed-plate, movable cores in said mold, means for reciprocating said cores through the perforations in said bed-plate, grooved ribs on said side and end plates, a frame surrounding said mold connected to and reciprocated by the same means as the cores, and studs connected to said frame adapted to move within the grooves in said ribs, substantially as described.

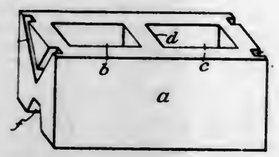
4. A machine for forming concrete building-blocks, consisting of a supporting machine-frame, a mold having pivoted drop sides and ends, a plurality of ribs thereon, a removable perforated bed-plate, movable cores in said mold, a slotted frame-support for said cores, a shaft mounted in the machine-frame, arms affixed to said shaft, links pivoted at their lower ends to said arms and having their upper ends provided with studs adapted to slide in the slots in said frame-support, sectors mounted on said shaft and adapted to reciprocate said frame-support, means for rotating said shaft, uprights connected to said frame-support, a frame surrounding said mold and supported by said uprights and arranged to contact slidably with the ribs on said mold, substantially as described.

5. A machine for forming concrete building-blocks, consisting of a supporting machine-frame, a mold having pivoted sides and ends, a plurality of grooved ribs thereon, a removable perforated bed-plate, movable cores in said mold, a slotted frame-support for said cores, a shaft mounted in the machine-frame, arms affixed to said shaft, links pivoted at their lower ends to said arms and having their upper ends provided with studs adapted to slide in the slots in the said frame-support, sectors mounted on said shaft and adapted to reciprocate said frame-support, means for rotating said shaft, uprights connected to said frame-support, a frame surrounding said mold supported by said uprights and being provided with studs adapted to move within the grooves in the ribs on said mold, substantially as described.

6. A machine for forming concrete building-blocks, consisting of a supporting machine-frame, a mold having pivoted drop sides and ends, a plurality of grooved ribs thereon, a removable perforated bed-plate, movable cores in said mold, a slotted frame-support for said cores, a shaft mounted in the machine-frame, arms affixed to said shaft, links pivoted at their lower ends to said arms and having their upper ends provided with studs adapted to slide in the slots in the said frame-support, sectors mounted on said shaft and adapted to reciprocate said frame-support, antifriction-rollers between the said sectors and the said frame-support, means for rotating said shaft, uprights connected to said frame-support, a frame surrounding said mold, supported by said uprights and provided with studs adapted to move within the grooves in the ribs on said mold, substantially as described.

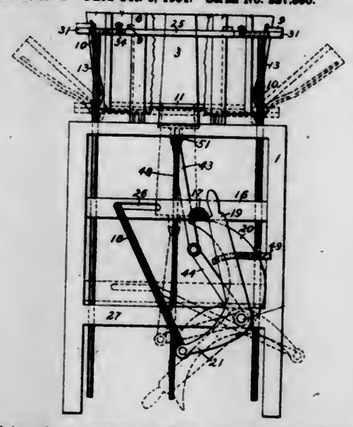
7. A machine for forming concrete building-blocks, consisting of a supporting machine-frame, a mold having pivoted drop sides and ends, a plurality of grooved ribs thereon, adjustable bearing-blocks for said ribs, a removable perforated bed-plate, movable cores in said mold, a slotted frame-support for said cores, a shaft mounted in the machine-frame, arms affixed to said shaft, links pivoted at their lower ends to said arms and having their upper ends provided with studs adapted to slide in the slots in the said frame-support, sectors mounted on said shaft and adapted to reciprocate said frame-support, antifriction-rollers between the said sectors and the said frame-support, means for rotating said shaft, uprights connected to said frame-support, a frame surrounding said mold, supported by said uprights and provided with studs adapted to move within the grooves in the ribs on said mold, substantially as described.

786,250. BUILDING-BLOCK. JAMES F. DUNHAM, Waterloo, Iowa, assignor, by mesne assignments, to Waterloo Concrete Brick & Block Machine Company, Waterloo, Iowa. Filed Oct. 6, 1904. Serial No. 227,394.



Claim.—A building-block provided with vertical passages and longitudinal passages open at the bottom, and having a V-shaped recess in each end, substantially as described.

786,251. MACHINE FOR FORMING CONCRETE BUILDING-BLOCKS. JAMES F. DUNHAM, Waterloo, Iowa, assignor, by mesne assignments, to Waterloo Concrete Brick & Block Machine Company, Waterloo, Iowa. Filed Oct. 6, 1904. Serial No. 227,395.



Claim.—1. A machine for forming concrete building-blocks, consisting of a mold having pivoted drop sides and ends, means for adjusting the width apart of said drop sides, a removable bed-plate, cores, means for reciprocating said cores, and an adjustable closing rack, surrounding said mold provided with means for being reciprocated in synchronism with said cores, substantially as described.

2. A machine for forming concrete building-blocks, consisting of a mold having pivoted drop sides and ends, means for adjusting the width apart of said drop sides, a removable bed-plate, an adjustable frame containing antifriction-rollers adapted to contact with the said pivoted drop sides and ends, and means for reciprocating said frame, substantially as shown and described.

3. A machine for forming concrete building-blocks, consisting of a mold having pivoted drop sides and ends, means for adjusting the with apart of said drop sides, a removable bed-plate, a frame surrounding said mold containing antifriction-rollers adapted to contact with the said pivoted drop sides and ends, a machine-frame, a shaft mounted therein, and means whereby said closing racks may be vertically reciprocated on a partial rotation of said shaft, substantially as shown and described.

4. A machine for forming concrete building-blocks, consisting of a mold having pivoted drop sides and ends, means for adjusting the width apart of said drop sides, a removable bed-plate, a frame surrounding said mold containing antifriction-rollers adapted to contact with the said pivoted drop sides and ends, a machine-frame, a shaft mounted therein, upright supports for said frame, cross-bars containing antifriction-rollers attached to said upright supports, and cams on said shaft adapted to contact with the rollers in said cross-bars, substantially as shown and described.

5. A machine for forming concrete building-blocks, consisting of a mold having pivoted sides and ends, means for adjusting the width apart of said drop sides, a removable bed-plate, grooved ribs on said side and end plates, an adjustable closing rack surrounding said mold, roller-bearing studs carried on said closing rack and adapted to contact with the sides of the grooves in said ribs, and means for reciprocating said closing rack, substantially as shown and described.

6. A machine for forming concrete building-blocks, consisting of a mold having pivoted sides and ends, means for adjusting the width apart of said drop sides, a removable bed-plate, grooved ribs on said side and end plates, an adjustable closing rack containing antifriction-rollers surrounding said mold, roller-bearing studs carried on said closing rack and adapted to contact with the sides of the grooves in said ribs, a machine-frame, a shaft mounted therein, and means whereby said closing rack may be vertically reciprocated on a partial rotation of said shaft, substantially as shown and described.

7. A machine for forming concrete building-blocks, consisting of a mold having pivoted drop sides and ends, means for adjusting the width apart of said drop sides, a removable bed-plate, cores, means for reciprocating said cores, an adjustable closing rack containing antifriction-rollers surrounding said mold, studs on said closing rack adapted to contact with the inner surfaces of the grooves in the ribs on the drop ends and sides, grooved ribs on the drop sides

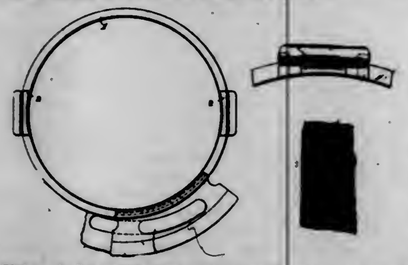
and ends, and means for reciprocating said closing rack in synchronism with said cores, substantially as shown and described.

8. A machine for forming concrete building-blocks, consisting of a machine-frame, a mold having drop sides and ends pivoted in said machine-frame, means for adjusting the width of said mold, cores in said mold, a removable bed-plate in said mold perforated to receive said cores, means for adjustably locating said cores in said mold, an adjustable closing rack surrounding said mold and contacting with its outer surface, means for reciprocating said closing rack and said cores in synchronism, and a division-plate for said mold having means of attachment to one of the cores thereof, substantially as shown and described.

9. A machine for forming concrete building-blocks, consisting of a machine-frame, a mold having drop sides and ends, means for adjusting the width of said mold, cores in said mold, a division-plate, means for adjustably connecting said division-plate to one of said cores, a removable bed-plate perforated for the reception of said cores, means for adjustably locating said cores in said mold, means for vertically reciprocating said cores, a closing rack provided with suitable adjustments for varying its width, grooved ribs on said side and end plates, studs connected to said closing rack adapted to enter the grooves on said ribs and actuate said side and end plates, antifriction-rollers in said closing rack, a shaft mounted in said machine-frame, and means whereby said closing rack may be reciprocated in synchronism with said cores on a partial rotation of said shaft, substantially as shown and described.

10. A machine for forming concrete building-blocks, consisting of a machine-frame, a mold having drop sides and ends, means for adjusting the width of said mold, cores, a perforated bed-plate, a shaft mounted in said machine-frame, a crank on said shaft, a connecting-rod between said crank and said cores, guide-rods for said cores slidable in bearings on said frame, a closing rack provided with suitable adjustable connections for varying its width, antifriction-rollers adjustably mounted in said closing rack, grooved ribs on said side and end plates, studs on said closing rack adapted to contact with the grooves in said ribs, uprights for said closing rack mounted in cross-bars and vertically movable in said machine-frame, slotted cross-bars carrying antifriction-rollers, cam-sectors on said shaft adapted to contact with and actuate the cross-bars, bell-cranks on said shaft, and connecting-rods between said cranks and said cross-bars, substantially as shown and described.

786,252. LOADING-TRAY. ALBERT H. BERRY, Stamford, Conn. Original application filed Mar. 2, 1901, Serial No. 49,635. Divided and this application filed July 9, 1903. Serial No. 164,931.



Claim.—1. In combination with a gun having a removable breech-block threaded in its breech, a loading-sleeve comprising a continuous removable lining fitting within the breech fully covering and protecting the threads thereof, and having retaining-latches 5, engaging in a recess in the breech, to hold the sleeve in position while loading.

2. In combination with a gun having a securing-nut expanding in the breech and leaving a recess 9, when so expanded, a loading-sleeve fitting within the expanded nut, covering and protecting the threads thereof, and having retaining-latches engaging in the recess formed in the breech by the expanding of the nut to hold the sleeve in position while loading.

3. In combination with a gun having a removable breech-block threaded in its breech, a loading-sleeve fitting within the breech, covering and protecting the threads thereof, and having retaining-latches 5, engaging in a recess in the breech, to hold the sleeve in position while loading, said latches located on opposite sides of the loading-sleeve, with grips projecting beyond the rear thereof and said loading-sleeve having handles projecting from its rear, adjacent to the latch-grips so that in seizing the latch-grips and handles together, the latches are controlled in handling the loading-sleeve.

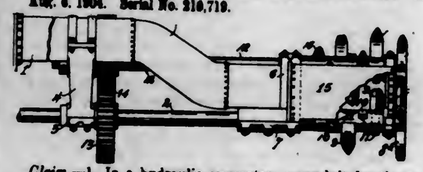
4. In combination with a gun having a removable breech-block threaded in its breech, a loading-sleeve fitting within the breech, covering and protecting the threads thereof, and having retaining-latches 5, engaging in a recess in the breech, to hold the sleeve in position while loading; said loading-sleeve being provided with a packing at its inner end, to close the joint between the loading-sleeve and the rear end of the chamber.

5. In combination with a gun having a removable breech-block threaded in its breech, a loading-sleeve fitting within the breech, covering and protecting the threads thereof, and having retaining-latches 5, engaging in the recess in the breech, to hold the sleeve in position while loading, said loading-sleeve being provided with a packing at its inner end, to close the joint between the loading-sleeve, and the rear end of the chamber, and a retaining-ring 18, by which the loading-sleeve is centered at its front end, having a screw adjustment by which the packing is made to seat tightly when the latches engage in the recess of the gun.

6. In combination with a gun having a removable, threaded breech-block, a circumferentially-continuous loading-sleeve reaching from the breech of the gun to the powder-chamber, fitting within the breech and entirely covering and protecting the threads thereof while loading.

7. In combination with a gun having a removable, threaded breech-block, a circumferentially-continuous loading-sleeve reaching from the breech of the gun to the powder-chamber, fitting within the breech and entirely covering and protecting the threads thereof while loading, and having a packing at its front end abutting against the rear end of the powder-chamber, excluding water and dirt, when swabbing and loading the gun.

786,253. DREDGE. ISAAC G. GILLESPIE, Oakharbor, Ohio. Filed Aug. 6, 1904. Serial No. 219,719.



Claim.—1. In a hydraulic excavator, a conduit for the excavated material, a pair of rotary agitators at the inlet of said conduit, one of said agitators being disposed at the side of and above the other agitator, and means for rotating said agitators.

2. In a hydraulic excavator, a conduit having a downward bend near its forward end, a shaft journaled beneath the conduit, a rotary agitator on said shaft at the inlet of the conduit, a hood supported above the agitator, and a cutting-wheel on the extremity of the shaft outside of the hood.

3. In a hydraulic excavator, a conduit for the excavated material, having a dowaward bend near its forward end, brackets supported by said conduit, a pair of shafts journaled in said brackets, an agitator on each of said shafts adjacent to the inlet of the conduit, a hood for the inlet of the conduit and one of said agitators, and a pair of gear-wheels on said shaft in engagement with each other.

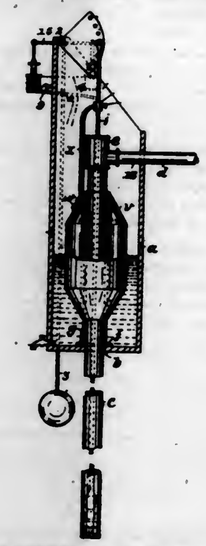
4. In a hydraulic excavator, a conduit for the excavated material, a shaft having transverse holes therethrough near its outer extremity, an agitator on the shaft at the inlet of the conduit, digging implements for the agitator having elongated shanks which pass through said holes in said shaft and which have transverse holes therethrough, and removable pins in said latter holes which removably secure said digging implements in place.

5. In a hydraulic excavator, a conduit for the excavated material, a bracket secured to the end of the conduit, a hood for the mouth of the conduit, another bracket secured to the hood, a pair of shafts journaled on said brackets, and an agitator on each of said shafts adjacent to the mouth of the conduit.

REISSUES.

12,331. PUMP. PHILIP H. DEIS, Washington, D. C., assignor, by direct and mesne assignments, to Deis Pump Company, a Corporation of the District of Columbia. Filed Nov. 12, 1904. Serial No. 232,549. Original No. 705,047, dated July 22, 1902.

Claim.—1. In a pump, the combination, with the main conducting-pipe for the liquid to be elevated and with reciprocating liquid-elevating means in said pipe, of a fluid-containing receptacle, a buoyant body normally sustained elevated by the fluid in said receptacle and connected with the liquid-elevating means for movement therewith, a pendulum, and operative connecting means between the pendulum and the liquid-elevating means, substantially as described.



2. In a pump, the combination, with the main conducting-pipe for the liquid to be elevated and with reciprocating liquid-elevating means in said pipe, of a fluid-containing receptacle, a buoyant body normally sustained elevated by the fluid in said receptacle, and a pendulum, said pendulum, said liquid-elevating means and the buoyant body being operatively connected together, substantially as described.

3. In a pump, the combination, with the main conducting-pipe for the liquid to be elevated and with reciprocating liquid-elevating means in said pipe, of a fluid-containing receptacle penetrated vertically by said pipe, a buoyant body surrounding said pipe and normally sustained elevated by the fluid in said receptacle, and a pendulum, said pendulum, the liquid-elevating means and the buoyant body being operatively connected together, substantially as described.

4. In a pump, the combination, with the main conducting-pipe for the liquid to be elevated and with reciprocating liquid-elevating means in said pipe, of a fluid-containing receptacle having an opening in its bottom wall, said pipe extending vertically through said opening, a guiding-sleeve secured to the bottom of said receptacle about the opening and receiving said pipe, an annular float surrounding said sleeve and normally sustained elevated by the fluid in said receptacle, and a pendulum, said pendulum, the liquid-elevating means and the float being operatively connected together, substantially as described.

5. In a pump, the combination, with the main conducting-pipe for the liquid to be elevated and with reciprocating liquid-elevating means in said pipe, of a fluid-containing receptacle, a buoyant body normally sustained elevated by the fluid in said receptacle, a pendulum, said pendulum, said liquid-elevating means and the buoyant body being operatively connected together, and means for imparting periodic impulses to the pendulum, substantially as described.

6. In a pump, the combination, with the main conducting-pipe for the liquid to be elevated and with reciprocating liquid-elevating means in said pipe, of a fluid-containing receptacle, a buoyant body normally sustained elevated by the fluid in said receptacle, a pendulum, said pendulum, said liquid-elevating means and the buoyant body being operatively connected together, and electromagnetic means for imparting periodic impulses to the pendulum, substantially as described.

7. In a pump, the combination of the main conducting-pipe for the liquid to be elevated, liquid-elevating means in said pipe, a pendulum, operative connecting means between the pendulum and the liquid-elevating means, and electromagnetic means for imparting periodic impulses to the pendulum and comprising electrically interconnected electromagnets, contact-points arranged in duplicate and electrically connected each with a magnet, a battery, a pivoted circuit-maker and breaker adapted to be actuated by either of said magnets at a time and to engage either of said contact-points at a time, conductors connecting the battery with the said circuit maker and breaker and the battery with the electromagnets, armatures adapted to be attracted by said magnets and to move said circuit maker and breaker out of engagement with the adjacent contact-points, and operative connecting means between the pendulum and said armatures, substantially as described.

8. The combination of the main conducting-pipe for the liquid to be elevated, a pump-piston, a fluid-containing receptacle, separate from the conducting-pipe, a buoyant body sustained by and partially submerged in the fluid in said receptacle and means for suspending said piston from the buoyant body, substantially as described.

12,332. MATCH. BARTHOLOMEW JACOB, New Rochelle, N. Y. Filed Feb. 20, 1905. Serial No. 246,646. Original No. 763,670, dated June 28, 1904.



Claim.—As a new article of manufacture, a combination match and igniter comprising an ordinary match or fusee and a tubular casing, the tubular casing surrounding but only partially inclosing the match or fusee and being detachably connected therewith, being open at both ends, shorter than the match or fusee, the head being inclosed and allowing the other end of said match or fusee to protrude, provided with a rubbing compound which is located in the path of travel with the head of the match or fusee whereby the match or fusee is ignited when the end of the said match or fusee is pressed or pushed through the end of the tubular casing, substantially as described.

12,333. NUT-LOCK. MASON P. CARPENTER, Mexico, Mo. Filed Feb. 24, 1905. Serial No. 247,199. Original No. 779,118, dated Jan. 3, 1905.



Claim.—1. A nut-lock, comprising a locking-plate having provision for engaging a nut to prevent the same from turning on it, said locking-plate being provided with a bolt-opening, and having an annular series of flexible bolt-engaging V-shaped points surrounding the bolt-opening and separated by intervening notches, and normally set at an angle to the body portion of the locking-plate to permit the latter to be placed on a bolt and provided with cutting edges arranged transversely of the threads, said points being of a thickness in excess of the width of a single groove of the threads of the bolt, and the circle described by their apexes when they are set at an angle being greater than the diameter of the bolt, and less than the same when they are arranged in the same plane as the locking-plate, whereby they are caused to embed themselves in the threads of the bolt, the apexes of the points terminating short of the body portion of the bolt to enable said points to plow through the threads, thus permitting the nut of the bolt to be screwed farther inward on the same, substantially as described.

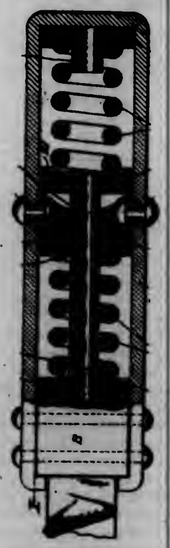
2. A nut-lock comprising a locking-plate having a normally flat body-surface and provided with a bolt-opening having around it an annular series of inwardly-projecting V-shaped points separated by intervening notches and normally set at an oblique angle to the flat body, said points being substantially wedge-shaped and provided with cutting edges adapted to plow through the threads of a bolt when the points are sprung down into the plane of the body of the locking-plate by the contact of a nut, said plate having around its periphery on different sides, a series of cuts or slots forming tapered tongues normally lying in the plane of the body and adapted to be upwardly bent to contact the side of the nut when screwed to place, in combination with a threaded bolt of less total diameter than the opening between the points when in normal bent position, and greater total diameter than the opening when the points are sprung into the plane of the body.

3. A nut-lock comprising a circular locking-plate provided with a bolt-opening having around it a series of inwardly-projecting points normally set at angle of convergence toward one another, said points being adapted to bite into the threads of the bolt when the points are sprung down into the same plane with one another, said round plate having around its periphery on different sides a plurality of cuts or slots, adjacent slots being inwardly cut toward each other in reverse direction, said cuts or slots forming tapered tongues normally lying in the plane of the body and adapted to be upwardly bent to contact one of the sides of the nut when screwed to place in combination with a threaded bolt of less total diameter than the opening between the points when in normal angular position and greater total diameter than the opening when the points are sprung into the plane of the body of the locking-plate, substantially as described.

4. A nut-lock comprising a circular locking-plate provided with a bolt-opening having around it a series of inwardly-projecting points normally set at angle of convergence toward one another, said points being adapted to bite into the threads of the bolt when the points are sprung down into the same plane with one another, said round plate having around its periphery on different sides a series of cuts or slots forming tapered tongues normally lying in the plane of the body and adapted to be upwardly bent to contact the sides of the nut when screwed to place in combination with a threaded bolt of less total diameter than the opening between the points when in normal position, and greater total diameter than the opening when the points are sprung into the plane of the body, substantially as described.

5. A nut-lock comprising a locking-plate provided with a bolt-opening having around it a series of inwardly-projecting points normally set at an angle of convergence toward one another, said points being adapted to bite into the threads of the bolt when the points are sprung down into the same plane with one another, said plate having around its edge on different sides a series of diagonal cuts or slots forming tongues normally lying in the plane of the body and adapted to be upwardly bent to contact the sides of the nut when screwed into place in combination with a threaded bolt of less total diameter than the opening between the points when in normal position and greater total diameter than the opening when the points are sprung into the plane of the body, substantially as described.

12,334. DRAFT-RIGGING. ARTHUR LIPSCHUTZ, St. Louis, Mo., assignor of one-half to MAX TOLTZ, St. Paul, Minn. Filed Nov. 2, 1903. Serial No. 179,644. Original No. 733,169, dated Mar. 17, 1903.



Claim.—1. The draft-rigging comprising, in combination, a car-coupler, a tail-strap therefor, provided with a division-plate, cushion-springs, fore and aft followers for each, stationary follower-stops, and a central stem extending between the forward followers of the two cushion-springs, substantially as described.

2. The combination of a tail-strap attached to the coupler-shank and having a division-plate, with forward and rear cushion-springs, fore and aft follower-plates for each spring, stationary stops for said plates and a stem extending forward from the forward follower of the rear cushion and attached to the forward follower of the front cushion, substantially as described

3. The combination of a strap 2', with a plate 5 secured therein and provided with a central opening, cushion-springs, followers 8, 9, 10 and 11 and a stem 19 on said follower 10, extending through the opening in said plate and connected with the follower 8, substantially as described.

4. In a draft-rigging, the combination of a strap with a plate 5, rivets 6, 6 securing the same to said strap, follower-plates 8, 9, 10 and 11, cushions between the followers 8, 9, 10 and 11 and a stem 19 joining the followers 8 and 10 and extending through said plate 5, and the follower 9, substantially as described.

5. In a draft-rigging, in combination, a draw-bar, unconnected followers, for draft movement only, positively-connected followers for buffing movement only, springs in tandem, each said spring being arranged between one of the connected and one of the unconnected followers, and means permitting the designated movements of said connected and said unconnected followers respectively and preventing other movements thereof, substantially as described.

6. In a draft-rigging, the combination of a draw-bar, with a tail-strap extending rearwardly thereof and connected therewith, unconnected followers within said strap, wherewith said strap is adapted to engage for draft only, suitably-connected followers also within said strap and otherwise wholly independent of said strap, for buffing movement only, stops for both said unconnected followers, and a stop for one only of said connected followers, substantially as described.

7. In a draft-rigging, in combination, draft-sills provided with stops, a draw-bar, a tail-strap connected therewith and extending rearwardly thereof, helical springs in tandem inclosed in said strap, unconnected followers operating against respective stops and wherewith said strap engages for draft only, and connected followers independent of said strap, for buffing movement only, said connected followers operating against one of said stops only, substantially as described.

8. In a draft-rigging, the combination of the draft-sills, having stops, with a draw-bar, a tail-strap attached thereto, helical springs arranged in tandem within said tail-strap, followers at each end of each helical spring, three of said followers being adapted to abut against said stops and an abutting connection between the fourth follower and the foremost of said followers, substantially as described.

9. In a draft-rigging, the combination with a draw-bar of the tail-strap 2', having the partition-plate 5, stops 13, 14 and 15, followers 9 and 11 abutting on stops 14 and 15, and followers 8 and 10 connected and abutting said stop 13, substantially as described.

10. In a draft-rigging, the combination of the draft-sills 22, having stops 13, 14 and 15, with the draft-bar 2, followers 9 and 11, abutting against stops 14 and 15, followers 8 and 10 abutting against stop 13 and the tail-strap for moving said followers 9 and 11, substantially as described.

11. In a draft-gear, the combination of draft-sills 22, having stops 13, 14 and 15, with the draft-bar 2, the tail-strap 2' having the partition-plate 5, follower 9 abutting against stop 14 for buffing, and against the partition-plate 5 for draft, followers 8 and 10 connected and abutting against stop 13 for draft, and against the draw-bar 2 for buffing, and follower 11 abutting against stop 15 for buffing, and engageable with said tail-strap 3 for draft, substantially as described.

12. In a draft-rigging, the combination of a draw-bar and its tail-strap with the sills, three pairs of stops thereon, two followers inclosed by said strap and each engaging a pair of said stops, other followers also inclosed within said strap, means rigidly connecting the last-mentioned followers, one of said last-mentioned followers engaging the remaining pair of stops, and springs in tandem, each arranged between one of the first-mentioned followers and one of the last-mentioned followers, and said strap being adapted to engage and move said first-mentioned followers when draft is exerted on said draw-bar, substantially as described.

DESIGNS.

37,381. LEAD-PENCIL TIP. BYRON B. GOLDSMITH, New York, N. Y. Filed Dec. 22, 1903. Serial No. 186,360. Term of patent 14 years.



Claim.—The ornamental design for a lead-pencil tip, as shown.

37,382. BACK FOR HAND-MIRRORS, BRUSHES, OR SIMILAR ARTICLES. MARCUS T. GOLDSMITH, New York, N. Y. Filed Feb. 9, 1905. Serial No. 244,973. Term of patent 14 years.



Claim.—The ornamental design for a back for hand-mirrors, brushes or similar articles, as shown.

37,383. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, Brooklyn, N. Y. Filed Feb. 27, 1905. Serial No. 247,620. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

37,384. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, Brooklyn, N. Y. Filed Feb. 27, 1905. Serial No. 247,621. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

37,385. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, Brooklyn, N. Y. Filed Mar. 2, 1905. Serial No. 248,158. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

37,386. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, Brooklyn, N. Y. Filed Mar. 2, 1905. Serial No. 248,159. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

TRADE-MARKS

REGISTERED MARCH 28, 1905.

44,344. WATCH-GLASSES AND SPECTACLE AND EYEGLASS LENSES. ALBERT BENDER & Co., New York, N. Y. Filed Mar. 1, 1905.

W.B.&C.

The letters and character "W. B. & C." Used since January 1, 1865.

44,345. TYPE-WRITER RIBBONS AND CARBON-PAPERS. THE CARTER'S INK COMPANY, Boston, Mass., and New York, N. Y. Filed Feb. 16, 1905.



A monogram comprising the letter "C" vertically crossed by the letter "I," and inside of which, imposed upon the "I," written in smaller type, are the letters "CO," arranged, respectively, above and below a horizontal panel crossing the "C" and the "I," on which is written the word "IDEAL," all being inclosed within a circle and centered upon a background of contrasting color. Used since December 15, 1904.

44,346. CERTAIN NAMED PREPARATIONS FOR THE TEETH. DR. J. A. DRANE COMPANY, Kingston, N. Y. Filed Dec. 6, 1904.

KREMO

The word-symbol "KREMO." Used since December 11, 1903.

44,347. REMEDIES FOR CERTAIN NAMED DISEASES. DR. T. W. WOOD MEDICINE COMPANY, Des Moines, Iowa. Filed Nov. 18, 1904.

WOOD'S



The name "WOOD'S" associated with the portrait of T. W. Wood, deceased. Used since 1878.

44,348. CERTAIN NAMED INTERNAL REMEDIES. FRITZ JACOBSON, Brooklyn, N. Y. Filed Feb. 24, 1905.

SALUSOL

The word "SALUSOL." Used since December 5, 1904.

44,349. SOLUBLE SULFUR AND SULFUR IN LIQUID FORM FOR CERTAIN NAMED PURPOSES. SOL SUL CHEMICAL CO., New York, N.Y. Filed Feb. 6, 1905.



A diamond-shaped figure bearing the compound word "SOL-SUL," which is surrounded by double border-lines of diamond form. Used since December 1, 1904.

44,350. INK. THE CARTER'S INK COMPANY, Boston, Mass., and New York, N. Y. Filed Feb. 16, 1905.



The representation of a seal, with a broken rounding edge securing a folded ribbon, on which seal is centrally imposed the representation of an old ink-horn crossed by a quill, and around the edge of the seal, surrounding the ink-horn and quill, is the representation of a circular sprinkling of drying-sand. Used since February 1, 1902.

44,351. CERTAIN NAMED EXTRACTS FOR TANNING AND DYEING. CLINTON A. SPENCER, Boston, Mass. Filed Mar. 3, 1905.

QUERMOS

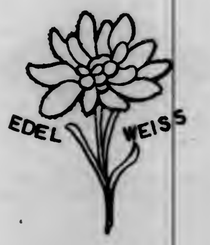
The word "QUERMOS." Used since June 9, 1899.

44,352. SEEDS, BULBS, AND PLANTS. HIRAM W. BUCKBEE, Rockford, Ill. Filed Feb. 29, 1905.



The representation of a bee and the words "FULL OF LIFE." Used since December 31, 1904.

44,353. ENAMELED STEEL AND IRON KITCHEN-WARE. THE ENTERPRISE ENAMEL CO., Bellaire, Ohio. Filed Mar. 6, 1905.



The representation of a flower known as "edelweiss," associated with the word "EDELWEISS." Used since March 1, 1904.

44,354. CERTAIN NAMED HEATING APPARATUS. ROBERT ERNEST ATKINSON, Leicester, England. Filed Dec. 20, 1904.

NUVACUUMETTE.

The word "NUVACUUMETTE." Used since June, 1903.

44,355. CENTRIFUGAL DUST-COLLECTORS. THE KNICKERBOCKER COMPANY, Jackson, Mich. Filed Oct. 28, 1904.

CYCLONE

The word "CYCLONE." Used since 1886.

44,356. EXPLOSIVE INTERNAL-COMBUSTION MOTORS AND GAS AND GASOLENE ENGINES. C. H. A. DIEDINGER & BRO., Wrightsville, Pa. Filed Dec. 31, 1904.

CAPITAL

The word "CAPITAL." Used since January, 1899.

44,357. WHISKY. READ BROTHERS, LIMITED, London, England. Filed Mar. 11, 1905.



The representation of a bull-dog's head and the words "DOG'S HEAD." Used since April, 1877.

PHOTO-LITHOGRAPHED BY
SACKETT & WILHELMS
LITHOGRAPHING & PRINTING CO.
330 FOURTH AVENUE
NEW YORK

LABELS

REGISTERED MARCH 28, 1905

11,978.—*Title:* "LITTLE FOLKS." (For Hose-Supporters.) CARSON, PIRIE, SCOTT & COMPANY, Chicago, Ill. Filed March 2, 1905.

11,979.—*Title:* "THE CODEX CIGAR." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 6, 1905.

11,980.—*Title:* "THE FORELOCK CIGAR." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 6, 1905.

11,981.—*Title:* "LEGAL VALUE." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 6, 1905.

11,982.—*Title:* "PANETELAS. (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed March 6, 1905.

11,983.—*Title:* "GRAND JURY BOX." (For Cigars.) H. O. WEGENER, Saginaw, Mich Filed March 1, 1905.

11,984.—*Title:* "LOWNEY CHOCOLATE." (For Chocolate Bonbons.) THE WALTER M. LOWNEY COMPANY, Boston, Mass. Filed March 1, 1905.

11,985.—*Title:* "TAMAR-INDIAN." (For Carbonated Beverages.) VINCENT TORTORELLO and MOSES GREENBERG, Philadelphia, Pa. Filed February 11, 1905.

11,986.—*Title:* "BREAKFAST BLEND." (For Coffee.) ADOLPH WILMANNS, Milwaukee, Wis. Filed March 2, 1905.

11,987.—*Title:* "SWANSDOWN." (For Gloss-Starch.) S. S. PIERCE CO., Boston, Mass. Filed March 6, 1905.

11,988.—*Title:* "SWANSDOWN." (For Corn-Starch.) S. S. PIERCE CO., Boston, Mass. Filed March 6, 1905.

11,989.—*Title:* "HORN BLOWERS TROMBONE VALVE & SLIDE OIL." (For Lubricating-Oil.) ROBERT PACKER LEONARD, Hazleton, Pa. Filed February 11, 1905.

11,990.—*Title:* "GENII OIL." (For Medicinal Oil.) HARRY W. HEINER, Chicago, Ill. Filed February 23, 1905.

11,991.—*Title:* "AMERICAN HAIR GROWER." (For Hair-Grower.) J. H. MAGEE, Chicago, Ill. Filed November 2, 1903.

11,992.—*Title:* "SCALPINE, NATURE'S OWN CURE." (For Medicine.) BURTON H. WARREN, Chicago, Ill. Filed February 16, 1905.

11,993.—*Title:* "SHELL HEAL." (For Medicine.) FRED KLEPSER, Buffalo, N. Y. Filed February 27, 1905.

11,994.—*Title:* "JAPANESE RHEUMATISM CURE, KAPSANG." (For Medical Preparations.) EDWARD F. PANGBURN, Battlecreek, Mich. Filed March 2, 1905.

11,995.—*Title:* "GERMAN HOG REMEDY." (For Hog Remedies.) EDWIN H. ALLISON and HUGH L. MARSHALL, Stronghurst, Ill. Filed March 2, 1905.

PRINTS

REGISTERED MARCH 28, 1905.

1,249.—*Title:* "ADLER'S NOBBY CLOTHES FOR SPRING." (For Men's Spring Apparel.) DAVID ADLER & SONS CLOTHING CO., Milwaukee, Wis. Filed March 6, 1905.

1,250.—*Title:* "BIRTHSTONES, RINGSIZES." (For Rings.) GEORGE BRUNSWICK, New York, N. Y. Filed February 27, 1905.

1,251.—*Title:* "U. S. BRIDGE WHIST SCORE PADS." (For Score-Pads.) THE UNITED STATES PLAYING CARD COMPANY, Cincinnati, Ohio. Filed March 6, 1905.

1,252.—*Title:* "C. C. C. TABLETS." (For Tablet Remedies.) CURTISS MANUFACTURING CO., Denver, Colo. Filed February 27, 1905.

1,253.—*Title:* "SANTA CLAUS." (For Signs.) BEMIS BRO. BAG CO., St. Louis, Mo. Filed February 10, 1905.

1,254.—*Title:* "THE WOODEN HEN WEATHERCOCK." (For Incubators.) GEORGE H. STAHL, Quincy, Ill. Filed March 6, 1905.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE PIEPER.

Decided February 25, 1905.

1. NOTICE OF ALLOWANCE NOT RECEIVED—FINAL FEE NOT ACCEPTED AFTER SIX MONTHS.

The allegation that notice of allowance was not received does not warrant the acceptance of the final fee more than six months after the date when the Office records indicate that the notice was sent.

2. SAME—OFFICE RECORDS ACCEPTED AS CORRECT.

The Office records indicating that notice was sent must be accepted as correct, notwithstanding an affidavit by the attorney that to the best of his knowledge it was not received at his office, since it may have been lost in the mails or in the attorney's office.

3. SAME—FAILURE OF REPLY SUFFICIENT NOTICE.

Where the applicant fails to receive a reply from this Office to an action taken by him, it is his duty to make an investigation earlier than eight months after the action.

ON PETITION.

REGULATORS.

Mr. Frederick F. Church for the applicant.

ALLEN, *Commissioner:*

This is a petition asking that the above-entitled forfeited application—

be reinstated, or reallowed, and that the accompanying check for $20 be applied in payment of the final Government fee thereon.

The Office records indicate that an amendment was filed by the attorney June 24, 1904, and the case was passed to issue and a notice of allowance was sent on August 3, 1904. The attorney now makes affidavit that to the best of his knowledge no notice of allowance was received at his office, and he asks that he be permitted to pay the final fee and secure the patent, notwithstanding the expiration of six months since the date when the records indicate that the notice was sent.

This Office has no authority to extend the six months allowed by statute for the payment of the final fee, and therefore could accept the present fee only by holding that no notice "was sent to the applicant or his agent." (Sec. 4885, R. S.)

It seems clear that the failure of the attorney to receive the notice may have been due to loss in the mails or by some employee of his office, and this seems just as likely as that the notice was not sent by this Office.

The records of the Office being in all respects regular must be accepted as correct in the absence of more conclusive evidence that the notice of allowance was not sent. (*Ex parte Haeseler and Taylor*, 101 O. G., 2826.)

It is to be noted that the statute requires merely that the notice shall be "sent," and it is to be noted further that the case does not become forfeited for six months thereafter. This gives the applicant ample time to make inquiries and discover the condition of his case, even when a notice sent is not received by him.

The situation here is like that in *ex parte Haeseler and Taylor, supra*, where it was said:

The fact that their records failed to show any reply to their amendment of March 1, 1902, should have been sufficient indication to the attorneys that there was some irregularity in the proceedings which justified an earlier investigation than one eight months after the date of the amendment.

* * * * * * * * *

No irreparable injury results from the holding that this case was regularly allowed, for the reason that it may be renewed upon the payment of the renewal fee of $15.

The petition is denied.

MILLER *v.* MILLER *v.* BACON *v.* MANN *v.* TORRANCE.
MILLER *v.* MANN *v.* BACON *v.* TORRANCE.

Decided March 2, 1905.

APPEAL FEES—TWO COMPANION INTERFERENCES.

Where a party has a single application involved in two companion interferences and both are dissolved by the Examiner on the ground that the claims are not patentable, *Held* that the party may appeal in both cases upon payment of a single appeal fee.

ON REFERENCE.

MACHINE FOR DAMPENING COLLARS.

Application of Henry C. Miller. Application of John Miller. Application of Frank M. Bacon. Application of Henry A. Mann. Application of Albert M. Torrance.

Mr. Alex. Selkirk and *Mr. John Imrie* for Henry C. Miller.

Messrs. Marion & Marion for John Miller.

Mr. Arthur E. Dowell for Bacon.

Mr. Wm. W. Morrill and *Messrs. Alexander & Dowell* for Mann.

Mr. Franklin Scott and *Messrs. Bacon & Milans* for Torrance.

ALLEN, *Commissioner:*

It appears that the application of Torrance is involved in two interferences, and in these interferences motions were made to dissolve on the ground that the claims of Torrance constituting the issues of the interferences were unpatentable. The Examiner granted the motion, and Torrance has filed appeals in the two cases, but has paid only one appeal fee, and the question is presented whether the two appeals should be forwarded and considered.

The two appeals are in separate interferences, but they relate to the patentability of claims in a single application. If those claims had been rejected, an appeal could have been taken as to all of them for a single fee, and the same thing would have been true if they had been involved in a single interference. It is not the fault of the applicant that his claims are in two interferences instead of one, and

this should not deprive him of the right to have the question of patentability considered on appeal by the payment of a single Office fee.

The two appeals should be forwarded.

GOODFELLOW *v.* JOLLY.

Decided March 15, 1905.

1. NOTICE OF MOTION—SERVICE ON SATURDAY AFTERNOON NOT VOID.

Held that a notice of a motion in an interference case received on a Saturday afternoon in the District of Columbia is valid, notwithstanding the fact that Saturday afternoon is a legal holiday.

2. SAME—SAME—SUFFICIENT NOTICE.

Where it appears that a notice of a motion was delivered by private messenger on a Saturday afternoon and received by a clerk in the office of counsel and counsel himself actually received the notice on Monday afternoon, which was ample time to prepare for the hearing on motion, *Held* that the notice was good and that the motion should be entertained.

3. MOTION TO EXTEND TIME OF TAKING TESTIMONY—DECISION OF EXAMINER OF INTERFERENCES FINAL.

Where the Examiner of Interferences grants a motion to extend times for taking testimony, *Held* that his decision is final, and no limit of appeal should be set.

APPEAL on motion.

BEET-HARVESTER.

Application of Moore Goodfellow. Application of Charles L. Jolly.

Mr. Harry A. Toulmin for Goodfellow.

Messrs. Dewey, Strong & Co., and *Mr. T. Walter Fowler* for Jolly.

ALLEN, *Commissioner:*

This is an appeal by Jolly from a decision of the Examiner denying his motion to dismiss a motion brought by Goodfellow for an extension of thirty days from January 27, 1905, for the purpose of taking his rebuttal testimony.

The Examiner denied the motion to dismiss and granted Goodfellow's motion for an extension of time in which to take his rebuttal testimony. The reasons presented by Goodfellow for asking for an extension of thirty days within which to take his rebuttal testimony were considered by the Examiner of Interferences, and they were rightly held by him to be sufficient to warrant the grant of his motion. As stated by the Examiner of Interferences:

> As to the merits, it appears that the testimony in behalf of Jolly was taken in California, Goodfellow's attorney not being present, and that this testimony was filed in the Patent Office and accessible to counsel for Goodfellow upon January 23, 1905. Goodfellow states that he wishes sufficient time to read this testimony and determine what rebuttal evidence, if any, it will be necessary for him to present. This contention is a reasonable one and it is held that he should have sufficient time for this purpose.

The sole ground for this appeal is the technical one that the notice served upon counsel for Jolly by counsel for Goodfellow was void, it being left by private messenger at the office of counsel on a Saturday afternoon. The decision of the Court of Appeals of the District of Columbia in *Ocumpaugh* v. *Norton* and *Gallagher* v. *Hien* (114 O. G., 545) is cited in support of the contention that Saturday afternoon is a legal holiday in the District of Columbia, and therefore *dies non juridicus*.

It has been held that the laws of 1887, chapter 289, State of New York, making Saturday afternoon a half-holiday do not prevent the service of papers on a Saturday afternoon. (*Nichols* v. *Kelsey*, 20 Abb. N. C., 14.) These laws provide that Saturday afternoon shall be considered as Sunday and as public half-holidays "for all purposes whatsoever, as regards the transaction of business in the public offices." The court held that these provisions of law do not prohibit the service of a writ of mandamus on a Saturday afternoon, as such service was not the transaction of business in the public offices. (*People* v. *Board of Supervisors*, 50 Hun., 105.)

Moreover, it appears that the hearing on the motions was had on the Wednesday following, and that counsel for Jolly was present in conformity with the notice, and that he himself actually received the notice on Monday morning. There is no question but that the notice on Monday was ample time in which to prepare for the hearing on the motion. Whether the notice was received at the office of counsel for Jolly on Saturday afternoon by a private messenger or through the United States mails by an official letter-carrier is believed not to invalidate the notice which counsel for Jolly acknowledges to have received on Monday morning when he arrived at his office. It appears from the affidavit filed by counsel for Jolly that his office was open on Saturday afternoon in charge of his clerk and that his clerk received the notice from the hands of the private messenger sent there by counsel for Goodfellow. As counsel for Jolly actually received notice on Monday, and as Monday was ample time, it is held that the Examiner of Interferences was right in entertaining the motion on the following Wednesday.

The record of this interference is full of motions and appeals which are raised on technical points, which serve no other purpose than to delay the final hearing of this case. The setting of times for taking testimony is peculiarly within the discretion of the Examiner of Interferences. It is he who has sole control of the setting of times for taking testimony when an interference is originally declared, and there is no reason why he should not have as complete a control over the granting of motions to extend those times. It is believed that the practice will be greatly simplified if the Examiner of Interferences hereafter on granting a motion to extend times for taking testimony should not set a limit of appeal from that decision. Under the practice now in force his decisions on such questions will be reversed only in extreme cases, and then only when it appears that great hardship will ensue unless his decision be reversed. It is believed that the final hearing of interference cases will be greatly expedited, and consequently that it will be to the interest of all parties concerned, if the Examiner of Interferences in granting motions for extensions of times for taking testimony should not set a limit of appeal from such decisions. The practice in such cases is modified to this extent.

The decision of the Examiner of Interferences is affirmed.

EX PARTE WILLITS.

Decided March 16, 1905.

1. AMENDMENTS—NEW MATTER—INOPERATIVE DEVICE.

New matter cannot be inserted in a case by amendment simply because the invention originally shown is inoperative and the amendment will make it operative. (*Ex parte Snyder*, 22 O. G., 1975, construed.)

2. SAME—SAME—SAME—PATENT LIMITED TO ORIGINAL DISCLOSURE.

The patent cannot include new matter, but must be limited to the disclosure in the original application. Other improvements cannot be included, whether they are intended to make the device operative or merely to make it perform its functions better.

3. SAME—SAME—CLERICAL ERRORS.

Mere clerical or draftsman's errors may be corrected where the errors are clear from the application itself; but changes cannot be made in the application based upon allegations of fact not shown by the record.

ON PETITION.

COMBINATION-VALVES.

Mr. Robert D. Kinney for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring the applicant to cancel the following, inserted by amendment of November 30, 1904:

> said valve-disk being provided with a small port or opening to allow the passage of steam through same, when closed, for the purpose of restoring pressure upon its exit side when having been closed by a too quick full opening of the cock 22, as also after its closing by the fall in pressure in the pipe 29 hereinafter mentioned.

The Examiner objects to the above-quoted paragraph on the ground that it includes new matter not disclosed in the application as filed. The petitioner practically admits that this matter was not disclosed originally, but contends that it is necessary to make the device operative and that he is entitled to disclose it under the practice announced in *ex parte Snyder*, (22 O. G., 1975.)

There is nothing in *ex parte Snyder* which warrants the conclusion that new matter may be inserted in a case whenever it is done for the purpose of making operative a supposedly inoperative device. New matter is no more admissible for that purpose than for any other purpose. It seems perfectly clear that if new matter were admitted for that purpose applicants could come to this Office with their applications before perfecting their inventions and before having a well-defined conception of an operative device and by subsequent experiments and amendments based thereon so change their applications as to cover inventions made after the applications were filed. The law is well settled that the patent should include only the invention as disclosed in the application as filed. Subsequent discoveries and improvements cannot be included therein, whether those improvements are intended to make the device operative or merely to make it perform its functions better.

Mere clerical or draftsman's errors may be corrected where the errors are clear from the application itself; but changes cannot be made in the application based upon allegations of fact not shown by the record.

In the present case it is by no means certain that the "small port or opening" referred to in the objectionable amendment is necessary to make the device operative. If that device is now inoperative, it could be made operative in other ways. The applicant should not be permitted to describe at this late date that specific construction, since if it would be perfectly obvious to one reading the original description there is no necessity for the specific description, and if it would not be obvious it clearly includes matter not suggested originally.

The petition is denied.

OSBORN *v.* AUSTIN.

Decided March 16, 1905.

MOTION TO REOPEN INTERFERENCE—TESTIMONY NOT RELATING TO PRIORITY—MOTION DENIED.

Where the question of priority of invention has been decided in favor of the senior party on the ground that the junior party has failed to file his testimony within the time assigned for that purpose, *Held* that the case will not be reopened and the junior party permitted to file his testimony when it appears that the testimony which has been taken relates in no way to the question of priority of invention, but solely to the right of the opposing party to make the claims of the issue.

APPEAL on motion.

COMPUTING-SCALES.

Application of Francis C. Osborn. Application of Stephen J. Austin.

Messrs. Fisk & Thomas and *Mr. George C. Shoemaker* for Osborn.

Messrs. Church & Church for Austin.

ALLEN, *Commissioner:*

This is an appeal by Osborn from the decision of the Examiner of Interferences denying his motions to permit Osborn to file his testimony and to vacate judgment and grant a rehearing upon the question of priority of invention.

It appears from the record that priority of invention was decided in favor of Austin on December 19, 1904, as Osborn had failed to file his testimony within the time assigned for that purpose. (Rule 119.) It appears in the record that part of the testimony to be used in favor of Osborn consists of the record of the case of *Osborn* v. *Austin*, No. 20,515. While this portion of the testimony was, of course, on file in the Office before the date of final hearing, Osborn failed to file a complete record before that date. It is contended by Osborn that the Examiner of Interferences should have at least considered that part of the testimony which was taken in the previous interference when he rendered his decision in this case. The Examiner of Interferences states in his decision—

> * * * it appears from an inspection of the testimony which has been filed that it consists solely of the deposition of one witness, Louis Jaenichen, and relates in no way to priority of invention, but solely to the right of Austin to make the claims in issue; and Fisk in his affidavit states that he "desires to refer to the testimony in the preceding interference for the purpose of showing that the issues in this interference are improperly credited to the said Austin and that the said Austin's application is not a sufficient disclosure of the invention set up in the issues to entitle him to the claims in issue." It is quite apparent from this affidavit that Osborn does not intend to contest the question of priority, but that his sole purpose is to raise the question of Austin's right to make the claims. This is a matter which should have been raised upon motion to dissolve before testimony was taken. It forms no reason for a rehearing upon the question of priority, and it is clearly not a sufficient reason for the reopening of a decided case and the introduction therein of testimony not relating to priority.

The above statement is a clear exposition of the facts and of the law applicable to those facts, and the Examiner of Interferences was right in denying the motions.

The decision of the Examiner of Interferences is affirmed.

EX PARTE FALKENBERG.

Decided March 17, 1905.

1. TRADE-MARKS—"MATTAWAN"—GEOGRAPHICAL WORD.

The word "Mattawan" refused registration as a trade-mark, since its geographical meaning outweighs any fanciful meaning which may be ascribed to it.

2. SAME—SAME—INDIAN WORD—MEANING NOT GENERALLY UNDERSTOOD.

While the word "Mattawan" has a meaning in the Indian language which would render it arbitrary if understood, such meaning would not be known to the general public, but only to students of the Indian languages.

ON APPEAL.

TRADE-MARK FOR WEARING-APPAREL.

Messrs. C. A. Snow & Co. for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Mattawan" as a trade-mark for shirts.

The Examiner has refused registration for the reason that in his opinion the word "Mattawan" has a geographical meaning which outweighs any fanciful meaning which may be ascribed thereto.

He states that—

The word "Mattawan," also written "Matawan," is the name of a village in Van Buren county, Michigan, and also of a well-known village of Monmouth county, New Jersey, which is near the city of New York, where applicant resides and does business.

There is on file in the record of the case a letter from the Bureau of American Ethnology, Smithsonian Institution, in which it is stated that—

* * * the term "Mattawan" is derived from the Algonquin Indian language and has the meaning "the shallows," referring to the shallows of a stream. The name may also be applicable to a sand bar in a stream.

While the word "Mattawan" is of Indian origin, it is believed that its significance as such is known only to students of Indian languages and cannot, therefore, be held to have to the general public an arbitrary significance which outweighs the geographical meaning which is to be ascribed to it.

The decision of the Examiner of Trade-Marks is therefore affirmed.

IN RE MYGATT.

Decided March 20, 1905.

1. SECRECY OF APPLICATION—COPY NOT FURNISHED BECAUSE OF INTERFERENCE.

A copy of a pending or abandoned application will not be furnished to a party having no interest merely because he was once involved in an interference with that application

2. SAME—COPY NOT FURNISHED BECAUSE USEFUL IN SUIT.

A party cannot obtain a copy of a pending or abandoned application merely because he thinks it would be of assistance to him in a suit which he has brought against the applicant for infringement.

IN the matter of the petition of Otis A. Mygatt for permission to secure a certified copy of an application of Alexander P. McArthur.

Messrs. Dyer & Dyer for Mygatt.

Mr. Emil Starek and *Mr. Vernon M. Dorsey* for McArthur.

ALLEN, *Commissioner:*

This is a petition by Otis A. Mygatt that he be granted permission to secure a certified copy of the application for patent of Alexander P. McArthur, to which reference is made by serial number and date of filing.

The petitioner states that on November 29, 1904, he was granted a patent, No. 776,079, for reflector for prism-glass, and that at one time the application upon which the patent was granted was placed in interference with the application of McArthur which has been cited above. It further appears that the interference was finally decided in favor of Mygatt, in consequence of which his patent was issued. Mygatt further states that he is about to commence suit against Alexander P. McArthur for infringement of the Patent No. 776,079 and that he—

intends to request the court to grant a preliminary injunction on said patent against the said McArthur.

It is stated that a copy of McArthur's pending application is desired only—

to enable the court to thoroughly understand the invention of the aforesaid Letters Patent No. 776,079 and of the aforesaid application of McArthur * * * which was involved in the interference before mentioned, and in order to become fully informed as to the facts regarding said interference, it is material and necessary that he be allowed access to and to secure certified copies of the files and of such application of McArthur.

In *ex parte Warner* (96 O. G., 1238) substantially the same facts existed, and it was held that—

A party derives no right to see an application from the fact that he was at one time involved in an interference with it. After the conclusion of the interference he stands upon the same footing as third parties and must establish his right derived from other sources.

Mygatt therefore is not entitled to obtain a copy of the pending application of McArthur because he was at one time in interference with the same. Neither does the mere fact that he intends to bring suit against McArthur entitle him to obtain copies of McArthur's pending application. This application of McArthur does not form a part of the record upon which a patent has been granted to McArthur. Mygatt merely states that he intends to bring suit against McArthur and that he is of the opinion that a copy of McArthur's application would be of use to him in prosecuting this suit. From the present showing no reason appears why the rule of secrecy should be removed with regard to the McArthur application. As stated in *Metropolitan West Side Elevated Railroad Company* v. *Siemens*, (85 O. G., 290,) quoted with approval in *ex parte Warner, supra:*

As a general rule it will probably be found to be safer to require an order or certificate from a court of competent jurisdiction before furnishing parties with copies of pending or abandoned applications.

No order or certificate has been filed in this case.

The petition is denied.

FULLER v. JONES.

Decided March 22, 1905.

1. INTERFERENCE—LACK OF DILIGENCE—RESPONSIBILITY OF MINOR.

Where a party who was a minor seeks to excuse his lack of diligence in perfecting the invention by the allegation that his guardian would not permit him to work on it, *Held* that the excuse is insufficient, and the opposing party, who was the first to reduce the invention to practice, must be regarded as the first inventor.

2. SAME—SAME—SAME.

A minor cannot claim the benefit of all that he does during his minority and at the same time avoid responsibility for all that he fails to do in regard to the same matter.

3. SAME—SAME—SAME—SHIFTING RESPONSIBILITY TO GUARDIAN.

The responsibility for the lack of diligence by a minor must rest upon some one and cannot be suspended during his minority, and therefore if he shifts the responsibility to his guardian we must look to the action of the guardian to determine whether there was reasonable diligence.

APPEAL from Examiners-in-Chief.

STEAM-TURBINES.

Application of Percy W. Fuller. Application of Charles M. Jones.

Mr. Charles S. Gooding and *Mr. Charles F. Perkins* for Fuller.

Messrs. Wiedersheim & Fairbanks for Jones.

ALLEN, *Commissioner:*

This is an appeal by Fuller from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Jones.

The Examiner of Interferences held that Jones was the first to conceive, as well as the first to reduce to practice, and was therefore to be regarded as the first inventor, whereas the Examiners-in-Chief held that Fuller was the first to conceive, but the last to reduce to practice, and that he was lacking in diligence.

It is admitted that there was no actual reduction to practice by Fuller, and since his filing date was more than one year after the filing date of Jones he can prevail only by showing prior conception and reasonable diligence thereafter up to the time of the filing of his application. It is very clear from the record that he was lacking in diligence, and therefore it is unnecessary to pass upon the question whether he was the first to conceive the invention.

During a part of his delay Fuller was a minor, and during the balance he was dependent upon his mother for money with which to complete his education, and it is stated that his mother would not permit him to spend money and time developing this invention. This excuse is not sufficient, for the reasons fully stated in a companion interference, where it was said:

Fuller cannot avoid the responsibility for his delay after he became of age by the fact that he was dependent upon his mother for the money with which to complete his education. As above pointed out he apparently made no effort to induce her to assist him or to induce others to do so during the time which is vital in this case. He was certainly responsible for his lack of diligence after he became of age and it is not believed that he can be excused on the ground of coercion by his guardian when a minor. Under the patent laws a minor may perform the acts which entitle him to a patent and may make the application in his own name. His rights are no greater and no less than those of a person who is of age. The first to reduce the invention to practice is *prima facie* the first inventor and his right can be overcome, whether by a minor or an adult, only by showing prior conception and diligence in subsequent reduction to practice. If a minor seeks to avoid responsibility for delay by the statement that his guardian was responsible we must look to the conduct of the guardian to determine whether or not proper diligence was exercised. In other words, *some one* must be responsible. He cannot plead that the guardian was authorized by law to decide and act for him and, at the same time avoid the effects of her action. The interests of the public and other inventors are at stake and they are not to be deprived of their rights by a suspension of responsibility during the minority of a rival inventor. The minor cannot claim the benefit of all that he does during minority and at the same time avoid responsibility for all that he fails to do in regard to the same matter.

The decision of the Examiners-in-Chief awarding priority of invention to Jones is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

IN RE DILG.

Decided February 7, 1905.

1. AMENDMENT OF APPLICATION—NEW MATTER NOT PERMITTED.

An applicant in his endeavor to protect his invention may amend the specification and claims so long as he keeps within the requirements of the statutes and the rules of the Patent Office; but he cannot be permitted at any time to introduce new matter into his application and obtain therefor a date as of the date of the original application.

2. SAME—SAME—CLAIMS PROPERLY REJECTED.

Held that the Commissioner was right in rejecting the appellant's claims to a ball-retaining ring, because they do not correctly describe his invention, but include new matter borrowed from a patent granted to another party.

3. SAME—SAME—CLAIMS NOT CORRESPONDING WITH ORIGINAL DISCLOSURE.

Where the appellant originally disclosed standards springing from both edges of the annular base and according to the original disclosure both were necessary, *Held* that an amendment claiming a base having standards springing from one edge *only* involves new matter.

4. SAME—SAME—SAME.

Where the original case disclosed the top pieces of the standards with straight sides, *Held* that an amendment stating that those top pieces are sector-shaped or flaring involves new matter.

5. USE OF AMBIGUOUS TERMS CONDEMNED—SIMPLE INVENTION.

Since the appellant's ball-retaining ring is a simple invention, there is no warrant for introducing ambiguous terms, thereby failing to clearly and correctly describe it.

Mr. J. S. Barker for the appellant.

Mr. John M. Coit for the Commissioner of Patents.

DUELL, *J.:*

These two appeals from the decision of the Commissioner of Patents, presenting a similar question and based upon an original application and a division thereof, can be well considered together.

They do not present the question of patentability, but rather the right of appellant to make certain claims in the two applications, the former of which, as before stated, is divisional to the latter.

The records disclose that the appellant on October 18, 1897, filed the original application known as Serial No. 655,652, for an improvement in ball-bearings. While that application was in process of examination, and on February 16, 1900, he filed the second application as a division of the former and it is known as Serial No. 5,434. Both applications were repeatedly rejected, in whole or in part, and as often amended. It was not until by the amendment of August 27, 1903, that the claims in controversy of the parent application were submitted and an interference requested with Patent No. 686,617, issued November 12, 1901, upon an application filed December 23, 1897, by Henry B. Keiper.

The claims in controversy of the divisional application first appeared in an amendment filed September 1, 1903. These claims were copied from Patent No. 686,617 and an interference therewith requested.

It appears, therefore, that nearly six years elapsed between the filing of the parent application and the presentation of the claims in controversy, and that the patent with which interferences were requested had been issued nearly two years prior to the request therefor.

Before proceeding to consider the question presented by the two appeals, it may be premised that while we do not question the right of an applicant, in his endeavor to protect his invention by apt claims, to amend the specification, including thereunder the claims, as long as he keeps within the requirements of the statutes and the rules of the Patent Office based thereon, he is not permitted at any time to introduce new matter into his application and obtain therefor a date as of the date of the original application. The reasons for this are too obvious and well known to require enumeration. It is the duty of the Commissioner of Patents to reject all claims, a basis for which is not found in the application as originally filed.

In *Railway Co.* v. *Sayles* (97 U. S., 554) the Supreme Court, in referring to attempts to add to or vary the original application by amendment, said:

It will be observed that we have given particular attention to the original application, drawings, and models filed in the Patent Office by Thompson and Bachelder. We have deemed it proper to do this, because, if the amended application and model, filed by Tanner five years later, embodied any material addition to or variance from the original—anything new that was not comprised in that—such addition or variance cannot be sustained on the original application. The law does not permit such enlargement of an original specification, which would interfere with other inventors who have entered the field in the meantime, any more than it does in the case of reissues of patents previously granted. Courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed, or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration, or to appropriate that which has, in the meantime, gone into public use.

With this rule laid down for the guidance of the Patent Office and this court, we are to consider in each case before us whether the Commissioner of Patents was right in rejecting the claims in question because the applications as filed did not furnish a legal basis for their allowance, or, in other words, whether the claims in question embodied new matter.

In separately considering the two appeals we prefer to first take up appeal No. 273, for the reason that the application to which it relates is the parent application, rather than in the order in which the appeals were taken.

The claims in appeal No. 273 are as follows:

6. A ball-retaining device for ball-bearings consisting of a ring-shaped portion or base having flaps with extensions which are laterally enlarged to produce pointed ends, the flaps being upwardly and the extensions outwardly bent, in combination with balls held on the base in the spaces created by said flaps and their extensions, substantially as set forth.

7. A ball-retaining device for ball-bearings consisting of a ring-shaped portion or base having flaps with top-retaining portions or extensions which are laterally enlarged to produce pointed ends, the said flaps extending upwardly from the base and the extensions extending outwardly, in combination with balls held on the base in the spaces created by the said flaps and the top retaining extensions.

8. A sheet-metal ball-retaining device for ball-bearings consisting of a ring-shaped portion or base from which extend standards which in turn carry ball-retaining extensions, such extensions being laterally enlarged to produce pointed ends, the standards extending upward relative to the base and the extensions outward, in combination with balls held on the base in the spaces formed by the said standards and extensions.

9. A ball-retaining device for ball-bearings comprising a base portion, a series of top retaining members for the balls arranged substantially parallel with the base and disposed so as to separate the recesses for the individual balls, the oppositely-disposed edges of which top retaining portions, bounding the recesses, are concave, and intermediate connecting parts between the said base and top ball-retaining portions, the whole being constructed and arranged to retain the balls so they shall project from the bearing in the inner and outer and upper directions.

10. A ball-retaining device for ball-bearings comprising a corrugated ring having a series of base-supports for the balls and a series of top retaining portions located practically parallel with the said base-supports and connected therewith, the oppositely-disposed edges of which top retaining portions are concave, the whole being constructed and arranged to retain the balls so they shall project from the bearing in the inner and outer and upper directions.

A careful examination of the specification and drawing as originally filed shows conclusively that there is no warrant found therein for these claims. By an amendment to the specification filed October 5, 1903, appellant attempted to insert matter upon which he could predicate his appealed claims. The terms set forth in this amendment do not correctly describe the appellant's invention and are borrowed from the Keiper patent. The invention is a simple one and there is no warrant for introducing ambiguous terms, thereby failing to clearly and correctly describe it The Patent Office was justified in objecting to the use of terms such as "ring-shaped base," "standards or flaps," and "flanges or extensions," as they do not correctly describe elements of construction found in the thing as first described and shown.

Referring specifically to claim 6, it may fairly be said that the following elements of the claim are not disclosed in the application as filed, *i. e.* "ring-shaped portion or base," "flaps with extensions which are laterally enlarged to produce pointed ends."

The Examiners-in-Chief, in their opinion, fully and fairly state what appellant discloses in his application and analyze the claims, demonstrating conclusively that they are unwarranted and inapplicable to the construction disclosed by him. In view of the fact that appellant cannot now file a new application and make the claims in controversy, we might be inclined, if we had any doubt as to his right to make the claims in the present application to resolve such doubt in his favor, but there is no room for doubt. The action of the Patent Office was correct and the reasons are so fully disclosed by the opinions of the various tribunals that there is no necessity for us to elaborate our views.

The claims appealed in No. 272, which appeal relates to the divisional application Serial No. 5,434, are as follows:

14. A ball-retaining device for ball-bearings consisting of a ring-shaped portion or base having a series of standards springing from one edge thereof only and provided with sector-shaped or flaring angularly-arranged extensions, whereby suitable spaces are formed for receiving and confining the balls between adjacent standards.

15. A ball-retainer consisting of an annular base portion and a series of integral parts extending from one edge only of said base and having flaring portions arranged at an angle thereto, whereby suitable spaces are formed for receiving balls which are sprung into said spaces and confined between said parts.

16. A ball-retaining device for ball-bearings, consisting of a ring-shaped portion or base having a series of standards springing axially from one edge thereof only and terminating in sector-shaped or flaring angularly-arranged flanges or extensions, whereby suitable spaces are formed for receiving and confining the balls between adjacent standards.

The ground of rejection of these claims is, as before stated, that they are unwarranted by the drawing or description as originally filed and consequently embody new matter.

Has appellant the right to make these claims, or, as asserted in the Patent Office, is he debarred from making the claims because the various elements are neither shown nor described in the application as filed? After an examination of the record, our conclusion is that he has no right to make these claims in the present application.

The original application disclosed "standards" springing from both edges of an annular base, and we fail to find the slightest intimation that appellant contemplated the omission of either series of standards. The construction disclosed required the employment of both series of standards in order to retain the balls. All the claims in controversy have as an element a series of standards or integral parts extending from one edge of the annular base portion *only*. This is such a radical departure from the invention as originally shown and described that it is clearly unwarranted and, standing by itself, would have been sufficient ground for the adverse action of the Office. There is, however, another fatal departure from the original disclosure. In the amendment of October 5, 1903, the appellant injects into the specification a statement, in substance, that these standards have extensions or top pieces which are "sector-shaped or flaring." He originally disclosed only straight-sided extensions, and the change is clearly not warranted by anything found in the drawing.

For the reason that appellant's device, as filed, failed to disclose the "sector-shaped" top pieces and standards on one side *only* of the ring-shaped base, he is not justified in amending his specification in the respect stated, nor in presenting the claims in controversy.

The decisions of the Commissioner of Patents in both appeals are correct and we must affirm them.

The opinion and the proceedings in the two causes in this court will be certified to the Commissioner for record in his office, according to law.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Trade-Marks	None.	
Labels	32	No. 11,996 to No. 12,027, inclusive.
Prints	5	No. 1,255 to No. 1,259, inclusive.
Reissues	2	No. 12,335 to No. 12,336, inclusive.
Total issue	581	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	.....	Nevada	.....	.....
Alaska Territory	.....	.....	New Hampshire	3	.....
Arizona Territory	.....	.....	New Jersey	16	1
Arkansas	.....	.....	New Mexico Ter'y	.....	.....
California	30	.....	New York	66	10
Colorado	5	.....	North Carolina	1	.....
Connecticut	4	.....	North Dakota	1	.....
Delaware	.....	.....	Ohio	35	3
District of Columbia	9	.....	Oklahoma Territ'y	1	.....
Florida	.....	.....	Oregon	.....	.....
Georgia	8	.....	Pennsylvania	51	5
Hawaii Territory	.....	.....	Porto Rico	.....	.....
Idaho	1	1	Rhode Island	5	.....
Illinois	56	3	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	4	.....
Indiana	13	.....	Tennessee	2	2
Iowa	12	.....	Texas	14	.....
Kansas	6	.....	Utah	1	1
Kentucky	6	.....	Vermont	.....	1
Louisiana	5	.....	Virginia	1	.....
Maine	3	.....	Washington	4	.....
Maryland	2	1	West Virginia	2	.....
Massachusetts	34	2	Wisconsin	27	3
Michigan	22	3	Wyoming	.....	.....
Minnesota	9	.....	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	12	.....	Total to citizens of the United States	480	37
Montana	4	.....			
Nebraska	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Netherlands	.....	.....
Austria-Hungary	3	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	2	.....
Brazil	.....	.....	New Zealand	2	.....
Canada	9	.....	Norway	.....	.....
Cape Colony	.....	.....	Persia	.....	.....
Chile	.....	.....	Queensland	.....	.....
China	.....	.....	Roumania	.....	.....
Costa Rica	.....	.....	Russia	1	.....
Cuba	.....	.....	San Salvador	.....	.....
Danish West Indies	.....	.....	Scotland	2	.....
Denmark	1	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	1	.....
England	13	.....	Sweden	2	.....
France	7	.....	Switzerland	1	.....
Germany	17	.....	Transvaal, South Africa	.....	.....
India	.....	.....	Victoria	.....	.....
Ireland	.....	.....	Western Australia	.....	.....
Italy	1	.....	Total to citizens of foreign countries	62	.....
Japan	.....	.....			
Java	.....	.....			
Mexico	.....	.....			

Disclaimer.

733,611.—*George H. Alton*, Lynn, Mass. BEARING FOR ELECTRIC METERS. Patent dated July 14, 1903. Disclaimer filed March 30, 1905, by the assignee, the *General Electric Company*, a Corporation of New York.

Enters its disclaimer—

"To that part of said Letters Patent which is in the following words, to wit:

"3. In a measuring instrument, a shaft, a screw-tip therefor having a gripping-face to facilitate removal, and a hardened point.

"4. In a measuring instrument, a shaft, a screw-tip therefor having a portion of its sides flattened to facilitate removal from the shaft, and a hardened point.

"11. In a bearing for a measuring instrument, a carrier and a jewel-support within the carrier having a clearance-space between its side or sides and its carrier.

"17. In a bearing for an electric-meter shaft, a jewel-support having flattened sides, and a projection at its end for centering the spring by which the jewel-support is supported.

"22. In a measuring-instrument bearing, a jewel-support and a carrier therefor, said jewel-support carrying a jewel in its end and having flattened sides to provide a clearance-space between the same and its carrier.

"23. A bearing for a measuring-instrument shaft, comprising a casing, a jewel, a jewel-support, and a spring supporting the jewel-support loosely mounted within the casing, said jewel-support being formed to provide a clearance between it and the casing.

"24. In a measuring instrument, the combination of a shaft, a removable end piece for the shaft having a gripping-surface to facilitate removal from the shaft, and a removable jewel-carrier providing when withdrawn an opening to permit detachment and withdrawal of the end piece."

Trade-Marks.

It is proposed to publish after April 1, 1905, an additional number of separate leaflets containing the trade-mark portion of the OFFICIAL GAZETTE for more convenient examination and to sell such copies at the rate of five cents for each weekly issue. Coupons will be taken in payment therefor.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 28, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Mar. 6	Mar. 15	132
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 6	Mar. 6	278
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Mar. 2	Mar. 1	420
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Store-Service, Tobacco etc.	Mar. 2	Feb. 16	281
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Mar. 1	Feb. 27	271
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Surgery, Tents, Toilet, Umbrellas.	Mar. 1	Feb. 16	474
329	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Mar. 1	Jan. 28	561
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels, Photography.	Feb. 28	Mar. 13	302
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Feb. 28	Feb. 20	192
	Between one and two months.			
327	XVIII. Steam-Engineering, etc....	Feb. 27	Mar. 1	220
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Feb. 25	Mar. 2	278
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Feb. 25	Jan. 25	412
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Feb. 24	Jan. 18	633
304	XXXIV. Railways, Railway-Brakes, Rolling-Stock.	Feb. 23	Feb. 20	395
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 21	Dec. 16	440
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Feb. 17	Jan. 30	373
321	I. Tillage, etc., Fences, and Railway Draft Appliances.	Feb. 16	Feb 15	233
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Feb. 15	Feb. 13	229
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Harness, Ladders, Mechanical Motors, and Paper Manufactures.	Feb. 6	Jan. 5	503
109	XVI. Telegraphy and Telephony..	Jan. 31	Jan. 20	251
148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Jan. 30	Mar. 1	408
379	XXIII. Accoustics, Coin-Handling, Horology, Recorders, Registers, Optics, Signals, Time Controlling Mechanism.	Jan. 28	Feb. 8	496

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Jan. 28	Jan. 27	588
	Between two and three months.			
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Jan. 27	Jan. 7	411
332	X. Carriages and Wagons.....	Jan. 25	Feb. 28	463
137	VIII. Beds, Chairs, Furniture, Kitchen and Table Articles, Store Furniture.	Jan. 23	Jan. 23	685
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working.	Jan. 19	Feb. 18	404
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Jan. 18	Jan. 16	349
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Jan. 18	Nov. 23	647
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks. Sheet-Metal Ware, Making, Tools, Wire-Working.	Jan. 17	Dec. 5	403
154	XI. Boot and Shoe Making, Boots, Shoes, and Leggings, Button, Eyelet, and Rivet Setting, Leather Manufacturing, Nailing and Stapling, Check-Controlled Apparatus, Whips and Whip Apparatus.	Jan. 14	Jan. 17	394
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 14	Jan. 13	589
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Jan. 12	Nov. 26	763
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors, Pumps, Sewerage, and Water Distribution.	Jan. 9	Jan. 26	582
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Jan. 7	Jan. 14	324
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Dec. 30	Dec. 20	777
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Cutlery, Dentistry, Locks and Latches, Safes, Undertaking.	Nov. 16	Nov. 16	645

Total number of applications awaiting action..... 15,806

Room No.		New.	Amended	No. of applications awaiting action.
	Under one month.			
159	XXXIII. Designs, Trade-Marks, Labels and Prints.			
	Designs.....	Mar. 13	Mar. 21	11
	Trade-Marks.....	Mar. 8	Mar. 27	13
	Labels and Prints.....	Mar. 28	Mar. 28	....

Renewal of Forfeited Cases.

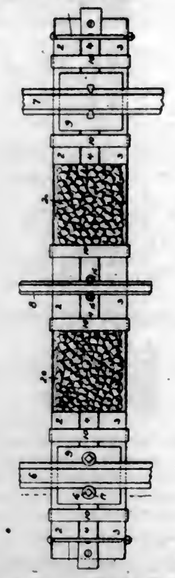
RULE 175. When the patent has been withheld by reason of non-payment of the final fee, any person, whether inventor or assignee, who has an interest in the invention for which such patent was ordered to issue may file a renewal of the application for the same invention; but such second application must be made within two years after the allowance of the original application. * * *

RULE 176. In such renewal the oath, petition, specification, drawing, and model of the original application may be used or the second application; but a new fee ($15) will be required. * * *

PATENTS

GRANTED APRIL 4, 1905.

786,254. **RAILWAY-TIE.** JOHN S. ALEXANDER, New York, N. Y. Filed Mar. 14, 1904. Serial No. 197,958.



Claim.—1. The combination of a metallic railway-tie of angular cross-section, open at the top, with wooden rail-supporting blocks, each composed of upper and lower sections fitted together, the upper section being divided longitudinally, substantially as specified.

2. The combination of a metallic railway-tie consisting of a beam or bar open at the top, wooden rail-supporting blocks confined to said tie, and cushions interposed between said rail-supporting blocks and the tie, substantially as specified.

3. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, with rail-supporting blocks confined to said tie, and each consisting of a series of sections, with cushions interposed between the blocks and the tie and also between the sections of the blocks, substantially as specified.

4. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, with wooden rail-supporting blocks confined to said tie, and discontinued some distance above the apex of the angle at the base of the tie, so as to provide a drainage-passage at the bottom of the tie, substantially as specified.

5. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, rail-supporting blocks fitted to said tie, and retaining-straps enveloping said tie and its contained blocks, and having bent ends for engaging with the ballast in which the tie is embedded, substantially as specified.

6. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, rail-supporting blocks fitted to said tie, confining-straps for said blocks, and wedges interposed between the blocks and the tie, and serving to force said blocks into contact with the confining-straps, substantially as specified.

7. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, rail-supporting blocks fitted to said tie, confining-straps for said blocks, and wedges interposed between the blocks and the tie, and serving to force said blocks into contact with the confining-straps, said wedges being recessed to form drainage-openings at the base of the tie, substantially as specified.

8. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, rail-supporting blocks fitted to said tie and receiving the rail-fastenings, and transverse bolts engaging the tie and preventing lateral displacement of said blocks, and of the fastening devices carried thereby, substantially as specified.

9. A metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, and having its upper edges ribbed or thickened, substantially as specified.

10. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section, open at the top, and having its upper edges ribbed or thickened, rail-supporting blocks fitted to said tie, and transverse bolts crossing the tie and engaging the thickened edge portions of the same, said bolts providing a bearing for the rail-supporting blocks and preventing lateral displacement of the same, substantially as specified.

11. The combination of a metallic railway-tie consisting of a bar or beam of angular cross-section open at the top, rail-supporting blocks fitted to said tie and receiving the rail-fastenings, and transverse bolts engaging the tie and crossing the same at the outer ends of the blocks, said bolts bearing upon and preventing outward lateral displacement of said blocks, substantially as specified.

12. The combination of a rail-support having a tapering opening therein, greater in diameter at the bottom than at the top, with a dowel-pin fitted to said openings, and a rail-securing device engaging said dowel-pin, substantially as specified.

13. The combination of a rail-support having an opening therein, a dowel-pin engaging said opening and receiving the rail-fastening device, and a sleeve interposed between said dowel-pin and the rail-support, substantially as specified.

14. The combination of a rail-support having an opening therein, a dowel-pin engaging said opening and receiving the rail-fastening device, and a sleeve interposed between said dowel-pin and the rail-support, said sleeve being split so as to permit of expanison and contraction, substantially as specified.

15. The combination of a rail-support having an opening therein, a dowel-pin engaging said opening and receiving the rail-fastening device, and a sleeve interposed between said dowel-pin and the rail-support, said sleeve being corrugated horizontally, substantially as specified.

16. The combination of a railway-tie having an opening therein, a dowel-pin fitted to said opening, a rail-securing device engaging said dowel-pin, and an elastic medium which resists upward movement of the dowel-pin, substantially as specified.

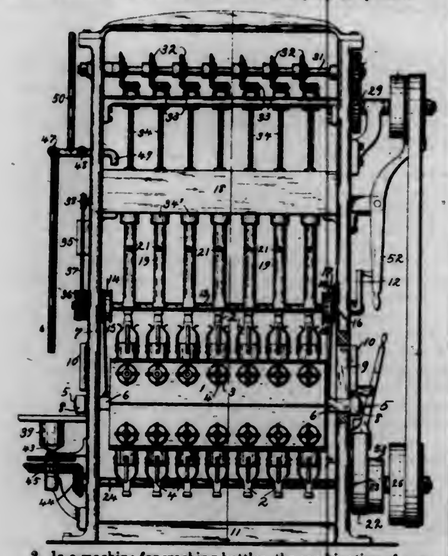
17. The combination of a railway-tie having an opening therein, a rail-bearing plate mounted upon said tie, a dowel-pin fitted to the opening in the tie, a rail-securing device engaging said dowel-pin, and an elastic medium interposed between the top of the dowel-pin and the rail-bearing plate, substantially as specified.

18. The combination of a railway-tie having an opening therein of other than circular cross-section, a dowel-pin fitted to said opening and a rail-securing device engaging said dowel-pin, substantially as specified.

786,255. **BOTTLE-WASHING MACHINE.** JOSEPH ANGELETTI, Milwaukee, Wis. Filed June 25, 1904. Serial No. 214,069.

Claim.—1. In a machine for washing bottles, the combination of a revoluble bottle-rack comprising a plurality of bottle-supporting surfaces; means for holding the bottles in place upon said bottle-rack; a rack-supporting shaft; slidable journal-bearings for revolubly supporting said shaft at its respective ends; means for raising and low-

ering said bottle-rack; a plurality of brushes revolubly supported above said bottle-rack; a water-reservoir; a plurality of brush-inclosing ducts having slidable bearings at their upper ends through the bottom of said reservoir, said ducts being provided with apertures through which the water in the reservoir is permitted to enter the same and pass from thence to the bottles supported upon said bottle-rack; revoluble shafts connected with the upper ends of said brushes and means for communicating motion from the motive power to said shafts, whereby all of said brushes may be simultaneously operated, substantially as, and for the purpose specified

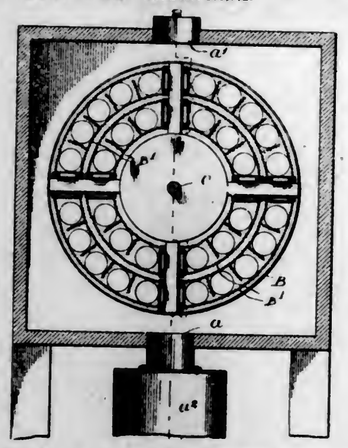


2. In a machine for washing bottles, the combination of a revoluble bottle-rack comprising a plurality of bottle-supporting surfaces; means for holding the bottles in place upon said bottle-rack; a bottle-rack-supporting shaft; means for revolubly supporting said shaft at its respective ends in movable journal-bearings; means for revolving said bottle-rack on its longitudinal axis; means for raising and lowering said rack; a plurality of brushes revolubly supported above said bottle-rack; a water-reservoir; a plurality of brush-inclosing ducts having slidable bearings at their upper ends through the bottom of said water-reservoir, said ducts being provided with apertures through which the water in the reservoir is permitted to enter the same and pass from thence to the bottles supported upon said bottle-rack; revoluble shafts connected with the upper ends of said brushes; and means for communicating motion from the motive power to said shafts; substantially as set forth.

3. In a machine for washing bottles, the combination of a revoluble rectangular bottle-rack; a plurality of bottle-receptacles secured to each of the several sides of said bottle-rack; a plurality of bottle-retaining clamping-arms secured to each of said receptacles for retaining the bottles therein; a rack-supporting shaft provided at its respective ends with movable journal-bearings; means for raising, lowering and revolving said bottle-rack; a plurality of brushes revolubly supported above said bottle-rack; a plurality of brush-inclosing ducts having slidable bearings through the bottom of said water-reservoir, said ducts being provided with apertures through which the water in the reservoir is permitted to enter the same and pass from thence to the bottles supported upon said bottle-rack; revoluble shafts connected with the upper ends of said brushes and means for communicating motion from the motive power to said shafts, whereby all of said brushes may be simultaneously operated, substantially as, and for the purpose specified.

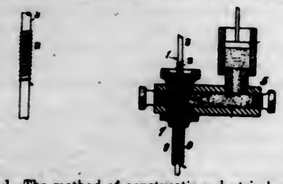
4. In a machine for washing bottles, the combination of a revoluble bottle-rack; means for holding bottles in place upon the respective sides of said bottle-rack; a rack-supporting shaft; means for revolubly supporting said shaft at its respective ends in journal-bearings; means for raising and lowering said bottle-rack; a water-reservoir located above said bottle-rack; a plurality of slidable ducts suspended in slidable bearings from said reservoir; a plurality of revoluble shafts located in said ducts; a plurality of collapsible brushes suspended from said shafts; means for communicating motion from a motive power to said shafts and collapsible brushes; means for raising said bottle-rack with the bottles thereon in connection with said slidable ducts, said ducts being adapted to retain said brushes in their collapsed forms so as to enter the necks of the bottles as they are raised; means for communicating a rotary movement from the motive power to said brushes and means for simultaneously opening communication between said water- reservoir and said brush-retaining tubes and supplying the bottles with water as they are being washed, all substantially as and for the purpose specified.

786,256. INCUBATING METHOD. HARRIS W. AXFORD, Chicago, Ill. Filed Nov. 4, 1903. Serial No. 179,772.



Claim.—The herein-described improvement in the art of incubation which consists in warming the eggs for the required time and keeping them in practically continuous rotation during the period of incubation, whereby each germ is brought successively in contact with all parts of the nourishing material of the egg.

786,257. ELECTRIC HEATER AND METHOD OF MANUFACTURING SAME. MURRAY C. BEEBE, Pittsburg, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed May 14, 1900. Serial No. 16,601.



Claim.—1. The method of constructing electric heaters which consists in winding a conductor around a flexible core, applying plastic, refractory material to form a tubular, inclosing sheath, bending the article thus formed into the desired shape and then hardening the sheath.

2. The method of constructing electric heaters which consists in coiling a conductor around a flexible core, applying plastic, refractory and non-conducting material as a tubular, inclosing sheath, bending the article thus formed to the desired shape and finally hardening the envelop and removing the core.

3. The method of constructing electric heaters which consists in coiling a flexible conductor around a combustible core of suitable form and dimensions, forming a non-conducting, tubular envelop in close contact with said core and coil and completely covering the coil and subjecting the resulting article to a sufficiently high temperature to destroy the core and harden the envelop.

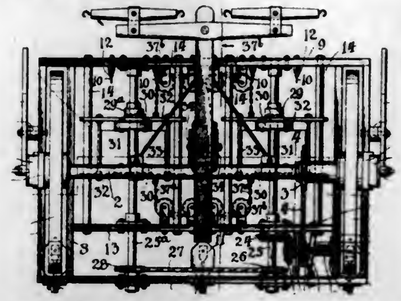
4. The method of constructing electric heaters which consists in coiling a flexible conductor around a flexible, combustible core of suitable form and dimensions, forming a non-conducting envelop in close contact with said core and coil and completely covering the latter, bending the resulting article to the desired form and then subjecting it to a sufficiently high temperature to destroy the core and harden the envelop.

5. An electric heater for lamp-glowers comprising a wire helix and a thin, open-ended tube of non-conducting, refractory material in the inner surface of which the said wire helix is wholly or partially embedded.

6. An electric heater for lamp-glowers, comprising a conducting-coil of helical form and a tubular supporting and protecting envelop the internal diameter of which is substantially equal to that of the coil and the external diameter of which is slightly greater than that of the coil.

7. The method of constructing an electric heater which consists in winding resistance-wire in the form of an open helix around a core, then applying a tubular sheath of plastic, heat-resisting material, then hardening the sheath and finally removing the core.

786,258. BEET-CHOPPER. EDWARD BELL, Teeswater, Canada. Filed Apr. 9, 1904. Serial No. 202,343.

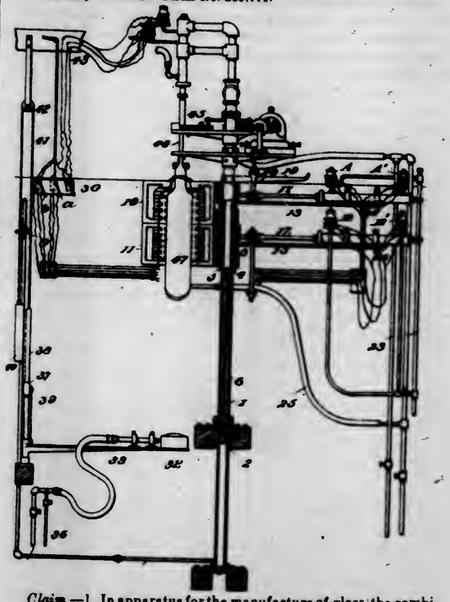


Claim.—1. In a device of the character described, the combination comprising wheels; an axle rigidly secured to the wheels; a frame supported by the wheels, composed of side members disposed outside the wheels, longitudinal members disposed inside of the wheels, a transverse member secured to said longitudinal members, and longitudinally-disposed tie-rods extending from said transverse member to the front of the frame; means secured on the outer ends of the axle for securing vertical adjustment of the frame; actuating mechanism composed of a sprocket on said axle, a transverse shaft, a sprocket thereon, a chain connecting said sprockets, a longitudinal shaft driven by said transverse shaft, a second longitudinal shaft, sprockets on said longitudinal shafts, a chain connecting said sprockets and a bearing for said longitudinal shafts on said transverse member and the front of the frame; mechanism connecting said transverse shaft and the sprocket thereon, composed of a clutch, a lever actuating the clutch, a ratchet on the lever, and a pawl cooperating with the ratchet; and, rotary cutters composed of parallel disks and oppositely-arranged cutting-blades disposed intermediate of said disks.

2. In a device of the character described, the combination comprising wheels; an axle rigidly secured to the wheels; a frame supported by the wheels; a driven shaft disposed transversely of the frame; a longitudinal shaft geared to said transverse shaft; a second longitudinal shaft actuated by said first longitudinal shaft; longitudinal tie-rods; yokes disposed transversely of the frame and slidably connected to the tie-rods; cutting members, composed of two disks and blades secured intermediate of the disks, rotatable on said longitudinal shafts; a clutch on one of said disks and a clutch on each of said longitudinal shafts; chains connected to said yoke, pulleys guiding the chains and a lever connected to the chains, the said yokes being connected to the said cutting members and arranged to move the same away from and toward the clutch members rigidly secured to said longitudinal shafts.

3. In a machine of the character described, a driving-shaft, a short counter-shaft, sprocket-wheels, a sprocket-chain driving said counter-shaft from the main driving-shaft, a clutch on said counter-shaft normally in engagement with a pawl, a ratchet adapted to hold said clutch out of engagement, longitudinally-extended rotatable shafts with clutches thereon, means for driving the same from said counter-shaft, and rotatable cutting-blades on said longitudinally-extended shafts, said cutting-blades being normally operative while the machine is being operable over the ground.

786,259. MACHINE FOR THE MANUFACTURE OF PLATE-GLASS AND CYLINDERS. ADOLPHE BOURNIQUE, Chesterton, Ind. Filed May 25, 1904. Serial No. 209,771.



Claim.—1. In apparatus for the manufacture of glass, the combination of a series of alined heaters or furnaces, each composed of movable sections, means for opening and closing the sections of the respective heaters, and other means for relatively moving the heaters, substantially as set forth.

2. In apparatus of the character described, the combination of a vertical support, an upper heater or furnace mounted on said support, a lower heater or furnace slidable upon said support, and means for vertically adjusting the lower heater and holding the same in the required position, substantially as described.

3. In apparatus of the character described, the combination of a vertical support, a heater or furnace mounted thereon, a second heater or furnace vertically movable upon said support, a motor-cylinder in axial alinement with said vertical support and connected with the lower heater to effect vertical movement thereof, and means for supplying motive medium to said motor-cylinder to effect adjustment of the lower heater and to hold the same in the required position, substantially as specified.

4. In combination, a hollow column having its lower portion constituting a motor-cylinder and having a longitudinal slot in a side, a piston movable in the motor-cylinder, a cross-head connected with the piston-rod and operating in said column and having a portion extended through the slot in the side thereof, a heater slidable upon the column, and means connecting said heater with the cross-head to cause simultaneous movement thereof, substantially as set forth.

5. In combination, a hollow column having a motor cylinder at its lower end, a sectional heater secured to said column, a sleeve slidable upon the column and controlled in its vertical movements by the aforesaid motor-cylinder, and a second heater composed of sections hinged upon the said sleeve, substantially as set forth.

6. In combination, a hollow column having a motor-cylinder at its lower end, a heater composed of sections hinged upon said column, a sleeve slidable upon the column and controlled in its vertical movements by means of said motor-cylinder, a second heater composed of sections hinged upon said sleeve, independent motor-cylinders connected with the sections of the respective heaters for opening and closing the same, and means for controlling the supply of motive medium to the motor-cylinder at the lower end of the hollow column to move the lower heater to the required elevation and hold the same in the adjusted position, substantially as set forth.

786,260. MAIL-BAG DELIVERER. NEWTON K. BOWMAN, North Lawrence, Ohio. Filed July 7, 1904. Serial No. 215,630.

Claim.—1. In a mail-sack deliverer, the combination of a movable supporting-arm, a delivery-arm adapted for horizontal movement and supported by the supporting-arm, a bracket projected from the support and coöperating to position the delivery-arm, sack-supporting means carried by the delivery-arm, and means carried by the supporting-arm for effecting disengagement of the mail-sack from the delivery-arm.



2. In a mail-sack deliverer, the combination of a supporting-arm provided at its outer end with spaced members, a delivery-arm pivoted for horizontal movement upon the supporting-arm, and a supporting member projected from the delivery-arm and coöperating with the spaced members of the supporting-arm.

3. In a mail-sack deliverer, the combination of a supporting-arm, a delivery-arm pivoted for horizontal movement upon the supporting-arm, a supporting member projected from the delivery-arm to carry the mail-sack, and means carried by the supporting-arm for effecting disengagement of the mail-sack from the supporting member of the delivery-arm.

4. In a mail-sack deliverer, the combination of a vertical and horizontal adjustable supporting-arm, a delivery-arm movably mounted on said supporting-arm, and sack-supporting means carried by the delivery-arm.

5. In a mail-sack deliverer, the combination of a guide-bar having vertical and horizontal portions, a supporting member adjustable upon the vertical and horizontal portions of the guide-bar, a delivery-arm pivoted to the supporting-arm, and a sack-supporting extension projected from the delivery-arm.

6. In a mail-sack deliverer, the combination of a car, a vertical guide-bar, a supporting-arm mounted upon said guide-bar, a delivery-arm pivoted to the supporting-arm, and a bracket projecting from the car and coöperating with the supporting-arm to properly position the same.

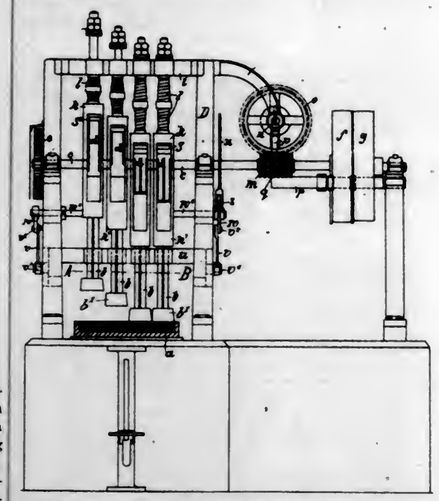
7. In a mail-sack deliverer, the combination of a car, a supporting-arm mounted upon the car, a bracket projected from the car, a supporting member extending from the bracket to support the supporting-arm, an engaging member projected from the bracket and coöperating with the supporting-arm, and a delivery-arm pivoted to the supporting-arm.

8. In a mail-sack deliverer, the combination of a car, a supporting-arm pivoted between its ends to the car, a bracket projected from the car, an engaging member extended from the bracket and coöperating with the inner end of the supporting-arm, a supporting member projected from the bracket and coöperating with the supporting-arm, and a delivery-arm pivoted to the outer portion of the supporting-arm.

9. In a mail-sack deliverer, the combination of a car, a supporting-arm pivoted to the car, a delivery-arm pivoted to the supporting-arm, sack-supporting means carried by the delivery-arm, and means for preventing pivotal movement of the supporting-arm when the delivery-arm is in operative position.

10. In a mail-sack deliverer, the combination of a car, a supporting-arm pivoted to the car at a point between its ends, a bracket projected from the car, a supporting member projected from the bracket and coöperating to hold the supporting-arm in operative position, an engaging member coöperating with the inner end of the supporting-arm, a lug projected from the supporting member and engaging the supporting-arm to prevent pivotal movement thereof, spaced members extended from the outer end of the supporting-arm, a delivery-arm pivoted to the supporting-arm between its ends, and a sack-supporting extension projected from the delivery-arm.

786,261. MACHINE FOR MAKING ARTIFICIAL STONE. FLORENTIUS BRICETA, Holsminden, Germany. Filed July 19, 1904. Serial No. 217,177.



Claim.—A machine for making artificial stone composed of a mold, a shaft, a series of fingers mounted thereon at different angles, plungers adapted to be engaged by the fingers, a slidable rail adapted to engage the plungers, and means for locking the rail in its raised position, substantially as specified.

786,262. BADGE-BUTTON. GEORGE H. BROOKS, Louisville, Ky., assignor, by mesne assignments, to Abraham Knobel and F. H. Kappa, Louisville, Ky. Filed Dec. 21, 1903. Serial No. 186,058.

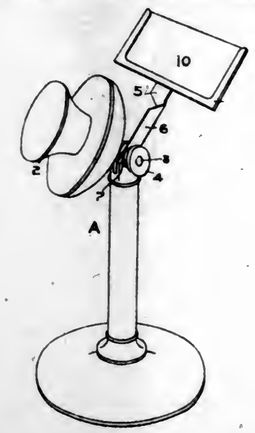


Claim.—1. In a badge-button, the combination with a back-plate having a pin-perforation near its periphery and an angular perforation formed by striking up the keeper for the point of the pin diametrically opposite said pin-perforation, of a securing-pin comprising a pin-pointed shank protruding from said pin-perforation, and an integral erective and tension-spring portion extending in zigzag form across the inner side of said back-plate, the blunt end of which passes through said angular perforation formed by striking up the keeper for the point of the pin and having its blunt end lying on and pressing against the outer side of said back-plate, substantially as specified.

2. In a badge-button, the combination of a back having a perforation for the pin, and a tongue or keeper for the point of the pin struck up in the body of said back, a perforation formed by striking up said tongue or keeper, and a pin having its blunt end portion bent at an angle and passing through said perforation formed by striking up said tongue or keeper, a zigzag portion lying close to and across the inner side of said back, and a pin-shank portion protruding from the said perforation for the pin, substantially as and for the purpose specified.

3. In a badge-button, the combination of a button-back having a pin-perforation and a keeper-perforation, and a pin having at its blunt end an angular cramping member for cramping in said keeper-perforation, an erective member extending in a zigzag fashion closely across the inner side of the central depressed portion of said back, said zigzag erective portion forming also a tension-spring for holding the shank of the pin firm in said perforations, and a pointed protruding pin portion, substantially as specified.

786,263. TELEPHONE ATTACHMENT. LOUIS A. BUNGARDNER, St. Paul, Minn., assignor of two-thirds to John Dale and Francis C. Peabody, St. Paul, Minn. Filed Aug. 16, 1904. Serial No. 220,987.



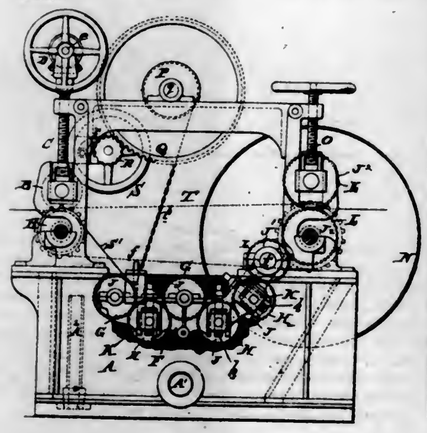
Claim.—1. The combination with a telephone-stand provided with a pivotally-supported mouthpiece, of a card-holding attachment having common pivotal support with said mouthpiece so as to be turnable in the same plane.

2. The combination with the transverse pivot of a telephone-stand, of a device engaging the pivot and provided with means for removably holding a card.

3. In combination a pivot carried by a telephone-stand, an attachment bent so that the upper end will stand at an angle with the lower end, the lower end being formed with an opening to receive the pivot and the upper end being provided with a transverse holder formed with a groove for receiving a card.

4. In combination with a transverse pivot of a telephone-stand, an attachment bent to bring the upper end into a plane transverse to that of the lower end, the lower end being formed with a slot to receive said pivot, and the upper end with means for removably holding a card.

786,264. MERCERIZING-MACHINE. HARRY W. BUTTERWORTH, Philadelphia, Pa., assignor to the H. W. Butterworth and Sons Company, a Corporation of Pennsylvania. Filed Oct. 26, 1899. Serial No. 734,797.



Claim.—1. In a mercerizing-machine, the combination of a vat, a pair of pressure-rolls for applying pressure to the fabric as it first enters the machine and a series of cylindrical pressure-rollers geared together and having their lines of contact at a point below the level of the mercerizing fluid in the vat and between which the fabric is drawn and with which it has continuous contact throughout the entire series, squeeze-rolls arranged at a higher level than the liquid in the vat for squeezing the excess of mercerizing fluid from the fabric before leaving the machine, means to vary the extent of pressure and distance between the pressure-rolls located in the vat, and a frame carrying said pressure-rolls and adjustably supported in the vat so as to be raised or lowered therein.

2. In a mercerizing-machine, the combination of a vat, a pair of pressure-rolls for applying pressure to the fabric as it first enters the machine, and a series of cylindrical pressure-rollers geared together and having their lines of contact at a point below the level of the mercerizing fluid in the vat and between which the fabric is drawn and with which it has continuous contact throughout the entire series, a frame adjustably connected with the vat and in which the pressure-rolls are journaled, means to adjust the position of the adjustable frame, power devices for positively rotating the series of rolls at the same surface speeds, and squeeze-rolls arranged at a higher level than the liquids in the vat for squeezing the excess of mercerizing fluid from the fabric before leaving the machine.

3. In a mercerizing-machine, the combination of a vat, a pair of pressure-rolls for applying pressure to the fabric as it first enters the machine a series of cylindrical pressure-rollers geared together and having their lines of contact at a point below the level of the mercerizing fluid in the vat and between which the fabric is drawn and with which it has continuous contact throughout the entire series, a frame carrying the pressure-rollers and journaled to the vat adjacent to the squeeze-rolls, power devices connecting the several pressure and squeeze rolls to cause them to travel at the same surface speeds, and means to adjust the pivoted frame to vary the depth of the pressure-rolls in the fluid in the vat, and squeeze-rolls arranged at a higher level than the liquid in the vat for squeezing the excess of mercerizing fluid from the fabrics before leaving the machine.

4. In a mercerizing-machine, the combination of the vat, a series of cylindrical pressure-rolls geared together so as to move at the same surface speeds and in contact to form a series of pressure-points and with which the fabric has contact throughout the entire series, an adjustable frame carrying said pressure-rolls and raising and lowering them in the vat, squeeze-rollers at a higher elevation to act upon the fabric after its treatment in the liquid by the pressure-rolls to remove the excess of fluid, and tension devices for putting the web of fabric under tension immediately prior to its being received by the pressure-rolls.

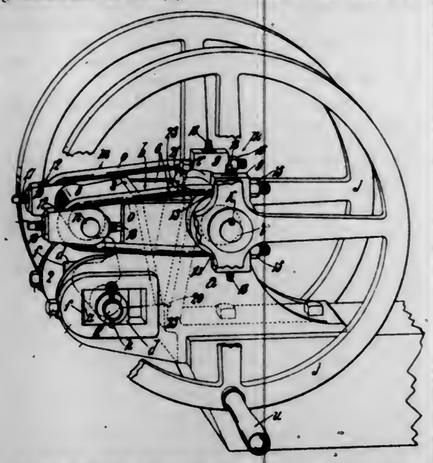
5. In a mercerizing-machine, the combination of the vat, a series of cylindrical pressure-rolls geared together so as to move at the same surface speeds and in contact to form a series of pressure-points and with which the fabric has contact throughout the entire series, means to adjust the said pressure-rolls to vary the extent of the pressure upon the fabric passing between them, an adjustable frame carrying said pressure-rolls and for raising and lowering them in the vat, squeeze-rollers at a higher elevation to act upon the fabric after its treatment in the liquid by the pressure-rolls to remove the excess of fluid, and tension devices for putting the web of fabric under the tension immediately prior to its being received by the pressure-rolls.

786,265. ORE-CRUSHER. ALBERT C. CALKINS, Los Angeles, Cal., assignor to Frederick William Braun, Los Angeles, Cal. Filed Apr. 11, 1900. Serial No. 12,480.

Claim.—1. An ore-crusher comprising a frame forming a crushing-chamber open at the front and bottom, and closed at the rear and sides, a vibratory jaw detachably and adjustably pivoted at its heel to the frame, and forming the front of such chamber, an operating-shaft at the rear of the chamber, reciprocating operating means extending from said shaft alongside of the chamber, and a pivoted operating connection for the vibratory jaw with such means, at the top of the chamber, the said jaw being movable on this pivot, when the lower pivot is detached, to swing out of the open front of the chamber and expose the interior thereof.

2. An ore-crusher comprising a frame provided with a crushing-chamber open at the front, top and bottom and closed at the rear and sides by substantially vertical rear and side walls formed integral with said frame; said side walls having slots, bearing-blocks movable in said slots, means for adjusting said bearing-blocks, a pin de-

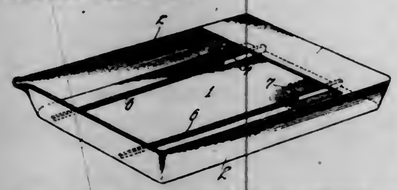
tachably secured in said blocks, a vibratory jaw pivoted at its heel on said pin and extending between the side walls of the crushing-chamber and forming the front wall of such chamber; a shaft journaled to the top of the frame back of the crushing-chamber and provided with eccentrics outside the frame on opposite sides thereof, respectively; and connecting-rods journaled on the eccentrics and extending forward and detachably pivoted to the top of the vibratory jaw.



3. An ore-crusher furnished with a frame, a stationary jaw, a movable jaw, a shaft mounted on the frame, fly-wheels provided with eccentrics integral therewith respectively, and fixed on said shaft, between the fly-wheels and the said frame, looped connecting-rods connected with the movable jaw, boxes on the eccentrics of the fly-wheels, and means adjustably connecting the said looped connecting-rods with said boxes.

4. An ore-crusher comprising a frame provided with a crushing-chamber open at the front, top and bottom, and closed at the rear and sides by substantially vertical rear and side walls formed integral with said frame; a vibratory jaw detachably pivoted at its heel to the frame and extending between the side walls of the crushing-chamber and forming the front wall of such chamber; a shaft journaled to the top of the frame back of the crushing-chamber and provided with eccentrics outside the frame on opposite sides thereof, respectively; and connecting-rods journaled on the eccentrics and extending forward and pivotally connected to the top of the vibratory jaw.

786,266. **DEVELOPING-TRAY.** NATHAN CARTHELL, Los Angeles, Cal., assignor of one-fourth to George L. Finster, Santa Ana, Cal. Filed June 5, 1903. Serial No. 160,208.

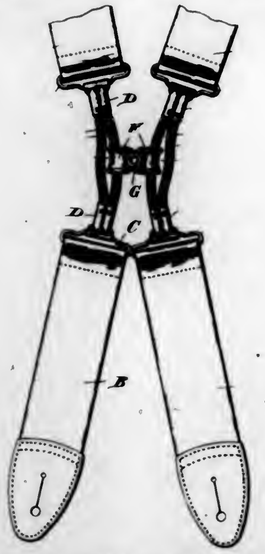


Claim.—A device of the character described comprising a tray of transparent material having flaring side and end walls, a ledge across one end of the tray forming a reservoir, and a pair of parallel ridges on the bottom of the tray and having squared shoulders.

786,267. **SUSPENDERS.** FRANK E. COLBURN and FRED R. CULVER, Medina, N. Y.; said Colburn assignor to said Culver. Filed May 16, 1904. Serial No. 208,137.

Claim.—1. Suspenders comprising shoulder-webs, back-straps, flexible connecting-strips connecting each shoulder-web to the corresponding back-strap, sleeves loosely sliding on said connecting-strips, and means for pivoting said sleeves together between the connecting-strips.

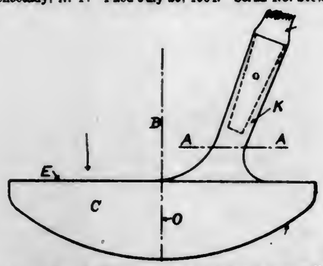
2. Suspenders comprising shoulder-webs, back-straps, a pair of flexible connecting-strips connecting the rear end of each shoulder-web to the upper end of its corresponding back-strap, a rigid sleeve loosely sliding on the inner one of each pair of strips, and means for connecting together said sleeves between the inner connecting-strips.



3. Suspenders comprising shoulder-webs, back-straps, a pair flexible connecting-strips connecting the rear end of each shoulder-web to the upper end of its corresponding back-strap, a rigid sleeve loosely sliding on the inner one of each pair of strips, and means for pivotally connecting together the sleeves between the connecting-strips.

4. Suspenders comprising shoulder-webs, back-straps, rigid loops secured at the rear ends of the shoulder-webs, rigid loops secured to the upper ends of the back-straps, sockets pivotally mounted on the outer bars of said loops, a pair of flexible connecting-strips connecting each shoulder-web to its corresponding back-strap, the ends of said strips being clamped in the sockets carried by said back-straps, rigid sleeves mounted on the inner connecting-strip of each pair, and means for pivotally connecting together said sleeves.

786,268. **GOLF-CLUB.** FRED B. COREY and ARTHUR C. SAVAGE, Schenectady, N. Y. Filed July 29, 1904. Serial No. 218,592.



Claim.—1. In a golf-club, a head having two parallel angular edges formed by the intersection of the side surfaces with the top surface and extending from the heel to the toe, and a shaft attached thereto, the axis of the shaft intersecting the head between the said parallel edges and between the center of mass and the heel.

2. In a golf-club, a head having two contiguous and parallel angular edges formed by the intersection of the side surfaces with the top surface and extending from the heel to the toe, and a shank situate between the heel and the toe, the said shank being so formed as to not interrupt the continuity of the said edges.

3. In a golf-club, a head having two contiguous and parallel angular edges formed by the intersection of the side surfaces with the top surface and extending from the heel to the toe, a shaft the axis of which passes between the said parallel edges, and means for attaching the shaft to the head without interrupting the continuity of the said edges.

4. In a golf-club, a head having two contiguous and parallel angular edges formed by the intersection of the side surfaces with the top surface and extending from the heel to the toe, and a shank the axial line of which extends between the two parallel edges and between the center of mass and the heel.

5. In a golf-club, a head the under surface of which is cylindrical, the axis of the said cylindrical surface being in a plane passing through the normal point of impact and perpendicular to the striking-face.

6. In a golf-club, a head the under surface of which is cylindrical, the axis of the said cylindrical surface lying in a plane passing through the normal point of impact and perpendicular to the striking-face and to the upper surface of the head.

786,269. **SPIRIT-LEVEL.** LEWIS M. CURRY, Brighton, Mich. Filed July 8, 1904. Serial No. 215,760.



Claim.—1. In a spirit-level, the combination with supporting means, of a spirit-tube, and a transparent disk provided with an internal socket to receive and hold the tube.

2. In a spirit-level, the combination with supporting means provided with a circular opening, of a glass disk formed of two parts to fit within said opening and provided with depressions forming an internal socket, a spirit-tube in said socket, and means for securing the disk within the opening.

3. In a spirit-level, the combination with supporting means, of a lens provided with an internal socket, a spirit-tube in said socket, and means for securing the lens to the supporting means.

4. In a spirit-level, the combination with a straight-edge provided with an opening, of a holder formed of glass and provided with a plurality of internal sockets, longitudinally-curved spirit-tubes each secured in one of said sockets in the proper relation to one of the edges of the straight-edge.

5. In a spirit-level, the combination of a straight-edge provided with a circular opening formed with an inwardly-projecting shoulder, a glass-disk holder formed of two parts secured together and provided with depressions in their adjacent faces forming internal sockets, spirit-tubes in said sockets, and a split ring to engage the opening and secure the disk therein between said ring and shoulder.

6. In a spirit-level, the combination of a straight-edge provided with a circular opening formed with an inwardly-projecting shoulder, a glass-disk holder within said opening engaging said shoulder and formed of two like parts, each formed with an axial and lateral depressions forming an axial chamber and lateral sockets extending from said chamber within the disk, and the parts also formed with a lug on one part and a socket in the opposite part to receive said lug, spirit-tubes within said lateral sockets, and means for securing the disk in the opening of the straight-edge.

7. In a spirit-level, the combination with the supporting means, of a glass disk formed with an internal axial chamber and sockets extending from said chamber, and a spirit-tube secured within the disk across said chamber with its ends within said sockets.

8. As an article of manufacture, a spirit-tube holder consisting of a disk of glass formed with an internal socket to receive the spirit-tube.

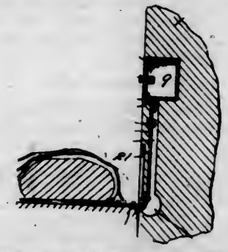
9. As an article of manufacture, a spirit-tube holder consisting of a disk of glass formed with an internal axial chamber and with sockets extending from said chamber adapted to receive the ends of a spirit-tube extended across the chamber.

10. As an article of manufacture, a spirit-tube holder consisting of a glass disk formed in two parts and having depressions forming an internal socket in the holder to receive the spirit-tube.

11. As an article of manufacture, a spirit-tube holder consisting of a lens formed with an internal socket to receive the spirit-tube.

786,270. **SAFE FOR SLEEPING-CARS.** CHRISTOPHER C. DAWSON, Washington, D. C., assignor of one-fourth to Paul L. Webb, Washington, D. C. Filed Feb. 3, 1904. Renewed Feb. 8, 1905. Serial No. 244,812.

Claim.—1. A sleeping-car or similar structure having a safe located convenient to a berth and a lock for the safe comprising a member disposed to lie when active in such position that its movement to inactive position will be prevented by a passive occupant of the berth.

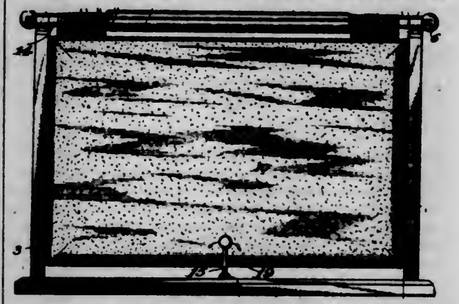


2. A sleeping-car or similar structure having a safe located convenient to a berth and a lock for the safe comprising a lever disposed to lie when active, over the berth in such position that its movement to inactive position will be obstructed by an occupant of the berth.

3. A sleeping-car or similar structure having a safe located convenient to a berth or bed and a lock for the safe comprising a pivoted lever disposed to lie when active, in such position that its movement to inactive position will be obstructed by an occupant of the berth or bed.

4. A sleeping-car or similar structure having a safe located convenient to a berth or bed and a lock for the safe comprising a pivoted lever disposed to lie when active, over the berth or bed in such position that its movement to inactive position will be obstructed by an occupant of the berth or bed.

786,271. **ALBUM OR BOOK AND STAND THEREFOR.** JOHN S. DESMARAIS, Brooklyn, N. Y. Filed Nov. 29, 1904. Serial No. 234,806.



Claim.—1. A device of the character set forth comprising a stand having uprights, a rod supported thereby, links rotatably supported on said rod and an album or book having leaves pivotally supported on said links, substantially as described.

2. A device of the character set forth comprising a stand having uprights, a rod supported thereby, links having eyes loosely engaging said rod and an album or book having leaves pivotally supported on said links, substantially as described.

3. A device of the character set forth comprising a stand, an album or book rotatably supported thereon, a U-shaped restraining member pivotally secured to the stand and adapted to engage and disengage the album or book and means for locking the restraining member, substantially as described.

4. A device of the character set forth comprising a stand, an album or book rotatably supported thereon, a U-shaped restraining member pivotally secured to the stand and adapted to engage and disengage the album or book and a spring also secured to the stand and adapted to lock the restraining member, substantially as described.

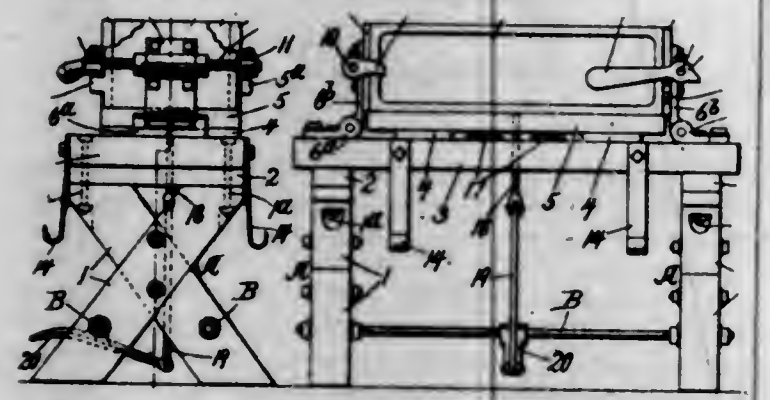
5. A device of the character set forth comprising a stand having uprights, a rod supported thereby, graduated U-shaped links rotatably supported on said rod and an album or book having leaves pivotally supported on said links, substantially as described.

6. In a device of the character described, a stand having uprights, a rod supported by the uprights, links rotatably supported by the rod and leaves supported by the links, each of the links compris-

ing a horizontal portion to which a leaf is attached and arms formed therewith at right angles thereto, said arms terminating in eyes adapted to engage the rod.

7. In a device of the character described, a stand, leaves rotatably supported thereby, a retaining member for the leaves pivotally secured to the stand, an under portion of the member being flattened, and a spring secured to the stand and adapted to bear against the flattened portion of the member.

786,272. MACHINE FOR MOLDING CONCRETE BUILDING-BLOCKS. WALLACE L. DOW, Sioux Falls, S. D. Filed June 6, 1904. Serial No. 211,305.



Claim.—1. In a concrete-block-molding apparatus, in combination with a platform, a mold-bottom supported thereon; end gates hinged to the platform and removable side plates, the inner faces of the side plates and the vertical edges of the end gates having tongue-and-groove engagement with each other, and stops carried by the end gates which extend past the ends of the side plates and are movable to position at which they project over the outer face of the side plates opposite the ends of the end gates for locking said plates at their tongue-and-groove engagement with the end gates.

2. In a concrete-block-molding apparatus, in combination with a platform, a mold-bottom supported thereon; end gates hinged to the platform; removable side plates having tongue-and-groove engagement at their ends with the vertical edges of the end gates; a rock-shaft mounted on the end gates, and abutments at the ends of the rock-shaft adapted, at one position of the rocking movement of the shaft, to jut outside the ends of the side plates, and a lever-arm for rocking the shaft.

3. In a concrete-block-molding apparatus, in combination with a platform, a mold-bottom supported thereon; mold sides adapted to be closed up around the bottom; a core having downwardly-projecting guide-stems; sockets mounted on the platform to receive said guide-stems, the mold-bottom being apertured above the sockets to admit the stems, and a plunger operating through the platform and mold-bottom against the core for starting the latter upward, and a pedal for operating the plunger.

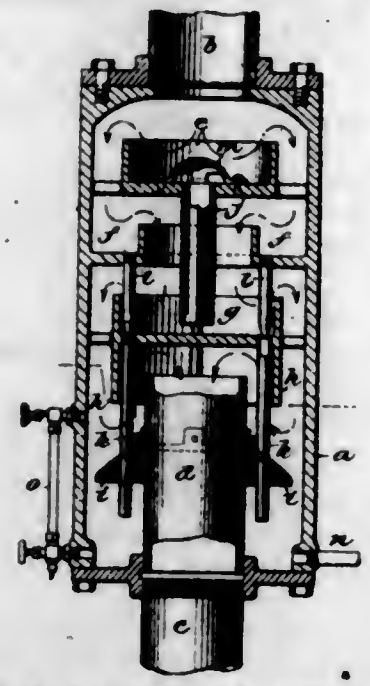
4. In a concrete-block-molding apparatus, in combination with a platform, a mold-bottom supported thereon; mold sides adapted to be closed up around the bottom, the two opposite sides having tongue-and-groove engagements at the corners of the mold with the other two opposite sides respectively; stops permanently mounted on the intermediate sides extending past the ends of the exteriorly-lapped sides and movable at their mounting on the intermediate sides to position at which they project over the outer face of said exteriorly-lapped sides opposite the ends of the intermediate sides for locking said outer-lapped sides at their tongue-and-groove engagement with the intermediate sides.

5 In a concrete-block-molding apparatus, in combination with a platform, a mold-bottom supported thereon; end gates hinged to the platform at a pivot-line relatively remote below the plane of the block-supporting surface of the mold-bottom; end cores mounted on the inside of the end gates adapted to be carried with the latter in the opening movement about the hinge, and side plates adapted to be closed up embracing the end gates and means for locking them together.

6. In a concrete-block-molding apparatus, in combination with a platform or horizontal support for the mold, the mold mounted thereon; a core supported on the mold-bottom and extending upright at molding position within the mold-cavity, the platform and the bottom of the mold being apertured, and a plunger disconnected from the core operating through such apertures for encountering the core by upward movement to start the latter upward, and means for actuating such plunger.

7. In a concrete-block-molding apparatus, in combination with a horizontal support for the same, the mold mounted thereon; a core having a guide-stem projecting from its lower end; sockets on the mold-support to receive the guide-stems; a plunger operating through the mold-support to thrust up the core, and means for actuating such plunger.

786,273. STEAM-SEPARATOR. JOSEPH G. DUCK, Milwaukee, Wis., assignor of one-half to John G. Thompson, Milwaukee, Wis. Filed Aug. 21, 1902. Serial No. 120,469.



Claim.—1. In a steam-separator the combination of a chamber having inlet and outlet connections one above the other and alternating, central and annular basins arranged one above another between the inlet and outlet connections and having drain-tubes leading downwardly therefrom, the drain-tube of the upper basin extending through the basin beneath it and into the basin next below, and a shield over the upper end of the drain-tube leading from the upper basin, substantially as described.

2. In a steam-separator the combination of a chamber having a steam-inlet connection at the top, a steam-outlet connection leading out above the bottom and a liquid-discharge connection leading out at or near the bottom, alternating central and annular catch-basins arranged one above another between said steam inlet and outlet connections and having downwardly-extending drain-tubes, and a shield surrounding the steam-outlet connection above the bottom of said chamber, substantially as described.

3. In a steam-separator the combination of a cylindrical chamber having central vertically-disposed steam inlet and outlet connections one above the other, the outlet connection leading out of said chamber above the bottom, and alternating circular and annular catch-basins arranged concentrically in said chamber one above another between said inlet and outlet connections and having drain-tubes extending downwardly therefrom, the drain-tube of the upper basin extending through the basin beneath it and into the basin next below, and a shield over the upper end of the drain-tube leading from the upper basin, substantially as described.

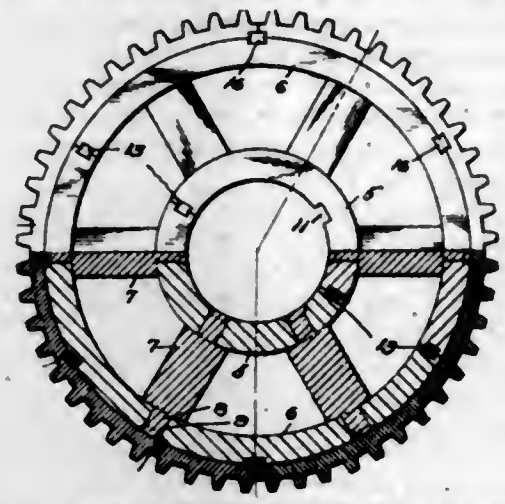
4. In a steam-separator the combination of a chamber having steam inlet and outlet connections arranged one above the other, the outlet connection opening out of said chamber above its bottom, and alternating central and annular catch-basins arranged one above another between said connections and having drain-tubes extending downwardly therefrom, the lower basin having a depending rim extending below the opening into the outlet connection, substantially as described.

5. In a steam-separator the combination of a chamber having steam inlet and outlet connections one above the other, the opening into the outlet connection being above the bottom of said chamber, alternating central and annular catch-basins arranged one above another between said connections and having drain-tubes extending downwardly therefrom, the lower basin having a rim which extends below the outlet-opening, and a shield extending outwardly from the outlet connection below said rim, substantially as described.

6. In a steam-separator the combination of a cylindrical chamber having central steam inlet and outlet connections one above the other, the opening into the outlet connection being above the bottom of said chamber, circular and annular catch-basins arranged one above another between said connections, a shield extending out-

wardly from the outlet connection below the lower basin, a drain-tube extending downwardly through the central opening in the next annular basin into the lower basin, a shield over the upper end of said tube, drain-tubes extending downwardly from the lower basin through the shield below it and drain-tubes extending downwardly from the intermediate annular basin and opening at their lower ends into the upper ends of the drain-tubes of the lower basin, substantially as described.

786,274. SECTIONAL GEAR-WHEEL. JOHN T. DUFF, Pittsburg, Pa., assignor of two-thirds to William H. Latshaw, Pittsburg, Pa., and Joshua Rhodes, Allegheny, Pa. Filed Aug. 25, 1904. Serial No. 222,168.



Claim.—1. A gear-wheel comprising a body adapted to be secured to a shaft and having a peripheral face substantially parallel to its axis, a removable and renewable toothed rim provided with an inner face corresponding to the peripheral face of the body, and keys driven into matching slots in said body and rim-faces and serving to secure the same together.

2. A gear-wheel comprising a body adapted to be secured to a shaft and having a peripheral face substantially parallel to its axis, a toothed rim formed in several sections each provided with an inner face corresponding to the peripheral face of the body, and dovetailed keys fitting in matching undercut slots in the meeting faces of the body and rim sections and serving to secure the same together.

3. A gear-wheel comprising a body composed of several sections, means for securing said body-sections together, a sectional toothed rim, and dovetailed keys fitting in matching undercut slots in the body and toothed rim-sections and serving to secure them together.

4. A gear-wheel comprising a body composed of several sections each having a peripheral face substantially parallel to the axis of the wheel, means for securing said body-sections together, a toothed rim formed in several sections each provided with an inner face corresponding to the peripheral face of the body, and dovetailed keys fitting in matching undercut slots in the meeting faces of the body and rim sections and serving to secure the same together.

5. A gear-wheel comprising a body composed of two sections, dovetailed keys fitting in matching undercut slots in said body-sections and serving to secure the same together, a toothed rim formed in several sections, and dovetailed keys fitting in matching undercut slots in said body and rim sections and serving to secure the same together.

6. A gear-wheel comprising a sectional body, each section composed of a hub and rim portions and spokes uniting the same, means for uniting said body-sections, a sectional toothed rim, and dovetailed keys fitting in matching undercut slots in said body and rim sections and serving to secure the same together.

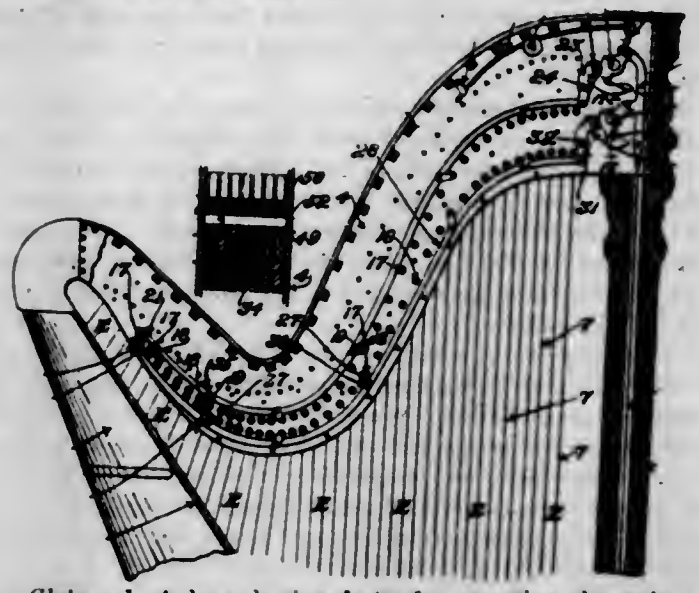
7. A gear-wheel comprising a sectional body, each section formed of a hub and rim portions and spokes uniting the same and all formed of wrought metal, means for securing said body-sections together, a sectional toothed rim formed of hardened steel, and dovetailed keys fitting in undercut matching slots in the body and rim sections and serving to secure the same together.

8. A wrought-metal gear-wheel comprising a hub, a rim, and spokes upset in said hub and rim, said gear-wheel being formed in two separable sections, and dovetailed keys fitting in undercut matching slots in the hub and rim portions of the two sections and serving to secure the same together.

9. A gear-wheel comprising a body adapted to be secured to a shaft and having a peripheral face substantially parallel to its axis, a removable and renewable toothed rim formed in several sections each provided with an inner face corresponding to the peripheral face of the body, and means for securing said rim to said body.

10. A gear-wheel comprising a body adapted to be secured to a shaft and having a peripheral face substantially parallel to its axis, a removable and renewable toothed rim formed in several sections and each composed of hardened steel and provided with an inner face corresponding to the peripheral face of the body, and means for securing said rim to said body.

786,275. HARP. PER E. EKMAN, Woburn, Mass. Filed Oct. 24, 1904. Serial No. 229,710.



Claim.—1. A harp having forks for engaging the strings to raise them a semitone, mechanism for turning said forks to engage the strings, a lever fulcrumed intermediate its ends, mechanism connecting one end of said lever with said turning mechanism, a bell-crank cam fulcrumed intermediate the ends of one of its arms, mechanism for rocking said cam on its fulcrum, said cam having a concave surface in its fulcrumed arm which during a part of the rocking movement engages said first-mentioned lever and actuates the said forks, and a convex surface which engages said lever during the remainder of the rocking movement of the cam without moving the said forks.

2. A harp having forks for engaging the strings to raise them a semitone, mechanism for turning the forks, a lever and intermediate connecting mechanism which operates said turning mechanism, a bell-crank cam fulcrumed intermediate the ends of one of its arms and engaging said operating-lever, said fulcrumed arm being branched, mechanism for operating said cam connected with one of said branches, and a spring for holding said cam under tension having a link connection with the other of said branches.

3. A harp having one set of forks for raising the strings a semitone, another set of forks for raising them a second semitone, separate mechanism connected with each set of forks for operating them successively, a lever connected with each set of operating mechanism, separate rocking cams which engage said levers, a link having two offset arms with which respectively both of said cams are pivotally connected, and mechanism connected with said link to actuate said rocking cams.

4. A double-action harp having one set of forks for raising the strings one semitone and another set of forks for raising the strings another semitone, rock-shafts on which said forks are mounted, chains having operating connections with said rock-shafts, bell-crank cam-levers fulcrumed intermediate their ends having concave backs and convex feet, pedal mechanism and intermediate mechanism connecting with one end of each of said cam-levers, levers fulcrumed intermediate their ends and pivoted at one end to the forward ends of the chains, the other end of each of said last-mentioned levers having a roller which is engaged by its respective cam-lever, and having concave front faces to afford clearance for the cams.

5. A double-action harp having one set of forks for raising the strings one semitone, and another set for raising them another semitone, bell-crank cam-levers and connecting mechanism actuated thereby for operating said forks, said connecting mechanism including levers which have rollers with which said cams engage to operate the mechanism for turning the forks, said last levers having concave faces which afford clearance for the toes of the cams.

6. A harp having forks for raising the tone of the strings, a lever and intermediate mechanism for operating said forks, a tension-

spring for said operating mechanism having a link connection therewith, said spring having at one end ears which engage said link and having a notch in one side near the other end, a grooved guide with which said notched end engages, and a fulcrum for the spring intermediate its ends.

7. A harp having mechanism for engaging the strings to raise the tone, operating mechanism therefor, a tension-spring for said operating mechanism and a grooved spool which forms a fulcrum for said spring.

8. A harp having a series of mechanisms for engaging the strings to raise the tone, operating mechanisms therefor, a series of tension-springs for said operating mechanisms, said springs being connected at one end with said operating mechanisms, a toothed guide having a series of slots with which the other ends of said springs engage, and means for securing said guide to the neck of the harp.

9. A harp having mechanism for engaging the strings to raise the tone, operating mechanism therefor, a tension-spring for said operating mechanism, a bow-shaped link whose loop is detachably engaged by one end of said spring, the legs of said link being pivotally connected with said operating mechanism, a toothed guide secured to the neck of the harp with which the other end of said spring engages, and a grooved spool secured to the neck which forms a fulcrum for said spring.

10. A harp having a neck, a series of forks for raising the tone of the strings, rock-shafts passing through the neck, said forks being mounted on one end of said rock-shafts outside of the neck, operating mechanism for turning said rock-shafts, and coil-springs around the projecting ends of said rock-shafts, on the opposite side of the neck from the forks, one end of each of said springs being connected with its shaft by engagement with a slot in said shaft and the other end of said spring being secured to the neck of the harp.

11. A harp having mechanism for raising the strings a semitone, mechanism for raising them another semitone, cam-levers and intermediate mechanisms for operating each set of semitone mechanism, an operating-link connected with both sets of cams, pedal mechanism and intermediate connections to actuate said operating-link, a tension-spring connected with said operating-link which restores the link and pedal mechanism to their normal position when the pedal is released after depression, said spring having one end detachably engaged by a grooved guide, and an intermediate slotted fulcrum which engages the spring and over which the spring is bent to increase the tension when the operating-lever is depressed.

12. A harp having mechanisms for raising the strings a semitone or a whole tone, one set of cam-levers and intermediate mechanisms in the neck of the harp for operating the first semitone mechanism, and another set of cam-levers and intermediate mechanisms for operating the second semitone mechanism, thus raising the strings a whole tone, mechanism for actuating said cam-levers, there being seven of said cam-levers in each set, each semitone cam-lever controlling the semitone mechanism for all the strings of a particular note in all the octaves, all of the semitone cam-levers of each set being journaled on one shaft, said neck having removable side plates, bearings in the said side plates in which the ends of said shafts are journaled, the ends of said shafts being reduced in diameter, a flanged collar on the reduced end forming a journal for the shaft, a pin-hole transversely through the reduced end of the shaft, a pin-hole registering therewith through the said collar, and a pin which passes through said pin-holes to fasten the collar to the shaft and which is locked in position by the side plate of the neck when assembled in position.

13. A harp having mechanisms for raising the tone of the strings, cam-levers located in the neck of the harp and connecting mechanism for actuating said pitch-raising mechanism; a series of said cam-levers being mounted on one shaft, said neck having removable side plates, bearings in the side plates in which the ends of the shaft are journaled, the end of the shaft being reduced in diameter forming a shoulder, a flanged collar on the reduced end forming a journal for the shaft, a pin-hole transversely through the reduced end of the shaft, a pin-hole registering therewith through said collar, and a pin which passes through said pin-holes to fasten the collar to the shaft and which is locked in position by the side plate of the neck when in assembled position.

14. A harp having mechanisms for raising the strings a semitone or a whole tone, cam-levers and intermediate mechanism connected therewith for operating the pitch-raising mechanisms, one operating-link connected with both sets of cams, the said link having an obtuse-angled arm at the upper end to which the upper cam-lever is pivoted, and an arm forming an offset to which the lower cam-lever is pivoted, pedal mechanism and intermediate connections to actuate said operating-link, and a tension-spring connected with said operating-link which restores it and the pedal mechanism to their normal position when the pedal is released after depression.

15. A harp having a neck, a series of forks for raising the strings a semitone and a series of forks for raising them another semitone, rock-shafts passing through the neck, said forks being mounted on the ends of said rock-shafts outside of the neck, chains formed of a series of links pivoted together, levers mounted on said rocker-shafts and pivoted to the said chains, rocking levers to which said chains are pivoted at each end, a cam-lever which actuates each chain, an operating-link connected with both of said cam-levers, pedal mechanism and intermediate mechanism connecting the pedal mechanism with the said operating-link, a tension-spring which restores the operating-link and pedal mechanism to their normal position when the pedal is released, and spiral springs mounted on said rock-shafts outside of the neck on the opposite ends from those to which the forks are attached which retain the chain-levers in engagement with said cam-levers.

16. A harp having mechanism for raising the pitch of the strings, pedal mechanism and intermediate mechanism connecting the pedal mechanism with said pitch-raising mechanism, and a mount for the pedal mechanism consisting of a segmental bar having outwardly-radiating arms for securing it to the pedal-box, and a cross-bar extending between the ends of the said segmental bar on the under side and connected therewith.

17. A harp having mechanisms for raising the pitch of the strings, levers and intermediate connecting mechanisms for operating the pitch-raising mechanisms, each operating-lever controlling the pitch-raising mechanism for all the strings of the same notation, a pedal for each operating-lever and a wire connecting each of said levers with its respective pedal, and a mount for the pedal mechanism consisting of a segmental bar having outwardly-extending arms which connect it with the pedal-box, a cross-bar uniting the two ends of said segmental bar on the under side thereof, the pedal-rods being pivoted at one end to said cross-bar, levers pivoted at one end to the lower ends of said operating-wires and pivoted at their other end to said segmental bar, one lever for each wire, and a link connecting each of said pedals with the lever which is pivoted to the lower end of the corresponding wire.

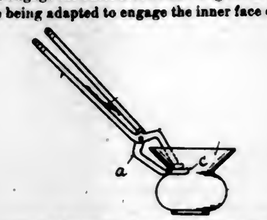
18. A harp having mechanisms for engaging the strings to raise the tone, operating mechanisms therefor, each of which controls all the strings of the same notation, a pedal for each operating mechanism, a mount for the pedal mechanism consisting of a segmental bar and a cross-bar uniting the two ends thereof on the under side, the pedal-rods being pivotally connected with said cross-bar, a separate operating-wire connected with each pitch-operating mechanism, a separate lever pivoted at one end to the lower end of each of said wires, bearings in which the other ends of said levers are journaled, said bearings being attached to inwardly-overhanging brackets on the upper side of said segmental bar, and a link connecting each of said levers with its corresponding pedal.

19. A harp having mechanisms for engaging the strings to raise the tone, operating mechanism therefor, pedal mechanism, a mount for the pedal mechanism, a pedal-rod pivotally connected at one end to said mount, a lever pivotally connected with said mount and flexibly connected with said pedal-rod, a wire connected at one end to the pitch-operating mechanism and pivotally connected at the other end to said lever, said connection between the said wire and lever being made by forming the lever with bifurcated end, a hole transversely through the ears formed by the bifurcation, a shaft journaled in said hole, a hole through said shaft at right angles to its axis, a nut threaded onto the end of said wire, and having a neck which enters between the ears of said lever and prevents axial movement of the said shaft but permits rocking movement.

20. A harp having mechanism for engaging the strings to raise the tone, pedal mechanism, intermediate mechanism actuated by the pedal mechanism to operate the pitch-raising mechanism, said intermediate mechanism including a wire whose lower end is pivotally connected with the pedal mechanism, said connection being made by forming in the pedal mechanism ears with perforations to receive the pivot-shaft, a pivot-shaft journaled in said ears, a hole through said shaft at right angles to its axis, a nut threaded onto the end of said wire and having a neck which enters between the ears of said lever and locks the said shaft against axial movement and permits rocking movement.

786,276. CUSPIDOR-LIFTER. WILLIAM J. ENS, Cincinnati, Ohio. Filed Aug. 12, 1904. Serial No. 220,495.

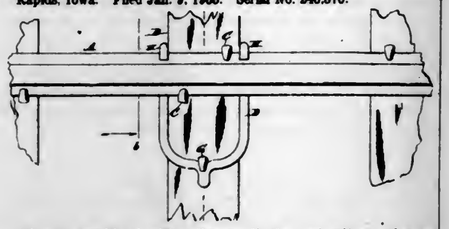
Claim.—1. In a cuspidor-lifter the combination of two arms pivoted together near one end, thence diverging and being curved inward at a short distance from the pivoted point and converging toward each other near their ends, the lower one terminating in a curved fork to engage the outer face of the flange of the cuspidor and the upper one being adapted to engage the inner face of said flange.



2. In a cuspidor-lifter the combination of two arms pivoted together, the lower one being curved downward from the pivoted point and terminating in a curved fork to engage the outer face of the flange of the cuspidor, and the upper one terminating in a curved fork of smaller diameter to engage the inner face of the flange.

3. In a cuspidor-lifter the combination of two arms pivoted together, one being curved upward, the other downward, and both of them thence converging toward their ends, the lower one terminating in a curved fork to engage the outer face of the flange of the cuspidor and the upper one terminating likewise in a curved fork to engage the inner face of said flange.

786,277. RAILWAY-RAIL HOLDER. GEORGE M. EWING, Cedar Rapids, Iowa. Filed Jan. 9, 1905. Serial No. 240,370.



Claim.—Combined with railway-rail, ties and spikes, substantially as shown, a rail-holder practically stirrup-shaped, with hooks at the ends of the stirrup-arms to engage the outer edge of the rail, a downwardly-turned spur at the junction of the arms to enter a hole in the tie, and offsets in the arms, which pass under the rail and straddle the tie, substantially as described.

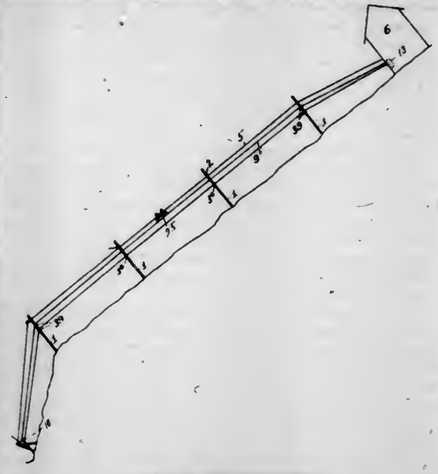
786,278. APPARATUS FOR CONVEYING MAIL. CHARLES C. FARMER and JOHN J. STUCKEY, Leavenworth, Kans. Filed Aug. 1, 1904. Serial No. 219,129.

Claim.—1. In an apparatus of the character described, an elevated rail, a mail-box mounted thereon, a cable attached to the box and operatively mounted on sheave-wheels at each end of the track, a motor located at one end of the track for propelling the cable, oppositely-disposed cranks for operating the motor, and a bell depending in the path of one of said cranks.

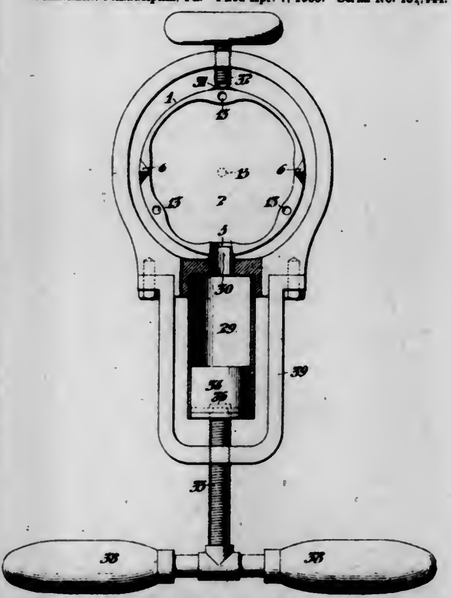
2. In an apparatus of the character described, suitable supports, upper and lower eyelets projecting from one side thereof, a rail carried by the upper eyelets, a mail-box suspended from the rail, an endless cable attached to the box and having one strand extending through the lower eyelets, sheave-wheels at opposite ends of the rail around which the cable operates, a motor for propelling the cable, and bows secured to the supports loosely embracing the upper eyelets and the upper strand of the cable.

3. In an apparatus of the character described, suitable supports, a track carried thereby, a mail-box mounted on the track, a cable attached to the box and operatively mounted on sheave-wheels at each end of the track, a motor for propelling the cable, depending yokes secured to the supports having segmental upper ends, and sheave-wheels mounted in said yokes.

4. In an apparatus of the character described, a suitable mail-box, hangers secured to said box, yokes formed integral with the upper portions of the hangers, sheave-wheels mounted on the yokes, parallel side bars connecting the yokes, a longitudinal bar connecting the lower portions of the hangers, and a retaining-spring secured to one of the parallel bars on the opposite side from the hangers and bearing at its lower portion against the lower longitudinal bar.



786,279. APPARATUS FOR MAKING DENTURES. GEORGE P. FRANKLIN, Philadelphia, Pa. Filed Apr. 7, 1903. Serial No. 151,444.



Claim.—1. In apparatus for making dentures, the combination with a flask member provided with lugs of triangular cross-section; of a flask member provided with recesses complementary to said lugs; said lugs and recesses being shaped and arranged to permit lateral and longitudinal oscillation of said members with respect to each other during their approach, and to insure their precise registry when closed; and, means to secure said members in closed relation, substantially as set forth.

2. In apparatus for making dentures, the combination with a flask member provided with projecting lugs which are triangular in cross-section and tapering toward their free extremities; of a flask member provided with recesses complementary to said lugs; and, means to secure said members in closed relation, substantially as set forth.

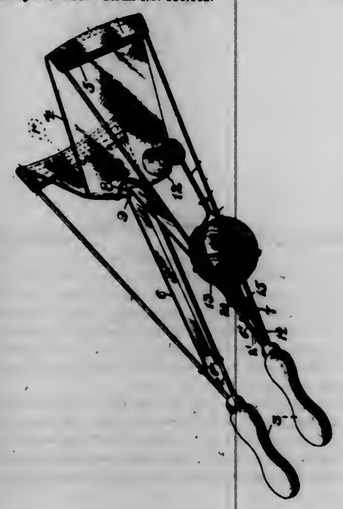
3. In apparatus for making dentures, the combination with a flask comprising separable cope and drag members and a conical aperture existing partly in the cope member and partly in the drag member; of means to secure said members in closed relation; a packing-frame adapted to receive said flask; a packing-cylinder mounted in said frame and provided with a conical nozzle fitted to said aperture; a set-screw in said frame, opposed to said nozzle and arranged to maintain said nozzle in registry with said aperture; and, a piston provided with a screw-threaded piston-rod engaged with said frame and arranged to reciprocate in said cylinder, substantially as set forth.

4. In apparatus for making dentures, the combination with a flask provided upon one side with an aperture extending through its wall, and upon the opposite side with a seat for a set-screw; of an annular packing-frame arranged to receive said flask; a cylinder mounted in said frame and provided with a nozzle fitted to said flask-aperture; a set-screw in said frame opposed to said nozzle and arranged to maintain said nozzle in registry with said aperture; and, a piston mounted in said frame to reciprocate in said cylinder, substantially as set forth.

5. In apparatus for making dentures, the combination with separable cope, drag and lid members of a flask, having a conical aperture extending partly in the drag member, and partly in the cope member; said drag member being provided with triangular lugs on its side walls and a screw-threaded socket in its bottom wall; said lid member being provided with plaster-engaging lugs, and said cope member being provided with recesses complementary to said drag-lugs; of means to secure said members in closed relation; a handle provided with a screw-threaded shank; a shoulder on said shank; a bracket-plate, comprising openings for attaching means, an annular flange and a radial slot extending from the center to the circumference of said flange; said slot being of less width at its inner end than the shoulder on said handle, and being arranged to receive the latter; a packing-frame arranged to receive said flask; a packing-cylinder provided with a conical nozzle fitted to said conical aperture in the flask; a set-screw opposed to said nozzle and arranged to engage said flask in registry therewith; a piston arranged to reciprocate within said cylinder; a screw-threaded piston-rod in threaded engagement with said frame in rotary engagement with said piston; and a handle upon said piston-rod, substantially as set forth.

6. In apparatus for making dentures, the combination with a flask member provided with projecting lugs of triangular cross-section; of a second flask member provided with recesses complementary to the lugs of said first flask member; a third flask member provided with plaster-engaging lugs extending within one of said flask members; and, means to secure said members in closed relation, substantially as set forth.

786,280. **SHOE-POLISHER.** HARRY M. GARTRELL, Chicago, Ill. Filed July 23, 1903. Serial No. 166,663.



Claim.—1. In a device for polishing shoes, the combination of two handles, a polishing-band having its extremities attached to said handles respectively, and means for supporting the part of said band intermediate of its extremities attached thereto.

2. In a device for polishing shoes, the combination of two handles, a polishing-band having its extremities secured thereto respectively, and an elastic supporting-strap secured to said polishing-band at an intermediate point in its length.

3. In a device for polishing shoes, the combination of two handles, a polishing-band having its extremities secured thereto respectively, and a supporting-strap connected with said band at an intermediate point of its length and having its extremities secured to said handles respectively.

4. In a device for polishing shoes, the combination of two handles, a polishing-band having its extremities secured to said handles respectively, an elastic supporting-strap having its extremities secured to said handles and its portion intermediate of its extremities fixedly secured to the portion of said band intermediate of the extremities of the latter.

5. In a device for polishing shoes, the combination of two triangular handles, a polishing-band, and loops secured to the extremities of said band and passed over said handles, the base portions of the handles being wider than said loops to prevent the loops from being pulled off the handles.

6. In a device for polishing shoes, the combination of two triangular handles, a polishing-band, loops secured to the extremities of said band and passed over said handles, said band passing around the ends of said handles, and means connecting the portion of said band intermediate of its extremities with said handles.

7. In a device for polishing shoes, the combination of two handles, each having its base portion curved outwardly so as to conform to the side of the shoe and a polishing-band secured to said handles and passed around the base portions to produce a cup formation of the band from end to end of the latter.

8. In a device for polishing shoes, the combination of two skeleton handles each having an outwardly-curved base portion so as to conform to the side of the shoe and a polishing-band secured to said handles and passed around the base portions to produce a cup formation to the band from end to end of the latter.

786,281. **AUTOMATIC COMPUTING-MACHINE.** ALBERT D. DE GENERES, Crowley, La. Filed July 5, 1904. Serial No. 215,308.



Claim.—1. The combination with a stationary scale, of a rotatable roller having imprinted matter thereon arranged adjacent and parallel to the scale, the block adapted to slide along the scale, and means for moving the block step by step.

2. The combination with a slotted casing having a scale arranged along the margin of the slot, a slidable sleeve carried by the casing, means for moving the sleeve, a block adapted to be engaged by the sleeve and move step by step along the scale, and a rotatable roller having imprinted matter thereon, arranged adjacent the scale.

3. The combination with a casing having a longitudinal slot formed therein, and having a scale arranged upon the marginal portion of the slot, of a rotatable roller carried by the casing and visible through the said slot, a slidable block carrying a pointer adapted to travel along the scale, a slidable toothed sleeve adapted to engage the block and move the same in one direction, and means for alternately moving the sleeve in opposite directions.

4. A device of the kind described comprising a casing having a longitudinal slot formed therein, and having a scale arranged along the marginal portion of the slot, the top of said casing having an angled slot formed therein, a rod carried by the casing adjacent the slot, a toothed sleeve movable and rotatable on the said rod, a lever secured to the sleeve and adapted to work in the angled slot, a bar arranged adjacent the sleeve, a block adapted to slide on the bar and carrying a pointer adapted to move along the edge of the scale, a spring carried by the block adapted to be engaged by the teeth on the sleeve, and a movable surface arranged within the casing and visible through the slot, said surface having imprinted matter thereon, and means for moving the said surface transversely with reference to the slot.

5. A device of the kind described comprising a slotted casing, the marginal portions of the said slot having scale divisions arranged thereon, a plurality of rollers rotatably mounted in the casing and having matter imprinted thereon, means for successively bringing the said rollers into alinement with the said slot, a slidable block carrying a pointer adapted to be moved step by step along the scale, and means for moving the block.

6. A computing device comprising a stationary scale, a rod arranged below the scale, a tubular sleeve slidable on the said rod and toothed along one side, a bar parallel to the sleeve, a slidable block carried by the bar and adapted to be engaged and moved step by step by the toothed sleeve, a pointer carried by the block adapted to travel along the scale, and a lever connected to the sleeve and adapted to partially rotate the same and to slide the sleeve longitudinally in opposite directions on the rod, as and for the purpose set forth.

7. A device of the kind described comprising a casing having a longitudinal slot formed therein and having scale divisions formed on the margin of the slot, the top of said casing having an angled slot formed therein adjacent the said scale, a rod carried by the under side of the casing-top, a toothed sleeve adapted to slide and rotate on the said rod, a lever connected to the sleeve and projecting through and working in the said angled slot, a bar parallel to the rod, a block slidable on the bar and adapted to be engaged by the toothed sleeve, and a movable surface arranged within the casing, the said surface bearing imprinted matter adapted to be brought into alinement with the said slot.

8. A computing device comprising a casing having a longitudinal slot, a scale arranged adjacent the said slot, a shaft arranged longitudinally in the casing, and projecting from one end thereof, means for rotating the shaft, a sleeve arranged rotatably upon the shaft and extending within and without the casing, means for rotating the sleeve independent of rotation of the shaft, a disk carried by the sleeve within and adjacent one end of the casing, a disk fixed to the shaft within and adjacent the opposite end of the casing, means for locking the shaft against rotation, shafts carried by the disks, rollers mounted on said last-mentioned shafts, gears carried by the rollers, an intermeshing gear carried by the sleeve, a slidable block carried by the casing and having a pointer projecting through the slot, and imprinted matter arranged upon the rollers and adapted to be brought into alinement with the slot, as and for the purpose set forth.

9. The combination with a longitudinally-slotted casing carrying rollers bearing imprinted matter adapted to be alined with the slot, of a slidable block carried by the casing, a pointer carried by the block and adapted to project into the slot, a movable toothed sleeve carried by the casing and arranged parallel to the slot, means for partially rotating the sleeve and for sliding the same alternately in opposite directions, and a spring carried by the block and adapted to be engaged by the sleeve on movement of the sleeve in one direction.

10. A device of the kind described comprising a casing having detachable top and side plates, the side plate having its upper edge portion cut away intermediate the ends of the plate, and the top having a scale arranged along the edge adjacent the side plate, a rib formed on the top plate adjacent one end of the scale and at right angles thereto, the said top plate being angularly slotted adjacent the opposite end, a slidable block having a pointer adapted to move along the scale, a slidable sleeve toothed on one side and adapted for rotation, a lever secured to the sleeve and adapted to slide the sleeve when moved in one portion of the angular slot and to rotate the sleeve when moved in the other portion, and a spring carried by the block and adapted to be engaged by the teeth of the sleeve when the toothed side is rotated toward the block, and when the sleeve is moved in one direction.

11. A device of the kind described comprising a casing, said casing having a slot formed therein, a slidable block carried by the casing and having a pointer adapted to project through the slot, said casing having a scale formed on a marginal portion of the slot, a shaft in the casing, said shaft projecting therefrom, means for rotating the shaft, means for locking the shaft against rotation, a sleeve on the shaft, extending within and without the casing and having its inner end portion threaded, a gear-wheel having a threaded hub portion adapted to fit on the threaded portion of the sleeve, a disk loosely mounted on the sleeve, a disk fixed on the shaft, rollers supported by and between the disks, and gear-wheels carried by the rollers and adapted to mesh with the gear-wheel threaded upon the sleeve, as and for the purpose set forth.

786,282. **CALCULATING-MACHINE.** HENRY GOLDMAN, Chicago, Ill., assignor to International Arithmograph Company, New York, N. Y., a Corporation of New York. Filed Aug. 1, 1900. Serial No. 25,483.



Claim.—1. A calculating-machine, comprising a series of numeral-wheels, a series of operating devices therefor consisting of endless chains making tangential contact with said wheels, means for independently moving each chain in and out of contact with its associated wheel and a limiting device for limiting the movement of the chain toward the wheel.

2. A calculating-machine, comprising a series of numeral-wheels, a series of operating devices therefor consisting of endless chains making tangential contact with said wheels, means for independently moving each chain in and out of contact with its associated wheel, a limiting device for limiting the movement of the chain toward the wheel and a locking-pawl to prevent backward motion of the chain.

3. A calculating-machine, comprising a series of numeral-wheels, a series of independently-operating chains associated with said wheels and normally out of contact therewith, said chains provided with projecting parts adapted to engage the wheels, movable levers upon which said chains are supported so that the chains may be raised or depressed, an elastic device associated with each chain for raising it, a locking device for holding each chain from motion when in its normal position, said locking device comprising an opening in which the projections on the chains are received, and an inclined face leading thereto, so that the pressure of the spring insures the movement of said projections into said opening.

4. A calculating-machine, comprising a series of numeral-wheels, each provided with projecting teeth, a series of plates carrying the characters and attached to the periphery of the wheel between said teeth, an endless chain associated with each wheel and provided with projections which engage the teeth on the wheel, means for moving said chain so as to bring the projections in contact with the teeth on the wheel and a limiting device for limiting said movement so as to prevent the projections from engaging the plates carrying the characters.

5. A calculating-machine, comprising a series of numeral-wheels, each provided with projecting teeth, a series of plates carrying the characters and attached to the periphery of the wheel between said teeth, an endless chain associated with each wheel and provided with projections which engage the teeth on the wheel, said projections being beveled on their upper faces, so as to secure full engagement with the teeth of the numeral-wheels without striking the plates carrying the characters.

6. A calculating-machine, comprising a series of numeral-

wheels, each provided with projecting teeth, a series of plates carrying the characters and attached to the periphery of the wheel between said teeth, an endless chain associated with each wheel and provided with projections which engage the teeth on the wheel, said projections being beveled on their upper faces, so as to secure full engagement with the teeth of the numeral-wheels without striking the plates carrying the characters, and means associated with said chain to prevent its backward movement.

7. A calculating-machine, comprising a series of numeral-wheels, an endless chain associated with each wheel and provided with projections which engage the wheel so as to rotate it when the chain is moved, pentagonal rollers over which the chain passes, one of said rollers having a notch or indentation in each face, a movable lever upon which the upper part of the chain is supported, said lever provided with a spring-actuated pawl which engages the notches in the pentagonal roller so as to keep the upper part of the chain taut when the lever is depressed.

8. A calculating-machine, comprising a series of numeral-wheels, an endless chain associated with each wheel and provided with projections which engage the wheel so as to rotate it when the chain is moved, two rollers about which the chain passes, a pivoted lever upon which the upper part of the chain is supported, a retracting-spring for said lever and a projecting foot on said lever which engages the lower part of the chain near one roller, so as to depress it when the lever is depressed.

9. A calculating-machine, comprising a series of numeral-wheels, an endless chain associated with each wheel and provided with projections which engage the wheel so as to rotate it when the chain is moved, two rollers about which the chain passes, a pivoted lever upon which the upper part of the chain is supported, a retracting-spring for said lever, a projecting foot on said lever which engages the lower part of the chain near one roller, so as to depress it when the lever is depressed, and a tension-spring engaging the lower part of the chain near the other roller, the foot and tension-spring taking up the slack produced by the depression of the lever.

10. A case for calculating-machines, having an opening for the admission of the operating-stylus, a guard-plate or deflector at one edge of said opening, which engages the stylus and deflects it outwardly so as to prevent injury to the parts back of the deflector.

11. A calculating-machine comprising a series of numeral-wheels, an endless chain associated with each wheel and provided with projections which, when the chain is moved, engage the wheel so as to rotate it, pentagonal rollers over which the chain passes, a lever upon which the upper part of the chain is supported, said lever having two separated engaging faces which engage the chain, one at each side thereof.

12. The combination with a calculating-machine of a sliding guide-frame which may be extended beyond the edge of the machine so as to take in a specified length of a column of figures, and means for locking said guide-frame in any desired position.

13. A case for calculating-machines having an opening for the admission of the operating part, a guard-plate or limiting device near the end which limits the movement of the operating part, a name-plate back of said guard and a deflector associated with said guard which deflects the operating part as it is moved toward the end of the machine so as to prevent injury to the name-plate and associated parts.

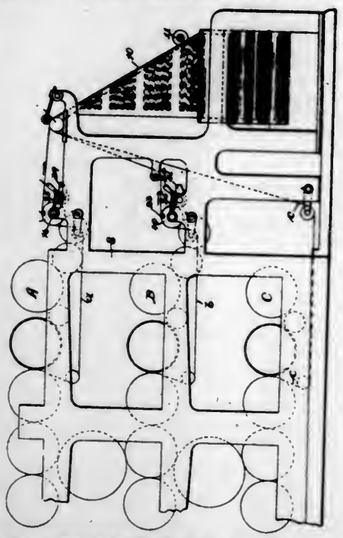
14. A case for calculating-machines having an opening for the admission of the operating-stylus, a limiting device which limits the movement of the stylus, said limiting device acting as a deflector to move the stylus outwardly during the remainder of its backward movement.

15. A calculating-machine comprising a series of endless chains, movable parts upon which said chains are supported so that they may be raised or depressed, and a locking device which engages said chains when in their normal position and prevents them from being moved when in said normal position.

16. A calculating-machine comprising a series of endless chains, movable parts upon which said chains are supported so that they may be raised, or depressed, a series of projecting parts on each chain, a locking device for preventing each chain from being moved when in its normal position and comprising an opening in which the said projections are received.

786,283. PRINTING-PRESS. Samuel G. Goss, Chicago, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 12, 1901. Serial No. 78,468.

Claim.—1. A pasting-cylinder having a tongue which yieldingly projects beyond the periphery thereof, and a sliding box in which said tongue is mounted, in combination with means for supplying paste to said tongue, substantially as described.



2. A pasting-cylinder having a tongue which yieldingly projects beyond the periphery thereof, a traveling box in which said tongue is carried, and a spring for forcing said tongue outward, in combination with means for supplying paste to said tongue, substantially as described.

3. The combination with means for associating a plurality of webs, of a combination guide and pasting cylinder over which one of the webs runs, said cylinder having a paste-applying tongue which projects beyond the periphery thereof and bears against the web, and means for supplying paste to said tongue, substantially as described.

4. The combination with means for associating a plurality of webs, of a combined guide and pasting cylinder over which one of the webs runs, said cylinder having a paste-applying tongue which projects yieldingly beyond the periphery thereof and bears against the web, and means for supplying paste to said tongue, substantially as described.

5. A combined guide and pasting device for web-presses, comprising a cylinder over which the web passes and by which it is guided, means for conducting the web over said cylinder, and a pasting device carried by said cylinder and adapted to apply paste to the margins to be pasted as the web passes over the cylinder, substantially as described.

6. A combined guide and pasting device for web-presses, comprising a cylinder around which the web passes and by which it is guided, means for adjusting the position of said cylinder, and a pasting device carried by said cylinder and adapted to apply paste to the margins to be pasted as the web passes around the cylinder, substantially as described.

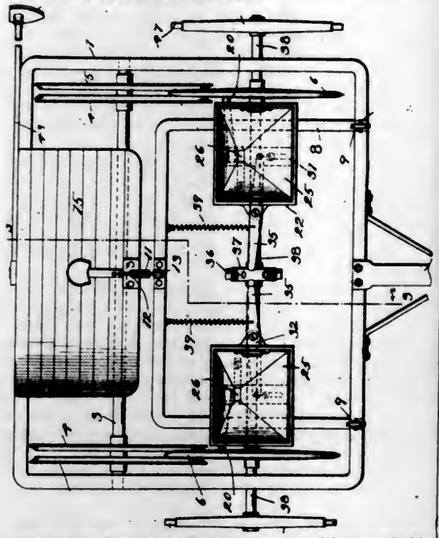
7. The combination of a compensating cylinder, means for conducting a web thereover, and a paste-applying device carried by said cylinder and having means for applying paste to the web at intervals, substantially as described.

8. The combination with a combined guide and pasting cylinder having means for applying paste to a web at intervals, a paste-fountain for supplying paste to said cylinder, means for conducting the web over said cylinder and means for simultaneously adjusting said cylinder and fountain without varying their position relatively to each other, substantially as described.

9. A pasting-cylinder having a flexible tongue which projects beyond the periphery thereof, a support by which said tongue is carried, said support being movably connected with said cylinder, and spring mechanism arranged to act upon said support for forcing said tongue outward, in combination with means for supplying paste to said tongue, substantially as described.

10. The combination with a folder adapted to fold a web longitudinally, a slitter adapted to slit the web longitudinally, transverse cutting and folding mechanism, a combined guide and pasting cylinder around which one portion of the slit web is conducted, means for adjusting the position of said combined guide and pasting cylinder to vary the length of the path of the latter portion of the web, a paste-applying device carried by said cylinder, means for supplying paste to said paste-applying device, and means connecting the paste-supplying means with said cylinder, whereby it will be maintained at a constant distance from said cylinder, substantially as described.

786,284. PLANTING-MACHINE. Felix G. Green, Sedalia, Mo. Filed Dec. 29, 1904. Serial No. 238,794.

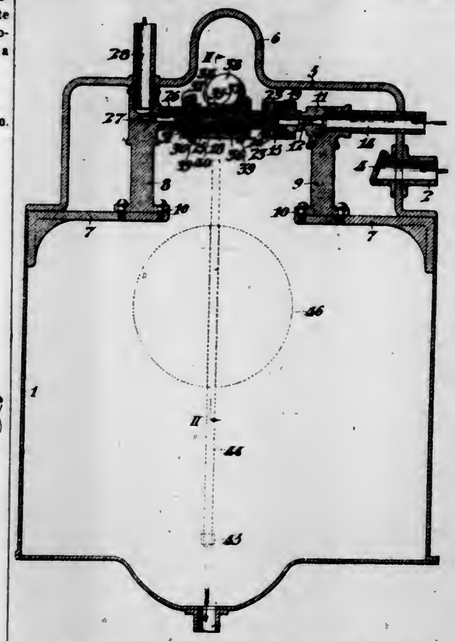


Claim.—The herein-described planter comprising a suitable framework and carrying-wheels therefor, said carrying-wheels being each formed in two parts, separated slightly from each other; furrow-making disks 6 adapted to have one portion of their edges disposed between the separated carrying-wheels whereby the disks will be kept clean and in a scoured condition; a pair of hoppers; grain-conveying tubes extending from said hoppers to the furrows made by said disks; a slide mounted in the bottom of each hopper and an actuating-disk controlling a lever connected with said slides whereby each of the slides will be operated simultaneously and at predetermined points to dispose the grain in continuous or drilled rows or in hills of uniform separation, all combined substantially as set forth.

786,285. PUMP. William U. Griffiths, Philadelphia, Pa. Filed June 23, 1904. Serial No. 213,776.

Claim.—1. In combination, a tank, a pipe for supplying air, steam or other gaseous fluid to the said tank, a bracket secured to the inside of the said tank, a bearing sleeve supported upon the said bracket and having an opening through one side, a valve stem mounted within said sleeve, and being provided with a lug which projects through the said opening, a movable sleeve surrounding the bearing sleeve and having an opening therein into which the said lug projects and the said movable sleeve being also provided with a weight, rings located upon he said bearing sleeve at the opposite ends of the said movable sleeve, the said rings being connected to each other by bars or strips which are adapted to contact with the said weight.

2. In combination, a tank, a pipe for supplying air, steam, or other gaseous fluid to the said tank, a bracket secured to the inside of the said tank, a bearing sleeve supported upon the said bracket and having an opening through one side, a valve stem mounted within said sleeve, and being provided with a lug which projects through the said opening, a movable sleeve surrounding the bearing sleeve and having an opening therein into which the said lug projects and the said movable sleeve being also provided with a weight, rings located upon the said bearing sleeve at the opposite ends of the said movable sleeve, the said rings being connected to each other by bars or strips which are adapted to contact with the said weight, a lever arm projecting from one of said strips or bars, a lever connected to the said lever arm and having a rod depending therefrom, and a float mounted upon the said depending rod and adapted to travel thereon.

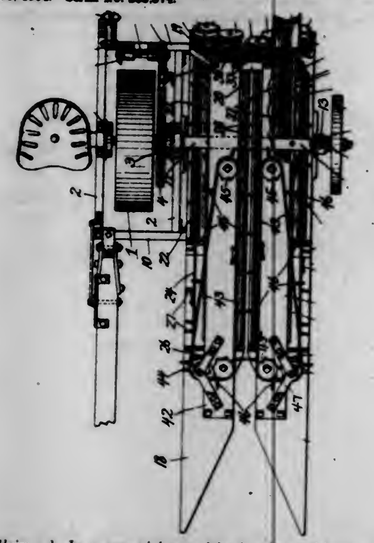


3. In combination, a tank, a pipe for supplying air, steam, or other gaseous fluid to the said tank, an exhaust pipe for permitting the escape of air, steam, or other gaseous fluid from the said tank, brackets located within the said tank and upon opposite sides thereof, a bearing sleeve supported upon the said brackets, a valve stem movably mounted in the said sleeve and being provided upon its opposite ends with valves which are adapted to alternately open and close the ends of the said pipes, a lug projecting from the said valve stem through an opening in said bearing sleeve, a sleeve movably mounted upon the said bearing sleeve and having an opening therein to receive the said lug, and being also provided with a weight rigidly secured thereto, a device also movably supported upon the said bearing sleeve and adapted to occasion movement of said weight, and a float having connection with the said device to occasion movement thereof.

4. In combination, a tank, a pipe for supplying air, steam, or other gaseous fluid to the said tank, a movable valve stem provided with a valve for closing said pipe, the said valve stem being also provided with a lug projecting therefrom, a bracket secured to the walls of the said tank, a bearing sleeve secured to and supported upon the said bracket and within which the said valve stem is movably mounted, and the said bearing sleeve being provided with an opening through the side thereof through which the said lug projects, movable means supported upon the said bearing sleeve, the said means being adapted to contact with the said lug to occasion movement of the said valve stem.

5. In combination, a tank, a pipe for supplying air, steam, or other gaseous fluid to the said tank, a valve stem provided with a valve for closing the said pipe, the said valve stem being provided with a lug projecting therefrom, a bearing sleeve within which the said valve stem is movably mounted, the said sleeve being provided with an opening through the side thereof through which the said lug projects, a support for the said bearing sleeve, a movable weight supported upon the said bearing sleeve, the means connecting the said weight and the said bearing sleeve being adapted to contact with the said lug to occasion movement of the said valve stem, a movable device also supported upon the said bearing sleeve for occasioning movement of the said weight, and a float having connection with the said movable device.

786,286. **CORN PICKER AND HUSKER.** NEIL HAACK, Howard, S. D., assignor of one-fourth to Boyd Wales, Howard, S. D. Filed Apr. 18, 1904. Serial No. 203,574.



Claim.—1. In a corn picker and husker in combination with two supporting-wheels and a frame carried thereby, a pair of gatherers for the stalks supported on the frame having a stalk-path or throat between them; stalk-feeding devices mounted on the gatherers respectively and operating from front to rear along the stalk-path or throat between the gatherers; picking or ear-detaching devices comprising coöperating members, one upon each stalk-gatherer at opposite sides of the throat, and two ear-troughs, one upon each gatherer; a pair of husking-rolls forming the bottom of each trough and means operating from front to rear above each pair of rolls for advancing the ears from front to rear along each trough, and means for permitting the discharge of the ears rearward at the rear ends of the trough respectively.

2. In a corn picker and husker in combination with two supporting-wheels and a frame mounted thereon; two gatherers for the stalks having the stalk-path or throat extending fore and aft between them; stalk-feeding devices having stalk-engaging means operating from front to rear across the throat or stalk-path; ear detaching or picking devices comprising two coöperating members, one mounted upon each gatherer at opposite sides of the stalk-path; two ear-receptacles, one for each gatherer, each consisting of a trough and a pair of husking-rolls forming the bottom of the trough, and ear-conveying devices operating above the rolls from front to rear, the frame comprising for its connection across the stalk-path a yoke or neck elevated with respect to the wheel-axles, crossing said path below the picking devices and above the husking devices.

3. In a corn picker and husker, in combination with a traction-wheel and a frame supported thereon, a grain-wheel and a frame supported thereon; a pair of gatherers for the stalks mounted one upon each of said frames and having a stalk-path or throat between them; husking devices on the gatherers respectively extending alongside said stalk-path at opposite sides thereof, and an arch which constitutes the rigid connection between the two frames extending across the stalk-path or throat above the husking devices.

4. In a corn picker and husker, in combination with a traction-wheel, a grain-wheel, frames supported on said wheels respectively; an arch which constitutes the rigid connection between said frames; a pair of stalk-gatherers extending fore and aft at opposite sides of the stalk-path, mounted one upon each of said frames comprising sills extending from front to rear underneath the arch; husking devices mounted on said sills respectively, and picking or ear-detaching devices, one upon each gatherer, extending above the arch.

5. In a corn picker and husker, in combination with a traction-wheel and a frame supported thereon, a grain-wheel and a frame supported thereon, a pair of gatherers for the stalks mounted one upon each of said frames and having a stalk-path or throat between them; picking or ear-detaching devices, one upon each gatherer; husking devices on the gatherers respectively extending alongside said stalk-path at opposite sides thereof, and an arch which constitutes the rigid connection between the two frames extending across the stalk-path or throat above the husking devices and below the picking or ear-detaching devices.

6. In a corn picker and husker, in combination with a traction-wheel, a grain-wheel; frames supported by said wheels respectively; an arch which rigidly connects such frames; a pair of stalk-gatherers supported one upon each frame, with a throat or stalk-path between them extending fore and aft; husking devices mounted upon said gatherers respectively underneath the arch, and stalk-feeding devices mounted on the gatherers respectively above the arch.

7. In a corn picker and husker, in combination with a traction-wheel, a frame supported thereon; a grain-wheel and a frame supported thereon; a stalk-gatherer supported on each frame; stalk-feeding devices; an ear-picking device and husking devices mounted on each gatherer, and an arch connecting the two frames extending across the interval between the two gatherers below the stalk-feeding devices and ear-picking devices and above the husking devices.

8. A corn picker and husker comprising, in combination with traction-wheel, grain-wheel and rigidly-connected frames supported by said wheels respectively, a pair of coöperating gatherers mounted on said frames respectively and extending fore and aft, with a stalk-path between them; two angular bars journaled for rotation at the proximate edges of the gatherers for bounding the stalk-path, and means at the rear ends of said bars for rotating them in opposite directions.

9. A corn picker and husker comprising, in combination with traction-wheel, grain-wheel, and rigidly-connected frames supported on said wheels respectively; a pair of coöperating stalk-gatherers supported on said frames and extending fore and aft above the axes of the wheels, each of said gatherers comprising an ear-trough inclined upward from front to rear, and having a pair of rollers constituting the bottom of the trough; means operating in the trough for conveying the ears upward and rearward along the same above the rollers; means operating at the proximate margins of said troughs for detaching the ears; stalk-feeding devices mounted above the troughs respectively, and means for operating the rolls and the ear and stalk feeding devices from the rear end of the gatherers respectively.

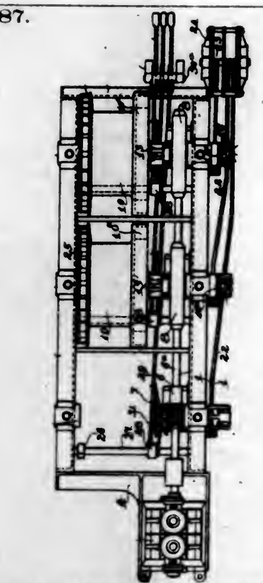
10. In a corn picker and husker, a pair of coöperating stalk-gatherers; means for supporting the same at opposite sides of a path for the stalks left open between them; means at the proximate margins of said gatherers for detaching the ears; a trough in each of the gatherers for receiving the ears; husking means at the bottom of said troughs; an endless conveyer for advancing the ears upward and rearward along the trough comprising each a driving sprocket-wheel at the rear and driven sprocket-wheel at the forward end; a stalk-feeding device mounted on each gatherer above the ear-conveyer comprising each an endless chain and sprocket-wheels around which it is driven, the lower forward sprocket-wheel for each of said chains having an axle or hub adapted to be engaged for driving with the driven sprocket-wheel of the ear-conveyer.

11. In a corn picker and husker, a pair of coöperating stalk-gatherers; means for supporting the same at opposite sides of a path left open for the stalks between them; rotary angular bars at the proximate margins of said gatherers in position for engaging the stalks; means for rotating them with downward movement at their proximate sides for feeding the stalks downward and causing the detachment of the ears above such bars; each gatherer having a receptacle for the ears below the level of said bars; and an arch rigidly connecting the two gatherers extending across the stalk-path between said bars and the ear-receptacles.

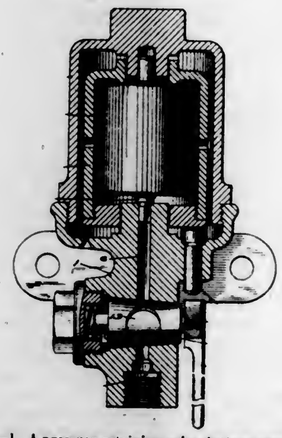
786,287. **MOORING-MACHINE.** FRANK HAYES, Superior, Wis., and WILLIAM CLIFFORD, Duluth, Minn. Filed Apr. 15, 1904. Serial No. 203,306.

Claim.—In a mooring-machine, the combination of a plural number of windlass-shafts arranged axially parallel to each other, windlass-drums loosely mounted on said shafts, clutches adapted in operation to key said windlass-drums to their corresponding shafts, means for operating and retracting said clutches, a drive-shaft common to all of said windlass-shafts, means for driving said drive-shaft, means adapted in operation to prevent the counter rotation of the respective windlasses, means for operating and retracting said preventive means and cables respectively engaged by the corresponding said windlasses, substantially as described.

786,287.



786,288. **RETAINING-VALVE.** EDWIN M. HERR, Edgewood Park, Pa., assignor to The Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed July 30, 1904. Serial No. 218,340.



Claim.—1. A pressure-retaining valve device comprising a cock and a loaded valve with means operated by the movement of the cock for varying the effect of the load on the valve.

2. A pressure-retaining valve device comprising a cock, a valve having a plurality of load devices, and means operated by the movement of the cock-handle for shifting one of said load devices.

3. A pressure-retaining valve device comprising a cock, a valve having a plurality of weights, and mechanism operated by the movement of the cock-handle for supporting one of said weights independently of the valve.

4. A pressure-retaining valve device comprising a weighted valve, a cock for controlling ports leading to the atmosphere and to said valve, and means operated by the movement of the cock for adjusting the effect of the weight upon the valve.

5. A pressure-retaining valve device comprising a cock, a valve having a plurality of weights, and a cam operated by the cock-lever for supporting one of said weights independently of the valve.

6. A pressure-retaining valve device comprising a cock and a valve having a plurality of weights, one weight being located within another.

7. A pressure-retaining valve device comprising a cock and a valve having a plurality of weights, one weight being located within another, and means for supporting one weight independently of the valve.

8. A pressure-retaining valve device comprising a cock, a valve having two weights, one being in the form of a hollow cylinder surrounding the other, and means operated by the movement of the cock-handle for supporting the outer weight independently of the valve.

786,289. **CONCRETE BEAM PROTECTION.** ABRAHAM L. A. HIMMELWRIGHT, New York, N. Y., assignor to The New Jersey Wire Cloth Company, Trenton, N. J., a Corporation of New Jersey. Filed July 16, 1903. Serial No. 165,787.



Claim.—1. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with arms extending below the beams and embedded in the concrete, substantially as described.

2. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with inclined arms extending below the beams and embedded in the concrete, substantially as described.

3. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with inclined hooked arms extending below the beams and embedded in the concrete, substantially as described.

4. In a concrete floor or similar structure, a beam protection consisting of a body of concrete extending around and below the bottom flanges of the beams and supported solely by the beams and clips arranged at intervals on the flanges and provided with arms some of which are inclined downward and outward and others downward and inward from the beam flange and embedded in the concrete, substantially as described.

5. Beam-protection supporting-clip F provided with arms 1 for engaging the flange of the beam to hold the clip in place, and inclined arms 2, 3 on the opposite side of the clip from the arms 1, some of which inclined arms extend downward and outward and others downward and inward, substantially as described.

6. Beam-protection supporting-clip F provided with arms 1 for engaging the flange of the beam to hold the clip in place, and inclined arms 2, 3 on the opposite side of the clip from the arms 1, said arms 2, 3 being hooked at their ends, and some of said arms extending downward and outward and some downward and inward, substantially as described.

786,290. **ROUNDABOUT.** WILLIAM HOSSE and ROBERT MCEWEN, Nashville, Tenn. Filed Nov. 23, 1903. Serial No. 182,379.

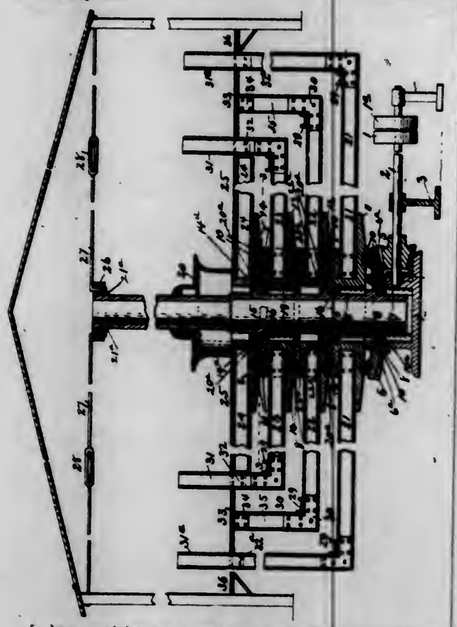
Claim.—1. In a roundabout, a main shaft, platforms driven thereby, a supporting-base, a gear-wheel revolubly mounted on the base, pockets in said gear-wheel, lugs on the shaft received in said pockets, a pinion meshing with the gear-wheel, and means for imparting motion to the pinion to operate the shaft.

2. In a roundabout, a main shaft, detachable spiders connected to the same, interlocking means between the spiders and the shaft, each spider being revoluble independently of the adjoining spider, beams carried by the spiders, and means for connecting the beams to the spiders.

3. In a device of the character described, a main shaft, separable spiders, means for locking some of said spiders to the shaft, means for revolubly connecting the other of said spiders to the shaft, a gear-wheel connected with the base of said shaft, a main base supporting the gear-wheel, and means for driving the gear-wheel.

4. In a device of the character described, a main shaft, a gear-wheel connected to the base of the same, a bed-plate supporting the gear-wheel, means for driving said gear-wheel, spiders detachably

connected to the main shaft, flanges formed on the main shaft, rollers located between the main shaft and spiders and adapted to ride upon said flanges, and a pawl-and-ratchet mechanism between the main shaft and spiders.



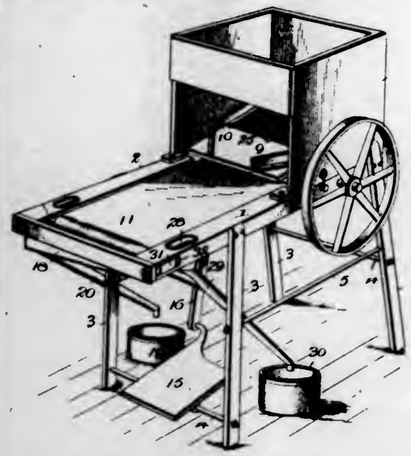
5. In a roundabout, a main shaft, a gear-wheel connected to the base of the same, a bed-plate supporting the gear-wheel, a horizontal shaft journaled in the bed-plate, a pinion on the horizontal shaft engaging the gear-wheel of the main shaft, separable spiders, flanges on the main shaft receiving and locking some of the spiders thereto, ratchet mechanism between the shaft and other of said spiders, roller-supporting flanges also on the main shaft, and rollers on said flanges.

6. In a roundabout, a main shaft, a gear-wheel connected to the same, a bed-plate supporting the gear-wheel, a horizontal shaft carrying a pinion in mesh with said gear, spiders detachably connected to the main shaft, supporting-beams detachably connected to the spiders, some of said beams adapted to carry figures and other platforms, rollers on said flanges, ratchets on the figure-carrying spiders, pawls upon the main shaft to engage the ratchets of the spiders, tracks formed between the various spiders, and antifriction-balls on said tracks.

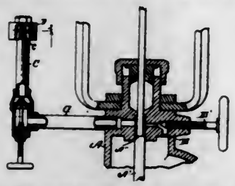
786,291. BEAN-PICKER. HERBERT G. HUBBELL, Hector, N. Y. Filed June 2, 1904. Serial No. 210,883.

Claim.—1. In a machine of the character specified, a suitable frame; a hopper-section mounted on said frame; a screen-carrying member or shoe 9 pivoted at its outer end and having its inner end resting upon suitable supports; an extension or agitator carried by said shoe and extending upward through a recess in the bottom of the hopper; an endless carrier reaching under and cooperating with the screen-carrying frame; a driving-shaft and means carried by said shaft comprising a pair of disks having lugs thereon, the lugs on one disk being at a phase difference of one-half the angular distance between the lugs on the disks, from the lugs of the other disk to impart a more or less violent blow to each side of the screen-carrying frame whereby one edge thereof will be suddenly elevated while the lower edge will be depressed in sudden contact with an agitator upon the other side of the machine adjacent to said edge and cause the beans or the like to travel over the screen in a zigzag path and additional means to receive and convey the cleansed beans and the like and the particles removed therefrom into separate receptacles, all combined substantially as specified and for the purpose set forth.

2. The herein-described bean-picker, comprising a suitable frame, a hopper-section mounted upon said frame, a screen-carrying member or shoe 9 pivoted at its outer end to said hopper and having its inner end restricted, an agitator carried by said shoe and extending upward through a recess in the bottom of the hopper, a driving-shaft mounted in said frame, a pair of disks secured to said shaft, said disks having agitating-points 24, and also having flanges upon one of their edges whereby said screen-carrying member 9 will be properly guided, all combined substantially as set forth.



786,292. FLASH-PILOT FOR GAS-BURNERS. HERBERT S. HUMPHREY, Kalamazoo, Mich., assignor to Humphrey Company, Kalamazoo, Mich. Filed July 22, 1904. Serial No. 217,619.



Claim.—1. The combination with a cluster gas-burner, of a tube-like pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations therethrough, said hood being screw-threaded upon said pilot-burner; a delivery-nozzle upon which said pilot-burner is mounted; a needle-valve for said delivery-nozzle; a main burner-valve adapted to serve as a valve for said pilot-burner, whereby the same is flashed when the main valve is operated; a by-pass for said pilot-burner; all coacting for the purpose specified.

2. The combination with a cluster gas-burner, of a tube-like pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations therethrough, said hood being screw-threaded upon said pilot-burner; a main burner-valve adapted to serve as a valve for said pilot-burner, whereby the same is flashed when the main valve is operated; and a by-pass for said pilot-burner, all coacting for the purpose specified.

3. The combination with a cluster gas-burner, of a tube-like pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations therethrough; a delivery-nozzle upon which said pilot-burner is mounted; a needle-valve for said delivery-nozzle; a valve for said pilot-burner; and a by-pass therefor, all coacting for the purpose specified.

4. The combination with a cluster gas-burner, of a tube-like pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations therethrough; a valve for said pilot-burner; and a by-pass therefor, all coacting for the purpose specified.

5. The combination with a gas-burner, of a pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations

therethrough: a main burner-valve, adapted to serve as a valve for said pilot-burner, whereby said pilot is flashed when the main valve is actuated; and a by-pass for said pilot-burner, for the purpose specified.

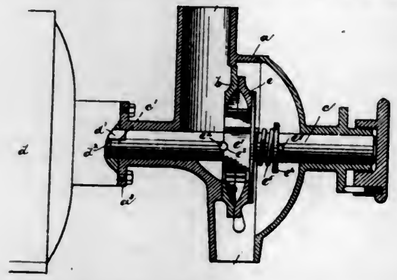
6. The combination with a gas-burner of a pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations therethrough; and a main burner-valve adapted to serve as a valve for said pilot-burner, whereby said pilot is flashed when the said main valve is actuated, for the purpose specified.

7. The combination with a gas-burner of a pilot-burner having laterally-opening jet-orifices; a hood therefor having radial partitions between said jet-orifices, said partitions having perforations therethrough; a valve for said pilot-burner; and a by-pass therefor, for the purpose specified.

8. The combination with a gas-burner, of a pilot-burner, having a plurality of jet-orifices; a hood therefor, having radial partitions between said jet-orifices, said partitions having perforations therethrough; and a valve for said pilot-burner, for the purpose specified.

9. The combination with a gas-burner, of a pilot-burner, having a plurality of jet-orifices; and a hood therefor, having radial partitions between said jet-orifices, said partitions having perforations therethrough, for the purpose specified.

786,293. GRINDING-MILL. HERBERT L. JOHNSTON, Troy, Ohio, assignor to The Hobart Electric Manufacturing Company, Troy, Ohio, a Corporation of Ohio. Filed Sept. 19, 1904. Serial No. 224,995.



Claim.—1. In a grinding-mill, a stationary grinding member, a driving-shaft, a movable grinding member loosely and slidably mounted on said driving-shaft, a projection on said shaft adapted to engage with said movable grinding member to form a driving connection between same and said shaft, a spring on said shaft adapted to hold said movable grinding member in engagement with said projection but adapted to yield to permit said connection to be broken, and means for adjusting said shaft to vary the relation of said grinding members, substantially as specified.

2. In a grinding-mill, stationary and movable grinding members, said movable grinding member being mounted loosely upon a driving-shaft, a pin in said shaft adapted to engage with recesses in said movable grinding member to form a driving connection, and a spring on the opposite side of said movable grinding member to hold the same in engagement with said pin but adapted to yield under tension to permit the disengagement of said member with said pin, substantially as specified.

3. In a grinding-mill, stationary and movable grinding members, a driving-shaft upon which said movable member is loosely mounted, means on said shaft for normally holding said movable member in driving connection therewith including a coiled spring about said shaft which also serves to hold said grinding members in yielding grinding relation, said spring being adapted to yield sufficiently to permit the driving connection to be broken, substantially a specified.

4. In a grinding-mill, stationary and movable grinding members, a driving-shaft for said movable member, a spring on said shaft to normally hold said movable member in driving connection with said shaft and also to hold said grinding members in yielding grinding relation, a motor-shaft detachably connected to said driving-shaft, and means for adjusting said driving-shaft to vary the relation of said grinding members, said adjustment being adapted to be made without disturbing the driving relation of the respective parts, substantially as specified.

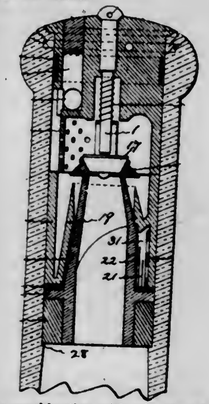
786,294. CLUTCH MECHANISM. JOHN M. JOY, New York, N. Y., assignor to The Page Machine Company, New York, N. Y., a Corporation of New York. Filed Dec. 23, 1903. Serial No. 186,271.



Claim.—1. The combination of driving and driven shafts, a clutch connecting the two, a spiral spring encircling the driven shaft and interposed between the said shaft and one member of the clutch, whereby the spring may be wound up by the operation of the driving-shaft to place the driven shaft under a constant stress tending to rotate the same, and means for positively disengaging the clutch members when the spring has reached a given tension thereby preventing said spring from being wound up beyond a predetermined amount, for substantially the purposes set forth.

2. The combination of a shaft to be driven and a clutch, one member of which is adapted to be continuously driven from a source of power, a spiral spring interposed between the other clutch member and the shaft to be driven, and extending longitudinally of the driven shaft and encircling the same, whereby said spiral spring may be wound up about its longitudinal axis to place the driven shaft under a constant stress tending to rotate the same, and means for positively disengaging the clutch members when the spring has reached a given tension thereby preventing said spring from being wound up beyond a predeterimned amount, for substantially the purposes set forth.

786,295. BOTTLE. RAMON G. JULIEN, Jerez de la Frontera, Spain, assignor to Pedro de Demeoq, Jerez de la Frontera, Spain. Filed Mar. 14, 1904. Serial No. 198,046.



Claim.—1. The combination with a bottle, of a cup-like receptacle located within but independent of said bottle and provided with a central overflow-outlet, said receptacle being adapted to catch any inflowing liquid, whereby refilling of the bottle is indicated.

2. The combination with a bottle, of a receptacle located therein and adapted to catch any inflowing liquid, and an indicating device located beneath said receptacle and operated by the overflow from the latter.

3. The combination with a bottle, of a cup-like receptacle located within but independent of said bottle and provided with a central overflow-outlet, said receptacle being adapted to catch any inflowing liquid, and a closure for said bottle having an outlet-conduit.

4. The combination with a bottle, of a receptacle located therein and adapted to catch any inflowing liquid, an indicating device located beneath said receptacle and operated by the overflow from the latter, and a closure for said bottle having an outlet-conduit.

5. The combination with a bottle, of a receptacle located therein and adapted to catch any inflowing liquid, said receptacle having an inclined bottom, and an indicating device located beneath said receptacle and operated by the overflow from the latter.

6. The combination with a bottle, of a tubular member located therein, a receptacle surrounding said tubular member, and an indicating device located beneath said receptacle and operated by the overflow from the latter.

7. The combination with a bottle, of a tubular member located therein, and a cup-like receptacle independent of said bottle and provided with an overflow-sleeve surrounding said tubular member, said receptacle being adapted to catch any inflowing liquid.

8. The combination with a bottle, of a tubular member located therein, a receptacle surrounding said tubular member, a chamber being formed below the former, and an indicating device located below said receptacle and located in said chamber.

9. The combination with a bottle, of a tubular member located therein, a receptacle provided with a sleeve surrounding said member, and an indicating device, said indicating device being located below said receptacle and operated by the overflow therefrom.

10. The combination with a bottle, of a tubular member located therein, a receptacle surrounding said tubular member and having an inclined bottom, a chamber being formed between said bottom and said tubular member, and an indicating device located in said chamber.

11. The combination with a bottle of a tubular member located therein, a cup-like receptacle independent of said bottle and provided with an overflow-sleeve, surrounding said member, and a closure for said bottle having an outlet-conduit.

12. The combination with a bottle, of a tubular member, a receptacle surrounding the same, a chamber being formed between said receptacle and said member and below the former, an indicating device located in said chamber, and a closure for said bottle having an outlet-conduit.

13. The combination with a bottle, of a tubular member located therein and provided with a valve-seat, a cup-like receptacle independent of said bottle and surrounding said member, said receptacle being adapted to catch any inflowing liquid, a closure for said bottle provided with an outlet-conduit, and a valve carried by said closure and normally resting on said valve-seat.

14. The combination with a bottle, of a tubular member located therein and provided with a valve-seat, a receptacle surrounding said member, an indicating device located below said receptacle and operated by the overflow from the latter, a closure for said bottle having an outlet-conduit, and a valve carried by said closure adapted to normally rest on said valve-seat.

15. The combination with a bottle, of a tubular member located therein, a valve normally closing one end thereof, a cup-like receptacle independent of the bottle and surrounding said member, and a deflecting-flange carried by said member.

16. The combination with a bottle, of a tubular member located therein, a valve normally closing one end of said member, a receptacle surrounding said member, a deflecting-flange carried by said member, and an indicating device located below said receptacle operated by the overflow from the latter.

17. The combination with a bottle, of a tubular member located therein, a receptacle surrounding the same, a closure for said bottle having an outlet-conduit and having a perforated apron extended below the plane of the top edge of said tubular member, and a valve carried by said closure adapted to normally close the end of said tubular member.

18. The combination with a bottle, of a tubular member located therein, a receptacle surrounding the same, a closure for said bottle having an outlet-conduit and provided with a perforated apron, a valve carried by said closure and adapted to normally close the end of said tubular member, and a deflecting-flange carried by said tubular member.

19. The combination with a bottle, of a tubular member located therein, a cup-like receptacle independent of the bottle and surrounding said member, a closure for said bottle having an outlet-conduit, a sping-pressed valve-stem extending through said closure, and a valve carried by said stem and adapted to normally close said tubular member.

20. The combination with a bottle having an annular shoulder, a ring or collar resting on said shoulder, a tubular member having a flange adapted to rest on said ring or collar, a cup-like receptacle independent of the bottle and surrounding said member, and means for normally closing said tubular member.

21. The combination with a bottle having an annular shoulder, a ring or collar resting on said shoulder, a tubular member having a flange adapted to rest on said ring or collar, a receptacle surrounding said member, a chamber being formed between the bottom of said receptacle and said flange, and an indicating device located in said chamber.

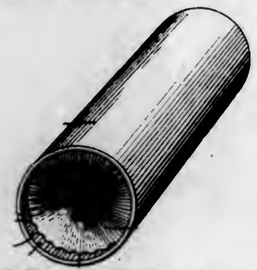
22. The combination with a bottle, of a tubular member located therein, a receptacle surrounding the same, a chamber being formed between said receptacle and said member and below the former, and means for changing the color of any liquid which enters said chamber.

23. The combination with a bottle having an annular recess, of a tubular member located in said bottle; a receptacle surrounding the same, an indicating device located below said receptacle and operated by the overflow from the latter, and a closure for said bottle having spring-pressed lugs adapted to engage said recess and also provided with an outlet-conduit.

24. The combination with a bottle, of a tubular member located therein, a receptacle surrounding the same, an indicating device arranged to be operated by the overflow from said receptacle, a closure for said bottle having a depending perforated apron and also provided with an outlet-conduit, a spring-pressed valve adapted to normally close said tubular member, and a deflecting-flange carried by said tubular member.

25. The combination with a bottle, of a tubular member located therein, a receptacle surrounding the same and provided with an inclined bottom, whereby a chamber is formed between said receptacle and said tubular member, an indicating device located in said chamber, a deflecting-flange carried by said tubular member, a closure for said bottle provided with a perforated apron and having an outlet-conduit, and a spring-pressed valve carried by said closure and adapted to normally rest upon the upper end of said tubular member.

786,296. MAILING-TUBE. JOHN R. KELLER, Pittsburg, Pa. Filed May 9, 1904. Serial No. 207,069.



Claim.—1. The combination of a mailing-tube, and a disk inserted in said tube, said disk having a slit extending from its periphery toward its center, whereby it can contract in diameter for entering the tube, said disk being of resilient metal so that after insertion in the tube it will expand and bear with its periphery against the inner walls of the tube and will be held therein solely by its resilient action against the tube.

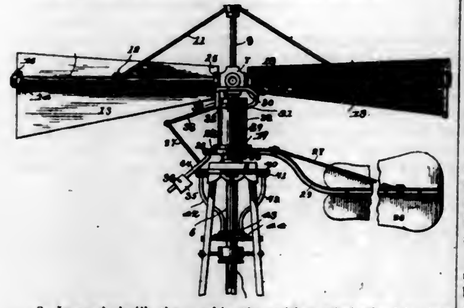
2. The combination of a mailing-tube, a disk inserted in said tube, said disk having a slit extending from its periphery toward its center, whereby it can contract in diameter for entering the tube, said disk having a toothed periphery and being of resilient metal so that after insertion in the tube it will expand and bear with its periphery against the inner walls of the tube and be held solely by its resilient action against the tube.

3. The combination of a mailing-tube, and a cup-shaped disk inserted in said tube with its concave side toward the end of the tube, said disk having a slit extending from its periphery toward its center, whereby it can contract in diameter for entering the tube, said disk being of resilient metal so that after insertion in the tube it will expand and bear with its periphery against the inner walls of the tube and be held solely by its resilient action against the tube.

786,297. WINDMILL. OWEN W. KENWORTHY, Oskaloosa, Iowa. Filed Dec. 23, 1904. Serial No. 238,118.

Claim.—1. In a windmill, the combination with a wind-wheel having radial tiltable blades, of a trip located in a portion of the path of the blades for contact thereby to feather the blades when coming into the wind, and means to rotatably shift the trip device about the axis of the wheel as a center into engagement with the active blades of the wheel to feather the same and render the wheel inactive.

2. In a windmill, the combination with a wind-wheel having vertically-tiltable blades, of an arcuate trip disposed in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, said trip having an upwardly-inclined initial portion and a substantially horizontal portion leading therefrom, and means to rotatably shift the trip around the axis of the wheel as a center to bring the trip into engagement with the active blades of the wheel to feather the same and render the wheel inactive.



3. In a windmill, the combination with a wind-wheel having tiltable blades, of a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, said trip capable of being rotatably shifted about the axis of the wheel as a center into engagement with the active blades of the wheel to feather the same and render the wheel inactive, and means for rotatably shifting the trip consisting of a tensioned device connected to the trip and means for rotatably shifting the trip in opposition to the tensioned device.

4. In a windmill, the combination with a wind-wheel having tiltable blades, of a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, said trip capable of being rotatably shifted about the axis of the wheel as a center to engage and feather the active blades of the wheel to render the latter inactive, and means to shift the trip consisting of a tensioned lever fulcrumed independently of the trip, an arm carried by and projected laterally from the lever, a link extending between the arm and the trip, and means to move the lever against the tension thereof to rotatably shift the trip.

5. In a windmill, the combination with a support, of a wind-wheel mounted thereon and provided with tiltable blades a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, said trip capable of being rotatably shifted around the axis of the wheel as a center to engage and feather the active blades of the wheel, a tensioned lever fulcrumed upon the support, a connection between the lever and the trip to impart a rotary movement to the latter by a movement of the lever, a slide carried by the support and disposed to engage and move the lever, and means to operate the slide.

6. In a windmill, the combination with a support, of a wind-wheel having tiltable blades, a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a trip-support rotatable upon the axis of the wheel as a center, a tensioned lever fulcrumed upon the support, a lateral arm carried by the lever, a link extending between the arm and one side of the rotary trip-support, a slide carried by the support and capable of movement into engagement with the lever to move the same, and means to actuate the slide.

7. In a windmill, the combination with a support and a vertical rotary shaft carried thereby, of a wind-wheel carried by the shaft and having tiltable blades, a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a trip-supporting sleeve rotatably embracing the shaft, a tensioned lever fulcrumed upon the support, a connection between the lever and the rotary trip-support to impart a rotary movement to the trip-support by a movement of the lever, and means to move the lever against the tension thereon for shifting the trip.

8. In a windmill, the combination with a support, of a vertical rotary shaft carried thereby, a wind-wheel carried by the shaft and having tiltable blades, an arcuate trip embracing the shaft as a center and located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a sleeve rotatably embracing the shaft and supporting the trip, a gravity-lever fulcrumed upon the support, a connection between the lever and the sleeve to rotatably shift the same by an upward movement of the lever, and means to elevate the lever and thereby shift the trip.

9. In a windmill, the combination with a support and a rotatably vertical shaft carried thereby, of a wind-wheel carried by the shaft and having tiltable blades, a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a rotatably-shiftable sleeve embracing the shaft and supporting the trip, a gravity-lever fulcrumed upon the support, a connection between the lever and the sleeve to rotatably shift the same by an elevation of the lever, a vertically-movable slide carried by the support and capable of contact with the lever to elevate the same, and a controlling-lever fulcrumed upon the support and connected to the slide.

10. In a windmill, the combination of a wind-wheel having tiltable blades, an arcuate trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a vane connected to the trip for rotatably shifting the same about the axis of the wheel as a center and thereby maintain a predetermined relation between the trip and the vane, and means to rotatably shift the trip independently of the movement of the vane to bring the trip into contact with the active blades of the wheel to trip and thereby feather the same to render the wheel inactive.

11. In a windmill, the combination with an upright rotary shaft and a wind-wheel carried thereby and provided with tiltable blades, of a carrier member rotatable concentrically upon the shaft, a vane carried by the carrier to rotatably shift the latter, a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, said trip being rotatably supported upon the carrier member, and means mounted upon the carrier member and connected to the trip to rotatably shift the same independently of the carrier and bring the trip into contact with the active blades to feather the same and render them inactive.

12. In a windmill, the combination with a vertical rotary shaft and a wind-wheel carried thereby and provided with tiltable blades, of a rotatably-shiftable carrier embracing the shaft, a vane connected to the carrier for shifting the same therewith, a trip located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, said trip being rotatably supported upon the carrier, a lever fulcrumed upon the carrier, a connection between the lever and the trip to rotatably shift the latter upon the carrier and bring the trip into contact with the blades to feather the same and render them inactive, and controlling means for the lever to rotatably shift the trip independently of the vane.

13. In a windmill, the combination with a tower and a vertical rotary shaft, of a wind-wheel carried by the shaft and provided with tiltable blades, a tubular carrier rotatably embracing the shaft and supported upon the tower and provided with an external annular flange, a vane carried by the flange to rotatably shift the carrier, a sleeve rotatably embracing the carrier and supported upon the flange thereof, a trip carried by the sleeve and located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, and means to rotatably shift the sleeve upon the carrier consisting of a tensioned lever fulcrumed upon the flange of the carrier a connection between the lever and the sleeve to rotatably shift the latter by a movement of the lever, and controlling means to move the lever against the tension thereof.

14. In a windmill, the combination with an upright rotary shaft and a wind-wheel carried thereby and provided with tiltable blades, of a tubular carrier rotatably shiftable upon the shaft, a vane connected to the carrier to shift the same therewith, a sleeve rotatably embracing the carrier and supported thereon, an arcuate trip carried by the sleeve and disposed in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a tensioned lever fulcrumed upon the carrier, a lateral arm carried by the lever, a link extending between the arm and the sleeve at a point upon the opposite side of the axis thereof, and means to move the lever against the tension thereon to rotatably shift the trip and bring the same into engagement with the active blades to feather the same and render them inactive.

15. In a windmill, the combination with an upright rotary shaft having a wind-wheel provided with tiltable blades, of a carrier rotatably embracing the shaft, a vane carried by the carrier to shift the same therewith, an arcuate trip rotatably supported upon the carrier and located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a tensioned lever fulcrumed upon the carrier a connection between the lever and the trip to rotatably shift the latter upon the carrier by a movement of the lever, a vertically-slidable ring capable of engagement with the lever to move the same against the tension of the lever, and means to actuate the ring.

16. In a windmill, the combination with an upright rotary shaft having a wind-wheel provided with tiltable blades, of a carrier rotatably embracing the shaft, a vane carried by the carrier to shift the same therewith, an arcuate trip rotatably supported upon the carrier and located in a portion of the path of the blades to tilt and there-

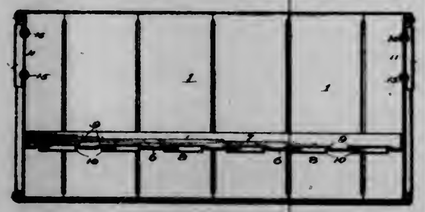
by feather the same when coming into the wind, a tensioned lever fulcrumed upon the carrier, a connection between the lever and the trip to rotatably shift the latter upon the carrier by a movement of the lever, and lever-actuating means having a portion extending throughout the entire rotary path of the lever to operate the latter in any position thereof.

17. In a windmill, the combination with a tower, a vertical rotary shaft, and a wind-wheel carried by the shaft and having tiltable blades, of a carrier supported upon the tower and rotatably shiftable upon the shaft, a vane carried by the carrier to rotatably shift the same, a trip rotatably shiftable upon the carrier and located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a tensioned lever fulcrumed upon the carrier, a connection between the lever and the trip to rotatably shift the latter by a movement of the lever to bring the trip into engagement with the active blades of the wheel to feather the same and render them inactive, a vertically-movable ring carried by the tower and constituting a support for the lever in any position thereof, and means to elevate the ring and actuate the lever.

18. In a windmill, the combination with a tower having a cap provided with radial perforate projections, of an upright rotary shaft piercing the cap, a wind-wheel carried by the shaft above the top of the tower and provided with tiltable blades, a carrier supported upon the cap and rotatably embracing the shaft, a vane carried by the carrier to shift the same therewith, a trip rotatably supported upon the carrier and located in a portion of the path of the blades to tilt and thereby feather the same when coming into the wind, a vertically-movable ring normally supported upon the perforate ears of the cap, rods working through the perforate ears and connected to the ring, means mounted upon the tower and connected to the rods to elevate the ring, a tensioned lever fulcrumed upon the carrier and supported upon the ring, and a connection between the lever and the trip to rotatably shift the latter upon the carrier by an upward movement of the lever to bring the trip into engagement with the active blades of the wheel and render the same inactive.

19. In a windmill, the combination with an upright rotary shaft having radial arms located below the top thereof, of blades swung upon the arms and projected at opposite sides thereof, each blade having its greater portion normally depending from its arm, and braces extending from the shaft above the blades to the arms and lying in the path of the tiltable movements of the upper portions of the blades to limit said movements.

786,298. **SHEET-METAL PACKING-CASE.** ALFRED T. KRUSE, Defiance, Ohio, assignor, by mesne assignments, to The American Steel Package Company, Defiance, Ohio, a Corporation of Ohio. Filed Feb. 4, 1904. Serial No. 192,057.



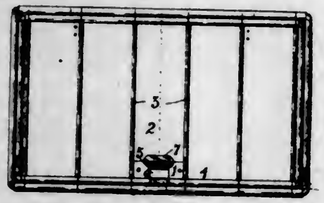
Claim.—1. A sheet-metal packing-case, consisting of suitable sides and ends suitably secured at the corners of the case, a series of outwardly-extending ribs or flanges formed therewith, a beading formed at the upper and lower edges thereof and inclosing a wire, a supporting-plate mounted therein, openings formed in the ends thereof, intermediate two of said outwardly-extending ribs or flanges, and sheet-metal handles secured thereto and provided with openings concentric with said openings of the ends.

2. In a sheet-metal packing-case, a supporting-plate interposed between and secured to the sides and ends thereof by means of an upwardly-extending flange, a series of openings or perforations formed in said supporting-plate, an annular beading formed about said openings, and a downwardly-extending flange formed with said annular beading.

3. A sheet-metal packing-case, consisting of suitable sides and ends suitably secured to form the corners of the case, a series of outwardly-extending ribs or flanges of substantially U shape in cross-section, formed with said sides and ends, a beading formed at the upper and lower edges thereof and inclosing a wire, openings formed in the ends thereof, and sheet-metal handles secured thereto and provided with openings concentric with said openings of the ends.

4. In a sheet-metal packing-case, the combination with the ends provided with two outwardly-extending ribs or flanges, and openings formed therein intermediate said outwardly-extending ribs or flanges; of sheet-metal handles secured thereto and provided with openings concentric with said openings of the ends, ears formed at the ends thereof and adapted to be riveted to the ends of the case, an outwardly-extending rib or flange formed at the base of said ears and adapted to take over said ribs or flanges formed in the ends of the case, and a beading formed above and below the openings of the handles and adapted to take over the contiguous edges of said openings formed in the ends of the case.

786,299. **BOX-FASTENER.** ALFRED T. KRUSE, Defiance, Ohio, assignor, by mesne assignments, to The American Steel Package Company, Defiance, Ohio, a Corporation of Ohio. Filed Apr. 11, 1904. Serial No. 202,538.



Claim.—1. A box-fastener for sheet-metal packing-cases, consisting of a plate secured to the lid or cover and provided at its rear with a handle, an opening or recess formed in the front portion of said plate and cover, a cross-bar mounted in said opening or recess, and a spring-latch secured to the front portion of the case and provided with a hook adapted to take over and engage said cross-bar when the lid is closed.

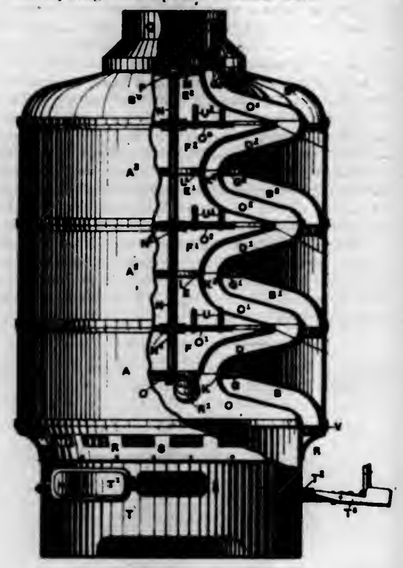
2. In a box-fastener for sheet-metal packing-cases, the combination with a plate secured to the lid or cover and provided at its rear with a handle, an opening or recess formed in the front portion of said plate and cover, and a cross-bar mounted in said opening or recess; of a spring-latch secured to the front portion of the case, a hook formed at the top of said spring-latch and adapted to engage said cross-bar, and an opening formed in the front wall of the case, opposite said spring-latch, wherethrough the said spring-latch may be manipulated.

3. A box-fastener for sheet-metal packing-cases, consisting of a plate secured to the lid or cover, a handle formed at the rear of said plate, an opening or recess formed in the front portion of said plate and cover, a cross-bar secured in said opening or recess, a spring-latch secured to the front portion of the case and provided with an opening, a hook formed at the top of said spring-latch and adapted to engage said cross-bar, and an opening formed in the front wall of the case opposite said spring-latch, substantially as described.

786,300. **GAS-HEATER.** EPHRAIM LABERGE, Montreal, Canada. Filed Dec. 5, 1904. Serial No. 235,450.

Claim.—1. In a gas-heater, a vertical series of superposed similar outer inclosing sections which flare outwardly at their upper end and inwardly as a flange at their lower end, whereby a short telescopic joint is formed, dome-shaped deflecting-plates therewithin, supported at their lower extremities by said inturned flanges, a cylindrically-shaped base member having an exterior perforated ring for supporting said sections and plates, a series of successively-superposed baffle-plates the lower of which is lap-jointed to the base member and an inner series of like baffle-plates hung from the top, said plates arranged to form a serpentine vertical passage for the products of combustion, and a central series of horizontal plane deflecting-plates.

2. In a gas-heater, a vertical series of superposed similar outer inclosing sections which flare outwardly at their upper end and inwardly as a flange at their lower end, whereby a short telescopic joint is formed, dome-shaped deflecting-plates therewithin supported at their lower extremities by said inturned flanges, a cylindrically-shaped base member having an exterior perforated ring for supporting said sections and plates, a series of successively-superposed baffle-plates the lower of which is lap-jointed to and supported by the base member, a cap-plate carried by the upper end of said series of baffle-plates, a sectional rod depending therefrom, a series of plane horizontal deflecting-plates carried thereby, a base-plate attached to the end thereof and an inner series of baffle-plates supported upon said base-plate, said baffle-plates arranged to form a serpentine vertical passage for the products of combustion.



786,301. **WELL APPARATUS.** MAHLON E. LAYNE, Rock Rapids, Iowa. Filed Feb. 3, 1902. Serial No. 92,382.



Claim.—1. In a well sinking apparatus the combination of a casing, an inlet tube having a gripping device for maintaining it in position in the casing, and a double acting valve for alternately admitting fluid directly through the inlet tube and from the side of the inlet tube.

2. The combination of a well casing, a back pressure plug therefor, a set of gripping flap valves connected with said plug for securing the same in the casing, and pipes for introducing water on either side of the flap valves to exert pressure upon the inside casing or release the same, substantially as described.

3. The combination with a well casing and a back pressure plug therein, of a casing head, an inlet tube directly through said head and through the interior of the casing, an inlet through said casing for the admission of fluid between the inlet tube and the casing, and a valve device at the end of the inlet tube to close by pressure outside of said tube against backward flow in the inlet tube and allow of said flow forward down the casing, substantially as described.

4. The combination with a well casing, of a movable pipe therein having a back pressure checking device comprising a double acting valve which closes the interior tube on one side, and on its other side closes an opening through the side of the tube, and means on the said interior tube for automatically holding it in place when the valve is closed against said side opening by the pressure in the interior tube.

5. The combination of a well casing and an inlet tube provided with fluid pressure operated means for maintaining it in position in the casing.

6. The combination of a well casing, an inlet tube with a head provided with means for holding it in position in the casing and having a double valve opening alternately to the interior of the inlet tube and to the space between the tube and casing.

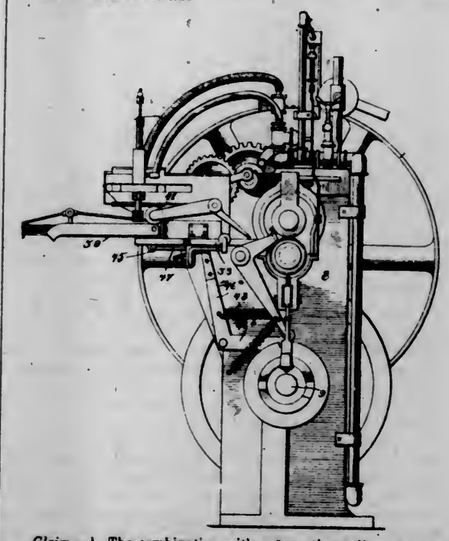
7. A gripping device for the inlet tube of a well casing composed of flap valves seating over openings in the tube and provided with faces adapted to grip on the side of the casing when the valves are closed by interior pressure.

8. In well sinking apparatus the combination of a casing, a tube therein provided with gripping flap valves automatically operated by fluid pressure in the tube and casing, and inlets for introducing the pressure into either the tube or the casing, substantially as described.

9. The combination of a casing having a removable inlet plug, with an inlet tube in the casing provided with a back pressure plug, gripping devices to hold said tube in place in the casing, a double acting flap valve opening alternately into the tube and the casing and an inlet in the casing between the inlet plug and the back pressure plug.

10. The combination with a casing having an inlet plug, of an inlet tube passing therethrough provided with valves and gripping flaps pressed against the casing by pressure in the inlet tube, and the casing being provided with an inlet, whereby pressure may be admitted on both sides of the said gripping flaps to release their hold on the casing, substantially as described.

786,302. **MACHINE FOR MAKING CAN-BODIES.** GEORGE P. LEIGER, Chicago, Ill., assignor, by mesne assignments, to The L. Benedict Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 20, 1903. Serial No. 177,821.



Claim.—1. The combination with coöperating rollers adapted to form a sheet of metal into a cylinder, and mechanism carried

thereby to form and interlock the side seam of said cylinder, of a gage mounted on one of said rollers and adapted as said roller rotates to be automatically projected into the path of a sheet of metal advancing to said rollers and contact with the front edge thereof, substantially as described.

2. The combination with coöperating rollers adapted to form a sheet of metal into a cylinder, and mechanism carried thereby to form and interlock the side seam of said cylinder, of a gage mounted on one of said rollers in advance of said side-seam-interlocking mechanism and adapted to be automatically projected into the path of a sheet of metal advancing to said rollers and contact with the front edge of said sheet and limit its forward movement into said side-seam forming and interlocking mechanism, substantially as described.

3. The combination with coöperating rollers adapted to form a sheet of metal into a cylinder, and mechanism carried thereby to form and interlock the side seams thereof, of a gage mounted on one of said rollers in advance of and adjustable with reference to said side-seam-interlocking mechanism and adapted to be automatically projected into the path of a sheet of metal advancing toward said rollers and contact with the front edge of said sheet and limit its forward movement into said side-seam forming and interlocking mechanism, and mechanism for feeding a sheet of metal against said gage, substantially as described.

4. The combination with a roller provided with a slot, and a second member adapted to coöperate with said roller to form a cylindrical can-body thereon and interlock the side seam of the same, of a gage mounted on said second member, a recess on said roller in advance of said slot, and mechanism adapted to automatically project said gage into said recess into the path of a sheet of metal advancing to said roller as said roller rotates and limit the forward motion of said sheet of metal, substantially as described.

5. The combination with a roller provided with a slot on its periphery, of a second member adapted to coöperate with said roller to form a cylindrical can-body thereon and interlock the side seam of the same, a gage pivoted on said second member, a recess on said roller in advance of said slot, mechanism adapted to automatically project said gage into said recess into the path of a sheet of metal advancing to said roller as said roller rotates and limit the forward motion of said sheet of metal, and mechanism adapted to feed a sheet of metal against said gage, substantially as described.

6. The combination with a roller provided with a slot on its periphery, and a second member adapted to coöperate with said roller to form a cylindrical can-body thereon and interlock the side seam of the same, of a gage pivoted on said second member and adjustable thereon with relation to the slot on said roller, a recess on said roller in advance of said slot, and mechanism adapted to automatically project said gage into said recess in the path of a sheet of metal advancing to said roller as said roller rotates and limit the forward motion of said sheet of metal, substantially as described.

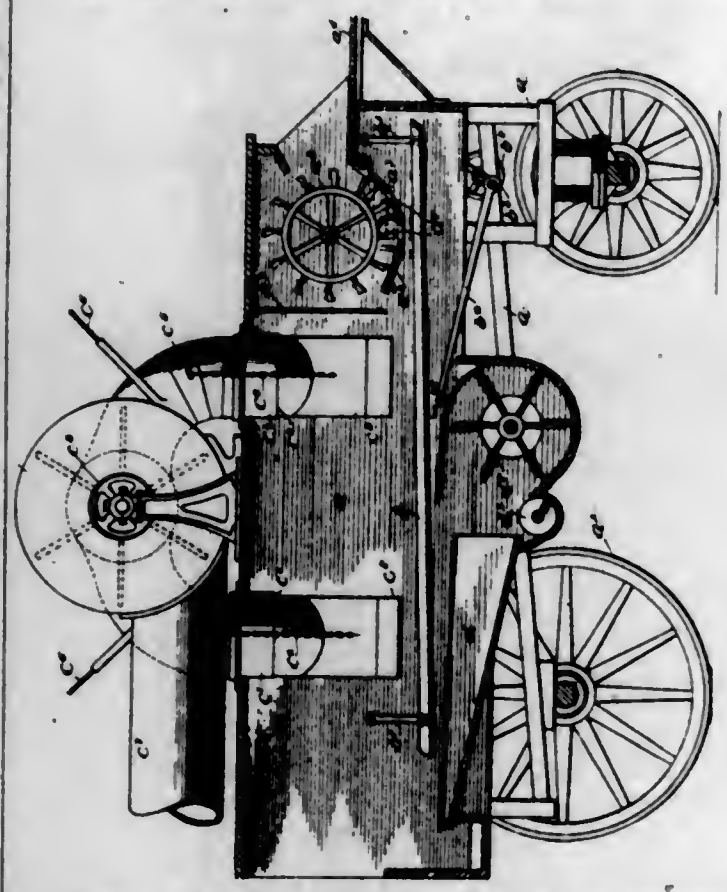
7. The combination with rotary can-body-forming and side-seam-interlocking mechanism, of a gage carried on said can-body-forming mechanism adapted to be automatically projected into the path of a sheet of metal entering said can-body-forming mechanism and to limit its forward motion into said can-body-forming mechanism, a block adapted to contact with a sheet of metal, and mechanism adapted to give to said block a movement at a speed greater than the surface speed of said can-body-forming mechanism to force said sheet of metal against said gage, substantially as described.

8. The combination with coöperating rollers adapted to form a sheet of metal into a cylinder and mechanism carried thereon to form and interlock the side seam of said cylinder, of a gage mounted on one of said rollers and adapted as said rollers rotate to be automatically projected into the path of a sheet of metal advancing to said rollers and to contact with the front edge thereof and limit its forward motion into said mechanism, a block adapted to contact with the rear end of a sheet of metal, mechanism adapted to move said block to forward said sheet of metal toward said rollers, and mechanism adapted to give to said block a second forward movement to force the forward edge of said sheet of metal against said gage, substantially as described.

9. The combination with a roller 19 provided on its periphery with a slot 21 and with a recess 29 in advance of said slot as said roller rotates, a second member 20 provided with a projection 22, a knife 24 mounted in said second member 20 and adapted to coöperate with said slot to form and interlock the side seam of a sheet of metal and form the same into a cylindrical can-body on said roller 19, and mechanism for operating said roller and said knife, of a gage 33 pivotally mounted on said second member 20 in advance of said projection and adjustable on said member 20, and means adapted to force the rear end of said gage 33 into said recess 29 as said rollers rotate, into the path of a sheet of metal advancing to said roller and second member, substantially as described.

10. The combination with a roller 19 provided on its periphery with a slot 21 and with a recess 29 in advance of said slot as said roller rotates, of a second member 20 provided with a projection 22, a knife 24 mounted in said second member 20 and adapted to coöperate with said slot to form and interlock the side seam of a sheet of metal and form the same into a cylindrical can-body on said roller 19, and mechanism for operating said roller and said knife, of a gage 33 pivotally mounted on said second member 20 in advance of said projection and adjustable on said member 20, means adapted to force the rear end of said gage 33 into said recess 29 as said roller rotates and into the path of a sheet of metal advancing to said roller and said second member, of a table adjacent to said roller and said second member, a block slidingly mounted in said table and adapted to engage the rear end of a sheet of metal laid on said table, means for giving said block a forward motion to advance said sheet of metal toward said roller 19, and mechanism adapted to give to said block a second forward motion at a speed greater than the surface speed of the roller 19 and force the front edge of said sheet of metal against said gage, substantially as described.

786,303. **THRESHING-MACHINE.** JOSEPH D. LITTLE, Springfield, Ohio. Filed Mar. 1, 1902. Serial No. 96,350.



Claim.—1. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more conduits extending downwardly into said chamber, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified.

2. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more plain straight conduits extending downwardly into said chamber, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said plain straight conduits, substantially as specified.

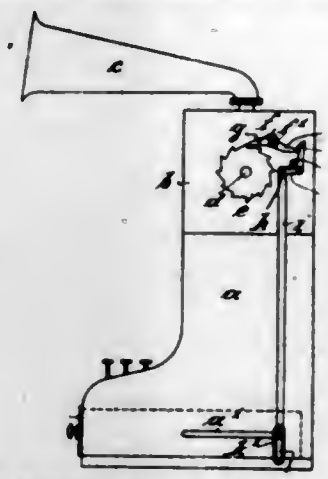
3. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more telescoping conduits extending downwardly into said chamber, with means to adjust and hold the same in adjusted position, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified.

4. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more conduits extending downwardly into said chamber, and valves in said conduits to regulate the draft, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified.

5. In a machine such as described, the combination with threshing devices and a casing forming a separating- hamber, of an exhaust-fan having one or more telescoping conduits extending downwardly into said chamber, with means to adjust and hold the same in adjusted position, and valves in said conduits to regulate the draft, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified.

6. In a machine such as described, the combination with threshing devices, a casing forming a separating-chamber, and a vibrating pan, of an exhaust-fan having one or more conduits extending downwardly into said chamber, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified.

786,304. **CASH-REGISTER.** ANTON MNISZEWSKI, Posen, Germany. Filed Sept. 22, 1903. Serial No. 174,237.



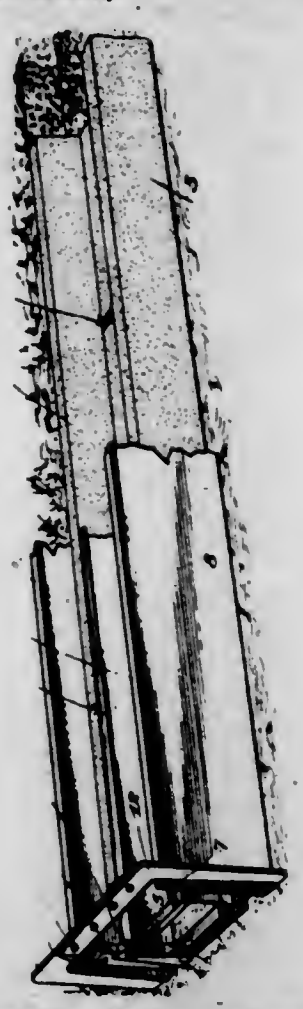
Clcim.—1. In cash-registers, the combination of a mechanically-working cash-register with a phonetically-working cash-register, a mechanism for rotating this second register and means for releasing this mechanism, by actuating the first register, so long that the cash can be registered by speaking into the second cash-register, substantially as described and for the purpose set forth.

2. In cash-registers, the combination of a mechanically-working cash-register with a phonetically-working cash-register, a mechanism for rotating the second register, a ratchet-wheel fixed to the axle of this mechanism, a ratchet being under spring-pressure, so as to permanently tend to engage with said wheel, means for disengaging for a moment the ratchet and the ratchet-wheel, so that said phonetically-working register is rotated until the ratchet abuts against the next tooth of the ratchet-wheel, substantially as described and for the purpose set forth.

3. In cash-registers, the combination of a mechanically-working cash-register with a phonetically-working cash-register, a mechanism for rotating the second register, a ratchet-wheel fixed to the axle of this mechanism, a ratchet being under spring-pressure, so as to permanently tend to engage with said wheel, a money-drawer, and means for disengaging for a moment the ratchet and the ratchet-wheel by opening the money-drawer of the apparatus, substantially as described and for the purpose set forth.

786,305. **APPARATUS FOR CONSTRUCTING IRRIGATING-FLUMES.** GEORGE T. MCINTYRE, Riverside, Cal. Filed Dec. 1, 1903. Serial No. 183,367.

Claim.—1. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, detachable members extending longitudinally along the sides of said body and spaced apart therefrom at all points providing a space or channel between said members and the sides of the body, means for supporting said body above the level of the lower edges of said members, the said channel communicating under the sides of said body with the open central chamber thereof, and means for holding said body and detachable members in fixed relation comprising detachable spacing devices between the body and the members to hold said members away from said body, and detachable clamps engaging said members to hold them toward said body.



2. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, detachable members extending longitudinally along the sides of said body, spacing devices detachable from, and engaging between the said body and members for spacing said detachable members apart from the sides of said body whereby a channel is formed therebetween, means for supporting said body above the level of the lower edges of said detachable means, said channel communicating under the sides of said body with the open central chamber of said body, and clamps detachable from said body and members for holding said members against the detachable spacing devices.

3. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, detachable members extending longitudinally along the sides of said body, detachable wedge-blocks between said members and the sides of said body spacing said members apart from the sides of said body, means for supporting said body above the level of the lower edges of said members, and means for clamping said members, wedge-blocks and body together.

4. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, separate side boards extending longitudinally along the sides of said body and of greater width than the depth of said body, means supporting said body above the lower edges of said boards, blocks having inclined faces, and wedge-blocks, said blocks interposed between said boards and said body, and detachable means for holding said boards, blocks and body in fixed relation.

786,306. **SLIP-GEAR.** WILLIAM M. BECKERMAN, Pittsburg, Pa. Filed Feb. 18, 1904. Serial No. 194,212.



Claim.—1. A slip-gear, comprising a rim provided with a driving-face and with a projection extending inwardly therefrom, a hub,

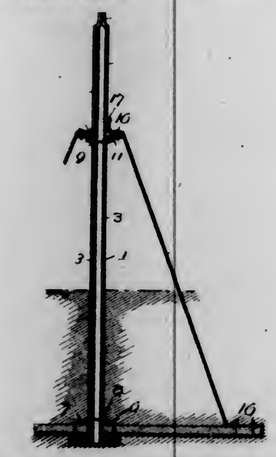
a web on said hub, a coöperating friction-disk, said web and disk being arranged to bear against the side faces of said projection, bolts for securing said friction-disk to said web, springs interposed between one of said members, and heads on said bolts, and projections on said web arranged to bear against the heads of said bolts.

2. A slip-gear, comprising a rim provided with a driving-face and with a V-shaped projection on its inner face and located centrally of the driving-face, a hub, a web secured to said hub and provided on its outer edge with a flaring portion arranged to bear against the V-shaped projection of the rim, a coöperating friction-disk also provided at its outer edge with a flaring portion arranged to bear against said V-shaped projection, and means for holding said web and disk yieldingly in contact with said projection.

3. A slip-gear, comprising a rim provided with a driving-face and having inwardly-projecting flanges, a friction member composed of fiber blocks secured to the inner face of said rim between said flanges and having an inwardly-projecting portion, a hub, a web on said hub, a coöperating disk, said web and disk being arranged to engage the side faces of said projection, and means for holding said web and disk yieldingly in contact with said projection.

4. A slip-gear, comprising a rim provided with a driving-face, a V-shaped fibrous friction member secured to the inner face thereof and located centrally of the driving-face, a hub, a web thereon provided at its outer edge with a flaring portion adapted to bear against said V-shaped friction member, a coöperating disk also provided at its outer edge with a flaring portion adapted to bear against said friction member, and means for holding said web and disk yieldingly in contact with said friction member.

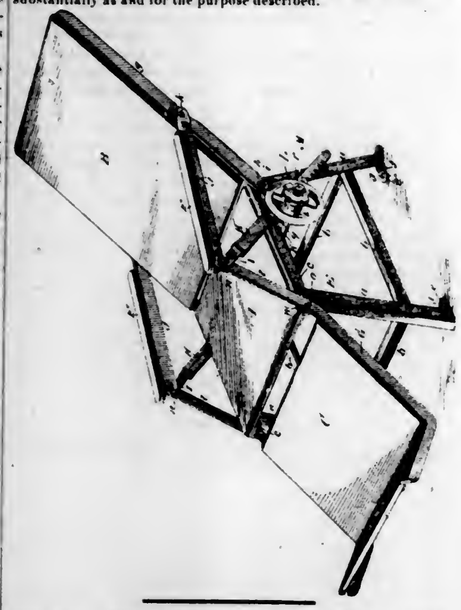
786,307. **FENCE-POST.** FRANK NOVESS, Flatrock, Mich. Filed July 8, 1904. Serial No. 215,772.



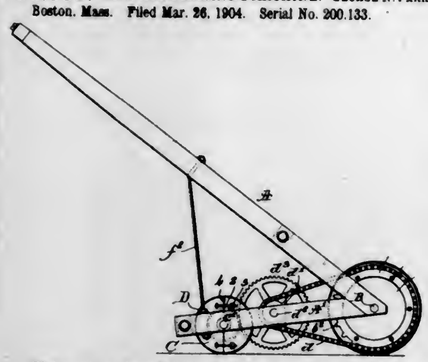
Claim.—The herein-described combined bracing and winding post consisting of a post proper 1 having a plurality of wire-receiving apertures and shaped at its upper end to coöperate with a wrench; a supporting-base having a bearing for the lower end of said post; a collar fitting around the upper end of the post and firmly braced in position by the members 12, 13, 14 and 15 extending into communication with said base, and a suitable rack and detent to hold the post when rotated to the desired point, all combined substantially as specified and for the purpose set forth.

786,308. **ADJUSTABLE AND RECLINING CHAIR.** ADOLPH J. NUSS, Williamsport, Pa. Filed Dec. 15, 1904. Serial No. 236,931.

Claim.—An adjustable and reclining chair comprising a suitable seat and a frame for supporting the same, a back pivotally connecting with the seat, arm-rests pivotally connecting with the back, leg and foot rests pivotally connecting with the seat and pivotally connecting with the forward ends of the arm-rests, brackets or hangers projecting from the seat, guide-sleeves pivotally connecting with the brackets or hangers, rack-bars engaging the guide-sleeves and pivotally connecting with the front ends of the arm-rests, a transverse rotatable shaft with pinions thereon to engage the rack-bars, means for operating the shaft and means for holding it against rotation, substantially as and for the purpose described.



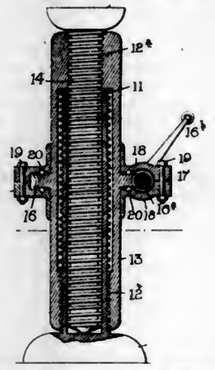
786,309. **SURFACE-FINISHING MACHINE.** GEORGE N. PARKER, Boston, Mass. Filed Mar. 26, 1904. Serial No. 200,133.



Claim.—1. A floor-finishing machine comprising a heavy cylindrical pilot-roller provided at its end with a sprocket-wheel, a surfacing-roller provided at its periphery with an abrasive material and having at one end a small toothed wheel, an intermediate shaft provided with a small sprocket-pinion and a large toothed wheel, and a sprocket-chain connecting the sprocket-gear and pinion and rotating the intermediate shaft, causing the toothed gear thereon in engagement with the smaller pinion on the surfacing-roller to rotate the same at a high speed.

2. A floor-finishing machine comprising a frame sustaining at its front end the shaft of a heavy cylindrical pilot-roller provided with a frictional jacket, a shaft at the rear end of said frame provided with a surfacing-roller having its periphery covered with abrasive material, means to retain the abrasive material on said surfacing-roller, a pinion on the shaft of said surfacing-roller, and an intermediate shaft b^4 having at one end a small sprocket-wheel and at its opposite end a larger toothed gear, the latter gear engaging the smaller pinion on the surfacing-roller shaft, and a sprocket-wheel connected with one end of the heavy pilot-roller, and a chain driven thereby encircling the smaller sprocket-wheel on said intermediate shaft, whereby as the frame containing the pilot-roller and surfacing-roller is moved slowly over a surface the surfacing-roller is rotated rapidly to abrade the surface.

786,310. **LIFTING-JACK.** THOMAS S. PATTERSON, New York, N. Y., assignor to himself, Allison A. Pratt, and Edwin J. Selley, New York, N. Y. Filed May 26, 1904. Serial No. 209,942.

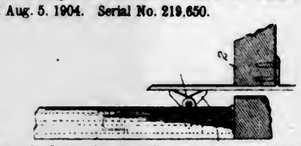


Claim.—1. A lifting-jack, comprising screws of opposite pitch fitting one within the other, a shell inclosing the two screws and provided with nuts at its ends to engage the screws, a wheel fast on the shell, a support journaled on the shell, a rotary shaft mounted in the support and engaging the rear wheel, and means for preventing the support from turning with the shell.

2. A lifting-jack, comprising screws of opposite pitch fitting one within the other, a shell having nuts to engage the two screws, a ring mounted on the shell, a gear mechanism within the ring to turn the shell, and means to prevent the ring from turning.

3. A lifting-jack, comprising a base having a hollow screw thereon, a second screw fitting within the hollow screw and having pitch opposite to that of the hollow screw, a shell inclosing the two screws and having nuts at its opposite ends to engage the screws, a ring mounted on the shell, gearing within the ring to engage the shell and turn it, and means for preventing the ring from turning with the shell.

786,311. **ELEVATOR-GATE.** WALTER N. PHILLIMORE, Philadelphia, Pa., assignor of one-half to Walter W. Wood, Honesdale, Pa. Filed Aug. 5, 1904. Serial No. 219,650.



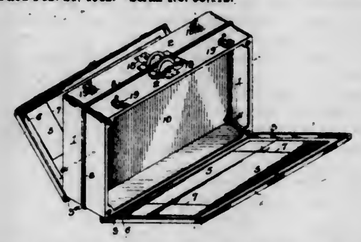
Claim.—1. In an elevator, the combination with the car thereof, of a gate, a star-wheel adapted to be contacted with by said gate or its connected parts when said gate is open, said star-wheel being normally freely rotatable, and means on the car for engaging said star-wheel to prevent its rotation, said star-wheel when thus held being adapted to retain said gate.

2. In an elevator, the combination with the car thereof, of a gate, a weight partially counterbalancing said gate, a star-wheel adapted to be contacted with by said weight when the gate is open, said star-wheel being normally freely rotatable, and means on the car for engaging said star-wheel to prevent its rotation, said star-wheel when thus held being adapted to engage and retain said counterweight.

3. In an elevator, the combination with the car thereof, of a gate, a weight partially counterbalancing said gate, a star-wheel adapted to be contacted with by said weight when the gate is open, said star-wheel being normally freely rotatable, and a plate on the car for engaging said star-wheel to prevent its rotation, said star-wheel when thus held being adapted to engage and retain said counterweight.

4. In an elevator, the combination with the car thereof, of a gate, a weight partially counterbalancing said gate, twin jaws carried by said weight and normally spring-pressed together, a star-wheel lying in the path of travel of said twin jaws as said gate reaches the open position, said star-wheel being normally freely rotatable, and a plate on the car for engaging said star-wheel to prevent its rotation, said star-wheel when thus held being adapted to force apart and engage said twin jaws to retain the same and the gate in the open position.

786,312. **DRESS-SUIT CASE.** HARVEY A. PIKE, Philadelphia, Pa. Filed Feb. 21, 1902. Serial No. 95,112.



Claim.—1. In a dress-suit case or similar bag, the combination of the central body-section open on both sides, covers hinged to each side of said body-section and serving to close the same, and a movable diaphragm adjustably mounted within the body-section and accessible from both sides of the same.

2. In a dress-suit case or similar bag, the combination of the central section forming the body of the bag, covers hinged to each side of said section, an adjustable partition or diaphragm carried within said body-section, and retaining members for said diaphragm carried by the body-section, said members providing for the positioning of the diaphragm at any desired point within said body-section.

3. In a traveling-bag, the combination with the main body open on both sides, of sides hinged to said main body for closing the open portions thereof, a partition within said main body substantially parallel with said sides and adjustable toward and from one of said sides, substantially as described.

4. In a dress-suit case or similar bag, the combination of the central section forming the body of the bag, covers hinged to said section, a partition or diaphragm carried by said central section, and toothed rods carried by the central section and serving to retain the diaphragm in position, said rods being movable so as to engage and disengage the diaphragm or partition and permit adjustment of the same.

5. In a dress-suit case or similar bag, a central section forming the body of the bag, covers hinged to each side of said section, a partition or diaphragm carried by said central section, and toothed rods carried at the corners of the central section and adapted to engage the partition or diaphragm, said rods being rotatable so as to engage and disengage the diaphragm or partition to permit adjustment of the same.

786,313. **TYPE CASTING AND COMPOSING MACHINE.** JOSEPH PINEL, Altrincham, England. Filed Feb. 12, 1903. Serial No. 143,126.



Claim.—1. The combination in a type casting and composing machine, of a reciprocating slide; a finger projecting laterally therefrom; a bell-crank lever rocked operatively by the said finger; a pawl-carrier operated by the motion of the bell-crank lever; adjustable connection between the respective arm of the bell-crank lever and the pawl-carrier; a controller-feed drum; a ratchet-wheel loose on the shaft of the feed-drum and actuated by the pawl of the pawl-carrier each time that the finger on the slide rocks the bell-crank lever; a non-return pawl to lock the feed-drum by engaging with the ratchet-wheel; a crown-gear fast on the side of the ratchet-wheel, a miter-gear fast on the adjacent end of the feed-drum; a miter-pinion driven by the crown-gear and driving the miter-gear; and a spring fast to the machine-base and engaging the pawl-carrier to return it as soon as the return motion of the slide has freed the bell-crank lever.

2. The combination in a type casting and composing machine, of a circular matrix-carrier; a vertical rod supporting it in a horizontal position; a font of matrices contained in the said carrier; an adjustable mold for the bodies of the type and spaces; a projection cooperating with each matrix to enter and adjust the setway dimension of the mold for each type; projections to shorten the height-to-paper dimension of the mold for spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the mold; and means for advancing the matrix-carrier up to the mold, holding the said selected matrix in metal-tight contact therewith and retracting it.

3. The combination in a type casting and composing machine, of a circular matrix-carrier, a vertical rod supporting it in a horizontal position; a font of matrices contained in the said carrier; an adjustable mold for the bodies of the type and spaces; a projection cooperating with each matrix to enter and adjust the setway dimension of the mold for each type; projections to adjust the setway dimension of the mold for spaces; projections to shorten the height-to-paper dimension of the mold for spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the mold; and means for advancing the matrix-carrier up to the mold, holding the said selected matrix in metal-tight contact therewith, and retracting it.

4. The combination in a type casting and composing machine, of a circular matrix-carrier; a vertical rod supporting it in a horizontal position; a font of matrices contained in the said carrier; an adjustable mold for the bodies of the type and spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the said mold; means for advancing the matrix-carrier up to the mold, holding the said selected matrix in metal-tight contact with it and a locking device adapted to perfect the register of the selected matrix with the mold.

5 The combination in a type casting and composing machine, of a circular matrix-carrier; a vertical rod supporting it in a horizontal position; a font of matrices contained in the said carrier; an adjustable mold for the bodies of the type and spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the said mold; means for advancing the matrix-carrier up to the mold, holding the selected matrix in metal-tight contact therewith and retracting it; a locking device adapted to perfect the register of the selected matrix with the mold; and an emergency locking device for the same purpose, coöperating with the said locking device so long as the latter is not broken off, and also capable of subatituting it.

6. The combination in a type casting and composing machine, of a drum-shaped multiple-font matrix-carrier; fonts of matrices contained tierwise in it; a vertical rod supporting the said carrier; an adjustable mold for the bodies of the type and spaces; a projection cooperating with each matrix to enter and adjust the setway dimension of the mold for each type; projections to shorten the height-to-paper dimension of the mold for spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the mold; means for raising and lowering the matrix-carrier in the direction of its axis for change of font; and means for advancing the matrix-carrier up to the mold, holding the selected matrix in metal-tight contact therewith and retracting it.

7. The combination in a type casting and composing machine, of a drum-shaped multiple-font matrix-carrier; fonts of matrices contained tierwise in it; a vertical rod supporting the said carrier; an adjustable mold for the bodies of the type and spaces; a projection coöperating with each matrix to enter and adjust the setway dimension of the mold for each type; projections to adjust the setway dimension of the mold for spaces; projections to shorten the height-to-paper dimension of the mold for spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the said mold; means for raising and lowering the matrix-carrier in the direction of its axis for change of font; means for advancing the matrix-carrier up to the mold, holding the selected matrix in metal-tight contact therewith and retracting it; and a locking device adapted to perfect the register of the selected matrix with the mold.

8. The combination in a type casting and composing machine, of a drum-shaped multiple-font matrix-carrier; fonts of matrices contained tierwise therein; a vertical rod supporting the said carrier; an adjustable mold for the bodies of the type and the spaces; means for turning the matrix-carrier about its vertical axis to bring the selected matrix opposite to the said mold; means for raising and lowering the matrix-carrier in the direction of its axis for change of font; means for advancing the matrix-carrier up to the mold, holding the said selected matrix in metal-tight contact therewith and retracting it; and a locking device adapted to perfect the register of the selected matrix with the mold.

9. The combination in a type casting and composing machine, of a multiple-font matrix-carrier; fonts of matrices contained tierwise therein; a vertical rod supporting the said carrier; an adjustable mold for the bodies of the type and spaces; means for turning the matrix-carrier about its vertical axis to bring the desired matrix opposite to the said mold; means for raising and lower ng the matrix-carrier in the direction of its axis for change of font; means for advancing the matrix-carrier up to the mold, holding the selected matrix opposite to the mold, holding the selected matrix in metal-tight contact therewith and retracting it; a locking device adapted to perfect the register of the selected matrix with the mold; and an emergency locking device coöperating with the said locking device so long as the latter is not broken off, and also capable of substituting it.

10. In a type casting and composing machine, the combination of a mold for the bodies of the type and spaces, a multiple-font matrix-carrier presenting its matrices through its periphery and capable of motion about its axis for change of matrix to be cast from, along its axis fos change of font and transverse to its axis to and from the mold, and fonts of matrices contained in the said carrier.

11. In a type casting and composing machine, the combination of a mold for the bodies of the types and spaces; a circular multiple-font matrix-carrier presenting its matrices through its periphery and capable of motion about its axis for change of matrix to be cast from, along that axis for change of font and transverse to said axis to and from the mold; fonts of matrices contained in the said carrier; means for turning it about its axis; means for moving it along that axis; and means for advancing it to the mold, holding it in metal-tight contact therewith and retracting it.

12. In a type casting and composing machine, the combination of a mold for the bodies of the types and spaces; a circular multiple-font matrix-carrier presenting its matrices through its periphery and capable of motion about its axis for change of matrix to be cast from, along its axis for change of font and transverse to its axis to and from the mold; fonts of matrices contained in the said matrix-carrier; means for turning it about its axis; means for moving it along that axis; means for advancing it to the mold, holding it in metal-tight contact therewith and retracting it; and a locking device adapted to perfect the register of the selected matrix with the mold.

13. In a type casting and composing machine, the combination of a mold for the bodies of the types and spaces; a circular multiple-font matrix-carrier presenting its matrices through its periphery and capable of motion about its axis for change of matrix to be cast from and along its axis for change of font; fonts of matrices contained in the said matrix-carrier; means for turning it about its axis; means for moving it along that axis; means for advancing it to the mold, holding it in metal-tight contact therewith and retracting it; a locking device adapted to perfect the register of the selected matrix with the mold; and an emergency locking device coöperating with the said locking device so long as the latter is not broken off, and also capable of substituting it.

14. A multiple-font matrix-carrier for a type casting and composing machine consisting of a U-shaped annulus; a top plate projecting beyond the periphery thereof, a bottom flange; rods having their ends entered into the said plate and flange and upon which columns of independent matrices occupy the space between the said top plate and flange, backing up to the periphery of the annulus and threaded upon the said rods; a projection fast to the periphery of the annulus and coöperating with each matrix to control the setway dimension of the type cast from the respective matrix; projections fixed to the periphery of the annulus to control the length of spaces; projections fast to the periphery of the annulus to control the setway dimension of the spaces; a mold; and a mold-wall comprising two separate parts against which one side of the type or space is cast and which parts are independently adjustable to and from the opposite mold-wall under the control of the above-named projections.

15. In a type casting and composing machine, the combination with a circular multiple-font matrix-carrier adapted to be turned about its axis for change of matrix and along its axis for change of font of rings of holes or locking-rings corresponding as to number of rings with the number of font and as to holes in a ring with the number of matrices in a font, each hole adapted when brought into operative position to pass over a pin projecting from near the mold in the direction of the said hole; and means for putting the hole corresponding with any matrix in operative position and causing it to engage with the said pin.

16. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of ports therein; a series of ports respectively opposite the said ports; a space between the two series of ports adapted to pass the mechanical controller in air-tight contact with the respective surfaces; a series of cylinders with which they respectively communicate; a series of pistons and push-rods fast thereto; a series of slides having holes, and adjustable by the push-rods of the pistons to reproduce, character by character, the character-perforations in the controller; rocking arms adapted to engage the adjustable slides; matrix-carrier capable of being turned about its axis; a rotating cylinder having projections arranged on its periphery according to each of the positions in which the matrix-carrier is to be stopped; a shoulder on each rocking arm adapted to stop the said cylinder by standing in the path of the respective projection; and gearing between the said cylinder and matrix-carrier adapted to turn the latter.

17. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of ports therein; a series of ports respectively opposite the said ports; a space between the two series of ports adapted to pass the mechanical controller in air-tight contact with the respective surfaces; a series of cylinders with which they respectively communicate; a series of pistons and push-rods fast thereto; a series of slides having holes, and adjustable by the push-rods of the pistons to reproduce, character by character, the character-perforations in the controller; rocking arms adapted to engage the adjusted slides; matrix-carrier capable of being turned about its axis; a rotating cylinder having projections arranged on its periphery according to each of the positions in which the matrix-carrier is to be stopped; a shoulder on each rocking arm adapted to stop the said cylinder by standing in the path of the respective projection; gearing between the said cylinder and matrix-carrier adapted to turn the latter; and means for releasing the said cylinder from the control of each rocking arm.

18. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of ports therein; a series of air-ports respectively opposite the said ports; a space between the two series of air-ports adapted to pass a mechanical controller in air-tight contact with the two surfaces in which the two series of ports stand; means for traversing the said controller through the said space with a step-by-step motion to alternately hold the ports from the air-chamber closed and place the ports opposite to them in communication with them; cylinders connected with the said ports; pistons working therein and presenting push-rods through the cylinder ends; levers adapted to be rocked by the push-rods; slides having holes and adjustable by the said levers; connections between the said levers and slides; rocking arms adapted to engage the adjustable slides; matrix-carrier capable of being turned about its axis; a rotating cylinder having projections arranged on its periphery according to each of the positions in which the matrix-carrier is to be stopped; a shoulder on each rocking arm adapted to stop the said cylinder by standing in the path of the respective projection; and gearing between the said cylinder and matrix-carrier adapted to turn the latter.

19. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of ports therein; a series of air-ports respectively opposite the said ports; a space between the two series of air-ports adapted to pass a mechanical controller in air-tight contact with the two surfaces in which the two series of ports stand; means for traversing the said controller through the said space with a step-by-step motion to alternately hold the ports from the air-chamber closed and place the ports opposite to them in communication with them; cylinders connected with the said ports; pistons working therein and presenting push-rods through the cylinder ends; levers adapted to be rocked by the push-rods; slides having holes and adjustable by the said levers; connections between the said levers and slides; rocking arms adapted to engage the adjustable slides; matrix-carrier capable of being turned about its axis; a rotating cylinder having projections arranged on its periphery according to each of the positions in which the matrix-carrier is to be stopped; a shoulder on each rocking arm adapted to stop the said cylinder by standing in the path of the respective projection; gearing between the said cylinder and matrix-carrier adapted to turn the latter; and means for releasing the said cylinder from the control of each rocking arm.

20. The combination in a type casting and composing machine of a controller-feed acting with a step-by-step motion; air-blasts passing through the character-perforations of the controller; push-rods actuated thereby; a set of slides; means actuated by the said push-rods to make the slides reproduce rows of holes corresponding respectively with the transverse rows of character-perforations in the controller; a rotating cylinder having projections; means for stopping it controlled by the said slides; a matrix-carrier movable about its axis and gearing between the said cylinder and it by which the two must turn or stop together.

21. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of ports controlled by a controller having font-changing perforations adapted to coöperate with the said ports to control the discharge of air-blasts through the said ports and the respectively coöperating font-changing perforations; a multiple-font matrix-carrier capable of being moved in the direction of its axis for change of font and mechanism actuated by the said blasts to move the matrix-carrier for a longer or shorter distance along its axis to effect the desired change of font.

22. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure, a series of ports controlled by a controller having font-changing perforations adapted to coöperate with the said ports to control the discharge of air-blasts through the said ports and the respectively coöperating font-changing perforations; a multiple-font matrix-carrier capable of being moved in the direction of its axis for change of font and mechanism actuated by the said blasts to move the matrix-carrier for a longer or shorter distance along its axis in one direction and to stop its motion in the other direction.

23. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of discharge-ports therein; a series of ports respectively opposite the said ports; a space between the two series of ports adapted to pass the controller in air-tight contact with the respective surfaces, the controller having font-changing perforations adapted to coöperate with the said two series of ports; a multiple-font matrix-carrier adjustable for change of font in the direction of its axis; a series of cylinders respectively connected with the ports of the second series mentioned above, and fitted with pistons and push-rods, a push-rod to be protruded beyond the respective cylinder end by an air-blast through the respective ports into the path of the lever next mentioned; a reciprocating slide to which the matrix-carrier is connected; and a bell-crank lever carried by the said slide and engaging with the protruded push-rod to engage the matrix-carrier and move it along its axis for change of font.

24. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of discharge-ports therein; a series of ports respectively opposite the said ports; a space between the two series of ports adapted to pass the controller in air-tight contact with the respective surfaces, the controller having font-changing perforations adapted to coöperate with the said two series of ports; a multiple-font matrix-carrier adjustable for change of font in the direction of its axis; a series of cylinders respectively connected with the ports of the second-mentioned series of ports and fitted with pistons and push-rods, a push-rod to be protruded through its cylinder end by an air-blast through the respective ports, into the path of the lever next mentioned; a reciprocating slide to which the matrix-carrier is connected; and a bell-crank lever carried by the said slide and engaging with the protruded push-rod to engage the matrix-carrier and move it along its axis in one direction or to allow the said carrier to move in the opposite direction.

25. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of discharge-ports therein; a series of ports respectively opposite the said ports; a space between the two series of ports adapted to pass the controller in air-tight contact with the respective surfaces, the controller having font-changing perforations adapted to coöperate with the said two series of ports; a multiple-font matrix-carrier adjustable for change of font in the direction of its axis; a series of cylinders respectively connected with the ports of the second series men-

tioned above and fitted with pistons and push-rods, a push-rod to be protruded beyond the respective cylinder end by an air-blast through the respective ports, into the path of the next-mentioned lever; a reciprocating slide to which the matrix-carrier is connected; a bell-crank lever carried by the said slide and engaging with the protruded push-rod to engage the matrix-carrier and move it along its axis for change of font; and a cylinder-block containing the above-mentioned cylinders and adapted to be moved by the continued motion of the above-mentioned slide after the latter has actuated the bell-crank lever.

26. The combination in a type casting and composing machine, of an air-chamber kept charged with air under pressure; a series of discharge-ports therein; a series of ports respectively opposite the said ports; a space between the two series of ports adapted to pass the controller in air-tight contact with the respective surfaces, the controller having font-changing perforations adapted to coöperate with the said two series of ports; a multiple-font matrix-carrier adjustable for change of font in the direction of its axis; a series of cylinders respectively connected with the ports of the second series mentioned above and fitted with pistons and push-rods, a push-rod to be protruded beyond the respective cylinder end by an air-blast through the respective ports, into the path of the lever next mentioned; a reciprocating slide to which the matrix-carrier is connected; a bell-crank lever carried by the said slide and engaging with the protruded push-rod to engage the matrix-carrier and move it along its axis in one direction or to allow the said carrier to move in the opposite direction for change of font; and a cylinder-block containing the above-mentioned cylinders and adapted to be moved by the continued motion of the above-mentioned slide after the latter has actuated the bell-crank lever.

27. In a type-casting machine, a mold consisting of two blocks held apart by a distance equal to the back-to-belly dimension of the type or space to be cast therein; a top plate held down fast upon the said blocks; a guide on the said top plate on which one of the said blocks can be moved up to or away from the other block; a pair of slides fitting between the two blocks to form the top of the mold and a platform to form the bottom of the mold and upon which the mold can move.

28. The combination in a type-casting machine, of a projection coöperating with the respective matrix; a mold; a mold-wall against which one side of the type or space is cast, adjustable to and from the opposite wall; means actuated by the said projection for adjusting the distance between the said walls of the mold for setway dimension of the respective body; and means for adjusting the said means to meet the requirements of a substitute font.

29. The combination in a type-casting machine, of a projection coöperating with the respective matrix; a mold; a mold-top adjustable to and from the bottom of the mold for setway dimension; a bell-crank lever holding a nose in the path of the said projection to the casting position; a lever having the mold-top resting upon it; and a connection between the two levers adapted to raise the mold-top according to the length of the said projection.

30. The combination in a type-casting machine, of a projection coöperating with the respective matrix; a mold; a mold-top adjustable to and from the bottom of the mold for setway dimension; a bell-crank lever holding a nose in the path of the said projection to the casting position; a lever having the mold-top resting upon it; a connection between the two levers adapted to raise the mold-top according to the length of the said projection; and means for adjusting the said means to meet the requirements of a substitute font.

31. The combination in a type-casting machine, of a projection coöperating with the respective matrix; a mold; a mold-wall against which one side of the type or space is cast, adjustable to and from the opposite wall; means actuated by the said projection for adjusting the distance between the said walls of the mold for setway dimension of one side bearing; and means for adjusting the said means to meet the requirement of a substitute font.

32. The combination in a type-casting machine, of a projection coöperating with the respective matrix; a mold; a mold-top adjustable to and from the bottom of the mold for setway dimension of one side bearing of the respective body to be cast; a bell-crank lever holding a nose in the path of said projection to the casting position; a lever having the mold-top resting upon it; and a connection between the two levers adapted to raise the mold-top according to the length of the said projection.

33. The combination in a type-casting machine, of a projection coöperating with the respective matrix; a mold; a mold-top adjustable to and from the bottom of the mold for setway dimension of one side bearing of the respective body to be cast; a bell-crank lever holding a nose in the path of the said projection to the casting position; a lever having the mold-top resting upon it; a connection between the two levers adapted to raise the mold-top according to the length of the said projection; and means for adjusting the said means to meet the requirements of a substitute font.

34. The combination in a type-casting machine, of a mold-top consisting of a pair of slides capable of independent motion away from and back to the opposite side of the mold: a projection on the matrix-carrier; means actuated by the said projection to adjust the setway dimension of the mold; a shoulder on one of the said slides; and a projection on the matrix-carrier adapted to engage over the said shoulder and hold the last-mentioned slide down upon the said opposite side of the mold, to adjust the latter to cast spaces of less height to paper than the type-bodies of the same font.

35. The combination in a type-casting machine, of a mold-top consisting of a pair of slides capable of independent motion away from and back to the opposite side of the mold; a projection on the matrix-carrier; means actuated by the said projection to adjust the setway dimension of the mold; a shoulder on one of the said slides; a projection on the matrix-carrier adapted to engage over the said shoulder and hold the last-mentioned slide down upon the said opposite side of the mold to adjust the latter to cast spaces of less height to paper than the type-bodies of the same font; and means for regulating the action of the above-mentioned adjusting means to vary the setway dimension of the spaces to meet the requirement of the respective font.

36. In a type-casting machine, the combination of lever; a spring to rock it during the working stroke of the piston that ejects the type-metal from the metal-pot into the mold; a reciprocating slide; a lever pivoted thereto; and moving therewith; an incline up and over which the nose of the said lever moves to engage the first-mentioned lever and put its actuating-spring in tension; and a roller on the pivoted lever to also ride up the said incline to disengage the said nose from the respective lever when the respective matrix is in contact with the mold.

37. In a type-casting machine, and to regulate the quantity of type-metal ejected by one working stroke of the piston, a piston-rod capable of being screwed for a longer or shorter distance into its piston and a screw adjustable in the path of a lever rocking during that stroke toward the said screw.

38. In a type-casting machine, the combination of a drum-shaped matrix-carrier having projections from its periphery; a mold presenting the mold-cavity through a flat surface of the machine-frame; means for moving the matrix-carrier up to the said surface; an arc-shaped concavity in the said surface parallel with the axis of the matrix-carrier; and cavities in the mold to receive as many of the projections opposite to it, as are not for the time being coöperating with the mold.

39. In a type-casting machine, a series of trimming-knives comprising a knife for bending and shearing off the jet, one for trimming the bottom side of the type; one for trimming the foot; two for trimming off the fins from the back and belly, and means for presenting the type to them successively and pushing it past them.

40. In a type casting and composing machine, the combination of a type-race comprising a short vertical portion, a horizontal portion and an arc-shaped portion connecting the other two; a line-support adapted to receive the types as they are assembled in the race to form a line; means for retracting the line-support; a column-support to receive the said line after the retraction of the line-support; a depressor to force the assembled line down upon the column-support; means for actuating it; means for returning both line support and depressor to their original position and mechanism actuated by the line-resistance slide to put all the above-mentioned means into action and out of action at the proper times.

41. In a type casting and composing machine, the combination of line-resistant and brake to control the return of the same, the said brake being locked out of action during the assemblage of a line, and unlocked by the said resistant when such assemblage is complete.

42. The combination with a type-race of fixed sectional area of a line-depressor having a spring-cushioned shoe adapted to support type being assembled in the said race against being pied.

43. In a type casting and composing machine, the combination of type-race; a galley extending downward from the said race and curved toward the front; a column-support adapted to slide up and down the said pulley; a counterpoise for the said support consisting of a lever, a weight thereon, a line arranged as a single whip and adapted by being fast by one end to the column-support and having its other end in connection with the weighted lever, to increase the

counterpoising effect of the weight as the lines of type accumulate on the column-support.

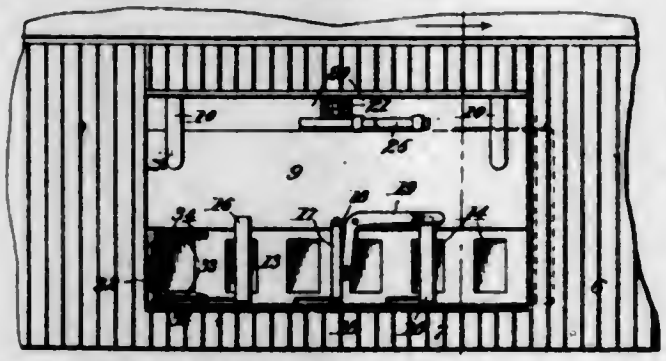
44. In a type casting and composing machine, the combination of type-race; galley extending downward from the said race and carried toward the front; a column-support adapted to slide up and down it; a counterpoise for the said support increasing in efficiency as the lines of type accumulate upon the column-support, guides in the galley for the latter; and means for detaching it from the galley.

45. In a type casitng and composing machine, the combination of type-race; galley extending downward from the said race and curved toward the front; a column-support adapted to slide up and down it; a counterpoise for the said support increasing in efficiency as the lines of type accumulate upon the column-support; guides in the galley for the latter; means for detaching it from the galley; and an abutment to limit the length of line.

46. In a type casting and composing machine, the combination of drum-shaped matrix-carrier equipped with various fonts and adapted to be moved about its axis for change of character and along the said axis for change of font; mold; means for advancing the matrix-carrier to the mold and retracting it; perforated-controller feed mechanism; series of slides; mechanism interposed between the controller feed mechanism and the series of slides for making the latter reproduce the perforations for the respective character; a rotating cylinder to provide for the return of the respective slides to their original position; connection between the said cylinder and matrix-carrier to turn the latter about its axis; means controlled by the perforated controller for adjusting the said matrix-carrier for change of font; mold; casting mechanism; ejecting mechanism; trimming-knives; and galley.

47. In a type casting and composing machine comprising a drum-shaped matrix-carrier equipped with various fonts and adapted to be moved about its axis for change of character and along the said axis for change of font; mold; means for advancing the matrix-carrier to the mold and retracting it; perforated-controller feed mechanism; series of slides; mechanism interposed between the controller feed mechanism and the series of slides for making the latter reproduce the perforations for the respective character; a rotating cylinder to provide for the return of the respective slides to their original position; connection between the said cylinder and matrix-carrier to turn the latter about its axis; means controlled by the perforated controller for adjusting the said matrix-carrier for change of font; mold casting mechanism; ejecting mechanism; trimming-knives; galley; and means for putting the said rotating cylinder out of action, to change the said machine to a type-casting machine.

786,314. GRAIN-CAR DOOR. CORDILLERAS L. ROBBINS, Pekin, Ill. Filed Mar. 14, 1904. Serial No. 198,005.

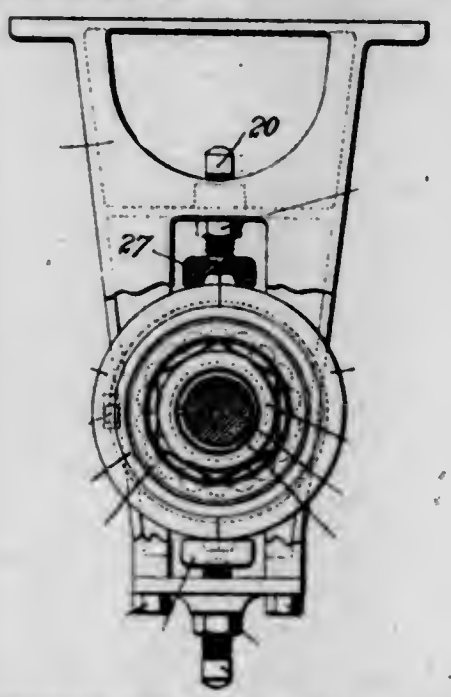


Claim.—1. The combination with a sliding car-door and a casing, of a beveled strip loosely supported in a vertical position upon the side of the door near the outer edge thereof, and of width sufficient to partly enter and fill the crack between the side of the door and its casing, when the door is open.

2. The combination with a sliding car-door and its casing, of a beveled strip extending vertically beside the front edge of the door, and arranged to fit in the crack between the door and the casing when the door is open, and supports for said strip, having a limited horizontal sliding movement, on the door.

786,315. BALL-BEARING HANGER. WINFIELD S. ROGERS, Bantam, Conn., assignor to John L. Buell, Litchfield, Conn. Filed Aug. 17, 1903. Serial No. 169,675.

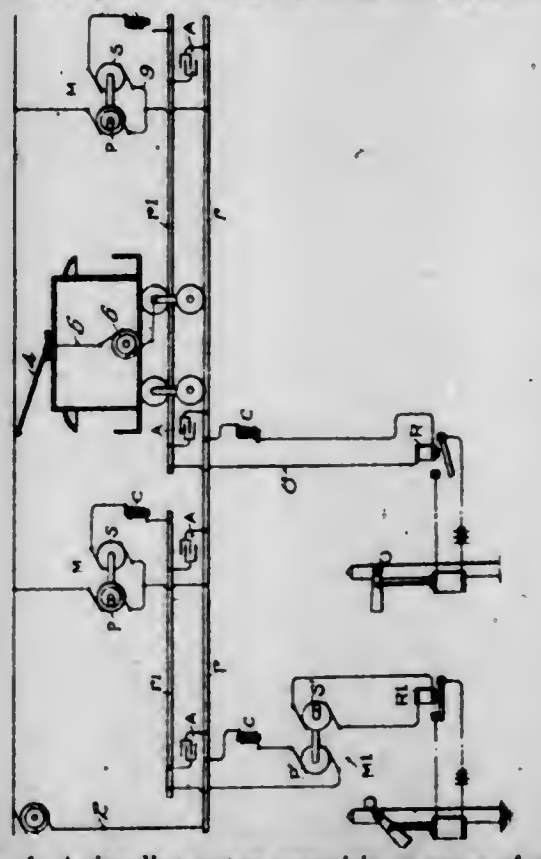
Claim.—1. In a construction of the class described, the combination of a hanger, a bearing-box having a spherical surface, two half-ring sections forming a socket receiving the bearing-box, two clamping-pieces for holding the half-ring sections together, and two center screws, each one of which engages and provides a pivotel support for one of the clamping-pieces.



2. In a construction of the class described, the combination of a bearing-box, having a spherical surface, two half-ring sections inclosing the bearing-box, said ring-sections having projections at their meeting ends, each of which forms one-half of a trunnion, step-pieces engaging the trunnions and clamping the half-ring sections together, pivot-screws holding the step-pieces in place, and locking-nuts holding the pivot-screws in adjusted positions.

3. In a construction of the class described, the combination of a bearing-box, having a spherical surface, two half-ring sections inclosing the bearing-box, the meeting ends of the half-rings having projections, each of which forms one-half of a trunnion, step-pieces engaging the trunnions and means for supporting the step-pieces to hold the parts together, and a roller extending into sockets in the meeting faces of the bearing box or sleeve and one of the ring-sections to limit the relative motion of these parts.

786,316. SIGNAL SYSTEM FOR RAILWAYS. WILLIAM G. ROOME, Los Angeles, Cal. Filed Dec. 19, 1904. Serial No. 237,420.



Claim.—1. A signaling system comprising a source of alternating current, a source of direct current, a common return for both currents, motor-vehicles actuated by the alternating current, signaling devices actuated by the direct current, and means controlled by the movement of the motor-vehicle for controlling the movement of the signaling devices.

2. A signaling system comprising a source of alternating cur-

rent, a source of direct current, a common return for both currents, motor-vehicles actuated from the source of alternating current, signaling devices actuated from the source of direct current, and means carried by the moving vehicles and adapted to shunt the direct current around the signaling devices.

3. A signaling system comprising a source of alternating current, a source of direct current, a common return for both currents, a choking-coil in series with the source of direct current, signaling devices operated from said source and connected to one of the rails and to the common return, cars actuated by the alternating current, and carrying means that will shunt the direct current around the signaling devices.

4. A signaling system comprising a source of alternating current, a source of direct current, a common return for both currents, a choking-coil in series with the source of direct current, signaling devices operated from said source and connected in series with a choking-coil to one of the rails and the common return, cars actuated by the alternating current, and carrying means that will shunt the direct current around the signaling devices.

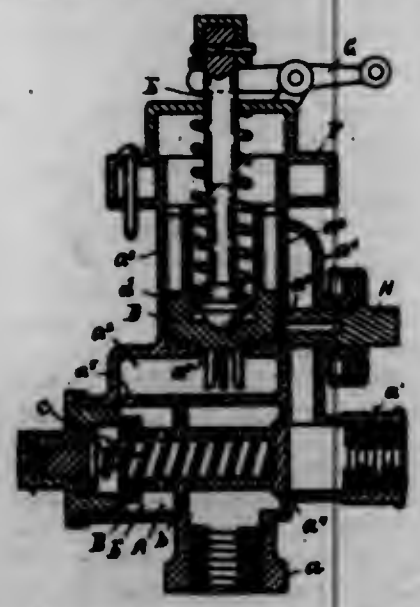
5. A signaling system comprising a source of alternating current, a source of direct current, a common return for both currents, a choking-coil in series with the source of direct current, signaling devices operated from said source and connected in series with a choking-coil to one of the rails and the common return, cars actuated by the alternating current, and carrying means that will shunt the direct current around the signaling devices, and a condenser connected to the direct-current circuit so as to form a by-path for the alternating current around the direct-current apparatus.

6. A signaling system comprising a source of alternating-current energy, a source of direct-current energy, a working circuit, a series of branch circuits connected to said working circuit, signaling devices in said branch circuits, a motor-vehicle in said working circuit, means for transmitting the alternating-current energy to the motor-vehicle, means for transmitting the direct-current energy to the signaling devices, and the interposed means whereby the direct and alternating currents will be limited to certain defined paths.

7. A signaling system comprising a source of alternating-current energy, a working circuit, a motor-vehicle in said working circuit and arranged to operate from said alternating-current energy, a series of electrically-operated and electrically-controlled signals, a series of motor-generators, one at each block for transforming the alternating current to one of direct current for the track-circuits, the track-circuit formed of the secondary winding of the motor-generator, the track-rail, and either the wheels and axles of the train or the relay at block, and electrical connections substantially as shown and described.

8. A signaling system comprising a source of alternating-current agency, a working circuit, a motor-vehicle in said working circuit and arranged to operate from said alternating-current energy, a series of electrically-operated and electrically-controlled signals, a series of direct-current track-circuits, one at each block comprising the track-rails and circuit to signaling apparatus, and a motor-generator in said circuit arranged to rotate only with the direct current.

786,317. SAFETY-VALVE. FRANK SCHMIDT, Mansfield, Ohio. Filed Feb. 24, 1903. Serial No. 144,626.



Claim.—1. In a safety-valve the combination of a valve-casing having an inlet and an outlet opening, a main valve upon the interior of the casing to control the outlet having an annular flange fitting against the walls of the casing and forming a chamber surrounding the valve adjacent to the valve-seat and a second chamber upon the end of the valve opposite to the end which contacts the seat, the annular flange contacting the walls so as to allow the pressure of steam to pass around it into the second chamber, a secondary chamber having an enlarged perforation therein forming a valve-seat, an auxiliary valve exterior to the second chamber seated against said perforation and of an area such as to be raised by the pressure of steam in the secondary chamber when it exceeds a predetermined limit and a spring for holding the auxiliary valve to its seat until the pressure exceeds the predetermined pressure substantially as shown and described.

2. In a safety-valve, the combination of a valve-casing having an inlet and an outlet, a main valve upon the interior of the casing to control the outlet, having an annular flange fitting against the walls of the casing and forming a chamber surrounding the valve adjacent to the valve-seat, a second chamber upon the end of the valve opposite to the end which contacts the seat, the flange contacting the wall so as to allow the pressure of steam to pass around it into the second chamber, the second chamber having a perforation therein, an auxiliary valve exterior to the second chamber and seated against the perforation, the auxiliary valve having a flange contacting its walls and forming a chamber adjacent to its seat, the chamber having a perforation in its walls, a spring for holding the auxiliary valve to its seat, and a regulating-plug seated against the perforation, substantially as shown and described.

3. In a safety-valve the combination of a valve-casing having an inlet and an outlet opening, the interior extension of the casing communicating with the outlet and closed from the inlet-opening, a perforation in the extension, a second casing fitting upon the upper end of the first casing, a valve-seat formed between the two casings, a main valve seated against the perforations in the extension and having a flange contacting the walls of the main casing and forming a chamber with the valve-seat in the upper end of the casing, an auxiliary valve within the second casing and contacting the seat formed between the two casings and having a flange forming a chamber adjacent to the seat, the chamber having a perforation in its walls, and a regulating-plug seated against the perforation, substantially as shown and described.

786,318. DUMB-BELL. GEORGE H. SHEPHERD, Paris, France. Filed Sept. 12, 1904. Serial No. 224,132.



Claim.—1. A dumb-bell comprising two independent bars each provided with a heavy ball, means for pivotally supporting said bars, and a handle in two pieces adapted to be spread by the bars when the latter turn on their pivots.

2. A dumb-bell of the type set forth comprising two bars each provided with a weighted ball and pivoted upon an axis supported by a pair of intermediate pieces, a handle of two longitudinal parts covering said intermediate pieces, said parts provided with inclined projections and with guiding-plates and slots, and a pin fixed between said two intermediate pieces and adapted to pass through said slots, the whole so arranged that by oscillation of said bars upon their axes under the weight of the balls the ends of said bars will rest upon said inclined projections and thus push away one of the parts of the handle tending to remove it from the other part, while said slots limit the displacement of the two parts of the handle.

786,319. COMPOSITE PAVING-BLOCK. ALEXANDER F. SHUMAN, Chicago, Ill. Filed Aug. 31, 1904. Serial No. 223,793.



Claim.—1. As a new article of manufacture a paving block or section composed of a plurality of timbers secured together to form a flat base and coated with a suitable air and moisture excluding substance and a plurality of blocks superimposed on said timbers

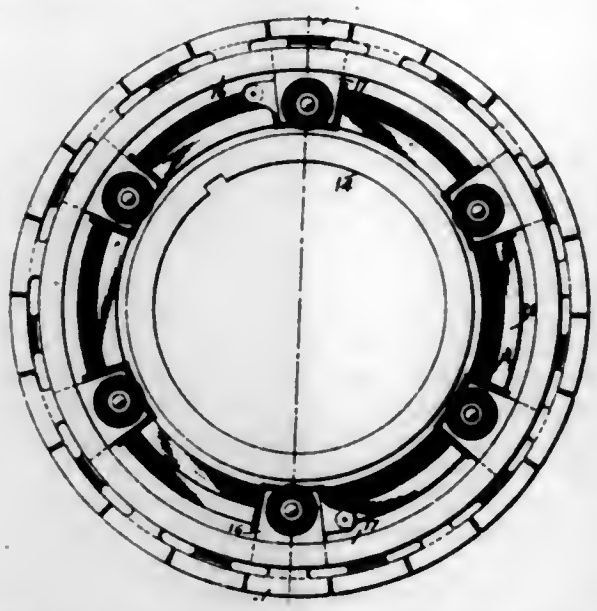
and covering same, each of said blocks having been previously coated with a suitable air and moisture excluding substance.

2. As a new article of manufacture a composite paving block or section composed of a base formed of a plurality of timbers placed side by side and secured together, said base coated with a suitable air and moisture excluding substance, a plurality of paving-blocks coated on all sides with a suitable air and moisture excluding substance and superimposed on said base and a layer of air and moisture excluding substance applied to the outer surface of said blocks for the purpose described.

3. In a paving-block, a series of composite blocks each of which composed of a plurality of timbers placed side by side and secured together and coated upon all sides and edges with a suitable air and moisture excluding substance, a plurality of blocks covered on all sides with a suitable air and moisture excluding and adhesive substance, said blocks placed side by side and superimposed on said timbers and means for interlocking two or more of said sections together substantially in the manner and for the purpose described.

4. A composite paving-block composed of a series of timbers placed side by side, means for holding said timbers in their relative position to form a base, a plurality of blocks superimposed on said base each of said blocks coated on all sides with a suitable air and moisture excluding and adhesive substance and means for interlocking two or more bases together for the purpose described.

786,320. **MEANS FOR RECTIFYING ALTERNATING CURRENTS.** ROBERT SIEGFRIED, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Feb. 12, 1904. Serial No. 193,357.



Claim.—1. A commutator for rectifying alternating currents comprising two rings having spaced, peripheral contact-plates which project laterally in opposite directions from the respective rings and inwardly-projecting supporting-lugs.

2. A commutator for rectifying alternating currents comprising two rings having spaced, peripheral contact-plates which project laterally in opposite directions from the respective rings and inwardly-projecting radial lugs, in combination with a spider to which said lugs are bolted.

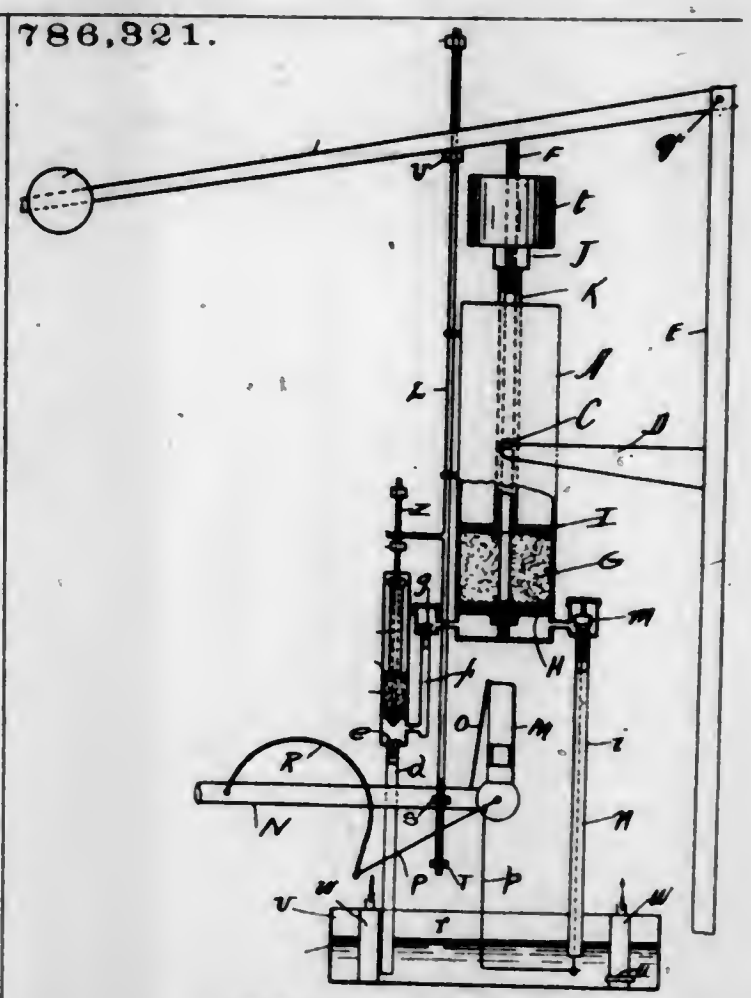
3. The combination with a shaft and a spider mounted thereon having an annular recess, of rings having inwardly-projecting lugs that are seated in said annular recess and having spaced, peripheral contact-plates which project in opposite directions.

4. The combination with a shaft and a spider having an annular recess in one end, of rings having inwardly-projecting lugs that are clamped into said recess and are insulated therefrom and from each other and each having spaced, peripheral contact-plates which occupy the spaces between the plates of the other ring.

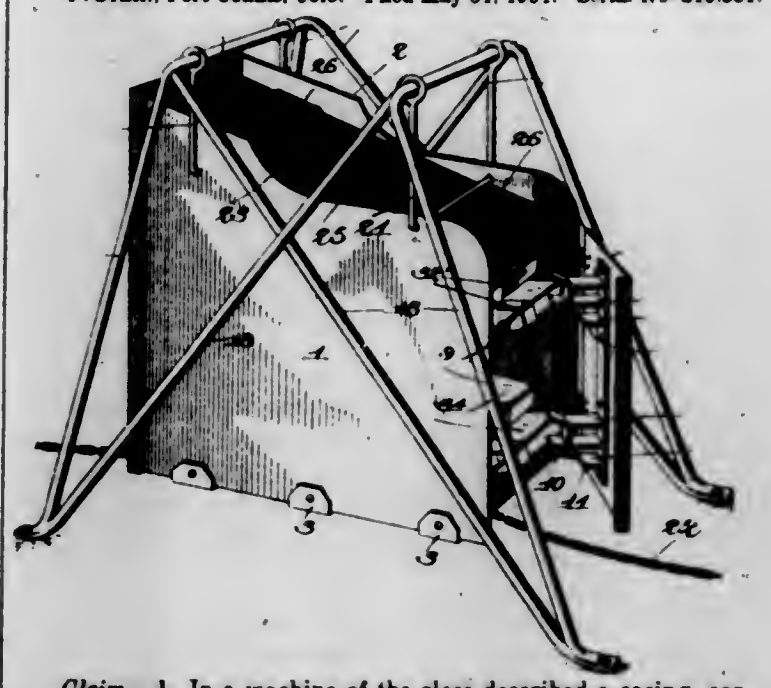
786,321. **COMBINED ENGINE AND BOILER.** DEXTER M. SMALL, Providence, R. I. Filed Oct. 12, 1903. Serial No. 176,736.

Claim.—In an engine of the class described, the combination with cylinder A, of a heating device thereunder, the heat from which is automatically applied thereto when piston is down and then removed when piston has been raised to its adjusted limit, all substantially as and for the purpose set forth.

786,321.



786,322. **ORE SEPARATOR AND CONCENTRATOR.** WILLIAM F. STEIN, Fort Collins, Colo. Filed May 31, 1904. Serial No. 210,551.



Claim.—1. In a machine of the class described a casing, concentrating-pans arranged therein in oppositely-inclined order, and doors carrying spacing elements projecting at different distances therefrom to hold the pans properly positioned with relation to each other.

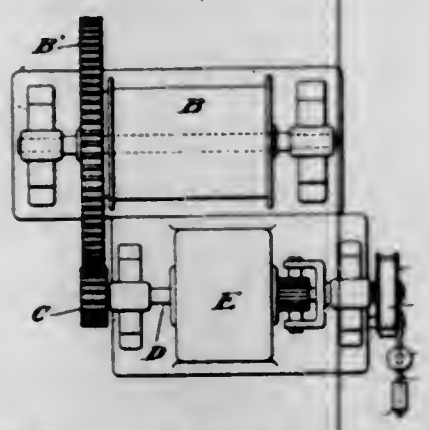
2. In a machine of the class described, a concentrating element comprising a pan provided with riffles, and a frame detachably connected therewith and comprising a netting and a covering of flexible fabric therefor overlying the riffles and adapted to sink between the meshes of the netting to present ore-collecting pockets.

3. In a machine of the class described, a casing provided on its sides with oppositely-inclined guides, in combination with concentrating-pans having flanges to engage the guides, and doors having spacers projecting at different distances therefrom to hold the ends of the pans in staggered order with relation to each other.

4. In a machine of the class described, a framework, a casing suspended therefrom for swinging movement and having its top and bottom open and its inner sides provided with oppositely-inclined guides, concentrating-pans having flanges engaging the guides, doors arranged at the ends of the casing and provided with spacers projecting inward at different distances therefrom to hold the ends of the pans in staggered order with relation to each other, a detachable

grizzly arranged above the upper pan, and means for vibrating the casing.

786,323. ELECTRIC-MOTOR CONTROL. WILLIAM D. STIVERS. Jersey City, N. J., assignor to C. W. Hunt Company, West New Brighton, N. Y., a Corporation of New York. Filed Nov. 12, 1904. Serial No. 232,477.



Claim.—1. The combination with a motor, of a controller, means actuated by said controller to regulate the driving ahead of the motor and means actuated by said controller to impose the maximum dynamical braking resistance to the movement of the motor in backward rotation upon the movement of the controller to the first point for backward running, to gradually decrease such resistance to zero by further movement of the controller, and upon still further movement of the controller to supply current for the backward rotation of the motor and to regulate its speed.

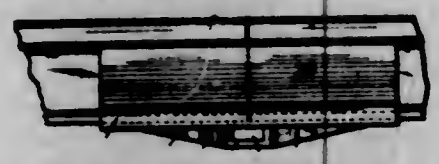
2. The combination with a motor, of means to short-circuit the armature upon a separate circuit, a controller and connections to regulate the speed of the motor, a mechanical brake for said motor and electrical devices in connection with said controller to control the application of said brake, said devices including means to successfully decrease the resistance in the field-circuit to bring the field to its maximum strength for dynamic braking effect with the armature short-circuited on a separate circuit before the mechanical brake is released for the motor to be driven backward

3. The combination with a hoisting-drum and a motor therefor, of a controller for said motor, said controller comprising a series of fixed contacts and connections to the armature, field and field resistances of the motor, a movable series of contacts to coöperate with said fixed contacts in controlling the speed of the motor, and a second movable series of contacts to coöperate with said fixed contacts in controlling the resistance offered by the motor to backward rotation under stress of the load.

4. The combination with a hoisting-drum and a motor therefor, of a resistance in a normally open separate circuit with the armature, and a controller comprising a fixed series of contacts and connections to the armature, field, field resistances and said armature resistance, a movable series of contacts coöperating with said fixed series of contacts to control the speed of the motor in hoisting, and a second movable series of contacts to coöperate with said fixed series of contacts to short-circuit the armature in a separate circuit with said armature resistance and to vary the resistance in the field-circuit with respect to the resistance in the armature-circuit.

5. The combination with a hoisting-drum and a motor therefor, of a resistance in a normally open separate circuit with the armature, and a controller comprising a fixed series of contacts and connections to the armature, field, field resistances and said armature resistance, a movable series of contacts coöperating with said fixed series of contacts to control the speed of the motor in hoisting, and a second movable series of contacts to coöperate with said fixed series of contacts to short-circuit the armature in a separate circuit with said armature resistance and to vary the resistance in the armature-circuit and also to control the speed of driving in the reverse direction.

786,324. RAIL-JOINT. METZGAR STUART. Sheridan, Pa. Filed Apr. 25, 1904. Serial No. 204,237.



Claim.—1. In a rail-joint, the combination of a base-plate having side flanges, an inclined bottom formed integral with said base-plate, wedges secured in said bottom, and a key operating said wedges.

2. In a rail-joint, the combination with the rails, a base-plate having side flanges formed integral therewith, fish-plates secured between said rail and side flanges, inclined bottoms secured integrally with said base-plate, said bottom having a transverse opening, a key secured in said opening, and wedges having inclined faces arranged in said inclined bottoms, all parts being arranged and operating substantially as described.

786,325. ELECTRICAL CONDENSER. PERCY H. THOMAS. Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed July 16, 1903. Serial No. 165,887.



Claim.—1. An electric condenser comprising a series of non-conducting plates and a series of thin conducting-plates of less area, each of which has a plurality of corners projecting through slits in the adjacent non-conducting plate and bent backward against the opposite surface to fasten the plate in position.

2. An electric condenser comprising a series of non-conducting plates, a series of thin conducting-plates of less area having a plurality of corners inserted in slits in the adjacent non-conducting plate and bent backwardly against said plate and sets of non-conducting strips having their ends fastened to the ends of the non-conducting plates.

3. An electric condenser comprising a series of non-conducting plates, a series of thin conducting-plates each fastened to an adjacent non-conducting plate by one or more of its corners which project through slits in said non-conducting plate and are bent backward against the plate and each having a terminal strip that is threaded through a plurality of slits in the adjacent non-conducting plate.

4. An electric condenser comprising a series of non-conducting plates, a series of thin conducting-plates of less area each having a plurality of its corners bent and inserted in slits in the adjacent non-conducting plate and having a terminal strip threaded through slits in the non-conducting plate, non-conducting strips having their ends fastened to the ends of the adjacent non-conducting plate and an open-work frame in which said combined members are mounted.

5. An electric condenser comprising a series of non-conducting plates, a series of thin conducting-plates each of which has edges that are folded or turned back upon themselves and is fastened to an adjacent non-conducting plate at its corners.

6. An electric condenser comprising a series of non-conducting supporting-plates, a series of conducting-plates of less area having turned-over edges and each of which is fastened to an adjacent non-conducting plate at its corners and spaced non-conducting strips having their ends fastened to the edges of the supporting-plates.

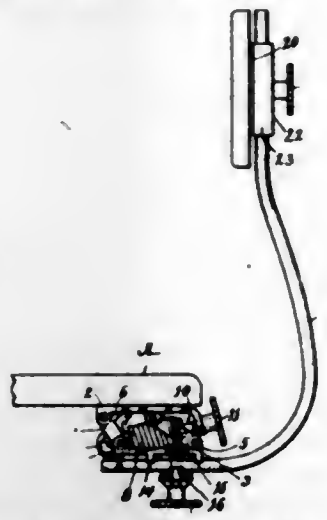
7. An electric condenser comprising a series of dielectric plates, a series of conducting-plates of less area each fastened to one side of a dielectric plate, spacing-strips fastened to each dielectric plate which supports a metal plate and an open-work frame which contains and supports the combined plates and strips.

8. An electric condenser comprising a series of dielectric plates, a series of conducting-plates of less area each having its corners inserted in slits in an adjacent dielectric plate, spacing-strips having their ends secured to the edges of the adjacent dielectric plate and an open-work frame in which said structure is contained and supported.

786,326. SPRING-BACK FOR CHAIRS. CHARLES J. TRAVERS, Milwaukee, Wis. Filed July 8, 1904. Serial No. 215,753.

Claim.—1. A spring-back for a chair, comprising a back, a plu-

rality of spindles on which the back is mounted, means for holding the lower ends of the spindles, short front links and longer rear links supporting movably the means for holding the lower ends of the spindles, and a spring adapted to hold the spindle-holding means in its initial upper and rearward position yieldingly.



2. In a spring-back for a chair, a plate adapted to be secured to a chair-seat, a set of short links depending therefrom, a set of longer links also depending from said plate at the rear of the short links, a spindle-plate pivoted and supported on the short and the long links, means for clamping spindles to the spindle-plate, and a spring adapted to hold the spindle-plate yieldingly in its upper and rearward po sition.

3. In a spring-back for a chair, a plurality of back-carrying spindles, a spindle-plate provided with sockets for the spindles, a clamping-plate bearing against the spindles, means for holding the clamping-plate to the spindle-plate and clamping the intermediate spindles, a supporting-plate, short links suspending the spindle-plate from the supporting-plate at the front, longer links suspending the spindle-plate from the supporting-plate a little distance at the rear of the short links, and a spring holding the spindle-plate to its upper and rearward position yieldingly and adapted to permit it to go down and forward on strain applied rearwardly on the upper portion of the spindles.

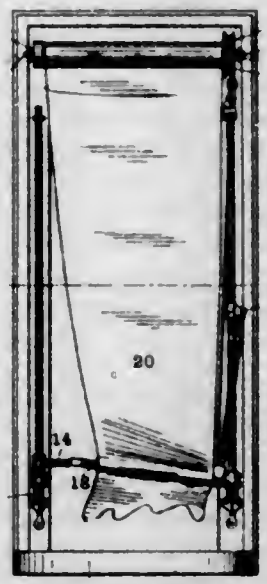
4. In mechanism for supporitng a spring-back for a chair, a supporting-plate adapted to be secured to the under side of a chair-seat, a spindle-plate, front short links pivoted to the supporting-plate and to the supported spindle-plate and provided with stops adapted to contact with said plates and limit the swing of the links and the movement of the spindle-plate, longer rear links pivoted to the supporting-plate and to the spindle-plate, and a spring interposed between the supporting-plate and the spindle-plate adapted to hold the spindle-plate in its upper and rearward position yieldingly.

5. In mechanism for supporting a spring-back for a chair, a supporting-plate adapted to be secured to the under side of a chair-seat, a spindle-plate, front short links pivoted to the supporting-plate and to the supported spindle-plate, longer links pivoted at a distance at the rear of the short links to the supporting-plate and pivoted to the supported spindle-plate at a greater distance to the rear than the distance at which these longer links are pivoted on the supporting-plate at the rear of the short links, and a spring interposed between the supporting-plate and the spindle-plate adapted to hold the spindle-plate yieldingly in its upper and rearward position and horizontally parallel with the supporting-plate.

6. In mechanism for a spring-back for a chair, a plate adapted to be secured to a chair-seat, a set of short links depending therefrom, a set of longer links depending from said plate at the rear of the short links, a spindle-plate pivoted and supported on the short and the long links, means for clamping spindles to the spindle-plate, a spring secured to and interposed between the supporting-plate and the supported spindle-plate adapted to hold the spindle-plate yieldingly to its upper and rearward position, and means for adjusting the tension of the spring.

786,327. AWNING. CHARLES J. TRUEMPER, Indianapolis, Ind. Filed July 5, 1904. Serial No. 215,297.

Claim.—1. In an awning, the combination of, vertical guide-rods, the webbing, the roller to which said webbing is attached, a pawl and ratchet for holding said roller in desired positions of adjustment, a cord passing around said roller and engaging the pawl, a pair of collars one mounted on each of the vertical guides, means for holding said collars in any desired position of vertical adjustment, a strut pivoted to each collar on a substantially horizontal axis, a bearing member pivoted to the outer end of each strut on an axis substantially at right angles to the pivotal connection between the strut and collar, and a spreader member carried by the lower end of the web and pivotally connected to said bearing members upon a substantially horizontal axis.



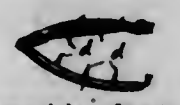
2. In an awning, the combination of, vertical guide-rods, the webbing, the roller to which said webbing is attached, a pawl and ratchet for holding said roller in desired positions of adjustment, a cord passing around said roller and engaging the pawl, a pair of collars one mounted on each of the vertical guides, a strut pivoted to each collar on a substantially horizontal axis, a bearing member pivoted to the outer end of each strut on an axis substantially at right angles to the pivotal connection between the strut and collar, a spreader member carried by the lower end of the web and pivotally connected to said bearing members upon a substantially horizontal axis, a collar mounted upon each guide below the first-mentioned collar, and means for holding said last collar in various positions of vertical adjustment.

3. In an awning, the combination of, vertical guide-rods, the webbing, the roller to which said webbing is attached, a pawl and ratchet for holding said roller in desired positions of adjustment, a cord passing around said roller and engaging the pawl, a pair of collars one mounted on each of the vertical guides, a strut pivoted to each collar on a substantially horizontal axis, a bearing member pivoted to the outer end of each strut on an axis substantially at right angles to the pivotal connection between the strut and collar, a spreader member carried by the lower end of the web and pivotally connected to said bearing members upon a substantially horizontal axis, a collar mounted upon each guide below the first-mentioned collar, means for holding said collar in various positions of vertical adjustment, and interengaging parts carried by each of said second collars and the outer end of each strut, substantially as and for the purpose set forth.

4. In an awning, the combination of, vertical guide-rods, the webbing, the roller to which said webbing is attached, means for rotating said roller and for holding the same in desired positions of adjustment, a pair of collars one mounted on each of the vertical guides, a strut pivoted to each collar on a substantially horizontal axis, a bearing member pivoted to the outer end of each strut on an axis substantially at right angles to the pivotal connection between the strut and collar, a spreader member carried by the lower end of the web and pivotally connected to said bearing members upon a substantially horizontal axis, a collar mounted upon each guide below the first-mentioned collar, and means for holding said collar in various positions of vertical adjustment

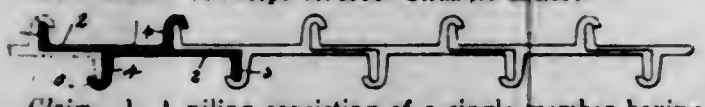
5. In an awning, the combination of, vertical guide-rods, the webbing, the roller to which said webbing is attached, means for rotating said roller and for holding the same in desired positions of adjustment, a pair of collars one mounted on each of the vertical guides, a strut pivoted to each collar on a substantially horizontal axis, a bearing member pivoted to the outer end of each strut on an axis substantially at right angles to the pivotal connection between the strut and collar, a spreader member carried by the lower end of the web and pivotally connected to said bearing members upon a substantially horizontal axis, a collar mounted upon each guide below the first-mentioned collar, means for holding said collar in various positions of vertical adjustment, and interengaging parts carried by each of said second collars and the outer end of each strut, substantially as and for the purpose set forth.

786,328. VEIL-BROOCH. George D. Turner, Cleveland, Ohio, assignor, by mesne assignments, to The Cleveland Clasp Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 18, 1904. Serial No. 203,687.



Claim.—A brooch comprising front and rear portions of substantially similar contour, said portions being formed with open centers and attached together at one side so as to be movable relatively one to the other, a pin secured at one side of one portion and spanning the open center of the same and a keeper at the opposite side of the open center of said portion.

786,329. PILING. Mathias R. Vanderkloot, Chicago, Ill., assignor to Vanderkloot Steel Piling Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 10, 1904. Serial No. 224,053.



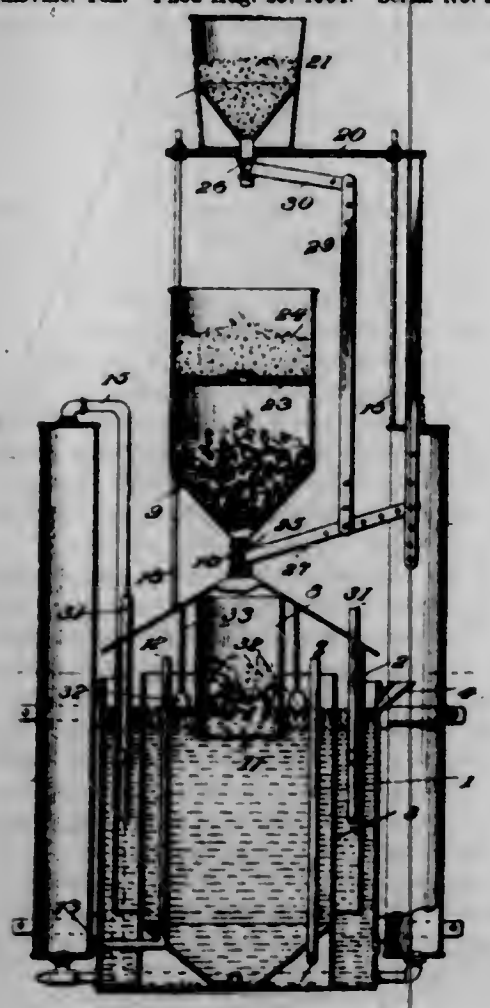
Claim.—1. A piling consisting of a single member having a thick central portion and reduced extensions terminating in straight flanges, hooked flanges projecting from the body portion in opposite directions as and for the purpose set forth.

2. A pile consisting of a single metal sheet having reduced extensions terminating in straight flanges bent at right angle to the extension and a pair of hooked flanges projecting from each side of the metal sheet in different directions, said flanges interlocking with flanges on the adjacent pile substantially as described.

3. A section or unit for sheet-piling consisting of a pile having a thick body portion, reduced extensions formed integral therewith and terminating in straight flanges bent at right angle to the reduced extension, a pair of hook-shaped flanges projecting from the body portion in opposite directions and forming abutting angles for the straight flange carried by the adjacent pile.

4. A series of interlocking piles having a thick central body portion, reduced extensions formed integral with the body portion and terminating in straight flanges bent at right angle to the reduced extension and extending in opposite directions, flanges projecting from the central body portion at a point where the reduced extension begins, and terminating in hook-shaped ends forming a channel for interlocking with the straight flange on the adjacent pile as and for the purpose described.

786,330. ACETYLENE-GAS GENERATOR. William A. Wallace, Collinsville, Tex. Filed Aug. 29, 1904. Serial No. 222,634.



Claim.—1. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder, weight means mounted independently of the gas-bell for compensating for the weight of the carbid displaced from said holder, and means for effecting coöperation of the weight means and the bell upon displacement of the carbid.

2. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder, a hopper mounted independently of the gas-bell, and valve means governing egress of the contents of the hopper and operable by the gas-bell aforesaid.

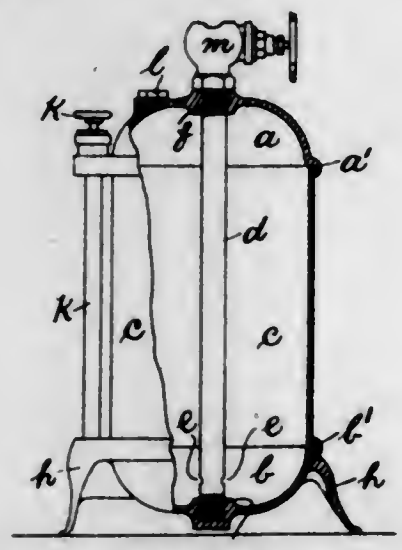
3. In an acetylene-gas generator, the combination of a generator, a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder to the generator, and weight means regulable by the carbid-feed mechanism to compensate for the weight of the carbid displaced from the said holder.

4. In an acetylene-gas generator, the combination of a generator, a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder to the generator, a hopper mounted independently of the bell to receive loose material, a receptacle supported by the bell, and means for feeding the loose material from the hopper into the receptacle aforesaid.

5. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a generator, a carbid-holder carried by the bell, a receptacle supported by the carbid-holder, a hopper adapted to receive loose material, valved means governing the egress of the material in the hopper and carbid-holder, and means for simultaneously operating said valve means to effect feeding of the carbid to the generator and feed of the loose material from the hopper to the receptacle supported by the carbid-holder.

6. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a generator, a carbid-holder carried by the bell, a receptacle supported by the carbid-holder, a hopper adapted to receive loose material, valved means governing the egress of the material in the hopper and carbid-holder, and adjustable means for simultaneously operating said valve means to effect feeding of the carbid to the generator and feed of the loose material from the hopper to the receptacle supported by the carbid-holder.

786,331. CONSTRUCTION OF THE BODIES OF LAMPS. Roughsedge Wallwork, Manchester, England. Filed Dec. 12, 1904. Serial No. 236,644.

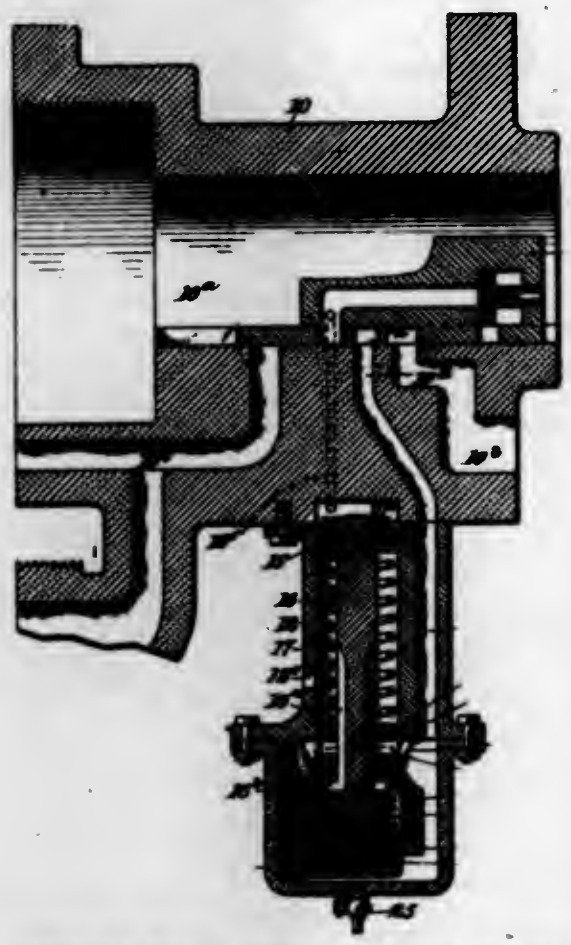


Claim.—In a lamp or oil-feeder body the combination of end covers *a*, *b*, an intervening casing *c*, fitting into said covers, and a central perforated tube *d*, bracing together said covers and casing, for the purpose and in manner substantially as herein set forth.

786,332. RECHARGING DEVICE. John V. Wells, Braddock, Pa. Filed Apr. 14, 1904. Serial No. 203,123.

Claim.—1. A recharging device, comprising a casing or inclosure, including a cylinder and a chamber communicating therewith, the cylinder having a vent to the atmosphere and being adapted to communicate with the auxiliary reservoir and the chamber being adapted to communicate with the brake-cylinder, a piston in the said cylinder, a stem connected to the piston, a spring pressing the piston against the auxiliary-reservoir pressure, a main retaining-valve having limited sliding movement on the stem, and a secondary retaining-valve carried by the main retaining-valve.

2. A recharging device, comprising a casing or inclosure including a cylinder and a chamber at one end of and communicating with the cylinder, said cylinder having the other end adapted to communicate with the auxiliary-reservoir pressure and having a discharge or exhaust port intermediate its ends and the chamber being adapted to communicate with the brake-cylinder pressure, a piston in the cylinder, a spring pressing the piston against the auxiliary-reservoir pressure, a grooved stem attached to the piston and extending through the communication between the cylinder and chamber, a chambered main retaining-valve located in the said chamber and having limited sliding movement on the grooved portion of the stem, said main retaining-valve being adapted to bear against the adjacent cylinder-head to close the fluid-passage between the said head and the main retaining-valve, and a secondary retaining-valve carried by and commanding an orifice in the said chambered main retaining-valve.



3. A recharging device, comprising a casing or inclosure including a cylinder and a chamber at one end of and communicating with the cylinder, said cylinder having the other end adapted to communicate with the auxiliary-reservoir pressure and having a discharge or exhaust port intermediate its ends and the chamber being adapted to communicate with the brake-cylinder pressure, a piston in the cylinder, a spring pressing the piston against the auxiliary-reservoir pressure, a grooved stem attached to the piston and extending through the communication between the cylinder and chamber, a chambered main retaining-valve located in the said chamber and having limited sliding movement on the grooved portion of the stem, said main retaining-valve being adapted to bear against the adjacent cylinder-head to close the fluid-passage between the said head and the main retaining-valve, a secondary retaining-valve carried by and commanding an orifice in the said chambered main retaining-valve, and means for releasably holding the main retaining-valve in active position.

4. A recharging device, comprising a casing or inclosure including a cylinder and a chamber at one end of and communicating with the cylinder, said cylinder having the other end adapted to communicate with the auxiliary-reservoir pressure and having a discharge or exhaust port intermediate its ends and the chamber being adapted to communicate with the brake-cylinder pressure, a piston in the cylinder, a spring pressing the piston against the auxiliary-reservoir pressure, a grooved stem attached to the piston and extending through the communication between the cylinder and chamber, a chambered main retaining-valve located in the said chamber and having limited sliding movement on the grooved portion of the stem, said main retaining-valve being adapted to bear against the adjacent cylinder-head to close the fluid-passage between the said head and the main retaining-valve, a secondary retaining-valve carried by and commanding an orifice in the said chambered main retaining-valve, and spring-catches adapted to engage opposite sides of the main retaining-valve to hold said valve yieldingly in active position.

5. The combination with a triple valve, of a recharging device, comprising a main retaining-valve controlling the triple exhaust, means for unseating said valve, such means being actuated by the auxiliary-reservoir pressure, a secondary retaining-valve, and means for yieldingly seating the same, the secondary retaining-valve being carried by the main retaining-valve.

6. The combination with a triple valve, of a recharging device, comprising a main retaining-valve controlling the triple exhaust, means for unseating said valve, such means being actuated by the auxiliary-reservoir pressure, a secondary retaining-valve, and means for yieldingly seating the same, the secondary retaining-valve being carried in the main retaining-valve.

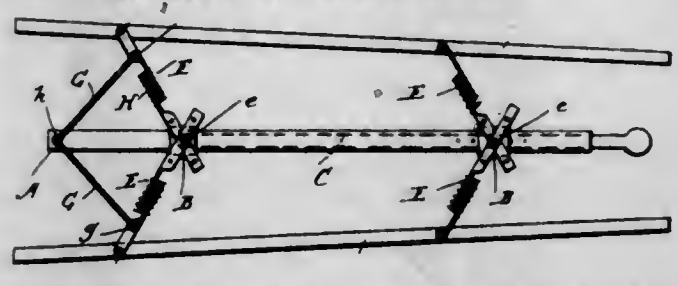
7. A recharging device for fluid-pressure brake systems, comprising a valve adapted to command the triple exhaust, means for unseating said valve operated by the auxiliary-reservoir pressure, and a spring-catch adapted to yieldingly hold the valve seated.

8. A recharging device for fluid-pressure brake systems comprising a chambered valve adapted to command a triple exhaust, means for unseating said valve operated by the auxiliary-reservoir pressure, and a secondary retaining-valve mounted in the chambered valve and controlling an exhaust-opening therein.

9. A recharging device for fluid-pressure brake systems comprising a casing having a passage therethrough communicating with the triple exhaust, a retaining-valve commanding said passage, means for unseating the valve operated by the auxiliary-reservoir pressure, the retaining-valve having a passage therethrough, and a secondary retaining-valve commanding the passage in the first-named or main retaining-valve.

10. A recharging device for fluid-pressure brake systems comprising a valve adapted to command a triple exhaust, means for unseating the valve operated by the auxiliary-reservoir pressure, and a catch adapted releasably to hold the valve seated.

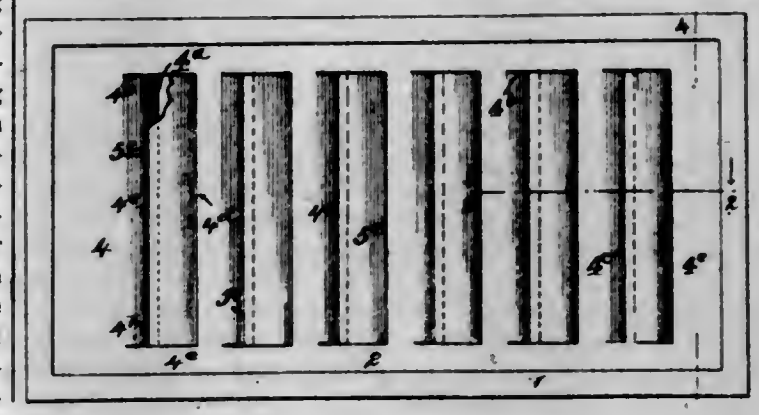
786,333. TROUSERS-STRETCHER. WARREN B. WHITE, Boston, Mass. Filed June 16, 1904. Serial No. 212,756.



Claim.—1. In a trousers-stretcher, the combination, with a central bar, of sockets slidable on the said bar, a pair of stretcher-bars, pairs of arms pivoted to the said sockets and to the said stretcher-bars, arms pivoted to one of the said pairs of arms and to the said central bar, and a connecting-rod extending between the said sockets.

2. In a trousers-stretcher, the combination, with a central bar, of sockets slidable upon the said bar, a pair of stretcher-bars, pairs of arms pivoted to the said sockets and to the said stretcher-bars, each said arm being formed of two overlapping sections and a spiral spring coupling the said sections and forcing the pivoted ends of the arms apart, arms pivoted to one of the said pairs of arms and to the said central bar, and a connecting-rod extending between the said sockets.

786,334. SIGN. NATHAN B. WOOD, New York, N. Y., assignor, by direct and mesne assignments, to The Wood Changing Sign Company, a Corporation of New York. Filed Dec. 2, 1903. Serial No. 183,429.



Claim.—1. A sign comprising a pair of sheets provided with slots and strips, the strips of one sheet overlapping the slots of the next sheet, and another pair of sheets provided with overlapping strips respectively located between strips of the first-named sheets and adapted to slide across the latter and to be concealed behind the same, substantially as described.

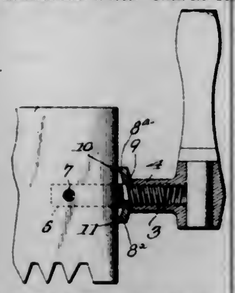
2. A sign comprising a pair of sheets provided with slots and strips placed one upon the other with strips of one sheet passing through the slots of the other sheet and overlapping the transverse pieces thereof providing openings therebetween, and another pair of sheets pro ided with strips overlapping each other and alined with the spaces between the corresponding first-named strips and arranged to slide in front of the latter to conceal them and to slide behind said strips to expose the latter to view, substantially as described.

3. A sign comprising a pair of sheets provided with transverse slots and having slits at corresponding sides of said slots providing extended strips, the strips of one sheet passing through the slots of another sheet, and another pair of sheets provided with strips respectively located between two strips of the first-named sheets and arranged to slide therebetween over the faces of the first-named strips to conceal the latter, substantially as described.

4. A sign comprising a member having strips, part of one strip overlapping part of an adjacent strip and providing spaces therebetween, and another member having strips lying partly one upon another arranged adjacent to the first-named strips and alined with said spaces to pass therethrough, a frame to which the first-named strips are attached, said frame having horizontally-disposed guiding-ways, and a back to which the second-named strips are attached, said back being guided by said ways and arranged to have movement with respect to said frame for causing the last-named strips to alternately conceal and expose the first-named strips, substantially as described.

5. In a sign the combination of a frame having horizontally-disposed guideways, transverse strips secured to said frame and having openings between them, with a back for said frame arranged to have movement therein, strips carried by said back arranged to slide between the first-named strips to alternately expose and conceal the latter, and antifriction-balls located between said frame and said back, the latter having two bearing-surfaces for the corresponding balls, said balls being mounted to travel along said ways, substantially as described.

786,335. SAW-HANDLE. DUDLEY WORDEN, Whatcom, Wash., assignor of one-half to Edwin B. Phelps, Whatcom, Wash. Filed Dec. 10, 1903. Renewed Mar. 1, 1905. Serial No. 247,943.



Claim.—1. A handle-fastener having a socket, a saw-clamping shank longitudinally movable in the socket, and a curved resilient plate mounted upon the shank and having notched edges yieldably engaging the saw.

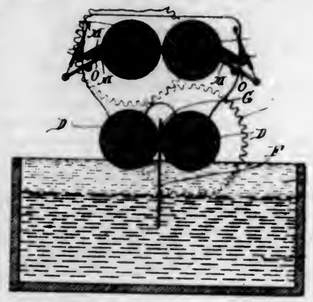
2. A handle-fastener having a socket, a saw-clamping shank longitudinally movable in said socket, and a curved resilient plate intermediately bearing against the socket and having saw-engaging terminals.

3. A saw-handle fastener comprising a handle, a socket secured to the handle, and a movable saw-engaging device carried by the socket and including a terminal resilient plate having its resilient edges placed in contact with the rear edge of the saw.

4. In a saw-handle fastener, a saw, a handle, and a yielding plate interposed between the saw and handle and having a terminally-disposed guard-finger projecting from the plate.

5. A tension device for saw-handles, comprising a concavo-convex plate having an inherent yielding tendency and provided with a terminally-disposed guard-finger.

786,336. APPARATUS FOR TIN-PLATING. FRANK L. YOUNG, Boston, Mass. Filed Feb. 1, 1904. Serial No. 191,438.



Claim.—1. In a tin-plating apparatus; a pot to contain molten tin; a pair of squeeze delivery-rolls adjacent thereto; means for supplying oil to the surface of said delivery-rolls; a pair of auxiliary squeeze-rolls beyond said delivery-rolls and out of contact with the oil-supply; and means for removing oil from the surface of said auxiliary rolls.

2. In a tin-plating apparatus; a pot to contain molten tin; a pair of squeeze delivery-rolls located above and adjacent thereto; means for supplying oil to the surface of said delivery-rolls; a pair of auxiliary rolls above said delivery-rolls and out of contact with the oil-supply; and means for removing oil from the surface of said auxiliary rolls.

3. In a tin-plating apparatus; a pot to contain molten tin; a pair of squeeze delivery-rolls adjacent thereto; means for supplying oil to the surface of said delivery-rolls; a pair of auxiliary squeeze-rolls beyond said delivery-rolls and out of contact with the oil-supply; and a scraper adjacent to and acting upon the surface of each of said auxiliary rolls to remove oil from the surface thereof.

4. In a tin-plating apparatus; a pot to contain molten tin; a pair of squeeze delivery-rolls located above and adjacent thereto; means for supplying oil to the surface of said delivery-rolls; a pair of auxiliary rolls above said delivery-rolls and out of contact with the oil-supply; and a scraper adjacent to and acting upon the surface of each of said auxiliary rolls to remove oil from the surface thereof.

5. In a tin-plating apparatus; a pot to contain molten tin; a pair of squeeze delivery-rolls adjacent thereto; means for supplying oil to the surface of said delivery-rolls; a pair of auxiliary squeeze-rolls beyond said delivery-rolls; a pair of scrapers adjacent to and acting upon the surface of each of said auxiliary rolls; and absorbent material between said pairs of scrapers whereby oil is removed from the surface of said auxiliary rolls.

6. In a tin-plating apparatus; a pot to contain ntolten tin; a pair of squeeze delivery-rolls located above and adjacent thereto; means for supplying oil to the surface of said delivery-rolls; a pair of auxiliary rolls above said delivery-rolls; a pair of scrapers adjacent to and acting upon the surface of each of said auxiliary rolls; and absorbent material between said pairs of scrapers whereby oil is removed from the surface of said auxiliary rolls.

786,337. CONVEYER. GEORGE F. ZIMMER, London, England. Filed Dec. 21, 1903. Serial No. 186,039.

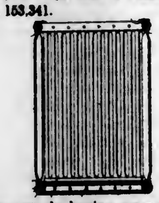


Claim.—1. In a conveyer the combination of a trough supported on spring-legs with a cranked driving-shaft, a connecting-rod attached at one end to the crank of the driving-shaft and at the other end to an adjustable clamping device secured to one pair of spring-legs at any desired point so as to give the required vibration to the trough, as specified and for the purpose stated.

2. In a conveyer the combination of a trough supported on spring-legs with a cranked driving-shaft, a connecting-rod attached at one end to the crank of the driving-shaft and at the other end to an adjustable clamping device secured to one pair of spring-legs at any desired point so as to give the required vibration to the trough and means for distributing the driving strain over two or more pairs of spring-legs all substantially as specified and for the purpose stated.

3. In a conveyer the combination of a trough supported on spring-legs with a cranked driving-shaft, a connecting-rod attached at one end to the crank of the driving-shaft and at the other end to an adjustable clamping device secured to one pair of spring-legs at any desired point so as to give the required vibration to the trough, a volute spring on the end of the connecting-rod on each side of the clamping device nuts screwed onto the end of the connecting-rod to adjust the tension of the volute springs and rods secured to the said clamping device on a second and if necessary on a third pair of spring-legs all as specified and for the purpose stated.

786,338. TRANSFORMER RECEPTACLE OR CASE. JOHN H. ZIMMERMANN, Newark, N. J., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Apr. 18, 1903. Serial No. 153,341.



Claim.—1. A receptacle having corrugated sheet-metal sides the upper and lower edges of which are compressed to relatively small thickness, a sheet-metal bottom bent to form a narrow trough or gutter adjacent to its edges in which the compressed lower edges of the sides are seated and fastened by means of solder, a strengthening-plate in contact with the bottom of the receptacle and riveted to its edges, reinforcing and strengthening strips riveted to the compressed upper edges of the sides of the receptacle and eyebolts fastened thereto.

2. A receptacle having corrugated sheet-metal sides the upper and lower edges of which are crushed or compressed to small thickness, a sheet-metal bottom plate bent to form narrow troughs or gutters adjacent to its edges in which the compressed lower edges of the sides are seated and fastened by means of solder, a reinforcing-plate in contact with the outside of the sheet-metal bottom and riveted to its bent edges, angle-irons projecting at the outer sides and over the tops of the compressed upper edges and strengthening-strips inside said compressed edges, the angle-irons, edges and strips being riveted together.

786,339. STONE-SAWING MACHINE. OSCAR W. ALSTON, Lanesboro, Pa. Filed Mar. 11, 1902. Serial No. 97,760.



Claim.—1. The combination, with standards, of slides adjustable thereon; arms pivoted to the slides; hangers articulated to the arms; links pivoted to the hangers and also to the slides; and a saw-frame pivoted to said hangers.

2. The combination, with standards, of slides adjustable thereon and having sides facing each other; arms pivoted to the upper portions of said slides; hangers articulated to the arms; links pivoted to the hangers and to the lower parts of the slides; and a saw-frame carried by the levers.

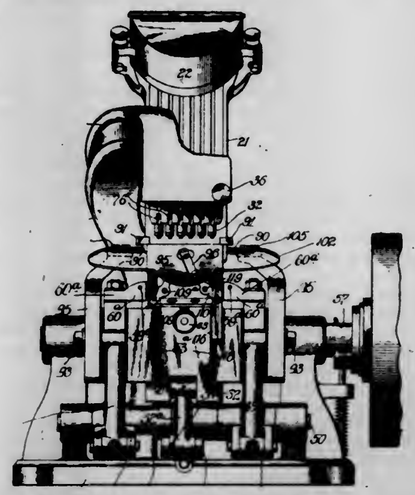
3. The combination, with framework having uprights, of a saw-frame mounted for swinging movement between said uprights; slides fitted for adjustment upon guideways of the uprights; hangers articulated to the saw-frame; links pivoted to the slides, and also pivoted to the hangers intermediate their lengths; and of such proportions that they will cause the saw-frame to be lifted on each stroke; and arms pivoted to the slides above the links and articulated to the ends of the hangers.

4. In a machine of the class described, the combination, with a machine-frame having vertical uprights, of slides fitted upon guideways of said uprights; means for adjusting said slides; hangers articulated to the saw-frame; links pivoted to the lower portions of the slides on their inner sides and also pivoted to the hangers intermediate the lengths of said hangers; arms pivoted to the inner portions of the slides and also articulated to the upper ends of the hangers; and means for reciprocating said saw-frame.

5. In a machine of the class specified, the combination, with a saw-frame, of hangers pivoted to said frame; upwardly-inclined links of a length to cause the saw-frame to be lifted on each stroke, connected to the hangers at points intermediate their lengths; slides to the lower ends of which said links are pivoted; and downwardly-inclined arms pivoted to the upper ends of said slides and also to the upper ends of said hangers.

6. The combination of the standards, vertically-adjustable slides arranged upon said standards, a saw-carrying frame, pairs of links bearing in said slides and arranged to stand normally, one pair at right angles to the other and having pivotal connection with said hangers at, and near, their upper ends, said hangers having like connection at their lower ends with said saw-carrying frame.

786,340. EYELETING-MACHINE. JOSEPH W. BARNA and VALENTINE HOFFMAN, Chicago, Ill., assignors to The Peerless Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed July 16, 1903. Serial No. 165,757.



Claim.—1. An eyeleting-machine having a plurality of sets, and means whereby one of such sets may be thrown into an inoperative position to vary the number of active sets without disassembling it from the machine.

2. An eyeleting-machine having a series of coöperating sets, and means whereby a plurality of the sets may be thrown into an inoperative position to vary the number of active sets without disassembling the same from the machine.

3. In an eyeleting-machine, in combination, a plurality of stationary sets, movable sets coöperating therewith, and means whereby one of the said sets may be thrown into an inoperative position to vary the number of active sets without disassembling it from the machine.

4. In an eyeleting-machine, in combination, a series of stationary sets, movable sets coöperating therewith, and means whereby one of the said movable sets may be thrown into an inoperative position to vary the number of active sets without disassembling it from the machine.

5. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a second series of sets mounted on the carrier and coöperating with the first series, and means whereby one of the sec-

ond series of sets may be thrown into an inoperative position to vary the number of active sets without disassembling it from the machine.

6. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a coöperating series of sets mounted on the carrier, and means whereby a set of one of the said series may be thrown into an inoperative position to vary the number of active sets without disassembling it from the machine.

7. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a coöperating series of sets mounted on the carrier and one of which is movable thereon, and means whereby such latter set may be moved to throw it out of operation.

8. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating sets mounted on the carrier and one of which is slidable thereon, and means whereby such set may be moved to throw it out of operation.

9. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating sets mounted on the carrier and one of which is slidable thereon, and a finger-piece for sliding such set.

10. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating sets mounted on the carrier and one of which is vertically slidable thereon, and means for holding such set in its advanced position.

11. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating sets mounted on the carrier and one of which is vertically slidable thereon, a stop on the carrier, and an arm carried by the slidable set and engaging the stop to hold the slidable set in its advanced position.

12. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating sets mounted on the carrier and one of which is slidable and oscillatable thereon, a stop on the carrier for holding the set in its advanced position, and means for oscillating the set to engage or disengage it from the stop.

13. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating sets mounted on the carrier and a plurality of which coöperating sets are slidable and oscillatable on the carrier, stops on the carrier for holding the slidable sets in their advanced positions, and finger-pieces on such sets for oscillating the said sets to disengage them from the stops.

14. In an eyeleting-machine, in combination, a series of coöperating sets, and means whereby a plurality of said sets may be thrown out of action independently of one another without disassembling such plurality of sets from the machine.

15. In an eyeleting-machine, in combination, a series of stationary sets and a series of coöperating movable sets, and means whereby a plurality of one of said series of sets may be thrown out of operation without disassembling such plurality of sets from the machine.

16. In an eyeleting-machine, in combination, a series of stationary sets and a series of coöperating movable sets, and a trip for throwing one of said sets out of operation.

17. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, coöperating sets mounted on the carrier and a plurality of which are slidable and oscillatable thereon, stops on the carrier, and an arm fixed to each slidable set for sliding the same and also for oscillating it to engage it with and disengage it from the stop.

18. In an eyeleting-machine, in combination, a series of stationary sets, a carrier, a series of coöperating hollow sets mounted on the carrier and one of which is slidable on the carrier, punches sliding in the movable sets, a slide-plate on which the punches are mounted, the punch associated with the slidable set being movable therewith, and an arm for moving said set and associated punch.

19. In an eyeleting-machine, in combination, a stationary and a coöperating movable series of sets, a slide on which the latter series is mounted and on which one of the same is independently movable, and punches coöperating with the movable series, the punch associated with the independently-movable set being movable with the latter.

20. In an eyeleting-machine, in combination, a series of stationary hollow sets, a movable series of coöperating hollow sets, punches sliding in the movable sets and provided with pointed punching ends entering the stationary sets and one of the movable sets being movable independently of the others together with its associated punch to throw the same out of action.

21. In an eyeleting-machine, in combination a series of stationary hollow sets, a vertically-reciprocating carrier having a vertical aperture, a series of hollow coöperating sets mounted on the carrier and one of which is slidable in the aperture, a slide-plate, punches mounted on the said plate and sliding in the movable sets, the punch associated with the independently-slidable set adapted to be disengaged from the slide-plate, and a spring for returning said punch to its position of engagement with the slide-plate.

22. In an eyeleting-machine, in combination, a series of stationary hollow sets, a vertically-reciprocating carrier having a plurality of vertical apertures, a series of hollow coöperating sets mounted on the carrier certain of which are slidable and oscillatable in the apertures and provided with vertical slots, shoulders at the upper ends of the apertures, cross-pieces fixed to the oscillatable sets and normally resting on the shoulders, grooves in the walls of the apertures in which the ends of the cross-pieces slide, punches associated with the movable sets and slidable therein, a slide-plate to which the punches are connected, the punches associated with the independently-movable sets being provided with wings extending into the slots of the said sets and normally engaging the slide-plate, and expansion-springs interposed between the ends of the punches and the cross-pieces of the sets.

23. In an eyeleting-machine, in combination, a series of stationary sets, coöperating movable sets, means for moving the latter sets, punches associated with the movable sets and coacting with the stationary sets, a carrier for the punches, and an eccentric mechanism operating the carrier and comprising a strap having a recess on its inner face, a disk mounted in the strap and provided with a slideway and a shaft-hub seated in the slideway.

24. In an eyeleting-machine, in combination, a series of stationary sets, coöperating movable sets, an eccentric for moving the latter sets, punches associated with the movable sets and coacting with the stationary sets, a carrier for the punches and an eccentric mechanism operating the carrier and comprising a strap having a recess on its inner face, a disk mounted in the strap and provided with a slideway across its face, a shaft-hub provided with an arm having a roller at its end seated in the slideway, and adjustable blocks located in the recess.

25. In combination with an eyeleting-machine having a series of stationary sets and a series of coöperating movable sets, a gage associated with the sets, means whereby a set of one of the series may be thrown into and out of action, and means actuated by the former means for adjusting the gage.

26. In combination with an eyeleting-machine having a series of stationary sets and a series of coöperating movable sets, a set of one of such series being adapted to be thrown into and out of action, a gage associated with the sets, and a connection for adjusting the gage when the said set is thrown into and out of action.

27. In combination with an eyeleting-machine having a series of coöperating stationary and movable sets, means whereby a set of one of the said series may be thrown into and out of action, and a gage controlled by the said means and adjusted thereby when the said set is thrown into and out of action.

28. In combination with an eyeleting-machine having a series of sets, a gage located adjacent each end of such series and means for adjusting the gages simultaneously in the same direction.

29. In combination with an eyeleting-machine having a series of sets, a gage located adjacent each end of such series, rack-bars carrying the gages, a pinion meshing with the rack-bars and a slide carrying the rack-bars and pinion.

30. In combination with an eyeleting-machine having a series of sets, a gage, means for throwing out of action one of the sets, and means controlled by the former means for shifting the gage.

31. In combination with an eyeleting-machine having a series of sets, a gage, means whereby one of the end sets may be thrown out of action, and means controlled by the former means for shifting the gage.

32. In combination with an eyeleting-machine having a series of sets, a gage, means whereby the set at each end of the series may be thrown out of action, and means for maintaining the gage in proper position irrespective of the number of sets in action.

33. In combination with an eyeleting-machine having a series of sets, a slide having gage-arms equally spaced from the end sets of the series, means whereby one of the end sets may be thrown out of action, and means controlled thereby for shifting the gage-slide to its central position with reference to the remaining active sets.

34. In combination with an eyeleting-machine having a series of sets and one of the sets of which series is adapted to be thrown out of action, a gage comprising a pair of simultaneously-adjustable arms located adjacent the ends of the series of sets, and a trip actuated when the set is thrown out of action to shift the gage to its central position with reference to the remaining active sets.

35. In combination with a series of sets of an eyeleting-machine, devices for throwing the end sets out of action, a centrally-located gage, and trips controlled by the said devices for moving the gage to its central position with respect to the remaining active sets.

36. In combination with a series of sets of an eyeleting-machine, a finger-piece for throwing one of the end sets out of action, a centrally-located gage, and a trip actuated by the finger-piece for moving the gage to its central position with respect to the remaining active sets.

37. In combination with a set-carrier of an eyeleting-machine and its series of sets, finger-pieces for throwing the end sets out of action, springs for holding the finger-pieces against movement, a centrally-located gage, and trips actuated by the finger-pieces for moving the gage to maintain the same in its central position with respect to the active sets of the series.

38. In combination with a set-carrier of an eyeleting-machine and its series of sets, finger-pieces for throwing the end sets out of action, a centrally-located gage, trips pivoted to the set-carrier and extending into the path of the finger-pieces, a longitudinally-adjustable bar mounted on the carrier, a sliding connection between one of the trips and the bar, a bracket movable with the gage and having a vertical slot, and a pin fixed to the other trip and entering the bracket-slot.

39. In combination with a series of sets of an eyeleting-machine the end sets of which are adapted to be thrown out of action, handles controlling such latter sets, a centrally-located gage, a trip associated with each of said latter sets and actuated by its handle and one of which coacts with the gage to shift the same, and a lock-bar controlled by the other trip for holding the first trip against movement.

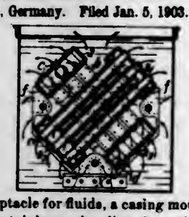
40. An eyeleting-machine provided with a series of coöperating sets, one of which sets may be thrown into and out of operation at will to vary the number of active sets, and a provision whereby such set may be thrown out of operation independently of the other sets, and without disassembling it from the machine.

41. In combination with an eyeleting-machine provided with means whereby the number of active sets may be varied, of an adjustable gage therefor controlled by the said means.

42. In combination with an eyeleting-machine provided with means whereby the number of active sets may be varied, of a gage controlled by the said means to adjust the same.

43. In combination with an eyeleting-machine provided with means whereby the number of active sets may be varied, of a gage associated with the sets and automatically adjusted through the medium of the said means.

786,341. HEAT-EXCHANGE. JOHANN H. BAUDE and EMIL H. HOPPE, Montwy, Germany. Filed Jan. 5, 1903. Serial No. 137,946.



Claim.—A receptacle for fluids, a casing mounted in said receptacle, said casing containing a plurality of angularly-arranged heat-exchanges, each exchange having at each of its ends a chamber communicating with the exterior of the receptacle, tubes passing through said chambers and communicating with the interior of the receptacle, and other tubes connecting the interiors of the chambers, substantially as described and shown.

786,342. EXTENSION-TABLE. GEORGE A. BROWN, St. Johns, Mich., assignor, by mesne assignments, to The St. Johns Table Company, Incorporated, St. Johns, Mich. Filed Nov. 23, 1901. Renewed Apr. 7, 1904. Serial No. 202,080.

Claim.—1. In combination with the divided bed and pillar of an extension-table, cleats secured to the table, securing-bolts passing through the cleats and longitudinally into the end of each section of the pillar near the dividing-line of the pillar, adjusting-bolts passing through the cleats and longitudinally into the ends of the pillar near the center, an adjusting-bracket parallel with and projecting at right angles from the top of each section of the pillar, and an adjusting-bolt through the ends of the brackets and bearing upon the lower surface of the cleats, substantially as and for the purpose set forth.

2. In a pedestal extension-table, the combination with an extension-section and a pedestal-section depending therefrom, of a brace extending longitudinally of said table-top and rigidly secured to the upper end of said pedestal-section, and an adjustable bearing for the outer end of said brace, whereby the angle of said pedestal-section with said top may be adjusted.



3. In an extension-table of the character described, a top, a sectional pedestal therefor, a brace beneath the top rigidly secured at its inner end to the top of one of the pedestal-sections, and means at the outer end of said brace whereby the angle of the pedestal with the top may be adjusted.

4. In a pedestal extension-table comprising top-sections and extension devices connecting the same, bridge-blocks secured to each of the top-sections, bridges attached to the bridge-blocks of each section, and the sections of a two-part pedestal, each attached to one of said bridges, attaching means adapted to permit of a slight angular movement of a pedestal-section with respect to the top-section to which it is attached, and means mounted on the pedestal-section and bearing against one of the connected elements for adjustably tilting the pedestal-section with respect to the top-section.

5. In a pedestal extension-table comprising top-sections and extension devices connecting the same and the sections of a two-part pedestal, each attached to one of said sections, a transverse plate attached to a pedestal-section and forming means for attaching the same to the corresponding top-section, and means exerting tension upon said transverse plate, adapted to thereby adjust the pedestal-section angularly with respect to the top-section to which it is attached, so as to bring the same into alinement with the other pedestal-section when the pedestal-sections are closed together.

786,343. GOLF-BALL. CHARLES DE BUREN, Geneva, Switzerland. Filed May 26, 1904. Serial No. 209,981.

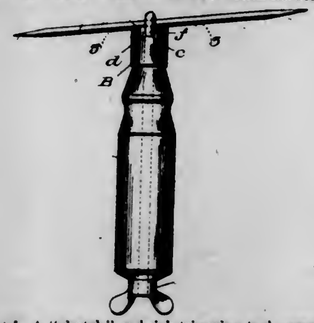
Claim.—1. A golf-ball in the form of a hollow sphere made up of about seventy per centum of pure celluloid and about thirty per centum of a salt of lead.

2. A golf-ball in the form of a hollow sphere and made up of a homogeneous mixture of pure celluloid, seventy parts, and of lead carbonate, thirty parts.

3. As a new composition for the making of golf-balls, a mixture of about seventy per centum of pure celluloid with a salt of lead having a specific gravity greater than 1.3.

4. As a new composition for the making of golf-balls, a mixture of about seventy per centum of pure celluloid with about thirty per centum of lead carbonate ($PbCO^3$.)

786,344. BRICK-TRIMMING TOOL. SAMUEL C. CAMPAIGNE, Niagara Falls, Canada. Filed Jan. 11, 1905. Serial No. 240,664.

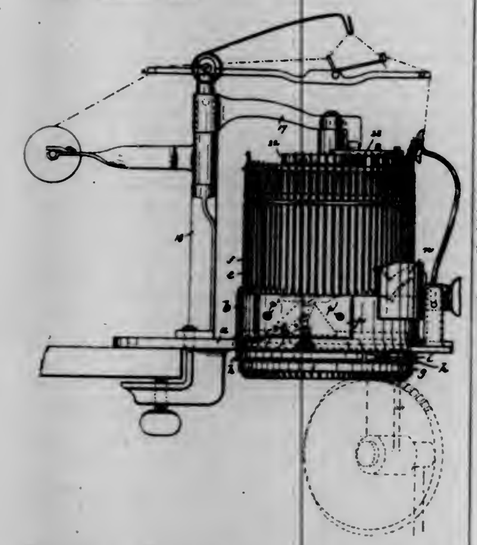


Claim.—1. A "skutch" or brick-trimming tool, comprising a handle having a bore extending throughout its length and a diametrical kerf in its forward end and also having its forward end beveled, a bolt occupying the bore of the handle and having a loop at its forward end disposed in the kerf of the handle, and also having its rear end threaded, a blade resting in the loop of the bolt and against the

forward, beveled end of the handle, and a nut mounted on the rear end of the bolt and arranged to bear against the handle.

2. The herein-described "skutch" or brick-trimming tool comprising a handle having a longitudinal central bore extending throughout its length, a reduced forward portion, a beveled forward end and a diametrical kerf in said beveled end, a ferrule mounted on said forward portion of the handle and having a correspondingly-beveled forward end, and also having notches registered with the kerf, a blade resting against the beveled ends of the handle and ferrule, a bolt occupying the fore of the handle and having a loop at its forward end disposed in the kerf and notches and receiving the blade, and also having its rear end extended beyond that of the handle and threaded, and a nut mounted on said threaded end of the bolt and arranged to bear against the rear end of the handle.

786,345. CIRCULAR-KNITTING MACHINE. HERBERT R. CAMPBELL, Prospect, and FREDERICK YAHN, Haledon, N. J. Filed May 20, 1904. Serial No. 208,972.



Claim.—1. In a knitting-machine, the combination with the needles and the cylinder carrying the same, of a frame penetrated by the lower portion of said cylinder, an annular vertical flange projecting from the frame and surrounding the said cylinder and provided with an annular groove or recess, a recess or channel connecting said annular recess with the top bearing-surface of the annular flange, a plate removably mounted on the annular flange and covering the recess or channel, a bridge-plate pivotally and slidingly mounted on said plate or cover, and a spring-controlled pin likewise arranged on said plate or cover for operating the bridge-plate, all said parts as and for the purposes described.

2. In a knitting-machine, the combination with the needles and the cylinder carrying the same, of a frame penetrated by the lower portion of said cylinder, an annular vertical flange projecting from the frame and surrounding the said cylinder and provided with an annular groove or recess, a recess or channel connecting said annular recess with the top bearing-surface of the annular flange, a bridge movably arranged over the recess or channel and a spring-controlled pin for operating said bridge, substantially as described.

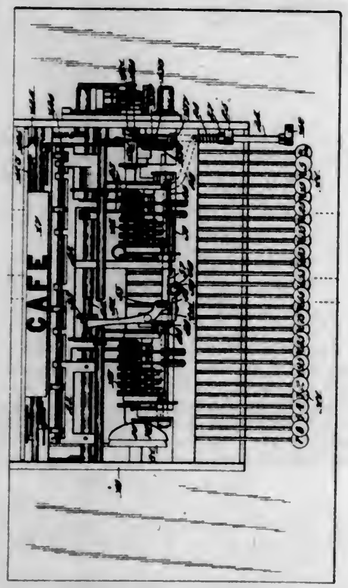
3. In a knitting-machine, the combination with the needles and the cylinder carrying the same, of a frame penetrated by the lower portion of said cylinder, an annular vertical flange projecting from the frame and surrounding the said cylinder and provided with an annular groove or recess, a recess or channel connecting said annular recess with the top bearing-surface of the annular flange, a plate removably arranged on the annular flange and covering the recess or channel, a bridge-plate pivotally and slidingly mounted on said plate or cover, and means for raising and lowering said bridge-plate, all said parts substantially as and for the purposes specified.

4. In a knitting-machine, the combination with the needles and the cylinder carrying the same, of a frame, the cam-race carried by said frame, an annular flange projecting from said frame, and surrounding the lower part of said cylinder and having its top surface communicating with the cam-race, said annular flange being provided near its lower portion with an annular groove or recess adapted to receive the needle-shanks when in rest position, a recess or channel connecting said annular recess or groove with the top surface of the annular flange, a plate removably arranged on the annular flange and covering the last-mentioned recess or channel, and a bridge-plate pivotally and slidingly mounted on said plate or cover, all said parts substantially as and for the purposes described.

5. In a knitting-machine, the combination with the needles and the cylinder carrying the same, of a frame, the cam-race carried by said frame, an annular flange projecting from said frame and surrounding the lower part of said cylinder and having its top surface communicating with the cam-race, said annular flange being provided near its lower portion with an annular groove or recess adapted to receive the needle-shanks when in rest position, a recess or channel connecting said annular recess or groove with the top surface of the annular flange, a plate covering the recess or channel, two switches pivotally arranged on said plate and within said groove or channel, means for operating said switches, a bridge-plate likewise carried by said plate or cover and pivotally and slidingly arranged thereon, and a cam or eccentric carried by said bridge-plate, all said parts substantially as and for the purposes described.

6. In a knitting-machine, the combination with the ribber, and with the frame supporting the same, of a cam-disk carried by the frame and above the ribber, an auxiliary plate adjustably arranged upon said cam-plate, spring-controlled cams carried by said auxiliary plate and adapted to coöperate with the cam-plate, and a switch pivotally arranged on the auxiliary plate and adapted to coöperate with the spring-controlled cam, all said parts substantially as and for the purposes described.

786,346. CASH-REGISTER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 14, 1901. Serial No. 82,226.



Claim.—1. In a cash-register, the combination with an operating mechanism of a series of cash-receptacles, a series of locking devices coöperating with the respective receptacles and arranged to lock the operating mechanism when any one of the receptacles is opened and means for simultaneously rendering all of the locking means inoperative in connection with the cash-receptacles.

2. In a cash-register, the combination with an operating mechanism of a series of counters, a series of cash-drawers, a shifting-rod for adjusting the counters to operative conditions, latches for the cash-drawers, a rocking device arranged to be brought into coöperation with either one or the other of the latches and gearing connecting said rocking device to the shifting-rod.

3. In a cash-register, the combination with an operating mechanism of a series of cash-receptacles, independent spring devices for the respective receptacles arranged to be put under tension by the movements of said receptacles, means mounted on the spring devices for allowing them to act independently of the receptacles and shifting devices for controlling these means according to the receptacle to be operated.

4. In a cash-register, the combination with an operating mechanism, of a series of cash-drawers, spring devices for setting the operating mechanism arranged to be put under tension by the cash-drawers and including latching devices which are actuated by the operating mechanism to permit the spring devices to move without the cash-drawers, and a shifting device for rendering the latching means operative or inoperative at will.

5. In a cash-register, the combination with an operating mechanism, of a series of drawers, a series of spring devices arranged to be put under tension by their respective drawers and any one of which may independently operate to assist the operating mechanism, a second series of spring devices connected with the first-mentioned series of spring devices and arranged to expend their power irrespective of the movement of their respective drawers, and means for predetermining which of said second series of spring devices shall be operated.

6. In a cash-register, the combination with an operating mechanism including a series of keys and a common key member, of a series of cash-drawers, a series of spring devices arranged to assist the operation of the common key member and put under tension by the movements of the respective drawers, with coöperating provisions such that the spring devices may assist the common key member independently of the movements of the cash-drawers and a shifting mechanism for controlling this independent movement.

7. In a cash-register, the combination with an operating mechanism of a plurality of counters, a plurality of cash-drawers and a plurality of alarms, an indicator device to show which counter is operated, and a single shifting device arranged to control all of the above-mentioned devices.

8. In a cash-register, the combination with an operating mechanism of two cash-drawers, pivoted latches for said drawers, a rotary and vertically-movable member carrying projections for operating the respective latches a pivoted lever formed with racks for rotating said member, means for moving said member vertically and a reciprocating rod and key connections for operating the rack-lever.

9. In a cash-register, the combination with an operating mechanism comprising a series of keys and a common key member, of a series of counters, a key for setting said counters for operation, a special indicator and spring devices for moving said indicator arranged to be put under tension by a special key and to subsequently be released and allowed to operate by the common key member.

10. In a cash-register, the combination with an operating mechanism, including a series of keys and a common key member, a series of counters, a special key for adjusting said counters, a special indicator, a lever for operating said indicator and arranged to be normally restrained by the common key member, but released from the same when it is operated by the keys, a second lever arranged to be operated by the special key and a spring interposed between the levers.

11. In a cash-register, the combination with an operating mechanism, of a special key, an indicator, a pivoted lever for operating said indicator, a second pivoted lever arranged to be operated by a special key, a spring interposed between the levers and means connected to the operating mechanism and normally restraining the first-mentioned lever, but allowing the same to operate after the first movement of the machine.

12. In a cash-register, the combination with an operating mechanism, of a series of counters, a shifting device for adjusting said counters, a single bell-clapper connected to the operating mechanism, and a plurality of bells connected to the shifting device and arranged to be brought individually into coöperation with the clapper, according to the position of said shifting device.

13. In a cash-register, the combination with an operating mechanism, of a plurality of counters, a shifting-rod for adjusting said counters, a slidable key and a pivoted link connecting said key and rod.

14. In a cash-register, the combination with an operating mechanism, of a plurality of cash-drawers, latches for said drawers, latch-release devices, means for setting said devices, a series of alarms connected to said setting means, and an alarm-sounding device with which any one of the aforesaid alarms may coöperate.

15. In a cash-register, the combination with an operating mechanism including a series of keys and a common member and a series of cash-drawers, hooked slides engaging said drawers and arranged to be normally held thereby out of engagement with the common key member, but allowed to pass into engagement therewith upon the opening of the drawers and means for simultaneously moving said slides out of the path of the common key member independently of the movements of the drawers.

16. In a cash-drawer, the combination with an operating mechanism including a series of keys and a common key member, of a series cash-drawers, spring-drawn hook-slides, normally held out of engagement with the common key member by the cash-drawers, but allowed to pass into engagement therewith when said drawers are opened, and a slide carrying cam projections arranged to move the hook-slides out of operative position independently of the movements of the drawers.

17. In a cash-register, the combination with an operating mechanism, including a series of keys and a common key member, of a series cash-drawers, a series of spring devices coöperating with the respective drawers, and a common key member and a shifting device mounted on the common key member and arranged to be adjusted to coöperate with one or the other of the spring devices as desired.

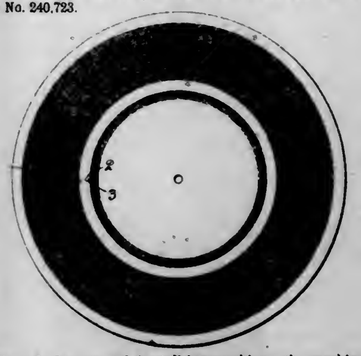
18. In a cash-register, the combination with an operating mechanism, of a series of cash-receptacles, independent spring devices cooperating with the respective receptacles and with the operating mechanism to impart movement to the latter by the movement of the spring devices, and means for shifting the coöperative relation between said spring devices and the operating mechanism.

19. In a cash-register, the combination with a series of drawers, latches for said drawers, a rotary and vertically-movable member carrying projections for operating the respective latches, a series of operating-keys, a reciprocating member common to and operated by said keys, and means controlled by said reciprocating member to elevate said movable member.

20. In a cash-register the combination with an operating mechanism, a special key, a special indicator, a spring for setting said indicator put under tension by the movement of the key, a latch for securing the indicator against movement by the spring, and means controlled by the operating mechanism for tripping the latch.

21. In a cash-register the combination with an operating mechanism, of a series of cash-drawers, independent spring devices coöperating with the cash-drawers and with an operating mechanism, and an adjustable device for rendering either one or the other of the spring devices operative independently of the movement of its respective cash-drawer.

786,347. RECORD FOR SOUND-REPRODUCING MACHINES. WILLIAM S. DARBY, Berlin, Germany, assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed Jan. 12, 1905. Serial No. 240,723.



Claim.—1. In a record for talking-machines, the combination with the main record-groove, of an auxiliary record-groove comprising simple vibrations of definite pitch.

2. In a record for talking-machines, the combination with the main record-groove, of an auxiliary record-groove comprising simple vibrations of a key-note.

3. In a record for talking-machines, the combination with the main record, of an auxiliary record-groove comprising similar vibrations of such a number per inch in the length of the groove as will give a key-note of definite pitch when the record is revolving at the correct speed.

786,348. **PAINT.** LOUIS A. DREYFUS, New Brighton, N. Y., assignor to the Muralo Company, New Brighton, N. Y. Filed Mar. 3, 1904. Serial No. 196,422.

Claim.—1. A cold-water paint composed essentially of basic material, binding or adhesive material and a non-volatile petroleum product, for the purpose set forth.

2. A cold-water paint composed essentially of basic material, binding or adhesive material, a non-volatile petroleum product and coloring-matter, for the purpose set forth.

3. A cold-water paint composed essentially of basic material, binding material, a non-volatile petroleum product and a volatile solvent of the petroleum, for the purpose set forth.

4. A cold-water paint composed essentially of basic material, binding material a non-volatile petroleum product, a volatile solvent of the petroleum and coloring-matter, for the purpose set forth.

5. A cold-water paint composed essentially of basic material, binding or adhesive material, and a non-volatile non-saponifiable and non-oxidizing oleaginous material, for the purpose set forth.

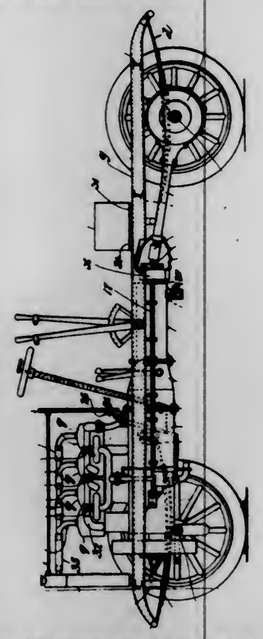
6. A cold-water paint composed essentially of basic material, binding or adhesive material and a non-volatile non-saponifiable and non-oxidizing oleaginous material, which is not a solvent of the adhesive material, for the purpose set forth.

7. A cold-water paint composed essentially of basic material, binding or adhesive material and a non-volatile non-saponifiable oleaginous material, which is not a solvent of the binding or adhesive material, for the purpose set forth.

8. A comminuted paint composition in practically dry form, consisting of a comminuted mineral base, vaseline and a comminuted soluble animal adhesive in substantially the proportions stated.

9. A paint composition in practically dry form, consisting of a comminuted mineral base, vaseline, an adhesive and lime.

786,349. **MOTOR-VEHICLE.** JAMES F. DURYEA, Springfield, Mass. Filed Dec. 12, 1904. Serial No. 236,504.



Claim.—1. The combination with the frame of a motor-vehicle, of a motor supported thereon longitudinally of the frame, said motor comprising a hollow base consisting of two or more separable sections united together, said separable sections extending beyond the motor, and means on the frame to support one portion of said base in normal alinement to permit the removal of one or more other sections of the base.

2. The combination with the frame of a motor-vehicle, of a motor extending lengthwise of the frame and supported thereon near one end thereof on or near the sides of the frame, and at the opposite end thereof at a point substantially midway of the side frames, together with a water cooling device located transversely of the vehicle and supported at three separate points only, the cooling device being provided with a suitable flexible connection with the motor.

3. The combination with the frame of a motor-vehicle, of a motor extending lengthwise of the frame and supported thereon near one end thereof on or near the sides of the frame, and at the opposite ends thereof at a point substantially midway of the side frames, together with a fuel-tank extending transversely of the frame and supported at three separate points only thereon, said tank having a suitable connection with the motor.

4. The combination with the frame of a motor-vehicle, of a motor comprising a plurality of cylinders, and a suitable base therefor, said base having three separate points of support only on said frame to permit more or less torsional movement of the latter relative to said base; a water cooling device on the frame having three or more separate points of support only whereby more or less torsional movement of the same relative thereto is permitted, and a flexible connection extending from said cooling device to said cylinders; a single exhaust-pipe extending transversely of the cylinders and provided with one or more expansion-joints therein, and a fuel-tank supported on the frame of the vehicle at three separate points only, said tank having suitable connection with the motor.

5. The combination with the frame of a motor-vehicle, of a motor-base consisting of separable tubular sections joined together end to end and constituting a closed casing for the crank-shaft and cam-shaft of the motor, the transmission-gearing and the clutch, cylinders for the motor being mounted on one of said base-sections; suitable means to support said base on the frame at three points only by one bolt at each point located respectively one on each side of the base near one end, and the other near the opposite end in the central vertical plane of the base.

6. The combination with the frame of a motor-vehicle, of a motor therefor extending lengthwise of the frame, a tubular base for the motor consisting of endwise-joined sections, on one of which the motor is mounted, said motor-base section and said other sections constituting an inclosing casing for the crank-shaft of the motor, the clutch, and the variable-speed-transmission gear; operating-levers for the clutch and for the transmission-gearing mounted on said base, and means to support the latter on the frame at three points only, said points being located at the angles of an isosceles triangle.

7. In a motor-vehicle, a suitable frame, axles therefor, and a gear on one of said axles whereby it is rotated, a stationary casing inclosing said gear, and a tubular extension on said casing extending centrally and lengthwise of the frame toward the other axle; a motor, a tubular base therefor supported lengthwise of the frame, one end of said base being adjacent to the end of said tubular extension on the driving-axle; a flexible casing having its ends joined respectively to said motor-base and the tubular extension on the rear axle and constituting altogether a substantially continuous casing for the moving parts of the driving mechanism of the vehicle.

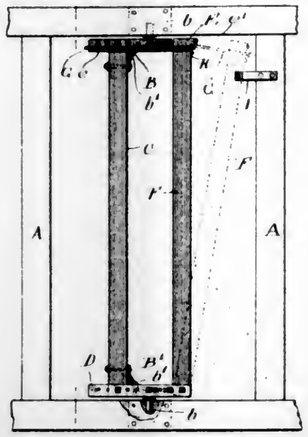
8. The combination with a frame of a motor-vehicle, of a longitudinally-extending motor-base suitably supported on the frame, a plurality of motor-cylinders on said base extending therefrom in separated relation one to the other, at right angles to the axis of the base, and a single exhaust-pipe extending transversely of said cylinders, and one or more expansion-joints in said pipe.

9. The combination with the frame of a motor-vehicle, of a suitable motor mounted thereon, a water cooling device, and a fuel-tank supported on the frame in operative relation to the motor, and flexible connections between said cooling device and the motor, and between said fuel-tank and the motor, the latter being non-rigidly secured on the frame.

10. In a motor-vehicle, a motor and a tubular base therefor comprising three separable sections endwise united in substantial axial alinement, one of said sections constituting a support for the motor proper, and the other sections constituting respectively housings for a clutch mechanism and a power-transmission gearing.

11. In a motor-vehicle, a motor and a tubular base therefor comprising three separable sections endwise united in substantial axial alinement, one of said sections constituting a support for the motor proper, and the other sections constituting respectively housings for a clutch mechanism and a power-transmission gearing, together with means to support the motor-supporting section in normal position to permit the removal of parts located in the other sections.

786,350. **STANCHION.** HENRY L. FERRIS, Harvard, Ill., assignor to Hunt, Helm, Ferris & Company, Harvard, Ill., a Corporation of Illinois. Filed Dec. 3, 1904. Serial No. 235,367.

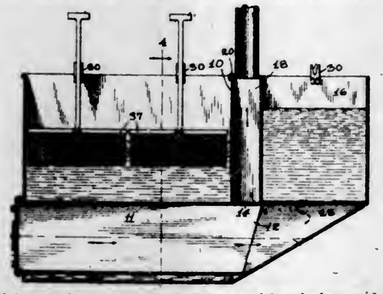


Claim.—1. In a device of the class described, the combination with two brackets having pivoting gudgeons, of side plates secured to the brackets, a bar rigidly secured to said brackets and side plates, a second bar pivoted between the side plates secured to one bracket and arranged to swing between the side plates secured to the opposite bracket and a loop pivoted to the free end of said bar and swinging over the opposite end of the side plates on the adjacent bracket.

2. In a device of the class described, the combination with two brackets having pivoting gudgeons, of side plates adjustably secured to the brackets, a bar rigidly secured to said brackets and side plates, a second bar pivoted between the side plates secured to one bracket and arranged to swing between the side plates secured to the opposite bracket and a loop pivoted to the free end of said bar and swinging over the opposite end of the side plates on the adjacent bracket.

3. In a device of the class described, the combination with two brackets having pivoting gudgeons, of side plates adjustably secured to the brackets, a bar rigidly secured to said brackets and side plates, a second bar pivoted between the side plates secured to one bracket and arranged to swing between the side plates secured to the opposite bracket, a loop pivoted to the free end of said bar and swinging over the opposite end of the side plates on the adjacent bracket, and a flange on said side plates arranged to engage the loop.

786,351. **CANNING-MACHINE.** MATHIAS FOERG and JOEL E. HALL, Meridian, Miss. Filed July 30, 1904. Serial No. 218,951.



Claim.—1. In a canner: the boiler comprising the bottom 6, the sides 7 and 8, the front end 9, and the rear end 10, the fire-box 11 mounted in the boiler with its ends extending through the ends 9 and 10; and with the rear end of the fire-box extending beyond the end 10 thereby forming the side baffle-plates 12 and 13 and the upper baffle-plate 14; the scalding-tank support comprising the smoke-stack base 17, the sides 18 and 19 extending downwardly from the smoke-stack base; the hooks 20 and 21 attached to the sides to hook over the rear end 10; the brackets 22 and 23 extending backwardly from the lower ends of the side pieces; and means of connecting the lower edges of the brackets; and the scalding-tank removably mounted upon the brackets.

2. In a canner: the boiler comprising the bottom 6; the sides 7 and 8, the front end 9, and the rear end 10; the fire-box 11 mounted in the boiler with its ends extending through the ends 9 and 10; and with the rear end of the fire-box extending beyond the end 10 thereby forming the side baffle-plates 12 and 13 and the upper baffle-plate 14; the scalding-tank support comprising the smoke-stack base 17; the sides 18 and 19 extending downwardly from the smoke-stack base; the hooks 20 and 21 attached to the sides to hook over the rear end 10, the brackets 22 and 23 extending backwardly from the lower ends of the side pieces; and means of connecting the lower edges of the brackets; the scalding-tank removably mounted upon the brackets; and the pipe 29 connecting the scalding-tank to the boiler.

786,352. **CASE OR HOLDER FOR FISH-HOOKS.** HERBERT J. FROST, New York, N. Y. Filed June 25, 1904. Serial No. 214,104.



Claim.—1. A holder for fish-hooks embodying a pair of cover portions, each having side members, the side members of one cover portion to overlap those of the other, and overhanging portions carried by the sides of one of the covers to retain the hooks in position when the covers are separated.

2. A holder for fish-hooks made out of sheet metal and embodying a blank bent upon itself to form cover portions having sides, and a hinge portion having a number of ribs struck up from it to impart rigidity to such hinge portion, and each of the covers having a swell portion, as 13 and 14.

3. A holder for fish-hooks made from a sheet-metal blank and embodying two halves one having sides and retaining overhanging portions carried by said sides and the other half having a valance to overlie the sides of the first half and also having spring-fingers to engage the said sides.

4. A holder for fish-hooks made out of sheet metal and embodying a blank bent upon itself to form cover portions having sides, and a hinge portion having a number of ribs struck up from it to prevent the bend forming a sharp crease in the hinge portion.

786,353. **SCREW-MACHINE.** CHARLES R. GABRIEL, Providence, R. I., assignor to Brown and Sharpe Manufacturing Company, Providence, R. I., a Corporation of Rhode Island. Filed June 19, 1897. Serial No. 641,438.

Claim.—1. A spindle-reversing mechanism in a metal-working machine comprising a shifter, a spring for operating said shifter in one direction, a cam for operating said shifter in the opposite direction, and means independent of said cam for holding said spring under tension and releasing said spring, substantially as described.

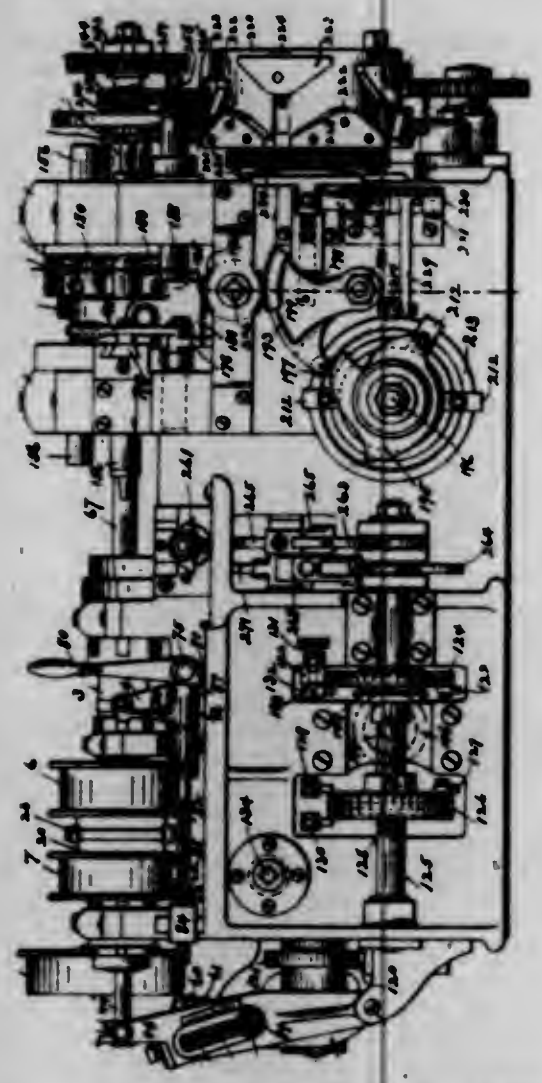
2. A spindle-reversing mechanism in a metal-working machine comprising a shifting lever, a spring-operated bolt engaging said lever and operating the same in one direction, a latch for holding said bolt retracted, means for operating said latch, and a cam for operating said lever in the other direction, substantially as described.

3. In a screw-machine, the combination with a shifter for reversing the spindle, of a spring-bolt for operating said shifter in one direction, a latch for holding said bolt retracted, a cam for operating said shifter in the other direction, and retracting said bolt, a clutch for operating said cam, a device for holding said clutch out of operation, and means for tripping said device and latch, substantially as described.

4. In a screw-machine, the combination with a shifter for reversing the spindle, of a cam for operating said shifter, a driver for said cam, means for holding said driver out of operation, and a tappet for operating said holding means, substantially as described.

5. In a screw-machine, the combination with a shifter for reversing the spindle, of a cam for operating said shifter, a clutch for operating said cam, a cam carried with said clutch, and a movable

abutment for engaging said cam and holding said clutch out of engagement, substantially as described.



6. In a screw-machine, the combination with a holder for a series of tools, mechanism for indexing the same and mechanism for advancing the tools during the indexing, substantially as described.

7. In a screw-machine, the combination with a turret-head for holding a series of tools, mechanism for indexing said turret-head, and mechanism for advancing the tool being brought into operative position during the indexing, substantially as described.

8. In a screw-machine, the combination with a turret-head, a series of tool-spindles mounted therein, mechanism for indexing said turret-head, and mechanism for advancing a spindle during the indexing, substantially as described.

9. In a screw-machine, the combination with a turret-head, of a series of tool-spindles mounted in said head, a guide for retaining said spindles in retracted position, and a reciprocating carrier arranged to engage a spindle while said spindle is held by said guide, substantially as described.

10. In a screw-machine, the combination with a turret-head, of a series of tool-spindles mounted in said head, a guide for retaining said spindles in retracted position, and a reciprocating carrier arranged to substantially fill the space between the ends of said guide, substantially as described.

11. In a screw-machine, the combination with a turret-head, of mechanism for indexing the same, a series of tool-spindles mounted in said head, an annular rib for guiding said spindles during the indexing, a reciprocating carrier provided with a rib registering with said annular rib and substantially filling the space between the ends of said annular rib, substantially as described.

12. In a screw machine, the combination with a turret-head, of a series of tool-spindles mounted therein, a carrier for reciprocating said tool-spindles, a cam and connections between said cam and carrier whereby said carrier is moved by said cam, substantially as described.

13. In a screw-machine, the combination with a tool-support, of mechanism for advancing said support, mechanism for returning said support, and means whereby the advancing mechanism is rendered inactive when the returning mechanism takes effect, substantially as described

14. In a screw-machine, the combination with a tool-support, of a cam for advancing said support, mechanism for returning said support, and means whereby the cam is rendered inactive when the returning mechanism takes effect, substantially as described.

15. In a screw-machine, the combination with a holder for a series of tools, of mechanism for indexing the same, mechanism for advancing the tools, and independent mechanism for returning said tools, substantially as described.

16. In a screw-machine, the combination with a holder for a series of tools, of mechanism for indexing the same, mechanism for moving the tools during the cutting, and independent mechanism for moving said tools during their non-cutting movement, substantially as described.

17. In a screw-machine, the combination with a holder, of a series of tool-spindles mounted to reciprocate in said holder, mechanism for indexing said holder, mechanism for moving said tool-spindles during the cutting, and independent mechanism for moving said spindles during the non-cutting movement, substantially as described.

18. In a screw-machine, the combination with a holder for a series of tools, of mechanism for indexing the same, a continuously-moving cam for advancing said tools, and intermittently-operating mechanism for returning said tools, substantially as described.

19. In a screw-machine, the combination with a turret-head, for holding a series of tools, of mechanism for indexing said head, a cam for advancing said tools, and mechanism independent of said cam for returning said tools, substantially as described.

20. In a screw-machine, the combination with a holder, a series of tool-spindles mounted in said holder, mechanism for indexing said holder, mechanism for advancing said spindles in said holder, and independent mechanism for returning said spindles, substantially as described.

21. In a screw-machine, the combination with a turret-head for holding a series of tools, of mechanism for indexing said head, a cam for advancing the tools during the cutting, a series of cams for returning the tools, and a series of adjustable cams for moving the tools up to the work, substantially as described.

22. In a screw-machine, the combination with a tool-holder for a series of tools, of an intermittently-operating mechanism for indexing the same, mechanism for advancing said tools, and mechanism operated from said indexing mechanism for returning said tools, substantially as described.

23. In a screw-machine, the combination with a turret-head, of a series of tool-spindles in said head, intermittently-operating mechanism for indexing said head, mechanism for advancing said spindles, and mechanism operated from said indexing mechanism for returning said spindles, substantially as described.

24. In a screw-machine, the combination with a carrier for reciprocating the tools, a cam for operating said carrier, means for disconnecting said cam from said carrier, and mechanism for operating said carrier when said cam is disconnected, substantially as described.

25. In a screw-machine, the combination with a carrier for reciprocating the tools, of mechanism for operating said carrier during the cutting, a series of cams for returning said carrier, and a series of adjustable cams for operating said carrier to bring the tools up to the work, substantially as described.

26. In a screw-machine, the combination with a carrier for reciprocating the tools, of a cam for operating said carrier during the cutting, means for disconnecting said cam from the carrier, and a drum carrying a series of cams for returning the carrier, and also a series of adjustable cams for operating the carrier to bring the tools up to the work, substantially as described.

27. In a screw-machine, the combination with a turret-head, of a series of tool-spindles mounted to reciprocate in said head, a carrier for reciprocating said tools, a cam for operating said carrier, connections between said cam and carrier embodying a clutch, means for disengaging said clutch, and mechanism for operating the carrier when the clutch is disengaged, substantially as described.

28. In a screw-machine, the combination of a turret-head of indexing mechanism therefor, comprising a driver, mechanism for intermittently rotating said driver, and mechanism connecting said driver and said head for starting said head with a gradually-accelerated motion and gradually decreasing the speed of said head at the end of the indexing.

29. In a screw-machine the combination with a turret-head, of mechanism for indexing the same embodying a disk provided with radial slots, a crank for engaging said slots, means for intermittently revolving said crank, and means movable independently of said crank for locking the turret-head, substantially as described.

30. In a screw-machine, the combination with a turret-head, of mechanism for indexing the same embodying a disk provided with

radial slots, a crank for engaging said slots, and means for intermittently revolving said crank, substantially as described.

31. In a screw-machine, the combination with a turret-head, of mechanism for indexing the turret embodying a disk provided with radial slots, a crank arranged to enter and leave said slots when moving radially of said disk, and means for intermittently revolving said crank, substantially as described.

32. In a screw-machine, the combination with a turret-head, of mechanism for locking said turret-head, mechanism for indexing said head embodying a disk provided with radial slots, a crank arranged to enter and leave said slots when moving radially of said disk, and means for intermittently revolving said crank, substantially as described.

33. In a screw-machine, the combination with a turret-head, for holding a series of tools, mechanism for indexing said turret-head, a driver for said mechanism, a device for holding said driver out of operation, means for tripping said device, and means for holding said device out of operative position, substantially as described.

34. In a screw-machine, the combination with a turret-head, for holding a series of tools, mechanism for indexing said turret-head, a driver for said mechanism, means for throwing said driver out of operation after each indexing, and means for causing said driver to remain in operation for a plurality of indexings, substantially as described.

35. In a screw-machine, the combination with a turret-head, for holding a series of tools, of mechanism for indexing said turret-head, a driver for said mechanism, a device for holding said driver out of operation, means for tripping said device, and adjustable means for holding said device out of operative position, substantially as described.

36. In a screw-machine, the combination with a turret-head for holding a series of tools, of mechanism for indexing said turret-head, a driver for said mechanism, a device for holding said driver out of operation, means for tripping said device, and means embodying a series of adjustable plates for holding said device out of operative position, substantially as described.

37. In a screw-machine, the combination with a turret-head for holding a series of tools, of mechanism for indexing said turret-head, a driver for said mechanism, a device for holding said driver out of operation, means for tripping said device, and means operated from said indexing mechanism for holding said device out of operative position, substantially as described.

38. In a screw-machine, the combination with a turret-head, of means for indexing the same, a series of tool-supports mounted in said head, a device for successively reciprocating said tool-supports in said head, and means independent of said reciprocating device for rotating one or more of said supports, substantially as described.

39. In a screw-machine, the combination with a turret-head, of means for indexing the same, a series of tool-supports carried by said head, a device for successively reciprocating said tool-supports in said head, a gear having its axis in line with the axis of said turret-head, and a gear upon one of said tool-supports engaging said former gear, substantially as described.

40. In a screw-machine, the combination with a turret-head, and means for indexing the same, of a series of tool-supports carried by said head, means for successively reciprocating said tool-supports in said head, a gear having its axis in line with the axis of said turret-head, a gear upon one of said tool-supports, and an intermediate gear meshing with said gears, substantially as described.

41. In a screw-machine, the combination with a revolving chuck, and means for reversing said chuck, of a support for a threading-tool, and means for rotating said support in the same direction during the threading and running off, substantially as described.

42. In a screw-machine, the combination with a rotary chuck, of a support for a threading-tool, means for rotating said support, and chuck in the same direction during the threading and in opposite directions during the running off, substantially as described.

43. The combination with means for engaging the stock, of a cam, connections between said cam and engaging means embodying a lever, a pivot carried by said lever, and a screw-rod for adjusting said pivot to and from the pivot of said lever, substantially as described.

44. The combination with means for engaging the stock, of a lever connected therewith, a second lever, means for giving said second lever a definite throw, a groove in one of said levers, and an adjustable stud secured to the other lever and engaging said groove, substantially as described.

45. The combination with means for engaging the stock of a lever connected therewith, a second lever, means for giving said second lever a definite throw, a groove in one of said levers, a stud on the other lever engaging said groove and a screw-rod for adjusting said stud, substantially as described.

46. The combination with means for engaging the stock, of a lever connected therewith, a second lever, means for giving said second lever a definite throw, a groove in one of said levers, and a stud secured to the other lever and engaging said groove, and means for adjusting said stud in line with said groove when the levers are at the limit of their throw, substantially as described.

47. In a screw-machine, the combination with mechanism for intermittently feeding the stock, of means for rendering said mechanism inoperative, and means for manually feeding the stock, substantially as described.

48. In a screw-machine, the combination with means for feeding the stock, of a cam-shaft provided with a cam for operating said feeding means, mechanism for automatically operating said cam-shaft, and means for manually operating said cam-shaft, substantially as described.

49. In a screw-machine, the combination with means for feeding the stock, of a cam-shaft provided with a cam for operating said feeding means, mechanism for intermittently operating said cam-shaft, means for rendering said mechanism inoperative, and means for manually operating said cam-shaft, substantially as described.

50. In a screw-machine, the combination with a chuck-spindle, means for reversing the rotation of the spindle, and mechanism for automatically feeding the stock, operating the tools for acting upon the stock, and controlling the reversal of the spindle, of means for throwing said automatic mechanism out of operation, and means for manually controlling the reversal of the spindle, substantially as described.

51. In a screw-machine, the combination with a chuck-spindle, means for reversing the rotation of the spindle, and mechanism for feeding the stock, operating the tools for acting upon the stock, and controlling the reversal of the spindle, of a shaft from which said mechanism is operated, a clutch for driving said shaft, a catch for holding said clutch out of action, and means for operating said clutch, substantially as described.

52. In a screw-machine, the combination with a chuck-spindle, of mechanism for reversing the rotation of said spindle, levers extending to the front of the machine for controlling said mechanism, and mechanism for operating said levers, substantially as described.

53. In a screw-machine, the combination with a chuck-spindle, of mechanism for reversing the rotation of said spindle, levers extending to the front of the machine for controlling said mechanism, and adjustable tappets for operating said levers, substantially as described.

54. In a screw-machine, the combination with a chuck-spindle, a cross-slide, mechanism for automatically operating said cross-slide, embodying a cam and lever, means for rendering said automatic mechanism inoperative, and means for manually operating said lever, substantially as described.

55. In a screw-machine, the combination with a chuck-spindle, cross-slides, mechanism for automatically operating said cross-slides, embodying the cams and levers, means for rendering said automatic mechanism inoperative, and means for manually operating said levers, substantially as described.

56. In a screw-machine, the combination with the chuck-spindle, of cross-slides, cams at the front of the machine, levers for operating said slides having their ends overlying said cams, substantially as described.

57. In a screw-machine, the combination with a chuck-spindle, a cross-slide, a lever for operating said slide, means for connecting a handle with said lever, and a cam at the front of the machine engaging said lever, substantially as described.

58. In a screw-machine, the combination with a shaft, of a collar secured thereto, a sleeve connected with said collar, by a comparatively weak pin, and a gear secured to said sleeve, substantially as described.

59. The combination, with means for engaging the stock, of a cam, a connection between said cam and engaging means, said connection embodying two parts each provided with a groove or slot, one of said parts being a lever and the two parts being pivotally connected by a stud adjustable in said grooves, said grooves standing at an angle to each other when the lever is at one end of its throw and parallel to each other when the lever is at the other end of its throw.

60. In a screw-machine, the combination of a turret, a series of tool-spindles mounted in said turret, and provided with projecting means, a reciprocating carrier adapted to engage said projecting means, means to rotate said turret whereby said reciprocating car-

rier is caused to successively engage with and reciprocate each spindle, a transverse guideway adapted to be engaged by said projecting means, and means for guiding said spindles in their longitudinal movement, substantially as described.

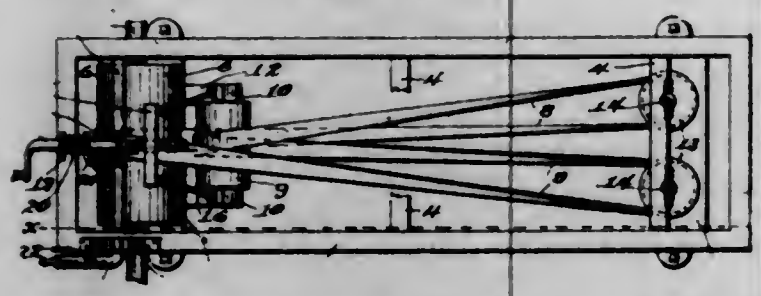
61. In a screw-machine, the combination of a turret, a series of tool-spindles mounted in said turret, each of said spindles being provided with two projections, one on each side thereof, reciprocating means adapted to engage one of said projections, means to intermittently rotate said turret whereby said reciprocating means is caused to successively engage with and reciprocate each spindle, a transverse guideway and a longitudinal guideway, said transverse guideway being adapted to be engaged by one of the projections on the spindle, and the longitudinal guideway being adapted to be engaged by the other projection, substantially as described.

62. In a screw-machine, the combination of a turret, a series of tool-spindles mounted in said turret, each of said spindles being provided intermediately of the extremities with two projections, one on each side thereof, reciprocating means adapted to engage one of said projections, means to intermittently rotate said turret, a transverse guideway and a longitudinal guideway, said transverse guideway being adapted to be engaged by one of the projections on the spindle, and the longitudinal guideway being adapted to be engaged by the other projection, substantially as described.

63. In a screw-machine, the combination of a plurality of tool-spindles, means for intermittently revolving said spindles about an axis so as to successively bring each tool into operative position, a guideway arranged transversely of the axis of revolution of the spindles, a second guideway arranged longitudinally with respect to said axis, said spindles being provided with two projections, one on each side thereof, one of said projections adapted to traverse said transverse guideway and the other of said projections adapted to traverse said longitudinal guideway, and means for reciprocating said last-named projection in said longitudinal way, substantially as described.

64. In a screw-machine, the combination of a plurality of tool-spindles, means for intermittently revolving said spindles about an axis so as to successively bring each tool into operative position, a guideway arranged transversely of the axis of revolution of the spindles, a second guideway arranged longitudinally with respect to said axis, and separate from said transverse guideway, said spindles being provided with two projections, one on each side thereof, one of said projections adapted to traverse said transverse guideway and the other of said projections adapted to traverse said longitudinal guideway, and means for reciprocating said last-named projection in said longitudinal way, substantially as described.

786,354. **BELT-TIGHTENER.** WILLIAM G. GAUM, Panther, W. Va. Filed July 15, 1904. Serial No. 216,681.



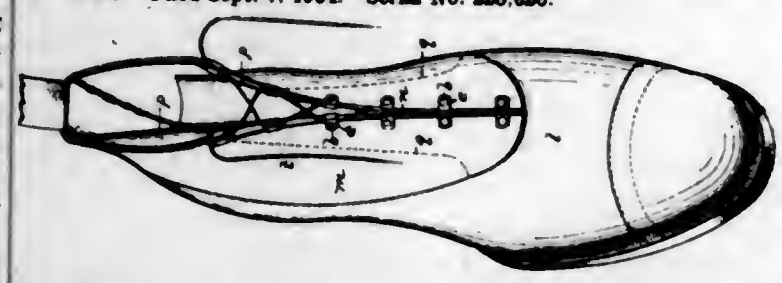
Claim.—1. In a belt-tightener, the combination, with the driven pulley, the pulleys perpendicular to the said pulley, and the tightening pulley pivoted parallel with the driven pulley, of the hand-shaft, a shoe pivoted thereto, a yoke connected to the pivoted pulley, and a screw-shaft slidable through the shoe and working through the yoke.

2. In a belt-tightener, the combination with a tightening-pulley, and the pivoted hanger in which the pulley is journaled, of the yoke pivotally connected to the hanger, a shaft screwed through the yoke, a shoe slidable on the shaft, and a crank-shaft pivoted to the shoe.

3. In a belt-tightener, the combination, with a tightening-pulley, and the pivoted hanger in which the pulley is journaled, of a yoke pivoted to the hanger, a shaft screwed through the yoke, a spring carried by the shaft, a shoe slidable on the shaft between the yoke and the spring, and a crank-shaft to which the shoe is pivoted.

4. The combination with the frame having base-pieces, arms projecting from one of said pieces, a hanger journaled in the arms, and a tightening-pulley journaled in the hanger, of means for giving the pulley double adjustment comprising a yoke having links connecting it with the hanger, a shaft screwed through the yoke, a shoe slidable on the shaft, a shaft having an arm to which the shoe is pivoted, and a spring on the latter shaft to cushion the shoe.

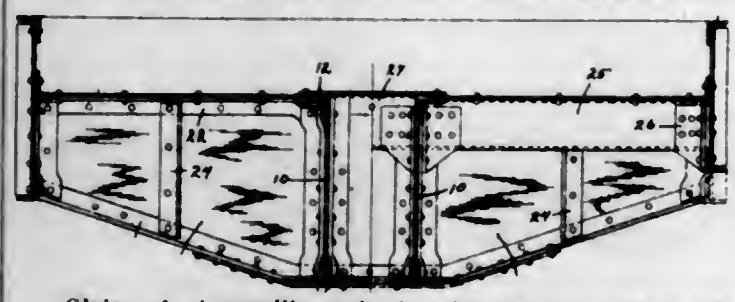
786,355. **SHOE-LACING STUD.** ARTHUR P. GULLIVER, Brockton, Mass. Filed Sept. 7, 1904. Serial No. 223,630.



Claim.—1. A shoe-lacing stud comprising a stiff integral plate formed into four parallel folds provided with holes which register or are in line; and a roller or pin extending through the holes in said folds, free to rotate therein, and adapted to be headed at its opposite ends, for the purpose set forth.

2. The combination of a shoe provided on the inner side next the opposite edges of its opening *n* with the flies *p*; and a series of shoe-lacing studs each comprising a stiff integral plate formed into four parallel folds *e*, *f*, *g*, *h* provided with coincident holes, the top extending between the two folds *e* and *f*, and the fly extending between the two folds *g* and *h*, and the pin or roller *c* extending through said folds, top and fly and free to rotate therein, and headed at its opposite ends, for the purpose set forth.

786,356. **LOW-SIDE GONDOLA CAR WITH DROP ENDS.** JOHN M. HANSEN, Pittsburg, Pa. Filed July 31, 1902. Serial No. 117,777.



Claim.—1. A metallic car having side and intermediate sills of varying depth from end to end and of the same depth at their central sections, and floor-plates suitably secured to said sills, the tops of the side sills lying above the tops of the center sills and extending above the floor-plates to serve as walls to retain the lading.

2. A metallic car having side and intermediate sills of varying depth from end to end and of the same depth at their central sections, said sills each comprising a vertical web-plate and top and bottom reinforcing-angles secured thereto, and floor-plates suitably supported from said sills, the tops of the side sills projecting above said floor-plates and serving as walls to retain the lading.

3. A metallic car having side sills intermediate sills of varying depth longitudinally and of the same depth at their central sections as the side sills, and floor-plates suitably secured to said sills, the side sills lying partly above and partly below said floor-plates whereby they serve as supports for the load and also as walls to retain the lading.

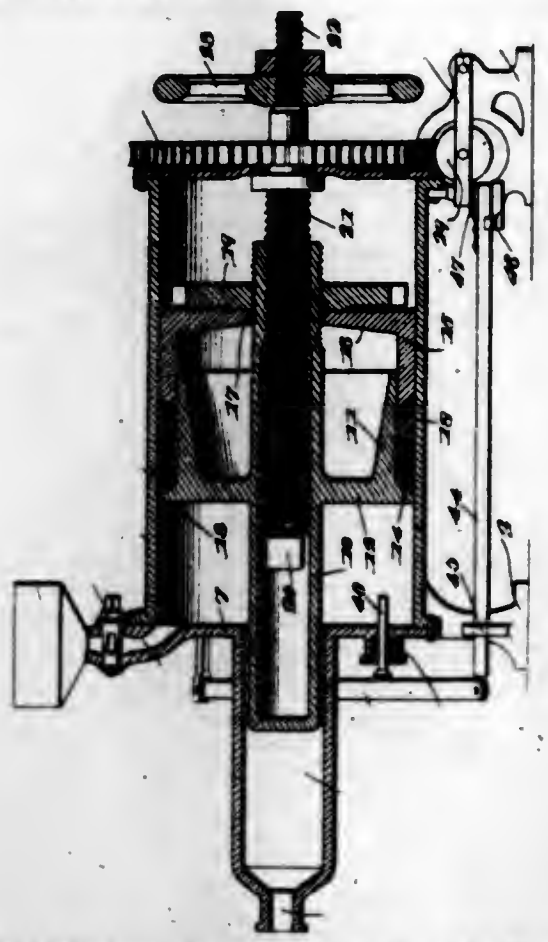
786,357. **LUBRICATOR.** JOSEPH HANSON, Inwood, Iowa. Filed Oct. 24, 1904. Serial No. 229,781.

Claim.—1. In a force-feed lubricator, the combination of a body, a plunger working therein, a drive-shaft, gearing between the shaft and the plunger, a pivotal bearing for one end of the shaft, a movable member supporting the pivotal bearing and capable of being withdrawn therefrom to permit dropping of the bearing and the shaft, a movable trip in the path of the plunger, and means actuated by the trip to withdraw the bearing-supporting member from the bearing.

2. In a force-feed lubricator, the combination of a body, a plunger working therein, means for actuating the plunger including a drive-shaft, a movable bearing for the shaft, a movable trip member located in the path of the plunger, a lever located in the path of the trip member, and a rod connected to the lever and having a portion lying beneath and supporting the movable bearing and capable of being withdrawn therefrom under the action of the lever to drop the bearing.

3. In a lubricator, the combination of a body, a plunger working therein and having an internally and externally threaded tubular

core projected therefrom, a gland telescoping upon the plunger, packing between the gland and the plunger, a nut engaging the externally-threaded portion of the core for the adjustment of the gland, and a feed-screw piercing the body and engaging the internally-threaded portion of the core.



4. In a lubricator, the combination of a body having a discharge-nozzle at its forward end, a plunger working in the body and provided with a tubular core having its forward end closed and working in the nozzle as a guide, the rear end of the core being open and threaded internally, a rotatable stem piercing the rear end of the body and having a threaded portion engaging the threaded interior of the core, a gear upon the outer end of the stem, a drive-shaft, a gear carried by the shaft and meshing with the gear upon the stem, a pivotal bearing for one end of the shaft, a slidable member engaging the body to maintain the gears meshed and capable of being withdrawn from the bearing to drop the shaft, an endwise-movable trip-pin piercing the front of the body in the path of the plunger, and a lever located in the path of the outer end of the trip-pin and connected to the shiftable member to withdraw the same from the bearing.

786,358. **VACCINE CASE AND HOLDER.** ELIJAH M. HOUGHTON, Detroit, Mich., assignor to Parke, Davis & Co., Detroit, Mich., a Corporation of Michigan. Filed Apr. 11, 1904. Serial No. 202,711.



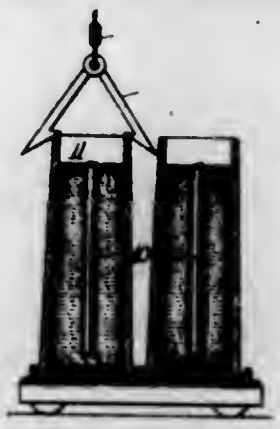
Claim.—1. The combination with a vaccine-case, of a point or holder therein and means associated with the holder for preventing capillary action of the vaccine.

2. A vaccine-holder having a notch in one of its sides intermediate its ends in combination with an inclosing casing.

3. The combination with a vaccine-case, of a point or holder comprising a body portion, a pointed end, and an intermediate shouldered portion, for the purpose described.

786,859. **PROCESS OF PERFECTING CAST-STEEL INGOTS.** ROBERT W. HUNT, Chicago, Ill. Filed May 20, 1903. Serial No. 158,041.

Claim.—1. The herein-described improvement in the art of casting and perfecting simple ingots for rail and beam mills that consists in first casting molten metal in a metal ingot mold or chill and through the medium of said mold immediately initiating the solidification of the external portions of the ingot mass, and simultaneously therewith, by the introduction of a relatively small bar or rod of like metal, initiating and forcing the solidification of the axial portion of the ingot mass, thereby creating from and in the ingot mass an initially small but increasing solid column of denser metal, which latter occupies the center of the ingot and prevents the development of a central pipe therein, permitting the ingot to cool in the mold until it becomes self-sustaining, then stripping the mold from the ingot and then heating the ingot, substantially as and for the purpose specified.



2. The herein-described improvement in the art of casting and perfecting simple steel ingots that consist in, first, casting molten metal in a metal ingot-mold and through the medium of said mold initiating the solidification of the external portions of the ingot mass, then incorporating a small steel rod, with and in the axial portion of the mass, said rod first effecting the formation of a central column of denser steel within said mass, which column prevents the development therein of a central pipe or cavity, the ingot being finally removed from its mold and reheated, substantially as and for the purpose specified.

3. The herein-described improvement in the art of casting and perfecting simple steel ingots that consists in casting the molten steel in a metal ingot mold or chill and incorporating with the axial portion of the ingot mass a quantity of better steel, the latter being supplied in the form of a steel rod, which is placed axially within the mass and which effects the formation of a pipe-excluding column from and within said mass, the ingot being finally removed from its mold and reheated, substantially as described.

4. The herein-described improvement in the art of casting and perfecting steel ingots that consists in first casting the molten steel in an ingot-mold, then placing axially within the molten mass a bar of steel and also placing a metal plate upon the top of said mass, then permitting the ingot to cool partially, then removing the ingot from the mold and then reheating the ingot, thereby preventing the formation of a central pipe or cavity in the ingot and improving the quality of the axial portion of the ingot, substantially as and for the purpose specified.

5. The herein-described improvement in the art of casting and perfecting steel ingots that consists in partially filling an ingot-mold with molten steel, then placing axially within the molten mass a small steel bar or rod and thereby forming within the ingot mass a central column of plastic steel of sufficient size to compensate for and prevent the formation of a central pipe or cavity in the ingot, the ingot being removed from its mold and the identity of the column-initiating bar or rod within the ingot being finally destroyed, substantially as and for the purpose specified.

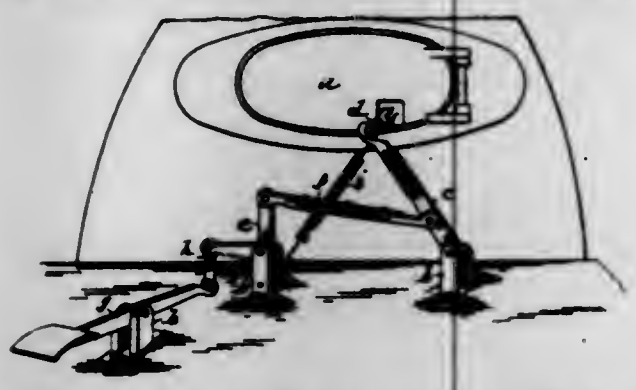
6. The herein-described improvement in the art of casting and perfecting rail-steel ingots and the like that consists in partially filling an ingot-mold with molten steel, then hastening the formation of the top crust of the ingot, and hastening the solidification of the axial portion of the ingot and thereby forming from and within the ingot mass a central column of denser steel substantially coextensive with and preventing the formation of the usual central pipe or cavity, and then stripping the ingot and reheating the same, substantially as described.

7. The herein-described improvement in the art of casting and perfecting rail-steel ingots and the like that consists in partially filling an ingot-mold with molten steel and through the medium of said mold initiating the solidification of the external portions of the ingot mass, then hastening the solidification of the axial portion of the ingot and thereby forming from and within the ingot mass a central column of denser steel substantially coextensive with and preventing the formation of the usual central pipe or cavity, then stripping the ingot and finally reheating the same, substantially as described.

8. The herein-described improvement in the art of casting and perfecting simple steel ingots, that consists in casting the molten metal in a metal ingot mold or chill, and then hastening the solidification of the axial portion of the ingot mass by placing therein a slender steel rod and thereby forming from and within the ingot

mass a central column of denser steel substantially coextensive with and preventing the formation of the usual central pipe or cavity, and then stripping the ingot and reheating the same, substantially as described.

786,360. **DOOR OPENING OR CLOSING APPARATUS.** LOUIS IVES, Dearborn, Mich. Filed May 31, 1904. Serial No. 210,232.



Claim.—1. In a door opening and closing device the combination with a swinging door of an oscillatory lever, an intervening link jointedly connecting said lever with the door, and means to actuate said lever, said lever arranged to oscillate essentially in a plane parallel to the closed door to lock the door in closed position.

2. In a door opening and closing device the combination with a swinging door of an oscillatory lever, an intervening link jointedly connecting said lever with the door, foot-lever mechanism, and means connecting said mechanism with the oscillatory lever, said oscillatory lever arranged to oscillate in a plane substantially parallel with the closed door, whereby a strain of the door upon the stationary lever would be lateral to its plane of oscillation.

3. In a door opening and closing device the combination with a swinging door of an oscillatory lever, an intervening link jointedly connecting said lever with the door, and means to actuate said lever, said lever oscillatory in a plane substantially parallel with the closed door, whereby the strain exerted upon said link connection without manipulating the oscillatory lever would be lateral to its plane of oscillation.

4. In a door opening and closing device the combination with a swinging door of an oscillatory lever jointedly connected with the door and arranged to oscillate in a plane essentially parallel with the closed door, and a foot-lever mechanism connected with the oscillatory lever to actuate said lever, said lever arranged to lock the door in closed position.

5. In a door opening and closing device the combination with a swinging door of an oscillatory lever jointedly connected with the door and arranged to oscillate in a plane essentially parallel with the closed door, means to actuate said lever, and means to automatically close said door, said lever arranged to lock the door in closed position.

6. In a door opening and closing device the combination with a swinging door of an oscillatory lever jointedly connected with the door and arranged to oscillate in a plane essentially parallel with the closed door, a foot-lever mechanism to actuate said lever, and means to automatically close the door when pressure is relieved from the foot-lever mechanism.

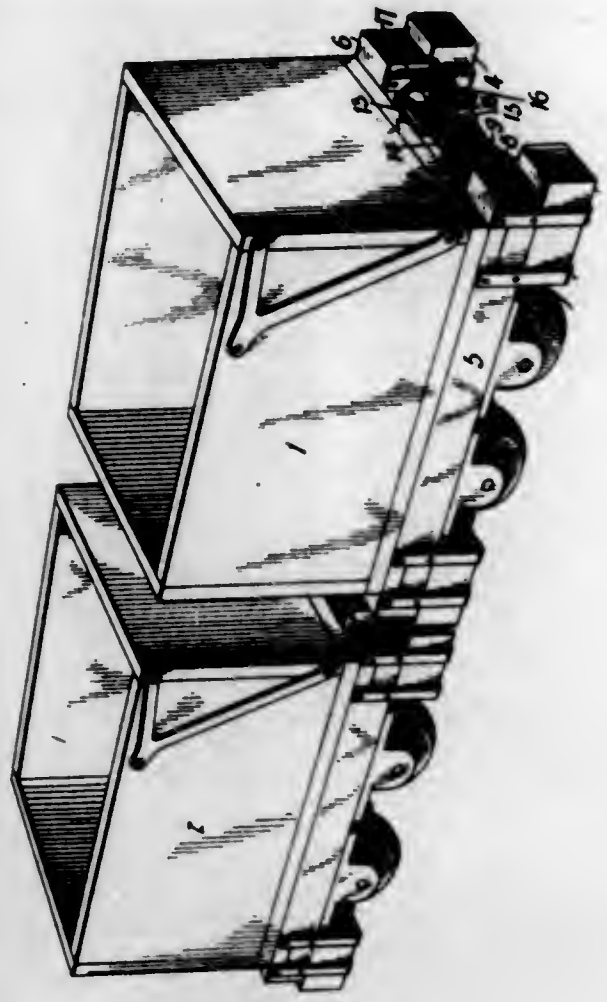
786,361. **MINING-CAR BRAKE.** JOSEPH C. JONES, Coffeen, Ill. Filed Dec. 13, 1904. Serial No. 236,658.

Claim.—1. A plurality of mining-cars each having slidable bumpers, brake elements connected with said bumpers to obtain the automatic setting thereof, and means for effecting the manual setting of said elements including a lever moved by the weight of an operator.

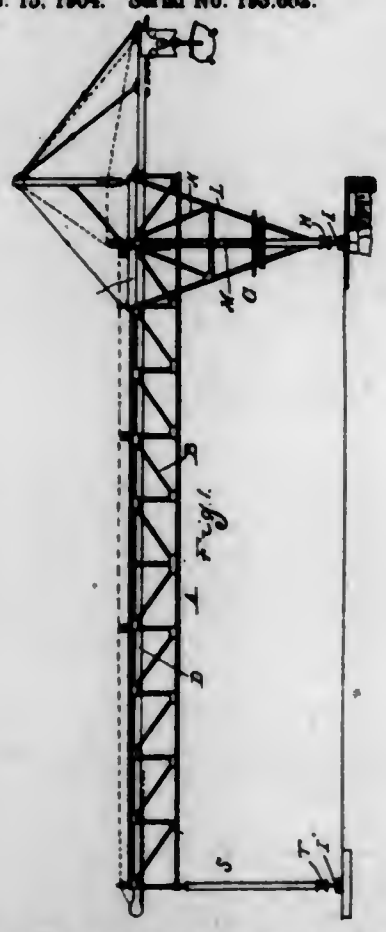
2. A plurality of mining-cars each having at each end slidable bumpers projecting at their outer ends beyond the car-frames and carrying brake-shoes at their inner ends, a foot-operated lever operatively connected with the mechaniam to effect the manual setting of the brakes, and means for releasing the brakes.

3. A plurality of mining-cars having at each end slidable bumpers normally projecting at their outer ends beyond the car-frame and carrying brake-shoes at their inner ends, a cross-piece connecting each pair of bumpers, a lever pivoted to the car-frame and having two arms pivoted to the cross-piece and a third arm provided with a step, and a spring for releasing the brakes.

4. A plurality of mining-cars each having at each end slidable bumpers normally projecting at their outer ends beyond the car-frame and carrying brake-shoes at their inner ends, a cross-piece connecting each pair of bumpers, a spring pressing against the cross-piece to release the brakes, a lever pivoted on the car-frame and having two arms pivoted to the cross-piece and a third arm provided with a step, said third arm being in offset relation to the third arm of a lever on the adjacent end of another car.



786,362. **GAUNTREE-CRANE.** WILLIAM R. KALBE, Detroit, Mich. Filed Feb. 15, 1904. Serial No. 193,602.



Claim.—1. In a gauntree-crane, the combination with a bridge, of a supporting-pier therefor, having a narrow base, and a bracing connection between said pier and bridge, adapted to hold the same rigid in the vertical longitudinal plane of said bridge, while permitting a relative horizontal swiveling.

2. In a gauntree-crane the combination with the bridge of a tapering supporting-pier therefor having its narrow portion at its base and a connection between said pier and bridge permitting of a swiveling in an approximately horizontal plane of said base in relation to said bridge.

3. In a gauntree-crane the combination with the bridge of a snpporting-pier therefor having a narrow base and a top arching over the bridge and a flexible connection between said top and bridge at a plurality of longitudinally-separated points whereby stability is imparted to the structure while permitting of a limited swiveling in a horizontal plane.

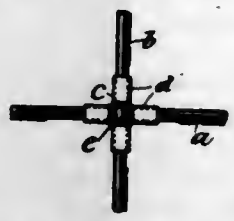
4. In a gauntree-crane the combination with the bridge of a supporting-pier therefor having a narrow wheel-base, and a relatively widened top, extended longitudinally upon opposite sides of the plane of the wheels and hangers depending from the opposite sides of said top and supporting said bridge, said hangers permitting a slight movement relative thereto.

5. In a gauntree-crane the combination with the bridge of a supporting-pier therefor having a narrow wheel-base and a top, of substantially rectangular form, and hangers depending from said top near the several corners thereof, and connected at their lower ends with said bridge.

6. In a gauntree-crane, the combination with a bridge, of a supporting-pier therefor, having a narrow base, a bracing connection between said pier and bridge, holding the same rigid in the vertical longitudinal plane of said bridge, while permitting a relative horizontal swiveling, and a pier supporting the opposite end of said bridge, said latter pier permitting the longitudinal movement of said bridge in relation to the pier-base.

7. In a gauntree-crane the combination of a supporting-pier, the opposite sides of which being tapered, with the narrowed portion lowermost, said tapered sides being secured at their upper ends to a substantially rectangular frame, a bridge, supports for the bridge depending from said frame at its respective corners, permitting a slight swinging movement relative to the frame.

786,363. **FENCE.** ALBERT K. KELLER, Adrian, Mich., assignor to The International Machine Company, Adrian, Mich., a Corporation of Michigan. Filed Jan. 11, 1904. Serial No. 188,487.



Claim.—A fence having longitudinal wires and transverse stay-wires, the longitudinal wires being substantially straight while the transverse stay-wires are curved at the intersections thereof with the longitudinal wires, a buckle at each intersection of the longitudinal and transverse wires, said buckle having a body portion and a curved or lapped portion, the body portion being in the plane of the front side of the fence and the lapped portion being bent around the wires on each side of the intersection and close to the intersection, and a filling at each intersection between the buckle and the intersection.

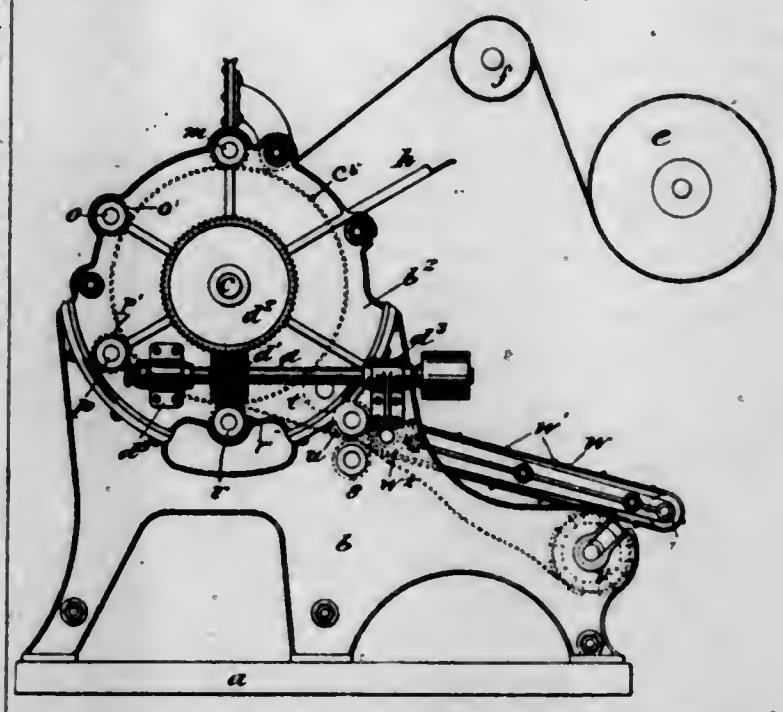
786,364. **FENCE-MAKING MACHINE.** ALBERT K. KELLER, Adrian, Mich., assignor to The International Machine Company, Adrian, Mich., a Corporation of Michigan. Filed Jan. 26, 1904. Serial No. 190,654.

Claim.—1. In a machine for manufacturing wire fence, the combination of a rotary member for receiving the strands of wire, a second rotary member, means on the second rotary member to deliver wire to the first rotary member, and means to join the wires together to form the fence.

2. In a machine for manufacturing wire fence, the combination of a rotary member for receiving the strands of wire, a second rotary member, means on the second rotary member to deliver wire to the first rotary member, and means also on the second rotary member to join the wires together to form the fence.

3. In a machine for manufacturing wire fence, the combination of a rotary member for receiving the strands of wire, a second rotary member, means on the second rotary member to deliver wire to the first rotary member, means to deliver buckles or ties to the first rotary member, and means also on the second rotary member to clench the buckles or ties around the wires to form the fence.

4. In a machine for manufacturing wire fence, the combination of a rotary member for receiving the strands of wire, means to deliver wire in one general direction to the rotary member, a second rotary member, means on the second rotary member to deliver wire to the first rotary member in a direction transverse to said general direction, and means to join the two strands of wire together to form the fence.



5. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular grooves, a second cylindrically-shaped rotary member having a transverse groove and mounted adjacent to the first rotary member with its axis parallel thereto, means to deliver a strand of wire to each groove in the first rotary member, means to deliver wire to the transverse groove in the second rotary member, means to rotate both members to bring the wire in the transverse groove across the strands of wire in the parallel grooves, and means to fasten the wires together to form the fence.

6. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular grooves, a second cylindrically-shaped rotary member having a corresponding number of dies and mounted adjacent to the first rotary member with its axis parallel thereto, means to deliver a strand of wire to each groove in the first rotary member, means to deliver wire to the dies in the second rotary member, a die in each groove of the first rotary member adapted to coöperate with the corresponding die in the second rotary meinber, and means to deliver buckles or ties to the machine.

7. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular grooves, a second cylindrically-shaped rotary member having a corresponding number of dies and mounted adjacent to the first rotary member with its axis parallel thereto, means to deliver a strand of wire to each groove in the first rotary member, means to deliver wire to the dies in the second rotary member, a die in each groove of the first rotary member adapted to coöperate with the corresponding die in the second rotary member, and means to deliver buckles or ties to the dies of the first-named member before the wire is delivered thereto.

8. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular grooves, a plurality of cylindrically-shaped rotary members each having a number of dies corresponding to the number of circular grooves in the first rotary member and being mounted adjacent to the first rotary member with their axes parallel thereto, means to deliver a strand of wire to each groove in the first rotary member, means to deliver wire to the dies in one of the second-named rotary members, a die in each groove of the first rotary member adapted to coöperate with the corresponding dies in each of the second-named rotary members, and means to deliver buckles or ties to the machine.

9. In a machine for manufacturing wire fence, the combination of a rotary member having a plurality of grooves, dies in each of the grooves, means to deliver buckles or ties to the dies, means to deliver strands of wire to the grooves, a second rotary member having dies to coöperate with the first-named dies, means to deliver cross-wires to the dies in the second-named rotary member, the dies in the sec-

ond-named rotary member operating to deliver the cross-wires to the buckles in the dies of the first-named rotary member and coöperating with the dies in the first-named rotary member to clench the buckles around the wires.

10. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular recesses, a second cylindrically-shaped rotary member having a corresponding number of parallel circular flanges, said members being mounted with their axes parallel and with each flange meshing with its corresponding recess, means to deliver wire and buckles to said recesses, and means in said recesses and upon said flanges to join the wires together to form the fence.

11. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular recesses in its periphery, a second cylindrically-shaped rotary member having a corresponding number of circular flanges upon its periphery, each of said flanges being formed with a groove, and each of the recesses having a groove, said members being mounted with their axes parallel and with each flange meshing with its corresponding recess, means to deliver a strand of wire to the grooves in the recesses, means to deliver buckles or ties to the recesses, and means in the recesses and upon said flanges to join the wires together to form the fence.

12. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of parallel circular recesses in its periphery, a die in each of said recesses, a second cylindrically-shaped rotary member having a corresponding number of circular flanges in its periphery, a die in the second rotary member at each flange to coöperate with the first-named dies, said members being mounted with their axes parallel and with each flange meshing with its corresponding recess, means to deliver wire to the recesses, and means to deliver buckles to the dies in the first-named rotary member.

13. In a machine for manufacturing wire fence, the combination of a cylindrically-shaped rotary member having a plurality of recesses in its periphery, and a cross-cut in its periphery at each recess, a die in each cross-cut, a second cylindrically-shaped rotary member having a corresponding number of circular flanges in its periphery, a die in the second rotary member at each flange and extending beyond each side of the flange, said members being mounted with their axes parallel and with each flange meshing with the corresponding recess and the dies in the second rotary member being adapted as the members rotate to mesh with the cross-cuts in the first rotary member, means to deliver wire to the recesses in the first rotary member, and means to deliver buckles to the dies in the first rotary member.

786,365. NON-OXIDIZING ANNEALING-FURNACE. CHARLES F. KENWORTHY, Waterbury, Conn. Filed Dec. 30, 1904. Serial No. 238,879.

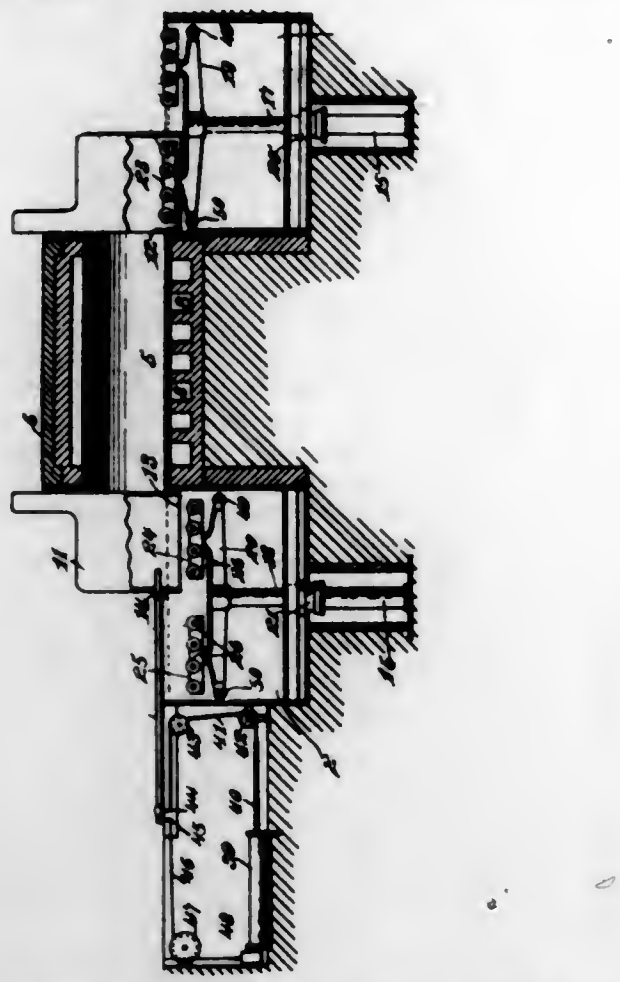
Claim.—1. An annealing-furnace comprising a retort, seals at each opening thereof, discharge and delivery means operating in said seals and which are rotatable in a horizontal plane, and means other than the delivery means for transmitting materials from the delivery means to the retort.

2. An annealing-furnace comprising a retort, hoods inclosing each opening of said retort, seals located at each opening and into which said hoods extend, delivery and discharge mechanism in said seals and which rotate in a horizontal plane, and means other than the delivery means for transmitting materials from said delivery mechanism.

3. An annealing-furnace comprising a retort, hoods inclosing each opening of said retort, seals located at each opening and into which said hoods extend, delivery and discharge mechanism in said seals and which rotate in a horizontal plane, and means other than the delivery means for transmitting materials from said delivery mechanism and also from said retort to said discharge means.

4. An annealing-furnace comprising a retort, a pair of tanks on opposite sides of said retort and which may be filled with water, hoods carried by said retort and extending into said tanks whereby to form a seal against the admission of air into the retort, an elevator adapted to operate in each tank, carriages carried by said elevators and upon which the material is placed, and a horizontally-reciprocating member adapted to push the material from one elevator into the retort and also from the retort onto the other elevator.

5. An annealing-furnace comprising a retort, a pair of tanks on opposite sides of said retort and which may be filled with water, elevators in each tank, carriages mounted on said elevators, a horizontally-movable device for pushing the material from one of said carriages into said retort, and mechanism for operating said horizontally-movable device



6. An annealing-furnace comprising a retort, a seal at each opening thereof, delivery and discharge means in said seals, means for heating said retort, means for revolving said delivery and said discharge means, means for shifting the material from the delivery means to the retort and from the retort to the discharge means, and mechanism for operating said shifting means.

7. In an annealing-furnace the combination with a retort, of a tank at each opening thereof and which is filled with water, a hood depending from said openings and extending beneath the water-line in the tanks, an elevator operating in each tank, and rotating in a horizontal plane, carriages mounted on said elevators and which are adapted to project up under the hoods, and means for rotating the elevators in the tanks.

8. In an annealing-furnace the combination with a retort, of a tank at each opening thereof and which is filled with water, a hood depending from said openings and extending beneath the water-line in the tanks, an elevator operating in each tank, and rotating in a horizontal plane, carriages mounted on said elevators and which are adapted to project up under the hoods, means for rotating the elevators in the tanks, and means for shifting material from one of said carriages into the retort.

9. In an annealing-furnace the combination with a retort, of a tank at each opening thereof and which is filled with water, a hood depending from said openings and extending beneath the water-line in the tanks, an elevator operating in each tank, and rotating in a horizontal plane, carriages mounted on said elevators and which are adapted to project up under the hoods, means for rotating the elevators in the tanks, means for shifting material from one of said carriages into the retort, and means for operating said shifting means.

786,366. BEARING FOR ELECTRIC METERS. DARRAGH DE LANCEY and HERBERT M. SMITH, Great Barrington, Mass., assignors to Stanley Instrument Company, Great Barrington, Mass., a Corporation of Massachusetts. Filed Sept. 17, 1903. Serial No. 173,561.

Claim.—1. In a thrust-bearing for electric measuring instruments, the combination of a bearing-surface holder having a depending tapered projection thereon with a groove at the enlarged end thereof, a support for said bearing-surface holder having a tapered projection thereon with a groove at the enlarged end of said tapered projection, and a spring engaging said grooves and holding said support and bearing-surface holder together.

2. In a thrust-bearing for electric measuring instruments, the

combination of a support having a pin extending from the upper end thereof, a bearing-surface holder having a recess fitting loosely over said pin and a spring between said bearing-surface holder and the body of said support.

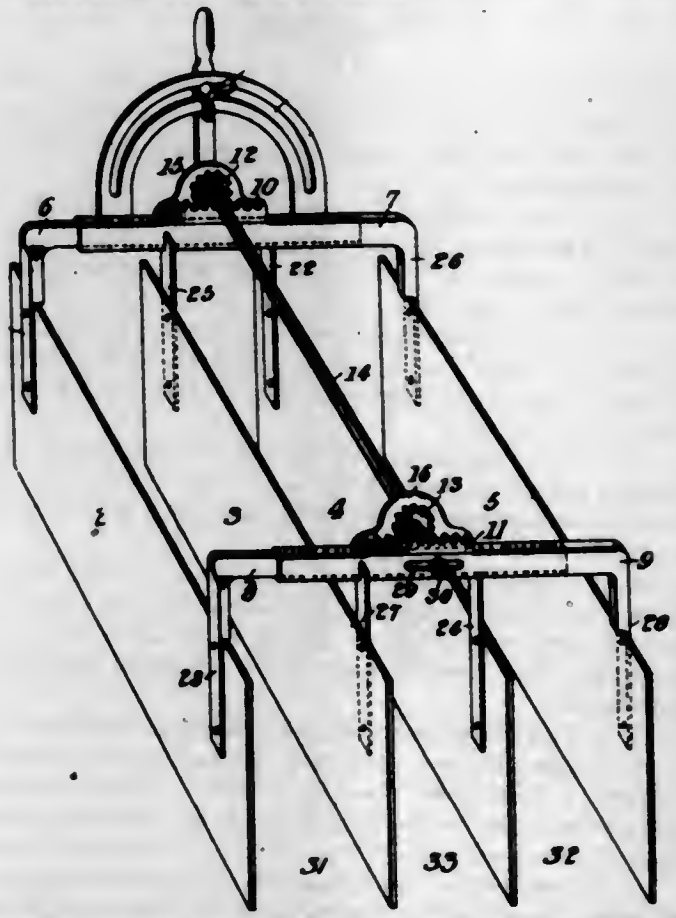


3. In a thrust-bearing for electric measuring instruments, the combination of a support, provided with a tapered projection having a groove at its enlarged end, a pin extending upwardly therefrom, a bearing-surface holder having a depending tapered projection with a groove near its enlarged end and a recess therein fitting over said pin and a spring surrounding said pin and said projections and having its ends engaging with said grooves.

4. In a thrust-bearing for electric measuring instruments, the combination of a support, a bearing-surface holder, means external of said support for yieldingly connecting said bearing-surface holder to said support and a depending petticoat attached to said bearing-surface holder and surrounding said means.

5. In a thrust-bearing for electric measuring instruments, the combination of a support, a bearing-surface holder, a spring furnishing a yielding connection between said holder and said support, said support and holder having means for securing said spring, consisting of tapered projections having a recess at its enlarged end into which the ends of said spring snap, there being means for securing said support in the meter-casing.

786,367. **MOLDING-MACHINE.** ISRAEL L. LANDIS, Chicago, Ill. Filed Nov. 9, 1904. Serial No. 231,975.



Claim.—1. In a molding-machine, a series of mold-boards arranged in parallel relation, pairs of yokes supporting said mold-boards, one member of each pair of yokes slidable upon its companion member, a rotary shaft paralleling said mold-boards, said shaft mounted upon one member of each pair and having pinions engaging racks on the companion members.

2. A molding-machine having a pair of sides arranged parallel, two pairs of yokes for supporting the opposite ends of said sides, the members of each pair arranged to slide upon each other, a rotary shaft journaled in bearings upon one member of each said pair of yokes, gear-racks upon the other members of said pairs, pinions keyed upon said shaft to mesh with said racks and a lever for rotating said shaft.

3. A molding-machine having sides or mold-boards arranged parallel, two pairs of yokes supporting the ends of said sides, the members of each pair of yokes arranged to slide upon each other, a rotary shaft having a lever and pinions keyed thereupon, said shaft journaled upon one member of each pair of yokes, a slotted arch fixed upon one member of one pair of yokes, means for clamping said lever to said arch at any point in its path of rotation, and toothed racks upon the companion members of said pairs of yokes, arranged to mesh with said pinions.

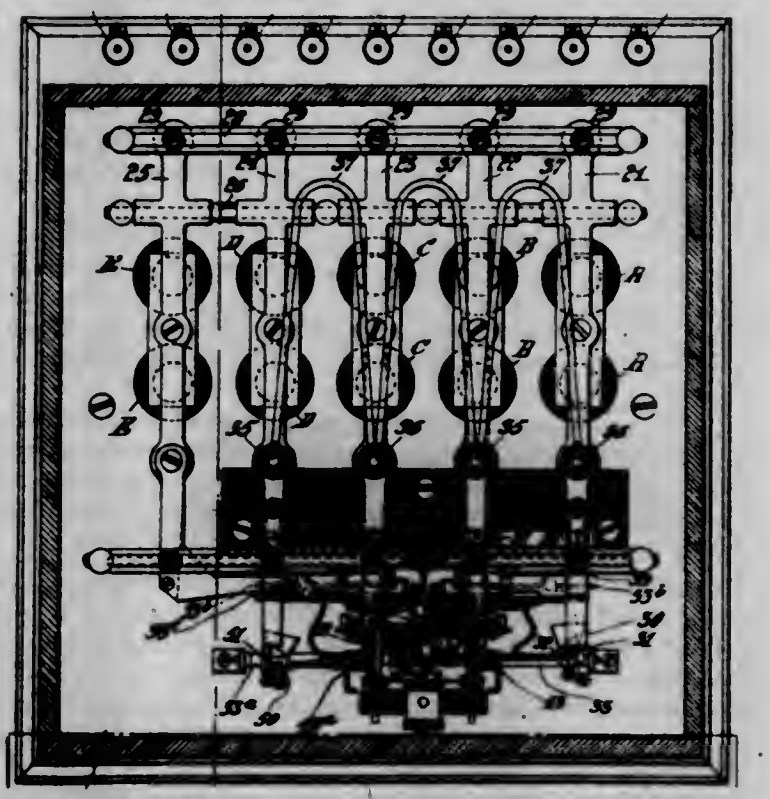
4. In a molding-machine, two series of members arranged to move in opposite parallel directions, a lever-operated shaft journaled on one of said series of members, pinions on said shaft, racks, engaging said pinions, mounted on the other series and a series of mold-boards secured to said members.

5. In a molding-machine, a plurality of pairs of members, each pair comprising a stationary bar and a movable bar, the latter slidable upon the former, a toothed rack mounted on one member of each pair, a rotary shaft and pinion mounted on the other member of each pair, a lever for rotating said shaft, means for locking said lever against movement in any radial position along its path of movement, and mold-boards mounted on said pairs of members.

6. In a molding-machine, a plurality of pairs of members, each pair comprising a stationary bar and a movable bar, the latter slidable on the former, a shaft journaled on the stationary bars, gear-racks mounted on the movable bars, pinions keyed to said shaft and engaging said racks, a lever for rotating said shaft, a support, means for clamping said lever to said support, and mold-boards upon said members.

7. In a molding-machine, a plurality of pairs of members, each pair comprising a stationary bar and a channel-bar, the latter slidable in the channel on the former, a slot in each channel-bar, a headed pin, engaging said slot, on each stationary bar, said pin and slot holding the members of each pair together against lateral movement relatively to each other while permitting relative longitudinal movement, a lever-operated rack-and-pinion mechanism for moving the members of each pair in opposite parallel directions, and mold-boards mounted on said members.

786,368. **RAILWAY SIGNALING SYSTEM.** JOSEPH LEMIRE, Drummondville, Canada, assignor, by direct and mesne assignments, to The Automatic Railway Signal Company, Limited. Filed Oct. 3, 1904. Serial No. 226,883.



Claim.—1. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, duplicate banks of electromagnets, and means for successively locking the individual armatures of said magnets when a single train is passing on the track.

2. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore,

duplicate banks of electromagnets, and means for successively locking and for releasing the individual armatures of said magnets when a single train is passing on the track.

3. In a semaphore signaling system of the class described, a line of railway-track, a plurality of semaphores, a plurality of track-contacts, and a pair of semaphore-operating series of magnets adapted to coöperate with each other to partially close established circuits when a single train is passing on a track.

4. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, and connections between successive track-contacts and successive magnets of each bank.

5. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, and means for successively locking some of the individual armatures of a single bank of said magnets.

6. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, and means for successively locking some of the individual armatures of a single bank of said magnets and one armature of an adjacent bank of magnets ahead of a train passing on said track.

7. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, and means for successively locking some of the individual armatures of a single bank of said magnets and one armature of an adjacent bank of magnets behind a train passing on said track.

8. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, and means for causing successive locking and releasing of armatures in each bank.

9. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, connections between successive track-contacts and successive magnets of each bank adapted to partially close a semaphore-circuit, and a station-switch adapted to coöperate therewith to complete said circuit.

10. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a plurality of semaphores, semaphore-circuits, duplicate banks of electromagnets, circuit connection between contiguous banks, a switch in said circuit connection, a supplemental switch-circuit, an alarm in said switch-circuit, and connections between successive track-contacts and successive magnets of each bank.

11. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, a semaphore-circuit, a bank of electromagnets in circuit with said track-contacts, and means coöperating therewith for releasing the armatures of some of said magnets when other armatures are actuated.

12. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, a semaphore-circuit, a bank of electromagnets in circuit with said track-contacts, locking means for the armatures of some of said magnets, and trips actuated by other magnets of said bank.

13. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, a semaphore-circuit, a bank of electromagnets in circuit with said track-contacts, means for locking the armatures of some of the magnets in said bank, spring-actuated armature-carrying arms, locking means coöperating therewith, and rockable trips adapted to release said locking means.

14. In a semaphore railway signaling system, adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, a semaphore-circuit, a bank of electromagnets in circuit with said track-contacts, means for locking the armatures of some of the magnets in said bank, spring-actuated armature-carrying arms, rockable, spring-actuated, locking means coöperating therewith, and rockable trips adapted to release said locking means

15. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, a semaphore-circuit, a bank of serially-coöperating electromagnets adapted to be successively placed in circuit with said track-contacts, locking means coöperating with the armature of each magnet of said bank, and means whereby each succeeding magnet may release the armature of the next preceding magnet of the bank.

16. In a semaphore railway signaling system adapted for connection with a railway-track, a plurality of track-contacts, a semaphore, a semaphore-circuit, a bank of serially-coacting electromagnets adapted to be successively placed in circuit with said track-contacts, locking means coöperating with the armatures of some of the magnets of said bank.

17. In an apparatus for the purpose specified, a bank of electromagnets, armature-carrying arms, a rockable shaft, and means carried by said shaft adapted to lock some of said arms, a magnet-carrying arm, and a rockable catch coöperating with the magnet-carrying arm.

18. In an apparatus for the purpose specified, a bank of electromagnets, armature-carrying arms, a rockable shaft, and means carried by said shaft adapted to lock some of said arms, a magnet-carrying arm, and a rockable catch coöperating with the said magnet-carrying arm, in combination with circuit-closing means adapted to be actuated by some of said arms.

19. In an apparatus for the purpose specified, a bank of electromagnets, armature-carrying arms, a rockable shaft, and means carried by said shaft adapted to lock some of said arms, in combination with locking means embodying a rockable catch and a magnet-carrying arm with which said catch coöperates.

786,369. CENTRIFUGAL LIQUID-SEPARATOR. BIRGER LJUNGSTRÖM, Stockholm, Sweden, assignor to Aktiebolaget Separator, Stockholm, Sweden, a Company. Filed Dec. 16, 1904. Serial No. 237,115.



Claim.—1. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower edges of said plates being bent at angles from the plate.

2. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower edges of said plates being bent at angles at one side of the plate.

3. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower edges of said plates being bent at obtuse angles at the plate.

4. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower edges of said plates being bent at obtuse angles at one side of the plate.

5. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower as well as the outer edges of said plates being bent at obtuse angles at one side of the plate, without interruption.

6. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower as well as the outer edges of said plates being bent at angles from the plate, the outer ends of which abut to the inner wall of the bowl entering grooves in said inner wall.

7. In a centrifugal liquid-separator a division contrivance consisting of a plurality of upright plates intersecting the radial line of the bowl, the upper and lower as well as the outer edges of said plates being bent at angles from the plate, said plates being sharply curved at their inner ends grasping each other as hooks.

786,370. WALL CONSTRUCTION. WILLIAM L. MARCHAND, Rolla, N. D. Filed Aug. 27, 1904. Serial No. 222,406.

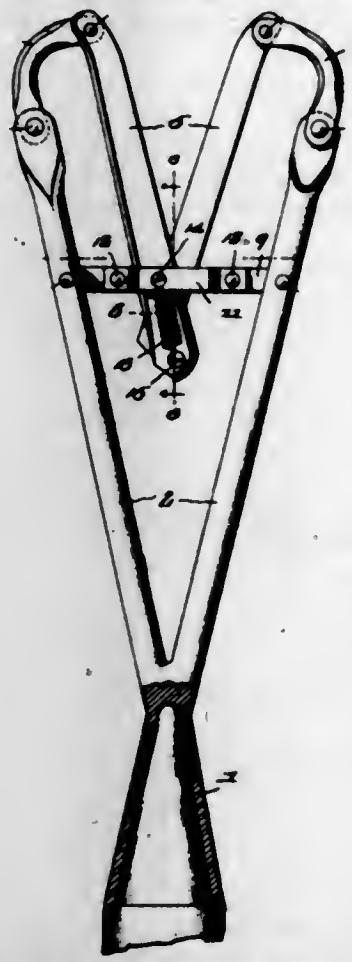
Claim.—1. A mold for the purpose described, comprising a plate with angular projections extending both vertically and horizontally, a second plate parallel with the first plate, bolts connecting

said plates, a strip independent of said plates and adapted to be supported within the inner and outer plates, and a series of cores depending from said strip and having vertical slits to straddle said bolts, said bolts being removable and adapted to engage the upper end walls of the said slits whereby the molds may be removed from the wall after the blocks have been formed, as set forth.



2. A mold for the purpose described, comprising a plate adapted to form the outer side of the mold, a plate adapted to form the inner side of the mold, bolts connecting the same with their heads seated in openings therein, a strip independent of said plates and a series of cores supported from said strip and having vertical slits, the end of the said strip being extended beyond the end mold-cores and the bolts being removable whereby the cores may be engaged over the bolts and rest thereon after the mold is in position and the mold removed after the block has hardened, as shown and described.

786,371. **PRUNING IMPLEMENT.** RALPH J. MEYER, Grand Junction, Colo., assignor of one-half to Gustave Van Hoorebeke, Grand Junction, Colo. Filed Dec. 19, 1904. Serial No. 237,526.

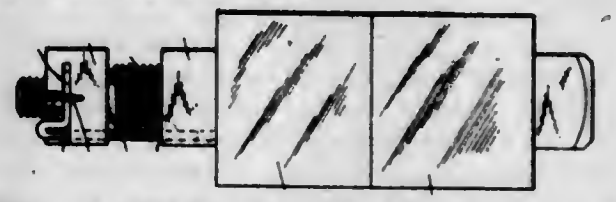


Claim.—1. A pruning implement embodying a two-armed stock, a pair of thrust-operated cutting elements disposed between the stock-arms and pivotally connected at their inner ends, and links pivotally connecting the outer ends of the cutting elements and the stock-arms.

2. A pruning implement embodying a two-armed stock, a pair of thrust-operated cutting elements disposed between the stock-arms and pivotally connected at their inner ends, links pivotally connecting the outer ends of the cutting elements and the stock-arms, and means for causing the cutting elements normally to remain open.

3. A pruning implement embodying a two-armed stock carrying a guide, a pair of cutting elements disposed between the stock-arms and engaging the guide and having their inner ends pivotally connected, links pivotally connecting the outer ends of the cutting elements and the stock-arms, and a spring connected with the guide and with the cutting elements to cause the latter normally to remain open.

786,372. **NUT-LOCK.** AURELIA A. MILLER, Kansas City, Mo. Filed Aug. 1, 1904. Serial No. 218,996.



Claim.—1. A nut-lock comprising, in combination, a bolt having its end reduced in diameter and screw-threaded, and having its larger portion adjacent thereto threaded in the opposite direction; an inner nut screwed on said larger threaded portion, said inner nut having a plurality of perforations 6 adapted to receive a locking-key; an outer nut having a recess 11 cut in one corner thereof, and also having a groove 8 communicating with said recess, and also having a perforation which is adapted to register with any one of the perforations of said inner nut; a locking-key, passing through said perforation of the outer nut and entering one perforation of the inner nut, said key having a lateral projection or finger which is adapted to enter said groove 8; and a lap-ring which is adapted to be passed through an opening in the outer nut and be held in such a position as to prevent disarrangement of said locking-key; substantially as described.

2. A nut-lock comprising, in combination, a bolt having its end reduced in diameter and screw-threaded, and having its larger portion adjacent thereto threaded in the opposite direction; an inner nut screwed on said larger threaded portion, said inner nut having a plurality of perforations 6 adapted to receive a locking-key; an outer nut having a recess 11 cut in one corner thereof, and also having a groove 8 communicating with said recess, and also having a perforation which is adapted to register with any one of the perforations of said inner nut; a locking-key, passing through said perforation of the outer nut and entering one perforation of the inner nut, said key having a lateral projection or finger which is adapted to enter said groove 8; a lap-ring which is adapted to be passed through an opening in the outer nut and be held in such a position as to prevent disarrangement of said locking-key; and a bifurcated washer adapted to be inserted between the outer nut and the shoulder formed by the larger threaded portion of the bolt; substantially as described.

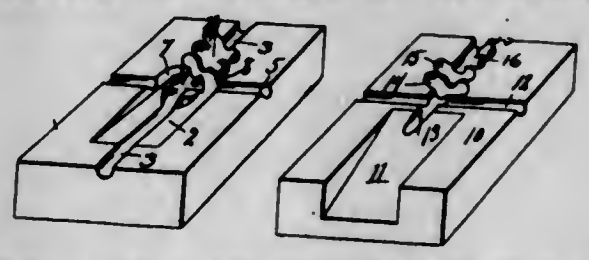
786,373. **BRAKE-SHOE.** JAMES F. MORRISON, Chicago, Ill. Filed Jan. 9, 1905. Serial No. 240,142.



Claim.—1. A brake-shoe comprising a cast malleable-iron shell, and a filling of frictional material.

2. A brake-shoe comprising a cast malleable-iron shell having rounded and thickened corners, and a filling of frictional material.

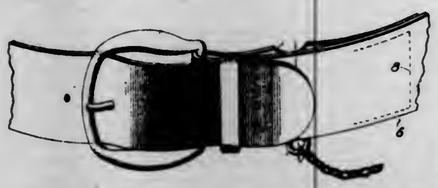
786,374. **DIES FOR TYING INTERSECTING WIRES.** JOHN J. MORSE, Adrian, Mich. Filed Aug. 22, 1904. Serial No. 221,639.



Claim.—1. Dies for tying intersecting wires, one of which is provided with a transverse and a longitudinal channel crossing at right angles, and an inclined centrally-disposed depression having curved branches leading therefrom which cross the transverse channel below the plane thereof, the longer of said branches crossing obliquely the longitudinal channel, there being in the face of the die parallel to the longer of said branches an oblique concavity crossing the longitudinal channel below the plane thereof, the other of said dies having an inclined way and a longitudinal and a transverse channel crossing at right angles, there being in the face of said die oblique parallel concavities which cross the longitudinal channel, and there being adjacent one of said oblique channels a short channel which enters, but does not cross the longitudinal channel.

2. Dies for tying intersecting wires, one of which is provided in its face with a longitudinal and a transverse channel crossing at right angles, a centrally-disposed depression having curved branches leading therefrom which cross the transverse channel below the plane of its bottom, the longer of said branches curving obliquely across the longitudinal channel between the transverse channel and the end of the die, there being in the face of the die parallel with the longer of said curved branches a double concavity which also crosses the longitudinal channel below the plane of its bottom, the other of said dies having a longitudinal and a transverse channel crossing at right angles, oblique concavities crossing the longitudinal channel between the transverse channel and the end of said last-mentioned die, there being in the face of said last-mentioned die a short double concavity adjacent one of said oblique concavities which intersects the longitudinal channel at an oblique angle and is formed below the plane thereof, but does not cross said channel.

786,375. **BELT.** FREDERICK MUELLER, Mount Holly, N. J. Filed July 13, 1904. Serial No. 216,375.



Claim.—1. A garment-supporting belt having means for the support of a watch-chain and the like consisting of a hanger movably mounted thereon adjacent one end thereof and normally concealed when not in use, said hanger capable of being shifted upon its movable mounting into an exposed position for use.

2. A garment-supporting belt having means for the support of a watch-chain and the like consisting of a hanger movably mounted thereon adjacent one end thereof and located between the top and bottom edges of the belt and concealed when not in use, said hanger capable of being shifted upon its movable mounting to expose the hanger at one edge of the belt in position for use.

3. A garment-supporting belt having means for the support of a watch-chain and the like consisting of a movably-mounted hanger located adjacent one end thereof and located between the upper and lower edges of the belt and concealed thereby when not in use, said hanger capable of being shifted upon its movable mounting into an exposed position for use at either edge of the belt.

4. A garment-supporting belt having means for the support of a watch-chain and the like consisting of a movably-mounted hanger located adjacent one end thereof and including a ring, said hanger being located between the edges of the belt and concealed thereby when not in use and capable of being shifted upon its movable mounting to expose the ring in position for use.

5. A garment-supporting belt having means for the support of a watch-chain and the like consisting of a movably-mounted hanger located adjacent one end thereof and including a lap-ring, said hanger being located between the opposite edges of the belt and concealed thereby when not in use and capable of being shifted upon its movable mounting to expose the lap-ring in position for use.

6. A garment-supporting belt having means for the support of a watch-chain and the like consisting of a hanger loosely mounted upon the inner face of the belt adjacent one end thereof, said hanger being disposed between the top and bottom edges of the belt and concealed thereby when not in use and capable of being shifted upon its movable mounting and projected at one edge of the belt into position for use.

7. A garment-supporting belt having a hanger loosely connected at an intermediate point to the inner face of the belt and terminating at opposite ends in rings, said hanger capable of being shifted to alternately project the rings at opposite edges of the belt in position for use.

8. A garment-supporting belt having a liner member connected to the inner face thereof adjacent the front of the belt and loose therefrom at one edge, and a hanger movably mounted between the belt and the liner and located between the top and bottom edges of the belt and concealed thereby when not in use, said hanger capable of being shifted upon its movable mounting and projected at the loose edge of the liner into position for use.

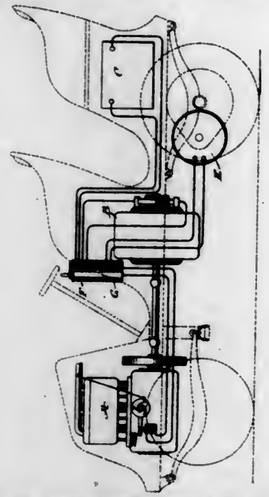
9. A garment-supporting belt having a liner secured to the inner face thereof and loose therefrom at one edge, and a hanger mounted between the belt and liner and capable of being projected at the loose edge of the liner into position for use, the loose edge of the liner being provided with a notch to expose the hanger when in position for use.

10. A garment-supporting belt having a hanger mounted upon the inner face of the belt and including a pair of angularly-related and rigidly-connected arms pivotally supported at their juncture and terminating at their outer ends in rings, said hanger capable of being turned upon its pivotal support to project the rings alternately at the top and bottom of the belt.

11. A garment-supporting belt having a hanger mounted upon the inner face thereof and including a pair of angularly-related and rigidly-connected arms pivotally supported at their juncture and terminating at their outer ends in lap-rings, said hanger capable of being turned upon its pivotal support to project the rings alternately at opposite edges of the belt.

12. A garment-supporting belt having a liner terminally secured to the inner face of the belt and loose therefrom at its top and bottom edges, and a hanger comprising angularly-related and rigidly-connected arms terminating at their outer ends in lap-rings, and a pivotal support piercing the liner and engaging the arms at their juncture, said hanger capable of being turned to project the rings alternately at opposite edges of the belt, the opposite free edges of the liner being provided with notches to expose the respective rings when located at either edge of the belt.

786,376. **ELECTROGASOLENE-VEHICLE.** LARS G. NILSON, New York, N. Y., assignor, by mesne assignments, to Fischer Motor Vehicle Company, a Corporation of New Jersey. Filed May 15, 1902. Serial No. 107,391.



Claim.—1. The combination of a storage battery, a motor and a dynamo connected in multiple, an engine driving the dynamo, and means, responsive to variations of current in the motor-circuit, for controlling the output of current from the dynamo, substantially as described.

2. The combination of a storage battery, a motor and a dynamo connected in multiple, an engine driving the dynamo, and means, responsive to variations of current in the motor-circuit, for controlling the speed of the engine, substantially as described.

3. The combination of a storage battery, a dynamo connected therewith, a motor, and means whereby when the motor is connected with the dynamo the output of the latter is increased, substantially as described.

4. The combination of a storage battery, a dynamo connected therewith, a motor, and means whereby when the motor is connected with the dynamo the output of the latter is increased and when the motor is cut out of circuit the output of the dynamo is reduced, substantially as described.

5. The combination of a storage battery, a dynamo of larger capacity than the storage battery and connected therewith, means for normally operating said dynamo at a speed which generates current below the safe capacity of the storage battery, a motor, and means whereby when the motor is connected with the dynamo the speed of the latter is increased, substantially as described.

6. The combination of a storage battery, a dynamo of larger capacity than the storage battery and connected therewith, means for normally operating said dynamo at a speed which generates current below the safe capacity of the storage battery, a motor, and means whereby when the motor is connected with the dynamo the speed of the latter is increased, and regulated according to the demands of the motor, substantially as described.

7. The combination of a storage battery, a motor and a dynamo connected in multiple, an engine driving the dynamo, means, responsive to variations of current in the motor-circuit, for controlling the speed of the engine, and means whereby when said motor is disconnected the speed of the engine is reduced, substantially as described.

8. In a vehicle, the combination with a motor, of a dynamo, and means for automatically controlling the output of the dynamo according to the demand of the motor, substantially as described.

9. In a vehicle, the combination with a motor, a dynamo and means for driving the dynamo, of means for automatically controlling the dynamo-driving means according to the demand of the motor, substantially as described.

10. In a vehicle, the combination with a motor, a dynamo and means for driving the dynamo, of electric means for automatically controlling the dynamo-driving means according to the demand of the motor, substantially as described.

11. In combination with a vehicle, an electric motor, an accumulator having connection with the motor, a dynamo for charging the accumulator, an engine for operating the dynamo and an electric device for controlling the engine, substantially as described.

12. In combination with a vehicle, electric motors arranged on the vehicle-axle, field-windings of said motors having connection with a main controller, field-windings for the motors connected with an auxiliary controller, an accumulator carried by the vehicle and in electrical connection with the motors, a dynamo for charging the accumulator, and an engine operating the dynamo, substantially as described.

13. The combination of an explosion-engine and a dynamo driven thereby, and electromagnetic means in the circuit of the dynamo for controlling the sparking device of the engine, substantially as described.

14. The combination of an explosion-engine and a dynamo driven thereby, and electromagnetic means in the circuit of the dynamo for controlling the sparking device and the throttle of the engine simultaneously substantially as described.

15. The combination with a dynamo and an engine, of an electromagnetic regulator in the circuit of the dynamo and controlling the engine according to the current in the circuit, substantially as described.

16. The combination with a dynamo and an explosion-engine, of an electromagnetic regulator in the circuit of the dynamo and controlling the voltage of the dynamo through the engine, substantially as described.

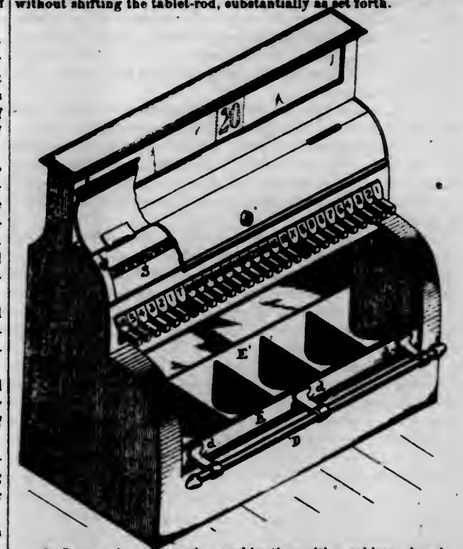
17. The combination with an engine having a throttle, of a dynamo, a motor connected therewith, and a solenoid in the circuit of said dynamo and actuated by variations in the current, for controlling the throttle of said engine, substantially as described.

18. The combination with an engine, a dynamo, a storage battery and a motor connected in multiple, of means for automatically varying the output of the dynamo according to its load, substantially as described.

786,377. **CASH-REGISTER.** FRANCIS C. OSBORN, Detroit, Mich., assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 24, 1895. Serial No. 560,326.

Claim.—1. In a cash-register, the combination of a vertically-movable tablet-rod, a lifting-bar by means of which the tablet is elevated, a pivoted foot carried by said tablet-rod and held normally out of the path of said lifting-bar by a spring, a pivoted key-lever whose inner end is adapted to engage with said foot to move it into the path of the lifting-bar, and an operative connection between said lifting-bar and the movable element of the till, whereby the tablet-rod is elevated in opening the till, substantially as set forth.

2. In a cash-register, the combination with a tablet-rod and a toothed register-wheel, of a spring-actuated pawl carried by the tablet-rod adapted to engage directly with the teeth of the register-wheel to rotate the same, a key-lever, a lifting-bar operated by means independent of the key-lever, and a device carried by the tablet-rod adapted to be moved by the key-lever into the path of the lifting-bar without shifting the tablet-rod, substantially as set forth.



3. In a cash-register, the combination with a tablet-rod and a toothed register-wheel, of a spring-actuated pawl carried by the tablet-rod adapted to engage directly with the teeth of the register-wheel to rotate the same, a key-lever, a lifting-bar for raising the tablet-rod, a device carried by the tablet-rod adapted to be moved by the key-lever into the path of the lifting-bar, and means actuated by the movable element of the till for operating said lifting-bar to move the tablet to indicating position and operate the register-wheel, substantially as set forth.

4. In a cash-register, the combination with a tablet-rod and a toothed register-wheel, of a spring-actuated pawl carried by the tablet-rod adapted to engage directly with the teeth of the register-wheel to rotate the same, a key-lever, a lifting-bar for raising the tablet-rod, a device carried by the tablet-rod adapted to be moved by the key-lever into the path of the lifting-bar, means actuated by the movable element of the till for operating said lifting-bar to move the tablet to indicating position and operate the register-wheel, and a locking-bar for holding the tablet in the indicating position, substantially as set forth.

5. In a cash-register, the combination with a tablet-rod and a toothed register-wheel, of a spring-actuated pawl carried by the tablet-rod adapted to engage directly with the teeth of the register-wheel to rotate the same, a key-lever, a lifting-bar for raising the tablet-rod, a device carried by the tablet-rod adapted to be moved by the key-lever into the path of the lifting-bar, and means actuated by a rotary till-cover for operating said lifting-bar to move the tablet to indicating position and operate the register-wheel, substantially as set forth.

6. In a cash-register, the combination with a tablet-rod and a register-wheel, of a device carried by the tablet-rod for rotating the register-wheel, a lifting-bar for raising the tablet-rod to expose the tablet and rotate the register-wheel, a device carried by the tablet-rod and operated by a key-lever to move it into the path of the lifting-bar, said lifting-bar being operated by the till-cover in opening the same, a locking-bar for holding the tablet-rod in its elevated position, a pivoted frame carrying said locking-bar and operated by a key-lever to release the tablet-rod on the downward movement of the key, and means for returning the locking-bar to its normal position to lock the tablet-rod last operated, substantially as set forth.

7. In a cash-register, the combination with a tablet-rod and a register-wheel, of a key-lever for placing the tablet-rod in position to be elevated, a catch for locking the till-cover, a pivoted frame having a locking-bar adapted to hold the tablet-rod in an elevated position, and a foot adapted to engage with the catch for locking the till-cover, said pivoted frame being operated in one direction by a key-lever to release the till-cover and in an opposite direction by the cover to

throw the locking-bar into engagement with the tablet-rod, substantially as set forth.

8. The combination with a tablet-rod, a key-lever and the till, of an operative connection between said tablet-rod and till controlled by the key-lever, whereby the tablet-rod is elevated by the opening of the till, and a pivoted locking-bar for holding the tablet-rod in its elevated position, said bar being placed into locking position by the opening of the till, and out of locking position by the key-lever, substantially as set forth.

9. A set of register-wheels for cash-registers comprising two sheet-metal disks, each having ratchet-teeth stamped from the periphery thereof and provided with character-bearing flanges stamped from the body of the disk within the periphery, said flanges being arranged to telescope, and the outer flange being open at regular intervals to expose the characters on the inner flange, substantially as set forth.

10. In a register, the combination with a suitable frame having a recessed portion, of a longitudinally-movable shaft having an arm adapted to engage said recessed portion, registering-wheels mounted on said shaft and rotatable therewith, and a stop projection permanently situated in juxtaposition with reference to the recessed portion and adapted to be encountered by said arm when the arm is shifted from said recessed portion.

11. In a register, the combination with a suitable frame having a recessed portion, of a longitudinally-movable shaft, having an arm adapted to engage said recessed portion, registering-wheels mounted on said shaft and rotatable therewith, and a stop projection situated in juxtaposition with reference to the recessed portion and adapted to be encountered by said arm; with provisions for permitting a slight advance movement of said arm within said recessed portion.

12. In a register, the combination with a suitable frame having a recessed portion, of a longitudinally-movable shaft having an arm adapted to engage said recessed portion, registering-wheels mounted on said shaft and rotatable therewith, and a stop projection situated in juxtaposition with reference to the recessed portion and adapted to be encountered by said arm; with provisions for permitting a slight advance movement of said arm within said recessed portion but preventing subsequent retrograde movement of the same.

13. In a register, the combination with register-wheels, the register-shaft, the arm P carried by said shaft, the lug *p* on said arm, the stationary recessed rim Q with which said arm engages, and the determining-stop R having the recess *r* for the passage of said lug, substantially as set forth.

14. In a cash-register, the combination of a series of register-wheels arranged in pairs, a normally non-rotating shaft upon which said wheels are loosely mounted, spacing-blocks on said shaft between the wheels of each pair, and friction devices carried by said shaft between adjacent pairs or sets of wheels and adapted to rotate the wheels when the shaft is rotated to reset the wheels to zero, substantially as set forth.

15. In a cash-register, the combination of a series of register-wheels arranged in pairs and provided with telescoping character-bearing flanges, a normally non-rotating shaft upon which said wheels are loosely mounted, spacing-blocks on said shaft between the wheels of each pair, and friction devices carried by said shaft between adjacent pairs or sets of wheels and adapted to rotate the wheels when the shaft is rotated to reset the wheels to zero, substantially as set forth.

16. In a cash-register, the combination with a series of register-wheels, of a shaft upon which said wheels are loosely mounted, a locking device for normally holding said shaft against rotation, a lock for preventing the disengagement of said locking device, and means for releasing said locking device to permit the rotation of said shaft to reset the register-wheels to zero, substantially as set forth.

17. In a cash-register, the combination with a series of register-wheels, of a shaft upon which said wheels are loosely mounted, a locking device for normally holding said shaft against rotation, means controlled by the cover for the sight-opening for releasing the locking device and permitting the rotation of the shaft to reset the register-wheels to zero, substantially as set forth.

18. In a cash-register, the combination with a series of register-wheels, of a shaft upon which said wheels are loosely mounted, friction devices on said shaft and in frictional engagement with said register-wheels, a locking device for normally holding said shaft against rotation, and means for releasing said locking device to permit the rotation of the shaft and the register-wheels through the friction devices to reset the register-wheels to zero, substantially as set forth.

19. In a cash-register, the combination of a series of register-wheels, a cover for the opening through which the register-wheels are visible, a shaft upon which said wheels are mounted, said shaft being capable of endwise and rotary movement to reset the wheels to zero, means for locking said shaft against rotation, said means being disengaged by moving the shaft endwise, and means for locking said shaft against endwise movement, said means being disengaged by the opening of the cover for the sight-opening, substantially as set forth.

20. In a cash-register, the combination of a series of register-wheels, a cover for the opening through which the register-wheels are visible, a shaft upon which said wheels are mounted, said shaft being capable of endwise and rotary movement to reset the wheels to zero, an arm carried by said shaft and engaging with a flange to lock the shaft against rotation, said arm being disengaged by moving the shaft endwise, and a wedge for locking said shaft against endwise movement, said wedge being disengaged by the opening of the cover for the sight-opening, substantially as set forth.

21. A key-lever for cash-registers having a U-shaped body portion adapted to be pivoted upon a shaft, an inner end adapted to engage with a tablet-rod, a depressing end and a character-bearing plate, all stamped and shaped from one piece of sheet metal, substantially as set forth.

22. In a cash-register, the combination with a key-lever shaft, of key-levers having springs for frictionally engaging with grooves or depressions in said shaft to hold them against lateral movement on said shaft, substantially as set forth.

23. In a cash-register, the combination with a key-lever shaft, of a key-lever stamped from sheet metal and having a projection struck from its body portion for engaging with a groove or depression in said shaft to hold the key-lever against lateral movement on said shaft, substantially as set forth.

24. In a cash-register, the combination with a key-lever shaft, of a key-lever stamped from sheet metal and having a spring struck from its body portion for producing friction between said key-lever and shaft, substantially as and for the purpose set forth.

25. A tablet-rod for cash-registers made from sheet metal, having a spring struck therefrom for moving a pawl or lever carried by the tablet-rod into engagement with a register-wheel, substantially as set forth.

26. A tablet-rod for cash-registers made from sheet metal, provided with a movable device adapted to be engaged by an actuating device and having a spring struck therefrom for holding said device normally out of the path of said actuating device, substantially as set forth.

27. A tablet-rod for cash-registers made from sheet metal and having a movable foot pivotally connected thereto by bending the upper part of said foot twice, each bend being substantially at a right angle, and passing part of same through a slot in the rod, and said rod having a spring struck from its body and acting against said foot to maintain it in its normal position, substantially as set forth.

28. A tablet-rod for cash-registers made from sheet metal and having a movable lever pivotally connected thereto and carrying pawls for operating register-wheels, said lever being pivoted to the rod by bending one end thereof twice, each bend being substantially at a right angle, and passing part of same through a slot in the rod, and said rod having a spring struck from its body and acting against said lever, substantially as set forth.

29. A tablet-rod for cash-registers consisting of a body stamped from sheet metal, a foot *b* pivoted thereto, a part of said body being so cut and bent as to form a spring for said foot, a lever *g* pivoted to said tablet-rod and provided with pawls for operating a register-wheel, and a part of said body being so cut and bent as to form a spring for said lever, substantially as set forth.

30. A tablet-rod for cash-registers made from sheet metal of substantially U shape in cross-section, provided with a movable device held normally out of the path of a lifting-rod by a spring struck from the back of the rod, a lug on either or both front edges of the rod with which a locking-bar engages to hold the tablet in an elevated position, and a lug struck from the upper end of the bar for supporting the rod in its normal position, substantially as set forth.

31. In a cash-register, the combination with a stationary till, of a movable cover therefor, a pin carried by said cover and a spring-drawn member arranged to be engaged by said pin so that the cover is held opened or drawn closed as the pin passes respectively from the dead-center position to one side of said dead-center position.

32. In a cash-register, the combination with a stationary till, of a rotary cover, a pin carried by the cover and movable to a dead-center position over the center of rotation, a lever coöperating with said pin and a spring exerting stress upon said lever, whereby the cover will be normally closed by the tension of the spring, but will be maintained in an open position when the pin is moved into said dead-center position, substantially as set forth.

33. In a cash-register, the combination with a series of indicators having projections on their stems, of a movable frame resting in engagement with said projections and arranged to be elevated by the operation of any one of the indicators and to return said indicator to its normal position.

34. In a cash-register, the combination with a series of indicators of a pivoted gravity-frame resting in engagement with said indicators and arranged to be elevated by the operation of any one of the indicators and to return all operated indicators to their normal positions.

35. In a cash-register, the combination with a shaft, a series of counter elements mounted thereon, an arm rigid with said shaft, a notched ring coacting with said arm to compel a longitudinal movement of the shaft before it can be rotated, and a spring-stop coöperating with said arm to arrest the same and yielding to continued rotation of said arm.

36. In a cash-register, the combination with a shaft, of a series of counter-wheels mounted on said shaft, means for locking said shaft against rotation until it is first moved longitudinally, and movable means independent of said shaft for locking the same from longitudinal movement.

37. In a cash-register, the combination with a casing having a lid, of a shaft mounted in said casing, a series of counter-wheels mounted on said shaft, means for locking said shaft against rotation until it is first moved longitudinally, and a lock operated by said lid for preventing the longitudinal movement of the shaft.

38. In a cash-register, the combination with an inclosing casing, of a register within said casing, turn-to-zero devices for said register, a lock for said turn-to-zero devices and a lid for the casing adapted by its movements to operate said lock.

39. In a register, the combination with a series of register-wheels, and turn-to-zero devices for said wheels, of a lock for said turn-to-zero devices, a guard for the register-wheels and means operated by the movement of said guard for operating the turn-to-zero lock.

40. In a cash-register, the combination with a series of registering elements, of keys arranged to set the same for operation, an actuator for moving said elements when so set, including pivoted levers, a till having a movable member carrying projections which engage said levers to operate them with a decreasing speed while the member sustains a constant speed.

41. In a cash-register, the combination with a registering mechanism including a common actuator, a till having a movable member, pivoted levers connected to the common actuator and projections on the movable till member engaging said levers to operate them with a decreasing speed while the member sustains a constant speed.

786,378. MECHANICAL-POWER BRAKE.

LOUIS PFINGST, Boston, Mass., assignor to Pfingst Electric Manufacturing Company, Kittery, Me., a Corporation of Maine. Filed Jan. 23, 1904. Serial No. 190,300.

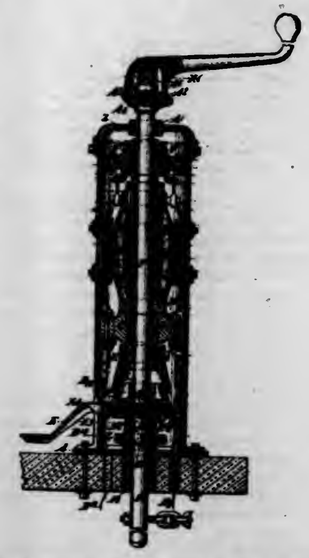
Claim.—1. In an apparatus of the character described, a brake-spindle capable of being operated by power through actuating clutch mechanism and by hand-power and spindle mechanism independent of any motor mechanism.

2. In an apparatus of the character described, a brake spindle or shaft capable of being operated by electric motor for the winding of the brake-chain and provided with hand-power mechanism independent of said motor mechanism for operating said spindle.

3. In an apparatus of the character described, a brake-spindle which can be rotated by hand-power mechanism or motor mechanism, each independent of the other.

4. In an apparatus of the character described, an upright electric motor with hollow armature-shaft and extended journals surrounding and upright brake-spindle for winding the chain, the upper end of spindle fitted with loose brake-handle, and intermediately a ratchet-wheel fitted to spindle, lower end of spindle equipped with brake-chain to be wound around the spindle for the applying of the car-brakes.

5. In an apparatus of the character described, an upright electric motor with rotatable hollow armature-shaft and extended journals, said shaft provided with a clutch member, all surrounding an upright spindle, said spindle provided with another clutch member, and means for engaging the one on motor-shaft to rotate spindle for engaging or disengaging clutch members for releasing the brakes.



6. In an apparatus of the character described, a combined hand or power driven brake-spindle passing through a hollow shaft of electric-motor armature extending above and below the armature capable of being operated free therein and provided with guide-bearings above and below armature-shaft, the upper end fitted with hand-power mechanism, the lower end at or near its bottom with a brake-chain to be wound or unwound around the spindle for the applying or releasing of the car-brake mechanism.

7. In an apparatus of the character described, a combined hand or power driven brake-spindle or chain-winding drum passing through a hollow shaft of the electric-motor armature and extending above and below the armature-shaft and capable of being operated freely therein and provided with guide-bearings above and below the armature-shaft, the upper end fitted with a loose handle, and the lower end at or near its bottom fitted with a brake-chain to be wound or unwound around the spindle for the applying or releasing of car-brake mechanism.

8. In an apparatus of the character described, a hand-power brake-spindle capable of being rotated by motor or hand-power mechanism, the mechanism of the motor supported independently of the hand-power brake-spindle, and adapted for the motor and hand-power to simultaneously rotate the spindle or the spindle can independently be rotated by hand-power without rotating any motor mechanism to wind or unwound the brake-chain for actuating the brake-chain mechanism.

9. In an apparatus of the character described, a hand-power brake-spindle equipped with motor clutch mechanism, a motor to supply intermittently power to clutch mechanism and spindle provided with hand-power mechanism for holding during intermissions that which had been taken up when the power had been applied intermittently, or can be released without stopping motor by disengaging the members of clutch mechanism from the motor and spindle, also disengaging the clutch from handle and spindle allowing the spindle to rotate and unwind chain from brake-spindle.

10. In an apparatus of the character described, a brake-spindle for applying or releasing car-brakes, and equipped with a clutch-brake handle capable of being held by the operator in any position while the revolving motor is transmitting rotating power to the spindle, and clutch mechanism for connecting the motor shaft and spindle to wind up the brake-chain and holding by the handle that which is taken up while the clutch is disengaged from the spindle and motor-shaft, cutting off all source of power.

11. In an apparatus of the character described, a power-driven brake-spindle adapted to wind up chain and to let off chain, or to hold what has been taken up—a motor transmitting its power by the aid of clutch mechanism to the spindle, for operating said spin-

dle, and an oscillating clutch-brake handle for applying or releasing car-brakes.

12. In an apparatus of the character described, a hand-power brake-spindle adapted to wind up chain and let off or to hold what has been taken up, a motor in motion, and mechanical means for transmitting its motion to said spindle for winding up the chain to apply the brake mechanism, and a loose brake-handle.

13. In an apparatus of the character described, a hand or power driven brake-spindle for applying or releasing brake mechanism, a constant rotatable electric-motor armature with hollow shaft incasing loosely a spindle, and means for transmitting power from a constantly-running motor for operating said spindle, and a handle for said spindle.

14. In an apparatus of the character described, a power-driven brake-spindle, a constant rotatable electric-motor armature with hollow shaft incasing loosely a spindle, means for transmitting power from a constantly-running motor for operating said spindle, and an oscillating pivotally-arranged handle for said spindle.

15. In an apparatus of the character described, a power-driven brake-spindle, hand-power mechanism for said spindle and a motor located below said hand-power mechanism, and means to intermittently supply power to said spindle from a running motor for applying or releasing the brakes.

16. In an apparatus of the character described, a chain-winding brake-spindle capable of being revolved by a revoluble motor supported independently of the brake-spindle, and means for transmitting its rotating power to the spindle for applying the brakes.

17. In an apparatus of the character described, a brake-spindle capable of being revolved, a revoluble motor, and means for transmitting its motion to said spindle, and a handle for said spindle for applying or releasing the brakes.

18. In an apparatus of the character described, a power-driven brake-spindle capable of being revolved, a revoluble motor, means for transmitting its motion to an unrevolving spindle, in combination with equalizing brake mechanism for applying or releasing the brakes.

19. In an apparatus of the character described, a power-driven brake spindle or shaft operated by actuating clutch mechanism from the power of a revoluble motor for applying the brakes and loosely surrounded by the armature of said motor.

20. In an apparatus of the character described, an upright brake-spindle for applying or releasing the brakes provided with guide-bearings on the top and bottom of motor-frame, an upright electric motor for operating said spindle through the actuating-clutch, an electric-motor frame for said motor, and bearings for motor-shaft located in and supported by the motor-frame.

21. In an apparatus of the character described, a brake-spindle, surrounded by an electric motor, for applying or releasing the car-brakes, said motor capable of being rotated without rotating the spindle, and hand-power mechanism for said spindle.

22. In an apparatus of the character described, a hand-power-driven brake-spindle loosely and independently surrounded by an electric motor and capable of being operated by said motor for applying the brakes.

23. In an apparatus of the character described, a hand-power-driven brake-spindle or chain-winding drum for applying or releasing the brakes, said spindle and hand-power mechanism independent of motor mechanism, and motor mechanism being independent of spindle or hand-power mechanism, and a removable handle for said spindle or shaft.

24. In an apparatus of the character described, a revoluble power-driven upright brake-spindle, a revoluble motor, actuated clutch mechanism interposed between said revolving motor and revoluble spindle located and supported on a platform of a car with a part of said spindle projecting below the platform and the other part above the platform, a take-up chain attached to said spindle for applying or releasing the car-brakes, ratchet-wheel and pawl coöperating with said spindle for holding the brake when set.

25. In an apparatus of the character described, a revoluble power-driven brake-spindle, hand-power mechanism for said spindle, a source of power located below said hand-power mechanism, and means for transmitting rotating motion from a revoluble motor for operating said revoluble spindle for applying the brakes.

26. In an apparatus of the character described, a revoluble brake-spindle, a revolving motor, means for operating said spindle by said motor, a loose handle for said spindle in combination with equalizing brake mechanism for applying or releasing the brakes.

27. In an apparatus of the character described, a revoluble brake-spindle, a revolving-motor clutch mechanism, loose hand-power mechanism capable of being held by the operator in any position when the revolving motor transmits its motion through clutch mechanism to the spindle for winding up the chain, and a pawl and ratchet for holding taken-up chain with the motor-clutch disengaged and motor running for applying the car-brakes.

28. In an apparatus of the character described, an upright brake-spindle for applying or releasing car-brakes and capable of being driven by hand or motor fitted and equipped with a brake-chain, ratchet-wheel, pivoted pawl, a clutch member and a combined clutch-lever with a circuit-closing contact, hand-power mechanism, an electric-motor armature loosely surrounding said spindle by its hollow shaft, extended journals of the hollow shaft, one end of the hollow shaft provided with a clutch member, bearings for extended journals of hollow shaft, brush-holding brackets, a bed-plate forming lower spindle-bearing guides, a pedestal-frame supporting the journal armature-bearings, pole-pieces, extension-frame supporting the upper journal-bearing, and a cover supported from the extension-frame forming an upper guide for the spindle.

29. In an apparatus of the character described, a hand-power chain-winding brake-spindle, a power-driven motor, and means for transmitting rotating power to the spindle simultaneously by the motor and hand power mechanism or for rotating the spindle independently of each other's mechanism for operating the brake mechanism.

30. In an apparatus of the character described, a brake-spindle capable of being rotated by motor-power, a handle for said spindle fitted with clutch mechanism interposed between handle and spindle, means for disengaging the clutch mechanism allowing handle to revolve in either direction without rotating spindle or motor mechanism, thereby allowing spindle to wind up chain when driven by power, rotating hand-power mechanism for the applying or releasing of car-brakes.

31. In an apparatus of the character described, a brake-spindle, a spindle-clutch, a source of power, means for operating the rotating clutch mechanism for transmitting power to rotate spindle to apply car-brakes.

32. In an apparatus of the character described, a brake-spindle surrounded by a hollow shaft of revoluble electric-motor armature, clutch mechanism interposed to transmit the revolving motion to the spindle for the application of car-brake mechanism.

33. In an apparatus of the character described, a brake-spindle located on a vehicle or car, a motor, clutch members for rotating said spindle, a ratchet-wheel fitted to said spindle, a pivoted pawl to engage ratchet-wheel for the holding of wound-up chain when the motor clutch members are disengaged cutting out source of power which rotates said spindle.

34. In an apparatus of the character described, an upright brake-spindle, a source of mechanical power, clutch mechanism interposed between the source of power and the spindle to transmit power to rotate spindle, thereby winding up chain and applying the brakes of a vehicle or car.

35. In an apparatus of the character described, an electric motor supplied with a base-frame and supporting electric-field pole-pieces supported on the platform of a car surrounding and supporting an electric armature with extended journals and hollow shaft, bearings for same surrounding an upright spindle, clutch mechanism interposed between the armature-shaft and spindle to transmit power to rotate spindle to wind up chain and set brake of a car.

36. In an apparatus of the character described, a brake-spindle, clutch mechanism, means for operating said clutch mechanism and close the circuit of the source of power at the same time starting the motor to run idle before the clutch members are fully engaged to rotate spindle for the application of car-brakes.

37. In an apparatus of the character described, a combination hand or power driven brake-spindle in combination with car-truck brake-shoes, brake beams and rods, a motor for operating said spindle, actuating clutch mechanism interposed between the motor and spindle to transmit rotating motion to spindle to wind up the chain for applying the car-brake shoes.

38. In an apparatus of the character described, a power-driven brake-spindle, and a motor located adjacent to said spindle, and means for intermittently supplying power to said spindle from a revolving motor for applying or releasing the car-brakes.

39. In an apparatus of the character described, a spindle, a motor, clutch mechanism interposed between motor and chain-winding spindle, means for engaging the clutch mechanism to transmit power from the motor to the spindle or chain-winding drum for applying the brakes.

40. In an apparatus of the character described, an electric motor with hollow shaft and extended journals surrounding a spindle, a ratchet-wheel fitted to spindle to hold brakes when set.

41. In an apparatus of the character described, a brake-spindle for applying or releasing the car-brakes capable of being supplied intermittently with power, a motor for supplying power, pawl-and-ratchet-wheel mechanism for holding, during the intermission, the chain that has been taken up when the power has been applied intermittingly or can be released without stopping the motor by disengaging the pawl from the ratchet-wheel allowing the chain to unwind itself by the brake-spring pull.

42. In an apparatus of the character described, a chain-winding brake-spindle, hand-power mechanism for rotating said spindle, a motor located below said hand-power mechanism, and means for intermittently transmitting power to said spindle from a running motor for applying or releasing the brakes.

43. In an apparatus of the character described, revoluble power-driven brake-spindle capable of being rotated through the aid of clutch mechanism from the power of a revolving motor for the applying of the car-brakes and loosely surrounded by the armature of said motor.

44. In an apparatus of the character described, a revoluble spindle, upper end equipped with hand-power mechanism, a revoluble motor, actuating clutch mechanism interposed between the revoluble motor and revoluble spindle to take up chain attached to said spindle for applying the car-brakes, a ratchet fixed to said spindle, a pawl coöperating with ratchet-wheel for holding brakes when set.

45. In an apparatus of the character described, a revoluble car-brake spindle equipped with hand-power mechanism, a revoluble electric-power-driven motor, means to transmit mechanical power from the motor to the spindle and adapted to be operated independently of said hand-power mechanism for applying or releasing the car-brakes.

46. In an apparatus of the character described, a revoluble hand or power driven brake-spindle, hand rotating mechanism for said spindle, clutch mechanism for said spindle, a source of power, a revolving electric motor, hollow armature-shaft with extended journals for said motor, clutch mechanism for said motor-armature, means for engaging the spindle and motor-clutch mechanism and at the same time close the circuit of the source of power starting the motor to run idle before the clutch mechanism is fully engaged to rotate the spindle for the application of the brakes.

47. In an apparatus of the character described, a brake-spindle, means to operate said spindle and control same by hand-power mechanism, a source of power, a motor, rotating-motor clutch mechanism interposed between motor and spindle part of said clutch attached to said rotating motor and part on spindle, means for engaging the clutch members and thereby transmitting rotary motion to the spindle or chain-winding drum for the application of the car-brakes.

48. In an apparatus of the character described, a brake-spindle for applying or releasing the brakes, said spindle fitted with hand-power mechanism or other power, mechanical means to take up slack chain and loose play in the entire brake mechanism without turning the hand-power mechanism for the final application of the brake hand-power mechanism.

49. In an apparatus of the character described, a hand-power-driven brake-spindle, a brake-handle for said spindle, a motor located adjacent to said spindle, and means for supplying power other than hand-power to said spindle from a revolving motor for the applying of the car-brakes.

50. In an apparatus of the character described, a hand-power-driven brake-spindle, a handle for said spindle, a motor for rotating said spindle, clutch mechanism interposed between motor and chain-winding spindle, means for engaging the clutch mechanism to transmit power intermittingly from a revolving motor to the spindle for the applying or releasing of brakes.

51. In an apparatus of the character described, a hand-power-driven brake-spindle for the applying or releasing of car-brakes and provided with hand-power mechanism and capable of being operated by a motor whose mechanism is independent of spindle or hand-power mechanism.

52. In an apparatus of the character described, a brake-spindle provided with hand-power mechanism, a motor independent of spindle and hand-power mechanism, clutch mechanism interposed between motor and spindle, a lever to engage clutch mechanism which rotates said spindle for the winding of the brake-chain to apply the car-brakes.

53. In an apparatus of the character described, an upright brake-spindle, and an upright revoluble motor adapted to transmit its motion to the spindle in the same direction.

54. In an apparatus of the character described, a chain-winding brake-spindle, a source of mechanical power, clutch mechanism interposed between the source of power and the spindle to transmit power to rotate spindle thereby winding up chain and applying brakes of a vehicle or car.

55. In an apparatus of the character described, a hand-power chain-winding brake-spindle, a source of mechanical power, and clutch mechanism interposed between the source of power and the spindle to transmit power to rotate spindle thereby winding up chain for applying the brakes of a vehicle or car.

56. In an apparatus of the character described, a hand-power-driven chain-winding brake-spindle and a motor located adjacent to said spindle, and means for intermittently applying power to said spindle from a revolving motor for applying or releasing the car-brakes.

57. In an apparatus of the character described, a hand-power chain-winding brake-spindle, a motor, clutch mechanism interposed between the motor and chain-winding spindle, and means for engaging the clutch mechanism to transmit power from the motor to the spindle or chain-winding drum for applying the brakes of a car.

58. In an apparatus of the character described, a hand-power brake-spindle equipped with clutch member, a continuous-current electric motor, the armature of said motor being provided with extending shafts, a clutch member fitted to motor-shaft, means for engaging the clutch members thereby transmitting rotating power from motor-shaft to brake-spindle to wind or unwind brake-chain for the applying and releasing of car-brakes.

59. In an apparatus of the character described, a continuous one-piece hand-power chain-winding brake-spindle provided with handle, a power-driven motor and means for transmitting its rotating power to the spindle for applying the brakes.

60. In an apparatus of the character described, a hand-power chain-winding brake-spindle for applying or releasing the brakes, capable of being supplied intermittently with power, a motor for supplying power, pawl-and-ratchet-wheel mechanism for holding during the intermissions the chain that had been taken up when the power is applied intermittently or can be released without stopping the motor by disengaging the pawl from the ratchet-wheel allowing the chain to unwind itself by the brake-spring pull.

61. In an apparatus of the character described, a brake-spindle for applying or releasing car-brakes capable of being driven by hand or motor power, the spindle and motor-shaft being independent of one another, power-transmitting clutch members interposed between the spindle and the motor-shaft, a clutch-lever mechanism with an electric-current switch attached to said lever, the switch capable of being closed previous to engaging the clutch members by clutch-lever and to hold both in engagement when transmitting rotating power by clutch members to the spindle thereby winding up chain for the applying of the car-brakes.

62. In an apparatus of the character described, a power-driven brake spindle or shaft operated by actuating clutch mechanism from the power of a rotating electric motor for applying the brakes and loosely surrounded by the armature of said motor, spindle-shaft and motor-shaft occupying the same shaft-centers.

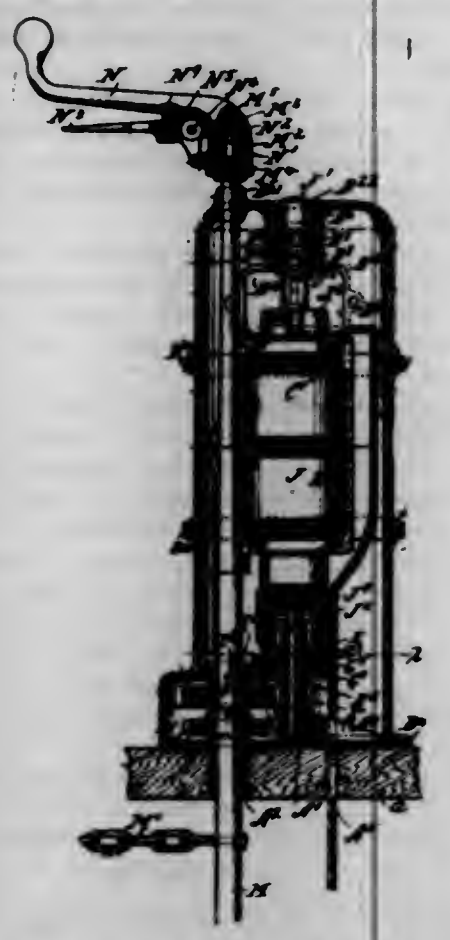
786,379. POWER-BRAKE. LOUIS PFINGST, Boston, Mass., assignor to Pfingst Electric Manufacturing Company, Kittery, Me., a Corporation of Maine. Filed July 13, 1904. Serial No. 216,339.

Claim.—1. In an apparatus of the character described, a rotating hand-power brake-spindle or shaft-motor geared and capable of being rotated by a revoluble electric motor transmitting power through clutch-and-gear mechanism to apply the car-brakes, and hand-power and spindle mechanism independent of the motor mechanism, the motor-shaft and spindle having independent alinement centers.

2. In an apparatus of the character described, a brake spindle or shaft capable of being rotated by an electric motor through clutch-and-gear mechanism and provided with hand-power mechanism, a spur-gear fixed to said spindle meshing with a pinion loosely mounted on and independent of the electric-motor-shaft mechanism and capable of being rotated, when operating said motor while the clutch members are engaged to wind up the chain.

3. In an apparatus of the character described, a brake spindle or shaft capable of being operated by an electric motor for the winding up of the brake-chain, and provided with hand-power mechanism, a spur-gear fixed to said spindle meshing with a pinion loosely mounted on an electric-motor shaft and adapted to rotate the motor-

shaft when operating said spindle through the gear and clutch-engaging mechanism.



4. In an apparatus of the character described, a brake-spindle adapted to be rotated by directly-connected hand-power mechanism or by an electric-motor mechanism, the armature of said motor having extended journal-shafts, the motor mechanism and the hand-power mechanism being independent of each other, the spindle-shaft and motor-shaft having separate alinement centers, and means for transmitting power interposed between spindle and motor-shaft, the hand or motor power being capable of rotating spindle to simultaneously or separately operate the brake mechanism.

5. In an apparatus of the character described, a brake-spindle adapted to be rotated by directly-connected hand-power mechanism, an automatic continuously-rotating electric motor supplied with electric current and provided with extended journal-shafts, guide-bearings for said extended shaft-journals, mechanical means for transmitting power from said electric-motor shaft to the brake-spindle for applying or releasing the car-brakes, and journal guide-bearings for said spindle, the motor and spindle journal guide-bearings having separate alinement centers.

6. In an apparatus of the character described, a brake-spindle adapted to be rotated by a portable directly-connected hand-power mechanism, an automatic continuously-rotating electric motor supplied with electric current and provided with extended journal-shafts, guide-bearings for said extended shaft-journals, mechanical means for transmitting power from said electric-motor shaft to the brake-spindle for applying or releasing the car-brakes, and journal guide-bearings for said spindle, the motor and spindle journal guide-bearings having separate alinement centers.

7. In an apparatus of the character described, a brake-spindle adapted to be rotated by a portable directly-connected hand-power mechanism, a chamber in said hand-power mechanism adapted to be loosely mounted on the top of said spindle and capable of being loosely rotated either to the right or left without rotating said spindle, an automatic continuously-running electric motor supplied with an electric current and provided with extended journal-shafts, guide-bearings for extended shaft-journal, and mechanical means for transmitting rotating power from the rotating electric-motor armature-shaft to the brake-spindle for applying or releasing the car-brakes, the motor journal guide-bearings and the spindle journal guide-bearings having separate alinement centers.

8. In an apparatus of the character described, a motor-power-geared brake-spindle capable of being rotated by hand-power mechanism to simultaneously or independently wind or unwind the brake-chain of a car for actuating the brake mechanism in stopping or starting a car.

9. In an apparatus of the character described, a motor-power-geared brake-spindle capable of being rotated by an automatic continuous-current electric motor transmitting rotary power through clutch mechanism and gears to said spindle for the winding up of the brake-chain to actuate the brake mechanism in stopping a car, said motor or parts for the electrical operation of said motor being independent of said spindle mechanism.

10. In an apparatus of the character described, a brake-spindle, an electric motor with rotating armature-shaft and extended journals, a fixed clutch member on said shaft, a companion clutch member loosely mounted on said shaft and provided with a pinion-gear, and means for engaging the clutch members thereby rotating the pinion-gear and transmitting a rotary motion to the brake-spindle and the winding up of the brake-chain, said brake-spindle being provided with a portable hand-power mechanism to rotate said spindle.

11. In an apparatus of the character described, a brake-spindle, an electric motor with rotating armature-shaft and extended journals, said shaft provided with a fixed clutch member, a companion clutch member loosely mounted on said shaft and provided with a pinion-gear, means for engaging the clutch members thereby rotating the pinion-gear and transmitting rotary motion to the brake-spindle for the winding up of the brake-chain, portable hand-power mechanism for operating said spindle, disengaging clutch mechanism between said handle and said spindle to allow said spindle to rotate in a chamber of said handle when operated by the motor and to allow said handle to loosely rotate on said spindle without rotating said spindle or said motor.

12. In an apparatus of the character described, a brake-spindle supported in journal-bearings and provided with a gear, a continuous-current electric motor, a rotating armature-shaft provided with extended shaft-journals supported in guide journal-bearings, a fixed clutch member on said shaft, a companion clutch member provided with a clutch pinion-gear and loosely mounted on said shaft, means for engaging the loose clutch member with the fixed clutch member for rotating said loose clutch member and gear thereby transmitting rotating motion to the spindle-gear and rotating the spindle thereby causing the brake-chain to be wound up applying the brakes to stop the car, and hand-power mechanism for said spindle.

13. In an apparatus of the character described, a power-driven brake spindle or shaft adapted to wind up chain and to let off or to hold what has been taken up, an electric motor with extended shaft-journals, the spindle-shaft and extended armature-shaft having separate independent shaft centers, a clutch member fast on the armature-shaft, a companion clutch member provided with a pinion-gear and loosely mounted on the armature-shaft, a gear mounted on said brake-spindle and connecting with said clutch-gear for transmitting motion of the armature-shaft to the brake-spindle for applying the car-brakes, and a loose revoluble handle on said brake-spindle.

14. In an apparatus of the character described, a motor-clutch and gear-driven brake-spindle, a rotating electric-motor armature-shaft, means for transmitting power from said rotating armature-shaft for rotating said spindle, and mechaniam for causing the engagement of said means.

15. In an apparatus of the character described, a rotating hand-power brake spindle or shaft for applying or releasing the brake mechanism, an electric motor, extended armature-shafts on the armature of said motor, the spindle-shaft and armature-shaft occupying separate shaft centers, and means for transmitting rotary power from the armature-shaft to the spindle-shaft or chain-winding drum to apply or release the car-brakes.

16. In an apparatus of the character described, a rotating hand-power brake-spindle for applying or releasing brake mechanism, an electric motor, extended armature-shafts on said motor, the spindle-shaft and the armature-shaft occupying separate shaft centers, and means for transmitting rotary power from the armature-shaft to the spindle-shaft or chain-winding drum to apply or release the car-brakes, the said spindle-shaft being provided with a fixed ratchet-wheel engaging a pawl for holding said spindle when the brakes are being applied.

17. In an apparatus of the character described, a brake-spindle, a brake-handle on the upper end of said spindle, a brake-chain on the lower end of said spindle and adapted to be wound and unwound thereon, journal guide-bearings for supporting said spindle, an electric motor located in relation to said spindle, and means for transmitting power from the motor to the spindle for rotating said spindle for applying or releasing the car-brakes independently of the hand-power mechaniam, the motor-shaft and the spindle-shaft having independent shaft centers.

18. In an apparatus of the character described, a power-driven brake-spindle and clutch, hand-power mechanism for said spindle,

a motor located in relation to said spindle, and mechanical means for intermittently supplying power to said spindle from a rotating motor, the spindle-shaft and motor having independent shaft centers for applying or releasing the brakes.

19. In an apparatus of the character described, a brake-spindle capable of being revolved, a revolving electric-motor armature provided with extended shafts, the spindle-shaft and motor-shaft occupying separate centers, and means for transmitting revolving motion to the spindle for applying or releasing the brakes.

20. In an apparatus of the character described, a brake-spindle capable of being revolved, an electric motor, a rotating motor-armature provided with extended shafts, means for transmitting rotating motion to said spindle, the spindle and motor shafts occupying separate shaft centers, and a handle for said spindle for applying or releasing the brakes.

21. In an apparatus of the character described, a motor-geared and hand-power-driven brake spindle or shaft, a handle mounted and supported on said spindle, means for disengaging the mechanism of the spindle and handle to allow the spindle to rotate in the chamber of said handle when the motor-power is rotating the spindle winding up the chain to set the brakes or to rotate in said chamber in the opposite direction when said chain is unwinding to release said brakes.

22. In an apparatus of the character described, a motor-clutch and geared power-driven brake spindle or shaft capable of being revolved, an electric-motor armature, means for transmitting motion to said spindle or shaft to wind up the chain and actuate the equalizing brake mechanism for applying the brakes.

23. In an apparatus of the character described, a clutch and geared motor-power-driven brake-shaft or chain-winding drum capable of being rotated by motor-shaft when connected with actuating clutch-and-gear mechanism for applying the brakes.

24. In an apparatus of the character described, a motor-clutch-geared power-driven brake-shaft or chain-winding drum capable of being rotated when connected by actuating clutch-and-gear mechanism to the shaft of a revolving motor-armature for applying the brakes, and a handle mounted on said brake-shaft to rotate same.

25. In an apparatus of the character described, a hand-power and motor-geared power-driven chain-winding brake spindle or shaft, an electric motor, the spindle-shaft and the motor-shaft being connected by power-transmitting gears for applying or releasing the car-brakes and capable of being operated by hand-power or motor-power independent of each other, said motor capable of being rotated without rotating the spindle and hand-power mechanism of said spindle.

26. In an apparatus of the character described, a hand-power-driven brake-spindle provided with a handle capable of being loosely and independently revolved on said spindle, motor clutch members and gears capable of rotating said spindle for applying or releasing the brakes, and means in the chamber of said handle to allow the spindle to rotate therein.

27. In an apparatus of the character described, a revoluble chain-winding brake-spindle for applying or releasing the car-brakes, a revoluble continuous electric motor, extended journal-shafts on the armature of said motor, actuating clutch mechanism supported on the armature-shaft, gears interposed between said revoluble spindle and revoluble armature-shaft, the spindle-shaft and motor shaft having independent shaft centers.

28. In an apparatus of the character described, a revoluble chain-winding brake-spindle provided with hand-power mechanism, a revoluble continuous electric motor, extended journal-shafts on the armature of said motor, actuating clutch mechanism supported on the armature-shaft, power-transmitting gears interposed between said revoluble spindle and revoluble armature-shaft, the spindle and motor-shaft having separate shaft centers.

29. In an apparatus of the character described, a revoluble power-driven brake-spindle, hand-power mechanism for said spindle, a source of power located below said hand-power mechanism and abreast of the spindle, and means for transmitting rotary motion from a revolving motor to rotate said spindle for applying the car-brakes.

30. In an apparatus of the character described, a chain-winding brake-shaft provided with a gear, an electric motor, the armature of said motor having extended shafts and provided with a fixed clutch member, a companion gear, a clutch member loosely mounted on said extended shaft, the gear of the companion clutch member adapted to mesh with the gear of the brake-shaft and to rotate said shaft to wind up the chain and set the brakes, and a handle adapted to rotate said shaft to wind up said chain.

31. In an apparatus of the character described, a chain-winding brake-shaft adapted to be rotated by hand-power mechanism or motor mechanism, said hand-power mechanism and motor mechanism, being independent of each other, brake and motor shafts having separate alinement centers, and means for transmitting power interposed between said brake-shaft and said motor-shaft, the hand or motor power being capable of rotating brake-chain shaft to simultaneously wind or unwind chain to set or release car-brakes.

32. In an apparatus of the character described, a chain-winding brake-shaft for applying or releasing car-brakes, a motor provided with a shaft having a fixed clutch member, a companion clutch member loosely mounted on the motor-shaft, means for engaging the two clutch members, a gear fixed to the loose clutch member meshing with a gear fixed on the brake-shaft thereby rotating said brake-shaft, the upper end of said brake-shaft provided with a disengaging clutch-handle capable of being held in a fixed position to permit the brake-shaft to rotate in the chamber of said handle while the revolving motor is transmitting power to the spindle by the actuating clutch-and-gear mechanism for winding up chain and for holding by the handle when the handle-clutch is engaged with the spindle that which had been taken up while the motor-clutch is disengaged, thus cutting off the source of power from the revolving motor.

33. In an apparatus of the character described, a hand-power chain-winding-brake shaft adapted to wind up and letoff the brake-chain, a brake-shaft geared to the motor-shaft, a source of power for rotating the motor-shaft and transmitting by the aid of gear mechanism a rotating motion to the brake-shaft, a handle mounted on said brake-shaft, and means on said brake-shaft and in the chamber of said handle to engage one another for the applying or releasing of car-brakes by hand-power.

34. In an apparatus of the character described, a chain-winding hand or power driven brake-shaft, a power-motor provided with a shaft, the brake-shaft and motor-shaft centers independent of one another in their alinement, a power clutch-and-gear mechanism interposed between the two shafts for transmitting power from the motor-shaft to the brake-shaft, a hand-power handle for said brake-shaft provided with means for engaging and disengaging the brake-shaft and capable of permitting the brake-shaft to rotate in the chamber of said handle when the handle is held in a fixed position.

35. In an apparatus of the character described, a hand-power chain-winding brake-shaft adapted to be driven by power, an electric-power motor, the armature of said motor having extended shaft-journals, a driving clutch member for said extended shaft-journals, an idle companion clutch member provided with a gear and loosely mounted on the extended shaft, means for engaging the two clutch members, and a gear mounted on said brake-shaft for engaging the clutch-gear and by said means to rotate the brake-shaft to wind up or let off the brake-chain in applying or releasing the car-brakes.

36. In an apparatus of the character described, a hand or power chain-winding brake-shaft, a motor provided with a power-shaft, brake-shaft and motor-power shaft occupying independent alinement centers, actuating power clutch members mounted on the power-shaft and provided with a gear to mesh with the gear on the brake-shaft and said brake-shaft capable of being rotated by the power-shaft or hand-power handle to wind up chain to apply car-brakes.

37. In an apparatus of the character described, a motor provided with a power-shaft, brake-shaft and motor-shaft occupying independent alinement centers, and rotatable power-driven gears interposed between the brake-shaft and power-shaft for applying or releasing the car-brakes, the hand-power mechanism and motor-power mechanism being independent of each other, and the motor-shaft capable of being rotated without rotating the brake-shaft or hand-power mechanism.

38. In an apparatus of the character described, a combined hand or power rotating chain-winding brake-shaft, an electric motor provided with a rotating shaft, gears interposed between the brake-shaft and motor-shaft, a power-clutch provided to interlock the gears and to thereby rotate the chain-winding brake-shaft, the brake-shaft and hand-power mechanism independent of said motor mechanism, and motor mechanism independent of brake-shaft or hand-power mechanism, the shaft centers being independent of each other.

39. In an apparatus of the character described, a chain-winding brake-shaft capable of being rotated either by hand or motor power, a handle for said brake-shaft, a revolving electric motor provided with a revolving armature-shaft, rotating power-transmitting gears interposed between the brake-shaft and the armature-shaft for the rotating of said brake-shaft, handle for said spindle provided with

clutch mechanism in the chamber of said handle for engaging the brake-shaft and capable of rotating same to wind up the brake-chain and set the brakes.

40. In an apparatus of the character described, a hand or power driven chain-winding brake-shaft capable of being rotated, a handle mounted on said shaft, a revolving electric motor, an armature-shaft adapted to rotate said shaft by the aid of power clutch and gears interposed between the brake-shaft and armature-shaft, a loose revolving handle for said brake-shaft, clutch mechanism in the chamber of said handle to engage said brake-shaft in combination with equalizing brake mechanism for applying or releasing the brakes.

41. In an apparatus of the character described, a rotatable chain-winding brake-shaft for applying or releasing the car-brakes and provided with a combination loose and fixed hand-power mechanism and capable of being rotated by the revolving shaft of an electric motor, the shaft of said motor provided with a power-transmitting clutch, a gear fixed to said clutch and supported on and guided by the motor-shaft and meshing with a gear mounted on and fixed to the brake-shaft capable of being rotated by the motor-shaft through the clutch-and-gear mechanism.

42. In an apparatus of the character described, a rotatable chain-winding brake-shaft capable of being rotated by a revoluble continuous electric motor or by hand-power mechanism, the armature-shaft of said motor provided with extended journal-shaft, power-transmitting clutch-and-gear mechanism interposed between the brake-shaft and the motor-shaft and adapted to rotate the chain-winding brake-shaft, a handle capable of being held unrotating while the revolving motor transmits its rotatable power through the clutch-and-gear mechanism to the brake-shaft permitting the brake-shaft to rotate in the chamber of said handle while winding up the chain to set the brakes.

43. In an apparatus of the character described, a chain-winding brake-shaft supported by bearings in a frame mounted on a car and provided with a hand-power handle, said brake-shaft adapted to be rotated by motor-power, a motor provided with a revolving shaft held by guide-bearings supported by a frame mounted on a car, power-transmitting clutch and gears interposed between the brake-shaft and motor-shaft and adapted to rotate the brake-shaft to wind up the chain to apply the car-brakes.

44. In an apparatus of the character described, a chain-winding brake-shaft capable of being rotated by hand or motor power, a revoluble electric motor, the armature of said motor having extended shaft-journals, guide-bearings for said journals, clutch-and-gear mechanism supported on and guided by the armature-shaft, a gear mounted on the brake-shaft meshing with the gear on the armature-shaft and capable of being rotated, a hand-power handle capable of being held in a fixed unrevolving position while the revolving motor is transmitting its motion to the brake-shaft, said handle capable of holding through the spindle the chain when the motor clutch members are disengaged and to allow the motor to run idly.

45. In an apparatus of the character described, a chain-winding brake-shaft for applying or releasing the car-brakes capable of being driven by hand or motor power, a rotatable hand-power handle for said brake-shaft, a motor provided with a revoluble shaft and capable of rotating the brake-shaft by power-transmitting clutch-and-gear mechanism interposed between the brake-shaft and the motor-shaft for rotating said shaft winding up chain thereby applying the brakes.

46. In an apparatus of the character described, a frame mounted on a car supporting a chain-winding brake-shaft for applying or releasing the car-brakes, an operating-handle mounted on said shaft, a revolving electric-motor armature-shaft supported by a frame, the brake-shaft capable of being rotated by the motor-shaft through the aid of rotating transmitting power-clutch, and power-transmitting gears interposed between the shafts, the brake-shafts and motor-shaft occupying separate alinement shaft centers.

47. In an apparatus of the character described, a chain-winding brake-shaft for applying or releasing the car-brakes provided with an operating-handle and supported in guide-bearings mounted in a frame, a revolving motor-shaft mounted in a frame, and means interposed between the shafts to rotate the brake-shaft to wind up chain by the revolving motor-shaft, the brake-shaft and the motor-shaft occupying different shaft-centers.

48. In an apparatus of the character described, a chain-winding brake-shaft for applying or releasing car-brakes and capable of being driven by hand or motor power, an operating-handle mounted on said brake-shaft, a rotating motor located adjacent to the brake-shaft, the brake-shaft and motor-shaft supported in a frame mounted on a car, the brake-shaft adapted to be rotated by the motor-shaft transmitting its power through actuating power clutch-and-gear mechanism, a clutch-lever, and a current-closing contact part on said lever.

49. In an apparatus of the character described, a hand or power driven chain-winding brake-shaft, a handle for said brake-shaft, a motor provided with a revoluble shaft, power-transmitting gear attached to the brake-shaft, a clutch member fixed to the motor-shaft, a combined companion clutch member and gear loosely mounted on the motor-shaft and capable of rotating the brake-shaft when the clutch members are engaged, a ratchet-wheel fitted to spindle, and a pivoted pawl for engaging the ratchet-wheel for holding the wound-up chain when the clutch members are disengaged from the source of power, all supported in a frame mounted on a car.

50. In an apparatus of the character described, a revoluble electric motor having extended motor-shafts supported in a frame mounted on a car, the extended shafts of the revolving motor fitted with a power-transmitting clutch capable of rotating intermittently by mechanical means, a chain-winding brake-shaft supported by a frame mounted on a car for the applying or releasing of car-brakes, and means for holding the brake-shaft when the brakes are applied independently of the revolving motor-shaft.

51. In an apparatus of the character described, a revoluble electric motor having extended shafts supported in a frame mounted on a car, the extended shafts of the revolving motor fitted with a power-transmitting clutch capable of rotating intermittently by mechanical means, a hand-power chain-winding brake-shaft for the applying or releasing of car-brakes, and means for holding the brake-shaft when the brakes are applied independently of the revovlving motor-shaft, the brake-shaft and motor-shaft having separate alinement centers.

52. In an apparatus of the character described, a hand or power chain-winding brake-shaft geared to a member of a power-transmitting clutch and capable of being rotated when clutch members are engaged by a revolving motor-shaft, the brake-shaft and motor-shaft having separate alinement centers, a handle for said brake-shaft, and means in the chamber of said handle for locking same to the brake-shaft and capable of being unlocked from the brake-shaft to permit the rotating of the brake-shaft in the chamber of handle when rotated by power to wind up chain to apply the brakes.

53. In an apparatus of the character described, a chain-winding brake-shaft for the applying or releasing of car-brakes and capable of being rotated by hand or motor power, a brake-shaft geared to a member of a power-transmitting clutch mounted on a loosely-revoluble motor-shaft, a companion clutch member fixed to the revoluble motor-shaft, means for engaging the clutch members and adapted when the clutch members are engaged to rotate the brake-shaft to wind up the brake-chain in applying the car-brakes, a handle for said brake-shaft capable of rotating to apply or release the car-brakes, the brake-shaft and motor-shaft occupying separate alinement centers.

54. In an apparatus of the character described, a chain-winding brake-shaft for applying or releasing car-brakes adapted to be rotated by hand or motor power, an operating-handle mounted on said brake-shaft, a motor provided with a revoluble motor-shaft, said shaft fitted with a power-transmitting clutch, a gear fixed to one part of the power-clutch, and a power foot-lever for engaging the clutch members to rotate the gear for transmitting its motion to a gear fixed on a brake-shaft thereby rotating same to wind up chain to apply brakes.

55. In an apparatus of the character described, a chain-winding brake-shaft capable of being rotated by hand or motor power, the upper end of the brake-shaft fitted with a brake-handle for rotating said shaft, means in said handle to loosely rotate same on said shaft, a motor provided with a revoluble motor-shaft, and a gear mounted on the brake-shaft meshing with a gear loosely mounted on the motor-shaft and fixed to part of a power-clutch adapted to receive rotating power from the motor-shaft for transmitting same to the brake-shaft to wind up chain and set brakes.

56. In an apparatus of the character described, a rotatable chain-winding brake-shaft for applying or releasing car-brakes and capable of being rotated by hand or motor power, a revoluble electric motor provided with an armature-shaft having extended journal-shafts, brake-shaft and armature-shaft occupying independent and separate shaft centers, and an armature-shaft capable of rotating the brake-shaft by the aid of clutch-and-gear mechanism interposed between shafts to wind up or let off chain in applying or releasing the car-brake mechanism.

57. In an apparatus of the character described, a combined

band or motor power rotatable chain-winding brake-shaft, and a motor provided with a revoluble motor-shaft capable of rotating the brake-shaft by power-transmitting mechanism, the brake-shaft and motor-shaft occupying separate alinement centers, and the said brake-shaft capable of being rotated by hand-power handle for the winding up or letting off of chain for the applying or releasing of car-brake mechanism.

58. In an apparatus of the character described, a combined hand or motor power rotatable chain-winding brake-shaft, and a motor with a revoluble motor-shaft capable of rotating intermittently by mechanical means, the brake-shaft through power-transmitting mechanism, the brake-shaft and motor-shaft occupying separate alinement centers, and the brake-shaft capable of being rotated by hand-power handle for the winding up or letting off of chain for the applying or releasing of car-brake mechanism.

59. In an apparatus of the character described, a rotatable chain-winding brake-shaft capable of being operated by hand or motor power, the brake-shaft adapted to be rotated simultaneously by a rotatable electric-motor shaft or by hand-power mechanism independent of each other, the brake-shaft and the motor-shaft occupying independent shaft centers all supported by a frame mounted on a car.

60. In an apparatus of the character described, a combined hand or motor power chain-winding brake-shaft, and a motor with a revoluble motor-shaft capable of rotating the brake-shaft through clutch-and-gear mechanism without rotating the hand-power mechanism when winding up or letting off chain to apply or release the car-brakes, the brake-shaft and motor-shaft occupying separate alinement centers and supported by a frame mounted on a car.

61. In an apparatus of the character described, a chain-winding brake-shaft capable of being rotated by hand or motor power, a motor provided with a motor-shaft, clutch-and-gear mechanism interposed between the brake-shaft and the motor-shaft and capable of transmitting power from the motor-shaft to the brake-shaft when applying the car-brakes.

62. In an apparatus of the character described, a hand-power-driven chain-winding brake-shaft capable of being rotated by power, a motor located adjacent to the brake-shaft and provided with a revoluble shaft, lever-actuating clutch mechanism interposed between the brake-shaft and the motor-shaft, and means for transmitting rotating power from the clutch mechanism to the gear fixed on the brake-shaft for the rotating of same to wind up chain when applying the car-brakes.

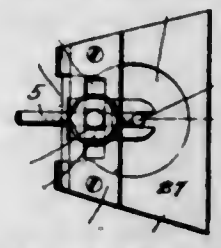
63. In an apparatus of the character described, a hand-power chain-winding brake-shaft capable of being rotated by power, a motor provided with a rotatable shaft and adapted to supply intermittently-rotating power through clutch-and-gear mechanism to the brake-shaft, and a hand-power handle for the brake-shaft capable of holding the chain during intermissions that which had been taken up when the clutch mechanism had been applied intermittently and capable of being released by disengaging the mechanism in the handle from the brake-shaft.

64. In an apparatus of the character described, a hand or power rotatable chain-winding brake-shaft adapted to wind up or let off brake-chain or to hold what has been taken up, a revoluble hand-power handle mounted on the brake-shaft, an electric motor with extended shaft-journals located adjacent to the brake-shaft, gears interposed between the brake-shaft and the motor-shaft, and clutch mechanism when engaged arranged to rotate the gears interposed between the motor-shaft and the brake-shaft thereby rotating the brake-shaft to wind up chain and set brakes, the motor-shaft and the brake-shaft having separate alinement centers and supported in a frame mounted on a car.

65. In an apparatus of the character described, a power-geared brake-shaft for applying or releasing the car-brakes capable of being driven by hand-power mechanism, a handle mounted on the brake-shaft, and a motor provided with a revoluble shaft fitted with clutch members and gear mechanism, said gear meshing with a gear on the brake-shaft to rotate the same when the clutch members are engaged and receiving rotating power from the revolving motor-shaft, the brake-shaft and motor-shaft occupying separate alinement centers and supported by a frame mounted on a car.

786,380. THREAD-GUIDE FOR SPINNING-FRAMES. CLARENCE A. PIERCE, Manchester, N. H. Filed Oct. 20, 1904. Serial No. 229,211.

Claim.—1. In a thread-guiding means for spinning-frames, a finger-head, a thread-guide separate therefrom and carried thereby, and adjustable means to clamp the thread-guide to the finger-head, said means permitting the thread-guide to be adjusted laterally on the finger-head in parallel lines.



2. In a device of the class described, a hinged finger-head, a thread-guide carried thereby, said thread-guide having a shank, and adjustable clamping means to engage said shank, said clamping means permitting the thread-guide to be adjusted on the finger-head in lines parallel to the shank.

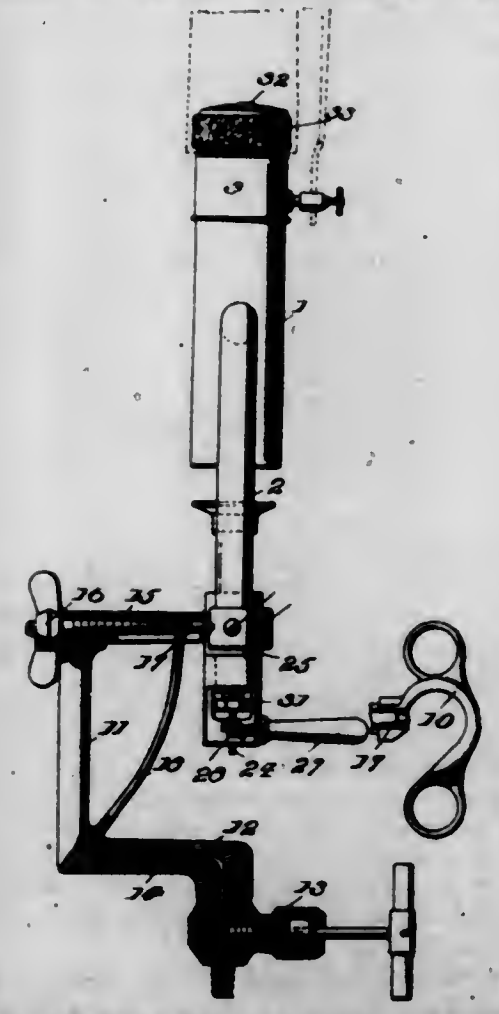
3. In a device of the class described, a finger-head, a thread-guide provided with a shank, and a clamping member engaging the shank and adapted to clamp said thread guide to the finger-head, said clamping member being adjustable laterally of the finger-head.

4. In a device of the class described, a finger-head, a thread-guide having a shank, and a clamping member engaging said shank and adapted to clamp the thread-guide to the finger-head, said clamping member being adjustable laterally of the finger-head, and the thread-guide being adjustable in the clamping member toward and from the front of the finger-head.

5. In a device of the class described, a finger-head having a cavity, and a thread-guide-receiving slot leading to said cavity, a thread-guide extending through said slot, and a clamping member within the cavity and engaging said thread-guide, the clamping member being adjustable laterally in the cavity.

6. In a device of the class described, a finger-head having a cavity and a thread-guide-receiving slot leading to said cavity, a thread-guide extending through said slot, a clamping member within the cavity and engaging said thread-guide, the clamping member being adjustable laterally in the cavity, and the thread-guide being adjustable in the clamping member toward and from the front of the finger-head.

786,381. INCANDESCENT VAPOR-BURNER. WIRT S. QUIGLEY, Philadelphia, Pa. Filed Sept. 4, 1901. Serial No. 74,291.



Claim.—1. In a burner of the type recited, the combination of a bracket comprising upper and lower members, whereof the lower member is provided with an oil duct or passage, and whereof the upper member is provided with transversely-extending arms with an

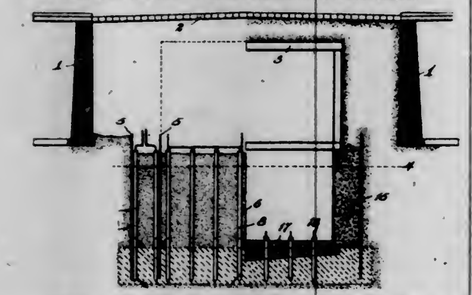
annular space between them open at one side, a vaporizing-tube confined between said arms, a mixing-tube into which said vaporizing-tube discharges, air-intake tubes respectively supported by said arms and communicating with the mixing-tube, and an oil-supply connection between said duct and vaporizing-tube, substantially as described.

2. The combination with the burner and mixing-tube, of a vaporizing-tube discharging oil-gas across an air-space into said mixing-tube and having an oil-inlet, a bracket comprising upper and lower members, whereof the upper member is provided with transversely-extending arms with an annular space between them open at one side for the reception of the vaporizing-tube, and whereof the lower member is provided with an oil duct or passage, a hollow plug movable toward and away from the inlet of the vaporizing-tube and adapted for communication with the latter, means for causing said plug to simultaneously clamp and communicate with the vaporizing tube, an oil-supply connection between said duct and plug, and air intake tubes supported by said arms and communicating with the mixing-tube, substantially as described.

3. The combination with the burner and mixing-tube, of a vaporizing-tube discharging oil-gas across an air-space into said mixing-tube, a bracket having an upper tubular part, a hollow plug movable in said tubular part and adapted for communication with said vaporizing-tube, means for causing said plug to simultaneously clamp and communicate with the vaporizing-tube, a duct or passage in the lower part of the bracket, a tensile tube connecting said duct with the movable hollow plug, and a regulating-valve communicating with said duct, substantially as described.

4. In a burner, the combination with the burner and mixing-tube and the air-intake tubes communicating with the latter, of a vaporizing-tube, a bracket consisting of upper and lower members whereof the lower member is provided with an oil-duct, and whereof the upper member is provided with a tubular part and with transversely-extending arms which support the air-tubes, with a space between said arms for the reception of the vaporizing-tube, a member adjustably fitted in said tubular part for clamping the vaporizing-tube in the bracket, said member having a passage to communicate with the interior of the vaporizing-tube, and oil-supply connections between said duct and member, substantially as described.

786,382. **METHOD OF SUBWAY CONSTRUCTION.** JESSE W. RENO, New York, N. Y. Filed Feb. 6, 1905. Serial No. 244,262.



Claim.—1. The method of constructing subways which consists in driving double rows of sheet-piling along the lines of the side walls of the subway, freezing the earth below the line of the base of the said side walls, excavating the unfrozen earth between the rows of sheet-piling above the frozen base and constructing walls in the excavations thus made.

2. The method of constructing subways which consists in driving double rows of sheet-piling along the lines of the side walls of the subway, freezing the earth below the line of the base of the said side walls, excavating the unfrozen earth between the rows of sheet-piling above the frozen base, constructing walls in the excavations thus made, freezing a horizontal stratum of earth beneath the space to be occupied by the tunnel-invert, excavating the earth between the side walls above said frozen stratum and forming a subway-invert upon said frozen stratum.

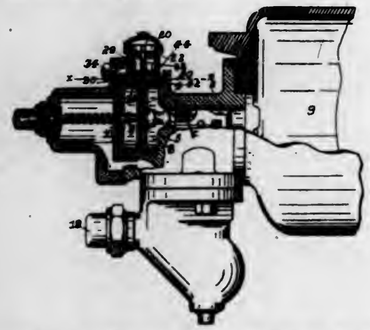
3. The herein-described method of constructing a subway-invert which consists in freezing a horizontal stratum below the position to be occupied by said invert after the side walls have been constructed and forming a concrete invert upon said frozen stratum.

4. The herein-described method of constructing a subway-floor which consists in constructing side walls, conveying a freezing medium to the earth beneath the position to be occupied by the subway-floor and insulating the freezing medium from the surrounding earth above the position of said floor.

5. The herein-described method of constructing subways which consists in constructing subway side walls by driving two parallel rows of sheet-piling for each side wall, conveying a freezing medium to the earth below the proposed line of the base of said side walls, insulating said freezing medium above said base excavating the unfrozen earth between said rows of sheet-piling, forming walls in the excavation thus made, conveying a freezing medium to the earth beneath the proposed base of the subway-invert, insulating said freezing medium above said proposed base, excavating the unfrozen earth between said side walls and forming a concrete invert upon said frozen base between said side walls.

6. The herein-described method of constructing subways in wet ground which consists in constructing the subway side walls by driving two parallel rows of sheet-piling for each side wall, conveying a freezing medium to the earth below the proposed line of the base of said side walls, insulating said freezing medium above said base, excavating the unfrozen earth between said rows of sheet-piling, forming side walls in the excavation thus made, freezing a transverse stratum connecting the advance ends of said side walls to form a dam for the advance end of the excavation to be made, conveying a freezing medium to the earth beneath the proposed line of the subway-invert, insulating said freezing medium above said proposed line, excavating the unfrozen earth between said side walls and forming a concrete invert upon said frozen stratum between said side walls.

786,383. **AIR-BRAKE SYSTEM.** ALVA C. RICHARDS, Tomah, Wis., assignor of one-half to William L. O'Malley, Davenport, Iowa. Filed Feb. 29, 1904. Serial No. 195,712.



Claim.—1. In a fluid-pressure brake mechanism, the combination with a triple valve, of a conduit terminating at each end in the side wall of the piston-chamber of the triple valve, a spring-actuated piston, and a valve to control said conduit constructed and arranged to automatically establish direct communication between the train-line and the auxiliary reservoir when the supply of braking pressure in the latter is reduced to a predetermined point.

2. In a fluid-pressure brake mechanism, the combination with a triple valve having a piston-chamber and a piston in said chamber, of a conduit terminating at each end in the side wall of the piston-chamber of the triple valve, a spring-actuated piston adjustable over the conduit, and a valve secured to the piston and actuated thereby and arranged to admit fluid-pressure from the train-pipe to the auxiliary reservoir when the triple piston has been unseated by a reduction of the supply of braking pressure in the auxiliary reservoir.

3. In a device of the character described, a triple valve provided with a piston, a valve provided with a piston opening into the chamber of the piston of the triple valve, air communication between the train-line and the said valve, air communication between the said valve and the auxiliary reservoir through the triple valve, and a stop attached to the piston of said valve and adapted to project into the chamber of the triple-valve piston and prevent said piston from returning to its released position while the train-line and auxiliary reservoir are being charged.

4. In a fluid-pressure brake mechanism, the combination with a triple valve, of a conduit terminating at each end in the side wall of the piston-chamber of the triple valve, a spring-actuated piston constituting the upper wall of the conduit and provided with a downwardly-extending projection to limit the descent thereof, a valve actuated by the piston and adapted to normally close said conduit on the auxiliary-reservoir side of the triple-valve piston, and means for opening said valve to establish direct communication, independently of the triple-valve piston, between the train-pipe and the auxiliary reservoir upon the reduction of the supply of braking pressure in the latter.

5. In a fluid-pressure brake mechanism, the combination with a triple valve having a piston-chamber and a piston therein, of a conduit in the side wall of the piston-chamber and opening at each end into the piston-chamber of the triple valve and a yielding piston forming one side of the conduit, and a valve actuated by the piston and constructed and arranged to establish direct communication between the train-pipe and the auxiliary reservoir upon the reduction of the supply of braking pressure in the latter.

6. In a device of the character described, a triple valve provided with a piston, an automatic valve set in communication with said triple valve said automatic valve consisting of a casing in which is set a spring-actuated piston, a valve-stem attached to the piston, a valve opening into the triple valve and controlled by said piston, a stop attached to said valve and projecting into the triple valve in the chamber of its piston and adapted to hold the said piston off its seat.

7. In a device of the character described, in combination with a triple valve provided with a piston, an automatic valve in communication with the triple valve, a spring-actuated piston in said automatic valve, means for setting said spring at a given tension, communication between the train-line and said automatic valve, communication between said automatic valve and the triple valve, and a stop attached to the piston of the automatic valve and projecting into the piston-chamber of the triple valve to hold the triple-valve piston off its seat while the train-line and auxiliary reservoir are being charged.

8. In a device of the character described, a triple valve provided with a piston, an auxiliary reservoir, an automatic valve set in communication with the piston-chamber of the triple valve, a spring-actuated piston in said automatic valve, means for setting said spring at a given tension, a valve-stem secured to said piston and adapted to project its valve into the piston-chamber of the triple valve on the side of the piston next its seat to hold said piston off its seat while the air is discharged from the train-line into the automatic valve beneath its piston and out into the piston-chamber of the triple valve to the auxiliary reservoir.

9. In a fluid-pressure brake mechanism, the combination with a triple valve having a piston-chamber and a piston, of means for delivering fluid-pressure from the train-pipe to the auxiliary reservoir when the supply of braking pressure in the latter has been reduced, comprising a conduit in the piston-chamber of the triple valve with its termini opening in the side of the piston-chamber near each end thereof, and a valve arranged to control said conduit and also hold the piston from its seat while the conduit is open.

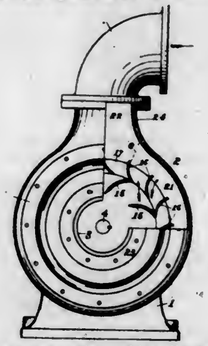
10. In an air-brake mechanism, a triple valve having a piston-chamber, a piston in said chamber, and an automatic emergency-valve mechanism set in the casing of the piston-chamber and having direct communication with the auxiliary reservoir when the valve is opened by the piston and means operated by said mechanism to hold the piston from its seat when the supply of braking pressure in the auxiliary reservoir is reduced to a predetermined point.

11. In a fluid-pressure brake mechanism, the combination with a triple valve having a piston-chamber 8, and a piston in said chamber, of a chamber 29 in the side wall of the piston-chamber, and having ports in communication with the latter near each end thereof, a valve to normally close one of said ports, and an automatically-acting piston in the chamber 29 to operate the valve and open its port when the supply of braking pressure has been reduced to a predetermined point.

12. In a fluid-pressure brake mechanism, the combination with a triple valve having a piston-chamber 8, and a piston in said chamber, of a chamber 29 in the side wall of the piston-chamber and having ports arranged at each end of the piston-chamber on opposite sides of the piston, a valve normally closing the port on the auxiliary-reservoir side of the piston, and an automatically-acting piston in the chamber 29 to open said valve and project it in the path of the triple piston when the supply of braking pressure has been reduced to a predetermined point.

786,384. **TURBINE-PUMP.** JOHN RICHARDS, San Francisco, Cal., assignor to Turbine Pump Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 31, 1902. Serial No. 109,755.

Claim.—1. In a turbine-pump, an incased impeller provided with interior impelling-vanes backwardly inclined with reference to the direction of motion, in combination with fixed diffusing-vanes curved from a forwardly-oblique to an approximately radial direction outward from the impeller zone, whereby any circular motion of the outflowing water is gradually diverted toward a radial direction as it enters the discharge-chamber, substantially as specified.



2. In a turbine-pump, an incased impeller having inclined impelling-vanes located in a zone outside of the inlet-way, in combination with an annular series of fixed diffusing-vanes in a zone outside of the impeller-vanes, said diffusing-vanes curved from a forwardly-inclined to an approximately radial direction, whereby the water is delivered into the discharge-chamber with a minimum of rotatory motion, substantially as specified.

3. In a turbine-pump, in combination, an annular discharge-chamber, an incased impeller provided with inclined impeller-vanes, a series of fixed diffusing-vanes disposed in a zone exterior to said impeller-vanes, forwardly inclined relatively thereto, and curved from the inclined to an approximately radial direction at the terminals, said diffusing-vanes forming passages between them disposed tangentially with reference to the circular inner wall of the annular chamber into which they discharge, substantially as specified.

4. In a turbine-pump, in combination, an annular discharge-chamber, an annular throatway having its outer wall disposed tangentially to the circular wall of the discharge-chamber, its inner wall divergent relatively to said outer wall of the throatway in the direction of discharge, an impeller with inclined vanes, running in alinement with the entrance to said throatway, and forwardly-inclined diffusing-vanes in said throatway, curved from the inclined toward the radial position, to gradually arrest the circular tendency of the current of discharge, substantially as specified.

5. In a turbine-pump, an incased impeller provided with interior impelling-vanes backwardly inclined with reference to the direction of motion, in combination with fixed diffusing-vanes curved forwardly and outwardly from the impeller zone whereby any circular motion of the outflowing water is gradually changed as it enters the discharge-chamber.

786,385. **TRIANGLE CLASP.** MOSES L. ROTHSCHILD, New York, N. Y. Filed June 15, 1904. Serial No. 212,704.



Claim.—1. In a clasp of the kind described, the combination with a base bearing a socket, of a connecting hook member having means for attaching a web and formed of sheet metal with a cylindrical stud stamped therefrom, and a sheet-metal flanged washer pivotally mounted on said stud.

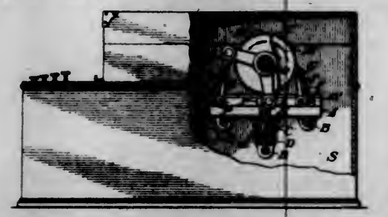
2. In a clasp of the kind described, the combination with a base containing a socket, of a connecting hook member bearing a stud punched therefrom having its end turned over, and a thin flanged washer pivotally mounted on said stud at said turned-over end.

3. In a clasp of the kind described, the combination with a base having a socket, of a connecting hook member having a hole punched therethrough, and an eyelet-washer rotatably secured in said hole and having a flaring and outwardly-disposed annular flange for the engagement of the socket before mentioned.

4. In a clasp of the kind described, the combination with a base having a socket, of a hook member formed of sheet metal with means for the attachment of a web and having a hole punched therein with its edges deflected to form a stud, an eyelet pivotally attached to said stud and bearing an outwardly-disposed edge or flange for the engagement of the socket of the clasp.

5. In a clasp of the kind described, the combination with a suitable base having a socket, of a hook member to engage the base, the hook member comprising a head bearing a projecting cylindrical stud, and an eyelet engaged by the stud of the hook and bearing a flange for connection with the socket and means whereby the hook member and flange are pivotally connected.

786,386. **FULL-STROKE MECHANISM.** BYRON T. SEELYE, Chicago, Ill. Filed Aug. 12, 1903. Serial No. 169,342.



Claim.—In a full-stroke mechanism, the combination of a channeled bed-plate, a pawl-carrier, pawls mounted on said pawl-carrier, springs acting against said pawls, a laterally-projecting stud on the pawl-carrier, a spring-actuated plunger-bolt having a wedge-shaped end engaging with the stud on the pawl-carrier, an oscillative shaft, right-hand and left-hand ratchet-wheels secured on said shaft and engaged by said pawls, and radial arms secured on said shaft and having studs engaging with the stud on said pawl-carrier, as set forth.

786,387. **BEARING.** HERBERT M. SMITH, Great Barrington, Mass., assignor to Stanley Instrument Company, Great Barrington, Mass., a Corporation of Massachusetts. Filed May 2, 1904. Serial No. 205,927.



Claim.—1. In a thrust-bearing, the combination of a support and a revolving shaft consisting of a main portion, a second portion having both a pinion and a wearing-surface one of said portions having a projection entering a recess in the other and a spring interposed between said portions, said wearing-surface engaging said support and a gear meshing with said pinion.

2. In a thrust-bearing, the combination of a support and a revolving shaft consisting of a main portion, a second portion having a wearing-surface one of said portions having a projection entering a recess in the other and a spring interposed between said portions, said wearing-surface engaging said support, said second portion carrying a pinion and gearing engaged by said pinion.

3. In a thrust-bearing the combination of a vertical revolving shaft, a bearing for the end thereof having a curved surface and means for moving the bearing so as to present new wearing-surfaces to said end.

4. In a thrust-bearing the combination of a vertical revolving shaft, a support for the end thereof having a concave surface and means for revolving the support on an axis different from that of the shaft.

5. In a thrust-bearing the combination of a vertical revolving shaft, a support for the end thereof having an endless concave surface and means for revolving the support on an axis different from that of the shaft.

6. In a thrust-bearing the combination of a vertical revolving shaft, a support for the end thereof having a concave surface and means for presenting different parts thereof to said shaft, said parts lying in a curved line.

7. The combination of a revolving shaft, a support therefor having a curved surface and means for presenting different parts thereof to said shaft, said parts lying in a curved line located in a plane inclined to the axis of said shaft.

8. The combination of a vertical revolving shaft, a cup-shaped support therefor and means for moving the same so as to present new surfaces to said shaft.

9. The combination of a vertical revolving shaft, a cup-shaped support therefor and means for rotating the same about an axis differing from the axis of said shaft.

10. The combination of a revolving shaft, a support therefor having a cup-shaped wearing-surface and means for rotating the same about an axis inclined to the axis of said shaft.

11. The combination of a vertical revolving shaft, a support therefor having an extended surface and means for moving said support so as to present new wearing-surfaces to said shaft, said means being actuated by said shaft.

12. The combination of a revolving shaft, a support therefor having an endless curved surface and means for moving said support so as to present different parts of said surface to said shaft, said means being actuated by said shaft.

13. The combination of a revolving shaft and a ball movable relatively thereto, the same constituting a shaft and a support therefor having an extended surface engaging with said ball and means for moving said support so as to present new wearing-surfaces on said support to said ball.

14. The combination of a rotating shaft, a support for said shaft having an extended surface, means for moving said support so as to present new wearing-surfaces to said shaft and a spring interposed between the main part of said shaft and the portion engaging with said wearing-surface.

15. A revolving-jewel meter-bearing consisting of a shaft, a support for said shaft having an extended surface revoluble about an axis other than that of said shaft, a train driven by said shaft and means driven by said train for moving said surface so as to present new parts thereof to the end of said shaft.

16. A revolving-jewel meter-bearing consisting of the combination of a jewel adapted to revolve about an axis, a vertical shaft supported thereby and revolving on an axis out of alinement with said jewel-axis.

17. A revolving-jewel meter-bearing consisting of the combination of a jewel adapted to revolve about an axis, a vertical shaft supported thereby and revolving on an axis out of alinement with said jewel-axis, and means for continuously revolving said jewel.

18. A revolving-jewel meter-bearing consisting of a jewel adapted to revolve about an axis, a vertical shaft supported by end contact with said jewel at a point eccentric to said axis, and means for revolving said jewel.

19. A revolving-jewel meter-bearing consisting of a jewel adapted to revolve on an axis, a shaft supported by end contact with said jewel at a point eccentric to said jewel-axis and adapted to revolve about an axis inclined to said jewel-axis.

20. A revolving-jewel meter-bearing consisting of a jewel having a curved surface and adapted to revolve about an axis, a vertical shaft supported by end contact with said jewel at a point eccentric with said axis, and means for revolving said jewel.

21. A revolving-jewel meter-bearing having a cup-shaped surface and consisting of a jewel adapted to revolve on an axis, a shaft supported by end contact with said jewel at a point eccentric to said jewel-axis and adapted to revolve about an axis inclined to said jewel-axis.

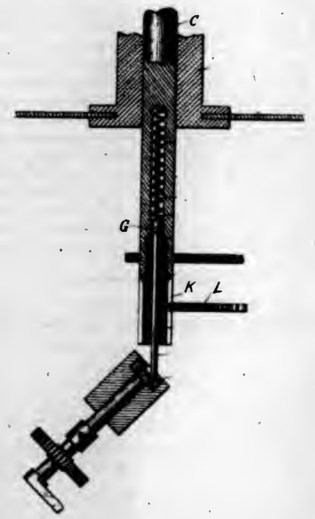
786,388. **SPRING SUPPORT-PIVOT.** HERBERT M. SMITH, Great Barrington, Mass., assignor to Stanley Instrument Company, Great Barrington, Mass., a Corporation of Massachusetts. Filed Sept. 6, 1904. Serial No. 223,393.

Claim.—1. In a spring-pivot, the combination of a shaft having a central bore, a spring therein, and a pivot engaging with said spring.

2. In combination a rotating shaft having a hollow bore, a pivot extending loosely into said bore, a spring forming a yielding bearing for said pivot, and a stop for limiting the upward movement of said pivot.

3. In combination a rotating shaft having a hollow bore, a pivot extending loosely into said bore, a spring forming a yielding bearing for said pivot, and means for limiting the upward and downward movements of said pivot.

4. In a spring-pivot the combination of a shaft having a central bore, a spring therein, a pivot with an enlarged head and a reduced shank engaging with said spring, said shank being surrounded by a device closing said bore.



5. In a pivot-bearing the combination of a vertical shaft having an internal bore, a spring therein, a pivot having its upper end engaged by said spring and a stop for said pivot located between the body of said pivot and the inner end of said bore and surrounded by said spring.

6. In a pivot-bearing the combination of a shaft having an internal bore therein, a spring in said bore, a pivot having an enlarged head and a reduced shank engaging with said spring, a device closing said bore and surrounding said reduced shank and a stop located between the head of said pivot and the inner end of said bore.

7. In a pivot-bearing, the combination of a revolving shaft and a pinion removably secured thereto, and a pivot passing loosely therethrough.

8. In a pivot-bearing, the combination of a revolving shaft having a hollow bore, a pivot fitting therein, a spring acting on said pivot and a pinion surrounding said pivot and detachably secured to said shaft.

9. In a pivot-bearing, the combination of a revolving shaft having a hollow bore, a pivot fitting therein, a spring acting on said pivot and a pinion loosely surrounding said pivot and detachably secured to said shaft.

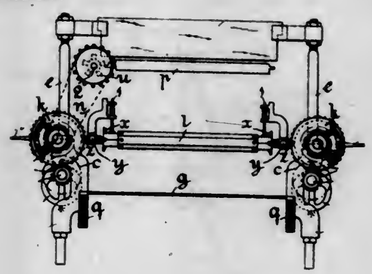
10. In a pivot-bearing, the combination of a shaft having a hollow bore, a spring therein, a pivot engaging with said spring, said pivot having an enlarged head and a reduced shank, means for closing the mouth of said bore, said means having gear-teeth on the outside thereof and formed integral therewith, and a gear engaging said gear-teeth.

11. In a pivot-bearing, the combination of a revolving shaft having a hollow bore, a spring therein, a pivot engaging with said spring, said pivot having an enlarged head and a reduced shank, a device closing the mouth of said bore and surrounding said shank, a revolving jewel supporting the lower end of said pivot, and a gear-train actuated by teeth formed upon said closing device.

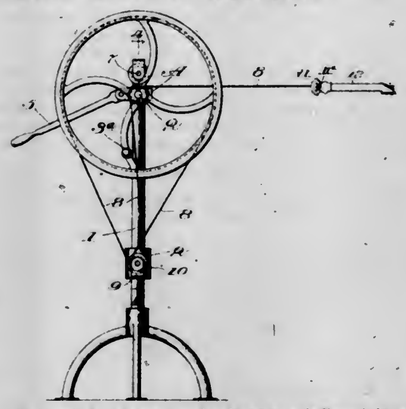
786,389. **DAMASK JACQUARD LOOM.** FRITZ A. STERNER, Abo, Russia. Filed Feb. 27, 1903. Serial No. 145,313.

Claim.—In a damask Jacquard loom, provided with as many hooks or wires to every needle as it is desired to have threads to a warp unit, the combination of rotatable lifting-blades 6, between said hooks, said blades being provided with taps 9, a cylinder or other rotating element 3 provided with grooves 5 with which said taps engage in order to cause the lifting-blades to engage the hooks and to operate them in a given order, substantially as described.

786,389.



786,390. **HAND-DIRECTED TOOL, &c.** JOHN K. STEWART, Chicago, Ill. Filed June 4, 1904. Serial No. 211,124.



Claim.—1. In an apparatus for the purpose indicated, in combination with the tool-handle, a pulley journaled therein; a driving-cord running about such pulley; a pulley-block connected to such handle at a pivot whose axis is located in the plane of travel of the cord about the pulley in the handle; guide-pulleys for the respective plies of the cord mounted in such pulley-block, and means for actuating the cord and taking up its slack.

2. In an apparatus for the purpose indicated, in combination with the tool-handle, a grooved pulley therein; an endless cord passing about such pulley; a power-communicating wheel for driving the cord; a standard on which the bearing of said wheel is swiveled with capacity for oscillation about a vertical axis; guide-pulleys for the cord mounted on such swiveled bearing; a weight vertically guided on the standard, and cord-guide pulleys mounted on such weight, the two plies of the cord extending from the drive-wheel about the last-mentioned guide-pulleys, and thence about the first-mentioned guide-pulleys, and thence to the handle.

3. In an apparatus for the purpose indicated, in combination with the tool-handle, a pulley therein; an endless driving-cord passing about such pulley; a power-communicating wheel for driving such cord; a standard; a bearing for the driving-wheel swiveled about a vertical axis on such standard; guide-pulleys for the cord carried by said swiveled bearing; a weight mounted about the swivel-axis of said swivel-bearing in the standard free to move vertically and turn about such axis, and cord-guide pulleys mounted on such weight, the cord being extended from the drive-wheel around the last-mentioned guide-pulleys, and thence to the first-mentioned guide-pulleys, and thence to the handle.

786,391. **WINDOW SCREEN AND VENTILATOR.** JULIUS TISCH and EMIL TISCH, Grand Rapids, Mich. Filed May 23, 1904. Serial No. 209,371.

Claim.—1. In a window screen and ventilator, a slat, a triangular supporting-web and base, and a cap projecting down and outward from the top of the slat toward the back of the lower edge

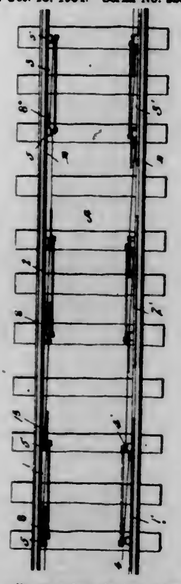
of the next slat above it, substantially as and for the purpose set forth.



2. In a window screen and ventilator, metal supporting-strips, triangular webs projecting back therefrom, a base thereon, a cap secured to the strips and projecting forward less than the width of the lower end of the web and inclined down, said cap being grooved at the back, and a glass slat supported in said groove and the metal supporting-strips, substantially as and for the purpose set forth.

3. In a window screen and ventilator, metallic supporting-strips, triangular webs projecting back from said strips and terminating in perforated bases, and glass panels secured in said strips, with a cap projecting forward and downward less than the width of the lower end of the web, substantially as and for the purpose set forth.

786,392. **RAILWAY SAFETY APPLIANCE.** JOHN L. WALL, Newton, Kans. Filed Oct. 13, 1904. Serial No. 228,278.



Claim.—1. In a railway safety device, a bar having a plurality of pivot-bearings, a lever-arm to each pivot, springs connected to said lever-arms and a bar connecting said lever-arms in pairs; and a pivoted hook having an arm connected to one or more of said lever-arms, whereby with the depression of said pivoted bar the hook may be raised.

2. In a railway safety appliance, a series of depressible bars each having a pair of pivoted bearings a lever-arm connected to each bearing, a bar connecting said arms in pairs, and a series of pivoted hooks having an arm connected to said lever-arms and adapted to be raised by the depression of said depressible bars.

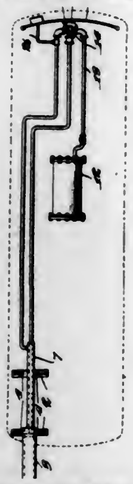
3. The combination with a locomotive provided with a lever, of a series of depressible bars located in the railway-track each having a pair of pivoted bearings, a lever-arm connected to each bearing, a bar connecting said arms in pairs, and a series of pivoted hooks in the path of movement of the locomotive-lever having an arm connected to said lever-arms and adapted to be raised by the depression of said depressible bars.

4. In a railway safety appliance a series of depressible bars having a plurality of pivoted bearings, a lever-arm connected and forming part of said pivoted bearings, springs connected to said lever-arms, a bar connecting said lever-arms in pairs, and pivoted hooks having an arm connected to said lever-arms, whereby with the depression of said depressible bars the hooks are raised.

5. In a railway safety appliance a series of depressible bars located parallel with the rails of and inside the track, lever-arms having a crank portion forming pivots for said bars, springs connected to said lever-arms, pivoted hooks connected to said lever-arms, and means for depressing said bars to raise the hooks.

6. In a railway safety appliance, a bar having a plurality of pivot-bearings, lever-arms having a crank portion forming pivots in said bearings, springs connected to the lever-arms, a bar connecting said arms, a pivoted hook having an arm connected to one or more of said lever-arms and means for depressing said bar to raise the hooks.

786,393. **STREET-CAR SAFETY-GUARD.** CHARLES A. WILLARD, St. Louis, Mo. Filed June 20, 1904. Serial No. 213,372.



Claim.—1. In a car safety-guard, the combination with a fixed member, of a relatively movable member adapted for movement to an obstructing or unobstructing position, and means for introducing a fluid under pressure between the members for moving the movable member to ether of said positions.

2. In a car safety-guard, the combination with a movable cylinder adapted for movement to an obstructing or unobstructing position, of a relatively fixed piston-head disposed within the cylinder, and meaos for introducing a fluid under pressure upon opposite sides of the piston-head for moving the cylinder to either of said positions.

3. In a car safety-guard, the combination with a fixed member, of a relatively movable member adapted for movement to an obstructing or non-obstructing position, one of said members being tubular and the other having a head disposed within the tubular member, and means for introducing a fluid under pressure into the tubular member upon opposite sides of the head for moving the movable member to either of said positions.

4. In a car safety-guard, the combination with a movable cylinder adapted for movement to an obstructing or unobstructing position, of a relatively fixed piston-head disposed within the cylinder, a piston-rod connected to said head, and a pair of ducts leading through the rod and communicating with the cylinder respectively on opposite sides of the head.

5. In a car safety-guard, the combination with a cylinder, of a piston-head disposed within the latter, one of said members being movable relatively to the other to an obstructing or unobstructing position, a piston-rod connected to said head, a pair of ducts leading through the piston-rod and communicating with the cylinder respectively on opposite sides of the head, and means for admitting a fluid under pressure to either of said ducts.

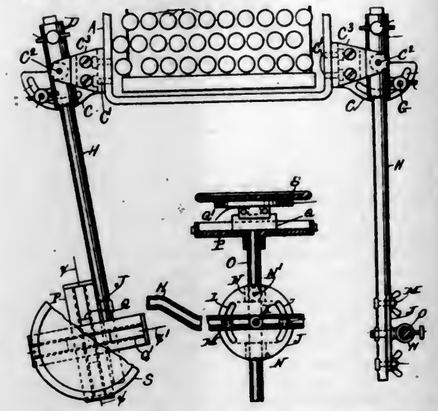
6. In a car safety-guard, the combination with a cylinder, of a piston-head disposed within the cylinder, one of said members being movable relative to the other to an obstructing or unobstructing position, a piston-rod connected to said head, a pair of ducts leading through the piston-rod and communicating with the cylinder respectively on opposite sides of the head, a supply-tank containing a fluid under pressure, and means for establishing communication between the tank and either of the ducts at will.

7. The combination with a car, of a guard carried thereby and movable to an obstructing or unobstructing position, a signal, and means for moving the guard and simultaneously actuating the signal.

8. The combination with a car, of a guard adapted to be projected in the rear thereof, a signal disposed at the front of the car for notifying an approaching car of the position of the guard, and means for simultaneously projecting the guard and actuating the signal.

9. The combination with a car, of a movable guard adapted to project from the rear of the car, a signal including a movable target or shield disposed at the front of the car for notifying approaching cars of the position of the guard, and means for simultaneously supplying a fluid under pressure for actuating the guard and target.

786,394. **TYPE-WRITING MACHINE.** GEORGE R. YOUNG, Ridgewood, N. J. Filed May 12, 1903. Serial No. 156,812.



Claim.—1. In a type-writing machine, the combination of a rod journaled thereto, an arm-support carried on the rod, and means to move the arm-support parallel to and at right angles to the said rod.

2. The combination in a type-writing machine, of a barrel journaled thereto, a rod adjustably clamped in the barrel, means to clamp the barrel in various operative positions, an adjustable bracket clamped to the free end of the rod, a sleeve on the said bracket, a spindle adjustably clamped in the sleeve, a guide carried on the spindle, a cross-head arranged to slide in the guide, a second guide carried on the cross-head, a plate arranged to slide in the second guide, and an arm-support carried on the plate.

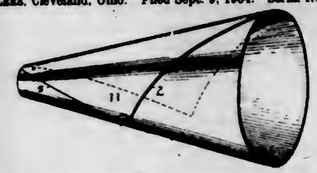
3. In a type-writing machine the combination of a bracket extending therefrom, a barrel journaled to the bracket, means to secure the barrel in different positions on the bracket, a rod clamped in the barrel, an arm-support carried by the rod, means to move the support parallel to and at right angles to the rod.

4. In a type-writing machine the combination of a bracket, trunnions on the bracket, a barrel supported on the trunnions, a sleeve extending from the barrel, a bolt arranged to clamp the sleeve to the bracket through an opening in the bracket, a rod extending from the barrel, and an arm-support carried on the rod.

5. In a type-writing machine the combination of a rod journaled thereto, a wheel having annular openings journaled to the rod, bolts connecting the wheel and the rod through the said annular openings, sleeves on the wheel, a vertical spindle passing through the sleeves on the wheel, a set-screw clamping the vertical spindle through one of the sleeves, and an arm-support carried by the vertical spindle.

6. In a type-writing machine the combination of brackets bolted thereto, a barrel journaled in each bracket, a rod adjustably secured in each barrel, means to hold the rod in different angular positions, an arm-support adjustably held at one end of the rod, and means to raise and lower said support.

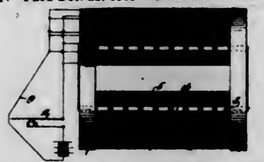
786,395. **FOLDING TRUMPET OR MEGAPHONE.** CLAUDE M. ZELLERS, Cleveland, Ohio. Filed Sept. 9, 1904. Serial No. 223,828.



Claim.—1. In megaphones or trumpets, a blank of flexible material having parallel side edges and an outwardly-curved edge at one end and an inwardly-curved edge at the opposite end of less length of curvature than said outwardly-curved edge and providing angular-shaped portions at each side adapted to overlap and brace the tube centrally when folded, and fastening means at each side at the outer and lower ends of the blank and at the outer overlapping portion to hold the blank in trumpet form when folded.

2. A foldable trumpet or megaphone consisting wholly of a sheet or blank of flexible material, like heavy paper or cardboard, and formed with ends 3 and 4 curved on different arcs and edges 2 and 5, respectively, at each side providing angular-shaped side portions 10 and 11 adapted to overlap centrally between the ends when rolled in trumpet form, loops and tongues secured separately at opposite sides and upon the opposite faces of said blank at one end, loops and hooks secured separately at opposite sides and upon the opposite faces of said blank at the other end, and means to separably engage the outer overlapping side portion on the body of the roll.

786,396. **INDUCTION-COIL.** CHARLES ADAMS-RANDALL, New York, N. Y. Filed Dec. 22, 1903. Serial No. 186,253.



Claim.—1. An induction-coil provided with a core which consists of an iron tube provided throughout with perforations.

2. An induction-coil provided with a core in the form of an iron tube split longitudinally and provided with perforations substantially as set forth.

3. An induction-coil provided with a core having a tubular cage-like form.

4. An induction-coil provided with a core having a tubular cage-like form, and also with heads to which the ends of said core are attached.

5. An induction-coil provided with a core of iron, said core being in the form of a split tube from which sufficient metal is removed to give it the form of a cage.

6. An induction-coil having a single core in the form of a tube, which incloses a primary winding and is also inclosed by a primary winding adjacent thereto, the latter being inclosed by a single secondary coil.

7. An induction-coil having a single core in the form of a tube, which incloses a primary coil and is also inclosed by a primary coil adjacent thereto, the latter being inclosed by a single secondary coil; said primary coils having approximately equal resistances.

8. An induction-coil having a core in the form of a split tube, which incloses a primary winding and is inclosed by a primary winding adjacent thereto; the latter being inclosed by a secondary coil.

9. An induction-coil provided with a core in the form of an iron tube provided throughout with perforations, which tube incloses a primary winding.

10. An induction-coil provided with a core in the form of an iron tube split longitudinally and provided throughout with perforations, which tube incloses a primary winding.

11. An induction-coil provided with a core having tubular cage-like form and inclosing a primary winding.

12. An induction-coil provided with a core of iron, in the form of a split tube, from which sufficient metal is removed to give it the form of a cage; said core inclosing a primary winding, and being inclosed by a primary winding, and the latter being inclosed by a secondary winding.

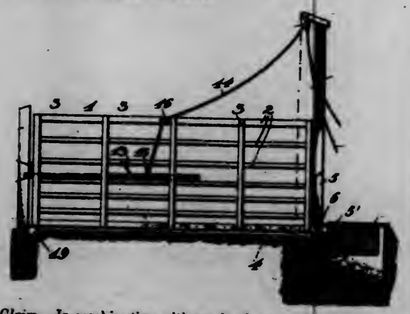
13. An induction-coil provided with a core in the form of a tube from which metal is removed to give it the form of a cage, said core inclosing a primary coil and being inclosed by a primary coil, and the latter being inclosed by a secondary coil; said primary coils having approximately equal resistances.

14. An induction-coil having a single core in the form of a tube, which incloses a primary coil and is also inclosed by a second primary coil adjacent thereto, the latter being inclosed by a single secondary coil, and a third primary coil being wound over said secondary coil.

15. An induction-coil having a core in the form of a tube split longitudinally, said tube inclosing a primary coil and being inclosed by a second primary coil adjacent thereto, the latter being inclosed by a secondary coil, and a third primary coil being wound over said secondary coil; said primary coils having approximately equal resistances.

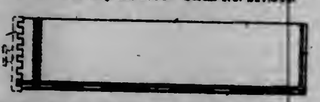
16. An induction-coil having a core in the form of a tube split longitudinally and provided with perforations, said tube inclosing a primary coil and being inclosed by a second primary coil, the latter being inclosed by a secondary coil, and a third primary coil being wound over said secondary coil.

786,397. TILTING GATE. HARM AHLRICHS, Petersburg, Ill. Filed Jan. 12, 1905. Serial No. 240,796.



Claim.—In combination with a pair of supporting-posts, spaced apart, and each having at its upper end an arm and a pulley carried thereby, a latch-post, a gate having at its inner, lower end a pair of bars secured to opposite sides thereof and projecting rearwardly therethrough, said bars being pivotally mounted between the lower portions of said supporting-posts, to adapt the gate for vertical angular movement, a counterbalancing-weight carried by the rearwardly-extending arms of the said bars, a latch-bar carried and guided by the gate, a swinging link carried by the gate and suspending the latch-bar, and operating-cords to raise the gate, engaging the said pulleys and attached to the said latch-bar to move the latter longitudinally to release position to raise the gate.

786,398. KNOCKDOWN DRAWER. FRANK O. ANDERSON, Jamestown, N. Y. Filed July 21, 1904. Serial No. 217,544.



Claim.—1. The combination in a folding drawer, of a suitable drawer-front, drawer ends attached to the said front having hinges therein to fold inwardly, and a drawer bottom and back slidably mounted in suitable supporting-grooves in said ends.

2. The combination in a folding drawer, of a suitable drawer-front, drawer-ends attached to the said front and having a tongue-and-grooved bisection in each end and pins passing through said intersecting tongues and grooves to form hinges to fold the rear part of the drawer end inwardly, and a drawer bottom and back slidably mounted in suitable supporting-grooves in said drawer ends.

3. The combination in a folding drawer, of a drawer-front, drawer ends having hinges therein to fold inwardly, a drawer-back having dovetail-shaped ends and opposite dovetail-shaped grooves in the drawer ends to slidably receive said drawer-back, and a drawer-bottom slidably mounted in a supporting-groove in said end.

4. The combination in a folding drawer, of a drawer-front, drawer ends attached thereto having hinges therein to fold inwardly, a drawer back and bottom slidably mounted in suitable supporting-grooves in said ends, a projection on said drawer-bottom, and the drawer-back provided with an opening for said locking projection.

5. The combination in a folding drawer, a drawer-front 13, drawer ends 10 dovetailed to the front 13 and having a tongue-and-grooved bisecting hinge 22 with pivot-pin 23 and angular ends 24, a drawer-back 16 having dovetail-shaped ends 17 to slidably engage opposite dovetail-shaped grooves 15 in drawer ends 10, and a drawer-bottom 18 having a projection 20 to engage a locking-slot 21 in drawer-back 16, substantially as and for the purpose specified.

786,399. PULL-WHEEL FOR OPERATING WELL-PUMPS. JOSEPH D. ANDERSON, St. Marys, Ohio. Filed June 9, 1903. Serial No. 160,672.



Claim.—1. A pull-wheel structure comprising a vertical tapering spindle, a tapering sleeve fitted and adapted to rotate thereon and having its outer surface squared, a pull-wheel having its rim and spokes and hub cast integral, the hub being divided diagonally and having a square tapering socket adapted to fit down upon the sleeve, clamping-bolts connecting the divided parts to secure the hub removably to the sleeve, means for connecting an operating-pitman to the wheel, and arms attached to the wheel for connection to the pump-operating rods.

2. In a pull-wheel structure, the combination of a supporting-plate provided with an upward-extending vertical spindle and an annular flange surrounding the same and forming therewith an oil-cup, a sleeve journaled on said vertical spindle and having its lower end working in said oil-cup, said sleeve being angular in cross-section, and a pull-wheel mounted on said sleeve, the socket in the hub of the pull-wheel being angular and fitting tightly down over the sleeve and said pull-wheel carrying means for attachment to a motor and to the pump-operating rods.

3. A pull-wheel structure, comprising a base-plate carrying an upright spindle and provided on its under side with a series of depending lugs or wings, a wheel mounted on said spindle, an anchoring-plate below the base-plate, and vertical bolts connecting the anchoring-plate to the base-plate.

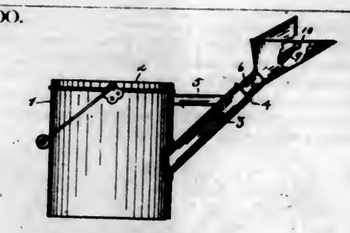
4. A pull-wheel structure comprising a support, a vertical spindle, a sleeve journaled thereon and having its exterior angular in cross-section, and a pull-wheel mounted on said sleeve, the socket in the hub of the pull-wheel being square and fitting tightly down over the sleeve and said pull-wheel carrying means for attachment to a motor and to the pump-operating rods.

5. In a pull-wheel structure, the combination of a support, a vertical spindle tapering upward, a sleeve journaled thereon, and this spindle having its interior tapered to fit the sleeve and being rectangular in cross-section, and a pull-wheel carrying means for attachment to the pump-rods and to the operating-motor and having the socket of its hub made rectangular to fit down upon and bind tightly on the rectangular exterior of said sleeve.

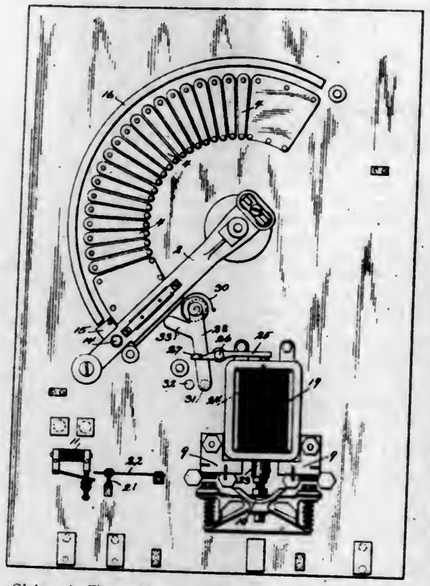
786,400. SANITARY MILK-PAIL. LEANDER BARNABAS, Albany, N. Y. Filed Mar. 12, 1904. Renewed Mar. 6, 1905. Serial No. 248,392.

Claim.—In a milk or other pail a spout composed of a plurality of sections arranged telescopically and removably and attached to the side wall of the pail and emptying into it at a point at or below its vertical center, one of said spout-sections having a flaring open mouth, the mouth or opening lying in a horizontal plane and partly covered by an upwardly-flared hood, the mouth having an inclined, removable, cone-shaped strainer set therein and arranged so that when in its normal position the streams of milk projected therein in the act of milking an animal will not impinge on the strainer at right angles substantially as described.

786,400.



786,401. CONTROLLER FOR ELECTRIC MOTORS. THOMAS E. BARNUM, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Jan. 31, 1902. Serial No. 92,009.



Claim.—1. The combination with a motor, of a controlling mechanism therefor, a magnetically-operated switch controlling the continuity of the motor-circuit, means for preventing the operation of said switch when the movable element of said mechanism is in certain predetermined positions, said means being rendered effective independently of said movable element to prevent the operation of said switch.

2. The combination with a motor, of a controlling mechanism therefor, a magnetically-operated switch controlling the continuity of the motor-circuit, means for preventing the operation of said switch when the movable element of said controlling mechanism is in certain predetermined positions, and a switching device for placing the first-mentioned means out of operative relation with said switch when said movable element is in its initial position and operated independently of said movable element to place said means in operative relation with said switch when said movable element is moved from its initial position.

3. The combination with a motor, of a controlling mechanism therefor, a magnetically-operated switch controlling the continuity of the motor-circuit, means for preventing the operation of said switch when the movable element of said mechanism is in certain predetermined positions, a switching device operated independently of said movable element to place said means in operative relation with the operating-magnet of said switch, and a mechanical connection by which said switching device is operated to place said means out of operative relation with the operating-magnet of said switch when said movable element is moved from said predetermined positions.

4. The combination with a motor, of a controlling mechanism therefor, a magnetically-operated switch controlling the continuity of the motor-circuit, means for preventing the operation of said switch when the movable element of said mechanism is in certain predetermined positions, said means being rendered effective independently of said movable element to prevent the operation of said switch, and means for actuating said switch from a distant point to open the motor-circuit.

5. The combination with a motor, of a controlling mechanism therefor, a switch controlling the continuity of the motor-circuit and having a suitable operating-magnet, means for preventing the operation of said switch when the movable element of said mechanism is in certain predetermined positions, said means being rendered effective by said magnet independently of said movable element to prevent the operation of said switch, and a switch for opening the circuit of said motor from a distant point.

6. The combination with a motor, of a rheostat therefor, a switch controlling the continuity of the motor-circuit and having an operating-magnet arranged in a circuit which is closed when the resistance-varying element of said rheostat is moved from its initial position, means for preventing the operation of said switch, and a switching device controlled by the resistance-varying element to place said means out of operative relation with said switch and operated independently of said resistance-varying element when said resistance-varying element is moved from its initial position to place said means in operative relation with said switch.

7. The combination with a motor, of a rheostat therefor, a switch controlling the continuity of the motor-circuit, and having an operating-magnet arranged in a circuit which is closed when the resistance-varying element of said rheostat is moved from its initial position, means for preventing the operation of said switch, a switching device controlled by the resistance-varying element to place said means out of operative relation with said switch and operated independently of said resistance-varying element when said resistance-varying element is moved from its initial position to place said means in operative relation with said switch, and a switch for opening the circuit of said magnet from a distant point.

8. The combination with a motor, of a rheostat therefor, a magnetically-operated switch controlling the continuity of the motor-circuit, means for reducing the current traversing the operating-magnet of said switch, a switching device operated by the closure of said switch to render said means effective while the movable element of said rheostat is removed from the initial position thereof.

9. In combination with a motor, of a rheostat therefor, a magnetically-operated switch, a resistance arranged in the circuit of the operating-magnet of said switch, a shunt extending around said resistance, a switch closing said shunt while the movable element of the rheostat remains in the initial position thereof and operated by the closure of the motor-switch to open said shunt while said movable element is removed from the initial position thereof.

10. In combination, a motor, a rheostat therefor, a magnetically-operated switch controlling the continuity of the motor-circuit and having the circuit of the operating-magnet therefor closed when the movable element of said rheostat is moved from the initial position thereof, a resistance arranged in series with said operating-magnet, a shunt extending around said resistance, a switch controlling said shunt, a mechanical connection between said shunt-switch and the movable element of said rheostat to close said switch while said movable element remains in the initial position thereof, and means actuated by said motor-switch to open said shunt-switch when said movable element is moved from the initial position thereof.

11. In combination, a motor, a rheostat therefor, a magnetically-operated switch controlling the continuity of the motor-circuit and having the circuit of the operating-magnet therefor closed when the movable element of the rheostat is moved from the initial position thereof, a resistance in series with said operating-magnet, a shunt extending around said resistance, a switch controlling said shunt, a latch retaining said shunt-switch in the closed position thereof, means for operating said latch to release said shunt-switch when the motor-switch closes, means for opening said shunt-switch, and a mechanical connection between said shunt-switch and said movable element for closing said shunt-switch when the movable element of the rheostat is returned to the initial position thereof.

12. The combination with a motor, of a rheostat therefor having a movable arm, a magnet controlling the motor-circuit, a resistance adapted to be thrown into the circuit of said magnet when it is energized, and a switch for said resistance controlled by said arm in its initial position, substantially as described.

13. The combination with a motor, of a rheostat therefor having a movable arm, a magnet controlling the circuit of said motor, a resistance adapted to be connected in circuit of said magnet, and a

lever normally excluding said resistance from the magnet-circuit, the said magnet being adapted, when energized, to shift the said lever and to include resistance in the circuit, substantially as described.

14. The combination with a motor, of a rheostat therefor having a movable arm, a magnet controlling the circuit of the motor, a resistance adapted to be connected in the circuit of said magnet, a lever normally excluding said resistance from said circuit, said magnet being adapted when energized to shift said lever to include the same in the circuit, and the movable arm being adapted when returned to the initial position to return said lever to its normal position, substantially as described.

15. The combination with a motor, of a rheostat therefor having a movable arm, a solenoid controlling the circuit of the motor, a resistance adapted to be connected in the circuit of said solenoid, a lever normally excluding the said resistance from the said circuit, a latch holding the lever in its normal position, and a part carried by the core of the solenoid to release said latch when the solenoid is energized, and a part carried by the said lever with which the movable arm of said starting rheostat engaged when in initial position to return the lever to its normal position, substantially as described.

16. The combination with a motor, of a rheostat therefor having a movable arm, a magnet controlling the motor-circuit, a resistance adapted to be thrown into the circuit of said magnet when it is energized, a switch for said resistance controlled by said arm in its initial position, and a switch for opening said motor-circuit from a distant point independently of said rheostat.

17. The combination with a motor, of a rheostat therefor having a movable arm, a magnet controlling the motor-circuit, a resistance adapted to be thrown into the circuit of said magnet when it is energized, a switch for said resistance controlled by said arm in its initial position, a device for automatically controlling the continuity of the circuit of said motor, and a switch for opening the circuit of said motor from a distant point independently of said rheostat.

786,402. ATTACHMENT FOR DISH-CLEANING TABLES. ALPHA R. BEAL, Rochester, N. Y. Filed June 28, 1904. Serial No. 214,471.



Claim.—1. As an article of manufacture, a vertically-open shield adapted to coöperate with the scraping-opening of a dish-cleaning table, and a cushion carried by the upper end of the shield.

2. As an article of manufacture, a vertically-open shield adapted to coöperate with the scraping-opening of a dish-cleaning table, and a cushioning-ring at the upper end of the shield.

3. As an article of manufacture, a tubular block adapted to coöperate with the scraping-opening of a dish-cleaning table, the upper end of the block being recessed, and a cushion fitting the recess and projecting above the upper extremity of the block.

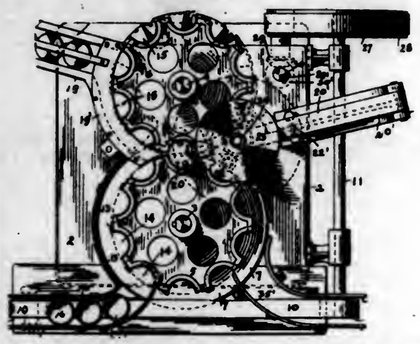
4. The combination of a dish-cleaning table having a scraping-opening, a vertically-open shield rising from the table above said opening, and a cushion carried by the upper end of the shield.

5. The combination of a table having a scraping-opening, a tubular block having its lower end reduced to enter the opening, the upper end of the block being recessed, and a cushion secured in said recess.

786,403. CAN-TOPPING MACHINE. HENRY C. BLACK, San Francisco, Cal. Filed Apr. 9, 1903. Serial No. 151,749.

Claim.—1. In a can-topping machine, the combination with the horizontally-disposed oppositely-operating carrier-wheels of stationary semicircular registering seats formed in the periphery of each carrier-wheel, means for imparting an intermittent movement to the carrier-wheels, devices for feeding can-tops and cans to the seats of the carrier-wheels, means whereby the can-tops and cans are held within their seats as the seats approach each other for registry, tongues or lugs projecting from the semicircular seats, which tongues or lugs fit within opposing sockets as the seats are brought into registry, and mechanism whereby the tops are forced onto the cans when the seats are in registry.

2. In a can-topping machine, the combination with a horizontally-disposed can-top carrier-wheel, of an opposing horizontally-disposed can-carrier wheel, of stationary registering seats formed in the periphery of said wheels for receiving and holding the can-tops and the cans to be topped, means whereby a step rotation is imparted to the said carrier-wheel, tongues or lugs projecting from each peripheral seat, which tongues or lugs fit within opposing sockets as the seats are brought into registry, a topping-arm arranged above the carrier-wheels, and means whereby the topping-arm is actuated to force the can-tops onto the open end of the cans as the seats of the carrier-wheels are brought into registry.



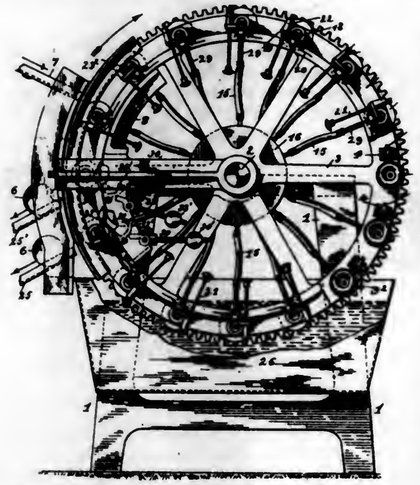
3. In a can-topping machine, the combination with the horizontally-disposed oppositely-operating carrier-wheels, of a series of stationary semicircular seats cut in the periphery of each carrier-wheel for the reception of can-tops and cans, feed-runways for delivering tops and cans to the carrier-wheels, device whereby the tops and the cans are held within their seats, tongues or lugs projecting from the semicircular seats of the wheels, which tongues or lugs fit within opposing sockets as the said seats are brought into registry, an endless conveyer for placing the cans onto a receiving-disk and removing the same therefrom after being topped, and mechanism whereby the tops are forced onto the cans when the retaining-seats of the carrier-wheels are in registry.

4. In a can-topping machine, the combination with the horizontally-disposed opposing carrier-wheels, of a series of stationary semicircular seats cut in the periphery of each carrier-wheel, means for feeding can-tops and cans to the seats of the carrier-wheels, tongues or lugs projecting from the periphery of each carrier-wheel, which tongues or lugs fit within opposing sockets of the carrier-wheels as the seats are brought into registry so as to completa the circle, and means whereby the tops are forced onto the open end of the cans when carrier-wheels seats stand in registry.

5. In a can-topping machine, the combination with a horizontally-rotatable non-vertically-movable support or receiving-disk for the cans to be topped, a can-runway for delivering the cans thereto, of means for changing the direction of travel of the cans to place the same upon the support or receiving-disk, a carrier for the cans, a series of stationary can-seats cut in the periphery of the said carrier, devices for holding the cans with their seats during the topping operation, mechanism whereby rotation is imparted to the support or receiving-disk and to the carrier, devices whereby the can-tops are placed immediately above the cans, and mechanism for forcing the said tops onto the open end of the cans.

786,404. CAN-TESTING APPARATUS. HENRY C. BLACK, San Francisco, Cal. Filed Oct. 12, 1903. Serial No. 176,723.

Claim.—1. In a can-tester, the combination of a can-carrier rotatable in a vertical plane, of a circumferential series of can-seats in the periphery thereof, of means for imparting rotation to the carrier, a chute or runway for delivering cans to be tested into the can-seats of the carrier, clamping mechanism within each can-seat, means for supplying air under pressure into the clamped cans through one of the clamps of the clamping mechanism, a crank for moving the opposing clamp toward and from the can, a roll carried by said crank, a trackway within which said roll travels during a portion of the carrier's rotation, outward and inward inclines in the upper portion of said trackway within which the roll works to control the movement of the said crank, a vertically-movable rod working through the cranks, a tester-tank disposed below the can-carrier and into which the carrier dips to submerge the clamped cans carried thereby, inclines in the lower portion of the trackway with which the lower end of the vertically-movable rod engages to release the clamped can in accordance as to whether the can tested is a leaky or a perfect can, and means for automatically ejecting the released can during movement of the can-carrier.



2. In a can-tester, the combination with the rotatable can-carrier, of a circumferential series of can-seats in the periphery thereof, of means for automatically clamping the cans to be tested within their seats, mechanism for supplying air under pressure to the interior of the clamped cans, a tester-tank disposed below the can-carrier and into which the same dips to submerge the cans carried thereby, devices for releasing the clamping means as carried from within the tester-tank, discharge-chutes for the leaky and perfect cans, and weight-actuated ejector means for automatically ejecting the released cans into their respective chutes in accordance as to whether the tested can is a leaky, or a perfect one.

3. The combination with the rotatable can-carrier, of a circumferential series of can-seats therein, means within the seats for clamping the cans to be tested, a tester-tank disposed below the carrier and into which the same dips to submerge the cans carried thereby, devices for automatically operating the clamp mechanism to clamp the cans to be tested and to release the cans after having been tested, discharge-chutes into which the tested cans are received, and weight-actuated means for forcibly ejecting the tested cans from within their seats.

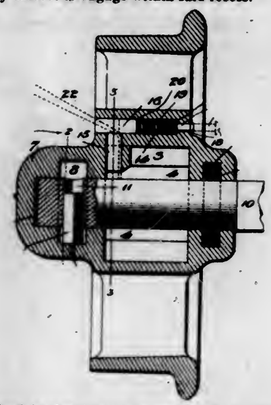
4. In a can-tester of the described character, the combination with a rotatable can-carrier, of a circumferential series of can-seats therein, a movable and a stationary can-clamp within each can-seat, an air-distributer, an air-supply pipe connected therewith, a disk rotatably mounted upon the air-distributer, a series of air-passages through the rotatable disk, said passages communicating successively with an outlet within the distributer for the air, a flexible-tube connection between each air-passage of the rotatable disk and the fixed clamp of each can-seat, each fixed clamp having a passage-way through which air is admitted into the clamped can, means for automatically actuating the movable can-clamp to clamp the can within its seat and release the same after having been tested, and devices for forcibly ejecting the tested can from within its seat.

786,405. TRAM-CAR WHEEL. GEORGE T. BOND, Birmingham, Ala. Filed Aug. 27, 1904. Serial No. 222,471.

Claim.—1. A wheel having an oil-chamber and annular recess independent thereof, combined with an axle having a transverse opening and a pin freely movable within said opening and adapted to be wholly confined within the same for the insertion of the axle and when the axle has been inserted to automatically protrude from said opening into said recess.

2. A wheel having an annular recess, and an axle having a transverse opening, and a pin freely rotatable within said opening and adapted to protrude beyond the periphery of the axle and into said recess.

3. A wheel having a rigid cap, with annular recess and socket for the reception of the end of the axle, combined with an axle having a transverse opening, and a pin freely movable longitudinally and rotatably within said opening and adapted to protrude beyond the periphery thereof to engage within said recess.



4. A wheel having its hub formed with an oil-chamber with communicating channels, and an annular recess independent of said oil-chamber, and with an opening at right angles to the length of the hub and communicating with said recess.

5. A car-wheel formed with rigid cap having socket and annular recess, said wheel having also its hub formed with an oil-chamber independent of said recess and means for introducing a lubricant into said chamber.

6. A wheel having an oil-chamber within its hub, an integral cap with annular recess independent of the oil-chamber, and a socket to receive the end of the axle, and an opening in the cap at right angles to the length of the hub and communicating with said recess.

7. A car-wheel formed with rigid cap having socket and annular recess, said wheel also having its hub formed with an oil-chamber independent of said recess and a surrounding web with openings, combined with an axle having a transverse opening, and a pin freely movable within said opening both longitudinally and rotatably and of a length to be confined wholly within said opening in the axle for the insertion of the latter into the hub, said web serving to so confine the pin, and the latter adapted to automatically protrude from the said opening into the recess when the recess and opening are coincident.

8. A metallic car-wheel having a hub with rigid cap formed with annular recess and a bearing for the axle upon opposite sides of said recess, combined with an axle having a transverse opening and a pin freely movable therein both longitudinally and axially.

9. A metallic car-wheel having a hub with annular web and integral cap with annular recess and opening through the wall of the cap at an angle to the length of the hub and in line with and communicating with said recess, combined with an axle having a transverse opening, and a pin rotatable within said opening and adapted to protrude therethrough into said recess.

786,406. FASTENING FOR SHOES, &c. JOSEPH J. BOYNTON, Princeton, Ky., assignor of one-fourth to Charles L. Smith, Princeton, Ky. Filed Apr. 25, 1904. Serial No. 204,831.



Claim.—1. A fastening of the class described comprising a pintle member and a knuckle member each formed of a single strip of metal doubled or folded upon itself, said members being provided, respectively, with an eyelet and with a guide connection for a lacing cord or string, substantially as described.

2. A fastening of the class described comprising a pintle member and a knuckle member each made of a strip of metal bent or folded upon itself, one of said members having a guide or connection for a lacing cord or string and the other having an opening, and an eyelet in the said opening for connecting the said member to an article to which it is adapted to be attached, substantially as described.

3. A fastening for lacing cords or strings comprising a slotted plate provided with a pintle, a second slotted plate provided with a knuckle engaging said pintle, a fastening device disposed in the slot

of one of said members, and a guide or connection for a lacing-cord disposed in the slot of the other member, substantially as described.

786,407. PIANO-ACTION. CHARLES W. BREWER, Racine, Wis. Filed July 15, 1904. Serial No. 216,714.



Claim.—1. In a piano-action the combination of a key, a pivoted hammer provided with a hammer-butt having a downward and forwardly curved surface, a hammer-actuating lever having a substantially circular head at its free end adapted to contact with the curved surface on the hammer-butt, whereby said parts will have a small point of contact during their movement, and an abstract interposed between the key and the hammer-actuating lever.

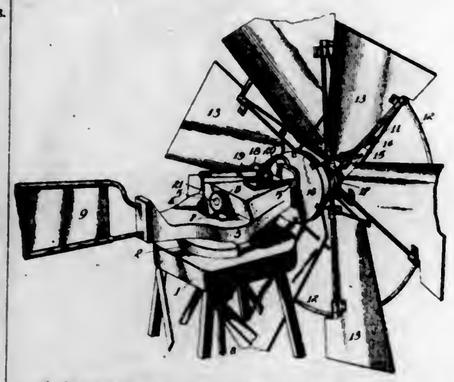
2. In a piano-action the combination of a key, a pivoted hammer provided with a hammer-butt having a downward and forwardly curved surface, a hammer-actuating lever having a substantially circular head at its free end adapted to contact with the curved surface on the hammer-butt, whereby said parts will have a slight contact during their movement, an abstract interposed between the key and the hammer-actuating lever, and means for normally holding the hammer-actuating lever and the hammer-butt in yielding contact.

3. In a piano-action the combination of a key, a pivoted hammer provided with a hammer-butt having a downward and forwardly curved surface, a hammer-actuating lever having a substantially circular head at its free end adapted to contact with the curved surface on the hammer-butt, whereby said parts will have a slight contact during their movement, an abstract interposed between the key and the hammer-actuating lever, and means for adjusting the hammer-actuating lever, toward and from the pivot of the hammer.

4. In a piano-action the combination of a key, a pivoted hammer provided with a hammer-butt having a downward and forwardly curved surface, a hammer-actuating lever having a substantially circular head at its free end adapted to contact with the curved surface on the hammer-butt, an abstract interposed between the key and the hammer-actuating lever, a damper-carrying lever, a damper-actuating lever formed with a substantially circular head, a convex cushion on the damper-carrying lever and adapted to be engaged by the substantially circular head of the damper-actuating lever, and means for operatively connecting the damper-actuating lever to the abstract.

786,408. WINDMILL. HENRY C. BURNETT, Fort Maginnis, Mont. Filed July 27, 1904. Serial No. 218,368.

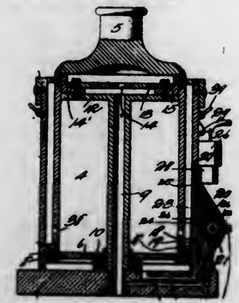
Claim.—1. In a wind-wheel, the combination with a wheel-shaft, of a head rigidly secured thereto, arms projecting from the rear of said head, brace-arms projecting from the front of said head, a ring connecting said arms and spacing them apart, baldes journaled on said rear arms, and means surrounding said shaft for normally keeping said blades in operative position.



2. In a wind-wheel, the combination with a wheel-shaft, of a head rigidly secured thereto, brace-arms projecting radially from the front of said head, arms projecting radially from the rear of said head, a ring connecting said arms and spacing them apart, blades journaled on said rear arms and projecting beyond said ring, and means for normally keeping them in operative position.

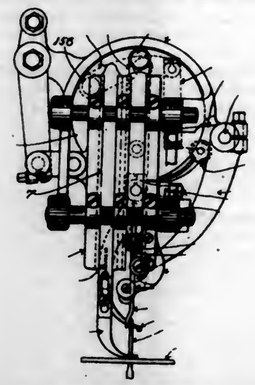
3. In a wind-wheel, the combination with a wheel-shaft, of a head rigidly secured thereto, brace-arms projecting radially from the front of said head, said arms being bent back upon themselves and forming other arms which are secured to the rear of said head, a ring connecting said arms and spacing them apart, blades journaled on said rear secured arms, a disk surrounding said shaft, a spiral spring surrounding said shaft between the head and the disk adapted to normally force the disk away from the head, rods connecting the disk with said blades, and a forked lever adapted to engage the disk to force it toward the head and thereby turn the blades.

786,409. PNEUMATIC JACK. CHARLES N. COON, Mattoon, Ill. Filed Mar. 19, 1903. Serial No. 148,615.



Claim.—A lifting-jack of the class described, comprising an outer cylinder having an opening in its upper head, a base closing its lower end, a hollow standard rising from the base and having a head at its upper end, the said cylinder being further provided with fluid-inlet passages, respectively communicating at its base with the bore of the said hollow standard and directly with the interior of the cylinder, said cylinder being further provided with a valve-casing having a tapered bore, a port 24 with which said fluid-passages communicate, and inlet and exhaust ports, a valve-plug in said bore, said plug having a longitudinal bore in one end, a channel leading thereto and adapted to communicate with the inlet-port of the casing, and ports to communicate with the port 24 and the exhaust-ports respectively, a check-valve in said bore of the valve-plug, between the inlet-channel thereof and the before-mentioned ports with which said valve-plug is provided, said valved plug controlling the fluid-passages of the cylinder, and a hollow piston in the cylinder projecting through the opening in the cylinder-head, spaced from the cylinder, having a base-flange engaging the cylinder and relief-openings in its sides, near its lower end, said hollow piston being internally engaged by the head of the hollow standard and being closed at its upper and lower ends, its closed lower end having an opening through which the hollow standard extends, substantially as described.

786,410. THREAD-CONTROLLING MECHANISM FOR SEWING-MACHINES. HENRY H. CUMMINGS, Malden, Mass., assignor, by mesne assignments, to Union Lock Stitch Company, Boston, Mass., a Corporation of Maine. Filed Sept. 21, 1903. Serial No. 173,969.



Claim.—1. In a sewing-machine, in combination, a hooked needle, a thread-finger, a rock-shaft with which the said thread-finger is connected, means to actuate the said rock-shaft and thread-finger, a looper, a support for said looper which is swiveled on said rock-shaft to turn around the same and on which support the looper is pivoted to swing transversely, and means engaging with said looper to cause it to describe the required path relative to the hooked needle.

2. In a sewing-machine, in combination, a hooked needle, a thread-finger, a rock-shaft with which the said thread-finger is connected, means to actuate the said rock-shaft and thread-finger, a looper, a support for said looper which is swiveled on said rock-shaft to turn around the same and on which support the looper is pivoted to move transversely, and a cam engaging with said looper and acting to impart thereto movement of which the components are in directions at right angles to each other.

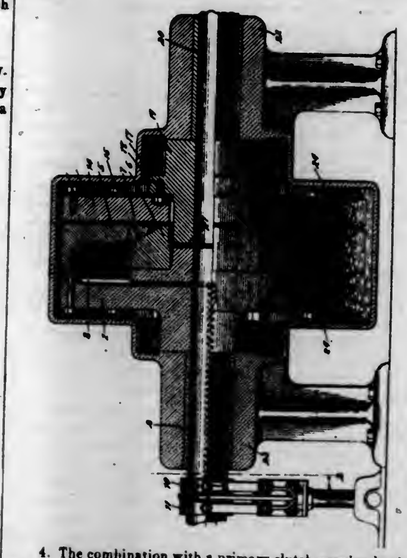
3. In a sewing-machine, in combination, the thread-finger, a rock-shaft with which the said thread-finger is connected, and means for operating the said rock-shaft to move the thread-finger, of the looper, the lever by which the same is carried provided with a V-shaped roll or stud, a rotating cam having a V-shaped groove with lateral and radial throws to produce the required movements of the looper, and a pivotal stud for the said lever on which the latter is mounted to swing transversely, the said stud being sleeved to swing in a vertical plane upon the rock-shaft of the thread-finger.

786,411. MAGNETIC CLUTCH OR SPEED-ACCELERATOR. HENRY H. CUTLER, Milwaukee, Wis., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Aug. 5, 1903. Serial No. 168,388.

Claim.—1. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member, whereby relative movement between said primary and secondary members results; said members being axially movable relatively.

2. The combination with a primary clutch member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member, said members being adapted to rest in mechanical contact whereby air-gaps in the magnetic circuit are eliminated.

3. The combination with a primary clutch member having suitable energizing-windings, of a secondary clutch member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member and frictionally engaging said first-mentioned member, whereby one of said members, the driven member, is accelerated through the combined influence of induction and friction.



4. The combination with a primary clutch member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby, to create torque-producing currents in said secondary member, one of said members, the driven member, being accelerated through the combined and continuously-imposed effects of induction and friction.

5. The combination with a primary or inducing clutch member having suitable energizing-windings, and a plurality of polar surfaces, of a secondary or induced member adapted to be inductively influenced by said primary member to create torque-producing currents in said secondary member and capable of exerting an axial pressure upon said primary member.

6. The combination with a primary clutch member having an annular winding or windings and suitable polar surfaces, of a secondary member adapted to be inductively influenced by said primary member to create torque-producing currents in said secondary member.

7. The combination in a magnetic clutch or accelerator, of a primary member having an annular winding or windings, and suitable polar surfaces alternating in polarity which are adapted when excited by the winding to induce torque-producing current in a secondary member, and a secondary member adapted to be so inductively influenced by the said polar surfaces.

8. The combination with a primary clutch member having a plurality of radially-arranged polar surfaces alternating in polarity, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member.

9. The combination with a primary clutch member, of a secondary member, said primary member being provided with an annular winding or windings, and with pole-pieces interposed between said windings and said secondary member, said secondary member being adapted to be inductively influenced by said primary member to create torque-producing currents in said secondary member.

10. The combination with a primary clutch member having an annular winding or windings and a plurality of radially-extending pole-pieces projecting over the same, of a secondary member adapted to be inductively influenced by said primary member to create torque-producing currents in said secondary member.

11. The combination with a clutch member having a plurality of circumferentially-disposed polar surfaces alternating in polarity, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said member.

12. The combination with a primary clutch member having an annular winding or windings, and a plurality of circumferentially-disposed polar surfaces alternating in polarity, of a secondary member inductively influenced thereby to create torque-producing currents in said secondary member.

13. The combination with a primary clutch member having a plurality of inwardly-extending pole-pieces of one polarity, and a plurality of outwardly-extending pole-pieces of opposite polarity alternating therewith, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member.

14. The combination with a primary clutch member having a plurality of inwardly-extending pole-pieces and a plurality of outwardly-extending pole-pieces of opposite polarity alternating therewith, said polar surfaces all lying in a common plane, of a secondary member adapted to be inductively influenced by said primary member to create torque-producing currents in said secondary member.

15. The combination with a primary member having an annular winding or windings, a plurality of inwardly-extending pole-pieces of one polarity and a plurality of outwardly-extending pole-pieces of opposite polarity alternating therewith, of a secondary member inductively influenced thereby to create torque-producing currents in said secondary member.

16. A primary member comprising an outer ring having a plurality of inwardly-extending pole-pieces, an inner ring having a plurality of outwardly-extending pole-pieces alternating therewith, an annular energizing-winding situated between said rings, and a secondary member inductively influenced by said primary member to create torque-producing currents in said secondary member.

17. A primary member comprising an outer ring having inwardly-extending pole-pieces of substantially triangular shape, an inner ring having outwardly-extending pole-pieces substantially rectangular in shape and alternating with said triangular pole-pieces, an annular winding or windings interposed between said rings, and a secondary member inductively influenced by said primary member to create torque-producing currents in said secondary member.

18. A primary member comprising a back plate, an outer and an inner ring secured thereto, the outer ring having inwardly-extending pole-pieces and the inner ring having outwardly-extending pole-pieces alternating therewith, the pole-pieces overlapping, and a secondary or induced member associated therewith and having torque-producing currents created therein.

19. A primary member having an annular winding or windings and pole-pieces interposed between said windings and the face of the member, and a secondary or induced member coöperating therewith and having torque-producing currents created therein.

20. A primary member having an annular winding or windings and radially-extending pole-pieces of alternating polarity circumferentially disposed and extending in front of said winding or windings, and a secondary or induced member associated therewith having torque-producing currents created therein.

21. A primary member having a plurality of pole-pieces overlapping in a radial direction, and a secondary member having torque-producing currents created therein.

22. A primary member having alternating outwardly and inwardly extending pole-pieces which overlap in a radial direction, and a suitable secondary member having torque-producing currents created therein.

23. A primary member having an annular winding or windings and overlapping radially-extending pole-pieces disposed in circumferential position and extending in front of said winding or windings, and a suitable secondary member having torque-producing currents created therein.

24. A primary member having a plurality of polar surfaces and non-magnetic material filling the spaces between said polar surfaces, to prevent cutting of the rubbing surfaces and a secondary member.

25. A primary member having a plurality of circumferentially-disposed polar surfaces and non-magnetic material filling the spaces between the same, and a suitable secondary member.

26. A primary member having a plurality of radially-extending circumferentially-disposed polar surfaces, non-magnetic material filling the spaces between the same, and a suitable secondary member.

27. A primary member having an annular winding or windings, a plurality of overlapping pole-pieces extending in front of the same, non-magnetic material filling the spaces between said pole-pieces, and a secondary member suitably associated therewith.

28. A primary member having a plurality of polar surfaces and non-magnetic material filling the spaces between the same to prevent cutting of the rubbing surfaces, and a secondary member adapted to move in frictional contact with said polar surfaces and non-magnetic filling material.

29. A primary member having an annular winding, a plurality of pole-pieces alternating in polarity and circumferentially disposed and overlapping radially, and a secondary member adapted to move in frictional contact with said primary member.

30. The combination with a primary clutch member provided with suitable polar surfaces, of a secondary clutch member coöperating therewith, said polar surfaces being arranged to constrain the lines of force to travel in the most advantageous paths for producing maximum turning effort.

31. The combination with a primary clutch member having suitable polar surfaces, of a secondary clutch member coöperating therewith, said polar surfaces being disposed to constrain the lines of force to pass in substantially tangential paths in traveling from pole to pole through said secondary member, whereby maximum turning effort results.

32. The combination with a primary clutch member having suitable polar surfaces, of a secondary clutch member coöperating therewith, said polar surfaces being alternately of opposite polarity and having their adjacent edges disposed substantially along radial lines, whereby the lines of force are constrained to travel in substantially parallel paths in passing from pole to pole.

33. The combination in a magnetic clutch or accelerator, of a primary member having a surface composed jointly of magnetic poles and non-magnetic filling to prevent cutting of the rubbing surfaces, and a secondary member having a suitably-opposed surface and adapted to be inductively influenced by the primary member.

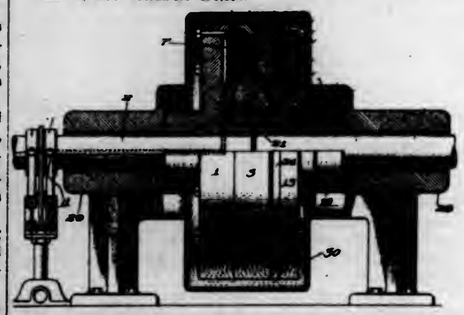
34. The combination in a magnetic clutch or accelerator, of a primary member having polar surfaces of alternately opposite polarity and intervening non-magnetic filling to prevent cutting of the rubbing surfaces, and a secondary member having a suitable opposing surface adapted to rest in mechanical contact with the composite surface of said primary member, said secondary member being adapted to be inductively influenced by said primary member.

35. The combination in a magnetic clutch or accelerator, of a suitable driving member and a suitable coöperating driven member adapted to be driven by the combined influence of induction and friction, and an oil-containing casing associated therewith.

36. In a clutch or accelerator, a driving member and a driven member adapted to rest in mechanical contact and adapted to be driven through the combined influence of induction and friction, and a suitable oil-containing casing associated therewith for lubricating the contact-faces of said members.

37. In a clutch or accelerator, the combination with a primary member having a suitable polar surface, of a secondary member adapted to make mechanical contact with said polar surface to be driven through the combined influences of induction and friction, and an oil-containing casing associated with said members for lubricating the contacting surfaces.

786,412. MAGNETIC CLUTCH OR SPEED-ACCELERATOR. HENRY H. CUTLER, Milwaukee, Wis., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Mar. 2, 1904. Serial No. 196,190.



Claim.—1. The combination with a primary member, of a secondary member adapted to be inductively influenced thereby, said secondary member having special paths for the induced currents set up therein and adapted to rest in mechanical contact with the primary member whereby air-gaps in the magnetic circuit are eliminated.

2. The combination with a primary clutch member having suitable energizing-windings, of a secondary clutch member adapted to be inductively influenced thereby, said secondary member having special paths for the induced currents set up therein and adapted to frictionally engage the primary member, whereby one of said members, the driven member is accelerated through the combined influence of induction and friction.

3. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby and having special paths for the induced currents set up therein, one of said members, the driven member being accelerated through the combined and continuously-imposed effects of induction and friction

4. The combination with a primary or inducting clutch member having suitable energizing-windings, and a plurality of polar surfaces, of a secondary or induced member adapted to be inductively influenced by said primary member and having special paths for the induced currents set up therein, said secondary member being capable of exerting an axial pressure upon said primary member.

5. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents, said member having a laminated body and special paths formed therein for the torque-producing induced currents, said members being axially movable relatively.

6. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents, said member being formed of laminated material and having special paths formed therein for the torque-producing induced currents, said members being axially movable relatively.

7. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby, said member comprising a back plate having a laminated face and having special paths formed therein for the torque-producing induced currents.

8. The combination with a primary member having suitable windings, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents, said member comprising a back plate and a laminated face.

9. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents, said member comprising a back plate having a suitable recess in the face thereof, and a laminated filling for said recess.

10. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby, said member comprising a back plate having a suitable recess therein, a laminated filling for said recess having special paths formed therein for the torque-producing induced currents.

11. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby, said secondary member comprising a back plate having a suitable recess, a laminated filling for said recess, an outer and inner ring connected to said plate and radial arms connecting said rings and adapted to fit in channels formed in said filling whereby special paths are formed for the torque-producing induced currents.

12. The combination with a primary member having an annular winding, and a plurality of pole-pieces alternating in polarity, of a secondary member adapted to be inductively influenced by said primary member and having special paths for the induced currents set up therein.

13. The combination with a primary clutch member provided with suitable polar surfaces, of a secondary clutch member adapted to be inductively influenced thereby and having special paths for the induced currents, set up therein, the polar surfaces of said primary member being arranged to constrain the lines of force to travel in the most advantageous paths for producing the maximum turning effort.

14. The combination with a primary clutch member having suitable polar surfaces, of a secondary clutch member adapted to be inductively influenced thereby and having special paths for the induced currents set up therein, said polar surfaces of the primary member being disposed to constrain the lines of force to pass in substantially tangential paths in traveling from pole to pole through said secondary member.

15. The combination with a primary clutch member having suitable polar surfaces, of a secondary clutch member adapted to be inductively influenced thereby and having special paths for the induced currents set up therein, said polar surfaces of the primary member being alternately of opposite polarity and having their adjacent edges disposed substantially along the radial lines, whereby the lines of force are constrained to travel in substantially parallel paths in passing from pole to pole.

786,413. MAGNETIC CLUTCH. HENRY H. CUTLER, Milwaukee, Wis., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed July 2, 1904. Serial No. 215,062.



Claim.—1. The combination with a primary clutch member, of a secondary member adapted to rest in physical contact therewith, and means for eliminating the friction by producing repulsion between the members during the operation of the clutch.

2. The combination with a primary member, of a secondary member adapted to rest in physical contact therewith, and a coil or winding for eliminating the friction by causing a repulsion between the members during the operation of the clutch.

3. The combination with a primary clutch member, of a secondary member, and a coil or winding for eliminating friction by producing repulsion between the members during the operation of the clutch.

4. The combination with a primary member carrying an energizing-winding, of a secondary clutch member associated therewith, and means for eliminating friction by producing repulsion between the members during the operation of the clutch.

5. The combination with a primary clutch member carrying an energizing-winding, of a secondary clutch member associated therewith, and a friction-eliminating means comprising a counterbalancing-winding and an armature influenced thereby for producing repulsion between the members during the operation of the clutch.

6. The combination with a primary clutch member, of a secondary clutch member, a main winding for exerting a force to connect said primary and secondary members, a supplemental winding, and means operated by the force of said supplemental winding when it is energized to counterbalance the frictional effect between said primary and secondary members by producing repulsion between said members during the operation of the clutch.

7. The combination with a primary clutch member, of a secondary clutch member, a main winding for exerting a force to attract said secondary member to said primary member and frictional eliminating means, comprising a part arranged upon the opposite side of said primary member, means for holding said part out of contact with said primary member, when said secondary member is in contact with the same, and a supplemental winding for exerting force to attract said part to said primary member during the operation of the clutch.

8. The combination with a primary clutch member, of a secondary clutch member, an armature member arranged upon one side of said primary member, a main winding for exerting a force to connect said armature with said primary member, and a friction-eliminating means comprising a part arranged upon the opposite side of said primary member, one or more pins passing through said primary member and bearing against the armature member to hold said part out of contact with the magnet member when the latter is in engagement with the armature member, and a supplemental winding for exerting a force to attract said part to said primary member during the operation of the clutch.

9. The combination with a primary member, of a secondary member, a main winding for exerting a force to attract said secondary member to said primary member, and a friction-eliminating

means comprising a part normally bearing against said secondary member, and a supplemental winding for exerting a force to operate said part to counterbalance the frictional effect between said primary and said secondary members during the operation of the clutch.

10. The combination with a primary member, of a secondary member moving relatively thereto, a main winding for exerting a force to connect said primary member with said secondary member, and a friction-eliminating means comprising a supplemental winding and a part operated by the force exerted by said supplemental winding to counterbalance the frictional effect between said primary and said secondary members during the operation of the clutch.

11. The combination with a primary member, of a secondary member, a main winding carried by said primary member for exerting a force to connect said secondary member therewith, and a friction-eliminating means comprising a supplemtnal winding also carried by said primary member and a part operated by the force exerted by said supplemental winding to counterbalance the frictional effect between said primary and said secondary members during the operation of the clutch.

12. The combination with a primary member, of a secondary member arranged upon one side thereof, a main winding for exerting a force to attract said primary member to said secondary member, and a friction-eliminating means compris ng an armature arranged upon the opposite side of said primary member, one or more pins passing through said primary member and bearing against said secondary member to hold the armature out of contact with said primary member, and a supplemental winding for exerting a force to attract said armature to said primary member during the operation of the clutch.

13. The combinat on with a primary member, of a secondary member arranged upon one side thereof, a main winding carried by said primary member for exerting a force to connect said secondary member therewith, and a friction-eliminating means comprising an armature arranged upon the opposite side of said primary member, one or more pins passing through said primary member and bearing against the secondary member to hold said armature out of contact with the primary member when the secondary member is in engagement therewith, and a supplemental winding also carried by said primary member for exerting a force to attract said armature to said primary member during the operation of the clutch.

14. The combination with a primary member, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member, and friction-eliminating means.

15. The combination with a primary clutch member, of a secondary member adapted to rest in physical contact therewith and be inductively influenced thereby to create torque-producing currents in said secondary member, and friction-eliminating means.

16. The combination with a primary clutch member, of a secondary member adapted to rest in physical contact therewith and be inductively influenced thereby to create torque-producing currents in said secondary member, and a friction-eliminating coil or winding.

17. The combination with a primary clutch member, of a secondary clutch member adapted to be inductively influenced thereby to create torque-producting currents in said secondary member, and a friction-eliminating coil or winding.

18. The combination with a primary clutch member, of a secondary member adapted to be inductively influenced thereby to create torque-producing currents in said secondary member, and a friction-eliminating means comprising a counterbalancing-winding and an armature influenced thereby.

19. The combination with a primary clutch member, of a secondary member, and means for eliminating friction during the acceleration of the driven member.

20. The combination with a primary clutch member, of a secondary member adapted to rest in physical contact therewith, and means for eliminating the friction during the acceleration of the driven member.

21. The combination with a primary clutch member, of a secondary member and a coil or winding for eliminating friction during the acceleration of the driven member.

22. The combination with a primary clutch member, of a secondary clutch member in physical contact therewith, and a coil or winding for eliminating friction during the acceleration of the driven member.

23. The combination with a primary clutch member carrying an energizing-winding, of a secondary member associated therewith, and means for eliminating friction during the acceleration of the driven member.

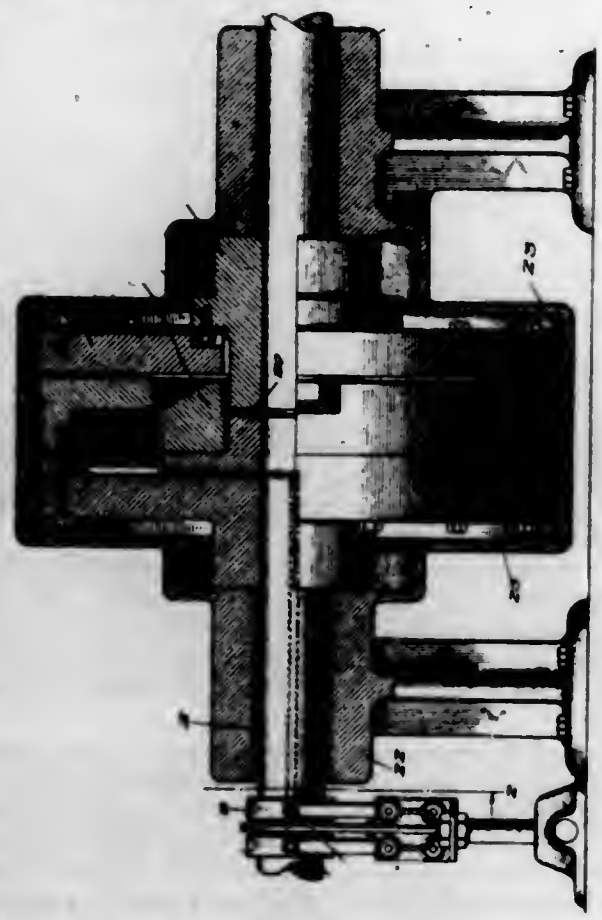
24. The combination with a primary clutch member, carrying an energizing-winding, of a secondary member associated therewith, and means for eliminating friction during the acceleration of the driven member comprising a counterbalancing-winding, and an armature influenced thereby.

25. The combination with a primary clutch member, of a secondary clutch member, adapted to rest in physical contact therewith, friction-eliminating means, and means for gradually decreasing the strength of said friction-eliminating means.

26. The combination with a primary clutch member, of a secondary clutch member, a friction-eliminating coil or winding and means for gradually decreasing the strength of said coil or winding.

27. The combination with a primary clutch member carrying an energizing winding, of a secondary clutch member associated therewith, a friction-eliminating means comprising a counterbalancing-winding and an armature influenced thereby, and means for gradually decreasing the strength of said counterbalancing-winding.

786,414. METHOD OF POWER TRANSMISSION. HENRY H CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed May 19, 1904. Serial No. 208,783.



Claim.—1. The method of gradually and without shock accelerating the driven part of a clutch, which consists in causing the driving part to impress a graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction.

2. The method of accelerating gradually and without shock the driven part of a clutch and bringing the driven part to the speed of the driving part, which consists in causing the driving part to impress a graduated torque upon the driven part, said torque being jointly produced by electromagnetic induction and friction.

3. The method of gradually and without shock accelerating the driven part of a clutch, which consists in causing the driving part to impress an automatically-graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction.

4. The method of accelerating gradually and without shock the driven part of a clutch and bringing the same to the speed of the driving part, which consists in causing the driving part to impress an automatically-graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction.

5. The method of gradually and without shock accelerating the driven part of a clutch, which consists in causing the driving part to impress a graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction, the electromagnetic effect thereof first preponderating but being gradually replaced by the frictional effect.

6. The method of gradually and without shock accelerating the driven part of a clutch and bringing the same to speed, which consists in causing the driving part to impress a graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction, the electromagnetic effect at first preponderating but being gradually replaced by the frictional effect.

7. The method of gradually and without shock accelerating the driven part of a clutch, which consists in causing the driving part to impress an automatically-graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction, the electromagnetic effect at first preponderating but being gradually replaced by the frictional effect.

8. The method of gradually and without shock accelerating the driven part of a clutch and bringing the same to speed, which consists in causing the driving part to impress an automatically-graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction, the electromagnetic effect preponderating at first but being gradually replaced by the frictional effect.

9. The method of gradually and without shock accelerating the driven part of a clutch, which consists in causing the driving part to impress a graduated torque on the driven part, said torque being jointly produced by electromagnetic induction and friction, the frictional effect being practically constant and the inductional effect gradually decreasing during the period of acceleration.

10. The method of graduating the action of an electromagnetic clutch which consists in producing a retarded or slow growth of the magnetic field in said clutch.

11. The method of causing an instantaneous release of the members, of an electromagnetic clutch which consists in producing in the inducing member of the same a plurality of magnetic fields, which tend to neutralize each other when the magnetizing force is withdrawn.

12. The method of varying the speed of a driven part, which consists in producing between the driving and the driven parts a controllable joint inductive and frictional slip.

13. The method of varying the speed of a driven part, which consists in producing between the driving and driven parts, a controllable slip, said slip being jointly inductive and frictional and increasing the frictional torque after the driven part has been accelerated to a point near full speed, thereby bringing the driven part to full speed.

14. The method of accelerating the speed of a driven part, which consists in establishing between the driven and the driving parts a controllable slip, bringing the driving part to full speed and accelerating the driven part by inductive influence between the surfaces between which said controllable slip takes place.

15. The method of accelerating the speed of a driven part, which consists in establishing between the driven and the driving parts a controllable slip, accelerating the driven part by inductive influence between said controllable-slip surfaces and also subjecting said surfaces to frictional action, thereby superimposing a frictional torque upon the torque due to said induction for the purpose of bringing the driven part to full speed.

16. The herein-described method which consists in creating a magnetic field in one of the members of a power-transmitting device, subjecting the second member to said magnetic field to create in said secondary member torque-producing induced currents, positively moving one of said members to thereby exert a torque upon the other member through the agency of said induced currents and supplementing the torque-producing effect of said induced currents by the torque-producing effect of frictional contact between said primary and secondary members.

17. The herein-described method which consists in creating a magnetic field in one of the members of a power-transmitting device, subjecting the second member to said magnetic field to create in said secondary member torque-producing induced currents, positively moving one of said members to thereby exert a torque upon the other member through the agency of said induced currents supplementing the torque-producing effect of said induced currents by the torque-producing effect of frictional contact between said primary and secondary members, and varying the magnetic field of said primary member to vary the rate of movement of said secondary member.

18. The herein-described method which consists in creating a magnetic field in one of the members of a power-transmitting device, subjecting the second member to said magnetic field to create in said secondary member torque-producing induced currents, positively moving one of said members to thereby exert a torque upon the other member through the agency of said induced currents and supplementing the torque-producing effect of said induced currents by the torque-producing effect of continuous frictional contact between said primary and secondary members.

19. The herein-described method which consists in creating a magnetic field in one of the members of a power-transmitting device, subjecting the secondary member to said magnetic field to create in said secondary member torque-producing induced currents, positively moving one of said members to thereby exert a torque upon the other member through the agency of said induced currents, supplementing the torque-producing effect of said induced currents by the torque-producing effect of continuous frictional contact between said primary and secondary members, and varying the magnetic field to vary the rate of movement of said secondary member.

20. The herein-described method which consists in creating a magnetic field in one of the members of a magnetic clutch or accelerator, subjecting the other member to the inductive influence thereof, and positively rotating one of said members in mechanical contact with the other member to cause said latter-mentioned member to rotate by induction.

21. The herein-described method which consists in creating a magnetic field in one of the members of a magnetic clutch or accelerator, subjecting the other member to the inductive influence thereof, positively rotating one of said members in mechanical contact with the other member to cause said latter-mentioned member to rotate by induction, and subjecting said primary member and secondary member to mechanical pressure to produce a frictional turning effort to aid the inductive effect.

22. The herein-described method which consists in creating a magnetic field in one member of a magnetic clutch or accelerator having suitable polar surfaces, opposing a secondary member thereto in mechanical contact, constraining the lines of force to flow in substantially tangential paths in passing from pole to pole through said secondary member, positively rotating one member whereby the other is caused to rotate by induction and subjecting said primary and secondary members to mechanical pressure, whereby a frictional turning effort is produced to aid said induction.

23. The herein-described method which consists in creating a magnetic field in one of the members of a magnetic clutch or accelerator, subjecting the other member to the inductive influence thereof, positively rotating one of said members in mechanical contact with the other member to cause said latter-mentioned member to rotate by induction and varying the magnetic field to vary the movement of said latter-mentioned member.

786,415. ALTERNATING-CURRENT POWER-TRANSMITTING APPARATUS. HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Oct. 22, 1903. Serial No. 178,117.

Claim.—1. The combination with an alternating-current-supply circuit, and an alternating-current motor, of an inherently gradually accelerating magnetic clutch or accelerator associated therewith whereby the load may be imposed without disturbing said supply-circuit.

2. The combination with an alternating-current-supply circuit and an alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, and a controller for said clutch whereby the load may be imposed without disturbing said supply-circuit and whereby the load may be driven at less than normal speed at will.

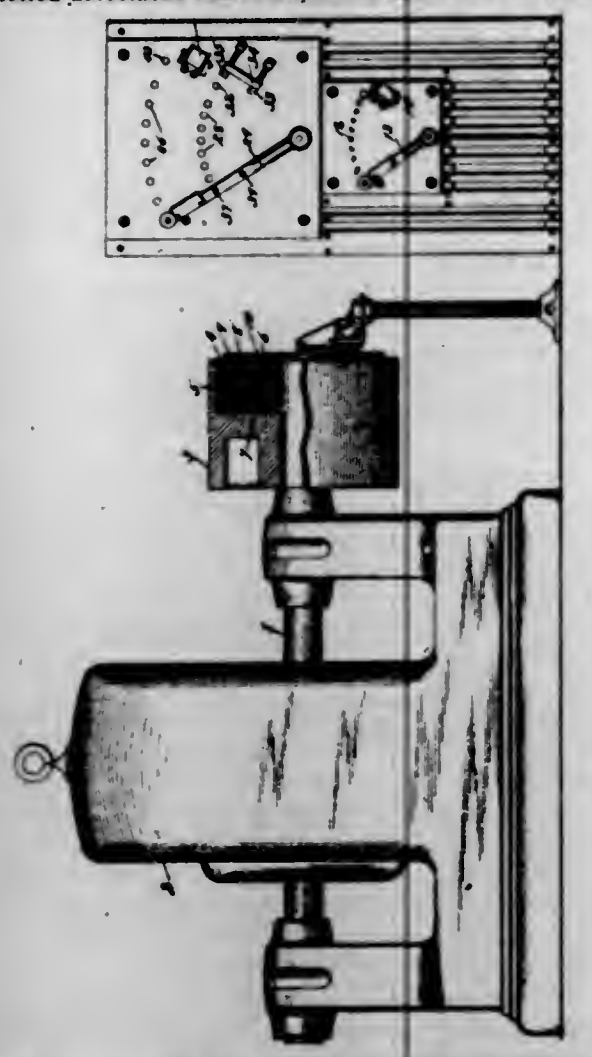
3. The combination with an alternating-current-supply circuit, of an alternating-current motor, an inherently gradually accelerating clutch or accelerator associated therewith, and suitable means for supplying a direct current to said clutch.

4. The combination with an alternating-current-supply circuit and an alternating-current motor supplied with current thereby, of an inherently gradually accelerating magnetic clutch or accelerator, a controller for said clutch, and suitable means for supplying a direct current to said clutch.

5. The combination with an alternating-current-supply circuit and an alternating-current motor supplied with current thereby, of a controllable magnetic clutch associated therewith, and means for converting alternating current from said circuit into a current suitable for energizing said clutch.

6. The combination with an alternating-current-supply circuit and an alternating-current motor, of a magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, whereby the load may be imposed without disturbing said supply-circuit.

7. The combination with an alternating-current-supply circuit and an alternating-current motor, of a magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, and a controller for said clutch.



8. The combination with an alternating-current-supply circuit and an alternating-current motor, a magnetic clutch whose driven member is accelerated through the combined influence of induction and friction, and suitable means for supplying a direct current to said clutch.

9. The combination with an alternating-current-supply circuit and an alternating-current motor, supplied with current thereby, of a clutch whose driven member is accelerated through the combined influence of induction and friction, a controller for said clutch, and suitable means for supplying a direct current to said clutch.

10. The combination with an alternating-current-supply circuit and an alternating-current motor supplied with current thereby, of a controllable magnetic clutch, and a rectifier for converting alternating current from said circuit into a current for energizing said clutch.

11. The combination with an alternating-current-supply circuit and a motor supplied with current thereby, of an inherently gradually accelerating magnetic clutch or accelerator associated therewith, and a variable resistance for controlling said clutch.

12. The combination with an alternating-current-supply circuit and a motor supplied with current thereby, of an inherently gradually accelerating magnetic clutch or accelerator associated therewith, a variable resistance for controlling said clutch and a retaining-magnet for normally holding the resistance-varying element thereof in a prearranged position.

13. The combination with an alternating-current-supply circuit, of a motor associated therewith, a suitable starting device for said motor, a magnetic clutch or accelerator associated with said motor, a retaining-magnet for the operating elements of said starting device, and suitable means for converting the current from said supply-circuit into a current suitable for said retaining-magnet and said clutch.

14. The combination with an alternating-current-supply circuit, of a motor connected therewith, a suitable starting device for said motor, a magnetic clutch or accelerator associated with said motor, a starting-box for said clutch, retaining-magnets for the operative elements of said starting-box, and of said starting device, and means for converting the current from said supply-circuit into a current suitable for said retaining-magnets and said clutch.

15. Means for improving the power factor and efficiency at starting an alternating-current motor which consist in combination with the rotating part of the said motor and its load, of the provision of means which inherently produce a gradually-decreasing slip between said rotating part and the load.

16. Means for improving the power factor and efficiency at starting a loaded alternating-current motor which consist in combining with the rotating part of the said motor and its load, of provisions for controllable inductive and frictional slip between the said rotating part and the load.

17. The combination with the rotor of an alternating-current motor and the load thereof, of an inherently gradually decreasing slip device between the said rotor and the load.

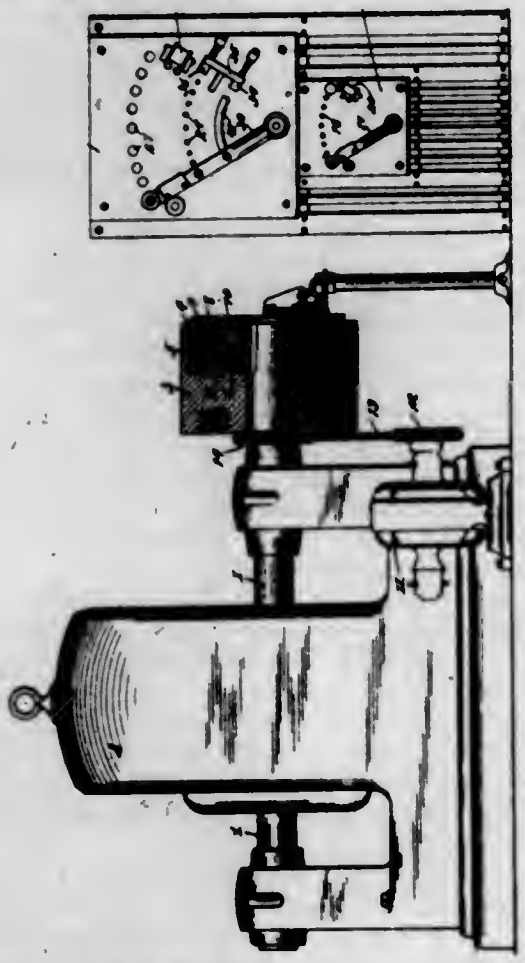
18. The combination with the rotor of an alternating-current motor and the load thereof, of an inherently gradually decreasing slip device between the said rotor and the load, the slippage of said device being jointly inductive and frictional.

19. The combination with the rotor of an alternating-current motor and the load thereof, of an inherently gradually accelerating magnetic clutch whereby slip may be introduced between the said rotor and its load, and means for controlling the said slip.

20. The combination with the rotor of an alternating-current motor and the load thereof, of an inherently gradually accelerating magnetic clutch arranged to introduce inductive and frictional slip between the said rotor and its load, and means for controlling the said slip so that the load may be efficiently brought to full speed without undue disturbance of the electrical supply-circuits.

21. Means for gradually starting the load of an alternating-current motor, which consists in combination with the rotor of said motor and the load thereof, of an inherently gradually accelerating magnetic clutch.

786,416. ALTERNATING-CURRENT POWER-TRANSMITTING APPARATUS. HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Jan. 28, 1904. Serial No. 190,968.



Claim.—1. The combination with an alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, and means for generating a current for operating said clutch.

2. The combination with an alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, and means operated by said motor for supplying current to said clutch.

3. The combination with an alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, and an exciter for supplying current to said clutch.

4. The combination with an alternating-current motor, of an

inherently gradually accelerating magnetic clutch associated therewith, and an exciter operated by said motor for supplying current to said clutch.

5. The combination with an alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, means operated by said motor for supplying current to said clutch, and means for controlling said clutch.

6. The combination with an alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, and means for generating a current for operating said clutch.

7. The combination with an alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, and means operated by said motor for supplying current to said clutch.

8. The combination with an alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, and an exciter for supplying current to said clutch.

9. The combination with an alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, and an exciter operated by said motor for supplying current to said clutch.

10. The combination with an alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, means operated by said motor for supplying current to said clutch, and means for controlling said clutch.

11. The combination with an alternating-current motor, of a clutch whose torque-producing power normally decreases as the driven member is accelerated, means for increasing the torque, and means for generating the current for operating said clutch.

12. The combination with an alternating-current motor, of a clutch whose torque-producing power normally decreases as the driven member is accelerated, controllable means for increasing said torque, and means for generating the current for operating said clutch.

13. The combination with an alternating-current motor, of a clutch whose torque-producing power normally decreases as the driven member is accelerated, controllable means for increasing said torque, and means operated by said motor for supplying current to said clutch.

14. The combination with an alternating-current motor, of a clutch whose torque-producing power normally decreases as the driven member is accelerated, controllable means for increasing said torque, and an exciter for supplying current to said clutch.

15. The combination with an alternating-current motor, of a clutch whose torque-producing power normally decreases as the driven member is accelerated, controllable means for increasing said torque, and an exciter operated by said motor for supplying current to said clutch.

16. The combination with an alternating-current motor, of a controlling device for starting said motor, a retaining-magnet for holding the operative element of said starting device in a prearranged position, and means operated by said motor for supplying a current to said retaining-magnet.

17. The combination with an alternating-current motor, of a controlling device for starting the same, a retaining-magnet for holding the operating element of said starting device in a prearranged position, and an exciter for supplying a direct current to said retaining-magnet.

18. The combination with an alternating-current motor, of a controlling device for starting the same, a retaining-magnet for holding the operating element of said starting device in a prearranged position, and an exciter driven by said motor for supplying a direct current to said retaining-magnet.

19. The combination with an alternating-current-supply circuit, of a motor associated therewith, a controlling device for starting the same, a magnetic clutch or accelerator associated with said motor, a retaining-magnet for the operating element of said starting device, and an exciter for supplying a direct current to said retaining-magnet and said clutch.

20. The combination with an alternating-current-supply circuit, of a motor associated therewith, a controlling device for starting the same, a magnetic clutch or accelerator associated with said motor, a retaining-magnet for the operating element of said starting device, and an exciter driven by said motor for supplying a direct current to said retaining-magnet and said clutch.

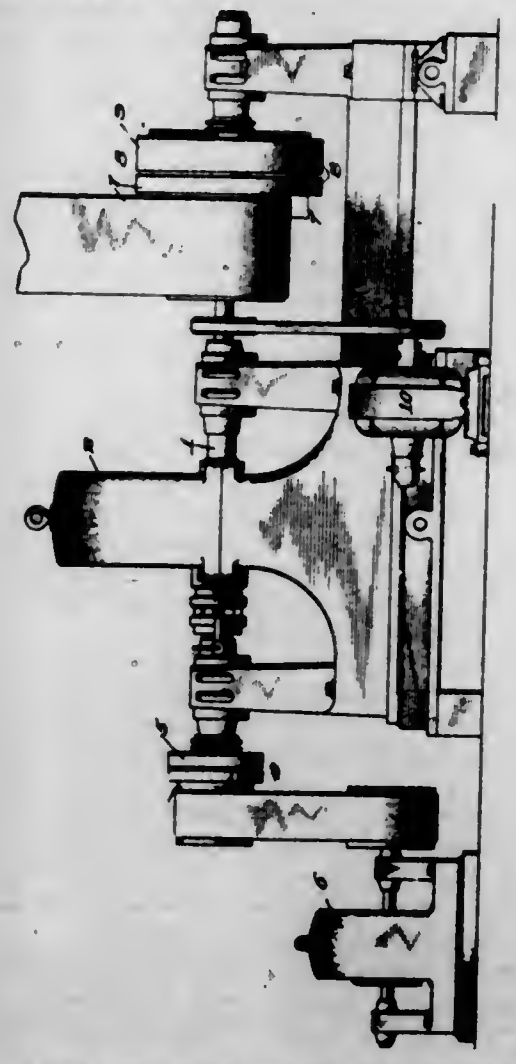
21. The combination with an alternating-current-supply circuit, of a motor associated therewith, a suitable starting device for said motor, a magnetic clutch or accelerator associated with said motor, a starting-box for said clutch, a retaining-magnet for the operating element of said starting-box, and an exciter for supplying a direct current to said retaining-magnet and to said clutch.

22. The combination with an alternating-current-supply circuit, of a motor associated therewith, a suitable starting device for said motor, a magnetic clutch or accelerator associated with said motor, a starting-box for said clutch, a retaining-magnet for the operating element of said starting-box, and an exciter operated by said motor for supplying a direct current to said starting-box and said clutch.

23. The combination with an alternating-current-supply circuit, of a motor associated therewith, a suitable starting device for said motor, a magnetic clutch or accelerator associated with said motor, a suitable starting-box for said clutch, retaining-magnets for the movable elements of said motor-starting device and said clutch-starting box, and an exciter for supplying a direct current to said retaining-magnets and said clutch.

24. The combination with an alternating-current-supply circuit, of a motor associated therewith, a suitable starting device for said motor, a magnetic clutch or accelerator associated with said motors, a suitable starting-box for said clutch, retaining-magnets for the movable elements of said motor-starting device and said clutch-starting box, and an exciter driven by said motor for supplying a direct current to said retaining-magnets and said clutch.

786,417. SYNCHRONOUS MOTOR WITH CLUTCH. HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Jan. 22, 1904. Serial No. 190,145.



Claim.—1. The combination with an alternating-current-supply circuit and a synchronous alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, whereby the load may be imposed without disturbing the supply-circuit.

2. The combination with an alternating-current-supply circuit and a synchronous alternating-current motor, of an inherently gradually accelerating magnetic clutch associated therewith, and a controller for said clutch.

3. The combination with an alternating-current-supply circuit and a synchronous alternating-current motor, of an inherently gradu

ally accelerating clutch or accelerator associated therewith, and suitable means for supplying direct current to said clutch.

4. The combination with a synchronous alternating-current motor, of suitable starting means therefor, and an inherently gradually accelerating magnetic clutch associated therewith, whereby the load may be imposed without disturbing the supply-circuit.

5. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, and an inherently gradually accelerating magnetic clutch associated therewith, whereby the load may be imposed without disturbing the supply-circuit.

6. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, and an inherently gradually accelerating magnetic clutch interposed between said motors.

7. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, and an inherently gradually accelerating magnetic clutch interposed between said motors and a controller for said clutches.

8. The combination with an alternating-current-supply circuit and a synchronous alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, whereby the load may be imposed without disturbing said supply-circuit.

9. The combination with an alternating-current-supply circuit and a synchronous alternating-current motor, of a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, and a controller for said clutch.

10. The combination with an alternating-current-supply circuit and a synchronous alternating-current motor, of a controllable magnetic clutch or accelerator whose driven member is accelerated through the combined influence of induction and friction associated therewith, and suitable means for supplying direct current to said clutch.

11. The combination with a synchronous alternating-current motor, of suitable starting means therefor and a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, whereby the load may be imposed without disturbing the supply-circuit.

12. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same and a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction associated therewith, whereby the load may be imposed without disturbing the supply-circuit.

13. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, and a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction interposed between said motors.

14. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch whose driven member is accelerated through the combined influence of induction and friction interposed between said motors, and a controller for said clutch.

15. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors and a controllable load-controlling magnetic clutch associated with said synchronous motor.

16. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, a controllable load-controlling magnetic clutch associated with said synchronous motor, and a controller for each of said clutches.

17. The combination with a synchronous alternating-current motor, of a controllable magnetic clutch associated therewith, and means for supplying direct current to the fields of said motor and to said clutch.

18. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, a controllable load-controlling magnetic clutch associated with said synchronous motor, and means for supplying a direct current to the fields of said synchronous motor and to said clutches.

19. The combination with a synchronous alternating-current motor, of a controllable magnetic clutch associated therewith, and an exciter for supplying a direct current to the fields of said motor and to said clutch.

20. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, a controllable load-controlling magnetic clutch associated with said synchronous motor, and means for supplying direct current to the fields of said synchronous motor and to said clutches.

21. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, a controllable load-controlling magnetic clutch associated with said synchronous motor, and an exciter for supplying a direct current to the fields of said synchronous motor and to said clutches.

22. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, and means for supplying the fields of said motor and said clutch with a direct current.

23. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, and an exciter for supplying the fields of said synchronous motor and said clutch with a direct current.

24. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, means for initially supplying said clutch with a direct current, and means operated by said synchronous motor for supplying said clutch with a direct current after the synchronous motor has started.

25. The combination with a synchronous alternating-current motor, of an induction-motor for starting the same, a controllable magnetic clutch interposed between said motors, a storage battery for initially supplying said clutch with a direct current, and an exciter for supplying said clutch with a direct current after the synchronous motor has been started.

26. Means for improving the power factor and efficiency of a loaded synchronous alternating-current motor, which consists in combining with the rotating part of the said motor and its load of provisions for controllable inductive and frictional slip between the said rotating part and the load.

27. The combination with the rotor of a synchronous alternating-current motor and the load thereof, of a controllable slip device between said rotor and the load, the slippage of said device being jointly inductive and frictional.

28. The combination with the rotor of a synchronous alternating-current motor and the load thereof, of a magnetic clutch arranged to introduce inductive and frictional slip between the said rotor and its load, and means for controlling the said slip so that the load may be effectually brought to full speed without undue disturbance of the electrical supply-circuits.

29. Means for gradually starting the load of a synchronous alternating-current motor, which consists in combination with the rotor of said motor, and the load thereof, of a controllable joint inductive and frictional magnetic clutch.

30. Means for improving the power factor and efficiency of a loaded synchronous alternating-current motor, which consists in combining with a rotating part of said motor and its load, of provision for a slip between said motor and its load, whose torque gradually decreases as the speed of the load accelerates, and means for increasing said torque.

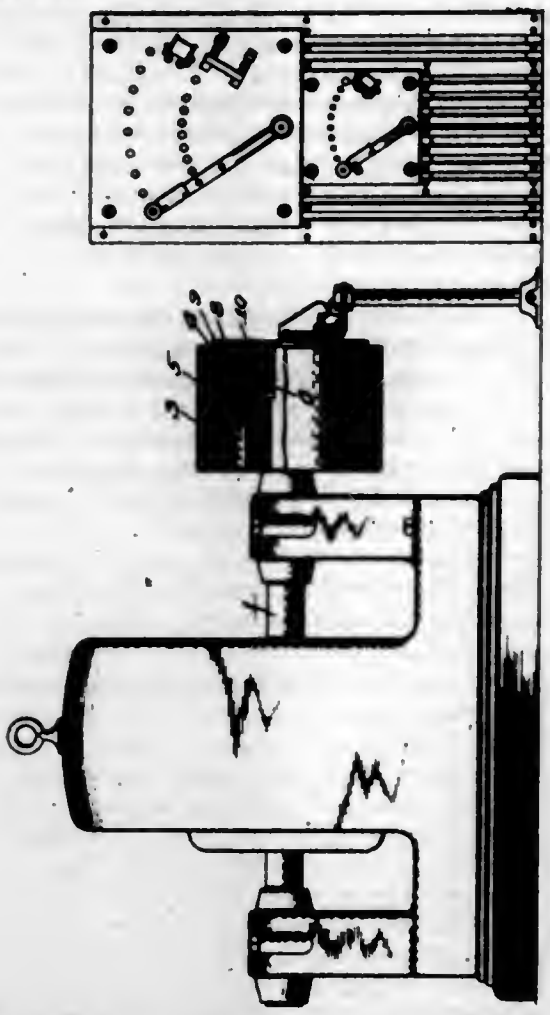
31. Means for improving the power factor and efficiency of a loaded synchronous alternating-current motor, which consists in combining with a rotating part of said motor and its load, of provision for a slip between said motor and its load whose torque gradually decreases as the speed of the load accelerates, and means for increasing said torque at will.

786,418. METHOD OF VARYING THE SPEED OF THE LOAD DRIVEN BY AN ALTERNATING-CURRENT MOTOR. HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed May 19, 1904. Serial No. 208,782.

Claim.—1. The method of varying the speed of the load driven by an alternating-current motor which consists in producing a controllable, joint inductive and frictional slip between the rotor of said motor and its load and supplying direct current for energizing the controllable slip device.

2. The method of starting the load of an alternating-current motor which consists in establishing a controllable slip between the rotating part of the motor and its load, the said slip being jointly induc-

tive and frictional, and increasing the frictional torque after the load has been accelerated to a point near full speed, thereby bringing the load to full speed.



3. The method of improving the power factor at starting a loaded alternating-current motor which consists in establishing a controllable slip between the rotating part of the motor and the load, bringing the rotating part to full speed, and accelerating the load by inductive influence between the surfaces between which said controllable slip takes place.

4. The method of improving the power factor and efficiency at starting a loaded alternating-current motor, which consists in establishing a controllable slip between the rotating part of the motor and the load, bringing the rotating part to full speed, and accelerating the load by the joint influence of induction and friction between the surfaces between which said controllable slip takes place.

5. The method of improving the power factor at starting a loaded alternating-current motor, which consists in establishing a controllable slip between two surfaces, one of which moves with the rotor of the motor, and the other with the load, bringing the rotor to full speed, accelerating the load by inductive influence between said controllable slip-surfaces and also subjecting said surfaces to frictional action, thereby superimposing a frictional torque upon the torque due to said induction for the purpose of bringing the load to full speed.

6. The method of accelerating the speed of the load driven by an alternating-current motor, which consists in producing between the rotor of said motor and its load a gradually-decreasing slip, said decrease being due to a graduated torque impressed upon the driven part, which is jointly produced by electromagnetic induction and friction.

7. The method of accelerating the speed of the load driven by an alternating current, which consists in producing between said motor and its load a gradually-decreasing slip, the decrease in said slip being due to an automatically-graduated torque impressed upon the driven part, which is jointly produced by electromagnetic induction and friction.

8. The method of accelerating the speed of the load driven by an alternating-current motor, which consists in producing between the rotor of said motor and the load a gradually-decreasing slip, the decrease in said slip being due to a graduated torque impressed upon the driven part, said torque being jointly produced by electromagnetic induction and friction, the electromagnetic effect thereof first preponderating but being gradually replaced by the frictional effect.

9. The method of accelerating the speed of the load driven by an alternating-current motor, which consists in producing between the rotor of said motor and its load a gradually-decreasing slip, the decrease in said slip being due to an automatically-graduated torque impressed upon the driven part by the driving part, said torque being jointly produced by electromagnetic induction and friction, the electromagnetic effect at first preponderating but being gradually replaced by the frictional effect.

10. The method of varying the speed of a load driven by an alternating-current motor, which consists in producing a controllable joint inductive and frictional slip between the rotor of said motor and its load and transforming the dynamic power of the motor into a direct current for energizing the controllable slip device.

11. The method of varying the speed of a load driven by an alternating-current motor, which consists in producing a controllable joint inductive and frictional slip between the rotor of said motor and its load, and transforming the alternating current for said motor to a direct current for energizing the controllable slip device.

12. The method of varying the speed of the load driven by an alternating-current motor, which consists in producing a joint inductive and frictional slip between the rotor of the motor and its load, and transforming the electrical energy of an alternating current to a direct current to energize the controllable slip device.

13. The method of varying the speed of the load driven by an alternating-current motor, which consists in producing a controllable joint inductive and frictional slip between the rotor of said motor and its load, and transforming an alternating current to a direct current without any intervening dynamic step.

14. The method of varying the speed of the load driven by an alternating-current motor, which consists in producing a controllable joint inductive and frictional slip between the rotor of said motor and its load and transforming the alternating current into a direct current for energizing the controllable slip device without an intervening moving factor.

15. The method of starting an alternating-current motor and imposing load thereon which consists in connecting the field-windings of the motor in two parallel paths, introducing in said paths adjustable resistance of such character as to supply said field-windings with currents of different phase, reducing the voltage of the current supplied to said field-windings when connected in parallel and producing a controllable slip between said motor and its load.

16. The method of starting an alternating-current motor and imposing the load thereon, which consists in connecting the field-windings of said motor in two parallel paths, introducing an adjustable resistance in each path of such character as to supply the field-windings with current of different phase, reducing the voltage of the current supplied to the field-windings when connected in parallel, removing all resistance from the circuit of the field-windings and connecting the same in series and producing a controllable slip between said motor and its load.

17. The method of starting a synchronous alternating-current motor and imposing the load thereon, which consists in producing a controllable joint inductive and frictional slip between the armature-starting device and the armature and producing a controllable slip between said motor and its load.

18. The method of starting a synchronous alternating-current motor and imposing the load thereon, which consists in producing a controllable joint inductive and frictional slip between the armature-starting device and the armature and when the armature has attained speed, supplying the armature with an alternating current and the fields with a direct current and producing a controllable slip between said motor and its load.

19. The method of starting a synchronous alternating-current motor and imposing the load thereon, which consists in producing a controllable joint inductive and frictional slip between the armature-starting device and armature and between the armature of the motor and the load.

786,419. SYSTEM FOR OPERATING ELECTRIC VEHICLES.

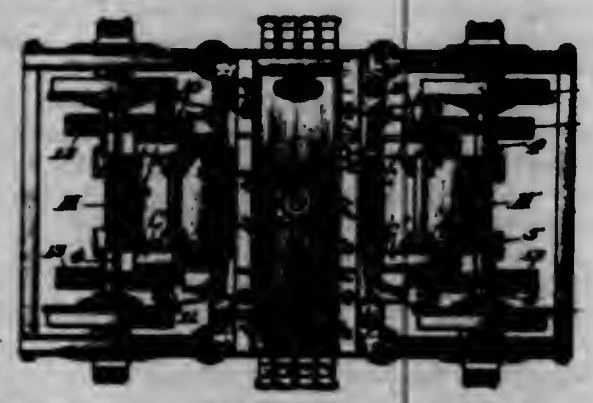
HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin.

Filed Mar. 14, 1904. Serial No. 197,961

Claim.—1. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, and an inherently gradually accelerating clutch for connecting said wheel with said motor.

2. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, an inherently gradually accelerating clutch for connecting means with said motor to drive said wheel at one speed, and a second controllable gradually-accelerat-

ing clutch for connecting means with said motor to drive said wheel at a relatively higher speed.



3. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, an inherently gradually accelerating clutch for connecting said wheel with said motor and a controller for said clutch.

4. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same, an inherently gradually accelerating clutch for connecting said wheel with said motor, and means for supplying a direct current to said clutch.

5. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a clutch for connecting said wheel with said motor, and an electrically-operated controller for controlling the operation of said motor.

6. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a clutch for connecting said driving-wheel with said motor, a controlling-circuit, and suitable instrumentalities connected with said controlling-circuit for controlling the operation of said motor.

7. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit having means connected therewith for controlling the operation of said motor, a clutch for connecting said wheel with said motor, and means for supplying a direct current to said clutch and said controlling-circuit.

8. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit having means connected therewith for controlling the operation of said motor, a clutch, and means for controlling said circuit and the circuit of said clutch.

9. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating said wheel and capable of running independently thereof, a controllable clutch for connecting means with said motor to drive said wheel at one speed, a second controllable clutch for connecting means with said motor to drive said wheel at a relatively higher speed, a controlling-circuit having means connected therewith for controlling said motor, and means for controlling said circuit and the circuit of said clutches.

10. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controllable clutch for connecting means with said motor to drive said wheel at one speed, a second controllable clutch for connecting means with said motor to drive said wheel at a relatively higher speed, a controlling-circuit having means connected therewith for controlling the operation of said motor, means for supplying a direct current to said clutches and to said controlling-circuit, and means for controlling said circuit and the circuits of said clutches.

11. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, an alternating-current-supply circuit having said motor connected therewith, a controlling-circuit having means connected therewith for controlling the operation of said motor, means for converting the alternating current upon said supply-circuit into a direct current for said controlling-circuit, and a suitable clutch for connecting said driving-wheel with said motor.

12. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a clutch for connecting said wheel with said motor, a controlling-circuit having means connected therewith for controlling the operation of the motor, and means for first closing said circuit to start the motor, and later closing the circuit of said clutch to connect said wheel with said motor.

13. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a clutch for connecting means with said motor to operate said wheel at one speed, a second clutch for connecting means with said motor to operate said wheel at a relatively higher speed, a controlling-circuit having means connected therewith for controlling the operation of said motor, and a controller for first closing said circuit to start the motor, then closing the circuit of the first-mentioned clutch, and finally opening the circuit of said first-mentioned clutch and closing the circuit of the last-mentioned clutch.

14. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit having means connected therewith for controlling the operation of said motor, a clutch for connecting said wheel with said motor, means for supplying a direct current to said controlling-circuit and said clutch, and means for first closing said controlling-circuit to start the motor and later closing the circuit to said clutch.

15. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit having means connected therewith for controlling the operation of said motor, a clutch for connecting means with said motor to operate said driving-wheel at one speed, a second clutch for connecting means with said motor to drive said wheel at a relatively higher speed, means for supplying a direct current to said controlling-circuit and said clutches, and means for first closing said controlling-circuit to start the motor, then closing the circuit to the first-mentioned clutch and later closing the circuit to the last-mentioned clutch.

16. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controllable clutch for connecting said wheel with said motor, a controlling-circuit having means connected therewith for controlling the operation of said motor, and a controller for first closing said controlling-circuit to start the motor and later closing the circuit of said clutch, said controller being adapted to vary the current supplied to said clutch.

17. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controllable clutch for connecting means with said motor to drive said wheel at one speed, a second controllable clutch for connecting means with said motor to drive said wheel at a relatively higher speed, a controlling-circuit having means connected therewith for controlling the operation of said motor, and a controller for first closing said controlling-circuit to start said motor and later closing the circuit of said clutches successively, said controller being adapted to vary the current supplied to said clutches.

18. The combination with the driving-wheel of an electric vehicle, of a suitable motor for operating the same and capable of running independently thereof, a controlling-circuit, suitable instrumentalities connected with said circuit for controlling the operation of said motor, a clutch for connecting said wheel with said motor, and means for first closing said controlling-circuit to start the motor and later closing the circuit of said clutch.

19. The combination with the driving-wheel of an electric vehicle, of a motor for operating said wheel and capable of running independently thereof, a controlling-circuit, electromagnetic windings connected in said circuit, suitable instrumentalities adapted to be operated by said windings to control the operation of said motor, a clutch for connecting said wheel with said motor, and means for first closing said controlling-circuit and later closing the circuit of said clutch.

20. The combination with the driving-wheel of an electric vehicle, of an electric motor for operating said wheel and capable of running independently thereof, a controlling-circuit, electromagnetic windings arranged in said controlling-circuit and adapted to respond to variations in voltage, suitable instrumentalities adapted to be actuated by said windings to control the operation of said motor, means for varying at will the voltage impressed upon said circuit, and clutch for connecting said wheel with said motor.

21. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit, electromagnetic windings connected with said circuit and adapted to respond to variations in voltage, suitable instrumentalities adapted to

be actuated by said windings to control the operation of said motor, a generator for supplying a direct current to said circuit, means for varying the voltage impressed upon said circuit by said generator, and a clutch for connecting said wheel with said motor.

22. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit, electromagnetic windings connected with said circuit and adapted to respond to variations in voltage, the elements of a phase-splitter adapted to be operated by said windings to start said motor, means for varying the voltage impressed upon said circuit, and a clutch for connecting said wheel with said motor.

23. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, a controlling-circuit, electromagnetic windings connected with said circuit and adapted to respond to variations in voltage, suitable instrumentalities adapted to be operated by said windings to control the operation of said motor, a clutch for connecting means with said motor to drive said wheel at one speed, a second clutch for connecting means with said motor to drive said wheel at a relatively higher speed, means for supplying a direct current to said controlling-circuit and said clutches, and means for varying at will the voltage impressed upon said controlling-circuit.

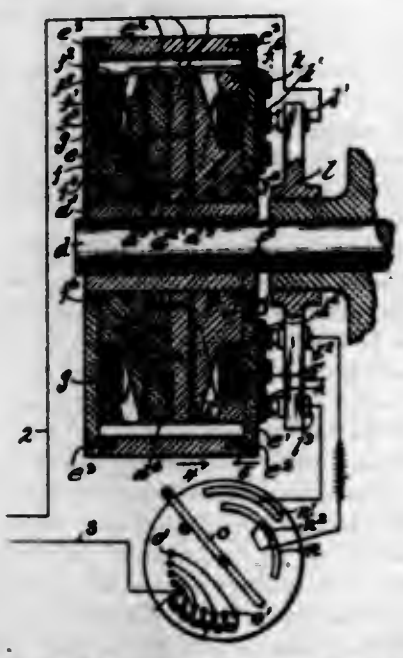
24. The combination with the driving-wheel of an electric vehicle, of a plurality of alternating-current motors connected in series for operating the same and capable of running independently thereof, means to cause said motors to divide the load proportionately and a controllable clutch for connecting said wheel with said motors.

25. The combination with the driving-wheel of an electric vehicle, of a plurality of alternating-current motors connected in series for operating the same and capable of running independently thereof, means to cause said motors to divide the load proportionately, a controllable clutch for connecting means with said motors to drive said wheel at one speed, and a second controllable clutch for connecting means with said motors to drive said wheel at a relatively higher speed.

26. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof and an inherently gradually accelerating clutch for connecting the wheel with said motor.

27. The combination with the driving-wheel of an electric vehicle, of an alternating-current motor for operating the same and capable of running independently thereof, an inherently gradually accelerating clutch for connecting means with said motor to drive said wheel at one speed and a second gradually-accelerating clutch for connecting means with said motor to drive said wheel at a relatively higher speed.

786,420. **ELECTRIC SPEED-ACCELERATOR.** HENRY H. CUTLER, Milwaukee, Wis., assignor to The Arnold Magnetic Clutch Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Apr. 22, 1901. Serial No. 56,999.



Claim.—1. The combination with a driving and a driven part, of electromagnetic means associated therewith and operatively energized for causing said driven part to move at the same speed as the driving part with faces in physical contact or at a less speed with an air-film interposed between the faces, substantially as described.

2. The combination with a driving and a driven part, of a field-magnet adapted to be energized operatively during the movement of said parts and having portions of the magnetic circuit carried upon said respective parts, and means for interposing air-space between the portions of the magnetic circuit carried upon said respective parts while the driven member is being driven or for eliminating said air-space during such operation, substantially as described.

3. The combination with a driving and a driven part adapted to rotate, of electromagnetic means for operatively exerting an attraction between said parts during said rotation and means for interposing an air-space between the opposed surfaces of said driving and driven parts, or for eliminating said air-space during said rotation, substantially as described.

4. The combination with a driving and a driven part, of electromagnetic means for operatively exerting attraction between the same, and means for causing said parts to rotate with their opposed surfaces separated by an air-space or with their opposed faces in physical contact, substantially as described.

5. The combination with a driving and a driven part, of electromagnetic means for operatively exerting an attraction between said parts and a controller for causing said parts to move either with their opposed faces out of physical contact or in physical contact, substantially as described.

6. The combination with a driving and a driven part, of a winding or windings associated therewith for operatively exerting an attraction between said parts and a supplemental winding coöperating with said main winding to interpose or eliminate an air-space between the opposed faces of said driving and driven parts, substantially as described.

7. The combination with a driving and a driven part, of a pair of field-magnets carried upon one of said parts, and having the magnetic circuits completed through the other part, said field-magnets being adapted to coöperate to drive the driven part at the same speed as the driving part with faces in physical contact or at a less speed with an air-film interposed between said faces, substantially as described.

8. The combination with a driving and a driven part, of an electromagnetic means associated therewith for operatively exerting an attraction between said parts, and means for moving said parts relatively to move the opposed surfaces thereof into or out of physical contact during the driving operation due to said continuous attraction, substantially as described.

9. The combination with a driving and a driven part, of electromagnetic means for exerting an attraction between the same, and a pair of windings coöperating to cause said driven part to move at the same speed as the driving part with faces in physical contact or at a less speed with an air-film interposed between said faces, substantially as described.

10. The combination with a driving and a driven part, of electromagnetic means for operatively exerting an attraction between the said parts and at the same time driving them either out of physical contact at different speeds or in physical contact at the same speed, a pair of windings forming a part of said means, and controlling means for separately cutting said windings into and out of circuit, substantially as described.

11. The combination with a driving and a driven part, of electromagnetic means for operatively exerting an attraction between the said parts and at the same time driving them either out of physical contact at different speeds or in physical contact at the same speed, a pair of windings forming a part of said means, and means for closing circuit through one of said windings in advance of the other, substantially as described.

12. The combination with a driving and a driven part, of electromagnetic means for exerting an attraction between the same, a pair of windings, means for cutting one of said windings into circuit and out of circuit in advance of the other and for including both in circuit at the same time, substantially as described.

13. The combination with a driving and a driven part adapted to move with their opposed faces either in or out of contact, of electromagnetic means for exerting an attraction between the same, a pair of windings, one arranged to have a greater attractive effect than the other, and means for cutting said windings into and out of circuit whereby said parts may be caused to move with their opposed faces either in or out of physical contact, substantially as described.

14. The combination with a driving and a driven part, one of said parts carrying a pair of magnetic fields and the other part carrying a coöperating armature, of a pair of windings on opposite sides of one armature for energizing said fields and switching mechanism for cutting said windings into and out of circuit in a definite order

and means for regulating the strength of the current-supply to said windings, substantially as described.

15. The combination with a rotating central part or armature of a pair of field-magnets one mounted upon each side of said central part and adapted to coöperate therewith in the completion of the magnetic circuit to rotate the armature while in contact therewith or out of contact therewith, and means for moving said parts relatively to introduce or eliminate an air-space, substantially as described.

16. The combination with a central part or armature, of a pair of field-magnets upon opposite sides thereof, and means whereby one of said parts rotates the other with their opposed faces out of physical contact or with the face of one of said field-magnets in physical contact with the opposite face of said central part or armature, substantially as described.

17. The combination with a driving and a driven part, of a pair of field-magnets and the windings thereof associated with said driving and driven parts, means for accommodating the movement of said driving and driven parts relatively to introduce or eliminate an air-gap, and a controller for closing circuit through one of said windings in advance of the other and for opening circuit through said first-mentioned winding in advance of the other, substantially as described.

18. The combination with a driving and a driven part, of a pair of field-magnets and the windings thereof, said driving and driven parts being arranged to permit the introduction or elimination of an air-space between the opposed faces thereof, means for closing circuit through one of said windings in advance of the other, and for opening circuit through said first-mentioned winding in advance of the other, and means for varying the current through one or both of said windings, substantially as described.

19. The combination with the driving and driven parts, one comprising a pair of field-magnets, and the other an armature between said field-magnets, said parts being arranged to be moved laterally, a resistance in circuit with one of said windings and means for closing circuit through the winding which is in circuit with the resistance after circuit is closed through the other winding to thereby introduce an air-gap between the driving and driven parts, and means for opening the circuit through the winding which is not in circuit with the resistance in advance of the other winding to thereby eliminate the air-gap, substantially as described.

20. In combination a driving and a driven part carrying the coöperating members having their opposed faces transverse to their axes and movable toward and from each other axially, of a magnetic field arranged so that the said opposite faces thereof may rotate out of physical contact and with a thin film of air between the same of infinitesimal thickness, substantially as described.

21. In combination a driving and a driven part carrying the coöperating members having their opposed faces transverse to their axes and movable toward and from each other axially, of a magnetic field and having their opposed faces transverse to the axis of rotation and arranged to rotate out of physical contact and with an interposed film of air of infinitesimal thickness, substantially as described.

22. In combination, a driving and a driven part carrying the cooperating members of a continuously-active magnetic field, and having their opposed faces separated by a transverse air space or film, and means for rotating said parts with said air-film interposed or for rotating the same with the air-film eliminated and the opposed faces in physical contact, substantially as described.

23. The combination with a driving and a driven part carrying the coöperating members of a continuously-active magnetic field, of means for starting the same in rotation with an air space or film interposed between the opposed faces of said members, and means for moving said members to bring the opposed faces thereof into physical contact during the rotation to eliminate the said air-space, substantially as described.

24. The combination with a driving and a driven part carrying the coöperating members of a continuously-active magnetic field and having their opposed faces separated by a transverse air space or film, of means for starting said parts in rotation with said air space or film interposed between the opposed faces of said members, and for then during said rotation moving the said members to carry the opposed faces into physical contact, substantially as described.

25. The combination with a primary member having suitable energizing-windings, of a secondary member adapted to be inductively influenced thereby, and means whereby one of said members, the driven member, is driven by said primary member at less than full speed by induction alone and is driven by said primary member at full speed by friction alone.

786,421. SYSTEM AND APPARATUS FOR MOTOR CONTROL.

HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin.
Filed Mar. 31, 1902. Serial No. 100,880.



Claim.—1. The combination with a suitable base, of a large motor mounted thereon and connected with the machinery to be operated, a clutch mounted upon the shaft of said motor, a counter-shaft located beneath the shaft of the motor and connected with said clutch by gears, and a small motor located beneath the motor-shaft and connected with the same by means of intermediate gearing and also mounted upon said base, substantially as described.

2. The combination with a pair of motors adapted to operate a single machine, of a magnetic clutch therefor, a rheostat, a separate electrically-operated switch for each motor and for the clutch, and means to control said switches in order from the rheostat, substantially as described.

3. The combination with a pair of motors adapted to drive machinery, a magnetic clutch associated therewith, a rheostat, a solenoid-switch for each motor and for the clutch and controlling the continuity of their circuits, and means for operating said switches from the rheostat, substantially as described.

4. The combination with a small motor and a large motor, of a magnetic clutch, a rheostat having a movable element, said element in one position serving to cause the operation of said clutch and small motor and in another position to cause the operation of the large motor and render inoperative the clutch and small motor, substantially as described.

5. The combination with a plurality of electric motors, of a rheostat for said motors, magnetically-operated switches controlling the continuity of the circuits of said motors, means for preventing the operation of said switches after the circuits controlled thereby have been once closed until the movable element of said rheostat has been returned to its initial position, and a clutch for connecting one of said motors with the machine to be operated.

6. The combination with a plurality of electric motors, of a rheostat for said motors, a magnetic clutch for connecting one of said motors with the machine to be operated, magnetically-operated switches for controlling the continuity of the circuits of said motors and said clutch, and means for preventing the operation of the switches of the circuits for said motors after the circuits controlled thereby have been once closed until the movable element of said rheostat has been returned to its initial position.

7. The combination with a plurality of electric motors, of a rheostat for said motors, a magnetic clutch for connecting one of said motors with the machine to be operated, magnetically-operated switches for controlling the continuity of the circuits of said motors

and said clutch, means for preventing the operation of the switches of the circuits for said motors after the circuits controlled thereby have been once closed until the movable element of said rheostat has been returned to its initial position, and means for opening any of said circuits from a distant point.

8. The combination with a plurality of electric motors, of a rheostat therefor having a movable element, a clutch for connecting one of said motors with the machine to be operated, magnetically-operated switches for controlling the continuity of the circuits of said motors and said clutch, means for successively operating said switches when the movable element of said rheostat is manipulated to adjust the resistance in circuit, and means for preventing the operation of the switches of the circuits for said motors after the circuits controlled thereby have been once closed until the movable element of said rheostat has been returned to its initial position.

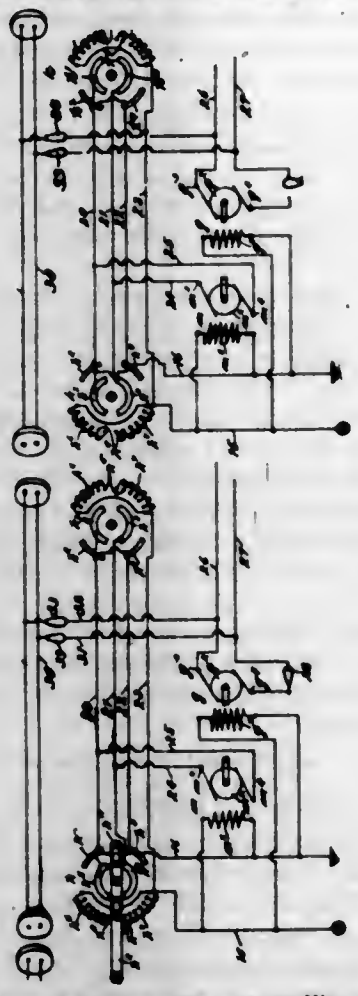
9. The combination with a large motor for driving a suitable machine, of a small motor, a magnetic clutch for connecting said small motor with said machine, a rheostat for said motors, magnetically-operated switches for controlling the continuity of the circuits of said motor and said clutch, means for successively operating said switches to close their respective circuits when the movable element of said rheostat is manipulated to adjust the resistance in circuit, means for preventing the operation of the switches of the circuits for said motors after the circuits controlled thereby have been closed until the movable element of said rheostat has been returned to its initial position, and a switch for opening said circuits from a distant point.

10. The combination with a suitable base, of a large motor mounted thereon and having its shaft on one side suitably geared to the machinery to be driven, a clutch on the opposite side of said motor, a counter-shaft geared to said clutch, and a small motor also mounted upon said base and suitably geared to said counter-shaft.

11. The combination with a suitable base, of a large motor mounted thereon and connected with the machinery to be driven, a small motor also mounted upon said base, the shafts of said motors being suitably geared to an intermediate shaft, and a clutch interposed between said motors having its members adapted to be automatically disengaged when the speed of said large motor becomes greater than that of the small motor.

786,422. SYSTEM OF CONTROLLING ONE OR MORE ELECTRIC MOTORS.

HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed July 6, 1903. Serial No. 164,378.



Claim.—1. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith, a generator supplying current to said controlling-circuit, and means for varying the speed of said generator to selectively actuate said electromagnetic windings.

2. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith, a generator supplying current to said controlling-circuit, means for varying the speed of said generator to selectively actuate said electromagnetic windings, and the elements of an electric-motor controller adapted to be actuated by said windings.

3. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith, a generator supplying current to said controlling-circuit, and means for varying the direction and speed of operation of said generator to selectively actuate said electromagnetic windings.

4. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith, a generator supplying current to said controlling-circuit, means for varying the direction and speed of operation of said generator to selectively actuate said electromagnetic windings, and suitable instrumentalities controlled by said windings.

5. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith, a generator supplying current to said controlling-circuit, means for varying the direction and speed of operation of said generator to selectively actuate said electromagnetic windings, suitable instrumentalities controlled by said windings, and the elements of an electric-motor controller arranged to be actuated by said windings.

6. The combination with a car or controlling circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings arranged in said controlling-circuit and adapted to respond to different voltages, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be varied.

7. The combination with a car or controlling circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in parallel across said circuit, and adapted to respond to different voltages, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said circuit may be varied at will.

8. The combination with a car or controlling circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings arranged in said circuit and adapted to respond to variations in voltage, suitable devices controlled by said electromagnetic windings, and means for varying at will the speed of the armature of said generator whereby the voltage impressed upon said controlling-circuit may be varied.

9. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to different voltages, elements of an electric-motor controller associated with said windings and actuated thereby, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be varied at will.

10. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said controlling-circuit and wound to respond to different voltages, an armature resistance controlled by said windings, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be varied.

11. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond successively as the voltage upon the controlling-circuit is increased, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be regulated.

12. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to variations in voltage, and means for varying at will the speed and direction of rotation of said armature whereby the voltage impressed upon said controlling-circuit and the polarity thereof may be regulated.

13. The combination with a car or controlling circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings, arranged within said circuit and wound to respond to different voltages, suitable instrumentalities controlled by said windings, means for operating said generator, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be varied.

14. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings for controlling suitable instrumentalities, said windings being connected in said circuit and wound to respond to different voltages, a motor for operating said generator, and means for varying the speed of said motor.

15. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to different voltages, suitable devices controlled by said windings, a motor for operating said generator, and means for regulating the relative strength of the motor field and armature, whereby the speed of the armature may be varied at will so as to increase or decrease the voltage impressed upon the controlling-circuit.

16. The combination with a controlling-circuit, of a motor-generator having the generator part connected to said circuit so as to supply current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to different voltages, suitable devices arranged to be controlled by said windings, and means for varying at will the speed of said motor-generator whereby the voltage impressed upon said circuit may be varied.

17. The combination with a suitable controlling-circuit, of a motor-generator having the generator part thereof connected to said circuit so as to supply current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to variations in voltage, and a rheostat for varying the speed of said motor-generator, whereby the voltage impressed upon said car-circuit may be varied.

18. The combination with a controlling-circuit, of a motor-generator having the generator part thereof connected to said circuit so as to supply current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to different voltages, suitable instrumentalities controlled by said windings, and a rheostat for varying at will the speed of the motor-generator, whereby the voltage impressed upon said controlling-circuit may be increased or decreased as desired to effect the proper actuation of said instrumentalities through said windings.

19. The combination with a suitable supply-circuit, of a motor-generator having the field of the generator part connected across said circuit so that the strength and polarity will be constant, a controlling-circuit supplied with current from said generator, a plurality of electromagnetic windings connected in said controlling-circuit and wound to respond to variations in voltage, and means for varying at will the speed of said motor-generator, whereby the potential of the current upon said controlling-circuit may be increased or decreased as desired.

20. The combination of a motor-generator, a suitable source of supply for the motor part thereof, a controlling-circuit supplied with current from the generator part of said motor-generator, a plurality of electromagnetic windings connected in said controlling-circuit and wound to respond to different voltages, suitable instrumentalities controlled by said windings, and means for varying at will the strength of the armature-current of said motor, whereby the voltage upon the controlling-circuit may be varied as desired.

21. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to variations in voltage, an armature resistance controlled by said windings, a reversing-switch also controlled by said windings, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said circuit may be increased or decreased as desired.

22. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to different voltages, a reversing-switch controlled by pairs of said windings, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be increased or decreased as desired.

23. The combination with a suitable controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit and wound to respond to different voltages, a reversing-switch actuated by pairs of said windings and depending for its operation upon the direction of the flow of current upon the car-circuit, and means for varying at will the speed and direction of rotation of the armature of said generator, whereby the voltage and polarity of the current upon said controlling-circuit may be varied as desired.

24. The combination with a suitable circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected with said circuit and wound to respond to variations in voltage, a motor or power circuit, a switch for directing the flow of the current upon said power-circuit, electromagnetic windings in said controlling-circuit for actuating said switch, the operation of said switch being dependent upon the direction of the flow of current upon said controlling-circuit, and means for varying at will the speed and direction of rotation of the armature of said generator, whereby the voltage and polarity of the current upon said controlling-circuit may be regulated according to the circumstances.

25. The combination with a controlling-circuit, of a generator for supplying current thereto, a plurality of electromagnetic windings connected in said circuit, and wound to respond to variations in voltage, a series-parallel switch, and means for varying at will the speed of the armature of said generator, whereby the voltage impressed upon said controlling-circuit may be increased or decreased, as desired.

26. The combination of a plurality of car or controlling circuits, a generator for supplying current to said circuits, a plurality of electromagnetic windings connected in each of said circuits and wound to respond to variations in voltage, an electric-motor controller associated with the set of windings upon each controlling-circuit and having its elements arranged to be actuated by said windings, and means for varying at will the speed of the armature of said generator whereby the voltage impressed upon said controlling-circuit may be regulated as desired.

27. The combination with a motor, of a suitable supply-circuit, a controlling-circuit having a plurality of electromagnetic windings connected therewith and adapted to respond to different voltages, a controller for said motor actuated by said windings, a generator for supplying current to said controlling-circuit, means for varying at will the speed and direction of rotation of the armature of said generator whereby the voltage and polarity of the current upon said controlling-circuit may be regulated as desired, and a switch for making the direction of rotation of the armature of the motor dependent upon the polarity of the current on the controlling-circuit.

28. The combination with a suitable controlling-circuit, of a plurality of electromagnetic windings associated therewith, a generator supplying current to said controlling-circuit, means for varying the operation of said generator to selectively actuate said windings, and an armature resistance and a reversing-switch controlled by said windings.

29. The combination with one or more electric motors, of suitable instrumentalities controlling the operation thereof, a controlling-circuit, a plurality of electromagnetic windings associated with said circuit and operating said instrumentalities, a generator supplying current to said controlling-circuit, and means for varying the operation of said generator to selectively actuate said windings.

30. The combination with a plurality of controlling-circuits, of a plurality of electromagnetic windings suitably associated with each of said controlling-circuits, a motor-generator supplying current to said plurality of controlling-circuits, and means for varying the speed of said motor-generator to selectively actuate said electromagnetic windings.

31. The combination with a plurality of controlling-circuits, of a plurality of electromagnetic windings suitably associated with each of said controlling-circuits, a motor-generator supplying current to said plurality of controlling-circuits, means for varying the speed of said motor-generator to selectively actuate said electromagnetic windings, and the elements of electric-motor controllers arranged to be operated by said windings.

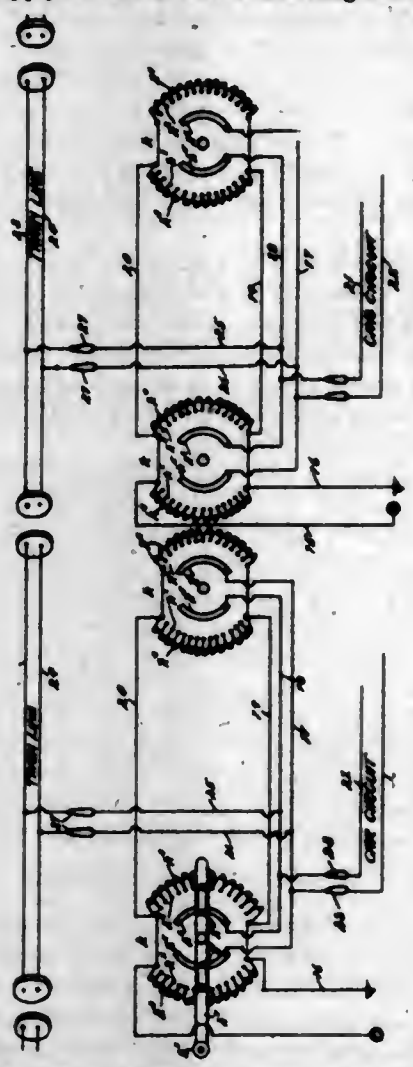
32. The combination with a plurality of controlling-circuits, of a plurality of electromagnetic windings suitably associated with each of said controlling-circuits, a train-circuit, a motor-generator adapted to be connected with said plurality of controlling-circuits through the agency of said train-circuit, means for varying the speed of said motor-generator to selectively actuate said electromagnetic windings, and the elements of electric-motor controllers arranged to be operated by said windings.

786,423. SYSTEM FOR CONTROLLING ELECTRIC MOTORS.

HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed July 6, 1903. Serial No. 164,379.

Claim—1. The combination with a suitable supply-circuit, of a controlling-circuit connected with said supply-circuit, a plurality of electromagnetic windings, connected in said controlling-circuit and adapted to respond to variations in voltage, and conductive

means for varying at will the voltage and polarity of the current delivered by said supply-circuit to said controlling-circuit.



2. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in said controlling-circuit and wound to respond to variations in voltage, suitable instrumentalities controlled by said windings, and conductive means for transforming the voltage and polarity of the current delivered by said supply-circuit to said controlling-circuit.

3. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in said controlling-circuit and adapted to respond to variations in voltage, an armature resistance controlled by said windings, and conductive means for varying at will the voltage and polarity of the current delivered by said supply-circuit to said controlling-circuit.

4. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings, arranged in said controlling-circuit and wound to respond to variations in voltage, an electric-motor controller having its elements controlled by said windings, and conductive means for varying at will the voltage and polarity of the current delivered by said supply-circuit to the controlling-circuit.

5. The combination of a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings, arranged in said controlling-circuit and adapted to respond to variations in voltage, suitable instrumentalities controlled by said windings, and a resistance-controller for conductively varying at will the voltage and polarity of the current upon said controlling-circuit.

6. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings, arranged in said controlling-circuit and adapted to respond to variations in voltage, motor-controlling instrumentalities controlled by said windings, and a rheostat for conductively varying at will the voltage and polarity of the current upon said controlling-circuit.

7. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings, arranged in said controlling-circuit and wound to respond to variations in voltage, an armature resistance and a reversing-switch controlled by said windings, and conductive means for varying at will the voltage and polarity of the current upon said controlling-circuit.

8. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings connected in said controlling-circuit, and adapted to respond to variations in voltage, an armature resistance, a reversing and a series-parallel switch controlled by said windings, and conductive means for varying at will the voltage and polarity of the current upon said controlling-circuit.

9. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged within said controlling-circuit, and adapted to respond to variations in voltage, a reversing-switch controlled by a part of said windings and depending for its operation upon the direction of the flow of the current upon the controlling-circuit, and conductive means for varying at will the voltage and polarity of the current upon the controlling-circuit.

10. The combination with one or more electric motors, of a suitable supply-circuit therefor, a controlling-circuit connected with said supply-circuit, a plurality of electromagnetic windings connected in said controlling-circuit and adapted to respond to variations in voltage, an armature resistance controlled by said windings, a switch for reversing the armature-current of said motor also controlled by said windings, said switch depending for its operation upon the direction of the flow of the current upon the controlling-circuit, and conductive means for varying at will the voltage and polarity of the current upon said controlling-circuit.

11. The combination with two or more electric motors, of a suitable supply-circuit therefor, a controlling-circuit connected with said supply-circuit, a plurality of electromagnetic windings, connected in said controlling-circuit and adapted to respond to variations in voltage, an armature resistance controlled by said windings, a reversing-switch and a series-parallel switch for said motors also controlled by said windings, said reversing-switch depending for its operation upon the direction of the flow of the current upon the controlling-circuit, and conductive means for varying at will the voltage and polarity of the current upon said controlling-circuit.

12. The combination with a suitable supply-circuit, of resistances connected across said supply-circuit in different paths, a controlling-circuit, a plurality of electromagnetic windings connected in said controlling-circuit and adapted to respond to variations in voltage, and means for connecting the terminals of said controlling-circuit with the different points of said resistances to produce the particular voltage and polarity desired.

13. The combination with a suitable supply-circuit, of two resistances connected across said supply-circuit, a controlling-circuit, a plurality of electromagnetic windings connected in said controlling circuit, and adapted to respond to variations in voltage, suitable instrumentalities controlled by said windings, and means for connecting the terminals of said controlling-circuit with different points of said resistances to produce the particular voltage and polarity desired upon the controlling-circuit.

14. The combination with a suitable supply-circuit, of a plurality of controlling-circuits connected therewith, a plurality of electromagnetic windings arranged in each of said circuits and adapted to respond to variations in voltage, and conductive means for varying at will the voltage and polarity of the current upon said controlling-circuit to selectively actuate said windings.

15. The combination with a suitable supply-circuit, of a plurality of controlling or car circuits connected therewith, a plurality of electromagnetic windings arranged in each of said circuits and adapted to respond to variations in voltage, an electric-motor controller associated with the windings of each of said controlling or car circuits, and having its elements controlled thereby, and conductive means for varying at will the voltage and polarity of the current upon said car or controlling circuit.

16. The combination with a suitable supply-circuit, of a plurality of car or controlling circuits, a plurality of electromagnetic windings connected in each of said controlling-circuits, an electric-motor controller associated with the windings of each of said circuits and having its elements controlled thereby, conductive means associated with each of said controlling-circuits for varying at will the voltage and polarity of the current upon said controlling-circuits, and means whereby the voltage and polarity of the current upon all of said controlling-circuits may be varied at will from any one of the first-mentioned means.

17. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings associated with said controlling circuit, and conductive means for varying at will the voltage and polarity of the current delivered

by said supply-circuit to said controlling-circuit to selectively actuate said windings.

18. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings associated with said controlling-circuit, conductive means for varying at will the voltage and polarity of the current delivered by said supply-circuit to said controlling-circuit to selectively actuate said windings, and the elements of an electric-motor controller arranged to be operated by said windings.

19. The combination with a controlling-circuit, of a plurality of electromagnetic windings associated therewith, a supply or power circuit, and a resistance-controller for conductively varying the polarity and other characteristics of the current supplied to said controlling-circuit to selectively actuate said electromagnetic windings.

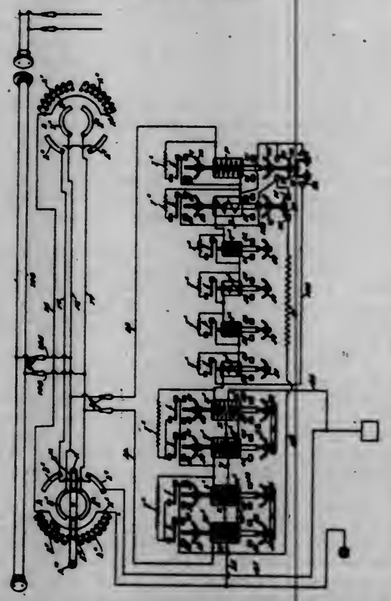
20. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith, a supply or power circuit, and a resistance-controller for changing by conduction the polarity and voltage of the current supplied to said controlling-circuit to selectively actuate said electromagnetic windings.

21. The combination with a controlling-circuit, of a plurality of electromagnetic windings associated therewith, and adapted to respond under different electrical conditions, a reversing-switch and motor-speed-controlling instrumentalities controlled by said windings, a supply or power circuit, and a resistance-controller for conductively varying the electrical conditions of said controlling-circuit.

22. The combination with a controlling-circuit, of a plurality of electromagnetic windings suitably associated therewith and adapted to respond to different voltages, and conductive controlling means for transforming the current from said supply-circuit into a current suitable for use upon said controlling-circuit and for varying the polarity and other characteristics of the current imposed upon said controlling-circuit.

786,424. SYSTEM FOR CONTROLLING ELECTRIC MOTORS.

HENRY H. CUTLER, Milwaukee, Wis., assignor to The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed July 6, 1903. Serial No. 164,390.



Claim.—1. The combination with a controlling-circuit, of a plurality of electromagnetic windings connected therewith in series, means for varying the polarity and strength of the current upon said controlling-circuit to selectively actuate said electromagnetic windings, and the elements of an electric-motor controller operated by said windings.

2. The combination with a controlling-circuit, of a plurality of electromagnetic windings connected therewith in series, a reversing-switch and motor-speed-varying instrumentalities controlled by said windings, and means for varying the electrical conditions on said controlling-circuit to selectively actuate said windings.

3. The combination with a controlling-circuit, of a plurality of electromagnetic windings adapted to respond to currents of different character and connected therewith in series, suitable instrumentalities arranged to be controlled by said windings, and means for varying at will the polarity and other characteristics of the current supplied to said controlling-circuit to selectively actuate said windings.

4. The combination with a supply or power circuit, of a controlling-circuit, a plurality of electromagnetic windings adapted to respond to different current conditions and connected with said controlling-circuit in series, and suitable means for transforming the current from said supply-circuit as to strength and polarity into a current suitable for use upon said controlling-circuit to selectively actuate said electromagnetic windings.

5 The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to currents of different strengths, suitable instrumentalities controlled by said windings, and means for varying at will the strength and polarity of the current upon said controlling-circuit.

6. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to currents of different strengths, an electric-motor controller controlled by said windings, and means for varying at will the strength and polarity of the currrent upon said controlling-circuit.

7. The combination with a supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in series in said controlling-circuit, an armature resistance controlled by said windings, a reversing-switch also controlled by said windings, and means for varying at will the strength and polarity of the current upon said controlling-circuit.

8. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to variations in the strength of the current upon said controlling-circuit, an armature resistance controlled by said windings, a reversing and a series-parallel switch also controlled by said windings, and means for varying at will the strength and polarity of the current upon said controlling-circuit.

9. The combination with a suitable supply-circuit, of a controlling-circuit, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to variations in the strength of the current upon said controlling-circuit, an armature resistance controlled by said windings, a series and a parallel switch also controlled by said windings, said parallel switch being adapted to control the current which traverses the windings controlling said armature resistance and said series switch, and means for varying at will the strength and polarity of the current upon said car-circuit.

10. The combination with a suitable supply-circuit, of a controlling-circuit connected therewith, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to variations in the strength of the current upon said controlling-circuit, an electric-motor controller having its elements controlled by said windings, and conductive means for varying at will the strength and polarity of the current supplied to said controlling-circuit from said supply-circuit.

11. The combination with a suitable power or supply circuit, of one or more electric motors connected therewith, a controlling-circuit connected with said power-circuit, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to variations in the strength of the current upon said controlling-circuit, an armature resistance for said motor controlled by said windings, a reversing-switch for said motor also controlled by said windings, the operation of said switch being dependent upon the direction of the flow of the current upon said controlling-circuit, and means for varying at will the strength and polarity of the current upon said controlling-circuit.

12. The combination with a suitable power or supply circuit, of two or more electric motors connected therewith, a controlling-circuit also connected with said power-circuit, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to variations in the strength of the current on the said controlling-circuit, an armature resistance for said motors controlled by said windings, and switches for connecting said motors in a series or parallel relation also controlled by said windings, and means for varying at will the strength and polarity of the current upon said controlling-circuit.

13. The combination with a suitable power or supply circuit, of two or more electric motors connected therein, a controlling-circuit connected with said power-circuit, a plurality of electromagnetic windings arranged in series in said controlling-circuit and responsive to variations in the strength of the current upon said controlling-circuit, an armature resistance for said motors controlled by said windings, a reversing and a series-parallel switch also controlled by said windings, said series-parallel switch being adapted to connect said motors either in series or parallel relation, and the operation of said reversing-switch being dependent upon the direction of the flow of the current upon the controlling-circuit, and conductive means for varying at will the strength and polarity of the current upon said controlling-circuit.

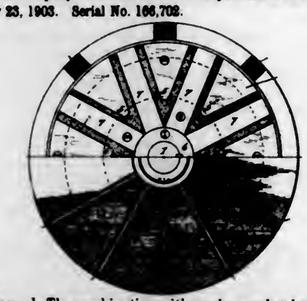
14. The combination with a suitable circuit, of a plurality of electromagnetic windings connected therewith in series and adapted to respond to currents of different character, means for varying the character of the current upon said circuit, and means for protecting the responding solenoids from an excessive current.

15. The combination with a suitable circuit, of a plurality of electromagnetic windings connected therewith in series and adapted to respond to currents of different character, means for varying the character of the current upon said circuit, and means for connecting a shunt round each responding solenoid.

16. The combination with a controlling-circuit, of a plurality of electromagnetic windings connected therewith in series and adapted to respond to currents of different character, means for varying the character of the current upon said controlling-circuit, and switches adapted to connect a resistance in shunt round each responding solenoid.

786,425. MAGNETIC CLUTCH OR SPEED-ACCELERATOR.

HENRY H. CUTLER, Milwaukee, Wis., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed July 23, 1903. Serial No. 166,702.



Claim.—1. The combination with a primary clutch member having two magnetic fields, of a secondary member having parts thereof subjected to the influence of said fields, said parts being oppositely influenced by said fields.

2. The combination with a primary clutch member having two magnetic fields, of a secondary member having the parts thereof subjected to the influence of said fields, said parts being oppositely influenced by said fields, and said fields adapted to produce a torque upon said secondary member.

3. The combination with a primary member having two oppositely-disposed magnetic fields, of a secondary member having parts thereof subjected to the inductive influence of said fields, said fields being adapted to reduce the frictional effect of the primary member upon the secopary member.

4. The combination with a primary member having a pair of magnetic fields, of a secondary member having a part adapted to rest in mechanical contact with the face of said primary member and being subjected to the combined inductive and frictional effect of said primary member, said second member having a part subjected to the inductive influence only of one of said fields.

5. The combination with a primary clutch member having two magnetic fields, of a secondary member having two armatures, one of said armatures being subjected to the inductive torque-producing influence of one of said fields, and the other being subjected to the inductive torque-producing influence of the other field, said first-mentioned armature being adapted to mechanically engage the face of said primary member and said second-mentioned armature being associated therewith so as to reduce the frictional effect.

6. The combination with a primary member having a pair of suitable polar surfaces, and a pair of energizing-windings therefor, of a secondary member having a suitable part subjected to the inductive influence of said windings, and means whereby said armature part may be caused to move in frictional contact with one of said polar surfaces, the inductive influence of said windings being adapted to reduce the frictional effect of said primary member upon said secondary member.

7. The combination with a primary clutch member having a pair of windings, of a secondary member having a pair of armature parts respectively subjected to the inductive influence of said windings, and means whereby one of said armature-faces may be caused to move in mechanical contact with said primary member.

8. The combination with a primary clutch member having a main winding and a supplemental winding, of a secondary member movable relatively to said primary member and having two armatures or armature parts, and means for dissipating the heat developed in said secondary member.

9. The combination with a primary member having a main and a supplemental winding, of a secondary member movable relatively to said primary member and having two armatures or armature parts, one of said parts being arranged to mechanically engage the primary member and to be inductively influenced by said main winding, and the other of said parts being arranged out of mechanical contact with said primary member and to be inductively influenced by the supplemental winding.

10. The combination with a primary member having a main and a supplemental winding, of a secondary member movable relatively to said primary member and having two armatures or armature parts, one of said parts being arranged to mechanically engage the primary member and to be inductively influenced by said main winding, and the other of said parts being arranged out of mechanical contact with said primary member and to be inductively influenced by the supplemental winding, and means for rapidly dissipating the heat developed in said secondary member.

11. The combination with a primary clutch member having a pair of windings and a polar surface corresponding to each winding, of a secondary member having an armature-face opposite each of said polar surfaces, one of said armatures-faces being adapted to mechanically engage its corresponding polar surface.

12. The combination with a primary clutch member having a pair of windings and a polar surface corresponding to each winding, of a secondary member having an armature-face opposite each of said polar surfaces, one of said armature-faces being adapted to mechanically engage its corresponding polar surface, and ribs or wings upon said armature-face for increasing the radiating-surface thereof and causing ventilation.

13. The combination with a primary clutch member, of a secondary clutch member, and suitable means associated with said secondary member for dissipating the heat developed.

14. The combination with a primary clutch member having a suitable energizing winding or windings, of a secondary clutch member coöperating with said primary member, and suitable means associated with said secondary member for dissipating the heat developed.

15. The combination with a primary clutch member, of a secondary clutch member inductively influenced thereby, and suitable means associated with said secondary member for dissipating the heat developed.

16. The combination with a primary clutch member, of a secondary clutch member having parts or armatures on opposite sides of said primary member, and suitable means associated with said secondary member for dissipating the heat developed.

17. The combination with a primary clutch member having a pair of suitable energizing polar surfaces, of a secondary member having an armature-face opposite each of said polar surfaces, and suitable heat-dissipating means associated with said secondary member.

18. The combination with a primary clutch member, of a secondary member inclosing the same, and suitable heat-dissipating means associated with said secondary member.

19. The combination with a primary clutch member, having two suitable energizing polar surfaces, of a secondary member having two armature parts arranged opposite to each of said polar surfaces, and heat-dissipating ribs or wings associated with said armature parts.

20. The combination with a primary clutch member having a pair of suitable energizing polar surfaces, of a secondary member having an armature part resting opposite each of said polar surfaces, and upon opposite sides of said primary member, and ribs or wings

upon the exterior sides of said secondary member for dissipating the heat.

21. The combination with a primary clutch member having polar surfaces upon opposite sides thereof, of a secondary member having an armature or part cooperating with each of said polar surfaces, and heat-dissipating means associated with each of said armatures.

22. The combination with a primary clutch member having a main winding and a supplemental winding, of a secondary member movable relatively to said primary member and having two armatures, one of said armatures being arranged upon each side of said primary member, and means for dissipating the heat developed in said armatures.

23. The combination with a primary clutch member having a main winding and a supplemental winding, of a secondary member movable relatively to said primary member and having an armature arranged upon each side of said primary member, said armatures being arranged to be inductively influenced by said main and supplemental windings, and means for rapidly radiating the heat developed in said armatures.

24. The combination with a primary member having a main and a supplemental winding, of a secondary member movable relatively to said primary member and having an armature arranged upon each side of said primary member, one of said armatures being arranged to mechanically engage the primary member and to be inductively influenced by said main winding, and the other of said armatures being arranged out of mechanical contact with said primary member and to be inductively influenced by the supplemental winding, and means for rapidly dissipating the heat developed in said armatures.

25. The combination with a primary clutch member having a pair of windings and polar surfaces upon opposite sides thereof, of a secondary member having an armature arranged opposite each of said polar surfaces, and ribs or wings upon said armatures for increasing the radiating-surface thereof and causing ventilation.

26. The combination with a primary clutch member, having a pair of windings and polar surfaces upon opposite sides thereof, of a secondary member movable relatively to said primary member and having an armature arranged opposite each of said polar surfaces, and ribs or wings upon said armatures for increasing the radiating-surfaces thereof and for producing ventilation.

27. The combination with a primary clutch member having a pair of windings, of a secondary member having a pair of armatures, one of said armatures being arranged upon each side of said primary member, and means surrounding said primary member for retaining said armatures at a fixed distance from each other, said armatures being adapted to be inductively influenced by said windings.

28. The combination with a primary clutch member, having a pair of windings, of a secondary member having a part subjected to the influence of each of said windings and to be inductively influenced thereby, and means for regulating the inductive influence of said windings.

29. The combination with a primary clutch member, having a pair of windings, of a secondary member having an armature arranged to be inductively influenced by said windings, and a controller for varying the resistance in circuit with said windings to regulate the inductive influence of said windings upon said armatures.

30. The combination with a primary clutch member having a main and a supplemental winding, of a secondary member having an armature arranged to be inductively influenced by said windings, and a controller for first energizing said main winding, then energizing said supplemental winding and increasing the inductive influence of said windings upon said armature, and finally deenergizing said supplemental winding.

31. The combination with a primary clutch member having a main and a supplemental winding, of a secondary member having two armatures arranged to be inductively influenced by said windings, and means for first energizing said main winding to bring one of said armatures into mechanical engagement with the primary member, then energizing said supplemental winding to reduce the friction between said primary and said secondary member and to increase the inductive influence of said windings upon said armatures, and finally deenergizing said supplemental winding to attain the full attractive effect between said primary and secondary members caused by said main winding.

32. The combination with a primary clutch member, having a pair of windings, of a secondary member having a part subjected to the influence of each of said windings and to be inductively influenced thereby so as to induce torque-producing currents, and means for regulating the inductive influence of one of said windings.

786,426. AIR-PISTOL. Samuel Daniels, Harvey, Ill., assignor of one-half to James C. Reeder, Harvey, Ill. Filed Mar. 9, 1904. Serial No. 197,339.

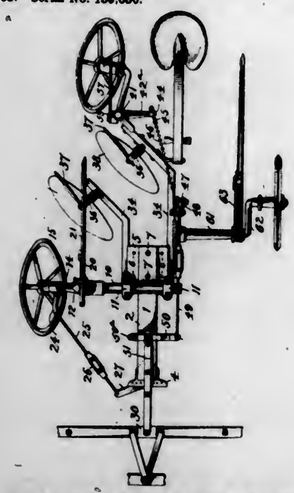


Claim.—1. An air-pistol embodying a longitudinally-movable barrel, a spring housed therein, a piston against which one end of the spring bears, a yoke-shaped abutment against which the rear end of the spring bears, and a trigger pivoted between the yoke members and having a barbed dog to engage the piston to hold the spring under compression.

2. An air-pistol embodying a longitudinally-movable barrel, a spring housed therein, a piston mounted within the barrel, a trigger having a barbed dog to hold the piston against the spring when compressed, and a cushioned stop disposed near the end of the nozzle and provided with a guard to prevent insertion of projectiles within the barrel.

3. An air-pistol comprising a handle, a barrel mounted for movement thereon, a piston mounted in the barrel, a spring bearing at one end against the piston, a yoke-shaped abutment against which the other end of the spring bears, and a trigger pivoted between the yoke members and having a barb to engage the piston, the said spring being in engagement with the inner angle of the trigger to cause it to engage the piston.

786,427. DISK PLOW. Calvin R. Davis, South Bend, Ind., assignor to The Oliver Chilled Plow Works, South Bend, Ind. Filed May 27, 1903. Serial No. 159,036.



Claim.—1. In a plow, the combination with a block, of disk-beams secured to respective sides of said block, a gage-bar secured to said block and extending across the same at the forward end thereof, and a draft-beam projecting under the gage-bar and secured upon said block and means for adjusting the position of said draft-beam on the block in a direction at right angles to said beam.

2. In a plow, the combination with a frame and a caster-wheel and post for the latter, of a draft-clevis and flexible device connecting the draft-clevis and caster-wheel post whereby the latter is restrained by the pull on the draft-clevis from turning in one direction independently of the draft-clevis, but is free to turn in the other direction independently of said clevis.

3. In a plow, the combination with a frame, a caster-wheel and a post for the latter, of a draft-clevis and a sectional connection between the draft-clevis and post, said connection being movable longitudinally from end to end by the clevis, and one section of said connection being rigid and the other flexible, whereby the caster-wheel post is free to turn automatically in one direction and automatically restrained from turning in the other direction.

4. In a plow, the combination with a frame, a caster-wheel and post for the latter, of a draft-clevis, and a sectional connection between the post and draft-clevis, one section of said connection being rigid and adjustable lengthwise and the other flexible.

5. In a plow, the combination with a frame, a caster-wheel and a post for the latter, of a draft-clevis, a sectional connection between the draft-clevis and caster-wheel post, and a block mounted to rock and having both sections of said connection attached to one end thereof.

6. In a plow, the combination with a frame, a caster-wheel and post for the latter, of a draft-clevis, a sectional connection between said post and clevis, one section of said connection being rigid and the other flexible, and a freely-movable rocking block connecting said sections.

7. In a plow, the combination with a frame, a caster-wheel and post for the latter, of a draft-clevis, a freely-movable rocking block pivoted to the frame, a rigid connection between the block and the clevis and a flexible connection between the block and the caster-wheel post.

8. In a plow, the combination with a frame, a caster-wheel and post for the latter, of a draft-clevis, a freely-movable rocking block mounted on the frame, an adjustable connection between the clevis and the block and a flexible connection between the block and the caster-wheel post.

9. In a plow, the combination with a frame, a caster-wheel and post for the latter, of a freely-movable rocking block pivoted to the frame, means for preventing said block from dropping below the center, a draft-clevis, a rigid connection between the clevis and rocking block and a flexible connection between the block and the caster-wheel post.

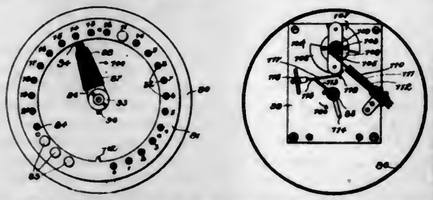
10. In a plow, the combination with a beam, a frame, a draft-clevis pivoted to the beam, a lever also pivoted to the beam and a connection between the draft-clevis and lever for preventing movement of the latter when the draft is in line with the beam, of a caster-wheel, a rocking block pivoted to the frame, an unyielding connection between the lever and the block, and a flexible connection between the rocking block and the caster-wheel post.

11. In a plow, the combination with a frame, a caster-wheel and post therefor, the post being mounted in a bearing on said frame, of a cam-lever fixed to the post and provided with two stops and a link pivoted to said lever and to the frame, the stops on the lever adapted to engage the link and hold the lever in its two adjustments.

12. In a plow, the combination with a frame and a caster-wheel post mounted therein, of a bearing carried by said post, a cam-lever mounted in said bearing, a link pivoted to said lever and to the frame and stops on the lever on opposite sides of the pivotal attachment of the link.

13. In a plow, the combination with a block having series of vertical holes therein and a plow-beam rigidly secured at its forward end to said block and projecting rearwardly therefrom, of a draft-beam adjustable laterally on said block in a direction at right angles to said beam, a draft-clevis and a cross-clevis secured to the front end of the draft-beam and provided with a series of holes for the adjustable attachment of the draft-clevis.

786,428. SELECTIVE SIGNALING SYSTEM. Rudolph C. Deuben, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed May 18, 1903. Serial No. 157,501.



Claim.—1. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, spring mechanism tending to cause the forward rotation of said switch-arm, a metal ring 81 having a series of equally-spaced positions in which to be engaged by said switch-arm, locking mechanism normally acting to prevent the forward rotation of said switch-arm, and means whereby the backward rotation of said switch-arm to a certain predetermined position causes the release of said locking mechanism to permit the subsequent forward rotation of said switch-arm.

2. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, a contact 83 adapted to be placed in any one of the plurality of equally-spaced positions in which to be engaged by said switch-arm, locking mechanism normally acting to prevent the forward rotation of said switch-arm, and means whereby the backward rotation of said switch-arm to a certain predetermined position causes the release of said locking mechanism to permit the subsequent forward rotation of said switch-arm.

3. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, spring mechanism tending to cause the forward rotation of said switch-arm, a contact 83 adapted to be placed in any one of the plurality of positions in which to be engaged by said switch-arm, locking mechanism normally acting to prevent the forward rotation of said switch-arm, and means whereby the backward rotation of said switch-arm to a certain predetermined position causes the release of said locking mechanism to permit the subsequent forward rotation of said switch-arm.

4. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, a contact 83 adapted to be placed in any one of the plurality of positions in which to be engaged by said switch-arm, locking mechanism normally acting to prevent the forward rotation of said switch-arm, and means whereby the backward rotation of said switch-arm to a certain predetermined position causes the release of said locking mechanism to permit the subsequent forward rotation of said switch-arm.

5. In a device of the class described, the combination with a shaft 85, of a crank 86, mounted thereon, a crank-handle 88 of insulating material, a cover-plate 87 of insulating material adapted to prevent direct electrical contact with said crank, and means adapted to actuate said locking mechanism to stop the rotation of said switch-arm upon reaching its normal position.

6. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a plunger switch-arm 94 carried thereby, spring mechanism tending to cause a forward rotation of said switch-arm, a metal ring 81 having a series of equally-spaced holes 82, each adapted for the reception of a contact-pin 83, governor mechanism geared to said shaft 85, ratchet mechanism interposed between said shaft and the geared connection of said governor mechanism, a projecting pin 118 associated with said governor mechanism, a pivotally-mounted lever 115, normally engaging said pin 118, to prevent a forward rotation of said shaft, and an adjustable trip-arm 114 carried on said shaft 85 adapted, on a backward rotation of said shaft to engage said lever to permit a subsequent forward rotation of said shaft.

7. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a plunger switch arm 94 carried thereby, spring mechanism tending to cause a forward rotation of said switch-arm, a metal ring 81 having a series of equally-spaced holes 82, each adapted for the reception of a contact-pin 83, governor mechanism geared to said shaft 85, ratchet mechanism interposed between said shaft and the geared connection of said governor mechanism, a projecting pin 118 associated with said governor mechanism, a pivotally-mounted lever 115, normally engaging said pin 118, to prevent a forward rotation of said shaft, an adjustable trip-arm 114 carried on said shaft 85 adapted, on a backward rotation of said shaft, to engage said lever to permit a subsequent forward rotation of said shaft, and a locking-arm 113 adapted to engage said lever upon the forward rotation of said shaft, whereby said lever is made to engage said projecting pin 118 to stop the forward rotation of said shaft in its normal position.

8. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, spring mechanism tending to cause a forward rotation of said switch-arm, a metal ring 81, having a series of equally-spaced holes 82, each adapted for the reception of a contact-pin 83, a second shaft 103, having ratchet and geared connection with said shaft 85, a projecting pin 118, carried by said second shaft 103, a pivotally-mounted lever 115, normally engaging said pin 118, to prevent a forward rotation of said shafts, and an adjustable trip-arm 114 carried on said shaft 85 adapted upon a backward rotation of said shaft to engage said lever to permit a subsequent forward rotation of said shaft.

9. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, spring

mechanism tending to cause a forward rotation of said switch-arm, a metal ring 81, having a series of equally-spaced holes 82, each adapted for the reception of a contact-pin 83, a second shaft 103, having ratchet and geared connection with said shaft 85, a projecting pin 118, carried by said second shaft 103, a pivotally-mounted lever 115, normally engaging said pin 118, to prevent a forward rotation of said shafts, an adjustable trip-arm 114 carried on said shaft 85 adapted upon a backward rotation of said shaft to engage said lever to permit a subsequent forward rotation of said shaft, and a locking-arm 113 adapted to engage said lever upon the forward rotation of said shaft, whereby said lever is made to engage said projecting pin 118 to stop the forward rotation of said shaft in its normal position.

10. In a device of the class described, the combination with a rotatably-mounted shaft 85, of a switch-arm 94 carried thereby, spring mechanism tending to cause a forward rotation of said switch-arm, a metal ring 81, having a series of equally-spaced holes 82, each adapted for the reception of a contact-pin 83, a second shaft, having ratchet and geared connection with said shaft 85, a cam of insulating material mounted on said shaft 103, switching mechanism controlled by said cam, a projecting pin 118, carried by said second shaft 103, a pivotally-mounted lever 115, normally engaging said pin 118, to prevent a forward rotation of said shafts, an adjustable trip-arm 114 carried on said shaft 85 adapted upon a backward rotation of said shaft to engage said lever to permit a subsequent forward rotation of said shaft, and a locking-arm 113 adapted to engage said lever upon the forward rotation of said shaft, whereby said lever is made to engage said projecting pin 118 to stop the forward rotation of said shaft in its normal position.

11. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, a crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 adjustably mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism normally acting to prevent the forward rotation of said shaft, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, and a pin 83 adapted for insertion in any one of the said holes.

12. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, a crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism normally acting to prevent the forward rotation of said shaft, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, and a pin 83 adapted for insertion in any one of the said holes.

13. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, a crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 adjustably mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism normally acting to prevent the forward rotation of said shaft, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, a pin 83 adapted for insertion in any one of the said holes, and a stop limiting the backward rotation of said shaft 85.

14. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, a crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism normally acting to prevent the forward rotation of said shaft, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, a pin 83 adapted for insertion in any one of the said holes, and a stop limiting the backward rotation of said shaft 85.

15. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, the crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 adjustably mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism adapted upon actuation upon the forward rotation of said shaft to stop the forward rotation of said shaft at a certain point, said locking mechanism being adjustable to vary the position of the point at which the rotation of said shaft is stopped, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, a pin 83 adapted for insertion in any one of said holes.

16. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, the crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism adapted upon actuation upon the forward rotation of said shaft to stop the forward rotation of said shaft at a certain point, said locking mechanism being adjustable to vary the position of the point at which the rotation of said shaft is stopped, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, and a pin 83 adapted for insertion in any one of said holes.

17. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, the crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 adjustably mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism adapted upon actuation upon the forward rotation of said shaft to stop the forward rotation of said shaft at a certain point, said locking mechanism being adjustable to vary the position of the point at which the rotation of said shaft is stopped, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, a pin 83 adapted for insertion in any of said holes, and a stop 102 for limiting the backward rotation of said shaft 85.

18. In a device of the class described, the combination with a rotatably-mounted shaft 85, of the toothed disk 92 rigidly secured thereto, the crank 86 having an opening fitting said toothed disk, a plunger switch-arm 94 mounted on said crank, spring mechanism tending to cause a forward rotation of said shaft 85, locking mechanism adapted upon actuation upon the forward rotation of said shaft to stop the forward rotation of said shaft at a certain point, said locking mechanism being adjustable to vary the position of the point at which the rotation of said shaft is stopped, a ring 81 containing equally-spaced holes 82, the pitch of said holes being equal to that of the teeth of the disk 92, a pin 83 adapted for insertion in any one of said holes, and a stop 102 for limiting the backward rotation of said shaft 85.

19. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm carried thereby, spring mechanism tending to cause a forward rotation of said switch-arm, a metal ring having a series of equally-spaced holes, each adapted for the reception of a contact-pin, governor mechanism geared to said shaft, ratchet mechanism interposed between said shaft and said governor mechanism, a projecting pin associated with said governor mechanism, a pivotally-mounted lever normally engaging said pin, to prevent a forward rotation of said shaft, and an adjustable trip-arm carried on said shaft adapted, on a backward rotation of said shaft, to engage said lever to permit a subsequent forward rotation of said shaft.

20. In a device of the class described, the combination with a rotatably-mounted shaft, a switch-arm mounted on said shaft, spring mechanism tending to cause a forward rotation of said shaft, and locking mechanism adapted upon backward rotation of said switch-arm to prevent a subsequent forward rotation of said arm until a certain predetermined point has been reached upon backward rotation.

21. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm adjustably mounted on said shaft, spring mechanism tending to cause forward rotation of said shaft with said arm, and locking mechanism for locking said shafts after a certain distance of forward rotation thereof, said locking means serving also upon backward rotation of said arm to lock said shaft against subsequent forward rotation until a certain predetermined point is reached on backward rotation.

22. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm adjustably mounted on said shaft, spring mechanism tending to cause forward rotation of said shaft with said arm, locking mechanism for locking said shaft after a certain distance of forward rotation thereof, said locking means serving also upon backward rotation of said arm to lock said shaft against subsequent forward rotation until a certain predetermined point is reached on backward rotation, and means for releasing said locking mechanism on said shaft to allow forward rotation thereof when said predetermined point has been reached.

23. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm mounted on said shaft, spring mechanism tending to cause forward rotation of said shaft with said arm, an initial position for said arm, means for adjusting the distance of forward travel of said arm around said initial position, means for locking said arm when said distance has been traveled, and means upon backward rotation of said arm toward the initial position for preventing forward rotation thereof until said arm has been moved backward to the initial position.

24. In a device of the class described, the combination with a rotatably-mounted shaft, of an arm mounted on said shaft, spring mechanism tending to cause forward rotation of said shaft with said arm, an initial and a final position between which said arm may travel upon rotation of said shaft, locking means for locking said shaft when said arm reaches the final position, and means for locking said arm against forward rotation when moved backwardly to any intermediate point between the initial and final positions.

25. In a device of the class described, the combination with a rotatably-mounted shaft, of an arm mounted on said shaft, spring mechanism tending to cause forward rotation of said shaft with said arm, an initial and a final position between which said arm may travel upon rotation of said shaft, locking means for locking said shaft when said arm reaches the final position, means for locking said arm against forward rotation when moved backwardly to any intermediate point between the initial and final positions, and means for allowing forward rotation of said arm when said arm has been moved in a backward direction beyond the initial position.

26. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm mounted thereon, spring mechanism tending to cause forward rotation of said shaft and arm, a plurality of adjustable contacts adapted to be engaged by said arm during its rotation, an initial and a final position for said arm, and means for preventing forward rotation of said arm from an intermediary point subsequent to a backward movement of said arm to said intermediary point.

27. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm mounted thereon, spring mechanism tending to cause forward rotation of said shaft and arm, a plurality of adjustable contacts adapted to be engaged by said arm during its rotation, an initial and a final position for said arm, means for preventing forward rotation of said arm from an intermediary point subsequent to a backward movement of said arm to said intermediary point, and means for allowing subsequent forward rotation of said arm after said arm has been moved backwardly beyond the initial position.

28. In a device of the class described, the combination with a rotatably-mounted shaft, of a switch-arm adjustably mounted on said shaft to rotate therewith, spring mechanism tending to cause a forward rotation of said shaft, locking mechanism for locking said arm after travel from an initial to a final position, said locking mechanism serving to prevent forward rotation of said arm from an intermediary point subsequent to backward movement of said arm to said intermediary point, and means for releasing said locking mechanism to to allow forward rotation of said arm after said arm has been moved backwardly beyond its initial position.

786,429. SELECTIVE SIGNALING SYSTEM. RUDOLPH C. DEUBEN, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Oct. 2, 1903. Serial No. 175,407.



Claim.—1. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, the pin 46, springs 42 and 43 adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, and a spring 44 adapted upon a deflection of spring 43 to act in conjunction therewith.

2. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, the pin 46, springs 42 and 43 adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, pin 47 adapted to limit the movement of said springs, and a spring 44 adapted upon a deflection of spring 43 to act in conjunction therewith.

3. In a device of the class described, the combination with the electromagnet 29, of the pivoted armature 32, the lever 34, the pin 46, springs 42 and 43 adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, and a spring 44 adapted upon a deflection of spring 43 to act in conjunction therewith

4. In a device of the class described, the combination with the electromagnet 29, of the pivoted armature 32, the lever 34, the pin 46, springs 42 and 43 adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, pin 47 adapted to limit the movement of said springs, and a spring 44 adapted upon a deflection of spring 43 to act in conjunction therewith.

5. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for allowing actuation of said ratchet-wheel only upon actuation of said lever.

6. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for preventing rotation of said ratchet-wheel except when said lever is actuated.

7. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for preventing forward actuation of said ratchet-wheel except upon actuation of said lever.

8. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means normally preventing said ratchet-wheel from being rotated.

9. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in

reverse direction causes said pawls to disengage said ratchet-wheel and means for preventing actuation of said ratchet-wheel when said lever is in its normal position.

10. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for preventing actuation of said ratchet-wheel until said lever is actuated.

11. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of electric currents through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for locking said ratchet-wheel when said lever is in its intermediate normal position.

12. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of electric currents through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for normally preventing a forward rotation of said ratchet-wheel.

13. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of electric currents through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means for locking said ratchet-wheel when said lever is in its normal position.

14. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, a relatively stationay pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of electric currents through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, and means for normally preventing the forward rotation of said ratchet-wheel.

15. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, and means for locking said ratchet-wheel when said lever is in its normal position.

16. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, and means for normally preventing a forward rotation of said ratchet-wheel.

17. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, and automatic means for preventing actuation of said ratchet-wheel when said lever is in its normal position.

18. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, and automatic means for normally preventing forward rotation of said ratchet-wheel.

19. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, and means for allowing rotation of said ratchet-wheel only after actuation of said lever.

20. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, means for normally preventing rotation of said ratchet-wheel, and means upon actuation of said lever for allowing rotation of said ratchet-wheel.

21. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, and automatic means for normally preventing forward rotation of said ratchet-wheel.

rent through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, locking means for normally preventing forward rotation of said ratchet-wheel, and automatic means associated with said lever for releasing said ratchet-wheel.

22. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent the backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, said ratchet-wheel being normally prevented from forward rotation, and automatic means for releasing said ratchet-wheel upon actuation of said lever.

23. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

24. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of electric currents through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

25. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, said ratchet-wheel being normally locked against rotation, and means whereby actuation of said lever automatically effects the release of said ratchet-wheel.

27. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

28. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

29. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24 a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of electric currents through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

30. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a step-by-step forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

31. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deënergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

32. In a device of the class described, the combination with the electromagnet 29, of a polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawl to disengage said ratchet-wheel, detent mechanism normally acting to prevent a forward rotation of said ratchet-wheel, and means whereby an actuation of said armature to cause a forward step of said ratchet-wheel causes a release of said detent mechanism.

33. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, spring mechanism adapted upon a deenergization of said electromagnet to return said lever to its normal intermediate position, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, an adjustable stop-screw 51 to limit the motion of said pawl 35, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of electric currents through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward step-by-step rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawls to disengage said ratchet-wheel to permit the backward rotation thereof due to the tension of said spring 28, an arm 26 mounted to rotate with said ratchet-wheel, a stop-pin acting in conjunction with said arm to limit the backward rotation of said ratchet-wheel, a detent adapted normally to catch and detain said arm when in engagement with said stop-pin, and means whereby said detent is tripped upon an energization of said electromagnet to cause a forward rotation of said ratchet-wheel, thereby releasing said arm 26 to permit a forward rotation of said ratchet-wheel.

34. In a device of the class described, the combination with the electromagnet 29, of the pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, a relatively stationary pawl 36 adapted to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawls to disengage said ratchet-wheel to permit a backward rotation thereof, an arm 26 mounted to rotate with said ratchet-wheel, a stop-pin 27 acting in conjunction with said arm to limit the backward rotation of said ratchet-wheel, a detent adapted normally to catch and detain said arm when in engagement with said stop-pin 27, and means whereby said detent is tripped upon a movement of said lever to cause the forward rotation of said ratchet-wheel.

35. In a device of the class described, the combination with the electromagnet 29, of the pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted to engage said ratchet-wheel, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in a reverse direction causes said pawls to disengage said ratchet-wheel to permit a backward rotation thereof, an arm 26 mounted to rotate with said ratchet-wheel, a stop-pin 27 acting in conjunction with said arm to limit the backward rotation of said ratchet-wheel, a detent adapted normally to catch and detain said arm when in engagement with said stop-pin 27, and means whereby said detent is tripped upon a movement of said lever to cause the forward rotation of said ratchet-wheel.

36. In a device of the class described, the combination with the electromagnet 29, of the polarized pivoted armature 32, the lever 34, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent a backward rotation thereof, means whereby the passage of an electric current through said electromagnet in one direction causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, means whereby the passage of an electric current through said electromagnet in the reverse direction causes said pawl to disengage said ratchet-wheel, a detent 56, an arm 26 connected with the ratchet-wheel and normally engaged by said detent whereby said ratchet-wheel is prevented from forward rotation, a pin 57 extending from said detent 56, and a stud 58, extending from the lever 34 for engaging said pin whereby upon forward movement of said lever said detent is released from said arm 26, whereby said ratchet-wheel may rotate.

37. In a device of the class described, the combination with electromagnet 29, of the pivoted armature 32, the lever 34 extending forwardly from the armature, a rotatably-mounted ratchet-wheel 24, a spring 28 tending to cause a backward rotation of said ratchet-wheel, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, a relatively stationary pawl 36 adapted normally to engage said ratchet-wheel to prevent the backward rotation thereof, means whereby the passage of an electric current through said electromagnet causes said pawl 35 to engage said ratchet-wheel to cause a forward rotation thereof, locking means associated with said lever and with said ratchet-wheel whereby said ratchet-wheel is prevented from forward rotation from its initial position, and means upon actuation of said armature and lever whereby said locking means is automatically released to allow forward actuation of said ratchet-wheel.

38. In a device of the class described, the combination with an electromagnet, of an armature therefor, a lever extending forwardly from said armature, a rotatably-mounted ratchet-wheel disposed near the end of said lever, a pawl 35 on said lever adapted normally to engage said ratchet-wheel, energization of said electromagnet causing the actuation of said armature and lever to cause forward actuation of said ratchet-wheel, means for locking said ratchet-wheel against rotation from its initial position, and means associated with said lever and said ratchet-wheel for automatically releasing said ratchet-wheel upon actuation of said armature.

39. In a device of the class described, the combination with the electromagnet 29, of the pivoted armature 32, the lever 34, the rotatably-mounted ratchet-wheel 24, a pawl 35 on said lever, adapted normally to engage said ratchet-wheel to cause a forward rotation thereof upon actuation of said armature, the pivoted lever 73, the switch member 61 adapted to be engaged by the end 74 of said lever 73, a projection 76 connected with said ratchet-wheel and normally engaging said lever 73 to prevent connection thereof with said switch member 61, actuation of said ratchet-wheel causing disengagement of said projection from said lever, and a spring for moving said lever into engagement with the switch member 61.

40. In a device of the class described, the combination with electromagnet 29 of the armature 32, the lever 34 extending forwardly from said armature, a rotatably-mounted ratchet-wheel 24, a pawl 35 at the end of said lever for engaging said ratchet-wheel to cause forward rotation thereof upon actuation of said armature, the electromagnet 65, an armature 62 therefor, a spring 69 for normally maintaining said armature away from said electromagnet, a switch member 61 carried by said armature, a lever 73, a projection 76 connected with said ratchet-wheel for normally holding said lever 73 to prevent engagement of the end 74 with the switch member 61, and a spring tending to move the lever 73 toward the switch member 61, forward actuation of said ratchet-wheel causing said projection 76 to release said lever 73 whereby the end 74 is moved toward the switch member 61 and whereby said lever 61 upon attraction of the armature 62 is engaged by the end 74.

41. In a device of the class described, the combination with electromagnet 29, of the armature 32, the lever 34 extending forwardly from said armature, a rotatably-mounted ratchet-wheel 24, a pawl 35 at the end of said lever for engaging said ratchet-wheel to cause a forward rotation thereof upon actuation of said armature, the electromagnet 65, an armature 62 therefor, a spring 69 for normally maintaining said armature away from said electromagnet, a switch member 61 carried by said armature, a lever 73, a projection 76 connected with said ratchet-wheel for normally holding said lever 73 to prevent engagement of the end 74 with the switch member 61, a spring tending to move the lever 73 toward the switch member 61, forward actuation of said ratchet-wheel causing said projection 76 to release said lever 73, whereby the end 74 is moved toward the switch member 61 and whereby said lever 61 upon attraction of the armature 62 is engaged by the end 74, a spring 28 tending to cause a backward rotation of said ratchet-wheel, and means for moving said lever 34 to release said ratchet-wheel, whereby said ratchet-wheel is returned to its normal position by the spring 28, and whereby the projection 76 again engages the lever 73 to disconnect said lever from the switch member 61.

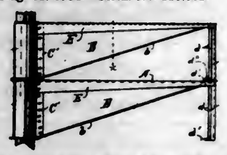
786,430. **COMBINED DOOR STOP AND HOLDER.** DANIEL H. DIVERSEUX, Brunswick, Ga. Filed Dec. 23, 1904. Serial No. 237,958.



Claim.—1. A combined door stop and holder comprising a hollow casing, having a reduced opening in its outer end, a bolt slidably mounted in said casing, a conical head formed on said bolt, a coiled spring adapted to project said bolt-head through said opening, a stop-lug formed on said casing, and a keeper carried by the door to engage said stop-lug, said keeper having formed therein a conical-shaped recess to engage the conical head of said bolt, substantially as described.

2. A combined door stop and holder, comprising a hollow casing having a reduced opening in its outer end, a bolt slidably mounted in said casing, a conical head formed on said bolt, a coiled spring adapted to project said bolt-head through said opening, a stop-lug formed on said casing, an elastic bumper arranged in said stop-lug, and a right-angularly-formed keeper-bracket carried by said door to engage said elastic bumper, said bracket having formed therein a conical-shaped recess and a beveled or rounded lower edge to engage the conical head of said bolt, substantially as described.

786,431. **WINDING STAIR.** CHARLES A. DE WITT, Grand Rapids, Mich. Filed Aug. 12, 1904. Serial No. 220,582.



Claim.—1. In a stair-step a sheet-metal tread and riser, a cylinder formed on the broad end of the riser, a supporting-flange at each end of said cylinder, a leg formed on the broad end of the tread, and strengthening-flanges formed upon the several parts, substantially as and for the purpose set forth.

2. In a stair-step, a tread and riser formed from a single sheet of metal, a cylinder formed from the broad end of the riser and having flanges at the ends, a flange turned down from the back edge of the tread and the end of the sheet forming the cylinder riveted to the flanges and the riser, a leg formed from the broad end of the treadle, the tread folded to project over the riser, and strengthening-flanges, substantially as and for the purpose set forth.

3. In a winding stair, a tread, a riser, a cylinder, a leg and strengthening-flanges formed from a single piece of sheet metal, a standard passing up through the cylinders, and the legs provided with feet, and secured to the ends of the treads, substantially as and for the purpose set forth.

786,432. **VALVE-GEAR.** WILLIAM R. DOW, Boulder Creek, Cal. Filed Nov. 8, 1904. Serial No. 231,934.

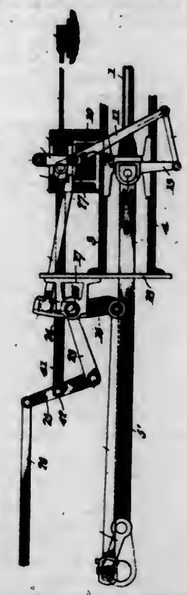
Claim.—1. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a lever connected at opposite ends to the valve-rod and the piston-rod and having an intermediate movable fulcrum, a radius-rod connected to the fulcrum for moving the same, and means to reduce the increased movement of the valve occasioned by the movement of the fulcrum in changing from mid-gear toward full gear.

2. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a lever connected at opposite ends to the valve-rod and the piston-rod and having an intermediate movable fulcrum, a radius, rod connected to the fulcrum for moving the same, and means to shift the fulcrum longitudinally of the lever.

3. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a lever connected at opposite ends to the valve-rod and the piston-rod, an intermediate fulcrum for the lever, means to reciprocate the fulcrum and means to shift the fulcrum in the longitudinal direction of the lever.

4. A valve-gear having a lever, means to reciprocate the fulcrum, and means to shift the fulcrum transversely to the direction of its reciprocating movement.

5. A valve-gear having a lever, means to bodily reciprocate the lever in the direction of its swinging movements, and means to shift the fulcrum of the lever longitudinally of the latter.



6. A valve-gear having a lever provided with a longitudinal slot, a fulcrum shiftable in the slot, and means to reciprocate the fulcrum transversely of its shiftable movement.

7. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a lever connected at opposite ends to the valve-rod and the piston-rod and provided with an intermediate longitudinal slot, a fulcrum located in the slot, means to shift the fulcrum longitudinally of the slot, and means to reciprocate the fulcrum transversely of its shiftable movement.

8. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a lever connected at opposite ends to the valve-rod and the piston-rod, an intermediate fulcrum for the lever, a cam to shift the fulcrum in the longitudinal direction of the lever, and means to reciprocate the fulcrum transversely of its shiftable movement.

9. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a combination-lever connected at opposite ends to the valve-rod and the piston-rod, an intermediate fulcrum for the combination-lever, means for reciprocating the fulcrum in the direction of movement of the valve, and means for shifting the fulcrum longitudinally of the combination-lever.

10. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a combination-lever connected at opposite ends to the valve-rod and the piston-rod, an intermediate fulcrum for the combination-lever, a link fulcrumed intermediate of its ends, an eccentric rod connected to the link, a radius-rod extending between the link and the fulcrum of the combination-lever, and means to shift the fulcrum longitudinally of the combination-lever.

11. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a combination-lever connected at opposite ends to the valve-rod and the piston-rod, an intermediate fulcrum for the combination-lever which is shiftable longitudinally thereon, a swinging link supporting the fulcrum, a radius-rod connected to the link, a slidable bracket having the link pivoted thereon, and means to shift the movable bracket and thereby shift the fulcrum.

12. In a valve-gear, the combination of a slide-valve and its rod, a piston-rod, a combination-lever connected at opposite ends to the valve-rod and the piston-rod, a fulcrum for the lever which is shiftable longitudinally thereon, a swinging link supporting the fulcrum, a movable bracket to which the link is pivotally connected, and a shiftable member having an inclined slot, the movable bracket having a projection entering the slot to move the bracket under the influence of the inclined slot.

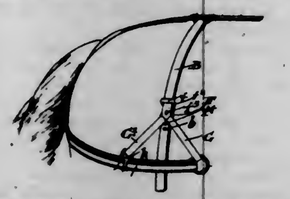
13. In a valve-gear, the combination with a slide-valve and its rod, a piston-rod, a combination-lever connected at opposite ends to

the valve-rod and the piston and provided with a longitudinal slot, a fulcrum-pin slidable in the slot of the lever and projected at one side thereof, a swinging link pivotally connected to the projected portion of the fulcrum, a substantially L-shaped movable bracket having the link pivotally swung from one arm thereof, the opposite arm being provided with a lateral projection, and a shiftable member having an inclined slot receiving the projection of the bracket to shift the latter by movement of the slidable member and thereby shift the fulcrum in the slot of the combination-lever.

14. In a valve-gear, the combination with a slide-valve and its rod, a piston-rod, a combination-lever connected at opposite ends to the valve-rod and the piston-rod, a fulcrum adjustable longitudinally upon the lever, an oscillating link, a radius-rod extending between the link and the fulcrum to reciprocate the latter transversely of the lever, a shiftable bracket, a link pivotally carried by the bracket and connected to the fulcrum of the lever to support the same, a shiftable cam to move the bracket, a tumbling-shaft, means connecting the tumbling-shaft and the radius-rod to shift the latter upon the oscillating link, and a connection between the tumbling-shaft and the cam to simultaneously shift the latter with the shifting of the radius-rod.

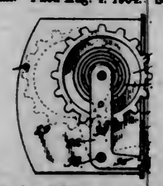
15. In a valve-gear, the combination with a slide-valve and its rod and a piston-rod, of a stationary bracket having a pair of guideways extending in the direction of movement of the valve and another guideway located between and at substantially right angles to the first-mentioned guideways, a bracket movable longitudinally in the latter guideway and having an arm overhanging the top of the stationary bracket, a slide having a substantially V-shaped slot working in one of the pair of guideways and another slide working in the other guideway and connected to the valve-rod, a swinging link hung from the overhanging member of the movable bracket, a combination-lever connected to the slide of the valve-rod and to the piston-rod and provided with a longitudinal slot, a fulcrum carried by the swinging link and working in the slot of the lever, an oscillating link, a radius-rod extending from the oscillating link to the swinging link, the movable bracket having a projection working in the slot of the slotted slide, a tumbling-shaft, means connecting the tumbling-shaft with the radius-rod to shift the latter upon the oscillating link, and a connection between the slotted slide and the tumbling-shaft.

786,433. HARNESS-BREECHING. THOMAS O. FOSTER, Peterboro, Canada. Filed May 16, 1903. Serial No. 157,506.



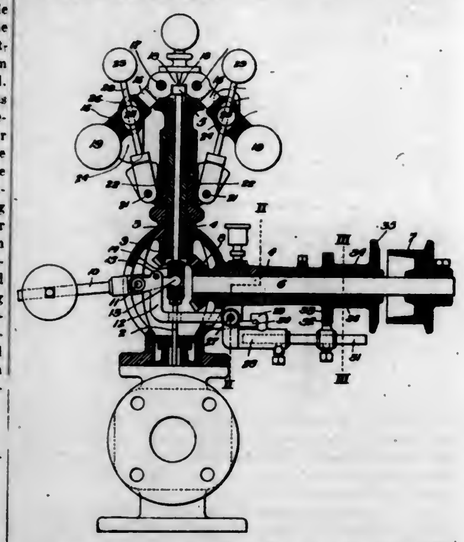
Claim.—A buckle comprising a plate having an obliquely-set top bar to receive the end of an obliquely-arranged strap, substantially vertical side bars, an offset horizontal bottom bar, an offset horizontal intermediate bar and a vertical bar connecting the aforesaid intermediate and bottom bars at their outer edges, whereby a receiving-socket is provided to receive the base-strap of the breeching as specified.

786,434. SASH BALANCE AND FASTENER. WILLIAM H. GARDNER, Park City, Utah. Filed Aug. 4, 1904. Serial No. 219,500.



Claim.—A combined sash balance and fastener comprising casings, one of which is adapted to be arranged in each side of the window-frame, a cog-wheel mounted in the side plates of one of said casings, locking-pawls arranged therein to engage said cog-wheel, a yoke pivotally mounted in the side plates of the other of said casings, a cog-wheel journaled in said yoke, rack-bars secured to the edges of the window-sash in position to be engaged by said cog-wheels, a laterally-projecting arm or lever arranged on said yoke, the end of said arm being adapted to project through a slot in said casing, an operating-lever pivotally connected to said casing and adapted to engage the arm or lever of said yoke, whereby the latter may be rocked to retract said wheel out of engagement with the rack in the adjacent edge of the sash, thereby permitting the removal of the same, and means whereby said operating-lever may be secured to hold said yoke and in position to engage the cog-wheel carried thereby with said rack, substantially as described.

786,435. ENGINE-GOVERNOR. WILLIAM GLASER, Pittsburg, Pa., assignor of seven-eighths to Paul Wuesthoff, Pittsburg, Pa. Filed July 16, 1904. Serial No. 216,816.



Claim.—1. An engine-governor provided with centrifugal arms having slotted tubular bearings, and secondary arms extending through said bearings and provided with bearing-balls, substantially as set forth.

2. An engine-governor provided with valve-stem-actuating arms and slantingly-disposed slotted tubular bearings and terminal weights, with secondary weighted arms extending through the slots of said bearings and provided with bearing-balls mounted within the bearings, substantially as set forth.

3. In a governor, the combination of primary and secondary centrifugal arms having coincident axial centers, and in sliding bearing engagement with each other, substantially as set forth.

4. In a governor, the combination with a depressible valve-stem, of primary and secondary centrifugal arms having coincident axial centers, with means for maintaining the arms in such relation at all positions, substantially as set forth.

5. In a governor, the combination with a depressible valve-stem, of primary and secondary centrifugal arms having coincident axial centers, with means for maintaining the arms in such relation at all positions and for providing sliding resistance, substantially as set forth.

6. In a governor, the combination with a depressible valve-stem, of primary pivoted arms in engagement with the stem having tubular bearings and terminal weights, and secondary arms pivoted to rotatable bearings and having bearing devices in sliding engagement with said tubular bearings, and terminal weights, substantially as set forth.

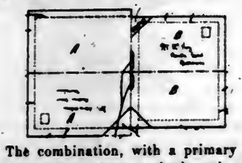
7. In a governor, the combination with a depressible valve-stem, of primary pivoted arms in engagement with the stem having tubular slanting bearings arranged across the axial center of the arms, and terminal weights; and secondary arms pivoted to rotatable bearings and having bearing devices in sliding engagement with said tubular bearings, and terminal weights, substantially as set forth.

8. A governor comprising a rotatable spindle geared with the engine, a depressible valve-stem mounted therein, primary arms pivoted adjacent to and in engagement with said valve-stem, slotted tubular bearings and terminal weights forming integral portions of said arms, a rotatably-mounted bearing-ring, secondary arms pivoted therein and extending through the slotted tubular bearings and provided with balls in internal sliding engagement therewith, with terminal weights for said secondary arms, substantially as set forth.

9. In a governor, the combination with a valve-actuating element, of a centrifugal arm in operative engagement with said element, and a secondary centrifugal arm in axial coincidence with said arm, substantially as set forth.

10. In a governor, the combination with a valve-actuating element, of a centrifugal arm in operative engagement with said element, and a secondary arm in sliding engagement with said arm, substantially as set forth.

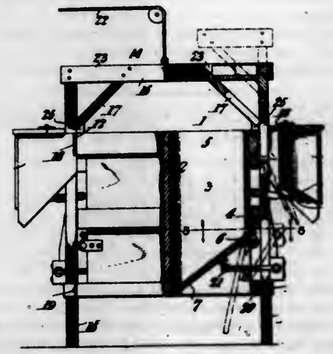
786,436. POSTAL AND COMMERCIAL REPLY-CARD. WILLIAM GOODMAN, Sydney, New South Wales, Australia. Filed Aug. 30, 1904. Serial No. 222,712.



Claim.—1. The combination, with a primary and secondary card, of an infolding corner common to both cards, and arranged to disclose the existence of the secondary or reply card, as described and illustrated.

2. The combination of a primary card with a secondary or reply card inclosed therein by folding and detachably connected thereto, these cards having an infolding corner common to both of them and arranged to disclose the presence of the secondary card, the latter being also provided with marginal gaps E substantially as set forth.

786,437. STOCK-FEEDING DEVICE. CARL L. HANSON and HERMAN P. HANSON, Anderson, Idaho. Filed May 14, 1904. Serial No. 207,978.



Claim.—1. A casing having compartments, doors mounted hingedly at the lower edges of said compartments, a vertically-movable frame, and links connecting said frame with the doors.

2. A box or feed-compartment, a door hingedly connected with the lower edge of said compartment, a vertically-movable gravity operating device, and link connections between said device and the door, whereby the hoisting of the gravity operating device will throw the door open.

3. A casing or feed-compartment, grain-receptacles mounted upon and spaced from the ends of the same, doors hingedly connected with the lower ends of the feed and grain compartments, keepers upon the ends of the casing, a vertically-movable weighted frame mounted to slide in said keepers, links connecting said frame with the doors of the feed and grain compartments to close said doors when the frame descends by gravity, and suitably-guided means for hoisting said frame to open the doors.

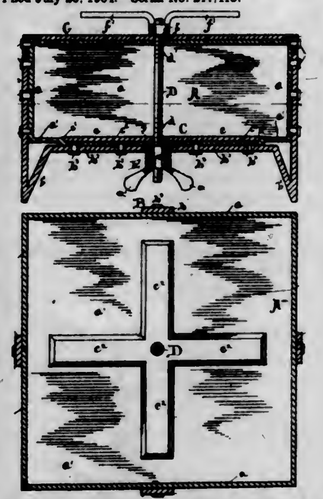
4. A casing constituting a feed-compartment and having a partition, doors mounted hingedly at the lower edges of the ends of the casing, grain-compartments supported upon and spaced from the ends of the casing, doors mounted hingedly at the lower ends of said grain-compartments, a vertically-movable operating-frame, and links connecting the side members of said frame with the several doors of the feed and grain compartments to close said doors when the frame descends by gravity.

5. A casing constituting a feed-box having compartments for fodder and grain, doors at the lower ends of said compartments, and a vertically-movable frame guided upon the ends of the casing, said frame including side members, top members, and braces connecting the top members with the side members, links connecting the side members of said frames with the doors of the several compartments to close said doors when the frame descends by gravity, and buffers upon the inclined braces connecting the side members with the top members of the vertically-movable frame, said buffers engaging the upper edge of the casing when the frame descends.

6. A casing constituting a feed-box having compartments with doors at their lower ends, a vertically-movable frame guided upon said casing, connecting means between said frame and the doors, whereby the latter are controlled by the movement of the frame, and means for hoisting the frame to effect the opening of the doors.

7. A casing having compartments, doors mounted hingedly at the lower edges of said compartments, a vertically-movable weight-operated frame, and links connecting said frame with the doors.

786,438. CORNED-BEEF PRESS. REYNOLDS C. HERBER, Chicago, Ill. Filed July 20, 1904. Serial No. 217,413.



Claim.—1. In a corned-beef press, the combination of a box having joined side walls and bottom and open at the top with a depression in the bottom, having a perforation therethrough, a lifter formed to enter the depression in the bottom of the box, a stem carrying the lifter and passing through the perforation, a clamp for the lower end of the stem, a lever-nut for the upper end of the stem, and a presser-head actuated by the lever-nut, substantially as described.

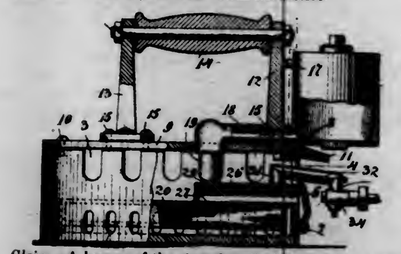
2. In a corned-beef press, the combination of a box having joined side walls and bottom and open at the top with a depression in the bottom having a perforation therethrough, a lifter formed to enter the depression in the bottom of the box, a stem carrying the lifter and passing through the perforation and having an exterior screw-thread at both its upper and lower ends, a wing clamping-nut adapted to engage the lower end of the stem, a lever having a nut adapted to engage the upper end of the stem, and a presser-head actuated by the advance of the lever-nut on the stem to compress the meat in the box, substantially as described.

3. In a corned-beef press, the combination of a box having side walls and a bottom having at its center a perforation and open at the top, a lifter adapted to be entered into the box and rest on the bottom thereof, a central stem carrying the lifter and extending above the box and through the perforation of the bottom of the box, a clamp

for the lower end of the stem, a lever-nut for the upper end of the stem, and a presser-head actuated by the lever-nut to compress the meat between it and the bottom of the box and above the lifter, substantially as described.

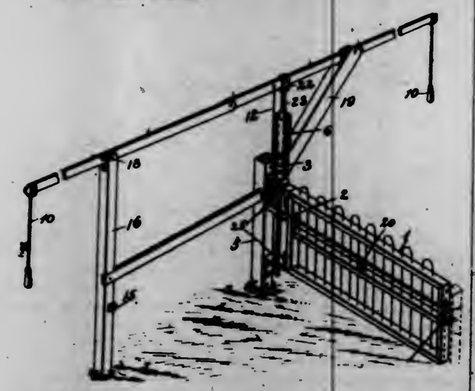
4. In a corned-beef press, the combination of a box having side walls and a bottom provided with a perforation and open at the top, a lifter adapted to be entered into the box and rest on the bottom thereof, a central stem carrying the lifter and extending above the box and through the perforation in the bottom of the box and having an exterior screw-thread on each end thereof, a winged clamp-nut adapted to engage the screw-thread of the lower end of the stem, a lever having a nut adapted to engage the screw-thread of the upper end of the stem, and a presser-head actuated by the lever-nut to compress the meat between it and the bottom of the box and the lifter, substantially as described.

786,439. SELF-HEATING SAD-IRON. MATHIAS HOFFNER, Elkhart, Ind. Filed May 31, 1904. Serial No. 210,610.



Claim.—A burner of the class described comprising a tubular body having jet-openings, a mixing-chamber attached to the tubular body and communicating therewith, and a generating or retort passage on one side of the burner-body and of said mixing-chamber and comprising a vertical intake-arm, a horizontal intermediate arm, and a discharge-arm, the horizontal intermediate arm being spaced from one side of the burner-body, the latter having jet-openings to direct flames against said intermediate arm, substantially as described.

786,440. GATE. JOHN HOGAN, Chippewa Falls, Wis. Filed June 6, 1904. Serial No. 211,345.

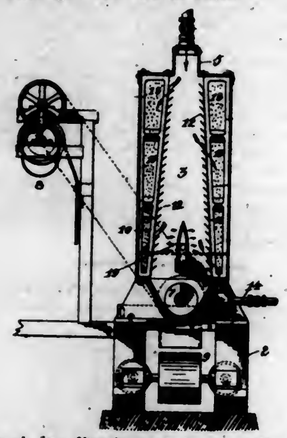


Claim.—1. In a gate, the combination with the supporting-rod of the same, of a screw directly connected with said rod, and a cap to operate in said screw.

2. In a gate, a lever, a hinge-rod supporting the gate, a screw connected with the rod, means for operating the screw from the lever, a latch, and a link connecting the lever and latch, so that as the lever is operated it simultaneously operates the latch and gate.

3. In a gate, a post supporting the same, a rod connecting the gate with the post by means of hinge-plates, a screw on said rod, a screw-cap operating in the same, a lever to operate the screw-cap, a latch fulcrumed to the gate, a link connecting the latch to the lever, and means for manipulating the lever to operate the screw-cap and link.

786,441. GRAVITY FILTER. BERTRAM HUNT, San Francisco, Cal. Filed Aug. 4, 1904. Serial No. 219,557.

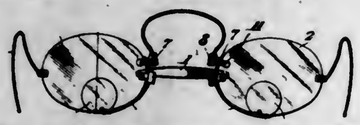


Claim.—1. In a filter for crushed ore, and like substances, a means for sustaining a mass of crushed ore disposed in a vertical column, regulated means to remove ore from the bottom of the column, means to supply fresh ore at the top, to maintain the height of the column approximately constant, and means for draining moisture from the ore at the sides of the descending column, substantially as specified.

2. In a filter, for ore and like substances, a containing-chamber provided with grillwork to maintain a mass of ore in pyramidal form, tiers of vanes to hold the filtering material and deflect the water through, which water is forced out by pressure of the superincumbent mass, and means to supply and remove the ore without materially altering the head or depth, substantially as specified.

3. In a filter for crushed ore and like substances, a chamber for sustaining a mass of ore in pyramidal form, inwardly-projecting vanes in said chamber with outlets between, filter-chambers outside of said ore-chamber for containing the filtering material, a conveyer for removing the ore from the bottom in regulated quantities, a variable-speed mechanism for regulating the speed of the conveyer, and means for supplying comminuted ore at the top of the ore-chamber, to maintain the height of the gravity-column, substantially as specified.

786,442. ATTACHMENT FOR SPECTACLES. JOHN P. JACKSON, Orleans, Ind. Filed Jan. 18, 1904. Serial No. 189,604.



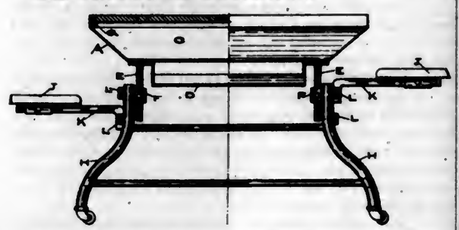
Claim.—1. An attachment for spectacles or the like, comprising a resilient bridge, supplemental lenses, frame members to which the lower edges of said supplemental lenses are secured, and spectacle-engaging members carried by the frame members at points adjacent to the lower edges of said supplemental lenses.

2. An attachment for spectacles or the like, comprising supplemental lenses of relatively small size, a frame to which the lower edges of said lenses are secured, and spectacle-engaging members carried by the frame, the connection between the frame and the lenses serving to maintain the same in a plane oblique to that of the spectacle-lens.

3. In an attachment for spectacles or the like, a bridge having an inherent spreading tendency, downwardly and outwardly curved arms carried by the bridge, and supplemental lenses having their lower edges only secured to said arms.

4. In a spectacle attachment, a resilient bridge, lens-carrying arms secured to said bridge, supplemental lenses of relatively small size mounted on said arms, and projections for engagement with the margins of the spectacle-lenses provided at the ends of said bridge and upon said arms in position for engagement with the lower portions of the margins of the spectacle-lenses.

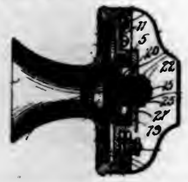
786,443. OVERLAY-TABLE. JOHN F. JOHNSON, Battlecreek, Mich. Filed Oct. 3, 1904. Serial No. 226,949.



Claim.—1. A printers' overlay, or cutting table, consisting of a sheet-metal body portion forming an interior receptacle for waste material, a cutting-board mounted thereon, and a shelf for new material pendent from the same; a portable stand having outwardly-curved legs, with vertically-adjustable pillar-supports for the table, the whole constructed and arranged substantially as shown and described, and for the purposes set forth.

2. An overlay or cutting table, consisting of a portable stand supporting a hollow metal body adjustably fixed thereon, a cutting-board fitted to nearly cover the top opening in the metal body, and a pendent shelf, all constructed and arranged substantially as shown and described, and for the purposes set forth.

786,444. TELEPHONE-TRANSMITTER. WILLIAM KAISLING, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Nov. 23, 1903. Serial No. 182,391.



Claim.—1. In a telephone-transmitter, the combination with a front and rear electrode, of an inclosing casing in which said electrodes are contained, a ring of yielding material forming an electrode-chamber with said electrodes, a threaded stem extending from said rear electrode, a reinforcing-cup of rigid material and separate from said casing encircling and engaging the outer periphery of said ring, and a clamping-nut for engaging said stem to clamp said cup against the rear electrode.

2. In a telephone-transmitter, the combination with a front and rear electrode, of an inclosing casing in which said electrodes are contained, a ring of yielding material forming an electrode-chamber with said electrodes, a cup of rigid material and separate from said casing encircling and engaging the outer periphery of said ring, a threaded stem extending from the rear electrode through the wall of said cup, a clamping-nut engaging said stem to clamp said cup against the rear electrode, and means for longitudinally adjusting said stem and the rear electrode secured thereto.

3. In a telephone-transmitter, the combination with a diaphragm serving as a front electrode, of a rear electrode, a ring of yielding material extending from said diaphragm and encircling the rear electrode, a cup of rigid material surrounding and engaging the outer periphery of said ring, a threaded stem extending from said rear electrode through the wall of said cup, a nut for engaging said stem to clamp the cup against the rear electrode, a supporting-bridge for said stem, and means for longitudinally adjusting said stem.

4. In a telephone-transmitter, the combination with a front supporting-frame, of a diaphragm disposed against the inner side of said frame and serving as the front electrode, a supporting-bridge engaging said front supporting-frame, a bushing in said bridge insulated therefrom, a stem passing through said bushing and having threaded engagement therewith, said stem terminating at its forward end in the rear electrode, a ring of yielding material disposed between said diaphragm and said rear electrode, a cup of rigid material surrounding and engaging the outer periphery of said ring, a clamping-nut for engaging said stem and clamping said cup against the rear electrode, turning of said stem causing either inward or outward adjustment of the rear electrode, and a locking-nut for locking said stem in any adjusted position.

5. In a telephone-transmitter, the combination with a front supporting-frame, of a diaphragm insulated from and resting against the inner side of said frame, said diaphragm acting as the front electrode, a supporting-bridge secured to said front frame, a rear electrode supported from said bridging member, a ring of yielding material disposed between said diaphragm and the rear electrode, a cup of rigid material surrounding and engaging the outer periphery of said ring, means for longitudinally adjusting said rear electrode, and conductors leading from said diaphragm and said rear electrode, said conductors terminating in terminal posts insulated from the supporting-frame and bridge member.

6. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging the front supporting-frame, a diaphragm resting against the front supporting-frame and forming one electrode, a rear electrode, a supporting-bridge within the rear inclosing frame to which the rear electrode may be rigidly secured, a felt ring disposed against the diaphragm and encircling the rear electrode, and a thin cup of rigid material surrounding the circumferential and rear surfaces of said felt ring and separably secured to the rear electrode, said cup serving to prevent radial expanding of the felt ring.

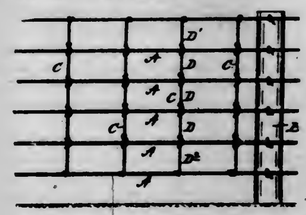
7. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging said supporting-frame, a diaphragm resting against the front frame and forming one electrode of the transmitter, a rear electrode, a felt ring resting against the diaphragm and encircling the rear electrode, a stem rigid with said rear electrode and extending rearwardly therefrom, a supporting-bridge secured to the rear of the front supporting-frame for receiving said stem, means for securing said stem in any longitudinal adjusted position, a thin rigid metallic cup securely clamped to the rear electrode and said stem, said cup resting against the circumferential surface and the rear surface of said felt ring.

8. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging said supporting-frame, an annular depression in the front face of said supporting-frame, an inner and outer raised shoulder for said depression, and interchangeable name-plates adapted to fit in said depression and in contact with said shoulder.

9. In a telephone-transmitter, the combination with a front supporting-frame, of a rear inclosing frame engaging said supporting-frame, an annular depression in the front face of said supporting-frame, an inner and outer raised shoulder in said depression, and interchangeable annular name-plates provided with inner and outer shoulders adapted for engagement with the shoulders in said depression.

10. In a telephone-transmitter, the combination with a front and rear electrode of an inclosing casing in which said electrodes are contained, a ring of yielding material forming an electrode-chamber with said electrode, a threaded stem extending from said rear electrode, a reinforcing-cup of rigid material and separated from said casing encircling and engaging the outer periphery of said ring, and clamping-rings engaging said stem and said cup for clamping said cup to the rear electrode.

786,445. WOVEN-WIRE FENCE. MELVIN D. KILMER, Cleveland, Ohio. Filed June 11, 1904. Serial No. 212,118.

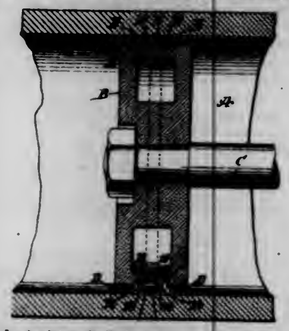


Claim.—1. A wire-fence fabric, consisting of the horizontal strands, A, and vertical strands, C, consisting of the independent pieces, D D' D², these pieces having interlocking loops formed by the wire turned back upon itself and the extremity turned over or partially around the main portion of the piece close to the horizontal strands, the horizontal strands passing through the interlocking loops.

2. A wire-fence fabric, consisting of the horizontal strands, A,

and vertical strands, C, consisting of the independent pieces, D D' D², these pieces having interlocking loops formed by the wire turned back upon itself and the extremity turned close to the horizontal strands over or partially around the main portion of the piece and soldered thereto, the horizontal strands passing through the interlocking loops.

786,446. **SELF-ADJUSTING CYLINDER-RING.** MICHAEL J. KILROY, New York, N. Y. Filed May 25, 1904. Serial No. 209,707.



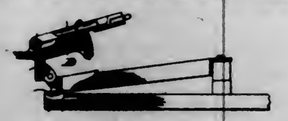
Claim.—1. A piston, bull-rings integral therewith, steam-rings operating in conjunction with the bull-rings, and a tongue-and-groove connection between the steam-rings and the bull-rings, as described.

2. In a cylinder-piston, bull-rings integral therewith, and steam-rings having play in the peripheral portion of the said piston adjacent to the bull-rings, the bull-rings being provided with tongues and the steam-rings with recesses to receive the said tongues, as described.

3. A cylinder, a piston mounted in the said cylinder, bull-rings integral with the said piston, and split steam-rings carried by the piston adjacent to the bull-rings, having locking engagement with the bull-rings at a portion of their length, the said steam-rings being capable of expansion under steam in direction of the interior of the cylinder in which the piston operates.

4. A cylinder, a piston operating in the cylinder, bull-rings on the peripheral portion of the piston, steam-rings at the outer side of the bull-rings and having key connection with the bull-rings, a packing or central ring located between the bull-rings, and a corrugated spring intervening the central or packing ring and the peripheral portion of the piston, as described.

786,447. **RELEASE DEVICE FOR HORSE-RAKE RATCHET MECHANISMS.** EDWARD H. KIMBARK, Oak Park, Ill., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Dec. 26, 1902. Serial No. 136,660.



Claim.—1. In a rake, a tooth-bar and ratchet mechanism for rotating said bar, in combination with means for releasing said ratchet mechanism, and adjustable means for positively arresting the rotative movement of said bar, all combined and arranged as and for the purpose set forth.

2. A rake-tooth bar and ratchet mechanism for rotating said bar, in combination with adjustable means for releasing said ratchet mechanism, and adjustable means for arresting the rotative movement of said bar, all combined and arranged as and for the purpose set forth.

3. The combination with a rake-tooth-supporting bar and ratchet-controlling mechanism, of an adjustable stop for arresting the rotative movement of said bar, and means for disengaging said ratchet mechanism before the arrest of the rotative movement of said bar, as and for the purpose set forth.

4. The combination with a rake-tooth-supporting bar, of ratchet-controlling mechanism, an adjustable stop for arresting the rotative movement of said bar, and a disengaging-stop operating to disengage said ratchet mechanism before the rotative movement of said bar is arrested, as and for the purpose set forth.

5. The combination with a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor, of adjustable devices for arresting the rotative movement of said bar, and adjustable devices for releasing said ratchet-controlling mechanism in advance of the arrest of the rotative movement of said bar, as and for the purpose set forth.

6. The combination with a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor, of stops adjustably mounted upon the framework of the machine and respectively arranged to arrest the rotative movement of said bar and to disengage said ratchet-controlling mechanism, said ratchet-controlling mechanism being disengaged before the rotative movement of said bar is arrested, as and for the purpose set forth.

7. The combination with a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor including an arm connected to said bar and a ratchet-operating lever, of adjustable stops arranged to engage said arm and lever, said stops operating to disengage said ratchet mechanism in advance of the arrest of the rotative movement of said bar, as and for the purpose set forth.

8. The combination with a rake-tooth-supporting bar, an arm connected thereto, a ratchet-controlling lever mounted on said bar, stops arranged to be engaged by said arm and lever to disengage the latter and to arrest the rotative movement of said bar, said stops being adjustably mounted and operating to effect a disengagement of said lever in advance of the arrest of the rotative movement of said bar, as and for the purpose set forth.

9 The combination with a rake-tooth-supporting bar, an arm connected thereto, a ratchet-mechanism-controlling lever mounted on said bar, stops arranged to be engaged by said arm and lever, and means for relatively adjusting said stops, as and for the purpose set forth.

10. The combination with a rake-tooth-supporting bar, a ratchet-mechanism-controlling lever mounted upon said bar, a casting or plate mounted upon a fixed part of the framework and having shoulders or stops, and an elongated slot, a bolt arranged to pass through said slot and framework and clamp said casting to the framework, said shoulders forming means for holding said plate in the desired position of adjustment, said plate arranged to form a stop for said lever and operating to disengage the ratchet mechanism and to arrest the rotative movement of the rake-tooth-supporting bar, as and for the purpose set forth.

11. The combination of a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor, of an adjustable disengaging-stop operating to release said ratchet-controlling mechanism, and an adjustable arresting-stop for arresting the rotative movement of said bar, said stops arranged to operate in a predetermined and fixed relation to each other, as and for the purpose set forth.

12. In a rake, a tooth-bar adapted to be rotatively actuated, adjustable devices for arresting the rotative movement of said bar, and adjustable devices for releasing the mechanism which rotates said bar, said devices operating in a fixed relation to each other, as and for the purpose set forth.

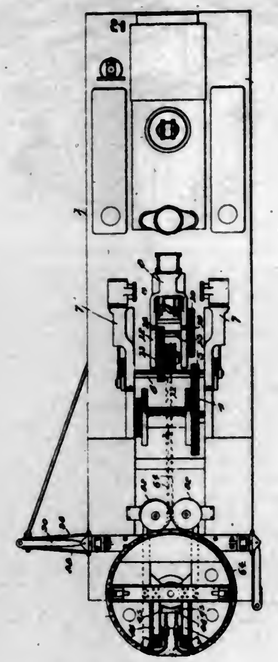
13. A rake-tooth bar and ratchet mechanism for rotating said bar, in combination with a stop operating to release said ratchet mechanism, and an additional stop for arresting the rotative movement of said bar, said stops being adjustable and arranged to operate in definite relation with respect to each other, as and for the purpose set forth.

786,448. **STEAM-SHOVEL.** GEORGE W. KING, HARRY J. BARNHART, and CHARLES B. KING, Marion, Ohio, assignors to the Marion Steam Shovel Company, Marion, Ohio, a Corporation of Ohio. Filed June 13, 1904. Serial No. 212,314.

Claim.—1. In a steam-shovel, the combination, with a body or support, of a hoisting-drum and separated engines therefor located on said body, and swinging-engines and a swinging-drum located and supported on said body between and independent of the hoisting-engines, substantially as described.

2. In a steam-shovel, the combination, with a body or support, of a hoisting-drum and separated engines therefor located on said body, swinging-engines located on said body between the hoisting-engines, a separate frame also located on said body between the hoisting-engines, and a swinging-drum and its gearing mounted on said separate frame, substantially as described.

3. In a steam-shovel, the combination, with a body having a hollow anchor-casting, of an A-frame pivotally mounted on said body, a guy or back leg detachably connected to said A-frame and anchor-casting and adapted to slide through said anchor-casting when disconnected, links or tie-rods connected to said anchor-casting and adapted for connection to the guy or back leg to limit its rearward movement when disconnected, and a removable strut or brace adapted to bear on the body and A-frame head to support the same in lowered position, substantially as described.



4. In a steam-shovel, the combination, with a body having widely-separated longitudinal sills, of a draw-head socket-casting comprising a socket proper, a horizontal plate member secured to the under side of the sills, a vertical member secured to the end of the body and extending to the ends of the sills, and a diagonal inclined truss-web between the socket proper and horizontal plate member, substantially as described.

5. In a steam-shovel, the combination, with a body or support, of a swinging-circle, a swinging-drum and guide-sheaves mounted on said body, double cables connecting said drum and circle, a boom carried by said circle, and equalizing-pulleys carried by said boom, each double cable passing around one of said equalizing-pulleys, substantially as described.

6. In a steam-shovel, the combination, with a body, of a swinging-circle, a swinging-drum and swinging-engines mounted on said body, a boom mounted on said swinging-circle and comprising separated parallel members, a casting supported between said members and having an opening therethrough, equalizing-sheaves adjustably mounted within the space between the members of the boom, and double cables extending from the swinging-drum around the opposite sides of the swinging-circle, through the opening in the casting and around the equalizing-sheaves, substantially as described.

7. In a steam-shovel, the combination, with a body having a hoisting-drum and a swinging-circle provided with a boom, said circle having a hollow trunnion, and a hoisting-chain passing vertically through said hollow trunnion, of a guiding-sheave located below said trunnion, and a guard or shield located below said guiding-sheave to prevent the hoisting-chain from disengaging from said sheave when slack, substantially as described.

8. In a steam-shovel, the combination, with a body having a hoisting-drum, and a swinging-circle provided with a boom, said swinging-circle having a hollow trunnion, and a hoisting-chain passing upward through said hollow trunnion, of a guiding-sheave located below said hollow trunnion and having a peripheral groove, and a guard or shield located below said guiding-sheave and provided with a groove coöperating with that of the sheave to form a passage for the vertical links of the chain, the space between the faces of said sheave and shield forming a guide for the horizontal links, whereby the chain is prevented from disengaging from the sheave when slack, substantially as described.

9. In a steam-shovel, the combination, with a body having mounted and secured thereon a transverse sill-casting to support the A-frame, and an arch casting to support the guide-sheaves, of bolts connecting said castings above the body, and spacing-sleeves mounted on said bolts between the castings, substantially as described.

10. In a steam-shovel, the combination, with a body, and an A-frame sill-casting secured thereon, of a swinging-circle journal-casting secured to said body in front of said sill, and bolts connecting said journal and sill castings, said journal-casting bearing at its rear portion against said sill-casting, substantially as described.

11. In a steam-shovel, the combination, with a body comprising longitudinal sills and deck-plates mounted thereon, of spacing-castings secured between the sills, a transverse A-frame sill-casting resting on the deck-plates above the spacing-castings, and vertical bolts passing through said sill-casting and spacing-castings and through the deck-plates, said bolts being finished bolts fitted in reamed apertures in the deck-plates and in the adjacent walls of the sill and spacing castings, substantially as described.

12. In a steam-shovel, the combination, with a body comprising longitudinal sills formed of I-beams, of spacing blocks or castings fitting between said sills and between the I-beam flanges, and bolts passing transversely through the body from side to side thereof and extending through the I-beam sills and spacing-castings, substantially as described.

13. In a steam-shovel, the combination, with a body comprising longitudinal sills formed of I-beams, of spacing blocks or castings fitting between said sills and between the I-beam flanges, bolts passing transversely through the body from side to side thereof and extending through the I-beam sills and spacing-castings, and shorter bolts passing through each pair of longitudinal sills and the intervening spacing blocks or casting, substantially as described.

14. In a steam-shovel, the combination, with a body comprising longitudinal sills arranged in pairs at each side of the body, of a spacing-casting between each pair of sills, adapted for connection thereto of the lower tie-bars of the jack, deck-plates supported on each pair of sills, an A-frame sill-casting supported to said deck-plates above the spacing-castings, socket-castings bearing upon the ends of said A-frame sill and extending down to the outer longitudinal sills, vertical securing-bolts passing through the A-frame sill, deck-plates and spacing-castings, and horizontal bolts passing through the socket-castings, longitudinal sills and spacing-castings, substantially as described.

15. In a steam-shovel, the combination, with a body comprising longitudinal sills arranged in pairs at each side thereof, intermediate spacing-castings, and deck-plates secured on said sills, of a transverse A-frame sill secured to said body, a journal-casting secured to the inner sills and deck-plates and having flanges abutting against the edges thereof, and through-bolts passing through the body from side to side, substantially as described.

16. In a steam-shovel, the combination, with a body comprising longitudinal sills arranged in pairs at each side thereof, intermediate spacing-castings, and deck-plates secured on said sills, of a transverse A-frame sill secured to said body, a journal-casting secured to the inner sills and deck-plates and having flanges abutting against the edges thereof, and through-bolts passing through the body from side to side, said journal-casting abutting against and being bolted to the A-frame sill, substantially as described.

17. In a steam-shovel, a body comprising longitudinal I-beam sills, spacing blocks or castings located between each pair of sills and provided with transverse plates or members fitting between the I-beam flanges, and rod-bolts passing through said longitudinal sills and through the spacing blocks or members from side to side of the car, and provided with adjusting-nuts at their exposed ends, substantially as described.

18. In a steam-shovel, the combination, with a body comprising a front end plate and center casting, of channel-bars secured to said plate and casting, and a hoisting-chain guide-sheave mounted and supported in said channel-bars, substantially as described.

19. In a steam-shovel, the combination with a body comprising a front end plate and center casting, of channel-bars secured to said plate and casting, a hoisting-chain guide-sheave mounted and supported in said channel-bars, and a casting secured to the front plate, provided with a draw-head socket, and having horizontal and vertical flanges, the former secured to the channel-bars, and a guide or

shield secured between the vertical flanges of said casting below the sheave, substantially as described.

20. In a steam-shovel, the combination, with a body comprising longitudinal sills, a transverse A-frame sill, and side bearings located below the inner longitudinal sills, of vertical bolts passing through the A-frame sill, body and side bearings, substantially as described.

21. In a steam shovel, the combination, with a body having an anchor-casting, of an A-frame mounted on said body, a guy or back leg detachably connected to said A-frame, and movable downward and rearward from its normal position, and means for connecting said back leg to the anchor-casting when thus lowered, substantially as described.

22. In a steam-shovel, the combination, with a body, of an A-frame pivotally mounted on said body, a guy or back leg detachably connected to said A-frame, and a removable strut or brace adapted to bear on the body and A-frame head to support the A-frame in lowered position, substantially as described.

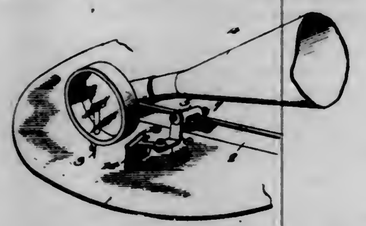
23. In a steam-shovel, the combination, with a body comprising a plurality of longitudinal sills and a transverse A-frame sill, of a journal-casting secured to and having flanges abutting against the longitudinal sills, said journal-casting abutting against and being bolted to the A-frame sill, substantially as described.

24. In a steam-shovel, the combination, with a body having mounted and secured thereon a tranaverse sill-casting to support the A-frame, and an arch casting to support the guide-sheaves, of means connecting said castings above the body to cause them to mutually support and brace each other, substantially as described.

25. In a steam-shovel, the combination, with a body, of a transverse sill-casting to support the A-frame secured thereon, an arch casting supporting the guide-sheaves and secured on said body in the rear of the A-frame sill-casting, and a swinging-circle journal-casting secured to said body in front of said A-frame sill-casting, said three castings being connected to each other independently of the body so as to mutually support and brace each other, substantially as described.

26. In a steam-shovel, the combination, with a body, of an A-frame mounted on said body, a guy or back leg detachably connected to said A-frame and movable downward and rearward from its normal position, and means for anchoring said back leg in said lowered position, substantially as described.

786,449. TALKING-MACHINE ATTACHMENT. HARRY H. KUHN, Marshall, Ill. Filed Sept. 19, 1904. Serial No. 225,063.



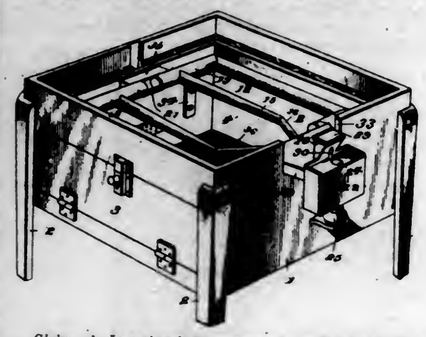
Claim.—1. An attachment for talking-machines, comprising a clamp member adapted to be secured to the reproducer-supporting arm of the machine, a vertically-adjustable arm, a second arm angularly adjustable relative to the vertically-adjustable arm, and a brush carried by the last-mentioned arm.

2. An attachment for talking-machines, comprising clamping means, a vertically-adjustable arm carried by said clamping means, a horizontal arm adjustable relative to the vertically-adjustable arm, and a brush carried by the said horizontal arm.

3. An attachment for talking-machines, comprising a clamp device, a vertically-adjustable arm having a lateral extension, a horizontally-adjustable arm mounted upon the lateral extension aforesaid, and a brush carried by said horizontal arm.

4. An attachment for talking-machines, comprising a clamp member having a bifurcated portion to receive the supporting-arm of the reproducer of the machine, means for securing said clamp member in position, a vertically-adjustable arm pivoted to one end of the clamp member and having a lateral extension at its lower end, a horizontal arm pivoted to the lateral extension of the vertically-adjustable arm, and a brush carried by the horizontal arm and arranged to travel in rear of the reproducer of the machine.

786,450. INCUBATOR. AMOS A. LINEBAUGH and CHARLES LYMAN, Clarinda, Iowa. Filed May 17, 1904. Serial No. 208,447.



Claim.—1. In an incubator, a hot-water radiator, a boiler and an expansion-tank arranged between said boiler and radiator and having separate connection with each, substantially as specified.

2. In an incubator, a hot-water radiator composed of a series of sections, each having an independent circulation, an expansion-tank and boiler connected to each other and to the respective radiator-sections, substantially as described.

3. In an incubator, the combination of a hot-water radiator composed of independent sections, an expansion-tank and boiler subdivided into compartments corresponding with the sections of the radiator and having each of said sections connected to the respective compartments of the radiator, substantially as specified.

4. In an incubator, a radiator therefor comprising a series of pipes, one of said pipes being tapered throughout its length, and means for circulating a heating medium through the radiator, substantially as set forth.

5. In an incubator, a radiator composed of independent sections, each comprising a series of pipes which are approximately in the same plane, means for connecting the several sections so as to form a single structure, and means for circulating a heating medium through the independent sections of the radiator, substantially as set forth.

6. In an incubator, the combination of a radiator, a boiler, an expansion-tank adjacent to the boiler and between it and the incubator, and means for establishing communication between the radiator and expansion-tank and between the latter and the boiler, and independent means connecting the radiator direct with the upper portion of the boiler, substantially as set forth.

7. In an incubator, the combination of a radiator, an expansion-tank and boiler, and a box projected from the expansion-tank and enveloping the connecting-pipes between the expansion-tank and the radiator, substantially as set forth.

8. In an incubator, the combination of a radiator, a boiler, and an expansion-tank intermediate of the boiler and radiator and having its upper portion extended above the plane of the boiler and widened, substantially as set forth.

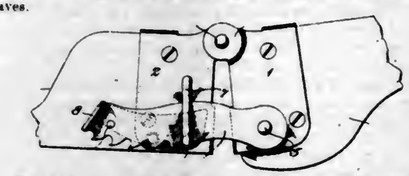
9. In an incubator, the combination of a radiator, a boiler, an expansion-tank having its upper portion projected above the plane of the radiator and boiler, and a vent-pipe extended upward from the boiler, substantially as set forth.

10. In an incubator, the combination of a radiator, a boiler, an expansion-tank having its upper portion projected above the plane of the radiator and boiler, and a vent-pipe extended upward from the boiler and terminating within the expansion-tank a short distance from the upper end thereof, substantially as specified.

786,451. ADJUSTABLE HINGE. JOSEPH LUPPINO, Los Angeles, Cal., assignor to The Sang Company, a Corporation of Illinois. Filed May 31, 1904. Serial No. 210,414.

Claim.—1. A hinge, comprising opposite hinge-leaves pivoted together at one corner, a toothed pawl pivoted to one of said leaves and terminating opposite the other leaf in a stop, an engaging device for the pawl carried by the second or companion leaf and against which said stop is adapted to abut, a guide-plate mounted on said companion leaf, and a projection on the pawl adapted to engage the upper edge of the guide-plate when said pawl is elevated so that its teeth are out of engagement with said engaging device, whereby the pawl is supported during a closing movement of said leaves.

2. A hinge, comprising opposite hinge-leaves pivoted together at one corner, a toothed pawl pivoted to one of said leaves and terminating opposite the other leaf in a stop, an engaging device for the pawl carried by the second or companion leaf and against which said stop is adapted to abut, a guide-plate mounted for lateral movement on said companion leaf, and a projection on the pawl adapted to engage the upper edge of the guide-plate when said pawl is elevated so that its teeth are out of engagement with said engaging device, whereby the pawl is supported during a closing movement of said leaves.

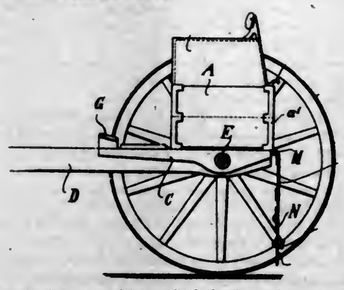


3. A hinge, comprising opposite hinge-leaves pivoted together at one corner, a toothed pawl pivoted to one of said leaves and terminating opposite the other leaf in an inclined shoulder or flange forming a stop, a staple projecting from the face of said companion leaf and receiving the toothed pawl, a guide-plate mounted on said companion leaf, and a projection on the pawl adapted to engage the upper edge of the guide-plate when said pawl is elevated so that its teeth are out of engagement with said engaging device, whereby the pawl is supported during a closing movement of said leaves.

4. A hinge, comprising opposite hinge-leaves pivoted together at one corner, a toothed pawl pivoted to one of said leaves and terminating opposite the other or companion leaf in a stop, an engaging device for the pawl carried by the companion leaf and having a vertical portion against which said stop is designed to abut, a guide-plate mounted for lateral movement upon said companion leaf and between it and the pawl, said guide-plate being provided at its front end with a shallow flange 14 and at its rear upper end with an offset 15, and a stud carried by the pawl and adapted to engage the upper edge of the guide-plate when the leaves are separated to their fullest extent.

5. A hinge, comprising the opposite hinge-leaves 1 and 2, and hinged at their upper corners, as at 4, the staple 7 projecting from the leaf 2, the stud 13 projecting from said leaf in advance of the staple, the guide-plate 10 having at its front end flange 14 and at its upper rear corner the offset 15, and having openings 11 and 12 loosely receiving the lower leg of the staple and the stud 13, and the toothed rack-bar 6 mounted for movement between the staple and guide-plate and pivoted, as at 5, to the leaf 1, the inclined flange 8 forming a stop at the free end of the pawl, and the stud 9 projecting from the inner face thereof and adapted to engage and ride upon the upper edge of the plate 10, substantially as described.

786,452. AMMUNITION-WAGON OR LIMBER. WILHELM MAYER, Rüttenscheid, near Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Filed July 13, 1904. Serial No. 216,376.



Claim.—1. An ammunition-vehicle having a box-opening, a door adapted to drop downwardly from said opening, and a plate secured to said door and adapted to project downward from the door toward the ground when the door is in its lowered position.

2. An ammunition-vehicle having a box-opening, a door swinging upwardly to close the opening and a plate adapted to be hung from the door toward the ground when the door is in its lowered position.

3. In an ammunition-vehicle having a box-opening, a door swingingly connected to the vehicle to close said opening, and a plate swingingly connected to said door and adapted to be unfolded downward with the door toward the ground.

4. In an ammunition-vehicle having a box-opening, a door for closing said opening swingingly connected at its lower end to the vehicle and capable of being folded down to occupy a portion of the space between the vehicle-frame and the ground, and a plate swingingly connected to the free end of said door to depend therefrom.

5. In an ammunition-vehicle having a box-opening, a door for closing said opening, a plate swingingly connected to the free end of said door so as to depend therefrom, and means controlled by said plate for securing the door in locked position.

6. In an ammunition-vehicle having a box-opening, a door for closing said opening, a plate swingingly connected to the free end of said door so as to depend therefrom, means controlled by said plate for securing the door in locked position, and releasable means securing the plate against movement relative to the door.

7. In an ammunition-vehicle having a box-opening, a door for closing said opening, a plate hinged to the free end of said door so as to depend therefrom, and means for securing the door in locked position, said means comprising a keeper on the vehicle and a latch on the hinged part of the plate.

8. In an ammunition-vehicle having a box-opening, a door for closing said opening hinged at its lower end to the vehicle, a plate hinged to the free end of said door so as to depend from said free end, means for securing the door in locked position, controlled by the swinging movement of the plate on the door, and releasable means for clamping the plate to the face of the door, to prevent swinging movement of the plate relative to the door.

786,453. INHALING COMPOUND FOR FIREMEN'S USE. WILLIAM M. MITCHELL, Louisville, Ky. Filed Jan. 3, 1905. Serial No. 239,465.

Claim.—An inhaling compound for firemen's use comprising menthol, terebene, alcohol and aqua-ammonia combined in substantially the proportions herein set forth.

786,454. WIRE-WORKING TOOL. WALTER R. MONTGOMERY and BENJAMIN F. MEGENITY, Shreveport, La., assignors to said Megenity, Walter Clyde Huston, and Gus Cammillo, Shreveport, La. Filed Sept. 20, 1904. Serial No. 225,276.



Claim.—1. A tool of the class described comprising a pair of pliers having coöperating wire-cutting notches in the front ends of the handle members and between the jaws, the inner faces of the jaws having corresponding recesses and the opposite edges of said jaws also being provided with recesses intersecting the open ends of the inner recesses, cutter-plates secured in the side recesses with their inner edges closing the inner recesses of the jaws and provided with corresponding wire-receiving notches arranged in a series which increase in size from the inner notch to the outer notch, one of the plates only being projected at the back of the adjacent jaw to form a scraper, and plates secured within the inner recesses and provided with corresponding transverse splitting-blades registered with the notches and varying in depth according to the sizes of the notches.

2. A tool of the class described consisting of a pair of pliers, cutting-blades carried longitudinally by the jaws of the pliers and provided with registered substantially semicircular notches, and stripper-blades projected transversely from the jaws and converged rearwardly with their adjacent active edges beveled to travel smoothly upon the wire.

3. A tool of the class described comprising a pair of pliers having coöperating wire-cutting notches in the front ends of the handle members and between the jaws, longitudinal cutting-blades carried by the jaws in front of the wire-cutting notches and provided with registered wire-receiving notches, and stripper-blades projected transversely from the jaws in front of the cutter-blades and converged rearwardly with their active adjacent edges beveled to travel smoothly upon the wire.

4. A tool of the class described comprising a pair of pliers hav-

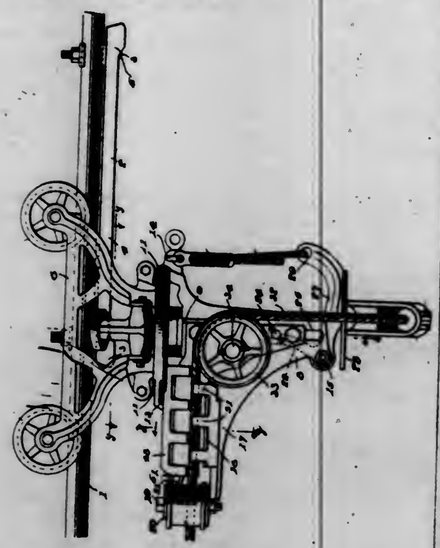
ing rearwardly-converged stripper-blades carried by the jaws with the active edges of the blades beveled to travel smoothly upon the wire.

5. A tool of the class described comprising a pair of pliers and rearwardly-converged stripper-blades carried by the jaws, and means to adjust the blades endwise.

6. A tool of the class described comprising a pair of pliers having rearwardly-converged grooves in corresponding sides, and stripper-blades carried within the grooves and projected at one side of the tool.

7. A tool of the class described comprising a pair of pliers having rearwardly-converged grooves in corresponding faces of the jaws, stripper-blades fitted in the grooves and capable of endwise adjustment therein, each blade having a flange lying against the adjacent jaw and provided with a longitudinal slot, and an adjusting-screw passed through each slot and engaging the adjacent jaw.

786,455. **HAY-CARRIER.** PHILIP A. MYERS, Ashland, Ohio, assignor to F. E. Myers & Bro., Ashland, Ohio, a Copartnership. Filed Apr. 7, 1904. Serial No. 202,005.



Claim.—1. A hay-carrier comprising a frame having a fixed member and a movable member, a hoisting-rope pulley and a hoisting-rope connection mounted on opposite sides of the movable member in a plane transverse to the line of travel of the carrier, means for lifting the movable member, a dog for supporting said movable member in lifted position, means for tripping the dog, and a rope-lock independent of the pulley and located in front of the same, said rope-lock being actuated by the movable member to grip the hoisting-rope in front of the pulley when the dog is tripped, substantially as described.

2. A hay-carrier comprising a carriage, and a frame swiveled thereto, said frame having a hoisting-rope pulley and a hoisting-rope connection located on opposite sides thereof in a plane transverse to the line of travel of the carrier, and an alining pulley supported by said frame in front of the hoisting-rope pulley, and arranged to bear upon the side of the hoisting-rope to prevent the frame from rotating relatively to the carriage, substantially as described.

3. A hay-carrier comprising a carriage, and a frame swiveled thereto and having a fixed member and a movable member, a hoisting-rope pulley and a hoisting-rope connection mounted on opposite sides of the movable member in a plane transverse to the line of travel of the carrier, means for lifting the movable member, a dog for supporting said movable member in lifted position, means for tripping the dog, a rope-lock located in front of the hoisting-rope pulley and actuated by the movable member to grip the hoisting-rope when the dog is tripped, and an alining pulley supported by said frame in front of the rope-lock and arranged to bear against the side of the rope during the hoisting of the load to prevent the frame from rotating relatively to the carriage, substantially as described.

4. A hay-carrier comprising a carriage, and a frame swiveled thereto, said frame having a hoisting-rope pulley and a hoisting-rope connection located on opposite sides thereof in a plane transverse to the line of travel of the carrier, and an alining device supported by said frame in front of the hoisting-rope pulley, and arranged to bear upon the side of the hoisting-rope to prevent the frame from rotating relatively to the carriage, substantially as described.

5. A hay-carrier comprising a carriage, and a frame swiveled thereto, said frame having a fixed member and a movable member, a hoisting-rope pulley and a hoisting-rope connection supported on opposite sides of said movable member, means for lifting the movable member, a dog for supporting said movable member in lifted position, means for tripping the dog, a combined hoisting and traction rope supported by said pulley and connection with its bight in a plane transverse to the line of travel of the carrier and its lead extending in the direction of said line of travel, and a rope-lock actuated by the weight of the load upon the movable member to grip the hoisting-rope when the dog is tripped, substantially as described.

6. A hay-carrier comprising a carriage, and a frame swiveled thereto, said frame having a fixed member and a movable member, a hoisting-rope pulley and a hoisting-rope connection supported on opposite sides of said movable member, means for lifting the movable member, a dog for supporting said movable member in lifted position, means for tripping the dog, a combined hoisting and traction rope supported by said pulley and connection with its bight in a plane transverse to the line of travel of the carrier and its lead extending in the direction of said line of travel, and a rope-lock independent of the pulley and actuated by the weight of the load upon the movable member to grip the hoisting-rope when the dog is tripped, substantially as described.

7. A hay-carrier comprising a carriage, and a frame swiveled thereto, said frame having a fixed member and a movable member, a hoisting-rope pulley and a hoisting-rope connection supported on opposite sides of said movable member, said fixed and movable members being respectively provided with gripping-jaws, means for lifting the movable member, a dog for supporting said movable member in lifted position, means for tripping said dog, and a combined hoisting and traction rope supported from the movable member by said pulley and connection with its bight in a plane transverse to the line of travel of the carrier and its lead extending between the gripping-jaws in the direction of said line of travel, whereby the entire weight of the load supported from opposite sides of the movable member acts to force its gripping-jaw toward the gripping-jaw of the fixed member when the dog is tripped, substantially as described.

8. A hay-carrier comprising a carriage, and a frame swiveled thereto, said frame having a fixed member and a movable member, a hoisting-rope pulley and a hoisting-rope connection supported on opposite sides of said movable member, said fixed and movable members being respectively provided with gripping-jaws mounted in fixed relation to said members, means for lifting the movable member, a dog for supporting said movable member in lifted position, means for tripping said dog, and a combined hoisting and traction rope supported from the movable member by said pulley and connection with its bight in a plane transverse to the line of travel of the carrier and its lead extending between the gripping-jaws in the direction of said line of travel, whereby the entire weight of the load supported from opposite sides of the movable member acts to force its gripping-jaw toward the gripping-jaw of the fixed member when the dog is tripped, substantially as described.

9. A hay-carrier comprising a load-supporting frame having a fixed member and a movable member, the fixed member being provided with a forwardly-extending arm having a rope-gripping jaw and an alining pulley, the movable member being provided with a hoisting-rope pulley and a hoisting-rope connection, mounted on opposite sides thereof in a plane transverse to the line of travel of the carrier, and having a gripping-jaw located above the gripping-jaw of the fixed member, means for lifting, supporting and tripping the movable member, and a carriage having a swiveling connection with said load-supporting frame, substantially as described.

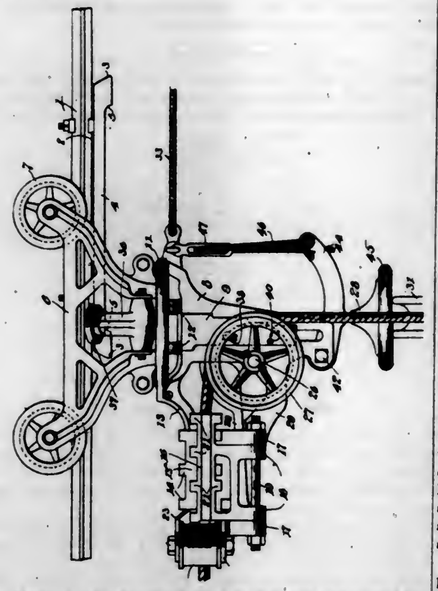
10. In a hay-carrier, the combination, with a track having a knocker provided with diverging cam-surfaces, of a carriage adapted to travel on said track, a load-supporting frame having a fixed member and a vertically-movable member, the latter provided with a pulley over which the hoisting-rope passes, a rope-lock independent of the hoisting-rope pulley and actuated by the movable member of the frame, and lifting-levers mounted on the carriage, each lever having one arm provided with a roller to coöperate with a cam-surface of the knocker, and another arm engaging the movable frame member, substantially as described.

11. In a hay-carrier, the combination, with a track provided with a knocker having diverging cam-surfaces, of a carriage adapted to travel on said track, a load-supporting frame having a swiveled connection with said carriage and comprising a fixed member and a vertically-movable member, said movable member having mounted thereon a pulley over which the hoisting-rope passes, a rope-lock independent of said pulley and operated by the movable member, said movable member having an upwardly-extending projection with a terminal head, and lifting-levers mounted on opposite sides of the carriage, each lever having one arm provided with a roller to engage a cam-incline of the knocker, and the other arm extending under the head of the projection on the movable frame member, substantially as described.

12. A hay-carrier comprising a frame having the hoisting-rope pulleys mounted on opposite sides thereof in a plane transverse to the line of travel of the carrier, and a hoisting-rope passing over said pulleys and provided with sling-blocks, one end of said hoisting-rope being connected to one of the sling-blocks, substantially as described.

13. A hay-carrier comprising a frame provided with a rope-lock consisting of gripping-jaws, said frame having hoisting-rope connections mounted on opposite sides thereof in a plane transverse to the line of travel of the carrier, said connections consisting of pulleys, and a hoisting-rope passing over said pulleys, provided with sling-blocks, and having one of its ends connected to one of the sling-blocks, the weight of the load carried by said hoisting-rope actuating the rope-lock to grip said hoisting-rope, substantially as described.

786,456. **HAY-CARRIER.** PHILIP A. MYERS, Ashland, Ohio, assignor to F. E. Myers and Brother, Ashland, Ohio. Filed Oct. 14, 1904. Serial No. 228,495.



Claim.—1. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, one of said gripping-jaws being movable toward and from the other around a pivotal axis extending longitudinally of the frame and parallel with the gripping-jaws, substantially as described.

2. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, the plane of meeting of said jaws being vertical, and one of said jaws being movable toward and from the other, substantially as described.

3. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, the plane of meeting of said jaws being vertical, and one of said jaws being movable toward and from the other around a pivotal axis also longitudinal of the frame in the direction of travel of the carrier, substantially as described.

4. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, one of the gripping-jaws being movable toward and from the other and forming a part of said lever, substantially as described.

5. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, the pivotal axis of said lever being longitudinal with respect to the frame, one of the gripping-jaws being movable toward and from the other and forming a part of said lever, substantially as described.

6. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, their plane of meeting being vertical, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, one of the gripping-jaws being movable toward and from the other and actuated by said lever, substantially as described.

7. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, their plane of meeting being vertical, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, the pivotal axis of said lever being also longitudinal of the frame, one of the gripping-jaws being movable toward and from the other by means of said lever, substantially as described.

8. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, their plane of meeting being vertical, and a lever operated to grip the rope by the weight of the load and mounted on said frame on a pivotal axis extending longitudinally of the frame and parallel with the gripping-jaws, one of said jaws forming a part of said lever and being movable thereby toward and from the other, substantially as described.

9. In a hay-carrier, a frame provided with a longitudinal arm extending forward therefrom and having thereon a longitudinally-extending gripping-jaw, in combination with a lever operated to grip the rope by the weight of the load, said lever being pivotally supported on said arm by a longitudinal pivot and being provided with a longitudinal gripping-jaw to coöperate with the gripping-jaw on the arm, substantially as described.

10. In a hay-carrier, a frame provided with a longitudinal arm extending forward therefrom and having thereon a longitudinally-exteading gripping-jaw, in combination with a lever operated to grip the rope by the weight of the load, said lever being pivotally supported on said arm by a longitudinal pivot and being provided with a longitudinal gripping-jaw to coöperate with the gripping-jaw on the arm, the plane of meeting of said jaws being vertical, substantially as described.

11. In a hay-carrier, a frame provided with a longitudinal arm extending forward therefrom and having thereon a longitudinally-extending gripping-jaw, in combination with a lever operated to grip the rope by the weight of the load, said lever being pivotally supported on said arm by a longitudinal pivot and being provided with a longitudinal gripping-jaw to coöperate with the gripping-jaw on the arm, the plane of meeting of said jaws being vertical, and the pivotal axis of the lever being located below the jaws, substantially as described.

12. In a hay-carrier, a frame having a forwardly-extending arm provided with a longitudinal gripping-jaw and depending pivot-lugs, in combination with a lever operated to grip the rope by the weight of the load, said lever being provided with a gripping-jaw to coöperate with that of the arm, and with depending pivot-lugs to coöperate with the pivot-lugs of the arm, and a pivot-bolt passing through both pairs of pivot-lugs, substantially as described.

13. In a hay-carrier, the combination, with a frame having a hoisting-rope pulley mounted on one side thereof with its axis of rotation fixed relatively to the frame and transverse to the direction of travel of the carrier, of rope-gripping jaws carried by said frame and located in front of said pulley on that side thereof toward which the carrier travels to deliver its load, and an arm or lever for operating said gripping-jaws, said arm or lever being pivotally mounted on the frame and extending to the side of the frame opposite to that on

which the hoisting-pulley is mounted, said arm or lever having the hoisting-rope connected therewith, and the bight of said rope between said arm and pulley lying in a plane transverse to the line of travel of the carrier, substantially as described.

14. In a hay-carrier, a frame having a hoisting-rope pulley mounted on one side thereof, said frame having a forwardly-extending arm provided with a fixed and a pivoted gripping-jaw extending longitudinally in front of the pulley, said pivoted jaw having an arm extending to the side of the frame opposite that on which the pulley is mounted, and a combined hoisting and traction rope supported by said pulley and arm with its bight in a plane transverse to the line of travel of the carrier, substantially as described.

15. A hay-carrier comprising a carriage, and a frame swiveled thereto and having a forwardly-extending arm provided with a fixed and a pivoted gripping-jaw, a hoisting-rope pulley mounted on one side of said frame behind and in alinement with said gripping-jaws, said pivoted jaw having an arm extending to the opposite side of the frame from that on which the pulley is located, a hoisting-rope supported from said arm and pulley with its bight in a plane transverse to the line of travel of the carrier, and an alining device supported from said arm in front of the gripping-jaws and arranged to bear upon the side of the hoisting-rope to prevent the frame from rotating relatively to the carriage, substantially as described.

16. In a hay-carrier, a frame provided with a hoisting-rope pulley and having a forward extension provided with a rope-support, in combination with rope-gripping jaws extending longitudinally between said pulley and support, the plane of meeting of said jaws being vertical, substantially as described.

786,457. SPECULUM. FRANK MCGINNIS, Higginsville, Mo. Filed Apr. 29, 1904. Serial No. 205,474.



Claim.—1. In a speculum of the character described, three interfolding leaves of different lengths, the two superior leaves having a loop formation, and a clamping-ring which is provided with three inwardly-projecting pointed lobes, the inner faces of said lobes forming arcs of a circle, substantially as described.

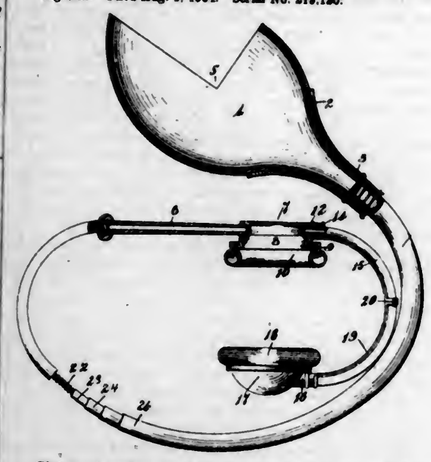
2. In a speculum, three interfolding leaves of different lengths, the two superior leaves each being provided with a depending handle, and the lower leaf having a spoon formation and being provided with a depending member which serves the three purposes of handle, drain, and shank for attachment of an auxiliary handle, substantially as described.

3. In a speculum, three interfolding leaves, the rearward portions of which have a segmental formation, the segmental portion of each leaf having outer rearward faces *b*, outer forward faces *c*, and intermediate triangular faces *d*, and also having rocking contact-faces *a*, in combination with a clamping-ring which is provided with three inwardly-projecting pointed lobes, the inner faces of said lobes together forming a circle, and said ring being adapted to embrace the segmental portions of the leaves and to hold the leaves in any desired position by rotating the ring, substantially as described.

4. In a speculum, three interfolding leaves, the rearward portion of each leaf being segmental in form, each segmental portion having two rocking surfaces *a*, adapted to form bearings between the leaves, and having two relatively inclined segmental faces *b* and *c*, in combination with a clamping-ring which is adapted to loosely engage either the faces *b* or the faces *c*, and the inner face of said ring having means for tightly engaging all of said faces when the ring is rotated, substantially as described.

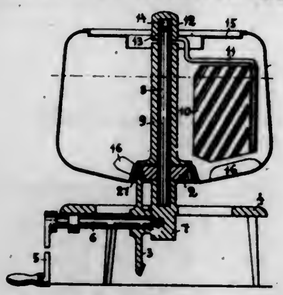
5. In a speculum, three interfolding leaves, the rearward portion of each being segmental in form, the three together forming a ring, each segmental portion having outer rearward faces *b* and outer forward faces *c*, in combination with an annular clamping member which is adapted to loosely engage either the faces *b* or the faces *c*, according to whether the leaves are in open or in closed position, and the inner face of said ring being divided into three lobes which are adapted to tightly engage all of the said faces when the ring is rotated, substantially as described.

786,458. CONVERSATION-TUBE. ALBERT W. NICHOLLS, Chicago, Ill. Filed Aug. 1, 1904. Serial No. 219,190.



Claim.—A conversation-tube consisting of a tapering flexible tube, a mouthpiece secured to one end of said tube, a hard-rubber section connected to the opposite end of said tube, an earpiece attached to said hard-rubber section, a short flexible tube removably secured to said earpiece and provided at its opposite end with another earpiece, and a head-spring connected to said short tube, said hard-rubber section serving as a handle for applying the earpieces to the ears of the user, substantially as described.

786,459. ROTATING OR CENTRIFUGAL CHURN. ERNST A. NORDLINDH, Stockholm, Sweden, assignor to Svenska Centrifugaktiebolaget, Stockholm, Sweden. Filed Feb. 8, 1904. Serial No. 192,594.



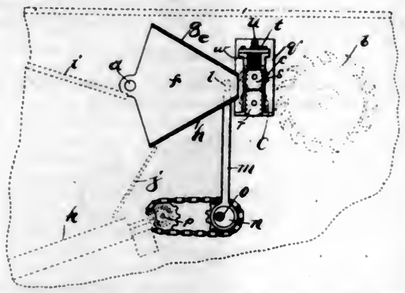
Claim.—1. In a churn, the combination with a revoluble bowl portion, an intercepting grooved wing rigidly mounted, said wing having a logarithmic spiral formation, and coöperating stationary wings radially disposed within said bowl and having flat engaging faces, substantially as described.

2. In a churn, the combination with a revoluble bowl portion, an intercepting grooved wing rigidly mounted, said grooves being of a compound formation, said wing having the form of a logarithmic spiral, and coöperating stationary wings radially disposed within said bowl and having flat engaging faces, substantially as described.

3. In a churn, the combination with a revoluble bowl portion, an intercepting wing rigidly mounted and having grooves therein, said grooves having a compound formation, and coöperating stationary wings radially disposed within said bowl, substantially as described.

786,460. FEED MECHANISM FOR CORN HUSKING AND SHREDDING MACHINES. JAMES W. PAIGE, Chicago, Ill., assignor to Albert Van Ness, Rochester, Ind. Filed June 4, 1904. Serial No. 211,154.

Claim.—1. The combination with the feed-rolls of a corn-shredding machine, of a funnel-shaped chute pivoted at its receiving end and provided with means at the end adjacent to the feed-rolls for imparting a vibratory movement to said chute up and down in front of said rolls.



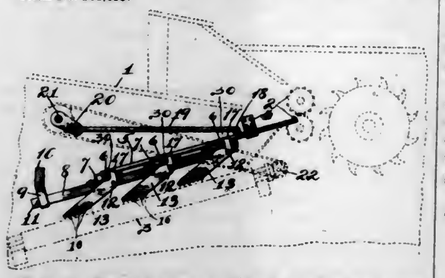
2. The combination in a machine of the class described, of feed-rolls, a stationary feed-table, a funnel-shaped feed-chute interposed between said table and said rolls, said feed-chute being pivoted upon a horizontal axis, and means for imparting a vibratory up-and-down movement to the end thereof next to said rolls.

3. The combination in a machine of the class described, of feed-rolls, a stationary feed-table, a funnel-shaped feed-chute interposed between the end of said table and said rolls, the large end of said chute being pivoted near to and in advance of said table, and means for vibrating the free end of said chute across the plane of the meeting-faces of said rolls.

4. The combination in a machine of the class described, of a feed-table, a funnel-shaped feed-chute pivotally mounted in advance of said table, the top and bottom walls thereof diverging rearwardly, one above and the other below the plane of said table, feed-rolls in operative proximity to the mouth of said chute, and means for vibrating the free end of said chute in front of said feed-rolls.

5. A feed mechanism of the class described, consisting of a stationary feed-table, a vibratory funnel-shaped feed-chute in advance thereof, and feed-rolls in operative proximity to the month of said feed-chute, the lower wall or bottom of said feed-chute being inclined downwardly and rearwardly to direct the severed ears of corn to the husking-rolls.

786,461. CORN-HUSKING MACHINE. JAMES W. PAIGE, Chicago, Ill., assignor to Albert Van Ness, Rochester, Ind. Filed June 4, 1904. Serial No. 211,155.

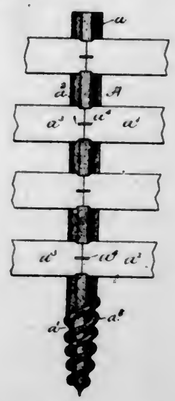


Claim.—1. The combination with the husking-rolls of a corn-husking machine, of a primary and secondary vibratory framework located above said rolls, means for imparting a vibratory movement directly to said primary framework, means for allowing a play of said primary upon said secondary framework whereby the movement of the latter is less than that of the former, a series of downwardly and forwardly inclined gravity presser-feet pivoted to said secondary framework, and arms or projections extending upwardly therefrom at or near their pivoted points in position to engage said primary framework upon its upward or backward stroke, whereby said feet may be lifted upon said backward stroke and allowed to descend when the movement is reversed.

2. The combination with the husking-rolls of a corn-husking machine, of a vibratory frame arranged above said rolls, means for vibrating the same lengthwise of said rolls, a series of downwardly and forwardly inclined gravity presser-feet having their upper ends pivotally attached to said frame said presser-feet having rollers upon their lower ends, and means for preventing the rotation of the latter upon the downward stroke of said frame.

3. The combination with the husking-rolls of a corn-husking machine, of a vibratory frame arranged above said rolls, means for vibrating the same lengthwise of said rolls, a series of downwardly and forwardly inclined gravity presser-feet having their upper ends pivotally attached to said frame, said presser-feet being provided with rollers at their lower ends and a ratchet and pawl for preventing the movement of said rollers except when the frame is moved upwardly.

786,462. FENCE-POST. HERBERT E. PERCIVAL, Galveston, Tex. Filed June 18, 1904. Serial No. 213,098.



Claim.—1. A plastic fence-post having a threaded or screw-base portion and a metal spiral embedded therein.

2. A plastic fence-post comprising a body and a base portion and a spiral reinforcement embedded in the same.

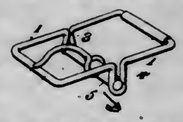
3. A plastic fence-post comprising a body and a base portion and a spiral metal thread or screw-flange embedded in said base portion.

4. A plastic fence-post comprising a body and a base portion, and a temporary thread for said base portion of the post for screwing the same into the ground.

5. A plastic fence-post comprising a body and a base portion, and in combination with said base portion a metal spiral embedded in the plastic surface thereof, forming a thread by which said portion of the post may be screwed into or embedded in the ground.

6. A plastic fence-post having a body and a base portion, and in combination therewith a metal reinforcement in the entire post, the same being embedded in said body portion of the post and on the outside passing spirally around said base portion forming a screw-thread by which the same may be screwed into or embedded in the ground.

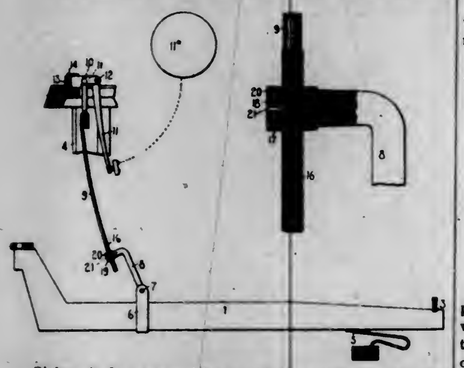
786,463. CROSS-LINE BUCKLE. HENRY J. RATH and FRANK W. KVECH, Pine City, Minn. Filed Feb. 5, 1904. Serial No. 192,215.



Claim.—1. In a buckle, the combination with a frame comprising side and end bars, a supporting extension projected from said frame, a spring-engaging extension also projected from the frame, a cross-bar pivoted to the supporting extension and coöperating with the spring-engaging extension, and a tongue carried by said cross-bar.

2. In a buckle, the combination with a frame comprising side and end bars, of a supporting-loop projected from one of the side bars, an engaging loop extended from the other of said side bars and outwardly flared, a cross-bar pivoted to the supporting-loop and engaging the engaging loop, and a tongue pivotally mounted upon the cross-bar.

786,464. **TYPE-WRITING MACHINE.** CHARLES H. SHEPARD, Brooklyn, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Apr. 5, 1902. Serial No. 101,446.



Claim.—1. In a type-writing machine, a connecting-link comprising a rod having an externally-screw-threaded portion, and an internally-screw-threaded socket, which is split through the thread ed portion thereof.

2. In a type-writing machine, a connecting-link comprising a rod having an externally-screw-threaded portion, and an internally-screw-threaded socket, one portion of the threads of which is displaced with relation to another portion of said threads.

3. In a type-writing machine, a connecting-link comprising one member having an externally-screw-threaded portion and another member having two internally-screw-threaded parts for the reception of the threaded portion of the other member, the internal thread of one of said parts being displaced with relation to the internal thread of the other part.

4. In a type-writing machine, a connecting-link comprising one member having an externally-screw-threaded portion and another member having two internally-screw-threaded resilient parts for the reception of the threaded portion of the other member, the internal thread of one of said resilient parts being displaced with relation to the internal thread of the other part.

5. In a type-writing machine, a connecting-link comprising one member having an externally-threaded portion and another member having an end portion which is bent at an angle to the body thereof, the bent end being divided into two parts that are at an angle to each other and provided with transverse screw-threaded openings extending therethrough for the reception of the externally-threaded portion of the other member.

6. In a type-writing machine, the combination with a type-bar and a key-lever, of a connecting-rod comprising a member 8 having two integral threaded nuts arranged at an angle to each other, and a member 9 having an exteriorly-threaded portion to engage said nuts.

786,465. **BRAKE-SHOE.** WILLIAM M. SIMPSON, Chicago, Ill., assignor to The Railway Materials Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 4, 1904. Serial No. 201,469.



Claim.—1. A brake-shoe comprising a body, and a backing embedded in the body and provided on its back with one or more longitudinal ribs to support said backing in the mold while the body metal is being cast thereon so that the body metal may flow around the edges of the backing, said rib or ribs being exposed on the back of the shoe between the attaching-lug and the brake-head guides.

2. A brake-shoe comprising a body, and a backing embedded in the body at the back thereof and provided with a rib on its back, said backing being recessed in its side edges at the central portion thereof and having the corners at its ends cut away.

3. A brake-shoe comprising a body, and a backing provided at its ends with shoulders to make locking engagement with the body and on its back with a longitudinal rib

4. A brake-shoe comprising a body, and a backing provided at its ends with shoulders formed by dovetailing its side edges and on its back with a longitudinal rib.

5. A brake-shoe comprising a body, and a back therefor provided with a transversely-curved front face and having a longitudinal rib on its back.

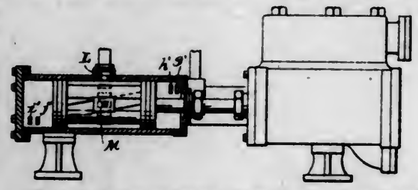
786,466. **ROTARY TURBINE-PUMP.** EDWARD A. SMITH, Denver, Colo. Filed Aug. 4, 1904. Serial No. 219,501.



Claim.—1. A rotary pump comprising a casing or cylinder, a piston-head mounted upon ball-bearings within the casing and provided with cross-slots, slotted sheet-metal pistons mounted within the slots and constructed to move independently, said pistons having oppositely-curved edges, and a combined waterway and cam comprising a recessed plate having tapering cams secured at its opposite edges, said waterway being secured within the casing and provided with a shoulder which alines with the outlet-opening in the cylinder, an outlet-tube closed at its lower end and means for operating the piston-head, substantially as described.

2. In a rotary pump, the herein-described combined waterway and cams comprising opposite shoulders, providing an intermediate recess, and an end shoulder, and tapering cams secured to the ends of said waterway and forming continuations of the opposite shoulders, in combination with a piston-head provided with cross-slots and slotted sheet-metal independently-operated pistons mounted in the slots and actuated by the cams, substantially as described.

786,467. **DUPLEX STEAM-PUMP.** CLARENCE A. SNIDER, Cleveland, Ohio, assignor to the Snider-Hughes Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 20, 1904. Serial No. 213,236.



Claim.—1. In a steam-pump, the combination of two cylinders A A′, each having an initial inlet-port, and a final outlet-port, and there being eight other ports which connect said cylinders, to wit; the inlet-ports C, E, which connect the middle part of cylinder A with the opposite ends of cylinder A′, the inlet-ports G, I, which connect the middle part of cylinder A′ with opposite ends of A, all of the port-openings in the ends of said cylinders being close to said ends, two outlet-ports, D and F which connect the middle part of cylinder A with the opposite ends of cylinder A′ and the outlet-ports H and J which connect the middle part of cylinder A with the opposite ends of cylinder A, the port-openings of these outlet-ports in the ends of the cylinders being at a considerable distance from said ends whereby they will be covered by the piston-heads as said heads near the ends of said cylinder, with a piston in each cylinder having two heads fitted to the cylinder and an intermediate body portion of smaller diameter, means preventing the rotation of said piston, sliding valve in each cylinder operable by the piston in an arcual path, and means preventing the longitudinal movement of the valve in said cylinder.

2. In a pump, the combination of two cylinders, each provided with an initial inlet-port, a final outlet-port, four ports which lead from the middle part of each cylinder to opposite ends of the other cylinder, two inlet-port openings close to opposite ends of the cylinder, and two outlet-port openings near opposite ends of the cylinder but at such a distance from said ends that they will be covered by the piston-heads when the piston nears the ends of the cylinder, all of the four port-openings last mentioned being in communication with the four ports which lead from the middle part of the other cylinder, with a piston having two heads, fitted to said cylinder and lying on

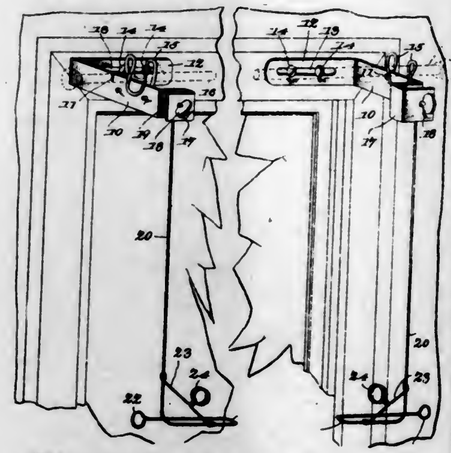
opposite sides of the middle ports, and a connecting body portion of smaller diameter, means preventing the rotation of said piston, and a valve in the cylinder operable by the piston.

3. In a pump, the combination of two cylinders, each having an initial inlet-port, and a final outlet-port, and ports connecting the middle part of each cylinder with the ends of the other cylinder, a piston in each cylinder consisting of two separated heads, fitted to the cylinder and lying at all times on opposite sides of said middle ports, and an intermediate body portion of smaller diameter, in which is a straight longitudinal slot, an inclined slot and an interior recess with which both slots communicate, a valve having a stem which extends through the inclined slot into said interior recess, an arm fixed to the inside of the cylinder and passing through the straight slot into said recess, and engaging with the stem of the valve, whereby said arm prevents the piston from turning and prevents the valve from moving lengthwise of the cylinder.

4. The combination of two cylinders each having an initial inlet-port communicating with the middle part thereof, and four ports leading from the middle part to the opposite ends of the other cylinder, and a final outlet-port for each cylinder, with a piston in each cylinder having a body portion and heads fitted to the cylinder lying on opposite sides of said port, and there being a straight slot in the one side of the body part of said piston, and an inclined slot in the opposite side of said piston, a fixed arm in the cylinder entering said straight slot, a valve in each cylinder having a stem which enters said inclined slot, a valve in each cylinder having a stem which enters said inclined slot, and means preventing the endwise movement of said valve with its operating-piston.

5. The combination of two cylinders each having an initial inlet-port and four ports leading from it to the opposite ends of the other cylinder, and a final outlet-port for each cylinder, with a piston in each cylinder having a body portion and heads fitted to the cylinder lying on opposite sides of said ports, there being a straight slot and an inclined slot in the body part of said piston, a D-valve for each cylinder having a stem which enters said inclined slot, and a fixed arm which enters the straight slot and has a bifurcated inner end, which embraces the stem of said valve.

786,468. **CURTAIN AND DRAPERY SUPPORT.** JAMES M. SPENCER, Smith, Mich., assignor of one-half to Clyde Shaver, Smith, Mich. Filed Oct. 3, 1904. Serial No. 227,706.



Claim.—1. In a device of the class described, bracket members for attachment to the window having means for supporting a drapery-pole, and laterally-adjustable rods supported by the brackets and terminating in drapery-receiving loops.

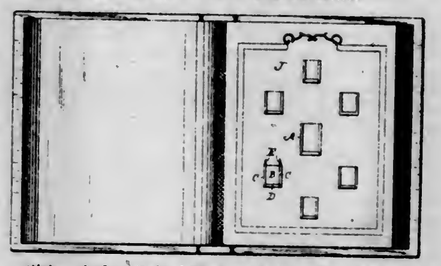
2. In a device of the class described, bracket members for attachment to the window having means for supporting a drapery-pole and terminating in vertical sockets provided with clamp-screws, and rods having eyes in one end for swinging upon said screws and with drapery-receiving loops at their free ends.

3. In a device of the class described, bracket members for attachment to the window having means for supporting a drapery-pole and rods swinging from said brackets and bent into horizontal drapery-receiving loops at their free ends and with the loops connected by diagonal braces to the bodies of the rods, said braces having intermediate ornament-holding eyes.

4. In a device of the class described, bracket members for attachment to a window and having means for supporting a drapery-pole, the free ends of said brackets having return-bends at right angles to the longitudinal plane of the same, clamp-screws operating through said return-bends, and swing-rods having eyes engaging said screws within said bends and provided with drapery-receiving loops at their free ends.

5 In a device of the class described, bracket members for attachment to the window and having wire loops for detachably supporting a drapery-pole, rods having a swinging connection with the free ends of said brackets and having drapery-receiving loops in their free ends, and means combined with the brackets for holding the rods at any desired angle of adjustment.

786,469. **STAMP-RETAINING ENVELOP.** HENRY J. STERN, Milwaukee, Wis. Filed Apr. 18, 1904. Serial No. 203,583.



Claim.—1. In a device for preserving and exhibiting stamps; a flexible paper envelop comprising a central back portion against which the postage-stamp is adapted to be placed; two vertical side folds adapted to engage the respective sides of the stamp; a bottom fold adapted to engage the lower marginal edge of the stamp in combination with a supporting-sheet; and means for securing said envelop to the supporting-sheet, substantially as set forth.

2. In a device for preserving and exhibiting stamps; a plurality of envelops each comprising a central back portion against which the postage-stamp is adapted to be placed; two vertical side folds adapted to engage the respective sides of the stamp; a bottom fold adapted to engage the lower marginal edge of the stamp; a plurality of stamp-retaining sheets; means for retaining said stamps in said envelops and means for securing said envelops to said supporting-sheets, substantially as set forth.

3. The combination of an envelop-supporting sheet; an envelop for preserving and exhibiting stamps comprising a central back portion; vertical side and bottom retaining folds and a supporting-flap folded rearwardly and downwardly and adapted to be secured to said envelop-supporting sheet, substantially as set forth.

4. An envelop for preserving and exhibiting stamps, formed of semitransparent paper comprising a central portion; two vertical stamp-retaining folds adapted to engage the respective sides of the stamp; a horizontal fold adapted to engage the lower edge of the stamp; two V-shaped projections adapted to be folded over the upper edge of the stamp and envelop and secured to the back wall of said envelop and means for securing said envelop to a supporting-sheet, all substantially as, and for the purpose specified.

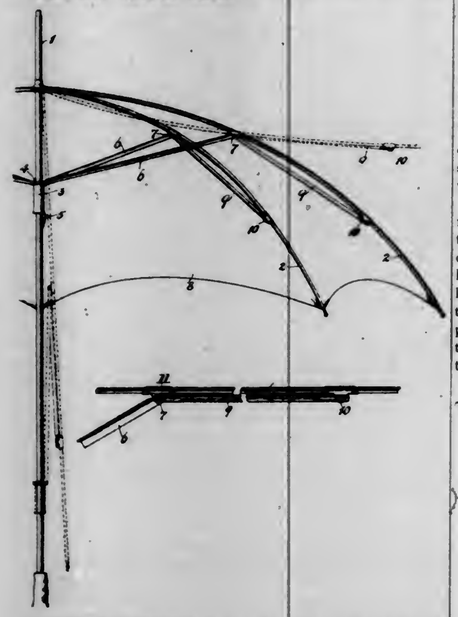
786,470. **PNEUMATIC TIRE.** IRVIN TENNANT, Springfield, Ohio, assignor to Tennant Auto-Tire Company, Springfield, Ohio, a Corporation of New Jersey. Filed Aug. 6, 1904. Serial No. 219,713.



Claim.—1. A pneumatic tire comprising a tubular body of rubber having a thickened tread portion and lateral protective chambers, one on each side of the tire and coextensive with the exposed portions of said sides, and a central chamber for compressed air, protective fillings of compressible material located in the lateral protective chambers, and a protective feature made of a material similar or analogous to the material of which the body of the tire is composed, located in the tread of the tire and having a width at least equal to the width of the exposed portion of the central air-chamber at said tread, said protective feature being composed of a plurality of relatively thin concentric annular sections, each flexible, but of greater hardness than the body of the tire, their thinness giving flexibility to the tire and their plurality providing protection thereto.

2. A pneumatic tire having a body composed of rubber and a plurality of layers of fabric, inclosing a central air-chamber, and lateral protective chambers which protect and sustain said walls, in combination with a protective feature made of a material similar or analogous to the rubber of the tire, said protective feature being composed of a plurality of concentric relatively thin annular sections located between and separated by the layers of fabric and of greater hardness than the body of the tire, the thinness of the strips giving flexibility to the tire, and their plurality providing protection thereto.

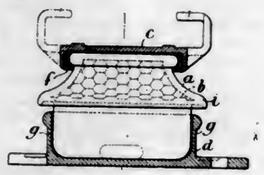
786,471. **UMBRELLA-FRAME.** THOMAS WALLACE, Brooklyn, N. Y., assignor to William M. Stevenson, South Orange, N. J. Filed Feb. 5, 1904. Serial No. 192,070.



Claim.—In an umbrella-frame, a rod, a rib pivoted to said rod said rib being U-shaped in cross-section, a runner slidable on said rod, a stretcher pivoted at one end to said runner and at the other end to said rib, lugs on said rib one lug being at the pivotal connection of the stretcher the other being located nearer the free end of said rib, a reinforcing-bar spanning the space between said lugs and connected thereto and located on the grooved side of the rib, one end of said reinforcing-bar being slotted and having a limited sliding movement on one of said lugs whereby the resisting capacity of the bar is brought into action to reinforce the rib when the latter is bent in either direction beyond its normally opened or closed position.

786,472. **INSULATOR FOR THE CONDUCTORS OF ELECTRIC RAILWAYS.** FRANK D. WARD and HARRY C. PURNELL, Hanwell, England, assignors of one-third to Henry Percy Bradford, London, England. Filed July 11, 1904. Serial No. 216,162.

Claim.—1. An insulating device for the surface conductors of electric railways comprising among its members, a base having provision for attachment and provided with a socket in its upper face, a cap having provision for attachment to the conductor and provided with a socket on its lower face, and an insulating-block interposed between said base and cap and fitting into both of said sockets, said block being permanently secured in one of said sockets and being free to move vertically in the other of said sockets, substantially as described.

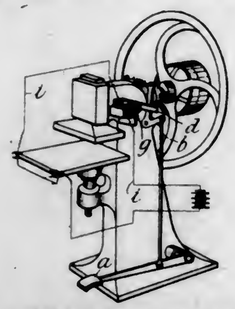


2. An insulating device for the surface conductors of electric railways comprising among its members, a base having provision for attachment and provided with a socket in its upper face, a cap having provision for attachment to the conductor and provided with a socket on its lower face, an insulating-block interposed between said base and cap and fitting into both of said sockets, and means for securing said block to one of said socketed parts, said block being free to move vertically in the other socketed part, substantially as described.

3. In an insulating device for the surface conductors of electric railways, the combination with the base provided with means for attachment and having its upper face provided with a polygonal recess, a cap provided with means for attachment to the conductor, and having a polygonal recess in its lower face, and a block of insulating material polygonal in cross-section fitting said recess, and interposed between the cap and base, said block being permanently secured in one of said recesses and being free to move vertically in the other of said recesses, whereby the cap and base are prevented from turning with respect to each other, substantially as described.

4. In an insulating device for the surface conductors of electric railways, the combination with the base provided with means for attachment, and having its upper face provided with a polygonal recess, a cap provided with claws for engaging the foot of the rail, and having a polygonal recess in its lower face, an insulating-block, polygonal in cross-section, fitting in said recesses and interposed between the said cap and base, and permanently secured to one of said parts, said block being provided with laterally-extending flanges extending on all sides beyond the socket portion of said base, substantially as described.

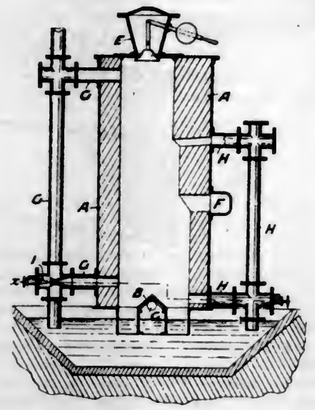
786,473. **SAFETY DEVICE FOR MACHINE-TOOLS.** CARL WENIGMANN, Leipsic-Stötteritz, Germany. Filed May 9, 1904. Serial No. 207,167.



Claim.—1. A safety device for machine-tools which compels the operator to move his hands out of danger before the tool can be operated, comprising locking means adapted to automatically lock the starting lever or handle of the machine, an electromagnet adapted when energized to operate said locking means to release the starting lever or handle, and an electric circuit with normally open contacts arranged at a suitable distance from the machine-tool and closed by the operator to energize the magnet, but adapted on being released to break contact and enable the locking means to again act on the handle or lever.

2. A safety device for machine-tools which compels the operator to move his hands out of danger before the tool can be operated, comprising a spring-armature having a catch adapted to automatically lock the starting lever or handle of the machine, an electromagnet mounted adjacent to the armature and when energized arranged to attract the armature to withdraw the catch to free the starting-lever, and an electric circuit with normally open contacts arranged at a suitable distance from the machine-tool and closed by the operator to energize the magnet, but adapted on being released to break contact and free the locking-catch.

786,474. **GAS-PRODUCER.** CHARLES WHITFIELD, Kettering, England. Filed May 25, 1903. Serial No. 158,678.



Claim.—1. The combination in a producer of the character-indicated of a vapor-circulating pipe and an injector therefor worked by steam for drawing off the lighter hydrocarbon vapors from the upper part of the producer and introducing the same into the incandescent fuel above the zone of combustion, and another vapor-circulating pipe and an injector therefor worked by steam for drawing off the less volatile or heavier hydrocarbon vapors and reintroducing the same into the incandescent portion of the fuel at the zone of combustion, substantially as herein set forth.

2. In combination, a producer with fuel-feed hopper and final gas-outlet, an inverted-V-shaped grate therefor, air and steam supply pipes for delivering air and steam below the said grate, an ash-pit over which the producer is placed and which is filled with water into which the lower part of the producer dips, a circulating-pipe opening into the producer at a point at the top of the generating-chamber and at a point slightly above the grate, and a further pipe opening into the producer at a point between the upper end of the other pipe and the final gas-outlet and at a point directly opposite the grate, both of the said circulating-pipes being open at their lower ends and dipping into the water in the ash-pit, substantially as set forth.

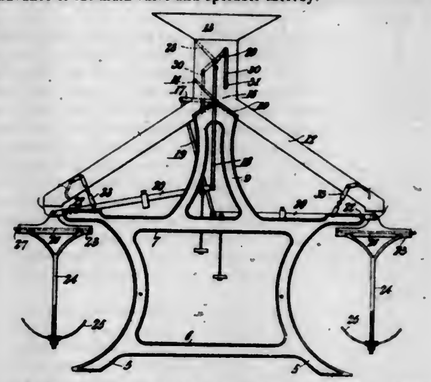
786,475. **MACHINE FOR BAGGING AND WEIGHING GRAIN.** JAMES B. WILLIAMS, Minden, La. Filed July 25, 1904. Serial No. 218,137.

Claim.—1. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve, scale-beams connected to said valve, and an auxiliary valve arranged in advance of the main valve and operable thereby.

2. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve provided with terminal crank-arms, scale-beams connected to said arms, and an auxiliary valve disposed above the main valve and operable thereby.

3. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve provided with terminal crank-arms, scale-beams connected to said arms, an auxiliary valve disposed above the main valve, and depending rods pivoted to the auxiliary valve and extending in the path of said crank-arms.

4. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve controlling the passage of material into said chutes, scale-beams connected to said valve, cut-off valves for regulating the discharge from the chutes and operable by the scale-beams, and an auxiliary valve arranged in advance of the main valve and operable thereby.



5. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve provided with terminal crank-arms, scale-beams connected to said crank-arms, an auxiliary valve pivoted within the hopper, and depending rods pivoted to the auxiliary valve and having their free ends provided with terminal hooks arranged in the path of movement of said crank-arms.

6. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve controlling the passage of material into said chutes, scale-beams actuated alternately by the weight of the material, an auxiliary valve disposed above the main valve and operable thereby, and means connecting the scale-beams to the main valve for changing the position of said valve and positively locking the same with respect to the scale-beam affecting such change of position.

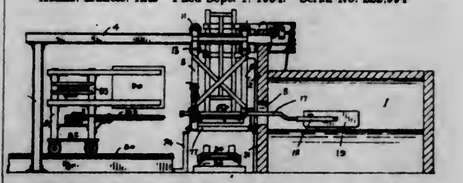
7. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve, scale-beams connected to said valve, an auxiliary valve pivoted within the hopper and provided with angularly-disposed crank-arms, and depending rods pivoted to said arms and having their free ends arranged in the path of movement of the crank-arms of the main valve.

8. In an automatic weighing and bagging machine, the combination with a frame, of chutes, a main valve, a pair of scale-beams fulcrumed on the frame, a cut-off valve controlling the discharge of material from each chute and operable by the movement of the scale-beams, a pivotal connection between the scale-beams and the main valve, and an auxiliary valve disposed above the main valve and operable thereby.

9. In an automatic weighing and bagging machine, the combination with a frame, of a hopper, discharge-chutes leading therefrom, scale-beams fulcrumed on the frame, a main valve connected to the scale-beams, and an auxiliary valve pivoted within the hopper, said valves being simultaneously actuated by the movement of the scale-beams.

10. In an automatic weighing and bagging machine, a hopper, discharge-chutes leading therefrom, a main valve disposed at the juncture of said chutes, scale-beams connected to the main valve and provided with terminal bails or frames, hangers depending from said bails or frames, adjustable bag-supporting platforms carried by the hangers, and an auxiliary valve arranged in advance of the main valve and operable thereby.

786,476. **MACHINE FOR MAKING SHEET-GLASS.** WILLIAM ALLES, Muncie, Ind. Filed Sept. 1, 1904. Serial No. 222,994.



Claim.—1. In a glass-making machine, a sheet-drawing device consisting of a pair of parallel bars movable toward and away from

each other, a spring that tends to force said bars toward each other, and means acting against the spring for separating said bars as far as desired.

2. In a glass-making machine, a sheet-drawing device consisting of pairs of pivotally-mounted jaws with their adjacent faces arranged at an angle to each other, oppositely-placed bars secured to said jaws, the arrangement being such that the lower and outer edges of said bars will be closer to each other than the upper or inner edges, and means for controlling the distance between said bars.

3. In a glass-making machine, the combination with a sheet-drawing device, of means for holding and supporting said device which consists of a vertical stationary guideway, a frame vertically movable in said guideway to the lower end of which said sheet-drawing device is connected, said movable frame consisting of an upper and lower portion movable in said guideway, and an intermediate vertical rack-bar connected with the upper and lower portions, a gear-wheel meshing with said rack-bar, and means for driving said gear-wheel.

4. In a glass-making machine, a sheet-drawing device, vertically-movable frame for supporting and moving said sheet-drawing device, a truck movable into position under said vertically-movable frame, a gathering-pan, and means for placing said gathering-pan upon said truck so that when the gathering-pan is beneath said vertically-movable frame said sheet-drawing device may be moved downward into said gathering-pan.

5. In a glass-making machine, a sheet-drawing device, vertically-movable means for supporting and moving said sheet-drawing device, a pair of spring-pressed rollers between which said sheet-drawing device passes in the lower part of its movement, a gathering-pan for containing the molten glass, means for supporting said rollers immediately above said gathering-pan, and means for separating said rollers as the sheet-drawing device approaches the same in its downward movement.

6. In a glass-making machine, a sheet-drawing device, vertically-movable frame for supporting and moving said sheet-drawing mechanism, a pair of spring-pressed rollers between which said sheet-drawing device passes in the lower part of its movement, a gathering-pan for containing the molten glass, means for supporting said rollers immediately above the gathering-pan, means for separating said rollers as the sheet-drawing device approaches the same in its downward movement, and a trip on said vertically-movable frame for actuating said separating means.

7. In a glass-making machine, the combination with a sheet-drawing mechanism, of a frame that travels toward and away from said sheet-drawing mechanism, a pair of clamps mounted on the upper end of said traveling frame, and a knife mechanism carried by said frame below said clamps and parallel with said clamps, for clamping and severing the sheet of glass.

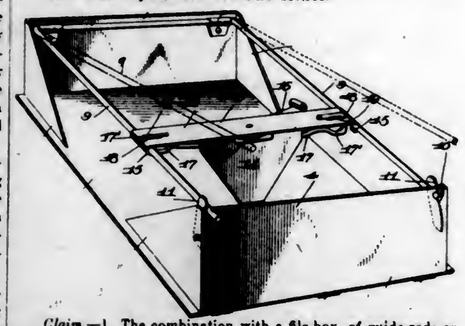
8. In a glass-making machine, a clamping device consisting of a pair of slidingly-mounted slabs mounted with their adjacent faces parallel to each other, oppositely-placed extending beams secured to said slabs, the arrangement of said beams being such that the adjacent faces of same will be uniformly spaced apart throughout their extent, and means for controlling the distance between said beams and slabs.

9. In a glass-making machine, a clamping mechanism for clamping and holding a sheet of glass, consisting of a pair of slabs mounted parallel to each other, each with extending parallel beams, springs arranged so that said beams will be forced normally inwardly and toward each other a crank cog-wheel mounted between said pairs of beams, vertically-mounted shafts with cog-wheels thereon meshing with crank cog-wheel, detachable cams secured to said shafts and positioned between said beams, so that when said crank cog-wheel is turned in one direction the clamps are open and when turned in the opposite direction the clamps are closed.

10. In a machine for making glass, a tank for containing the molten glass with an opening in one side thereof, a track beside and parallel with the side of the tank containing said opening, a truck that travels on said track, a gathering-pan, means for gathering molten glass in said pan from the tank and placing it on said truck, and a sheet-drawing mechanism mounted over said track so that the gathering-pan may be moved by said truck under said sheet-drawing mechanism.

11. In a machine for making glass, a tank for containing the molten glass with an opening at one side thereof, a track beside and parallel with the side of the tank containing said opening, a truck that travels on said track, a gathering-pan, means for gathering molten glass in said pan from the tank and placing it on said truck, a sheet-drawing mechanism mounted over said track so that the gathering-pan may be moved by said truck under said sheet-drawing mechanism, another track extending at a right angle to the first-mentioned track and with its end adjacent said sheet-drawing mechanism, a traveling frame on said second track, and clamps and a knife mechanism carried by said frame.

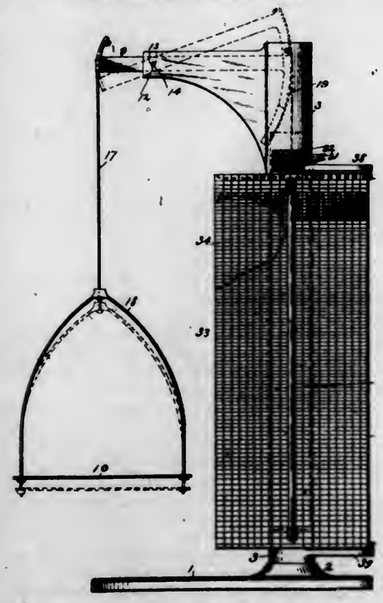
786,477. **DEPOSIT-FILE.** SAMUEL C. ANDERSON, Whitewright, Tex. Filed May 14, 1904. Serial No. 207,981.



Claim.—1. The combination with a file-box, of guide-rods associated therewith, a pressure member mounted for travel upon the guide-rods and provided with longitudinal seats, an actuating-lever pivotally connected with the pressure member and locking devices connected with and operable by the lever, said devices having heads for engagement respectively with the guide-rods and portions for travel within the longitudinal seats.

2. The combination with a file-box having a pair of opposed walls one of which is provided with seats, of a pair of guide-rods pivotally connected with the other wall and adapted for engagement with the seats, springs for maintaining the arms in engaging position, a pressure device arranged for travel upon the guide-rod, and means for locking said devices against movement.

786,478. **WEIGHING-SCALE.** EDWARD T. BATES, Washington, D. C. Filed Apr. 16, 1902. Serial No. 103,180.



Claim.—1. A weighing-scale having a base, a tubular column connected to the base, an arm at the upper end of said column, a scale-beam having arc-shaped members at its ends, one of which members extends into said column, and bearings in said arm for said scale-beam; in combination with a balancing member within said column, and a scale-pan.

2. A weighing-scale having a base, a tubular column connected thereto, an arm at the upper end of said column, a scale-beam supported in bearings in said arm, a balancing member within the column and said column being provided with an opening above said balancing member; in combination with a weight insertible through said opening, and a scale-pan.

3. A weighing-scale having a liquid-receptacle, a member approximately balanced in the liquid in said receptacle, and a tube connected to the receptacle for indicating the weight of an article; in combination with a plurality of interchangeable computing-cards hinged to the scale and provided with a vertical slot to disclose the indicating-tube.

786,479. **COUPLING FOR RAILWAY-VEHICLES.** LUDWIG BRANDAU, Cassel, Germany. Filed Jan. 7, 1905. Serial No. 240,121.



Claim.—1. A coupling for railway-vehicles, consisting of two coupling-bars, and means for detachably attaching each bar at one end to one side of one vehicle, and at the other end to the other side of the other vehicle, substantially as described.

2. A coupling for railway-vehicles, consisting of two coupling-bars, and chains fixed near the sides on the vehicle ends and provided with hooks for detachably attaching each bar at one end to one side of one vehicle, and at the other end to the other side of the other vehicle, substantially as described.

3. A coupling for railway-vehicles, consisting of two coupling-bars, having eyes at each end, and chains fixed near the sides on the vehicle ends and provided with hooks for detachably attaching each bar at one end to one side of one vehicle, and at the other end, to the other side of the other vehicle, substantially as described.

4. A coupling for railway-vehicles, consisting of two coupling-bars, having eyes at each end, and chains fixed near the sides on the vehicle ends, and provided with hooks for detachably attaching each bar at one end to one side of one vehicle, and at the other end to the other side of the other vehicle, the chains of each diagonally opposite pair being equal in length, but the chains of one pair being longer than those of the other pair, whereby the bars when crossed lie horizontally one above the other, substantially as described.

5. A coupling for railway-vehicles, consisting of two coupling-bars having eyes at each end, and chains fixed near the sides on the vehicle ends and provided with hooks for detachably attaching each bar at one end to one side of one vehicle, and at the other end to the other side of the other vehicle, eyebolts for attaching the chains to the vehicle ends, and rods for aiding in securely holding said bolts, substantially as described.

786,480. **CASING-SPEAR.** JOHN J. BREWSTER, San Francisco, Cal. Filed Sept. 15, 1904. Serial No. 224,540.

Claim.—1. In a casing-spear, the combination with a support, of an expansible head movably mounted on the support and having a detachable interlocking engagement therewith to prevent their relative movement, and means movably mounted on the support for effecting the detachment of the head and support to permit their relative movement.

2. In a casing-spear, the combination with a supporting-stem, of an expansible head slidably mounted on the stem, detachable interlocking connections between the stem and head to prevent their relative movement, and means slidably mounted on the stem for effecting the disconnection of the interlocking means to permit the relative movement of said head and stem.

3. In a casing-spear, the combination with a support, of an expansible head movably mounted on the support, holding means carried by the head and having a detachable engagement with the support, and means movably mounted on the support for disengaging the said holding means therefrom to permit the relative movement of the head and support.

4. In a casing-spear, the combination with a supporting-stem, of an expansible head slidably mounted on the stem, holding means movably secured to the head and having a detachable engagement with the stem, and a detaching device slidably mounted on the stem and engaging the holding means for detaching the same from the stem and permitting the movement of the head upon the stem.



5. In a casing-spear, the combination with a supporting-stem, of an expansible head comprising a plurality of sections slidable longitudinally of the stem, holding devices movably mounted on the sections and having detachable interlocking engagements with the stem, and a device slidably mounted on the stem and arranged to disengage the device therefrom to permit the sliding movement of the head-sections.

6. In a casing-spear, the combination with a supporting-stem having a shoulder, of an expansible head slidably mounted on the stem, holding means for the head including hooks carried by the head and having a detachable engagement with the shoulder, and a detaching device slidably mounted on the stem and movable to disengage the hooks from the shoulder.

7. In a casing-spear, the combination with a supporting-stem, of an expansible head comprising a plurality of downwardly and outwardly movable sections, a collar carried by the head, hooks pivoted to the sections and detachably engaging over the collar, and a detaching-sleeve slidably mounted on the stem and having a tapered lower end that engages the hooks for detaching the same from the collar.

8. In a casing-spear, the combination with a stem having an enlarged angular lower end that tapers upwardly, said end being provided with longitudinally-undercut guideways, of an expansible head comprising a plurality of toothed sections having dovetailed ribs that engage in the guideways, an annular collar located upon the stem above the guideways, hooks pivoted to the sections and arranged to engage over the collar, and a detaching-sleeve slidably mounted on the stem above the collar, said sleeve comprising sections, the lower one of which has a beveled lower end that is arranged to engage the hooks for the purpose of detaching the same from the collar.

9. In a casing-spear, the combination with a support, of an expansible head movably mounted on the support, movable holding means for detachably interlocking the head and support to hold the same against relative movement, and means movably mounted on the support and arranged to engage the said holding means for effecting the detachment of the head and support to permit their relative movements.

10. In a casing-spear, the combination with a support, of an expansible head movably mounted on the support, means carried by the head and detachably interlocking with the support for holding the head against movement thereon and in contracted condition, a detaching device movably mounted on the support and engaging said means for thus effecting its disengagement from the support, and other means detachably interlocking with the support for re-

locking the head in contracted position after the same has been released and expanded.

11. In a casing-spear, the combination with a support, of an expansible head comprising sections slidable on the support, means movably carried by the sections and interlocking with the support for holding the sections against movement on the support, and separate devices also movably mounted on the sections and having detachable interlocking engagements with the support for relocking the sections against movement after their release and the expansion of the head.

12. In a casing-spear, the combination with a supporting-stem, of an expansible head slidably mounted thereon, means carried by the head and detachably interlocking with the support for holding the head against movement thereon and in contracted condition, coacting shoulders, and pivoted dogs respectively carried by the head and stem, said dogs being out of coacting relation with the shoulders when the means are interlocked and also when the head is expanded and said dogs being arranged to engage the shoulders when the head is in a predetermined position to relock said head against expansion.

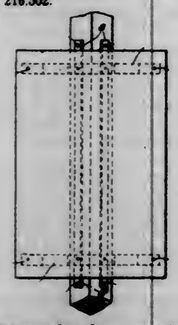
13. In a casing-spear, the combination with a supporting-stem, of an expansible head slidably mounted thereon, hooks pivoted to the upper end of the head and having a detachable engagement with the stem for holding the same in contracted condition, shoulders carried by stem, and pivoted dogs carried by the head, said dogs being out of coacting relation with the shoulders of the stem when the hooks are in engagement therewith and also when the head is exganded, and said dogs being arranged to engage over the shoulders of the stem when the head is in a predetermined elevated position.

14. In a casing-spear, the combination with a supporting-stem having an annular collar and seta of shoulders located below the same, of an expansible head comprising a plurality of section-jaws slidable upon the stem, hooks carried by the jaws and having detachable engagements with the collar of the stem, and dogs mounted on the jaws and arranged to coact with the shoulders, said dogs being normally out of engagement with the shoulders to engage over the same when the jaws have been elevated to a predetermined position.

15. In a casing-spear, the combination with a supporting-stem having guideways, of an expansible head comprising a plurality of section-jaws slidable in the guideways, and an elevating device for the jaws comprising a base depending below the stem and having a plurality of upstanding fingers slidable upon the stem and arranged to move into engagement with the jaws for elevating the same.

16. In a casing-spear, the combination with a supporting-stem having longitudinally-disposed guideways extending to its lower end, of an expansible head comprising a plurality of section-jaws slidable in the guideways, an elevating device for the jaws comprising a base depending below the stem and having a curved upper face, a plurality of upstanding fingers carried by the base and slidable in the guideways, said fingers having upstanding portions that are movable into engagement with the lower ends of the jaws, and a collar surrounding the lower end of the stem and the fingers of the elevating device.

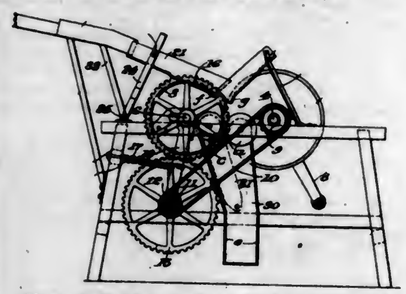
786,481. **SIGN.** ELMER F. BURDICK, Chicago, Ill. Filed July 14, 1904. Serial No. 216,502.



Claim.—1. A fastener for signs comprising spaced flexible strips adapted to be secured to the sign; and a connection between the strips having means for attachment to the sign-support.

2. A fastener for signs comprising spaced flexible strips adapted to be secured to the sign; and cross-strips connecting said strips and having means for attachment to the sign-support.

786,482. **FRUIT-PITTING MACHINE.** JEROME CALDWELL, Los Angeles, Cal. Filed Apr. 2, 1903. Serial No. 150,695.



Claim.—1. In a fruit-pitter, a pair of coöperating rotary cutters, a stationary feed-guard over one cutting-disk, and a feed-trough over the other cutting-disk, said feed-trough being pivotally mounted on a pivoted support, said trough provided with deflected fruit-guiding portions at the lower end thereof.

2. In a fruit-pitter, a pair of coöperating rotary cutters, a stationary feed-guard over one cutting-disk, and a feed-trough over the other cutting-disk, said feed-trough being pivotally mounted on a pivoted support, and a member against which one end of said trough abuts to prevent the tilting thereof.

3. In a fruit-pitter, a pair of coöperating rotary cutters, a stationary feed-guard over one cutting-disk, and a feed-trough over the other cutting-disk, said feed-trough being pivotally mounted on a pivoted support, and means preventing the tilting of said trough.

4. In a fruit cutting and pitting machine, in combination, a frame, a pair of coöperating rotatable cutters, a gear-shaft mounted on the frame, an arm pivoted to said gear-shaft, a movable cutter-shaft carried by the free end of said arm, a driven gear-wheel fixed to the movable shaft, a driving gear-wheel mounted on the aforementioned gear-shaft and meshing with the driven gear-wheel, a stationary cutter-shaft, means operatively connecting the stationary cutter-shaft with said driving gear-wheel, means for feeding fruit to the cutters means for rotating the cutter-shafts to force fruits downwardly between the cutters, oblique rotary spreading-disks converging toward the path of the pits, and oblique members below the spreaders to conduct away the pulp of the fruit.

5. In a fruit-pitter, a pair of coöperating cutter-disks, and a spreading-disk mounted adjacent to each side of one of the cutting-disks, and rotatable obliquely thereto.

6. In a fruit-pitter, a pair of coöperating cutter-disks, and a spreading-disk mounted adjacent to each side of each of the cutting-disks, and rotatable obliquely thereto.

7. In a fruit-pitter, a pair of coöperating cutter-disks, and a spreading-disk mounted adjacent to each side of one of the cutting-disks, and rotatable obliquely thereto, said spreading-disks converging at the side in the path of the descending fruits.

8. In a fruit-pitter, a pair of coöperating cutter-disks, and a spreading-disk mounted adjacent to each side of one of the cutting-disks, and rotatable obliquely thereto, said spreading-disks converging at the side in the path of the descending fruits and a similarly-arranged pair of spreading-disks for the other cutting-disk.

9. In a fruit-pitter, in combination, a frame, feeding means, smooth-edged cutting-disks, means for rotating said disks, and a rotatable spreader having its axis below the axis of said cutting-disks.

10. In a fruit-pitter, in combination, a frame, feeding means, smooth-edged cutting-disks, means for rotating said disks to force fruits downwardly therebetween, and a spreading-disk mounted adjacent to each side of a cutter-disk and rotatable obliquely thereto.

11. In a fruit-pitter, in combination, a frame, feeding means, a pair of vertical smooth-edged coöperating cutter-disks, means for rotating said disks to force fruits downwardly therebetween, and a spreading-disk adjacent to each side of one of the cutter-disks, said spreading-disks converging at the side adjacent to the path of the downwardly-moving pits, and being rotatable in an oblique plane.

12. In a fruit-pitter, in combination, a frame, feeding means, a pair of smooth-edged coöperating cutter-disks, means for rotating said disks to force fruits downwardly therebetween, and a spreading-disk adjacent to each side of one of the cutter-disks, and rotatable obliquely thereto, said spreading-disks converging at the side adjacent to the path of the downwardly-moving pits, the other cutting-disk being provided with similarly-arranged spreading-disks.

13. In a fruit-pitter of the class described, the combination, with the rotary cutter-disks, of a rotatable spreader inclined toward and impinging upon one of said cutter-disks whereby the rotation of the cutter-disk tends to rotate the spreader in the same direction.

14. In a fruit-pitter, in combination, a pair of vertical coöperating cutting-disks, means for rotating said disks to feed fruits therebetween, and a spreader rotatable in an oblique plane.

15. In a fruit-pitter, in combination, a frame, feeding means, cutting-disks, means for rotating said disks, and a rotatable spreader having its axis below the axis of said cutting-disks.

16. In a fruit-pitting machine, in combination, a frame, a feed trough having converging inner sides and an opening along the bottom extending to the discharge end thereof, a cutting-disk having its edge in position to engage fruits passing over said opening and down from said trough, means for rotating said disk, and cutting means adapted to form a cut opposite the cut made by said disk.

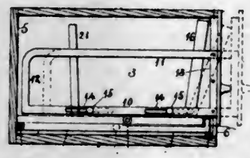
17. In a fruit-pitting machine, in combination, a frame, a feed-trough having a longitudinal slot in the bottom, extending to the discharge end thereof, a cutter-disk having its upper edge in position to engage fruits, as they pass over said slot and down out of the discharge end of said trough, and a companion cutting-disk adapted to form a cut opposite the cut of the first-named disk.

18. In a fruit-pitter of the class described, the combination, with the rotary cutters, of coöperating rotatable spreader-disks impinging upon said rotary cutters and thereby tending to be rotated, said spreading-disks having their axes below the axes of said cutting-disks.

19. In a fruit-pitter, the combination, with a frame, of rotatable cutters thereon, one of which is movable toward and from the other, rotatable spreaders journaled adjacent to the cutters, a longitudinally-movable trough above the movable cutter, an arm pivotally secured to the frame at one end and to the trough intermediate its length at the other, and a stop for each end of the trough, the stop at the inner end limiting its longitudinal movement in one direction and the stop at the outer end limiting the vertical movement of the ends of the trough.

20. In a fruit-pitter, the combination, with a frame, of rotatable cutters thereon, one of which is movable toward and from the other, spreaders and a trough for each cutter, the inner ends of the troughs being normally in contact and slotted longitudinally and each fitting over its respective cutter and provided with deflected portions, the trough over the movable cutter being movable longitudinally.

786,483. **CABINET.** EDWARD A. CARLSON, Rockford, Ill. Filed Oct. 10, 1904. Serial No. 227,898.



Claim.—1. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, and a front to the case movable with the paper-holder and means connecting the front with the paper-holder whereby it can have a slidable movement in connection therewith.

2. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front having a movable connection with the paper-holder, and a leaf having a hinged connection with the paper-holder and a connection with the front.

3. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front to the case having a slidable connection with the paper-holder, and a leaf having a hinged connection with the paper-holder and a connection with the front.

4. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front to the case, a connection between the front and paper-holder consisting of two frames connected to the front, and having a slidable connection with the paper-holder.

5. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front to the case, a connection between the front and paper-holder consisting of two frames connected to the front and having a slidable connection with the paper-holder, and a leaf having a hinged connection with the paper-holder and a connection with the front.

6. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front to the case, a connection between the front and paper-holder consisting of two frames connected to the front, each frame having two lengthwise slots, and supports supported by the paper-holder and guided in the slots.

7. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front to the case, a connection between the front and paper-holder consisting of two frames connected to the front, each frame having two lengthwise slots, supports supported by the paper-holder and guided in the slots, and a leaf having a hinge connection with the paper-holder and a connection with the front.

8. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front having a movable connection with the paper-holder and a leaf hingedto the paper-holder and having a sliding connection with the front.

9. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, a front having a movable connection with the paper-holder, and a leaf hinged to the paper-holder, the leaf provided with a T projection, and the front having a slotted plate with which the projection engages.

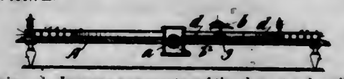
10. A file-cabinet comprising a suitable case, a movable paper-holder located within the case, extensible tracks supporting the paper-holder, a front having a movable connection with the paper-holder and a leaf having a hinged connection with the paper-holder and a connection with the front.

786,484. **PIANO-CHAIR.** MARY C. CARRICK, San Francisco, Cal. Filed Apr. 28, 1904. Serial No. 206,280.



Claim.—In a piano or like chair, a channeled guide having its upper surface substantially flush with and transverse to the seat, a slide movable in the guide and a vertically-disposed guide carried by the slide, an independent back having a slide movable in said vertical guide, and means for locking both slides in their guides.

786,485. **GAME APPARATUS.** STEFAN VON CLANNER and CARL VON JEKEY, Vienna, Austria-Hungary. Filed Nov. 10, 1902. Serial No. 130,742.



Claim.—1. In a game apparatus of the character described, the combination with a track, of a figure adapted to move along said track, a propelling device comprising a rotatable drum or pulley, and a flexible connection between said drum or pulley and the movable figure, a casing in which the drum or pulley is arranged and having an opening through which the flexible connection passes, and an assemblage of foreign bodies contained in the casing and adapted to be engaged by the windings of the flexible connection as and for the purpose set forth.

2. In a game apparatus of the character described, the combination with a track, of a plate secured at one end and having its opposite end free, an adjusting screw-rod bearing upon the free end of the plate, a block carrying a figure and adapted to travel along the track and upon the plate, and means for propelling the block and figure along the track.

3. In a game apparatus of the character described, the combination with a track, of a block having a projection provided with a passage, the latter being open on the under side, propelling means for the block comprising a cord passing through the said passage and provided with a knot adapted to detachably engage with the projection on the block, and means for causing the knot to become detached from the said projection.

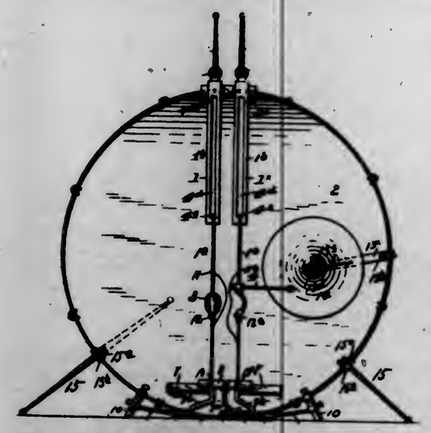
4. In a game apparatus of the character described, the combination with a series of tracks, of a block carrying a figure adapted to

travel along each of said tracks, a propelling device for the blocks comprising a series of drums or pulleys and flexible connections between the latter and the blocks, a casing divided into sections, each containing one of the said drums or pulleys and being provided with openings for passage of the flexible connections, and foreign bodies contained within the several sections and adapted to be engaged by the windings of the flexible connections in the manner and for the purpose set forth.

5. In a game apparatus of the character described, the combination with a series of tracks, of a block carrying a figure and adapted to travel along each of said tracks and a propelling device for the blocks comprising a winding-shaft, drums mounted upon the shaft, a flexible connection between each drum and a block, and means for clamping the various drums together and to the shaft for the purpose set forth.

6. In a game apparatus of the character described, the combination with a series of tracks, of a block carrying a figure and adapted to travel along each of said tracks, a propelling device for the blocks comprising a winding-shaft, drums mounted on the shaft, and flexible connections between the drums and the blocks, the said drums being provided with lateral guiding-surfaces, a casing within which the drums or pulleys rotate, and foreign bodies located within said casing and adapted to be engaged by the windings of the flexible connections in the manner and for the purpose set forth.

786,486. COMBINED DRUM AND CYMBAL BEATING OR ACTUATING CONTRIVANCE. GEORGE W. CLEMENTS, Washington, D. C. Filed Oct. 25, 1904. Serial No. 229,976.



Claim.—1. The combination of levers fulcrumed in position with relation to a drum and a cymbal and equipped with drum and cymbal beaters, a clamp secured to the drum edge, elastic or spring connections between said clamp and levers, duplicate pedals, cords connecting said pedals and drum and cymbal beaters together, a third pedal resting upon the latter pedals, and a sectional plate having its sections hinged together, said pedals having pivotal connection with said plate-sections.

2. The combination of levers fulcrumed in position with relation to a drum and a cymbal and equipped with drum and cymbal beaters, a clamp secured to the rear drum edge, elastic or spring connections between said clamp and levers, pedals and their supporting means, and means effecting connection between said pedals and drum and cymbal beaters, said pedal-supporting means being composed of folding plate-sections, lateral arms pivoted to said plate-sections upon their under sides, and additional arms or bars having pivoted set-screw connections with said lateral arms, and pivoted or hinged to set-screw-equipped clamps and adapted to effect connection with said drum.

3. In an instrument of the character described, the combination of drum and cymbal beater actuating levers and duplicate pedals and their means of connection with said levers, said pedals comprising foot-supporting plates having inward-extended rods or bars, folding plate-sections having pivoted thereto the rear ends of said rods or bars, lateral arms also pivotally connected to said plate-sections, and additional arms or bars having set-screw pivotal connection with the aforesaid arms, and hinged or pivoted to set-screw-equipped clamps adapted to be secured to said drum.

4. In an instrument of the character described, the combination of drum and cymbal beaters, levers actuating said beaters, a set-screw-equipped socket or clamp fitted to the rear drum edge, elastic connections between said socket and levers, pedals for actuating said drum and cymbal beater levers, and means effecting connection between said levers and said pedals, the cymbal-beater-actuating lever having one of its sections depressed to rest relatively close to the drumhead, the depressed portion of said lever having a rubber buffer resting upon the drumhead and carried by a set-screw held in said depressed portion.

5. In an instrument of the character described, the combination of drum and cymbal beater levers, means for their yielding or springy connection with the drum edge, pedals and means effecting connection between said levers and said pedals, said pedals being three in number, the intermediate one resting upon the other two, and said pedals having their rearward-extending portions pivotally connected to folding or hinged-together plate-sections, arms or bars pivoted to the under side of plate-sections, and additional arms pivotally connected to the aforesaid arms, and also having hinged thereto a set-screw-equipped clamp or socket adapted to engage the lower forward edge of the drumhead.

786,487. HOP-PICKING BASKET. FRANKLIN W. CRAVER, Santa Rosa, Cal. Filed Nov. 5, 1904. Serial No. 231,581.



Claim.—1. The combination of an interior flexible inclosure having a bottom ring, an exterior frame substantially conforming to the inclosure, and means connecting the top and bottom of the inclosure to corresponding parts of the frame whereby the inclosure is held distended.

2. A containing-basket comprising an exterior frame having top and bottom rings and diagonally-crossed members connecting the rings, and a fabric inclosure having a bottom ring, and means for connecting the inclosure with the top and bottom of the exterior frame, thereby holding said inclosure distended.

3. A containing-basket comprising a flexible inclosure having a bottom ring, an exterior frame substantially conformable to the inclosure, and means connecting the bottom of the inclosure to a corresponding part of the frame, said inclosure having its upper end adapted to be turned over the upper end of the frame whereby the inclosure is held distended in the frame.

4. A containing-basket consisting of an exterior frame having a bottom and a top ring and diagonally-crossed side wires uniting the rings, a flexible fabric fitting within the frame, means by which the upper edge of said fabric is secured to the top ring of the frame, a ring by which the bottom of the fabric is distended, and means for uniting the bottom ring of the fabric to the bottom ring of the frame.

5. A containing-basket comprising an interior flexible inclosure having a bottom ring, an exterior frame substantially conformable to the inclosure and having top and bottom rings and side wires extending therebetween, means connecting the bottom ring of the frame to the bottom ring of the inclosure, said inclosure having its upper edge turned over the top ring of the frame, and an independent ring located above the turned-over edge of the inclosure as a protection therefor.

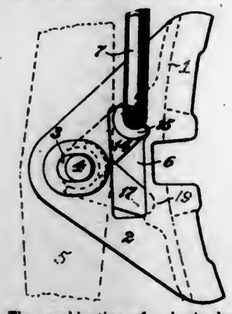
6. A containing-basket consisting of a flexible fabric, a ring by which its bottom is distended, a second ring to which the top of the fabric is secured, said ring being bent to form depressions around its periphery, diagonally-crossed frame-wires having their upper ends interlocked with the depressions of the ring, and a supplemental ring surrounding the bottom of the basket, to which ring the lower ends of the frame-wires are united.

7. A containing-basket consisting of a frame comprising top and bottom rings and diagonal wires extending between and united to said rings, a flexible fabric fitting within said frame, having its upper edge attached to the top ring, a ring by which the bottom of the fabric is distended, and means by which said bottom ring of the fabric is secured to the bottom ring of the frame.

8. A containing-basket comprising an exterior trussed wire frame, with top and bottom rings to which said frame is united, an interior flexible portion, having a bottom ring attachable to the bottom ring of the frame, and having its upper edge turned over and secured to the top ring of said frame whereby said fabric is removably attached to the frame, the sides extended, and the bottom distended.

9. A containing-basket comprising an exterior trussed wire frame with top and bottom rings to which said frame is united, transverse wires fixed across the bottom ring, an interior flexible portion having a bottom to rest upon said transverse supports, an interior ring by which the bottom is distended, means for connecting said ring with the bottom ring of the frame, and means by which the upper portion of the fabric is extended and connected with the top ring of the frame.

786,488. RAILROAD-TRUCK BRAKE. WILLIAM DALTON, Schenectady, N. Y., assignor to American Locomotive Company, New York, N. Y., a Corporation of New York. Filed Jan. 14, 1905. Serial No. 241,014.



Claim.—1. The combination of a brake-head, a supporting brake-hanger, a brake-operating lever, a pin coupling said lever to the brake-head with a limited degree of relative traverse, and a toggle mechanism interposed between said pin and the brake-head.

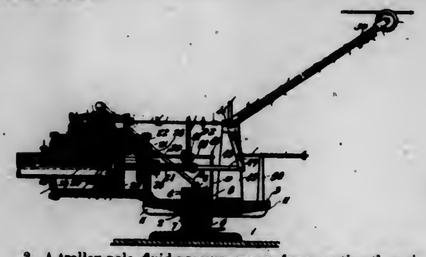
2. The combination of a brake-head, a supporting brake-hanger, a brake-operating lever, a pin coupling said lever to the brake-head with a limited degree of relative traverse, a toggle-mechanism member having eyes at one end fitting on said pin and a bearing-plate on the other adapted to exert pressure on the brake-head, and a toggle-mechanism member having bearing-plates on its opposite ends adapted to abut against the first-specified toggle member and against the brake-head, respectively.

3. The combination of a brake-head, a brake-hanger coupled at its upper end, by an oscillatory joint, to a truck-frame and supporting the brake-head with the capacity of relative lateral motion at its lower end, a brake-operating lever, a pin coupling said lever to the brake-head with a limited degree of relative traverse, and a toggle mechanism interposed between said pin and the brake-head.

4. The combination of a brake-head having a body and rearwardly-projecting side plates, a U-shaped brake-hanger passing through vertical slots in the side plates and fitting a curved bearing-face on the body, means for connecting the upper ends of the hanger to a truck-frame with the capacity of oscillatory movement, a brake-operating lever located in a substantially vertical plane between the side plates of the brake-head, a transverse coupling-pin fitting truly in said lever and passing through elongated slots in the side plates of the brake-head, a toggle-mechanism member having eyes at one end fitting on said pin and a bearing-plate on the other adapted to abut against the brake-hanger, and a toggle-mechanism member having concave bearing-plates on one end adapted to abut against the eyes of the first-specified toggle-mechanism member and a convex bearing-plate on the other end adapted to abut against a bearing-face on the brake-head.

786,489. AUTOMATIC TROLLEY-POLE CONTROLLER. MARTIN O. DOLSON, Los Angeles, Cal. Filed July 26, 1904. Serial No. 218,544.

Claim.—1. A trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, and means for automatically operating the valve when the pole swings to a certain lower limit.



2. A trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, and means for automatically operating the valve when the pole swings to certain upper and lower limits.

3. A trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, a device carried by the pole for operating the valve when said device hits the trolley-wire, and auxiliary means for automatically operating the valve when the pole swings to a certain upper limit.

4. A trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, a device carried by the pole for operating the valve when said device hits the trolley-wire, and means for automatically operating the valve when the pole swings to a certain lower limit.

5. A trolley-pole, fluid-pressure means for depressing the pole, and means for gradually applying the pressure of said means when the pole reaches a certain low limit.

6. A trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, means for automatically shifting the valve a definite degree when the pole reaches a certain high limit, and means for automatically shifting the valve reversely a less degree when the pole reaches a certain low limit.

7. A trolley-pole, fluid-pressure means for operating the pole, a device on the pole for controlling the fluid-pressure means when the device hits the trolley-wire, and means for decreasing the fluid-pressure when the pole reaches a certain low limit.

8. A trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, means for automatically shifting the valve a definite degree when the pole reaches a certain high limit, means for automatically shifting the valve reversely a less degree when the pole reaches a certain low limit, and further means for controlling the fluid-pressure means comprising a device on the trolley-pole operated by striking the wire.

9. Supporting means, a trolley-pole pivotally mounted thereon, a cylinder thereon, a piston in the cylinder connected with the pole, and a tube extending from the piston through one end of the cylinder for reducing pressure against one side of the piston.

10. Supporting means, a trolley-pole mounted thereon, a cylinder thereon, a piston in the cylinder connected with the pole and rubber buffers carried on both sides of the piston.

11. Supporting means, a trolley-pole mounted thereon, a cylinder thereon, a piston in the cylinder connected with the pole, the said piston comprising a central disk, a pair of oppositely-disposed cupped leathers thereon, and disks outside the cupped leathers with bolts passing through the disks and leathers.

12. A base, a table revolubly mounted thereon, a trolley-pole pivoted to the table, a cylinder on the table, a piston for the cylinder, a piston-rod connected with the trolley-pole, a standard on the table, a guide-rod extending from the standard to the cylinder, a cross-head mounted on the guide and connected with the piston-rod, a valve for the cylinder, a valve-stem, an arm mounted on the cross-head and lying adjacent the valve-stem, and a device on the valve-stem in the path of movement of the said arm.

13. A base, a table revolubly mounted thereon, a trolley-pole mounted on the table, a cylinder on the table, a piston and piston-rod therefor, a head screwed to the end of the piston-rod, a link connecting the head and the trolley-pole, a cross-head on said piston-head, a guide for the cross-head, a valve for the cylinder, a valve-stem, an arm on the cross-head, and devices on the valve-stem in the path of movement of said arm.

14. A base, a table revolubly mounted thereon, a trolley-pole mounted on the table, a cylinder on the table, a piston and piston-rod

therefor, a head screwed to the end of the piston-rod, a link connecting the head and the trolley-pole, a cross-head on said piston-head, a guide for the cross-head, a valve for the cylinder, a valve-stem, an arm on the cross-head, devices on the valve-stem in the path of movement of said arm, a pair of links pivoted to the trolley-pole, a cross-bar carried by the links, and a compression-spring bearing against the cross-bar for sustaining the trolley-pole.

15. A base, a hollow swivel-pin mounted therein, a table, journals on said pin, suitable ball-bearings between the table and base, nuts screwed to the pin above the table, suitable ball-bearings between the nuts and table, in combination with a trolley-pole pivoted to the table, and fluid-pressure means carried by the table for operating the trolley-pole.

16. A base, a hollow swivel-pin mounted therein, a table, journals on said pin, suitable ball-bearings between the table and base, nuts screwed to the pin above the table, suitable ball-bearings between the nuts and table, a dust-cap over the nuts, and a suitable dust-band around the lower ball-bearing, in combination with a trolley-pole pivoted to the table, and fluid-pressure means carried by the table for operating the trolley-pole.

17. A base, a hollow pin therein, a table swiveled on the hollow pin, the upper end of the pin having a recess, a pipe having a flange lying within the recess, suitable packing within the recess on both sides of the flange, a nut surrounding the pipe and inclosing the packing, suitable annular nuts screwed to the pin above the table, in combination with a trolley-pole mounted on the table, fluid-pressure means on the table for operating the trolley-pole, and suitable pipe connecting the said pipe with the fluid-pressure means.

18. A pivoted trolley-pole, fluid-pressure means for operating the pole, a valve for controlling the fluid-pressure means, a valve-stem therefor, a pair of collars adjustably fastened on the valve-stem, and a device operated by the fluid-pressure means for contacting with said collars when the trolley-pole is near the limits of its swing.

19. A trip-lever having its end formed in a T, tubular arms having slitted ends forming ears which are pivoted to the T near the outer edge thereof, plungers within the tubular arms, and rods connecting the spring-pressed plungers with the T.

20. A table, a trolley-pole mounted thereon, a cylinder thereon, a valve for the cylinder, a U-shaped standard the legs of which are notched and lying over the edges of the table, a tie-bar clamping the legs against the edges of the table, a guide-rod fastened to the standard and to the cylinder, a piston and piston-rod for the cylinder, a cross-head on the guide and connected with the piston-rod, a valve-stem, an arm on the cross-head, and devices on the valve-stem lying in the path of movement of the arm.

786,490. **ADDING-MACHINE.** HERMANN EBERHARDT, Breslau, Germany. Filed Mar. 3, 1904. Serial No. 196,284.



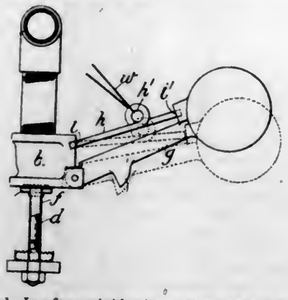
Claim.—1. In an adding-machine, the combination of a shaft, spring-actuated counting-wheels mounted thereon with capability of sliding sidewise, a parallel shaft and carrying-wheels loosely mounted thereon and gearing with the counting-wheels, and toothed driving means engaging the counting-wheels, and adapted to slide any desired number of them on their shaft so as to separate them from the remaining counting-wheels, substantially as described.

2. In an adding-machine, the combination of a shaft, spring-actuated counting-wheels mounted thereon with capability of sliding sidewise, a parallel shaft and carrying-wheels loosely mounted thereon and gearing with the counting-wheels, a shaft located parallel to the said shafts, and toothed segments gearing with the counting-wheels, mounted thereon, and each having a sector-shaped aperture for the shaft, and with the exception of the extreme right-hand segment, provided with a conical surface which in the advanced position of the segment slides the counting-wheels which lie to the right of it on their shaft, substantially as described.

3. In an adding-machine, the combination of a shaft, spring-actuated counting-wheels mounted thereon with capability of sliding sidewise, a parallel shaft and carrying-wheels loosely mounted thereon and gearing with the counting-wheels, a shaft located parallel to the said shafts, and toothed segments gearing with the counting-wheels, mounted thereon, and each having a sector-shaped aperture for the shaft, and with the exception of the extreme right-hand segment, provided with a conical surface, which in the advanced position of the segment slides the counting-wheels which lie to the right of it on their shaft, sector-shaped frames rigidly secured to the segments, draw-out type-bearing handles secured to the front of the frames, and a printing-surface below the handles, receiving the impression of the type on depression of the said handles, substantially as described.

4. In an adding-machine, the combination of a shaft, spring-actuated counting-wheels mounted thereon with capability of sliding sidewise, a parallel shaft and carrying-wheels loosely mounted thereon and gearing with the counting-wheels, a shaft located parallel to the said shafts, and toothed segments gearing with the counting-wheels, mounted thereon, and each having a sector-shaped aperture for the shaft, and with the exception of the extreme right-hand segment, provided with a conical surface, which in the advanced position of the segment slides the counting-wheels which lie to the right of it on their shaft, sector-shaped frames rigidly secured to the segments, draw-out type-bearing handles secured to the front of the frames, and a printing-surface below the handles, receiving the impression of the type on depression of the said handles, a pin secured to the top of each said frame, a segment secured to a stationary part of the machine and having an outer and a recessed inner, eccentrically-running groove, and horizontal grooves connecting the same, in which said grooves and recess the said pin engages during the movements of the frames, substantially as described.

786,491. **MEANS FOR AUTOMATICALLY EXTINGUISHING FIRES IN BUILDINGS.** JAMES FIDDES, Aberdeen, Scotland. Filed Feb. 20, 1904. Serial No. 194,494.



Claim.—1. In a fire-sprinkler, in combination with a water-pipe, a discharge-box, destructible means for preventing the issue of water from said discharge-box, devices for breaking said destructible means, and a stretched wire normally supporting said devices, and adapted on expansion to release the same.

2. In a fire-sprinkler, in combination with a water-pipe, a discharge-box having an orifice, destructible means for normally closing said orifice, devices for breaking said destructible means, and a stretched wire normally supporting said devices and adapted on expansion to release said devices.

3. In a fire-sprinkler, in combination with a water-pipe, a discharge-box having an orifice, destructible means for normally closing said orifice, a pivoted lever, and a stretched wire normally supporting said lever and adapted on expansion to release said lever to swing against said orifice-closing means.

4. In a fire-sprinkler, in combination with a water-pipe, a discharge-box having an orifice, destructible means for normally closing said orifice, devices for breaking said destructible means, a catch normally preventing said devices from movement, and a stretched wire supporting said catch and adapted on expansion to allow said catch to release said breaking devices.

5. In a fire-sprinkler, in combination with a water-pipe, a discharge-box having an orifice, destructible means for normally closing said orifice, a pivoted lever, a catch normally restraining said lever from movement, and a stretched wire supporting said catch and adapted on expansion to allow said catch to release said lever to break said orifice-closing means.

6. In a fire-sprinkler, in combination with a water-pipe, a discharge-box having an orifice, destructible means for normally closing said orifice, a pivoted lever, a catch normally restraining said lever from movement, said catch being provided with an eye, and a stretched wire passing through said eye so as to support said catch, said wire being adapted on expansion to allow said catch to release said lever.

7. In a fire-sprinkler, in combination with a water-pipe, a discharge-box having an orifice, destructible means for normally closing said orifice, a weighted lever pivoted to said discharge-box, a bar whose ends enter recesses in said discharge-box and in said weighted lever, said bar serving to support said lever, and a stretched wire supporting said bar and adapted on expansion to allow said bar to release said lever.

8. In a fire-sprinkler the combination with a discharge-pipe, of a dome of frangible material normally stopping the outflow from said pipe, a metallic wire, and a lever operatably connected to said dome and adapted to be released on sag of said wire to fracture said dome.

9. In a fire-sprinkler the combination with a discharge-pipe, of a dome of frangible material normally stopping the outflow from said pipe, a wire, a lever stretching said wire, and a pin normally supporting said lever from said wire and adapted on sag of said wire due to expansion to release said lever to fracture said dome.

10. In a fire-sprinkler the combination with a discharge-pipe of a dome of frangible material normally stopping the outflow from said pipe, a lever operatably connected to said dome and means normally supporting said lever but automatically releasing said lever on sudden rise of temperature.

11. In a fire-sprinkler, the combination with a discharge-pipe of a dome of frangible material normally stopping the outflow from said pipe, a metallic wire, a lever operatably connected to said dome and a pin supporting said lever from said wire and adapted to release said lever on sag of said wire due to sudden rise of temperature.

12. In a fire-sprinkler, the combination with a discharge-pipe of a dome of frangible material normally stopping the outflow from said pipe a device operatably connected to said dome, a stretched wire and means adapted on expansion of said wire to cause said clasping means to fracture said dome.

786,492. **BOTTLE-STOPPER EXTRACTOR.** CARLO F. GARIMALDI, Baltimore, Md. Filed Nov. 14, 1904. Serial No. 232,687.



Claim.—1. In a stopper-extractor the combination with the operating-lever, of a corkscrew attached to said operating-lever; a fulcrum-lever having a plurality of fulcrum-points, and means for connecting the fulcrum-lever with the operating-lever whereby the operating-lever may coact with any of the said fulcrum-points of the fulcrum-lever.

2. In a stopper-extractor the combination with the operating-lever, of a corkscrew pivoted to said lever; a fulcrum-lever having a pivoted sliding connection with said operating-lever and also having a plurality of fulcrum-points with any one of which the operating-lever may coact.

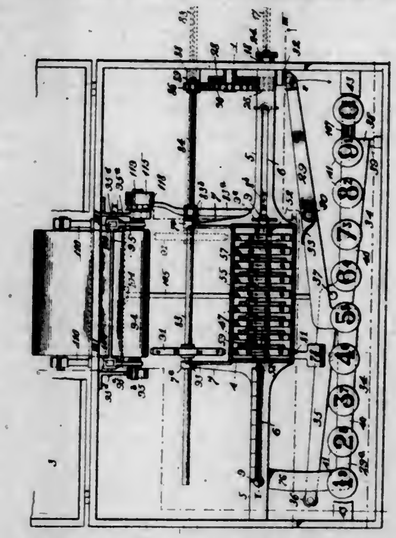
3. In a stopper-extractor the combination with the operating-lever, of a corkscrew pivoted to said lever; a fulcrum-lever having a slot with a lateral extension to form a shoulder, and a pin secured to the operating-lever and passing through and being movable in the slot of the fulcrum-lever.

4. In a stopper-extractor the combination with the operating-lever having a perforation, 15, in its side, of a corkscrew pivoted to said lever; a fulcrum-lever having a pivoted sliding connection with the operating-lever and also having a spring-plate at one side with a lateral projection to engage the perforation in the operating-lever when the fulcrum-lever is folded.

786,493. **ADDING AND RECORDING MACHINE.** CHARLES B. GARTRELL, Kansas City, Mo. Filed Sept. 21, 1903. Serial No. 174,066.

Claim.—1. In an adding-machine, a series of hubs, a pair of tubes slidably arranged in said hubs and adapted to normally hold them in a rigid position, a projection operatively arranged between the adjacent ends of said tubes and adapted to be slid by the latter into positive engagement with any of the hubs, means for oscillating the projection, and character-bearing disks mounted upon the hubs and adapted to be rotated in but one direction by the latter.

2. In an adding-machine, a series of hubs, a pair of tubes slidably arranged in said hubs and adapted to normally hold them in a rigid position, a projection operatively arranged between the adjacent ends of said tubes and adapted to be slid by the latter into positive engagement with any of the hubs, suitable means for oscillating said projection, means for preventing the hubs from sliding longitudinally with the tubes, and character-bearing disks mounted upon the hubs and adapted to be rotated in one direction therewith.



3. A series of hubs, a carriage, a pair of tubes rigidly secured thereto and slidably arranged in said hubs which they are adapted to normally hold in a rigid position, a projection operatively arranged between the adjacent ends of said tubes and adapted to be slid into positive engagement with any of the hubs, means for oscillating the projection, and character-bearing disks mounted upon the hubs and adapted to be rotated in one direction therewith.

4. A series of grooved hubs arranged in a stationary frame, a pair of tubes slidably arranged in the hubs and the frame and provided with feathers for normally holding the grooves in alinement, a shaft journaled in the tubes and adapted to slide therewith, a feather on said shaft arranged between the adjacent ends of the tubes and which engages, one at a time, the grooves in the hub, means for oscillating the shaft, means for holding the shaft so its feather will normally be in alinement with the feathers on the tubes, and character-bearing disks suitably mounted upon the hubs.

5. A series of adding-disks provided with a carrying mechanism consisting of cams secured to the sides of the disks, pawl-carrying bars provided with arms projecting in the path of the cams and adapted to be elevated at each revolution of the latter, ratchet-wheels on the next higher disks engaged by the pawls, means for automatically depressing the bars after each revolution of the cams so the next higher disks will be advanced one step, and means for disengaging the pawls from the ratchet-wheels so each disk may be returned to the starting-point without advancing the next higher disk one step, in combination with means for independently rotating the disks variable distances.

6. A series of adding-disks provided with a carrying mechanism consisting of segmental cams secured to the disks, pawl-carrying bars provided with arms projecting in the path of the cams and adapted to be elevated at each revolution of the latter, ratchet-wheels on the next higher disks engaged by the pawls, means for depressing the bars after each revolution of the cams so the next higher disks will be advanced one step, and means for simultaneously disengaging the pawls from the ratchet-wheels so each disk may be returned to the starting-point without advancing the next higher disk one step, in combination with means for independently rotating the disks variable distances.

7. A series of adding-disks provided with a carrying mechanism consisting of cams secured to the disks, pawl-carrying bars having slotted terminals at one end and provided with arms projecting

in the path of the cams and adapted to be reciprocated at each revolution of the latter, ratchet-wheels on the next higher disks engaged by the pawls, a rod engaging the slotted ends of the bars, and a lever for operating said rod, in combination with means for independently rotating the disks variable distances.

8. In an adding-machine, a frame, a carriage slidingly supported thereby, a shaft journaled in the carriage and extending through part of the frame, a series of hubs loosely mounted upon that portion of the shaft extending through the frame and provided with grooved bores, means for normally holding the grooves in alinement, a feather on the shaft adapted to engage any one of the grooves by shifting the carriage, a keyboard, mechanism connecting the keyboard to the shaft for oscillating the latter variable distances, and adding-disks mounted upon the hubs adapted to turn in but one direction with the latter.

9. In an adding-machine, a frame having a slotted cylindrical portion, a carriage slidingly supported by said frame, a shaft journaled in the carriage and extending through the axis of the cylinder, a series of hubs loosely mounted upon that portion of the shaft extending through the frame and provided with grooved bores, means for normally holding the grooves in alinement, a feather on the shaft adapted to engage any one of the grooves by shifting the carriage, a keyboard, mechanism connecting the keyboard to the shaft for oscillating the latter variable distances, and adding-disks mounted upon the hubs adapted to turn in but one direction with the latter.

10. In an adding-machine, a frame, a carriage slidingly supported thereby, means for automatically shifting the carriage step by step, a shaft journaled in the carriage and extending through part of the frame, a series of hubs loosely mounted upon that portion of the shaft extending through the frame and provided with grooved bores, means for normally holding the grooves in alinement, a feather on the shaft adapted to engage any one of the grooves by shifting the carriage, a keyboard, mechanism connecting the keyboard to the shaft for oscillating the latter variable distances, and adding-disks mounted upon the hubs adapted to turn in but one direction with the latter.

11. In an adding-machine, an outer frame, an inner frame comprising a central cylindrical slotted portion and arms integral with the opposite ends of the cylinder secured at their outer ends to the outer frame, a U-shaped carriage slidingly suspended from the arms, a shaft journaled in the carriage and extending through part of the frame, a series of hubs loosely mounted upon that portion of the shaft extending through the frame and provided with grooved bores, means for normally holding the grooves in alinement, a feather on the shaft adapted to engage any one of the grooves by shifting the carriage, a keyboard, mechanism connecting the keyboard to the shaft for oscillating the latter variable distances, and adding-disks mounted upon the hubs adapted to turn in but one direction with the latter.

12. In an adding-machine, a series of hubs suitably mounted, a series of keys carried by the machine and adapted to be depressed a uniform distance, a tapering lever adapted to be moved variable distances by the keys, suitable connections between the lever and hubs whereby variable oscillatory movement is independently imparted to said hubs by the lever, and character-bearing disks mounted upon the hubs and arranged to turn in but one direction therewith.

13. In an adding-machine, a series of hubs suitably mounted, a series of keys carried by the machine and adapted to be depressed a uniform distance, a tapering beveled lever arranged vertically below the keys and adapted to be moved variable distances by the latter, suitable connections between the lever and hubs whereby variable oscillatory movement is independently imparted to said hubs by the lever, and character-bearing disks mounted upon the hubs and arranged to turn in but one direction therewith.

14. In an adding-machine, a series of hubs suitably mounted, a series of keys carried by the machine and adapted to be depressed a uniform distance, a compound lever having two tapering beveled members, suitable connections between the lever and hubs whereby variable oscillatory movement is independently imparted to said hubs by the lever, and character-bearing disks mounted upon the hubs and arranged to turn in but one direction therewith.

15. In a machine of the character described, a series of hubs suitably mounted, a series of keys carried by the machine and adapted to be depressed a uniform distance, a tapering lever adapted to be moved variable distances by the keys, suitable connections between the lever and hubs whereby variable oscillatory movement is independently imparted to said hubs by the lever, character-bearing disks mounted upon the hubs and arranged to turn in but one direction therewith, and printing mechanism operated by the lever, and adapted to operate independently of the hubs or simultaneously therewith.

16. A carriage provided with a journaled shaft having a feather, means for shifting and oscillating the shaft, a set of hubs arranged within a stationary frame and adapted to be engaged and oscillated one at a time by the shaft, adding-wheels mounted on the hubs and adapted to be rotated in one direction thereby, a second shaft journaled in the stationary frame and arranged to shift and oscillate with the first-mentioned shaft, and a printing-wheel rigidly mounted upon said second shaft.

17. A carriage provided with a journaled shaft having a feather, keys for oscillating the shaft variable distances, a set of hubs arranged within a stationary frame and adapted to be engaged and oscillated one at a time by the feather, adding-disks mounted on the hubs and adapted to be rotated in one direction thereby, a second shaft journaled in the stationary frame and arranged to shift and oscillate with the first-mentioned shaft, and a printing-wheel rigidly mounted upon said second shaft.

18. A carriage provided with a journaled shaft having a feather, a compound lever suitably secured to the shaft, keys adapted to impart a variable stroke to said lever, a set of hubs arranged within a stationary frame and adapted to be engaged and oscillated one at a time by the shaft, adding-disks mounted on the hubs and adapted to be rotated in one direction thereby, a second shaft journaled in the stationary frame and arranged to shift and oscillate with the first-mentioned shaft, and a printing-wheel mounted upon said second shaft.

19. A carriage, suitable spacing mechanism for shifting said carriage longitudinally, a shaft journaled in the carriage provided with a longitudinal groove, a feather formed integral with the shaft, a pinion through which one end of the shaft slides, means for causing the pinion to rotate with said shaft, a rack-bar meshing with the pinion, a compound lever pivotally secured to the rack-bar, keys adapted to impart a variable stroke to the lever, a set of grooved hubs through which the shaft slides and in which it rotates, the feather on the shaft engaging and rotating the grooved hubs one at a time with the shaft, and adding-disks mounted upon the hubs so as to rotate in one direction therewith.

20. A carriage, spacing mechanism for shifting said carriage, a shaft journaled in the carriage provided with a longitudinal groove, a feather formed integral with the shaft, a clutch through which one end of the shaft slides, an internal feather on the clutch which engages the groove in the shaft, a peripheral feather on the clutch, a pinion loosely mounted upon the clutch provided with an internal groove adapted to be engaged by the peripheral feather on the clutch, a rack-bar meshing with the pinion, a lever pivotally secured to the rack-bar, keys adapted to impart a variable stroke to the lever, a set of grooved hubs through which the shaft slides and in which it rotates, the feather on the shaft engaging and rotating the grooved hubs one at a time with the shaft, and adding-disks mounted upon the hubs so as to rotate in one direction therewith.

786,494. MECHANISM FOR PREVENTING SIDE SLIPPING OF PNEUMATIC-TIRED WHEELS. ALEXANDER J. GROSSMANN, London, England. Filed Mar. 14, 1904. Serial No. 198,083.



Claim.—1. The combination with a vehicle fitted with pneumatic tires of the improved skid, consisting of overlapping T-shaped or segmental plates, secured by bolts, set-screws, rivets or the like passing through slot-holes formed in the segments into the felly, rim or spokes of the wheel, the staves or rods forming the inner or central part of said segments, passing through holes in the hub and the cone or push piece or pieces operated by the wedge-shaped horns for forcing outward the rods and segments and enabling the same to be withdrawn by the action of the springs in the manner shown.

2. In combination with a wheel, a skid consisting of outwardly-movable segmental parts, a conical push-piece adapted to engage the inner surfaces of said segmental parts and force them outward so that the periphery of the said skid projects beyond the periphery of the said wheel to prevent its lateral slip, and a device acting transversely against the said conical push-piece to force it against said inner surfaces, substantially as set forth.

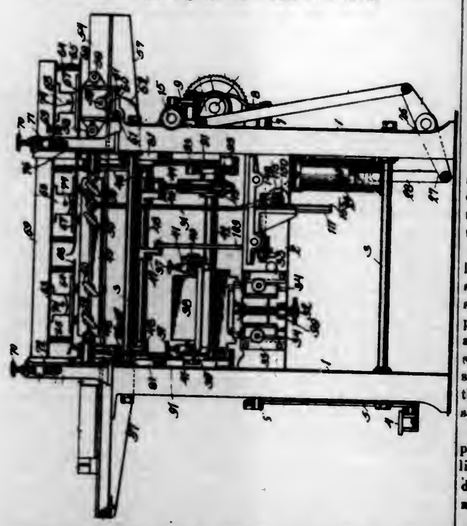
3. In combination with a wheel, and a radially-expansible sectional skid, for preventing its lateral slip, a push-piece arranged to force the parts of the said skid outward and springs arranged to impart elasticity, to the said push-piece substantially as set forth.

4. The combination with a segmental skid operated by means of push-pieces splined upon the axle of the plates pivoted to the horizontal arms secured to said axle, the horns fastened to the pivoted plates and the cross-bar to which the actuating-lever is attached.

5. In combination with a wheel, a skid consisting of radially-expansible segmental parts, a push-piece directly engaging them to force them out beyond the periphery of the said wheel in order to prevent its lateral slip and a part having an inclined face movable transversely in contact with the rear of the push-piece, substantially as and for the purpose set forth.

6. In combination with a wheel, a skid consisting of radially-expansible segmental parts, a conical push-piece adapted to engage the said parts and a wedge-shaped horn or yoke which forces the push-piece into operative engagement with the said segmental parts substantially as set forth.

786,495. LABELING-MACHINE. HERMANN HAULICK, WILLIAM A. WALLING, and GEORGE J. WINKLE, New York, N. Y., assignors to New York Labeling Machine Company, New York, N. Y., a Corporation of New York. Filed Aug. 22, 1903. Serial No. 170,379.



Claim.—1. In labeling-machines, a runway, feeders adjacent said runway, means to reciprocate said feeders and means to project said feeders into and withdraw them from said runway during their reciprocation, adjustable spring-pressed retainers adjacent said runway, and labeling devices to coöperate with said runway to apply labels to articles fed along the same, said labeling devices comprising means to support a pile of labels and to feed the same forward, a labeling-support, means to move said labeling-support and to oscillate the same during its movement, a suction-pad yieldingly mounted on said support and separating-fingers lightly engaging the upper label of said pile and having a limited free movement with said upper label as it is withdrawn.

2. In labeling-machines, a platform, guides on said platform for a pile of labels, weighted separator-bodies mounted in slots in said guides, separating-fingers adjustably mounted in said bodies to engage the top label of a pile, rigid separating-fingers normally out of contact with said labels and a picker to engage the top label of said pile to separate the same therefrom.

3. In labeling-machines, a platform, guides for a pile of labels mounted on said platform, a plunger operating between said guides, means to advance said plunger as labels are removed from said pile, yieldable weighted separator-bodies mounted in closed slots in said guides, separating-fingers secured to said bodies and normally engaging the top of said pile and a picker to remove the top labels from said pile.

4. In labeling-machines, guides to support a pile of labels, means to advance said pile as labels are removed therefrom, yieldable separating-fingers engaging the top of said pile, means to limit their movement away from said pile with the top label and a picker to remove the top label of said pile.

5. In labeling-machines, guides to support a pile of labels, means to advance said pile as labels are removed therefrom, separating-fingers lightly engaging the outer labels of said pile, and means to limit the movement of said fingers away from said pile, said fingers being moved by the outer label of said pile in the same direction as said label during its withdrawal.

6. In labeling-machines, guides to support a pile of labels, a separating-finger to lightly engage the outer label of said pile, means to remove the outer label from said pile and means to positively limit the movement of said finger with said outer label, said finger being moved by the outer label of said pile in the same direction as said label during its withdrawal.

7. In labeling-machines, guides for a pile of labels, a separating-finger to engage the outer label of said pile and means to allow a limited free movement of said finger by the outer label of said pile in the same direction as said label is moved during its withdrawal.

8. In labeling-machines, a platform, guides on said platform for a pile of labels, part of said guides being removable to allow the replenishing of said labels, separating-fingers engaging the outer label of said pile and having a limited free movement with said labels as they are withdrawn, a plunger within said guides, compensating mechanism to feed forward said plunger as said labels are withdrawn comprising a disengageable clutch to manually adjust the position of said plunger and a pneumatic picker to engage said labels.

9. In labeling-machines, a runway, means to support a pile of labels adjacent said runway, a movable labeling-support, guides for said support, the portion of said guides adjacent said label pile being substantially perpendicular to the top label, a rotating arm connected to said support to rotate the same, a swiveling collar adjacent said guides, a stem on said support passing through said collar to oscillate said support as it is rotated, and a labeling-pad yieldingly mounted on said support to engage said labels and an article on said runway.

10. In labeling-machines, a runway, means to support a pile of labels adjacent said runway, a movable labeling-support, guides for said support, portions of said guides adjacent said pile of labels and said runway being substantially straight to guide said support perpendicularly toward said labels and an article on said runway, an arm connected to said support to rotate the same, means to oscillate said support as it is rotated, a suction-pad yieldingly mounted on said support and a pump connected to said pad to create suction therein while said pad is being yieldingly held in engagement with said labels and to relieve said suction to apply a label to an article.

11. In labeling-machines, means to support a pile of labels, a picker to engage the outer label of said pile, a separating-finger to lightly engage the outer label of said pile and move with the same during its withdrawal and means to stop the movement of said finger after said outer label is free from said pile.

12. In labeling-machines, a runway, means to feed articles from station to station along said runway, a paste-drum, means to support a pile of labels, a labeling-support, means to move said support and to oscillate the same during its movement, said means comprising guides formed substantially straight adjacent said runway and said label pile to guide said support perpendicularly toward said label pile and said runway and labeling-pads yieldingly mounted on said support to engage said paste-drum and said label pile.

13. In labeling-machines, a runway, feeder slides adjacent said runway, cams to simultaneously move said slides toward and from said runway, a feeder-bar mounted in said slides, feeders thereon to be projected into said runway and means to reciprocate said feeder-bar to move said feeders forward while they are projected within said runway.

14. In labeling-machines, a runway, labeling devices coöperating with said runway, feeder-slides adjacent said runway, means to operate said slides, a feeder-bar, feeders thereon in said slides, said feeders being projected into and withdrawn from said runway, and means adjustably connected with said feeder-bar to reciprocate the same.

15. In labeling-machines, a runway, labeling devices to coöperate with said runway, feeders, means to reciprocate said feeders, and means comprising a feeder-slide to project said feeders into said runway before they reciprocate forward and to positively withdraw them therefrom at the end of their forward reciprocation.

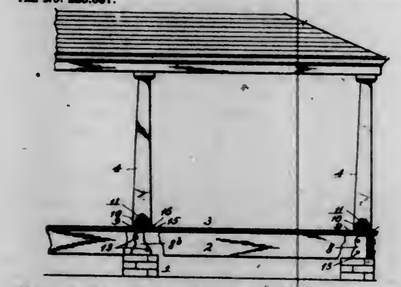
16. In labeling-machines, a runway, labeling devices coöperating with said runway, vertically-movable slides below said runway, cams to operate said slides, a feeder-bar mounted in said slides, feeders on said bar to be projected into and withdrawn from said runway and means timed with said cams to reciprocate said feeder-bar.

17. In labeling-machines, a paste-receptacle, a paste-drum rotatably mounted in said receptacle, a feed-wheel provided with notches and with flat faces secured to said drum, a reciprocating slide engaging said feed-wheel and coöperating with the flat faces thereof to maintain the alinement of said drum and a spring-pressed pawl on said slide to engage said notches to intermittently rotate said drum.

786,496. **PROCESS OF MAKING NEUTRAL SOAP.** AUGUST P. HORN, Hamburg, Germany. Filed Sept. 8, 1904. Serial No. 223,740.

Claim.—The herein-described process for the preparation of neutral soap consisting in adding albumoses to the raw soap material and then making soap from said material.

786,497. **COMBINATION COLUMN-SUPPORT AND SILL-FASTENER.** DAVID F. HUTTON, Piper, Kans. Filed Sept. 24, 1904. Serial No. 226,867.



Claim.—1. The combination with a porch-floor having notches or openings, and columns arranged above said openings, of devices of the character described arranged beneath the columns each device consisting of a base, a body portion formed integral with said base, a neck formed integral with the upper end of said body portion and projecting through one of the notches or openings in the porch-floor, and a head surmounting said neck upon which one of the columns rests.

2. The combination with a porch-floor having notches or openings, and columns arranged above said openings, of devices of the character described arranged beneath the columns each device consisting of a base, an upwardly-tapering body portion formed integral with said base, a neck formed integral with the upper end of said body portion and projecting through one of the notches or openings in the porch-floor, a head surmounting said neck upon which one of the columns rests, and a pin extending upwardly from said head into the lower end of said column.

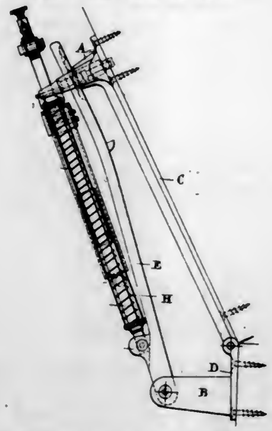
3. The combination with a porch-floor having notches or openings, and columns arranged above said openings, of devices of the character described arranged beneath the columns each device consisting of a base, a body portion composed of a plurality of ribs formed integral at their lower ends with said base, a cylindrical neck formed integral with the upper ends of the ribs projecting through one of the notches or openings in the porch-floor, a circular head surmounting said neck upon which one of the columns rests, and a pin extending upwardly from said head into the lower end of said column.

4. The combination with a porch-floor having notches or openings, bases having central apertures registering with said notches or openings, and columns arranged above said bases, of devices of the character described arranged beneath the columns each device consisting of a base, a body portion formed integral with said base, a neck formed integral with the upper end of said body portion and projecting through one of the notches or openings in the porch-floor and through the aperture of one of the bases, and a head surmounting said neck upon which one of the columns rests.

5. The combination with porch-sills, and columns arranged a suitable distance above said sills, of devices consisting of bases, ribs formed integral with said bases and secured to the sills, and heads surmounting said ribs upon which the columns rest, substantially as described.

6. The combination with a porch-foundation, sills arranged thereon, and a column arranged above the sills, of a device of the character described consisting of a base adapted to rest upon the foundation, a body portion comprising two ribs extending at right angles to each other and formed integral at their lower ends with said base, said ribs being adapted to fit snugly in the corners of the sills, a neck formed integral with the upper ends of the ribs, a head surmounting said neck adapted to support the column, and a pin projecting upwardly from said head adapted to engage a counterbore in the lower end of the column.

786,498. **DOOR CLOSER AND HOLDER.** JOSEPH JETON, Lyons, France. Filed Dec. 5, 1903. Serial No. 183,919.



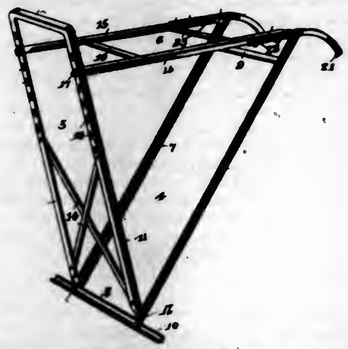
Claim.—1. The combination with a stationary member and a movable member having a passage-way, of a holding-bar pivoted to the stationary member and adapted to slide in the said passage in the movable member, said bar being provided with a series of spherical recesses and with a connecting-track for the two extreme recesses, and a spring-pressed ball located in connection with said movable member to enter the recess adjacent thereto in the holding-bar to yieldingly hold said bar.

2. The combination with a stationary member and a movable member having a passage-way, of a holding-bar pivoted to the stationary member and adapted to slide in the said passage in the movable member, said bar being provided with a series of spherical recesses and with a connecting-track for the two extreme recesses, and a spring-pressed ball located in connection with said movable member to enter the recess adjacent thereto in the holding-bar to yieldingly hold said bar, and a spring in connection with the holding-bar and bearing on the movable member to move the latter into its closing position.

3. The combination with a stationary member and a movable member having a support provided with parallel passages through it, a holding-bar pivoted to the stationary member, and adapted to slide in one of the passages in the said support, said bar being provided with a series of recesses and a return-track from one end recess to the other end recess, a spring-pressed ball in said support adapted to yieldingly engage said recesses, a rod pivoted to the holding-bar and sliding in the other of the parallel passages and a helical spring on said rod bearing against the support to bring the movable member into its closing position.

786,499. **ROOF-SCAFFOLD.** SIMON C. JOHNSON, DeKalb, Ill. Filed Sept. 5, 1903. Serial No. 172,166.

Claim.—1. In a structure of the class described, the combination with a roof member, of a supporting member pivoted to the lower portion of the roof member, a bridge member pivoted to the upper portion of the roof member and having an adjustable engagement with the supporting member, said bridge member including longitudinally-disposed spaced side bars, and downturned hooks carried by and arranged longitudinally of the side bars, said hooks being located at the pivoted end of the bridge member and extending beyond the same, being arranged to engage over the apex of a roof.



2. In a structure of the class described, the combination with a roof member comprising spaced side bars and connections between the upper and lower ends of the side bars, of a supporting member comprising an arched frame forming spaced upright standards, said frame being pivoted to the lower end of the roof member, and a bridge member comprising spaced side bars pivoted to the upper ends of the side bars of the roof member, said bridge-bars having vertically-adjustable engagements with the standards, and separate downturned hooks carried by the pivoted ends and extending longitudinally of the bridge-bars and projecting beyond the upper end of the roof member.

3. In a structure of the class described, the combination with a roof-scaffold, of a hanger-bar having a longitudinally-disposed slot, means for securing the hanger-bar to the scaffold, a yoke embracing the bar and having a depending hook, and a bolt passing through the slot and engaging the portions of the yoke on opposite sides of the bar.

4. In a structure of the class described, a roof-scaffold comprising a roof member, a bridge member pivoted to the upper end of the roof member, and a supporting member pivoted to the lower end of the roof member and having an adjustable engagement with the bridge member, in combination with a hanger-bar having a longitudinally-disposed slot, hooks carried by the lower end of the hanger-bar and constituting means for detachably securing the same to the roof member or scaffold, a yoke embracing the hanger-bar and having a depending hook, and a bolt passing through the slot of the hanger-bar and engaging the portions of the yoke on the opposite sides of the same.

5. In a structure of the class described, the combination with a roof-scaffold, of a hanger, means for securing the hanger to the scaffold, a hook mounted on the hanger and movable thereon to different angular relations with respect thereto, and means for holding the hook in different angular relations to the hanger.

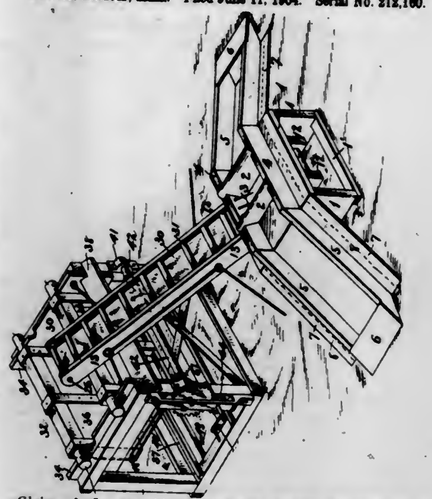
6. In a structure of the class described, the combination with a roof-scaffold, of a hanger-bar, means for securing the hanger-bar to the scaffold, said hanger-bar having a longitudinally-disposed slot, a yoke embracing the bar and extending above the same, a hook depending from the yoke beneath the bar, and bolts passing through the yoke, one of said bolts being located in the slot of the bar, the other being adjustable in the yoke and extending across the upper face of the bar.

786,500. **PUMP.** AARON E. KEPNER, Lemon, Cal. Filed Nov. 5 1903. Serial No. 179,886.

Claim.—A cylinder, a plunger therein comprising a thimble, a cap screwed to the upper end thereof and provided with inwardly-projecting lugs radially disposed and having shoulders, a valve resting on the upper edge of the thimble being guided in its upward movement by said lugs and its movement being limited by said shoulders, a flange on the lower edge of said thimble, an annular cupped leather resting against the flange, a space-ring encircling the thimble and resting on said leather, another annular cupped leather nested over the space-ring, another annular cupped leather resting on the last-named leather and reversely arranged, said three leathers and space-ring being clamped between said flange and said cap, a check-valve at the lower end of the cylinder, and a hollow rod screwed to the cap for operating the plunger.



786,501. **MACHINE FOR LOADING MANURE.** GEORGE F. KOENIG, Lemour, Minn. Filed June 11, 1904. Serial No. 212,160.

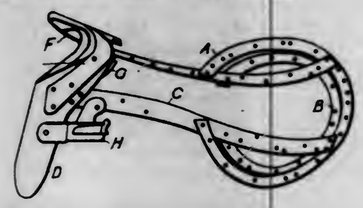


Claim.—1. In a machine for loading manure on wagons, the combination of a hopper-frame 1, substantially rectangular; a hopper secured on the top of said hopper-frame, provided with guide-pins 3; track-rails 4, secured on the top of said hopper-frame; track-rails 5, corresponding with said rails 4, and reaching to the ground on either side of the hopper-frame; floor 7, secured to the lower edges of said track-rails 5; an elevator-frame having a horizontal part 12, resting in said hopper-frame, and an inclined part 13, resting against the dumping device 32; a feeding-device, consisting of a drum 9, sprocket-chains 11; and carrying-apron 30, working on sprocket-wheels 14 and 15 of said elevator; sprocket-wheels 18, 27, and 28, sprocket-chains 29, and carrying-apron 30', working in the inclined part of said elevator, and adapted to dump material carried by said carrying-apron, substantially as shown and described and for the purposes set forth.

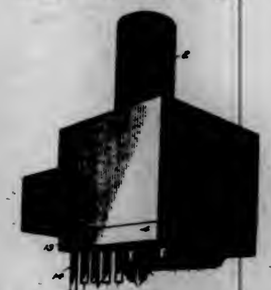
2. In a machine for loading manure on a wagon, the combination of a rectangular frame having its end walls lined for part of the way down with lining material 34; bearing-beams 35, hinged in the upper edge of said linings; dumping-plates 36, secured to the said bearing-beams; a winding-shaft 42, journaled on one side of said frame; a cog-wheel 43, secured on one end of said shaft; a smaller cog-wheel 44, journaled to said frame and meshing with said cog-wheel 43; cords 46, secured to said winding-shaft, passing thence over a pulley 47, secured to the lower edge of one of the dumping-blades, thence over pulley 48, secured to the other dumping-blade, thence back and secured to the first-mentioned dumping-blade, said dumping device provided with a wagon-track 37, and a roller-track 38, substantially as shown and described and for the purposes set forth.

786,502. **RIDING-SADDLE.** ADAM LAPPAN, Annandale, New South Wales, Australia. Filed Nov. 17, 1903. Serial No. 181,533.

Claim.—In combination with a wooden yoke D, metal strengthening-bands riveted above and below the same, metal stringers riveted at one end to said yoke and bands, said stringers being perforated throughout their length and two perforated curved metal bars riveted to the stringers, one of said bars having its ends riveted to the under side of the stringers while the other bar has its ends riveted to the upper side thereof, substantially as described.



786,503. **DIE MECHANISM FOR CUTTING CONTIGUOUS FASTENERS.** ROBERT B. LEWIS, Philadelphia, Pa., assignor to The American Metal Edge Box Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Sept. 5, 1903. Serial No. 172,139.



Claim.—1. Die mechanism of the character described, comprising means for trimming opposite edges of a strip to form portions of the heads and prongs of contiguous fasteners, and means for punching properly-spaced openings in said strip to complete the formation thereof, said trimming and punching means operating simultaneously along different portions of the strip.

2. Die mechanism of the character described, comprising cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, and punches for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, said cutters and punches operating along different portions of the strip.

3. Die mechanism of the character described, comprising means for trimming opposite edges of a strip to form portions of the heads and prongs of contiguous fasteners, means for punching properly-spaced openings in the strip between the partially-formed heads to complete the formation of the strip, and means for centering and alining the strip during the operation of said mechanism.

4. Die mechanism of the character described, comprising cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, punches for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, said cutters and punches operating along different portions of the strip, and means for centering and alining the strip.

5. Die mechanism of the character described, comprising a pair of cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, punches for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, said cutters and punches operating along different portions of the strip, and an alining pin or blade operating to enter one of the previously-formed openings in advance of the punches to properly aline the strip.

6. Die mechanism of the character described, comprising a pair of cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, punches for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, said cutters and punches operating along different portions of the strip, an alining pin or blade operating to enter one of the previously-formed openings in advance of the punches to properly aline the strip and means operating upon another part of the strip adjacent to the edge-trimmers to center and support the strip.

7. Die mechanism of the character described, comprising a pair of cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, punches for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, said cutters and punches operating along different portions of the strip, an alining pin or blade operating to enter one of the previously-formed openings in advance of the punches to properly aline the strip and a pilot arranged to engage opposite edges of the strip in advance of the edge-trimmers to center and support the strip.

8. Die mechanism of the character described, comprising a head, a pair of edge-trimming blades and a gang of punches carried by the head, said punches located in line with the blades, and a base-block carrying a male member which coöperates with said edge-trimmers and female members which coöperate with said punches.

9. Die mechanism of the character described, comprising a head, a pair of edge-trimming cutters and a gang of punches carried by the head, said punches located in line with the cutters, a base-block carrying a male member which coöperates with said edge-cutters and female members which coöperate with said punches, and a stripper-bar coöperating with the said edge-cutters and their co-operating male members.

10. Die mechanism of the character described, comprising a head, a pair of edge-trimming cutters and a gang of punches carried by the head, said punches located in line with the cutters, a base-block carrying male and female members which coöperate respectively with said cutters and punches, a stripper-bar interposed between the said cutters, and a guide-block having openings therethrough for the punches.

11. Die mechanism of the character described, comprising a head, a pair of edge-trimming cutters removably connected to said head, a pair of plates also connected to said head and having their adjacent edges cut away on zigzag lines, punches having their upper ends located between the adjacent edges of said plates and secured thereto, and a base-block carrying male and female members which coöperate with said cutters and punches.

12. In die mechanism of the character described, a head having its under face formed on two planes, a pair of edge-trimming cutters connected to the lowermost plane, a pair of abutting plates removably secured to the upper plane, the adjacent edges of said plates being cut away on zigzag lines, and punches having their upper ends located between the adjacent edges of the plates and secured thereto.

13. Die mechanism of the character described, comprising a head, edge-trimming cutters and punches carried by said head, a base-block, male and female die members carried by said base-block and coöperating with the said cutters and punches, said female die member comprising a plurality of abutting blocks the adjacent ends of which are cut away on zigzag lines and recessed.

14. In die mechanism of the character described, the combination with a gang of diagonally-arranged punches, of a coöperating female die member comprising a plurality of abutting blocks the adjacent ends of which are cut away on zigzag lines and recessed to provide a series of punch-openings to receive the punches.

15. Die mechanism for forming contiguous metallic fasteners of the character described, comprising a head carrying a pair of edge-trimming cutters shaped to trim opposite edges of the metallic ribbon to form portions of the heads and prongs of a gang of fasteners, a series of punches also carried by the head and arranged in line with the cutters, each punch comprising a flat diagonally-arranged blade, and male and female die members coöperating with said cutters and punches respectively.

786,504. **DIE FOR CUTTING CONTIGUOUS FASTENERS.** ROBERT B. LEWIS, Philadelphia, Pa., assignor to American Metal Edge Box Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Jan. 6, 1904. Serial No. 187,894.

Claim.—1. Die mechanism of the character described, comprising means for trimming opposite edges of a strip to form portions of the heads and prongs of contiguous fasteners, and means located between the edge-trimmers for punching properly-spaced openings in said strip to complete the formation of the strip.

2. Die mechanism of the character described, comprising cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, punches for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, and a pilot arranged to engage opposite edges of the strip in advance of the edge-trimmers to center and support the strip.

3. In die mechanism of the character described cutters for trimming opposite edges of a strip to form portions of the heads and prongs of a gang of contiguous fasteners, and punches located between the edge-trimming cutters for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, the ends of the said punches extending below the said cutters, and operating in advance thereof.

4. Die mechanism of the character described, comprising a head, a pair of edge-trimming blades, and a gang of punches carried by the head, said punches being located between the blades, and a base-block carrying a male member, which coöperates with the edge-trimmers and a female member which coöperates with the punches, said female member being located between the male member.

5. Die mechanism of the character described, comprising a head, a pair of edge-trimming cutters, and a gang of punches carried by the head, said punches being located between the cutters, a base-block carrying a male and a female member which coöperate with said cutters and punches, and a stripper-bar of the shape of the fasteners being cut, coöperating with said edge cutters and punches.

6. Die mechanism for forming contiguous metallic fasteners of the character described, comprising a head carrying a pair of edge-trimming cutters shaped to trim opposite edges of a metallic ribbon to form portions of the heads and prongs of a gang of fasteners, a series of punches also carried by the head and located between the cutters, each punch comprising a flat diagonally-arranged blade, and male and female die members coöperating with said cutters and punches, respectively, the said female die member being located between the opposite edges of the male die member.

7. Die mechanism of the character described, comprising a head provided with a longitudinal channel, edge-trimming blades mounted in said channel, clamping-plates located between the said blades, punches clamped between said clamping-plates, means for holding the said parts to the head, and male and female die members coöperating with said cutters and punches.

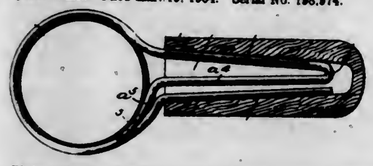
8. In die mechanism of the character described a head having a longitudinal channel, edge-trimming cutters comprising blades removably mounted in said channel, a pair of clamping-plates located between the said blades and having their abutting edges cut on zigzag lines, punches clamped between the zigzag edges of said plates, and means for securely holding said elements in the channel in the head.

9. In die mechanism of the character described, a head having a longitudinal channel in its under face, edge-trimming blades located in said channel and having their adjacent edges shaped to form portions of the heads and prongs of a gang of contiguous fasteners, clamping-plates located between said blades, and having their outer edges shaped to conform to the configuration of the adjacent edges of the said blades, diagonally-arranged punches clamped between the abutting faces of the plates, and means for securely fastening said elements to the head.

10. In die mechanism of the character described, two coöperating members, one of said members carrying edge-trimming cutters and intermediate punches, and the other member carrying a male and a female die shaped to conform to and coöperating with said cutters and punches.

11. Die mechanism of the character described, comprising two coöperating members, one of said members consisting of separated cutters for trimming opposite edges of a metallic strip to form portions of the heads and prongs of a gang of contiguous fasteners, and punches located between the said cutters for forming equidistant openings in the strip between the previously-formed heads to complete the formation of the strip, and the other member consisting of two plates, the outer longitudinal edges of which are shaped to conform to the adjacent edges of the cutters and the abutting edges of said plates cut on zigzag lines and having openings to receive the punches.

786,505. **JAR-TOP REMOVER.** WILLIAM T. LOOFBOURROW, Issaquah, Wash. Filed Mar. 19, 1904. Serial No. 198,974.

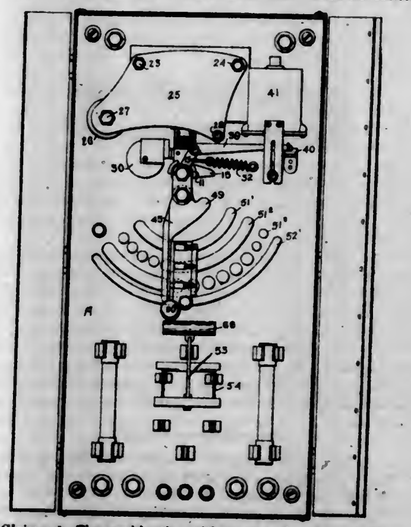


Claim.—1. A cap-remover comprising a circular clamping portion having shanks extending outwardly therefrom, one of said shanks being bent inwardly and having its end terminating in a wedging member lying against the clamping portion adjacent its juncture with the other shank, and a handle having an elongated socket adapted to fit over the shank and clamp them together.

2. A cap-remover comprising a circular clamping portion having shanks extending therefrom, one of said shanks being bent inwardly and having its end terminating in a laterally-extending wedging portion lying against the clamping portion, adjacent its juncture with the other shank.

3. A cap-remover comprising a circular clamping portion having shanks extending therefrom, one of said shanks being bent inwardly and having its end terminating in a laterally-extending wedging portion, said wedging portion being concaved and lying against the clamping portion adjacent its juncture with the other shank.

786,506. **MOTOR-CONTROLLING SWITCH.** FREDERICK MACKINTOSH, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Feb. 17, 1904. Serial No. 194,096.



Claim.—1. The combination with a motor-rheostat switch provided with independent contacts for the field and armature circuits,

a controller-lever having permanent electrical engagement with said contacts, and means for breaking the motor-circuit outside of said rheostat.

2. The combination with a motor-rheostat switch provided with independent series of resistance-contacts for the field and armature circuits of the motor, a controller-lever having permanent electrical engagement with and mutually connecting said series of contacts, and means for breaking the motor-circuit outside of said rheostat.

3. The combination of a circuit-breaker, a no-voltage magnet for holding said breaker in closed position, a motor-rheostat switch provided with independent contacts for the field and armature circuits, a continuous contact with its operative surface in two planes and connected to the circuit of the no-voltage magnet, and a controller-arm cooperating with the said contacts and provided with an electrically-connected push-bolt which normally engages the higher operative surface of the continuous contact and is adapted to be forced into engagement with the lower surface to complete the circuit through the no-voltage magnet.

4. The combination of a pivoted breaker-arm, spring means tending to move said arm into open position, and an eccentrically-pivoted controller-lever adapted when moved in one direction to engage the breaker-arm and move it against the tension of the spring means into closed position.

5. The combination of a pivoted current-controlled breaker-arm provided with a toe projecting from one side thereof, and an eccentrically-pivoted controller-arm provided with a projection adapted to engage said toe and move said breaker-arm into its closed position when said controller-arm is moved in one direction.

6. The combination of a pivoted breaker-arm provided with shouldered projections, two coaxially-pivoted arms adapted to engage said projections, springs arranged to exert tension on said arms, means for adjusting the relative tension of said springs, means for holding said arms from movement under the tension of said springs, and current-controlled means for releasing said holding means.

7. The combination of a pivoted main switch provided with means for actuating it, and a two-armed switch pivoted in proximity to the pivot of the main switch and each arm provided with a projection extended into the path of the main switch.

8. The combination of a pivoted main switch provided with means for actuating it, and an independent switch having two angularly-displaced arms pivoted in proximity to the pivot of the main switch and each arm provided with a projection extended into the path of the main switch.

9. The combination of a pivoted main switch and an independent switch having pairs of angularly-displaced arms respectively connected by bars of insulation and pivoted in proximity to the pivot of the main switch whereby the two switches are adapted to interlock

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786,507. TUBE-COUPLING. CHARLES L. HAHN, St. Louis, Mo., assignor of one-half to Taylor R. Young, St. Louis, Mo. Filed Feb. 8, 1904. Serial No. 192,519.



Claim.—1. In a tube-coupling, the combination of a pair of sleeves having inclined upwardly-disposed curved flanges forming cam-grooves, the entrances to the grooves being in line with a portion of the grooves, and a coupling member having lugs for engagement with the grooves; substantially as described.

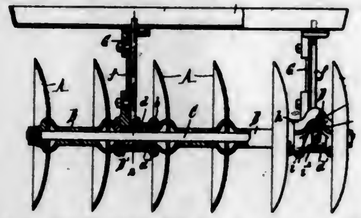
2. A tube-coupling including a sleeve having inwardly-disposed helical flanges, one end of each flange being in a plane higher than the plane of a portion of the adjacent flange and one end of each flange being at the extreme end of the sleeve, and a coupling member having means for engaging the flanges; substantially as described.

3. A tube-coupling including a coupling member and a sleeve having inwardly-disposed helical flanges, the outer edge of one flange comprising a guide for introducing the coupling member into engagement with the inner face of the opposite flange; substantially as described.

786,508. DISK HARROW. CHRISTIAN MAUL, Batavia, N. Y., assignor to The Johnston Harvester Company, Batavia, N. Y. Filed Jan. 9, 1905. Serial No. 240,161.

Claim.—1. The combination of a disk gang and a journal-bearing for the same having in its rear portion a wear-block which is arranged in a rearwardly-ascending position, substantially as set forth.

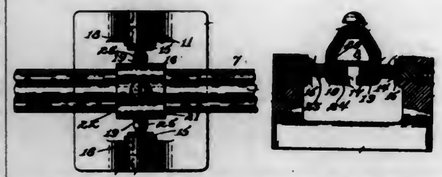
2. The combination of a disk gang and a journal-bearing for the same having rearwardly-ascending rear lugs, an oblique wear-block arranged between said lugs, horizontal front lugs, and a draft-rod attached thereto, substantially as set forth.



3. The combination of a disk gang and a journal-bearing for the same having rearwardly-ascending rear lugs, an oblique wear-block arranged between said lugs, means for adjusting said block forwardly and downwardly, horizontal front lugs, and a draft-rod attached thereto, substantially as set forth.

4. The combination of a disk gang having a thimble provided with annular ribs, and a journal-bearing for said thimble having in its rear portion a rearwardly-ascending wear-block which is provided with lateral extensions projecting over said ribs, substantially as set forth.

786,509. PIVOT. GORDON MERRITT, Ridgewood, N. J. Filed July 9, 1904. Serial No. 215,862.



Claim.—1. The combination with a lever, of a pivot-carrying member, pivots adjustably carried thereby, and means to clamp said member and pivots against said lever.

2. The combination with a lever, of pivots having screw-threaded shanks; a carrier for the pivots and having screw-threaded sockets for said pivots and such carrier exposing portions of said pivots to contact with the lever, and means to draw said carrier toward the lever to clamp the pivots thereto and in their positions of adjustment.

3. The combination with a lever, of pivots adjustable outwardly and inwardly therefrom; and means to bind the pivots against the said lever to hold the pivots to the lever as its fulcrum and to secure them in their positions of adjustment.

4. A pivot-bearing embodying bearing-faces, a lever, a yoke surrounding the lever, pivot members carried by the yoke and having shanks lying between the lever and one side of the yoke and a single clamping device for binding the lever in the yoke and clamping the same against the shanks of the pivots.

5. The combination of a lever, a yoke surrounding the lever, pivots carried by the yoke and each having a portion located between the lever and a portion of the yoke, and a set-screw to press the lever against the pivots for binding the lever and the pivots in the yoke.

6. The combination of bearing-faces, a lever, a yoke surrounding the lever, pivots for engaging said bearing-faces carried by the yoke and each having a shank located between the lever and a portion of the yoke at one side thereof and a single set-screw at the other side thereof to press the lever against the shanks.

7. A pivot for a lever embodying pivot-bearings, a yoke surrounding the lever, pivots carried thereby and having their shanks within the yoke, and means to bind the lever in the yoke and adapted to jam the pivot-shanks between the lever and the yoke.

8. The combination with a lever, of a yoke surrounding the same, pivot members carried by the yoke and having screw-threaded shanks interposed between the lever and the yoke and a set-screw to bind the lever upon the screw-threaded shanks and to press the same against the yoke.

9. The combination with a base, members carried thereby and having sockets, bearing-blocks mounted in the sockets and having bearing-faces directed toward each other and stop-faces to prevent the blocks from displacement through the sockets, a lever, a yoke surrounding the same, pivots having bearing-points for engaging said bearing-faces, and said pivot members being outwardly adjustable to engage said bearing-faces and having shanks disposed within the yoke and between the same and said lever, and a set-screw to clamp the lever upon the screw-shanks and press the same against the yoke.

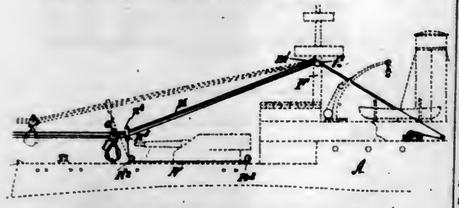
10. The combination of a member having sockets, bearing-blocks mounted in the sockets and having bearing-faces directed toward each other and stop-faces to prevent the blocks from displacement through the sockets, a lever, a yoke surrounding the same, pivots for engaging said bearing-faces and carried by the yoke, and said pivot members being outwardly adjustable to engage said bearing-faces.

11. The combination of a member having sockets, bearing-blocks mounted in the sockets and having bearing-faces directed toward each other and stop-faces to prevent the blocks from displacement through the sockets, a lever, a yoke surrounding the same and having an open side, pivots for engaging said bearing-faces and carried by the yoke adjacent to said open side, and said pivot members being outwardly adjustable to engage said bearing-faces.

12. The combination with a lever, of a pair of pivots one or both of which are adjustable toward and from the lever, and means to clamp the pivots to the lever.

13. The combination with a lever, of a pair of pivots, one or both of which is provided with a screw-threaded shank; a pivot-carrier having sockets for said pivots and one or both of which are screw-threaded, and means to clamp the carrier and the screw-threaded shank or shanks against the lever.

786,510. CONVEYING APPARATUS. THOMAS S. MILLER, South Orange, N. J. Filed Jan. 31, 1901. Serial No. 45,432.



Claim.—1. In combination, a supply-ship, a consuming-ship, a transit-rope connecting the two, a load-carriage, a forward transit-actuator on said consuming-ship and a backward transit-actuator exterior to said supply-ship.

2. In combination, a supply-ship, a consuming-ship, a transit-rope connecting the two, a load-support, a forward transit-actuator and a backward transit-actuator, both said actuators being on said consuming-ship.

3. In combination, a supply-ship, a consuming-ship, a transit-rope connecting the two, a load-carrier, a supporting-rope, forward and backward transit-actuators and a supporting-rope tension-actuator; all of said actuators being exterior to said supply-ship.

4. In combination, a supply-ship, a consuming-ship, a transit-rope between the two, a load-carrier, a supporting-rope, a supporting-rope tension-actuator exterior to said consuming-ship and forward and backward transit-actuators located on said consuming-ship.

5. In combination, a supply-ship, a consuming-ship, a ropeway connecting them, a load-carriage, a rope-drum mechanism on the consuming-ship and a sea-anchor participating in the control of the load during transit.

6. In combination, a supply-ship, a consuming-ship, a ropeway connecting them, a load-carriage, means exterior to said supply-ship whereby the strain on said ropeway is controlled and means also exterior to said supply-ship whereby the ropeway is lowered substantially at the point of delivery on the arrival of the carriage.

7. In combination, a supply-ship, a consuming-ship, a transit-rope, a load-carriage, a forward transit-actuator on said consuming-ship, a backward transit-actuator exterior to said supply-ship and means on said consuming-ship whereby the transit-rope is lowered substantially at the point of delivery on the arrival of the carriage.

8. In combination, two supports having a relative to-and-fro motion, a ropeway extending between the same, tension mechanism moving responsively to said to-and-fro motion and means engaging with said ropeway intermediate its supports whereby the elevation of said ropeway is controlled independently of said to-and-fro motion substantially at the delivery-point of said ropeway.

9. In combination, two supports having relative to-and-fro motion, a load-support, a transit-rope, a supporting-rope, tension mechanism for both of said ropes moving responsively to said to-and-fro motion and means whereby the elevation of said ropes is controlled independently of said to-and-fro motion substantially at the delivery-point of said ropeway.

10. In combination, a ropeway containing a traveling rope, a yielding tension device whereby it is held taut, a load-carriage propelled by said traveling rope, and means engaging the ropeway independently of the carriage whereby said tension device is caused to yield and lower the ropeway substantially at the point of delivery on the arrival of the carriage.

11. In combination, a ropeway extended across a gap, supports of constant elevation therefor on opposite sides of said gap and elevated above the bottom thereof, a load-rest on one side of said gap, a load-carriage, a traction-rope engaging said carriage and means engaging the ropeway exterior to the carriage whereby the ropeway is deflected toward said load-rest.

12. In combination, with the deck and mast of a ship, a hauling-engine on the deck, a ropeway extending from said hauling-engine over a sheave on said mast and thence to a distant support, a load-support, a downhaul-rope extending upwardly to said ropeway from the point between the mast and the end of the ship and means whereby said downhaul-rope engages said ropeway independently of the load-support.

13. In combination, two supports having a relative to-and-fro motion, a transit-rope between the same, a load-carrier having a yielding traction engagement with said transit-rope, a transit-actuator and means whereby the elevation of said transit-rope is controlled substantially at the delivery-point upon the arrival of said load-carrier.

14. In combination, two supports having a relative to-and-fro motion, a transit-rope extending between the same, a load-carrier having a yielding traction engagement with said rope, a transit-actuator, tension mechanism moving responsively to said to-and-fro motion and means whereby the elevation of said rope is controlled independently of said to-and-fro motion substantially at the delivery-point upon the arrival of said load-carrier.

15. In combination, two relatively moving supports, a transit-rope, a load-support moved by said transit-rope, a forward transit-actuator, a backward transit-actuator and means whereby said transit-rope is lowered at a point intermediate said supports.

16. In combination with a boat and two winch-engines thereon, a forward transit-actuator actuated by one of said winch-engines, a backward transit-actuator actuated by the other of said winch-engines and a transit-rope extending from one of said actuators to a distant support and back again to the other of said actuators.

17. In a conveying apparatus, in combination, a forward transit-actuator, a backward transit-actuator, a transit-rope extending from one of said actuators to the other, a reversible engine whereby said forward transit-actuator is driven and a friction-engine whereby said backward transit-actuator is driven.

18. In combination, a pulled boat, a pulling-boat, two transit-motors located on one of said boats, an elevated support on each boat, a transit-rope extending from one of said transit-motors to the elevated support on the same boat, thence to the elevated support on the other boat, thence back to the first-mentioned elevated support and thence to the other transit-motor and a load-support actuated by said transit-rope.

19. In combination, a pulled boat, a pulling-boat, two transit-motors located on one of said boats, elevated sheaves on both boats, a transit-rope extending from one of said transit-motors to an elevated sheave on the same boat, thence to and around an elevated sheave on the other boat, thence back to and about an elevated sheave on the first boat and thence to the other transit-motor, and a lowering-rope engaging with said transit-rope near said elevated support.

20. In combination, two supports having a relative to-and-fro motion, a transit-rope extending between the same, a forward transit-motor operating substantially irresponsively to said to-and-fro motion, a tension mechanism moving responsively to the resultant of the forward transit motion and said to-and-fro motion and a load-carrier actuated by said transit-rope.

21. In combination, a pulling-boat, a pulled boat, a transit-rope between them, a load-support moved thereby, a forward transit-actuator, a drum carrying the tail end of said rope, a friction-clutch engaging said drum and running in opposition to the forward movement of said rope and means whereby the elevation of said rope

substantially at the point of delivery is controlled upon the arrival of the load-support.

22. In combination, a supply-ship, a consuming-ship, forward and backward transit-actuators on said consuming-ship, a transit-rope extending from the backward actuator to the supply-ship and back to the forward actuator, a supporting-rope, a load-carrier forming a running engagement with one run of said transit-rope and a yielding traction engagement with the other run thereof, a running engagement with said supporting-rope, a supporting-rope tension-actuator and a downhaul-rope acting upon said supporting and transit ropes independently of said load-carrier substantially at the point of delivery.

23. In combination, two supports having relative to-and-fro movement, a transit-rope extending between the same, a forward transit-actuator and a backward transit-actuator acting upon said rope antagonistically, the power applied to said backward transit-actuator being adapted to yield to the power of the forward transit-actuator, and means whereby the elevation of said rope is controlled between its supports.

24. In combination, a towing-boat, a towed boat having relative to-and-fro movement, a transit-rope extending between the same, forward and backward transit-actuators acting upon said rope antagonistically, the power applied to said backward transit-actuator being adapted to yield to the power of the forward transit-actuator, a supporting-rope, and a sea-anchor whereby said supporting-rope is held under tension.

25. In combination, a ropeway, the supports therefor, a load-carriage thereon, means for propelling said load-carriage on said ropeway, a load-receiving support intermediate said ropeway-supports and means whereby said ropeway is lowered over said receiving-support; the distance between said ropeway in its normal position and said receiving-support being such that the inclination of said ropeway in its lowered position adjacent to said point of delivery is less than that which would cause substantial forward travel of the carriage by gravity.

26. In combination, a ropeway extended across a gap, supports therefor on opposite sides of said gap and elevated above the bottom thereof, a load-rest on one side of said gap, a load-carriage, a traction-rope engaging said carriage, means engaging the ropeway exterior to said carriage whereby said ropeway is deflected toward said load-rest and a yielding tension device operating on said ropeway in antagonism to said deflection.

27. In combination, a ropeway extended across a gap, supports therefor on opposite sides of said gap and elevated above the bottom thereof, a load-rest on one side of said gap, a load-carriage, a traction-rope engaging said carriage, means engaging the ropeway and the traction-rope exterior to the carriage whereby the same are deflected toward said load-rest and yielding tension mechanism acting upon said ropeway and said traction-rope in antagonism to said deflection.

28. In combination, a ropeway extended across a gap, supports therefor on opposite sides of said gap and elevated above the bottom thereof, a load-rest on one side of said gap, a load-carriage, a traction-rope engaging said carriage, a drum connected with each end of said traction-rope and means engaging the ropeway exterior to the carriage whereby the ropeway is deflected toward said load-rest.

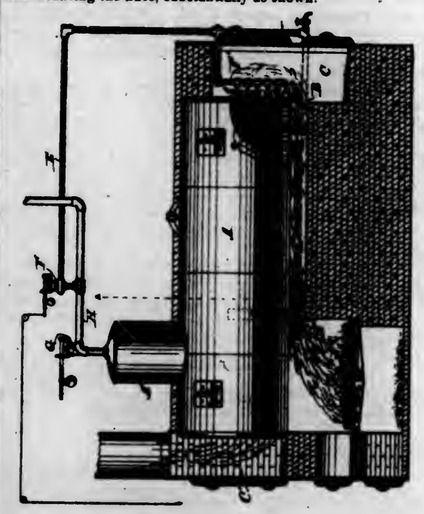
29. In combination, a ropeway extending across a gap, supports therefor on opposite sides of said gap and elevated above the bottom thereof, a load-rest on one side of said gap, a load-carriage and downwardly-hauling means engaging the ropeway exterior to the carriage whereby the ropeway is positively deflected toward said load-rest.

30. In combination, a ropeway extended across a gap, supports therefor on opposite sides of said gap and elevated above the bottom thereof, a head load-rest on one side of said gap, a tail load-rest on the other side of said gap, a load-carriage, a hoist above the head load-rest and a downwardly-hauling device above the tail load-rest engaging the ropeway exterior to said carriage.

31. In combination, two load-rests on opposite sides of the gap, a cableway-support erected on each load-rest, a cableway between said supports, a hoist above one of said load-rests, a ropeway-depressor above the other of said load-rests and a yielding traction device acting upon said ropeway in opposition to said depressor.

786,511. COMBINED SAFETY ATTACHMENT AND FLUE-CLEANER FOR STEAM-BOILERS. JAMES W. HORTON, Washington, D. C., assignor of one-half to William A. Hollpris, Washington, D. C. Filed May 4, 1904. Serial No. 206,341.

Claim.—In combination with a steam-boiler, a steam-supply pipe having a safety-valve, a branch pipe in communication with the supply-pipe and provided with a safety or automatic valve which is set to admit steam under pressure to the branch pipe before the pressure in the boiler reaches the blow-off point of the main safety-valve, steam-ejectors connected to the branch pipe to direct steam in the direction of the draft and in line with the travel of the products of combustion, for the purpose of coöperating with the draft and cleansing the flues, substantially as shown.



786,512. VALVE. JEREMIAH O'MEARA, New York, N. Y. Filed Jan. 19, 1904. Serial No. 189,701.



Claim.—1. A valve-spindle, a peripherally-notched plate thereon, a knob or hand-wheel provided with downwardly-projecting pins, concealed fastenings for said pins, and means to connect the pins and plates.

2. A valve-spindle, a plate, a transverse pin connecting the spindle and plate, said plate provided with peripheral notches, and a knob provided with downwardly-projecting pins, concealed transverse fastenings for said pins, said pins engaging the notches in the plate, and means to connect the pins and plate.

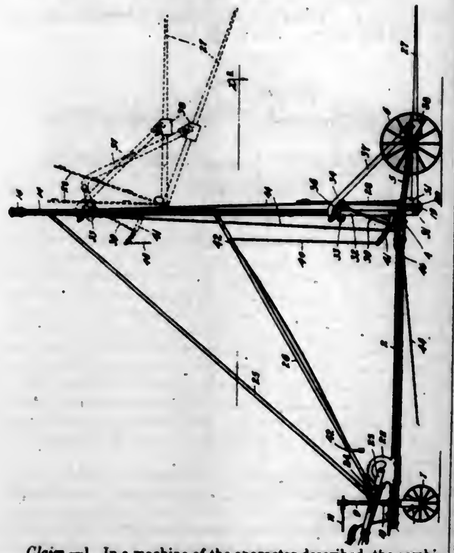
3. A valve-spindle, having a flanged end, a valve-disk recessed to receive such flanged end and provided with a packed face, a plate applied to the flanged end of the spindle next the disk and having otches in its edge, pins having one of their ends secured and concealed within the disk independently of said packed face, and their other ends projecting rearwardly from the back of said disk through the notches in the said plate, and means applied to the pins above the plate to connect said pins and plate.

4. In a valve, a disk having a packed face, a central recess and pins projecting rearwardly from said disk and having one of their ends secured and concealed within said disk independently of said packed face, combined with a valve-spindle having a flange seated in said recess, a loose plate detachably applied to the flange of said spindle and fitted upon said pins, and fastening devices applied to the pins above the plate to connect the pins and plate.

5. In a valve, a reversible disk having a central recess and upwardly-projecting movable pins, combined with a valve-spindle having a flange seated in said recess, a loose plate applied to said spindle and fitted to said pins, and fastening devices to connect the pins and plate.

6. In a valve, a reversible disk having a central recess in each face made with an undercut groove, and movable pins applicable to either recess and the groove therein, combined with a valve-spindle having a flange seated in said recess, a loose plate applied to said spindle and fitted to said pins, and fastening devices to connect the pins and plate.

786,513. HAY GATHERER AND STACKER. EDWARD M. ORTON, Minneapolis, Minn., assignor of one-half to Carrie J. Jameson, Minneapolis, Minn. Filed Nov. 28, 1904. Serial No. 234,508.



Claim.—1. In a machine of the character described, the combination with a truck, and uprights thereon, of a traveler movable on said uprights, a fork hinged to said traveler, a toggle connecting said traveler to said fork and adapted to be moved from one side to the other of a dead-center, means for raising said traveler and said fork, and means for tripping said toggle to tilt said fork and dump the load, substantially as described.

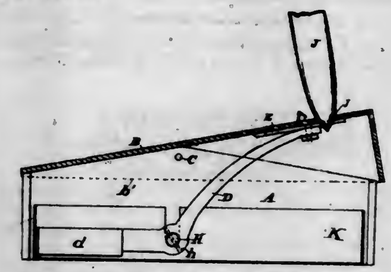
2. In a machine of the character described, the combination with a truck and uprights thereon, of a traveler movable on said uprights, a fork hinged to said traveler, a toggle connecting said fork to said traveler and movable from one side to the other of a dead-center, a spring operative to throw said toggle into a locking position on one side of the dead-center, connections for raising and lowering said traveler and fork, and a connection for tripping said toggle to dump the load, substantially as described.

3. In a machine of the character described, the combination with a truck and uprights thereon, of a wheeled traveler movable on said uprights, a fork hinged to said traveler, a rock-shaft on said traveler, a pair of toggles connecting said rock-shaft to the sides of said fork and movable from one side to the other of a dead-center, a spring acting on said rock-shaft to force said toggles into locked positions, a flexible connection for raising and lowering said traveler, a trip-arm on said rock-shaft, and a flexible connection extending from said trip-arm, substantially as described.

4. In a machine of the character described, the combination with a truck having laterally-spaced forward wheels, a rearwardly-projecting push-pole, and a steering-wheel at the rear of said pole, of a pair of uprights pivotally connected to the forward portion of the truck-frame, a tilting fork movable vertically on said uprights, means for raising and lowering said fork, a lever mounted on the rear portion of said push-pole, a coupling-block pivoted to said lever, and upper and lower stay-bars pivoted at their lower ends to said coupling-block, and pivotally connected, at their upper ends, to said uprights at different points longitudinally thereof, substantially as described.

786,514. CIGAR-CUTTER. JAMES T. PATTERSON, New York, N. Y. Filed Sept. 4, 1903. Serial No. 172,010.

Claim.—1. A cigar-cutter comprising a base, a member pivotally fixed thereon and having a hole or socket for the reception of a cigar end, a knife pivoted upon said member on a pivot substantially parallel with the axis of said hole and having a cutting edge eccentric to its pivot, and means mounted on said base and operated by the rocking of said member to swing the cutting edge of the knife across said hole, and means to automatically return said first member to its normal position.



2. In a cigar-cutter, in combination, a socket member having a hole for the reception of a cigar end, a base upon which said socket member is pivotally fixed, a cutting-blade pivoted upon said socket member on a pivot substantially parallel with the axis of said hole and adapted to swing its cutting edge across said hole, a lever or arm mounted upon a pivot removed from the pivot of said socket member and also pivoted to said base and connected with said cutting-blade to swing it, and means to automatically return said first member to its normal position.

3. A cigar-cutter comprising a base, a socket member mounted to swing about a fixed pivot carried by said base and having an opening or socket for the reception of a cigar end, a cutting-blade pivotally carried upon said swinging member and having an eccentrically-disposed cutting edge, and a lever or arm having a fixed pivot removed from said swinging socket member and its pivot and engaging the cutting-blade to operate it, and means operative through said arm to hold the side face of the cutting-blade against the face of said swinging socket member.

4. A cigar-cutter comprising a base, a socket member mounted to swing about a fixed pivot carried by said base and having an opening or socket for the reception of the cigar end, a cutting-blade pivotally carried upon the said socket member and having an eccentrically-disposed cutting edge, a lever or arm engaging the cutting-blade to operate it and pivoted independently of said swinging member and removed from its pivot, and a counterweight acting upon said arm to return said parts to their normal position.

5. A cigar-cutter comprising a base, a swinging or tilting member carried thereby and having an opening for the reception of the cigar end, a cutting-blade pivoted on said swinging member and adapted to swing across said opening, and an arm or lever having a pivot removed from said swinging member and its pivot and engaging the cutting-blade to operate it, said lever having a counterweighted extension adapted to return the parts to their normal position and to hold the cutting-blade against the swinging member.

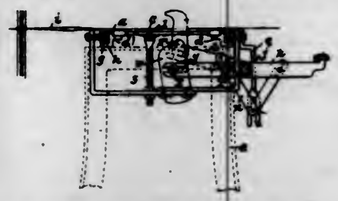
6. A cigar-cutter comprising a box-like casing or base, a cover-plate therefor having a hole for the reception of the cigar end, a pivot for said cover-plate carried by said casing and lying in a plane substantially at right angles to the axis of said hole, a cutting-blade pivoted to the cover-plate and having an eccentrically-disposed cutting edge adapted to swing across said hole, and a lever or arm engaging said cutting-blade to operate it and pivoted independently of the cover-plate and beneath its pivot.

7. A cigar-cutter comprising a box-like casing, a cover-plate therefor mounted to rock and having a hole for the reception of the cigar end, a cutting-blade pivoted beneath the cover-plate, a lever or arm pivoted independently of the cover-plate and beneath its pivot and engaging said cutting-blade, said lever being mounted to permit a slight free lateral movement of its end lengthwise of its axis.

8. A cigar-cutter comprising a cigar-end-receiving or socket member adapted to be reciprocated and having a hole through which the end of the cigar may project, a knife pivoted upon said socket member and adapted to be moved to cut the projecting end of the cigar, a device having a weight normally pressing said socket member upward and also pressing the knife against the said socket member, the weighted device being operated by the movement of said socket member in one direction to move said knife across said hole and to raise said weight.

9. A cigar-cutter comprising a cigar-end-receiving or socket member adapted to be reciprocated and having a hole through which the end of a cigar may project, a knife pivoted upon said socket member and adapted to cut the projecting end of the cigar, and a counterweighted lever pivoted independently of the socket member and engaging said knife to operate it and also pressing said knife against said socket member to thereby return the latter into position for use.

786,515. REEDING-MACHINE. JULES PERNOT and CHARLES HUMMEL, Paterson, N. J. Filed Jan. 10, 1900. Serial No. 240,412.



Claim.—1. The combination of a carriage and a mechanism, arranged therein, for drawing threads through a reed and effecting a relative lateral movement between said reed and carriage comprising coöperative oscillatory parts movable past each other in reverse directions, one of said parts being a dent-space finder and the other the thread-drawing-in device, proper, substantially as described.

2. The combination of a carriage and a mechanism, arranged therein, for drawing threads through a reed and effecting a relative lateral movement between said reed and carriage comprising coöperative oscillatory parts movable past each other in reverse directions, one of said parts being a dent-space finder and the other the thread-drawing-in device, proper, and one of said parts having an inclined cam-surface on one side thereof adapted to wipe against the dents of the reed, substantially as described.

3. The combination of a carriage and a mechanism, arranged therein for drawing threads through a reed and effecting a relative lateral movement between said reed and carriage comprising coöperative oscillatory parts arranged substantially side by side and movable past each other in reverse directions, one of said parts being a dent-space finder and the other the thread-drawing-in device, proper, and one of said parts having an inclined cam-surface on one side thereof adapted to wipe against the dents of the reed, substantially as described.

4. The combination of a carriage and a mechanism, arranged therein, for drawing threads through a reed and effecting a relative lateral movement between said reed and carriage comprising coöperative oscillatory parts arranged substantially side by side and movable past each other in reverse directions, one of said parts being a dent-space finder and the other the thread-drawing-in device, proper, both of said parts having an inclined cam-surface on one side thereof adapted to wipe against the dents of the reed, substantially as described.

5. The combination of a carriage and a mechanism arranged therein, for drawing threads through a reed and effecting a relative lateral movement between said reed and carriage comprising coöperative fulcrumed parts, one of said parts being a dent-space finder and the other the thread-drawing-in device, proper, a two-part toggle connecting said fulcrumed parts on relatively opposite sides of their fulcrums and means for guiding the articulating portion of said toggle rectilineally, substantially as described.

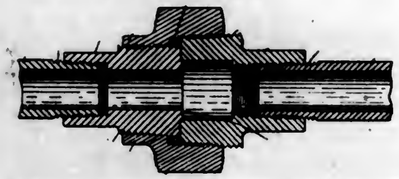
6. The combination of a carriage and a mechanism arranged therein, for drawing threads through a reed and effecting a relative lateral movement between said reed and carriage comprising coöperative fulcrumed parts, one of said parts being a dent-space finder and the other the thread-drawing-in device, proper, a two-part toggle connecting said fulcrumed parts on relatively opposite sides of their fulcrums and detachable means for guiding the articulating portion of said toggle rectilineally, substantially as described.

7. The combination of a carriage, a means, arranged therein, for drawing threads through a reed in a succession of loops or deflections, and a means for holding said threads from accidental withdrawal from the reed also arranged in said carriage, substantially as described.

8. The combination of a carriage, a means, arranged therein, for drawing threads through a reed in a succession of loops or deflections, and a follower or thread-holder arranged in said carriage longitudinally with reference to the reed when operatively assembled with said carriage, substantially as described.

9. The combination of a carriage, a means, arranged therein, for drawing threads through a reed in a succession of loops or deflections, a follower or thread-holder arranged in said carriage longitudinally with reference to the reed when operatively assembled with said carriage and a substantially horizontal rest for said follower, substantially as described.

786,516. PIPE-COUPLING. JOSEPH C. PERLAN, Lynn, Mass. Filed Nov. 30, 1904. Serial No. 234,333.



Claim.—1. A pipe-coupling comprising two tubular coupling members adapted to be disposed end to end, and each having an externally-threaded portion provided with screw-threads of the same pitch, and which decrease in depth as they approach the larger ends thereof, the end of greater diameter of one portion being of less diameter than, and next to the end of smaller diameter of the other portion, means for holding said members from relative rotation in a predetermined relative position, and a coupling-ring having two internally-threaded, tapered portions respectively adapted and disposed to engage and coact with the threads of said members while in in said position, and to be moved simultaneously into tight engagement with the threads of decreasing depth thereof, substantially as described.

2. A pipe-coupling comprising two tubular coupling members adapted to be disposed end to end, and each having an externally-threaded portion provided with screw-threads of the same pitch, and which decrease in depth as they approach the larger ends thereof, the end of greater diameter of one portion being of less diameter than, and next to the end of smaller diameter of the other portion, means for holding said members from relative rotation in a predetermined relative position, and a coupling-ring having two tapered portions provided with threads of decreasing depth respectively adapted and disposed to engage and coact with the threads of said members while in said position, and to have the threads of decreasing depth thereof simultaneously tightly engage the threads of decreasing depth of said members, substantially as described.

786,517. CAR-HAUL. LEWIS J. ROSS, Pittsburg, Pa., assignor to Heyl & Patterson, Pittsburg, Pa., incorporated under the laws of Pennsylvania. Filed July 23, 1904. Serial No. 217,349.

Claim.—1. In a car-haul, the combination of a main track, a branch track leading therefrom adapted to shift the engine before the tipple is reached, and independent hauling mechanism beginning at the point where said branch track begins for positively propelling the cars along said main track toward the tipple.

2. In a car-haul, the combination of a main track, a branch track leading therefrom adapted to shift the engine before the tipple is reached, and a chain haul in said main track adapted to engage the cars and advance the same toward the tipple.

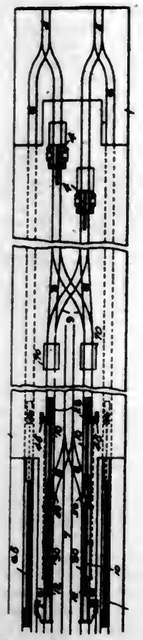
3. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, and means for raising and lowering said chain haul.

4. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, and means for raising and lowering a portion of said chain haul.

5. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, and means for raising and lowering a portion of said chain haul approaching said branch track.

6. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, a movable chain-guide, and means for raising and lowering said chain-guide.

7. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, a chain-guide extending to or adjacent to said branch track, and means for raising and lowering said chain-guide.



8. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, and mechanism for raising and lowering said car-haul operated by the movement of a locomotive or other engine moving along said main track.

9. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, a movable chain-guide, an operating-lever, and connections between said lever and chain-guide for raising and lowering same.

10. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in the main track, a movable chain-guide, swinging arms connected to said chain-guide, and connections between said arms and an operating-lever to raise and lower said arms.

11. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in the main track, a movable chain-guide, weighted swinging arms connected to said chain-guide, and connections between said arms and an operating-lever to raise and lower said arms.

12. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in the main track, a movable chain-guide, swinging arms mounted in the framework and connected to said chain-guide, arms connected to said swinging arms, and connections between said last-named arms and an operating-lever.

13. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in the main track, a movable chain-guide, swinging arms mounted in the framework and connected to said chain-guide, arms connected to said swinging arms, a rod connecting said last-named arms, and means for moving said rod to and fro.

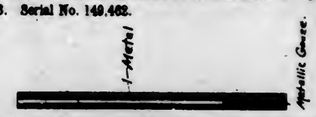
14. In a car-haul, the combination of a main track, a chain haul in said track, a movable chain-guide, a contact-arm in the path of an object moving on said track, and connections between said contact-arm and said chain-guide for raising and lowering same.

15. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, and means for carrying said chain haul beneath said branch track.

16. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track adapted to engage the cars, a chain-guide beneath said branch track engaged by said chain haul.

17. In a car-haul, the combination of a main track, a branch track leading therefrom, a chain haul in said main track, a curved guide below said branch track engaged by said chain haul.

786,518. ELECTRODE FOR ARC-LAMPS AND METHOD OF MAKING SAME. ISAIAH L. ROBERTS, New York, N. Y. Filed Mar. 25, 1903. Serial No. 149,462.



Claim.—1. As a new article of manufacture, an arc-lamp electrode consisting of a metallic tube, inside the same a rigid metallic filler having numerous interstices, and a refractory material filling the interstices, as set forth.

2. As a new article of manufacture, an arc-lamp electrode consisting of a metal tube, a rod of wire-gauze constituting a filler inside the same, and a refractory material filling the interstices of the gauze rod, as set forth.

3. As a new article of manufacture, an arc-lamp electrode consisting of a metal tube, a rod of wire-gauze constituting a filler inside the same, and a substance containing chromium filling the interstices of the rod, as set forth.

4. The method of making arc-lamp electrodes, which consists in inserting in a metallic tube a rigid metallic filler having numerous interstices, and filling the interstices with a pulverized refractory material.

5. The method of making arc-lamp electrodes, which consists in inserting in a metal tube a rod or cylinder of wire-gauze, filling the interstices of the gauze with a pulverized refractory material, and binding together the particles of the refractory material, as set forth.

6. The method of making arc-lamp electrodes, which consists in inserting in a metal tube a rod or cylinder of wire-gauze, filling the interstices of the gauze with a pulverized refractory material and a carbonizable substance, and causing the carbonizable substance to bind together the particles of the refractory material, as set forth.

7. The method of making arc-lamp electrodes, which consists in inserting in a metal tube a rod or cylinder of wire-gauze, filling the interstices of the gauze with a pulverized refractory material, wetting the contents of the tube with a solution of a substance capable of binding together the particles of the refractory material, and then drying the whole, as set forth.

786,519. POUCH-TRANSFERRING MEANS. JOHN ROHRACH, Weston, W. Va. Filed Oct. 27, 1904. Serial No. 230,222.

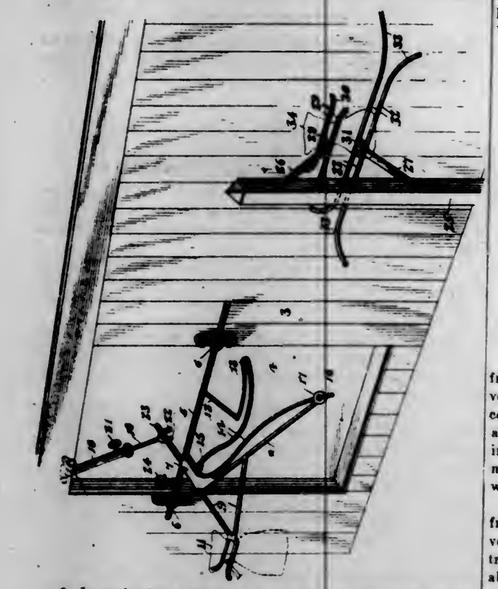
Claim.—1. In mechanism of the class described, the combination with a supporting-bar, of a pouch-receiver carried thereby and comprising yielding jaws that are formed of a strip secured at one end to the bar, having intermediate portions bowed inwardly toward each other, and having their front ends diverging, and means carried by the bar and connected to the rear end of the receiver for supporting the same.

2. In mechanism of the class described, the combination with a supporting-bar, of a pouch-receiver comprising jaws formed of a yielding strip, one end of said strip being secured to the bar, the portion adjacent to said end being doubled into a forwardly-extending bill, and the portion connected to said bill being rearwardly looped into spaced pouch-receiving jaws.

3. In mechanism of the class described, the combination with a supporting-bar having an outstanding bracket, of a pouch-receiver comprising jaws formed of a yielding strip, one end of said strip being secured to the bar, a portion adjacent to said end being doubled into a forwardly and inwardly extending bill, and the portion connected to said bill being rearwardly looped into spaced inwardly-bowed pouch-receiving jaws which engage the bracket at their rear ends.

4. In mechanism of the class described, the combination with a supporting-bar having an outstanding bracket, of a forwardly-extending arm carried by the bracket in spaced relation to the arm, and pouch-receiving jaws located between the arm and bar one of said jaws being rigidly connected to the bar and the other having an engagement with the bracket.

5. In mechanism of the class described, the combination with a supporting-bar having an outstanding bracket, of a forwardly-extending arm carried by the bracket, and a pouch-receiver comprising jaws, the inner of which is rigidly carried by the bar, the outer being capable of yielding and being slidably associated at its front end with the arm.



6. In mechanism of the class described, the combination with a supporting-bar, of a forwardly-exending arm having connections with the supporting-bar and provided at its front end with an eye, and pouch-receiving jaws disposed between the bar and arm, the inner of said jaws being secured to the bar, the outer being of a yielding nature, inwardly bowed and having a free end slidably engaging in the eye.

7. In mechanism of the class described, the combination with a supporting-bar, of an outstanding bracket carried thereby and consisting of a body portion, rearwardly-extending pouch-supporting fingers, angular brace-rods connecting the same and the bracket, a forwardly-projecting arm carried by the bracket, and pouch-receiving jaws disposed between the arm and supporting-rod and connected with the bracket.

8. In mechanism of the class described, the combination with a swinging pouch-receiver having a handle portion, of a suspended positioning device hung from its upper end having means at its lower free end for engaging the handle portion of the receiver to hold said receiver in operative position.

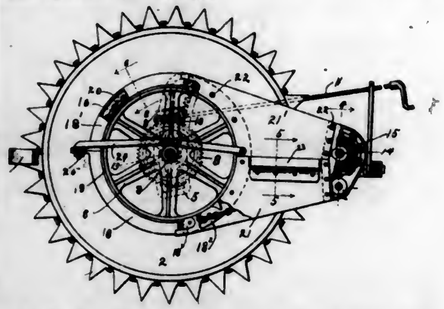
9. In mechanism of the class described, the combination with a swinging pouch-receiver having a handle portion, of an extensible positioning device having means for engaging the handle portion to hold the receiver in operative position.

10. In mechanism of the class described, the combination with a swinging pouch-receiver, of a positioning device comprising slidably-telescoped sections, means for pivotally securing the upper section to a car, and a stirrup portion carried by the lower section and arranged to engage the pouch-receiver to hold the same in operative position.

11. In mechanism of the class described, the combination with pouch-transferring means, of devices for securing the same to a car, and track-side transferring means coacting therewith, said latter means comprising an upright standard, upper and lower brackets secured to the standard and inclining toward each other, and spaced rods fastened transversely to the free ends of the brackets and extending beyond the opposite sides of the same, said rods having outturned free terminals.

786,520. SHIELD FOR RICE-HARVESTERS. Frank A. Ryther. Chicago, Ill. Filed May 20, 1904. Serial No. 208,967.

Claim.—1. In a harvester, in combination, a supporting-wheel, a main frame vertically adjustable relative thereto, means for effecting such vertical adjustment, a driving sprocket-wheel in effect integral and concentric with the said supporting-wheel, a sprocket-wheel suitably mounted in bearings upon the main frame, and a shield inclosing both the said sprocket-wheels, the said shield being provided with a pivotal bearing in connection with each sprocket-wheel, substantially as described.



2. In a harvester, in combination, a supporting-wheel, a main frame vertically adjustable relative thereto, means for effecting such vertical adjustment, a driving sprocket-wheel in effect integral and concentric with the said supporting-wheel, a sprocket-wheel suitably mounted in bearings upon the main frame and a shield inclosing both of said sprocket-wheels said shield being longitudinally movable to a limited extent with respect to the line of centers of said wheels, substantially as described.

3. In a harvester, in combination, a supporting-wheel, a main frame vertically adjustable relative thereto, means for effecting such vertical adjustment, a driving sprocket-wheel secured to and concentric with the said supporting-wheel, a cross-shaft mounted in suitable bearings on the said main frame, a sprocket-wheel secured to said cross-shaft, a chain connecting said sprocket-wheels and a shield one end of which engages and is supported by the said driving sprocket-wheel the other end thereof being supported upon the said cross-shaft, substantially as described.

4. In a harvester, in combination, a supporting-wheel, a main frame vertically adjustable relative thereto, means for effecting such vertical adjustment, a driving sprocket-wheel secured to and concentric with the said supporting-wheel, a cross-shaft mounted in suitable bearings on the said main frame, a sprocket-wheel secured to said cross-shaft, a chain connecting said sprocket-wheels and a shield one end of which engages and is supported by said driving sprocket-wheel the other end thereof being provided with a longitudinally-extending slot which engages and is supported by the said cross-shaft, substantially as described.

786,521. RECEPTACLE-CLOSURE. Conrad Schroeder, Milwaukee, Wis. Filed Nov. 5, 1904. Serial No. 231,533.



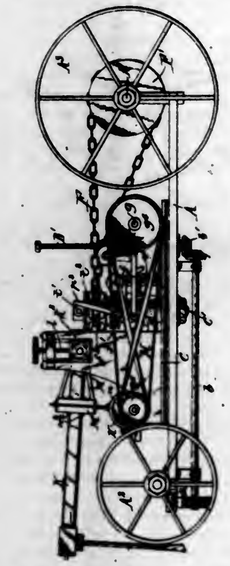
Claim.—1. In a receptacle-closure, the combination of a gasket fitting over the top edge of the receptacle-mouth and provided with an opening, a cup-shaped device fitting in the opening of the gasket and extending into the mouth of the receptacle and contacting with the inner wall of the receptacle-mouth, the wall of said cup-shaped device which extends into the mouth of the receptacle being provided with a recess to receive the inner edge of the gasket, and means for holding the gasket and cup-shaped device in place.

2. In a receptacle-closure, the combination of a gasket fitting over the top edge of the receptacle-mouth and provided with an opening, a cup-shaped device fitting in the opening of the gasket and extending into the mouth of the receptacle and contacting with the inner wall of the receptacle-mouth, the wall of said cup-shaped device which extends into the mouth of the receptacle being provided with a recess to receive the inner edge of the gasket, and also provided with an outwardly-extending portion fitting upon the gasket, and means for holding the gasket and cup-shaped device in place.

3. In a receptacle-closure, the combination of a gasket fitting over the top edge of the receptacle-mouth and provided with an opening, a cup-shaped device fitting in the opening of the gasket and contacting with the inner wall of the receptacle-mouth, and provided with a recess to receive the inner edge of the gasket, and a cap fitting over the mouth of the receptacle and holding the gasket and cup-shaped device in place.

4. In a receptacle-closure, the combination with a gasket fitting over the top edge of the mouth of a receptacle and provided with an opening, of a cup-shaped device adapted to be forced into the receptacle-mouth and held in wedging contact with the inner wall of the receptacle-mouth, the wall of said cup-shaped device which extends into the mouth of the receptacle being provided with a recess to receive the inner edge of the gasket.

786,522. ASPHALT-CUTTING MACHINE. Henry Schumacher, Buffalo, N. Y. Filed Oct. 14, 1904. Serial No. 228,484.



Claim.—1. In a machine of the character described, the combination of a truck or support, a turn-table arranged thereon, a helve mounted on the turn-table, a cutter carried by the helve, and means for vibrating the helve, substantially as set forth.

2. In a machine of the character described, the combination of a truck, a turn-table arranged thereon, a helve mounted on the turn-table, a cutter carried by the helve, means for vibrating the helve, and automatic means for simultaneously operating the turn-table and propelling the truck, substantially as set forth.

3. In a machine of the character described, the combination of a truck, a turn-table arranged thereon, a helve mounted on the turn-table and carrying a cutter, means for actuating the turn-table, and propelling means for the truck constructed and timed to substantially compensate for the curvilinear movement of the cutter, substantially as set forth.

4. In a machine of the character described, the combination of a truck, a turn-table journaled thereon, a helve mounted on the turn-table and carrying a cutter, a motor, gearing for turning said table interposed between the same and the motor, gearing for propelling the truck interposed between the motor and an axle of the truck, and means for connecting and disconnecting the last-named gearing from said axle, substantially as set forth.

5. In a machine of the character described, the combination of a truck, a turn-table journaled thereon, a helve mounted on the turn-table and carrying a cutter, a motor carried by the turn-table, actuating shafts for the turn-table and the helve both mounted on the turn-table, and power-transmitting means connecting said shafts with the motor, substantially as set forth.

6. In a machine of the character described, the combination of a truck, a turn-table journaled thereon, a helve mounted on the turn-table and carrying a cutter, a motor carried by the turn-table, actuating-shafts for the turn-table and the helve both mounted on the turn-table, power-transmitting means connecting said shafts with the motor, a third shaft driven by the motor and also mounted on the turn-table, and gearing connecting the last-named shaft with an axle of the truck, substantially as set forth.

7. In a machine of the character described, the combination of a truck and a motor mounted thereon, of worm-gearing interposed between the motor and an axle of the truck, for slowly propelling the truck, a turn-table journaled on the truck, worm-gearing interposed between the motor and the turn-table, a movable tool mounted on the turn-table, and means for actuating the tool, substantially as set forth.

8. In a machine of the character described, the combination of a truck or support carrying a fixed gear-wheel, a turn-table journaled on the truck, a shaft carried by the turn-table and having a gear-wheel which meshes with said fixed wheel, means for turning said shaft, and a movable tool mounted on the turn-table, substantially as set forth.

9. In a machine of the character described, the combination of a truck having a fixed stud or post, a gear-wheel secured to said stud, a turn-table journaled on the truck, a shaft mounted on the turn-table and having a gear-wheel which meshes with said fixed gear-wheel, a helve supported on the turn-table and carrying a tool, an actuating wheel journaled on said stud, power-transmitting means connecting one of the axles of the truck with said actuating-wheel, and driving means for the actuating-wheel, substantially as set forth.

10. In a machine of the character described, the combination of a truck or support having a stud or post, a worm-sector secured to said post, a turn-table journaled on the post, a shaft mounted on the turn-table and having a worm which meshes with said sector, a movable tool carried by the turn-table, and means for actuating the tool, substantially as set forth.

11. In a machine of the character described, the combination of a truck or support having standards, a sleeve or socket pivoted to said standards, a helve seated in said sleeve and capable of angular adjustment therein, and a tool carried by the helve, substantially as set forth.

12. In a machine of the character described, the combination of a truck or support having standards, a sleeve or socket pivoted to said standards, a helve seated in said sleeve and capable of angular adjustment therein, clamping-bolts for adjustably securing the helve in the sleeve, and a tool carried by the helve, substantially as set forth.

13. In a machine of the character described, the combination of a truck or support having standards, a helve pivoted to said standards by a vertically-movable fulcrum, means for adjusting said fulcrum, a tool carried by the helve, and actuating means for the helve, substantially as set forth.

14. In a machine of the character described, the combination of a truck or support having standards, vertically-movable bearing-boxes guided in the standards, adjusting-screws connected with said bearing and each provided with a gear-wheel, an idler connecting said gear-wheels, a helve having trunnions journaled in said bearing-boxes, and a tool carried by the helve, substantially as set forth.

15. In a machine of the character described, the combination of a truck or support having standards, a helve pivoted to the standards and carrying a tool, a driving-shaft carrying a sliding clutch member, and an actuating-eccentric for the helve mounted on said shaft, the eccentric and the clutch member being provided on their opposing sides with clutch-teeth arranged near the periphery thereof, substantially as set forth.

15. In a machine of the character described, the combination of a truck or support having standards, a helve pivoted to the standards and carrying a tool, a driving-shaft carrying an eccentric capable of radial adjustment thereon, and a strap surrounding the eccentric and connected with the helve, substantially as set forth.

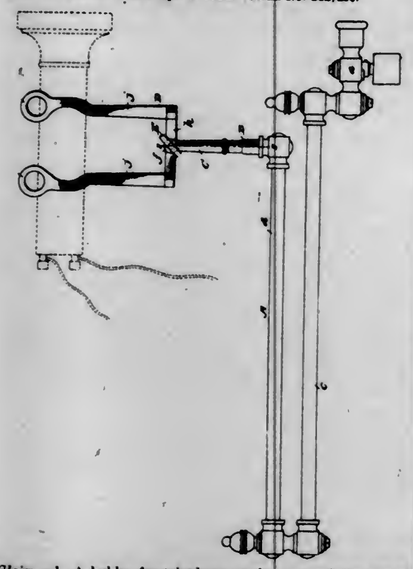
17. In a machine of the character described, the combination of a truck or support having standards, a helve pivoted to the standards and carrying a tool, a driving-shaft having a head, an actuating-eccentric for the helve carried by said head and capable of radial adjustment thereon, and a clutch member rotating with the shaft and adapted to engage with the eccentric, substantially as set forth.

18. In a machine of the character described, the combination of a truck or support having standards, a helve pivoted to the standards and carrying a tool, a driving-shaft having a head, an actuating-ec-

centric for the helve having a radial slot through which the shaft passes, and means for clamping the eccentric to said head, substantially as set forth.

19. In a machine of the character described, the combination of a truck or support having standards, a helve pivoted to the standards and carrying a tool, a driving-shaft having a loose head, an actuating-eccentric for the helve provided with a radial slot through which said shaft passes, a clamping-bolt passing through the head and a slot in the eccentric, and a sliding clutch member carried by the shaft and adapted to interlock with the eccentric, substantially as set forth.

786,523. TELEPHONE-RECEIVER HOLDER. KATE C. SEAMAN, New Orleans, La. Filed Apr. 9, 1904. Serial No. 202,426.



Claim.—1. A holder for telephone-receivers, consisting essentially of a swinging bracket composed of two hinged members, a support arranged on the outer end of the outer bracket member and having an aperture in its upper end, a post loosely mounted on the upper end of the support and having a stud at its lower end journaled in the aperture of the support, and also having an enlargement on the lower end of the stud, a vertically-swinging cradle connected to the said post, and means for adjustably fixing the cradle with respect to the post.

2. In a holder for telephone-receivers, the combination of a bracket having inner and outer swinging members, and also having an upright threaded nipple on the outer member, an interiorly-threaded tube arranged on said nipple, a post arranged on and pivotally connected to the said tube whereby it is adapted to turn on its axis, and a cradle arranged to swing vertically on the post, means connecting the post and the cradle, and means at the upper end of the cradle for receiving and holding a telephone-receiver.

786,524. GOLF-BALL. FRANK A. SEIBERLING, Akron, Ohio. Filed Jan. 31, 1901. Serial No. 45,422.



Claim.—1. A golf-ball comprising a core of caoutchouc and an inclosing shell of gutta-percha, substantially as described.

2. A golf-ball comprising a core composed of thin strips of caoutchouc wound under tension, and a gutta-percha inclosing shell therefor, substantially as described.

3. A golf-ball comprising a core composed of thin strips of caoutchouc wound under tension, and a gutta-percha inclosing shell of such thickness as to make the ball resilient under heavy blows, and practically non-resilient under light blows, substantially as described.

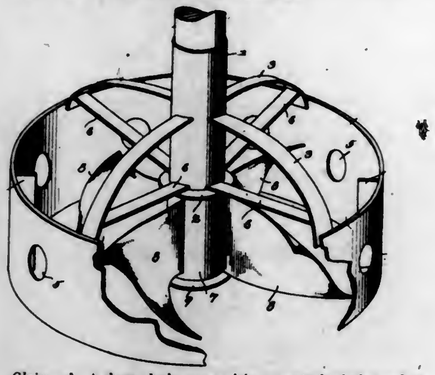
4. A playing-ball comprising a shell and a solid body of spherical form, said body consisting of windings in miscellaneous directions of thin and highly-tensioned sheet-caoutchouc; said windings adhering to one another.

5. In a playing-ball, the combination with a core consisting of adherent windings of highly-tensioned caoutchouc, of a shell surrounding said core, said shell being thinner and of harder material than said core, substantially as described.

6. A playing-ball comprising a core of caouthouc and an inclosing shell, substantially as described.

7. A golf-ball comprising a core of caoutchouc and an inclosing shell of relatively hard material, substantially as described.

786,525. CHURN-DASHER. SILAS C. SIMONS, Rivingstar, Tex., assignor of one-half to Samuel H. Clark and Louther M. Clark, Rivingstar, Tex. Filed Nov. 28, 1904. Serial No. 234,663.



Claim.—1. A churn-dasher comprising a central tubular socket, substantially radial arms extending from the socket downwardly, an upright rim hung from the outer ends of the arms and provided with an annular series of openings, substantially radial braces extending from the socket to the outer end portion of the arms, an annular flange upon the socket below the braces, a propeller-wheel having its hub rotatably embracing the lower portion of the socket, a removable annular flange upon the lower end of the socket, the hub being held against endwise movement between the two flanges, the socket being open at its upper end for the reception of a dasher-staff, and upstanding breaker-blades carried by the inner side of the rim.

2. A churn-dasher comprising a tubular socket for the reception of a dasher-staff, an intermediate annular flange upon the socket, a propeller-wheel having its hub rotatably embracing the socket at the under side of the flange, and a cap removably applied to the lower end of the socket and projected around the periphery thereof with the hub of the propeller-wheel supported upon the projected portion of the cap.

3. A churn-dasher comprising a tubular socket which is open at opposite ends and capable of receiving a dasher-staff within one end thereof, a propeller-wheel having its hub rotatably embracing the socket, and a detachable cap applied to the other end of the socket and projected around the periphery thereof with the hub of the propeller-wheel supported upon the projected portion of the cap.

4. A churn-dasher comprising a tubular socket for the reception of a dasher-staff, a propeller-wheel having its hub rotatably embracing the socket, a cap detachably applied to one end of the socket and projected around the periphery thereof with the hub of the propeller-wheel supported upon the projected portion of the cap, and a fastening piercing the cap and entering the socket for engagement with the dasher-staff.

5. A churn-dasher comprising a tubular open-ended socket, a dasher-staff entering one end of the socket, a propeller-wheel having its hub rotatably embracing the socket, a removable cap applied to the other end of the socket and projected around the periphery thereof with the hub of the propeller-wheel supported upon the projected portion of the cap, and a fastening carried by the cap and piercing the dasher-staff to detachably retain the cap in place.

786,526. COMBINED FIRE-SCREEN AND TABLE. VINCENT P. SOLLOM, San Francisco, Cal. Filed Apr. 28, 1904. Serial No. 206,414.



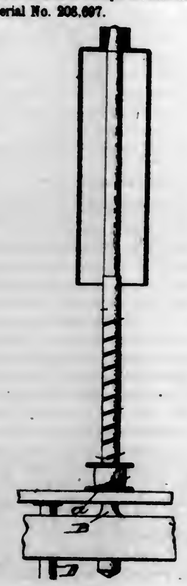
Claim.—1. A combined screen and table, comprising end standards, a permanent structure connecting the tops of said standards together, said structure having cavities in each end thereof, a leaf hinged to the standards below said structure, removable leaf-supporting bars supported in said cavities and holes in the standards for receiving said bars and holding them beneath the raised leaf.

2. In combination with end standards, a cross-bar connecting said standards, and having cavities registering with holes in the end standards, a leaf hinged between said standards, a diagonal hole through each standard below the plane of the hinge, and bars normally concealed in said cavities, but adapted to be removed therefrom, and inserted through said diagonal holes beneath the raised leaf.

786,527. MANUFACTURE OF A SUBSTITUTE FOR CAOUTCHOUC. HEINRICH SPATZ, Schöneberg, Germany. Filed Aug. 18, 1904. Serial No. 221,293.

Claim.—A process for preparing a substitute for caoutchouc consisting in dissolving amber colophonium in castor-oil, subjecting the solution to the action of sulfur while at a high temperature, passing ozone through the solution and finally treating the mass with chlorid of sulfur in the presence of a solvent and calcium carbonate, essentially as described.

786,528. COP-TUBE FOR SPINNING. HARRY SPENCE, Sanford, Me., assignor of one-fourth to George B. Goodall, one-fourth to Louis B. Goodall, and one-fourth to Joseph Hollinrake, Sanford, Me. Filed May 19, 1904. Serial No. 208,697.



Claim.—1. A cop-tube having a spiral slot extending between and terminating within the ends of the barrel of the tube.

2. A cop-tube comprising a barrel and a head, the barrel having a spiral slot between and terminating within the head and the outer end of the tube.

3. The combination with a spindle, of a cop-tube having a spiral slot the ends of which terminate within the ends of the barrel of said tube.

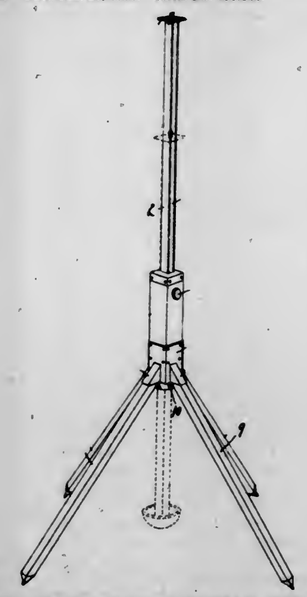
786,529. DEVICE FOR APPLYING REMEDIES. DESIDERIUS A. STAPLER, San Francisco, Cal. Filed Apr. 18, 1904. Serial No. 203,065.



Claim.—1. A device for the application of remedies said device comprising a liquid-containing expansible receiver and a means contained therein and which when ruptured mingles with the liquid to generate a gas and inflate the receiver, said receiver having a neck portion serving as a holder for an exposed medicament.

2. A device for applying remedies and medicaments, said device comprising an expansible envelop adapted to contain a liquid and a capsule which when broken generates a gas, an exterior cup-shaped receptacle carried at one end of the envelop and adapted to contain the medicament to be applied.

786,530. CAMERA-STAND. EDWARD A. STRETZER, Wyandotte, Mich. Filed Jan. 27, 1904. Serial No. 190,822.



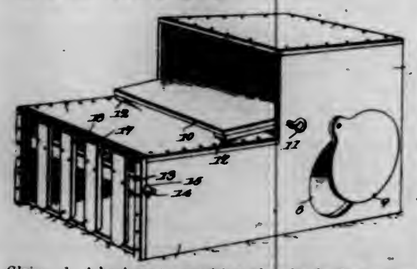
Claim.—1. In a camera-stand, the combination of a body portion, a standard vertically movable therethrough and carrying means for supporting a camera, a plurality of legs hinged to the body portion and adapted to swing outwardly, there being in the body portion an embracing and supporting housing for each leg when extended, and means for securing said standard against vertical movement within the body.

2. In a stand, the combination of the body portion, a standard vertically movable therethrough, means for locking said standard against movement, legs hinged to the lower end of the body portion to swing inwardly against said standard and to project outwardly to brace the stand, a cup-like disk secured to the lower end of said standard adapted to cover and confine the lower ends of said legs when lying against the standard.

3. In a stand, the combination of a body portion, a standard vertically movable therethrough, means for locking said standard against movement, a metal sheath embracing the lower end of the body, and having inclined recesses formed therein, legs hinged to the body within said recesses to swing outwardly therein, whereby said legs are supported and confined, and means carried by the lower end of the standard for securing said legs when lying thereagainst.

4. In a stand, the combination of a body portion, a standard vertically movable in the body portion, legs hinged to the lower end of the body which is provided with inclined sockets in which the legs are hinged and into which said legs are adapted to swing, and means upon the lower end of the standard for spreading said legs outwardly into said sockets, when said standard is raised.

786,531. **HEN'S NEST.** ALBERT L. STOUT, Jenkins, Okla. Filed Apr. 30, 1904. Serial No. 206,773.



Claim.—1. A hen's nest comprising a housing having entrance and exit doors in one and the same side of the housing, the entrance-door being located above the exit-door and controlled thereby.

2. A hen's nest comprising a housing having entrance and exit doors in one and the same side of the housing, the entrance-door being located above the exit-door and controlled thereby, both of the doors opening outwardly, and the entrance-door constituting a platform upon which fowls may alight prior to entering the housing.

3. A hen's nest having a vertically-tiltable entrance-door, and a vertically-tiltable exit-door, said doors having overlapped portions with the overlapped portion of the entrance-door located in the path of the overlapped portion of the exit-door to open the entrance-door by an opening of the exit-door.

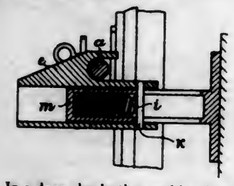
4. A hen's nest having an upper vertically-tiltable entrance-door supported near its lower end, and a vertically-tiltable exit-door located below the entrance-door and having an intermediate hinged support, the upper portion of the exit-door overlapping the lower portion of the entrance-door upon the outer side thereof to automatically open the entrance-door by an opening of the exit-door.

5. A hen's nest having an open front, a cross-bar extending across an intermediate portion of the open front, a vertically-tiltable entrance-door pivotally supported intermediate of the top and bottom thereof at a point above the cross-bar, said cross-bar constituting a support for the entrance-door in its open position, and a vertically-tiltable exit-door pivotally supported intermediate of its top and bottom below the cross-bar with the upper end of the exit-door overlapping the lower end of the entrance-door and capable of contact therewith during an opening of the exit-door to automatically open the entrance-door.

6. A hen's nest comprising a housing having an intermediate partition terminating short of the top of the housing to divide the latter into a front compartment and a rear nest-compartment, an upper vertically-tiltable entrance-door at the front of the housing and a lower vertically-tiltable exit-door disposed beneath the entrance-door and controlling the latter to open the same by an opening of the exit-door.

7. A hen's nest comprising a housing having an open front, an intermediate transverse partition terminated short of the top of the housing and dividing the latter into a front compartment and a rear nest-compartment, the nest-compartment being provided with a door-controlled opening to give access thereto, a transverse ledge within the bottom of the open front and another transverse ledge within the top of said open front, a cross-bar extending across an intermediate portion of the open front, an upper vertically-tiltable entrance-door hinged intermediately upon the housing above the cross-bar and projected below the latter at the inner side thereof, the upper ledge constituting a stop to limit inward movement of the door and the cross-bar forming a support for the door in the open position thereof, and an exit-door hinged intermediately within the lower portion of the open front with its top overlapping the front side of the lower end of the entrance-door, the lower ledge forming a stop to limit the inward swing of the exit-door.

786,532. **DOOR-CHECK.** FRIEDRICH STUMPF, Munich, Germany. Filed July 6, 1903. Serial No. 164,299.



Claim.—1. In a door-check, the combination with a latch, and means for operating said latch, of a movable catch for said latch, and yielding means operating upon the catch for holding the same in engagement with the latch.

2. In a door-check, the combination with a latch pivotally mounted, and means for operating said latch from without, of a catch comprising a hook, and yielding means for holding the hook in engagement with the latch.

3. In a door-check, the combination with a latch pivotally mounted, and means for operating said latch from without, of a guide-piece secured to the door-jamb, a hook slidably mounted on the guide and adapted to engage the latch, and a spring tending to hold the hook in engagement with the latch when the door is partially ajar.

4. In a door-check, the combination with a latch pivotally mounted on the door, and means for operating said latch from without, of a slotted guide-piece mounted on the door-jamb, a sleeve-hook slidably mounted on the guide-piece, a pin carried by the hook and traveling in the slot, and a spring bearing against the pin and the guide, whereby an unauthorized attempt to open the door from without will compress the spring and hold the hook in engagement with the latch.

5. In a door-check, the combination with a latch, and a pin fixed thereto at an angle and journaled in the door, the end of said pin being accessible from without and adapted for the reception of a key, of a guide-piece mounted on the door-jamb, a hook slidably mounted on the guide-piece, and a spring abutting against the hook and a fixed support, whereby an unauthorized attempt to open the door from without will cause the spring to hold the hook in engagement with the latch.

6. In a door-check, the combination with a latch and a pin fixed thereto at right angles and journaled in the door, the end of said pin being accessible from without and squared for the reception of a key, of a slotted guide-piece mounted on the door-jamb, a hooked sleeve slidably mounted on the guide-piece, a pin carried by the hook and traveling in the slot, and a spring bearing against the pin and the end of the guide, whereby an unauthorized attempt to open the door from without will compress the spring and hold the hook in engagement with the latch.

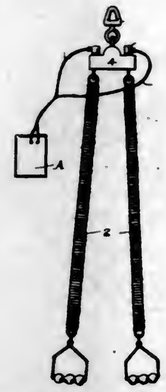
786,533. **ELECTRIC EXERCISING APPLIANCE.** WESLEY SUTTON and SAMUEL LORD, Liverpool, and WILLIAM S. KERR, Southport, England. Filed July 11, 1904. Serial No. 216,126.

Claim.—1. In an exerciser, in combination, a pair of handles, spiral springs having one end fixed and the other end attached to said handles, said springs being insulated from each other, a supply of electricity and means for connecting said supply with the springs, said springs being also electrically connected with the handles.

2. In an exerciser, in combination: a pair of handles, two spiral springs adapted to be respectively electrically connected to said handles, an insulating-block provided with a shackle and two insulated terminals, a supply of electricity, and means adapted to connect said supply to said terminals; substantially as described.

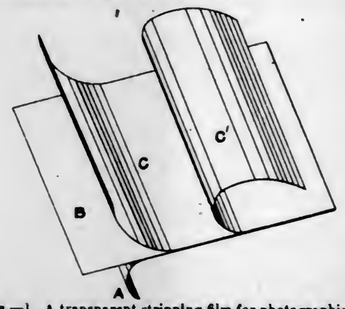
3. In an exerciser, in combination with elastic members and a supply of electricity; two handles consisting of two parts pressed apart by springs, one part of each handle being provided with a terminal adapted to be connected to the said supply and to make electrical contact with the handle when the two parts are pressed together; substantially as described.

4. In an exerciser, in combination with the handle, the elastic members and a supply of electricity; two terminals electrically connected to said supply, two contact-pieces adapted to make contact with said terminals but held away from contact with said terminals by springs, connections between said contacts and the handles in which tension is produced, when the elastic members are strained by said handles, sufficiently to overcome said springs; substantially as described.



5. In an exerciser, in combination; the two-part handles, the elastic and electrically conducting members connected to the insulated terminal in one part of said handles, an electrical supply connected to a pair of insulated terminals, a pair of spring-contacts connected to and operated by the said elastic members; substantially as described.

786,534. **TRANSPARENT-PAPER STRIPPING-FILM FOR PHOTOGRAPHS.** JOHN B. THORNTON and CHARLES F. S. ROTHWELL, Manchester, England, assignors to John Owden O'Brien, Manchester, England. Filed Mar. 6, 1900. Serial No. 7,542.



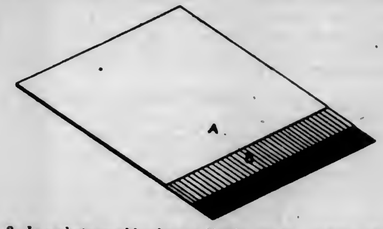
Claim.—1. A transparent stripping-film for photographic cameras comprising in its construction a transparent smooth paper base, a layer of a transparent stripping medium coated upon the paper, a layer of transparent insoluble material coated upon the stripping medium, and a layer of transparent sensitive emulsion coated over the stripping medium, substantially as described.

2. A photographic stripping-film comprising in its construction, a base of transparent paper, a stripping medium of a salt of fatty and resin acid dissolved and dried, and a layer of sensitive emulsion, substantially as described.

3. A photographic stripping-film comprising in its construction, a base of transparent paper, a stripping medium of an aluminium salt of a fatty and resin acid, a strengthening layer of insoluble gelatin, and a coating of sensitive emulsion, substantially as described.

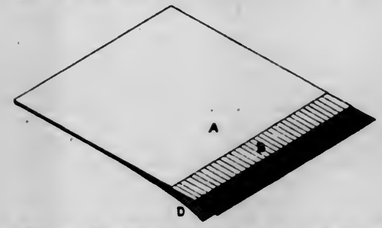
786,535. **PHOTOGRAPHIC PLATE OR FILM FOR DAYLIGHT DEVELOPMENT AND FIXING.** JOHN B. THORNTON and CHARLES F. S. ROTHWELL, Manchester, England, assignors to John Owden O'Brien, Manchester, England. Filed Mar. 20, 1900. Serial No. 9,463.

Claim.—1. In a photographic plate or film for use in a camera the combination with the base-plate or film of a sensitive coating on one side, a developing medium in a dry form applied to the other side, and a protective covering applied over the developing medium substantially as described.



2. In a photographic plate or film for use in a camera, the combination with the base-plate or film of a sensitive coating on one side, a developing and fixing medium in a dry form applied to the other side, and a protective covering applied over the developing and fixing medium substantially as described.

786,536. **SELF-DEVELOPING SENSITIVE PAPER.** JOHN B. THORNTON and CHARLES F. S. ROTHWELL, Manchester, England, assignors to John Owden O'Brien, Manchester, England. Filed Mar. 20, 1900. Serial No. 9,465.



Claim.—1. In a sensitive photographic paper for the production of prints from negatives, the combination with the paper base, the sensitive layer on one side thereof, and developing, fixing or toning chemical medium in a dry form upon the other side thereof, of a layer of waterproofing material interposed between the sensitive medium and the chemical medium, substantially as and for the purpose described

2. In a sensitive photographic paper for the production of prints from negatives, the combination with the sensitive paper of a layer of waterproofing material, spread upon the back to isolate the chemical medium from the paper and a layer of chemical medium for developing, fixing or toning in a dry form spread upon the waterproofing material, substantially as and for the purpose described.

3. In a sensitive photographic paper for the production of prints from negatives, the combination with the sensitive paper, of a layer of waterproofing material, a chemical medium for developing, fixing or toning in a dry form spread upon the back, and an air-tight covering solubly attached, to cover and protect the same substantially as described.

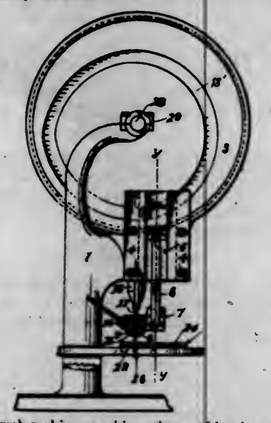
786,537. **BRUSH-MAKING MACHINE.** ANTHONY VANDERVELD, Grand Rapids, Mich. Filed Apr. 25, 1904. Serial No. 204,582.

Claim.—1. In a brush-making machine, the combination of a boring-drill, means for holding and setting bristles in tufts, mechanism for presenting the drill and boring a hole in a brush-back and automatically removing the said drill as soon as the hole is bored, and mechanism for advancing the bristle-setting device to the position previously occupied by the drill and setting the tufts of bristles in the hole bored by the drill.

2. In a brush-making machine, the combination of a boring-drill supported on a swinging arm having both a reciprocating and swinging movement mechanism for presenting the drill to a brush-back to bore a hole in the latter and for lifting the drill from the hole and positively engaging the swinging arm to move the drill away from the hole, a bristle-setting device having a reciprocating motion, and mechanism for advancing the bristle-setting device to the position previously occupied by the drill and setting a tuft of bristles in the hole made by the drill.

3. The combination of a boring-drill, a swinging arm supporting the said drill, a reciprocating sliding block to which said drill-

arm is pivoted, a cam, giving a reciprocating motion to the said slide and arm, mechanism for swinging the drill into position to bore a hole in the brush-back and for swinging the said drill away therefrom when the hole is completed, a bristle-setting device having a reciprocating motion and mechanism for moving the said device into position to set a tuft of bristles in the brush-back as soon as the hole has been completed by the drill.



4. In a brush-making machine, the combination of a reciprocating swinging drill having rotating mechanism directly engaging the same, a bristle holding and setting device, an adjustable support for a brush-back, mechanism for swinging the drill over the brush-back and boring a hole therein and for moving the drill away from the back after the hole is completed, and mechanism for operating the bristle holding and setting device to bring the latter into the position previously occupied by the drill with respect to the back, said drill and bristle-setting devices operating over the same side of the brush-back.

5. The combination of a boring-drill, a swinging arm supporting the said drill, a reciprocating block to which the said arm is pivoted, a cam giving the reciprocating motion to the sliding block, means for swinging the drill into position to drill the hole into the brush-back and for removing the same therefrom as soon as the hole has been bored, a bristle-setting device and means for moving the said bristle-setting device and setting a tuft of bristles in each hole bored by the drill as soon as said drill has been removed, substantially as described.

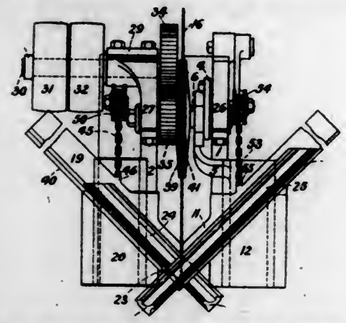
6. The combination of a boring-drill and a bristle-setting device, suitable means for giving a rotary motion to the said drill, a swinging arm supporting the said drill, a slide to which the said swinging arm is pivoted, a cam for giving a reciprocating motion to the slide and arm, an incline upon the said swinging arm bearing upon a roller, means for holding the said swinging arm in contact with the said roller, whereby the drill is swung to and from the brush-back to be bored, a bristle-setting device having a reciprocating motion, a cam for giving a reciprocating motion to the bristle-setting device, adjusted so as to set the tuft of bristles in the hole bored by the drill as soon as the said drill is removed therefrom, whereby the said block is bored and set with bristles alternately, substantially as described.

786,538. MITER-CUTTING MACHINE. ROBERT WALES, Dunedin, New Zealand. Filed Sept. 15, 1903. Serial No. 173,341.

Claim.—1. In a miter-cutting machine, a support for one molding, a support for another molding at an angle with said first support, said supports having their supporting-surfaces arranged in different radial planes, passing through the axis of a circular saw, said saw being arranged to operate in a plane perpendicular to said supporting-surfaces at their intersection.

2. In a miter-cutting machine, a support for one mold ng, a support for another molding at an angle with said first support, said supports having their supporting-surfaces arranged in different radial planes, passing through the axis of a circular saw, said saw being arranged to operate in a plane perpendicular to said supporting-surfaces at their intersection and guiding means.

3. In a miter-cutting machine, a circular saw, a support for one molding at an angle with the plane of said saw having its supporting-surface in a radial plane passing through the axis of the spindle of said saw, and a support for another molding at an angle with said first support and on the other side of the plane of said saw with its supporting-surface in a different radial plane also passing through the axis of said spindle, substantially as and for the purposes set forth.



4. In a miter-cutting machine, a circular saw, a support for one molding at an angle with the plane of said saw having its supporting-surface in a radial plane passing through the axis of the spindle of said saw, and a circularly-adjustable support for another molding at an angle with said first support and on the other side of the plane of said saw with its supporting-surface in a different radial plane also passing through the axis of said spindle substantially as and for the purposes set forth.

5. In a miter-cutting machine a circular saw, a support for one molding at an angle with the plane of said saw, a support for another molding arranged at an angle with the first and with said plane, said supports having their supporting-surfaces arranged in different radial planes passing through the axis of the saw-spindle, whereby the end of one molding may be made to cross over the end of the other, said saw being arranged to operate in a plane perpendicularly to the supporting-surfaces at their intersections, substantially as and for the purposes set forth.

6. In a miter-cutting machine a circular saw a support for one molding at an angle with the plane of said saw, a support for another molding arranged at an angle with the first and with said plane, said supports having their supporting-surfaces arranged in different radial planes passing through the axis of the saw-spindle, whereby the end of one molding may be made to cross over the end of the other, said saw being arranged to operate in a plane perpendicularly to the supporting-surfaces at their intersections, one of said supports being adjustable in relation to the other to vary the distance between their supporting-surfaces substantially as and for the purposes set forth.

7. In a miter-cutting machine a circular saw, a support for one molding at an angle with the plane of said saw having its supporting-surface in a radial plane passing through the axis of the spindle of said saw, a support for another molding at an angle with said first support and on the other side of the plane of said saw with its supporting-surface in a different radial plane also passing through the axis of said spindle, and guiding means for said supports parallel to the plane of said saw substantially as and for the purposes set forth.

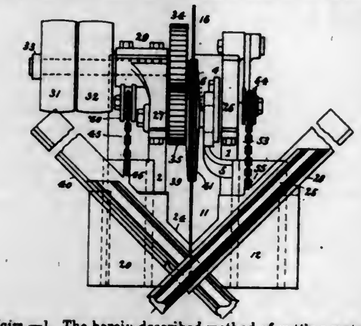
8. In a miter-cutting machine, a circular saw, a support for one molding at an angle with the plane of said saw, having its supporting-surface in a radial plane passing through the axis of the spindle of said saw, a circularly-adjustable support for another molding at an angle with said first support and on the other side of the plane of said saw with its supporting-surface in a different radial plane also passing through the axis of said spindle, and guiding means for said supports parallel to the plane of said saw, substantially as and for the purposes set forth.

9. In a miter-cutting machine a circular saw, a support for one molding at an angle with the plane of said saw, a support for another molding arranged at an angle with the first and with said plane, said supports having their supporting-surface arranged in different radial planes passing through the axis of the saw-spindle, whereby the end of one molding may be made to cross over the end of the other said saw being arranged to operate in a plane perpendicularly to the supporting-surfaces at their interpections, and guiding means for said supports parallel to the plane of said saw substantially as and for the purposes set forth.

10. In a miter-cutting machine, a circular saw, a support for one molding at an angle with the plane of said saw, a support for another molding arranged at an angle with the first and with said plane, said supports having their supporting-surfaces arranged in different radial planes passing through the axis of the saw-spindle, whereby the end of one molding may be made to cross over the end of the other, said saw being arranged to operate in a plane perpendicularly to the supporting-surfaces at their intersections, one of said supports being adjustable in relation to the other to vary the distance between their supporting-surfaces, and guiding means for said supports parallel to the plane of said saw substantially as and for the purposes set forth.

11. In a miter-machine a saw-spindle provided with a shoulder, a circular saw mounted on said spindle, a washer between said shoulder and said saw, a boss on said washer adapted to engage a recess in a second washer on the other side of said saw, a pinion resting against said second washer and provided with a boss forming a journal for a bearing, a nut, and a washer on the end of said spindle embracing said boss and its bearing, substantially as and for the purposes set forth.

786,539. METHOD OF CUTTING MATERIAL FOR FORMING MITER OR BEVEL JOINTS. ROBERT WALES, Dunedin, New Zealand. Filed Nov. 24, 1903. Renewed Sept. 7, 1904. Serial No. 223,656.

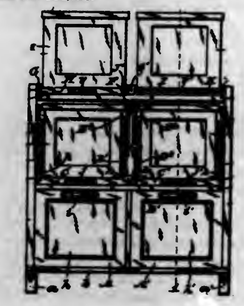


Claim.—1. The herein-described method of cutting material to form a miter or bevel joint which consists in holding two strips of material, crossed and in divergent horizontal and divergent vertical planes, and cutting said strips simultaneously, substantially as described.

2. Method of cutting material to form a miter-joint, which consists in holding two strips of the material crossed in two divergent radial planes one on each side of a circular saw, both planes passing through the axis of the saw-spindle and cutting the strips simultaneously together substantially as described.

3. The herein-described improvement in the art of making miter-joints which consists in arranging two pieces to be miter-jointed together in divergent horizontal and divergent vertical planes and so as to cross each other, and passing a dividing-blade through them at the crossing-line whereby each piece in the joint will be the exact counterpart of the opposed piece and then uniting such pieces to each other on the line of division, substantially as described.

786,540. ADVANCING-SHELF DISPLAY-STAND. JOHN H. WILLIAMS and GOTTFRIED MAYER, Indianapolis, Ind. Filed June 30, 1904. Serial No. 214,736.



Claim.—1. In a display-stand, the combination with the stand-frame, and the sliding shelves therein having the ears at the upper forward portions thereof, of extensible-link shelf-supports connected to the frame and also to said ears, each one of said supports being straight in all of its positions, and vertically disposed when the shelf to which it is connected is within the frame, substantially as set forth.

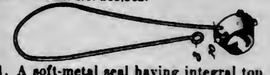
2. In a display-stand, the combination with the stand-frame, and the sliding shelves therein having the ears at the upper forward portions thereof, of extensible-link shelf-supports connected to the frame and also to said ears, each one of said supports comprising two link parts of which one part is slidingly connected with the other part and provided with a stop limiting the amount of extensibility of the support, substantially as set forth.

3. In a display-stand, the combination with the stand-frame having the shelf-guides, and the shelves mounted movably in the guides, of extensible shelf-supports connected to the frame and supporting and stopping the shelves when in forward positions, and vertically disposed when the shelves are withdrawn into the frame, substantially as set forth.

4. In a display-stand, the combination of a stand-frame comprising upright members and also horizontal rails, guides supported by the upright members, double guides supported by the horizontal rails, shelves mounted movably in the guides and the double guides, brackets attached to the horizontal rails, extensible-link supports pivoted to the upright members and also to the shelves, and extensible-link supports pivoted to the brackets and also the shelves, substantially as set forth.

5. In a display-stand, the combination with a stand-frame, of a plurality of display-drawers mounted in the lower portion of the frame, an open or skeleton frame mounted upon the stand-frame and having open or skeleton shelves mounted slidingly at the top thereof and also between the top thereof and the display-drawers, and extensible supports for the shelves, with display-cans upon the shelves, the cans that are on the uppermost shelves extending above said skeleton frame, substantially as set forth.

786,541. SEAL. FRANKLIN W. BROOKS, Washington, D. C. Filed July 28, 1904. Serial No. 218,562.



Claim.—1. A soft-metal seal having integral top, bottom, and side wall, a central interior recess or well; a radial gateway through the wall and communicating with the interior recess or pocket and a shackle-wire having one end anchored in the seal, and the opposite or free end formed with an eye or enlargement, substantially as and for the purpose set forth.

2. A soft-metal seal formed with a central recess or well, inclosed by integral top, bottom and side wall, a T-shaped passage or gateway in the wall, and a shackle-wire having one end cast in, or otherwise permanently secured to the seal, and its free end formed with an eye or enlargement adapted to enter the recess or well through the passage or gateway and to be held against accidental displacement, substantially as hereinbefore set forth.

3. A soft-metal seal having an inclosed recess or well adapted to receive the enlarged free end of a shackle-wire and with a radial passage or gateway in the side wall, the top of the seal being curved or inclined on its under surface, and a shackle-wire having one end permanently secured to the seal and its free end formed with an eye or enlargement adapted to enter the passage or gateway in the wall of the seal and to be located and held within the recess or well, substantially as hereinbefore set forth.

4. A soft-metal seal having an integral side wall and cap or top; an interior recess or well adapted to receive and accommodate the enlarged free end of a shackle-wire; a passage or gateway through the wall and leading into the recess or well; a notch or pocket in the side of the passage or gateway, and a shackle-wire having one end cast in, or otherwise permanently connected with the seal and its opposite free end formed with an eye or enlargement, substantially as hereinbefore set forth.

786,542. ELECTRIC HEATER. LOUIS P. BROWN and FRANK J. HOLMES, Chicago, Ill. Filed Oct. 17, 1904. Serial No. 228,836.

Claim.—1. In an electric heating device, a heating-coil wound in a double spiral and having its turns closer together near its loop than at a point more remote from the loop, for the purpose of reducing the danger of short-circuiting.

2. In an electric heating device, a heating-coil wound in a double cylindrical spiral backward from a loop therein, the distance between the turns gradually increasing toward the terminals of the coil.



3. In an electric heating device, a metallic heating-tip and a resistance-coil for heating the same, said coil being wound in double cylindrical spiral from a return-loop therein and said coil having its turns closer together near the said loop than at a point more remote therefrom for the purpose described.

4. In an electric heating device, a metallic heating-tip; a resistance-coil for heating the same, said coil being wound in double cylindrical spiral from a return-loop therein; and means at said loop for maintaining the same in fixed relationship with the remaining parts of the coil, said coil having its turns closer together at said loop than at the parts more remote therefrom for the purpose of reducing the danger of short-circuiting, the loop part of said coil lying nearest to the operative portion of said tip.

5. In an electric heating device, a heating-coil, a central body around which the coil is wound in double spiral, and a strip for holding the coil at the looped extremity thereof, said strip being held in position upon the central body by means of the turns of the coil itself.

6. In an electric heating device, the combination of a heating-coil; a central body around which the coil is wound in double spiral; and a strip of insulating material for holding the coil at the loop therein, the turns of the coil adjacent to the loop passing over said strip for firmly retaining the same in position upon the said central body.

7. In an electric heating device, the combination of a heating-coil; a central body around which the coil is wound in double spiral; and a strip of insulating material for holding the coil at the loop therein, the turns of the coil adjacent to the loop passing over said strip for firmly retaining the same in position upon said central body, and the distance between the turns of the coil becoming greater as the distance from the loop increases.

8. In an electric heating device, the combination of a tube, an insulating web therein and an electric conductor mounted upon said web out of contact with said tube.

9. In an electric heating device, the combination of a tube, a web of insulating material in said tube having a width approximately equal to the inside diameter thereof, and an electric conductor mounted upon said web and passing from one surface thereof to the other at suitable intervals, to thereby remain out of contact with said tube.

10. In an electric heating device, the combination of a tube; a web of insulating material extending approximately along the center thereof, said web having perforations at suitable intervals therein; and a conductor threaded through said apertures so as to pass from one surface of the web to the other for remaining out of contact with said tube.

11. In an electric heating device, the combination of a tube; a web of insulating material extending approximately along the center thereof, said web having perforations therein substantially in pairs occurring at suitable intervals therein; and a pair of conductors threaded through said apertures from one surface of the web to the other and lying on opposite surfaces of the web at any given point therein whereby said conductors are kept out of contact with each other.

12. In an electric heating device, the combination of a metallic tip for heating the object to be heated, said tip having an annular beveled shoulder thereon between its ends; means for heating said tip; a tube for supporting said tip; and an imperforate diaphragm within said tube between the ends thereof, said tube having a beveled surface at its mouth whereonto the beveled shoulder on said tip may be wedged for sealing said tube.

13. In an electric heating device, the combination of a metallic tip for heating the object to be heated, said tip having an annular beveled shoulder thereon between its ends; means for heating said tip; a tube for supporting said tip, an imperforate diaphragm within said tube between the ends thereof, said tube having a beveled surface at its mouth; and means for tightly forcing the beveled shoulder of said tip down onto the beveled surface of said tube for sealing the mouth thereof.

14. In an electric heating device, the combination of a heating-tube having an annular beveled shoulder thereon; means for heating said tube; and a casing for inclosing said heating means, said casing having a beveled surface whereby said casing may be wedged against the beveled shoulder on said tube.

15. In an electric heating device, the combination of a heating-tube having an annular beveled shoulder thereon; a heat-generating resistance medium upon said tube; a casing for inclosing said resistance medium, said casing having a bevel at one end for contacting the shoulder on said tube; and means at the rear end of said casing for forcing and holding it against the said shoulder on said tube.

16. In an electric heating device, the combination of an electric heat-generator; a terminal block; conductors leading from said block to said heat-generator; and binding-posts on said block making contact with said conductors and adapted to be connected to suitable supply-wires, said binding-posts being arranged in tandem upon said terminal block for the purpose described.

17. In an electric heating device, the combination of a heat-generator; a tube supporting the same; a terminal block secured to said tube at the rear extremity thereof; conductors leading from said heat-generator to the terminal block; and binding-posts on said block making electrical contact with said conductors and adapted to be connected to suitable supply-wires, said binding-posts being arranged in tandem upon said terminal block, for the purpose described.

18. In an electric heater, the combination of a tube; a resistance medium mounted on said tube for generating heat; a terminal block supported on said tube; conductors leading to said terminal block and fastened thereto; other conductors leading from said terminal block to said resistance medium, said terminal block and all of said conductors being supported on said tube; and a longitudinally-bored handle rigidly secured to said tube, said handle being adapted to circumferentially inclose said terminal block and a portion of said conductors and being independent of said terminal block and conductors.

19. In an electric heater, the combination of a tube; a resistance medium mounted on said tube for generating heat; a terminal block supported on said tube; conductors leading to said terminal block and fastened thereto; other conductors leading from said terminal block to said resistance medium, said terminal block and all of said conductors being supported on said tube; a longitudinally-bored handle adapted to circumferentially inclose said terminal block and a portion of said conductors and being independent of said terminal block and conductors; said handle screwing onto said tube from the rear end thereof; and locking means for preventing the accidental unscrewing of said handle.

20. In an electric heater, the combination of a single one-piece tube constituting the foundational structure of the device, a resistance medium wound upon one end thereof, for generating heat, conductors leading into the other end of said tube for supplying electric current to said resistance medium; and a longitudinally-bored, one-piece handle fitting over the rear end of said tube and adapted to be slid thereonto from the rear thereof.

21. In an electric heater, the combination of a tube constituting the foundational structure of the device; a resistance medium near one end thereof for generating heat; a terminal block lying partially within said tube and projecting out of the rear end thereof; supply-conductors leading from the source of energy to said terminal block; other conductors leading from said terminal block to said heat-generating medium; and a longitudinally-bored, one-piece handle fitting over the rear end of said tube and adapted to be slid thereonto from the rear thereof, said handle thereby inclosing said terminal block.

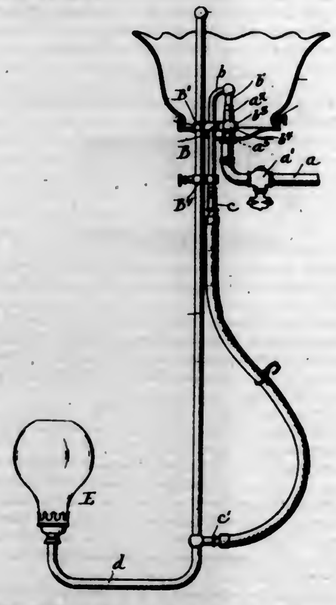
22. In an electric heater, the combination of a tube; a metallic tip rigidly secured at the forward end thereof; a heating-coil upon said tube adjacent to said tip; and a handle rigidly secured to said tube at the rear end thereof, said tip and coil and handle being all mounted on the same piece whereby the device is rigid from end to end.

23. In an electric heater, the combination of a tube having perforations in the side thereof; a metallic tip at the forward end of said tube; a heat-generating resistance medium located upon the outside of said coil adjacent to said tip; conductors leading within said tube from the rear end thereof and passing outward through the said perforations therein to join said heat-generating medium; and a web of insulating material located within said tube and supporting said conductors.

24. In an electric heater, the combination of a tube having perforations in the side thereof; a metallic tip at the forward end of said tube; a heat-generating resistance medium located upon the outside of said coil adjacent to said tip; conductors leading within said tube from the rear end thereof and passing outward through the said perforations therein to join said heat-generating medium; and a web of insulating material located within said tube and supporting said conductors to insulate the same, said web having sufficient stiffness to carry forward the free forward ends of the said conductors during assemblage, whereby the said ends may be threaded out through the apertures in said tube to be joined with said heat-generating medium.

25. In an electric heater, the combination of a tube, a handle screwing onto the rear end thereof; a metallic tip supported by said tube at the front end thereof; a heat-generating medium located on the outside of said tube adjacent to said tip; a casing outside of said heat-generating medium slidable lengthwise of said tube; a rigid, longitudinally-slotted collar upon said tube, and an inward projection upon said casing for entering the slot in said collar whereby the casing may be moved longitudinally but is prevented from turning, said casing thereby affording means whereby the device may be gripped in screwing the handle on or off.

786,543. DROP-LIGHT ATTACHMENT. GEORGE F. BRYAN, Chicago, Ill., assignor to Michael M. Rineck, Chicago, Ill. Filed Feb. 8, 1904. Serial No. 192,499.



Claim.—1. In a drop-light attachment, the combination of a coupling embodying a downwardly-extending tube and a terminal adapted for connection with the terminal of a gas-fixture, a burner-supporting standard, means on the coupling to sustain the burner-standard, and a flexible tube connecting said coupling-tube and said standard.

2. In a drop-light attachment, the combination of a coupling embodying a downwardly-extending tube and a terminal adapted for connection with the terminal of a gas-fixture, a burner-supporting standard adjustably sustained by said coupling, an extension or guide bracket to fit around the burner-standard, and a flexible tube connected to the lower end of said coupling-tube and to said standard.

3. In a drop-light attachment, the combination with a coupling embodying a downwardly-extending tube, a nipple adapted to engage the tubular terminal of a gas-fixture, an extension or guide bracket adapted to fit around said tubular terminal, and a clamp-screw securing said bracket to said terminal, of a burner-supporting standard extending through the bracket, and a flexible tube connected to said tube and to the standard.

4. In a drop-light attachment, the combination of a coupling embodying a downwardly-extending tube, means for securing said coupling to the terminal of a fixture, a pair of guides carried by said tube, a burner-supporting standard adjustably held in said guides, a screw for clamping said standard in one of said guides, and a flexible tube connected to said coupling-tube and to said standard.

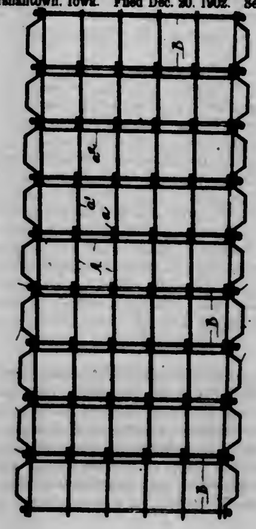
5. In a drop-light attachment, the combination of a coupling embodying a downwardly-extending tube, means for securing said coupling to the terminal of a fixture, a pair of guides carried by said tube, a burner-supporting standard adjustably held in said guides, one of said guides being formed with an extension adapted to fit around the tubular terminal of a gas-fixture, and a flexible tube connected to said coupling-tube and to said standard.

6. In a drop-light attachment, the combination of a coupling embodying a downwardly-extending tube, means for securing said coupling to the terminal of a gas-fixture, a pair of guides carried by said tube, a burner-supporting standard adjustably held in said guides, one of said guides being formed with an extension adapted to fit around the tubular terminal of the fixture, a screw for clamping said extension around said terminal, a screw for clamping said standard in one of said guides, and a flexible tube connected to said coupling-tube and to said standard.

7. A rigid coupling for connecting a flexible tube with a fixture, comprising a downwardly-extending tube, a nipple adapted for connection with the tubular terminal of the fixture, and a bracket secured to said tube and having an extension fitting around the tubular terminal of the fixture.

8. A rigid coupling for connecting a flexible tube with a fixture, comprising a downwardly-extending tube, a nipple adapted for connection with the tubular terminal of the fixture, a bracket secured to said tube and having an extension fitting around the tubular terminal of the fixture, and a screw for clamping said extension around said terminal.

786,544. FLEXIBLE MATTING OR FABRIC. ARTHUR S. BURNELL, Marshalltown, Iowa. Filed Dec. 20, 1902. Serial No. 136,058.

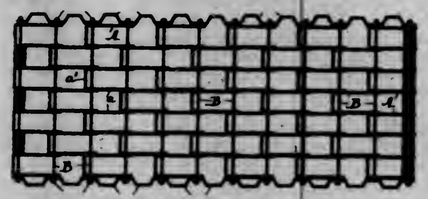


Claim.—1. Fabric or matting comprising a plurality of flat metal stripe each having a short longitudinally-extending terminal and a long longitudinally-extending terminal, the short terminal being connected to adjacent stripe, and the long terminal having both of its ends connected to adjacent stripe.

2. Fabric or matting comprising a plurality of sections, and pivots connecting the sections, each section comprising a plurality of flat stripe of metal each bent to form a transverse bar, a short longitudinally-extending terminal through which one of the pivots between adjacent sections passes, and a long terminal extending longitudinally from end to end of a section and pivotally connected at each end with the adjacent sections.

3. Fabric or matting comprising a plurality of sections each comprising a plurality of flat stripe of metal, each bent to form a transverse bar at one end of the section, a short longitudinally-extending terminal, and a long terminal, and pivots connecting the sections, the long terminals of the stripe being held between the ends of adjacent stripe at which the transverse bars are located and thereby secured against lateral movement.

786,545. FLEXIBLE MATTING. ARTHUR S. BURNELL, Marshalltown, Iowa. Filed Dec. 30, 1903. Renewed Feb. 25, 1905. Serial No. 247,249.



Claim.—1. Fabric or matting formed of pivotally-connected sections, the sections comprising a plurality of short flat strips of metal, each bent to form a rectangular open-ended link comprising a pair of side portions perforated near their ends, and a laterally-extending connecting-bar at one end of the link, the side portions being separated at the connected end.

2. Fabric or matting formed of sections, the sections comprising a plurality of short flat strips of metal bent to form side portions and a laterally-extending connecting portion, the side portions of a strip being separated at their ends, and having their central portions bent toward each other and transverse pivots connecting the strips of one section with those of the next.

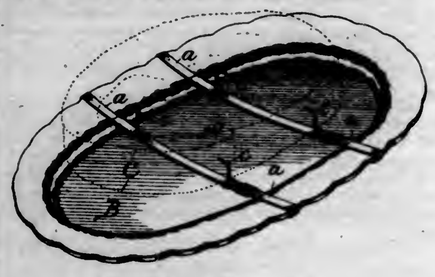
3. Fabric or matting formed of sections, the sections comprising a plurality of short flat strips of metal bent to form side portions, and a laterally-extending connecting portion, the side portions of the strips being perforated near their ends and having portions between their ends, extended for abutment against each other, and transverse rods pivotally connecting the strips of one section with those of the next.

4. Fabric or matting formed of sections, the sections comprising a plurality of flat strips of metal, bent to form a pair of side portions and a laterally-extending connecting portion, the strips of one section being alternately arranged between the strips of the next section, and a pivotal connection between the strips of adjacent sections.

5. Matting or fabric formed of sections, the sections comprising a plurality of flat strips of metal bent to form a pair of side portions and a connecting portion, the strips of one section being alternately disposed with respect to and arranged between the strips of the next section, the free ends of the strips of one section being contiguous to the connected ends of the sides of the strips of the next section, and transverse rods pivotally connecting the sections and extending alternately through both sides of the strips of one section and through both sides of the strips of the next section, the sides being bent toward each other.

786,546. MEAT-HOLDER FOR CARVING-PLATTERS. HARRY G. CHAMBERLIN, Chicago, Ill. Filed Sept. 5, 1904. Serial No. 173,031.

Claim.—A meat or poultry holder for platters, comprising an expansible frame formed of four angular members each having one main arm extending crosswise of the platter and lapping and joined to the corresponding arm of an opposite member to telescope therewith and provided with a hooked portion for engagement with the platter sides, and having the other arm extending at a right angle to the main arm and lapping and joined to the corresponding arm of another member to telescope therewith, and hooks slidable on the lapped main arms to engage the meat or poultry laterally.



786,547. SHIPPING-PACKAGE FOR POTTED PLANTS. HARRY G. CHAMBERLIN, Chicago, Ill. Filed July 1, 1904. Serial No. 214,907.



Claim.—1. A shipping-package for potted plants, comprising, in combination, a stiff tube adapted to receive a potted plant, a flexible disk separate from and insertible into said tube and of a diameter adapting it to enter into the pot of a potted plant in said tube and contact with the surface of the soil in said pot, said disk having a central opening to surround the stem of the plant and a slit extending from said opening to the edge of the disk, and means for securing said disk in place, substantially as described.

2. A shipping-package for potted plants comprising, in combination, a stiff tube adapted to receive a potted plant, a flexible disk separate from and insertible into said tube and of a diameter adapting it to enter into the pot of a potted plant in said tube and contact with the surface of the soil in said pot, said disk having a central opening to surround the stem of the plant and a slit extending from said opening to the edge of the disk, and a fastening-strip passing transversely through said tube over said disk and affording means for securing the disk in place, substantially as described.

786,548. RAILROAD-TIE. IRA COPELAND, Newton, Mass. Filed Sept. 27, 1904. Serial No. 226,209.



Claim.—1. A railroad wooden tie fortified by one or more dowels inserted wholly in the subrail portions thereof; substantially as set forth.

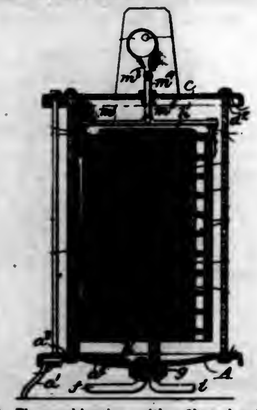
2. A railroad-tie dowel of wood, cylindrical in form and having a cross-section uniform throughout its length except a minor portion at its lower end where its section gradually diminishes, forming a tapering portion whose uppermost diameter is slightly greater than the diameter of the hole in the tie designed for its reception and whose lowermost diameter is slightly less than the diameter of said hole, and having a central hole, of circular cross-section, throughout its length, for the reception of a spike.

3. A railroad-tie dowel of unbored wood cylindrical in form and having a cross-section uniform throughout its length except a minor portion at its lower end where its section gradually diminishes, forming a tapering portion whose uppermost diameter is slightly greater than the diameter of the hole in the tie designed for its reception, and whose lowermost diameter is slightly less than the diameter of said hole.

4. A railroad-tie dowel wholly of metal, cylindrical in form, and having a cross-section uniform throughout its length except a minor portion at its lower end where its section gradually diminishes, forming a tapering portion whose uppermost diameter is slightly greater than the diameter of the hole in the tie designed for its reception, and whose lowermost diameter is slightly less than the diameter of said hole.

5. A railroad-tie dowel of wood, cylindrical in form, and having a cross-section uniform throughout its length except a minor portion at its lower end where its section gradually diminishes, forming a tapering portion whose uppermost diameter is slightly greater than the diameter of the hole in the tie designed for its reception, and whose lowermost diameter is slightly less than the diameter of said hole, and having a central hole of circular cross-section throughout its length, designed to receive a metal core whose cross-section is somewhat larger than that of said central hole.

786,549. FILTER AND MECHANISM FOR CLEANING IT. LEON DION, New York, N. Y., assignor to The American Electrobermatic Company, New York, N. Y., a Corporation of Arizona. Filed June 3, 1904. Serial No. 210,982.



Claim.—1. The combination, with a filter-chamber, a filter arranged therein, a cleaning-brush surrounding the filter for coöperation therewith, with its bristles extending inward from its back toward and in contact with the exterior of the filter and disposed at a less distance apart in the direction of the length of the brush than the length of its longitudinal traverse, of an eccentric, devices for operatively connecting this eccentric with the brush, and means for both conducting the liquid to be treated to the filter-chamber and the filtered liquid from the filter, substantially as described.

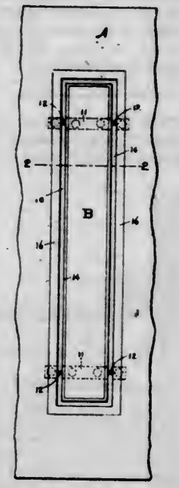
2. The combination, with a filter, a brush surrounding such filter and extending from near one of its ends to near its other, with its bristles extending inward from its back for coöperation with the exterior of the filter and disposed in parallel rows around the interior of its back at a less distance apart than the longitudinal travel of the brush, and an eccentric, of a bridge-piece connected with one end of the brush, an eccentric-strap, and a rod intermediate the eccentric-strap and the bridge-piece, substantially as described.

3. The combination, with a filter, a cleaning device surrounding such filter for coöperation with it and made up from independent longitudinal sections constructed with notched overlapping edges, of springs and coöperating appliances applied across these overlapping edges for pressing the sections of the cleaning devices inward against the filter with a yielding pressure, and means for imparting a longitudinal reciprocating motion to such cleaning devices along the filter, substantially as described.

786,550. SIGN. FREDERICK W. DONNELLY and WILLIAM J. SMITH, New York, N. Y.; said Smith assignor to Thomas Donnelly; Thomas Donnelly administrator of Frederick W. Donnelly, deceased. Filed Apr. 4, 1904. Serial No. 201,609.

Claim.—1. In a sign, a support having openings, letters carried by the said support within said openings, the sides of the letters being parallel with the walls of the opening and spaced apart therefrom, and borders carried by the said support along the outer marginal portions of the said openings, the openings and borders forming as it were margins for the letters.

2. In a sign, a board or support having openings in the form of letters extending through said board or support, the walls of said openings being at right angles to the rear face of the support, borders secured to the outer face of the board or support around said openings, the inner walls of the borders being in alinement with the walls of the openings and forming continuations thereof, and letters corresponding in shape to the form of the openings but of less dimensions and carried by the board or support within said openings, the edge walls of the letters being parallel with the walls of the openings, the rear faces of the letters being flush with the rear face of the support and the front faces of the letters projecting forwardly in advance of the front face of the support and also of the borders surrounding the openings in the support.



3. In a sign, a board or support having an opening therein corresponding to the form of a given letter, the walls of the opening being at a right angle to the face of the support, a letter conforming to the opening and suspended therein, with its rear face flush with the rear face of the support, the letter being of less area than the area of the opening, thereby providing a space between the margins of the letters proper and the walls of the opening, the edge walls of the letter being parallel with the adjacent walls of the opening, and sustaining devices for the letter as set forth.

4. In a sign, a board or support having an opening therein of corresponding shape to a given letter, a letter fitted to the said opening, yet of less dimensions than said opening, whereby a space is provided between the letter and the walls of the opening, the letter projecting outward beyond the front face of the said board or support, means for holding the said letter in suspension in the said opening, and a border extending around the opening at the outer face of the board or support, which border has its outer or front face inclined outward from the board or support in direction of the said letter, the outer face of the letter extending beyond the edge portion of the border adjacent to the space surrounding the letter, as described.

5. In a sign, a board or support having an opening therein corresponding in shape to a given letter, a letter fitted to the said opening yet of less dimensions than said opening, whereby a space is provided between the letter and the walls of the opening, the letter projecting outward beyond the front face of the said board or support, means for holding the said letter in suspension in the said opening, and a border extending around the opening at the outer face of the board or support, which border has its outer or front face inclined outward from the board or support in direction of the said letter, the outer face of the letter extending beyond the edge portion of the border adjacent to the space surrounding the letter, the said letter being provided with chamfered edges at its front face, and provided with a marginal coating of a white material, for the purpose set forth.

6. In a sign, a support having openings, letters carried by the said support, the sides of the letters being parallel with the sides of the openings, and borders carried by said support, said borders surrounding the letters and spaced apart therefrom on all sides to form an unbroken space between said letters and their borders, the letters projecting outwardly beyond the borders.

7. In a sign, a support adapted to have a light at one side there-

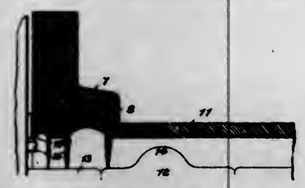
of, a letter carried upon the support, and a frame surrounding said letter and spaced therefrom, a part of said support being cut away to permit light to shine through the support between said frame and said letter.

8. In a sign, a field having an opening of substantially the outlines of a symbol, and a symbol whose lateral sectional area is everywhere less than the area of the opening secured therein, and spaced at all points apart from the walls of the opening, substantially as described.

9. In a sign, a field having an opening of substantially the outlines of a symbol, a symbol whose lateral sectional area is everywhere less than the area of the opening secured therein, and spaced at all points apart from the walls of the opening, the interior field of said symbol being smaller than the interior outline of the symbol and spaced therefrom, substantially as described.

786,551. METHOD OF ATTACHING FLANGES TO TUBES.

WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to Crane Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 3, 1901. Serial No. 74,199.



Claim.—1. The herein described method of securing flanges to tubes, which consists in providing the flange with a recess within the opening thereof, and a half recess adjacent to the face thereof, rolling the tube into the recess, then rolling the end of the tube outward radially into the half recess, (and finally upsetting the end of the tube to bring it into the plane of the face of the flange, and make the joint secure against leakage,) substantially as described.

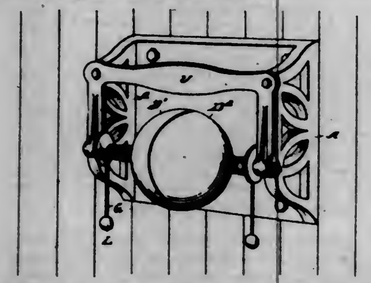
2. The herein described method of securing flanges to tubes, which consists in providing the flange with a recess within the opening thereof, and a half recess adjacent to the face thereof, rolling the tube into the recess, and afterward rolling the end of the tube outward radially into the half recess, substantially as described.

3. The herein described method of securing flanges to tubes, which consists in providing the flange with a recess within the opening thereof, rolling the tube outwardly into said recess and afterward upsetting the end of the tube by rolling the same with pressure exerted longitudinally, substantially as described.

4. The method of attaching tubes to flanges which consists in providing two annular recesses in the flange, expanding the tube into one of said recesses, then independently expanding the tube into the other recess (thereby inducing a bending strain upon the expanded metal in the first recess), and then compressing the metal into the latter recess by pressure exerted perpendicularly to the plane of the annular recess, substantially as described.

786,552. EXERCISING DEVICE.

MATTHEW DUFFNER, Allegheny, Pa. Filed Aug. 18, 1904. Serial No. 221,209.



Claim.—1. In a device of the character described, a bracket, a shaft supported thereby, a sleeve on the shaft, a ball on the sleeve, a source of electricity within the ball and in connection with the sleeve, and pulls on the sleeve and in electrical contact therewith.

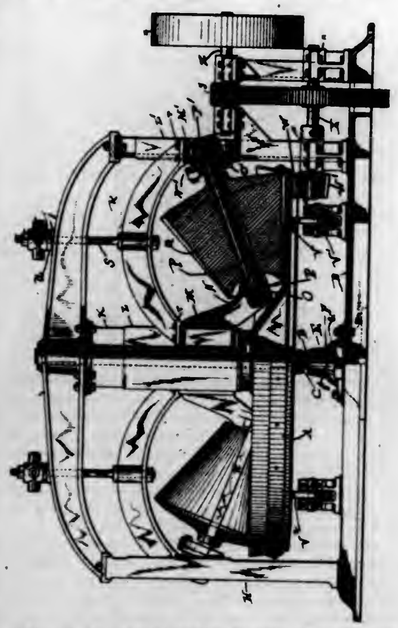
2. In a device of the character described, a bracket, a shaft supported thereby, a sleeve on the shaft, a ball on the sleeve, said ball being in sections, a source of electricity within the ball and in connection with the sleeve, and pulls on the sleeve and in electrical contact therewith.

3. In a device of the character described, a bracket, a shaft therein, a sleeve on the shaft, a ball on the sleeve; said ball being in sections and means for securing the sections together, a source of electricity within the ball and in connection with the sleeve, and pulls on the sleeve and in electrical contact therewith.

4. In a device of the character described, a bracket, a shaft therein, a sleeve on the shaft, a ball on the sleeve, means for adjusting the weight of the ball, a source of electricity within the ball and in contact with the sleeve, and pulls on the sleeve and in electrical contact therewith.

786,553. DOUGH-KNEADING MACHINE.

LOUIS DURAND, New York, N. Y. Filed June 30, 1904. Serial No. 214,736.



Claim.—1. In a dough-kneading machine, the combination of a dough-kneading pan, a gravity-roller therein, and a roller-supporting frame consisting of journal-frames, braces on each side of said roller extending between and connecting the journal-frames, and the bridge extending between the upper parts of the journal-frames, all constructed substantially as and for the purposes set forth.

2. In a dough-kneading machine, the combination of a dough-kneading pan, a roller, a roller-supporting frame constructed substantially as shown and described, and a centrally-located supporting and cushioning device secured to the roller-frame.

3. In a dough-kneading machine, the combination of a dough-kneading pan, a gravity-roller operating therein and having a shaft or spindle slanting downwardly from the outer edge of the machine toward the center, frames for the journals of said shaft or spindle, and keepers arranged substantially as shown and described, and operating as guides for the vertical travel of the journal-frames.

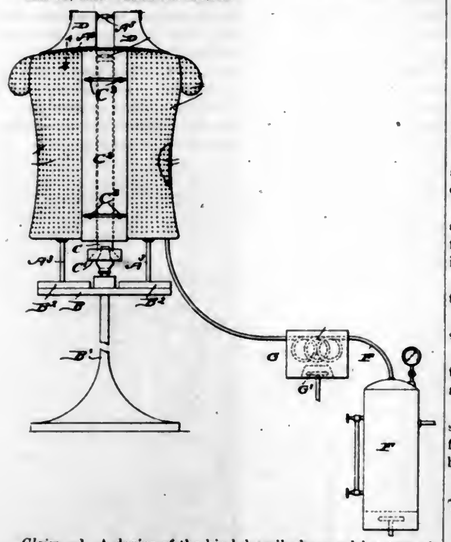
4. In a dough-kneading machine, the combination of a dough-kneading pan, a gravity-roller operating therein, a vertically-adjustable roller-supporting frame consisting of the journal-frames and side braces and a bridge, and means centrally located for locking the roller-supporting frame in any predetermined vertical position.

5. In a dough-kneading machine, the combination of the base-plate, the standards rising therefrom, the centrally-located housing, the arms extending from the housing to the standards, the dough-kneading pan and a gravity-roller, and the roller-supporting frame adapted to slide in one of the standards and housing whereby it is

guided, all constructed to operate substantially as and for the purposes set forth.

786,554. DEVICE FOR STEAMING AND SHAPING GARMENTS.

LE GRAND EARL and WILLIAM L. GALVIN, Youngstown, Ohio. Filed Dec. 31, 1903. Serial No. 187,348.



Claim.—1. A device of the kind described comprising two adjustable sections spaced apart, plates connecting the sections, a flue extending upwardly, through the said space between the sections and plates, and means for admitting steam to the sections.

2. A garment steamer and shaper comprising two perforated metal sections adapted to support a garment and adjustable with reference to each other and the garment, slotted plates adapted to partially inclose the space between the sections, threaded studs carried by the sections and projecting through the slots, thumb-screws adapted to work on said studs and bind the plates to the sections, a flue arranged in the said space between the sections and plates, means for heating the air in said flue, and means for admitting steam to the sections.

3. A garment steamer and shaper comprising a hollow form in sections, means for adjustably holding said sections together, the outer side faces of each section being formed with a plurality of apertures, a hot-air flue arranged between the said sections, and means for admitting superheated, dry steam to each section, as and for the purpose set forth.

4. A device of the kind described, comprising two metal sections exteriorly perforated and inclosing a common heating-chamber, a hot-air flue extending longitudinally through the said chamber, the said flue having a downwardly open and outwardly flaring end chamber, and means for admitting steam to the said common heating-chamber, as and for the purpose described.

786,555. STOVEPIPE, FLUE, AND SMOKE-STACK PROTECTOR.

JAMES H. FOSTER, Artis, Tex. Filed July 11, 1904. Serial No. 216,186.



Claim.—1. In combination, a vertical flue having openings therein an auger-shaped spiral located within said flue, and provided with flanges along the edges thereof which communicate with the said openings, substantially as described.

2. In combination a vertical flue, a flanged auger-shaped spiral therein, and a thimble provided with an inturned flange at the bottom thereof placed within the top of said flue above said spiral substantially as described.

3. In combination a vertical flue provided with openings near the bottom thereof, a flanged auger-shaped spiral located within said flue and communicating with said openings, a thimble provided with an inturned flange at its lower end located in the top of said flue and above said spiral, substantially as described.

786,556. SOAP AND METHOD OF MAKING SAME.

HERMANN GIESSLER and HERMAN BAUER, Stuttgart, Germany. Filed Apr. 21, 1904. Serial No. 204,289.

Claim.—1. The herein-described process of producing soap which consists in adding a stable salt of one of the superacids of boron, to a suitable soap body, so as to cause such soap body to envelop and protect the salt.

2. The herein-described process of producing soap, which consists in admixing to a suitable soap body an alkali salt of a superacid of boron.

3. The herein-described process of producing soap, which consists in mixing a stable salt of one of the superacids with a fatty body free from glycerin, to a paste-like or salve-like consistency, and adding such paste to a suitable soap body.

4. A soap containing a suitable soap body and a salt of one of the superacids of boron.

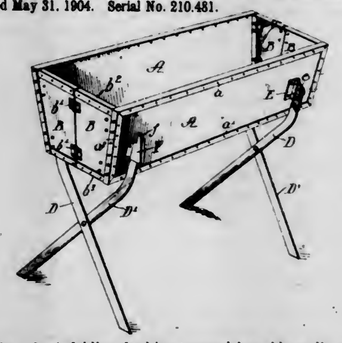
5. A soap containing a suitable soap body and an alkali salt of a superacid of boron.

6. A soap containing a suitable soap body, and in addition thereto a fatty body, free from glycerin, and a salt of one of the superacids.

7. The herein-described process of producing soap, which consists in mixing a salt of one of the superacids with a fatty body free from glycerin, and incorporating the mixture with a suitable soap body.

786,557. FOLDING FEED-BOX.

RUDOLF H. GORDE, Chicago, Ill. Filed May 31, 1904. Serial No. 210,481.



Claim.—1. A folding feed-box comprising side walls, folding end-wall sections and a bottom wall, said side walls, end-wall sections and bottom wall being joined to each other by hinged connections, and two pairs of crossed legs, one at each end of the box, the upper ends of each pair of legs being connected with the side walls of the box in a manner to hold the box open when set up and adapted to be folded flat against the side walls of the box.

2. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at the top and bottom margins thereof, and having inwardly-extending flanges, and the bottom wall and end-wall sections being hinged to the side walls in such manner as to be folded within the spaces afforded by the said inwardly-extending flanges of said side walls.

3. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at the top, bottom and end margins thereof, and the end-wall sections having angle-irons secured to the upper and lower margins thereof, said angle-irons having their flanges extending inwardly.

4. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at the top and bottom margins thereof, and said

end-wall sections having angle-irons secured to the top and bottom margins thereof, the said end-wall sections being adapted to be folded within the inwardly-extending flanges of the top and bottom angle-irons of said side walls.

5. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at the end margins thereof and having inwardly-extending flanges, and the hinges which join the outer margins of the end-wall sections with the ends of the side walls being secured to the inner faces of the flanges of the said angle-irons.

6. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at the end margins thereof, and having inwardly-extending flanges, the outer margins of the end-wall sections being so arranged as to come in overlapping relation to said flanges when the box is in its unfolded or open condition.

7. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at the end margins thereof, and having inwardly-extending flanges, and the hinges which join the outer margins of the end-wall sections with the end of the side walls being secured to the inner faces of said flanges of the side angle-irons, and spacing-plates interposed between the said hinges and the said flanges.

8. A folding feed-box comprising side walls, end-wall sections hinged to each other and to the ends of the side walls, and a bottom wall hinged to the lower edge of one of the side walls, said side walls having angle-irons at their lower margins and having inwardly-extending flanges, and said bottom wall being adapted to rest upon said flanges, when the box is in its unfolded or open condition.

9. The combination with a folding feed-box consisting of side walls, end-wall sections, and a bottom wall, hinged to the side walls, of supporting-legs pivoted to each other between their ends, plates hinged to the side walls, to which one leg of each pair of legs is pivoted, and socket-plates attached to the side walls and adapted to receive the upper end of the other leg of each pair of legs.

10. The combination with a folding feed-box consisting of side walls and end-wall sections, and a bottom wall hinged to the side walls, of two pairs of pivotally-connected supporting-legs, plates having hinged connection with the side walls, to each of which one leg of each pair of legs is pivoted, socket-plates attached to said side walls and adapted to receive the upper ends of the other leg of each pair, and holding-prongs on the side walls adapted to engage and hold in its place the ends of said legs when the latter are folded against said side walls.

11. The combination with a folding feed-box consisting of side walls, end-wall sections, and a bottom wall, which are hinged to the said side walls, of two pairs of pivotally-connected supporting-legs, plates hinged to one of the side walls to which one leg of each pair of legs is pivoted, and socket-plates attached to the side walls and adapted to receive the upper end of the other leg of each pair of legs, said socket-plates being provided with upwardly-extending lugs behind which the ends of said legs may be placed when folded against the side walls of the receptacle.

12. A folding feed-box comprising side walls, end-wall sections and a bottom wall, said side walls, end-wall sections and bottom wall being joined to each other by hinged connections, and two pairs of crossed legs, one at each end of the box, one of the legs of each pair being hinged at its upper end to the side wall of the box, the opposite side of the box being provided with a socket adapted to receive the upper end of the other leg of said pair.

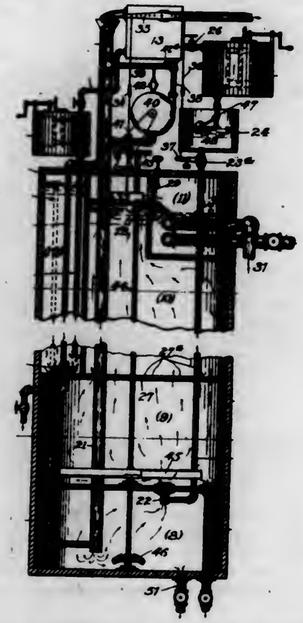
786,558. PIPE-COUPLING. JOHN N. GOODALL, Portsmouth, N. H., assignor of one-half to Charles A. Tolman, Kittery, Me. Filed June 15, 1904. Serial No. 212,633.



Claim.—1. A coupling device for connecting two separated conduit ends, comprising a barrel member shorter than the distance between the ends of the conduits to be coupled, said barrel member having a central portion of enlarged diameter and reduced interiorly-screw-threaded ends, the outer end adapted to be screw-threaded to one of the conduits, and a pipe-section telescoping within the barrel member and non-detachable therefrom, said pipe-section having on its inner end an exteriorly-screw-threaded head to engage the interior screw-threads on the outer end of the barrel, and having its outer end adapted to be detachably secured to the other conduit.

2. A coupling device for coupling together two separated conduit ends, comprising a barrel member shorter than the distance between the conduit ends to be coupled, said barrel member having a central portion of enlarged diameter and reduced interiorly-screw-threaded ends, the outer end of which is adapted to be screw-threaded to one conduit end, and a pipe-section longer than the barrel member telescoping therewithin and non-detachable therefrom, said pipe-section having on its inner end an exteriorly-screw-threaded head to engage the inner screw-threads on the inner end of the barrel, the outer end of the pipe-section being screw-threaded to engage the other conduit end, the screw-threads on both ends of the pipe-sections being of the same pitch and in the same direction.

786,559. WATER-PURIFYING APPARATUS. JOHN C. W. GRETH, Pittsburg, Pa., assignor to Wm. B. Scaife & Sons Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Apr. 8, 1904. Serial No. 202,156.



Claim.—1. In water purifying apparatus, a single treatment tank comprising a series of compartments placed in succession one above the other and communicating directly together under continuous head, and means for chemical treatment in the tanks and for maintaining an upward flow therethrough, substantially as described.

2. In water purifying apparatus, the combination of a lime treatment, a soda treatment tank, and a settling tank, all adjoining each other in vertical succession and directly communicating by openings through their separating partitions, means for passing the water successively upward through the tanks, and means for introducing chemicals directly into the lime and soda tanks, substantially as described.

3. In water purifying apparatus, a treatment tank comprising a settling compartment (10) superposed upon and communicating with a soda reaction compartment (9), and a lime treatment compartment (8) placed thereunder and feeding through the bottom of said soda compartment, and means for passing the water upward through the series of tanks and chemically treating it in each.

4. In continuous flow purifying apparatus, the combination of a lime, a soda and a settling compartment, placed one above the other in succession, and the inflow of water into each of said compartments being through the bottom, and means to commingle the chemical just at the point of inflow in each case.

5. In water purifying apparatus, the combination of a settling tank superposed upon and directly communicating with a soda treatment tank, a soda supply tank and means for maintaining a constant level therein, and regulable means operated by a float in the settling tank for controlling the outlet from the soda supply and at the same time the main water supply.

6. In water purifying apparatus, the combination of a settling tank, and a soda treatment tank placed thereunder and communicating therewith, a soda supply vessel, a main water supply pipe, a float in the settling tank governing the main water supply pipe and also the soda outlet, both of the governing valves being adjustable in throw, substantially as described.

7. In water purifying apparatus, a stirring device and a motor therefor operated directly by the normal throw of water into the system, a delivery pipe having two branches and an automatic governor for controlling said motor by shunting a part of the water into one branch of the delivery pipe, substantially as described.

8. In a water purifying apparatus, the combination with stirring devices, a feed pipe having two branches, a motor in one of said branches and a governor thereon, and a valve controlling the proportional flow between the two branches operated by said governor and the motion of said motor, and said motor suitably connected to operate the stirring devices.

9. In water purifying apparatus, a lime treatment tank having a water feed pipe therein, and a chemical supply pipe connected therewith—both under the surface of the water in the compartment, an outlet at the top of said tank and a superposed communicating chemical treatment tank, and the latter tank being fed by a chemical supply pipe immediately at the inlet from the first treatment tank, substantially as described.

10. In water purifying apparatus, a tank comprising a settling compartment, and a chemical treatment compartment placed under the settling compartment and separated therefrom by a perforated partition and having means for introducing the chamical directly through its bottom, whereby the sediment from the settling tank is discharged into the treatment compartment to facilitate the chemical action therein.

11. In water purifying apparatus, the combination of a soda treatment tank and a settling tank placed above the same and having a perforated bottom for direct communication therewith, and means for introducing both water and the soda solution through the bottom of the soda treatment tank and causing upward flow therethrough, substantially as described.

12. In water purifying apparatus, a treatment tank containing a lime compartment, a soda compartment and a settling compartment communicating together and placed one above the other in the order named, and means for introducing the treating chemical at the point of inflow into each chemical compartment, substantially as described.

13. In water purifying apparatus the combination of a settling tank having a perforated bottom, a chemical treatment tank under the settling tank and communicating therewith through the bottom, and a stirring device in the treatment tank.

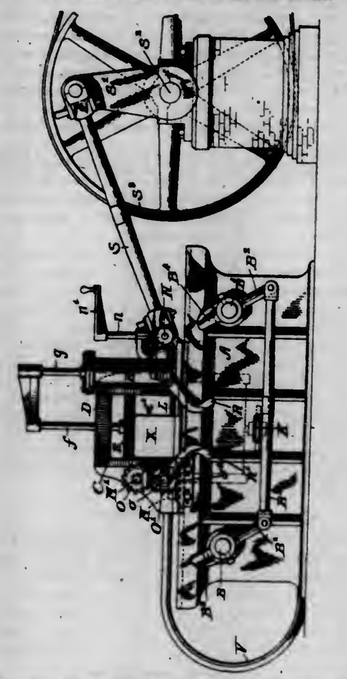
14. In water purifying apparatus a feed reservoir, a treatment tank fed therefrom, a stirrer in the treatment tank and a hydraulic motor for the stirrer operated by the flow from the reservoir to the tank, and means to regulate the speed of the motor while the waterflow into the tank remains constant.

786,560. VENEER-CUTTING MACHINE. HARMON E. GRIMSLEY, Winston Salem, N. C., assignor of one-half to George A. Grimsley, Greensboro, N. C. Filed June 30, 1904. Serial No. 214,714.

Claim.—1. A veneer-cutting machine comprising a reciprocating bolt-carrier, a knife-frame reciprocating transversely to the direction in which the bolt-carrier moves, knives carried by the knife-frame for cutting veneer at each stroke of the bolt-carrier, and mechanism for moving the knife-frame to withdraw each knife to a definite extent from the path of the bolt after it has cut a slice of veneer therefrom without interfering with the transversely-reciprocating movement of the knife-frame.

2. A veneer-cutting machine comprising a bolt-carrier, a crank-operated pitman connected therewith for reciprocating it, a knife-frame, a crank-operated pitman connected therewith for reciprocating it transversely to the direction from which the bolt-carrier moves, knives mounted on the knife-frame and adapted to cut veneer from the bolt during each stroke thereof, and means operated by the bolt-carrier at the end of each stroke for tilting the knife-frame to withdraw each knife from the bolt immediately after it has cut a slice of veneer therefrom.

3. A veneer-cutting machine comprising a reciprocating bolt-carrier, a knife-carrying frame reciprocating transversely thereto, bars having eccentric portions on which the knife-carrying frame rests, and means for turning said bars to cause the knife-carrying frame to tilt at the end of each stroke of the bolt-carrier.



4. A veneer-cutting machine comprising a reciprocating bolt-carrier, a knife-carrying frame reciprocating transversely thereto, bars having eccentric portions on which the knife-carrying frame rests, and means operated by the bolt-carrier for turning said bars to cause the knife-carrying frame to tilt at the end of each stroke of the bolt-carrier.

5. A veneer-cutting machine comprising a reciprocating bolt-carrier, a knife-frame carrying two oppositely-inclined knives, bars having eccentric portions on which the knife-carrying frame rests, connections between said bars by which they are made to move coincidently, and devices carried by the bolt-carrier for turning said bars to cause the knife-carrying frame to tilt and thus move one knife out of the path of the bolt while causing the other knife to move into the path thereof.

6. A veneer-cutting machine comprising a rapidly-reciprocating bolt-carrier, devices for clamping the bolt in the carrier, a knife-frame reciprocating transversely to the direction in which the bolt-carrier moves, oppositely-inclined knives carried by the knife-frame for cutting veneer at each stroke of the bolt-carrier, mechanism for moving the knife-frame to withdraw each knife from the path of the bolt after it has cut a slice of veneer therefrom, and means for releasing the bolt-clamping devices at the end of each stroke of the knife-frame.

7. A veneer-cutting machine comprising a supporting-frame, a bolt-carrier mounted to reciprocate on said frame, a knife-carrying frame mounted to reciprocate transversely beneath the bolt-carrier, a vertically-adjustable supporting frame or gage beneath the bolt-carrier and between the knives, and a pipe attached to the supporting frame or gage for steaming the bolt while the veneer is being cut therefrom.

8. A veneer-cutting machine comprising a reciprocating bolt-carrier, a knife-frame below it carrying two knives, a removable receptacle for receiving a plurality of sheets of veneer from the knives and a frame attached to the bolt-carrier and extending beneath the knives which support the veneer-receiving receptacle and carries it alternately from knife to knife whereby successive sheets of veneer are received and piled in the receptacle.

9. A veneer-cutting machine comprising slicing-knives, a bolt-carrier, a stay-log carried thereby and free to move with the bolt toward the knives by gravity, steam-cylinders at opposite ends of the stay-logs, their pistons and connections between the pistons and the stay-log whereby the stay-log may be rapidly raised by steam after the bolt has been cut up.

10. In a veneer-cutting machine, the combination of a bolt-carrier, clamping-blocks mounted thereon, screws for operating said clamping-blocks, a handle, gearing connecting said screws with the handle whereby the blocks may be simultaneously moved into engagement with the bolt, cam-wheels adapted to engage the bolt, gearing for coincidently operating said cam-wheels and means for periodically turning the said wheels to cause them to engage the bolt and to disengage therefrom.

11. In a veneer-cutting machine, the combination of a bolt-carrier, and clamping devices comprising cam-wheels adapted to engage the bolt, gearing for coincidently operating said cam-wheels, and means for periodically turning the said wheels to cause them to engage the bolt and to disengage therefrom.

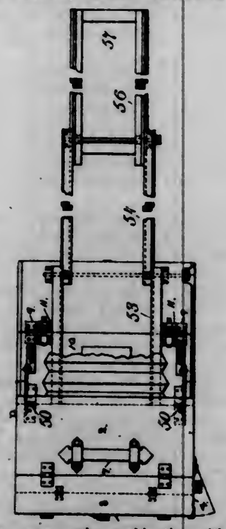
12. In a veneer-cutting machine, the combination of a reciprocating bolt-carrier, a knife-frame beneath it carrying two knives, and clamping devices comprising cam-wheels adapted to engage the bolt, gearing connecting said cam-wheels with each other and devices for setting said gearing into operation as the bolt-carrier reciprocates to cause said cam-wheels to alternately engage the bolt and to be alternately released therefrom, for the purpose specified.

13. A veneer-cutting machine comprising a bolt-carrier provided with a box for the bolt open at top and bottom and at one end, a roller-carrying frame opposite the open end of the box for receiving the bolt and guiding it into the box, a stay-log, means for raising it by steam, clamping devices operating through the sides of the box for holding the bolt in place and a knife-carrying frame reciprocating beneath the bolt-carrier.

786,561. **STEEL.** ROBERT A. HADFIELD, Sheffield, England. Original application filed June 18, 1904. Serial No. 213,131. Divided and this application filed Aug. 13, 1904. Serial No. 220,649.

Claim.—The herein-described steel containing carbon, manganese, nickel and chromium in about the proportions specified (the percentage of manganese being low) and possessing a high elastic limit and a high tenacity with great ductility and toughness.

786,562. **PHOTOGRAPHIC CAMERA.** GILBERT HASSELL, San Francisco, Cal. Filed July 26, 1904. Serial No. 218,197.



Claim.—1. In a camera the combination with suitable lenses and their supporting parts of a movable focusing-screen comprising a pair of swinging plates, a movable plate-holder, and means for removing the focusing-screen from the lens-focus and automatically moving the plate-holder into focus.

2. In a camera, a focusing-screen comprising two swinging plates, pivoted one on one side of the focus of the lens and the other on the other side of said focus.

3. In a camera, a focusing-screen comprising two swinging plates, pivoted one on one side of the focus of the lens and the other on the other side of said focus, each of said plates being composed of sections hinged together and means for locking said sections in their extended positions.

4. In a camera, a focusing-screen comprising two swinging plates, pivoted one on one side of the focus of the lens and the other on the other side of said focus combined with a movable plate-holder behind said plates, and means for simultaneously advancing said plate-holder into focus and swinging said plates out of focus.

5. In a camera, the combination of an inclosing casing, a two-part lining therefor, one section fixed in the casing and the other movable, a plate-holder and a focusing-screen carried by the movable section of the lining, means for causing the movable section to approach toward or recede from the fixed section of the lining, and mechanism which removes the focusing-screen from before the plate-holder as the movable section of the lining approaches the fixed section.

6. In a camera, the combination of an inclosing casing, a two-part lining therefor, one section fixed in the casing, and the other movable, a plate-holder and a swinging focusing-screen carried by the movable section of the lining, means for causing the movable section to approach toward or recede from the fixed section of the lining, and mechanism which swings the focusing-screen from before the plate-holder as the movable section of the lining approaches the fixed section, said means comprising a toothed rack on the movable section, a shaft rotating in the fixed section carrying a pinion meshing with said rack and a crank extending outside of the casing for rotating said shaft.

7. In a camera, the combination of an inclosing casing, a two-part lining therefor, one section fixed in the casing, and the other movable, a plate-holder and a swinging focusing-screen carried by the movable section of the lining, means for causing the movable section to approach toward or recede from the fixed section of the lining, and mechanism which swings the focusing-screen from before the plate-holder as the movable section of the lining approaches the fixed section, said mechanism comprising a toothed pinion mounted on the shaft supporting the screen and a toothed rack meshing therewith and mounted on the fixed section of the lining.

8. In a camera, the combination of an inclosing casing, a two-part lining therefor, one section movable and provided with eye-holes, the other section stationary, a swinging cover for said eye-holes, and mechanism which swings the cover into closing position when the movable section of the lining is forced toward the stationary section.

9. In a camera, the combination of an inclosing casing, a two-part lining therefor, one section movable and provided with eye-holes, the other section stationary, a swinging cover for said eye-holes journaled in the movable section, and mechanism which swings the cover into closing position when the movable section of the casing is forced toward the stationary section, together with the bellows-frame projecting into the fixed section of the lining, a cloth extension connecting the movable section with said bellows-frame and springs normally holding the movable and fixed sections apart.

10. In a camera, the combination of an inclosing casing, a two-part lining for said casing, one section located in the rear thereof and being movable and provided with eye-holes in its upper rear portion, the other section located in the forward portion thereof being stationary, a mirror mounted in a forward extension of said movable section, a focusing-screen and plate-holder mounted in the movable section of the lining and means for causing said movable section to approach toward or recede from the fixed section, and mechanism which removes the focusing-screen from before the plate-holder when said movable section is forced up against the fixed section of the lining.

11. In a camera, the combination with the lenses, bellows and bellows-frame of a plate-carrier movable toward and from the lens-focus, a focusing-plate located before the plate-carrier, a flexible opaque extension inclosing the plate-carrier and focusing-plate and extending to the bellows-frame, and means for removing the focusing-plate from the line of focus as the plate-carrier is moved forward into focus.

12. In a camera, the combination with the lenses, bellows and bellows-frame of a plate-carrier movable toward and from the lens-focus, a focusing-plate located before the plate-carrier, a flexible opaque extension inclosing the plate-carrier and focusing-plate and extending to the bellows-frame, and means for removing the focusing-plate from the line of focus as the plate-carrier is moved forward into focus, together with a mirror mounted in the bellows-frame and springs tending to force said bellows-frame away from the movable plate-carrier.

786,563. **PAPER-FASTENER.** JAMES S. HINES, Macon, Ga. Filed May 31, 1904. Serial No. 210,537.



Claim.—1. A paper-fastener including a pair of coöperating fastening members, and means for positively holding said fastening members in working relation to simultaneously extend through an object, one of said fastening members being laterally movable to cause its release from said holding means, and its movement toward an object-securing position.

2. A paper-fastener including a pair of coöperating fastening members, at least one of which has a hook-like projection to engage a part of the other and to hold them both in position to simultaneously extend through an object.

3. A paper-fastener including a pair of coöperating resilient fastening members, and means for positively holding said members normally in position to simultaneously extend through an object and for permitting their separation without destroying their original identity.

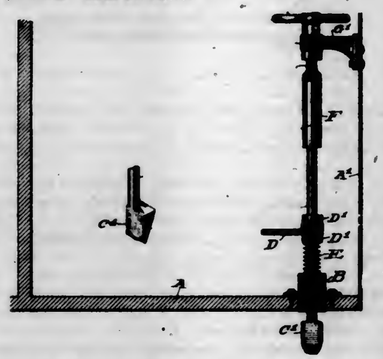
4. A paper-fastener including a pair of coöperating fastening members, and means for positively holding said fastening members in working relation to simultaneously extend through an object and for permitting the separation of said members without destroying their original identity.

5. A paper-fastener including a pair of coöperating resilient members, each having a projection near the tip thereof, said projections being interlockable to hold the resilient members substantially together and to cause them to simultaneously extend through an object.

6. A paper-fastener including a pair of coöperating and pointed resilient fastening members, each having a projection near the pointed end thereof, the projections being interlockable.

7. A paper-fastener including a pair of coöperating resilient fastening members, at least one of which is pointed, and at least one of which has a hook-like projection to engage a part of the other to hold the members in position to simultaneously extend through an object.

786,564. **DEVICE FOR OPERATING THE SWITCHES OF STREET-RAILWAYS.** ELEANOR G. HOWE, Millbury, Mass. Filed May 24, 1902. Serial No. 108,767.

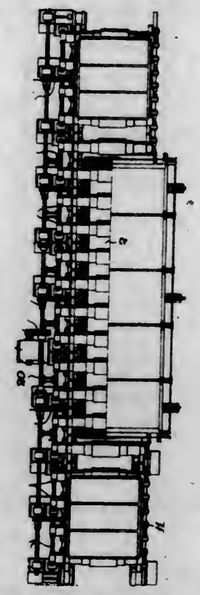


Claim.—1. The combination with a railway-car, of a fixed bracket G', a spindle journaled in said bracket and held from longitudinal movement and having a tubular end provided with a square hole F, a spindle C with its upper end squared and entering said tubular spindle, a cup-shaped bearing for said spindle C, a spiral spring for holding said spindle C in its highest position, and a wedge-shaped tip on said spindle, substantially as described.

2. The combination with a railway-car, of a rotating spindle capable of a downward longitudinal movement, a spring for holding said spindle in its highest position, said spindle provided with a wedge-shaped end for entering the space between a fixed rail and a switch-frog, and means for rotating said spindle after said pointed end has entered said space.

3. The combination with a railway-car, of a fixed bracket, a spindle journaled in said bracket and held from longitudinal movement, said spindle provided with a tubular end, a second spindle entering said tubular end, a spring for holding said second spindle in its highest position, a wedge-shaped tip on said second spindle for entering the space between a fixed rail and a switch-frog, and means for rotating said second spindle after said wedge-shaped tip has entered said space.

786,565. **ANNEALING-FURNACE.** JOHNSON HUGHES, Wissahickon, Pa. Filed Sept. 16, 1904. Serial No. 224,658.



Claim.—1. In an annealing-furnace, a heating-chamber, a plurality of sets of rollers for carrying materials in said chamber, and means for operating said sets of rollers together or separately, substantially as specified.

2. In an annealing-furnace, a heating-chamber, means for simultaneously varying the intensity of the heating operations at different zones of said chamber, a plurality of sets of rollers for carrying materials in said chamber, and mean for operating said sets of rollers together or separately, substantially as specified.

3. In an annealing-furnace, a heating-chamber, means for introdueing a flame near the top of said chamber, flues at various points along the bottom of said chamber for discharging the products of combustion, dampers for regulating said flues and controlling the heating-currents in said chamber, a plurality of sets of rollers for carrying materials in said chamber, and means for operating said sets of rollers together or separately, substantially as specified.

4. In an annealing-furnace, a heating-chamber having a channel extending along the bottom thereof, rollers extending across said channel and located below the general level of the bottom of said chamber, flues at several points along the length of said chamber for carrying off the gaseous products of combustion therefrom, dampers for controlling the respectiye flues, and means for heating said chamber, substantially as specified.

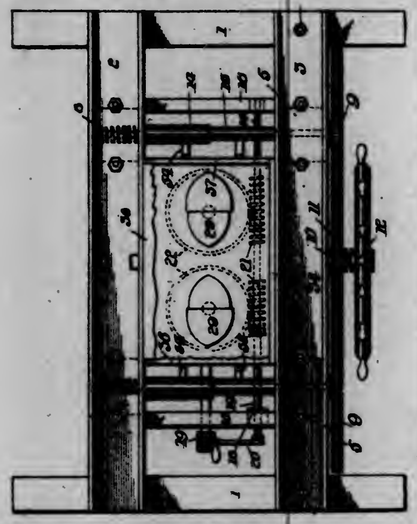
5. In an annealing-furnace, a heating-chamber, rollers in the bottom of said chamber, shafts respectively geared to a plurality of said rollers, a driving-shaft, and means for connecting and disconnecting said driving-shaft with relation to each of said first-named shafts, substantially as specified.

6. In an annealing-furnace, a heating-chamber, rollers extending through and beyond the ends of said chamber for carrying materials thereto, therethrough and therefrom, shafts respectively geared

to a plurality of said rollers, a driving-shaft, and means for connecting and disconnecting said driving-shaft with relation to each of said first-named shafts, substantially as specified.

7. In an annealing-furnace, a heating-chamber, rollers in said chamber, gears on corresponding ends of the respective rollers, a plurality of journaled shafts, gears on the respective journaled shafts engaging said roller-gears, a journaled driving-shaft, gears connecting said driving-shaft with each of said first-named shafts, and a clutch for engaging and disengaging said driving-shaft with each of said first-named shafts, substantially as specified.

786,566. APPARATUS FOR MAKING HOLLOW CONCRETE BLOCKS. WILLIAM G. HUGHES, Pittsburg, Pa. Filed Dec. 21, 1903. Renewed Aug. 23, 1904. Serial No. 221,704.



Claim.—1. In an apparatus of the class described, a framework embodying side rails, one of which is movable and the other of which is stationary, means for actuating the movable side rail, a mold having a hinged side wall, expansible cores arranged in said mold, and means for expanding said cores, substantially as described.

2. In an apparatus of the type described, supporting-beams, and side rails one of which side rails being movable toward the other side rail, means for actuating the movable side rail, a mold having a side wall movable in unison with the movable side rail, expansible cores arranged in said mold, and means for expanding said cores, substantially as described.

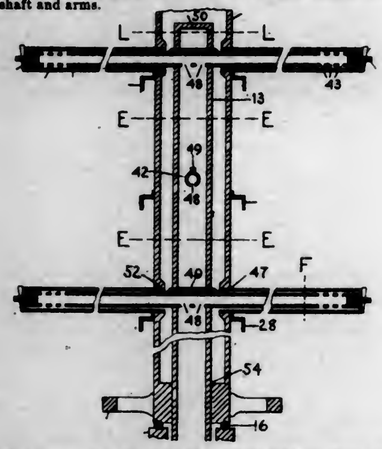
3. In an apparatus for making hollow concrete blocks, the combination with supporting-beams, of a pair of structural I-beams mounted thereon, one of said I-beams being rigidly secured and the other of said I-beams being movable toward and away from the rigid beam, a mold arranged between the I-beams and having a hinged side wall, means for actuating the movable side rail, expansible cores within the mold, and means for expanding said cores, substantially as described.

4. In an apparatus of the type described, the combination with a supporting-frame having a movable side rail, of a mold supported by the frame and having a movable side wall actuated by the said rail, expansible cores in said mold, means for expanding said cores, and means for elevating the mold above the cores to permit the removal of the finished block, substantially as described.

5. In an apparatus of the type described, a frame embodying a pair of side rails one of which is movable away from and toward the other side rail, means for operating said movable side rail, a mold, expansible cores within said mold, means for expanding and retracting said cores, and means for elevating the mold above the cores to permit the removal of the finished block, substantially as described.

786,567. ROASTING-FURNACE. WALTER R. INGALLS, Lynn, Mass. Filed Feb. 15, 1904. Serial No. 193,626.

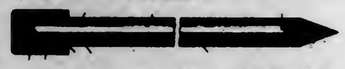
Claim.—1. A roasting-furnace comprising two or more superimposed hearths, flues under two or more of said hearths, ducts connecting said flues, means to cause the gas burned in said flues to pass successively through them in a circular direction; and a rotary stirring mechanism with arms projecting over the hearths, said stirring mechanism consisting of a central vertical shaft with an interior flue, hollow horizontal arms passing entirely through said shaft and communicating with said interior flue by suitable apertures, the portions of said arms exterior to the central vertical shaft being inclosed by other hollow arms, so as to leave an open space between the inner and outer arms, and means for circulating a cooling medium through the shaft and arms.



2. A rotary stirring mechanism comprising a central vertical shaft with an interior flue, and a hollow horizontal arm, subdivided into flues, passing entirely through said shaft.

3. A rotary stirring mechanism comprising a central vertical shaft with an interior flue, hollow horizontal arms passing entirely through said shaft, the portions of said arms exterior to the central vertical shaft being inclosed by other hollow arms, so as to leave an open space between the inner and outer arms, said outer arms being supported by said inner arms, and means for circulating a cooling medium through the shaft and arms.

786,568. FENCE-POST. LOUIS W. JOHNSON, Mount Vernon, Mo. Filed July 19, 1904. Serial No. 217,190.



Claim.—1. A tubular fence-post having slots therein to receive wires, a lower pointed end, water-exit perforations above the lower pointed end, and internal screw-threads at its upper end, and a removable driving-cap fitted over the upper end of the post and having a U-shaped spring secured thereto and fitting into the upper end of the post.

2. A fence-post-driving cap having a depending annular flange and a U-shaped spring secured to the lower surface of said cap.

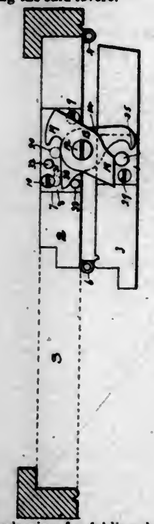
3. A fence-post-driving cap having a depending annular flange, and a U-shaped spring secured to said cap inside the annular flange, the ends of said spring projecting beyond said annular flange.

4. A fence-post-driving cap having a depending annular flange, and a U-shaped spring secured to said cap inside the annular flange, the ends of said spring projecting beyond said annular flange and being bent toward each other.

5. A fence comprising a plurality of fence-posts, each having a pointed solid end, a plurality of water-exit perforations adjacent to said solid pointed end, a plurality of horizontal slots, and internal screw-threads at its upper end, a plurality of wires or runners fitted into the horizontal slots of the posts, and a wire or rod within each post for holding the runners in place.

786,569. LOCKING MECHANISM FOR FOLDING DOORS. JAMES W. JONES, West Haven, Conn. Filed Sept. 19, 1904. Serial No. 224,962.

Claim.—1. In a locking mechanism for folding doors, the combination with a jamb locking-lever and a door-coupling lever mounted upon the first door of a pair of folding doors, of means carried by the second door of the pair and by the jamb for coacting with and automatically operating the said levers.



2. In a locking mechanism for folding doors, the combination with a spring-actuated jamb locking-lever and a spring-actuated door-coupling lever both mounted upon the first door of a pair of folding doors, and means carried by the jamb and by the second door of the pair for coacting with the inner and the outer ends of the said levers to render their action automatic.

3. In a locking mechanism for folding doors, the combination with a jamb locking-lever and a door-coupling lever both mounted upon the first door of a pair of folding doors, an operating-stud carried by the second door of the pair and coacting with the outer ends of the said levers, and studs mounted in the jamb and coacting with the inner ends of the said levers which are automatically operated by the said three studs.

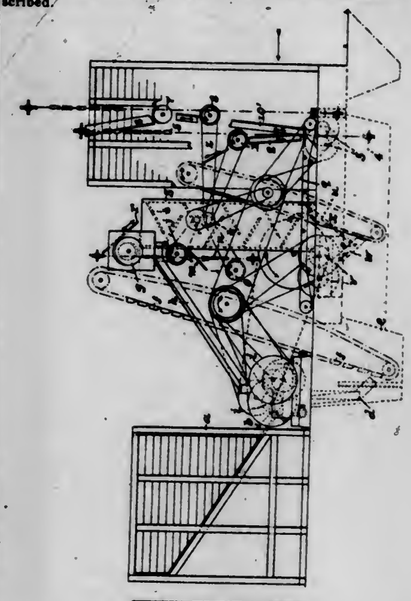
4. In a locking mechanism for folding doors, the combination with a jamb locking-lever mounted upon the first door of a pair of folding doors and formed at its outer end with a beveled tail and at its inner end with a hook, of a door-coupling lever also adapted to be mounted upon the first door of the pair and formed at its outer end with a hook and at its inner end with a beveled tail, and means carried by the second door of the pair and by the jamb for coacting with the hooks and tails of the said levers to render their action automatic.

5. In a locking mechanism for folding doors, the combination with a bearing-plate applied to the top of the first door of a pair of folding doors, of a jamb locking-lever and a door-coupling lever mounted upon the said plate, an operating-stud located in the top of the second door of the pair and coacting with the outer ends of the said levers, and a stud-plate mounted in the jamb and carrying two depending studs coacting with the inner ends of the said levers which are automatically operated by the said three studs.

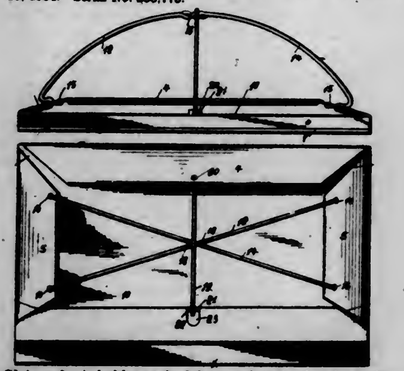
786,570. PROCESS OF TREATING ORE. EDWARD KELLY, Dover, and AUGUSTUS MUNSON, Hibernia, N. J., assignors to Joseph Wharton, Philadelphia, Pa. Filed Nov. 4, 1904. Serial No. 231,327.

Claim.—1. The process of treating ore bearing magnetic substance which consists in first separating ore of a given size from ore, or fines, of a less size, drying out the ore of less size, subjecting the ore of larger size to the action of a magnetic separator having a given strength whereby to separate out, as heads, all ore having a given percentage of magnetite from that, as tails, having less, and then reducing the said tails and subjecting them, reduced, and the fines, to further magnetic separation, substantially as described.

2. The process of treating ore bearing magnetic substance which consists in first subjecting the ore to a magnetic separator having a given strength whereby to separate out all ore having magnetic substance in material quantity from the remainder, then separating the larger heads from this separator from the smaller heads, or fines, drying out the smaller heads, subjecting the larger heads to the action of a magnetic separator having less strength than said first-named separator whereby to separate out, as heads, all ore having a given percentage of magnetic substance from that, as tails, having less, and then reducing the said tails and subjecting them, reduced, and the fines, to further magnetic separation, substantially as described.



786,571. PAPER-HOLDER. GODFRIED LAUBE, Los Angeles, Cal., assignor of one-half to Joseph R. Marsh, Santa Monica, Cal. Filed Dec. 29, 1904. Serial No. 238,773.



Claim.—1. A holder embodying a plate having inwardly-extending flanges on its ends and a like flange on one side edge, the other side edge having an outwardly-extending flange lying below the plane of the plate and adapted to be received and held between the sash and sill of a window, and shield-wires having their ends detachably hooked into the end flanges of the plate.

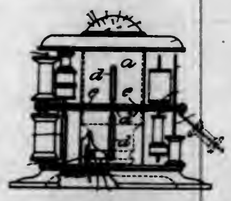
2. A holder of the type described comprising a plate having a flange along one side lying on a plane below the plate and adapted to be received and held between the sash and sill of a window, paper-holding flanges carried by the plate, and a shield-wire having one end engaged with one of the holding-flanges, and its other end detachably engaged with a lug carried by the plate.

3. A holder forming a shelf and embodying a plate having one side edge depressed below the body of the plate to be received and

held between a window sill and sash, and paper holding and securing means carried by the plate, substantially as described.

4. A holder embodying a plate having integral inwardly-extending end flanges, a lug, and an integral inwardly-extending side flange, shield-wires crossing each other and bowed across the plate with their ends detachably hooked into the end flanges of plate, and a transverse shield-wire having one end hooked into the side flange of the plate, and its other end detachably engaged with the said lug carried by the plate.

786,572. SPOOL-STAND. HORACE E. LEEMAN, Lynn, Mass. Filed Aug. 22, 1904. Serial No. 221,700.



Claim.—1. A spool-stand comprising a standard, a ring surrounding the standard, radial arms affixed to the standard and supporting the ring, fingers pivotally engaged with the ring, and means for yieldingly holding the fingers against the arms.

2. A spool-stand comprising a standard having an outwardly-projecting cap, a ring surrounding the standard, radial arms connecting the ring with the standard, movable fingers pivotally engaged with the ring, and means for yieldingly holding the fingers against the arms, in position to be guarded by the cap.

3. A spool-stand comprising a standard having a base, an outwardly-projecting cap above the base, a ring supported by the standard between the base and cap, two series of fingers movably engaged with said ring, one series projecting upwardly and the other downwardly from the ring, and means for yieldingly holding the fingers in position to be guarded by the base and cap.

4. A spool-stand comprising a standard, a ring surrounding the standard and supported thereby, spool-holding fingers each having a ring-engaging eye adapted to turn on the ring, and helical springs mounted on the ring and each yieldingly engaged at its ends with the ring-engaging eyes of two adjacent fingers.

5. A spool-stand comprising a standard, a ring surrounding the standard and supported thereby, spool-holding fingers each having a helically-coiled wire-engaging eye adapted to turn on the ring, and helical springs mounted on the ring, the ends of each spring abutting against the ends of the helically-coiled eyes of two adjacent fingers.

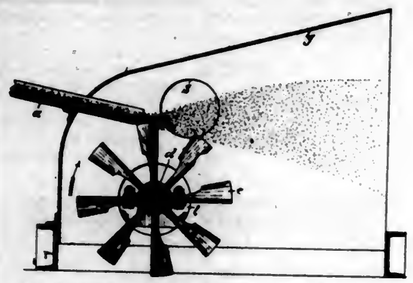
6. A spool-stand comprising a standard, a ring surrounding the standard, radial arms connecting the ring with the standard, wire fingers each having a looped spool-engaging member contracted at its inner portion to bear on one of said arms, two ring-engaging members or eyes, one of which is helically coiled, and arms connecting said eyes with the looped member, and helical springs mounted on the ring, the ends of each spring abutting against the ends of the helically-coiled eyes of two adjacent fingers.

7. A spool-stand comprising a hollow standard adapted to serve as a receptacle and provided with an outwardly-projecting base, a removable cap formed to cover the interior of the standard and projecting outwardly over the base, and spool-holding fingers grouped about the standard and supported thereby between the cap and base, said fingers being guarded by the removable cap and exposed when the cap is removed.

8. A spool-stand comprising a standard, and a base comprising wire arms radiating from and secured to the lower portion of the standard, said arms being bent to form eyes and legs, and a ring surrounding the lower portion of the standard and engaged with said eyes.

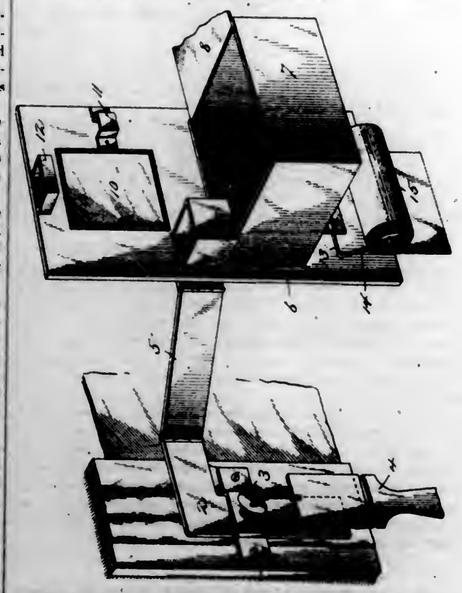
786,573. APPARATUS FOR SPRAYING BLAST-FURNACE CINDER. WILHELM LESSING, Gaaske, Germany, assignor to Gesellschaft für Trockenerstäubung Flüssiger Materien mit Beschränkter Haftung, Berlin, Germany. Filed Nov. 13, 1903. Serial No. 131,235.

Claim.—1. In apparatus for spraying molten cinder, the combination, with a revoluble drum provided with ribs or fans which spray the cinder and circulate the air, of an inclosing casing for the said drum having an air-inlet opening in its side at one end of the drum and having also an opening above the drum, and a chute for supplying the cinder to the drum which projects through the last said opening.



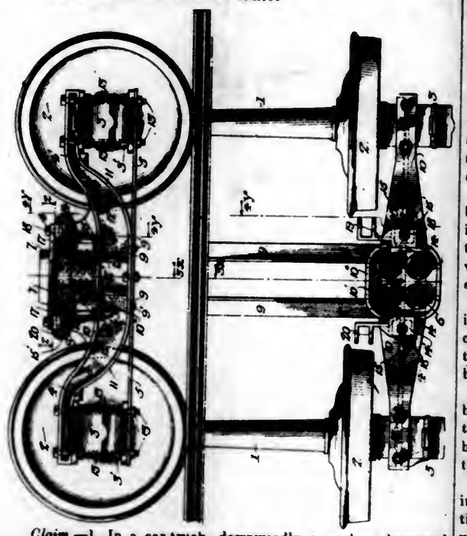
2. An improved apparatus for spraying glowing liquid blast-furnace cinder comprising in combination a horizontally-situated rotatable spraying-drum, fixed on a rotatable horizontal axle, fans projecting from the surface of said drum having undulated surfaces, an adjustable channel for the supply of the materal to be mixed with the cinder, an adjustable slag-channel above said drum, a casing inclosing the drum and accessories, having an opening in the upper part of said casing for the passage of the slag-channel, and having openings in the walls of the casing around the ends of the axle of the drum, substantially as described and shown and for the purpose set forth.

786,574. SHAVING-CABINET. FRANK P. LINSLEY, Gallipolis, Ohio. Filed Nov. 4, 1903. Serial No. 179,806.



Claim.—A shaving-cabinet comprising a support having a bracket secured thereto, a slide provided with a vertical arm having a horizontal arm rigidly secured at right angles therewith, the horizontal arm being provided at one end with an intermediate arm hinged in a straight line thereto, a cabinet having a plurality of receptacles thereon, an arm secured to the rear portion of said cabinet having a straight projecting end which is hinged in a direct line with the other or opposite end of the intermediate arm, said vertical arm of the slide being adjustably mounted in the bracket so as to raise or lower the cabinet by means of the horizontal arm, means on the bracket for securing the cabinet when in a raised or lowered position, and said intermediate arm serving in connection with the horizontal arm to fold the cabinet flush against the hereinbefore-mentioned support, substantially as specified.

786,575. CAST-STEEL CAR-TRUCK. ARTHUR LIPSCHUTZ, St. Louis, Mo., assignor of one-half to Herbert W. Wolff, St. Louis, Mo. Filed Nov. 23, 1904. Serial No. 234,035.



Claim.—1. In a car-truck, downwardly curved or depressed center, cast-steel side beams which rest upon the tops of journal-boxes, in combination with bolster-guide jaws on the tops of said beams providing bolster-spaces that are open at the top, and spring-seats upon the beams between the jaws thereof, substantially as described.

2. In a car-truck, the axles, wheels, journal-boxes, bolster and bolster-springs, in combination with cast-metal side beams which rest upon said journal-boxes and have depressed middle portions, the tops of which are provided with spring-seats to support said bolster, and bolster-jaws on said beams, open at the top, substantially as described.

3. In a car-truck, the axles, wheels, journal-boxes and bolster, in combination with cast-steel side beams resting and secured upon the tops of said journal-boxes, said beams being provided with open-topped bolster guides or jaws from which the bolster may be removed without disturbing the other parts named, said beams being also provided with spring-seats between respective guides or jaws, substantially as described.

4. In a car-truck, the journal-boxes, in combination with a side beam having its ends secured upon the tops of said journal-boxes, and having a depressed, enlarged middle portion constituting a spring-seat, a suitable truck-bolster having an inverted spring-seat upon its end and springs arranged between said seats, substantially as described.

5. In a car-truck, the journal-boxes of one side of the truck, in combination with a side beam having its ends resting upon and secured to said boxes, said beam having a downwardly-curved middle portion, and the middle top of said beam being equipped with bolster guides or columns joined by a bolster-stop, substantially as described.

6. In a car-truck, the journal-boxes of one side of the truck, in combination with a side beam having its ends resting upon and secured to said boxes, said beam having a downwardly-curved middle portion and the middle top of said beam being equipped with bolster guides or columns and a spring-seat, substantially as described.

7. In a car-truck, the journal-boxes, in combination with side beams which rest upon and are secured to the tops of respective pairs of said boxes, a spring-seat upon the middle top of each said beam, columns extending upward from said top and means joining the tops of each pair of columns, substantially as described.

8. In a car-truck, the journal-boxes, in combination with the side beams, the ends of which rest upon respective boxes, said beams having the form of inverted arches with their middle tops substantially in the plane of the axle centers of said boxes, bolster-fittings upon the tops of said beams and a tie-rod for each beam and pair of boxes, substantially as described.

9. In a car-truck, a truck-beam supported on the tops of the journal-boxes and provided with a widened or expanded middle top portion, constituting a bolster-spring seat, substantially as described.

10. A truck side beam, comprising a flanged beam having ends adapted to rest upon the tops of journal-boxes and having a top flange that is widened at the middle to form a spring-seat, substantially as described.

11. In a car-truck, the journal-boxes, in combination with the beam, having its ends resting upon the tops of said journal-boxes, and provided with a middle widened portion constituting a spring-seat, and having superimposed truck-bolster guides or columns, substantially as described.

12. In a car-truck, the journal-boxes, in combination with a beam having a vertical web and horizontal flanges, said beam resting upon said boxes, the top flange of said beam being widened at the middle to form a spring-seat, and provided with integral upwardly-extending bolster guides or columns, substantially as described.

13. In a side frame or beam for car-trucks, a flanged beam having ends of relatively reduced width and depth, the top of said beam constituting a spring-seat, bolster guides or columns arranged upon the top of said beam and brake-hanger lugs projecting from said beam, substantially as described.

14. A side frame or beam for car-trucks, comprising a flanged beam, having ends of less size than its middle portion, the middle top flange of said beam being widened to form a spring-seat and said beam being provided with integral bolster guides or columns and truck-hanger lugs, substantially as described.

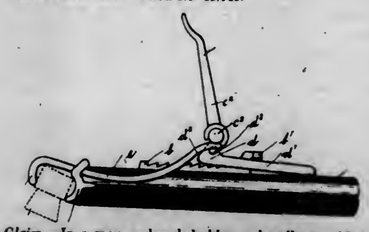
15. In a car-truck, the wheels, axles, journal-boxes and bolster, in combination with side beams supported upon the tops of respective boxes, said beams being provided with spring-seats by suitably widening the middle portions thereof, truck-bolster guides superimposed on said beams and springs interposed between the widened portions of said beams and the ends of said bolster, substantially as described.

16. In a car-truck side beam, the inverted-arch beam composed of vertical and horizontal webs and flanges, said vertical web diminishing in height toward the ends of the beam, and the top flange of the beam being widened at the middle of the beam and provided with integral bolster-columns and laterally-extending brake-hanger lugs, substantially as described.

17. In a car-truck, the wheels, axles, journal-boxes and truck-bolster, in combination with parallel beams forming the sides of said truck and having their ends secured upon the tops of said boxes, the middle portions of said beams being depressed and having top flanges that are widened to form spring-seats, bolster guides or columns superimposed upon said top flange, means for joining the tops of the pairs of guides or columns to secure the bolster therein, and bolster-springs arranged between the pairs of columns and resting upon said seats, substantially as described.

18. In a car-truck, the journal-boxes, in combination with a tie-bar extending between said journal-boxes and attached to the bottoms thereof, an inverted arch-bar or beam having its ends fastened upon the tops of said boxes and its middle portion fastened to said tie-bar, the top of said beam being suitably widened to form a spring-seat and being equipped with suitable bolster guides or columns, substantially as described.

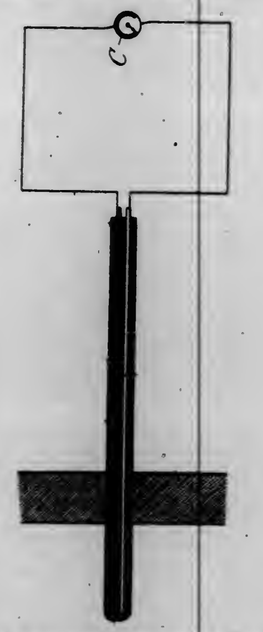
786,576. MOP OR BRUSH HOLDER. JOHN C. LOOK, Tudor, Cal. Filed Dec. 31, 1900. Serial No. 41,641.



Claim.—In a mop or brush holder, a handle provided with a cross-head having guides extending laterally therefrom, a lever adjustable along the handle by a series of spaced rigid stops, and a clamp-wire having sides attached to the lever, said clamp-wire being of one continuous spring-wire, said wire passing through the said

guides and bent at an angle over the face of the cross-head, and the sides attached to the lever being curved normally bow-shaped to permit of extension of said sides under tension to take up the distance between two successive stops, said curved sides having the bow in a plane substantially at right angles to the longitudinal plane of the cross-head and handle, and curved to a degree that the bow crosses a direct line from the pivot on the lever to the point of the hook over the face of the clamp-head, substantially as described.

786,577. THERMO-ELECTRIC COUPLE. ALBERT L. MARSH, Lake Bluff, Ill., assignor to William A. Spinks & Company, Chicago, Ill., a Firm. Filed Oct. 18, 1904. Serial No. 228,945.



Claim.—1. A thermo-electric couple one element of which consists in whole of commercially-pure cobalt.

2. A thermo-electric couple, one element of which consists in whole or in part of cobalt and the other element of one of the metals of the chromium group.

3. A thermo-electric couple, one element of which consists in whole or in part of cobalt and the other element of an alloy containing one of the metals of the chromium group.

4. A thermo-electric couple, one element of which consists in whole or in part of cobalt and the other element of an alloy of nickel and one of the metals of the chromium group.

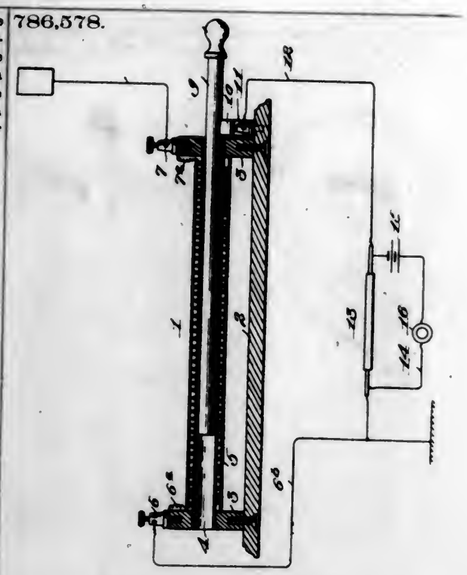
786,578. COMBINED CONDENSER AND LEAK-COIL. WALTER W. MASSIE, Providence, R. I. Filed June 18, 1904. Serial No. 213,177.

Claim.—1. In a combined condenser and leak-coil for wireless-telegraphy apparatus, the combination with a coil one terminal of which is connected to the vertical wire and the other to ground, and a metal tube associated with said coil and having operative connection with the receiving instrument and ground.

2. In a combined condenser and leak-coil for wireless-telegraphy apparatus, the combination with a coil one terminal of which is connected to the vertical wire and the other to ground, and a metal tube adjustably arranged with relation to said coil and having operative connection with the receiving instrument and ground.

3. In a combined condenser and leak-coil for wireless-telegraphy apparatus, the combination with an insulating-tube, a coil associated therewith, one terminal of which is connected to the aerial instrument and the other to ground, a metal tube adjustably arranged with relation to said coil and having operative communication with the receiving instrument and ground, substantially as described.

786,578.



786,579. BROOM-CORN FIBER. ALBERT J. MIDDLETON, Indianapolis, Ind. Filed Oct. 31, 1904. Serial No. 230,822.



Claim.—1. The herein-described composition of matter consisting of shredded broom-corn fiber, gluten, glue, and resin, mixed and heated to a temperature of approximately 70° Fahrenheit.

2. The herein-described composition of matter consisting of shredded broom-corn fiber, gluten, glue, and resin, mixed and heated to a temperature of approximately 70° Fahrenheit and then rolled into sheets.

3. The herein-described composition of matter consisting of shredded broom-corn fiber, gluten, glue, and resin, mixed and heated to a temperature of approximately 70° Fahrenheit and then rolled into sheets of approximately one-sixteenth of an inch in thickness.

786,580. VEHICLE-WHEEL. JAMES F. MIDDLETON, Pittsfield, Mass., assignor of one-half to Elmer S. Robison, Pittsfield, Mass. Filed Dec. 27, 1904. Serial No. 238,397.

Claim.—1. A vehicle-wheel comprising a hub, a rim, arms equally spaced apart and extending from said hub, members corresponding in number with said arms, each of which is adapted to fit over one of said arms in which the arm is movable radially, means for resisting a radial pressure on each of said arms, and means whereby the hub is, relatively to the rim, also movable at right angles to said radial movement in the plane of the wheel.

2. A vehicle-wheel comprising a hub, a rim, arms spaced ninety degrees apart and extending radially from the hub, members corresponding in number with said arms, each of which is adapted to fit over one of said arms in which the arm is movable radially, a spring for resisting a radial pressure on each of said arms, and means whereby the hub is, relatively to the rim, also movable at right angles to said radial movement in the plane of the wheel.

3. A vehicle-wheel, comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, means whereby the hub is, relatively to the rim, also movable at right angles to the said radial movement in the plane of the wheel, and means for resisting a radial pressure on each of said radial arms.

4. A vehicle-wheel, comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members, corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, means whereby the hub is, relatively to the rim, also movable at right angles to the said radial movement in the plane of the wheel, and means for resisting a radial pressure on each of said radial arms.

5. A vehicle-wheel comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, means whereby the hub is, relatively to the rim, also movable at right angles to the said radial movement in the plane of the wheel, and a helical spring surrounding the reduced end of each of said arms within the body portion of said T member to resist radial pressure on the said arms.

6. A vehicle-wheel comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, bars, each of which passes centrally through a cross-arm of one of the T members at right angles with said radial arm, devices for connecting the ends of said bars to said rim, and means for resisting pressures from opposite sides on the cross-arm of each of said members.

7. A vehicle-wheel comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, bars, each of which passes centrally through a cross-arm of one of the T members at right angles with said radial arm, devices for connecting the ends of said bars to said rim, means for resisting pressures from opposite sides on the cross-bar of each of said members, and means for guiding the movement of each of the said T members.

8. A vehicle-wheel comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, bars, each of which passes centrally through a cross-arm of one of the T members, lugs on said rim, connecting members in which are secured the ends of the said bars, means for fixing said connecting members in said lugs, and means for resisting pressures from opposite sides on the cross-arm of each of said T members.

9. A vehicle-wheel, comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms in which the arm is movable radially, bars, each of which passes centrally through a cross-arm of one of the T members, lugs on said rim, connecting members in which are secured the ends of the said bars, means for fixing said connecting members in said lugs, springs surrounding each of said bars and in the opposite ends of the cross-arm of each of the T members, and means for varying the tension of each of said springs.

10. A vehicle-wheel, comprising a hub, a rim, a series of radial arms extending from said hub and having reduced end portions, a plurality of T-shaped members corresponding in number to the said arms, the body portion of each T member being adapted to fit over one of said arms, in which the arm is movable radially, bars having screw-threaded ends, each of which passes centrally through a cross-arm of one of the T members, lugs on said rim, connecting members in which are secured the ends of the said bars, means for fixing said connecting members in said lugs, springs surrounding each of said bars and in the opposite ends of the cross-arm of each of the T members, and sleeves fitting over the screw-threaded ends of the said bars and bearing against the last aforesaid springs to determine the tension thereof.

786,581. PROCESS OF TREATING METALLIC LEAD. HARRY E. MILLER, Oakland, Cal. Filed July 21, 1903. Serial No. 166,494.

Claim.—1. The process of treating metallic lead consisting in converting a portion thereof to its oxid, separating the oxid and residuum and reducing the oxid to metal form.

2. The process of treating metallic lead consisting in converting a portion thereof to litharge, separating the litharge and residuum, and reducing the litharge to metal form.

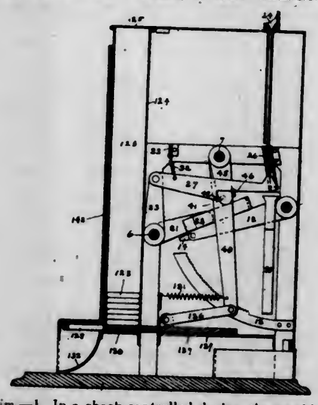
3. The process of treating metallic lead consisting in converting the major portion thereof to its oxid, separating the oxid and residuum, and reducing the oxid to metal form.

4. The process of treating metallic lead consisting in converting the major portion thereof to litharge, separating the litharge and residuum and reducing the litharge to metal form.

5. The process of treating metallic lead consisting in converting approximately ninety-five per cent. thereof to its oxid, separating the oxid and residuum, and reducing the oxid to metal form.

6. The process of treating metallic lead consisting in converting approximately ninety-five per cent. thereof to litharge, separating the litharge and residuum and reducing the litharge to metal form.

786,582. VENDING-MACHINE. JOHN MOHN and ROBERT C. YATES, Detroit, Mich. Filed May 27, 1904. Serial No. 210,092.



Claim.—1. In a check-controlled device, the combination of a main shaft, a rocking shaft, stationary bearings for each, connecting means whereby the main shaft may turn the rocking shaft, a third shaft, stationary bearings for the same, normally inoperative check-controlled connections whereby said rocking shaft may turn said third shaft.

2. In a check-controlled device, the combination of a frame, stationary bearings carried by said frame, a shaft adapted to rock in said bearings, a second shaft pivoted in said bearings and having arms, check-controlled means for operating said arms from the rocking shaft, and an operating-handle to impart movement to the two shafts.

3. In a check-controlled device, the combination of an operating-shaft having a handle, a rocking shaft having a series of arms secured thereto, a connecting mechanism between the operating-shaft comprising a lever secured to the rocking shaft and having a pawl at one end, and an arm on the operating-shaft, levers secured to

the arms on the rocking shaft, a check-receiver having slots through which the ends of said levers extead and springs to cause the upward movement of the outer ends of the levers.

4. In a check-controlled device, a frame, stationary bearings in said frame, a shaft adapted to rock in said bearings, an arm secured thereto, a lever secured to said arm and having a hook, a second shaft, an arm secured to said second shaft and having a pin in the normal path of said hook, means to elevate said hook above said pin and means to cause said hook to engage said pin upon the actuation of the rocking shaft.

5. In a check-controlled device, a frame, stationary bearings in said frame, a shaft adapted to rock in said bearings, an arm secured thereto, a check-controlled lever secured to said arm, a second shaft, means carried by said second shaft in the normal path of a projection on said lever, means to hold said lever in its path to rock said second shaft upon the actuation of the first, and means to move said lever out of its path so that the rocking shaft will alone be actuated.

6. In a check-controlled device, the combination of a main operating-shaft, a handle for swinging said shaft, a rocking shaft, a lever projecting toward the operating-shaft and having a yieldable pawl, an arm on the main shaft to contact with said pawl when turned in one direction and so rock said rocking shaft, arms secured to said rocking shaft, and check-controlled levers connected to said arms.

7. In a package-vending machine, the combination of an operating-shaft, an operating-handle, a rocking shaft, a third shaft carrying a plurality of arms, links connected to the arms, package-ejectors connected to said links and check-controlled means carried by the rocking shaft whereby all or a less number of ejectors may be actuated upon the operation of the operating-handle.

8. In a package-vending machine, the combination of an operating-shaft, an operating-handle therefor, a rocking shaft, operating connections between said shafts, a third shaft carrying a plurality of arms, links connected to the arms, package-ejectors connected to said links and check-controlled means whereby all of the ejectors will be actuated upon the operation of the operating-handle.

9. In a package-vending machine, the combination of an operating-shaft, an operating-handle therefor, a rocking shaft, operating connections between said shafts, a third shaft carrying a plurality of arms, links connected to the arms, package-ejectors connected to the links and a check-controlled device for each arm whereby any selected one of said ejectors will be actuated upon the operation of the operating-handle.

10. In a package-vending machine, an oscillating shaft, a shaft having a plurality of arms loosely mounted thereon, links connected to the arms, package-ejectors connected to the links, and check-controlled means carried by the oscillating shaft and connecting the arms and the oscillating shaft whereby all or a less number of ejectors may be actuated at will upon the movement of the oscillating shaft.

11. In a package-vending machine, an operating-handle, a plurality of package-ejectors, and check-controlled means for each ejector in operable connection with said handle, whereby all or a less number of the ejectors will be positioned at will upon the movement of the handle, and separate means for causing the ejecting action of the ejectors.

12. In a package-vending machine, an operating-handle, a plurality of package-ejectors, and check-controlled means for each ejector in operable connection with said handle, whereby all the ejectors will be positioned upon the movement of the handle, and separate means for causing the ejecting action of the ejectors.

13. In a package-vending machine, an operating-handle, a plurality of pivoted arms, links connected to said arms, package-ejectors connected to said links, check-controlled means in operable connection with said handle whereby all of the ejectors may be positioned upon the movement of the handle, and separate means for causing the ejecting action of the ejector.

14. In a package-vending machine, an operating-handle, a plurality of pivoted arms, links connected to said arms, package-ejectors connected to said links, check-controlled means in operable connection with said handle whereby all or a less number of the ejectors will be positioned upon the movement of the handle, and separate means for causing the ejecting action of the ejectors.

15. In a vending-machine, the combination of the operating-shaft having an oscillating movement, means to compel said shaft to complete its movement in each direction, a second shaft, check-controlled means carried by said shaft, a third shaft having a series of loosely-mounted arms, and a receiver to hold checks so as to compel an operable connection between the operating-shaft and the depending arms.

16. In a vending-machine, the combination of the operating-shaft, means to compel said shaft to oscillate through a fixed range of movement, a rocking-shaft, check-controlled means carried by said shaft, a series of loosely-mounted arms, and a receiver to hold checks so as to compel an operable connection between the operating-shaft and the arms.

17. In a package-vending machine, the combination of the operating-shaft, means to compel said shaft to oscillate through a fixed range of movement, a rocking shaft, check-controlled means carried by said shaft, a series of loosely-mounted arms, a receiver to hold checks so as to compel an operable connection between the operating-shaft and the arms, and package-ejectors connected to said arms.

18. In a vending-machine, the combination of the operating-shaft, means to compel said shaft to oscillate through a fixed range of movement, a rocking shaft, a check-controlled lever, a third shaft having a series of loosely-mounted arms, a normally inoperative connection between the lever and the arms, and a receiver to hold a check so as to make said connection operative at the forward movement of the operating-shaft.

19. In a package-vending machine, the combination of the operating-shaft, means to compel said shaft to oscillate through a fixed range of movement, a rocking shaft, check-controlled levers carried by said shaft, a series of loosely-mounted arms, one for each lever, a receiver having a series of receptacles to hold a check so as to cause an operable engagement between any one of the levers and the corresponding arm, an additional check-controlled lever carried by the rocking shaft, normally inoperative connections between the lever and all the arms, said receiver having a receptacle to hold a check so as to make said connections operative.

20. In a package-vending machine, the combination of the operating-shaft, means to compel said shaft to oscillate through a fixed range of movement, a rocking shaft, arms mounted on said shaft, check-controlled levers carried by said shaft, a third shaft, a series of arms loosely mounted on said shaft and having laterally-projecting lugs, a series of arms fixed on said shaft and abutting against said lugs to cause the loose arms to swing upon the turning of the shaft, a receiver having a series of receptacles to hold checks so as to cause an operable engagement of any one of a plurality of said levers and the corresponding loose arm, and an additional receptacle to hold a check to cause an operable connection between one of said levers and the fixed arms so that one or all of the arms may be actuated at will by the operating-shaft, and a package-ejector connected to each swinging arm.

21. In a vending-machine the combination of a pivoted check receptacle provided with a casing rectangular in cross-section, a perforated slide normally forming the bottom of said casing to support the checks, a second slide near the top of the casing having a perforation the size of the checks and normally in line with the receptacle, and means to actuate said slides to cause the upper slide to carry the check in its perforation laterally out of the case and to close the lower end of the receptacle and simultaneously to move the perforation in the lower slide under the checks resting thereon to permit said checks to drop from the case, chutes to separate the checks released by the two slides and means to return said slides to normal position.

22. In a vending-machine, the combination of pivoted casing, rectangular in cross-section, a tubular check-receptacle on the same, a slide to carry a check laterally out of the casing, a second slide below the first to release the checks between the slides, chutes to convey said checks and means to return the slides.

23. In a vending-machine, a pivoted check-receiving casing, a slide to carry a check laterally out of the same, a second slide below the first to release the checks between the slides, and chutes to convey said checks.

24. In a vending-machine, an operating-shaft, a lever secured to the same, a yoke having an arm in the path of said lever and thereby swung at each operation of the machine, a second yoke yieldably connected to the first, an arm projecting from the same, a check-receiving casing pivoted to swing down upon receiving a predetermined number of checks, a slide to carry a check laterally out of the casing, a second slide below the first to release the checks between the slides, an arm connected to said slides normally out of the path of the arm on the second yoke but moved into said path upon the swinging down of the casing, thus causing the arm to operate said slides, chutes to convey the checks and means to return said slides to normal position.

25. In a vending-machine, an operating-shaft, a lever secured to the same, a check-receiver pivoted to swing down upon receiving a predetermined number of checks, a slide to carry a check out of the receiver, a second slide below the first to release the checks between the slides, an arm connected to said slides, connected pivoted yokes having arms, one in the path of said lever the other in the path of the arm on the slides when the receiver is in its lower position whereby the slides may be actuated from said operating-shaft.

26. In a vending-machine, an operating-shaft, a swinging arm actuated by said shaft, a check-receiver, slides to cause the discharge of checks from said receiver at different points in a predetermined ratio, and means on said slides to move into the path of said arm to be actuated thereby upon the placing of a predetermined number of checks in the receiver.

27. In a check-controlled device, the combination of a plurality of check-controlled levers, a check-receiver having openings to receive the checks, one for each lever, a plate to cover all but one opening and operable by the lever controlled by a check placed in said opening, means to hold said plate in its withdrawn position, said means disengaged when any of the other levers are operated under the control of a check.

28. In a check-controlled device the combination of a plurality of normally inoperative longitudinally-movable check-controlled levers, a check-receiver having slots to receive checks, one for each lever, a pivoted yoke having a plate to cover all but one of said slots, a lug on said yoke in the path of the lever controlled by the check placed in said slot, a second yoke having means to engage said first yoke when moved to its withdrawn position by said lever to uncover all said slots, said second yoke moved from engaging position upon the actuation of any of the other levers when controlled by a check thus permitting said plate to again cover said slots, and a spring to actuate said yokes.

29. In a check-controlled device, the combination of a plurality of check-controlled sections, a receiver having openings for checks, one for each section, means to cover all but one opening and controlled by a check placed in said opening.

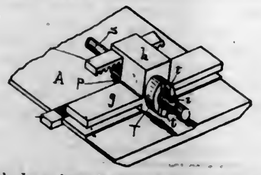
30. In a check-controlled device, the combination of a plurality of check-controlled sections, a receiver having openings for checks, one for each section, a closure to prevent the insertion of checks into all but one opening and operable by the section controlled by a check placed in said opening, means to hold said closure in its withdrawn position, said means disengaged when any of the other sections are operated under the control of a check.

31. In a check-controlled machine, an operating-handle, a plurality of pivoted arms, links connected to said arms, package-ejectors connected to said links, and check-controlled means in operable connection with said handle whereby all of the ejectors may be actuated at the movement of the handle upon the insertion of a single check, and whereby any one of the ejectors may alone be actuated at the movement of the handle upon the proper insertion of a check.

32. In a check-controlled machine, an operating-handle, a plurality of pivoted arms, independently-operable sections actuated by said arms, check-controlled means in connection with said handle whereby all the independent sections may be actuated by said handle upon the proper insertion of a single check and whereby a plurality of the sections may be actuated at will at the movement of the handle upon the proper insertion of a corresponding number of checks.

33. In a check-controlled machine, an operating-handle, a plurality of sections operable by said handle, and check-controlled connections between each section and the handle whereby all the sections will be actuated at the movement of the handle upon the proper insertion of a single check.

786,583. **LOCKING MECHANISM FOR THE OPERATING DEVICES OF LOOSE-LEAF BINDERS.** Henry J. Moore, Rochester, N. Y., assignor to John C. Moore Corporation, Rochester, N. Y. Filed Sept. 22, 1904. Serial No. 225,421.



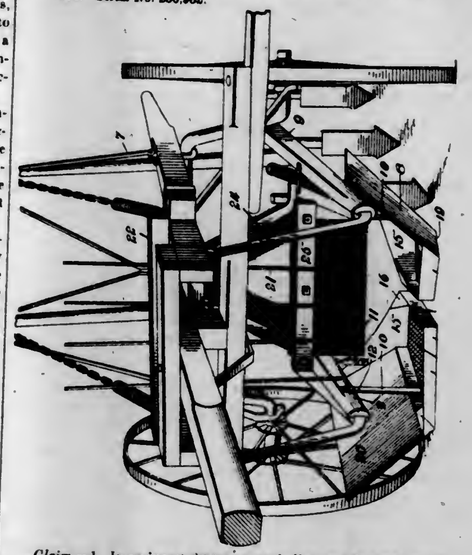
Claim.—1. In a loose-leaf binder, in combination with the binder-frame, an operating-shaft revoluble in bearings carried by such frame, an operating-head on such shaft, a fixed member carried by such binder-frame, a locking member carried by and revoluble with such shaft and opposed to such fixed member and threaded mechanism arranged to be operated independently of rotation of such shaft and operating to clamp such fixed and locking members together.

2. In a loose-leaf binder, in combination with the binder-frame, an operating-shaft revoluble in bearings carried by such frame, an operating-head on such shaft, a fixed member carried by such binder-frame, a locking member carried by and revoluble with such shaft and opposed to such fixed member and threaded mechanism arranged to be operated independently of rotation of such shaft and operating to clamp such fixed and locking members together.

3. In a loose-leaf binder, in combination with the binder-frame, an operating-shaft revoluble in bearings carried by such frame, an operating-head on such shaft, a fixed member carried by such binder-frame, a locking member carried by and revoluble with such shaft and opposed to such fixed member, a locking-nut threaded onto such shaft and operating to clamp such locking member carried by such shaft and such fixed member together, such elements of operating-head and locking-nut adapted to be engaged one of them by an actuating member arranged to slip over and operable independently of the other.

4. In a loose-leaf binder, in combination with the binder-frame, an operating-shaft revoluble in bearings carried by such frame, an operating-head on such shaft, a fixed member carried by such binder-frame, a locking member carried by and revoluble with such shaft and opposed to such fixed member and threaded mechanism arranged to be operated independently of rotation of such shaft and operating to clamp such locking member carried by such shaft and such fixed member together, such elements of operating-head and threaded mechanism adapted to be engaged one of them by an actuating member arranged to slip over and operable independently of the other.

786,584. **INSECT-DESTROYER.** Isham S. Moore and Alie E. Pace, Charco, Tex.; said Pace assignor to said Moore. Filed Nov. 1, 1904. Serial No. 230,952.



Claim.—1. In an insect-destroyer, a shallow pan having a relatively high rear end; a wing extending upwardly and outwardly from one of the sides of the pan, and a strip covering one of the rear corners of the pan.

2. In an insect-destroyer, the combination with a supporting-frame; of pans suspended therefrom and spaced apart to permit passage of the plants therebetween; wings extending upwardly and outwardly from the outer sides of the pans to collect the insects and drop them into the pans; and strips covering the rear inner corners of the pans.

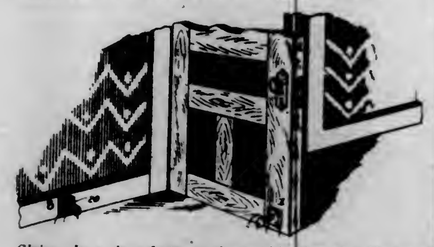
3. In an insect-destroyer, the combination with a supporting-frame; of pans suspended therefrom and spaced apart to permit passage of the plants therebetween; wings extending upwardly and out-

wardly from the outer sides of the pans to collect the insects and drop them into the pans; strips covering the rear inner corners of the pans; and agitators and brushes above the pans.

4. In an insect-destroyer, the combination with a supporting-frame; pans carried thereby and spaced apart to permit passage of the plants therebetween; wings extending upwardly and outwardly from the outer sides of the pans to convey the insects into the pans; agitator-rods over the pans; and a brush behind the rods.

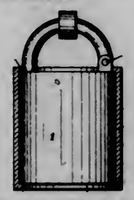
5. In an insect-destroyer, the combination with a supporting-frame; pans carried thereby and spaced apart to permit passage of the plants therebetween; wings extending upwardly and outwardly from the outer sides of the pans to convey the insects thereinto; vertically-adjustable agitator-rods over the pans; and an arched brush behind the rods.

786,585. DOOR-STOP. PHILIP J. MORAN and JAMES H. JOHNSON, McKees Rocks, Pa. Filed July 16, 1904. Serial No. 216,775.



Claim.—In a door-fastener, the combination of a U-shaped bracket provided with a base-plate and adapted to be secured to a wall, and having an annular stirrup on its outer end, an annular elastic buffer attached to the outer side of said stirrup, a spring-pressed pawl pivotally mounted in said bracket and a headed pin adapted to be mounted on a door and to be engaged by said pawl when the door is opened.

786,586. PADLOCK. JOHN H. MORELAND, Newhaven, Pa. Filed July 7, 1904. Serial No. 215,628.



Claim.—1. In combination with a lock having an annular body portion, a rotatable shell, inwardly-extending flanges formed integral with said shell, the shell being rotatable on the lock and embracing the ends of the lock, the lock being operative independent of any movement of the shell.

2. The combination with a lock inclosed in a complete casing, of a shell mounted upon the lock and covering the casing thereof, the said shell being freely rotatable in either direction without engaging any portion of the locking mechanism.

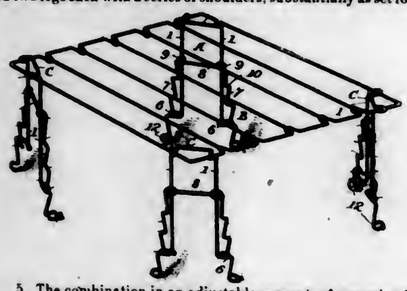
786,587. TRAY-SUPPORT. EVELYN C. MORGAN and FANNIE B OSTROM, Washington, D. C. Filed Jan. 10, 1905. Serial No. 240,445.

Claim.—1. In an adjustable support, the combination of two members, one sliding on the other and provided with spring-shouldered legs adapted to engage shoulders of the other, substantially as set forth.

2. The combination in an adjustable support, of a member having parallel rods with shoulders at the ends thereof, and a member engaging and sliding on said rods, with spring-legs each having a series of shoulders adapted to engage the shoulders of the other member, substantially as set forth.

3. The combination in an adjustable support, of a member having parallel rods, a clip at one end thereof, and a shoulder at the other end of each rod, and a sliding spring member having eyes for the passage of said rods and two legs each with a series of shoulders, substantially as set forth.

4. The combination in an adjustable support, of a member having parallel rods, a clip at one end thereof adapted to receive the edge of a plate or platform, and a shoulder at the other end of each rod, and a sliding spring member having eyes for the passage of said rods and two legs each with a series of shoulders, substantially as set forth.



5. The combination in an adjustable support, of a member having parallel rods, a spring-clip at one end thereof adapted to receive the edge of a plate or platform, and a shoulder at the other end of each rod, and a sliding spring member having eyes for the passage of said rods and two legs each with a series of shoulders, substantially as set forth.

6. The combination in an adjustable support, of a member having a cross-piece and two legs connected to the cross-piece to spring apart when brought toward each other, each leg with a series of shoulders, and a member with parallel rods constituting guides for the other member and with shoulders at the ends engaging those of the spring member, substantially as set forth.

7. The combination in an adjustable support, of two members, one consisting of wire bent to form a cross-piece, two parallel rods, and a loop or eye at the end of each rod, the other member of wire bent to form a cross-piece, two eyes, one receiving each of said rods to be guided thereby, and two spring-legs each with a series of shoulders, substantially as set forth.

8. The combination in an adjustable support, of two members, one consisting of wire bent to form a cross-piece constructed to constitute a clip, two parallel rods, and a loop or eye at the end of each rod, the other member of wire bent to form a cross-piece, two eyes, one receiving each of said rods to be guided thereby, and two spring-legs each with a series of shoulders, substantially as set forth.

9. The combination in an adjustable support, of a platform, and a plurality of legs each consisting of two members, one with a clip to receive the edge of the platform and with rods having shoulders at the ends thereof, the other sliding on said rods and provided with spring-legs having shoulders adapted to engage the shoulders of the other member, substantially as set forth.

786,588. TELEPHONE-RECEIVER. WILLIAM J. MURDOCK, Boston, Mass. Filed July 21, 1904. Serial No. 217,565.



Claim.—A telephone-receiver comprising a diaphragm-operating magnet, a continuous inner case-section of insulating material having integral retaining portions engaged with said magnet, and a continuous outer case-section or shell closely conforming internally to the exterior of the inner section and secured to the latter and extending beyond both ends thereof, the inner and outer sections differing from each other in the characteristics of the material of which they are constructed, whereby a relatively inexpensive, although brittle, material may be employed for the inner section and the necessary strength and protection imparted by the outer shell or section.

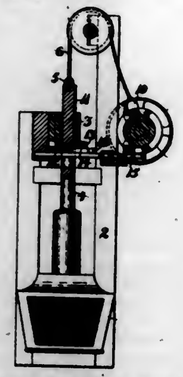
786,589. CIRCUIT CLOSING AND BREAKING DEVICE. WILLIAM J. MURDOCK, Boston, Mass. Filed July 21, 1904. Serial No. 217,567.

Claim.—1. A circuit closing and breaking device or push-button comprising a base of insulating material, and metallic contact-pieces each having a shank embedded in and covered by the base, and an exposed portion located above the base, one of said exposed portions being resilient and normally separated from the other although adapted to be moved into contact therewith, the said base having integral shank-confining portions extending over and confining the said shanks.



2. A circuit closing and breaking device or push-button comprising a base of insulating material, and metallic contact-pieces each having an exposed portion and a shank offset from the exposed portion and embedded in the base below the outer surface of the latter, one of said exposed portions being resilient and normally separated from the other although adapted to be moved into contact therewith, the said base having integral shank-confining portions extending over and confining the shanks and forming parts of the outer face of the base.

786,590. STAMP-MILL. ALEXANDER MCCOMBIE, Grass Valley, Cal., assignor of one-half to James McCombie, Chicago, Ill. Filed Nov. 3, 1904. Serial No. 231,837.



Claim.—1. In a stamp-mill, vertically-guided stamps and stems, a crank-shaft, ropes connecting with the cranks, direction-pulleys over which the ropes pass, turnable connections between the ropes and the stamp-stems, and means including a pivoted lever and connection operated from the crank-shaft for intermittently turning the stamps during their reciprocation.

2. In a stamp-mill, vertically-guided stamps and stems, a journaled revoluble crank-shaft, ropes having one end connected with the cranks, pulleys over which the ropes pass, turnable connections between the other ends of the ropes and the stamp-stems, ratchet-wheels through which the stamp-stems are movable, with feathers engaging the ratchets and stems, and reciprocating pawls whereby the ratchets are intermittently turned.

3. In a stamp-mill, vertically-guided stamps and stems, a revoluble crank-shaft, flexible connections between the crank and the stamp-stem, a pawl-and-ratchet connection by which the stamp and stem may be turned, a fulcrumed lever upon which the pawl is carried, and a turnable cam engaging the end of the lever.

4. In a stamp-mill, vertically-guided reciprocating stamps, a crank-shaft, flexible ropes connecting with the cranks and turnable connections upon the stamp-stems, ratchets through which the stems are slidable and feathers turnably connecting the stems and ratchets, spring-pressed pawls engaging the ratchet-teeth, a fulcrumed lever upon which said pawls are pivoted, a second fulcrumed lever, means engaging the two levers, a cam carried by the crank-shaft with which cam the lever engages, and by the movement of which the pawls alternately engage and move the ratchets.

786,591. CUSHION-TIRE. WILLIAM S. MCNAMARA, Philadelphia, Pa. Filed Nov. 20, 1903. Serial No. 181,903.

Claim.—1. A tubular sheet-metal tire-spring comprising a longitudinal web at its inner circumference; spring-leaves extending in opposite directions from said web and forming alternate bights in alinement in the direction of the length of said web; and inwardly-turned edges 5, and 6, at the free ends of said leaves extending within the plane of the adjoining bights, substantially as set forth.



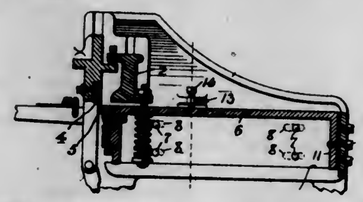
2. A tubular sheet-metal tire-spring comprising a longitudinal web at its inner circumference; spring-leaves extending in opposite directions from said web and forming alternate bights in alinement in the direction of the length of said web; and inwardly-turned edges 8, and 9, on said web extending within the plane of the adjoining bights, substantially as set forth.

3. A tubular sheet-metal tire-spring comprising a longitudinal web at its inner circumference; spring-leaves extending in opposite directions from said web and forming alternate bights in alinement in the direction of the length of said web; inwardly-turned edges 5, and 6, at the free ends of said leaves extending within the plane of the adjoining bights; and inwardly-turned edges 8, and 9, on said web extending within the plane of the adjoining bights, substantially as set forth.

4. A tire-spring comprising a longitudinal web and spring-leaves extending in opposite directions from said web and forming alternate bights in alinement in the direction of the length of said web; said web and the ends of said leaves being curved transversely, and the radius of curvature of the web being substantially one-half that of the leaves, substantially as set forth.

5. A tire-spring comprising a longitudinal web and spring-leaves extending in opposite directions from said web, and forming alternate bights in alinement in the direction of the length of said web, said web and the ends of said leaves being curved transversely; the radius of curvature of the web being substantially one-half that of the leaves, and the curved portions of said web and leaves being connected by straight portions of the latter, substantially as set forth.

786,592. MEANS FOR PREVENTING TIPPING OF TABLES OF MACHINES. GEORGE A. OHL, Jr., Newark, N. J., assignor to George A. Ohl & Co., a Corporation of New Jersey. Filed Sept. 21, 1904. Serial No. 225,328.



Claim.—1. The combination, with a housing and a work-supporting table of a machine, of means connected with the said housing extending over the upper face of said table and arranged to engage a part of said upper face of the table to prevent tipping of the same, substantially as and for the purposes set forth.

2. The combination, with a housing and a work-supporting table of a machine, of means constructed to engage a part of said table to prevent tipping of the table, consisting, essentially, of a lug extending from said housing and a screw-bolt arranged in a screw-hole of said lug, substantially as and for the purposes set forth.

3. The combination, with a housing and a work-supporting table of a machine, of head-screws for securing said table in its supported relation to said housing, and means for preventing the tipping of said table and also preventing the shearing of said head-screws, substantially as and for the purposes set forth.

4. The combination, with a housing and a work-supporting table of a machine, of head-screws for securing said table in its supported relation to said housing, and means for preventing the tipping of said table and also preventing the shearing of said head-screws, consisting, essentially of a lug extending from said housing and a screw-bolt arranged in a screw-hole of said lug, substantially as and for the purposes set forth.

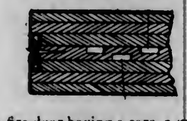
5. In a shearing-machine, the combination with a housing, of a work-supporting table, a shear member connected with said table, a clamping-leaf, a shearing-head provided with a knife or cutter, and means constructed to engage a part of said table to prevent tipping of the table, substantially as and for the purposes set forth.

6. In a shearing-machine, the combination with a housing, of a work-supporting table, a shear member connected with said table, a clamping-leaf, a shearing-head provided with a knife or cutter, and means constructed to engage a part of said table to prevent tipping of the table, consisting, of a lug extending from said housing and a screw-bolt arranged in a screw-hole of said lug, substantially as and for the purposes set forth.

7. In a shearing-machine, the combination, with a housing, of a work-supporting table, head-screws for securing said table in its supported relation to said housing, a shear member connected with said table, a clamping-leaf, a shearing-head provided with a knife or cutter, and means for preventing the tipping of said table and also preventing the shearing of said head-screws, substantially as and for the purposes set forth.

8. In a shearing-machine, the combination, with a housing, of a work-supporting table, head-screws for securing said table in its supported relation to said housing, a shear member connected with said table, a clamping-leaf, a shearing-head provided with a knife or cutter, and means for preventing the tipping of said table and also preventing the shearing of said head-screws, consisting, essentially of a lug extending from said housing and a screw-bolt arranged in a screw-hole of said lug, substantially as and for the purposes set forth.

786,593. **FIRE-DOOR.** ENOCH OHNSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Sept. 2, 1904. Serial No. 223,108.



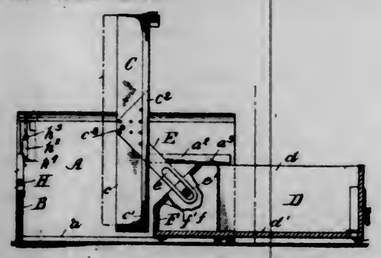
Claim.—1. In a fire-door having a core, a groove in said core, a double-flanged tie-piece in said groove, and sheathing-pieces hooked over said flanges and pressed down into said groove to form the tie.

2. In a fire-door having a suitable core, a groove in said core, a double-flanged tie-strip nailed in said groove, and sheathing-pieces having oppositely-turned edges hooked over said flanges and pressed down into said groove to form a concealed tie.

3. In a fire-door having a suitable sheet-metal sheathing, a core built up of layers, and one or more of said layers provided with a series of grooves or openings, for the purpose specified.

4. In a fire-door, a core built up of a series of layers, a series of openings in one or more of said layers, a groove in the edge of said core, a double-flanged tie-piece in said groove, and sheathing-pieces having oppositely-turned edges hooked over said flanges and pressed down into said groove to form a tie with said tie-piece, substantially as and for the purpose specified.

786,594. **COUCH.** AUSBORN F. OLD and SHERIDAN A. WALKER, New York, N. Y., assignors to The Hale and Kilburn Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed July 28, 1903. Serial No. 167,295.



Claim.—1. In a couch, the combination with a frame, of a movable upper member pivoted at each end to said frame and adapted to cant upon its pivots only within said frame, a movable box below said member, and an operative connection between such member and such box, substantially as set forth.

2. In a couch, the combination with a frame, of an upper member supported movably in said frame lying normally in a horizontal plane and adapted to cant only within said frame, a movable box below said member, and levers connecting said member and said box and adapted to transmit to one movement imparted to the other, substantially as set forth.

3. In a couch, the combination with a frame, of a pivoted upper member lying normally in a horizontal plane and adapted to cant only within said frame, a movable box, and levers secured to one and having pin-and-slot connection with the other, substantially as set forth.

4. In a couch, the combination with a frame, of an upper member supported movably on said frame lying normally in a horizontal plane and adapted to cant only within said frame, a locking device for said upper member, a movable box below said upper member, and an operative connection between said upper member and said box, substantially as set forth.

5. In a couch, the combination with a frame, of a movable upper member lying normally in a horizontal plane and adapted to cant only within said frame, a movable box below said upper member, an operative connection between said upper member and said box, and a lock, operable from either end of the couch, for maintaining said member and said box in normal position, substantially as set forth.

6. In a couch, the combination with a frame, of an upper member pivotally mounted at each end in said frame and adapted to cant upon its pivots, a telescoping box below said upper member, levers secured to one and having a movable connection with the other, and a lock for maintaining said upper member and said box in normal position, substantially as set forth.

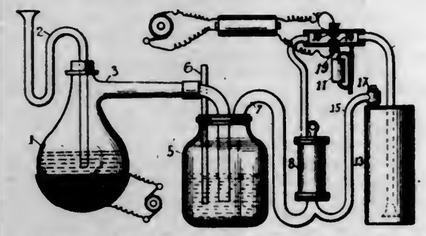
7. In a couch, the combination with a frame, of a movable upper member, a telescoping box, an operative connection between said upper member and said box, and a locking device for maintaining said upper member and said box in normal position, said device including a rod, locking-arms carried thereby, and means for oscillating said rod, substantially as set forth.

8. In a couch, the combination with a frame, of an upper member movably supported therein, said member lying normally in a horizontal plane and adapted to cant only within said frame, a telescoping box below said upper member, and means intermediate of said upper member and said box for transmitting to one motion imparted to the other, substantially as set forth.

9. In a couch, the combination with a frame including end pieces, of an upper member pivotally supported in said end pieces at about its longitudinal center and adapted to cant upon its pivots, a box and an operative connection between said member and said box and means in said box for preventing interference of said operative connection with articles placed in said box, substantially as set forth.

10. In a couch the combination with a frame including end pieces, of an upper member pivotally supported in said end pieces at about its longitudinal center and adapted to cant within said frame upon its pivotal points, a telescoping box, an operative connection between said upper member and said box and a locking device for said box, substantially as set forth.

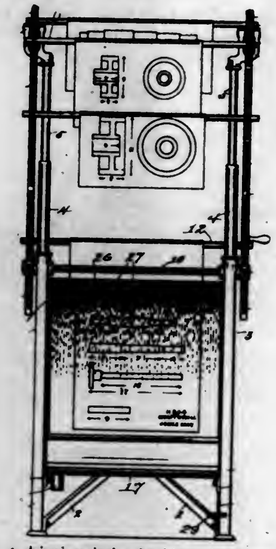
786,595. **ART OF TREATING AND UTILIZING CHLORIN.** EDWARD C. PARAMORE, Philadelphia, Pa. Filed Oct. 5, 1903. Renewed Sept. 1, 1904. Serial No. 223,001.



Claim.—1. The improvement in the art of treating chlorin gas, consisting first, in emptying the air from a chlorin-generator and connected vessels, second, generating chlorin gas, third, passing the gas through an electrifying-channel between dielectric walls or surfaces, fourth, electrifying the gas in said channel by electric flashes passed through the dielectric walls or surfaces, fifth, withdrawing liquid precipitation from the electrifying-channel, sixth, circulating the gas through vessels used in treatment of liquids or commodities to be bleached and returning the surplus gas again through the electrifying-channel to be again electrically treated with further supplies of gas as and for the purposes set forth.

2. The improvement in the art of treating chlorin gas, consisting first, in emptying the air from a chlorin-generator and connected vessels, second, generating chlorin gas, third, passing the gas through an electrifying-channel having dielectric walls, fourth, electrifying the gas in said channel by electric flashes passing through the dielectric walls, fifth, withdrawing liquid precipitation from the electrifying-channel, sixth, circulating the gas through water in a closed vessel and returning any unabsorbed gas to the electrifying-channel for treatment electrically with further supplies of gas.

786,596. **APPARATUS FOR WASHING AND DRYING BLUE-PRINTS.** CHARLES F. PEASE, Cincinnati, Ohio. Filed June 25, 1904. Serial No. 214,141.



Claim.—1. A dripping device for blue-prints comprising disconnected vertically-movable chains or belts having spring-hooks to hold suitable rods upon which the prints are hung, and means to rotate the chain or belt.

2. A dripper and drier for blue-prints comprising vertically-movable chains or belts having hooks to carry suitable rods upon which the prints are hung, and means to rotate the chains or belts: and the suspended brackets between the chains and engaged by the rod ends to dislodge the latter from the said chains or belts onto the brackets.

3. A blue-print washing, dripping and drying machine comprising a tray having a suitable water-spray, chains provided with means to hang the prints therefrom, the sprocket-wheels to give the chains verticrl rotation over the tray, and the drier-brackets positioned in the rear of the tray to strip the prints from the chain.

4. In the development of blue-prints, the combination, with the tray provided with a water-spray, and means to hold the prints therein, of the sprocket-chains having hanger-rods, sprocket-wheels to revolve the chains over the tray, and the brackets to strip the rods from the chains and to suspend the prints for drying.

5. In the development of blue-prints, the combination, with the tray having a suitable water-spray, and the drier-brackets, of the chains having hooks, blue-print rods carried by the hooks, and means to revolve the chains, of the drier-brackets positioned to be engaged by the rods and strip the latter from the chains.

6. In the development of blue-prints, the combination, with a pair of sprocket-chains having hooks from which the prints are suspended for dripping, means to revolve the chains, and the drier-brackets to strip the prints from the hooks for drying, of the washing-tray positioned between and below the chains, a spray-pipe carried by the tray, and means in the tray to retain and release the prints.

7. In the development of blue-prints, the combination, with a frame, the sprocket-wheels, and the sprocket-chains, of the spring-hooks upon the chains, and the hangers secured to the frame and projecting from between the chains so as to dislodge the prints from the hooks.

8. In the development of blue-prints, the combination, with the frame, the top sprocket-wheels, the lower sprocket-wheels of larger size than the said top wheels, and the sprocket-chains provided with a series of hooks from which the prints are hung to drip, of the tray secured to the frame and having a water-spray and a basin to catch said drippings.

9. In the development of blue-prints, the combination, with the vertically-adjustable frame, a pair of sprocket-wheels journaled in one part of the frame, a shaft journaled in the other part of the frame, a pair of sprocket-wheels secured to the shaft, the chains having spring-hooks and operated by the wheels, of the tray having a water-spray and secured within the frame under the said shaft, suitable rods removably held by the said hooks, and the brackets suspended from the frame in the path of the rods to remove them.

10. In the development of blue-prints, the combination, with an inclined fixed tray having a water-spray, of means having the prints hung therefrom for dripping into the tray, comprising driven chains or belts, and rod-holding hooks secured at intervals throughout the chains or belts.

11. In the development of blue-prints, the combination, with a fixed tray, and a spray-pipe contained therein, of means to hold and release the prints comprising a shaft journaled in the tray and having spring-fingers, a counterbalance secured to the shaft, a foot-lever, and a lever connecting the counterbalance with the foot-lever.

12. In the treatment of blue-prints, a washing-tray having means to suspend the print from one end, and provided with a liquid-supply for washing, fixing or chemically treating the print.

13. A blue-print or other chemically-prepared print-washing tray operative at various angles from a horizontal position and terminating in a basin or receptacle, a water or liquid supply in the tray, and means to hold a print against the tray for washing it.

14. In a blue-print or other chemically-prepared print-washing device, a vertically-inclined tray or receptacle provided with means for holding a print thereagainst, and means for spraying or flowing water or other liquid over the surface of the print.

15. In a blue-print-washing apparatus, a vertical or inclined tray or receptacle, springs or fingers coacting with the tray to hold the print against it, and means for spraying or flowing water or other liquid over the print.

16. In the treatment of blue-prints, an open washing-tray having means to suspend the print against the back of the tray, and provided with a liquid spray for washing, fixing or chemically treating the print.

17. In an apparatus for dripping and drying prints, a pair of revoluble endless chains, spring-hooks connected to the chains and holding suitable rods from which the prints are hung and carried over one turn of the chains, and means engaged by the rods to dislodge them with the prints thereon at the other turn of the chains.

786,597. **FISHING LINE AND FLOAT.** HELEN A. PICKEN, New York, N. Y. Filed July 5, 1904. Serial No. 215,223.



Claim.—1. A fishing-line provided with a float which is freely movable thereon and a slide mounted on the line above the float and adjustable thereon, substantially as shown and described.

2. A fishing-line provided with a float through which the line is free to move, said line being provided with a sinker and a hook below the float and with an adjustable slide above the float, substantially as shown and described.

3. A fishing-float of the usual form and provided with a longitudinal bore or passage, a weight secured in the bottom of said float and through which the bore or passage passes, and a detachable plug secured in the top of said bore or passage and through which the line is loosely passed, substantially as shown and described.

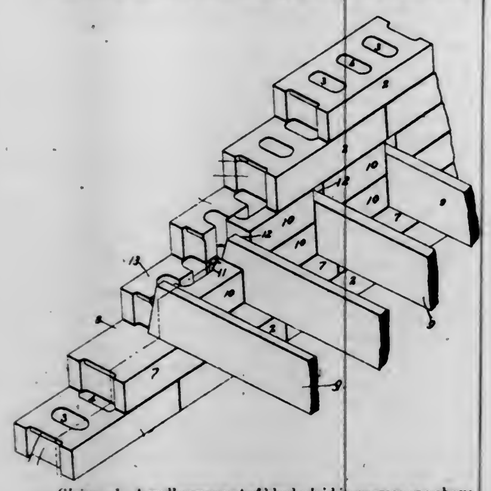
4. A fishing-float of the usual form, said float being weighted at the bottom and being provided with a longitudinal central bore which is large enough to permit a line to pass loosely therethrough, and a line provided with devices above and below the float to limit

the movement thereof through the float, the device above the float being adjustable on the line.

5. A fishing-float of the usual form, said float being composed of a body portion having a weight at the bottom, the weight being provided with a tube which passes through the float and through said weight and which is large enough to permit a line to pass loosely therethrough, the upper end of the tube being closed by a plug having a head and through which the line may also be passed, substantially as shown and described.

6. A fishing-float of the usual form, said float being composed of a body portion having a weight at the bottom, the weight being provided with a tube which passes through the float and through said weight and which is large enough to permit a line to pass loosely therethrough, the upper end of the tube being closed by a plug having a head and through which the line may also be passed, the weight and tube being removable from the float, substantially as shown and described.

786,598. BUILDING-BLOCK WALL CONSTRUCTION. WILLIAM PORTEN, St. Paul, Minn. Filed Feb. 18, 1904. Serial No. 194,157.



Claim.—1. A wall composed of blocks laid in courses one above another and having vertical core-holes, the holes in one course registering with the holes in the contiguous courses, a course of blocks laid upon said first-named course opposite the floor-joists and having vertical core-holes that are closed at the top to form a substantial support for the ends of the joists and insure the equal distribution of the load, and beam filling-blocks provided between the ends of the joists.

2. In a wall, a series of building-blocks having imperforate tops, a series of joists having their ends resting upon said blocks and extending to a point near the middle thereof, a series of beam filling-blocks provided between the ends of said joists and having their inner faces flush substantially with the inner surface of the wall and their outer faces near the middle of said first-named blocks, substantially as described.

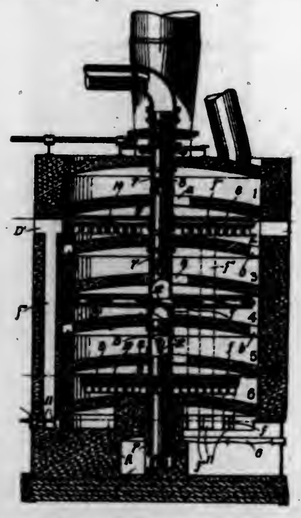
3. In a wall composed of building-blocks, a series of blocks having vertical core-holes closed at their upper ends, a series of floor-joists supported at their ends upon said blocks, beam filling-blocks provided between the ends of said joists and having flat inner faces flush substantially with the inner surface of the wall and outer concave faces, and split course-blocks having core-recesses in their inner faces and flat outer faces located between the ends of said joists and the outer surface of the wall.

4. A wall composed of blocks having vertical core-holes and laid in courses one above another, the holes in one course registering with those in the contiguous courses, blocks having core-holes provided with open lower ends and closed upper ends and registering with the holes in said first-named blocks, floor-joists having their ends resting upon said last-named blocks and extending to a point near the middle thereof, beam filling-blocks provided between the ends of said joists, and split course-blocks arranged between the ends of said joists and the outer surface of the wall, substantially as described.

5. A wall composed of building-blocks arranged in courses one above another and having core-holes, those in one course coinciding with the holes in the contiguous courses and the blocks opposite and below the ends of the floor-joists having the upper ends of their core-holes closed, beam filling and split blocks provided between and opposite the ends of the floor-joists and having suitable core-holes that are adapted to register with the holes in blocks similar to said first-named blocks laid above them.

6. A wall composed of blocks 2 laid in courses one above another and having vertical core-holes, a course of blocks 7 laid in the wall between the courses of blocks 2 and also having vertical core-holes and closed upper surfaces whereon the ends of the floor-joists are supported, and courses of split blocks 13 laid opposite the ends of the floor-joists between the courses of blocks 7 and 2, substantially as described.

786,599. ROASTING-FURNACE. CHARLES H. REPATH and FRANK E. MARCY, New York, N. Y., assignors to Frank Klepetko, New York, N. Y. Filed May 25, 1904. Serial No. 209,763.



Claim.—1. In a furnace having a plurality of superposed hearths, a fire-chamber located beneath the bottom hearth of the series, and independent flues leading from said fire-chamber to one or more of said hearths, substantially as set forth.

2. In a furnace having a plurality of superposed hearths, a fire-chamber located beneath the bottom hearth of the series, and independent flues located within the walls of the furnace leading from said fire-chamber to a series of said hearths, substantially as set forth.

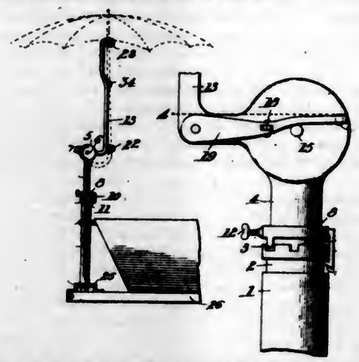
3. In a furnace having a plurality of superposed hearths, a fire-chamber located within the compass of the peripheral walls of the furnace beneath the bottom hearth of the series, and independent flues located within the walls of the furnace leading from said fire-chamber to a series of said hearths, substantially as set forth.

4. In a furnace having a plurality of superposed hearths, a fire-chamber located beneath the bottom hearth of the series, independent flues leading from said chamber to a series of said hearths, and controlling-dampers for the respective flues, substantially as set forth.

5. In a furnace having a plurality of superposed hearths, a fire-chamber located beneath the bottom hearth of the series, independent flues leading from said chamber to a series of said hearths, controlling-dampers for the respective flues, and means for admitting atmospheric air to the respective hearths, substantially as set forth.

6. In a furnace having a plurality of superposed hearths, a fire-chamber located beneath the bottom hearth, independent flues leading from said chamber to a series of said hearths, a central hollow stirring-shaft passing through the hearths, and hollow arms radiating from said shaft and extending into the several hearths, the arms being provided with openings for delivering atmospheric air into the hearths during the roasting operation, substantially as set forth.

786,600. UMBRELLA-SUPPORT. HICKMAN ROWLETT, Jackson, Tenn. Filed Sept. 23, 1904. Serial No. 225,714.



Claim.—1. In a device of the character described, a tubular upright having a peripheral groove formed adjacent to the upper end and teeth arranged in a circumferential series above the groove, an upright rod slidably disposed within the tubular upright, a collar embracing the upright rod and provided with teeth adapted to engage the teeth upon the upper end of the tubular upright, a clip secured to the collar and engaging the peripheral groove, means adapted for rigidly securing the upright rod in a predetermined position relative to the collar and means for securing an umbrella upon the upright rod.

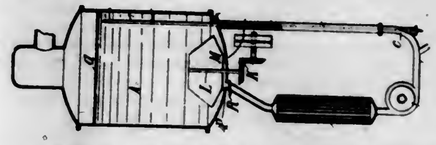
2. In a device of the character described, a vertically-adjustable supporting-rod, a disk formed upon the upper end thereof, and provided with a centrally-disposed hole and with a series of holes arranged coincident with a circle and adjacent to the outer edge of the disk, an umbrella-retaining rod, a disk formed upon the lower end of the retaining-rod and provided with a centrally-disposed hole and with a hole adjacent to the edge, a pin passing through the centrally-disposed holes of both disks and adapted to permit the rotary movement of the disks relative to each other, a spring-pressed pawl passing through the hole in the disk formed on the retaining-rod and adapted to enter any one of the holes in the edge of the disk formed on the upright.

3. In a device of the character described, a vertically-adjustable supporting-rod provided with a hinge member at its upper end and an umbrella-retaining rod provided at its lower end with a hinge member adapted to coöperate with the hinge member upon the supporting-rod to form a hinge and also provided with two hooks adapted to engage the rod of an umbrella and a plate adapted to bear against the umbrella-rod, said retaining-rod being capable of being so sprung that the hooks will pass over and around the umbrella rod.

4. A device of the character described comprising a vertically-adjustable supporting-rod provided with a disk at its upper end, said disk being provided with a centrally-disposed hole and with a series of holes coincident with a circle adjacent to the periphery of the disk, an umbrella-retaining rod provided at its lower end with a disk, said disk being provided with a centrally-disposed hole and a hole adjacent to the edge, a pin passing through the centrally-disposed holes of the disks and securing them together but permitting a rotary movement of the disks relative to each other, a spring-pressed pawl passing though the hole adjacent to the periphery of the disk formed on the retaining-rod and adapted to enter either of the holes arranged in series adjacent to the periphery of the upright disk, a hook near the lower end of the retaining-rod adapted to engage an umbrella-rod, a plate intermediate of the ends and the upper end curved to embrace an umbrella-rod and all so disposed that with the lower hook engaging and the plate bearing against an umbrella-rod, the upper end of the retaining-rod may be so sprung that the upper hook will also engage the umbrella-rod.

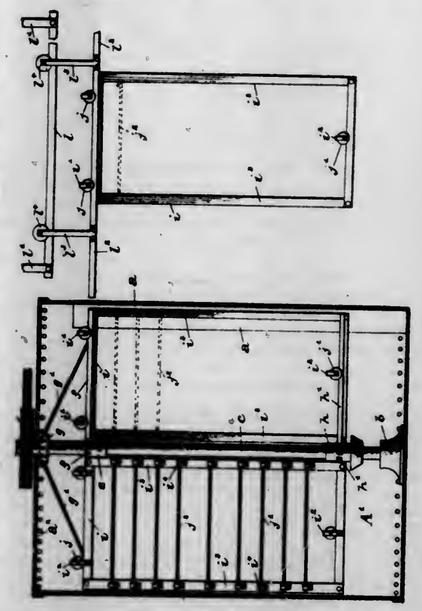
786,601. PROCESS OF PREPARING MASSE-CUITE. HENRY ROY, Paris, France. Filed Apr. 27, 1904. Serial No. 205,184.

Claim.—1. The process herein described of preparing masse-cuite, which consists in drawing off liquor of less density from the main body of greater density, mixing it with an additional supply of syrup, heating the mixture, and returning it to the main body of the liquor.



2. The process herein described of preparing masse-cuite, which consists in drawing off a part of the liquor under treatment, and keeping it in continuous agitation from the portion of the liquor of less density to the portion of greater density, feeding an additional supply of syrup to said drawn-off liquor, and heating the mixture before delivering it to the main body of the liquor.

786,602. SMOKE-HOUSE. EDWARD H. SAWYER, Jr., and HENRY JUDIK, Baltimore, Md. Filed May 9, 1904. Renewed Mar. 7, 1905. Serial No. 248,939.



Claim.—1. In a device of the class described the combination with a shell, of a shaft extending through said shell; a plurality of track-arms near one end of said shaft and sustained by said shaft and extending toward the wall of said shell; frames provided with rollers which engage said track-arms, and means for engaging the lower ends of said frames to hold the same against lateral swinging motion.

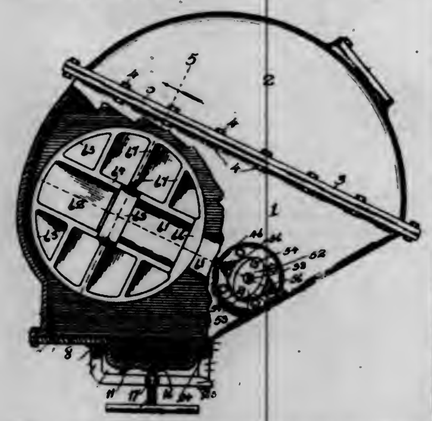
2. In a device of the class described the combination with a shell, of a shaft extending through said shell; a plurality of upper and lower track-arms sustained by said shaft; frames supported between said upper and lower track-arms, and means on said frames for engaging said track-arms.

3. In a device of the class described the combination with a cylindric shell; of a shaft extending vertically through said shell; a plurality of radiating track-arms sustained by said shaft at the upper end of the shell; a plurality of track-arms sustained by said shaft at the lower end of said shell, and frames provided with rollers at opposite ends and arranged to be supported between said upper and lower track-arms by said rollers.

4. In a device of the class described the combination with a shell provided with an opening, of a shaft extending through said

shell; a plurality of track-arms sustained by said shaft and extending in a horizontal direction toward the cylindric wall of said shell; a movable track-section adjacent the opening in said shell and arranged to be registered successively with said track-arms, and frames provided with rollers which engage said rails.

786,603. VALVE FOR GAS-GENERATORS. RUDOLPH SCHENCK, Chicago, Ill., assignor to John Williamson, Chicago, Ill. Filed Oct. 19, 1904. Serial No. 229,209



Claim.—1. In a valve of the character indicated, the combination of a valve-casing, flues opening into the valve-casing, a revoluble operating-shaft entering the valve-casing, an arm projecting from and adapted to be swung by the operating-shaft, a valve-door carried by the arm, and means for adjusting the position of the arm and door to properly seat the door when swung into place by the turning of the shaft, substantially as described.

2. In a valve of the character indicated, the combination of a valve-casing, flues opening into the valve-casing, a revoluble operating-shaft entering the valve-casing, an arm carried by the operating-shaft, a valve-door loosely carried by the arm, and means for adjusting the position of the arm and door to properly seat the door when swung into place by the turning of the shaft, substantially as described.

3. In a valve of the character indicated, the combination of a valve-casing, flues opening into the valve-casing, a revoluble operating-shaft entering the valve-casing, an arm carried by the operating-shaft, a beveled or wedge-shaped valve-door loosely carried by the arm, and means for adjusting the position of the arm and door to properly seat the door when swung into place by the turning of the shaft, substantially as described.

4. In a valve of the character indicated, the combination of a valve-casing, flues opening into the valve-casing, one of the flues having a sloping seating-face, a revoluble operating-shaft extending transversely through the valve-casing, a stuffing-box surrounding the shaft, an adjusting-plug surrounding the shaft and provided with a beveled rear face, diagonally-disposed adjusting screws or studs bearing against the beveled face of the adjusting-plug and adapted to inwardly project the plug, a sleeve carried by the operating-shaft and adapted to have its position regulated by means of the adjusting-plug, an arm outwardly projecting from the sleeve, and a valve-door carried by the arm and adapted to close and open communication between the flues, substantially as described.

5. In a valve of the character indicated, the combination of a valve-casing, flues opening into the valve-casing, one of the flues having a sloping seating-face, a revoluble operating-shaft extending transversely through the valve-casing, a stuffing-box surrounding the shaft, an adjusting-plug surrounding the shaft and provided with a beveled rear face, diagonally-disposed adjusting screws or studs bearing against the beveled face of the adjusting-plug and adapted to inwardly project the plug, a sleeve carried by the operating-shaft and adapted to have its position regulated by means of the adjusting-plug, an arm outwardly projecting from the sleeve, and a valve-door loosely carried by the arm and adapted to close and open communication between the flues, substantially as described.

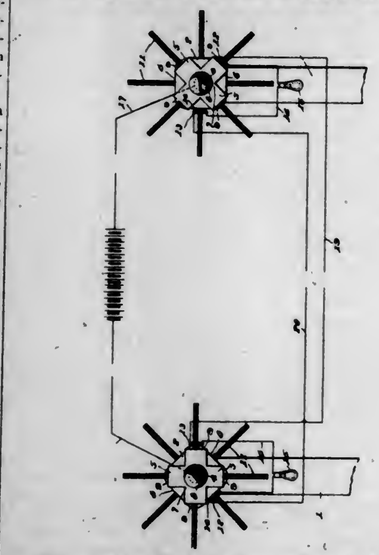
6. In a valve of the character indicated, the combination of a valve-casing having flat sides and rounded edge walls and consisting of two sections, each of the sections having its side walls and edge wall formed integral, the opposite side walls being provided with openings for the flues, ledges or flanges around the openings, one of the flanges being sloped or beveled to form a seating-face, a lining of impervious material of a thickness to project over and protect the flanges, an operating-shaft entered into the casing, an arm outwardly projecting from the operating-shaft, and a door carried by the arm having a beveled or sloping seating-face and adapted to seat against the first-mentioned seating-face, substantially as described.

7. In a valve of the character indicated, the combination of a valve-casing having flat sides and rounded edge walls and consisting of two sections, each of the sections having its side walls and edge wall formed integral, the opposite side walls being provided with openings for the flues, ledges or flanges around the openings, one of the flanges being sloped or beveled to form a seating-face, a lining of impervious material of a thickness to project over and protect the flanges, an operating-shaft entered into the casing, an arm outwardly projecting from the operating-shaft, a door carried by the arm having a beveled or sloping seating-face and adapted to seat against the first-mentioned seating-face, and means for regulating the position of the arm to properly seat the door, substantially as described.

8. In a valve of the character indicated, a valve-casing having flat side walls and connecting edge walls, the side walls being provided with openings, flues connected with the openings, a valve-door operable within the casing to regulate communication between the flues, and a steam-pipe extending diagonally through the edge wall of the casing and adapted to project a jet of steam thereinto to clean out sediment or the products of combustion, substantially as described.

9. In a valve of the character indicated, a valve-casing, an operating-shaft entering thereinto, a valve-door operable by means of the shaft, an adjusting-plug adapted to regulate the position of the arm and provided with a beveled rear face, a stuffing-box for the shaft consisting of a gland and packing, two diagonally-disposed adjusting-screws passing through the casing for the stuffing-box and bearing against the rear beveled face of the adjusting-plug, lock-nuts on the screws, and a packing within the lock-nuts, substantially as described.

786,604. RAILWAY SIGNAL SYSTEM. WILLIAM E. SCHEBLE, Miamisburg, Ohio. Filed May 16, 1904. Serial No. 208,170.

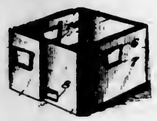


Claim.—1. In an electric signaling system for railroads, signaling-stations located at the opposite ends of a section of track, each station comprising a commutator actuated by the passing car and having alternating contact and insulating surfaces, and two brushes arranged to alternately contact with the contact-surfaces of the commutator, a circuit comprising a source of electricity and connecting said stations, one portion of said circuit connecting the contact-surfaces of the two commutators, and the other portion of said circuit being divided into two branches connecting the brushes of the two stations in pairs, one at each station, and signal-lamps arranged in parallel or multiple arc between the said branches of said circuit, substantially as described.

2. In an electric signaling system for railroads, signaling-stations located at the opposite ends of a section of track, each station comprising a commutator or rotating switch actuated by the passing car, said commutator having alternating contact and insulating surfaces, two brushes arranged to alternately contact with the contact-surfaces of the commutator, and a circuit connecting said brushes and provided with a signal-lamp, and a circuit connecting said two stations, one portion of said circuit comprising a source of electricity connected with the contact-surfaces of both commutators, the other portion of said circuit being divided into two branches, each branch connecting a brush at one station with a brush at the other station, substantially as described.

3. In an electric signaling system for railroads, signaling-stations located at the opposite ends of a section of track, each station comprising a commutator or rotating switch actuated by the passing car in the direction of its motion, said commutator having alternating contact and insulating surfaces, two brushes arranged to alternately contact with the contact-surfaces of the commutator, and a circuit connecting said brushes and provided with a signal-lamp, and a circuit connecting said two stations, one portion of said circuit comprising a source of electricity connected with the contact-surfaces of both commutators, the other portion of said circuit being divided into two branches, each branch connecting a brush at one station with a brush at the other station, substantially as described.

786,605. BERRY-BOX. OTTO H. SCHMALZ, Huntley, Ill. Filed Apr. 15, 1904. Serial No. 203,264.



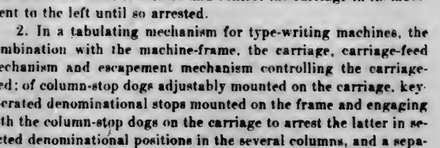
Claim.—1. In a box of the class described, the combination with a surrounding wall comprising a plurality of sections, one or more of said sections provided with a plurality of horizontal slots, of a bottom, locking-flaps integral with said bottom, tongues carried by said locking-flaps adapted to engage said slots to support the bottom, upright tongues on the wall, and depending flanges on the bottom adapted to be engaged by the upright tongues whereby the sides of the wall are prevented from bulging.

2. In a box of the class described, the combination with a surrounding wall comprising a plurality of sections, one or more of said sections having a plurality of horizontal slots, the other of said sections provided with upright tongues, of a locking-flap carried by said sections, a transverse tongue carried by one of said sections adapted to engage the slots of the locking-flap to lock the wall in position, a bottom provided with upright flaps having depending tongues adapted to engage the horizontal slots in the wall, and depending flanges on the bottom adapted to engage the upright tongues to prevent the walls from bulging and to support the bottom.

3. In a box, the combination with a surrounding wall, of a bottom blank, flaps bent up from the bottom blank and provided with depending tongues, flanges on said bottom blank bent in an opposite direction from the flaps and upright tongues on the surrounding wall adapted to engage the flanges to assist in supporting the bottom, said surrounding wall provided with a plurality of apertures adapted to receive the depending tongues of the flaps whereby the bottom is further supported.

786,606. CUTTING-STICK. GEORGE SCHWARZ, Brooklyn, N. Y., and GEORGE LOWE, Jersey City, N. J. Filed Nov. 25, 1904. Serial No. 234,315.

Claim.—1. The combination of a cutting-roller having a longitudinal channel in its perimeter extending to one of its ends, a cutting-stick arranged in said channel and removable endwise therefrom, means on the roller, and means on the cutter-stick arranged to engage the first-mentioned means when the cutter-stick is shoved home and coact with said means to hold the cutter-stick against casual endwise movement.



3. The combination of a cutting-roller having a longitudinal channel in its perimeter extending to one of its ends and also having a socket at the opposite end of said channel, a cutting-stick arranged in said channel and removable endwise therefrom; said cutting-stick comprising a holder open at one end and having a head at its opposite end disposed in the socket of the roller, a cushion removable endwise from the holder, and coacting means on the holder and cushion for holding the latter against lateral movement from the former, means on the roller, and means on the cutter-stick arranged to engage the first-mentioned means when the cutter-stick is shoved home and coact with said means to hold the cutter-stick against casual endwise movement.

4. The combination of a cutting-roller having a longitudinal channel in its perimeter, and also having a beveled keeper at the inner side of its thickness, and a cutting-stick removably arranged in the channel of the roller and having a latch arranged to engage the keeper on the roller.

5. The combination of a cutting-roller, a cutting-stick carried thereby, and a fastener comprising members on the roller and stick; one of the said members being arranged and adapted to be sprung into and out of engagement with the other.

6. The combination of a cutting-roller having a longitudinal channel in its perimeter, a resilient keeper carried by the roller at the inner side of the thickness thereof and having a beveled head, and a cutting-stick removably arranged in the channel of the roller and having a resilient latch provided with a beveled head arranged to engage that of the keeper.

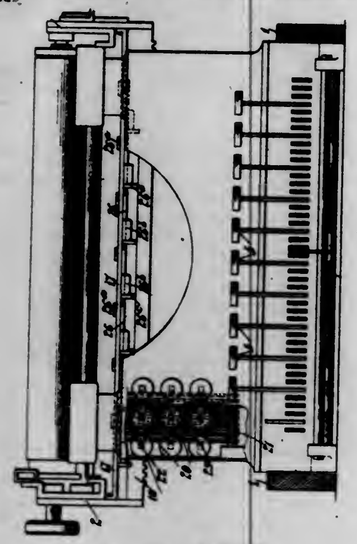
786,607. TABULATING-DEVICE FOR TYPE-WRITING MACHINES. JEROME B. SECOR, Derby, Conn., assignor to The Williams Typewriter Company, Derby, Conn., a Corporation of Iowa. Filed July 9, 1903. Serial No. 164,819.

Claim.—1. In a tabulating mechanism for type-writing machines, the combination with the carriage, its feed mechanism and keyboard mechanism controlling said feed mechanism; of the release-lever 15 pivoted on the carriage, the rocking bar pivoted on the carriage and operated by the lever 15, the lever 16′ pivoted on the frame and operated by the bar 16; the escapement-dog engaged by the lever 16′ so as to release the carriage when the bar 16 is depressed; stop-dogs mounted on the carriage; and a suitable tabulating stop device on the frame operated independently of the carriage-release mechanism; whereby the operator is enabled with one hand to set the tabulating stop device to arrest the carriage in the position desired, and with the other hand to release and control the carriage in its movement to the left until so arrested.

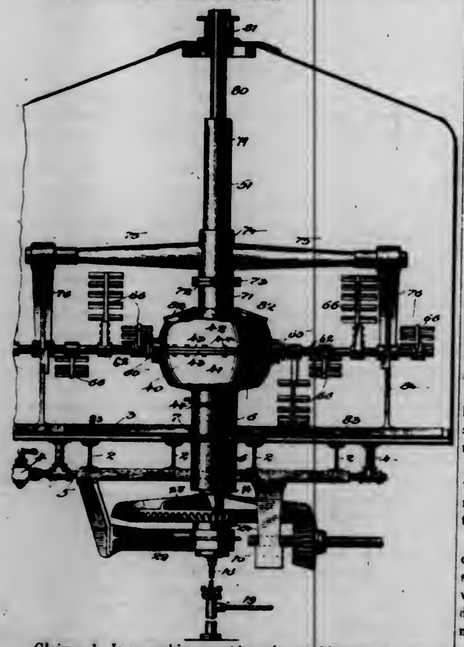
2. In a tabulating mechanism for type-writing machines, the combination with the machine-frame, the carriage, carriage-feed mechanism and escapement mechanism controlling the carriage-feed; of column-stop dogs adjustably mounted on the carriage, key-operated denominational stops mounted on the frame and engaging with the column-stop dogs on the carriage to arrest the latter in selected denominational positions in the several columns, and a separate carriage-release device mounted on the carriage, comprising a hand-lever, a rock-bar connected to and adapted to be actuated by said hand-lever, and a bell-crank lever connected to and adapted to be depressed by said rock-bar and engaging the carriage-escapement device so as to release the carriage when so depressed, substantially as described.

3. In a tabulating mechanism for type-writing machines, the combination with the machine-frame, the carriage, and the carriage-

feed mechanism, of a series of column-stops mounted on the carriage and movable thereon into and out of operative position, a series of denomination stop-levers fulcrumed by their lower ends on the machine-frame and severally movable into the path of either of the column-stops on the carriage which may be set in operative position, push-keys connected to said denomination stop-levers for moving them into such arresting position, and springs restoring the said stop-levers to normal position when released, substantially as described.



786,608. **MASHING-MACHINE.** WILLIAM SEIDEL, Wheeling, Ill. Filed Oct. 27, 1904. Serial No. 230,246.



Claim.—1. In a mashing-machine, the combination of a sleeve slidably mounted, a tubular shaft rotatably mounted within the sleeve, a piston slidably mounted within the rotatable tubular shaft, a paddle-shaft connected with and movable with the piston, and means for imparting rotation from the rotatable tubular shaft to the paddle-shaft, substantially as described.

2. In a mashing-machine, the combination of a sleeve slidably mounted, a tubular shaft rotatably mounted within the sleeve, a piston slidably mounted within the rotatable tubular shaft, a paddle-shaft connected with and movable with the piston, means for imparting rotation from the rotatable tubular shaft to the paddle-shaft, and an inclosing casing movable with the piston and the slidable sleeve, substantially as described.

3. In a mashing-machine, the combination of a sleeve slidably mounted, a rotatably-mounted tubular shaft, a piston slidably mounted within the shaft, a king-wheel rigidly secured to the slidably-mounted sleeve and vertically movable therewith, a paddle-shaft, a journal for the paddle-shaft connected with the rotatably-mounted tubular shaft, and a gear-wheel on the paddle-shaft meshing with the king-wheel, substantially as described.

4. In a mashing-machine, the combination of a sleeve slidably mounted, a rotatably-mounted tubular shaft, a piston slidably mounted within the shaft, a king-wheel rigidly secured to the slidably-mounted sleeve and vertically movable therewith, a paddle-shaft, a journal for the paddle-shaft connected with the rotatably-mounted tubular shaft, a gear-wheel on the paddle-shaft meshing with the king-wheel, and an inclosing casing for the gear-wheel and king-wheel connected with and rotatable with the tubular shaft, substantially as described.

5. In a mashing-machine, the combination of a sleeve slidably mounted, a tubular shaft rotatably mounted within the sleeve, a reciprocating piston within the tubular shaft and rotatable therewith, means for imparting rotation to the tubular shaft, said shaft being provided with elongated slots, a cross-pin outwardly projecting from the reciprocating piston through the elongated slots in the rotatable tubular shaft, an inclosing casing rotatably and slidably mounted and connected with the outwardly-projecting cross-pin for imparting a sliding and rotary movement to the casing, a king-wheel connected with and movable with the slidably-mounted sleeve, two independent paddle-shafts journaled within the inclosing casing, and gear-wheels on the independent paddle-shafts meshing with the king-wheel, substantially as described.

6. In a mashing-machine, the combination of a sleeve slidably mounted, a tubular shaft rotatably mounted within the sleeve, a reciprocating piston within the tubular shaft and rotatable therewith, means for imparting rotation to the tubular shaft, said shaft being provided with elongated slots, a cross-pin outwardly projecting from the reciprocating piston through the elongated slots in the rotatable tubular shaft, an inclosing casing rotatably and slidably mounted and connected with the outwardly-projecting cross-pin for imparting a sliding and rotary movement to the casing, a king-wheel connected with and movable with the slidably-mounted sleeve, two independent paddle-shafts journaled within the inclosing casing, gear-wheels on the independent paddle-shafts meshing with the king-wheel, stuffing-boxes for the paddle-shafts, a stuffing-box for the slidably-mounted sleeve, and a stuffing-box for the rotatable inclosing casing, substantially as described.

7. In a mashing-machine, the combination of a king-wheel vertically movable and held against rotation, a pair of independent paddle-shafts, a water-tight inclosing casing within which the shafts are journaled, said casing being revoluble around the king-wheel and vertically movable with the king-wheel, gear-wheels on the shafts meshing with the king-wheel, and means for imparting revolution to the casing and vertical movement thereto, substantially as described.

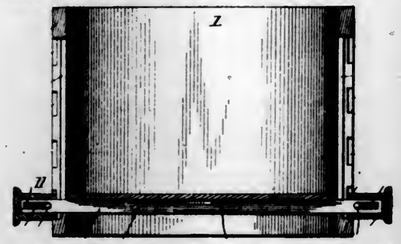
8. In a mashing-machine, the combination of a non-rotatable king-wheel, a vertically-adjustable mounting for the king-wheel held against rotation, a water-tight inclosing casing revoluble around the mounting for the king-wheel and vertically movable therewith, a paddle-shaft journaled in the inclosing casing and revoluble therewith, a gear-wheel on the shaft meshing with the king-wheel, and means for revolving the casing and imparting a vertical adjustment thereto, substantially as described.

9. In a mashing-machine, the combination of a water-tight inclosing casing revolubly mounted and vertically adjustable, paddle shafts journaled at their ends within the inclosing casing, gear wheels within the inclosing casing for imparting rotation to the paddle-shafts, and means for revolving and imparting a vertical movement to the inclosing casing, substantially as described.

10. In a mashing-machine, the combination of a water-tight inclosing casing revolubly mounted and vertically movable and held against revolution, two independent paddle-shafts having their ends journaled within the casing, stuffing-boxes through which the paddle-shafts pass, a gear-wheel on each of the paddle-shafts meshing with the king-wheel, and means for revolving the inclosing casing and paddle-shafts around the king-wheel and vertically moving the king-wheel, together with the inclosing casing, paddle-shafts and gear-wheels, substantially as described.

11. In a mashing-machine, the combination of a sleeve slidably mounted and held against revolution, a tubular shaft within the sleeve consisting of two sections secured together and provided in its upper section with oppositely-disposed elongated slots, a piston within the tubular shaft, slidably mounted and revoluble with the tubular shaft, having at its upper end a cross-pin outwardly projecting through the slots, a rotatably-mounted inclosing casing connected with the cross-pin and adapted to be revolved and vertically moved by the movement of the cross-pin, paddle-shafts outwardly projecting from and revoluble with the inclosing casing, and means for imparting revolution to the paddle-shafts, substantially as described.

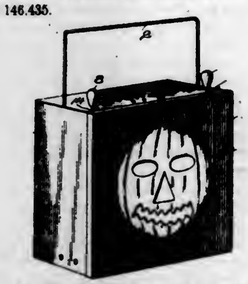
786,609. **MEASURE.** LESLIE P. STEELE, Washington, Pa. Filed June 24, 1903. Renewed Jan. 23, 1905. Serial No. 242,301.



Claim.—1. A measure comprising an annular shell having an adjustable base, enlarged portions formed on the sides of said shell, a slot formed in said enlarged portion, auxiliary slots formed upon each side of said slots, a lever projecting through said slots and supporting the base, handles carried by the ends of said lever, means carried by said lever for holding the handles in engagement with the last-named slots, substantially as described.

2. A measure comprising an annular shell having an adjustable base, enlarged portions formed on the sides of said shell, a slot formed in said enlarged portion, auxiliary slots formed upon each side of said slots, a lever projecting through said slots and supporting the base, handles carried by the ends of said lever, elongated slots formed in the ends of said lever, a pin mounted within said slots, a spring mounted within said slots, said spring adapted to normally hold the handle in engagement with the last-named slots, substantially as described.

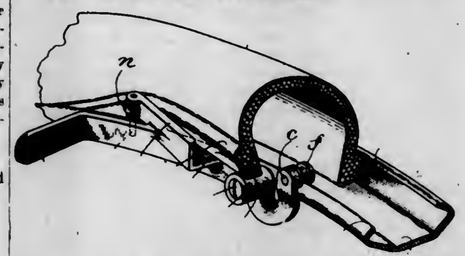
786,610. **TOY.** EUGENE TERRY, Ithaca, N. Y. Filed Mar. 6, 1903. Serial No. 146,435.



Claim.—1. In a portable toy, a casing, a cover for said casing having an aperture therein, rollers mounted within said casing one on each side of said aperture, said rollers being removably supported by sockets at their lower ends and brackets at their upper ends and having grips or handles fixed thereon, a strip of transparent material having suitable pictures or designs thereon, said strip being connected at its ends to said rollers and adapted to be wound from one to the other thereof, rods removably located adjacent the inner face of said cover and adapted to hold said strip closely against the cover and a source of light within said casing substantially as and for the purposes set forth.

2. In a portable toy, in combination, a casing, a source of light therein, a detachable cover for said casing having an aperture, rollers removably mounted upon said cover and adapted to draw a film across said opening and removable guide-rods secured to said cover and adapted to hold said film against the same.

786,611. **TIRE-SHOE SETTER.** ROBERT THRELFALL, Newton, Mass. Filed Dec. 8, 1904. Serial No. 236,013.



Claim.—1. A tire-setter having a portion adapted to engage with a wheel-rim, a portion arranged to engage and raise the inner edge of a tire, a portion for engaging the side of the tire and pressing the same between the flanges of the wheel-rim, and a hand-engaging portion, all the parts being arranged to extend approximately parallel to the periphery of the wheel when the device is in operation, and having their only connection with the wheel at the rim thereof.

2. A tire-setter comprising a projection arranged to engage the inturned edge of a wheel-rim, and portions for engaging the bead of a tire to force the same over and into engagement with the edge of the rim, all the parts of said setter being located approximately in a line which is adapted to extend parallel to the edge of the rim when the device is in operation.

3. A tire-setter having a projection adapted to engage the flange of a rim-wheel and run along the same, and portions located in rear of said projection when the device is in use for engaging the bead of a tire and forcing the same over and into engagement with the flange of the rim, all the parts of said setter being arranged to occupy a position substantially parallel to the rim of the wheel when in use.

4. A tire-setter having a rim-engaging portion adapted to remain in continuous engagement with the rim of a wheel, and a tire-edge-turning portion adapted to continuously engage the inner edge of a tire and to be advanced along the wheel-rim while setting a tire, all the parts of said setter being arranged to occupy a position substantially parallel to the rim of the wheel when in use.

5. A tire-setter comprising a body portion having a shape conforming to a portion of the periphery of a wheel-rim, a projection extending from one side thereof and adapted to extend over and engage the inwardly-directed flange of a wheel-rim, an inclined arm adapted to project obliquely over the edge of the rim and to engage the side of a tire to force the same over and into engagement with the rim, and a projection intermediate the first-named projection and arm extending from the opposite side of the body portion having a bearing-surface in a plane substantially at right angles to that of the bearing-surface of the arm and adapted to engage the inner edge of a tire.

6. A tire-setter comprising a body portion having a shape conforming to a portion of the periphery of a wheel-rim, a projection extending from one side thereof and adapted to extend over and engage the inwardly-directed flange of a wheel-rim, an inclined arm adapted to project obliquely over the edge of the rim and to engage the side of a tire to force the same over and into engagement with the rim, a projection intermediate the first-named projection and arm extending from the opposite side of the body portion having a bearing-surface in a plane substantially at right angles to that of the bearing-surface of the arm and adapted to engage the inner edge of a tire, and rollers mounted on said projections and arm.

7. A tire-setter, comprising a body portion, an arm carried by said body portion and extending at an angle thereto, a projection carried by the arm adjacent its end for engaging the rim of a wheel, a projection carried by the body portion also arranged to engage the wheel-rim, and a bearing-surface adapted to engage the surface of a

tire adjacent the rim, said parts all being arranged to occupy a position substantially parallel to the rim of the wheel when in use.

8. A tire-placer comprising a body portion, an arm carried by the body portion extending at an angle thereto with its ends projecting on opposite sides of the body portion, one of the ends being adapted to project over the rim of a wheel when the device is being used, a web joining the other end of the arm with the body portion, a projection having a bearing-surface substantially in line with the said web, and a second projection on the other side of the body portion arranged to extend over and engage a portion of the wheel-rim.

9. A tire-placer having portions arranged for simultaneous engagement with a wheel-rim and a portion of a tire, and adapted to remain in continuous engagement therewith and to be moved progressively about the wheel-rim, the tire-engaging portion being constructed to force the tire over and into engagement with the rim, all the parts of the placer being adapted to occupy a position beside the rim, and the only engagement of the placer with the wheel being at the rim when in use.

786,612. AUTOMOBILE OR BICYCLE WHEEL. OGDEN R. VAN DOREN, Newark, N. J. Filed Oct. 24, 1904. Serial No. 229,702.



Claim.—1. The combination with the rim grooved at its outer periphery, of an elastic cushion lying at the bottom of the groove, and a wooden tire arranged in said groove on said cushion, said wooden tire being in semicircular sections coupled together at their ends, opposing ends of said sections being held in connecting-sleeves, the opposite sides of said tire-sections and sleeves engaging the side walls of the groove of said rim, substantially as set forth.

2. The combination with the rim grooved at its outer periphery, of an elastic cushion lying at the bottom of the groove, a wooden tire arranged in said groove on said cushion, the ends of said tire being drawn down into said groove against said cushion by a turnbuckle, the latter being connected to the said ends and a sleeve containing the ends of the tire and said turnbuckle, substantially as set forth.

3. The combination with the metallic rim grooved at the outer periphery, of an elastic cushion arranged at the bottom of the groove, and a tire in approximately semicircular sections joined together by turnbuckles, said semicircular sections at their ends being inserted in sleeves interposed between the said tire bearing upon said elastic cushion and held from lateral movement by the sides of the metallic rim and a jacket or covering inclosing said rim and tire, substantially as set forth.

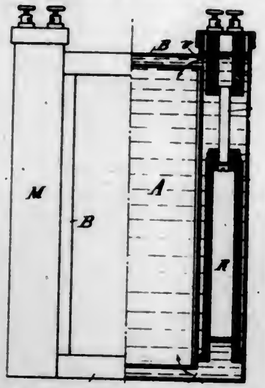
4. The combination with the metallic rim grooved at its outer periphery, of an elastic cushion arranged at the bottom of the groove, and a tire in approximately semicircular sections joined together by turnbuckles, said semicircular sections being reduced at their ends and inserted in curved tubular sleeves interposed between said sections and being slotted to receive the opposite heads of the turnbuckles, the said tire bearing upon said elastic cushion and held from lateral movement by the sides of the metallic rim and a jacket or covering inclosing said rim and tire, substantially as set forth.

786,613. SIGNALING-SCREEN. GAETANO VILLANI, Milan, Italy. Filed Dec. 7, 1903. Serial No. 184,203.

Claim.—1. In a signaling-screen, the combination of a framework, a pair of parallel glass plates hermetically secured therein and forming a cavity between said plates, conducts leading to said cavity and means for forcing either of two differently-colored and non-blending liquids through said conducts into said cavity; the whole apparatus forming a closed system of intercommunicating vessels.

2. A screen consisting of two parallel glass plates in combination with a frame surrounding them, conducts leading to the interval between said glass plates, means for forcing into said interval either of two differently-colored liquids, means for forcing into the upper part of said interval one of said liquids and forcing the other liquid into the lower half; the whole apparatus forming a closed system of intercommunicating chambers containing a quantity of liquid therein.

3. A screen consisting of two parallel glass plates in combination with a frame surrounding them, conducts within said frame leading from the interval between said glass plates respectively to the top and bottom compartments of a vertical cylinder situated on one side of the same, a movable piston within one compartment of said cylinder, which on being displaced, forces the colored liquid contained within the screen into one of the compartments of the vertical cylinder replacing the same by the differently-colored liquid contained within the other compartment; means for displacing the said pistons; the whole apparatus forming a closed system of intercommunicating chambers containing a quantity of liquid therein.



4. A screen consisting of two parallel glass plates in combination with a frame surrounding them, conducts within said frame leading from the interval between said glass plates respectively to the top and bottom compartments of two vertical cylinders, each on one side of the screen, movable pistons within one compartment of each of said cylinders, either of which on being displaced forces the half of the colored liquid contained within the screen into one of the compartments of either cylinder, replacing the same by a differently-colored liquid contained within the other compartment; means for displacing either of said pistons, the whole apparatus forming a closed system of intercommunicating chambers containing a quantity of liquid therein.

5. In a signaling-screen, the combination of a frame, a pair of parallel glass plates mounted therein, one of said plates formed with a corrugated surface, conducts within said frame leading to the interval between said plates, vertical cylinders arranged one on each side of said screen, bell-shaped pistons operating in said cylinders, means for operating said pistons and two differently-colored and non-blending liquids in said cylinders adapted to be forced into the interval between said plates, the whole apparatus forming a closed system of intercommunicating chambers containing a quantity of liquid therein.

6. In a signaling-screen the combination of a framework, a pair of transparent plates hermetically secured therein and forming a cavity therebetween, said cavity adapted to contain liquid therein, conducts leading to said cavity and means for forcing either of two differently-colored and non-blending liquids through said conducts into said cavity; the whole apparatus forming a closed system of intercommunicating chambers.

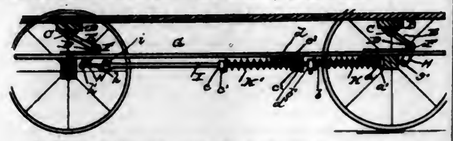
7. In a signaling-screen the combination of a framework, transparent walls secured therein and forming a hermetically-sealed chamber and means for forcing either of two differently-colored and non-blending liquids into said chamber.

8. In a signaling-screen the combination of a framework, transparent walls secured therein and forming a cavity between said walls, conducts leading to said cavity and means for forcing either of two differently-colored and non-blending liquids through said conducts into said cavity, the whole apparatus forming a closed system of intercommunicating chambers.

786,614. WAGON-SPRING. WILLIAM WEBBER, Wessington Springs, S. D. Filed July 26, 1904. Serial No. 218,496.

Claim.—1. In a vehicle-spring, the combination with the crank-shafts, connecting-rod, springs, of the angular sliding plate, grooved slideways and cam, substantially as described.

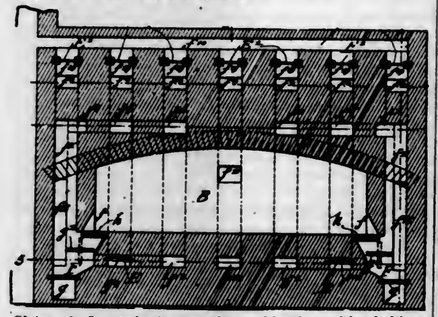
2. The combination with the crank-shafts, connecting-rod and coiled springs, of the sliding plate, grooved slideway, cam and the V-shaped crank, interposed between the rear end of the connecting-rod and the rear crank-shaft, substantially as described.



3. The combination with the crank-shafts, sliding angular plate, grooved slideway, springs, cam and V-shaped crank of the tubular connecting-rod provided with the solid rod having the hooked end and the tubular rod provided with the set-screw, the rear end of the tubular rod having the eye or bearing, substantially as described.

4. The within-described vehicle-spring, comprising the front and rear rock-shafts provided with the cranks; the tubular rod connecting these rock-shafts, said rod having the solid rod sliding therein, and the V-shaped crank interposed between the rear end of said tubular rod and rear crank-shaft, the grooved slideway, an angular sliding plate, a cam, angular plate a', coiled springs, and collars, having the set-screws, the whole adapted to operate as described.

786,615. BAKER'S OVEN. BAPTISTE YURE, New York, N. Y. Filed Sept. 2, 1904. Serial No. 223,124.



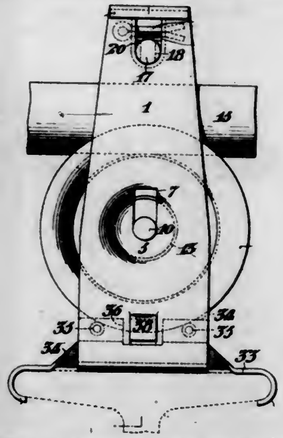
Claim.—1. In a baker's oven, the combination, with a baking-chamber, of main fireplaces arranged in the front wall thereof, flues leading from said fireplaces to said baking-chamber, means for permitting the escape of the hot gases from the latter, auxiliary fireplaces in said flues for assisting in the preliminary heating of the baking-chamber, means for closing said flues and thereby cutting off communication between the main and auxiliary fireplaces and the baking-chamber, and flues in communication with the main fireplaces for exteriorly heating the baking-chamber.

2. In a baker's oven, the combination with a baking-chamber, of main fireplaces for heating the same, flues leading from same fireplaces to said baking-chamber, means for permitting the escape of the hot gases from the latter, auxiliary fireplaces in said flues and comprising dumping-grates, means for closing said flues and thereby cutting off communication between the main and auxiliary fireplaces and baking-chamber, and flues in communication with the main fireplaces exteriorly heating the baking-chamber.

3. In a baker's oven, the combination, with a baking-chamber, of main fireplaces arranged in the front wall thereof, flues leading from said fireplaces to the baking-chamber, means for permitting the escape of the hot gases from the latter, auxiliary fireplaces arranged in said flues and comprising dumping-grates, said dumping-grates being so arranged that when the fire thereon is dumped the same will fall upon the grates of the main fireplaces, means for closing said flues and thereby cutting off communication between the main and auxiliary fireplaces and the baking-chamber, an flues in communication with the main fireplaces for heating the exterior of the baking-chamber.

786,616. ROLLER-STAND FOR SWITCH-RODS. LAWRENCE ZAMBONI, Philadelphia, Pa., assignor to The American Pulley Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Feb. 2, 1905. Serial No. 243,814.

Claim.—1. A roller-stand comprising vertical and horizontal walls in unitary relation; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; and, a plate distinct from said walls arranged to brace them in rigid relation, substantially as set forth.



2. A roller-stand comprising vertical and horizontal walls in unitary relation; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; a plate distinct from said walls having portions extending obliquely from said horizontal wall to said vertical walls at the junctions thereof; and, means securing said plate in rigid relation with said walls, substantially as set forth.

3. A roller-stand comprising vertical and horizontal walls in unitary relation; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; a plate distinct from said walls having portions extending obliquely from said horizontal wall to said vertical walls at the junctions thereof; and, means securing said plate in rigid relation with said walls, comprising rivets extending through said vertical walls, substantially as set forth.

4. A roller-stand comprising vertical and horizontal walls in unitary relation; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; a plate distinct from said walls arranged to brace them in rigid relation; and, means on said brace-plate arranged to engage a support for said stand, substantially as set forth.

5. A roller-stand comprising vertical and horizontal walls formed of a single piece of pressed sheet metal; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; a pressed-sheet-metal plate arranged to brace said horizontal and vertical walls in rigid relation; and, means securing said plate to said walls, substantially as set forth.

6. A roller-stand comprising vertical and horizontal walls formed of a single piece of pressed sheet metal; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; a pressed-sheet-metal plate arranged to brace said horizontal and vertical walls in rigid relation; means securing said plate to said walls; and, means on said brace-plate arranged to engage a support for said stand, substantially as set forth.

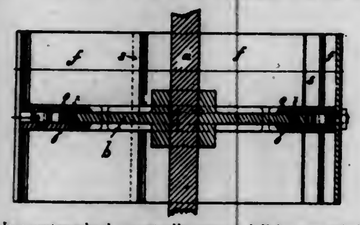
7. A roller-stand comprising vertical and horizontal walls formed of a single piece of pressed sheet metal; a shaft supported in said vertical walls; a roller mounted to rotate on said shaft; a pressed-sheet-metal plate arranged to brace said walls in rigid relation; means securing said plate to said walls; and, means on said brace-plate arranged to engage a support for said stand, comprising inwardly-turned flanges, substantially as set forth.

8. A roller-stand comprising vertical and horizontal walls formed of a single piece of pressed sheet metal, and having respectively opposite bearing-recesses; a shaft removably supported in said recesses; a pressed-sheet-metal roller mounted to rotate on said shaft; a pressed-sheet-metal plate arranged to brace said walls in rigid relation; and, means securing said plate to said walls, wholly within the outer planes of said vertical walls, substantially as set forth.

786,617. TURBINE WATER-WHEEL. CLARENCE O. ANTHONY, Kennetcook Corner, Canada. Filed June 4, 1903. Serial No. 159,985.

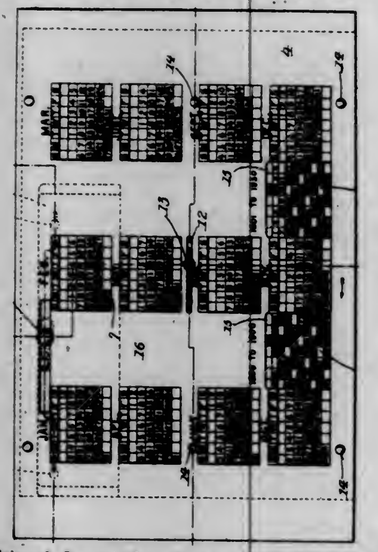
Claim.—1. In a water-wheel a disk secured to a shaft at right angles thereto, two forming-rings each having corresponding eccen-

tric serrations in its periphery and attached one to each side of said disk with their serrations projecting beyond its circumference, eye-bolts secured in the space between said forming-rings, and blades set at right angles to said disk and held in engagement with said serrations by said eyebolts; substantially as described and set forth.



2. In a water-wheel, a centrally-arranged disk, eccentric blades centrally attached to the periphery of said disk at right angles to its plane of rotation, in combination with a shaft carrying said disk, and a case supporting said shaft; substantially as described and for the purpose specified.

786,618. **CALENDAR.** JACOB BALL, Waterloo, and ROBERT E. RITZ, Berlin, Canada. Filed Apr. 23, 1904. Serial No. 204,518.



Claim.—1. In a calendar, a base provided with a series of ten month-charts, and a plurality of numerals "29," a movable slide with two month-charts and having perforations adapted to register with said numerals "29," a face-plate provided with openings of predetermined areas, and with the name of a month and of the days of a week adjacent each of said openings, and with a year-chart on said face-plate, and said base having an indicating means adapted to register with different numerals comprising said year-chart.

2. In a calendar, a base provided with a series of ten month-charts and a plurality of numerals "29," a slide movably secured to the base and provided with two month-charts and having perforations adapted to register with said numerals "29," a face-plate provided with openings, with the name of the months and the days of the week adjacent thereto, there being a year-chart on said face-plate, and there being an indicating means on said base adapted to register with different numerals comprising said year-chart.

3. In a calendar, a base provided with a series of ten month-charts and a plurality of numerals "29," a movable slide with two month-charts and provided with perforations adapted to register with said numerals "29," a face-plate provided with openings of predetermined areas and with the name of a month and the days of the week adjacent each of said openings, there being year-charts provided with slots adjacent thereto and there being indicating characters on said base adapted to register through the slots with different numerals comprising the year-charts.

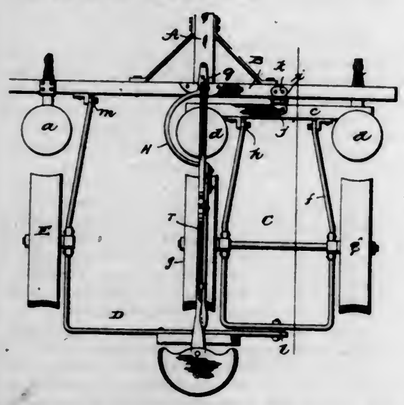
4. In a calendar, a base provided with a series of ten month-charts and a plurality of numerals "29," a movable slide with two month-charts and provided with perforations adapted to slide with the two month-charts and register with said numerals "29," a face-plate provided with openings of predetermined areas and with the name of a month and the days of the week adjacent each of said openings, there being year-charts provided with slots adjacent thereto, and there being indicating characters on said base, comprising the letters "A. D.," and registering with the numerals comprising the year-charts.

5. A calendar, comprising a sheet carrying indicating-numbers for the months from March to December and the numeral "29" printed on the same sheet, there being numerals for the months of January and February superposed upon a slidable sheet connected with the base-sheet, the slidable sheet being provided with a perforation adapted to expose the numeral "29."

6. A calendar, comprising an upper sheet provided with openings, there being characters disposed over the openings to indicate months and days, a sheet slidably disposed beneath the first sheet, there being numerals thereon registering with said openings for the months from March to December, there being a numeral "29" thereon registering with the opening for February, a slidable sheet having thereon the numerals for January and February, disposed below the openings in the top sheet and provided with an opening registering with the numeral "29," said intermediate sheet being slidably secured to the bottom sheet and also movable therewith.

7. A calendar, comprising an upper sheet provided with openings, there being characters disposed over the openings to indicate months and days, a sheet slidably disposed beneath the first sheet, there being numerals thereon registering with the openings for the months from March to December, there being a numeral "29" thereon, a slidable sheet registering with the openings for January and February and provided with the numerals therefor and an opening registering with the numeral "29," said intermediate sheet being slidably secured to the bottom sheet and also movable therewith, there being year-charts provided with slots adjacent thereto and there being indicating characters registering with the numerals of the year-charts.

786,619. **CORN-PLANTER.** RICHARD V. BARRY, Clinton, Iowa. Filed Aug. 20, 1904. Serial No. 221,528.

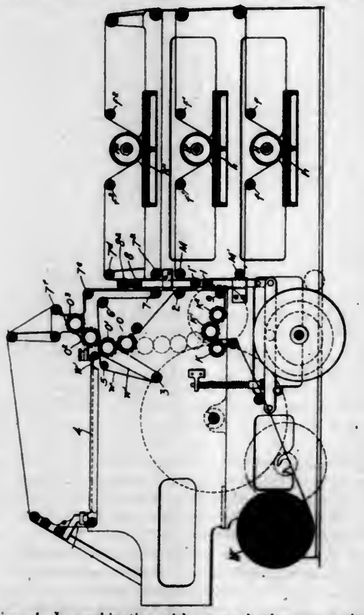


Claim.—1. In a corn-planter, the combination of a tongue, a cross-bar fixed with respect to the tongue, a right-angle, wheel-supported frame having a forwardly-reaching arm pivotally connected to the said cross-bar and arranged to swing vertically thereon and also having a transverse arm fixed with respect to and extending inwardly from the forwardly-reaching arm, and a wheel-supported frame interposed between and pivotally connected to the cross-bar and the inwardly-extending, transverse arm of the right-angle frame and arranged to rock in the direction of the width of the planter.

2. In a corn-planter, the combination of a tongue, a cross-bar fixed with respect to the tongue and equipped adjacent to one of its ends with a seedbox and a runner, a right-angle frame having a forwardly-reaching arm pivotally connected to the said cross-bar and arranged to swing vertically thereon and also having a transverse arm fixed with respect to and extending inwardly from the forwardly-reaching arm, a combined supporting and covering wheel carried by the forwardly-reaching arm of the right-angle frame and arranged in rear of the said seedbox and runner, and a frame comprising a forward bar equipped adjacent to its ends with seedboxes and runners; said bar being pivotally connected to the cross-bar on the tongue and arranged to rock in the direction of the width of the planter on said bar, a section pivotally connected to and arranged to swing vertically on said forward bar and pivotally connected to the transverse arm of the right-angle frame and arranged to swing in the direction of the width of the planter on said transverse arm, and combined supporting and covering wheels carried by the said section.

3. In a corn-planter, the combination of a tongue, a cross-bar fixed with respect to the tongue and equipped adjacent to one of its ends with a seedbox and a runner, a right-angle frame having a forwardly-reaching arm pivotally connected to the said cross-bar and arranged to swing vertically thereon, and also having a transverse arm fixed with respect to and extending inwardly from the forwardly-reaching arm, a combined supporting and covering wheel carried by the forwardly-reaching arm of the right-angle frame and arranged in rear of the said seedbox and runner, a frame comprising a forward bar equipped adjacent to its ends with seedboxes and runners; said bar being pivotally connected to the cross-bar on the tongue and arranged to rock in the direction of the width of the planter on said bar, a section pivotally connected to and arranged to swing vertically on said forward bar and pivotally connected to the transverse arm of the right-angle frame and arranged to swing in the direction of the width of the planter on said transverse arm, and combined supporting and covering wheels carried by the said section, a seat-support fixedly connected to the transverse arm of the right-angle frame and pivoted with respect to the tongue, a curved bar fixed with respect to the tongue and extending rearwardly around the middle seedbox, a lever fulcrumed on the seat-support and connected with the said curved bar, and means for adjustably fixing the said lever with respect to the seat-support.

786,620. **MULTICOLOR DUPLEX PRINTING.** HENRY F. BECHMAN, Battlecreek, Mich., assignor to Duplex Printing Press Company, Battlecreek, Mich. Filed June 30, 1904. Serial No. 214,730.



Claim.—1. In combination with a press having two stationary beds and coacting reciprocating cylinders, a third printing-couple, means for directing a web through the press, and then directing such web or a part thereof through the third printing-couple, whereby eight or less pages, may be perfected in colors, substantially as described

2. In combination with a press having two stationary beds and coacting reciprocating cylinders, a third bed and cylinder parallel with and in vertical alinement with the beds of such press, of means for directing the whole or part of the web printed on the lower beds between the upper bed and cylinder, whereby eight pages or less, may be perfected in colors.

3. The herein-described multicolor-printing press, comprising three stationary beds and coacting reciprocating cylinders in alinement, means for feeding a web between two of the beds and cylinders to be perfected thereby, and means for directing the whole or part of said web between the remaining bed and cylinder to receive colored impressions therefrom, substantially as described.

4. The herein-described multicolor-printing press, comprising three parallel stationary beds and reciprocating cylinders in vertical alinement, means for feeding a full-width web between the two lower beds and cylinders to be perfected thereby, and means for directing the whole or part of said web between the upper bed and cylinder to receive colored impressions therefrom, substantially as described.

5. In a printing-press, the combination of three-printing-couples, arranged parallel and in vertical alinement, means for feeding a web to and delivering it from two of the couples, means for dividing the web into two parts, means for directing one of these parts to the folder, means for directing the other of said parts between the third couple to receive a color impression therefrom, and means for directing the multicolored part of the web to the folder and assembling it with the other portion of the web, substantially as and for the purpose described.

6. In a printing-press, the combination of three printing-couples, each comprising a stationary bed and reciprocating cylinder, arranged parallel and in vertical alinement, means for feeding a web to and delivering it from two of the beds and cylinders, means for dividing the web into two parts, means for directing one of these parts to the folder after being perfected, and means for directing the other of said parts after being perfected, between the third bed and cylinder to receive multicolor impressions therefrom, and means for directing the multicolored part of the web to the folder and assembling it with the other portion of the web, substantially as and for the purpose described.

7. The herein-described multicolor-printing press, comprising a plurality of stationary beds and reciprocating cylinders, means for feeding a web between some of the beds and cylinders to be perfected thereby, and means for thereafter directing the whole or part of said web between the other printing mechanisms to receive colored impressions therefrom, substantially as described.

8. The herein-described multicolor-printing press, comprising a plurality of printing-couples each comprising a stationary bed and reciprocating cylinder, means for directing a web through one or more of the printing-couples to be printed in one color, and means for thereafter directing the whole or part of the web through other printing-couples to receive another color, substantially as described.

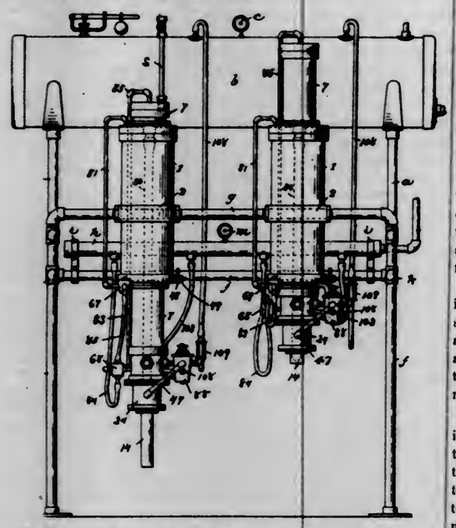
9. The herein-described multicolor-printing press, comprising a plurality of printing-couples each comprising a stationary bed and reciprocating cylinder, and all arranged in alinement, means for directing a web through two of the printing-couples to be perfected in one color, and means for directing the whole or part of the web through the remaining printing-couples to receive another multicolor impression, substantially as and for the purpose described.

786,621. **RACKING APPARATUS.** DILLON BEEBE, Newark, N. J. Filed Sept. 19, 1904. Serial No. 225,005.

Claim.—1. In a racking apparatus, a racker-arm comprising a main or outer cylinder having suitably-packed apertures at its opposite ends, means for supporting said main cylinder, an inner cylinder slidably arranged in said outer cylinder and projecting at both ends thereof through said apertures, said inner cylinder forming with the outer cylinder a chamber for pressure fluid and being closed at its top, a collar upon said inner cylinder fitting the outer cylinder in the capacity of a piston-head, a packing-head on said inner cylinder, a filling-tube arranged to slide in the said inner cylinder and having a piston-head fitting the same, and means for supplying pressure fluid to said cylinders to move the said sliding parts therein.

2. In a racking apparatus, a racker-arm comprising a main or outer cylinder having suitably-packed apertures at its ends, an inner cylinder extending through said outer cylinder and projecting therefrom at both ends, said inner cylinder forming with the outer cylin-

der a chamber for pressure fluid, a collar upon said inner cylinder fitting the outer cylinder in the capacity of a piston-head, a packing-head on said inner cylinder, a filling-tube arranged to slide in said inner cylinder and having a head fitting the same, separate sets of ducts leading to the top and bottom of each cylinder, a valve at the junction of the ducts of each set adapted to introduce pressure fluid through either duct and exhaust through the other, and a pressure-fluid-supply pipe leading to said valves.



3. In a racking apparatus, a racker-arm comprising a main or outer cylinder having suitably-packed apertures at its ends, an inner cylinder extending through said outer cylinder and projecting therefrom at both ends, said inner cylinder forming with the outer cylinder a chamber for pressure fluid, a collar upon said inner cylinder fitting the outer cylinder in the capacity of a piston-head, a packing-head on said inner cylinder, a filling-tube arranged to slide in said inner cylinder and having a head fitting the same, a set of ducts on each cylinder comprising pipes leading to opposite sides of the piston-head therein, a valve mounted on each cylinder and adapted to introduce pressure fluid through either one of said ducts and exhaust through the other, and a flexible pressure-fluid-supply pipe leading to the valves.

4. In a racking apparatus, a racker-arm comprising a main or outer cylinder having suitably-packed apertures at its ends, an inner cylinder extending through said outer cylinder and projecting therefrom at both ends, said inner cylinder forming with the outer cylinder a chamber for pressure fluid, a collar upon said inner cylinder fitting the outer cylinder in the capacity of a piston-head, a packing-head on said inner cylinder, a filling-tube arranged to slide in said inner cylinder and having a head fitting the same, a set of ducts on each cylinder comprising pipes leading to opposite sides of the piston-head therein, a valve mounted on each cylinder and adapted to introduce pressure fluid through either one of the said ducts and exhaust through the other, a flexible pressure-fluid-supply pipe leading to the valves, and means for preventing relative twisting of the filling-tube and inner cylinder, and of the inner cylinder and outer cylinder, each comprising a rod rigidly carried on one part and sliding in a correspondingly-shaped socket on the other part.

5. A racking-arm comprising an outer cylinder, a clamping band upon said cylinder adjustable toward either end and having diametrically opposite trunnions projecting therefrom, a forked supporting-bracket adapted at the ends of its arms to pivotally receive said trunnions, means for holding the other end of said bracket fixed, an inner cylinder in said outer cylinder and having a collar fitting therein to serve as a piston-head, a packing-head on said inner cylinder, a filling-tube within said inner cylinder and also a piston-head, means for introducing pressure fluid to and exhausting the same from said cylinders, and suitable flow and vent ducts.

6. A racking-arm comprising an outer cylinder, a clamping-band upon said cylinder adjustable toward either end and having diametrically opposite trunnions projecting therefrom, a forked supporting-bracket adapted at the ends of its arms to pivotally receive said trunnions, means for holding the other end of said bracket fixed, an inner cylinder in said outer cylinder, projecting therefrom at both ends and having a collar fitting the outer cylinder as a piston-head, a packing-head on said cylinder, a filling-tube adapted to slide in said inner cylinder and also having a piston-head, means for introducing pressure fluid to and from said cylinders to slide the inner cylinder and filling-tube and shift the center of gravity to swing the arm on its pivots, and suitable flow and vent means.

7. A racker-arm comprising an outer cylinder, a clamping-band upon said cylinder adjustable toward either end and having diametrically opposite trunnions projecting therefrom, a forked supporting-bracket adapted at the ends of its arms to pivotally receive said trunnions, means for holding the other end of said bracket fixed, an inner cylinder in said outer cylinder, projecting therefrom at both ends and having a collar fitting the outer cylinder as a piston-head, a packing-head on said inner cylinder, a filling-tube adapted to slide in said inner cylinder and also having a piston-head, means for introducing pressure fluid to and from said cylinders to slide the inner cylinder and filling-tube upward and raise the center of gravity of the arm above its pivotal support and tip the same into inclined position, a catch for holding the arm in vertical position, and suitable flow and vent means.

8. In a racker-arm, the combination of a sheath mounted therein and having lateral ports or openings, a filling-tube adapted to slide in said sheath and having a longitudinal flow-passage with a lateral aperture adapted to register with the ports of said sheath, and packings at the upper and lower ends of said sheath adapted to imperviously engage the filling-tube and being located outside the range of movement of the said lateral aperture of the filling-tube.

9. In a racking-arm, the combination with an outer cylinder, an inner cylinder adapted to slide in said outer cylinder, and a filling-tube adapted to slide in said inner cylinder, of a sheath mounted in the lower part of said inner cylinder and nicely fitting the filling-tube, said sheath having lateral ports or openings and the filling-tube having a lateral aperture adapted to register with said ports, packings at the upper and lower ends of said sheath adapted to imperviously engage the filling-tube, and means for supplying liquid and for charging and venting packages.

10. In a racking-arm, the combination of an outer cylinder, an inner cylinder projecting at both ends from said outer cylinder and forming therewith an annular pressure-fluid chamber, a collar upon said inner cylinder fitting the outer cylinder to serve as a piston-head, a filling-tube in said inner cylinder having a head fitting the upper part thereof, a sheath in the lower part of the inner cylinder fitting said filling-tube, annular sleeves supporting said sheath at its upper and lower ends, the upper sleeve imperviously dividing the interior of the cylinder into upper and lower chambers and the sheath having upper and lower lateral ports the former of which opens into the lower of said chambers, packings at the upper and lower ends of said sheath outside the ports thereof and imperviously engaging the filling-tube, said filling-tube having a flow-passage with a lateral aperture adapted to register with the ports of the sheath, means for supplying pressure fluid to and exhausting it from said cylinders, means for the flow of liquid and gas to a package and means for venting.

11. The combination with a racking-arm providing a slideway, of a filling-tube in said slideway, comprising two sections rigidly connected by a solid filling-piece dividing the interior of the tube into upper and lower chambers, a guide-rod sliding through an aperture in the top of the said upper chamber, and means for supplying liquid to the lower chamber.

12. In a racking-arm, an outer cylinder and means for supporting the same, an inner cylinder in said outer cylinder, a sheath centrally mounted in the lower portion of said inner cylinder, a filling-tube slidable in said sheath, said filling-tube comprising two tubular sections rigidly connected with a solid filling-piece forming at the lower part of the filling-tube a flow-passage independent of the upper part, and means for sliding said filling-tube and inner cylinder, a guide-rod projecting into the upper part of the filling-tube and means for supplying liquid to the lower part.

13. In a racking-arm, an outer cylinder and means for supporting the same, an inner cylinder slidable in said outer cylinder and comprising sections rigidly connected by a sleeve or filling-piece dividing the said cylinder into upper and lower chambers, a sheath mounted in said lower chamber, a filling-tube slidable in said sheath and having a head fitting said upper chamber, means for supplying pressure fluid to the upper chamber to slide said filling-tube, and means for securing a flow of liquid and for charging and venting.

14. In a racking-arm, an outer cylinder and means for supporting the same, an inner cylinder slidable in said outer cylinder and comprising sections rigidly connected by a sleeve or filling-piece dividing the said cylinder into upper and lower chambers, a sheath mounted centrally in the lower chamber of said inner cylinder and forming an annular space between itself and said cylinder and having lateral ports or openings, a filling-tube slidably fitting said sheath and having a head fitting the upper chamber of the cylinder and a lateral aperture adapted to register with the said ports of the sheath, a pressure-fluid duct leading through said annular space to the upper chamber, and a vent-duct opening into said annular space, means for sliding said inner cylinder and filling-tube, and means for supplying liquid.

15. In a racking apparatus, a racking-arm having an outer cylinder, an inner cylinder slidably arranged in said outer cylinder and projecting therefrom at both ends, a filling-tube slidable in the inner cylinder and having within said inner cylinder a lateral aperture adapted to register with an inlet-opening in the side of the cylinder, said inner cylinder and filling-tube being adapted to be independently operated by pressure fluid, a packing head mounted directly upon the lower end of said inner cylinder and forming at its upper part a continuation of the filling-tube slideway thereof and below said upper part loosely inclosing the filling-tube, said packing-head being of substantially uniform diameter with the inner cylinder and short with respect thereto, whereby a firm seating upon the package is insured.

16. In a racking apparatus, a racking-arm having an outer cylinder, an inner cylinder arranged in said outer cylinder and a filling-tube within said inner cylinder, said filling-tube and inner cylinder being adapted to be independently operated by pressure fluid, a packing-head mounted directly upon the lower end of the inner cylinder and being annularly recessed around the filling-tube and having a duct communicating with said recess, a flow-duct and filling-tube vent-duct leading to the filling-tube, a primary charging-duct and a vent-duct, and a valve adapted to place either one of said last-mentioned ducts in communication with the packing-head duct and close the other.

17. In a racking apparatus, a racking-arm having an outer cylinder, an inner cylinder arranged in said outer cylinder and a filling-tube within said inner cylinder, said filling-tube and inner cylinder being adapted to be independently operated by pressure fluid, a packing-head mounted directly upon the lower end of the inner cylinder and being annularly recessed around the filling-tube and having a duct communicating with said recess, a flow-duct and filling-tube vent-duct leading to the filling-tube through the lateral walls of the inner cylinder, a primary charging-duct and a vent-duct, and a valve adapted to place either one of said last-mentioned ducts in communication with the packing-head duct and close the other.

18. In a racking apparatus, a racking-arm having an outer cylinder, an inner cylinder arranged in said outer cylinder and a filling-tube within said inner cylinder, said filling-tube and inner cylinder being adapted to be independently operated by pressure fluid, a packing-head mounted directly upon the lower end of the inner cylinder, a venting-duct opening through the side of said packing-head, a flow-duct and a filling-tube vent-duct opening through the walls of the said inner cylinder, means for operating said cylinders, and for supplying liquid and gas.

19. The combination with a racking-arm providing a filling-tube slideway with a vent-port and a liquid-flow duct opening through the side thereof, a check-valve in said flow-duct adapted to be operated by a pressure fluid, a packing-head at the lower end of the racking-arm having a vent-duct opening through its side, a filling-tube in said slideway of the racking-arm, and having a longitudinal flow-passage with a lateral opening adapted to coincide with the said flow-opening, a compressed-gas supply, and a liquid-supply tank providing an entrapped body of gas above the liquid therein, of a valve having a horizontal series of ports one of which is connected to said compressed-air supply, the second to the top of the liquid-tank and the third is adapted to be connected to a package to be filled, and a second series of ports one of which is connected to the compressed-air supply, another to the said check-valve and a third opens into the atmosphere, a valve-plug in said casing having a Y-shaped passage in the same plane with the first said series of ports and adapted to connect either the air-supply or the top of the liquid-tank to the package, and a second branched passage in the same plane with the second series of ports and adapted to connect the check-valve chamber with the atmosphere when the said Y-shaped passage is dead and to connect the air-inlet with said check-valve chamber when the Y-shaped passage has established communication between the package and top of the liquid-supply.

20. The combination with a racking-arm providing a filling-tube slideway with a vent-port and a liquid-flow duct opening through the side thereof, a packing-head at the lower end of the racking-arm having a vent-duct opening through its side, a filling-tube in said slideway of the racking-arm, and having a longitudinal flow-passage with a lateral opening adapted to coincide with the said flow-opening, a compressed-gas supply, and a liquid-supply tank providing an entrapped body of gas above the liquid therein, of a valve having a horizontal series of ports one of which is connected to said compressed-air supply, the second to the top of the liquid-tank and the third is adapted to be connected to a package to be filled, and a second series of ports one of which is connected to the vent-port of the racking-arm slideway and the other of which opens into the atmosphere, a valve-plug in said casing having a Y-shaped passage in the same plane with the first said series of ports and adapted to connect either the air-supply or the top of the liquid-tank with a package, said plug having a second passage in the same plane with the said second series of ports and adapted to connect the vent-port of the filling-tube slideway with the atmosphere when the said Y-shaped passage is dead.

21. The combination with a racking-arm providing a filling-tube slideway with a vent-port and a liquid-flow duct opening through the side thereof, a check-valve in said flow-duct adapted to be operated by a pressure fluid, a packing-head at the lower end of the racking-arm having a vent-duct opening through its side, a filling-tube in said slideway of the racking-arm, and having a longitudinal flow-passage with a lateral opening adapted to coincide with the said flow-opening, a compressed-gas supply, and a liquid-supply tank providing an entrapped body of gas above the liquid therein, of a valve-casing having a horizontal series of ports one of which is connected to said compressed-air supply, the second to the top of the liquid-tank and the third is adapted to be connected to a package to be filled, and a second series of ports one of which is connected to the compressed-air supply, another to the said check-valve and a third opens into the atmosphere, and a third series of ports one of which is connected to the vent-port of the filling-tube slideway and the other of which opens into the atmosphere, and a valve-plug in said casing having a Y-shaped passage in the same plane with the first said series of ports and adapted to connect either the air-supply or the top of the liquid-tank with the package, a second branched passage in the same plane with the second series of ports and adapted to connect the check-valve with the atmosphere when the said Y-shaped passage is dead, and to connect the air-inlet with said check-valve when the Y-shaped passage has established communication between the package and the top of the liquid-supply, and a third passage in the same plane with the said third series of ports and adapted to connect the vent-port of the filling-tube slideway with the atmosphere when the said Y-shaped passage is dead and the check-valve vented.

22. In a racking apparatus, the combination of a tank or reservoir connected at its lower part to a continuous liquid-supply and being adapted to contain at its upper part an entrapped body of gas, a safety-valve at the upper part of said tank and a valved inlet for said gas, a primary charging-chamber independent of said tank, means for supplying gas to said chamber independent of the reservoir and its gas-supply, a packing-head adapted to engage a package, a filling-tube in said packing-head, a duct adapted to connect said filling-tube to the liquid-supply tank, a gas-pipe leading from the packing-head and connecting with a valve having branch ducts one of which leads to the primary charging-chamber and the other to the upper part of the liquid-supply tank, and means for connecting either one of said branch ducts with the gas-pipe and closing the other.

23. In a racking apparatus, the combination of a tank or reservoir connected at its lower part to a continuous liquid-supply and being adapted to contain at its upper part an entrapped body of gas, a safety-valve at the upper part of said tank and a valved inlet for said gas, a primary charging-chamber independent of said tank, means for supplying gas to said chamber independent of said tank and its gas-supply, a series of packing-heads adapted to engage packages, a filling-tube in each packing-head, ducts adapted to connect said filling-tubes to the liquid-supply tank, gas-pipes leading one from each packing-head and having one series of branches leading to the primary charging-chamber and another series of branches leading to the upper part of the liquid-supply tank, and means for connecting either one of said series of branches with the gas-pipe and closing the other series.

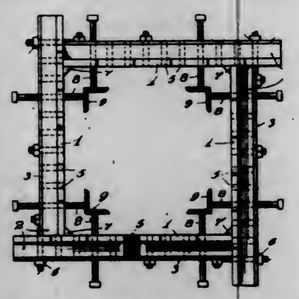
24. In a racking apparatus, the combination of a tank or reservoir connected at its lower part to a continuous liquid-supply and being adapted to contain at its upper part an entrapped body of gas, a safety-valve at the upper part of said tank and a valved inlet for said

gas, a primary charging-chamber independent of said tank, means for supplying gas to said chamber independent of the tank and its gas-supply, a packing-head adapted to engage a package, a filling-tube in said packing-head, a duct adapted to connect said filling-tube to the liquid-supply tank, a gas-pipe leading from the packing-head and connecting with a valve having branch ducts one of which leads to the primary charging-chamber and the other to the upper part of the liquid-supply tank, a check-valve in said flow-duct adapted to be controlled by compressed gas or air, and a valve adapted to connect either one of said branches of the gas-pipe to said pipe and close the other and to simultaneously admit and exhaust pressure fluid to or from the said check-valve.

25. In a racking apparatus, the combination of a tank or reservoir connected at its lower part to a continuous liquid-supply and being adapted to contain at its upper part an entrapped body of gas, a safety-valve at the upper part of said tank and a valved inlet for said gas, a primary charging-chamber independent of said tank, means for supplying gas to said chamber independent of the tank or reservoir and its gas-supply, a filling-arm comprising an outer cylinder, an inner cylinder adapted to slide in said outer cylinder, a packing-head carried by said inner cylinder, a filling-tube sliding in said inner cylinder, pressure-fluid ducts leading to the opposite ends of each cylinder, a flow-duct adapted to connect said filling-tube to the liquid-supply tank, gas-pipes leading one from each packing-head and having one series of branches leading to the primary charging-chamber and another series of branches leading to the upper part of the liquid-supply tank, and means for connecting either one of said series of branches with the gas-pipe and closing the other series.

26. In a racker-arm, the combination of a sheath mounted therein and having lateral ports or openings, a filling-tube adapted to slide in said sheath and having a longitudinal flow-passage with a lateral aperture adapted to register with the ports of said sheath, and packings at the upper and lower ends of said sheath adapted to imperviously engage the filling-tube and being located outside the range of movement of the said lateral aperture of the filling-tube, and stop means positively limiting the sliding of said filling-tube.

786,622. FORM FOR CONSTRUCTING CONCRETE-STEEL COLUMNS. Louis F. Brayton, St. Paul, Minn. Filed Aug. 22, 1904. Serial No. 221,594.

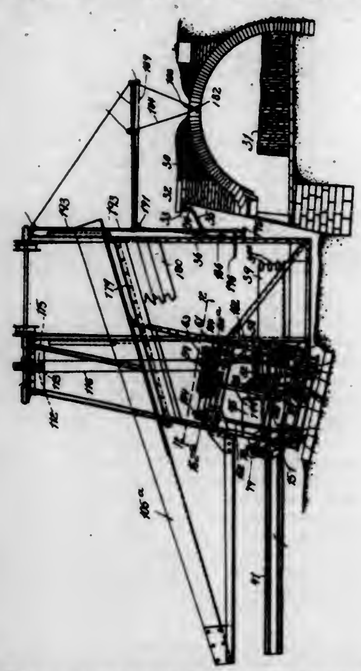


Claim.—1. In a form for constructing concrete columns, a plurality of plates in rectangular arrangement each plate abutting edgewise against the face of an adjacent plate, each plate having means for adjustably connecting it to an adjacent plate, and each plate having clamping devices working transversely therethrough and engageable with metallic members of a column, substantially as described.

2. In a form for constructing concrete columns, a plurality of plates in rectangular arrangement, each plate abutting edgewise against the face of an adjacent plate, each plate having nutted stems or bolts fitting any one of a plurality of perforations in the adjacent plate, and each plate having clamping-screws working transversely therethrough and engageable with metallic members of a column, substantially as described.

3. The combination with a plurality of plates 1, in rectangular arrangement, each plate abutting against the face of an adjacent plate, and each having a plurality of perforations 5, of nutted stems or bolts 6 projecting from the ends of said plates 1 and insertible through any of the perforations 5 of an adjacent plate, and the thrust-screws 8 engageable with any of the said perforations 5, all substantially as and for the purposes set forth.

786,623. MACHINE FOR DRAWING COKE. Frederick D. Burpee, Newton, Mass. Filed Apr. 26, 1904. Serial No. 204,957.



Claim.—1. A coke-drawing machine comprising in its construction a shovel having a flat bottom and mounted so as to be rotated or oscillated on an axis extending lengthwise of said shovel, means for reciprocating the said shovel, and power mechanism for turning it on said axis.

2. A coke-drawing machine comprising in its construction a shovel, means for reciprocating said shovel, means for varying the angle of the reciprocations relatively to the frame of the machine, and means for turning the shovel.

3. A coke-drawing machine comprising in its construction a shovel, means for reciprocating said shovel, a basket, and means whereby the shovel may be turned when within the oven to loosen the coke, or when withdrawn from the oven to dump coke into said basket.

4. A coke-drawing machine comprising in its construction a shovel, means for reciprocating said shovel, a basket, and means whereby the shovel may be turned when within the oven to loosen the coke, or when withdrawn from the oven to dump coke into said basket, means being also provided for hoisting the basket to a suitable point for delivery.

5. A coke-drawing machine comprising in its construction a shovel having a straight operating edge and mounted so as to be rotated or oscillated on an axis extending lengthwise of said shovel, power mechanism for reciprocating and turning the shovel, and means for vertically adjusting the plane of the reciprocations of the shovel.

6. A coke-drawing machine comprising in its construction a shovel, means for reciprocating the shovel, means for vertically adjusting the plane of the reciprocations of the shovel, and means for varying the angle of said plane.

7. A coke-drawing machine having a shovel angular in cross-section and mounted to oscillate on a longitudinal axis, power mechanism whereby the shovel may be turned to pry coke from the bed of an oven, and means whereby the shovel may be actuated to lift and remove from the oven coke so pried up.

8. A coke-drawing machine comprising in its construction a shovel having a handle provided with teeth, an internally-threaded rotary actuator for said handle, and means for rotating said actuator.

9. A coke-drawing machine comprising in its construction a shovel having a handle provided with teeth, an internally-threaded rotary actuator for said handle, means for rotating said actuator, and means whereby the said handle may be turned without disturbing the connection between its teeth and the internal threads of said actuator.

10. A coke-drawing machine comprising in its construction a shovel having removable teeth at its front edge, and means for reciprocating said shovel.

11. A coke-drawing machine comprising in its construction a shovel angular in cross-section, and mounted to oscillate on a longitudinal axis, power mechanism for turning the shovel on such axis, means for reciprocating said shovel, and means for swinging the shovel about a substantially vertical axis.

12. A coke-drawing machine comprising in its construction a reciprocatory shovel, a guide therefor, and bushings for retaining the shovel in proper position relatively to the guide.

13. A coke-drawing machine comprising in its construction a reciprocatory shovel, a guide therefor, and bushings for retaining the shovel in proper position relatively to the guide, the said bushings being rotatively supported in said guide to permit the shovel to be turned.

14. A coke-drawing machine comprising in its construction a shovel having a toothed handle, an internally-threaded gear the threads of which engage the teeth of the shovel-handle means for rotating said gear, and a thrust-plate against which said gear abuts.

15. A coke-drawing machine mounted on wheels, and an inclined trackway to enable the machine to resist the thrust of the coke-drawing implement.

16. A coke-drawing machine comprising in its construction a shovel and means for reciprocating said shovel, the said machine being mounted upon wheels, rails being provided for said wheels, the rail under that side of the machine from which the shovel projects being lower than the other rail whereby the trackway formed by said rails will resist the thrust of the shovel.

17. A coke-drawing machine comprising in its construction a shovel, means for reciprocating and turning the shovel whereby the shovel may be caused to lift and withdraw and discharge coke, and conveying mechanism for receiving the coke from the shovel after the latter has withdrawn it from an oven.

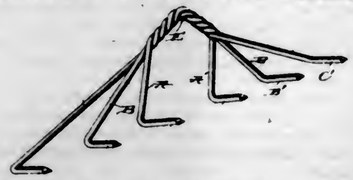
18. A coke-drawing machine comprising in its construction a shovel, means for reciprocating and turning the shovel, a receptacle adapted to receive the coke from the shovel, means for elevating said receptacle, and a chute for receiving the coke from said receptacle when the latter is raised.

19. A coke-drawing machine comprising in its construction a shovel, means for reciprocating and turning the shovel, a receptacle adapted to receive the coke from the shovel, means for elevating said receptacle, and a chute for receiving the coke from said receptacle when the latter is raised, means being provided for tilting said receptacle at the upper portion of its movement to cause the coke to slide therefrom to the chute.

20. A coke-drawing machine comprising a carriage, means supported by said carriage for acting upon the coke in any one of a series of ovens and for withdrawing the coke therefrom, a platform on the carriage for the operator, and a cab structure above said platform, the carriage having also a coke-elevator and a chute for receiving the coke from said elevator, the said chute extending over the roof of the cab structure.

21. The combination with a series of coke-ovens, of a trackway along the front of said ovens, a series of supports projecting from the upper portion of the front wall, a plank connected with said supports, a trolley-wire below said plank, and a coke-drawing machine mounted on and movable along said trackway and having a trolley for said wire.

786,624. MEAT-HANGER. Milton P. Burt, Kansas City, Mo., assignor to Schwarzschild & Sulzberger Company, Kansas City, Kans., a Corporation of New York. Filed Dec. 1, 1904. Serial No. 235,075.



Claim.—1. A meat-hanger, comprising a series of wires of different lengths twisted together at their mid-length forming a body portion, said body being likewise bent at its mid-length so that the diverging portions thereof stand at an angle of approximately ninety degrees to each other, the arms of the short wire extending downwardly from said body portion, the arms of the longer wire (or wires) being given a greater spread, and the ends of all the wires being bent outwardly and upwardly to a slight extent and inclined inwardly toward the body of the hanger, substantially as described.

2. A meat-hanger, comprising a series of wires of different lengths secured together at substantially their mid-length, the ends of the wires upon each side of the secured portion extending downwardly therefrom and having their ends bent outwardly and upwardly, forming hooks or prongs, the hooks upon one side of the center of the hanger converging toward those upon the opposite side

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786,625. BANJO-BRIDGE. Lawrence A. Callan Washington, D. C. Filed May 5, 1904. Serial No. 206,553.



Claim.—1. A bridge of the class described, comprising a body portion arranged to receive the strings of an instrument, and a transmitting-board integral with the body portion and spaced from the same and forming an enlarged base, said transmitting-board being adapted to fit against an instrument, substantially as and for the purpose described.

2. A bridge of the class described, comprising a body portion, legs supporting the body portion, and a transmitting-board having the legs mounted on it and spaced by the same from the body portion and forming an enlarged base for the bridge, said legs being formed integral with the body portion and the transmitting-board substantially as described.

3. A bridge of the class described, comprising a body portion, legs, and a thin flat transmitting-board spaced from the body portion by the legs and forming an enlarged base for the bridge and extending beyond the legs both laterally and longitudinally of the bridge, said legs being formed integral with both the body portion and the transmitting-board substantially as described.

4. A bridge of the class described, comprising a body portion, legs, and a thin transmitting-board spaced from the body portion by the legs and forming an enlarged base for fitting against an instrument and conforming to the configuration of the same, said legs being formed integral with both the body portion and the base substantially as described.

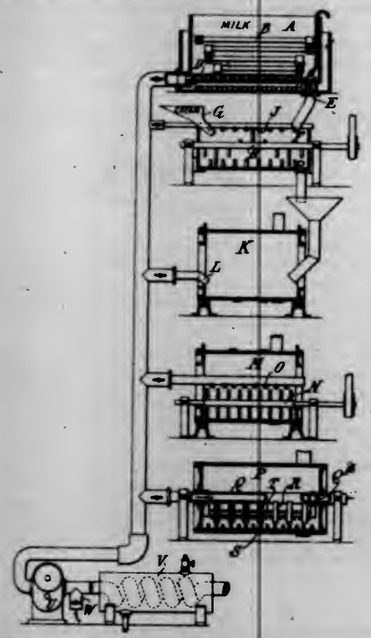
786,626. PROCESS OF OBTAINING CONCENTRATED MILK CONTAINING CREAM. Charles H. Campbell, Philadelphia, Pa., assignor, by mesne assignments, to National Nutrient Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 15, 1902. Serial No. 115,635.

Claim.—1. The process of making a food product, which consists in partially concentrating skim-milk by applying heat thereto so as to partially vaporize the same, and exposing it at the same time to a blast of air in such volume as to carry off the heated vapor produced and to maintain the milk at a temperature below that of the applied heat, whereby the milk may be concentrated rapidly and at a low temperature, mixing cream with the partially-concentrated skim-milk, concentrating the mixture to a substantially solid condition by exposing extended surfaces thereof to the evaporating action of the air, and drying the mass by subdivision and exposure to air.

2. The process of making a food product, which consists in partially concentrating skim-milk by applying heat thereto so as to partially vaporize the same and exposing it at the same time to a blast of air in such volume as to carry off the heated vapor produced and to maintain the milk at a temperature below that of the applied heat, whereby the milk may be concentrated rapidly and at a low temperature, mixing cream with the partially-concentrated skim-milk, and concentrating the mixture by exposing extended surfaces thereof to the evaporating action of hot air.

3. The process of making a food product, which consists in partially concentrating skim-milk by applying heat thereto so as to partially vaporize the same, and exposing it at the same time to a blast of air to carry off the heated vapor produced and to maintain the milk at a temperature below that of the applied heat, whereby the milk may be concentrated rapidly and at a low temperature, mixing cream with the partially-concentrated skim-milk, and concentrating and drying the mixture.

4. The process of making a food product, which consists in partially concentrating skim-milk by applying heat thereto so as to partially vaporize the same, and exposing it at the same time to a blast of air to carry off the heated vapor produced and to maintain the milk at a temperature below that of the applied heat, whereby the milk may be concentrated rapidly and at a low temperature, this concentration being continued until the mass is reduced to about one-sixth its original volume, mixing cream with the partially-concentrated skim-milk, and concentrating and drying the mixture.



5. The process of making a food product, which consists in partially concentrating skim-milk by applying heat thereto so as to partially vaporize the same and exposing it at the same time to a blast of air to carry off the heated vapor produced, and to maintain the milk at a temperature below that of the applied heat, whereby the milk may be concentrated rapidly and at a low temperature, mixing cream with the partially-concentrated skim-milk, and concentrating and drying the mixture at a temperature below approximately 120° Fahrenheit.

6. The process of making a food product, which consists in partially concentrating skim-milk by applying heat thereto so as to partially vaporize the same and exposing it at the same time to a blast of air in such volume as to carry off the heated vapor produced, and maintain the milk at a temperature below the coagulating-point of albumen, whereby the milk is concentrated so rapidly as to avoid souring and at such a low temperature as to preserve the soluble and peptogenic qualities of the proteids, mixing cream with the partially-concentrated skim-milk, and concentrating and drying the mixture.

7. The process of making a food product, which consists in concentrating milk to a thick fluid constituting a culture-bed suitable for cream bacteria, adding unsterilized cream to the partially-concentrated milk and mixing it intimately therewith so as to inoculate the same with the cream bacteria, and further concentrating and drying the mixture at such temperatures as to retain uninjured at least a portion of the bacteria in the cream so that further bacterial action is inhibited while the bacteria are retained in a potentially-active state and give a flavor of cream to the final product.

8. The process of making a food product, which consists in concentrating milk to a thick fluid constituting a culture-bed suitable for cream bacteria, adding unsterilized cream to the partially-concentrated milk and mixing it intimately therewith so as to inoculate the same with the cream bacteria, and further concentrating and drying the mixture at a temperature below the coagulating-point of albumen so that the soluble and peptogenic qualities of the proteids are substantially undiminished, the temperature being also such as to retain uninjured at least a portion of the bacteria in the cream so that further bacterial action is inhibited while the bacteria are retained in a potentially-active state and give a flavor of cream to the final product.

9. The process of making a food product, which consists in sterilizing and concentrating milk to a thick fluid constituting a culture-bed suitable for cream bacteria, adding unsterilized cream to the partially-concentrated sterilized milk and mixing it intimately therewith so as to inoculate the same with the cream bacteria, and further concentrating and drying the mixture at such temperatures as to retain uninjured at least a portion of the bacteria in the cream so that further bacterial action is inhibited while the bacteria are retained in a potentially-active state and give a flavor of cream to the final product.

786,627. RAILWAY-FROG. WALTER F. CARR, Milwaukee, Wis., assignor to The Falk Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Dec. 31, 1904. Serial No. 239,185.



Claim.—1. A railway-frog comprising intersecting rails, and angle-plates fitting against the sides of the intersecting rails provided with integral risers and integral upstanding guard-flanges, said intersecting rails having grooves formed in their heads in alinement with the risers.

2. A railway-frog comprising intersecting rails, angle-plates fitting against the sides of the intersecting rails and provided with integral risers and integral guard-flanges, and bolts passing through the opposite angle-plates and the intervening intersecting rails.

3. A railway-frog comprising intersecting rails, angle-plates fitting against the webs of said rails at their intersection and having integral risers and integral guard-flanges, chock-blocks fitted in the crotches of the intersecting rails, and bolts passing through the angle-plates on the opposite sides of the intersection of the rails and through the intervening rails and chock-blocks.

4. A railway-frog comprising intersecting rails, angle-plates fitting against the webs of the rails at their intersection and having integral risers and integral guard-flanges and integral lugs, chock-blocks fitting into the crotches of the intersecting rails, and bolts passing through the lugs of the opposite angle-plates and the intervening rails and chock-blocks.

5. A railway-frog comprising a through-rail, an intersecting rail formed in sections mitered to fit against the through-rail, angle-plates adapted to fit against the sides of the rails at their intersection and formed with integral inclined risers and integral upstanding guard-flanges, said rails having grooves formed in their heads in alinement with the risers and with their bottom surfaces flush with the surfaces of the risers.

6. A railway-frog comprising a pair of intersecting rails, one of said rails being a through-rail and the other rail being formed in sections with the ends mitered to fit against the opposite sides of the through-rail, angle-plates fitting against the webs of the rails at their intersection, integral risers formed on one end of the angle-plates with an inclined surface and a horizontal surface, integral guard-flanges on the angle-plates upstanding from the sides of the risers, integral lugs on the angle-plates, chock-blocks fitting in the crotches of the intersecting rails, and bolts passing through the lugs of the opposite side plates and through the intervening rails and chock-blocks, said rails having grooves formed in their heads in extension of the risers with their bearing-surfaces flush with the horizontal surfaces of the risers, and one of the chock-blocks having its surface inclined and forming a continuation of the bearing-surface of the grooves of both rails, said guard-flanges having cut-away portions where they meet the rail-heads to allow of the passage of the car-wheel tread.

7. A railway-frog member comprising an angle-plate adapted to fit against the sides of intersecting rails, an integral riser projecting from one side thereof, and an integral guard-flange upstanding from the side of the riser.

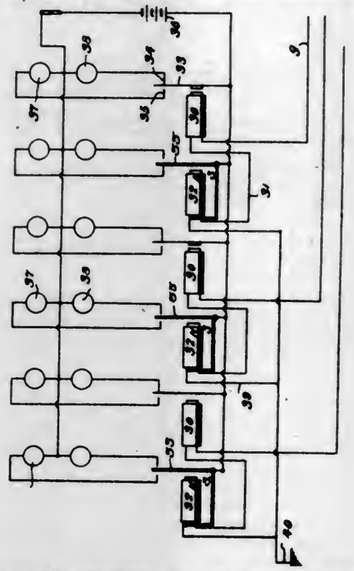
8. A railway-frog member comprising an angle-plate adapted to fit against the webs of intersecting rails, an integral riser projecting laterally from one end of the angle-plate and having an inclined surface and a horizontal surface, and an integral guard-flange on the side of the riser.

9. A railway-frog member comprising an angle-plate adapted to fit against the webs of intersecting rails, an integral riser projecting laterally from one end of the angle-plate, and an integral guard-flange upstanding from the side of the riser and having its end tapered to cause the approach of said riser to be flaring.

10. A railway-frog member comprising an angle-plate adapted to fit against the webs of the intersecting rails, an integral riser projecting laterally from one end of the angle-plate, and an integral guard-flange upstanding from the side of the riser and having a cut-away portion where it meets the head of one of the intersection rails to permit of the passage of a car-wheel tread.

11. A railway-frog member comprising an angle-plate, an integral riser projecting laterally from one end thereof, an integral guard-flange upstanding from the side of the riser, and integral lugs formed on the angle-plate having faces to receive connecting-bolts which pass entirely through the railway-frog.

786,628. ELECTRIC INDICATOR FOR RAILWAYS. PIERRE I. CHANDEYSSON, North Judson, Ind., assignor, by mesne assignments, to Robert D. Peters, Knox, Ind. Filed Feb. 13, 1904. Serial No. 193,456.



Claim.—1. The combination with rails insulated from each other and forming blocks, each block being provided with a source of electricity, and a relay electrically connected with the rails of each block; of source of electricity, electrically-connected armatures to the relays, contacts therefor, electrical connections between the contacts and the sources of electricity, magnets, electrical connections between two of said magnets and the contacts, said connections including the sources of electricity connected to the contacts, oppositely-disposed indicators, a source of electricity connected thereto, armatures for the magnets, contacts adapted to be alternately contacted thereby, and electrical connections between the indicators and the contacts.

2. The combination with a connected neutral and a polarized magnet; of armatures to the magnets, lamps, a source of electricity electrically connected to the lamps, means controlled by the armatures for directing a current from the source of electricity into either lamp, insulated rails forming blocks, each block being provided with a relay connected thereto and normally energized, a connection between the relays and the magnets, and means operated by the relays for successively operating the armatures of the magnets by a short-circuiting device upon the rails.

3. In an apparatus of the character described, the combination with a neutral and a polarized magnet electrically connected, a circuit, indicators included within the circuit, and armatures for the magnet adapted to direct a current into either of the indicators; of a line-wire connected to and in circuit with the magnets, insulated rails forming adjoining blocks, relays electrically connected to the blocks at adjoining ends thereof and having sources of electricity, electrically-connected armatures to the relays, contacts at opposite sides of one of the armatures and included within the line-wire, contacts at opposite sides of the other armature and electrically connected to a source of electricity, a third armature movable with one of the first-mentioned armatures and electrically connected to said source of electricity, and contacts at opposite sides of said armature and included within the line-wire, whereby a circuit is normally established through the line-wire and is automatically reversed by the breaking of the circuit of one of the relays.

4. The combination with rails, a circuit including indicators, a source of electricity, an armature, and oppositely-disposed contacts connected to the indicators respectively; of a magnet, a source of electricity connected thereto, a relay for closing the circuit between the magnet and its source of electricity, electrical connections between the relay and the rails, and a source of electricity connected to said rails.

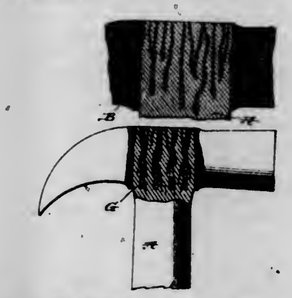
786,629. PROCESS OF MAKING MATCHES. JENS H. CHRISTENSEN, Copenhagen, Denmark. Filed July 10, 1903. Serial No. 164,991.

Claim.—1. The herein-described process of making matches, which consists in subjecting the tips of match-sticks to the action of a nitrating composition, removing the excess of nitric acid and then impregnating the sticks with an igniting composition.

2. The herein-described process of making matches, which consists in nitrating match-sticks, washing the nitrated sticks and then impregnating the same with an igniting composition containing salts of a weak acid

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786,630. METHOD OF SECURING TOOL-HANDLES OR THE LIKE. ALFRED W. COCHRAN, New York, N. Y. Filed July 5, 1904. Serial No. 215,418.



Claim.—1. The method of securing a wooden member in a socket, which consists in filling the pores of that portion of the member which lies within the socket with metal.

2. The method of securing a wooden member in a socket, which consists in forcing fluid metal into the pores of that portion of the member which lies within the socket.

3. The method of securing a wooden member in a socket, which consists in forcing fluid metal, that expands upon hardening, into the pores of the wooden member.

4. The method of securing a wooden member in a socket, which consists in expanding the pores of said wooden member and forcing fluid metal into said open pores.

5. The method of securing a wooden member in a socket, which consists in opening the pores of the wood and forcing fluid metal, that expands upon cooling, into said open pores.

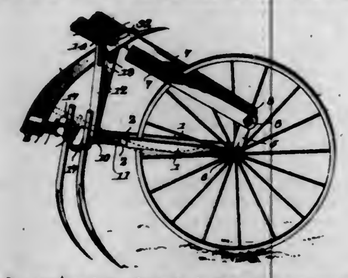
6. The method of securing handles in tool-heads or the like, which consists in opening or expanding the pores of the handle by the application of heat and forcing fluid metal into the pores thus expanded.

7. The method of securing handles in tool-heads or the like, which consists in forming a series of openings in the end of the handle, subjecting said handle to the action of heat, and forcing fluid metal into the openings and pores of the handle.

8. The method of securing a wooden member in a socket, which consists in filling the pores of that portion of the member which lies within the socket with a fluid or molten substance and permitting the same to cool and harden therein.

786,631. GARDEN-PLOW. EVAN C. DAVIS, Jackson, Ohio. Filed Sept. 20, 1904. Serial No. 225,243.

Claim.—1. In a garden-plow, a frame including side pieces having shoulders or offsets, a tool-carrying bar interposed between said side pieces in rear of the shoulders and extending rearwardly of said side pieces, a connecting-bolt extending through said bar and side pieces near the rear ends of the latter, and means for compressing the side pieces upon the tool-carrying bar, said compressing means being located in front of the forward extremity of said tool-carrying bar.



2. In a garden-plow, a frame including side pieces having shoulders or offsets and provided at their front ends with upturned brackets, a wheel journaled between the front ends of said side pieces, handles connected with the upturned brackets, a tool-carrying bar interposed between the rear ends of the side pieces and extending rearwardly of the latter, a connecting-bolt extending through said bar and side pieces near the rear ends of the latter, a clamping-bolt connecting the side pieces in front of the tool-carrying bar, and slotted braces engaging the connecting-bolt and connected adjustably with the handles.

3. In a garden-plow, a frame including side pieces, a tool-carrying bar interposed between and spacing apart said side pieces, a connecting-bolt, a clamping-bolt connecting the side pieces in front of the tool-carrying bar, a bolt extending transversely through the latter, and tool-carrying angle-bars pivotally engaging said bolt.

4. In a garden-plow, a tool-carrying bar, a bolt extending transversely therethrough, and tool-carrying angle-bars pivotally engaging said bolt and provided at their upper front corners with lugs overlapping the upper edge of the bar and at their lower rear corners with lugs engaging the under edge of said bar.

5. In a garden-plow, a tool-carrying bar, a bolt extending transversely therethrough, and angle-bars pivotally engaging said bolt and provided at their upper front corners with lugs overlapping the upper edge of the bar and at their lower rear corners with lugs engaging the under edge of the bar, said angle-bars being provided respectively at their front and rear ends with laterally-extending slotted tool-carrying members.

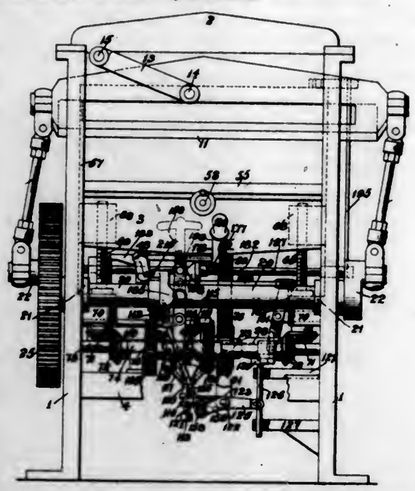
6. In a garden-plow, a frame, a tool-carrying bar pivotally connected with said frame, clamping means for securing said bar in adjusted position, and a tool-carrying standard having an eye that is reversibly and adjustably connected with said bar.

786,682. PAPER-CUTTING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed May 21, 1902. Serial No. 108,348.

Claim.—1. In a paper-cutting machine, the combination of a paper-cutting knife, suitable operating mechanism for the knife including a rotary shaft, a paper-holding clamp, suitable clamp-operating means, automatic controlling means adapted to effect the operative connection between the clamp and its operating means for moving the clamp into engagement with the pile of sheets, and then automatically disconnect the clamp from its operating means while the paper-cutting knife is operating, and a cam upon said knife-operating shaft adapted to automatically effect the raising of the clamp from the pile after the completion of the downward stroke of the knife, substantially as set forth.

2. In a paper-cutting machine, the combination of a paper-cutting knife, suitable operating mechanism for the knife, a paper-holding clamp, suitable clamp-operating means, automatic controlling means adapted to effect the operative connection between the clamp and its operating means for moving the clamp into engagement with the pile of sheets, and then automatically disconnect the clamp from its operating means while the paper-cutting knife is operating, means for automatically raising the clamp from the pile after the completion of the cutting operation, and a tripping device, actuated by the upward movement of the clamp, adapted to arrest the movement of the clamp, substantially as set forth.

3. In a paper-cutting machine, the combination of a paper-cutting knife, suitable operating mechanism for the knife, a paper-holding clamp, suitable clamp-operating means, and automatic controlling means adapted to effect the operative connection between the clamp and its operating means for moving it into engagement with the pile of sheets, then disconnect the clamp from its operating means while the paper-cutting knife is operating, and finally again connect the clamp with its operating means for raising the clamp from the paper, substantially as set forth.



4. In a paper-cutting machine, the combination of a paper-cutting knife, suitable operating mechanism for the knife, a paper-holding clamp, suitable clamp-operating means, and automatic controlling means adapted to effect the operative connection between the clamp and its operating means for moving it into engagement with the pile of sheets, then disconnect the clamp from its operating means while the paper-cutting knife is operating, then again connect the clamp with its operating means and reverse the operating means for raising the clamp from the paper, and finally disconnect the clamp from its operating means, substantially as set forth.

5. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife and its operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism including a clutch and a part which is adapted to be retarded by the engagement of the clamp with a pile of sheets upon the table, and a governor actuated by said part which is adapted to be retarded, said governor being adapted to automatically throw out said clutch when said part is retarded to thereby disconnect the clamp from its operating mechanism, substantially as set forth.

6. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife and its operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism including a clutch and a part which is adapted to be retarded by the engagement of the clamp with a pile of sheets upon the table, a governor actuated by said part which is adapted to be retarded, said governor being adapted to automatically throw out said clutch when said part is retarded to thereby disconnect the clamp from its operating mechanism, and means for automatically raising the clamp from the pile after the completion of the cutting operation, substantially as set forth.

7. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife and its operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism including a frictional clutch and a part which is adapted to be retarded by the engagement of the clamp with the pile of sheets upon the table, and a governor actuated by the retardation of said part of the operating mechanism and adapted to automatically throw out said frictional clutch, substantially as set forth.

8. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife and its operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism including two clutches one of which is a frictional clutch, a shaft which is adapted to be retarded by the engagement of the clamp with

a pile of sheets upon the table, a governor actuated by said shaft which is adapted to be retarded, and means actuated by said governor adapted to automatically throw out said clutches to thereby disconnect the clamp from its operating mechanism, substantially as set forth.

9. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife and its operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism, including a shaft and a frictional clutch, part of said frictional clutch being rigidly fixed upon said shaft while the other part of said clutch is adapted to rotate upon this fixed part, whereby said shaft will be retarded by the engagement of the clamp with the pile of sheets upon the table, and a governor actuated by the retardation of said shaft and adapted to automatically throw out said clutch, substantially as set forth.

10. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife, and its operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism having a part which is adapted to be retarded by the engagement of the clamp with a pile of sheets, means actuated by the retardation of said part of the operating mechanism, adapted to automatically disconnect the clamp from its operating mechanism, and means adapted to automatically reverse the action of the clamp-operating mechanism and connect it up with the clamp for raising the clamp from the pile, substantially as set forth.

11. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife, and knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism having a part which is adapted to be retarded by the engagement of the clamp with a pile of sheets, means, actuated by the retardation of said part of the operating mechanism, adapted to automatically disconnect the clamp from its operating mechanism, and means, actuated by the knife-operating mechanism, adapted to automatically reverse the action of the clamp-operating mechanism and connect it up with the clamp for moving the clamp away from the pile, substantially as set forth.

12. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife, and knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism having a part which is adapted to be retarded by the engagement of the clamp with a pile of sheets, means, actuated by the retardation of said part of the operating mechanism, adapted to automatically disconnect the clamp from its operating mechanism, means, actuated by the knife-operating mechanism, adapted to automatically reverse the action of the clamp-operating mechanism and connect it up with the clamp, and means for automatically arresting the operation of the knife and clamp at the completion of their movements, substantially as set forth.

13. In a paper-cutting machine, the combination of a pile-supporting table, a paper-cutting knife, and knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism having a part which is adapted to be retarded by the engagement of the clamp with a pile of sheets, means actuated by the retardation of said part of the operating mechanism, adapted to automatically disconnect the clamp from its operating mechanism, means, actuated by the knife-operating mechanism, adapted to automatically reverse the action of the clamp-operating mechanism and connect it up with the clamp, and hand-operated controlling means adapted to start the operation of the machine, substantially as set forth.

14. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and means driven by said power-shaft for operating said knife, with a paper-holding clamp, suitable clamp-operating means, a frictional clutch interposed between the power-shaft and clamp-operating means, a governor geared to the clamp-operating means, and suitable means operated by the governor for throwing out said clutch, substantially as set forth.

15. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and knife-operating means, a paper-holding clamp, suitable clamp-operating means including an adjustable frictional clutch, a clutch-operating device, and a governor geared to the clamp-operating means and suitably connected with the clutch-operating device, substantially as set forth.

16. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and suitable knife-operating means, a paper-holding clamp, suitable clamp-operating means, an adjustable frictional clutch interposed between the power-shaft and clamp-operating means, a clutch-operating device, a governor geared to the clamp-operating means and suitably connected with the clutch-operating device, and means adapted to automatically raise the clamp from the pile after the completion of the cutting operation, substantially as set forth.

17. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and suitable knife-operating means, a paper-holding clamp, suitable clamp-operating means, an adjustable frictional clutch interposed between the power-shaft and clamp-operating means, a clutch-operating device, a governor geared to the clamp-operating means and suitably connected with the clutch-operating device, and means adapted to automatically reverse the clutch-operating means, substantially as set forth.

18. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and suitable knife-operating means, a paper-holding clamp, suitable clamp-operating means, an adjustable frictional clutch interposed between the power-shaft and clamp-operating means, a clutch-operating device, a governor geared to the clamp-operating means and suitably connected with the clutch-operating device, means adapted to automatically reverse the clutch-operating means, and a tripping device, actuated by the upward movement of the clamp, adapted to arrest the movement of the clamp, substantially as set forth.

19. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and suitable knife-operating means, a paper-holding clamp, suitable clamp-operating means, an adjustable frictional clutch interposed between the power-shaft and clamp-operating means, a clutch-operating device, a governor geared to the clamp-operating means and suitably connected with the clutch-operating device, means adapted to automatically raise the clamp from the pile after the completion of the cutting operation, and a tripping device, actuated by the upward movement of the clamp, adapted to arrest the movement of the clamp, substantially as set forth.

20. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife having suitable operating means, a paper-holding clamp, suitable clamp-operating means, a reversing-clutch included in the clamp-operating means, a frictional clutch interposed between the power-shaft and clamp-operating means, and automatic means for operating said clutches, substantially as set forth.

21. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife having suitable operating means, a paper-holding clamp, suitable clamp-operating means, a reversing-clutch included in the clamp-operating means, a frictional clutch interposed between the power-shaft and clamp-operating means, a governor geared to the clamp-operating means and adapted to throw out said frictional clutch, and automatic means for operating said reversing-clutch, substantially as set forth.

22. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife having suitable operating means, a paper-holding clamp, suitable clamp-operating means, a reversing-clutch included in the clamp-operating means, a frictional clutch interposed between the power-shaft and clamp-operating means, a governor geared to the clamp-operating means and adapted to throw out said frictional clutch, automatic means for shifting said reversing-clutch from one extreme position to another extreme position, and automatic means operated by the upward movement of the paper-holding clamp adapted to shift said reversing-clutch to its central inactive position, substantially as set forth.

23. In a paper-cutting machine, the combination of a paper-cutting knife, suitable knife-operating mechanism, a paper-holding clamp, suitable clamp-operating mechanism, means adapted to automatically disconnect the clamp from its operating mechanism when the clamp engages the pile, a reversing-clutch included in the clamp-operating means, and means operated by the knife-operating mechanism adapted to automatically shift said reversing-clutch and connect up the clamp with its operating mechanism, substantially as set forth.

24. In a paper-cutting machine, the combination of a paper-cutting knife, a knife-operating shaft, a power-shaft geared to the knife-operating shaft, a paper-holding clamp, suitable clamp-operating means, a reversing-clutch included in the clamp-operating means, a clutch-operating lever, and a cam on the knife-operating shaft adapted to automatically operate said lever, substantially as set forth.

25. In a paper-cutting machine, the combination of a paper-cutting knife, and knife-operating means, with a paper-holding clamp, operating mechanism adapted to move the clamp into engagement with a pile and then automatically disengage itself from the clamp, leaving the clamp in engagement with the pile, a reversing-clutch included in the clamp-operating mechanism, and automatic means for operating said reversing-clutch, substantially as set forth.

26. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and mechanism for operating said knife, including a rotary shaft, with a paper-holding clamp, clamp-operating means driven by said power-shaft, automatic controlling means adapted to disconnect the clamp-operating means from the power-shaft, a reversing-clutch included in the clamp-operating means, and means actuated by the rotary knife-operating shaft adapted to automatically shift said reversing-clutch and connect up the clamp-operating means with the power-shaft, substantially as set forth.

27. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, mechanism driven by said power-shaft for operating said knife, with a paper-holding clamp, suitable clamp-operating means adapted to be driven by said power-shaft, suitable automatic controlling means adapted to maintain operative connection between the power-shaft and clamp-operating means up to a certain predetermined pressure and then to automatically disconnect the clamp-operating means from the power-shaft, a reversing-clutch included in the clamp-operating means, and automatic means, actuated by the knife-operating mechanism, adapted to shift said reversing-clutch, substantially as set forth.

28. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and mechanism driven by said power-shaft for operating said knife, with a paper-holding clamp, suitable clamp-operating means, a frictional clutch interposed between the power-shaft and clamp-operating means, a governor geared to the clamp-operating means and controlling the said clutch, whereby the clamp-operating means will be thrown out of operative connection with the power-shaft when the clamp engages the pile of sheets, a reversing-clutch included in the clamp-operating means, and automatic controlling means adapted to shift said reversing-clutch and throw in said frictional clutch, substantially as set forth.

29. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, and mechanism driven by said power-shaft for operating said knife, with a paper-holding clamp, suitable clamp-operating means, a frictional clutch interposed between the power-shaft and clamp-operating means, a governor geared to a part of the clamp-operating means between the frictional clutch and the clamp, suitable means operated by the governor, for throwing out said frictional clutch, a reversing-clutch included in the clamp-operating means, and automatic controlling means adapted to shift said reversing-clutch and throw in said frictional clutch, substantially as set forth.

30. In a paper-cutting machine, the combination of a paper-cutting knife, a paper-clamp, power-actuated means for operating the knife and clamp, and manually-operated controlling means constructed and arranged to cause the operation of the clamp alone or of the knife and clamp in unison, at the will of the operator, substantially as set forth.

31. In a paper-cutting machine, the combination of a paper-cutting knife, means for operating said cutting-knife, a power-shaft, a clutch interposed between the power-shaft and operating mechanism, a paper-clamp having suitable operating mechanism, a clutch interposed between the power-shaft and clamp-operating mechanism, and a manually-operated controlling device connected with said clutches and adapted to operate them separately or in unison, as set forth.

32. In a paper-cutting machine, the combination of a knife, and suitable knife-operating mechanism, with a clamping-bar, an operating-shaft suitably connected with said clamping-bar for raising and lowering it, two gears loosely journaled upon said operating-shaft, a sliding clutch splined upon said operating-shaft and located between said gears, operating means whereby said clutch may be shifted to lock either of said gears upon the operating-shaft, a power-shaft, power-transmitting mechanism geared to said power-shaft and to the loosely-mounted gears upon said operating-shaft, a frictional clutch included in said power-transmitting mechanism, a governor geared to said power-transmitting mechanism, and a clutch-tripping device connected with said governor and adapted to throw out said frictional clutch, substantially as set forth.

33. In a paper-cutting machine, the combination of a knife, suitable knife-operating mechanism, a power-shaft, a paper-holding clamp, a clamp-operating shaft, two loosely-mounted gears carried by said clamp-operating shaft, an intermediate shaft, gears keyed to said intermediate shaft and meshing with said loosely-mounted gears of the clamp-operating shaft, a driving-gear upon the power-shaft, a gear loosely mounted upon said intermediate shaft and meshing with said driving-gear upon the power-shaft, a frictional clutch interposed between said intermediate shaft and the loosely-mounted gear thereon, a governor geared to said intermediate shaft, a clutch-tripping device connected with the governor and adapted to throw out said frictional clutch, and a reversing-clutch upon the clamp-operating shaft adapted to lock either of the gears thereon, substantially as set forth.

34. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, a cutter-operating shaft suitably geared with the power-shaft, a paper-holding-clamp-operating means for raising and lowering the paper-holding clamp, including an operating-shaft carrying two loosely-mounted gears, and a reversing-clutch mounted upon the operating-shaft and adapted to lock either of said gears upon the shaft, a clutch-operating lever, and a cam mounted upon the cutter-operating shaft and adapted to engage said clutch-operating lever for reversing the operation of the paper-holding clamp, substantially as set forth.

35. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, a cutter-operating shaft suitably geared with the power-shaft, a paper-holding clamp, operating means for raising and lowering the paper-holding clamp, including an operating-shaft carrying two loosely-mounted gears, and a reversing-clutch mounted upon the clamp-operating shaft and adapted to lock either of said gears upon said shaft, a clutch-operating lever, a cam mounted upon the cutter-operating shaft and adapted to engage said clutch-operating lever for reversing the operation of the paper-holding clamp, and a tripping device adapted to be engaged by the upward movement of the paper-holding clamp, and by its movement throw the clutch-operating lever into its inoperative position for arresting the upward movement of the clamp, substantially as set forth.

36. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, a cutter-operating shaft, gearing between the power-shaft and cutter-operating shaft including a cutter-controlling clutch, an operating-lever for said cutter-controlling clutch, a paper-holding clamping-bar, operating means suitably geared with the power-shaft for moving the clamping-bar downwardly and upwardly, a clamp-controlling clutch included in its operating means, an operating-lever for said clamp-controlling clutch, a cam upon the cutter-operating shaft adapted to engage the operating-lever of the clamp-controlling clutch for reversing its position, and a second cam upon the cutter-operating shaft adapted to operate the lever of the knife-controlling clutch for throwing the knife out of operation, substantially as set forth.

37. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, a cutter-operating shaft, gearing between the power-shaft and cutter-operating shaft including a cutter-controlling clutch, an operating-lever for said cutter-controlling clutch, a paper-holding clamping-bar, operating means suitably geared with the power-shaft for moving the clamping-bar downwardly and upwardly, a clamp-controlling clutch included in its operating means, an operating-lever for said clamp-controlling clutch, means connecting the operating-lever of the clamp-controlling clutch with the operating-lever of the knife-controlling clutch whereby said clutches may be thrown into operation simultaneously, a cam upon the cutter-operating shaft adapted to engage the operating-lever of the clamp-controlling clutch for reversing its position, and a second cam upon the cutter-operating shaft adapted to operate the lever of the knife-controlling clutch for throwing the knife out of operation, substantially as set forth.

38. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, a cutter-operating shaft, gearing between the power-shaft and cutter-operating shaft including a cutter-controlling clutch, an operating-lever for said cutter-controlling clutch, a paper-holding clamping-bar, operating means suitably geared with the power-shaft for moving the clamping-bar downwa-dly and upwardly, a clamp-controlling clutch included in its operating means, an operating-lever for said clamp-controlling clutch, means connecting the operating-lever of the clamp-controlling clutch with the operating-lever of the knife-controlling clutch, a cam upon the cutter-operating shaft adapted to engage the operating-lever of the clamp-controlling clutch for reversing its position, a second cam upon the cutter-operating shaft adapted to operate the lever of the knife-controlling clutch for throwing the knife out of operation, and a tripping device arranged to be operated by the upward movement of the clamping-bar and adapted to engage the operating-lever of the clamp-controlling clutch to shift said clutch into its central inactive position, substantially as set forth.

39. In a paper-cutting machine, the combination of a paper-cutting knife and suitable cutter-operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism, a clutch included in said clamp-operating mechanism, a clutch-controlling lever, a rocking cam adapted to engage said lever, and a rock-arm suitably connected with said rocking cam and mounted in the path of the clamp and adapted to be engaged by the clamp upon its upward movement, substantially as set forth.

40. In a paper-cutting machine, the combination of a paper-cutting knife and suitable knife-operating mechanism, with a paper-clamping bar, suitable clamp-operating means, a clutch included in said clamp-operating means, a clutch-operating lever, a rocking cam adapted to engage said lever, a rock-shaft upon which said cam is mounted, a second rock-shaft carrying a rock-arm which is supported in the path of the upward movement of the clamp, suitable means connecting the two rock-shafts, and a spring device holding said parts in their normal operative position, substantially as set forth.

41. In a paper-cutting machine, the combination of a paper-cutting knife, and suitable knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating means, a frictional clutch included in said clamp-operating means, an operating-lever actuating said frictional clutch, a reversing-clutch also included in said clamp-operating means, a reversing-lever, means for automatically operating said reversing-lever, and suitable means connecting said reversing-lever with the operating-lever of the frictional clutch, substantially as set forth.

42. In a paper-cutting machine, the combination of a paper-cutting knife, and suitable knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating means, a frictional clutch included in said clamp-operating means, an operating-lever actuating said frictional clutch, a reversing-clutch also included in said clamp-operating means, a reversing-lever, means for automatically operating said reversing-lever, a rod pivotally connected at one end to said reversing-lever, and a pin-and-slot connection between the other end of said rod and the operating-lever of the frictional clutch, substantially as set forth.

43. In a paper-cutting machine, the combination of a paper-cutting knife, and suitable knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating means, a frictional clutch included in the clamp-operating means, a governor geared to said clamp-operating means, suitable devices connected with and actuated by the governor adapted to throw out the frictional clutch, an operating-lever adapted to throw in said frictional clutch, a reversing-clutch also included in said clamp-operating means, an operating-lever for said reversing-clutch, means for automatically operating the lever of said reversing-clutch, a connection between said reversing-lever and the operating-lever of the frictional clutch, and a suitable connection between said reversing-lever and the governor-operated throw-out devices, substantially as set forth.

44. In a paper-cutting machine, the combination of a paper-cutting knife, and suitable knife-operating mechanism, with a paper-holding clamp, suitable clamp-operating mechanism, a frictional clutch included in said clamp-operating mechanism, a lever adapted to operate said frictional clutch, a governor geared to said clamp-operating mechanism, throw-out devices controlled by said governor and adapted to automatically throw out said frictional clutch, a reversing-clutch included in said clamp-operating means, a lever operating said reversing-clutch, means for automatically actuating said reversing-lever, connecting-rods connecting said reversing-lever with the operating-lever of the frictional clutch and with the governor-controlled throw-out devices, said connecting-rods having pin-and-slot connections with the parts connected, substantially as set forth.

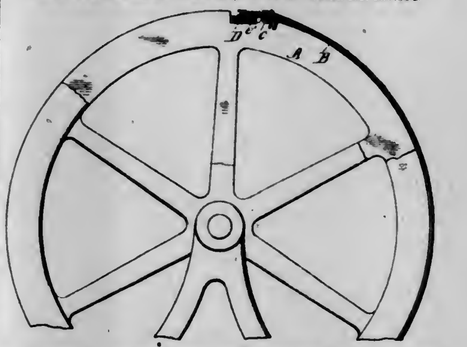
45. In a paper-cutting machine, the combination of a paper-cutting knife and knife-operating mechanism, a paper-holding clamp, suitable clamp-operating means, a frictional clutch included in said clamp-operating means, a sliding clutch-controlling spool, a cam-block mounted upon said spool, a throw-out rod or bar adapted to be projected into the path of said cam, a governor, and suitable devices connecting the governor with said throw-out rod or bar, substantially as set forth.

46. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, suitable knife-operating mechanism, a clutch interposed between the power-shaft and said knife-operating mechanism, with an operating-lever controlling said knife-clutch, a paper-holding clamp, suitable clamp-operating means, a clutch included in said clamp-operating means, a controlling-lever suitably connected with said clamp-operating clutch, and means detachably connecting the controlling-lever with the operating-lever of the knife-clutch, substantially as set forth.

47. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, suitable knife-operating mechanism, a clutch interposed between the power-shaft and said knife-operating mechanism, with an operating-lever controlling said knife-clutch, a paper-holding clamp, suitable clamp-operating means, a clutch included in said clamp-operating means, a controlling-lever suitably connected with said clamp-operating clutch, and an arm freely journaled upon the controlling-lever and formed with a hook upon its free end which is adapted to normally engage the operating-lever of the knife-clutch, substantially as set forth.

48. In a paper-cutting machine, the combination of a power-shaft, a paper-cutting knife, suitable knife-operating mechanism, a clutch interposed between the power-shaft and said knife-operating mechanism, with an operating-lever controlling said knife-clutch, a paper-holding clamp, suitable clamp-operating means, a clutch included in said clamp-operating means, a controlling-lever suitably connected with said clamp-operating clutch, an arm freely journaled upon said controlling-lever and formed with a hook upon its free end which is adapted to normally engage the operating-lever of the knife-clutch, and a rotatable handle journaled upon the outer end of said controlling-lever and carrying a finger which rests normally beneath the hook-arm, substantially as set forth.

786,633. STENCIL-DUPLICATING APPARATUS. ALBERT B. DICK, Chicago, Ill., assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed May 10, 1904. Serial No. 207,284.



Claim.—1. In stencil-duplicating apparatus, the combination with a drum, of a securing device carried thereby, and a non-resilient stencil-clamp detachably secured to said device and spring-pressed to operative position, substantially as set forth.

2. In stencil-duplicating apparatus, the combination with a drum, of a non-resilient stencil-clamp adapted to be detachably secured thereto, said clamp comprising upper and lower members and a coacting spring tending to move said members to operative or clamping position, substantially as set forth.

3. In stencil-duplicating apparatus, the combination with a drum, of a securing device, and a two-part clamp coacting detachably with said securing device, said clamp being spring-actuated and one edge thereof being provided with coacting projections and depressions for engagement with a stencil-sheet, substantially as set forth.

4. In stencil-duplicating apparatus, the combination with a drum, of a button-bar having upwardly-extending buttons or projections, a two-part clamp having orifices coacting detachably with said buttons or projections, said parts being spring-controlled, and means for detachably securing a stencil to said clamp, substantially as set forth.

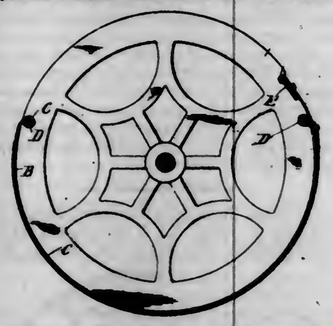
5. In stencil-duplicating apparatus, the combination with a drum, of a button-bar having upwardly-extending buttons or projections, and a two-part clamp, the parts whereof are connected and spring-controlled, the lower member of said clamp being provided with orifices coacting with said buttons or projections, substantially as set forth.

6. In stencil-duplicating apparatus, the combination with a drum, of a button-bar having upwardly-extending buttons or projections, a two-part clamp, the lower member whereof is provided with orifices coacting with said buttons or projections, a connection between the parts of said clamp, and a spring adapted to hold said clamp in operative position, substantially as described.

7. In stencil-duplicating apparatus, the combination with a drum, of a button-bar provided with upwardly-extending buttons or

projections, a two-part clamp detachably secured to said buttons or projections, a connection between the parts of said clamp, and means for holding said parts in operative position, one of the parts of said clamp being provided with projections and the other part with coacting depressions or orifices for coaction with a stencil-sheet, substantially as set forth.

786,634. STENCIL-DUPLICATING APPARATUS. ALBERT B. DICK, Lake Forest, Ill., assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 15, 1904. Serial No. 236,900.



Claim.—1. In duplicating apparatus, the combination with a drum, of a detachable stencil-stub, means for securing the same to said drum, and headed studs or projections carried by said stub and adapted to coact with a stencil-sheet, substantially as set forth.

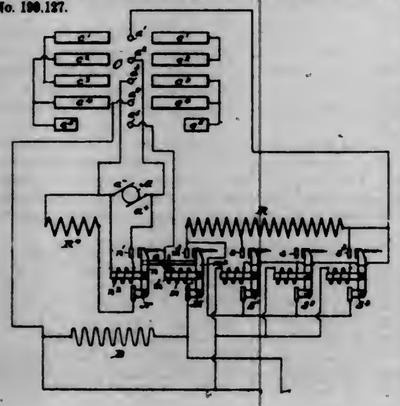
2. In duplicating apparatus, the combination with a drum, of a part secured to and moving therewith, a stencil-stub, means adjacent to one edge for detachably securing said stub to such part, and studs or projections, adjacent to the other edge of said stub, for coaction with a stencil-sheet, substantially as set forth.

3. In duplicating apparatus, the combination with a drum having a button-bar, of a stencil-stub, means for securing the same to said button-bar, and headed studs or projections carried by said stub and adapted to coact with a stencil-sheet, substantially as set forth.

4. In duplicating apparatus, the combination with a drum, of a part secured to and moving therewith, a stencil-stub, means adjacent to one edge for detachably securing said stub to such part, extensions adjacent to the other edge of said stub, and studs or projections carried by said extensions and adapted to coact with a stencil-sheet, substantially as set forth.

5. In duplicating apparatus, the combination with a drum and a securing device carried thereby and adapted for coaction with a stencil-sheet prearranged for coöperation with such device, of a stencil-stub, means for securing the same to such device, and mechanism carried by said stub for coaction with a stencil-sheet, substantially as set forth.

786,635. SYSTEM OF CONTROL FOR ELECTRIC MOTORS. ARTHUR C. EASTWOOD, Cleveland, Ohio. Filed Mar. 21, 1904. Serial No. 199,127.



Claim.—1. In a controlling system for motors, the combination of means for reversing the motor, electrical means independent of said reversing means for automatically absorbing the energy of the moving parts prior to such reversing, and means for automatically accelerating the motor subsequently to such absorption.

2. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, a conductor including a resistance short-circuiting the armature, automatically-operating means for closing such short-circuiting conductor and means for opening said motor-circuit concurrently with the closing operation of said short-circuiting means.

3. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, a conductor including a resistance short-circuiting the armature, automatically-operating means for closing such short-circuiting conductor, and means for opening said motor-circuit concurrently with the closing operation of said short-circuiting means, such two closing means being arranged so as to cause the operation of one to be dependent upon the operation of the other.

4. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, controlling means including a magnetically-operated switch for closing the armature-circuit through a resistance, and means for rendering such switch inoperative during the normal operation of the motor, and arranged to become operative when the motor-circuit is broken.

5. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, controlling means including a magnetically-operated switch for closing the armature-circuit through a resistance, and a second magnetically-operated switch arranged to open and close the motor-circuit, said two switches being arranged to be interdependent so that the closure of either switch is prohibited while the other is closed.

6. In reversing mechanism for motors, the combination of a motor-circuit, a magnetically-operated switch in said circuit for opening and closing same, a conductor containing a resistance and arranged to short-circuit the motor-armature, and a magnetically-operated switch controlled by the motor and arranged to cut said conductor into or out of its circuit, said two switches being interdependent whereby the closure of either is prohibited while the other is closed.

7. In reversing mechanism for motors, the combination of a motor-circuit, a magnetically-operated switch in said circuit for opening and closing the latter, a second magnetically-operated switch controlled by the motor, a conductor containing a resistance arranged to short-circuit the armature and controlled by said second switch; and means for preventing the closure of either of said switches while the other is closed.

8. In reversing mechanism for motors, the combination of a main motor-circuit, a magnetically-operated switch in said circuit for opening and closing same automatically; a secondary circuit including the armature, a resistance, and a magnetically-operated switch arranged to open and close said secondary circuit, and controlled by said motor; said two switches being arranged so that the closure of either will prohibit the closure of the other.

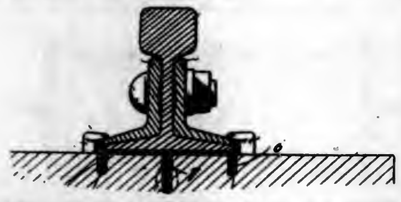
9. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, a resistance and means independent of said reversing means for short-circuiting the armature through such resistance when the current is shut off from said motor element, a bank of resistance in the motor-circuit, and means for short-circuiting said bank of resistance and fractions thereof, such latter means arranged to act concurrently with the reversing of the current.

10. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, a magnetically-operated switch controlled by the motor for short-circuiting the armature through a resistance, a second magnetically-operated switch controlled by the main current-supply and arranged to open and close the motor-circuit, said two switches being interdependent and arranged so that the closure of either is prohibited while the other is open; a bank of resistance in the motor-circuit, a series of magnetically-operated switches controlled by the current of the motor-circuit, such switches being arranged to operate automatically and successively to cut out fractions of said bank of resistance.

11. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, means independent of such reversing means for preventing such reversal prior to the time the moving element of such motor is brought to rest, and means for automatically effecting such reversal after such state of rest is effected.

12. In reversing mechanism for motors, the combination of a motor-circuit, means for reversing the current through one of the motor elements, means for absorbing the energy generated by the moving motor element prior to such reversal, means independent of such reversing means for preventing such reversal prior to the time said moving element is brought to rest, and means for automatically effecting such reversal after such state of rest is effected.

786,636. RAIL-JOINT. ADDISON C. FLETCHER, New York, N. Y. Filed Jan. 19, 1905. Serial No. 241,859.



Claim.—1. A railroad-chair consisting of a plate doubled on itself transversely to present a plurality of ascending flanges, each perpendicular to the body of the plate and laterally resilient.

2. A railroad-chair, consisting of a plate transversely doubled on itself to present a plurality of depending flanges and a plurality of ascending flanges, each resilient.

3. A railroad-chair consisting of a plate transversely doubled on itself to present three depending flanges, the intermediate flange being deeper than the other flange, and two ascending flanges, each flange being transversely resilient.

4. A railroad-chair comprising a plate having flanges integral therewith on the upper side thereof, said flanges being doubled on themselves to present inner and outer branches, the lower edges of the outer branches extending short of the under side of the body of the plate.

5. A railroad-chair comprising a plate having flanges on its upper side to receive between them the base of a rail, and a depending anchoring-flange, the latter being provided with means to limit endwise motion of the plate.

6. A railroad-chair, consisting of a plate having flanges on its upper side and anchoring-flanges on its under side, one of the last-mentioned flanges being provided with means to prevent endwise motion of the plate.

7. A railroad-chair consisting of a plate transversely doubled on itself to present ascending flanges and descending flanges, one of the descending flanges being provided with integral wings.

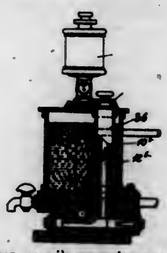
8. The combination of a railroad-tie having a plurality of grooves extending entirely across the same, and a chair provided with depending flanges to be driven into said grooves, and also provided with ascending flanges to receive between them a rail or rails, one of the depending flanges being provided with means to engage said tie to limit endwise movement of the chair.

9. The combination of a railroad-tie, a chair rigidly held upon said tie and provided with ascending flanges, rails fitted between said flanges, fish-plates associated with the rails and bearing against the flanges, and spikes adapted to be driven into the tie, the heads of the spikes being adapted to extend over the bases of the fish-plates and over the tops of said flanges.

786,637. LUBRICATOR. RICHARD J. FLINN, Boston, Mass., assignor of one-half to George P. Aborn, Boston, Mass. Filed Aug. 24, 1903. Serial No. 170,511.

Claim.—1. In a lubricator, an oil-reservoir open to the atmosphere and having an inlet in its top, a gravity overflow-outlet leading from said reservoir, a chamber for the reception of a liquid of a different specific gravity from the oil, said chamber having an outlet leading to the inlet in said reservoir, said outlet being provided with a dropping device, and means for varying the size of said outlet.

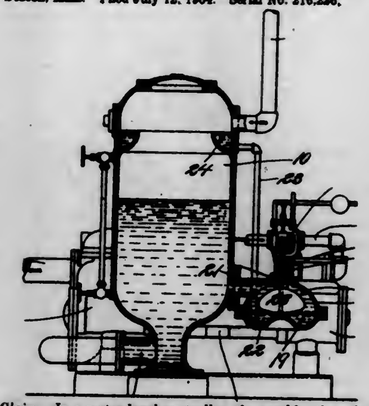
2. In a lubricator, an oil-reservoir open to the atmosphere and having an inlet in its top, a gravity overflow-outlet leading from said reservoir, a chamber for the reception of a liquid of a different specific gravity from the oil, said chamber being also open to the atmosphere at its upper portion, and an outlet leading from said chamber to the inlet of said reservoir, and valve mechanism controlling said outlet.



3. In a lubricator, an oil-reservoir open to the atmosphere, a conduit leading to the lower part of the reservoir and having its inlet at the top of the latter, a chamber supported upon said reservoir and also open to the atmosphere, an outlet leading from said chamber to the inlet of said conduit, and an adjustable dropping device connected to said outlet.

4. In a lubricator, an oil-reservoir open to the atmosphere and having an overflow-outlet, a water-chamber having an outlet-conduit leading to the lower part of said reservoir, and a drain having an inlet from said conduit located within the discharge-mouth of the latter and above the plane of the latter.

786,638. WATER-LEVEL CONTROLLER. RICHARD J. FLINN, Boston, Mass. Filed July 12, 1904. Serial No. 216,236.



Claim.—In a water-level controller, the combination of a vessel for the accumulation of water, having an inlet, a controller-casing having a flexible diaphragm below the maximum water-line in said vessel, a chamber on one side of the diaphragm having a duct connecting it with the interior of said vessel below said water-line, a second chamber on the other side of the diaphragm, a conduit leading to said second chamber and having connections with the inlet to said vessel for maintaining a constant valve-actuating head of water on the diaphragm, means for yieldingly depressing the diaphragm against said head, a valve external to the casing and actuated by the pressure of said constant head, means arranged to be set in operation by the actuation of said valve to cause a depression of the water-level in said vessel, and a valve-operating stem actuated by said diaphragm and traversing one of said chambers and the outer wall thereof.

786,639. DEVICE FOR EXTENDING LINES FROM HOLLOW FISHPOLES. CHARLES E. FRANCISCO, Lowell, Mich. Filed Dec. 20, 1904. Serial No. 237,668.

Claim.—1. A fishing-rod, including a hollow pole, a handle movably mounted within said pole and having a pulley, a reel on said pole, feed-rollers at the end of said pole, a line on said reel engaging the pulley and said feed-rollers, and a tension device within the pole and coöperating with the handle for holding the said line taut.

2. A fishing-rod, including a hollow pole and handle adapted to slidably engage one another, the pulley carried by the handle, feed-

rollers on said pole, a reel having a line engaging the pulley and feed-rollers and passing interiorly of the pole, and means coöperating with the pole and handle for keeping the line taut.



3. A fishing-reel, including hollow sections slidably engaging one another, a pulley carried by one of the sections, feed-rollers on the other section, a reel on one of the sections, a line on said reel and adapted to pass through the sections for engaging the pulley and the said feed-rollers, tension means coöperating with the sections for keeping the line taut.

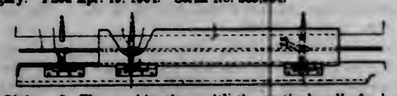
4. In a fishing-rod having a hollow section, a combination of a movable handle mounted within said hollow section, a pulley carried by said handle, feed-rollers mounted at the end of said rod, a reel having a line adapted to be fed through the hollow section and engage the pulley and feed-rollers, and tension means engaging the handle and the rod to retain the line taut.

786,640. PROCESS OF PRODUCING CATALYZING PICTURES. OSCAR GROS and JAKOB FRIEDLAENDER, Leipsic, Germany. Filed Nov. 6, 1903. Serial No. 180,140.

Claim.—1. The process herein described of making catalyzing pictures of increased stability, which consists in substituting by chemical action for the unstable silver precipitate of the ordinary silver pictures the more stable precipitate of a higher oxygen compound of manganese.

2. The process herein described of making catalyzing pictures of increased stability, which consists in treating an ordinary silver-precipitate picture with a solution of potassium ferricyanid together with a manganic-salt solution and an acid, then washing the picture, and then subjecting the same to the action of a solution of potassium ferricyanid and sodium hydroxid.

786,641. FIRE-ESCAPE. LOUIS GROSSMANN, Vienna, Austria-Hungary. Filed Apr. 19, 1904. Serial No. 203,854.



Claim.—1. The combination, with the vertical wall of a building structure, of a lift, grooved guides for the lift set into said wall and lift-ropes connected with the lift and arranged in said guides, substantially as described.

2. The combination, with the vertical wall of a building structure, grooved guides for the lift set into said wall, lift-ropes connected with the lift and arranged in said guides and doors hinged to said guides, substantially as described.

3. The combination of grooved guides, the lift, lift-ropes connected with the lift and arranged in said guides, doors for said guides and catches for holding the doors closed, said catches being operatively connected to said lift-ropes to be released thereby.

4. The combination with grooved guides, the lift, lift-ropes connected with the lift and arranged in said guides, spring-actuated doors for said guides and catches for holding the doors closed, said catches being operatively connected to said lift-ropes to be released thereby.

786,642. SUGAR-GRANULATOR. KARL GRUENKLER, New York, N. Y. Filed Mar. 19, 1904. Serial No. 198,972.



Claim.—1. A separator and granulator consisting of a cylinder adapted to rotate, and having on its interior surface spirally-arranged flights, those on each side of the middle of the cylinder being of a reverse pitch, in combination with means for rotating the cylinder.

2. In a separator and granulator the combination with a rotating cylinder having conveyer means on its inner surface, inlet means at one end of the conveyer, outlet means at the other end of the conveyer and means for rotating the cylinder.

3. In a separator and granulator, the combination with a rotating cylinder having internal conveyer means of reverse pitch on each side of its middle, of inlet or outlet means at the end of each series of conveyer means and means for rotating the cylinder.

4. In a separator and granulator, the combination with a rotating cylinder having internal spirally-disposed flights of reverse pitch on each side of the center of the cylinder, of heads with openings and doors, and having trunnions adapted to sustain and permit the rotation of the cylinder, and means for rotating the cylinder.

5. In a separator and granulator the combination with a rotating cylinder having internal flights adapted to convey the material toward the center of the cylinder and reverse the movement when the direction of rotation of the cylinder is reversed, of heads with openings and doors, hollow trunnions secured to the heads and sustaining the cylinder and means for rotating the latter.

6. In a separator and granulator the combination with a rotating cylinder having internal flights and one or more manholes, of heads adapted to be clamped on the cylinder and having openings and follow-trunnions, means for closing the openings of each separate head simultaneously and means for rotating the cylinder.

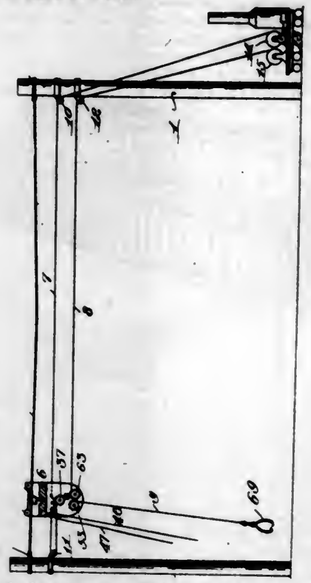
7. In a separator and granulator the combination with a rotating cylinder having one or more manholes, spiral wings or flights within the cylinder and of reverse pitch on each side of the manholes, heads secured to the ends of the cylinder and having inlet and outlet openings, hollow trunnions on the heads communicating with the interior of the cylinder, rotating doors for the openings in the heads carried on the trunnions, standards supporting the trunnions and means for rotating the cylinder.

8. In a separator and granulator, the combination with a cylinder of two parts and having manholes and coöperating flanges, of spiral flights or conveyer-wings on the interior of the cylinder, means for securing the two parts of the conveyer together, heads with ears or lugs and fitting over the ends of the cylinder, the rods connecting the lugs, openings in the heads, hollow trunnions on the heads, disks carried by the trunnions and adapted to close the openings, inlet means connected with the disk, discharge-hoppers adjacent to the heads, standards carrying the trunnions and means for rotating the disk.

9. In a separator and granulator the combination with a rotating cylinder having on its inner surface conveyer means of reverse pitch on each side of the middle, inlet means, outlet means and means for rotating the cylinder.

10. In a separator and granulator the combination with a rotating cylinder having on its inner surface conveyer means of reverse pitch on each side of its middle, an opening at a neutral point, openings at the ends of the cylinder, and means for rotating the cylinder.

786,643. CONVEYER. EDWIN A. HALLAM, Macon, Ga. Filed Apr. 15, 1904. Serial No. 203,287.



Claim.—1. A conveyer comprising a traveling carriage, a receding-rope drum journaled therein, a pulling-rope drum journaled therein, a lifting-rope drum journaled therein, means for gearing the drums together, means carried by the carriage for locking the receding drum, thereby preventing the operation of the other drums thereof, releasing means carried by the carriage for said locking means, and a braking means carried by the carriage for retaining it stationary.

2. A conveyer comprising a traveling carriage, a receding-rope drum journaled therein, a pulling-rope drum journaled therein, a lifting-rope drum journaled therein, means for gearing the drums together, means carried by the carriage for locking the receding drum, thereby preventing the operation of the other drums thereof, releasing means carried by the carriage for said locking means, a braking means carried by the carriage for retaining it stationary, a rope having one end connected to said receding drum, a rope having one end connected to said pulling-drum, and a rope having one end connected to said lifting-drum.

3. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, and a separate winding-drum for each of said ropes carried by said carriage.

4. In a conveyer device, in combination a pulling-rope, a carriage, a receding rope, a lifting-rope, a winding-drum for each of said ropes carried by said carriage, and a braking means for said carriage carried thereby.

5. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, and means for gearing said drums together.

6. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, means for gearing said drums together, and means supported by the carriage for locking said receding-rope drum, thereby preventing the operation of the other drums.

7. In a conveyer, the combination of a pulling-rope, a carriage, a receding rope, a lifting-rope, a winding-drum for each of said ropes, a gear connected to each of said drums, said gears for the lifting-rope and pulling-rope drums meshing with each other, and means for operatively connecting the gear of the receding-rope drum with the gear of the pulling-rope drum.

8. In a conveyer, the combination of a pulling-rope, a carriage, a receding rope, a lifting-rope, a winding-drum for each of said ropes, a gear connected to each of said drums, said gears for the lifting-rope and pulling-rope drums meshing with each other, and adjustable means for operatively connecting the gear of the receding-rope drum with the gear of the pulling-rope drum.

9. In a conveyer, the combination of a carriage, a revoluble drum supported by the carriage, a separate receding rope winding upon said drum and having one end connected thereto, another revoluble drum supported by said carriage, a separate pulling-rope winding upon said last-mentioned drum and having one end fixed thereto, another drum supported by said carriage, said drums operatively connected together, and a separate lifting-rope winding upon said last-mentioned drum and having one end fixed thereto.

10. In a conveyer, the combination of a carriage, a revoluble drum supported by the carriage, a receding rope winding upon said drum and having one end connected thereto, another revoluble drum supported by said carriage, a pulling-rope winding upon said last-mentioned drum and having one end fixed thereto, another drum supported by said carriage, a lifting-rope winding upon said last-mentioned drum and having one end fixed thereto, and a braking means for the carriage carried thereby.

11. In a conveyer, the combination of a carriage, a revoluble drum supported by the carriage, a receding rope winding upon said drum and having one end connected thereto, another revoluble drum supported by said carriage, a pulling-rope winding upon said last-mentioned drum and having one end fixed thereto, another drum supported by said carriage, a lifting-rope winding upon said last-mentioned drum and having one end fixed thereto, a gear connected to each of said drums, the gear of the pulling-rope drum meshing with the gear of the lifting-rope drum, and means for operatively connecting the gear of the receding-rope drum with the gear of the pulling-rope drum.

12. In a conveyer, the combination of a carriage, a revoluble drum supported by the carriage, a receding rope winding upon said drum and having one end connected thereto, another revoluble drum supported by said carriage, a pulling-rope winding upon said last-mentioned drum and having one end fixed thereto, another drum supported by said carriage, a lifting-rope winding upon said last-mentioned drum and having one end fixed thereto, a gear connected to each of said drums, the gear of the pulling-rope drum meshing with the gear of the lifting-rope drum, and adjustable means for operatively connecting the gear of the receding drum with the gear of the pulling-rope drum.

13. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, and a winding-engine connected with said pulling-rope and said receding rope.

14. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, a braking means for said carriage carried thereby, and a winding-engine connected with said pulling-rope and said receding rope.

15. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, means for gearing said drums together, and a winding-engine connected with said pulling-rope and said receding rope.

16. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, means for gearing said drums together, means supported by the carriage for locking said receding-rope drum, thereby preventing the other drums from turning, and a winding-engine connected with said receding rope and said pulling-rope.

17. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, a winding-engine connected with said pulling-rope and said receding rope, and means for locking said receding drum, thereby preventing the turning of the other drums when the carriage is moving toward the winding-engine.

18. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, a braking means for said carriage carried thereby, a winding-engine connected with said pulling-rope and said receding rope, and means for locking said receding drum, thereby preventing the turning of the other drums when the carriage is moving toward the winding-engine.

19. In a conveyer device, in combination a separate pulling-

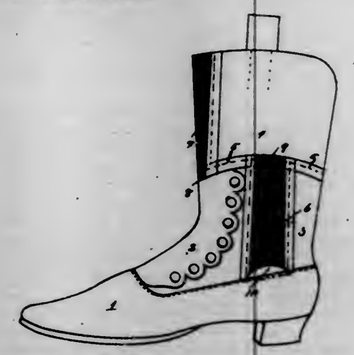
rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, and means for locking the receding-rope drum to arrest the movement thereof in one direction.

20. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, means for locking the receding-rope drum to arrest the movement thereof in one direction, and means for disconnecting said locking means from the receding-rope drum.

21. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, and means for preventing the drums from turning while the carriage is traveling.

22. In a conveyer device, in combination a separate pulling-rope, a carriage, a separate receding rope, a separate lifting-rope, a separate winding-drum for each of said ropes carried by said carriage, means for preventing the drums from turning while the carriage is traveling, and means for throwing out of engagement said means to permit of the turning of the drums.

786,644. BOOTEE. OSCAR P. HURD, Hooper, N. Y. Filed May 2, 1904. Serial No. 205,994.



Claim.—1. In combination with the front and back portions and top of a bootee, the said portions being connected by a substantially horizontal seam, of side panels of elastic goring extending upward beyond the said seam, and a panel of elastic goring in the top extending downward below said seam, as and for the purpose set forth.

2. In combination with the front and back portions of a bootee, of a top portion, a seam connecting said top and front and back portions, side panels of elastic goring connecting the front and back portions and having their upper edges extending above the rigid seam and a panel of elastic goring in the top portion, having its lower edge extending below said rigid seam and below the upper edges of the side panels, substantially as described.

3. The combination in a bootee, with a top portion and front and back portions, of elastic panels in the top and in the sides between the front and back portions, the said panel in the top portion having the line of its lower edge below the line of the upper edges of the side panels, as and in the manner set forth.

4. The combination with the front and side portions of a bootee, of a panel of elastic goring inserted between them, a leveling-piece arranged to fill the space upon the goring between the front and back portions at the lower edge thereof, and a vamp secured outside of said front and back portions, and leveler, substantially as described.

5. In a bootee, the combination of the vamp and front and back portions and a panel of elastic goring upon the edges of which they are sewed, of a filling or leveling piece upon the lower edge of the goring between said front and back portions, and between said elastic goring and vamp.

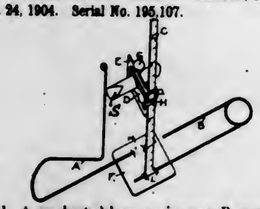
786,645. CLOTHES-HOLDING DEVICE. LEOPOLD ISSER, West Liberty, Pa. Filed Jan. 5, 1905. Serial No. 239,748.

Claim.—1. The combination with a crib having side frames and end frames, of rods detachably mounted between the end frames and parallel to the side frames, substantially U-shaped members mounted between the side frames and the rods of said crib, said members adapted to have covers attached thereto, a substantially U-shaped member slidably mounted in one of the end frames of said crib, and adapted to have the ends of covers secured thereto, substantially as described.



2. The combination with a crib having side frames and end frames, of rods detachably connected to the end frames of said crib, one of said rods being mounted above the other and parallel to the side frames of said crib, rollers carried by said rods and said side frames, substantially U-shaped members mounted between said rods and said side frames, said members adapted to have covers secured thereto, a member slidably mounted in one of the end frames of said crib, said member adapted to have covers secured thereto, substantially as described.

786,646. SHEAR-GAGE. JACKSON JOHNSON, Rochester, N. Y. Filed Feb. 24, 1904. Serial No. 195,107.

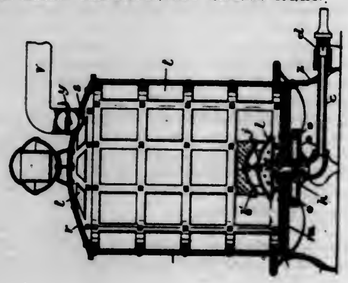


Claim.—1. A graduated bar, a wire arm B carried at one end thereof, a base detachably connected with said bar, a clamp member adjustable on said bar, and means in the clamp member for holding the article to be carried thereby.

2. A graduated bar, a wire B carried at one end thereof, a base, an arm detachably supported on said base and having right-angled portion, a clamp member adjustable on said bar, means carried by the clamp member to engage said bar for holding the clamp member in its adjusted position, and means carried by the clamp member for holding the operating device.

3. A graduated bar, a clamp member adjustable thereon, a wire B held at one end of said bar, and means in said clamp member whereby said clamp member will hold either a cutting-tool or a crayon-holder, as and for the purpose specified.

786,647. GAS-BURNING APPLIANCE. EDWIN C. JONES, Woodstock, Canada. Filed Feb. 19, 1904. Serial No. 194,455.



Claim.—In a gas-burning appliance the combination of a heat-conducting casing having an air-inlet and an adjustable valve to control the air-inlet with a burner within the heat-conducting casing consisting of a mixing-chamber having a bottom with an inlet-port and a top having an imperforate portion opposed to the inlet port and a perforate portion surrounding the imperforate portion, a baffle extending upwardly from the burner-top and a burner-pipe fitted to the inlet-port of the mixing-chamber, and a heat-insulator interposed between the gas-burner and the casing-bottom.

786,648. CONCRETE STRUCTURE. EDWARD S. KEEFER, Cincinnati, Ohio, assignor to The Keefer Railway-Tie Company, Cincinnati, Ohio, a Corporation of Ohio. Filed July 30, 1904. Serial No. 218,847.



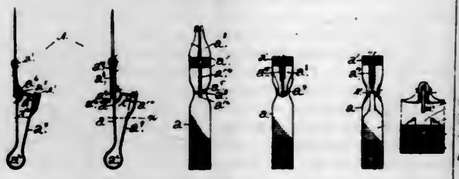
Claim.—1. A railway-tie comprising a concrete body portion the extremities of which are provided with lateral wings or projections and have, between said wings or projections metallic casings embedded in them and provided with undercut end walls, blocks having end surfaces engaged on the undercut end walls of the casing and a locking-block interposed between said first-named blocks in the casing.

2. A concrete structure having embedded therein a metallic casing the end walls of which are undercut and inclined in opposite directions, blocks insertible in said casing with end surfaces inclined to fit the undercut end walls thereof and a locking-block insertible between the first-named blocks.

3. A concrete structure having embedded therein a metallic casing the end walls of which are undercut and oppositely inclined and the bottom of which is centrally perforated and is inclined downward from its edge portions toward said central perforation, blocks insertible in said casing with end surfaces fitting the undercut end walls thereof and a locking-block interposed in the casing between the first-named blocks.

4. A concrete structure having embedded therein a metallic casing the end walls of which are undercut and oppositely inclined and the upper edges of which are provided with an outwardly-directed flange, blocks insertible in the casing with end surfaces engaged on the undercut end walls of the same and a locking-block interposed between the first-named blocks.

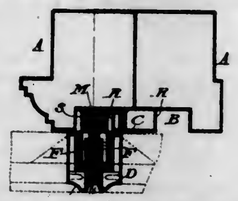
786,649. NEEDLE-THREADER. WITMER J. KENDIG, Lancaster, Pa. Filed Aug. 26, 1903. Serial No. 170,836.



Claim.—1. A needle-threader comprising a plate formed with end folds, arms projecting from the folds on opposite sides of the plate, one of said arms and said plate being formed with alining openings, and a tongue carried by the other arm adapted to pass through said openings, the fold of the first-named arm being formed with an opening, substantially as and for the purpose specified.

2. In a needle-threader, in combination, a central plate with an orifice therethrough and oppositely-disposed folds at the ends thereof; a closely-lying but yielding tongue projecting from said fold and having a point with an end slot, said point extending beyond and overlying said orifice with which orifice said slot registers, and a shallow groove in the plate underlying the point and extending across the orifice; an orifice centrally through the forward side of said fold with grooves in the adjacent surfaces of said tongue, the groove of the strap extending from the fold to beyond the orifice of the strap, ending abruptly at said point, and the groove of the tongue inwardly sloping and extending from said fold to a point adjacent to the slotted point of said tongue into the surface of which point said groove merges; an inwardly-depressible arm projecting angularly from the other one of said folds and extending to a point beyond the orifice of said central strap; and, a flattened finger with its base securely affixed to said arm at said point and adapted to engage through said orifice, said finger having a notch in its free end and shallow grooves in the flat sides thereof; all substantially as described and for the purpose hereinbefore set forth.

786,650. WINDOW. ARTHUR KONSALIK, Philadelphia, Pa. Filed Sept. 26, 1904. Serial No. 225,890.



Claim.—1. In a window, a side stile of the window-frame having a parting-rail provided with an opening horizontally therethrough and a shoe fitted in said opening and laterally adjustable therein.

2. In a window, a side stile of a sash formed of sections, one stationary and the other movable thereon, a head in the stationary section, the same being provided with a journal, a shoe in the stationary section back of said head, said shoe having an inclined wall, and a shoe in the window-frame, the same having an inclined face which is adapted to engage the wall of the first-named shoe.

3. In a window, a side stile of a sash formed of sections, one stationary and the other movable thereon, a head in the stationary section, the same being provided with a journal, a shoe in the stationary section back of said head, said shoe having an inclined wall, a shoe in the window-frame, the same having an inclined face which is adapted to engage the wall of the first-named shoe, and a plurality of separated ribs either passage between which being adapted to receive said journal.

4. In a window, a side stile thereof being formed of stationary and movable sections, a head in the stationary section secured thereto, said head having a journal which freely enters the movable section, a shoe in the stationary section back of said head and a laterally-adjustable shoe movable in the parting-rail of the window-frame and having passages into either of which said journal may be located, said journal being mounted on an attachment of the sash-chain.

5. In a window, a side stile of the frame thereof, a shoe movably fitted on the meeting-rail thereof, a window-sash having a side stile formed of sections, one section being movably fitted to the other section, and a shoe on said stile of said sash, the shoe of the frame being adapted to be placed in the path of the shoe of the sash, whereby the movable section of the side stile of the sash may be operated.

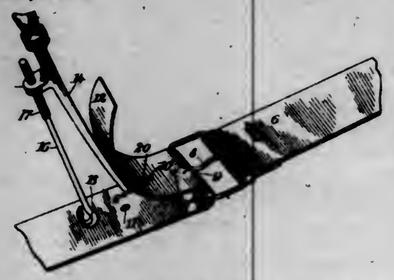
6. In a window, a side stile of the window-frame having a shoe laterally movable thereon and a side stile of the sash formed of sections, one section being movably fitted to the other section and a shoe on the movable section whereby the shoe of either the upper or lower sash of the window may be placed in the path of the shoe of the window-frame causing the shoes to engage for operating the movable section of the stile of either section.

7. In a window adapted to be rotated, a side stile of a sash formed of sections, one section being movably fitted to the other section, a head on said stile having a neck thereon, a shoe on the side stile of the window-frame having an inclined face and vertical passages therein, and a shoe on the side stile of the sash having an inclined face, said shoes being adapted to contact, the shoe of the window-frame being laterally movable whereby the neck of either the upper or lower sash enters one of said passages.

786,651. BELT-TIGHTENER. GEORGE R. W. LANNING and FRANK M. TUSIA, Egan, S. D. Filed May 16, 1904. Serial No. 208,150.

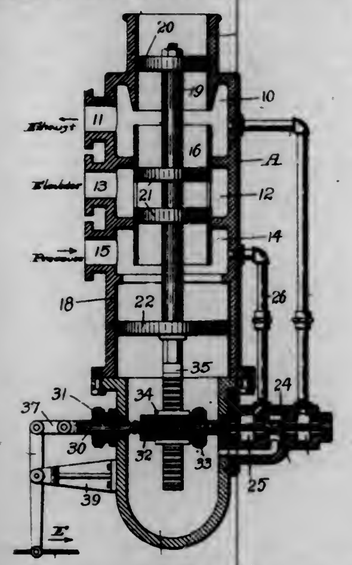
Claim.—1. A belt-tightener comprising a shank provided with a lug integral therewith, said shank being further provided with a handle and with a hook for engaging holes in the belt, and a rod passing through said lug and adjustable relatively thereto.

2. A belt-tightener comprising a shank portion provided with a lug and with a hook, a handle mounted upon said shank portion, and a rod connected with said lug and movable relatively thereto for purposes of adjustment.



3. A belt-tightener comprising a shank portion provided with a lug and with a hook, a handle mounted upon said shank portion, and a rod connected with said lug and provided with a shoe for resting upon the surface of the belt.

786,652. **PILOT-VALVE FOR HYDRAULIC ELEVATORS.** THURE LARSSON, Worcester, Mass., assignor to Standard Plunger Elevator Company, a Corporation of New Jersey. Filed Mar. 13, 1902. Renewed Jan. 12, 1905. Serial No. 240,739.



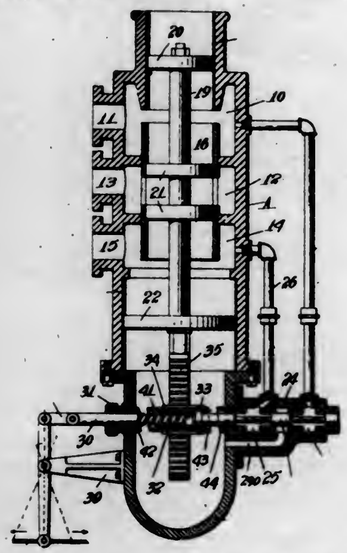
Claim.—1. An elevator-valve comprising a valve-casing, a main valve arranged therein, a pilot-valve arranged transversely to the main valve, a supplemental casing connected to the valve-casing, and connections between the main and pilot valves arranged in said supplemental casing.

2. In a hydraulic-elevator valve, the combination of a main valve, a pilot-valve, and a connection for operating the pilot-valve, comprising a part arranged to be shifted from an elevator-car, a second part threaded thereto, and a gear-and-rack connection between said second part and the main valve, said gear-and-rack connection being arranged to permit an endwise travel of said second part while the rotation of said second part closes the pilot-valve when the main valve has been shifted to desired position.

3. In a hydraulic-elevator valve, the combination of a main valve, a pilot-valve movable transversely with respect to the main valve, a rod or connection for operating the pilot-valve, comprising a section arranged to be shifted from an elevator-car, a second section or nut threaded thereon, and a gear-and-rack connection between the nut and main valve, said gear-and-rack connection being arranged to permit an endwise travel of the nut and to cause the rotation of the nut to close the pilot-valve when the main valve has been shifted to the desired position.

4. In a hydraulic-elevator valve, the combination of a main valve, a pilot-valve movable transversely with respect to the main valve, an operating connection for the pilot-valve, comprising sections threaded together, connections for sliding or shifting one of said sections longitudinally from an elevator-car, and a gear-and-rack connection between the other of said sections and the main valve, said gear-and-rack connection being arranged to permit a longitudinal movement and to rotate one of said sections to cause the screw-threaded connection to close the pilot-valve when the main valve has been shifted to the desired position.

786,653. **ELEVATOR-CONTROLLING MECHANISM.** THURE LARSSON, Worcester, Mass., assignor to The Standard Plunger Elevator Company, Worcester, Mass., a Corporation of New Jersey. Filed June 29, 1903. Serial No. 163,477.



Claim.—1. In a valve mechanism, the combination with he main valve and the pilot-valve, of means for preventing a reverse except when the former is in a determined position.

2. The combination with the main valve and the pilot-valve, of means for preventing the latter from being moved for a reverse except when the former is in a determined position.

3. The combination with the main valve and the pilot-valve, of means for preventing the latter from being moved for a reverse except when the former is in central position.

4. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to limit the movement of the operating connections by the position of the main valve to prevent a reverse until the main valve comes back to its central or closed position.

5. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to limit the movement of the connections by the position of the main valve to prevent a movement of the same through central position until the main valve comes back to its central or closed position.

6. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to restrict the movement of the operating connections to one side of central position while the main valve is allowing a flow.

7. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to restrict the movement of the operating connections to one side of central position while the main valve is allowing a flow in either direction.

8. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to restrict the movement of the operating connections to one side of central position while the main valve is allowing a flow and until the main valve is restored to closed position.

9. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to restrict the movement of the operating connections to one side of central position while the main valve is allowing a flow in either direction and until the main valve is restored to closed position.

10. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to prevent the operating connections from being moved back through central position until the main valve is returned to the central position, whenever the operating connections have been moved in either direction from central position, and the main valve has started from its central or closed position, but still to permit the operating connections to be free to be moved to any point between central position and extreme position on the side of the central position from where they were first moved.

11. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and means constructed and arranged to permit the pilot-valve to be moved to either side of its central position when the main valve is closed, but to prevent the operating connections from being moved back through their central position until the main valve has moved to its central position, whenever the pilot-valve has been moved to one side and the main valve moved from its normal position.

12. The combination of a main-valve mechanism, a pilot-valve mechanism, and an interlocking cam mechanism operated by the movement of the main valve to prevent a reversing movement except when the main valve is in central position.

13. The combination of a main-valve mechanism, motor means for moving the main valve, controlling mechanism for the motor means, operating connections for the controlling mechanism, and means for preventing the operating connections causing a reversal of the main valve until the main valve is in or until it reaches its closed position.

14. The combination of the main valve, the pilot-valve, operating connections to the pilot-valve, a nut and screw in said connections for restoring the pilot-valve to closed position, means for operating the nut and screw from the main valve, and an interlocking cam mechanism arranged on said nut and a stationary part to prevent a reversing movement of the operating connections except when the main valve is in central position.

15. The combination of a main valve, a pilot-valve, operating connections to the pilot-valve, a nut and screw for restoring the pilot-valve to closed position, operating-gearing to said nut and screw from the main valve, a helical cam arranged on said nut, and a stationary cam arranged on a stationary part.

16. The combination of a main valve, a pilot-valve, operating connections to the pilot-valve, a nut and screw for restoring the pilot-valve to closed position, operating-gearing to said nut and screw from the main valve, and oppositely-disposed helical cams arranged on said nut and stationary parts.

17. In a hydraulic elevator-valve, the combination of a main valve, a pilot-valve movable transversely with respect to the main valve, a connection for operating the pilot-valve comprising a section to be shifted from an elevator-car, and a second section or nut threaded thereon, a gear-and-rack connection between the nut and main valve, said gear-and-rack connection being arranged to permit an endwise travel of the nut, and to cause the rotation of the nut to restore the same to normal position when the main valve has been shifted, and stops for limiting the movement of the nut comprising helical stop-faces carried by the nut and coöperating stationary helical stop-faces.

18. In a hydraulic elevator-valve, the combination of a main valve, a pilot-valve movable transversely with respect to the main valve, an operating connection for the pilot-valve comprising sections threaded together, connections for sliding or shifting one of said sections longitudinally from an elevator-car, a gear-and-rack connection between the other of said sections and a main valve, said gear-and-rack connection being arranged to permit a longitudinal movement, and to rotate one of said sections to cause the screw-thread to restore said section to normal position when the main valve has been shifted, and stops for limiting the extent to which the pilot-valve may be shifted comprising helical faces corresponding in pitch with the screw-threaded connection and carried by the rotary section and stationary parts respectively.

19. The combination of a main valve, a pilot-valve, operating connections for the pilot-valve, a nut and screw for restoring the pilot-valve to closed position, operating connections from the main valve to the nut and screw, a helical cam arranged on said nut, and a helical cam arranged on a stationary part, the pitch of said cams equaling the pitch of said screw.

20. The combination of a main valve, a pilot-valve, operating connections for the pilot-valve, a nut and screw for restoring the pilot-valve to closed position, means for operating the nut and screw from the main valve, oppositely-disposed helical cams on said nut, and cooperating helical cams on stationary parts, the pitch of said cams equaling the pitch of said screw, whereby a reversing movement of said operating connections to the pilot-valve is prevented except when the main valve is in central position.

21. The combination of a main-valve mechanism, a pilot-valve mechanism, an operating-lever for the pilot-valve, and means arranged to limit the movement of the lever by the position of the main valve to prevent a movement of the same through its central position until the main valve comes back to its central or closed position.

22. The combination of a main-valve mechanism, a pilot-valve mechanism, an operating-lever for the pilot-valve, and means constructed to restrict the movement of the operating-lever to one side of its central position while the main valve is allowing a flow.

23. The combination of a main-valve mechanism, a pilot-valve mechanism, an operating-lever for the pilot-valve, and means constructed to restrict the movement of the operating-lever to one side of its central position while the main valve is allowing a flow in either direction.

24. The combination of a main-valve mechanism, a pilot-valve mechanism, an operating-lever for the pilot-valve, and means constructed to restrict the movement of the operating-lever to one side of its central position while the main valve is allowing a flow and until the main valve is restored to closed position.

25. The combination of a main-valve mechanism, a pilot-valve mechanism, an operating-lever for the pilot-valve, and means constructed to restrict the movement of the operating-lever to one side of its central position while the main valve is allowing a flow in either direction and until the main valve is restored to closed position.

26. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and a cam mechanism for preventing a reverse except when the main valve is in central position, said cam mechanism forming an auxiliary restoring means for the pilot-valve.

27. The combination of a main-valve mechanism, a pilot-valve mechanism, operating connections for the pilot-valve, and a double interlocking spiral cam mechanism for preventing a reverse except when the main valve is in central position, said cam mechanism forming an auxiliary restoring means for the pilot-valve.

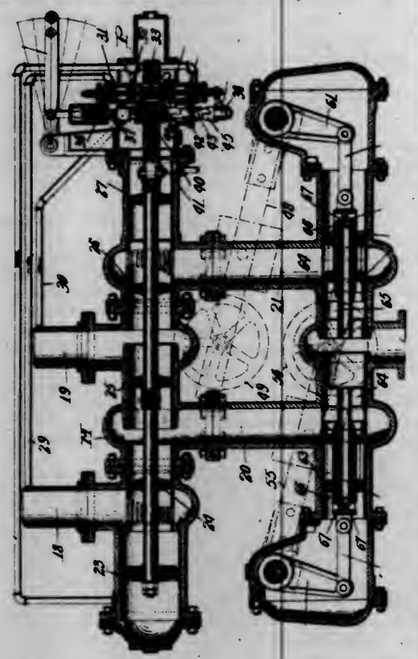
786,654. **VALVE MECHANISM FOR HYDRAULIC ELEVATORS.** THURE LARSSON, Worcester, Mass., assignor to The Standard Plunger Elevator Company, Worcester, Mass., a Corporation of New Jersey. Filed July 29, 1904. Serial No. 218,659.

Claim.—1. In an elevator valve mechanism, the combination of a main valve, a transversely-movable pilot-valve, a nut connected to be shifted from the elevator-car, a rod threaded into the nut and movable with the pilot-valve, and a gear-and-rack connection between the rod and main valve, said gear-and-rack connection permitting an endwise travel of the rod so that the rotation of the rod will close the pilot-valve when the main valve has been shifted to desired position.

2. In an elevator valve mechanism, the combination of a main valve, a pilot-valve, operating connections for the same, and means for limiting the throw of the operating connections, comprising two facing cams carried by a rotating part, and stationary cams interposed between the facing cams.

3. In an elevator valve mechanism, the combination of a main valve, a pilot-valve, connections for operating the pilot-valve from the elevator-car, a threaded connection operated by the travel of the main valve for restoring the pilot-valve to central position, and means for limiting the throw of the operating connections, comprising two facing cams carried by a rotating part, and two stationary cams interposed between the facing cams, said cams having the same pitch as the threaded connection.

4. In an elevator valve mechanism, the combination of a main valve, a pilot-valve, connections for operating the pilot-valve, means to restore the pilot-valve to central position, means for preventing a reverse of the operating connections except when the main valve is in central position, and graduated openings in the pilot-valve for regulating the movement of the main valve.



5. In an elevator valve mechanism, the combination of a main valve, and a pilot-valve and casing therefor, said pilot-valve casing having a set of ports constructed to throttle as the pilot-valve comes back to its central closed position and another port or passage controlling the flow, the pilot-valve being constructed and arranged to close said passage when the same is in central position and said passage being arranged not to interfere with the action of the set of ports when the pilot-valve is moved away from its central closed position.

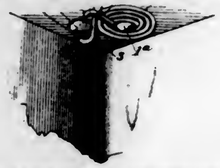
6. In an elevator valve mechanism, a main valve, a pilot-valve, connections for operating the pilot-valve, connections from the main valve for restoring the pilot-valve to central position, openings in the pilot-valve whereby the main valve will come easily back to central position, and means arranged to prevent a reverse until the main valve comes back to its central position.

7. In an elevator valve mechanism, a main valve, a pilot-valve, connections from the main valve for restoring the pilot-valve to central position, openings in the pilot-valve for slowing the movement of the main valve as it come back to central position from a travel in either direction, and means arranged to prevent a reverse until the main valve comes back to its central position.

8. A pilot-valve casing having two inlets, one connected to the pressure and the other to operate the main valve and two outlets one connected to the exhaust and the other to operate the main valve, a port or passage between each inlet and outlet, valves 31 and 35 for controlling the inlets and valves 32 and 34 for closing the ports between the inlets and outlets to prevent leakage when the pilot-valve is in central position.

9. A pilot-valve casing having two inlets, one connected to the pressure and the other to operate the main valve, bushings having ports through which the inlets pass, two outlets from said casing one connected to the exhaust and the other to operate the main valve, a port or passage between each bushing and outlet, valves 31 and 35 working in said bushings, and valves 32 and 34 for closing the ports between the bushings and outlets to prevent leakage when the pilot-valve is in central position.

786,655. **DETONATING FIRE-ALARM.** MARK A. LIBBEY, South Berwick, Me. Filed Feb. 12, 1904. Serial No. 193,283.



Claim.—1. A detonating fire-alarm, comprising a resilient member formed into a coil and having the ends crossed, a binder rendered ineffective by heat applied to said member to hold the ends apart, and a holder containing fulminate disposed between the ends of said member.

2. A detonating fire-alarm, comprising a resilient member formed into a coil having its ends crossed and bent toward each other, a binder of fusible material applied to said ends at the point of crossing to hold the ends apart, and a holder containing fulminate mounted upon one end of said member in position to be engaged by the other end when the binder is fused.

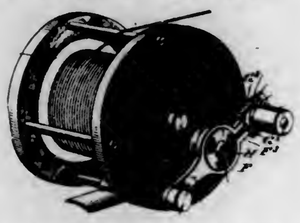
3. A detonating-alarm, comprising a holder for a fulminate, a striker for exploding the latter, and a fusible binder normally restraining the action of the striker, said holder being provided with a closure of zinc and waterproof fabric.

4. A detonating-alarm, comprising a resilient wire bent into coils, and having the end portions thereof joined or united by a fusible solder, one end portion being provided with a holder for a fulminate, and the other end portion constituting a striker normally restrained from operating upon said fulminate by said solder.

5. A detonating-alarm, comprising a resilient wire bent upon itself into coils, and having one end portion thereof also bent to form a shoulder, and provided with a holder for a fulminate, the other end portion of the wire resting on said shoulder under tension, and a fusible solder normally maintaining said portion on the shoulder.

6. A fire-alarm comprising a resilient member having crossed extremities, a fusible or combustible bond connecting said extremities, and restraining the same against relative movement, and an alarm actuated by a relative movement of said extremities.

786,656. **FISHING-REEL BRAKE.** JAMES A. MACMAHON, New York, N. Y. Filed Apr. 27, 1904. Serial No. 205,081.



Claim.—1. A fishing-reel brake comprising a crank-arm, and a friction device controlled by the handle of the crank-arm, the handle being slidably mounted on the crank-arm to increase or decrease the friction and correspondingly increase or decrease the leverage.

2. A fishing-reel brake comprising a friction-disk on a reel-shaft, and a crank-arm peripherally mounted on the friction-disk and adapted to be clamped with more or less force to the peripheral face of the friction-disk.

3. A fishing-reel brake comprising a friction-disk on a reel-shaft, a crank-arm peripherally mounted on the friction-disk, a frictional clamping device on the said arm, for clamping the latter to the friction-disk at the peripheral face thereof, and a handle movable on the crank-arm and controlling the said clamping device.

4. A fishing-reel brake comprising a friction-disk on a reel-shaft, a crank-arm mounted on the peripheral face of the friction-disk, and having a movable handle, and a clamping device controlled by the said handle for clamping the crank-arm to the friction-disk.

5. A fishing-reel brake comprising a friction-disk turning with a reel-shaft, and a crank-arm mounted on the peripheral face of the friction-disk and having manually-controlled means for clamping the crank-arm with more or less force to the said friction-disk.

6. A fishing-reel brake comprising a friction-disk secured on

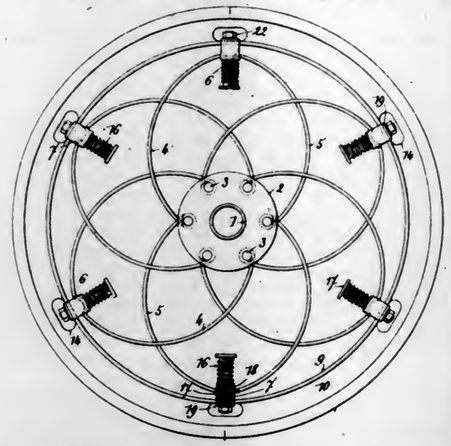
the shaft of the reel, a crank-handle having a split ring mounted on the peripheral face of the friction-disk, the ends of the split ring terminating in integral diverging arms, and a handle slidable on the arms and straddling the same.

7. A fishing-reel brake, comprising a friction-disk on the reel-shaft, a crank-arm peripherally mounted on the said disk, and a handle slidable on the crank-arm and serving to clamp the same to the friction-disk.

8. A fishing-reel brake, comprising a friction-disk on the reel-shaft, a crank-arm peripherally mounted on the disk and having diverging members, and a handle slidably mounted on the diverging members of the crank-arm.

9. A fishing-reel brake, comprising a friction-disk on the reel-shaft, a crank-arm having a split ring mounted on the periphery of the disk and provided with diverging arms at one side and a weighted arm at the opposite side, and a handle slidably mounted on the diverging arms of the crank-arm.

786,657. **YIELDING SPRING-WHEEL.** LOUIS MARCHAND, Roubaix, France. Filed Sept. 28, 1904. Serial No. 226,300.



Claim.—1. A wheel comprising a tire, a hub, curved yielding spokes of which the inner end is attached to the hub, and relatively fixed means for guiding the outer end of the spokes radially with respect to the tire to permit them to yield bodily toward and from said tire.

2. A wheel comprising a tire, a hub, yielding spokes curved in one direction and placed in the same plane, and yielding spokes curved in the opposite direction and placed in a plane parallel to the first-mentioned plane, the inner ends of the said spokes being attached to the hub, and relatively fixed means for guiding the outer end of the spokes radially with respect to the tire to permit them to yield bodily toward and from said tire.

3. A wheel comprising a tire, braces fixed across the tire, guides fixed on the ends of each brace, a hub, curved yielding spokes, one end of each spoke being jointed on the hub and the other end having a slot and being engaged on a guide, and springs on the guides and acting on the spokes.

4. A wheel comprising a tire, braces fixed across the tire, projections on the braces, a hub having parallel cheeks, and curved yielding spokes the ends of which are slidably engaged between the cheeks of the hub and the projections of the braces.

5. In a wheel, the combination with a tire comprising two concentric rings, of an intermediate rib having recesses, braces each having a slot adapted to fit on the inner ring, screws inclosed in said braces, nuts situated within the recesses of the rib, locking-plates engaging the nuts, guides fixed on the braces, nuts screwed upon the guides and clamping the locking-plates, and yieldable spokes coacting with the braces.

6. A wheel comprising a tire, a hub, curved spokes yieldable radially of the wheel having their inner ends attached to the hub, and means for mounting the outer ends of the spokes to slide toward and from the tire as the spokes bend.

7. A wheel comprising a tire, a hub, curved spokes yieldable radially of the wheel having their inner ends attached to the hub, means for mounting the outer ends of the spokes to slide toward and from the tire as the spokes bend, and springs acting upon said spokes at their outer ends.

8. A wheel comprising a tire, a hub, yielding spokes having their inner ends attached to the hub, and guides extending through the spokes and along which they may move.

9. A wheel comprising a tire, a hub, yielding spokes having their inner ends attached to the hub, guides extending through the spokes and along which they may move, and springs interposed between the guides and spokes.

10. A wheel comprising a tire, a hub, yielding spokes having their inner ends attached to the hub, guides extending through the spokes and along which they may move, and springs surrounding the guides and contacting with the spokes.

11. A wheel comprising a tire, a hub, curved spokes yieldable radially of the wheel having their inner ends attached to the hub, and guides along which the outer ends of the spokes may move.

12. A wheel comprising a tire, a hub, curved spokes yieldable radially of the wheel having their inner ends attached to the hub, guides along which the outer ends of the spokes may move, and springs resisting the inward movement of the spokes.

786,658. **LADDER.** BUEL L. MERRILL, Litchfield, Me. Filed Dec. 10, 1903. Serial No. 184,631.



Claim.—1. In a device of the class described, the combination with slidably-connected ladder-sections, of a cam pivotally carried by one of said sections, and lying contiguous to one edge of the other section, said second-mentioned section being formed with a notch in that edge next to said cam, of a size and shape designed to receive the cam, and means to limit the rotation of said cam in one direction.

2. In a device of the class described, the combination with a plurality of slidably-connected ladder-sections, one of said sections being formed with a notch, of a cam pivotally carried by the other of said sections and adapted to fit within said notch, and a laterally-projecting dog extending from said cam and adapted to engage the notch-section for preventing rotation of the cam.

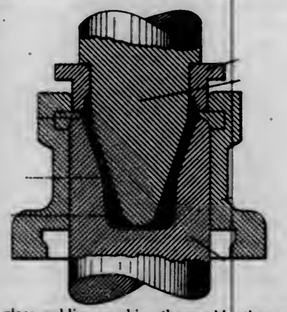
3. In a device of the class described, the combination with a plurality of slidably-connected ladder-sections, one of said sections being formed with a notch, of a cam pivotally carried by the other of said sections and adapted to fit within said notch, and means for preventing rotation of said cam in one direction while within the notch.

4. In a device of the class described, the combination with a plurality of slidably-connected ladder-sections, one of said sections being formed with a notch in its upper surface, of a cam pivotally carried by the other of said sections and positioned for swinging in a vertical plane parallel to the longitudinal axis of said ladder-sections and adapted to be swung within said notch for locking the sections against longitudinal movement with respect to each other, and means for preventing rotation of said cam in one direction while within the notch.

5. In a device of the class described, the combination with a plurality of slidably-connected ladder-sections, of a rotatably-mounted rung carried by one of said sections, a cam projecting laterally from said rung and positioned for swinging in a vertical plane parallel to the longitudinal axis of said ladder-sections when said rung is rotated, the other ladder-section having one of its side rails lying in the path of movement of said cam.

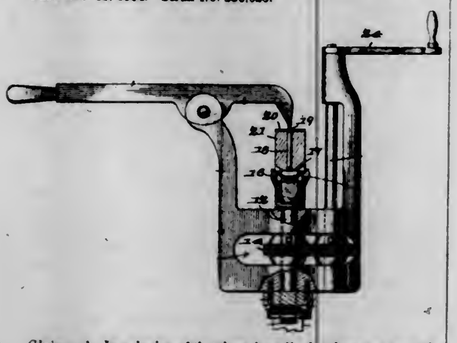
786,659. **GLASS-MOLDING MACHINE.** EDWARD MILLER, Columbus, Ohio. Filed Jan. 5, 1905. Serial No. 239,772.

Claim.—1. In a glass-molding machine, the combination with a mold-body of a primary bottom therefor having a cavity and a plunger to coöperate therewith, the said cavity and plunger both having tapering sides, the said tapering sides being substantially parallel to each other in their upper portions but of divergent taper in their lower portions, substantially as shown and described.



2. In a glass-molding machine the combination with a mold-body of a primary bottom therefor, having a cavity provided with a double taper and a plunger coöperating with said primary bottom having a substantially uniform taper.

786,660. **TIRE-BOLT WRENCH.** JAMES R. MOORE, Harper, Tex. Filed Dec. 12, 1904. Serial No. 236,628.

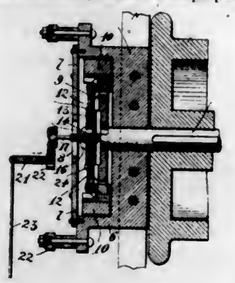


Claim.—1. In a device of the class described, a frame, a wrench-carrying shaft journaled in said frame, a counter-shaft geared with the wrench-carrying shaft and having an operating-crank, a lever fulcrumed upon an upright extending from the frame and having a bolt-head-engaging point, a cross-bar secured to the under side of the frame and provided near its extremities with threaded apertures, and rim-engaging stop members having threaded ends adjustably engaging said apertures.

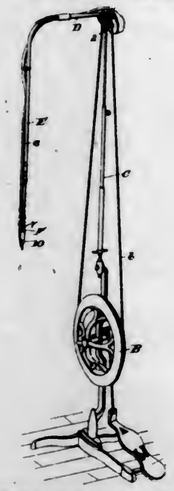
2. A frame having a transverse slot and provided with upwardly-extending brackets, a pair of shafts journaled in said frame and extending through the slot parallel to each other, one of said shafts having an additional bearing in one of the upwardly-extending brackets and the other shaft carrying a nut-engaging wrench member, intermeshing pinions secured upon said shafts within the transverse slot, a lever fulcrumed upon one of the upwardly-extending brackets and having a bolt-head-engaging point, a cross-bar secured to the under side of the frame and provided near its extremities with threaded apertures, and rim-engaging stop members having threaded ends adjustably engaging said apertures.

786,661. **FRICTION-BRAKE.** SAMUEL A. MOORE, Pana, Ill. Filed Oct. 13, 1904. Serial No. 228,345.

Claim.—In a braking mechanism, the combination with a shaft, of a journal-box, a cylindrical casing arranged on said box, a removable cover for said casing, a cross-head arranged within said casing and fixed on the end of said shaft, segmental brake-shoes slidably mounted on the ends of said cross-head, right and left hand threaded bolts connected at one end to said brake-shoes, a right and left hand threaded nut or sleeve adapted to receive the free ends of said bolts, an annular series of gear-teeth formed on said nut or sleeve, a rack-bar adapted to be engaged with said teeth, a pivotally-mounted bell-crank lever, means whereby the same is connected with said rack-bar to reciprocate the same and an operating-rod connected to said bell-crank lever, substantially as and for the purpose described.



786,662. **DENTAL-ENGINE ATTACHMENT.** JOHN E. MORGAN, Emporia, Kans. Filed Aug. 12, 1904. Serial No. 220,537.



Claim.—1. A blowing attachment for a dental engine, comprising a rotary fan having a central intake-opening and a tangential spout, a pulley arranged on the fan-shaft, means for supporting the attachment on the dental engine and operating it from the dental-engine belt and a hose and nozzle for carrying the air-blast substantially as described.

2. A dental engine comprising in its construction an upright standard, a shaft-support secured to its upper end, a rigid shaft journaled in said support, a pulley fast on one end of the shaft, a flexible shaft operatively connected to the opposite end and a driving-belt passing around said pulley; in combination with a rotary fan arranged in a plane parallel to that of the shaft-pulley and on the opposite side of said pulley from the flexible shaft, and a driving-pulley arranged on the fan-shaft to bear against the dental-engine belt substantially as shown and described.

3. A dental engine comprising an upright standard, a forked support mounted on the upper end of the same, a tilting frame arranged in said fork and bearing a shaft and its pulley, and a belt driving said pulley; in combination with a rotary fan having a supporting-arm extended between the forks of the dental engine and secured to the tilting frame, and a pulley for said fan operated by the dental-engine belt substantially as described.

4. A dental engine comprising an upright standard, a forked support mounted on the upper end of the same, a tilting frame pivoted in the forked support and having a curved, slotted, and downwardly-projecting plate with means for fixing its adjustment, a shaft with pulley mounted in the tilting frame, a belt for driving the pulley, a rotary fan having a central opening in its side and a tangential delivery-spout and an arm projecting at right angles to the fan and extended through the fork of the dental engine and secured to the curved and slotted plate and a pulley for the fan operated by the dental-engine belt substantially as shown and described.

786,663. **SHELL-DIGGER.** WILLIAM MCCOY, New Harmony, Ind. Filed June 25, 1904. Serial No. 214,158.



Claim.—1. The combination with a hollow handle-bar, a slide-rod reciprocal in the handle-bar, a lever held to rock on the upper portion of the handle-bar, and a pair of scoops hung from the lower end of the handle-bar and adapted to swing toward and from each other, of means for connecting the lever with the slide-rod, and means for connecting the slide-rod with the supports of the scoops, whereby the rocking movement of the lever will open and close the scoops.

2. The combination, with a hollow handle-bar, a slide-rod therein, a lever pivoted by one end on the upper portion of the handle-bar, and means loosely connecting the lever with the slide-rod for its reciprocation, of link-bars pivoted by one end on the lower portion of the handle-bar, angularly-bent arms pivoted at their angles on the other ends of the link-bars, scoops carried by the angular arms at the respective ends of said arms, and means for loosely connecting the other ends of the angular arms with the slide-rod.

3. The combination with a hollow handle-bar, a slide-rod reciprocal in the handle-bar, a lever pivoted upon the handle-bar, and a link connecting the lever with the slide-rod through a slot in the handle-bar, of an inverted-U-shaped yoke on the lower end of the slide-rod, link-bars held to rock by one end thereof upon the lower portion of the handle-bar, angularly-bent arms pivoted at their angles upon other ends of the link-bars, and scoops pendent from the lower ends of the bent arms, the opposite ends of which are lapped together and pivoted upon the yoke between its depending members.

4. The combination with a hollow handle-bar, having a longitudinal slot therein near its upper end, a lever pivoted by one end on the handle-bar, a link-bar pivoted by one end on the lever and extending into the slot, a connecting-rod coupled with the inserted end of the link-bar and extending down in the handle-bar, a slotted coupling-bar, a hollow slide-rod loose in the handle-bar and wherein the gravity-bar works, a cross-pin fast in the hollow slide-rod and passing loosely through the slot in the coupling-bar, and a yoke on the lower end of the slide-rod, of link-bars pivoted by one end on a band mounted upon the lower end of the handle-bar, angular-bent arms pivoted at their angles upon the other ends of the link-bars, and scoops hung from the depending ends of the angular arms, the other ends of said arms being lapped together and pivoted upon the yoke.

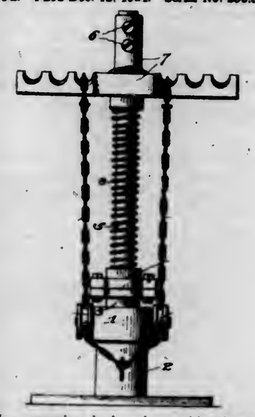
5. The combination with a hollow handle-bar, a slide-rod reciprocal in the handle-bar, and means for reciprocating the slide-rod, of link-bars, a band at the lower end of the handle-bar whereon the ends of the link-bars are pivoted, two angularly-bent arms pivoted at their angles upon depending ends of the link-bars, scoops carried at the lower ends of the bent arms, a yoke on the lower end of the slide-rod, the remaining ends of the bent arms being pivoted upon said yoke, and a latch-hook pendent from the handle-bar, the lower end of said latch-hook when engaged with the yoke holding the slide-rod elevated and the scoops rocked toward each other.

786,664. **NUT-LOCK.** WILLIAM B. MCCULLOUGH, Monmouth, Iowa. Filed Oct. 22, 1904. Serial No. 229,598.



Claim.—As a new article of manufacture, a nut-lock comprising a flat spiral of resilient wire having its inner end chisel-pointed to bite into the metal of a bolt and its outer end bent at an angle to the plane of the spiral and on a compound curve, thereby to insure proper contact between the angular portion and the face of the nut.

786,665. **PUMPING APPARATUS.** GUSTA D. MCELPHATRICK, Franklin, Pa. Filed Dec. 12, 1904. Serial No. 236,563.



Claim.—In a pumping device, the combination with a well tube and casing, of a stuffing-box arranged on the upper end of said tube, a grooved cross-head, a polish-rod connected to said cross-head and slidably mounted in said stuffing-box, a coiled spring arranged on said polish-rod, one end of said spring bearing on said stuffing-box and the opposite end on the under side of said cross-head, whereby the latter, together with the polish-rod, the sucker-rods, and the load of oil or water carried thereby will be lifted at each stroke of the pump, pulleys journaled on said casing-head, a chain having its ends adjustably connected to said cross-head and passing beneath said pulleys to the operating mechanism of the pump, whereby said cross-bead, polish-rod and the sucker-rods carried thereby are forced down into the well, substantially as described

786,666. **DEVICE FOR MAKING TEA, COFFEE, OR OTHER INFUSIONS.** CHARLES MCKENZIE, Butte, Mont. Filed July 21, 1904. Serial No. 217,509.



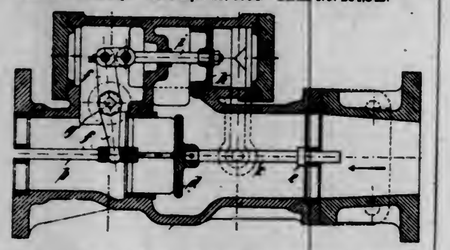
Claim.—1. A device for making infusions comprising a pot, a dome-like lid or cover hinged thereto, a tubular projection extending upwardly from said lid, a rod passing through said tubular projection, a separable foraminous basket or receptacle secured to the lower end of said rod, and means attached to the tubular projection for clamping and holding the rod at any desired point, whereby the foraminous basket may be raised and lowered and held at any desired height within the pot.

2. A device for making infusions comprising a pot, a lid or cover hinged thereto, a tubular projection extending upwardly from said lid, a rod passing through said tubular projection, a two-part foraminous basket or receptacle attached to the lower end of said rod, and means secured to the tubular extension for clamping and holding said basket in any desired position.

3. A device for making infusions consisting of a kettle, a lid or cover therefor, a tubular projection extending upwardly from said cover, a rod passing through said tubular projection, a two-part

foraminous basket or receptacle attached to the lower end of said rod, and means for clamping and holding said rod at any desired point intermediate its ends.

786,667. **EMERGENCY THROTTLE-VALVE.** Ludwig Neumann, Gleiwitz, Germany. Filed Apr. 23, 1904. Serial No. 204,542.



Claim.—1. The combination with a clack-valve adapted to close in the direction of the steam passing therethrough, of a cylinder-casing cast in one piece with the casing of said valve, a steam connection between one end of said cylinder and the feed side of said clack-valve, a steam connection between the opposite end of said cylinder, and the delivery side of said valve, a piston in said cylinder, a two-armed lever inside said valve-casing and connecting said valve and piston, a pin passing through said valve-casing and carrying said two-armed lever, a one-armed lever carried by said pin outside said casing, and a weight on said one-armed lever acting to keep said valve open, substantially as set forth.

2. The combination with a clack-valve adapted to close in the direction of the steam passing therethrough, of a cylinder-casing cast in one piece with the casing of said valve, a steam connection between one end of said cylinder and the feed side of said clack-valve, a steam connection between the opposite end of said cylinder, and the delivery side of said valve, a piston in said cylinder, a two-armed lever inside said valve-casing and connecting said valve and piston, a pin passing through said valve-casing and carrying said two-armed lever, a one-armed lever carried by said pin outside said casing and a weight on said one-armed lever acting to keep said valve open, a channel connecting the feed side of said valve with the end of said cylinder in connection with the delivery side of said valve, and a cock adapted to open and close said channel, substantially as set forth.

3. The combination with a clack-valve adapted to close in the direction of the steam passing therethrough, of a cylinder-casing communicating with the casing of said valve, a piston in said cylinder, a steam connection between one end of said cylinder and the feed side of said clack-valve, a steam connection between the opposite end of said cylinder, and the delivery side of said valve, means within the casing for connecting said valve and piston together and adapting them to move simultaneously in opposite directions, and means for operating said valve and piston from the outside of the casing.

786,668. **LATCH.** Richard Nussbeck, Chicago, Ill., assignor, by direct and mesne assignments, of one-half to Leopold Saltiel, Chicago, Ill. Filed Mar. 22, 1904. Serial No. 199,378.

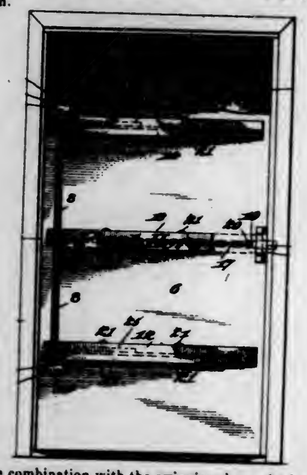
Claim.—1. The combination with a swinging door, of a bolt, a lever pivoted near the hinged edge of the door on an axis parallel to the axis of the door and extending across the door to a point adjacent the opposite edge, and a chain connected to the lever near its axis and extending beneath the lever and connected to the bolt.

2. The combination with a door, of a lever pivoted thereto, a key-lock secured to said door, a bolt of which is free to act independent of the key, and means connecting the pivoted end of said lever with the bolt of said lock.

3. The combination with a door having a suitable lock, of a shaft journaled in an upright position on said door, levers extending from said shaft and keyed thereto at one end, and a chain connecting the keyed end of one of said levers to the bolt of said lock.

4. The combination with the door having a suitable lock, of a shaft journaled thereon in an upright position, levers keyed at one end to said shaft, means limiting the outward movements of said levers from the door, a chain connecting the keyed end of one of said levers to the bolt of the lock, and a spring interposed between the door and said levers.

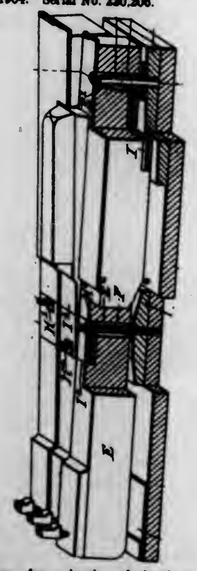
5. The combination with a door having a suitable lock, of a lever pivoted at one end thereto, a boss integral with the pivoted end of said lever provided with teeth, and a chain connecting said boss and the bolt of said lock, the teeth of said boss engaging the links of said chain.



6. The combination with the swinging door, of a lever pivoted on a vertical axis to the door near the hinge edge thereof, a bolt for the door near its swinging edge, and a chain connected to the lever near its pivot and to the bolt.

7. The combination with the swinging door, a bolt for the top of the door near its swinging edge, a bolt for the bottom of the door near its swinging edge, of a lever pivoted on a vertical axis to the door near the hinged edge thereof, and connections between the lever near its pivot and both bolts to cause both bolts to be withdrawn simultaneously upon pressure being applied to the free end of the lever.

786,669. **KEYBOARD.** Melancthon H. Odell, Cincinnati, Ohio. Filed Aug. 10, 1904. Serial No. 220,206.



Claim.—1. A key for a keyboard, having a bushing, and a cross-grain wooden support for the bushing and attached to the key.

2. A key for a keyboard, having a body provided with a recess, a cross-grain wooden support fitted into the said recess and secured

in position thereon, and a bushing carried by the said cross-grain support.

3. A keyboard provided with an intermediate rail carrying balance-pins, and keys mounted to swing on the said balance-pins, each key having a cross-grain support and a bushing carried by the said support and engaging the corresponding balance-pin.

4. A keyboard provided with a front rail, guide-pins on the said front rail, and keys having cross-grain supports and bushings on the said supports, engaging the said guide-pins.

786,670. **CABINET-KITCHEN.** Charles F. Parker, Washington Court-House, Ohio. Filed Mar. 17, 1904. Serial No. 198,592.



Claim.—1. A cabinet-kitchen comprising a stationary section and a swinging section hinged thereto at one side thereof and adapted to close the cabinet, the stationary section having vertical side pieces and a top and a base, the base extending beyond said side pieces in the direction of the swinging section, the swinging section also having vertical side pieces and a top, and being of a depth sufficient to receive said projecting portion of the base, said portion containing a stove and extending into said swinging section when the cabinet is closed.

2. A cabinet-kitchen, comprising a stationary section having side pieces, a top and a bottom, a projecting shelf above the bottom thereof, a swinging section for closing said stationary section, a swinging frame supported by one of said side pieces, and a stove supported by said frame at the side of said shelf and in the same plane therewith.

3. A cabinet-kitchen, comprising a stationary section, a swinging section for closing the same, and a stove supported to swing outwardly from one of said sections, provided with jointed fuel-feed pipes to swing with the stove.

4. A cabinet-kitchen, comprising a stationary section having vertical side pieces, a swinging section for closing the same, a swinging frame supported by one of said side pieces, and a stove supported by said frame, provided with a stationary fuel-supply pipe, and jointed fuel-feed pipes to swing with the stove.

5. A cabinet-kitchen, comprising a stationary section having vertical side pieces, a swinging section for closing the same, a set of stationary hinge members secured to the vertical edge of one of said side pieces, a frame having movable hinge members uniting with said stationary members and a stove supported by said frame.

6. A cabinet-kitchen, comprising a stationary section having vertical side pieces, a swinging section for closing the same, a set of stationary hinge members secured to the vertical edge of one of said side pieces, a frame having movable hinge members uniting with said stationary members and a stove supported by said frame, said stationary section being provided with a fuel-supply pipe for the stove, and the latter having a fuel-pipe communicating with the supply-pipe by a jointed connection.

7. A cabinet-kitchen, comprising a stationary section having vertical side pieces and a top and a base, and a swinging section adapted to close said stationary section, and having vertical side pieces and a top, said base projecting beyond said side pieces of the stationary section in direction of the swinging section, the stationary section being provided at a suitable height with a horizontal stationary working board of substantially equal width with the base.

8. A cabinet-kitchen comprising a stationary section having vertical side pieces, a swinging section adapted to close the same, and a stove supported to swing from one of said side pieces, said stationary section having a compartment for receiving the stove, provided therein beneath the latter with a removable oven.

9. A cabinet-kitchen comprising a stationary section, having a projecting portion, and a swinging section adapted to close the stationary section, the projecting portion thereof being received into the swinging section, said projecting portion being provided with a series of receptacles constructed in part of separated vertical partitions united substantially at right angles to each other, said series being revolubly mounted between the top and bottom of said compartment.

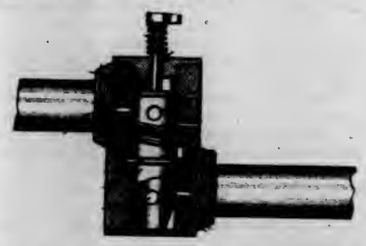
10. A cabinet-kitchen, comprising a stationary section having vertical side pieces, a swinging section adapted to close the same, a frame supported to swing on the vertical edge of one of said side pieces, and a stove supported by said frame, said stationary section being provided interiorly above the stove with one or more series of revoluble shelves.

11. A cabinet-kitchen, comprising a stationary section having vertical side pieces, a swinging section adapted to close the same, a frame supported to swing on the vertical edge of one of said side pieces, and a stove supported by said frame, said stationary section being provided interiorly above the stove with one or more series of revoluble shelves and suitable drawers.

12. A cabinet-kitchen, comprising a stationary section having vertical side pieces, the upper portion of said section being provided with shelves and receptacles, the lower portion having a compartment projecting in advance of the vertical side pieces, a swinging section adapted to close said stationary section and also having vertical side pieces and a top, the upper portion of said swinging section having shelves and receptacles and the lower portion thereof being left vacant to receive the projecting portion of the compartment at the lower end of the stationary section, when the swinging section of the cabinet is closed upon the stationary section thereof.

13. A cabinet-kitchen, comprising a stationary section, and a swinging section, each section having vertical side pieces and a top, the stationary section having in its upper portion rotating shelves, fixed shelves, and receptacles and in its lower portion containing a work board, a swinging stove, an oven, and a revoluble series of receptacles, the swinging portion of the cabinet being provided with shelves and tilting bins and adapted to close upon the stationary section.

786,671. **WATER CUT-OFF.** Thomas H. Parker, Dallas, Tex. Filed June 22, 1904. Serial No. 213,705.



Claim.—An automatic cut-off comprising a valve-casing having an annular recess therein, a service-pipe connection and a supply-pipe connection, a valve within and having a threaded connection with the casing, said valve being formed with two ports adapted to register respectively with said pipe connections when the valve is opened, and with two additional ports adapted to register respectively with said service-pipe connection and with an escape-port formed in the valve-casing when the valve is closed, a circumferential flange on said valve located in said annular recess; manually-operable valve-opening means arranged to partially revolve the valve and elevate it within the casing through its threaded connection, and automatic means for depressing the valve to close it.

786,672. **EXERCISING APPARATUS.** Gerhard H. Pfund, San Francisco, Cal. Filed Nov. 16, 1904. Serial No. 232,966.

Claim.—1. An exercising apparatus comprising a support, a hand-supporting bar thereon, and a shoulder-blade resting-bar on the said support.

2. An exercising apparatus comprising a support, a hand-supporting bar on one side of the support and a shoulder-blade resting-bar on the opposite side of the said support.

3. An exercising apparatus comprising a support, a hand-supporting bar, means on the said support for adjustably supporting the said hand-supporting bar, a shoulder-blade resting-bar arranged a distance below the said hand-supporting bar and out of alinement therewith, and means on the said support for adjustably supporting the said shoulder-blade resting-bar.



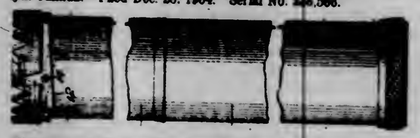
4. An exercising apparatus comprising a supporting means for engagement by the hands of the user, and a resting means for the shoulder-blades of the user to rest against when the user hangs on the said supporting means, the said supporting means and the said resting means being out of vertical alinement relative one to the other.

5. An exercising apparatus provided with posts having spaced apertures on one face, supporting-braces, each having an angular shank provided with a pin for engagement with one of the said apertures, and a bar for engagement with the braces and adapted to rest against the post-faces opposite the ones having the apertures.

6. An exercising apparatus comprising a supporting means for engagement by the hands of the user, a resting means for the shoulder-blades of the user to rest against when the user hangs on the said supporting means, the said supporting means and the said resting means being out of vertical alinement relative one to the other, and a yielding head-support for the head of the user.

7. An exercising apparatus comprising a supporting means for engagement by the hands of the user, a resting means for the shoulder-blades of the user to rest against when the user hangs on the said supporting means, the said supporting means and the said resting means being out of vertical alinement relative one to the other, and a yielding head-support for the head of the user, comprising a head-strap, a flexible connection with the head-strap, a pulley for the passage of the flexible connection and a spring connected with the said flexible connection.

786,673. FRUIT-PICKING MACHINE. ARON C. PITMAN, Brooklyn, Canada. Filed Dec. 28, 1904. Serial No. 238,566.



Claim.—1. A fruit-picking machine comprising a handle, an annular head thereon having teeth, a rotary cutter acting in conjunction with said teeth, a cutter-operating lever partially encircling the head, and means for rocking said lever.

2. A fruit-picking machine comprising a rigid tubular handle, an annular head concentric thereon having teeth, a rotary cutter acting in conjunction with said teeth, a lever partially embracing the head and having a plurality of arms one of which connects with the cutter, and means for rocking said lever.

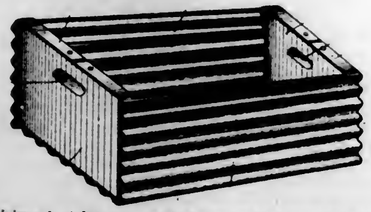
3. A fruit-picking machine comprising a rigid tubular handle, an annular head thereon provided with teeth, a rotary cutter having a plurality of cutting edges which coöperate with said teeth, a hand-operated ring journaled around the handle, and operating connections between said ring and cutter and operable by turning said ring.

4. A fruit-picking machine comprising a rigid tubular handle, an annular head thereon having teeth, a rotary cutter having a plurality of cutting edges which coöperate with said teeth, a hand-operated ring journaled around the handle, a lever connected with the cutter, and a flexible connection between said ring and lever operable by turning said ring.

5. A fruit-picking machine comprising a rigid tubular conduit handle, an annular head thereon having teeth, a rotary cutter having cutting-teeth which coöperate with the teeth on the head, a cutter-operating lever, a hand-operated ring journaled around the handle, and a flexible connection joining said ring and lever and passing along the side wall of the tubular handle and operable by turning the ring.

6. A fruit-picking machine comprising a tubular handle, an annular head thereon having teeth, a rotary cutter having cutting-teeth which coöperate with the teeth on the head, a spring-retracted cutter-operating lever partially encircling the handle, a hand-operated ring journaled around the handle, and operating connections between said ring and lever.

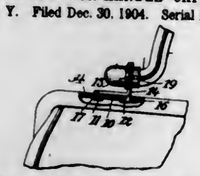
786,674. BOX. JOSEPH J. POLSKI, Duluth, Minn. Filed Apr. 13, 1904. Serial No. 202,969.



Claim.—1. A box composed of sides and a bottom formed of a single piece of corrugated sheet metal, rigid ends, and extending locking-tongues integral with said single piece of sheet metal and in contact with the top edges of said ends.

2. A beer-box comprising sides and a bottom formed of a single piece of sheet metal having longitudinal corrugations throughout its entire surface, and rigid ends, the edges of said ends having edge corrugations corresponding to those of the sides and the bottom, and the sides having projecting tongues for securing them to the ends.

786,675. BEARING FOR HANDLE-CAPS. LOUIS B. PRAHAR, New York, N. Y. Filed Dec. 30, 1904. Serial No. 238,938.



Claim.—1. A bearing for the caps of bag handles, provided with a shank having a slot therein extending downward from the interior of the bearing, the material separated by said slot being carried downward, forming a lug.

2. A bearing for the caps of bag-handles, comprising a base, a post having a bearing-section extending upward from the base and provided with a slot where it connects with the base, the material separated by said slot being carried downward forming a lug.

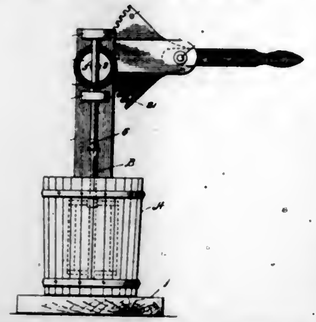
786,676. MIRROR-FRAME. LOUIS B. PRAHAR, New York, N. Y. Filed Jan. 6, 1905. Serial No. 239,844.



Claim.—1. A mirror-frame, comprising a front and a rear section, the rear section including a circular body member and a handle member in one piece, said back section being provided with a forwardly-extending marginal flange, the front section consisting of a bezel having a rearwardly-extending flange adapted to enter the body-section of the back, and a front handle-section provided with a rearwardly-extending side and bottom marginal flange, which front handle member is adapted to enter the handle member of the back section and engage with the bezel, the marginal flange of one section being in clamping engagement with the members of the opposing section substantially throughout their entire marginal surfaces, as described.

2. As an improved article of manufacture, a mirror-frame consisting of a back section constructed in one piece and including a solid body member and a handle member, and a forwardly-extending marginal flange extending around the entire section, and a front section including a bezel and a front handle member, one independent of the other, each being provided with a rearwardly-extending marginal flange, the bezel being adapted to enter the body member of the back section and the front handle member to enter the handle member of the back section, as described.

786,677. MECHANICAL MOVEMENT. CHARLES E. RAGAN, Grotto, Tex. Filed Aug. 15, 1904. Serial No. 220,805.



Claim.—1. In a mechanical movement, the combination of a base, standards rising therefrom, a pair of arms at right angles to said standards, a vertical shaft mounted in said arms for transmitting motion, a horizontal shaft mounted within the standards adapted to transmit motion to the vertical shaft, an arm connected to the standards at right angles to the first-mentioned arms, a lever pivotally connected to said arm, and a segment carried by said lever and operably connected to the outer end of said horizontal shaft for transmitting motion thereto.

2. In a mechanical movement, the combination of a base, standards rising therefrom, arms at right angles to the standards, a vertical shaft mounted in the outer end of said arms for transmitting motion, a pinion carried by said shaft, a horizontal shaft journaled in the upper end of said standards, a pinion carried by the said horizontal shaft meshing with the pinion of the vertical shaft, another pinion carried by the other end of said horizontal shaft having a toothed and a smooth surface, and mechanism operably connected with said last-mentioned pinion for operating the horizontal shaft.

3. In a mechanical movement, the combination of a base, standards rising therefrom, arms at right angles to the standards, a vertical shaft mounted in the outer end of said arms for transmitting motion, a pinion carried by said shaft, a horizontal shaft journaled in the upper end of said standards, a pinion carried by said horizontal shaft meshing with the pinion of the vertical shaft, another pinion carried by the horizontal shaft provided with a toothed and a smooth surface, an arm connected to the upper end of the standards at right angles to the first-mentioned arms, a handle pivotally connected to said arm, and a toothed segment carried by the said arm adapted to mesh with the teeth of said last-mentioned pinion for operating the horizontal shaft.

4. In a mechanical movement, the combination of a base, standards rising therefrom, arms at right angles to the standards, a vertical shaft mounted in the outer end of said arms for transmitting motion, a pinion carried by said shaft, a horizontal shaft journaled in the upper end of said standards, a pinion carried by said horizontal shaft meshing with the pinion of the vertical shaft, another pinion carried by the horizontal shaft provided with a toothed and a smooth surface, an arm connected to the other end of said standard at right angles to the first-mentioned arms, a lug carried upon the outer face of said arm, a handle pivotally connected to said arm, a toothed segment carried by the inner end of said handle adapted to mesh with the teeth of said last-mentioned pinion and a pair of stops or lugs carried upon the inner face of said segment adapted to engage the lug of said arm, for the purpose set forth.

5. In a mechanical movement, the combination of a base, standards rising therefrom, a pair of arms mounted in the upper end of said standards, a vertical shaft journaled in the outer end of said arms, a pair of beveled gears carried by said vertical shaft, a ratchet mechanism connecting each one of the gears to said shaft, said ratchet mechanism being oppositely arranged, a horizontal shaft, a beveled gear carried by the horizontal shaft continuously revolving with said first-mentioned gears of the vertical shaft, and mechanism for oscillating said horizontal shaft, for the purpose set forth.

6. In a mechanical movement, the combination of a base, standards rising therefrom, a pair of arms mounted in the upper end of said standards, a vertical shaft journaled in the outer end of said arms, beveled gears mounted upon said shaft, a ratchet mechanism connecting each gear to the vertical shaft so that a rotary motion is imparted to the vertical shaft, a horizontal shaft, a beveled gear carried by the horizontal shaft continuously meshing with both of the first-mentioned gears of the vertical shaft, a pinion carried upon the opposite end of the horizontal shaft, and a toothed segment engaging said last-mentioned pinion adapted to be oscillated to oscillate the horizontal shaft so that the vertical shaft is revolved in one direction through the medium of the ratchet mechanism.

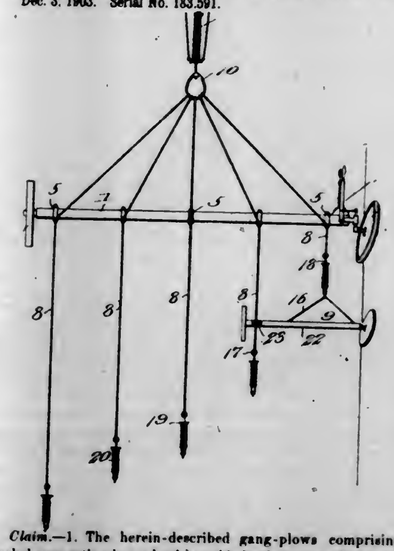
786,678. DENTAL-FLOSS HOLDER. CLIFTON M. RAWLINS, Cleveland, Ohio. Filed Sept. 1, 1904. Serial No. 223,045.



Claim.—1. A dental-floss holder comprising a body portion having a detachable cap at one end, and a frame to hold the floss in an extended position with respect to the body portion, said frame being pivotally connected to and carried by the cap and adapted to be folded against the body, and a bobbin in the body, retained therein by the detachable cap.

2. A dental-floss holder comprising a body portion adapted to contain a quantity of dental floss and being open at one end and provided with an opening in one side for the passage of the floss, a cap or closure to close the said open end of the body, and a device pivotally connected to and carried by the cap or closure to hold a portion of the floss taut in an extended position with respect to the body, said pivoted device being foldable upon the body, and having means to engage the end thereof opposite the said cap or closure.

786,679. GANG-PLOW. FELLIX G. RAY, Roanoke, Tex. Filed Dec. 3, 1903. Serial No. 183,591.



Claim.—1. The herein-described gang-plows comprising a wheeled supporting-beam having guide-hooks arranged at suitable distances apart thereon, a series of continuous cables of different

lengths extending forwardly and rearwardly of the beam and detachably connected to said hooks, the forwardly-extended portions of the cables being converged and having their terminal ends grouped together and mounted in a suitable securing means provided with a spring draw-bolt connected thereto, substantially as specified.

2. A gang-plow comprising a wheeled supporting-beam having guide-hooks arranged at suitable distances apart thereon, a series of continuous cables of different lengths extending forwardly and rearwardly of the beam and detachably connected to said hooks, the forwardly-extended portions of the cables being converged and having their terminal ends grouped together and mounted in a suitable securing means, and each of said cables being provided at their rear ends with spring actuating devices having elongated loops on opposite ends which are bent to form stops, and means on the terminal rear ends of the spring actuating devices, whereby to attach the plows, substantially as specified.

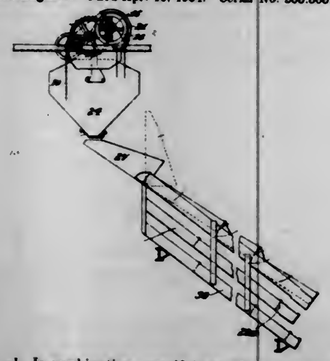
786,680. **LATCHING DEVICE FOR SAFETY EXIT-DOORS.** GEORGE E. REDDEN, New York, N. Y., assignor of one-fourth to George W. Morehead, Brooklyn, N. Y. Filed Feb. 5, 1904. Serial No. 192,112.



Claim.—1. In a safety exit-door, the combination of a hollow frame provided with a back, a lever pivotally mounted within said frame and provided with a counterweight, a plurality of bolts, mechanism connecting the same with said lever, a lid journaled adjacent to said lever, and toggles for actuating the lever and arranged to be pressed upon by the lid.

2. In a safety exit-door, the combination, with the door proper and the movable front portion thereof, of a locking device, a lever connected therewith, and a toggle-lever connected at its respective ends with such locking-lever and the door proper, its knuckle portion normally projecting so that it is in contact with the movable front portion of the door, as described.

786,681. **APPARATUS FOR PURIFYING GAS.** THOS. REDMAN, Bradford, England. Filed Apr. 16, 1904. Serial No. 203,503.



Claim.—1. In combination, a purifying-tank, mechanism above the same for lifting the said tank, said mechanism being movable in its elevated position to convey the tank, means for emptying the tank, a receptacle for receiving the material from the tank and for breaking up and revivifying the said material, and means for directing the material back to the tank, substantially as described.

2. A purifying-tank provided with trunnions, inlet and outlet pipes having flanges on which the tank is adapted to rest, a spur-wheel mounted on one of said trunnions, means for elevating said tank, a support for said elevating means, and means on said support including a grooved pulley and a pinion engaging with said spur-wheel for tilting the tank, substantially as described.

3. In combination, a tank having inlet and outlet openings in its bottom and adapted to rest removably on seats about supply and discharge openings for the gas, said tank having trunnions, tracks above the tank, a spur-wheel adapted to fit one of the trunnions and mechanism supported on the tracks for elevating the tank and means engaging the spur-wheel for turning the tank.

4. In combination, purifying-tanks, means for lifting and emptying the same, means for receiving and breaking up the material emptied from the tank, means for lifting the breaking means and discharging the material therefrom, a series of screen-surfaces having steps for receiving the material, a measuring-hopper to receive the material from the screens and a distributing-hopper to distribute the material to the tanks, substantially as described.

5. In combination, purifying-tanks, means for lifting and emptying the same, means for receiving the material from the tanks and for breaking up the material, means for lifting the breaking means and discharging the material therefrom and distributing means for receiving the broken material and discharging it into the tanks, substantially as described.

786,682. **CURTAIN-FIXTURE.** BLANCHARD F. RICE, Milford, N. H. Filed May 28, 1904. Serial No. 210,146.



Claim.—1. A curtain-fixture, consisting of a base provided with flanged ribs having teeth on the flanges thereof, a roll-support comprising a plate extending beneath the flanged ribs, and a bracket projecting from the plate, a toothed catch provided with spaced and apertured lugs and pivoted to the said bracket, and a spring arranged between the catch and the plate of the roll-support.

2. A curtain-fixture, comprising a base provided with opposite flanged guides and teeth on one of said guides, a bracket having a plate extending beneath the flanges of the guides, and a pivoted and spring-pressed toothed catch mounted on the bracket and engaging the teeth of the guide.

3. A curtain-fixture comprising a base provided with opposite flanged guides and a series of teeth on one of said guides, a roll-support having a plate extending beneath the flanges of the guides, and a pivoted and toothed catch on the support and coöperating with the teeth of the guide.

4. A curtain-fixture comprising a base provided with opposite flanged guides upon which are formed a series of teeth, a roll-support having a plate extending beneath the flanges of the guides, and a pivoted and spring-pressed toothed catch on the support and coöperating with the teeth.

786,683. **MOVING-PICTURE EXHIBITOR.** JULIUS ROEVER and SAMUEL S. BALDWIN, New York, N. Y. Filed Apr. 27, 1904. Serial No. 205,112.

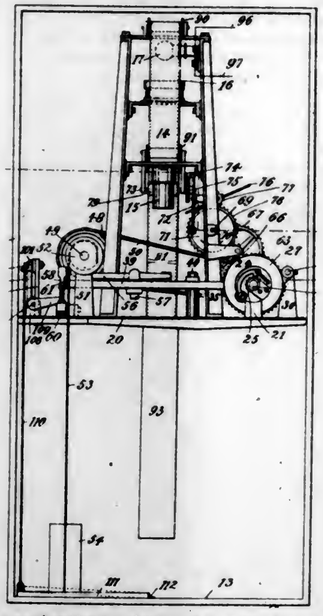
Claim.—1. In a moving-picture exhibitor, the combination of a winding-arbor with a work-shaft, an intervening clutch, a film-feed drum operatively connected to the work-shaft, a power-shaft intergeared with the work-shaft, a weight suspended from the power-shaft, and a shipping-lever engaging the clutch and adapted to be operated by the weight, substantially as specified.

2. In a moving-picture exhibitor, the combination of a winding-arbor with a work-shaft, an intervening clutch, a film-feed drum operatively connected to the work-shaft, a power-shaft intergeared with the work-shaft, a weight suspended from the power-shaft, an elbow-lever adapted to be engaged by the weight, and a shipping-lever connected to the elbow-lever and engaging the clutch, substantially as specified.

3. In a moving-picture exhibitor, the combination of a winding-arbor with a work-shaft, an intervening clutch, a film-feed drum operatively connected to the work-shaft, a power-shaft intergeared with the work-shaft, a ratchet-wheel mounted upon the power-shaft, a weight suspended from said shaft, a shipping-lever engaging the clutch and adapted to be operated by the weight, and a pawl pivoted to the shipping-lever and adapted to engage the ratchet-wheel, substantially as specified.

4. In a moving-picture exhibitor, the combination of a work-shaft with a spindle intergeared therewith, a cam on the spindle, a lever engaging the cam, a pawl pivoted to the lever, a ratchet-wheel engaged by the pawl, a film-feed drum connected to the ratchet-wheel, an endless film engaged by the drum, and a tapering pocket adapted to receive the film, substantially as specified.

5. In a moving-picture exhibitor, the combination of a power-shaft with a weight suspended therefrom, a lever, a treadle connected to the lever and adapted to be engaged by the weight, a switch-knife connected to the lever, a catch adapted to engage the lever, and means controlled by the weight for operating said catch, substantially as specified.



6. In a moving-picture exhibitor, the combination of a power-shaft with a weight suspended therefrom, a lever, a treadle connected to the lever and adapted to be engaged by the weight, a switch-knife connected to the lever, a catch adapted to engage the lever, a rock-shaft carrying the catch, a tappet on the rock-shaft, and an elbow-lever engaging the tappet and adapted to be engaged by the weight, substantially as specified.

7. In a moving-picture exhibitor, the combination of a casing having an inclosed screen and magic lantern, with an endless film, a feed-drum engaging the same, a work-shaft operatively connected to said drum, a power-shaft intergeared with the work-shaft, a weight suspended from the power-shaft, an elbow-lever adapted to be engaged by the weight, a shipping-lever operatively connected to the elbow-lever, a clutch engaged by the shipping-lever, and a winding-arbor adapted to be coupled by said clutch to the work-shaft, substantially as specified.

786,684. **FIRE-HOSE NOZZLE.** WILLIAM B. RUNBECK, Washington, D. C. Filed July 29, 1904. Serial No. 218,687.

Claim.—1. A nozzle comprising a nozzle-section formed with apertures, an annular flange at one side of said apertures, and a sleeve at the other side of said apertures producing a corresponding, annular flange, whereby an annular groove is produced between said flanges, each of the contiguous faces of said flanges being formed with an angle intermediate its width.

2. A nozzle comprising a nozzle-section formed with lateral apertures, an annular flange at one side of said apertures formed with a straight portion for part of its width and a beveled portion for the remainder of its width, and a sleeve at the other side of said apertures adjustable longitudinally of the nozzle-section, the end of the sleeve contiguous to the said flange being formed with a flat portion for part of its width and a beveled portion beyond the flat portion corresponding to the flat and beveled portions on said flange.

3. In a nozzle the combination with a nozzle-section, formed with lateral apertures and with a valve-seat, of a tube-section arranged with its bore in line with the bore of said nozzle-section, said tube-section being adapted to be moved longitudinally into contact with the said valve-seat and means for varying the area of said lateral apertures.

4. In a nozzle, the combination of a nozzle-section apertured for permitting lateral discharge therefrom, an annular, beveled seat formed in said nozzle-section in the rear of the apertures thereof, a beveled deflector adapted to move toward and away from said seat for controlling the bulk of discharge through said apertures, and means outside the apertures for controlling the pressure of said discharge.



5. In a nozzle, the combination of a nozzle-section apertured for permitting lateral discharge therefrom, means inside said nozzle-section controlling the bulk of such discharge, and means outside said apertures for controlling the pressure of such discharge.

6. In a nozzle the combination with a nozzle-section formed with lateral apertures, of a tube-section movable longitudinally within said nozzle-section for controlling the discharge through said apertures and means for closing the bore of said tube-section.

7. In a nozzle, the combination with a nozzle-section formed with lateral apertures and an internally-threaded portion extending beyond said apertures, an annular flange extending outwardly from said threaded portion in front of said apertures, a tube-section adapted to be threaded into said threaded portion past said apertures, and a sleeve threaded onto said nozzle-section in the rear of said apertures and adapted to be moved over the apertures.

8. In a nozzle the combination with a nozzle-section formed with lateral apertures, of a tube-section movable within said nozzle-section past said apertures and a sleeve on said nozzle movable over said apertures.

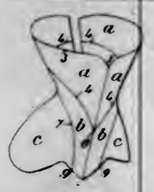
9. A nozzle comprising a laterally-apertured nozzle-section, a threaded extension projecting beyond said nozzle-section, a valve-seat formed in said nozzle-section in the rear of said apertures, a tube-section threaded into said threaded extension, a deflector at the inner end of said tube-section shaped to fit said valve-seat, and a lock-nut for locking said tube-section at various points of adjustment within said threaded extension.

10. A nozzle comprising a nozzle-section formed with lateral apertures, an annular flange at one side of said apertures formed with an angular surface, and a flange disposed opposite the first-mentioned flange and formed with an angular surface parallel to the angular surface of the first-mentioned flange.

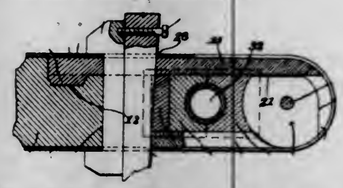
786,685. **CORSET.** EMILE SAVOYE, Paris, France. Filed Jan. 14, 1904. Serial No. 188,998.

Claim.—A corset, each half comprising a part *a* having one edge concaved and the other convexed, a part *b* having one edge concaved and the other edge convexed for a portion of the length and terminating in a straight line, and a part *c* having its lower edge convexed and terminating in outward curves, the upper edge of said part *c* being formed with a curved and straight line.

786,685.



786,686. PITMAN-ROD CONNECTION. JAMES L. SCOTT, Lair, Ky. Filed Sept. 22, 1904. Serial No. 225,493.



Claim.—1. In a pitman-coupling, a head provided with a mortise, and with an arm extending in longitudinal alinement with one side thereof and terminating in a laterally-projecting block, a cap pivotally connected with the block and having a tenon to engage the mortise, a journal-bearing housed within the head, and means for securing the cap to the head.

2. In a pitman-coupling, a head provided with a mortise and with a slot, and having a laterally-projecting arm terminating in a block, a cap pivotally connected with the block and provided with a tenon to engage the mortise and with an orifice to register with the slot, a journal-bearing housed within the head, a filler-block resting against one end of the journal-bearing, a notched gib and a key engaging the orifice in the cap and the slot in the head, and a bolt carried by the key and engaging the gib.

3. In a pitman-coupling, a head having a recess on one side and provided with a mortise, and a transverse open-ended slot, an arm projecting from the head and terminating in a block, a cap having ears to straddle the block, and pivotally connected therewith, said cap being provided with a tenon to engage the mortise and with an orifice to register with the said slot, a journal-bearing resting upon the arm and engaging at one end with the block, a grooved filler-block in engagement with the other end of the bearing, a strap encircling the head and the cap, a filler interposed between the block and the strap, a notched head and key passing through the strap and through the orifice and slot, and a binding-bolt carried by the key and engaging the gib.

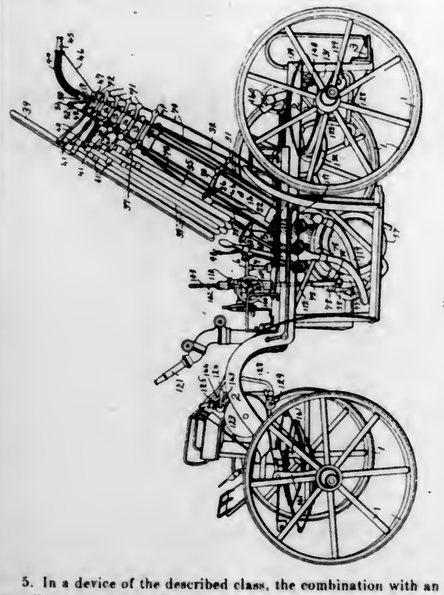
786,687. EXTENSIBLE WATER-TOWER. HERMANN SEKOWSKY, Milwaukee, Wis. Filed Feb. 15, 1904. Serial No. 193,492.

Claim.—1. In a device of the described class, a stand-pipe comprising a series of telescoping sections; a set of flexible stays uniformly disposed about the stand-pipe at substantially equal intervals and arranged to reinforce the stand-pipe on all sides, said stays being connected with the stand-pipe near its top and bottom and loosely connected therewith at intervening points; and means for taking up and letting out said stays equally, the pull of the several stays upon all sides of the pipe being balanced.

2. In a device of the described class, a stand-pipe comprising a series of telescoping sections; a set of flexible stays uniformly disposed about the stand-pipe at substantially equal intervals and arranged to reinforce the stand-pipe on all sides, said stays being connected with the stand-pipe near its top and bottom and loosely connected therewith at intervening points; winding mechanism for taking up said stays; and means for maintaining any desired tension on said stays during the extension of the stand-pipe.

3. In a device of the described class, a stand-pipe comprising a series of telescoping sections; a set of flexible stays having fixed connection with the stand-pipe near its upper end; winding mechanism supported from the lower section and operatively connected with the stays; and laterally-projecting arms on each stand-pipe section, having sliding engagement with the stays; each stay being arranged and adapted to counteract the lateral pull of one or more of the others upon the stand-pipe.

4. In a device of the described class, the combination with an extensible stand-pipe; of flexible stays connected therewith; winding-drums operatively connected with the stays; means for actuating the winding-drums and means for checking the movement of the drums at the will of the operator, whereby tension may be applied to the stays at any time during the extension of the stand-pipe, said stand-pipe having supporting-arms of different lengths loosely engaging the stays and holding the same in a position of radial deflection from a straight line.



5. In a device of the described class, the combination with an extensible stand-pipe; of flexible stays connected therewith; winding-drums operatively connected with the stays; means for actuating the winding-drums; and means for checking the movement of the drums at the will of the operator, whereby tension may be applied to the stays at any time during the extension of the stand-pipe, said stand-pipe having supporting-arms of different lengths loosely engaging the stays and holding the same in a position of radial deflection from a straight line, and said stays being arranged to coöperate to form a truss.

6. In a device of the described class, a stand-pipe comprising a series of telescoping sections a set of laterally-projecting arms on each section, equidistant from each other; each such arm being diametrically opposed to one other arm of such section; a set of flexible stays connected with the stand-pipe near its upper and lower ends and loosely connected with said arms; and means for taking up and letting out said stays equally; said stays and arms being arranged to support the stand-pipe on all sides equally.

7. In a device of the described class, the combination with an extensible stand-pipe formed in telescoping sections, of a set of flexible stays having fixed connection with the upper stand-pipe section and loose connection with each of the other sections; and means for applying tension to said stays at any desired point of stand-pipe extension; together with a set of ladders, one connected with each stand-pipe section and having sliding connection with each other; and a set of auxiliary pipe-sections, one on each ladder-section, and means for connecting and disconnecting such pipe-sections.

8. In a device of the described class, the combination with an extensible stand-pipe formed in telescoping sections, of a set of flexible stays having fixed connection with the upper stand-pipe section and loose connection with each of the other sections; and means for applying tension to said stays at any desired point of stand-pipe extension; together with a set of ladders, one connected with each stand-pipe section and having sliding connection with each other; and a set of auxiliary hose, each connected to a ladder-section and adapted to be connected with each other.

9. In a device of the described class, the combination with an extensible stand-pipe formed in telescoping sections; of a turn-table supporting said stand-pipe and having pivotal connection with the lower section above the lower end of said section; of a set of flexible stays extending through the turn-table and having fixed connection with the upper stand-pipe section and loose connection with each of the other sections, said stays being arranged to draw with equal tension on all sides of the stand-pipe; and means for applying tension to said stays at any desired point of stand-pipe extension.

10. In a device of the described class, the combination of a series of telescoping stand-pipe sections, each provided with a set of equidistant, laterally-projecting arms in vertical alinement with the corresponding arms of the other sections but varying in length from the lower to the upper section; a pivotal support connected with the lower section; a series of stays connected with the upper section and loosely connected, each with the arms of one vertically-arranged series, and means for lengthening and shortening said stays in correspondence with the elevation of said stand-pipe.

11. In a device of the described class, the combination with an extensible stand-pipe; of flexible stays connected therewith; winding-drums operatively connected with the stays; means for actuating the winding-drums; a chemical-supply tank having a direct valved pipe connection with the stand-pipe; and an indirect connection comprising a pump having suction and discharge ports connected with the supply-tank and with the stand-pipe respectively.

12. The combination of an apertured turn-table; a stand-pipe pivotally supported from the turn-table and extending through said aperture; a counterbalance for the lower end portion of the stand-pipe, adapted to normally hold the same in raised position; and manually-controlled means for actuating the stand-pipe in opposition to the weight of the counterbalance.

13. The combination of a stand-pipe, mounted upon a suitable pivotal support; a counterbalance for the lower end portion of the stand-pipe adapted to normally hold the same in a raised position; and mechanism for actuating the stand-pipe in opposition to the weight of the counterbalance.

14. The combination of an apertured turn-table; a stand-pipe extending through the aperture in the turn-table and pivotally supported from the turn-table at a point below the latter; a counterbalance for the lower end portion of the stand-pipe adapted to normally hold the same in raised position; and manually-controlled means for actuating the stand-pipe in opposition to the weight of the counterbalance.

15. In a device of the described class, the combination with an extensible stand-pipe formed in telescoping sections; of a pivotal support for the lower stand-pipe section; winding-drums supported from the lower stand-pipe section below the pivotal support and stays coiled upon said winding-drums and connected with the upper portion of the stand-pipe, together with means for turning the pivotal stand-pipe support, a guide for said stays connected with said support.

16. In a device of the described class, the combination with an extensible stand-pipe formed in telescoping sections; of a pivotal support for the lower stand-pipe section; winding-drums supported from the lower stand-pipe section below said pivotal support; and stays coiled upon said winding-drums and connected with the upper portion of the stand-pipe; together with means for tilting the stand-pipe on its pivotal support in opposition to the weight of the winding-drums; said drums and other parts below the pivot, being of sufficient weight to hold the stand-pipe in raised position.

17. In a device of the described class, the combination with a turn-table, of an extensible stand-pipe formed in telescoping sections; a pivotal support for the lower stand-pipe section; winding-drums supported from the lower stand-pipe section below the pivotal support; stays coiled upon said drums and extending through apertures in the turn-table to the top of the stand-pipe; said stays having fixed connection with the upper portion of the stand-pipe and arranged to diverge downwardly therefrom on all sides of the pipe to said turn-table; and arms connected with the stand-pipe at intermediate points and loosely engaging said stays.

18. In a device of the described class, the combination with a turn-table, of a stand-pipe formed in telescoping sections; with the lower section pivotally mounted on said turn-table; stays connected with the stand-pipe above and below said turn-table and stand-pipe pivots; and means for lengthening and shortening said stays in correspondence with the length of the stand-pipe; said stays being arranged to converge above and below said turn-table and provided with connections with each stand-pipe section.

19. In a device of the described class, the combination of a tilting stand-pipe formed in telescoping sections; a set of winding-drums connected with said stand-pipe; flexible stays coiled upon said winding-drums and guided to opposite sides of the stand-pipe near the base thereof; said stays being extended to, and connected with, the top of the stand-pipe and arranged to support the same uniformly in all directions; and said drums being provided with suitable guides, controlling the coiling of said stays thereon, whereby the uncoiled portions of said stays are kept uniform in length.

20. In a device of the described class, the combination of an extensible stand-pipe formed in telescoping sections; a pivotal support for the lower stand-pipe section; winding-drums connected with the lower stand-pipe section; stays coiled upon said winding-drums and extending over suitable guides upwardly at equidistant intervals to the top of the stand-pipe; said stays being laterally connected with each stand-pipe section; a friction-brake controlling the movement of the winding-drums during the elevation of the stand-pipe; and mechanism for actuating the drums to rewind the stays when the stand-pipe is lowered.

21. In a device of the described class, the combination of an extensible stand-pipe formed in telescoping sections pivotally mounted upon a suitable turn-table; a guide mounted to oscillate on said turn-table; a rod pivotally connected to the stand-pipe below the connection between the latter and the turn-table and extending through said guide at right angles to the axis of its oscillation; a brake connected with the guide and adapted to engage the rod; and rod-actuating connections mounted on the guide.

22. In a device of the described class, the combination of an extensible stand-pipe formed in telescoping sections pivotally mounted upon a suitable turn-table; a guide mounted to oscillate on said turn-table; a rod pivotally connected to the stand-pipe below the connection between the latter and the turn-table and extending through said guide at right angles to the axis of its oscillation; a brake connected with the guide and adapted to engage the rod; and rod-actuating connections mounted on the guide, said actuating connections comprising rack-and-pinion mechanism.

23. In a device of the described class, the combination of an extensible stand-pipe formed in telescoping sections pivotally mounted upon a suitable turn-table; a guide mounted to oscillate on said turn-table; a rod pivotally connected to the stand-pipe below the connection between the latter and the turn-table and extending through said guide at right angles to the axis of its oscillation; a brake connected with the guide and adapted to engage the rod; and rod-actuating connections mounted on the guide, said actuating connections comprising rack-and-pinion mechanism, and a worm-wheel, having an internal gear in mesh with the rack.

24. In a device of the described class, the combination of a stand-pipe, pivotally mounted on a suitable support and provided with a tubular aperture below the pivot; a shaft extending through said aperture; a set of winding-drums rigidly connected with the shaft; and flexible stays wound on the winding-drums and connected with the top portion of the stand-pipe.

25. In a device of the described class, the combination of a stand-pipe; a winding-drum connected therewith; stays coiled upon said winding-drum and connected with the upper portion of the stand-pipe; a laterally-movable guide located adjacent to the drum; and a device connected with the guide and engaged in a spiral groove on the drum, said stays being passed through suitable apertures in the guide.

786,688. AUTOMATIC STREET-RAILWAY SWITCH. WILLIAM S. SNYDER and WILLIAM H. BARKER, Pittsburg, Pa. Filed Apr. 25, 1904. Serial No. 204,736.

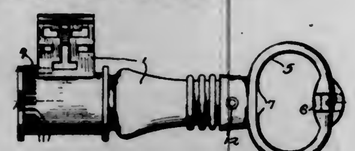


Claim.—1. The herein-described apparatus for operating street-railway switches, consisting of the magnets 18 and 18', having a moving core common to each, lever connections joining said core to switch-bar 29, a contact-bar 12, pivoted on a vertical axis and arranged to swing in a horizontal plane and contact with the trolley-pole of a moving car, and suitable conductors connecting the said arms with the magnets, and with the trolley-wire, as and for the purpose described.

2. In an apparatus for the purpose described, the combination consisting of the contact-bars 12 each pivoted on a vertical axis and adapted to swing in a horizontal plane and arranged at either side of the switch-bar 29, and in line with the travel of the trolley-pole, means for holding said arms in their normal position at right angles to the trolley-wire, the two magnets 18 and 18', having a common core 20, loosely arranged therein, a system of electrical conductors

in circuit with the said contact-arms and with the trolley-wire, a pivoted lever 22 connected to the core 20, and to the switch-bar 29, whereby the said bar may be moved in either direction, by energizing one or the other of the magnets, when a contact is made between the trolley-pole and one of the contacts 12, as described.

786,689. **TOY BANK.** WILLIAM J. BOHERWILL, Cleveland, Ohio. Filed July 13, 1904. Serial No. 216,389.



Claim.—1. A toy bank comprising separable members; means for securing said members together, a removable guard arranged to prevent access to said means for securing said members together and means for locking said guard in its operative position.

2. A bank comprising separable members, means for securing said members together, ridges formed on the interior surface of said bank and having openings in line with each other, a plate supported between said ridges and provided with an opening, a lug formed on said plate, a guard arranged to prevent access to said means for securing said members together, a shaft secured to said guard and arranged to extend through the opening in said plate and a tumbler arranged on the end of said shaft so as to come in contact with the lug on said plate when said guard is rotated.

3. A toy bank comprising separable members, ridges arranged on the interior surface of said bank and having openings in line with each other, a plate supported between said ridges and having an opening arranged to be brought into registration with the openings in said ridges, a lug formed on said plate, a guard having a flange arranged to embrace a portion of said members, a shaft secured to said guard and arranged to extend through the opening in said plate and a tumbler secured to said shaft and arranged to come in contact with the lug on said plate when said guard is rotated for the purpose set forth.

4. A bank comprising two separable members, means for securing said members together at one end, lugs formed on the exterior surface of said members, a clip arranged to embrace said lugs, a guard arranged over said clip and means for locking said guard to said bank.

5. A bank comprising two separable members, means for securing said members together at one end, lugs arranged on said members, a clip arranged to embrace said lugs, annular ridges formed on the interior surface of said bank and having openings in line with each other, a plate supported between said ridges and having an opening arranged to be brought into registration with the openings in said ridges, a lug formed on said plate, a guard, a shaft secured to said guard and arranged to extend through said opening in said plate and a tumbler secured to said shaft and arranged to come in contact with the lug on said plate when said guard is rotated, substantially as described and for the purpose set forth.

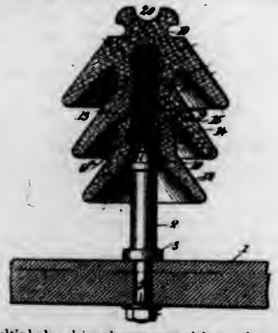
6. A bank comprising a closed receptacle provided with a coin-receiving slot and having lugs formed on its interior surface at opposite sides and extending at a right angle to said slots to serve as deflectors for turning the coins transversely of the slot when the bank is tipped so as to bring the coins in proximity to the slot.

7. A bank comprising a coin-receptacle having an opening, ridges formed on the interior surface of said bank adjacent to the opening in the receptacle and having openings in line with each other, a plate supported between said ridges and having an opening arranged to be brought into registration with the openings in said ridges, a guard, a shaft secured to said guard and arranged to extend through said opening in said plate, a tumbler secured to said shaft and means for causing said tumbler to rotate said plate when said guard is rotated.

786,690. **MULTIPLE-HOOD INSULATOR.** LOUIS STEINBERGER, New York, N. Y. Filed Mar. 25, 1903. Serial No. 149,502.

Claim.—1. A multiple-hood insulator, comprising a plurality of separate hoods of insulating material, and a hollow metallic locking member for connecting the same together, said hollow metallic locking member being provided internally with a thread for securing the same upon a pin for supporting the same.

2. A multiple-hood insulator having a plurality of separate hoods of insulating material, one of which is provided with a screw-thread, and a metallic member having an enlarged portion for engaging another of said hoods, said metallic member being provided with a screw-thread for engaging said screw-thread of said first-mentioned hood, and also provided with a screw-thread whereby said metallic member may be supported.



3. A multiple-hood insulator, comprising a sleeve-like member provided internally with a thread for engaging a supporting-pin and provided externally with a thread extending from the end of said sleeve to the proximate middle thereof, said sleeve being provided at its end opposite said thread with an enlarged portion, a hood mounted upon said sleeve and engaging said enlarged portion, which forms a limiting-stop therefor, and another hood provided internally with a thread engaging said thread upon said sleeve, said hoods being provided with interlocking edges for holding the same securely in contact with each other.

4. A multiple-hood insulator, comprising a sleeve provided at one of its ends with an enlargement of tapering form and at its other end with a screw-thread external to said sleeve, and a plurality of hoods mounted upon said sleeve, one of said hoods being provided with a tapering portion resting upon said enlargement, and another of said hoods being provided internally with a thread engaging said thread external to said sleeve.

5. A multiple-hood insulator having a connecting member, and a plurality of separate hoods detachably engaging the same, said hoods being locked together by virtue of their engagement with said connecting member, said connecting member being provided internally with a thread for securing the same on a pin.

6. A multiple-hood insulator, comprising a plurality of separable hoods, and a metallic member for engaging the same and having a clamping portion at one of its ends, said metallic member being provided with external threads at the other of its ends for the purpose of locking said hoods together independently of a supporting-pin, said metallic member being also provided internally with threads for the purpose of mounting the same.

7. A multiple-hood insulator, comprising a metallic sleeve provided internally with a surface for engaging a pin, said sleeve being provided externally with a thread encircling one of its ends, the other end of said sleeve being enlarged, a hood of insulating material encircling said sleeve and engaging said enlarged end thereof, which constitutes a limiting-stop for said hood, and another hood provided internally with a thread engaging said thread of said sleeve, said hoods being adapted to lock together.

8. A multiple-hood insulator comprising a plurality of separable hoods of insulating material engaging each other, and a metallic member provided with a portion for supporting one of said hoods and with a screw-thread for engaging another of said hoods so as to force said hoods toward each other, said metallic member being further provided with means whereby it may be mounted.

9. A multiple-hood insulator, comprising a plurality of separate hoods one fitted over the other and each provided with a flange for engaging the hood immediately adjacent thereto, and a metallic member for detachably locking said hoods together, said member being provided with means for supporting one of said hoods, and also provided with a screw-thread whereby said hoods may be locked together and removed as a unit.

786,691. **STRAIN.** LOUIS STEINBERGER, New York, N. Y. Filed Aug. 24, 1904. Serial No. 221,966.

Claim.—1. A strain comprising a plurality of metallic disks provided with bearing-apertures, links engaging said disks and provided with heads engaging said bearing-apertures, stays engaging said links and so disposed as to form therewith closed members which do not interlink with each other, and a member of insulating material interposed between said disks.



2. A strain comprising a metallic disk provided with bearing-apertures and with portions of metal partially encircling said bearing-apertures, a link engaging said disk and provided with heads engaging said bearing-apertures and said portions of metal, said heads being prevented from moving toward each other by said portions of metal, and a stay connected with said link for further preventing said heads from moving relatively to each other.

3. A strain, comprising a plurality of members provided with bearing-apertures disposed within the periphery of said members, insulating material disposed between said members, links provided with means for engaging said bearing-apertures, and means for producing a tension as between said members and said links.

4. A strain comprising a member provided with bearing-surfaces, and a link provided with strain members connected to said member, said link being further provided with a stay or bracing member.

5. A strain comprising a link provided with a plurality of members, and a stay engaging said members for the purpose of preventing said members from moving laterally with reference to each other.

6. As an article of manufacture, a link provided with a plurality of tensile members parallel to each other and having oval strain-heads at the ends of said tensile members.

7. As an article of manufacture, a link provided with a plurality of tensile members and also provided with strain-heads, said link members being further provided with a stay or bracing member adjustable relatively thereto.

8. As an article of manufacture, a link member provided with a plurality of tensile members, and also provided with a detachable stay or bracing member adjustable relatively thereto.

9. As an article of manufacture, a link provided with a plurality of tensile members parallel to each other and also provided with a metallic stay adjustable relatively to said link for bracing the same.

10. As an article of manufacture, a strain member provided with a plurality of apertures merged together and also provided with bearing-surfaces depressed relatively to the normal surface of said member for the purpose of engaging the heads of strain members.

11. A strain comprising a metallic member provided with bearing-apertures inclosed within the outer limits of said member and provided with shoulders, and a plurality of strain members connected to said metallic member and provided with heads engaging said shoulders.

12. A strain comprising a link provided with heads, a member provided with bearing-recesses entirely within the periphery of said member for engaging said heads, and a metallic member for preventing said heads from moving relatively toward each other.

13. A strain comprising a member provided with bearing-surfaces and with portions partially encircling said bearing-surfaces, a link provided with strain-heads, said heads engaging said bearing-surfaces, and a brace for preventing said heads from moving relatively toward each other.

14. A strain comprising a link provided with tensile members for engaging disks or the like, a metallic stay detachably engaging said members, and insulating material engaging said stay and said tensile members.

15. As an article of manufacture, a link provided with a plurality of tensile members having oval strain portions at the ends of said tensile members.

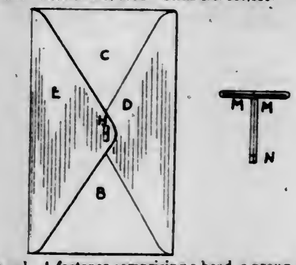
16. As an article of manufacture, a strain member provided with internal mutilations and with bearing-surfaces, and also provided with strengthening portions adjacent to and raised relatively to said bearing-surfaces, said bearing-surfaces being inclosed within the periphery of said strain member.

17. A strain, comprising a link provided with members substantially parallel with each other, stays detachably connected with said members for the purpose of preventing lateral movement thereof relatively to each other, and insulating material encircling said stays and partially encircling said members.

18. As an article of manufacture, a metallic disk provided with apertures and with integral portions projecting toward each other for the purpose of engaging link-heads so as to prevent lateral movements of said link-heads relatively to each other.

19. A strain, comprising a disk of insulating material, a pair of metallic disks disposed upon opposite sides of said disk of insulating material, and provided with apertures of substantially elliptical shape, said apertures being bounded by projecting portions of metal integral with said metallic disk for the purpose of strengthening the same, links provided with heads engaging said projecting portions and prevented thereby from moving laterally in relation to each other, and a mass of insulation engaging said links and said metallic disks.

786,692. **ENVELOP-FASTENER.** EUGÈNE J. STEVENOT, Davisville, Cal. Filed Jan. 5, 1904. Serial No. 187,839.



Claim.—1. A fastener comprising a head, a prong, and a breakable bending portion, whereby the prong may be bent into a position parallel to the head and adapted to break at a subsequent bending.

2. A fastener comprising a head, a prong, and a weakened bending portion, permitting bending of the prong once only.

3. A fastener comprising a head, a prong, and a transverse weakened bending portion, permitting bending of the prong once only.

4. A fastener comprising a head and a prong, and a weakened connection between the two, permitting bending of the prong once only.

5. A fastener comprising a head, a prong and a weakened connection between the two, permitting bending of the prong into parallelism with the head once only.

6. A fastener comprising a head and a prong, and a transverse weakened connection between the two permitting bending of the prong once only.

7. A fastener comprising a head and a prong normally projecting at substantially right angles relative thereto, and a relatively weakened portion in the crotch between the members.

8. A fastener comprising a head and a prong having an incision in one of its surfaces permitting bending of the prong once only.

9. A fastener comprising a head and an elongated flat-surface prong having an incision in one of its surfaces permitting bending of the prong once only.

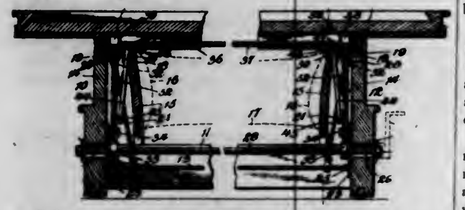
10. A breakable fastener comprising a head, and a prong normally arranged at substantially right angles relative thereto and adapted to be bent into a position parallel to the head, and a portion of the same arranged to snap off should an attempt be made to rebend the same to its normal position.

11. A metallic fastener comprising a head and a prong normally projecting at substantially right angles relative thereto and adapted to be bent into a position substantially parallel to the head, said prong having an incision extending from side to side of one of its surfaces whereby the same will break at a subsequent bending.

786,693. **CONVERTIBLE SOFA AND TABLE.** NATHANIEL B. STONE, Outlook, Wash. Filed Oct. 28, 1904. Serial No. 230,399.

Claim.—1. In an article of furniture of the class described, the combination with a base member, of a track pivotally supported on the base member and carrying upstanding stops at its opposite ends, means mounted on the base member for raising and lowering the track, and a table member having a roller running on the track between the stops, said table member swinging on the roller from an upright to a substantially horizontal position.

2. In an article of furniture of the class described, the combination with a base member having supports, of a track pivotally supported on the base member, and having upstanding stops at its ends, a shaft journaled in the base member and having a cam, an elevating-rod pivoted at its upper end to the track and having at its lower end a circular seat to receive the cam, and a table member having a roller running on the track between the stops, said table member being arranged to rest on the support when over the same and the track depressed, and swinging on the roller from an upright to a substantially horizontal position.



3. In an article of furniture of the class described, the combination with a base member having upright supporting-arms at its ends, of spaced tracks pivotally supported between their ends on the base member, said tracks having their extremities upturned forming stops, a shaft journaled longitudinally of the base member and having spaced cams, elevating-rods pivoted at their upper ends to the inner ends of the tracks and having their lower ends surrounding the cams, and a table member having rollers disposed at substantially its longitudinal center, said rollers running on the tracks, the table member swinging on said rollers from an upright to a substantially horizontal position and being adapted to rest on the arm-supports when disposed over the base member with the tracks depressed.

4. In an article of furniture of the class described, the combination with a base member, of a track pivotally supported on the base member, a vertically-adjustable bearing mounted on the base member, a shaft journaled in the bearing, an eccentric connection between the shaft and the track for elevating and lowering the latter upon the rotation of the shaft, and a table member having a roller running on the track, said table member swinging between an upright position at the rear of the base member and a substantially horizontal position over the same.

5. In an article of furniture of the class described, the combination with a base member having spaced supporting-arms, of tracks pivotally supported on said arms, vertically-adjustable bearing-plates secured to the arms, a shaft journaled in said plates and vertically adjustable therewith, cams carried by the shaft, elevating-rods coacting with the cams and pivoted to the tracks, a table member, and rollers carried by the table member and operating in the tracks, said table member being arranged to rest upon the supporting-arms when disposed over the base member with the tracks depressed and being furthermore arranged to swing to an upright position behind said member.

6. In an article of furniture of the class described, the combination with a base member having a supporting portion provided with an opening, of a track located in said opening, a table member movable on the track, a cap-piece arranged to fit upon the supporting portion and cover the opening and track, and means for detachably connecting the cap-piece to the supporting portion.

7. In an article of furniture of the class described, the combination with a base member having a supporting-arm provided with an opening, of a vertically-movable track located in said opening, a table movable on the track, a cap-piece arranged to fit upon the supporting-arm and cover the opening and track, said cap having a recess in its under side to receive the track, and means for detachably connecting the cap-piece to the supporting portion.

8. In an article of furniture of the class described, the combination with a base member having a supporting-arm, of a track associated with the arm, a table member movable on the track, a cap for covering the track, and means for detachably connecting the cap to the arm, said means comprising detachably-interlocking headed stud and socket-piece elements, one of which is carried by the arm, the other being carried by the cap.

9. In an article of furniture of the class described, the combination with a base member having a supporting-arm and an opening in its upper side, of a track located in said opening, a top member having a roller running on said track, said top member being movable to an upright position behind the base member and to a substantially horizontal position thereupon, a socket-piece carried by the arm member and located at the front end of the same, and a cap arranged to cover the top of the arm and having a depending stud that engages in the socket of said piece, said cap fitting snugly against the top member when the same is in its upright position.

10. In an article of furniture of the class described, the combination with a base member, of a table member movable between an upright position behind the base member and a position upon the same, means for raising and lowering the table member upon the base member, and locking means for the table member, said raising and lowering means constituting means for operating said locking means.

11. In an article of furniture of the class described, the combination with a base member, of a track located thereon, means for raising and lowering the track, a table member movable on the track, a locking device for securing the table member to the base member, and means for automatically effecting the movement of the locking device upon the movement of the track.

12. In an article of furniture of the class described, the combination with a base member, of a track located thereon, means for raising and lowering the track, a table member movable on the track, and a locking device for the table member secured to and movable with said raising and lowering means, and means whereby said device engages the table member when the track is lowered and is disengaged therefrom the same when the track is raised.

13. In an article of furniture of the class described, the combination with a base member, of a movable track located thereon, means for raising and lowering the track, a table member movable upon the track, a locking device mounted on one member for locking the table member to the base member, and means for moving the locking device into engagement with the table member when the track is lowered.

14. In an article of furniture of the class described, the combination with a base member, of a movable track located thereon, means for raising and lowering the track, a table member movable upon the track, a device mounted on one member for locking the table member to the base member, and means for moving the locking device out of engagement with the table member when the tracks are raised.

15. In an article of furniture of the class described, the combination with a base member, of a movable track located thereon, means for raising and lowering the track, a table member movable upon the track, a device mounted on one member for locking the table member to the base member, means for effecting the positive movement of the locking device into engagement with the table member when the track is lowered, and a spring for disengaging the locking device from the table member when the track is raised.

16. In an article of furniture of the class described, the combination with a base member, of a track located thereon, a table member having a wheel running on the track, said wheel being provided with a flange, and a locking device movably mounted on the base member and movable into interlocking engagement with the flange of the wheel to secure said wheel against movement on the track and thereby fasten the table member to the base member.

17. In an article of furniture of the class described, the combination with a base member, of a table member movably mounted thereon, a locking device carried by the base member and arranged to engage the table member, said device including a vertically-movable shank having an inclined portion, and means for moving the locking device into engagement with the table member, said means including an inclined way located in the path of movement of the inclined portion of the shank.

18. In an article of furniture of the class described, the combination with a base member, of a track pivotally supported thereon, an eccentric device journaled upon the base member, a connection between the eccentric and track, a table member movably mounted on the track, a swinging locking device pivoted to the connection and being movable into engagement with the table member, and means located in the path of movement of the locking device to swing the same into such engagement.

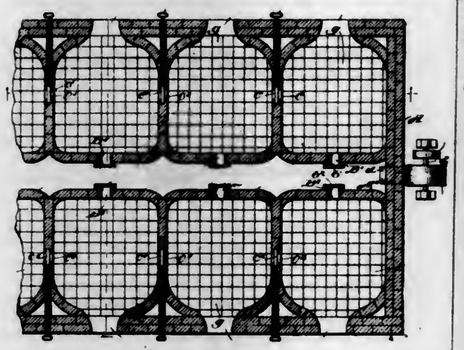
19. In an article of furniture of the class described, the combination with a base member, of a track pivoted thereon, a shaft journaled on the base member and having a cam, a rod connection between the cam and track, a table member having a roller movable on the track, said roller being provided with a flange, a shank pivoted to the rod connection and having a tooth at one side that is movable into interlocking engagement with the flange of the wheel, a spring for urging the shank in one direction, and means located in the path of movement of the upper end of said shank for swinging the same in an opposite direction when said shank moves downwardly

20. In an article of furniture of the class described, the combination with a base member, of a table member movable between an upright position at one side of the base member and a position upon the same, relatively movable supporting elements respectively carried by the members, one of said elements moving upon the other during the movement of said table member between its said positions, and means mounted on one member and engaging said element of the other member to secure said table member upon the base member.

21. In an article of furniture of the class described, the combination with a base member, of a table member movable between an upright position at one side of the base member and a position upon the same, a supporting element carried by the table member and movable on the base member during the movement of said table member between its positions, and means mounted on the base member and engaging the said element of the table member to secure said table member upon the base member.

22. In an article of furniture of the class described, the combination with a base member, of a table member movable between an upright position at one side of the base member and a position upon the same, a track supported on the base member and movable in an upright direction, a roller carried by the table member and operating on the track, means for raising and lowering the track, and a lock carried by the base member and arranged to engage the roller to secure said table member against movement on the base member.

786,694. COKING-OVEN. JAMES M. SULLIVAN, Chicago, Ill., assignor to American Coal Converting Company, Chicago, Ill., a Corporation of South Dakota. Filed Mar. 20, 1903. Serial No. 148,778.



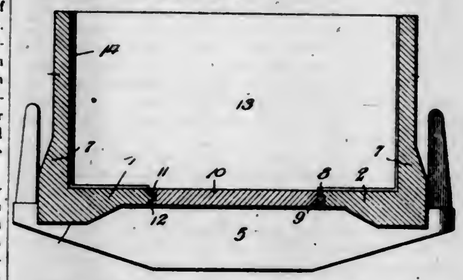
Claim.—1. In an apparatus for coking coal, the combination with a plurality of ovens arranged in parallel series, of party-walls separating adjoining ovens through which passages extend, a flue extending between the series of ovens having passages communicating with the individual ovens in each series, and dampers controlling said passages in the walls and in the flue whereby alternate ovens in each series may communicate with said flue through the adjoining ovens.

2. In an apparatus for coking coal, the combination with a plurality of ovens arranged in parallel series, of party-walls separating adjoining ovens through which passages extend, a flue extending between the series of ovens having passages communicating with the individual ovens in each series, dampers controlling said passages in the walls and in the flue whereby alternate ovens in each series may communicate with said flue through the adjoining ovens, and means for forcing air through said flue thereby promoting the draft through the ovens.

3. In an apparatus for coking coal, the combination with a plurality of ovens of beehive type arranged in parallel series, of party-walls interposed between adjoining ovens in each series through which passages extend, individual dampers controlling said passages, a flue extending between said series of ovens having passages communicating with the ovens in each series, individual dampers controlling said passages whereby the ovens in said series may be connected with said flue through adjoining ovens.

4. In an apparatus for coking coal, the combination with a plurality of ovens arranged in a series, of party-walls separating adjoining ovens through which passages extend, a flue extending adjacent to the series of ovens having passages communicating with the individual ovens, and dampers controlling said passages in the walls and in the flue whereby predetermined ovens may communicate with said flue through the adjoining ovens.

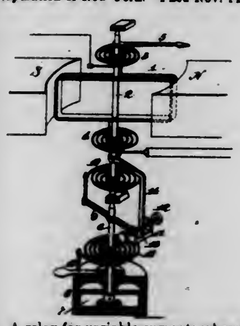
786,695. WAGON-BODY. JAY B. TREMAINE, Iuka, Kans. Filed July 5, 1904. Serial No. 215,360.



Claim.—1. In a vehicle-body, the combination with side sections having recessed enlarged portions for engagement with a bolster, and an intermediate section engaging the side sections all of said sections forming the bottom of the body.

2. The combination with the bolster of a vehicle; of side sections having depending enlarged portions notched to receive the bolster, an intermediate section upon the bolster and engaging the side sections, all of said sections forming the bottom of the vehicle-body, and side-boards formed with the side sections of the bottom and having enlarged lower portions.

786,696. SIGNAL-RELAY. FREDERICK K. VREELAND, Montclair, N. J., assignor to Wireless Telegraph Exploitation Company, New York, N. Y., a Corporation of New York. Filed Nov. 14, 1904. Serial No. 232,592.



Claim.—1. A relay for variable currents wherein are combined means responsive to the current utilizing the sudden variations which are superimposed upon a comparatively steady current and neglecting gradual variations in the current, substantially as set forth.

2. A relay for signal impulses superimposed upon a comparatively steady current, wherein are combined contacts, and means for changing the relative position of the contacts by sudden variations in current only, substantially as set forth.

3. A signal-relay wherein are combined a motor element, circuit-controlling contacts operated thereby, and means for causing the contacts to respond only to sudden movements of the motor element, substantially as set forth.

4. A signal-relay wherein are combined a current-responsive element, a circuit-controlling element, and a coupling between the two elements which effectively transmits sudden movements of the current-responsive element while excluding or absorbing gradual movements, substantially as set forth.

5. In a signal-relay, the combination of a motor element, a contact element, and a retarding device controlling the movement of the contacts by the motor element, whereby the contacts will be moved relatively only by sudden movements of the motor element, substantially as set forth.

6. A signal-relay wherein are combined a motor element, a set of floating contacts and means modifying the action of the motor ele-

ment on the contacts whereby the floating contacts are moved together without change in their relation to each other by slow movements of the motor element and are moved relatively to each other by sudden movements of the motor element, substantially as set forth.

7. A signal-relay wherein are combined a motor element, a contact carried by the motor element, a contact element carrying a second contact driven by the motor element through a resilient connection, and a retarding device connected with the contact element, whereby the mutual relation of the contacts will be changed only by sudden movements of the motor element, substantially as set forth.

8. A signal-relay wherein are combined a motor element comprising a coil suspended in a magnetic field, and contacts controlled thereby so as to respond only to sudden movements of the coil, substantially as set forth.

9. A signal-relay wherein are combined a motor element comprising a coil suspended in a magnetic field, contacts moved relatively by the motor element, and a retarding device controlling the movement of the contacts so that they will be moved relatively only by sudden movements of the coil, substantially as set forth.

10. A signal-relay wherein are combined a motor element comprising a coil suspended in a magnetic field and carrying one contact, a contact element connected with and moved by the motor element through a resilient connection and carrying a second contact, and a retarding device connected with the contact element, whereby the contacts will be moved relatively only by sudden movements of the motor element, substantially as set forth.

11. A signal-relay wherein are combined a motor element, contacts moved by the motor element and responding only to sudden movements of the motor element, and means for adjusting the normal relative position of the contacts, substantially as set forth.

12. A signal-relay wherein are combined a motor element carrying one contact, a contact element driven by the motor element through a yielding connection and carrying a second contact, a retarding device connected with the contact element, and an adjustable spring for giving directive force to the contact element, substantially as set forth.

13. A signal-relay wherein are combined a motor element, a contact element moved relatively by the motor element, and a controlled yielding connection between the motor and contact elements whereby the contacts will be moved relatively only by sudden movements of the motor element, substantially as set forth.

14. A signal-relay wherein are combined a motor element, contacts moved relatively thereby, a retarding device permitting sudden relative movements of the contacts, and a spring tending to hold the contacts against relative movement, substantially as set forth.

15. A signal-relay wherein are combined a motor element, contacts moved relatively thereby, a spring tending to hold the contacts in their normal mutual relation, and a retarding device opposing the effort of the spring with a force depending both upon acceleration and velocity, substantially as set forth.

16. A signal-relay wherein are combined a motor element, contacts moved relatively thereby, and a retarding device permitting sudden but not gradual relative motion of the contacts, such retarding device comprising a liquid dash-pot, substantially as set forth.

17. A signal-relay wherein are combined a motor element, contacts moved relatively thereby, and a retarding device permitting sudden but not gradual relative motion of the contacts, such retarding device comprising vanes having a rotational movement in liquid, substantially as set forth.

18. A signal-relay wherein are combined a motor element and a contact element having rotational movements on axes in line with each other, with contacts and a retarding device permitting the sudden relative movement of the contacts but not their gradual relative movement, substantially as set forth.

19. A signal-relay wherein are combined a motor element and a contact element having rotational movements on axes in line with each other, with contacts and a retarding device permitting the sudden relative movement of the contacts but not their gradual relative movement, such retarding device comprising a rotary dash-pot concentric with the axes of the motor and the contact elements, substantially as set forth.

20. A signal-relay wherein are combined a motor element and a contact element having rotational movements on axes in line with each other, with contacts, a retarding device permitting the sudden relative movement of the contacts, such retarding device comprising a rotary dash-pot concentric with the axes of the motor and the contact elements, and a spring tending to hold the contacts against relative movement, substantially as set forth.

21. A signal-relay wherein are combined a motor element controlled by mutually-opposed springs, and contacts controlled by said motor element so as to respond only to sudden movements of the motor element, substantially as set forth.

22. A signal-relay wherein are combined a motor element controlled by mutually-opposed springs, contacts moved relatively by the motor element, and a retarding device controlling the movement of the contacts so that they will be moved relatively only by sudden movements of the motor element, substantially as set forth.

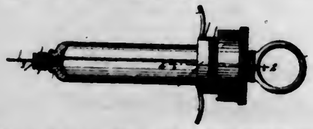
23. A signal-relay wherein are combined a motor element controlled by mutually-opposed springs and carrying one contact, a contact element connected with and moved by the motor element through a resilient connection and carrying a second contact, and a retarding device connected with the contact element, whereby the contacts will be moved relatively only by sudden movements of the motor element, substantially as set forth.

24. A wireless-telegraph receiver wherein are combined a detector of electrical oscillations, a local circuit, and a relay in said local circuit which responds to sudden current variations in the local circuit caused by received signal impulses and neglects steady or slowly-varying currents in the local circuit, substantially as set forth.

25. A wireless-telegraph receiver wherein are combined an electrolytic detector, a local circuit, and a relay in said local circuit which responds to sudden current variations in the local circuit caused by received signal impulses and neglects steady or slowly-varying currents in the local circuit, substantially as set forth.

26. A wireless-telegraph receiver wherein are combined a detector of electrical oscillations, a local circuit, and a relay in said local circuit comprising a motor element, circuit-controlling contacts operated thereby, and means for causing the contacts to respond only to sudden movements of the motor element, substantially as set forth.

786,697. **SYRINGE.** FREDERICK WACKENHUTH, New York, N. Y. Filed Dec. 16, 1903. Serial No. 185,386.



Claim.—1. In a syringe, a soft-rubber member coacting with the cylinder and rod, and having an annular slit therein forming an annular flexible lip adapted to be forced out by the fluid-pressure within the syringe.

2. In a syringe, a packing ring or sleeve formed of soft rubber or its equivalent, and having an annular slit therein producing two annular lips adapted to be spread apart by the fluid-pressure within the cylinder so as to bear hermetically against both the rod and cylinder.

3. A syringe, having a finger-piece comprising a ring, a finger-piece proper, two separate longitudinally-projected lips, and a cap having connection with the lips.

4. A syringe, having a finger-piece comprising a ring, a finger-piece proper, and two separate oppositely-situated longitudinally-extending lips having threads thereon, and a cap having threaded engagement with the said lips.

5. A syringe having a cylinder, a rod working through one end thereof, a packing acting between the cylinder and rod at said end of the cylinder, said end of the cylinder being enlarged to receive the packing, a cap serving to hold the packing in place, and a finger-piece engaged with the enlargement of the cylinder and connected with the cap to hold the cap in place.

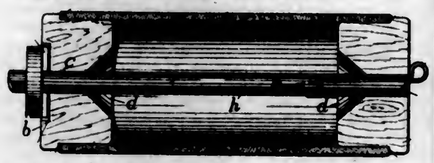
6. A syringe having a cylinder provided with an enlargement forming a stuffing-box, a rod working through the enlargement, a packing in the enlargement, a finger-piece comprising a ring, a finger-piece proper and a projecting lip, the said ring encircling the cylinder and engaging the enlargement and the lip extending longitudinally of the cylinder alongside of the enlargement, and a means for holding the packing in place.

7. A finger-piece for syringes comprising a ring, a finger-piece proper projecting therefrom, and two spaced lips projecting from the ring and adapted to extend alongside the syringe-cylinder longitudinally thereof.

8. A finger-piece for syringes comprising a ring, a finger-piece proper projecting therefrom, and two spaced lips projecting from the ring and adapted to extend alongside the syringe-cylinder longitudinally thereof, all of the parts of the finger-piece being struck up from an integral plate of metal.

9. A syringe having a glass cylinder, a glass rod working therein and forming a plunger-piston, said parts having their opposing surfaces formed to approximately true contact, and a packing acting between the cylinder and rod to form a hermetic connection.

786,698. **COP-TUBE.** SIMON W. WARDWELL, Providence, R. I., assignor to Universal Winding Company, Portland, Me., a Corporation of Maine. Filed Jan. 14, 1904. Serial No. 189,022.



Claim.—1. In a flangeless cop-tube, the combination with two end pieces *b b* having shoulders *e e*, axial bores *c c*, cupped inner ends *d d* and one of the end pieces formed with a transverse recess *f*, of a fiber shell *a* arranged with its ends abutting the shoulders *e e* and its periphery projecting slightly above the peripheries of the end pieces to protect the latter from damage.

2. In a cylindrical cop-tube, the combination with a fiber shell *a*, of end pieces *b b* arranged with portions cemented within the shell, said end pieces formed with shoulders *e e* abutting the ends of the shell and having axial bores *c c*, the diameter of the portions of the end pieces projecting outside the shell being slightly less than the outside diameter of the shell.

3. In a cop-tube, the combination with a fiber shell *a*, of end pieces *b b* arranged to support and protect the shell and said shell projecting beyond the peripheries of the end pieces to protect the latter, shoulders *e e*, abutting the ends of the shell and extensions of the end pieces within the shell.

4. In a cop-tube, the combination of a fiber shell *a*, arranged to surround suitable end pieces *b b*, and projecting above the peripheries of the latter, said end pieces formed with shoulders *e e* abutting the ends of the shell, and having axial bores *c c*, substantially as described.

5. A cop-tube having end pieces, and a shell of fiber partially inclosing and projecting radially beyond the exposed periphery of the end pieces and secured thereto, substantially as described.

786,699. **WHIFFLETREE-HOOK.** LOUIS C. WENDT, Blackhawk, Colo. Filed Mar. 21, 1904. Renewed Jan. 21, 1905. Serial No. 242,109.



Claim.—1. A whiffletree-hook provided with a barb entirely within its outer wall, and an exterior hump.

2. A whiffletree-hook formed with a barb entirely within its opposite outer walls and having upon one of said outer walls a hump opposite the largest diameter through the hook.

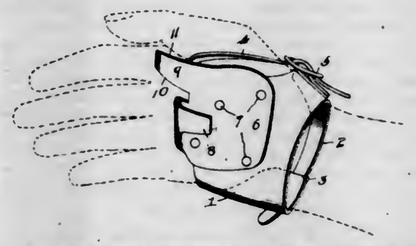
3. A whiffletree-hook formed with a barb, and an exterior hump, combined with a tug-eye having an opening of a length equal to the distance between the inner face of the said barb and the outer wall of the hook adjacent said hump.

4. The combination with a tip having a hinged arm, of a whiffletree-hook having a loop portion to loosely embrace said tip, and means for removably engaging the free end of said arm to hold the hook on the tip.

5. The combination with a tip having lugs in pairs, and an arm curved and hinged to one set of lugs, a whiffletree-hook having a loop portion loosely embracing said tip and disposed between the two sets of lugs, and a removable fastening for the free end of the said curved arm to hold the same and the hook in place on the tip.

786,700. **CORN-HUSKING IMPLEMENT.** JOHN A. WENTZ, Paola, Kans. Filed Feb. 26, 1904. Serial No. 195,450.

Claim.—1. A corn-husking implement comprising a base portion having a pair of normally forwardly-extending tongues stamped from a metallic plate, and forming a continuation of the peripheral edge thereof, the lower one of said tongues being slightly longer than the other and bent rearwardly over said base portion to form a husking-hook, and the other of said tongues being slightly curved backwardly to form an upper forwardly-extending auxiliary husking member, and means for securing said implement to the palm of the hand.



2. A corn-husking implement formed from suitable metal, comprising an enlarged base portion provided with a pair of forwardly-extending tongues, the lower of said tongues being slightly longer than the other and bent rearwardly over said base portion to form a rearwardly and downwardly disposed husking-hook, and the upper member being bent backwardly to form an upwardly-disposed curved auxiliary husking member, and means for securing said implement to the palm of the hand of the operator.

3. In a corn-husking implement, the combination with a suitable flexible hand-pad, of a metallic plate secured to said hand-pad, comprising an enlarged base portion, a husking-hook formed integral with said base portion, a husking-tongue formed integral with the peripheral edge of said base portion and extending forwardly thereof, out of alinement with said husking-hook, and means for securing said pad to the palm of the hand, with said husking-tongue extending forwardly below the thumb of the wearer.

4. In a corn-husking implement, the combination with a suitable flexible hand-pad and means for securing the same to the hand of the operator, of a metallic husking-plate secured thereto, comprising an enlarged base portion, provided with a pair of tongues normally extending forwardly of said plate and forming a continuation of the peripheral edge thereof, one of said tongues being slightly longer than the other and bent rearwardly over said base portion to form a husking-hook and the other of said tongues being located at the upper corner of said plate and curved slightly backward to form an auxiliary husking member.

786,701. **AUTOMATIC COMPRESSION-LUBRICATOR.** DICK B. WILLIAMS, Scottdale, Pa., assignor to Lackawanna Lubricator and Manufacturing Company, a Corporation of Pennsylvania. Filed May 27, 1904. Serial No. 210,086.



Claim.—1. In a lubricator of the class described, a receptacle comprising separate detachably-connected cup members, a spring-actuated piston, and a pivotal lever-lock comprising means, when in one position, for locking the cup members together, and also comprising means, when in another position, for locking the piston in an inactive position.

2. In a lubricator of the class described, a receptacle comprising separate detachably-connected cup members, a spring-actuated pis-

ton, and a lever-lock comprising means for locking the cup members together and also for lifting the piston by lever action to a non-feeding position.

3. In a lubricator of the class described, a receptacle comprising separate detachably-connected cup members, a spring-actuated piston, and a lever-lock having a combined lifting and locking connection with the piston-stem and also having a locking member for engagement with the separate cup members.

4. In a lubricator of the class described, a receptacle comprising separate detachably-connected cup members, a spring-actuated piston, and a swinging lever-locking device having a fulcrum mounting upon the cup, and a locking member for engagement with the separate cup members, said lever-locking device also having a combined lifting and locking connection with the stem of the piston.

5. In a lubricator of the class described, a receptacle comprising separate detachably and adjustably connected cup members each having a catch-notch, a spring-actuated piston having a stem sliding through the upper cup member, and a spring-held lever-lock pivotally connected with the piston-stem and having a fulcrum engagement with the upper cup member, said lever-lock being provided with a lock-finger for engagement with the catch-notches of both of the cup members.

6. In a lubricator of the class described, a receptacle comprising separate detachably and adjustably connected cup members, each having a catch-notch and the upper cup member being provided with a transversely-disposed retaining-groove, a spring-actuated piston having a stem sliding through the cover of the cup and provided at its upper end with a shouldered head and at an intermediate point with opposite longitudinally-disposed sliding grooves, a yoke-shaped locking-lever provided with a lever-arm having a lock-finger for engagement with the catch-notches and with a transverse fulcrum bar or plate having at or contiguous to one edge inwardly-disposed combined pivot and holding studs engaging said slide-grooves, the opposite edge portion of said fulcrum bar or plate being adapted to move into and out of engagement with said retaining-groove, and a lock-holding spring interposed between the head of the piston-stem and the fulcrum bar or plate of said lever-locking device.

786,702. AUTOMATIC COMPRESSION-LUBRICATOR. DICK B. WILLIAMS, Scottdale, Pa., assignor to Lackawanna Lubricator and Manufacturing Company, a Corporation of Pennsylvania. Filed May 27, 1904. Serial No. 210,067.

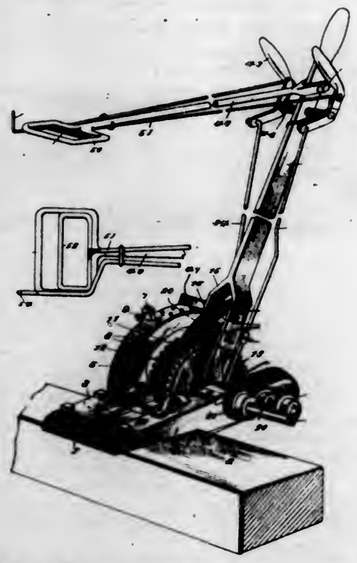


Claim.—In a lubricator of the class described, a cup or receptacle provided with a guiding-sleeve and an inwardly-projecting catch-stud, a tubular tension-regulator slidable and rotatable within the guiding-sleeve and provided in its tubular part with a plurality of spaced annular locking-grooves and with a longitudinally-disposed flattened clearance-space crossing the plane of the grooves and interrupting the ribs forming the same, the piston, and a spring interposed between the piston and the tension-regulator.

786,708. SAWMILL SET-WORKS. CHESTER A. WILSON, Pleasant Valley, Va. Filed Aug. 16, 1904. Serial No. 220,965.

Claim.—1. A sawmill set-works comprising a knee-adjusting shaft, a lever, and means operated by the lever to drive the shaft in direct, reverse, or accelerated movement.

2. A sawmill set-works comprising a knee-adjusting shaft, a main gear fixed upon said shaft, a speed-gear loose upon the shaft, connections between the speed-gear and the shaft, a lever, and interchangeable means operated by the lever for actuating the main gear and the speed-gear.



3. A sawmill set-works comprising a knee-adjusting shaft, a main gear fixed upon said shaft, a speed-gear loose upon the shaft, connections between the speed-gear and the shaft, a reversing-gear loose upon the shaft, a lever, and interchangeable means operated by the lever for actuating said gears.

4. A sawmill set-works comprising a knee-adjusting shaft, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, connections between the speed-gear and the shaft, a reversing-gear loose upon the shaft, a lever for operating all of said gears, and means for connecting the lever with the speed-gear and with the reversing-gear at will.

5. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, an operating-lever pivotally mounted on the frame, pawl mechanism connecting the main gear and lever, pawl mechanism connecting the speed-gear and lever, and means for controlling said latter pawl mechanism.

6. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, an operating-lever pivotally mounted on the frame, pawl mechanism connecting the main gear and lever, pawl mechanism connecting the speed-gear and lever, and manually-operable means for controlling the pawl mechanism.

7. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, a reversing-gear loose upon the shaft, gearing between the speed-gear and the shaft, gearing between the reversing-gear and the shaft, a lever pivotally mounted upon the frame, interchangeable means carried by the lever to operate the said gears, and means for controlling the connection of the lever with said gears.

8. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, connection between the speed-gear and the shaft to accelerate the movement of the latter in the operation of the former, a reversing-gear loose upon the shaft, connection between said gear and the shaft to reverse the movement of the latter in the operation of the former, and a lever for operating either of said gears at will.

9. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, connection between the speed-gear and shaft to accelerate the movement of the latter in the operation of the former, a reversing-gear loose upon the shaft, connections between said gear and the shaft to reverse the movement of the latter in the operation of the former, a lever for operating either of said gears at will, pawl mechanism connecting said lever and the main, speed, and reversing gears, and means to operate said mechanism to connect the lever with either of said gears.

10. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, connection between the speed-gear and shaft to accelerate the movement of the latter in the operation of the former, a reversing-gear loose upon the shaft, connection between said gear and the shaft to reverse the movement of the latter in the operation of the former, a lever for operating either of said gears at will, pawl mechanism connecting said lever and the main, speed and reversing gears, rods connected to said pawl mechanism, and means for operating the rods.

11. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, connection between the speed-gear and shaft to accelerate the movement of the latter in the operation of the former, a reversing-gear loose upon the shaft, connection between said gear and the shaft to reverse the movement of the latter in the operation of the former, a lever for operating either of said gears at will, pawl mechanism connecting the lever and main gear, a pawl arranged for connecting the lever and the speed-gear, a pawl arranged for connecting the lever and reversing-gear, a rod for operating the speed-gear pawl, and a second rod for operating both the main-gear pawls and the reversing-gear pawls.

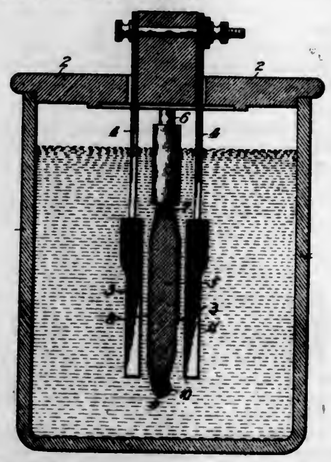
12. A sawmill set-works comprising a knee-adjusting shaft, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, a reversing-gear loose upon the shaft, a lever, pawl mechanism connecting the lever and gears at will, and means for limiting the throw of the lever.

13. A sawmill set-works comprising a knee-adjusting shaft, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, a reversing-gear loose upon the shaft, a lever, pawl mechanism connecting the lever and gears at will, and adjustable stops for limiting the throw of the lever.

14. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, an operating-lever pivotally mounted on the frame, pawl mechanism connecting the main gear and lever, pawl mechanism connecting the speed-gear and lever, means for controlling said latter pawl mechanism, and a pull-rod connected to the operating-lever.

15. A sawmill set-works comprising a frame, a shaft mounted therein, a main gear fixed upon the shaft, a speed-gear loose upon the shaft, an operating-lever pivotally mounted on the frame, pawl mechanism connecting the main gear and lever, pawl mechanism connecting the speed-gear and lever, a pull-rod connected to the operating-lever, and means carried by the pull-rod to operate said pawl-controlling mechanism.

786,704. GALVANIC BATTERY. DAVID L. WINTERS, Chicago, Ill. Filed Jan. 3, 1905. Serial No. 239,332.

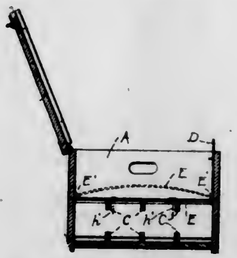


Claim.—1. In a galvanic battery of the type herein described, the combination of a negative electrode, a frame for supporting the same, and a holder or clip formed of a plate or bar of resilient material bent into an open-sided flat loop adapted to embrace opposed members of said frame and hold the negative electrode in place therein, substantially as set forth.

2. In a galvanic battery of the type herein described, the combination of a negative electrode, a frame for supporting the same, and a holder or clip formed of a plate or bar of resilient material bent into an open-sided flat loop adapted to embrace opposed members of said frame, with one end fastened to one of said members and the other end left free to constitute a spring-tongue, substantially as set forth.

3. In a galvanic battery of the type herein described, the combination of a negative electrode, a frame for supporting the same and having a pair of vertical and a pair of horizontal members connected together, and a holder or clip formed of a plate or bar of resilient material bent into an open-sided flat loop adapted to embrace the horizontal members of said frame, with one end fastened to one of said horizontal members and the other end left free to constitute a spring-tongue, substantially as set forth.

786,705. BOTTLE SHIPPING CASE. ROBERT I. WRIGHT and CHARLES K. MILLER, St. Joseph, Mo. Filed June 13, 1904. Serial No. 212,405.



Claim.—1. A rack-fastener consisting of a single straight metal rod provided with one or more perforations by which it may be riveted to the partition-pieces of a rack and the projected spread pointed ends of said rod adapted to press slightly into the case as the rod is pressed down at its center, substantially as shown and described.

2. The combination with a bottle-shipping case and its rack, of a spring-metal rod provided with one or more perforations through which it may be rigidly fastened on the top of the rack and the flattened sharp ends thereof adapted to engage with the interior of the shipping-case as the rod is pressed downward at the middle upon the rack, substantially as shown.

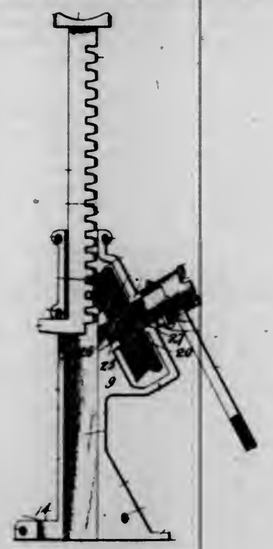
786,706. LIFTING-JACK. ERNEST WUSTNER, Philadelphia, Pa., assignor to Globe Jack Company, Philadelphia, Pa. Filed Oct. 20, 1904. Serial No. 229,291.

Claim.—1. In a lifting-jack, the combination of a vertically-movable bar having rack-teeth, each of which is curved from end to end transversely of said rack-bar, a guiding and supporting element for the bar, a worm-gear having its bearings in said guiding and supporting element, said worm-gear being provided with a frusto-conical inner face opposed to the toothed face of the rack-bar and having a volute or worm flange on said frusto-conical face flared outwardly, with its outer face substantially perpendicular to said frusto-conical face, the radius of the said flange being substantially equal to that of the curved teeth of the rack-bar, said flange successively engaging the opposing under sides of the teeth of the rack-bar, and means to rotate said worm-gear, substantially as described.

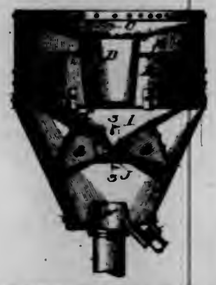
2. In a lifting-jack, in combination with a vertically-movable rack-bar, and a worm-gear engaging the same when said worm-gear is turned, a standard comprising two separable sections formed on their opposing sides with a guide-opening for the reception of the lower lift of said sack-bar and with a casing for the reception of said worm-gear, the latter having journals projecting from its inner and outer sides, and the said casing being formed in its inner and outer sides with bearings for the said journals, substantially as described.

3. In a lifting-jack, the combination of a standard, a vertically-movable rack-bar, and a revoluble worm-gear engaging said rack-bar, the latter and the said worm-gear being mounted in the said standard, and said worm-gear having an outwardly-projecting jour-

nal provided with a cross-pin, and a lever having a hub to rotate on said projecting journal and provided in its opposite ends with notches to engage said cross-pin, and reversely-curved cams to coact with said cross-pin to successively engage said notches therewith when said lever is reversely turned and thereby rotate said worm-gear by a step-by-step movement, substantially as described.



786,707. STEAM-EXHAUST HEAD. JOHN P. ZENNER, Chicago, Ill. Filed Nov. 18, 1904. Serial No. 233,286.



Claim.—1. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate to which the lower edges of the shell are secured having an opening therein for the steam-exhaust pipe and a drip-opening therein between said exhaust-pipe and its outer circumference.

2. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate having upwardly-projecting circumferential flanges, to which the lower edges of the shell are secured having an opening therein for the steam-exhaust pipe and a drip-opening therein between said exhaust-pipe and its outer circumference.

3. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate to which the lower edges of the shell are secured having a tubular boss in the lower end of which the exhaust-pipe is connected and which extends up into the exhaust-head and a drip-opening therein between said exhaust-pipe and its outer circumference.

4. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate having upwardly-projecting circumferential flanges to which the lower edges of the shell are secured having a tubular boss to the lower end of which the exhaust-pipe is connected and which extends up into the exhaust-head, and a drip-opening therein between said exhaust-pipe and its outer circumference.

5. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate to which the lower edges of the shell are secured having an opening therein for the steam-exhaust pipe and an integral tubular drip-stub between said exhaust-pipe and its outer circumference.

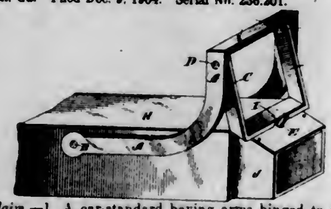
6. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate having upwardly-projecting circumferential flanges, to which the lower edges of the shell are secured having an opening therein for the steam-exhaust pipe and an integral tubular drip-stub between said exhaust-pipe and its outer circumference.

7. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor, of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate to which the lower edges of the shell are secured having a tubular boss in the lower end of which the exhaust-pipe is connected and which extends up into the exhaust-head and an integral tubular drip-stub between said exhaust-pipe and its outer circumference.

8. In a steam-exhaust head, the combination with the exterior shell thereof, and a centrally-perforated top therefor of an inverted-cone-shaped deflector mounted between said top plate and the bottom of the shell, a floating annular baffle-plate suspended mediate said top plate and deflector, and a cast-metal bottom plate having upwardly-projecting circumferential flanges to which the lower edges of the shell are secured having a tubular boss to the lower ends of which the exhaust-pipe is connected and which extends up into the exhaust-head, and an integral tubular drip-stub between said exhaust-pipe and its outer circumference.

9. In a steam-exhaust head, the combination with a suitable shell, a top therefor having an exit-opening therein, of a steam-exhaust pipe connected with the lower end, and a drip-pipe adjacent thereto, an inverted-cone-shaped deflector suspended centrally above said exhaust-pipe, two drain-pipes projecting downwardly and outwardly from said deflector and a protector-plate in the crotch of said drain-pipes, and a floating annular baffle-plate suspended mediate said deflector and the top of said shell.

786,708. STANDARD FOR LOGGING-CARS. CHARLES H. ALLEN, Savannah, Ga., assignor of one-half to Julian De Bruyn Kops, Savannah, Ga. Filed Dec. 9, 1904. Serial No. 236,201.



Claim.—1. A car-standard having arms hinged to the bolster and a prop for holding it elevated, said prop being hinged at its upper end to the standard, as described.

2. A car-standard having arms adapted to be hinged to the bolster, an upright prop-frame hinged at the top to the outer end of the standard and adapted to rest on the bolster and a locking device for the prop-frame substantially as described.

3. A car-standard consisting of a frame with hinged arms combined with and embracing the bolster, a prop-frame hinged at its upper end to the upper end of the standard, the end of the bolster being beveled and adapted to form a bearing for the standard when dropped thereon, and also for the prop-frame when elevated, substantially as described.

4. The combination with a car-bolster, of an adjustable car-standard having an elevating-prop hinged thereto at its upper end and a locking-bolt for the prop arranged in a hole in the end of the bolster, substantially as described.

5. A hinged car-standard having a supporting device and a spring locking device substantially as described.

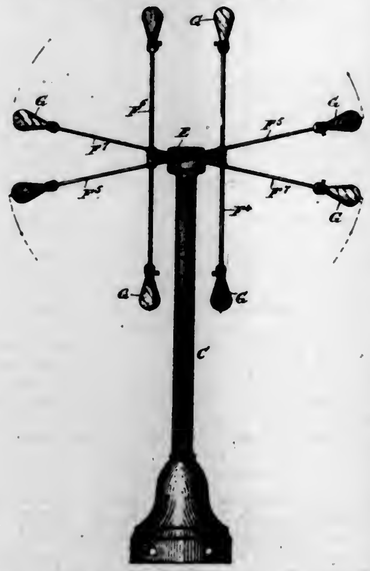
6. A car-standard having a beveled-face prop and a spring-seated locking-bolt substantially as described.

7. A car-standard consisting of bent and hinged side arms connected at one end by a cross-piece, a swinging prop-frame hinged to the standard-arms, a car-bolster having a beveled end adapted to receive the prop-frame and a spring-actuated locking-bolt passing through the bolster and engaging with the prop-frame substantially as described.

8. A car-standard consisting of bent and hinged side arms connected at one end by a cross-piece, a swinging prop-frame hinged to the standard-arms, a bolster having beveled end to abut against and support the prop-frame when elevated and rabbeted sides to receive the sides of the prop-frame when down and a locking device for the prop-frame when in elevated position substantially as described.

9. A car-standard consisting of bent and hinged side arms connected by a cross-piece, a swinging prop-frame hinged to the standard, a car-bolster with beveled end and reinforcing-sleeve and a spring-seated locking-bolt extending through said bolster end and sleeve substantially as described

786,709. ILLUMINATING DEVICE. CHARLES F. ALLINE, Fort Dodge, Iowa, assignor, by direct and mesne assignments, to Alline Photocycle Company, Washington, D. C., a Corporation of the District of Columbia. Filed May 23, 1904. Serial No. 209,251.



Claim.—1. An illuminating device having a revolving support, and lamps revolving on the support, in opposite directions and in unison with the said support.

2. An illuminating device having a support, lamps revolving on the said support, and means for revolving the lamps in opposite directions.

3. An illuminating device having a revolving support, oppositely-arranged pairs of lamps revolving on the said support, and means for revolving one pair of lamps in an opposite direction to the opposing pair.

4. An illuminating device, comprising a base carrying a fixed post, a support mounted to revolve on the said post, pairs of oppositely-arranged arms having spindles journaled on the said support, the arms carrying lamps, and a gearing connecting the said spindles with the stationary post, to rotate the arms of each pair in opposite directions on rotating the support.

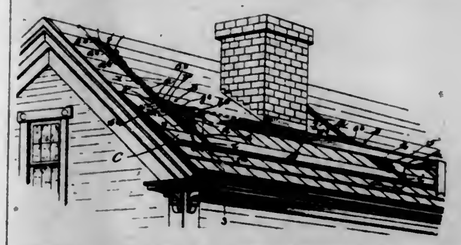
5. An illuminating device comprising a base carrying a fixed post, a support mounted to revolve on the said post and having a head, a plurality of arms having hollow spindles journaled on the said head, a gearing connecting the several spindles with each other, a gear-wheel on one of the spindles, and a fixed gear-wheel on the said post, in mesh with the said last-named gear-wheel, for rotating the several spindles in unison on rotating the support.

6. An illuminating device comprising a base carrying a fixed post, a support mounted to revolve on the said post and having a head, a plurality of arms having hollow spindles journaled on the said head, a gearing connecting the several spindles with each other, a gear-wheel on one of the spindles, a fixed gear-wheel on the said post, in mesh with the said last-named gear-wheel, for rotating the several spindles in unison on rotating the support, electric lamps on the outer ends of the said arms, and means for conducting electricity to the said lamps by way of the support, the spindles and the arms.

7. An illuminating device comprising a support mounted to revolve, a plurality of hollow arms having hollow spindles mounted to turn in the head of the said support, electric lamps carried on the outer ends of the said arms, a block connected with a source of electricity by way of the said hollow support, and spring-pressed pins in the said block, in engagement with conductors carried by the said spindles and leading to the said electric lamps.

8. An illuminating device comprising a support mounted to revolve, a plurality of hollow arms having hollow spindles mounted to turn in the head of the said support, electric lamps carried on the outer ends of the said arms, a block connected with a source of electricity by way of the said hollow support, spring-pressed pins in the said block, in engagement with conductors carried by the said spindles and leading to the said electric lamps, a revolving contact-ring carried on the said support and connected by an insulated wire with the said block, and a fixed brush connected with a source of electricity and in contact with the said contact-ring.

786,710. ADJUSTABLE SHINGLE-GAGE. ALFRED ANDERSON, Bellingham, Wash. Filed Jan. 21, 1905. Serial No. 242,165.



Claim.—1. An adjustable shingling-gage, comprising a gage member, means for sustaining the same in place on the roof, a carriage slidably mounted on the gage member, means thereon for interlocking with the gage member, a hanger pendent from the carriage and movable therewith, said hanger being arranged to support the leveling-board, as set forth.

2. In an adjustable shingling appliance of the character described; a gage member having divisional indications, means for pendently supporting said gage, a carriage slidably mounted on the gage member, means on the carriage for interlocking with the gage member, and a hanger pendent from the carriage adapted to support the leveling-board, as set forth.

3. In a shingling appliance, the combination with a gage member, a carrier slidably and reversibly mounted on said gage member, and an arm pendent from the carriage, for supporting the leveling or gage board, as set forth.

4. An adjustable shingling-gage comprising a uniformly-notched gage member, means for pendently supporting it on the roof, a carriage movable on the notched gage member, a latch member on said carriage engaging the notched gage member, said carriage including a pendent arm for supporting the gage or leveling board, as set forth.

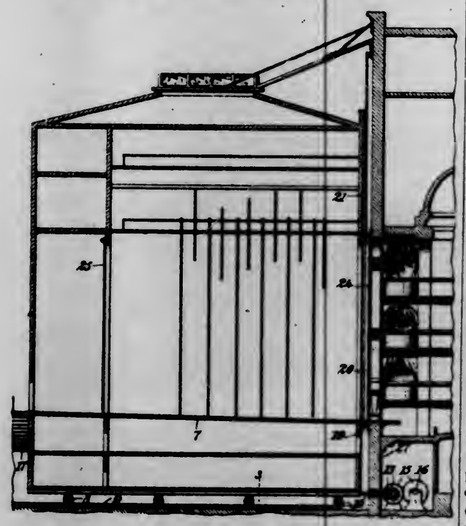
5. In an adjustable shingling-gage as described, the combination with the gage member, and the carriage adjustably movable thereon, said carriage including a member for sustaining the leveling or gage board; of a hanger hinged to the upper end of the gage member, said hanger consisting of two extensible sections clamped to each other, the upper section having means for engaging the roof-boards, as set forth.

6. In an adjustable shingling appliance, the combination with a gage member, means for pendently suspending it on the roof, and a carriage detachably and reversibly mounted and adjustably held upon the gage member; of a hanger pendently secured to the carriage, said hanger consisting of two members detachably and pivotally connected, the lower one of said members being arranged to support the leveling or gage board, as set forth.

7. In an adjustable shingling appliance, the combination with the notched gage member, and means for hanging it on the roof; of the carriage having a guide-slot through which the gage member passes, a sight-opening in each of the opposite faces, and a lateral extension, a spring-latch on the extension adapted to engage the notches on the gage member, and a hanger pendent from the carriage formed of two detachable sections, the lower one of which is adapted to support the leveling-board.

8. As an improvement in shingling appliances, a gage member notched at one edge, means for supporting it on the roof either end uppermost, a carriage slidable on the gage member and adapted for reversible fitting thereon, a latch on the carriage for engaging the notches therein, a hanger pendently secured to the carriage composed of two detachably-connected members, the lower one of which is adapted to connect with the leveling-board, as set forth.

786,711. **THEATER APPLIANCE.** AUGUST M. ANDERSON, Moorhead, Minn. Filed Nov. 15, 1904. Serial No. 232,826.



Claim.—1. The combination of a theatrical stage, and means for moving it, comprising a nut connected with the stage, a screw-shaft threaded in said nut, and a revolving shaft for operating said screw-shaft.

2. A theatrical stage mounted on wheels and having a nut, in combination with a rotatable screw-threaded shaft passing through the nut.

3. A theatrical stage movably mounted and having a casing attached to the bottom thereof, a nut fixed in said casing, a journal slidably mounted in the casing, and a screw-shaft threaded in said nut and journaled in said journal.

4. The combination of a theatrical stage, means for moving it bodily, a fire-shield, and means for transmitting motion from the stage to the fire-shield.

5. The combination of a theatrical stage, means for moving it bodily, a fire-shield, and a connection from the stage to the fire-shield for automatically moving the shield by means of the motion of the stage.

6. The combination of a stage, means for moving it, a vertically-movable metallic curtain, and a flexible connection from the stage to the curtain.

7. The combination of a stage, means for moving it, a vertically-movable curtain, a flexible connection from the stage to the curtain, and a stationary skylight.

786,712. **LIFTING-JACK.** JOHN T. ARGO, Cynthiana, Ky. Filed June 16, 1904. Serial No. 212,811.



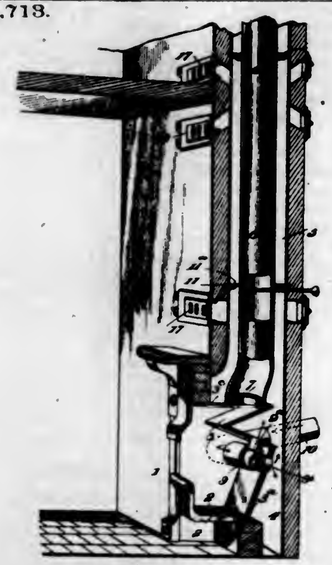
Claim.—1. In a lifting-jack, the combination of a base, a movable head, a supporting-bar pivoted at its lower end to the base, a lever provided at its lower end with integral pivotal extensions of approximately circular formation projected laterally therefrom in opposite directions, the head being provided with a circular seat or recess receiving one of the extensions of the lever, and pivotal connections between the extensions of the lever and the supporting-bar and head.

2. In a lifting-jack, the combination of a base, a supporting-standard projected upwardly from the base, guide-straps extended from the supporting-standard, a guide-bar mounted in said straps, a lifting-head carried by the upper end of the guide-bar, a supporting-bar pivoted at its lower end to the base, a lever provided at its lower end with oppositely-projected pivotal extensions of circular formation, the head being provided with a circular seat or recess 11 receiving one of the extensions of the lever and having pivotal connection therewith, the other extension of the lever being pivotally connected with the upper end of the supporting-bar, the supporting-bar being provided with a curved recess to receive the last-mentioned extension of the lever, the head being provided with the curved recess 12 receiving the last-mentioned extension when the lever is thrown downwardly.

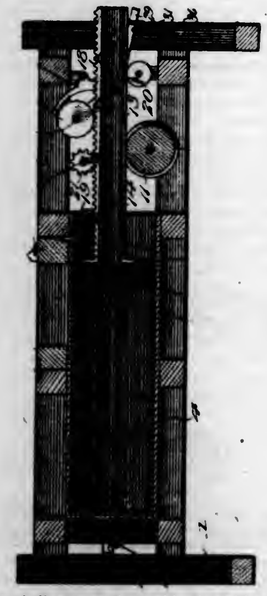
786,713. **FIREPLACE-HEATER.** JESSE D. BACON and THOMAS MCGARRIGAL, Paducah, Ky. Filed May 3, 1904. Serial No. 206,257.

Claim.—In a fireplace, the combination of a fireplace, a jacket or shell consisting of a rear wall, side walls and an uppermost horizontal cover-wall, a hot-air space adjacent the shell, a hot-air flue leading from the hot-air space, the upper wall of the shell being provided with a smoke-outlet opening, a smoke-flue leading from said opening of the shell, a hollow extension projected from the rear wall of the shell adjacent the upper portion thereof and extending above the combustion-chamber of the fireplace, a drum beneath the hollow extension aforesaid and having its ends leading through the side walls of the shell, cold-air-supply pipes leading into the ends of the drum aforesaid, and outlet air-pipes leading from the drum to the hot-air space, one of said outlet-pipes leading into the hollow extension and the other through the wall of the shell.

786,713.

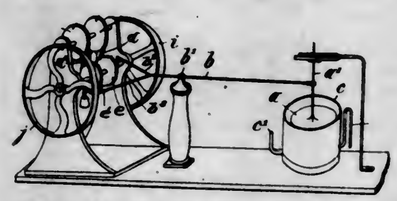


786,714. **BALING-PRESS.** DUNCAN M. BASS, Glenzodia, Ala. Filed Oct. 2, 1903. Serial No. 175,506.



Claim.—In a baling-press, the combination with a casing forming a compressing-chamber; of a plunger slidably mounted in said chamber, a bar extending therefrom, laterally-extending bracing devices connecting the bar and plunger, a guide-strip secured longitudinally upon the bar and to the plunger, supporting-rollers for the bar, one of said rollers being grooved to receive and guide the strip, a rack secured upon the bar and plunger, a gear engaging the rack, a shaft, means for transmitting motion therefrom to the gear, a ratchet, a ratchet-engaging device, a spring-strip secured to the frame, and a notched bar connected to the engaging device and adapted to be adjustably secured to the spring-strip.

786,715. **APPARATUS FOR TRANSFORMING MOTION.** PIERRE E. M. BASTIOU, Lannion, France. Filed May 29, 1903. Serial No. 159,314.



Claim.—1. Means for transmitting movement permitting of converting a rectilinear reciprocating motion into a movement of continuous rotation, the said means comprising an oscillating lever one of the extremities of which presents three arms directed in opposite directions, the central arm being directed downward and the two others upward, ratchet-wheels keyed upon the part to which the rotary motion is to be imparted, chains gearing with each of the ratchet-wheels and connected with the lever-arms, and pulleys arranged above the ratchet-wheels corresponding to the upward-directed arms.

2. Means for transmitting movement permitting of converting a rectilinear reciprocating motion into a movement of continuous rotation, the said means comprising an oscillating lever one of the extremities of which presents three arms, one arm being directed in one direction and the other two arms in a direction opposite to that of the first arm, ratchet-wheels keyed upon the part to which the rotary motion is to be imparted, chains gearing with each of the ratchet-wheels and connected with the lever-arms, and pulleys arranged above the ratchet-wheels, a counterbalance being connected to the end of each chain.

3. A device for converting motion, comprising a pivoted lever having a plurality of oppositely-projecting members at one end, ratchet-wheels on the part to be rotated, guide-pulleys above the ratchet-wheels, and a chain connected with each member of the lever and engaging a ratchet-wheel, each chain passing over a guide-pulley and having a counterpoise at its end.

4. A device for converting motion, comprising a pivoted lever having three arms, the center arm projecting downwardly and the other two arms projecting upwardly, three ratchet-wheels on the part to be rotated, guide-pulleys above the ratchet-wheels, and a chain connected with each arm of the lever and engaging a ratchet-wheel, said chains passing over the guide-pulleys and each having a counterpoise at its end.

786,716. **PRINTING-PRESS.** HENRY F. BECHMAN, Battlecreek, Mich., assignor to Duplex Printing Press Company, Battlecreek, Mich. Filed July 22, 1904. Serial No. 217,704.

Claim.—1. In a flat-bed web-perfecting press, the combination with a single set of web feeding, looping and delivery mechanisms, of more than two printing-couples, and web-guiding devices whereby one or more webs may be printed, substantially as specified.

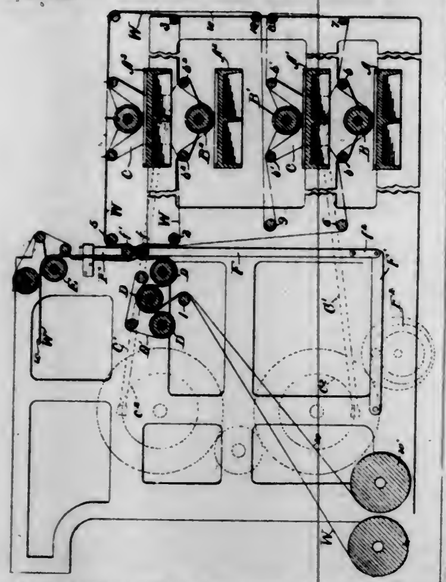
2. The combination in a printing-press of more than two printing-couples, each comprising a bed and coacting cylinder, arranged in alinement, of a single feed mechanism, a single delivery mechanism, a single looping mechanism, and suitable web-guides, whereby one or more webs may be directed between any or all of the printing-couples, substantially as described.

3. A printing-machine, comprising more than two printing-couples arranged parallel and in vertical alinement, and each comprising a bed and coacting cylinder; with a web-feeding mechanism, a web-delivery mechanism, and a web-looping mechanism intermediate the printing mechanisms and the feeding and delivery mechanisms, all adapted to handle one or more webs, through any one or all of the printing-couples, substantially as described.

4. In a printing-press, the combination of four type-beds and coacting cylinders, and web-guides beside the beds; with a single web-manipulating mechanism, comprising web-feed-in devices, web-feed-out devices and intermediate web-looping devices, whereby one or more webs may be directed between one or more of the printing-couples, substantially as described

5. In a printing-press, the combination of four beds and four coacting cylinders arranged parallel and in vertical alinement, a single feed-in mechanism, a single web-delivery mechanism, and a single intermediate looping mechanism, all adapted to direct one or more

webs between any one or all of the printing-couples, substantially as described.



6. The herein-described printing-press, comprising four stationary beds and four reciprocating cylinders coacting with the beds, stationary web-guides at opposite ends of the beds, web-feed-in mechanism adapted to handle one or more webs, a web-delivery mechanism adapted to handle one or more webs, a web-looping device between the feed and the printing mechanism, and a web-looping device between the printing mechanism and the delivery, whereby one or more webs may be fed through the machine and imprinted on any one or more of the beds, substantially as specified.

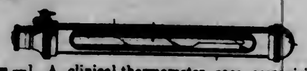
7. A printing-machine, comprising more than two printing-couples arranged parallel and in vertical alinement, and each comprising a bed and coacting cylinder; with a web-feeding mechanism, a web-delivery mechanism, and a web-looping mechanism intermediate the printing mechanisms and the feeding and delivery mechanisms, whereby webs may be printed in colors, substantially as described.

8. The combination in a printing-press of more than two printing-couples, each comprising a bed and coacting cylinder, arranged in alinement, of a single web-feed-in mechanism, a single web-delivery mechanism, a single web-looping mechanism, and suitable web-guides whereby a web may be directed in a straight line through the press and printed in colors by said couples, substantially as described.

9. In a printing-press, the combination of four type-beds and coacting cylinders, and web-guides beside the beds; with a single web-feed-in mechanism, a single web-feed-out mechanism and intermediate web-looping devices, whereby a web may be directed in a straight line between the printing-couples and printed in colors, substantially as described.

10. In a printing-press, the combination of four beds and four coacting cylinders arranged parallel and in vertical alinement, a single web-feed-in mechanism, a single web-delivery mechanism, and a single intermediate looping mechanism, and web-guides adapted and arranged to direct a web successively between the printing-couples to be printed in colors, substantially as described.

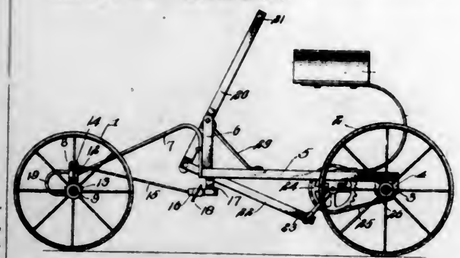
786,717. CLINICAL-THERMOMETER CASE. OSCAR G. BELL and RICHARD C. STOFER, Norwich, N. Y. Filed July 9, 1904. Serial No. 215,902.



Claim.—1. A clinical-thermometer case comprising a glass tube, a tubular metal casing inclosing the glass tube and having an exterior screw-thread at its upper end, a bead having an interior screw-thread, screwed upon the upper end of the casing and formed with a smooth conical mouth having its sides at the lower end flush with the bore of the glass tube, a soft washer arranged in the head between the same and the upper ends of the tube, and a cap fixed to and carrying the thermometer, said cap being formed with a conical surface fitting the conical surface of the mouth substantially as described.

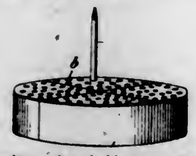
2. A clinical-thermometer case comprising a glass tube open at both ends, a tubular metal casing inclosing the glass tube, said metal casing being formed at both ends with external screw-threads and having an inwardly-turned flange at the bottom, a soft washer arranged between said flange and the glass tube, a cap with interior screw-threads screwed upon the lower end of the casing, a head with interior screw-threads, screwed upon the upper end of the casing, said head being formed with a conical mouth tapering to the bore of the glass tube, a soft washer arranged in the head between the same and the tube, and a conical cap connected to and carrying the thermometer and fitting the conical mouth substantially as shown and described.

786,718. VELOCIPEDE. JOHN F. BENNINGTON, Laharpe, Ill. Filed June 27, 1904. Serial No. 214,400.



Claim.—In a velocipede, the combination with a rear axle, having supporting-wheels fixed thereon, and a front axle having supporting-wheels journaled thereon, horizontally-disposed hounds having bearings in which said rear axle is journaled, a steering-head fixed on said front axle, a spring-fork having a downwardly-bent end and connecting the front end of said hounds with said steering-head, a combined foot-rest and steering-lever pivotally mounted on said hounds, links connecting said lever with said steering-head, a crank-shaft journaled on said hounds, sprocket-gearing connecting said crank-shaft with said rear axle, a hand operating-lever connected to said crank-shaft to drive the same, and a spring-seat mounted upon said hounds, substantially as described.

786,719. DISPLAY RACK OR HOLDER. PHILIP BEROLSHEIMER, New York, N. Y., assignor to Eagle Pencil Company, New York, N. Y. Filed Dec. 3, 1904. Serial No. 235,317.



Claim.—A display rack or holder consisting of a series of connected blocks provided with pockets to receive the articles to be displayed, and formed with meeting faces or sides which when the blocks are folded together converge to one and the same point or common center, substantially as hereinbefore set forth.

786,720. SAD-IRON HEATER. COLIN M. BEST, Lamar, S. C. Filed Dec. 7, 1904. Serial No. 235,815.

Claim.—1. The improved sad-iron heater, comprising a hollow polygonal base having vertical sides provided with air-inlets and flared at the upper edge, an interior grate-support, and a grate resting loosely thereon, and a removable top part having a lower portion, which is polygonal corresponding to the base, and rests upon the grate, and a top portion which is pyramidal and truncated, substantially as described.

2. The improved sad-iron heater comprising the hollow vertical sheet-iron base having a flared top and an interior grate, and the hollow sheet-iron top part having a pyramidal portion and a base which is vertical and adapted to fit removably within the aforesaid base, and means for supporting the top in said base in the manner described.



786,721. PROCESS OF LIBERATING AND SEPARATING FIBERS. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed July 27, 1900. Renewed Sept. 22, 1904. Serial No. 225,456.

Claim.—1. The process of liberating and separating fibers which consists in saturating the combined fibers with a chemical compound capable of transforming the binding constituents into soluble compounds and separating the fibers from each other by increasing the bulk of chemicals in the pores between the fibers by chemical action.

2. The process of liberating and separating fibers, which consists in saturating the material containing combined fibers with a compound capable of decomposing the binding substances of the fibers and increasing in bulk when exposed to reagents and exposing the material so saturated to the action of reagents producing products of increased bulk whereby the fibers are separated from each other by formation and expansion of chemical salts.

3. The process of liberating and separating fibers which consists in saturating the material containing combined fibers with a solution of chemicals capable of decomposing the binding substances by digesting therein, removing the saturated material from the chemical bath and exposing it to the action of a gaseous compound capable of uniting with the chemical retained therein, producing a product of increased bulk and washing and removing the compounds thus formed therefrom, substantially as described.

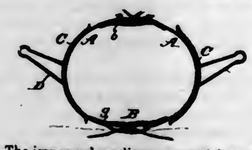
4. The process of liberating and separating fibers which consists in saturating the combined fibers with an alkali aluminate, and exposing to the action of water and a gaseous reagent.

5. The process of liberating and separating fibers which consists in saturating the combined fibers with sodium aluminate, and exposing to the action of carbon dioxid and water.

6. In the process of liberating and separating fiber, the step of separating them from each other, which consists in increasing the bulk of chemicals within the pores between the fibers by the absorption, combination, or reaction with substances supplied thereto after saturation therewith, substantially as described.

7. The process of liberating and separating fibers which consists in decomposing the binding constituents of the fibers by chemical action and separating the fibers from each other by producing solid compounds of increased bulk within the pores between the fibers by transformation of chemical content.

786,722. SURGICAL APPLIANCE. ANDREW BRESLIN and JOSEPH LEES, Summithill, Pa. Filed May 9, 1904. Serial No. 207,149.



Claim.—1. The improved appliance comprising a divided body-belt, rigid plates secured to opposite portions of the belt and conforming to a predetermined curvature, and a lateral arm attached to each of said plates and formed of a metal strip which is doubled upon itself, the outer ends of the arms being arranged as shown and described.

2. The improved appliance for the purpose specified, comprising a divided body-belt having means for adjustably connecting its ends, rigid plates secured to the belt at opposite points and each provided with a rigid arm which extends laterally at a required angle, substantially as described.

3. The improved appliance, comprising a divided body-belt, and a frame composed of two parts adapted for adjustment one upon the other, and having lateral arms, and means for securing them in any adjustment, substantially as shown and described.

4. The improved appliance comprising a rigid frame having integral lateral arms and back-pads secured to the frame, substantially as described.

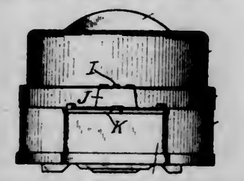
5. The improved appliance comprising rigid and bent frame-sections having lateral arms and adapted for adjustment on each other, a clamp for securing them in any adjustment, back-pads secured to said frame-sections, and belt-sections for securing the appliance to a patient, substantially as described.

786,723. NIPPERS OR CUTTING-PLIERS. PETER BROADBOOKS, Batavia, N. Y. Filed June 11, 1904. Serial No. 212,063.



Claim.—In a cutting-pliers, two levers, the flanges of one lever adapted to pass between the flanges of the other lever and be hinged together at this point, receptacles formed at the head of the flanges of each lever, cutting-jaws provided with shanks, said shanks adapted to fit within the receptacles formed in the end of each of the levers, said shanks being led together, the pivot which pivots the levers together adapted to pass through both shanks, bolts or screws passing through the levers and through the shanks above the pivotal point, the outer walls of the receptacles adapted to bear against the shanks of the cutting-jaws so that the power from the levers is communicated to the jaws through these outer walls, thus removing all strain from the bolts or screws which pass through the levers and shanks.

786,724. METER-COVER AND MEANS FOR SECURING SAME. WILLIAM H. BROWNE, Great Barrington, Mass., assignor to Stanley Instrument Company, Great Barrington, Mass., a Corporation of Massachusetts. Filed July 23, 1904. Serial No. 217,304.



Claim.—1. In a meter the combination of a meter-case, a cover having an offset and a flange depending therefrom, a clamp secured to said case and engaging said offset so as to secure said cover to said case so that the flange surrounds an adjacent portion of said case and extends over the joint between said offset and said case.

2. In a meter the combination of a meter-case with a cover having an offset and a flange depending therefrom, said flange having a hole in one side, a pin projecting from said case and passing through said hole and a clamp detachably secured to said case and engaging said flange on the other side of said cover.

3. In a meter the combination of a meter-case with a cover having an offset and a flange depending therefrom, said flange having a hole in one side, a pin projecting from said case and passing through said hole and a clamp detachably secured to said case and engaging said flange on the other side of said cover and means for sealing said clamp.

4. In a meter, the combination of a meter-case, a main cover portion having a depending flange, means for securing one side of said flange to said case, a terminal-box having a detachable cover, and means attached to said detachable cover for securing the other side of said flange to said case.

5. In a meter, the combination of a meter-case, a main cover portion having a depending flange, means for holding one side of said flange in position, a terminal-box having a detachable cover, a clamp attached to said cover for holding the other side of said flange in position, and means for sealing said clamp.

6. In a meter, the combination of a main cover portion having an outwardly-projecting portion, a ring having an inwardly-turned portion engaging said projecting portion, means for holding said ring in a definite position relatively to said case, and a projection for definitely determining the position of said main cover portion relatively to said ring.

786,725. LOCKING-NUT. ANDREW V. BRYCE, Allegheny, Pa., assignor of two-thirds to Milton Bartley, Pittsburg, Pa., and Frederick Bowery, Avalon, Pa. Filed May 25, 1904. Serial No. 209,810.



Claim.—1. A locking-nut comprising an outer unthreaded portion having interior turning projections and tapered bearing portions, and an inner threaded portion provided with annular projections at its upper edge adapted to be rotatively engaged by the projections of the unthreaded portions, substantially as set forth.

2. A locking-nut comprising an outer unthreaded portion having interior turning projections and bearing portions, and an inner threaded portion provided with annular projections at its upper edge adapted to be rotatively engaged by the projections of the unthreaded portion, and capable of being forced down flush with the top of the nut, substantially as set forth.

3. A locking-nut comprising an outer unthreaded portion having interior turning projections and tapered bearing portions, and an inner threaded portion provided with annular projections and recesses at its upper edge adapted to be rotatively engaged by said turning projections, substantially as set forth.

4. A locking-nut comprising an outer unthreaded portion having interior turning projections, intervening depressions and tapered bearing portions, and an inner threaded portion provided with annular projections at its upper edge adapted to be rotatively engaged by said turning projections, substantially as set forth.

5. A locking-nut comprising an outer unthreaded portion having turning devices, tapered bearing portions and interior limiting-abutments, and a slotted inner-threaded tapered portion provided with upper annular projections adapted to be turned thereby, and to engage said limiting-abutments, and lower outwardly-expanding binding portions adapted to be forced past said limiting-abutments and to bind against them to prevent displacement, substantially as set forth.

6. In a locking-nut, the combination of an outer unthreaded portion provided with vertical inwardly-extending turning projections, intervening tapered portions, and an annular limiting-shoulder; and an inner slotted threaded portion having corresponding tapered bearing portions and portions adapted to be engaged by said turning projections; said inner portions being adapted to be contracted by the outer portion to bind inwardly upon a threaded bolt and to pass down flush with the upper surface of the outer portion, substantially as set forth.

7. In a locking-nut, the combination of an outer unthreaded portion provided with vertical inwardly-extending turning projections and interior limiting-abutments; and an inner slotted threaded portion having corresponding tapered bearing portions and portions adapted to be engaged by said turning projections, with corresponding limiting-abutments; said inner portions being adapted to be contracted by the outer portion to bind inwardly upon a threaded bolt and to pass down flush with the upper surface of the outer portion, substantially as set forth.

8. A locking-nut comprising an outer unthreaded portion having interior turning portions and tapered faces, and an inner threaded portion provided with exterior portions adapted to be engaged by the turning portions, and tapered faces; said outer and inner portions having interfitting surfaces extending longitudinally throughout their length parallel with the axis of the bolt-cavity, substantially as set forth.

9. A locking-nut comprising an outer unthreaded portion having interior turning portions and tapered faces, and an inner threaded portion provided with exterior portions adapted to be engaged by the turning portions, and tapered faces; said outer and inner portions having interfitting projecting and recessed surfaces extending longitudinally throughout their length parallel with the axis of the bolt-cavity, substantially as set forth.

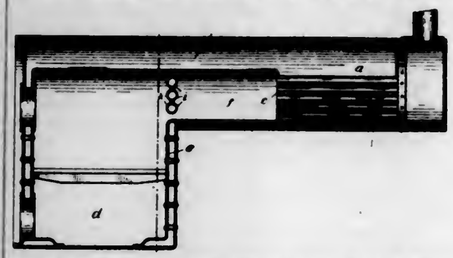
10. A locking-nut comprising an outer unthreaded portion having interior turning portions and tapered faces, and an inner threaded portion provided with exterior portions adapted to be engaged by the turning portions, and tapered faces; said outer and inner portions having interfitting flat surfaces extending longitudinally throughout their length parallel with the axis of the bolt-cavity, substantially as set forth.

11. An internal threaded slotted bushing for a locking-nut provided with parallel inner and outer sides, outer tapered wedging-faces, and upper rotating projections, substantially a set forth.

12. An internal threaded slotted bushing for a locking-nut provided with outer projecting and outer recessed bearing-surfaces parallel with the inner sides, outer tapered wedging-faces, and rotating projections formed by said faces, substantially as set forth.

13. An internal threaded slotted bushing for a locking-nut provided with exterior surfaces extending longitudinally throughout its length parallel with the axis of its bolt-cavity; with intervening wedging-faces, substantially as set forth.

786,726. AIR-FEEDING DEVICE FOR FURNACES. MICHAEL E. CASEY, Mansfield, Ohio. Filed June 17, 1904. Serial No. 213,032.



Claim.—1. The combination with a furnace, of a plurality of apertured air-inlet tubes having open ends and extending across the furnace and through the walls thereof, and a hollow standard connecting the tubes intermediate their ends and within the furnace for strengthening the tubes and permitting intercommunication.

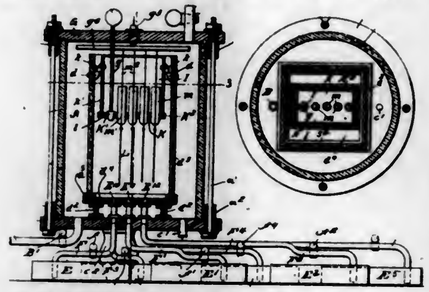
2. The combination with a furnace, of a plurality of apertured air-inlet tubes located between the fire-box and combustion, the tubes sustained at their ends in the walls of the furnace, and a hollow standard connecting the tubes intermediate their ends, the tubes being spaced apart from each other and from the walls of the furnace to permit the passage of the products of combustion below, above and between the same.

786,727. APPARATUS FOR THE MANUFACTURE OF GLOWERS FOR ELECTRIC LAMPS. FRANCIS M. F. CAZIN, Hoboken, N. J. Filed Feb. 2, 1903. Serial No. 141,501.

Claim.—1. An apparatus of the class described, comprising a bell-jar, a receptacle mounted in said bell-jar, a holder mounted in said receptacle and insulated therefrom and adapted to hold the prospective filaments, means for exhausting said bell-jar, for the purposes specified.

2. An apparatus of the class described, comprising a bell-jar, a receptacle mounted in said bell-jar, a holder mounted in said receptacle and insulated therefrom and adapted to hold the prospective filaments, means for exhausting said bell-jar, a plurality of tanks having valve-controlled pipe connection with the receptacle for the purposes specified.

3. An apparatus of the class described, comprising a bell-jar, a receptacle mounted in said bell-jar, a holder mounted in said receptacle and insulated therefrom and adapted to hold the prospective filaments, means for exhausting said bell-jar, a plurality of tanks having valve-controlled pipe connection with the receptacle said bell-jar having a conducting top and bottom insulated from each other, and means for electrically connecting said bottom to said receptacle, and said top to said holder, for the purposes specified.



4. In an apparatus for manufacturing filaments from linear or wire-like solids or cores, means for holding said linear bodies or cores, means for alternately admitting liquids to immerse said cores, means for passing electric current from end to end through said bodies, means for passing electric current through such bodies as cathodes, means for air-exhausting from said bell-jar, and means for reducing deposited matter, for the purposes specified.

5. In an apparatus of the class described, comprising in combination with an exhaustible bell-jar, a receptacle mounted within the same, a holder mounted within the receptacle, for the purposes specified.

6. In an apparatus of the class described, comprising in combination with an exhaustible bell-jar, a receptacle mounted within the same, a holder mounted within the receptacle, means for evacuating said bell-jar, and means for admiting liquid to said receptacle and holder, for the purposes specified.

7. In an apparatus of the class described, comprising in combination with an exhaustible bell-jar, a receptacle mounted within the same, a holder mounted within the receptacle, means for evacuating said bell-jar, and means for admitting liquid to said receptacle, and means for again expelling said liquids from said receptacle and holder, for the purposes specified.

8. In an apparatus of the class described, comprising in combination with an exhaustible bell-jar, a receptacle mounted within the same, a prospective filament mounted within the receptacle, means for evacuating said bell-jar, and means for admitting liquid to said receptacle, means for again expelling said liquids from said receptacle and holder, and means for passing electric current through said liquid to cause electrolytic deposition on said prospective filament, for the purposes specified.

9. In an apparatus of the class described, comprising in combination with an exhaustible bell-jar, a receptacle mounted within the same, a prospective filament mounted within the receptacle, means for evacuating said bell-jar, and means for admitting liquid to said receptacle, means for again expelling said liquids from said receptacle and holder, and means for passing electric current through said liquid to cause electrolytic deposition on said prospective filament, and means for causing a current to pass through said prospective filament serially, for the purposes specified.

10. In an apparatus of the class described, a bell-jar having a non-conducting wall, a conducting top and bottom, means for detachably connecting said top and bottom to said wall, for the purposes specified.

11. In an apparatus of the class described, a bell-jar having a non-conducting wall, a conducting top and bottom, means for detachably connecting said top and bottom to said wall, a receptacle having a non-conducting wall and a conducting-bottom mounted within the bell-jar, and in electrical connection with the bottom thereof, for the purposes specified.

12. In an apparatus of the class described, a bell-jar having non-conducting wall, a conducting top and bottom, means for detachably connecting said top and bottom to said wall, a receptacle having a non-conducting wall and a conducting-bottom mounted within the bell-jar, and in electrical connection with the bottom thereof, a plurality of tanks connected with said receptacle and adapted to contain liquid, means for sucking said liquids alternately into said receptacle, for the purposes specified.

13. In an apparatus of the character described, a bell-jar having a non-conducting wall, a conducting top and bottom, means for detachably connecting said top and bottom to said wall, a receptacle having a non-conducting wall and a conducting-bottom mounted within the bell-jar, and in electrical connection with said receptacle and adapted to contain liquid, means for alternately admitting said liquid into said receptacle and for withdrawing said liquid out of said receptacle, for the purposes specified.

14. In an apparatus of the class described, a bell-jar, having transparent non-conducting wall and conducting top and bottom plates detachably joined therewith, a receptacle having a bottom and a transparent wall mounted within said bell-jar and electrically connected with said bell-jar bottom plate, a plurality of liquid containing and generating tanks, valved pipe connections between said tanks and the interior of the said receptacle, a holder having a transparent wall and a conducting-bottom mounted in and insulated from said receptacle, said holder adapted to receive the prospective filaments, means for electrically connecting said bell-jar top plate to said holder-bottom, means for electrically connecting said top plate with one end of said prospective filament, and a terminal mounted on and insulated from the top plate and in electrical connection with the other end of the filament, for the purposes specified.

15. In an apparatus of the class described, a bell-jar, having transparent non-conducting wall and conducting top and bottom plates detachably joined therewith, a receptacle having a bottom and a transparent wall mounted within said bell-jar and electrically connected with said bell-jar bottom plate, a plurality of liquid containing and generating tanks, valved pipe connections between said tanks and the interior of the said receptacle, a holder having a transparent wall and a conducting-bottom mounted in and insulated from said receptacle, said holder adapted to receive the prospective filaments, means for electrically connecting said bell-jar top plate to said holder-bottom, means for electrically connecting said top plate with one end of said prospective filaments, and a terminal mounted on and insulated from the top plate and in electrical connection with the other end of the filament, means for evacuating said bell-jar, for the purposes specified.

16. In an apparatus of the class described, a bell-jar, having transparent non-conducting wall and conducting top and bottom plates detachably joined therewith, a receptacle having a bottom and a transparent wall mounted within said bell-jar and electrically connected with said bell-jar bottom plate, a plurality of liquid containing and generating tanks, valved pipe connections between said tanks and the interior of the said receptacle, a holder having a transparent wall and a conducting-bottom mounted in and insulated from said receptacle, said holder adapted to receive the prospective filaments, means for electrically connecting said bell-jar top plate to said holder-bottom, means for electrically connecting said top plate with one end of said prospective filaments, and a terminal mounted on and insulated from the top plate and in electrical connection with the other end of the filament, and means for sucking the liquids from the tanks at will into the receptacle and holder, for the purposes specified.

17. In an apparatus of the class described, a bell-jar, having transparent non-conducting wall and conducting top and bottom plates detachably joined therewith, a receptacle having a bottom and a transparent wall mounted within said bell-jar and electrically connected with said bell-jar bottom plate, a plurality of liquid containing and generating tanks, valved pipe connections between said tanks and the interior of the said receptacle, a holder having a transparent wall and a conducting-bottom mounted in and insulated from said receptacle, said holder adapted to receive the prospective filaments, means for electrically connecting said bell-jar top plate to said holder-bottom, means for electrically connecting said top plate with one end of said prospective filaments, and a terminal mounted on and insulated from the top plate and in electrical connection with the other end of the filament, and means for sucking the liquids from the tanks at will into the receptacle and holder, means for expelling said liquids from the holder and receptacle into their respective tanks, at will, for the purposes specified.

18. In an apparatus of the class described, a bell-jar, having transparent non-conducting wall and conducting top and bottom plates detachably joined therewith, a receptacle, having a bottom and a transparent wall mounted within said bell-jar and electrically connected with said bell-jar bottom plates, a plurality of liquid containing and generating tanks, valved pipe connections between said tanks and the interior of the said receptacle, a holder having a transparent wall and a conducting-bottom mounted in and insulated from said receptacle, said holder being adapted to receive the prospective filaments, means for electrically connecting said bell-jar top plate to

said holder-bottom, means for electrically connecting said top plate with one end of said prospective filaments, and a terminal mounted on and insulated from the top plate and in electrical connection with the other end of the filament, and means for sucking the liquids from the tanks at will into the receptacle and holder, means for expelling said liquids from the holder and receptacle into their respective tanks, at will, and means for drying said prospective filament while within the apparatus, and means for causing said filament to incandesce, for the purposes specified.

19. The combination with an electrolytic-plating apparatus of an air-exhausting apparatus including a bell-jar for inclosing said plating apparatus, means for admitting an electrolyte to and means for withdrawing the electrolyte from, the bell-jar, for the purposes specified.

20. In an apparatus for manufacturing filaments from bamboo twick and the like, means for holding said twick, means for admitting liquids to immerse said twick, means for withdrawing said liquids, means for creating a vacuum around said twick, means for electrolytically depositing matter on said twick, and means for reducing said deposited matter, for the purposes specified.

21. In an apparatus for manufacturing filaments from organic cores and the like, means for holding said cores, means for admitting liquids to immerse said cores, means for withdrawing said liquids, means for creating a vacuum around said cores, means for electrolytically depositing matter on said core, and means for reducing such deposited matter, for the purposes specified.

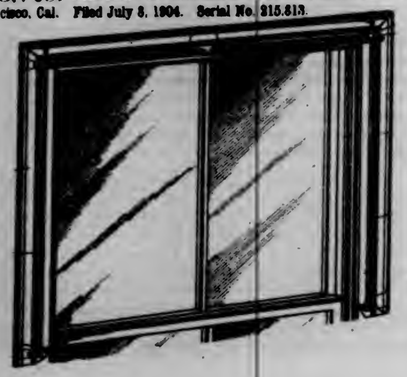
22. In an apparatus of the class described, a bell-jar having a non-conducting wall, a conducting top and bottom, means for detachably connecting said top and bottom to said wall, a receptacle having a non-conducting wall and a conducting-bottom mounted within the bell-jar, and in electrical connection with said receptacle and adapted to contain liquid, means for sucking said liquids alternately into said receptacle, means for alternately forcing said liquids out of said receptacle back into their respective tanks, for the purposes specified.

786,728. **DIAPER-SUPPORT.** CLIFFORD L. CHRISTIAN, Savannah, Ga. Filed Nov. 1, 1904. Serial No. 230,055.



Claim.—The combination with a child's undergarment, which is open down the front, of a strip of strong material extending a portion of the way down the center of the back on the inside thereof and terminating above the lower end of the garment, a strip of strong material extending a portion of the way down one edge of the opening at the front and terminating above the lower end of the garment, the lower end of each strip being free and formed with a plurality of buttonholes, and an elastic diaper-supporting tab buttoned to the lower end of each strip.

786,729. **HANGER FOR CURTAINS.** JOHN J. COCHRAN, San Francisco, Cal. Filed July 8, 1904. Serial No. 215,613.



Claim.—1. A curtain-hanger comprising a rotary operating-rod, a socket-piece carried thereby, and a curtain-rod having its ends bent into parallel relation with each other and fitted into the socket-piece.

2. A curtain-hanger comprising a rotary operating-rod, a sleeve longitudinally adjustable thereon, a handle on the sleeve, a socket-piece longitudinally adjustable upon the operating-rod, and a curtain-rod removably connected with the socket-piece.

3. The combination of a frame, a plurality of brackets carried thereby, a clip connected therewith, a rotary operating-rod journaled in the brackets, a longitudinally-adjustable sleeve upon the operating-rod, a longitudinally-adjustable socket-piece upon the operating-rod, and a curtain-rod having its opposite ends bent into parallel relation with each other and removably fitted into the socket-piece.

786,730. **FOLDING CRIB.** MARY C. COLLIER, Washington, D. C. Filed June 16, 1904. Serial No. 212,809.



Claim.—1. In a crib, a transverse horizontal bottom bar having raised portions at or near the sides of the crib to form horizontal rests for a spring-bottom, one end of said cross-bar projecting upwardly and provided with a hinge member, the other end being formed into a hook.

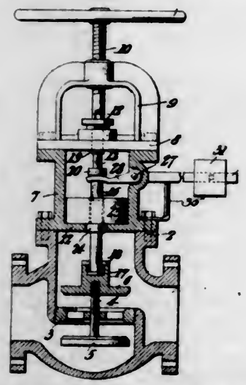
2. In a crib, a transverse horizontal bottom bar raised at or near the sides of the crib to form rests, spring-bars attached to said rests parallel to said bars, and parallel strips extending the length of the crib and fastened to said spring-bars.

3. A crib having a side and ends, transverse horizontal bars having rests at their ends and each having one end upturned and forming a support to which the side of the crib is hinged and the other end terminating in a hook, longitudinal spring-bars secured with said side strips to the rests of the transverse horizontal bars, and strips attached to the upturned ends of said side strips, and to which the ends of the crib are hinged, and means for coupling the side and ends of the crib.

4. In a crib, a mattress-supporting frame, transverse bars below said frame having raised portions or rests to support said frame above said transverse bars, longitudinal side strips attached to said raised portions or rests and having upturned ends, and a strip attached to the upturned ends of said side strips.

5. In a crib, a mattress-supporting frame, comprising transverse spring-bars and longitudinal strips having upturned ends, the ends of the outermost strips being higher than the others, and a strip passing around three sides of said crib and connected to the upturned ends of the outermost strips.

786,731. **VALVE.** FREDERICK H. CRABTREE and ALEXANDER G. MCGREGOR, Anaconda, Mont. Filed June 21, 1904. Serial No. 213,551.



Claim.—1. In combination, a valve-casing, a valve, and a pair of normally inactive weights tending to maintain the valve in a predetermined position, one or other of the weights being imposed on the valve when the latter moves from such position.

2. A valve, and a pair of weights connected to the stem of the valve, and acting, respectively, in opposite directions on the stem, one or other of the weights being imposed on the stem when the valve moves in either direction.

3. The combination with a valve-casing, of a pair of valve-seats, a pair of valve-disks movable respectively in opposite directions to closed positions, a stem connecting the valves, a rocker-shaft, a rocker-arm carried by the shaft and connected to the stem, a second rocker-arm also connected to the shaft and provided with an adjustable counterweight, and a stop or rest for the second rocker-arm when the valve is in mid-position.

4. The combination with a valve-casing, having a pair of valve-seats, of a pair of disk valves, a stem connected to the same, an enlarged collar or flange at the outer end of the stem, a rock-shaft, a bifurcated rocker-arm engaging on the collar, said arm being secured to the shaft, a second rocker-arm extending outside the valve-casing, and an adjustable counterweight carried by the second rocker-arm.

5. The combination with a valve-casing having a pair of valve-seats, of a pair of disk valves movable respectively in opposite directions to closed position, a stem connected to the two valves and provided with an enlarged flange or collar, a rock-shaft having one end extending through the upper portion of the valve-casing, a rocker-arm connected to the inner end of said shaft and having a bifurcated portion in engagement with the collar, a second rocker-arm connected to the outer portion of the shaft, and a counterweight carried by the second rocker-arm.

6. The combination with a valve-casing having a pair of valve-seats, of a pair of disk valves movable respectively in opposite directions to closed position, a bonnet secured to the casing and having an offset portion, a rock-shaft extending into said offset portion and provided with an enlarged collar or flange, a clamp-nut surrounding a portion of the shaft and engaging the end of the collar to retain the shaft in position, a pair of rocker-arms carried by the shaft one of said rocker-arms engaging the stem, and a counterweight adjustably secured to the second rocker-arm.

7. In valve mechanisms, a casing, a valve, and a weight having a slidable connection with the valve to permit the free movement of the valve in one direction and limited movement in the opposite direction, said weight being imposed on the valve when the latter is moved beyond the normal limit in said opposite direction.

8. In valve mechanisms, a casing having a valve-seat, a valve free to move with respect to the valve-seat, and a weight for limiting the movement of the valve, said weight being imposed on the valve only when the latter exceeds its normal limit of movement

9. The combination with a valve-casing having a pair of valve-seats, of a pair of valves movable respectively in opposite directions to closed position, a valve-stem, and a weight having an opening for the passage of the stem therethrough to permit freedom of movement of the valves to a limited extent, the weight being imposed on the stem when such limit of movement is exceeded.

10. The combination with a valve-casing having a pair of valve-seats, of a pair of valves movable, respectively, in opposite directions to closed positions, a stem connecting the valves, and means for counterbalancing the weight of the valve and stem, a bonnet connected to the valve-casing, a loose weight arranged within the bonnet and having an opening for the free play of the valve-stem, and an enlarged collar or flange carried by the valve-stem for engaging and raising the weight when the valve exceeds its normal limit of movement.

11. The combination with a valve-casing having a pair of valve-seats, of a pair of valves movable, respectively, in opposite directions to closed position, a valve-stem connected to both valves and having a longitudinal opening, and a manually-operable threaded stem having a reduced portion fitting in said opening.

12. The combination with a valve-casing having a pair of valve-seats, of a pair of valves, a recessed stem carrying said valves, means for counterbalancing the weight of the valves, a stem, a second weight having an opening for the passage of the stem, a collar secured to the stem and serving to engage and raise the weight when the valve-stem exceeds its normal limit of movement in one direction, and a manually-operable threaded stem having a reduced end fitted within the hollow valve-stem.

786,732. **FOLDING TABLE.** JESSE A. CRANDALL, New York, N. Y., assignor of one-half to Frank Pierce Briggs, New York, N. Y. Filed June 29, 1904. Serial No. 214,612.

Claim.—1. A folding table comprising a standard, legs pivoted thereto, an even number of solid inflexible leaves pivotally connected with said standard, and means for automatically swinging each alternate leaf when the legs are swung on their pivots and leaving the other leaves free to swing in the same direction.



2. A folding table comprising a standard, legs movably connected thereto, an even number of leaves connected with the standard, and means for automatically swinging each alternate leaf toward the legs when the legs are moved in one direction and leaving the other leaves free to move in the same direction by gravity.

3. A folding table comprising a standard, legs pivoted thereto, an even number of leaves pivotally connected with said standard, means for automatically swinging each alternate leaf when the legs are swung on their pivots, and means on said alternate leaves for swinging the other leaves in one direction.

4. In a table, the combination of a standard, legs pivoted thereto, leaves pivotally connected with the standard, and connections between said legs and leaves comprising a link pivoted to each leg, links pivoted to certain of the leaves, and a toggle-joint connecting each of the first-mentioned links with the last-mentioned links.

5. In a table the combination of a standard, legs pivoted thereto, leaves pivotally connected to the standard, and connections between said legs and leaves comprising a link pivoted to each leg, links pivoted to certain of the leaves, a collar slidably mounted on the standard, and connected with the last-mentioned links, and a third series of links connecting the collar with the links pivoted to the legs.

6. In a table, the combination of a standard, legs pivoted thereto, leaves pivotally connected with the standard, and means for automatically swinging said leaves when the legs are swung on their pivots, comprising a pair of links pivotally attached together, one of said links being pivoted to a leg and the other connected to the leaves by means including a pivotal connection, the point at which one link is pivoted to the leg being farther from the center of the standard than that at which the other link of the pair is pivotally connected to the leaves.

7. In a table, the combination of a standard, legs pivoted there to, leaves pivotally connected with the standard, and means for automatically swinging the leaves upon the operation of the legs on their pivots; said means comprising a pair of links pivotally attached together, one of said links being pivoted to a leg and the other pivotally connected with a leaf, said links being adapted to be forced inwardly toward the standard at the point at which they are connected together, so that said point will be inside of a straight line drawn between the two points at which the outer ends of said links are pivoted.

8. In a table, the combination of a standard, legs connected thereto, leaves connected with the standard, and means for automatically swinging said leaves when the legs are moved; said means comprising a pair of links pivotally attached together, one of said links being attached to a leg and the other connected to the leaves, the point at which one link is attached to the leg being farther from the center of the standard than that at which the other link of the same pair is connected to the leaves.

9. A folding table, comprising solid inflexible leaves the opposite edges of which abut against those of the adjacent leaves throughout their length when the leaves are in open position, and a center

piece to which the leaves are pivotally attached, said center piece and leaves constituting the entire top of the table.

10. A folding table, comprising leaves having abutting edges throughout their length, a center piece to which the leaves are pivotally attached, and means for permitting the leaves to swing away from the plane of the center piece.

11. A circular folding table, comprising leaves having radial abutting edges throughout their length, a center piece to which the leaves are pivotally attached, and means for permitting the leaves to swing away from the plane of the center piece.

12. A circular folding table, comprising leaves having radial abutting edges, a center piece to which the leaves are pivotally attached, and means for permitting the leaves to swing away from the plane of the center piece and to assume positions where they will all make equal angles with the top surface thereof.

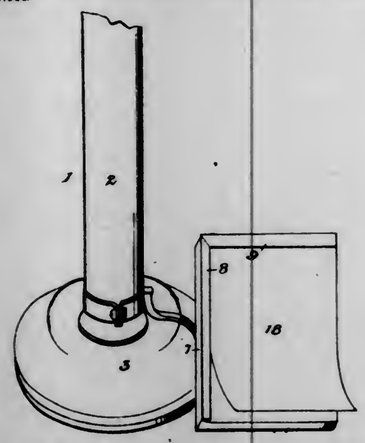
13. A folding table having a top substantially of circular form, comprising a center piece made up of triangular sections, and an equal number of leaves each pivotally attached to one of said triangular sections.

14. An article of manufacture having a top of substantially circular form, comprising a center piece made up of triangular sections, every alternate one of said sections projecting beyond the other sections a distance as great as the thickness of the said leaves, and a plurality of leaves each hinged to the base of one of said triangular sections.

15. An article of manufacture, comprising a center piece having alternate projections and indentations in its periphery, and a plurality of leaves each hinged to the center piece on a projection or at an indentation, said leaves hinged on the projection being shorter than the others, and the edges of said leaves abutting against each other throughout their length when they are in the plane of the center piece.

16. An article of manufacture, comprising a circular center piece having alternate projections and indentations in its circumference, a plurality of leaves extending radially from the center piece each forming a section of a circular top and each hinged to the center piece on a projection or at an indentation, the said leaves hinged on the projection being shorter than the others by a distance equal to the thickness of the leaves, and said projections extending the same distance beyond the indentations.

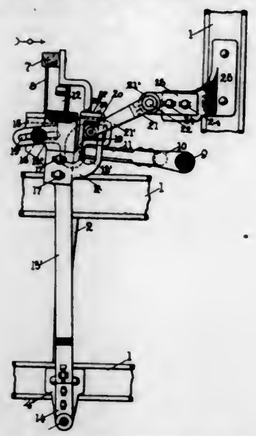
786,733. MEMORANDUM ATTACHMENT FOR TELEPHONES. JOHN W. CURRIER, Boston, Mass. Filed Jan. 11, 1905. Serial No. 240,644.



Claim.—1. An attachment for telephones comprising a tablet-holder and an arm projecting from said holder and secured to the telephone, said arm bearing on the telephone-base from its attachment to the telephone to the edge of the base.

2. The combination with a telephone having a base and a barrel rising therefrom, of a tablet-holder having an integral lip on the side adjacent the telephone to clamp the tablet in place, the free edge of said lip acting as a cutter, and an arm secured to the tablet-holder and to the telephone, said arm bearing on the telephone-base from its attachment to the telephone to the edge of the base.

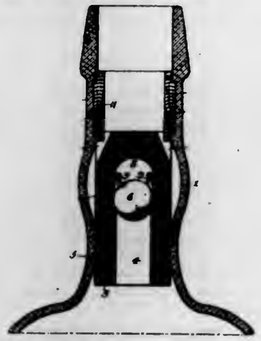
786,734. LOOM FOR MAKING PILE FABRICS. JOSEPH T. CYR, Worcester, Mass., assignor to Crompton & Knowles Loom Works, a Corporation of Massachusetts. Filed Apr. 23, 1904. Serial No. 204,498.



Claim.—1. In a loom of the class described, the combination with a lay pivotally supported and having a swinging motion, of a pivotally-supported and swinging frame at the end of the lay, carrying a shuttle-box, and connections between the lay and said frame, comprising a plate secured to the lay having a vertically and horizontally extending curved slot therein, and a plate secured to the swinging frame having a vertically-extending slot or way therein, a block or roll traveling in said vertically-extending slot, and also in the vertically and horizontally extending curved slot in the plate on the lay, said block or roll carried on a pivotally-attached arm, substantially as shown and described.

2. In a loom of the class described, the combination with the lay, pivotally supported and having a swinging motion, of a pivotally-supported and swinging frame at the end of the lay, carrying a shuttle-box, and connections between the lay and said frame, comprising a plate fast on the lay having a horizontally-extending slot in its forward part, and a vertically and horizontally extending curved slot in its rear part, a bolt extending into said horizontally-extending slot, and secured to said swinging frame, and a plate having a vertically-extending slot or way therein, secured to said swinging frame, a block or roll traveling in said vertically-extending slot and in said vertically and horizontally extending curved slot in the plate on the lay, and a pivotally-attached arm carrying said block or roll, substantially as shown and described.

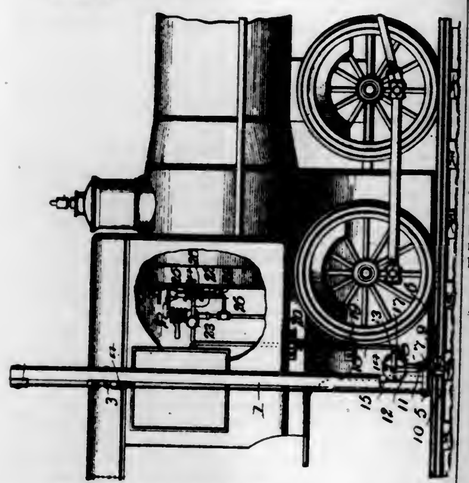
786,735. BOTTLE-STOPPER. CHRISTIAN DORN, Philadelphia, Pa., assignor to Charles Rath, Philadelphia, Pa. Filed July 24, 1903. Renewed Sept. 13, 1904. Serial No. 224,323.



Claim.—1. The combination in a bottle-stopper, of a valve-seat, a valve, a block superposed on the seat and having notched upper corners and bottom valve-receiving chamber with lateral slots offset in respect to the notches, and means for retaining said block in position upon the valve-seat, substantially as specified.

2. The combination in a bottle-stopper, of a valve-seat, a valve, a block having a valve-chamber of substantially the same diameter as the valve, lateral slots leading from said chamber, and notches in the upper corners of the block offset in respect to said slots and means for retaining said block in its position upon the valve-seat, substantially as specified.

786,736. SAFETY SIGNAL SYSTEM. FRANK DORNBERGER and FREDERICK REISSMANN, Westpoint, N. Y. Filed Aug. 13, 1904. Serial No. 220,624.



Claim.—The herein-described safety signaling system comprising the combination of a semaphore or other signal 2; an arm 11 vertically disposed near the trackway and operatively connected with said signal whereby when the signal is at "danger" said arm will be vertically disposed and horizontally disposed when the signal is moved out of danger; suitable valves; a common controlling-shaft 24 for said valves; suitable intermediate controlling devices between said shaft and the arm 11 whereby if said arm is disposed in the pathway of said controlling devices the shaft 24 will be partially turned to simultaneously operate said valves, thereby cutting off the source of power leading to the throttle-valve or controller and also open the air-pipe leading to the braking system and suitable means as a whistle designed to utilize the escape of the air all combined substantially as specified and for the purpose set forth.

786,737. DISPLAY-CABINET. JOHN A. DOUGLASS and CARYE A. FAGG, Palestine, Tex. Filed July 26, 1904. Serial No. 218,253.

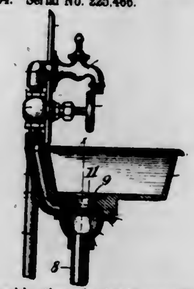


Claim.—1. A display-cabinet having a plurality of retaining devices comprising approximately U-shaped members, the ends of which extend through perforations in the cabinet, and automatic means for drawing said retaining devices inwardly as the articles held thereby decrease in size.

2. A display-cabinet comprising a base having an annular ball-race, a series of antifriction-balls in the ball-race, a cabinet on the balls and having an extended bottom piece, a flange extending above and below the bottom piece and being disposed therearound, a shelf between the flange and the cabinet above the extended portion of the bottom piece, a brace-board in the lower portion of the cabinet, on a level with the shelf, a pair of brace-boards in the upper portion of the cabinet, said brace-boards having registering grooves, a plurality of retaining devices comprising approximately U-shaped members, the parallel ends of which extend through the cabinet into the registering grooves of the brace-boards, and a coil-spring attached to each end of each member and disposed in the grooves.

3. A cabinet comprising a base, having casters and formed with an annular ball-race, a series of antifriction-balls in the ball-race, a cabinet on the ball-race and having an extended bottom piece, a flange extending above and below the bottom piece and being disposed therearound, a shelf between the flange and the cabinet above the extended bottom piece, a brace-board in the lower portion of the cabinet, a pair of brace-boards in the upper portion of the cabinet, and having registering grooves, a plurality of retaining devices comprising approximately U-shaped members, the parallel ends of which extend through the cabinet into the registering grooves of the brace-boards, a coil-spring attached to each end of each member, and disposed in one of the grooves, a door for the cabinet, and a plurality of retaining devices on the door, disposed below the pair of brace-boards at the upper portion of the cabinet.

786,738. DOMESTIC SINK. JOHN H. DOYLE, New Orleans, La. Filed Sept. 22, 1904. Serial No. 225,466.



Claim.—1. The combination of a basin provided at its bottom with an aperture, a pocket connected with said basin and projecting through said aperture, said pocket being provided with perforations, and means for directing a stream of water tangentially against the exterior of said pocket.

2. The combination of a basin provided with a perforated pocket depending therefrom, and means for directing a stream of water tangentially upon the outer surface of said pocket.

3. The combination of a basin provided with a perforated pocket depending therefrom, and also provided with a screen covering said pocket, and means for directing a stream of water tangentially against the exterior of said pocket.

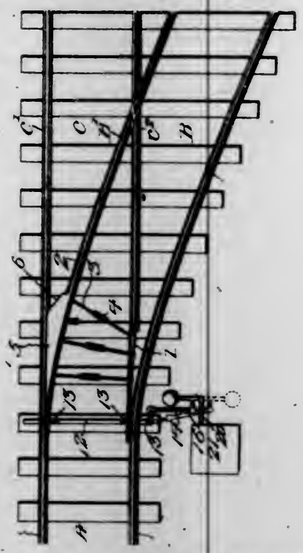
4. The combination of a basin provided with a perforated pocket depending therefrom, and means for directing a stream of water tangentially against the outer surface of said pocket.

5. The combination of a basin provided with a pocket depending therefrom for discharging a liquid, a funnel disposed adjacent to said pocket and encircling the same, and means for directing a stream of water tangentially into the space intermediate of said pocket and said funnel.

786,739. RAILWAY-SWITCH. GEORGE W. DUKE, Powder Springs, Ga. Filed Dec. 30, 1904. Serial No. 237,663.

Claim.—1. A switch mechanism for railways comprising two swinging switch-points, one of said switch-points having an integral flange or frog-wing projecting laterally therefrom and adapted to be engaged by the wheel of a car or locomotive moving in one direction for automatically shifting said switch-points, means connecting the switch-points for simultaneous movement, and spring-retracting means for restoring the switch-points to a determined normal position.

2. A switch mechanism for railways comprising two switch-points, one of said switch-points being provided with an integral laterally-projecting flange or frog-wing having a heel portion adapted to be engaged by the wheel of a locomotive or car traveling in one direction to shift said switch-points, means for connecting the switch-points for simultaneous movement, and spring-retracting means for restoring the switch-point to a determined normal position.



3. A switch mechanism for railways comprising two swinging switch-points having a wheel-engaging flange or frog-wing, means for connecting said switch-points for simultaneous movement, a guide-bolt connecting the flanged portion of the aforesaid switch-point with a rail, and a spring coacting with said guide-bolt to restore the switch-points to a determined normal position.

4. In a switch mechanism for railways, two switch-points connected for simultaneous movement, one of said switch-points having a wheel-engaging flange whereby it is adapted to be shifted by a moving car or locomotive, a stay-bolt extending loosely through said switch-point and movably connected to an adjacent rail, and a spring coacting with said switch-point to restore the switch-points to a determined normal position.

5. In a switch mechanism for railways, a swinging switch-point having a laterally-projecting frog-wing formed with a beveled or inclined heel portion to be engaged by the wheel-flange of a car or locomotive.

6. A switch mechanism for railways comprising two pivoted switch-points, said switch-points being connected for simultaneous movement, one of said switch-points being adapted to be automatically shifted by the wheel of a car or locomotive traveling in one direction, spring means for returning the switch-points to a determined normal position, a shifting-bar connected to the switch-points, and a throw-lever having a slip-joint connection with said bar.

786,740. **STAND.** SYLENA A. DUNCAN, New York, N. Y. Filed May 16, 1904. Serial No. 208,239.



Claim.—1. A device of the character described, comprising a central section, a lamp-carrying section movably positioned within the central section, a removable compressible base-section positioned within the central section, and a movable section positioned upon the central section and adapted to be positioned around the base-section for inclosing the same.

2. A device of the character described, comprising a central tubing, a removable tubing positioned within said central tubing, a removable member provided with legs secured to said central tubing, and means positioned upon said central tubing adapted to be extended around said legs.

3. A device of the character described, comprising a central tubular section, a tubular lamp-carrying section movably positioned within said central section, a removable leg-carrying section secured to said central section, and a removable tubular section mounted upon said central section and adapted to be extended around said leg-carrying section.

4. A device of the character described, comprising a tubular central member, an inner tubular member carried by said central member, resilient legs secured to said central member, and a movable tubular member mounted upon said central member adapted to inclose said legs.

5. In a device of the character described, the combination of a central section, an upper section movably positioned upon said central section, a base member assembled with said central section, and means carried by said central section adapted to be positioned around said base member.

6. A device of the character described, comprising a central member, a removable member provided with a plurality of resilient legs mounted within said central member, a lower member slidably mounted upon said central member adapted to be positioned around said legs, and a member slidably mounted within said central member.

7. A device of the character described, comprising a leg-section, legs extending therefrom, a section secured above said leg-section, a section slidably mounted upon said section mounted upon said legs, and adapted to be positioned around the legs.

8. In a device of the character described, the combination of a plurality of legs secured in an assembled position, a section removably secured to said legs, a section secured upon said leg-supported section adapted to be positioned around said legs, and lamp-carrying means positioned within said leg-supported section.

9. A device of the character described, comprising a central section, a lamp-carrying section slidably assembled with said central section, a flexible base secured to said central section, and means positioned upon said central section and adapted to be projected around said flexible base.

10. In a device of the character described, the combination of a leg-section, said section comprising a body portion and a plurality of outwardly-curved flexib e legs, a lamp-carrying section secured above said leg-section, and slidable means carried by the body portion of said leg-section and adapted to be positioned longitudinally upon the flexible legs for drawing the same together.

11. A stand, comprising a body portion, a compressible leg-section secured thereto, a movable carrying-section mounted upon said body portion and capable of being projected beyond the same, and an inclosing section carried by said body portion and capable of being extended longitudinally upon said leg-section.

12. A stand, comprising a body portion, a compressible base secured to the body portion, adjustable means mounted upon the body portion and capable of being positioned upon said base for compressing the same, and an adjustable carrying-section positioned upon said body portion.

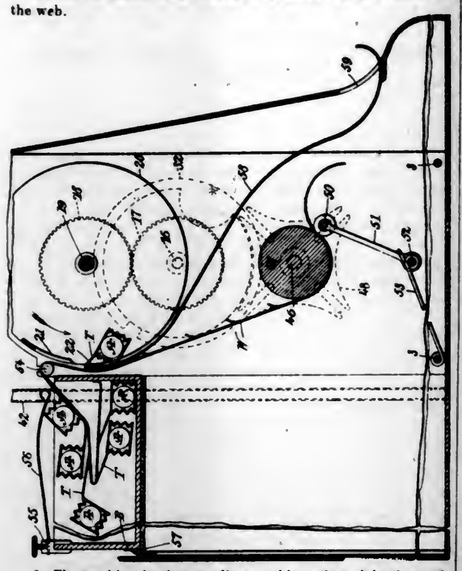
786,741. **VENDING-MACHINE.** THOMAS B. ERWIN and HENRY C. MEYER, Britt, Iowa. Filed May 13, 1904. Serial No. 207,742.

Claim.—1. The combination in a vending-machine, of a fixed cutter, a web-feeding mechanism for feeding a web at one side of the body of the said cutter and in close proximity thereto, and a movable cutter operating in conjunction with the fixed cutter, whereby articles attached to the web by tabs will fall over the edge of the fixed cutter in the travel of the web and the tabs connecting the articles severed from the web.

2. The combination in a vending-machine, of a fixed cutter, a movable cutter operating in conjunction with the fixed cutter, a web having articles attached thereto by tabs, and a web-feeding mechanism for feeding a web in close proximity to and at one side of the body of the fixed cutter, as and for the purpose set forth.

3. The combination in a vending-machine, of a fixed cutter, a movable cutter operating in conjunction with the fixed cutter, a web having articles attached thereto by tabs, a web-feeding device arranged below the fixed cutter, and a web-guide arranged above the fixed cutter, whereby the web will be fed at one side of and in close proximity to the fixed cutter, as set forth.

4. The combination in a vending-machine, of a web having articles attached thereto by separate tabs, means for feeding the web, means for moving one of said articles out of contact with the web during each feed movement of the web, and mechanism for severing the tab of the article after the article is moved out of contact with the web.



5. The combination in a vending-machine, of a web having articles attached thereto by tabs, means for intermittently feeding the web, mechanism for severing the tabs from the web, and a spring adjacent to said web and adapted to engage the articles carried thereby to keep the web under proper tension.

6. The combination in a vending-machine, of a web having articles attached thereto upon one side by tabs, means for feeding the web, a fixed knife adjacent to which the web travels, and a movable knife coöperating with said fixed knife to sever articles from said web.

7. The combination in a vending-machine, of a web having articles attached thereto, means for feeding the web, a fixed knife disposed transversely of said web and in the rear of which the web travels, and a movable knife disposed obliquely to the line of travel of the said web and coöperating with the fixed knife to shear articles from the web.

8. The combination in a vending-machine, of a web having articles attached thereto, means for feeding the web, a fixed knife disposed transversely of the web and in the rear of which the web travels, and a revolving knife disposed obliquely to its axis and coöperating with the fixed knife to shear articles from the web.

9. The combination in a vending-machine, of a web having articles attached thereto by tabs, a web-feeding mechanism, a guide-roller over which the web is adapted to pass, a fixed knife disposed substantially beneath said guide-roller and spaced therefrom, behind which the web is adapted to pass, and a movable knife coöperating with the fixed knife to sever the tabs carrying the articles from the web.

10. The combination in a vending-machine, of a guide-roller, a fixed knife disposed substantially beneath the guide-roller, a feed-roller disposed below and in front of said fixed knife, and a revolving knife coöperating with the fixed knife.

11. The combination in a vending-machine, of a receptacle, a guide-roller disposed adjacent to the receptacle, a spring extending above the receptacle and terminating adjacent to the guide-roller, severing devices beneath the guide-roller behind which a web is adapted to pass, and web-feeding devices disposed in front of the said severing devices.

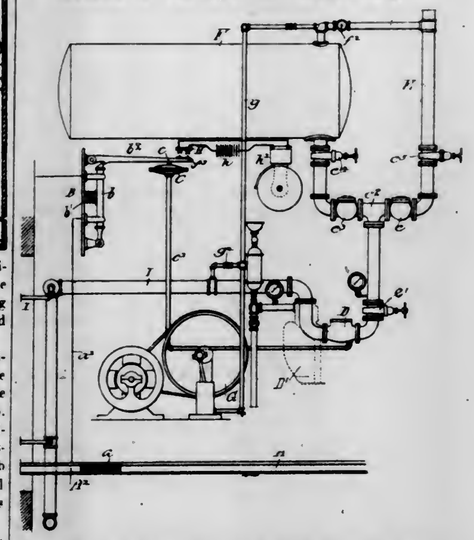
12. The combination in a vending-machine, of web-feeding devices, a star-wheel connected with said web-feeding devices to impart movement thereto, a blank-wheel bearing a stud adapted to engage said star-wheel during a portion of each revolution of the blank-wheel, and article-detaching devices connected with said blank-wheel and operative during the entire revolution of the blank-wheel.

13. In a vending-machine, the combination of a web-feeding means, a star-wheel connected with the web-feeding means for imparting movement thereto, a blank-wheel bearing a stud adapted to be engaged by the star-wheel during a portion of each revolution of the blank-wheel, a cutting device, consisting of a fixed cutter and a revoluble cutter, and means for operating the revoluble cutter from the blank-wheel.

14. In a vending-machine, the combination of a motor, an intermittently-operated web-feeding mechanism, a cutting device comprising a fixed cutter and a revoluble cutter, and means for operating the revoluble cutter, the means for feeding the web and the means for operating the revoluble cutter being so timed that the cutting will take place when the web is at rest.

15. In a vending-machine, the combination of a motor, a web-feeding means intermittently operated by the motor, a cutting device comprising a fixed cutter and a revoluble cutter, and means for operating the revoluble cutter from the motor to cause the cutting to take place when the web is at rest.

786,742. **FIRE-EXTINGUISHING SYSTEM.** POWELL EVANS, Philadelphia, Pa. Filed May 27, 1904. Serial No. 210,093.



Claim.—1. A system including a tunnel structure, automatic fire-extinguishing apparatus, tracks, and an electrical conductor in said structure, a water-supply system for said fire-extinguishing system, an automatic normally closed switch in circuit with said conductor, including means tending to open said switch, and means operatively connected to the water-supply system for releasing the switch when the fire-extinguishing apparatus is operated, substantially as described.

2. A system including a tunnel structure, a series of fire-extinguishing devices therein, tracks extending through the tunnel, an electrical conductor for supplying current to vehicles operating on said tracks, a switch in circuit with said conductor and a device whereby it is normally held closed, a supply system for said fire-extinguishing devices and a pressure-actuated device connected to said system and placed to operate upon said device, for maintaining the switch in its closed position, so as to release the switch, substantially as described.

3. A system including a tunnel structure, a series of fire-extinguishing devices therein, an electrical conductor extending through the tunnel for supplying current to vehicles therein, a normally closed switch in circuit with said conductor, a supply system for said fire-extinguishing devices including an automatically-operated valve and a pressure-operated device connected to said valve and placed to operate upon the switch to open the same, substantially as described.

4. A system including a tunnel structure, fire-extinguishing devices arranged in a series extending through said structure, an electrical conductor for supplying current to vehicles in the tunnel, a

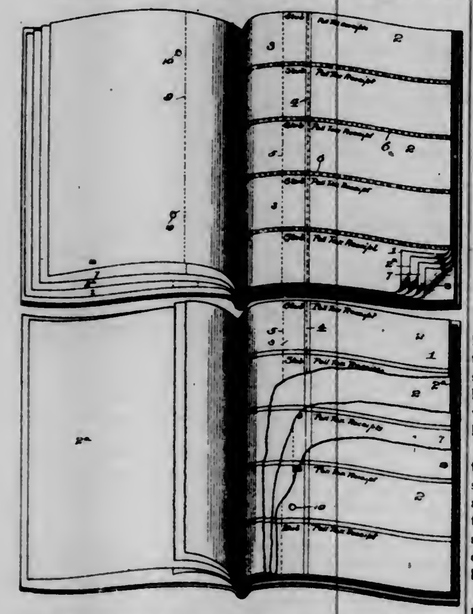
switch in circuit with said conductor, a supply system for the fire-extinguishing system including a pressure-responsive device operatively connected to the system, said device including mechanism operative upon the switch to permit opening of the same when the fire-extinguishing devices are operated, substantially as described.

5. A system including a tunnel structure having within it vehicle-tracks and a fire-extinguishing system for directing water upon a vehicle on said tracks, an electrical system also in said tunnel including a switch, means connected with the fire-extinguishing system for causing opening of the switch when said latter system is operated, with an alarm placed to be actuated by operation of the switch, substantially as described.

6. A system including a tunnel structure, tracks extending therethrough, an electrical system in the tunnel for supplying current to vehicles operating on the tracks, said system including a switch, a fire-extinguishing system for operating on vehicles in the tunnel structure, means placed to act on the switch to cause opening of the same when the fire-extinguishing system is operated, a secondary electric circuit including an alarm and a source of current, and a switch in said circuit placed to be operated by said first switch, substantially as described.

7. A system including a tunnel structure having within it tracks and an electrical conductor, a series of stations placed at intervals along the said structure, means for dividing said conductor into electrically-independent sections, a switch in circuit with each section, a series of fire-extinguishing devices adjacent to the tracks of each conductor-section, apparatus at the stations having means for automatically opening the switch and means connected to the fire-extinguishing system for causing operation of the switch-opening apparatus, substantially as described.

786,743. **POLL-TAX RECEIPT-BOOK.** MARCUS P. EXLINE and EDMUND BOURER, Dallas, Tex., assignors to American Bank Check and Cover Company, St. Louis, Mo. Filed Jan. 8, 1904. Serial No. 188,248.



Claim.—A combined record and receipt book comprising a plurality of groups of leaves and each of said groups comprising first: a leaf formed of a number of receipt-blanks and stubs, said receipt-blanks being connected to said stubs and to each other by a weakened portion, whereby said receipt-blanks may be removed from said record and receipt book; second, a leaf permanently secured within the said book and adapted to receive a copy of matter written upon the first sheet; and, third, a plurality of leaves comprising stub portions permanently secured within the book and removable portions said removable portions being secured to the stub portions in such manner as to weaken their line of juncture and having perforations formed therein whereby said removable portions may be bound into separate books after their removal.

786,744. **BUCKLE FOR COTTON-BALE TIES.** JOSEPH B. FLEENOR, Houston, Mo. Filed Sept. 1, 1904. Serial No. 223,012.



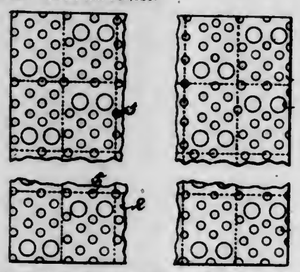
Claim.—1. A buckle for cotton-bale ties, comprising curved side bars connected by end bars, and separated cross-bars extending between and formed integral with said side bars and located substantially flush with the convex edges of said side bars.

2. A buckle for cotton-bale ties, comprising side bars curved on one side in the direction of their length, end bars uniting said side bars, and separated cross-bars extending between and formed integral with said side bars intermediate their ends and located substantially flush with the curved side of said side bars.

3. A buckle for cotton-bale ties, comprising side bars curved on one side in the direction of their length, end bars uniting said side bars, and separated cross-bars extending between and formed integral with said side bars centrally thereof and located substantially flush with the curved sides side of said bars and in a plane parallel to the plane of said end bars.

4. A buckle for cotton-bale ties, comprising side bars, end bars uniting said side bars and having their upper surfaces located in a plane below the edges of the end portions of said side bars at each end of the buckle, and separated cross-bars extending between and formed integral with said side bars intermediate the ends thereof, and located in a plane parallel to the plane of said end bars.

786,745. **STAMP.** ADDISON C. FLETCHER, New York, N. Y. Filed Feb. 23, 1905. Serial No. 247,096.



Claim.—1. A sheet of connected rows of stamps, having an adhesive surface on its back, combined with non-adhesive means attached to the said adhesive surface to partially cover the adhesive surface and leave a multiplicity of exposed adhesive portions, the latter being situated to be out of direct registration with each other when the back of any one stamp on the sheet is folded against the back of any other stamp.

2. A sheet of connected rows of stamps, having an adhesive surface on its back, combined with non-adhesive means attached to the said adhesive surface to partially cover the adhesive surface and leave a multiplicity of exposed adhesive portions, the latter being situated to be out of direct register with each other when the back of any one stamp on the sheet is folded against the back of any other stamp, and certain of the adhesive portions being intersected by the dividing-lines between the rows of stamps.

3. A sheet of connected rows of stamps, having an adhesive surface on its back, combined with a non-adhesive tissue-sheet attached to the said adhesive surface, the said tissue-sheet having a multiplicity of perforations to expose portions of the adhesive surface, the perforations being situated to be out of direct register with each other when the back of any one stamp of the sheet is folded against the back of any other stamp.

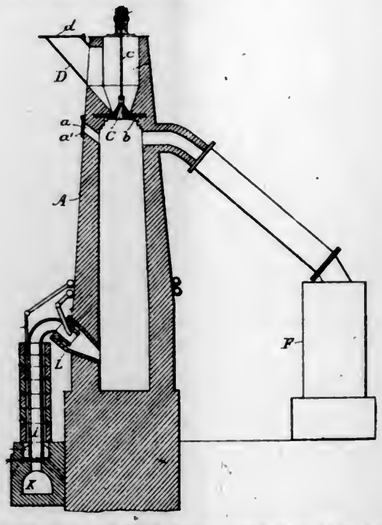
4. A sheet of connected rows of stamps, having an adhesive surface on its back, combined with a non-adhesive tissue-sheet attached to the said adhesive surface and having a multiplicity of perforations to expose portions of the adhesive surface, the perforations being situated out of direct register with each other when the back of any one stamp on the sheet is folded against the back of any other stamp, and certain of the perforations being intersected by the dividing-lines between the stamps.

5. A sheet of connected rows of stamps, having a ridge coextensive therewith and coincident with the dividing-line between two adjacent rows of stamps.

6. A sheet of connected rows of stamps, having ridges on its opposite faces, in parallelism and each coinciding with the dividing-line between two adjacent rows of stamps.

7. A sheet of connected rows of stamps, having an adhesive surface on its back, combined with non-adhesive means attached to the said adhesive surface to partially cover the adhesive surface and leave a multiplicity of exposed adhesive portions, the latter being out of direct register with each other when the back of one stamp on the sheet is folded against the back of any other stamp, and said sheet having parallel ridges on its opposite faces, each coinciding with the dividing-line between two adjacent rows of stamps.

786,746. **FURNACE.** GEORGE L. FOGLER, Pittsburg, Pa. Filed Oct. 31, 1903. Serial No. 179,395.



Claim.—1. A gas heating device comprising outwardly a stack of refractory material, a gas-flue through said stack, a twyer in the furnace, said gas-flue connecting the gas-supply with said twyer, a valve at the bottom of said gas-flue, a heat-flue surrounding said gas-flue having an inlet at its top and an outlet at its bottom, a chimney connected with said outlet, and a pipe adapted to feed gas into said inlet substantially as described.

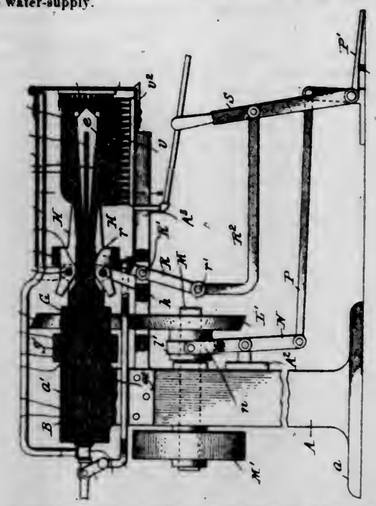
2. A gas heating device comprising outwardly a stack of refractory material, a gas-flue through said stack, a twyer in the furnace, said gas-flue connecting the gas-supply with said twyer, a valve at the bottom of said gas-flue, a heat-flue surrounding said gas-flue having one end open to the outer air and its other end connecting with a chimney, and a pipe to feed heating-gas into the open end of said heating-flue so that said heating-gas may be ignited at its entrance into said heat-flue as described.

3. In a furnace provided with a gas-flue and a twyer, said gas-flue connecting the gas-supply with the said twyer, a heat-flue contiguous to said gas-flue having one end open to the outer air and its other end connected to a chimney and a pipe to feed heating-gas into the open end of said heat-flue so that said heating-gas may be ignited at its entrance into said heat-flue for the purpose specified.

786,747. **BOTTLE-WASHING MACHINE.** ANDREW FORBES, Philadelphia, Pa. Filed July 15, 1904. Serial No. 216,672.

Claim.—1. In a bottle-washer of the class described, the combination of a bottle-clamp, a valved water-supply, and means to simultaneously operate the bottle-clamp and the valve controlling the water-supply.

2. In a bottle-washer of the class described, the combination of a rotatable bottle-clamp, a valved water-supply, and means to simultaneously operate the bottle-clamp and actuate the valve controlling the water-supply.



3. In a bottle-washer of the class described, the combination of a fixed hollow shaft or spindle provided at its end with a nozzle and brush, a revoluble sleeve mounted on the shaft and provided at its end with a bottle-clamp, a valved water-pipe connected with the shaft or spindle remote from the nozzle, and means to simultaneously operate the bottle-clamp and the valve of the water-pipe.

4. In a bottle-washer of the class described, the combination of a fixed hollow shaft provided with pipe connections, a revoluble sleeve detachably mounted on the shaft and provided with a bottle-clamp, substantially as described.

5. In a bottle-washer of the class described the combination of a fixed hollow shaft provided at one end with a nozzle and brush and at the other end with a valved fitting, a revoluble sleeve detachably mounted on the shaft and provided with a bottle-clamp.

6. In a bottle-washer of the class described, the combination of a fixed hollow shaft supported on a standard and connected at its ends with a valved fitting and a brush and nozzle, a revoluble sleeve mounted on the shaft and provided at its end with a bottle-clamp, a friction-wheel keyed to the sleeve, a shaft journaled in bearings on the standard and provided at one end with a fixed pulley and at the other end with a friction-wheel splined to but longitudinally shiftable thereon, and means to shift said friction-wheel to throw it into and out of driving contact with the friction-wheel of the sleeve.

7. In a bottle-washer of the class described, the combination of a support or standard having a recessed head, a flanged bushing clamped rigidly within said recess, a hollow shaft rigidly secured at one end in the bushing and connected at one end with a water-fitting and at the opposite end with a brush and nozzle, a flanged sleeve revolubly mounted on the fixed shaft between the bushing and brush and nozzle and provided with a bottle-clamp, and a coupling-nut engaging the flanges of the bushing and sleeve to detachably secure the latter on the shaft.

8. In a bottle-washer of the class described, the combination of a fixed hollow shaft provided at one end with a water-fitting and at the other end with a threaded socket, a screw-plug adapted to said socket and provided with a nozzle, and brush, and a revoluble sleeve mounted on the shaft and provided with a bottle-clamp.

9. In a bottle-washer of the class described, the combination of a fixed hollow shaft provided at one end with a water-fitting and at the other end with a threaded socket, a screw-plug adapted to said socket and provided with a nozzle and brush, a revoluble sleeve detachably mounted on the shaft and provided with a bottle-clamp.

10. In a bottle-washer of the class described, the combination of a bottle-clamp, a valved water-supply, a ring surrounding the clamp and means for operating said ring for opening or closing the clamp and simultaneously opening or closing the valve controlling the water-supply.

11. In a bottle-washer of the class described, the combination of

a rotatable bottle-clamp, a valved water-supply, a ring surrounding the clamp and means for operating said ring for opening or closing the clamp and simultaneously opening or closing the valve controlling the water-supply.

12. In a bottle-washer of the class described, the combination of a hollow fixed shaft provided with a water-supply, a revoluble sleeve detachably mounted on the shaft and provided with a bottle-clamp, means for operating the revoluble sleeve and means for simultaneously operating the bottle-clamp and valve controlling the water-supply.

13. In a bottle-washer of the class described, the combination of a fixed hollow shaft provided at one end with a nozzle and brush and at the other end with a water-supply, a revoluble sleeve detachably mounted on the shaft and provided with a bottle-clamp, and means for distributing water on the outside of the article to be cleansed.

14. In a bottle-washer of the class described, the combination of a fixed hollow shaft provided at one end with a nozzle and brush and at the other end with a water-supply, a revoluble sleeve detachably mounted on the shaft and provided with a bottle-clamp, means for distributing water on the outer surface of the article to be cleansed and a casing provided with means for scouring said outer surface, substantially as described.

786,748. ARTIFICIAL DENTURE. BERDON W. FORDYCE, Bedford, Iowa. Filed June 4, 1904. Serial No. 211,183.



Claim.—1. An artificial denture comprising a crown having a longitudinal opening therethrough extending outwardly from its base, a metal plate or backing adapted to fit closely against the inner or upper surface of said crown and close the opening therethrough, a tube or socket firmly attached to said metal plate or backing and shaped to fit the opening in said crown, and an anchor-post secured to a tooth-root, its projecting end being so formed as to bear against all sides of the socket when placed therein and be held in place by spring means.

2. An artificial denture, comprising a crown having an opening therethrough extending from its base, a metal plate or backing adapted to fit closely against the inner or upper surface of said crown and cover said opening, a socket firmly attached to said plate or backing and conforming to the shape of the opening in said crown, and an anchor-post having one end provided with a spring-fork and adapted to enter said socket and be locked therein.

786,749. REINFORCE. JOSEPH F. FRANCIA, Paris, France. Filed July 23, 1904. Serial No. 217,687.



Claim.—1. A reinforced article of the character described, comprising a core, flexible strips on the sides of the core, and means engaged by portions of the strips independently of the core, for securing the strips in place.

2. A reinforced article of the character described, comprising a core, flexible strips on the sides of the core, provided at their ends with bent portions, and fastening means held on the ends of the core and engaged by the said bent portions, to fasten the strips in position on the core.

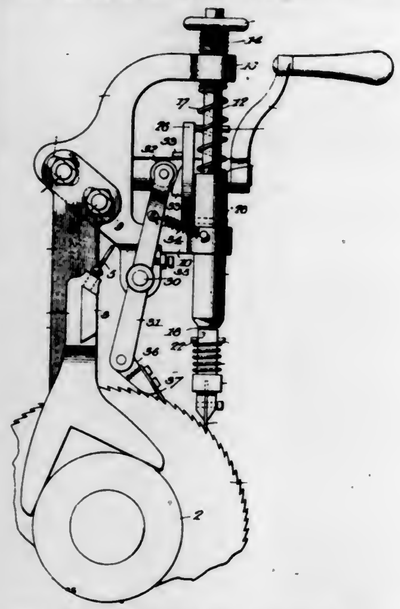
3. A reinforced article of the character described comprising a core, flexible strips on the sides of the core, provided at their ends with return-bend portions, and fastening devices held on the ends of the core and engaged by the said return-bend portions, to fasten the strips in position on the core.

4. A reinforced article of the character described, comprising a core, flexible strips on the sides of the core, and ferrules on the ends of the core, engaged by the ends of the said strips, to hold the latter in position on the core.

5. A reinforced article of the character described, comprising a core, ferrules on the ends of the core, and flexible strips on the sides of the core, extending between the outer surface of the core and the inner faces of the said ferrules, the strips having return-bend portions engaging the ferrules.

6. A reinforced article of the character described, comprising a core having longitudinal grooves, flexible strips fitting in said grooves, and fastening means for securing the ends of the said flexible strips to the ends of the said core.

786,750. GIN-SAW GUMMER. EZRA A. FRANTZ, Weatherford, Tex. Filed Apr. 29, 1904. Serial No. 205,571.



Claim.—1. In a saw-gummer, the combination with a yoke-shaped frame, of a main spring-pressed plunger working through the opposite arms of the frame, a bracket hung from the lower arm of the frame, a spring-supported auxiliary plunger carried by the bracket in the path of the main plunger and provided with a gumming-blade, a shaft carried by the yoke-shaped frame transversely of the main plunger between the arms of the frame, a wheel mounted upon the shaft and provided with a crank-handle located in front of the plunger, a projection upon the front side of the wheel, a cam upon the rear side of said wheel, a main plunger having a shoulder located in the path of the projection for contact thereby to move the plunger against the tension of its spring, and a lever fulcrumed intermediate of its ends upon the frame in rear of the plunger with one end in the path of the cam and its opposite end provided with a dog for engagement with the teeth of a saw.

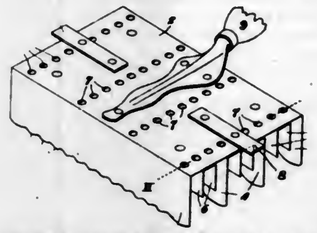
2. In a saw-gummer, the combination with a frame having a pair of alined guide-openings one of which is screw-threaded, a threaded bushing adjustable in the screw-threaded opening, a plunger working in the opening and in the bushing, a spring bearing against the bushing and the plunger, the bushing being adjustable to vary the tension of the spring, means to move the plunger against the tension of the spring and to trip therefrom to release the plunger, and a gumming-blade actuated by the plunger.

786,751. CURRYCOMB. ROBERT T. GILLESPIE, Rochester, Pa. Filed Mar. 31, 1904. Serial No. 200,891.

Claim.—1. A currycomb consisting of an integral top provided with lateral scraping-blades, intermediate scraping-blades extending downwardly therefrom, and flat dust-collecting partitions arranged between the scraping-blades, substantially as set forth.

2. A currycomb consisting of a sheet-metal back provided with lateral scraping-blades at right angles thereto, intermediate scraping-blades similarly arranged, and flat dust-collecting partitions extending at right angles from the top arranged between the scraping-blades, substantially as set forth.

3. A currycomb consisting of a sheet-metal back provided with air-circulation openings, lateral scraping-blades at right angles thereto, intermediate scraping-blades similarly arranged, and flat dust-collecting partitions extending at right angles from the top arranged between the scraping-blades, substantially as set forth.



4. A currycomb consisting of a sheet-metal back provided with air-circulation openings, knockers attached to the back, lateral scraping-blades at right angles thereto, intermediate scraping-blades similarly arranged, and flat dust-collecting partitions extending at right angles from the top arranged between the scraping-blades, substantially as set forth.

5. A currycomb consisting of a sheet-metal top having air-circulation openings, and downwardly-extending scraper-blades at each side, intermediate scraper-blades secured to the top, and intervening dust-collecting partitions arranged between the scraper-blades extending at right angles from the top, substantially as set forth.

6. A currycomb consisting of a back of sheet metal provided with integral laterally-disposed scraping-blades at each side, air-circulation openings through the top, intervening scraping-blades extending at right angles from the top, dust-collecting partitions between the scraping-blades and of less depth extending at right angles from the top between the scraping-blades, and knocker projections, and a handle secured to the top, substantially as set forth.

7. A currycomb consisting of a sheet-metal top provided with downwardly-turned sides consisting of scraper-blades; downwardly-turned inclosing ends, intervening scraper-blades, and dust-partitions extending downwardly at right angles from the top between the scraper-blades, substantially as set forth.

8. In a currycomb the combination of a sheet-metal back provided with downwardly-turned scraper-blades at each side, intermediate parallel scraper-blades, intervening downwardly-extending dust-collecting partitions, and downwardly-turned ends having cut-out portions extending inwardly and engaging the intermediate scraper-blades, substantially as set forth.

9. A currycomb consisting of a sheet-metal back provided with air-circulation openings and downwardly-turned scraping-blades provided with blunt, scalloped teeth, with dust-collecting partitions arranged between the scraping-blades, secured to the back and extending downwardly therefrom at right angles, substantially as set forth.

786,752. CIRCUIT-CONTROLLING DEVICE FOR MOTORS. GEORGE W. GILMORE, Alliance, Ohio, assignor to The Alliance Machine Company, Alliance, Ohio, a Corporation of Ohio. Filed Sept. 15, 1904. Serial No. 224,572.

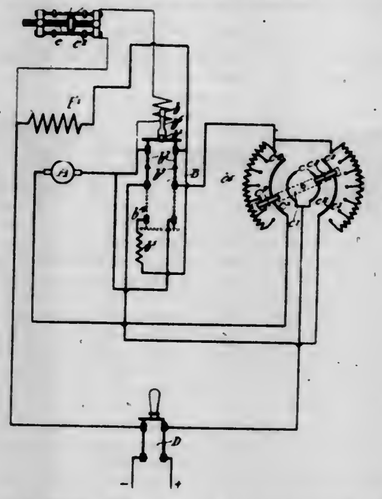
Claim.—1. A circuit-controlling device including a frame having two guide-bars electrically insulated from each other, a screw, driving means, an insulating-nut on said screw, a contact-piece on the nut, and adjustable contacts respectively supported upon the guide-bars so as to be engaged by said contact-piece on the nut, substantially as described.

2. The combination of a screw, means for moving the same, a nut on the screw, a contact-piece carried by said nut, a normally fixed but adjustable block, and means for supporting said block so that it may be engaged by said nut, substantially as described.

3. The combination of a screw, a frame including a pair of guides, contact-pieces adjustable on said guides and a nut on the screw having a portion placed to engage the contacts on the guides, substantially as described.

4. The combination of a screw, a frame including a bar or bars extending substantially parallel to the screw, a nut threaded on the screw having means whereby its rotation is prevented, a contact-piece on the nut and a contact or contacts movably carried by the said bar or bars and placed to be engaged by said contact-piece on the nut, substantially as described.

5. The combination of a screw, a frame having bearings for the same, bars carried by the frame substantially parallel with the screw, a collar or collars on said bars and a nut on the screw placed to engage said collar or collars, substantially as described.



6. The combinat on of a screw, a frame, contact-pieces adjustable on said frame and electrically insulated from one another, a nut on the screw, with a contact-piece carried by said nut and insulated from the screw, substantially as described.

7. A system including an electric motor, a screw driven thereby, a switch controlled by said screw, an automatic switch in circuit with said motor, with a solenoid in circuit with the screw-controlled switch and provided with means for causing operation of the automatic switch, substantially as described.

8. A system including an electric motor, a switch in circuit therewith, a solenoid provided with means for causing operation of said switch, a screw operated by the motor, a contact-piece moved by said screw and a contact or contacts in circuit with said solenoid and placed to be electrically connected to a source of power by said movable contact, substantially as described.

9. A system including an electric motor, a switch in circuit therewith, a solenoid controlling the operation of said switch, a screw operated by said motor, a pair of adjustable contacts connected respectively to said solenoid and to a source of power, and a device movable by the screw and placed to bridge between said contacts, substantially as described.

10. A system including an electric motor, a switch operated thereby, a solenoid in circuit with said switch, a second switch in circuit with the motor and mechanism operated by said solenoid for causing operation of the second switch, substantially as described.

11. A system including an electric motor, a switch constructed to be operated thereby at predetermined times, a second switch in circuit with the motor including means for short-circuiting the motor-armature independently of supply-mains, with mechanism controlled by the first switch for causing operation of the second switch, substantially as described.

12. The combination with a motor, of a circuit-closer operated thereby, a double-throw switch having a winding in circuit with said closer, means for connecting the motor to supply-mains when the switch is in one position and means for short-circuiting the armature of said motor independently of said mains when the switch is in its other position, substantially as described.

13. The combination with a motor, of a circuit-closer operated thereby, a double-throw switch having a winding in circuit with said closer and provided with connections for supplying current to the motor from supply-mains, said switch also having connections for short-circuiting the armature on itself and connecting the motor-field across the supply-mains, substantially as described.

14. The combination of a double-throw switch, means including a solenoid for causing said switch to disengage one of its sets of terminals and engage another set, a bank of resistance in circuit with one of the terminals and a circuit-closer operated by the motor, in

circuit with said solenoid, said switch having means for connecting the motor to supply-mains when it is in one position and also having means for connecting the field-winding only to said mains through said resistance and short-circuiting the armature on itself when in its other position, substantially as described.

786,753. **HOSE-SUPPORTER.** ROBERT GORTON, Newton, Mass. Filed Dec. 1, 1902. Serial No. 133,354.

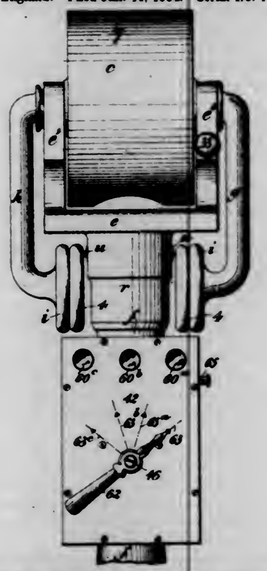


Claim.—1. A buckle comprising a base-plate and a locking-lever hinged thereto which is formed on its rear side with a recess and on opposite sides of the recess with slots, in combination with a ribbon bow threaded through said slots.

2. The combination with the suspending-strap of a hose-supporter, of a buckle comprising a base-plate and a locking-lever hinged thereto which engages the suspended strap, said locking-lever being formed with a recessed rear portion and with slots or openings on opposite sides of the recess, and a ribbon bow threaded through said slots.

3. A buckle comprising a base-plate, a locking-lever hinged thereto formed with vertical slots, in combination with a ribbon bow threaded through said slots and having three parallel portions formed by folding the ribbon at two points to produce plies of substantially the same length, with one of said plies having an unfolded end arranged between the other two plies and exposed at the front at its opposite ends whereby the same face of the ribbon is presented to the front, substantially as described.

786,754. **TELEPHONIC APPARATUS.** ALFRED GRAHAM, Denmark Hill, England. Filed Jan. 11, 1904. Serial No. 188,507.



Claim.—1. Telephonic apparatus comprising a casing, a sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and mounted to turn about an axis at right angles to that of the sound-tube, a transmitter and a receiver located within said casing, and a switch device also located within said casing and adapted to control the circuits of said transmitter and receiver.

2. Telephonic apparatus comprising a casing, a sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and mounted to turn about an axis at right angles to that of the sound-tube, a transmitter and a receiver located within said casing, and a switch device also located within said casing and adapted to control the circuits of said transmitter and receiver.

3. Telephonic apparatus comprising a casing, a horizontal sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and a pillar upon which said holder is mounted, and upon which it can turn about a vertical axis, said casing containing a transmitter and receiver and having a speaking-aperture in its periphery.

4. Telephonic apparatus comprising a casing, a horizontal sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and a pillar upon which said holder is mounted, and upon which it can turn about a vertical axis, said casing having a speaking-aperture in its periphery and containing a transmitter, a receiver and a switch device, said switch device controlling the circuits of said transmitter and receiver, and the electrical connections for said switch, receiver and transmitter extending through said pillar and casing.

5. Telephonic apparatus comprising a casing having a speaking-aperture in its periphery, a sound-tube about which said casing is mounted to turn, a transmitter arranged within said casing to come opposite said aperture, a receiver located within said casing and having its diaphragm opposite a passage communicating with said sound-tube, and means for controlling the circuits of said transmitter and receiver by movement of said casing.

6. Telephonic apparatus comprising a casing, a sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and mounted to turn about an axis at right angles to that of the sound-tube, a transmitter and a receiver located within said casing, and means for controlling the circuits of said transmitter and receiver and adapted to be operated by movement of said casing.

7. Telephonic apparatus comprising a casing, a horizontal sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and a pillar upon which said holder is mounted, and upon which it can turn about a vertical axis, said casing inclosing a transmitter and receiver, and a switch device controlled by movement of said casing about a horizontal axis and adapted to control the circuits of said transmitter and receiver.

8. Telephonic apparatus comprising a casing, a sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube and mounted to turn about an axis at right angles to that of the sound-tube, a transmitter and a receiver arranged within said casing, the transmitter being arranged to come opposite an opening in said casing and said receiver having its diaphragm opposite a space in communication with said sound-tube, hearing-tubes connected to said sound-tube, and a switch device located within said casing and adapted to control the circuits of said transmitter and receiver, some of the switch connections being carried by said casing and some by said sound-tube.

9. Telephonic apparatus comprising a casing, a horizontal sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube, a support upon which said holder is mounted to turn about a vertical axis, a transmitter located within and having its diaphragm opposite an opening in said casing, a receiver located within said casing and having its diaphragm opposite a passage communicating with the interior of said sound-tube, hearing-tubes in communication with said sound-tube and one of which is fixed to said casing, a bell external to said casing, and a switch device located within said casing and adapted to control the circuits of said transmitter, receiver and bell, some of the switch connections being carried by said casing and others by said sound-tube so as to be controlled by movement of said casing.

10. Telephonic apparatus comprising a cylindrical casing, a horizontal sound-tube about which said casing is mounted to turn, a hollow holder carrying said sound-tube, a hollow pillar upon which said holder is mounted to turn about a vertical axis, a transmitter arranged within said casing so as to be opposite an opening therein, a receiver having its diaphragm opposite a passage communicating with said sound-tube, movable hearing-tubes in connection with said sound-tubes and one of which is fixed to said casing, a bell external to said casing, and a switch device located within said casing and adapted to control the circuits of said transmitter, receiver and bell by movement of said casing, said holder being formed with holes through which the electrical switch connections can be led to and from the casing and switch and through the vertical support and holder.

11. Telephonic apparatus comprising a hollow vertical support, a hollow U-shaped holder mounted to turn thereon about a vertical axis, a horizontal sound-tube carried by said holder, a casing mounted to turn about said sound-tube and formed with a speaking-aperture in its periphery, a transmitter arranged within said casing so that its diaphragm will come opposite said speaking-aperture, a receiver arranged within said casing so that its diaphragm is opposite a passage communicating with said sound-tube, a bell external to said casing, hearing-tubes in communication with the ends of said sound-tube and one of which is fixed to said casing, a switch device carried partly by said casing and partly by said sound-tube and adapted to control the circuits of said transmitter, receiver and bell, and a circuit-maker carried by said holder and whereby the circuit of a bell at a distant station can be closed.

12. Telephonic apparatus comprising a hollow stationary support, a hollow U-shaped holder mounted to turn thereon about a vertical axis, a sound-tube carried by said holder, a casing mounted to turn about said sound-tube and formed with a speaking-aperture in its periphery, a water-tight transmitter fixed to the inner side of said casing so that its diaphragm is opposite said speaking-aperture, a receiver located within said casing and carried by said sound-tube and having its diaphragm opposite a passage communicating with said tube, hearing-tubes in communication with the ends of said sound-tube and one of which is fixed to said casing, a bell external to said casing, a switch the stationary portions of which are carried by said sound-tube and the rotary portions of which are carried by said casing and which is adapted to control the circuits of said transmitter, receiver and bell as herein set forth, said casing and holder being formed with holes through which the conductors connected to said switch can be led from the casing to the holder and thence through the hollow stationary support, and a circuit-making device comprising a bell-push and fixed and movable contacts and whereby the circuit of a bell at a distant station can be closed.

13. Telephonic apparatus comprising a casing formed with a speaking-aperture in its periphery, means for supporting said casing so that it can turn about axes at right angles to one another, a waterproof transmitter located within said casing with its diaphragm opposite said speaking-aperture, a sound-tube extending through said casing, an iron-clad receiver mounted in the said casing with its diaphragm opposite a passage in communication with said sound-tube, and means for controlling the circuits of said transmitter and receiver.

14. Telephonic apparatus comprising a casing having a speaking-aperture in its periphery and containing a transmitter, a receiver and a switch device adapted to control the circuit of said transmitter and receiver, a sound-tube about which said casing is mounted to turn, a U-shaped holder carrying said sound-tube, and a support upon which said holder is mounted to turn about a vertical axis.

15. Telephonic apparatus comprising a casing having a speaking-aperture in its periphery, a sound-tube about which said casing is mounted to turn, a spring arranged between said casing and sound-tube so as to be stressed when the casing is turned to bring the aperture therein into position for use, a holder for said sound-tube, a support upon which said holder can turn about a vertical axis, hearing-tubes in communication with the ends of said sound-tube and one of which is fixed to the end of said casing, a waterproof transmitter arranged within said casing and having its diaphragm opposite the speaking-apertures therein, a receiver carried by said sound-tube and having its diaphragm opposite a passage leading to said sound-tube, and a switch device located within said casing, arranged to be operated by the movement thereof, and adapted to thereby control the circuits of said transmitter and receiver.

16. In telephonic apparatus, a horizontal sound-tube, means for carrying the same so that it can rotate about a vertical axis, a casing mounted to turn about said tube, a water-tight transmitter located within said casing opposite an aperture therein, a receiver carried by said sound-tube, and a switch for controlling the circuits of said transmitter and receiver, said switch comprising a number of insulated connections, a holder secured to said sound-tube and to which said connections are fixed, and insulated circular contacts fixed to the inner surface of one side of said casing and against which some of the stationary connections are arranged to bear by rotation of said casing.

17. Telephonic apparatus comprising a hollow pillar, a U-shaped hollow holder mounted to turn thereon about a vertical axis, a horizontal sound-tube fixed to said holder, a casing mounted to rotate about the axis of said sound-tube and having a speaking-aperture in its periphery, a waterproof transmitter carried by said casing and having its diaphragm opposite said speaking-aperture, a receiver carried by said sound-tube and having its diaphragm opposite a passage leading to said sound-tube, a bell external to said casing, two hearing-tubes arranged in communication with the opposite ends of said sound-tube and one of which is fixed to said casing, a switch device having its stationary connections carried by said sound-tube and its movable connections carried by said casing, the aperture in said casing and the switch-contacts being so arranged that when the hearing-tube fixed to the casing hangs downward, the aperture will be at the bottom of the casing, the circuit of the bell will be closed, and the circuits of the transmitter and receiver will be opened and when the casing is rotated by the said hearing-tube to bring the speaking-aperture into position for use, the bell will be out of circuit and the transmitter and receiver in circuit.

18. Telephonic apparatus comprising a casing having a speaking-aperture at its periphery, a sound-tube about the axis of which said casing can rotate, a hollow holder carrying said sound-tube and mounted to rotate about a vertical axis, a transmitter, receiver and switch device located within said casing, and a circuit-making device carried by said holder and serving to close the bell-circuit of a telephonic apparatus at a distant station, said casing and holder being adapted to admit of the passage therethrough of the electrical connections for said switch, and the holder for the passage therethrough of the electrical connections of said circuit-making device.

19. Telephonic apparatus comprising a casing having a speaking-aperture in its periphery and containing a transmitter and a receiver, a sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube, a support upon which said holder is mounted to turn about a vertical axis, a set of insulated rotary contacts carried by said holder and to which the telephonic connections are made, and a set of fixed contacts carried by said support, arranged to bear against the respective rotary contacts and to which corresponding electrical connections are made.

20. Telephonic apparatus comprising a casing having a speaking-aperture in its periphery and containing a transmitter and a receiver, a sound-tube about which said casing is mounted to turn, a holder carrying said sound-tube, a support upon which said holder is mounted to turn about a vertical axis, a switch device located in said casing and adapted to control the circuits of said transmitter and receiver, insulated rotary contacts carried by said holder and connected to the switch connections, and insulated fixed contacts carried by said support, bearing against the respective rotary contacts, and to which conductors forming continuations of the switch connections are attached.

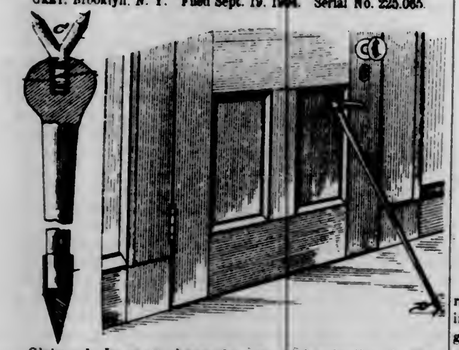
21. In telephonic apparatus the combination with a movable casing containing a transmitter and a receiver, and having a speaking-aperture in its periphery, a sound-tube about the axis of which said casing can rotate, a holder carrying said sound-tube and mounted to rotate about a vertical axis, a bell and electric generator external to said casing, a switch for controlling said transmitter, receiver and bell, and the electrical connections for said switch, of two or more pairs of line-wires extending to telephonic apparatus at two or more distant stations, and a supplementary switch device adapted to admit of said transmitter and receiver being connected at will to any one of the pairs of line-wires.

22. In telephonic apparatus, the combination with a casing mounted to turn about a horizontal axis and also about a vertical axis, a transmitter and a receiver located within said casing, a main switch device adapted to control the circuits of said transmitter and receiver, electrical connections substantially as described connected to said switch and comprising a main conductor for the transmitter, a main conductor for the receiver, and a return-conductor, a bell having one terminal connected to said return-conductor, and an electric generator having one pole connected to one of said main conductors and the other pole to said return-conductor, of a number of pairs of line-wires, and a supplementary switch device comprising a set of insulated contacts each of which is connected to one of the line-wires of a pair of line-wires, a second set of insulated contacts each of which is connected to the remaining line-wire of a pair of line-wires, a third set of insulated contacts upon which the several contacts of the second set normally bear, separate electric indicators each having one end of its winding connected to one of the contacts in the third set of contacts and its other end in connection with the second terminal of the bell, and a rotary body adapted by rotation to move one or other of the contacts of the second set of contacts from the corresponding contact of the third set of contacts and place it in connection with one of the main conductors and to place the corresponding contact in the first set of contacts in connection with the other main conductor.

23. In telephonic apparatus, the combination with a transmitter and a receiver, a bell, an electric generator, a switch for controlling said transmitter, receiver and bell, and the electrical connections for said switch and generator comprising two main conductors one for the transmitter and the other for the receiver, of a number of

pairs of line-wires extending to telephonic apparatus at distant stations, and a supplementary switch device comprising a set of fixed contacts to which the main conductor of the transmitter is connected, a second set of fixed contacts to which the main conductor of the receiver is connected, a number of pairs of insulated spring-contacts connected to the pairs of line-wires, a third set of fixed contacts against each of which one of the spring-contacts of each pair of contacts normally bears, a set of electrical indicators each having its winding connected at one end to one of the contacts of the third set and its other end to the bell, and a movable device whereby one of the contacts of either pair of spring-contacts can be moved from the corresponding contact in the third set of contacts and caused to bear against the corresponding contact in the second set of contacts and also to cause the second spring-contact of the pair to bear against the corresponding fixed contact in the first set of contacts.

786,755. **ATTACHMENT FOR CANES OR UMBRELLAS.** FRANK GREY, Brooklyn, N. Y. Filed Sept. 19, 1904. Serial No. 225,065.



Claim.—1. In an attachment for canes and umbrellas, the combination with a bracing member having a sleeve arranged in one end, of a Y-shaped member having a stem to fit in the said sleeve, the diverging portions of said Y-shaped member terminating in points, and a pointed ferrule arranged upon the opposite end of the bracing member.

2. In an attachment for canes and umbrellas, the combination with a bracing member having a threaded opening therein, of a threaded sleeve adapted to fit said opening, a Y-shaped member having a threaded stem to fit the sleeve and the diverging portions terminating in points, and a pointed ferrule arranged upon the opposite end of the bracing member in which the opening is formed.

3. In an attachment for canes and umbrellas, the combination with a handle having a recess in the upper end thereof, of a threaded sleeve arranged in said recess, and a V-shaped member, the shank of which is threaded and adapted to fit into the sleeve, the outer ends of the prongs being pointed for the purpose described.

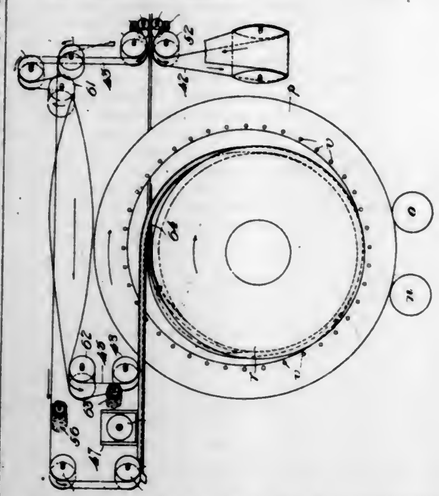
786,756. **ROTARY PRESS.** THADDEUS S. GRIMES, Atlanta, Ga. Filed Aug. 16, 1904. Serial No. 220,949.

Claim.—1. In a rotary press, the combination of a pressure-wheel having a grooved periphery, a ring encircling said wheel eccentrically, the inner face of said ring being adapted to enter the groove in said wheel, means for forcing said wheel toward said ring, automatically-operating means for preventing said wheel from being forced into actual contact with said ring, and means for conveying material into the space between said wheel and ring, substantially as described.

2. In a rotary press, the combination with a grooved wheel having central bearings, of a ring encircling said wheel eccentrically, two parallel endless cloths for conveying the material into the space between said wheel and ring, and means for rotating said wheel and ring, substantially as described.

3. In a rotary press, the combination with a grooved wheel having central bearings and means for heating the same, of a ring encircling said wheel eccentrically, parallel endless cloths for conveying the material into the space between said wheel and ring, and means for rotating said wheel and ring, substantially as described.

4. In a rotary press, the combination with a grooved wheel having a peripheral pressure-surface, of a ring encircling said wheel eccentrically and having an inner pressure-surface, parallel endless cloths for conveying the material into the space between said wheel and ring, a guide for said cloths as the material is fed to the press, means for disengaging said cloths and the pressed material from said wheel after the pressing operation, and means for rotating said wheel and ring, substantially as described.



5. In a rotary press, the combination with a grooved wheel, ring, and means for heating said wheel, of endless cloths for containing the material as it passes between said wheel and ring; means for guiding said cloths into the space between said wheel and ring, means for disengaging said cloths from said wheel after the pressing operation, and means for rotating said wheel and ring, substantially as described.

6. In a rotary press, the combination with a wheel having a grooved peripheral pressure-surface, of a ring encircling said wheel eccentrically and engaging the groove in said wheel, said ring having a pressure-surface upon its inner circumference, movable bearings for said wheel, means for increasing the pressure between said ring and wheel, and means for automatically cutting off said pressure, substantially as described.

7. In a rotary press, the combination with a wheel having a grooved peripheral pressure-surface and means for heating said wheel, of a ring having apertures upon its inner face, said ring encircling said wheel, parallel endless cloths, means for feeding the material to be treated between said cloths, means for directing said cloths and material into the space between said wheel and ring, and means for pressing said wheel toward said ring, substantially as described.

8. In a rotary press, the combination with a wheel centrally mounted in bearings and having a grooved peripheral pressure-surface, and means for heating said wheel, of an inclosing ring having grooves on its inner face, passages communicating with said grooves, parallel endless cloths, means for feeding material between said cloths, means for guiding said cloths into the space between said wheel and ring, means for removing said cloths therefrom, means for separating said cloths from said pressed material, and means for pressing said wheel toward said ring, substantially as described.

9. In a rotary press, the combination of a pressure-wheel, a pressure-ring coöperating therewith and encircling said wheel eccentrically, means for forcing said wheel toward said ring, and automatically-operating devices for cutting off the action of said means before the pressure-surfaces of said ring and wheel have been brought into actual contact, substantially as described.

10. In a rotary press, the combination of a pressure-wheel, means for heating the same, a pressure-ring coöperating therewith and encircling said wheel eccentrically, devices for forcing said wheel toward said ring, and automatically-operating means for cutting off the action of said devices before the pressure-surfaces of said ring and wheel have been brought into actual contact, substantially as described.

11. In a rotary press, the combination of a pressure-wheel, a pressure-ring coöperating therewith and encircling said wheel eccentrically, means for forcing said wheel toward said ring, automatically-operating devices for cutting off the action of said means before the pressure-surfaces of said ring and wheel have been brought into actual contact, means for feeding the material into the space between said wheel and ring, and means for rotating said ring, substantially as described.

12. In a rotary press, the combination of a pressure-wheel having a grooved pressure-surface, means for heating said wheel from the interior thereof, a ring eccentrically encircling said wheel and having a bearing-surface adapted to enter the groove in said wheel, means for forcing said wheel toward said ring, an automatic stop which prevents said wheel from being forced into absolute contact with said ring, parallel endless cloths for feeding the material into the machine, and means for supporting and moving said ring and said cloths, substantially as described.

13. In a rotary press, the combination of a pressure-wheel having a grooved peripheral bearing-surface, a ring eccentrically encircling said wheel and having a bearing-surface adapted to enter the groove in said wheel, said ring being provided with apertures arranged out of parallel with the edges of said ring, means for feeding the material into the space between said wheel and ring, and means for rotating said ring, substantially as described.

14. In a rotary press, the combination with a pressure-wheel having a grooved peripheral pressing-surface, and means for heating said wheel, of a ring eccentrically encircling said wheel and having an inner pressure-surface adapted to enter the groove in said wheel, said inner pressure-surface being provided with grooves arranged out of parallel with the edge of the wheel for the discharge of the expressed liquid, means for feeding the material to be treated into the space between said wheel and ring, and means for supporting and rotating said ring, substantially as described.

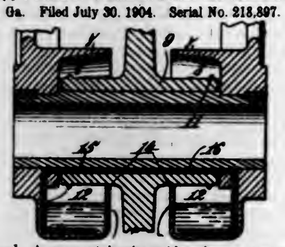
15. In a rotary press, the combination of a pressure-wheel and a pressure-ring, said ring encircling said wheel eccentrically, two parallel endless cloths for receiving the material and feeding it into the space between said wheel and ring, and means for driving said cloths and separating them from the cake of compressed material after the pressing operation, substantially as described.

16. In a rotary press, the combination of a pressure-wheel and a ring encircling said wheel eccentrically, of two parallel cloths for feeding the material into the space between said ring, and means for supporting and driving said cloths and turning them after each passage through said press, substantially as described.

17. In a rotary press, the combination of a pressure-wheel, means for heating the same, a ring eccentrically encircling said wheel, parallel endless cloths for feeding the material to said press, means for supporting and driving said cloths and turning them after each passage through the press, and means for cleaning said cloths after each passage through the press, substantially as described.

18. In a rotary press, the combination of a pressure-wheel and a pressure-ring encircling said wheel eccentrically, said ring being provided with a spiral groove in its interior and with drainage means, substantially as described.

786,757. **PULLEY.** FRANK M. GUNBY and CHARLES S. BROWN, Columbus, Ga. Filed July 30, 1904. Serial No. 218,897.



Claim.—1. A support having a bearing means, separate oil-chambers, and an absorbent oil-feeder extending longitudinally of the bearing means and provided with terminal portions continuous therewith and projected into the oil-chambers, combined with a rotatable element running loosely on the bearing means between the oil-chambers and having the hub thereof engaged by the longitudinal portion of the oil-feeder.

2. A support having lower distinct oil-chambers spaced apart from each other, and an absorbent oil-feeder extending longitudinally of the lower part of the support and provided with continuous terminals projected into the oil-chambers, combined with a rotatable element running loose in the support and having its hub rotatable in the oil-chambers, the longitudinal portion of the oil-feeder engaging the inner part of the hub.

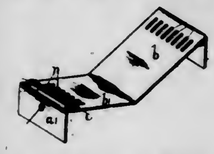
3. A support having bearing means, upper inwardly-extending guards open at their inner terminals, and lower distinct oil-chambers spaced apart from each other combined with a rotatable element loosely held by the bearing means and rotatable between the oil-chambers, the upper guards projecting over portions of the hub on the element.

4. A support, having bearing means, lower distinct oil-chambers spaced apart from each other, and upper guards projecting inwardly and having open inner terminals, combined with a rotatable element loosely held by the bearing means, and rotatable between the inner terminals of the guards and the oil-chambers, the hub of the rotatable element being projected under the guards and into the oil-chambers.

5. A support, having bearing means, oil-feeding means for the bearing means, and upper inwardly-projecting guards having inner open ends, combined with a rotatable element having a hub projecting in opposite directions under the guards and into the oil-feeding means.

6. A support, having bearing means fixed therein, lower oil-chambers, upper inwardly-projecting guards, and an absorbent oil-feeder extending longitudinally over the lower portion of the bearing means and provided with continuous terminals projected into the oil-chambers, combined with a rotatable element loosely applied on the bearing means and having a hub rotatable in the oil-chambers and under the guards, the oil-feeder being interposed between the lower part of the bearing means and the hub of the rotatable element.

786,758. **TOOL-HOLDER AND CASE FOR SCISSORS, SHEARS, PLIERS, OR OTHER LIKE ARTICLES.** FANNIE GUTMANN, Rochester, N. Y. Filed Oct. 8, 1904. Serial No. 227,672.



Claim.—1. In a tool-holder, two flexibly-connected members each having slots therein for receiving the loop-like handles of the tools to be held and a fastening device for such tools comprising a rod for engaging the handles of the tools on the back sides of such slotted members.

2. In a tool-holder, two flexibly-connected members each having slots therein for receiving the loop-like handles of the tools to be held, a fastening device for such tools comprising a rod for engaging the handles of the tools on the back sides of such slotted members and flexibly connected to the outer end of one of such slotted members an end flap arranged to support the outer end of such slotted member in a raised position when the holder is opened out.

3. In a tool-holder, two flexibly-connected members each having slots therein for receiving the loop-like handles of the tools to be held and a fastening device for such tools comprising a rod engaging the handles of the tools on the back sides of such slotted members and flexibly connected to the outer ends of such slotted members end flaps arranged to support the outer ends of such slotted members in a raised position when the holder is opened out and means for securing such end flaps together when such slotted members have been folded up.

4. In a tool-holder, two flexibly-connected members each having slots therein for receiving the loop-like handles of the tools to be held and a fastening device for such tools comprising a rod engaging the handles of the tools on the back sides of such slotted members, the slots in one of such members alternating with those in the other.

5. In a tool-holder, two flexibly-connected members each having slots therein for receiving the loop-like handles of the tools to be held, a fastening device for such tools comprising a rod for engaging the handles of the tools on the back sides of such slotted members and flexibly connected to the outer end of one of such slotted members an end flap arranged to support the outer end of one of such slotted members in a raised position when the holder is opened out, the slots in one of such members alternating with those in the other.

6. In a tool-holder, two flexibly-connected members each having slots therein for receiving the loop-like handles of the tools to be held, a fastening device for such tools comprising a rod engaging the

handles of the tools on the back sides of such slotted members and flexibly connected to the outer ends of such slotted members end flaps arranged to support the outer ends of such slotted members in a raised position when the holder is opened out and means for securing such end flaps together when such slotted members have been folded up, the slots in one of such members alternating with those in the other.

7. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held and a fastening device for such tools comprising a rod for engaging the handles of the tools on the back sides of such slotted member, the other member constituting a cover for the holder.

8. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held, a fastening device for such tools comprising a rod for engaging the handles of the tools on the back side of such slotted member and flexibly connected to the outer end of such slotted member an end flap arranged to support the outer end of such slotted member in a raised position when the holder is opened out.

9. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held and a fastening device for such tools comprising a rod engaging the handles of the tools on the back side of such slotted member and flexibly connected to the outer end of such slotted member an end flap arranged to support the outer end of such slotted member in a raised position when the holder is opened out and means for securing such end flap in position holding such members together when folded up.

10. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held the other member constituting a cover for the holder.

11. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held and flexibly connected to the outer end of such slotted member an end flap arranged to support the outer end of such slotted member in a raised position when the holder is opened out.

12. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held and flexibly connected to the outer end of such members end flaps arranged to support the outer ends of such members in a raised position when the holder is opened out and means for securing such end flaps in position holding such members together when folded up.

13. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held and flexibly connected to the outer end of such members an end flap arranged to support the outer end of such member in a raised position when the holder is opened out.

14. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held, means for holding such tools in such slots.

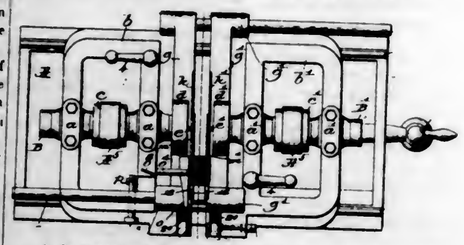
15. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held, means for holding such tools in such slots and means for holding such members in their folded-up position.

16. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held, means for holding such tools in such slots and flexibly connected to the outer end of such slotted member an end flap arranged to support the outer end of such slotted member in a raised position when the holder is opened out.

17. In a tool-holder, two flexibly-connected members one of them having slots therein for receiving the loop-like handles of the tools to be held, means for holding such tools in such slots and flexibly connected to the outer end of such slotted member an end flap arranged to support the outer end of such slotted member in a raised position when the holder is opened out and means for holding such members in their folded-up position.

786,759. MACHINE FOR TRIMMING PARALLEL SURFACES. HANS C. HANSEN, Newton, Mass. Filed Dec. 15, 1903. Serial No. 185,630.

Claim.—1. In a machine of the class described, two carriages each containing a shaft having a cutter-head provided with a cutter, means to adjust said carriages to place the cutter-heads at desired distances apart, and adjustable rests for the stock the opposite ends of which are to be trimmed parallel by said cutters, and work-holding means connected with said rests including fixed and movable members having parallel faces, and means to adjust said members to adapt them to receive and clamp the stock to be trimmed.



2. In a machine of the class described, carriages movable longitudinally with relation to each other, a shaft mounted in each carriage, each shaft having a cutter-head to carry a trimming-cutter, rests mounted on said carriages, and sustaining work-holding means, said rests and work-holding means being mounted on and movable with said carriages when the latter are being adjusted to act on work of different lengths, and means to adjust the work-holding means transversely of the carriages to clamp and hold the work to be acted upon.

3. In a machine of the class described, a bed, carriages sustained on said bed, shafts in said carriages, each shaft having a cutter-head to carry a trimming-cutter, a slide mounted on each of said carriages and sustaining work-rests and work-holders, said slides being movable with the carriage when adjusting the latter to the length of the stock to be acted upon, and means to adjust said slides transversely with relation to said carriages, substantially as described.

4. In a machine of the class described, a bed, carriages sustained on said bed, shafts in said carriages, each shaft having a cutter-head to carry a trimming-cutter, slides sustaining work-holders, said slides being mounted on said carriages and movable longitudinally therewith, and guide-rods extended respectively from one of said slides and passing through the other of said slides.

5. In a machine of the class described, two carriages each having a transverse track, a rotary shaft mounted in bearings in each of said carriages, a cutter-head carried by each shaft and provided with a cutter, a slide mounted on each transverse track of said carriages, work-holders sustained thereon, and means to adjust said carriages and their work-holders transversely to the longitudinal axes of said shafts.

6. In a machine of the class described, rotatable cutter-heads each having a trimming-cutter, movable carriages sustaining the shafts of said cutter-heads, transverse tracks one on each carriage, gages to coact with a pattern or "standard" of the desired length that the cutter-heads may be located exactly at the proper distance apart to trim parallel the ends of and leave stock exactly of the length of the pattern, and stock-holding means movable on said transverse tracks at right angles to the axis of rotation of the shafts carrying said cutters that the tools acting simultaneously upon opposite ends of the stock may trim the same parallel.

7. In a machine of the class described, cutter-heads each having a trimming-cutter, slides having work-holding means and movable transversely of the axis of rotation of said cutter-heads, springs acting normally to close the work-holder onto the stock, and means to lock the slides in their outward position.

8. In a machine of the class described, rotatable cutter-heads having each a trimming-cutter, clamps having work-holders, each work-holder comprising a jaw movable longitudinally of said clamp, and stops to arrest one of said jaws just outside the path of movement of the trimming-cutters when said slides are moved transversely of the longitudinal axis of the cutter-head into position to receive the stock to be acted upon, the remaining member of the clamp being capable of being moved farther to separate the members of the clamp for the proper distance to receive the work, and a spring to cause the members of the clamp to embrace and hold the work.

9. In a machine of the class described, two carriages, tracks to sustain the same, each carriage having a transverse track, a shaft mounted in each carriage and having a cutting-tool, slides mounted on said transverse tracks, means for slidably connecting said slides, one with the other, and work-rests sustained by and movable with said slides transversely of the cutter-carrying shafts.

10. In a machine of the class described, two carriages, tracks to sustain the same, each carriage having a transverse track, a shaft mounted in each carriage and having a cutting-tool, slides mounted on said transverse tracks, means for slidably connecting said slides one with the other, and work-rests sustained by and movable with said slides transversely of the cutter-carrying shafts, and means to clamp the work sustained on said work-rests.

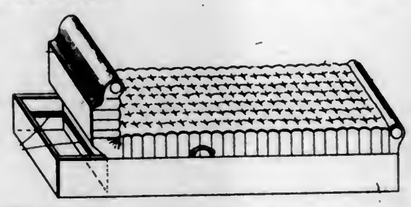
11. In a machine of the class described, a plurality of cutter-heads each having a cutter, and two slides, parallel tracks sustaining said slides, each slide having a connected rod extended through the other slide.

12. In a machine of the class described, a plurality of cutter-heads each having a cutter, and two slides, parallel tracks sustaining said slides, each slide having a connected rod extended through the other slide, a work-rest and jaw fixed to each slide, and a movable spring-held jaw also sustained by each slide.

13. In a machine of the class described, a plurality of cutter-heads each having a cutter, and two slides, parallel tracks sustaining said slides, each slide having a connected rod extended through the other slide, a work-rest and jaw fixed to each slide, and a movable spring-held jaw also sustained by each slide, and stops to arrest the outward movement of the spring-held jaws before the completion of the outward movement of said slides and their fixed jaws.

14. In a machine of the class described, a plurality of cutter-heads each having a cutter, and two slides, parallel tracks sustaining said slides, each slide having a connected rod extended through the other slide, and means to clamp said slides in position to receive the work to be trimmed.

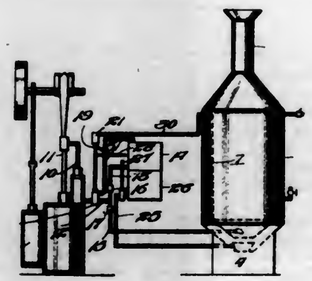
786,760. COUCH. GUY C. HARTSHORN, Fort Worth, Tex., assignor to Hartshorn Bros., Fort Worth, Tex., a Firm. Filed June 15, 1904. Serial No. 212,627.



Claim.—1. As a new article of manufacture the herein-described couch provided with a support hinged thereto constituting a wardrobe having a tray mounted in one end thereof, a hinged head portion for making said tray accessible and for setting the head portion at any desirable position, ratchets for holding said head portion at any desirable position, said tray being provided with a lid whereby the tray is closed when said head portion is raised for couch purposes, and means for raising the entire couch for access to said wardrobe.

2. A new article of manufacture comprising a wardrobe divided into compartments, a couch hinged to one side of the main compartment of said wardrobe and provided with a head portion normally resting on the other compartment, the latter compartment having a separate hinged cover, and a combined hinge and ratchet for said head portion whereby a couch is formed with an adjustable head and provision made for opening either compartment of said wardrobe without opening the other compartment.

786,761. STEAM-GENERATOR. CHARLES E. HASTINGS, Griffin, Cal. Filed Jan. 6, 1904. Serial No. 187,945.

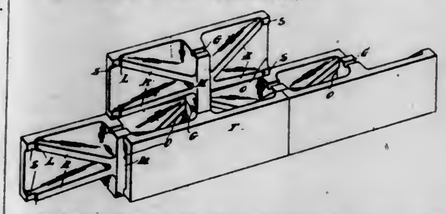


Claim.—1. The combination with a boiler having a burner; of a water and a fuel tank, a connection between the fuel-tank and the burner, a slide-valve therein, a rod extending from the valve, a pump having an outlet, a slide-valve within the outlet, valved connections between the outlet and the water-tank and boiler, respectively, a cylinder communicating with the boiler, a spring-pressed piston within the cylinder and connected to the valve in the outlet, and a bracket movable with the spring-pressed piston and the valve in the outlet, and adapted to contact with and operate the rod.

2. The combination with a cylinder having a steam-inlet, and a spring-pressed piston within the cylinder; of a pump having an outlet, a valve within the pump, a connecting device between the valve and piston, a bracket extending from said device, a water-tank, valved connections between the outlet and the tank and the point of discharge, respectively, a fuel-tank having an outlet, and a valve within the outlet and adapted to be operated by the bracket.

3. In a device of the class described, a steam-generator provided with a burner, a water-supply duct leading to the generator, a fuel-supply duct leading to the burner, said ducts having controlling-valves, a cylinder connected with the generator to receive steam therefrom, a piston movably disposed within the cylinder and connected with the valve in one of the ducts, a fixed member carried by and movable with the piston, and an element connected with the valve in the other duct and disposed within the path of movement of the member.

786,762. BUILDING-BLOCK. CHARLES J. W. HAYES, Detroit, Mich., assignor to Charles W. Cadwell, trustee, Windsor, Ontario, Canada. Filed Oct. 17, 1904. Serial No. 228,717.



Claim.—1. A building-block constructed with a transverse rib and with ribs radiating from the central portion thereof to the ends of the block, substantially as described.

2. As a new article of commerce, a building-block having a tabular part and a transverse middle rib, and ribs radiating to the ends of the block from the central portion of such transverse middle rib, substantially as described.

3. As a new article of commerce, a building-block having a tabular part and on one face of said tabular part ribs radiating from the center thereof, substantially as described.

4. In a new article of commerce, a building-block having a transverse rib with bonding-grooves therein, and ribs radiating from the middle of said transverse rib to the corners of the block, substantially as described.

5. As a new article of commerce, a building-block having a transverse rib with bonding-grooves therein, and ribs radiating from the middle of said transverse rib to the corners of the block said ribs diminishing in width from their junction with the mid-rib toward their ends, substantially as described.

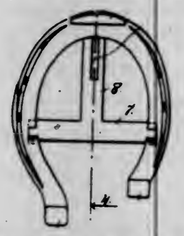
6. A wall construction, having in combination blocks, each of which is provided with a tabular part and with ribs on the back thereof radiating from the central part thereof toward the corners, substantially as described.

7. As a new article of commerce, a building-block having a tabular part and diagonally-disposed truss members on one face thereof, substantially as described.

786,763. HORSESHOE. WILLIAM HILL, Denver, Colo. Filed Dec. 30, 1904. Serial No. 238,916.

Claim.—1. A horseshoe composed of two members, namely a main member adapted to be secured directly to the hoof and a lower member adapted to be connected with the main member, the main member having a bridge-piece and a forwardly-extending slotted part, the curved arms of the main member having recesses open at the bottom, the detachable member being provided with a tongue adapted to enter the slot of the slotted member and move forwardly therein, the detachable member being also provided with a transverse

part whose extremities are adapted to enter the recesses of the main member



2. A horseshoe comprising a main member adapted to be attached directly to the hoof, and an auxiliary member adapted to be connected with the main member, the main member having a bridge-piece and a forwardly-extending slotted part, the curved arms of the main member having recesses open at the bottom and extending both forwardly and rearwardly from said openings; the auxiliary member having a tongue adapted to enter the slot of the main member and move forwardly therein, the auxiliary member being also provided with a transverse part whose extremities are adapted to enter the recesses of the main member.

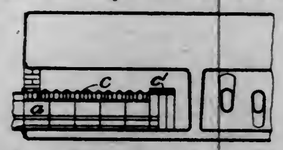
3. A horseshoe comprising a main member adapted to be attached directly to the hoof, and an auxiliary member adapted to be connected with the main member, the main member having a bridge-piece and a forwardly-extending slotted part, the curved arms of the main member having recesses open at the bottom; the auxiliary member having a tongue adapted to enter the slot of the main member, the auxiliary member being also provided with parts adapted to enter the recesses of the main member.

4. A horseshoe comprising a main member adapted to be attached directly to the hoof, and an auxiliary member adapted to be detachably connected with the main member, the main member having a bridge-piece and a forwardly-extending slotted part, the main member having also oppositely-located recesses in its curved arms; and the auxiliary member having a tongue adapted to enter the slotted part of the main member, and parts adapted to enter the recesses of the main member, substantially as described.

5. A horseshoe comprising a main member adapted to be directly attached to the hoof, and an auxiliary member adapted to be detachably connected with the main member, the main member having a bridge piece, a forwardly-extending slotted part and oppositely-located recesses in its curved arms at the extremities of the bridge-piece and below the same; the auxiliary member having a forwardly-projecting tongue adapted to enter the slotted part of the main member, the auxiliary member also having parts adapted to enter he recesses of the main member.

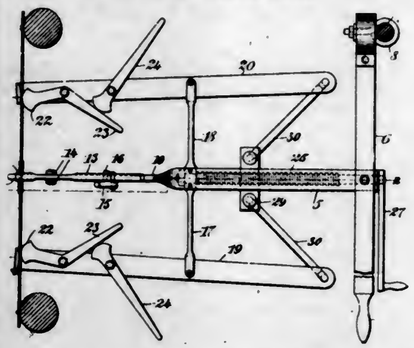
6. A horseshoe comprising a main member adapted to be directly attached to the hoof, and a detachable auxiliary member, the main member having a bridge-piece located intermediate its extremities, and a part extending forwardly from the center of the bridge-piece to the toe of the shoe, the said part being longitudinally slotted, the curved arms of the main member being provided with recesses at the extremities of and below the bridge-piece; the auxiliary member having a transverse bridge-piece and lugs projecting upwardly from its extremities and adapted to enter the recesses of the main member, the auxiliary member also having a part extending forwardly from the center of the bridge-piece to the toe and having a tongue adapted to enter the slotted part of the main member.

786,764. STEAM-BOILER OR LIKE FURNACE. GEORGE R. HISLOP, Paisley, Scotland. Filed Jan. 26, 1904. Serial No. 190,727.



Claim.—In a steam-boiler furnace, in combination, a flue into which air and gas are admitted, a partition in said flue, a lining on each side of said flue for preventing the air and gas giving off too much heat in the initial stage of combination, a screen comprising ribbed and arched silica tiles located above said flue partly supported by the partition, adapted to effect intimate commingling of the air and gas and to lead the air and gas from said flue through said screen to the top of the combustion-chamber, combustion taking place in said flue, between said tiles and at the top of the combustion-chamber, a hollow bridge at the rear of said combustion-chamber, and air-channels at the foot of said flue conveying a supply of heated air to said bridge, substantially as described.

786,765. WIRE-STRETCHER. CHARLES F. HOPELDT, Lloyd, Mont. Filed June 10, 1904. Serial No. 211,966.



Claim.—1. A wire-stretcher comprising a frame, a center clamp carried by the frame, clamp-carrying levers mounted to swing on opposite sides of the frame, means for swinging the levers, and an anchoring attachment on the inner end of one of the levers.

2. A wire-stretcher comprising a frame, means for anchoring the frame, clamp-carrying levers at opposite sides of the frame and having swinging relation thereto, a screw for operating in the frame, a cross-head actuated by said screw, and link connections between said cross-head and the clamp-carrying levers.

3. A wire-stretcher comprising a frame, a cross-bar on the frame, a device carried by said cross-bar for engaging with a stake, arms extended outward from the frame, clamp-carrying levers mounted to swing on said arms, a screw for operating in the frame, a cross-head movable by said screw, and link connections between said cross-head and said levers.

4. In a wire-stretching device, a frame, means for anchoring the frame, a screw-shaft for operating in the frame, a cross-head movable along said screw-shaft, a clamp-carrying lever having swinging connection with the frame, a link connection between the lever and cross-head, a jaw member on the forward end of said lever, a jaw member mounted to swing on the lever, the said swinging jaw member having an inclined lever portion, and a locking-lever mounted to swing on the first-named lever for engaging with the inclined lever.

5. A wire-stretcher comprising a frame, a forward extension on said frame having a jaw member, a jaw mounted to swing on said forward extension, a locking-lever mounted to swing on the extension and having engagement with the jaw-lever to hold it in clamping position, arms extended outward from the frame, clamp-carrying levers mounted to swing on said arms, a screw-shaft for operating in the frame, a cross-head moved by said screw-shaft, link connections between the cross-head and clamp-carrying levers, and means for anchoring the device.

786,766. PRUNING IMPLEMENT. JOHN G. HUNT, Lenox, Mo., assignor of three-fourths to Charles A. Capps, Beulah, Mo., and Thomas C. McGiboney, Licking, Mo. Filed Dec. 2, 1904. Serial No. 235,238.

Claim.—1. In a pruning implement, the combination of a stock, a bar disposed alongside the stock and connected thereto to permit endwise and tiltable movements of the bar, a lever disposed alongside of the bar and fulcrumed intermediate of its ends thereon, corresponding ends of the bar and lever having coöperating shear-blades, and a link pivotally connecting the other end of the lever with the stock.

2. In a pruning implement, a stock member, a bar having at one end a shearing-surface and coupled to said stock by spaced radius-links, a lever member having at one end an opposing shearing-surface, said bar and lever pivotally united intermediately of their lengths, and a radius-link of greater length than said spaced radius-links and pivoted by the ends respectively to said stock and the free end of said lever member.



3. In a pruning implement, the combination of a stock, a bar having a shear-blade, a pair of links having their opposite ends pivotally connected to the stock and the bar, the pivotal connections between the links and the stock being spaced at a less interval than the interval between the pivotal connections of the links and the bar, a lever fulcrumed intermediate of its ends upon the bar and provided with a shear-blade coöperating with the shear-blade of the bar, and a link pivotally connected at its opposite ends to the free end of the lever and the stock.

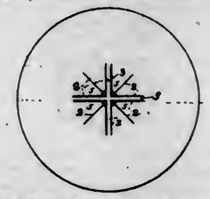
4. In a pruning implement, the combination of a stock, a bar provided with a terminal shear-blade, spaced links pivotally connected at opposite ends to the bar and the stock with the pivots uniting the links and the stock spaced at a less interval than the pivots uniting the links and the bar, the free end of the bar being formed to bear against the stock and limit the movement of the bar, a lever fulcrumed intermediate of its ends upon the bar and provided with a terminal shear-blade coöperating with the shear-blade of the bar, and a link pivotally connecting the opposite end of the lever with the stock.

5. In a pruning implement, the combination of a stock, a bar provided at one end with a shear-blade, spaced links pivotally connected at opposite ends to the bar and the stock with the pivots uniting the links to the stock nearer together than the pivots uniting the links to the bar, the other end of the bar being extended beyond the adjacent link and formed to bear against the stock at one limit of the movement of the bar, a lever fulcrumed intermediate of its ends upon the bar and provided with a terminal shear-blade in coöperative relation with the shear-blade of the bar, and links embracing the other end of the lever and the stock and pivotally connected to said members.

786,767. BLUE-RED AZO DYE. PAUL JULIUS and ERNST FUHRMANN, Ludwigshafen-on-the-Rhine, Germany, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Nov. 17, 1904. Serial No. 233,176.

Claim.—As a new article of manufacture the azo coloring-matter which can be obtained by combining diazotized 3.4.6-trichlor-anilin with beta-naphthol-disulfo-acid R, which coloring-matter is soluble in water, which in the form of its barium-aluminium lake possesses a bluish-red color, and which on reduction with tin and hydrochloric acid yields 3.4.6-trichlor-anilin and amido-naphthol-disulfo-acid.

786,768. INK-BOTTLE HOLDER. LUDO H. KELLER, Cleveland, Ohio. Filed Dec. 12, 1904. Serial No. 236,513.



Claim.—1. In a bottle-holder, a sheet-metal disk, of greater breadth and therefore of greater stability than the bottle, integral triangular portions thereof separated on two sides therefrom by means of radial lines, inwardly-turned tips to said triangular portions, and an integral cruciform center to said disk remaining after the triangular portions are cut therefrom, substantially as described.

2. In a bottle-holder, a sheet-metal disk provided with a central cruciform integral portion upon which the bottle is designed to rest and integral spring-detents cut in the disk from the angles adjacent to said cruciform portion, the said integral spring-detents being bent into a vertical position at right angles to one side of the disk, and provided with inwardly-turned points, substantially as described.

3. In a bottle-holder, adapted for shipment by mail, a flat sheet-metal disk, provided with an integral cruciform center, triangular integral detents or arms separated from one another and from the cruciform center by radial lines, and turned-over points upon the detents, substantially as described.

786,769. PRESSURE-REGULATOR. PETER KELLER and PHILIPP SEILER, Chicago, Ill., assignors, by direct and mesne assignments, to said Keller and John M. Tierney, Chicago, Ill. Filed Dec. 27, 1904. Serial No. 238,383.



Claim.—1. A pressure-regulator comprising in combination, a cylindrical member having a reduced sleeve at one end thereof provided with vertically-disposed guide-ribs and having a cylindrical opening for the passage of gas, a cylindrical casing adapted to be mounted on said member and having a reduced upper end portion provided with a central opening surrounded at its lower end by an annular flange, a cylindrical valve longitudinally movable on said guide-ribs and having a dished head interposed therein between its ends, and longitudinally-disposed slots interposed in the cylindrical wall of said valve above the said dished head and adapted to coact with the said annular flange to partially cut off the flow of gas when the latter exceeds the normal pressure.

2. A pressure-regulator comprising in combination, a cylindrical member having a reduced sleeve at one end thereof provided with vertically-disposed guide-ribs and having a cylindrical opening for the passage of gas, a cylindrical casing adapted to be mounted on said member and having a reduced upper end portion provided with a central opening surrounded at its lower end by an annular flange, a cylindrical valve of larger diameter than the diameter of said annular flange longitudinally movable on said guide-ribs and provided in its upper end with longitudinally-disposed slots adapted to coact with said annular flange to partially cut off the flow of gas when the pressure rises, said valve being provided between its ends with a head against which the gas is adapted to impinge, said first-named member being provided in its upper wall with recesses through which the gas passes below the lower edge of said cylindrical valve.

786,770. SIEMENS REGENERATIVE FURNACE. ADALBERT KURSWERNHART, Zuckmantel, near Teplitz, Austria-Hungary. Filed May 3, 1904. Serial No. 206,096.

Claim.—1. A method of forcing the combustible gas into Siemens regenerative furnaces wherein, before the reversing operation, the gas contained in the regenerative chamber, after being cut off in any known manner from its source of supply, is introduced into the furnace by flue or waste gas, the said flue or waste gas being displaced from any flue or chamber containing such gas and caused to move

through the gas-supply passage into the regenerative chamber, substantially as described.



2. A method of forcing the combustible gas into Siemens regenerative furnaces wherein, before the reversing operation, the gas contained in the regenerative chamber after being cut off in any known manner from its source of supply is introduced into the furnace by flue or waste gas, the said flue or waste gas being withdrawn from any flue or chamber containing such gas and being forced through the gas-supply passage into the regenerative chamber substantially as described.

786,771. **PROCESS OF MANUFACTURING NON-ALCOHOLIC BEER.** VALENTIN LAPP, Leipsic, Germany. Filed May 16, 1901. Serial No. 60,359.

Claim.—1. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort and maintaining the mixture at a temperature below that at which the yeast will act upon the more difficultly-diffusible albuminous constituents of the wort, removing the yeast when it begins to sprout, and clarifying the liquor thus obtained.

2. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort and maintaining the mixture at a temperature at which the yeast will act upon some of the peptones and amids but will not act upon the more difficultly-diffusible albuminous constituents of the wort, removing the yeast when it begins to sprout, and clarifying the liquor thus obtained.

3. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a low temperature, maintaining said low temperature during the action of the yeast, removing the yeast from the wort before it commences to sprout, and carbonating the liquor thus obtained.

4. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a temperature approximating 0° centigrade, maintaining said low temperature during the action of the yeast, separating the yeast from the wort before it commences to sprout, and carbonating the liquor thus obtained.

5. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a temperature approximating 0° centigrade, maintaining said low temperature during the action of the yeast, removing the yeast from the wort before it commences to sprout, and clarifying and carbonating the liquor thus obtained.

6. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a low temperature, maintaining the wort and yeast at such low temperature under exclusion of air during the action of the yeast, removing the yeast from the wort by filtration before it commences to sprout, and clarifying and carbonating the liquor thus obtained.

7. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a low temperature approximating 0° centigrade, maintaining the wort and yeast at such low temperature under exclusion of air during the action of the yeast, removing the yeast from the wort by filtration before it commences to sprout, and clarifying and carbonating the liquor thus obtained.

8. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a temperature approximating 0° centigrade, maintaining the wort and yeast at such low temperature during the action of the yeast, removing the yeast from the wort when it becomes turbid, and clarifying and carbonating the liquor thus obtained.

9. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a temperature approximateing 0° centigrade, permitting the yeast to act upon the wort at such temperature until the strength of the wort is reduced from 1 to 4 per cent., then removing the yeast, and clarifying and carbonating the liquor thus obtained.

10. The method of manufacturing non-alcoholic beer, which consists in adding yeast to wort at a low temperature, maintaining the wort and yeast at such low temperature under exclusion of air until the strength of the wort is reduced from .1 to .4 per cent., removing the yeast, and clarifying and carbonating the liquor thus obtained.

11. The method of manufacturing non-alcoholic beer, which consists in adding five to six liters of yeast to approximately thirty hectoliters of wort, and maintaining the same at a temperature of approximately 0° centigrade until turbidity ensues, removing the yeast about the time it commences to sprout, and clarifying and carbonating the liquor thus obtained.

12. The method of manufacturing non-alcoholic beer, which consists in adding five to six liters of bottom-yeast to approximately thirty hectoliters of wort, showing twelve to fifteen per cent. of extract, maintaining under exclusion of air the mixture at a temperature of approximately 0° centigrade until turbidity ensues and the strength of the wort is reduced from .1 to .4 per cent., then removing the yeast, filtering and carbonating the liquor thus obtained.

786,772. **STEERING-WHEEL FOR MOTOR-VEHICLES.** EDWARD J. LOWN, Laporte, Ind., assignor, by mesne assignments, to Autocar Company, Ardmore, Pa. Filed Apr. 8, 1904. Serial No. 202,178.



Claim.—1. In a hand steering-wheel, the combination with the rim thereof, of a hand-grip revolubly mounted in said rim.

2. In a hand steering-wheel, the combination with the rounded rim thereof, of a hand-grip inserted and revolubly mounted in said rim to form a regular contour.

3. Controlling means comprising a steering-wheel and an independently-movably handhold therein which is adapted to be connected to an operative device.

4. Controlling means comprising a steering-wheel and a pair of independently-movable handholds therein which are adapted to be connected to operative devices.

5. In a hand steering-wheel, the combination with an annular rim thereof provided with a hand-grip-receiving gap, of a hand-grip fitted to extend longitudinally in said gap to close the same, and means for revolubly supporting said hand-grip therein.

6. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, of a hand-grip fitted in said gap, trunnions on the ends of said grip and thimbles secured to the gap ends of the rim.

7. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted and secured to the gap ends of said rim, of a hand-grip fitted to and extending longitudinally between said thimbles, and hand-grip trunnions mounted in said thimbles.

8. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted and secured to the gap ends of said rim, of a hand grip fitted and extending longitudinally between said thimbles, hand-grip trunnions in said thimbles and a lever-arm connected to said hand-grip.

9. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a hand-grip fitted and extending longitudinally between said thimbles, hand-grip trunnions mounted in said thimbles, a lever-arm connected to said hand-grip, whereby controlling mechanism may be operated.

10. In a hand steering-wheel, the combination with the rim thereof having opposing hand-grip-receiving gaps, of opposing hand-grips revolubly mounted in said gaps of said rim and means connected to each of said revoluble hand-grips whereby controlling mechanisms may be operated independently.

11. In a hand steering-wheel, the combination with the rim thereof provided with a plurality of hand-grip gaps, of a grip mounted in each of said gaps and means connected to each of the said revoluble hand-grips whereby the controlling mechanisms may be operated independently.

12. In a hand steering-wheel, the combination with the rounded rim thereof provided with a plurality of hand grip gaps, of a hand-grip fitted and revolubly mounted in each of said gaps to form a continuous and unbroken peripheral contour.

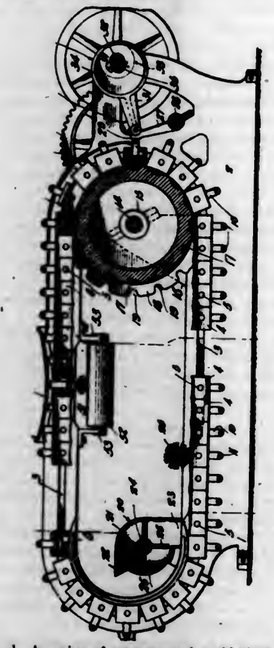
13. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of said sleeve, a hand-grip mounted on said sleeve, end trunnions mounted in the ends of said sleeve and arranged to accurately fit in said end thimbles.

14. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of the said sleeve, a hand-grip mounted on said sleeve and encircling the same, end trunnions yieldingly mounted in the ends of said sleeve and arranged to be moved into said thimbles when said hand-grip is placed in position.

15. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of the said sleeve, a hand-grip mounted on said sleeve and encircling the same, end trunnions mounted in the ends of said sleeve, and a spring situated in said sleeve between said trunnions for moving the latter longitudinally.

16. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of an outer sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of the said outer sleeve, an inner sleeve mounted within the aforesaid sleeve, a hand-grip mounted on said outer sleeve and encircling the same, end trunnions mounted in the ends of said inner sleeve, means for extending the said trunnions and means connecting said hand-grip, outer sleeve and inner sleeve to form a single rotative piece.

786,773. **BRIQUET-MACHINE.** HOWARD E. MARSH, Los Angeles, Cal., assignor of one-half to William P. Wagy, Los Angeles, Cal. Filed June 2, 1904. Serial No. 210,768.



Claim.—1. A series of unconnected mold-blocks, each block having a plurality of cavities, plungers in the cavities, means for moving the mold-blocks through a definite orbit, means coacting with the plungers for compressing briquet material, and means for simultaneously operating the gang of plungers in a mold-block.

2. A series of unconnected mold-blocks, each block having a plurality of cavities, plungers in the cavities, a molding-drum, means for moving the mold-blocks successively in a definite orbit and over the face of the drum, and means for simultaneously operating the respective plungers of a block.

3. A series of mold-blocks, each block having a plurality of cavities, plungers in the cavities, a molding-drum, means for moving the mold-blocks successively in a definite orbit and over the face of the drum, means for pressing the respective plungers of a mold-block simultaneously toward the drum to compress the briquet, means for then retracting the plungers, and means for subsequently pressing in the plungers to expel the briquet.

4. A series of independent mold-blocks, each block having a plurality of cavities, plungers in the cavities, a molding-drum, means for moving the mold-blocks successively in a definite orbit and over the face of the drum, means for pressing the respective plungers of a mold-block simultaneously toward the drum, and means for gradually and positively retracting the plungers.

5. A series of independent mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, and means for gradually retracting the plunger to form an air-cushion back of the briquet.

6. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, means for gradually retracting the plunger to form an air-cushion back of the briquet, and means for again pressing the plunger outward and compress the air, thereby ejecting the briquet.

7. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, means for gradually retracting the plunger to form an air-cushion back of the briquet, means for again pressing the plunger outward and compress the air, thereby ejecting the briquet, and a suitable conveyer for receiving the ejected briquets.

8. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, and means for gradually retracting the plunger to form an air-cushion back of the briquet, means for again pressing the plunger outward to compress the cushion, thereby ejecting the briquet, and means for feeding material to the mold-blocks.

9. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, means for gradually retracting the plunger to form an air-cushion back of the briquet, means for again pressing the plunger outward to compress the cushion, thereby ejecting the briquet, means for feeding material to the mold-blocks, and a suitable conveyer for receiving the ejected briquets.

10. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, and means for gradually and positively retracting the plunger and forming an air-cushion back of the briquet.

11. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, and means for gradually retracting the plunger and forming an air-cushion back of the briquet, means for again pressing the plunger outward and ejecting the briquet, and means for then retracting the plunger.

12. A series of mold-blocks, a plunger in a mold-block, a molding-drum, means for moving the mold-blocks over the face of the drum, means for pressing the plunger of a mold-block toward the drum, means for gradually retracting the plunger and forming an air-cushion back of the briquet, means for again pressing the plunger outward and ejecting the briquet, and means for then positively retracting the plunger.

13. A series of mold-blocks, a plurality of rigidly-connected plungers in each mold-block, a pair of standards, having grooves, projections on the mold-blocks engaging the grooves, and means for pushing the mold-blocks along, and means for operating the plungers.

14. A series of mold-blocks, a plurality of rigidly-connected plungers in each mold-block, a pair of standards, each standard having an endless groove, trunnions on the mold-blocks engaging in the grooves, means for pushing the mold-blocks along, and means for operating the plungers.

15. A series of mold-blocks, a plurality of rigidly-connected plungers in each mold-block, a pair of standards, each standard having an endless groove, projections on the mold-blocks lying in the grooves, a pair of rotating devices having notches for engaging the

projections of the mold-blocks for pushing the mold-blocks along, and means for operating the plungers.

16. A pair of standards, each standard having a groove, a series of mold-blocks, projections on the mold-blocks engaging the grooves, a shaft, a molding-drum on the shaft, a pair of disks on the shaft having notched peripheries for engaging the projections on the mold-blocks, plungers in the mold-blocks, and means for pressing the plungers toward the drum.

17. A pair of standards, each standard having an endless groove, a shelf on a standard curved concentrically with the grooves, a series of mold-blocks, projections on the mold-blocks engaging the grooves, the face of a mold-block having at least two prominent points for riding upon the curved shelf to prevent the mold-blocks from buckling.

18. A pair of standards, each standard having an endless groove, a pair of shelves on the standards concentric with the curve of the grooves, a series of mold-blocks, projections on the mold-blocks engaging in the grooves, the mold-blocks having concave faces which ride over the curved shelves.

19. A series of mold-blocks, means for moving the mold-blocks, through a definite orbit, a gang of plungers in each mold-block, a pivoted platen for consecutively pressing in gangs of plungers, means for rocking the platen, and means for adjusting the length of stroke of the platen.

20. A series of mold-blocks, means for moving the mold-blocks through a definite orbit, plungers in the mold-blocks, a pivoted platen for pressing in the plungers, means for rocking the platen, and means for adjusting the length of stroke of the platen.

21. A series of mold-blocks, means for moving the mold-blocks through a definite orbit, a plurality of plungers in each mold-block, a pivoted platen for bearing against the plungers in a mold-block, and means for rocking the platen.

22. A series of mold-blocks, means for moving the mold-blocks through a definite orbit, plungers in the mold-blocks, a pivoted platen for pushing the plungers, a shaft, an eccentric on the shaft, and a connection from the eccentric to the platen.

23. A series of mold-blocks, means for moving the mold-blocks through a definite orbit, plungers in the mold-blocks, a pivoted platen for pushing the plungers, a shaft, an eccentric on the shaft, and a connection from the eccentric to the platen, said eccentric comprising a pair of rigid disks on the shaft, a cylinder having a widened slot which receives the shaft, and bolts passing through the disks and cylinder.

24. A series of mold-blocks, means for moving the mold-blocks through a definite orbit, plungers, in the mold-blocks, a pivoted platen for pushing the plungers, a shaft, an eccentric on the shaft, a connection from the eccentric to the platen, and means for adjusting the throw of the eccentric.

786,774. THREAD-WAXING DEVICE FOR SEWING-MACHINES. FRANK W. MERRICK, Boston, Mass. Filed May 7, 1904. Serial No. 208,840.



Claim.—1. In a thread-waxer, or the like, the combination with the wax-pot having the socket, and the compressible packing occupying such socket, of the movable clip engaging with the said material at the inner and outer sides thereof, operating to compress it within the said socket, and adapted to act in its movement to eject the same from the socket, and securing means for said clip.

2. In a thread-waxer, or the like, the combination with the wax-pot having the socket, and the compressible packing occupying such socket, of the movable clip engaging with the said packing at the inner and outer sides thereof, provided with the elongated shoe to act against the packing along the outer side of the latter, and adapted to act in its movement to eject the packing from the socket, and securing means for said clip.

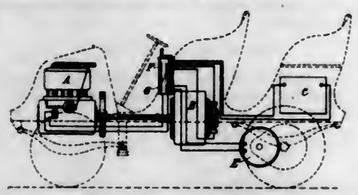
3. In a thread-waxer, or the like, the combination with the wax-pot having the socket, and the piece of compressible packing occupying the said socket, of the clip clasping the said packing so as to engage with the same at the inner and outer sides thereof and provided with the screw-threaded stem, and the nut engaging with the said stem.

4. In a thread-waxer, or the like, the combination, the wax-pot having the sockets at opposite sides of an intermediate portion of its wax-containing chamber, and also having the thread-passages, the packing occupying the said sockets, the clips each clasping the corresponding portion of packing at the inner and outer sides thereof and adapted in its movement to act to eject the rubber from the sockets, and means to adjust the clips to compress the said packing within the sockets.

5. In a thread-waxer, or the like, the combination with a support having a seat or socket, and packing applied to the said seat or socket, of a clip for said packing, provided with means for securing the clip in place, and engaging with the packing at the inner side of the latter to unseat the packing upon the withdrawal of the clip.

6. In a thread-waxer, or the like, the combination with a support having a seat or socket, and packing applied to the said seat or socket, of a clip holding the packing in place and also engaging with the same at the inner side thereof to unseat the packing upon the withdrawal of the clip, and adjusting means for said clip.

786,775. ELECTRIC-MOTOR CONTROLLING APPARATUS. LARS G. NILSON, Hoboken, N. J., assignor, by mesne assignments, to Fisher Motor Vehicle Company, a Corporation of New Jersey. Original application filed May 15, 1902. Serial No. 107,391. Divided and this application filed June 10, 1904. Serial No. 211,945.



Claim.—1. In a vehicle, the combination with an accumulator and a motor, of a main and an auxiliary controller, said main controller controlling the speed of the motor, and said auxiliary controller the charging of the accumulator, and means preventing the auxiliary controller from being operated to charge the accumulator except when the main controller is in a certain position, substantially as described.

2. In a vehicle, the combination with a plurality of motors, and a main controller, of an auxiliary controller having means for connecting the armatures of said motors in series through a resistance in one position, and for short-circuiting the armatures of said motors, independently, in another position, and means preventing the operation of the auxiliary controller except when the main controller is in a certain position, substantially as described.

3. The combination with a series motor having shunt field-coils, of a main and an auxiliary controller, the auxiliary controller being operable to energize the shunt field-coils and short-circuit the armature, when the main controller is in a certain position, substantially as described.

4. In a vehicle, the combination with a plurality of motors, and a main controller, of an auxiliary controller having means for varying the relation of the armature-circuits independently of the field-circuits, and means preventing the operation of said auxiliary controller, except when the main controller is in a certain position, substantially as described.

5. In a vehicle, the combination of two controllers, means for operating one of said controllers without operating the other, means permitting limited operation of the second controller irrespective of the position of the first, and means preventing complete operation of the second controller except when the first is in a definite position, substantially as described.

6. In a vehicle, the combination of a plurality of motors, a controller for changing the connections of the motor so as to run in series or parallel, and means for strengthening the fields of said motors, said means being independent of the controller and operable at any position of the controller, substantially as described.

7. In a vehicle, the combination with a plurality of series motors, of a controller adapted to connect them in series and parallel relation, and independent means for strengthening the fields of the motors, substantially as described.

8. In a vehicle, the combination of a main controller controlling

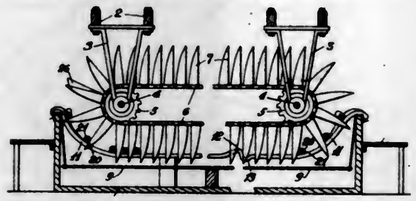
ordinary running speeds, an auxiliary controller adjacent thereto controlling the braking, and interlocking means permitting partial operation of the auxiliary controller while the main controller is in operating position, substantially as described.

9. The combination of a main and an auxiliary controller, each carrying a notched disk, and a pin mounted between the disks and projecting at all times in one or the other of said notches, one of said notches being wider than the other to permit limited operation of its controller while the other is in operation, substantially as described.

10. The combination of a main and an auxiliary controller, each carrying a notched disk, the notch in the disk of the auxiliary controller being of greater extent than the notch on the main controller, and a pin mounted between the disks and projecing at all times into one or the other of said notches, substantially as described.

11. The combination with a plurality of series motors having shunt-coils, of a main and an auxiliary controller, the auxiliary controller being operable to energize the shunt field-coils and to connect the armatures in series through a resistance, when the main controller is in a certain position, substantially as described.

786,776. ELECTROPLATING APPARATUS. LOUIS POTTHOFF, Flushing, N. Y. Filed Dec. 1, 1904. Serial No. 234,986.



Claim.—1. The combination with means for moving material through an electroplating solution, of a conductor connected with said material, and means for automatically changing the point of connection between the material and the conductor, substantially as described.

2. The combination with means for moving material through an electroplating solution, of a fixed conductor connected with said material, and means for automatically changing the point of connection between the material and the conductor, as the work moves along, substantially as described.

3. The combination with a conveyer for moving material through an electroplating solution, of a conductor connected with said material, and means for automatically changing the point of connection between the material and the conductor, substantially as described.

4. The combination with a conductor, of means for moving material through an electroplating solution in contact with said conductor, and means for automatically changing the point of connection between the material and the conductor as the work moves along, substantially as described.

5. The combination with a fixed conductor, of means for moving material through an electroplating solution in contact with said conductor, and means for automatically changing the point of contact between the material and said moving means, substantially as described.

6. The combination with a traveling belt adapted to move material through an electroplating solution, of a fixed conductor with which the material contacts as it is moved along, substantially as described.

7. The combination with means for supporting the material to be treated, of a conductor adapted to contact with said material, an anode, and means for moving the material in ad irection inclined to that of the conductor, substantially as described.

8. The combination of a tank, a traveling belt, means attached to said belt for moving material through the tank, a conductor inclined to the direction of movement of said belt, and contacting with the material, and an anode, substantially as described.

9. The combination of a tank, a traveling belt having pins adapted to move the material being treated, a conductor in contact with the material while being moved, and an anode, substantially as described.

10. The combination of a tank, a traveling belt having pins adapted to move material through the tank, and means for electrically depositing metal on said material while being moved by said pins, substantially as described.

11. The combination with means for moving elongated material through a tank, of a relatively fixed conductor adapted to contact therewith, an anode adapted to be carried with the work, and means for separating said anode from the work, substantially as described.

12. An anode for electroplating apparatus comprising a bar or rod composed of the metal to be deposited, means for reinforcing said bar, and a porous wrapping around said bar, substantially as described.

13. The combination with means for moving elongated material through a tank, of a relatively fixed conductor adapted to contact therewith, an anode adapted to be carried with the work, means for separating said anode from the work, and means with which the anode contacts as it moves along to supply current thereto, substantially as described.

14. The combination with means for moving elongated material through a tank, of an anode adapted to be carried therewith, and relatively fixed means for supplying current to said anode, substantially as described.

15. The combination with means for moving elongated material through a tank, of a relatively fixed conductor adapted to contact therewith, an anode adapted to be moved with the material, means for separating the anode from the material, and means for circulating the electrolyte longitudinally of the work, substantially as described.

16. In an electroplating apparatus, a soluble anode composed of the metal to be deposited and having a loose porous wrapping of a thickness proportional to the voltage to be used, substantially as described.

17. The combination with means for electroplating elongated material, and means for transferring it through a solution while being electroplated, of means for automatically inclining the work before it is discharged from the tank, substantially as described.

18. The combination in an electroplating-tank, of means for feeding tubular work into the solution in position whereby to expel the air, substantially as described.

19. The combination in an electroplating-tank, of means for feeding tubular work out of the solution in a position whereby to discharge the electrolyte, substantially as described.

20. The combination in an electroplating-tank, of means for feeding the work into the solution in an inclined position, means for moving it through the solution, and means for feeding the work out in an inclined position, substantially as described.

21. The combination in an electroplating-tank, of means for feeding the work into the solution in an inclined position, means for moving it through the solution, and a cathode-conductor independent of the feeding mechanism with which the work contacts as it moves through the solution, substantially as described.

22. The combination with means for moving material through an electroplating solution, and an anode, of a relatively fixed conductor with which the material contacts as it is moved along, substantially as described.

23. The combination with means for moving material through an electroplating solution, of a relatively fixed conductor with which the material contacts as it is moved along, an anode moving with the material, and means for supplying current to the anode, substantially as described.

24. The combination with means for moving material through an electroplating solution, of a relatively fixed conductor with which the material contacts as it is moved along, an anode moving with the material, and means for automatically discharging the material, substantially as described.

25. The combination with means for moving material through an electroplating solution, of a conductor with which the material contacts as it is moved along, an anode moving with the material, and means for automatically discharging the material, substantially as described.

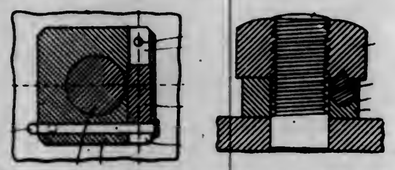
26. The combination with means for moving material through an electroplating solution, of a conductor connected with said material and formed in such a manner as to change the point of contact with the work when the latter is moved relatively thereto, substantially as described.

27. The combination with means for moving material through an electroplating solution, of supporting means therefor, a cathode-conductor connected with the material, and means for automatically changing the points of contact of the work with the moving and supporting means and the cathode-conductor, substantially as described.

28. The combination with a traveling belt, of means supporting the material to be treated, means attached to said belt for moving the material, and means automatically shifting the position of the

material relatively to the supporting means, substantially as described.

786,777. NUT-LOCK. JOHN D. REED, Boston, Mass., assignor of one-half to Mary Ellen Reed, Boston, Mass. Filed June 18, 1903. Serial No. 161,963.

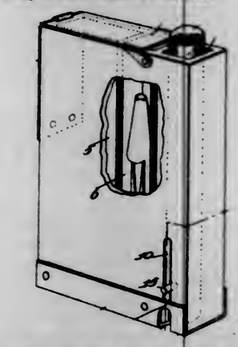


Claim.—1. A nut-lock comprising a plate or washer adapted to be held in fixed position beneath a nut and having a groove formed therein adjacent to and at one side of the center of the nut, said groove being formed to provide a stop near one end, a locking-key of less length than said groove and adapted to slide therein, said key having a cutting edge extending above the surface of the plate, and means carried by said plate for preventing rearward movement of said key, substantially as described.

2. A nut-lock comprising a plate or washer adapted to be held in fixed position beneath a nut and having a groove formed therein adjacent to and at one side of the center of the nut, a locking-key adapted to slide in said groove and having a cutting edge extending above the surface of the plate, and a securing-pin adapted to enter said plate and extend across the rear end of said key when in operative position, substantially as described.

3. A nut-lock comprising a plate or washer adapted to be held in fixed position beneath a nut and having a groove formed therein adjacent to and at one side of the center of the nut, said groove extending through opposite edges of the plate and being reduced in diameter near one end to form a stop, a locking-key adapted to slide in the larger portion of said groove and having a cutting edge extending above the surface of the plate, and a securing-pin carried by said plate and extending across the rear end of said locking-key when in operative position, substantially as described.

786,778. RIVETING DEVICE. FRANK SHEPPARD, Edwardsville, Ill. Filed July 5, 1904. Serial No. 215,393.

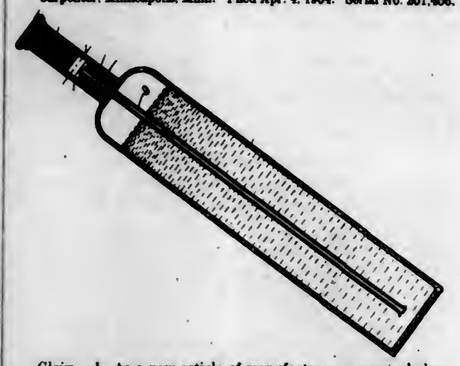


Claim.—1. In a riveting device: a suitable frame forming a rivet-chamber, a punch-chamber, and a rivet-set chamber; there being an opening at the bottom of the rivet-set chamber to receive the point of the rivet; and a rivet-set slidingly mounted in said rivet-set chamber above said opening; substantially as specified.

2. In a riveting device: a casting forming a rivet-chamber, a punch-chamber, and a rivet-set chamber; a cover hinged in position to close the rivet-chamber and the punch-chamber; and a spring-catch to hold the cover closed; a washer-holding plate secured in position to close the lower ends of said chambers; there being a rivet-slot through said plate at the bottom of the rivet-set chamber to receive the point of the rivet; said plate serving to press the washer down around the rivet; and a rivet-set mounted in the rivet-set chamber above the slot in said washer-holding plate; substantially as specified.

3. In a riveting device: a casting forming a rivet-set chamber; a washer-holding plate secured in position to close the lower end of said chamber, there being a rivet-slot through said plate at the bottom of the rivet-set chamber and extending forwardly through the wall of the chamber to receive the point of the rivet; said plate serving to press the washer down around the rivet and a rivet-set mounted in the rivet-set chamber above the slot in said washer-holding plate.

786,779. FIRE-EXTINGUISHER. WILLIAM W. SYKES, Minneapolis, Minn., assignor, by mesne assignments, of one-half to Henry L. Carpenter, Minneapolis, Minn. Filed Apr. 4, 1904. Serial No. 201,406.



Claim.—1. As a new article of manufacture, a receptacle having a neck provided with a weakened area, means closing said neck upon each side of said area, and a tube communicating with said receptacle and with the space between said closing means.

2. As a new article of manufacture, a bottle having a neck provided with an annular groove therein, plugs provided in said neck above and below said groove, and a tube communicating with the interior of said bottle and with the space between said plugs, for the purpose specified.

3. As a new article of manufacture, a bottle adapted to contain a liquid under pressure and provided with a neck having a weakened area, a rib below said area, plugs closing said neck above and below said area and rib, and a tube communicating with the interior of said bottle and the space between said plugs.

4. As a new article of manufacture, a bottle adapted to contain a charged liquid and having a neck provided with a weakened area, closing means for said neck above and below said area, and a tube communicating with the interior of said bottle and extending partially through said closing means.

5. As a new article of manufacture, a bottle adapted to contain liquid under pressure and having a neck provided with a weakened area, a stopper closing said neck below said area, and a tube communicating with the interior of said bottle and extending through said stopper.

786,780. RAILROAD-SWITCH. MINOR WATERS, New Albany, Ind., and WILLIAM M. MITCHELL, Louisville, Ky. Filed Dec. 21, 1904. Serial No. 237,847.

Claim.—1. A railroad-switch, having sectional switch point-rails, the tapered points of which are each formed of two abutting tapered portions, substantially as described.

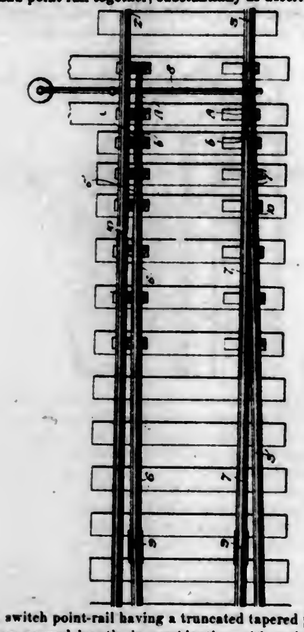
2. A railroad-switch having truncated, tapered switch point-rails and short point-sections attached to and filling out the truncated ends of said rails, substantially as described.

3. A railroad-switch, comprising the usual main rails and suitably-connected point-rails, wherein each point-rail has a point or tapered end of usual form but composed of two tapered portions or sections suitably joined, the extreme point-sections being separately renewable, substantially as described.

4. In a railroad-switch, a truncated switch point-rail having a truncated, tapered end, to rest against a main rail, in combination with a short, tapered point-section abutting the truncated end of the switch point-rail and rigidly joined thereto, substantially as described.

5. A switch point-rail having a truncated, tapered end to rest against a main rail, in combination with a point-section abutting the truncated end of said rail and having side plates riveted to the web portion of the point-rail, substantially as described.

6. A switch point-rail having a truncated, tapered end to rest against a main rail, in combination with a complementary, tapered switch point-section abutting the truncated end of said rail, to also rest against the main rail, and means for rigidly securing the said section and point-rail together, substantially as described.



7. A switch point-rail having a truncated tapered point or end of less than normal length, in combination with a short, tapered switch-point proper attached to the truncated end of said rail, said point proper completing the said rail, and formed of more serviceable metal, substantially as described.

8. A switch point-rail having a tapered point that is truncated and therefore of less than normal length in combination with a short, tapered point section or extension abutting the reduced end of said rail, and a plate projection upon the outer side of said point-section, said plate being rigidly secured to the point-rail and substantially conforming to the shape of the inner side cavity of a stock or main rail, substantially as described.

9. A switch point-rail having a truncated tapered end and therefore of less than normal length, in combination with a short, complementary point-section, completing said rail, and strengthening plates or extensions projecting from the large end of said point-section and secured to opposite sides of the point-rail, substantially as described.

10. A switch-rail having a truncated, tapered point, in combination with a complementary point-section abutting said switch-rail and having integral side plates or splices together embracing the web of the switch-rail and rigidly secured thereupon, substantially as described.

11. A switch-rail having a truncated, tapered end to rest against a main rail, in combination with a complementary, tapered point-section having parallel integral plate extensions embracing the web portion of the switch-rail and rigidly secured thereto, the plate extension upon the gage side of said section being of less height than the other extension, substantially as described

12. A truncated switch-rail partially pointed and blunted as described, in combination with a complementary, tapered point-section equipped with plate extensions embracing the switch point-rail, and rivets extending through said rail and extensions, substantially as described.

13. The new article of manufacture, comprising a short, tapered, complementary switch-rail point for attachment to the truncated end of a split-point switch-rail, the wide end of said complementary point being of substantially one-half the width of a switch-rail, substantially as described.

14. A switch point-rail of less than normal length, having a truncated, tapered end to rest against a main rail, in combination with a tapered-point-completing section abutting the truncated end of said rail and provided with an integral plate or splice projection rigidly jointed and riveted to the end of said point-rail, substantially as described.

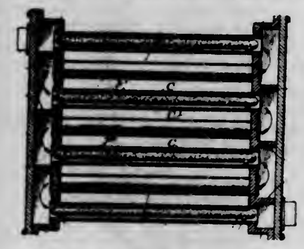
15. A suitably-tapered switch point-rail having a truncated, notched end, in combination with a complementary tapered point-section fitting the notched truncated end of said rail, and side plates upon said complementary pointed section riveted to said switch-rail, substantially as described.

16. In a railroad-switch, the main rails, in combination with the switch point-rails having their outer sides beveled at the ends upon planes that intersect the planes of their webs, said point-rails being truncated upon transverse planes, substantially coincident with the intersections of the bevel and web planes thereof, short, tapered complementary point-sections fitting the truncated ends of said point-rails and means securing the complementary points upon respective point-rails, substantially as described.

17. A rolled-steel switch point-rail for railroad-switches, having a tapered, truncated end to rest against a main rail, in combination with a complementary tapered point to also rest against the said main rail, respective sides of said point-rail and said point being in the same vertical planes, and means securing said point on said point-rail, substantially as described.

18. A rolled-steel switch point-rail for railroad-switches, having a tapered, truncated end to rest against a main rail, in combination with a complementary tapered point to also rest against the said main rail and abutting the truncated end of said point-rail, said complementary point being a steel casting, and means for securing said point to said point-rail, substantially as described.

786,781. DEVICE FOR PREVENTING INCRUSTATION IN BOILERS. FRED WEIMAR, Chicago, Ill., assignor of one-half to George R. Bard, Chicago, Ill. Filed Apr. 7, 1904. Serial No. 201,975.



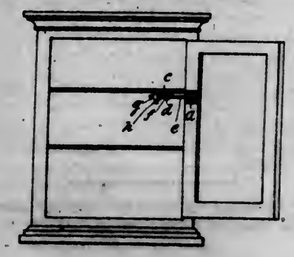
Claim.—1. In a device of the class described, the combination with a plurality of tubes of stone cores centrally disposed within the same.

2. In a device of the class described, the combination with a plurality of tubes, of stone cores within the same and substantially out of contact therewith.

3. In a device of the class described, the combination with a plurality of tubes of stone cores centrally supported within the same, and substantially out of contact therewith.

4. In a device of the class described the combination with a plurality of tubes, of cylindrical stone cores within the tubes and projecting lugs on the cores supporting them centrally within the tubes, and substantially out of contact therewith.

786,782. ADJUSTABLE DOOR-STOP. GEORGE H. WOLF, Washington, Pa., assignor of one-fourth to Alfred L. Cochran, Washington, Pa. Filed Nov. 15, 1904. Serial No. 232,805.



Claim.—An adjustable door-stop, comprising a plate *a*, adapted to be secured to a door, a radially-curved arm or lever pivoted thereto, an inclined friction-plate secured to a shelf and provided with an aperture for receiving the opposite end of said arm or lever and allowing same to slide freely therein, together with an adjustable stop upon the free end of the curved arm for limiting the movement of said arm or lever, all substantially as and for the purposes shown and described.

786,783. **SHOE-TREE.** WILLIAM C. BENKERT, Philadelphia, Pa., assignor to Charles E. Schmidt, Philadelphia, Pa. Filed Aug. 9, 1902. Serial No. 118,993.



Claim.—1. In a shoe expander or tree, the combination of a toe-piece and toggle consisting of two arms hinged together the free end of one of said arms being provided with a heel-piece, an extensible hinge connection between the free end of the other arm of the toggle and the toe-piece consisting of a screw-threaded stud hinged to the toggle-arm and adjustably screwed into the toe-piece, two stops or lugs respectively formed on the two arms of the toggle and extending vertically upward above the hinge of the toggle to limit its downward movement, a thumb piece or button arranged above the hinge and lugs and secured to one arm of the toggle so as to protect the hand in depressing the toggle.

2. In a shoe expander or tree, the combination of the toe-piece and toggle consisting of two long rigid arms hinged together the free end of one of said arms being provided with a heel-piece, two stops or lugs respectively formed on the two arms of the toggle and extending vertically upward above the hinge of the toggle to limit its downward movement, a thumb piece or button arranged upon the hinge and lugs and secured to one of the arms so as to protect the hand in depressing the toggle, and an extensible connection between the free end of the toggle-arm and the toe-piece consisting of a rigid part hinged to the free end of the toggle and adjustably secured to the toe-piece.

786,784. **PLOW-POINT.** HIRAM N. BERRY, Meridian, Miss. Filed Oct. 8, 1904. Serial No. 227,658.



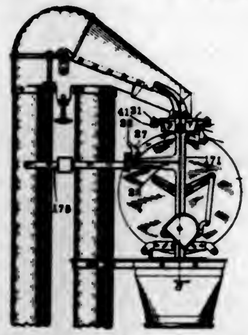
Claim.—1. A plow-point consisting of a blade curved from end to end to conform to a plow-stock, pointed at its lower end and provided at its upper end with a rearwardly-extending tongue or projection and having between its ends an opening or openings for the passage of a securing-bolt, substantially as set forth.

2. A point-blade for plows flattened in cross-section, curved longitudinally from end to end to conform to a plow-stock, provided between its ends with an opening or openings elongated in the direction of length of the blade, pointed at its lower end and provided at its upper end midway between its edges with a rearwardly-turned lug forming a tongue to enter a slot in the plow-stock substantially as set forth.

3. The combination of the stock having a longitudinal slot, the shovel, the heel-bolt securing said shovel, and the point-blade flattened in cross-section, curved from end to end to conform to the plow-stock and fitting flatwise over the shovel and against the front side of the plow-stock and provided at its upper end midway between its side edges with a rearwardly-turned lug forming a tongue to enter the slot in the plow-stock and provided between its ends with an opening or openings elongated in the direction of length of the point-blade and adapted to receive the heel-bolt substantially as and for the purpose set forth.

786,785. **AUTOMATIC WEIGHER.** CHESTER BRADFORD, Indianapolis, Ind. Filed Jan. 6, 1905. Serial No. 240,869.

Claim.—1. The combination, in an automatic weigher, of the cylindrical weigher-drum, a centrally-arranged pivot-shaft on which said drum is mounted, hangers carrying said pivot-shaft, latching devices for holding the weighing-drum to position while filling, the scale-beams, the weigher-frame, and separately-formed pivots, having flat bases whereby they are enabled to be attached to said frame and said hangers, substantially as shown and described.



2. The combination, in an automatic weigher, of the weigher-drum, the pivot-shaft on which said drum is mounted, hangers carrying said pivot-shaft, the weigher-frame, scale-beams mounted on said weigher-frame and pivotally connected to said hangers, two separate latch projections on said weigher-drum, and two separate catches therefor on said weigher-frame, said catches being provided with rollers against which said latch projections will bear while the weigher is filling, substantially as shown and described.

3. The combination, in an automatic weigher, of the weigher-drum, its supports, its scale mechanism, and its latching mechanism, said latching mechanism embodying ears on the framework, roller-housings secured to said ears, and rollers in said roller-housings arranged to receive the pressure of the latching projections on the drum while the material to be weighed is entering the compartments of the drum, substantially as shown and described.

4. The combination, in an automatic weigher, of the weigher-drum, the supporting devices therefor embodying scale mechanism, the weigher-drum, and the latching mechanism, said latching mechanism embodying projections carried by the drum, ears on the weigher-frame, adjustable housings secured to said ears, and rollers mounted in said housings, the edges of said housings at the lower sides projecting below the lower surface of said rollers whereby said rollers are guarded from contact with the latching parts on the drum as they raise to position, while said rollers project beyond the edges of said housings at the inner sides thereby enabling said latching parts on the drum to rest against them during the filling operation.

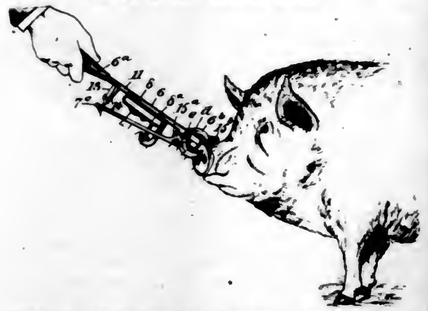
5. The combination, in an automatic weigher, of the weigher-drum, the weigher-frame, the supporting and scale mechanism therefor, a latching mechanism comprising ears on the weigher-frame having contact-surfaces faced with a yielding material, roller-housings also secured to said ears in front of said contact-surfaces, rollers in said housings, and latching parts on the weigher-drum adapted (as the weigher operates) to first strike said contact-surfaces and then pass up behind said rollers and finally bear against said rollers during the filling operation.

6. The combination, in an automatic weigher, of the weigher-drum, the weigher-frame, the supporting and scale mechanism therefor, a latching mechanism comprising ears on the weigher-frame embodying both a stop and a catch and latching parts on the weigher-drum adapted to engage the catch parts of said ears, said catch parts in said ears embodying roller-housings adjustably connected thereto, and rollers in said housings, said housings being constructed, as shown, to guard the lower sides of said rollers while exposing the inner sides.

7. The combination, in an automatic weigher, of the weigher-drum, the weigher-frame, the supporting and scale mechanism therefor, and latching mechanism comprising ears on the weigher-frame embodying stops and suitable housing-bearings, roller-housings secured to said ears upon said housing-bearings, rollers in said housings, and shims interposed between said bearings and said housings whereby the distance may be accurately adjusted.

8. The combination, in an automatic weigher, of the weigher-drum, the weigher-frame, the supporting and scale mechanism therefor, a latching mechanism comprising ears on the weigher-frame embodying stops and suitable horizontally-positioned housing-bearings, U-shaped roller-housings secured on said ears to the under side of said housing-bearings, rollers in said housings, bolts extending vertically up through the said housings and bearings with their heads within the interior of the U, and shims interposed between said bearings and said housings.

786,786. **HOG-RINGING IMPLEMENT.** JOHN GOULD, Sr., Clinton, Pa. Filed May 26, 1904. Serial No. 209,822.



Claim.—1. An implement for ringing hogs, embodying a limb, an elongated shank lapped and pivoted upon the limb, mating jaws on like ends of the limb and shank and adapted to hold an open ring between them, a spring between the limb and shank, normally spreading them apart and partly closing the jaws, means for holding the limb and shank pressed toward each other against the stress of the spring, and means for releasing the limb from the shank to permit closure of the jaws.

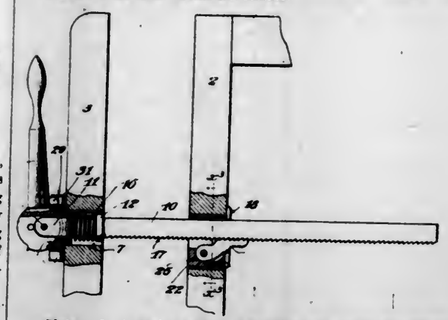
2. An implement for ringing hogs, embodying a limb, an elongated shank lapped and pivoted upon the limb near like ends of the same, jaws on the ends of the limb and shank near their pivot connection, said jaws having concave inner faces, and a channel in each concave face for the reception of an open wire ring, a plate-spring having two divergent members and held between the limb and shank, releasable means for holding the limb pressed toward the shank so as to spread apart the jaws against the stress of the spring, and means for releasing the limb when said means is pressed upon the snout of an animal which is to be engaged by the ring held between the jaws.

3. An implement for ringing hogs, comprising an elongated shank, an elongated limb, the limb and shank being lapped together and pivoted where they lap, jaws on the ends of the limb and shank near their jointed connection, said jaws having concave inner faces and channels in said faces extended from the free ends of the jaws, said channels being adapted to receive an open-wire ring, a looped plate-spring secured by one member on the inner side of the shank, an adjustable screw in the limb, adapted to contact with a wear-plate on the other member of said spring, for compression of said spring when the limb is pressed toward the shank, a hook on the rear end of the limb, a post on the shank near said hook, a hook-bar pivoted between its ends on the post, and having a latch-hook on the lower end adapted to engage the hook on the limb, and means for rocking the hook-bar to release the latch-hook from the hook on the limb when said means is forcibly pressed on the snout of an animal to be ringed.

4. In an implement of the character described, the combination with two lapped and pivoted elongated bars, a jaw on each bar near the pivot connection, said jaws having opposed concave faces and a hook on the opposite end of one bar, of a post on the other bar near said hook, a hook-bar pivoted between its ends on the post and having a hook adapted to engage the other hook, a spring between the two bars, normally spreading them apart for the closure of the jaws, said spring being compressed when the hook-bar engages with the mating hook on the hinged bar, a screw in said hinged bar, adapted for pressure on the spring to compress it, an abutment-arm having a member opposing the spring to restrict its expansion, and a tripping-bar held to slide on one elongated bar, said tripping-bar being pivoted at one end upon the upper end of the hook-bar, and at the opposite end having a pressure-arm for contact with the snout of an animal whereby to release the hook-bar and permit a closure of the jaws.

5. In an implement of the character described, the combination with an elongated limb having a concave-faced jaw on one end and a hook on the other end, an elongated shank lapped and pivoted on the limb, a jaw on the shank near the pivot and having a similar concave face, said concave faces having like longitudinal channels therein, and a yoke-plate secured on one jaw, having an open slot opposite the space between the jaws, of a post on the shank near the hook on the end of the limb, a hook-bar pivoted between its ends on said post, a latch-hook on the lower end of the hook-bar, adapted to engage the hook on the limb, a finger-spring pressing upon the hook-bar, a spring normally spreading the limb and shank apart, means for restricting the expansion of said spring, and a tripping-bar held to slide on the shank, one end of said bar having a pressure-arm thereon for contact with the snout of an animal, the other end thereof being pivoted upon the upper end of the hook-bar.

786,787. **VISE.** MILLARD F. HUDSON and EDWIN R. LANGFORD, Los Angeles, Cal., assignors to Hudson Tool Company, Los Angeles, Cal. Filed Mar. 22, 1904. Serial No. 199,329.



Claim.—1. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, a plurality of detents carried by the stationary jaw for engaging the rack-bar, the detents being serially arranged for sequentially engaging the teeth of the rack-bar, a cam pivoted to the rack-bar and having a convex face, a face-plate on the movable jaw having a concave seat for the cam, and a lever for operating the cam.

2. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, a plurality of detents carried by the stationary jaw for engaging the rack-bar, a cam pivoted to the rack-bar, means on the movable jaw for receiving the thrust of the cam, a lever for operating the cam, and means for limiting the operation of the cam to a definite position of the rack-bar.

3. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, a plurality of detents carried by the stationary jaw for engaging the rack-bar, a bearing-plate on the movable jaw for receiving the thrust of the cam, a lug on the cam, the bearing-plate having a groove for receiving the lug.

4. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, a plurality of detents carried by the stationary jaw for engaging the rack-bar, a bearing-plate on the movable jaw for receiving the thrust of the cam, a lug on the cam, the bearing-plate having a groove for receiving the lug, and means for limiting the turning of the rack-bar.

5. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, a plurality of detents carried by the stationary jaw for engaging the rack-bar, a bearing-plate on the movable jaw for receiving the thrust of the cam, a lug on the cam, the bearing-plate having a groove for receiving the lug, a lug on the face-plate, a cam-lever for operating the cam, and a lug on the cam-lever for engaging with the lug on the face-plate.

6. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, a series of teeth arranged on opposite sides of the rack-bar, a plurality of detents for engaging the teeth on both sides of the rack-bar, and a cam on the rack-bar for tightening the movable jaw.

7. A stationary jaw, a movable jaw, a rack-bar revolubly mounted in the movable jaw, said rack-bar having teeth formed on its opposite sides, a plurality of detents engaging the rack on both sides, and means for tightening the movable jaw.

8. A plurality of jaws, means for supporting the jaws adjustably with respect to each other, a rack-bar connected to one jaw, a detent-

carrier pivotally connected with the other jaw, a detent on the carrier for engaging the rack-bar, and means for turning the rack-bar into or out of engagement with the detent and for tightening the jaws.

9. A plurality of jaws, means for supporting the jaws adjustably with respect to each other, a rack-bar connected to one jaw, a divided bushing connected with the other jaw, a detent-carrier pivoted between the cheek-pieces of the bushing, the rack-bar passing through the detent-carrier, a detent on the carrier for engaging the rack-bar, and means for turning the rack-bar into or out of engagement with the detent and for tightening the rack-bar.

10. A plurality of jaws, means for supporting the jaws adjustably with respect to each other, a rack-bar connected to one jaw, a detent-carrier pivotally connected with the other jaw, the rack-bar passing through the carrier, a detent on the carrier having a hub which bears in a rounded seat in the carrier, and means for turning the rack-bar into or out of engagement with the detent and for tightening the jaws.

786,788. **WRENCH.** MILLARD F. HUDSON, Los Angeles, Cal. Filed June 28, 1904. Serial No. 213,807.



Claim.—1. A wrench comprising a toothed shank, a movable jaw on the shank, a plurality of detents fulcrumed as a lever of the first class and loosely mounted to rock upon the movable jaw and a single means free from the detents, acting on the arm thereof for tilting the detents and for moving the jaw relatively to the detents.

2. A wrench comprising a toothed shank, a movable jaw on the shank, a spring-pressed detent having a head adapted to rock upon the movable jaw, said detent being unattached to the jaw, resilient means for normally holding the detent against the jaw, and a trigger-cam free from the detent and carried by the movable jaw for tilting the detent when moved in one direction and for shifting the movable jaw when moved in the other direction.

3. A wrench comprising a toothed shank, a movable jaw on the shank, a detent fulcrumed as a lever of the first class and carried by the movable jaw and having a head provided with a shoulder, a solid trigger-cam free from the detent and carried by the movable jaw and unconnected with the detent but having a shoulder for engaging the shoulder on the detent, and a suitable spring for normally holding the detent against the toothed shank.

4. A wrench comprising a toothed shank, a movable jaw on the shank, a plurality of detents fulcrumed as levers of the first class and carried by the movable jaw but unattached thereto and having shoulders on one arm of said lever, a trigger-cam free from the detents and revolubly mounted on the movable jaw but unattached thereto and having a shoulder for engaging the respective shoulders of the detents, and means for resiliently holding the detents normally against the toothed shank.

5. A wrench comprising a toothed shank, a movable jaw on the shank having a seat for a detent, a detent normally abutting against the seat, means free from the detent which tilts the detent on its seat when moved in one direction and for moving the jaw and seat for the detent away from the detent when moved in the other direction.

6. A wrench comprising a toothed shank, a movable jaw on the shank having a pair of seats, a detent normally engaging the shank and bearing against one seat, and a revoluble device bearing against the other seat and provided with a volute for engaging with the detent.

7. In a wrench, a toothed shank, a jaw-sleeve on the shank, a jaw on the sleeve, a free shiftable detent fulcrumed as a lever of the first class and constructed and arranged for normally engaging the toothed shank and preventing relative movement between the shank and sleeve, and means free from the detent for disengaging the detent from the shank or for producing a relative movement between the sleeve and the detent while the detent is in engagement with the shank.

8. In a wrench, a toothed shank, a jaw-sleeve on the shank, a jaw on the sleeve, a plurality of detents fulcrumed as levers of the first class and having rounded heads and shoulders, the jaw having a concave seat for the heads, a trigger-cam free from the detents comprising a revoluble block having a shoulder and a segmental volute face, a tongue on said block, the jaw having a rounded seat against which said block abuts, the shoulder of the block adapted to engage the shoulders of the detents, and suitable springs for normally holding the detents against the shank and also for normally holding the ends of the detents in their seat.

9. A wrench comprising a toothed shank, a jaw-sleeve on the shank, a jaw on the jaw-sleeve, a detent for engaging the shank, and a block interposed between the jaw and the detent and provided with a volute face for engaging with the detent whereby the jaw-sleeve and jaw may be shifted relatively to the detent to secure the proper adjustment of the jaw relatively to the shank.

10. A wrench comprising a toothed shank, a jaw-sleeve on the shank, a jaw on the jaw-sleeve, a plurality of detents for engaging the shank, a block having a volute face between the detents and the jaw whereby the operation of the block brings the volute face against the ends of the detents, and the jaw-sleeve and jaw are moved relatively to the detents to secure adjustment of the jaw relatively to the shank.

11. A toothed shank, a member moving along said shank, a shifting fulcrumed detent having a toothed portion engaging the teeth of the shank, and a head, and fulcrumed in said moving member, and having a shoulder forming an arm of a lever of the first class on that side of the head opposite the toothed shank, a spring to cause the toothed portion of the detent to engage the shank-teeth, and a handled member constructed and arranged in said moving member to enter three positions in one of which it engages one side of the shoulder to release the detent when the handle is moved into retracted position, to leave the detent free to click when the handle is in an intermediate position, and to engage the head at the other side of the shoulder to shift the detent rearwardly of the moving member when the handle is in an advanced position.

12. A toothed shank, a moving member thereon having a chamber and an opening therefrom opposite the teeth of the shank, a shifting spring-pressed detent fulcrumed in the chamber, to engage the teeth of the shank, and a member mounted in the moving member and furnished with a handle extending through said opening, and with a portion to lift and release the detent when the handle is in one position, to leave it free to act as a click when the handle is in another position, and furnished with another portion to shift the detent rearwardly in the moving member when the handle is pushed forward, said detent being mounted between said handle member and the toothed shank.

13. A toothed bar, a moving member thereon having seats for a detent and for a cam, a spring arranged to yieldingly hold the detent in said seat and in engagement with the teeth of the bar, and a three-position cam in said cam-seat engaging the detent on the side thereof opposite the toothed bar, constructed and arranged to leave the detent free at one position, to lift it from the teeth in another position, and to shift it rearwardly in its seat in another position.

14. A wrench comprising a toothed shank, a movable jaw thereon provided with two seats, a headed detent in said jaw with its head in one of the seats, and a cam in the other seat provided with means for tilting the detent when rotated in one direction and for moving the jaw relatively to the detent when rotated in the other direction.

15. A wrench comprising a toothed shank, a movable jaw thereon provided with two adjacent seats with their walls intersecting, a shouldered detent in one of the seats with its shouldered portion projecting beyond the point of intersection, and a cam in the other seat provided with a shoulder engaging with and tilting the detent when rotated in one direction, and a volute for engaging with the shouldered portion of the detent and moving the jaw relatively to the detent when rotated in the other direction.

16. A wrench comprising a toothed shank, a movable jaw thereon provided with two adjacent seats, the walls of which intersect, a plurality of shouldered and toothed detents in one of the seats, each detent being provided with a rounded head and a shouldered portion which projects beyond the point of intersection, the teeth of the detents being arranged serially relatively to the teeth of the shank, and a cam in the other seat provided with a shoulder in position to engage with and tilt the detents when rotated in one direction, and with a volute portion for engaging with the shouldered portion of the detents and moving the head relatively to the detents when the cam is rotated in the other direction.

786,789. **UTENSIL FOR TRUING AND RE-FORMING THE METALLIC FLANGES OF FRUIT-JAR COVERS.** JAY M. HUNTLEY, Rockford, Ill., assignor of one-half to Charles B. Berger, Rockford, Ill. Filed Oct. 10, 1904. Serial No. 227,960.

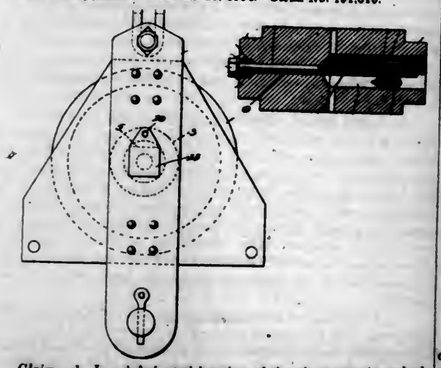


Claim.—1. In a utensil of the class described, in combination, a circular die having its face conformed to the shape desired to be impressed upon the fruit-jar-cover flanges, to be operated upon, a presser for forcing the flanges of such covers down upon and conforming them to the face of the die, and a rotatable lever for supporting and operating the presser, substantially as and for the purpose specified.

2. In a utensil of the class described, in combination, a circular die having its face conformed to the shape desired to be impressed upon the flange of a fruit-jar cover, a presser-lever pivoted by its inner end to the base of the die and slidable back and forth endwise, and a presser—for forcing the flange of such cover down upon and conforming it to the shape presented by the face of the die—carried by such lever, substantially as and for the purpose specified.

3. In a utensil of the class described, in combination, a circular die A, having its face A′ true and conformed to the shape desired to be impressed upon the fruit-jar-cover flanges to be operated upon and provided with a transverse concentric annular seat A^2 for such covers, a presser-lever B pivoted by one end B′, through an elongated longitudinal opening B^2 therein, and by means of a pintle-bearing B^3, to the base of the die, and a presser C—for forcing the flanges of the covers down upon and conforming them to the shape presented by the face A′ of the die A—mounted upon and secured to the lever B, substantially as and for the purpose specified.

786,790. **LUBRICATED PULLEY.** GEORGE W. KING, HARRY J. BARNHART, and CHARLES B. KING, Marion, Ohio, assignors to The Marion Steam Shovel Company, Marion, Ohio, a Corporation of Ohio. Original application filed Sept. 29, 1902, Serial No. 125,241. Divided and this application filed Jan. 28, 1904. Serial No. 191,016.



Claim.—1. In a lubricated bearing of the character described, a non-rotating bearing-pin having a lubricant-chamber extending from one end of the pin partly through said pin, and having an outwardly-extending lubricant-passage from its closed inner end to the bearing-surface of the pin, a rotatable rod mounted in the closed end of the pin, extending centrally along the chamber and having a threaded engagement with the piston, means for preventing longitudinal motion of the rod, and means for preventing rotary motion of the piston, whereby rotation of the rod draws the piston toward the closed end of the lubricant-chamber, substantially as described.

2. The combination, with a wheel and a non-rotating bearing pin or axle provided with a lubricating-chamber open at one end of the pin and extending thence inward and closed at its other end, said pin having a lubricant-passage extending outward from the closed end of the chamber to the bearing-surface of the pin, of a non-rotating piston fitting said lubricant-chamber, and a rod rotatably mounted in the closed end of the pin, one end of said rod extending into the chamber centrally thereof and having a threaded engagement with the piston, the other end of the rod being exposed and provided with a head to limit the inward motion of the rod and permit its rotation, substantially as described.

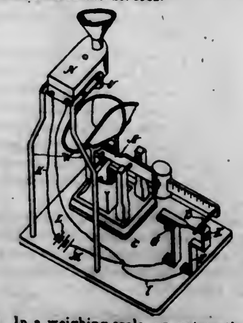
3. In a lubricated bearing of the character described, a non-rotating bearing-pin provided with a longitudinally-extending cylindrical lubricant-chamber circular in cross-section, a piston fitting said chamber, provided with a central threaded aperture, and having projections extending into the chamber to engage the lubricant, and a rod rotatably mounted in the pin, and extending centrally along the chamber and threaded to engage the piston, said rod being provided with means for preventing longitudinal motion of the rod toward the piston, substantially as described.

4. In a lubricated bearing of the character described, a non-rotating bearing-pin provided with a longitudinally-extending cylindrical lubricant-chamber circular in cross-section, a piston fitting said chamber, provided with a central threaded aperture, and having projections extending into the chamber to engage the lubricant, a rod rotatably mounted in the pin and threaded to engage the piston, and means for preventing longitudinal motion of the rod toward the piston, said piston being provided with a packing-ring at its inner end, and with longitudinal bolts securing said packing-ring to the piston, said bolts constituting the lubricant-engaging projections, substantially as described.

5. In a lubricated bearing of the character described, a bearing-pin having an axial lubricant-chamber open at one end of the pin and closed at the other end, said chamber being circular in cross-section and said pin having a lubricant-passage extending from the closed end of the chamber to the bearing-surface of the pin, a piston fitting said chamber and having a packing secured thereon by inwardly-projecting bolts, and a rod rotatably mounted in the other end of the pin, provided with a head and packing at its outer end, and having its other end threaded to engage the piston, substantially as described.

REISSUES.

12,335. **AUTOMATIC WEIGHING-SCALE.** CHARLES L. BOND, Los Angeles, Cal., assignor to Bond Scale Company, Los Angeles county, Cal., a Corporation. Filed June 9, 1904. Serial No. 211,800. Original No. 711,934, dated Oct. 28, 1902.



Claim.—1. In a weighing-scale, an automatic delivery cut-off comprising a delivery-tube; a spring-actuated cut-off adapted to control the passage of material through said tube; a latch adapted to control said spring-actuated cut-off; and means to control said latch

comprising an armature, electromagnets electrically connected to a battery and to a contact maker and breaker, said contact maker and breaker comprising a contact-spring electrically connected to said battery, said contact-spring having its free end passing through an aperture in the contact-standard and having in a portion of its length parts which lie in planes which are parallel; a thumb-screw passing in threaded contact through one portion of said parallel portion and adapted to put a pressure on the end of said spring which passes through the contact-standard, and a contact-standard having an aperture therethrough, said standard being electrically connected to said electromagnets.

2. The combination of a scale adapted to support and weigh a given quantity of any substance, with a delivery adapted to deliver such substance on the scale, said delivery having thereon a cut-off mechanism adapted to cut off the substance being weighed when any predetermined quantity of such substance is upon the scale; said cut-off mechanism comprising a spring-actuated cut-off blade; a latch adapted to hold said cut-off blades normally open to permit the material to pass to the scale; an armature adapted to retain the latch in position to hold the cut-off blade open, electromagnets electrically connected with a battery and with a circuit maker and breaker; a circuit maker and breaker electrically connected to said battery; said circuit maker and breaker comprising a contact-spring and a contact-standard, adapted to stand normally out of contact; a depression-rod affixed to the scale-beam adapted to bear upon the contact-spring and hold it out of contact with the contact-standard until the predetermined quantity of the given substance is on the scale; said contact-spring having parallel portions with a thumb-screw passing in threaded contact through one of the parallel members and adapted to be screwed against the other portion and increase the tension thereof.

3. The combination of a weighing-scale and a delivery device for delivery of material thereto, a magnetically-controlled cut-off for said device, an electric circuit controlling said cut-off and including contacts controlled by the movement of the scale-beam when said beam is in a definite position, one of said contacts being relatively fixed and the other relatively movable with respect to the scale-support, said movable contact engaging the scale-beam to exert pressure thereon and means for adjusting the pressure of said movable contact on the scale irrespective of the position of the fixed contact.

4. The combination of a weighing-scale and a delivery device for delivery of material thereto, a magnetically-controlled cut-off for said device, an electric circuit controlling said cut-off and including contacts controlled by the movement of the scale-beam when said beam is in a definite position, one of said contacts being fixed relative to the scale-beam support, and the other contact being a spring-contact and movable resiliently toward the first contact, and adjusting means for varying the pressure of said spring-contact toward the fixed contact.

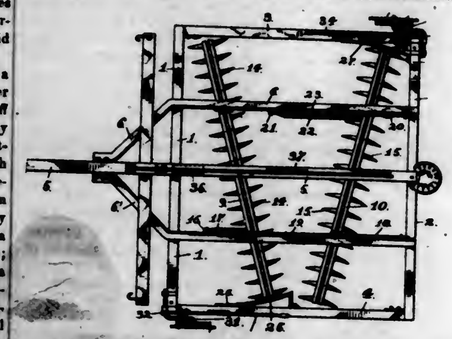
5. In a weighing-scale, an automatic delivery cut-off comprising a delivery-tube, a spring-actuated cut-off adapted to control the passage of material through said tube, a latch adapted to control said spring-actuated cut-off, and means to control said latch comprising an armature, an electromagnet operating said armature, a battery and circuit connected to said electromagnet, and circuit making and breaking contacts for said circuit, one of which contacts is spring-actuated toward the other contact, a scale with means engaging the spring-actuated contact to hold it from the other contact, and means for adjusting the pressure of the spring-actuated contact toward the other contact.

6. The combination of a weighing-scale, means for delivery of material thereto, a cut-off device for said delivery means provided with means for moving it to closed position, a latch holding said cut-off device in open position, a magnet controlling said latch, an electric contact device provided with spring-pressure means tending to close the contact and having a part operated by the scale to open the contact, means for adjustment of the pressure of the spring-pressure means, and an electric circuit and battery connected to said magnet and contact device.

7. The combination of a weighing-scale, means for delivery of material thereto, provided with a magnetically-controlled cut-off device, a spring-contact device operated by the scale and connected to control said cut-off device, and means for adjusting the spring-pressure of the contact device.

12,386. CULTIVATOR. ANDREW H. KOPPERUD, Byron, Cal., assignor of one-fourth to Roy Lester McCabe, Byron, Cal. Filed May 3, 1904. Serial No. 206,181. Original No. 703,160, dated Sept. 2, 1902.

Claim.—1. A disk harrow comprising a frame, a pair of axles suspended therefrom, the axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, means connected to the free end of the axles for independently changing the position thereof, a series of colter-disks secured to each axle, and colter-wheels connected to the frame at diagonally opposite corners.



2. The combination with a frame, of a pair of axles suspended therefrom one in advance of the other, said axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, means connected with the free end of each axle whereby the same may be swung into different positions, a series of colter-disks secured to each axle, and segment-plates attached to the frame and against which the free ends of the axles bear.

3. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being coextensive and arranged one in advance of the other in substantially the same line of travel, the axles being pivotally connected each near one end thereof to the frame, one at a point near one side of the frame and the other at a point near the opposite side thereof, means mounted on the frame for independently operating the axles for changing the position thereof, connections between said means and the free end portion of each axle, and a series of colter-disks secured on the said axles.

4. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being arranged one in advance of the other in substantially the same line of travel, the axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, hand-levers hinged to the frame, a draw-rod secured to and projecting from each hand-lever, a fulcrumed lever connection between each draw-rod and the free end portion of each axle, a series of colter-disks secured on the axles, and means for holding the hand-lever in locked position.

5. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being arranged one in advance of the other in substantially the same line of travel, the axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, means mounted on the frame for independently operating the axles for changing the position thereof, connections between said means and the free end portion of each axle, a series of colter-disks secured on the said axles, and means for overcoming the side strain of the harrow.

6. A disk harrow comprising a frame, a pair of spaced cross-beams pivotally connected within the frame, each near one end thereof, the one at a point near one side of the frame and the other at a point near the opposite side thereof, standards suspended from the cross-beams, axles working in bearing-boxes carried by the standards, colter-disks carried by the axles, a pair of levers fulcrumed to opposite sides of the frame, connection between said levers and the respective axles, hand-levers mounted on the frame, draw-rod connection between the hand-levers and the respective fulcrumed levers, and means for holding the hand-levers in locked position.

7. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being arranged one in advance of the other in substantially the same line of travel, a series of colter-disks secured to each axle, devices for pivotally connecting each axle, the axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, means for changing the position thereof, connections between said means and the free end of each axle, and devices adjacent the free ends of the axles for taking up the end thrust of each axle.

8. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being arranged one in advance of the other, the axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, hand-levers hinged to the said frame, a draw-rod secured to and projecting from each hand-lever, a fulcrumed lever connection between the draw-rods and the free end portion of each axle, a series of colter-disks secured on the axles, means for holding the hand-levers in locked position, bearings on the frame for taking up the end thrust of each axle, and means for overcoming the side strain of the harrow.

9. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being arranged one in advance of the other, and being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame and the other at a point near the opposite side thereof, a pair of hand-levers mounted on the frame, a draw-rod secured to and projecting from each hand-lever, a fulcrumed lever connection between the draw-rods and the axles so that the axles may be independently operated, a series of colter-disks secured on the axles, means for holding the hand-levers in locked position, an adjusting-wheel for the harrow-frame, and a lever connection for operating said wheel to raise and lower the said frame.

10. The combination with a frame, of a forwardly-extended tongue centrally arranged thereon, longitudinally-extended bars secured to the forward and rear ends of the frame, the forward ends of the bars being bent inwardly and secured to the respective sides of the tongue, axles extending transversely to said bars, disks on the axles, the axles being pivotally connected each near one end thereof to said longitudinally-extended bars, the one at a point near one side of the frame and the other at a point near the opposite side of the frame, and means on said bars connected to the free ends of the axles for changing the position thereof.

11. In a disk harrow, a frame comprising front, rear and side sections, longitudinally-extended bars between the front and rear sections, a pair of axles extending transversely to the bars, one in advance of the other, the axles being pivotally connected each near one end thereof to said longitudinally-extended bars, the one at a point near one side of the frame, and the other at a point near the opposite side of the frame, and means on said bars connected to the free ends of the axles for changing the position thereof.

12. In a disk harrow, a frame comprising front, rear and side sections, longitudinally-extended bars between the front and rear sections, a pair of axles extending transversely to the bars, one in advance of the other, the axles being pivotally connected each near one end thereof to said longitudinally-extended bars, the one at a point near one side of the frame, and the other at a point near the opposite side of the frame, means on said bars connected to the free ends of the axles for changing the position thereof, and bearing-plates on said side sections, for one end of said axles.

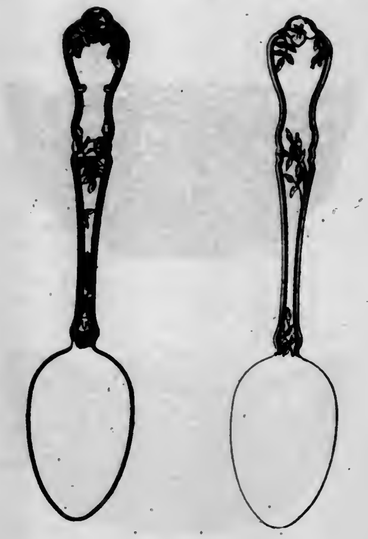
13. The combination with a frame, of an axle suspended therefrom, said axle being pivotally connected near one end to the frame, means connected with the free end of each axle whereby the same may be swung to different positions, a series of colter-disks secured to the said axle, and a segment-plate attached to the frame and against which the free end of the axle bears.

14. A disk harrow comprising a frame, a pair of axles suspended therefrom, said axles being arranged one in advance of the other in substantially the same line of travel, the axles being pivotally connected each near one end thereof to the frame, the one at a point near one side of the frame, and the other at a point near the opposite side thereof, and means connected to the free end of the axles for independently changing the position thereof, and disks on the axles.

DESIGNS.

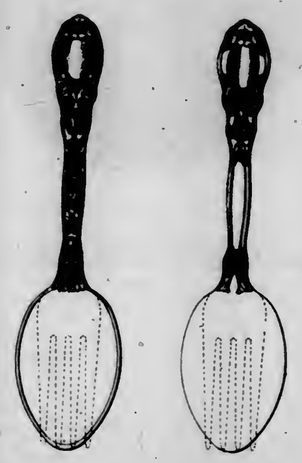
37,387. SPOON. EDWARD TAYLOR, Rockford, Ill., assignor to Rockford Silver Plate Company, Rockford, Ill., a Corporation of Illinois. Filed Mar. 8, 1905. Serial No. 249,126. Term of patent 7 years.

37,387.



Claim.—The ornamental design for a spoon, as shown.

37,388. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. EDWIN E. CODMAN, Providence, R. I., assignor to R. Blackinton & Co., North Attleboro, Mass., a Firm. Filed Mar. 9, 1905. Serial No. 249,273. Term of patent 7 years.



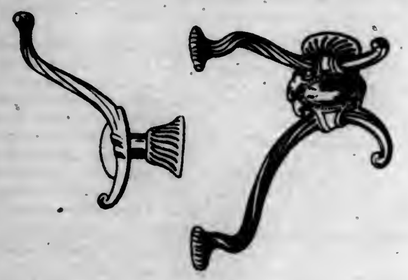
Claim.—The ornamental design for the handle of a spoon, fork or similar article, as shown.

37,389. GLASS VESSEL. WILLIAM R. SCHAFFER, Port Lee, N. J., assignor to L. Straus & Sons, New York, N. Y. Filed Feb. 23, 1905. Serial No. 247,057. Term of patent 7 years.



Claim.—The ornamental design for a glass vessel, as shown.

37,390. COAT AND HAT HOOK. CHARLES F. HUESEL, Cincinnati, Ohio. Filed Feb. 23, 1905. Serial No. 247,046. Term of patent 3½ years.



Claim.—The ornamental design for a coat and hat hook, as shown.

37,391. PRINTED TEXTILE FABRIC. EDWARD B. VANDERGAW, Brooklyn, N. Y. Filed Mar. 10, 1905. Serial No. 249,471. Term of patent 7 years.



Claim.—The ornamental design for a printed textile fabric as shown.

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NEW YORK

LABELS

REGISTERED APRIL 4, 1905

11,996.—*Title:* "REACH OFFICIAL AMERICAN LEAGUE BASE BALL GUIDE." (For Pamphlets or Booklets.) A. J. REACH CO., Philadelphia, Pa. Filed March 11, 1905.

11,997.—*Title:* "PAW-PAW." (For Card Games.) GUY C. CROSS, Watervliet, Mich. Filed March 13, 1905.

11,998.—*Title:* "CRESCENT LABEL." (For Handkerchiefs.) ACHESON HARDEN & CO., New York, N. Y. Filed March 2, 1905.

11,999.—*Title:* "AUSTRALIAN." (For Underwear.) CARSON, PIRIE, SCOTT & COMPANY, Chicago, Ill. Filed January 7, 1905.

12,000.—*Title:* "COLUMBIA GOODCLOTHES FOR BOYS." (For Clothing.) WILLIAM LEVY & BROS., New York, N. Y. Filed February 27, 1905.

12,001.—*Title:* "UNIVERSITY CLOTHING." (For Clothing.) JOS. WURTZBURGER, Baltimore, Md. Filed March 14, 1905.

12,002.—*Title:* "AUTOGRAPH." (For Shoes.) CRADDOCK-TERRY COMPANY, Lynchburg, Va. Filed March 9, 1905.

12,003.—*Title:* "GOLD MEDAL." (For Doeskins.) SWEETWATER WOOLEN MILLS, Sweetwater, Tenn. Filed March 14, 1905.

12,004.—*Title:* "GOLD MEDAL." (For Jeans and Doeskins.) SWEETWATER WOOLEN MILLS, Sweetwater, Tenn. Filed March 14, 1905.

12,005.—*Title:* "BRIDAL." (For Hose-Supporters.) EMIL GUTMANN, New York, N. Y. Filed March 11, 1905.

12,006.—*Title:* "Y-KOF." (For Medicine.) ALEXANDER K. V. REAMER, Philadelphia, Pa. Filed September 6, 1902.

12,007.—*Title:* "KOREXILLS." (For Medicinal Compound.) JOSIAH C. PEACOCK, Philadelphia, Pa. Filed March 10, 1905.

12,008.—*Title:* "PHOSPHO-FERRUM." (For a Medicinal Preparation.) W. H. HOSTELLEY & CO., Collingdale, Pa. Filed March 6, 1905.

12,009.—*Title:* "MADDEN EYE MEDICIN-" (For Eye-Medicine.) DR. MADDEN EYE MEDICIN CO., Fargo, N. D. Filed March 11, 1905.

12,010.—*Title:* "SA-LV-IA." (For Hair-Tonic.) SCHMELZEL AND GALLOP, Boise, Idaho. Filed January 28, 1905.

12,011.—*Title:* "ER-BO TOOTH POWDER." (For Tooth-Powder.) LUDWIG G. B. ERB, New York, N. Y. Filed March 11, 1905.

12,012.—*Title:* "LEMON SKIN LOTION." (For Skin-Lotion.) WILLIAM BARRETT SHAW, Cleveland, Ohio. Filed January 23, 1905.

12,013.—*Title:* "PIMPLEXION SKIN FOOD." (For an Ointment.) F. H. ROBINSON, Philadelphia, Pa. Filed March 1, 1905.

12,014.—*Title:* "CREMO." (For Non-Alcoholic Beverages.) LADWIG & SCHRANCK CO., Milwaukee, Wis. Filed March 9, 1905.

12,015.—*Title:* "D. MENDEZ HABANA." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed March 7, 1905.

12,016.—*Title:* "D. MENDEZ HABANA." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed March 7, 1905.

12,017.—*Title:* "S. C. W." (For Cigars.) GERRIT J. JOHNSON, Grand Rapids, Mich. Filed March 8, 1905.

12,018.—*Title:* "MOCHA CEREAL." (For Cereal Mixture.) THOMAS K. WRIGHT, Cleveland, Ohio. Filed March 10, 1905.

12,019.—*Title:* "U. S. STOCK FOOD." (For Stock-Food.) NATIONAL CHEMICAL CO., Canal Fulton, Ohio. Filed March 7, 1905.

12,020.—*Title:* "TOWNSEND'S LATTER DAY SAINTS OR TEMPLE BRAND OLIVE OIL." (For Olive-Oil.) BERTRAM H. TOWNSEND, Salt Lake City, Utah. Filed February 7, 1905.

12,021.—*Title:* "YS CLEANING FLUID." (For Cleaning Fluid.) WIESENTHAL & CO., New York, N. Y. Filed March 11, 1905.

12,022.—*Title:* "20TH CENTURY." (For Glass-Polish.) HENRY BIEVER, Port Washington, Wis. Filed March 9, 1905

12,023.—*Title:* "SUPERIOR GLOSS." (For Furniture-Polish.) HENRY BIEVER, Port Washington, Wis. Filed March 9, 1905.

12,024.—*Title:* "THE MAGIC LUSTRE FURNITURE POLISH." (For Furniture-Polish.) THE MAGIC LUSTRE FURNITURE POLISH COMPANY, Atlantic City, N. J. Filed February 13, 1905.

12,025.—*Title:* "EGYPTIAN SPRAY." (For Chemical Compound.) EGYPTIAN SPRAY MANFG. CO., Boston, Mass. Filed March 10, 1905.

12,026.—*Title:* "JUSTICE." (For Mantles.) THE LIBERTY INC. LIGHT CO., New York, N. Y. Filed March 13, 1905.

12,027.—*Title:* "1855 1905 FIFTY YEARS' OF QUALITY WOLFF'S PLUMBING GOODS." (For Plumbing Goods.) L. WOLFF MANUFACTURING COMPANY, Chicago, Ill. Filed March 13, 1905.

PRINTS

REGISTERED APRIL 4, 1905.

1,255.—*Title:* "NATION'S DOLLS SERIES NO. 1." (For Newspaper Novelty.) THE GRAY LITHOGRAPH CO., New York, N. Y. Filed February 25, 1905.

1,256.—*Title:* "MEN'S APPAREL." (For Men's Apparel.) W. C. BOTH, Chicago, Ill. Filed March 8, 1905.

1,257.—*Title:* "HALLCREST." (For Shoes.) LORING B. HALL COMPANY, Boston, Mass. Filed February 25, 1905.

1,258.—*Title:* "PARSLEY COMPOUND." (For Medicinal Compound.) THE GUYER MEDICINE CO., Hudson, Mich. Filed March 9, 1905.

1,259.—*Title:* "MAIL POUCH." (For Tobacco.) THE FEDERAL LITHOGRAPH COMPANY, New York, N. Y. Filed March 9, 1905.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE PARRISH.

Decided March 2, 1905.

REOPENING CASE AFTER APPEAL—AFFIDAVIT UNDER RULE 75.

Where the Examiners-in-Chief overruled all grounds of rejection given by the Examiner save one and relied upon a single reference, which the applicant wishes to overcome by an affidavit under Rule 75, *Held* that the case will be reopened to permit the filing of the affidavit.

ON PETITION.

COMBINED WRAPPER AND LABEL FOR BOTTLES AND BOXES.

Mr. Charles B. Mann and *Mr. Frank S. Appleman* for the applicant.

ALLEN, *Commissioner:*

This is a petition that the above-entitled case be reopened after decision by the Examiners-in-Chief for the consideration of affidavits under Rule 75 intended to overcome as a reference the patent relied upon by the Examiners-in-Chief in rejecting the claims.

It appears that the Primary Examiner rejected the claims upon several prior patents and the Examiners-in-Chief affirmed the rejection, but based their decision entirely upon one patent, which they say—

> is the only one of the four cited patents held by us to anticipate the invention.

As to the other patents they said:

> We are of the opinion that they do not constitute an anticipation of the specific device to which the appealed claims relate.

The petitioner urges with some force that the grounds of rejection given by the Examiners-in-Chief were different from those given by the Examiner and says that if the Examiner had rejected the claims upon the single reference he would have filed affidavits to overcome it. The situation is such as to warrant reopening the case. In fact, this was suggested by the Examiners-in-Chief on motion for rehearing, where they said:

> It would seem that the proper course to be pursued is to file a petition for reopening the case before the Primary Examiner and at the same time to submit for the consideration of the Office the proposed affidavit, affidavits of this kind being in all cases first considered by the tribunals having original jurisdiction.

The petition is granted.

EX PARTE NORDSTROM.

Decided March 25, 1905.

REJECTION—RULE 75—SUFFICIENCY OF SHOWING—APPEAL TO EXAMINERS-IN-CHIEF.

Where an Examiner finally rejects a claim on the ground that the showing made under the provisions of Rule 75 is not sufficient to establish the fact of prior inventorship, *Held* that a review of this decision should be made by the Examiners-in-Chief on appeal. Petition to Commissioner dismissed.

ON PETITION.

CENTRIFUGAL CREAM-SEPARATOR.

Mr. W. Preston Williamson for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner in the above-entitled application.

The facts leading to this petition are as follows:

It appears that the Examiner has rejected the claims on a certain foreign patent and that the applicant has filed an affidavit, under the provisions of Rule 75, for the purpose of showing that he had completed the invention in this country before the date of the foreign patent. The Examiner does not regard the showing sufficient to overcome the effect of the foreign patent as a bar to the grant of the claims in this application. It is apparent, therefore, that the question raised on this petition—namely, the sufficiency of the showing made by the applicant to overcome the effect of a reference cited against his claims—relates to the merits and is not reviewable on petition. The applicant has mistaken his remedy in bringing this petition. The question as to the sufficiency of a showing made under the provisions of Rule 75, which has been raised by the Examiner in this case, should be determined in the first instance by the Examiners-in-Chief on appeal.

The petition is dismissed.

FORSYTH *v.* RICHARDS

Decided March 25, 1905.

1. INTERFERENCE—MOTION TO DISSOLVE—ANTICIPATION BY PATENT.

Where a motion to dissolve an interference is made upon the ground that the opposing party's claim is anticipated in a patent cited, but the preliminary statement of that party alleges invention before the date of the patent, *Held* that the interference will not be dissolved.

2 SAME—SAME—SAME—AFFIDAVIT UNDER RULE 75—PRELIMINARY STATEMENT AS SUBSTITUTE.

The preliminary statement of a party alleging invention prior to the date of a patent cited will be accepted as a substitute for an affidavit under Rule 75, making out a *prima facie* case justifying a continuance of the interference in which the facts will be more completely shown by the proofs.

APPEAL on motion.

CAR-COUPLERS.

Application of George H. Forsyth. Patent granted George H. Forsyth July 26, 1904, No. 765,964. Application of Willard F. Richards.

Messrs. Offield, Towle & Linthicum and *Messrs. Bacon & Milans* for Forsyth.

Messrs. Wilhelm, Parker & Hard for Richards.

ALLEN, *Commissioner:*

This is an appeal by Forsyth from the decision of the Pri-

mary Examiner denying his motion to dissolve the above-entitled interference.

In the appeal it is said:

The reason for the appeal is that the Examiner erred in holding that "the possibility of the Stucki patent constituting a bar to Richards's" right to make counts 1 to 5 of the issue is not such an irregularity as to preclude a proper determination of the question of priority.

It is alleged that the Stucki patent anticipates the claims of Richards referred to, and this is not denied by the Examiner—that is, it is said that Stucki's patent discloses the subject-matter of the claims, and it appears that it was granted upon an application filed prior to Richards's filing date.

Forsyth has filed an affidavit under Rule 75 in avoidance of the Stucki patent, showing invention before its date; but Richards has filed no such affidavit, and therefore it is urged that the interference should be dissolved and Richards's claims rejected. The Primary Examiner, however, calls attention to the fact that Richards has filed a preliminary statement in the interference alleging invention before the date to which Stucki is entitled and that therefore a dissolution of the interference would cause delay without accomplishing any useful result.

No good reason is seen why the preliminary statement filed by Richards should not be given substantially the same effect as an affidavit under Rule 75. If such affidavit had been filed, the allegations of fact therein would not be accepted as conclusive, and after proofs were taken the dates to which he was entitled would be determined from the proofs. The affidavit would merely make out a *prima facie* case justifying the taking of proofs. So here the preliminary statement makes out a *prima facie* case and justifies the taking of proofs.

Even if the preliminary statement could not be accepted as a sufficient *prima facie* case Richards would be permitted to file an affidavit under Rule 75 without dissolving the interference.

The decision of the Primary Examiner refusing to dissolve the interference is affirmed.

CORY, GEBHART, AND MARTIN, JR., *v.* BLAKEY.

Decided March 25, 1905.

1. INTERFERENCE—MOTION TO DISSOLVE—REFUSED TRANSMISSION WHERE RELATING TO ORIGINALITY OF INVENTION.

A motion to dissolve an interference will be refused transmission to the Primary Examiner where based upon the allegation that one of the parties is not an original inventor, but derived his knowledge of it from the other party.

2. SAME—SAME—NOT PERMITTED ON QUESTIONS REQUIRING PROOFS.

Interlocutory motions to dissolve are not permitted upon matters which cannot be determined from a consideration of the application and Office records and which require the taking of proofs.

APPEAL on motion.

COAL-WASHING APPARATUS.

Application of Harvey Cory, Frank E. Gebhart, and Robert L. Martin, Jr. Application of David T. Blakey.

Mr. Charles M. Clarke for Cory, Gebhart, and Martin.

Messrs. Wilkinson & Fisher for Blakey.

ALLEN, *Commissioner:*

This is an appeal by Cory, Gebhart, and Martin from the action of the Examiner of Interferences refusing to transmit to the Primary Examiner their motion to dissolve the above-entitled interference.

The motion was made in proper time, but asked—

that this interference, as to counts 1 to 10 inclusive and counts 14 and 15, be dissolved, for the reason that the other party Blakey has no right to make claims to the same, for the reason that essential features of said counts 1 to 10, and the subject-matter of counts 14 and 15 were disclosed to the said Blakey by one of said junior parties, to wit, R. L. Martin Jr. prior to the date of Blakey's said application.

It is very clear that this motion could not be determined from a mere consideration of the applications and Office records. It raises a question of fact not proved by Office records, but depending for its proof upon evidence which would have to be presented in substantially the same way as evidence relating to priority of invention. The question of originality of invention when considered at all in an interference is passed upon in the final decision as to priority of invention and not upon interlocutory motion.

Interlocutory motions are not permitted upon questions requiring the taking of proofs, such as that here presented or such as public use and sale of the invention for more than two years before the filing of the application. (*Faure* v. *Bradley and Crocker* v. *Cowles and Cowles*, 44 O. G., 945; *Shiels* v. *Lawrence et al.*, 87 O. G., 180; *Davis* v. *Swift*, 96 O. G., 2409; *Dittgen* v. *Parmenter*, 103 O. G., 1164; *Shrum* v. *Baumgarten*, 104 O. G., 577.)

The decision of the Examiner of Interferences is affirmed.

FENNELL *v.* BROWN *v.* BORSCH, JR.

Decided March 25, 1905.

MOTION TO SHIFT BURDEN OF PROOF—JURISDICTION—PRACTICE.

As the question of shifting the burden of proof relates to a matter of evidence, which should be determined in the first instance by the Examiner of Interferences, *Held* that such motions should be made before that tribunal and that there is no appeal prior to the appeal on the final decision upon the question of priority of invention. (*Raulet and Nicholson* v. *Adams*, 114 O. G., 1827.)

APPEALS on motion.

BIFOCAL LENS.

Application of Harry Fennell. Application of Charles N. Brown. Application of John L. Borsch, Jr.

Messrs. Edson Bros. for Fennell.

Mr. James H. Churchill for Brown.

Mr. William C. Strawbridge for Borsch, Jr.

ALLEN, *Commissioner:*

This case comes before me on two appeals, one filed by Borsch, Jr., and the other by Fennell, from a decision rendered by the Primary Examiner on a motion brought by Fennell to shift the burden of proof in the above-entitled interference.

As stated in *Arnold* v. *Vaughen* and *Cabot* v. *Arnold and Fisher*, (109 O. G., 805:)

As a general rule the burden of proof in any proceeding rests on the party against whom judgment would be rendered if no evidence were adduced on either side. *Jones on Evidence* (vol. 1, sec. 174) states that:

"The test, therefore, as to the burden or *onus* of proof is simply to consider which party would be successful if no evidence were given."

The Primary Examiner has decided, in effect, that the facts as shown by the record would warrant the award of priority of invention to Fennell should no testimony be taken.

The question of shifting the burden of proof therefore relates to a matter of evidence, which should be determined in the first instance by the Examiner of Interferences. In the case of *Raulet and Nicholson* v. *Adams* (114 O. G., 1827, it was held that a motion to shift the burden of proof should

be made in the first instance before the Examiner of Interferences and that there is no appeal from his decision prior to the appeal on his final decision upon the question of priority of invention.

The appeals are dismissed.

EX PARTE LINDE.

Decided March 25, 1905.

1. INSUFFICIENT ACTION—MERE REQUEST FOR RECONSIDERATION.

Where an applicant merely requests a reconsideration and final action and fails to distinctly and specifically point out the supposed errors in the Examiner's action, as required by Rule 69, *Held* that the action made by the applicant was not such an action as the condition of the case required.

2. SAME—SECTION 4903, REVISED STATUTES, CONSTRUED.

Rule 69, providing that the applicant must distinctly and specifically point out the supposed errors in an Examiner's action in order to entitle him to a reëxamination, *Held* not to be inconsistent with section 4903, Revised Statutes, which provides for reëxamination of an application.

3. REËXAMINATION PROVIDED BY STATUTE—PURPOSE OF.

The reëxamination provided for by the statute is for the purpose of enabling an applicant to traverse a rejection by the Office and to show by argument that the rejection is erroneous, if such be the case.

4. SAME—NOT A USELESS PROVISION.

A reëxamination would become a mere formal and useless proceeding if it were given for the mere purpose of entering a second rejection so that the case will be in condition for appeal.

ON PETITION.

PROCESS FOR PRODUCING PURE NITROGEN AND PURE OXYGEN.

Mr. Henry A. Seymour for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner holding the above-entitled application to be abandoned.

It appears that the application was acted upon on December 1, 1903, and that certain formal objections were made to the specification and claims, and all the claims were rejected on the ground that they were not patentable in view of the state of the art as shown by certain references. On November 28, 1904, an amendment was filed which appears to cure the formal objections which were raised, and the amendment concluded with the following statement:

A reconsideration and final action on the claims is asked.

The amendment was entered by the Examiner; but applicant was informed on January 4, 1905, that as applicant had failed to distinctly and specifically point out the supposed errors in the Examiner's action, as required by Rule 69, the action made by the applicant was not such an action as the condition of the case required and the application had become abandoned. Rule 69 is as follows:

In order to be entitled to the reconsideration provided for in Rules 65 and 67, the applicant must make request therefor in writing, and he must distinctly and specifically point out the supposed errors in the Examiner's action. The mere allegation that the Examiner has erred will not be received as a proper reason for such reconsideration.

This rule is believed to be in strict accordance with section 4903, which provides for reëxamination of an application. This statute is not believed to have been enacted for the purpose of providing for a merely formal procedure. The reëxamination provided for by the statute is for the purpose of enabling an applicant to traverse a rejection by this Office and to show by argument that the rejection is erroneous, if such be the case.

The Examiner in the first action treats the case in the light of the facts which are then before him. If no reasons are given why the original action should be modified or set aside, the reëxamination necessarily becomes a mere formal proceeding, and no useful result can accrue therefrom. It is not sufficient merely to request a reconsideration so that the application may, as stated by the applicant, be in condition for appeal. If this were the only object of a reëxamination, the provision for the same in the statutes would be useless. The action by the applicant of November 28, 1904, is clearly not such an action as contemplated by the express provisions of Rule 69 and by the spirit of section 4903, Revised Statutes, and as the application has not received an action by the applicant such as the condition of the case required within one year from December 1, 1903, the Examiner was right in holding the same to be abandoned.

The petition is denied.

BALTZLEY *v.* SEEBERGER.

Decided, March 25, 1905.

1. INTERFERENCE—MOTION TO DISSOLVE—PATENTABILITY OF PATENTED INVENTION.

Where a patentee in interference with an applicant moves to dissolve upon the ground that the issue is not patentable, this Office will not refuse to entertain the motion on the ground that the decision may cast a cloud upon the patent. (*Bellows* v. *King* and *Lipe* v. *Miller* distinguished.)

2. SAME—SAME—SAME—MOTION BY PATENTEE.

The Office does not refuse to entertain motions or decide questions upon the mere ground that the decision may cast a cloud upon a patent already issued, but does refuse where that is the only purpose and effect of the motion.

APPEAL on motion.

ESCALATORS.

Patent granted Edwin Baltzley September 15, 1903, No. 739,141. Application of Charles D. Seeberger.

Mr. A. V. Cushman for Baltzley.

Messrs. Coburn & McRoberts for Seeberger.

ALLEN, *Commissioner:*

This is an appeal by Seeberger from the action of the Examiner of Interferences transmitting to the Primary Examiner a motion by Baltzley to dissolve the above-entitled interference.

The motion was in proper form, alleging the grounds specified in Rule 122, and was brought within the twenty days allowed for motions. No reason is therefore apparent upon the face of the motion for refusing to transmit it to the Primary Examiner.

Seeberger, however, calls attention to the fact that Baltzley is a patentee and that one of the grounds of the motion is that the issue is not patentable. He urges that this matter should not be considered, since the contention could not be sustained without casting a cloud upon Baltzley's patent. It would seem that this is a matter with which Baltzley is chiefly concerned and that Seeberger would have no just cause of complaint even if that result followed from the decision. He is not here defending Baltzley's patent, but, on the contrary, is seeking to cast a cloud upon it by proving his own prior invention. It is very clear that his real objection is not that a cloud may be cast upon the patent, but he interposes that objection in order to avoid a decision which may adversely affect his claimed right to a patent for the same thing.

This Office does not refuse to entertain motions or decide questions upon the mere ground that the decision may cast a cloud upon a patent already issued. It does refuse, however, when that is the *only* effect of the decision. For instance, when an applicant in interference with a patentee admits that the issue is not patentable and moves to dissolve nothing remains to be determined, unless the Office proceeds to pass upon the moot question whether the claims should have been allowed to the patentee. (*Bellows* v. *King*, 106 O. G., 997; *Lipe* v. *Miller*, 109 O. G., 1608.) It is very clear that a similar motion by the patentee does not raise a moot question and cannot be refused consideration for the same reason.

In the present case Seeberger is the only one of the two parties to the interference seeking a patent. He does not admit that he is not entitled to a patent, but, on the contrary, urges that he is entitled to one. This Office must determine whether or not he is entitled to the patent and, cannot refuse to decide that question merely because the decision may incidentally cast a cloud upon Baltzley's patent.

In *Fickinger et al* v. *Hulett* (110 O. G., 859) it was said:

The ruling in *Bellows* v. *King*, *supra*, clearly has no application to motions made by the patentee, since the reasons upon which that ruling was based apply only to the applicant. The Office is attempting to determine nothing save the right of the applicant to a patent, and therefore the applicant cannot expect it to waste time in seriously considering a motion by him asking, in effect, that his claims be rejected. He is at liberty to abandon his claims. The situation is very different where the patentee alleges that the applicant's claims are not patentable to him. No principle of estoppel applies, and a question is raised which must be decided in order to determine the applicant's right to a patent.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

GALLAGHER, JR., *v.* HIEN.

Decided February 14, 1905.

1. INTERFERENCE—PRIORITY—LACK OF DILIGENCE.

Where it appears that for at least a year the only efforts of G. toward completing his invention consisted in more or less desultory talk about his invention, indecisive efforts to get his invention adopted by a corporation, and in a leisurely manner making drawings of the device, and where it is shown that it would have cost but little to have actually reduced the invention to practice and to have made proper tests and that he was free to take up this work if he so desired and he had ample means to have at least filed an application, *Held* that G. was not in the exercise of reasonable diligence in completing his invention.

2. SAME—SAME—REDUCTION TO PRACTICE.

Where a device was actually used for the purposes for which it was intended and completely demonstrated its utility and practicability, *Held* that such device was the equivalent of a reduction to practice, even though it was but half the size of the commercial machine.

3. SAME—SAME—SAME—MECHANICAL PERFECTION NOT ESSENTIAL.

Held that it is not essential for a reduction to practice of an invention that the invention be mechanically perfect or that there are "possibilities of greater excellence in shape, location, arrangement, material, or adjustment."

4. SAME—SAME—SAME.

Held that it is essential that a device to constitute a reduction to practice must show that the work of the inventor is finished, physically as well as mentally, and that nothing is left for the inventive genius of the public.

5. SAME—SAME—SAME.

While it is not always essential that actual tests of the invention be made in order to complete the invention, (*Mason* v. *Hepburn*, 84 O. G., 147,) yet the device relied upon as a reduction to practice must, if it has not been worked, clearly be capable of work and not have been a mere experiment.

6. SAME—SAME—SAME—NECESSITY FOR TEST.

Where both parties subject their inventions to tests, *Held* that it is therefore, in effect, admitted by both parties that the device belongs to that class of inventions which requires actual use or thorough tests to demonstrate its practicability.

7. SAME—SAME—SAME—RESULT OF TESTS MUST BE PROVED.

Where an invention undoubtedly belongs to that class which requires either actual use or thorough tests to determine its practicability, *Held* that there can be no actual reduction to practice until one or the other thing takes place and is proven.

8. SAME—SAME—SAME—NATURE OF INVENTION—TESTS REQUIRED.

Where it appears that an invention is a radical departure from previous methods, *Held* that in order to establish the fact of reduction to practice thorough tests are necessary.

9. SAME—SAME—SAME—FACTS SHOULD BE PROVED—CONCLUSION FOR COURT.

Where the invention in controversy is a friction-spring and it appears that a device embodying the invention was first put in a vise and subjected to pressure, but there are no facts appearing of record which show what the pressure was, nor are any facts stated which enable the court to determine whether the inventor's conclusion is justified that the result of the test was satisfactory, *Held* that the fact of reduction to practice is not proved.

10. SAME—SAME—SAME—EXPERIMENTAL DEVICE.

Where a friction-spring was tested in a vise and under a steam-hammer and broken under the last test and no measurements were taken to show the tensile strength of the spring or the pressure to which they were subjected and no facts appear of record upon which the court can have a conclusion that the device was adapted to perform the work for which it was built, *Held* that the device was a mere experimental device and not a reduction to practice.

Mr. Melville Church and *Mr. Joseph B. Church* for the appellant.

Mr. J. Snowden Bell, *Mr. Walter H. Chamberlin*, and *Mr. George L. Wilkinson* for the appellee.

DUELL, *J.*:

The question presented by this appeal calls for the determination of the title, as prior inventor, to certain improvements in friction-springs summed up in the following issue:

1. A device of the character described comprising a series of expansible resilient rings having inclined frictional surfaces and a compressible resilient ring interposed between adjacent expansible rings and having complemental inclined frictional surfaces.

2. A device of the character described comprising a series of open springs having inclined frictional surfaces and a series of members having inclined frictional surfaces interposed between said rings and engaging the inclined surfaces of the adjacent rings, whereby when said series of rings are subjected to compression they are placed under tension through engagement of the inclined surfaces thereof with the inclined surfaces of the interposed members.

While fortunately there is no dispute as to the facts the conclusion to be drawn from them does not seem free from doubt as evidenced by the conflicting decisions of the various tribunals of the Patent Office. The Examiners of Interferences and the Acting Commissioner found for Hien, while the Examiners-in-Chief united in awarding priority to Gallagher.

It is established beyond reasonable doubt that Gallagher conceived and disclosed the invention about December 1, 1901, and that the device known as "Gallagher's Exhibit Friction Spring" was made in December, 1901, and very shortly thereafter subjected to certain tests.

It is equally well established that Hien's conception and disclosure were made on June 28, 1902. It also appears that, subsequent to the date of his constructive reduction to practice, by filing his application for patent on July 19, 1902, and prior to Gallagher's constructive reduction to practice by the filing of his application for patent on November 22, 1902, Hien had made an actual reduction to

practice by constructing a full-size friction-spring which was tested and shown to Gallagher in the latter part of October, 1902, and at the same time to George A. Post, president of the Standard Coupler Company.

From the foregoing statement it appears that Gallagher was the first to conceive and disclose to others the invention and that if the device of December, 1901, is entitled to be held a reduction to practice he is entitled to an award of priority. If, however, such device is not to be so considered he must be shown to have been exercising diligence in adapting and perfecting his invention when Hien entered the field and until his application for patent was filed in November, 1902.

The record discloses an utter lack of diligence on the part of Gallagher. From December, 1901, or January, 1902, his only efforts, until after the Hien device was shown to him, consisted in more or less desultory talk about his invention, indecisive efforts to get the Standard Coupler Company, through Mr. Post, its president, to take up the invention, and, about the latter part of September to start, in a leisurely manner, to make drawings of the device and modifications thereof. The invention is a simple one, and no good reason is shown why he did not earlier file an application for patent. It would have cost but little to have reduced the invention to actual practice beyond any shadow of doubt, and to have made proper tests. It is attempted to be shown that Gallagher had not the means to do more than he did do, and that he was a very busy man, engaged not only in his regular employment but was developing or assisting in the development of another line of invention. The proofs show that his time was well employed and that he was not in a position to enter upon the manufacture of the invention. It appears however that from January 1, 1902, he was in receipt of a salary of one hundred and seventy-five dollars a month, that he was a draftsman, and further, that, though not bound by any contract to the Standard Coupler Company not to exploit the invention through others, he made no efforts to do so, and that as early as June, 1902, Mr. Dennis, secretary and treasurer of the Standard Coupler Company, expressed a willingness to become personally interested if that company did not care to take up the matter. Gallagher preferred to wait upon the pleasure of the Coupler Company, although not a novice in matters relating to patents, and that was undoubtedly the reason for his inaction. The record so far from showing that he was excusable in his lack of diligence, shows conclusively that he could have filed an application for patent at almost any time between December, 1901, and November 22, 1902. He was neither without money, nor without friends to aid him in perfecting his invention and securing his rights to its exclusive ownership. He merely failed to appreciate the necessity for prompt action, and it was only the discovery that there was another Richmond in the field that spurred him to action. Gallagher's conduct is in striking contrast with that of Hien. The latter moved with most commendable promptitude, and in view of the disclosures of the record it is apparent that a patent would have probably been issued to Hien before Gallagher was roused into activity, for the Hien application was ready for allowance as early as August 18, 1902, subject to a prospective interference. It is true that in the latter part of September, 1902, the Standard Coupler Company finally decided to take up Gallagher's invention, but even after that he made haste slowly. Our conclusion on this point is that Gallagher was not diligent and fails to excuse his lack of diligence by any situation of affairs that the well-settled rules hold to constitute sufficient.

Gallagher therefore cannot prevail unless his exhibit "Friction Spring," taken in connection with such tests as were made, constitutes a reduction to practice.

In considering this question we apprehend that the same act, or set of acts, may or may not constitute a reduction to practice, modified as they may be by the special circumstances of the particular case.

We do not think that the size of a device is necessarily controlling in determining the question of a reduction to practice. In the *Corn Planter Patent Case* (23 Wall., 181) a half-sized device was held to be the equivalent of a reduction to practice, but that device was actually used in planting corn and completely demonstrated the utility and practicability of the device.

Nor do we think that mechanical perfection, or that, as has been well stated, there are "possibilities of greater excellence in shape, location, arrangement, material, or adjustment," essential for a reduction to practice. Tested by any such requirements nearly every pioneer invention, as put upon the market, would have failed to support the patent granted for it.

Nevertheless it is essential that a device to constitute a reduction to practice must show that—

The work of the inventor must be finished, physically as well as mentally. Nothing must be left for the inventive genius of the public. (*Robinson on Patents*, vol. 1, p. 183.)

Nor is it always essential that actual tests of the invention be made in order to complete the inventive act. (*Mason* v. *Hepburn*, 13 App. D. C., 86; 84 O. G., 147.) The device relied upon as a reduction to practice must, however, if it has not been worked clearly be capable of work and not have been a mere experiment.

Experiments in the direction of the desired result are not such reduction no matter how nearly they approximate that end. (*Robinson on Patents*, *supra*.)

In the case at bar it appears that Gallagher during December, 1901, caused to be made a small-sized spring composed of two inside and two outside split friction-rings. The exterior rings were something over three inches in diameter and about an inch wide, and the inner rings were somewhat smaller. He says they were made to make clear to Mr. Post and to others something of the nature of the invention, to establish a record and to prove the utility of the device. The device was sufficient to show something of the nature of the invention, to establish at least a conception, but of itself, and without thorough tests, was not sufficient to prove either the utility or practicability of the invention.

The invention undoubtedly belongs to that class which requires either actual use or thorough tests to demonstrate its practicability, and therefore there can be no actual reduction to practice until one or the other thing takes place and is proven. Both parties in effect admit this necessity for they both subjected their devices to certain tests. It is unnecessary to determine whether Hien's tests were sufficient, for his constructive reduction to practice preceded any claimed actual reduction. However it may be said that his tests went far beyond any made by Gallagher. As to the necessity for thorough tests in this case our views are confirmed by the testimony of Mr. Dennis, a witness called by Gallagher. He characterizes the invention as "a radical departure from the previous methods." Gallagher

thus describes the tests made by him. He says the device was first put in a vise, and subjected to pressure. What that pressure was he does not state nor does he state any facts which enable us to determine whether he was justified in his conclusion that the result of the test was satisfactory. No one seems to have been present at this test, and, in our opinion, it proves nothing. Thereafter he took the device to Bridgeport where some slight changes were made, and the springs tempered. The device was then put in a vise, and then on the anvil of a strong and powerful steam-hammer, the rings being held in place by a pair of blacksmith's tongs held by Mr. Wilder. After being, as he says, repeatedly struck with the hammer they were broken by a hard blow. The pieces were put in a package, taken to New York and laid away for future use. They do not seem to have been used for any purpose after that until they appear in these proceedings. Mr. Wilder, who assisted Gallagher in the test at Bridgeport, says that not having a power-press the device was put in the vise and squeezed and found to work as a spring, but the power of the vise was not great enough to close the ring. He goes on to say.

> We put it under our steam-hammer and hit it a light blow which showed its action, but in giving it a little too hard a blow it broke.

He expresses no opinion as to what the test demonstrated, or proved, if anything, nor does he give any data from which we can draw the conclusion that the test proved anything of value. The tests, in our opinion were inconclusive and insufficient upon which to predicate a finding that they proved the practicability of the invention. It will be noted, as stated by the Acting Commissioner—

> that no measurements were taken to show the tensile strength or the pressure to which the springs were subjected.

We are confirmed in our belief that the device, tested as it was, still remained in the domain of experiments, by the testimony of Mr. Dennis, one of the officers of the Standard Coupler Company. He evidently did not consider that the experimental stage had been passed. Speaking of his faith in the invention he says, that he thought it "worth experimenting with," that "there was enough in the idea to warrant experiments," and as late as June, 1902, he says he stated to Mr. Sessions, "I thought there was enough in the idea to warrant some experiments."

We find that Gallagher was the first to conceive, disclose, and make an experimental device, which was tested experimentally, but that he was the last to reduce the invention to practice and he failed to exercise ordinary diligence in connecting his earlier conception with his later reduction. He has failed to overcome the presumption that Hien is the first inventor arising out of his being the earliest to apply for a patent.

We think the Acting Commissioner of Patents was right in his judgment, and that it should be affirmed.

The clerk of the court will certify this opinion, and the proceedings in this court in the premises, to the Commissioner of Patents according to law. Affirmed.

LUXEMBURG—TRADE-MARKS.

Declaration between the United States and Luxemburg for the effective protection of trade-marks.

Signed at Luxemburg, December 23, 1904.
Signed at The Hague, December 27, 1904.
Ratification advised by the Senate, February 3, 1905.
Ratified by the President, March 15, 1905.
Published by Luxemburg, March 15, 1905.
Proclaimed, March 15, 1905.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

A PROCLAMATION.

Whereas a declaration between the United States of America and the Grand Duchy of Luxemburg providing for a complete and effective protection of the manufacturing industry of the citizens and subjects of the two countries, was concluded and signed by their respective plenipotentiaries at Luxemburg the twenty-third and at The Hague the twenty-seventh of December, one thousand nine hundred and four, the original of which declaration, being in the English and French languages, is word for word as follows:

DECLARATION.

The Government of the United States of America and the Government of the Grand Duchy of Luxemburg being desirous of securing a complete and effective protection of the manufacturing industry of the citizens and subjects of the two countries, the undersigned, being duly authorized to that effect, have agreed upon the following provisions.

ARTICLE I.

The subjects and citizens of each of the high contracting parties shall enjoy in the dominions and possessions of the other the same rights as are given to native subjects or citizens in matters relating to trade-marks.

ARTICLE II.

In order to secure to their marks the protection stipulated for by the preceding article, American citizens in the Grand Duchy of Luxemburg and Luxemburg subjects in the United States of America must fulfil the formalities prescribed to that effect by the laws and regulations of the country in which the protection is desired.

ARTICLE III.

The present arrangement shall take effect from the date of its official publication in the two countries and shall remain in force until the expiration of twelve months immediately following a denunciation made by one or the other of the contracting parties.

In witness whereof, the undersigned have signed the present declaration and have thereto affixed their seals.

Done in duplicate at Luxemburg, the 23, and in The Hague, the 27 December 1904.

STANFORD NEWEL. [SEAL.]

And whereas the said declaration has been duly ratified;

Now, therefore, be it known that I, Theodore Roosevelt, President of the United States of America, have caused the said declaration to be made public, to the end that the same and every article and clause thereof may be observed and fulfilled with good faith by the United States and the citizens thereof.

In testimony whereof, I have hereunto set my hand and caused the seal of the United States of America to be affixed.

Done at the city of Washington this fifteenth day of March, in the year of our Lord one thousand nine hundred and five, and of the independence of the United States of America the one hundred and twenty-ninth.

[SEAL.] THEODORE ROOSEVELT.

By the President:
ALVEY A. ADEE,
Acting Secretary of State.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 115—No. 6. TUESDAY, APRIL 11, 1905. PRICE—$5 per year.

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Patents	558	No. 786,791 to No. 787,348, inclusive.
Designs	12	No. 37,392 to No. 37,403, inclusive.
Trade-Marks	None.	
Labels	22	No. 12,028 to No. 12,049, inclusive.
Prints	8	No. 1,260 to No. 1,267, inclusive.
Reissues	1	No. 12,337.
Total issue	601	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	6	1	Nevada	.....	.....
Alaska Territory	.....	.....	New Hampshire	.....	.....
Arizona Territory	1	.....	New Jersey	27	.....
Arkansas	3	.....	New Mexico Territ'y	.....	.....
California	15	.....	New York	69	8
Colorado	8	1	North Carolina	2	.....
Connecticut	14	.....	North Dakota	3	.....
Delaware	2	.....	Ohio	60	2
District of Columbia	6	.....	Oklahoma Territ'y	3	.....
Florida	.....	1	Oregon	4	.....
Georgia	6	.....	Pennsylvania	43	4
Hawaii Territory	2	.....	Porto Rico	.....	.....
Idaho	2	.....	Rhode Island	5	1
Illinois	58	2	South Carolina	2	.....
Indian Territory	.....	.....	South Dakota	.....	.....
Indiana	8	.....	Tennessee	3	1
Iowa	9	.....	Texas	13	2
Kansas	4	.....	Utah	.....	.....
Kentucky	5	.....	Vermont	.....	.....
Louisiana	.....	1	Virginia	7	.....
Maine	1	.....	Washington	2	.....
Maryland	6	.....	West Virginia	3	1
Massachusetts	27	.....	Wisconsin	14	.....
Michigan	20	.....	Wyoming	.....	.....
Minnesota	2	2	U. S. Army	.....	.....
Mississippi	5	.....	U. S. Navy	.....	.....
Missouri	20	3			
Montana	2	.....	Total to citizens of the United States	498	30
Nebraska	6	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs	Trade-Marks and Prints.
Argentina	.....	.....	Netherlands	1	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	1	.....
Brazil	1	.....	New Zealand	1	.....
British West Indies	.....	.....	Norway	1	.....
Canada	8	.....	Portugal	1	.....
Cape Colony	.....	.....	Queensland	1	.....
Ceylon	1	.....	Russia	2	.....
Costa Rica	.....	.....	Scotland	2	.....
Cuba	1	.....	South Africa	.....	.....
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	16	.....	Sweden	1	.....
France	6	.....	Switzerland	2	.....
Germany	22	.....	Transvaal, South Africa	.....	.....
Guatemala	.....	.....	Turkey	.....	.....
India	.....	.....	Victoria	1	.....
Ireland	1	.....	Western Australia	1	.....
Italy	1	.....			
Japan	.....	.....	Total to citizens of foreign countries	72	.....
Java	.....	.....			
Mexico	.....	.....			

Trade-Marks.

The publication of trade-marks under the act of February 20, 1905, in the OFFICIAL GAZETTE, will commence May 2, 1905, and will appear in each weekly number of the GAZETTE thereafter.

Extra copies of the trade-mark portion of the GAZETTE, which will be sold separately, may be obtained for five cents each. Coupons will be taken in payment therefor.

Date of Patent.

RULE 207. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Examiners' Letters and Amendments.

Examiners are directed to recite in each letter in an application the date of the action by the applicant to which it is a reply, and applicants are requested to indicate in their actions on an application the date of the last Office letter.

Access to Pending Applications.

Hereafter no person except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 4, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Mar. 13	Mar. 21	161
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Mar. 10	Mar. 9	409
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 8	Mar. 6	289
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels, Photography.	Mar. 6	Mar. 21	342
327	XVIII. Steam-Engineering, etc...	Mar. 6	Mar. 15	195
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Mar. 6	Mar. 13	188
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Store-Service, Tobacco etc.	Mar. 6	Mar. 6	255
304	XXXIV. Railways, Railway-Brakes, Rolling-Stock.	Mar. 6	Mar. 3	426
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Mar. 6	Mar. 2	233
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Mar. 6	Mar. 1	283
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Surgery, Tents, Toilet, Umbrellas.	Mar. 6	Mar. 1	483
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Mar. 6	Feb. 21	422
329	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Mar. 6	Feb. 2	550
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Mar. 6	Jan. 27	625
	Between one and two months.			
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Mar. 3	Mar. 14	277
321	I. Tillage, etc., Fences, and Railway Draft Appliances.	Feb. 23	Mar. 1	217
112	XXI. Textiles, Carding, Knitting Spinning, Weaving, etc.	Feb. 23	Dec. 19	434
315	XXV. Buttonhering, Mills, Threshing, and Vegetable Cutters and Crushers.	Feb. 20	Feb. 8	354
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Harness, Ladders, Mechanical Motors, and Paper Manufactures.	Feb. 15	Jan. 16	516
109	XVI. Telegraphy and Telephony..	Feb. 11	Jan. 28	257
149	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Feb. 6	Mar. 10	443
137	VIII. Beds, Chairs, Furniture, Kitchen and Table Articles, Store Furniture.	Feb. 6	Jan. 31	632

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Optics, Signals, Time Controlling Mechanism.	Feb. 4	Feb. 15	510
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Feb. 4	Jan. 27	600
	Between two and three months.			
332	X. Carriages and Wagons.....	Feb. 1	Mar. 1	464
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Feb. 1	Dec. 9	763
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working.	Jan. 30	Feb. 23	394
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Jan. 27	Jan. 21	409
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Jan. 26	Jan. 16	386
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 23	Jan. 25	620
154	XI. Boot and Shoe Making, Boots, Shoes, and Leggings, Button, Eyelet, and Rivet Setting, Leather Manufacturing, Nailing and Stapling, Check-Controlled Apparatus, Whips and Whip Apparatus.	Jan. 21	Jan. 17	410
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Jan. 18	Nov. 23	667
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks, Sheet-Metal Ware, Making, Tools, Wire-Working.	Jan. 17	Dec. 15	375
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Jan. 14	Dec. 20	780
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Jan. 13	Jan. 14	359
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors, Pumps, Sewerage, and Water Distribution.	Jan. 9	Jan. 26	643
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Cutlery, Dentistry, Locks and Latches, Safes, Undertaking.	Nov. 19	Dec. 2	614

Total number of applications awaiting action..... 16,027

Room No.				
	Under one month.			
159	XXXIII. DESIGNS, TRADE-MARKS, LABELS AND PRINTS.			
	Designs.....	Mar. 27	Mar. 31	19
	Trade-Marks.....	Apr. 1	Apr. 4	184
	Labels and Prints.....	Apr. 4	Apr. 4	....

Renewal of Forfeited Cases.

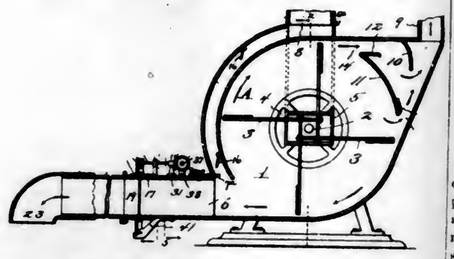
A petition for the renewal of a forfeited application need not be signed by the inventor or assignee, but may be signed by the attorney.

A power of attorney in the original application authorizing an attorney to transact all business in the Patent Office in connection with the application construed to be of sufficient scope to include the signing of a petition for renewal and the subsequent prosecution of the application. (*Ex parte Agee*, 101 O. G., 1668.)

PATENTS

GRANTED APRIL 11, 1905.

786,791. PNEUMATIC CONVEYER. JAMES M. AKERS, Gays, Ill. Filed May 4, 1904. Serial No. 206,388.



Claim.—1. In a device of the class described, a fan-casing, means for inducting grain into the same, a discharge-spout for said grain, a discharge-spout for dust and lighter particles, and a deflector adjacent to the latter discharge-spout.

2. In a device of the class described, a fan-casing, means for inducting grain into the same, a discharge-spout for said grain, a discharge-spout for dust and lighter particles disposed opposite to said grain-discharge, and a partition-plate in the fan-casing spaced from the dust-discharge spout.

3. In a device of the class described, a fan-casing, means for inducting grain into the same, a grain-discharge spout, a fan supported within the casing, a dust-discharge spout, and a partition disposed between the latter and the fan and having its ends spaced from the top and the rear side of the fan-casing.

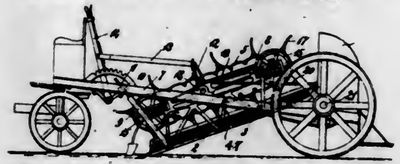
4. In a device of the class described, a fan-casing, means for inducting grain into the same, a grain-discharge spout, a dust-discharge spout, a partition disposed between the latter and the fan, the ends of said partition-plate being spaced from the top and rear side of the fan-casing, valves connected hingedly with the ends of said partition and adapted to regulate the passage between the ends of said plate and the proximate top and rear wall of the fan-casing.

5. In a device of the class described, a fan-casing, means for inducting grain into the same, a fan supported rotatively in said casing, a grain-discharge spout, a dust-discharge spout disposed diametrically opposite to the grain-discharge spout, a deflector disposed adjacent to the dust-discharge spout, and a partition supported between said deflector and the fan, the ends of said partition being spaced from the proximate top and rear wall of the casing.

6. In a device of the class described, a fan-casing, means for inducting grain into the same, a grain-exit and a dust-exit from said casing, a deflector disposed adjacent to the dust-exit, and means for throwing the grain violently against said deflector, to be thereby deflected into a current of air ascending through the dust-exit.

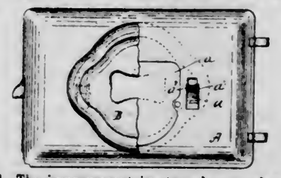
7. In a device of the class described, a fan-casing, a rotary fan supported upon the same, means for inducting grain into said casing, a cylindrical discharge-spout connected with the same, an oscillatory extension-spout connected with said cylindrical spout, a disk connected with said extension-spout and having a segmental series of teeth surrounded by a continuous guide-flange, a shaft carrying a pinion continuously engaging, alternately, the inner and outer rows of the teeth upon the disk to impart to the latter an oscillatory movement, supporting means for said shaft, including a pivoted box, and a vertically-slidable box, the pivoted box being distant from the pinion, a bevel-pinion upon said shaft near the pivoted box, a transversely-disposed driven shaft having a bevel-gear intermeshing with said bevel-pinion, and means for transmitting power to said driven shaft from the fan-shaft.

786,792. POTATO-DIGGER. MARCUS ALTSTOCK, Lemberg, Austria-Hungary. Filed Jan. 5, 1903. Serial No. 137,913.



Claim.—In a potato-digger, the combination of beams 8 pivotally mounted on the main frame with the rearwardly-extending portion of said beams longer than the forwardly-extending portions, an upwardly-projecting arm 12 from one of said beams, a connecting-rod 13 pivoted to the end of said arm, a lever 14 at the forward end of said frame connected with said connecting-rod, and a pawl, and segment-rack for holding said lever in adjusted position whereby said beams may be adjusted, drums mounted in the end of said beams, an elevator provided with projecting tines coacting with said drums and driven thereby, a rake-bare secured to said beams and along which said tines operate, and means for driving said drums, substantially as herein described.

786,793. STOVE-DOOR AND NAME-PLATE. EDGAR W. ANTHONY, Brookline, Mass. Filed Dec. 20, 1902. Serial No. 135,964.

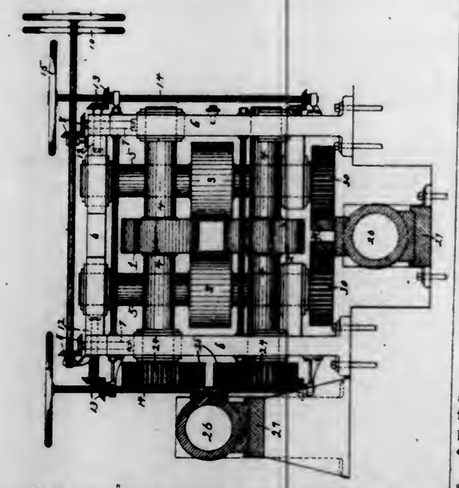


Claim.—1. The improvement in stove-doors and name-plates herein described, the same comprising an oven-door having an opening and a rest on each side of said opening, each rest having an inclined bearing-surface upon its inner side, and in combination with said door a name-plate to cover its opening, said name-plate having a hollow back and a continuous seating edge to bear against the outer surface of the door around its opening outside the rests at the sides thereof, and hooks within the hollow of said name-plate inside its continuous seating edge, the same being disposed to engage with the inclined bearing-surfaces of the said rests, whereby the plate is made to draw in close against the stove-door and to bear against the surface of the same continuously with its seating edge, substantially as described.

2. The improvement in stove-doors and name-plates herein described, the same comprising an oven-door with rests thereon having inclined inner faces, and in combination with said door a name-plate, the same having a hollow back and a continuous seating edge to bear against the outer surface of the door outside the rests thereon, and hooks within the hollow of said name-plate, inside its continuous seating edge, the same being disposed to engage with the inclined faces of said rests, whereby the plate is made to draw in close against the door with its continuous seating edge.

786,794. APPARATUS FOR MAKING SERPENTINE BOILER-HEADERS. ROBERT A. BARRETT, Barberton, Ohio, assignor to The Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Sept. 3, 1901. Serial No. 74,201.

Claim.—1. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination of rolls arranged to revolve adjacent to each other and having longitudinal corrugations on their faces, and a mandrel adapted to support the inner faces of the tube between the rolls during the shaping process.



2. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination of oppositely-disposed rolls having longitudinal corrugations on their faces and arranged to revolve adjacent to each other with the corrugations of the rolls alternating, and a mandrel adapted to support the inner faces of the tube between the rolls during the shaping process.

3. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination of rolls arranged to revolve adjacent to each other and having longitudinal corrugations on their faces, and a mandrel conforming to the shape of the finished article and adapted to be inserted in and support the walls of the tube between the rolls during the shaping process.

4. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination of rolls arranged to revolve adjacent to each other and having longitudinal corrugations on their faces, and a mandrel adapted to be inserted in the tubular blank, have the latter pressed down thereupon, supporting the inner face of the tube between the rolls during this shaping process and to be then removed therefrom.

5. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination of rolls arranged to revolve adjacent to each other and having longitudinal corrugations on their faces, a mandrel adapted to support the inner faces of the tube between the rolls during the shaping process, and means for actuating said mandrel.

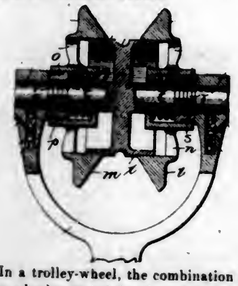
6. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination of rolls arranged to revolve adjacent to each other and having longitudinal corrugations on their faces, of other rolls for confining and shaping the sides of the tubular article, and a mandrel adapted to support the inner faces of the tube between the rolls during the shaping process.

7. In apparatus for shaping wrought-metal headers or other tubular bodies of irregular outline longitudinally, the combination with rolls arranged to revolve adjacent to each other and having longitudinal corrugations on their faces, of other rolls for confining and shaping the sides of the header, means for positively driving said rolls in unison, and a mandrel adapted to support the inner faces of the tube between the rolls during the shaping process.

8. A machine for forming tubes ino longitudinal serpentine shape consisting of oppositely-disposed fluted rolls arranged to revolve in relation to each other so that the interdental spaces of the rolls alternate, combined with a mandrel supporting the inner face of the tube located between the rolls, having a bearing capable of meshing with the interdental spaces of the rolls and coöperating therewith to progressively produce the serpentine shape of the tube, as set forth.

9. In a machine for forming tubes into longitudinal serpentine shape, the combination with a set of rolls acting upon the exterior of opposite sides of the tube and adapted to form progressive depressions therein, of a mandrel acting upon the interior sides of the tube and coöperating with said rolls.

786,795. TROLLEY-WHEEL. EDWIN W. CLARK, Columbus, Ga. Filed July 28, 1904. Serial No. 218,524.



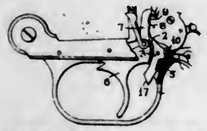
Claim.—1. In a trolley-wheel, the combination of supporting-arms and a trolley-wheel mounted therein, said wheel consisting of a freely-revoluble central axle provided with a drum, and spring-pressed flanges overlapping said drum revolubly and slidably mounted independently thereof on said axle, substantially as described.

2. In a trolley-wheel, the combination of supporting-arms, an axle provided with an enlarged drum revolubly mounted in said arms, flanges overlapping said drum slidably and revolubly mounted independently thereof on said axle, and springs normally tending to press said flanges toward each other, substantially as described.

3. In a trolley-wheel, the combination of supporting-arms, an axle revolubly mounted in said arms provided with screw-threaded portions, said axle being provided with a drum in the center, wheel-flanges provided with recessed hubs revolubly and slidably mounted on said axle and said drum, nuts engaging the screw-threaded portion of said axle, and springs located between said nuts and the hubs of the wheel-flanges, substantially as described.

4. In a trolley-wheel, the combination of supporting-arms, an axle revolubly mounted in said arms and screw-threaded near each end thereof, a cylindrical drum mounted on said axle, said drum being recessed on each end and provided with a central circumferential groove, wheel-flanges revolubly and slidably mounted on said axle and said drum, said wheel-flanges consisting of outer portions provided with inclined faces, a hub and spokes connecting said hub, said hub being recessed for the reception of the springs, nuts engaging the screw-threaded portions of said shaft, and springs located between said nuts and in the recesses of the hubs of the wheel-flanges, substantially as described.

786,796. LOCK FOR FIREARMS. LIONEL COBB, Medford, Mass., assignor to Mary Elizabeth Johnson, Fitchburg, Mass., executrix of Iver Johnson, deceased. Filed Oct. 15, 1904. Serial No. 228,496.



Claim.—1. In a firearm, the combination with a hammer, a pivoted trigger, a lifting-lever carried by the trigger and adapted to engage said hammer, a stop-pin held in the frame of the firearm and in the path of the hammer, whereby the movement of the hammer is limited.

2. In a firearm, the combination with a hammer, a pivoted trigger, a lifting-lever carried by said trigger and adapted to engage said hammer, a stop-pin held in the frame of the firearm in the path of the hammer, whereby the cocking movement of the hammer is limited, a sear for holding the hammer at the end of its cocking movement, said sear being pivoted in the path of the trigger, and means for disengaging the lifting-lever from the hammer.

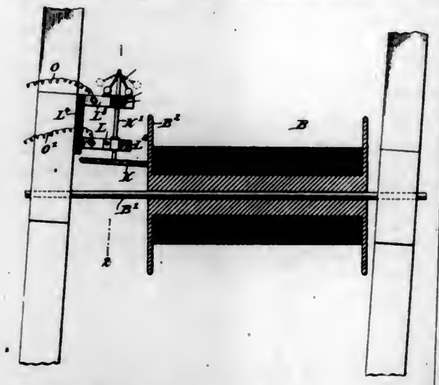
3. In a firearm, the combination of a hammer, a trigger, a lifting-lever carried by the trigger for cocking the hammer, a sear having one end arranged to engage the hammer, means for releasing the lifting-lever from the hammer at the end of its cocking movement, a stop-pin held in the frame in the path of the hammer, said sear having its opposite end projecting into the path of the trigger, whereby the sear is released by the rearward movement of the trigger.

4. In a firearm, the combination of a hammer, a sear for engaging the hammer, a stop-pin journaled in the frame of the firearm in the path of the hammer to limit its cocking movement and having one side cut away, and means for rotating said stop-pin to carry it against the sear to hold the latter out of engagement with the hammer.

5. In a firearm, the combination of a hammer, a stop-pin journaled in the frame of the firearm in the path of the hammer to limit its cocking movement, said pin having a notch to receive the trigger-guard, and a trigger-guard entering said notch to hold the stop-pin from longitudinal movement.

6. In a firearm, the combination of a trigger, a hammer, a lifting-lever carried by the trigger and adapted to engage the hammer, a sear for engaging the hammer, a stop-pin journaled in the frame of the firearm in the path of the hammer, and having one side cut away to admit the sear, means for rocking said pin, and a spring bearing on said pin to frictionally resist its rotation.

786,797. ELECTRICAL STOP-MOTION. GEORGE B. COCKER, Frankford, Pa. Filed Nov. 20, 1903. Serial No. 181,960.



Claim.—1. The combination in an electrical stop-motion provided with rotatable circuit-closer means, of a rotatable thread-holder, and means whereby said thread-holder is supported into driving engagement with the circuit-closer means, substantially as described.

2. The combination in an electrical stop-motion provided with rotatable circuit-closer means, of a rotatable thread-holder, an inclined support on which the holder is free to slide and be held by gravity, into driving engagement with the rotatable circuit-closer means, substantially as described.

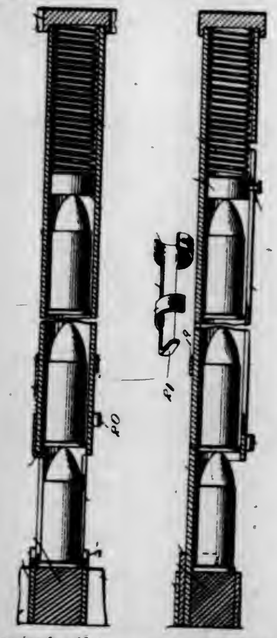
3. The combination in an electrical stop-motion provided with a centrifugal-acting circuit-closer, of a rotatable driving device on the circuit-closer, insulated circuit-terminals adapted to be closed, an inclined rod with suitable support, a rotatable thread-holder arranged on said rod and adapted to slide theredown into driving engagement with the rotatable device on said circuit-closer, substantially as described.

4. The combination of centrifugally-operating closer mechanism, and a cordage-spool movable by gravity into driving engagement with the circuit-closer mechanism.

5. The combination of a circuit-closer, a rotatable spool, a rotatable device working in contact with said spool and operatively connected with the circuit-closer.

786,798. MAGAZINE ATTACHMENT FOR RIFLES. MORRIS H. COTTON, Junction, Idaho. Filed Oct. 14, 1903. Serial No. 177,049.

Claim.—1. A magazine for rifles comprising a tube having a cut-away portion adjacent to one end, a plunger in the opposite end portion of the tube, a spring within the tube against the plunger and adapted to urge the latter in the direction of the cut-away portion, said tube being adapted to receive cartridges between the plunger and the cut-away portion, a retaining device disposed to hold the cartridges from movement into the cut-away portion, said retaining device being movable into and out of active position, and a cushion at the opposite side of the cut-away portion from the plunger, said cushion being disposed for contact by the cartridges successively as they pass from the tube into the cut-away portion and to hold them with their forward ends in the tube, said cushion being susceptible of compression to permit of the withdrawal of the cartridges from the cut-away portion.

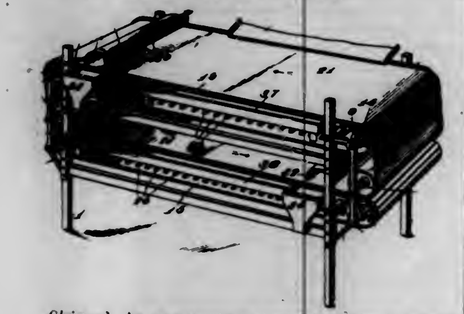


2. A magazine for rifles comprising a tube having its extremities closed, said tube being cut away adjacent to its rear end and having a cushion in its rear end portion projecting into the cut-away portion, a spring in the forward end of the tube, a plunger disposed against the rear end of the spring and movable in the tube under the influence of the spring, means connected with the plunger for sliding it against the action of the spring, and a spring-plate secured at one side of the tube and provided at its rear end with a retaining-finger lying in the cut-away portion of the tube and part way across the rear end of the forward portion of the tube, said spring-plate being movable with its retaining-finger into and out of said cut-away portion.

3. A magazine for rifles comprising a tube having its extremities closed, said tube being cut away adjacent to its rear end and having a cushion in its rear end portion projecting into the cut-away portion, a spring in the forward end of the tube, a plunger disposed against the rear end of the spring and movable in the tube under the influence of the spring, said plunger and cushion being arranged to hold a plurality of cartridges therebetween with the rearmost of said cartridges lying with its rearward end against the cushion and with its ball end projecting into the tube, said cushion being susceptible of compression to permit of withdrawal of said rearmost cartridge from the cut-away portion.

4. A magazine for rifles comprising a tube having its extremities closed, said tube being cut away adjacent to its rear end, a cushion disposed in the rear end portion of the tube and projecting into the cut-away portion and arranged to hold a cartridge within the cut-away portion with its rearward end resting against the cushion and with its ball end projecting into the tube forwardly of the cut-away portion, said cushion being susceptible of compression and being arranged when compressed to permit of withdrawal of the cartridge from the cut-away portion.

786,799. ORE-CONCENTRATOR. PETER H. CRAVEN, Rossland, Canada. Filed Apr. 17, 1903. Serial No. 153,061.



Claim.—1. An ore-concentrator comprising a plurality of slatted belts, and a single concentrating-belt traveling with and upon the longitudinal upper surfaces of said supporting-belts, unyielding supports extending longitudinally of the upper stretches of said slatted belts, and means for feeding ore to both the upper and lower stretches of the concentrating-belt.

2. An ore-concentrator comprising a plurality of supporting-belts, continuous stiff supports for maintaining the upper stretches of the supporting-belts uniformly in the same plane, a single concentrating-belt traveling with and resting upon the upper stretches of said supporting-belts, and means for feeding pulp to the upper and lower stretches of the concentrating-belt.

3. An ore-concentrator comprising an upper supporting-belt and a lower supporting-belt, supporting-bars for maintaining the upper stretches of the said belts in the same plane, throughout, the said bars extending from the drums at the adjacent ends of the slatted belts to the drums at the other ends of said belts, a concentrating-belt traveling over and with the upper stretch of the upper belt and returning upon the upper stretch of the lower supporting-belt, thus forming two concentrating-surfaces, and means for feeding pulp to both the stretches of the concentrating-belt.

4. An ore-concentrator comprising an upper slatted belt and a lower slatted belt, angle-bars for preventing the sagging of the slats of the belts upon the upper stretches of the latter, a concentrating-belt traveling with and upon the upper supporting-surfaces of both of said slatted supporting-belts, and means for feeding pulp to both the upper and lower stretches of the concentrating-belt.

5. In an ore-concentrator the combination with the frame thereof, of an endless belt suitably mounted for rotation to carry its upper and lower sides in opposite direction, said belt being transversely inclined, troughs for discharging the material upon the upper surfaces of the upper and lower sides of said endless belt, traps secured in position above the surfaces of the upper and lower sides of said endless belts in the form of inverted troughs, the inner edges of said traps being slightly raised above said surfaces, and the outer edges in contact therewith, longitudinal troughs along the lower edges of the two tables formed by said endless belt, funnel-shaped hoppers at the lower ends of said traps, and means for discharging suitable sprays transversely through said traps, substantially as described.

6. An ore-concentrator, comprising an upper and lower endless transversely-inclined supporting-belt, means for preventing the belts from slipping laterally and an ore-concentrating belt traveling upon the entire upper horizontal surfaces of each of the supporting-belts.

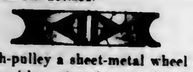
7. An ore-concentrator, comprising upper and lower inclined supporting-belts, a concentrating-belt traveling over the same and guide-bars supported in the frame of the concentrator and engaging the supporting-belts for preventing them from slipping laterally.

8. An ore-concentrator, comprising upper and lower inclined slatted belts, projections carried by the said slats and extending inwardly therefrom and guide-bars upon the frame of the concentrator for engaging said projections and preventing the lateral slipping of the supporting-belts and a concentrating-belt traveling over said slatted belts.

9. An ore-concentrator comprising a concentrating-belt and transverse traps or sheds extending across the same, one edge only of each trap engaging the belt and means for directing streams of water through the said sheds.

10. An ore-concentrator comprising a concentrating-belt and transverse inverted-U-shaped traps or sheds extending across the same, one edge only of each trap engaging the belt and means for directing streams of water through the said sheds.

786,800. SASH-PULLEY. PETER DOSCH, Bridgeport, Conn. Filed May 11, 1904. Serial No. 207,351.



Claim.—In a sash-pulley a sheet-metal wheel composed of two parts, each provided with perforations and eyeleting projections punched therefrom, and each having a central opening entirely surrounded by a flat ledge, a tubular one-piece bushing made of hardened steel inserted between the halves of the wheel the squared ends of which rest circumferentially against said ledges, an interlocking surface or part formed on the edge of the end of the bushing and a coacting part on the wheel, whereby the rotation of the bushing is prevented.

786,801. SHEET-METAL SASH-PULLEY. PETER DOSCH, Bridgeport, Conn. Filed May 11, 1904. Serial No. 207,352.



Claim.—1. A wheel for a sash-pulley embodying a solid grooved ring made of non-rusting material, such as brass, having an inwardly-projecting rib thereon, the interior parts or frame of the wheel being composed of two plates of sheet metal attached together, the peripheries whereof are separated to receive the said rib and are provided with shoulders upon which the edge of the rib rests, and rivets or plates which pass through the peripheries of the plates and through said rib.

2. A wheel for a sash-pulley embodying a solid grooved ring made of non-rusting material, such as brass, having an inwardly-projecting rib thereon, the interior parts or frame of the wheel being composed of two plates of sheet metal attached together, the peripheral edges of which plates engage with and are riveted or bolted to the rib of the grooved ring.

786,802. BRUSH OR BROOM MOISTENER. WILLIAM A. FULLER, Marietta, Ohio. Filed Jan. 8, 1904. Serial No. 188,215.



Claim.—1. A moistener of the class described, comprising a reservoir provided with means for mounting it on a broom, and having a discharge-outlet arranged at the top of the reservoir to permit a free discharge of the contents of the same when the broom is inclined and adapted to cut off the flow when the broom is in an upright position.

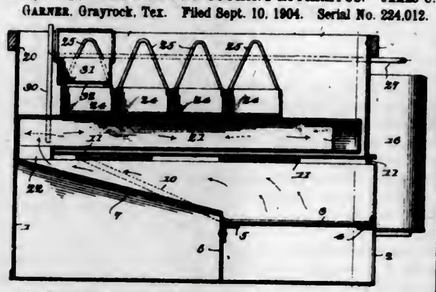
2. A moistener of the class described, provided with means for discharging its contents interiorly of a broom, and for affording a free discharge of its contents when the broom is inclined, and for cutting off the flow when the broom is in an upright position, substantially as described.

3. A moistener of the class described provided with a hollow broom-engaging hook, communicating with the interior of the moistener at the upper portion thereof, and forming a discharge-tube, the latter being arranged to permit a free discharge of the contents of the moistener when the same is partially inverted, and to cut off the flow when the broom is in an upright position, substantially as described.

4. A moistener of the class described, comprising a reservoir provided at the upper portion of its inner side with openings for discharging its contents exteriorly of a broom, and hollow supporting-hooks communicating with the interior of the reservoir at the upper portion thereof arranged to discharge the contents of the reservoir interiorly of a broom substantially as described.

5. A moistener of the class described, comprising a reservoir having a straight back and a bowed front, the back being provided at its upper portion with discharge-openings, and the bowed front having an angularly-disposed top portion forming the top of the reservoir, and supporting-hooks forming discharge-tubes and communicating with the interior of the reservoir at the upper portion of the same, said openings and discharge-tubes being arranged to permit a free discharge of the contents of the reservoir when the same is partially inverted, and to cut off the flow when the broom is in an upright position, substantially as described.

786,803. CANNING AND COOKING APPARATUS. JAMES C. GARNER, Grayrock, Tex. Filed Sept. 10, 1904. Serial No. 224,012.



Claim.—1. In a cooking apparatus, the combination with a furnace, of a boiler, a series of cooking-receptacles removably contained within the boiler and slidable therein, and means slidably mounted upon the boiler to shift the cooking-receptacles within the boiler.

2. In a cooking apparatus, the combination with a furnace, of a boiler, a series of cooking-receptacles, removably contained within the boiler and slidable therein, and means to slide the receptacles consisting of an endwise-slidable yoke-shaped frame embracing the boiler and provided with members projected in the boiler for engagement with one end of the series of receptacles.

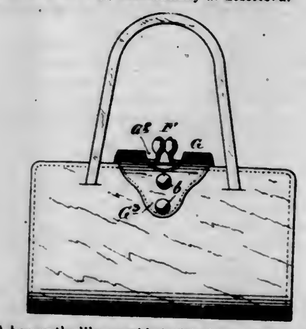
3. In a cooking apparatus, the combination with a furnace, of a boiler, a series of removable cooking-receptacles contained within the boiler and slidable therein, the upper edge of the boiler being provided with an outer annular rim, and means to slidably shift the series of receptacles within the boiler consisting of an endwise-movable yoke-shaped frame embracing the boiler beneath the rim thereof and provided with loops slidably embracing the rim and having members projected into the boiler from the loops and lying at one end of the series of receptacles for engagement therewith to shift the receptacles by an endwise movement of the frame.

4. In a portable cooking apparatus, the combination of a fire-box having an open top, a pipe-coil grate, a pipe-coil rack across the open top of the fire-box and connected to the grate, a scalding-tank connected to the two pipe-coils, and a removable boiler supported upon the pipe-grate with a smoke-flue within the boiler, one end of the flue piercing the bottom of the boiler in communication with the fire-box, and the other end of the flue piercing one of the sides of the boiler.

786,804. BAG OR THE LIKE. OSCAR GREENBAUM, New York, N. Y., assignor to Raudnitz and Pollitz, New York, N. Y., a Firm. Filed Jan. 18, 1905. Serial No. 241,634.

Claim.—1. A bag or the like provided with a pocket having a frame at its mouth, said frame having fastening means for keeping it closed, a tab secured to one wall of the bag and provided with an opening to receive said fastening means, and means for detachably connecting said tab with a wall of the bag, substantially as described.

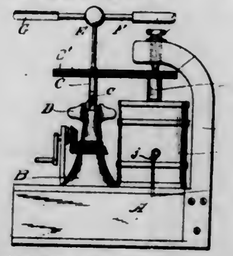
2. A bag or the like provided with side pockets and an intermediate pocket, a frame secured along the edges of the intermediate pocket and provided with fastening means, a tab secured to a wall of the bag and adapted to fold over the mouths of the pockets, said tab being provided with an opening to receive the fastening means on the frame and coacting fastening means carried by the tab and an opposite wall of the bag, substantially as described.



3. A bag or the like provided with side pockets and an intermediate pocket, a frame secured along the edges of the intermediate pocket and provided with fastening means, a tab having a fork-like portion providing an opening to pass over the fastening means on the frame, the prongs of the tab being secured to a wall of the bag, and complemental fastening means respectively carried by the tab and by a wall of the pocket, whereby the tab may fold over the open mouths of the pockets and receive the fasteners on the frame through the opening, substantially as described.

4. A bag or the like provided with side pockets and an intermediate pocket, a frame secured along the edges of the intermediate pocket and provided with coacting knobs, a tab secured to a wall of the bag and provided with an opening to receive said knobs, and complemental fastening devices secured respectively to the tab beyond its opening and to a wall of the bag, whereby when the tab is folded over the open mouths of the pockets the knobs will pass through the opening in the tab, substantially as described.

786,805. CHURN-POWER. MORGAN GRIMM, West Alexander, Pa. Filed May 20, 1904. Serial No. 208,990.



Claim.—1. A churn-power, comprising a base, a churn-body removably mounted thereon, a vertical dasher-shaft, rotatably mounted in said churn-body, a gear having a sleeve on its lower face and adapted to receive said shaft, a pivot carried by the upper face of said gear, a curved standard carried by the base and extending over said pivot, a vertically-adjustable screw in said standard and having a bearing for said pivot, and a spring-tension device within said screw and adapted to bear upon the upper end of said pivot.

2. A churn-power comprising a base, a churn-body carried thereby, a dasher rotatably mounted within the churn-body, a vertically-movably screw adapted to receive the upper ends of said dasher, and having a spring-bearing member engaging said dasher-shaft.

3. A churn-power comprising a base, a churn-body carried thereby, a dasher-shaft mounted therein, a vertical movable screw above said shaft and having an opening therein to receive said shaft, and a spring-pressed pin within said screw and adapted to engage the end of the shaft.

4. A churn-power, comprising a base, a churn-body carried thereby, a dasher-shaft mounted therein, a vertically-movable screw above said shaft, and having an opening therein to receive said shaft, and a spring-pressed tension device within said opening and adapted to bear against the end of the dasher-shaft.

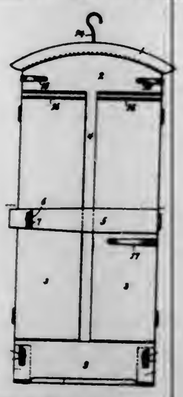
5. A churn-power, comprising a base, a churn-body carried

thereby, a dasher-shaft mounted therein, a vertically-movable screw above said shaft, and having an opening therein to receive said shaft, and a yieldingly-held pin within said opening and adapted to engage the end of the shaft.

6. A churn-power, comprising a base, a churn-body carried thereby, a dasher-shaft mounted therein, a vertically-movable screw above said shaft and having an opening therein to receive the end of said shaft, a rod within said screw and engaging the end of the shaft and a coil-spring within said screw and normally holding the rod in frictional contact with the dasher-shaft.

7. A churn-power, comprising a base, a spring-motor carried thereby, a churn-body resting upon the base and having eyes on opposite sides thereof, a pin passing through said eyes and entering openings in the base, a dasher-shaft within said churn-body, a vertically-movable screw forming a bearing for the upper end of said shaft, and a gear connection between said shaft and spring-motor.

786,806. TROUSERS-PRESS AND SUIT-HANGER. FREDERICK J. GRUHL, Milwaukee, Wis. Filed June 20, 1904. Serial No. 213,275.



Claim.—1. A trousers-press, comprising a flat back, leaves hinged at their outer edges to the back and folding inwardly toward and to near the surface of the back, and means for holding the leaves releasably in infolded position.

2. A trousers-press, comprising a flat back, leaves of less width together than the back hinged at their outer edges to the back and folding inwardly toward and to near the surface of the back but leaving a longitudinal space between the infolded leaves for seams on trousers being pressed thereby, and means for securing the leaves releasably in infolded position.

3. A trousers-press, comprising a flat back, leaves hinged at their outer edges to the back and folding inwardly toward and to near the surface of the back, a cross-bar secured to the outer surface of one leaf medially and of a length to extend across both leaves when in infolded position and means for securing the bar releasably to the other infolded leaf.

4. In combination in a trousers-press, an upright back, leaves hinged to the back and folding nearly thereto, rounded top pieces on and along the top ends of the leaves over and upon which pieces when the leaves are infolded the legs of trousers may be folded and supported, and means for securing the leaves in infolded position.

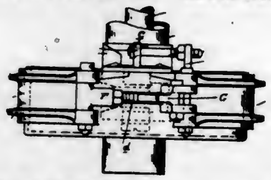
5. In combination in a trousers-press, a back, leaves hinged to the side edges of the back adapted to fold inwardly upon the back, an auxiliary pressing-leaf hinged to the lower end of the back and adapted to fold inwardly to near the back below the side leaves, and means for securing the leaves releasably in infolded positions.

6. In a trousers-press, a back, leaves hinged to the edges of the back to fold inwardly to near to and opposite the front surface of the back, wedge-shaped blocks on the back near its edges below the side leaves, an auxiliary leaf hinged on the lower ends of the blocks and adapted to infold upwardly onto the blocks being kept thereby at a distance from the back, and means for securing the leaves releasably in infolded positions.

7. In combination in a trousers-press, a back, leaves hinged to the side edges of the back to infold to near the back, an auxiliary leaf hinged to the bottom of the back to infold upwardly toward the back below the side leaves, means for securing the leaves releasably in infolded positions, springs on the back above the leaves to support trousers temporarily, and a spring on the outer surface of one of the side leaves to hold the drooping portion of trousers being pressed.

8. In combination in a trousers-press, a back, leaves hinged to the side edges of the back to infold to near the back, an auxiliary leaf hinged to the bottom of the back to infold upwardly toward the back and below the side leaves, means for securing the leaves releasably in infolded positions, a transverse bow-piece fixed on and across the top of the back, and a hook in the bow-piece centrally at the top for supporting the apparatus and its load.

786,807. BRAKE MECHANISM. NORMAN T. HARRINGTON, Detroit, Mich., assignor to Olds Motor Works, Detroit, Mich., a Corporation of Michigan. Filed July 30, 1904. Serial No. 218,824.



Claim.—1. In a motor-vehicle, the combination with a pair of brake-heads on each section of an axle, peripheral brakes for engaging said heads, rods for operating said brakes, rock-shafts for actuating said rods, rock-arms upon said rock-shafts, a foot-lever and a yoke or evener, connecting said rock-arms and actuated by said foot-lever whereby equal power is transmitted to each brake.

2. In a motor-vehicle, the combination with a frame and a two-part drive-axle upon which said frame is supported, of a brake-head for each section of said axle, a peripheral brake for each head, alined rock-shafts journaled on said frame, operating-rods for said brakes connected to said rock-shafts, rock-arms secured to the adjacent ends of said rock-shaft, a foot-lever and a yoke connecting said rock-arms, having actuating connection with said foot-lever.

3. A brake comprising a rotary drum, pivoted shoes embracing said drum, a tension device for separating said shoes, a toggle-lever connection for clamping said shoes upon the drum, a rod for actuating said toggle-levers forming in its released position a stop for limiting the outward movement of one of said shoes, and a stop for limiting the outward movement of the opposite shoe whereby both shoes in released position are freed from the drum.

4. A brake comprising a rotary drum, pivoted brake-shoes embracing said drum, a toggle-lever connection for clamping said shoes upon the drum, being adjustable to take up the wear in the shoes, a rod for actuating said toggle connection, forming in released position a stop for limiting the outward movement of one of said shoes, and an adjustable stop for limiting the outward movement of the opposite shoe.

5. A brake comprising a rotary drum, pivoted brake-shoes embracing said drum, a tension device for separating said shoes, toggle-levers for clamping said shoes upon said drum, comprising a lever pivoted to one shoe and an adjustable link connecting said lever to the opposite shoe, a rod connected to the free end of said lever, forming an actuating connection therefor and in its released position a stop for limiting the outward movement of the shoe attached to said link, a headed pin adjustably attached to the opposite shoe and a fixed lug engaging with said pin forming in connection therewith a stop for limiting the outward movement of said shoe.

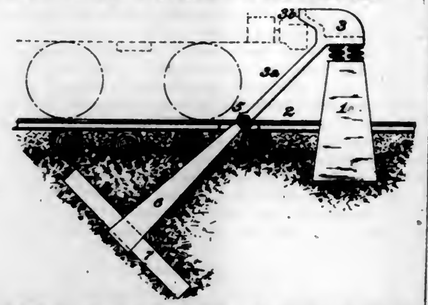
6. A brake comprising a rotary drum, pivoted brake-shoes embracing said drum, a toggle-lever connection for clamping said shoes upon said drum, and a spring for separating said shoes, comprising a resilient member centrally bearing on the pivotal connection of said shoes, and at its ends engaging bearings on said shoes upon opposite sides of said pivot.

7. A brake comprising a rotary drum, a pair of segmental brake-shoes embracing said drum and pivotally secured to each other at one end, said shoes being of channel cross-section with parallel flanges extending outward, a toggle-lever connection between the movable ends of said shoes, a resilient bar centrally bearing on the pivotal connection of said shoes and having curved ends and pins extending between the flanges of said shoes, forming bearings for engaging with the ends of said bar.

8. A brake comprising a rotary drum, a pair of segmental brake-shoes, secured to a fixed pivot at one end, a toggle connection at the opposite ends comprising a lever pivoted to one shoe, and an adjustable link connecting said lever to opposite shoe, a pin forming the pivotal connection for said lever, said pin having a projecting head, a headed pin extending at right angles to said pivot-pin and having an adjustable threaded engagement therewith, and a fixed apertured lug with which said headed pin engages, coöperating therewith to form a limit for the outward movement of one of said shoes.

9. A brake comprising a rotary drum, a pair of segmental brake-shoes, pivotally secured at one end and embracing said drum, a toggle-lever connection for the opposite ends of said shoes, comprising a lever connection to one shoe and an adjustable link connecting said lever to the opposite shoe, the pin K forming the pivotal connection between said lever and shoe and having a projecting head, the threaded and headed pin L engaging with correspondingly-threaded bearing in the head of the pin K and the fixed apertured lug *m* engaging with said pin L for the purpose described.

786,808. BUMPING-POST FOR RAILROADS. BRODERICK HASKELL, Franklin, Pa. Filed Feb. 11, 1905. Serial No. 245,199.



Claim.—1. In a railroad bumping-post, the combination of a post or support, a bumper-head located above said post and having downwardly-inclined arms, a yielding resistance medium interposed between the bumper head and post, and a yoke anchored in advance of the post and coupled by flexible connections to the arms of the bumper-head.

2. In a railroad bumping-post, the combination of a post or support, a bumper-head located above said post and having downwardly-inclined arms, a yielding resistance medium interposed between the bumper head and post, a yoke anchored in advance of the post and having upwardly-extending arms, and pivot-bolts connecting said arms to the arms of the bumper-head.

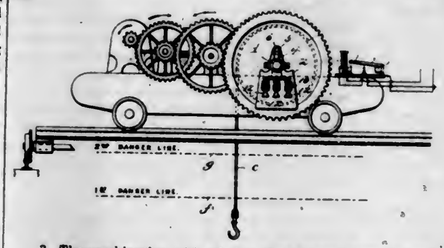
3. In a railroad bumping-post, the combination of a post or support, a bumper-head located above said post and having downwardly-inclined arms, an outwardly-extending lip or projection at the top of the front face of the bumper-head, a yielding resistance medium interposed between the bumper head and post, and a yoke anchored in advance of the post and coupled by flexible connections to the arms of the bumper-head.

4. In a railroad bumping-post, the combination of a post or support, a bumper-head located above said post and having downwardly-inclined arms, a yielding resistance medium interposed between the bumper head and post a yoke anchored in advance of the post and having a transverse body and arms extending upwardly in the direction of the arms of the bumper-head, pivot-bolts connecting the arms of the yoke and the bumper-head, and a fixed resistance medium abutting against the body of the yoke.

786,809. AUTOMATIC SAFETY-SWITCH FOR HOISTING-MACHINES. OSCAR S. HERTZOG, Birdsboro, Pa. Filed Apr. 25, 1904. Serial No. 204,819.

Claim.—1. The combination with a hoist, of a safety-switch arranged in the working circuit, an electromagnet controlling the movement of the switch, and a plurality of successively-engageable contacts under the control of said hoist and serving to close the circuit in different positions of the hoist.

2. The combination with a revoluble winding means, of a screw receiving movement therefrom, a nut mounted on the screw, a motor for actuating the winding member, a safety-switch, a circuit including the motor and the switch, an electromagnet controlling the movement of the switch, an auxiliary circuit including said electromagnet, and auxiliary circuit-closing contacts under the control of the nut.



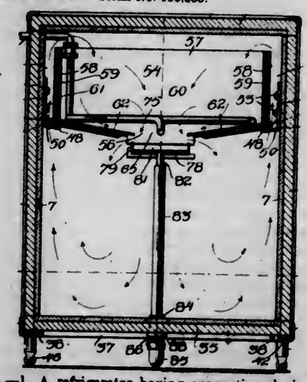
3. The combination with a hoist, of an electric motor for operating the same, a revoluble member, a screw carried thereby, a nut mounted on the screw, means for holding the nut from turning movement, a safety-switch, an electromagnet for operating the same, a working circuit including the motor and the switch, a manually-adjustable switch included also in the working circuit, and a plurality of contacts disposed in the path of movement of the nut and electrically connected to the switch thereby to close the circuit through the electromagnet.

4. The combination with a hoist, of a motor for operating the same, a safety-switch, an electromagnet controlling the movement of the switch, a manually-adjustable switch, a circuit including the switches and motor, a revoluble screw, a traveling nut carried thereby, and a plurality of contacts forming circuit-terminals and adapted to be successively engaged by the nut.

5. The combination with a hoisting mechanism, of a motor, a working circuit, a safety-switch, a manually-operable switch, both of the switches being connected in the circuit in series to permit passage of the current when the manually-operable switch is in either position, an electromagnet controlling the movement of the safety-switch, and a plurality of contacts forming terminals to successively establish the circuit of the electromagnet.

6. The combination with hoisting mechanism, of a motor, a screw carried by a revoluble member of the hoisting mechanism, a plate hung on an unthreaded portion of the screw, a nut carried by the screw, a series of insulating-brackets secured to the plate, a plurality of fingers pivotally mounted on the bracket and maintained in position by gravity, contact-blocks carried by the fingers and forming circuit-terminals, a contact-block carried by the block and adapted to engage the blocks on the fingers, a switch member, and a working circuit including the switch member and the motor, substantially as specified.

786,810. REFRIGERATOR. FREDERICK A. HICKSON, Atlanta, Ga. Filed Dec. 21, 1903. Serial No. 186,085.



Claim.—1. A refrigerator having supporting devices detachably secured on the inner sides of its walls, each of said supporting devices comprising a yoke portion, upstanding lugs thereon and angularly-bent arms extending outwardly and upwardly from the ends of the yoke portion, laterally spaced apart and detachably secured to the said walls of the refrigerator, and an ice-pan in the refrigerator resting on the yoke portions of the supporting devices and bearing against the upstanding lugs thereon, said ice-pan being thereby

detachably and removably supported in the refrigerator and out of contact with the walls thereof.

2. A refrigerator having removable shelf-supporting devices disposed interiorly thereof, said shelf-supporting devices comprising corner-posts having projections to support the shelves, and extensible cross-bars connected to the corner-posts in pairs.

3. In a refrigerator, a removable ice-pan, the length of which is less than the space between the end walls of the refrigerator, and supporting-brackets for the ice-pan having their supporting members which engage the ice-pan spaced from the end walls of the refrigerator, said brackets having devices to engage the ice-pan and maintain it spaced from the refrigerator-walls.

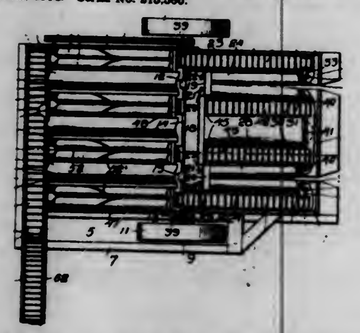
4. A supporting-bracket for the removable ice-pan of a refrigerator, comprising a yoke portion, upstanding lugs thereon, and angularly-bent arms extending outwardly and upwardly from the ends of the yoke portion and laterally spaced apart.

5. A supporting-bracket for the removable ice-pan of the refrigerator, struck up from a single piece of metal and comprising a yoke portion, upstanding lugs thereon and angularly-bent arms extending from the ends of the yoke portion and laterally spaced apart.

6. An ice-pan for refrigerators, comprising a shell having a side wall, provided at its lower edge with a centrally-disposed depending extension having end notches, end walls and bottom sections formed integrally with said side wall, said bottom sections being inserted in said notches and supported thereby, and a door forming the opposite side of the pan and secured between the end walls, substantially as described.

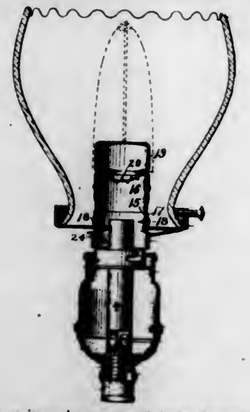
7. An ice-pan for refrigerators, comprising a shell having a side wall, provided at its lower edge with a centrally-disposed depending extension having end notches, end walls and bottom sections formed integrally with said side wall, said bottom sections being inserted in said notches and supported thereby, and having upturned flanges at their sides, said flanges at one side of the bottom sections partly forming a wall opposite the said side wall, and a door coacting with said side sections to form the opposite side of the pan, when said door is closed, substantially as described.

786,811. CORN HARVESTER AND HUSKER. EZRA HOLLIS, Offield, Ill., assignor of four-fifths to M. J. Glick, Westfield, Ill. Filed June 20, 1904. Serial No. 213,380.



Claim.—In a corn harvesting and husking machine, the combination with a frame, of a fixed axle mounted in the frame, traction-wheels revolubly mounted upon the axle, a sprocket carried by one of the traction-wheels, uprights mounted upon the axle, a transversely-extending shaft journaled in the uprights adjacent to their upper ends, a sprocket-wheel carried by the shaft, a chain engaged with the sprocket-wheel of the shaft and with that of the traction-wheel, side-boards having bearings in which the shaft is revolubly engaged, said side-boards slanting downwardly and forwardly and being secured at their forward ends to the frame, a cross-piece secured to the upper ends of the uprights and having a pair of spaced bearings adjacent to each end, bearing-blocks carried by the frame at the forward end thereof and having bearings therein registering with those of the cross-piece, snapping-rollers having trunnions revolubly engaged in the registering bearings, said snapping-rollers lying between the side-boards and in spaced relation thereto, shafts journaled at the forward end of the frame and extending outwardly of the outermost snapping-rollers, a conveyer engaged with each of the last-named shafts and with the first-named shaft for rotation of the former when the latter is rotated, connections between the second-named shafts and the outermost snapping-rollers for rotation of the latter by the former, a shaft journaled forwardly of the snapping-rollers, said shaft terminating at both ends short of the outer faces of the innermost rollers of each pair, said shaft and said innermost rollers being connected for mutual rotation, a pair of conveyers engaged with the third-mentioned shaft and with the first shaft for operation of the former by the latter, one of said conveyers being disposed at the side of each pair of snapping-rollers, all of the conveyers being arranged for the reception of ears of corn from the snapping-rollers, side-boards secured at one end to the rearward ends of the first-mentioned side-boards, and at their other ends to the frame adjacent to the rearward end of the latter, cross-pieces secured to the second-named side-boards adjacent to the ends thereof and extending therebetween, said cross-pieces having spaced pairs of bearings therein, the bearings of one cross-piece registering with those of the other, husking-rollers having trunnions engaged in the registering bearings of the last-named cross-pieces, said pairs of husking-rollers being equal in number to the conveyers and being disposed to receive ears of corn therefrom, partitions disposed between the pairs of husking-rollers, the side faces of the partitions slanting upwardly toward each other, a shaft journaled adjacent to the rearward end of the frame, connections between this shaft and one of the husking-rollers, the husking-rollers of each pair lying in engagement with each other for rotation one by the other, connections between the pairs of husking-rollers for simultaneous rotation of the several husking-rollers, the husking-rollers of each pair being arranged for movement toward each other and downwardly, connections between the last-named shaft and the first shaft for operation of the former by the latter, and a conveyer arranged to receive ears of corn from the husking-rollers, said conveyer being connected with the driving-wheel for operation thereby, said frame having stalk-guides therein arranged to direct stalks between the snapping-rollers.

786,812. INCANDESCENT-LIGHTING FIXTURE. LEMUEL R. HOPTON, Plainfield, N. J., assignor to The Enos Company, New York, N. Y., a Corporation of New York. Filed Sept. 10, 1904. Serial No. 223,972.



Claim.—1. In an incandescent-gas-lighting fixture, the combination of a burner-tube having means for the admission of gas and air, a casing surrounding a portion thereof, a socket carried by said tube of smaller diameter than said casing and leaving an annular space inside thereof and a burner-head having a collar with means of connection with said socket inside said annular space.

2. In an incandescent gas-burner, the combination of a burner-tube having means for the admission of gas and air, a large cylindrically-formed casing surrounding and spaced apart from a portion of said tube with a socket at the upper end of said tube having a plurality of indentations forming bayonet-joints within an annular space at the top of said casing and a globe-supporting member having a plurality of indentations adapted to removably coact with said bayonet-joints inside said annular space.

3. In an incandescent gas-burner, the combination of a burner-tube having means for the admission of air and means for the admission and regulation of gas, a cylindrical casing surrounding and spaced apart from a portion of said tube, a socket having bayonet-like recesses, a globe-supporting member having projections adapted to removably coact therewith, an insulating-tube carried by said member, and a burner-cap having a plurality of outlets, said cap being secured to said insulating-tube and spaced apart vertically from the other portions of said globe-supporting member.

4. In an incandescent gas-burner, the combination of a burner-tube having air-inlets near the base, a gas-inlet adjacent to said air-inlets, a substantially cylindrical casing having a base portion having a plurality of openings for the passage of air, said casing forming a substantial air-cushioning chamber, a globe-supporting member detachably supported by said tube, an insulating-tube and an outlet-cap vertically separated thereby from the other parts of said burner and from said chamber.

5. In an incandescent gas-burner, the combination of a burner-tube having means for the admission of gas and air, a casing having a large cylindrical body portion and a base portion having a plurality of openings for the admission of air, said casing forming an air-chamber of substantial size around a portion of said burner-tube, and a burner-head of cylindrical form surrounding but spaced apart from the remainder of said tube and removably carried thereby.

6. In an incandescent gas-burner, the combination of a burner-tube having means for the admission of gas and air, a casing surrounding a large part of said tube and comprising a convexly-curved base having a series of perforations for the passage of air and a substantially cylindrical body portion removably secured thereto and a detachable globe-supporting member and burner-head.

7. In an incandescent gas-burner, the combination of a burner-tube having means for the admission of gas and air, a cup-shaped member carried by said tube, a substantially cylindrical shell removably secured to said cup-shaped member and spaced apart from said tube and forming a substantial air-chamber, a burner-cap and an insulating-tube supporting said cap and vertically separating it from the other parts of said burner and said air-chamber.

8. An incandescent gas-burner comprising the combination of a burner-tube having means for the admission of gas and air, a casing surrounding a portion of said tube but spaced apart therefrom, a combined burner-head and shade-holder having a depending collar removably carried inside the rim of said casing, said burner-head including a tubular member having an outlet for the combustible mixture and means for thermally insulating the outlet from said casing.

9. In an incandescent-lighting fixture, the combination of a burner-tube having means for the admission of gas and air, a casing surrounding a portion thereof, a socket carried by said tube of smaller diameter than said casing and leaving an annular space inside thereof and a burner-head having a collar with means of connection with said socket inside said annular space, and means for thermal insulation inserted between the outlet of said burner-head and said casing.

10. In an incandescent gas-burner, the combination of a burner-tube having air-inlets near the base, a gas-inlet adjacent to said air-inlets, a substantially cylindrical casing having a base portion having a plurality of openings for the passage of air, said casing forming a substantial air-cushioning chamber, a globe-supporting member detachably supported by said tube, and thermal insulating means inserted between the outlet of said burner and said chamber and casing.

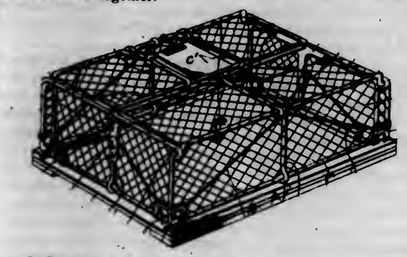
11. In an incandescent gas-burner, the combination of a burner-tube having means for the admission of gas and air, a cup-shaped member carried by said tube, a substantially cylindrical shell removably secured to said cup-shaped member and spaced apart from said tube and forming a substantial air-chamber, a burner-cap and thermal insulating means inserted between said cap and the other parts of said burner and said air-chamber.

12. An incandescent gas-burner comprising the combination of a burner-tube with means for the admission of gas and air, a casing of substantial size carried by said tube, and spaced apart laterally therefrom, a tubular member movably carried adjacent the rim of said casing and forming part of a burner-head, and provided with an outlet for the combustible mixture, and a globe-supporting member carried by said tubular member and removable therewith.

786,813. FOLDING OR KNOCKDOWN CRATE. CICERO HOSKINS, Quincy, Ill. Filed May 25, 1904. Serial No. 209,633.

Claim.—1. In a folding crate, the combination with the bottom, of the side and end sections hinged thereto, the top formed in two sections each hinged to a side section, and locking means carried by the end sections for automatically locking all of said hinged sections when set up; substantially as described.

2. In a folding or knockdown crate, the combination with the bottom and the hinged side and end sections, said end sections having recesses in their upper edges, in which the frames of the top sections are received, and the bolt adapted to be projected into said recess between the frames, whereby the top sections and end sections will be locked together.



3. In a knockdown or folding crate, the combination with the bottom and the hinged side and end sections, of the castings carried by the end sections and provided with recesses having oppositely-arranged overhanging edges, the top formed in two sections, the frames of which are adapted to be received beneath the overhanging edges of said recess, and the bolts adapted to be projected between said frames; substantially as and for the purpose set forth.

4. In a knockdown or folding crate, the combination with the bottom and the hinged side and end section, of the center stay for the frames of the end section, the T-shaped casting mounted on said stay, and having a cut-away portion in its head between the side arms formed with oppositely-disposed overhanging edges, beneath which the frames of the top sections are received, and the spring-pressed bolt working in the stem of the casting and adapted to be projected between the top-section frames, whereby the frames will be held beneath the overhanging edges of the recess and the top and end sections locked together; substantially as described.

5. In a folding or knockdown crate the combination with the bottom and the hinged side, and top sections, of the T-shaped castings carried by the end sections and having undercut recesses in which are received the top-section frames, the bolt working in the stem of the casting and adapted to be projected between the top-section frames, the handle for retracting the bolt, the stem of the casting having a right-angle slot in which said handle may be turned to lock the bolt when projected; substantially as described.

6. In a folding or knockdown crate, the combination with the bottom, of the hinged side, end and top sections formed of wire frames having wire-netting stretched thereon, the casting having an undercut recess carried by the end sections and into which the wire frame of the top sections are received and the bolt adapted to be projected between the wire frames of the top sections, for locking the top and end sections together, locks located intermediate the ends for locking the top sections together, and the stay-wires carried by the side sections; substantially as described.

7. In a knockdown or folding crate, the combination with the bottom, and hinged side, top and end sections, locks carried by the end sections for locking the top and end sections together, and a rod or bar hinged to the crate-bottom intermediate the ends and carrying a casting provided with oppositely-arranged hook-shaped projections at the upper end adapted to take over the frames, of the top sections and a spring-operated bolt adapted to be projected between the top-section frames; substantially as described.

8. In a folding or knockdown crate, the combination with the bottom, of the hinged side and end sections, said side sections formed with reëntrant angular portions at the upper corners, the top sections pivotally connected to said reëntrant angular portion of the side sections; substantially as described.

786,814. PROCESS OF TREATING SULFID ORES OR COMPOUNDS PREPARATORY TO SMELTING. THOMAS HUNTINGTON and FERDINAND HEBERLEIN, London, England. Filed June 26, 1903. Serial No. 163,275.

Claim.—1. The herein-described process of oxidizing sulfid ores preparatory to their treatment for the reduction of the metal contained therein, such process consisting in heating and working the ore until a portion of the sulfur is removed, rapidly cooling the ore down to atmospheric temperature or thereabout, restarting combustion in the mass and forcing air therethrough for the purpose of

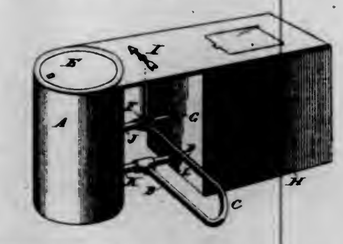
further desulfurizing and oxidizing the same, substantially as set forth.

2. The herein-described process of oxidizing sulfid ores preparatory to their treatment for the reduction of the metal contained therein, such process consisting in heating and working the ore until a portion of the sulfur is removed, rapidly cooling the ore with water, restarting combustion in the mass and forcing air therethrough for the purpose of further desulfurizing and oxidizing the same, substantially as set forth.

3. The herein-described process of oxidizing sulfid ores preparatory to their treatment for the reduction of the metal contained therein, such process consisting in heating and working the ore until a portion of the sulfur is removed, rapidly cooling the ore with water down to atmospheric emperature or thereabout, restarting combustion in the mass and forcing air therethrough for the purpose of further desulfurizing and oxidizing the same, substantially as set forth.

4. The herein-described process of oxidizing sulfid ores preparatory to their treatment for the reduction of the metal contained therein, such process consisting in heating and working the ore until the proportion of sulfur contained therein is reduced to twelve per cent. or thereabout, rapidly cooling the ore with water down to atmospheric temperature or thereabout, restarting combustion in the mass and forcing air therethrough for the purpose of further desulfurizing and oxidizing the same, substantially as set forth.

786,815. **STEAM COOKING AND WATER-HEATING ATTACHMENT FOR COOKING-STOVES.** JAMES P. HUTCHISON, Ellsworth, Ohio. Filed May 5, 1903. Serial No. 155,782.



Claim.—In a steam cooking and water-heating attachment for cooking-stoves, the combination of a steam cooking-chamber, a water-tank, a water-heating loop, pipes for providing communication between the ends of said loop and said steam cooking-chamber, pipes for providing communication between the ends of said loop and said water-tank, and means for directing the heated water from the water-heating loop to the steam cooking-chamber or to the tank.

786,816. **MACHINE FOR MAKING PIES.** JOSEPH C. HUTCHISON, Philadelphia, Pa. Filed Sept. 23, 1904. Serial No. 225,430.

Claim.—1. In a machine for making pies in combination, a plate-conveyer, a plunger mechanism, and a stripper adapted to move with the plunger, to leave the plunger at the end of its downward travel and to again return to the plunger after the same has ascended, substantially as specified.

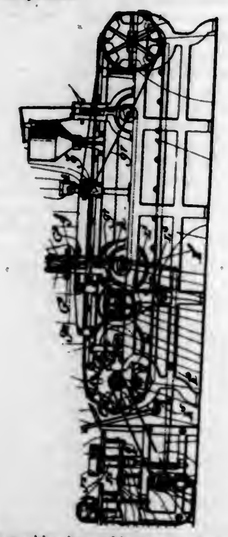
2. In a machine for making pies in combination, a conveyer, a plunger mechanism, a stripper mechanism and means to cause the stripper to move with the plunger in its downward movement, to dwell and to again move with the plunger in its upward movement, substantially as specified.

3. In a machine for making pies in combination, a conveyer, a plunger mechanism, a stripper, means to cause the stripper to move downward with the plunger, a latch to engage and hold the stripper at the extent of its downward course and means controlled by the plunger for releasing the latch, substantially as specified.

4. In a pie-machine, in combination with the plate-conveyer and the crust-forming mechanism, a plate-ejector located at the discharge end of the conveyer, a stationary trimming and crimping die, and means for conveying the plate and its contents from the conveyer to the trimming and crimping die, substantially as specified.

5. In a pie-machine, in combination with the plate-conveyer mechanism and crust-feeding mechanism, a stationary trimming and crimping die, and a turn-table arranged to lift the plate and its contents and bring the same into engagement with the trimming and crimping die, substantially as specified.

6. In a pie-machine, in combination with the plate-conveyer and crust-forming mechanism, a stationary trimming and crimping die, a turn-table, means for lifting the plate and its contents from the plate-conveyer and depositing the same upon the turn-table and means for elevating a portion of the turn-table to bring the plate and its contents into engagement with the trimming and crimping die, substantially as specified.



7. In a pie-machine in combination, a plate-conveyer, a crust-forming mechanism, an apron for said crust-forming mechanism, a duster for said apron, a plunger, a stripper adapted to move to and from said plunger, a trimming and crimping die, means for conveying the pie to and from said die, and a rotary brush for cleaning the conveyer, substantially as specified.

8. In a pie-machine, in combination with the conveyer mechanism and upper and lower crust-forming mechanism, a receptacle adapted to contain a glazing material, a spraying-nozzle mounted upon said receptacle and a pneumatic device for operating the nozzle, substantially as specified.

786,817. **WRITING APPLIANCE.** JAAN JAAKSON, Riga, Russia. Filed May 8, 1903. Serial No. 156,156.

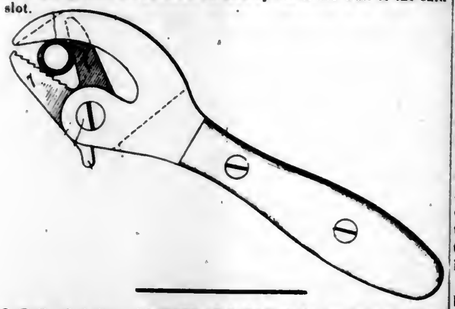


Claim.—A writing appliance comprising a calotte with the types arranged in curves thereon at sufficient intervals so that each type may be printed separately and independently from the others, said calotte being formed so that the types are readily visible, and a handle in the center of curvature of said calotte, substantially as shown and described.

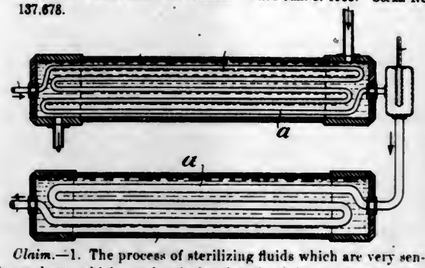
786,818. **WRENCH.** ALFRED JOHNSON, Chicago, Ill. Filed Apr. 11, 1904. Serial No. 202,549.

Claim.—1. A wrench comprising a handle, a fixed eccentrically-curved jaw extending from the handle and slotted therethrough to receive a pivoted jaw, projected bearing-ears formed integral with the base of the curved fixed jaw and adjacent thereto, and alligator-jaws projecting rigidly from their base and pivotally mounted between said bearing-ears in alinement with the slot in the fixed jaw to swing therein.

2. A wrench comprising a handle, a fixed curved jaw, extending from the handle and slotted therethrough to receive a pivoted jaw, projected bearing-ears formed integral with the base of the curved fixed jaw and adjacent thereto, alligator-jaws projecting rigidly from their base and pivotally mounted between said bearing-ears in alinement with the slot in the fixed jaw to swing therein, and eccentrically mounted to the working face of the fixed jaw, and formed with a stop extension projected outwardly from the pivotal point and adapted to lodge against the shoulder formed by the lower wall of the said slot.



786,819. **PROCESS OF STERILIZING MILK OR OTHER FLUIDS.** CORSTIAAN DE JONG, Huize Snippeschrik Amstelveensche Weg, near Amsterdam, Netherlands. Filed Jan. 3, 1903. Serial No. 137,678.



Claim.—1. The process of sterilizing fluids which are very sensitive to heat, which consists in heating the fluid to a temperature sufficiently high to completely sterilize it, but for such a short time as to avoid modifying its original constitution and properties, substantially as and for the purpose set forth.

2. The process of sterilizing fluids which are very sensitive to heat, which consists in imparting to the fluid a very high velocity, heating it highly above its boiling-point, and immediately cooling it, substantially as and for the purpose set forth.

3. The process of sterilizing fluids which are sensitive to heat, which consists in passing the fluid in a comparatively small stream into contact with a highly-heated medium, and thereby heating it above its boiling-point so that its complete sterilization takes place, and then cooling it by bringing it into contact with a cooling medium before its original constitution and properties are changed.

4. The process of sterilizing fluids which are sensitive to heat, which consists in causing the fluid to pass at a high velocity along a conduit, and at one point in its passage subjecting it while in motion to the action of a high degree of heat, so that the fluid is raised well above its boiling-point, and then subjecting it to a cooling action before the action of the heat has been continued long enough to change the original properties of the fluid.

5. The process of sterilizing milk which consists in heating the same to a temperature above its boiling-point to completely sterilize it, and then cooling it before its proper constitution is modified.

6. The process of sterilizing milk which consists in heating the same to a temperature considerably above its boiling-point for a brief period, and then immediately cooling the same.

786,820. **LINTEL CONSTRUCTION.** JULIUS KAHN, Detroit, Mich. Filed Dec. 21, 1903. Serial No. 186,146.



Claim.—1. In a lintel construction, the combination with a metallic part-truss consisting of a main longitudinally-disposed member and one or more upwardly-extending arms directly attached thereto, of a cementitious body material embedding said arms but allowing the edges of the main member to project beyond said body material, of one or more blocks of terra-cotta or similar material disposed upon the projecting edges of the metallic member and supported thereby, substantially as described.

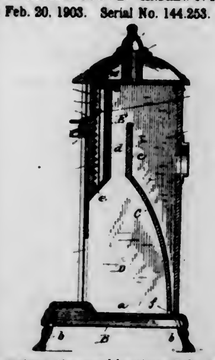
2. In a lintel construction, the combination of a metallic part-truss consisting of a main longitudinally-disposed portion, of a plurality of upwardly-extending arms attached to the main portion at points intermediate its ends, of an auxiliary arm secured to the main portion at or near the middle and extending upward and outward from said middle point, the principal and auxiliary arms embedded in a cementitious body material to form a trussed beam, the edges of the main longitudinal member projecting beyond the cementitious body material to support a facing of brick, terra-cotta, or similar material, substantially as described.

3. In a lintel construction, the combination with a longitudinally-disposed flattened plate, of one or more upwardly-extending arms directly secured to said plate, of cementitious body material embedding said arms and forming the compression member of a trussed beam, the front or outer edge of said plate projecting beyond the body material, and a facing of brick, terra-cotta or the like resting upon said projecting edge, substantially as described.

4. In a composite building construction, a metal tension member comprising main and auxiliary tension members, a cementitious body molded upon the main and around the auxiliary tension members, and a facing-wall resting upon the main metal member and against the cementitious body.

5. In a composite building construction, the combination of a flat longitudinal metal tension member, auxiliary tension members secured thereto, a cementitious compression member molded upon the flat member and around the auxiliary members, and a facing-wall of other building material resting upon the flat metal member and against the cementitious member.

786,821. **HEATING-STOVE.** ANDREW J. KOONTZ, Independence, Va. Filed Feb. 20, 1903. Serial No. 144,253.



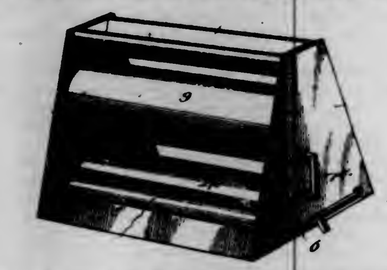
Claim.—In a stove, the combination of the fire box or chamber, the hot-air chamber having communication with said fire box or chamber, a smoke-escape from said hot-air chamber, a door for the fire box or chamber, a pivoted loop having a tooth formed thereon, and an upright bar having a longitudinal groove therein the bottom of which is toothed for engagement with the tooth or tongue of the loop.

786,822. **MILK-COOLER.** ALBERT W. LICHTFELD, Libertyville, Ill. Filed June 28, 1904. Serial No. 214,550.

Claim.—1. Combined in a milk cooler and aerator, a horizontal milk-trough having a series of openings in its under side, a horizontal cooler below said milk-trough, but separated therefrom and having corners on its under side, and a longitudinal cooling-tank below said cooler, said tank having a convex top and upturned sides to form troughs or gutters for the reception of milk passing over said tank.

2. Combined in a milk cooler and aerator, a horizontal, longitudinally-disposed trough for the reception of milk, a cooler below said trough, a corner being formed on the bottom of said cooler on each side of the center thereof, a cooling-tank below said cooler provided with a trough or gutter on each side, and means for passing water through the cooling devices from the bottom.

3. A milk cooler and aerator comprising a horizontal, longitudinal trough for the reception of milk, a series of holes passing through the bottom of said trough on each side of the vertical center, a cylindrical cooler having corners on its under side, a semicircular cooling-tank below said cylindrical cooler having a gutter on each side, and means for circulating water through the cooling devices.



4. In a device of the class described, a cooler of curved form in cross-section, a milk-receptacle sustained above the cooler and adapted to discharge upon the upper curved face of the latter, and a cooling-tank disposed beneath the cooler and onto which the latter delivers the milk, said tank being provided with an upper convex face onto which milk is delivered and with a gutter for the reception of the milk.

5. In a device of the class described, a tubular cooler, a milk-receptacle disposed above the cooler and adapted to discharge thereon, a hollow cooling-tank arranged beneath the cooler and onto which the latter delivers the milk, the tank being provided with an upper convex milk-receiving face and with a milk-receiving gutter, a duct connecting the tank and cooler, a water-inlet communicating with one of said parts, and a water-outlet provided on the other of said parts, whereby a circulation of water through the tank and cooler may be maintained.

786,823. **ELECTRICITY-METER.** FRIEDRICH LUX, Heidelberg, Germany. Filed Nov. 29, 1902. Serial No. 133,186.



Claim.—1. The combination in an electrolytic electricity-meter, of an anode consisting of liquid mercury with a cathode located in a plane above the surface of said anode and a device for constantly stirring or agitating the electrolyte, substantially as described.

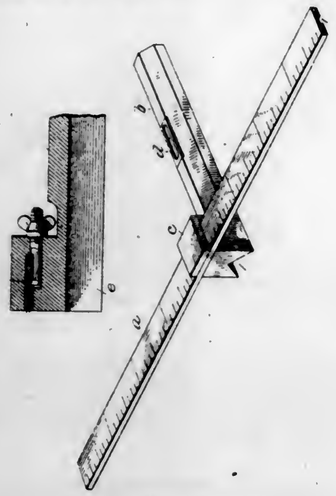
2. In an electrolytic electricity-meter the combination of an anode consisting of liquid mercury with a cathode located in a plane above the surface of said anode and a tube, *i*, with a rim or flange, *h*, to produce a movement of rotation in the upper portion of the electrolyte, substantially as described.

786,824. **SQUARE.** ROBERT C. LYNN, Yazoo City, Miss. Filed Dec. 22, 1904. Serial No. 237,913.

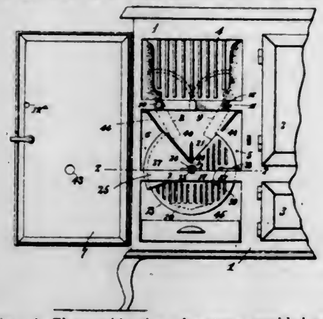
Claim.—1. In combination, a bar having a longitudinal V-groove in its under side and a longitudinally-extending spirit-level in its upper side and a transverse groove in its forward end, a straight-edge slidably mounted in said groove and lying at exactly right angles to the groove in the under side of the bar and projecting outwardly in opposite directions from said head, and means for clamping said straight-edge in its adjusted positions.

2. In combination, a bar having a longitudinal V-groove in its under side and a transverse groove in its forward end, a straight-edge slidably mounted in said groove and lying at exactly right angles to the groove in the under side of the bar and projecting outwardly in opposite directions from said head, and means for clamping said straight-edge in its adjusted positions.

3. In a tool of the class described, the combination of a bar having a longitudinal groove in its under side and an upward-extending head portion at its forward end, this head portion being grooved transversely in its front side, the rear wall or edge of this groove lying at right angles to the groove in the under side of the bar, a straight-edge working in said groove, and a clamp device consisting of a screw extending into the head from the rear side and provided with a hook engaging the straight-edge and a tightening thumb-nut bearing against the rear face of said head.



786,825. **COMBINED STOVE AND ASH-SIFTER.** SOLOMON MAAS, New York, N. Y. Filed Mar. 19, 1903. Serial No. 148,613.



Claim.—1. The combination of a stove provided with a fire-chamber, a rotary ash-sifter mounted beneath the said fire-chamber and provided with an opening in its side for receiving the contents from the fire-chamber when dumped therefrom and also for discharging the contents from the sifter after the sifting process, a door for said opening in the ash-sifter and means extending from the exterior of said stove to the said sifter and its door and being operatively connected with both said sifter and door, whereby the said door may be both opened and closed and the sifter rotated from the exterior of the stove, substantially as and for the purpose set forth.

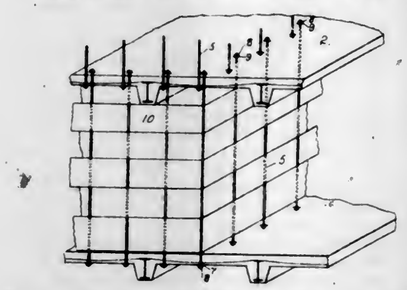
2. The combination of a stove provided with a fire-chamber, a rotary sifter mounted beneath the said fire-chamber and provided with an opening for receiving and discharging material, a movable door for said opening, a rotary shaft and means operatively connecting said shaft with the door and the said door with the rotary sifter but the said shaft being loose with respect to both said sifter and door whereby the turning of the shaft in one direction closes the door and rotates the sifter, while the turning of the shaft in the opposite direction opens the door and turns the sifter in the reverse direction, substantially as and for the purpose set forth.

3. The combination of a stove provided with a fire-chamber, a rotary sifter mounted beneath said fire-chamber and provided with an opening for receiving and discharging the ashes, a movable door for said opening, a rotary shaft and means operatively connecting said shaft with the door and the said door with the rotary sifter but the said shaft being loose with respect to both said sifter and door whereby the turning of the shaft in one direction closes the door and rotates the sifter, while the turning of the shaft in the opposite direction opens the door and turns the sifter in the reverse direction, the said shaft extending to the exterior of the stove from where it may be actuated to operate said sifter, substantially as and for the purpose set forth.

4. The combination of the fire-chamber of a stove, a rotary ash-sifter turning on a horizontal axis and provided with an opening for receiving the contents of the fire-chamber, a rotary shaft upon which said sifter is mounted, a sliding door for controlling said opening and mounted loosely upon said shaft, a fixed piece on said door and a lug or fixed member on said shaft whereby the turning of the shaft in one direction causes the lug on the shaft to engage the fixed piece on the door upon one side to close the door and rotate the sifter and the turning of the shaft in the reverse direction causes the lug to engage the fixed piece on the door upon the opposite side to open the door, and a fixed piece on the said sifter engaged by the door when in closed position for transmitting the motion of the shaft to the sifter, substantially as and for the purpose set forth.

5. The combination of the fire-chamber of a stove, a rotary ash-sifter turning on a horizontal axis and provided with an opening for receiving the contents of the fire-chamber, a rotary shaft upon which said sifter is mounted, a sliding door for controlling said opening and mounted loosely upon said shaft, a fixed piece on said door and a lug on the said shaft for engaging the fixed piece on the door on one side when the shaft is turned in one direction and upon the opposite side when the shaft is turned in the opposite direction, a fixed piece on said sifter adapted to be engaged by the door when the same is closed to transmit the motion of the shaft to the sifter, and a fixed piece on the door for engaging said piece on the sifter when the door is open, substantially as and for the purpose set forth.

786,826. **PARTITION CONSTRUCTION.** RUDOLF MARKGRAF, Kansas City, Mo. Filed Mar. 15, 1904. Serial No. 198,257.

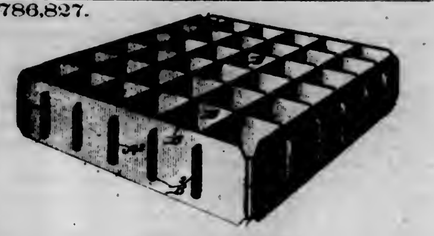


Claim.—In a partition, the combination of a series of rods extending through perforations in the floors above and below the space to be partitioned, each rod having a bolt-head at one end and being screw-threaded at its other end, a nut on the threaded end of each of said rods for tightening same, washers between said bolt-head and its adjacent floor and between said nut and its adjacent floor, and strips of metal lath passed backward and forward between said rods substantially as set forth.

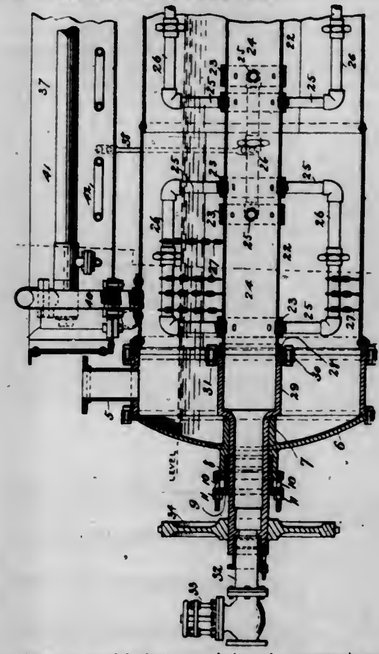
786,827. **REMOVABLE PARTITION FOR EGG-CASES.** FREDERICK W. MEYER, Utah, Mo. Filed Oct. 26, 1903. Serial No. 178,626.

Claim.—A folding cell-case consisting of metal side members having reduced ends, the links to which the said reduced ends are connected, said side members having a series of transversely-arranged slots, and the intersecting strips, the ends of which have oppositely-disposed transverse slots whereby the ends of the said strips can be interlocked with the side members, said intersecting strips having oppositely-disposed slots, each slot being straight at its inner and outer ends and angular intermediate its ends thereby providing oppositely-disposed interlocking projections upon the strips which are adapted to engage each other as set forth.

786,827.



786,828. **TAR-DEHYDRATER.** EDWIN A. MOORE, Philadelphia, Pa. Filed May 5, 1903. Serial No. 155,721.



Claim.—A tar-dehydrater consisting of a receptacle provided with a supply-pipe, an agitator having a tubular body and tubular arms, trunnions detachably connected to the body of the agitator and provided respectively with steam supply and discharge pipes, a detachable head at each end of the receptacle provided with tubular bearings and stuffing-boxes for said trunnions, a tar-discharge opening in one of the heads of the receptacle and in the plane of the level of the tar, and a condenser.

786,829. **FELLY TIRE-SET.** EDWARD N. MCCOMB, Hamilton, Canada. Filed July 2, 1904. Serial No. 215,060.



Claim.—1. In a device of the character described, a plurality of members slidable with relation to each other and adapted to be supported between contiguous felly-segments, a screw-threaded shaft in one of said members engaging with the other thereof, means for

rotating such shaft to cause adjustment of said members, an enlargement on said shaft, and a slidable block interlocking with one of said members forming an abutment for said enlargement.

2. In a device of the character described, a plurality of slidable and interlocking members adapted to be supported upon adjacent felly-segments, a screw-threaded shaft engaging with a correspondingly screw-threaded seat in one of said members, an enlargement on said shaft, a slidable abutment for said enlargement, and a cushion adapted to rest between said abutment and the wheel-tire.

3. In a device of the character described, a plurality of members slidable with relation to each other and adapted to be supported between contiguous felly-segments, a screw-threaded shaft on one of said members engaging with the other thereof, a bevel-gear on said shaft, a second shaft supported by one of said members, a bevel-gear on said second shaft meshing with said gear, an enlargement on said first shaft and a slidable block interlocking with one of said members and forming an abutment for said enlargement.

4. In a device of the character described, a plurality of members slidable with relation to each other and adapted to be supported between contiguous felly-segments, one of said members being provided with an opening therein, a screw-threaded shaft supported by one of said members and engaging the other member, a shaft disposed in said opening and adapted to rotate said first shaft, an enlargement on said first shaft, and a slidable block interlocking with one of said members and forming an abutment for said enlargement.

5. In a device of the character described, a plurality of members slidable with relation to each other and adapted to be supported between contiguous felly-segments, one of said members being provided with an angular, vertical recess, a screw-threaded shaft supported by one of said members and engaging the other thereof, a bevel-gear on said shaft, a second shaft supported by said member, a bevel-gear thereon meshing with the bevel-gear on said screw-threaded shaft, an enlargement on said first shaft, and an angular block, slidably disposed in said angular opening and adapted to form an abutment for said enlargement.

786,830. **GAS-BURNER.** WILLIAM MCLAUGHLIN, Grand Rapids, Mich., assignor to Alfred D. Rathbone, Grand Rapids, Mich. Filed Apr. 25, 1904. Serial No. 204,746.

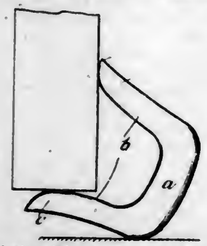


Claim.—1. The combination of a stand-pipe, a series of separate and independently-operative nozzles and mixing-tubes attached to the stand-pipe, and a series of distributing-chambers spaced apart and journaled on the respective mixing-tubes, and also supported by said tubes, each of said chambers having a forwardly-projecting upper angle provided with jet-openings and a rearwardly-projecting lower angle adjacent to the next chamber below and adjustable relative thereto.

2. The combination of a stand-pipe, a series of separate and independently-operative nozzles and mixing-tubes attached to the stand-pipe, a series of distributing-chambers spaced apart and journaled on the respective mixing-tubes, and also supported thereby, each of said chambers being lozenge-shaped in cross-section and having a forwardly-projecting upper angle provided with jet-openings and adjustable relative to the forward surface of the next chamber above, each chamber also having a rearwardly-projecting lower angle adjustable relative to the next chamber below, and a case having a back plate extending back of said chambers and thence forward and above the upper chamber and thence at an inclination forward and upward above the upper chamber, and in a plane parallel with the front side of said chamber.

3. The combination of a stand-pipe, a series of nozzles and mixing-tubes attached thereto, a stove-casing, a series of longitudinally-divided distributing-chambers, each having its rear portion journaled on a respective mixing-tube at one end and supported thereby, said rear portion also being journaled in the stove-casing at the other end, the front portion being cast separately and attached to the rear portion.

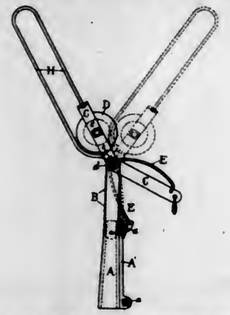
786,831. **COMBINED PORTABLE DOOR LOCK AND CHECK.** RICHARD M. MCMAHON, New York, N. Y. Filed Jan. 11, 1905. Serial No. 240,615.



Claim.—1. A device of the character described having substantially a U-shaped body portion with outwardly-flaring branches, said branches tapering toward their extreme ends, the bottom bearing being substantially flat to allow it to rest on the floor.

2. A device of the character described having substantially a U-shaped body portion, the base of greater thickness and weight than the branches, the branches being outwardly flaring and tapered substantially to a point at their extreme ends, the bottom bearing being substantially flat to allow it to rest on the floor.

786,832. **TROLLEY-WIRE GUIDE.** STEWART P. MCMULLEN, Sioux City, Iowa. Filed June 4, 1904. Serial No. 211,134.

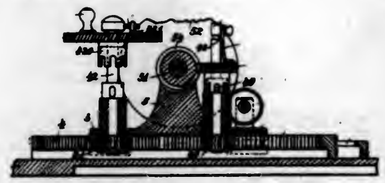


Claim.—1. In a trolley-wire guide, the combination of curved parallel arms pivotally secured to the outer end of the trolley-pole, the curve of said arms opening downward, a flexible connection for the lower ends of said arms, a trolley-wheel pivotally secured between the outer ends of said arms, and a spring E adapted to force the lower ends of said arms downward and away from the pole and to press the upper ends of said arms upward in the direction of the wire, substantially as described.

2. In a trolley-wire guide, the combination of curved, parallel arms pivotally secured to the outer end of the trolley-pole, the curve of said arms opening downward, a spring adapted to press the lower ends of said arms downward and away from the pole and force the upper ends of said arms upward in the direction of the wire, forked extensions secured to the outer ends of said arms, the lower ends of said extensions partly encircling the trolley-wheel, with a trolley-wheel pivotally secured between the outer ends of said arms, substantially as described.

786,833. **MACHINE FOR TRIMMING AND SEWING FABRICS.** FORTUNÉ NEVEUX, San Ambrogio, near Turin, Italy, assignor to Aaron Vail Rowley, Frankfort-on-the-Main, Germany. Filed Mar. 30, 1901. Serial No. 53,612.

Claim.—1. The combination of a stationary rack and stationary guides parallel therewith, a frame arranged to travel along said guides, a stationary comb or work-holder, pinions engaging said rack and mounted to travel with the frame, a drive-shaft journaled on the frame, connections from said shaft to the pinions to drive them in opposite directions, means for throwing one pinion or the other into operative connection with the drive-shaft, and fabric-working mechanism carried by the frame.



2. The combination of a stationary rack and stationary guides parallel therewith, a frame arranged to travel along said guides, a stationary comb or work-holder, pinions engaging said rack and mounted to travel with the frame, a drive-shaft journaled on the frame, a worm on said shaft worm-wheels arranged to engage said worm on opposite sides and each connected with one of the pinions, means for throwing one pinion or the other into operative connection with the drive-shaft, and fabric-working mechanism carried by the frame.

3. The combination of a frame and a comb or work-holder, one movable relatively to the other, means for effecting a relative movement of said two parts, a knife stationary with reference to the frame, and a rotary knife carried by the frame adjacent to the stationary knife.

4. The combination of a frame and a comb or work-holder, one movable relatively to the other, means for effecting a relative movement of said two parts, bearings carried by said frame, a brush mounted to turn in said bearings, and mechanism for imparting an oscillating motion to the brush.

5. The combination of a frame and a comb or work-holder, one movable relatively to the other, means for effecting a relative movement of said two parts, bearings carried by said frame, a brush having a sleeve-core mounted to turn in said bearings, a bar or shaft mounted to slide within the sleeve-core, said core and bar being provided, one with an oblique guide, and the other with a pin engaging such guide, and means for imparting a reciprocating motion to the said bar, to oscillate the brush.

6. The combination of a movable frame, a stationary comb having teeth forming a work-holder, means for feeding the frame, fabric-working mechanism carried by the frame on one side of the comb-teeth, and a presser-bar carried by the frame on the other side of the comb-teeth.

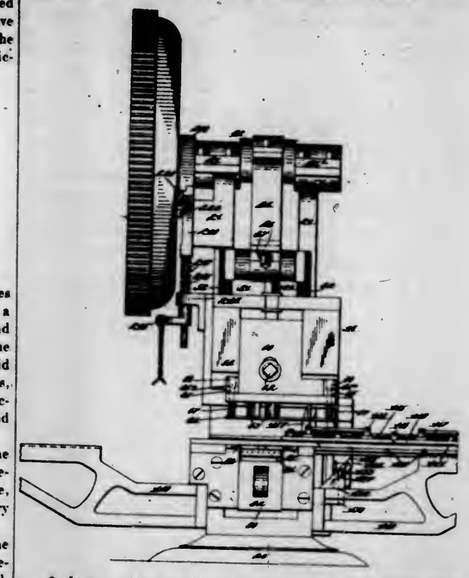
7. The combination of a movable frame, a stationary frame having teeth forming a work-holder, means for feeding the frame, fabric-working mechanism carried by the frame on one side of the comb-teeth, and a presser-bar carried by the frame on the other side of the comb-teeth, said presser-bar being adjustable toward and from the comb, and comprising a plate the ends of which are bent away from the comb, and rollers arranged to bear on the fabric.

8. The combination of a stationary comb or work-holder, guides parallel therewith, a frame arranged to travel along said guides, fabric-working mechanism on the frame, a drive-shaft journaled in said frame and connected with said mechanism, a pulley on said shaft, a driving cord or belt having a rectilinear run which extends in engagement with the pulley and parallel with the direction in which the frame travels, mechanism for feeding the frame, and a pressure-roller engaging said cord or belt at the same portion which is in engagement with the pulley.

786,834. **PUNCHING-MACHINE.** FREDERICK J. NUTTING, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 19, 1903. Serial No. 162,195.

Claim.—1. In a punching-machine, the combination with a punch and a die, of a work-support, operating means for actuating said support to press work against the under side of said punch, and resilient means intermediate said work-support-operating means and the work.

2. In a punching-machine, the combination with a punch and a die, of a work-support below said die, and a lever connected with said support and positioned to be struck by said punch at an intermediate portion of its stroke for reciprocating said support.



3. In a punching-machine, the combination with a punch and a die, of a work-support below said die, and a resilient means connected with said punch for operating upon said support at an intermediate portion of the stroke of said punch to impart a yielding pressure of said support toward said punch.

4. In a punching-machine, the combination with a punch and a die, of a carriage for carrying material between the punch and the die, means for positively feeding said carriage at one period of the stroke of said punch, and means for locking said carriage from movement in either direction during the entire remaining portion of the stroke of said punch.

5. In a punching-machine, the combination with a punch and a die, of a carriage for carrying material between the punch and the die, means operated by the punch for feeding said carriage during one portion of the stroke of the punch, and independent means for locking said carriage during the entire remaining portion of the stroke of the punch.

6. In a punching-machine, the combination with a punch and a die, of a carriage for carrying material between the punch and the die, means operated by the punch for feeding said carriage during one portion of the stroke of the punch, independent means for locking said carriage during the entire remaining portion of the stroke of the punch, and means operated by the punch for unlocking said carriage just prior to its feeding movement imparted to it by the punch.

7. In a punching-machine, the combination with a stationary die and a movable punch, of a reciprocatory work-support below said die, an automatically-locking carriage to feed material across the upper surface of said die, and means connected with said movable punch for successively unlocking said carriage, feeding the same and reciprocating said work-support.

8. In a punching-machine, the combination with a stationary die and a movable punch, of a work-support below said die, an automatically-locking carriage for feeding material across the upper surface of said die, a gear-wheel operated by said movable punch, a pawl operated by said gear-wheel to unlock said material-carriage, a rack-bar operated by said gear-wheel, and a carriage-feed operated by the rack-bar.

9. In a punching-machine, the combination with a stationary die and a movable punch, of a work-support below said die, a lever connected with said work-support, and a spring-pressed plunger connected with said punch and engaging said lever to reciprocate said work-support at an intermediate portion of the stroke of said punch.

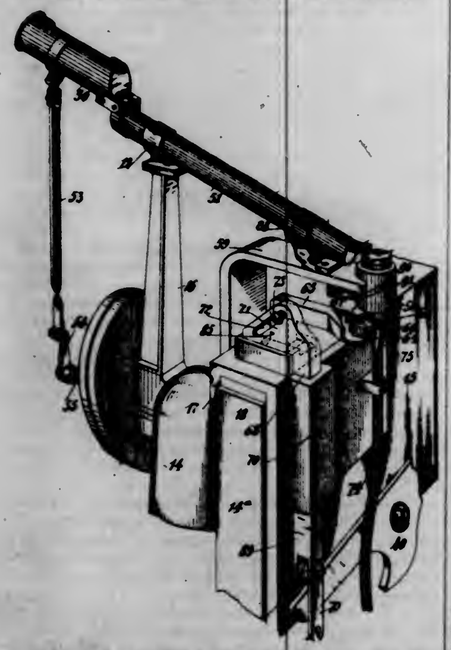
10. In a punching-machine, the combination with a stationary

die and a movable punch, of a carriage for carrying material between the punch and the die, a lock for said carriage, a pawl for operating upon said lock to release said carriage, gearing having provisions for operating said pawl, a rack-bar connected with said gearing and having devices for feeding said carriage, and an arm connected with said punch and having adjustable provisions connecting the same with said gearing to control the extent of feed of said carriage.

11. In a punching-machine, the combination with a stationary die and a movable punch, of a carriage for carrying material between the punch and the die, a lock for said carriage, a pawl for operating upon said lock to release said carriage, gearing having provisions for operating said pawl, a rack-bar connected with said gearing and having devices for feeding said carriage, an arm connected with said punch and having adjustable provisions connecting the same with said gearing to control the extent of feed of said carriage, a work-support below said die, a lever connected with said support, and a spring-pressed plunger connected with said arm for actuating said lever to reciprocate said work-support.

12. In a punching-machine, the combination with a stationary die and a movable punch, of a carriage for feeding material between said punch and said die, a locking-plunger for engaging said carriage to lock the same intermittently, a pawl for engaging said plunger to unlock the carriage, gearing having cam provisions for operating said pawl to unlock the carriage, an arm connected with said punch and having a crank connection with said gearing, a rack-bar connected with said gearing and having reciprocatory motion attendant upon the reciprocation of the punch, and a pawl carried by said rack-bar for engaging said carriage and feeding the same intermittently.

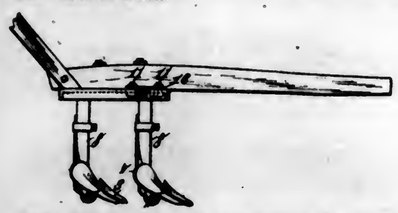
786,835. **NAIL-FEEDING MECHANISM.** JULIAN L. PERKINS, West Springfield, Mass. Filed Feb. 20, 1904. Serial No. 194,611.



Claim.—1. In a nail-feeding mechanism, the combination with a support, a bracket carried thereby, a nail-feeding strip supported by said bracket, an oscillating nail-selecting block beneath said strip, a carrier upon said support provided with a reciprocating cam-bar for oscillating said block, a pin upon said bar, a reciprocating member associated with said carrier and having a slot engaging said pin, and means for actuating said reciprocating member.

2. In a nail-feeding mechanism, the combination with a support, of a bracket connected thereto, a nail-feeding strip supported by said bracket, an oscillating nail-selecting block beneath said strip, a reciprocating carrier upon said support, said carrier having a transverse dovetailed slot, a cam-bar on the carrier for oscillating said block, said cam-bar having an enlarged terminal portion slidable in said transverse slot, and means for reciprocating said cam-bar in the same.

786,836. **PLOW.** ALVY G. PERRY, Coldwater, Miss. Filed May 24, 1904. Serial No. 209,443.



Claim.—In a plow, a standard having parallel flanges, a block fitted in the upper side of the standard between said flanges and provided with oppositely-disposed flanges adapted for connection with a beam, a share and a moldboard abutting against each other and connected with said standard, a vertically-disposed bracket having longitudinal slots located one above the other, adjusting and holding devices for the standard extending through said slots and connected with the inner face of one of the flanges of the standard, and a roller mounted upon the lower end of the bracket and situated under the moldboard.

786,837. **SHOW-CASE.** FREDERICK POLLARD, Cleveland, Ohio. Filed Nov. 25, 1904. Serial No. 234,207.



Claim.—1. The combination with a show-case of a locking device for fastening the door of the show-case, comprising a bracket secured to a stationary part of said show-case and provided with a lug, a bar arranged to extend across the door of said show-case and provided at one end with a socket for receiving the lug on the bracket, and means for locking the other end of said bar to a stationary part of said show-case.

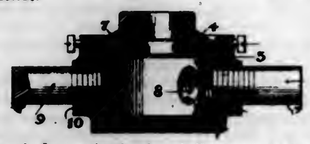
2. The combination with a show-case of a locking device for fastening the door of said show-case, comprising a bracket secured to the top of said show-case and having a depending lug formed thereon and arranged to extend down at the side of the case at which the door is mounted, a bar arranged to extend across said door and provided at its upper end with a socket for receiving the lug on said bracket, and means for locking said bar at its lower end to the base of the show-case.

3. The combination with a show-case of a bracket secured to a stationary part of said show-case, at the side of the case at which the door is mounted and provided with a lug, a staple secured to said show-case, a bar arranged to extend across the door of said show-case and having a socket at one end for receiving the lug on the bracket and a slot in its opposite end for receiving the staple and openings at a right angle to the said slot and a shackle arranged to pass through said openings and said staple for securing the lower end of the locking-bar to the staple, substantially as described.

4. In a locking device for a show-case, the combination with a show-case of a bar arranged to extend across the door of said show-case, means for securing said bar to said show-case and means arranged between said bar and the door of the show-case for exerting a yielding pressure on said door.

5. In a locking device for a show-case, the combination with a show-case of a bar arranged to extend across the door of said show-case, means for detachably securing said bar in position and pressure-exerting devices arranged on said bar adjacent to the door of the show-case, each of said devices comprising a casing, a plunger mounted in said casing and a spring arranged to cause said plunger to press against the door of the show-case, substantially as described and for the purpose set forth.

786,838. **CASING-HEAD.** CLARENCE C. POOLE, Findlay, Ohio, assignor to William L. David, Findlay, Ohio. Filed June 22, 1904. Serial No. 213,736.



Claim.—1. In a casing-head, a shell, oppositely-disposed arms projecting therefrom, and depending lugs on the outer ends of the arms, substantially as described.

2. In a casing-head, a shell, oppositely-disposed arms circular in cross-section projecting therefrom, and depending lugs on the extreme outer ends of the arms, said lugs having curved outer surfaces and straight inner surfaces, substantially as described.

3. In a casing-head, a shell, arms projecting therefrom, and depending lugs on the arms.

4. In a casing-head, a shell, oppositely-disposed arms projecting therefrom and threaded thereto, and depending lugs on the outer ends of the arms, substantially as described.

5. In a casing, a shell, a cover therefor, means for removably securing the cover, arms projecting from the shell, and lugs on the arms.

6. In a casing, a shell, a seat formed therein, a cover adapted to rest in the seat, means for securing the cover, arms projecting from the shell, and lugs on the arms.

7. In a casing, a shell, a cover therefor, means carried by the shell for securing the cover, arms projecting from the shell, and lugs on the arms.

8. In a casing, a shell, a cover therefor, set-screws carried by the shell for securing the cover, arms projecting from the shell, and lugs on the arms.

9. In a casing a shell, arms projecting therefrom, and lugs on the arms, said lugs having curved edges.

10. In a casing, a shell, arms projecting therefrom, and lugs on the arms, said lugs having curved outer edges.

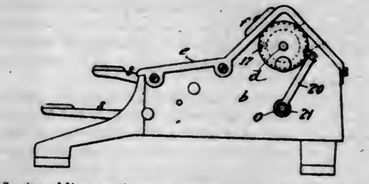
11. In a casing a shell, arms projecting therefrom, and lugs on the arms, each of said lugs having one edge curved and its opposite edge straight.

12. In a casing, a shell, arms projecting therefrom, lugs on the arms, said lugs having curved outer edges and straight inner edges.

786,839. **ADDING-MACHINE.** ARTHUR J. POSTANS, South Kensington, London, England. Filed June 4, 1903. Serial No. 160,048.

Claim.—1. An adding-machine comprising a number of key-levers each of different effective length, a bar lifted by each lever when the latter is depressed, a hook on the end of each lever to engage the bar and thus determine the lever's stroke, a units-drum and mechanism for causing the movement of the bar to determine the rotation of the drum through an angle corresponding with the extent of the said movement; substantially as described.

2. An adding-machine comprising a number of key-levers each of different effective length, a stepped bar with a separate step of which each lever engages a hook at the end of each lever to engage the bar and thus determine the lever's stroke, a units-drum and mechanism for causing the movement of the bar to determine the rotation of the drum through an angle corresponding with the extent of the said movement; substantially as described.

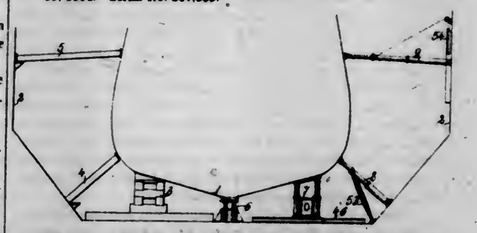


3. An adding-machine comprising a number of key-levers each of different effective length, a stepped bar with a separate step of which each lever engages, a hook at the end of each lever to engage the bar and thus determine the lever's stroke, a units-drum, a rocking lever connected with the said bar, a toothed segment carried by the said rocking lever, a pinion on the shaft of the drum gearing with the said segment, a lever-arm fixed to the said pinion, a pawl carried by the said lever-arm and adapted to engage with a ratchet fixed to the said units-drum, a projection on the said lever-arm, a spring-detent on which the said stop presses to force it into engagement with a toothed wheel on the units-drum and a spring adapted to return the said rocking lever to its normal position when the key-lever has been released; substantially as described.

4. An adding-machine comprising a number of key-levers each of different effective length, a stepped bar with a separate step of which each lever engages, a hook at the end of each lever to engage the bar, a series of drums each mounted free on a spring-urged shaft, mechanism for causing the movement of the bar to determine the rotation of the units-drum of the said series, collars on the said shaft, a hand-wheel on one end of the said shaft, a device normally locking the said wheel to the frame of the machine, pins at suitable distances apart projecting through slots in the said collars and a pin projecting from each drum in such a manner that when the said shaft is pressed against the spring-pressure to free the said hand-wheel and the latter is rotated, the said pins on the shaft engage with those on the drums; substantially as described.

5. An adding-machine comprising a number of key-levers each of different effective length, a stepped bar with a separate step of which each lever engages, a hook at the end of each lever to engage the bar, a series of drums each mounted free on a spring-urged shaft, mechanism for causing the movement of the bar to determine the rotation of the units-drum of the said series, collars on the said shaft, a hand-wheel on one end of the said shaft, a device normally locking the said wheel to the frame of the machine, pins at suitable distances apart projecting through slots in the said collars, a pin projecting from each drum in such a manner that when the said shaft is pressed against the spring-pressure to free the said hand-wheel and the latter is rotated, the said pins on the shaft engage with those on the drums, and a spring-lever engaging in the said hand-wheel and adapted to unlock the units-drum; substantially as described.

786,840. **HYDRAULIC SUPPORT FOR SHIPS.** GUSTAV PROCHÁZKA and KAREL PROCHÁZKA, Velim, Austria-Hungary. Filed May 11, 1904. Serial No. 207,505.



Claim.—1. In a hydraulic supporting device for ships, the combination of a cylinder, a piston in said cylinder, a block carried by the piston and adapted to directly receive the impact of the ship, means for conducting a liquid into said cylinder, and means, operative upon an approximation of pressures of the ship and the liquid

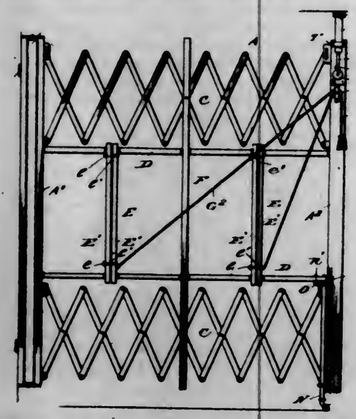
in the cylinder on the piston, for cutting off the supply of liquid to the cylinder, substantially as described.

2. In a hydraulic supporting apparatus for ships, the combination of a series of cylinders, a series of pistons in said cylinders, blocks carried by the pistons and adapted to directly receive the impact of the ship, means for conducting a liquid into said cylinders, means, operative upon an approximation of pressures of the ship and the liquid in the cylinders on the pistons, for cutting off the supply of liquid to the cylinders, and means for effecting the release of the liquid in said cylinders simultaneously from all of them, substantially as described.

3. In a hydraulic supporting device for ships, the combination of a cylinder, a piston in said cylinder, a block carried by the piston and adapted to directly receive the impact of the ship, a liquid-supply pipe, a liquid-discharge pipe, a three-way valve having one way connected with the supply-pipe, another way with the discharge-pipe, and the third way with the cylinder, and means, operative from the ship upon the approach of the block into contact therewith, for shifting the movable part of said valve to cut off access between said valve and the cylinder, substantially as described.

4. In a hydraulic supporting device for ships, the combination of a cylinder, a piston in said cylinder, a block carried by the piston and adapted to directly receive the impact of the ship, a liquid-supply pipe, a liquid-discharge pipe, a three-way valve having one way connected with the supply-pipe, another way with the discharge-pipe, and the third way with the cylinder, means, operative from the ship upon the approach of the block into contact therewith, for shifting the movable part of said valve to cut off access between said valve and the cylinder, and means for thereupon moving said movable member of the valve to establish connection between the interior of said cylinder and the discharge-pipe, substantially as described.

786,841. **DOOR, SCREEN, OR CURTAIN.** GEORGE J. RECORD, Conneaut, Ohio. Filed Nov. 5, 1904. Serial No. 231,585.



Claim.—1. In a door, screen or curtain, extensible at will, the combination of lock-bars for holding it thus extended with a bar to which the said lock-bars are connected, the said bar being provided with means for adjusting its width to regulate that of the extended door, and arranged approximately at right angles to said lock-bars when the latter are in locking position, substantially as set forth.

2. In a door, screen or curtain extensible at will, the combination of lock-bars for holding it thus extended with a bar to which the said lock-bars are connected, the said bar being arranged approximately at right angles to said lock-bars when the latter are in locking position, provided with means for varying the relative width of its upper and lower parts and thus fitting it to a doorway of unequal width at different points substantially as set forth.

3. In a door, screen or curtain extensible at will, the combination of lock-bars for holding it thus extended with a bar approximately at right angles to said lock-bars when the latter are in locking position and to which the said lock-bars are hinged and which serve for operating them, the said bar consisting of two parallel strips connected to each other by adjusting-screws and having blocks or pieces removably secured between them, in order that the width of the door may be varied equally or unequally at two or more points substantially as set forth.

4. In a door, screen or curtain, the combination of a flexible sheet, a spring-roll on which it winds and lazy-tong bars and uprights on which it is mounted, with lock-bars for holding the same extended, an approximately vertical and vertically-moving bar to which the said lock-bars are hinged for operating the same and adjusting-screws and interposed blocks or pieces for regulating the interval between the separable strips composing said bar substantially as and for the purpose set forth.

5. In a door, screen or curtain, the combination of an extensible frame with lock-bars for holding the same extended, a movable bar to which the said lock-bars are attached, being approximately at right angles thereto when in locking position for operating the same, a flexible body under spring tension attached to and inclosing the said frame, a pulley on said frame and an operating-cord which passes over said pulley for convenience in raising the said movable bar and freeing the said lock-bars at will substantially as set forth.

6. In a door, screen or curtain, the combination of a flexible body under spring tension, an expansible frame including a strip or upright which divides it into two portions, lock-bars arranged in pairs in each portion to hold the door or door-section extended, two approximately vertical and vertically-movable bars arranged in the said sections respectively, each having two pairs of lock-bars hinged thereto and a cord connected to each of these movable bars and passing over a pulley or support in the interval between them, the said cord being also guided over a pulley on a part of the frame, and all the said pairs of lock-bars being unlocked simultaneously by a pull on the said rope substantially as set forth.

7. In a door, screen or curtain, the combination of a body of flexible material and an extensible frame for said body with hinged lock-bars arranged in pairs for holding the same extended, means for opening and closing the said bars and a device suspended from one of these lock-bars and a caster or roller on the lower part of said device arranged for contact with the floor when the lock-bars are in locking position, but to be lifted above the same when the lock-bars are moved out of said position to allow the contraction of the door substantially as set forth.

8. In a door, screen or curtain, the combination of a body of flexible material and an extensible frame therefor with means for holding the same extended at will including a hinged lock-bar, a depending bar hinged at its upper end to said lock-bar and adapted to be raised and lowered by the lifting and lowering thereof and a caster carried by said depending bar and arranged to run on the sill or floor substantially as set forth.

9. In a door, screen or curtain the combination of an extensible frame with means for holding it extended at will, said means including a part arranged to be lifted and lowered, a bar suspended from said part and a caster on the lower end of said bar arranged to be moved into or out of contact with the floor according to the position of said part substantially as set forth.

10. The combination of an extensible door-section with means, including a hinged bar, for locking it in extended position, a bar suspended from said moving bar, a caster on the lower end of the suspended bar and a block interposed between the hinged end of the first-mentioned bar and the upper end of the suspended bar, which is hinged to said block for the purpose set forth.

11. The combination of an extensible door-section with means for locking it in extended position, including a hinged bar, a block adjustably secured to the said bar at its hinged end, a bar hinged to said block and a caster carried by the latter bar for contact with the floor, the parts being arranged to bring the hinges of said bars and the said caster in alinement when the door is locked in extended position substantially as set forth.

12. In combination with an extensible door-section, means for locking it in extended position, including a movable bar, another bar suspended from the latter, a caster on said suspended bar and a device carried by said door bearing upward against the lintel of the doorway the said caster and device combining to lock the said section by upward and downward pressure on the proximate permanent surfaces substantially as set forth.

13. In combination with an extensible door-section, means for locking it in extended position, including a movable bar, another bar suspended from the latter, a caster carried by the said suspended bar, and a device carried by the upper part of said door and provided with a rubber or other compressible head arranged to bear against the lintel, the said caster and device combining, by upward and downward pressure against proximate surfaces, to lock the said door-section without indenting the same or requiring any change therein substantially as set forth.

14. In combination with an extensible door-section, lock-bars for holding it extended, a caster arranged to be forced against the floor by the movement of said bars into locking position, means for suspending the said caster from one of the said lock-bars, a device having a rubber or other compressible part arranged for contact with the lintel and means for forcing the said compressible part upward against said lintel and there holding it to lock the door by pressure in coöperation with the said caster substantially as set forth.

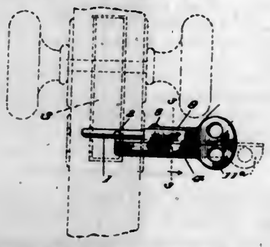
15. In combination with an extensible door-section, lock-bars for holding it in extended position, a bar carrying a caster suspended from said lock-bars and moved by the latter, as they take their locking position, to force the said caster against the floor, a bolt carried by the upper part of the said door and provided with a rubber head for bearing against the lintel and means for pressing the said head into contact with said lintel and locking it there substantially as set forth

16. In combination with an extensible door-section, lock-bars arranged in pairs for holding in extended position, a vertically-movable bar to which said lock-bars are hinged for operating the same, a suspended bar carried and operated by one of the said lock-bars, a caster on the lower end of said suspended bar, for contact with the floor, a bolt mounted on the upper part of the door and provided with a compressible head for contact with the lintel, and means for forcing the said bolt into such contact and locking it there substantially as set forth.

17. In combination with a door, a bolt provided with a compressible head, means for forcing the said head into contact with the lintel and locking it there, a caster arranged for contact with the floor and means for forcing it down on the floor, to coöperate with the said bolt in locking the said door by pressure and friction substantially as set forth.

18. In an extensible door, screen or curtain, a flexible spring-retracted body in combination with uprights and lazy-tong bars constituting its frame, lock-bars arranged to hold the same in extended position against the said spring retraction, vertically-movable bars to which the said lock-bars are hinged for opening and closing the same, a depending bar hinged to one of said lock-bars, a caster carried by the said depending bar for running on the floor, a cord connected to the said vertically-movable bars for freeing the said lock-bars and lifting the said caster by a pull from outside the covering of the said door, a soft-headed bolt carried by the said door and means for forcing the same up against the lintel and locking it there substantially as set forth.

786,842. **KEYHOLE-GUARD.** ROBT. I. ROBERSON, South Omaha, Nebr. Filed July 9, 1904. Serial No. 215,858.



Claim.—1. In a keyhole-guard, the combination of a shank or stem adapted to be introduced into the key-opening, a nib projected at an angle from the shank, a lock member slidably mounted upon the shank, said shank being provided with a longitudinal slot, a pin projected from the lock member and operating in the slot of the shank, said pin limiting the movement of the lock member upon the shank, and means for preventing movement of the lock member.

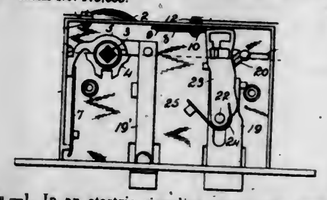
2. In a keyhole-guard, the combination of a shank provided longitudinally thereof with a slot, an integral nib projected angularly from the shank, a lock member slidable longitudinally of the shank, a pin projected from the lock member and passing through the slot of the shank, and a latch pivoted to the pin aforesaid, and adapted to engage the shank to prevent movement of the lock member.

3. In a keyhole-guard, the combination of a shank or stem adapted to be introduced into the key-opening, an engaging member projected from the shank at an angle thereto, a slidable lock member disposed upon the shank, and a latch carried by the lock member and engaging the shank, and preventing movement of said lock member.

4. In a keyhole-guard, the combination of a shank or stem adapted to be introduced into the key-opening, an integral nib projected from the shank, a lock member disposed upon the shank, and a pivoted latch engaging the shank and preventing movement of said lock member.

5. In a keyhole-guard, the combination of a shank or stem adapted to be introduced into a key-opening, a nib projected from said shank or stem, a lock member slidably mounted upon the shank, and a latch pivoted to the lock member and coöperating with the shank to prevent displacement of the guard from the key-opening.

786,843. **ELECTRIC SIGNALING SYSTEM.** WILLIAM F. ROBINSON and COLUMBUS F. BROADHURST, Kansas City, Mo. Filed Oct. 3, 1903. Serial No. 175,606.



Claim.—1. In an electric signaling system, the combination with an electric circuit having a plurality of branches, of means for generating a current therein, a signaling device controlled by the current in said circuit, and a plurality of door-locks located one in each of said branches and provided each with a casing forming a part of the branch circuit, and having each a contact connected electrically with said branch circuit and normally electrically insulated from the casing, a reciprocable bolt, and means by which when the bolt is reciprocated in the proper direction, the branch circuit will be completed through the casing and contact of said lock.

2. In an electric signaling system, the combination with an electric circuit having a plurality of branches, of means for generating a current therein, a signaling device controlled by the current in said circuit, and a plurality of door-locks located one in each of said branches provided each with a casing forming a part of said branch circuit, and having each a contact connected with said branch circuit and normally insulated from said casing, a rotatable door-knob mounted in the casing, and means by which when the knob is turned in the proper direction, the branch circuit will be completed through the casing and contact of said lock.

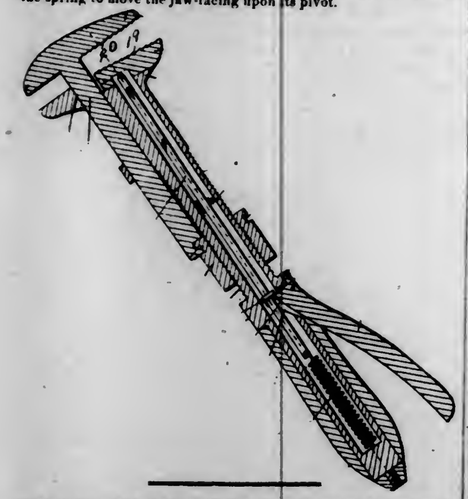
786,844. **WRENCH.** WILLIAM J. SANDERS, Murfreesboro, Tenn. Filed May 6, 1904. Serial No. 206,739.

Claim.—1. A wrench comprising a stock having oppositely-extending lateral jaws at one end, a head having laterally-extending jaws arranged for coöperation with the first-named jaws and for movement toward and away fom said jaws, one of the jaws of the head being serrated, a serrated jaw-face pivoted to one of the first-mentioned jaws for movement toward and away from the serrated jaw of the head, means for holding the jaw-face yieldably at the limit of its movement away from its coöperating second-named jaw, and means for moving the jaw-face against the action of the last-named means.

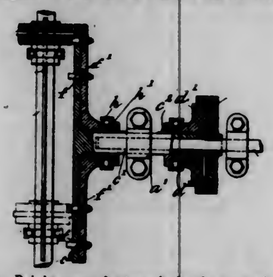
2. A wrench comprising a stock having a laterally-extending jaw at one end and a longitudinal passage therein communicating with the face of the jaw, a stem slidably connected with the stock and having a laterally-extending jaw at one end arranged for coöperation with the first-named jaw, means for moving the stem to vary the distance between the jaws, a jaw-face pivoted to the first-named jaw for movement toward and away from the second-named jaw, a rod pivoted to the jaw-face and lying within the longitudinal passage of the stock, said rod having a slot therein, a hand-lever pivoted to the stock and having a finger engaged in the slot, said lever being movable upon its pivot to move the rod within the passage to move the jaw-face toward and away from the second-named jaw, and means for holding the jaw-face yieldably at the limit of its movement away from said jaw.

3. In a device of the class described, the combination with a stock having a laterally-extending jaw at one end and having a lon-

gitudinal passage therein opening through the upper face of the jaw, of a stem slidably connected with the stock for coöperation with the first-named jaw, a jaw-face pivoted to the stock and arranged to lie upon the first-named jaw, a rod pivoted to the jaw-facing and slidably disposed in the passage of the stock, a spring connected to the rod and to the bottom of the passage to hold the rod yieldably at the downwardly limit of its movement and with the jaw-facing against the first-named jaw, and a hand-lever pivoted to the stock and engaged with the rod for movement of the latter against the action of the spring to move the jaw-facing upon its pivot.



786,845. VARIABLE-SPEED GEAR. FREDERICK W. SCHROEDER, London, England. Filed Oct. 13, 1903. Serial No. 176,869.



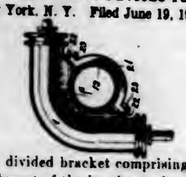
Claim.—1. Driving-gear for two shafts the axes of which intersect orthogonally, comprising a pinion having a friction-band and a ring of teeth and arranged to slide along one of the shafts, a fixed disk having its face in engagement with the friction-band of the pinion, a clutch for connecting the fixed disk to the other shaft, two or more rings of holes in the fixed disk concentric with its axis, the pitch of the holes being the same as that of the pinion-teeth, a second disk coaxial with the first and having rings of teeth which pass through the holes in the first disk and are adapted to engage with the teeth of the pinion, means for withdrawing the teeth on the disk out of gear with the pinion and means for sliding the pinion along its shaft, substantially as described.

2. In speed-gearing, a disk having annular rows of holes, rings of teeth corresponding to the said rows of holes, mechanism for moving said teeth endwise through the holes to the engaging or retracted position, a shaft, means for clutching the disk to the shaft, another shaft crossing the line of the disk-shaft and having a friction-disk with sets of teeth on each side thereof and mechanism for moving the friction-disk endwise of its shaft, one set of teeth being arranged to engage the disk-teeth on one side of the center and the other set arranged to engage the teeth when the friction-disk is on the other side of the center; substantially as described.

3. In speed-gear a disk, a pinion adapted to engage frictionally with the said disk, gear-teeth on the pinion, a second disk, rows of teeth on the second disk adapted to gear with the pinion-teeth, and means for advancing and retracting the second disk, substantially as described.

4. In speed-gearing a friction-disk having an annular series of holes, a second disk having teeth within said holes, mechanism for shifting the second disk to project or retract the teeth, and a friction-wheel arranged to engage the first disk and provided with teeth arranged to engage the movable teeth when in normal position; substantially as described.

786,846. MEANS FOR ATTACHING RODS AND THEIR SUPPORTS OR OTHER SIMILAR DEVICES TOGETHER. FRANK M. SEAMANS, New York, N. Y. Filed June 19, 1901. Serial No. 65,119.



Claim.—1. A divided bracket comprising two spanning members for the attachment of the bracket to its support, said bracket provided with two shoulders and an intermediate locking element, in combination with a detachable member provided with two shoulders and an intermediate locking element for engaging with the two shoulders and locking element of the bracket.

2. A divided bracket comprising two spanning members for the attachment of the bracket to its support, said bracket provided with two shoulders and an intermediate locking element, in combination with a detachable member provided with two shoulders and an intermediate locking element for engaging with the two shoulders and locking element of the bracket, the locking element of one member being a tenon and that of the other being a mortise.

3. A divided bracket comprising two spanning members for the attachment of the bracket to its support, said bracket provided with two shoulders and an intermediate locking element, in combination with a detachable member provided with two shoulders and an intermediate locking element for engaging with the two shoulders and locking element of the bracket, and the shoulders of both members being beveled.

4. A divided bracket comprising two spanning members for the attachment of the bracket to its support, said bracket provided with two shoulders and an intermediate locking element, in combination with a detachable member provided with two shoulders and an intermediate locking element for engaging with the two shoulders and locking element of the bracket, said bracket and detachable member being provided with external ribs and depressions, and the adjoining edges of said bracket and member being in said depressions, when said member is united to the bracket.

5. A divided bracket for supporting a detachable member, and constructed for removable attachment to a post, said bracket having two arms, one of which is provided at its end with two shoulders having a locking element between them, and the other arm provided with a socket.

6. A corner-bracket for supporting a detachable member, and constructed for removable attachment to a post, said bracket having two arms at right angles to each other, one of which is provided at its end with two shoulders having a locking element between them, and the other arm provided with a socket.

786,847. STEAM-BOILER FIRE-TUBE. PETER H. SEERY, Newark, N. J. Filed Apr. 11, 1904. Serial No. 202,655.

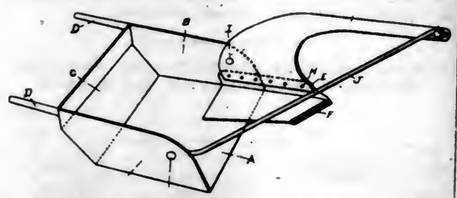


Claim.—As a new article of manufacture, a steam-boiler fire-tube having a body portion and an end portion integrally formed of malleable metal, the wall of said end portion being of greater thickness than the wall of said body portion, and the external diameter of said end portion being less than the external diameter of said body portion.

786,848. GRADING IMPLEMENT. ROSCOE S. SHELDON, West Allis, Wis. Filed July 2, 1904. Serial No. 215,097.

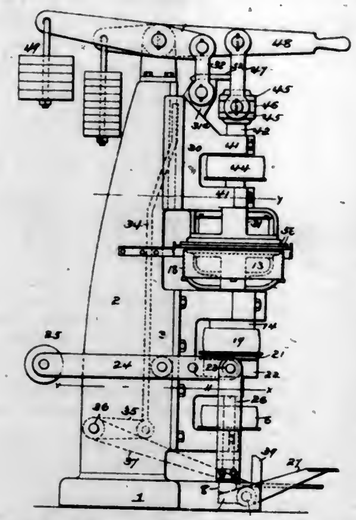
Claim.—1. The combination of a plow and an earth-scoop and means for pivotally connecting such plow and scoop together.

2. The combination of a plow, comprising a draft-beam; vertical and horizontal cutting-blades; a scoop; and means for pivotally connecting the plow and scoop together.



3. The combination of a scoop; a draft-beam, cutting-blades formed at right angles to each other and secured to said beam; a pivotal bolt connecting the rear end of said beam to one side of the scoop; a diagonal brace-bar rigidly connected at one end to the front end of said beam and pivotally connected at its rear end to the other side of said scoop, all substantially as set forth.

786,849. DRUM OR BARREL HEAD CUTTER. JOHN L. SHEPPARD and THOMAS C. SHEPPARD, Charleston, S. C. Filed Dec. 18, 1903. Serial No. 185,717.



Claim.—1. In a drum or barrel head cutter, the combination of clamping devices and three rotary cutters of different diameters all having the same vertical axis, one cutter adapted to cut out the head of proper size and the others or inner cutters adapted to make circular kerfs on opposite sides of the head.

2. In a drum or barrel head cutter, the combination of clamping devices, three cutters of different sizes, all having the same vertical axis, the outer cutter adapted to cut the head of proper size, and the inner and smaller cutters adapted to penetrate partly through the head from its opposite sides, and means for simultaneously moving two of said cutters toward and away from the head.

3. In a drum or barrel head cutter, the combination with means for clamping two veneers together so that no portion is movable during cutting or until clamp is removed, of a series of concentric rotary cutters, means for causing one of said cutters to pass through both sheets of veneer to form the head of proper size, means for limiting the feed of another of said rotary cutters to cut a circular disk from the center of one veneer, means for operating another of said rotary cutters to cut a disk of larger size from the center of the other veneer, and means for rotating all of said cutters.

4. In a machine of the class described, the combination with means for clamping two veneers together, of three concentric rotary cutters, means for operating them simultaneously, means for passing the largest one of said cutters through both sheets of veneer to form a head of proper size, and means for limiting the feeding movements of the other rotary cutters to the thickness of one veneer.

5. In a drum or barrel head cutter, the combination with means for clamping two veneers together, of three concentric rotary cutters, means for operating them simultaneously, means for feeding one of said cutters through both veneers to form a head of proper size, means for limiting the feed of the other cutters to the thickness of one veneer and mechanism under control of the operator to operate the clamping means and move the cutters into and out of contact with the veneers.

6. In a drum or barrel head cutter, the combination with a frame, of a fixed lower clamping member, an upper movable clamping member, means for forcing the upper member downward to clamp veneers, three concentric cutters, means for operating said cutters simultaneously, and means for limiting the feed of two of said cutters to a predetermined amount.

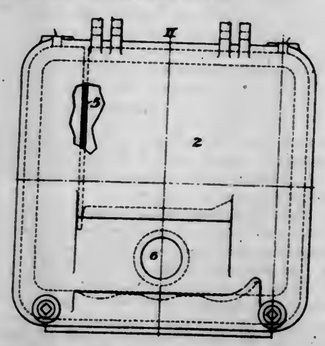
7. In a drum or barrel head cutter, the combination with a frame, of a stationary bracket thereon, a clamping-ring carried by said bracket, a vertically-movable rotary cutter carried by said bracket, a foot-lever to move said cutter vertically, a sliding bracket mounted on the frame above the fixed bracket, a clamping-ring carried by the sliding bracket, means for forcing the sliding bracket down to clamp two veneers between the clamping-rings, a vertically-movable rotary cutter carried by the sliding bracket and having a smaller diameter than the first-mentioned cutter and concentric therewith, said clamping-rings lying between the smaller and larger cutters, means for imparting vertical movement to the cutter carried by the sliding bracket, and separate driving-pulleys for the cutters.

786,850. STEEL FENCE-POST. HENRY F. J. SIEVERKROPP, Hood River, Oreg. Filed May 3, 1901. Serial No. 58,612.



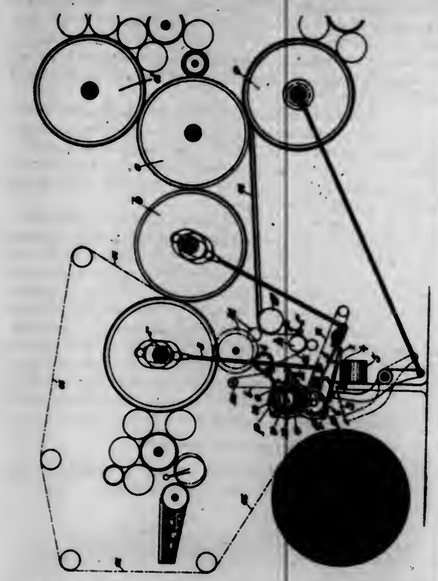
Claim.—A fence-post comprising a pair of wings arranged at an angle to and integral with each other and provided with wire-openings horizontally alined in pairs; a stop for each pair of alined openings comprising a pair of depending projections, one in front of each opening at an angle to and integral with the other and both merging to a common point; and a flexible finger for each pair of openings comprising a pair of upwardly-extending tongues spaced apart at their ends and each one being at an angle to and integral with the other and adapted for engagement behind one of the depending projections.

786,851. FURNACE-DOOR. EDWIN E. SLICK, Pittsburg, Pa. Filed July 29, 1904. Serial No. 218,633.



Claim.—A sliding furnace-door consisting of a hollow water-cooled casting having an inner surface concave both horizontally and vertically, and an outer surface convex both horizontally and vertically; substantially as described.

786,852. MACHINE FOR THE PRINTING OF CALENDARS, CASH-BLOCKS, TICKET-BLOCKS, OR THE LIKE. HENRY STAHL, Pirano, Germany, assignor to The Firm of Ferd. Adolph Buchdruckerei, Berlin, Germany. Filed July 11, 1904. Serial No. 216,144.

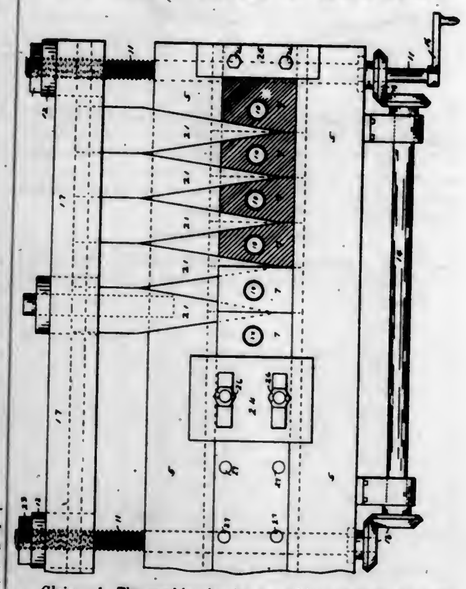


Claim.—1. An improved machine for the manufacture of calendars, cash and ticket blocks and the like in which the paper from the roll is printed by a rotary machine with all the date-leaves and then cut into cross-strips, the same comprising a collecting-cylinder *n*, cutting-cylinders *i*, *k* a band for conducting said stripe to said collecting-cylinder *n*, movable points, tongues or rows of "push-gripe" on said collecting-cylinder and on which cylinder said stripe are collected into blocks, a movable row of points, a delivery-cylinder having a cutter 17, a band *s*, a projection 4, a device 3, a rod 1, an intermittently-moved endless band 5, whereupon they are then brought under said cutter 17 which separates the individual blocks, substantially as herein described and set forth.

2. An improved machine for the manufacture of calendars, cash and ticket blocks and the like, in which the paper from the roll is printed by a rotary machine with all the date-leaves and then cut into cross-strips, the same comprising a collecting-cylinder *n*, cutting-cylinders *i*, *k*, a band for conducting said strips to said collecting-cylinder *n*, movable points tongues or rows of "push-gripe" on said collecting-cylinder, and on which cylinder said stripe are collected into blocks, a movable row of points, a delivery-cylinder having a cutter 17, a band *s*, a projection 4, a device 3, a rod 1, an intermittently-moved endless band 5, whereupon they are then brought under said cutter 17 which separates the individual blocks, a cap 14, a band 5, a binding device, a gripper 19, a rod 18, a pair of cutters 20, and a cap-holder 12 which at each quarter circular turn moves the metal cap to the printed paper block on the band 5 whereupon the cap 14 is fastened by a wire clamp by the binding device 15, 16 and then the rod 18 moving to and fro with the gripper 19, brings the side edges under the pair of cutters 20 so as to be trimmed substantially as herein described and set forth.

3. An improved machine for the manufacture of calendars, cash and ticket blocks and the like in which the paper from the roll is printed by a rotary machine with all the date-leaves and then cut into cross-stripe, the same comprising a collecting-cylinder *n*, cutting-cylinders *i*, *k* a band for conducting said stripe to said collecting-cylinder *n*, movable points, tongues or rows of "push-gripe" on said collecting-cylinder and on which cylinder said strips are collected into blocks, a movable row of points, a delivery-cylinder having a cutter 17, a band *s*, a projection 4, a device 3, a rod 1, an intermittently-moved endless band 5, whereupon they are then brought under said cutter 17, which separates the individual blocks, a pair of cutting-cylinders *i*, *k* and a collecting-cylinder, the speed of which can be adjusted by changing the wheel 21 with a view to obtaining different-sized blocks and at the same time to impart a greater or less movement to the endless intermittently-moved band 5 on which the blocks of strips are situated one above the other in the form of stairs substantially as herein described and set forth.

786,853. MULTIPLE PUNCHING-MACHINE. EDGAR A. STICKNEY, Sacramento, Cal. Filed May 3, 1904. Serial No. 206,149.



Claim.—1. The combination in a punching-machine, of a plurality of wedges having lugs, with a plurality of movable punch-holders provided with punches and having tapering grooves on each side in which slide said wedges, substantially as described.

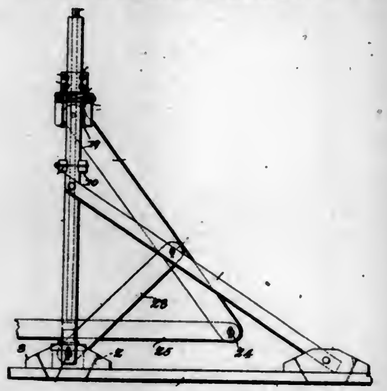
2. In a punching-machine, the combination with a punch-bar having a groove formed with undercut ribs, a plurality of punch-holders, slidably mounted in said groove, and provided with punches and having tapering grooves on each side in which slide wedges, substantially as described.

3. The combination in a punching-machine, of a plurality of wedges having lugs, and a plurality of punch-holders provided with punches and slidably mounted in a groove in a punch-bar and having tapering grooves on each side in which slide wedges, with stop-blocks adjustably secured to a punch-bar, substantially as described.

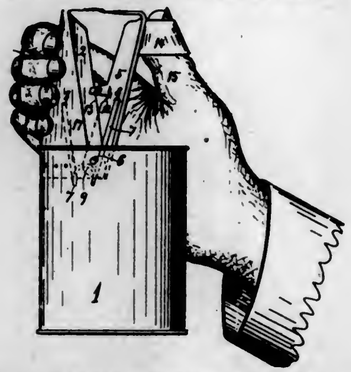
4. In a punching-machine, the combination of a punch-bar carrying a plurality of punch-holders provided with punches, and a plurality of wedges operating in tapering grooves in said punch-holders, a bar bearing against the ends of said wedges, threaded shafts operating in threaded nuts on said bar, lock-nuts on said threaded shafts for locking said bar securely in position, rods projecting outwardly from the punch-bar and passing through perforations in the said bar for supporting the same in sliding position, and means for revolving the several threaded shafts simultaneously for uniformly moving the aforesaid bar against the wedges, all substantially as described.

786,854. PUMPING-JACK FOR OIL-WELLS. ROLLAND O. STROTHER, Findlay, Ohio. Filed May 14, 1904. Serial No. 208,033.

Claim.—In a device of the class described, a base having a plurality of spaced blocks disposed in two sets in alinement with each other, uprights mounted between and extending upwardly from the outer blocks, inclined braces for said uprights, abutments secured upon the latter, a cross-head engaging the uprights and moving vertically upon the latter, spaced blocks arranged in pairs upon the under side of said cross-head, operating-levers pivotally connected with said blocks, auxiliary levers connected with the operating-levers intermediate the ends of the latter by means of transverse rods, pivotal connecting means between the lower ends of said auxiliary levers and the base-blocks, operating-bars, and a transverse rod connecting the latter with the free ends of the operating-levers.



786,855. FRUIT-GATHERING DEVICE. ELWOOD TATUM, Westbranch, Iowa. Filed Aug. 19, 1904. Serial No. 221,360.

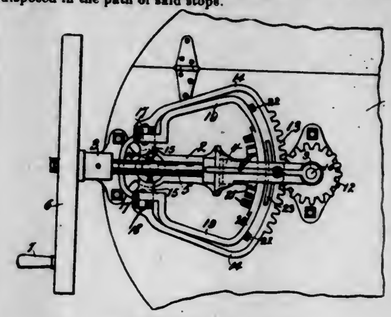


Claim.—1. A device of the class described, comprising a receptacle, a pair of upwardly-extending arms, secured with their lower ends to the upper end of the receptacle and having at their upper ends coacting clipping edges or jaws; said arms being provided respectively with keepers for the thumb and the fingers of the hand holding the receptacle, and one of the arms being pivoted at its lower end so as to swing with the upper end to and from the other arm, and a spring engaging said pivoted arm to hold it normally away from the other arm; said other arm being rigidly fixed to the receptacle so as to hold it in plumb position and to tip it in emptying it.

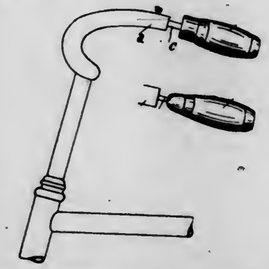
2. A device of the class described, comprising a receptacle and a pair of arms secured to the upper end thereof and projecting above the receptacle so as to be grasped and closed by the hand, said arms being pivotally connected at the lower ends and having the upper ends provided with horizontally-disposed coacting cutting-jaws, a spring connected with the arms to spread them, straps or keepers upon the arms for the fingers and the thumb of the hand, a guide projecting from one of the arms and sliding upon the other arm, and means for stopping the closing of the arms and jaws at a certain point, substantially as and for the purposes set forth.

786,856. GEAR FOR WASHING-MACHINES. JAMES H. TAYLOR and JULIUS B. TAYLOR, Toledo, Ohio. Filed Apr. 4, 1904. Serial No. 201,384.

Claim.—In a washing-machine, a base-plate having two upwardly-projecting brackets, a driving-shaft journaled in said brackets, a pinion on the driving-shaft, a driven shaft journaled in one of said brackets, a pinion on said driven shaft, a stub-shaft secured to said base-plate between said two brackets, a segmental gear journaled on said stub-shaft and in engagement with said driven-shaft pinion, a pair of lugs on said segmental gear disposed on opposite sides of the driving-shaft, a second segmental gear, engaged with the driving-shaft pinion and having internal pin-teeth and being pivoted at one side on said pair of lugs, a pair of stops on said second segmental gear, and a guide-plate secured to said base-plate, said guide-plate having opposite margins formed as arcs which arcs are disposed in the path of said stops.



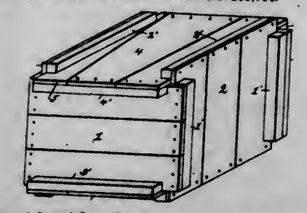
786,857. RESILIENT HANDLE-BAR FOR BICYCLES OR THE LIKE. MARTIN THIERFELDER, Zwickau, Germany. Filed Dec. 8, 1903. Serial No. 184,246.



Claim.—1. A resilient handle-bar for bicycles or the like, comprising a handle-bar, sleeves *b* rigidly secured in the ends of said bar, rectangular longitudinal openings in said sleeves, flat steel springs slidingly inserted therein, and set-screws inserted into the ends of said bar and the sleeves in the same for adjusting the length of the active part of the spring.

2. A resilient handle-bar for bicycles or the like, comprising a handle-bar, sleeves *b* rigidly secured in the ends of said bar, rectangular longitudinal openings in said sleeves, flat steel springs slidingly inserted therein, and set-screws inserted into the ends of the said bar and the sleeves in the same for adjusting the length of the active part of the spring, and handles secured on the outer end of the springs, being provided with a tubular projection to fit over the free end of the handle-bar and to form a rigid connection therewith.

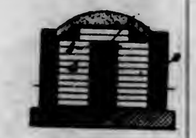
786,858. KNOCKDOWN BOX OR CRATE. JOHN R. THOMAS, Pittsburg, Pa., assignor to The Knock Down Box Company, Connellsville, Pa. Filed Mar. 30, 1904. Serial No. 200,764.



Claim.—A knockdown box comprising a top and bottom having cleats on their adjacent faces, side pieces with cleats on their inner

faces and adapted to engage over said top and bottom, end pieces having cleats fixed thereto and engaging the outer faces of said side pieces, said top having an opening one edge of which is inclined, and a wedge-shaped piece having one of its longitudinal edges at right angles to its ends and adapted to engage the inner face of said sides and the under face of the cleat thereon, the other longitudinal edge of said wedge-piece being inclined, and designed to engage said inclined edge of the opening in said top, as set forth.

786,859. METHOD OF HEATING CARBON ARTICLES. FRANK J. TONE, Niagara Falls, N. Y. Filed Apr. 3, 1904. Serial No. 201,317.



Claim.—1. The herein-described method of heating carbon articles, which consists in placing the articles in proximity to, but out of contact with an electric resistance-conductor, the intermediate space serving as an insulator of electricity but a conductor of heat, and passing an electric current through the conductor, substantially as described.

2. The herein-described method of heating carbon articles, which consists in placing the articles in an electric furnace and in proximity to, but out of contact with an electric resistance-conductor, the intermediate space serving as an insulator of electricity but a conductor of heat, and passing an electric current through the conductor, substantially as described.

3. The herein-described method of heating carbon articles, which consists in arranging the articles in piles in proximity to, but out of contact with an electric resistance-conductor, the intermediate space serving as an insulator of electricity but a conductor of heat, and passing an electric current through the conductor, substantially as described.

4. The herein-described method of heating carbon articles, which consists in placing the articles in proximity to, but out of contact with a plurality of electric resistance-conductors, the intermediate spaces serving as insulators of electricity but conductors of heat, and passing an electric current through the conductors, substantially as described.

5. The herein-described method of heating carbon articles, which consists in placing the articles in proximity to, but out of contact with a plurality of electric resistance-conductors, the intermediate spaces serving as insulators of electricity but conductors of heat, and passing electric current through the conductors in succession, substantially as described.

786,860. TOOL. PHILIP M. VANCE, Birmingham, Ala. Filed Aug. 1, 1904. Serial No. 219,147.



Claim.—1. A tool of the class set forth, having handle and hammer-head supporting elements separably connected, the hammer-head-supporting element gradually increasing in diameter toward its free extremity, and a claw element having a sleeve removably jammed on the hammer-head-supporting element by the handle-supporting element.

2. A tool, having handle and hammer-head supporting elements separably connected, and a claw element secured on the hammer-head element by the handle-supporting element.

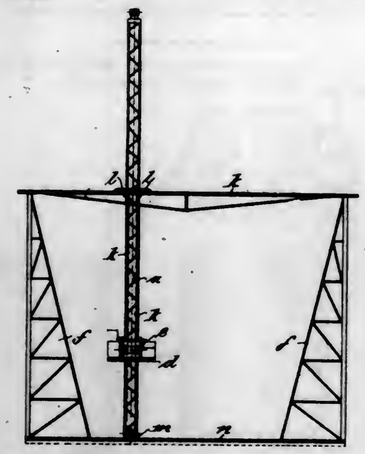
3. A tool of the class set forth, having handle and hammer-head supporting elements separably connected, the hammer-head-supporting element gradually increasing in diameter toward its free extremity, a sleeve device removably jammed on the hammer-head-supporting element by the handle-supporting element, and a hammer-head removably inserted in the hammer-head-supporting element and having a substantially circular contour and provided with a rib extending longitudinally thereof, the surface of the hammer-head being smooth and unbroken with the exception of the rib.

4. A tool having a hammer-head and a handle supporting element, the handle-supporting element being separably connected to the head-supporting element, and a claw element provided with a sleeve engaging and held in place on the head-supporting element by the handle element.

5. A tool, having an elbow hammer-head-supporting element adapted to contain tacks or the like and provided with a washer at its outlet end, a hammer-head removably mounted in the said supporting element, and a handle for the supporting element and engaging the latter at the terminal opposite that to which the hammer-head is applied.

6. A tool, having an elbow hammer element provided with a removable hammer-head and also having a converging rear extremity, a handle element detachably applied to the said extremity of the hammer-supporting element, and a claw element on the hammer-supporting element and held in place by the handle-supporting element.

786,861. DEVICE FOR SETTING FREESTONES. SAMUEL VOSS, Charlottenburg, near Berlin, Germany. Filed Feb. 20, 1903. Serial No. 144,350.



Claim.—1. In a device for setting freestones, the combination of a vertical mast, a windlass fixed to this mast and a scaffolding for guiding this mast, said scaffolding consisting of two vertical posts connected by a horizontal beam, substantially as described and for the purpose set forth.

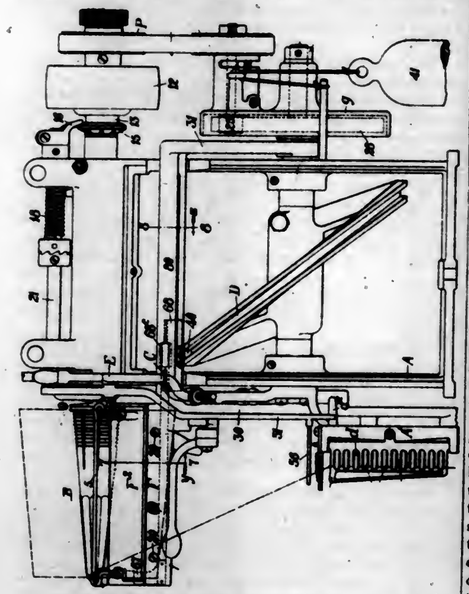
2. In a device for setting freestones, the combination of a vertical mast, a windlass fixed to this mast, a scaffolding for guiding this mast, said scaffolding consisting of two vertical posts connected by a horizontal beam, said beam passing through the mast, substantially as described and for the purpose set forth.

3. In a device for setting freestones, the combination of a vertical mast, a windlass fixed to this mast, a scaffolding for guiding this mast, said scaffolding consisting of two vertical posts connected by a horizontal beam, and ropes fixed to the vertical posts and running over rollers fixed to the mast, substantially as described and for the purpose set forth.

786,862. WINDING-MACHINE. SIMON W. WARDWELL, Providence, R. I., assignor, by mesne assignments, to The Commonwealth Trust Company, trustee, a Corporation of Massachusetts. Filed July 30, 1901. Serial No. 70,353.

Claim.—1. The combination in a winding-machine with a winding-spindle, a reciprocating guide, and a cam, of a frame movable to and from the winding-spindle, a reciprocating traverse-bar mounted solely in the movable frame to be moved therewith to and from the spindle, and a guide holding or carrying member of the traverse-bar adapted to oscillate to and from the spindle with each reciprocation of the traverse-bar, and with a motion independent of and distinct from the motion of the frame and of the whole traverse-bar, substantially as described.

2. The combination in a winding-machine with a winding-spindle, a cam, a composite traverse-bar comprising a slide formed from sheet metal and having a cylindrical bearing, a rod rotatively attached by one end to the said cylindrical bearing, and a guide-carrying member rigidly attached to the opposite end of the rod, of a frame movable to and from the winding-spindle having appropriate guideways to receive the sheet-metal slide and the rod, and a plate to support the guide-carrying member, substantially as described.



3. The combination in a winding-machine of a winding-spindle, a reciprocating thread-guide, a frame movable to and from the winding-spindle, a traverse-bar solely supported and reciprocated in the movable frame, an oscillating guide-carrying member of the traverse-bar and a removable plate for the movable frame, to support and direct the movement of said oscillating guide-carrying member, substantially as described.

4. In a winding-machine, the combination with a winding-spindle, a cam, a reciprocating guide, a traverse-bar to carry and reciprocate the guide and composed of a traverse-slide, a traverse-rod rotatively connected with the traverse-slide and a guide-carrying member rigidly attached to the traverse-rod, of a frame to solely support the traverse-bar and movable therewith to and from the winding-spindle, said frame having guideways to receive the traverse-slide, a groove of appropriate form to receive the traverse-rod and a removable guide-plate having a bearing-face for the thread-guide to support and direct the guide-carrying member, and further adapted to prevent displacement of the traverse-rod from its groove, substantially as described.

5. The combination in a winding-machine with a winding-spindle, a reciprocating guide and a cam, of a frame movable to and from the spindle, a rod supported and longitudinally reciprocated in said frame parallel to the winding-spindle, a cross-head or slide attached to one end of the rod and adapted to be reciprocated from the cam, a guide-carrying member attached to the opposite end of the reciprocating rod, and a plate, separably connected to the movable frame, to support the guide and retain the reciprocating rod in its bearings in said movable frame, substantially as described.

6. The combination in a winding-machine with a winding-spindle, a reciprocating guide and a cam of a slide or cross-head connected with the cam, a rod connected with the slide, a swinging traverse-frame having guideways for the slide and a channel for the rod, a removable section of the traverse-frame to prevent displacement of the rod from its channel, and devices connected with the rod to carry the reciprocating guide, substantially as described.

7. The combination in a winding-machine with a winding-spindle, a reciprocating guide, a cam, and a frame movable to and from the spindle, of a reciprocating slide or cross-head carried solely in the movable frame and connected with the cam, and a member to carry the reciprocating guide connected with the cross-head and adapted to be oscillated, during the winding, toward and away from the winding-spindle, independently of its movement with the traverse-frame, substantially as described.

8. The combination in a winding-machine of a winding-spindle, a reciprocating guide, a traverse-bar, to reciprocate the guide comprising a cross-head, traverse-rod, and a guide-carrier adapted to be oscillated during its reciprocation, to and from the winding-spindle, a cam to reciprocate the traverse-bar, and a frame to solely support the traverse-bar, swung coaxially with the cam, substantially as set forth.

9. The combination in a winding-machine of a winding-spindle, a reciprocating guide, a traverse-bar to reciprocate the guide comprising a cross-head, a traverse-rod, and a guide-carrier adapted to be oscillated, during its reciprocation, to and from the winding-spindle, a cam to reciprocate the traverse-bar and a movable frame to solely carry the latter, adapted to be moved, with the traverse-bar, to and from the winding-spindle, and so posed, relative to the cam, that the cam shall be maintained in operative connection with the traverse-bar during the winding, substantially as described.

10. The combination in a winding-machine with a cam, a longitudinally-reciprocating traverse-rod driven by the cam, and a cross-head connecting the rod with the cam, of a movable traverse-frame to carry the traverse-rod and maintain it in operative relation to the cam, comprising two legs 30 and 31, adapted to straddle the cam and to be swung concentrically therewith, a section 80 which joins the tops of the legs and in which are the guide-slots 33 and 34 to receive the cross-head, and an overhanging section 81 in which is a single channel 32 to receive the traverse-rod.

11. The combination in a winding-machine with a cam, a longitudinally-reciprocating traverse-rod driven by the cam, a guide-carrier fastened thereto, a thread-guide carried thereby, and a cross-head connecting the rod with the cam, of a movable traverse-frame to support the traverse-rod and maintain it in operative relation to the cam, comprising two legs 30 and 31, adapted to straddle the cam and to be swung concentrically therewith, a section 80 which joins the tops of the legs and in which are the guide-slots 33 and 34 to receive the cross-head, and an overhanging section 81 in which is a channel 32 to receive the rod, and a removable plate F^2 whose bottom edge is formed and secured in such relation to the channel 32 as to retain therein the reciprocating traverse-rod, and whose upper portion is formed to support and direct the thread-guide substantially as described.

12. The combination in a winding-machine, with a rotary spindle, of a swinging guide-carrying frame, a traverse-bar reciprocating in grooves therein, a guide carried by the traverse-bar, and means attachable to the guide-carrying frame to direct the traverse of the guide, substantially as described.

13. The combination with a winding-spindle of a guide-carrying frame, a traverse-slide reciprocating in grooves in said frame, a guide-carrier, a thread-guide carried thereby, and a connection between the traverse-slide and the guide-carrier such that the thread-guide may be reciprocated in a path either parallel with or inclined to the axis of the winding-spindle, substantially as described.

14. The combination with a rotary spindle in a winding-machine, of a guide-carrying frame, a guide, a guide-carrier, a traverse-slide, a rod supporting the guide-carrier rigidly therewith, and means to connect said rod with the traverse-slide to allow said guide to oscillate, substantially as described.

15. The combination in a winding-machine with frame A, of a spindle rotating in bearings in said frame, a cam supported to be driven from said spindle, controlling devices for regulating the speed of the cam with relation to that of the winding-spindle, a guide-carrying frame F mounted to rock concentric with the axis of the cam, a traverse-slide sliding in grooves in the said frame and reciprocated by said cam, a guide-carrier and a guide carried thereby, a rod 69 connecting the traverse-slide and the guide-carrier, and sliding in a groove in the frame F, a plate to support the guide and its carrier, suitably formed at its bottom edge to retain the rod in position in its groove in the frame F, and so connected to the frame F as to be easily detached in the manner and for the purpose described.

16. In a traverse-bar for a winding-machine, a traverse-slide or cross-head 68 formed of sheet metal with the guide-lugs 68^a 68^a, the lug 68^b to which is attached the cam-roll 40, and the cylindrical portion 68^c, the rod 69 rotatively connected with the slide in said cylindrical portion, and a guide-carrying member 67 attached to the traverse-rod, substantially as described.

17. In a traverse-bar for a winding-machine, a traverse-slide or cross-head 68, formed from sheet metal with guide-lugs 68^a 68^a, a lug 68^b to which is attached the cam-roll 40, and a cylindrical portion 68^c, internally threaded, a rod 69 threaded at one end to fit said cylindrical portion of the traverse-slide, and a guide-carrying member 67 attached to the opposite end of the rod 69, substantially as described.

18. In a traverse-bar for a winding-machine, a traverse-slide or cross-head 68 formed from sheet metal with guide-lugs 68^a 68^a, a lug 68′ to which is attached the cam-roll 40 and a cylindrical portion 68^c, a rod 69, with one end adjustably secured in the cylindrical portion of the traverse-slide 68 so that the extreme length of the traverse-bar may be varied and a guide-carrylag member secured to the opposite end of the traverse-rod 69, substantially as described.

19. In a traverse-bar for a winding-machine, a traverse-slide or cross-head 68 with guide-lugs 68^a 68^a, a lug 68^b to carry a cam-roll 40, and a cylindrical portion 68^c, a traverse-rod 69 joined by one end to the traverse-slide 68 at the cylindrical portion 68^c, a guide-carrying member 67 attached to the opposite end of the traverse-rod and having its upper portion formed to carry a thread-guide, substantially as described.

20. In a winding-machine, a winding-spindle, a cam, a replaceable reciprocating guide driven from the cam, a frame movable to and from the spindle and having a guide-plate to support the guide, a traverse-bar solely carried and reciprocated in said frame, and having a guide-carrying member formed to so carry the guide that the latter shall bear against the guide-plate aforesaid and sustain all wear therefrom, substantially as described.

21. In a winding-machine, the combination with a winding-spindle, and a reciprocating guide, of means for operating and for starting and stopping the machine, comprising a driving-pulley 12 mounted to turn freely on the spindle, a clutch 13 rotatively secured to the spindle and pressed into connection with the pulley by the spring 15, a lever 16 operated by a spring 18 to withdraw the clutch from the driving-pulley, a handle E′ to rock the lever 16 having a lateral extension 45 and a depending curved portion 45^a in which is a slot 45^b and a shoulder 46, a detent E held by the spring 39 in contact with and limited in its movement by the said depending curved portion 45^a of the handle E′ and having a projection *e* engaging the slot 45^b of the handle E′ to hold said handle E′ and detent E in alinement, and a shoulder 43 to engage the corresponding shoulder 46 on the extension 45 of the handle E′, substantially as described.

22. In a winding-machine, a winding-spindle, a reciprocating guide, a cam to reciprocate the guide, starting and stopping devices to control the winding, and detents for maintaining the winding-machine in operation, comprising a spring-pressed detent E, having a projection *e* and a detent-shoulder 43, and a handle E′ with a depending curved portion 45^a against which the detent E bears, and by which it is limited in its movement, and in which is formed a detent-shoulder 46 to correspond and engage with the detent-shoulder 43 in the detent E, and in which is also a slot 45^b to engage the projection *e* of the detent E to prevent lateral play in the top of the latter, substantially as described.

23. The combination in a winding-machine with a winding-spindle, reciprocating guide, and starting and stopping devices which include a handle E′, and detent E, of tensions and means for mechanically opening and closing the tensions, comprising with the fixed tension member *c* and movable tension member *d*, an arm d^3 fixed on said movable tension member, a lever 51 having an extended arm to operatively engage the movable tension, and having its opposite extremity formed to engage with a pin *o* attached to the handle E′, whereby the lever 51 is shifted to engage the arm d^3 of the movable tension to swing it open when the winding is stopped and allow it to be closed upon the fixed tension when the winding is started, substantially as described.

24. The combination with a stop-lever 51 of a winding-machine, of a two-part tension, and an arm d^3 integral with one part of the tension adapted to be engaged by the lever 51, to open the tension, substantially as described.

25. The combination in a winding-machine, with a starting and stopping device including a handle E′, a projection *o* from the handle E′, a stop-lever 51 formed to engage the projection *o* to be moved therefrom, and tension devices adapted to be shifted by the lever 51, substantially as described.

26. The combination in a winding-machine with starting and stopping devices including a handle E′, a projection *o* from the handle E′, tension devices including a movable member with an extended arm d^3 and a lever 51 intermediate the handle E′ and the tension devices having one arm adapted to engage the arm d^3 of the movable tension member, and in the opposite arm an aperture 51^a to engage the projection *o*, whereby the lever 51 is shifted on the rocking of the handle E′, to shift the movable tension member, substantially as described.

27. The combination in a machine with starting and stopping devices, of a tension device with a movable member having an extending arm, a handle to operate the starting and stopping devices, and a lever having one arm to engage the movable tension member, and the opposite arm in engagement with the handle of the starting and stopping devices whereby the movable tension member is shifted with the starting and the stopping of the machine, substantially as described.

28. In a tension device, a fixed member having a grid portion formed with cross-bars, and integral therewith an extended portion, formed at an angle with the body of the tension member to direct the thread to its appropriate position on the cross-bars, and a swinging tension-comb whose fingers, passed between the bars of the fixed tension member, press the thread against the bars of the latter to tensionize it, substantially as described.

29. In a tension device, a fixed member with a grid portion of cross-bars and an extended guide portion to direct the thread to its position on the cross-bars, and a swinging tension-comb whose fingers are passed between the bars of the fixed member to be drawn back thereto to press the thread between said fingers and the bars of the grid, an arm integral with the swinging tension whereby the latter can be shifted to open the tensions to receive the thread, or closed upon the thread after it has been introduced, substantially as described.

30. A tension member comprising in one piece, a grid-like body with cross-bars, and an extended portion of appropriate form, bent at an angle with the body of the tension member to guide the thread to its appropriate position in the tensions, substantially as described.

31. A swinging tension member *d*, comprising a comb-like body portion and an arm d^3 made integral with the body portion, and whereby the tension member may be swung, substantially as described.

32. A swinging tension member *d* comprising a comb-like body portion and, made integral with the body portion, an arm d^3 whereby the tension member can be swung, an eye d^4 whereby a tensionizing agent may be connected, and a reinforce d^5 to strengthen the body of the tension member, substantially as described.

33. In a winding-machine, the combination with a tension device, of means for applying a variable tension, comprising a weight-holder, tension-weights so secured to the weight-holder as to be adapted to be shifted thereon to vary the initial amount of tension and means to mechanically shift the position of the weight-holder during the winding, to vary the action of the weights upon the tension device, substantially as described.

34. In a winding-machine, the combination with a winding-spindle 9, reciprocating guide, a tension device T, of a weight-holder pivotally mounted, and connected with the tension device by the connecting-rod 87, a plurality of weights *m* mounted on the hub of the weight-holder, and adapted to be shifted thereon to regulate the initial amount of tension, and a swinging frame carrying the guide and the weight-holder, and adapted to be shifted in position during the winding, thereby shifting the position of the weight-holder on its pivot, changing the leverage of the weights about said pivot, and gradually varying the effect of the weights on the tension device, substantially as described.

35. The combination in a tension-actuating device, of a weight-holder M adapted to be pivotally mounted, a hub portion 89 with a peripheral groove 89^b near its extremity, weights *m* mounted upon the hub to be swung about it, a spring-fastening S to be snapped into the peripheral groove 89^b to retain and to frictionize the weights, and stops 83 86^b to limit the movement of the weights *m* about the hub of the weight-holder, substantially as set forth.

36. A winding-machine member to support the thread-guide and its reciprocating rod and cross-head, having a portion 80 with guide-slots 33 and 34 to receive the reciprocating cross-head, and a portion 81 in which is a channel to receive and guide the reciprocating rod substantially as described.

786,863. COP OR CORD-PACKAGE. SIMON W. WARDWELL, Providence, R. I., assignor, by mesne assignments, to The Commonwealth Trust Company, trustee, a Corporation of Massachusetts. Filed Apr. 23, 1903. Serial No. 104,213.

Claim.—1. A cop or thread-package in concentric laminations, each lamination consisting of a plurality of similar layers, and each layer composed of a succession of closely adjacent helices of thread, each helix extending from end to end of the package with uniformly the same number of winds in each lamination, but with the number of winds made in one lamination different from the number of winds in other laminations.

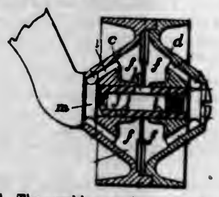


2. A cop or package of continuous thread, consisting of a plurality of concentric laminations, with uniformly the same number of winds in each lamination wound in layers of crossed helices, each helix extending from end to end of the package parallel and closely adjacent to helices extending in the same direction, the helices of the innermost lamination having the greatest number of winds and each succeeding lamination having a less number of winds or fraction thereof.

3. A cop or thread-package, comprising concentric rings or laminations, each composed of successive layers of thread wound in a succession of closely parallel helices with uniformly the same number of winds in each lamination but the number of winds decreasing from the initial lamination outward, each helix extending from end to end of the package and with the same number of winds as other helices in the same lamination, but with a different number of winds from the helices of other laminations, and with all laminations wound from one common, continuous thread.

4. A method of winding thread-packages, consisting in winding a continuous thread first in a lamination consisting of similar layers having relatively many winds, then upon the first lamination a second, with a less number of winds than the first, and thus continuing to wind the thread in a succession of laminations with uniformly the same number of winds in each lamination, but each with a less number of winds than the lamination preceding, until the ultimate diameter of the package has been attained.

786,864. SELF-LUBRICATING PULLEY. SIMON W. WARDWELL, Providence, R. I., assignor, by mesne assignments, to The Commonwealth Trust Company, trustee, a Corporation of Massachusetts. Filed Mar. 25, 1904. Serial No. 199,941.



Claim.—1. The combination in a self-lubricating pulley of two sections, each formed with a rim portion, a hub-section, a dished web to connect the hub with the rim and radial ribs in the dished side of the web, so formed and related that when the said pulley-sections are joined, a radially-compartmented reservoir is formed.

2. The combination in a self-lubricating pulley, of two sections, each formed with a rim portion, a hub bored axially, and annularly grooved at its outer end, a dished web joining the hub to the rim portion and ducts leading from the groove to the dished side of the web.

3. The combination in a self-lubricating pulley, of two sections, each formed with a rim portion, a hub bored axially and annularly grooved, a dished web joining the hub to the rim portion, with radial ribs dividing the dished side into sections and with ducts leading from the annularly-grooved part of the hub to the said sections.

4. A self-lubricating pulley formed with an interior reservoir, radial ribs dividing said reservoir into compartments, said ribs having openings between them to connect the compartments and axially-bored and annularly-grooved hub-sections with ducts leading from the grooved portions to the compartments.

5. The combination in an oiling device of a pulley formed with an interior reservoir and radial ribs or partitions extending into the reservoir, two adjacent hub-sections axially bored and with internal annular grooves at their outer ends, and ducts leading from the grooves to the reservoir, and a bearing for the pulley formed with an axial chamber, said chamber having an opening leading from the pulley-reservoir and openings leading out to the under side of the bearing.

6. The combination in an oiling device of a pulley formed with an interior annular reservoir with radial ribs extending into the reservoir, and a bearing for the pulley formed with an axially-disposed oil-chamber, said chamber having openings into it from the pulley-reservoir and out of the chamber to the bearing-surface.

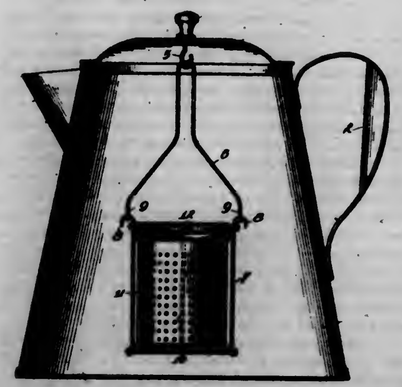
7. The combination of a pulley formed with an interior reservoir and adjacent hub-sections axially bored, and with annular grooves at the outer ends of the bores with ducts leading from the grooves into the reservoir, and a bearing for the pulley formed with an interior oil-chamber having an opening into the oil-reservoir of the pulley and openings leading to the bearing-surfaces.

8. The combination of a pulley comprising two sections, each formed with a rim portion, a hub-section, a dished web to connect the hub with the rim, and radial ribs in the dished side of the web, and a bearing for the pulley formed with an oil-chamber opening into the pulley-reservoir, and onto the bearing-surfaces, and means to locate the pulley longitudinally on the bearing.

9. The combination in a lubricating device for pulleys or other machine members, of a rotating member composed of two sections *a* and *b* formed with separate hub-sections having alining bores joined to form an interior reservoir *e*, said hubs having annular grooves *g*, *g* at the outer ends of the bores and ducts *h*, *h*, leading from the grooves to the reservoir, and a bearing *i* for the rotating member formed with an interior oil-chamber *j*, the latter having an opening *k* leading from the reservoir *e*, and openings *l*, *l* leading to the bearing-surfaces, there being a flange *m* at one end of the bearing *i*, serving as an end bearing for the rotating member, and formed with a groove registering with one of the grooves *g*, and a headed screw at the opposite end of the bearing also formed with a groove to register with the other groove *g*.

10. The combination in a lubricating device for pulleys or the like of a rotating member composed of two sections *a* and *b*, formed with separate hub-sections having alining bores, the sections joined to form an interior reservoir *e*, said hub-sections having annular grooves *g*, *g* at the outer ends of the bores and ducts *h*, *h*, leading from the grooves to the reservoir *e*, and a bearing *i* for the rotating member having a flange *m* at one end, formed with an annular groove to register with one of the grooves *g*, the bearing also formed with an axial bore *j* having an opening *k* leading from the reservoir *e* and openings *l*, *l* leading to the bearing-surfaces, and a headed screw *n* fitted to the bore *j* and having its head formed with a groove registering with the other groove *g*.

786,865. COMBINED STRAINER AND HOLDER FOR COFFEE-POTS. WILLIAM A. WASSERMAN, Baltimore, Md. Filed Aug. 5, 1904. Serial No. 219,628.



Claim.—1. The combination with the cover of a coffee or tea pot and a hanger suspended therefrom, of a cage suspended from the hanger and an open-work receptacle adapted to contain coffee or tea removably received in the cage.

2. The combination with the cover of a coffee or tea pot, and a hanger detachably connected with the cover, of a wire cage detachably suspended from the hanger and an open-work receptacle removably secured in the cage.

3. The combination with a coffee or tea pot provided with a cover, of a hanger suspended from the cover, a skeleton cage pivotally secured to the hanger, the cage being open at the top and a foraminated receptacle received within and supported by the cage, the receptacle provided with a removable cover, and resting on the bottom of the cage.

786,866. CHECK-CONTROLLED APPARATUS. WEBSTER B. WHEELER, Fullerton, Nebr. Filed July 26, 1904. Serial No. 218,296.



Claim.—1. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated circuit-controller, and means arranged for operation by the user to compress the bulb and to cause the ejection of the liquid contained therein into said reservoir, whereby the float will be caused to rise and to carry the circuit-controller therewith.

2. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated circuit-controller, and means arranged for operation by the user to compress the bulb and to cause the ejection of the liquid contained therein into said reservoir, whereby the float will be caused to rise and to carry the circuit-controller therewith, and means for causing the slow return of the liquid from said reservoir to said bulb.

3. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated circuit-controller, means arranged for operation by the user to compress the bulb and to cause the ejection of the liquid contained therein into said reservoir, whereby the float will be caused to rise and to carry the circuit-controller therewith, and a valve adapted to control the flow of water from the bulb to the reservoir, said valve having a port which, when the valve is closed, is adapted to permit of the slow return of the liquid from the reservoir to the bulb.

4. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated circuit-controller, means arranged for operation by the user to compress the bulb and to cause the ejection of the liquid contained therein into said reservoir, whereby the float will be caused to rise and to carry the circuit-controller therewith, and a gravity ball-valve for controlling the flow of liquid from the bulb to the reservoir and having a peripheral port adapted, when the valve is closed, to permit of the slow return of the liquid from the reservoir to the bulb.

5. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, and a valve controlling the flow of water from the bulb to the reservoir, said valve having a passage which, when the valve is closed, is adapted to permit of the slow return of the liquid from the reservoir to the bulb.

6. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a chute or runway, a coin-operated lever supported in operative relation with the chute and constituting a circuit-controller, a stop arranged to hold the coin on said lever, and means adapted to be operated by the user for operating the stop in a direction to release the coin.

7. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated circuit-controller, a stop in position to hold the check on said last-mentioned circuit-controller, and means adapted to be operated by the user to actuate the stop in a direction to release the coin and to also effect the compression of said bulb.

8. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated lever constituting a circuit-controller, a second lever having a stop for the check while the latter is on the first lever, a rod adapted to be operated by the user and connected with the second lever, said rod, when advanced, being adapted to operate said second lever in a direction to effect the release by said stop of the coin, and means connected with said rod for effecting the compression of said bulb.

9. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated lever constituting a circuit-controller, a second lever having a stop for the check while the latter is on the first lever, a rod adapted to be operated by the user and connected with the second lever, said rod, when advanced, being adapted to operate said second lever in a direction to effect the release by said stop of the coin, means connected with said rod for effecting the compression of said bulb, and means for returning said rod to its initial position when released by the user.

10. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir having a circuit-controller, a check-operated circuit-controller, a pull-rod having means connected therewith for compressing said bulb, and a lever connected with said rod and provided with a stop to be engaged by the check, and a coin-chute having an arcuate slot concentric with the axis of motion of the lever to receive said stop.

11. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir having a circuit-controller, a check-operated circuit-controller, means arranged for operation by the user to compress the bulb, and an adjustable contact coöperative with said check-operated circuit-controller.

12. A check-controlled apparatus involving an electric circuit, a liquid-containing bulb, a reservoir communicating with said bulb, a float in the reservoir, having a circuit-controller, a check-operated circuit-controller, means arranged for operation by the user to compress the bulb, and adjustable contacts coöperative with the two circuit-controllers.

786,867. VEHICLE-GEAR. FRANK E. WILCOX and LESTER E. HICKOK, Mechanicsburg, Pa. Filed Oct. 29, 1904. Serial No. 230,533.

Claim.—1. The combination in a vehicle-gear, of a combined hollow king-bolt and clip 15; a head-block plate engaging the king-bolt; a bolt 17 with a conical head uniting the king-bolt and head-block plate and anchored relative to the head-block plate; an axle-yoke with a perforation, a projection, and a conical seat; a perforated brace-head with a recess; and a bolt 12 with a conical head only, uniting the brace-head and axle-yoke and anchored relative to the brace-head; whereby the bolts 12 and 17 are fixed and the combined king-bolt and clip, the axle, and the axle-yoke may have rotary movement and the wear of the parts be taken up by turning the nuts upon the bolts.

2. The combination in a vehicle-gear, of an integral combined king-bolt and clip; a head-block plate engaging the king-bolt 15; a bolt 17 with a tapered head uniting the head-block, head-block plate and the combined king-bolt and clip; an axle-yoke having a hole 7 with a beveled cone-shaped seat; a perforated brace-head and a part of said perforation being angular in shape; and a bolt having a head with a beveled surface only to fit the cone-shaped seat, and with a shank angular in cross-section to fit the angular hole in the brace-head; said bolt uniting the axle-yoke and brace-head.



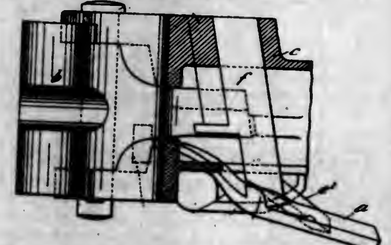
3. The combination in a vehicle-gear, of a perforated axle-yoke with a conical seat and with a perforated projection at its under surface; a perforated brace-head with a recess to receive the projection; and a bolt uniting the yoke and brace-head; said bolt having a tapered head to fit the conical seat, and anchored relative to the brace-head so the bolt cannot turn.

4. The combination in a vehicle-gear of a combined king-bolt and clip; a head-block plate engaging the king-bolt 15; a bolt 17 with a tapered head; an axle-yoke with a conical seat and projection; a brace-head with a recess and a hole; and a bolt uniting the axle-yoke and brace-head; said bolt having a tapered head which fits the conical seat in the axle-yoke.

5. The combination in a vehicle-gear, of a perforated axle-yoke with a perforated tapering projection at its under surface; a perforated brace-head with an angular hole 11 and a recess 10 having a beveled surface to fit the tapering projection; and a bolt uniting the yoke and brace-head and having an angular portion 13 matching the angular hole 11 in the brace-head.

6. The combination in a vehicle-gear, of an axle-yoke having a perforation with a conical seat for a bolt-head; a perforated brace-head; a bolt with a tapered head throughout fitting the conical seat; and means for anchoring the bolt relative to the brace-head.

786,868. AUTOMATIC COUPLING FOR RAILWAY-CARRIAGES. JOHN WILLISON, Derby, England, assignor to The National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 29, 1903. Serial No. 186,937.



Claim.—1. A car-coupler having a knuckle, a lock, and a lever independent of said lock and adapted to move along an inclined surface on the coupler to raise the lock; substantially as described.

2. A car-coupler having a knuckle, a lock, and a lever independent of said lock and adapted to move along an inclined surface on the coupler to raise the lock, said lock being adapted to engage the lever and to be held thereby in unlocked position; substantially as described.

3. A car-coupler having a knuckle and lock, and a lever adapted to move along an inclined surface on the coupler and to raise the lock, said lock having a notch adapted to engage the lever when the lock is in unlocked position; substantially as described.

4. A car-coupler having a knuckle, a lock, and a lever adapted to move along an inclined surface on the coupler to raise the lock, said lever being adapted to engage a fulcrum on the coupler-head to move the knuckle open; substantially as described.

5. A car-coupler having a knuckle and lock, and a lever adapted to move along an inclined surface on the coupler and to raise the lock, said lock having a notch adapted to engage the lever when the lock is in unlocked position, and the lever being adapted to be freed from the notch by a rearward motion of the lever; substantially as described.

6. A car-coupler having a knuckle and lock, and a lever adapted to move along an inclined surface on the coupler and to engage an inclined surface on the lock; substantially as described.

7. A car-coupler having a knuckle, a lock and a lever adapted to move between inclined surfaces on the coupler and lock respectively, to raise the lock; substantially as described.

8. A car-coupler having a knuckle, a lock and a lever pivoted in said knuckle, said lever being adapted to move between inclined surfaces on the coupler and lock respectively, to raise the lock and thereafter throw open the knuckle; substantially as described.

786,869. HAT AND COAT LOCKER. WILLIAM E. ARBINGAST, Cedar Rapids, Iowa. Filed May 4, 1904. Serial No. 206,423.



Claim.—1. In a garment-locker, the combination of a sheet-metal base struck up or crowned, substantially as shown, a hook secured thereto, a slot in the base above said hook, a keeper having a flat wide neck to run in said slot, a flange-plate attached to the keeper on one side of the base-crown, a serrated plate attached to the keeper on the opposite side of said crown, a lock-case opposite said serrations, and a key-operated pawl therein to engage the same.

2. In a garment-locker, the combination of a base, a hook secured thereto, a keeper mounted to slide on the base, a lock just above the keeper when in open position having a hole therein on the side next to said keeper, a finger formed on the keeper to pass into said hole and lock the key in the lock, when in open position, and a key having a lateral shoulder to engage said finger.

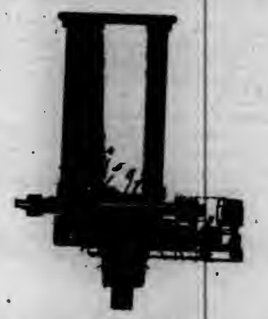
786,870. NECK-YOKE AND POLE COUPLING. IDAHO F. BROWN, Litchfield, Minn. Filed May 23, 1904. Serial No. 209,160.



Claim.—The combination with the pole-cap 3, having the segmental lock-flange 6, of a pole-socket 7 covering and projecting be-

yond the end of said pole and having a segmental lock-groove 9 cooperating with said flange 6, to interlock said parts, a coupling-trunnion 12 pivoted to said socket 7 at 11 inward of the closed outer end of said socket, and a neck-yoke socket 13 swiveled to said trunnion 12, and provided with approximately semicylindrical clamping-flanges 14, adapted to embrace the neck-yoke, and means for clamping said flanges onto the neck-yoke, substantially as described.

786,871. LUBRICATOR. CORNELIUS CALLAHAN, Canton, Mass., assignor to William D. Tickner, Boston, Mass. Filed Dec. 22, 1904. Serial No. 237,888.



Claim.—1. In a lubricator, an oil-receptacle having a port, a cylinder with which said port communicates, a plunger operating in the cylinder, and plunger-reciprocating mechanism, said cylinder being adjustable relative to the plunger-reciprocating mechanism whereby the length of the effective stroke of the plunger can be varied.

2. In a lubricator, a cylinder, an oil-receptacle having a port leading to the cylinder, a plunger operating in the cylinder, and mechanism to reciprocate the plunger a definite distance at each stroke, said cylinder being adjustable relative to said mechanism whereby the length of the effective stroke of the plunger is regulated.

3. In a lubricator, a cylinder having a port through which oil is delivered thereto, a plunger within the cylinder, and plunger-reciprocating mechanism adjustably connected to the plunger, said cylinder being also adjustable in the direction of the length of the plunger.

4. In a lubricator, an oil-receptacle having a port, a cylinder with which said port communicates, a plunger operating in said cylinder, said plunger constituting a valve for the port, and plunger-reciprocating mechanism, said cylinder being adjustable in the direction of the length of the plunger.

5. In a lubricator, an oil-receptacle, a plurality of cylinders each communicating with the receptacle, a plunger in each cylinder, and means for operating the plungers simultaneously, said means operating to give all the plungers the same length of stroke, said cylinders being adjustable in the direction of the length of the plunger.

6. In a lubricator, an oil-receptacle, a plurality of cylinders each communicating with the receptacle, a plunger operating in each cylinder, and means for simultaneously operating said plungers, said cylinders being adjustable in the direction of the length of the plungers.

7. In a lubricator, an oil-receptacle, a plurality of cylinders, each communicating with the receptacle, a plunger operating in each cylinder, and a reciprocating member to which said plungers are connected, said cylinders being adjustable relative to the reciprocating member.

8. In a lubricator, an oil-receptacle, a plurality of cylinders each communicating with the receptacle, a plunger operating in each cylinder, and a reciprocating member to which each plunger is adjustably connected, said cylinders being adjustable relative to the reciprocating member.

9. In a lubricator, an oil-receptacle, a cylinder communicating therewith, a plunger within the cylinder, said cylinder being adjustable in the direction of the length of the plunger, a cam for reciprocating the plunger, a ratchet connected to the cam for operating the latter, a pawl, means for reciprocating the latter, and means to regulate the time of engagement between the pawl and ratchet during each stroke.

10. In a lubricator, a slotted plate, a cylinder adjustably mounted thereon, a plunger in the cylinder, a reciprocating member guided by said slot and operatively connected to the plunger, and means to reciprocate said member.

11. In a lubricator, a casing inclosing a connected cam and ratchet-wheel, the top of said casing being slotted, a cylinder above the casing, a plunger within the cylinder, a reciprocating member connected to the plunger and operating in said slot, and means to actuate the ratchet-wheel.

12. In a lubricator, a casing inclosing a connected cam and ratchet-wheel, said casing having a peripheral slot and a slotted top, a cylinder above the casing, a plunger within the cylinder, a reciprocating member connected to the plunger and operating in the slot, said member being actuated by the cam, and an oscillating pawl working through the peripheral slot of the casing and an adjustable shield to partially cover the slot and thereby regulate the extent of movement of the ratchet.

13. In a lubricator, a casing, a connected cam and ratchet within the casing, said casing having a peripheral slot, an oil-pump operated by said cam, an oscillating pawl working in said slot and engaging the ratchet, and a release device to disengage the pawl from the ratchet.

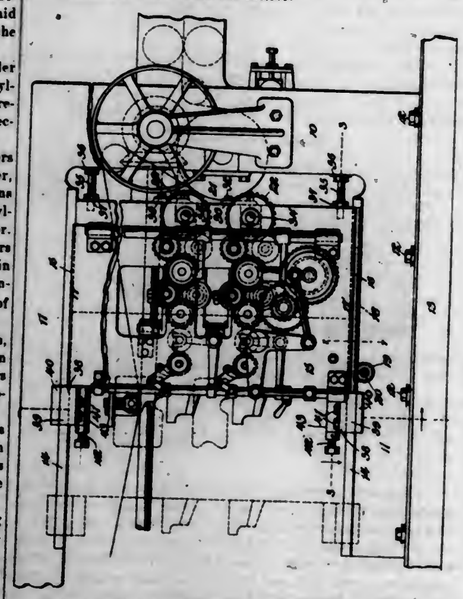
14. In a lubricator, a casing, a connected cam and ratchet within the casing, said casing having a peripheral slot, an oil-pump operated by said cam, an oscillating pawl working in said slot and engaging the ratchet, and an adjustable release device to disengage the pawl from the ratchet.

15. In a lubricator, a slotted member, a cylinder above said member, said cylinder extending parallel to the slot, a plunger within the cylinder, a reciprocating member adjustably connected to the plunger and guided in its movement by said slot, and a cam beneath said slotted member for operating the reciprocating member.

16. In a lubricator, a slotted plate, a cylinder adjustably mounted thereon, a plunger in the cylinder, a reciprocating member guided by said slot and adjustably connected to the plunger, and means to reciprocate said member.

17. In a lubricator, a casing inclosing a cam, the top of said casing being slotted, a cylinder above the casing, a plunger within the cylinder, a reciprocating member adjustably connected to the plunger and operating in said slot, and means to actuate the cam.

786,872. PRINTING-PRESS. JOHN E. CAPS, Kansas City, Mo. Filed June 8, 1903. Serial No. 160,579.



Claim.—1. In a printing-press, the combination with a fixed support, of impression mechanism mounted on the support, a carriage movable toward and from the support, inking mechanism mounted upon the carriage and movable with the same, and a printing-cylinder detachably mounted on the carriage and located between the inking mechanism and impression mechanism, said printing-cylinder being movable with the carriage and removable from the same when said carriage is separated from the support.

2. In a printing-press, the combination with relatively movable supports, of an impression-cylinder journaled on one of the supports, inking mechanism mounted on the other support, separate sets of seats formed in the support carrying the inking mechanism and opening away from said mechanism and toward the impression-cylinder, and a plurality of printing-cylinders coacting with the impression-cylinder and detachably mounted in the seats, said printing-cylinders being removable in a direction away from the inking mechanism and toward the impression-cylinder when the supports are separated.

3. In a printing-press, the combination with an impression-cylinder, of a carriage movable toward and from the impression-cylinder, and a plurality of printing-cylinders removably mounted on that portion of the carriage which is adjacent to the impression-cylinder, said printing-cylinders coacting with the impression-cylinder at separate points and being removable from the carriage when separated from the said impression-cylinder.

4. In a printing-press, the combination with a fixed support, of an impression-cylinder journaled thereon, a carriage movable toward and from the fixed support and having seats that open toward the same, said seats being located in the side of the carriage that is adjacent to the impression-cylinder, inking mechanism mounted on the carriage in rear of the seats, journal-boxes detachably fitted in the seats and removable through the open sides thereof when the carriage is separated from the fixed support, and a printing-cylinder journaled in and removable with the boxes.

5. In a printing-press, the combination with a stationary supporting-frame, of an impression-cylinder journaled on the supporting-frame, a carriage slidably mounted on the supporting-frame and movable toward and from the impression cylinder, a plurality of printing-cylinders journaled on that portion of the carriage which is adjacent to the impression-cylinder, separate inking mechanisms journaled upon the carriage and coacting with the portions of the printing-cylinders that are opposite the impression-cylinder, said carriage being movable to carry the inking mechanisms and printing cylinders toward and from the impression-cylinder and the printing-cylinders into and out of coaction with different portions of the impression-cylinder, and means for detachably supporting the printing-cylinders upon the carriage, said printing-cylinders being removable when the carriage is separated from the impression-cylinder.

6. In a printing-press, the combination with a pair of relatively movable supports, of impression mechanism mounted on one of the supports, a plurality of printing-cylinders separately mounted on the other support and coacting with the impression mechanism, and means for independently adjusting the printing-cylinders on their support in a direction transversely of their axes of rotation, toward and from the impression mechanism, said support and cylinders being movable to simultaneously carry the latter into and out of coaction with the impression mechanism.

7. In a printing-press, the combination with relatively movable supports, of impression mechanism mounted on one of the supports, the other support having a seat that opens toward the first-mentioned support, a boxing detachably mounted in said seat and removable therefrom when the supports are separated, means projecting into the seat from the opposite sides and engaging the opposite sides of the boxing for adjusting the same therein, a printing-cylinder journaled in the boxing, and a retaining-clip secured to the support and extending over the open side of the seat.

8. In a printing-press, the combination with a support, of an impression-cylinder journaled therein, a carriage movable toward and from the impression-cylinder and having an open-sided seat that opens toward the impression-cylinder, a boxing detachably mounted in the seat and removable therefrom when the carriage is separated from the impression-cylinder, a printing-cylinder journaled in the boxing, a retaining-clip movably secured to the carriage and extending over the open side of its seat, a clamp disposed between the clip and boxing, and a clamp arranged between the boxing and the rear wall of the seat.

9. In a printing-press, the combination with an impression-cylinder, of a support having a seat that opens toward the impression-cylinder, a boxing slidably mounted in the seat, an adjusting-screw threaded in the boxing and bearing against the rear wall of the seat, a retaining-clip secured over the open side of the seat between the boxing and impression-cylinder, a holding-screw threaded through the clip and bearing against the boxing, and a printing-cylinder journaled in the boxing.

10. In a printing-press, the combination with a stationary support carrying an impression-cylinder, of a carriage movable toward and from the support, boxings removably fitted on the carriage, and a printing-cylinder having gudgeons journaled in the boxings, said gudgeons projecting beyond the carriage and forming hand-grips by which the cylinder and boxings may be carried.

11. In a printing-press, the combination with upper and lower tracks, of a carriage arranged between and movably engaging the tracks, and means engaging the upper and lower portions of the carriage for securing the same against movement.

12. In a printing-press, the combination with upper and lower oppositely-disposed tracks, of a carriage arranged between and having upper and lower guides that slidably engage the tracks, and devices slidably mounted on the tracks for holding the carriage against movement thereon.

13. In a printing-press, the combination with upper and lower tracks, of a carriage arranged between and movably engaging the tracks, means for actuating the carriage, and clamps arranged to be secured against movement on the tracks and engage the carriage to hold the same against movement.

14. In a printing-press, the combination with a frame comprising standards and upper and lower tracks connected therewith, of impression mechanism mounted on the standard between the tracks, a carriage fitted between the tracks and movable toward and from the standards, printing mechanism mounted on the carriage and movable therewith into and out of coacting relation with the impression mechanism, and means engaging the upper and lower tracks and the carriage to hold the printing mechanism in coaction with the impression mechanism.

15. In a printing-press, the combination with a frame, comprising spaced standards, of an impression-cylinder journaled to the intermediate portions of the standards and located between them, upper and lower sets of tracks extending from the standards, a carriage arranged between the tracks and having guides that slidably engage the same, and a printing-cylinder and inking mechanism carried by the carriage, said printing-cylinder and inking mechanism being movable therewith into and out of coaction with the impression-cylinder.

16. In a printing-press, the combination with standards having offset-tracks, of impression mechanism mounted on the standards, a carriage slidably mounted on the tracks and movable toward and from the impression mechanism, printing mechanism mounted on the carriage and movable therewith into and out of coaction with the impression mechanism, and stops adjustably mounted on the carriage and arranged to abut against the standards, said stops limiting the movement of the carriage toward the standards and positioning the printing mechanism with respect to the impression mechanism.

17. In a printing-press, the combination with relatively movable supports, of impression mechanism mounted on one of the supports, separate printing-cylinders mounted on the other support, means for independently adjusting the cylinders upon their support toward the impression mechanism, and means for adjustably positioning the support carrying the printing mechanism with respect to the other support whereby both of the printing-cylinders can be simultaneously positioned in coacting relation with the impression mechanism.

18. In a printing-press, the combination with a track, of a carriage movably mounted thereon, and a lock also movably mounted on the track and arranged to hold the carriage against movement.

19. In a printing-press, the combination with a track, of a carriage movably mounted thereon, a lock also movably mounted on the track and arranged to hold the carriage against movement, and means for securing the lock to the track.

20. In a printing-press, the combination with a track, of a carriage movably mounted thereon, a lock arranged to hold the carriage against movement, and a clamping device interposed between the lock and carriage.

21. In a printing-press, the combination with a track, of a carriage movably mounted thereon, a lock arranged to hold the carriage against movement, and a clamping device carried by the lock and arranged to bear against the carriage.

22. In a printing-press, the combination with a movable carriage, of a lock for holding the carriage against movement, and a clamping-screw threaded on the lock and arranged to bear against the carriage.

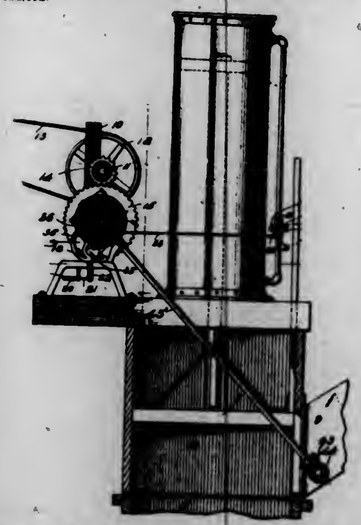
23. In a printing-press, the combination with a track having an

overhanging tread, of a carriage movably mounted on the track, and a lock for the carriage also movably mounted on the track and arranged to clamp upon the overhanging tread.

24. In a printing-press, the combination with a track having an overhanging tread, of a carriage movably mounted on the track, and a lock for the carriage also movably mounted on the track and comprising sections that engage the opposite sides of the overhanging tread.

25. In a printing-press, the combination with a frame comprising standards and horizontal tracks, of an impression-cylinder journaled upon the standards, a carriage movably mounted on the tracks, adjustable stops interposed between the carriage and the standards, and locks movably mounted on the tracks in rear of the carriage.

786,873. **BALING-PRESS FEEDER AND PACKER.** GILES CHRISTOPHER, Lone Wolf, Okla., assignor of one-fourth to Coleman R. Christopher, one-fourth to William L. Christopher, and one-fourth to Dan. E. Christopher, Lone Wolf, Okla. Filed June 29, 1904. Serial No. 214,602.



Claim.—1. In a device of the class described, a press-box, a fluid-operated packer, a controlling-valve, a press-feeder, a driven shaft, means for transmitting motion from the latter to the feeder, a wheel upon said driven shaft, pins extending from the face of said wheel, a cam disposed in the path of said pins, and a link connecting said cam with the stem of the controlling-valve.

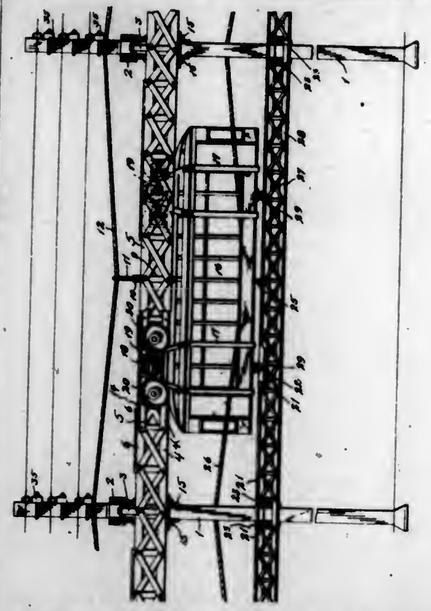
2. In a device of the class described, a press-box, a fluid-operated packer, a controlling-valve, a press-feeder, a driven shaft, means for transmitting motion from the latter to the feeder, a disk upon said driven shaft having pins projecting from the face thereof, a spring-actuated cam disposed in the path of said pins, and a link connecting said cam with the stem of the controlling-valve.

3. In a device of the class described, a press-box, a fluid-operated packer, a controlling-valve, a press-feeder, a driven shaft, means for transmitting motion from the latter to the feeder, a disk upon the driven shaft, pins projecting from the face of said disk and progressively spaced from the rim of the latter, and a valve-operating cam disposed in the path of said pins.

4. In a device of the class described, a press-box, a fluid-operated packer, a controlling-valve, a press-feeder, a driven shaft, means for transmitting motion from the latter to the feeder, a disk upon the driven shaft, pins projecting from the face of said disk, a valve-operating cam disposed in the path of said pins and having an approximately semicircular recess terminating in an apex and wave-like depressions extending from said apex to the point of the cam, and means for forcing said cam in the direction of the operating-pins.

786,874. **ELEVATED RAILROAD.** JOHN COOPER, Mount Vernon, Ohio. Filed Dec. 21, 1904. Serial No. 237,748.

Claim.—1. In an elevated railway, the combination with a car, trucks for supporting the same and the wheels of the trucks, of supporting means, angular tracks arranged on the supporting means and supporting and confining the truck-wheels therebetween, and a safety-track projected from the supporting means beneath the car.



2. In an elevated railway, the combination with a car, overhead trucks and the truck-wheels, of supporting means, suspending means projecting from the supporting means, tracks supported from the suspending means comprising opposed angular rails confining the truck-wheels therebetween, and means for connecting the rails of each track.

3. In an elevated railway, the combination with a car, overhead trucks supporting the car and the truck-wheels, of supporting means, tracks suspended from the supporting means engaged with the truck-wheels for supporting the same, a safety-track suspended from the supporting means so as to lie beneath the car and centrally of its line of travel, and a safety-wheel carried upon the car in juxtaposition to the safety-track but normally out of contact therewith.

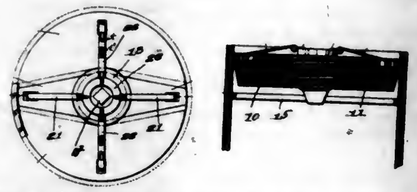
4. In an elevated railway, the combination with a car, supporting means and means for suspending the car from the supporting means, of a safety-track supported from the supporting means beneath the car comprising side plates and a channel-iron for connecting the side plates, and safety-wheels pivotally mounted upon the car projecting within the safety-track but normally out of contact with the side plates and channel-iron thereof.

5. An elevated railway comprising a line of single posts, an upper and a lower cross-beam supported from each post, car-tracks supported by the upper beams, safety-tracks supported by the lower beams, a cable extending between the posts and connected to the car-tracks intermediate of the former, and a second cable extending between the posts and connected to the safety-tracks intermediate of the former.

6. In an elevated railway, the combination with a car, means for supporting the car and a safety-track arranged beneath the car, of a pivoted safety-wheel carried by the car and disposed in juxtaposition to the safety-track.

786,875. **KNOCKDOWN BARREL.** WALTER E. COPITHORN, Natick, Mass. Filed Feb. 19, 1904. Serial No. 194,414.

Claim.—1. In a knockdown barrel, a plurality of staves arranged edge to edge, each stave having an interlocking connection with the adjacent stave, and an expansible head comprising main members, and interposed radially-movable key members provided with tapered screw-threads at their inner ends, and a tapered screw-threaded plug to engage the key members and force the latter outwardly as said plug is screwed home.



2. In a knockdown barrel, a plurality of staves arranged edge to edge, each stave having an interlocking connection with the adjacent stave, an expansible head comprising main members, interposed radially-movable key members provided with tapered screw-threads at their inner ends, a tapered screw-threaded plug to engage the key members and force the latter outwardly as said plug is screwed home, and means whereby the key members are retracted by the plug as the latter is withdrawn.

3. In a knockdown barrel, a plurality of staves having an interlocking connection with each other and an expansible head comprising main members, radially-movable key-pieces, and a tapered screw-plug to force the members outwardly as the plug is screwed home.

4. In a knockdown barrel, a plurality of staves having an interlocking connection with each other adapted to withstand lateral and radial pressure, and an expansible hoop on the inside of the barrel and acting to press outwardly upon the staves.

5. In a knockdown receptacle, a plurality of staves arranged edge to edge each stave having a longitudinal groove on its inner side at one edge, and a tongue on its outer side at the other, said tongues adapted to enter said grooves, and an expansible head.

6. An expansible head for barrels and similar receptacles, comprising main members and interposed radially-movable key members provided with tapered screw-threads at their inner ends, and a tapered screw-threaded plug to engage said key members and force the latter outwardly, as said plug is screwed home.

7. An expansible head for barrels and similar receptacles comprising main members, and interposed radially-movable wedge-shaped key members having their wider ends toward the center of the barrel, and a tapered screw-threaded plug to engage said thicker edges and force the key members outwardly, as said plug is screwed home.

8. An expansible head for barrels and similar receptacles comprising main members and interposed radially-movable key members provided with tapered screw-threads at their inner ends, a tapered screw-threaded plug to engage said key members and force the latter outwardly, as said plug is screwed home, and means operated by the plug when it is withdrawn to retract positively said key members.

9. An expansible head for barrels and similar receptacles, comprising main members and interposed radially-movable key members provided with tapered screw-threads at their inner ends, a tapered screw-threaded plug to engage said key members and force the latter outwardly, and connections between said plug and key members whereby the latter are retracted as the plug is withdrawn.

10. An expansible head for barrels and similar receptacles comprising main members and interposed radially-movable key members provided with tapered screw-threads at their inner ends, a tapered screw-threaded plug to engage said key members and force the latter outwardly, as said plug is screwed home, a plate resting on the top of the plug, and links pivoted to said plate and key members.

786,876. **GARMENT-SUPPORTER.** HERMAN E. CRANDALL, New Britain, Conn. Filed Mar. 19, 1904. Serial No. 198,975.



Claim.—1. In a garment-supporter, the combination of a loop member having an opening therein wide at one end and narrow at the other with a button member having a button-base, button-head, and a standard connecting the said base and head and located at the upper portion of the said base above the said button-head, the said standard coming within the wider opening of the said loop member when the narrower opening is drawn up under the button-head.

2. In a garment-supporter, the combination of a loop member with a button member having a frame of resilient material and comprising a button-base, button-head and a standard connecting the said base and head at the upper portion of the said button-base above the said button-head, and a graspable neck of soft flexible material between the said button base and head.

3. In a garment-supporter, the combination of a loop member with a button member having a button-base, button-head, a standard connecting the said base and head and a graspable neck of soft flexible material extending inwardly from the said button-head toward the said button-base remotely from the said standard without any core or interior support.

4. In a garment-supporter, the combination of a loop member with a button member having a button-base, button-head, and a standard connecting the said base and head, the said standard being located above the said button-head, the length of the loop member from its upper end to its narrow grasping portion being less than the distance from the said standard to the lower edge of the said button-head.

5. In a garment-supporter, the combination of a loop member with a button member having a button-base, button-head, and a connecting-standard for said base and head, and a graspable neck of soft flexible material connected with the said button-head and extending inwardly through and from the said head.

6. In a garment-supporter, the combination of a loop member with a button member comprising a wire frame having a button-base, button-head and a standard connecting the said base and head, all formed of a single piece of wire and a connected webbing with a portion thereof extended from the said button-base to the said button-head and forming a graspable neck substantially as described.

7. In a garment-supporter, the combination of a loop member with a button member comprising a button-base, button-head and a connecting-standard, the head being of an open form, and a graspable neck consisting of a strip of soft flexible material doubled upon itself in front of the said button-head and extending inwardly therefrom substantially as described.

8. In a garment-supporter, the combination of the loop member with a button member comprising a button-base, button-head and a connecting-standard all formed of wire, the said button-head having a plurality of wire bars and forming an open head, and a graspable neck formed of soft flexible material mounted on the said button-head and extending therefrom toward the said button-base.

786,877. **BOTTLE-WASHING MACHINE.** CHARLES W. DESOBRY, Indianapolis, Ind., assignor, by direct and mesne assignments, of two-thirds to Earle C. Perry, Jeffersonville, Ind. Filed Dec. 28, 1903. Serial No. 186,915.



Claim.—1. A bottle-washing machine including a water-tank, means that holds and conveys bottles into and out of said tank, and rotary brushes mounted in the tank in line with the bottles so as to enter and cleanse the same.

2. A bottle-washing machine including a water-tank, vertical guides in said tank, a carriage mounted movable along said guides, a removable bottle-carrier adapted to be placed in said carriage and hold bottles inverted, and rotary brushes mounted in the tank in a fixed position with reference to said guides so as to enter the bottles.

3. A bottle-washing machine including a water-tank, a bottle-carrier capable of holding a number of bottles with their mouths exposed and inverted, means for moving said carrier into and out of the tank, and rotary brushes mounted in the tank in line with the bottles so as to enter and cleanse the same.

4. A bottle-washing machine including a water-tank, vertical guides in said tank, a carriage mounted movable along said guides that is open on one side and the bottom and has a horizontal opening or slot in each end thereof, a bottle-carrier consisting of a frame adapted to be inserted in said carriage and having a bar extending longitudinally through the carrier for holding the bottles in place when inverted, and means for moving said carriage into and out of the tank.

5. A bottle-washing machine including a water-tank, vertical guides in said tank, a carriage mounted movable along said guides and adapted to hold bottles inverted, a horizontal rack-bar secured to each end of said carriage, a shaft extending through the tank horizontally, gear-wheels on said shaft that mesh with said rack-bars, means for actuating said shaft so that the carriage may be moved into and out of said tank, and brushes in the tank adapted to enter the bottles for cleansing them.

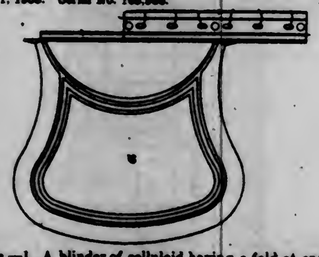
6. A bottle-washing machine including a water-tank, a plurality of carriages adapted to hold bottles inverted, independent vertical guides in said tank for guiding the movement of said carriages, a vertical rack-bar secured to each end of each carriage, a shaft extending horizontally through the tank between the sets of guides for said carriages, gear-wheels on said shaft meshing with the rack-bars on both carriages, means for oscillating said shaft so that said carriages will be simultaneously moved in opposite directions down into and up out of said tank, and brushes in said tank for cleansing the bottles.

7. A bottle-washing machine including a water-tank, means that holds and conveys bottles into and out of the tank in an inverted position, upwardly-extending shafts in the water-tank mounted so as to be in direct alinement with each bottle, brushes secured to the upper end of each shaft so as to enter the bottles as the latter are depressed, and means secured to said brush-shafts for rotating them.

8. A bottle-washing machine including a water-tank, means that holds and conveys bottles into and out of the tank in an inverted position, a removable plate mounted in the tank, brush-shafts mounted in said plate and extending upward in alinement with the bottles when the latter are depressed, brushes on said shafts for entering the bottles, and means for rotating said brush-shafts.

9. A bottle-washing machine including a water-tank, means that holds and conveys bottles into and out of the tank in an inverted position, a removable plate mounted in the tank, brush-shafts mounted in said plate and extending upward in alinement with the bottles when the latter are depressed, brushes on said shafts for entering the bottles, a pinion secured on each brush-shaft and meshing with the pinions on all the adjacent brush-shafts, and means for driving one of said pinions so that through it the brush-shafts are rotated.

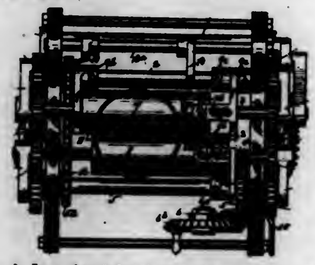
786,878. BLINDER. BERNT DAHLSTRÖM, Hamburg, Germany. Filed July 1, 1903. Serial No. 163,966.



Claim.—1. A blinder of celluloid having a fold at one edge, a runner receiving said fold whereby the blinder may be slid therein, and having an inset of the same thickness as said fold, and the runner and inset provided with coincident holes as and for the purpose specified.

2. A blinder having at one edge a fold, a runner receiving said fold slidably and having an inset, and a piece *f* securing the two lower parts of the runner together and closing the end thereof, as and for the purpose set forth.

786,879. DOUGH-FORMING MACHINE. CHRISTIAN F. DIETZ, Chicago, Ill., assignor of two-thirds to August Junge, Chicago, Ill., and Phillip F. Carroll, Joliet, Ill. Filed Feb. 5, 1904. Renewed Oct. 3, 1904. Serial No. 226,934.



Claim.—1. In a dough-forming machine, rollers adapted to support a lump of dough and mounted to rotate toward each other and also mounted to slide in opposite parallel planes.

2. In a dough-forming machine, contiguously-placed rollers adapted to support a lump of dough, mounted to rotate toward each other, and also adapted to reciprocate in opposite directions substantially in the manner set forth.

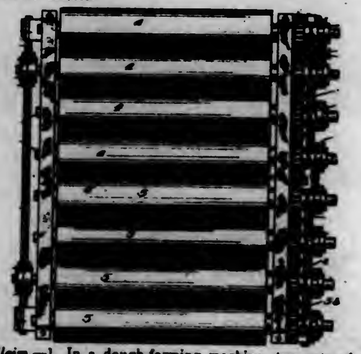
3. In a dough-forming machine, rollers adapted to support a lump of dough and mounted to rotate toward each other, also adapted to slide in opposite parallel planes, and means for raising said rollers to permit the lump of dough to drop by gravity.

4. In a dough-forming machine, rollers adapted to support a lump of dough and mounted to rotate toward each other and to slide in parallel planes, means for separating said rollers and means for restoring them to their normal position.

5. In a dough-forming machine, rollers adapted to support a lump of dough and mounted to slide in parallel planes, a plate arranged above said rollers and adapted to hold the dough in contact with the rollers, and means for operating said plate.

6. In a dough-forming machine rollers adapted to support a lump of dough and mounted to slide in parallel planes, pivoted levers supporting the journals of said rollers, means for operating said levers to spread apart said journals and means for automatically restoring the levers to their normal positions.

786,880. DOUGH-FORMING MACHINE. CHRISTIAN F. DIETZ, Chicago, Ill., assignor of one-third to Philip F. Carroll, Joliet, Ill., and one-third to Bertha Junge, Chicago, Ill., and August Junge, Jr., Joplin, Mo., executors of August Junge, deceased. Filed Feb. 19, 1904. Serial No. 194,433.



Claim.—1. In a dough-forming machine, two sets of rollers adapted to support a lump of dough, means for holding the dough in position on said rollers, and means for operating said rollers, said means adapted to start said rollers in sequence beginning with the rollers at the outer end of each set.

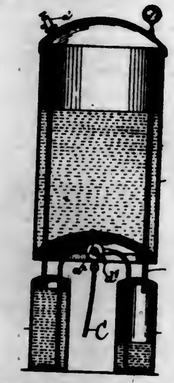
2. In a dough-forming machine, two sets of rollers adapted to jointly support a lump of dough, adjustable means for holding the dough in position on said rollers, said means adapted to move at right angles to the plane of rotation of said rollers, and means for operating said rollers.

3. In a dough-forming machine, two sets of rollers adapted to jointly support a lump of dough, adjustable means for holding the dough in position on said rollers, and means for rotating said rollers in sequence beginning with the rollers at the outer end of each set.

4. In a dough-forming machine, two sets of rollers, the rollers of each set being in contact with each other and driven in the same direction and the inside rollers of both sets being spaced apart, a scraper between said inside rollers, and adjustable means for holding the dough in position on the rollers.

5. In a dough-forming machine, two sets of rollers mounted to rotate in opposite directions substantially as set forth, means for rotating the rollers of each set in succession, with the corresponding rollers of both sets moving in unison, and reciprocating means for holding a lump of dough in position on said rollers.

786,881. FLUID-DELIVERY APPARATUS. ROBERT L. DORAN, Chicago, Ill., assignor, by direct and mesne assignments, to Acorn Brass Manufacturing Company, a Corporation of Illinois. Filed May 20, 1901. Serial No. 61,032.



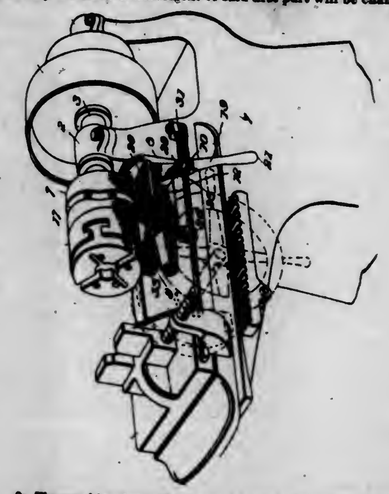
Claim.—1. A fluid-pressure apparatus of the character described, comprising upper and lower tanks, a pipe extending from each of said tanks, a delivery-main, a multiway valve connecting said pipes and said main, and an equalizing-pipe connecting the upper portion of the uppermost tank to the upper portion of the lower tank.

2. A fluid-pressure apparatus of the character described, comprising upper and lower tanks, the uppermost tank being of greater capacity than the lower tank and serving as a holder for both liquid and air, a pipe extending from each of said tanks, a delivery-main and a multiway valve connecting said pipes and said main, the upper part of said uppermost tank being connected to the tank beneath it.

3. In a fluid-delivery apparatus, the combination with a supply-tank, of plural delivery-tanks, suitable pipes for passage of gasolene or like liquid connecting said delivery-tanks to said supply-tank and with a discharge-main, equalizing-pipes extending between said supply-tank and said delivery-tanks, and suitable valve mechanism whereby when the supply of gasolene or like liquid is admitted from the supply-tank to one of said delivery-tanks connection between said supply-tank and the other of said delivery-tanks is cut off and said delivery-tank thus cut off from the supply-tank is placed in communication with the delivery-main.

786,882. MECHANICAL MOVEMENT FOR CONTROLLING THREADING-DIES. FRANCIS H. RANEY, Baltimore, Md., assignor to The Detrick and Harvey Machine Company of Baltimore City, Baltimore, Md., a Corporation of Maryland. Filed Oct. 3, 1904. Serial No. 227,175.

Claim.—1. The combination with a movable part, of a second part connected to the first part and adapted to be vibrated thereby and stops adapted to be alternately brought into engagement with the second part to change the center of vibration of said second part whereby the locus of movement of said first part will be changed.



2. The combination with a rotatable part, of a second part connected to the first part and adapted to be vibrated thereby, and stops adapted to be alternately brought into engagement with the second part to change the center of vibration of said second part whereby the plane of rotation of said first part will be changed.

3. The combination with a movable part provided with a cam, a second part adapted to be vibrated by the cam of the first part, and means for changing the center of vibration of the second part whereby the cam will cause the first part to change its locus of movement.

4. The combination with a rotatable part provided with a cam, a second part adapted to be vibrated by the cam of the first part, and means for changing the center of vibration of the second part whereby the cam will cause the first part to change its plane of rotation.

5. The combination with a rotatable shaft, of a collar adapted to slide thereon, said collar being provided with a cam, a part adapted to be vibrated by the cam, and means for changing the center of vibration of said part whereby the cam will cause the collar to slide on the shaft.

6. The combination with a rotatable shaft, of a collar adapted to slide thereon, said collar being provided with a cam, a block, means carried by the block and engaging the cam whereby the block will be vibrated by the cam, and means for changing the center of vibration of the block whereby the cam will cause the collar to slide on the shaft.

7. The combination with a rotatable shaft, of a collar slidable thereon, said collar being provided with a cam, a part adapted to be vibrated in a path parallel to the axis of the shaft, means carried by the part and engaging the cam whereby the part will be vibrated, and means for changing the center of vibration of the part whereby the cam will cause the collar to slide on the shaft.

8. The combination with a rotatable shaft, of a collar slidable thereon, an annular cam-groove in the collar, a pin engaging the cam-groove, means for supporting the pin, and means for changing the center of vibration of the pin whereby the collar will be caused to slide on the shaft.

9. The combination with a movable part, of a second part connected thereto and adapted to be vibrated thereby, said second part being provided with stops, a third part provided with stops adapted to alternately coöperate with the stops on the second part, the stops on one of said parts being out of line with each other, whereby by changing the position of the stops on the third part, the center of vibration of the second part will be changed, said change operating to change the locus of movement of said movable part.

10. The combination with a rotatable part, of a second part connected thereto and adapted to be vibrated thereby, said second part being provided with stops, a third part provided with stops adapted

to alternately coöperate with the stops on the second part, the stops on one of said parts being out of line with each other whereby by changing the position of the stops on the third part, the center of vibration of the second part will be changed, said change operating to change the plane of rotation of said rotating part.

11. The combination with a rotatable part, of a block connected thereto and adapted to be vibrated thereby, said block being provided with stops, a second block provided with stops, the stops on one of the blocks being out of line with each other, the stops on the second block being adapted to be alternately moved into engagement with the stops on the first block and change its center of vibration, said change operating to change the center of vibration of said rotating part.

12. The combination with a rotatable part, of a block connected thereto and adapted to be vibrated thereby, said block being provided with two sets of stops, the stops forming one set being out of line with the stops of the other set, a part adapted to be moved between the stops of either set, whereby the center of vibration of the block will be changed, said change operating to change the plane of rotation of the first part.

13. The combination with a rotatable shaft, a collar slidable thereon, said collar being provided with a cam, a block engaging the cam and adapted to be vibrated thereby, said block being provided with two sets of stops, the stops forming one set being out of line with the stops of the other set, a part adapted to be moved between the stops of either set whereby the center of vibration of the block will be changed, said change operating through the cam to change the plane of rotation of said collar.

14. The combination with a rotatable shaft, of a collar slidable thereon, said collar being provided with a cam, a block engaging the cam and adapted to be reciprocated thereby, said block being provided with recesses in its sides, the ends of said recesses forming stops, the recesses being out of line with each other, a part adapted to be moved into either recess whereby the center of vibration of the block will be changed, said change operating to slide the collar on its shaft.

15. The combination with a rotatable shaft, of a collar adapted to slide thereon, said collar being provided with a cam, a block, means carried by the block and engaging the cam whereby the block will be reciprocated by the cam, said block being provided with recesses in its sides and out of line with each other, a second block provided with projections and mounted to move transversely of the first block whereby a projection may be moved into either recess to change the center of vibration of the first block and cause the cam to slide on its shaft.

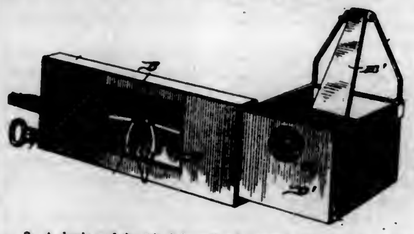
16. In a thread-cutting machine, the combination with a rotatable shaft, a thread-cutting head carried by the shaft and having movable dies, a collar slidably mounted upon the shaft and means carried by the collar to operate the dies, a cam-groove cut in the periphery of the collar, a part constantly engaging the cam-groove and adapted to be vibrated thereby and means for changing the center of vibration of the vibrating part, whereby the cam will be slid on the shaft and the dies in the head be operated.

17. In a thread-cutting machine, the combination with a rotatable shaft, a cutting-head carried by the shaft and having movable thread-cutting dies, a collar slidably mounted upon the shaft and means carried by the collar to operate the dies, a carriage adapted to carry the work and feed the same to the head, a cam-groove cut in the periphery of the collar, a part constantly in engagement with the cam-groove and adapted to be vibrated thereby, and means operated by the movement of the carriage to change the center of vibration of the vibrating part to slide the cam on its shaft and operate the dies in the head.

786,883. SLIDE-CARRIER FOR STEREOPTICONS. FREDERICK C. EDMONDS, Lindsay, Canada, assignor of one-half to Robert Chambers, Lindsay, Ontario, Canada. Filed Feb. 1, 1904. Serial No. 191,615.

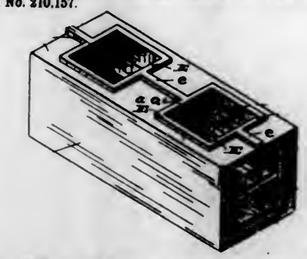
Claim.—1. A device of the kind described, comprising a carrier having longitudinal grooves therein, a magazine at one end of the carrier and vertically slotted on one side in alinement with one of the grooves, a spring-pressed plate pivoted at the rear of the magazine and adapted to hold a lantern-slide in alinement with said slot, and means for drawing said slide through the slot into and along a groove of the carrier.

2. The combination with a lantern-slide carrier, of a magazine secured at the end of the carrier and opening into the carrier, a bracket on the rear wall of the magazine, a plate pivoted at the upper end to the bracket and having its lower end projecting downwardly and forwardly into the magazine, a spring adapted to press said plate forward, the plate being adapted to hold a lantern-slide against the front wall of the magazine and in alinement with said carrier, the said front wall having a horizontal groove on its inner face, and means arranged in the carrier and extending into said groove and adapted to draw the slide from the magazine into the carrier.



3. A device of the kind described comprising a carrier, a magazine arranged at one end of the carrier, a rod adapted to engage the slides held in the magazine and move them into the carrier, said carrier having a central opening, shutters adapted to close said opening, a shifting bar connected to the rod and adapted to move in the same direction, pivoted arms carried by the shutters and pivoted at their lower ends to a common rod adapted to move vertically, a beveled block arranged on the said last-mentioned rod, and a block pivoted to the shifting bar and adapted to engage and draw down the block carried by the vertically-movable rod during outward movement of the shifting bar.

786,884. BUILDING-BLOCK. WILLIAM J. FAULKNER, Chicago, Ill., assignor to Robert P. Faulkner, Chicago, Ill. Filed May 28, 1904. Serial No. 210,157.



Claim.—1. In a building-block comprising sides, ends and a top and bottom, the top and bottom, respectively, provided with apertures therethrough, a rib surrounding the apertures in the top and a rib surrounding the aperture in one end, and rabbets corresponding to such ribs, respectively around the apertures in the bottom and around the aperture in the other end; substantially as described.

2. A building-block, comprising sides, ends, a top and bottom and a horizontal intermediate web connecting the sides, such ends, the top, the bottom, and the horizontal web, respectively, provided with apertures therethrough, a rib surrounding the apertures in the top, and a rib surrounding the apertures in one end, and rabbets corresponding to such ribs, respectively, around the apertures in the bottom and around the apertures in the other end; substantially as described.

3. A building-block comprising sides, ends, a top and a bottom, and a horizontal intermediate web connecting the sides, such ends, the top, the bottom, and the horizontal web, respectively, provided with apertures thereto, a rib surrounding the apertures in the top, a rib surrounding the apertures in one end, a rib extending longitudinally along the top of the block, the bottom provided with rabbets surrounding the apertures therein, the remaining end provided with rabbets to the apertures thereof, and the bottom provided with a longitudinally-extending groove therein, substantially as described.

4. A building-block comprising sides, ends, a top and a bottom and a horizontal intermediate web connecting the sides, such ends, the top, the bottom, and the horizontal web, respectively, provided with apertures therethrough, a rib surrounding the apertures in the top, a rib surrounding the apertures in one end and a rib extending longitudinally along the top of the block, and the bottom provided with rabbets surrounding the apertures therein, the remaining end provided with rabbets to the apertures thereof, the bottom provided with a longitudinally-extending groove therein, and one of the sides

provided with recesses to receive the ends of floor-joists; substantially as described.

786,885. TYPE-WRITING MACHINE. CHARLES N. FAY and HENRY HOCHKLASSEN, Chicago, Ill., assignors to Fay-Sholes Company, Chicago, Ill., a Corporation. Filed June 6, 1903. Serial No. 110,463.



Claim.—1. In a type-writing machine, the combination with the platen and platen-frame, of a pair of pressure devices mounted upon the platen-frame and each movable to and from the platen, said pressure devices being connected together and longitudinally adjustable upon the platen-frame, spring mechanism for pressing said devices against the platen and a releasing-shifter connected to said devices and longitudinally adjustable therewith arranged to shift said devices and relieve the pressure exerted thereby upon the platen.

2. In a type-writing machine, the combination with the platen and platen-frame, of a pair of pressure devices each shiftable to and from the platen, a pair of pivoted supports for said pressure devices mounted upon the platen-frame and connected together to shift longitudinally thereon, spring mechanism for forcing said pressure devices toward the platen and a releasing-shifter connected to and longitudinally adjustable with said pivoted supports arranged to spread the same and relieve the pressure exerted by said devices upon the platen.

3. In a type-writing machine, the combination with the platen and platen-frame, of a pair of pressure devices shiftable to and from the platen, a pair of pivoted supports therefor mounted upon the platen-frame and connected together to shift longitudinally thereon, spring mechanism for forcing said pressure devices against the platen, a releasing-shifter carried by one of said pivoted supports and arranged to engage the other of said supports to relieve the pressure exerted by said devices upon the platen.

4. In a type-writing machine, the combination with the platen and platen-frame having a rod extending lengthwise in front of the platen, of a pair of pressure devices and swinging supports therefor adjustable lengthwise upon said rod, a common spring for forcing both of said devices toward the platen and a releasing-shifter connected to and adjustable with said pivoted supports arranged to spread the same and relieve the pressure exerted by said devices upon the platen.

5. In a type-writing machine, the combination with the platen and platen-frame having a rod extending lengthwise of the platen, of a pair of pressure devices and swinging carriers therefor adjustable together lengthwise upon said rod, a spring for forcing said pressure devices against the platen and a releasing-shifter mounted upon one of said swinging carriers and arranged to engage the other to relieve the pressure of both of said devices upon the platen.

6. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports therefor connected together and adjustable longitudinally upon the platen-frame, spring mechanism for forcing said pressure devices toward the platen and a movable release device carried by one of said swinging frames or supports and having a part adapted to engage with the other of said swinging frames or supports in order to relieve the pressure of said devices upon the platen.

7. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports carrying said pressure devices, said swinging frames being pivotally mounted upon the front rod of the platen-frame and shiftable together longitudinally thereon, spring mechanism for forcing said pressure devices toward the platen and a movable release device carried by one of said swinging frames or supports and having a part adapted to engage with the other swinging frames or supports in order to relieve the pressure of said devices upon the platen.

8. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports therefor connected together and longitudinally adjustable upon the platen-frame, spring mechanism for forcing said pressure devices toward the platen and a movable release device arranged to spread said pressure devices apart and so relieve their pressure upon the platen.

9. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports therefor connected together and adjustable longitudinally upon the platen-frame, spring mechanism for forcing said pressure devices toward the platen and a movable release device comprising a pivoted lever mounted upon one of said supports and having an offset or cam arranged to engage the other of said supports whereby said pressure devices are spread to relieve their pressure upon the platen.

10. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports therefor connected together and longitudinally adjustable upon the platen-frame, spring mechanism for forcing said pressure devices toward the platen and a movable release device comprising a pivoted lever mounted upon one of said supports and having an offset or cam and a lug or offset upon the other of said supports arranged in position to be engaged by said cam in order to spread said swinging frames or supports and so relieve the platen from the pressure of the devices carried by said frames or supports.

11. In a type-writing machine, the combination with a platen and platen-frame, of a swinging support pivoted upon the front rod of the platen-frame and longitudinally adjustable thereon, a pressure-roller carried by said support, a release-lever pivotally mounted on said adjustable swinging support and provided with a cam or offset, an abutment adjustable with said support on the platen-rod arranged to be engaged by said cam or offset of said release-lever to shift said swinging support and release the pressure of said roller upon the platen and a stop for limiting the movement of said release-lever.

12. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports carrying said pressure devices, said frames or supports being pivoted to support their pressure devices upon opposite sides of the front rod of the platen-frame and connected together to shift longitudinally thereon, a spring coiled upon said front rod of the platen-frame and engaging said swinging frames or supports and a movable release device carried by one of said swinging frames or supports and having a part adapted to engage with the other of said swinging frames or supports in order to spread said frames and thus relieve the pressure against the platen of the devices carried thereby.

13. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports for carrying said pressure devices, a common spring for forcing both of said pressure devices toward the platen and an adjusting-screw connecting one end of said spring with one of said swinging frames or supports.

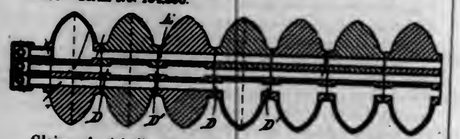
14. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports carrying said pressure devices, said frames or supports being pivoted to support their respective pressure devices upon opposite sides of the front rod of the platen, a common spring for forcing both of said pressure devices toward the platen, an adjusting-screw connecting one end of said spring with one of said swinging frames or supports and a release-lever pivoted to one of said frames or supports and arranged to engage the other and thus spread said supports and relieve the pressure exerted by said devices against the platen.

15. In a type-writing machine, the combination with the platen and platen-frame, of upper and lower pressure devices for pressing the paper against the platen, swinging frames or supports therefor connected together and longitudinally adjustable upon the platen-frame, a spring for forcing said pressure devices toward the platen, a screw having its inner end connected to said spring and its outer end provided with means whereby the screw may be adjusted to vary the tension of the spring, and a movable release device carried by one of said swinging frames or supports and having a part adapted to engage with the other of said swinging frames or supports in order to relieve the pressure of said devices upon the platen.

16. The combination with the platen and with the platen-frame having a rod extending longitudinally of the platen, of a pair of pressure devices each shiftable to and from the platen, a pair of pivoted supports therefor both mounted upon the common platen-rod and connected together to shift longitudinally thereon, said pivoted supports being arranged to support their respective pressure devices on

opposite sides of said platen-rod, a spring for forcing said pressure devices against the platen and a releasing-shifter carried by one of said pivoted supports and arranged to engage the other to spread said supports and thus relieve the pressure exerted by said devices against the platen.

786,886. **RADIATOR.** JOHN F. FLANERTY, Cleveland, Ohio, assignor of one-fourth to Oliver P. Clay, Glenville, Ohio. Filed Dec. 9, 1903. Serial No. 184,280.



Claim.—1. A hollow radiator-section having alined ports in opposite sides thereof and close to the lower end of the inclosed fluid-space, and having also a horizontal through-port, which does not communicate with said fluid-space, but which *is* in substantially the same horizontal plane as said alined ports.

2. A radiator composed of independently-constructed hollow sections or units, each having alined ports in opposite sides thereof and close to the lower end of the inclosed fluid-space, and having also a horizontal through-port which does not communicate with said fluid-space, but which is in substantially the same horizontal plane as said alined ports, said sections being assembled with the through-ports of some sections in communication with the other ports of adjacent sections.

3. A radiator composed of a plurality of independently-constructed hollow radiator-sections, each having inlet and outlet ports in opposite sides, which ports communicate with the fluid-space within said sections, and having also a through-port which extends from one side of the section to the other, but does not communicate with said fluid-space, said sections being connected together with the through-port in at least one section, communicating with one of the other ports in an adjacent section, substantially as and for the purpose specified.

4. A hollow radiator-section having an alined port through opposite sides thereof and close to the lower end of the inclosed fluid-space, and having a thickened base adjacent to the said ports, which thickened base contains a port which extends from one side of the section to the other and is in substantially the same horizontal plane as the other ports mentioned, but is in a different vertical plane.

5. A radiator-section having an inlet-port in one side, and an alined outlet-port in the opposite side, and a thickened base in which are a plurality of through-ports which are in the same horizontal plane as are the inlet and outlet ports, substantially as and for the purpose specified.

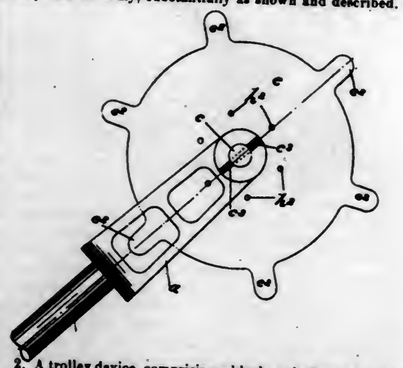
6. A radiator made up of sections each having an inlet-port through one side, an alined outlet-port through the opposite side, and a thickened base in which is a through-port in the same horizontal plane, said sections differing when they are assembled in respect to the arrangement of said ports of some sections relative to the ports of other sections, substantially as and for the purpose specified.

7. A radiator made up of sections each having an inlet-port through one side, an alined outlet-port through the opposite side, and a thickened base in which are a plurality of through-ports, said sections differing in respect to the relative arrangement of said ports, and one more independently-operable valves than there are through-ports in the sections, said valves being arranged to control the flow of steam to the ports in the adjacent radiator-section, substantially as and for the purpose specified.

8. A radiator made up of sections each having an inlet-port through one side, an alined outlet-port through the opposite side, and a thickened base in which is a through-port, said sections differing in respect to the arrangement of the ports of some sections relative to those of other sections, and a valve-casing containing chambers which severally communicate with the ports of the outside radiator-section, and containing also a single chamber to which steam may be admitted, and being provided with independently-operable valves controlling the passage of steam from said last-mentioned chamber to the first-mentioned chambers, substantially as and for the purpose specified.

786,887. **TROLLEY DEVICE.** ANTON F. FLIERBOOM, Elizabeth, N. J., assignor of one-half to John P. Conrad and William R. Bonnell, Elizabeth, N. J. Filed Jan. 28, 1905. Serial No. 243,013.

Claim.—1. A trolley device, comprising a block, a shaft or axle mounted therein, a trolley-wheel mounted on said shaft or axle, and independent and rotatable wheels or disks mounted on the opposite sides of the trolley-wheel, said wheels or disks being provided at their perimeters with radially-projecting fingers having inwardly-directed dogs the inner surfaces of which are inclined downwardly and inwardly and the outer surfaces of which are also inclined downwardly and inwardly, substantially as shown and described.



2. A trolley device, comprising a block, a shaft or axle mounted therein, a trolley-wheel mounted on said shaft or axle, and independent and rotatable wheels or disks mounted on the opposite sides of the trolley-wheel, said wheels or disks being provided at their perimeters with radially-projecting fingers having inwardly-directed dogs the inner surfaces of which are inclined downwardly and inwardly and the outer surfaces of which are also inclined downwardly and inwardly, and said shaft or axle being also provided at the opposite sides of the trolley-wheel and on the outer sides of the independent wheels or disks with independent hubs in which are placed spiral springs, substantially as shown and described.

786,888. **EGG-CARRIER.** GEORGE FINN and ARTHUR S. PIKE, Wellington, New Zealand. Filed Dec. 23, 1904. Serial No. 237,928.



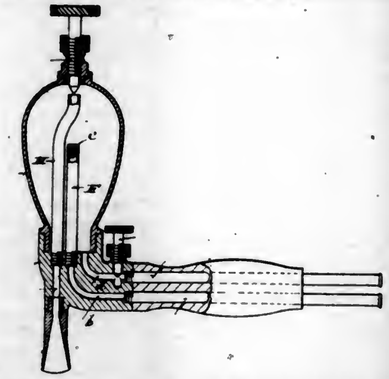
Claim.—1. A carrier for an egg consisting of a single piece of wire bent at its middle to form an egg-supporting loop, the two parts of the wire then bent downwardly and laterally to form a curved base, each part of the wire then bent in an upward curve and then curved outwardly and down to form two other egg-supporting loops, and a leg from each of said last-mentioned loops formed by continuing the wire downwardly, with means for securing each leg to a support, at one side of said curved base, substantially as set forth.

2. For the purpose indicated, a single piece of wire bent to form three independent loops, each loop curved to fit a portion of the periphery of an egg, the wire being continued downwardly from two of said loops to form legs at one side of the center of the device, and battens spaced apart to which said legs are secured one leg to each batten, substantially as set forth.

786,889. **LAUNDRY DAMPENING-TOOL.** HENRY M. FORBES, Portage, Wis., assignor of three-fourths to Jesse M. Russell, Richard H. Dalton, and Frank Thompson, Portage, Wis. Filed Oct. 17, 1904. Serial No. 228,753.

Claim.—1. A laundry-tool comprising a shank provided with inlet and outlet steam-passages and a water-of-condensation passage, tubes in register with the steam-passages, the inlet-tube being the shortest and having no outlet other than a lateral port or ports; and a dome inclosing said tubes and the inlet of said water-of-condensation passage.

2. A laundry-tool comprising a shank provided with inlet and outlet steam-passages and a water-of-condensation passage, a valve adjustable to control the latter passage, tubes in register with the steam-passages, the inlet-tube being the shortest and having no outlet other than a lateral port or ports; and a dome inclosing said tubes and the inlet of said water-of-condensation passage.

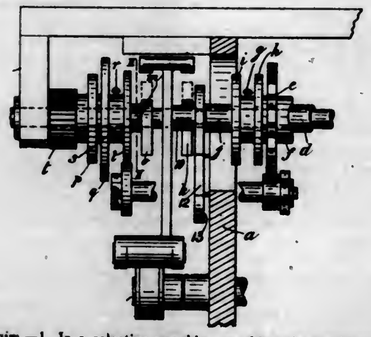


3. A laundry-tool comprising a shank provided with inlet and outlet steam-passages and a water-of-condensation passage, tubes in register with the steam-passages, the inlet-tube being shortest and having no outlet other than a lateral port or ports; a dome inclosing said tubes and the inlet of said water-of-condensation passage, and a valve arranged in connection with the dome to control the escape of steam through the longest of the aforesaid tubes.

4. A laundry-tool comprising a shank provided with inlet and outlet steam-passages and a water-of-condensation passage, tubes in register with the steam-passages, the inlet-tube being the shortest and having no outlet other than a lateral port or ports; a dome inclosing said tubes and the inlet of the water-of-condensation passage, and valves in connection with the shank and dome for controlling said water-of-condensation passage and the longest of the aforesaid tubes.

5. A laundry-tool comprising a shank provided with inlet and outlet steam-passages, a water-of-condensation passage and a nozzle that constitutes part of the outlet-passage the working end of this nozzle being wedge-shaped and its mouth elongated in a direction longitudinally of the shank; tubes in register with the steam-passages, the inlet-tube being shortest and having no outlet other than a lateral port or ports; and a dome inclosing said tubes and the inlet of said water-of-condensation passage.

786,890. **PUNCHING-MACHINE.** JOSEPH A. GROEBLI, New York, N. Y., assignor to The Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed June 5, 1903. Serial No. 160,234.



Claim.—1. In a selective punching-machine, the combination of a selector-shaft with means for restoring the said shaft to an initial position, comprising in its structure a rotary restoring device and a plurality of means for engaging the same, moving means for the engaging means, and guiding means for the engaging means.

2. In a selective punching-machine, the combination of a selector-shaft, a restoring means carried thereby a plurality of engaging means for the restoring means, means for moving the engaging means and a cam for determining the path of movement of the engaging means.

3. In a selective punching-machine, the combination of means for moving a selector, a tapered restoring means therefor for restoring the same to an initial position, and means moving on an arc for engaging and moving the tapered restoring means substantially as described.

4. In a selective punching-machine, the combination of a selector-shaft, a restoring-lug carried thereby, and means for engaging and moving the restoring-lug to an initial position.

5. In a selective punching-machine, the combination of a selector-shaft, a tapered restoring-lug carried thereby, and means for engaging and moving the said restoring-lug to an initial position.

6. In a selective punching-machine, the combination of a selector-shaft, a restoring-lug adapted to move the said shaft and means for engaging and moving the restoring-lug to an initial position.

7. In a selective punching-machine, the combination of a shaft, a tapered restoring-lug carried thereby, a pair of tongs adapted to engage the said lug, moving means for the tongs and a guiding means for determining the path of movement of the said tongs.

8. In a punching-machine, the combination of a rotary shaft, a tapered lug carried thereby, tongs for restoring the lug to an initial position, and cam means for determining the path of movement of the tongs.

9. In a punching-machine, the combination of a rotary shaft, means adapted to move the said shaft and constituting a restoring means for restoring the same to an initial position and a plurality of tongs provided with means for imparting to the tongs a movement toward the restoring means on substantially right lines, a divergent movement on an arc and a convergent movement to the point of initial position of the restoring means, substantially as described and for the purposes set forth.

10. In a selective punching-machine, the combination of a rotary restoring means, a plurality of means for engaging the same, normally located outside of the circle of movement of the restoring means, and means for moving the engaging means, first in a substantially radial direction and then in an approximately circular path substantially as set forth.

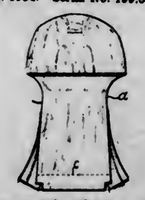
786,891. **METHOD OF SEPARATING AND INDENTING STITCHES OF FINISHED SEAMS.** JOHN B. HADAWAY, Brockton, Mass. Filed June 18, 1904. Serial No. 213,092.



Claim.—1. The method of separating and indenting the stitches of a finished seam which consists in compressing the material between the stitches to form stitch-separating indentations and then compressing the material between said indentations to shape the crowns of the separated stitches, substantially as described.

2. The method of separating and indenting the stitches of a finished seam which consists in compressing the material to form stitch-separating indentations in the stitch intervals and partially shape the crowns of the stitches and then compressing the material between said indentations to complete the crowns of the separated stitches, substantially as described.

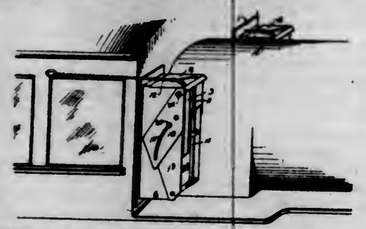
786,892. **CAPSULE-CUTTER.** ERNST HAPPE, Hamburg, Germany, assignor to Carl August Fischer and Albert Georg Foss, Altona, Germany. Filed Mar. 24, 1904. Serial No. 199,888.



Claim.—A cutter for removing the tops of bottle-capsules, comprising a holder having an opening of sufficient size and depth to admit a limited portion of the top of the bottle-neck, opposite flat springs mounted on the outside of said holder, the free ends of said springs being adapted to move in a direction transverse of said holder

and of the inserted bottle-neck, cutting edges carried by the free ends of said springs adapted to be brought in contact with the bottle-neck and its inclosing capsule, said springs normally holding said cutting edges out of contact with the bottle neck and capsule.

786,893. STORM-WINDOW. GEORGE B. HARSH, Carrollton, Ohio. Filed Feb. 1, 1905. Serial No. 243,761.

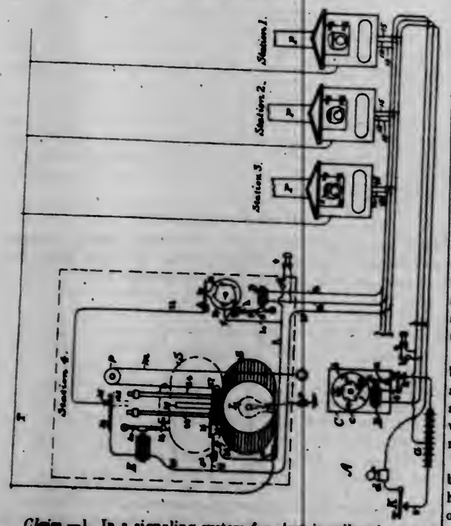


Claim.—1. In a storm-window, the combination of a window-frame, a frame located upon the outer side of the window-frame proper having closed sides and top, a top extension adapted to slide over the fixed top of the frame, pivoted lower side plates and upper side plates, said plates adapted to be carried forward with the forward movement of the top extension, a bar secured to the movable top and an operating-rod secured in operative relation with the top extension, substantially as and for the purpose specified.

2. In a storm-window, the combination of a window-frame, and a frame located upon the outer side of the window-frame having closed sides and top, movable hood side plates, tubes secured to the lowermost hood side plates and rods adapted to telescope in the tubes, said rods secured to the uppermost side plates, and an operating-rod adapted to extend and withdraw the side plates of the hood, substantially as and for the purpose specified.

3. In a storm-window of the class described, a window-frame, a frame located upon the outer side of the window-frame having fixed closed sides and top, a top extension adapted to slide upon the fixed top, tubes pivoted at the bottom or lower ends, rods telescoping in said tubes, guide-tubes held in fixed relation, tubes adapted to slide in the guide-tubes, and rods pivotally attached to the rods located in the pivoted tubes, and an operating-rod, substantially as and for the purpose specified.

786,894. RAILWAY-SIGNAL. ORLANDO W. HART, Fall River, Mass. Filed Aug. 14, 1901. Serial No. 72,009.



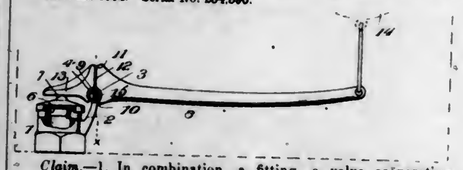
Claim.—1. In a signaling system for electric railroads, a central station and a plurality of post or signal stations in series, the central station being provided with a source of current, means for sending impulses to the signal-stations, a return-signal, and a switch therefor, each signal-station having a selective device, a sliding semaphore, apparatus for tripping the same whereby it will fall, and means carried by the semaphore for automatically closing a circuit to the said return-signal and its switch, as set forth.

2. In a signaling system for electric railroads, a central station and a plurality of post or signal stations in series, a sliding semaphore for each of said signal-stations, three circuits between the central station and the signal-stations, one a selecting-circuit provided with means at the central station for sending impulses to any signal-station to operate means at the latter station to close the second circuit through an electromagnetic device thereat and trip the semaphore-signal whereby the latter will fall, and a device projecting from said semaphore-signal, whereby the latter in falling automatically closes the third circuit through a return-signal device at the central station, with a switch at the latter station for completely closing the third circuit and supplying current thereto, as set forth.

3. In a signaling system for electric railroads, a central station and a plurality of post or signal stations, at each of which is a signal-box inclosing illuminating means in circuit with the trolley-wire and adapted to be opened and closed by a manual switch, a sliding semaphore, a selective device and telephones, electric circuits extending to each station from the central station, with a return-signal and telephones at the central station, and a source of current with means for sending successive impulses to the signal-stations to operate the selective device at any station and close a circuit through an electromagnetic semaphore-tripping device, and devices carried by each semaphore for operating either one of two circuit-closing devices in another circuit to the central station, the second opening adapted to be manually closed through the said return-signal, as set forth.

4. The combination in an electric-railroad signaling system of a signal-sending station, and a series of signal-receiving stations united by three conductors adapted to constitute two independent circuits, each signal-station being provided with a relay-operated sliding semaphore illuminated by a lamp in a grounded branch from a trolley-wire, and with a relay-operated selective-circuit-closing device, with means at the signal-sending station as a key for sending current impulses over a selective circuit of two of said conductors to the signal-receiving stations to operate their selective relays and close a signaling-circuit at one of said stations only to the said battery, an indicator, as a bell, and a second key at the sending-station, whereby when said second key is operated current from the battery energizes the semaphore-relay at the selected station and allows said semaphore to drop, and members carried by said semaphore whereby the latter when falling opens the signaling-circuit at one point and closes it at a second point, as set forth.

786,895. FLOAT-VALVE. JAMES B. HAWKINS, Slater, Mo. Filed Nov. 28, 1904. Serial No. 234,590.

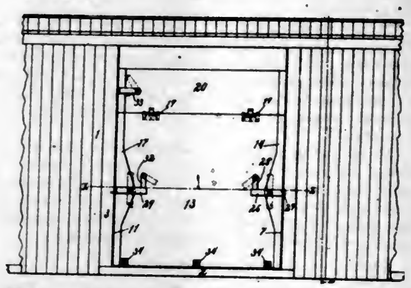


Claim.—1. In combination, a fitting, a valve coöperating therewith, a float-lever, a joint between the float-lever and support consisting of an approximately circular head and mating opening separable by a sliding movement, and a fastener coöperating with the joint to prevent casual separation thereof, said fastener being of spring metal and approximately of staple form and embracing opposite sides of the lever and the joint and interlocking with the respective parts.

2. In combination, a fitting, a valve coöperating therewith, a bracket extended from the fitting and terminating in a circular head, a lever having a circular opening to receive the aforesaid head, and a spring-fastener embracing opposite sides of the lever and engaging with opposite ends of the circular head to prevent casual displacement of the lever.

3. In combination, a fitting, a valve coöperating therewith, a bracket extended from the fitting and terminating in a circular head having indentations in its extremities, a float-lever having a circular opening, and a slot in communication therewith to receive said circular head and bracket, and a spring-fastener of approximately staple form embracing opposite sides of the lever and having its extremities extended inward to enter the indentations of said head.

786,896. CAR-DOOR. JOHN W. HAWN, Kansas City, Mo., assignor of one-half to Geo. C. Hale, Kansas City, Mo. Filed June 22, 1904. Serial No. 213,645.



Claim.—1. In a device of the class described, the combination with a pair of jambs, one of which is provided with a vertical groove the other having an angling inner face with a hooked plate secured thereto, of a door adapted to fit over and impinge against said jambs, a plate secured along said door adjacent to one of the side edges thereof and having an angling flange on the outer edge thereof adapted to enter said vertical groove, a plate secured along said door adjacent to the opposite side edge thereof and having a hooked lip along its outer edge adapted to engage the hooked portion of the plate on said angling jamb, substantially as set forth.

2. In a device of the class described, the combination with a pair of jambs, one of which is provided with a vertical groove the other having an angling inner face with a hooked plate secured thereto, of a door adapted to fit over and impinge against said jambs, a plate secured along said door adjacent to one of the side edges thereof and having an angling flange on the outer edge thereof adapted to enter said vertical groove, a plate secured along said door adjacent to the opposite side edge thereof and having a hooked lip along its outer edge adapted to engage the hooked portion of the plate on said angling jamb, said door being adapted for vertical movement along said jambs and for lateral displacement from its position thereagainst, and means for holding said door to prevent vertical or lateral movement thereof, substantially as set forth.

3. In a device of the class described, a door, a pair of jambs, means on said jambs for retaining said door in a vertical position, slotted plates on the sides of said jambs, pivoted latches on said door having fingers at their ends adapted to engage slotted plates on said jambs, and an angling flange on the end of one of said latches adapted to bear against the face of one of said jambs, and keepers on said door for retaining said latches in their locking position.

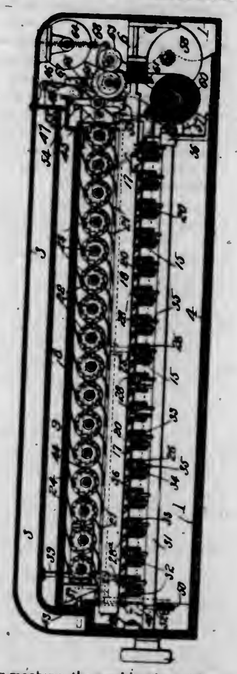
4. A device of the class described comprising a pair of jambs, in one of which is a vertical groove, a plate on the opposite jamb having an angling flange thereon, a door 13 having plates along the edges thereof, one of which is adapted to fit within said groove and the other to engage said angling flange, and an auxiliary door swung on sliding hinges at the top of said door 13 and having plates on its edges corresponding with the plates on door 13.

786,897. VOTING-MACHINE. JOHN I. HAYNES, St. Louis, Mo. Filed May 18, 1901. Serial No. 60,867.

Claim.—1. In a voting-machine, he combination with a keyboard, of independently-operable releasing-bars, bars 18 which are individually controlled by said releasing-bars, locking-bars common to a transverse series of keys, restoring mechanism for said locking-bars, and restoring mechanism for said bars 18, and means for operating said restoring mechanisms simultaneously; substantially as described.

2. In a voting-machine, the combination with a keyboard, of releasing-bars which are operated by the severa keys, locking-bars which are likewise operated by said keys to lock all other keys in a transverse series against movement, master-shafts for operating the releasing and locking bars independently of keys, means for restoring the locking-bars, and devices for locking the master-shafts against rotation while the restoring mechanism of the locking-bars is in an operative position; substantially as described.

3. In a voting machine, the combination with a casing, of a keyboard containing independently-operable keys, devices operated by the keys for prevent ng the operation of another key identified with a different candidate for the same office, punch-bars, controlled by the keys, adding mechanisms operated by the punch-bars, and master-shafts for operating the punch-bars independently of the keys whereby a straight ticket can be voted; substantially as described.



4. In a voting-machine, the combination with a casing, of a keyboard comprising independently-depressible keys arranged opposite the names of the several candidates to be voted for, master-shafts common to the several mechanisms for simultaneously registering votes for candidates for different offices, a cover hinged to the casing and designed to cover a keyboard when in its lowered position, and mechanism connected to and operated by the cover for restoring the actuated parts in the machine, and for locking the master-shafts against rotation when the cover is in its lowered position; substantially as described.

5. In a voting-machine, the combination with a depressible key provided with a cam, of a releasing-bar operated by said cam, and a bar 18 provided with a projection designed to pass through a notch in the releasing-bar when a key is depressed; substantially as described.

6. In a voting-machine, the combination with a depressible key, of a notched releasing-bar operated thereby, a stop-plate secured to the releasing-bar and overlapping the notch therein, and a bar 18 provided with a projection designed to pass through the notch in the releasing-bar and coöperate with the stop-plate; substantially as described.

7. In a voting-machine, the combination with a depressible key, of a releasing-bar operated by said key, a bar 18, and a yielding projection on said bar 18 for coöperating with the releasing-bar; substantially as described.

8. In a voting-machine, the combination with a transverse series of keys, of a notched locking-bar common to said series, a series of independently-movable bars 18 provided with projections normally in registration with the notches of said locking-bar, and means on the key for operating said locking-bar upon the depression of the key so that the notches of said bar are moved out of registration with the projections on the bars 18; substantially as described.

9. In a voting-machine, the combination with depressible keys, of releasing-bars designed to be operated by the initial movement of each key, locking-bars which are operated upon the final movement of each key, said locking-bars being common to a transverse series of keys, and bars 18 provided with projections which are designed to pass through notches in the releasing and locking bars; substantially as described.

10. In a voting-machine, the combination with a key, of a notched releasing-bar, a notched locking-bar, a bar 18 provided with projections for coöperating with the notches in the releasing and locking bars, the projection which coöperates with the releasing-bar being out of registration with the notch therein, while the projection which coöperates with the notch in the locking-bar is in registration with the notch therein when the parts are in their normal position, and means for moving the releasing and locking bars laterally upon the depression of said key, the initial movement of the key moving the releasing-bar so that its notch registers with the projection on the bar 18, releasing said bar and permitting the projection thereon which is in registration with the notch in the locking-bar to pass through said notch, the final movement of the key moving the locking-bar laterally; substantially as described.

11. In a voting-machine, the combination with a depressible key, of releasing and locking bars operated by said key successively, a bar 18 provided with projections coöperating with notches in said releasing and locking bars, and an adding mechanism which is actuated by said bar 18; substantially as described.

12. In a voting-machine, the combination with restoring devices for the locking-bars, of a cover for actuating said restoring devices, and means connected to the cover for locking the restoring devices in a retracted position, when the cover is elevated, which means includes a slot-and-pin connection with the cover, whereby the cover is permitted a certain amount of idle travel independently of said locking mechanism; substantially as described.

13. In a voting-machine, the combination with the master-shafts carrying projections, of a notched bar whose recesses are designed to be thrown into and out of registration with the projections on said master-shafts, and a cover for operating said notched bar; substantially as described.

14. In a voting-machine, the combination with the master-shafts, of a cover, and means for locking said master-shafts against rotation when the cover is in its lower position; substantially as described.

15. In a voting-machine, the combination with the master-shafts carrying projections, of a notched bar whose recesses are designed to be thrown into and out of registration with said projections, a cover for moving said notched bar so that its recesses are out of registration with the projections on the master-shafts, and a spring for returning the notched bar and permitting the operation of the master-shafts when the cover is elevated; substantially as described.

16. In a voting-machine, the combination with keys, of locking-bars coöperating therewith, restoring mechanisms for said locking-bars, a vertically-swinging cover for housing in the keys, master-shafts, connections between the cover and the restoring mechanism for operating the latter upon the final movement of the former, and locking devices which are operated by the restoring mechanism to lock the master-shafts against rotation; substantially as described.

17. In a voting-machine, the combination with a casing, of a keyboard provided with keys opposite the names of the different candidates to be voted for, adding mechanisms, punch-bars for operating said adding mechanisms, said punch-bars being controlled by the keys, and means for locking adjacent adding mechanisms and punch-bars when any key of a series is depressed; substantially as described.

18. In a voting-machine, the combination with a keyboard having keys opposite the names of the candidates to be voted for, punch-bars arranged in transverse series and operated upon the depression of a key, means for locking all punch-bars in each transverse series against movement upon the depression of any key in that series, and a web of paper which is punctured or pierced by the punch-bar; substantially as described.

19. In a voting-machine, the combination with the keyboard having keys opposite the names of candidates to be voted for, punch-bars common to their respective keys, a web of paper which traverses the punch-bars, releasing-bars common to the respective keys and interposed therebetween and the punch-bars, and locking-bars common to a transverse series of keys; substantially as described.

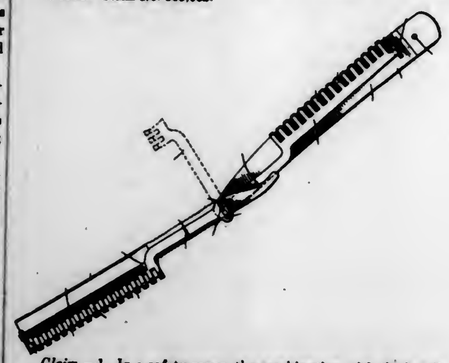
20. In a voting-machine, the combination with a keyboard having depressible keys, of alined punch-bars, a web of paper traversing said punch-bars, and adding mechanism which is actuated by each punch-bar, a releasing-bar controlled by the keys for effecting the release of the individual punch-bars, and a locking-bar common to a transverse series of keys, which locking-bar is capable of being operated by the first depressed key of its series; substantially as described.

21. In a voting-machine, the combination with alined punch-bars, mechanism for operating said punch-bars, and puncturing a web of paper, a supply reel or spool for said web of paper, a receiving reel or spool, adding mechanisms operated by the punch-bars, and a cover for the machine for operating the paper-feed roller; substantially as described.

22. In a voting-machine, the combination with releasing and locking bars designed to be operated successively, means for operating said bars, a bar 18 which is controlled by said releasing and locking bars, an adding mechanism which is actuated by said bar 18, and an apertured bar through which one end of the bar 18 is designed to pass when it is operated and puncture a web of paper; substantially as described.

23. In a voting-machine, the combination with perforated bars, between which a web of paper passes, mechanism for moving said web of paper step by step between said bars, punch-bars operating in said perforations for puncturing the web of paper between said bars, adding mechanisms operated by the punch-bars, and means for operating said punch-bars; substantially as described.

786,898. SAFETY-RAZOR. BENJAMIN HIRSCHFELD, Pittsburg, Pa., assignor of one-half to Aaron M. Ellis, Pittsburg, Pa. Filed July 7, 1904. Serial No. 215,602.



Claim.—1. In a safety-razor, the combination with the handle, of a blade pivoted therein, a swinging guard mounted in said handle on the same pivotal point as said blade, and means for adjusting said guard equally throughout its length with reference to said blade.

2. In a safety-razor, the combination with a suitable handle, of a blade pivoted therein, a swinging guard mounted therein, said guard having teeth adapted to engage the edge of the razor-handle.

3. In a safety-razor, the combination with a suitable handle, of a blade pivoted therein, a swinging guard having apertures formed therein, said apertures being connected by contracted passages, the pivotal pin upon which said blade and guard are mounted having a flattened end portion with which the apertures in said guard engage.

4. In a safety-razor, the combination with a suitable handle, of a blade pivoted therein, a swinging guard, and pivotal pin having a circular portion engaging the said razor-blade and a flattened end portion adapted to engage the apertures formed in said guard, said apertures having contracted passages connecting same.

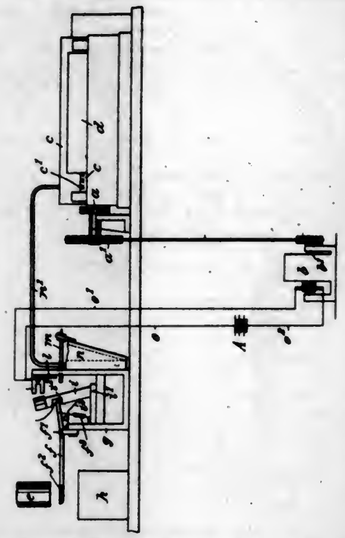
5. In a safety-razor, the combination with a suitable handle, of a blade pivoted therein, a swinging guard mounted in said handle and a spring-clip in said guard adapted to engage the cutting edge of said blade.

6. In a safety-razor, the combination with a suitable handle, of a blade pivoted therein, a swinging guard mounted in said handle, said guard having a seat formed in its outer end and a spring-clip engaging said seat and adapted to engage the cutting edge of said blade.

7. In a safety-razor, the combination of a suitable handle, of a blade pivoted therein, a swinging guard mounted therein, a pivotal pin supporting said blade and guard having a flattened end portion adapted to engage apertures formed in said guard, said apertures having contracted passage-ways connecting the same, said guard having a projection thereon adapted to engage one of a series of depressions formed in said blade.

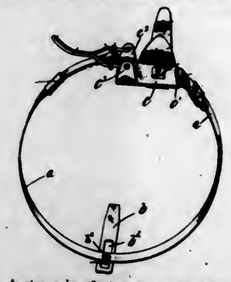
8. In a safety-razor, the combination with a suitable handle, of a blade mounted therein, two swinging guards mounted in said handle on opposite sides of said blade adapted to enter said handle from the opposite side at which said blade enters said handle and having teeth adapted to engage the edges of said handle.

786,899. COIN-CONTROLLED ACTUATING MECHANISM FOR AUTOPNEUMATIC PIANOS. ADAM J. HOBART, St. Johnsville, N. Y., assignor to Roth and Engelhardt, New York, N. Y., a Firm. Filed July 11, 1904. Serial No. 215,969.



Claim.—In a coin-controlled actuating mechanism for autopneumatic pianos, the combination of a tracker-bar having a number of ducts with a vacuum-chest connected to one of said ducts, an exhaust-pipe communicating with the vacuum-chest, bellows communicating with the exhaust-pipe, a plunger connected to the bellows, a switch-knife adapted to be engaged at one side by the plunger, a coin-controlled lever adapted to engage the other side of the switch-knife, a switch, and a motor in circuit, substantially as specified.

786,900. STOVEPIPE-FASTENER. RICHARD H. HODGE and WALTER C. HODGE, Medford, Oreg. Filed Oct. 1, 1903. Serial No. 175,341.



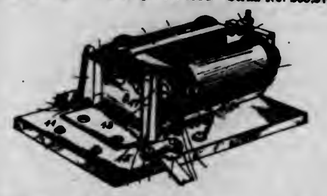
Claim.—1. A stovepipe-fastener, comprising a band, a projection adjustably carried by the band, a plate attached to the band, a projection attached to the plate, lugs formed integrally with the plate and arranged to form a fulcrum, a lug on the plate constructed to bear against the outer edge of a flue-orifice, and a lever fulcrumed on the fulcrum-lugs of the plate and arranged to tighten the band, substantially as described.

2. A stovepipe-fastener, comprising a band, a projection adjustably carried by the band, a plate attached to the band, a projection adjustably attached to the plate, lugs formed integrally with the plate and arranged to form a fulcrum, a lug on the plate constructed to bear against the outer edge of the flue-orifice, and a lever fulcrumed on the fulcrum-lugs of the plate and arranged to tighten the band, substantially as described.

3. A stovepipe-fastener, comprising a band, an adjustable projection thereon having a bent outer end, a plate adjustably attached to the band, a projection carried by the plate and having a bent outer end, integral lugs upon the plate constructed to form a fulcrum, a lug carried by the plate and constructed to bear against the outer edge of a flue-orifice, and a lever fulcrumed on the fulcrum-lugs of the plate and arranged to tighten the band, substantially as described.

4. A stovepipe-fastener, comprising a band, an adjustable projection thereon having a bent outer end, a plate adjustably attached to the band, a projection carried by the plate and having a bent outer end, integral lugs upon the plate constructed to form a fulcrum, a lug carried by the plate and constructed to bear against the outer edge of a flue-orifice, and a curved lever fulcrumed on the fulcrum-lugs of the plate and arranged to tighten the band, substantially as described.

786,901. TELEPHONE-EXCHANGE SYSTEM. JOHN C. HUBINGER, Keokuk, Iowa. Filed Apr. 18, 1904. Serial No. 203,573.



Claim.—1. In a polarized relay, the combination with an armature, of an arm extending therefrom, spring switch members permanently engaging with the end of said arm, one at either side thereof but insulated therefrom, and an associate switch member for each of said spring members, said spring members being normally disconnected from the associate members and serving to retain the arm in a neutral central position, actuation of said armature causing said arm to engage the corresponding spring member with its associated member.

2. In a polarized relay, the combination with an armature, of an arm extending therefrom, a transverse actuating-bar at the end of said arm, an actuating switch-spring engaging each end of said bar, and an associate switch-spring for each actuating-spring, said actuating-springs being normally out of engagement with their associated springs and serving to maintain said arm in a neutral central position.

3. In a polarized relay, the combination with an armature, of an arm extending therefrom, a transverse actuating-bar at the end of said arm, an actuating switch-spring engaging each end of said bar, said actuating-springs being permanently connected together by a conductor, and an associate switch-spring for each actuating-spring, said actuating-springs being normally out of engagement with their associate spring and serving when the relay is deenergized to maintain the armature and arm in a neutral position.

4. In a polarized relay, the combination with an armature, of an arm extending therefrom, a transverse actuating-bar secured to the end of said arm, a U-shaped frame of conductive material, the ends of the limbs of said frame engaging the ends of said actuating-bar, said frame serving to normally maintain said arm in a neutral central position, and a contact associated with each limb but normally out of engagement therewith, attraction of the armature toward either pole of the relay causing said actuating-bar to engage the corresponding limb with its associated contact to close a local circuit controlled by said relay.

5. In a polarized relay, the combination with an armature, of an arm extending therefrom, an actuating-bar secured transversely to the end of said arm, a U-shaped frame of conductive material, the corners of said frame being folded together to form terminals and the ends of the limbs thereof being in engagement with the ends of said actuating-bar, said frame serving normally to maintain said armature and arm in a neutral position, and a contact associated with each limb but normally out of engagement therewith, attraction of said armature toward either pole of the relay causing the actuating-bar to engage the corresponding limb with its associated contact to close a local circuit controlled by said relay.

6. In a polarized relay, the combination with an armature, of an arm extending therefrom, an actuating bar of insulating material secured transversely to the end of said arm, a U-shaped frame formed of a band of conductive material, terminals for said frame formed by folding the corners thereof together, actuating-springs formed by the limbs of said frame and engaging at their ends with the ends of said actuating-bar, and a contact associated with each actuating-spring,

said frame serving to normally maintain said actuating-springs out of contact with the associated contacts and to maintain the armature and arm in a neutral position, movement of said bar in either direction upon attraction of said armature causing the corresponding actuating-spring to engage its associated contact to close a local circuit controlled by said relay.

7. In a polarized relay, the combination with an armature, of an arm extending therefrom, an actuating-bar of insulating material secured transversely to the end of said arm, a U-shaped frame of conductive material, the limbs of said frame forming actuating-springs engaging at their ends with the ends of said actuating-bar, and a contact associated with each actuating-spring but normally out of contact therewith, said frame serving as a common conductor for a local circuit controlled by said relay, actuation of said actuating-bar in one direction upon attraction of said armature causing said local circuit to be closed by the engagement of the corresponding actuating-spring and associated contact, actuation of the cross-bar in the opposite direction causing closure of said local circuit through the other actuating-spring and associated contact, said frame serving normally to maintain said bar in a neutral position and to maintain said actuating-springs out of engagement with the associated contacts.

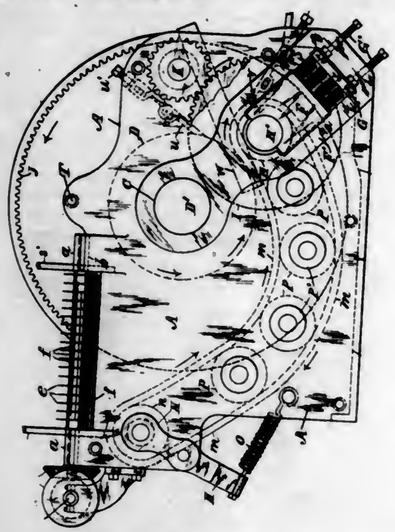
8. In a polarized relay, the combination with an armature, of an arm extending therefrom, an actuating-bar secured transversely to the end of said arm, a U-shaped frame of conductive material, the ends of the limbs of said frame engaging the ends of said actuating-bar and forming actuating-springs, a contact for each actuating-spring to constitute a switching mechanism therewith, said frame serving to normally maintain said actuating-bar in a neutral position and to maintain the actuating-springs out of engagement with the associated contacts, and a conductor permanently secured to each actuating-spring and each associated contact, the conductors of each switch mechanism being adapted for interchangeable connection with one terminal of a local circuit controlled by said relay, said U-shaped frame forming a conductor for said local circuit.

9. In a polarized relay, the combination with an electromagnet-frame, windings therefor and a permanent polarized magnet all secured to a mounting-block, of an armature, an arm extending forwardly from said armature, an actuating-bar of insulating material secured transversely to the end of said arm, a U-shaped frame formed of a band of conductive sheet material, terminals for said frame formed by the folded corners thereof, said frame being clamped to said mounting-block so that the limbs thereof extend upwardly and engage at their ends with the ends of the actuating-bar, said limbs forming actuating-springs of switching mechanisms, an associate contact-spring for each actuating-spring, means for insulating said frame from said associated springs, connecting terminals for the local circuit controlled by said relay, and a conductor permanently secured to each frame-terminal and associated springs, the other terminal of the conductors of each switching mechanism being adapted for interchangeable connection with one of said connecting-terminals whereby the local circuit may be closed by the engagement of one switching mechanism upon attraction of the armature, said frame serving to normally maintain the actuating-bar and the armature in a neutral position and to maintain the actuating-springs out of engagement with the associated springs, said frame also serving as a common conductor for said local circuit.

786,902. JUICE-EXTRACTING MACHINE. JOHN W. HYATT, Newark, N. J. Filed July 17, 1903. Renewed Sept. 10, 1904. Serial No. 224,025.

Claim.—1. A juice-extracting machine having a large pressing-roll, a belt-carrying drum opposed directly to the same, and a single permeable chain belt carried over the drum tangentially to the periphery of the pressing-roll and forming a moving bed for the material, the belt consisting of numerous series or rows of links all connected together laterally to move in unison, and each link resting upon the drum to sustain the pressure, and the spaces between the joints of the links in the rows and between the rows themselves permitting the escape of the liquid expressed from the material.

2. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the same and provided with the roll-spindle bearings, a belt-carrying drum opposed directly to the pressing-roll with the cheeks extending over the junction of the roll and drum, and a single endless permeable chain belt impelled between the cheeks to form a moving bed for the material, the belt consisting of numerous series or rows of links all connected together laterally to move in unison, and each resting upon the drum and concaved to fit the same, to sustain the pressure, and the spaces between the joints of the links in the rows and between the rows themselves, permitting the escape of the expressed liquid downwardly, while the pressing-roll which expresses the liquid prevents any escape of the liquid upwardly.



3. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the same and provided with the roll-spindle bearings, a belt-carrying drum opposed directly to the pressing-roll with the cheeks extending over the junction of the roll and drum, an endless permeable chain belt impelled between the cheeks to form a moving bed for the material, the belt consisting of numerous series or rows of links all connected laterally to move in unison, and each resting upon the drum and concaved to fit the same, to sustain the pressure, a longitudinal recess w in each cheek at the junction of the roll and drum, and a renewable facing-strip w' fitted to such recess to receive the pressure and wear of the moving material.

4. A juice-extracting machine having a pressing-roll with diameter materially greater than its length, a drum materially smaller than the pressing-roll beneath the same, a single permeable chain belt carried by the drum and consisting of numerous series or rows of links all connected together laterally to move in unison, and each resting upon the drum to sustain the pressure, and the spaces between the joints of the links in the rows and between the rows themselves, permitting the escape of the liquid downwardly, while the pressing-roll which expresses the liquid prevents any escape of the liquid upwardly.

5. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the same, a belt-carrying drum opposed directly to the pressing-roll, an endless permeable chain belt impelled between the cheeks to form a moving bed for the material, the belt consisting of numerous series or rows of links all connected together laterally to move in unison, with interspaces between the various links for the escape of liquid, and the stripper c applied to the chain belt beyond the junction of the roll and drum to clean the material from the surface of the belt, such surface being made concentric with the drum to facilitate the operation of the stripper.

6. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the roll to confine the material, a single permeable chain belt impelled between the cheeks, a drum within the chain belt at its junction with the roll, and means for pressing the drum and chain belt elastically and adjustably toward the roll, the chain belt consisting of numerous series or rows of links all connected laterally to move in unison with each link resting upon the drum to sustain the pressure, and the spaces between the joints of the links in the rows and between the rows themselves, permitting the escape of the expressed liquid downwardly, while the pressing-roll which expresses the liquid prevents any escape of the liquid upwardly.

7. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the roll to form a hopper and chain-belt guide, a single permeable chain belt propelled between the cheeks, a drum within the chain belt at its junction with the roll, means for pressing the drum and chain belt toward the roll, a chute for delivering the material at the top of the cheeks, and a feeding device for grasping the material and operating to draw it from the chute and force it downwardly between the cheeks upon the chain belt, whereby the space between the cheeks is filled positively with the material, which is thus forced to travel with the chain belt to the pressing-roll.

8. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the same, an endless permeable chain belt propelled between the cheeks tangentially to the roll to form a bed and converging channel for the material, bearings upon the cheeks with shafts extended parallel to the cheeks, a chute leading the material to the cheeks and feed-wheels upon the shafts to force the material into the channel upon the chain belt.

9. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the roll to confine the material and form a hopper, a single permeable chain belt propelled between the cheeks, the belt consisting of numerous series or rows of links all connected together laterally to move in unison, and each resting upon the drum and concaved to fit the same, to sustain the pressure, and the spaces between the joints of the links in the rows, and between the rows themselves, permitting the escape of the expressed liquid downwardly, while the pressing-roll prevents any escape of the liquid upwardly, a drum within one end of the chain belt at its junction with the pressing-roll, a return-pulley within the opposite end of the chain belt, and supporting-pulleys at intervals beneath the chain belt between such return-pulley and the drum to support the belt, and the material accumulated upon the same before it is pressed by the pressing-roll.

10. A juice-extracting machine having a large pressing-roll, cheeks extended from the opposite ends of the roll to confine the material and form a hopper, a single permeable chain belt propelled between the cheeks, the belt consisting of numerous series or rows of links all connected together laterally to move in unison, and each resting upon the drum to sustain the pressure, and the spaces between the joints of the links in the rows, and between the rows themselves, permitting the escape of the expressed liquid downwardly, while the pressing-roll prevents any escape of the liquid upwardly, a drum within one end of the chain belt at its junction with the pressing-roll, a return-pulley within the opposite end of the chain belt, and supporting-pulleys at intervals beneath the chain belt between such return-pulley and the drum to support the belt and the material thereon, and means applied to the return-pulleys to maintain the tension of the chain belt.

11. The juice-extracting machine herein described, comprising the cheeks formed integral with the fixed bearings C and extended to form a hopper and housings F', the roll D having spindle D' fitted to the bearings C, the bearings F fitted adjustably to the housings F', the drum H having the shaft H' fitted to the adjustable bearings, the bearings p' upon the cheeks disposed in a curve laterally and upwardly from the adjustable bearings, and provided with idler-pulleys p, the return-pulley s with means for tightening the same, the endless permeable chain belt extended over all the pulleys and the drum to form a downwardly-converging bed and receptacle for the material at one side of the pressing-roll, the chain belt consisting of numerous links connected laterally, with numerous interspaces for the discharge of the liquid downwardly, means for forcing the material upon the bed between the cheeks, and gearing connecting the roll and the drum to drive the chain belt and roll at the same surface speed.

786,903. LINK AND CHAIN FOR JUICE-EXTRACTING MACHINES. JOHN W. HYATT, Newark, N. J. Filed July 17, 1903. Renewed Sept. 10, 1904. Serial No. 224,026.



Claim.—1. A juice-extractor chain-link having at the ends half-lap portions, and at the middle a body twice as thick as the half-lap portions, such body having semi-arches the same width as the half-lap portions and adapted to extend over the ends of connected links and to cover their entire width upon the fiber-bearing side of the link.

2. A juice-extractor chain-link having at the ends half-lap portions, and at the middle a body twice as thick as the half-lap portions, such body having its inner edge concave to give an extended bearing upon a cylindrical roller, and having semi-arches the same width as the half-lap portions and adapted to extend over the ends of connected links and to cover their entire width upon the fiber-bearing side of the link.

3. A juice-extractor chain-link having at the ends half-lap portions provided with pivot-holes, and an intermediate body twice as thick as the ends projected wholly upon one side of the link, and arched concentric with the pivot-holes and adapted to wholly cover the ends of the connecting-links.

4. A juice-extractor chain-link having the centers for the pivots about the same distance apart as the width of the link, a body portion formed twice as thick as the half-lap portions and projected wholly upon one side of the link, and having arches upon opposite sides, dividing the projection upon the body into the triangular studs a', as and for the purpose set forth.

5. A juice-extractor chain-link having half-laps at the ends, an intermediate body twice as thick as the ends projected wholly upon one side of the link, and beveled inwardly from the outer edge toward the inner edge of the link, to permit a free escape of the liquid between the links.

6. A juice-extractor chain composed of links having semicircular ends with rivet-holes at the centers of the ends, the longitudinal middle of each link having a projection upon one side equal to the thickness of the ends, and formed to fit the ends of the connected links, the whole united by rivets through the rivet-holes, forming a chain having a continuous surface at each edge.

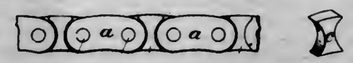
7. A juice-extractor chain-link having at the ends half-laps formed with rivet-holes and rounded upon the ends concentric with such holes, an intermediate body twice as thick as the ends formed to cover the ends of contiguous links jointed thereto, and the half-laps having each a seat surrounding the rivet-hole to space the links apart, and a groove upon its face to permit the escape of liquid through the joint of the half-lap portions.

8. A chain for supporting fibrous material in juice extraction, such chain having a continuous supporting-surface for the material, and consisting of a series of adjacent rows of half-lap links all connected together laterally, the bodies of said links having twice the thickness of the end portions and such portions formed concavely to cover the adjacent ends of the connected links, the links having plain round holes in the ends and rivets extended through the holes in the contiguous links across the entire width of the chain.

9. A chain for supporting fibrous material in juice extraction, such chain having a continuous supporting-surface for the material, and consisting of a series of adjacent rows of half-lap links all connected together laterally, the bodies of said links having a projection at the middle of one side equal to the thickness of the half-lap portions, and having recesses fitted to the ends of the connected links to cover the whole of their width, the links having plain round holes in the ends and rivets extended through the holes in the contiguous links across the entire width of the chain.

10. A chain for supporting fibrous material in juice extraction, consisting of a series of adjacent rows of half-lap links all connected together laterally, the bodies of said links having the inner edge concave to give an extended bearing upon a cylindrical roller and formed on one side with a projection equal to the thickness of the half-lap portions, and such projection having recesses fitted to the ends of the contiguous links upon their inner and outer edges to form a continuous surface upon both sides of the chain, the links being united by rivets extended across the entire width of the chain, and the chain thus being adapted to furnish a continuous bearing for the material and to have a continuous bearing upon a supporting-roller.

786,904. LINK FOR PERMEABLE CHAINS. JOHN W. HYATT, Newark, N. J. Filed July 17, 1903. Renewed Sept. 10, 1904. Serial No. 224,027.



Claim.—1. In an extracting-machine, a chain comprising links having pivots farther apart than the width of the link, and space-blocks with concave sides interposed between the adjacent ends of the links.

2. A flat composite chain comprising rows of links of uniform thickness having the alternate links connected in the adjacent rows,

and space-blocks with concave sides inserted between the ends of the links in all the rows.

3. A flat composite chain for a juice-extracting machine, comprising rows of links of uniform thickness in each row with the forward end of each link pivoted to the rear end of the link in the adjacent row, and loosely-fitted space-blocks inserted between the ends of the links in the rows to form a bearing-surface between the ends of the links.

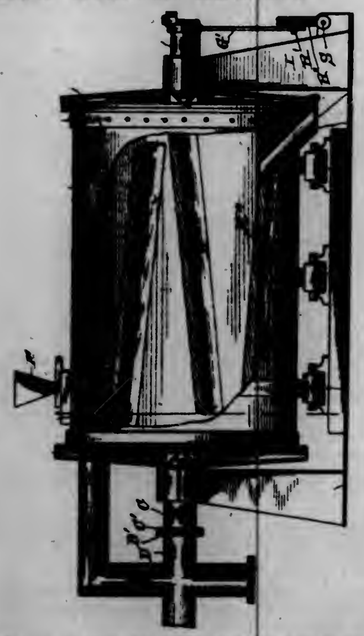
4. A flat composite chain having parallel rows of links each beveled upon the inner corner to facilitate the discharge of juice passing between the links from the outer side.

5. In a juice-extracting machine, the combination, with a flat composite chain having rows of links as set forth, of a supporting-drum having annular grooves in coincidence with the longitudinal joints of the links to receive the juice discharged from the same.

6. In a juice-extracting machine having a chain and a pressing-roll fitted between cheeks forming a channel for the material, and the pressing-roll being arranged above the chain, the combination, with the pressing-roll and the cheeks fitted to its ends, of a channel contiguous to the end of the roll above its lower side and an outlet to deliver fluid from the channel, whereby the juice pressed upwardly between the cheeks may be received and collected.

7. In a juice-extracting machine having a chain and a pressing-roll fitted between cheeks forming a channel for the material, and the pressing-roll being arranged above the chain, the combination, with the pressing-roll and the cheeks fitted to its ends, of a channel formed in the cheeks contiguous to the ends of the roll near the lower part of the roll, and outlets from such channel through the cheeks with means for conducting the fluid therefrom, substantially as herein set forth.

786,905. **ORE-ROASTING FURNACE.** ALBERT C. JOHNSON, Baltimore, Md. Filed Feb. 4, 1904. Serial No. 191,978.



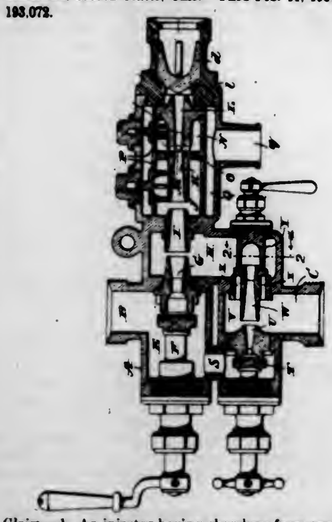
Claim.—1. A rocking ore-roasting furnace or drier having a series of shelves the upper surfaces of which are convexed, the axes of which shelves are at angles to one another and lengthwise of the furnace, the alternate ends of said shelves being free, and means for rocking the furnace, as set forth.

2. A horizontally-rotatable ore-roasting furnace or drier having a series of shelves, the axes of which shelves are at inclinations to one another and lengthwise of the furnace, the alternate ends of said shelves being free, and means for rocking the furnace, as set forth.

3. A horizontally-rocking furnace or drier having a series of shelves the upper surfaces of which are convexed, the axes of which shelves are at angles to one another and lengthwise of the furnace, the alternate ends of the shelves being free, and means for rocking the furnace axially, as set forth.

4. A horizontally-rocking ore-roasting furnace or drier having a series of shelves the upper surfaces of which are convexed, the axes of which shelves are at angles to one another and lengthwise of the furnace, thereby providing series of shelves which are alternately inclined in opposite directions, an exit-tube passing through the lower of said shelves and through the wall of the furnace, and means for rocking the latter, as set forth.

786,906. **INJECTOR.** FRANKLIN W. KREHER, Akron, and JOHN M. ALDERFER, Sharon Center, Ohio. Filed Feb. 11, 1904. Serial No. 193,072.



Claim.—1. An injector having chambers from one to the other of which water flows, a tube establishing communication between said chambers, and variable means supplementing said tube for the passage of water from one chamber to the other.

2. An injector having chambers from one to the other of which water flows, a tube establishing communication between said chambers, said tube fixing the minimum capacity of the injector, and variable means supplementing said tube for the passage of water from one chamber to the other.

3. An injector having chambers from one to the other of which water flows, a combining-tube between such chambers, and a valve-controlled port or ports leading from one chamber to the other.

4. An injector having a lifter and a forcer, and vacuum-chambers in communication through the combining-tube of the lifter, and variable means supplementing said tube for the passage of water from one chamber to the other.

5. An injector having chambers, from one to the other of which water flows, a tube establishing connection between said chambers, and hand-operated, variable means supplementing said tube for the passage of water from one chamber to the other.

6. An injector having chambers, from one to the other of which water flows, a combining-tube between such chambers, a valve-controlled port or ports leading from one chamber to the other, and a handle for operating said valve.

7. An injector having a lifter and a forcer, means for placing the lifter in and out of operation, the forcer also acting as a lifter when the lifter is out of operation, means whereby water is delivered through the lifter-tube to the forcer, and means for increasing the supply of water from this source to the forcer when the forcer is acting both as a lifter and forcer.

8. An injector having a lifter and a forcer, means for each of the latter for placing it in and out of operation, the forcer also acting as a lifter when the lifter is out of operation, vacuum-chambers, the combining-tube of the lifter establishing communication between said chambers, a port or ports leading from one chamber to the other, and means for opening and closing said port or ports.

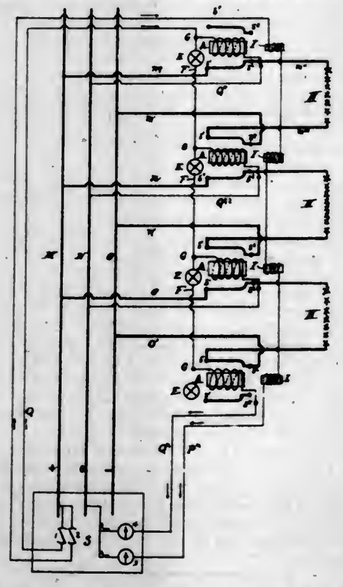
9. An injector having a lifter and a forcer, a chamber into which both lifter and forcer open, means to vary the water-supply to said chamber, a tube leading from said chamber, a chamber in communication with said tube and with the atmosphere, the connection between said chamber and said tube being at a point in the latter where its diameter is not less than the diameter of the lifter-jet, and means for placing both the lifter and the forcer in and out of operation, the forcer acting as a lifter when the lifter is out of operation.

10. An injector, having a lifter and a forcer, a chamber into which both lifter and forcer open, means to vary the water-supply to said chamber, a tube common to both, a chamber in connection with said tube and with the atmosphere, the connection between said chamber and said tube being at a point in the latter where its diameter is not less than the diameter of the lifter-jet, and means for placing both the lifter and the forcer in and out of operation, the forcer acting as a lifter when the lifter is out of operation.

11. An injector having a lifter and a forcer, a chamber into which both lifter and forcer open, means to vary the water-supply to said chamber, a second chamber in communication with the atmosphere and with the combining-tube of the forcer, the connection between said chamber and said tube being at a point in the latter where its diameter is not less than the diameter of the lifter-jet, and means for placing both the lifter and the forcer in and out of operation, the forcer acting as a lifter when the lifter is out of operation.

12. An injector, having a lifter and a forcer, and two chambers, communication between which exists only through the combining-tube of the forcer, one of said chambers being in communication with the lifter and the other with the atmosphere.

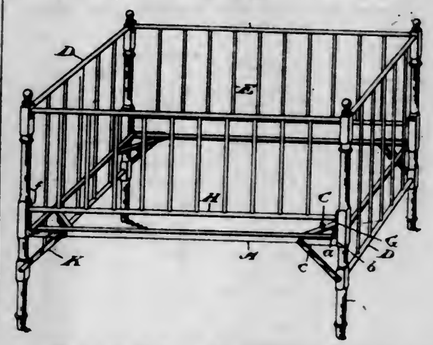
786,907. **ELECTRIC TIME RELAY-SWITCH.** WILLIAM W. LACKIE, WILLIAM T. CALDERWOOD, and WILLIAM H. D. MACEWEN, Glasgow, Scotland. Filed Apr. 26, 1904. Serial No. 204,986.



Claim.—1. The combination with the main circuit, of a plurality of electrically-operated switches, a plurality of time-switches successively actuated by the electrically-operated switches, and circuits branched from the main circuit, connecting the time-switches with the electrically-operated switches and controlled by the time-switches to cause the time-switches to successively operate the electrically-operated switches.

2. The combination with the main circuit, of a plurality of electrically-operated switches, a plurality of time-switches successively actuated by the electrically-operated switches, circuits branched from the main circuit, connecting the time-switches with the electrically-operated switches and controlled by the time-switches to cause the time-switches to successively operate the electrically-operated switches, and means for retarding the action of the time-switches.

786,908. **FOLDING COT.** JOHN J. MACKIE, Toronto, Canada. Filed May 3, 1904. Serial No. 206,217.



Claim.—1. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; detachable connections between the lower ends of the bearing-pieces and the cot ends; and side bars detachably connected to the cot ends, substantially as described.

2. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; a claw formed at the lower end of each bearing-piece; headed studs on the ends with which the said claws may be engaged; and side bars detachably connected to the cot ends, substantially as described.

3. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; a vertical slot being formed in each bearing-piece; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; detachable connections between the lower ends of the bearing-pieces and the cot ends; cot sides having detachable connection with the ends at or near the top; and pins on the cot sides engaging the slots in the bearing-pieces, substantially as described.

4. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; a vertical slot being formed in each bearing-piece near its outer side; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; detachable connections between the lower ends of the bearing-pieces and the cot ends; cot sides having detachable connection with the ends at or near the top; and pins on the cot sides engaging the slots in the bearing-pieces, substantially as described.

5. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; a vertical slot being formed in each bearing-piece; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; a claw formed at the lower end of each bearing-piece; headed studs on the ends with which the said claws may be engaged; cot sides having detachable connections with the ends at or near the top; and pins on the cot sides engaging the slots in the bearing-pieces, substantially as described.

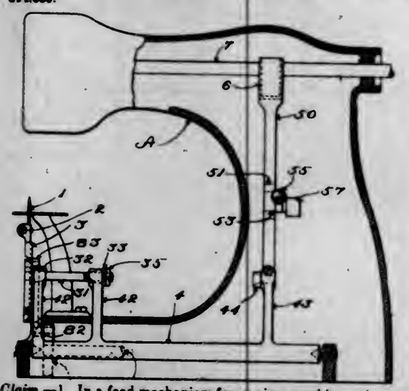
6. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; a vertical slot being formed in each bearing-piece; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; a claw formed at the lower end of each bearing-piece; headed studs on the ends with which the said claws may be engaged; cot sides having detachable connections with the ends at or near the top; pins on the cot sides engaging the slots in the bearing-pieces; and a link at each corner pivoted on the side of the bottom frame and the side of the cot end below its connection with the bottom frame, substantially as described.

7. In a folding cot the combination of a bottom frame; a vertical bearing-piece secured to each corner of the frame and facing toward the end; cot ends having bearing-surfaces which the bearing-pieces are adapted to engage; detachable connections between the lower

ends of the bearing-pieces and the cot ends; and hooks and pins whereby the upper parts of the bearing-pieces may be locked to the cot ends, substantially as described.

786,909. FEED MECHANISM FOR SEWING-MACHINES.

FRANK W. MERRICK, Boston, Mass. Filed June 25, 1904. Serial No. 214,089.



Claim.—1. In a feed mechanism for sewing-machines, the combination with the needle, its bar, and the cross-head having the guides for the said bar, of the parallel rockers constituting swinging supports for the said cross-head, and means to communicate feed movements to the said parts.

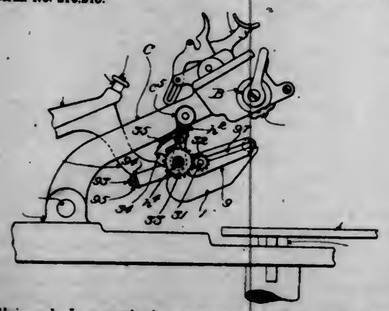
2. In a feed mechanism for sewing-machines, the combination with the needle, its bar, and the cross-head having the guides for the said bar, of the parallel rockers constituting swinging supports for the said cross-head, a link connecting the said rockers, a feed-lever engaging the said link, and actuating means for the said feed-lever.

3. In a feed mechanism for sewing-machines, the combination with the needle, its bar, and the cross-head having the guides for the said bar, and provided with the studs projecting laterally therefrom, of the parallel rockers constituting swinging supports for the said cross-bead each having separated bearings for the corresponding stud, and means to communicate feed movements to the said parts.

4. In a feed mechanism for sewing-machines, the combination with the needle, its bar, and the movable guide for the said bar, of parallel-motion links connected with said movable guide and constituting swinging supports therefor, and means to communicate feed movements to the said parts.

786,910. INKING DEVICE FOR NUMBERING OR MARKING MACHINES OR THE LIKE.

FRANK W. MERRICK, Boston, Mass., assignor to Clarence S. Luttwieler, Newton, Mass. Filed July 12, 1904. Serial No. 216,215.



Claim.—1. In a numbering or marking machine, and the like, in combination, a type-head movable to press the printing-surface against the article to be numbered or marked, and inking devices therefor comprising, essentially, a cup or receptacle for ink, a traveling ink-conveying surface charged with the contents of the latter, means to advance said traveling surface intermittingly to present fresh portions thereof to the said printing-surface, and a moving carrier for the cup or receptacle and traveling surface by which these latter are operated in unison, the movement of the said carrier operating to press the said traveling surface against the printing-surface and then retract the inking devices.

2. In a numbering or marking machine, and the like, in combination, a type-head movable to press the printing-surface against the article to be numbered or marked, and inking devices therefor comprising, essentially, a cup or receptacle for ink, a traveling ink-conveying surface charged with the contents of the latter, means to advance said surface intermittingly to present fresh portions thereof to the said printing-surface, means to distribute the ink uniformly upon the said surface and prevent an excess from being carried forward thereby, and a moving carrier for the cup or receptacle and traveling surface by which these latter are operated in unison, the movement of the said carrier operating to press the said traveling surface against the printing-surface and then retracting the inking devices.

3. In a numbering or marking machine, and the like, in combination, a type-head movable to press the printing-surface against the article to be numbered or marked, and inking devices therefor comprising, essentially, a cup or receptacle for ink, an endless apron charged with the ink contained in the cup or receptacle, rolls around which said apron extends, means to feed the said apron, and a moving carrier for the said cup or receptacle and the rolls and apron cooperating therewith, the movement of the said carrier operating to press the said apron against the printing-surface and then retract the inking devices.

4. In a numbering or marking machine, and the like, in combination, a type-head movable to press the printing-surface against the article to be numbered or marked, and inking devices therefor comprising, essentially, a cup or receptacle for ink, an endless apron charged with the ink contained in the cup or receptacle, rolls around which the said apron extends, means to feed the said apron, means to distribute the ink uniformly upon the said apron and regulate the amount carried forward thereby, and a moving carrier for the said cup or receptacle and the devices coöperating therewith, the movement of the said carrier operating to press the said apron against the printing-surface and then retract the inking devices.

5. In a numbering or marking machine, and the like, in combination, a type-head, and inking devices therefor comprising, essentially, a cup or receptacle for ink, a transfer-roll in said cup or receptacle, an endless apron in contact with said transfer-roll, supporting-rolls for the said apron, a backing for said apron intermediate said supporting-rolls to bear the corresponding portion of the apron against the printing-surface, a presser or doctor coöperating with said apron, and means to feed said apron.

6. In a numbering or marking machine, and the like, the combination, a type-head, and inking devices therefor comprising, essentially, a cup or receptacle for ink, a transfer-roll in said cup or receptacle, an endless apron in contact with said transfer-roll, a presser or doctor coöperating with said apron, means to feed said apron, and a moving carrier on which the said inking devices are mounted.

7. In a numbering or marking machine, and the like, in combination, a type-head, and inking devices therefor comprising a cup or receptacle for ink, an endless traveling apron receiving ink from the said cup or receptacle, an apron-supporting frame separable from said cup or receptacle, and a movable carrier to which the said frame and cup or receptacle are detachably applied.

8. In a numbering or marking machine, and the like, in combination, a type-head, and inking devices therefor comprising an ink cup or receptacle, an endless apron receiving ink from the said cup or receptacle, an apron-supporting frame separable from said cup or receptacle, and a moving carrier having side arms receiving and supporting between them the said cup or receptacle and apron-supporting frame.

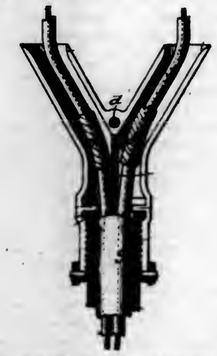
786,911. ELECTRIC-CONDUIT TERMINAL.

WILLIAM J. MILES and JESSE PATTERSON, Buffalo, N. Y. Filed June 21, 1904. Serial No. 213,503.

Claim.—1. An electric-conduit terminal comprising two similar members each having a trunk-section and two branch sections, pins arranged on one of said members, hooks arranged on the other member and engaging with said pins, and a fastening for connecting said members, substantially as set forth.

2. An electric-conduit terminal comprising two similar members each having a trunk-section and two branch sections, a book arranged on one trunk-section and engaging with a pin on the other trunk-section, and a fastening connecting said members at the crotch between said branches, substantially as set forth.

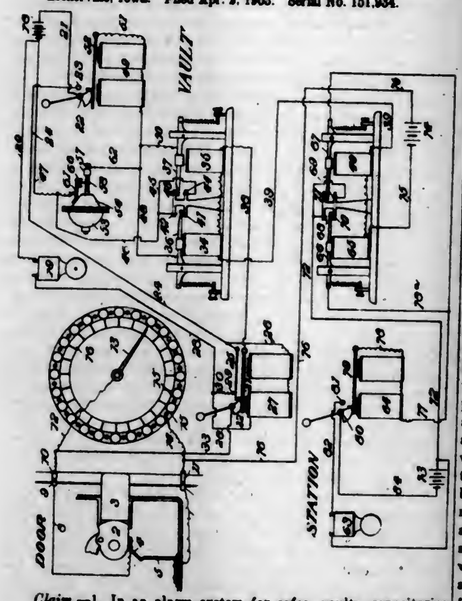
3. An electric-conduit terminal comprising two similar members each having a trunk-section and two branch sections, pins arranged at the lower end of one trunk-section on opposite sides thereof, hooks arranged at the lower end of the other trunk-section on opposite sides thereof and engaging with said pins, and a screw connecting said members at the crotch between said branches, substantially as set forth.



4. An electric-terminal conduit comprising two similar members each having a trunk-section, two branch sections, a circumferential flange-section arranged centrally in the bore of the trunk-section, a series of transverse ribs in the bore of the trunk-section below said flange, a central partition extending lengthwise from the crotch between said branches to said flanges and transversely from the bore of one trunk-section to the bore of the other trunk-section, pins arranged on one trunk-section, hooks arranged on the other trunk-section and engaging with said pins, and a screw connecting said members at the crotch between said branch sections, substantially as set forth.

786,912. BURGLAR-ALARM.

CHARLES O. MILLER, Estherville, Iowa, assignor to Millers Electro-Pneumatic Burglar Alarm Company, Estherville, Iowa. Filed Apr. 9, 1903. Serial No. 151,934.



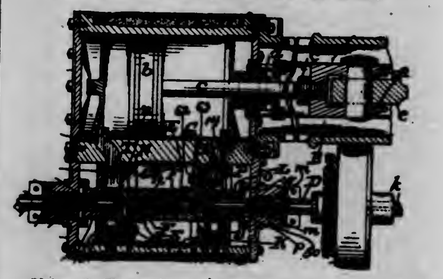
Claim.—1. In an alarm system for safes, vaults, repositories and the like, the combination of a closed circuit including an automatic circuit-closer, a lock mechanism applied to the door of the safe, vault or the like, contacts connected with the lock mechanism and actuated thereby for closing the main circuit, corresponding sets of contacts applied to the door and frame of the vault, safe or the like for completing the main circuit when said door is properly closed, and an alarm-circuit controlled by the aforesaid circuit-closing device included in the main circuit for giving warning when the main circuit is not completed or is tampered with, substantially a set forth.

2. In an alarm system for safes, vaults, repositories and the like, the combination of a closed circuit including an automatic circuit-closer, a lock mechanism applied to the door of the safe, vault or the like, contacts connected with the lock mechanism and actuated thereby for closing the main circuit, corresponding sets of contacts applied to the door and frame of the vault, safe or the like for completing the main circuit when said door is properly closed, a time mechanism included in the main circuit for cutting the vault, safe or the like out of circuit at the predetermined time to permit opening of the same without giving an alarm, and an alarm-circuit controlled by the aforementioned circuit-closing device located in the main circuit when the latter is broken or tampered with, substantially as specified.

3. In an alarm system for safes, vaults, repositories and the like, the combination of a closed circuit including an automatic circuit-closer, a lock mechanism applied to the door of the safe, vault or the like, and included in the closed circuit when said door is properly closed, a time mechanism included in the main circuit for cutting the vault, safe or the like out of circuit at the predetermined time to permit opening of the same without giving an alarm, said time mechanism comprising a dial, a series of electrically-insulated contacts concentric with the dial, means for electrically connecting any one of the contacts with the dial, and a hand to make electrical connection with said contacts, and an alarm-circuit controlled by the aforementioned circuit-closing device located in the main circuit when the latter is broken or tampered with, substantially as described.

786,913. VALVE MECHANISM FOR ENGINES.

JOHN H. MOORE, Cleveland, Ohio, assignor to Anna Z. Baxter and A. William Baxter, Cleveland, Ohio. Filed July 31, 1903. Serial No. 167,756.



Claim.—1. The combination, with the engine-cylinder, the piston within the cylinder; the engine-shaft operatively connected with the piston; the valve-casing arranged externally and longitudinally of the cylinder and provided interiorly with a bore which extends longitudinally of the valve-casing; the two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder, and a valve-bearing shaft arranged centrally and longitudinally of the valve-casing and operatively connected with the engine-shaft, of a collar operatively mounted on the valve-bearing shaft centrally between the ends of the valve-casing; two fluid-pressure-admission valves formed upon opposite ends respectively of the said collar and provided each with a port extending through the respective valve; a fluid-pressure-receiving chamber formed within the valve-casing and around the aforesaid collar between the two pressure-admission valves; two exhaust-valves arranged within opposite ends respectively of the aforesaid bore and operatively mounted on the valve-bearing shaft and provided each with a port extending through the respective valve; exhaust-chambers formed within the valve-casing and communicating with the ports in the exhaust-valves, and a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the partition, and the ports in the different partitions communicating with the different cylinder-ports respectively substantially as shown, for the purpose specified.

2. The combination, with the engine-cylinder, the piston within the cylinder; the engine-shaft operatively connected with the piston; the valve-casing arranged externally of the cylinder and provided

interiorly with a bore which extends longitudinally of the valve-casing and having a fluid-pressure inlet and an exhaust-outlet, the two cylinder-ports connecting, at one end, with the aforesaid bore and opening, at the opposite end, into the interior chamber of the cylinder, and a valve-bearing shaft arranged centrally and longitudinally of the valve-casing and operatively connected with the engine-shaft, of a collar operatively mounted on the valve-bearing shaft centrally between the ends of the valve-casing; two fluid-pressure-admission valves formed upon opposite ends respectively of the said collar and provided each with a port extending through the respective valve and communicating with the aforesaid fluid-pressure inlet; two exhaust-valves arranged within opposite ends respectively of the aforesaid bore and operatively mounted on the valve-bearing shaft and provided each with a port extending through the respective valve and communicating with the aforesaid exhaust-outlet, and a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the partition, and the ports in the different partitions communicating with the different cylinder-ports respectively, substantially as shown, for the purpose specified.

3. The combination, with the engine-cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; the valve-casing arranged externally and longitudinally of the cylinder and provided interiorly with a bore which extends longitudinally of the valve-casing; the two cylinder-ports connecting, at one end, with the aforesaid bore and opening, at the opposite end, into opposite ends respectively of the interior chamber of the cylinder, and a valve-bearing shaft arranged centrally and longitudinally of the valve-casing and operatively connected with the engine-shaft, of two fluid-pressure-admission valves operatively mounted on the valve-bearing shaft a suitable distance apart within the aforesaid bore and a suitable distance inwardly from opposite ends respectively of the valve-casing and provided each with a port extending through the respective valve; a fluid-pressure-receiving chamber formed within the valve-casing circumferentially of the valve-bearing shaft between the pressure-admission valves; two exhaust-valves arranged within opposite ends respectively of the aforesaid bore and operatively mounted on the valve-bearing shaft and provided each with a port extending through the respective valve; exhaust-chambers formed within the valve-casing and communicating with the ports in the exhaust-valves, and a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the partition, and the ports in the different partitions communicating with the different cylinder-ports respectively.

4. The combination, with the engine-cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; the valve-casing arranged externally of the cylinder and provided interiorly with a bore which extends longitudinally of the valve-casing and having a fluid-pressure inlet and an exhaust-outlet; the two cylinder-ports connecting, at one end, with the aforesaid bore and opening, at the opposite end, into the interior chamber of the cylinder, and a valve-bearing shaft arranged centrally and longitudinally of the valve-casing and operatively connected with the engine-shaft, of two fluid-pressure-admission valves operatively mounted on the valve-bearing shaft a suitable distance apart within the aforesaid bore and provided each with a port which extends through the respective valve and communicates with the aforesaid fluid-pressure inlet; two exhaust-valves arranged within the aforesaid bore in suitable proximity to the different pressure-admission valves respectively and operatively mounted on the valve-bearing shaft and provided each with a port which extends through the respective valve and communicates with the aforesaid exhaust-outlet, and a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the respective partition, and the ports in the different partitions communicating with the different cylinder-ports respectively, substantially as shown, for the purpose specified.

5. The combination, with the engine-cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; the valve-casing arranged externally of the cylinder and provided interiorly with a bore which extends longitudinally of the valve-casing, and the two cylinder-ports connecting, at one end, with the said bore and opening, at the opposite end, into the interior chamber of the cylinder, of two rotary fluid-pressure-admission valves arranged a suitable distance apart within the aforesaid bore and a suitable distance inwardly from opposite ends respectively of the valve-casing; a fluid-pressure-receiving chamber formed within the valve-casing between the pressure-admission valves; two rotary exhaust-valves arranged within opposite ends respectively of the aforesaid bore; exhaust-chambers formed within the valve-casing; a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the partition and the ports in the different partitions communicating with the different cylinder-ports respectively; means establishing operative connection between the aforesaid valves and the engine-shaft, and ports in the valves to exhaust steam from one end of the cylinder through the port in one of the partitions while steam is admitted through the port in the other partition into the other end of the cylinder.

6. The combination, with the engine-cylinder; the valve-casing arranged externally of the cylinder and provided interiorly with a bore extending longitudinally of the valve-casing, and two cylinder-ports connecting, at one end, with the aforesaid bore and opening, at the opposite end, into the interior chamber of the cylinder, of two rotary fluid-pressure-admission valves arranged a suitable distance apart within the aforesaid bore and provided each with a fluid-pressure-conducting port which extends through the respective valves; two rotary exhaust-valves arranged within the aforesaid bore in suitable proximity to the different pressure-admission valves respectively and provided each with an exhaust-port which extends through the respective valves, a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the partition, and the ports in the different partitions communicating with the different cylinder-ports respectively, and means for simultaneously rotating the said valves.

7. The combination, with the engine-cylinder; the valve-casing arranged externally of the cylinder and provided interiorly with a bore extending longitudinally of the valve-casing, and the two cylinder-ports connecting, at one end, with the aforesaid bore and opening, at the opposite end, into the interior chamber of the cylinder, of two rotary pressure-admission valves arranged a suitable distance apart within the aforesaid bore and provided each with a port extending through the respective valves; two rotary exhaust-valves arranged within the aforesaid bore and provided each with a port and arranged in suitable proximity to the different pressure-admission valves respectively, which exhaust-valves are each shiftable toward the adjacent pressure-admission valve; a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends though the partition and the ports in the different partitions communicating with the different cylinder-ports respectively; means acting to hold the exhaust-valves against the said partitions, and means for simultaneously operating the aforesaid valves.

8. The combination, with the engine-cylinder; the valve-casing arranged externally of the cylinder and provided interiorly with a bore extending longitudinally of the valve-casing, and the two cylinder-ports connecting, at one end, with the aforesaid bore and opening, at the opposite end, into the interior chamber of the cylinder, of two rotary fluid-pressure-admission valves arranged a suitable distance apart within the aforesaid bore and provided with a port extending through the respective valves; a fluid-pressure-receiving chamber communicating with the ports in the pressure-admission valves; two rotary exhaust-valves arranged within the aforesaid bore in suitable proximity to the different pressure-admission valves respectively, which exhaust-valves are each shiftable toward the adjacent pressure-admission valves and provided each with a port extending through the respective exhaust-valves; a valve-seat-forming partition snugly interposed between each exhaust-valve and the adjacent pressure-admission valve and provided with a port which extends through the partition and the ports in the different partitions communicating with the different cylinder-ports respectively; means whereby some fluid under pressure is diverted from the aforesaid fluid-pressure-receiving chamber to both exhaust-valves and applied to hold the said valves against the said partitions, and means for rotating the aforesaid valves simultaneously.

9. The combination, with the engine-cylinder; the engine-shaft; the valve-casing having a fluid-pressure inlet and an exhaust-outlet; a cylinder-port opening into the interior chamber of the cylinder, and a valve-bearing shaft extending into the valve-casing and operatively connected with the engine-shaft, of a partition within the valve-casing and surrounding the valve-bearing shaft, which partition is provided with a port which extends endwise therethrough and communicates with the aforesaid cylinder-port; an exhaust-valve seated against one end of the said partition and operatively mounted on the valve-bearing shaft; an exhaust-chamber formed in the valve-casing and communicating with the aforesaid exhaust-outlet; a fluid-pressure-admission valve operatively mounted on the valve-bearing shaft at the opposite end of the aforesaid partition; a fluid-pressure-receiving chamber formed in the valve-casing and communicating with the aforesaid fluid-pressure inlet, and the valves being provided with ports to admit steam into and exhaust from the cylinder through the port in the partition.

10. The combination, with the engine-cylinder; the engine-shaft; the valve-casing having a fluid-pressure inlet and an exhaust-outlet; a cylinder-port connecting with the interior chamber of the cylinder, and a valve-bearing shaft extending into the valve-casing and operatively connected with the engine-shaft, of a partition within the valve-casing and around the valve-bearing shaft, which partition is provided with a port which extends endwise therethrough and communicates with the aforesaid cylinder-port; an exhaust-valve seated against one end of the said partition and operatively mounted on the valve-bearing shaft and having a port which extends through the valve and communicates with the aforesaid exhaust-outlet, and a fluid-pressure-admission valve operatively mounted upon the valve-bearing shaft at the opposite end of the aforesaid partition and provided with a port which extends through the said valve and communicates with the aforesaid fluid-pressure inlet.

11. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure inlet and an exhaust-outlet, and a cylinder-port opening into the interior chamber of the cylinder, of a partition with the valve-casing, which partition is provided with a port which extends therethrough and communicates with the aforesaid cylinder-port; an exhaust-valve seated against the said partition at one end of the port in the partition and having a port which extends through the valve and communicates with the aforesaid exhaust-outlet; a fluid-pressure-admission valve seated against the aforesaid partition at the opposite end of the port in the partition and provided with a port which extends through the said valve and communicates with the aforesaid fluid-pressure inlet, and means for operating the valves.

12. The combination, with the engine-cylinder; the valve-casing provided interiorly with a bore which extends longitudinally of the said casing, and having a fluid-pressure inlet and an exhaust-outlet, and a cylinder-port connecting, at one end, with the said bore and opening, at its opposite end, into the interior chamber of the cylinder, of an annular partition within and transversely of the aforesaid bore, which partition is provided with a port which extends endwise therethrough and communicates with the aforesaid cylinder-port; a rotary exhaust-valve seated against one end of the said partition and having a port which extends through the valve and communicates with the aforesaid exhaust-outlet; a rotary fluid-pressure-admission valve seated against the opposite end of the partition and provided with a port which extends through the said valve, and communicates with the aforesaid fluid-pressure inlet, and means for operating the aforesaid valves.

13. The combination, with the engine-cylinder; the valve-casing provided interiorly with a bore which extends longitudinally of the said casing and having a fluid-pressure inlet and an exhaust-outlet, and a cylinder-port connecting the said bore with the interior chamber of the cylinder, of a partition snugly fitting within the said bore and having a limited endwise shiftability, which partition is provided with a port which extends therethrough and communicates with the aforesaid cylinder-port; a rotary exhaust-valve seated and bearing against one end of the said partition and having a port for conducting exhaust-steam from the port in the partition; a rotary fluid-pressure-admission valve seated against the opposite end of the partition and provided with a port for conducting live steam into the partition; means acting to press the exhaust-valve against the said partition, and means for operating the valves.

14. The combination, with the engine-cylinder; the valve-casing provided interiorly with a cylindrical bore which extends longitudinally of the said casing, and having a fluid-pressure inlet and an exhaust-outlet, and a cylinder-port connecting the said bore with the interior chamber of the cylinder, of a cylindrical partition snugly fitted within the aforesaid bore and having a limited endwise shiftability, which partition is provided with a port which extends endwise therethrough and communicates with the aforesaid cylinder-port; a rotary exhaust-valve seated and bearing against one end of the said partition and having a port for conducting exhaust-steam from the port in the partition, a rotary fluid-pressure-admission valve seated again the opposite end of the said partition and provided with a port for conducting live steam to the port in the partition; means for operating the valves, and means for preventing circumferential displacement of the aforesaid partition.

15. The combination, with the engine-cylinder; the engine-shaft; the valve-casing provided interiorly with a bore which extends longitudinally of the said casing and having a fluid-pressure inlet and an exhaust-outlet; a cylinder-port connecting the said bore with the interior chamber of the cylinder, and a valve-bearing shaft extending into and longitudinally of the valve-casing and operatively connected with the engine-shaft, of a partition arranged within the aforesaid bore and surrounding valve-bearing shaft and provided with a port which extends through the partition and communicates with the aforesaid cylinder-port; an exhaust-valve seated against one end of the said partition and comprising an endwise-shiftable sleeve which is operatively mounted on the valve-bearing shaft and a disk which is formed upon the inner end of the said sleeve and has a port for conducting exhaust-steam from the port in the partition, which sleeve is provided at its outer end with an external annular flange having an outwardly-projecting annular rim; a ring larger diametrically than and surrounding the valve-bearing shaft within and engaging the inner periphery of the aforesaid rim; the fluid-pressure-receiving chamber formed within the said ring and having an outer end wall borne against by the said ring and arranged a suitable distance outwardly from the aforesaid rim; means acting to retain the said ring against the said wall and acting to retain the exhaust-valve against the aforesaid partition; a fluid-pressure-admission valve operatively mounted on the valve-bearing shaft at the opposite end of the aforesaid partition and provided with a port for conducting steam to the port in the partition, and means for supplying a small amount of fluid under pressure to the aforesaid fluid-pressure-receiving chamber.

16. The combination, with the engine-cylinder; the engine-shaft; the valve-casing provided interiorly with a bore which extends longitudinally of the said casing and having a fluid-pressure inlet and an exhaust-outlet; a cylinder-port connecting at one end, with the said bore and opening, at its opposite end, into the interior chamber of the cylinder, and a valve-bearing shaft extending into and longitudinally of the valve-casing and operatively connected with the engine-shaft, of a partition within the aforesaid bore and around the valve-bearing shaft and provided with a port which extends through the partition and communicates with the aforesaid cylinder-port; an exhaust-valve seated against one end of the said partition and comprising an endwise-shiftable sleeve which is operatively mounted on the valve-bearing shaft and a disk which is borne by the inner end of the said sleeve and has a port which extends through the disk and communicates with the aforesaid exhaust-outlet, which sleeve is provided, at its outer end, with an external annular flange having an outwardly-projecting annular rim; a ring larger diametrically than and surrounding the valve-bearing shaft within and engaging the inner periphery of the aforesaid rim; the fluid-pressure-receiving chamber formed within the said ring and having an outer end wall borne against by the said ring and arranged a suitable distance outwardly from the aforesaid rim; means acting to retain the said ring against the said wall and acting to retain the exhaust-valve against the aforesaid partition and a fluid-pressure-admission valve operatively mounted on the valve-bearing shaft at the opposite end of the aforesaid partition and provided with a port which extends through the said valve and communicates with the aforesaid fluid-pressure inlet.

17. The combination, with the engine-cylinder; the engine-shaft; the valve-casing provided interiorly with a bore which extends longitudinally of the said casing and having a fluid-pressure inlet and an exhaust-outlet; a cylinder-port connecting, at one end, with the said bore and opening, at its opposite end, into the interior chamber of the cylinder, and a valve-bearing shaft extending into and longitudinally of the valve-casing and operatively connected with the engine-shaft, of a partition within the aforesaid bore and around the valve-bearing shaft and provided with a port which extends endwise through the partition and communicates with the aforesaid cylinder-port; an exhaust-valve seated against one end of the said partition and having a sleeve which is operatively mounted on and shiftable endwise of the valve-bearing shaft, which valve has a port which extends endwise through the valve and communicates with the aforesaid exhaust-outlet, a fluid-pressure-receiving chamber formed next adjacent to the outer end face of the said sleeve; a fluid-pressure-admission valve operatively mounted on the valve-bearing shaft at the opposite end of the aforesaid partition and provided with a port which extends through the said valve and communicates with the aforesaid fluid-pressure inlet, and means for feeding a small amount of fluid under pressure to the aforesaid fluid-pressure-receiving chamber.

18. The combination, with the engine-cylinder; the engine-

shaft; the valve-casing provided interiorly with a bore which extends longitudinally of the said casing and having a fluid-pressure inlet and an exhaust-outlet; a cylinder-port connecting the said bore with the interior chamber of the cylinder, and a valve-bearing shaft extending into and longitudinally of the valve-casing and operatively connected with the engine-shaft, of a partition arranged within the aforesaid bore and extending circumferentially of the valve-bearing shaft, which partition is provided with a port which extends endwise therethrough and communicates with the aforesaid cylinder-port; an exhaust-valve seated and yieldably held against one end of the said partition, which valve is operatively mounted on the valve-bearing shaft and has a port for conducting exhaust-steam from the port in the partition, and a fluid-pressure-admission valve operatively mounted on the valve-bearing shaft at the opposite end of the aforesaid partition and provided with a port for conducting live steam into the port in the partition, substantially as shown and described.

19. The combination, with the engine-cylinder; the valve-casing, and a cylinder-port opening into the interior chamber of the cylinder, of a partition arranged within and transversely of the valve-casing and provided with a port which extends through the partition and communicates with the aforesaid cylinder-port; a rotary exhaust-valve arranged at and yieldably held against one end of the partition and provided with an exhaust-port; a rotary fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a fluid-pressure-conducting port; means for feeding fluid under pressure to the port in the pressure-admission valve, and means for operating the valves, all arranged substantially as shown, for the purpose specified.

20. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber, and a cylinder-port opening into the interior chamber of the cylinder, of a partition arranged within and transversely of the valve-casing between the fluid-pressure-receiving chamber and exhaust-chamber and provided with a port which extends through the partition and communicates with the cylinder-port; a rotary exhaust-valve seated and yieldably held against one end of the partition and provided with an exhaust-port; a rotary fluid-pressure-admission valve seated against the opposite end of the partition and provided with a port which communicates with the fluid-pressure-receiving chamber; means for operating the valves, and means whereby some fluid under pressure is conducted from the said fluid-pressure-receiving chamber successively through the pressure-admission valve, partition and exhaust-valve and applied to hold the exhaust-valve against the partition.

21. The combination, with the engine-cylinder; the engine-shaft; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; the two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder, and the valve-bearing shaft extending into the valve-casing and operatively connected with the engine-shaft, of two partitions fitting snugly within the valve-casing and provided each with a port which extends endwise through the respective partition and also concentrically of the valve-bearing shaft, and the ports in the different partitions communicating with the different cylinder-ports respectively; valves operatively mounted on the valve-bearing shaft and arranged to control the exhaust from and admission of live steam to the port in the partition; adjustable plates for controlling the size and arrangement of the ends of the ports in the partitions, and means for securing the said plates in the desired adjustment.

22. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber and the two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder, of two partitions fitting snugly within the valve-casing and provided each with a port which extends endwise through the respective partitions, and the ports in the different partitions communicating with the different cylinder-ports respectively; a rotary exhaust-valve having bearing against one end of each partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a rotary fluid-pressure-admission valve seated against the opposite end of the said partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the valve; and each partition provided, in each end thereof, with two valve-seat-forming adjustable plates; means for securing the said plates in the desired adjustment, and means for operating the valves.

23. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber, and the two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder, of two partitions fitting snugly within the valve-casing and provided each with a port which extends endwise through the respective partition, and the ports in the different partitions communicating with the different cylinder-ports respectively; a rotary exhaust-valve arranged at one end of each partition and provided with a port for conducting exhaust-steam from the port in the said partition; a rotary fluid-pressure-admission valve arranged at the opposite end of the said partition and provided with a port for conducting live steam to the port in the said partition; adjustable plates for controlling the size and arrangement of the outer ends of the ports in the partitions; means for securing the said plates in the desired adjustment, and means for operating the valves.

24. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber and the two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder, of two partitions fitting snugly within the valve-casing and provided each with a port which extends endwise through the respective partition, and the ports in the different partitions communicating with the different cylinder-ports respectively; a rotary exhaust-valve arranged at one end of each partition and provided with a port for conducting exhaust-steam from the port in the said partition; a rotary fluid-pressure-admission valve arranged at the opposite end of the said partition and provided with a port for conducting live steam to the port in the said partition; means for operating the valves; adjustable plates for controlling the size and arrangement of the inner ends of the ports in the partitions, and means for securing the said plates in the desired adjustment.

25. The combination, with the engine-cylinder; the engine-shaft; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; a cylinder-port opening into the interior chamber of the cylinder, and a valve-bearing shaft extending into the valve-casing and operatively connected with the engine-shaft, of a partition snugly fitting within the valve-casing and surrounding the valve-bearing shaft, which partition is provided with a port which extends endwise through the partition and also concentrically of the valve-bearing shaft and communicates with the aforesaid cylinder-port; an exhaust-valve seated against one end of the said partition and operatively mounted on the valve-bearing shaft, which valve is provided with a port which extends through the valve and also concentrically of the valve-bearing shaft and communicates with the aforesaid exhaust-chamber; a fluid-pressure-admission valve operatively mounted on the valve-bearing shaft at the opposite end of the partition and provided with a port which extends through the said valve and communicates with the aforesaid fluid-pressure-receiving chamber, and the aforesaid partition comprising an annular block surrounding the valve-bearing shaft and provided, in each end thereof, with a circular recess extending circumferentially of the valve-bearing shaft; two valve-seat-forming plates arranged within each of the said recesses and extending concentrically of the shaft, and means for securing the said plates in the desired adjustment

26. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber, and a cylinder-port opening into the interior chamber of the cylinder, of a partition snugly fitting within and arranged transversely of the valve-casing, which partition is provided with a port which extends through the partition and communicates with the aforesaid cylinder-port; an exhaust-valve seated against the said partition at one end of the port in the partition and provided with a port which extends through the valve and communicates with the aforesaid exhaust-chamber; a fluid-pressure-admission valve at the opposite end of the port in the partition and provided with a port which extends through the said valve and communicates with the aforesaid fluid-pressure-receiving chamber, and the partition comprising a block provided with a circular recess, plates arranged within and extending endwise of the said recess; means for securing the said plates in the desired adjustment, and means for operating the valves.

27. The combination, with the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber, and a cylinder-port opening into the interior chamber of the cylinder, of a partition snugly fitting within the valve-casing, which partition is provided with a port which extends through the partition and communicates with the aforesaid cylinder-port; an exhaust-valve seated against the said partition at one end of the port in the partition and provided with a port which extends through the said valve and communicates with the aforesaid exhaust-outlet; a fluid-pressure-admission valve arranged at the opposite end of the

port in the partition and provided with a port which extends through the valve and communicates with the aforesaid fluid-pressure-receiving chamber, and the partition being provided, with adjustable plates controlling the size and arrangement of one end of the port in the partition; means for securing the said plates in the desired adjustment, and means for operating the valves.

28. The combination, of the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber, the two cylinder-ports opening into the interior chamber of the cylinder, two partitions within the valve-casing and provided each with a port which extends through the respective partition and the ports in the different partitions communicating with the different cylinder-ports respectively; an exhaust-valve having bearing against the said partition at one end of the port in the partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the said valve; means for operating the valves, and means whereby the commencement and the termination of the period of fluid-pressure admission to either cylinder-port can be changed or regulated independently of each other.

29. The combination, of the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; the two cylinder-ports opening into the interior chamber of the cylinder; two partitions within the valve-casing and provided each with a port which extends through the respective partition and the ports in the different partitions communicating with the different cylinder-ports respectively; an exhaust-valve having bearing against the said partition at one end of the port in the partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the said valve; means for operating the valves, and means whereby the beginning, duration and termination of the period of fluid-pressure admission to either cylinder-port can be changed or regulated independently of the commencement, duration and termination of the period of fluid-pressure admission to the other cylinder-port.

30. The combination, of the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; the two cylinder-ports opening into the interior chamber of the cylinder; two partitions within the valve-casing and provided each with a port which extends through the respective partition and the ports in the different partitions communicating with the different cylinder-ports respectively; an exhaust-valve having bearing against the said partition at one end of the port in the partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the said valves; means for operating the valves, and means whereby the beginning, duration and termination of the period of fluid-pressure admission to either cylinder-port can be changed or regulated independently of the termination, duration and commencement of the period of release or exhaust through the other cylinder-port.

31. The combination, of the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; the two cylinder-ports opening into the interior chamber of the cylinder; two partitions within the valve-casing and provided each with a port which extends through the respective partition and the ports in the different partitions communicating with the different cylinder-ports respectively; an exhaust-valve having bearing against the said partition at one end of the port in the partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the said valve; means for operating the valves, and means whereby the commencement and the termination of the period of exhaust or release through either cylinder-port can be changed or regulated independently of each other.

32. The combination, of the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; the two cylinder-ports opening into the interior chamber of the cylinder; two partitions within the valve-casing and provided each with a port which extends through the respective partition and the ports in the different partitions communicating with the different cylinder-ports respectively; an exhaust-valve having bearing against the said partition at one end of the port in the partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the said valve; means for operating the valves, and means whereby the beginning, duration and termination of the period of exhaust or release through either cylinder-port can be changed or regulated independently of the commencement, duration and termination of the period of exhaust or release in exhausting through the other cylinder-port.

33. The combination, of the engine-cylinder; the valve-casing having a fluid-pressure-receiving chamber and an exhaust-chamber; the two cylinder-ports opening into the interior chamber of the cylinder; two partitions fitting snugly within the valve-casing and provided each with a port which extends through the respective partition and the ports in the different partitions communicating with the different cylinder-ports respectively; an exhaust-valve having bearing against the said partition at one end of the port in the partition and provided with a port which communicates with the aforesaid exhaust-chamber and extends through the valve; a fluid-pressure-admission valve arranged at the opposite end of the partition and provided with a port which communicates with the aforesaid fluid-pressure-receiving chamber and extends through the said valve; means for operating the valves, and means whereby the beginning, duration and termination of the period of exhaust or release through either cylinder-port can be changed or regulated independently of the termination, duration and commencement of the period of fluid-pressure admission to the other cylinder-port.

34. The combination, with the engine-cylinder; the engine-shaft; the valve-casing provided interiorly with a bore extending longitudinally of the valve-casing; two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder and connecting with the aforesaid bore a suitable distance apart longitudinally of the valve-casing; a valve-bearing shaft extending into and longitudinally of the valve-casing from outside of the said casing and operatively connected with the engine-shaft; two partitions arranged within and transversely of the aforesaid bore and provided each with a port which extends through the respective partition, and the ports in the different partitions communicating with the different cylinder-ports respectively; two exhaust-valves provided each with an exhaust-port and seated against the different partitions respectively at the exhausting end of the port in the respective partition and operatively mounted on the aforesaid valve-bearing shaft; two fluid-pressure-admission valves operatively mounted on the said valve-bearing shaft at the fluid-pressure-taking end of the port in the different partitions respectively and provided each with a fluid-pressure-conducting port, and means for supplying fluid under pressure to the ports in the pressure-admission valves, of another valve-bearing shaft arranged within and extending longitudinally of the first-mentioned valve-bearing shaft; governing mechanism establishing operative connection between the inner valve-bearing shaft and the outer valve-bearing shaft, and two cut-off valves arranged within the valve-casing and operatively connected with the inner valve-bearing shaft and arranged to regulate the supply of fluid under pressure to the ports in the different partitions respectively.

35. The combination, with the engine-cylinder; the engine-shaft; the valve-casing provided interiorly with a bore extending longitudinally of the valve-casing; two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder and connecting with the aforesaid bore a suitable distance apart longitudinally of the valve-casing; a valve-bearing shaft extending into and longitudinally of the valve-casing from outside of the said casing and operatively connected with the engine-shaft; two partitions arranged within and transversely of the aforesaid bore and provided each with a port which extends through the respective partition, and the ports in the different partitions communicating with the different cylinder-ports respectively; two exhaust-valves provided each with an exhaust-port and seated against the different partitions respectively at the exhausting end of the port in the respective partition and operatively mounted on the aforesaid valve-bearing shaft; two fluid-pressure-admission valves operatively mounted on the said valve-bearing shaft at the fluid-pressure-taking end of the port in the different partitions respectively and provided each with a fluid-pressure-conducting port, and means for supplying fluid under pressure to the ports in the pressure-admission valves, of another valve-bearing

shaft arranged within and extending longitudinally of the first-mentioned valve-bearing shaft; governing mechanism establishing operative connection between the inner valve-bearing shaft and the outer valve-bearing shaft; two cut-off valves arranged within the valve-casing and mounted on the outer valve-bearing shaft and arranged to regulate the supply of fluid under pressure to the ports in the different partitions respectively; keys establishing operative connection between the cut-off valves and the inner valve-bearing shaft and extending from within the inner valve-bearing shaft through the outer valve-bearing shaft into the said valves, and the outer valve-bearing shaft being slotted circumferentially to accommodate the location of the keys.

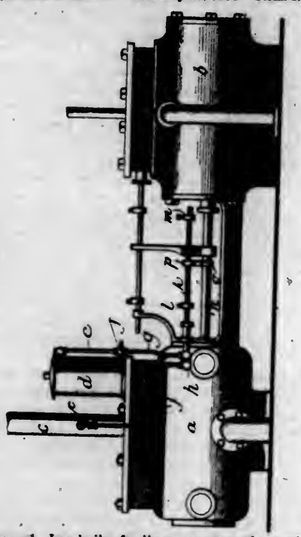
36. The combination, with the engine-cylinder; the engine-shaft; the valve-casing provided interiorly with a bore extending longitudinally of the valve-casing; two cylinder-ports opening into opposite ends respectively of the interior chamber of the cylinder and connecting with the aforesaid bore a suitable distance apart longitudinally of the valve-casing; a valve-bearing shaft extending into and longitudinally of the valve-casing from outside of the said casing; two partitions arranged within and transversely of the aforesaid bore and provided each with a port which extends through the respective partition, and the ports in the different partitions communicating with the different cylinder-ports respectively; two exhaust-valves provided each with an exhaust-port and seated against the different partitions respectively at the exhausting end of the port in the respective partition and operatively mounted on the aforesaid valve-bearing shaft; two fluid-pressure-admission valves operatively mounted on the said valve-bearing shaft at the fluid-pressure-taking end of the port in the different partitions respectively and provided each with a fluid-pressure-conducting port, and means for supplying fluid under pressure to the ports in the pressure-admission valves, of a disk-bearing shaft arranged externally of the valve-casing and in line endwise with the aforesaid valve-bearing shaft and operatively connected with the engine-shaft; two disks operatively mounted opposite each other one on the said disk-bearing shaft and the other on the said valve-bearing shaft, and an operative connection between the disks.

37. The combination, with a hollow valve-bearing shaft, and a rotary fluid-pressure-admission valve on and operated by the said shaft and provided with a port extending endwise therethrough and extending also concentrically of the shaft, of another valve-bearing shaft arranged centrally within and extending longitudinally and outside of the first-mentioned shaft, governing mechanism establishing operative connection between the two shafts, a cut-off valve within the pressure-admission valve and loosely mounted on the outer valve-bearing shaft and arranged to regulate the passage of fluid under pressure through the aforesaid port, and an operative connection between the cut-off valve and the inner valve-bearing shaft.

38. The combination, with a valve-bearing shaft, and a rotary fluid-pressure-admission valve on and operated by the said shaft and provided with a port extending endwise therethrough, of a cut-off valve within the pressure-admission valve and having a hub loosely mounted on the said shaft, which cut-off valve is arranged to regulate the passage of fluid under pressure through the aforesaid port; means for operating the cut-off valve, and a plate extending circumferentially of the aforesaid hub and arranged to form an abutment or stop preventing movement of the cut-off valve opposite to the direction in which the said valve moves in reducing the passage of fluid through the aforesaid port.

39. The combination, with a valve-bearing shaft, and a rotary fluid-pressure-admission valve on and operated by the said shaft and provided with a port extending endwise therethrough, of a disk-bearing and power-transmitting shaft arranged in line endwise with the aforesaid valve-bearing shaft and operatively provided with a disk adjacent to the said valve-bearing shaft; a disk operatively mounted on the said valve-bearing shaft and provided with a circumferentially-extending flange projecting toward and into close proximity to the first-mentioned disk; another valve-bearing shaft arranged centrally within and longitudinally of the disk-carrying valve-bearing shaft and projecting into the chamber formed between the two disks and surrounded by the aforesaid flange; a cut-off valve operatively connected with the inner valve-bearing shaft and arranged to regulate the passage of fluid through the aforesaid port, and governing mechanism carried by the aforesaid flanged disk, which mechanism is arranged in the main within the aforesaid chamber and operatively connected with the inner valve-bearing shaft, and the aforesaid disks being provided with means for establishing operative connection between them.

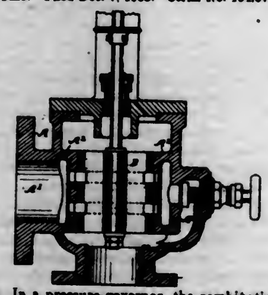
786,914. BOILER-COMPOUND FEEDER. JOHN F. MCCANNA, Chicago, Ill., assignor to John F. McCanna Company, Chicago, Ill., a Corporation of Illinois. Filed July 25, 1904. Serial No. 217,945.



Claim.—1. In a boiler feeding apparatus, the combination with a water-supply pump, of a reservoir for the boiler-cleaning compound, an auxiliary pump therefor, a gage-glass connected with said reservoir, a piston for the water-pump having a projection thereon, a piston for the auxiliary pump parallel to said first piston, tappets thereon with which the projection coöperates, a discharge-pipe connecting the water-supply pump and the boiler, a pipe connecting the reservoir and auxiliary pump, a pipe connecting the auxiliary pump with the discharge-pipe, and a three-way valve in the pipe connecting the auxiliary pump and the reservoir whereby the compound may be drawn either from the reservoir or the gage-glass.

2. In a boiler feeding apparatus, the combination with a water-supply pump, of a reservoir for the boiler-cleaning compound, an auxiliary pump therefor, a gage-glass connected therewith, connections between the water-pump and the auxiliary pump whereby the auxiliary pump will be operated at each operation of the water-pump, a discharge-pipe connecting the water-supply pump and the boiler, a pipe connecting said boiler-cleaning-compound reservoir and auxiliary pump, a discharge-pipe connecting said auxiliary pump and water-supply pipe, and valve connections between the pipe connecting the auxiliary pump and boiler-cleaning-compound reservoir whereby the contents of said reservoir may be drawn from the reservoir through the gage-glass, substantially as and for the purpose described.

786,915. PUMP-GOVERNING DEVICE. ROBERT B. MCGOWAN, Norwood, Ohio. Filed Dec. 7, 1903. Serial No. 184,079.



Claim.—1. In a pressure-governor, the combination of a governing-cylinder including an exterior circumferential supply-passage and a double circumferential port or series of ports, a hollow open-ended piston having a corresponding double circumferential

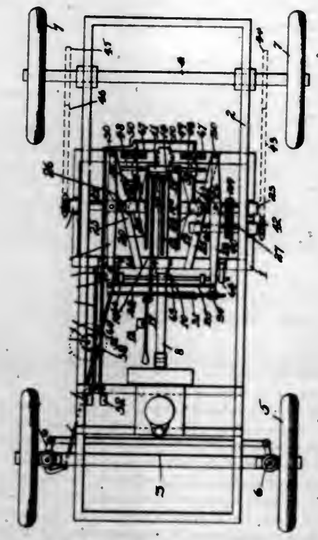
port or series of ports adapted to register with those of the cylinder, a by-pass valve for said cylinder, a valve-stem attached to the throttle-valve, and a piston at the upper end of the stem, a pressure-cylinder within which the piston is operable, springs of different tensions embracing said stem and the combined drain and relief connection connecting the end of the pressure-cylinder and the waste-passage.

2. In a governing device of the character described, the combination of a valve-chamber, a yoke-frame connected therewith, a pressure-cylinder, a valve-stem, an indicator-plate carried upon and by said stem, and the indicator-wings upon the yoke-frame.

3. In a governing device of the character indicated, the combination of a pressure-cylinder having a waste-passage, a piston and stem operable in said cylinder, springs of different tensions with the cylinder, and the combined drain and relief connection connecting the spring end of the pressure-cylinder and the piston end of the cylinder with the waste-passage, substantially as and for the purpose set forth.

4. In a pressure-governor of the character indicated, the governor-chamber having an exit-port, an exterior circumferential supply-passage perforated to permit a by-pass to the exit-port, a valve controlling said perforation on the inner wall of said supply-passage, a double circumferential port or series of ports and a hollow open-ended piston having a double circumferential port or series of ports adapted to register with those of the cylinder, substantially as set forth.

786,916. AUTOMOBILE. EDDY T. MCKAIG, Chicago, Ill., assignor to McKaig Friction Drive Vehicle Co., of the District of Columbia, a Corporation of the District of Columbia. Filed Sept. 10, 1904. Serial No. 224,011.



Claim.—1. In an automobile, the combination of a motor, a driving-shaft connected thereto, a driving-pulley splined on said shaft, two opposed driven disks engaging opposite sides of said pulley, longitudinally-movable shafts on which said disks are mounted respectively, a driving-axle connected directly with one of said shafts, a counter-shaft geared to the other of said shafts, and connected directly with the driving-axle, pivoted levers for sliding said shafts respectively, and means for operating said levers in unison or independently.

2. In an automobile, the combination of a motor, a driving-shaft connected therewith, a driving-pulley splined on said shaft, two opposed driven disks movable toward and from each other and engaging said pulley on opposite sides, two pivoted levers operatively connected with said disks respectively for increasing and decreasing their pressure against said pulley, elastic means for pulling said levers toward each other, a bell-crank pivoted to one of said levers, a rod pivoted to one arm of said bell-crank at one end and at the other end to the other of said levers, an operating connection secured to the other arm of said bell-crank, driving-wheels, and means for imparting the rotation of said disks to said driving-wheels.

3. In an automobile, the combination of two opposed disks movable toward and from each other, a pulley arranged between and engaging with said disks, a shaft on which said pulley is mounted, two idlers arranged behind said disks respectively, pivoted levers on which said idlers are mounted, and means for moving said idlers toward and from each other.

4. In an automobile, the combination of two opposed disks movable toward and from each other, a pulley arranged between said disks and engaging therewith, a shaft on which said pulley is mounted, two idlers arranged behind and adapted to engage said disks respectively, pivoted levers on which said idlers are mounted, a bell-crank pivoted to one of said levers and having one of its arms connected to the other of said levers, and means connected with the other arm of said bell-crank for oscillating the bell-crank.

5. In an automobile, the combination of driving-wheels, a steering mechanism, a power-transmitter comprising two independently-operating members, means for driving said members singly and also simultaneously, operative connections between said members and driving-wheels, and means for rendering said members alternately inert by opposite movements of the steering mechanism, the last-said means being so constructed as to allow the steering mechanism to move throughout a part of its throw without rendering said members inert.

6. In an automobile, the combination of driving-wheels, a steering mechanism, a power-transmitter comprising two independently-operating members, means for driving said members singly and also simultaneously, operative connections between said members and driving-wheels, and means comprising a lost-motion connection for rendering the said members alternately inert by opposite movements of the steering mechanism, when the steering mechanism is moved beyond certain points.

7. In an automobile, the combination of driving-wheels, a steering mechanism, a power-transmitter comprising two independently-operating members, means for driving said members singly and also simultaneously, operative connections between said members and driving-wheels, means comprising pivoted levers for alternately rendering said members inert, a rod having a limited movement independently of said levers, means on said rod for engaging and oscillating said levers respectively when the rod is moved in opposite directions beyond a certain point, and an operative connection between said rod and the steering mechanism.

8. In an automobile, the combination of driving-wheels, a steering mechanism, a power-transmitter comprising two driven disks, and means for driving said disks, said disks being movable toward and from each other so as to engage and disengage said driving means, two shifting members operatively connected with said disks for respectively shifting them out of contact with said driving means, means for elastically drawing said shifting members together, a connection extending between said shifting members and comprising two shoulders arranged at a distance from both of said shifting members and adapted to engage them respectively, and means for throwing the last-said connection in opposite directions by opposite movements of the steering mechanism.

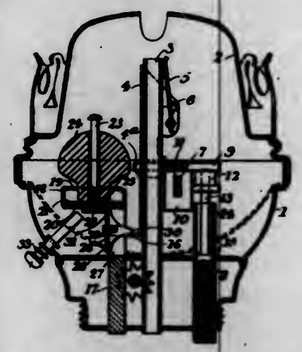
9. In an automobile, the combination of a motor, a driving-shaft connected thereto, a driving-pulley slidably connected to said shaft, two opposed driven disks engaging the opposite sides of said pulley simultaneously, longitudinally-movable shafts on which said disks are mounted respectively, driving-wheels, one of which is connected directly with one of said disks, a counter-shaft geared to the other one of said shafts and connected directly with the other one of the driving-wheels, and means for sliding said longitudinally-movable shafts in either direction simultaneously or independently.

10. In an automobile, the combination of two opposed disks movable toward and from each other, a pulley arranged between and engaging with said disks, a shaft on which said pulley is mounted, two idlers arranged behind said disks respectively in such a position that each of the disks will be between the inner edge of one of the idlers and one edge or side of said pulley, said idlers being movable toward and from said disks, and means under the control of the operator for thus moving the said idlers.

11. In an automobile, the combination of two opposed disks movable toward and from each other, a pulley arranged between and engaging said disks, a shaft on which said pulley is mounted, two pivoted levers connected with said disks respectively, a spring connecting said levers together, a lever pivotally mounted on one of said first levers, a rod connecting one arm of the last-said lever to the

other of the first-said levers, and means under the control of the operator connected to the other arm of said pivotally-mounted lever.

786,917. AUTOMATIC SAFETY-EXTINGUISHER ADAPTED TO SINGLE AND DUPLEX BURNERS FOR OIL-LAMPS. WILLIAM H. O'KEEFE, Athlone, Ireland. Filed Mar. 31, 1904. Serial No. 201,012.



Claim.—1. In an automatic safety-extinguisher, the combination with a burner, of a captive weight surrounded by the burner and loosely mounted upon a seat within the burner with capability of oscillating within certain limits, a spring-actuated extinguishing device, and a detent normally engaging said weight and said extinguishing device, substantially as herein shown and described.

2. In an automatic safety-extinguisher, the combination with a burner, of a captive weight surrounded by the burner and loosely mounted upon a seat with capability of oscillating, a spring-actuated extinguishing device, and a pivotally-mounted detent having a pair of noses normally engaging the weight and the extinguishing device, substantially as herein shown and described.

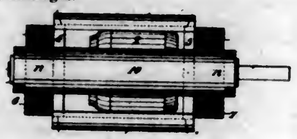
3. In an automatic safety-extinguisher, the combination with a burner, of a captive weight surrounded by the burner and loosely mounted upon a seat within the burner with capability of oscillating within certain limits, a spring-actuated extinguishing device normally held out of action by said weight, and hand-operating means projecting through the wall of the burner for displacing the weight and releasing the extinguishing device, substantially as herein shown and described.

4. In an automatic safety-extinguisher a weight loosely mounted upon a seat with capability of oscillating, means for controlling the degree of oscillation of the weight, a spring-actuated extinguishing device having a projection thereon, a projection from the bottom of the weight, a pivotally-mounted detent-lever having a nose adapted to engage the projection of the extinguishing device and a second nose adapted to engage the projection of the weight and means for normally holding the detent-lever in its engaging position substantially as herein shown and described.

5. In an automatic safety-extinguisher a weight having a disk-like extended base, a drum or cage loosely inclosing said disk or base and having openings in the top and bottom, a sleeve sliding upon the wick-tube of the burner and carrying a spring-actuated extinguishing-flap, a spring acting to force said sleeve upward, an extension from said sleeve provided with a projection, a projection on the bottom of the weight, a pivotally-mounted detent-lever having a nose adapted to engage the projection of the sleeve and a nose adapted to engage the projection of the weight and means for normally retaining the detent-lever in its engaging position substantially as herein shown and described.

786,918. CONTINUOUS-CURRENT ELECTRIC MOTOR. HENRI PICHEUR, Paris, France, assignor to Société Anonyme pour le Travail Electrique des Metaux, Paris, France. Filed Jan. 6, 1905. Serial No. 239,916.

Claim.—A continuous-current electric motor comprising an armature, an armature-shaft, a commutator keyed to the said shaft, two cores on the said shaft one beyond each end of the armature, a field-winding on each of the said cores, a number of equally-spaced polar extensions to each of the said cores, such that consecutive extensions are of opposite polarity, pole-pieces extending from each polar extension of one core to the corresponding polar extension of the other core, the said polar extensions being so arranged relatively to the shaft that parallel to the latter there are always in view two pole-pieces of the same polarity extending over the armature in the direction of its length.



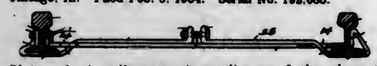
786,919. RAILWAY-TRACK APPLIANCE. CORA A. SANBORN, Chicago, Ill. Filed Feb. 8, 1904. Serial No. 192,662.



Claim.—1. A railway-track appliance of the character described comprising a slotted compression member or strut disposed between the rails and having endwise bearing upon the webs of the latter, and a tension or tie member comprising a pair of twin elements, each of which has a substantially horizontal portion overlying and separated from the strut member, a downwardly-extended portion passing through the slot of said compression member, a substantially horizontal portion underlying the rail and an upwardly and backwardly bent rail-brace, said compression and tension members being separated and out of contact throughout, and means uniting and drawing together the meeting ends of said elements, substantially as described.

2. A railway-track appliance of the character described comprising a slotted and apertured compression member or strut disposed between the rails and having endwise bearing upon the webs and base-flanges of the latter, and a tension or tie member comprising a pair of twin rods or bars, each of which comprises successively a threaded straight portion overlying and separated from the strut member, a downwardly-inclined portion passing through the slot of said compression member, a straight portion underlying the rail and an upwardly and backwardly bent portion constituting a rail-brace, and a turnbuckle uniting the meeting ends of said parts and overlying the aperture of said compression member, substantially as described.

786,920. RAILWAY-TRACK APPLIANCE. CORA A. SANBORN, Chicago, Ill. Filed Feb. 8, 1904. Serial No. 192,663.

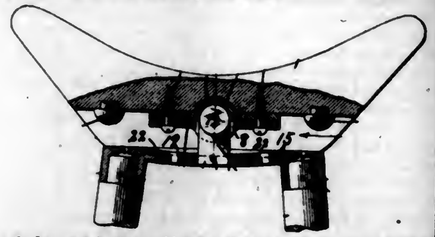


Claim.—1. A railway-track appliance of the character described comprising an apertured compression member or strut terminating at one end in a fish-plate and disposed between the rails with endwise bearing upon the webs of the latter, and a tension or tie member formed in two sections each of which passes through an aperture in said compression member so as to lie partly above and partly beneath the latter, said sections at their outer end portions extending beneath and thence upwardly against the outer sides of the rails and at their inner ends being provided with means for drawing them together, substantially as described.

2. A railway-track appliance of the character described comprising an apertured compression member or strut terminating at one end in a fish-plate and disposed between the rails with endwise bearing upon the webs of the latter, an outer fish-plate applied to the web of a rail opposite said fish-plate termination of the compression member, and a tension or tie member formed in two sections each of which passes through an aperture in said compression member so as to lie partly above and partly beneath the latter, said sections at their outer end portions extending beneath and thence upwardly into contact with the web of one rail and the outer fish-plate of the other, respectively, and at their inner ends being provided with means for drawing them together, substantially as described.

786,921. CRUTCH. ARTHUR L. SMITH, Auburn, N. Y. Filed Aug. 22, 1904. Serial No. 221,798.

Claim.—1. In a crutch, the combination of an arm-rest having a lengthwise channel in its lower face, a journal-bearing secured to the upper wall of the channel, a swinging hanger journaled in said bearing and a crutch-head secured to said hanger.



2. In a crutch, the combination of an arm-rest having a channel in its lower side, a journal-bearing secured to the arm-rest within the channel and provided with an elongated slot through its lower side and with bearings at opposite sides of the slot, a hanger extending through the slot and provided with circular faces riding in the bearings at opposite sides of the slot and a crutch-head secured to the lower end of the hanger.

3. In a crutch, the combination of an arm-rest, a metal plate secured to the lower side of the arm-rest and provided with an elongated slot and bearing-faces at opposite sides of the slot, a hanger extending through the slot and having its upper end provided with circular bosses seated in said bearings, and a crutch-head secured to the lower end of the hanger.

786,922. CENTRIFUGAL PUMP. EDWARD L. SMITH, Breckenridge, Colo., and JOHN M. SHERRERD, Easton, Pa. Filed Mar. 21, 1904. Serial No. 199,173.



Claim.—1. In combination with the casing and runner of a centrifugal pump, of a wear-resisting lining for said casing and runner, the lining for the runner comprising a plurality of screw-like-formed members.

2. A lining for a runner, the same comprising a member adapted to engage with said runner by a screw-like motion, in combination with means for limiting the outward or radial movement of the lining member relatively to said runner.

3. A boltless lining for a runner, the same comprising a member adapted to engage with the runner, in combination with means for stopping the outward movement of such member, and toward which means said member is urged by the forces generated by the rotation of such runner.

4. A lining for a runner, the same comprising a member adapted to engage with the runner by a screw-like motion, in combination with means for limiting the outward or radial movement of the member relatively to said runner, and a keeper for precluding the accidental dislodgment of the member.

5. A boltless lining for a runner, the same comprising a member adapted to engage with the runner, in combination with means for stopping the outward movement of the member and toward which means said piece is urged by the forces generated by the rotation of the runner, and a keeper for precluding the accidental dislodgment of the member.

6. In a rotary pump, the combination with an impeller containing an internal space adapted to receive a lining, and having walls inclined to the direction of the pressure generated in the impeller when to service, of a lining shaped to fit said space and adapted to be inserted in the general direction of said pressure and to engage said walls, the engaging surfaces of the walls and lining being in position to limit the motion of the lining.

7. In a rotary pump, the combination with an impeller containing an internal space adapted to receive a lining member and having a wall inclined to the direction of pressure generated in the impeller when in service, of a wear-resisting lining member shaped to fit said space and adapted to be inserted in the general direction of said pressure and to engage said wall.

8. In a rotary pump, the combination with an impeller containing an internal space adapted to receive a lining member and having a wall inclined to the direction of pressure generated in the impeller when in service, of a lining member shaped to fit said space and adapted to be inserted in the general direction of said pressure and to engage said wall, and means for limiting outward movement of the lining member.

9. In a rotary pump, the combination with an impeller containing an internal space adapted to receive a lining member and having a wall inclined to the direction of pressure generated in the impeller when in service, of a lining member shaped to fit said space and adapted to be inserted in the general direction of said pressure and to engage said wall, means for limiting outward movement of the lining member, and means for preventing the dislodgment of said member.

10. In a rotary pump, the combination with an impeller containing an internal space adapted to receive a lining member and having a wall inclined to the direction of pressure generated in the impeller when in service, of a lining member shaped to fit said space and adapted to be inserted in the general direction of said pressure and to engage said wall, the engaging surfaces of such wall and the lining member being in position to limit the outward movement of such lining member, and a plurality of keepers effective to maintain the lining member in its proper position.

11. In a rotary pump, the combination with an impeller having vane-formed chambers adapted to receive a lining, the walls of which vanes are inclined to the direction of the pressure generated in the impeller when in service, of a wear-resisting lining member shaped to fit each such wall and adapted to be inserted in the general direction of said pressure and to engage said wall, the engaging surfaces of such walls and the lining members being in position to limit the outward movement of such lining members.

12. In a rotary pump, the combination with an impeller having vane-formed chambers adapted to receive a lining, the walls of which vanes are inclined to the direction of the pressure generated in the impeller when in service, of a wear-resisting lining member shaped to fit each such wall and adapted to be inserted in the general direction of said pressure and to engage said wall, the engaging surfaces of such walls and the lining members being in position to limit the outward movement of such lining members, and a deflector projecting axially from the impeller and engaging with the inner edges of said lining members.

13. A centrifugal pump having a runner provided in each of its vane-formed chambers with a wear-resisting member, each member lying against the convex face of the vane forming one wall of the chamber and having laterally-extending flanges lying against the side walls of the runner, and each side wall having a rib with which the wear-resisting member engages, and which operate to lock the assembled wear-resisting member against undue outward movement.

14. In a centrifugal pump, the combination of a runner provided with curved vanes or blades and side walls, one of which walls is open for the inflow of liquid, and said side walls being provided with ribs forming with said vanes recesses for the reception of wear-resisting members, screw-like wear-resisting members located in the said recesses in the runner, and a combined keeper and deflector secured to the runner opposite the inflow-opening in the opposite wall.

15. In a centrifugal pump, the combination of a runner provided with curved vanes or blades and side walls, one of which is open for the inflow of liquid, and said side walls being provided with ribs forming with said vanes recesses for the reception of wear-resisting members, one of each pair of said ribs being situated at a greater distance from the convex face of the vane than the other rib, screw-like wear-resisting members located in the said recesses in the runner, and a combined keeper and deflector secured to the side wall of the runner opposite the inflow-opening in the opposite wall.

16. As an article of manufacture, a wear-resisting member for the runner of a centrifugal pump, the same comprising a trough-shaped piece having a screw-like form.

17. In a centrifugal pump, the combination of a runner provided with curved vanes or blades and side walls, one of which is open for the inflow of liquid, said side walls being provided with ribs forming with said vanes openings for the reception of wear-resisting members, screw-like wear-resisting members adapted to be located in the receiving-openings in the runner, a combined keeper and deflector secured to the side wall of the runner opposite the inflow-opening in the opposite wall, and a lining for the fixed portions of the pump.

18. In a centrifugal pump, the combination of a runner provided with curved vanes or blades and side walls, one of which is open for the inflow of liquid, said side walls being provided with ribs

forming with said vanes openings for the reception of wear-resisting members, one rib being situated at a greater distance from the convex face of the vane than the other rib, screw-like wear-resisting members adapted to be located in the receiving-openings in the runner, a combined keeper and deflector secured to the side wall of the runner opposite the inflow-opening in the opposite wall, and a lining for the fixed portions of the pump.

19. A centrifugal pump having a runner provided with a wear-resisting lining comprising a plurality of sections, each having a curved vane-engaging wall, one end of which extends above the other.

20. A centrifugal pump having a runner provided with a wear-resisting lining comprising a plurality of sections, each having a curved vane-engaging wall, one end of which extends above the other, and one or more side walls.

21. A centrifugal pump having a runner provided with a wear-resisting lining comprising a plurality of sections, each having a curved vane-engaging wall, one end of which extends above the other, and a side wall connected with the curved wall by a reinforced portion

22. A wear-resisting lining member for a centrifugal pump-runner comprising a curved wall provided with a pair of side walls integral therewith, one end of which structure extends above the other to give such curved wall a partly-spiral formation.

23. A wear-resisting lining member for a centrifugal pump-runner, comprising a screw-like-formed structure.

24. A wear-resisting member for a centrifugal pump-runner, comprising a screw-like-formed structure provided with side walls.

25. A wear-resisting lining member for a centrifugal pump-runner, comprising a screw-like-formed structure provided with side walls, one projecting beyond the other.

26. A wear-resisting lining member for a centrifugal pump-runner, comprising a structure having a curved wall, one end of which extends above the other.

27. A wear-resisting lining member for a centrifugal pump-runner, comprising a structure having a curved wall, one end of which extends above the other, and a side wall.

28. A wear-resisting lining member for a centrifugal pump-runner, comprising a structure having a curved wall, one end of which extends above the other, and a pair of side walls.

29. A wear-resisting lining member for a centrifugal pump-runner, comprising a structure having a curved wall, one end of which extends above the other, and a pair of side walls, one wall projecting beyond the other.

786,928. PROCESS OF FORMING TUBES. LESTER C. SMITH, Rome, N. Y. Filed Aug. 10, 1903. Serial No. 169,043.



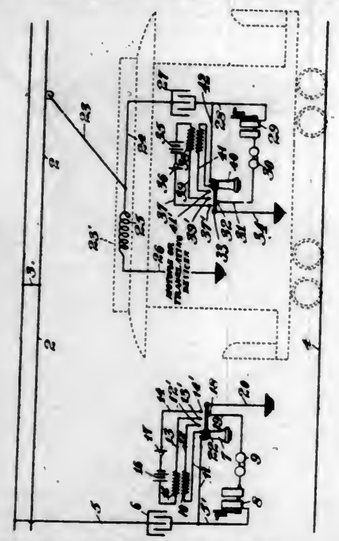
Claim.—The process of forming a tube from a strip of sheet material in four operations, which consists, first, in turning in the edges of the strip to a curvature substantially that of the circle of the completed tube; second, in bending the strip along the middle to a curvature less than that of the circle of the completed tube; third, closing the tube into an oval form with the meeting edges in the large end of the oval, and, fourth, forming the last-mentioned form into a circular form, substantially as set forth.

786,924. VEST-PROTECTOR. ROBERT SPURGIN, Chicago, Ill. Filed Jan. 26, 1903. Serial No. 140,551.



Claim.—A cloth vest-protector having along its upper border, on its front side, an embedded, flexible binding and provided on its reverse side, at the upper corners, with two permanently-attached holders, substantially as described and shown.

786,925. MEANS FOR SIGNALING AND TELEPHONING ON ELECTRIC-TROLLEY OR OTHER SYSTEMS. CHARLES R. VAN TRUMP, Wilmington, Del. Filed Aug. 4, 1904. Serial No. 219,515.



Claim.—1. A signaling apparatus for electric power or trolley lines, comprising a conductor for the transmission of direct-current electrical energy, a plurality of signal-stations, an electrical connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and conductor, and means at each station for transmitting and receiving an independent signal-current through said conductor, electrical connections and condensers.

2. A telephone apparatus for electric power or trolley lines, comprising a conductor for the transmission of direct-current electrical energy, a plurality of telephone-stations, an electric connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and the conductor, and means at each station for receiving and transmitting an independent telephonic current through said conductor, electrical connections and condensers.

3. A telephone apparatus for electric power or trolley lines, comprising a conductor for the transmission of direct-current electrical energy, a plurality of telephone-stations, an electric connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and the conductor, means at each station for generating and conveying a signal-current over the conductor, and means at each station for transmitting and receiving an independent telephonic current through said conductor, electrical connections and condensers from one station to any other.

4. A telephone apparatus for electric railways or the like, comprising a trolley-wire or conductor conveying the direct current for propelling the cars, a plurality of telephone-stations, an electrical connection between each station and the trolley-wire or conductor, a condenser in the circuit of each electrical connection and interposed between the station and the trolley-wire or conductor, means at each station for transmitting and receiving an independent telephonic current through the trolley-wire or conductor, a trolley-car having electrical connection with the trolley-wire or conductor, means on the car for transmitting and receiving an independent telephonic current over said trolley-wire or conductor, and a condenser interposed in the circuit of the electrical connection between the transmitting and receiving means of the car and the trolley-wire or conductor.

5. A telephone apparatus for electric railways or the like, comprising a trolley-wire or conductor conveying the direct current for propelling the cars, a plurality of telephone-stations, an electrical connection between each station and the trolley-wire or conductor, a condenser in the circuit of each electrical connection and interposed between the station and the trolley-wire or conductor, means at each

station for transmitting and receiving an independent telephonic current through the trolley-wire or conductor, a trolley-car having electrical connection with the trolley-wire or conductor, motors on said car, electrical connections between the trolley-wire or conductor and the motors, inductance in the said connection and interposed between the motors and the trolley-wire or conductor, means on the car for transmitting and receiving an independent telephonic current over said trolley-wire or conductor, and a condenser interposed in the circuit of the electrical connection between the transmitting and receiving means of the car and the trolley-wire or conductor.

6. A telephone apparatus for electric railways or the like, comprising a trolley-wire or conductor conveying the direct current for propelling the cars or trains, a plurality of independent cars or trains, electrical connections between the trolley-wire or conductor and the cars or trains, motors on said cars or trains, motor-circuits connecting the motors to the electrical connections between the cars or trains and the trolley-wire or conductor, inductance in each of the motor-circuits, means on the cars or trains for transmitting and receiving an independent telephonic current over trolley-wire or conductor, an electric connection between each of the said transmitting and receiving means and the said connection with the trolley-wire or conductor, and a condenser interposed in the telephone-circuit between the transmitting and receiving means of each car and the connection with the trolley-wire or conductor.

7. A telephone apparatus for electric power or trolley lines, comprising a conductor for the transmission of direct-current electrical energy, a plurality of telephone-stations, an electric connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and the conductor, means at each station for generating and conveying a fluctuating signal-current over the conductor comprising a magneto-machine having a commutator of plural sections, and means at each station for transmitting and receiving an independent telephonic current through said conductor, electrical connections and condensers from one station to any other.

8. A signaling apparatus for electric power or trolley lines, comprising a conductor for the transmission of electrical energy, a plurality of signal-stations, an electrical connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and conductor, and means at each station for transmitting and receiving an independent signal-current through said conductor, electrical connections and condensers.

9. A telephone apparatus for electric power or trolley lines, comprising a conductor for the transmission of electrical energy, a plurality of telephone-stations, an electric connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and the conductor, and means at each station for receiving and transmitting an independent telephonic current through said conductor, electrical connections and condensers.

10. A telephone apparatus for electric power or trolley lines, comprising a conductor for the transmission of electrical energy, a plurality of telephone-stations, an electric connection between each station and the conductor, a condenser in the circuit of each electrical connection and interposed between the station and the conductor, means at each station for generating and conveying a signal-current over the conductor, and means at each station for transmitting and receiving an independent telephonic current through said conductor, electrical connections and condensers from one station to any other.

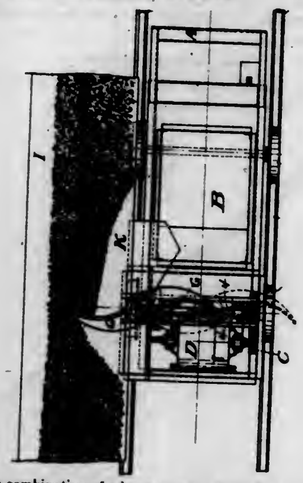
786,926. LORRY OR DUMPING-CAR. CHARLES H. WELLMAN and JOHN W. SHAVER, Cleveland, Ohio, assignors to The Wellman-Seaver-Morgan Company, Cleveland, Ohio. Filed Nov. 11, 1904. Serial No. 232,380.

Claim.—1. The combination of a lorry or car, and a rotary device at the top thereof adapted to force material into the car.

2. The combination of a lorry or car, a vertical shaft on the car, means for turning said shaft, and horizontal arms or blades on the shaft adapted to force material into the lorry or car when the shaft is turned.

3. The combination of a lorry or car, a motor thereon, a vertical shaft on the car controlled by the motor, and horizontal arms or blades on the shaft adapted to force material into the car when the shaft is turned.

4. The combination of a lorry or car, a motor thereon adapted to propel the car, a vertical shaft on the car also operated by the motor, and horizontal arms or blades on the shaft adapted when the shaft is turned, to force material into the car.

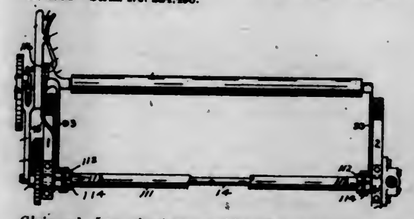


5. The combination of a lorry or car, a laterally-movable shaft on the car, and blades or arms carried by the shaft and adapted to force material into the car when the shaft is turned.

6. The combination with a bin having an inclined bottom and an opening in its front, and a shelf in advance of the opening onto which material from the bin moves by gravity, of a lorry or car, and blades or arms carried by the lorry or car and means for moving the blades or arms in a horizontal plane to scrape material from the shelf into the car.

7. The combination with a frame supported on wheels, of a hopper carried by the frame, laterally-sliding boxes on the frame, a vertical shaft supported in said boxes, horizontal arms or blades carried by the shaft and adapted to force material into the hopper when the shaft is turned, means for turning said shaft yet permitting the shaft and blades to be adjusted laterally of the lorry or car to dispose the blades in reach of or out of reach of material to be fed to the hopper.

786,927. WIRE-FENCE-WEAVING MACHINE. GEORGE W. WHITTINGTON, Indianapolis, Ind. Filed Aug. 26, 1901. Renewed Sept. 15, 1904. Serial No. 224,498.



Claim.—1. In a wire-fence machine, the combination of a reel for winding the wire-fence fabric into a roll, a roller adapted to rest upon the fabric as it is being wound on the reel, and a pair of arms mounted oscillatory at their inner ends at a point concentric with the axis of the reel and the axis of the roller and at their outer ends pivotally connected with said roller.

2. The combination of a reel for winding wire-fence fabric into a roll, a roller adapted to rest upon the fabric as it is being wound on the reel, a pair of pivotally-mounted arms in which the ends of said roller are rotatably mounted, means for holding said arms rigidly parallel with each other, and means for pressing said roller down.

3. The combination of a reel for winding wire-fence fabric into a roll, a roller adapted to rest upon the fabric as it is being wound on the reel, a shaft mounted parallel to said roller, a pipe loosely mounted on said shaft, and a pair of arms rigidly secured at one end to said pipe and having the roller rotatable in the other ends of said arms.

4. The combination of a reel for winding wire-fence fabric into a roll, a roller adapted to rest upon the fabric as it is being wound on

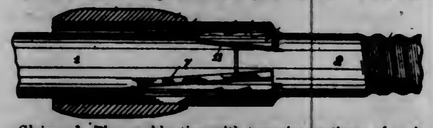
the reel, a shaft mounted parallel to said roller, a pipe loosely mounted on said shaft, a pair of arms rigidly secured at one end to said pipe and having the roller rotatable in the other ends of said arms, and means acting on said pipe for depressing said roller.

786,928. GAS-LIGHTING DEVICE. ARTHUR F. WILLIAMS, Berkeley, Cal. Filed Feb. 26, 1904. Serial No. 195,417.



Claim.—As a new article of manufacture a lighting implement consisting of a long handle having ferrules at the ends, and having an intermediate portion provided with an adherent friction-strip spirally wound thereon, whereby its edges meet to form a substantially smooth and flush surface, and a match-holder fixed to the end of the handle and extending in the direction of the length thereof said holder composed of spring-wire bent upon itself to form two members (2 and 3) one standing parallel with the other, one of said members being also bent upon itself to form a third portion (4) which extends substantially parallel with the other members and beyond the first-named bend and is fitted to the ferrule end of the handle, and one of the first-named members crossing diagonally the other members and having its outer end bent outwardly away from said member to form an entrance for the match-stick.

786,929. PIPE OR HOSE COUPLING. WILLIAM J. WILLIAMS, Baldwin township, Allegheny county, Pa., assignor of one-half to William T. Waite, Pittsburg, Pa. Filed July 30, 1904. Serial No. 217,351.



Claim.—1. The combination with two pipe-sections, of a plurality of outwardly-extending wedge-shaped toothed arms, formed integral with each of said pipe-sections, a washer interposed between said sections, and a sleeve having interior ribs to engage between the arms when the latter are engaged and adapted to lock the arms of one pipe-section into engagement with the arms of the other pipe-section, substantially as described.

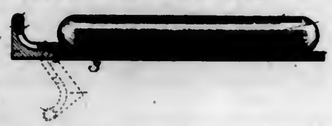
2. A pipe-coupling comprising two sections of pipe, one section of pipe having a cone-shaped recess formed therein, the other section of pipe having a tapered end and adapted to fit within said recess, a washer interposed between said sections of pipe, a plurality of outwardly-extending arms formed integral with each of said pipe-sections and adapted to interlock within each other, and means comprising a sleeve having interior ribs adapted to engage between the arms when the teeth of the latter are in mesh for securing the arms of one pipe-section in engagement with the arms of the other pipe-section.

3. The combination with two pipe-sections, of a plurality of outwardly-extending wedge-shaped arms formed integral with each section, said arms having teeth formed therein, a sleeve, said sleeve having wedge-shaped grooves formed therein in which said arms are adapted to engage.

4. A pipe-coupling comprising two sections of pipe, the end of one of said sections having a cone-shaped recess formed therein, the end of the other section being formed tapered and adapted to fit within said recess, a washer interposed between said sections, a plurality of outwardly-extending wedge-shaped arms formed integral with each section, said arms being formed upon the periphery of each section and having teeth formed therein, a sleeve having wedge-shaped grooves formed therein in which said arms are adapted to engage.

5. A coupling comprising two pipe-sections, arms carried by each of said sections, said arms having teeth formed thereon, and a sleeve adapted to slide over said arms and lock the teeth of each arm in engagement with the other, substantially as described.

786,930. PNEUMATIC MATTRESS. ROY B. WILTSIE, Toledo, Ohio. Filed Nov. 11, 1903. Serial No. 180,748.



Claim.—1. In a pneumatic mattress, an air-chamber, and valves for inflating and deflating it; combined with a series of separate members, individual connections between them and said chamber, and means for automatically individualizing the members, whereby partial deflation of any member is permitted without increasing the inflation of the other members.

2. In a pneumatic mattress, an air-chamber, and means for inflating and deflating it; combined with a series of separate members, individual connections between them and said chamber, valves within said connections closing automatically toward their respective members, and mechanical means for opening said valves simultaneously at will.

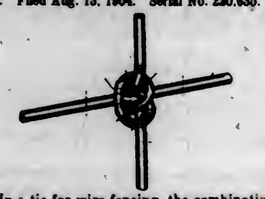
3. In a pneumatic mattress, an air-chamber, and means for inflating and deflating it; combined with a series of separate members, individual connections between them and said chamber, valves within said connections closing automatically toward their respective members, said valves being conical with their ends of larger area disposed toward the chamber and means for opening said valves at will.

4. In a pneumatic mattress, a support having a hinged section, a common chamber supported upon said section, and means for inflating and deflating the chamber; combined with a series of members mounted on the support, individual tubes extending from the members and turned upward within said section and uniting with the chamber, and valves within said tubes adapted to open automatically when said hinged section is lowered.

5. In a pneumatic mattress, a support having a hinged section, a common chamber supported upon said section, and means for inflating and deflating the chamber; combined with a series of members mounted on the support, individual tubes extending from the members and turned upward within said section and uniting with the chamber, and valves within said tubes adapted to open automatically when said hinged section is lowered, said valves being conical with their larger ends disposed toward the chamber.

6. In a pneumatic mattress, an air-chamber, and a manually-operated valve for opening or closing said chamber; combined with a series of separate members, individual connections between them and said chamber, valves within said connections adapted to close toward their respective members, and means for setting these valves so that they shall either close automatically or stand open.

786,931. TIE FOR WIRE FENCING. SHERMAN S. WITHINGTON, Adrian, Mich. Filed Aug. 13, 1904. Serial No. 220,635.

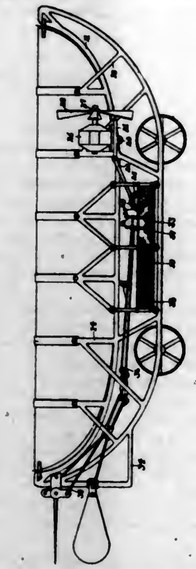


Claim.—1. In a tie for wire fencing, the combination with the stay and strand wires crossing at right angles, of the tie-wire in the form of a staple, the loop of which crosses the strand-wire and whose legs pass in the rear of the stay-wire, the terminals of said legs curving upwardly and forming return-bends which cross the strand-wire and each other, their end portions lying between the loop of the staple and the stay-wire on each side of the strand-wire.

2. In a tie for wire fencing, the combination with the stay and strand wires crossing at right angles, of the tie-wire in the form of a staple, the loop thereof crossing the strand-wire and the legs of the staple passing in the rear of the stay-wire, the end portions of the legs curving upwardly and crossing the strand-wire on the opposite side of the stay-wire from the loop and also crossing each other, the terminals of said legs lying between the loop of the staple and the stay-wire.

3. In a tie for wire fencing, the combination with the strand and stay wires crossing at right angles, of the tie-wire in the form of a staple, the loop thereof crossing the strand-wire and the legs of the staple passing in the rear of the stay-wire, the end portions of the legs curving upwardly and across the strand-wire on the opposite side of the stay-wire from the loop, and also crossing each other at right angles, the ends of said legs terminating at a point between the loop of the staple and the stay-wire.

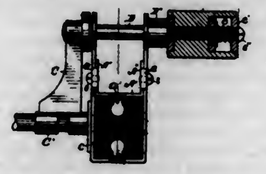
786,932. AIR-SHIP. EDWIN F. WOOD, Colfax, Iowa. Filed Apr. 7, 1903. Serial No. 101,675.



Claim.—In an air-ship the combination with a frame comprising longitudinally-disposed spaced bars having upturned end portions that are connected at their terminals, a car suspended from the upper bar and located between said bars, upwardly-extending curved braces carried by the upper bar and projecting on opposite sides thereof, inclined braces connecting the lower longitudinal bar and the curved braces, a balloon fitted between the upturned ends of the longitudinal bars and between the ends of the curved braces, connections between the said ends of the longitudinal bars and the ends of the balloon, straps connected to the ends of the upturned braces and passing over the balloon transversely to secure said balloon snugly in said braces, and means mounted on the frame for propelling the ship.

786,933. PENCIL-SHARPENER. EDWARD WOODBURY, Kalamazoo, Mich. Filed July 16, 1904. Serial No. 216,843.

Claim.—1. In a pencil-sharpener, the combination of a file or rasp holder having inwardly-projecting file-retaining fingers thereon; an adjustable cross-piece for said holder having inwardly-projecting file-retaining fingers thereon; files or rasps carried by said holder; inwardly-projecting V-shaped lugs on said holder and cross-piece against which said files are clamped by said retaining-fingers; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; a handle on said shaft; and a friction-disk arranged in said handle; a coiled spring arranged on said shaft for applying friction to said disk; and a set-screw for adjusting the tension of said spring, coacting for the purpose specified.



2. In a pencil-sharpener, the combination of a file or rasp holder having inwardly-projecting file-retaining fingers thereon; an adjustable cross-piece for said holder having inwardly-projecting file-retaining fingers thereon; files or rasps carried by said holder; inwardly-projecting V-shaped lugs on said holder and cross-piece against which said files are clamped by said retaining-fingers; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; a handle on said shaft; a friction-disk arranged in said handle; a coiled spring arranged on said shaft for applying friction to said disk; and a set-screw for adjusting the tension of said spring, coacting for the purpose specified.

3. In a pencil-sharpener, the combination of a file or rasp holder having inwardly-projecting file-retaining fingers thereon; an adjustable cross-piece for said holder having inwardly-projecting file-retaining fingers thereon; files or rasps carried by said holder; inwardly-projecting V-shaped lugs on said holder and cross-piece against which said files are clamped by said retaining-fingers; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; a handle on said shaft; a friction-disk arranged in said handle; and a coiled spring arranged on said shaft for applying tension to said disk, coacting for the purpose specified.

4. In a pencil-sharpener, the combination of a file or rasp holder having inwardly-projecting file-retaining fingers thereon; an adjustable cross-piece for said holder having inwardly-projecting file-retaining fingers thereon; files or rasps carried by said holder; inwardly-projecting V-shaped lugs on said holder and cross-piece against which said files are clamped by said retaining-fingers; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; a handle on said shaft; a friction-disk arranged in said handle; and a coiled spring arranged on said shaft for applying tension to said disk, coacting for the purpose specified.

5. In a pencil-sharpener, the combination of a file or rasp holder having inwardly-projecting file-retaining fingers thereon; an adjustable cross-piece for said holder having inwardly-projecting file-retaining fingers thereon; files or rasps carried by said holder; inwardly-projecting V-shaped lugs on said holder and cross-piece against which said files are clamped by said retaining-fingers; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; and a handle on said shaft, coacting for the purpose specified.

6. In a pencil-sharpener, the combination of a file or rasp holder having inwardly-projecting file-retaining fingers thereon; an adjustable cross-piece for said holder having inwardly-projecting file-retaining fingers thereon; files or rasps carried by said holder; inwardly-projecting V-shaped lugs on said holder and cross-piece against which said files are clamped by said retaining-fingers; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; and a handle on said shaft, coacting for the purpose specified.

7. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a spring-retainer therefor; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; a handle on said shaft; and a friction device arranged in said handle, coacting for the purpose specified.

8. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a spring-retainer therefor; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said

crank; a handle on said shaft; and a friction device arranged in said handle, coacting for the puspose specified.

9. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; a handle on said shaft; and a friction device arranged in said handle, coacting for the purpose specified.

10. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; a handle on said shaft; and a friction device arranged in said handle, coacting for the purpose specified.

11. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a spring-retainer therefor; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; and a handle on said shaft, coacting for the purpose specified.

12. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a spring-retainer therefor; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; and a handle on said shaft, coacting for the purpose specified.

13. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; guides on said file-holder for said pencil-holder; and a handle on said shaft, coacting for the purpose specified

14. In a pencil-sharpener, the combination of a file or rasp holder; files or rasps arranged to form a trough; a shaft on which said file or rasp holder is journaled; a crank on said shaft; a tubular pencil-holder pivotally secured to said crank; and a handle on said shaft, coacting for the purpose specified.

15. In a pencil-sharpener, the combination of a suitable holder; files supported within the holder, separated at one side and brought into proximity to each other at the opposite side, forming an angular trough; a tubular pencil-holder; a crank to which said pencil-holder and file-holder are pivotally secured; a handle; and a friction connection for said handle to said crank, for the purpose specified.

16. In a pencil-sharpener, the combination of a suitable holder; files supported within the holder, separated at one side and brought into proximity to each other at the opposite side, forming an angular trough; a tubular pencil-holder; a crank to which said pencil-holder and file-holder are pivotally secured; and a handle, for the purpose specified

17. In a pencil-sharpener, the combination of a handle; a holder journaled on said handle; files arranged within said holder to form a trough; a yielding retainer for said files; a crank on said handle; an arm journaled on said crank, having a socket adapted to receive a pencil to be acted upon by said files, for the purpose specified.

18. In a pencil-sharpener, the combination of a handle; a holder journaled on said handle; files arranged within said holder to form a trough; a crank on said handle; an arm journaled on said crank, having a socket adapted to receive a pencil to be acted upon by said files, for the purpose specified.

19. In a pencil-sharpener, the combination of a handle; a filing-trough pivotally secured thereto; a crank on said handle; an arm pivoted to said crank, having a socket adapted to receive a pencil so arranged that the point of the pencil extends into the filing-trough, for the purpose specified.

20. In a pencil-sharpener, the combination of a crank; a handle therefor; a friction connection for said handle to said crank; a filing-trough pivotally secured to said crank; an arm pivotally secured to said crank, having a socket therein adapted to receive a pencil so arranged that the point of the pencil extends into the filing-trough, for the purpose specified.

21. In a pencil-sharpener, the combination of a crank; a filing-trough pivotally secured thereto; an arm pivotally secured to said crank, having a socket therein adapted to receive a pencil so arranged that the point of the pencil extends into the filing-trough, for the purpose specified.

22. In a pencil-sharpener, the combination of a crank; a filing-trough pivotally secured thereto; a pencil-holder pivotally secured to said crank, so arranged that the point of the pencil extends into the filing-trough, for the purpose specified.

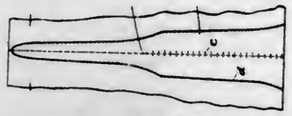
23. In a pencil-sharpener, the combination of a crank; an abrading device pivotally secured thereto; an arm pivotally secured to said crank, having a socket therein adapted to receive a pencil so arranged that the point of the pencil arranged therethrough is brought into contact with said abrading device, for the purpose specified.

24. In a pencil-sharpener, the combination of a crank; an abrading device pivotally secured thereto; a holder adapted to receive a pencil pivoted to said crank, so arranged that the point of the pencil arranged therethrough is brought into contact with said abrading device, for the purpose specified.

25. In a pencil-sharpener, the combination of a filing-trough; a pencil-holder; and means for imparting a rotary and reciprocatory movement to said filing-trough, for the purpose specified.

26. In a pencil-sharpener, the combination of an abrading device; a pencil-holder; and means for imparting a rotary and reciprocatory movement to said abrading device, for the purpose specified.

786,934. SEAM FOR SEWED ARTICLES. RUSSEL G. WOODWARD, Waukegan, Ill., assignor to Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 30, 1902. Serial No. 129,383.



Claim.—1. As a new article of manufacture, a seam for closing the uppers of boots or shoes and the like, comprising two fabrics having their edges superposed and united by a continuous line of straightaway and zigzag stitching, the straightaway stitching extending throughout a portion of their length, and the zigzag stitching throughout the remaining portion, the alternate stitches of the zigzag line of stitching extending over the edges of the fabrics, whereby when the fabrics are folded out, the portion of fabric secured by the zigzag stitching will abut and lie flat; substantially as described.

2. As a new article of manufacture, a seam for closing the uppers of boots or shoes and the like, comprising two fabrics having their edges superposed and united by a continuous line of straightaway and zigzag stitching, the straightaway stitching extending throughout a portion of their length, and the zigzag stitching throughout the remaining portion, the alternate stitches of the zigzag line of stitching extending over the edges of the fabrics, the inner stitches of the zigzag line of stitching being in line with the straightaway stitches, whereby when the fabrics are folded out the portions secured by the zigzag stitching will abut and lie flat; substantially as described.

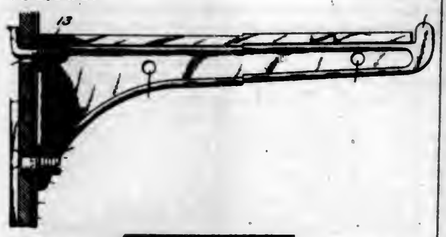
3. As a new article of manufacture, a seam for closing the uppers of boots or shoes and the like, comprising two fabrics having their edges superposed and united by a continuous line of straightaway and zigzag stitching, the straightaway stitching extending throughout a portion of their length, and the zigzag stitching throughout the remaining portion, the alternate stitches of the zigzag line of stitching extending over the edges of the fabrics, said fabrics being folded out flat, whereby the edges of the fabrics through which the zigzag stitches pass, abut, and a stay-strip secured upon the fabrics by lines of stitches upon opposite sides of the line of the seam; substantially as described.

4. A seam for sewed articles, comprising two pieces of fabric, having their edges abutted for a portion of its length, and their edges superposed for the remainder of its length, a continuous line of stitching for uniting said pieces of fabric, consisting of zigzag stitching, securing the abutted edges and forming a flat seam and a straight line of through-and-through stitching securing the superposed edges; substantially as described.

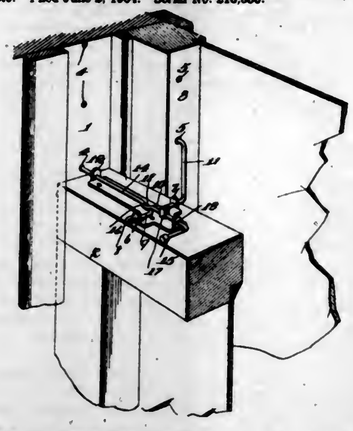
786,935. SHOW-CASE BRACKET AND FIXTURE. GEORGE C. WRIGHT, Cleveland, Ohio. Filed Sept. 12, 1904. Serial No. 224,218.

Claim.—In combination with a standard having grooves in its outer and inner sides, and transverse openings coincident and communicating with said grooves, a bracket having at its inner end a hook to extend through one of said openings and engage the inner groove, the said bracket being further provided at its inner end with a screw-stud to enter another opening of the standard and provided with a flange to engage the groove in the outer side of the standard, for the purpose set forth.

786,935.



786,936. SASH-FASTENER. REDON C. WRIGHT, Colorado Springs, Colo. Filed June 2, 1904. Serial No. 210,850.



Claim.—1. A sash-lock including a pair of members one of which has oscillatory movement to and from locking position and the other longitudinal movement to and from locking position, said members having interengaging loop portions, whereby locking movement of the longitudinally-movable member will be transferred to the oscillatory member.

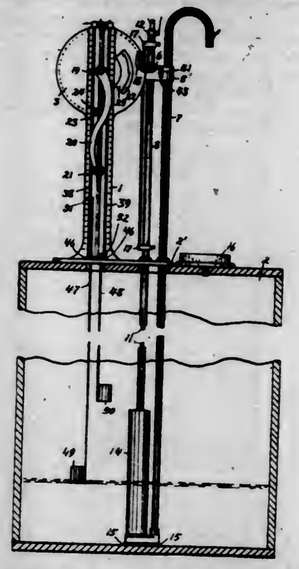
2. The combination in a sash-fastener, of a pair of locking members, one of which has oscillatory movement to and from locking position, and the second member being movable longitudinally to and from locking position, interengaging loops formed on both members, and means engaging one of said members for holding both in locked position.

3. A sash-lock comprising a longitudinally-movable locking member, a rotary locking member connected therewith and operated thereby, and means for holding said members against movement by turning the longitudinally-movable member.

4. A sash-lock comprising a longitudinally-movable locking member provided with a loop and a rotary locking member provided with a crank, said loop being adapted to engage said crank when both members are in retracted position, and means to engage said loop when said members are in operative position, said loop and crank being out of engaging contact with each other when in such latter position.

786,937. OIL-PUMP. FLAVIUS J. YOUNG, Fort Wayne, Ind. Filed July 11, 1904. Serial No. 216,015.

Claim.—1. An oil-pump consisting of an upright supporting-standard having a hollow cylindrical head having a short integral sleeve; a horizontal arbor rotatably mounted in said sleeve and head and carrying upon one end a crank-arm and upon its other end an indicator-finger for the dial; a drum fixed on the crank within the said head; a ratchet-wheel loosely mounted on the said sleeve and adapted to register in gallons the liquid delivered; a pendent arm loosely mounted on the sleeve and carrying upon its free end a pawl adapted to engage the said wheel; a lateral pin or lug on the drum adapted to engage the said pawl to actuate the said wheel; a pump-cylinder; a vertically-reciprocating plunger in the cylinder; a cable fixed on the drum and having its ends secured to the plunger adjacent to the upper and lower ends of the standard; and a discharge-pipe connected with the pump-cylinder, all substantially as described.



2. In an oil-pump, a vertical standard having a hollow two-part head, provided with a short internal central sleeve, and a dial-plate upon its front face; an arbor rotatably mounted in the sleeve and carrying upon one end a crank and upon the other a dial-finger; a drum fixed on the arbor; a pump-plunger; means for operatively connecting the drum with the plunger.

3. In an oil-pump a supporting-standard having a hollow head and a dial-plate upon its front face; an arbor rotatably mounted in the head and carrying upon one end a fixed crank and upon the other end an indicator-finger for the dial; a drum fixed on the arbor; a plunger in coöperative relation with the drum; a cable fixed to the perimeter of the drum and adapted to connect it to the plunger; and a pair of floating wire indicators adapted to indicate the contents of the receptacle with which the pump is connected.

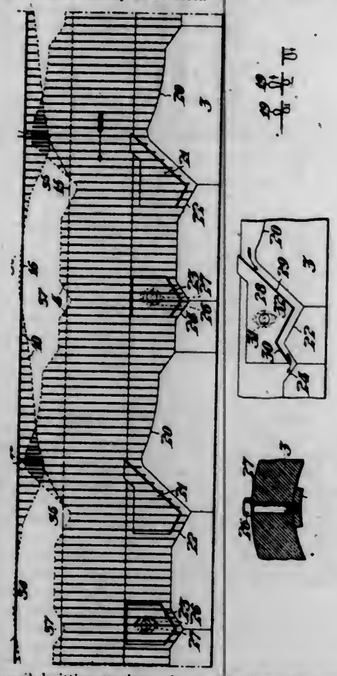
786,938. KNITTING-MACHINE. JOSEPH W. ADAMS, Wissinoming, Pa., assignor, by direct and mesne assignments, of one-half to Leo J. Fishel and Arthur J. Waterman, Bristol, Pa. Filed Aug. 23, 1902. Serial No. 120,751.

Claim.—1. In a rib-knitting machine, the combination with two opposed sets of needles and main cams arranged to actuate the same to form and cast off loops; of means arranged to equalize the length of the loops respectively formed by the two sets of needles, comprising an auxiliary cam in stationary relation with the main cam of the cylinder-needles, arranged to lower the cylinder-needles relatively to the dial-needles; and, means maintaining said main and auxiliary cams in such relatively stationary position that the length of the loops formed in the fabric by the cylinder-needles is determined by said auxiliary cam, substantially as set forth.

2. In a rib-knitting machine, the combination with a cylinder provided with a set of needles; of a dial provided with a set of needles; main cams arranged to actuate said needles so that the cylinder-needles loop the thread before the dial-needles; means arranged to equalize the length of the loops respectively formed by said two sets of needles, comprising an auxiliary cam, arranged to lower the cylinder-needles relatively to the dial-needles and thus lengthen the loops on the cylinder-needles and shorten the loops on the dial-needles, before the latter cast their loops; and, means maintaining said main and auxiliary cams in such relatively stationary position that the length of the loops formed in the fabric by the cylinder-needles is determined by said auxiliary cam, substantially as set forth.

3. In a rib-knitting machine, the combination with a cylinder provided with a set of needles; of a dial provided with a set of needles; main cams arranged to actuate said needles so that the cylin-

der-needles loop the thread before the dial-needles and cast their loops before the dial-needles; means arranged to equalize the length of the loops respectively formed by said two sets of needles, comprising an auxiliary cam arranged to lower the cylinder-needles relatively to the dial-needles, and lengthen the loops on the cylinder-needles and shorten the loops on the dial-needles before the latter cast their loops; and, means maintaining said main and auxiliary cams in such relatively stationary position that the length of the loops formed in the fabric by the cylinder-needles is determined by said auxiliary cam, substantially as set forth



4. In a rib-knitting machine, the combination with a cylinder provided with a set of needles; of a dial provided with a set of needles; main cams arranged to project and retract the individual needles of one set once, for each loop engaged; main and auxiliary cams arranged to project and retract the individual needles of the other set twice, for each loop engaged; and, means maintaining said main and auxiliary cams in such relatively stationary position that the length of the loops thereby formed in the fabric is determined by said auxiliary cam, substantially as set forth.

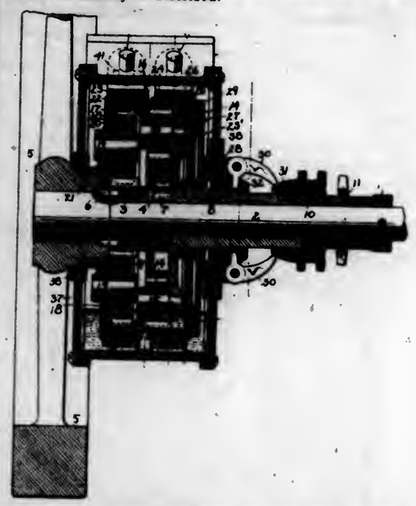
5. In a rib-knitting machine, the combination with cams arranged to project and retract the individual dial-needles once, for each loop engaged; of cams arranged to twice project and retract the individual cylinder-needles, for each loop engaged, comprising an adjustable auxiliary cam; and, means maintaining said cylinder-cams in such relatively stationary position that the length of the loops formed in the fabric by the cylinder-needles is determined by said auxiliary cam, substantially as set forth.

786,939. TRANSMISSION-GEAR. GILBERT R. ALBAUGH, Cleveland, Ohio, assignor, by mesne assignments, to Olds Motor Works, Detroit, Mich., a Corporation of Michigan. Filed Dec. 15, 1903. Serial No. 136,266.

Claim.—1. In transmission-gear, the combination of the speed-changing mechanism and fly-wheel with direct main drive-gears connecting the same, substantially as described.

2. In transmission-gear, the power-shaft and fly-wheel thereon, a main drive-gear and a key uniting said fly-wheel and gear together, and speed-changing gears and clutch mechanism for operating the same, substantially as described.

3. In transmission-gear, a power-shaft enlarged in diameter at one end, a fly-wheel mounted upon said enlargement, main drive-gears mounted upon the reduced portion of said shaft, and means to fasten said fly-wheel and drive-gears directly with said enlargement, substantially as described.



4. In power-transmitting gear, the power-shaft and fly-wheel thereon having a hub extension, main drive-gears directly keyed to said hub extension, and variable-speed gears meshing with said drive-gears, in combination with a clutch and a power-transmitting wheel sleeved at one and the same side of said gears, substantially as described.

5. In power-transmitting gear, the power-shaft and a fly-wheel thereon, main drive-gears mounted upon said shaft flush with said fly-wheel, keys coupling said gears direct to both shaft and fly-wheel, speed-changing gears and pinions in mesh with said drive-gears, a driven sprocket sleeved on said shaft, and frictional means for locking said gears for varying speeds, substantially as described.

6. In transmission-gear, the power-shaft, a fly-wheel having a hub keyed to said shaft, main drive-gears upon said shaft and pinned to said hub, a pinion-supporting ring sleeved upon said hub, pinions mounted upon said ring and meshing with the main drive-gear, a main driving-sleeve mounted free upon said shaft, a gear-ring rigidly connected with said sleeve and meshing with said pinions, a power-transmitting sprocket upon said shaft, and clutch mechanism for locking said parts together to transmit variable speeds to said sprocket, substantially as described.

7. In transmission-gear, a power-shaft and a hubbed fly-wheel thereon, a set of drive-gears pinned to the hub of said fly-wheel, a pinion-supporting ring rotatably sleeved on said hub, a set of pinions mounted on said ring and meshing with said drive-gear, a rotatable member sleeved on said shaft, a ring-gear on said member meshing with said pinions, a set of slow-speed pinions mounted on said member and meshing with one of said drive-gears, a second ring-gear removably and slidably mounted on said rotatable member, means to hold said rings separately against revolution, a clutch to lock said second ring-gear and rotatable member together, and a power-transmitting sprocket connected with said rotatable member, substantially as described.

8. In transmission-gears, a power-shaft and a gear-carrier mounted free thereon, a gear-ring rigidly affixed to said carrier at one side thereof, pockets between said ring and carrier and pinions revolubly mounted on said carrier within said pockets, and a gear-ring free on said carrier and a drive-gear on said power-shaft meshing with said pinions, in combination with a second pinion-carrier and pinions thereon and a drive-gear therefor, said latter pinions meshing with said gear-ring affixed to said gear-carrier, separate brakes for said free gear-ring and said pinion-carrier, and clutch mechanism to lock said gear-carrier and free gear-ring together, substantially as described.

9. In transmission-gear, a power-shaft having an enlarged portion and a fly-wheel provided with a hub extension rigidly mounted thereon, main drive-gears rigidly connected with said hubbed extension and said enlarged shaft portion, speed-changing gear mechanism driven by said main drive-gears, friction-brakes for said mechanism, a supporting-casing for said brakes comprising an oil-reservoir for said gear mechanism, and a high-speed clutch and driven sprocket-wheel sleeved on said power-shaft at one side of said mechanism, substantially as described.

10. In transmission-gear, the power-shaft and the speed-changing gear mechanism mounted thereon, said mechanism having a sleeved portion on said shaft provided with projections at its end, a sprocket-wheel sleeved on said shaft and provided with a hub having interlocking projections for rigid connection with said sleeved-portion projections, an operating-collar free to rotate upon said sleeved portions and said sprocket-wheel hub, and frictional clutch mechanism operatively controlled by said collar, substantially as described.

11. In transmission-gear, the power-shaft and speed-changing gear mechanism mounted thereon and driven thereby, a driven sprocket and a rotatable sleeve connected with said mechanism and free to rotate on said shaft, a friction-clutch for said mechanism having a supporting-spider splined to slide upon said sleeve, pivoted crank-arms on said spider, and an adjustable nut on said sleeve mounted opposite said crank-arms and engaged thereby, and means to actuate said arms to carry said clutch into action substantially as described.

12. In transmission-gears, a power-shaft, a set of reversing-gears and a set of slow-speed gears supported on said shaft, in combination with band-brake mechanism independently controlling the same, a support for said band-brake mechanism, a power-transmitting sprocket revolubly sleeved upon said shaft, a driving sleeved portion upon said shaft connecting said sprocket and the variable-speed power-transmitting mechanism, and a high-speed clutch constructed to lock gears for transmission of power at full speed and slidably supported upon said sleeved portion between said sprocket and said mechanism, substantially as described.

13. In transmission-gears, the combination of the power-shaft and a set of reversing-gears and a set of slow-speed gears with band-brakes and mechanism for controlling the same, a sleeved portion driven by said gears and mechanism and extending to one side thereof upon said shaft, a power-transmitting sprocket connected with and driven by said sleeve portion, and a friction-clutch and operating-collar slidably supported upon said sleeved portion, substantially as described.

14. A shaft, a gear-carrier having a hub for revolubly engaging said shaft, a body, a wall spaced apart therefrom, and braces connecting said wall and body at separate points, the parts being arranged with spaces between said wall, body, and braces, for receiving gears, and pintles mounted in said wall and body for supporting said gears.

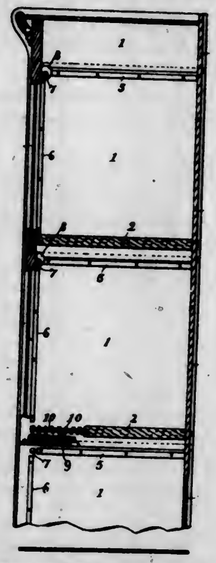
15. In a planetary transmission-gearing the combination with two differential gear-trains each comprising a central gear, a planetary pinion, and a surrounding annular rack, of a head revoluble in axial alinement and adjacent to said central gears, and having an overhanging peripheral flange, said flange carrying at its outer edge the annular rack of one train, and being cut away for the passage therethrough of the planetary pinion of the other train, and bearings for supporting said pinion at opposite ends upon said head.

786,940. KNOCKDOWN SECTIONAL BOOKCASE. HERO M. AMSDEN, Grand Rapids, Mich. Filed Dec. 10, 1904. Serial No. 236,317.

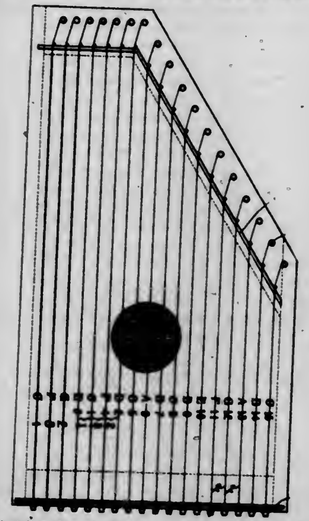
Claim.—1. In a knockdown sectional bookcase, end sections attached to each other by internally-enlarged grooves and tongues to fit said grooves and slidably engage the same, shelves connected to the end sections by internally-enlarged grooves and tongues to fit said grooves and slidably engage the same, said end sections also having alined vertical grooves for the back, and a back inserted in said grooves and locking the fastening members in place.

2. In a knockdown sectional bookcase, end sections connected by dovetail tongues and grooves and having alined vertical grooves near the rear edge to receive the back, shelves connected to the end sections by dovetail tongues and grooves, and a back inserted in the vertical grooves of the ends and engaging the rear of the shelves, and also extending across the joints of the ends, whereby the parts are all secured in place.

3. The combination of end sections having dovetail tongues and grooves to unite their adjacent upper and lower ends and also having dovetail grooves in their inner sides, said tongues and grooves extending from the rear edge of said end sections to near the front edge of the same, said ends also having alined vertical grooves to receive the back, shelves having dovetail tongues on their ends to engage the grooves in the end sections, and a back in the vertical grooves, said back engaging the rear edges of the shelves and extending across the joints of the end sections.



786,941. STRINGED MUSICAL INSTRUMENT. FRANK X. AUDET, Boston, Mass. Filed Sept. 16, 1901. Serial No. 75,511.

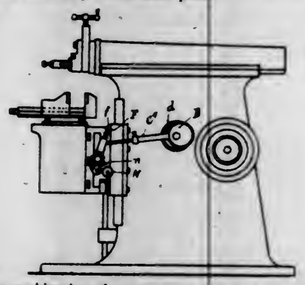


Claim.—A stringed musical instrument having a series of strings tuned to produce all the tones of a scale without duplication, a portion of such strings being arranged with each string next to and between two strings tuned respectively to the next note of the scale above it and the next note of the scale below it, and the remainder of such strings being arranged with each string next to one forming a chord therewith, substantially as described.

786,942. AUTOMATIC FEED-REGULATOR. HENRY J. AVERBECK, Covington, Ky. Filed June 10, 1904. Serial No. 211,959.

Claim.—1. The combination of ways, an apron to be reciprocated upon the ways, a feed-screw for reciprocating the apron, a driving-shaft, means for coupling the feed-screw and the driving-shaft, a

rotatable feed-regulating shaft journaled adjacent to the feed-screw, a device carried by the regulating-shaft for breaking the connection between the feed-screw and the driving-shaft, a second device carried by the apron for rotating the regulating-shaft, and an adjustable contact device adjacent to the apron for actuating the second device to cut off the feed at a predetermined point.



2. The combination of ways, an apron to be reciprocated upon the ways, a feed-screw for reciprocating the apron, a driving-shaft, a loose sleeve upon the feed-screw, a ratchet secured to the feed-screw, a pawl carried by the sleeve to engage the ratchet, a feed-regulating shaft, a cam carried by the regulating-shaft for contacting the pawl and carrying it out of engagement with the ratchet, a device carried by the apron for imparting a rotatory motion to the regulating-shaft and a contact device mounted adjacent to the path of travel of the apron for actuating said device to cut off the feed at a predetermined point.

3. The combination of ways, an apron reciprocating upon the ways, a feed-screw for reciprocating the apron, a driving-shaft, means for coupling the driving-shaft and the feed-screw, a feed-regulating shaft mounted adjacent to the feed-screw, a device carried by the regulating-shaft for breaking the connection between the feed-screw and the driving-shaft, a sliding block mounted reciprocally upon the regulating-shaft and coupled to the apron, a contact device mounted adjustably relatively to the path of the apron, and movable rods mounted in the apron contacting the sliding block and having one end projecting into the path of the contact device.

4. The combination of ways, an apron reciprocating upon the ways, a feed-shaft, a driving-shaft, a loose sleeve and a fixed ratchet mounted upon the feed-shaft, a rod for connecting the sleeve and the driving-shaft, a pawl mounted movably in the sleeve adapted to contact the ratchet and having two adjacent grooves cut into it, a stud, or studs mounted in the sleeve to engage one or the other of the grooves, as spring, or springs for engaging the stud, or studs to hold them in engagement with the pawl, a tripping device carried by the apron to contact the pawl at a predetermined point and raise it up and carry the stud or studs into the lower of the grooves to cut off the feed

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786,943. TAG. FREDERICK BACHMANN, Cota Brilliant, Ky. Filed Oct. 22, 1904. Serial No. 229,540.



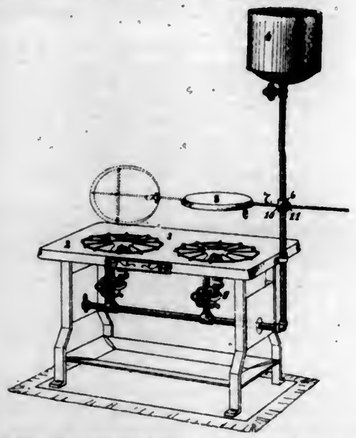
Claim.—1. A marking-tag formed of a thin metal blank adapted to be doubled over on itself, forming a two-limbed clamp and provided with folded guards formed on the side edges of one limb of the blank, substantially as described.

2. A marking-tag formed of thin flexible metal bent over to form a two limbed clamp, on one end of which are folded guards formed on the side edges of one limb of the blank, the inner edge of said guards being rearwardly inclined, substantially as described.

3. A marking-tag formed of thin flexible metal bent over to form a two-limbed clamp, projecting tangs formed in the two limbs, central notches in the metal blank at the line of bending and guards on one limb between which the opposite limb is adapted to fold, substantially as described.

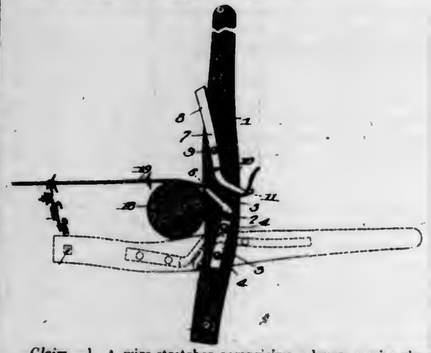
4. A marking-tag made of a flexible metal blank having inwardly-projecting guards at the side edges on one end thereof and covered with a lining, the opposite end being adapted to be bent over upon the goods and between the said guards, substantially as described.

786,944. VAPOR-BURNING STOVE. ROBERT C. BARRIE, Philadelphia, Pa. Filed Sept. 8, 1903. Serial No. 172,305.



Claim.—In a gasolene-stove, the combination of a reservoir, a feed-pipe communicating with the burner located on the stove and a rotary, longitudinally and vertically adjustable protecting-plate mounted on the feed-pipe, or a similar vertical standard, and located between the burner-openings in the stove and the reservoir, substantially as and for the purpose set forth.

786,945. WIRE-STRETCHER. LAFAYETTE BAYS, Arbala, Tex. Filed Mar. 31, 1904. Serial No. 200,908.



Claim.—1. A wire-stretcher comprising a lever, a wire-clamp carried intermediately upon the lever, and a wire-engaging chain carried by the forward end of the lever and made up of links having hooks for individual engagement with a wire.

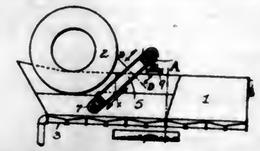
2. A wire-stretcher comprising a lever, a wire-clamp carried intermediately by the lever, and a flexible element loosely connected to the lever and provided with a series of wire-engaging devices.

3. A wire-stretcher comprising a lever, a wire-clamp carried intermediately by the lever, and a chain loosely connected to the lever, the outer end of each link of the chain terminating in a hook with the rear end of the link loosely connected to an intermediate portion of the next in rear link.

4. A wire-stretcher comprising a lever, a wire-clamp carried intermediately by the lever, and a chain loosely connected to the lever, each link of the chain consisting of a bar having a terminal eye, a terminal hook at the opposite end of the bar, and an eye located intermediate of the ends of the bar, the terminal eye of each link being engaged with the intermediate eye of the next adjacent rear link.

786,946. MEANS FOR RECOVERING MAGNETIC IRON FROM ORE-SEPARATING TANKS. ERASTUS S. BENNETT, New York, N. Y. Filed Oct. 17, 1903. Serial No. 177,455.

Claim.—1. In combination, with a separating-tank, means for producing a continuous jet or jets for scouring the material in the tank, and a magnetic device for removing from the tank the iron-sand from which the gold has been scoured, substantially as described.

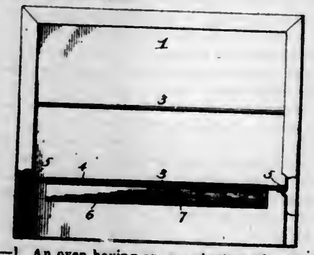


2. In combination with a separating-tank, means for producing a jet or jets for scouring the material in the tank, and a magnetic device for removing from the tank the iron-sand from which the gold has been scoured, said device being located intermediate the inlet and tailings end of the tank and said tank having means for recovering the gold freed from the iron-sand, substantially as described

3. In combination with a tank of V shape in cross-section, means for producing a jet or jets therein, directed laterally and rearwardly toward the tailings end of the tank, and a magnetic device for removing from the tank the iron-sand from which the gold has been scoured by the jets.

4. In combination with a tank having upwardly and outwardly inclined sides, jet-nozzles at the lower part of the said tank for producing continuous jets, and a magnetic device above the said jet-nozzles for removing the iron-sand from which the gold has been scoured, substantially as described.

786,947. DEFLECTOR FOR OVENS. JOHN F. BIXLER, Cincinnati, Ohio, assignor to Ernst H. Huesefeld, Cincinnati, Ohio. Filed Dec. 2, 1902 Serial No. 133,563.



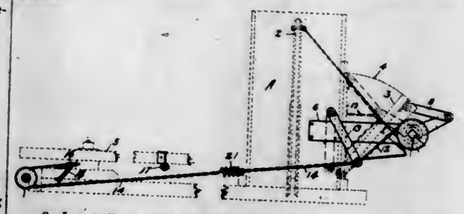
Claim.—1. An oven having an open bottom, the side walls of said oven bent inwardly near the open bottom and forming beads projecting inwardly from said side walls, strips resting upon said beads, a series of parallel rods connecting said strips, and a deflector-plate bent longitudinally at its center and having its free edges attached to two of said parallel rods, said deflector forming a concave trough under said series of parallel rods.

2. The combination with an oven having an open bottom, of a removable structure therein comprising a series of parallel rods, strips connecting said rods at their respective ends and supported by opposite walls of the oven, and a trough disposed under said rods and having its longitudinal edges permanently secured to two of them, said trough to be disposed over the open bottom of the oven and constitute a deflector.

786,948. BALING-PRESS. WILLIAM S. BRADSHAW, San Jose, Cal. Filed Apr. 18, 1904. Serial No. 203,655.

Claim.—1. In a baling-press, the combination of the press-box, a follower therein, a door for said press-box, door-closing means including a rock-shaft and toggles, and a connection from one side of the shaft for rocking the shaft in one direction, and door-opening means including the aforesaid shaft and toggles, and a flexible connection from the opposite side of the shaft to the follower for rocking the shaft in an opposite direction.

2. In a baling-press, the combination of a press-box, a follower therein, a door for the press-box, brackets extending from the press-box, a transverse shaft journaled in said brackets, toggles between the shaft and the door, pulleys on opposite portions of the shaft, a flexible connection attached to one of said pulleys and passing over the same for rocking the shaft in one direction, a flexible connection attached to the other pulley and passing under the same, for rocking the shaft in an opposite direction, and means for actuating the connection.



3. In a baling-press, the combination of a press-box, a follower therein, a door for said press-box, door-closing means, and means for opening the door, said opening means including a rock-shaft, toggles having one member fixed to said shaft and the other pivoted to the door, a fast pulley on the shaft and direct flexible connections between the pulley and follower, and knee-brackets 19 on the door to limit the inward movement of said toggles.

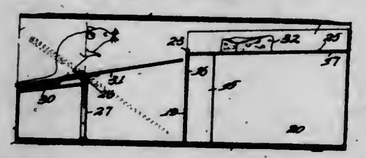
4. In a baling-press, the combination of a press-box, a follower therein, a door for said box, a sweep, devices in the path of the sweep and operable thereby, a rock-shaft, toggles having one member fixed to the shaft and the other pivoted to the door, fast pulleys on said shaft, door-closing means including flexible connections between one of said pulleys and the said devices operatable by the sweep, said door-opening means including flexible direct connections between the other of said pulleys and the follower.

5. In a baling-press, the combination of a press-box, a follower therein, a door for said box, a sweep, devices operable thereby, a rock-shaft, toggles having one member fixed to the shaft and the other pivoted to the door, fast pulleys on said shaft, door-closing means including flexible connections between one of said pulleys and the devices operatable by the sweep, door-opening means including flexible direct connections between the other of said pulleys and the follower, said pulleys having integral sleeve portions fitting said shaft and serving as journals therefor substantially as described.

6. In a baling-press, the combination of a press-box, a follower therein, a door for said box, a sweep, a rock-shaft, toggles having one member fixed to the shaft and the other pivoted to the door, door-closing means, door-opening means, said door-closing and door-opening means each including a pulley fast on said shaft, a pulley disposed adjacent to the sweep, a lever operatable by said sweep, flexible connections between the lever and said fast pulley, and an expansion-spring interposed in said connections.

7. In a baling-press, the combination of a press-box, a follower therein, a door for said box, a sweep, a rock-shaft, toggles having one member fixed to the shaft and the other pivoted to the door, fast pulleys on said shaft, door-closing means including flexible connections between one of said pulleys and devices operatable by the sweep, door-opening means including flexible direct connections between the other of said pulleys and the follower, and an expansion-spring interposed in said door-closing flexible connections for the purpose specified.

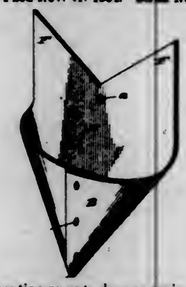
786,949. ANIMAL-TRAP. THEODORE BUHANN, Litchfield, Ill. Filed July 1, 1904. Serial No. 214,861.



Claim.—1. In an animal-trap, a suitable casing open at both ends; a floor slidingly mounted in the casing; a cage upon the rear end of the floor; a bait-chamber above the cage; and a trap-door pivotally mounted in front of the cage, substantially as described.

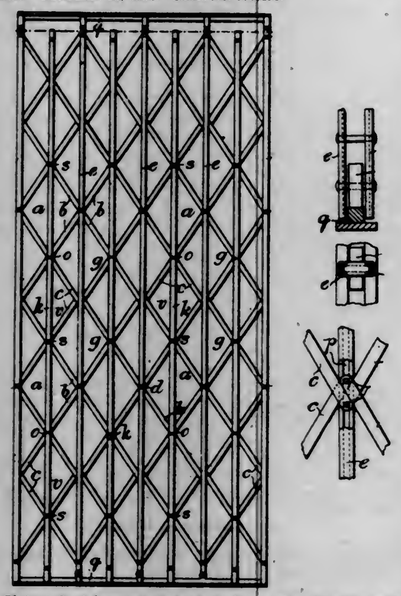
2. In an animal-trap, a suitable casing open at both ends; a floor slidingly mounted in the casing; a cage mounted upon the floor; a bait-chamber above the cage; and a trap-door pivotally mounted in front of the cage; said trap-door being overbalanced forwardly so that it will appear to lead to the bait; and said trap-door being overbalanced backwardly by the weight of the animal so as to lead to the cage.

786,950. TURPENTINE-RECEPTACLE. LAUCHLIN D. BYRD. Hillsdale, Miss. Filed Nov. 11, 1904. Serial No. 232,867.



Claim.—A turpentine-receptacle converging to a point at its lower end, and formed of a single sheet of metal having one horizontal edge bent upward from its central point, the two portions being lapped and connected together, and having its remaining part terminating in wings, the inner edges of which are disposed at an angle to each other.

786,951. COLLAPSIBLE GATE. ALFRED CLARK. London, England. Filed Mar. 16, 1904. Serial No. 198,490.

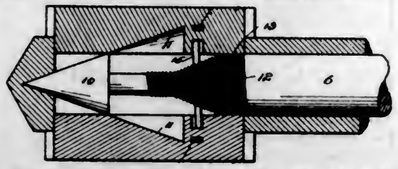


Claim.—1. A lazy-tongs structure for a collapsible gate or the like, comprising pickets arranged at right-angles to the direction of collapse of the gate, a lattice-work of lazy-tongs, bars and extensions, the ends of the extensions overlapping and forming corners, which interlace and in the expanded position of the gate are nested within the adjacent corners of the corresponding extensions, substantially as described.

2. A lazy-tongs structure for a collapsible gate or the like, comprising a lattice-work of lazy-tongs, bars and extensions forming parallelogram spaces of substantially the same size, the extensions having overlapping ends forming corners which interlace and in the expanded position of the gate are nested within corresponding corners of the adjacent extensions, and parallel bars to which the lower tongs are pivoted, substantially as described.

3. A lazy-tongs structure for a collapsible gate or the like, comprising vertical pickets, a lattice-work of lazy-tongs, extensions pivoted to the vertical pickets throughout the entire length of the same, the ends of the extensions being overlapped and forming corners, which interlace and in the expanded position of the gate are nested within corresponding corners of the adjacent extensions, and parallel bars interposed between the pickets and being shorter than the same, substantially as described.

786,952. ROCK-DRILL BIT. SAMUEL B. CLARK, Denver, Colo., assignor of one-half to John William Graham, Jr., and Stephen Gilbert Shaw, Denver, Colo. Filed Feb. 26, 1904. Serial No. 195,474.



Claim.—1. An expanding-bit for drills comprising a hollow shaft having lateral openings formed therein, laterally-moving elongated cutters mounted in said openings and extending longitudinally of the shaft, and rotating wedges interposed between said cutters for separating them with a parallel movement and supporting them in a cutting position.

2. An enlarging-bit comprising an outer hollow shaft having lateral openings formed therein, expansible cutters mounted in such openings, a rotating shaft mounted within the outer shaft, wedging-surfaces formed upon said rotating shaft and capable of engaging the said cutters at a plurality of points for expanding them in a parallel manner or permitting of their contraction.

3. An expanding-bit comprising a hollow shaft, cutters mounted therein, the said cutters being provided with end guideways, means carried by the shaft for engaging said guideways, and internally-arranged expansible means extending between the cutters.

4. An enlarging-bit for drills comprising a rotating hollow shaft having lateral openings formed therein, cutters movably mounted in said openings, a longitudinally-moving central shaft extending between the cutters, a conical point formed upon said shaft, and a conical threaded portion also formed on said shaft, the said conical portions operating to expand the cutters when the shaft is moved longitudinally.

5. An enlarging-bit comprising a hollow shaft having lateral apertures formed therein, movably-mounted cutters in said apertures, the said cutters having internally-arranged screw-threads, a longitudinally-movable shaft mounted in the hollow shaft and provided with screw-threads for engaging the threads of the cutters, the rotation of the threaded shaft operating to feed it longitudinally as well as to spread the cutters.

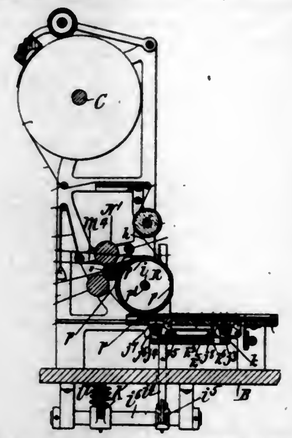
6. An enlarging-bit comprising a hollow shaft, laterally-moving cutters carried thereby, a point carried at the end of the shaft, the said point having a conical aperture formed therein, an inner shaft mounted in the hollow shaft, a conical end piece formed upon said shaft, and means for forcing the shaft longitudinally when it is rotated, the conical end portion operating to separate the cutters and force them outwardly while the recess in the point receives the conical end of the shaft bracing it when the cutters are in their expanded position.

7. An enlarging-bit comprising a hollow shaft having lateral openings formed therein, laterally-moving cutting-blocks mounted in said openings, guides at the ends of the cutting-blocks engaging guideways in the shaft, annular recesses formed in said cutters, a spring mounted in said recess tending to draw the cutters inwardly, and a longitudinally-moving wedge movably mounted within the shaft and engaging the cutters for spreading them.

8. In a device of the character described, the combination with a support, of a hollow casing pivotally mounted thereon, a hollow shaft having lateral openings mounted within said casing and projecting beyond the ends thereof, longitudinal, expansible cutters positioned within the openings of said shaft, a solid shaft of greater length than and mounted within said hollow shaft, said solid shaft provided with means adapted to engage approximately the opposite end of the cutter when expanded for causing parallel adjustment of the cutters, and means mounted upon said casing and hollow shaft for causing movement of said shaft.

9. A device of the character described, comprising a hollow shaft having a plurality of lateral openings formed therein, longitudinal cutters positioned within said openings, a rotatable shaft mounted within said shaft having openings, said rotatable shaft provided with means adapted to engage approximately the opposite ends of each of said cutters, when the same are adjusted to their greatest extent.

786,953. MACHINE FOR FORMING PACKAGE-ROLLS OF METALLIC LEAF. WALTER H. COE, Providence, R. I. Filed Aug. 14, 1902. Serial No. 119,672.



Claim.—1. In a machine for putting up sheets of metallic leaf in connection with a paper strip, the combination of means for winding the paper strip and sheets of metallic leaf together upon a core to form a package-roll, and means for feeding the sheets of metallic leaf onto the paper strip which is being wound, with suction means operating through the pores of the paper strip to hold the metallic leaf thereto in its passage from the feeding means to the winding means for the metallic leaf and paper strip.

2. In a machine for putting up sheets of metallic leaf in connection with a paper strip, the combination of the rolls for winding the paper strip and metallic leaf into a package-roll, and means for feeding the sheet of metallic leaf onto the paper strip, with suction means operating through the pores of the paper strip to hold the metallic leaf thereto in its passage to the winding-rolls.

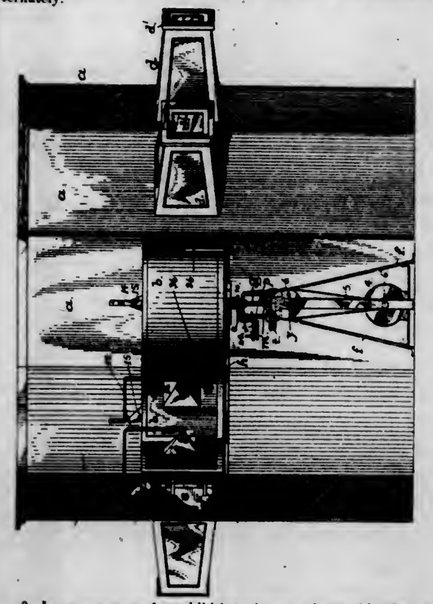
3. In a machine for putting up sheets of metallic leaf in connection with a paper strip, the combination of the perforated cylinder and means for exhausting the air from the cylinder, with means for winding up the paper strip and metallic leaf into a package-roll, and means for depositing the metallic leaf upon the paper strip at the periphery of the perforated cylinder.

4. In a machine for putting up sheets of metallic leaf in connection with a paper strip, the combination of the perforated cylinder, means for exhausting the air from the cylinder, and the flap for covering the exposed perforations, with means for winding up the paper strip and metallic leaf into a package-roll, and means for depositing the metallic leaf upon the paper strip at the periphery of the perforated cylinder.

786,954. APPARATUS FOR EXHIBITING PICTURES. REUBEN COHEN, San Francisco, Cal. Filed Apr. 29, 1904. Serial No. 206,836.

Claim.—1. In an apparatus for exhibiting pictures, the combination of a rotatable carrier on an upright axle, a motor-driven shaft, a second shaft connected to the motor-shaft by gearing and driven continuously therefrom, intermittent gears connecting the axle of the carrier with the continuously-driven shaft comprising a wheel having a single tooth on the said shaft, and a notched wheel on the axle, two sets of electric lights in separate circuits one adapted to illuminate the pictures in the carrier from the front and the other set to illuminate the pictures from the back, and mechanically-operated conductors connecting said lighting-circuits with a source of current, a mechanically-operated switch controlling said circuits, and means for operating said switch from the driving mechanism to open and close said lighting-circuits in an alternate manner.

2. In an apparatus for exhibiting pictures, the combination of a cabinet having a polygonal shape and provided with sight-apertures at intervals apart around the circumference, a rotatable carrier having a corresponding number of picture-holding sides mounted for rotation on an upright axle, a motor-shaft, an upright shaft geared respectively with the operating-axle and with the motor-shaft, electric lights in circuit with a source of current, the lights in said circuit being arranged to illuminate the fronts of the pictures, a second set of lights in a separate circuit, and means operated from the driving mechanism of the carrier for opening and closing said circuits alternately.



3. In an apparatus for exhibiting pictures, the combination of the carrier rotatable on an upright axle, a motor-driven shaft, an intermediate shaft driven continuously from the motor-shaft, intermittent gears connecting the axle of the carrier with the intermediate shaft, a plurality of illuminating-circuits including incandescent lights in separate circuit with a source of current, and a circuit-controlling device operated from the movements of the continuously-rotating intermediate shaft consisting of a set of spring-contacts in each circuit, a rocking member carrying circuit-closing arms, a rock-shaft operatively connected with the rocking member, a cross-head on said rock-shaft and studs on the continuously-rotating shaft for engaging the cross-head.

4. In an apparatus for exhibiting pictures, the combination with the picture-carrier mounted for rotation on an axle, of a continuously-rotating shaft, intermediate gears operatively connecting and disconnecting the shaft and the axle, and a brake device actuated intermittently from the continuously-rotating shaft, and adapted to lock the axle at the moment of disengagement of the intermittent gears, and afterward to release the axle in advance of the engagement of the gears.

786,955. EMERGENCY BRAKE-VALVE. FRED B. COREY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 15, 1904. Serial No. 220,738.

Claim.—1. In a "straight" air-brake system, an emergency device comprising a valve mechanism adapted and arranged to disconnect train-line from motorman's valve and to connect train-line to reservoir, and means actuated upon the release of a controlling-lever for causing said valve mechanism to operate.

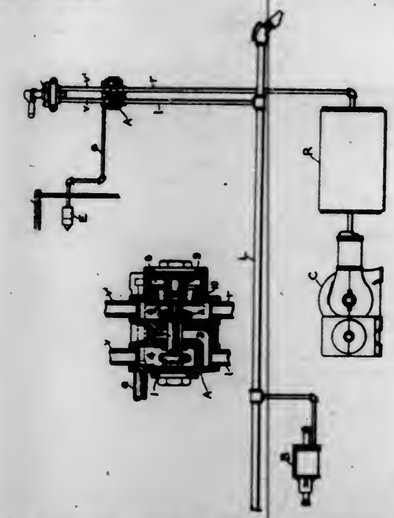
2. In a "straight" air-brake system, in combination with a motor-controller, a valve mechanism controlled from the controller operating means and adapted and arranged to disconnect train-pipe from motorman's valve and to connect train-pipe to reservoir.

3. In a "straight" air-brake system, means independent of the motorman's valve for connecting train-pipe to reservoir and at the same time disconnecting train-pipe from motorman's valve.

4. In a "straight" air-brake system, in combination with a motor-controller, means actuated upon the release of the controller-handle by the motorman and adapted to disconnect train-pipe from motorman's valve and to connect it to reservoir to apply the brakes.

5. In a "straight" air-brake system, in combination with a motor-controller, a valve mechanism independent of the motorman's valve and controlled from the motor-controller operating means

adapted to disconnect train-pipe from motorman's valve and to connect it to reservoir.



6. In a "straight" air-brake system, in combination with a motor-controller, an automatic valve mechanism located between the motorman's valve and the train-pipe and adapted to disconnect train-pipe from motorman's valve and at the same time connect train-pipe to reservoir, and a valve operatively connected with the motor-controller operating means for controlling the operation of said automatic valve.

7. In a "straight" air-brake system, in combination with a motor-controller, an automatic valve mechanism located between the motorman's valve and the train-pipe and adapted to disconnect train-pipe from motorman's valve and at the same time connect train-pipe to reservoir, and a valve arranged to be actuated upon the release of the controller-handle by the motorman and controlling the operation of said automatic valve.

8. In a "straight" air-brake system for vehicles, a valve mechanism adapted and arranged to disconnect train-line from motorman's valve and to connect train-line to reservoir, and means normally under control of the motorman in the operation of the vehicle for controlling the operation of said valve mechanism.

9. In a "straight" air-brake system for vehicles, a valve adapted and arranged to disconnect train-line from motorman's valve and to connect train-line to reservoir, a controlling-lever, and operative connections between said lever and said valve.

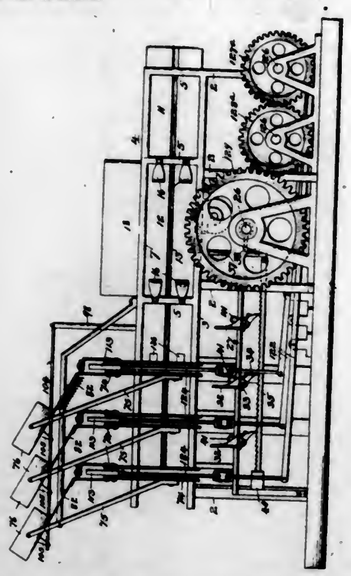
10. In a "straight" air-brake system for vehicles, a valve mechanism adapted and arranged to disconnect train-line from motorman's valve and to connect train-line to reservoir, and an automatic controlling device adapted to be normally held in a position to prevent the operation of said valve mechanism and arranged to cause the said mechanism to operate when it is released.

11. In a "straight" air-brake system for vehicles, an automatic valve mechanism adapted and arranged to disconnect train-line from motorman's valve and to connect train-line to reservoir, and an automatic controlling device adapted to be normally held in a position to prevent the operation of said automatic valve mechanism and arranged to permit the said mechanism to operate when it is released.

786,956. BOX-MAKING MACHINE. WILLIAM CORKHILL, Corona, Cal. Filed Dec. 18, 1903. Serial No. 136,741.

Claim.—1. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling device, an elevator for raising the end and partition boards into position, a transverse conveyer for delivering the end and partition boards to said elevator, means to raise and lower said elevator, and means to secure the component parts of the box together, substantially as described.

2. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for conveying the end and partition boards upward as the conveyer returns to its original position, a transverse conveyer for delivering the end and partition boards to said elevators, and a nailing device to simultaneously secure all the side and bottom boards to each end or partition board in turn, substantially as shown and described.



3. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for successively conveying the end and partition boards upward as the conveyer returns to its original position, a reciprocating transverse conveyer for delivering the end and partition boards to said elevators, and means to secure the component parts of the box together, substantially as shown and described.

4. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for successively conveying the end and partition boards upward as the conveyer returns to its original position, an endless chain conveyer for delivering the end and partition boards to said elevators, and means to actuate said elevators and chain conveyers, substantially as shown and described.

5. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for successively conveying the end and partition boards upward as the conveyer returns to its original position, a reciprocating transverse conveyer for delivering the end and partition boards to said elevators, longitudinal conveyers for feeding the end and partition boards to said transverse conveyers, and means to actuate said elevators and conveyers, substantially as shown and described.

6. In a box-making machine, a reciprocating conveyer for collectively delivering the side and bottom boards, elevators for successively elevating the end and partition boards into position, transversely-operating conveyers for delivering the end and partition boards to the elevators, nail assorting and delivering mechanism, vertically and horizontally reciprocating hammers, and means to actuate said mechanism, substantially as shown and described.

7 In a box-making machine, a reciprocating frame for conveying the side and bottom boards, elevators for raising end and partition boards into place for being nailed to said side and bottom boards, a reciprocating transverse conveyer to deliver said end and partition boards to the elevators, nail assorting and delivering devices, vertically and horizontally reciprocating hammers, and means to actuate said mechanism, substantially as shown and described.

8, In a box-making machine, elevators to raise boards into position, anvils to hold said elevators in a raised position, mechanism to feed boards to said elevators, and means to operate said elevators and anvils, substantially as shown and described.

9. In a box-making machine, elevators to raise boards into position, anvils to hold said elevators in a raised position, a transversely-operating mechanism to feed boards to said elevators, and means to operate said elevators and anvils, substantially as shown and described.

10. In a box-making machine, reciprocating elevators to raise boards into position, anvils pivotally mounted and adapted to swing under said elevators when raised, mechanism to feed boards to said elevators, means to raise and lower said elevators, and means to swing said anvils from under said elevators, substantially as shown and described.

11. In a box-making machine, elevators, to raise boards into position, anvils to hold said elevators in a raised position, endless chain conveyers for feeding single boards to said elevators, and means to operate said elevators and anvils, substantially as shown and described.

12. In a box-making machine reciprocating elevators to raise boards into position, anvils pivotally mounted and adapted to swing under said elevators when raised, endless chain conveyers for feeding boards to said elevators, means to operate said elevators and means to swing said anvils from under said elevators, substantially as shown and described.

13. In a box-making machine, elevators for raising boards into position, anvils to hold said elevators in a raised position, reciprocating endless chain conveyers for feeding boards to said elevators, and means to operate said elevators and anvils, substantially as shown and described.

14. In a box-making machine, reciprocating elevators for raising boards into position, anvils pivotally mounted and adapted to swing under said elevators when raised, reciprocating endless chain conveyers for feeding boards to said elevators, means to operate said elevators, and means to swing said anvils from under said elevators, substantially as shown and described.

15. In a box-making machine, elevators to raise boards into position, anvils for holding said elevators in a raised position, a shelf for holding shooks of boards, endless chain conveyers, an arm on each conveyer to bear against one of the boards and push it onto the elevator, and means to actuate said elevators, conveyers and anvils, substantially as shown and described.

16. In a box-making machine, elevators to raise boards into position, anvils for holding said elevators in a raised position, a shelf for holding shooks of boards, reciprocating endless chain conveyers, an arm on each conveyer to bear against one of the boards and push it onto the elevator, and means to actuate said elevators, conveyers and anvils, substantially as shown and described.

17. In a box-making machine, elevators to raise boards into position, anvils pivotally mounted and adapted to swing under said elevators when raised, a shelf for holding shooks of boards, reciprocating endless chain conveyers, an arm on each conveyer to bear against one of the boards and push it onto the elevator, and means to actuate said anvils, elevators and conveyers, substantially as shown and described.

18. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling device, elevators for raising the end and partition boards into position, anvils for holding said elevators in a raised position, transverse conveyers for delivering the end and partition boards to said elevators, means to operate said elevators, and means to secure the component parts of the box together, substantially as shown and described.

19. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for conveying the end and partition boards upward as the conveyer returns to its original position, anvils for holding said elevators in a raised position, transverse conveyers for delivering the end and partition boards to said elevators, and nailing device to simultaneously secure all the side and bottom boards to each end and partition board in turn, substantially as shown and described.

20. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for successively conveying the end and partition boards upward as the conveyer returns to its original position, anvils for holding said elevators in a raised position, reciprocating transverse conveyers for delivering the end and partition boards to said elevators, and means to secure the component parts of the box together, substantially as shown and described.

21. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for successively conveying the end and partition boards upward as the conveyer returns to its original position, anvils for holding said elevators in a raised position, endless chain conveyers for delivering the end and partition boards to said elevators, and means to actuate said elevators and conveyers, substantially as shown and described.

22. In a box-making machine, a reciprocating conveyer for delivering the side and bottom boards to the assembling part of the machine, elevators for successively conveying the end and partition boards upward as the conveyer returns to its original position, anvils for holding said elevators in a raised position, reciprocating transverse conveyers for delivering the end and partition boards to said elevators, longitudinal conveyers for feeding the end and partition boards to said transverse conveyers, and means to actuate said elevators and conveyers, substantially as shown and described.

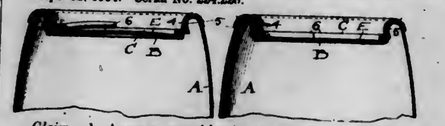
23. In a box-making machine, a reciprocating conveyer for collectively delivering the side and bottom boards, elevators for successively elevating the end and partition boards into position, anvils for holding said elevators in a raised position, transversely-operating conveyers for delivering the end and partition boards to said elevators, nail assorting and delivering mechanism, vertically and horizontally reciprocating hammers, and means to actuate said conveyers, elevators and hammers, substantially as shown and described.

24. In a box-making machine, a reciprocating frame for conveying the side and bottom boards, elevators for raising end and partition boards into position to be secured to the side and bottom boards, anvils for holding said end and partition boards in a raised position, reciprocating transverse conveyers to deliver said end and partition boards to the elevators, nail assorting and delivering devices, vertically and horizontally reciprocating hammers, and means to actuate said mechanism, substantially as shown and described.

25. In a box-making machine, a reciprocating frame for conveying the side and bottom boards, elevators for raising end and partition boards into position to be secured to the side and bottom boards, anvils pivotally mounted and adapted to swing under said elevators and hold them in a raised position, means to swing said anvils from under said elevators, reciprocating transverse conveyers to deliver the end and partition boards to said elevators when in a lowered position, nail assorting and delivering devices, vertically and horizontally reciprocating hammers, and means to actuate said elevators, conveyers and hammers, substantially as shown and described.

26. In a box-making machine, a reciprocating frame having one end smaller than the other to receive the side and bottom boards and deliver them to the assembling part of the machine, reciprocating elevators for successively conveying the end and partition boards upward as the frame returns to its original position, anvils pivotally mounted and adapted to swing under said elevators to hold them in a raised position, means to swing said anvils from under said elevators, longitudinal conveyers for feeding the end and partition boards to said transverse conveyers, nail assorting and delivering devices, vertically and horizontally reciprocating hammers arranged for simultaneous operation, and mechanism to actuate said elevators, conveyers and hammers, substantially as shown and described.

786,957. CAN-COVER. CLARENCE A. CRANE, Warren, Ohio. Filed Sept. 12, 1904. Serial No. 224,220.



Claim.—1. A can or vessel having its upper edge rolled inside, a cover fitting within and over said rolled edge and an expanded ring holding the cover to the can or vessel.

2. A can or vessel having its upper end formed inside with a seat for a cover and said seat having an inturned portion about its bottom, a cover having a wall fitting within and over said seat, and an expanded ring locking the cover against said inturned portion.

3. A can or vessel having a seat for a cover provided with an annular inturned portion at the bottom of the seat, a cover fitting within said seat and extending beneath said inturned portion, and an expanded ring in the base of said cover on a plane partly beneath the said inturned portion and engaging the cover on the can or vessel.

4. A can or vessel having an inturned portion inside about its top, a cover having a wall engaged over and within the said top and having a bead engaging the edge of said inturned portion, and an expanded ring in the base of the cover locked in the annular channel of said bead.

5. A can or vessel having a narrowed inner portion apart from the outer wall of the vessel, a cover having a wall fitting within and over said narrowed inner portion and provided with an annular enlargement about its base, and a ring expanded in said annular enlargement and thereby locking the cover on the can.

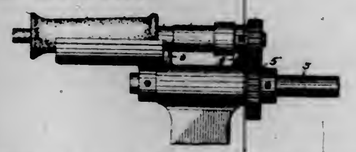
6. A can or vessel having a seat for a cover provided with an inturned portion, a cover with a wall engaged within and over said seat, and a split ring expanded in the said cover and holding the same against said inturned portion.

7. A can or vessel having its upper edge rolled inside, a cover fitting within and over said rolled edge and enlarged about its base substantially at the edge of said rolled portion, and a split ring expanded in said enlarged portion and having its ends abutting.

8. A can or vessel provided with an inner portion at its top forming a seat for a cover, a cover having a wall fitting within and over said seat, and a split ring seated in the bottom of said cover on a plane partially beneath the lower edge of said inner portion of the can or vessel top.

9. A can or vessel having a seat inside for a cover, in combination with a cover having a wall fitting within and over said seat and a split ring in the bottom of said cover having its ends overlapping, whereby when the ring is expanded its ends abut and the cover is sealed and locked on the can.

786,958. DAMPENING-MACHINE. CHARLES W. CURRIER and JOSEPH LEITSCHUH, Columbus, Ohio, assignors to The Federal Manufacturing Company, Columbus, Ohio, a Corporation of Ohio. Filed July 7, 1904. Serial No. 215,676.



Claim.—1. In a device of the type set forth, the combination with a trough, of a moistening-roller having enlarged ends, one of which travels in the trough.

2. In a dampening device, a roller having enlarged ends, means for moistening the roller, and means for movably supporting the roller.

3. In a dampening device, the combination with a trough, of a moistening-roller having a tapering body and a flaring head.

4. In a dampening device, the combination with a support, of a trough projecting from the support, and a moistening-roller having a flaring head rotatably mounted on the support so as to have a portion of its length traveling in the trough and its flaring head projecting beyond said trough.

5. The combination with a support, of a trough mounted thereon, a moistening-roller having a portion of its length traveling in the trough, means for rotating the roller, and pivoted means projecting from the support for supporting the roller.

786,959. INKSTAND. EBEN DAVIS, New York, N. Y. Filed Mar. 21, 1903. Serial No. 148,811.



Claim.—1. In an inkstand, in combination with a reservoir, an inner sleeve, and a plunger working in said sleeve having an ink-supply passage therethrough, and a tube in telescopic relation with the ink-passage in said plunger adapted both for telescopic movement in relation to said plunger and for movement of rotation with reference thereto.

2. In an inkstand, in combination with an outer reservoir and an inner sleeve, a plunger working in said sleeve and adapted to force ink from the reservoir, and an auxiliary tube in telescopic relation with said plunger, said tube communicating both with the interior of the reservoir and with the outer air and being free for movement with relation both to the plunger and the reservoir

3. In an inkstand, in combination with an outer reservoir and an inner sleeve, a plunger working in said sleeve and having a passage therein through which ink passes from the reservoir, and an auxiliary tube in telescopic relation with said plunger, said tube being adapted to communicate both with the ink-supply passage through the plunger and with the reservoir and being free for movement with relation both to the plunger and the reservoir

4. In an inkstand, in combination with an outer reservoir and an inner guiding-sleeve, a plunger working in said sleeve and having an ink-supply passage therethrough, through which the ink passes from the reservoir, and a tubular adjustment device in the shape of an inverted T, the upright member of said T being in telescopic relation with the passage through said plunger and the cross member of said T being extended below said plunger and beyond the opening of said sleeve.

5. In an inkstand, in combination with an outer reservoir, an inner guiding-sleeve, a plunger working in said sleeve and having an ink-supply passage therethrough, an auxiliary adjustment device substantially T-shaped in form and having the upright member thereof in telescopic relation with the ink-supply passage in the plunger and the cross member thereof below said plunger and sleeve and free to assume a position parallel to any diametrical line of said plunger or sleeve.

6. In an inkstand, in combination with an outer reservoir, an inner guiding-sleeve, a plunger working in said sleeve and having an ink-supply passage therethrough, an auxiliary adjustment device substantially T-shaped in form and tubular and having the upright member thereof in telescopic relation with the ink-supply passage in the plunger and the cross member thereof below said plunger and sleeve and free to assume a position parallel to any diametrical line of said plunger or sleeve.

7. In an inkstand, in combination with a reservoir, an inner sleeve, and a plunger working in said sleeve having an ink-supply passage therethrough, a tube in telescopic relation with the ink-passage in said plunger, and means for limiting the relative movement of said telescopic tube and plunger.

8. In an inkstand, in combination with a reservoir and an inner sleeve, a plunger working in said sleeve and having an ink-supply passage therethrough, through which ink may pass from the reservoir, a tube in telescopic relation with said passage in the plunger, a flange at the upper end of said tube of a diameter sufficient to prevent the removal of the tube through the lower end of the supply-passage, said passage being contracted at that point, and a cross-tube connected to the lower end of said telescopic tube and opening at a point or points beyond the sleeve.

9. In an inkstand, in combination with a reservoir and an inner sleeve, a plunger working in said sleeve and having an ink-supply passage therethrough, through which ink may pass from the reservoir, a tube in telescopic relation with said passage in the plunger, a flange at the upper end of said tube of a diameter sufficient to prevent the removal of the tube through the lower end of the supply-passage, said passage being contracted at that point, and a cross-tube detachably connected to the lower end of said tube and opening at a point or points beyond the sleeve.

10. In an inkstand, in combination with a reservoir, an inner sleeve, and a plunger working in said sleeve and adapted to force ink from the reservoir, an adjustment device coöperating with said plunger, said adjustment device being adapted to communicate both with the interior of the reservoir and with the outer air, and means whereby said adjustment device may be limited in movement in a direction longitudinal of said plunger but may be free for movement of rotation relative to said plunger.

11. In an inkstand, in combination with a reservoir, an inner sleeve extending into said reservoir, and a plunger working in said sleeve, a tubular adjustment device adapted to coöperate with said plunger and constituting a passage for air from the exterior to the interior of the reservoir, said adjustment device being free for movement with relation to said reservoir, but constrained in its movement with relation to said plunger.

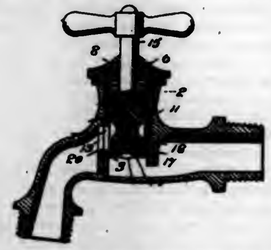
12. In an inkstand, in combination with a reservoir, an inner sleeve, and a plunger working in said sleeve having an ink-supply passage therethrough, a removable tube in telescopic relation with the ink-passage in said plunger.

13. In an inkstand, in combination, a reservoir provided with an opening, a sleeve fitted to said opening and projecting downwardly into said reservoir, and separate removable and movable means adapted to conduct air downwardly within said sleeve and discharge the same into said reservoir at a point outside the inner surface of said sleeve.

14. In an inkstand, in combination, a reservoir provided with an opening, a sleeve fitted to said opening and projecting downwardly into said reservoir, and removable means independent of said sleeve adapted to conduct air downwardly within the same and discharge said air into said reservoir at a point outside the inner surface of said sleeve.

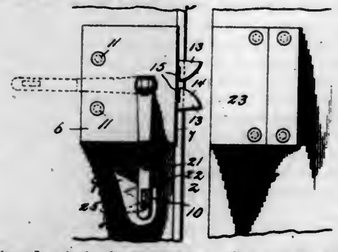
15. In an inkstand, in combination, a reservoir provided with an opening, a sleeve fitted to said opening and projecting downwardly into said reservoir, a float and a tubular member adapted to reciprocate within the same and conduct air into said reservoir at a point outside the inner surface of said sleeve.

786,960. VALVE. GEORGE W. DENIEF, Lowell, Mass. Filed Dec. 8, 1903. Serial No. 184,307.



Claim.—In a device of the character described, the combination with a valve-casing having an outlet, and an extension; of a flat detachable metallic valve-seat within the casing, an internally-screw-threaded non-rotatable tube within the extension and bearing upon the valve-seat to hold the same rigidly in position, said tube having an opening through one portion thereof which registers with the outlet in the valve-casing and the valve-seat being wholly independent of and free from epgagement with the tube, means for detachably securing the tube in the extension, a screw within and engaging the tube, a washer at one end of the screw adapted to clamp upon the detachable valve-seat, a metallic disk interposed between said washer and screw and fitting snugly within and adapted to slide upon the inner wall of the tube, and means for rotating the screw.

786,961. CAR-DOOR LOCK. THOMAS DRAKES, Novinger, Mo. Filed May 31, 1904. Serial No. 210,546.

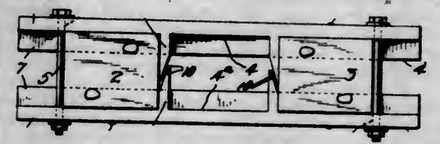


Claim.—In a lock, the combination with a casing, of a pair of pivotal bolts mounted to swing toward and away from one another, a tumbler mounted between the bolts for simultaneous engagement therewith, a crank-handle located upon the exterior of the casing and connected to the tumbler for actuating the same, and a keeper located externally of the casing for engagement by the crank-handle.

786,962. RAILWAY-TIE. DAVID F. EARNEST and WILLIAM T. GILCHRIST, West Norfolk, Va. Filed Dec. 22, 1904. Serial No. 237,956.

Claim.—1. A railway-tie comprising two metallic tie-sections having inwardly-extending base portions on their opposing inner sides, wooden blocks interposed between said sections and bearing on said base portions, and means to clamp said sections together and to also secure said blocks between them, substantially as described.

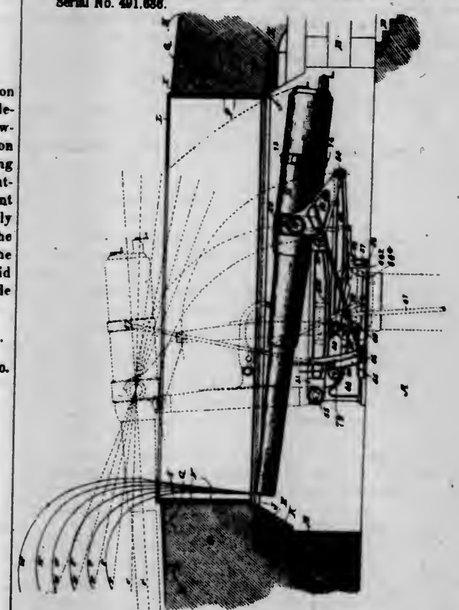
2. A railway-tie comprising two metallic half-sections having socket members, blocks of wood between said socket members and bolts for securing said half-sections together, substantially as described.



3. A railway-tie comprising two half-sections of angular form in cross-section having bolt-holes and inwardly-projecting arms, bolts passing through said bolt-holes to secure said sections together, and blocks of wood clamped between said half-sections and disposed between said arms and said bolts, substantially as described.

4. A railway-tie comprising two half-sections of angular form in cross-section having bolt-holes and inwardly-projecting arms, bolts passed through said bolt-holes to secure said sections together, blocks of wood clamped between said half-sections and disposed between said arms and said bolts, said half-sections being also formed with openings intermediate said bolt-holes and said arms, and nails or spikes passed through said holes and into said blocks, substantially as described.

786,963. MOUNTING AND OPERATING GUNS. ALBERT H. EMERY, Stamford, Conn. Filed Apr. 13, 1893. Renewed Nov. 22, 1893. Serial No. 491,686.



Claim.—1. A foundation adapted to receive an elevating gun-carriage, consisting of a foundation-plate 8, a supporting-base 1, a protecting and supporting curb, connecting said foundation-plate and supporting-base, and an outwardly-extending plate 7 over which the carriage-body is traversed, and on which it may rest at time of firing, substantially as and for the purpose explained.

2. In combination with an elevating gun-carriage, or lift, for a gun; a foundation consisting of a foundation-plate 8, a supporting-base 1, a protecting and supporting curb connecting said foundation-plate and supporting-base, an outwardly-extending plate 7 over which the carriage-body is traversed and on which it rests at times in firing; the outer protecting-curb with the space between it and the inner curb and supporting-base suitably filled, substantially as and for the purpose set forth.

3. In a mounting for a gun-carriage, the combination of a foundation and its covering-plate consisting of the central bearing-plate 8 and the outwardly-extending overhanging plate 7 over which the

carriage-body is traversed, and on which it may rest at times of firing, substantially as and for the purpose set forth.

4. In combination for use with a gun-carriage; a foundation consisting of the bearing-plate 1, foundation-plate 8 and the inner curb connecting said plates, the outwardly-extending plate 7, and the outer curb connected with the plate 7 by foundation-bolts 162, substantially as and for the purpose set forth.

5. In combination, a spring-cylinder 14, for supporting a gun-carriage, a bearing-plate 1, upon which the spring-cylinder is pivoted, a foundation-plate 8 guiding and supporting the cylinder 14, and the supporting-curb which connects the bearing-plate 1 and the foundation-plate 8, substantially as and for the purpose set forth.

6. A gun-carriage constructed with a central bearing and supporting cylinder, and a bearing-pivot 15 upon which the cylinder is mounted to rotate, and the shoe or step 16 on which he pivot rests in combination wi h the intervening antifriction-plates 17, substantially as and for the purpose set forth.

7. A gun-carriage constructed with a central bearing and supporting cylinder 14, a bearing at bottom of said cylinder upon which it rotates, a supporting and guiding plate 8, at the top of the cylinder 14; and the antifriction-rollers 84 between the adjacent faces of the cylinder and plate; substantially as and for the purpose set forth.

8. A gun-carriage constructed with a central supporting, rotating and guiding cylinder 14, upon which the gun is carried, suitable elevating mechanism for the gun, above said cylinder, and actuating mechanism and controlling connections for said elevating mechanism located within and rotating with the cylinder; substantially as and for the purpose set forth.

9. An elevating gun-carriage, constructed with elevating mechanism and supported wholly upon a central rotating and guiding cylinder 14, below the body of said carriage and elevating mechanism, and recoil and actuating means also mounted in said cylinder, substantially as and for the purpose set forth.

10. An elevateng gun-carriage, constructed with and supported wholly upon a central supporting, guiding and rotating cylinder 14, below the body of said carriage, and a link elevating mechanism for connecting the gun with the carriage-body, substantially as and for the purpose set forth.

11. An elevating gun-carriage, constructed with a rotating, guiding and supporting cylinder 14, and a pair of elevating-links 51 and 52, for connecting the gun with the carriage-body, and means to operate said links, substantially as and for the purpose set forth.

12. An elevating gun-carriage, constructed with a pair of elevating-links, and a saddle to which the links are connected and in which the gun rests, and the central rotating, guiding and supporting cylinder 14, substantially as and for the purpose set forth.

13. In an elevating gun-carriage, the combination of the links 51 and 52 supporting and raising the gun, the coupling cross-beam 48 by which they are connected together, pins 50 and 57 coupling the said cross-beam to the links, and suitable mechanism for elevating them connected to said cross-beam, substantially as shown and described.

14. In an elevating gun-carriage, the combination of the links 51 and 52 for supporting and raising the gun, the coupling cross-beam 48 connected by pins 50, 57 with the links for elevating them, and the piston-rod 47, connected with the beam 48 and suitable elevating mechanism, for the purpose set forth.

15. An elevating gun-carriage constructed with a body 64, provided with a supporting and rotating cylinder 14, in combination with suitable gun supporting and elevating link connections and mechanism for elevating the gun to firing position; all mounted upon said cylinder, substantially as set forth.

16. An elevating gun-carriage, constructed with a body 64, attached to a supporting-cylinder 14, in combination with a pair of elevating-links 51 and 52, connected with the carriage, a saddle 68 in which the gun is mounted and which is connected with said links, and suitable elevating mechanism, substantially as and for the purpose set forth.

17. In an elevating gun-carriage, the elevating-link 51 connecting the gun to the carriage, constructed with cross-beams 51^a and the longitudinal bar 51^b connecting said beams and carrying the bearing 51^c, substantially as and for the purpose set forth.

18. In an elevating gun-carriage, the combination of the cylinder 14, piston 21 having a piston-rod 47 for raising or elevating the gun, the cylinder-head having an opening which permits lateral movement of the piston-rod, a sliding cover for said opening and a ball-joint in said cover through which the piston-rod slides.

19. An elevating gun-carriage, having a saddle 68, a pair of elevating-links 51 and 52, connecting the saddle to the carriage, the piston 21, the piston-rod 47 having jointed connection at its respective ends with said links and to the piston, and a cylinder 14, substantially as and for the purpose set forth.

20. In an elevating gun-carriage, the combination of link connections adapted to move to a position beyond the vertical in raising the gun to firing position, to avoid lifting of the carriage when firing the gun at angles of depression, and a counterbalance constructed and arranged to bring the link connections back to and sufficiently past the vertical to allow the gun to descend by its own weight to loading position without firing.

21. In an elevating gun-carriage, the combination of an elevating link system adapted to move beyond the perpendicular in raising the gun to firing position to avoid lifting the carriage when firing at angles of depression, and a counterbalancing-spring 228, which opposes the forward movement of the link as it nears the upper limit of its stroke, and aids in returning the link system back to and sufficiently past the perpendicular to allow the gun to descend by its own weight to loading position without firing.

22. In an elevating gun-carriage, or lift, in combination with suitable apparatus for lifting the gun to firing position having a controlling-piston 21, a hydraulic buffer attached to said piston, consisting of a suitable cylinder and its piston, and having a suitable by-pass arranged to retard the movement and absorb the work of the lifting parts as they near, and permit them to come to rest without shock or recoil when they reach firing position, as explained.

23. In an elevating gun-carriage or lift, in combination with suitable apparatus for lifting the gun to firing position, having a controlling-piston 21; a hydraulic buffer operated by said piston, consisting of a suitable cylinder and its piston, and having a suitable by-pass arranged to retard the movement and absorb the work of the lifting parts as they near, and permit them to come to rest without shock or recoil when they reach, firing position, as explained.

24. In an elevating gun-carriage, in combination with a link system and a hydraulic press to raise the gun to firing position, and the piston 21; a hydraulic buffer operated by said piston consisting of a cylinder, a piston, a by-pass arranged to retard the movement and absorb the work of the lifting parts as they near firing position but permitting them to come to rest without shock or recoil when they reach such position.

25. In an elevating gun-carriage, having a link system for raising the gun to firing position, in combination with the cylinder 14, the piston-rod 47 and its moving head or piston 21 and the buffer attached to said head or piston, as and for the purpose set forth

26. In combination with an elevating gun-carriage, having suitable link connection for raising the gun and suitable elevating mechanism to control the movement thereof; a buffer for retarding the upward movement of the gun when it approaches its limit of movement, consisting of a cylinder 191, a piston 196, piston-rod 197 and regulating-stud 205, working in an aperture in said piston, said buffer being located, substantially as and for the purpose set forth.

27. In combination with an elevating gun-carriage; a buffer for retarding the moving parts when nearing their upper limit of movement, consisting of a suitable cylinder, having a piston and a piston-rod 197, and the adjustable stop 199, against which the buffer strikes to cause its piston to act, as and for the purpose set forth.

28. In combination with an elevating gun-carriage; a hydraulic buffer for retarding the moving parts when nearing their upper limit of movement, consisting of a cylinder 191, and its piston 196, and piston-rod 197 and adjusting stop-rod 198 to insure bringing the piston to its proper position, substantially as and for the purpose set forth.

29. In combination with an elevating gun-carriage; a hydraulic buffer for retarding the moving parts when they near their upper limit of movement, consisting of a suitable cylinder 191 having a piston 196, piston-rod 197 and return-spring 204, substantially as and for the purpose set forth.

30. In an elevating gun-carriage, in combination with a link connection for raising the gun to firing position, the rotating cylinder 14 below the carriage-body and upon which said carriage-body is mounted and rotates containing balancing-springs suitably combined with said link connection, substantially as and for the purpose set forth.

31. In an elevating gun-carriage, the combination of a link system for raising the gun to firing position, a piston-rod 47 extending downwardly from the link system and having a piston 21, a rotating cylinder 14 above and upon which the carriage is mounted and with which the carriage rotates, provided with suitable balancing-springs opposing the movement of the piston, substantially as and for the purpose set forth.

32. In an elevating gun-carriage, the combination of a link 51, for raising the gun to firing position, and a suitable system of balancing-springs having connection with said link at a point materially without the line of its pin centers, and extending vertically beneath the link, whereby the springs are enabled to more readily control the raising and lowering of the gun, as explained.

33. In a gun-carriage, the combination of the spring-cylinder 14, the moving piston 21 located in the cylinder and suitably connected to raise or elevate the gun, and a superposed series of balancing-springs divided into groups by one or more interposed pistons, substantially as set forth.

34. In a gun-carriage, the combination of a spring-cylinder 14, a series of balancing-springs contained therein, a movable piston against which said springs act, provided with a guiding-sleeve 130, substantially as and for the purpose set forth.

35. The combination of the spring-cylinder 14, and its contained springs, and the guide-rods for the springs provided with stop-shoulders, substantially as and for the purpose set forth.

36. In a gun-carriage, the combination of a cylinder and its piston 21, guide-rods in said cylinder, springs surrounding said guide-rods and stops adjustably mounted on said guide-rods, substantially as explained.

37. In combination with a gun-carriage, having suitable elevating connections to control the movement of the gun, a series of balancing-springs acting on said elevating mechanism constructed and arranged with varied lengths of movement, whereby they successively cease action at different points, and the work of some is discontinued, while others continue their action, as explained.

38. In a gun-carriage, the combination of a connecting-rod controlling the movement of the gun, a series of independently-movable springs operating upon said connecting-rod to control its movement, and stops arranged to engage some of the springs and stop them, while the others complete their movements, substantially as and for the purpose set forth.

39. In combination with a gun-carriage, a piston having connections for controlling the movement of the gun, and a series of balancing-springs operating upon said piston and graduated in their range of movement, substantially as described, whereby after concerted action some arrive at their limit of expansion and cease to act on the piston, while the continuing pressure of the rest of the springs conforms more nearly to the work required to complete the stroke of the piston.

40. In a gun-carriage, the combination of a piston, controlling the movement of the gun, a series of reversely-wound concentric springs adapted to operate on said piston, and a guide-rod upon which said springs are mounted, substantially as and for the purpose set forth.

41. In an elevating gun-carriage, in combination with suitable elevating mechanism to elevate the gun and a hydraulic press to control the movements thereof, a series of balancing-springs operating on said mechanism and arranged to substantially balance the gun at all positions of its movement and high and low pressure reservoirs connected to said press to control the movements thereof as explained.

42. In combination with a gun-carriage; the cylinder 14, and its contained piston 21, suitably connected to the gun, the graduated springs in said cylinder acting on said piston to aid in balancing the gun in all positions, and a hydraulic press, also acting on said piston, to control the movements of the gun, substantially as explained.

43. In an elevating gun-carriage, the combination of a link system, for raising the gun to firing position, a piston-rod 47, extending downwardly from said link system, a piston 21 on said piston-rod, a supporting-cylinder 14, upon which the carriage is mounted, suitable balancing-springs in said cylinder, and a hydraulic press in said cylinder connected with the link system, for controlling the movements of the gun, as explained.

44. An elevating gun-carriage supported upon a vertical rotating cylinder 14, and a press and a reservoir communicating with said press within said cylinder, for the purpose set forth.

45. An elevating gun-carriage, constructed with a carriage-supporting vertical rotating cylinder 4, having a hydraulic press and communicating reservoir both within it; said reservoir adapted to contain air under heavy pressure to resist the flowing of the liquid from the press into the reservoir during the recoil of the gun, and to expel the liquid from the reservoir into the press, while raising the gun to firing position, as and for the purpose explained.

46. In a recoil gun-carriage, in combination with a suitable press for operating mechanism thereof, a high-pressure reservoir communicating with said press and adapted to contain air under high pressure to resist the flow of the liquid from the press into the reservoir during the recoil of the gun, and to expel the liquid from the reservoir into the press to operate it, and constructed with a body 40, fixed head 98 secured thereto by the engaging screw 98ª and having a packing-ring 100 secured in a dowel-groove formed between the head 98 and body 40, substantially as and for the purposes set forth.

47. In a recoil gun-carriage, in combination with a suitable press for operating mechanism of said carriage, a high-pressure reservoir communicating with said press and adapted to contain air under high pressure to resist the flow of the liquid from the press into the reservoir during the recoil of the gun and to expel the liquid from the reservoir into the press to operate it, and constructed with a body 40, movable head 102 secured to said body by a screw-collar 229 and bolts 104, and having a packing-ring 102^a between the head 102 and body 40 to secure the joint, substantially as and for the purpose set forth.

48. In a recoil gun-carriage, in combination with a suitable press for operating mechanism of said carriage, a high-pressure reservoir communicating with said press and adapted to contain air under high pressure to resist the flow of the liquid from the press into the reservoir during the recoil of the gun and to expel the liquid from the reservoir into the press to operate it, and constructed with a body 40, movable head 102 secured to said body by a screw-collar 229 and bolts 104, with one or more packing-rings 104^a, 104^b, and having a packing-ring 102^a between the head 102 and body 40 to secure the joint, substantially as and for the purpose set forth.

49. An elevating gun-carriage, constructed with a hydraulic press, and two reservoirs communicating with said press, one of which is adapted to contain air under high pressure to resist the flow of liquid from the press into the reservoir during the recoil of the gun, and expel the liquid from the reservoir into the press, while raising the gun to firing position, and a vertical rotating cylinder 14 containing said parts, as explained.

50. In combination with an elevating gun-carriage, a cylinder 14 on which the carriage mainly rests, rotating about its vertical axis having within it a compound press having two pistons arranged to operate together or separately in controlling the movements of the gun, as explained.

51. In an elevating gun-carriage, a cylinder 14, rotating about its vertical axis and containing a compound press having two pistons, arranged to operate together or separately to control the movements of the gun and the high and low pressure reservoirs adapted to communicate with either or both of the presses, as and for the purposes explained.

52. In an elevating gun-carriage, a compound press having two pistons arranged to act separately or together to control the movements of the gun and the high and low pressure reservoirs adapted to communicate with either or both of said pistons for the purpose explained.

53. In an elevating gun-carriage, a compound press formed of two concentric pistons arranged to act together or independently and high and low pressure reservoirs arranged to communicate with either or both of said pistons, substantially as and for the purpose set forth.

54. An elevating gun-carriage, constructed with a compound press and two reservoirs communicating therewith one of which is adapted to contain air under high pressure to resist the flow of the liquid forced thereinto by either or both of the pistons of said press during the recoil of the gun, and to expel the liquid into the press while raising the gun and the other adapted to contain air under sufficient pressure to expel the liquid from it with sufficient velocity into either cylinder of the press when the other cylinder of the press is raising the gun, as explained.

55. In a gun-carriage, the combination of the containing-cylinder 14, the compound press, pipes 30 and 31, for communicating pressure to the pistons of said press, and the joint-block 25, in which the pipes are fixed and which has passages communicating between the pipes and their respective pistons, as explained.

56. In a gun-carriage, the combination of the compound press, the pipes 30 and 31 for controlling the pressure of the liquid in the pistons of said press, and the valve-block 107, substantially as and for the purpose set forth.

57. In a gun-carriage, the combination of the containing-cylinder, 14, a hydraulic press, a valve-block 107, the high and low pressure reservoirs 40 and 41, and their interior pipes 42 and 43 connected with said valve-block and communicating with the liquid in the reservoirs, substantially as and for the purpose set forth.

58. In a gun-carriage, the combination of a compound press for controlling the movement of the gun, the high and low pressure reservoirs 40 and 41, and their communicating pipes 42 and 43 with said valve-block 107, and the pipes 30 and 31 communicating between said valve-block and the pistons of the compound press, as and for the purpose explained.

59. In combination with a recoil gun-carriage; a rotating cylinder 14 connected thereto and containing a reservoir for storing the work of recoil, having a spring-bearing 233 to aid in supporting it, substantially as and for the purpose set forth.

60. In combination with an elevating gun-carriage, a rotary cylinder 14 connected thereto and containing a compound press, having a stationary press-cylinder 27, with its contained stationary piston 24, and a movable piston 23, working in the cylinder 27, and constituting a press-cylinder, for the piston 24, and having attached to it the three packings 177, 178 and 182, as and for the purpose set forth.

61. In an elevating gun-carriage, the combination of a compound press, reservoirs 40 and 41 each having communication with both pistons of said press and a valve-block 107, constructed with two pairs of valves, each of which pairs is arranged to control the communication between one of the pistons of the compound press and both reservoirs, substantially as and for the purpose explained.

62. In an elevating gun-carriage, the combination of cylinder 14, containing a hydraulic press and high and low pressure reservoirs having communication with said press, a pair of valves controlling such communication and a supplementary resistance-valve 234 also in said communication, substantially as and for the purpose set forth.

63. In an elevating gun-carriage, the combination of a hydraulic press, high and low pressure reservoirs, communicating passages between said press and reservoirs and valves 136ª, 138ª, controlling said passages; the valve 136ª being in the passage to the high-pressure reservoir and having a loading-spring, whereby it may be loaded to automatically operate as a resistance to the flow of liquid during recoil, substantially as explained.

64. In an elevating gun-carriage, the combination of a hydraulic press, high and low pressure reservoirs communicating passages between said press and reservoirs and valves 136ª 138ª, controlling said passages; the valve 136ª being in the passage to the high-pressure reservoir and having a loading-spring, whereby it may be loaded to automatically operate as a resistance to the flow of liquid during recoil, and a supplementary valve 234, having a stem 234ª, by which it may be adjusted to supplement the resistance of valve 136ª, substantially as explained.

65. In a gun-carriage, the combination of a hydraulic press, a pressure-reservoir, and a valve 136ª, constructed with a guiding-sleeve 424, the loading-spring 425, adjusting-screw 427, a screw-sleeve 426 with the stud 428 which prevents the sleeve 426 from rotating, and indicates the load on the spring 425, substantially as explained.

66. In an elevating gun-carriage, the combination of a hydraulic press, high and low pressure reservoirs, a pair of automatically-closing valves 136, 138 controlling the passage between the high and low pressure reservoirs and the press, trip-rods 150, 152 to open said valves, substantially as and for the purpose set forth.

67. In an elevating gun-carriage, the combination of a compound press, high and low pressure reservoirs, two pairs of automatically-closing valves 136, 138 and 136ª, 138ª, controlling the passage of liquid between either cylinder of the press and the high and low pressure reservoirs, and the trip-rods 150, 152, and 151, 153, substantially as and for the purposes explained.

68. In an elevating gun-carriage, the combination of a compound press and high and low pressure reservoirs, passages communicating between said reservoirs and each cylinder of the press; two pairs of valves controlling said passages, and a pair of trip-rods, 152, 153, for opening either of the two low-pressure valves and allowing the liquid from one press-cylinder to flow into the low-pressure reservoir, while that from the other cylinder flows into the high-pressure reservoir until the recoil of the gun is sufficiently checked, when the other low-pressure valve is tripped, allowing the gun to descend to loading position, substantially as explained.

69. In an elevating gun-carriage, the combination of the compound press, the high and low pressure reservoirs, passages communicating between said reservoirs and each cylinder of the press, two pairs of valves controlling said passages, and a pair of trip-rods 150, 151, for operating respectively the high-pressure valves 136, 136ª, by the use of which either cylinder of the compound press may be used to raise the gun to firing position, while the other cylinder of the press will be filled from the low-pressure reservoir, by the automatic opening of one of the valves, 138, 138ª, substantially as described.

70. In an elevating gun-carriage, the combination of a hydraulic press, high and low pressure reservoirs having communication with said press, valves for controlling such communication and means for controlling said valves, consisting of the trip-rods, eccentric-shafts having pitman connections with the trip-rods, and handles for turning said shafts, as and for the purpose explained.

71. In combination with a recoil gun-carriage, a hydraulic press 242, having working connection with said carriage to rotate it, a hydraulic recoil-press and a pressure-reservoir arranged to receive and store work performed by the recoil of the gun, and having suitable communications with said press, for the purpose explained.

72. The combination with a gun and its mount, with means operated upon the discharge of the gun to store power, means whereby a portion of said power may be applied to train the gun, and means whereby a portion thereof may be applied to elevate and depress the gun.

73. In combination with a recoil gun-carriage, a hydraulic press 242, having working connections with said carriage to rotate it, a rotating cylinder 14, and a pressure-reservoir located in said cylinder, and having suitable connections with said press to operate it, as and for the purpose explained.

74. In combination with a recoil gun-carriage, a hydraulic press 242, having working connections with said carriage, to rotate it, a hydraulic recoil-press and a pressure-reservoir located on said carriage, arranged to receive and store work performed by the recoil of the gun and having suitable connections with said press 242 to operate it, as and for the purpose explained.

75. In combination with a recoil gun-carriage, a hydraulic press 242, having working connections with said carriage to rotate it, a rotating cylinder 14, and a pressure-reservoir located in said cylinder arranged to receive and store work performed by the recoil of the gun and having suitable connections with said press to operate it, as and for the purpose explained.

76. In combination with a recoil gun-carriage, having adjustable connections for controlling the angle of elevation of the gun, a hydraulic press 242, for adjusting said connections, a hydraulic recoil-press, a pressure-reservoir adapted to receive and store work performed by the recoil of the gun and having suitable connections with the said hydraulic press, and a rotating shaft 80 suitably connected to the said press and to the elevating mechanism for the purpose explained.

77. In combination with a recoil gun-carriage, suitable hand training mechanism for rotating said carriage, a hydraulic press 242, also having working connections for horizontal training of the gun, a hydraulic recoil-press and a pressure-reservoir arranged to receive and store work performed by the recoil of the gun, and having suitable connections with the training-press 242, to operate it, as explained.

78. In combination with a recoil gun-carriage, a hydraulic press 242, a hydraulic recoil-press, a high-pressure reservoir adapted to store the work of recoil, connected with said presses; said press 242 having suitable connection to rotate the carriage for horizontal training.

79. In combination with a recoil gun-carriage having suitable hand mechanism for controlling the angle of the elevation of the gun and a hydraulic press 242, also having working connections for controlling the angle of elevation of the gun, a hydraulic recoil-press, a pressure-reservoir, adapted to receive and store work performed by the recoil of the gun, and having suitable connections with said hydraulic press 242 for controlling it, and a shaft 80 suitably connected to the elevating mechanism of the gun and arranged to be driven by the said hand mechanism and by the said press, substantially as explained.

80. In combination with a gun-carriage, having adjustable connections for controlling the angle of elevation of the gun by hand, and suitable mechanism for the horizontal training of the gun, a hydraulic recoil-press and storage-reservoir, a hydraulic press 242, arranged to operate both the elevating mechanism and the horizontal training mechanism, substantially as explained.

81. In combination with a recoil gun-carriage, having adjustable connections for controlling the angle of elevation of the gun by hand, and suitable mechanism for the horizontal training of the gun, a hydraulic recoil-press, a hydraulic press 242, arranged to operate both the elevating mechanism and the horizontal training mechanism and a pressure-reservoir suitably connected to said presses and adapted to receive and store work performed by the recoil of the gun, substantially as explained.

82. In combination with a recoil gun-carriage, a hydraulic recoil-press, a hydraulic press 242, a pressure-reservoir arranged to store work performed by the gun in recoiling, and having suitable communications with said press 242 to operate it, a shaft 408, having working connection with said press 242, by which it is operated, and means in connection with said shaft for performing work, such as loading the gun as explained.

83. In combination with a recoil gun-carriage, a pressure-reservoir arranged to receive and store work performed by the gun in recoiling, a hydraulic press 242, with which said reservoir communicates to operate it, a turning-shaft 408, driven by said press, a winding-drum on said shaft, and a working cable 410 411, driven by said drum, and available for performing work, as explained.

84. In a gun-carriage, the combination of the valve-block 107, the press 242, the block 266 secured to the said valve-block and press, with passages therein arranged to conduct liquid to and from the press, substantially as explained.

85. In a gun-carriage, the combination of the double-acting press 242, connected to a suitable source of power, having positive connection with the carriage-rotating mechanism and arranged to move the carriage in one direction only when the piston moves forward, and in the opposite direction when the piston moves backward, as explained; said hydraulic press having a suitable cylinder and a long-stroke piston connected to the rotating gear, whereby a single stroke, in either direction, gives sufficient momentum to the carriage to cause it to rotate by inertia to the position desired, and thereafter, by slight and steady continuous flow of the liquid into the press, forces the gun slowly and steadily to follow a moving object.

86. In a recoil gun-carriage having a hydraulic recoil-press, the combination of a power-reservoir adapted to receive and store work performed by the recoil of the gun, a double-acting hydraulic press 242, having suitable connections with said reservoir and positive connection between the press 242 and the horizontal training mechanism, whereby the latter is moved in both directions, as explained.

87. In a recoil gun-carriage having a hydraulic recoil-press, the combination of a reservoir adapted to receive and store work performed by the recoil of the gun, a double-acting press 242, having suitable connections with said reservoir to be operated in both directions thereby, and positive connections between the press 242 and the horizontal training mechanism, whereby the latter is moved in both directions, as explained.

88. In a recoil gun-carriage, having a recoil-press, the combination of a reservoir located on said carriage, adapted to receive and store work performed by the recoil of the gun, a double-acting hydraulic press 242, also located on said carriage having suitable connections with said reservoir, and positive connection between the press 242 and the horizontal training mechanism, whereby the latter is moved in both directions, as explained.

89. In a gun-carriage, the combination of a double-acting press 242, two pairs of passages communicating with opposite sides of the piston, and the pair of high-pressure valves 250ª, 250ᵇ, and the pair of low-pressure valves 251ª, 251ᵇ, with their operating-stems, 252, 253, as and for the purpose explained.

90. In a gun-carriage, the combination of the double-acting press, and its valves for controlling the flow of liquid to and from the opposite sides of the piston, the valve-stems, 252, 253, and the reversible driving-shaft 320, having the cranks 326, 327, with which the stems 252, 253, are connected, and means for controlling the same, substantially as and for the purpose explained.

91. In a recoil gun-carriage, the combination of a pressure-reservoir arranged to receive and store work performed by the gun in recoiling, the press 242, having a communicating passage from the reservoir, a valve 238 having a stem 238ª in said passage to regulate the flow of liquid in the same, a shaft 283 having an eccentric 282, and the pitman 287 connected with the stem 238ª, and with the eccentric 282, as and for the purpose explained.

92. In a rotating gun-carriage, the press 242, having the piston-rod 244, a rack 317, pinion 358, a driving-shaft 366, having a clutch connection to which pinion 358 is geared, and the traversing wheel 376, operating as and for the purpose explained.

93. In a rotating gun-carriage, the combination of the traversing wheel, 376, its driving-shaft 366, and the friction-clutch for making connection between said shaft and a suitable source of power and consisting of the geared sleeve 365, the longitudinally-movable co-operating disk 369 for driving the shaft 366, the bar 370, for moving the disk and the operating-screw 371, within the shaft 366 for forcing the disk 369 against the sleeve 365, as and for the purpose explained.

94. In combination with the traversing wheel, 376, of a stationary rotating gun-carriage, the rotating shaft 366, on which said wheel is fixed against turning, the friction-brake consisting of a non-rotating member 383, the bearing-disk 382 rotating with the shaft 366, and having means for forcing it against the member 383, for checking the movement of the carriage, as explained.

95. In combination with the traversing wheel 376, of a rotating gun-carriage, the rotating shaft 366, upon which it is mounted, and suitable driving mechanism to rotate the shaft; the two interposed clutches arranged respectively for driving and braking the movement of the shaft and the traverse-wheel and the single forcing-rod 371 arranged to operate the respective clutches, as explained

96. In combination with the traverse-wheel 376 of a rotating gun-carriage, and the rotating shaft 366 upon which it is mounted and suitable driving mechanism to rotate the shaft; a clutch for controlling the movement of said shaft and traverse-wheel, and the forcing-rod 371 with right and left hand threads operating the fixed nut 374 and the movable clutch-operating block 370, as and for the purpose explained.

97. In a rotating gun-carriage, the combination with the traversing wheel, 376 and its shaft 366, of the adjustable load-bearing beam 390, in which the shaft is mounted and elastically connected to the carriage, as and for the purpose explained.

98. The combination with the traversing wheel 376, of a rotating gun-carriage, and the shaft 366 on which it is mounted; of the load-bearing beam 390 constructed to have elastic action, having a bearing for said shaft and suitably connected with the carriage, for the purposes explained.

99. In a gun-carriage, the combination with the traversing wheel 376 and the shaft 366 upon which it is mounted, of the load-bearing beam 390, adjustably secured to the carriage by the elastic rods 399 on opposite sides of shaft 366, as and for the purposes explained.

100. In a rotating gun-carriage, the combination of the traverse-wheel 376, the shaft 366 upon which said wheel is mounted, and having a bearing in a beam 390 arranged to rock or tip easily for the purpose of keeping the bearing normal to the shaft, as the latter bends under the load imposed to secure traction of the traverse-wheel, as explained.

101. In combination with a rotating gun-carriage having means for rotating it, the traversing wheel 376, a shaft 366 through which traversing movement is transmitted from the wheel to the carriage, having at its inner end a ball-and-socket bearing between said shaft and carriage for the purpose of reducing the friction due to the longitudinal thrust in the shaft and the bending of the shaft by the load put on the traversing wheel, as explained.

102. In a gun-carriage, the combination of the elevating-links 78, pinions 79 and their racks for operating the links, suitable gearing to drive the pinions, and the friction locking device, consisting of the shaft 337, the driving-pinions 336, keyed on said shaft, the threaded shaft 348, with the jam-heads 346, 347, arranged to force the pinions 336 against the ends of the shaft 80, and lock them by friction, as explained.

103. In a gun-carriage, the combination of the driving-shaft 80, pinions 79, on said shaft, shaft 337, having pinions 336 keyed thereon and suitably geared to drive shaft 80, and the locking device consisting of the interposed locking-pieces 342, 343 fixed against rotation, jam-heads 346, 347 and shaft 348 connecting said heads, and by means of which locking-pieces 342, 343 doubly lock the pinions 336, by friction, as explained.

104. In a gun-carriage, the combination with the pinions 336 and their driving-shaft 337, of the frictional locking device, consisting of the concentric shaft 348, spline 349, securing the shaft 348 against rotation in the shaft 337 and the locking-nuts 346, 347, by means of which the pinions are locked when either of said nuts is tightened, as explained.

105. In a gun-carriage, the combination of suitable hand mechanism having a rotating shaft 334 for controlling the angle of elevation of the gun, a friction-clutch mounted on said shaft, a hydraulic press 242, suitably geared with one member of said clutch to drive the shaft 334, as explained.

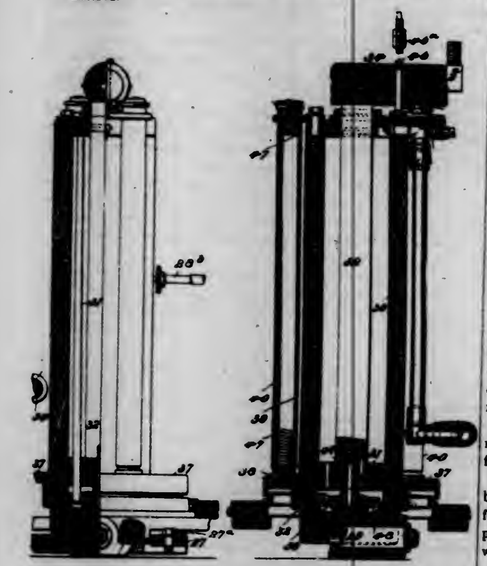
106. In a gun-carriage, the combination of the hydraulic press 242, the hand mechanism for controlling the angle of elevation of the gun having a shaft 334, and a friction-clutch consisting of the sleeve 413 mounted loosely on shaft 334, and suitably geared to be driven by said press, the disk 416 keyed to shaft 334, by a key-block 414 and screw 418 which forces parts 413 and 416 together through the medium of said key-block, as explained.

107. In an elevating gun-carriage, the combination of the rotating supporting-cylinder 14, a link system for elevating the gun, and a carriage-body 64, upon which the link system is mounted and which is firmly secured to the cylinder 14, for the purpose set forth.

108. In an elevating gun-carriage, the combination of a cylin-

der 14, containing springs and having a movable piston against which the springs act to lift the gun and which is provided with passages 124°, through which liquid is forced during the lowering of the gun, and suitable stop-rods 224 to regulate the size of the said passages, as and for the purpose set forth.

786,964. RECOIL GUN-CARRIAGE. ALBERT H. EMERY, Stamford, Conn. Filed June 23, 1900. Renewed Feb. 17, 1905. Serial No. 246,071.



Claim.—1. In a recoil gun-carriage, in combination with suitable elevating mechanism and the usual recoil-buffers which act to retard the recoil of the gun throughout the whole of its downward motion, a supplemental hydraulic buffer, independent of the elevating mechanism and the usual recoil-buffers, said supplemental buffer having means whereby it offers a high resistance to a quick movement and a comparatively small resistance to a slow movement, and arranged to check the recoil of the gun during a considerable portion of its downward movement and before it reaches its loading position, but not to check the recoil at all until the gun has passed through a large portion of its recoil-path.

2. In a recoil gun-carriage, in combination with suitable elevating mechanism and the usual recoil-buffers which act to retard the recoil of the gun throughout the whole of its downward motion, and the usual stop buffer or buffers which return the gun to loading position when in recoiling it has passed beyond that place, a supplemental hydraulic buffer, independent of the elevating mechanism and the usual recoil-buffers, having means whereby it offers a high resistance to a quick movement and a comparatively small resistance to a slow movement, and arranged to check the recoil of the gun during a considerable portion of its downward movement and before it reaches its loading position, but not to check the recoil at all until the gun has passed through a large portion of its recoil-path.

3. In a recoil gun-carriage, the combination with suitable elevating mechanism to raise the gun and the usual recoil-buffers which act to retard the recoil of the gun throughout the whole of its recoil motion, a supplemental hydraulic buffer independent of the elevating mechanism and usual recoil-buffer, said supplemental buffer having means whereby it offers a high resistance to a quick movement and a comparatively small resistance to a slow movement, and arranged to check the recoil but slightly when the gun recoils with the usual velocity but with very great resistance when the gun in recoiling reaches this buffer with unusual high velocity for that part of its path, said buffer being arranged to operate through a very material part of the gun's path and under the condition of such unusually high velocity to aid greatly to bring the gun to rest before it reaches the loading position.

4. In a recoil gun-carriage, in combination with suitable elevating mechanism, a recoil-resisting press which resists the recoil of the gun throughout the whole of its downward movement, and the usual stop buffer or buffers which return the gun to loading position when in recoiling it has passed beyond that place, an independent hydraulic buffer having means whereby it offers a high resistance to a quick movement and a comparatively small resistance to a slow movement, and arranged to check the recoil but slightly when the gun recoils with the usual velocity but with very great resistance when the gun in recoiling reaches this buffer with unusually high velocity for that part of its path, said buffer being arranged to operate through a very material part of the gun's path and under the condition of such unusually high velocity to aid very greatly to bring the gun to rest or nearly so before it reaches the loading position.

5. In a recoil gun-carriage, in combination with suitable elevating mechanism to raise the gun and the usual recoil-buffers which act to retard the recoil of the gun throughout the whole of its recoil motion, a supplemental hydraulic buffer having means whereby it offers a high resistance to a quick movement and a comparatively small resistance to a slow movement, and arranged to have its resistance increased very suddenly and very greatly if the speed of recoil exceeds a desired amount, such increase of resistance being greatly in excess of that due to the proportional speed, and due to a sudden great reduction of the passage or passages through which the liquid flows, the reduction or closing of the passages being caused by the excessive speed of recoil.

6. In a hydraulic brake apparatus for ordnance, comprising a cylinder and piston, openings in the piston, a valve carried by the piston controlling said openings and a spring between the piston and valve acting in opposition to the flow of fluid through the piston, whereby during excessive flow, the fluid will carry the valve toward closing position and during insufficient flow the spring will tend to move the valve toward open position.

7. In an elevating gun-carriage, a hydraulic buffer with a plurality of springs arranged around the buffer-cylinder to open the buffer, with telescoping cases around the springs.

8. In an elevating gun-carriage, the combination of a hydraulic buffer, a plurality of springs symmetrically arranged around the buffer-cylinder for opening the buffer, and telescoping spring-cases, the parts of which are connected respectively with the press-piston and with a support against which they rest.

9. In an elevating gun-carriage, a hydraulic recoil-buffer having a cylinder 30 oscillating on a bearing 29, in combination with a stop and a spring forcing the cylinder against the stop to bring the arresting portion of the buffer in proper position to arrest the movement of the gun when the recoil takes place.

10. In an elevating gun-carriage, a hydraulic recoil-buffer supported on the carriage so closely to the bed over which the carriage is traversed, that when operating as a buffer under action of recoil, the buffer rests directly upon said bed.

11. In an elevating gun-carriage, a hydraulic recoil-buffer supported on the carriage by spring-bars 27, so closely to the bed over which the carriage is traversed, that when operating as a buffer under action of recoil, the buffer rests directly upon said bed.

12. In an elevating gun-carriage, a hydraulic buffer constructed with a piston, a buffer-valve, and a spring between said piston and valve, which causes the valve to remain open and allows the liquid to pass through the piston when it is started slowly, but allows it to close when the piston is started quickly.

13. In an elevating gun-carriage, a hydraulic buffer having a throttling by-pass through which the liquid can always pass when the piston is moved either way, a piston 31, valve 48, and a spring between said piston and valve, which causes the valve to remain open and allows the liquid to pass through the piston when it is started slowly, but allows it to close when the piston is started quickly.

14. In an elevating gun-carriage, a hydraulic buffer, having a throttling by-pass through which the liquid can always flow when the piston moves either way, a piston, a valve, and a spring interposed between the valve and piston, to hold the valve open, the inertia of the valve and the resistance of the spring being so adjusted that the valve starts to close by its inertia when the piston is moved quickly toward it, but remains open when the movement of the piston is slow.

15. In a recoil gun-carriage, the combination with suitable elevating mechanism to raise the gun, a hydraulic buffer independent of the elevating mechanism acting against the gun-saddle, and a pressure-reservoir forcing liquid into said buffer to fill it and cause its piston to move to its upper limit, to be in position to be struck by its seat in the saddle during recoil, and retard the saddle's downward movement.

16. In a recoil gun-carriage, the combination with suitable elevating mechanism to raise the gun, a hydraulic buffer independent of the elevating mechanism, a pressure-reservoir communicating with the buffer, said buffer bringing the gun nearly to rest before it reaches the loading position, and adjustable spring-buffers to aid in rapidly arresting further downward movement after the gun reaches the loading position, and to return it exactly to the loading position.

17. In an elevating gun-carriage, the combination with a recoil-press, a pressure-reservoir comprising a cylinder 45, cylinder-head 44, movable piston 55, spring-abutment 64, guide-rods 62 extending through the abutment, and springs surrounding said guide-rods to force the piston against the liquid contained between it and the cylinder-head 44.

18. In an elevating gun-carriage, the combination with a recoil-press, a pressure-reservoir comprising a cylinder 45, cylinder-head 44, movable piston 55, spring-abutment 64, guide-rods 62 secured to the said piston 55 and extending through the abutment, guiding-stem 57 secured to the piston to prevent its tipping, and springs surrounding said guide-rods to force the piston against the liquid contained between it and the cylinder-head 44.

19. In an elevating gun-carriage, a pressure-reservoir consisting of a cylinder 45, fixed cylinder-heads 44 and 60, movable piston 55, spring-abutment 64 with its supporting and fixing stem 65, springs interposed between the moving piston 55 and the abutment 64, and the guiding-stem 57 rigidly secured to the piston 55 and passing through the fixed abutment 64.

20. In an elevating gun-carriage, a pressure-reservoir consisting of a cylinder 45, fixed cylinder-heads 44 and 60, movable piston 55, spring-abutment 64, guide-rods 62 secured to the moving piston, extending through the spring-abutment and abutting the fixed cylinder-head 60 to limit the motion of the piston 55, and springs interposed between the moving piston 55 and the abutment 64.

21. In combination with a gun-carriage body 9, elevating-link 6 and suitable hydraulic elevating mechanism; the locking device consisting of the interlocking catch 67 and latch 69, and shaft 53 upon which said latch 69 is mounted, bar 70 connected to the part 69, and an operating-crank 72 having connections through which it reciprocates said bar 70 to open and close the locking device.

22. In an elevating gun-carriage, in combination with links 5 and 6, initially-loaded stop-buffers interposed between said links and adjusted to aid in holding the gun at the exact position required for loading.

23. In an elevating gun-carriage, in combination with the links 5 and 6, the initially-loaded stop-buffers 74 interposed between said links having caps 75 and loading-screws 76 adjusted to aid in holding the gun at the exact position required for loading.

24. In an elevating gun-carriage, in combination with the carriage-body 9, a pair of elevating-links 5, 6, a plurality of sets of initially-loaded stop-buffers arranged one set between the carriage-body 9 and the lower link 6, and one or more sets between the links 5 and 6, said buffers being adjusted in length to hold the gun at proper height for loading.

25. In an elevating gun-carriage, in combination with a carriage-body 9, a pair of elevating-links 5 and 6, a saddle 2, a plurality of sets of initially-loaded stop-buffers arranged one set between the carriage-body 9 and the lower link 6, and one or more sets between the links 5 and 6, said buffers being adjusted in length to hold the gun at proper height for loading, and the sets of buffers being so distributed as to cause each set to properly aid in holding the gun in loading position.

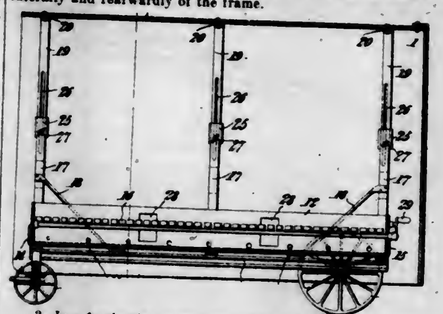
26. In an elevating gun-carriage, in combination with the elevating-rods 14, the elevating guide-sweeps 16, sliding shoes 15 which carry the lower ends of the elevating-rods, the band 12, 13, by which these rods are attached to the gun, and the gun-balance on which the gun partly rests while in loading position.

27. In an elevating gun-carriage, a gun-balance constructed with a stem 81 pressed by a spring against the gun or elevating-band when in loading position to reduce the friction on the sliding shoes at the lower ends of the elevating-rods.

786,965. FUMIGATOR AND INSECT-DESTROYER. JAMES A. FRAZAR, Henrietta, Tex. Filed May 31, 1904. Serial No. 210,556.

Claim.—1. In a fumigating apparatus, a wheeled frame, a combustion-chamber carried thereby, spaced vertical standards carried by the frame, a downwardly-curving deflector or hood carried by said standards, and a vertical guard-plate depending from the rear end of the deflector.

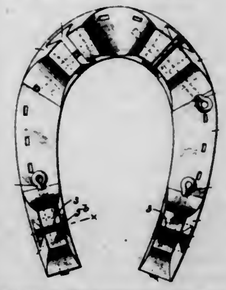
2. In a fumigating apparatus, a wheeled frame, sectional standards carried thereby, an open-top combustion-chamber on the frame, and a deflector or hood carried by the sectional standards and vertically adjustable with respect to the frame, said hood extending both laterally and rearwardly of the frame.



3. In a fumigating apparatus, a wheeled frame, a combustion-chamber carried thereby, and a hood or deflector carried by the frame, said hood or deflector being open at the front to permit the passage of the apparatus along or between rows of plants, the rear end of the hood or deflector having a depending shield of a width approximately equal to the width of the frame.

4. In a fumigating apparatus, a wheeled frame, an open-top combustion-chamber arranged therein and provided with a gate, sectional standards secured at intervals to the frame, a transversely-curved hood or deflector carried by the standards, and a depending shield carried by the rear end of the hood or deflector and serving as a closure for that portion of the hood between two adjacent rows of plants.

786,966. HORSESHOE. EDWARD A. HENNESSY, ADELBERT H. ANDREWS, and CHARLES E. ROSS, Columbus, Ohio; said Ross assignor, by mesne assignments, to C. H. Pumphrey and J. F. Pixley, Columbus, Ohio. Filed Dec. 4, 1903. Serial No. 183,780.



Claim.—In a horseshoe, the combination with a horseshoe-body having converging heel and toe lugs projecting from its under side and formed integral therewith, the toe-lugs being disposed on opposite sides of the center of the shoe, said lugs formed with flaring transverse recesses having key-receiving openings extending lengthwise of the lugs and intersecting said recesses, of calks having flaring base portions provided with key-engaging recesses and adapted to enter the correspondingly-shaped lug-recesses, and detachable keys adapted to be inserted through said lug-openings and engage the recesses of said calks, the calks projecting from opposite sides of the face of the lugs.

786,967. FOUNTAIN-PEN. SAMUEL H. HODGES, South Glens Falls, N. Y. Filed Nov. 17, 1904. Serial No. 233,200.

Claim.—1. A fountain-pen comprising an ink-barrel, a sack held within the barrel, and a neck connected with the sack and flexible to permit compressing to distend the bulb.

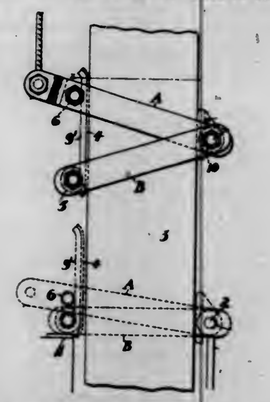
2. A fountain-pen comprising an ink-barrel, a sack within the barrel, a neck connected with the sack and arranged to be compressed to distend the sack, and means for holding the combined sack and neck against longitudinal movement in the barrel.

3. A fountain-pen comprising an ink-barrel, a connector se-

cured thereto, a shield removably joined to the connector, a sack within the ink-barrel and a neck projecting from the sack and housed within the shield, said neck being flexible to permit compressing to distend the sack, and means to prevent longitudinal movement of the neck and sack.



786,968. SPUD-GRIP FOR DREDGERS, &c. JAMES W. HOLLENBECK. Riovista, Cal. Filed Dec. 6, 1904. Serial No. 235,688.



Claim.—1. A toggle-grip for spuds and the like, one of the members of said toggle having means opposite its jointed end for the attachment of a cable or other means of support.

2. A toggle-grip comprising two hinged yokes.

3. A toggle-grip comprising two yokes hinged together at one side and adapted to be freely slidable on a spud or the like.

4. A grip comprising two substantially rectangular frames hinged together at one side and having a limited pivotal movement relative to each other when slipped over a spud.

5. A grip comprising two yokes hinged together at one side, bearing-plates carried by the yokes and interposable between the same and the article to be gripped.

6. A grip comprising two yoke members pivotally connected at one side, a bearing-plate carried by one member and extending upward within the other member, said members having a limited movement relative to each other when embracing the object to be gripped.

7. A grip comprising two yoke members pivotally connected at one side, a bearing-plate connected to one of the members opposite to the pivoted side, said bearing-plate extending upward within the other member but disconnected therewith, and a part carried by said other member and adapted to engage said bearing-plate when the members are operatively engaged with the object to be gripped.

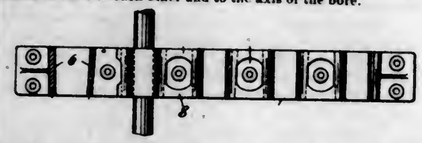
8. A grip comprising a toggle having two yoke members hinged together at one side, one of said members having a limited reciprocating movement independent of the other and bearing parts carried by the members and interposable between the latter and the object to be gripped.

9. A gripping device comprising two hinged yokes provided with bearing-plates interposable between the yokes and the part to be gripped, and means carried by one of said yokes for the attachment of a block and tackle or other suspensory means.

10. A grip comprising two hinged yokes, a shoe carried by the hinge, a bearing-plate opposed to said shoe and supported by one of the members and interposable within the other member when the two are engaged with an object to be gripped.

786,969. STAMP-STEM GUIDE. FRANK V. HOOPER, Grass Valley, Cal. Filed Sept. 26, 1904. Serial No. 226,913.

Claim.—1. A stamp-stem guide comprising a casting having means of attachment with the battery-frame and provided with a socket substantially rectangular in cross-section, the back and front walls of the socket being substantially straight and the side walls converging downwardly, said socket having a passage through the front wall for the lateral admission or removal of a stamp-stem, and a sectional guide block or box fitting said socket, the sections of said guide-block formed with their opposed abutting edges oppositely inclined relative to each other and to the axis of the bore.



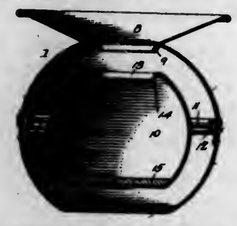
2. A stamp-stem guide comprising a casting having a tapered socket and an opening in one side of the socket for the admission laterally of a stamp-stem, and a sectional guide-block seating in said socket, the sections of said block having their opposed abutting edges oppositely inclined relative to each other.

3. A stamp-stem guide comprising a casting having a tapered socket and an opening in one side of the socket for the admission laterally of a stamp-stem, and a sectional guide-block seating in said socket, the sections of said block having their abutting edges inclined relative to the axis of the bore.

4. The combination with a casting having a socket and a sectional guide-block removably seated in the socket, the sections of the block having their abutting edges oppositely inclined relative to the axis of the bore.

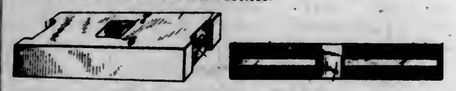
5. A stamp-stem guide comprising a plate having a plurality of transverse projections on one side, alternate pairs of said projections having inturned vertical flanges with the walls between said flanges and the back of the plate tapered downwardly and inwardly, and sectional tapered guide-blocks fitting in the spaces between said tapered walls and flanges, said blocks having their sections provided with abutting edges which are oppositely inclined relative to the axis of the bore.

786,970. CUSPIDOR. JACOB JOHNSON, Colorado Springs, Colo. Filed Apr. 23, 1903. Serial No. 154,019.



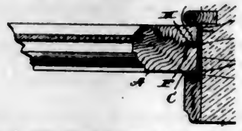
Claim.—In a cuspidor of the class described and comprising two detachably-connected members and a receptacle suspended within the casing thus formed, supporting means for said receptacle including a pair of brackets secured to diametrically opposite sides of the bottom member near the upper edge of the same, one of said brackets having a perforation and the other bracket being provided with a concave bearing and with a pivoted latch having a concave inner edge, said bracket and latch being provided at their free ends with means whereby they are separably connected, and gimbals detachably supported in said bearings and supporting the said inner receptacle.

786,971. BUILDING-BLOCK. JOHN H. JONES, Fostoria, Ohio. Filed Dec. 8, 1904. Serial No. 236,031.



Claim.—A building-block of substantially rectangular cross-section, a longitudinally-disposed rectangular air-passage extending through the center of said block, and a vertically-disposed rectangular passage extending entirely through the block and intersecting said longitudinally-disposed passage, the walls of said passages being of substantially uniform thickness to insure equal expansion and contraction of the block, substantially as described.

786,972. WEATHER-STRIP. HUGH E. KENNY, Detroit, Mich., assignor to The Chamberlin Metal Weather Strip Company, Detroit, Mich. Filed Oct. 11, 1904. Serial No. 228,028.

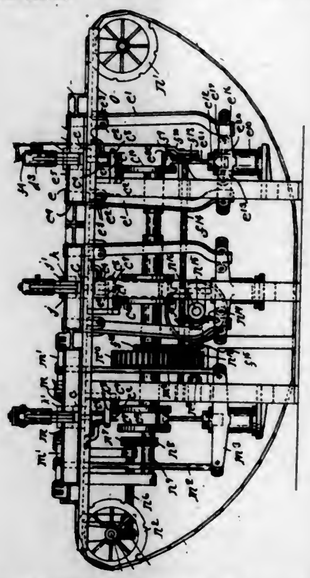


Claim.—1. In combination with a grooved sash or the like and its frame, a weather-strip having a securing-flange and a rib or flange slidably engaging the groove in the sash, and an enlargement on the rib or flange for closing the side opening of said groove.

2. A weather-strip provided with a securing-flange and a narrow sealing rib or flange, and an enlargement on the rib or flange for closing the side opening of a sash-groove.

3. In combination with a sash member and its frame member one of which has a groove, a weather-strip having a securing-flange and a rib or flange slidably engaging said grooved member and fastened to the other member, and an enlargement on the rib or flange for closing the side opening of the groove.

786,973. MACHINE FOR END-SEAMING SHEET-METAL BODIES. MICHAEL J. KENNY, East Walpole, Mass. Filed Apr. 18, 1904. Serial No. 203,570.



Claim.—1. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, means for moving it, a center head, a set of main jaws, and a set of auxiliary jaws above said main jaws, springs connected at one end with the main jaws and the opposite end with the auxiliary jaws for projecting said auxiliary jaws beyond the main jaws, and means for moving said main and auxiliary jaws toward and from the center head, substantially as described.

2. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, means for moving it, a center head, a set of main jaws, means for moving them toward and from the center head, and a set of yielding auxiliary jaws located above said main jaws, substantially as described

3. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, means for moving it, a center head, a set of main jaws, means for moving them toward and from the center head, and a set of yielding auxiliary jaws borne by said main jaws, substantially as described.

4. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, means for moving it, a center head, a set of main jaws, a set of auxiliary jaws, means for moving said main and auxiliary jaws toward and from the center head, a set of expanding dies borne by the center head, and means for moving said dies toward and from the jaws, substantially as described.

5. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, means for moving it, a center head, a set of main jaws, a set of yielding auxiliary jaws located above said main jaws, means for moving said jaws toward and from the center head, a set of expanding dies borne by the center head which occupy a plane above the main jaws, and means for moving said dies, substantially as described.

6. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen and means for moving it, a center head, a set of main jaws, a set of yielding auxiliary jaws borne by said main jaws, means for moving said main jaws toward and from the center head, a set of expanding dies borne by the center head which occupy a plane above the main jaws, and means for moving said dies outward against the auxiliary jaws while the main jaws remain in their abnormal position, substantially as described.

7. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, means for moving it, a center head, a set of expanding dies borne by said head having snail-grooves, a snail-plate for actuating said dies, and means for oscillating said snail-plate, substantially as described.

8. In a machine for end-seaming sheet-metal bodies, a heading device comprising a platen, a center head having a yielding center plate and a forming-die, means for operating said die, and a set of jaws movable toward and from said center head, each jaw having an upwardly-extended rib at its engaging edge, and means for raising the article while held between the platen and center plate sufficiently to free the jaws, substantially as described.

9. In a machine for end-seaming sheet-metal bodies, the combination with means for holding the body and unattached head thereon, of a set of horizontally-sliding jaws, pivoted actuating-levers connected therewith having curved engaging portions at their lower ends, a sliding actuating device which engages the curved engaging portions of said levers and moves said levers on their pivots and means for moving said actuating device, substantially as described.

10. In a machine for end-seaming sheet-metal bodies, the combination with means for holding the body and unattached head thereon, of a set of horizontally-sliding jaws, pivoted actuating-levers connected therewith having curved engaging portions at their lower ends, a sliding support bearing several radial arms having bifurcated ends bearing transverse pins, which engage the curved engaging portions of said levers and move said levers on their pivots, and means for moving said support, substantially as described.

11. In a machine for end-seaming sheet-metal bodies, the combination with means for holding the body and head thereon, of a set of horizontally-sliding jaws, toggle-levers connected therewith, rods connected to said toggle-levers, and a sliding actuating device to which said rods are connected and means for sliding said actuating device, substantially as described.

12. In a machine for end-seaming sheet-metal bodies, the combination with means for holding the body and head thereon, of a set of horizontally-sliding jaws, toggle-levers connected therewith, rods connected to said toggle-levers, a sliding support bearing several radial arms to which said rods are connected and means for moving said support, substantially as described.

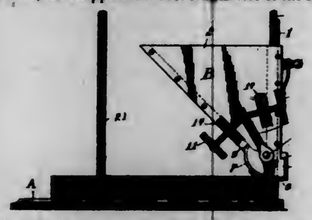
786,974. PROTECTING AND VENTILATING COVER FOR VESSELS. FLORENTINE KREGCZY, Lodz, Russia. Filed June 20, 1904. Serial No. 213,437.



Claim.—A protecting and ventilating cover for vessels comprising in combination a vertical open cylinder with an outwardly-extending flange at the base thereof, a larger cylinder having its axis concentric with the former and closed above by a flat disk, an annular finely-perforated portion extending across the space intermediate of the cylinders from the upper edge of the inner cylinder to the lower edge of the outer cylinder and an outwardly-projecting downwardly-curved flange about the outer cylinder at a distance above the lower edge thereof.

786,975. PASTING-BOX. HERBERT G. LA SOR, Washington, D. C. Filed Feb. 27, 1904. Serial No. 195,666.

Claim.—1. The combination with a suitable base having vertical guides, a paste-receptacle slidably mounted thereon, the paste-receptacle provided with a permanent slotted opening, of means for regulating the length of the slot, an oscillatory curved device for regulating the width of the slot, the means for regulating the length of the slot comprising dovetailed guides located on the paste-receptacle, and strippers carried by the guides, the strippers provided with grooves engaging the guides, the rear ends of the strippers formed concentric with and frictionally engaging the curved oscillatory device, the strippers movable lengthwise of the slot.



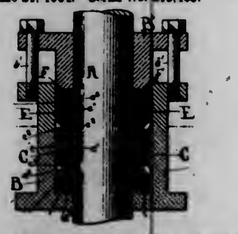
2. The combination with a suitable base, having vertical guides, a paste-receptacle slidably mounted on the guides and provided with a permanent slotted opening, of an oscillatory member for regulating the width of the opening, the member comprising a concavo-convex gate journaled within the paste-receptacle, the lower edge of the gate located in horizontal alinement with one edge of the slotted opening, an arm rigidly secured to one of the journals, lugs mounted on the receptacle and set-screws carried by the lugs and adapted to engage the arm from opposite directions.

3. In a pasting-box, the combination with a suitable base for receiving the sheets of material, of a plurality of piling-bars extending above the base, a paste-holding receptacle slidably mounted on the bars, and provided with a discharge-outlet, the receptacle normally resting and supported upon the uppermost sheet, the bars provided with notches or recesses, and means carried by the paste-holding receptacle adapted to be removably received in the notches or recesses, to retain the receptacle in elevated position above the sheets.

4. In a pasting-box, the combination with a base for receiving the sheets of material to be pasted, of a suitably-mounted paste-holding receptacle normally freely slidable toward and from the base, the receptacle provided with a paste-discharging outlet, means for closing this outlet, and releasable means for retaining the receptacle in elevated position above the sheets.

5. In a pasting-box, the combination with a base upon which are piled sheets of material to be pasted, of a bar carried by the base and provided with a notch, a paste-holding receptacle slidably mounted on the bar, and provided with a discharge-outlet, means for closing the outlet and a spring-actuated pin carried by the receptacle and adapted to engage the notch to retain the receptacle in elevated position above the piled sheets.

786,976. METALLIC PACKING. William H. Law, New York, N. Y. Filed June 21, 1904. Serial No. 213,463.



Claim.—1. A packing for stuffing-boxes comprising split rings or sections fitting one with the other, the said rings having adjacent, oppositely-disposed, wedge-faces so adapted that when the rings or sections are forced toward each other one of the rings will be forced inward against the rod passing through the stuffing-box, and others of the rings forced out against the wall of the stuffing-box, and the said rings being in contact with each other at their inner circumferences, but separated from each other at their outer circumferences, to form outer, annular lubricant-passages, substantially as described.

2. A packing for stuffing-boxes comprising a central ring having a bearing-face for contact with the piston-rod, and end rings having bearing-faces for contact with the stuffing-box wall, the said central ring having upper and lower wedge-faces inclined convergently toward each other from the bearing-faces thereof in a direction toward the stuffing-box wall, and the said end rings having edges fitting thereto so adapted that when the rings are forced toward each other the central ring will be forced toward the said rod and the outer rings outward toward the wall of the box, substantially as described.

3. A packing for stuffing-boxes comprising a central ring having a bearing-face for contact with the rod passing therethrough, and end rings having bearing-faces for contact with the stuffing-box wall, the adjacent edges of said rings having reverse wedge-faces, the upper and lower wedge-faces of the central ring being inclined convergently toward each other from the bearing-faces thereof, in the direction of the stuffing-box wall, substantially as described.

4. A packing for stuffing-boxes comprising a middle ring or section having two sides and two edges each of the edges having two oppositely-inclined wedge-faces converging toward each other from the bearing-face of the ring, in the direction of the stuffing-box wall; and two end sections or rings having each two sides and an edge having oppositely-inclined faces disposed for engagement with the inclined faces of the edges of the middle ring; the apices of the inclined edge faces of the end rings being out of alinement with the apices of the inclined edge faces of the middle section, substantially as described.

5. A packing for stuffing-boxes comprising a middle ring or section having two sides and two edges each of the edges having a V-shaped channel therein whose side toward the interior circumference of the ring is longer than the other and forms a wedge-face inclined convergently toward the corresponding wedge-face on the other edge of the ring; and two end rings or sections having each two sides and two wedge-shaped edges for engaging with the channels of the middle ring; the apices of the wedge-shaped edges of the end rings being out of alinement with the apices of the V-shaped channel of the middle ring, substantially as described.

6. A packing for stuffing-boxes comprising a middle split ring or section having two sides and two edges, each of the edges having a V-shaped channel therein one of whose sides is longer than the others; and two end split rings or sections having each two sides and two wedge-shaped edges for engaging with the channels of the middle split ring; the apices of the wedge-shaped edges of the end ring being out of alinement with the apices of the V-shaped channels of the middle ring, whereby a lubricant distribution and cooling passage is formed between and on the outer circumference of each ring and from one ring to another, substantially as described.

7. In a stuffing-box, the combination with a middle split ring having wedge-faces inclined convergently toward the box, and two end split rings having wedge-faces oppositely inclined to the adjacent edge faces of the middle ring and whose apices are out of alinement with the apices of the wedge-faces of the said middle ring; of a fibrous packing-ring having an outwardly-inclined edge face, one of the said end rings being separated from each other on their outer circumferences having an inclined edge face adapted to bear against the edge face of the fibrous packing and expand the same against the wall of the stuffing-box, substantially as described.

8. The combination in a stuffing-box, of a middle split ring, a lower split ring adapted to wedge the middle ring inward away from the wall of the stuffing-box and to be thereby wedged out against said wall; an upper split ring adapted to wedge the middle ring inward and to be itself thereby wedged outward against the said wall; said split rings being separated from each other on their outer circumferences, and each thereby having communication with its adjacent ring; and a fibrous packing-ring above the said upper end ring, adapted to be expanded outwardly and inwardly by forcing it down upon the said upper ring, substantially as described.

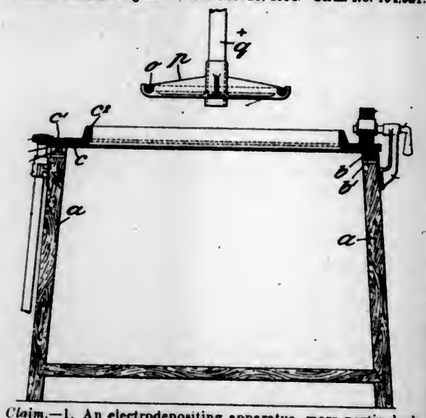
786,977. PICTURE-HOOK. Benie Lehman, Dayton, Ohio. Filed Dec. 9, 1904. Serial No. 236,203.



Claim.—1. A picture hook or hanger adapted to be suspended from the upper edge of molding in the usual manner, said hook or hanger having an arm secured to the body portion thereof and projecting on both sides thereof, said arm terminating at its ends in hooks which are adapted to engage the lower horizontal edge of the molding to hold said hook or hanger in position, as shown and described.

2. A picture hook or hanger, a resilient arm passed through openings in the body of said hook or hanger and extending on each side thereof, said arm having its ends terminated in hooks which are adapted to engage the lower edge of molding to hold the hook or hanger in position, as shown and described.

786,978. DEPOSITION-TANK. Ivon E. Lewis and James A Corey, London, England. Filed Feb. 23, 1904. Serial No. 194,921.



Claim.—1. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, gear-teeth upon the said annular negative-electrode carrier, and gear for engaging said gear-teeth and for causing the rotation of said negative-electrode carrier upon the annular edge of the electrolytic vessel, substantially as described.

2. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon in a position coincident with the top annular edge of the said electrolytic vessel, means upon said top annular edge for holding the said annular negative-electrode carrier in position positively against any lateral displacement, gear-teeth upon said annular negative-electrode carrier, and gear for engaging said gear-teeth and for the rotation of the said annular negative electrode, substantially as described.

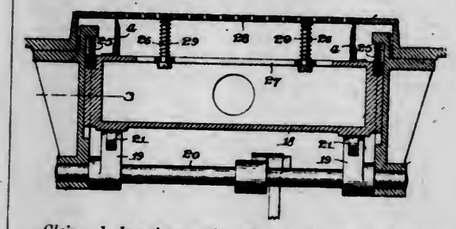
3. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, an annular groove on the under face of said annular negative-electrode carrier, rollers mounted upon the edge of the electrolytic vessel and running within said groove for positively preventing the lateral displacement of the said carrier, gear-teeth upon said carrier, and gear for engaging with said gear-teeth and rotating said annular negative-electrode carrier, substantially as described.

4. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, an annular groove on the under face of said annular negative-electrode carrier, rollers respectively disposed in a horizontal and vertical plane mounted upon the edge of the electrolytic vessel and running within said annular groove, gear-teeth upon said carrier, and gear for engaging with said gear-teeth and for rotating said annular negative-electrode carrier, substantially as described.

5. An electrodepositing apparatus, more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, said negative-electrode carrier being provided with a wedge-shaped flange for carrying the hooks by which the cases or molds are suspended and gear for rotating said annular negative-electrode carrier, substantially as described.

6. An electrodepositing apparatus more particularly applicable for printers' electrotyping, consisting of an electrolytic vessel of circular form, an annular negative-electrode carrier rotatable thereon, in a position coincident with the top annular edge of the said electrolytic vessel, said negative-electrode carrier carrying a wedge-shaped flange, hooks having their extremities inclined for engagement with the inclined face of the flange of the negative-electrode carrier, said hooks carrying cases or molds, substantially as described.

786,979. CIGAR-ROLLING TABLE AND WRAPPER-CUTTER. Isadore Liberman, Philadelphia, Pa.; Bernard Liberman and Leon Gross executors of said Isadore Liberman, deceased. Filed Feb. 25, 1901. Serial No. 48,669.



Claim.—1. In a cigar-machine, the combination of an interiorly-beveled die, a coöperating platen surrounded thereby being so proportioned as to have a slight vertical movement within the beveled or cut-away portion of the die and means for normally maintaining the platen flush with the die.

2. In a cigar-machine, the combination of an interiorly-beveled die, a coöperating platen surrounded thereby being so proportioned as to permit of slight vertical movement in the cut-out or beveled portion of the die and a table surrounding the die but permitting independent vertical movement therebetween and means for normally maintaining the platen, die and table flush.

3. In a cigar-machine, the combination of an interiorly-beveled die having a vertical outer circumference from base to cutting edge, a beveled platen surrounded by the die and a table surrounding the die and means for independent vertical movement between the table, die and platen.

4. In a cigar-machine, the combination of an interiorly-beveled die having an exterior vertical extension from base to cutting edge, a loosely-fitting beveled platen surrounded by the die, a table surrounding the die and closely fitting the same and means for causing the vertical movement between the table and the die.

5. In a cigar-machine, the combination of an interiorly-beveled die having a vertical outer periphery, a platen surrounded thereby having a coöperating bevel with sufficient play between it and the bevel of the die to permit a slight depression of the platen with respect to said die, and resilient means for normally maintaining the surface of the platen flush with the cutting edge of the die.

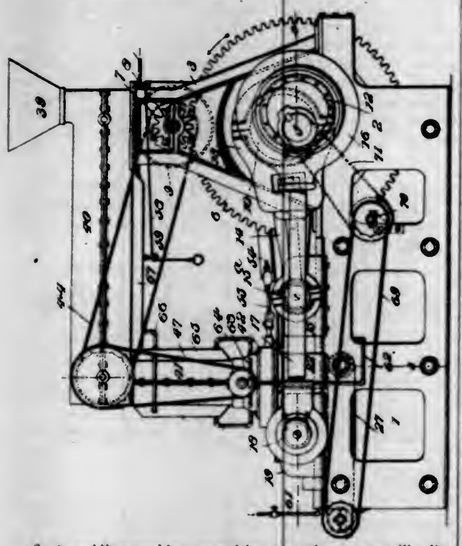
6. In cigar-machine, the combination of an interiorly-beveled die, a platen surrounded thereby so proportioned that the periphery of its upper surface shall extend in a horizontal plane beyond the inner periphery of the die so that said platen shall have a vertical movement in the die limited by the cut-away or beveled portion.

7. In a cigar-machine, the combination of an interiorly-beveled die, a beveled platen surrounded thereby so proportioned that the periphery of its upper surface shall extend in a horizontal plane beyond the inner periphery of the die so that said platen shall have a vertical movement in the die below the cutting edge thereof which shall be limited in its downward movement by the engagement of the coöperating beveled edges of said die and platen.

786,980. MOLDING-MACHINE. Edgar D. Misner, St. Louis, Mo., assignor to William C. Renfrow, trustee, Joplin, Mo. Filed May 2, 1904. Serial No. 206,006.

Claim.—1. A molding-machine comprising a stationary die-housing having a die-opening, means for supplying a predetermined amount of pulverulent material to such opening, opposite dies movable in said opening, means for actuating said dies to compress the material while it is within such opening, such means causing the dies to travel first in opposite directions or toward each other and then in the same direction until the completely-compressed material between

them is free of the die-housing whereupon the dies move in opposite directions, and means for heating such die-housing.



2. A molding-machine comprising a stationary metallic die-housing having a die-opening and a jacket or chamber, means for supplying a predetermined amount of pulverulent material to such opening, opposite dies movable in said opening, means for actuating said dies to compress the material while it is within such opening, such means causing the dies to travel first in opposite directions or toward each other and then in the same direction until the completely-compressed material between them is free of the die-housing, and means for supplying heat to said jacket or chamber.

3. A molding-machine comprising a stationary die-housing having a series of die-openings, means for supplying a predetermined amount of pulverulent material to such openings, two series of oppositely-arranged dies movable in said openings, means actuated from a common source for moving both series of dies to compress the material while it is within such openings, such means causing the dies to travel first in opposite directions or toward each other and then in the same direction until the completely-compressed material between them is free of the die-housing, and ejectors carried by the dies for removing the compressed mass therefrom.

4. A molding-machine comprising a stationary die-housing having a series of die-openings, means for supplying pulverulent material to such openings, two series of oppositely-arranged dies movable in said openings, means actuated from a common source for moving both series of dies to compress the material within such openings, such means causing the dies to travel first in opposite directions and then in the same direction until the compressed material between them is free of the die-housing, ejectors carried by the dies for removing the compressed mass therefrom, and means for axially turning the dies and the ejectors during their longitudinal movements.

5. A molding-machine comprising a stationary die-housing having a series of die-openings, means for supplying pulverulent material to such openings, two series of oppositely-arranged non-yielding dies movable in said openings, means actuated from a common source for moving both series of dies to compress the material while it is within such openings, such means causing the dies to travel first in opposite directions or toward each other and then in the same direction until the completely-compressed material between them is free of the die-housing, whereupon the dies move in opposite directions, one series traveling at a greater speed than the other, and means carried by the two series of dies for removing the compressed mass therefrom.

6. A molding-machine comprising a stationary die-housing, having a series of die-openings, means for supplying pulverulent material to such openings, two series of oppositely-arranged dies movable in said openings, means actuated from a common source for moving both series of dies to compress the material within such openings, such means causing the dies to travel first in opposite directions and then in the same direction, one series traveling at a greater speed than the other, means carried by the two series of dies for removing the compressed mass therefrom, and means for axially turning said latter means and the dies during their longitudinal movements.

7. The combination with the die-housing having die-openings therein, of the two series of oppositely-arranged dies movable in said openings, arms mounted on said dies extending outwardly therefrom, obliquely-arranged parallel guideways for said arms, and means for moving both series of dies to compress the material within such openings, said arms effecting the axial turning of said dies during the longitudinal movements thereof.

8. The combination with the die-housing having die-openings therein, of the two series of oppositely-arranged dies movable in said openings, arms mounted on said dies extending outwardly therefrom, obliquely-arranged parallel ribs with which said arms are designed to engage, longitudinally-movable ejectors mounted in said dies, means connecting said ejectors to said arms, and means for moving both series of dies, said arms effecting the axial turning of said dies and ejectors during the longitudinal movements thereof.

9. The combination with the die-housing having die-openings therein, of the two series of oppositely-arranged dies movable in said openings, arms mounted on said dies extending outwardly therefrom, and having openings therein, obliquely-arranged parallel ribs with which said arms are designed to engage, longitudinally-movable ejectors mounted in said dies, cranked arms mounted on said ejectors and extended into the openings of said arms, and means for moving both series of dies, said dies and ejectors being axially turned during the longitudinal movements thereof.

10. A molding-machine comprising a stationary die-housing having die-openings, means for supplying a predetermined amount of pulverulent material to such openings, two series of oppositely-arranged non-yielding dies movable in said openings, die-carrying bodies wherein said dies are fixedly mounted, a main actuating-shaft, means mounted thereon connected to both of said die-carrying bodies for reciprocating the latter, one of such bodies being positively moved at a slightly greater speed than the other.

11. A molding-machine comprising a stationary die-housing having die-openings, means for supplying pulverulent material to such openings, two series of oppositely-arranged dies movable in said openings, die-carrying bodies for said dies, a main actuating-shaft, two pairs of cams mounted on said shaft, the cams of each pair being made integral and one cam slightly larger than the other, the centers of the two cams being eccentric to the axis of the main actuating-shaft, means engaging said cams connected to the respective die-carrying bodies for reciprocating the latter, one of such bodies being moved at a slightly greater speed than the other.

12. A molding-machine comprising a stationary die-housing having die-openings, and intersecting vertical supply-openings, a source of supply out of vertical line with said supply-openings, a horizontally-disposed feeder movable between said source of supply and said vertical openings, means for cutting off the material from the top of the feeder, means for actuating such feeder, opposite series of dies reciprocal in said die-housing, and means for actuating the dies.

13. A molding-machine comprising a stationary die-housing having die-openings and intersecting vertical supply-openings, a source of supply out of vertical line with said supply-openings, a horizontally-disposed feeder movable between said source of supply and said vertical openings, said feeder having a series of openings or pockets, means for adjusting the size of such openings or pockets, means for actuating such feeder, opposite series of dies reciprocal in said die-housing, and means for actuating the dies.

14. The combination with the die-housing having die-openings and intersecting vertical supply-openings, and a source of supply out of vertical line with said supply-openings, of a horizontally-disposed feeder movable between said source of supply and said vertical openings, said feeder having semicircular curved portions, and longitudinally-movable plates having correspondingly-curved portions, means for binding said plates, means for actuating the feeder, opposite series of dies reciprocal in said die-housing, and means for actuating the dies.

15. In a molding-machine, a feeder comprising a plate having a series of cut-outs and semicircularly-curved portions, a series of plates fitted in said cut-outs having semicircular-curved portions for forming, conjunctively, with the curved portions of the plate openings or pockets, and a binding-rod for holding said plates within said cut-outs, as set forth.

16. In a molding-machine, the combination with the die-housing, a source of supply, and the feeder, of the shaft having a cam thereon, a pitman connected to said feeder having means for engaging said cam, and means for moving said pitman out of engagement with the cam, as set forth.

17. In a molding-machine, the combination with the die-housing, a source of supply, and a feeder, of the shaft having a cam thereon, a pitman, jointed rods connecting said pitman to said feeder, legs depending from said pitman having curved portions designed to conform to said cam, and means connected to said pitman for raising said legs out of engagement with the cam.

18. In a molding-machine, the combination with the die-housing, a source of supply, and the feeder, of the shaft having a cam thereon, a T-pitman, jointed rods connecting the laterals of said pitman to said feeder, legs depending from said pitman having curved portions designed to conform to said cam, and a suspended chain connected to one end of said pitman for raising the legs thereof out of engagement with the cam, as set forth.

19. A molding-machine comprising a horizontally-disposed feed-trough, an endless conveyer therein, a vertically-disposed chute, a feeder movable beneath said chute, a stationary die-housing having die-openings and intersecting supply-openings out of line with said chute, means for actuating said feeder, two series of oppositely-arranged dies, means for actuating the same, a steam-jacket beneath said die-housing, steam-jackets connected to said chute and to said trough, and piping connecting the several steam-jackets and for supplying steam to the die-housing, as set forth.

20. A molding-machine comprising a horizontally-disposed feed-trough, an endless conveyer therein having spaced-apart rows of teeth, the teeth of the several rows being alternately arranged, means for actuating said conveyer, a chute leading from the trough, a stationary die-housing, means for conveying the material from said chute to said die-housing, two series of oppositely-arranged dies, means for actuating the same, and means for heating said die-housing, as set forth.

21. A molding-machine comprising a horizontally-disposed feed-trough, an endless conveyer therein having spaced-apart rows of teeth, the teeth of the several rows being alternately arranged, means for actuating said conveyer, means for heating the trough, a chute leading from the latter, a stationary die-housing, means for conveying the material from said chute to said die-housing, two series of oppositely-arranged dies, means for actuating the same, and means for heating said die-housing and connected with the means for heating said trough, as set forth.

22. The combination with the stationary die-housing having a steam-jacket, and a series of die-openings, and an intersecting series of supply-openings, of a casing mounted on said die-housing, a supply-chute mounted on said casing, a feeder movable within said casing for transferring material from said chute to said supply-openings, the top of said casing acting as a cut-off for the material carried by the feeder from the chute, means for adjusting said feeder for regulating the quantity of material to be carried thereby, the die-housing, a steam jacket or jackets enveloping said chute, means for supplying steam to the jacket of the die-housing, piping connecting the latter to the jackets of the chute, two series of oppositely-arranged dies movable in said die-openings, and means for actuating said dies, as set forth.

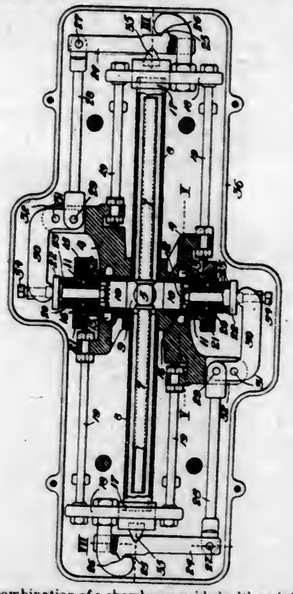
786,981. STEAM-TRAP. ROBERT G. MCAULEY, Pittsburg, Pa. Filed Mar. 31, 1904. Serial No. 200,892.

Claim.—1. In a water-trap, the combination of a fixed chamber provided with an inlet connection, an expansible tube connected therewith provided with a closed end, an outlet-port leading from the chamber, a movable port-controlling device, and connections between the exterior of said expansible element and the port-controlling device, substantially as set forth.

2. In a water-trap, the combination with a chambered body provided with an inlet connection, a valve-controlled series of outlet-ports, and an expansible hollow extension of the chambered body: of a spring-retracted controlling-valve, a depressing-lever therefor, a guide for the expansible extension, a lever-bearing, a lever engaging said bearing and the extension, and means connecting said lever with the controlling-valve lever, substantially as set forth.

3. The combination of a chamber provided with an inlet connection, oppositely-disposed expansible elements connected with the chamber, outlet-port, movable port-controlling devices, and connections between said expansible elements and the port-controlling devices, substantially as set forth.

4. The combination of a chamber provided with an inlet connection having oppositely-disposed distributing branches correspondingly-disposed expansible elements, inclosing said branches and connecting with the chamber, movable port-controlling devices, and connections between the expansible devices and the port-controlling devices, substantially as set forth.



5. The combination of a chamber provided with an inlet connection having therein a straining device, outlet-ports, oppositely-disposed expansible sleeves connected with the chamber and provided with bearing-terminals, oppositely-disposed branch pipes located within said sleeves and communicating with the inlet-opening, movable valve-controlling devices and actuating-levers for said valve-controlling devices operatedl by the expansible sleeves, substantially as set forth.

6. The combination of a chamber provided with an inlet connection provided with a straining device, outlet-ports, oppositely-disposed expansible sleeves connected with the chamber and provided with bearing-terminals, oppositely-disposed branch pipes located within said sleeves and communicating with the inlet-opening, movable valve-controlling devices, and actuating-levers for said valve-controlling devices operated by the expansible sleeves, with retracting-springs for the valve-controlling devices, substantially as set forth.

7. The combination of a chambered body having an inlet connection, oppositely-disposed expansible tubes communicating therewith, plunger-chambers provided with outlet-ports, plungers mounted therein, and levers adapted to actuate said plungers, with connections adapted to transmit movement from the expansible tubes to said levers, substantially as set forth.

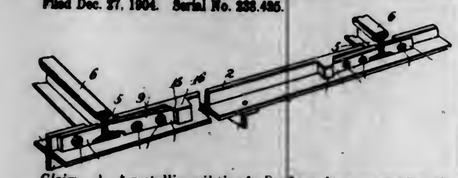
8. The combination of a chambered body provided with a steam-inlet connection, oppositely-disposed communicating expansible sleeves provided with bearing-terminals, correspondingly-disposed branch pipes within said sleeves communicating with the steam-inlet, communicating plunger-chambers provided with outlet-ports, plungers adapted to control said ports, actuating-levers for the plungers, and levers actuated by the expansible sleeves, connected with said levers, substantially as set forth.

9. The combination of a chambered body provided with a sleeve-inlet connection, oppositely-disposed expansible sleeves connected with the chambered body, branch pipes terminating within said sleeves near their terminals and communicating with the steam-inlet, plunger-chambers provided with outlet-ports, valve-controlling plungers therein, retracting-springs, guiding cross-heads for the expansible sleeve connected with the body portion of the device, lever-bearings in said cross-heads, levers bearing therein and in engagement with the sleeve-terminals, and plunger-actuating levers, with intervening connections, substantially as set forth.

10. The combination with the expansible sleeve, of an interior inlet-pipe terminating near the terminal of the sleeve, substantially as set forth.

11. In a water-trap, the combination with a fixed chambered body provided with an inlet connection, a valve-controlled outlet-port, and an expansible hollow extension of the chambered body provided with a closed end of a controlling-valve, an actuating-lever therefor, a guide for the expansible extension, a lever-bearing, a lever engaging said bearing and extension, and means connecting said lever with the valve-controlling lever, substantially as set forth.

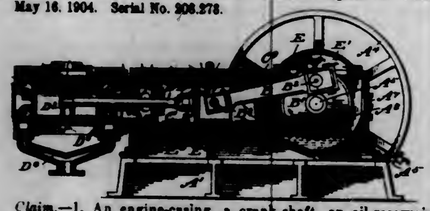
786,982. **RAILWAY-TIE.** SAMUEL MCELFATRICK, Princeton, Ky. Filed Dec. 27, 1904. Serial No. 238,495.



Claim.—1. A metallic rail-tie of plus form in cross-section, the vertical flange of which is formed with a rail-receiving slot having vertical walls and with a bolt-hole adjacent to said slot, a fastening-bar secured to said vertical flange of the tie upon one side of said rail and engaged with the latter to retain it in said slot, a beveled plate or projection on said vertical flange of the tie upon the opposite side of the rail, a fastening-bar having one end engaged with the rail and its other end beveled to engage the beveled face or projection and a bolt passed through said bolt-hole in the rail for simultaneously securing said bar upon the tie and forcing said bar into engagement with said rail, substantially as described.

2. A metallic rail-tie having a rail-receiving slot formed therein and a beveled plate or projection adjacent to said slot, a fastening-bar having one of its ends engaged with the rail and its other end beveled and engaged with the beveled face of the said plate or projection, and bolts for clamping said bar laterally against said tie to cause said beveled plate or projection to force said bar into engagement with the rail, said bolts passing through slots in the tie, substantially as described.

786,983. **ENGINE.** CALVERT R. MCGAREY, Covington, Va. Filed May 16, 1904. Serial No. 208,278.



Claim.—1. An engine-casing, a crank-shaft, an oil-reservoir thereunder, a pitman carried thereby, a cross-head carried by the pitman, a guide beneath said cross-head, a removable guide secured to the casing above said cross-head and provided with an oil-channel extending therethrough, an oil tray or flange disposed upon the casing above the crank-shaft to surround the pitman connection thereto and communicating with the channel in the removable guide, a cover for said tray adapted to drain therein at all its edges, and means carried by said shaft to raise oil from said reservoir.

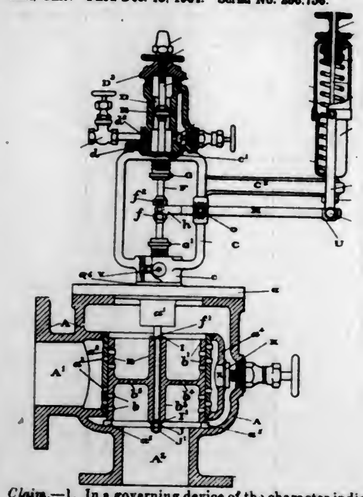
2. In an engine, a crank-shaft, a pitman extending therefrom, a casing provided with an opening in alinement with said pitman, a cross-head carried by said pitman and provided with a depending hooked portion, a piston, a piston-rod provided with a head to be embraced by said hooked portion, and a closure-plate for said opening provided with a top guide for the cross-head.

3. An engine-casing having an opening in its top, a crank-shaft, a pitman carried thereby in alinement with said opening, a cross-head carried by the pitman, a guide beneath said cross-head, a removable guide-plate to close said opening secured to the casing above said cross-head and provided with an oil-channel extending therethrough, an oil tray or flange disposed above the crank-shaft to surround the pitman connection thereto and communicating with the passage in the removable guide, a reservoir beneath said crank-shaft, a disk carried by said shaft and connected to the pitman, a piston and piston-rod, and a detachable hooked connection between said cross-head and rod.

4. In an engine, a casing provided at one end with an oil-reservoir in its lower portion, a lower cross-head guide at one side of said reservoir and provided with oil-recesses therein at its opposite ends, and a top guide disposed opposite said cross-head guide and provided with a longitudinally-disposed oil-passage and feed-openings therefrom.

5. In an engine, a casing provided at one end with an oil-reservoir in its lower portion, a cross-head guide at one side of said reservoir and provided with oil-recesses therein, a top guide disposed opposite said cross-head guide and provided with an oil-passage and feed-openings therefrom, a crank-shaft disposed in said casing above said oil-reservoir, and means carried by said shaft for automatically feeding oil from said reservoir to the passage in said top guide.

786,984. **GOVERNING DEVICE.** ROBERT B. MCGOWAN, Cincinnati, Ohio. Filed Dec. 13, 1904. Serial No. 236,736.



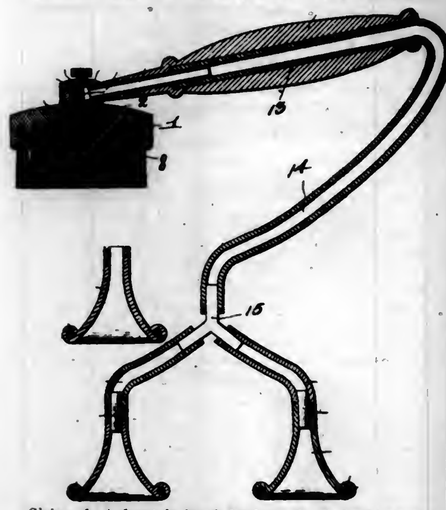
Claim.—1. In a governing device of the character indicated, the combination of a governor-chamber and a throttle-valve therein, a throttle-valve stem, extended as a piston-rod, a piston on said extended stem operating one way within a pressure-cylinder, said cylinder adapted to receive pressure, an adjustable spring located at a point outside of and not in contact with the contents of the pressure-cylinder, a case inclosing the spring and composed of telescoping sections, means for operatively connecting said valve-stem and the movable member of the spring-case whereby the spring is actuated to secure pressure opposite that against the piston in the pressure-cylinder, substantially as set forth.

2. A pump-governing device embodying a throttle-valve adapted to register at normal pressure and to shut off at cessation or excess of pressure, said valve having its operating-stem extended as a piston-rod into a pressure-cylinder, a piston upon said rod actuated in said cylinder in one direction only by the resistance head or pressure, a lever movably attached to said valve-rod, said lever fulcrumed to a fixed point in said device, an adjustable spring adapted to actuate the piston valve-rod in the direction opposite the movement caused by the pressure and swiveling supporting means for the spring, the pressure-cylinder and the lever, substantially as set forth.

3. In a pump-governing device of the character indicated the combination of a governor-chamber and a throttle-valve therein, a throttle-valve stem extended as a piston-rod, a piston on said extended stem operating one way within a pressure-cylinder said cylinder adapted to receive pressure, an adjustable spring located at a point outside of and not in contact with the contents of the pressure-cylinder and means for operatively connecting said valve-stem and said spring to secure pressure opposite that against the piston in the pressure-cylinder, and all the mechanism without the governor-chamber, swivelly connected to said governor-chamber, substantially as set forth.

4. In a pump-governing device of the character indicated, the combination of telescopic spring-case, P, the spring, Q, the adjusting mechanism, the shackles, T, the cross-head, U, the bracket, C^3, and means for pivotally securing said shackles to said spring-case and cross-head, substantially as set forth.

786,985. **FOUNTAIN-BRUSH AND CONNECTION.** ALBERT W. NICHOLLS, Chicago, Ill. Filed Aug. 8, 1904. Serial No. 219,947.

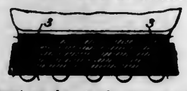


Claim.—1. A fountain-brush having a brush-head provided with a duct extending therethrough, means to cause the flow of liquid to and through the duct, and a regulator for the duct, movable to open and close the same, located among the bristles of the brush and having means to deflect the liquid discharged from the brush laterally among the brush-bristles.

2. A fountain-brush having a brush-head provided with a duct extending therethrough, means to cause the flow of liquid to and through the duct, a regulating-disk at the discharge end of the duct and located among the bristles of the brush, and a screw to operate said regulating-disk to close the duct or open the same to any desired extent, said disk also forming a deflector to deflect the liquid discharged from the brush laterally among the brush-bristles.

3. A fountain-brush comprising an apertured brush-head, a hollow handle removably connected to said brush-head, a flexible tube connected to said handle, means whereby said tube is connected to water-supply faucets, a screw-threaded valve-stem mounted in said brush-head to work through the aperture in said brush-head and a valve arranged on the lower end of said stem to open or close the lower end of said aperture, to a greater or less degree thereby regulating and directing the flow of water onto the bristles of said brush, substantially as described.

786,986. **BOOT OR SHOE HEEL.** JEREMIAH O'MEARA, New York, N. Y. Filed June 7, 1904. Serial No. 211,493.



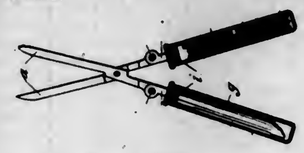
Claim.—1. A boot or shoe heel tap comprising a bottom, and a peripheral upstanding flange of the contour of an ordinary heel and adapted to be fitted frictionally to a heel and having perforations, combined with fastenings embedded in the heel and extending through the perforations in the tap and bent over upon the upstanding flange thereof.

2. The combination of a tap having a peripheral upstanding flange, and fastenings having eyes by which they may be secured in a heel and also having tangs to engage the upstanding flange.

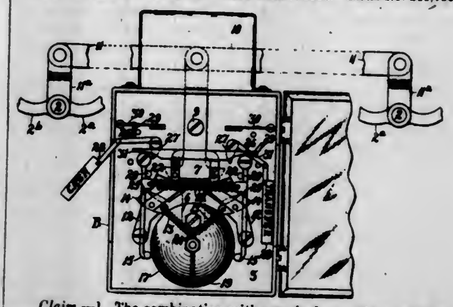
3. The combination of a tap having a peripheral upstanding flange, provided with external grooves and adapted to be applied to an ordinary boot or shoe heel, and fastenings adapted to be secured in the heel and to pass through the tap and be bent over into the grooves upon the tap.

786,987. **CURLING-IRON.** JULIUS OPPENHEIMER, Cologne, Germany. Filed Oct. 26, 1904. Serial No. 230,045.

Claim.—Improved curling-irons comprising in combination with the curling-iron proper, two holders for the handles, one connected to the lower end of each of the shanks, screws forming the end of said holders, a cylinder open at one end and provided with internal screw-thread adapted to be screwed onto the screw of one of the holders adapted to serve as reservoir for the fuel, a tube rigidly fixed to the other holder provided with an oblong slot constructed to serve as burner and another cylinder made of material of low caloric conductibility open at one end, internal threaded to be screwed over said tube, substantially as described and for the purpose set forth.



786,988. **STREET-CAR-REGISTER PROTECTOR.** FELIX PADUVERI, San Francisco, Cal. Filed June 8, 1904. Serial No. 211,718.



Claim.—1. The combination with a main fare-register, of a remotely-situated protector, an actuating rock-shaft common to both, said protector comprising audible and visible signals simultaneously displayed on the actuation of said shaft, said audible signals comprising two bells of different tone quality mounted on the same stud, and means for operating said bells, said means including an operating-lever connected with the rock-shaft, a lever on each side and in the path of the operating-lever, hammers, and means carried by the side levers, to engage the hammers on the operation of a corresponding side lever.

2. The combination with a main fare-register, of a protective device located at a relatively remote point, an actuating rock-shaft common to both, said protective device including two bells of different tone quality, and means by which each of said bells may be actuated by successive oscillations of the rock-shaft, said bell-actuating means including an operating-lever connected with the rock-shaft, a lever on each side and in the path of the operating-lever, hammers, and means, carried by the side levers, to engage the hammers on the operation of a corresponding side lever.

3. The combination with a main fare-register, of a mechanically-operated protective device located at a relatively remote point, actuating means common to both, said protective device including bells of different tone quality, individual hammers, an operating-lever, a lever intermediate said operating-lever and each hammer and a pivoted pawl carried by said intermediate levers engaging the hammers on the actuation of its lever.

4. The combination with a main fare-register of a protective device located at a relatively remote point, said protective device including bells of different-toned quality, semaphores, and means for actuating said bells and semaphores correspondingly and simultaneously with the different indicating mechanisms of the register, said actuating means including an operating-lever, a second lever, corresponding to each bell and semaphore, in the path of said operating-lever, hammers, and means carried by the said second levers engaging the hammers and semaphores to operate them.

5. The combination with a main fare-register of a protective device separate therefrom, actuating means common to both, said protective device comprising a closed casing, audible signals, semaphores normally retracted within the casing and means for operating a semaphore and its respective audible signal simultaneously with the corresponding indicating mechanism of the register, said

operating means including an operating-lever, and a second lever in the path of a semaphore and in the path of the operating-lever.

6. A protective device including in combination a plurality of bells, actuating-hammers relative to said bells, and an operating-lever by which either of said bells may be sounded, a second lever intermediate of said operating-lever and the hammers and pivoted pawls carried by the second levers to engage the hammers.

7. A protective device comprising bells of different-toned quality, hammers relative to said bells, semaphores corresponding to said bells mounted on rock-arms, an operating-lever, and a second lever in the path of each semaphore and the operating-lever by which each of said bells may be separately sounded and the semaphores corresponding to one or the other of said bells simultaneously displayed.

8. In a protective device, the combination with audible-signal mechanism which includes an operating-lever, of a semaphore-arm, a lever in the path of the semaphore-arm and operatable by the operating-lever, and spring-detent means for holding the semaphore in exposed position.

9. In a protective device, the combination with a casing of audible and visible signal mechanisms and actuating means therefor, said means including opposed spring-pressed hammer members, an intermediate operating-lever and connections including a lever, and a spring-pressed pawl on said lever, between the operating-lever and the signal mechanisms whereby an audible and a corresponding visible signal may be simultaneously given.

10. In a protective device, the combination of two opposed spring-pressed levers, a hammer relative to each lever, a pawl on each lever to engage a hammer, a bell relative to each hammer, a semaphore relative to each bell, said levers each adapted to operate a bell and a corresponding semaphore.

11. In a protective device, the combination of two opposed spring-pressed levers, a hammer relative to each lever and corresponding bells, means for actuating said levers and means including pivoted pawls on the levers to actuate and release said hammers to sound the bells.

12. The combination with two parallel fare-register rock-shafts, of a casing inclosing correlated visible and audible signal mechanisms, said signals being representative of "cash fares" and "transfers," and connections between said several mechanisms and rock-shafts whereby an audible and a visible signal will be given on the oscillation of either of said shafts in one direction and the other audible and visible signal given on the oscillation of either of said shafts in the opposite direction, said visible signals consisting of semaphore-arms normally retracted inside the casing; said connections including an operating-lever, a part operatable by said lever on its actuation in the opposite direction, and projections on said semaphore-arms engageable by said parts to expose the semaphores.

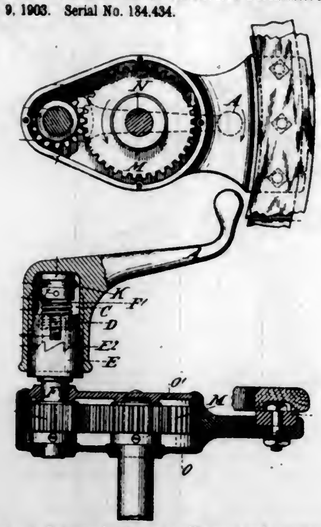
13. The combination with two parallel fare-register rock-shafts, of a casing inclosing correlated visible and audible signal mechanisms, said signals being representative of "cash fares" and "transfers," and connections between said several mechanisms and rock-shafts whereby an audible and a visible signal will be given on the oscillation of either of said shafts in one direction and the other audible and visible signal given on the oscillation of either of said shafts in the opposite direction, spring-detent means for holding said visible signals in exposed position, after the audible signal has sounded, and means for releasing the detent means of one visible signal on the exposure of the other visible signal.

14. A protective device comprising a casing inclosing two operating-levers, two other levers in the path of said operating-levers and arranged each to be operated on the oscillation of either of the operating-levers, two bells of different tone quality, hammers relative to said bells, means carried by said second levers to operate said hammers, and visible-signal mechanism operatable by said other levers.

15. A protective device comprising a casing inclosing two operating-levers, two other levers in the path of said operating-levers and arranged each to be operated on the oscillation of either of the operating-levers, two bells of different tone quality, hammers relative to said bells, means carried by said second levers to operate said hammers, and visible-signal mechanism operatable by said other levers said signal mechanism including semaphore-arms normally disposed in the path of said other levers.

16. A protective device comprising a casing inclosing two operating-levers, two other levers in the path of said operating-levers and arranged each to be operated on the oscillation of either of the operating-levers, two bells of different tone quality, hammers relative to said bells, means carried by said second levers to operate said hammers, and visible-signal mechanism operatable by said other levers said signal mechanism including semaphore-arms normally disposed in the path of said other levers, spring-detent means to hold either semaphore in exposed position, and means for retracting a detained semaphore.

786,989. COMPOUND-GEARED BRAKE-SPINDLE AND RATCHET-HANDLE. LOUIS PFINGST, New Dorchester, Mass. Filed Dec. 9, 1903. Serial No. 184,434.



Claim.—1. In a car-brake manually operated, a rotatable spindle adapted to apply and release the car-brake rigging provided at its upper end with a spur-gear, and means on its lower end for the attachment of a chain and rod, a pinion engaging with said gear, a shaft supporting said pinion terminating in a clutch having an extension, a rotatable handle, a chamber in said handle integrally provided with projecting ribs, means actuated by said ribs to receive and transmit motion to the spindle, a fixed collar supported on said extension and having a circumferential groove, means to secure temporary engagement of the clutch members and means to confine the rotatable handle to said extension to permit right and left rotation while preventing liberation of said handle from its contained accessories.

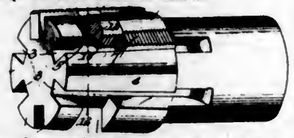
2. A chain-winding spindle attached to a car-platform and having a fixed gear, a pinion coacting therein to actuate said gear, a lower clutch member provided with a stub-shaft supporting said pinion, a supplemental clutch member adapted to operate the lower clutch and its attendant pinion, and means integral with the brake-handle to operate the assembled clutch members to apply or release the brake-shoes for the purpose set forth.

3. A clutch member provided with a stub-shaft, means on said shaft to transmit an applied power, a chain-winding spindle having means to receive motion from said stub-shaft, a supplemental clutch member having peripheral grooves and a brake-handle provided with means to engage with said grooves and thus convey the power manually applied to operate the car-brake rigging.

4. In combination with a brake-handle having a chambered shank provided with vertical projecting ribs, a female member having peripheral grooves, a male member having an extension at its upper end arranged to support said female member and means embracing the extension to secure temporary engagement of said members collectively forming the ratchet-clutch, a clutch-shaft having a fixed pinion thereon and means coacting with said pinion and secured to the spindle to actuate it to control the car-brake.

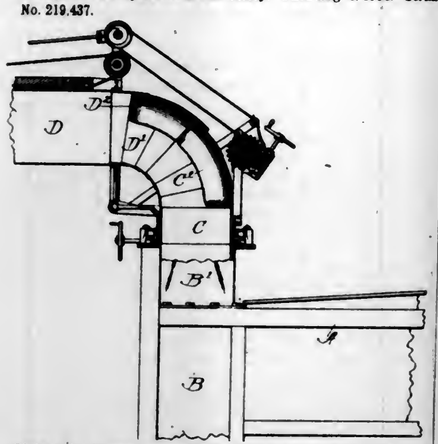
5. The herein-described appliances constituting a brake for street-cars comprising a rotatable chambered handle, a ratchet-clutch within said handle and actuated thereby and a pair of multiplying-gears connected and arranged to transmit motion from the organized clutch through the chain-spindle to the brake-rigging, in combination therewith a gear-case having bearings for said gears and further adapted as a bracket to support the spindle and its accessories from the car-dasher rail as specified.

786,990. SCREW-CUTTING TOOL. CHARLES W. PHILLIPS, Milwaukee, Wis., assignor of one-half to Eugene F. Jewell, Milwaukee, Wis. Filed Apr. 25, 1904. Serial No. 204,847.



Claim.—In a combined reamer and tap, the combination of a tapering head having a series of longitudinal grooves forming intermediate segmental ribs and having transverse recesses formed in each alternate one of said ribs, said recesses communicating with said grooves, chasers seated in said grooves and having screw-cutting teeth upon their outer faces and notches in their side faces adjacent to said recesses, said notches extending from the lower edge of the chasers to near the cutting-teeth, clamping-blocks in said recesses, said blocks having notches upon their opposite faces to engage the notches in two adjacent chasers and screws passed through said blocks and into said head to secure the block in the recesses and the chasers in the longitudinal grooves whereby the chasers are longitudinally adjustable, substantially as described.

786,991. ELBOW FOR CONVEYER-CONDUITS. HENRY J. PODLESÁK, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Aug. 4, 1904. Serial No. 219,437.



Claim.—1. A conveyer-conduit having a curved portion provided with detachable means adapted to receive the impact of the matter being conveyed.

2. A conveyer-conduit having an elbow provided with a reinforcement located on the inside, on both sides of a medial transverse plane, and in position to receive the impact of the matter being conveyed.

3. In a conveyer-conduit, an elbow reinforced within at the side having the greatest radius of curvature.

4. In a conveyer-conduit, the combination of a curved portion and a supplemental plate located in position to be impinged upon by the matter being conveyed.

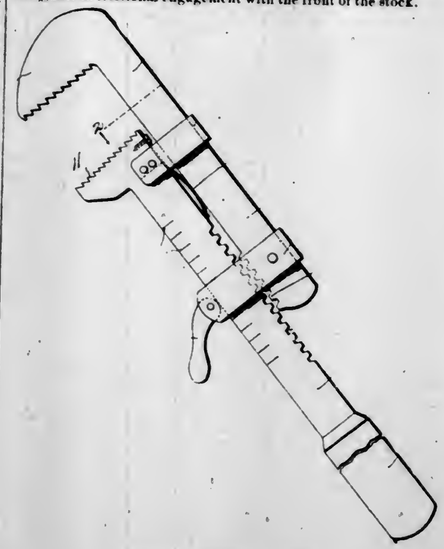
5. In a conveyer-conduit, the combination of an elbow and a supplemental wearing-plate located therein at that portion having the greatest radius of curvature.

6. In a conveyer-conduit, the combination of an elbow and a concavo-convex wearing-plate located within that half thereof having the greater radius of curvature.

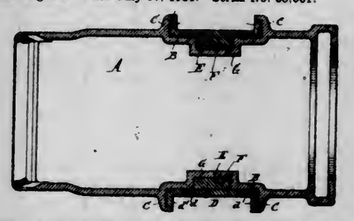
7. In a conveyer-conduit, the combination of an elbow, a replaceable wearing-plate of concavo-convex form located therein at the side having the greatest radius of curvature, and means for securing said plate in position.

786,992. PIPE-WRENCH. ALFRED E. POWELL, Pen Argyl, Pa., assignor of one-half to Monroe Wise, Pen Argyl, Pa. Filed May 17, 1904. Serial No. 208,432.

Claim.—A wrench comprising a stock having a fixed jaw, the back of the stock being provided with an intermediate toothed portion and a smooth portion between the teeth and the jaw extremity of the stock, a slotted guide carried by the stock and projected at the smooth rear edge thereof, a movable jaw having a shank working through the slotted guide and provided with a toothed portion coöperating with the toothed portion of the stock, a bowed spring located between the smooth back of the stock and the shank in frictional engagement with the latter and carried by the former, a substantially U-shaped guide carried by the inner end portion of the shank and slidably embracing the stock, and a handled cam pivotally carried by said guide in frictional engagement with the front of the stock.



786,993. CAR-AXLE BOX. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Gould Coupler Company, New York, N. Y., a Corporation of West Virginia. Filed July 17, 1901. Serial No. 68,661.



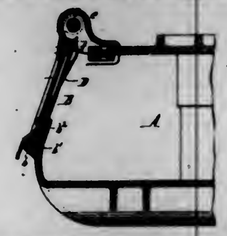
Claim.—1. A metallic car-axle box provided with depressions in its sides, and having wear-plates of relatively harder metal located in said depressions, said wear-plates and axle-box being permanently connected by interengaging parts on the wear-plates and axle-box constructed and arranged to positively hold the wear-plates from movement in every direction laterally and vertically, substantially as set forth.

2. A metallic car-axle box provided in its sides with upright depressions, and having wear-plates of relatively harder metal located in said depressions and permanently attached to the axle-box against removal by projections on the inner sides of the wear-plates engaging in correspondingly-shaped sockets in the axle-box, and upright flanges on the axle-box overlapping the outer faces of the side edges of the wear-plates, substantially as set forth.

786,994. CAR-AXLE BOX. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Gould Coupler Company, New York, N. Y., a Corporation of West Virginia. Filed Aug. 24, 1901. Serial No. 73,170.

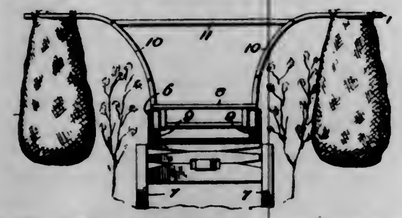
Claim.—1. The combination with a car-axle box provided with a filling-opening surrounded by a rim having a beveled inner face

which extends completely and uninterruptedly around the filling-opening, of a lid hinged to said axle-box and having a beveled edge completely surrounding it and adapted to enter said beveled rim of the axle-box, said beveled edge of the lid having a continuous circumferential groove, and a packing material in said groove which extends continuously around said edge and projects therefrom so as to wedge into said beveled rim of the axle-box, substantially as set forth.



2. The combination with a car-axle box provided with a filling-opening surrounded by a rim having a beveled inner face which extends completely and uninterruptedly around the filling-opening, of a lid hinged to said axle-box and having a beveled edge completely surrounding it and adapted to enter said beveled rim of the axle-box, said beveled edge of the lid having a continuous circumferential undercut groove, and a packing which extends continuously around said lid and is confined in said groove and projects beyond the beveled edge of the lid so as to wedge into said beveled rim of the axle-box, substantially as set forth.

786,995. **COTTON-PICKER'S WAGON.** GEORGE G. RICHARDSON, Sayre, Okla. Filed Aug. 22, 1904. Serial No. 221,732.



Claim.—1. The combination with a wagon, and a traveling seat therein, of receptacles hung from the wagon, along the sides thereof, within reach from the seat, substantially as described.

2. The combination with a wagon, of hangers projecting therefrom, on each side, poles resting on the hangers and extending along beside the wagon, and bags hanging from said poles.

3. The combination with a wagon, of hangers projecting laterally at each end thereof, on each side, and a bag on each side of the wagon, having supporting-poles at the sides of its mouth, the ends of which poles rest on the hangers.

786,996. **PAPER-MACHINE.** KNIGHT E. ROGERS, South Manchester, Conn. Filed Oct. 6, 1904. Serial No. 227,403.

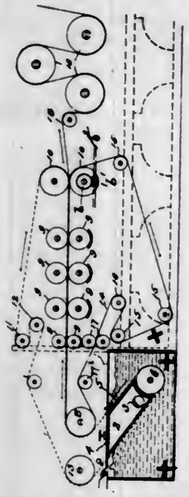
Claim.—1. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box adapted to extend into the pulp, a belt on which the pulp may be deposited by exhausting the suction-box, and rolls to sustain said belt.

2. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box adapted to extend into the pulp, a belt on which the pulp may be deposited by exhausting the suction-box, and means to move said belt over said suction-box.

3. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box adapted to extend into the pulp, and a belt on which the pulp may be deposited by exhausting the suction-box, means to move said belt over said suction-box, and a felt or apron to act on the pulp deposited on said belt.

4. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box extended into the pulp in the vat, and rollers within and without the vat to lead the belt over the perforated face of the suction-box.

5. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box extended into the pulp in the vat, rollers to sustain and lead said belt over the perforated face of the suction-box, and a felt or apron to contact with the pulp web on said belt.



6. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box extended into the pulp in the vat, and rollers located beyond the ends of said suction-box to sustain said belt in its movement.

7. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box adapted to be extended into the pulp in the pulp-vat, a belt, means to cause the belt to travel over the suction-box, means to exhaust the suction-box to suck the fiber from the pulp onto said belt and the water into the suction-box, and means to control the force of the exhaust and consequently the rapidity at which the fibers of the pulp will be deposited upon said belt to thereby vary the thickness of the pulp web.

8. In a paper-making machine, a vat to contain pulp, a suction-box adapted to be extended into the pulp in said vat, said box having one of its faces perforated, and a belt movable over said perforated face.

9. In a paper-making machine, a vat to contain pulp, an upwardly-inclined and perforated suction-box adapted to enter the pulp in said box, and a belt movable over said inclined suction-box.

10. In a paper-making machine, a vat to contain pulp, a suction-box having a perforated face adapted to enter the pulp in said box, a belt movable over said box, and rollers to sustain said belt, said belt being extended in a straight line between said rollers and being maintained in a line parallel to the perforated face of said suction-box.

11. In a paper-making machine, a vat to contain pulp, a suction-box adapted to enter the pulp in said box, said box having a perforated face, a belt movable thereover, rollers to sustain said belt, said belt being extended in a straight line between said rollers and being maintained in a position substantially parallel to the perforated face of the suction-box, and a felt or apron to contact with the pulp web while yet resting on the belt.

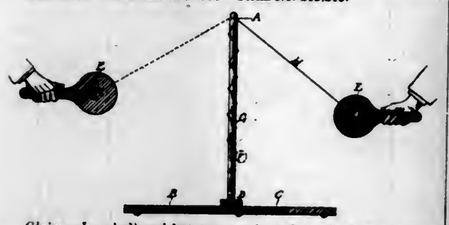
12. In a machine of the class described, a vat to contain pulp, a non-rotative suction-box having a perforated face and occupying an inclined position in the vat, a belt, sustaining-rollers therefor and means to actuate said belt that it may be moved upwardly out of the pulp in the vat substantially parallel to the perforated face of the suction-box.

13. In a machine of the class described, a vat to contain pulp, a non-rotative suction-box occupying an inclined position in the vat and having its perforated portion immersed therein, a belt, a felt or apron, rollers to sustain said belt that it may be moved upwardly out of the pulp in the vat substantially parallel to the perforated portion of the suction-box, said felt or apron contacting with the sheet of pulp on the belt and aiding in compacting the pulp and expressing extra water therefrom.

14. In a paper-making machine, a vat to contain pulp, a suction-box entering said vat and the pulp therein, a wire belt, means independent of said suction-box to sustain and move said belt, means to exhaust the suction-box, and means to control the intensity of the exhaust to thus determine the thickness of the pulp deposited on the belt as a thicker or thinner paper may be desired.

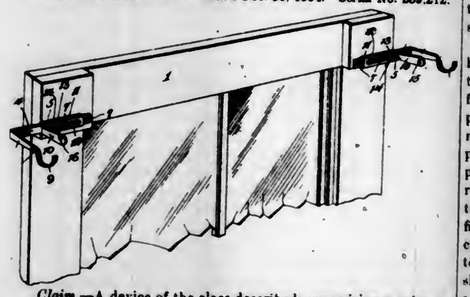
15. In a paper-making machine, a vat to contain pulp, a non-rotative suction-box located therein and adapted to extend into the pulp in the vat, a wire belt, means to move it over said suction-box, and deckles applied to the perforated face of the suction-box to control the width of the pulp web deposited on the wire belt.

786,997. **BALL-AND-BAT GAME.** EDWARD ROSENTHAL, Cincinnati, Ohio. Filed June 20, 1904. Serial No. 213,218.



Claim.—In a ball-and-bat game, a base formed of two sections of different widths hinged together, whereby an offset is formed when said parts are folded together, a socket on said base near its center, a standard removably secured in said socket, and a ball secured to said standard by a string and adapted to swing thereabout, said standard being adapted to rest in said offset when not in use.

786,998. **CURTAIN AND SHADE FIXTURE.** CORDEAN A. ROUSEY, Lestershire, N. Y., assignor of one-half to Fred N. Schoonmaker, Lestershire, N. Y. Filed Dec. 31, 1904. Serial No. 239,212.



Claim.—A device of the class described, comprising a substantially L-shaped fixed or stationary member consisting of a transverse portion, an outwardly-extending supporting-arm and provided at its transverse portion with means for securing it to a window-frame, the said supporting-arm being curved at its outer portion to provide a pole-receiving seat, a substantially L-shaped adjustable member having a transverse portion and an outwardly-extending arm, the transverse portion being provided with side flanges to embrace the side edges of the transverse portion of the stationary member and being slotted between the flanges, and the outwardly-extending arm of the adjustable member being terminated short of the outer end of the arm of the fixed or stationary member, and fastening means mounted on the transverse portion of the stationary member and operating in the slot of the adjustable member for securing the same to the fixed or stationary member.

786,999. **HEAT-STORAGE BOX.** CHRISTINE N. ROUNSEVILLE, Chicago, Ill. Filed Jan. 18, 1904. Serial No. 189,566.

Claim.—1. A heat-storage vessel provided with a suitable interior chamber comprising a flexible bag formed of heat-non-conducting fabric the mouth of which is secured to the top of said vessel; asbestos interposed between said bag and the walls of said vessel; a funnel-shaped mouth-plate partly closing said interior chamber provided with depending hooks the inclined clamping edges of which engage alining pins projecting radially inward near the top of said vessel; an interior vessel disposed within said interior chamber, less in height than the depth of said chamber; an inverted-frustum-shaped cover for said first-mentioned vessel having a cushion on the under side thereof closing the mouth of said bag and pressing down closely upon the top of said interior vessel, said cover comprising an annular funnel-shaped plate provided with inwardly-projecting V-shaped lugs and a circular top disk having radially-disposed arms that are deflected near their ends and interlock with the free ends of said V-shaped lugs.



2. A heat-storage vessel provided with a suitable interior chamber comprising a flexible bag formed of heat-non-conducting fabric the mouth of which is secured to the top of said vessel; asbestos interposed between said bag and the walls of said vessel; a funnel-shaped mouth-plate partly closing said interior chamber provided with depending hooks the inclined clamping edges of which engage alining pins projecting radially inward near the top of said vessel; an interior vessel disposed within said interior chamber, less in height than the depth of said chamber; and an inverted-frustum-shaped cover for said first-mentioned vessel having a cushion on the under side thereof closing the mouth of said bag and pressing down closely upon the top of said interior vessel, said cushion formed of heat-non-conducting fabric and filled with asbestos; said cover comprising an annular funnel-shaped plate provided with inwardly-projecting V-shaped lugs and a circular top disk having radially-disposed arms that are deflected near their ends and interlock with the free ends of said V-shaped lugs.

3 A heat-storage vessel provided with a suitable interior chamber comprising a flexible bag formed of heat-non-conducting fabric the mouth of which is secured to the top of said vessel; a woven-wire former defining the walls of said interior chamber; asbestos interposed between said bag and the walls of said vessel; a funnel-shaped mouth-plate partly closing said interior chamber provided with depending hooks the inclined clamping edges of which engage alining pins projecting radially inward near the top of said vessel; an interior vessel disposed within said interior chamber, less in height than the depth of said chamber; an inverted-frustum-shaped cover for said first-mentioned vessel having a cushion on the under side thereof closing the mouth of said bag and pressing down closely upon the top of said interior vessel; said cover comprising an annular funnel-shaped plate provided with inwardly-projecting V-shaped lugs and a circular top disk having radially-disposed arms that are deflected near their ends and interlock with the free ends of said V-shaped lugs.

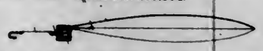
4. A heat-storage vessel provided with a suitable interior chamber comprising a flexible bag formed of heat-non-conducting fabric the mouth of which is secured to the top of said vessel; a woven-wire former defining the walls of said chamber; asbestos interposed between said bag and the walls of said vessel; a funnel-shaped mouth-plate partly closing said interior chamber provided with depending hooks the inclined clamping edges of which engage alining pins projecting radially inward near the top of said vessel; an interior vessel disposed within said interior chamber, less in height than the depth of said chamber; an inverted-frustum-shaped cover for said first-mentioned vessel having a cushion on the under side thereof closing the mouth of said bag and pressing down closely upon the top of said interior vessel, said cushion formed of heat-non-conducting fabric and filled with asbestos; said cover comprising an annular funnel-shaped plate provided with inwardly-projecting V-shaped lugs and a circular stop disk having radially-disposed arms that are deflected near their ends and interlock with the free ends of said V-shaped lugs.

5. A heat-storage vessel provided with a suitable interior chamber comprising a flexible bag formed of heat-non-conducting fabric the mouth of which is secured to the top of said vessel; a woven-wire former defining the walls of said interior chamber; a suitable platform supporting said former above the bottom of said vessel; asbestos interposed between said bag and the walls of said vessel; a funnel-shaped mouth-plate partly closing said interior chamber provided with depending hooks the inclined clamping edges of which engage alining pins projecting radially inward near the top of said vessel;

an interior vessel disposed within said interior chamber, less in height than the depth of said chamber; an inverted-frustum-shaped cover for said first-mentioned vessel having a cushion on the under side thereof closing the mouth of said bag, and pressing down closely upon the top of said interior chamber; said cover comprising an annular funnel-shaped plate provided with inwardly-projecting V-shaped lugs and a circular top disk having radially-disposed arms that are deflected near their ends and interlock with the free ends of said V-shaped lugs.

6. A heat-storage vessel provided with a suitable interior chamber comprising a flexible bag formed of heat-non-conducting fabric the mouth of which is secured to the top of said vessel; a woven-wire former defining the walls of said interior chamber; a suitable platform supporting said former above the bottom of said vessel; asbestos interposed between said bag and the walls of said vessel; a funnel-shaped mouth-plate partly closing said interior chamber provided with depending hooks the inclined clamping edges of which engage alining pins projecting radially inward near the top of said vessel; an interior vessel disposed within said interior chamber, less in height than the depth of said chamber; an inverted-frustum-shaped cover for said first-mentioned vessel having a cushion on the under side thereof closing the mouth of said bag, and pressing down closely upon the top of said interior chamber, said cushion formed of heat-non-conducting fabric and filled with asbestos; said cover comprising an annular funnel-shaped plate provided with inwardly-projecting V-shaped lugs and a circular top disk having radially-disposed arms that are deflected near their ends and interlock with the free ends of said V-shaped lugs.

787,000. BAG-FASTENING. Phineas Rudisch, New York, N. Y. Filed Nov. 19, 1904. Serial No. 233,394.



Claim.—A bag provided with a front flap, a rear flap extending above the same, a pair of parallel rails secured to the inner side of the upper foldable section of the rear flap and extending laterally beyond the same, and fasteners engaging the rails, substantially as specified.

787,001. COMPOSITION OF MATTER FOR SOUND-RECORD TABLETS. Joseph Sanders, Washington, D. C. Filed Jan. 20, 1904. Serial No. 189,889.



Claim.—1. As a material for sound-record tablets, the composition of matter consisting of an oxid or oxids of one or more metals of the iron group and a resinous binding material, substantially as described.

2. As a material for sound-record tablets, the composition of matter consisting of natural oxid of iron and a resinous binding material, substantially as described.

3. As a material for sound-record tablets, the composition of matter consisting of natural oxid of iron and shellac, substantially as described.

4. As a material for sound-record tablets, the composition of matter consisting of an oxid or oxids of one or more metals of the iron group, fiber, and a resinous binding material, substantially as described.

5. As a material for sound-record tablets, the composition of matter consisting of natural oxid of iron, fiber, and a resinous binding material, substantially as described.

6. As a material for sound-record tablets, the composition of matter consisting of natural oxid of iron, fiber, and shellac, substantially as described.

7. As a material for sound-record tablets, the composition of matter consisting of natural oxid of iron, fiber, and a binder composed of shellac and rosin, substantially as described.

8. A sound-record tablet consisting of a body composed of oxid or oxids of one or more metals of the iron group and a resinous binding material, and having a sound-record groove formed in its surface, substantially ar described.

9. A sound-record tablet consisting of a body composed of oxid or oxids of one or more metals of the iron group, fiber, and a resinous binding material, and having a sound-record groove formed in its surface, substantially as described.

10. A sound-record tablet consisting of a body composed of natural oxid of iron and a resinous binding material, and having a sound-record groove formed in its surface, substantially as described.

11. A sound-record tablet consisting of a body composed of natural oxid of iron and shellac, and having a sound-record groove formed in its surface, substantially as described.

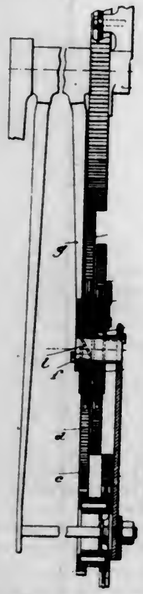
12. A sound-record tablet consisting of a body composed of an oxid or oxids of one or more metals of the iron group, fiber and a resinous binding material, and having a sound-record groove formed in its surface, substantially as described.

13. A sound-record tablet consisting of a body composed of natural oxid of iron, fiber and a resinous binding material, and having a sound-record groove formed in its surface, substantially as described.

14. A sound-record tablet consisting of a body composed of natural oxid of iron, fiber and shellac, and having a sound-record groove formed in its surface, substantially as described.

15. A sound-record tablet consisting of a body composed of natural oxid of iron, fiber and a binder of shellac and rosin, and having a sound-record groove formed in its surface, substantially as described.

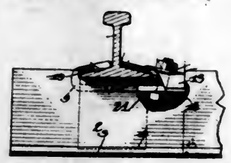
787,002. DRIVING AND CHANGE-SPEED GEAR FOR VELOCIPEDES, &c. Louis Jean-Baptiste Savey, Chamousset, France. Filed Oct. 26, 1903. Serial No. 178,615.



Claim.—Driving and change-speed gear for velocipedes and the like, comprising a driving gear-wheel, a crank-shaft carrying said wheel, a pinion on the rear wheel of the vehicle, intermediate gears, one larger than the other, alternately in mesh with said pinion and the larger one in constant mesh with the driving-wheel, an intermediate sleeve *e* movable axially, a tube *f* serving as a guide for said sleeve in its axial displacements, a fork *g*, of the cycle carrying the tube *f*, said sleeve carrying revolubly the intermediate gears, inclined slots in said sleeve, pins or bolts secured to the frame being adapted

to engage said slots, and means to give a short turn to said sleeve, substantially as described and for the purpose set forth.

787,003. RAILWAY CONSTRUCTION. Charles S. Seitz, Tiffin, Ohio. Filed Dec. 19, 1904. Serial No. 237,515.



Claim.—1. The combination of a hollow tie having an open top with opposite internal longitudinal flanges, a rail extending across the flanged portion of the tie, upper and lower clamp members embracing the base of the rail and the flanges of the tie and projected beyond the rail, and an upright fastening piercing the clamp members at one side of the rail and capable of adjustment to take up wear.

2. The combination of a hollow tie having an open top with corresponding portions cleft from the opposite sides of the tie and bent inwardly to form rail-seat members, a rail supported upon the seat members, upper and lower clamp members embracing the base of the rail and the rail-seat members and projected beyond the rail, and a fastening piercing the clamp members at one side of the rail and adjustable to take up wear.

3. The combination of a hollow tie having an open top with opposite internal longitudinal flanges, a rail upon the flanged portion of the tie, a lower clamp member underlapping the flanges and projected to one side of the rail, an upper clamp member overlapping the base of the rail and the projected portion of the lower clamp member and provided with pendent flanges embracing the tie, and an upright fastening piercing the clamp member at one side of the rail and capable of adjustment to take up wear.

4. The combination of a tie having an open top with portions cleft from opposite sides thereof and bent inwardly to form rail-seat members, a rail supported upon the seat members and engaging the corresponding shoulders at one side of the seat, and clamping means embracing the base of the rail and seat members and engaging the shoulders at the other side of the seat.

5. The combination of a hollow tie having an open top with portions cleft from opposite sides thereof and bent inwardly to form depressed rail-seat members, a rail supported upon the seat members with its base engaging the shoulders at one side of the seat, rail-clamping means embracing the base of the rail and the seat members and engaging the shoulders at the other side of the seat, and fastening means piercing the clamping members at one side of the rail and capable of adjustment to take up wear.

6. The combination of a hollow tie having internal flanges, a rail supported upon the flanged portion of the tie, a lower clamp member underlying the flanges and provided with a hook embracing one edge portion of the base of the rail and projected at the opposite side of the rail, a clamp member engaging the upper face of the other side of the base of the rail and the adjacent portion of the lower clamp member, and an upright fastening piercing the two clamp members at one side of the rail and capable of adjustment to take up wear.

7. The combination of a hollow tie having portions cleft from opposite sides thereof and bent inwardly to form depressed seat members with shoulders at opposite sides thereof, a rail supported upon the seat members and engaging the shoulders at one side thereof, a lower clamp member underlying the seat members with one end provided with a hook embracing one side of the base of the rail with its other end projected beyond the rail, an upper clamp member engaging the upper face of the other side of the base of the rail and the other shoulders of the seat, and a fastening piercing the clamp members at one side of the rail and capable of adjustment to take up wear.

8. As a new article of manufacture, a tie in the form of a channel-bar having an open top and provided with opposite external longitudinal base-flanges having their outer edges flared upwardly and outwardly.

9. As a new article of manufacture, a tie in the form of a channel-bar having a closed bottom and an open top, corresponding portions of the upper edges of the opposite sides of the tie being cleft and bent inwardly to form depressed seat members and the base of the tie being provided with opposite external longitudinal flanges having their outer edges flared upwardly and outwardly.

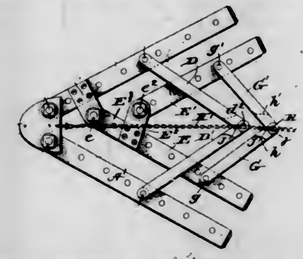
10. The combination of a tie provided with opposite longitudinal flanges, a rail extending across the flanged portion of the tie, upper and lower clamp members embracing the base of the rail and the flanges of the tie and projected beyond the rail, and an upright fastening piercing the clamp members at one side of the rail and capable of adjustment to take up wear.

11. The combination of a tie provided with opposite longitudinal flanges, a rail extending across the flanged portion of the tie, upper and lower clamp members embracing the base of the rail and the flanges of the tie, and an upright fastening piercing the clamp members and capable of adjustment to take up wear.

12. The combination of a hollow tie having corresponding portions cleft from opposite sides thereof and bent into substantially horizontal flanges, a rail supported across the tie at the flanged portion thereof, upper and lower clamp members embracing the base of the rail and the flanges, and fastening means piercing the clamp members and capable of adjustment to take up wear.

13. The combination of a tie having a longitudinal flange, a rail seated across the flanged portion of the tie, a lower clamp member extending across the under side of the flange with one end provided with means to embrace the adjacent end of the flange and the adjacent edge of the base of the rail, the opposite end of the clamp member being projected beyond the opposite side of the rail, an upper clamp member embracing the base of the rail and the projected portion of the lower clamp member, and a fastening piercing the projected portions of the clamp members and adjustable to take up wear.

787,004. HARROW. David Smith and Zachra T. Kindred, Overcup, Ark. Filed Apr. 21, 1904. Serial No. 204,196.



Claim.—1. In a machine of the character described, the combination with outer beams, of laterally-adjustable inner beams having a single pivotal connection to the outer beams.

2. In a machine of the character described, the combination with outer beams, of complementary laterally-adjustable inner beams connected together at their forward ends and having a single pivotal connection to the outer beams.

3. In a machine of the character described, the combination with outer beams, of inner beams connected together, and a pivotal connection between one only of said inner beams and one of the outer beams.

4. In a machine of the character described, the combination with outer beams, of inner beams pivoted together, and a supplemental pivotal connection between one only of said inner beams and one of the outer beams whereby the inner beams may swing laterally relatively to the outer beams, and means for retaining the beams in adjusted position.

5. In a machine of the character described, the combination with outer beams pivoted together at their forward ends, of inner beams pivotally connected together, and a supplemental pivotal connection between one only of said inner beams and said outer beams.

6. In a machine of the character described, the combination with pivoted outer beams, of inner beams pivoted together, one only of said inner beams having a single pivotal connection with said outer beams.

7. The combination with outer beams pivotally connected at their forward ends, inner beams pivotally connected to one another, a single pivotal connection between one only of the inner and outer beams and a single locking member common to both the inner and outer beams.

8. In a machine of the character described, the combination of outer beams pivoted together at their forward ends, rods extending inwardly and rearwardly therefrom, said rods adjacent their outer ends being pivotally connected thereto intermediate the ends of the latter, and having a pivotal connection with one another adjacent

their inner ends, inner beams pivoted together at their forward ends, rods extending inwardly and rearwardly therefrom, said rods adjacent their outer ends being pivoted thereto intermediate the ends of the latter and having a pivotal connection with one another adjacent their inner ends, and a connection between the inner and outer beams.

9. In a machine of the character described, the combination of outer beams pivoted together at their forward ends, rods extending inwardly and rearwardly therefrom, said rods adjacent their outer ends being pivotally connected thereto intermediate the ends of the latter, and having a pivotal connection with one another adjacent their inner ends, inner beams pivoted together at their forward ends, rods extending inwardly and rearwardly therefrom, said rods adjacent their outer ends being pivoted thereto intermediate the ends of the latter and having a pivotal connection with one another adjacent their inner ends, and a pivotal connection between the inner and outer beams.

10. The combination with outer beams pivotally connected at their forward ends, inner beams pivotally connected to one another, a connection between one only of said inner and outer beams, and a single locking means extending longitudinally of and adapted to be detachably connected to both the inner and outer beams.

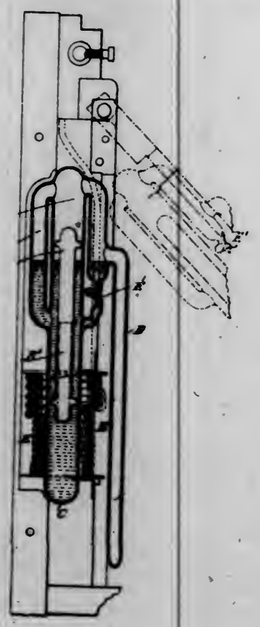
11. The combination with outer beams pivotally connected at their forward and rear ends, inner beams pivotally connected to one another at their forward and rear ends, a connection between the inner and outer beams, and a single locking means operatively associated with both connections at the rear of said inner and outer beams.

12. In a machine of the character described, the combination of outer beams pivoted together, inner beams pivoted together, a connection between one of the inner and outer beams, and a single flexible locking member operatively associated with both.

13. In a machine of the character described the combination of outer beams adjustably connected with one another, inner beams adjustably connected with one another, and an adjustable connection between the forward terminal of one only of the inner beams and one of the outer beams intermediate the ends of the latter.

14. In a machine of the character described the combination of outer beams pivotally connected at their forward ends, inner beams pivotally connected with one another, one of said inner beams having an elongated extension pivoted to one only of the outer beams intermediate the ends of the latter.

787,005. **ELECTRIC RECORDING INSTRUMENT.** DAVID J. STEELE and CHARLES KRATT, Glasgow, Scotland. Filed May 7, 1904. Serial No. 206,968.

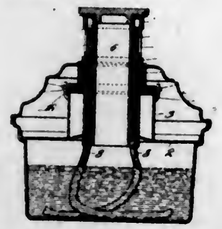


Claim.—1. In a galvanometer, the combination with a tube comprising a main arm containing a liquid, a secondary arm adapted to receive the overflow therefrom, and a restricted tubular communication between said main and secondary arms; of an electromagnetic device, and a float in said main arm adapted to be attracted by said electromagnetic device for displacing said liquid.

2. In a galvanometer, the combination with a tube comprising a main arm containing a liquid, a secondary arm adapted to receive the overflow of liquid therefrom, and a restricted tubular communication between said main and secondary arms; of an electromagnetic device surrounding a portion of said main arm, and a float in said main arm adapted to be attracted by said electromagnetic device.

3. In a galvanometer, the combination with a tube comprising a main arm containing a liquid, a secondary arm adapted to receive the overflow therefrom, a third arm communicating at both ends with said main arm, and a restricted tubular communication between said main arm and said secondary arm.

787,006. **ALCOHOL-LAMP.** SIGMUND STERNAU and LIONEL STRASSBURGER, New York, N. Y., assignors to S. Sternau & Co., New York, N. Y., a Copartnership. Filed May 6, 1902. Renewed Aug. 19, 1904. Serial No. 221,359.



Claim.—1. In an alcohol-lamp of the character described, the combination with the stationary regulating-tube and the movable burner-tube having burner-openings and gas-vents therein, of means for limiting the movements of the burner-tube to cover only the burner-openings thereof, and a separate extinguishing-sleeve for covering the gas-vents, substantially as set forth.

2. In an alcohol-lamp of the character described, the combination with the stationary regulating-tube and the movable burner-tube having burner-openings and gas-vents therein, of means for limiting the movements of the burner-tube to cover only the burner-openings thereof, and a separate extinguishing-sleeve surrounding the regulating-tube for covering the gas-vents, substantially as set forth.

3. In an alcohol-lamp of the character described, the combination with the stationary regulating-tube and the movable burner-tube mounted therein and having burner-openings and gas-vents, of a shoulder carried by the burner-tube above the burner-openings for engaging the top of the regulating-tube, and an extinguishing-sleeve surrounding the regulating-tube for covering the gas-vents, substantially as set forth.

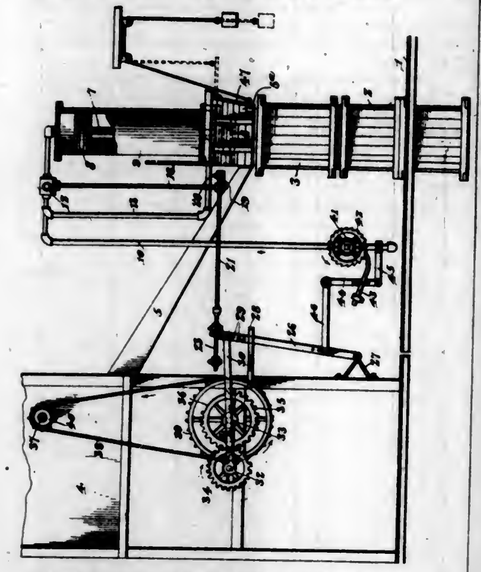
4. In an alcohol-lamp of the character described, the combination with the stationary regulating-tube and the movable burner-tube mounted therein and having burner-openings and gas-vents, of a shoulder carried by the burner-tube above the burner-openings for engaging the top of the regulating-tube, an extinguishing-sleeve surrounding the regulating-tube for covering the gas-vents, and a shoulder at the top of the burner-tube with which said extinguishing-sleeve coöperates, substantially as set forth.

5. In an alcohol-lamp of the character described, the combination with a stationary regulating-tube and a burner-tube movable therein and provided with burner-openings and gas-vents, of an extinguishing-sleeve surrounding the regulating-tube for closing the gas-vents, means for moving the burner-tube vertically, and a lever connected with the extinguishing-sleeve and located adjacent to the burner-tube-operating mechanism, substantially as set forth.

787,007. **VALVE-OPERATING MECHANISM FOR PRESSES.** JOHN M. STUART, Elmo, Tex. Filed July 29, 1904. Serial No. 218,713.

Claim.—1. In baling mechanism, the combination with a baling appliance, including a reciprocatory fluid-operated packer, of means for controlling the supply of motive fluid and operative to increase the supply at an intermediate point of the packer-stroke.

2. In a baling mechanism, the combination with a baling appliance including a reciprocatory fluid-operated packer, of a controlling-valve, and automatic means for operating the valve to supply motive fluid to the packer and to increase the fluid-supply at an intermediate point of the effective stroke of the packer.



3. The combination with a fluid-operated packer and controlling mechanism therefor, of means for feeding cotton to the packer to be tramped thereby, and an operative connection between the cotton-feeding means and the controlling mechanism, whereby said controlling mechanism will be operated to supply motive fluid for moving the packer to the cotton and to increase the fluid-supply during that portion of the packer-stroke whereby the cotton is tramped.

4. The combination with a baling appliance including a press-box and a fluid-operated packer, of valve mechanism controlling the fluid-supply, a cotton-condenser arranged to deliver cotton to the packer, a driving-shaft for the condenser, and connections between the driving-shaft and the valve mechanism to effect an increase in the rate of fluid-supply after the packer has completed a portion of its tramping stroke.

5. The combination with a fluid-operated packer and valve mechanism controlling the fluid-supply, of valve-operating mechanism including a driving-shaft, a mutiliated gear thereon, a counter-shaft having a gear opposed to the mutilated gear, and connections between the counter-shaft and the valve mechanism.

6. The combination with a reciprocatory fluid-operated packer, of controlling-valve mechanism controlling the supply of motive fluid to the packer, regulating-valve mechanism for regulating the quantity of motive fluid controlled by the controlling-valve mechanism, and valve-operating means for operating the regulating-valve mechanism to increase the motive-fluid supply after each reciprocation of the packer, and for operating the controlling-valve mechanism to supply motive fluid for the reciprocation of the packer and to increase the motive-fluid supply at an intermediate point of the packer-stroke.

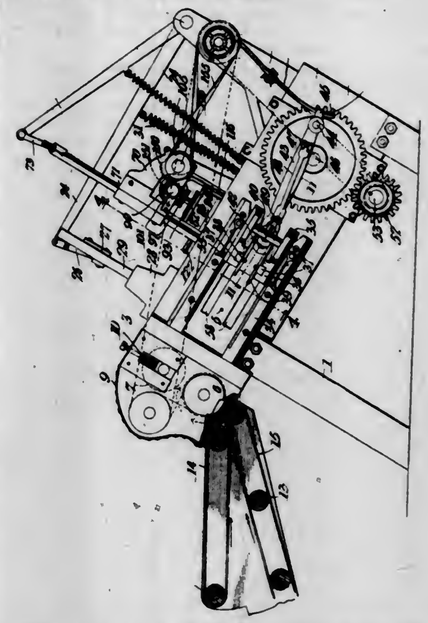
7. The combination with a reciprocatory fluid-operated packer and a press-box, of a controlling-valve for the motive fluid, a condenser arranged to feed cotton to the press-box to be tramped by the packer, a driving-shaft for the condenser, a mutilated gear carried by said driving-shaft, a counter-shaft provided with a gear-wheel arranged to be driven by the mutilated gear, and operating connections between the counter-shaft and the controlling-valve.

8. The combination with a reciprocatory fluid-operated packer, of a controlling-valve for the motive fluid, and operating connections for the valve including a rod provided with a pair of adjustable stops, a lever interposed between the stops, and means for oscillating the lever.

9. The combination with a reciprocatory fluid-operated packer and a controlling-valve for the motive fluid, of valve-operating connections including a slotted rod, relatively adjustable stops mounted in the slot, a lever disposed to engage the stops, and means for guiding the lever in its movement.

10. The combination with a reciprocatory fluid-operated packer and a press-box, of a condenser disposed to feed cotton to the press-box, a controlling-valve, a regulating-valve, valve-operating means including an operating-lever common to said valves, a ratchet-wheel fixed to the regulating-valve, a counterweighted pawl engaging the ratchet-wheel, a swinging arm carrying the pawl and having connection with the operating-lever, and means including a mutilated gear for operating the lever from the condenser.

787,008. **BALING-PRESS.** EDGAR H. TAYLOR, Birmingham, Ala. Filed Feb. 11, 1904. Serial No. 193,161.



Claim.—1. In a baling-press, an intermittently-operable compression means, a baling-chamber open at one end for the entrance of material and at the opposite end for the discharge of the bales, a feeding means for introducing a mass of partly-compressed material into the baling-chamber in all positions of said compression means, and means independent of the compression means for dividing the partly-compressed material into quantities each sufficient to form a bale.

2. In a baling-press, means for continuously feeding material to the press, means for dividing such material into quantities sufficient to form separate bales, and an independently-operable means for separately compressing the divided quantities into separate bales.

3. In a baling-press, means for continuously feeding material to the baling-chamber, means for dividing such material into quantities sufficient to form separate bales and for temporarily limiting the extent of movement of the material into the chamber, and an independently-operable means for compressing the separate quantities of material into successive separate bales

4. In a baling-press, means for feeding material continuously to the baling-chamber, means for dividing the material within said chamber into quantities sufficient to form separate bales and for temporarily arresting the progress of the material, and means for engaging separate quantities, and independently and successively completing the compression of each bale by a single movement.

5. In a baling-press, a baling-chamber, an intermittently-operative means arranged in the chamber for compressing material into the form of bales, means for partly compressing the material into the form of a continuous web and for feeding the same continuously into the baling-chamber irrespective of the movement of the bale-operating means, and means for preventing contact between the material

being fed and the compression means during operative movement of the latter.

6. In a baling-press means for effecting initial compression of the material into the form of a continuous web, means for forcing such material into the baling-chamber, and means for dividing the web into lengths, each containing a quantity sufficient for the formation of a bale, and means independent of the feeding means and the dividing means for effecting the compression of the separate web lengths into bales.

7. In a baling-press, means for initial compression of the material into a web, and for forcing the web into the baling-chamber, means for dividing the web into lengths, and means independent of such feeding means and the dividing means for engaging each separate length and independently compressing it into the form of a bale.

8. In a baling-press, means for forming the material into a web and continuously feeding the web into the baling-chamber, means for dividing the web into lengths and temporarily arresting the progress of the web lengths into the baling-chamber proper, and means independent of the dividing means for independently engaging the severed web lengths and compressing the same into the form of bales.

9. In a baling-press, means for feeding material to a baling-chamber, compression-fingers movable in a direction transverse of the baling-chamber for engaging the material, and means for effecting the movement of said fingers longitudinally of the baling-chamber to effect compression of such material and for holding such material compressed into the form of a bale, and means for carrying a tie around the compressed material while it is held by said fingers.

10. In a baling-press, a baling-chamber having slotted side walls, compression-fingers, means for moving the compression-fingers into the baling-chamber at a point near the feed end thereof and for forcing said fingers in a direction lengthwise of the chamber to effect compression of the material and for holding such material compressed into the form of a bale, and means for carrying a tie around the compressed material while it is held by said fingers.

11. In a baling-press, a baling-chamber or press-box, compression-fingers, means for moving said fingers both transversely and longitudinally of the baling-chamber, and means for carrying a tie around the compressed material while it is held by said fingers.

12. In a baling-press, a baling-chamber or press-box, compression-fingers, a means for moving the fingers into the chamber at the beginning of a compression-stroke and for withdrawing them from the chamber at the end of a compression-stroke, means for reciprocating said fingers in a direction lengthwise of the baling-chamber, the fingers being retained in the chamber during the in or compression stroke, and being outside the chamber during the outstroke, and means for tying the compressed material in the form of a bale while such material is held by said fingers.

13. In a baling-press, a baling-chamber open at one end for the reception of material, and open at the opposite end for the discharge of bales, a compression member movable in the chamber during the compression-stroke and outside the chamber during the return stroke and means for placing the tie-wire around the compressed material and said compression member at the completion of such compression-stroke.

14. In a baling-press a press-box, means for feeding material thereinto, guides disposed on opposite sides of the box, reciprocatory frames adapted to said guides, finger-guides carried by the frames, compression-fingers mounted in said finger-guides, rock-shafts mounted in the frames, and connected to the fingers, pitman-rods having pin-and-slot connections with the frame, and auxiliary pitman-rods connected to the rock-shafts and serving during lost motion, due to said pin-and-slot connections, to effect longitudinal movement of the compression-fingers.

15. In a baling-press, a press-box, guides on the opposite sides of said press-box, reciprocatory frames adapted to the guides and provided with projecting pins or lugs, pitman-rods having slotted end portions for engagement with the pins, finger-supporting guides carried by the frames, compression-fingers adapted to said finger-supporting guides, rock-shafts journaled in the frames, rocker-arms carried by the shafts and connected to the fingers, and auxiliary pitman-rods movable with the main pitman-rods and connected to said rock-shaft.

16. In a baling-press, a press-box, guides disposed on the opposite sides of the box, frames adapted to said guides and provided with projecting pins or lugs, gears mounted on shafts at opposite sides of the box, transverse shafts having pinions intermeshing with the gears, slotted pitman-rods connecting the pins or lugs to wrist-pins on the gears, finger-supporting guides carried by the frames, compression-fingers adapted to said finger-supporting guides, rock-shafts carried by the frame, rocker-arms connected to the rock-shafts, links connecting said rocker-arms to the fingers, and auxiliary pitman-rods pivotally connected to the slotted pitman-rods and serving to transmit operative movement to the rock-shafts.

17. In a baling-press, a feeding and compression means, wire-twisting devices disposed in sets near opposite sides of the press-box, and wire-engaging means for directing the wire alternately to alternate twisters.

18. In a baling-press, a press-box, compression means, alternately-operable twisters, and means for engaging a loop of the wire and for directing said loop into engagement with both the operative and inoperative twisters.

19. In baling mechanism, a pair of alternately-operative twisters, each adapted to receive and hold the cut end of the wire for the tying of a fresh bale.

20. In baling mechanisms, a pair of alternately-operative twisters.

21. The combination with a baling-press, of a plurality of successively-operative twisters.

22. The combination with a baling-press, of a pair of twisters arranged to act in alternation, one to hold the end of the cut wire, and the other to twist the ends of the bale-wire.

23. In a baling-press, a pair of twisters having a plurality of wire-receiving jaws adapted to act successively as holding devices for the end of the wire.

24. In a baling-press, a twister having a plurality of alternately-operative wire-receiving jaws.

25. In a baling-press, a twister including a stationary member having a stationary wire-engaging face, and a pair of movable clamping-jaws of which one is adapted to coact with the stationary wire-engaging face.

26. In a baling-press, a pair of pivotally-mounted wire-engaging jaws, and a stationary jaw serving as a carrier for the pair of jaws and adapted to coact with one of them.

27. In a baling-press, a stationary member provided with a wire-engaging face, and a pair of pivotally-mounted spring-pressed jaws in which the pivot-points of the jaws are disposed in the direction of longitudinal stress of the wires.

28. In a baling-press, a twister comprising a revoluble member having a pair of wire-engaging faces, a pair of pivotally-mounted jaws coacting therewith, and a spring normally tending to press the jaws in the direction of the stationary member.

29. In a baling-press, a rigidly-mounted rotative member, and a pair of pivotally-mounted jaws carried thereby.

30. In a baling-press, a twister, including a revolubly-mounted member, a pair of pivoted jaws carried thereby, and a spring for forcing the pivoted jaws into engagement with the wire.

31. In a baling-press, a twister comprising a revoluble twisting element having a wire-engaging face, a pair of movable jaws, and means for opening said jaws.

32. In a baling-press, a revoluble twisting element, a pair of pivotally-mounted jaws carried thereby, means for stopping the jaws in wire-engaging positions, and means for effecting opening movement of said jaws.

33. In a baling-press, a twister comprising a revoluble member, a pair of jaws supported thereby, and a reciprocating tongue for simultaneous engagement with the revoluble member and one of said jaws.

34. In a baling-press, a revoluble member, a pair of pivotally-mounted jaws carried thereby, and a tapered slide for engaging and opening said jaws.

35. In a baling-press, a wire-twisting device, a wire-engaging means, and a cutting mechanism, one of the cutting elements being adapted to force the wire into engagement with the twister in advance of the operation of severing the wire.

36. In a baling-press, a wire-twisting mechanism, and a wire-cutter including a movable element adapted to engage with said wire and force the same into engagement with the twister in advance of the severing of the wire.

37. In a baling-press, the combination with a twister, of a wire-severing device, and means for moving the same to force the wire into engagement with the twister.

38. In baling-presses, a wire twisting or tying mechanism, and a wire-cutter adapted to engage with and force the wire into engagement with the twister.

39. In a baling-press, a wire-twister, a pair of cutting elements of which one is rigid with respect to the other, a movable cutting element serving to force the wire into engagement with the twister in advance of the operative engagement of the two cutting elements with the wire.

40. In a baling-press, a twister, a stationary cutter adjacent thereto, a movable cutter for cooperation therewith, and means for operating the movable cutter to force the wire into engagement with the twister in advance of the cutting operation.

41. In baling-presses a revoluble twister, a stationary cutter disposed above the twister, a movable cutter adapted to force the wire into engagement with the twister, and means for moving the wire between the stationary and the movable cutter.

42. In baling-presses, a pair of alternately-operative twisters, a wire-engaging means, and mechanism for moving the same to present the wire to be twisted to the alternate twisters.

43. In baling-presses, a pair of alternately-operative twisters, and a wire-engaging hook for presenting the wire alternately to said twisters.

44. In baling-presses, a pair of alternately-operative wire clamping and twisting members, and means for operating the same in alternation for the tying of alternate bales.

45. In baling-presses, a pair of alternately-operative twisters, a yieldably-mounted wire-engaging member, and means for engaging the wire and moving said member together with the wire for the insertion of the latter in the twisters.

46. In baling-presses, the combination with twisting or tying devices, of a wire-engaging member having a yieldably-mounted hook.

47. In baling-presses, the combination with twisting or tying devices, of a wire-engaging hook, means for reciprocating and for effecting revoluble movement of said hook.

48. In baling-presses, a reciprocatory wire-engaging hook, and hook-carrying device revoluble in opposite directions, on its own axis, the hook being eccentrically mounted with respect to said axis.

49. In combination with a pair of alternately-operative twisters, of a wire-engaging hook, and means for revolving the hook alternately in opposite directions to present the wire to said twisters.

50. The combination with a pair of twisters, of a revolubly-mounted wire-engaging hook, of which the two sides of the hook are at different distances from its longitudinal axis.

51. The combination with a pair of twisters, an eccentrically-mounted wire-engaging hook, and means for partly revolving the same in opposite directions.

52. The combination with a pair of alternately-operative twisters, of a wire-engaging hook, and a hook-carrier for moving the same across the baling-chamber, there being a yieldable connection between the hook and its carrier.

53. In a baling-press, a twisting device, a wire-engaging hook, a carrier pivotally connected thereto and serving to move the carrier across the baling-chamber, and means for restoring the hook to an initial central position with respect to its carrier after each operation.

54. The combination with a pair of alternately-operative twisters, of a carrier, a hook or needle mounted eccentrically with respect to the carrier, and a carrier-support having oppositely-directed cam-grooves for effecting rotative movement of the carrier and hook.

55. The combination with a pair of alternately-operative twisters, of a hook, a hook-carrier having a projecting pin or lug, a support having a pair of oppositely-directed cam-grooves for the reception of said pin or lug, and a latch-cam controlling the entrance of the pin to said grooves.

56. The combination with a pair of alternately-operative twisters, of a hook, a hook-carrier having a projecting pin or lug, a carrier-support having a pair of oppositely-directed grooves, and a latch-cam arranged at the entrance end of said groove and movable by engagement with the pin or lug.

57. In baling-presses, a pair of alternately-operative twisters, a wire-engaging hook, a hook-carrier, a carrier-support having a pair of oppositely-directed cam-grooves and provided with straight grooves merging thereinto, a latch-cam for directing the course of the pin or lug, and spring switches disposed at the entrance of the cam and the straight grooves.

58. The combination with a pair of alternately-operative twisters, of gears for operating the same, mutilated gears for transmitting movement to the twister-operating gears, and means for intermittently revolving said mutilated gears.

59. The combination with a pair of alternately-operative twisters, of gears revolving the same, mutilated gears for the transmission of power, each of said mutilated gears being provided with a smooth flange for a portion of its periphery, and a fixed collar carried by the driven gear and provided with a flattened face for engagement by said flange.

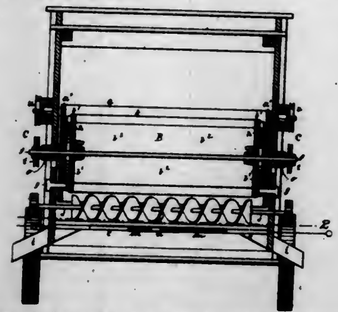
60. The combination with a pair of alternately-operative twisters, of a wire-engaging hook, a hook-carrier, means for imparting both longitudinal and rotative movement to the carrier, a carrier-support, and a yieldable connection between the carrier and its support for restoring said carrier to initial position after each operation.

61. The combination with a pair of alternately-operative twisters, of a wire-engaging hook, a carrier therefor, means for imparting both longitudinal and rotative movement to the carrier, a carrier-support, a spring secured thereto, and a flexible connecting device between the spring and the carrier.

62. In a baling-press, a bale-compressing means, a tier for tying or twisting the wires around both the bale and the compressing means, and means for withdrawing the compressing means after the tying operation.

63. In a baling-press, a baling-chamber, a bale-compressing means, mechanism for looping the tie-wires around both the bale and the compressing means, and mechanism for withdrawing said compressing means.

787,009. **GRAIN-WEIGHING DEVICE FOR THRESHING-MACHINES.** LUTHER M. THOMSON, St. Louis Park, Minn. Filed June 18, 1903. Serial No. 162,095.



Claim.—1. In a threshing-machine having a grain-elevating device, a hopper into which the elevated grain is discharged, and a grain-conveyer for carrying the grain away from the machine—all lying within the case of the said threshing-machine, of a grain weighing and measuring device embodying a vertically-movable case, a longitudinally-chambered cylinder incased by and revoluble within the said case, a horizontal shaft journaled in the heads of the said case and adapted to revolve the said cylinder therein, a scale-beam and poise for counterbalancing the said case and cylinder, and for weighing the grain therein, and means for intermittently imparting semi-rotations to the said cylinder, substantially as shown and for the purpose specified.

2. In a threshing-machine having parallel vertical side walls, the combination of a horizontal shaft journaled in boxes vertically movable in the said side walls, a longitudinally-chambered cylinder affixed to and revoluble with the said shaft; a case inclosing the said chambered cylinder and vertically movable with the said horizontal shaft, and means of imparting semirotations to the said chambered cylinder, substantially as shown and for the purpose specified.

787,010. **RUBBER PATCH.** CHARLES O. TINGLEY, Rahway, N. J. Filed Oct. 5, 1904. Serial No. 227,260.

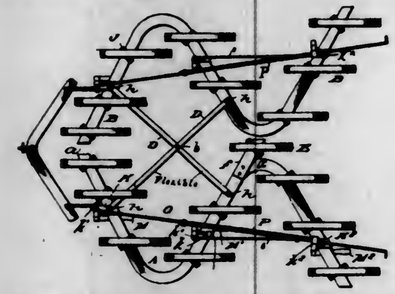


Claim.—1. As an article of manufacture a rubber patch of ordinary vulcanized material and a reinforce C of raw rubber and a protection D of easily-removable material adapted to serve substantially as herein specified.

2. As a patch for rubber tires and analogous articles of vulcanized rubber a plug A having a head B of vulcanized rubber, a reinforce C of raw rubber and a protection D of easily-removable material adapted to serve substantially as herein specified.

787,011. **HARROW.** OSCAR TOWER, Wilson, N. Y. Filed Oct. 8, 1903. Serial No. 176,971.

Claim.—1. A harrow, consisting of two opposed essentially S-shaped frames, the forward ends of said frames approximately abutting and forming a bulged-forward portion, and the rear ends of said frames extending outwardly forming a fan-tail rear portion and teeth carried by the said frames.



2. A harrow consisting of two essentially S-shaped frames having their front ends adjacent to each other but disconnected, and their rear inwardly-extended double portions adjacent to each other but disconnected, teeth carried by the said frames, and flexible connections between the frames, substantially as described.

3. A harrow consisting of two opposed essentially S-shaped frames, the forward ends of said frames approximately abutting and forming a bulged-forward portion, and the rear ends of said frames extending outwardly forming a fan-tail rear portion, flexible bars having their rear ends connected respectively with the two frames, said bars crossing at a point intermediate their ends and pivoted together at said point, and their forward end connected respectively to the two frames.

4. A harrow consisting of two opposed essentially S-shaped independent frames, connecting-bars having their forward ends loosely connected to the front ends of said frames, said bars crossing and pivoted together at said point, and their rear ends connected to the respective frames.

5. A harrow consisting of two essentially S-shaped frames, the front ends of the frames being separated, teeth connected with the said frames, connections connecting the said frames, the rear inwardly-double portion of one of the frames provided with an inwardly-extending bracket, and a harrow-tooth connected with the said bracket, substantially as described.

6. A harrow comprising a frame, teeth carried by said frame, upwardly-extending ears rigidly carried by said frame, a transverse bolt passing through said ears, a lever having its lower end mounted on said bolt on one side of said ears, a shoe intermediately mounted on said bolt on the opposite side of said ears, and a laterally-extending member carried by the upper end of said shoe and passing loosely through said lever.

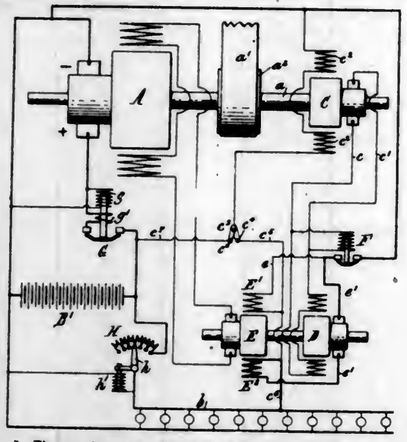
787,012. SYSTEM OF ELECTRICAL DISTRIBUTION. WILLIAM A. TURBAYNE, Lancaster, N. Y., assignor to Gould Coupler Company, New York, N. Y. Filed June 24, 1904. Serial No. 213,983.

Claim.—1. The combination of a main generator, an exciter-dynamo therefor, means for varying the speed of said exciter-dynamo in an inverse sense to the speed of the main generator, and means for varying the excitation of said exciter-dynamo in an inverse sense to the speed of the main generator, substantially as set forth.

2. The combination of a main generator, an auxiliary dynamo varying in speed like said main generator, a motor having its field supplied from said auxiliary dynamo, and an exciter-dynamo for said main generator having its field in the path of the armature-circuit of said motor, substantially set as forth.

3. The combination of a main generator, an auxiliary dynamo varying in speed like said main generator, a motor having its field supplied from said auxiliary dynamo, and an exciter-dynamo for said main generator having its field provided with a winding which is supplied with a practically-constant current and with another winding which is arranged in the path of the armature-circuit of the motor and is supplied with a variable current, substantially as set forth.

4. The combination of a main generator, an exciter-dynamo therefor having a field-winding supplied from a practically-constant source, and a supplemental field-winding supplied from a source, the current through which varies in an inverse sense as the speed of said main generator, and means for varying the speed ot said exciter-dynamo in an inverse sense with the speed of said main generator, substantially as set forth.



5. The combination of a main generator, an exciter-dynamo therefor having a field-winding supplied from a practically-constant source and a field-winding supplied from a variable source, and means for varying the speed of said exciter-dynamo in an inverse sense with the speed of the main generator, substantially as set forth.

6. The combination of a main generator which is driven at a variable speed, an exciter-dynamo therefor, a motor for driving said exciter-dynamo, and means for varying the electromotive force of said exciter-dynamo in an inverse sense with the speed of said main generator, said means including a field-winding for said exciter-dynamo connected in series with the armature of said motor, substantially as set forth.

7. The combination of a main generator which is driven at a variable speed, an exciter-dynamo therefor, a motor for driving said exciter-dynamo, an auxiliary dynamo whose speed varies like that of the main generator and which energizes said motor, the fields of said exciter and auxiliary dynamos and the armature of said motor being supplied with current at practically-constant potential, and a field-winding for said exciter-dynamo in series with the armature of said motor, substantially as set forth.

8. The combination of a main generator, a storage battery connected therewith, an exciter-dynamo for said main generator, means for varying the speed of said exciter-dynamo in an inverse sense with the speed of the main generator, and means for varying the excitation of said exciter-dynamo in an inverse sense with the speed of said main generator, substantially as set forth.

9. The combination of a main generator, an exciter apparatus therefor, a storage battery connected with said main generator, and means for varying the excitation of the main generator in an inverse sense to the variations of the electromotive force of the battery, substantially as set forth.

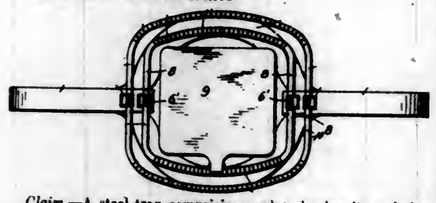
10. The combination of a main generator, an exciter-dynamo therefor, a storage battery connected with the main generator, means for varying the excitation of the exciter-dynamo in an inverse sense to the speed of the main generator, and means for varying the excitation of the exciter-dynamo in an inverse sense to changes in the electromotive force of the battery, substantially as set forth.

11. The combination of a main generator, a battery connected therewith, an auxiliary dynamo having its field connected across the battery and varying in speed like the main generator, a motor controlled by said auxiliary dynamo, and an exciter-dynamo driven by said motor, all arranged to vary the speed of the exciter-dynamo in an inverse sense to the speed of the main generator and to vary the excitation of the exciter-dynamo in an inverse sense to the speed of the main generator and to changes in the electromotive force of the battery, substantially as set forth.

12. The combination of a main generator, an exciter apparatus therefor, a battery connected with the main generator, and an auxiliary dynamo controlling the exciter apparatus and having its field connected across the battery, substantially as set forth.

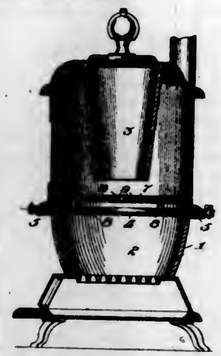
13. The combination of a main generator, a battery connected therewith, an auxiliary dynamo, means for varying the excitation of said auxiliary dynamo in correspondence with the variations in battery voltage, a motor controlled by said auxiliary dynamo, and an exciter-dynamo operated by said motor and having a field-winding which is supplied from a practically-constant source and another field-winding which is arranged in the path of the armature of the motor, substantially as set forth.

787,013. STEEL TRAP. HARRY T. TWEEDT, Slater, Iowa. Filed July 25, 1904. Serial No. 218,004.



Claim.—A steel trap comprising a plate having its ends bent upwardly and inwardly to form spring-tongues, said tongues each having a plurality of perforations at its free end, and a plurality of pairs of U-shaped jaws pivoted to the plate and having their legs engaged in the perforations of the tongues.

787,014. AIR-FEEDING DEVICE FOR STOVES OR FURNACES. TUCKER A. TWYMAN and WILLIAM G. TWYMAN, Kansas City, Mo. Filed July 18, 1904. Serial No. 217,036.



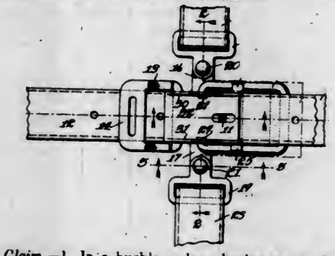
Claim.—1. The combination with a heater, of an air-distributing device arranged therein comprising a heating-conduit having a plurality of branches extending radially therefrom and projecting entirely through the wall of the heater, means for regulating the areas of said branches, a superimposed distributing-conduit having discharge-ports therein and hollow connecting members extending between the conduits, substantially as described.

2. An air-distributing attachment for heaters, comprising a heating conduit having a plurality of branches extending radially therefrom, a superimposed distributing-conduit spaced a distance above the heating-conduit and having discharge-ports through its inner wall and hollow vertical connecting members disposed substantially centrally between said branches and providing open passage-ways between the two conduits, substantially as described.

3. An air-distributing attachment for heaters, comprising a heating-conduit having a plurality of branches radiating therefrom, a superimposed distributing-conduit having discharge-orifices through its inner wall, a distributing-branch extending diametrically across the same, opening thereinto at its opposite ends and having lateral discharge-ports, and vertical connecting members interposed between the two conduits for connecting the same rigidly to each other, said members having passage-ways therethrough, substantially as described.

4. An air-distributing attachment for heaters, comprising an endless heating-conduit shaped to conform to the cross-sectional contour of the heater with which it is associated, branches extending therefrom, means for regulating the effective areas of said branches, a distributing-conduit of substantially the shape of the heating-conduit and arranged a distance above the latter, and hollow members extending between the two conduits for rigidly connecting the same to each other and providing open passage-ways therebetween, said member being spaced out of register with said branches, substantially as described.

787,015. TRACE-BUCKLE. WILLIAM L. WALTON, Neche, N. D. Filed July 30, 1904. Serial No. 218,920.



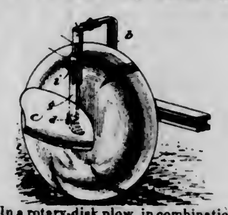
Claim.—1. In a buckle, a base having means for adjustably coupling the draft-trace and hame-tug thereto, and means for flexibly connecting the back-band and girth portions of the harness to said frame in position to swing longitudinally of the same.

2. In a buckle, a base-frame having means for adjustably coupling the draft-trace and hame-tug thereto, ears projecting laterally from the opposite edges of the frame, and eyes pivoted to swing upon said ears and adapted to support the back-band and girth-straps, respectively.

3. In a buckle, a base having a laterally-extending stud near one end thereof for engagement with the draft-trace and provided at its opposite end with laterally-extending ears, eyes pivoted to said ears for receiving the back-band and girth-straps, respectively, and means connecting the hame-tug to the frame in position to exert a bearing force upon the draft-trace.

4. In a trace-buckle, a frame having a stud near one end thereof for engagement with a draft-trace and provided at its opposite end with a loop adapted to receive said draft-trace, said frame being provided with terminal laterally-extending lugs adapted to engage the loop and intermediate lateral ears to which the back-band and girth-strap eyes are pivoted, a U-shaped frame engaging said lugs and having a hame-tug connected thereto, and a plate pivoted to the U-shaped frame and bearing upon the draft-trace.

787,016. ADJUSTABLE SCRAPER FOR ROTARY-DISK PLOWS. WILLIAM O. WINER, Portland, Oreg. Filed Oct. 29, 1904. Serial No. 230,538.



Claim.—1. In a rotary-disk plow, in combination with the frame, and the revolving disks, respectively, of a vertical standard on the frame, a longitudinally-extensible arm, the upper extremity of which is bent at an angle, and the lower extremity thereof having an arc-like curve; means adjustably securing the upper extremity of the arm to said standard; a scraper-plate, and means for attaching such scraper-plate to the lower extremity of said arm, and adapted to allow the adjustment thereof relatively to the face of the disk.

2. In a rotary-disk plow, in combination with the frame, and the revolving disks, respectively, of a vertical standard on the frame, an arm made in two sections; means adapted to adjustably fastening the two arm-sections to gether at their inner ends, so that the arm may be lengthened and shortened; the upper extremity, of the upper section of said arm, being bent at an angle, and the lower extremity, of the lower section thereof, having an arc-like curve; means adjustably securing the upper extremity of the arm to said standard; a scraper-plate, and means for attaching such scraper-plate to the lower extremity of the standard, and adapted to allow the adjustment thereof relatively to the face of the disk.

3. In a rotary-disk plow, in combination with the frame, and the revolving disks, respectively, of a vertical standard on the frame; an arm made in two sections; means adapted to adjustably fastening the two arm-sections together at their inner ends, so that the arm may be lengthened and shortened; the upper extremity, of the upper section of said arm, being bent at an angle, and the lower extremity, of the lower section thereof, having an arc-like curve; means adjustably securing the upper extremity of the arm to said standard; a scraper-plate, a projecting lug or ear on the back thereof, and means for attaching such scraper-plate by its said lug to the lower extremity of the standard, and adapted to allow the adjustment thereof relatively to the face of the disk.

4. As a scraper attachment for rotary-disk plows, a longitudinally-extensible arm, the upper extremity of which is bent at an angle, and the lower extremity thereof having an arc-like curve, means for adjustably securing the upper extremity of the arm to a standard therefor provided on the plow-frame, a scraper-plate, and means for attaching such scraper-plate to the lower extremity of said arm, and adapted to allow the adjustment thereof relatively to the face of the disk.

787,017. ANCHOR. JOHN W. WITHEE, Lima, Ohio, assignor to The National Anchor Company, Lima, Ohio, a Corporation of Ohio. Filed Sept. 20, 1904. Serial No. 225,245.



Claim.—1. A ground-anchor formed of two hollow portions and having an inclined wedge therein, and an expander located within said anchor and coacting with said wedge to separate the ends of the anchor from which said expander is operated, substantially as described.

2. A ground-anchor formed of two hollow portions having an inclined wedge therein, and an expander located within said anchor and coacting with said wedge to spread the parts of the anchor; said expander and said anchor having coacting portions whereby the two parts of the anchor are locked by said expander, substantially as described.

3. A ground-anchor formed of two hollow portions, each having an inclined wedge therein and a head at the upper end of said wedge, and an expander located within the hollow anchor and coacting with said wedges to spread the parts of the anchor; said expander and said heads having coacting portions locking the parts of the anchor together, substantially as described.

4. A ground-anchor formed of two hollow portions, each having an inclined wedge therein and a head at the upper end of said wedge, said portions also having a coacting lug and recess at their lower ends, and an expander located within said hollow portions and coacting with said wedges to expand the same, substantially as described.

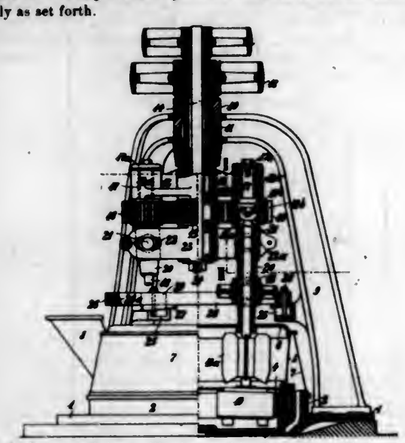
5. A ground-anchor formed of two hollow portions, each having an inclined wedge therein and a head at the upper end of said wedge, each of said heads having an opening or recess therein, and an expander located within said hollow portions and coacting with said wedges to expand the same, said expander having lugs adapted to enter the openings in said head to lock the same, substantially as described.

6. A ground-anchor formed of two hollow portions, formed substantially cartridge shape, and having inclined wedges on their inner sides, and an expander located within said hollow portions and coacting with said wedges to separate the ends of the anchor from which the said expander is operated, substantially as described.

7. A ground-anchor formed of two hollow portions, formed substantially cartridge shape, each having an inclined wedge therein and a head at the upper end of said wedge, and an expander located within said hollow portions and coacting with the wedges to expand the same, said expander and said heads having coacting portions locking the parts of the anchor, substantially as described.

787,018. PENDULUM-MILL. JULIUS WÜSTENHÖFER, Dortmund, Germany. Filed Nov. 28, 1902. Serial No. 133,085.

Claim.—1. In a pendulum-mill, the combination of a mill-ring with grinding-rollers, a pair of concentric shafts, arms carried by one of said shafts, the intermediately-jointed rotary shafts of the said rollers carried by the said arms, gearing between the said shafts of the rollers and the other concentric shaft for rotating the said roller-shafts individually, as they are carried around by the said arms and means for rotating the shaft provided with the said arms substantially as set forth.



2. In a pendulum-mill, the combination of a mill-ring with grinding-rollers, a pair of concentric shafts, means for independently rotating the said shafts, a gear-wheel on the inner shaft, arms carried around by the outer shaft, grinding-roller shafts supported by the said arms and free to turn on their axes and gear-wheels, carried by the said roller-shafts, which wheels engage the said gear-wheel on the inner shaft substantially as set forth.

3. In a pendulum-mill, the combination of a mill-ring with grinding-rollers, a pair of concentric shafts, means for rotating the said shafts, a gear-wheel on the inner shaft, arms carried around by the outer shaft, grinding-roller shafts supported by the said arms, free to turn on their axes and intermediately jointed, and gear-wheels carried by the said roller-shafts, which wheels engage the said gear-wheel on the inner shaft substantially as set forth.

4. In a pendulum-mill, two concentric rotary shafts and intermediately-jointed rotary shafts carried by arms of one of said concentric shafts and bearing on their lower ends grinding-rollers, in combination with the mill-ring of a tub or pan and distance-rollers 29^a on the said intermediately-jointed rotary shafts in order to regulate the degree of comminution of the material to be ground substantially as set forth.

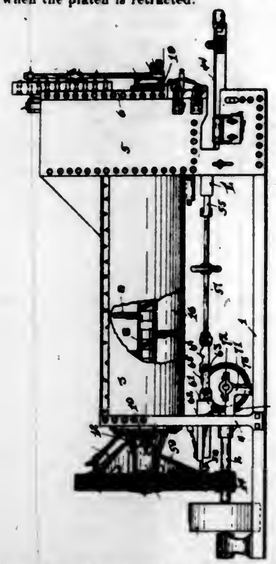
787,019. BRICK-MACHINE. DANIEL J. C. ARNOLD, New London, Ohio, assignor to The Arnold-Creager Company, New London, Ohio, a Corporation. Filed Sept. 23, 1904. Serial No. 225,560.

Claim.—1. In a brick-machine employing a horizontal pug-mill, a vertical charging-chamber, the pug-mill shaft extending through the charging-chamber, supported in a sleeve bearing in the front plate of the machine, an enlarged hub fixed to the end of said shaft journaling in said sleeve, a crank-pin mounted in said enlarged hub, a pitman journaling on and driven by said crank, a vertically-moving plunger mounted in ways supported on the frame, a stud-shaft connected to said plunger, projecting outwardly and forming a journal for the pitman, a second shaft connected to said plunger and projecting inwardly over the charging-chamber, a rod rigidly connected to the press-platen at the lower end, and supported on said inwardly-projecting shaft, whereby the said pitman drives the said plunger and platen rod vertically in unison, substantially as described.

2. In a brick-machine employing a horizontal pug-mill and shaft, a charging-chamber and a press-platen, the mechanism for operating the press-platen, consisting of a crank mounted on the front end of the pug-mill, a vertically-moving plunger journaled in ways mounted on the frame, a stud-shaft connected to said plunger and projecting outwardly above the crank-pin, and a pitman connecting said stud and crank, a second stud-shaft mounted on said plunger and projecting inwardly over the charging-chamber, a rod rigidly connected to the platen and journaled on said inwardly-projected stud-shaft, substantially as described.

3. In a brick-machine employing a vertically-moving press-platen having direct connection to the crank on the pug-mill shaft by pitman and plunger connection, said pitman being held in operative position by a toggle-joint and spring, which are tripped by undue strain to allow said pitman to move idly

4. In a brick-machine employing a vertically-moving press-platen, a charging-chamber, a press-box located above the die, one side of which is supported upon plunger-rods held in position by a yielding support, whereby said press-box moves horizontally under the strain of the press-platen to receive surplus clay during the platen descent, and plunger-rods supported and carrying said yielding aides, and means for automatically returning the plunger-rods to normal position when the platen is retracted.



5. In a brick-press employing a pug-mill shaft, a vertical press inside of the charging-chamber, a die at the mouth of said chamber, a mold-table supporting molds under the dies of a mold push-rod operated by a connecting-rod, the rear portion of which is slidably supported in a journal, an engaging device at the rear end of said rod, reverse-acting cams mounted on the rim of the main gear on the pug-mill shaft, the parts being so disposed that the said cams reciprocate the connecting-rod forward and backward, during the part revolution of said pug-mill gear, substantially as described.

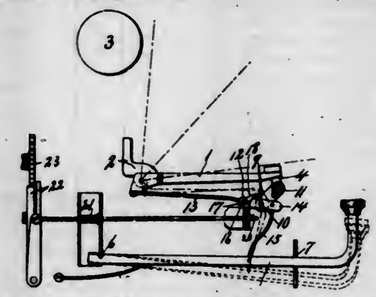
6. In a brick-machine of the class described, employing a mold-carriage and connecting-rod operated by reverse-driving cams mounted on the pug-mill gear, the faces of which are revolved in a plane intersecting an engaging device mounted on the rear end of a connecting-rod, said connecting-rod being made of two sections, one slidable within the other, same being locked together by a toggle-joint and spring connection, whereby said toggle-joints will be tripped by undue strains, and one section of the connecting-rods will slide within the other without operating the molds.

7. In combination with a vertically-charging press of a brick-machine, operated by the pug-mill shaft, the mechanism for reciprocating the mold-carriage, consisting of a main driving-gear on the pug-mill shaft, reverse driving-cams mounted on the rim of said gear, a connecting-rod fixed to the mold-carriage at the front end and slidably journaled in a support at the rear end thereof, a friction-roller journaled on the rear end of said connecting-rod, with its peripheral face athwart the paths of travel of the faces of the driving-cams, the parts being so disposed that both of said cams actuate the pitman-rod and molds positively in both directions, during part revolution of said main gear, substantially as described.

8. In a brick-press of the type shown in combination with the press-platen of a hollow plunger-rod passing through the said platen, and a valve to close said hollow rod, substantially as described.

787,020. TYPE-WRITING MACHINE. EDWIN E. BARNEY, Groton, N. Y. Filed Nov. 24, 1902. Serial No. 132,591.

Claim.—1. In a type-writing machine, the combination with a type-bar and a key-lever, of a second lever connected to the key-lever and having a flexing connection with the type-bar, the point of connection of the type-bar with the second lever shifting its position with reference to the fulcrum of said second lever as the type-bar is moved toward and from its printing position to change the leverage, and means to shift the connection from the fulcrum as the type-bar returns to its normal position.



2. In a type-writing machine, the combination with a type-bar and a key-lever, of a second lever connected to the key-lever and having a flexing connection with the type-bar, the point of connection of the type-bar with the second lever moving automatically by gravity toward the fulcrum of the second lever when printing to decrease the leverage on the return of the type-bar.

3. In a type-writing machine, the combination with a type-bar and a key-lever, of a second lever connected to the key-lever and having a flexing connection with the type-bar, the point of connection of the type-bar with the second lever shifting its position with reference to the fulcrum of said second lever as the type-bar is moved toward and from its printing position to change the leverage and a cam to return said point of connection on the return of the type-bar.

4. In a type-writing machine, the combination with a type-bar and a key-lever, of a second lever connected to the key-lever and having a flexing connection with the type-bar, the point of connection of the type-bar with the second lever moving automatically toward the fulcrum of the second lever in the act of printing to decrease the leverage on the return of the type-bar and means to automatically shift said point of connection from the fulcrum as the type-bar returns to its normal position.

5. In a type-writing machine, the combination with a type-bar and a key-lever, of a second lever having flexing connections with the type-bar and key-lever, the point of connection of the type-bar with the second lever shifting by gravity toward the fulcrum of the second lever as the type-bar is thrown to the printing-point.

6. In a type-writing machine, the combination with a type-bar and a key-lever, of a second lever having flexing connections with the type-bar and key-lever, the point of connection of the type-bar with the second lever shifting toward the fulcrum of the second lever as the type-bar is thrown to the printing-point, and means for returning said point of connection to its extreme outer position when the type-bar returns to its normal position.

7. In a type-writing machine, the combination with a type-bar and a key-lever, a second lever connected to the key-lever, a link connected to the type-bar and having sliding and pivotal connection with the second lever, and means operating to lock the sliding connection from movement when the type-bar is in its normal position.

8. In a type-writing machine, the combination with a type-bar and a key-lever, a second lever connected to the key-lever, a link connected to the type-bar and having sliding and pivotal connection with the second lever, and means operating to automatically lock the sliding connection in its extreme outer position as the type-bar returns to its normal position.

9. In a type-writing machine, the combination with a type-bar and key-lever, of a second lever having flexing connections with the type-bar and with the key-lever, the connection with the type-bar having an independent sliding movement, and means separate from the second lever for locking the sliding connection to prevent rebound of the type-bar from its resting position.

10. A type-bar action for type-writing machines comprising a type-bar, a key-lever, a second lever, a link connected to the type-bar and having sliding connection with the second lever, means to lock the link from sliding movement upon the second lever when the type-bar is in normal position, and a connection between the key-lever and second lever.

11. A type-bar action for type-writing machines comprising a type-bar, a key-lever, a second lever connected to the key-lever and having a flexing connection with the type-bar, and means separate from the second lever to lock the flexing connection to prevent re-

bound of the type-bar when returned to normal position, the point of connection of the key-lever with the second lever moving to a position in a direct line between the fulcrum of the second lever and its point of connection with the key-lever.

12. A type-bar action for type-writing machines comprising a type-bar, a key-lever, a second lever connected to the type-bar, a flexing connection between the key-lever and second lever, the flexing joint being normally in a direct line drawn through the fulcrum of the second lever substantially parallel to the key-lever and movable to a position in a direct line between the said fulcrum and the point of connection with the key-lever.

13. A type-bar action for type-writing machines comprising a type-bar, a key-lever, a second lever connected to the type-bar and having a flexing connection with the key-lever, the flexing joint moving to a position in a direct line between the fulcrum of the second lever and its point of connection with the key-lever as the key-lever is depressed and before the type reaches the printing-point.

14. In a type-writing machine, a type-bar action comprising a type-bar, a key-lever and an intermediary lever all extending normally in substantially the same direction in planes one above the other, a link connecting one end of the intermediary lever with the key-lever, the point of connection with the intermediary lever being movable to a position in a direct line between the fulcrum of the intermediary lever and the point of connection of the link with the key-lever, and a second link connecting the other end of the intermediary lever with the type-bar.

15. In a type-writing machine, the combination of a key-lever and a type-bar, a second lever connected to the type-bar, and a link connecting the levers, the point of connection of the link with the second lever moving into and out of a direct line between the fulcrum of the second lever and the point of connection of said link with the key-lever as the key-lever is operated.

16. In a type-writing machine, the combination of a key-lever, a type-bar, a second lever, a link connecting one arm of the second lever with the key-lever and having its point of connection with the second lever movable into and out of a direct line between its point of connection with the key-lever and fulcrum of the second lever as the key-lever is operated, a second link connecting the other arm of the second lever with the heel of the type-bar and having its point of connection with the second lever movable into and out of a direct line between its point of connection with the type-bar and fulcrum of the second lever for the purpose set forth.

17. In a type-writing machine, a type-bar action comprising a type-bar, a key-lever, and an intermediary lever having opposite arms toggle-connected respectively to the type-bar and to the key-lever for preventing independent vibratory movement of the type-bar when normal and also for limiting the movement of both type-bar and key-lever when moved to their operative positions.

18. In a type-writing machine, the combination with a type-bar, key-lever and intermediary lever all normally extending in substantially the same direction, of connections between the intermediary lever, type-bar and key-lever, and a sliding abutment engaged with and reacting against the intermediary lever only when the key-lever is depressed for the purpose described.

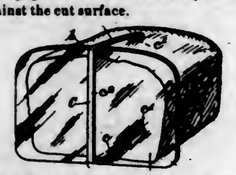
19. In a type-writing machine, a type-bar action comprising a type-bar and key-lever, a normally substantially horizontal lever of the first kind connected to the type-bar and key-lever at opposite sides of its axis and adapted to be moved to a substantially vertical position in the operation of printing, and a movable member adapted to be actuated by and reacting against the second lever for the purpose specified.

20. In a type-writing machine, a type-bar action comprising a type-bar lever of the first kind, a key-lever of the second kind, an intermediary lever of the first kind, all of said levers being arranged in substantially horizontal planes one above the other, a link connecting the key-lever and intermediary lever at the same sides of their fulcrums, a second link connecting the other end of the intermediary lever to the type-bar lever, and a substantially horizontal sliding member adapted to be actuated by and reacting against the intermediary lever for the purpose set forth.

787,021. DEVICE FOR PRESERVING BREAD. WILHELM BIBER, Washington, D. C. Filed Jan. 17, 1905. Serial No. 241,487.

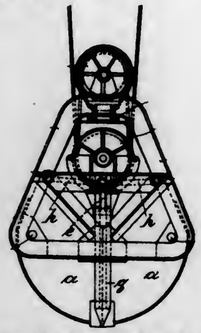
Claim.—1. A device for the preservation of bread, comprising a bread-protecting plate adapted to be applied to the cut surface of the loaf to exclude the action of air therefrom and a fastening device for directly engaging the loaf of bread to detachably hold the bread-protecting plate in position covering and in close contact with the cut surface.

2. A device for the preservation of bread, comprising a bread-protecting plate having a plane surface adapted to be held in close contact with and cover the cut surface of the loaf to exclude air therefrom, and a fastening device secured to the bread-protecting plate, and adapted to engage the loaf for detachably holding the plate in said position against the cut surface.



3. A device of the character described for the preservation of bread, comprising a bread-protecting plate having a plane surface adapted to contact with and cover the cut surface of the loaf to exclude air therefrom, and a fastening device secured to the bread-protecting plate, said fastening device having engaging points to penetrate the crust-surface of the bread to detachably hold the plate in position against the cut surface of the bread.

787,022. TURNING-SHOVEL DREDGER. ALFRED BODE and KARL BÖTTCHER, Benrath, near Düsseldorf, Germany. Filed Jan. 12, 1905. Serial No. 240,758.



Claim.—1. In a turning-shovel dredger, the combination of a frame, with two shovels pivotally mounted therein, a traverse guided in this frame, outwardly-directed rods, connected with one end to the shovels and with the other end to the traverse, and means for moving said traverse up and down thereby closing and opening the shovels, substantially as described and for the purpose set forth.

2. In a turning-shovel dredger, the combination of a frame, with two shovels pivotally mounted therein, the front walls of the shovels being upwardly continued over their pivots, a traverse guided by the frame, outwardly-directed rods connected with one end to the upper part of these walls and with the other end to said traverse, and means for moving said traverse up and down, thereby opening and closing the shovels, substantially as described and for the purpose set forth.

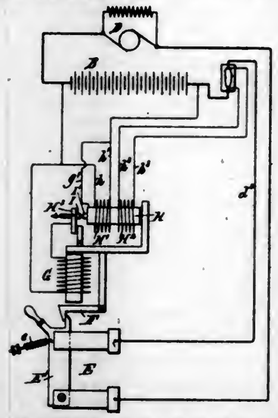
787,023. FACING-BLOCK. ADELBERT B. BUELL, Bayonne, N. J. Filed June 2, 1904. Serial No. 210,783.



Claim.—1. A facing-section for the purpose described, comprising a body of plastic material having a rear depression and integrally provided with a tongue centrally located on its upper edge, and a correspondingly-located vertical tongue at one end edge thereof, two surfaces of each tongue being parallel, the other end edge and bottom edge of said section containing grooves for receiving the corresponding tongues of a distinct section; and metal provision anchored in the body of the section and having a portion projecting through the rear upper part of the body proper.

2. A facing-section for the purpose described, comprising a body of plastic material integrally provided with a tongue centrally located on its upper edge and a correspondingly-located vertical tongue at one edge thereof, two surfaces of each tongue being parallel, the other end edge and the bottom edge of said section containing grooves for receiving the corresponding tongues of a distinct section; and a woven-wire fabric embedded in the body of the section and having a selvage projecting through the body proper, the upper forward corner part of the said body proper being formed to present a water-shed.

787,024. MEANS FOR CONTROLLING THE CHARGING OF STORAGE BATTERIES. RUFUS N. CHAMBERLAIN, Depew, N. Y., assignor to Gould Storage Battery Company, New York, N. Y. Filed Feb. 8, 1904. Serial No. 192,514.



Claim.—1. The combination of a storage battery, a charging-circuit for the same, a hand-closed switch in said circuit for closing the same, a device which opens the switch automatically when the switch is released, means for holding the switch closed, and an electromagnetic releasing device for said holding means containing differential windings which cause the magnetic effect to vary inversely in accordance with variations in the charging rate of the charging-circuit, substantially as set forth.

2. The combination of a storage battery, a charging-circuit for the same, a hand-closed switch in said circuit for closing the same, a device which opens the switch automatically when the switch is released, means for holding the switch closed, and an electromagnetic releasing device for said holding means, which releasing device contains a magnetizing-coil connected across the battery and an opposing coil connected across a shunt of the charging-circuit, substantially as set forth.

3. The combination with a storage battery, and a charging-circuit, of a switch in said charging-circuit, an electromagnet for opening said switch, a normally open energizing-circuit for said magnet, a pilot-magnet for closing said normally open circuit, and means for varying the magnetic effect of said magnet in inverse correspondence with the variations in the charging rate of the charging-circuit, substantially as set forth.

4. The combination with a storage battery and a charging-circuit for the same, of a switch in said charging-circuit, an electromagnet for opening said switch, a normally open energizing-circuit for said magnet, a pilot-magnet having differential windings connected respectively across the battery and across a shunt of the energizing-circuit, and an armature which is operated by said pilor-magnet to close the energizing-circuit for said switch-operating magnet, substantially as set forth.

787,025. TENDON-PULLING MACHINE. GEORGE A. CONGDON, West Somerville, Mass. Filed Aug. 29, 1904. Serial No. 222,523.

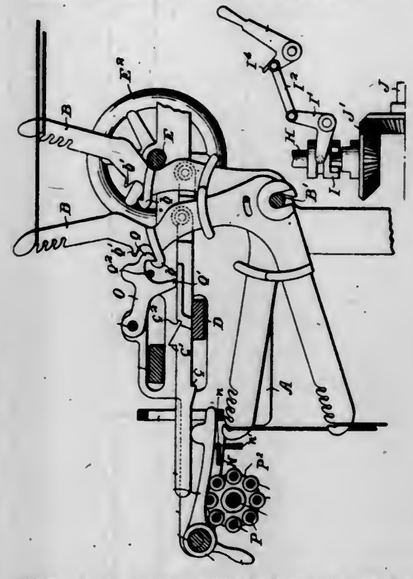


Claim.—1. A device for the purpose described comprising a base, a foot-holder secured thereto, a clip, a guide on the base in which said clip is free to slide, a lever pivoted to said base, a link connecting it with said clip, a lie-engaging device, and a link connecting it with said clip, substantially as described.

2. A device for the purpose described comprising a base, a foot-holder secured thereto, a clip, a guide on the base in which said clip is free to slide, a lever pivoted to said base, a link connecting it with said clip, a leg-engaging device, and a flexible connection between said engaging device and said clip, substantially as described.

3. A device for the purpose described comprising a base, a foot-holder secured thereto, a clip, a guide on the base in which said clip is free to slide, a lever pivoted to said base, a link connecting it with said clip, a leg-engaging device, and a link connecting it with said clip, said foot-holder being arranged to one side of the path of movement of said clip, substantially as described.

787,026. SHEDDING-MOTION FOR LOOMS. PAUL DIETZ, Philadelphia, Pa. Filed Apr. 9, 1904. Serial No. 202,307.



Claim.—1. In a shedding-motion for looms, the combination with the harness-levers and mechanism for operating the same, of an independent locking device for each harness-lever adapted to lock said harness-lever when it is moved to either extreme position.

2. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for actuating the draw-bars, of a separate locking device for each harness-lever adapted to lock said harness-lever when it is moved to either extreme position and to release said harness-lever when its corresponding draw-bar is operated to dictate the return of said harness-lever to the opposite position.

3. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for actuating the draw-bars, each of said draw-bars having a notch, of a hook connected to each harness-lever, and a two-armed lock for each harness-lever, one arm being adapted to be engaged by said hook when said harness-lever is moved to one extreme position, and the other arm being adapted to engage the notch in said draw-bar when the harness-lever is moved to the other extreme position.

4. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for actuating the draw-bars, of a hook connected to each harness-lever, and an independent lock for each harness-lever, said lock being adapted to be engaged by said hook when said harness-lever is moved to one extreme position and being adapted to be engaged by the corresponding draw-bar to release said hook when said draw-bar is operated to dictate the return of said harness-lever to the opposite position.

5. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for

actuating the draw-bars, each of said draw-bars having a notch, and an independent lock for each draw-bar, said lock being adapted to engage said notch when said draw-bar is raised and moved to one extreme position, and to be released from said notch when said draw-bar is lowered.

6. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for actuating the draw-bars, of a separate two-armed locking device for each harness-lever and draw-bar, one arm being adapted to engage and lock said harness-lever when it and its corresponding draw-bar is moved to one extreme position and the other arm being adapted to engage and lock said draw-bar when it is moved to the other extreme position.

7. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for actuating the draw-bars, of a separate two-armed locking device for each harness-lever and draw-bar, one arm being adapted to engage and lock said harness-lever when it and its corresponding draw-bar is moved to one extreme position and the other arm being adapted to engage and lock said draw-bar when it is moved to the other extreme position, the last-named arm being also adapted to be engaged by said draw-bar to disengage the first-named arm from said harness-lever.

8. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for operating the draw-bars, of the fingers for raising the draw-bars, and the pattern-chain for operating the fingers, the fingers being pivoted at one end and adapted to engage the draw-bars at the other end and being engaged between their ends by the pattern-chains, and means to move the pivoted ends of the fingers upwardly and to limit the downward movement of the opposite ends, whereby said fingers will be moved out of engagement with the pattern-chain.

9. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for raising the draw-bars, the pattern-chain for operating the fingers, and means for withdrawing all the fingers out of engagement with the pattern-chain without lifting the draw-bars.

10. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for operating the draw-bars of the fingers for raising the draw-bars, and the pattern-chain for operating the fingers, an eccentric upon which one end of the fingers are pivoted, means for limiting the downward movement of the draw-bar-engaging ends of the fingers, the fingers being engaged between their ends by the pattern-chains, and means for turning the eccentric to lift the pivoted ends of the fingers, whereby they are all moved out of engagement with the pattern chain.

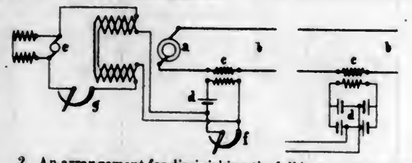
11. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for raising the draw-bars, the pattern-chain for operating the fingers, means for withdrawing all the fingers out of engagement with the pattern-chain and into position to permit all the draw-bars to drop, and a shifter for lifting all the draw-bars, whereby all the heddle-frames may be either simultaneously raised or lowered.

12. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for raising the draw-bars, the pattern-chain for operating the fingers, means for withdrawing all the fingers out of engagement with the pattern-chain without lifting the draw-bars, and a shifter for raising all the fingers and thereby lifting all the draw-bars.

13. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith and the knives for operating the draw-bars, of the fingers for raising the draw-bars, and the pattern-chain for operating the fingers, the fingers being pivoted at one end and adapted to engage the draw-bars at the other end and being engaged between their ends by the pattern-chains, means to move the pivoted ends of the fingers upwardly thereby permitting their free ends to drop, thereby permitting the draw-bars to drop, and means to move the free ends of the fingers upwardly, thereby lifting the draw-bars.

787,027. **MONOPHASE AND POLYPHASE ALTERNATING-CURRENT MACHINE.** MICHAEL VON DOLIVO-DOBROWOLSKY, Berlin, Germany. Filed May 13, 1903. Serial No. 157,637.

Claim.—1. An arrangement for diminishing the fall in potential in monophase or polyphase alternating-current machines, consisting of a source of continuous current, a circuit in connection therewith, which circuit is also in connection with the magnet-windings of the alternating-current machine, a transformer in the main circuit of the latter, and a unipolar cell in the circuit of the secondary current of the transformer which is also connected with the magnet-windings of the alternating-current machine.



2. An arrangement for diminishing the fall in potential in monophase and polyphase alternating-current machines, consisting of a source of continuous current, a circuit in connection therewith, said circuit being also in connection with one of the magnet-windings of the alternating-current machine, a transformer in the main circuit of the latter, and a unipolar cell in the circuit of the secondary current of the transformer which is also connected with the other of the magnet-windings of the alternating-current machine.

3. An arrangement for diminishing the fall in potential in monophase or polyphase alternating-current machines, consisting of a source of continuous current, a circuit in connection therewith, said circuit being also in connection with the magnet-windings of the alternating-current machine, a transformer in the main circuit of the latter, and a unipolar cell in the circuit of the secondary current of the transformer, which is connected with the magnet-windings of the said source of continuous current.

787,028. **DAM FOR IRRIGATING-DITCHES.** GEORGE H. DUKE, Hotchkiss, Colo. Filed Nov. 21, 1904. Serial No. 233,747.



Claim.—1. A dam comprising an apron, and a pair of bars each of which is attached along part of the upper edge thereof, and arranged to be crossed as and for the purpose stated.

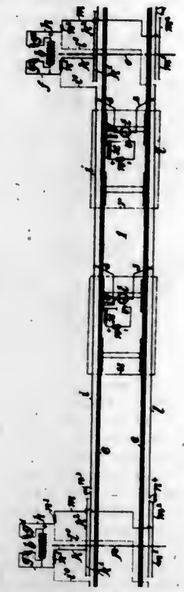
2. A dam comprising an apron, and a pair of bars each of which is connected to one side portion of the upper edge of the apron, and which may be crossed, and moved lengthwise with respect to said edge.

787,029. **APPARATUS FOR PREVENTING COLLISIONS ON RAILWAYS.** HEINRICH GERSTMANN, Charlottenburg, near Berlin, Germany. Filed July 21, 1902. Serial No. 116,448.

Claim.—1. In combination with a railway-section, electrical conductors extending along the sides thereof of opposite polarity; circuit-closers on the trains; electrical signaling or braking apparatus on the train, electrical controlling devices for said apparatus on the trains, said controlling apparatus being inoperative when the full strength of the current passes through the circuit-closers, but operating when the said current is weakened or broken, substantially as described.

2. The combination of conductors extending along the track of each block-section of a railway-line, of a source of electricity and of two conductors, containing resistances of suitable dimensions between the source of electricity and the conductors, said conductors being circuited by devices on the locomotive or train, said devices being connected electrically to a galvanometer, with an astatic needle, a contact-piece closing a local circuit from a battery on the locomotive or train, and an electromagnet in the local circuit adapted to automatically operate braking or signaling devices the moment a second train enters the same block, substantially as described.

3. The combination, with suitably-insulated conductors extending along a railway-line, divided into block-sections, of a source of electricity, and of two conductors with resistances, said conductors dividing into two branches beyond said resistance; the one branch of each conductor leading to the contact-rails that run along the track-rails to braking distance from the next block, where a resistance is intercalated and then continuing to a braking distance beyond the next block, while the second branch of each conductor is intercalated by a resistance and then extended to a braking distance on both sides of the block and overlapping the conductor in the preceding block, said conductors being circuited by a locomotive or train provided with trolleys, a galvanometer, an astatic needle, a contact-piece, circuiting the current from a battery on the locomotive or train, and an electromagnet actuating automatically the brake or signal the moment a second train enters the same section, substantially as described.



4. In combination, contact rails or wires running along the track-rails of a railway-line, each contact rail or wire dividing at a braking distance before a level track-crossing into two branches, the first of which is led insulated in a suitable manner round the crossing, on the other side of which it continues from the braking distance along the track, while the second branch is intercalated at braking distance with a resistance and then on reaching the track-rails of the crossed line divides into two further branches running along the track-rails of the cross-line, to braking distance on each side of the crossing overlapping the corresponding branches of the cross-line, said contact-rails and the contact rails or wires formed by the overlapping parts which are insulated from each other being circuited by a locomotive or train provided with trolleys connected electrically to a galvanometer with an astatic needle, a contact-piece, circuiting the current from a battery on the locomotive or train, and an electromagnet actuating automatically the brake or signal the moment a second train enters the same section, substantially as described.

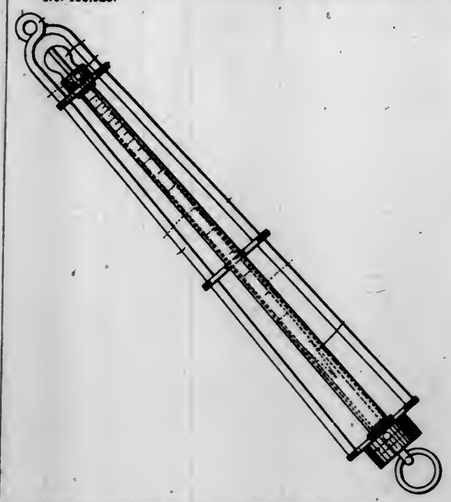
5. The combination, with contact rails or wires running along the track-rails of a railway-line of two insulated conductors leading to the movable beam of a barrier of a level road-crossing, and of a contact-piece adapted to be opened by hitting against a suitable projection, said contact rails or wires being circuited by a train or locomotive provided with trolleys and a suitable automatic braking or signal apparatus, substantially as described.

6. The combination of conductors extending along a railway block-section, and of opposite polarity; a suitable electric-current supply to each conductor; devices on each train for closing the circuits through said conductors, said controlling devices being inoperative when the full strength of the current passes therethrough but operating when a current is weakened or broken, and one electrical signaling or braking apparatus on each train controlled by the said devices, substantially as described,

7. The combination of conductors extending along the track of each block-section of a railway-line, a source of electricity, resistances interposed between the source of electricity and the conductors; devices on the locomotives or trains for circuiting said conductors, a local source of electrical energy on each locomotive or train, means controlled by said devices for closing the local circuits, and signaling or braking apparatus operated by the local circuits, substantially as and for the purpose set forth.

8. In combination, line conductors of opposite polarity extending along the track of a railway block-section, an electrical-current supply to each conductor, devices on the locomotives or trains for closing the circuits through said conductors, and for controlling a local circuit on each train, an electric signaling or braking apparatus on each train or locomotive, and an electric-current supply on each train or locomotive in electrical circuit with such braking or signaling apparatus, such signaling or braking apparatus being operated when its local circuit is closed by said controlling devices, and said controlling devices operating when the currents in the line conductors are cut down, substantially as and for the purpose set forth.

787,030. **APPARATUS FOR TAKING SOUNDINGS AT SEA.** JOHN W. GILLIE, North Shields, England. Filed Mar. 19, 1904. Serial No. 198,923.



Claim.—1. In apparatus for taking soundings, a frame, a screw-threaded aperture in said frame, a perforated plug adapted to screw in said aperture, a transparent removable measuring vessel of upwardly-diminishing diameter held in said frame by said plug and having its upper end in intermediate communication therewith a graduated scale fixed in said measuring vessel and means for lowering and raising said frame.

2. In apparatus for taking soundings, a frame composed of three uprights having top, middle, and bottom plates secured to them, the top plate perforated and screw-threaded, the middle plate slotted, and the bottom plate recessed, a perforated plug adapted to screw in said aperture, a transparent measuring vessel in said frame of upwardly-diminishing diameter and having its upper end in communication with the perforation of the said plug, a graduated scale adapted to said measuring vessel and means for lowering and raising said frame.

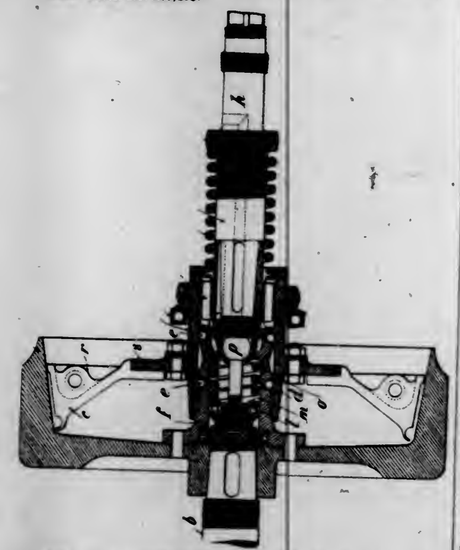
3. In apparatus for taking soundings, a frame, a screw-threaded aperture in said frame, a screw-threaded plug adapted to screw in said aperture and having a horizontal perforation through its screw-threaded part, and a vertical downwardly-directed central perforation communicating with said horizontal perforation, a transparent measuring vessel in said frame of upwardly-diminishing diameter and having its upper end in communication with the perforation of the said plug, a graduated scale adapted to said measuring vessel and means for lowering and raising said frame.

4. In apparatus for taking soundings, a frame, a screw-threaded aperture in said frame, a perforated plug adapted to screw in said aperture and retain the measuring vessel in said frame, an upwardly-tapering transparent celluloid measuring vessel having its lower end closed and its upper end open and adapted to fit water-tight around the interior orifice of the perforation in said plug and receive directly any liquid passing through the perforation of the said plug, a graduated scale fixed in said measuring vessel, and means for lowering and raising said frame.

5. In combination in a sounding apparatus, an outer frame, the perforated plug 4 screwed into the top plate of said frame, the meas-

uring-tube 9 in water-tight connection with the said top plate and open to the lower orifice of the perforated plug 4, the upwardly-thickening scale 10 within said tube 9; and means for lowering and raising the frame, substantially as set forth.

787,031. FRICTION-CLUTCH FOR MOTOR-CARS OR OTHER VEHICLES. LÉONCE GIRARDOT, Puteaux, France. Filed Oct. 14, 1904. Serial No. 228,473.



Claim.—1. A friction-clutch comprising a fly-wheel *a* having a hub *f* fixed to the driving-shaft *b* and provided with a recess, in combination with a friction-cone *c*, a sleeve *d* to which said cone is rigidly connected provided with inward teeth and concentrically mounted on the hub *f* of the fly-wheel, ball-bearings *e* provided in said hub *f*, teeth *g* on the driven shaft *h* gearing, with a suitable amount of play, with the teeth of the sleeve *d*, and resilient means for bringing into contact the cone *c* with the fly-wheel *a*, substantially as and for the purpose set forth.

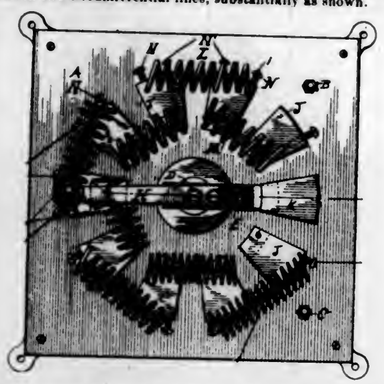
2. A friction-clutch comprising a fly-wheel *a* having a hub *f* fixed to the driving-shaft *b* and provided with a recess, in combination with a friction-cone *c*, a sleeve *d* to which said cone is rigidly connected provided with inward teeth and concentrically mounted on the hub *f* of the fly-wheel, ball-bearings *e* provided in said hub *f*, teeth *g* on the driven shaft *h* gearing, with a suitable amount of play, with the teeth of the sleeve *d*, a rod connected by means of a ball-and-socket joint *p* to the driven shaft *h*, an abutment fixed on said rod and provided with a ball-race and balls *l*, a ring *m* against which said balls *l* rest, a powerful spring *o* which bears against said ring *m* and abuts against a flange of the hub *f*, and resilient means for bringing into contact the cone *c* with the fly-wheel *a*, substantially as and for the purpose set forth.

787,032. RHEOSTAT. FRED E. GOODALL, Chicago, Ill., assignor to Hanson & Van Winkle Company, a Corporation of New Jersey. Filed Oct. 6, 1904. Serial No. 227,464.

Claim.—1. A rheostat having an arm mounted to swing about a center and provided with two elastic contact-points; with contact-blocks disposed circumferentially about the center and provided with contact-points that embrace the contact-points of the arm, and resistance-coils mounted over the blocks and connecting the contact-blocks as described.

2. A rheostat having a switch-arm made of a curved piece of metal whereby its ends are near together and are held apart by the spring of the arm itself and mounted upon a center and adapted to swing about a center and its ends to engage contact-blocks disposed circumferentially about the center; said contact-blocks connected together by resistance-coils and provided with contact-points that embrace the ends of the arm substantially as shown.

3. A rheostat having an arm mounted upon a center and adapted to revolve about the center and engage contact-blocks radially disposed about the center, the contact between the arm and the blocks made by one member embracing the other by elastic contact and resistance-coils connecting the blocks and mounted above the blocks in two circumferential lines, substantially as shown.



4. A rheostat having a switch-arm mounted upon a center and adapted to swing around and engage contact-blocks radially disposed about the center and resistance-coils connecting the blocks mounted above the blocks and connecting-sockets for the coils in the blocks disposed perpendicular to the plane of location of the blocks; said arm made of a curved piece of metal having its two ends bent near together whereby each end acts as a contact-point and said contact-blocks provided with two contact-points one for each point of the arm, substantially as shown.

5. A rheostat having a switch-arm mounted upon a center and adapted to be swung around and engage contact-blocks radially disposed above the center; said arm composed of a bent piece of metal having its two ends near together and said blocks provided with two contact-points one for each of the ends of the arm; resistance-coils disposed circumferentially about the center and connecting the blocks, substantially as shown.

6. A rheostat having a switch-arm mounted upon a center and adapted to be revolved about the center and engaged in contact-blocks radially disposed about the center said blocks connected together by resistance-coils located circumferentially about the center, said blocks provided with contact-points adapted to embrace the contact-points of the arm and said arm provided with contact-points having an elastic pressure of contact, substantially as shown.

7. In a rheostat the combination with a rotating switch comprising electric contact-points, of contact-blocks disposed about said switch having contact points or lips adapted to embrace the contact-points on said switch.

8. In a rheostat the combination with a rotating switch comprising a pair of contact-points of spreading tendency, of contact-blocks disposed about said switch and having contact points or lips adapted to embrace the contact-points on said switch.

9. In a rheostat the combination with a rotating switch, of contact-blocks disposed radially and circumferentially about said switch and adapted to contact therewith, of resistance-coils connecting said contact-blocks and mounted in the same vertical plane therewith.

10. In a rheostat the combination with a rotating switch and contact-blocks radially and circumferentially disposed thereabout, of vertical sockets in said blocks and resistance-coils mounted in said sockets lying vertically above the blocks.

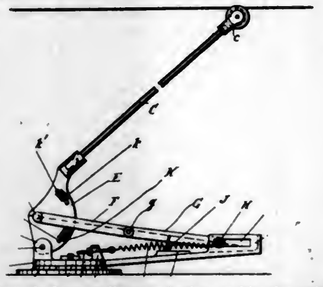
11. In a rheostat the combination with a rotating switch and contact-blocks radially and circumferentially disposed thereabout, of vertical sockets in said blocks, resistance-coils mounted in said sockets and set-screws circumferentially mounted in said blocks and impinging said coils.

12. In a rheostat, the combination with a rotary switch and contact-blocks disposed radially and circumferentially about the same, of resistance-coils connecting the blocks in pairs, respectively, and lying vertically over the blocks connected and extending from outer side to outer side of the pair, and a second set of coils lying nearer the center of rotation and similarly connecting adjacent blocks of adjacent pairs.

13. In a rheostat the combination with a rotating switch and contact-blocks disposed radially and circumferentially thereabout, of overlapping resistance-coils seated in said blocks in two circumferential rows about said switch.

14. In a rheostat the combination with a rotating switch and contact-blocks disposed radially and circumferentially thereabout, of resistance-coils seated in vertical sockets adjacent the outer periphery of the same.

787,033. TROLLEY-STAND. BONIFACE A. GRASBERGER, Richmond, Va. Filed Jan. 23, 1904. Serial No. 190,301.



Claim.—1. In a trolley-stand, the combination, with a base-plate, a plate pivoted to the said base-plate, and a trolley-pole carried by the said plate; of toggle-links pivoted at one end to the said plate, a spring between the other end of the said links and the said base-plate, and a tappet on the said plate which doubles up the said links automatically when the trolley-head leaves the line-wire.

2. In a trolley-stand, the combination, with a base-plate, a plate pivoted to the said base-plate, and a trolley-pole carried by the said plate; of spring-pressed toggle-links pivoted to the said plate, a stop on one of the said links which normally bears on the said base-plate and holds the links substantially in line, and a tappet on the said plate which doubles up the said links automatically when the trolley-head leaves the line-wire.

3. In a trolley-stand, the combination, with a base-plate, a plate pivoted to the said base-plate, and a trolley-pole carried by the said plate; of spring-pressed toggle-links pivoted to the said plate, a tappet on the said plate below one of the said links for doubling them up automatically, and a second tappet on the said plate above the said link for placing the links substantially in line when the trolley-pole is pulled down.

4. In a trolley-stand, the combination with a base-plate provided with guide-slots at one end, a plate pivoted to the other end of the said base-plate, and a trolley-pole carried by the said plate; of toggle-links pivoted at one end to the said plate, a cross-bar at the other end of the said links which slides in the said guide-slots, springs arranged between the said base-plate and the ends of the said cross-bar, a stop which normally holds the toggle-links substantially in line, and a tappet on the said plate which doubles up the links automatically when the trolley-head leaves the line-wire.

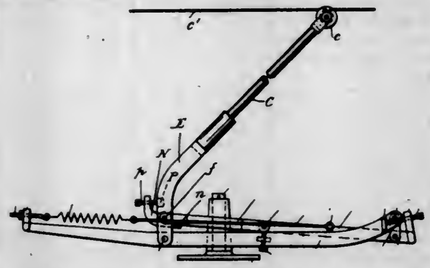
5. The combination, with a base-plate, and a pole-support pivoted thereto; of toggle-links pivoted at one end to the said pole-support, a spring arranged between the other end of the said toggle-links and the said base-plate, means for preventing the said toggle-links from folding downward, and a tappet which moves with the said pole-support and which folds the said toggle-links upward when the trolley leaves the line-wire.

787,034. TROLLEY-STAND. BONIFACE A. GRASBERGER, Richmond, Va. Filed Feb. 9, 1905. Serial No. 244,909.

Claim.—1. The combination, with a frame, and a trolley-arm pivoted thereto; of toggle-links pivoted to the said trolley-arm, a spring arranged between the rear toggle-link and the said frame, means for preventing the said toggle-links from folding downward, and a tappet pivoted to the said trolley-arm and operating to fold the said toggle-links upward when the trolley leaves the line-wire.

2. The combination, with a frame, and a trolley-arm pivoted thereto; of toggle-links pivoted to the said trolley-arm, a spring arranged between the rear toggle-link and the said frame, and a tappet pivoted to the said arm and provided with an end portion which projects under the front toggle-link and an upper end portion which engages with the said arm.

3. The combination, with a frame, and a trolley-arm pivoted thereto; of toggle-links pivoted to the said trolley-arm at one end and slidably supported from the said frame at the other end, a spring arranged between the rear toggle-link and the said frame, a tappet operating between the said trolley-arm and the front toggle-link, and a second tappet operating between the rear toggle-link and the said frame, the said toggle-links being folded upward by the joint action of the said tappets.

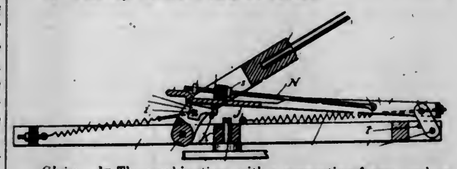


4. The combination, with a frame, and a forked trolley-arm pivoted thereto and provided with a projection above its pivot; of toggle-links pivoted to the said arm by a pin arranged between the said projection and pivot, a spring arranged between the rear toggle-link and the said frame, and a tappet pivoted on the said pin in the fork of the said arm and provided with an end portion which projects under the front toggle-link.

5. The combination, with a frame, and a trolley-arm pivoted thereto; of toggle-links pivoted to the said trolley-arm, the rear toggle-link being provided at its middle part with a cross-piece which projects over the said frame, means for preventing the toggle-links from folding downward, springs arranged between the said cross-piece and the said frame, and tappet mechanism operating to fold the said toggle-links upward when the trolley leaves the line-wire.

6. The combination, with a frame, and a trolley-arm pivoted thereto; of toggle-links pivoted at their front end to the said arm, a link pivotally connecting the rear end of the said toggle-links with the said frame, a tappet or stop which limits the forward movement of the said toggle-links, means for preventing the said toggle-links from folding downward, and a tappet operating between the said trolley-arm and the front toggle-link.

787,035. TROLLEY-STAND. JULIUS A. GRASBERGER, Richmond, Va. Filed Sept. 10, 1904. Serial No. 224,034.



Claim.—1. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, a longitudinal bar pivoted to the said frame at one end and having a gab end for engaging with the said catch, and a spring between the said bar and frame.

2. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, a longitudinal bar pivoted to the said frame at one end and having a gab end for engaging with the said catch, two springs arranged between the said bar and frame one on each side of the said bar, and means for adjusting the tension of the said springs.

3. The combination, with a supporting-frame, and an arm for carrying the trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, a longitudinal bar pivoted to the said frame at one end and having a gab end for engaging with the said catch, a spring between the said bar and frame for holding the said trolley-pole in its raised position, and a second spring between the said arm and the frame for easing the descent of the trolley-pole when the gab end is disengaged from the said catch.

4. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said

arm above its pivot, a longitudinal bar having a gab end for engaging with the said catch, a link pivotally connecting the other end of the said bar with the said frame, a stop for the said link, and a spring between the said arm and frame so that the said link is pressed toward the said stop.

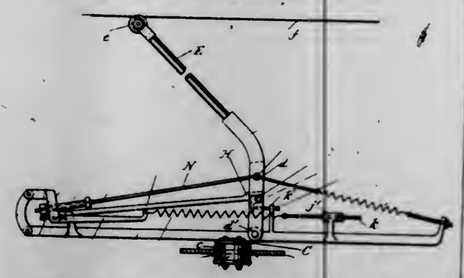
5. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, a longitudinal bar having a gab end for engaging with the said catch and pivoted to the said frame at its other end, a setting-rod pivoted at one end to the said bar and having its other end portion operatively connected with the said arm at a point above the gab end of the said bar, and a spring between the said bar and frame.

6. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, an adjusting device for setting the said catch with respect to the said arm, a longitudinal bar having a gab end for engaging with the said catch and pivoted to the said frame at its other end, and a spring between the said bar and frame.

7. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, a longitudinal bar having a gab end for engaging with the said catch and pivoted to the said frame at its other end, a block pivoted to the said arm above the gab end of the said bar, a setting-rod pivoted to the said bar at one end and having a stop on its other end which engages with the said block, and a spring between the said bar and frame.

8. The combination, with a supporting-frame, and an arm for carrying a trolley-pole pivoted thereto; of a catch pivoted to the said arm above its pivot, a longitudinal bar having a gab end for engaging with the said catch and pivoted to the said frame at its other end, a block pivoted to the said arm above the gab end of the said bar, a setting-rod pivoted to the said bar at one end and having its other end portion slidable in a hole in the said block, adjustable stops on the said setting-rod for engaging with the said block, and a spring between the said bar and frame.

787,036. TROLLEY-STAND. JULIUS A. GRASBERGER, Richmond, Va. Filed Jan. 20, 1905. Serial No. 241,984.



Claim.—1. The combination, with a stationary supporting-plate having a hole, of a trolley-support provided with a disk and a cylinder below the said disk, said cylinder being arranged in the said hole, a disk secured to the bottom of the said cylinder, and antifriction-rings encircling the said cylinder and arranged between the said stationary plate and the two said disks.

2. The combination, with a single supporting-bar arranged to turn upon a vertical axis, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal spring-pressed bar having a gab end at one end for engaging with the said catch, and a link having its ends pivoted to the adjacent ends of the said bars respectively.

3. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal bar having a gab end at one end for engaging with the said catch and having at its other end a cross-head provided with two rearwardly-projecting lugs, springs between the said cross-head and the said supporting-bar, and links pivoted to the said lugs and to the adjacent end of the said supporting-bar.

4. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal bar having a gab end at one end for engaging with the said catch and having a cross-head at its other end, a stop on the said supporting-bar in the forward path of the said cross-head, a pivoted link connection between the said cross-head and the said supporting-bar, and a spring which presses the cross-head toward the said stop.

5. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal spring-pressed bar pivotally connected with the aforesaid bar and having a gab end for engaging with the said catch, a setting-rod pivoted at one end to the said arm and having its other end portion slidable with reference to the said longitudinal bar, and stops on the said setting-rod which engage with the said longitudinal bar.

6. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal bar provided with a cross-head at one end which is pivotally connected with the aforesaid bar and having a gab end for engaging with the said catch, a setting-rod pivoted at one end to the said arm and having a screw-threaded portion at its other end, two stop-nuts on the said screw-threaded portion, and a tube between the said nuts which is slidable in a hole in the said cross-head.

787,037. CURRYCOMB. WALTER H. HACKETT and WALTER T. HODGES, Attleboro, Mass.; said Hodges assignor to said Hackett. Filed Apr. 23, 1904. Serial No. 204,595.



Claim.—1. A currycomb having one or more sets of rotatable blades and a fixed blade set on each side of each set of rotatable blades.

2. A currycomb having one or more sets of serrated rotatable blades and a fixed blade set on each side of said rotatable blades.

3. A currycomb having one or more sets of serrated rotatable blades, and a fixed blade having plain edges set on each side of said rotatable blades.

4. A currycomb, having a plain-edge blade across its front edge, a plain-edge blade across its rear edge and one or more sets of serrated rotatable blades parallel therewith.

5. A currycomb having one or more sets of serrated rotatable blades, said blades being formed of two strips of sheet stock connected together with their edges bent off on an angle to the connecting-surfaces and one or more fixed blades having plain edges.

6. A currycomb having one or more sets of serrated rotatable blades said blades being formed of two strips of sheet stock connected together, and one or more fixed blades having plain edges, said fixed blades being set on each side of said rotatable blades and parallel with them.

7. A currycomb having a plurality of serrated rotatable blades set at intervals on its working face, said blades being formed of two strips of sheet stock connected together, and fixed blades being set on each side of said rotatable blades and parallel with them.

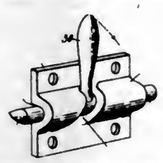
8. A currycomb having a plurality of serrated rotatable blades set at intervals on its working face, said blades being formed of two strips of sheet stock riveted together with their edges bent off on an angle to the riveted portion, fixed blades being set on each side of said rotatable blades and parallel with them, and ears formed integral with the back of the currycomb in which said rotatable blades have their bearings.

9. A currycomb having a plurality of serrated rotatable blades set at intervals on its working face, fixed blades being set on each side of said rotatable blades and parallel with them, and U-shaped ears formed integral with the back of the currycomb in which said rotatable blades have their bearings.

10. A currycomb having one or more sets of serrated rotatable blades, said blades being formed of two strips of sheet stock connected together, and one or more fixed blades having plain edges and means to take up the wear of said rotatable blades and prevent rattling.

11. A currycomb having a plurality of serrated rotatable blades set at intervals on its working face, said blades being formed of two strips of sheet stock riveted together with their edges bent off at an angle to the joining surfaces, fixed blades being set on each side of said rotatable blades and parallel with them, ears formed integral with the back of the currycomb in which said rotatable blades have their bearing, and means including a spring located between one of said ears and the comb-blades for taking up the wear of said blade and preventing rattling.

787,038. DOOR-FASTENING DEVICE FOR GRAIN-DOORS. JOHN J. HAHN, Kansas City, Mo. Filed Dec. 14, 1904. Serial No. 236,812.



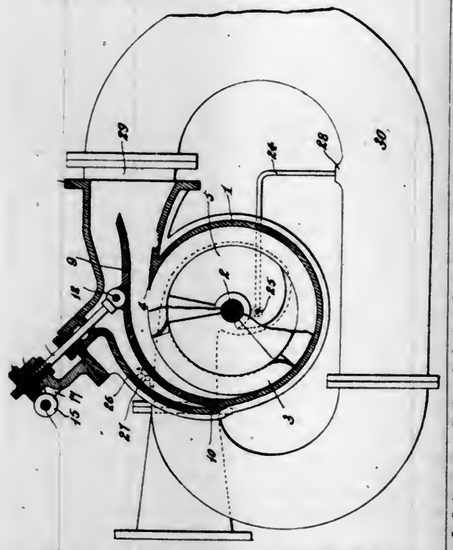
Claim.—1. In fastening devices for doors, &c., a sliding rotary bolt and a cam at the end thereof, the surface of which cam is extended forwardly and gradually reduced in size, the lines of the said surfaces terminating at a point, said point being within the circumference of the bolt-head and eccentric to the longitudinal axis of the bolt.

2. In fastening devices for doors, &c., a sliding rotary bolt and a cam at the end thereof, consisting of a circumferentially-reduced outwardly-curved projecting end portion of said bolt, the lines of said curved surfaces terminating at a point within the circumference of the bolt-head and eccentric to the longitudinal axis of the bolt.

3. A fastening for doors, windows, &c., comprising a bolt-supporting plate, having a longitudinal socket, and an opening communicating with the socket inclined at an angle thereto, a sliding, rotary bolt in said socket, a handle connected with the said bolt and movable in said inclined opening, and a circumferentially-reduced outwardly-curved projecting end portion of said bolt, the lines of the curved surfaces terminating at a point eccentric to the longitudinal axis of the bolt and nearest the line of the surface of the bolt with which the handle is connected, and a perforate keeper-plate.

4. In fastening devices for doors, &c., the combination with a bolt-supporting plate, having a longitudinal socket, and an opening communicating with said socket inclined at an angle thereto, of a sliding rotary bolt and its handle, and a perforate keeper-plate, and a cam adapted to enter the perforation in said plate, the surface of which cam is outwardly curved and the lines of said curved surfaces extended forwardly and terminating at a point, which point is within the circumference of the bolt-head and eccentric to the longitudinal axis of the bolt.

787,039. CENTRIFUGAL PUMP. ELMO G. HARRIS, Rolla, Mo. Filed Sept. 29, 1903. Serial No. 175,032.



Claim.—1. In a centrifugal pump the combination of a rotary propeller-wheel and a casing therefor having a discharge-space the cross-sectional area of which at any given point is no greater than the opening required to permit passage therethrough, at a velocity equal to the peripheral velocity of the wheel, of the total volume of water discharged from the wheel up to that point.

2. In a centrifugal pump the combination of a rotary propeller-wheel and a casing therefor having a discharge-pipe and a discharge-space commencing at a point contiguous to the outer periphery of the propeller-wheel and progressively enlarged toward the point at which it enters the discharge-pipe, the cross-sectional area of which at any given point is no greater than the opening required to permit passage therethrough, at a velocity equal to the peripheral velocity of the wheel, of the total volume of water discharged from the wheel up to that point.

3. In a centrifugal pump the combination of a propeller-wheel and a casing therefor having a discharge-pipe and a discharge-space connecting with said discharge-pipe and with the interior of the casing, the cross-sectional area of the discharge-space at any given point being no greater than that required to permit passage therethrough, at a velocity equal to the peripheral velocity of the wheel, of the total volume of water discharged from the wheel up to that point, and the said discharge-pipe being outwardly flared, whereby the velocity of the water will decrease as it passes therethrough.

4. In a centrifugal pump the combination of a rotary propeller-wheel with a casing, the discharge-space of which is so proportioned as to discharge water from the casing into the delivery-pipe at a velocity not less than the peripheral velocity of the wheel.

5. In a centrifugal pump the combination with a rotary propeller-wheel and a casing therefor having a discharge-pipe and a discharge-space connecting with the discharge-pipe and with the interior of the casing, the said discharge-space being so proportioned that water discharged therefrom into the discharge-pipe will have a velocity not less than the peripheral velocity of the wheel and the discharge-pipe so proportioned that the velocity of the water will be decreased therein.

6. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing therefor, said pump arranged to discharge into a discharge-pipe and having a discharge-space connecting with the discharge-pipe, and a blade or vane located partially within the discharge-space in the casing and partially within the discharge-pipe, one end of said blade or vane arranged in proximity to the peripheral wall of the chamber within which the wheel rotates.

7. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing therefor, said pump arranged to discharge into a discharge-pipe and having a discharge-space connecting with the discharge-pipe, and a movable blade or vane located partially within the discharge-space in the casing and partially within the discharge-pipe.

8. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing therefor, said pump arranged to discharge into a discharge-pipe and having a discharge-space connecting with the discharge-pipe, a blade or vane located partially within the discharge-space in the casing and partially within the discharge-pipe, and means for adjusting the position of the said blade or vane.

9. In a centrifugal pump, the combination with a rotary propeller-wheel, and a casing therefor having a discharge-opening, of an adjusting blade or vane located in proximity thereto, and coacting with the walls of said casing to adjust the area of said discharge-opening.

10. In a centrifugal pump, the combination with a rotary propeller-wheel, and a casing therefor having a discharge-opening, of an adjusting blade or vane located in proximity thereto, and coacting with the walls of said casing to adjust the area of said discharge-opening, and means for adjusting the said blade or vane.

11. In a centrifugal pump the combination with a propeller-wheel and a casing therefor having a discharge-space arranged to discharge into a discharge-pipe, of a blade or vane pivoted to the casing at a point adjacent the outer periphery of the wheel, said blade or vane located partially within the discharge-space and partially within the discharge-pipe and means for adjusting the position of the blade or vane.

12. In a centrifugal pump the combination with a propeller-wheel, of a casing therefor having a discharge-space, a blade or vane located in said discharge-space and pivoted to the casing at a point adjacent the periphery of the wheel, an operating-stem for said blade or vane passing through the casing to the exterior thereof and operating means for the said operating-stem.

13. In a centrifugal pump the combination with a casing and a propeller-wheel therein, said propeller-wheel provided at the rear thereof with means for setting fluid in motion, of means for admitting air between the casing and the rear of said propeller-wheel.

14. In a centrifugal pump the combination with a casing and a

propeller-wheel therein, said propeller-wheel provided at the rear thereof with means for setting fluid in motion, of means for admitting air under pressure between the casing and the rear of said propeller-wheel.

15. In a centrifugal pump the combination with a casing and a propeller-wheel therein, said propeller-wheel provided at the rear thereof with means for setting fluid in motion, said pump having means within itself for forcing air under pressure into the space between the rear of the propeller-wheel and the casing and at a point near the axis of rotation thereof.

16. In a centrifugal pump the combination with a casing and a propeller-wheel, of means for admitting air on the intake side of said pump, and for conveying air, so admitted and discharged through the pump, from the discharge side thereof to the rear of said propeller-wheel near the axis of rotation thereof, said propeller-wheel provided at the rear thereof with vanes.

17. In a centrifugal pump the combination with a plurality of propeller-wheels and casings therefor, of blades or vanes located in the discharge of the casings for each propeller-wheel, and means for simultaneously adjusting the position of all the said blades or vanes.

18. In a centrifugal pump the combination with a single shaft, a duplex propeller-wheel secured thereto and single propeller-wheels secured to said shaft on opposite sides of said duplex propeller-wheel and facing in opposite directions, of casings for the said propeller-wheels, the discharge of the casings for the outer propeller-wheels connected with the intake of the casing for the middle propeller-wheel, a blade or vane located in the discharge-space of the casings for each of said propeller-wheels, pivoted in the casings and extending into the discharge-pipes, and means for simultaneously adjusting the position of all the said blades.

19. In a centrifugal pump the combination with a single shaft, a duplex propeller-wheel secured thereto and single propeller-wheels secured to said shaft on opposite sides of said duplex propeller-wheel and facing in opposite directions, said single propeller-wheels provided at the rear thereof with means for setting fluid in motion, of casings for the said propeller-wheels, the discharge of the casings for the outer propeller-wheels connected with the intake of the casing for the middle propeller-wheel, and means for admitting air under pressure between the outer casings and the rear of the outer propeller-wheels near their axis of rotation.

20. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing therefor having a lateral inlet eccentric of the axis of rotation of the propeller-wheel, and a peripheral discharge-opening extending a portion only of the distance around same, the angular extent of the inlet-opening being not less than the angular extent of the discharge-opening.

21. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing therefor having a lateral inlet eccentric of the axis of rotation of the propeller-wheel, and a peripheral discharge-opening extending a portion only of the distance around same, one end of the inlet-opening being adjacent to one end of the discharge-opening, and the angular extent of the inlet-opening being not less than the angular extent of the discharge-opening.

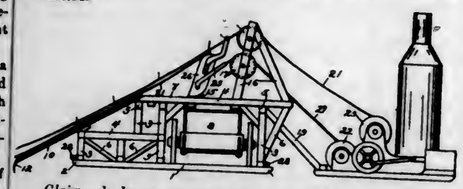
22. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing therefor having a lateral inlet eccentric of the axis of rotation of the propeller-wheel, and a peripheral discharge-opening extending a portion only of the distance around same, the point of cut-off of the discharge-opening being adjacent to the commencement of the inlet-opening, and the angular extent of the inlet-opening being not less than the angular extent of the discharge-opening.

23. In a centrifugal pump the combination with a rotary propeller-wheel, of a casing for said propeller-wheel having a lateral inlet eccentric of the axis of rotation of the propeller-wheel, and a peripheral discharge-opening extending a portion only of the distance around same, the inlet and discharge openings being so disposed with relation to each other that admission is effected through the inlet into the chamber between any two blades of the wheel while that chamber is discharging into the discharge-space of the wheel.

24. In a centrifugal pump the combination of a rotary propeller-wheel with a casing, the discharge-space of which is so proportioned as to discharge water from the casing into the delivery-pipe at a velocity not less than the peripheral velocity of the wheel, said casing provided with a lateral inlet-opening eccentric of the axis of rotation of the propeller-wheel.

25. In a centrifugal pump the combination of a rotary propeller-wheel with a casing having a peripheral discharge-opening extending a portion only of the distance around same, and so proportioned as to discharge water from the casing into the delivery-pipe at a velocity not less than the peripheral velocity of the wheel and having a lateral inlet-opening eccentric of the axis of rotation of the wheel.

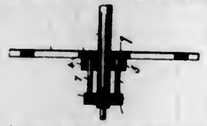
787,040. APPARATUS FOR EXCAVATING TRENCHES, &c. WILLIAM HEYBROK, Cincinnati, Ohio. Filed Dec. 5, 1904. Serial No. 235,540.



Claim.—1. In an apparatus for excavating trenches, a framework, with a raised platform, an inclined way leading to said platform, a leaf hinged to said way to extend the incline to the ground, said leaf being provided with curved shoes to enter the ground at the bottom of the incline, an opening through the platform and a trip-block at the edge of said opening, standards extending above said platform with pulleys mounted thereon and a cable over said pulleys for elevating a scoop to said platform, whereby its contents may be dumped through said opening in the platform, substantially as described.

2. In an apparatus for excavating trenches, a framework, with a raised platform, an inclined way leading to said platform, a leaf hinged to said way to extend the incline to the ground, said leaf being provided with curved shoes to enter the ground at the bottom of the incline, an opening through the platform and a trip-block at the edge of said opening, standards extending above said platform, with pulleys mounted thereon and a cable over said pulleys for elevating a scoop to said platform, said framework being mounted on skids for the ready removal of said apparatus from place to place, substantially as described.

787,041. LANTERN-PINION. ERNEST H. HORN, Waterbury, Conn., assignor to The Waterbury Clock Co., Waterbury, Conn., a Corporation. Filed Oct. 6, 1904. Serial No. 227,425.



Claim.—In a lantern-pinion, the combination with a staff, of an inner and an outer collet mounted thereon, the inner collet constructed with a circular series of perforations, and the outer collet with a series of corresponding seats, leaves extending through said perforations and into said seats, and a movement-wheel having a central portion closely fitting said staff and located adjacent to the inner collet so as to close the perforations therein whereby said leaves are held in place.

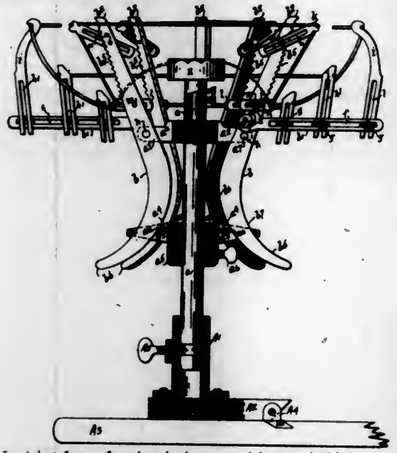
787,042. HAT-FRAME-FORMING DEVICE. EDWARD A. HOWE, New York, N. Y. Filed Oct. 24, 1904. Serial No. 229,822.

Claim.—1. A hat-frame-forming device comprising a suitable support, vertical arms centrally pivoted to the same about a common center, adjustable means carried by the arms for increasing the distance of the outer face of said arms from the center of the device, substantially horizontal arms pivoted to the vertical arms near their pivotal points and actuating means whereby the collapsing of the device entirely frees the finished hat-frame.

2. A hat-frame-forming device comprising a suitable support, vertical arms centrally pivoted to the same about a common center, adjustable means carried by the arms for increasing the distance of the outer face of said arms from the center of the device, substantially horizontal arms pivoted to the vertical arms near their pivotal points and means for moving the vertical arms inward and outward.

3. A hat-frame-forming device comprising a suitable support, vertical arms centrally pivoted to the same, adjustable wire-holders carried by the arms, and substantially horizontal arms pivoted to the vertical arms near their pivotal points the said horizontal arms carrying adjustable wire-holders.

4. A hat-frame-forming device comprising a suitable upright support a collar screwed thereto, vertical arms centrally pivoted to the collar and adapted to oscillate to and from the support, a sliding collar on the support adapted to oscillate the vertical arms, adjustable rigid wire-holders carried by the levers, substantially horizontal rigid adjustable arms pivoted to the vertical arms, and wire-holders carried on the horizontal arms.

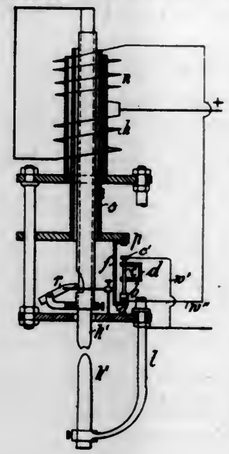


5. A hat-frame-forming device comprising a suitable support, a collar secured thereon, upright notched vertical arms having curved lower ends, centrally pivoted to the collar and adapted to oscillate radially, a movable collar on the support and having recesses to receive the lower ends of the vertical arms, adjustable rigid wire-holders for the upper ends of the vertical arms, substantially horizontal rigid arms, adjustable to the vertical arms near their pivotal points, adjustable wire-holders carried by the horizontal arms.

6. A hat-frame-forming device comprising a suitable upright support, a crown-block adjustable in said support, pivoted oscillating levers connected with the support and substantially horizontal arms, carrying adjustable wire-holders, and carried by the levers.

7. A hat-frame-forming device comprising a suitable upright support, pivoted oscillating levers connected with the support and substantially horizontal arms, carrying adjustable wire-holders and carried by the levers; the upright support adapted to turn in a base, the base hinged and a stop for holding the former in a tilted or upright position.

787,043. ELECTRIC-ARC LAMP. BRUNO JACKISCH, Charlottenburg, Germany, assignor to The Firm of Allgemeine Beleuchtungs und Heiz Industrie Actien Gesellschaft, Berlin, Germany. Filed Sept. 23, 1904. Serial No. 225,629.



Claim.—1. In an electric-arc lamp, the combination, with a slidable upper-carbon holder, and a contact-piece secured thereto; of a guide, a bar slidable in the said guide and provided with a stop which limits its downward movement, a contact-piece carried by the said bar and normally resting on the aforesaid contact-piece, and a shunt-coil connected in circuit with the said contact-pieces so that the shunt-circuit is broken when the carbon-holder descends to a prearranged point.

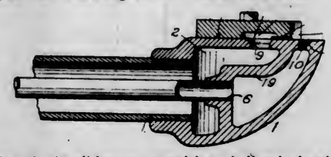
2. In an electric-arc lamp, the combination, with a slidable upper-carbon holder, and a contact-piece secured thereto; of a guide, a bar slidable in the said guide and provided with a stop which limits its downward movement, a contact-piece carried by the said bar and normally resting on the aforesaid contact-piece, and a shunt-coil connected in circuit with the said contact-pieces so that the shunt-circuit is broken when the carbon-holder descends to a prearranged point, and the polarity of the said contact-pieces being arranged in the reverse direction from that of the current producing the arc.

787,044. CONDENSED MILK. SAMUEL R. KENNEDY, Philadelphia, Pa., assignor to The American Dairy Products and Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Apr. 15, 1903. Serial No. 152,793.

Claim.—1. The above-described article of manufacture consisting of a condensed-milk product of a smooth, unctuous quality and agreeable taste, containing the usual elements of condensed milk except the sugar and salts which are present only in a greatly-reduced proportion.

2. The above-described article of manufacture consisting of a condensed-milk product of a smooth, thick and custard-like consistency and agreeable taste, containing the usual elements of condensed milk except the sugar and salts which are present only in a greatly-reduced proportion.

787,045. OIL-BURNER. CHARLES G. KIPLING and HORACE L. WORDEN, Los Angeles, Cal., assignors of one-third to Alfred Meyer, Los Angeles, Cal. Filed Aug. 25, 1904. Serial No. 222,088.



Claim.—1. An oil-burner comprising a hollow body with a partition therein forming steam and oil chambers, said body having a flat top with a steam-opening communicating with the steam-chamber and with an outlet communicating with the oil-chamber and extending in front of the steam-opening, a cap-plate fastened to said top plate and extending over the steam-opening and having a recess on its under side for directing the steam from the steam-opening over the oil-outlet, a steam-pipe leading to the steam-chamber and an oil-pipe leading through the steam-pipe and steam-chamber to the oil-chamber.

2. An oil-burner comprising a hollow body with a partition therein forming steam and oil chambers, said body having a flat top with a steam-opening communicating with the steam-chamber an opening forward of the central opening communicating with the oil-chamber and forming an oil-outlet, a cap-plate fastened to the top plate and having a steam-pocket above the said steam-opening, said cap-plate being formed with a recess extending forwardly from the steam-opening directing steam from the steam-opening forwardly over the oil-outlet, a steam-pipe leading to the steam-chamber and an oil-pipe leading through the steam-pipe and steam-chamber to the oil-chamber.

3. An oil-burner comprising a hollow body with a partition therein forming steam and oil chambers, said body having a flat top with a steam-opening therein, communicating with the steam-chamber and a segmental opening forwardly of said steam-opening communicating with the oil-chamber and forming an oil-outlet, the forward wall of said oil-outlet being lower than the rear wall thereof and the top plate being inclined upwardly forward of said oil-outlet, a cap-plate fastened on said top plate and having a recess extending over the steam-opening for directing steam therefrom over the oil-outlet, a steam-pipe leading into the steam-chamber and an oil-pipe leading through the steam-pipe and steam-chamber to the oil-chamber.

787,046. CLARET-RED MORDANT DYE AND PROCESS OF MAKING SAME. AUGUST L. LASKA, Offenbach-on-the-Main, Germany, assignor to The Firm of K. Oehler, Anilin & Anilinfarben-Fabrik, Offenbach-on-the-Main, Germany. Filed Jan. 7, 1905. Serial No. 240,063.

Claim.—1. The production of mordant dyes, which yield on wool reddish-yellow shades, turning to claret red on subsequently treating with a chromium agent, by combining 2.6-nitro-diazophenol-4-sulfonic acid with cresotinic acids, substantially as described.

2. As new articles of manufacture the coloring-matters, which result from combining 2.6-nitro-diazophenol-4-sulfonic acid with cresotinic acid form yellow to yellowish-red powder, dissolve in concentrated sulfuric acid to a reddish yellow, in water on addition of sodium lye to a red solution and dye on wool reddish-yellow shades, being changed to a claret red on subsequently treating with a chromium agent, all substantially as hereinbefore described.

787,047. ELECTRIC RESISTANCE. HARRY W. LEONARD, Bronxville, N. Y. Filed Dec. 8, 1904. Serial No. 235,830.



Claim.—1. In a device in which electric energy is intentionally converted into heat, a stranded resistive conductor, the individual strands of said conductor composed of a material having a relatively low temperature coefficient.

2. In a device in which electric energy is intentionally converted into heat, a stranded resistive conductor, the individual strands of said conductor composed of a material having a relatively low temperature coefficient and a relatively high specific resistance.

3. In a device in which electric energy is intentionally converted into heat, a stranded resistive conductor, the individual strands of said conductor composed of a material having a relatively low temperature coefficient and a relatively high specific resistance and coefficient of expansion.

4. The combination of a stranded conductor having interstices between the strands, means for supporting said conductor, and a heat-resisting insulating material within said interstices.

5. The combination of a stranded conductor of high specific resistance and low temperature coefficient, means for supporting said conductor, and an insulating heat-resisting material embedding and surrounding said conductor.

6. The combination of a stranded conductor of high specific resistance and low temperature coefficient, a support for said conductor, and an insulating heat-resisting material embedding and surrounding said conductor and fixing the same in position upon said support.

7. The combination of a stranded conductor of high specific resistance and low temperature coefficient, a support for said conductor composed of insulating material, and an insulating heat-resisting material embedding and surrounding said conductor and securing the same in position upon said support.

8. The combination of a conductor in the form of a flat braid, means for supporting said conductor, and a mineral insulating material embedding and surrounding said conductor.

9. The combination of a conductor in the form of a flat braid having interstices between the strands, means for supporting said conductor, and a heat-resisting insulating material filled within said interstices and surrounding said conductor, said material serving to conduct and dissipate heat from said conductor.

10. The combination of a stranded resistive conductor, said conductor composed of an alloy, means for supporting said conductor, and a copper terminal lead-wire electrically connected to said conductor.

11. The combination of a stranded resistive conductor, said conductor composed of an alloy, means for supporting said conductor, and a copper-stranded terminal lead-wire electrically connected to said conductor.

12. The combination of a braided resistive conductor, said conductor composed of an alloy, means for supporting said conductor, and a copper-braided terminal lead electrically connected to said conductor.

13. In a rheostat or electric heater, the combination with the resistive conductor, of a stranded copper lead electrically connected to said conductor.

14. In a rheostat or electric heater, the combination with the resistive conductor, of a copper lead composed of strands braided together and electrically connected to said conductor.

15. In a rheostat or electric heater, the combination with the resistive conductor, of a copper lead electrically connected with said conductor, said lead composed of a plurality of copper conductors.

16. In a rheostat or electric heater, the combination with the resistive conductor, of a lead electrically connected to said conductor, said lead composed of reflexed copper wires.

17. The combination of a resistive conductor, means for supporting said conductor, solid insulating material surrounding said conductor, and a stranded copper terminal lead electrically connected to said conductor.

18. The combination of a stranded conductor of high specific resistance and low temperature coefficient, means for supporting said conductor, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded copper terminal lead-wire electrically connected to said conductor.

19. The combination of a stranded conductor, said conductor composed of an alloy containing nickel, means for supporting said conductor, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded terminal lead-wire electrically connected to said conductor.

20. The combination of a stranded conductor, said conductor composed of an alloy containing nickel and copper, means for supporting said conductor, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded copper terminal lead-wire electrically connected to said conductor.

21. The combination of a conductor in the form of a flat braid, means for supporting said conductor, a mineral insulating material embedding and surrounding said conductor, and a braided copper terminal lead electrically connected to said conductor.

22. The combination of a conductor in the form of a flat braid, means for supporting said conductor, a mineral insulating material embedding and surrounding said conductor, and a braided copper terminal lead electrically connected to said conductor, said connection being formed by a hammered joint.

23. The combination of a resistive conductor having a relatively high specific expansion, said conductor being subdivided and reflexed, a support having a relatively low specific expansion, and an adhesive coating embedding said conductor and adhesively engaging said support.

24. The combination of a resistive conductor composed of a plurality of reflexed wires, the material of said conductor being an alloy having a relatively high coefficient of expansion, a high specific resistance and low temperature coefficient, a support of relatively low specific expansion, and an adhesive coating embedding said conductor and adhesively engaging said support.

25. The combination of a resistive conductor composed of a plurality of reflexed wires, the material of said conductor being an alloy having a relatively high coefficient of expansion, a high specific resistance and low temperature coefficient, a support of relatively low specific expansion, and an adhesive coating embedding said conductor and hermetically sealing the same, and adhesively engaging said support.

26. As a new article of manufacture, a stranded conductor having interstices between the strands, said conductor composed of an alloy.

27. As a new article of manufacture, a stranded conductor, said conductor composed of a metallic alloy having a high specific resistance.

28. As a new article of manufacture, a stranded conductor, said conductor composed of a metallic alloy having a high specific resistance and a low temperature coefficient.

29. As a new article of manufacture, a resistive conductor composed of an alloy and in the form of a flat braid.

30. As a new article of manufacture, a resistive conductor composed of an alloy and in the form of a flat braid, said alloy having designedly relatively low temperature coefficient.

31. As a new article of manufacture, a resistive conductor composed of an alloy and in the form of a flat braid, said alloy containing nickel and having designedly a low temperature coefficient.

32. As a new article of manufacture, a resistive conductor composed of an alloy and in the form of a flat braid, said alloy containing nickel and copper and having designedly a low temperature coefficient.

33. As a new article of manufacture, a resistive conductor composed of an alloy and in the form of a flat braid, said alloy containing nickel and copper as the principal ingredients, and having designedly a low temperature coefficient.

34. The combination of a resistive conductor, a support for said conductor, a terminal lead electrically connected to said conductor, said connection being some distance from one end of said lead, and means for securing said lead to said support comprising a wire, one end of said wire being twisted to one end of said lead, and the other end of said wire being twisted upon said lead above said connection.

35. The combination of a resistive conductor, a support for said conductor, a terminal lead electrically connected to said conductor, said connection being some distance from one end of said lead, and means for securing said lead to said support comprising a wire, one end of said wire being twisted to one end of said lead and the other end of said wire being twisted upon said lead above said connection and in such a direction along said lead as to closely engage said support.

36. The method of preventing detrimental strains in the insulating material in which a conductor is embedded, which consists in dividing the conductor into a plurality of strands, embedding said strands in an insulating medium, and dividing the current in multiple between the several strands.

37. The method of preventing detrimental strains in an insulating medium in which a conductor is embedded, which consists in embedding the conductor in an insulating medium, dividing the current between a plurality of strands composing the resistive conductor, and subdividing and distributing the total strain.

38. The combination of a stranded conductor having interstices between the strands, and a heat-resisting insulating material within said interstices.

39. The combination of a stranded conductor of high specific resistance and low temperature coefficient, and an insulating heat-resisting material embedding and surrounding said conductor.

40. The combination of a conductor in the form of a flat braid, and a mineral insulating material embedding and surrounding said conductor.

41. The combination of a resistive conductor, solid insulating material surrounding said conductor, and a stranded copper terminal lead electrically connected to said conductor.

42. The combination of a stranded conductor of high specific resistance and low temperature coefficient, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded copper terminal lead-wire electrically connected to said conductor.

43. The combination of a stranded conductor, said conductor composed of an alloy containing nickel, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded terminal lead-wire electrically connected to said conductor.

44. The combination of a stranded conductor, said conductor composed of an alloy containing nickel and copper, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded copper terminal lead-wire electrically connected to said conductor.

45. The combination of a conductor in the form of a flat braid, a mineral insulating material embedding and surrounding said conductor, and a braided copper terminal lead electrically connected to said conductor.

46. The combination of stranded resistive conductors, an insulating heat-resisting material embedding said conductors, and means electrically connected to said conductors for connecting them in series or in parallel.

47. The combination of stranded resistive conductors, an insulating heat-resisting material embedding said conductors, and stranded terminal leads electrically connected to said conductors.

48. The combination of a support having a flat surface, stranded resistive conductors, an insulating heat-resisting material embedding said conductors, and stranded terminal leads electrically connected to said conductors.

49. The combination of a support having a flat surface, resistive conductors in the form of a flat braid, said conductors composed of an alloy having a low temperature coefficient, and stranded copper terminal leads electrically connected to said conductors.

50. In a rheostat or electric heater, the combination of a resistive conductor composed of an alloy containing nickel and copper and having a relatively high coefficient of expansion, a relatively high specific resistance and a relatively low temperature coefficient, a support of insulating heat-resisting material for said conductor having a relatively low coefficient of expansion, an exposed terminal forming an electrical joint with said resistive conductor, a coating of insulating heat-resisting material covering and surrounding said resistive conductor and said joint, the said conductor being reflexed, whereby destructive strains in the coating is prevented when the resistive conductor is heated by the current.

51. The combination of a resistive conductor, a support for said conductor, said support having a depression, and a terminal lead electrically connected to said conductor and partly seated in said depression.

52. The combination of a resistive conductor, a support for said conductor, said support having a depression, and a terminal lead forming an electrical joint with said conductor, the joint and part of said lead being seated in said depression.

53. The combination of a resistive conductor, a support having a depression, a terminal lead forming an electrical joint with said conductor, the joint and part of said lead seated in said depression, and a coating of insulating material covering said resistive conductor and said joint.

54. In a rheostat or electric heater, the combination with the resistive conductor, of a stranded lead electrically connected to said conductor.

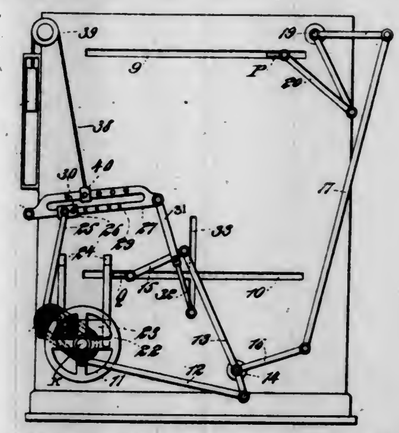
55. In a rheostat or electric heater, the combination with the resistive conductor, of a lead composed of strands braided together and electrically connected to said conductor.

56. In a rheostat or electric heater, the combination with the resistive conductor, of a lead electrically connected to said conductor, said lead composed of a plurality of reflexed wires.

57. The combination of a resistive conductor, means for supporting said conductor, solid insulating material surrounding said conductor, and a stranded terminal lead electrically connected to said conductor.

58. The combination of a stranded conductor of high specific resistance and low temperature coefficient, means for supporting said conductor, an insulating heat-resisting material embedding and surrounding said conductor, and a stranded terminal lead-wire electrically connected to said conductor.

787,048. SHOW-CASE. HERMAN J. S. LEWIS, New York, N. Y., assignor, by mesne assignments, to Florence Exhibitor System, New York, N. Y., a Corporation of New York. Filed Feb. 2, 1904. Serial No. 191,655.



Claim.—1. In a device of the character described, a set of holders arranged in a plurality of runs or portions forming together a practically-continuous series, and means for alternately feeding and allowing to remain stationary, the holders of each of said runs or portions.

2. In a device of the character described, a frame, a set of holders arranged to travel and means for feeding successive portions of said holders while leaving the remainder stationary.

3. In a device of the character described, a frame, a set of holders arranged in an approximately continuous series with an intervening gap, and means for successively moving different portions of the set to change the position of the said gap.

4. In a device of the character described, a set of holders arranged in an approximately continuous series with an intervening gap, a shaft, and feeding devices controlled by turning the said shaft, for successively moving different portions of the set to change the position of the said gap.

5. In a device of the character described, a set of holders, a

frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, and means for bringing about a movement of the holders in opposite directions in the two columns.

6. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, feeding devices for moving the top row in one direction and simultaneously moving the bottom row in the opposite direction, and means for bringing about a movement of the holders in opposite directions in the two columns.

7. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, slides movable adjacent to said rows and arranged to move the respective holders in opposite directions, and means for bringing about a movement of the holders in opposite directions in the two columns.

8. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, means for moving the holders of said rows in opposite directions, latches for holding the holders in the said columns in an elevated position, means for lifting the holders in one column, and means for releasing the latching device in the other column.

9. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of the holders in a top row and others in a bottom row, means for moving the holders of said rows in opposite directions, latching devices for maintaining the holders in the columns in an elevated position, a vertically-movable support for raising the holders in one column, and means for releasing the latching device in the other column.

10. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, a lifting device for elevating the holders in one column, and a counterbalancing mechanism connected with said lifting device.

11. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, a lifting device for lifting the holders in one column, a counterbalancing device connected with said lifting device, and means for adjusting the action of the counterbalancing device.

12. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, a lifting device for elevating the holders in one column, a lever pivoted to the frame, a counterbalance connected with said lever, and a slide movable on said lever and connected with said lifting device.

13. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, a lifting device for elevating the holders in one column, a lever pivoted to the frame, a counterbalance connected with said lever, a slide movable on said lever and connected with said lifting device, and an adjusting-screw journaled in said lever and engaging said slide.

14. In a device of the character described, a frame, a set of holders, means for moving the holders in a predetermined path, platforms or supports mounted to turn on the holders and stationary racks for turning said platforms by the movement of the holders.

15. In a device of the character described, a frame, a set of holders, means for moving said holders in a predetermined path, platforms or supports mounted to turn on said holders and means carried by the frame for causing the said supports to turn as the holders move.

16. In a device of the character described, a frame, a set of holders, means for causing said holders to travel in a predetermined path, platforms or supports mounted to turn on said holders, and means for turning said supports.

17. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, means for causing said holders to travel in a predetermined path, platforms or supports mounted to turn on said holders, and means located adjacent to said top row, for causing the supports to turn as the respective holders travel in said row.

18. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, means for causing said holders to travel in a predetermined path, platforms or supports mounted to turn on said holders, and means located adjacent to one of said rows for causing the said supports to turn as the respective holders travel in the said row.

19. In a device of the character described, a frame, a set of holders arranged to travel, means for successively feeding a portion of said holders while leaving the remainder stationary, turn-tables or carriers mounted to turn on said holders, and means for turning said carriers.

20. In a device of the character described, a frame, a set of holders arranged to travel, means for successively feeding a portion of said holders while leaving the remainder stationary, turn-tables or carriers mounted to turn on said holders, and means for turning said carriers by the movement of the holders.

21. In a device of the character described, a frame, a set of holders arranged to travel, means for successively feeding a portion of said holders while leaving the remainder stationary, turn-tables or carriers mounted to turn on said holders, and a rack arranged on the frame and adapted to turn the said carriers as the holders travel relatively to the frame adjacent to the rack.

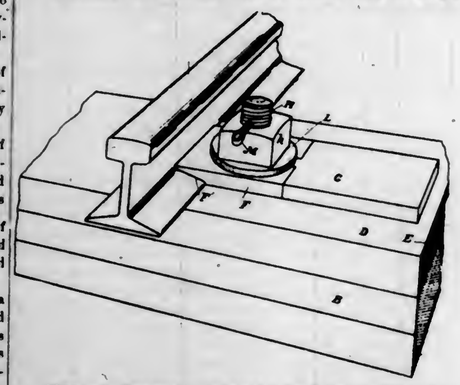
22. In a device of the character described, a frame, a set of holders arranged to travel, means for successively feeding a portion of said holders while leaving the remainder stationary, geared turn-tables or carriers mounted to turn on said holders, and a rack arranged on the frame and adapted to mesh with one of the geared carriers on each holder to rotate said carriers as the holders travel adjacent to the rack.

23. In a device of the character described, a set of holders arranged in an approximately continuous series with an intervening gap and arranged to move in a path lying in a vertical plane, means for moving the holders at the top and at the bottom in opposite directions and about horizontally, a lifter for raising sundry of the holders, and a counterbalancing device connected with said lifter.

24. In a device of the character described, a set of holders arranged in an approximately continuous series with an intervening gap and arranged to move in a path lying in a vertical plane, means for moving the holders at the top and at the bottom in opposite directions and about horizontally, a lifter raising sundry of the holders, a counterbalancing device connected with said lifter, and means for adjusting the connection of the counterbalancing device with the lifter.

25. In a device of the character described, a set of holders, a frame having guideways to arrange said holders in two columns, and certain of said holders in a top row and others in a bottom row, feeding devices for moving the top row in one direction and simultaneously moving the bottom row in the opposite direction, a lifter for raising one column of holders, and a counterbalancing device connected with said lifter.

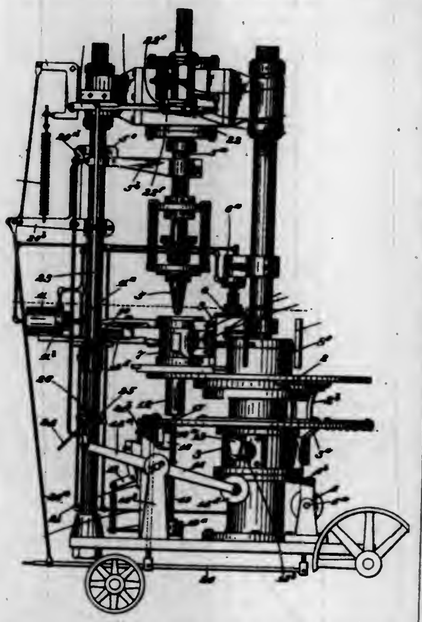
787,049. **RAILWAY-TIE.** MATTHEW H. MAHAR, West Bay City, Mich., assignor of one-third to John A. Dowker and one-third to James A. Carpenter, Bay City, Mich. Filed Jan. 16, 1905. Serial No. 241,275.



Claim.—1. The combination with a T-rail of a cement tie having upper and lower reinforcing-plates, said upper reinforcing-plate having near either end transverse and longitudinal intersecting slots; a rail-fastener, comprising a clip in engagement with said T-rail, a locking-piece in engagement with said clip and said upper reinforcing-plate and means for securing said clip to said reinforcing-plate.

2. The combination with a T-rail of a cement tie having upper and lower reinforcing-plates, said upper reinforcing-plate having near either end transverse and longitudinal intersecting slots; a rail-fastener comprising a centrally-slotted clip, the forward end being in engagement with said T-rail, a locking-piece having a forwardly-extending point in engagement with a slot in the rear end of said clip and having a downwardly and rearwardly projecting arm in engagement with said upper reinforcing-plate; and means for securing said clip to said reinforcing-plate and tightening said clip against said T-rail.

787,050. **GLASS-MOLDING MACHINE.** EDWARD MILLER, Columbus, Ohio. Filed Dec. 6, 1904. Serial No. 235,664.



Claim.—1. In a glass-molding machine, the combination of a mold-carrier and molds thereon composed of hinged sections, means for engaging and locking the molds at their outer sides comprising a pair of hinged levers having clamping-jaws, and means for moving the levers inward and outward toward the molds and means for holding the levers in open position until their jaws are opposite the parts to be clamped, and means for arresting the inward movement of the levers while the moving means close the jaws.

2. In a glass-molding machine, the combination of a mold-carrier and molds thereon composed of hinged sections, means for engaging and locking the molds at their outer sides comprising a pair of levers having clamping-jaws 10, a sliding block 10^c on which said levers are pivoted, toggle-links 10^a and a block 10^b to which said toggle-links are connected, a stop 11^a and means for moving the levers, substantially as described.

3. In a glass-molding machine, the combination of a mold-carrier, and a circular series of molds thereon composed of hinged sections, and means for locking such mold-sections in closed position comprising radially-slidable keys adapted to engage the inner ends of the mold-sections.

4. In a glass-molding machine, the combination of a mold-carrier and a circular series of molds thereon composed of hinged sections, and means for locking such mold-sections in closed position comprising radially spring-held slidable keys adapted to engage the inner ends of the mold-sections.

5. In a glass-molding machine, the combination of a mold-carrier and a circular series of molds thereon composed of hinged sections and means for locking such mold-sections in closed position comprising radially-slidable keys and means for moving them toward and from locking position.

6. In a glass-molding machine, the combination of a mold-carrier, and a circular series of molds thereon composed of hinged sections, means for locking such mold-sections in closed position comprising radially-slidable spring-held keys, and means for moving them toward and from locking position.

7. In a glass-molding machine, the combination of a mold-carrier and a circular series of molds thereon composed of hinged sections, means for locking such mold-sections at their inner ends in closed position comprising arms or shanks for carrying the mold-locking keys, spring-held locking-keys in said arms, means for carrying said arms with the mold-carrier, and a cam to move said arms toward and from the molds while being carried, substantially as described.

8. In a glass-molding machine, the combination of a rotary mold-carrier and a circular series of molds thereon, a primary-mold-bottom carrier arranged below the mold-carrier, and primary bottoms in said last-named carrier, a glass-pressing plunger, means for moving the molds and bottoms successively into position under the plunger, means for lifting a primary bottom into a mold and supporting the same therein prior to its movement to position under the pressing-plunger, means for carrying the same in supported position to position under the plunger, and second a primary-bottom support adapted to displace the first-mentioned support when the glass-pressing plunger descends into the mold.

9. In a glass-molding machine, the combination of a rotary mold-carrier and a circular series of molds thereon, a primary-mold-bottom carrier arranged below the mold-carrier, and primary bottoms in said last-named carrier, a glass-pressing plunger, means for moving the molds and bottoms successively into position under the plunger, means for lifting a primary bottom into a mold and supporting the same therein prior to its movement to position under the pressing-plunger, means for carrying the same in supported position to position under the plunger a second primary-bottom support itself yieldingly supported adapted to displace the first-mentioned support when the glass-pressing plunger descends into the mold.

10. In a glass-molding machine, the combination of a rotary mold-carrier and a circular series of molds thereon, a primary-mold-bottom carrier arranged below the mold-carrier and primary bottoms in said last-named carrier, a glass-pressing plunger, means for moving the molds and bottoms successively into position under the plunger, a lock for the carriers, a movable support for the primary bottoms operated by said lock, and a trip operated by the table to latch said lock out of table-locking position, substantially as described.

11. In a glass-molding machine, the combination of a rotary table to receive a circular series of blow-mold sections, means for rotating said table, means for locking the blow-mold sections together at their outer ends, and a blow-head, means adapted to be operated one way for automatically rotating the table, unlocking the blow-mold sections and causing the blow-head to rise from a blow-mold, and said means being adapted to be operated another way to automatically lock the blow-mold sections together, cause the blow-head to descend onto a blow-mold, and restore the table-rotating means to table-rotating position.

12. In a glass-molding machine, the combination of a mold-table, means for intermittently rotating the same, a reciprocating plunger to press the glass in molds on said table, and devices independent of the plunger for locking said table with means to be operated by said plunger to unlock the table.

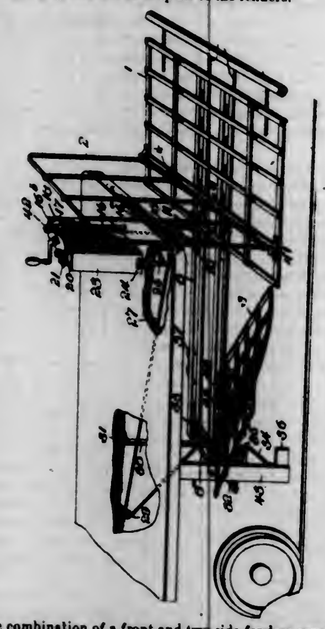
13. In a glass-molding machine, the combination of a mold-table, means for intermittently rotating the same, locking devices for the table, a glass-pressing plunger and fluid-pressure cylinder for operating the same, a shiftable valve device therefor, and means for operating the table-locking and valve-shifting devices by the plunger.

14. In a glass-molding machine, the combination with a mold-table, means for intermittently rotating the same, locking devices for the table, a glass-pressing plunger and fluid-pressure cylinder for operating the same, a shiftable valve device therefor, means operated by the plunger for operating the table-locking device and for automatically rearranging the valve-shifting device to move the same into valve-shifting position.

15. In a glass-molding machine, the combination with the mold-table, and means for intermittently rotating the same, a glass-pressing plunger, a fluid-pressure-cylinder for operating the glass-pressing plunger and a valve-shifting device for said cylinder, means operated by the plunger for automatically rearranging the valve-shifting device to place the same in valve-shifting position.

787,051. **WHEEL-FENDER.** THOMAS H. QUINN, Cleveland, Ohio. Filed Dec. 17, 1904. Serial No. 237,261.

Claim.—1. The combination of a front and two side fenders arranged to lift and drop, of an impact-bar before the front fender, and means actuated by said bar to drop all of the fenders.



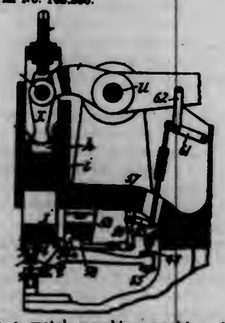
2. The combination of a front and two side fenders arranged to lift and drop, and means on the car, adapted to be actuated by the motorman, to drop said fenders.

3. The combination with a car having a controller thereon, of a fender arranged to lift and drop, and means connected to the reversing-lever of the controller to drop the fender when said lever is turned.

4. The combination with a lift-and-drop fender, of a supporting-hanger therefor, and means constructed to be actuated both by impact with an object on the track, and by a person on the car, to release the hangers and drop the fenders.

5. The combination with the hinged side fenders, sliding bolts supported on the car and arranged to hold up the fenders, an impact-bar at the front of the car, a man-operated device on the car-platform, and connections between said bolts and the impact-bar and device, constructed to draw the bolts and drop the fenders by operation of either the said impact-bar or the device.

787,052. **PUNCH.** WILLIAM ROSS, Montreal, Canada. Filed June 19, 1903. Serial No. 162,283.



Claim.—1. In a metal-punching machine, the combination with a punching-tool, means for actuating same, the frame of the machine and a work-support in line with said punching-tool, of a lever, means pivotally connecting one end of said lever to the frame of the machine, the opposite end of said lever being located adjacent to said tool and adapted to act as a stripper, a suitably-supported bracket having said lever slidably connected thereto and presenting a shoulder above and in close proximity to said lever, said bracket being adapted to guide the lever in its movement, a wedge adapted to be inserted between said shoulder and said lever, means actuated in unison with said punching-tool for inserting said wedge when the tool is descending and withdrawing said wedge when the tool rises, and means yieldingly supporting said lever, for the purpose set forth.

2. In a metal-punching machine, the combination with a punching-tool, means for actuating same the frame of the machine and a work-support in line with said punching-tool, of a lever, means pivotally connecting one end of said lever to the frame of the machine, the opposite end of said lever being located adjacent to said tool and adapted to act as a stripper, a suitably-supported bracket having said lever slidably connected thereto and presenting a shoulder above and in close proximity to said lever, a wedge adapted to be inserted between said shoulder and said lever, means actuated in unison with said punching-tool for inserting said wedge when the tool is descending and withdrawing said wedge when the tool rises, and means yieldingly supporting said lever, for the purpose set forth.

3. In a metal-punching machine, the combination with a punching-tool, means for actuating same, the frame of the machine and a work-support in line with said punching-tool, of a lever, adjustable means pivotally connecting one end of said lever to the frame of the machine, the opposite end of said lever being located adjacent to said tool and adapted to act as a stripper, a suitably-supported bracket having said lever slidably connected thereto and presenting a shoulder above and in close proximity to said lever, a wedge adapted to be inserted between said shoulder and said lever, means actuated in unison with said punching-tool for inserting said wedge when the tool is descending and withdrawing said wedge when the tool rises, and means yieldingly supporting said lever, for the purpose set forth.

4. The combination with a reciprocating tool and a frame for carrying same, of a lever having one end projecting into close proximity to the tool and formed to act as a stripper, means retaining the stripper end of said lever temporarily against movement with the tool and adjustable means pivotally connecting the opposite end of said lever to the frame.

5. The combination with a reciprocating tool and a frame for carrying same, of a lever having one end projecting into close proximity to the tool and formed to act as a stripper, means retaining the stripper end of said lever temporarily against movement with the tool, a bolt pivotally connected to the frame adjacent to the opposite end of said lever, a part adjustable along said bolt and a pivotal connection between said part and the last-mentioned end of the lever.

6. The combination with a reciprocating tool and a frame for carrying same, of a lever having one end projecting into close proximity to the tool and formed to act as a stripper, a bracket carried by the frame and located between the ends of said lever, a lateral projection upon said lever projecting through a slot in said bracket, a retractile helical spring connected at one end to said bracket and at its opposite end to the said lateral projection upon the lever, said bracket being formed with a shoulder above said lever, a wedge having a shoulder formed upon its upper side and adapted to be inserted between the lever and the shoulder upon the bracket, means actuated in unison with said reciprocating tool for drawing the shoulder upon the wedge into engagement with the shoulder upon the bracket when the tool is descending and separating said parts when the tool rises, and means pivotally connecting the opposite end of said lever to the frame of the machine.

7. The combination with a reciprocating tool and a frame for carrying same, of a lever having one end projecting into close proximity to the tool and formed to act as a stripper, a bracket carried by the frame and located between the ends of said lever, a lateral projection upon said lever projecting through a slot in said bracket, a retractile helical spring connected at one end to said bracket and at its opposite end to the said lateral projection upon the lever, said bracket being formed with a shoulder above said lever, a wedge having a shoulder formed upon its upper side and adapted to be inserted between the lever and the shoulder upon the bracket, means actuated in unison with said reciprocating tool for drawing the shoulder on the wedge into engagement with the shoulder on the bracket when the tool is descending and separating said parts when the tool rises, and adjustable means pivotally connecting the opposite end of said lever to the frame of the machine.

8. The combination with a reciprocating tool and a frame for carrying same, of a lever having one end projecting into close proximity to the tool and formed to act as a stripper, a bracket carried by the frame and located between the ends of said lever, a lateral projection upon said lever projecting through a slot in said bracket, a retractile helical spring connected at one end to said bracket and at its opposite end to the said lateral projection upon the lever, said bracket being formed with a shoulder above said lever, a wedge having a shoulder formed upon its upper side and adapted to be inserted between the lever and the shoulder upon the bracket, means actuated in unison with said reciprocating tool for drawing the shoulder upon the wedge into engagement with the shoulder upon the bracket when the tool is descending and separating said parts when the tool rises, and adjustable means pivotally connecting the opposite end of said lever to the frame of the machine, the opposite end of said lever being located adjacent to said tool and adapted to act as a stripper, a suitably-supported bracket having said lever slidably connected thereto and presenting a shoulder above and in close proximity to said lever, said bracket being adapted to guide the lever in its movement, a wedge adapted to be inserted between said shoulder and said lever, means actuated in unison with said reciprocating tool for drawing the shoulder upon the wedge into engagement with the shoulder upon the bracket when the tool is descending and withdrawing said wedge when the tool rises, and means yieldingly supporting said lever, for the purpose set forth.

9. In a metal-punching machine, the combination with the frame thereof having a vertical guideway therein, a work-support beneath said guideway, a tool-carrier movable within said guideway, a tool carried by the lower end thereof, a lever fulcrumed to said frame and operatively connected at one end to said tool-carrier, of a bracket secured to said frame adjacent to said guideway and presenting a shoulder, a lever slidably connected at a point between its ends to said bracket below and adjacent to said shoulder and having one end forked and extended to straddle said punching-tool and its other end pivotally connected to a stationary part of the frame, means yieldingly supporting said lever, a wedge adapted to be inserted between said shoulder and lever, a bell-crank lever fulcrumed to a stationary part of the frame, and having one arm pivotally connected to said wedge and its other arm projecting horizontally, a yielding link-rod connected at its lower end to said last-mentioned arm of the bell-crank lever and extending upwardly through the frame of the machine, a lever-arm fulcrumed at one end to the frame of the machine and pivotally connected at its other end to the upper end of said link, and a link operatively connecting said last-mentioned lever to said main lever, for the purpose set forth.

787,053. **STORE-FRONT.** MARK SALOMON, Chicago, Ill. Filed July 20, 1903. Serial No. 166,244.

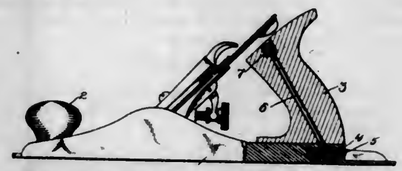


Claim.—1. In combination with a frame provided with ways at the sides thereof, an upper section hinged to the frame above the opening of the same, a lower section hinged to the lower edge of the upper section, guides mounted on the lower section and running in the ways, means for securing the sections in closed position, and a spring for breaking the joint between the sections when the securing means are released.

2. In combination with a building having an open front and a frame around the front, a track extending inwardly from each side of the frame, a front for closing the opening and comprising a pair of folding sections, one of which is hinged to the frame above the opening and the other of which is hinged to the lower edge of the first section and is provided with a doorway, a door closing the said doorway, a bracket attached to each of the lower corners of the second section and having a roller journaled therein and running on the track, a plate pivoted on the bracket and also running on the track, sheaves mounted on the frame above the upper section, and cables attached to the plates and running over the sheaves.

3. In combination with a building having an open front and a frame around the opening having a channel at each side and a track extending inwardly from the channel, a front closing the opening and comprising a pair of inwardly-folding sections, one of which is hinged to the frame above the opening and the other of which is hinged to the lower edge of the first section and is provided with a doorway, hinged doors closing the doorway, bolts for securing the sections in closed position, a bracket attached to each of the lower corners of the section and having a roller journaled thereon running on the track, a plate pivoted on the bracket and having a flange also running on the track, sheaves secured in the channels in the frame, and cables attached to the plates and running over the pulleys, counterbalance-weights on the cables, an operating-chain, and springs secured to the tracks for breaking the joint between the sections.

787,054. **PLANE.** EDMUND A. SCHADE and ALBERT F. SCHADE, New Britain, Conn., assignors to Stanley Rule & Level Company, New Britain, Conn., a Corporation of Connecticut. Filed Oct. 22, 1904. Serial No. 229,530.

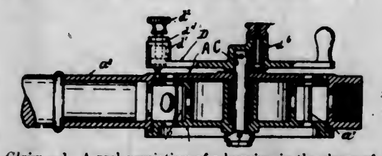


Claim.—1. In a plane, the combination of a body or stock portion having a long semicylindrical bearing, a handle member having a corresponding semicylindrical bearing, a pin mounted to oscillate in the body portion and a rod passing through said handle member and secured to said pin with means to coact therewith for clamping the handle in position at different angular positions.

2. In a plane, the combination of a body or stock portion having a longitudinal bearing, a handle tiltingly seated thereon, a pin mounted in said body portion and a rod passing through said handle and screwed into said pin with means for coacting therewith and clamping said handle in position.

3. In a plane the combination of a body portion having a bearing, a handle mounted to tilt thereon, a pin rotatably mounted in said stock portion beneath said bearing, a rod passing through said handle and screw-seated in said pin and a cap coacting with said rod and said handle and accessible for clamping said handle in position.

787,055. **FISHING-POLE AND REEL.** FRANK SCHREIDT, Mansfield, Ohio. Filed Oct. 2, 1903. Serial No. 175,464.



Claim.—1. A reel consisting of a housing in the shape of a box open at one end having in its closed end a central perforation and surrounding the perforation an interior hub, an axis passing through the hub, contacting therewith only at its ends and forming therewith an oil-chamber surrounding the axis, and a spool journaled within the housing and secured to the axis, substantially as shown and described.

2. A reel consisting of a housing in the shape of a box open at one end, having in its closed end a central perforation and surrounding the perforation an interior hub with internal flanges at its ends, an axis passing through the hub and contacting the flanges thereof and a spool journaled in the housing, substantially as shown and described.

3. A reel consisting of a housing in the shape of a box open at one end, having in its closed end a central perforation and surrounding the perforation an interior hub, an axis passing through the hub contacting therewith only at its ends and forming therewith an oil-chamber surrounding the axis, a spool journaled within the housing having a central hub surrounding the hub of the housing and means for securing the spool to the axis, substantially as shown and described.

4. A reel consisting of a housing in the shape of a box open at one end having ribs at intervals upon the interior of its circular walls, an axis journaled in the housing, a spool having circular flanges to

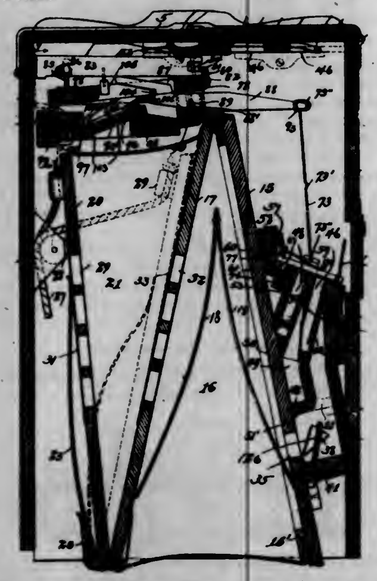
contact the ribs upon the interior of the housing and means for securing the spool to the axis, substantially as shown and described.

5. A reel consisting of a housing, a spool within the housing, an axis journaled in the housing, means for securing the spool to the axis, and a spring-pressed contacting piece carried by the axis adapted to bear against the housing to form a brake upon the wheel, substantially as shown and described.

6. In a reel the combination of a housing having upon its face a knurl, a spool within the housing, an axis rotating in the housing, means for securing the axis and the spool together, a crank-arm carried by the axis and a spring-pressed pin adapted to bear against the knurl on the housing to act as a brake to the wheel, substantially as shown and described.

7. In a reel the combination of a housing in the shape of a box open at one end and closed at the other, having in its closed end a series of perforations, a spool and an axis journaled in the housing, means for securing the axis and the spool together, a crank secured to the axis, and a pin carried by the crank and adapted to engage the perforations in the housing to lock the reel in any desired position, substantially as shown and described.

787,056. **REED-ORGAN.** DANIEL SCHUSTER, Chicago, Ill., assignor to Herbert L. Andrews, Chicago, Ill. Filed Jan. 2, 1903. Serial No. 88,212.



Claim.—1. In an organ-movement, the combination of a sounding-board within and extending from end to end of the outer casing and forming the stationary wall of the bellows, a plurality of reed-cells mounted directly upon one side of said sounding-board, a wind-chest mounted upon the same side of said sounding-board and communicating directly with the bellows and with said reed-cells, a bellows mechanism upon the opposite side of said board and an air-passage through said sounding-board affording communication into said wind-chest.

2. In an organ-movement, the combination of a sounding-board arranged to extend from end to end of the movement-frame, a plurality of sets of reed-cells mounted directly upon one side of said sounding-board and arranged in superposed relation to each other, a wind-chest likewise mounted upon said sounding-board and directly communicating with said reed-cells, said wind-chest being divided into a plurality of compartments arranged to communicate with the several series of cells, valve-controlled passages extending from each compartment of the wind-chest through the sounding-board, a main bellows-chamber, of which said sounding-board forms one side, mounted upon the side of the sounding-board remote from the wind-chest and comprising a fly member hinged to the sounding-board and constituting the movable wall of the main bellows-chamber, a pair of feeder-bellows mounted upon the movable member of said main bellows and valve-controlled passages leading into the respective feeder-bellows and from the latter into the main bellows-chamber.

3. An organ-pallet comprising a molding-like strip having longitudinally-disposed parallel grooves in its outer surface, a stirrup or yoke-shaped block engaged with said grooves and longitudinal guide-slots at different points in its length.

4. An organ-pallet comprising a strip of uniform cross-sectional construction throughout its length provided in its outer surface with longitudinal parallel grooves, a stirrup or yoke-shaped block engaged with said grooves, a third groove arranged to extend between the arms of said yoke and longitudinally-disposed end slots

5. In an organ-pallet mechanism, a pallet and means for movably supporting said pallet comprising a fixed supporting-bar having a ledge overhanging one end of said pallet and constituting a fulcrum for the latter, a lifting device engaging the pallet between its ends and a spring acting upon the pallet at a point more remote from the said fulcrum than the point of attachment of the lifting device, whereby the tension of the spring tends to hold the pallet in bearing with the superposed fulcrum throughout the movement of the pallet.

6. In an organ-pallet mechanism, a pallet and means for movably supporting said pallet comprising a fixed supporting-bar having a ledge overhanging one end of said pallet and constituting a fulcrum for the latter, a lifting device engaging the pallet between its ends and a spring acting upon the pallet at a point more remote from the said fulcrum than the point of attachment of the lifting device, whereby the tension of the spring tends to hold the pallet in bearing with the superposed fulcrum throughout the movement of the pallet, the engaging surface of said ledge which constitutes the fulcrum being covered with cushioning material as and for the purposes set forth.

7. In combination with an organ-pallet mounted to oscillate upon a pivotal axis, a spring mounted adjacent to the pallet having one of its parts bearing upon the pallet to force it to its seat and another part extending through the pallet to form a guide for the latter.

8. In combination with an organ-pallet having the form of an elongated strip, a supporting-bar mounted to extend transversely adjacent to one end of said pallet and provided with an overhanging ledge constituting a fulcrum upon which the pallet is adapted to oscillate, a coiled spring having its coiled portion mounted upon said supporting-bar and one end extending above and bearing upon the outer side of the pallet and its opposite end extending substantially at right angles to and through the pallet, the latter being provided with a slot engaged with the guide portion of the spring substantially as described.

9. In combination with a pallet, means for movably supporting said pallet and a recess formed in a relatively fixed support adjacent to one end of said pallet to receive the end of the pallet substantially as described.

10. In combination with a pallet having the form of an elongated strip, a fixed support overhanging one end of said pallet and constituting a support upon which the pallet is adapted to oscillate longitudinally, separated guide-pins arranged to maintain said pallet in a definite plane of movement, a spring tending to normally force said pallet into closed position and a recess adjacent to the fulcrumed end of the pallet, to receive the end of the latter.

11. In combination with a pallet having the form of an elongated strip, a fixed support overhanging one end of said pallet and constituting a support upon which the pallet is adapted to oscillate longitudinally, separated guide-pins arranged to maintain said pallet in a definite plane of movement, a spring tending to normally force said pallet into closed position and a recess adjacent to the fulcrumed end of the pallet, to receive the end of the latter when in an upright position, said pallet being provided with longitudinally-extended slots with which said guide-pins are engaged constructed to permit a limited endwise shifting of the pallet when the latter is in fully-open position to engage it with said recess.

12. In an organ-movement, the combination with a series of palleta of a supporting-bar therefor having a ledge constituting a fulcrum-support overhanging the fulcrum ends of the pallets, a filling-strip beneath said ledge, a series of spring-retaining recesses, one for each pallet, formed in said ledge and filling-strip, and means to guide and direct the ends of the pallet, substantially as described.

13. In an organ-movement, a pallet-actuating rod provided with a loop at one end for engaging an operative part, said loop comprising a pin extending substantially parallel with the main body of the rod but offset with relation thereto, a deflected portion forming the remainder of the loop and connecting said pin portion with the main body and an abrupt angle formed at the junction of said loop and main portion, for the purpose set forth.

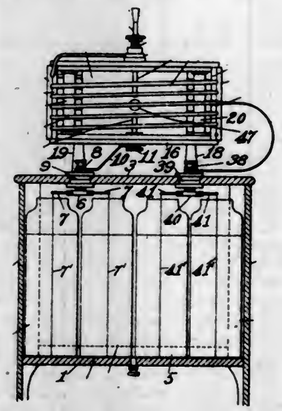
14. In an organ-movement, the combination with a lever having an end of approximately rectangular construction, and provided with an aperture located at a distance from the side walls of the lever, of an actuating-rod provided at its end with a loop engaged with said lever, said loop comprising a pin portion arranged to extend substantially parallel with the main body of the rod but offset with relation thereto a distance less than the distance from the proximate end of the lever to the pin-aperture therein, a laterally-deflected portion forming the remainder of the loop arranged to normally extend in alinement with, and to embrace, the end of the lever and provided with an abrupt angle formed at the junction of said loop with the main portion of the rod and an eye-loop formed at the opposite end of said actuating-rod and arranged to occupy a plane substantially at right angles to the plane of the lever-engaging loop.

15. In a reed-organ, the combination with an organ-movement provided with a reed mechanism permanently mounted within and adjacent to the back wall of the organ-casing, of a swell-board forming a part of such back casing located laterally opposite said reed mechanism and hinged at its upper edge and means for actuating said swell-board substantially as described.

16. In a reed-organ, the combination with an organ-movement provided with a reed mechanism permanently mounted within and adjacent to the back wall of the organ-casing, a swell-board forming a part of such back casing located laterally opposite said reed mechanism and hinged at its upper edge, a second swell-board forming a hinged part of the top casing of the organ and means for actuating both of said swell-boards simultaneously, comprising a vertically-disposed actuating-rod operatively engaging the top swell-board and connected with the side swell-board by means of a link, a lever mechanism for actuating said vertically-disposed rod and a knee-lever operatively connected with said lever mechanism substantially as described.

17. In an organ-movement, the combination with a lever having an end of approximately rectangular construction and provided with an aperture located at a distance from the end greater than its distance from the side walls of the lever, of an actuating-rod provided at its end with a loop engaged with said lever, said loop comprising a pin extending substantially parallel with the main body of the rod but offset with relation thereto, a deflected portion forming the remainder of the loop and connecting said pin with the main body and an abrupt angle formed at the junction of said loop and main portion, for the purpose set forth.

787,057. **WIRELESS-TELEGRAPH TRANSMITTER.** HARRY SHOEMAKER, Jersey City, N. J., assignor to International Telegraph Construction Company, New York, N. Y., a Corporation of New York. Filed July 29, 1904. Serial No. 218,506.



Claim.—1. In a wireless-telegraph transmitter, a rack, a plurality of Leyden jars mounted therein, a drum member mounted upon said rack, spark-gap terminals within said drum and mounted upon the heads thereof, and an inductance-winding surrounding said spark-gap terminals and supported by said drum.

2. In a wireless-telegraph transmitter, a rack, a plurality of Leyden jars mounted therein, spark-gap terminals mounted upon said rack, and an inductance-winding surrounding said terminals and rotatable with respect thereto and mounted upon said rack.

3. In a wireless-telegraph transmitter, a rack, a plurality of Leyden jars mounted therein, spark-gap terminals mounted within a drum, said drum being mounted upon said rack, and an inductance-winding rotatable upon said drum.

4. In a wireless-telegraph transmitter, a drum, spark-gap terminals within said drum and mounted upon the heads thereof, an inductance-winding, and a frame supporting said winding intermediate said drum-heads and rotatable with respect thereto.

5. In a wireless-telegraph transmitter, a drum, spark-gap terminals therein and supported by the heads thereof, a muffler within said drum and inclosing said spark-gap terminals, an inductance-winding surrounding said spark-gap terminals, a frame supporting said winding, and means permitting the rotation of said frame with respect to said drum.

6. In a wireless-telegraph transmitter, a drum, spark-gap terminals mounted therein and supported by the heads thereof, an inductance-winding surrounding said spark-gap terminals, and rotatable upon said drum and means for maintaining electrical communication between said winding and a spark-gap terminal.

7. In a wireless-telegraph transmitter, a condenser, a container therefor, an inductance-winding supported upon said container, and spark-gap terminals surrounded by said winding.

8. In a wireless-telegraph transmitter, a condenser, a container therefor, spark-gap terminals supported upon said container, and an inductance-winding surrounding said spark-gap terminals and rotatable with respect thereto.

9. In a wireless-telegraph transmitter, a condenser, a container therefor, an inductance supported upon said container, and means for rotating said inductance whereby the amount of inductance cooperating with said condenser may be varied.

10. In a wireless-telegraph transmitter, a condenser, a container therefor, spark-gap terminals supported upon said container, an inductance-winding surrounding said spark-gap terminals and connections for the radiating conductor and earth at terminals of said condenser.

11. In a wireless-telegraph transmitter, a plurality of condensers, a container therefor, spark-gap terminals supported upon said container, an inductance-winding surrounding said spark-gap terminals, said spark-gap, inductance-winding, and condensers being serially connected, and connections for the radiating conductor and earth at the terminals of a condenser.

12. In a wireless-telegraph transmitter, a plurality of Leyden jars in series-parallel grouping, a container therefor, spark-gap terminals supported upon said container, an inductance-winding surrounding said spark-gap terminals, and connections for radiating conductor and earth at the terminals of a group of said Leyden jars.

13. In a wireless-telegraph transmitter, a plurality of Leyden jars, a container therefor, an inductance-winding supported upon said container, and spark-gap terminals surrounded by said winding.

14. In a wireless-telegraph transmitter, a plurality of Leyden jars, a container therefor, an inductance-winding supported upon said container, spark-gap terminals surrounded by said winding, said Leyden jars, inductance-winding and spark-gap being serially connected.

15. In a wireless-telegraph transmitter, a frame, an inductance-winding supported thereon, spark-gap terminals supported by and surrounded by said inductance-winding.

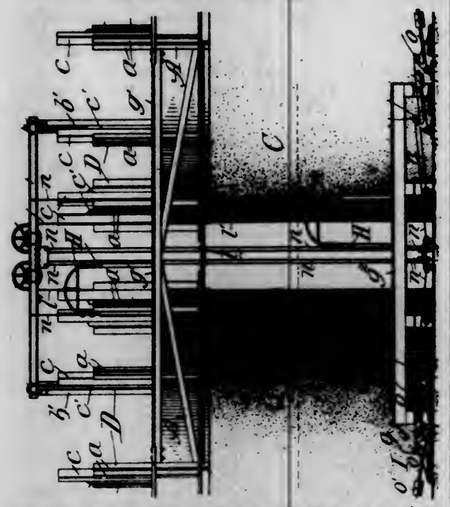
16. In a wireless-telegraph transmitter, a frame, an inductance-winding supported thereon, spark-gap terminals supported thereby and surrounded by said inductance-winding, and means permitting rotation of said inductance-winding.

17. In a wireless-telegraph transmitter, a condenser, a container therefor, an inductance supported upon said container, and means for rotating said inductance, said inductance and condenser being frequency-determining elements of an oscillating circuit.

18. In a wireless-telegraph transmitter, a condenser, a container therefor, an inductance supported upon said container, spark-gap terminals supported upon said container and surrounded by said inductance, said spark-gap, inductance and condenser being serially connected.

19. In a wireless-telegraph transmitter, a condenser, a container therefor, an inductance supported upon said container, spark-gap terminals surrounded by said inductance, and a muffler surrounding said spark-gap terminals.

787,058. **HOISTING APPARATUS.** JAMES SPELMAN, Chicago, Ill., assignor to J. S. Metcalf Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 8, 1904. Serial No. 219,889.



Claim.—1. In combination with a mold, for use in erecting a wall substantially as described and provided with means for raising it, hoisting apparatus carried by the mold, comprising an elevator suspended to be raised and lowered, vertical guides for the elevator, and yielding holding means for the guides, in which they are confined to retain them in taut condition, substantially as and for the purpose set forth.

2. In combination with a mold, for use in erecting a wall substantially as described and provided with means for raising it, hoisting apparatus carried by the mold, comprising an elevator suspended to be raised and lowered, vertical guides for the elevator, and yielding holding means for the guides, in which they are adjustably confined to retain them in taut condition, substantially as and for the puspose set forth.

3. In combination with a mold, for use in erecting a wall substantially as described and provided with means for raising it, hoisting apparatus comprising a beam carried by the mold, an elevator suspended on the beam to be raised and lowered, vertical guides suspended on said beam, and holding means for the guides in which they are adjustably confined toward their free ends to retain them in taut condition, substantially as and for the purpose set forth.

4. In combination with a mold, for use in erecting a wall substantially as described and provided with means for raising it, hoisting apparatus comprising a beam carried by the mold, an elevator suspended on the beam to be raised and lowered, vertical guides suspended on said beam, and yielding holding means for the guides, in which they are adjustably confined toward their free ends to retain them in taut condition, substantially as and for the purpose set forth.

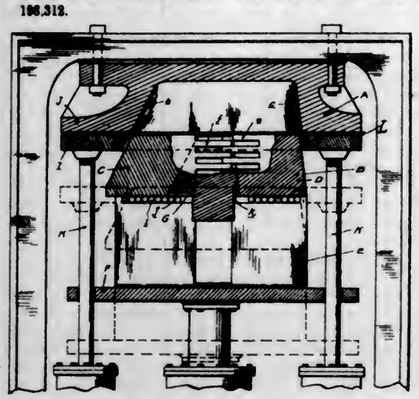
5. In combination with a mold, for use in erecting a wall substantially as described and provided with means for raising it, hoisting apparatus comprising a beam carried by the mold, an elevator suspended on the beam to be raised and lowered, guide-cables suspended on said beam, and holders for said cables consisting of bell-crank levers fulcrumed on bearings and having their longer arms weighted and with the shorter arms of which said cables are connected toward their free ends, substantially as and for the purpose set forth.

6. In combination with a mold, for use in erecting a wall substantially as described and provided with means for raising it, hoisting apparatus comprising a beam carried by the mold, an elevator suspended on the beam to be raised and lowered, guide-cables suspended on said beam, and holders for said cables consisting of bell-crank levers fulcrumed on bearings and having their longer arms weighted and eyes in their shorter arm through which said cables pass, and clamping-stops on said cables adjacent to said shorter arms, substantially as and for the purpose set forth.

7. In combination with a pair of molds for use in erecting walls of structures close together substantially as described, and provided with means for raising the molds, hoisting apparatus comprising a beam yieldingly supported at its opposite ends on said molds, elevators suspended on the beam to be raised and lowered, guide-cables suspended on said beam, and yielding holding means for said cables, on which they are adjustably confined toward their free ends to retain them in taut condition, substantially as and for the purpose set forth.

8. In combination with a pair of molds, for use in erecting walls of structures close together substantially as described and provided with means for raising the molds, hoisting apparatus comprising a beam, rounded bearings on said molds for the opposite ends of said beam and with which said ends are yieldingly connected, elevators suspended on the beam to be raised and lowered, guide-cables suspended on said beam, and yielding holding means for said cables on which they are adjustably confined toward their free ends to retain them in taut condition, substantially as and for the purpose set forth.

787,059. **DIES FOR DRAWING SHEET-METAL VESSELS.** EDGAR R. STODDARD, Detroit, Mich. Filed Mar. 15, 1904. Serial No. 198,312.



Claim.—1. The combination with the female die, having a tapering wall, of a male die adapted to conform to the shape of said female die when in engagement therewith, and means for maintaining the inclined walls of said male and female dies in substantially uniform proximity throughout the inward movement of the die.

2. The combination with the female die having an inclined wall, of the male die of corresponding shape, when in engagement therewith said die being formed of separable sections, and means for moving said sections in relation to each other during the inward movement of said male die, whereby the inclined walls of said male and female dies throughout are maintained in substantially uniform proximity during the movement.

3. The combination with the female die having an inclined wall of a male die having a correspondingly-inclined wall and formed in separable sections, a wedge correspondingly inclined adapted to separate said sections when said male die is withdrawn and permit the inward movement of said sections as said male die is moved inward, whereby said inclined walls are maintained in substantially uniform proximity during the operation.

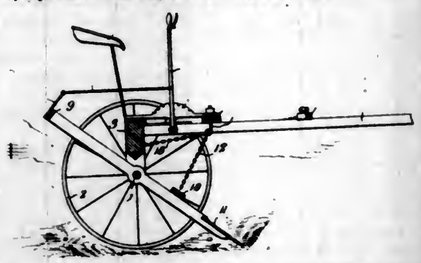
4. The combination with the female die having substantially parallel side walls and an inclined end wall of a male die correspondingly shaped, formed in longitudinal, separable sections, a vertical movable standard for actuating said male die, and a stationary wedge correspondingly inclined engaging sections of said male die adapted to separate the same in the initial inward movement and to permit the gradual collapse, or moving together, of said sections during the inward movement, whereby the walls of said dies are maintained in substantially uniform proximity during the operation.

5. The combination with a female die having an inclined wall, of a male die having a correspondingly-inclined wall, said male die being formed in two sections having interlocked inner edges, a wedge adapted to separate said sections when said male die is withdrawn and permit the inward movement of said sections as said male die is moved inward.

6. In a device for drawing sheet metal, a male die, and means whereby the drawing edge of said die is contracted in length during the drawing operation.

7. In a device for drawing sheet metal, a male die comprising separable sections permitting the drawing edge of said die to contract in length during the drawing operation.

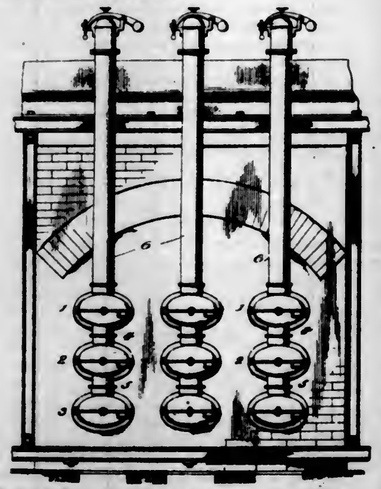
787,060. **COTTON-CHOPPER.** JAMES M. SUTTON, Redboiling Springs, Tenn. Filed May 24, 1904. Serial No. 209,502.



Claim.—1. In a cotton-chopper, a bolster provided with vertical recesses open at their lower ends, an axle connected beneath the bolster and having ground-wheels mounted thereon, a plurality of standards pivoted directly upon the axle and respectively within the recesses, shovels carried by the lower ends of the standards, means for swinging the standards vertically to raise and lower the shovels, and means connecting the standards for simultaneous movement.

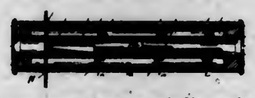
2. In a cotton-chopper, a bolster provided with vertical recesses open at their lower ends, an axle connected beneath the bolster and extended across the lower open ends of the recesses, ground-wheels mounted on the axle, a plurality of standards pivoted adjacent their longitudinal centers directly upon the axle and respectively within the recesses, the upper portions of the standards being extended upwardly and rearwardly from the axle, shovels carried by the lower ends of the standards, means for swinging the standards vertically to raise and lower the shovels, means connecting the standards for simultaneous movement, an operating-lever, and an operative connection between the upper ends of the standards and lever.

787,061. **GAS-RETORT STAND-PIPE.** JOHN H. TAUSSIG, Newark, N. J., assignor to The United Gas Improvement Company, Philadelphia, Pa., a Corporation of Pennsylvania. Original application filed Jan. 24, 1901, Serial No. 44,598. Divided and this application filed Nov. 21, 1901. Serial No. 83,160.



Claim.—In apparatus for the manufacture of coal-gas the combination of a stack of retorts comprising a plurality of benches each containing vertical rows or sets of non-communicating retorts having their mouthpieces in vertical alinement, a series of vertical parallel stand-pipes each one of which is straight throughout its length and is connected with the top mouthpiece of a vertical row or set of retorts, and unobstructed gas-passages connecting each mouthpiece with the one vertically above it, whereby all of the retorts of each vertical row continuously discharge through a single stand-pipe, substantially as described.

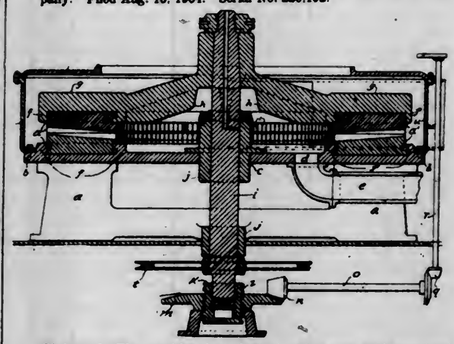
787,062. **TOY.** HARRY T. TURNOR, Rouen, England, assignor to James R. McClelland, New Haven, Conn. Filed Nov. 7, 1904. Serial No. 231,709.



Claim.—1. A toy comprising a case having ends, an internal tube mounted in said ends, openings in opposite sides of the case through which cords may pass, a slide in said tube and carrying a point, cords extending through the opposite sides of the case into the tube and connected to the slide to move said slide back and forth, substantially as described.

2. A toy comprising a case, a longitudinally-arranged tube therein, cords extending through the case and around said tube, transverse bars extending through said tube, a slide in said tube and carrying a point, and cords extending through said case into said tube over the bars therein and into engagement with said slide, whereby said slide may be moved back and forth, substantially as described.

787,063. **BEATING-ENGINE.** JOHN E. WARREN, Westbrook, Me., assignor to Samuel D. Warren and Mortimer B. Mason, Boston, Mass., and Fiske Warren, Harvard, Mass., Copartners as S. D. Warren & Company. Filed Aug. 10, 1904. Serial No. 220,192.



Claim.—1. The combination of a bed and runner each provided with an annular ring of knives, an inlet in the bed, a vertical shaft carrying said runner, a curb surrounding said runner and an outlet in the side or periphery of said curb, substantially as described.

2. The combination of a bed and runner each provided with an annular ring of knives, an inlet in the bed, a vertical shaft carrying said runner, fans upon the under side of the runner and a curb surrounding said runner having an outlet, substantially as described.

3. The combination of a bed provided with knives arranged in an annulus about the outer edge and an inlet through said bed, a runner having a similar annulus of knives arranged around the outer edge of the under side, a chamber in the center and a vertical shaft supporting said runner whereby the same may be rotated together with a curb about the runner with an outlet through the side or periphery of said curb, substantially as described.

4. The combination of a bed and runner each provided with an annular ring of knives, an inlet in said bed, a vertical shaft carrying said runner, a curb surrounding said runner and a tangential opening in said curb, substantially as described.

5. In a reducing-engine, the combination in the bed-plate or runner of steel knives and alternate paper fillings of about equal thickness with said knives, substantially as described.

6. The combination in the circular bed-plate of a reducing-engine of alternate steel knives, fillings of substantially equal thickness with said knives, said knives and fillings being arranged in groups and the spaces between each of said groups being divided by a larger and longer diagonal knife extending from corner to corner of said spaces, substantially as described.

7. The combination in the bed-plate of a reducing-engine of knives alternating with fillings of paper of substantially the thickness of said knives arranged in a group and thicker supporting-knives on either side of said group, substantially as described.

8. The combination in the circular bed-plate of a reducing-engine of alternate steel knives and paper fillings of substantially equal thickness with said knives, said knives and fillings being arranged in groups, the spaces between each of said groups being divided by a larger and longer diagonal knife extending from corner to corner of said spaces, each of the minor spaces thus formed being provided with gutters, said gutters having raised ends at the apexes of such spaces, substantially as described.

9. The combination in the bed-plate or runner of a reducing-engine of alternate knives and separating-pieces arranged in groups with alternating spaces and knives diagonally dividing such spaces, substantially as described.

10. The combination in the bed-plate or runner of a reducing-engine of groups of knives and alternate separating-pieces, of intermediate spaces, each divided diagonally by a knife, and gutters in the triangular spaces thus formed, said gutters having raised surfaces at their narrower ends or apexes, substantially as described.

11. In a reducing-engine, separating or filling pieces combining a base, thin laminæ superimposed thereon and a metallic plate or gutter over all, the said elements being secured together by screws or similar means, substantially as described.

12. The combination of a series of graded beating-engines, having the knives in the first of the series heavier and more widely separated and finer and less widely separated in the succeeding engines for the purpose of beating and refining the stock in one operation, substantially as described.

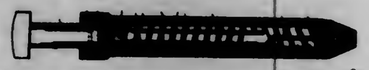
13. The combination of a series of graded beating-engines having in the first heavier knives and wider separating-pieces and in the succeeding engines finer knives and narrower separating-pieces, the separating-pieces in the first of the series being cut away toward the inlet more largely and in each succeeding engine less for the purpose of providing a freer inlet for the coarser material, substantially as described.

14. The combination of a series of beating-engines each succeeding member of the series having knives finer and less widely disposed and means whereby the product of each antecedent engine may be admitted to the succeeding engine, substantially as described.

15. The combination of a series of beating-engines each succeeding engine being provided with finer and less widely separated knives and a mixing-box having independent compartments, each succeeding compartment being connected with outlet and inlet pipes of two adjacent engines, substantially as described.

16. The combination of a series of graded beating-engines having coarser knives and wider separating-pieces, the latter being cut away more largely toward the inlet, in the first of the series and in the succeeding engines finer knives and separating-pieces more narrow and more nearly parallel with the edges of said knives, together with a continuous mixing-box provided with compartments and inlets with suitable valves, substantially as described.

787,064. **HAND-TOOL.** SEBASTIAN J. WELTER, Chicago, Ill. Filed June 15, 1904. Serial No. 212,742.



Claim.—1. In a hand-tool, a penetrating member, a handpiece constituting a casing therefor and through which said penetrating member reciprocates, said casing being provided with a lubricating-chamber through which said penetrating member works, whereby it is lubricated as it emerges from said casing.

2. In a hand-tool, the combination with a handpiece, of a penetraing member mounted to reciprocate therethrough, a spring mounted within said handpiece upon said penetrating member and operating to draw said penetrating member into its normal position relative to said handpiece, and means forming a part of said hand-tool and automatically lubricating the penetrating point as it enters the substance penetrated, for the purpose described.

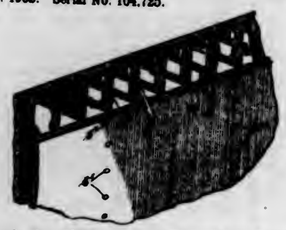
3. In a hand-tool, the combination with the penetrating member thereof, of a casing therefor through which said penetrating member works, said casing having therein a lubricating-chamber through which said member reciprocates, and a coiled spring mounted within said casing and operating to withdraw said penetrating member.

4. A hand-tool, comprising in combination a handpiece, a penetrating member mounted to reciprocate through said handpiece, a coiled spring mounted within said handpiece upon said penetrating member and operating to draw the penetrating member out of the work and into the handpiece, and means for lubricating said penetrating member automatically as it reciprocates within said handpiece, for the purpose described.

5. A hand-tool, comprising in combination a handpiece, a penetrating member mounted to reciprocate within said handpiece, a head-piece to which said penetrating member is removably attached, a coiled spring mounted within said handpiece and upon said penetrating member and operating to draw the penetrating member from the work into the handpiece, and a lubricating-chamber within said handpiece through which said penetrating member reciprocates, for the purpose described.

6. In a hand-tool of the character described, a handpiece constituting a casing and provided on its interior with longitudinally-extending grooves, a head-piece mounted to reciprocate within said handpiece and provided with a through-pin working within said grooves, a penetrating member removably mounted upon said head-piece and reciprocating therewith, said casing having in its lower end a lubricating-chamber, lubricating matter within said chamber through which said penetrating member works as it emerges from said casing, and a spring mounted upon said penetrating member within said handpiece and operating to positively draw said penetrating member from the work and into the casing, substantially as described.

787,065. **ARMOR-PLATE.** FRANK G. WHITE, Chicago, Ill. Filed Apr. 25, 1902. Serial No. 104,725.



Claim.—1. A multiple-plate armor comprising a plurality of superimposed sheets of corrugated metal, the edges or angles of one plate being arranged out of line with respect to the angles or ridges of the next inner plate, and a flat outer layer of sheet metal.

2. A multiple-plate armor comprising a plurality of superimposed corrugated layers of sheet metal bound together by bolts, the back of one plate being provided with grooves or seats adapted to receive the angles or corners of the next inner plate, and a flat outer layer of sheet metal.

3. A multiple armor-plate comprising a plurality of superimposed layers of corrugated sheet metal arranged so that the corners or angles of one sheet are out of line relatively to the corners or angles of the next inner sheet.

4. An armor-plate comprising a plurality of superimposed layers of corrugated sheet metal, and a suitable non-inflammable material packed into the recesses formed between the said plates.

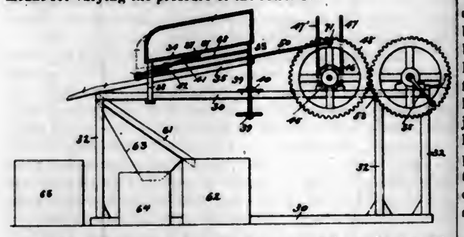
5. An armor-plate comprising a plurality of superimposed layers of sheet metal, each layer of sheet metal being provided with a plurality of deflecting-surfaces, the deflecting-surfaces of each layer being more or less out of line with those of the adjacent layers.

6. Armor-plate composed of a plurality of superimposed layers of corrugated sheet metal, and bolts for binding said layers together, said bolts extending through some of the corrugated plates at points slightly to one side of the edges or angles of the corrugations.

7. An armor-plate composed of superimposed layers of corrugated sheet metal, the back of each layer being provided with grooves or seats adapted to receive the angles or edges of the adjacent sheet of corrugated metal and bolts or rivets for binding said layers of sheet metal together, said bolts extending through the superimposed sheets at points where the angles of the inner sheet engage the said grooves or seats on the back of the next outer sheet.

787,066. **APPARATUS FOR BREAKING AND GRADING MADE TEA-LEAVES OR THE LIKE.** HENRY M. ALLEYN, Maskeliya, Ceylon. Filed July 10, 1902. Serial No. 116,225.

Claim.—1. The combination with a sieve-hopper, and a main sieve 35, adapted for adjustment to a desired incline, of rollers 36, 37, the spindles of which are connected, said rollers being arranged to coöperate with the sieve in the hopper and the main sieve, and means for varying the pressure of the roller 37.



2. The combination with a sieve-hopper, and a main sieve 35, adapted for adjustment to a desired incline, of rollers 36, 37, the spindles of which are connected, said rollers being arranged to coöperate with the sieve in the hopper and the main sieve, and means for varying the pressure of the roller 37, and means for preventing sagging of the roller 37.

787,067. **CAMPAIGN-BUTTON.** JACOB L. BIEDER, Chicago, Ill. Filed July 20, 1904. Serial No. 217,323.



Claim.—1. As a new and useful article of manufacture, a button comprising a shank adapted to extend through a buttonhole and connected to the button to one side of the center thereof and means connected with the inner end of said shank for reversing said button.

2. As a new and useful article of manufacture, a button comprising a shank projecting from the edge thereof and adapted to extend through a buttonhole, means on the inner end of said shank for retaining it in the buttonhole and means connected with said latter means for pulling upon said shank and reversing the button.

3. As a new and useful article of manufacture, a button comprising a shank extending from the edge thereof at an angle to its face, and adapted to project through a buttonhole, a retaining member on the inner end of said shank arranged in a plane substantially parallel with the face of the button and a cord attached to said retaining member whereby a pull may be exerted thereon for reversing the button.

787,068. **KNEE REST OR SUPPORT.** ELIZABETH C. BIRNAM, Philadelphia, Pa. Filed Oct. 21, 1904. Serial No. 229,360.



Claim.—1. In combination, a base, hoops located at the opposite ends of said base, the said hoops having base portions, a flexible cover extending over the said hoops and having its opposite ends folded around and underneath the same, hoops located within the first-named hoops and adapted to clamp the folded end of the said flexible cover against the inner sides thereof, and means for securing the hoops to the said base.

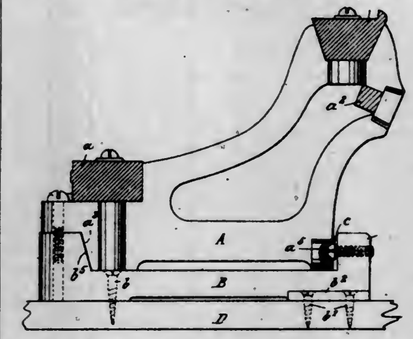
2. In combination, a base, hoops located at the opposite ends of said base, and each of the said hoops being provided with projections having perforations therethrough, and rods passing through the said perforations and extended to the opposite ends of the said base and passing downwardly through the said base and through the said hoops, and a flexible covering secured to the said hoops, substantially as and for the purpose set forth.

3. In combination, a base, hoops located at the opposite ends of the said base, and each of the said hoops being provided with projections having perforations therethrough, and rods passing through the said perforations and extended to the opposite ends of the said base and passing downwardly through the said base and through the said hoops, and a flexible covering secured to the said hoops, substantially as and for the purpose set forth.

4. In combination, a base, hoops located at the opposite ends of said base, and having base portions underneath the said base, a flexible cover extending over the said hoops and having its opposite ends bent around the said hoops and upon the inner side thereof, hoops located within the first-named hoops and adapted to clamp the said flexible cover against the inner side of the same, and the said hoops having base portions located upon the upper side of the base, projections provided upon the upper side of the first-named hoops and having perforations therethrough, brace-rods passing through the perforations and extending downwardly and to the opposite ends of the said base, the said rods having portions extending through the ends of the said base and the base portions of the said hoops, substantially as and for the purpose set forth.

5. A knee-rest comprising in combination a base, hoops secured to the opposite ends of the said base, brace-rods each of which is secured at one end to one of the said hoops and at the other end to the said base, and a cover secured to and extending from one hoop to the other.

787,069. **BRACKET FOR GRAND-PIANO ACTIONS.** EDWARD BORNHOEFT, New York, N. Y. Filed Jan. 6, 1905. Serial No. 239,895.

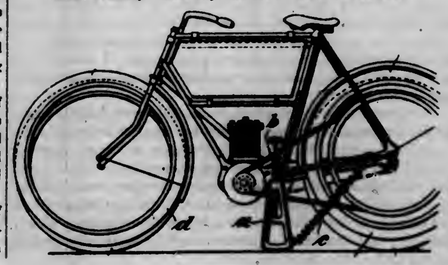


Claim.—1. The combination in a piano, of a key-frame with a base mounted thereon and having a pair of upward-extending arms, a piano-bracket projecting between said arms, and means for securing the bracket to the base, substantially as specified.

2. The combination in a piano, of a key-frame with a base mounted thereon and having a pair of upward-extending arms, one of which has an inclined side, a piano-bracket projecting between said arms and having an inclined side to engage the inclined side of the base-arm, and means for securing the bracket to the base, substantially as specified.

3. The combination in a piano, of a key-frame with a base mounted thereon and having a pair of upward-extending arms, the rear arm having an inclined side, a piano-bracket having an inclined side to engage the inclined side of the rear arm, an abutment between the bracket and the front arm, and means for securing the bracket to the base, substantially as specified.

787,070. **SUPPORT FOR MOTOR-CYCLES.** JOHAN J. BOURCART, Colmar, Germany. Filed Sept. 10, 1904. Serial No. 224,030.



Claim.—1. A support for motor-cycles or the like comprising a jack pivotally mounted upon the cycle, said jack being of sufficient length from its pivotal mounting to its outer margin to support the wheels of the cycle out of contact with the ground, said jack having a relatively long base, and means serving normally to hold said jack in a retracted position.

2. A support for motor-cycles or the like comprising a jack pivotally mounted upon the frame of the cycle said jack being of sufficient length from its pivotal mounting to its outer margin to support the wheels of the cycle out of contact with the ground, the margin of the jack diverging from its upper to its lower end forming a relatively long base and a contractile spring secured at its opposite ends to said jack and cycle serving normally to hold said jack in a retracted position.

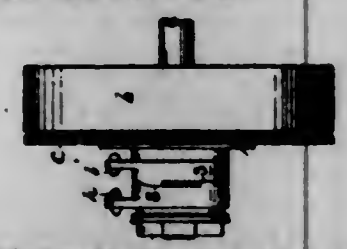
787,071. **CEMENT-MIXER.** CHARLES BRENT, Rat Portage, Canada, assignor of two-thirds to Archibald Campbell and Archibald MacLaren, Detroit, Mich. Filed May 16, 1904. Renewed Feb. 27, 1905. Serial No. 247,556.



Claim.—1. The combination of a mixing-chamber, the end plate F at one end, the sand-chamber Q and the cement-chamber P secured to said end plate, the shaft I extending centrally through the mixing-chamber and centrally through the sand-chamber, bearings at the end of said shaft, a bearing at the end of the cement-chamber, shaft O in said bearing, the worm *b* on said shaft in said chamber, the worm T on the main shaft in the sand-chamber, the beaters or blades W on the main shaft within the mixing-chamber and the intermeshing gears on the shafts I and O, for the purpose described.

2. The combination of a casing, the main shaft extending therethrough, bearings H and N to which said shaft is journaled at its ends, the blades on the shaft within the casing, the sand-chamber Q between the bearing N and the casing, the worm T on the main shaft in the sand-chamber, the cement-chamber P beside the sand-chamber, the bearing N at the end thereof, stub-shaft O in said bearing, the worm *b* on the stub-shaft in the cement-chamber, and the detachable intermeshing gears U and V on the main shaft and the stub-shaft, for the purpose described.

787,072. **FRICTION-CLUTCH.** ALANSON P. BRUSH, Detroit, Mich. Filed Feb. 19, 1904. Serial No. 194,426.



Claim.—1. A friction-clutch comprising a rotatable shaft, a driven member sleeved upon the shaft, a friction-plate to engage the driven member rotatable with the shaft having an extended hub provided with a shoulder adjacent to the plate and in a plane parallel to said plate, inner and outer disks having interlocking wedge-shaped teeth on their adjacnet faces both mounted upon the extended hub of the friction-plate, a thrust-collar adjacent to the outer disk to hold the disks in place upon the shaft, means to rotate each of said disks independently the one of the other to force the friction-plate upon the driven member, and a set of ball-bearings for each of said disks, one set of ball-bearings supporting the inner disk and serving as a thrust-bearing against said shoulder, and the other set of ball-bearings supporting the outer disk and serving as a thrust-bearing against said collar.

2. A friction-clutch comprising a rotatable shaft, a driven member loosely mounted thereupon, a friction-plate provided with an extended hub rotatable with the shaft to engage the driven member, adjacent inner and outer disks having adjacent cam-surfaces both mounted upon the extended hub of the friction-plate, means to hold the disks in place, a set of ball-bearings entirely supporting each of said disks upon the hub, said ball-bearings also forming a thrust-bearing in both directions longitudinally of the shaft and a central bearing toward the axis of the shaft.

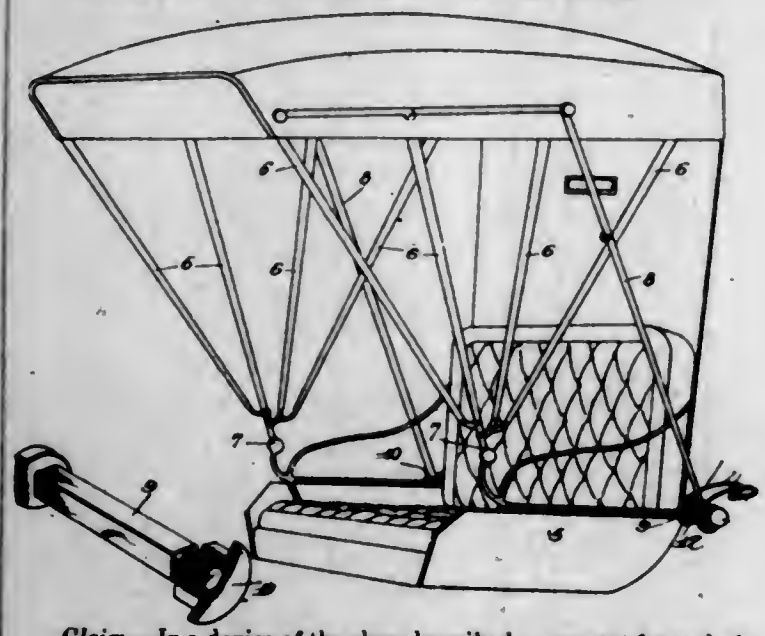
3. A friction-clutch comprising a rotatable shaft, a driving member sleeved thereupon, a friction-plate provided with a hub rotatable with the shaft, toothed disks having interlocking wedge-shaped teeth on their adjacent faces both mounted upon said hub, means to hold the disks in place, means to rotate said disks to force the friction-plates upon the driving member, said disks mounted upon ball-bearings, and a spring to exert its tension against the friction-plate.

4. A friction-clutch comprising a rotatable shaft, a driven member sleeved thereupon, a friction-plate provided with an extended hub mounted on said shaft and rotatable therewith to engage the driven member, adjacent inner and outer disks having interlocking teeth provided with coacting cam-faces on their adjacent sides both mounted upon the extended hub of the friction-plate, means to hold the disks in place upon the shaft, means to rotate said disks to force the friction-plate upon the driven member, and ball-bearings for each of said disks, said disks constructed to form both central and endwise bearing surfaces for the balls, said ball-bearings forming a thrust-bearing in both directions longitudinally of the shaft and central supporting-bearings toward the axis of the shaft.

5. A friction-clutch comprising a rotatable shaft, a driven member sleeved thereupon, a friction-plate provided with an extended hub mounted upon said shaft and rotatable therewith to engage the driven member, adjacent inner and outer disks having interlocking teeth provided with coacting cam-faces on their adjacent sides mounted upon the extended hub of the friction-plate, a thrust-collar upon the shaft adjacent to the outer disk to hold the disks in place, means to rotate said disks to force the friction-plate upon the driven member, and ball-bearings for each of said disks, said disks constructed with cup-shaped seats for the bearings to form both central and endwise bearings for the balls, said ball-bearings forming a thrust-bearing in both directions longitudinally of the shaft and central supporting-bearings toward the axis of the shaft.

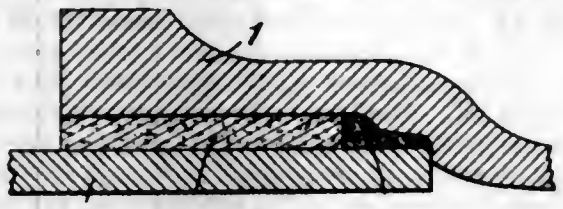
6. A friction-clutch comprising a rotatable shaft, a driven member sleeved thereupon, a friction-plate provided with an extended hub mounted upon the shaft and rotatable therewith to engage the driven member, adjacent inner and outer disks having interlocking teeth provided with coacting cam-faces on their adjacent sides mounted upon the extended hub of the friction-plate, means to hold the disks in place, means to rotate said disks to force the friction-plate upon the driven member, and a row of balls to form the bearings of each of said disks, said disks forming a central and endwise bearing for the corresponding single row of balls, said ball-bearings forming a thrust-bearing in both directions longitudinally of the shaft and central supporting-bearings toward the axis of the shaft.

787,073. **VEHICLE-TOP SUPPORT.** SANFORD M. BUCHANAN, Yoakum, Tex., assignor of two-thirds to D. B. Cain and J. F. Buchanan, Yoakum, Tex. Filed Mar. 14, 1903. Serial No. 147,840.



Claim.—In a device of the class described, a support formed of a single piece of metal, the ends of which are bent to form coincident inwardly-extending angular bearings or sockets and thence upwardly and rearwardly forming a pair of converging spring-arms the ends of which are bent downwardly and forwardly in spaced parallel relation to said spring-arms to form a cradle adapted to receive the back bow of a vehicle-top, said inwardly-extending angular bearings or sockets serving to properly space the converging spring-arms to thereby permit the ready insertion and removal of said back bow.

787,074. **PIPE OR LIKE JOINT.** FRIEDRICH W. BÜHNE, Freiburg, Germany. Filed June 15, 1904. Serial No. 212,712. (Specimens.)

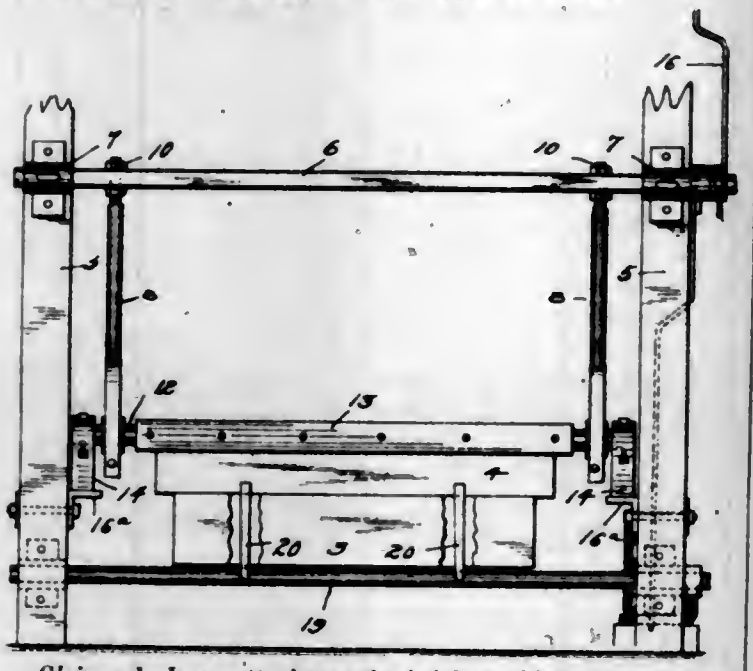


Claim.—1. The combination, with a pipe end, and a socket end into which said pipe end enters, of a packing between said ends and formed of a coherent substantially homogeneous mass of compressed interlaced malleable metallic fibers or wires.

2. The combination, with a pipe end, and a socket end into which said pipe end enters, of a gasket of fibrous material surrounding the pipe end and within the socket end, and a packing adjacent said gasket and formed of a coherent substantially homogeneous mass of compressed interlaced malleable metallic fibers or wires.

3. A packing for joints, consisting of a homogeneous matted mass of interlaced lead fibers or wires.

787,075. **ATTACHMENT FOR BRICK-MACHINES.** WILLIAM C. BURGUM, Pittsburg, Pa., assignor of one-half to Harvey H. Francies, Pittsburg, Pa. Filed Aug. 19, 1904. Serial No. 221,394.



Claim.—1. In an attachment for brick-machines, the combination, with a mold, of means for removing the surplus material from the mold comprising a movable blade or knife arranged to be moved over the mold in two directions, means for supporting and moving the blade or knife, means for bringing the blade or knife into operative positions comprising a member carried with the blade or knife and a part located in the path of travel of the member, and means for maintaining the mold in position during the cutting operations, substantially as set forth.

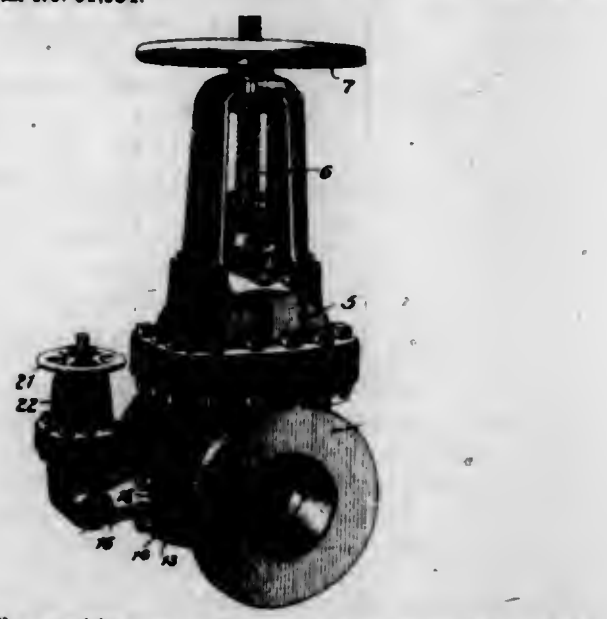
2. In an attachment for brick-machines, the combination, with a table and a mold, of a movable knife arranged to travel over the mold in two directions for the purpose of removing the surplus material from the mold, means for supporting and actuating the knife, and means for turning the knife so as to bring the knife into operative positions comprising a weighted member carried with the knife and a plate located in the path of travel of the member, substantially as set forth.

3. In an attachment for brick-machines, the combination, with a mold and a support therefor, of an oscillating knife arranged to be moved over the mold, a cross-piece, forked hangers connected with the cross-piece, a rod on which the knife is mounted, movable slide-bearings for said rod located in the forked hangers and arranged to move vertically therein as the knife is oscillated, means for turning the knife into operative positions, and means for moving the cross-piece, substantially as set forth.

4. In an attachment for brick-machines, the combination, with a mold and a support therefor, of an oscillating knife arranged to be moved over the mold, a cross-piece, hangers connected with the cross-piece, a rod on which the knife is mounted, a weighted member carried with the rod, movable bearings for the rod located in the hangers, a plate arranged in the path of travel of the weighted member, and means for moving the cross-piece, substantially as set forth.

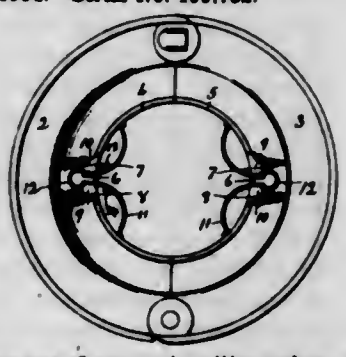
5. In an attachment for brick-machines, the combination with a mold, of an oscillating knife arranged to be moved over the mold, means to maintain the mold in the desired position during cutting operation, and means for actuating the knife and the mold-retaining means, substantially as set forth.

787,076. **VALVE.** ANDREW J. CALDWELL, Chicago, Ill., assignor to Crane Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 30, 1902. Serial No. 91,934.



Claim.—The combination with a main gate valve and casing therefor having passages under the gate valve, of a supplementary casing provided with passages registering with those in the main casing and connected by a straight passage, a sliding by-pass gate valve in said straight passage and means for operating said valve, the supplementary casing being provided with lateral openings at the two ends of the straight passage on the respective sides of the valve, and being closed by removable plugs therein, for inspection of the valve and its seats, substantially as described.

787,077. **FLOOR AND CEILING PLATE.** JOHN W. CARLETON, New Britain, Conn., assignor to Albert R. Wells, Southington, Conn. Filed Mar. 24, 1904. Serial No. 199,702.



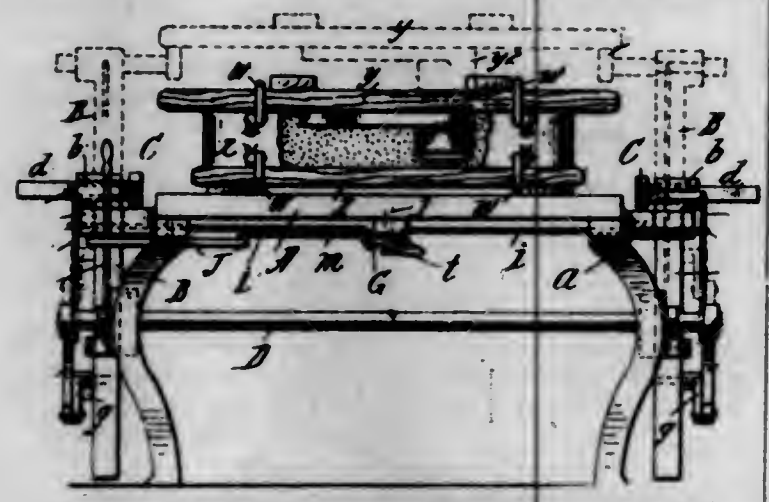
Claim.—A two-part floor and ceiling plate comprising body portions each of which is provided with a flange, each flange being formed with a notch opening through its edge and with integral lugs on its edge at each side of the notch extending partially across said notch, combined with a spring having a bowed central portion and shanks, said central portion being of greater diameter than the width of said notches, and the shanks adapted to be pressed together so that they may be passed between the ends of the said lugs to bearings in said notches, substantially as described.

787,078. **MOLDING-MACHINE.** ARTHUR CHOINIERE, Holyoke, Mass. Filed Sept. 23, 1904. Serial No. 225,008.

Claim.—1. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of lifters bodily carried by the bars, and guided thereon, for acquiring horizontal inwardly projected, and retracted, positions, means for elevating the bars, and means operated by the bar-elevating means for concurrently changing the positions of the lifters.

2. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions, a rock-shaft, a handle-lever carried thereby and another lever carried by said shaft, a link

connecting the second-named lever with one of the bars, means for vertically moving the other of said bars concurrently with the vertical movements of the one bar, and means for horizontally inwardly projecting and withdrawing the horizontally-movable lifters.



3. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions, a rock-shaft extended horizontally under the table, a handle-lever carried thereby, and paired levers carried by said shaft, and links connecting the rock-shaft with the vertically-movable bars, and means for horizontally inwardly projecting and withdrawing the horizontally-movable lifters.

4. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions, a rock-shaft having a handle-lever, a pair of levers carried by and at the ends of said shaft, links connecting the pair of levers with the bars, and means for horizontally inwardly projecting and withdrawing the horizontally-movable lifters engaged and operated by the rock-shaft handle-lever for actions in unison with the actuation of said vertically-movable bars.

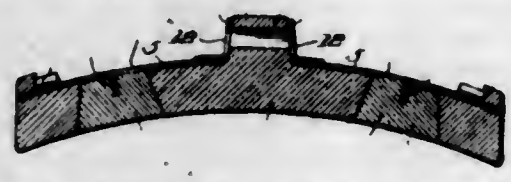
5. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions, means for elevating the bars, a rock-shaft, having a handle-lever carried thereby, and a pair of levers also carried by said shaft, links connecting the pair of levers with the bars, a horizontally-swinging lever positioned to be engaged and swung by the rock-shaft handle-lever, a lever arranged under an intermediate portion of the table, and connected with said horizontally-swinging lever, and connections between the intermediate lever and the lifters, for the purposes set forth.

6. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions, means for elevating the bars, a rock-shaft having a handle-lever carried thereby, and a pair of levers also carried by said shaft, links connecting the pair of levers with the bars, a horizontally-swinging lever positioned to be engaged and swung by, and then disengaged from, the rock-shaft handle-lever and to be reengaged and reversely swung on the return motion of the handle-lever, a lever arranged under an intermediate portion of the table, and connected with said horizontally-swinging lever, and connections between the intermediate lever and the lifters, for the purposes set forth.

7. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions means for elevating the bars, a rock-shaft having a handle-lever carried thereby, and a pair of levers also carried by said shaft, links connecting the pair of levers with the bars, a horizontally-swinging lever positioned to be engaged and swung by the rock-shaft handle-lever, a lever arranged under an intermediate portion of the table, and connected with said horizontally-swinging levers, and rods connected with the intermediate lever, and having vertically-sliding engagements relatively between their outer ends and suitable portions of the lifters.

8. In a molding-machine, the combination with a table and bars vertically movable at opposite ends thereof, of mold-plate lifters bodily carried by the bars, and guided thereon to have horizontal inwardly projected, and retracted, positions, means for elevating the bars, a rock-shaft having a handle-lever carried thereby, and a pair of levers also carried by said shaft, links connecting the pair of levers with the bars, a horizontally-swinging lever having a forked-shaped extremity positioned to be engaged and swung by the rock-shaft handle-lever, a lever arranged under an intermediate portion of the table, rods connecting said intermediate lever with said horizontally-swinging lever, vertical rods provided on the lifters, and a pair of rods connected with the intermediate lever and having slide engagements with the vertical rods of the lifters.

787,079. **BRAKE-SHOE.** FRANK P. COLLINS, Wilmette, Ill. Filed Feb. 6, 1905. Serial No. 244,387.



Claim.—1. A brake-shoe having an attaching-lug and plates at the back of the shoe between said lug and each end of the shoe.

2. A brake-shoe having an attaching-lug, and plates at the back of the shoe between said lug and each end of the shoe, said plates having their inner ends turned up at the sides of the attaching-lug and provided with openings to aline with the opening in said lug.

3. A brake-shoe having an attaching-lug, and plates locked to the back of the shoe on each side of the attaching-lug and having a bearing at one end against the adjacent side of said lug.

4. A brake-shoe having one plate locked thereto at each side of its center, the inner ends of said plates being bent upward and provided with openings to receive a fastening-key.

5. A brake-shoe having plates locked thereto at each side of its center, the inner ends of said plates being provided with upwardly-extending yokes and forwardly-projecting lips.

6. A brake-shoe having plates locked thereto at each side of its center, the inner ends of said plates being provided with upwardly-extending yokes and forwardly-projecting lips, and an attaching-lug cast with the body of the shoe between said yokes.

7. A brake-shoe having plates locked thereto at each side of its center, the inner ends of said plates being bent upward and provided with openings to receive a fastening-key, and inserts locked to said plates.

8. A brake-shoe having plates locked thereto at each side of its center, the inner ends of said plates being bent upward and provided with openings to receive a fastening-key, lugs on the under side of said plates, and inserts locked to said lugs.

9. A brake-shoe having plates locked thereto at each side of its center, the inner ends of said plates being bent upward and provided with openings to receive a fastening-key, lugs on said plates, and inserts carried by said lugs, said inserts having a locking connection with the lugs and a locking connection with the body of the shoe.

787,080. **VARIABLE-SPEED GEARING.** WILLIAM C. CONANT, Atlanta, Ga. Filed May 9, 1904. Serial No. 207,063.

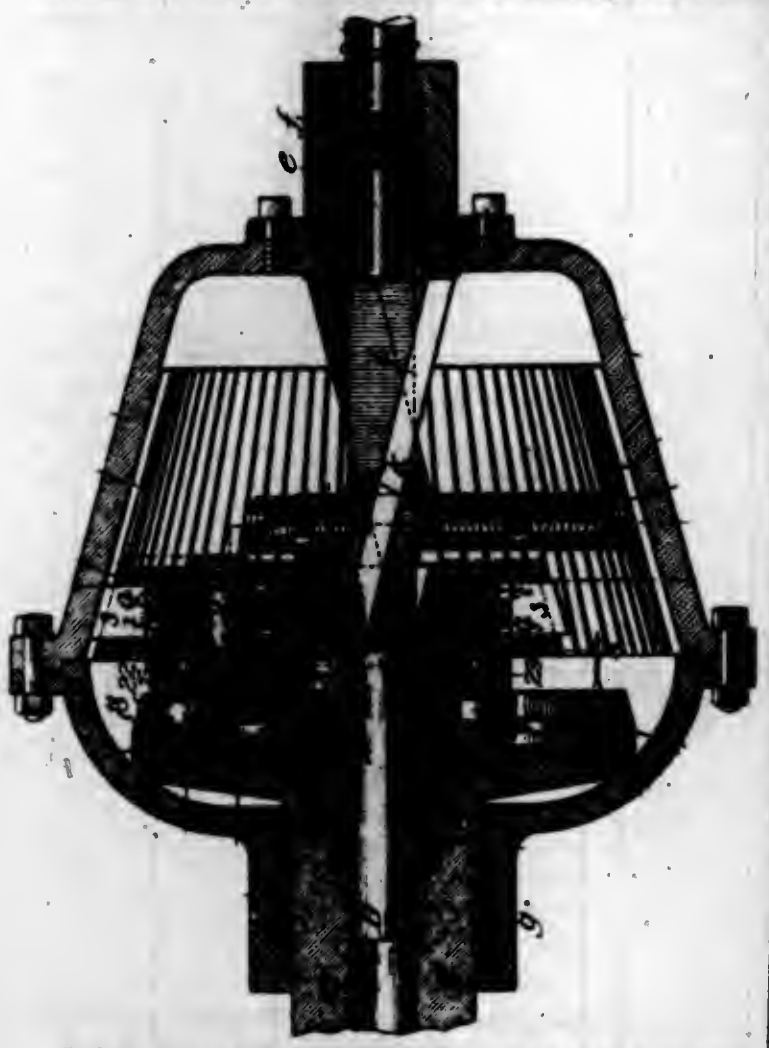
Claim.—1. The combination with driving and driven bodies, of variable-speed gearing interposed between them, having toothed engaging members one of which meshes with and rolls upon the other and is operatively connected with both of said bodies, the members being adjustable one with relation to the other to gradually change the relative diameters of their meshing surfaces.

2. The combination with driving and driven bodies, of variable-speed gearing interposed between them having toothed engaging members one of which moves as a planet-wheel meshing with and rolling against the other, the members being adjustable one with relation to the other to gradually change the relative diameters of their toothed engaging surfaces.

3. In a variable-speed gearing, the combination of an internally-toothed ring forming one of a pair of engaging members, a rotary toothed wheel having an eccentrically-moving axis within the said ring and forming the other engaging member, the toothed engaging face of one member being conoidal and longer than the toothed engaging part of the other member, and means for moving one of said members longitudinally with relation to the other while maintaining them in mesh.

4. In a variable-speed gearing, the combination of a ring forming one of a pair of engaging members and having an internal toothed frusto-conical engaging face, a toothed rotary wheel having

an eccentrically-moving axis within said ring and forming the other engaging member, and means for moving one of said members longitudinally with relation to the other while maintaining them in mesh.



5. In a variable-speed gearing, the combination of an internally-toothed ring forming one of a pair of engaging members, a peripherally-toothed rotary wheel eccentrically mounted within said ring and forming the other engaging member, the engaging face of one of said members being conoidal and longer than the engaging part of the other member, and means for moving one of said members longitudinally with relation to the other, while maintaining them in driving engagement.

6. In a variable-speed gearing, the combination of an internally-toothed ring forming one of a pair of engaging members, a peripherally-toothed rotary wheel eccentrically mounted within said ring and forming the other engaging member the teeth of one member being radially yielding and the engaging face of one member being conoidal and longer than the engaging part of the other member, and means for moving one of said members longitudinally with relation to the other while maintaining them in driving engagement.

7. In a variable-speed gearing, the combination of a ring having an internal conoidal surface provided with longitudinally-extending teeth and forming one of a pair of engaging members, a rotary wheel having peripheral radially-yielding teeth and eccentrically mounted within said ring and forming the other engaging member, and means for moving one of said members longitudinally with relation to the other while maintaining them in driving engagement.

8. In a variable-speed gearing, the combination of an internally-toothed ring forming one of a pair of engaging members, a peripherally-toothed rotary wheel eccentrically mounted within said ring and forming the other engaging member, the teeth of one member being radially yielding, the teeth of the other member being of ratchet form and the engaging face of one member being conoidal, and means for moving one of said members longitudinally with relation to the other while maintaining them in driving engagement.

9. In a variable-speed gearing, the combination of a rotary shaft, engaging members comprising an internally-toothed ring and a toothed wheel eccentrically and rotatably mounted on said shaft within and meshing with the ring, one of said members having a conoidal engaging surface longer than the engaging part of the other member, means for moving one of said members longitudinally with relation to the other while maintaining their engagement, and a second shaft operatively connected with said wheel.

10. In a variable-speed gearing, the combination of a rotary shaft, engaging members comprising a ring and an independently-rotating wheel eccentrically mounted on said shaft within the ring, one of said members having a conoidal engaging surface longer than the engaging part of the other member, means for moving one of said engaging members longitudinally with relation to the other while maintaining their engagement, means for preventing angular slip of the driving-wheel against the ring, and a second shaft operatively connected with said wheel.

11. In a variable-speed gearing, the combination of a rotary shaft, a radially-adjustable peripherally-toothed eccentric wheel loosely journaled about said shaft, a non-rotatable internally-toothed ring about said wheel, said wheel and ring forming engaging members relatively adjustable longitudinally, one member being longer than the other and having a conoidal engaging surface and the teeth of one member being radially yielding, a second rotary shaft and a connection between said eccentric wheel and said second shaft.

12. In combination with driving and driven shafts, a variable-speed gearing having an eccentric toothed wheel operatively connected with one of said shafts and mounted on the other of said shafts to rotate independently thereon and forming one of a pair of meshing members, an internally-toothed ring about said wheel forming the other member, the toothed engaging face of one member being conoidal and longer than the engaging part of the other member, and means for shifting one of said members longitudinally of the other while maintaining them in mesh.

13. In combination with driving and driven shafts, a variable-speed gearing having a radially-adjustable eccentric wheel operatively connected with one of said shafts and mounted on the other said shaft to rotate independently thereon and forming one of a pair of engaging members, a ring about said wheel forming the other of said members, the engaging face of one member being conoidal and longer than the engaging part of the other member, an adjustable counterbalance for said eccentric wheel, means for shifting one of said members longitudinally of the other while maintaining the engagement between them, and means for shifting the counterbalance, substantially as and for the purpose set forth.

14. In a variable-speed gearing, the combination of a rotary shaft, a shell having an internal conoidal surface, about and concentric with said shaft, provided with longitudinally-extending teeth and forming one of a pair of engaging members, an inclined guide on the said shaft at the same pitch as the conoidal surface of the shell, a cam slidably mounted on said guide, an eccentric drive-wheel, forming the other engaging member, journaled on said cam and provided with peripheral radially-yielding teeth engaging said longitudinally-extending teeth, a second shaft, a driving connection between said drive-wheel and second shaft, and means for moving one of said members longitudinally with relation to the other and at the same time sliding the cam upon said guide, substantially as and for the purpose set forth.

15. In a variable-speed gearing, the combination of a rotary shaft, a shell having an internal conoidal surface about and concentric with said shaft, provided with longitudinally-extending teeth and forming one of a pair of engaging members, inclined guides on the said shaft at the same pitch as the conoidal surface of the shell but at right angles to each other, a cam slidably mounted on one of said guides, an eccentric drive-wheel forming the other engaging member, journaled on said cam and provided with peripheral radially-yielding teeth engaging said longitudinally-extending teeth, an adjustable counterbalance for the cam and eccentric slidably mounted on the other of said guides, a second shaft, a driving connection between said drive-wheel and second shaft, and means for moving one of said members longitudinally with relation to the other and at the same time sliding the said cam and counterbalance upon said guides, substantially as and for the purpose set forth.

16. The combination with driving and driven bodies, of variable-speed gearing interposed between them having engaging members one of which moves as a planet-wheel rolling against the other, the members being adjustable one with relation to the other to gradually change the relative diameters of their engaging surfaces, and a driving connection between one of the said bodies and the said rolling member, comprising a disk on the one having a plurality of circular bearing-openings, and rollers on the other of smaller diameter than said openings and engaging the same.

17. The combination with driving and driven bodies, of variable-speed gearing interposed between them having engaging members one of which moves as a planet-wheel rolling against the other, the members being adjustable one with relation to the other to gradually change the relative diameters of their engaging surfaces, and a driving connection between one of the said bodies and the said rolling member, comprising a disk on the said body having a plurality of circular bearing-openings, and rollers on the said rolling member of smaller diameter than said openings and engaging the same.

18. In a power-transmitting gear, the combination of a gear member free to rotate upon its own axis and also to gyrate, said gear member having a toothed contact-surface, a non-revoluble member provided with a toothed contact-surface of substantially conical shape engaged by said contact-surface of said gear member, means for shifting the general position of said non-revoluble member relatively to said gear member, and mechanism connected with said gear member for transmitting power to or from the same.

19. In a power-transmitting gear, the combination of a driving member and a driven member connected in operative engagement with each other by means of toothed, meshing, changeable-diameter contact-surfaces, one of said members having a gyratory movement and also a rotary movement, the other of said members being acted upon in response to said gyratory movement, and means for shifting one of said members bodily in relation to the other.

20. In a power-transmitting gear, the combination of a gear member free to rotate upon its own axis and also to gyrate, said gear member having a toothed contact-surface, a non-revoluble member provided with a toothed contact-surface of substantially conical shape engaged by said contact-surface of said gear member, means for bodily shifting one of said members with relation to the other while maintaining them in mesh, and mechanism connected with said gear member for transmitting power to or from the same.

21. In a power-transmitting gear, the combination of a toothed gear member, means for actuating said gear member so as to cause the same to gyrate, toothed mechanism meshing with said gear member in its gyrations for the purpose of causing said gear member to rotate upon its own axis at a speed independent of said gyrations, rotary mechanism connected with said gear member and having a positive motion in accordance with the rotation thereof, and mechanism controllable at will for shifting the position of said gear member relatively to said mechanism engaged thereby, for the purpose of varying the relative speed therebetween.

22. In a power-transmitting gear, the combination of a gear member free to rotate upon its own axis and also to gyrate, said gear member having a toothed contact-surface, a second member having a toothed contact-surface meshing with that of said gear member and adapted to coact therewith for changing the speed thereof according to the positions of said gear member and said second member relatively to each other, means for transmitting power to or from said gear member, and mechanism for controlling the positions of said gear member and said second member relatively to each other.

23. In a power-transmitting gear, the combination of a gear member free to rotate upon its own axis and also to gyrate, said gear member having a toothed contact-surface, a second member having a toothed contact-surface meshing with said contact-surface of said gear member and adapted to coact therewith for changing the speed thereof according to the positions of said gear member and said second member relatively to each other, means for transmitting power to or from said gear member, and mechanism controllable at will for shifting said gear member bodily in relation to said second member.

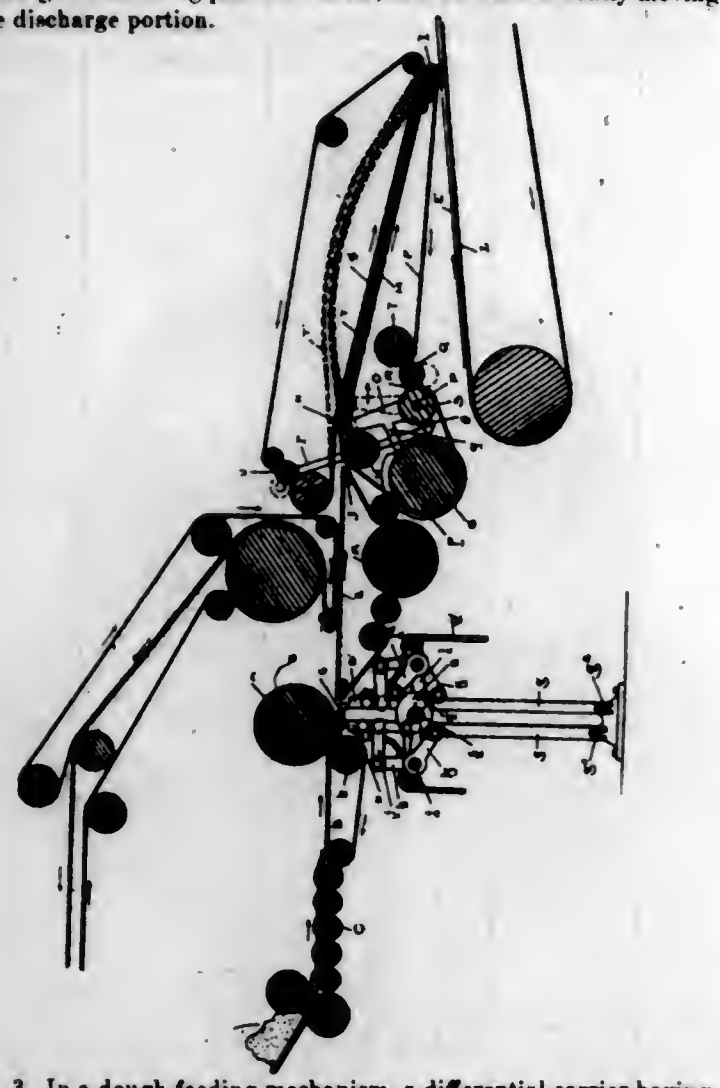
24. In a power-transmitting gear, the combination of a gear member free to rotate upon its own axis and also to gyrate, said gear member having a toothed contact-surface, a second member having a toothed contact-surface meshing with said contact-surface of said gear member and adapted to coact therewith for changing the speed thereof according to the positions of said gear member and said second member relatively to each other, means for transmitting power to or from said gear member, and shifting mechanism connected with both said gear member and with said second member and controllable at will for shifting the same relatively to each other.

25. In a power-transmitting gear, the combination of a gear member free to rotate upon its own axis and also to gyrate, said gear member having a toothed contact-surface, a second member having a toothed contact-surface meshing with said contact-surface of said gear member, thereby causing said gear member to rotate as aforesaid upon its own axis, a shaft connected with said gear member for transmitting power to or from the same, and another shaft connected with said last-mentioned shaft and having a rotary movement corresponding to the gyratory movement of said gear member.

787,081. DOUGH-FEEDING MECHANISM. ALEXANDER W. COPLAND, Detroit, Mich. Filed Jan. 26, 1904. Serial No. 190,723.

Claim.—1. In a feeding mechanism, a carrier, means for constantly feeding the receiving portion of said carrier, and for variably feeding the discharging portion thereof.

2. In a feeding mechanism, a carrier, and means for constantly moving the receiving portion thereof, and for intermittently moving the discharge portion.



3. In a dough-feeding mechanism, a differential carrier having a progressively-changing speed.

4. In a dough-feeding mechanism, a differential carrier and means for producing a progressive retarded speed on the carrying portion thereof.

5. In a dough-feeding mechanism, a continuous carrier-surface, and means for differentially moving said surfaces at the receiving, and discharging points.

6. In a feeding mechanism, a carrier-surface, means for driving said surface, and means for progressively changing the speed between the receiving portion thereof, and the discharging portion.

7 In a feeding mechanism, a carrier, means for periodically progressively retarding said carrier from the receiving portion to the delivering portion thereof, and means for elongating the path of movement of the intermediate portion of said carrier.

8. In a feeding mechanism, a carrier, and means for alternately retarding and accelerating the speed of said carrier progressively between the receiving and the delivering portion thereof.

9. In a feeding mechanism, a carrier, means for alternately retarding and accelerating the said carrier progressively from the receiving portion to the delivering portion thereof, and means for deflecting an intermediate portion of said carrier, to elongate the path of movement thereof.

10. A dough-feeding mechanism for a dough mass in a sheet form comprising a progressively-retarded carrier, over which said sheet is adapted to be fed.

11. In a dough-feeding mechanism, a flexible traveling carrier, and means for elongating by deflecting said carrier intermediate the dough-receiving and dough-discharging portions thereof to produce an intermittent movement of the latter during the constant movement of the former.

12. In a dough-feeding mechanism, a flexible carrier, a supporting-surface for said carrier intermediate of the dough-receiving and dough-discharging portions thereof, and means for bowing said supporting-surface for the purpose described.

13. In a dough-feeding mechanism, a flexible endless carrier, means for driving said carrier at constant speed at the dough-receiving portion thereof, and means intermediate the dough-receiving portion and dough-delivering portion for deflecting said carrier to produce an intermittent dough delivery.

14. In a dough-feeding mechanism, a flexible endless carrier, means for driving said carrier at constant speed at the dough-receiving portion thereof, means between said dough-receiving portion,

and the dough-delivering portion of the carrier for deflecting the same laterally, to receive the constantly-fed portion, and coöperating means in the return portion for providing slack, whereby an intermittent operation of the dough delivery is obtained.

15. In a dough-feeding mechanism, a flexible endless carrier for receiving the cut dough, means for driving the receiving portion of said carrier constantly, and at uniform speed, a pan-carrier traveling adjacent to the discharge portion of said endless carrier, and means intermediate the dough-receiving, and dough-discharging portions of said endless carrier for deflecting the same laterally to arrest the discharge between pans.

16. In a dough-feeding mechanism, an endless flexible carrier for receiving and delivering cut dough, means for driving the receiving portion thereof constantly, means intermediate the receiving and delivering portion for bowing and straightening said carrier to produce an intermittent discharge, a retaining-apron above said carrier, and means for feeding and providing slack in said apron to permit of maintaining the same in parallel relation to said carrier during the bowing thereof.

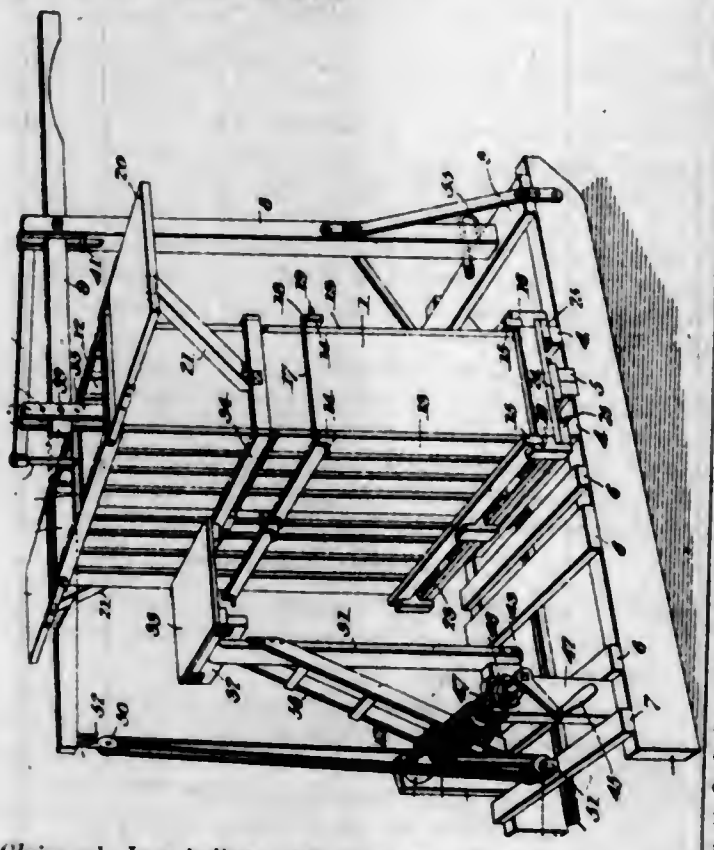
17. In a feed mechanism, an endless belt to which material is fed and from which it is to be delivered, means for giving its receiving portion a constant rate of travel, and for varying the speed of its discharge portion.

18. The combination of an endless belt, a drive-pulley at a point thereof which drives the belt a uniform speed at that point, a loop in said belt, and means for increasing and decreasing the size of said loop, whereby the speed of travel of the belt behind said loop will be intermittent.

19. A feed mechanism having receiving and delivering portions in fixed relation to each other, combined with means for varying the length of the carrier between the receiving and delivering portions.

20. In a feed mechanism, a belt-carrier, having fixed receiving and delivering portions, and automatic means for increasing and decreasing the length of the carrying-surface thereof.

787,082. BALING-PRESS. DAVID E. DARNELL, Fulton, Tex. Filed Nov. 10, 1904. Serial No. 232,237.



Claim.—1. In a baling-press, a supporting-frame, an upright shaft, a press-box mounted pivotally upon said shaft, and means for lifting the press-box clear from the supporting-frame while being turned upon the shaft.

2. In a baling-press, a supporting-frame, an upright shaft, a press-box mounted pivotally upon said shaft and having a plurality of compartments, a washer-plate engaging the under side of the press-box, and means for forcing said washer-plate in an upward direction to lift the press-box clear of the supporting-frame.

3. A supporting-frame, an upright shaft, a press-box pivotally engaging said shaft and having a plurality of compartments, a washer-plate engaging the under side of the press-box and having a yoke, and a suitably-supported foot-lever pivotally engaging said yoke.

4. A runner-frame having cross-bars and an upright shaft, a press-box pivotally engaging said shaft, normally supported upon the cross-bars and having a plurality of compartments, and means for lifting the press-box clear of the supporting-bars.

5. A runner-frame, a press-box pivotally supported upon said frame and having a plurality of compartments, transverse cleats upon said press-box, a hingedly-supported platform adapted to be supported at its free edge upon a transverse cleat on one side of the press-box, and a suitably-supported spring-catch engaging the opposite side of the press-box and coöperating with the platform to retain the press-box securely in position for operation.

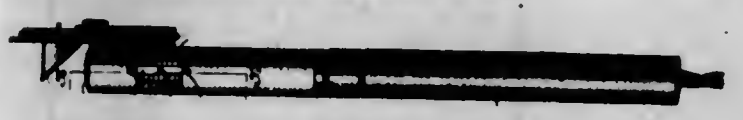
6. A frame, a press-box having a plurality of compartments pivotally supported upon said frame, and a spring-catch disposed in the path of and adapted to arrest the rotation of the press-box, said spring-catch having a foot-piece.

7. A frame, an upright upon said frame, an upright shaft supported upon the frame, a bracket-arm connecting the upper end of said shaft with the upright, a press-box mounted for rotation upon said shaft and having a plurality of compartments, a lever connected pivotally with the upper end of the upright, a plunger having a rod pivotally connected with the lever, and supporting means for said plunger connected with the upper end of the upright.

8. A press-box mounted for rotation and having a plurality of compartments, an upright supported a distance from said press-box, a lever supported by said upright, a plunger having a rod pivotally connected with the lever, a windlass, suitably-guided tackle adapted to be wound upon said windlass, and a block connected with said tackle and adapted to be connected with the press-lever.

9. In a device of the class described, a press-box having detachable slatted closures provided with laterally-extended crossing strips, in combination with fastening members adapted to engage the extended ends of said strips, said fastening members consisting of rods provided at the ends thereof with cranks having handles.

787,083. OPHTHALMOSCOPE. HENRY L. DE ZENG, Philadelphia, Pa. Filed July 20, 1904. Serial No. 217,361.



Claim.—1. In an ophthalmoscope, the combination of a source of light, a test object and a reflector for directing the light from the said test object into the eye, means for focusing the light from the said test object upon the retina of the eye and means exterior to the said reflector for viewing the retina, substantially as shown and described.

2. In an ophthalmoscope, the combination of a source of light, a test object and a reflector for directing the light from the said test object into the eye, means for focusing the light from the said test object upon the retina of the eye and means located to the rear of and exterior to the said reflector for viewing the retina, substantially as shown and described.

3. In an ophthalmoscope, the combination of a source of light, a test object and a reflector for directing the light from the said test object into the eye, means for focusing the light from the said test object upon the retina of the eye and means located above the edge of the reflector for viewing the retina, substantially as shown and described.

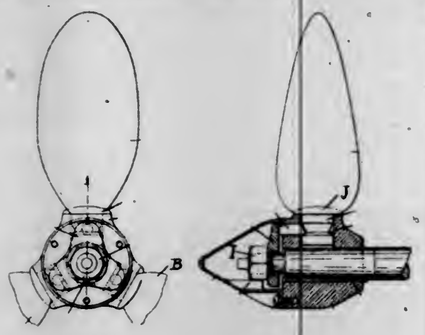
4. In an ophthalmoscope, the combination of a source of light, a test object and a reflector for directing the light from the said test object into the eye, means for focusing the light from the said test object upon the retina of the eye and means located above and to the rear of the edge of the reflector for viewing the retina, substantially as shown and described.

5. In an ophthalmoscope, the combination of a source of light, a test object and a reflector for directing the light from the said test object into the eye, means for focusing the light from the said test object upon the retina of the eye, and means adjacent and exterior to the outer edge of the reflector for viewing the retina, substantially as shown and described.

787,084. APPARATUS FOR THE PROPULSION OF SHIPS. WILLIAM T. DONNELLY, Brooklyn, N. Y. Filed July 8, 1904. Serial No. 216,705.

Claim.—1. A propelling device for ships compriaing a rotatable shaft, a hub provided with sockets for blades mounted thereon, detachable blades mounted in said sockets, locking-pins adapted to se-

cure said blades, and means for forcing the propeller axially upon the shaft that acts through pressure upon the locking-pins.



2. A propelling device for ships comprising a rotatable shaft, a hub provided with sockets for blades mounted thereon, detachable blades mounted in said sockets, locking-pins adapted to secure said blades, a washer mounted upon the propeller-shaft, and means for forcing the propeller axially upon the shaft, which acts through pressure upon the washer, and locking-pins to secure the blades in their sockets.

3. A propelling device for ships comprising a rotatable shaft, a hub provided with sockets for blades mounted thereon, detachable blades mounted in said sockets, locking-pins adapted to secure said blades, a washer mounted upon the propeller-shaft, and a tail-nut adapted to force the several parts axially along the shaft and secure them in relative position.

4. A propelling device for ships comprising a rotatable shaft, a hub provided with sockets for blades mounted thereon, detachable blades mounted in said sockets, locking-pins adapted to secure said blades, a washer mounted upon the propeller-shaft, a tail-nut acting to force all parts axially along the propeller-shaft, and a cap or shield covering the tail-nut, secured to the hub and provided internally with projections which prevent the turning of the tail-nut while the cap is in place.

5. In a propelling device for ships, a hub, axially-adjustable blades mounted in said hub and having notches, and locking-pins mounted in said hub their inner ends engaging the notches in said blades, and adapted to force the propeller axially upon the shaft.

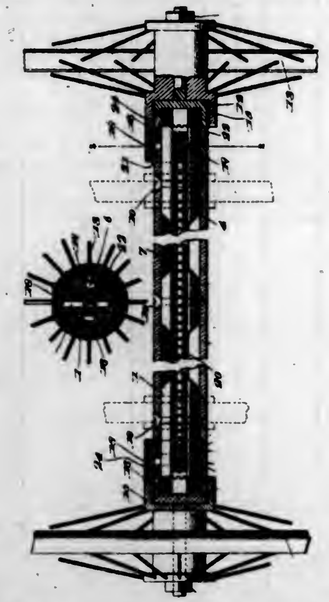
6. In a propelling device for ships, a shaft, a hub mounted on said shaft, a tail-nut on said shaft and a cap for said hub provided with projections for engaging and locking said tail-nut.

7. A propelling device for ships comprising a rotatable shaft, a hub provided with sockets for blades mounted thereon, detachable axially-adjustable blades mounted in said sockets, locking-pins, a tail-nut forcing the propeller axially upon the shaft, and means for securing the blades in their sockets by the axial thrust of the tail-nut along the shaft which presses the locking-pins inward.

787,085. **COMPENSATING GEARING.** ELDRIDGE C. DOOLITTLE, Wallingford, Conn., assignor of one-half to William Hassett, Wallingford, Conn. Filed Nov. 3, 1904. Serial No. 231,247.

Claim.—1. The combination of an axle-core having cylindrical terminals and provided with longitudinal grooves in opposite sides thereof, each terminal being provided with bifurcations disposed at substantially right angles to one another with one of the bifurcations communicating with the grooves, a tubular case embracing and fixed to the core with its ends terminated adjacent the inner ends of the bifurcations of the core, the terminals of the core being threaded, stub-shafts rotatable within corresponding bifurcations at opposite ends of the core and pinions fixed thereon at the outer side of the core, sprocket-wheels carried by the shafts within the respective other bifurcations, a sprocket-chain connecting the sprocket-wheels and running in the grooves of the core, bearing-rings embracing the core and lying at opposite sides of the projected ends of the stub-shafts, spindles having internally-threaded caps fitted to the threaded terminals of the core and engaging the adjacent bearing-ring to hold the same in place, and wheels rotatable upon the spindles and provided at the inner ends of their hubs with crown-gears meshing with the respective pinions.

2. The combination of an axle terminating at opposite ends in spindles, wheels rotatable upon the spindles and provided at their inner sides with gears, rotatable stub-shafts carried transversely by the axle and having pinions fixed thereon and meshing with the respective gears, and an endless belt connecting the stub-shafts.



3. The combination of a rotatable drive member, wheels mounted to rotate thereon and provided with gears, rotatable gears carried by the drive element upon axes disposed transversely of said element and in mesh with the respective gears, and a connection between the pinions to transfer motion from one to the other.

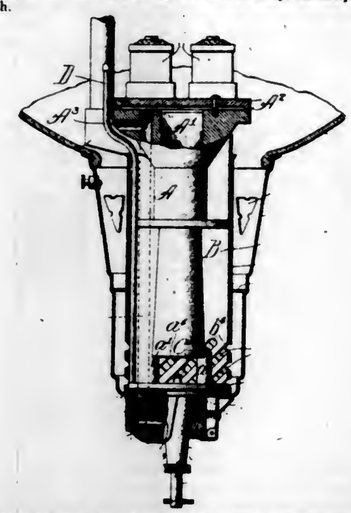
4. The combination of a continuous drive element, wheels loosely rotatable thereon, individual locking means to interlock the wheels with the drive element for simultaneous rotation thereon, and to permit acceleration of one of the wheels without acceleration of the other wheel.

5. The combination with a drive-axle, of wheels rotatable thereon, pinions carried by the axle upon axes transverse thereto, gears carried by the wheels and in mesh with the respective pinions, each pinion being rotatable upon its axis to permit rotation of the adjacent gear and wheel upon the axle, and means connecting the pinions for simultaneous rotation.

787,086. **GAS-LAMP.** JOHN DOORENBOS, New York, N. Y., and GARRETT G. DOORENBOS, Kalamazoo, Mich. Filed May 12, 1904. Serial No. 207,526.

Claim.—1. In a gas-lamp, the combination of a supporting-pipe, a branch pipe connected therewith and out of alinement therewith, a shade encircling the lower end of said first-named pipe and the upper portion of said branch pipe below the junction of said pipes, a burner-body supported by said branch pipe and equipped with a plurality of burner-orifices, the connection between said supporting-pipe and said burner-body being at one side of the upper portion of the burner-body and adjacent to the group of burner-orifices, a globe-support connected with said burner-body beneath said connection, and a globe having its lower portion supported on the upper end of said globe-support and its upper portion located a short distance beneath said shade, for the purpose set forth.

2. In a gas-lamp the combination of a supporting-pipe having a closed lower end, and a mantle-support connected with the lower end of said pipe, a shade-support connected with the lower end of said pipe, a shade connected with said shade-support, a burner-body, a vertically-slidable globe-support connected with said burner-body, a globe having its lower end resting upon said globe-support and its upper end located beneath said shade, and a branch pipe out of alinement with said first-named pipe and forming a junction therewith above said shade, and supporting said burner-body, for the purpose set forth.



3. In a gas-lamp, the combination of a central supporting-pipe, a branch pipe connected therewith and out of alinement therewith, a mantle-support depending from said supporting-pipe beneath the junction thereof with said branch pipe, a burner-body supported by said branch pipe and equipped with a guide for a globe-support, a normally elevated, vertically-depressible globe-support on said guide, a globe mounted on said globe-support and freely depressible with said globe-support, and a shade supported through the medium of said supporting-pipe and located beneath the junction of said branch pipe and supporting-pipe, substantially as and for the purpose set forth.

787,087. **SPINNING-RING FRAME.** OLIVER DUMAS, Fall River, Mass. Filed Oct. 10, 1904. Serial No. 227,863.



Claim.—1. The combination with the front rails and lifter-rod of a spinning-machine, of bearings for the lifter-rod, means for securing the bearings in the front rails, cone-shaped caps on the bearings surrounding the lifter-rod, and means for adjustably securing the cap to the bearings, as described.

2. The combination with the front rails and lifter-rod of a spinning-machine, of bearings for the lifter-rod, means for securing the bearings in the front rails, cone-shaped caps surrounding the lifter-rod on the bearings, felt packing-rings intermediate the ends of the bearings and the inner surface of the caps, and means for adjustably securing the cap to the bearings, as described.

3. The combination with the front rails and lifter-rod of a spinning-machine, of bearings for the lifter-rod, means for securing the bearings in the front rails, a tube surrounding the lifter-rod forming an oil-well connecting the bearings, felt rings intermediate the ends of the tube and the bearings, cone-shaped caps surrounding the lifter-rod, felt packing-rings intermediate the ends of the bearings and the inner surface of the caps, and means for adjustably securing the caps to the bearings, as described.

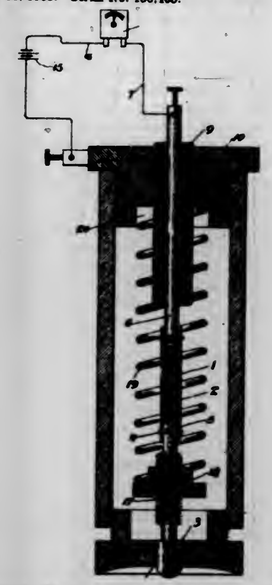
4. The combination with the front rails and lifter-rod of a spinning-machine, of the bearings *e e*, the cone-shaped caps *f f*, the oil-well *g* connecting the bearings *e e*, the sleeves g^4 g^4, the felt packing-rings *h h* intermediate the outer ends of the bearings and the inner surface of the caps, the felt rings *i i* intermediate the oil-well *g* and the inner ends of the bearings, means for adjustably securing the caps to the outer ends of the bearings, and means for securing the bearings in the front rails, as described.

787,088. **NUT-LOCK.** THOMAS B. EARHART and MARY F. EARHART, Stockton, Cal. Filed Aug. 16, 1904. Serial No. 220,893.



Claim.—A bolt having a threaded portion and provided with a central longitudinal orifice in said threaded portion, the threads in the wall of the orifice being reverse to the threads of the bolt, an unthreaded washer mounted on the bolt and provided on its inner face with biting projections, a nut threaded on the bolt and provided on its inner face with biting projections to take into the washer, and a jam-nut embodying a head and a shank, the shank being threaded into the orifice in the end of the bolt, and the head having biting projections on its inner face to engage the nut threaded on the bolt, substantially as described.

787,089. **VARIABLE RESISTANCE OR CONDUCTOR FOR ELECTRIC CURRENTS.** WILLIAM H. FAHRNEY, Chicago, Ill. Filed Jan. 10, 1903. Serial No. 138,465.

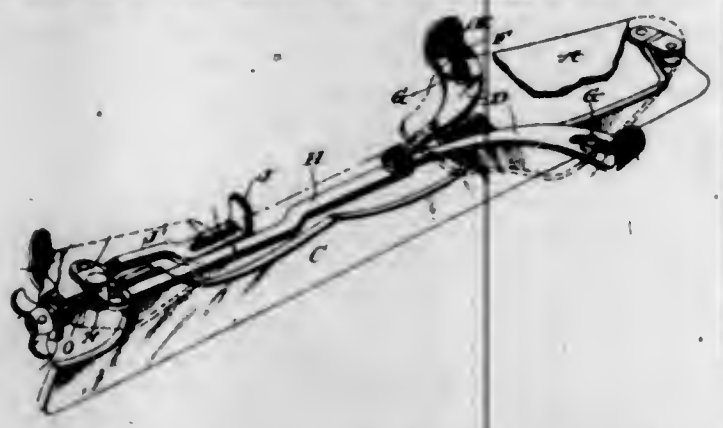


Claim.—1. In a variable resistance or conductor for electric currents the combination of a compressible elastic tube, a mass of particles of conducting material filling said tube, an electric circuit having its terminals electrically connected with said mass, means for compressing said tube and a spring for retracting said tube, substantially as set forth.

2. In a variable resistance or conductor the combination of an elastic tube, a mass of particles of conducting material filling said tube, an electric circuit having one terminal electrically connected

with the particles in one end of said tube, a plug electrically connected with the particles in the other end of said tube and secured to said tube, a shoulder on said plug, and a spring held against movement at one end and surrounding said tube and bearing against said shoulder.

787,090. SKATE-CLAMP. STANLEY W. FINCH, Washington, D. C. Filed Jan. 9, 1904. Renewed Feb. 3, 1905. Serial No. 244,045.



Claim.—1. In a skate, the combination of a pair of sole-clamps; a draw-bar pivotally connected thereto and extending rearwardly of the skate; fixed heel-clamps; a movable heel-clamp; an equalizing-lever located in rear of the movable heel-clamp and pivotally connected at one end to the rear end of the draw-bar and at its opposite end pivotally connected to the movable heel-clamp; and an actuating device pivotally connected to the equalizing-lever intermediate its ends, whereby the clamp will be drawn to place, substantially as described.

2. In a skate, the combination of a pair of sole-clamps; a draw-bar pivotally connected thereto and extending rearwardly of the skate; fixed heel-clamps adapted to bear against the rear of the heel; a movable heel-clamp adapted to be drawn against the breast of the heel; a member extending rearwardly from said movable heel-clamp; an equalizing-lever pivotally connected to the draw-bar and said member; and an actuating member pivotally connected to the lever, for moving the same bodily toward or from the rear end of the skate.

3. In a skate, the combination of a foot-plate; a pair of sole-clamps slidably connected to said plate; a draw-bar pivotally connected to the rear ends of the sole-clamps; fixed heel-clamps extending upwardly from the foot-plate; a movable heel-clamp; an equalizing-lever located in rear of the movable heel-clamp and pivotally connected at its opposite ends to the draw-bar and the heel-clamp; a post pivotally connected to said lever intermediate its ends; and an actuating-screw carried by the foot-plate and having its forward end passing into a threaded opening formed in the post.

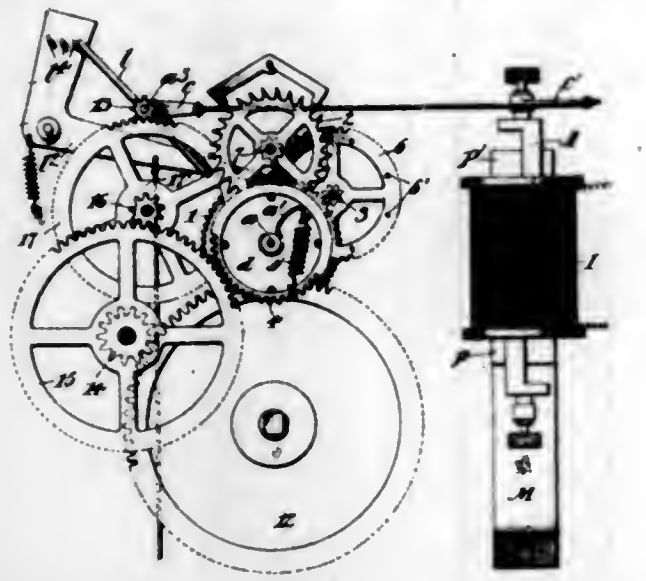
4. In a skate, the combination of a pair of sole-clamps; a draw-bar pivotally connected thereto and extending rearwardly of the skate; fixed heel-clamps adapted to bear against the rear of the heel; a movable heel-clamp adapted to be drawn against the breast of the heel; a member extending rearwardly from said movable clamp; an equalizing-lever located in rear of the movable heel-clamp and pivotally connected to the draw-bar and said member; a post pivotally connected to said lever intermediate its ends; and an actuating-screw passing into a threaded opening formed in the post.

5. In a skate, the combination of a pair of sole-clamps; a draw-bar pivotally connected thereto; a fixed heel-clamp; a movable heel-clamp acting on the breast of the heel; an equalizer located in rear of the movable heel-clamp and pivotally connected thereto; a pivotal connection intermediate the draw-bar and the equalizer; and means, acting in conjunction with the equalizer, for drawing the clamps to place.

6. In a skate, the combination of a pair of sole-clamps; a fixed heel-clamp; a movable heel-clamp adapted to be drawn against the breast of the heel; an equalizer located in rear of the movable heel-clamp and pivotally connected thereto; pivotal connections intermediate the sole-clamp and the equalizer; and means for actuating said parts.

787,091. ELECTRIC CLOCK. MARTIN FISCHER, Zurich, Switzerland, assignor to Actiengesellschaft "Magneta." (Electrische Uhren Ohne Batterie & Ohne Contacte.) Zurich, Switzerland, a Firm. Filed Sept. 3, 1901. Serial No. 74,161.

Claim.—1. The combination with a time-train, its motor-spring, a motor-driven auxiliary train, a gear driven thereby, an element operated by said driven gear, stop and let-off devices for said auxiliary train, said let-off devices operated periodically by a moving element of the time-train and means operated by the auxiliary train, whenever let off, to wind up the time-train motor-spring; of hand-operated means to operate the let-off device and release the auxiliary train, and means preventing overwinding of the time-train motor-spring.



2. The combination with a time-train, its motor-spring, a motor-driven auxiliary train, a gear driven thereby, a driven element and means operated by the driven gear to impart angular movements to said element, stop and let-off devices for said auxiliary train, said let-off devices operated periodically by a moving element of the time-train and means operated by the auxiliary train, whenever let off, to wind up the time-train motor-spring; of hand-operated means to operate the let-off device and release the auxiliary train and means preventing overwinding of the time-train motor-spring.

3. The combination with a time-train, a lever, a driving connection between said lever and a revoluble element of the time-train and a helical spring connected to the lever and imparting driving motion thereto; of means controlled by the time-train and operating to periodically restore lost tension to the helical spring.

4. The combination with a time-train, its motor-spring, a motor-driven auxiliary train, a gear driven thereby, the pole-changer of an induction-current generator and means operated by the driven gear to impart angular movements to said pole-changer, stop and let-off devices for said auxiliary train, said let-off devices operated periodically by a moving element of the time-train, and means operated by the auxiliary train, whenever let off, to wind up the time-train motor-spring; of hand-operated means to operate the let-off device and release the auxiliary train and means preventing overwinding of the time-train motor-spring.

5. The combination with a time-train, a driving-lever, a helical spring having one end connected to said lever, a driving connection between the lever and a revoluble element of the time-train, and a normally stationary element to which the other end of the helical spring is attached; of means controlled by the time-train to impart periodical movements to the normally stationary element and there by restore the lost tension to the spring.

6. The combination with the time-train, a driving-lever, a helical spring having one end attached to said lever, a frictional driving connection between the lever and a revoluble element of the time-train and a normally stationary element to which the other end of the spring is attached; of means controlled by the time-train to impart periodical movements to said normally stationary element and thereby restore the lost tension to the helical spring.

7. The combination with the minute-hand arbor of a time-train, a normally stationary gear loose on said arbor, a helical driving-spring having one end attached to said gear and a driving connection between the other end of the spring and said minute-hand arbor; of a gear-wheel, meshing with said normally stationary gear and means to drive said gear-wheel controlled by the time-train to impart periodical angular movements to said normally stationary gear.

8. The combination with the minute-hand arbor of a time-train, a gear-wheel loose thereon, a radial arm frictionally connected to said arbor and a helical driving-spring connected to said arm and gear respectively; of means operating independently of the time-train, but controlled thereby, to impart periodical angular movement to the loose gear and thereby restore the lost tension to said driving-spring.

787,092. METHOD OF MAKING BRAKE-SHOES. JOSEPH D. GALLAGHER, Glenridge, N. J. Filed Feb. 24, 1903. Serial No. 144,742.



Claim.—1. The method of making brake shoes consisting in preparing a body portion and casting thereon a separate wearing sole, substantially as described.

2. The method of making brake shoes consisting in providing a body portion with retaining devices and casting thereon a separate wearing sole.

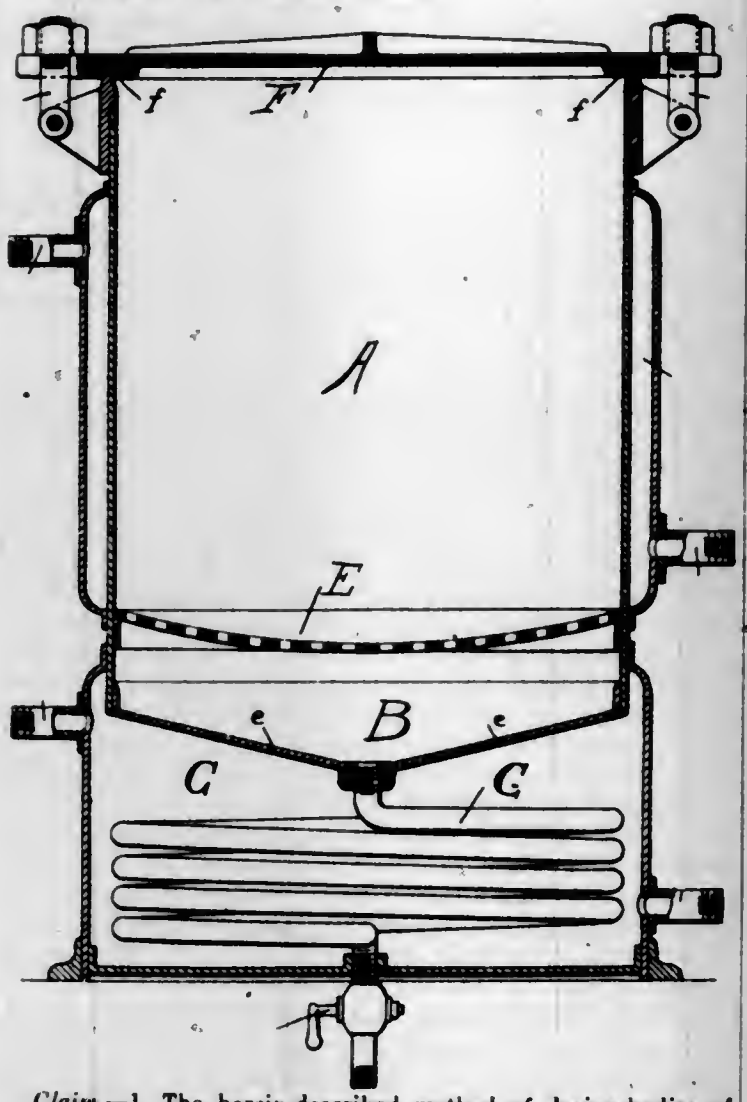
3. The method of making brake shoes which consists in providing a body portion consisting of a brake shoe partly worn in service, with retaining devices, and casting thereon a separate wearing sole.

4. The method of making brake shoes with renewable soles which consists in providing a rear body portion thereof with retaining devices designed to be exposed by wear of the sole, placing said body portion in a mold and separately casting a wearing sole thereon.

5. The method of refacing worn brake shoes which consists in providing the rear portion of the shoe with retaining devices, exposed by the wearing off of the sole, placing said body portion in a mold and casting thereon a new wearing sole.

6. The method of refacing worn shoes which consists in forming the body portion of the shoe with recessed lugs, allowing them to be exposed by wear of the sole, placing said body portion in a mold and casting thereon a new wearing sole which is held in place by said lugs, substantially as described.

787,093. PROCESS OF DRYING VEGETABLE, MINERAL, ANIMAL, AND COMPOUND SUBSTANCES. EMIL GATHMANN, Washington, D. C., assignor to George Whitman McMullen, Picton, Canada. Filed Aug. 2, 1902. Serial No. 118,168.

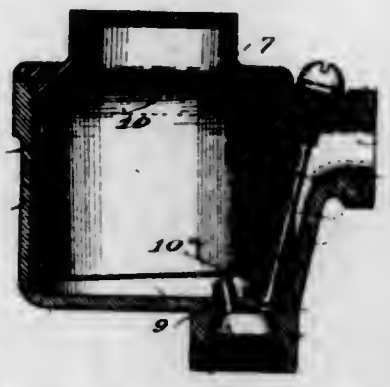


Claim.—1. The herein-described method of drying bodies of porous material consisting in inclosing the substance to be dried in a moisture-tight chamber and maintaining it therein under an elevated temperature saturated with the moisture evaporated and precipitating the moisture produced by evaporation by subjecting the same to a cooler temperature at a lower level, substantially as described; and continuing the process until the material is substantially dry.

2. The herein-described method of separating or extracting the moisture from solids which consists in treating the solids at an elevated temperature in a moisture-proof chamber and in the presence of an atmosphere saturated by the moisture extracted or expelled and condensing the vaper in another portion of the chamber and at a lower level; and continuing the treatment until the material is substantially dry.

3. The herein-described method of drying bodies of porous material consisting in placing the material in a chamber, closed save in its lower portion, heating the same to expel moisture therefrom, maintaining the material at an elevated temperature in a surrounding vapor, subjecting the surplus portions of the vapor to the action of a cooling agent and condensing the same at a lower level, and continuing the process until the material is substantially dry.

787,094. DRAIN ATTACHMENT FOR STEAM-HEATING SYSTEMS, &c. ROBERT L. GIFFORD and GEORGE W. NISTLE, Chicago, Ill., assignors of one-third to Everett W. Brooks, Chicago, Ill. Filed July 1, 1904. Serial No. 214,957.



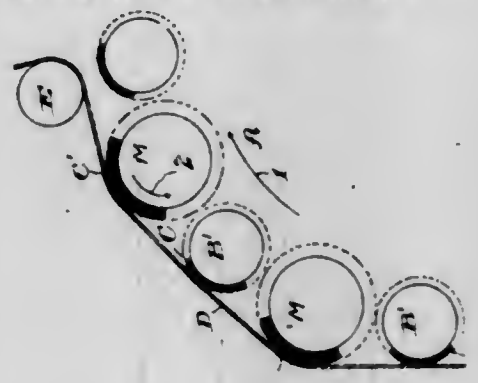
Claim.—1. The combination with a casing having inlet and discharge passages, and a float in said casing, of a longitudinally-bored nipple inserted in the base of the casing in communication with the discharge-passage of the latter, said nipple having an oblique upper end coöperating with the base of the float and being capable of adjustment in its seat around its longitudinal axis, substantially as described.

2. The combination with a casing having inlet and discharge passages, a float in said casing, and means for guiding and supporting said float in a slightly inclined or canted position, of a longitudinally-bored nipple inserted in the base of the casing in communication with the discharge-passage of the latter, said nipple having an oblique upper end coöperating with the base of the float and being capable of adjustment in its seat around its longitudinal axis, substantially as described.

3. The combination with a casing having inlet and discharge passages, and a float in said casing, of a longitudinally-bored nipple inserted in the base of the casing in communication with the discharge-passage of the latter, said nipple being slightly inclined from the vertical and having an oblique upper end coöperating with the base of the float and being capable of adjustment in its seat around its longitudinal axis, substantially as described.

4. The combination with a casing having inlet and discharge passages, a float in said casing, and means for guiding and supporting said float in a slightly inclined or canted position, of a longitudinally-bored nipple inserted in the base of the casing in communication with the discharge-passage of the latter, said nipple being slightly inclined from the vertical and having an oblique upper end coöperating with the base of the float and being capable of adjustment in its seat around its longitudinal axis, substantially as described.

787,095. NAPPING-MACHINE. HARRY S. GREENE, Woonsocket, R. I. Filed Aug. 26, 1904. Serial No. 222,293.



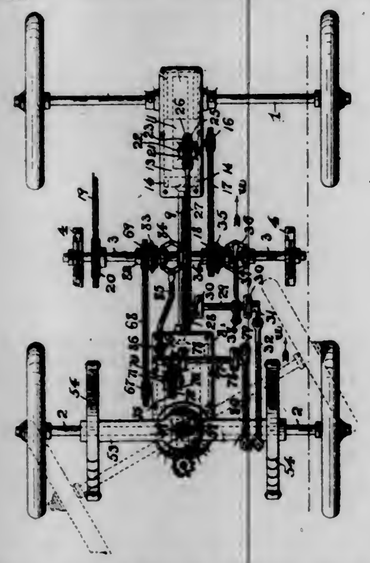
Claim.—1. In a napping-machine, a drum arranged to turn in one direction and equipped with napping-rollers and also with rollers of comparatively large diameter arranged to turn in the opposite direction; all the rollers being arranged with their axes in a common circle, and the comparatively large rollers alternating with the napping-rollers and having perimeters adapted to frictionally engage cloth.

2. In a napping-machine, the combination of a drum arranged to turn in one direction, napping-rollers mounted in the drum and arranged to turn in the opposite direction and having hooked teeth on their perimeters, the outer ends of which are disposed in the opposite direction, with reference to the direction of rotation of the rollers, and rollers of comparatively large diameter also mounted in the drum; all of the rollers being arranged with their axes in a common circle, and the comparatively large rollers alternating with the napping-rollers.

3. In a napping-machine, the combination of a drum arranged to turn in one direction, napping-rollers mounted in the drum and arranged to turn in the opposite direction and having hooked teeth on their perimeters, the outer ends of which are disposed in the opposite direction, with reference to the direction of rotation of the rollers, and rollers of comparatively large diameter also mounted in the drum and having card-wire on their perimeters; all of the rollers being arranged with their axes in a common circle, and the comparatively large rollers alternating with the napping-rollers.

787,096. POWER-TRANSMISSION FOR MOTOR-VEHICLES.

STEPHEN H. HANSON, Akron, Ohio. Filed May 10, 1904. Serial No. 207,236.



Claim.—1. In a motor-vehicle, the combination, with an axle, adapted to revolve in bearings and having a horizontally and centrally pivotal motion, a gear on said axle, a frame journaled on said axle, a sliding gear in said frame in separable engagement with the gear on said shaft, means for actuating said sliding gear, and means for producing the disengagement of said gears, substantially as and for the purposes set forth.

2. In a motor-vehicle, the combination, with an axle, adapted to revolve in bearings and having a horizontally and centrally pivotal motion, a gear on said axle, a frame journaled on said axle, a sliding gear in said frame in separable engagement with the gear on said shaft, means for actuating said sliding gear, and means for producing the disengagement of said gears, consisting, essentially, of a slide in said box, and a system of actuating-levers connected with said slide by means of which said slide may be moved, substantially as and for the purposes set forth.

3. In a motor-vehicle, the combination, with a horizontally-turning axle, a gear on said axle, a frame journaled on said axle, a box pivotally connected with said frame, a sliding gear in said box in separable engagement with the gear on said shaft, means for actuating said sliding gear, means for producing a pivotal movement of said box upon said frame, and means for producing the disengagement of said gears, substantially as and for the purposes set forth.

4. In a motor-vehicle, the combination, with a horizontally-turning axle, a gear on said axle, a frame journaled on said axle, a box pivotally connected with said frame, a sliding gear in said box in separable engagement with the gear on said shaft, means for actuating said sliding gear, means for producing a pivotal movement of said box upon said frame, and means for producing the disengagement of said gears, consisting, essentially, of a slide in said box, and a system of actuating-levers connected with said slide by means of which said slide may be moved, substantially as and for the purposes set forth.

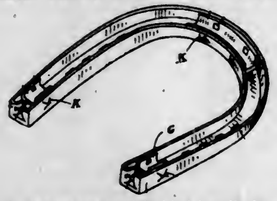
5. In a motor-vehicle, the combination, with a horizontally-turning axle, a gear on said axle having gear-teeth provided with convex edges, a box connected with said axle, a sliding gear in said box in separable engagement with the gear on said shaft, said sliding gear having concaved gear-teeth, means for actuating said sliding gear, and means for producing the disengagement of said gears, substantially as and for the purposes set forth.

6. In a motor-vehicle, the combination, with a horizontally-turning axle, a gear on said axle having gear-teeth provided with convex edges, a box connected with said axle, a sliding gear in said box in separable engagement with the gear on said shaft, said sliding gear having concaved gear-teeth, means for actuating said sliding gear, and means for producing the disengagement of said gears, consisting, essentially, of a slide in said box, and a system of actuating-levers connected with said slide by means of which said slide may be moved, substantially as and for the purposes set forth.

7. In a motor-vehicle, the combination, with the front and rear axles of the vehicle, adapted to revolve in bearings, and said front axle having a horizontally and centrally pivotal motion, of a power-driven shaft, a pair of sprocket-wheels on said shaft, a clutch-disk in engagement with each sprocket-wheel, means for producing the disengagement of said clutch-disks from said sprocket-wheels, a driving-gear on said rear axle, a box journaled on said axle, a sliding gear in said box in separable engagement with the gear on said rear axle, a sprocket-wheel connected with said sliding gear, and a link chain passing over said sprocket-wheel and over one of the sprocket-wheels on said power-driven shaft, a driving gear on said front axle, a box connected with said front axle, a sliding gear in said box in separable engagement with said gear on said front axle, a sprocket-wheel connected with said sliding gear, and a link chain passing over said sprocket-wheel and over the other of said sprocket-wheels on said power-driven shaft, substantially as and for the purposes set froth.

787,097. METAL HORSESHOE.

CHARLES HEART, Alexandria, Ind., assignor to Heart Metal Wheel & Gear Company, Alexandria, Ind., a Corporation. Filed Dec. 3, 1904. Serial No. 235,281.



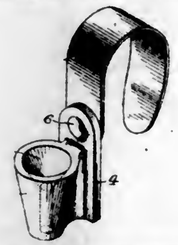
Claim.—1. In a horseshoe of the kind described comprising continuous U-shaped body with substantially vertically downwardly extending walls, continuous open channel between the said walls, said walls of each leg of the shoe being severed and each curled laterally inwardly and toward and adapted to rest in continuous and uniform contact at their ends, each with the other.

2. In a horseshoe of the kind described comprising continuous U-shaped body with substantially vertically downwardly extending walls, continuous open channel between the said walls, indentations in said walls; toe-block and heel-blocks with projections adapted to fit within the said indentations.

3. In a horseshoe of the kind described comprising continuous U-shaped body with substantially vertically downwardly extending walls, continuous open channel between the said walls, said walls of each leg of the shoe being severed and each curled laterally inwardly and toward each other and adapted to rest in continuous and uniform contact at their ends, each with the other; indentations in the said walls; toe-block and heel-blocks with projections adapted to fit within the said indentations; vertically-extending wedge-shaped openings in said body and depressions in said body at each of said openings.

787,098. PORTABLE HOLDER FOR LADIES' HATS.

MAURICE S. HELLMAN, Los Angeles, Cal. Filed Oct. 21, 1904. Serial No. 229,384.



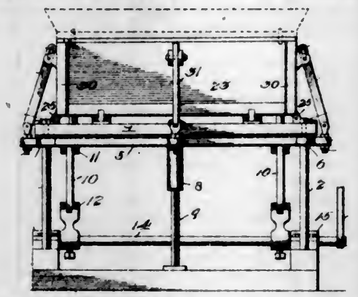
Claim.—1. A portable hat-holder comprising a body having a perforation adapted to receive and engage a hat-pin to support a hat attached to said pin, and a spring-clip attached to said body and adapted to take over a seat-back or like support.

2. A portable hat-holder comprising a body having a perforation adapted to receive and engage a hat-pin to support a hat attached to said pin, and a spring-clip attached to said body and folding thereon.

3. A portable hat-holder comprising a perforated body and a spring-clip pivotally attached thereto and composed of pivotally-connected members to enable the spring-clip to be folded on itself and on the perforated body.

787,099. CONCRETE-BLOCK-MOLD MACHINE.

EDWARD KRAGY, Newark, Ohio. Filed Mar. 16, 1904. Serial No. 198,423.



Claim.—1. In a block-molding machine, a supporting-bed, a stationary partition rigidly secured to the bed, temporary mold-bottoms removably supported on the bed at opposite sides of the partition, a series of folding side walls certain of which have a separable interlocking engagement with the ends of the stationary partition, and an adjusting device operatively connected with the folding walls.

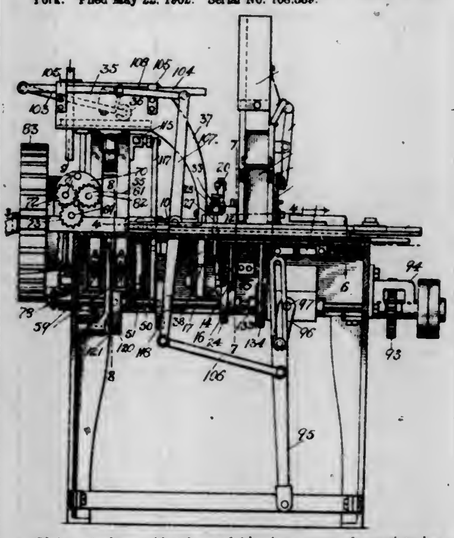
2. In a block-molding machine, a supporting-bed, a stationary partition rigidly mounted upon the bed, temporary mold-bottoms also mounted on the bed, a series of folding mold-walls hinged upon the bed, certain of said folding walls having their hinge-supports adjustable, a vertically-movable core-carrier, links pivotally connected with the carrier and having slotted pivotal connections with the folding walls, and an adjusting device operatively connected with the core-carrier.

3. In a block-molding machine, a supporting-bed, corner-standards sustaining the bed in an elevated position, guide-posts arranged centrally beneath the bed, a vertically-movable core-carrier provided at its corners with guiding members slidably engaging said standards, and at a central point with guiding members slidably engaging said guide-posts, folding mold-walls, operative connections between the carrier and said walls, and an adjusting device having operating connections with the carrier respectively at opposite sides of the vertical plane of the said guide-posts.

4. In a block-molding machine, a supporting-bed, a stationary mold-partition mounted on the bed, temporary removable mold-bottoms having core-openings therein, folding side and end walls hinged upon the bed, a vertically-movable core-carrier operating beneath the bed, cores upon said carrier, connecting-bars having pivotal slotted connections at one end with the mold-walls and provided at their other ends with adjustable bolts connected to the carrier, and an adjusting device comprising a rock-shaft having a single operating-lever and a plurality of rocker-arms and arcuate adjusting-links pivotally connected with the carrier and said rocker-arms.

787,100. MACHINE FOR MAKING UP CIGARETTE-PACKAGES.

IGNACIO LAZAGA, Havana, Cuba, assignor to International Packing Machine Company, New York, N. Y., a Corporation of New York. Filed May 22, 1902. Serial No. 108,539.



Claim.—1. In combination, a folder-box, means for registering a blank in front of the folder-box so that its central portion 40 for forming the closed end of the inner slide-section will lie in front of the folder-box, a plunger means for feeding the cigarettes between the plunger and the blank with the cigarettes disposed with their longitudinal axes at right angles to the surface of the central portion 40 of the blank, inclines on the folder-box for folding up the sides of the inner slide-section, a casing 53 for receiving the inner sliding section, a plunger operating in the said casing at right angles to the longitudinal axes of the cigarettes lying in the slide-section, means for registering an outer-case blank opposite the lateral side of the slide-section, a second folder-box for receiving the said slide-section with the outer-case blank and a plunger to force the said parts through the said folder-box, said folder-box having inclines for folding the sides of the outer-case blank, substantially as described.

2. In combination two plungers operating at right angles to each other, a folder-box in which one plunger operates longitudinally, means for holding a blank between the box and the other plunger, means for moving one of the plungers to force a blank into the box laterally, to form the preliminary fold and inclines on the box engaging the blank as it passes longitudinally therethrough, to form the final folds, substantially as described.

3. In combination a plunger for forcing a charge of cigarettes or the like against a slide-blank, means for receiving the same and folding the blank onto the charge, a rotary box for receiving the blank with its charge from the folding means a casing for receiving the folded blank and its contained charge from the rotary box a plunger arranged to move the slide-section laterally means for feeding an outer-case blank across the path of the slide-section, means for folding said blank down onto the slide-section, a plunger for moving the slide-section longitudinally with its partially-folded blank and means for completing the folding of the outer-case blank substantially as described.

4. In combination means for folding a blank about a charge of cigarettes a casing into which the folded blank with its charge is re-

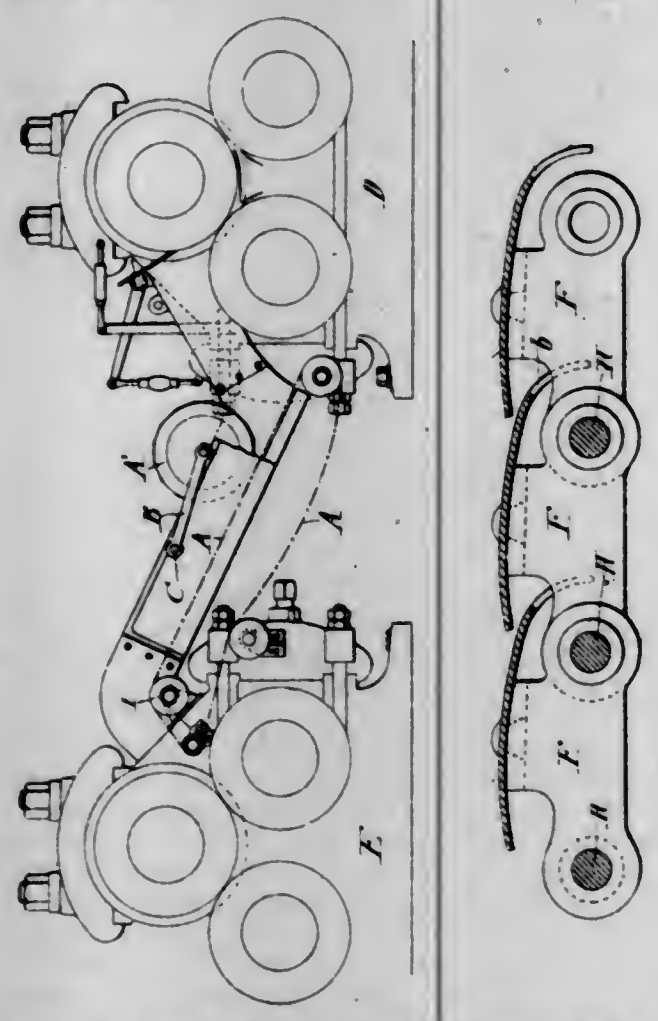
ceived, a plunger for forcing the slide-section from the casing a yielding presser arranged across the path of the slide-section, means for holding an outer-case blank across the said path and means for folding the outer-case blank about the slide-section substantially as described.

5. In combination a plunger and a box for folding a blank when the same is forced therein, said box having at its mouth inclines 42 for folding in the triangular flaps of the blank and inclines 46 for folding the side flaps and means for folding an outer-case blank about the section first folded substantially as described.

6. In combination folding means a main plunger, a supplemental plunger a connection between them whereby they move in opposite directions and a plunger operating transversely of the main and supplemental plungers to transfer the package from the line of one plunger into line with the other plunger said connection between the main and supplemental plungers comprising the pinion 101 and the racks 100 and 102.

7. In combination, a folder-box, a plunger coöperating therewith for forming an inner slide-section by folding a blank loosely, a second folder-box having fixed inclines and a wall 66 for folding and holding separated the side flaps of the outer case and pasting means interposed between the fixed inclines of the second folder-box, substantially as described.

787,101. **INTERMEDIATE APRON CONVEYER FOR SUGAR-CANE MILLS.** MAX LORENZ, Honolulu, Hawaii. Filed Oct. 25, 1904. Serial No. 229,920.



Claim.—1. In an apron conveyer for sugar-cane mills, a plurality of parallel link belts, slats G secured to the links of the belts, and a hinge-pin H extending across the conveyer and connecting corresponding links of the several belts together.

2. In an apron conveyer for sugar-cane mills, a plurality of parallel link belts, slats G secured to adjacent links of the belts and overlapping one another, and hinge-pins H extending across the conveyer and connecting corresponding links of the several belts together.

3. An apron conveyer for sugar-cane mills, comprising the slats G, the links F, the pins H nearly as long as the slats, sprockets, pulleys and shafts, one shaft being driven by the mill, arms B pivoted to the carrier sides, and the drum A' journaled in the ends of said arms, substantially as specified.

787,102. **PROCESS OF MACERATING SUGAR-CANE.** MAX LORENZ, Honolulu, Hawaii. Filed Nov. 10, 1904. Serial No. 232,107.

Claim.—1. The method of treating sugar-cane, which consists in passing it through a plurality of mills in succession, and macerating the crushed cane between the first and second mills with the juice from one of the succeeding mills.



2. The method of treating sugar-cane, which consists in passing it through a plurality of mills in succession, macerating the crushed cane between the first and second mills with juice from one of the succeeding mills, and macerating between two of the succeeding mills with water only.

3. The method of treating sugar-cane, which consists in passing it through a plurality of mills in succession, macerating the crushed cane between the first and second mills with juice from the third mill, macerating between the second and third mills with juice from the fourth mill, and macerating with water only between the third and fourth mills.

4. The method of treating sugar-cane, which consists in passing it through a plurality of mills in succession, conducting the juices away from the mills separately, and delivering said separated juices at different points in the train of mills for macerating the crushed cane.

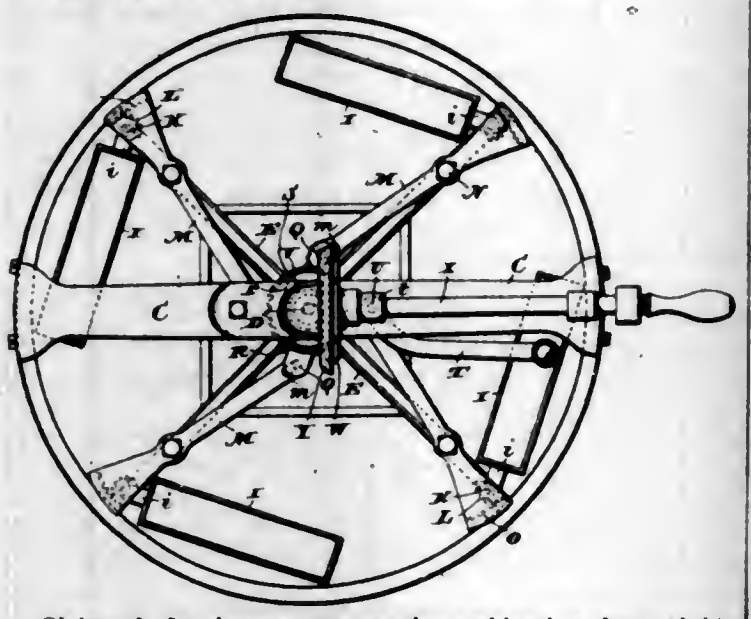
5. The method of treating sugar-cane, which consists in passing it through a plurality of mills in succession, heating the juice from one of the mills and delivering it at a point between preceding mills, and macerating the crushed cane at such point with said juice.

6. The method of treating sugar-cane, which consists in passing it through a plurality of mills in succession, heating the juice from one of the mills and lifting it by a steam-siphon and conducting it to and macerating the crushed cane with it, at a point between preceding mills in the train.

787,103. **PROCESS OF DEVELOPING PHOTOGRAPHIC PLATES OR THE LIKE IN OPEN DAYLIGHT.** JOHANN N. LUDWIG, Mainz, Germany. Filed Feb. 17, 1902. Serial No. 94,572.

Claim.—The process of treating photographic plates or films which consists in first treating the exposed negative while still in the receptacle in which it has been exposed with a coloring material adapted to absorb actinic light, and subsequently developing the coated plate in an ordinary developer by daylight, substantially as described.

787,104. **HONEY-EXTRACTOR.** FRANK G. MARBACH, Medina, Ohio, assignor to The A. I. Root Company, Medina, Ohio. Filed Jan. 23, 1905. Serial No. 242,373.



Claim.—1. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, and means for reversing said baskets, one after another, while said support is rotated.

2. In a honey-extractor, the comb nation of a revoluble support having baskets pivoted thereto, of pinions carried by said baskets, and means for causing the rotation of said pinions, independently of said support, or not, at will, during the rotation of said support.

3. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, and means whereby teeth on the outer portions of the peripheries of said pinions may be caused to rotate, or not, while said support is rotating.

4. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinion, and means for arresting the rotation of the inner ends of said levers during the rotation of said support.

5. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said means comprising a hub carrying projections that engage recesses in said levers.

6. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said means comprising a hub carrying pins that engage slots in said levers.

7. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, means for arresting the rotation of the inner ends of said levers during the rotation of said support, said means comprising a hub carrying pins that engage slots in said levers, and a brake adapted to hold said hub from rotation.

8. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, means for arresting the rotation of the inner ends of said levers during the rotation of said support, said means comprising a hub carrying pins that engage slots in said levers, and a brake adapted to hold said hub from rotation, said brake comprising a brake-band that embraces said hub and a lever pivoted on a stationary part of the machine and adapted to draw said band against said hub.

9. In a honey-extractor, the combination of a revoluble support, having baskets pivoted thereto, means carried by said support for reversing said baskets, said means comprising levers projecting toward the center of rotation of said support, said means being operable by arresting the inner ends of said levers from rotation.

10. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, levers pivoted on said support and having connections whereby said baskets may be reversed by the swinging of the inner ends of said levers, said inner ends being provided with slots, a hub having pins adapted to engage said slots, and means for causing relative rotation of said hub and support.

11. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, levers pivoted on said support and having connections whereby said baskets may be reversed by the swinging of the inner ends of said levers, said inner ends being provided with slots, a hub having pins adapted to engage said slots, and means for causing relative rotation of said hub and support, said means comprising a brake adapted to engage said hub.

12. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, levers pivoted on said support and having connections whereby said baskets may be reversed by the swinging of the inner ends of said levers, said inner ends being provided with slots, a hub having pins adapted to engage said slots, and means for causing relative rotation of said hub and support, said means comprising a brake adapted to engage said hub, said brake comprising a band adapted to embrace said hub, and a lever pivoted upon a stationary part of the frame for drawing said band against said hub.

13. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, of pinions carried by said baskets, and means for causing the rotation of said pinions, one after another, independently of said support or not, at will, during the rotation of said support.

14. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, and means whereby teeth on the outer portions of the peripheries of said pinions may be caused to rotate, one after another, or not, while the support is rotated.

15. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said segments being so positioned as to engage said pinions at different times.

16. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said segments being so positioned that one of them shall engage its pinion before another engages its corresponding pinion.

17. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said segments being so positioned that one of them shall engage its pinion before another engages its corresponding pinion, said means for arresting said lever comprising a hub carrying projections that engage recesses in said levers.

18. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said segments being so positioned that one of them shall engage its pinion before another engages its corresponding pinion, said means for arresting said lever comprising a hub carrying pivots that engage slots in said levers.

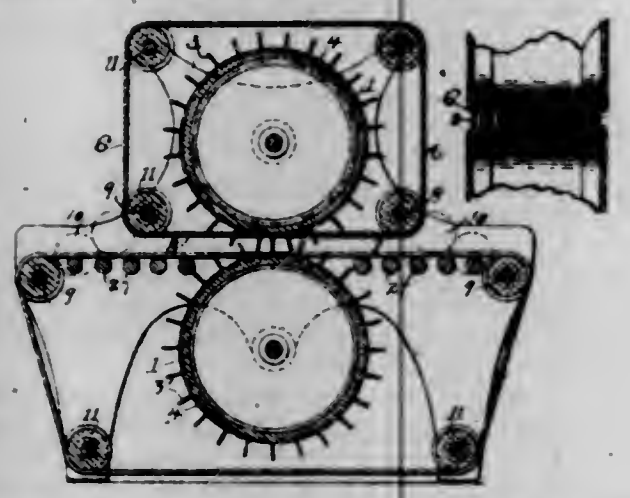
19. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and means for arresting the rotation of the inner ends of said levers during the rotation of said support, said segments being so positioned that one of them shall engage its pinion before another engages its corresponding pinion, said means for arresting said lever comprising a hub carrying pivots that engage slots in said recesses, and a brake adapted to hold said hub from rotatioo.

20. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, pinions secured to said baskets, levers pivoted to said support, said levers having internal segments engaging the outer portions of the peripheries of said pinions, and

means for arresting the rotation of the inner ends of said levers during the rotation of said support, said segments being so positioned that one of them shall engage its pinion before another engages its corresponding pinion, said means for arresting said lever comprising a hub carrying pivots that engage slots in said recesses, and a brake adapted to hold said hub from rotation, said brake comprising a brake-band that embraces said hub, and a lever pivoted on the stationary part of the machine and adapted to draw the said band against said hub.

21. In a honey-extractor, the combination of a revoluble support having baskets pivoted thereto, means carried by said support for reversing said baskets, one after another, said means comprising levers projecting toward the center of rotation of said support, said means being operable by arresting the inner ends of said levers from rotation.

787,105. **MEANS FOR MANUFACTURING MULTIPERFORATED BODIES OF SMOKELESS POWDER.** HUDSON MAXIM, Brooklyn, N. Y. Filed Feb. 8, 1901. Serial No. 46,545.



Claim.—1. In a machine for perforating plastic material; the combination of perforating-pins, with means simultaneously impressing said pins into the material from opposite sides thereof and means supporting the material on both sides against the perforating pressure and opposite the said pins.

2. In a machine for perforating plastic material, the combination of perforating-pins, with means simultaneously impressing said pins into the material from opposite sides thereof, means supporting the material on both sides against the perforating pressure and opposite the pins and for stripping the material from the pins.

3. In a machine for perforating plastic material, the combination of perforating-pins carried by oppositely-disposed revolving supports and acting to simultaneously impress the pins into the material from opposite sides thereof, with means opposite the pins for supporting the material against perforating pressure.

4. In a machine for perforating plastic material, the combination of perforating-pins, with means simultaneously impressing said pins into the material from opposite sides thereof, and means opposite the pins for supporting said material on both sides against the perforating pressure and provided with openings through which the pins project in the act of perforation.

5. In a machine for perforating plastic material, the combination of perforating-pins carried by oppositely-disposed revolving supports and acting to simultaneously impress the pins into the material from opposite sides but not at opposite points and means supporting the material on both sides against perforating pressure.

6. In a machine for perforating plastic material, the combination of oppositely-placed revolving supports, rows of perforating-pins carried by said supports in different transverse planes, means supporting the material against perforating pressure and stripping said material from the pins.

7. In a machine for perforating plastic material, the combination of oppositely-disposed revolving rollers having raised peripheral ribs thereon in different transverse planes and revolving belts supported in approximately tangential contact with said rollers between said ribs, whereby they act as a support for the plastic material against the perforating pressure of the pins.

8. In an apparatus for perforating plastic material, the combination of perforating-rolls having peripheral ribs, perforating-pins carried by said ribs and guides for guiding the material between said rolls.

9. In an apparatus for perforating plastic material the combination of perforating-rolls, a plurality of rows of perforating-pins carried by each roll and a plurality of guides over each roll, each guide lying between the contiguous rows of pins and opposite a row of pins on the opposed rolls.

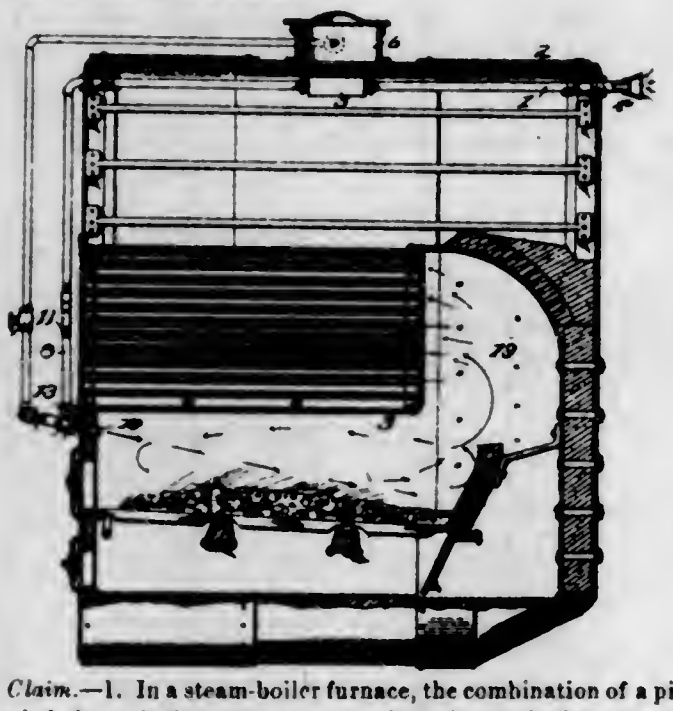
10. In an apparatus for perforating plastic material the combination of perforating-rolls, pins carried by said rolls and a plurality of belts carrying the material through the rolls and supporting it on opposite sides thereof during perforating action.

11. In a machine for perforating plastic material, the combination of oppositely-disposed rolls, pins carried by said rolls; and means independent of the rolls for supporting the material on both sides against the perforating pressure, whereby the surface of the grain is perforated and remains flat.

12. In a machine for forming holes in plastic materials, the combination of oppositely-disposed rolls, means carried by said rolls for forming holes in said material, and means independent of the rolls for supporting the material on both sides against the pressure of the hole-forming means.

13. In a machine for forming holes in plastic material, the combination of hole-forming means carried by oppositely-disposed revoluble supports and acting to simultaneously impress said means into the material from opposite sides thereof, with supporting means for holding the material against the pressure of the hole-forming means.

787,106. **SMOKE-CONSUMING FURNACE.** LAWRENCE C. MOONEY, Montgomery, Ala., assignor to The Mooney Development Company, a Corporation of New Jersey. Filed Dec. 22, 1903. Renewed Oct. 26, 1904. Serial No. 230,109.



Claim.—1. In a steam-boiler furnace, the combination of a pipe extended through the steam-space of the boiler and adapted to receive a supply of air at one end and to deliver said air in heated condition into the combustion-chamber for promoting combustion, and a chamber in the length of said pipe located opposite to the steam-dome of the boiler and within the steam-space, substantially as set forth.

2. In a steam-boiler furnace, the combination of a header having terminal and intermediate air-inlets, means connecting said header at points in its length with the combustion-chamber of the furnace, an air-pipe extended through the steam-space of the boiler and connected to said header, a companion header, means for supplying steam or blast medium thereto, and nozzles connecting the two headers and projected across the intermediate the air-inlets of the header having direct connection with the steam-boiler furnace, substantially as specified.

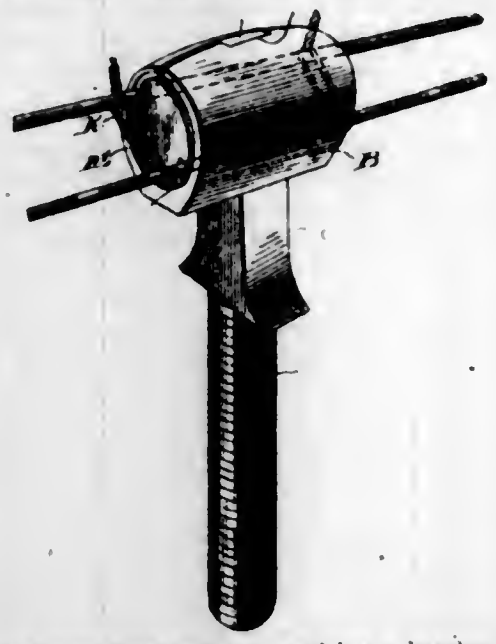
3. In a boiler-furnace, the combination with a boiler having a steam-dome and a fire-box beneath the same, of an air-supply pipe extending through the steam-space of said boiler and discharging into said fire-box, and a chamber interposed in the length of said supply-pipe and disposed within the steam-space of the boiler beneath the steam-dome thereof.

4. In a boiler-furnace, the combination with a boiler and a fire-box beneath the same, of an air-supply pipe extending through the steam-space of said boiler and discharging into said fire-box, and a chamber interposed in the length of said pipe and disposed within the steam-space of the boiler beneath the point of discharge of steam from said boiler.

5. In a boiler-furnace, the combination with a boiler and a fire-

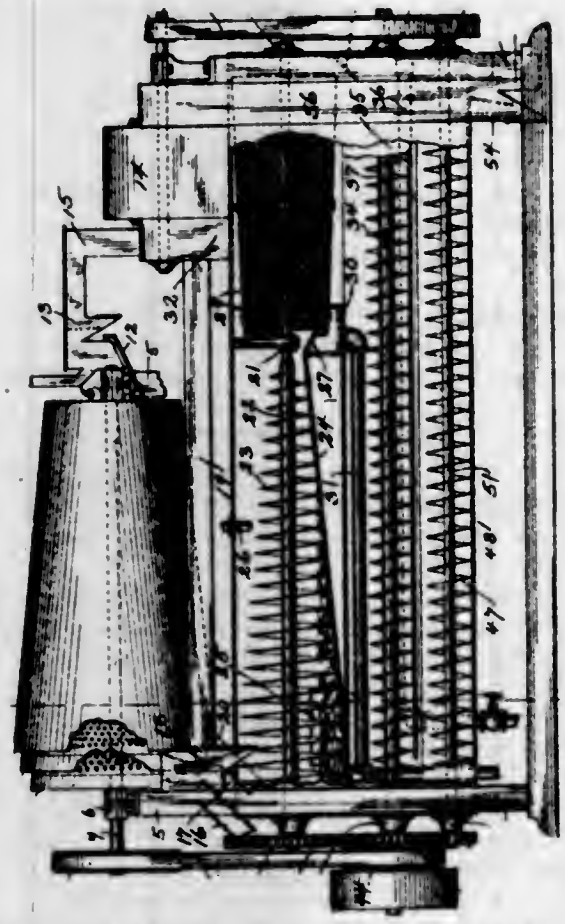
box beneath the same, of an air-supply pipe extending through said boiler and discharging into said fire-box, and a chamber interposed in the length of said pipe and disposed in the line of discharge of steam from the boiler.

787,107. **TELEGRAPH OR TELEPHONE WIRE INSULATOR.** ROBERT J. MCDANIEL and SALATHIEL V. GRAVES, McFall, Mo., assignors to Samuel I. Hudson, Watkins, Mo. Filed Dec. 10, 1903. Serial No. 184,599.



Claim.—An insulating device comprising a bracket having a hollow head, the arms of which are flexible and spaced apart, one edge of one arm of said head having a recess, an insulating-block having diametrically opposite grooves to receive wires to be insulated, a lug projecting from said insulating member and adapted to be seated in said recess and conform to the shape of the recess, the outer face of said lug adapted to be frictionally engaged by one of the flexible arms of said head, as set forth.

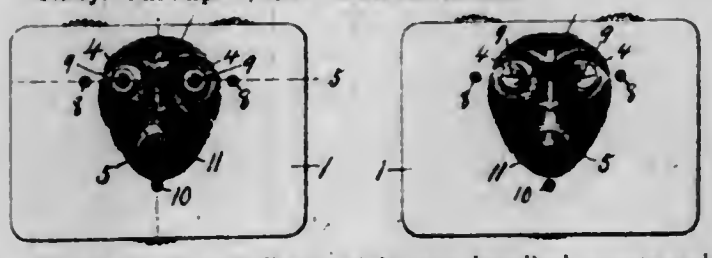
787,108. **GRAIN-CONDITIONER.** CHARLES E. OLIVER, Northwood, N. D. Filed Jan. 11, 1904. Serial No. 188,490.



Claim.—1. In a machine for conditioning grain, the combination of a revolving conical separator mounted on a horizontal shaft; a trough to contain water below said separator having an inclined bottom and an overflow-opening; a conical conveyer, mounted on a shaft in contact with said inclined bottom; a conical revolving drying-screen mounted on the shaft with said conical conveyer at the discharge end of said trough; a drying-trough below said drying-screen, provided with a conveyer and a heating-coil; a second trough below the drying-trough provided with a rapidly-running conveyer and connecting-gear to rotate the several parts simultaneously, substantially as shown and described.

2. In a machine for conditioning grain, the combination of a frame, a horizontal shaft mounted to rotate in said frame, a conical conveyer mounted on said shaft, a trough containing water provided with an inclined bottom, said conveyer partly immersed in said water and fitting close to said inclined bottom, a conical screen secured to said shaft at the discharge end of said conveyer, a second horizontal shaft mounted to rotate in said frame below the first-named shaft, a semicylindrical trough secured below and concentric with said second-named shaft, a conveyer secured to said second-named shaft arranged to convey grain in said trough, a chute for conveying the grain from the discharging end of said conical screen to said trough, a steam-pipe below said trough for heating the same, a gear mounted on the first-named shaft meshing with a gear mounted on the second-named shaft, a fan for causing an air-current through said conveyer-trough and said conical screen, a belt connection between the second-named shaft to the fan-shaft and means for rotating said shafts.

787,109. **TOY.** BENJAMIN PALLADINO, Newark, N. J., assignor to The Whitehead & Hoag Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 1, 1904. Serial No. 201,050.



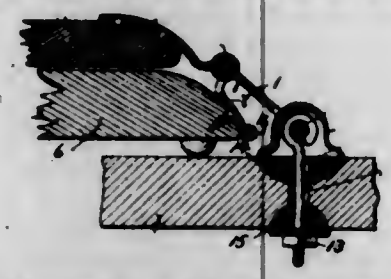
Claim.—1. In an indicator of the type described, a rectangular front plate bearing an incomplete facial representation, and having openings therethrough positioned to form the eye-openings and the mouth-opening of the facial representation, a rectangular back plate having three openings alined with the mouth and eye openings in the front plate, eyelets connecting said plates, disposed in substantially triangular relation and spacing said plates apart, disks mounted for rotation on said eyelets between the plates, and having notched peripheries to facilitate rotation, two of said disks having their axes on the same horizontal plane, and partially projecting beyond one edge of the plates, the said two disks having circumferentially-arranged consecutive numerals on one face adapted to be exposed through the two openings in the back plate that aline with the eye-openings of the figure in the front plate, the other of said disks having its axis on a different horizontal plane, and having on its face corresponding to the consecutively-numbered faces of the first two disks, indicating emblems adapted to be exposed through the opening in the back plate that alines with the mouth-opening of the facial representation on the front plate, the said last-mentioned disk projecting partially beyond the opposite edge of the plate to that to which the first two mentioned disks project, and the opposite faces of all three disks bearing circumferentially-arranged partial portions of the facial representation to be displayed on the front disk, and adapted to be disposed through the openings in the front plate on the rotation of the disks, whereby to change the facial expressions of the representation on the front plate as the numerals are changed to be read through the back plate.

2. In an indicator of the type described, two rectangular plates one of which bears an incomplete facial representation and which plates are spaced apart by three disks placed therebetween and mounted for rotation on rivets connecting the two plates, two of said disks projecting slightly beyond one side edge of the plates and the other disk projecting beyond the opposite side edge of said disks, two of said disks having circumferentially and consecutively arranged numerals on one face adapted to be displayed through openings in one of the plates as the disks are rotated, and all of the disks provided on their opposite faces with parts of a facial representation to be displayed through openings in the opposite plate to change or vary the facial representation as the numerals are changed.

3. In an indicator, two plates each provided with three openings and one of the plates having an incomplete representation thereon, and three disks mounted for rotation between the plates, and having indicating instrumentalities on their one faces to be displayed through the openings in one plate and having parts of a representation on their other faces to be displayed through the openings in the other plate and complete the representation on said plate.

4. In an indicator of the type described, two plates each provided with openings, and one of which plates has an incomplete facial representation formed in part by the openings in one plate, and disks rotatably mounted between the plates having indicating instrumentalites of the progress of a game on one side to be displayed through the openings in one plate, and having changeable portions of the face on their opposite side to be displayed through the openings in the opposite plate to vary or change the facial expression as the indicating instrumentalities are changed.

787,110. **WATER-CLOSET.** CHARLES PFAU, Cincinnati, Ohio, assignor to The Pfau Manufacturing Company, Cincinnati, Ohio, a Corporation of Ohio. Filed July 29, 1904. Serial No. 218,595.



Claim.—1. In a water-closet, a bowl, a fulcrum-plate pivotally connected thereto and a seat pivoted to said fulcrum-plate forward from its pivotal connection with said bowl, for the purpose specified.

2. In a water-closet, a pivoted link, a pivot-pin connected thereto, a closet-seat, a strap connected thereto and to said pivot-pin, a cover, a strap connected to said cover and to said pivot-pin, a closet-bowl, means for pivotally connecting said pivoted link and closet-bowl, and a stud on the rear end of the closet-seat or strap adapted when the seat is raised to rest upon the bowl and elevate the seat and cover.

3. In a water-closet, a bowl, a seat, a fulcrum-plate pivoted to said bowl and also to said seat forward from and above the rear edge of said seat.

4. In a water-closet, a bowl, a fulcrum-plate pivotally connected thereto and a seat and cover pivoted to said fulcrum-plate forward from its pivotal connection with said bowl for the purpose specified.

5. In a water-closet, a pivoted link, a seat and cover pivotally connected thereto, a closet-bowl, means for pivotally connecting it to said pivoted link, and a stud upon the rear end of said seat adapted to elevate the seat and cover when in a raised position and to assist in holding them in such position.

6. In a water-closet, a pivoted link, a seat and cover pivotally connected thereto, a closet-bowl having a hole in its upper rear part, a connecting member, a pivot-pin connecting said pivoted link and connecting member, a cap pivoted on said pivot-pin over the upper end of said connecting member and a nut on the lower end of said connecting member to secure it to the bowl through said opening therein.

7. In a water-closet, the combination with a bowl, of a fulcrum-plate or bar pivotally connected thereto, a seat pivoted to the free end of said fulcrum-plate above and forward of the rear edge of said seat and also forward of the connection between the fulcrum-plate and the bowl and a cover pivoted concentrically with said seat, whereby when the seat and cover are elevated, the fulcrum-plate allows said seat to engage said bowl to assist in holding them in such elevated position.

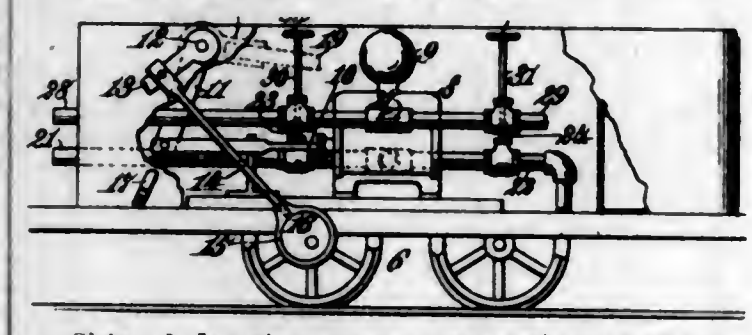
787,111. **BOOK-INDEXING.** RICHARD C. POHL, Detroit, Mich. Filed Dec. 19, 1904. Serial No. 237,389.



Claim.—1. An index for books, having in combination with indicating characters on the free edge of the fly-leaf, imprints on each of the leaves of a section devoted to a subject and extending to the margin thereof, each imprint being in the same location on its page that the indicating character therefor occupies on the fly-leaf, substantially as described.

2. An index for books having in combination with indicating characters on the fly-leaf, imprints on each side of each of the leaves of a section devoted to a subject and extending to the margin thereof, each imprint being in the same location on its page that the indicating character therefor occupies on the fly-leaf, substantially as described.

787,112. **MINE WATER-CAR.** WILLIAM J. RICHARDS, Rockwood, Tenn. Filed July 11, 1904. Serial No. 216,147.



Claim.—1. In a mine water-car, a tank, a wheeled truck for carrying the tank, a pump in the tank, valved suction and delivery pipes connected with the pump, the receiving end of the suction-pipe being located outside the tank and the remainder thereof and the delivery-pipe being situated in the tank, a second pair of suction and delivery pipes connected with the pump, the discharge end of the second delivery-pipe being located outside the tank and the remainder thereof and the second suction-pipe being situated within the tank, a rock-shaft supported by the tank, a hand-lever connected with one end of the rock-shaft, a crank-arm connected with the other end of said rock-shaft, wheel-operated means detachably connected with said crank-arm, and means in the tank, and operated by the shaft, for actuating the pump.

2. In a mine water-car, a tank, a wheeled truck for carrying the tank, a pump in the tank, valved suction and delivery pipes connected with the pump, the receiving end of the suction-pipe being located outside the tank and the remainder thereof and the delivery-pipe being situated in the tank, a second pair of suction and delivery pipes connected with the pump, the discharge end of the second delivery-pipe being located outside the tank and the remainder thereof and the second suction-pipe being situated within the tank, a rock-shaft supported by the tank, having a crank-arm at one end thereof outside the tank, a wheel-operated rod detachably connected with said crank-arm, means for supporting said rod for reciprocation on the motion of the car and when the rod is disconnected from said crank-arm, manually-actuated means for turning said shaft, and means for transferring the power of the shaft to the pump.

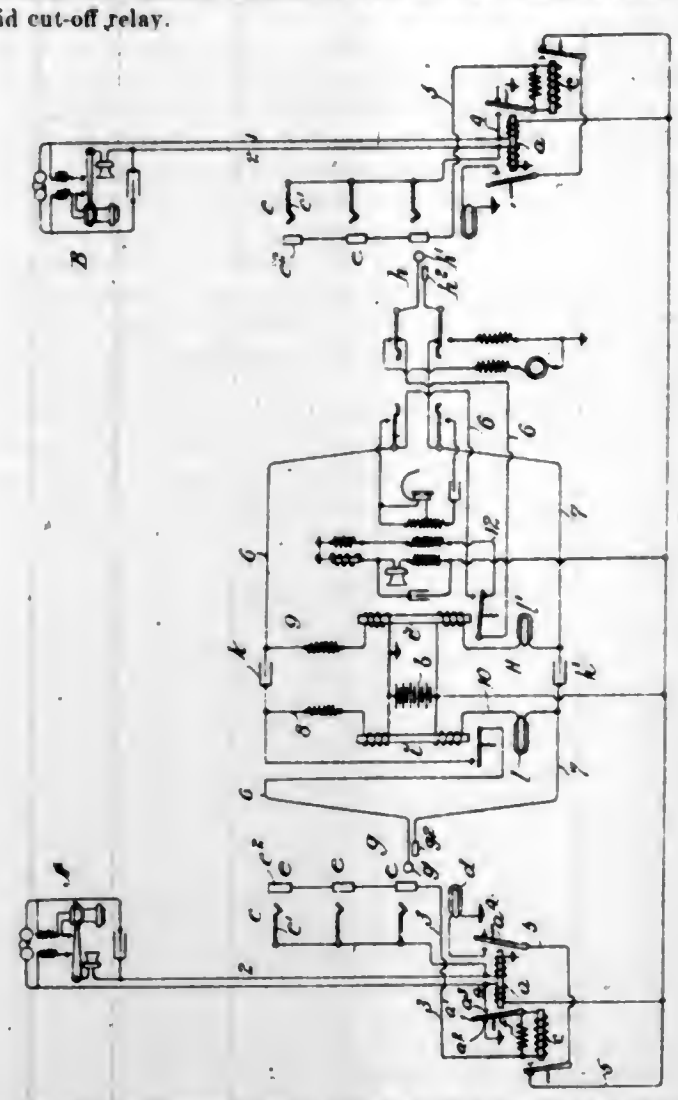
3. In a mine water-car, a tank, a wheeled truck for carrying the tank, a pump in the tank, valved suction and delivery pipes connected with the pump, the receiving end of the suction-pipe being located outside the tank and the remainder thereof and the delivery-pipe being situated in the tank, a second pair of suction and delivery pipes connected with the pump, the discharge end of the second delivery-pipe being located outside the tank and the remainder thereof and the second suction-pipe being situated within the tank, a rock-shaft supported by the tank, a hand-lever connected with one end of the rock-shaft, a crank-arm connected with the other end of said rock-shaft, an eccentric arranged to be operated by one of the wheels, a rod operable by said eccentric and detachably connected with said crank-arm, a bracket on the side of the tank for supporting said rod for reciprocation when it is disconnected from said crank-arm, and means in the tank, and operated by the shaft, for actuating the pump.

787,113. **APPARATUS FOR TELEPHONE-EXCHANGE SYSTEMS.** JOHN G. ROBERTS, Chicago, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 18, 1904. Serial No. 189,642.

Claim.—1. The combination with a telephone-line and a substation-switch controlling its circuit, of a central source of current and a line-relay in the circuit controlled by said switch, multiple spring-jacks for the line each having a test-piece normally disconnected from the line, a normally open conductor adapted to form an extension of the talking-line circuit, leading from one of the line conductors to the several test-contacts of the spring-jacks, and contacts of said line-relay adapted to close said conductor, whereby the line-circuit is extended to the spring-jack and a test potential applied to the test-pieces thereof upon the closure of the substation-switch.

2. The combination with a telephone-line extending from a substation to a central office, of a source of current and a line-relay connected with the line at the central office, a switch at the substation controlling the flow of current in the line, spring-jacks for the line having contact portions normally disconnected therefrom, a conductor extending from said contact portions and including a cut-off relay, contacts of said line-relay adapted when the same is excited to

connect said conductors with the line, means adapted to actuate said cut-off relay when connection is made with the line, a line-signal, and a circuit therefor controlled in contacts of said line-relay and said cut-off relay.



3. The combination with a telephone-line extending from a substation to a central office, of a switch in the circuit of the line at the substation, a line-relay responsive thereto at the central office, connection-terminals for the line normally disconnected therefrom, a plug and plug-circuit for making connection with the line at said connection-terminals, a source of current and a supervisory signal connected with the plug-circuit, a conductor extending from said connection-terminals to switch-contacts of said line-relay, and circuit connections associated with said switch-contacts adapted to complete the connection of the plug-circuit with the line when the relay is excited, and to complete a local circuit to actuate said supervisory signal when the relay is inert.

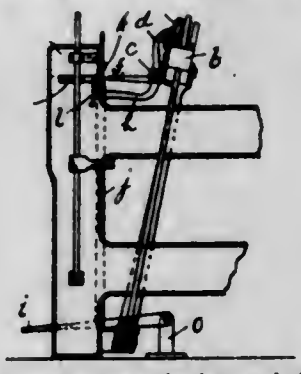
4. The combination with a telephone-line extending from a substation to a source of current at a central office, of a switch at the substation controlling the circuit of the line, a line-relay having a winding in the circuit of the line at the central office, a line-signal controlled thereby, a cut-off relay cooperating in the control of the line-signal, said cut-off relay being normally disconnected from the line, a circuit for the cut-off relay completed to the line in contacts of the line-relay when the same is actuated, and means made operative in making connection with the line adapted to actuate said cut-off relay.

5. The combination with a telephone-line extending in two limbs from the poles of a central battery to a substation, of a switch at the substation controlling the circuit of the line, a line-relay having its magnet-winding in the line-circuit, extensions of the line conductors from points between the line-relay and the substation to the respective contacts of a two-part spring-jack, a switch-contact of the line-relay normally interrupting one of said extensions 3, a cut-off relay included in said normally interrupted extension 3, a signal jointly controlled by the line-relay and cut-off relay, a plug for making connection with the spring-jack, and connections of said plug adapted to establish a metallic circuit through both of said line extensions, and a local circuit for said extension 3 which includes the cut-off relay, said local circuit being controlled in a normally closed contact of the line-relay.

6. The combination with a telephone-line and a substation-switch controlling its circuit, of multiple spring-jacks for the line each having a line-contact adapted to serve also as a test-contact, a plug-circuit having a conductor adapted to extend the circuit from said contact when the plug is inserted in the jack, a battery and a supervisory signal connected with said plug-circuit conductor, a line-relay responsive to the substation-switch, a conductor leading from said test-contacts to the switch-contacts of said line-relay, said line-relay switch normally disconnecting said test-contacts from the line and connecting the same in a local circuit to the return-pole of the battery, and an alternate switch-contact for said line-relay adapted when the relay is excited to transfer the connection of said test-contacts to the line, the resistance of the line being too high to permit the operation of the supervisory signal when the latter is in circuit therewith.

7. The combination with a telephone-line and a substation-switch controlling its circuit, of multiple spring-jacks for the line each having a line-contact adapted to serve also as a test-contact, a plug-circuit having a conductor adapted to extend the circuit from said contact when the plug is inserted in the jack, a battery and a supervisory signal connected with said plug-circuit conductor, a line-relay responsive to the substation-switch, a conductor leading from said test-contacts to the switch-contacts of said line-relay, said line-relay switch normally disconnecting said test-contacts from the line and connecting the same in a local circuit to the return-pole of the battery, an alternate switch-contact for said line-relay adapted when the relay is excited to transfer the connection of said test-contacts to the line, the resistance of the line being too high to permit the operation of the supervisory signal when the latter is in circuit therewith, a cut-off relay between the test-contacts and the line-relay switch, and a line-signal jointly controlled by said line-relay and cut-off relay.

787,114. **LOOM-PROTECTING-MECHANISM CONTROLLER.** JOSHUA ROBINSON, Lawrence, Mass. Filed Aug. 24, 1904. Serial No. 221,992.



Claim.—1. In a loom having the lay and the protecting mechanism thereon, an arm connected to said mechanism and movable longitudinally with the lay, a movable abutment and means for normally holding the same to one side of and adjacent the path of said arm, and means whereby said abutment may be moved against said arm to hold said protecting mechanism out of action as the lay advances, substantially as described.

2. In a loom having protecting mechanism comprising a rod rotatably mounted on the lay, a horizontally-disposed arm connected at right angles to said rod, a vertically-movable abutment adjacent said arm, treadle mechanism for pressing said abutment against said arm to hold said protecting mechanism out of action as the lay moves forward, and means for automatically holding said abutment out of contact with said arm when said treadle mechanism is released, substantially as described.

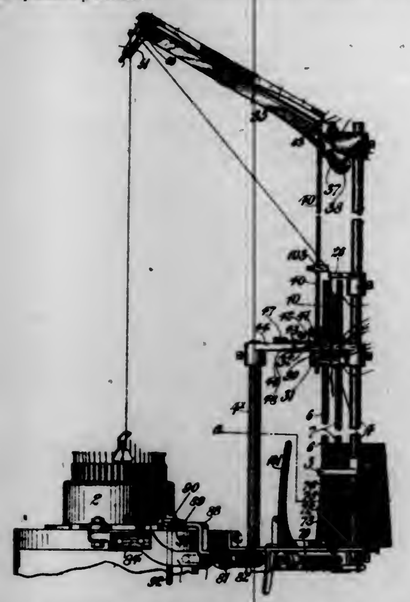
3. In a loom having protecting mechanism comprising a horizontal rod rotatably mounted on the lay, a horizontally-disposed arm connected at right angles to said rod, a vertically-movable rod having an abutment thereon, extending horizontally across said arm, a foot-lever connected to the lower end of said vertical rod for pressing said abutment against one side of said arm, as it is moved forward by the lay, to hold said protecting mechanism out of action, substantially as described.

787,115. **STOP-MOTION FOR KNITTING-MACHINES.** GEORGE W. RUTH, York, Pa., assignor to Ruth Automatic Knitting Machine Company, a Corporation of Delaware. Filed Apr. 16, 1904. Serial No. 203,465.

Claim.—1. A stop-motion comprising motion-arresting means, laterally-movable and single means operative to release said motion-arresting means, and separate vertically-moving parts adapted to contact with said single means, one in the event of an increased tension on the yarn, the other in the event of a break in the yarn.

2. A stop-motion comprising motion-arresting means, laterally-movable and laterally-moving means operative to release said mo-

tion-arresting means, separate vertically-moving parts adapted to contact with said moving means, one in the event of an increased tension on the yarn, the other in the event of a break in the yarn, and integral manual means for resetting both said separate moving parts in their operative positions.



3. A stop-motion comprising motion-arresting means, a plurality of drop-rods each of which is adapted to release said motion-arresting means, means normally sustaining one of said drop-rods and adapted to disengagement therefrom in the event of an increased tension on the yarn, and means normally sustaining the other of said rods and adapted to disengagement therefrom in the event of a break in the yarn, said drop-rods being situated between the sustaining means and said motion-arresting means.

4. A stop-motion comprising motion-arresting means, a plurality of drop-rods each of which is adapted to release said motion-arresting means, means normally sustaining one of said drop-rods and adapted to disengagement therefrom in the event of an increased tension on the yarn, means normally sustaining the other of said rods and adapted to disengagement therefrom in the event of a break in the yarn, and yarn-engaging means acting simultaneously with the movement of said first-named sustaining means to slacken the yarn, said drop-rods being situated between the sustaining means and said motion-arresting means.

5. A stop-motion comprising motion-arresting means, a plurality of drop-rods each of which is adapted to release said motion-arresting means, means normally sustaining one of said drop-rods and adapted to disengagement therefrom in the event of an increased tension on the yarn, means normally sustaining the other of said rods and adapted to disengagement therefrom in the event of a break in the yarn, said drop-rods being situated between the sustaining means and said motion-arresting means and a manual lever adapted to engage with said rods and thereby reset said sustaining means in their normal positions.

6. In a stop-motion, motion-arresting means, a drop-rod adapted to release said motion-arresting means, means for holding said drop-rod in elevated position, a yarn-supporting hook adapted to cast off the yarn in the event of increased tension thereon, mechanism intermediate said hook and said drop-rod for actuating the latter, a second drop-rod adapted to release said motion-arresting means, means for holding said second drop-rod in elevated position and means for releasing said second drop-rod in the event of a break in the yarn, said drop-rods being situated between the sustaining means and said motion-arresting means.

7. In a stop-motion, an arresting means, releasing means including a pivotally-mounted yarn-supporting hook adapted to cast off the yarn in the event of increased tension thereon, yielding means for holding said hook in elevated position, a spring-actuating device pivotally mounted, a lever operatively connecting said hook and said device and means operated by said device for actuating said arresting means.

8. In a stop-motion, an arresting means, releasing means including a pivotally-mounted yarn-supporting hook adapted to cast off the yarn in the event of increased tension thereon, yielding means for holding said hook in elevated position, a spring-actuating device pivotally mounted, a lever operatively connecting said hook and said device, a rod carried by said device and adapted to actuate means for releasing said arresting means.

9. In a stop-motion, a guide-plate, a movable comb pivotally secured to said plate, a releasing-lever pivoted on said plate, a spring for actuating said lever, and a dog mounted in said plate normally engageable with said lever and disengageable therefrom by the movement of said comb.

10. In a stop-motion, a drop-rod adapted to release the motion-arresting means, a pair of movable levers normally supporting said drop-rod, a wedge adapted to separate said levers and thereby release said rod, and means normally engaging with the yarn and operative in the event of a break therein for forcing said wedge between said levers.

11. In a stop-motion, releasing means including a pivotally-mounted yarn-supporting hook adapted by its movement to cast off the yarn in the event of increased tension thereon, a pivoted plate, a shoulder in said hook, a lever engaging with said shoulder and with said plate, and adjustable resilient means operative on said lever whereby the resistance of said hook to such tension may be varied.

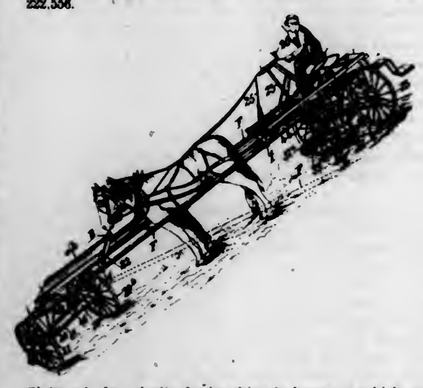
12. In a stop-motion, releasing means including a pivotally-mounted yarn-supporting hook adapted to cast off the yarn in the event of increased tension thereon, a pivoted plate, a lever operatively connecting said hook and said plate, and means adjustable on said plate providing a shoulder engageable with said lever.

13. In a stop-motion, releasing means including a pivotally-mounted, yarn-supporting hook adapted to cast off the yarn in the event of increased tension thereon, a pivoted plate, a lever operatively connecting said hook and said plate, and separate means connecting said plate and said hook whereby the movement of said plate to reset the same in operative position acts to reset said hook in yarn-supporting position.

14. In a stop-motion, releasing means comprising a pivoted plate, a pivotally-mounted, slotted yarn-engaging hook adapted to cast off the yarn in the event of increased tension thereon, a lever operatively connecting said hook and said plate, and a rod secured to said plate and passing through said slot for simultaneously resetting said hook and said plate in their operative positions.

787,116. DEVICE FOR THE BREAKING IN OF HORSES.

Henry Schluster, Scribner, Nebr. Filed Aug. 29, 1904. Serial No. 222,556.



Claim.—1. In a device for breaking in horses, a vehicle comprising a forward and a rear truck, platforms supported by the trucks, fifth-wheels connecting the trucks with their platforms, a reach connecting the platforms, and steering and brake devices for the trucks, operated from one of the platforms and guided in operation by the reach.

2. In a device for breaking in horses, a vehicle comprising a forward and a rear truck, platforms supported by the same, fifth-wheel connections between the trucks and their platforms, a tubular reach connecting the platforms, and steering and brake devices operated from one platform, the tubular reach serving as a conductor for said devices, as described.

3. In a device for breaking in horses, a vehicle comprising a forward and a rear truck, platforms supported by the fifth-wheel connection between the trucks and their platforms, a tubular reach connecting the platforms, a steering-shaft carried by the rear platform, a combined regulating and operating device for the said shaft, cable connections between the shaft and the trucks, passing through the said reach and arranged to simultaneously turn the trucks in opposite directions, as described.

4. In a device for breaking in horses, a vehicle comprising a forward and a rear truck, platforms supported by the fifth-wheel connections between the trucks and their platforms, a tubular reach connecting the platforms, a steering-shaft carried by the rear platform, a combined regulating and operating device for the said shaft, cable connections between the shaft and the trucks, passing through the said reach and arranged to simultaneously turn the trucks in opposite directions, a shaft mounted below the rear truck, a lever extending upward from the shaft, a crank-arm also connected with the said shaft, brake-bars for the wheels of the forward and rear trucks, and cables connected with the said crank-arm and with the said brake-bars, the cable for the forward truck being passed through the said reach, as described.

5. In a device for breaking in horses, a forward and a rear truck, platforms having fifth-wheel connections with each truck, a reach connecting the said platforms at their central portions and side bars pivoted to one platform and having detachable connection with the opposite platform, a draft-tree carried by the rear platform, and devices carried by the forward platform, whereby to attach portions of a harness, as described.

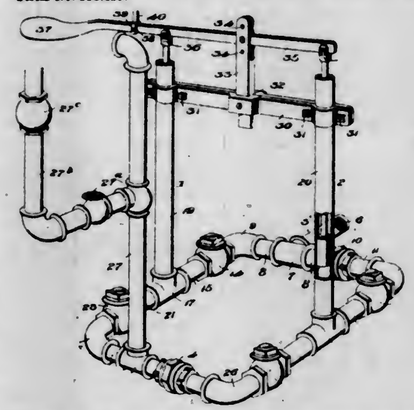
6. In a device for breaking in horses, a forward and a rear truck, platforms having fifth-wheel connections with each truck, a reach connecting said platforms at their central portions, and side bars pivoted to one platform and having detachable connection with the opposite platform, a draft-tree carried by the rear platform, and devices carried by the forward platform whereby to attach portions of a harness, a steering mechanism acting simultaneously upon the forward and rear trucks to turn them in opposite directions, brakes for the wheels of the trucks, and a mechanism for operating the said brakes, as and for the purpose specified.

7. In a device for breaking in horses, a forward and a rear truck, platforms above the two trucks, fifth-wheel connections between the trucks and the platforms, a shaft vertically mounted in the rear platform and provided with two drums at its lower end, a spider-guide for the upper portion of the shaft, having a series of apertures therein, a crank-handle for the upper portion of the shaft, a thumb-latch carried by the said handle and adapted to enter any one of the said apertures, a cable carried by the upper drum, connected with the axle of the forward truck, and a cable carried by the lower drum connected with the axle of the rear truck, as set forth.

8. In a device for breaking in horses, a forward and a rear truck, platforms above the two trucks, fifth-wheel connections between the trucks and the platforms, a shaft vertically mounted in the rear platform and provided with two drums at its lower end, a spider-guide for the upper portion of the shaft, having a series of apertures therein, a crank-handle for the upper portion of the shaft, a thumb-latch carried by the said handle and adapted to enter any one of the said apertures, a tubular reach connecting the platforms, guide-pulleys at the ends of the reach, a cable coiled around the upper drum, which cable is passed through the said reach in engagement with the said friction-rollers, the ends of the said cable being attached to the axle of the forward truck near the ends of the axle, and an independent cable wound around the lower drum, the ends whereof are carried to an engagement with the axle of the rear truck near the ends of the said axle, as described.

9. In a device for breaking in horses, a vehicle consisting of a forward and a rear truck, a platform over each truck, roller-bearing fifth-wheels connecting the trucks with the platforms above them, a shaft journaled beneath the rear platform, a handle extending upward from the shaft, a thumb-latch for the handle, and a rack to receive the thumb-latch carried by the said platform, a crank-arm extending downward from the said shaft, supports carried forwardly from the axles of the trucks, brake-bars adjustably suspended from the said supports, brake-shoes for the wheels, carried by the brake-bar, a cable connected with the lower portion of the said crank-arm, having connection with the brake-bars of the forward truck, and a second cable likewise attached to the lower portion of the said crank-arm, having connection with the brake-bar for the rear truck, all operating substantially in the manner specified.

787,117. PUMP. John Scholl, Joplin, Mo. Filed Nov. 2, 1904. Serial No. 231,129.



Claim.—1. In a pump comprising two independent and separable sections, the combination with a pump-barrel for each section, of an adjustable brace separating said barrels and provided with an aperture, an upright member adjustably seated in said aperture, a lever adjustably secured to said upright member, pistons working in said barrels and connected to said lever, and means for reciprocating said lever.

2. In a pump-barrel comprising two independent and separable sections, the combination with an upright barrel for each section, of a brace comprising two members, adjustably clamped to said barrels and forming a central aperture, a forked upright member adjustably seated in said aperture and provided with adjusting-holes in its forked end, pistons working in said barrels, and a lever connected to said pistons and adjustably seated in the forked end of the upright member.

787,118. WATER-BOTTLE STOPPER. Maximilian C. Schweinert, West Hoboken, N. J., and Henry P. Kraft, New York, N. Y. Filed July 19, 1904. Serial No. 217,173.



Claim.—1. In combination, a stopper-body having an inward flange, a washer, and a separately-formed fastening device adapted to be passed through the opening within said flange and to engage said flange to hold said washer over said flange and prevent removal.

2. In combination, a stopper-body having an inward flange, a washer, and a rigid fastening device adapted to be passed through the opening within said flange and to engage said flange to hold said washer over said flange and prevent removal of the washer.

3. In combination, a stopper-body having an inward flange, a disk of packing material forming a washer, and a metal fastening device connected to the center of said disk and adapted to be passed through the opening within said flange and to engage said flange to hold said washer over said flange and prevent accidental removal of the disk.

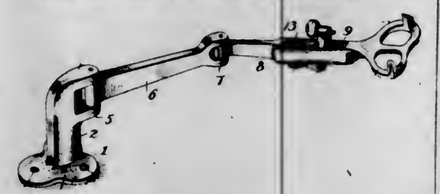
4. In combination, a stopper-body having an inward flange, a washer, a separately-formed fastening device adapted to be passed through the opening within said flange and to engage said flange to hold said washer over said flange and prevent removal of the washer, and a stop within said body for limiting the inward movement of the fastener.

5. In combination, a stopper-body having an opening through

its bottom leaving an inward flange around the edge, a disk of packing material extending over said flange to form a washer, and a metal fastening device connected to the center of said disk, the relative dimensions of said opening and said fastening device being such that the latter can be passed through the opening in one position and is held from withdrawal in another position.

6. In combination, a stopper-body having an opening through its bottom leaving a flange E around the edge, a disk D of packing material extending over said flange to form a washer, and a metal fastening device F riveted to the center of said disk having a width less than that of said opening and a length greater than that of said opening, whereby the fastening device may be tilted and passed through said opening.

787,119. DESK-TELEPHONE BRACKET. THOMAS Q. SCOTT, Baltimore, Md. Filed May 14, 1904. Serial No. 208,023.



Claim.—1. A desk-telephone bracket, comprising a plurality of pivoted sections, means for attaching the same in applied position, and means for clamping a telephone set thereon, said clamping means including one or more fixed lugs, a clamping member adjustable relatively to said fixed lug or lugs, and a locking-screw carried by said clamping member for engaging the telephone set to prevent the latter tilting upon the bracket.

2. A desk-telephone bracket, comprising a supporting member, an arm pivoted thereto, and means for attaching the bracket in applied position, said supporting member having oppositely-projecting wings affording a rest for a telephone set, a plurality of lugs carried by said wings, and a clamping member movable relatively to said wings and coöperating with said lugs for locking the telephone set upon said wings, said clamping member comprising a pair of clamping-blocks arranged at opposite sides of the supporting member, means for connecting the same together, and means for binding the clamping-blocks upon the supporting member to lock the clamping member in adjusted position.

3. A desk-telephone bracket, comprising a supporting member, an arm pivoted thereto, and means for attaching the bracket in applied position, said supporting member having oppositely-projecting wings affording a rest for a telephone set, a plurality of lugs carried by said wings, and a clamping member movable relatively to said wings and coöperating with said lugs for locking the telephone set upon said wings, said clamping member comprising a pair of clamping-blocks arranged at opposite sides of the supporting member, means for connecting the same together, and a cam-lever connected to said connecting means for binding the clamping-blocks upon the supporting member to lock the clamping member in adjusted position.

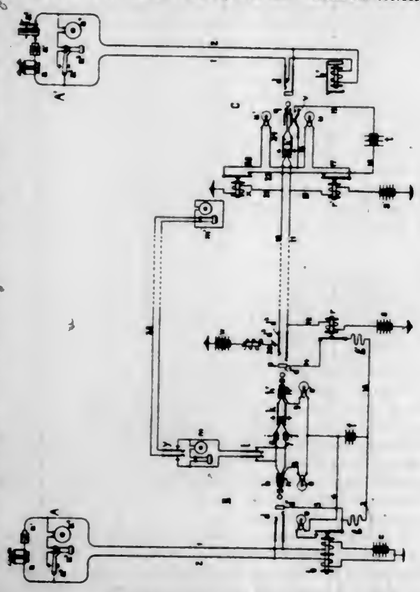
4. A desk-telephone bracket, comprising a supporting member, an arm pivoted thereto, and means for attaching the bracket in applied position, said supporting member having a longitudinally-extending slot, and also a plurality of lugs, and a clamping member movable relatively to said lugs and coöperating with the latter for locking a telephone set upon said supporting member, said clamping member comprising a pair of clamping-blocks arranged at opposite sides of the supporting member, a screw for connecting said blocks together, said screw passing loosely through one of said blocks and said slot and being threaded into the other of said blocks, and means for binding the clamping-blocks upon the supporting member to lock the clamping member in adjusted position.

5. A desk-telephone bracket, comprising a supporting member, an arm pivoted thereto, and means for attaching the bracket in applied position, said supporting member having a longitudinally-extending slot, and also a plurality of lugs, and a clamping member movable relatively to said lugs and coöperating with the latter for locking a telephone set upon said supporting member, said clamping member comprising a pair of clamping-blocks arranged at opposite sides of the supporting member, a screw for connecting said blocks together, said screw passing loosely through one of said blocks and said slot and being threaded into the other of said blocks, and a cam-lever connected to said screw for binding the clamping-blocks upon the supporting member to lock the clamping member in adjusted position.

6. A desk-telephone bracket, comprising a supporting member, an arm pivoted thereto, and means for attaching the bracket in applied position, said supporting member having a longitudinally-extending slot and also a plurality of lugs, and a clamping member movable relatively to said lugs and coöperating with the latter for locking the telephone set upon said supporting member, said clamping member comprising a pair of clamping-blocks arranged at opposite sides of the supporting member and each having its edges rabbeted to provide inwardly-extending guide-lugs which project into said slot, a screw for connecting said blocks together, said screw passing loosely through one of said blocks and said slot and being threaded into the other of said blocks, and means for binding the clamping-blocks upon the supporting member to lock the clamping member in adjusted position.

7. A desk-telephone bracket, comprising a supporting member, an arm pivoted thereto, and means for attaching the bracket in applied position, said supporting member having a longitudinally-extending slot, and also a plurality of lugs, and a clamping member movable relatively to said lugs and coöperating with the latter for locking the telephone set upon said supporting member, said clamping member comprising a pair of clamping-blocks arranged at opposite sides of the supporting member, a screw for connecting said blocks together, said screw passing loosely through one of said blocks and said slot and being threaded into the other of said blocks, means for binding the clamping-blocks upon the supporting member to lock the clamping member in adjusted position, and a screw carried by one of the clamping-blocks for engaging the telephone set to prevent the latter tilting upon the bracket.

787,120. TRUNK-LINE FOR TELEPHONE-EXCHANGES. CHARLES E. SCRIBNER, Chicago, and FRANK R. MCBERTY, Downers Grove, Ill., assignors to the Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 23, 1897. Serial No. 633,441.



Claim.—1. The combination with a calling and a called telephone-line and a trunk-line uniting them, of a continuously-operative source of current connected with the lines, a telephone-switch at the substation of the called line, operated automatically in the use of the telephone apparatus thereat and controlling the flow of current in the line, and supervisory signal devices one at each terminal of the trunk-line, operated through the agency of the current so controlled, whereby the condition of use or disuse of the substation telephone apparatus during connection is constantly indicated at both terminals of the trunk-line.

2. The combination with two telephone-lines and means for producing current therein, each line having a telephone-switch at the substation thereof, operated automatically in the use of the substation telephone apparatus, controlling the flow of current in the corresponding line, of a trunk-line uniting said telephone-lines, two supervisory signal devices at one terminal of the trunk-line responsive to the telephone-switches at the respective substations, and a supervisory signal at the other terminal of the trunk-line responsive to the telephone-switch at the substation of the corresponding line.

3. The combination with two telephone-lines, each provided with means for automatically determining the flow of current in the line in the use of the telephone, a trunk-line connected at one terminal with one of the lines, and a pair of plugs and the plug-circuit thereof uniting the other terminal of the trunk-line with the other line, of a supervisory signal for each plug of the pair, and means for controlling one of said signals through the agency of current in each of the telephone-lines, and a supervisory signal at the terminal of the trunk-line distant from said plugs, said last-mentioned signal being controlled by current in the line with which said terminal of the trunk-line is directly connected, as described.

4. The combination with two telephone-lines, of a trunk-line uniting the lines, a calling-key in the trunk-line at one terminal station thereof adapted to transmit a call-signal to the station of one of the lines, a supervisory signal at each terminal of the trunk-line, circuits including the said signals together with sources of current associated with the said trunk-line, and means for closing the signal-circuit to operate both of said signals in the use of the telephone at the said called station; whereby both operators are informed of the response to the call at a called station, as described.

5. The combination with two subscribers' telephone-lines, of a trunk-line 10 11, connection-switches at each terminal of the trunk-line for telephonically uniting said subscribers' lines through the trunk-line, an induction device interposed in the circuit near one terminal of the trunk-line, a telephone-switch controlling the circuit at the substation of the line which is connected to the other terminal of said trunk-line, branches 12 15 to a return-conductor from one trunk-wire 11 near the respective terminals thereof, a signal-controlling magnet and a battery in each of said branches, the batteries being opposed, a signal-controlling magnet in a branch to said return-conductor from the other trunk-wire 10 near one terminal, and a battery applied to the said wire 10 at the other terminal in closing the connection-switch thereat.

6. The combination with two telephone-lines, each having means at its station for determining the flow of current in the line in the use of the telephone, and a trunk-line uniting the lines, of three relays connected with the circuit to respond to current in the lines, a device adapted to transmit telephonic currents but to prevent the flow of continuous currents interposed in the circuit between two of the relays to bring one of the relays under control of one of the substations and the other relays under the control of the other substation, and supervisory signals controlled by the relays, the supervisory signals which are controlled from the same station being associated with opposite terminals of the trunk-line, as described.

7. The combination with two telephone-lines, each provided with means at its substation for determining the flow of current in the line in the use of the telephone, said lines entering different switchboards, a trunk-line between the switchboards having one terminal directly connected with one of the lines, and a pair of plugs and a plug-circuit uniting the other terminal of the trunk-line with the other telephone-line, of relays connected with the circuit, and supervisory signals associated with the connecting-plugs controlled by the said relays, a device interposed in the plug-circuit adapted to render the relays independently responsive to currents in the different telephone-lines, a calling-key in the trunk-line circuit at the terminal thereof distant from the plug-circuit, a relay connected with the circuit near the same point, and a supervisory signal associated with the trunk-line controlled by the said last-mentioned relay, said relay being responsive to current in the called line only, as described.

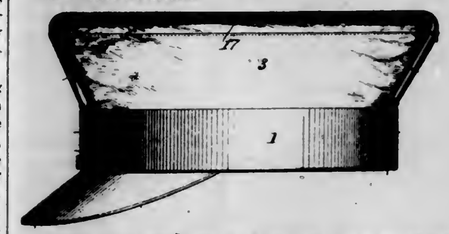
8. The combination with two telephone-lines, each provided at its substation with a switch for closing the line during the use of the telephone, and a trunk-line uniting the telephone-lines, of two relays connected with the circuit near one terminal of the trunk-line, supervisory signals controlled by the relays, sources of current adapted to produce current through the relays and lines when the line-circuits are closed at the substations, and a device in the circuit intermediate of the relays adapted to prevent current in either line from affecting the relay associated with the other line, a calling-key at the other terminal of the trunk-line, a relay connected with the circuit at the same terminal adapted to respond to current in the line with which said terminal is directly connected, and a supervisory signal controlled by that relay, substantially as described.

9. The combination with telephone-lines provided at their substations with means for closing the line-circuits during the use of the telephones, a plug-circuit and a trunk-line uniting the telephone-lines in complete circuit, of condensers in the plug-circuit, a bridge of the circuit at each side of the condenser, and a relay and a source of current included therein, a supervisory signal associated with each plug of the circuit controlled by the relay, a second bridge of the circuit at the distant terminal of the trunk-line, and a relay and a source of current therein, and a supervisory signal controlled by said second-mentioned relay, as described.

10. The combination with two telephone-lines, each provided at its substation with means for determining the flow of current in the line in the use of the telephone, a plug-circuit and a trunk-line uniting the telephone-lines in a complete circuit, a supervisory signal associated with each terminal plug of the plug-circuit, the different signals being controlled by current in the different telephone-lines, a supervisory signal at the other terminal of the trunk-line controlled by current in the line with which said terminal is directly connected, a clearing-out signal associated with said last-mentioned terminal of the trunk-line, and a circuit changed in the act of making connection with the other terminal of the line determining the actuation of said clearing-out signal, substantially as described.

11. The combination with a calling and a called line and a trunk-line uniting them, of means adapted to produce current in the lines, supervisory signal devices, one at each terminal of the trunk-line, a telephone-switch at the substation of the called line, operated automatically in the use of the telephone apparatus thereat, and controlling the flow of current in the line, and means adapted when said switch is raised to withdraw said signal devices, and when depressed to display the same; whereby the condition of use or disuse of the substation telephone apparatus of the called line is automatically indicated at both the terminals of the trunk-line.

787,121. CAP. HENRY SEIDE, New York, N. Y. Filed Nov. 17, 1904. Serial No. 233,004.



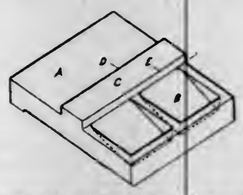
Claim.—A cap comprising a body portion, a cover having connection with a fixed band-section at the rear of the cap, a movable band-section attached to the front of said cover, a second cover adapted to fold upon itself, one fold thereof being secured to the first-named cover, a band-section to which the other fold is secured, a third cover also adapted to fold upon itself, one of the folds being secured to the first-named cover, the said second and third coverings being secured together at the center, a fixed band-section to which the other fold is secured, and facing-strips, substantially as shown and described.

787,122. PROCESS OF SPLITTING LONGITUDINALLY-SCORED GLASS STRIPS. PHILIP SEMMER, Pittsburg, Pa. Filed Dec. 24, 1903. Serial No. 186,420.



Claim.—In the art of producing glass mosaics for the formation of art shades and the like, the process of forming strips of narrow width for the production of small tesseræ which consists in scoring a plate, and subjecting the plate so scored to pressure applied at one end and the opposite faces thereof and also at points not coincident with each other, the pressure at the scored face of the plate being rigidly applied at both sides of the line of scoring, while the pressure at the unscored face is rigidly applied at said line of scoring.

787,123. COMBINED ARTIST'S PALETTE AND COLOR-DISH. ROBERT W. SEMPLE, Brooklyn, N. Y. Filed Jan. 5, 1905. Serial No. 239,714.



Claim.—1. A combined artist's palette and color-dish consisting of a palette connected with one of a series of color-dishes, said palette having a plane, unobstructed, upper surface, and separated from the color-dishes by a rib.

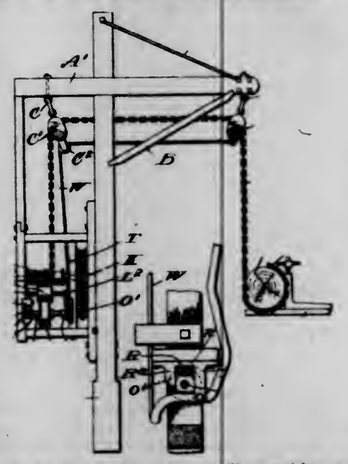
2. An article of manufacture consisting of a palette joined to one or a series of color-dishes, said palette having a plane, unobstructed upper surface, and separated from the color-dishes by a rib which is raised above the plane of the upper surface of the dishes, said rib having two edges, one on the palette side and the other on the side of the color-dishes.

787,124. BANANA-CRATE. HENRY SEXTON, Sioux City, Iowa. Filed May 11, 1904. Serial No. 207,461.



Claim.—In a fruit-crate, the combination of a wooden bottom, side pieces composed of double paper reinforced by perpendicular wooden strips between said papers forming a space therein for the insertion of straw, said side pieces adapted for nailing to said bottom and extending upward beyond said wooden strips, the extension of said side pieces forming a hood adapted to be gathered and tied, a tying means for said hood and a wire passing around and secured to said crate for binding the same, substantially as described.

787,125. DEVICE FOR TURNING LOGS. OSCAR D. SIMMONS, Sugargrove, W. Va. Filed Dec. 29, 1904. Serial No. 238,819.



Claim.—1. A log-turning device for sawmills comprising a post, a cross-piece secured thereto, pulley-blocks mounted upon said cross-piece, pulleys mounted upon said pulley-blocks, a reel, a chain winding about said reel and passing over said pulley-blocks and having a hook for attachment to a log, a friction-wheel rotating with said reel, a tilting rotatable shaft, a pulley for driving the same, a friction-wheel mounted upon said shaft, a block in which the vertically-movable end of said shaft has a bearing, a plate secured to the framework of the apparatus, a spring interposed between said block and plate, a guide for the block projecting from said plate, and a lever upon which said bearing-block rests, as set forth.

2. A log-turning device for sawmills comprising a post, a cross-piece secured thereto, pulley-blocks mounted upon said cross-piece, pulleys mounted upon said pulley-blocks, a reel, a chain winding about said reel and passing over said pulley-blocks and having a hook for attachment to a log, a friction-wheel rotating with said reel, a tilting rotatable shaft, a pulley for driving the same, a friction-wheel mounted upon said shaft, a block in which the vertically-movable end of said shaft has a bearing, a plate secured to the framework of the apparatus, a spring interposed between said block and plate, arms projecting from said plate forming guides for said block, and a lever pivotally mounted upon one of said arms and upon which lever said block rests, as set forth.

3. A log-turning device for sawmills comprising a post, a cross-piece secured thereto, pulley-blocks mounted upon said cross-piece, pulleys mounted upon said pulley-blocks, a reel, a chain winding about said reel and passing over said pulley-blocks and having a hook for attachment to a log, a friction-wheel rotating with said reel, a tilting rotatable shaft, a pulley for driving the same, a friction-wheel mounted upon said shaft, a block in which the vertically-movable end of said shaft has a bearing, a plate secured to the framework of the apparatus, a spring interposed between said block and plate, arms projecting from said plate forming guides for said block, and a lever pivotally mounted upon one of said arms and upon which lever said block rests, a rope secured to one end of said lever, a pulley about which said rope passes, and an anchorage for the other end of the rope, as set forth.

787,126. VENTILATING DEVICE FOR TRAM-CARS OR OTHER VEHICLES. ETHELBERT A. STANLEY and JOHN E. ANGER, Preston, England. Filed Jan. 4, 1904. Serial No. 187,650.



Claim.—1. In a ventilating device for tram-cars and other vehicles, air-inlet openings in the sides of the car below the roof, a car-ceiling made with longitudinal ventilating-boxes placed along the interior of the roof longitudinally at each side immediately above the inlet-openings and somewhat below the paneling of the roof, apertures for admitting air from the car interior to the boxes, and apertures for leading air from the boxes to the outside of the car; said boxes forming a narrow drop-ceiling with ventilating-orifices.

2. In a side-wall ventilator for cars, the combination with a metallic conduit having a passage-way longitudinal with the direction in which the vehicle travels, and sloping louvers at each side of the center, of a ridge-piece projecting into the passage-way at the center so as to act as a check to prevent the air-current flowing down the sloping louvers.

3. In a ventilating device for tram-cars and other vehicles, the combination with the box or chamber at the ends of the car adapted to receive the signal-lamp, of downwardly-sloping louvers on the outside for admitting air to the chamber, said louvers being formed with an opening directly opposite the lamp to admit the rays of light through the lens, and a hinged door for closing the louvers.

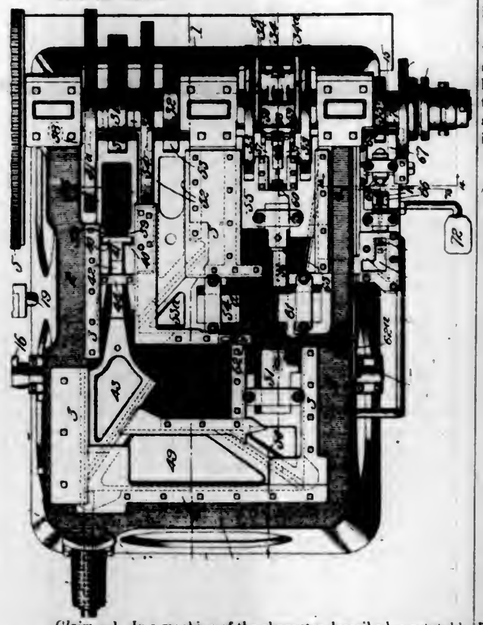
787,127. MOUTHPIECE FOR CLARINETS. FRIEDRICH STARKE, Chicago, Ill. Filed Jan. 18, 1905. Serial No. 241,005.



Claim.—1. A mouthpiece for clarinets or the like, comprising a metallic core member consisting of a tube deflected at one end and provided in its lower wall at said deflected end with an opening, a longitudinally-disposed projection on said lower wall of said tube through which said opening extends and which terminates adjacent the other end of said tube, and a jacket of hard rubber or the like embracing said tube on each side of said projection.

2. A mouthpiece for clarinets and the like, comprising a tube externally threaded at one end, the other end thereof having its upper wall deflected downwardly at an incline, a longitudinally-disposed rib or projection on the lower wall of said tube extending from said deflected end to a point adjacent the other end thereof, there being an opening in said tube extending through said projection opposite the tapered upper wall of said tube, a jacket of hard rubber or the like embracing said tube and abutting against the sides of said projection, and a threaded sleeve of like material disposed on the threaded end of said tube and bearing against one end of said jacket to hold the latter in place.

787,128. LADDER-HANDLE-FORMING MACHINE. JOHN S. STEVENSON, Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed Aug. 2, 1902. Serial No. 118,096.



Claim.—1. In a machine of the character described, a rotatable shaft, a recessed stationary die having an offset-forming face, a co-operating movable die operatively associated with said shaft and having a complementary offset-forming face, said last-mentioned die also having a matrix in its end face, a connecting-passage leading through said matrix and movable die, a supplemental movable die, means operable by the shaft for imparting movement to the last-mentioned die at right angles to the movement of the first-mentioned movable die after the same has been placed at home, a plunger, a punch passing longitudinally through said plunger into said connecting-passage, and means for operating said plunger and punch.

2. In a machine for forming ladder-handles, the combination with a stationary die, of a die for bending the rod at its joint or offset, said bending-die also having a matrix for the shank and head of the handle, a housing-die which is moved into position after the rod is bent to form the offset joint referred to, an upsetting-die which forces the metal into the matrix in the first-mentioned die to form the head and shank of the handle, and a punch-rod carried by the upsetting-die for punching an opening in the head of the handle after said head is formed.

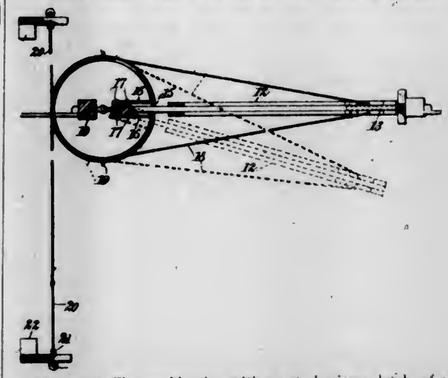
3. In a ladder-handle-forming machine, a fixed die having an offset-forming face, a plurality of movable complementary dies coöperating therewith, and movable at substantially right angles to each other, a common operating-shaft, means on the shaft for operating the dies at relatively different times, all of said dies being provided with coincident recesses, an upsetting member adapted to travel in the coincident recesses of a plurality of said dies and coöperating with said dies and a punch-rod adapted to be projected through said upsetting member and through one of said movable dies.

4. In a machine of the character described, a relatively fixed die-section, having an offset-forming face, a movable complementary die having a coöperating offset-forming face, and an aperture therein, a second movable die, said second movable die and the stationary die having channels in their opposing faces, means for operating the dies, an upsetting-plunger adapted to travel in said channels of the dies, a punch adapted to travel through the plunger into the aperture of the first-mentioned movable die, and means for operating the plunger and punch after the movement of said dies.

5. In a machine of the character described, the combination with forming-dies, a main operating-shaft, instrumentalities associated therewith for operating the dies, a stationary finishing-die, a punch-rod passing through said finishing-die, means operated by one of the forming-dies for driving said punch-rod, a movable companion finishing-die, and means operatively associated with the main shaft for driving and recovering the movable companion finishing-die.

6. In a machine of the character described, the combination with a stationary die, of a die for bending the rod at its joint or offset, said bending-die also having a matrix for the shank and head of the handle, an upsetting-die which forces the metal into the matrix into the second-mentioned die to form the head and shank of the handle, and a punch-rod carried by the upsetting-die for punching an opening in the head of the handle after said head is formed.

787,129. OPERATING MECHANISM FOR GATES. JAMES E. STIRTON, Monroe, Wash. Filed Jan. 28, 1905. Serial No. 243,048.



Claim.—1. The combination with a gate having a latch, of a ring having a space in its periphery, arms extending inwardly from the ring at each side of the space and being secured to the gate, and a member attached to the latch and coacting with the ring.

2. The combination with a gate having a latch, of a ring having a space in its periphery, arms extending inwardly from the ring at each side of the space and being secured to the gate, an eye mounted upon the ring, and a flexible member attached to the latch and extending through the eye.

3. An operating member for gates comprising a ring having a space in its periphery, and arms extending inwardly from the ring at each side of the space.

4. An operating member for gates comprising a ring consisting of a concavo-convex band of sheet metal and having a space in its periphery, and arms extending inwardly from the ring at each side of the space.

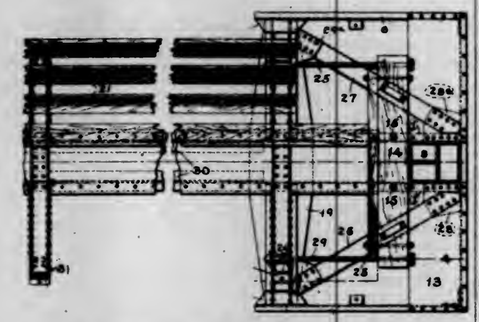
787,130. TANK-CAR. PAYNE P. STURDEVANT, Passaic, N. J., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed Nov. 11, 1904. Serial No. 232,328.

Claim.—1. An underframing for cars comprising bolsters which are not connected to each other at their ends, end sills, a center sill extending from end sill to end sill and connected to the bolsters and side sills extending from the end sills to the bolsters only; substantially as described.

2. An underframing for cars, comprising bolsters which are not connected to each other at their ends, center sills and end sills in combination with non-continuous side sills extending from the end sills to the bolsters only; substantially as described

3. An underframing for tank-cars comprising bolsters which are not connected at their ends to each other, end sills, center sills

connected to the end sills and bolsters, side sills connected at their respective ends to the bolsters and to the end sills, and diagonal braces extending from the bolsters to the center sill and end sill; substantially as described.



4. An underframing for cars comprising bolsters which are not connected at their ends to each other, end sills, center-sill members extending from end sill to end sill and connected to the bolsters, side sills connected at their respective ends to the bolsters and to the end sills, and diagonal channel-braces connected to the center sills and to the bolster; substantially as described.

5. An underframing for cars comprising center sills, bolsters and end sills, the end sills and bolster being connected, and the ends of the respective bolsters being spaced apart and free from connection cross-bearers interposed between the bolsters, said cross-bearers comprising channels having their webs terminally abutting against each other, and means for connecting said channels; substantially as described.

6. In a tank-car, an underframing therefor comprising center sills, end sills and bolsters, a cover-plate over the center sills and terminating short of the end sills, a casting adjacent to each end sill and having flanges secured to the webs of the center-sill members, flanges resting on top of the center-sill members, an upwardly-extending abutment projecting above the center sill, a head-block resting against the casting and supported on the center sill, diagonal braces connected to the sides of the bolsters and converging toward the center sill to which they are secured, and tie-rods passing through the head-block and through the sides of the bolster; substantially as described.

7. An underframing for cars comprising center sills, bolsters and end sills, the end sills and bolsters being connected, and cross-bearers interposed between the bolsters, said cross-bearers comprising channels having their webs for a portion of their lengths abutting against each other, and means for connecting said channels; substantially as described.

8. A cross-bearer for cars comprising tension and compression members abutting against each other for a portion of their lengths near their ends, and spaced apart at the middle portion of the cross-bearer, and side plates connecting said compression and tension members; substantially as described.

9. A cross-bearer for cars comprising tension and compression members abutting against each other for a portion of their lengths near their ends, and spaced apart at the middle portion of the cross-bearer, side plates connecting said compression and tension members, and tank-rod clips connected to the ends of the cross-bearer; substantially as described.

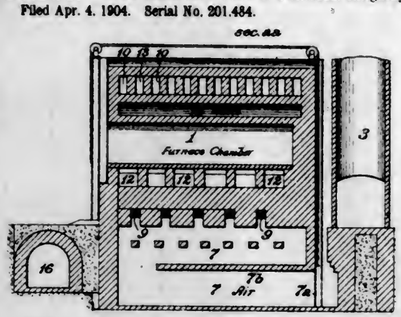
10. A cross-bearer for cars comprising a channel compression member and a channel tension member, the webs of the compression and tension members being in engagement with each other near the ends of the cross-bearer, the tension and compression members being spaced apart near the middle of the cross-bearer, and side plates connected to the flanges of the compression and tension members; substantially as described.

11. A cross-bearer for cars comprising a channel compression member and a channel tension member, the webs of the compression and tension members being in engagement with each other near the ends of the cross-bearer, the tension and compression members being spaced apart near the middle of the cross-bearer, side plates connected to the flanges of the compression and tension members, and tank-rod clips connected to the flanges of the tension and compression members; substantially as described.

12. In a tank-car, the combination with a center sill, a top cover-plate on the center sill, a compression member riveted to the cover-plate and having its ends extending outwardly and upwardly, a tension member secured to the bottom of the center sill and having its end extending outwardly and upwardly to points adjacent the ends of the compression member, and side plates for connecting the compression and tension members; substantially as described.

13. A bolster comprising pressed-steel side plates having edge flanges which are outwardly disposed, in combination with channel compression members which are interposed between the top and bottom of said plates, tension members comprising cover-plates, and connecting devices above the compression member for connecting the upper portions of said side plates; substantially as described.

787,131. **GAS-FURNACE.** JOHN C. SWINDELL, Allegheny, Pa. Filed Apr. 4, 1904. Serial No. 201,484.



Claim.—1. In a gas-furnace, the combination of a furnace-chamber, a subjacent combustion-chamber, a waste-gas channel, one or more, leading out of the combustion-chamber and extending downwardly, a horizontal waste-gas channel located below and communicating with said downwardly-extending channel, a longitudinal partition-wall dividing said horizontal waste-gas channel into sections or compartments which communicate at the end of said channel farther from its discharge, and a horizontal air-supply channel adjoining said horizontal waste-gas channel and communicating by a delivery-port with the combustion-chamber.

2. In a gas-furnace, the combination of a furnace-chamber, a subjacent combustion-chamber, a waste-gas channel, one or more, leading out of the combustion-chamber and extending downwardly, a horizontal waste-gas channel located below and communicating with said downwardly-extending channel, a horizontal air-supply channel interposed between said horizontal waste-gas channel and the combustion-chamber and communicating by a delivery-port with the combustion-chamber, and a longitudinal partition-wall dividing said air-supply channel into sections or compartments which communicate at the end of said channel farther from its supply-opening.

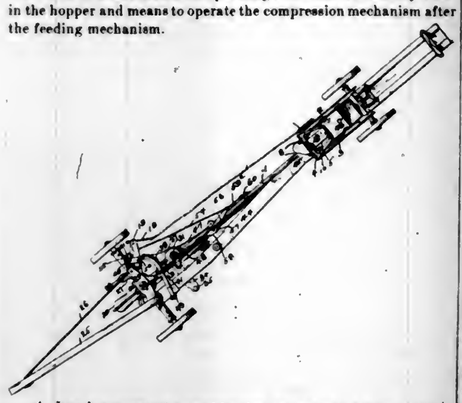
3. In a gas-furnace, the combination of a furnace-chamber, a subjacent combustion-chamber, waste-gas channels, adjoining the bottom, sides, and top of the furnace-chamber, lateral downwardly-extending waste-gas channels communicating with said first-named waste-gas channels, air-supply channels each adjoining one of said last-named waste-gas channels and leading into the combustion-chamber, horizontal waste-gas channels communicating with said last-named waste-gas channels, and air-supply channels interposed between said last-named waste-gas channels and the combustion-chamber, and leading into said combustion-chamber.

787,132. **HAY-PRESS.** HORACE M. TALLMAN, Shelbyville, Ill. Filed Jan. 7, 1904. Serial No. 188,070.

Claim.—1. In a hay-press, the combination of a bed, a baling-chamber, a hopper in communication therewith, compressing mechanism, feeding mechanism, mechanism for actuating the feed and compressing mechanism in succession, and mechanism for returning the feed mechanism to inoperative position should the compressing mechanism stick in the baling-chamber.

2. In a hay-press, the combination of a bed, a baling-chamber, a hopper in communication therewith, compressing mechanism, feeding mechanism, mechanism for actuating the feeding and compressing mechanism in succession, and a trip mechanism operated by the compressing mechanism to release the feeding mechanism to prevent accident to the same.

3. In a hay-press, the combination with a bed, a baling-chamber, a hopper, and compression mechanism, of a feeding mechanism comprising a rock-shaft pivotally mounted in front of the hopper having arms carried by said rock-shaft and adapted to be projected into the hopper, a frame connected to said rock-shaft through a flexible connection, and means for operating said frame to feed hay within the hopper and means to operate the compression mechanism after the feeding mechanism.



4. In a hay-press, the combination with a bed, a baling-chamber, a hopper, and compression mechanism, of a feeding mechanism comprising a rock-shaft pivotally mounted in front of the hopper having arms carried by said rock-shaft and adapted to be projected into the hopper, a frame connected to said rock-shaft through a flexible connection, mechanism for operating said frame to feed hay within the hopper and mechanism to operate the compression mechanism after the feeding mechanism, and a trip mechanism connected to the feed mechanism and adapted to be operated by the compression mechanism to allow the premature return of the feeding mechanism.

5. In a baling-press, the combination with a bed, a baling-case, a hopper and compressing mechanism, of a feeding mechanism, a trip mechanism for prematurely releasing the feeding mechanism, and mechanism for operating the feed mechanism and compressing mechanism.

6. The combination in a baling-press, of feeding mechanism therefor comprising a pair of pivoted arms, a flexible connection connecting said pivoted arms, a vertical power-shaft, an arm rotatably mounted on said power-shaft, and a trip-lever having a plurality of arms connected to the power-shaft and adapted to contact one of said pivoted arms to operate the feeding mechanism.

7. The combination in a baling-press, with a compressing mechanism, of a feeding mechanism, comprising a pair of pivoted arms, a flexible connection connecting said pivoted arms, a vertical power-shaft, an arm rotatably mounted on said power-shaft, and a trip mechanism connected to said arm and to the bed-plate adapted to be operated by the compressing mechanism to prematurely return the feeding mechanism in inoperative position.

8. In combination with a baling-press provided with a feeding and compressing mechanism, of a trip mechanism for prematurely releasing the feeding mechanism, consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism, and means connected to the compressing mechanism adapted to engage said trip to pull upon the flexible connection and release the feeding mechanism.

9. In a hay-press, the combination with a bed, a baling-chamber, a hopper in communication therewith, compressing mechanism, feeding mechanism, and mechanism for actuating the feed and compressing mechanism in succession, of a trip mechanism for prematurely releasing the feeding mechanism, consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism, and means connected to the compressing mechanism adapted to engage said trip to pull upon the flexible connection and release the feeding mechanism.

10. In a hay-press, the combination with a bed, a baling-chamber, a hopper in communication therewith, compressing mechanism, feeding mechanism, and mechanism for actuating the feeding and compressing mechanism in succession, of a trip mechanism for prematurely releasing the feeding mechanism, consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism, and means connected to the compressing mechanism adapted to engage said trip to pull upon the flexible connection and release the feeding mechanism.

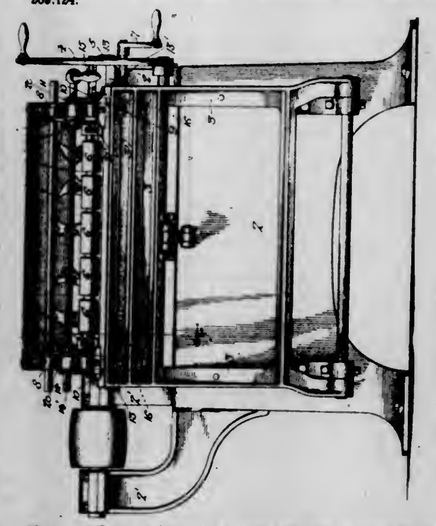
11. In a hay-press, the combination with a bed, a baling-chamber, a hopper, compressing mechanism, feeding mechanism comprising a rock-shaft pivotally mounted in front of the hopper having arms carried by said rock-shaft and adapted to be projected into the hopper, a frame connected to said rock-shaft through a flexible connection, mechanism for operating said frame to feed hay within the hopper and to operate the compression mechanism after the feeding mechanism, of a trip mechanism for prematurely releasing the feeding mechanism consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism and means connected to the compressing mechanism adapted to engage said trip to pull upon the flexible connection and release the feeding mechanism.

12. In a baling-press, the combination with a bed, a baling-casing, a hopper and compression mechanism, of a feeding mechanism, a trip mechanism for prematurely releasing the feeding mechanism, consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism, and means connected to the compressing mechanism adapted to engage the trip to pull upon the flexible connection and release the feeding mechanism, and mechanism for operating the feed mechanism and compressing mechanism.

13. The combination in a baling-press with a feeding mechanism therefor comprising a pair of pivoted arms, a flexible connection connected to said pivoted arms, a vertical power-shaft, an arm rotatably mounted on said power-shaft, of a trip mechanism for prematurely releasing the feeding mechanism consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism, and means connected to the compression mechanism of the press adapted to engage said trip to pull upon the flexible connection and release the feeding mechanism.

14. The combination in a baling-press, with a compressing mechanism, of a feeding mechanism, comprising a pair of pivoted arms, a flexible connection connected to said pivoted arms, a vertical power-shaft, an arm rotatably mounted on said power-shaft, of a trip mechanism for prematurely releasing the feeding mechanism, consisting of a trip pivotally mounted in the press, a flexible connection connected to said trip and the feeding mechanism, and means connected to the compressing mechanism adapted to engage said trip to pull upon the flexible connection and release the feeding mechanism.

787,133. **CHUCK FOR SPINDLE-TURNING MACHINES.** AXEL THORSBY, Beloit, Wis., assignor to C. Mattison Machine Works, Beloit, Wis., a Corporation of Wisconsin. Filed May 21, 1904. Serial No. 209,124.



Claim.—1. In a machine of the class described, a carriage, in combination with chucks revolubly mounted thereon and having ra-

dially-movable jaws, jaw-operating rings on said chucks, a spiral thread upon each of said rings, engaged with the respective jaws, and means movably arranged upon said carriage for frictionally opposing and controlling the rotation of said rings simultaneously, substantially as described.

2. In a machine of the class described, a carriage in combination with chucks revolubly mounted thereon and having radially-movable jaws, a spirally-threaded part for each chuck to operate the jaws thereof, said spirally-threaded parts being normally revoluble with respective chucks, individual frictional retarding devices for retarding the rotation of respective threaded parts during the rotation of said chucks in either direction, and means upon said carriage for simultaneously operating said frictional retarding devices, substantially as described.

3. In a machine of the class described, a carriage, in combination with chuck-bodies revolubly mounted thereon and having radially-movable jaws, a jaw-operating member mounted upon each said body, individual frictional means upon said carriage for retarding the rotation of said members and other means upon said carriage for simultaneously operating such individual frictional means, substantially as described.

4. In a machine of the class described, a carriage, in combination with chuck-bodies revolubly mounted thereon and having open centers, means for simultaneously operating said bodies, jaws radially mounted in said bodies, jaw-operating rings or members journaled upon said bodies and suitably connected to said jaws, friction devices provided on said carriage to engage respective rings, and means upon the carriage for simultaneously applying said devices to said rings, to retard the rotation thereof and operate said jaws during the operation of said bodies in either direction, substantially as described.

5. In a machine of the class described, a carriage in combination with chuck-bodies revolubly mounted thereon, means for rotating said chuck-bodies simultaneously, radially-movable jaws upon said bodies, jaw-operating rings journaled on said bodies respectively, and means upon said carriage for retarding the rotation of said rings during the rotation of said bodies and thereby causing said rings to simultaneously operate said jaws when said bodies are rotated, substantially as described.

6. In a machine of the class described, a carriage, in combination with chucks revolubly mounted thereon and having movable jaws, a jaw-operating ring mounted on each said chuck, ring-engaging clamps for frictionally resisting the rotation of said rings, and means upon the carriage for simultaneously operating said clamps, substantially as described.

7. In a turning-machine of the class described, a base and a cutter, in combination with a carriage mounted for movement toward and from said cutter, chuck-stocks provided upon said carriage, chuck-bodies revoluble in said stock, means upon the carriage for simultaneously rotating said bodies in either direction, work-holding jaws for each chuck-body, a jaw-operating device revolubly arranged on each chuck-body and normally revoluble therewith, means upon each chuck-stock for frictionally engaging the respective jaw-operating device, and means for simultaneously operating said frictional means, substantially as described.

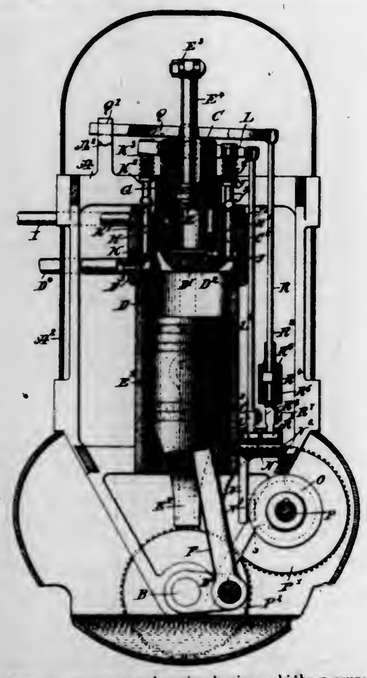
8. In a turning-machine of the class described, a base and a cutter, in combination with a carriage mounted for movement to and from said cutter, chuck-bodies revolubly mounted upon said carriage, a set of radially-movable jaws for each said body, means for rotating said bodies simultaneously, a jaw-operating ring provided upon each chuck-body and revoluble therewith, and means for frictionally engaging and simultaneously retarding the rotation of said rings during the rotation of said chuck-bodies, whereby the chuck-jaws are moved in or out, according to the direction of rotation of said bodies, substantially as described.

9. In a turning-machine of the class described, a base and a cutter, in combination with a carriage mounted for movement toward and from said cutter, chuck-stocks mounted at the ends of said carriage and provided with chuck-body bearings, chuck-bodies having central openings and revoluble in said bearings, means movable with the carriage for simultaneously rotating said chuck-bodies, radial guides upon said chuck-bodies, jaws movable therein, jaw-operating rings mounted upon said bodies and engaged with said jaws, manually-operable devices mounted upon and movable with said carriage and adapted to be simultaneously moved into engagement with said jaw-operating rings, said devices when thus engaged with said rings being adapted to impede the rotation thereof in either direction at will, whereby both ends of a piece of work may be simultaneously chucked or released, substantially as described.

10. In a turning-machine, a base and a cutter, in combination with a carriage mounted for movement toward and from said cutter, chuck-stocks adjustably mounted upon said carriage and each provided with a chuck-body bearing, chuck-bodies revoluble in said bearings, a crank-actuated shaft mounted in said stocks and geared to said bodies for the simultaneous rotation thereof in either direction, radial guides provided upon said chuck-bodies, jaws movable therein, jaw-operating rings provided upon said bodies respectively and spirally engaged with the jaws thereof, a shaft mounted in said stocks and means operable by said shaft and adapted to engage and retard the rotation of said rings, during the rotation of said bodies and whereby said jaws are moved in or out according to the direction of rotation of said chuck-bodies, substantially as described.

11. In a turning-machine of the class described, a carriage, in combination with chuck-stocks mounted thereon and having bearings for chuck-bodies, chuck-bodies, having open centers and mounted in said bearings, means for simultaneously rotating said chuck-bodies in either direction, spirally-threaded rings mounted upon said chuck-bodies, jaws also mounted on said chuck-bodies and engaged with said rings respectively, devices for frictionally opposing the rotation of said rings and means for simultaneously operating said devices, substantially as and for the purpose specified.

787,134. **STEAM-ENGINE.** JAMES A. TOOLEY, Stamford, N. Y. Filed June 9, 1904. Serial No. 211,804.



Claim.—1. A compound engine having a high-pressure cylinder movable in the direction of its length, a steam-supply for one end of the cylinder, controlled by the high-pressure cylinder, a low-pressure cylinder in axial alinement with the high-pressure cylinder, pistons movable in said cylinders, and a connection between the pistons to cause them to move in unison.

2. A compound engine having a high-pressure cylinder movable in the direction of its length, a steam-supply for one end of the cylinder, a valve at the end of the cylinder for controlling the steam-supply, a low-pressure cylinder, a piston therein, and valves for controlling the flow of the exhaust-steam from the high-pressure cylinder to the said low-pressure cylinder.

3. A compound engine having a high-pressure cylinder movable in the direction of its length, a piston therein, a steam-supply for one end of the cylinder, controlled by the high-pressure cylinder, a low-pressure cylinder, a piston therein, valves for controlling the flow of the exhaust-steam from the high-pressure cylinder to the said low-pressure cylinder, and a connection between the said pistons in the high and low pressure cylinders, for the pistons to move in unison.

4. A compound engine having a high-pressure cylinder movable in the direction of its length, a chamber surrounding one end of the cylinder and provided with a valve-seat, a steam-supply communicating with said chamber, a valve on said cylinder for controlling the passage of the steam-supply from said chamber to the said end of the cylinder, means for imparting movement to the said high-pressure cylinder to move the valve from and to its seat, and a low-pressure cylinder communicating with the high-pressure cylinder.

5. A steam-engine comprising a live-steam supply, a high-pressure cylinder having lengthwise movement and provided with means for opening and closing the said steam-supply to the open working end of the cylinder, a piston reciprocating in the said high-pressure cylinder, a low-pressure cylinder having its working end in communication with the said working end of the high-pressure cylinder, a piston in the low-pressure cylinder, a valve controlling the said communication, means for connecting the pistons with each other, a main shaft connected with the low-pressure piston, a valve-actuating device controlled from the said shaft, for operating the said valves in unison, and an actuating device for the said high-pressure cylinder, controlled from the said shaft.

6. A steam-engine provided with a cylinder mounted to slide, to control the admission of steam to the cylinder, a piston in the said cylinder, a main shaft, a cam driven from the said shaft, a cam-lever actuated from the said cam and provided with a slot, and an operating connection for the said cylinder and engaging the said slot.

7. A steam-engine provided with a cylinder mounted to slide, to control the admission of steam to the cylinder, a piston in the said cylinder, a main shaft, a cam driven from the said shaft, a cam-lever actuated from the said cam and provided with a slot, and an operating connection for the said cylinder and engaging the said slot, the said connection having a cushioning member.

8. A steam-engine comprising a live-steam supply, a high-pressure cylinder having lengthwise movement and provided with means for opening and closing the said steam-supply to the open working end of the cylinder, a piston reciprocating in the said high-pressure cylinder, a low-pressure cylinder having its working end in communication with the said working end of the high-pressure cylinder, a piston in the low-pressure cylinder, a valve controlling the said communication, means for connecting the pistons with each other, a main shaft connected with the low-pressure piston, a valve-actuating device controlled from the said shaft, for operating the said valves in unison, an actuating device for the said high-pressure cylinder, controlled from the said shaft, and a reversing mechanism under the control of the operator, for reversing the said actuating devices for the valves and the high-pressure cylinder.

9. A steam-engine provided with a cylinder mounted to slide, to control the admission of steam to the cylinder, a piston in the said cylinder, a main shaft, a cam driven from the said shaft, a cam-lever actuated from the said cam and provided with a V-shaped slot, a rod having a cross-pin engaging the said slot, a lever connecting the rod with the said high-pressure cylinder, and a manually-controlled reversing means for moving the pin end of the rod from one side of the slot to the other side of the slot.

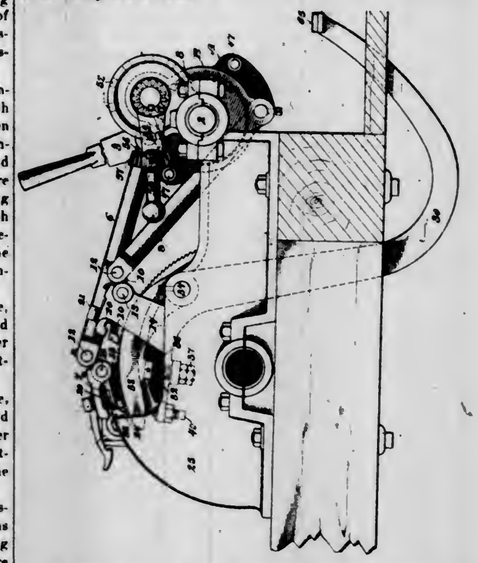
10. An engine provided with a cam-lever having two slots, a valve-operating mechanism connected with one of the slots, and a high-pressure cylinder-actuating mechanism connected with the other slot.

11. An engine provided with a cam-lever having two slots, a valve-operating mechanism connected with one of the slots, a high-pressure cylinder-actuating mechanism connected with the other slot, and manually-controlled means for shifting the positions of the said mechanism in the said slots.

12. A steam-engine, comprising a steam-supply, a bearing, a chamber provided with a valve-seat, and the walls of which are integral with said bearing, a high-pressure cylinder having lengthwise movement in the bearing, and formed with an integral annular valve coöperating with said seat for opening and closing the steam-supply to the working end of said cylinder, a piston in the latter, a low-pressure cylinder, a piston therein, connections between the said pistons to cause them to move in unison, and means for delivering the steam to said cylinders to effect the exhaust-stroke of one piston and the working stroke of the other.

787,135. **SAWMILL SET-WORKS.** WILLIAM H. TROUT, Milwaukee, Wis. Filed Aug. 27, 1904. Serial No. 223,371.

Claim.—1. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing the ratchet-wheel step by step; an actuating-lever; swinging crank-arms connected with the actuating-lever; connecting-rods connecting the crank-arms and feed-pawls; and means for adjusting said crank-arms to different relative positions, whereby the stroke of the feed-pawls is varied.



2. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing the ratchet-wheel step by step; stops arranged to engage and limit the movement of the ratchet feed-pawls; a shaft provided with suitable cranks; connecting-rods pivoted to the feed-pawls and cranks respectively; means for adjusting the cranks in different relations to each other; and means for oscillating said shaft.

3. The combination with the set-shaft and ratchet-wheel of a sawmill set-works; of a set of ratchet feed-pawls for advancing said wheel; a set of foot-levers arranged to serve as brakes for the ratchet-wheel; and means operated by the foot-levers for lifting the feed-pawls to inoperative position.

4. The combination with the set-shaft and ratchet-wheel of a sawmill set-works; of a set of spring-actuated ratchet feed-pawls for advancing said wheel; a set of foot-levers arranged to serve as brakes for the ratchet-wheel; and means operated by the foot-levers for lifting the feed-pawls to inoperative position.

5. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls and actuating connections for advancing said wheel; a set of pawl-lifters pivoted to suitable supports at the respective sides of said wheel; and a set of foot-levers for actuating the pawl-lifters, said foot-levers being arranged to bear against the rim of the ratchet-wheel when actuated, whereby said levers constitute brakes for the wheel.

6. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls and actuating connections for advancing said wheel; a set of pawl-lifters pivoted to suitable supports at the respective sides of said wheel; and a set of foot-levers for actuating the pawl-lifters, said foot-levers being extended within the rim of the ratchet-wheel and adapted to serve as brakes for said wheel.

7. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing said wheel; means for actuating the feed-pawls in alternation; and a set of positive stops in position for abutting contact with the pawls at the end of the wheel-advancing stroke; the contacting faces of said stops being disposed in a position to retain the pawls in engagement with the ratchet-teeth until released by backward pawl movement.

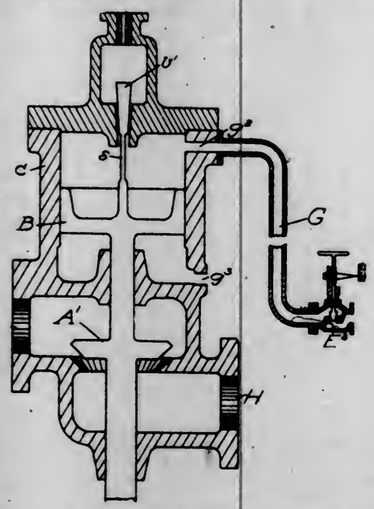
8. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing said wheel; means for actuating the feed-pawls in alternation; and a set

of positive stops in position for abutting contact with the pawl at the end of the wheel-advancing stroke together with means for varying the contacting position of one of the stops; said stops being arranged with contacting faces in a plane substantially at right angles to the line of pawl movement.

9. The combination with the set-shaft and ratchet-wheel of a sawmill set-works, of a set of ratchet feed-pawls for advancing said wheel; means for actuating the feed-pawls in alternation; and a set of positive stops in position for abutting contact with the pawls at the end of the wheel-advancing stroke, together with means for varying the contacting position of one of the stops and means for varying the distance between the alternately-acting pawls; said stops being formed to lock the pawls against either forward or outward movement at the end of a wheel-advancing stroke.

10. The combination with the set-shaft and ratchet-wheel of a sawmill set-works; of a set of ratchet feed-pawls in operative relation thereto; a set-lever shaft provided with an operating-lever; a crank fixed to the set-lever shaft; and a connecting-rod connecting said crank and one of the feed-pawls; a crank loosely mounted on the set-lever shaft; a connecting-rod connecting the same with another feed-pawl; a dimension-lever for adjusting said crank; and means for locking said dimension-lever to the shaft and crank.

787,136. **MECHANISM FOR OPERATING VALVES OR OTHER CONTROLLERS.** HENRY E. WARREN, Newton, Mass. Filed May 28, 1904. Serial No. 210,216.



Claim.—1. In combination, mechanism for operating controllers for hydraulic, electric or other apparatus, consisting of an actuator, a fluid system in operative connection with the actuator, primary means to effect movements of the fluid in the system to operate the actuator and secondary means operated with the actuator, each operation of which secondary means effects a movement of fluid in the system which tends to neutralize the effect of a movement produced through the primary means and thereby stop the actuator, and also causes the actuator to be restored to normal position when the movement effected through the primary means ceases.

2. In combination, a valve, an actuator for the valve, a fluid system in operative connection with the actuator, primary means to effect a change in the fluid-pressure in the system and thereby move the actuator, and a secondary valve connected with and operated by the movement of the actuator, each operation of which secondary valve effects a change of fluid-pressure in the system that tends to counteract the change produced through the primary means, and causes the actuator to be restored to normal position when the effect through the primary means ceases.

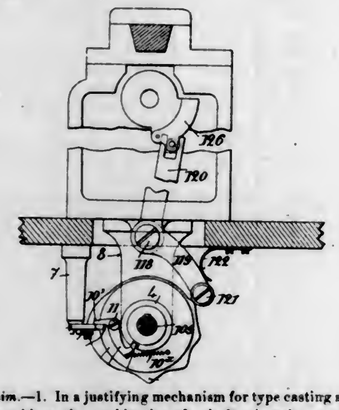
787,137. **STAY FOR PNEUMATIC MATTRESSES, &c.** FRANK WEBB, Reading, Mass. Filed Sept. 12, 1904. Serial No. 224,083.

Claim.—1. A stay for the purpose specified, comprising a strip of woven fabric divided at its end portions to form flaps or flanges which are integral with the body of the strip and are of the same width as said body and of substantially half its thickness, the said flaps being adapted to be bent outwardly from opposite sides of the body of the strip.



2. A stay for the purpose specified, comprising a strip of woven fabric divided at its end portions to form flaps or flanges which are integral with the body of the strip and are of the same width as said body and of substantially half its thickness, the said flaps being adapted to be bent outwardly from opposite sides of the body of the strip, said strip being made in two parts or plies at an intermediate portion to increase the flexibility of the strip.

787,138. **INTERMITTENT CLUTCH DEVICE FOR TYPE-CASTING AND TYPE-COMPOSING MACHINES.** MAURICE WEHRLIN, Paris, France, assignor to Compagnie Internationale de l'Electro-Typographe Meray & Rozar, Paris, France. Filed May 9, 1903. Serial No. 156,450.

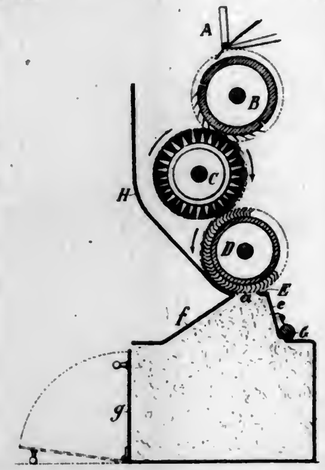


Claim.—1. In a justifying mechanism for type casting and composing machines, the combination of a shaft, a loosely-mounted disk provided with a notch, a second disk fixedly secured to the shaft and provided with a notch, a spring-pressed pawl carried by the first disk and adapted to engage the notch of the second disk, a stop-bolt mounted on a fixed support and adapted to engage the notch of the first disk and when in engagement with said notch to support and hold the pawl against the action of its spring, and means for operating the said bolt.

2. In a justifying mechanism for type casting and composing machines, the combination of a shaft, a cam-disk loosely mounted on a support concentric with the shaft, said disk having a lateral crown provided with a notch in its periphery, a clutch-disk fixedly secured to the shaft and provided with a notch in its periphery, a pivoted and spring-pressed pawl carried by the cam-disk and adapted to engage the notch of the clutch-disk, said pawl being provided with an arm, a bolt pivoted to a fixed support and adapted to engage the notch of the cam-disk and when in engagement with said notch to engage the arm of the pawl to support and hold the pawl out of engagement with the notch of the clutch-disk, and a lever mechanism for operating the bolt.

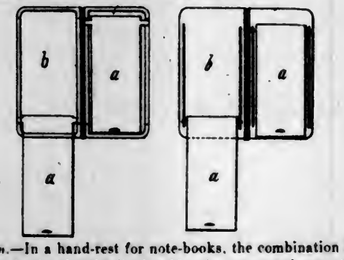
787,139. **COMBING-MACHINE.** ALFRED WENNING and CHARLES H. GEOAUFF, Mülhouse, Germany, assignors to The Firm of Société Alsacienne de Constructions Mécaniques, in Mülhouse, Germany. Filed Oct. 21, 1902. Serial No. 128,175.

Claim.—1. In a combing-machine, the combination with the doffer, of a receptacle below the doffer for the combings removed therefrom, said receptacle having a relatively narrow receiving-inlet *a*, a downwardly-inclined plate *f* at one side of said inlet, and a hinged, vibrating plate *e*, provided with a scraper E, at the opposite side of said inlet, the movements of said vibrating plate being toward and from the inclined plate *f*, substantially as and for the purpose set forth.



2. In a combing-machine, the combination with the combing-cylinder, the brush C, and the doffer, of the receptacle F, having the downwardly-inclined plate *f* at one side of the inlet and the vibrating plate *e* at the opposite side of said inlet, the scraper on said plate *e*, and the plate H, extending from the upper edge of the plate *f* upwardly about the doffer and the brush, substantially as and for the purpose set forth.

787,140. **HAND-REST FOR NOTE-BOOKS.** CARL ARNOLD, Selb, Germany. Filed Oct. 12, 1903. Serial No. 176,745.



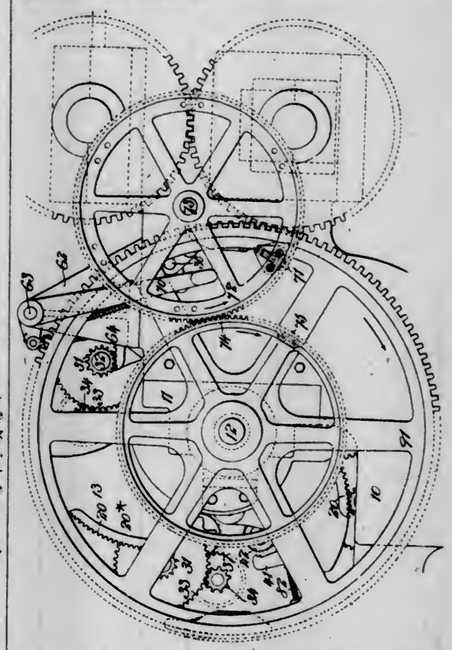
Claim.—In a hand-rest for note-books, the combination of the book-cover having longitudinal guide-wires arranged upon the inside thereof, a plane member having slides upon its edges, the said slides being in engagement with the said guide-wires, substantially as specified.

787,141. **OFFSET MECHANISM FOR PRINTING-MACHINES.** HOWARD M. BARBER, Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 21, 1904. Serial No. 233,654.

Claim.—1. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a reciprocating rack carried by said cylinder, gearing between said rack and rollers through which movement is transmitted directly from said rack to said rollers, and means for producing the movement of said rack by the revolution of the cylinder.

2. The combination with the impression-cylinder of a printing-machine adapted to receive a plurality of tympans and provided with a corresponding number of sets of tympan-rollers, of a corresponding number of reciprocating racks carried by the cylinder-head at different points thereon, gearing between each of said racks and its respective set of tympan-rollers through which movement is transmitted from the rack to the rollers, and a means common to all of said racks for producing their movements by the revolution of the cylinder.

3. The combination with the impression-cylinder of a printing-machine adapted to receive a plurality of tympans and provided with a corresponding number of sets of tympan-rollers, of a corresponding number of reciprocating racks carried by the cylinder-head at different points, gearing between each of said racks and its respective set of tympan-rollers through which movement is transmitted from the rack to the rollers, and a stationary cam for producing the movements of the several racks in succession by and during one revolution of the cylinder.



4. The combination with the impression-cylinder of a printing-machine and a tympan-winding roller in said cylinder, of a reciprocating rack carried by said cylinder, and gearing between said rack and roller through which movement is transmitted directly from said rack to said roller during the movement of the rack in one direction only.

5. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a reciprocating rack carried by said cylinder for producing the movement of said rollers and a spring applied to said rack for holding it in an inoperative position.

6. The combination with the impression-cylinder of a printing-machine and tympan supply and take-up rollers in said cylinder, of a reciprocating rack carried by said cylinder and gearing between said rack and the take-up roller for turning the latter, a locking device applied to the supply-roller, and a projection on said rack for disengaging said device and liberating the latter roller.

7. The combination with the impression-cylinder of a printing-machine and a tympan-winding roller in said cylinder, of a reciprocating rack carried by said cylinder, gearing between said rack and winding-roller including a gear on said roller through which motion is transmitted from said rack to said roller, and a spring-controlled friction device between said gear and said roller.

8. The combination with the impression-cylinder of a printing-machine and tympan supply and take-up rollers in said cylinder, of a reciprocating rack carried by said cylinder and gearing between said rack and the take-up roller for turning the latter, a ratchet-wheel on the supply-roller and a locking-pawl on the cylinder-head for engaging with said ratchet-wheel to lock the said roller, a projection on the rack for disengaging the pawl from the ratchet-wheel, a detent on the cylinder-head for holding the pawl disengaged, and a projection on the rack for producing the disengagement of the detent from the locking-pawl.

9. The combination with the impression-cylinder of a printing-

machine and tympan supply and take-up rollers in said cylinder, of a reciprocating rack carried by said cylinder and gearing between said rack and the take-up roller for turning the latter, a ratchet-wheel on the supply-roller and a locking-pawl on the cylinder-head for engaging with said ratchet-wheel to lock the said roller and a spring between said ratchet-wheel and the supply-roller.

10. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a reciprocating rack carried by said cylinder, gearing between said rack and rollers through which movement is transmitted from said rack to said rollers, stationary cams through which by the revolution of the cylinder the movement of the rack in opposite directions is produced, a switch for producing the engagement of the rack with said cams and automatic means for producing said engagement at predetermined times for shifting the tympan.

11. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a sector pivoted to said cylinder, gearing between said sector and rollers through which movement is transmitted directly from said sector to said rollers, and means for producing the movement of said sector by the revolution of the cylinder.

12. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a sector pivoted to the cylinder and of less radius than the cylinder, gearing between said sector and rollers through which movement is transmitted from said sector to said rollers and means for producing the movement of said sector by the revolution of the cylinder.

13. The combination with the impression-cylinder of a printing-machine adapted to receive a plurality of tympans and provided with a corresponding number of sets of tympan-rollers, of a corresponding number of sectors pivoted to the cylinder-head at different points, gearing between each sector and its respective set of tympan-rollers through which movement is transmitted from the sector to the rollers, and a means common to all of said sectors for producing their movements by the revolution of the cylinder.

14. The combination with the impression-cylinder of a printing-machine adapted to receive a plurality a tympans and provided with a corresponding number of sets of tympan-rollers, of a corresponding number of sectors pivoted to the cylinder-head at different points, gearing between each sector and its respective set of tympan-rollers, through which movement is transmitted from the sector to the rollers, and a stationary cam for producing the movements of the several sectors in succession by and during one revolution of the cylinder.

15. The combination with the impression-cylinder of a printing-machine and a tympan-winding roller in said cylinder, of a swinging sector pivoted to said cylinder, gearing between said sector and roller for directly producing the movement of the roller by the swinging of the sector, said gearing comprising means which transmit the so produced movement to the roller during the movement of the sector in one direction only.

16. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a sector pivoted to said cylinder for producing the movement of the said rollers and a spring applied to said sector for holding it in an inoperative position.

17. The combination with the impression-cylinder of a printing-machine and tympan supply and take-up rollers in said cylinder, of a sector pivoted to said cylinder and gearing between said sector and the take-up roller for turning the latter, a locking device applied to the supply-roller, and a projection on said sector for disengaging said device and liberating the latter roller.

18. The combination with the impression-cylinder of a printing-machine and a tympan-winding roller in said cylinder, of a toothed sector pivoted to said cylinder, gearing between said sector and winding-roller including a gear on said roller through which motion is transmitted from said sector to said roller, and a spring-controlled friction device between said gear and said roller.

19. The combination with the impression-cylinder of a printing-machine and tympan supply and take-up rollers in said cylinder, of a sector pivoted to said cylinder and gearing between said sector and the take-up roller for turning the latter, a ratchet-wheel on the supply-roller and a locking-pawl on the cylinder-head for engaging with said ratchet-wheel to lock the said roller, a projection on the sector for disengaging the pawl from the ratchet-wheel, a detent on the cylinder-head for holding the pawl disengaged, and a projection on the sector for producing the disengagement of the detent from the locking-pawl.

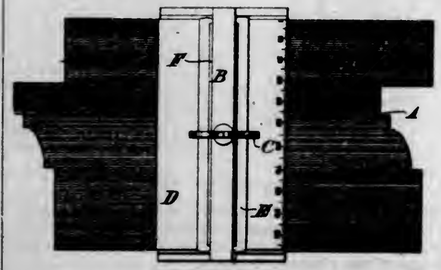
20. The combination with the impression-cylinder of a printing-machine and tympan supply and take-up rollers in said cylinder, of a sector pivoted to said cylinder and gearing between said sector and the take-up roller for turning the latter, a ratchet-wheel on the supply-roller and a locking-pawl on the cylinder-head for engaging with said ratchet-wheel to lock the said roller and a spring between said ratchet-wheel and the supply-roller.

21. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a sector pivoted to said cylinder, gearing between said sector and rollers through which movement is transmitted from said sector to said rollers, stationary cams through which by the revolution of the cylinder the movement of the sector in opposite directions in produced, a switch for producing the engagement of the sector with said cams and automatic means for producing said engagement at predetermined times for shifting the tympan.

22. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a sector pivoted to said cylinder, gearing between said sector and rollers through which movement is transmitted from said sector to said rollers, stationary cams through which by revolution of the cylinder the movement of the sector in opposite directions is produced, a switch for producing the engagement of the sector with said cams, a locking device for holding said switch in an inoperative position, a spring for holding said locking device in operation, a spring for throwing said switch into its operative position and automatic means for unlocking said locking device at predetermined times for shifting the tympan and permitting the latter spring to throw the switch into operation.

23. The combination with the impression-cylinder of a printing-machine and tympan-rollers applied within said cylinder, of a sector 20 pivoted to said cylinder, gearing between said sector and rollers through which movement is transmitted from said sector to said rollers, stationary cams 23, 24, through which by the revolution of the cylinder the movement of the sector in opposite directions is produced, a switch 26 for producing the engagement of the sector with said cams, a locking device consisting of two rock-shafts 30, 63, a toe 66 and a lever-arm 62 on said rock-shafts, a toggle 28, 29, between said rock-shaft 30 and the switch for throwing the switch into and out of its operative position, a spring 76 applied to said rock-shaft 30 for straightening said toggle and throwing the switch into operative position, a spring 67 applied to the rock-shaft 63 for throwing said locking device into operation, a rotary tappet 71 deriving motion from the cylinder, and a lever-arm 70 on the rock-shaft 63 on which said tappet acts to throw said locking device out of operation.

787,142. **SCRIBING-TOOL FOR CARPENTERS, &c.** DANIEL M. BARNETT, Melbourne, Victoria, Australia. Filed Nov. 23, 1903. Serial No. 182,353.



Claim.—1. In a scribing-tool, a series of rods or wires, a holder through which said rods pass, a clamp comprising a set-screw adapted to take through said holder, a presser-plate on which said set-screw acts so as to bear upon said rods or wires, said presser-plate arranged transversely of the rods or wires, and mechanism intermediate of said presser-plate and the set-screw whereby said rods are adjustably secured in the holder when the set-screw is released, substantially as shown and in the manner described.

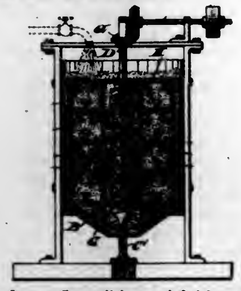
2. In a scribing-tool, the combination of a series of rods or wires, a holder through which said rods or wires pass, a presser-plate arranged transversely of said rods, a metal bearing-plate having forked ends engaging with the sides of the holder and bearing on the presser-plate, means for clamping said plate down upon the rods, and a spring intermediate of the means and said metal bearing-plate whereby the rods are adjustably secured in place when the means for clamping said plate has been released, substantially as shown and for the purpose specified.

3. In a scribing-tool, the combination of a series of rods or wires provided with bent pointed ends, a holder through which said rods pass, a presser-plate arranged transversely of said rods, a metal bearing-plate having forked ends engaging with the sides of the holder and bearing upon the presser-plate, a set-screw adapted to take through said holder and bearing upon the presser-plate whereby the rods are permanently held in place, and mechanism intermediate of the set-screw and said bearing-plate whereby the rods are adjustably held in the holder, substantially as and for the purpose described.

4. The herein-described scribing-tool, comprising a series of rods having graduations thereon, a holder through which said rods pass, said holder provided with graduated marks corresponding with the number of rods in the holder, a clamping mechanism within said holder and arranged transversely of said rods, whereby an even pressure is maintained throughout the holder, substantially as and for the purpose specified.

5. In a scribing-tool, a series of rods or needles provided with graduations, a holder through which said rods pass, said holder having graduated marks corresponding with the number of rods passing through said holder, a clamp for permanently holding said rods in place, and mechanism whereby said rods are adjustably secured within the holder, substantially as and for the purpose specified.

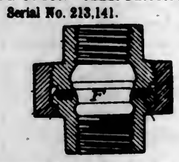
787,143. **MACHINE FOR POLISHING AND FINISHING COFFEE-BEANS.** FRANCISCO DE SAMPAIO BARROS, São Paulo, Brazil. Filed Oct. 10, 1904. Serial No. 227,835.



Claim.—1. In a coffee polisher and finisher, the combination with a vertical cylindrical vessel, open at the top and closed at the bottom, of a central vertical shaft in the same, a conveying-screw on said shaft within the vessel, a frame projecting from said shaft and a series of tapering shovels on said frame, and means for rotating said shaft, substantially as set forth.

2. In a coffee polisher and finisher, the combination with a vertical cylindrical vessel, open at the top and closed at the bottom, of a central vertical shaft mounted in the same, a conveying-screw on said shaft, within the vessel, radial arms on said shaft at different elevations, vertical rods connecting the radial arms, horizontal arms connecting the vertical rods, and a series of shovels secured on the frame formed by the radial arms and the vertical and horizontal rods, and means for rotating said shaft, substantially as set forth.

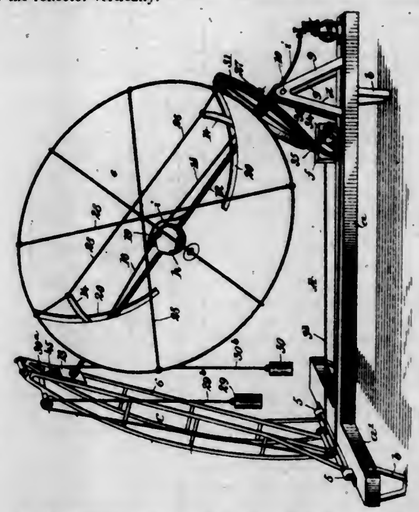
787,144. **PIPE-UNION.** JAMES BROPSON, Cleveland, Ohio. Filed June 18, 1904. Serial No. 213,141.



Claim.—A pipe-coupling member having an annular face adapted to receive a washer and two concentric flanges bounding said face and sharpened to a cutting edge.

787,145. **SOLAR MOTOR.** EDGAR P. BROWN, Cottonwood Falls, Kans. Filed Dec. 12, 1903. Serial No. 184,909.

Claim.—1. The combination of a frame, a reflector therefor, means for raising and lowering said reflector, mechanism for permitting the shifting of the reflector, through a lateral plane, means for inverting the reflector and means for permitting the adjustment of the reflector vertically.



2. The combination of a frame, a tower pivotally supported on said frame, a hollow shaft having one end movably supported by the tower, a reflector and a boiler mounted upon said shaft, an engine, pipes passing lengthwise through said shaft from said boiler to said engine and means for moving the shaft to permit the raising and lowering of the reflector.

3. The combination of a frame, a tower pivotally supported on said frame, a shaft having one end movably supported by the tower, a reflector and a boiler mounted upon said shaft, means for moving the shaft to permit the raising and lowering of the reflector, means for reversing said reflector, and means for changing the position of the same.

4. The combination of a main frame, a tower supported on said frame, a bracket, a tubular shaft loosely supported by the tower and bracket, a reflector movably mounted on said shaft, a boiler rigidly carried by the shaft, means for changing the position of the reflector to conform to the annual path of travel of the sun, means for moving the reflector to follow the diurnal path of the sun, said latter means including a clockwork and escapement mechanism, and means for inverting said reflector.

5. The combination of a main frame, a tower movably connected to the main frame, a bracket, a tubular shaft having one end slidably mounted in the tower and the opposite end pivoted to the bracket, a boiler carried by said shaft, a steam-pipe leading from the boiler lengthwise through the shaft, a reflector movably mounted on said shaft, means for moving said reflector to follow the annual travel of the sun, and mechanism for moving the reflector to follow the daily path of travel of the sun, said latter means including a wheel carried by the shaft, a clock mechanism and escapement mechanism, means for operating the wheel from the escapement mechanism, and means for operatng the clock mechanism.

6. The combination of a main frame, a shaft supported on the main frame and designed to move relatively to the latter, a spherical boiler rigidly supported on the shaft, a reflector movably mounted upon the shaft, and means for moving the reflector to follow the annual path of the sun, said means including segmental racks connected to the reflector, gearing connected with said segmental racks, and means for operating said gearing to cause the movements of the racks and the reflector.

7. The combination of a main frame, a tubular shaft, a steam-pipe passing lengthwise through said tubular shaft, a boiler mounted upon said shaft, a reflector mounted upon said shaft, and means for moving said reflector to follow the daily path of the sun, said means including a clock mechanism, an escapement mechanism operated from the clock mechanism, and means for imparting motion from the escapement mechanism to the shaft to turn the latter.

8. The combination of a solar reflector, a boiler, a tubular shaft extending through the reflector and upon which the reflector is

mounted, means for moving said shaft vertically to raise and lower the reflector, rotating sleeves on the shaft and secured to the reflector, and means for rotating the sleeves on the shaft to follow the daily path of travel of the sun, said latter means including a wheel carried by the rotating sleeve, a clock mechanism, an escapement mechanism operated from the clock mechanism, and connections including an endless chain between the wheel and the escapement mechanism for causing a complete rotation of the reflector.

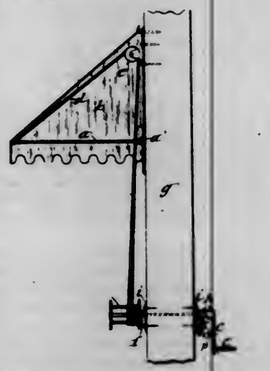
9. The combination of a main frame, a reflector, means for raising or lowering the reflector, means for reversing the reflector, and mechanism for turning the reflector to follow the yearly path of travel of the sun, said latter mechanism including segmental racks connected to the reflector, boxes through which said racks pass, gearing within said boxes intermeshing with the racks, and means including rods carrying worm-gears intermeshing with the gears in the boxes for actuating the segmental racks.

10. The combination of a main frame, a tower, a bracket upon the main frame, a tubular shaft movably supported by the bracket and tower, a reflector carried by said shaft, a spherical boiler arranged within the focus of the reflector, a steam-pipe leading from the boiler through the shaft, means for raising and lowering the reflector, mechanism for turning the reflector to follow the daily movements of the sun, means for moving the reflector to follow the annual path of travel of the sun, and an engine connected with the boiler.

11. The combination of a frame, a reflector therefor, means for raising and lowering the reflector, mechanism for shifting the reflector laterally, means for the adjustment of the reflector vertically, means for inverting the reflector and an engine and boiler.

12. The combination of a frame, a tower, a bracket, a hollow shaft, bearing-sleeves, boxes, segmental racks, a reflector rigidly attached to and carried by said segmental racks, said segmental racks being actuated by worms and gears contained in said boxes, said worms carried by rods, said rods being connected together by a universal joint.

787,146. **AWNING.** WILLARD L. BUNDY, Syracuse, N. Y. Filed May 5, 1904. Serial No. 206,518.



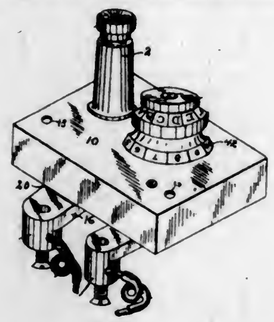
Claim.—The combination with a building and a folding awning connected thereto, of a shaft extending from the exterior to the interior of the building and adjustable in length to conform to the thickness of the wall, a reel attached to the outer end of said shaft, pulleys supported on the building, ropes traversing said pulleys and connected at opposite ends to the awning-frame and to the reel, and a crank on the inner end of the shaft as set forth and shown.

787,147. **LOCK FOR ELECTRIC SWITCHES.** CHARLES L. BUSCHMANN, Indianapolis, Ind. Filed Feb. 20, 1903. Serial No. 144,331.

Claim.—1. The combination with an electric switch, of a casing, a plurality of obscured means for preventing the operation of the switch, and mechanism outside the casing for controlling said obscured means.

2. The combination with an electric switch, of a casing, a plurality of obscured means for preventing the operation of the switch, and a plurality of similar indicators outside the casing that indicate the position to which the said obscured switch-releasing means must be moved to permit the operation of the switch.

3. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a wheel movable in the path of the plug with an opening through it for the passage of the plug, and means for moving said wheel when the plug is withdrawn so that the wheel will intercept the closing movement of the plug and prevent its closing movement as desired.



4. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a toothed wheel movable in the path of the plug with an opening through it for the passage of the plug, a casing in which said wheel is mounted, a gear-wheel meshing with said toothed wheel, and means outside of the casing for rotating said gear-wheel for moving said toothed wheel into and out of the path of said plug.

5. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a toothed wheel movable in the path of the plug with an opening through it for the passage of the plug, a casing in which said wheel is mounted, a catch for engaging and locking said toothed wheel in a position to intercept said plug, a gear-wheel meshing with said toothed wheel, means outside of the casing for rotating said gear-wheel and moving said toothed wheel into and out of the path of said plug, and external means for releasing said catch.

6. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a pair of toothed wheels movable in the path of the plug with an opening in each registering with each other for the passage of the plug, a casing in which said wheels are mounted, a catch for engaging and locking one of said toothed wheels in a position to intercept said plug, means on the other toothed wheel for releasing said catch when said wheel is rotated, and external means for independently rotating said toothed wheels.

7. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a pair of toothed wheels movable in the path of the plug with an opening in each registering with each other for the passage of the plug, a casing in which said wheels are mounted, a spring-actuated catch with two faces, one beside each wheel, one of said faces being notched and the other convex, a pin in each of said wheels for engaging said faces on the catch, the pin adapted to engage the convex face of the catch being located so as to engage and push said catch out of the way of the lug on the other wheel, and external means for independently rotating said toothed wheels.

8. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a pair of toothed wheels movable in the path of the plug with an opening in each registering with each other for the passage of the plug, a casing in which said wheels are mounted, a catch for engaging and locking one of said toothed wheels in a position to intercept said plug, means on the other toothed wheel for releasing said catch when said wheel is rotated, a spur-gear meshing with each of said toothed wheels, and independent means outside the casing for actuating said spur-gears.

9. The combination with the terminals of an electric circuit, of a plug for connecting said terminals to close the circuit, a pair of toothed wheels movable in the path of the plug with an opening in each registering with each other for the passage of the plug, a casing in which said wheels are mounted, a catch for engaging and locking one of said toothed wheels in a position to intercept said plug, means on the other toothed wheel for releasing said catch when said wheel is rotated, a spur-gear meshing with each of said toothed wheels, a sleeve extending through the casing on which one of said spur-gears is mounted, a spindle extending through said sleeve on which the other spur-gear is mounted, and a pair of knobs one placed above the other mounted on said sleeve and spindle respectively and provided with suitable indicating-marks.

787,148. **HAIR-DRYING COMB.** THOMAS P. CHEEVERS, West Hoboken, N. J. Filed Aug. 27, 1904. Serial No. 222,391.



Claim.—1. A hair-drying comb comprising a hollow body provided with hollow teeth, the said body having an opening in its end and an opening in its back, a handle for engaging in either one of said openings, and a plug for engaging in either one of the said openings.

2. A hair-drying comb comprising a hollow body, and hollow teeth communicating with the body, the said teeth being transversely curved with a spiral trend.

3. A hair-drying comb comprising a hollow body, and hollow teeth having a width substantially equal to the diameter of the body, the said teeth being transversely curved with a spiral trend

4. A hair-drying comb comprising a hollow body having an opening in its back and an opening in its end, a handle for engaging in either one of said openings, a plug for engaging in either one of said openings, and hollow teeth communicating with the body the said teeth having a width substantially equal to the diameter of the body, and transversely curved.

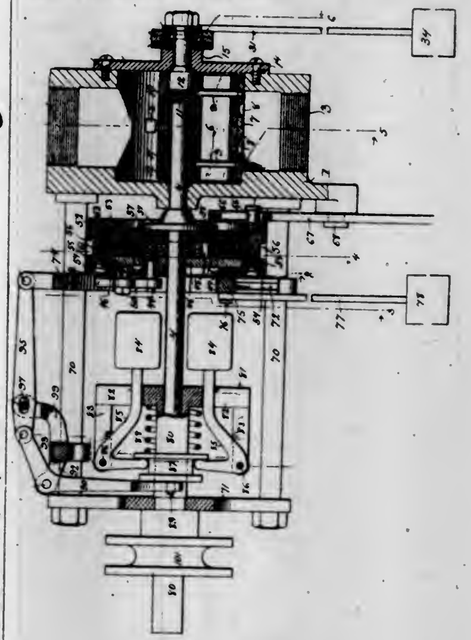
787,149. **MEANS FOR CONTROLLING THE SPEED OF STEAM-ENGINES.** JAMES H. CLARK, Portage, Wis., assignor of one-eighth to Henry M. Forbes, one-eighth to Richard H. Dalton, and three-fourths to The J. H. Clark Company, Portage, Wis. Filed Feb. 23, 1905. Serial No. 246,896.

Claim.—1. In a steam-engine, the combination with a valve-casing, valve-stem and rocking valve, means secured to said valve-stem for bringing said valve to the closing-point from either direction, a positively-actuated wrist-plate provided with oppositely-arranged dogs, a chambered disk or housing connected to said valve-stem, a reciprocating catch-plate in said disk or housing for engagement with either of said dogs, and a governor-controlled knock-off cam for releasing said catch-plate from such engagement.

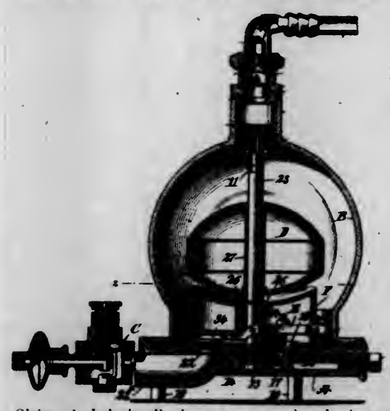
2. In a steam-engine, the combination with a valve-casing, valve-stem, and rocking valve, independently-moving disks secured to one end of said valve-stem, and each having a valve-lever projecting therefrom, dash-pots and their rods connected to said valve-levers, a positively-actuated wrist-plate provided with oppositely-arranged dogs, a chambered disk or housing connected to said valve-stem, a reciprocating catch-plate in said disk or housing for engagement with either of said dogs, a tappet-finger pivoted to said disk or housing and connected to said catch-plate, a reciprocating knock-off cam in the path of said tappet-finger and a governor for controlling the reciprocation of said cam.

3. In a steam-engine, the combination with a valve-casing, valve-stem and rocking valve, means secured to said valve-stem for bringing said valve to its closing-point from either direction, a positively-actuated wrist-plate provided with oppositely-arranged dogs for opening the valve in either direction, and a governor-controlled mechanism for releasing said dogs at any point intermediate of the completion of movement of the wrist-plate in either direction.

4. In a steam-engine, the combination with a valve-casing, valve-stem, and rocking valve, means secured to said valve-stem for bringing said valve to its closing-point from either direction, a positively-actuated wrist-plate provided with oppositely-arranged dogs for opening the valve in either direction, a reciprocating knock-off cam for releasing said dogs, a revoluble spindle, a governor mounted thereon, a reciprocating collar loose on the governor-spindle and connected to the knock-off cam, and lever connections between the weights of the governor and said collar.



787,150. **HYDRAULIC AIR-COMPRESSOR.** WILLIAM G. COX, New York, N. Y. Filed July 27, 1904. Serial No. 218,364.



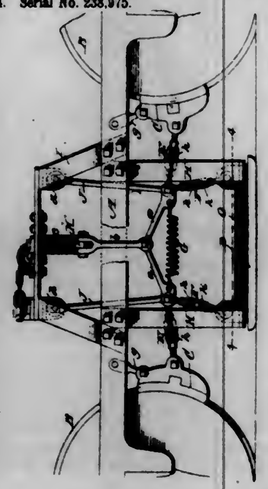
Claim.—1. In hydraulic air-compressors, a base having an inlet-valve and an outlet-valve, a dome secured to the base, a valve-lever pivoted within the dome, arranged to control the inlet-valve and the outlet-valve, closing one and opening the other, a vent-tube fixed within the dome, having communication with the dome and with the outside atmosphere, a tube mounted for movement on the fixed vent-tube, a bonnet-valve having side openings and adapted to normally close the inner end of the vent-tube, the said bonnet-valve having sliding movement relative to the vent-tube, a flange on the upper end of the sliding tube and loosely located within the bonnet-valve,

a float having sliding movement on the said movable tube, the said float being adapted to operate on said bonnet-valve and to raise the said movable tube, a connection between the said movable tube and the valve-lever, and an auxiliary float connected with the said valve-lever, being located below the first-named float, which auxiliary float tends to assist the valve-lever in its upward movement, the two floats being buoyant while immersed in water and acting as weights as the water leaves the dome.

2. In hydraulic air-compressors, a base having an inlet-valve and an outlet-valve, means for supplying water to the inlet-valve, a dome secured to the base, an air-vent tube stationarily located at the central portion of the base within the dome, the said air-vent tube being open at the top and having communication with the atmosphere at its bottom, a guide-tube having sliding movement on the vent-tube, the guide-tube being provided with a flange at its upper end, a bonnet-valve mounted to slide upon the vent-tube and to normally close its upper end, the said bonnet-valve being provided with side openings and with a bottom flange adapted in one position of the valve to engage with the flange on the said guide-tube, a valve-lever pivoted above the base within the said dome, a pivotal connection between the said valve-lever and the said guide-tube, the valve-lever being adapted for alternately opening and closing the inlet and outlet for the dome, a float attached to the valve-lever and located above the same, an upper float independent of the lower float and having limited movement on the said guide-tube, and adapted in its upper position to open the bonnet-valve and to operate the valve-lever assisted by the lower float.

3. In hydraulic air-compressors, a base having an inlet-valve and an outlet-valve, means for supplying water to the inlet-valve, a dome secured to the base, an air-vent tube stationarily located at the central portion of the base within the dome, a guide-tube having sliding movement on the air-vent tube, being provided with a flange at its upper end, the said air-vent tube being open at its top and open at its bottom, the bottom opening communicating with the outside atmosphere, a bonnet-valve mounted to slide on the upper end portion of the vent-tube, the said valve having side openings and a flange at its bottom adapted to occupy a position below the flange on the guide-tube and to engage with such flange to lift the guide-tube at one position of the valve, a valve-lever pivoted above the base within the dome, being adapted for alternately opening and closing the inlets and outlets for the dome, the said valve-lever being pivoted to the said guide-tube, a float attached to the valve-lever, an upper float independent of the lower float and mounted to slide on the guide-tube and engage with and have lifting action on the bonnet-valve, the said bonnet-valve when lifted being first unseated from the vent-tube, then acting to raise the guide-tube assisted by the lower float, a delivery-valve located above the bonnet-valve, and a check-valve located at the supply end of the supply-tube connected with the inlet-valve.

787,151. **BRAKE.** FRANCOIS DAVIGNON, Schenectady, N. Y., assignor of one-half to Augustus Herath, Schenectady, N. Y. Filed Dec. 30, 1904. Serial No. 238,975.



Claim.—1. In a brake, a brake-shoe pivotally supported from a suitable frame, a turnbuckle pivotally connecting therewith and pivotally connecting with a pivoted arm and suitable means for operating the shoe through the medium of mechanism connecting with the arm, substantially as and for the purpose described.

2. In a brake, a brake-shoe adapted to bear against the wheel of the vehicle, and a shoe adapted to bear against the rail of the track, pivoted arms connecting with the operating mechanism, and turnbuckles pivotally connecting the several brake-shoes and pivotally connecting with the pivoted arms, substantially as and for the purpose specified.

3. In a brake, spring-actuated arms and a pivoted connecting-rod to which the arms are pivotally connected, suitable brake-shoes, and turnbuckles pivotally connecting the shoes with the pivoted arms, substantially as and for the purpose set forth.

4. In a car-brake, depending pivoted connecting-rods and suitable mechanism for operating them, depending pivoted pitman-rods, arms pivotally connecting the pivoted connecting-rods with the pitman-rods, said arms being spring-actuated, pivotally-depending brake-shoes for the wheels of the vehicle and brake-shoes for the rails of the track, and turnbuckles connecting the several brake-shoes with the spring-actuated arms, substantially as and for the purpose described.

787,152. **SELF-FILLING FOUNTAIN-PEN.** JOHN T. DAVISON, Brooklyn, N. Y. Filed Nov. 19, 1904. Serial No. 233,436.



Claim.—1. A fountain-pen, comprising a casing, a pen-plug seated in the end of said casing, a flexible reservoir mounted on said plug, a press-button at the opposite end of said casing, a spring-rod seated in said press-button and abutting said pen-plug, and an equalizing-plate carried by said spring-rod and resting against the wall of said reservoir.

2. A fountain-pen, comprising a casing, a pen-plug, and a flexible reservoir connected to said pen-plug, a press-button seated in said casing, a spring-rod seated in said press-button, means preventing movement of said rod longitudinally, and an equalizing-plate carried by said rod and resting against the wall of said reservoir.

3. A fountain-pen, comprising a casing, a pen-plug, and a flexible reservoir connected to said pen-plug, a spring-rod mounted between the casing and the reservoir, an equalizing-plate carried by the spring-rod, and means for bowing the spring-rod for forcing said equalizing-plate against the reservoir to deflate the same.

4. A fountain-pen, comprising a casing, a pen-plug, a flexible reservoir connected to said pen-plug, a spring-rod mounted between the casing and reservoir, means preventing longitudinal movement of said rod, a press-button connected to said rod, and an equalizing-plate carried by the spring-rod and bearing against the wall of the reservoir.

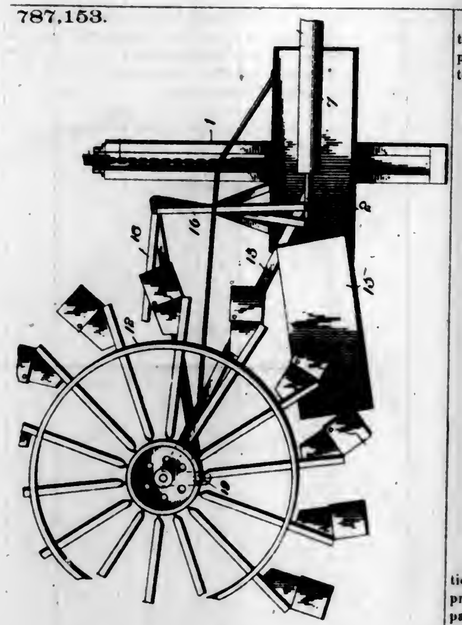
5. A fountain-pen, comprising a casing, a pen-plug, and a flexible reservoir connected to said pen-plug, in combination with a plug frictionally seated in said casing, a button sliding in said plug, a spring-rod mounted between the casing and the reservoir and seated in said button, an equalizing-plate carried by the spring-rod, and means for bowing the spring-rod to force said equalizing-plate against the reservoir to deflate the same.

787,153. **CURRENT-OPERATED PUMP.** JEFFERSON D. DAWSON and FRANK HAMILTON, Beardstown, Ill., assignors of one-third to Fred. B. De Groot, Rock Island, Ill. Filed July 7, 1903. Renewed Mar. 13, 1905. Serial No. 249,941.

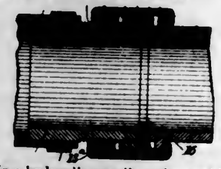
Claim.—1. A pump adapted to move vertically, a casing surrounding said pump and adapted to move with the same, a water-wheel suitably mounted and adapted to move vertically and simultaneously with said pump and casing, said pump being operatively connected with said wheel, said wheel being adapted to be operated by the water passing through said casing and a counterbalance for the vertically-moving parts.

2. A pump adapted to move vertically, a casing surrounding said pump and adapted to move with the same, a water-wheel suitably mounted and adapted to move vertically and simultaneously with said pump and casing, a chute connected at one end with said casing and receiving the paddles of said wheel at its opposite end, said pump being operatively connected to said wheel, said wheel being adapted to be operated by the water passing through said casing a counterbalance for the vertically-moving parts.

787,153.



787,154. **HYDRAULIC COUPLING.** JOHN J. DELEHANT, Chicago, Ill. Filed May 2, 1904. Serial No. 206,902.



Claim.—1. In a hydraulic coupling, the combination of a coupling-section provided with a thread, a washer mounted upon the end of said coupling-section, a washer-holder provided with a thread engaging said thread of said coupling member and provided with a portion for engaging said washer, a coupling-head provided with a thread engaging said thread of said coupling-section, and also provided with a cupped edge and with a mutilation bound by said cupped edge, the general direction of said mutilation being lateral to the axis of said coupling-section, and another coupling member provided with an annular bead for engaging said mutilation, and further provided with a portion for engaging said washer.

2. In a hydraulic coupling, the combination of a coupling-section provided with a thread, a collar provided with a thread mating the same and with a portion for clamping a washer against the coupling-section, and a coupling-head provided with a thread mounted upon said coupling-section, said coupling-head being provided with a portion for engaging another coupling-section.

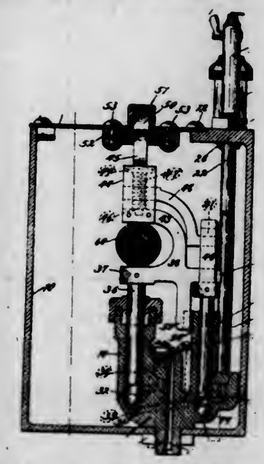
787,155. **LUBRICATOR.** EDWARD DENBORE, Chicago, Ill., assignor to McCord & Company, Chicago, Ill., a Corporation of New Jersey. Filed Feb. 2, 1905. Serial No. 243,791.

Claim.—1. In a lubricator, the combination with a reservoir, of a pair of connected pumps, and means whereby either pump may be utilized to clear the other.

2. In a lubricator, the combination with a reservoir, of a primary pump, an auxiliary pump, a connection between the pumps, and means whereby either pump may be utilized to clear the other.

3. In a lubricator, the combination with a reservoir, a pump, a sight-feed device through which the oil is forced by the pump, a second pump adapted to draw oil from the sight-feed, and provision whereby either pump may be utilized to clear the other.

4. In a lubricator, the combination with a reservoir, of a suction-pump, a delivery-pump, a connection between the pumps, and provision whereby either pump may be made to deliver oil to the part to be lubricated independently of the other pump.



5. In a lubricator, the combination with a reservoir, of a suction-pump, a delivery-pump, a connection between the pumps, and provision whereby the suction-pump may be made to force the oil past and clear the delivery-pump or the delivery-pump may be made to suck the oil past and clear the suction-pump.

6. In a lubricator, the combination with a reservoir, of a primary pump supplied by the reservoir, a delivery-pump, and a connection between the pumps having a normally open air-port adapted to be closed when one of such pumps becomes ineffective, and whereby such pump may be cleared by the action of the other pump.

7. In a lubricator, the combination with a reservoir, of a primary pump supplied by the reservoir, a delivery-pump of greater capacity than the primary pump, and a connection between the pumps having a normally open air-port adapted to be closed when either of such pumps becomes ineffective, whereby such pump may be cleared by the action of the other pump.

8. In a lubricator, the combination with a reservoir, of a primary pump, an auxiliary pump of greater capacity than the primary pump, means to vary the stroke of the primary pump, a connection between the pumps having an air-port, and a valve for closing the air-port, whereby either pump may be utilized to clear the other.

9. In a lubricator, the combination with a reservoir, of a primary pump supplied by the reservoir, a delivery-pump of greater capacity than the primary pump, a connection leading from the discharge of the primary pump to the inlet of the delivery-pump and including a sight-feed device, the connection having an air-port exterior to the reservoir, and a three-way valve adapted to open and close the air-port without obstructing the connection.

10. In a lubricator, the combination with a reservoir, of a primary pump supplied by the reservoir, a delivery-pump of greater capacity than the primary pump, means for varying the stroke of the primary pump, a connection leading from the discharge of the primary pump to the inlet of the delivery-pump and including a sight-feed glass, the said connection having an air-port exterior to the reservoir, and a valve for opening and closing the air-port.

11. In a lubricator, the combination with a reservoir, of a pair of coöperating pumps, a connection between the pumps, a reciprocating yoke to which the plunger of one pump is fixed and coöperating with the plunger of the other pump, and an adjustable arm carried by the yoke for varying or eliminating lost motion between the yoke and the latter plunger.

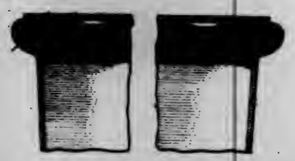
12. In a lubricator, the combination with a reservoir, of a primary and an auxiliary pump located therein, a connection leading from the discharge of the primary pump to the inlet of the auxiliary pump, a yoke to which the plunger of the auxiliary pump is fixed, the plunger of the primary pump having a slot, an extension on the yoke entering the slot, an arm carried by the yoke and also entering the slot, a stem for adjusting the arm to vary the stroke of the primary pump, and means for reciprocating the yoke.

13. In a lubricator, the combination with a reservoir, of a primary pump, an auxiliary pump of greater capacity than the primary pump, a connection between the pumps and having an air-port, a yoke to which the plunger of the auxiliary pump is fixed, the plunger of the primary pump having an elongated slot, an extension on the yoke entering the slot, a screw-threaded stem rotatably mounted on the yoke, an arm engaging the threaded stem and extending into the slot, and an eccentric for reciprocating the yoke.

14. In a lubricator, the combination with a reservoir, a cover therefor having an aperture, a pump in the reservoir, a stem for adjusting the throw of the pump, and a button rotatably mounted on the cover and closing the aperture and having a socket engaging the stem.

15. In a lubricator, the combination with a reservoir, a cover therefor having an aperture, a pump in the reservoir and whose plunger is provided with an elongated slot, a yoke having an extension entering the slot, an eccentric for reciprocating the yoke, a vertical screw-threaded stem rotatably mounted on the yoke, an arm in threaded engagement with the stem and entering the said slot, and a button rotatably mounted in and closing the aperture and having a socket engaging the stem.

787,156. **TIN CAN.** LOUIS DIESEL, Chicago, Ill. Filed May 13, 1904. Serial No. 207,748.



Claim.—1. A sheet-metal can having an open outstanding bead at one end of the wall of its body portion, the return portion of the bead forming a flat flange perpendicular to the axis of the can-body and not projecting beyond the line of the inner face of the wall of the body, and a cover seated upon and soldered to such inturned flange.

2. A sheet-metal can having an open outstanding bead at one end of the wall of its body portion, the return portion of the bead forming a flat flange perpendicular to the axis of the can-body and not projecting beyond the line of the inner surface of the wall of the body, and a cover of substantially uniform strength throughout its area seated upon and soldered to the inturned flange.

787,157. **APPARATUS FOR FORMING CEMENT TANKS.** JAMES T. DONAHOO, Edgar, Nebr. Filed Sept. 12, 1904. Serial No. 224,157.

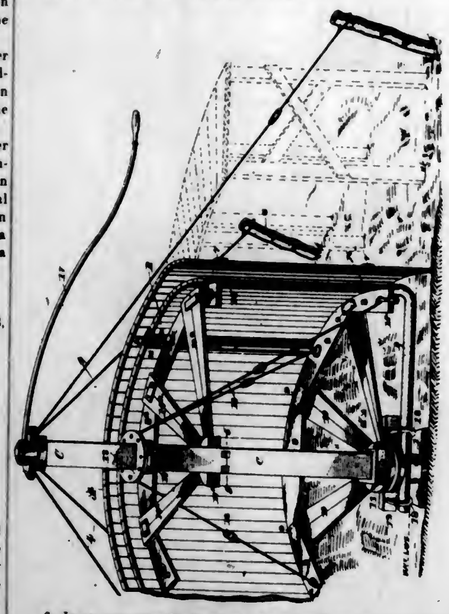
Claim.—1. The improved apparatus for forming cement tanks, comprising an outer cylindrical fixed form, an inner concentric form spaced from the outer one, a mast arranged concentric with the two forms and stepped at its lower end, means for supporting the mast vertically while permitting its free rotation, and means for connecting it with the inner rotatable form whereby the two are operated together, substantially as described.

2. The improved apparatus comprising an outer fixed cylindrical form, an inner revolving concentric form spaced therefrom and means for supporting and carrying said inner form which consist of a central rotatable mast, a series of radial braces extending from said mast, segments connecting the outer ends of the same and devices connected with the mast and serving as vertical supports substantially as described.

3. The improved apparatus comprising an outer fixed cylindrical form, an inner and concentric form which is spaced therefrom, a central rotatable mast, segments upon which the inner form is supported and carried and guys extending from such segments to the mast and serving as vertical supports substantially as described.

4. The improved apparatus comprising two cylindrical concentric forms which are spaced apart, the inner one being adapted to revolve, and concentric rotatable-mast segments and radial braces connected and arranged for supporting and bracing the inner form at its base, a corresponding series of segments and radial braces arranged near the top of the inner form, grooved collars on the rotatable mast which receive the inner ends of the radial braces, and means for supporting the inner form as a whole from the said mast substantially as described.

5. The improved apparatus comprising a central vertical mast, a concentric cylindrical form and means for supporting it and carrying it with the mast when rotated, and a support secured to and revolving with the mast, the same extending radially from the latter and having its outer end arranged in working relation with the base of the said form, substantially as described



6. In an apparatus for forming cement tanks the inner revoluble part comprising a cylindrical form, a concentric rotatable mast, means for bracing the said form radially from said mast and devices connected with the base portion of the form and the upper portion of the mast and a shaper attached to the mast substantially as described.

787,158. **DASH-HEADLIGHT.** FREDERICK W. DRESSEL, New York, N. Y., assignor to The Dressell Railway Lamp Works, New York, N. Y., a Corporation of New York. Filed Aug. 6, 1904. Serial No. 219,718.

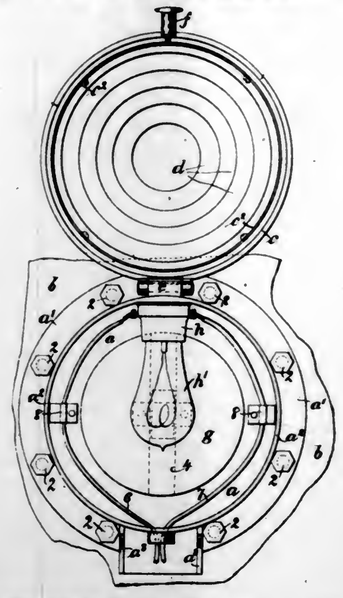
Claim.—1. A dash-headlight comprising a metal body portion, a hinged cover, a catch for holding the cover at one side, and means connected with the body portion coming at each side of and beyond the catch for protecting the same from external contact or accidental release.

2. A dash-headlight, comprising a metal body portion, an electric incandescent bulb, and means for securing the same within the body portion, and a hinged cover portion and means connected to the body portion and extending at each side and beyond the catch of the cover and also at each side of the electric lead-wires entering the body portion, protecting said catch and wires from external contact.

3. A dash-headlight having a body portion of metal comprising a back and flange in the same plane, a circular rim at right angles thereto and external ribs parallel to one another spaced apart and connecting the rim and the flange, a cover hinged at one side to the circular rim, and a spring-catch connected to the other side of the cover and adapted to pass between the ribs and engage an aperture in the circular rim.

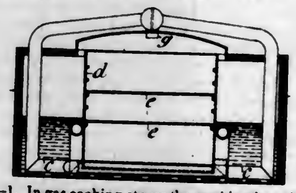
4. A dash-headlight having a body portion of metal comprising a back and flange in the same plane, a circular rim at right angles thereto and external ribs parallel to one another spaced apart and connecting the rim and the flange, a cover hinged at one side of the circular rim, a spring-catch connected to the other side of the cover and adapted to pass between the ribs and engage an aperture in the circular rim, a reflector within the body connected to the back, a socket and incandescent electric-light bulb, the socket also being connected within the body and to the circular rim, and lead-wires extending from the socket through an opening in the circular rim between the ribs, substantially as set forth.

5. A dash-headlight, consisting of a body portion comprising a back and flange in the same plane, a circular rim at right angles thereto, a cover comprising a ring and glass, and means for securing the same to the circular rim, the flange of the body portion having apertures and bolts passing through the apertures and adapted to pass through holes in the dash for securing the dash-headlight to the outer surface of the dash, substantially as set forth.



6. A dash-headlight for electric illumination, consisting of a body and cover, the body comprising in one integral structure a back and flange in the same plane, a circular rim at right angles thereto, and ribs external to the rim and extending between the same and the flange, the flange having apertures for bolts adapted to connect the body portion to the outer surface of the dash, the cover comprising a metal ring and prismatic lens-glass, a hinge connecting the metal ring of the cover to the circular rim at one side, a spring-catch at the other side of the cover-ring connecting the same to the circular rim, said spring-catch coming between and inside of the boundary or edge of the ribs, and there being an aperture in the circular rim also between these ribs, whereby the said spring-catch and the lead-wires to the electric light are protected from external contact and the catch from accidental release.

787,159. **GAS COOKING-STOVE.** MEINRAD EBRSAM, Zurich, Switzerland. Filed May 26, 1904. Serial No. 209,956.



Claim.—1. In gas cooking-stoves the combination with an outer casing, having a waste-space in the lower part thereof containing liquid, of combustion-chambers arranged therein and in said waste-space having inlets for air and exits for waste gases, gas-burners in said chambers, a warming-oven in juxtaposition thereto and having its lower part in said waste-space, and pipes communicating with the exits in the chambers and passing through said space, around said oven, and thence to a flue, whereby the waste heat from the products of combustion is utilized to heat the liquid and the oven before such products are discharged to the open air.

2. In a cooking-stove the combination with an outer casing containing liquid, of a combustion-chamber surrounded by said liquid, heating means for said chamber, ingress means and egress-pipes for said chamber, and a warming-oven surrounded by said liquid, said egress-pipes passing through said liquid and warming-oven.

3. In a cooking-stove the combination with an outer casing containing liquid, of a combustion-chamber surrounded by said liquid, heating means for said chamber, ingress means and egress-pipes for said chamber, and a warming-oven within said casing, said egress-pipes passing through said liquid and warming-oven.

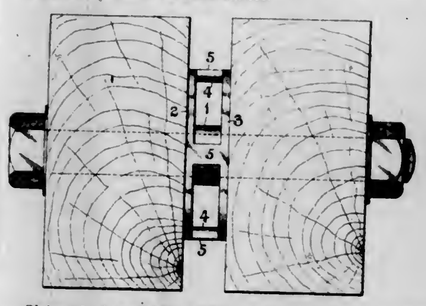
4. In a cooking-stove the combination with an outer casing containing liquid, a combustion-chamber surrounded by said liquid, heating means for said chamber, ingress means and egress-pipes for said chamber, and a warming-oven within said casing, said pipes passing through said warming-oven.

5. In a cooking-stove the combination with an outer casing containing liquid, of a combustion-chamber within said casing, heating means for said chamber, said chamber having ingress means and egress-pipes, said egress-pipes passing through said liquid, and a warming-oven surrounded by said liquid.

6. In a cooking-stove the combination with an outer casing containing liquid, of a combustion-chamber within said casing, heating means for said chamber, said chamber having ingress means and egress-pipes, and a warming-oven surrounded by said liquid, said egress-pipes passing through said liquid and warming-oven.

7. In a cooking-stove the combination with an outer casing containing liquid, of a combustion-chamber within said casing, heating means for said chamber, ingress means for said chamber egress-pipes for said chamber, and a warming-oven within said casing, said egress-pipes passing through said liquid and warming-oven.

787,160. **PACKING-WASHER.** CHARLES G. ETTE, St. Louis, Mo. Filed Nov. 21, 1904. Serial No. 233,688.



Claim.—1. A malleable washer, comprising a malleable casting, including a tube having parallel webs, one at each end thereof, and integral braces between said webs and spaced away from the tube; substantially as described.

2. A washer, comprising a cylindrical body portion, outwardly-extending webs, one at each end of the body portion, and a plurality of webs disposed around the peripheries of the first-named webs and connecting them; substantially as described.

3. A malleable washer, comprising a central tubular body portion, outwardly-extending webs connected to the body portion, and webs connecting the first-named webs, said connecting-webs being substantially semicircular in cross-section with their flat faces presented toward the peripheries of the first-named webs; substantially as described.

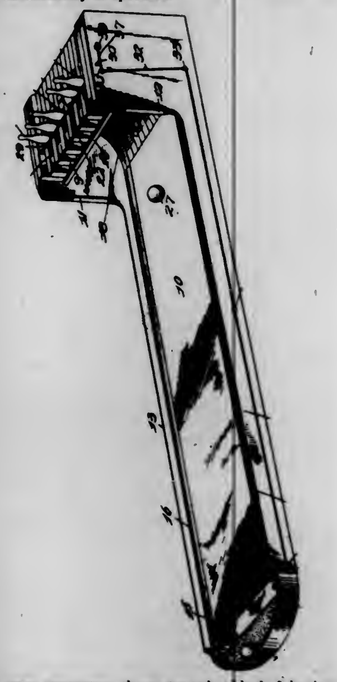
787,161. **GAME APPARATUS.** EUGENE FAHL, St. Louis, Mo. Filed May 16, 1904. Renewed Mar. 13, 1905. Serial No. 249,836.

Claim.—1. In a game apparatus: a board; means forming a semicircular surface leading upwardly and forwardly from the rear end of the board; and pins pivotally mounted, and having wings extending below the upper end of the semicircular surface; substantially as specified.

2. In a game apparatus: a board; a semicircular surface extending upwardly and forwardly from the end of the board; a baffle-plate in front of and below the upper end of the semicircular surface; and pins pivotally mounted, with wings extending below the upper end of the semicircular surface; substantially as specified.

3. In a game apparatus: a board; a semicircular surface extend-

ing upwardly from the rear end of the board; grooves extending along the sides of the board; a baffle-plate in front of and below the upper end of the semicircular surface; and guide-strips upon the baffle-plate; substantially as specified.



4. In a game apparatus: the rectangular block 6 having the semicircular forward faces 7; the spacing-blocks 8 between the blocks 6; the projections 9 at the forward upper ends of the blocks 8; the pins 20 pivoted to the upper forward corners of the blocks 6; and the wings 22 extending downwardly from the pins 20; substantially as specified.

5. In a game apparatus: the rectangular block 6 having the semicircular faces 7; the spacing-blocks 8 between the blocks 6; the projections 9 at the forward upper ends of the blocks 8; the pins 20 pivoted to the upper forward corners of the blocks 6; the wings 22 extending downwardly from the pins 20; the baffle-plate 24 attached to the projections 9; and the guide-strips 25 and 26 secured to the baffle-plate; substantially as specified.

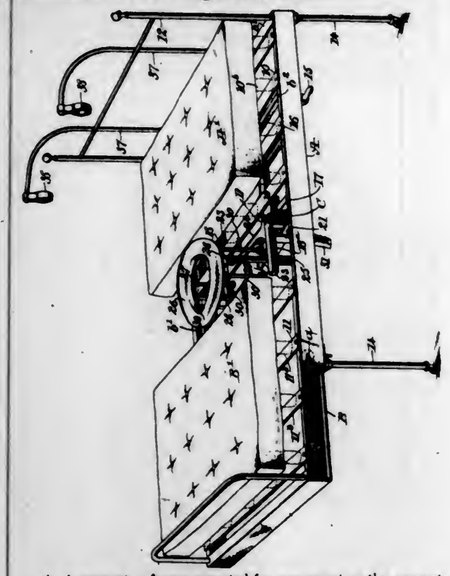
6. In a game apparatus: a ball-surface having a flat level portion, and having a curved portion extending upwardly from the rear end of the flat portion and discharging forwardly; a baffle-plate to catch the ball from the upper part of the curved portion and discharging it back to the lower part and sides of the curved portion; a groove upon each side of the ball-surface to conduct the ball back to the player; and side boards to hold the ball upon the ball-surface; substantially as specified.

787,162. INVALID-BEDSTEAD. WILLIAM C. FERLY, New York, N. Y. Filed Nov. 19, 1903. Serial No. 181,776.

Claim.—1. A bedstead, a commode mounted upon the bedstead for vertical movement, movement in direction of the sides of the bedstead and movement in direction of the ends of the bedstead, and an operating-lever in operative connection with the commode to bring about all of said movements, as set forth.

2. A bedstead, a commode mounted upon the bedstead for vertical movement, movement in direction of the sides of the bedstead and movement in direction of the ends of the bedstead, an operating-lever in operative connection with the commode to bring about all of the said movements, and a locking device operating in conjunction with the said operating-lever for the commode, as described.

3. A support, a frame mounted for movement on the support, a carriage mounted for movement in the frame at right angles to the movement of the latter, and a support carrying a seat and vessel arranged one above the other, the support being mounted for vertical movement in the said carriage, as described.



4. A support, a frame mounted for movement on the support, a carriage mounted for movement in the frame at an angle to the movement of the latter, a seat and a vessel arranged one above the other, the support being mounted for vertical movement in the said carriage, a lever connected with the frame whereby to move it on its support, and connections between the said lever, the carriage, the seat and vessel support, whereby the one lever serves to impart movement to all of the said parts, as described.

5. A bedstead, a guide carried thereby, a frame mounted to move on the guide, a carriage mounted for movement in the frame, the movement of the carriage being at an angle to the movement of the frame, a combined seat and vessel support mounted for movement in the carriage, an operating member for imparting movement to all of the said parts, and a locking device carried partly by the operating member and partly by the carriage, for the purposes described.

6. In bedsteads, a head and a foot section, one section having movement in the other, a frame mounted for movement on one of the sections in direction of its sides, a carriage mounted in the frame to slide to and from the ends of the said section, and a support carrying a seat and vessel arranged one above the other the support having vertical sliding movement in the said carriage, the said seat being exposed when the sections of the bed are separated, as set forth.

7. In bedsteads, a head and a foot section, one section having movement in the other, a frame mounted for movement in one of the sections in direction of its sides, a carriage mounted in the frame for movement to and from the ends of the said section, a seat and vessel support having vertical movement in the said carriage, the said seat being exposed when the sections of the bed are separated, an operating device arranged to control the movements of the frame, the carriage and the seat and vessel support, and a locking device for holding the seat in adjusted position, as described.

8. In invalid-bedsteads, a main section, and a foot-section adapted for movement in the main section to and from the same, supports for the main section, a support for the inner end of the movable section, and a commode attachment carried by the main section, adjustable vertically, sidewise and in direction of the ends of the bed, which commode attachment is exposed when the movable section of the bed is drawn partially out from the main section, as described.

9. A commode, a support for the same, a single lever for operating the commode, having end movement, vertical movement and movement sidewise, imparting to the commode, as desired, a movement sidewise of the support, a movement in direction of the length of the support, and a vertical movement, and a locking device for the lever.

10. A bedstead, the frame of which is constructed in two telescopic sections, one stationary and the other movable, supports for the stationary section, an operating-lever for the movable section, a commode carried by the stationary section of the bedstead-frame, covered by the movable section when closed and exposed when said movable section is open, and devices for imparting vertical movement to the commode and side movements in different directions, as specified.

11. In an invalid-bed, a bedstead, a support attached to the bedstead, a frame movable on the support, a carriage mounted for movement in the frame at right angles thereto, and a seat supported by the carriage and having independent vertical movement thereon, as described.

12. In an invalid-bed, a bedstead, a support attached to the bedstead, a frame movable on the support, a carriage mounted for movement in the frame, a seat supported by the carriage and having independent movement thereon, and a single lever arranged to accomplish all of the said movements, as set forth.

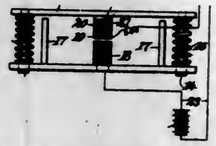
13. In an invalid-bedstead, a frame mounted to slide transversely in the bedstead, a carriage mounted to slide longitudinally in the frame, a commode-support mounted to slide vertically in the carriage, a pivoted lever carried by the sliding frame and engaging a member of the carriage, a loop-rack through which the lever passes, and a pawl carried by the lever for engaging the rack, as set forth.

14. In an invalid-bedstead, a frame mounted to slide transversely in the bedstead, a carriage mounted to slide longitudinally in the frame, a commode-support mounted to slide vertically in the carriage, a lifting-bar pivoted to the carriage and loosely engaging the commode-support, a lever pivoted to the frame and engaging the lifting-bar, a loop-rack through which the lever passes, and a pawl carried by the lever and engaging the rack, as set forth.

15. In an invalid-bedstead, a transversely and longitudinally sliding support, a lever for operating said support, a seat and vessel support mounted on the first-named support, and means engaging the seat and vessel support and operated by the said lever, as set forth.

16. In an invalid-bedstead, a transversely-sliding frame, a carriage mounted to slide longitudinally in the frame, a commode-support mounted to slide vertically in the carriage, a pivoted lever loosely engaging the commode-support, a lever for operating the carriage and frame and with which said lever engages, and means for locking the lever in position, as set forth.

787,163. REGISTER SYSTEM. ANTONIO FEVOLA, Yonkers, N. Y., assignor of one-half to Thomas Lisa, Yonkers, N. Y. Filed Sept. 9, 1904. Serial No. 223,856.



Claim.—1. The combination with a structure in which is an opening and a register associated with said structure, of a support mounted below the structure-opening and itself having a plurality of openings, a tread-section movable in the structure-opening and having projections extending through the tread-section openings, springs interposed between the support and tread-section and surrounding the projections, and contact members in circuit with the register, one of said contact members being carried by the tread-section and being movable independently thereof.

2. In a register system, the combination with a contact device, of an electromagnet in circuit therewith, a movable armature, a pawl pivoted thereon, a casing within which the electromagnet is mounted, a shaft extending transversely of the casing, a ratchet-wheel having frictional engagement with the shaft and which is engaged by the pawl, a bevel-pinion fixed to the shaft, a hand-shaft, a bevel-gear fast upon the hand-shaft and meshing with the pinion, a pin extending from the gear, a hand-sleeve rotatable about the hand-shaft, and gearing associated with the hand-sleeve and actuated by the pin.

787,164. FRUIT-PICKER. FRANK FISHER, Jr., Oconto, Wis. Filed June 29, 1904. Serial No. 214,613.

Claim.—1. In a fruit-picker, a pole, an approximately pear-shaped hoop at one end of the pole, a knife-blade secured to the hoop at the apex end thereof, the cutting edge of the knife-blade extending transversely between the sides of the hoop, and an approximately V-shaped guide having its apex end extending over the knife-blade to the apex of the hoop and secured to said apex and its side members extending past the knife edge and outwardly to the sides of the hoop, with their ends secured to said sides of the hoop.



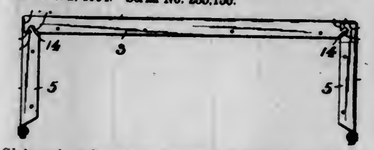
2. A fruit-picker comprising a pole provided with a picking device at its upper end, and at its lower end with a stirrup flexibly connected therewith.

3. A fruit-picker comprising a pole, hoops at the ends thereof, a duct on the pole and connected with the said hoops, a fruit-detaching device connected with one of the hoops, and a stirrup connected with the other hoop.

4. A fruit-picker comprising a pole, a picking device at the upper end thereof, a stirrup adapted to be engaged and held upon the ground by the foot of the operator, and a strap connecting the lower end of the picker with the stirrup to form a fulcrum to assist the operator in the manipulation of the pole.

5. A fruit-picker, comprising a pole, hoops at the ends thereof, the lower hoop extending downwardly and forwardly from the pole, a duct on the pole and connected with said hoops, a fruit-detaching device connected with the upper hoop, a stirrup adapted to be engaged and held upon the ground by the foot of the operator, and a flexible connection connecting the stirrup with the lower forwardly-extending side of the hoop.

787,165. BAG-FRAME. ALBERT P. FULLER, Newark, N. J., assignor to The J. E. Mergott Company, a Corporation of New Jersey. Filed Dec. 2, 1904. Serial No. 235,150.



Claim.—1. A bag-frame section, comprising a main body and a pivot member at each end of said main body, the said main body and each pivot member being provided with dovetailed holding portions, all arranged to provide a flush surface and a sharp angle at the juncture of each pivot member with the main body, substantially as and for the purposes set forth.

2. A bag-frame section, comprising a main body and a pivot member at each end of said main body, the said main body and each pivot member being provided with dovetailed holding portions, all arranged to provide a flush surface and a sharp angle at the juncture of each pivot member with the main body, an angle-plate arranged over the said connected parts, and means for securing said angle-plate in position, substantially as and for the purposes set forth.

3. A bag-frame section, comprising a main body and a pivot

member at each end of said main body, the said main body being formed with a lug-receiving opening 15 and a retaining-lug 14, and said pivot members being provided with an opening 7 and a retaining-lug 16, each pivot member being bent at a right angle to said main body, said lug 16 being arranged in said opening 15, and said lug 14 being arranged in said opening 7, all constructed to provide a flush surface and a sharp angle at the juncture of each pivot member with the main body, substantially as and for the purposes set forth.

4. A bag-frame section, comprising, a main body and a pivot member at each end of said main body, the said main body being formed with a lug-receiving opening 15 and a retaining-lug 14, and said pivot members being provided with an opening 7 and a retaining-lug 16, each pivot member being bent at a right angle to said main body, said lug 16 being arranged in the said opening 15, and said lug 14 being arranged in said opening 7, all constructed to provide a flush surface and a sharp angle at the juncture of each pivot member with the main body, an angle-plate arranged over the said connected parts, and means for securing said angle-plate in position, substantially as and for the purposes set forth.

5. A bag-frame section, comprising a main body having a right-angled lip portion, and a pivot member at each end of said main body, each pivot member being provided with a right-angled lip portion, the lip portions of the said main body and the said pivot members being provided with dovetailed holding portions, all arranged to provide a flush surface of the said connected lip portions and a sharp angle at the juncture of each pivot member with the said main body, substantially as and for the purposes set forth.

6. A bag-frame section, comprising a main body having a right-angled lip portion, and a pivot member at each end of said main body, each pivot member being provided with a right-angled lip portion, the lip portions of the said main body and the said pivot members being provided with dovetailed holding portions, all arranged to provide a flush surface of the said connected lip portions and a sharp angle at the juncture of each pivot member with the said main body, an angle-plate arranged over the said connected parts, and means for securing said angle-plate in position, substantially as and for the purposes set forth.

7. A bag-frame section, comprising a main body having a right-angled lip portion, and a pivot member at each end of said main body, each pivot member being provided with a right-angled lip portion, the lip portion of the main body being formed with a lug-receiving opening 15, and a retaining-lug 14, and the lip portion of each pivot member being provided with an opening 7 and a retaining-lug 16, each pivot member being bent at a right angle to said main body, said lug 16 being arranged in said opening 15, and said lug 14 being arranged in said opening 7, all constructed to provide a flush surface of the said connected lip portions and a sharp angle at the juncture of each pivot member with the main body, substantially as and for the purposes set forth.

8. A bag-frame section, comprising a main body having a right-angled lip portion, and a pivot member at each end of said main body, each pivot member being provided with a right-angled lip portion, the lip portion of the main body being formed with a lug-receiving opening 15, and a retaining-lug 14, and the lip portion of each pivot member being provided with an opening 7 and a retaining-lug 16, each pivot member being bent at a right angle to said main body, said lug 16 being arranged in said opening 15, and said lug 14 being arranged in said opening 7, all constructed to provide a flush surface of the said connected lip portions and a sharp angle at the juncture of each pivot member with the main body, an angle-plate arranged over the said connected parts, and means for securing said angle-plate in position, substantially as and for the purposes set forth.

9. A bag-frame section, comprising a main body having a right-angled lip portion, and a pivot member at each end of said main body, each pivot member being provided with a right-angled lip portion, the lip portion of the main body being formed with a lug-receiving opening 15, and a retaining-lug 14, and the lip portion of each pivot member being provided with an opening and a retaining-lug 16, each pivot member being bent at a right angle to said main body, said lug 16 being arranged in said opening 15, and said lug 14 being arranged in said opening 7, all constructed to provide a flush surface of the said connected lip portions and a sharp angle at the juncture of each pivot member with the main body, and each lip portion of the said main body and said pivot members being provided with openings 18 and 19 and receiving depressions 22 and 23, respectively, an angle-plate arranged over said connected parts, and means connected with said plate for securing it in position, consisting of holding-lugs on said plate inserted through said openings 18 and 19 and arranged and secured in said receiving depressions 22 and 23, substantially as and for the purposes set forth.

10. A bag-frame section, comprising a main body and a right-angled pivot member at each end of said main body, the said main body and said right-angled pivot members each being provided with a right-angled lip portion, all arranged to provide sharp angular connections between said parts, an angle-plate arranged over the junction of the right-angled lip portion of the main body with the lip portion of each pivot member, said lip portions having receiving-openings and receiving depressions, and means connected with said angle-plate which is arranged over the said lip portions of the said main body and said pivot members for securing said angle-plate in position, consisting of holding-lugs on said angle-plate inserted through said openings and arranged and secured in said receiving depressions, substantially as and for the purposes set forth.

787,166. **CONVERTIBLE CANE AND STOOL.** EMANUEL C. GARDEN, Jacksonville, Ill. Filed Jan. 9, 1905. Serial No. 240,333.



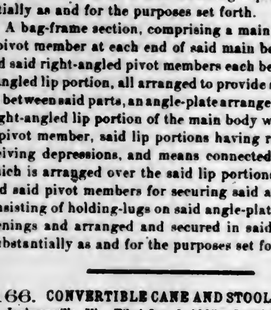
Claim.—1. A convertible cane and stool, comprising a sheath, a seat member detachably connected with said sheath and having a central hole, and a tripod fitting within said sheath and having a pin fitting in the hole in said seat member.

2. A convertible cane and stool, comprising a sheath, legs fitting within said sheath, and a seat member detachably connected with said sheath and provided with connecting devices for connecting the legs with said seat member.

3. A convertible cane and stool, comprising a sheath, legs fitting within said sheath, a seat member detachably connected with said sheath, and means for connecting said legs with said seat member.

4. A convertible cane and stool, comprising a sheath having a screw-threaded upper part, a seat member having a lug fitting in the screw-threaded part of said sheath, also having a central hole, and a tripod fitting within said sheath and having a pin fitting in the hole in said seat member.

787,167. **RESPIRATOR.** WILLIAM G. GATES, Fort Benton, Mont. Filed July 15, 1903. Serial No. 165,618.



Claim.—1. A respirator, comprising an inner section of reticulated material, an outer section of similar material, the two sections being shaped to fit the face of the wearer around the nose and mouth and forming a chamber between them, and an air-filtering medium located in said chamber, said outer section having an outer covering of textile fabric, held thereupon in close engagement therewith.

2. A respirator, comprising two sections of reticulated material spaced apart from each other and connected together around their margins to form a chamber between them, flanged plates secured to one of said sections and hooks pivoted to the other section, the flanges of said plates having apertures adapted to be engaged by said hooks for detachably connecting the sections together, and a mass of filtering medium filling said chamber.

3. In a respirator, a frame having an upwardly-extending section bent to fit the face of the wearer around the nose and mouth, and a horizontally-disposed curved section connected at its ends to the lower ends of said upwardly-extending section, and curving outwardly in advance of the face of the wearer, and an apron of flexible material connected to said horizontal section of the frame, and adapted to fit beneath the chin.

4. A respirator, comprising a frame having an upwardly-extending section bent to fit the face of the wearer around the nose and mouth, and a horizontally-disposed curved section connected at its ends to the lower ends of said upwardly-extending section, and curving outwardly in advance of the face of the wearer, a larger frame similar in form to the other and adapted to fit thereover, means for connecting the two frames together, one spaced apart from the other, a section of reticulated material carried by each of said frames, the sections of reticulated material being also spaced apart from each other to form a chamber between them, a mass of filtering material inclosed within said chamber, and an apron of flexible material connected to said horizontal section of the inner frame and adapted to fit beneath the chin.

5. A respirator comprising an inner supporting-frame formed of bendable material, bent to inclose and fit the nose and front sides of the face, extending down the latter to a point below the mouth and thence curved outwardly and forwardly in a horizontal plane, said frame being filled in with a section of reticulated material extending outwardly from the top of the frame and arching over the nose in front thereof and thence extending vertically downward to engage the forwardly-curved horizontal section of the frame, an outer frame of contour similar to the inner frame and suitably held thereover and spaced apart therefrom, a section of reticulated material carried by said outer frame and of approximately the same conformation as the inner section, the two sections of reticulated material being spaced apart from each other to form an intervening space, means for detachably connecting said frames together, a mass of air-filtering material filling said space and a section of flexible material secured to the horizontal part of the inner frame and adapted to extend underneath the chin of the wearer.

6. In a respirator, a frame fitting the face and inclosing the nose and mouth of the wearer, and a flexible apron carried at the lower end of said frame to coöperate therewith, said apron having its inner edge gathered and provided with an elastic puckering-string to cause said apron to fit snugly around the chin of the wearer.

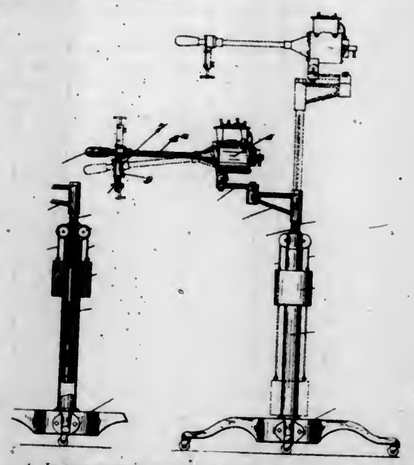
7. In a respirator, a frame adapted to entirely inclose the face of the wearer around the nose and mouth, said frame comprising an upper non-flexible part or frame proper for the upper part of the face and a lower flexible portion secured thereto for the lower parts of the face, said flexible part being adapted to extend underneath and inclose the chin of the wearer, the upper portion having the part thereof engaging the face provided with a non-resilient bendable metallic border to adapt the upper part of the frame to be readily bent to fit the face of the wearer, the lower flexible portion being gathered at its inner edge and provided with an elastic puckering-string to fit underneath the chin to permit the same to move in a natural manner.

787,168. **MOVEMENT-CURE APPARATUS.** MARION E. GIBSON, Columbus, Ohio, assignor of one-half to Andrew J. Pembroke and Robert P. Curts, Columbus, Ohio. Filed Sept. 12, 1904. Serial No. 224,097.

Claim.—1. In a movement-cure apparatus, the combination of a standard, a support sliding vertically with respect thereto, a bracket-arm swiveled at the upper end of said support, an arm hinged to said bracket-arm and capable of being completely rotated on the hinging point, a motor supported on said arm and a massaging implement to be operated by said motor.

2. In a movement-cure apparatus, the combination of a standard, a support sliding vertically in said standard, the horizontal bracket-arm 3 hinged to rotate at one end on the upper end of said sliding support, the horizontal bracket-arm 3^a hinged at one end to rotate on the other end of the bracket-arm 3, a motor 4 pivoted to rotate horizontally on the other extremity of the bracket 3^a, a rotary rigid shaft 4^b extending from said motor, a massaging implement at the end of and to be operated by said shaft 4^b, and a handle for manipulating said parts whereby the motor 4 can be moved to stand on one side of the vertical line of movement of the sliding support and the massaging implement on the other, substantially as described.

3. In a movement-cure apparatus, the combination of a motor, a crank-shaft driven by said motor, a reciprocating and vibrating rod operated by the crank-shaft for carrying the massaging implement, a casing in which said rod works revoluble about the crank-shaft independently of the shaft and means whereby the vibration of said rod can be varied without varying the length of the reciprocating strokes, substantially as described.



4. In a movement-cure apparatus, the combination of a motor, a crank-shaft driven by said motor, the reciprocating and vibrating rod, operated by the crank-shaft, for carrying the massaging implement, a casing in which said rod works revoluble about the crank-shaft independently of the motor, and a perforated adjustable block through which said rod reciprocates for varying the degree of vibration of the rod with means for fixing the same in adjusted position.

787,169. **TROLLEY CATCHER AND RETRIEVER.** CHARLES E. GIERDING, Newark, N. J. Filed July 7, 1904. Serial No. 215,564.



Claim.—1. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to normally rotate loosely upon said shaft, a shaft-actuating means connected with said shaft, a spring-controlled mechanism loosely arranged upon said shaft for locking said reel upon said shaft that it will turn with the shaft, and means for actuating and controlling the movements of said spring-controlled mechanism, substantially as and for the purposes set forth.

2. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to normally rotate loosely on said shaft, a shaft-actuating means connected with said shaft for rotating the same, a normally locked spring-controlled mechanism loosely arranged on said shaft for locking said reel upon said shaft that it will turn with the shaft, means for releasing said shaft-rotating means from active engagement with said spring-controlled mechanism, and means connected with said reel for releasing said spring-controlled mechanism, substantially as and for the purposes set forth.

3. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to normally rotate loosely on said shaft, a shaft-actuating means connected with said shaft for rotating the same, a normally locked spring-controlled mechanism loosely arranged on said shaft for locking said

reel upon said shaft that it will turn with the shaft, means for releasing said shaft-rotating means for active engagement with said spring-controlled mechanism, and a centrifugal engaging dog operated by the motion of said reel for releasing the said spring-controlled mechanism, substantially as and for the purposes set forth.

4. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatively arranged in said casing, a reel arranged to normally rotate loosely upon said shaft, a tension or take-up spring between the said reel and shaft, a shaft-actuating mechanism connected with said shaft for rotating said shaft, a normally wound retriever-spring connected with said shaft for actuating said shaft-actuating mechanism, and means connected with said reel for releasing said retriever-spring, substantially as and for the purposes set forth.

5. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to normally rotate loosely upon said shaft, a tension or take-up spring between said reel and said shaft, a shaft-actuating mechanism connected with said shaft for rotating said shaft, a normally wound retriever-spring connected with said shaft for actuating said shaft-actuating mechanism, a retriever-spring-holding means also arranged on said shaft, and means connected with said reel for releasing said retriever-spring-holding means, substantially as and for the purposes set forth.

6. In a trolley catcher and retriever, the combinat on, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to normally rotate loosely upon said shaft, a tension or take-up spring between said reel and shaft, a shaft-actuating mechanism connected with said shaft for rotating said shaft, a normally wound retriever-spring connected with said shaft, for actuating said shaft-actuating mechanism, means for holding said retriever-spring in its wound relation, and a centrifugal engaging dog operated by the motion of said reel and arranged to actuate the said retriever-spring-holding means, substantially as and for the purposes set forth.

7. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a normally locked shaft-rotating mechanism, a disk loosely arranged upon said shaft, arms extending from said disk, one of said arms having a portion in holding engagement with the said shaft-rotating mechanism, and means connected with said reel arranged to engage said disk-arms and thereby release said shaft-rotating mechanism, substantially as and for the purposes set forth.

8. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a normally locked shaft-rotating mechanism, a disk loosely arranged upon said shaft, arms extending from said disk, one of said arms having a portion in holding engagement with said shaft-rotating mechanism, and a pair of centrifugal engaging dogs operated by the motion of said reel and arranged to engage said disk-arms to thereby release said shaft-rotating mechanism, substantially as and for the purposes set forth.

9. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a normally wound retriever-spring connected with said shaft, and means for holding said retriever-spring in its wound relation, comprising a disk loosely arranged upon said shaft, arms extending from said disk, one of said arms having a projection, and a gear having a receiving depression with which said projection is in holding engagement, and means connected with said reel arranged to engage said disk-arms and thereby release said projection from the receiving depression of said gear, substantially as and for the purposes set forth.

10. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a normally wound retriever-spring connected with said shaft, and means for holding said retriever-spring in its wound relation, comprising a disk loosely arranged upon said shaft, arms extending from said disk, one of said arms having a projection, and a gear having a receiving depression with which said projection is in holding engagement, and a pair of centrifugal engaging dogs operated by the motion of said reel and arranged to engage said disk-arms and thereby release said projection from the receiving depression of said gear, substantially as and for the purposes set forth.

11. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a shaft-operating mechanism, comprising a pinion on said shaft, a gear in mesh with said pinion, said gear being provided with a receiving depression, a disk loosely arranged upon said shaft, arms extending from said disk, a holding-tooth on one of said arms normally in holding engagement with the receiving depression of said gear, and means connected with said reel arranged to engage said disk-arms and thereby release said holding-tooth from said receiving depression of said gear, substantially as and for the purposes set forth.

12. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to loosely rotate upon said shaft, a shaft-operating mechanism, comprising a pinion on said shaft, a gear in mesh with said pinion, said gear being provided with a receiving depression, a disk loosely arranged upon said shaft, arms extending from said disk, a holding-tooth on one of said arms normally in holding engagement with the receiving depression of said gear, and a pair of centrifugal engaging dogs operated by the motion of said reel and arranged to engage said disk-arms to thereby release said holding-tooth from said receiving depression of said gear, substantially as and for the purposes set forth.

13. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a normally-wound retriever-spring connected with said shaft, means for holding said retriever-spring in its wound relation, comprising a pinion on said shaft, a gear in mesh with said pinion, said gear being provided with a receiving depression, a disk loosely arranged upon said shaft, arms extending from said disk, a holding-tooth on one of said arms normally in holding engagement with the receiving depression of said gear, and means connected with said reel arranged to engage said disk-arms and thereby release said holding-tooth from said receiving depression of said gear, substantially as and for the purposes set forth.

14. In a trolley catcher and retriever, the combination, with a casing, of a shaft rotatably arranged in said casing, a reel arranged to rotate loosely upon said shaft, a normally wound retriever-spring connected with said shaft, means for holding said retriever-spring in its wound relation, comprising a pinion on said shaft, a gear in mesh with said pinion, said gear being provided with a receiving depression, a disk loosely arranged upon said shaft, arms extending from said disk, a holding-tooth on one of said arms normally in holding engagement with the receiving depression of said gear, and a pair of centrifugal engaging dogs operated by the motion of said reel and arranged to engage said disk-arms to thereby release said holding-tooth from said receiving depression of said gear, substantially as and for the purposes set forth.

15. In a trolley catcher and retriever, the combination, with a casing, of a shaft and pinion, a reel and a retriever-spring, a gear in mesh with said pinion, said gear being provided with a receiving depression, and a holding projection adapted to be brought in separable engagement with said receiving depression, substantially as and for the purposes set forth.

16. In a trolley catcher and retriever, the combination, with a casing, of a shaft and pinion, a reel and a retriever-spring, a gear in mesh with said pinion, said gear being provided with a receiving depression, and a holding projection adapted to be brought in separable engagement with said receiving depression, and means in engagement with another portion of said gear for permitting but a partial rotary motion of the gear, substantially as and for the purposes set forth.

17. In a trolley catcher and retriever, the combination, with a casing, of a shaft and pinion, a reel and a retriever-spring, a gear in mesh with said pinion, said gear being provided with a chambered portion and an enlargement forming a stop, and a stud connected with said casing and extending into said chambered portion of the gear, substantially as and for the purposes set forth.

18. In a trolley catcher and retriever, the combination, with a casing, of a shaft and pinion, a reel and a retriever-spring, a gear in mesh with said pinion, said gear being provided with an annular flange having a receiving depression, and a holding mechanism provided with a projection in holding engagement with the receiving depression of said gear, substantially as and for the purposes set forth.

19. In a trolley catcher and retriever, the combination, with a casing, of a shaft and pinion, a reel and a retriever-spring, a gear in mesh with said pinion, means for permitting but a partial rotary motion of said gear, and a holding mechanism in holding engagement with said gear, substantially as and for the purposes set forth.

20. In a trolley catcher and retriever, the combination, with a casing, of a shaft and pinion, a reel and a retriever-spring, a gear in

mesh with said pinion, said gear being provided with a chambered portion and an enlargement forming a stop, a stud connected with a portion of said casing and extending into said chambered portion of the gear, and a holding mechanism in holding engagement with said gear, substantially as and for the purposes set forth.

21. In a trolley catcher and retriever, the combination, with a casing, of a shaft, a reel arranged to rotate loosely upon said shaft, and means for operatively connecting said reel to said shaft, comprising a chambered portion of said reel having an engaging lug, a dog pivotally arranged in said chamber of the reel, and means for causing said holding-dog to engage said holding-lug, substantially as and for the purposes set forth.

22. In a trolley catcher and retriever, the combination, with a casing, of a shaft, a reel arranged to rotate loosely upon said shaft, said reel being provided with a chambered part having a holding-lug, a disk secured upon said shaft, a dog pivotally connected with said disk, and means for causing said holding-dog to engage said holding-lug, substantially as and for the purposes set forth.

23. In a trolley catcher and retriever, the combination, with a casing, of a shaft, a reel arranged to rotate loosely upon said shaft, said reel being provided with a chambered part having a holding-lug, a disk secured upon said shaft, a dog pivotally connected with said disk, a finger extending from said dog, means for causing said holding-dog to engage said holding-lug, consisting of a second disk provided with a receiving depression in which said finger is normally at rest, and means for producing a movement of said second disk whereby said finger is removed from said receiving depression and the holding-dog is raised, substantially as and for the purposes set forth.

24. In a trolley catcher and retriever, the combination with a casing, of a shaft, a reel on said shaft, and a holding-dog disk on said shaft, within and independent from said casing, substantially as and for the purposes set forth.

25. In a trolley catcher and retriever, a shaft, a reel on said shaft, a holding-dog disk on said shaft, holding-dogs on said disk, a second disk on said shaft provided with means for raising said holding-dogs, outwardly-extending arms on said second disk, and centrifugal dogs on said reel for engagement with said disk-arms, substantially as and for the purposes set forth

26. In a trolley catcher and retriever, a shaft, a pinion on said shaft, and a gear in mesh with said pinion having a laterally-extending flange provided with a receiving depression, substantially as and for the purposes set forth.

27. In a trolley catcher and retriever, a shaft, a pinion on said shaft, and a gear in mesh with said pinion having a laterally-extending flange provided with a receiving depression, combined with an arm 70, and a holding-tooth on said arm resting in said receiving depression, substantially as and for the purposes set forth.

28. In a trolley catcher and retriever, the combination with a casing, of a reel, a holding-dog disk within and independent from said casing, and centrifugal engaging dogs on said reel, substantially as and for the purposes set forth.

29. In a trolley catcher and retriever, the combination with a casing, of a reel, a holding-dog disk within and independent from said casing, pivotal posts extending from the side of said reel, and a spring-controlled centrifugal dog on each post, substantially as and for the purposes set forth.

30. In a trolley catcher and retriever, a disk provided with a radially-extending arm, said disk being made with a laterally-extending flange having a receiving depression, a holding-dog having a lifting portion normally resting in said depression, a gear also provided with a laterally-extending flange having a receiving depression, and a holding-tooth on said disk-arm normally in holding engagement with the receiving depression of said gear, substantially as and for the purposes set forth.

31. The combination, with a support adapted to be secured to a car, said support comprising a casing having lug-receiving portions, and a pivoted latch having a holding end extending into one of said lug-receiving portions, of a trolley catcher and retriever comprising a casing, and holding-lugs on said casing extending into said lug-receiving portions of the support, one of said lugs being in separable holding engagement with the holding portion of said latch, substantially as and for the purposes set forth.

32. The combination, with a support adapted to be secured to a car, said support comprising a casing having lug-receiving portions, and a spring-controlled and pivoted latch having a holding end extending into one of said lug-receiving portions, and a finger-piece on said latch, of a trolley catcher and retriever comprising a casing, and holding-lugs on said casing extending into said lug-receiving portions of the support, one of said lugs being in separable holding engagement with the holding portion of said latch, substantially as and for the purposes set forth.

787,170. **INSTRUMENT FOR RENDERING VISIBLE THE LUMINOUS EFFECTS PRODUCED BY RADIO-ACTIVE SUBSTANCES.** FREDERICK H. GLEW, London, England. Filed Nov. 30, 1904. Serial No. 234,863.



Claim.—1. The combination of an eyepiece or lens, a radio-active substance, and a transparent and fluorescent or phosphorescent screen interposed or situated between the eyepiece or lens and the said radio-active substance with its fluorescent or phosphorescent surface directed toward or facing the same for the purpose specified.

2. The combination of an eyepiece or lens, a radio-active substance, a transparent body provided with a sensitive surface of fluorescent or phosphorescent material interposed or situated between the eyepiece or lens and the said radio-active substance with its sensitive surface directed toward or facing the same for the purpose specified.

3. The combination of an eyepiece or lens, a body provided with a radio-active surface, a transparent body interposed or situated between the eyepiece or lens and the said radio-active body and provided with a sensitive surface of fluorescent or phosphorescent material on the side facing the radio-active body, and means for connecting together said radio-active and sensitive bodies with a space between them substantially as and for the purpose described

4. The combination of an adjustable eyepiece or lens, a body provided with a radio-active surface, a transparent body interposed or situated between the eyepiece or lens and the said radio-active body and provided with a sensitive surface of fluorescent or phosphorescent material on the side facing the radio-active body, means for connecting together said radio-active and sensitive bodies with a space between them, and means for detachably connecting said radio-active and sensitive bodies to the eyepiece or lens substantially as and for the purpose described.

5. The combination of an adjustable eyepiece or lens, a body provided with a radio-active surface, a transparent body interposed or situated between the eyepiece or lens and the said radio-active body and provided with a sensitive surface of fluorescent or phosphorescent material on the side facing the radio-active body, means for connecting together said radio-active and sensitive bodies with a space between them and resilient fingers on the said adjustable eyepiece or lens for detachably connecting the said radio-active and sensitive bodies to the eyepiece or lens substantially as and for the purpose described.

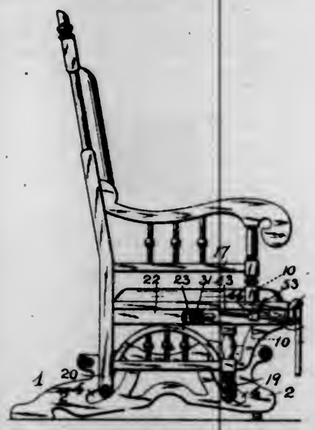
6. The combination of an eyepiece or lens, a body provided with a radio-active surface, a transparent body interposed or situated between the eyepiece or lens and the said radio-active body and provided with a sensitive surface of fluorescent or phosphorescent material on the side facing the radio-active body, means for connecting together said radio-active and sensitive bodies with a space between them, and a stencil adapted to lie within said space for the purpose specified.

787,171. **ROCKING-CHAIR.** GEORGE F. HALL, Newark, N. J. Filed July 2, 1903. Serial No. 164,005.

Claim.—1. In a rocking-chair, the combination, with a base, and a chair-body, of a suspension device for swinging said chair-body above the base, and a locking attachment for locking said chair-body in a fixed position, comprising a spring-plunger on said chair-body, said plunger being provided with an opening, a roller in said opening, a rod pivotally connected with said base, said rod being movably arranged upon said roller, and means for locking said plunger and rod in fixed holding engagement, substantially as and for the purposes set forth.

2. In a rocking-chair, the combination, with a base, and a chair-body, of a suspension device for swinging said chair-body above said base, and a locking attachment for locking said chair-body in a fixed position, comprising, a spring-plunger on said chair-body, said plunger being provided with an opening, a roller in said opening, a rod pivotally connected with said base, said rod being movably arranged upon said roller, and means for locking said rod and plun-

ger in fixed holding engagement, consisting of a stem connected with said plunger, and a cam-lever pivotally connected with said stem, substantially as and for the purposes set forth.



3. In a rocking-chair, the combination, with a base, and a chair-body, of a suspension device for swinging said chair-body above said base, and a locking attachment for locking said chair-body in a fixed position, comprising a cylinder, means at one end of said cylinder for attaching it to said chair-body, and having its opposite end open, a locking-sleeve connected with the open end portion of said cylinder, a spring-plunger in said opening, said plunger also having an opening, a roller in said opening, a rod pivotally connected with said base, said rod being movably arranged upon said roller, and means for locking said locking-sleeve and rod in fixed holding engagement, substantially as and for the purposes set forth.

4. In a rocking-chair, the combination, with a base, and a chair-body, of a suspension device for suspending said chair-body above said base, and a locking attachment for locking said chair-body in a fixed position, comprising a cylinder, means at one end of said cylinder for attaching it to said chair-body, and having its opposite end open, a locking-sleeve connected with the open end portion of said cylinder, a spring-plunger in said opening, said plunger also having an opening, a roller in said opening, a rod pivotally connected with said base, said rod being movably arranged upon said roller, and means for locking said locking-sleeve and rod in fixed holding engagement, consisting, of a stem connected with said plunger, and a cam-lever pivotally connected with said stem, substantially as and for the purposes set forth.

787,172. COMBINATION-TOOL. GEORGE E. HASSON, Toronto, Canada. Filed Mar. 2, 1904. Serial No. 196,211.



Claim.—1. A combination-tool comprising two body-pieces, slotted plates overlapping and interposed between the said body-pieces, screws having thumb-nuts passing through the said body pieces and slotted plates, graduations arranged on the plates and body-pieces, so that the graduations will be continuous when said plates are drawn outward, one end of each of the extension-plates being bent over at right angles, a scriber-point pivoted on the side face of the bent-over part, substantially as described.

2. A combination-tool comprising two body-pieces, overlapping slotted plates interposed between said body-pieces, a rib on the side face of one of said plates, said rib engaging with a groove in one of said body-pieces, said rib adapted to retain said plate in true alinement with the said body-pieces when drawn outward, fastening means to hold said parts assembled, and in sliding and pivotal relation to one another, substantially as specified.

3. In a combination-tool, two parallel body-pieces, two overlapping slotted extension-plates interposed between the body-pieces, a rib on the face of one of the said plates engaging in a groove in one of the said body-pieces, adjusting-screws passing through the ends of the said body-pieces, and the slots in the said plates, said plates being adaptable to be extended endwise, one of the plates adaptable to be set at any angle with the said body-pieces, and the other to be arranged at right angles with the said body-pieces, by the said rib engaging with the end of the body-piece, said plates adaptable of being held in any of the said positions by the said adjusting-screws, substantially as described.

4. A combination-tool comprising two parallel body-pieces, two overlapping extension-plates interposed between said body-pieces, said body-pieces and plates having graduations along their side faces, two pointed pivotal plates contained in a cut-away in one end of one of the said body-pieces, slots in the said extension-plates, and circular openings in the pivotal plates, fastening-screws passing through the ends of the said body-pieces and through the slots and openings in the said extension and pivotal plates, said extension and pivotal plates adaptable of being adjusted into various angles with the said body-pieces, and held in said positions by the said fastening-screws, substantially as described.

5. In a combination-tool, two parallel body-pieces, two overlapping slotted extension-plates interposed between said body-pieces, two pivotal plates interposed between said extension-plates and a cut-away section in one of the said body-pieces, said extension and pivotal plates held in divergent relations with the said body-pieces, by adjusting and fastening screws passing through the ends of the said body-pieces, and through the slots and circular openings in the said extension and pivotal plates, graduations arranged along the sides of the body-pieces and extension-plates, and degrees marked along the upper edges of the said body-pieces, substantially as described.

787,173. TIRE. GEORGE H. HASTINGS, Oporto, Portugal. Filed Sept. 12, 1902. Serial No. 123,184.



Claim.—1. The combination of a pneumatic tire having a broad flat substantially solid tread portion, of a broad flat band of whalebone intimately embedded therein and completely enveloped by said tread portion, substantially as described.

2. The combination with a pneumatic tire provided with an enlarged solid tread portion, of a flat band of whalebone intimately embedded within said solid tread portion and forming a substantial part of the interior thereof.

3. The combination with a pneumatic tire provided with an enlarged substantially solid tread portion, of a band of whalebone completely embedded within said tread portion, for protecting the tire from puncture and increasing the resiliency of the tread, whereby the tire is not deadened by the insertion of the puncture-proof material in the rubber composition.

4. The combination of a pneumatic tire, provided with a broad flat substantially solid tread portion, having a roughened surface, and a broad flat band of whalebone embedded within said solid tread portion, substantially as described.

787,174. SPRAYER FOR THE WOUNDS OF ANIMALS. MARY F. HAVENS, New York, N. Y. Filed July 25, 1904. Serial No. 218,025.

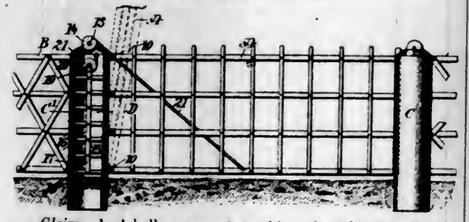
Claim.—1. A spraying device for the wounds of animals, comprising a receptacle, a conical spraying-body mounted on the receptacle and having a conical extension projecting within the receptacle, and a supply-tube extending from within the receptacle into the body to the contracted end thereof, said supply-tube being movable in said body.



2. A spraying device for the wounds of animals, comprising a receptacle, a conical spraying-body mounted on the receptacle and having a straight delivery end portion, a conical projection within the receptacle, and a supply-tube extending from within the receptacle into the body to a point closely adjacent to the straight delivery portion of the body, as described.

3. In a device for spraying the wounds of animals, a receptacle, a sprayer comprising a body, an extension from the body and a supply-tube, the said body being of conical shape, having its contracted end in straight form, the extension from the body being also of conical shape and contracted at the bottom, the said body having opposing side recesses therein connecting with the said portions of the body and leading into the extension from the body, the said supply-tube being passed loosely through the extension from the body and through the body to its straight delivery end, the supply-tube being also removably placed in the body.

787,175. VARIABLE COUNTERPOISE FOR GATES. JOHN HAWKESWORTH, New York, N. Y., and ROBERT A. MCCULLOCH, Orange, N. J. Filed Jan. 17, 1905. Serial No. 241,433.



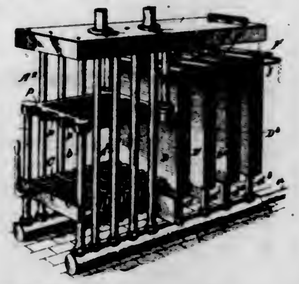
Claim.—1. A hollow support, an object pivoted to the said support for vertical movement, a counterpoise for the said object, comprising a free-hanging series of weights arranged in the hollow support, a permanent rest in the support for the lowermost weight, a roller-guide carried at the upper portion of the support, and a connection between the upper portion of the counterpoise and the lower portion of the said object carried by the support, the said connection passing over the said roller-guide.

2. A hollow post, an object mounted on the said post for pivotal movement in a vertical direction, a counterpoise suspended in the said post, consisting of flexibly-connected weights in disk form, a platform in the lower part of the post adapted to receive and support the weights in one position of the counterpoise, and a roller-guided connection between the counterpoise and the object carried by the said post.

3. A tubular post, a gate pivoted to the post and adapted for movement in a vertical direction and roller-bearings located at the upper portion of the post, a counterpoise consisting of a series of flexibly-connected hanging weights in disk form suspended in the tubular post, a fixed support in the lower part of said post for the lowermost weight of the series, the said weights being adapted as the gate is raised to successively rest one on the other when the lowermost weight has reached said fixed support, and a cable attached to the lower portion of the said gate, which cable passes over the said roller-bearing and into the hollow post to a connection with the upper portion of the counterpoise, for the purpose set forth.

787,176. WATER-HEATER WITH GARBAGE-BURNER. MICHAEL E. HERBERT, Chicago, Ill. Filed July 12, 1904. Serial No. 216,205.

Claim.—1. A water-heating furnace, comprising upper and lower water-chambers, a main grate arranged between the same, a supplemental water-grate arranged in elevated position above the main grate and between it and the upper water-chamber, circulation-pipes connecting one end of the water-grate to the lower water-chamber and the other end of the water-grate to the upper water-chamber, and vertical circulation-pipes arranged at the side of the two grates and connecting the upper and lower water-chambers substantially as described.



2. A water-heater having two grates, the upper one being a water-grate connected, for circulation, with the water-spaces and having in rear of the same hollow upright partitions also connected, for circulation, with the water-spaces and having dampers above and baffle-plates below substantially as and for the purpose described.

3. A water-heating furnace comprising upper and lower water-chambers, a main fuel-grate and a water-grate located above the main grate and formed in one piece and provided with clean-out plugs in its end and combined with and exclusively supported by standing circulating-pipes at its front end connecting with the lower water-chamber and by suspended circulation-pipes at its rear end connecting with the upper water-chamber substantially as and for the purpose described.

4. A water-heater having two grates, the upper one being a water-grate connected for circulation with the water-spaces and having in rear of the same hollow upright partitions also connected for circulation with the water-spaces and means for causing the fire-currents to circulate between the hollow upright partitions substantially as described.

787,177. BUTTONHOLE-SEWING MACHINE. JAMES T. HOGAN, Jersey City, N. J., assignor to The National Machine Company, Mamaroneck, N. Y., a Corporation of New York. Filed Nov. 18, 1904. Serial No. 233,246.

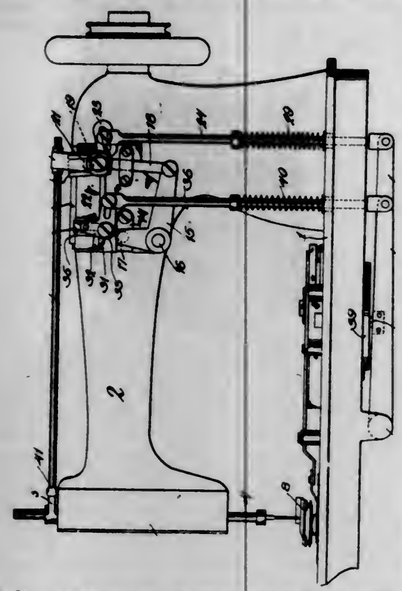
Claim.—1. In a sewing-machine, the combination with switch-forming mechanism, including a vertically-reciprocating needle-bar of an angularly-arranged guideway, a slide guided thereby, means connecting said slide with said needle-bar, means for reciprocating said slide and guideway with respect to each other to transmit jogging movements to the needle-bar for producing overseaming side stitches, and means for increasing the amplitude of the jogging movements thus imparted, to produce end barring-stitches.

2. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway rotatably mounted, a slide guided thereby, means connecting said slide with said needle-bar, means for reciprocating said slide along said guideway to transmit jogging movements to the needle-bar for producing overseaming side stitches, and means for rotatably moving the guideway to angularly adjust same, whereby the amplitude of the jogging movements imparted to the needle-bar may be increased to produce end barring-stitches.

3. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating and laterally-vibrating needle-bar, of an angularly-arranged guideway, a slide guided thereby, said slide connected with said needle-bar, means for reciprocating said slide along the guideway to produce the laterally-vibrating movements of the needle-bar, and means automatically controlled in the operation of the machine for angularly adjusting the guideway, thereby regulating the amplitude of the lateral movements imparted to the needle-bar.

4. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a slide guided thereby, means con-

necting said slide with said needle-bar, means for reciprocating said slide along said guideway to transmit jogging movements to the needle-bar for producing side stitches, and a cam for angularly adjusting the guideway, whereby the amplitude of the jogging movements thus imparted may be increased to produce end barring-stitches.



5. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating and laterally-vibrating needle-bar, and a work-clamp for presenting the work for stitching, of an angularly-arranged guideway, a slide guided thereby, said slide connected with said needle-bar, means for reciprocating said slide along said guideway to produce the laterally-vibrating movements of the needle-bar, a feed-wheel for controlling the position of said work-clamp, and a cam operated from said feed-wheel for angularly adjusting the guide to vary the amplitude of the lateral movements imparted to the needle-bar.

6. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocatng needle-bar, of an angularly-arranged and pivotally-mounted guideway, a slide guided thereby, means connecting said slide with said needle-bar, means for reciprocating said slide along said guideway to transmit jogging movements to the needle-bar, means connecting with said guideway for angularly adjusting same to vary the amplitude of the said jogging movements, said means capable of manual adjustment with respect to said guideway, substantially as set forth.

7. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a slide guided thereby, means connecting said slide with said needle-bar, means for reciprocating said slide and guideway with respect to each other to transmit jogging movements to the needle-bar for producing overseaming-stitches, and means for shifting the position of the needle and work laterally with relation to each other to vary the field of such jogging movements.

8. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a support therefor, a slide for said guideway, means connecting said slide with said needle-bar, means for reciprocating said slide and guideway with respect to each other to transmit jogging movements to the needle-bar for producing overseaming-stitches, and means for laterally shifting the support for said guideway, thereby shifting the field of operation of the said jogging movements.

9. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a support therefor, a slide for said guideway, means connecting said slide with said needle-bar, means for reciprocating said slide and guideway with respect to each other to transmit jogging movements to the needle-bar for producing overseaming-stitches, a cam, and means operated thereby for laterally shifting the support for said guideway, thereby shifting the field of operation of said jogging movements.

10. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a laterally-movable support upon which said guideway is pivotally mounted, a slide for said guideway, means connecting said slide with said needle-bar, means for reciprocating said slide along said guideway to produce overseaming-stitches, a feed-wheel, a cam operated thereby, and means intermediate said cam and said guideway-support for laterally moving same to vary the field of operation of the said jogging means.

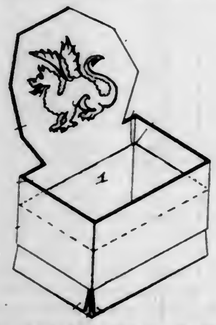
11. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a support therefor, a slide for said guideway, means connecting said slide with said needle-bar, means for reciprocating said slide and guideway with respect to each other to transmit jogging movements to the needle-bar for producing overseaming-stitches, and means for laterally shifting the support for said guideway, thereby shifting the field of operation of the said jogging movements, said means manually adjustable for adjusting the extent of shifting movement imparted upon a movement thereof.

12. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating needle-bar, of an angularly-arranged guideway, a support therefor, a slide for said guideway, means connecting said slide with said needle-bar, means for reciprocating said slide along said guideway to transmit jogging movements to the needle-bar for producing overseaming side stitches, means for angularly adjusting the said guideway to vary the amplitude of the jogging movements, whereby end barring-stitches may be produced, and means for laterally shifting the support for said guideway for shifting the field of operation of the said jogging movements.

13. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating and laterally-vibrating needle-bar, of an angularly-arranged guideway, a support upon which said guideway is pivotally mounted, a slide for said guideway, means connecting said slide with said needle-bar, means for reciprocating said slide along said guideway to produce the laterally-vibrating movements of said needle-bar, a feed-wheel, and cams controlled in their movements therefrom for angularly adjusting the guideway, and for laterally shifting the support therefor

14. In a sewing-machine, the combination with stitch-forming mechanism, including a vertically-reciprocating and laterally-vibrating needle-bar, of an angularly-arranged guideway, a slide therefor, means for connecting said slide with said needle-bar, a cam, a vibrating member operated by said cam, a link connecting said vibrating member with said slide, a feed-wheel, and means controlled therefrom for angularly adjusting the guideway.

787,178. ADVERTISING DEVICE. WILLIAM B. HOPKINS, Washington, D. C. Filed June 25, 1904. Serial No. 214,161.

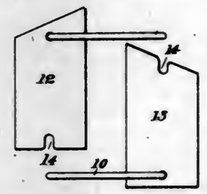


Claim.—1. A box-like advertising device comprising a continuous frame adapted to be folded flat and to be unfolded for purposes of inclosing articles of merchandise, and a standard projecting from the side edge of the frame for advertising the merchandise.

2. A box-like advertising device comprising a flat-folding frame adapted to be unfolded to stand independently, and a standard projecting from the edge of the frame and containing an advertisement.

3. A box-like advertising device comprising a foldable independent stand or frame adapted to be slipped over a box to hold the cover of the latter open, and an advertising-standard projecting from one side of the frame.

787,179. LINER FOR CENTRIFUGAL SEPARATORS. CARL A. HULT and OSCAR W. HULT, Stockholm, Sweden. Filed Feb. 5, 1904. Serial No. 192,143.



Claim.—1. A liner for a centrifugal separator, having a series of blades disposed in a circle and obliquely to the radius of the said circle, and an annular guide and connector on which said blades are loosely threaded, the blades being slidable on said ring so as to be adjustable toward and from each other.

2. A liner for a centrifugal separator, having a plurality of blades slidably connected together by a blade-connector and intersecting the radii of the inclosing bowl, said connector being threaded through the several blades and openable to permit of inserting its end through said blades.

3. A liner for a centrifugal separator, having a plurality of blades intersecting the radial line of the inclosing bowl, and a blade-connector made up of two or more articulated parts and threaded through the several blades, the latter being freely slidable along the connector.

4. A liner for a centrifugal separator, having a plurality of blades intersecting the radii of the containing-bowl, and a blade-connector threaded through holes in the several blades, said holes being situated near the outer edges of the blades.

5. A liner for a centrifugal separator, having a plurality of substantially upright blades intersecting the radial line of the bowl, and a blade-connector threaded through coincident apertures in the several blades, said connector being of ring-like form and the blades being freely slidable along the same.

6. A liner for a centrifugal separator, having a plurality of blades intersecting the radial line of the bowl, and a blade-connector threaded through coincident apertures in the blades near their outer edges, the end blades of the series being connected at their inner edges and the blades being slidable along the connector.

7. A liner for a centrifugal separator, having a plurality of substantially upright blades intersecting the radial line of the bowl, and a flexible blade-connector threaded through coincident apertures in the said blades, said apertures being situated near the outer edges of the blades.

8. A liner for a centrifugal separator, comprising a plurality of upright blades intersecting the radial line of the bowl, and having distancing-edgings on their upper and lower ends, and a blade-connector slidably threaded through said blades.

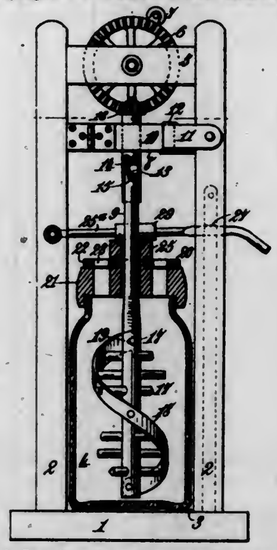
9. A liner for a centrifugal separator, having a plurality of substantially upright blades intersecting the radii of the inclosing bowl, said blades having means for distancing them and ways or apertures at their lower edges for the flow of the liquid beneath, and means for slidably connecting the blades.

10. A liner for a centrifugal separator, having a complete set of substantially upright blades intersecting the radii of the inclosing bowl, means carried by the blades for spacing or distancing them, and a blade-connector threaded through coincident apertures in the blades, and inclosed at its ends, the said blades being slidable on the connector.

11. Means for the purpose specified, comprising a bowl provided at its bottom with a depression 24, a central inlet-pipe provided with holes 26, a plurality of upright blades intersecting the radii of said bowl, said blades having distancing-edgings and passages at their lower edges for the milk, and a blade-connector which slidably connects the blades of the series.

12. Means for the purpose specified, comprising a bowl provided with an inlet-pipe 5, having apertures 26, an annular depression 24 in its bottom, and the collar 25, a plurality of upright, curved blades intersecting the radii of the inclosing bowl, said blades having distancing-edgings, and passages formed in their lower edges, and means for slidably connecting together the said blades.

787,180. CHURN. HENRY H. HUNTER and STEWART L. HUNTER, Berkeley Springs, W. Va. Filed Dec. 1, 1904. Serial No. 235,004.



Claim.—1. In a churn, in combination with a churning vessel, a cap adapted to fit over the same and provided with apertures, a disk rotatably mounted on said cap and provided with apertures adapted to be brought into and out of alinement with the apertures in the cap, a collar secured to said cap and located above said disk, a lever adapted to engage said collar, a dasher in said vessel, and means for rotating said dasher.

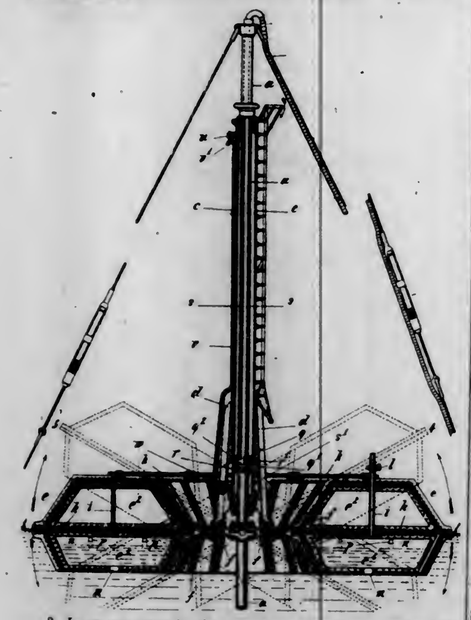
2. In a churn, in combination with a churning vessel, a shaft extending into the same, means for rotating said shaft, and a dasher mounted on said shaft comprising a series of spirally-arranged transverse blades each of which is mounted at one end in a strip and having their opposite end portions provided with knife-edges on one side.

787,181. WAVE-MOTOR. JOHN HUTCHINGS, London, England. Filed Jan. 30, 1905. Serial No. 243,358.

Claim.—1. An apparatus for applying motive power derived from the rise and fall of the waves of the sea and like movements of water and for transmitting such power to the pistons and cylinders of pumps for use in forcing fluids, consisting of a floating vessel subject to movements of the medium it floats in, a mast, fixed at base in the bed of the water-channel and passing up through the float, means—as guy-ropes and anchors—for maintaining the mast in upright position, a piston and piston-valves fixed on the mast, as on a piston-rod; a discharge-passage through said mast for conveying away to any suitable place for utilization the fluid compressed, a cylinder surrounding the piston portion of the mast and packings above and below the piston to make tight joints between cylinder and piston-support, an intake-pipe for air-delivering below the piston and a like intake-pipe delivering above the piston, each provided with non-return valves, gimbal-bearings supporting said floating vessel, and an annular bearing connected to the gimbal and surrounding the mast and cylinder to keep the parts in relative position, and means for adjusting the quantity of water-ballast contained in the water-chamber of the floating vessel for equalizing the upward and downward pressures of the cylinder upon the contained fluid.

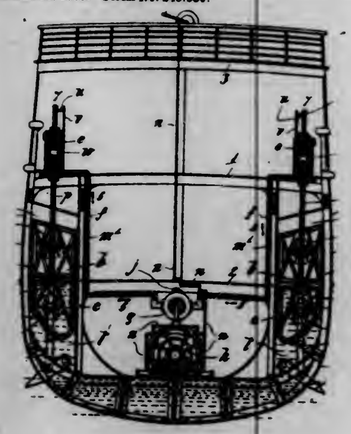
2. In an apparatus for generating motive power from the movements of water a piston supported on a mast as a piston-rod and fitted in a cylinder, valves and intakes for controlling and supplying fluid to be forced, means for rigidly supporting the mast in position in the

water, means for delivering and controlling the delivery of the forced fluid in combination with a buoyant vessel connected to and giving reciprocatory motions to the pump-cylinder as that vessel is raised and lowered by the rise and fall of the water in which it floats, gimbal-bearings connecting said buoyant vessel and the cylinder directly, so as to exert the force of the rise and fall of the buoy directly upon the fluid forced and means for adjustably weighting said buoyant vessel.



3. In an apparatus for the generation of motive power from the movements of rising and falling water a piston, a fixed support for said piston, rising through the water, and means for staying said support in fixed position in combination with a buoyant vessel borne upon the rising and falling water, a cylinder fitting said piston and provided with packings which close it above and below the pistons, intakes and valves controlling same, outlets and valves controlling delivery and a cradle connection with gimbals to connect the rising and falling and rocking buoyant vessel with the pump-cylinder to impart to it reciprocations directly and positively.

787,182. **WAVE-MOTOR.** JOHN HUTCHINGS, London, England. Filed Jan. 30, 1905. Serial No. 243,359.



Claim.—1. An apparatus for the generation of motive power from the rising-and-falling wave motions of water, consisting of a floating vessel, compartmented chambers in said vessel, floating ballasted buoys floating on water inclosed in said chambers, pistons and piston-rods reciprocated by said buoys and cylinders fitting said pistons and affixed to the vessel so that relative movements of the vessel and the said buoys are directly and positively conveyed thereby respectively to the pistons and cylinders, so as to exert pressure on any fluid in said cylinders and means for supply and delivery of such fluid to and from said cylinder and for control thereof, free passages in the vessel from the chambers to the outside body of water, means for guiding the piston-rod, and means for adjusting the ballast in the floating buoys.

2. An apparatus for the generation of motive power from the rising-and-falling wave motions of water, consisting of a floating vessel, compartmented chambers in said vessel, floating ballasted buoys floating on water inclosed in said chambers, pistons and piston-rods reciprocated by said buoys, and cylinders fitting said pistons and affixed to the vessels so that relative movements of the vessel and the said buoys are directly and positively conveyed thereby respectively to the pistons and cylinders, so as to exert pressure on any fluid in said cylinders and means for supply and delivery of such fluid to and from said cylinder and for control thereof, free passages in the vessel from the chambers to the outside body of water, means for guiding the piston-rod, and means for adjusting the ballast in the floating buoys, and a series of hinged bilge-keel boards, and a series of link connections, one such connection between each said board and each said ballasted buoy.

3. In a motor-power-generating apparatus, a water-borne vessel, chambers in said vessel freely communicating with the outside body of water, a motor, means for conveying motive fluid under pressure to said motor, valves to control such conveyance and delivery, a cylinder mounted in said vessel so as to partake of any motions imparted to it by the waves in combination with a piston reciprocated in said cylinder, a piston-rod carrying said piston and reciprocating in packed bearings provided on the vessel, and in guides carried by the framing thereof, buoyant ballasted floats rising and falling on the water within the chambers and rigidly connected to the piston-rods, means for adjusting the ballast in the floats and for controlling the motions of said floats.

4. In a wave-motion motive-power-generating apparatus a buoyant vessel divided into air and water compartments, a hollow rod communicating between the top of the said water-compartment and the atmosphere, a non-return valve and locking-cap controlling the escape of air therethrough, a piston mounted on said rod and a cylinder coöperating with said piston to force fluid through valve-controlled passages to the point where it is to be utilized.

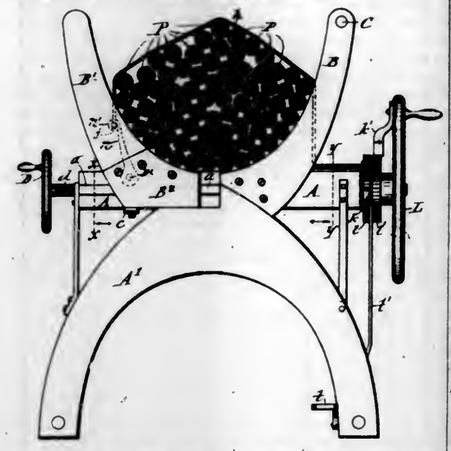
5. In apparatus for compressing aeriform bodies and forcing fluids for storage and motive power a floating vessel and a water-ballasted buoy, the one carrying a piston and the other carrying a cylinder for the former to reciprocatorily coöperate with, means for conveying the forced fluid to a receiving vessel and for its application as a motive power.

6. In apparatus for forcing fluids a floating vessel—such as a ship—chambers therein accessible to the sustaining body of water and to the atmosphere, floats buoyed upon said water, chambers in said floats respectively imprisoning air and water therein, means of communication between said water-chamber and the atmosphere and means for conveying the relative reciprocatory motions of the floating vessel and its contained floats to pistons and cylinders respectively connected thereto, pipes for conveying and valves for controlling the flow of the fluid being forced through said pipes to any suitable means for utilizing the same as motive power.

787,183. **BUNDLING APPARATUS.** JAMES H. IRVING, Syracuse, N. Y. Filed Sept. 30, 1904. Serial No. 226,723.

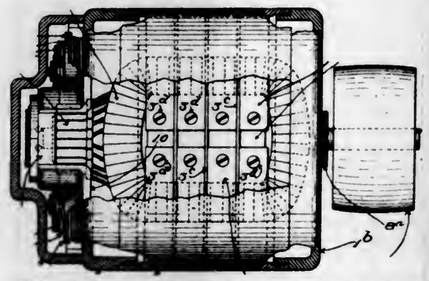
Claim.—1. A bundling apparatus comprising a supporting-frame, two pairs of arms mounted on said frame and disposed to receive between the arms of each pair the rolls to be bundled, drums pivotally supported on the frame, means for rotating said drums, chains or their described equivalent connected at one end to said drums and a yoke connected to the supporting-frame and provided with means for connecting thereto the free ends of the chains or their equivalents.

2. A bundling apparatus comprising a supporting-frame, two pairs of arms mounted on said frame and disposed to receive between the arms of each pair the rolls to be bundled, a shaft disposed longitudinally in the center of the supporting-frame, a gear attached to one end of said shaft, means applied to the opposite end of the shaft for turning it, shafts at opposite sides of and parallel with the central shaft, pinions on said side shafts engaging the gear of the central shaft, drums mounted on the side shafts, chains or their described equivalents attached at one end respectively to the drums, a cross-bar attached to the free ends of said chains or their equivalents, a yoke connected to the frame and provided with means for connecting to it the aforesaid cross-bar, a ratchet-wheel attached to the central shaft, and a dog engaging said ratchet-wheel and preventing retrograde movement of the shaft, as set forth.



3. The combination with the supporting-frame provided with longitudinal tongues, arms rigidly attached to said frame at one side the center of its length, arms provided with grooves receiving through them the aforesaid tongues, a cross-bar attached to the grooved arms and provided with a screw-threaded sleeve, an adjusting-screw passing through said sleeve and restrained from longitudinal movement, chains or their equivalents adapted to be placed over the articles placed on the aforesaid arms, and means for tightening said chains or equivalents and compressing the aforesaid articles into a compact bundle, as set forth.

787,184. **DYNAMO.** EDWARD B. JACOBSON, Pittsfield, Mass., assignor to Pittsfield Spark Coil Company, Pittsfield, Mass., a Corporation of Massachusetts. Filed Jan. 27, 1904. Serial No. 190,813.



Claim.—1. In a dynamo, in combination, the armature, the casing having a body or shell, and the field organization comprising, essentially, the poles, field-coils, and opposite segmental yokes joining the said poles together, the said field organization having exteriorly a sliding fit within the said body or shell, and adapted as a united whole to be inserted or removed by an endwise movement.

2. In a dynamo, in combination, the armature, the casing having a body or shell and provided with removable end sections having bearings for the journals of the said armature, and the field organization comprising, essentially, the poles, field-coils, and opposite segmental yokes joining the said poles together, the said field organization having exteriorly a sliding fit within the said body or shell, and adapted as a united whole to be inserted or removed by an endwise movement.

3. In a dynamo, in combination, the casing having a cylindrical body or shell, and the field organization, cylindrical in exterior cross-section and comprising, essentially, the poles, the field-coils, and the opposite circular segmental yokes joining the said poles together, the said field organization having a sliding fit within the said body or shell, and adapted as a united whole to be inserted or removed by an endwise movement.

4. The combination with an armature, and a field organization, of the main or body section of the casing, inclosing and supporting the field organization, the head end section and brush-section removably applied to the opposite ends of the said main or body section and provided with bearings for the armature, the brushes carried by the said brush-section, and the end cap covering the brushes and exposing the latter by its removal.

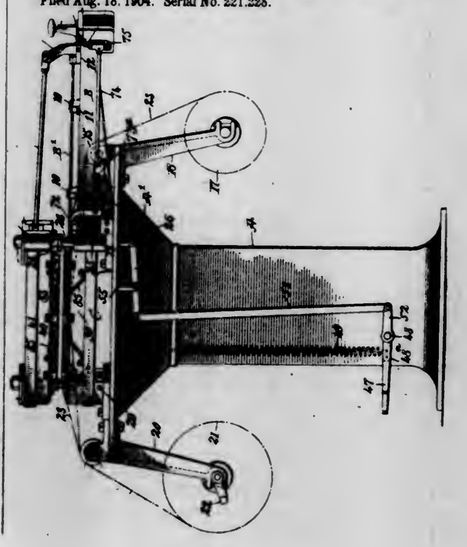
5. The combination with an armature, and a field organization, of the main or body section of the casing, inclosing and supporting the field organization, the head end section removably applied to one end of the said main or body portion and provided with a bearing for the armature, the brush-section removably applied to the other end of the said main or body section and provided with a transverse web having a bearing for the armature, the brushes mounted upon the said web, and the end cap covering the brushes and exposing the latter by its removal.

6. The combination with the armature, the main or body section of the casing, the head end section and brush-section removably applied to the opposite ends of said main or body section and respectively provided with bearings for the armature, the brushes applied to the said brush-section, and the end cap covering the brushes and exposing the latter by its removal, of the removable field organization having a sliding fit within the said main or body portion of the casing and comprising, essentially, the poles, the segmental yokes joining the poles, and the field-coils.

7. The combination with the rotating armature, the poles grooved transversely at their outer ends, and the field-coils surrounding the said poles, of the opposite segmental yokes consisting of strips located side by side and having the ends thereof seated in the grooves of the respective poles and between the raised partitions produced by the grooving.

8. The combination with the rotating armature, the poles grooved transversely at their outer ends, and the field-coils surrounding the said poles, of the opposite segmental yokes consisting of strips located side by side and having the ends thereof seated in the grooves of the respective poles and between the raised partitions produced by the grooving, and the screws securing the said ends to the poles.

787,185. **MACHINE FOR INSERTING DIAGONAL STRANDS IN WOVEN CANE FABRIC.** FREDERICK H. JANSON, New York, N. Y., assignor to American Rattan & Reed Mfg. Co., Brooklyn, N. Y. Filed Aug. 18, 1904. Serial No. 221,228.



Claim.—1. In a machine for inserting diagonal strands in woven cane fabric, supports one of which is movable to and from the other, conjointly and oppositely operating sets of pin devices loosely mounted in the supports, the pins of one set acting to depress the warp-strands while the pins of the other set raise the weft-strands, a needle which carries the strand to be diagonally placed, and means for moving the needle concertedly with the action of the said devices, passing over the depressed warp-strands and under the raised weft-strands.

2. In a machine for inserting diagonal strands in woven cane fabrics, bars, means for moving the bars one toward the other, pins movable in the bars, adapted to pass through the meshes of the fabric, and fingers carried by the pins, one set of fingers being adapted to depress the warp-strands and the other set to raise the weft-strands.

3. In a machine for inserting diagonal strands in woven cane fabrics, bars, means for moving the bars one toward the other, pins movable in the bars, adapted to pass through the meshes of the fabric, fingers carried by the pins, one set of fingers being adapted to depress the warp-strands and the other set to raise the weft-strands, and independent yet concertedly operating means for lifting action on one set of pins and depressing the pins of the other set.

4. In a machine for inserting diagonal strands in woven cane fabric, upper and lower bars, one adjustable relative to the other, a series of pins carried by each bar, the pins of one bar being adapted to enter openings in the opposing bar, fingers located on the pins of each bar and inclined in opposite directions, the fingers of the lower bar having diagonal recesses in their upper faces and the fingers of the upper bar having similar recesses in their under faces, a needle arranged to be guided through the combined recesses of all of the fingers, and means for depressing the upper fingers and raising the lower fingers in pairs to depress the warp-strands and raise the weft-strands.

5. In a machine for inserting diagonal strands in woven cane fabric, upper and lower bars, one adjustable relative to the other, a series of pins carried by each bar, the pins of one bar being adapted to enter openings in the opposing bar, fingers located on the pins of each bar, but inclined in opposite directions, the fingers of the lower bar having diagonal recesses in their upper faces, and the fingers of the upper bar having similar recesses in their under faces, a needle arranged to be guided through the combined recesses of all of the fingers, and means for depressing the upper fingers and raising the lower fingers in pairs to depress the warp-strands and raise the weft-strands, which means have movement slightly in front of the eye of the needle and movement concertedly with the needle.

6. In machines for inserting diagonal strands in woven cane fabric, a lower bar having a zigzag groove longitudinally located therein, pins at the pointed portions of one side of the groove, openings being provided at the points of the groove at the opposite side, slotted fingers carried by the pins, all inclined in the same direction and entering corresponding stretches of the groove, a mating bar having pins to enter the openings in the bottom bar and openings to receive the pins of the lower bar, the upper pins having fingers oppositely inclined to those on the lower bar, being adapted in action to reach points over the said groove.

7. In machines for inserting diagonal strands in woven cane fabric, a lower bar having a zigzag groove longitudinally located therein, pins at the pointed portions of one side of the groove, openings being provided at the points of the groove at the opposite side, slotted fingers carried by the pins, all inclined in the same direction and entering corresponding stretches in the groove, a mating bar having pins to enter the openings in the bottom bar and openings to receive the pins of the lower bar, the upper pins having fingers oppositely inclined to those on the lower bar and being adapted in action to reach points over the said groove, all of said fingers having corresponding recesses in their vertically-opposing faces, and a needle and means for moving the needle through said recesses.

8. In a machine for inserting diagonal strands in woven cane fabric, a pin, a support in which the pin has movement, and a finger extending from the pin and having a recess in one of its faces.

9. In a machine for inserting diagonal strands in woven cane fabric, upper and lower bars, means for moving one of the bars, pins having movement in the said bars, a track adjacent to the outer ends of the pins, rollers supported by the said tracks, which rollers are in substantially vertical alinement and are adapted to engage with the inner ends of the said pins, a needle adapted to pass along the lower bar between the pins, an actuating device for the needle, and means controlled by said device for simultaneously imparting movement to the rollers on their tracks.

10. In a machine for inserting diagonal strands in woven cane fabric, upper and lower boxes, bars removably located in said boxes, pins having movement in said bars, extending out below the bottom of the upper bar and above the top of the lower, fingers carried by the pins, rollers, means for moving said rollers in the said boxes in engagement with the outer ends of the pins, the rollers being in substantially vertical alinement, a needle the head of which is just to the rear of the said rollers, a device for operating the needle, and means operated by said device for imparting rolling motion to the rollers.

11. In a machine for inserting diagonal strands in woven fabric, bars between which the fabric is placed, pins sliding in the said bars, adapted to pass through the meshes of the fabric, fingers carried by the said pins, the fingers of the upper pins acting to depress the warp-strands and the fingers of the lower pins to elevate the weft-strands, a needle having guided movement through the fingers, an actuating device for the needle, and means for pressing on the outer ends of the pins simultaneously in pairs, the said means for operating the pins having concerted movement with the needle and occupying a position in advance of the needle-point.

12. In machines for inserting diagonal strands in woven cane fabrics, upper and lower bars, one having movement relative to the other, depressing and elevating devices carried by the said bars, guards having sliding movement on the side faces of the bars where the said devices are located, and springs bearing against the said guards, the guards acting to clamp the fabric when the bars are brought together, and as the bars are separated to strip the fabric from the retaining means.

13. In machines for inserting diagonal strands in woven cane fabric, upper and lower pin-carrying bars, means for carrying one bar in direction of the other, guards having limited movement on the said faces of the bars at their pin-carrying surfaces, springs on the upper bar having downward pressure on the upper guards, and springs on the lower bar having upward pressure on the lower guards, the working faces of the guards being normally held, those of the upper bar below the pin-carrying faces and those of the lower bar above the pin-carrying faces.

14. In a machine for inserting diagonal strands in woven cane fabrics, bars, means for moving one bar to and from the other, pins movable in the bars, the movement of the pins being to and from opposing bars, said bars being apertured to receive opposing pins, offsets from the pins, acting one set to depress warp-strands and the other set to raise weft-strands, and independent and concertedly operating roller devices having lifting action on one set of pins and depressing action on the other set.

15. In a machine for inserting diagonal strands in woven cane fabric, a support, a pin having movement in the support, and an offset from the pin having a needle-path therein.

16. In a machine for inserting diagonal strands in woven cane fabric, a centering-pin adapted to enter an opening in the cane fabric, and an offset carried by the pin, which offset operates upon a strand of the fabric to raise or to depress the same.

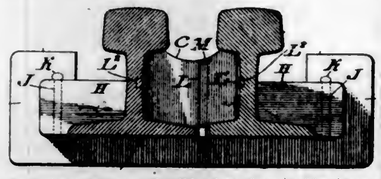
17. In a machine for inserting diagonal strands in woven cane fabrics, an upper and a lower bar, means for moving one bar to and from the other, the fixed bar having a needle-path therein, pins movable in the said bars, acting at opposite sides of the needle-path, each bar having recesses to receive the pins of the opposing bar, offsets from the pins, and devices exerting lifting action on one set of pins and depressing action upon the other set.

18. In a machine for inserting diagonal strands in woven cane fabrics, an upper and a lower bar, means for moving one bar to and from the other, the fixed bar having a needle-path therein, pins movable in the said bar, acting at opposite sides of the needle-path, each bar having recesses to receive the pins of the opposing bar, offsets from the pins, a needle mounted to travel in said needle-path, and devices which act independently yet concertedly upon the pins, lifting one set and depressing the other, said devices being in alinement with the eye of the needle, and means for operatively connecting said devices with the needle.

787,186. **RAILROAD-RAIL-GUARD CLAMP.** EDWARD H. JOHNSTON, Philadelphia, Pa. Filed Oct. 3, 1904. Serial No. 226,893.

Claim.—1. In a guard-rail clamp, a clamp having a side member, an inturned top member and a base member, a cheek-piece resting on said base member and embraced by said side and top members, said cheek-piece having an opening therein and being adapted to contact with the side of a rail, means for imparting pressure to said cheek-piece laterally against said rail and a pin adapted to enter said opening and engage a member of said clamp for preventing disengaging movement of said cheek-piece.

2. In a guard-rail clamp, a clamp having a side member, an inturned top member and a base member and a cheek-piece resting on said base member and embraced by said side and top members, said cheek-piece having an opening therein being adapted to contact with the side of a rail, the places of side contact of said clamp and cheek-piece being wedging and a pin adapted to enter said opening and engage with the member of said clamp.



3. A clamp for a guard-rail having a base, a side piece and a top inturned lip, a cheek-piece adapted to be interposed between said side and the rail and provided with a series of openings, said side and cheek pieces having wedging contact-surfaces and a pin adapted to fit in either of said openings and engage a member of said clamp.

4. A railroad-rail and a guard-rail, a filling-piece between said rails, cheek-pieces on the outer sides of the webs of said rails, a clamp having side members adapted to wedge with said cheek-piece and forcibly hold the same against the rails, and means on said filling-piece and rail for interlocking said piece with said rail.

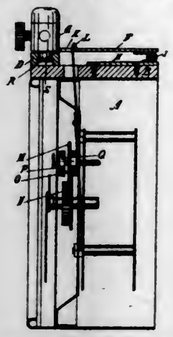
5. A railroad-rail and a guard-rail and a clamp therefor composed of a base on which said rails rest, sides rising from said base and inturned lips at the top of said sides, said lips embracing the upper faces of said cheek-pieces and said sides and cheek-pieces having wedging contact-surfaces, means for interlocking said filling-piece with the base of said clamp and a pin adapted to enter said cheek-piece and engage the adjacent member of said clamp.

6. In a guard-rail clamp, a cheek-piece having an exterior tapering side, a clamp embracing said cheek-piece and having inturned tapering sides, said sides contacting with said cheek-piece and the latter bearing against the side of the rail, a filling-piece between the rails and means for interlocking said piece with the base of said clamp, the flanges of the rails having a channel between them for the passage of said means therethrough.

7. In a guard-rail clamp, a clamp having a side member, an inturned top member and a base member, a cheek-piece resting on said base member and embraced by said side and top members, said cheek-piece being adapted to contact with the side of a rail, means for imparting pressure to said cheek-piece laterally against said rail, and an opening in said cheek-piece and a pin in said opening engaging the adjacent member of said clamp for preventing releasing motion of said cheek-piece.

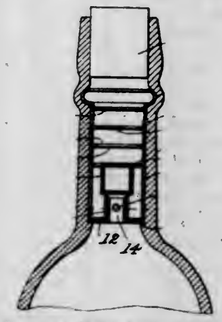
8. In a guard-rail clamp, a filling-piece, a laterally-projecting stud on said piece and a rail having a recess in the side of its web, said stud being adapted to enter said recess and thereby interlock said piece with said rail.

787,187. **ELECTRIC TIME-SWITCH.** ROBERT D. JONES, San Antonio, Tex. Filed Oct. 1, 1903. Serial No. 175,350.



Claim.—In an electric time-switch of the class described the combination with wheel M having a pin O, and the disk P, with a corresponding notch Q, a hook L, operated by the disk P, and wheel M, a contact-piece D, with a pin R, in center, and a flat spring S, a contact-piece F, having a square hole K, and hinged to another flat piece H, a coil-spring I located between the hinge, all set forth and described.

787,188. **NON-REFILLABLE BOTTLE.** GEORGE T. KENLY, Baltimore, Md., assignor of one-third to Francis V. Meale and one-third to Charles L. Forbes, Baltimore, Md. Filed Sept. 20, 1904. Serial No. 225,179.

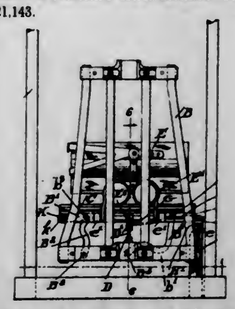


Claim.—1. In a non-refillable bottle, the combination with the neck thereof, of a tight inclosed cylinder having an outwardly-opening valve at its bottom, and a series of separated baffle-disks the same consisting of plates with openings therein, and arranged with one disk turned circumferentially with respect to an adjacent one whereby the size of the opening as seen from the top of the disk is reduced, and with the whole series of disks, entirely closed, and a circuitous passage leading to the valve produced, substantially as specified.

2. In a non-refillable bottle, the combination with the neck thereof, of a tight inclosed cylinder having an outwardly-opening valve at its bottom, and a series of separated baffle-disks the same consisting of plates with segmental openings therein, and arranged with one disk turned circumferentially with respect to and adjacent one whereby the size of the opening as seen from the top of the disks is reduced, and with the whole series of disks, entirely closed, and a circuitous passage leading to the valve produced, substantially as specified.

3. In a non-refillable bottle, the combination with the neck thereof, of a tight cylinder having a cylindrical open-top extension leading from its bottom, the same having perforations in its wall, a cylindrical valve which fits over the said cylindrical extension of the cylinder-bottom, a perforated plate situated over the valve, carrying a guide for the valve, and a series of separated baffle-disks which are placed over the said perforated plate, substantially as specified.

787,189. **MINER'S DUMPING-CAGE.** JULIA KERST, Springfield, Ill., administratrix of Fredrick C. Kerst, deceased. Filed Aug. 17, 1904. Serial No. 221,143.



Claim.—1. In an apparatus of the class described, the combination of a cage, a tilting platform mounted on said cage, oscillative shafts on said platform, a lever connected with one of said shafts, a stop with which said lever engages, keepers on said shafts adapted to fit around the wheels of a car, arms secured to said shafts, and a lever mounted on the platform and connected with said arms, as set forth.

2. In an apparatus of the class described, the combination of a

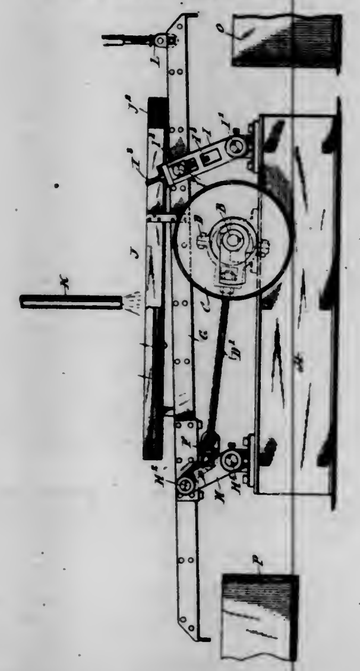
cage, rods transverse to said cage, pipes surrounding said rods and having tapering ends, rocking arms turning on said rods and having tapering recessed hubs, and a platform connected with said arms, as set forth.

3. In an apparatus of the class described, the combination of a cage, a platform on the cage, oscillative shafts on said platform, keepers on said shafts, a lever connected with one of said shafts and a locking device on said platform adapted to lock said lever, as set forth.

4. In an apparatus of the class described, the combination of top work, channeled plates on said top work, an oscillative hook on said top work, a spring acting against said hook, a guide limiting lateral movement of said hook, a cage traveling in said top work, a tilting platform on said cage and supporting a car having a door operative by said hook, and rollers on said platform traveling in the channels in said channeled plates, as set forth.

5. In an apparatus of the class described, the combination of top work, channeled plates having vertical extensions and secured on said top work, a cage traveling in said top work, a tilting platform on said cage, and rollers on said platform fitting in channels in said channeled plates, as set forth.

787,190. MINERAL-VANNER. HENRY C. KRAUSE, Point Mills, Mich. Filed Oct. 20, 1903. Serial No. 177,777.



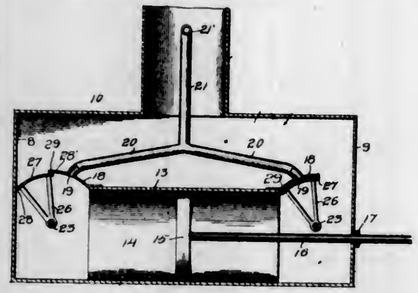
Claim.—1. A mineral-vanner, consisting of a support, an inclined pan, a perforated water-pipe extending across the upper end of the pan, arms pivoted to the support and to the sides of the pan, means for vibrating the pan, and a horizontal sifter of less length than the pan and supported by and above the pan at about midway between the ends thereof, said sifter having a sieve in its bottom, an apertured distributing-plate arranged therein a short distance above the sieve, and having its ends terminating short of the ends of the sifter, and a chute at the end adjacent to the upper end of the pan, said chute projecting beyond one side of the pan, as set forth.

2. A mineral-vanner, comprising an inclined vibrating pan, a horizontal sifter of less length than the pan and supported by and above the pan at about midway between the ends thereof, the sifter having a sieve in its bottom, a chute at the end adjacent to the upper end of the pan and projecting beyond the side of the said pan to discharge the coarse material directly from the sifter to one side of the machine, and a distributing-plate arranged in the said sifter a short distance above the sieve, and having large openings, as set forth.

3. A mineral-vanner, comprising a vibrating pan, a horizontal sifter supported by and above the pan at about midway between the ends thereof, the sifter having a sieve in its bottom, a chute at the end adjacent to the upper end of the pan and projecting beyond the side of the said pan to discharge the coarse material directly from the sifter to one side of the machine, and a distributing-plate arranged in the said sifter above the sieve, and having large openings, the ends of the distributing-plate terminating short of the ends of the sifter, as set forth.

4. A mineral-vanner, consisting of a bed, an inclined pan, two pairs of arms pivoted to the bed and to the pan, means for adjusting one pair of arms to give more or less inclination to the pan, means for vibrating the pan, a water-supply at the upper end of the pan, and a horizontal sifter of less length than the pan and supported by and above the pan at about midway between the ends thereof, said sifter having an apertured distributing-plate arranged therein above the sieve and terminating short of the ends thereof and provided with a laterally-extending chute at the end adjacent to the upper end of the pan, as set forth.

787,191. WATER-MOTOR. WILLIAM W. KREWSON, Lambertville, N. J. Filed July 9, 1904. Serial No. 215,964.

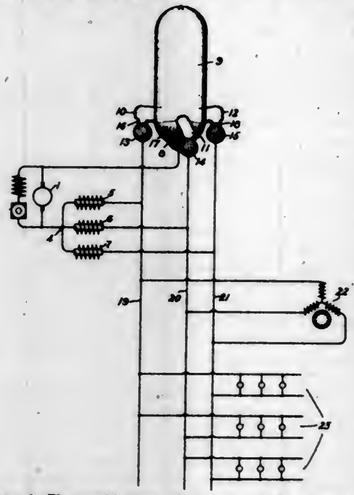


Claim.—1. A fluid-motor comprising a casing, a fluid-supply pipe communicating with the casing, a body disposed within the casing and spaced from the top and ends thereof and having a cylindrical opening therethrough, plates secured to the ends of the body and extending toward the ends of the casing, valves arranged for movement to close and open the spaces between the free edges of the plates and the ends of the casing, a piston slidably disposed within the cylindrical opening, means connected with the piston for moving the valves alternately into operative and inoperative position when the piston is reciprocated, and exhaust-pipes communicating with the opposite ends of the cylindrical opening.

2. A fluid-motor comprising a casing, a body disposed within the casing and spaced from the top and ends thereof and having a cylindrical opening therethrough communicating at its ends with the spaces between the body and the ends of the casing, plates secured to the body and extending toward the ends of the casing and spaced therefrom, valves disposed for movement to close and open the spaces between the plates and the ends of the casing, said valves being arranged to lie one in operative position when the other is in inoperative position, a piston slidably disposed within the cylindrical opening, connections between the piston and the valves for operation of the latter when the former is reciprocated, and a fluid-supply pipe communicating with the upper portion of the casing between the valves.

3. A fluid-motor comprising a casing, a body disposed within the casing and spaced from the top and ends thereof and having a cylindrical opening therethrough, valves disposed at opposite ends of the body and arranged for movement to close and open the communication of the spaces between the body and the ends of the casing with that above the body, parallel cranks connected with the valves for movement in an arc to move the valves into operative and inoperative positions, a pitman pivoted at its ends to the cranks, a block slidably disposed upon the pitman, a piston slidably disposed within the cylindrical opening, springs disposed upon the pitman between the block and the cranks, means for holding the valves against movement, connections between the piston and the block for reciprocating the latter upon the pitman to compress the springs alternately, said block being arranged for engagement of the holding means to move the latter into inoperative position to permit of movement of the pitman under the action of the compressed spring to reverse the positions of the valves, and exhaust-pipes communicating with the opposite ends of the cylindrical opening.

787,192. MEANS FOR TRANSFORMING DIRECT CURRENT. OSIAS O. KRUH, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Dec. 9, 1903. Renewed Sept. 1, 1904. Serial No. 223,008.

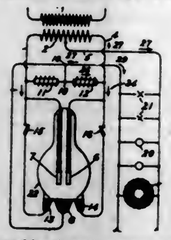


Claim.—1. The combination of a source of direct current, a vapor electric device, and means coöperating with said source and said device for transforming direct current from said source into multiphase alternating current.

2. The combination of a vapor electric device having a cathode and a plurality of anodes, multiphase mains extending from the anodes, a source of direct current, connections between said source and said cathode, energy-storing devices connected respectively between said mains and the other terminal of said source, and current-consuming means connected between said mains.

3. The combination of a source of direct current, and a vapor electric apparatus associated therewith having a cathode and a plurality of anodes, the working surface of the anodes being of restricted cross-section.

787,193. FREQUENCY-CHANGER. OSIAS O. KRUH, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Dec. 12, 1903. Renewed Sept. 1, 1904. Serial No. 223,003.



Claim.—1. The combination of a source of alternating current of given frequency, an energy-storing device or devices, a vapor-conductor, and means controlled by the vapor-conductor for producing a double-frequency current from the current derived from such source.

2. The combination of a vapor-conductor, a source of alternating current, an energy-storing device or devices, and connections for combining waves from said source with waves due to discharges from said device or devices such as to produce a current the frequency of which differs from that of said source.

3. The combination of a source of alternating current, a consumption-circuit, a vapor-conductor, and one or more inductance-coils connected so as to receive current from said source and so as to have discharge-paths, one through the vapor-conductor and another through said consumption-circuit.

4. The combination of a source of alternating current, a consumption-circuit, means for causing successive waves from said source to be passed in a unidirectional manner through said consumption-circuit, and means for combining with said waves additional waves such as to cause a resulting current of a frequency double that of the original supply-current.

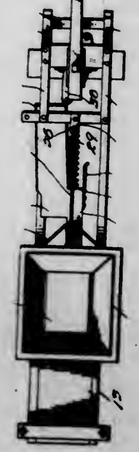
5. The combination of a source of alternating current, a consumption-circuit, a current-selective device for causing waves from said source to pass unidirectionally through said consumption-circuit, and means for superposing upon said consumption-circuit additional waves such as produce a resulting double-frequency current.

6. The combination of a source of alternating current, means extending therefrom, energy storing and restoring devices in series across said mains, a vapor-conductor having a plurality of electrodes two of which are connected respectively to said mains and a third to the junction between said devices, and a consumption-circuit connected between said junction and a point of intermediate potential on said source.

7. The combination of a vapor-conductor, a source of alternating current, an energy-storing device or devices, and connections for combining waves from said source with waves due to discharges from said device or devices such as to produce a current the frequency of which differs from that of said source, and means for equalizing the amplitudes of the opposite polarity-waves of the changed frequency-current.

8. The combination of a source of alternating current of a given frequency, a vapor electric device, and means coöperating with said device for producing an alternating current of a frequency different from that of the source.

787,194. BALING-PRESS. WILLIAM KRUSE and THEODOR M. VANDERWERTH, Ledbetter, Tex. Filed Mar. 7, 1904. Serial No. 197,022.



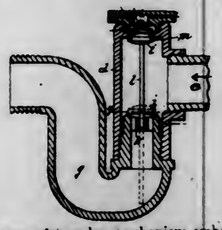
Claim.—1. A baling-press comprising a baling-chamber, a plunger, a double cam constructed and arranged for engagement of its members successively with the plunger to operate the latter in one direction, means for returning the plunger when released by the cam, and yieldable means carried by the plunger and disposed for engagement by either member of the cam when the other member is out of engagement with the plunger and the latter is retracted, for retarding the movement of the cam.

2. A baling-press comprising a baling-chamber, a plunger, a double cam constructed and arranged for engagement of its members successively with the end of the plunger, means for returning the plunger when released by the cam, and a spring-plate carried by the

plunger and behind which either member of the cam is adapted to engage when the other member is out of engagement with the plunger and the latter is retracted, said spring-plate being adapted to be placed under tension to retard the movement of the cam when the latter is out of engagement with the plunger.

3. A baling-press comprising a baling-chamber, a reciprocatory plunger, a frame having guide-rollers between which the outer end of the plunger is slidably received, a vertical shaft mounted in said frame, a drum upon the shaft, vertically-spaced plates secured to the end of the drum, rollers mounted between the end portions of the plates in position for successive engagement with the end of the plunger to move it in one direction and subsequently release it, said plunger having a shoulder spaced rearwardly from its cam-engaging end in position to receive either end of the cam when it leaves the end of the plunger, a spring-plate carried by the plunger in the path of movement of the cam from the shoulder, and a sweep connected with the shaft.

787,195. AUTOMATIC GAS-SAFETY-VALVE MECHANISM. EDWARD LEADBEATER. Detroit, Mich. Filed Aug. 25, 1904. Serial No. 222,067.



Claim.—1. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, and a valve located wholly within said case to control the communication of the pipe through the valve-case, said valve constructed of a material having light specific gravity to be normally held unseated by the normal pressure of gas in said pipe to open communication through the case and to automatically close said communication when the normal gas-pressure within the pipe is removed, said valve held in closed position by the pressure of the gas when gas-pressure is restored in the meter until said valve is returned to its normal position.

2. A gas-safety-valve mechanism embodying in combination with a gas-pipe, a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, a valve in said case of light specific gravity to control the communication of the pipe through the case, said valve constructed to be normally held unseated by the normal pressure of gas in said pipe to open said communication and to automatically close said communication when the normal gas-pressure is removed, and means permitting a relief of pressure from the upper surface of said valve when in open position, said valve held in closed position by the pressure of the gas when gas-pressure is restored in the meter until said valve is returned to its normal position.

3. A gas-safety-valve mechanism embodying in combination with a gas-pipe, a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, and a valve of light specific gravity located wholly within said case to control the communication of the pipe through the valve-case, said valve constructed to be normally held unseated by the normal pressure of gas in said pipe to open communication through the case and to automatically close said communication when the normal gas-pressure within the pipe is removed, said case being reversible in its position in said pipe, for the purpose described, said valve held in closed position by the pressure of the gas when gas-pressure is restored in the meter until said valve is returned to its normal position.

4 A gas-safety-valve mechanism embodying in combination with a gas-pipe, a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, a valve of light specific gravity located wholly within said case to control the communication of the pipe through the valve-case, said valve constructed to be normally held unseated by the normal pressure of gas in said pipe, and to seat by its own gravity when the normal gas-pressure is removed.

5. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, a double-seated valve of light specific gravity within said case to control the communication of the pipe through the case, said valve constructed to be normally held unseated by the pressure of gas in said pipe to open communication through said case when the gas-pressure is normal within said pipe, said case provided with a chamber toward the upper end thereof communicable with the atmosphere, and means to control said latter communication.

6. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, said case constructed with an interior chamber having valve-seats toward opposite ends thereof, a valve of light specific gravity located wholly within said case to seat on either of said seats, said valve constructed to be normally held unseated to open communication through said case when normal gas-pressure is present in said pipe and to automatically close said communication when the normal gas-pressure is removed.

7. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, said case provided with an interior chamber and with a channeled cap communicable with said chamber and with the atmosphere, a double-seated valve in said case of light specific gravity located wholly within the case to control the communication of the pipe through said case, and the communication of said chamber with the channeled cap, and an additional valve to control the communication through the cap with the atmosphere.

8. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures constructed to communicate with the atmosphere, a double-seated valve in said case located wholly therewithin, and constructed from material having light specific gravity to control the communication of the pipe through the valve-case, and additional means to control the communication of the case with the atmosphere.

9. A gas-safety-valve mechanism embodying the combination with a gas-pipe of a valve-case provided with two double-seated communicating chambers, a double-seated valve normally held unseated by the normal pressure of the gas in said pipe to control communication between said chambers, and to control the communication of the pipe through the valve-case, one of said chambers communicable with the atmosphere, and additional means to control said communication with the atmosphere.

10. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures constructed with a wall to form a valve-chamber and with a detachable elbow communicable with said chamber, said wall and said elbow provided with valve-seats toward opposite ends of said chamber, a chamber above the seat of said wall communicable with the atmosphere, a valve in the first-mentioned chamber to control the communication of the pipe through the valve-case, and the communication of the chambers, and an additional valve to control the communication of the last-mentioned chamber with the atmosphere.

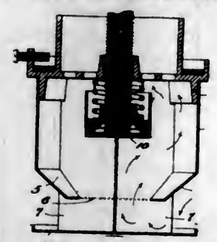
11. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case provided with two communicating chambers, a double-seated valve in one of said chambers normally held unseated by the pressure of gas in said pipe to control communication between said chambers and to control the communication of the pipe through the valve-case, one of said chambers communicable with the atmosphere, and means to control said communication with the atmosphere, said elbow adjacent to its valve-seat provided with a guide for the stem of the valve, said valve-case being reversible in its position in said pipe for the purpose described.

12. A gas-safety-valve mechanism embodying in combination with a gas-pipe, a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures, a valve in said case of light specific gravity located wholly within the case to control the communication of the pipe through the valve-case, said valve constructed to be normally held unseated by the normal pressure of gas in said pipe and to seat by gravity when the normal gas-pressure is removed, said valve held in closed position by the pressure of the gas when the gas-pressure is restored in the meter, until the valve has been returned to its normal position, said valve being wholly contained within the valve-case.

13. A gas-safety-valve mechanism embodying the combination with a gas-pipe of a valve-case provided with two double-seated communicating chambers, a double-seated valve made of light material normally held unseated by the normal pressure of the gas in said pipe to control communication between said chambers, and to control the communication of the pipe through the valve-case, one of said chambers communicable with the atmosphere, and additional means to control said communication with the atmosphere, said valve held in closed position by the pressure of the gas when gas-pressure is restored in the meter until said valve is returned to its normal position.

14. A gas-safety-valve mechanism embodying in combination with a gas-pipe a valve-case interposed in said pipe between the gas-meter and the lighting-fixtures constructed with a wall to form a valve-chamber and with a detachable elbow communicable with said chamber, said wall and said elbow provided with valve-seats toward opposite ends of said chamber, a chamber above the seat of said wall communicable with the atmosphere, a valve in the first-mentioned chamber held normally unseated by the normal pressure of the gas to control the communication of the pipe through the valve-case and the communication of the chambers, and an additional valve to control the communication of the last-mentioned chamber with the atmosphere, said valve held in closed position by the pressure of the gas when gas-pressure is restored in the meter until said valve is returned to its normal position.

787,196. AIR-BAFFLER FOR LAMPS. THADDEUS S. LEESE. Bellevue, Pa. Filed Jan. 19, 1905. Serial No. 241,714.



Claim.—1. A baffler consisting of a cylindrical shell having a downwardly and inwardly extending coping providing a tapering opening, cross vertical partitions extending above and below the coping, and a bottom pan, substantially as set forth.

2. A baffler consisting of a cylindrical shell, vertical partitions extending across the interior space thereof, a bottom pan, and a tapered wall providing a reducing entrance-opening, substantially as set forth.

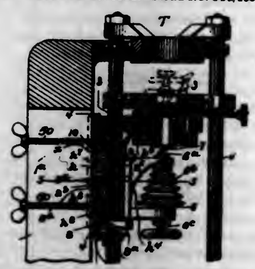
3. A baffler consisting of a cylindrical shell having a downwardly and inwardly extending coping providing a tapering opening, cross vertical partitions extending above and below the coping, a bottom pan, and a centrally-arranged partition extending across the interior of the device at its upper portion, substantially as set forth.

4. A baffler consisting of a cylindrical shell provided with cross vertical partitions and a bottom pan located below the shell, with an intervening air-space, substantially as set forth.

5. A baffler consisting of an inclosing shell adapted to be incorporated with the base of a lamp and provided with vertical cross-partitions extending below the lower edge of the shell, with a bottom pan therefor, substantially as set forth.

6. A baffler consisting of an inclosing shell adapted to be incorporated with the base of a lamp and provided with vertical cross-partitions converging toward the center and extending below the lower edge of the shell, with a bottom pan therefor, substantially as set forth.

787,197. PUNCH-CUTTING MACHINE. JAMES W. LEWIS. Philadelphia, Pa. Filed Feb. 21, 1903. Serial No. 144,463.



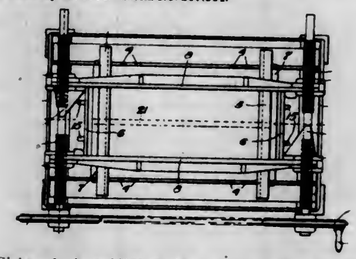
Claim.—1. In a punch-cutting machine, a two-part head, one section of which is fixed, the other section being movably mounted on the fixed section and adapted to support the tool, a micrometer-screw joined with the movable section, a support for the micrometer-screw and a pivoted lever, a wedge-block connected therewith for engaging a wedge-socket in the fixed head-section, whereby the shifting of the lever will shift the slidable head-section together with its micrometer-screw devices, in unison, as set forth.

2. In a punch-cutting machine as described; the combination with the two-part tool-holding head, one section of which is adapted to be fixed—the other section being movably held on the fixed section, and adapted to support the tool-carrying mandrel, the fixed section having a tapering opening, a supporting member vertically adjustable with respect to the fixed section, a micrometer-screw engaging the movable tool-section and mounted in the supporting member, a bell-crank lever fulcrumed on said supporting member and a taper or wedge-shaped key slidable in the tapering opening in the fixed head-section and pivotally connected to the arm of the bell-crank lever, as set forth.

3. In a punch-cutting machine as described, a two-part tool-holding head, one section of which is stationary and the other section slidable on the stationary section and adapted to support the tool-carrying mandrel, in combination with a micrometer-screw joined with the movable section, a support having a bearing for said screw disposed below the head, a graduated disk on the screw at a point below the bearing, said bearing having vertical adjustment with respect to the stationarily-held head-section, and means for vertically adjusting said bearing upon said stationarily-held section, for the purposes described.

4. In a punch-cutting machine as described, the combination of the fixed head portion having a recess in its front edge and a vertical aperture in the lower end which communicates with said recess, a screw-bearing at the point below the head, a support for said bearing including a pair of vertical extensions for embracing said fixed head portion, a tool-carrying member vertically slidable with respect to the fixed head portion, said member having an apertured lug projected into the recess of the said fixed head portion, a micrometer-screw operating in the screw-bearing whose shank extends through the aperture in the fixed head portion and whose upper end has a rotatable connection with the lug on the tool-carrying member and whose lower end terminates in a graduated disk, and means coöperating with the vertical extensions and the fixed head portion for locking the same together, all being arranged substantially as shown and described.

787,198. MOLDING-MACHINE. DAVID W. LLOYD, Pittsburg, Pa. Filed July 23, 1904. Serial No. 217,814.



Claim.—1. A molding-machine provided with permanently upright laterally-adjustable sides, inwardly-adjustable tilting ends in operative engagement therewith, and means for adjusting the sides simultaneously, substantially as set forth.

2. A molding-machine comprising a supporting-base, tilting ends, and permanently-upright laterally-adjustable sides adapted to operatively engage said tilting ends and to clamp the ends and base, substantially as set forth.

3. A molding-machine provided with longitudinal bearing-bars having journal-bearing-receiving recesses, cross base-bars set therein, tilting end gates also mounted in said recesses, and laterally-adjustable sides, substantially as set forth.

4. A molding-machine provided with longitudinal bearing-bars having receiving-recesses, cross base-bars set therein, tilting end gates also mounted in said recesses, and laterally-adjustable sides provided with cams for actuating the end gates, substantially as set forth.

5. A molding-machine provided with longitudinal bearing-bars having receiving-recesses, cross base-bars set therein, tilting end gates also mounted in said recesses, and laterally-adjustable sides

provided with cams and abutments for actuating and supporting the end gates, substantially as set forth.

6. A molding-machine provided with longitudinal bearing-bars having receiving-recesses, cross base-bars set therein, tilting end gates also mounted in said recesses, and laterally-adjustable sides, provided with threaded bearings, with oppositely-threaded adjusting-screws in engagement therewith, substantially as set forth.

7. A molding-machine provided with longitudinal bearing-bars having receiving-recesses, cross base-bars set therein, tilting end gates also mounted in said recesses, and laterally-adjustable sides provided with threaded bearings, with oppositely-threaded adjusting-screws in engagement therewith, and means for actuating the screws simultaneously, substantially as set forth.

8. In a molding-machine, the combination of a supporting-framework provided with trunnion-bearings, a removable base-board, tilting end gates mounted in the bearings, and laterally-adjustable sides provided with means for engaging and adjusting the end gates, substantially as set forth.

9. A molding-machine having permanently-upright sides and provided with outwardly-tilting end gates mounted on bearing-trunnions located at one side of their center of gravity, substantially as set forth.

10. A molding-machine provided with outwardly-tilting end gates mounted on bearing-trunnions located at one side of their center of gravity and laterally-adjustable sides provided with means for forcing the end gates inwardly, substantially as set forth.

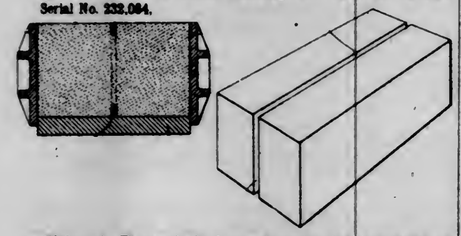
11. In a molding-machine the combination of a supporting-framework provided with trunnion-bearings, a removable base-board, tilting end gates mounted in the bearings, and laterally-adjustable sides provided with cams adapted to engage the end gates to force them inwardly, substantially as set forth.

12. The combination of a supporting-frame, a removable base-board, tilting end gates, laterally-adjustable sides provided with cams engaging the end gates, and right and left hand adjusting-screws engaging threaded portions of the sides, with means for actuating the screws, substantially as set forth.

13. The combination with the adjusting-screws for the sides, of tilting end gates actuated by the sides provided with shields extending over the screws, substantially as set forth.

14. In a molding-machine, the combination with the base-board, oppositely-adjustable tilting ends, and permanently-upright laterally-adjustable sides; of groove-forming partitions clamped between the oppositely-adjustable ends or sides, extending across the mold area and adapted to form grooves in the block, substantially as set forth.

787,199. **METHOD OF MANUFACTURING BUILDING-BLOCKS.** DAVID W. LLOYD, Pittsburg, Pa. Filed Nov. 10, 1904. Serial No. 232,064.



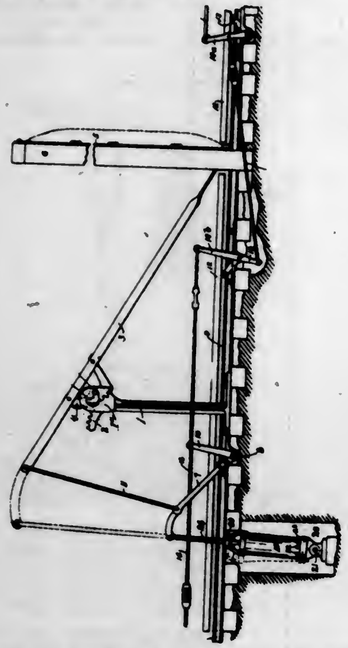
Claim.—1. The method of manufacturing building-blocks of concrete or similar material consisting in molding a single block within a suitable flask provided with separable and detachable groove-forming devices adapted to be embedded in the block, separating the block at the parting-line formed by said devices, and finally removing the groove-forming devices from the block, substantially as set forth.

2. The method of manufacturing building-blocks of concrete or similar material consisting in molding a single block within a suitable flask provided with separable groove-forming devices, separating the block at the parting-line formed by said devices, and finally removing the groove-forming devices from the block together with a portion of the severed block, substantially as set forth.

3. The method of manufacturing building-blocks of concrete or similar material consisting in molding a single block within a suitable flask and upon a separable supporting-base with separable and detachable groove-forming devices adapted to be embedded in the block, then breaking the block while green upon a line of fracture corresponding with the groove formed by said devices, substantially as set forth.

4. The method of manufacturing building-blocks of concrete or similar material consisting in molding a single block within a suitable flask and upon a separable supporting-base with separable and detachable groove-forming devices adapted to be embedded in the block, and then raising the meeting edges of said base to cause the block to sever by gravity while green, substantially as set forth.

787,200. **MINE-CURTAIN RAISER.** GEORGE W. MANLOVE, Cleveland, Ohio. Filed Oct. 22, 1904. Serial No. 229,547.



Claim.—1. In combination, a mine-curtain-raising mechanism having a rocking arm therein, an adjacent cylinder with a trunnion-support and having a guide-bracket thereon, there being exhaust-apertures in the cylinder, a piston in the cylinder having a port with a check-valve therein, and a rod connecting the piston and the rocking arm and adapted to operate in the guide-bracket.

2. In combination, a mine-curtain-raising mechanism having a rocking arm therein, an adjacent cylinder having exhaust-apertures therein, a piston in the cylinder having a port with a check-valve therein, and a connecting-rod between the piston and the rocking arm.

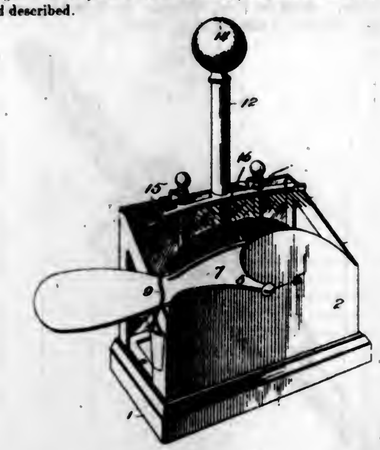
3. In combination, a mobile mine-partition-operating mechanism, an adjacent cylinder open at the top and having a piston therein, and operative connections between the piston and the mechanism, there being means for a restricted exhaust from the cylinder when the piston is thrust inward and means for freely admitting air into the cylinder when the piston is drawn outward.

787,201. **HAIR-BRUSH CLEANER.** FRANCESCO MARTUCCI, Jersey City, N. J. Filed May 2, 1903. Serial No. 155,421.

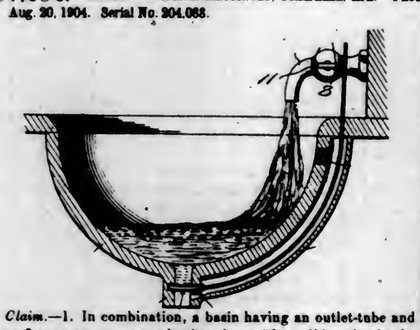
Claim.—1. A hair-brush cleaner in which is comprised a case, open at the top, means for holding a brush within said case, a movable comb adapted and arranged to pass through the bristles of the brush, and means for reciprocating said comb, substantially as shown and described.

2. In a device of the character herein specified, a base whereon is mounted a case, means for holding a hair-brush within said case, in combination with a movable comb-carrier arranged to operate substantially as shown and described.

3. A hair-brush cleaner in which is comprised a base supporting vertical side and end walls, means for holding a hair-brush against one of said walls, a standard and guides projecting upward from the base, and a vertically-movable comb-carrying frame arranged to slide upon the standard and guides, substantially as shown and described.



787,202. **BASIN.** WILLIAM MATTINGLY, Texarkana, Ark. Filed Aug. 20, 1904. Serial No. 221,068.



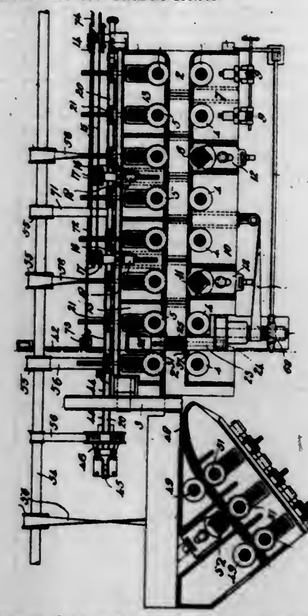
Claim.—1. In combination, a basin having an outlet-tube and an overflow-passage communicating therewith, a slide-valve in the outlet-tube, a faucet provided with a stationary casing, a rod connected at one end to the valve and extending upward through the overflow-passage and having its upper end disposed alongside said faucet-casing and provided with a projection, and a turn-plug in the faucet-casing provided with a key having opposite projections adapted when the plug is turned in one direction or the other to respectively engage said projection on the rod and slide the valve to an open or closed position, substantially as described.

2. In combination, a basin having an outlet-tube and an overflow-passage communicating therewith, said tube being grooved to form a valve-seat, a slide-valve movable in said grooved seat, a faucet provided with a stationary casing, a rod connected at one end to the valve and extending upward through the overflow-passage, said rod having its upper end disposed alongside the faucet-casing and provided with a lateral arm, and a turn-plug in said faucet-casing having a key provided on opposite sides of the plug and parallel therewith with pins adapted when the plug is turned in one direction or the other to respectively engage said projection on the rod and slide the valve to an open or closed position, substantially as described.

3. In combination, a basin having an outlet, a valve controlling said outlet, a stationary faucet-casing, a rod having one end connected to the valve and its other end disposed alongside said casing, and a turn-plug in the faucet-casing provided with a key having opposite projections adapted when the plug is turned in one direction or the other to respectively engage said projection on the rod and slide the valve to an open or closed position, substantially as described.

4. In combination, a basin top or slab, a basin removably disposed below said slab and provided with an outlet and an overflow-passage opening into the outlet and through its upper edge, the upper end of said outlet being covered by the slab and the latter being provided with an opening in line therewith, a valve forming the outlet, a faucet having a revoluble stem, and a rod connected to the valve and extending through the overflow-passage and opening in the slab and adapted to be operated by said stem to open and close the valve, said rod and valve being withdrawable through the upper end of the waste-passage when the basin is disconnected from the slab, substantially as described.

787,203. **WOOD-SLICING MACHINE.** GEORGE S. MATHEW, London, England, assignor to George William Mellor, London, England. Filed Nov. 23, 1904. Serial No. 233,978.



Claim.—1. In a machine for sawing thin slices from deals or planks and planing said slices on both sides, a bed-plate, a guide in the form of a slot with adjustable sides mounted on said bed-plate, means for evening and smoothing the slicing-face of the deal arranged on one side of said adjustable guide, means for feeding the deal forward through the machine arranged on the other side of said guide, a cross-slot arranged in said bed-plate at right angles to said guide, means for grooving the head of the deal adapted to move in said cross-slot, a saw adapted to slice said deal arranged at the head of said guide-slot, means for separating the slice from the deal as it is cut by said saw, an adjustable guide adapted to receive said slice as it is separated from said deal, means for smoothing the back face of said slice and means for feeding said slice forward mounted in said slice-guide, substantially as described.

2. In a machine for sawing thin slices from deals or planks and planing said slices on both sides a bed-plate, a guide in the form of a slot with adjustable sides mounted on said bed-plate the side of said guide against which the working face of the deal bears formed in two adjustable sections, an evening-planer and friction-rollers mounted in the first of said sections, a smoothing-planer and friction-rollers mounted in the second of said sections, means for operating said evening and smoothing planes, the other side of said guide formed as a single adjustable guide, an adjustable frame mounted on the end of said single guide adapted to form a bearing for the back of the deal behind the saw, means for moving said single guide inward or outward according to the thickness of said deal, feeding-rollers mounted in said single guide adapted to feed said deal forward through the machine, means for operating said feeding-rollers, a cross-slot arranged in said bed-plate at right angles to said guide-slot, means for grooving the head of the deal adapted to move in said cross-slot, a saw adapted to slice said deal arranged in the head of

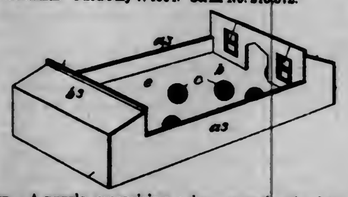
said guide-slot, means for separating the slice from the deal as it is cut by said saw, an adjustable guide adapted to receive said slice as it is separated from the deal, means for smoothing the back face of said slice and means for feeding the slice forward through said slice-guide substantially as described.

3. In a machine for sawing thin slices from deals or planks and planing said slices on both sides a bed-plate, a guide in the form of a slot with adjustable sides mounted on said bed-plate, means for evening and smoothing the slicing-face of the deal arranged on one side of said adjustable guide, feeding-rollers adapted to feed the deal forward through the machine arranged on the other side of said guide, a cross-slot arranged in said bed-plate at right angles to said guide-slot, a cutter-head adapted to move in said cross-slot to groove the head of said deal, a heel projecting into the slot adapted to be engaged by an uncut deal and caused to operate lever mechanism to release a spring-controlled clutch and stop the rotation of said feeding-rollers and to cause a nut to engage a screw to carry said cutter-head up said cross-slot, automatic means to disengage said nut from said screw when said cutter-head is at the end of its stroke, a saw adapted to slice said deal arranged at the head of said guide-slot, means for separating the slice from the deal as it is cut by said saw, an adjustable guide adapted to receive said slice as it is separated from said deal, means for smoothing the back face of said slice mounted on the guide and means for feeding the slice forward through said guide, substantially as described.

4. In a machine for sawing thin slices from deals or planks and planing said slices on both sides, a bed-plate, a guide in the form of a slot with adjustable sides mounted on said bed-plate, means for evening and smoothing the slicing-face of the deal arranged on one side of said adjustable guide-slot, means for feeding the deal forward through the machine arranged on the other side of said guide-slot, a cross-slot arranged in said bed-plate at right angles to said guide-slot, means for grooving the head of said deal moving in said cross-slot, a band-saw adapted to slice said deal arranged at the head of said guide-slot, an adjustable spreader arranged behind said saw adapted to separate the slice from the deal as it is cut by said saw, an adjustable guide adapted to receive said slice as it is separated from the deal by said spreader, means for smoothing the back face of said slice and means for feeding the slice forward through the said slice-guide, substantially as described.

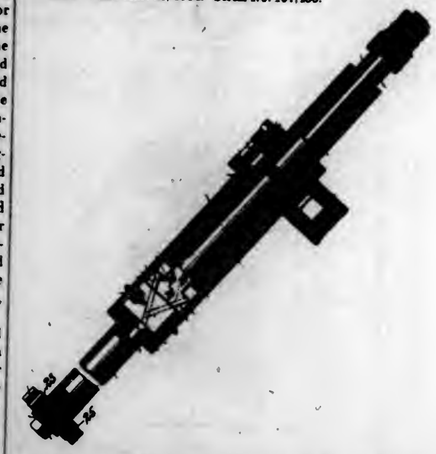
5. In a machine for sawing thin slices from deals or planks and planing said slices on both sides, a bed-plate, a guide in the form of a slot with adjustable sides mounted on said bed-plate, means for evening and smoothing the slicing-face of the deal arranged on one side of said adjustable guide, means for feeding the deal forward through the machine arranged on the other side of said guide, a cross-slot arranged in said bed-plate at right angles to said guide-slot, means for grooving the head of the deal adapted to move in said cross-slot, a band-saw adapted to slice said deal arranged at the head of said guide-slot, an adjustable spreader arranged behind said saw adapted to separate the slice from the deal as it is cut by said saw, an adjustable guide adapted to receive the slice as it is separated from the deal by said spreader, smoothing-planes adapted to smooth the back face of said slice mounted on the side of said slice-guide against which the back face of the slice bears, feeding-rollers adapted to move said slice forward through said slice-guide arranged on the other side of said guide, and means for operating said smoothing-planes and feeding-rollers, substantially as described.

787,204. **PUZZLE.** JAMES D. MIDSON, South Brisbane, Queensland, Australia. Filed July 7, 1904. Serial No. 215,572.



Claim.—A puzzle, comprising a box or casing having transversely-arranged inclosures at the opposite ends thereof and within which are central compartments, the front walls of said inclosures being provided with openings or doors which communicate with said compartments, and the side walls of said compartments being inclined from the outer ends of the box or casing inwardly and forwardly to the front walls of said inclosures, said inclosures and compartments being also provided with opaque covers and a plurality of balls or bodies placed in said box or casing part of which are distinguished from the others, substantially as shown and described.

787,205. **FLUE OR TUBE CUTTER.** RAY T. MILLER, Defiance, Ohio. Filed Mar. 10, 1904. Serial No. 197,400.



Claim.—1. A flue or tube cutter, comprising a hollow body, a stem longitudinally adjustable in the body and provided at one end with a flat wedge-shaped head having a flange at one edge of one of its faces and a similar flange at the opposite edge of its other face, and cutter-blocks having enlarged outer ends and lying on the opposite faces of the wedge-shaped head with the inner end of one in engagement with the enlarged outer end of the other, said blocks being provided on their inner faces with diagonal grooves to receive the flanges of the said head.

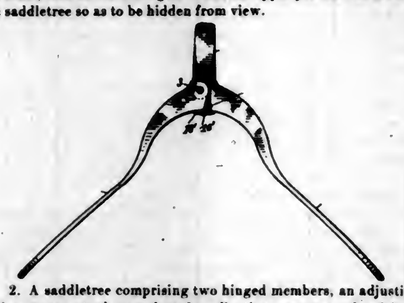
2. A flue or tube cutter, comprising a hollow body, a stem longitudinally adjustable in the body and provided with a wedge-shaped head having a flange at one edge of one of its faces and a similar flange at the opposite edge of its other face, rotary cutters, and blocks carrying said cutters, said blocks having enlarged outer ends and lying on opposite side faces of the wedge-shaped head with the inner end of one in engagement with the enlarged outer end of the other, the blocks being provided on their inner faces with diagonal grooves to receive the flanges of the head and with longitudinal grooves intersecting the diagonal grooves to receive the projecting portions of the rotary cutters.

3. A flue or tube cutter, comprising a hollow body having an internally-threaded portion at one end, a stem longitudinally adjustable in the body and provided with a wedge-shaped head at one end and having its other end reduced and threaded for a portion of its length, a headed and threaded sleeve on the reduced portion of the stem and screwing into the body, nuts on the stem beyond the head of the sleeve, cutter-blocks on opposite sides of the head, and working in opposite directions through the body, a sleeve on the reduced end of the stem and threaded to engage the threaded portion of the body, and a ratchet-and-pawl mechanism mounted on the body.

4. A flue or tube cutter, comprising a hollow body reduced in external diameter from one end to form a slender section and an annular shoulder, said section being internally threaded, a stem longitudinally adjustable in the body and provided at one end with a wedge-shaped head, and at the other end with a reduced portion and an annular shoulder, said portion being threaded for a part of its length and provided with jam-nuts, duplicate cutter-blocks disposed across the opposite faces of the head and working in opposite directions through the body, an adjusting-sleeve upon said reduced portion of the stem, threaded to engage said slender section of the body, and a ratchet-and-pawl device for rotating the structure, the same being mounted upon the section and abutting against said annular shoulder of the body.

787,206. **ADJUSTABLE SADDLETREE.** THOMAS I. MORRISH, San Francisco, Cal. Filed Oct. 21, 1903. Serial No. 177,848.

Claim.—1. A saddletree comprising two hinged members, an adjusting device common to the members for opening and closing the same, said device arranged within the upper portion and sides of the saddletree so as to be hidden from view.



2. A saddletree comprising two hinged members, an adjusting device common to the members for adjusting same toward and from each other, said device arranged within the upper portion of the saddletree so as to be hidden from view, a checkrein-hook fitted through the members of the saddletree, and compressing means for holding the said hook centered independent of the movement of the saddletree members.

3. A saddletree comprising two hinged members, means engaging with the under face of the members for adjusting the same toward and from each other, a checkrein-hook having a stem, said members having a vertical opening therein through which the stem of the said hook extends and a well or seat formed on the inner face of the tree members, a tension-spring fitted upon the hook-stem, a pressure-plate against which said spring bears, and an adjusting-nut secured to the lower end of the said stem.

4. A saddletree comprising two hinged members, an adjusting device common to the members for adjusting the same toward and from each other, and a separable hook formed of complementary members upon the upper surface of the respective hinged members.

5. A saddletree comprising two hinged members, an adjusting device common to the members for adjusting the same toward and from each other, and a sectional hook member adjustable by the movement of the hinged sections.

787,207. **SHEATHING-PLATE.** HANS MORTENSON, New York, N. Y., assignor of two-thirds to Lyman S. Andrews, New York, N. Y. Filed Oct. 27, 1904. Serial No. 230,179.

Claim.—1. As an article of manufacture, a sheathing-plate comprising a recessed metallic body portion, two offset flanges, and two flanges bent back upon themselves to overhang the recessed body portion and extend beyond the side walls thereof, and an asbestos lining fitted in the recessed body portion and beneath said overhung portions, and retained therein by said overhung portions.

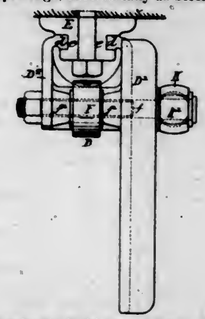
2. As an article of manufacture, a sheathing-plate comprising a recessed metallic body portion, whose outer surface is suitably roughened and broken for the reception of plaster, stucco and the like, two offset flanges, and two flanges bent back upon themselves to overhang the recessed body portion and extend beyond the side walls thereof, and an asbestos lining fitted in the recessed body portion and beneath said overhung portions, and retained therein by said overhung portions.

787,208. **LOCKING MECHANISM FOR ELEVATORS.** JOHN S. MUCKLE, Philadelphia, Pa., assignor to Standard Elevator Interlock Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed May 20, 1904. Serial No. 208,962.

Claim.—1. A plunger for the locking mechanism of an elevator, consisting of two side plates each having a flange and spaced apart to receive a roller, substantially as described.

2. A plunger for the locking mechanism of an elevator, consisting of two side plates each having a flange and spaced apart to receive a roller, one side plate having a vertical flange at one edge, substantially as described.

3. A plunger for the locking mechanism of an elevator, having two side plates spaced apart, one side plate being more extended than the other and having a flange at each edge, so that the plunger can be reversed, and each side plate having an inwardly-projecting flange at the upper edge, substantially as described.



4. A plunger for the locking mechanism of an elevator, having two side plates, one side plate being more extended than the other and having a vertical flange at each edge, and each plate having an inwardly-projecting flange at the upper edge and said plates being spaced apart to receive a roller, substantially as described.

5. A plunger for the locking mechanism of an elevator, having a central pin for a connecting-rod and having a vertical flange at each end, a bearing back of each flange for a roller, and flanges adapted to a slideway, the plunger having a V-shaped recess in its under side, the plunger being so proportioned that one of the vertical flanges and a bearing can be removed without interfering with the balance of the plunger, substantially as described.

6. A plunger for the locking mechanism of an elevator, consisting of two plates connected together and having flanges adapted to a slideway, one of said plates having vertical flanges at each end, with a bearing at each end of the plate for the spindle of a roller so that the roller can be placed at either end of the plunger, substantially as described.

7. The combination of a guideway secured to the bottom of an elevator having grooves at each side, a plunger having two side plates each provided with an inturned flange adapted to the grooves in the slideway, and a vertical flange at each end of one of the plates, substantially as described.

8. The combination of an elevator-car, a stand therein, an operating-lever pivoted to the stand, a segment attached to the operating-lever, a frame secured to the stand and having bearings, two shafts mounted in the bearings, a pinion on one shaft meshing with the segment, an elliptical gear on the said shaft, an elliptical gear on the other shaft meshing with the first-mentioned elliptical gear, a rock-shaft on the car, two arms on the rock-shaft, a connecting-rod attaching the crank-pin of one elliptical gear to one arm of the rock-shaft, a plunger mounted on a slideway on the car, and a connecting-rod attaching the other arm of the rock-shaft to the plunger, substantially as described.

787,209. **ART OF COLOR-PRINTING.** MILTON A. MCKEE, New York, N. Y., assignor to C. B. Cottrell & Sons Company, New York, N. Y., a Corporation of New Jersey. Filed May 10, 1904. Serial No. 207,902.



Claim.—1. The improvement in the art of color-printing which consists in printing in different colors by a continuous operation upon the same portion of a sheet or web from plates one for each color, in the faces of which there are gradations of printing-level according to the heavier and lighter printing impressions required from different parts thereof and in one of which plates the said gradations differ from those of another or others.

2. The improvement in the art of color-printing which consists in first preparing a plurality of printing-plates one for each of the colors to be printed, each of said plates having in its face gradations according to the heavier and lighter printing impressions to be produced by different parts thereof and the said gradations differing in the several plates according to the difference of pressure required on or from their corresponding parts, and then printing from said plates successively with a different color for each on the same portion of a sheet or web to produce a colored picture.

3. The improvement in the art of color-printing which consists in first preparing a plurality of printing-plates one for each of the colors to be printed, each of said plates having in its face gradations according to the heavier and lighter printing impressions to be produced by different parts thereof and the said gradations differing in the several plates, next mounting said plates on different supports and then by a continuous operation printing from said plates successively with their respective colors on the same portion of a sheet or web.

4. The improvement in the art of color-printing which consists in printing successively upon the same portion of a sheet or web from a series of plates each having "make-ready" formed in its face and the "make-ready" being different in the different plates.

787,210. **WHEEL.** JOSEPH B. MCMULLEN, Howard county, Md. Filed Feb. 16, 1904. Renewed Nov. 1, 1904. Serial No. 230,980.



Claim.—1. The improvement in wheels herein described, comprising in combination the rim, the plate, having a rim-wing fitting against the outer periphery of the rim, a tire-flange projecting from said wing at one edge of the rim, an inwardly-projecting face-wing lapping against the opposite side of the rim and provided with a key-hole-slot and with an inclined surface adjacent the smaller portion of said slot, the abutment-block fitting within the rim and secured to said plate, the detachable side plate having a tire-securing flange opposite that of the first plate, and provided with a face-wing lapping against the outer side of the face-wing on the said first plate and provided with a slot extending on opposite sides of the abutment-block, and arranged at its end walls for engagement by an operating wedge or key, the headed stud on such face-plate, and the cover-plate arranged to cover the slot in said face-plate, substantially as set forth.

2. The combination of the rim, the plate secured to the rim, the detachable plate having a slot for the introduction of an operating-wedge, an abutment in the rim for engagement by said wedge, and interlocking devices between the detachable plate and the plate secured to the rim, the detachable plate being movable in a circular direction into and out of locked position.

3. The combination of the rim, the plate secured to the rim, the detachable plate having a slot for the introduction of an operating-wedge, an abutment in the rim for engagement by said wedge and interlocking devices between the detachable plate and the plate secured to the rim, the detachable plate being movable in a circular direction into and out of locked position, and a cover for the slot in the detachable plate substantially as set forth.

4. The combination of the rim, the plate secured thereto, and having a wing lapping against the outer periphery of the rim and provided at one edge of the rim with an outwardly-projecting tire-securing flange and at the other edge of the rim with an inwardly-projecting face-wing, the abutment-block in the rim and secured to the peripheral wing of the said plate, the detachable side plate having a slot for the introduction of an operating-wedge, and interlocking devices between the detachable plate and the plate secured to the rim, substantially as set forth.

5. The combination in a wheel, of the rim, a plate secured to the rim, a detachable plate having a slot for the introduction of an operating-wedge, an abutment in the rim for engagement by said wedge, interlocking devices between the detachable plate and the plate secured to the rim, and the locking-plate having a stop-block for preventing retrograde movement of the detachable rim, and means for securing said locking-plate.

6. The combination of the rim, a tire-securing flange or plate at one side thereof, a detachable plate or flange at the other side of the rim and having a slot for the passage of an operating key or wedge, an abutment in the rim opposite the edge wall of the slot in the detachable plate, and interlocking devices for securing the detachable plate, the latter being movable in a circular direction into and out of engagement with the interlocking devices.

7. A wheel having the detachable flange-plate which is movable in a circular direction into and out of interlocking engagement with the rim of the wheel, and has provision for the introduction of a key by which to forcibly move the flange-plate in a circular direction.

787,211. **GOOSENECK CONNECTION.** ALBERT W. NICHOLLS, New York, N. Y., assignor of one-half to F. P. Noera, Waterbury, Conn. Filed Jan. 12, 1905. Serial No. 240,814.



Claim.—1. The combination of a tube having externally-screw-threaded ends, a socket connection on one of said ends consisting of an internally-screw-threaded tube formed with corrugations at one of its ends and with an annular flange at its other end, a soft-rubber socket upon said connection and engaged with its flange and its corrugated end, and a combination connection upon the other threaded end consisting of a tube having internal and external screw-threads at its outer end and annular corrugations upon its inner end, substantially as described.

2. A socket connection comprising a tube having an externally-screw-threaded end, an internally-screw-threaded connecting-tube screwed upon said end and formed at one end with an annular flange and at its other end with annular corrugations, and a tubular socket of soft rubber upon said connecting-tube and engaged with its flange and its corrugations.

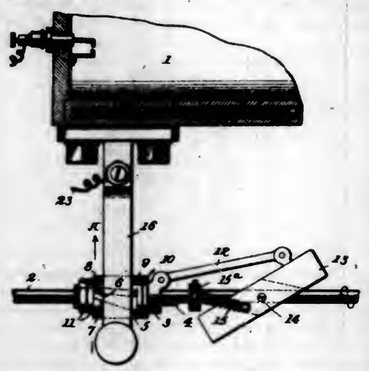
3. The combination with a tube having an externally-screw-threaded end, of a combination connection upon said end, said connection comprising a cylindrical body having internal and external screw-threads at one of its ends and annular corrugations at its other end, substantially as described.

787,212. **SPARKING IGNITING DEVICE FOR HYDROCARBON-ENGINES.** JAMES W. PACKARD, Warren, Ohio, assignor to Packard Motor Car Company, Warren, Ohio, a Corporation of West Virginia. Filed June 27, 1903. Serial No. 163,368.

Claim.—1. An igniting device for hydrocarbon-engines, comprising in combination, a sparking circuit, a rotating shaft, a contact-cam adapted to rotate with and slide on said shaft, said cam being adjustable about the shaft, means for securing the cam to the shaft in any desired position to advance or delay the spark, and a governor controlling the sliding movement of said cam.

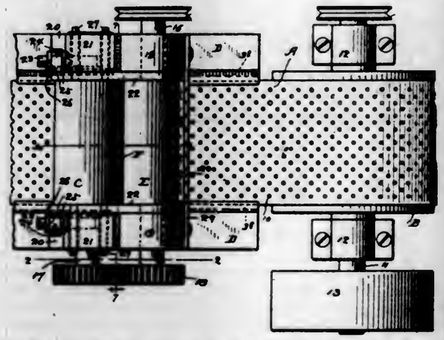
2. An igniting device for hydrocarbon-engines, comprising in combination, a sparking circuit, a rotating shaft, a part arranged to slide on and turn with said shaft, a governor controlling the sliding movement of said part, a sleeve on said part having a contact-cam, means for adjusting the sleeve relatively to the shaft to advance or delay the spark, and a contact-point arranged in the path of said cam.

3. An igniting device for hydrocarbon-engines comprising in combination, a sparking circuit, a rotating shaft, a tapered contact-surface arranged to rotate with and slide on said shaft, a governor controlling the sliding movement of said surface, a spring supporting a contact-point, and means for adjusting said spring and contact-point to and from the shaft.



4. An igniting device for hydrocarbon-engines comprising in combination, a sparking circuit, a rotating cam having a tapering contact-surface, a strip of insulating material in the rear of said cam, and a spring-supported contact-point in the path of said cam.

787,213. **MACHINE FOR JAPANNING SMALL ARTICLES.** THOMAS A. PERRINS, Seymour, Conn. Filed Nov. 16, 1904. Serial No. 233,377.



Claim.—1. In a machine of the character described the combination with a carrying-belt and a feed-roller, of swinging end plates and a japanning-roller journaled in said end plates.

2. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, swinging end plates in which the japanning-roller is journaled whereby a feed-trough is formed by said feed-roller, japanning-roller and end plates, and means for driving said rollers.

3. In a machine of the character described, the combination with a carrying-belt and a feed-roller, of a japanning-roller, swinging end plates in which the japanning-roller is journaled, and means for driving the carrying-belt and the japanning-roller at the same surface speed and means for driving the feed-roller at a slower surface speed, substantially as described, for the purpose specified.

4. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller having a smooth surface and swinging end plates in which the japanning-roller is journaled.

5. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller and a laterally-movable supporting-plate on which the carrying-belt rests.

6. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller and a laterally-movable supporting-plate having ribs on which the belt rests and intermediate said ribs channels which receive the lower ends of eyelets or other articles carried by the belt.

7. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a laterally-movable supporting-plate having ribs on which the belt rests and intermediate said ribs channels which receive the lower ends of eyelets or other articles carried by the belt and retaining-springs in said channels which bear against the articles carried by the belt and retain them against removal by the japanning-roller.

8. In a machine of the character described the combination with a carrying-belt having holes to receive eyelets or other articles to be japanned and a feed-roller, of a japanning-roller, a laterally-movable supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of eyelets or other articles carried by the belt and a retaining-spring in each channel which bears against one side of the eyelets in said channel and presses the other side against the carrying-belt to retain them against removal by the japanning-roller.

9. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller and a supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of articles carried by said belt.

10. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of articles carried by the belt and a rest under the japanning-roller which supports the belt and the articles carried thereby while they are being japanned.

11. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of articles carried by the belt and a rest under the japanning-roller which is provided with corresponding ribs and channels.

12. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of articles carried by the belt, a roller *b* under the japanning-roller which supports the belt and the articles carried thereby while they are being japanned.

13. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of articles carried by the belt and a transverse rest under the japanning-roller which supports the belt and slightly raises the articles carried thereby at the instant the japanning operation is performed, substantially as described, for the purpose specified.

14. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a supporting-plate having ribs on which the belt rests and intermediate said ribs channels to receive the lower ends of articles carried by the belt, supporting-lugs and rollers intermediate said lugs and the supporting-plate whereby the latter is permitted to oscillate laterally on the lugs.

15. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a laterally-movable japanning-roller, a supporting-plate having ribs and channels, for the purpose set forth, a loosely-journaled ribbed and channeled roller under the japanning-roller and plates secured to the supporting-plate and bearing against the ends of said roller, whereby the latter is caused to move laterally with the supporting-plate.

16. In a machine of the character described the combination with a carrying-bel and a feed-roller, of a japanning-roller, end plates and boxes adjustably secured to the end plates in which the japanning-roller is journaled.

17. In a machine of the character described the combination with a carrying-belt and framework having longitudinal grooves in its inner faces to receive the edges of the belt loosely, of a feed-roller, swinging end plates, a japanning-roller adjustably journaled in said end plates and a laterally-movable belt-supporting plate.

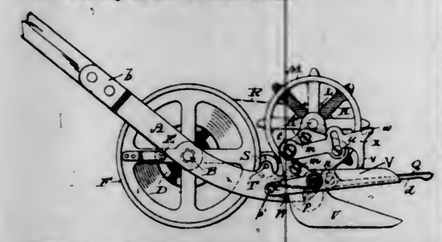
18. In a machine of the character described the combination with a carrying-belt, framework having grooves to receive said belt, and a feed-roller, of end plates, a japanning-roller adjustably journaled in said end plates, a laterally-movable supporting-plate having ribs by which the belt is supported, and intermediate said ribs channels to receive articles carried by the belt and a similarly-grooved rest under the japanning-roller which supports the belt at the instant the japanning operation is performed.

19. In a machine of the character described the combination with a carrying-belt and a feed-roller, of swinging end plates, a ja-

panning-roller adjustably journaled on said end plates, and a laterally-movable supporting-plate having ribs on which the belt rests, channels to receive the lower ends of articles carried by the belt and retaining-springs in said channels, substantially as shown, for the purpose specified.

20. In a machine of the character described the combination with a carrying-belt and a feed-roller, of a japanning-roller, a supporting-plate having ribs on which the belt rests and intermediate said ribs channels which receive the lower ends of eyelets or other articles carried by the belt and retaining-springs in said channels which bear against the articles carried by the belt and retain them against removal by the japanning-roller.

787,214. LAWN-TRIMMER. JOHAN H. E. PETERS, Wauwatosa, Wis. Filed Aug. 29, 1904. Serial No. 222,417.



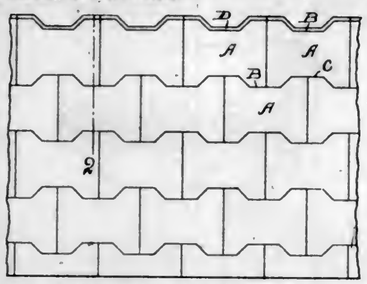
Claim.—1. A lawn-trimmer comprising a wheel-supported frame embodying a plate longitudinally recessed to form a series of forwardly-extending tapered shear-fingers, a triangular shear-blade in pivotal connection with the plate and arranged over the fingers of same, a rocker fast on the blade and provided with lateral arms, a bow-spring arranged to have its ends bear on the rocker, wiper-wheels arranged to operate alternately on the rocker-arms, and means for operating the wiper-wheels when the machine has forward travel.

2. A lawn-trimmer comprising a frame embodying a plate having forwardly-extended tapered shear-fingers, a rear shaft journaled at its ends in the sides of the frame, a sprocket-wheel fast on the shaft, traction-wheels loose on said shaft and having slip-clutch connection with the hub of the sprocket-wheel to turn the latter when the machine has forward travel, supporting-wheels on a front axle of the machine, a triangular shear-blade in pivotal connection with said plate over the fingers of same, a rocker fast on the blade and provided with lateral arms, a bow-spring arranged to have its ends bear on the rocker, a forward arbor supported in the machine-frame, a sprocket-wheel and wiper-wheels having a common hub loose on the arbor, the wiper-wheels being set to operate alternately on the rocker-arms, a link belt stretched on the sprocket-wheels, and a roller arranged to support slack of the belt.

3. A lawn-trimmer comprising a wheel-supported frame having forwardly-extending tapered shear-fingers, a pivotal triangular shear-blade over the fingers, means holding the blade in frictional contact with said fingers, an attachment consisting of a runner in the form of a shear-blade having a tang for detachable connection with the machine-frame at one side of the same, a spring-controlled shear-blade and lever in pivotal connection with said tang, the lever being segmentally slotted on a guide and having a depending projection opposing the latter shear-blade, a rocker mounted on the triangular shear-blade, wiper-wheels operative in conjunction with arms of the rocker, an arm extending from said lever in the path of teeth of one of the wiper-wheels, and means for actuating said wheels when the machine has forward travel.

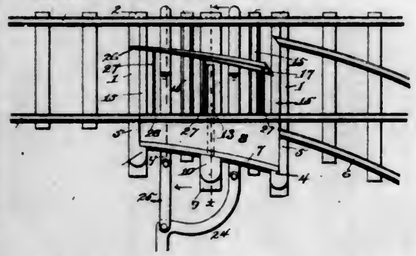
787,215. BUILDING-TILE. ALOIS PFEIFFER, Chicago, Ill. Filed July 25, 1904. Serial No. 218,055.

Claim.—1. A wall composed of building-tiles, each tile of which comprises a flat substantially oblong plate provided in its upper edge and in its lower edge with a single recess, said recesses having their bottom walls parallel with the upper and lower edges of the plate and the side walls of said recesses being inclined, said recesses being so proportioned to the end projections thus formed that each of same will receive two abutting end projections of two adjacent tiles of the next adjacent course, said tile being formed with plain ends and provided on its upper and lower edges respectively with tongues and grooves which are adapted to interfit to interlock said tiles and hold same against lateral displacement, said tongues and grooves following the contour of said upper and lower edges and extending into the recesses.



2. A wall composed of tiles, the tiles of the lower course having straight lower edges and a recess in the upper edge of each tile, the upper and lower edges of the balance of the tiles composing the wall being each formed with a recess in its upper edge and a recess in its lower edge and with a groove following the contour of the lower edge and extending from end to end thereof and a tongue following the contour of the upper edge and extending from end to end thereof, the recesses in the upper and lower edges of the tiles being so proportioned relatively to the end projections formed by such recesses, that each of the same will receive two abutting end projections of two adjacent tiles of the next course.

787,216. RAILWAY-SWITCH. HOMER PHILLIPS, Glouster, Ohio. Filed Sept. 19, 1904. Serial No. 225,020.



Claim.—1. In a slip-switch, the combination with the hangers depending from a railway-rail, and the stringers having reduced ends working in the hangers, of the slip-plate secured to the stringers, the switch-frog secured to the stringers, brace-rods connecting the frog-blade with the said plate, and the levers to slide the stringers.

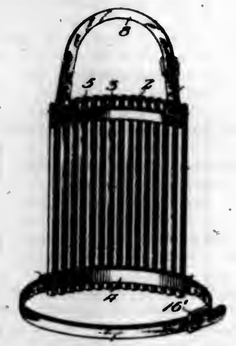
2. The combination, with the switch-tie, a metallic cleat set therein and projecting therefrom, hangers depending from a railway-rail, and stringers slidable through the hangers, of the slip-plate secured to the stringers and having a slot to fit the said cleat, the switch-frog secured to the stringers, screw-rods passing through the frog-blade and through a rail of the slip-plate and provided with lock-nuts operated under the tread of said plate-rail.

3. The combination, with the switch-ties having metallic bearings, the switch-tie having a metallic cleat set therein, and the hangers depending from a railway-rail, of the stringers having flanges and lugs and working through the hangers, the slip-plate secured to the stringers between the flanges and lugs, the switch-frog secured to the stringers against said lugs, brace-rods connecting the plate with the frog-blade, and the levers pivoted together and to the ends of the stringers to slide the latter.

787,217. NAIL-HOLDER. JOHN E. PLANK, Palmer, Nebr. Filed Sept. 24, 1904. Serial No. 225,856.

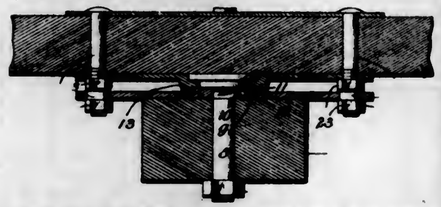
Claim.—1. A nail-holder comprising a series of receptacles arranged in parallel relation and each provided with a nail-receiving channel and a slot for projection of the shanks of the nails, transverse supporting elements connecting the receptacles at their lower and upper ends, and attaching devices connected with said supporting elements to adapt the holder to be secured to the person.

2. A nail-holder comprising a series of receptacles each provided with a nail-receiving channel and a slot for passage of the shanks of the nails to the exterior thereof, supporting-plates connected to and holding the series of receptacles in parallel relation, means for closing the lower ends of the series of receptacles, and means connected with said supporting-plates for attaching the device to the person, substantially as described.



787,218. WITHDRAWN.

787,219. WHIFFLETREE-COUPLING. JOHN R. PRING, Shawnee, Okla., assignor of forty-nine one-hundredths to Stanley H. Burt, Toledo, Ohio. Filed Aug. 17, 1904. Serial No. 221,068.



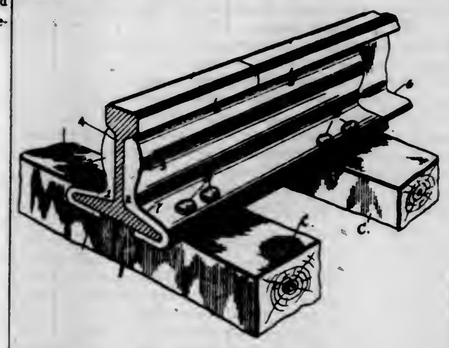
Claim.—1. A whiffletree-coupling comprising a lower member having an upstanding rabbeted bearing-boss formed with a squared pin-opening, an upper plate member provided with a bearing-cup registering with said boss and having a central bearing-opening, said member being also formed in its upper side with a circular seat, and a coupling-pin provided with a circular head registering in said seat, a journal-collar beneath the head and registering in the bearing-opening, and a squared neck portion engaging a squared pin-opening in the lower member.

2. In a coupling of the class described, the combination with the pole and tree, of the upper and lower plate members having a pivotal connection, and fastening-bolts connecting the upper member to the tree and provided with extensions having a limited guiding engagement with the lower plate member.

3. In a coupling of the class described, the combination with a pole and tree, of the upper and lower plate members having a pivotal connection, the lower plate member being provided with ears having guiding-slots therein, and fastening-bolts securing the upper member to the tree and carrying upon their lower ends rollers working in said guiding-slots.

787,220. RAIL-JOINT. JORDAN T. QUALE, Duquesne, Pa. Filed Aug. 30, 1904. Serial No. 222,696.

Claim.—The combination with a railway-rail, of two fish-plates, said fish-plates being of the same form, the fish-plates being adapted to closely embrace the web of the rail, and being imperforate at that portion adjacent the web of the rail, said fish-plates extending over and being bent under the bases of the rails, that portion of each fish-plate beneath the rails being of the same thickness and the adjacent edges thereof being spaced apart and being formed with apertures coinciding with apertures in the bases of the rails to receive spikes, the web portion of the fish-plates adjacent the rails being formed of gradually-increasing thickness from a point opposite the juncture of the web and base of the rail, and from a point adjacent the head of the rail to the middle of the fish-plate and forming reinforcements adapted to support the web portions of the rails.



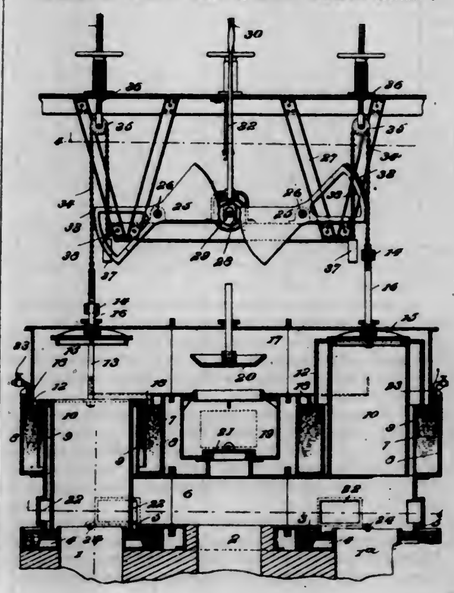
787,221. ELECTROLYTIC METHOD. ALEXANDER S. RAMAGE, Detroit, Mich. Filed Jan. 31, 1905. Serial No. 243,559.

Claim.—1. The herein-described electrolytic method, which consists in electrolyzing an aqueous solution of a metallic salt with an insoluble anode, recovering a cathode product, and oxidizing an anilin compound at the anode.

2. The herein-described electrolytic method, which consists in electrolyzing an aqueous solution of a metallic salt with an insoluble anode, recovering a cathode product, oxidizing an anilin salt at the anode, thereby producing anilin-black, and separating the anilin-black from the anode liquor.

3. The herein-described electrolytic method, which consists in electrolyzing an aqueous solution of a metallic salt with an insoluble anode, recovering a cathode product, oxidizing an anilin salt at the anode, thereby producing anilin-black, and separating the anilin-black from the anode liquor, and utilizing the anode liquor for the production of additional quantities of the anilin salt.

787,222. REVERSING-VALVE FOR REGENERATIVE FURNACES. JOSEF REULEAUX, Wilkinsburg, Pa., assignor to Alexander Laughlin, Sewickley, Pa. Filed May 19, 1904. Serial No. 208,790.



Claim.—1. In a reversing-valve, in combination, an upper supply-casing, a lower outlet-casing, upper and lower seal-troughs for such casings, two cylindrical valves working in said seal-troughs and through which the gases pass from the supply-casing to a regenerative flue or which permit the gases to pass from one regenerative flue to the outlet-casing, means for moving the valves lengthwise, and means for maintaining the integrity of one seal of each valve during the movements of the valves.

2. In a reversing-valve, in combination, an upper supply-casing, a lower outlet-casing, upper and lower troughs, two cylindrical valves working in said troughs and through which the gases pass from the supply-casing to a regenerative flue or which permit the gases to pass from one regenerative flue to the outlet-casing, means for moving the valves lengthwise, said upper casing having sealing-flanges extending into said upper troughs, and means for constantly maintaining the integrity of one seal of each valve during the movements of the valves.

3. In a reversing-valve, in combination, an upper supply-casing, a lower outlet-casing, upper and lower seals for such casings, two cylindrical valves through which the gases pass, said valves working at their lower ends in said lower seals and having at their upper ends outer depending portions extending into the upper seals to an extent greater than the range of movements of the valves, and means for moving the latter lengthwise, the gases passing through said valves from the supply-casing to a regenerative flue or from one flue to the outlet-casing.

4. In a reversing-valve, in combination, an upper supply-casing, a lower outlet-casing, upper and lower seals, two cylindrical valves through which the gases pass, movable covers for said valves located within said supply-casing, means for moving the valves lengthwise, and means carried by the valves for maintaining constant the upper seals thereof at all stages of movement.

5. In a reversing-valve, in combination, a water-trough, a side outlet above the latter, a cylindrical valve over the trough, means for moving the valve lengthwise, an upper supply-casing, a cover for said valve located within said supply-casing, means for moving the cover, and a constant water seal for the valve intermediate the supply-casing and the side outlet.

6. In a reversing-valve, in combination, a lower seal-trough, a casing having depending flanges extending into said seal-trough, a cylindrical valve extended through said casing and working in said seal-trough, an upper seal-trough, a wall concentric with and depending from said valve into said upper seal-trough a distance greater than the movement of the valve, and means for moving the valve lengthwise.

7. In a reversing-valve, in combination, upper and lower water-seal troughs, an intermediate casing having a flange depending into the lower seal-trough and upon which the upper seal-trough is mounted, a cylindrical valve designed to work in said lower seal-trough and having a concentric portion depending into said upper seal-trough a distance greater than the range of movement of the valve, and means for moving the latter.

8. In a reversing-valve, in combination, upper and lower troughs forming water seals, the depth of the former being considerably greater than that of the latter, a cylindrical valve having an outer concentric wall depending into said upper seal-trough, and means for moving the valve, said wall extending into said upper seal-trough during all stages of movement of the valve.

9. In a reversing-valve, in combination, a trough adjacent to a regenerative flue, a casing forming a side outlet from such flue, a valve movable vertically into and out of said trough and having an external water seal in all positions.

10. In a reversing-valve, in combination, upper and lower casings, an intermediate supply-compartment opening into said upper casing, a valve therefor, two cylindrical valves, lids therefor within said upper casing, means for moving the valves lengthwise, and means for actuating the lids, said lids being movable with and independent of the cylindrical valves.

11. In a reversing-valve, upper and lower casings, an intermediate supply-compartment opening into said upper casing, a valve therefor, two cylindrical valves, lids therefor within said upper casing, means for moving the valves lengthwise, and means for actuating the lids, said lids being movable with and independent of the cylindrical valves.

12. In a reversing-valve, upper and lower casings, an intermediate supply-compartment opening into said upper casing, a valve for controlling such opening, an opening in the bottom of said compartment in line with the chimney-flue, and a cover therefor.

13. In a reversing-valve, in combination, a lower outlet-casing common to two regenerator-flues and to the chimney-flue, an upper supply-casing, two cylindrical valves for the two regenerator-flues and through which the gases pass, upper and lower seals for such valves, lids therefor within said supply-casing, and means for moving either valve and its lid to any desired extent to regulate the outflow of the gases, one seal of such valve being constant.

14. In a reversing-valve, in combination, upper and lower water-seal troughs, an upper casing having a depending portion extending into the upper water-seal trough, a cylindrical valve working in said troughs and through which the gases pass, a lid for said valve within said casing, means for moving the valve and lid, and means for moving the lid independently of the valve.

15. In a reversing-valve, in combination, a vertically-movable cylindrical valve through which the gases pass, a lid for said valves, and means connected to the valve and its lid for moving them in unison and allowing one to move free of the other.

16. In a reversing-valve, in combination, a vertically-movable cylindrical valve through which the gases pass, a lid for said valve, means connected to the valve, and means connected to the lid for effecting the raising and lowering thereof, the lid moving but a portion of the stroke of the valve and in part while in engagement therewith.

17. The combination with a vertically-movable cylindrical valve through which the gases pass, chains connected to such valve for effecting the raising and lowering thereof, a lid for such valve, a chain connected thereto, means to which the chains of the valve are secured for effecting the raising and lowering thereof, and means carried by such latter means for engaging the chain of the lid for controlling the position of the latter relative to the valve.

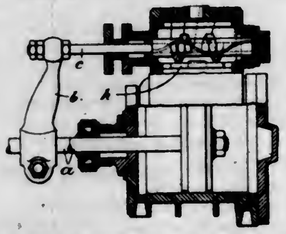
18. In a reversing-valve, in combination, two cylindrical valves through which the gases pass, lids therefor, two rocking beams from which the valves are suspended, means carried by such beams for effecting the raising and lowering of said lids simultaneously with the movements of the valves, and means engaging the two beams for moving them simultaneously or one independently of the other.

19. In a reversing-valve, in combination with the two valves, the rocking beams from which the valves are suspended, such beams having opposite toothed portions and smooth segmental portions, such smooth portions of the two beams being out of line with each other, a gear-wheel engaging said toothed portions, and means for shifting such gear-wheel into line with the smooth portion of one beam while it remains in gear with the other beam.

20. The combination with the two valves, the rocking beams for raising and lowering the valves, and means for actuating the beams simultaneously or independently, of the lids for such valves, chains connected to such lids, and means carried by such beams for acting on said chains to effect the raising of the lids, pulleys over which such chains are passed, and means for raising and lowering the pulleys to regulate the extent of the movements of the lids.

21. The combination with a valve, of a rocking beam for raising and lowering the same, a lid for the valve, a chain connected to such lid, a pulley for such chain, an adjustable support for such pulley, means for actuating the rocking beam, and a dog carried by the latter for engaging the chain to effect the movement of the lid.

787,223. **VALVE-GEAR FOR ENGINES.** OTTO SCHWADE, Erfurt, Germany. Filed Dec. 12, 1904. Serial No. 236,571.



Claim.—1. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating bodies in said valve-chest and spiral-screw means for rotating said bodies: substantially as set forth.

2. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating tubular bodies, valve-rods within said tubular bodies and spiral-screw connections between the valve-rods and their tubular bodies: substantially as set forth.

3. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating bodies in said chest, means for rotating said bodies, and projections on said bodies for operating the valve: substantially as set forth.

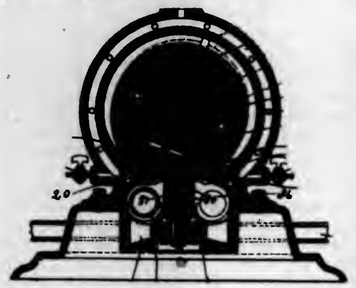
4. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating bodies in said chest, means for rotating said bodies, and spiral projections on said bodies for operating the valve: substantially as set forth.

5. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating tubular bodies, valve-rods within said tubular bodies, a spiral groove in each of said tubular bodies, and a corresponding spiral projection on each valve-rod: substantially as set forth.

6. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating tubular bodies, valve-rods within said tubular bodies, a spiral groove in each of said tubular bodies, a corresponding spiral projection on each valve-rod and a valve-operating projection on the exterior of the rotary tubular body: substantially as set forth.

7. Valve-operating gear for two-cylinder steam-engines comprising a valve-chest, two rotary non-reciprocable valve-operating tubular bodies, valve-rods within said tubular bodies, a spiral groove in each of said tubular bodies, a corresponding spiral projection on each valve-rod and a spiral valve-operating projection on the exterior of the rotary tubular body: substantially as set forth.

787,224. **ROTARY ENGINE.** JOHN R. SCOFIELD, Dallas, Tex. Filed June 18, 1904. Serial No. 213,167.



Claim.—1. A rotary engine comprising a casing, a partition dividing said casing into two cylinders, a piston-carrying disk mounted in each part, a shaft provided with suitable bearings and carrying said disk, a reciprocating piston carried in each disk, the disk of one piston being arranged diametrically opposite the piston of the other disk, a cam on each disk, coöperating reciprocatory pistons mounted in said casing, each part of said casing having a cam formed thereon to coöperate with the cams on said disks, and means for feeding steam to said cylinders.

2. A rotary engine having a casing, a partition dividing said casing into two cylinders, each cylinder having cams formed thereon, piston-carrying disks mounted in said cylinders and having cams formed on the peripheries thereof, reciprocatory pistons mounted in said disks and operating through the crest of said cams, and coöperating pistons mounted in said casing and operating through the crests of the cams formed in said cylinders.

3. A rotary engine having cylinders provided with cams on the interior surfaces thereof, piston-carrying disks mounted in said cylinders and provided with coöperating cams on the peripheries thereof, spring-actuated pistons mounted in said disks and operating radially through the cams on said disks, and coöperating spring-actuated pistons mounted in the casing of said cylinders and moving concentrically through the cams of said cylinders.

4. A rotary engine having two cylinders, a rotary piston-carrying disk mounted in each cylinder, a steam-balanced spring-actuated piston mounted in each disk and operating radially through the periphery thereof, the pistons of said disks being arranged diametrically opposite each other, a coöperating reciprocatory spring-actuated piston mounted in the casing of each cylinder, and suitable inlet and exhaust for said cylinders.

5. A rotary engine having two cylinders, a rotary piston-carrying disk mounted in each cylinder and having a cam formed on the periphery thereof, a spring-actuated piston mounted in each disk and operating radially through the crest of said cam, the piston of said disk being arranged diametrically opposite each other, a coöperating cam formed in each cylinder, a coöperating reciprocatory spring-actuated piston mounted in the casing of each cylinder and moving concentrically through the crest of the cam thereof, and means for operating said engine.

6. A rotary engine having two cylinders, a rotary piston-carrying disk mounted in each cylinder, a cam formed on the periphery of each disk, a spring-actuated reciprocatory piston mounted in each disk and operating radially through the crest of said cam, the pistons of said disks being arranged diametrically opposite each other whereby one disk with its piston counterbalances the other disk with its piston, a coöperating reciprocatory spring-actuated piston mounted in the casing of each cylinder, and means for operating said engine.

7. A rotary engine having two cylinders, a rotary piston-carrying disk mounted in each cylinder and having a cam formed on the periphery thereof, a spring-actuated reciprocatory piston mounted in each disk and operating radially through the crest of said cam, the pistons of said disks being arranged diametrically opposite each other whereby one disk is adapted to counterbalance the other disk, each cylinder having an interior cam, a coöperating reciprocating spring-actuated piston mounted in the casing of each cylinder whereby the piston of one casing and the piston of the disk mounted in said cylinder are adapted to form intermittently pockets for the expansion of steam, and means for operating the engine.

8. A rotary engine having two cylinders, a piston-carrying disk mounted in each cylinder, means for automatically expanding said disks axially, a spring-actuated piston mounted in each disk and operating radially through the periphery thereof, and a coöperating reciprocatory piston mounted in the casing of each cylinder, and moving concentrically therein to form intermittent steam-cut-offs with the coöperating piston in each disk.

9. In a rotary engine, two cylinders having a common steam-chest formed adjacent thereto, a port leading from said chest to each cylinder, each cylinder having a cam formed on the interior surface thereof, a reciprocatory piston mounted in said casing for each cylinder, a rotary piston-carrying disk mounted in each cylinder and having a cam formed on the periphery thereof, a reciprocatory piston mounted in each disk and moving radially through the crest of the cam on said disk and coöperating with the piston in said casing, and means for operating said disks.

10. In a rotary engine, two cylinders each having a cam formed on the interior surface thereof, a rotary piston-carrying disk mounted in each cylinder and having a coöperating cam formed on the periphery thereof, a reciprocatory piston mounted in each disk and moving radially through the crest of the cam thereon, a coöperating reciprocatory piston mounted in the casing of each cylinder and moving concentrically through the crest of the cam formed therein, and means for axially expanding said disks to take up wear caused by friction.

11. In a rotary engine, disks of the character indicated, means for expanding said disks axially consisting of L-shaped packing-rings mounted in the periphery of said disk, wedge-shaped packing-rings mounted concentrically in said disks adjacent to said L-shaped rings, steam packing-rings mounted concentrically within said wedge-shaped rings, and means for expanding said steam packing-rings with steam.

12. In a rotary engine, provided with disks of the character indicated, L-shaped packing-rings mounted in the periphery of said disks and forming parts of the faces of said disks and means for expanding said rings axially with steam from within said disks.

13. In a rotary engine, provided with disks of the character indicated, packing-rings forming parts of the peripheries and parts of the faces of said disks, and means for expanding said rings axially consisting of packing-rings mounted in said disks concentrically within said first-named packing-rings, and plugs mounted in said disks and having steam-passages therethrough, connecting steam-passages leading therefrom formed in said disks and leading to said last-named packing-rings.

14. In a rotary engine provided with disks carrying packing elements, means for expanding said elements by steam from within said disks.

15. In a rotary engine provided with disks of the character indicated, L-shaped packing-rings forming parts of the peripheries and parts of the faces of said disks, wedge-shaped packing-rings mounted in said disks concentrically within said L-shaped rings, steam

packing-rings concentrically within said wedge-shaped rings, and means for expanding said steam packing-rings radially.

16. In a rotary engine provided with disks of the character indicated, L-shaped rings forming parts of the peripheries of said disks and parts of the faces thereof, perforated plugs mounted in said disks, one plug being rigid with each of said rings, and means for expanding said rings axially consisting of wedging-rings mounted in said disks concentrically within said L-shaped rings, and steam packing-rings concentrically within said wedging-rings, said disks having steam-passages leading from said plug to said packing-ring.

17. In a rotary engine provided with disks of the character indicated, means for expanding said disks axially and means for balancing the pressure of the expansion with steam.

18. In a rotary engine provided with disks of the character indicated, expansible rings, wedging-rings, packing-rings adapted to actuate said wedging-rings, means for directing steam against said packing-rings, and means for balancing said disks with steam.

19. In a rotary engine provided with disks of the character indicated, expansible rings, wedging-rings, packing-rings, and perforated plugs rigid with said expansible rings, said disks having suitable steam-inlets in connection with said plugs.

20. In a rotary engine provided with a pair of cylinders and a pair of disks mounted in said cylinders, expansible rings, wedging-rings, means for expanding said wedging-rings radially, and perforated plugs rigid with said expansible rings, said disks having suitable steam-inlets in connection with said plugs and said cylinders having annular grooves in communication with the passages through said plugs.

21. In a rotary engine provided with a pair of cylinders and a pair of disks mounted in said cylinders, expansible rings carried by said disks and perforated plugs carried by said rings, said disks having suitable steam-inlets whereby said rings are expanded by the force of steam.

22. In a rotary engine provided with a plurality of cylinders and a plurality (one for each cylinder) of piston-carrying disks mounted in said cylinders, expansible rings carried by said disks, and perforated plugs mounted in said disks, said disks having suitable steam-inlets in communication with said plugs whereby said rings are expanded by the force of steam.

23. In a rotary engine provided with a plurality of cylinders and a plurality of disks (one for each cylinder) mounted in said cylinders, expansible rings carried by said disks, and perforated plugs in combination with said rings, said disks and said cylinders having suitable steam-inlets in communication with said plugs whereby said rings are expanded by the force of steam.

24. In a rotary engine provided with a plurality of cylinders and a plurality of disks mounted in said cylinders, expansible rings carried by said disks, and perforated plugs carried in said disks, said disks having suitable ducts in communication with said plugs whereby said rings are expanded by the force of steam and said cylinders having annular grooves in communication with said plugs whereby said disks are counterbalanced with steam.

25. In a rotary engine provided with pistons made in two parts and united by dovetailed joints, spring-actuated plates for preventing the leakage of steam through said dovetailed joints.

26. In a rotary engine of the character indicated, pistons and steam-balanced packing-plugs coöperating therewith.

27. In a rotary engine of the character indicated, pistons, packing-plugs coöperating therewith, and packing-bars countersunk in said plugs.

28. In a rotary engine of the character indicated, pistons, springs for actuating said pistons, packing-plugs in combination with said pistons, and packing-bars countersunk in said plugs.

29. In a rotary engine of the character indicated, spring-actuated pistons, packing-plugs in combination with said pistons, and spring-actuated packing-bars countersunk in said plugs.

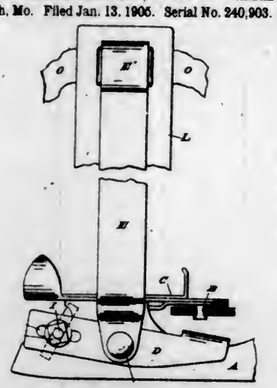
30. In a rotary engine of the character indicated, pistons, packing-plugs in combination with said pistons, each plug being made in three parts dovetailed together, and spring-actuated packing-bars countersunk in said plugs, said plugs having suitable passages therethrough for balancing said plugs with steam.

31. In a rotary engine of the character indicated, pistons, packing-plugs in combination with said pistons, spring-actuated packing-bars countersunk in said plugs, said plugs being made in three parts and dovetailed together, and means for breaking the dovetailed joints of said plugs, said plugs having suitable pockets and passages for counterbalancing said plugs with steam.

32. In a rotary engine provided with a plurality of cylinders and a plurality of disks mounted in said cylinders, said disks and said cylinders having coöperating cams and coöperating pistons reciprocating through the crests of said cams, said pistons being provided with suitable steam-pockets and passages therethrough whereby said pistons are counterbalanced.

33. A rotary engine having a plurality of cylinders, piston-carrying disks mounted in said cylinders, spring-actuated pistons mounted in said disks and operating radially therein, and coöperating reciprocatory pistons mounted in the casings of said cylinders and moving concentrically therein, said pistons having steam-passages therethrough whereby said pistons are steam-balanced.

787,225. **SKATE ANKLE-SUPPORTER.** ANDREW J. SCRIVEN, St. Joseph, Mo. Filed Jan. 13, 1905. Serial No. 240,903.



Claim.—1. In an ankle-supporter the combination with a skate, of a metal plate provided with a slot near its rear end, a flange at its front adapted to clamp over the top of the skate-runner, a bolt and having an elongated head and nut for rigidly attaching said plate to the skate-runner at its back, a spring-steel brace pivoted centrally on the outside of said plate, a loop at the top of the brace, a cushion and straps to hold said cushion inside the brace and bind the brace to a limb of the skater, substantially as shown and described.

2. In a skate ankle-supporter the combination with a pivotally-carried brace provided with a loop, a cushion and straps, of a plate provided with a pin set centrally and rigidly on the outside thereof to support said brace and a horizontal rearward slot therein to permit adjustment of the supporter to any size of skate, a bolt having an elongated head and a nut to engage with said slot, the elongated head thereof adapted to reach across the cut-out at the back of and take hold upon the side of a skate and a flange at the front of the plate suited to take hold and clamp upon the top thereof, substantially as shown and described.

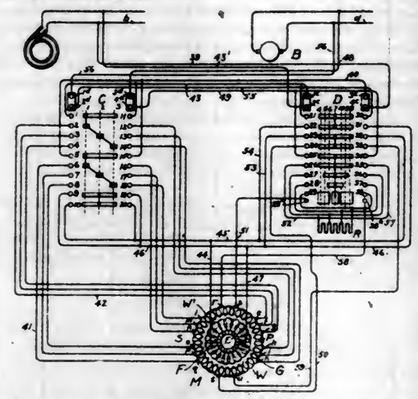
787,226. **FELT-BOOT HEEL-PLATE.** DE CALVUS SMITH, Colebrooke, Ohio. Filed Apr. 18, 1904. Serial No. 203,637.



Claim.—The combination with the heel portion of a felt boot, a plate shaped to conform to the shape of the boot and provided with a series openings around its edge, a flexible extension connected to said plate and secured thereto by fastenings passing through the openings of the plate, said extension fitting snugly against the heel of the boot and a strip or reinforcing-band around the edge of the extension and secured thereto and adapted to be secured to the boot-heel.

787,227. **ELECTRIC-MOTOR SYSTEM.** CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Oct. 5, 1903. Serial No. 175,721.

Claim.—1. The combination of an alternating-current source of supply, a continuous-current source of supply, a motor, means for connecting said motor to the alternating-current source so that it will operate as a repulsion-motor, and means for connecting the said motor to the continuous-current source so that it will operate as a continuous-current motor.



2. A motor comprising a member provided with a distributed winding and a member provided with a winding connected to the segments of a commutator with brushes bearing thereon, in combination with means for connecting the motor-windings to an alternating-current source of supply in such a manner that the motor will operate as a repulsion-motor, and means for connecting the same motor-windings to a continuous-current source of supply in such a manner that it will operate as a continuous-current motor.

3. The combination with a motor having one of its members provided with a distributed winding and its other member with a winding connected to the segments of a commutator with brushes bearing thereon, of controlling switch-contacts connnected to the motor-windings, certain of said contacts being arranged to connect the motor-windings to an alternating-current source in such a manner that the motor will operate as a repulsion-motor and other contacts being arranged to connect the said motor-windings to a continuous-current source in such a manner that it will operate as a continuous-current motor.

4. The combination with a motor having one of its members provided with a winding connected to the segments of a commutator with brushes bearing thereon and the other member with a distributed winding, of means for electrically connecting the commutator-brushes and for connecting the distributed winding on the other member of the motor to a single-phase source of supply so that it will generate a primary field along a line displaced by a small angle from the line of the short-circuiting brushes, and means for closing a circuit from a continuous-current source through the winding on the member provided with a commutator by way of the brushes bearing thereon and through the distributed winding on the other member of the motor by way of points lying along a line displaced in the neighborhood of ninety degrees from the line of the commutator-brushes.

5. The combination with a repulsion-motor comprising a primary member provided with a distributed winding and a secondary member having its winding connected to the segments of a commutator with short-circuiting brushes disposed thereon, of means for opening the short circuit between the commutator-brushes and connecting the commutator-brushes in circuit with the primary winding in such a manner that the motor may be operated as a series motor.

6. The combination with a repulsion-motor comprising a primary member provided with a distributed winding and a secondary member having its winding connected to the segments of a commutator with short-circuiting brushes disposed thereon, and means for opening the short circuit between the commutator-brushes and connecting the said brushes in circuit with the primary winding in such a manner that the primary member will be magnetized along a line displaced in the neighborhood of ninety degrees from the line of the commutator-brushes.

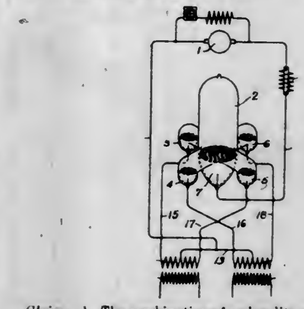
7. A repulsion-motor comprising a primary member provided with a distributed winding and a secondary member having its winding connected to the segments of a commutator on which are disposed short-circuiting brushes, and taps in the distributed winding disposed along a line which will give the proper angle of lead to the brushes when the motor is connected for operation as a series motor.

8. A repulsion-motor comprising a primary member provided with a distributed winding and a secondary member having its winding connected to the segments of a commutator on which are disposed short-circuiting brushes, and taps in the distributed winding disposed along lines which will give the proper angle of lead for either direction of rotation when the motor is connected for operation as a series motor.

9. A repulsion-motor comprising a primary member provided with a distributed winding and a secondry member having its winding connected to the segments of a commutator on which are disposed short-circuiting brushes, commutation-slots in the primary member, and means for connecting the motor-windings for operation as a continuous-current motor.

10. A motor system comprising a motor provided with a commutator and brushes bearing on said commutator, and means for connecting the brushes with a source of direct-current supply or for short-circuiting the brushes and connecting the motor to a source of alternating-current supply, whereby the motor way be caused to operate either as a direct or as an alternating current motor.

787,228. **MEANS FOR TRANSFORMING DIRECT CURRENT.** CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Dec. 17, 1903. Renewed Sept. 1, 1904. Serial No. 223,004.



Claim.—1. The combination of a plurality of transformer-windings, a vapor electric device having a cathode and a plurality of anodes, connections between the anodes and the terminals of said windings, a source of direct current, a connection from said source to said cathode, and another connection from said source to the middle points of said windings.

2. The combination of a source of direct current, a vapor electric device, and means coöperating with said source and said device for transforming direct current from said source into multiphase alternating current of an even number of phases.

3. The combination of an exhausted envelop, a cathode, a plurality of anodes arranged around said cathode, means for producing between said cathode and anodes an arc shifting in regular succession from anode to anode, and means for deriving from the pulsations of current passing to each anode a quarter-phase alternating current.

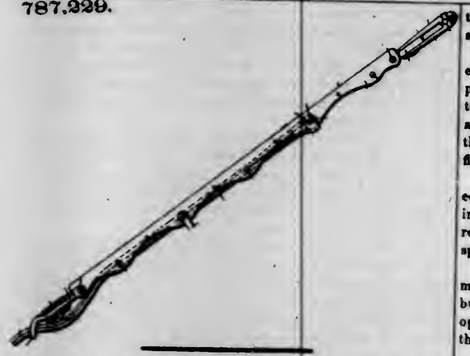
4. The combination of a source of direct current, a vapor electric device having a cathode and a plurality of anodes, a winding having terminals connecting respectively to corresponding anodes, and a source of direct current connected between said cathode and an intermediate point in said winding.

5. The combination of a source of direct current, a winding, and a vapor electric apparatus connected to said winding so as to produce current impulses flowing alternately in different parts of the winding.

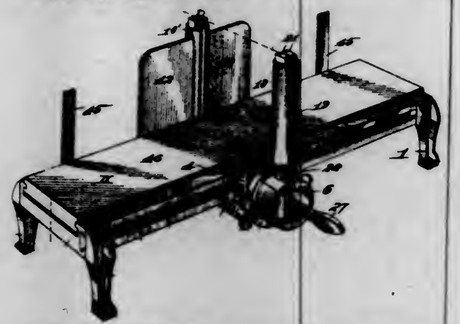
787,229. **HAME-TUG.** WILLIAM L. STRINGER, Cooperstown, N. D. Filed July 22, 1904. Serial No. 217,698.

Claim.—In a hame-tug, a base-frame having spaced lateral side ribs, means for adjustably connecting the draft-trace between said side ribs, detachable means for connecting the base-frame to the hames, a coupling-frame movably connected to the rear end of said base-frame and provided with a loop beneath which the draft-trace passes and having a transverse central bar provided with a central lateral stud for passing through the back-band and girth members of the harness, said stud having a transverse aperture for receiving a holding-pin.

787,229.



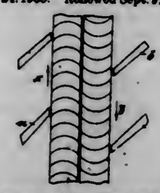
787,230. MITER-BOX. HENRY F. STUBER, St. Louis, Mo. Filed May 22, 1903. Serial No. 158,341.



Claim.—1. In a miter-box, the combination of a bed-frame, a guideway thereon, an apertured slide having a dovetailed tongue riding in said guideway, a forward guide-post-supporting head mounted in said slide to rotate in a plane parallel to the length of the guideway, a hanger secured to the rear of the frame, an apertured rear post-supporting head rotatably mounted thereon, a rear guide-post mounted in said supporting-head, and a level pivotally mounted in said forward post-supporting head, and loosely mounted in said rear post-supporting head.

2. In a miter-box, the combination of a bed-frame, a guideway thereon, a slide having a tongue riding in the guideway, an apertured guide-post-supporting head mounted in said slide to rotate in a plane parallel to the length of the guideway, an annular rim on the inner end of said head, a guide-post rotatably mounted on said supporting-head, a clamp-ring lying against the slide, the inner face of said ring being beveled at one end, an annular flange on said ring, and means for forcing said ring tightly against the annular rim on the guide-post-supporting head.

787,231. STEAM-TURBINE. JOHANN STUMPF, Charlottenburg, Germany, assignor to General Electric Company, a Corporation of New York. Filed Feb. 24, 1903. Renewed Sept. 9, 1904. Serial No. 223,861.



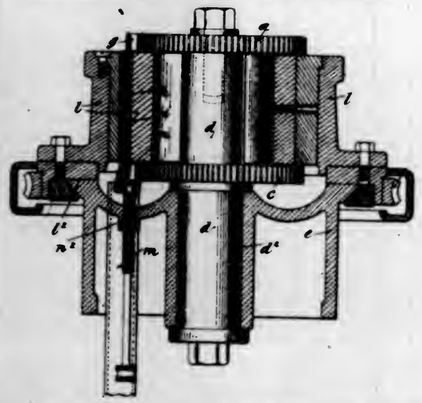
Claim.—1. In a steam-turbine, the combination of two turbine-wheels, each provided with one row of buckets, the buckets of one turbine-wheel being situated in the opposite direction to the buckets of the other turbine-wheel so that the steam leaving the buckets of one turbine-wheel can enter into the buckets of the second one, nozzles for each wheel, said nozzles being situated so, that a nozzle on the left-hand side alternates with a nozzle on the right-hand side, substantially as described.

2. In an elastic-fluid turbine, the combination of wheels mounted to revolve in opposite directions, each wheel being provided with peripheral buckets, those of one wheel being reversed with respect to those of the next, nozzles disposed on opposite sides of the wheels and located at the same distance from the axis of the wheels so that the passages between the buckets are common to and receive motive fluid from both sets of nozzles.

3. In an elastic-fluid turbine, the combination of wheels mounted to revolve in opposite directions, the buckets on a given wheel being similarly disposed, and nozzles oppositely disposed to balance the reaction, which nozzles discharge motive fluid through the bucket-spaces, the latter being common to all the nozzles.

4. In an elastic-fluid turbine, the combination of bucket-wheels mounted to revolve in opposite directions, the passages between the buckets on one wheel registering with those on another wheel, and oppositely-disposed nozzles located at the ends of the wheels and at the same radial distance from the wheel-axis.

786,232. HINGE-CUTTING MACHINE. GEORGE B. TAYLOR, Birmingham, England. Filed July 6, 1903. Serial No. 164,456.



Claim.—1. In a machine of the character described, the combination with a substantially convolute disk-shaped cutter, of a circular carrier for the articles to be cut, one of said parts being stationary and the other rotatable, the cutter having a recessed inactive portion on its periphery for the insertion and removal of the articles in and from the carrier, substantially as and for the purpose specified.

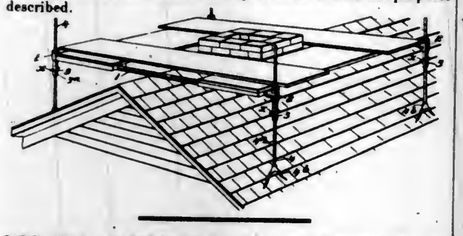
2. In a machine of the character described, the combination of a stationary and approximately convolute disk-shaped cutter, a rotatable carrier for the articles to be cut provided with a circular series of pockets concentric with the center of the carrier to hold said articles, said cutter being recessed on one portion of its edge for the insertion and removal of the articles in and from said pockets, and means for rotating the carrier, substantially as and for the purpose specified.

3. In a machine of the character described, the combination of a stationary and approximately convolute disk cutter, a circular rotatable carrier provided with a circular series of pockets concentric with the center of the carrier to hold said articles, said cutter being arranged above the carrier and recessed on one portion of its edge for the insertion of the articles in said pockets, and means for rotating the carrier to successively present the articles to the convolute cutting edge of the cutter, substantially as and for the purpose specified.

4. In a machine of the character described, the combination with a disk cutter having a mutilated convolute cutting edge, of a circular carrier for holding the articles to be operated on, one of said parts being arranged above the other and in close juxtaposition thereto, and means for rotating one of said parts to cause the articles to be successively operated on by the convolute cutting edge of the cutter, substantially as and for the purpose specified.

787,233. SCAFFOLDING. ARTHUR TINGLEAF, Altona, Ill. Filed Dec. 27, 1904. Serial No. 238,433.

Claim.—In a scaffolding construction of the character stated, a trestle comprising a transverse tubular bar, T-heads at each end of said bar, short tubular sections secured to said T-heads, rods passing through such tubular sections and said T-heads, said rods having a plurality of apertures, said short tubular sections each having an aperture, securing-pins adapted to pass through said apertures, said rod-sections each having their lower ends provided with prongs for entering the roof, said transverse tubular sections and said rod members being so arranged as to form a supporting member for holding the platform-boards substantially as shown and for the purposes described.

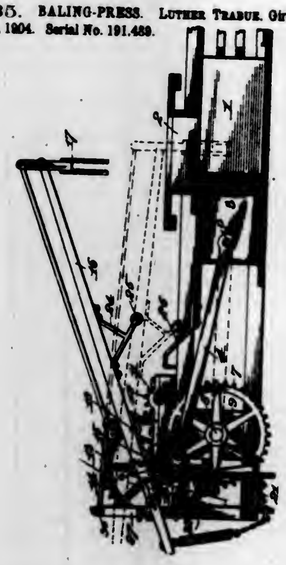


787,234. RATCHET-DRILL. FRANCIS C. TORRANCE, Erie, Pa. Filed July 22, 1903. Serial No. 166,616.



Claim.—A ratchet-drill comprising an arbor having feeding means, a pair of separated collars on said arbor, screws rigidly connecting said collars with said arbor, a gear-wheel detachably connected with each of said collars, a pair of dog-carrying sleeves surrounding said arbor, each of the sleeves being recessed to receive the detachable gear-wheel on the adjacent collar, movable dogs in each of said sleeves, coil-springs surrounding said dogs, removable plugs in said sleeves against which the coil-springs bear, a gear-wheel secured to each of said dog-carrying sleeves, a pinion-carrier surrounding said arbor between said dog-carrying sleeves, said collars, sleeves and pinion-carrier being constructed and arranged to form a complete inclosing casing for the operating parts, pinions journaled on the periphery of said pinion-carrier and meshing with gear-wheels on the dog-carrying sleeves, a lever for rotating said dog-carrying sleeves, and a lever for rotating said pinion-carrier, substantially as specified.

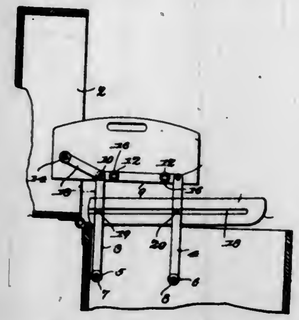
787,235. BALING-PRESS. LUTHER TRABUE, Girard, Ill. Filed Feb. 1, 1904. Serial No. 191,489.



Claim.—1. In a baling-press, the combination of a vibratory feeder, means for elevating said feeder, and spring-pressed catch-arms for engagement with said feeder to hold it in elevated position, substantially as set forth.

2. In a baling-press, the combination of a vibratory feeder, means for starting the elevation of said feeder, spring-pressed catch-arms for engagement with said feeder to hold it in elevated position, and a retracting-spring for completing the elevation of said feeder, substantially as set forth

787,236. TRUNK. CHARLES E. TURNER and ROBERT L. HYMAN, Macon, Ga.; said Hyman assignor to said Turner. Filed Oct. 24, 1904. Serial No. 229,778.



Claim.—1. The combination with a trunk-body having a hinged lid, of tray-elevating devices at each end of the trunk and consisting of a pair of swinging bars pivotally supported upon the trunk and provided with lateral projections, a link connected to the lid and to the swinging bars, and a tray provided at each end with a guideway slidably receiving the projections of the swinging bars.

2. The combination with a trunk-body having a hinged cover, of tray-elevating devices at opposite ends of the trunk, each device comprising a pair of swinging bars pivotally supported upon the trunk-body and provided with lateral projections, the projection of the front bar being disposed above that of the rear bar, a link connecting the lid and the swinging bars, and a tray provided at each end with a guideway slidably receiving the projections, the front of the tray being inclined upwardly in its elevated position.

3. The combination with a trunk-body having a hinged cover, of tray-elevating devices at opposite ends of the trunk, each device comprising a pair of swinging arms pivotally supported upon the trunk-body and provided with lateral projections, means connecting the arms with the lid, and a tray having each end provided with a guideway slidably receiving the projections, the rear end of the guideway being open for the reception and removal of the projections.

4. The combination with a trunk-body having a hinged lid, of tray-elevating devices at opposite ends of the trunk, each device being pivotally supported upon the trunk-body and connected with the lid, and a tray having a slidable connection with the respective elevating devices, the tray being disposed for engagement with the front of the trunk during the closing of the lid to slide the tray rearwardly upon the elevating devices and permit of the tray entering the trunk.

5. The combination with a trunk having a hinged lid, of tray-elevating devices at opposite ends of the trunk, each device being pivotally supported upon the trunk-body and connecting with the lid for simultaneous movement therewith, an upper tray detachably supported upon the elevating devices, and a lower tray slidably and detachably carried by the elevating devices and located below the upper tray.

6. The combination with a trunk having a hinged lid, of a pair of vertically-swinging bars pivotally supported upon each end of the trunk, projections carried by the bars intermediate of their ends, a cross-bar pivotally connecting the upper ends of the swinging bars and provided in its upper edge with a pair of notches, a link pivotally connected to the lid and to the rear swinging bar, an upper tray provided at each end with a pair of projections detachably received within the respective notches of the cross-bar, and a lower tray having a longitudinal slot in each end thereof and slidably receiving the adjacent projections, the rear end of the slot being open for the entrance and removal of the projections.

787,237. **UMBRELLA.** GRANVILLE TURNER, Tacoma, Wash., assignor of one-fourth to James B. Baldy, Tacoma, Wash. Filed May 9, 1904. Serial No. 207,970.

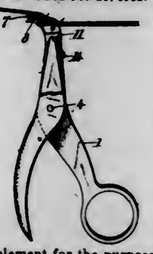


Claim.—1. In an umbrella, a staff having a reduced upper end, a notch mounted to slide relatively to the staff, means for locking the notch in engagement with the staff to prevent rotary movement when in normal position, and a spring for moving the notch lengthwise of the staff, and carrying the ribs and cover therewith.

2. An umbrella comprising a staff having a reduced upper end and provided with a recess at the junction of the reduced portion and enlarged portion, a notch movable lengthwise of the staff, a lug on the inner side of said notch for engaging in said recess, a spring surrounding the staff and connected at its lower end thereto and engaging at its upper end with the notch, a sleeve for removably engaging over the reduced end of the staff, the said sleeve having a longitudinal runway provided with an offset at its upper end, and a pin on the staff for engaging in said runway.

3. An umbrella comprising a staff having a reduced upper end, a notch movable lengthwise of the staff, a spring secured at one end to the staff and engaging at the other end with said notch, a sleeve for removably engaging over the reduced portion of the staff, the said sleeve having a longitudinal slot opening outward at the bottom and having an offset at the upper end, the said sleeve having a bell-shaped lower end, and a pin extended from the staff for engaging in said slot.

787,238. **THREAD CUTTER AND TIER.** JOSEPH B. UNDERWOOD, Fayetteville, N. C. Filed Oct. 29, 1903. Serial No. 178,979.



Claim.—1. An implement for the purpose described, comprising a pair of handles pivotally connected, a pair of jaws on one of said handles, and a jaw pivoted between said pair of jaws and operated by the other handle, all of said jaws being pointed and extended laterally.

2. An implement for the purpose described, comprising pivotally-connected handles, a pair of jaws mounted on one of the handles, and a jaw pivoted between the pair of jaws and operated by the other handle, the several jaws being arranged at an acute outward angle with relation to the handles.

3. An implement for the purpose specified, comprising pivotally-connected handles, a pair of jaws carried by one of the handles, and a jaw arranged to swing between the pair of jaws and operated by the other of said handles, all of said jaws being pointed, extended at an acute angle with relation to the handles and also having a lateral curve.

4. An implement for the purpose specified, comprising a handle having two spaced members, pointed jaws integral with said spaced members, and a jaw mounted to swing between the first-named jaws and a handle for the last-named jaw, all of said jaws being curved and extended transversely of the line of pivotal movement of the handles.

5. An implement for the purpose specified, comprising pivotally-connected handles, a pair of jaws carried by one of the handles, a jaw arranged to swing between said pair of jaws and operated by the other handle, all of said jaws being extended outward to one side with relation to the handle, and means for limiting the movements of the swinging jaw.

787,239. **WINDOW-SHADE AND CURTAIN HANGER.** MATHEW VAN BOXEL, Cleveland, Ohio, assignor of sixty-five one-hundredths to George Boser, Cleveland, Ohio. Filed Jan. 14, 1905. Serial No. 241,015.

Claim.—1. The combination with a longitudinally-recessed plate provided with a raised center, and longitudinal slots in its face and lower edge, of shade-roller hangers movably secured to said plate in said slots, one of said hangers projecting forwardly and the other projecting rearwardly, substantially as described.

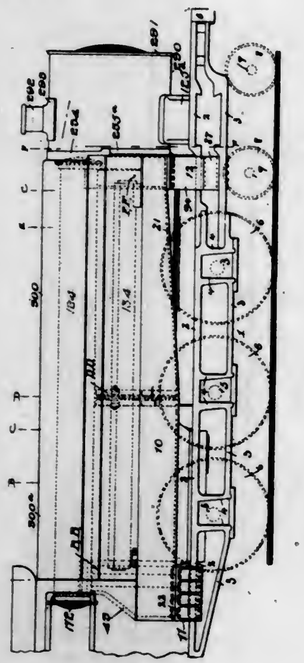


2. An adjustable window-shade hanger consisting of in combination, a plate longitudinally recessed and provided with a longitudinal slot in its front face, and a similar slot in its lower edge, of shade-roller hangers, inserted in the lower slot, a screw-threaded pin in each hanger projecting through said slot in the face of the plate, and a thumb-nut upon each pin, one of said hangers projecting forwardly and the other hanger rearwardly, substantially as described.

3. In combination with a window-frame, a plate on each side thereof, each plate being longitudinally recessed and having a longitudinal slot in its face, and a similar slot in its lower edge, a hanger in each plate movably secured in said slots, and located over the window-frame, and turned outwardly at its lower edge, and a hanger in each plate movably secured in said slots, and located inside of the frame, and turned inwardly at its lower end, substantially as described.

4. A plate for the purpose described longitudinally recessed and provided with a longitudinal slot in its face, and a similar slot in its lower edge, a hanger movably secured in said slots, and turned outwardly at its lower end, a second hanger movably secured in said slots, and turned inwardly at its lower end, a vertical slot at each end of the plate, and a curtain-pole support secured interchangeably in one of said vertical slots, substantially as described.

787,240. **STEAM-GENERATING APPLIANCE AND ADAPTATION OF SAME TO LOCOMOTIVES.** CORNELIUS VANDERBILT, New York, N. Y. Filed Dec. 17, 1900. Renewed Sept. 17, 1904. Serial No. 224,858.



Claim.—1. In a locomotive, the combination of a main frame, an intermediate frame secured upon the main frame, and a generator flexibly supported upon the intermediate frame.

2. In a locomotive, the combination of a main frame, an intermediate frame, and a generator comprising upper drums, side headers, and a lower intermediate header connected by tubes, the drums and headers being flexibly supported upon the intermediate frame.

3. In a locomotive, the combination of a locomotive-frame, a generator comprising drums and headers connected by tubes, and means for flexibly supporting said generator upon said frame.

4. In a locomotive, the combination of a locomotive-frame, a generator comprising drums and headers connected by tubes, and means for movably supporting the drums and headers upon the frame and restraining such movement.

5. In a locomotive, the combination of a locomotive-frame, a generator comprising drums and headers connected by tubes, means for resiliently supporting the headers upon the frame, and means for movably supporting the drums on the frame.

6. In a locomotive, the combination of a frame, a generator, means interposed between the generator and frame permitting horizontal and perpendicular movement of the generator upon the frame, and means for restraining said movement.

7. In a locomotive, the combination of a frame, a generator comprising in its construction a longitudinally-disposed header, and means for flexibly supporting the header upon said frame.

8. In a locomotive, the combination of a frame, a generator having a longitudinally-disposed header, and means for resiliently supporting the header upon the frame.

9. In a locomotive, the combination of main and intermediate frames, a generator supported by said intermediate frame, and a lagging frame supported on said intermediate frame.

10. In a locomotive, the combination of a main frame, comprising longitudinal chords, an intermediate frame, a generator supported upon the intermediate frame, and chairs supporting the intermediate frame and secured to the chords of the main frame.

11. In a locomotive, the combination of an intermediate frame having side beams and cross-struts, a generator having longitudinally-disposed drums, and chairs secured to said drums and movably supported upon said struts.

12. In a locomotive, the combination of a main frame, a truss-frame secured to the rear end of the main frame, an intermediate frame, and a cab-section built upon and supported by said truss and by the intermediate frame.

13. In a locomotive, the combination of a main frame having upper and lower chords, an intermediate frame having cross-struts secured to the upper chord, a truss-frame carried by said main frame at the rear end, and a cab-section in the rear of the back cross-strut and supported thereby and by the intermediate frame and truss.

14. In a locomotive, the combination of a main frame, an intermediate frame supported thereon having side girders and cross-struts, the main frame projecting rearwardly beyond the intermediate frame, a cross-bar at the rear end of the main frame, and a cab located between the girders and in the rear of the back strut and supported by said girders, strut and cross-bar.

15. In a locomotive, an intermediate frame having side beams and cross-struts, and a generator having longitudinally-disposed drums flexibly supported upon said struts.

16. In a locomotive, an intermediate frame having side beams and cross-struts and a generator having longitudinally-disposed drums, said drums being rigidly secured to one of the struts at one end, and flexibly supported on another at the other end.

17. In a locomotive, the combination of a main frame, an intermediate frame supported on the main frame, cross-struts on said intermediate frame dividing the locomotive into a cab-section, a fire-box section, an intermediate section, and a smoke-box section, a boiler supported on the struts and intermediate frame, and a covering for the whole.

18. In a locomotive, the combination of a main frame, an intermediate frame supported thereon, cross-struts on said intermediate frame dividing the locomotive into a cab-section, a fire-box section, an intermediate section, and a smoke-box section, the said struts comprising transverse plates properly apertured for communication between the sections, a boiler supported on the struts and intermediate frame, and a covering for the whole.

19. In a locomotive, the combination of a main frame, an intermediate frame carried thereby, and three struts comprising transverse plates extending across the frame to support the several sections of the locomotive and to support the generator and apertured to allow communication between the sections.

20. In a locomotive, the combination of a main frame having upper and lower chords, an intermediate frame secured to the upper chord and comprising longitudinal girders, chairs between the said girders and the top chord of the main frame, transverse cross-struts between the girders, and a boiler supported upon the struts and intermediate frame.

21. In a locomotive, a main frame, an intermediate frame comprising longitudinal girders, chairs upon the main frame supporting the girders, and transverse struts at the ends and midway between to tie the girders together.

22. In a locomotive, the combination of a main frame having upper and lower chords, an intermediate frame comprising longitudinal girders, chairs attached to the said upper chords to support the girders, and struts at the ends and midway between to tie the girders together.

23. In a locomotive, the combination of a main frame, an intermediate frame wider than the main frame and supported thereon, and a boiler supported on the intermediate frame.

24. In a locomotive, the combination of a main frame, an intermediate frame comprising longitudinal girders, chairs upon the main frame supporting the girders, and transverse struts at the ends and midway between to tie the girders together, and a generator supported by said frames.

25. In a steam-generator, the combination of a frame, a header, tubes connected with one side thereof, a cross-head on one end of the header, guides for the cross-head on the frame, a spring-support for said end of the header, and means to support the other end of the header.

26. In a steam-generator, the combination of a header, tubes connected with one side thereof, a cross-head attached to one end of the header, a frame having guides for the cross-head, pins connected with the said head and extending up through the frame and springs to support said pins.

27. In a steam-generator, the combination of a header, tubes connected therewith, a frame for supporting the same, guides at one end on the header, guides on the frame coöperating with the other guides to allow longitudinal movement of the header, swinging links for supporting the said end and means for supporting the other end of the header.

28. In a steam-generator, the combination of a header, tubes connected therewith, a frame for supporting the same, guides on the end of the header, and other guides on the frame to provide for longitudinal movement of said end of the header, and spring-supported swing-links to suspend the same from the frame.

29. In a steam-generator, the combination of a frame comprising cross-struts, a header flexibly suspended from said cross-struts, a guide comprising lugs depending from one of said struts, and upwardly-projecting lugs on the top of said header coöperating with the depending lugs, whereby longitudinal movement between the said guides may take place.

30. In a steam-generator, the combination of a frame, cross-struts, a header flexibly suspended beneath them, castings secured to one of the struts and having vertical guiding slots or flanges, and lugs on the sides of the header adapted to move in said slots, whereby the header can move vertically.

31. In a locomotive, a frame, a steam-generator, and a sheathing over the same comprising an angle-iron framework, bracing and struts riveted to the frame of the locomotive, and plates of sheet-iron riveted to said framework.

32. In a locomotive, a frame comprising side girders and cross-struts to tie the girders together, a generator supported thereby, a sheathing over the whole comprising an angle-iron framework riveted to said girders and struts and extending over the top and sides of the generator above the girders, and sheathing-plates laid upon and secured to said framework.

33. In a locomotive, the combination of a frame having cross-struts, a generator supported by the frame and struts, a sheathing-frame erected at the said struts and secured thereto and extending over the generator, and a sheathing secured to the said sheathing-frame.

34. In a locomotive, the combination of a main frame, an intermediate frame supported thereby and having side girders and cross-struts, a steam-generator carried by the intermediate frame, a sheathing-frame erected on said struts, and sheathing-plates secured to said frame.

35. In a locomotive, the combination of a frame having side girders and cross-struts, a steam-generator supported by said frame, a sheathing-frame comprising wing-plates secured to the outer edges of said struts, substantially vertical posts riveted to the edges of said

wing-plates, a crown rib or strip extending between the upper ends of said posts and over the generator, and sheathing-plates secured to said crown-ribs and vertical posts, to entirely envelop the top and sides of the generator.

36. In a locomotive, the combination of a frame comprising end struts and an intermediate strut, a generator supported thereby comprising drums resting on the tops of the struts and side headers supported outside the struts, a sheathing-framework built up from said struts outside the side headers and thence over the crown above the drums, and a sheathing secured to said frame so as to envelop the said generator and removable over the drums outside the headers.

37. In a locomotive, the combination of a frame having side girders, and a cross-strut to tie the girders together, a steam-generator supported by said frame and strut, a sheathing-framework secured to said strut comprising wing-plates riveted to the outer inclined edges of the strut, the outer edges of said plates being stepped, longitudinal angle-irons having their ends resting in such steps, strut angle-irons riveted to the substantially vertical edges of said steps, other longitudinal angle-plates secured to the upper ends of the upper struts, the lower ends of the bottom struts resting on the upper edges of the said girders, a crown rib or brace sprung from the top of one of the wings or upper struts over the generator to the other wing or strut, and sheathing-plates secured to the framework, the lower plate on each side being removably secured between the top edges of the girders and the longitudinal angle-irons resting in the steps.

38. In a locomotive, the combination of a frame comprising side girders and cross-struts, a generator supported thereby, sheathing beneath the generator comprising a box-like structure of sheet metal secured at its ends to the cross-struts, and horizontal plates extending from the upper side edges of said structure to the said girders, to completely inclose the lower part of the generator.

39. In a locomotive, the combination of a main frame having upper and lower chords, an intermediate frame having side girders and a front and an intermediate strut, a steam-generator secured to said intermediate frame having a header suspended beneath the said struts, sheathing for the header and lower part of the generator comprising a front or end plate riveted to the bottom of the front strut and a rear plate suspended from the intermediate strut, a bottom plate extending between the front and rear plates, vertical side plates secured to the bottom and to the rear end plate, horizontal plates extending between the tops of the side plates and the side girders of the frame, and angle-irons to secure the said plates together and to the struts and side girders.

40. In a locomotive, the combination of main and intermediate frames, a generator supported by said intermediate frame, and a lagging frame supported on said intermediate frame.

41. In a locomotive, the combination of a fire-box, an ash-pan having flaring sides extending up over the drive-wheels, openings in said sides for the wheels, and boxes or casings built up from said sides over the wheels.

42. In a locomotive, the combination of a fire-box, a grate located above and wider than the drive-wheels, an ash-pan comprising a narrow box located between said drive-wheels, flaring sides connecting said box with the outer edge of the grates and dropped down over the drivers, and casings built up from said sides over the drive-wheels.

43. In a locomotive, the combination of a main frame, an intermediate frame having girders outside of the wheels, a fire-box section between the girders, and a grate, said grate extending between the said girders.

44. In a locomotive, the combination of a main frame, an intermediate frame supported thereby and having side girders and cross-struts, a fire-box section, channel-bars having projecting flanges and attached to said girders and struts, grates supported therebetween, and an ash-pan depending from said flanges.

45. In a steam-generator, the combination of a frame, a header, tubes connected with one side thereof, a cross-head on one end of the header, guides for the cross-head on the frame, a spring-support for said end of the header, and means to support the other end of the header.

46. In a steam-generator, the combination of a header, tubes connected with one side thereof, a cross-head attached to one end of the header, a frame having guides for the cross-head, pins connected with the said head and extending up through the frame and springs to support said pins.

47. In a steam-generator, the combination of a header, tubes connected therewith, a frame for supporting the same, guides at one end of the header, guides on the frame cooperating with the other guides to allow longitudinal movement of the header, swinging links for supporting the said end and means for supporting the other end of the header.

48. In a steam-generator, the combination of a header, tubes connected therewith, a frame for supporting the same guides on the end of the header, and other guides on the frame to provide for longitudinal movement of said end of the header, and spring-supported swing-links to suspend the same from the frame.

49. In a steam-generator, the combination of a frame comprising cross-struts, a header flexibly suspended from said cross-struts, a guide comprising lugs depending from one of said struts, and upwardly-projecting lugs on the top of said header coöperating with the depending lugs, whereby longitudinal movement between the said guides may take place.

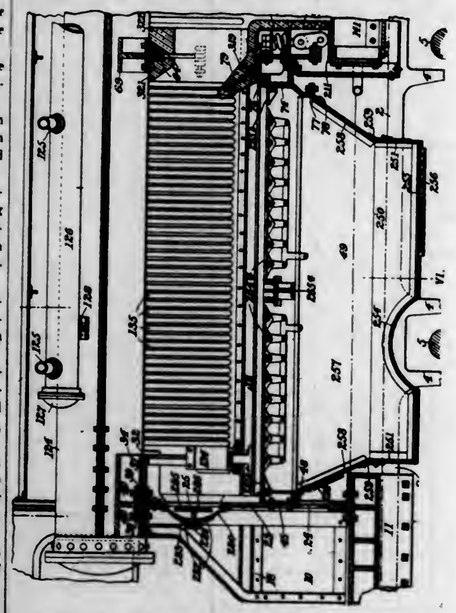
50. In a steam-generator, the combination of a frame, cross-struts, a header flexibly suspended beneath them, castings secured to one of the struts and having vertical guiding slots or flanges, and lugs on the sides of the header adapted to move in said slots, whereby the header can move vertically.

51. In a steam-generator, the combination of a frame having cross-struts, said struts having openings for the passage of the products of combustion, a lower header, devices to support said header comprising seats on the lower part of the struts between the openings, springs on the seats and bolts supported by the springs and connected with the header, and fire-brick covering protecting said devices.

52. In a steam-generator, the combination of a frame having cross-struts, said struts having openings for the passage of the products of combustion, a lower header, devices on said struts at the lower side of the openings to support the header, and a fire-brick lining for each of said openings and extending over said devices.

53. In a steam-generator, the combination of a frame having cross-struts, said struts having openings for the passage of the products of combustion, a lower header, spring-supports for said header located on the struts beneath the openings, and a fire-brick lining for said openings and covering said spring-supports.

787,241. **LOCOMOTIVE FIRE-BOX.** CORNELIUS VANDERBILT, New York, N. Y. Original application filed Dec. 17, 1900, Serial No. 40,182. Divided and this application filed Mar. 3, 1903. Renewed Sept. 17, 1904. Serial No. 224,859.



Claim.—1. In a furnace for steam-generators comprising a fire-box section and another section communicating therewith, a fire-brick deflector located at the lower edge of the opening between the sections and comprising a transverse plate or web secured to the frame and fire-brick placed about it on both sides.

2. In a furnace for steam-generators comprising a fire-box section and another section communicating therewith, a fire-brick deflector located at the lower edge of the opening between the sections and inclining inwardly and upwardly into the fire-box section, said deflector comprising a transverse web or plate secured to the frame and fire-brick placed about it on both sides.

3. In a furnace for steam-generators, the combination of a framework, a cross-strut and girders, a fire-box section and an intermediate section separated by said strut, an upwardly-inclined plate secured to said cross-strut, and a fire-brick covering for said plate.

4. In a furnace for steam-generators, the combination of a framework, a fire-box section and another section, a transverse strut separating said fire-box section and other section and having an opening therethrough, and a deflector for the fire-box comprising an inclined plate attached to the strut of the lower side of the opening, a fire-brick covering for said inclined plate.

5. In a furnace for steam-generators, the combination of a fire-box section, an intermediate section, a frame, and a transverse plate to separate such sections supported by the frame and having an opening therethrough, the opening in said plate being lined wth fire-brick.

6. In a furnace for steam-generators, the combination of a fire-box section, another section, a frame, a transverse strut on said frame separating the fire-box from the other section and having an opening therethrough for the passage of the products of combustion, and fire-brick applied to the exposed parts of said strut.

7. In a furnace for steam-generators, the combination of a fire-box section, a forward section, a grate in the fire-box section, and a heating-surface in the other section, a wall separating the two sections and having an opening therethrough, and fire-brick covering the entire lower edge of the opening from the grate on one side through the opening to the heating-surface on the other side for protecting the frame and coöperating devices.

8. The combination of a frame, a boiler carried thereby, a smoke-box section and another section, a partition therebetween having an opening through which the products of combustion are adapted to pass, and a brick-fire lining for said opening.

9. The combination of a frame, a generator carried thereby, a fire-box section, a smoke-box section, and an intermediate section, partitions between the latter section and the others having openings therethrough for the passage of the products of combustion, and fire-brick linings for said openings.

10. The combination of a frame having cross-struts, a steam-generator carried by said struts and frame and comprising a lower header suspended beneath the struts, the said struts having openings therethrough for the passage of the products of combustion, and a fire-brick lining for said openings extending down on the sides of the struts to the said header, and over the exposed portions on the other sides of the struts.

11. The combination of a frame having cross-struts, a generator having a header, the said struts having openings for the passage of the products of combustion, devices to support said header located on said struts beneath the opening, and fire-brick linings for said openings extending over the said devices.

12. In a locomotive, the combination of a frame, a generator supported thereby, a sheathing also supported by said frame and comprising vertical side plates, horizontal plates attached to the vertical plates above their lower edges, angle-irons secured to said lower edges, and a fire-brick lining for said horizontal and vertical plates and supported by said angle-irons so as to project inward.

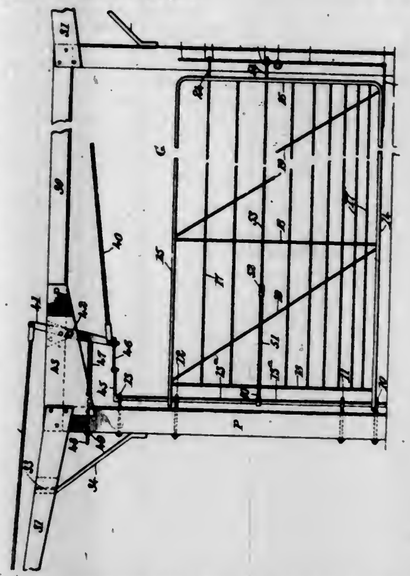
13. In a locomotive, the combination of a frame comprising side girders, a fire-box extending the full width of said girders, longitudinal supports secured to said girders consisting of channel-bars having supporting-ledges formed in the upper and inner edges thereof, and grates extending between said supports and resting in such ledges.

787,242. **GATE.** CHARLES W. VAN DE WALKER and ROBERT T. JENNEY, Two Rivers, Wis., assignors to Western Steel Gate Company, Two Rivers, Wis. Filed May 24, 1904. Serial No. 209,430.

Claim.—1. The combination with a gate, of a spindle about which the gate may swing, an arm fixed to the spindle, an operating-lever connected with the arm, a spring exerting its tension upon the operating-lever, and means for transmitting the movement of the spindle to the gate.

2. The combination with a gate, of a spindle about which the gate may swing, a lever, a toggle connecting the lever and gate, and means for transmitting the movement of the spindle to the gate.

3. The combination with a gate, of a spindle about which the gate may swing, a lever, a toggle connecting the lever and gate, a spring acting upon the lever, and means for transmitting the movement of the spindle to the gate.

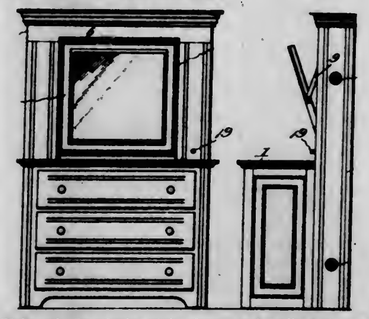


4. The combination with a gate, of a spindle about which the gate may swing, a lever, a toggle connecting the lever and gate, a spring acting upon the lever, means for adjusting the tension of the spring, and means for transmitting the movement of the spindle to the gate.

5. The combination with a gate, of a lever fulcrumed adjacent thereto, a toggle pivoted to the lever and connected with the gate, and operating members connected to the lever near its opposite ends and extending to the opposite sides of the gate.

6. The combination with a gate, of an arm extending at each side of the gate, a lever fulcrumed upon each arm, an intermediate lever connected with each of the first-named levers and with the gate, and a spring connected to the intermediate lever and exerting its force to hold the gate in one of its extreme positions and the connected levers raised.

787,243. **WARDROBE.** GEORGE W. WARREN, Hastings, Nebr. Filed Mar. 8, 1904. Serial No. 197,101.



Claim.—1. In a device of the character described, the combination with a casing having an aperture in one wall thereof, and guides within the casing and adjacent the aperture, of a slide mounted within the guides and normally closing the aperture, a mirror adjustably carried by said slide, a bracket provided with a tubular extension having a slotted end, a drum revolubly mounted upon the extension, a spring inclosed by the drum and having its ends connected to said drum and extension, a stem slidably mounted within the extension

and provided with laterally-extending arms, spring means for normally retaining the arms within the slots of the extension to retain said arms in the path of lugs on the drum, and a strap having one end secured to the mirror and its other end secured to the drum.

2. In a device of the character described, a slidable mirror, a bracket provided with an extension having one of its ends slotted, a drum revolubly mounted upon the extension and provided with lugs, a spring housed within the drum and having one of its ends secured to the extension and its other end to the drum, a stem slidably mounted within the extension and provided with laterally-projecting arms, a spring adapted to normally retain the arms within the slots of the extension to retain the arms in the path of the lugs, and a strap having one of its ends secured to the mirror and its other end secured to the drum.

787,244. PUMP. DANIEL M. WATSON, Portland, Oreg. Filed Dec. 24, 1903. Serial No. 186,465.



Claim.—1. In a deep-well pump, a cylinder provided with an annular recess, a stuffing-box within the cylinder having spring-fingers depending therefrom, which incline inwardly and lugs on said spring-fingers projecting outwardly for engaging in said recess, substantially as specified.

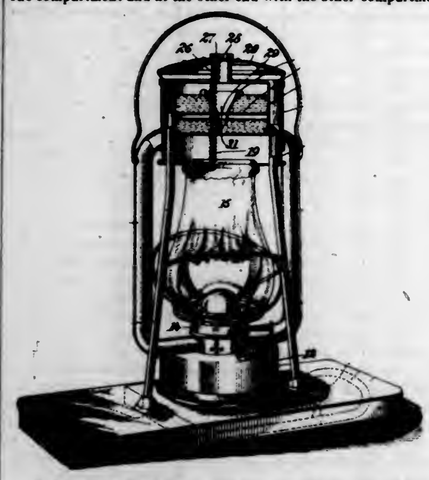
2. In a deep-well pump, a cylinder provided with an annular recess, a stuffing-box within the cylinder and a piston operating therein, a packing-ring at top of said stuffing-box, lugs projecting laterally from the piston for engaging said packing-ring, spring-fingers depending from the stuffing-box, the ends of which incline inwardly and lugs on said fingers projecting outwardly for engaging in said recess, substantially as specified.

3. In a pump, the combination of the outer cylinder 6, the inner cylinder 22 connected therewith, the piston 2 operating therein and provided with the piston-head 3, having the inwardly-beveled upper surface, with the detachable stuffing-box 17 arranged at the top of said cylinder, substantially as specified.

4. In combination, a cylinder, a piston operating therein, said piston being provided with a piston-head having greater diameter than the piston, the upper surface of which piston-head is depressed toward its center, a removable packing-box provided with means for holding it in position, said means being in position to be engaged by the upper edge of said piston-head, a packing-ring arranged about the piston having lugs thereon, and lugs on the piston for operating said ring, substantially as specified.

787,245. FOOT-WARMER. CHARLES H. WHITAKER, Bordentown, N. J., assignor to The Footwarmer and Heater Co., Philadelphia, Pa. Filed Nov. 17, 1903. Serial No. 181,493.

Claim.—1. The combination of a base, a heater, a water-reservoir, and a water-circulating tube passing from the reservoir to the base to heat the latter, the said reservoir having two superposed compartments with an orifice forming a communication between them, a flaring tube in the upper compartment surrounding the orifice and a tube in the lower compartment also surrounding the orifice, the said tubes being open respectively at their upper and lower ends and the water-circulating tube communicating at one end with one compartment and at the other end with the other compartment.



2. The combination of a reservoir having two superimposed compartments with an orifice forming a communication between them, a flaring tube in the upper compartment surrounding the orifice a tube in the lower compartment also surrounding the orifice, said tubes being open respectively at their upper and lower ends, and water-circulating tubes communicating respectively with said compartments, one tube being adapted to discharge into the lower compartment and the other tube leading from the upper compartment.

3. The combination of a hollow metallic base, a non-conducting block located within the same intermediate its ends and in flat internal engagement with the top and bottom of said base, leaving the internal end portions of the base hollow, an ordinary lantern mounted on top of the base above said block, a water-reservoir mounted over the heater, water-circulating tubes extending from the water-reservoir into the hollow portions of the base at each side of the non-conducting block, and a tube in the base extending longitudinally along one side of the non-conducting block into the hollow end portions of the base and connected at its ends to the lower ends of said water-circulating tubes.

4. A foot-warmer, comprising a base, a heater mounted thereon, a water-reservoir mounted over the heater, a cowl mounted above and extending over the top of the water-reservoir, and a filling-tube extending through the cowl downward into the reservoir.

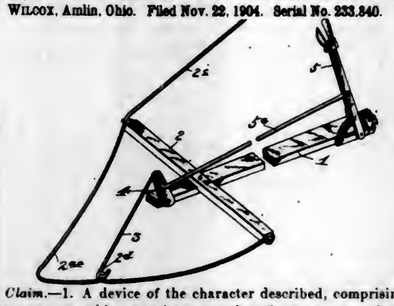
5. A foot-warmer, comprising a base, a heater mounted thereon, a water-reservoir mounted over the heater, a hood encircling the water-reservoir, a cowl mounted on the hood and covering the reservoir, and a filling-tube extending through the cowl downward into the reservoir.

6. A foot-warmer, comprising a base, an ordinary lantern mounted thereon, and having at its upper end a hood with a cowl above the top of the hood, a water-reservoir within said hood, water-circulating tubes passing from the reservoir to the base, said tubes supporting and communicating with the water-reservoir at their upper ends and being in communication with each other at their lower ends, and a filling-tube leading from the top of the reservoir upwardly through the cowl.

7. A foot-warmer, comprising a base, an ordinary lantern mounted thereon, a hood at the top of the lantern, a cowl above the upper end of the hood, a telescoping section at the lower end of the hood, a spring for pressing said telescoping section into engagement with the top of the lantern-chimney, a water-reservoir within said hood, water-circulating tubes passing from the reservoir to the base, said tubes supporting the water-reservoir at their upper ends and

communicating with the interior thereof, and being in communication with each other at their lower ends, a filling-tube leading from the top of the reservoir outwardly through the cowl, and a closure for said tube.

787,246. ATTACHMENT FOR CORN-HARVESTERS. JACOB WILCOX, Amlin, Ohio. Filed Nov. 22, 1904. Serial No. 233,840.



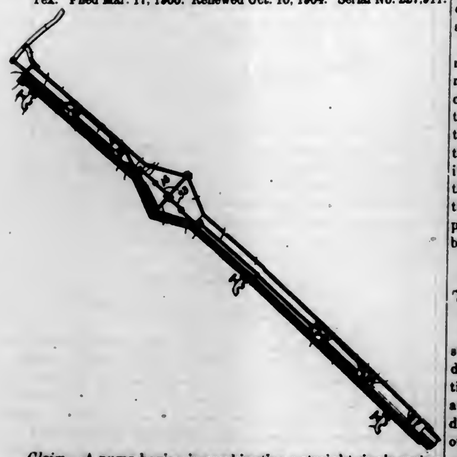
Claim.—1. A device of the character described, comprising a transverse or cross-bar member secured to the tongue or pole of a harvester, ahead of the team, and a tapering member with its divergent arms connected to said cross-bar and means for the retention of said tapering member in operative or effective position.

2. A device of the character described, employing a cross-bar member fixed upon a harvester pole or tongue, ahead of the team, and having lateral pivots, and a tapering member with its divergent portions or arms fulcrumed upon said pivots, and means for the adjustment and retention of said tapering member in effective position.

3. A device of the character described, employing a cross-bar member fixed upon a harvester pole or tongue, ahead of the team, and having lateral pivots, a tapering member with its divergent rear end portions fulcrumed upon said pivots, a rocking lever pivoted upon said tongue or pole, a link effecting connection between said lever and said tapering member, and a hand-lever having connection with said rocking lever.

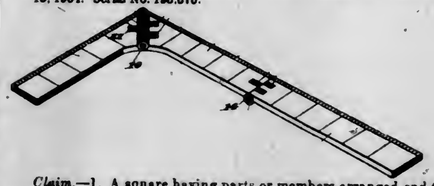
4. A device of the character described, employing a cross-bar member fixed upon a harvester pole or tongue, ahead of the team, and having lateral pivots, a tapering metal member having its rear divergent portions fulcrumed at their extreme rear ends upon said pivots, one divergent portion having rearward extension beyond its pivot, a rocking lever pivoted laterally to said tongue, forward of said cross-bar, and having link connection with said tapering member, and a suitably-held hand-lever also pivoted laterally to said tongue or pole and having link connection with said rocking lever.

787,247. PUMP. FRANK R. WILSON and GEORGE MANSELL, Llano, Tex. Filed Mar. 17, 1900. Renewed Oct. 10, 1904. Serial No. 227,911.



Claim.—A pump having in combination a straight single casing only, comprising an upper tubular section, a lower tubular section alined longitudinally therewith, and an intermediate expanded section connecting the tubular sections, the lower section having a discharge connection with the expanded section only, and the upper section having an inlet connection with the expanded section only, a removable fulcrum-bolt piercing the sides of the expanded section at its point of greatest width, a lazy-tongs device located in the expanded section and fulcrumed upon the bolt, valved plungers working in the respective upper and lower casing-sections and connected to the respective upper and lower ends of the lazy-tongs device, a cap closing the upper end of the casing and provided with an opening in its top, an operating-lever fulcrumed upon the upper end of the casing, a rod connecting the lever with the upper plunger and working through the opening in the cap, an outlet for the casing disposed between the top thereof and the upper limit of the upper plunger, an inlet check-valve at the lower end of the casing, and a drain-valve in the casing between the lower plunger and the inlet-valve.

787,248. SQUARE. GENEROUS L. WILSON, Chicago, Ill. Filed Feb. 13, 1904. Serial No. 193,375.



Claim.—1. A square having parts or members arranged end to end and joined by a hinge connection whereby one part or member is adapted to be folded flush on or unfolded and extended beyond the end of the other part or member, said hinge connection comprising perforated projections extended from the ends of the respective parts or members and adapted to receive a pivot pin or screw, the projections on one part or member being fitted between those on the other part or member, one member having a socket alined with one of the perforated lugs of the other part or member and the said perforated lug having an extension projecting beyond the end of the part or member whereon it is held and adapted to fit in the socket of the other part or member when the members are in extended position.

2. A square having parts or members arranged end to end and joined by a hinge connection the pivotal axis of which is arranged at an acute angle to the directions of length of such parts or members, whereby one part or member is adapted to be folded flush on the other or extended at an angle thereto, said hinge connection comprising perforated projections extended from the ends of the respective parts or members and adapted to receive a pivot pin or screw, the projections on one part or member being fitted between those on the other part or member, one part or member having a socket alined with one of the perforated lugs of the other part or member and said perforated lug having an extension projecting beyond the end of the part or member whereon it is held and adapted to fit in the socket in the other part or member when the members are extended.

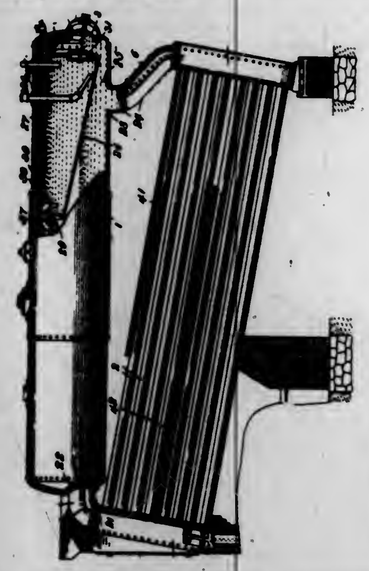
3. A square having parts or members connected by a hinge connection and adapted to fold flush one upon another, said hinge connection comprising perforated projections extended from the ends of the respective members, the projections on one member fitting between those on the other member and the projections at one end of the hinge connection having a bore of less diameter than the bore of the projections at the other end of said connection, a pivot-pin fitted in the larger bore of said projections and having an interiorly-screw-threaded bore and a screw fitted in the smaller bore of the projections with a threaded end engaged in the threaded bore of the pivot-pin, said screw and pivot-pin having heads adapted to be engaged by a screw-driver or the like.

787,249. WATER-TUBE BOILER. HARRY L. WILSON, Erie, Pa. Filed Oct. 31, 1904. Serial No. 230,802.

Claim.—1. In a water-tube boiler, the combination of a substantially horizontal steam-drum, inclined water-tubes beneath the drum, inclined twin headers and reversely-inclined tubular connections providing continuous circulation between the drum and tubes at both ends, a settling-tank within the drum, feed-water supply and discharge pipes communicating with the settling-tank, and a blow-off pipe also communicating with the settling-tank.

2. In a water-tube boiler, the combination of a steam-drum, a settling-tank having an inclined bottom located within the drum.

inclined water-tubes, inclined substantially square or rectangular headers of equal size, inclined tubular connections between the headers and drum providing for a continuous circulation, and a dam extending across the lower portion of the drum beneath the inclined bottom of the settling-tank and at one side of the downflow connection extending to one of the headers.



3. In a water-tube boiler, the combination of a steam-drum, a settling-tank within the drum, inclined water-tubes, inclined substantially square or rectangular headers of equal size, inclined tubular connections between the headers and drum providing for a continuous circulation, and a dam extending across the lower portion of the drum at one side of the downflow connection extending to one of the headers.

4. In a water-tube boiler, the combination of a steam-drum, a settling-tank within the drum, inclined water-tubes, inclined parallel twin headers disposed at right angles to the water-tubes, and reversely-inclined tubular connecting-necks between the headers and drum, each neck being composed of two plates bent into proper form and having their side edges overlapped and riveted together.

5. In a water-tube boiler, the combination of a steam-drum, a settling-tank within the drum, inclined water-tubes, inclined substantially square or rectangular twin headers, and inclined tubular connecting-necks between the headers and drum, the flat front and rear sides of the twin headers and the opposite sections of the connecting-necks being stayed with socket-rivets passing through the plates and provided with conical shoulders, and spacing-sleeves around the rivets within the headers and necks.

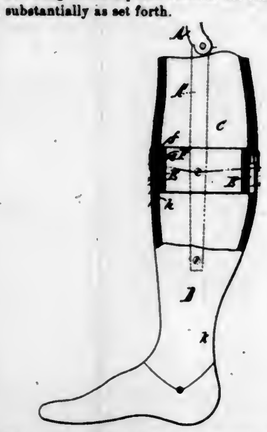
787,250. ARTIFICIAL LEG. CHESTER B. WINN, Buffalo, N. Y. Filed Jan. 14, 1905. Serial No. 241,094.

Claim.—1. The combination with an ankle-piece and a stump-socket slidable thereon, of rubber cushioning-blocks interposed between said members and arranged at the outer sides thereof, substantially as set forth.

2. The combination of an ankle-piece, a stump-socket slidable thereon, a casing inserted between said members, and a cushion seated in said casing and arranged to resist the downward movement of the stump-socket on the ankle-piece, substantially as set forth.

3. The combination with an ankle-piece and a stump-socket slidable thereon, of rubber cushioning-blocks interposed between said members and arranged at the outer sides thereof, and adjusting means for regulating the resistance of said blocks, substantially as set forth.

4. The combination with an ankle-piece and a stump-socket slidable thereon, of a guide-casing secured to the ankle-piece, a cushion seated in said casing, and a plunger arranged in the upper portion of the casing and interposed between the cushion and the stump-socket, substantially as set forth.

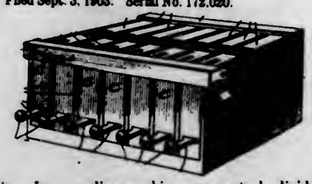


5. The combination with an ankle-piece and a stump-socket slidable thereon, of a guide-casing secured to the ankle-piece and open at its upper end, a follower arranged in the casing, adjusting means for the same, a cushion arranged in the casing and seated on the follower, and a plunger arranged in the casing and bearing at its ends against the cushion and the stump-socket, respectively, substantially as set forth.

6. The combination with an ankle-piece provided in its surface at its upper end with a recess, a casing seated in said recess, a stump-socket slidable on the ankle-piece, a cushion arranged in said casing, and a plunger guided in the casing and interposed between the cushion and the stump-socket, substantially as set forth.

7. The combination with an ankle-piece and a stump-socket slidable thereon, of a guide-casing secured to the ankle-piece and provided at its upper end with attaching-ears and at its lower end with a screw-threaded opening, a stump-socket slidable on the ankle-piece, a follower arranged in the lower portion of said casing, an adjusting-screw engaging said threaded opening and bearing against the follower, a rubber cushion seated on the follower, and a plunger guided in said casing and interposed between the cushion and the stump-socket, substantially as set forth.

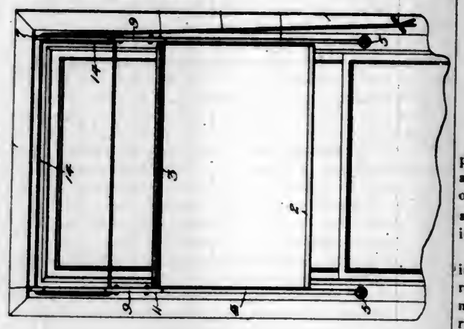
787,251. VENDING-MACHINE. ROBERT D. WORK, Philadelphia, Pa. Filed Sept. 3, 1903. Serial No. 172,020.



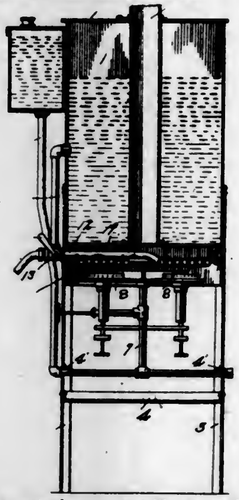
Claim.—In a vending-machine, a receptacle divided into two compartments, one intended to receive merchandise and provided with a support for said merchandise, a coin-chute, a slide, a locking-lever, and drawer arranged in the other compartment, said slide having an opening near the forward end and a slot near the rear end, the lever having a finger at the forward end, and guide-lugs at the rear end, and a drawer having a shoulder at one side, all arranged substantially as described.

787,252. SHADE-HANGER. WILLIAM A. WORTHINGTON, Dallas, Tex. Filed Nov. 1, 1904. Serial No. 230,963.

Claim.—In an adjustable shade-roller support, a window-frame, guide-rods secured to said window-frame, brackets slidably mounted upon said rods and constructed from single strands of wire having their lower ends bent backwardly and upwardly in parallel relation to the main or body portions thereof, and thence inwardly toward the body portions, the extremities of said bent portions being disposed rearwardly in a horizontal plane and coiled to receive the guide-rods, the upper ends of said body portions being bent rearwardly and downwardly, and thence rearwardly in a horizontal plane and twisted to receive the guide-rods, the bending of the lower portions of said wires providing a closed bearing and rectangular opening, a shade-roller having its pintle journaled in said bearing and the squared end of its shaft mounted in said opening, and an adjusting-cord secured between the upper bent portions of the brackets and frictionally held therein.



787,253. WATER-HEATER. SYLVANUS L. WOTTRING, Prospect, Ohio. Filed July 1, 1904. Serial No. 214,899.

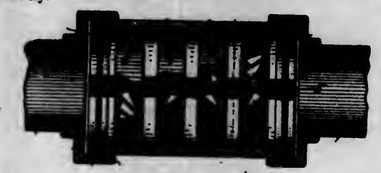


Claim.—In a water-heater, a metallic rectangular vessel, a supporting-frame therefor, a pan as 4 in said frame, a partition in the vessel, forming a water-compartment and a heating-compartment, said heating-compartment being open at the bottom, a smoke-flue extending from the heating-compartment through the water-compartment, an open center coil in the heating-compartment having one end connected to the water-compartment below the water-line therein and its other end connected to the bottom of said compartment, a three-way cock connected with said coil and an outlet thereto, a fuel-tank attached to the water-compartment, and burners located under said coil in position to permit the products of combustion to heat the coil and pass upwardly through the smoke-flue.

787,254. ROTARY CARBURETER. DAVID B. YOUNG, Culver, Ind., assignor, by direct and mesne assignments, to The Culver Novelty Company, Culver, Ind. Filed May 25, 1904. Serial No. 209,697.

Claim.—1. The combination of a shell, a stationary shaft axially supported therein, and a plurality of wheels rotatably mounted upon the shaft, and constructed of inclined blades and forwardly-tapered peripheral rims.

2. The combination of a shell, a stationary shaft axially disposed therein, and a plurality of wheels rotatably mounted upon the shaft, and constructed of blades and peripheral rims, the blades of alternate wheels being inclined in opposite directions to the operative planes of the wheels, and the rims of all the wheels being tapered forwardly.



3. The combination with a substantially cylindrical shell, of plates mounted in the ends thereof, each formed with a plurality of apertures, a shaft rigidly supported by said plates, and a plurality of wheels rotatably mounted on the shaft, and constructed of blades and peripheral rims, the blades of alternate wheels being inclined in opposite directions to the planes in which the wheels are disposed.

4. The combination with a cylindrical shell, of plates mounted in the ends thereof, each formed with a plurality of apertures, a shaft rigidly supported by said plates, and a plurality of wheels rotatably mounted on the shaft, and constructed of blades and peripheral rims, the blades of alternate wheels being inclined in opposite directions to the planes in which the wheels are disposed, and the rims of all the wheels being tapered in the same direction.

5. The combination with a cylindrical shell, of plates mounted in the ends thereof, each formed with a plurality of openings, a shaft supported by the plates, and a plurality of wheels rotatably mounted on the shaft, each constructed with inclined blades, one of said plates having a central threaded aperture, and the corresponding end of the shaft being threaded and secured in said aperture.

787,255. AXLE-LUBRICATOR. JOSEPH ADEN, Ruralhall, N. C. Filed Dec. 20, 1904. Serial No. 237,601.



Claim.—1. An axle-lubricator comprising a spindle, and a rigid collar, there being a longitudinal groove along the spindle extending past the collar, transferring-balls arranged in said groove and an oil-reservoir located behind the collar and having an outlet communicating with the groove substantially as shown and described.

2. An axle-lubricator comprising a spindle and a rigid collar, there being a longitudinal groove along the spindle extending past the collar, transferring-balls arranged in said groove, an oil-reservoir located behind the collar and having an outlet communicating with the groove and a housing consisting of a top and two sides arranged to embrace the axle and cover the reservoir substantially as shown and described.

3. An axle-lubricator comprising a spindle and a collar rigid on the spindle, there being a longitudinal groove extending past the collar and a shoulder at the inner end of said groove also rigid on the axle, an oil-reservoir arranged between the collar and shoulder and a housing embracing and inclosing the axle and reservoir and locked in position against longitudinal movement by the shoulder substantially as described.

4. An axle-lubricator comprising a spindle and a rigid collar, there being a longitudinal undercut groove extending past the collar and having a wide outlet at the inner end, a series of transfer-balls arranged in the groove, an oil-reservoir located above the same and having an outlet communicating with the groove, and a housing having two sides and a top and a thickened wall at its inner end fitting down between the reservoir and the shoulder to lock against longitudinal movement and also closing the wide end of the groove substantially as described.

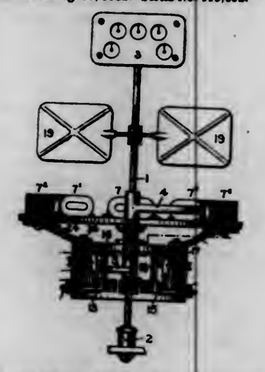
5. An axle-lubricator comprising a grooved spindle having a rigid shoulder, a collar also rigid on the spindle at a point outside the inner end of the groove, an oil-reservoir resting on the axle between the collar and shoulder and a housing consisting of a top and two sides embracing the reservoir and axle between the collar and shoulder substantially as described.

6. The combination with the axle, its spindle and its collar having a hole *e* through the same; of a housing embracing the axle inside the collar and having a chamber in its side in communication with the hole *e* as and for the purpose described.

7. The combination with the axle having a collar and a spindle, with a longitudinal groove extending past the collar; of a housing embracing the axle behind the collar and having a chamber communicating with the groove substantially as shown and described.

8. An axle having a spindle with a straight longitudinal groove in its peripheral surface, a collar fixed rigidly on the spindle outside the inner end of said groove to form a clean-out opening back of the collar and a detachable cover for the inner end of the groove substantially as described.

787,256. **DIRECT-CURRENT METER.** JAMES S. ANTHONY, New York, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 15, 1903. Serial No. 119,692.



Claim.—1. An electric motor-meter, comprising a plurality of field-coils, an armature operatively related thereto, switches for modifying the circuit connections of said field-coils in such a manner as to operate the movable element of the meter, and means fixed with reference to the armature for operating the said switches without actual contact therewith.

2. An electric motor-meter, comprising a plurality of field-coils an armature operatively related thereto, switches for deënergizing the field-coils adjacent to the armature on one side to operate the movable element of the meter, and means fixed with reference to the armature arranged to operate the said switches without actual contact therewith.

3. An electric motor-meter, comprising a plurality of field-coils, an armature operatively related thereto, switches for modifying the circuit connections of the field-coils in such a manner as to operate the movable element of the meter, and means fixed with reference to the armature arranged to actuate said switches by magnetic attraction.

4. An electric motor-meter, comprising a plurality of field-coils, a body of magnetic material constituting an armature operatively related to said coils, and magnetically-operated switches for deënergizing one or more of said field-coils in succession to operate the movable element of the meter.

5. An electric motor-meter, comprising a plurality of field-coils, a body of magnetic material constituting an armature operatively related to said coils, switches for deënergizing one or more of said coils in succession to operate the movable element of the meter, and means fixed with reference to the armature for operating the said deënergizing-switches without actual contact therewith.

6. An electric motor-meter, comprising a plurality of field-coils, a body of magnetic material constituting an armature operatively related to said coils, and magnetically-operated switches for deënergizing the field-coils adjacent to the armature on one side to operate the movable element of the meter.

7. An electric motor-meter, comprising a plurality of field-coils, a body of magnetic material constituting an armature operatively related to said coils, magnetically-operated switches for deënergizing the field-coils adjacent to the armature on one side to operate the movable element of the meter, and a magnet fixed with reference to the armature arranged to actuate said switches by magnetic attraction.

8. An electric motor-meter, comprising a plurality of field-coils concentric with the meter-staff, an armature on said staff having its axis radial to said coils, and magnetically-operated switches in circuit with said coils and controlled by said armature.

9. An electric motor-meter, comprising a plurality of field-coils concentric with the meter-staff, a soft-iron armature on said staff having one arm in inductive relation to said coils, and switches in circuit with said coils and responsive to magnetism in the other arm of said armature.

10. An electric motor-meter, comprising a plurality of field-coils concentric with the meter-staff, an armature in inductive relation to said coils, contacts connected with the terminals of said coils, movable bridging contacts coöperating with the coil-contacts, and means for operating said bridging contacts in synchronism with the rotation of the armature.

11. An electric motor-meter, comprising a plurality of field-coils concentric with the meter-staff, an armature in inductive relation to said coils, contacts connected with the terminals of said coils, soft-iron movable bridging contacts coöperating with the coil-contacts, and a magnetized arm on said staff for successively operating said bridging contacts as the staff rotates.

12. An electric motor-meter, comprising a plurality of field-coils concentric with the meter-staff, an armature in inductive relation to said coils, contacts connected with the terminals of said coils, movable bridging contacts coöperating with the coil-contacts, means for operating said bridging contacts in synchronism with the rotation of the armature, and means for angularly adjusting all of the coil-contacts.

787,257. **MAGAZINE-FIREARM.** WILLIAM B. ATKINSON, Bowling Green, Ky., assignor of one-half to Eugene R. Bagby, Bowling Green, Ky. Filed May 3, 1904. Serial No. 206,129.



Claim.—1. The combination with a magazine-gun having a magazine-tube as described; of two laterally-moving stop-lugs arranged one on each side of the magazine-tube and a sliding yoke arranged to reciprocate on the lower edge of the frame in front of the breech-opening, said yoke having its ends formed into cams and screws attached to the stop-lugs and extending through the sides of the frame and having heads overlapping the cams of the yoke substantially as shown and described.

2. The combination with a magazine-gun having a magazine-tube as described; of two laterally-moving stop-lugs arranged one on each side of the magazine-tube, a sliding yoke arranged to reciprocate on the lower edge of the frame in front of the breech-opening, said yoke having its ends formed into cams, screws attached to the stop-lugs and extending through the sides of the frame and having heads overlapping the cams of the yoke, and an adjustable locking device for preventing the sliding of the yoke substantially as shown and described.

3. The combination with a magazine-gun having a magazine-tube as described; of two laterally-moving springs bearing inwardly-projecting stop-lugs at their forward ends, said springs and lugs being arranged in channels on each side of the breech-opening with the stop-lugs behind the magazine-tube and a hand-operated slide arranged externally along the bottom of the gun-frame and connected to the stop-lugs to withdraw them from their stop position as described.

4. The combination with a magazine-gun having a magazine-tube as described; of an unloading attachment consisting of an external sliding yoke arranged along the bottom of the gun-frame and having its ends curved upwardly and extended rearwardly and formed with slots and cams, two springs arranged longitudinally in channels in the breech-chamber and bearing inwardly-projecting stop-lugs at their forward ends and headed screws extending through the sides of the gun and rigidly connected to the lugs and having their heads overlapping the cams of the yoke substantially as and for the purpose described.

5. The combination with a magazine-gun having a magazine-tube as described; of an unloading attachment consisting of an external sliding yoke arranged along the bottom of the gun-frame and slotted and connected to the same by a headed retaining-screw, said yoke having its ends curved upwardly and extending rearwardly and formed with slots and cams, two springs arranged longitudinally in channels in the breech-chamber and bearing inwardly-projecting stop-lugs at their forward ends, headed screws extending through the sides of the gun and rigidly connected to the lugs and having their heads overlapping the cams of the yokes and a pivoted button arranged on the middle part of the yoke and having a cut-away side, said button being adapted, when turned, to abut against the retaining-screw and lock the yoke against movement substantially as described.

6. The combination with a magazine-gun having a subjacent magazine-tube; of adjustable stop-lugs for holding the shells in the tube and an externally-arranged and hand-operated adjusting device for removing the stop-lugs from range of engagement with the shells and a locking device for such hand-operated adjusting device substantially as described.

7. The combination with a magazine-gun having a subjacent magazine-tube; of two adjustable stop-lugs arranged one on each side of the rear end of the magazine, and a single external adjusting means connected to both lugs for simultaneously pulling both of these lugs outwardly with an equal throw to discharge the contents of the magazine as described.

8. The combination with a magazine-gun having a subjacent magazine-tube; of two adjustable stop-lugs arranged one on each side of the rear end of the magazine, a single external adjusting means for simultaneously pulling both these lugs outwardly to discharge the contents of the magazine and a single locking device controlling the adjusting device for both lugs substantially as described.

9. The combination with a magazine-gun having a subjacent magazine-tube; of a device for holding the shells in the magazine, external and manually-operated means for adjusting the shell-holding device and a locking device for said manually-operated means substantially as described.

787,258. **SAFETY DEVICE FOR ELEVATORS.** FRANCIS B. AUSTIN, Tombstone, Ariz. Filed May 27, 1904. Serial No. 210,048.

Claim.—1. A safety device for elevators, comprising spring-cushioned clamping-arms hinged to the upper ends of the guideways for the cage, and wedges on the spring-cushioned backs of the arms.

2. A safety device for elevators, comprising spring-cushioned clamping-arms hinged to the upper ends of the guideways for the cage, wedges on the spring-cushioned backs of the arms, and means for removably supporting the wedges.

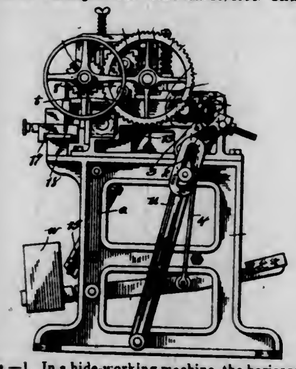
3. A safety device for elevators, comprising spring-cushioned clamping-arms hinged on the upper ends of the guideways for the cage and forming extensions of the said guideways, wedges held removably on the spring-backs of the said clamping-arms, and means for limiting the inward swinging motion of the said clamping-arms.

4. A safety device for elevators, comprising spring clamping-arms at the upper ends of the guideways, for clamping the cage in position, and means for releasing the said arms.

5. A safety device for elevators, comprising spring-cushioned clamping-arms hinged to the upper ends of the guideways for the cage, wedges interposed between the said arms and the supports for the guideways, yokes attached to the supports for the guideways and limiting the inward movement of the said arms, and means connected with the wedges for withdrawing the same to release the cage.



787,259. **HIDE OR LEATHER WORKING MACHINE.** GEORGE W. BAKER, Wilmington, Del. Filed Jan. 28, 1904. Serial No. 190,930.



Claim.—1. In a hide-working machine, the horizontally-slotted frame, the reciprocating bed-roll, its antifriction-rollers, yielding bearings and ratchet and pawl, substantially as specified.

2. In a hide-working machine, the combination with the horizontally-slotted frame, the reciprocating bed-roll, and antifriction-rollers, of the yielding bearings, the slotted lever-arms, the counter-weighted treadle, the bent levers and the treadle connection, substantially as specified.

3. In a hide-working machine, the frame having horizontal slots, pivoted frame-arms, two feed-rolls, bearings for one feed-roll in said frame-arms vertically over the inner end portions of the horizontal slots, links pivoted on shaft of the first feed-roll having bearings for the second feed-roll, substantially as specified.

4. In a hide-working machine, the horizontally-slotted frame, of the movable bed-roll, pivoted frame-arms, two feed-rolls, bearings for one feed-roll in said frame-arms, pivoted links, bearings for the second feed-roll in said links, the treadle, the cutter and the grip-hook devices for the bed-roll and second feed-roll, substantially as specified.

5. In a hide-working machine, the combination with the bed-roll, the first feed-roll, the second feed-roll radially centered on the axis of the first feed-roll at the grip-hook devices for the bed-roll and second feed-roll, substantially as specified.

6. In a hide-working machine, the combination with a cutter and a reciprocating bed-roll, of means to move said bed-roll toward said cutter, a first feed-roll centered vertically over the inner or working position of the bed-roll, a second feed-roll between the cutter and first feed-roll, a grip-hook device for the bed-roll and second feed-roll, a treadle, and means connected thereto for moving the bed-roll and grip-hook device into and out of working position, substantially as specified.

7. In a hide-working machine, the combination with a reciprocating bed-roll and feed-roll, of pivoted link-bearings, a second feed-roll and a treadle of oblique arms connected to said link-bearings, yielding grip-hooks, and adjustable connections of the latter to the treadle, substantially as specified.

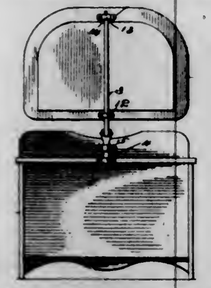
8. In a hide-working machine, the combination with the horizontally-slotted frame, and the reciprocating bed-roll, of the arms pivoted to said frame, the yielding bearings of the bed-roll, antifriction-rolls of the bed-roll engaging the horizontal slots of the frame, and the adjustable stops, substantially as specified.

9. In a hide-working machine, the combination with the pivoted arms of the frame and its horizontal slotways, of the pivoted links, and the lower feed-roll, a reciprocating bed-roll journaled in said slotways and spring connections for adjusting one weight of the lower feed-roll, substantially as specified.

10. A hide-working machine, having in connection with a horizontally-slotted frame a reciprocating bed-roller journaled in the horizontal slots of said frame and rotary in one direction only, and in connection therewith, through yielding bearings, bent levers having bracing-arms, substantially as specified.

11. In a hide-working machine, a horizontally-reciprocating bed-roll held in working position by levers having bracing-arms extending in front in the horizontal direction, and by grip devices in connection with the movable rolls in rear, substantially as specified.

787,260. ADJUSTABLE MIRROR-SUPPORT. JOHN BANDEROB, Oshkosh, Wis. Filed Sept. 22, 1904. Serial No. 225,514.



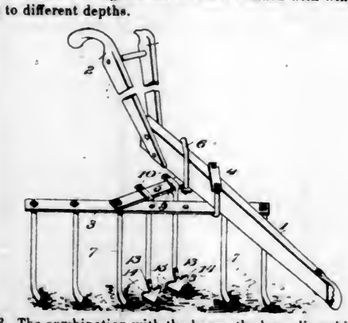
Claim.—1. In combination with a support, a sectional member removably mounted upon said support comprising a squared base provided with integral, parallel jaws, said jaws having concaved sides and a floor formed therebetween, an upper section provided with a lower beveled portion pivoted between said jaws, a mirror or the like movably mounted upon said upper section, and means for retaining said mirror in a fixed position upon said upper section.

2. In a device of the character described, the combination with a support, of a sectional standard adapted to be removably secured to the support, said standard comprising a lower, squared section provided with integral, parallel jaws and having a floor at the base of the jaws, an upper section reduced in thickness at its upper end and having an integral, enlarged, lower portion, said lower portion being oppositely beveled at its lower end and pivoted between said jaws, a mirror and means secured to the mirror for engaging the upper section of the standard, said means being adapted to hold the mirror in a fixed position on the standard.

787,261. STRADDLE-ROW CULTIVATOR. WILLIAM S. BARTON, Orangeburg, S. C. Filed Oct. 17, 1904. Serial No. 228,704.

Claim.—1. A straddle-row cultivator having standards, and blades or shovels carried by said standards having each a narrow and a wide lateral cutting-wing, said standards being removable and interchangeable to arrange toward each other the corresponding wings of adjacent blades, for the purpose stated.

2. A straddle-row cultivator comprising a beam, a tooth-carrying bar adjustably secured thereto and set at an angle to the line of draft, rake-teeth depending from said bar at or near the ends thereof, a brace secured to said bar and to said beam, and sweep-standards depending from said brace for working on opposite sides of a row, said standards having shovels or blades formed with wings for cutting to different depths.

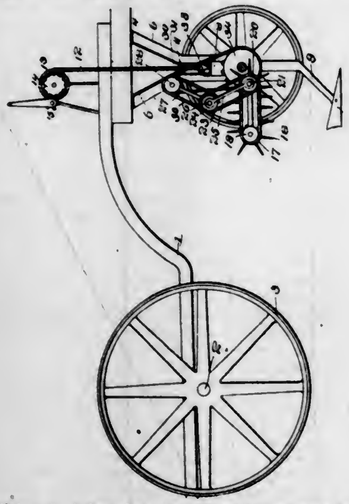


3. The combination with the beam, the bar adjustably secured thereto, and rake-teeth secured to said bar, of a brace adjustably secured to said beam and to said bar, one of said teeth forming the connection between said brace and said bar, and blades or shovels carried by said brace.

4. The combination with the beam, the bar adjustably secured thereto having the greater portion of its length at one side of said beam and rearwardly disposed with relation thereto, and rake-teeth secured to said bar, of a brace adjustably secured to said beam and the rearwardly-extending portion of said bar, and blades or shovels carried by said brace.

5. The combination with the beam, of a bar pivotally secured to said beam having the greater portion of its length at one side of said beam, a series of rake-teeth depending from said bar at one side of said beam, a second series of rake-teeth depending from said bar at the opposite side of said beam, a space being provided intermediate said second series of rake-teeth and said beam, a brace pivotally secured to said beam and to said bar, and blades or shovels depending from said brace in line with the space intermediate said second series of rake-teeth and said beam.

787,262. BEET-HARVESTER. JOHN BEAL, Denver, Colo. Filed Feb. 17, 1904. Serial No. 194,051.



Claim.—1. A beet-harvester comprising a truck formed of structural material and having the webs thereof turned inwardly to form guiding means, and an implement-holding frame engaging said guiding means, and means operable for raising and lowering the implement-carrying frame upon the guides of the truck.

2. A beet-harvester comprising a truck formed of structural material angular in cross-section, the said truck having inwardly-extending web portions and outwardly-extending flanges, a sliding frame formed of structural material, the flanges of which engage the webs of the truck, ground-engaging implements carried by the sliding frame, and means operable for raising and lowering the sliding frame upon the guides of the truck.

3. A beet-harvester comprising a truck, formed of bars spread apart at their upper ends and drawn together at their lower ends for forming guides and a sliding frame having flanges for receiving the guides upon the truck, and means operable for raising and lowering the frame upon said guides.

4. A beet-harvesting mechanism comprising a truck having depending guiding side portions, an adjustable frame moving upon said side portions, plows carried by said frame and means for engaging the tops of the beets and dragging them free of the soil.

5. A beet-harvester comprising a vehicle, an angle-iron yoke forming the main frame of said vehicle, the flanges of said angle-iron being turned inwardly to form guides, a channel-iron yoke engaging said guides and beet-digging means carried by said inner yoke.

6. A beet-harvester comprising a vehicle, a guiding-truck therefor, made up of a yoke composed of angle-irons, a channel-iron yoke moving within the angle-iron yoke, plows attached to the channel-iron yoke and beet-top-engaging means also carried by the said yoke and coöperating with the plows for pulling the beets out of the ground.

7. A beet-harvester comprising a truck formed of arched angle-bars spread at their upper ends and drawn together at their lower ends to form guides, the inwardly-extending flanges of the lower portions being parallel, a sliding frame mounted in the truck and formed of a channel-bar arched and having its flanges extending outwardly and embracing the inturned flanges of the truck, plows carried by the said frame, and beet-loosening mechanism also carried by the said frame.

8. A beet-harvester comprising a plow-carrying truck, a beet-engaging chain mounted in said truck, and integral forks carried by the links of said chain for engaging the beets.

9. A beet-harvester comprising a frame, means for digging beets from the ground, means for pulling the beets free from the earth comprising a chain, prongs having flaring arms projecting from the links of said chain capable of shaking the beet-plants free from the soil.

10. A beet-harvester comprising a frame, beet-digging mechanism carried thereby, means for extracting beet-plants from the earth and moving them to a suitable point in the machine comprising traveling chains, beet-engaging means projecting from some of said chains consisting in integral yokes provided with outwardly-flaring arms, and means for actuating said chains.

11. A beet-harvester comprising a truck made up of an outer yoke and an inner movable yoke, plows carried by the inner yoke, a beet-pulling endless chain also mounted in the inner yoke, jointed driving mechanism connecting the chain with a power-shaft, the said power-shaft finding bearings in the outer yoke, and means for raising and lowering the inner yoke.

12. A beet-harvester comprising a vehicle, digging means carried thereby, a beet-manipulating means operating in conjunction therewith, means for actuating the said manipulating means comprising endless chains, gearing operated thereby, and a jointed frame carrying the said gearing, the jointed frame permitting of the elevation or depression of the digging and beet-manipulating mechanism without interfering with their operation.

787,263. HARROW AND CULTIVATOR. JOSEPH A. BEARD, Sr., Liberty, Miss. Filed Aug. 17, 1904. Serial No. 221,045.

Claim.—1. A cultivating implement of the character described comprising a beam, a cross-bar secured to said beam, bent shanks carrying cultivating devices, a single pivot-bolt for each of said shanks, and devices on said bar which engage the shapks on one side thereof and at points removed from their pivot-bolts, substantially as described.

2. The improved cultivating implement comprising a beam, a bar attached to said beam and extending laterally therefrom, shanks for carrying cultivating devices, and screw-bolts passing through each of said shanks and pendent lugs on the bar which engage the shanks substantially as described.

3. The improved cultivating implement comprising a beam, a bar pivoted thereto and extending laterally therefrom, means for securing the bar at any required angle to the beam, bent shanks adapted for carrying cultivating devices, screw-bolts passing through said bar and each of said shanks, and stops on the bar and arranged for contact with the said shanks, for preventing lateral movement of the latter as described.



4. In a cultivating implement of the class described, a plate adapted for attachment to the beam of the implement and having a series of holes for reception of bolts for clamping the shanks of the cultivating devices, and its front side notched and portions thereof bent downward to form lugs adapted to serve as stops for the shanks in the manner described.

787,264. TALKING-MACHINE. JOSEPH E. BEATTY, Huntingdon, Pa. Filed Mar. 31, 1904. Serial No. 200,967.



Claim.—1. The combination of a talking-machine, a violin having a sounding-post and a scroll on the opposite side of the instrument from said post, the bridge provided between its ends with a needle-holder elongated transversely the direction of length of the bridge and tapering toward both end s whereby to clamp the needle or stylus when the same is rocked therein, the needle or stylus in said holder and arranged to be reversed from end to end therein, the said holder being located relatively nearer one end of the bridge whereby the bridge is formed with a short arm resting approximately over the sounding-post of the violin and with a relatively longer arm resting upon the scroll at the opposite side of the instrument from said sounding-post, the violin-holder having a receiver for the neck of the violin, said receiver being tapered longitudinally and undercut transversely to properly grip the violin-neck, the swinging rod pivoted at one end to the violin-holder, and the bracket on the talking-machine to which the other end of the swinging rod is pivoted substantially as set forth.

2. A reproducer for talking-machines comprising a violin, a bridge thereon and a needle or stylus carried by the bridge to operate in connection with a talking-machine record.

3. In a reproducer for talking-machines, a bridge provided between its ends with a needle-holder, the latter being located to one side of the middle of the bridge whereby the bridge is formed with a short arm at one end and with a relatively longer arm at the other end substantially as set forth.

4. The combination in an attachment for talking-machines with a violin having a sounding-post at one side of its center, and a scroll at the opposite side of such center of a bridge provided at one side of its middle with a holder for the needle or stylus whereby there is provided a short arm at one end of the bridge resting over the sounding-post of the violin and a relatively longer arm at the other end of the bridge resting upon the scroll opposite the sounding-post to transmit vibrations thereto in the operation of the device substantially as described.

5. In a reproducer for talking-machines a bridge provided between its ends with a needle-holder which is elongated in a direction at a right angle to the direction of length of the bridge substantially as described.

6. A bridge for talking-machines provided between its ends with a needle-holder arranged at a right angle to the direction of length of the bridge and located to one side of the middle of the bridge whereby the bridge is formed with a short arm at one end and with a relatively longer arm at the other end substantially as set forth.

7. In an attachment for talking-machines, a holder for a violin comprising the body portion having a seat for the neck of the violin, such seat being tapered longitudinally and undercut transversely, and a swinging rod pivoted to one end of the said body substantially as set forth.

787,265. **SHORT HARNESS-TRACE.** DANIEL K. BELLIS, Manton, Mich. Filed Dec. 11, 1903. Serial No. 184,826.



Claim.—1. The combination of a slotted short trace, an ordinary trace, and a coupling-lever, the latter being interlocked at one point with the short trace, and at two points with the ordinary trace, said lever being shiftable to a position at an angle to both of the traces, and providing means for adjustably attaching the ordinary trace to the short trace.

2. The combination of a short trace having a body-plate provided with elongated slots, a coupling-lever having a stud provided with an elongated head adapted to have interlocking engagement with the slotted plate, an ordinary trace, and means for connecting said ordinary trace to said stud.

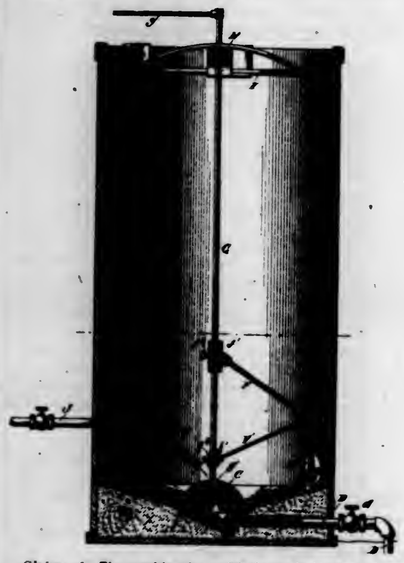
3. The combination of a short trace having a body-plate provided with slots, a lever having a stud which has interlocking engagement with said slotted plate, an ordinary trace, and a loop connected to said ordinary trace and having detachable engagement with the stud of said lever.

4. The combination of a short trace having a slotted body-plate, a lever provided with a stud and with a locking-pin, said lever having interlocking engagement with said body-plate, and a trace having a loop adapted to fit the stud of said lever, the pin of the lever having engagement with said ordinary trace.

5. A short trace consisting of a body-plate having flanges at its side edges, and a jacket composed of a metallic layer and a protective layer, said layers of the jacket being interlocked with the flanges of the body-plate.

6. A short trace consisting of a body-plate having flanges at its side edges, and a composite jacket formed by a metallic layer and a protective layer, the edges of the two layers being doubled upon themselves, and the edges of the jacket being doubled into interlocking engagement with the flanges of the body-plate.

787,266. **TANK-CLEANER.** JAMES W. BIVINS, Topeka, Kans. Filed Oct. 25, 1904. Serial No. 229,990.



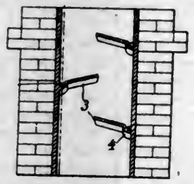
Claim.—1. The combination, with the tank, having a depressed bottom, of cleaning apparatus consisting of a sediment-receiver located at the lowest point in said bottom, a vertical rotary shaft stepped on said receiver, means for supporting the shaft vertically, a lateral arm secured to the shaft, and a scraper attached to and pendent from said arm and arranged to sweep over a portion of the tank-bottom intervening the side wall of the tank and said receiver, as shown and described.

2. The tank having a concave bottom, a sediment-receiver located in the center of the bottom and consisting of a chamber having a series of radial pipes extended over and parallel to the concave bottom, a discharge-pipe connected with the base of the receiver, and a scraping attachment comprising a vertical shaft stepped in said receiver, an upper bearing for the shaft which is attached to the top of the tank, and a scraper attachment comprising a lateral arm secured to the shaft and a pendent arm connected therewith and a scraper secured to said pendent arm and adapted to work on the tank-bottom exterior to the said radial pipes, substantially as described.

3. The combination, with the tank, a rotary shaft provided with a lateral lever-arm, and scrapers adapted to work on the bottom of the tank, of a shaft-support and staging comprising a central part in which the shaft is journaled, means for supporting the same upon the rim of the tank, and the circular track arranged adjacent to the tank-rim, substantially as described.

4. The combination, with the tank, of a chambered sediment-receiver having a closed top located in the center of the bottom thereof and provided with a series of lateral openings and a series of inlet-pipes extending radially, a water-inlet pipe extending through the side of the tank, its nozzle being arranged over and contiguous to the said sediment-receiver, and a lateral discharge-pipe connected with the sediment-receiver, substantially as described.

787,267. **CHIMNEY AND LINING THEREFOR.** JAMES M. BRAGG, East Hartford, Conn. Filed Dec. 12, 1904. Serial No. 236,479.



Claim.—1. In a chimney including its flue, a shelf extending from side to side of the chimney and inclined downward widthwise of the shelf, and an opening through the wall of the chimney communicating with the trough formed at the junction of the shelf and inner wall of the chimney,

2. A chimney including its flue, a trough extending across the chimney from side to side and inclined downward toward one side thereof, an opening through the wall of the chimney communicating with said trough, and a shelf inclined downward widthwise thereof to said trough.

3. A chimney including its flue, a plural number of shelves each extending widthwise partially across the chimney and each inclined downward widthwise of the shelf, a trough formed at the lower edge of each of the shelves, and an opening through the side walls of the chimney communicating with said trough.

4. A chimney including its flue, a plural number of troughs extending across the flue from side to side and inclined downward endwise of the troughs, an opening through the wall of the chimney communicating with each of said troughs, and a shelf extending widthwise thereof partially across the chimney and inclined downward widthwise to said troughs.

5. An improved lining for a chimney including a tubular section having a shelf extending across the chimney from side to side and inclined downward widthwise of the shelf, a trough extending across the lining from side to side at the lower edge of the shelf and terminating at one end of the trough in an opening through the lining.

6. An improved lining for a chimney consisting of a section of tubular form, a plural number of shelves each extending across the chimney from side to side and widthwise of the shelf partially across the chimney, each shelf being inclined downward widthwise thereof, a trough formed at the lower edge of each shelf extending across the chimney from side to side and terminating at one end in an opening through the lining.

7. An improved lining for a chimney including a tubular section, a trough extending across the lining from side to side and formed integral therewith and terminating at one end in an opening through the lining, and a shelf extending across the chimney from side to side and inclined downward widthwise to said trough.

8. An improved lining for a chimney including a tubular section, a plural number of troughs formed integral with the lining extending from side to side thereof in a downward direction terminating at one end in an opening through the lining, and a plural number of shelves each extending widthwise partially across the chimney and inclined downward widthwise of the shelf to said trough.

9. In a chimney, in combination, a shelf extending partially across the chimney, a trough located appurtenant to said shelf, and an opening through the wall of the chimney communicating with said trough.

10. In a chimney, in combination, a plural number of shelves each extending partially across the chimney, troughs located appurtenant to said shelves, and openings through the wall of the chimney communicating with said shelves.

787,268. **BACK FOR PIANOS OR OTHER INSTRUMENTS.** JULIUS BRECKWOLDT, Dolgeville, N. Y. Filed Oct. 10, 1904. Serial No. 227,865.

Claim.—1. A piano-back comprising hollow posts, having their perforations extended entirely therethrough and communicating at each end with the outer atmosphere.

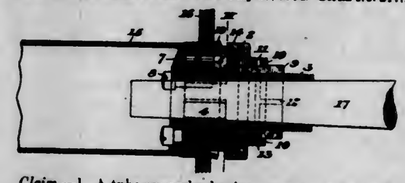


2. A back for pianos and other instruments, comprising stanchions having perforations extended entirely therethrough and communicating with the outer air, sounding-boards between the stanchions, and a regular sounding-board, substantially as described.

3. A piano-back comprising hollow posts regularly spaced apart, and having the openings thereof terminally communicating with the outer air, and sounding-board sections closing the spaces between the posts and provided with longitudinal ribs.

4. A piano-back comprising hollow posts regularly spaced apart, and having the openings thereof terminally communicating with the outer air, sounding-board sections, and a main sounding-board secured to the rear side of the back.

787,269. **TUBE-EXPANDER.** JAMES M. BROWN, Mansfield, Ohio, assignor to The Aultman & Taylor Machinery Company, Mansfield, Ohio, a Corporation of Ohio. Filed July 19, 1904. Serial No. 217,168.



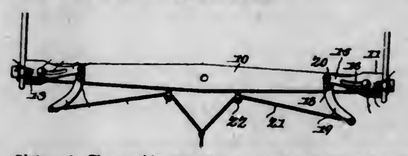
Claim.—1. A tube-expander having a cage, a pair of rollers in the cage abutting end to end, one of them being arranged to extend within the tube-seat and the other to flare the tube end outwardly, and another longer roller also supported in said cage and operating across the abutting line of said first rollers; substantially as described.

2. A tube-expander having a pair of rollers or disks in endwise alinement and lying together, one of them being longer than the other, and another longer roller supported at another point in the circle of the tube-expander and operating across the abutting line of said first rollers; substantially as described.

3. A tube-expander having a short roller, and a disk with a rounded or oval edge fitting together in endwise alinement, and another longer cylindrical roller supported in the cage at another point around the circumference and operating across the abutting line of said first rollers; substantially as described.

4. A tube-expander having shorter rollers arranged end to end and a longer roller at another point in the cage and operating across the abutting line of said first rollers, all said rollers being stemless and held by portions of the cage fitting against their curved surfaces; substantially as described.

787,270. **HORSE-DETACHER.** DAVID C. BRUNER, Caneyville, Ky. Filed Jan. 12, 1905. Serial No. 240,788.



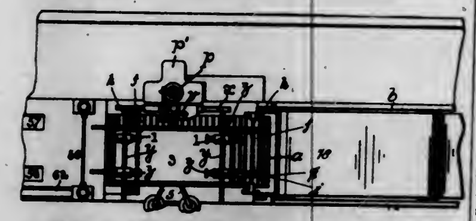
Claim.—1. The combination with a swingletree of ferrules slidably disposed thereon, links movably connected to said ferrules and enclasping the extremities of the whiffletree and supporting the traces thereon, when the ferrules are in withdrawn position, and means operative from the rear of the swingletree for moving said ferrules in opposite directions longitudinally of the same to displace said links and the traces supported thereby.

2. The combination with a swingletree, of ferrules slidably disposed thereon, links mounted to swing from said ferrules and terminating in loops for enclasping the extremities of the swingletree and supporting the traces thereon when the ferrules are in withdrawn position, and means operative from the rear of the swingletree for moving said ferrules in opposite directions longitudinally of the same to displace said link-loops and the traces held thereby.

3. The combination with a swingletree, of ferrules slidably dis-

posed thereon and provided with rearwardly-extended arms longitudinally slotted to receive holding-pins for movably coupling to the swingletree, links connected to swing by one end to said ferrules and terminating in loops for enclasping the ends of the swingletree and supporting the traces thereon when the ferrules are in withdrawn position, levers intermediately pivoted to said swingletree and pivoted by one end to said rearwardly-extending arms, and draw-cables leading from the other ends of said levers.

787,271. STENCIL-PRINTING MACHINE. CHARLES L. BURBECK, Wood Green, London, England. Filed Apr. 20, 1903. Serial No. 153,491.



Claim.—1. A machine for stenciling cards comprising a stencil-holder, a card-support, color-applying and color-drying means, and mechanism connected therewith for suspending the action of one of said means when the other is in operation, substantially as described.

2. A machine for stenciling cards comprising a stencil-holder, a card-support, color-applying and color-drying means, and a two-way valve connected therewith for suspending the action of one of said means when the other is in operation, substantially as described.

3. A machine for stenciling cards, comprising an adjustable stencil-holder, a movable card-support, color-applying and color-drying means, and mechanism connected therewith for suspending the action of one of said means when the other is in operation, substantially as described.

4. A machine for stenciling cards, comprising a stencil-holder, a card-support, color-applying and color-drying means, and automatically-operated mechanism connected therewith for suspending the action of one of said means when the other is in operation, substantially as described.

5. In a machine of the class described, the combination with a card-feeding mechanism, of a traveling band for receiving the card, a stencil-carrying frame supported over said band, and means for intermittently driving said band to bring said card beneath said stencil and retain it in such position while being colored, substantially as described.

6. In a machine of the class described, the combination with a card-feeding mechanism constructed to feed separate cards from a stack placed thereon, of a traveling band for receiving the card fed forward, a stencil-carrying frame supported over said band, means for intermittently driving said band to bring said card beneath said stencil and retain it in said position while being colored, and means for lowering said stencil to contact with said card, substantially as described.

7. In a machine of the class described, the combination with a stencil-carrying frame, of an intermittently-driven band adapted to carry a card to be colored beneath said stencil, means for holding said card in position and means for releasing said card when colored, substantially as described.

8. In a machine of the class described, the combination with a stencil-carrying frame, of an intermittently-driven band adapted to carry a card to be colored beneath said stencil, means for coloring said card, and means for drying said color before said card is removed from beneath said stencil, substantially as described.

9. In a machine of the class described, the combination with a stencil-carrying frame, of a card-support beneath said stencil, a card suitably held on said support, means for lowering said stencil to contact with said card, means for coloring said card, and means for drying said color before said card is removed from beneath said stencil, substantially as described.

10. In a machine of the class described, the combination with a stencil-carrying frame, of a card-support beneath said stencil, means for feeding a card on said support and retaining the same beneath said stencil, means for lowering said stencil to contact with said card, means for coloring said card, means for drying said color before said card is removed from beneath said stencil, and means for releasing said card from its position when colored, substantially as described.

11. In a machine of the class described, a stencil-carrier comprising a hollow standard having a plunger mounted therein, and a frame mounted on said plunger provided with depending fingers for engaging the stencil, substantially as described.

12. In a machine of the class described, a stencil-carrier comprising a hollow standard having a plunger mounted therein, a rod mounted thereon to have an adjustment in a plane parallel to said standard, and depending fingers mounted on said rod to have an adjustment at right angles thereto and constructed to engage the stencil, substantially as described.

13. In a machine of the class described, a stencil-carrier comprising a hollow standard, a spring-pressed plunger mounted therein, provided with a horizontally-arranged sleeve, a rod adjustably mounted in said sleeve provided with an arm projecting at substantially right angles thereto, and a finger for engaging the stencil adjustably mounted on said arm both as to a longitudinal and transverse movement, substantially as described.

14. In a machine of the class described, a stencil-carrier comprising a suitable framework, a plurality of depending fingers mounted thereon each of said fingers having a hollow foot and a plug constructed to fit therein and upon the stencil and clamp the same in position, substantially as described.

15. In a machine of the class described, an adjustable stencil-carrier, a card-support, actuating means, and connections between said actuating means and said stencil-carrier and card-support adapted to move said card-support into position before said stencil-carrier is adjusted, substantially as described.

16. In a machine of the class described, an adjustable stencil-carrier, a movable card-support, and an operating-treadle comprising a compound lever and connections between the parts thereof and said stencil-carrier and card-support, substantially as described.

17. In a machine of the class described, an adjustable stencil-carrier, a movable card-support, a compound operating-lever, a rigid connection between one portion thereof and said card-support and a yielding connection between another portion thereof and said stencil-carrier, whereby said card-support is moved into position before said stencil-carrier is adjusted, substantially as described.

18. In a machine of the class described, a stencil-carrier, a card-support, and an operating-treadle comprising a sole-operated portion and a heel-operated portion, a rod connecting said sole-operated portion to means for actuating said card-support, and a rod connecting said heel-operated portion to said stencil-carrier constructed to have a play when said sole-operated portion is moved and to only actuate said stencil-carrier when said heel-operated portion is moved, substantially as described.

19. In a machine of the class described, operating means, and a mechanism for automatically supplying color and drying the same comprising a suitable support, color and air tanks mounted thereon provided with suitable valves and pipes leading thereto from a suitable source of supply, a spindle for each valve and means connecting said spindles with the operating means, substantially as described.

20. In a machine of the class described, operating means, and a mechanism for automatically supplying color and drying the same comprising a suitable support, valved color and air tanks mounted thereon connected respectively to sources of color and air supply, spindles for said valve and mechanism constructed to open either of said valves before the other connecting said spindles with the operating means, substantially as described.

21. In a machine of the class described, operating means, and a mechanism for automatically supplying color and drying the same comprising a suitable support, valved color and air tanks mounted thereon connected respectively to sources of color and air supply, threaded spindles for said valves, nuts on said threads, levers mounted to engage with said nuts and means connecting said levers with the operating means, substantially as described.

22. In a machine of the class described, operating means, a card-support, and means for intermittently driving the same comprising a revoluble disk operatively connected to said support, a stop mounted to be engaged by said disk and brought into position, and connections between said disk and said operating means for revolving said disk, substantially as described.

23. In a machine of the class described, operating means, a card-support, and means for intermittently driving the same comprising a revoluble cam-disk geared to said support, a stop mounted on the machine-frame and constructed to be engaged by said disk and brought into position, a projection on said disk, and a rod connecting said disk and operating means constructed to engage said projection and revolve said disk, substantially as described.

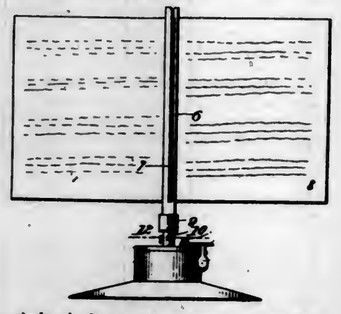
24. In a machine of the class described, operating means, a card-support, means for intermittently driving the same comprising a revoluble disk operatively connected to said support, a stop mounted on the machine-frame and constructed to be engaged by said disk and brought into position, connections between said disk and said operating means for revolving said disk, and mechanism for securing the cards on said support actuated by said stop, substantially as described.

25. In a machine of the class described, the combination with a card-feeding mechanism, of a traveling band for receiving the cards, a stencil-carrying frame supported over said band, a revoluble disk operatively connected to said band, means mounted to be engaged by said disk for stopping the movement of said band when a card reaches a position beneath the stencil, and means for revolving said disk, substantially as described.

26. In a machine of the class described, the combination with a stencil-carrying frame, of an intermittently-driven band adapted to carry a card to be colored beneath said stencil, and automatic means for coloring said card and drying said color before said card is removed from the stencil, substantially as described.

27. In a machine of the class described, the combination with a stencil-carrying frame, of an intermittently-driven band adapted to carry a card to be colored beneath said stencil, means for coloring said card and means for drying said color, and a double-seated valve therebetween whereby the drier cannot be operated until the color has been applied, substantially as described.

787,272. MUSIC-LEAF TURNER. BENJAMIN BURKE, Chicago, Ill. Filed Jan. 4, 1905. Serial No. 239,595.



Claim.—1. In a leaf-turner, in combination, a post having slots, means to turn said post, and escapement devices controlling said means.

2. In a leaf-turner, in combination, a slotted turning post, a spring connected thereto, to turn the same, and manually-operated escapement devices connected to said post and controlling the action thereof.

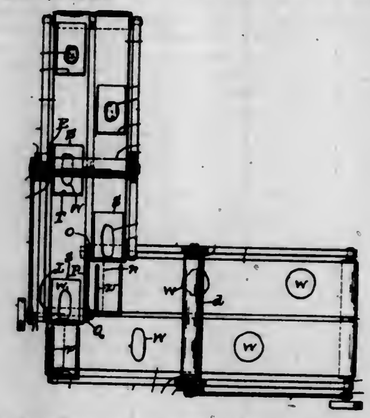
3. In a leaf-turner, the combination with a leaf-holder, of a spring-actuated spindle carrying the same and having an escapement-wheel which turns therewith and is provided with a line of holes, and a detent arranged to engage in said holes, to successively release and stop the spindle.

4. In a leaf-turner, in combination, a leaf-turner, a spring-actuated spindle carrying the same, an escapement-wheel fixed on the spindle and having a series of holes some of which extend in a different circular line from the others, and a manually-operated detent arranged to engage in said holes and shiftable to engage holes in said different lines, to release and stop the spindle accordingly.

787,273. DOUGH-ROLLING OR DOUGH-SPREADING APPARATUS. JOSEPH H. BURNS, Cleveland, Ohio. Filed Sept. 21, 1903. Serial No. 173,965.

Claim.—1. The combination, with means for operating upon a chunk or piece of dough and flattening and forming it into an oblong shape, and means for operating upon the flattened and elongated piece of dough and spreading the latter into an approximately circular shape, of means whereby the aforesaid elongated piece of dough is turned over between the aforesaid operations.

2. The combination, with means for operating upon a chunk or piece of dough and elongating it, and means for operating upon the elongated piece of dough and spreading the latter widthwise, of mechanical means whereby the said layer is turned over between the aforesaid operations.



3. The combination, with means for rolling a chunk or piece of dough into an oblong shape, and means for rolling the elongated piece of dough into an approximately circular layer, of means whereby the said layer is turned over between the aforesaid dough-rolling operations.

4. In a machine for performing two operations upon a chunk or piece of dough and thereby spreading the dough into an approximately circular layer, of means whereby the said layer is turned over between the aforesaid operations.

5. In combination, a table comprising a movable dough-feeding belt or conveyer instrumental in forming the upper side of the said table, means for actuating the said conveyer, another table arranged in suitable proximity to the first-mentioned table and comprising a movable dough-feeding belt or conveyer arranged to receive a piece of dough operated upon and fed by the conveyer of the first-mentioned table, and means whereby a chunk or piece of dough operated upon on the first-mentioned table is delivered onto the other table and turned over during its delivery to the last-mentioned table.

6. In combination, a table comprising a movable dough-feeding belt or conveyer instrumental in forming the upper side of the said table, means for actuating the said conveyer, another table arranged to receive a piece of dough operated upon over and fed by the aforesaid conveyer, and means whereby a piece of dough delivered to the last-mentioned table is turned over during its delivery to the said last-mentioned table.

7. In combination, a dough-receiving table, another table comprising a movable dough-feeding belt or conveyer arranged to receive a piece of dough operated upon on and fed by the first-mentioned table, means for actuating the said conveyer, and means whereby a piece of dough operated upon on the first-mentioned table is delivered to the aforesaid conveyer and turned over during its delivery to the said conveyer.

8. In combination, two tables arranged at a right angle or at an approximately right angle to each other and in suitable proximity to each other and comprising each a dough-feeding movable belt or conveyer, with the conveyer of one of the tables arranged to receive a piece of dough fed by the conveyer of the other table; means for actuating the conveyers, and means whereby the piece of dough fed by the last-mentioned table is delivered to the conveyer of the other table and turned over during its said delivery.

9. In combination, two tables arranged at an angle and in suitable proximity to each other and comprising each a movable dough-feeding belt or conveyer, with the conveyer of one of the tables arranged to receive a piece of dough fed by the conveyer of the other table; means for actuating the conveyers, and means whereby the piece of dough fed by the conveyer of the last-mentioned table is delivered to the conveyer of the other table and turned over during its said delivery.

10. In combination, two tables arranged at an angle and in suitable proximity to each other and comprising the one a belt or conveyer arranged to receive a piece of dough operated upon on the

other table; means for actuating the said conveyers, and means whereby a piece of dough operated upon over the last-mentioned table is delivered to the aforesaid conveyer and turned over during its said delivery.

11. In combination, two tables arranged at an angle and in suitable proximity to each other and comprising the one a dough-feeding belt or conveyer arranged to feed a piece of dough to the other table, means for actuating the said conveyer, and means whereby the piece of dough fed to the last-mentioned table by the aforesaid conveyer is turned over during its delivery to the said last-mentioned table.

12. In combination, two tables arranged at an angle to each other and comprising each a movable dough-feeding belt or conveyer instrumental in forming the upper surface of the respective table, with the upper and dough-feeding portion of the conveyer of one of the tables arranged at an elevation above and overhanging the conveyer of the other table; means for actuating the conveyers, and means whereby the piece of dough is turned over during its delivery from the higher onto the lower conveyer.

13. In combination, two tables arranged in suitable proximity to each other and comprising each a movable dough-feeding belt or conveyer instrumental in forming the upper surface of the respective table, with the upper and dough-feeding portion of the conveyer of one of the tables arranged at an elevation above the conveyer of the other table; means for actuating the conveyers, and means whereby the dough is turned over during its delivery from the higher onto the lower conveyer.

14. In combination, a table comprising a dough-feeding belt or conveyer instrumental in forming the upper surface of the said table, and means for rolling a piece of dough upon and longitudinally of the said conveyer; another table arranged in suitable proximity and at an angle to the first-mentioned table and comprising a dough-feeding belt or conveyer and means for rolling the dough upon and longitudinally of the last-mentioned conveyer, and means for effecting the delivery, to and crosswise of the last-mentioned conveyer, of the piece of dough elongated upon the first-mentioned table.

15. In combination, a table comprising a dough-feeding belt or conveyer instrumental in forming the upper surface of the said table, and means for rolling a chunk or piece of dough upon and elongating it longitudinally of the said conveyer, another table in suitable proximity to the first-mentioned table and comprising a dough-feeding belt or conveyer and means for rolling the dough upon and longitudinally of the last-mentioned conveyer, and means for effecting the delivery, to and crosswise of the last-mentioned conveyer, of the piece of dough elongated upon the first-mentioned table.

16. In combination, a table comprising a dough-feeding belt or conveyer instrumental in forming the upper surface of the said table and means for rolling a chunk or piece of dough upon and elongating it longitudinally of the said conveyer, another table arranged in suitable proximity to the first-mentioned table and comprising a dough-feeding belt or conveyer and means for rolling the dough upon and longitudinally of the last-mentioned conveyer, and means for effecting, not only the delivery, to and crosswise of the last-mentioned conveyer, of the piece of dough elongated upon the first-mentioned table, but also turning the dough over during the said delivery.

17. In combination, a table comprising means for rolling a chunk or piece of dough upon and elongating it longitudinally of the said conveyer, and another table arranged in suitable proximity to the first-mentioned table and comprising means for rolling the dough upon and longitudinally of the second-mentioned table, and means for effecting the delivery, to and crosswise of the said second-mentioned table, of the piece of dough elongated upon the first-mentioned table.

18. The combination, with two dough-rolling tables arranged in suitable proximity to each other, of means for swinging the piece of dough rolled upon one of the said tables over and onto the other table.

19. The combination, with a dough-rolling table comprising a dough-feeding belt or conveyer, and another dough-rolling table arranged in suitable proximity to the first-mentioned table and comprising a dough-feeding belt or conveyer, of means whereby the piece of dough rolled upon and elongated longitudinally of the first-mentioned table is swung over and onto and delivered crosswise of the conveyer of the second-mentioned table.

20. In combination, a table comprising a roller at one end and a dough-feeding belt or conveyer leading over the said roller and instrumental in forming the upper surface of the table, and another table arranged at an angle and in suitable proximity to and overhung by the said conveyer at the aforesaid roller, and the roller-engaging conveyer being provided, at its outer surface, with dough-receiving aprons arranged at suitable intervals longitudinally of the conveyer, which aprons are attached to the conveyer only at the forward ends and capable of swinging, as they move around the aforesaid roller during the actuation of the conveyer in the required direction, upwardly toward and over so as to thereby deliver the dough thereon onto the last-mentioned table.

21. In combination, a table comprising a roller at one end and a dough-feeding belt or conveyer leading over the said roller and instrumental in forming the upper surface of the table and provided with aprons arranged at suitable intervals longitudinally of the conveyer, which aprons are attached and arranged relative to the conveyer as required to render them capable of swinging upwardly and over in passing over the said roller during the actuation of the conveyer in the direction required to feed the laden aprons to and over the said roller, and another table arranged to receive the dough lifted and turned over by the aforesaid aprons when the latter swing as aforesaid.

22. In combination, a table comprising a roller at one end and a dough-feeding belt or conveyer leading over the said roller and instrumental in forming the upper surface of the table and provided with flexible aprons arranged at suitable intervals longitudinally of the conveyer, which aprons are attached and have such arrangement relative to the conveyer that they are capable of swinging upwardly and over in passing over the said roller during the actuation of the conveyer in the direction required to feed the laden aprons to and over the said roller, and another table arranged to receive the dough lifted and turned over by the aforesaid aprons when the latter swing as aforesaid.

23. The combination, with a table comprising a roller at one end and a dough-feeding belt or conveyer leading over the said roller and provided with aprons arranged at suitable intervals longitudinally of the conveyer, which aprons are attached and have such arrangement relative to the conveyer that they are capable of swinging upwardly and over in passing over the said roller during the actuation of the conveyer in the direction required to actuate the aprons to and over the said roller, and another table comprising a dough-feeding belt or conveyer arranged to receive the dough lifted and turned over by the aforesaid swinging of the aprons, of stationary framework provided with two arms arranged a suitable distance above and transversely of the last-mentioned conveyer and suitably spaced longitudinally of the said conveyer, and the arrangement of the parts being furthermore such that the aprons in swinging as aforesaid flap onto the said arms and dough carried by the swinging aprons is deposited between the said arms onto the last-mentioned conveyer.

24. In combination, two dough-feeding conveyers relatively arranged to feed dough the one to the other; means for actuating the conveyers, and means whereby the dough is turned over during its delivery from the one to the other conveyer.

25. The combination, with two dough-rolling tables arranged in suitable proximity to each other, of means whereby a piece of dough rolled on one of the said tables is delivered onto the other table and turned over during its delivery.

26. The combination, with two dough-feeding conveyers arranged to accommodate the delivery of dough from the one to the other of the said conveyers; means for rolling dough on the said conveyers, and means whereby a piece of dough rolled on and elongated longitudinally of one of the said conveyers is delivered onto and crosswise of the other conveyer.

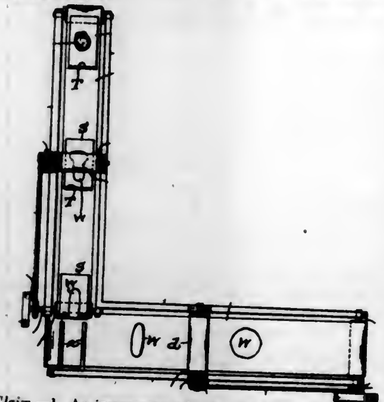
27. In combination, an endless dough-feeding conveyer provided with dough-receiving aprons suitably spaced longitudinally of the conveyer, which aprons are attached to the conveyer only at their forward ends and capable of swinging upwardly and in the direction in which the upper and dough-feeding portion of the said conveyer moves during the actuation of the conveyer; means for rolling the dough carried by the aprons; another conveyer arranged to receive dough turned over by the aprons during the swinging of the aprons as aforesaid, and means for rolling the dough upon the last-mentioned conveyer.

28. In combination, an endless dough-feeding conveyer provided with dough-receiving aprons suitably spaced longitudinally of the conveyer, which aprons are attached to the conveyer only at their forward ends and capable of swinging upwardly and in the direction in which the upper and dough-feeding portion of the said conveyer moves during the actuation of the conveyer, and means for rolling the dough carried by the aprons.

29. The combination, with an endless dough-feeding conveyer provided with aprons suitably spaced longitudinally of the conveyer, which aprons are attached at their forward ends only and are arranged to swing upwardly and in the direction in which the upper and dough-feeding portion of the conveyer moves during the actuation of the conveyer; another conveyer arranged to receive dough lifted and turned over by the aforesaid swinging of the aprons; stationary framework provided with two members arranged a suitable distance above and transversely of the last-mentioned conveyer and suitably spaced longitudinally of the said conveyer and arranged to form stops for the aprons during the swinging of the aprons, and the arrangement of the parts being furthermore such that the dough-laden aprons in swinging as aforesaid flap onto and deliver their dough between the aforesaid transversely-arranged members of the stationary framework.

30. The combination, with mechanical means for rolling a chunk or piece of dough into an oblong shape, mechanical means for rolling the oblong piece of dough widthwise of the said piece, and means for conveying the dough from the first-mentioned dough-rolling means to the second-mentioned dough-rolling means.

787,274. SPREADING DOUGH FOR THE MAKING OF PIE-CRUSTS. JOSEPH H. BURNS, Cleveland, Ohio. Filed Sept. 25, 1903. Serial No. 174,605.



Claim.—1. An improvement in the art of spreading dough for the making of pie-crusts, consisting, first, in depositing a chunk or piece of dough upon a moving surface and so rolling the dough in one and the same plane vertically upon the said suface as to elongate the piece of dough longitudinally of the path of the said surface, and then delivering the partially-rolled and elongated piece of dough crosswise of the path of and onto another movable suface and there so rolling the partially-rolled dough in one and the same plane vertically and longitudinally of the path of the said last-mentioned surface as to form an approximately circular layer of dough.

2. An improvement in the art of spreading dough for the making of pie-crusts, comprising the depositing of a chunk or piece of dough upon a movnig surface and rolling the dough longitudinally of the path of the said surface so as to elongate the piece of dough longitudinally of the said path, and then delivering the elongated piece of dough crosswise of the path of and onto another movable surface and there rolling the partially-rolled dough longitudinally of the path of the last-mentioned surface.

3. An improvement in the art of spreading dough for the making of pie-crusts, comprising the depositing of a chunk or piece of dough upon a moving surface and elongating the piece of dough longitudinally of the path of the said surface, and then delivering the elongated piece of dough crosswise of the path of and onto another movable surface and there rolling the partially-spread and elongated piece of dough longitudinally of the path of the last-mentioned surface.

4. An improvement in the art of spreading dough for the making of pie-crusts, comprising the depositing of a chunk or piece of dough upon a moving surface and rolling and thereby elongating the piece of dough longitudinally of the path of the said surface, and then delivering the elongated piece of dough crosswise of the path of and onto another movable surface and spreading the dough longitudinally of the path of the last-mentioned surface.

5. An improvement in the art of spreading dough for the making of pie-crusts, comprising the feeding of a chunk or piece of dough on and by a movable surface, and so rolling the said piece while the latter is being fed so as to elongate the piece of dough longitudinally of the path of the said surface, then lifting the elongated piece of dough and turning it over and depositing it crosswise of the path of and onto another movable surface, and then rolling the elongated and overturned piece of dough longitudinally of the path of and upon the last-mentioned surface.

6. An improvement in the art of spreading dough for the making of pie-crusts, consisting, first, in so rolling a chunk or piece of dough in one and the same plane vertically as to form an oblong piece of dough, and then rolling the partially-rolled oblong piece of dough widthwise of the said piece on a moving surface in one and the same plane vertically to form an approximately circular layer of dough.

7. An improvement in the art of spreading dough for the making of pie-crusts, consisting in rolling a chunk or piece of dough into an oblong shape, and then rolling the partially-rolled oblong piece of dough widthwise of the said piece on a moving surface and spreading the dough longitudinally of the path of the said surface.

8. An improvement in the art of spreading dough for the making of pie-crusts, consisting in spreading a chunk or piece of dough upon a moving surface into an oblong shape, and then delivering the elongated piece of dough crosswise of the path of and onto another moving surface and there rolling the partially-rolled oblong piece of dough longitudinally of the path of the last-mentioned surface.

9. An improvement in the art of spreading dough for the making of pie-crusts, comprising the rolling of a chunk or piece of dough into an oblong shape, and then rolling the partially-rolled oblong piece of dough widthwise of the said piece on a moving surface and spreading the dough longitudinally of the path of the said surface and turning the dough over preparatory to the last-mentioned spreading of the dough.

10. An improvement in the art of spreading dough for the making of pie-crusts, comprising the feeding of a chunk or piece of dough on and by a moving surface, and rolling the moving piece of dough into an oblong shape, then lifting the oblong piece of dough and turning it over and depositing it crosswise of the path of a moving surface, and then rolling the elongated and overturned piece of dough longitudinally of the path of and upon the last-mentioned surface.

787,275. FENCE-POST. LEWIS K. BUSH, Bonners Ferry, Idaho. Filed Oct. 25, 1904. Serial No. 229,943.



Claim.—1. In a fence-post, the combination with an upright having a longitudinal T-shaped slot therein opening through its top, of a wire-fastener including spaced threaded legs and a connecting-bight, said legs having heads at their free ends slidably engaged in the broadened portion of the T-shaped slot, said legs projecting beyond the slotted face of the upright, a plate having perforations therein in which the spaced legs are slidably engaged, and nuts engaged with the spaced legs between the plate and the bight operable to move the plate in the direction of the post to clamp a wire between the plate and the upright.

2. In a fence-post, the combination with a slotted upright of a plurality of wire-fasteners each including spaced legs and a connecting-bight, said legs having heads at their free ends slidably engaged in the broadened portion of the T-shaped slot, said legs projecting beyond the slotted face of the upright, a plate slidably engaged with the spaced legs and extending therebetween and means for holding the plate in position to clamp a wire between it and the upright.

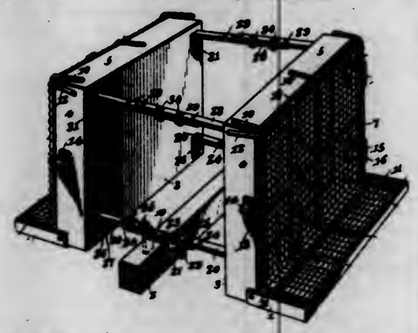
3. As an article of manufacture, a wire-fastener for use in connection with a post, said fastener comprising spaced threaded legs and a connecting-bight, said legs having heads at their free ends, a plate having perforations therein in which the legs are slidably engaged between the heads and the bight, and nuts engaged with the threaded legs between the plate and the bight, said nuts being adapted for operation to vary the limit of movement of the plate away from the head.

787,276. BOLL-WEEVIL EXTERMINATOR. ALBERT B. CARTER, Hazlehurst, Miss. Filed Apr. 20, 1904. Serial No. 204,076.

Claim.—1. A device of the class described, having a trough or receptacle provided at the back with an extension having projecting walls terminating short of the front of the trough or receptacle, substantially as described.

2. A device of the class described, comprising a trough or recep

tacle having an upright extension and provided thereon with a lining of absorbent material, substantially as described.



3. A device of the class described, having a trough or receptacle provided at the back with an extension having projecting walls terminating short of the front of the trough or receptacle, said extension being also provided with a lining of absorbent material, substantially as described.

4. A device of the class described, comprising a receptacle having a substantially vertical extension, said extension being provided with projecting walls, and an upright door covering the extension and having apertures for the entrance of insects, substantially as described.

5. A device of the class described, comprising a receptacle having a substantially vertical portion open at the front, and a door covering the open front and provided with apertures for the passage of insects, substantially as described.

6. A device of the class described, comprising a receptacle having a substantially vertical portion open at the front, and a closure or cover for the front having apertures for the passage of insects and provided with means for dislodging the same from plants, substantially as described.

7. A device of the class described, comprising a receptacle having a substantially vertical portion open at the front, and a closure or cover for the front having apertures for the passage of insects, and provided with projections or fingers for dislodging insects from the plants, substantially as described.

8. A device of the class described, comprising a receptacle having a substantially vertical portion open at the front, and a closure or cover for the front having apertures for the passage of insects, and provided with projections or fingers extending forwardly at an acute angle, substantially as described.

9. A device of the class described, comprising a receptacle having horizontal and upright portions, and a door provided with horizontal and upright portions and having apertures for the passage of insects, substantially as described.

10. A device of the class described, comprising a receptacle having upright and horizontal portions, and a door mounted on the receptacle, and composed of a skeleton frame provided at its top and bottom with arms extending in opposite directions, the upper arms being arranged above the upright portion of the receptacle, and the lower arms extending over the horizontal portion of the same, and a covering supported by the frame and provided with openings for the passage of insects, substantially as described.

11. A device of the class described, comprising a receptacle having an upright portion, a door having openings and provided with projecting arms arranged on the exterior of the walls of the receptacle, and a keeper receiving one of the arms, substantially as described.

12. A device of the class described, comprising a pair of receptacles having upright and horizontal portions, screens covering the upright and horizontal portions of the receptacles, and supporting means connecting the receptacles, substantially as described.

13. A device of the class described, comprising a pair of receptacles, and extensible supporting means adjustably connected to the receptacles, whereby the same are adapted to be raised and lowered and adjusted toward and from each other, substantially as described.

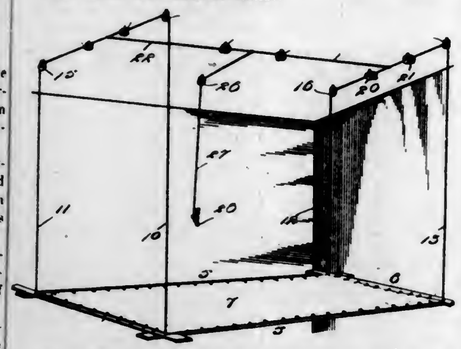
14. A device of the class described, comprising a pair of receptacles, and supporting means connecting the receptacles and provided with clamping means for engaging a plow-beam, substantially as described.

15. A device of the class described, comprising a pair of receptacles, and an adjustable support connected to and spacing the receptacles and provided with a clamp for engaging a plow or cultivator, substantially as described.

16. In a device of the class described, comprising a pair of receptacles, and supports connecting the receptacles at the bottom thereof, and composed of adjustable sections, said supports being provided with depending clamps arranged to engage the beam of a plow or cultivator, substantially as described.

17. A device of the class described, comprising a pair of receptacles, an adjustable support connecting the receptacles at the bottom and provided with a clamp for engaging the beam of a cultivator, and an adjustable brace connecting the upper portions of the receptacles, substantially as described.

787,277. **QUILTING-FRAME.** CALVIN CARTER, Eunola, Ala. Filed Feb. 11, 1904. Serial No. 193,127.



Claim.—The combination with a quilting-frame, of a cord at each end of the frame having its ends attached to the corresponding corners of the frame, pulleys disposed vertically above the corners at each end of the frame and through which the cord at the corresponding end of the frame is passed and between which it is adapted to be taut when the frame is in lowered position, a pair of pulleys disposed horizontally between each end pair of the first-named pulleys and with which the corresponding cord is engaged, a connecting-cord attached at each end to one of the first-named cords at a point midway between the corresponding second-named pulleys, a pair of spaced pulleys with which said connecting-cord is engaged, a manipulating-cord attached to the connecting-cord between the pulleys with which the latter is engaged, a pulley over which the manipulating-cord is passed in a downwardly direction and a cleat for engagement by the manipulating-cord.

787,278. **FOUNTAIN-BRUSH.** PRESTON H. CLINGAN, Florence, Colo., assignor of one-half to John H. Todd, Canon City, Colo. Filed July 28, 1904. Serial No. 218,506.



Claim.—1. A can comprising a cylindrical body having contracted substantially conical extremities, the upper extremity having an inwardly-turned lip formed at the mouth of said can, a cylindrical thimble attached to said lip and extending downwardly within said body to a point near the bottom thereof, a roll of fabric disposed within said thimble and having a frayed extremity projecting beyond the mouth of said cam and constituting a brush, a cover adapted to receive a projecting extremity of said brush, said cover having an expanded threaded base, the extremities of said body having threads corresponding thereto, said body presenting a space within the same surrounding said thimble and constituting a chamber to receive a fluid, a filling-nipple for said chamber, and a cap for the same.

2. A can comprising a cylindrical body having a contracted upper extremity with a lip formed at the mouth thereof, a thimble attaching to said lip and extending downwardly within the body of said can to a point near the bottom thereof, a brush of absorbent material carried within said thimble and projecting beyond the mouth of said can, and a cover receiving the projecting extremity of said wick and attaching to the contracted extremity of said body.

3. A can comprising a cylindrical body having contracted threaded extremities, the upper extremity having an inwardly-turned lip, a thimble consisting of a cylindrical body attaching to said lip and extending downwardly within said body to a point near the bottom of the same, a brush of absorbent material carried within said thimble and projecting beyond the mouth of said can, and a cover receiving the projecting extremity of said brush and having an expanded threaded base adapted to seat upon either of the threaded extremities of said body.

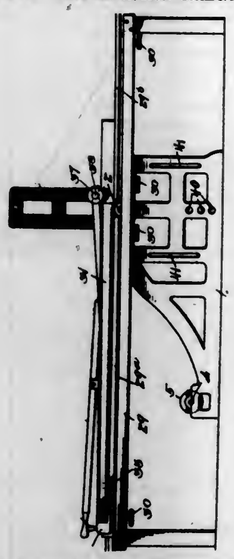
787,279. **STEAM-JET BLOWER.** CHARLES T. COE, Kearney, N.J. Filed Mar. 23, 1904. Renewed Mar. 16, 1905. Serial No. 250,406.



Claim.—1. A steam-jet blower, consisting of several tubes secured together at their front and rear ends, and connected by a steam-chest located between the same, a steam-supply pipe leading into said steam-chest and an outlet-pipe leading from the latter and provided with a nozzle for each tube and located centrally with relation to the latter, substantially as described.

2. A steam-jet blower consisting of two parallel tubes secured together at their rear ends by means of a web and at their forward ends by means of a flange, adapted to be secured to the wall of the ash-pit, a steam-chest located between and connecting said tubes and having a steam-supply pipe leading therein and an outlet-pipe leading therefrom, the latter being bifurcated and provided on each end with a nozzle, each nozzle being located centrally with relation to its respective tube, substantially as described.

787,280. **WOODWORKING-MACHINE.** NATHAN F. COFFEY, Blackrock, Ark. Filed Dec. 29, 1903. Serial No. 186,998.



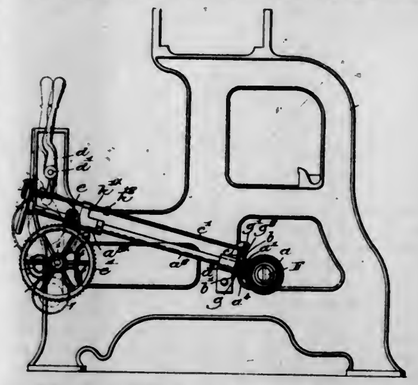
Claim.—1. In a machine of the character described the combination of a frame, a shaft supported by said frame, and a cutter-head detachably secured to one end, of collars forming an arch over said cutter-head, and a chip-breaker arranged in the plane with and between the collars and extending up adjacent to the knives.

2. In a machine of the character described, a frame, a shaft carrying a cutter-head, a table composed of two independently vertically adjustable sections, one arranged on each side of said cutter-head, a block adapted to receive the smaller end of a wagon-pole having a handle whereby it is actuated in propelling said pole over the cutter-head and means for guiding the pole over the cutter-head which automatically adjusts itself to the taper of the tree.

3. In a machine of the character described, a frame, a shaft carrying a cutter-head, a table composed of two independently vertically adjustable sections, one arranged on each side of said cutter-head, a platform arranged near the extremity of one of said sections, a block adapted to receive the smaller end of a wagon-pole, having a handle whereby it is actuated in propelling said tree over the cutter-head and means for guiding the tree over the cutter-head which automatically adjusts itself to the taper of the tree.

4. A machine of the character described, a frame, a shaft carrying a cutter-head, a table composed of two independently vertically adjustable sections, one arranged on each side of said cutter-head, a block adapted to receive the smaller end of a wagon-pole, having a handle whereby it is actuated in propelling said tree over the cutter-head, a yoke-roller pivoted to the frame and adapted to guide the pole between its enlarged end portions, and a hand-lever to raise said yoke to place the tree in position.

787,281. **TAKE-UP MECHANISM FOR LOOMS.** RANDOLPH CROMPTON and JOHN R. FITTON, Worcester, Mass., assignors to Randolph Crompton, George Crompton, Edward D. Thayer, and William B. Scofield, Worcester, Mass. Filed Aug. 8, 1904. Serial No. 219,857.



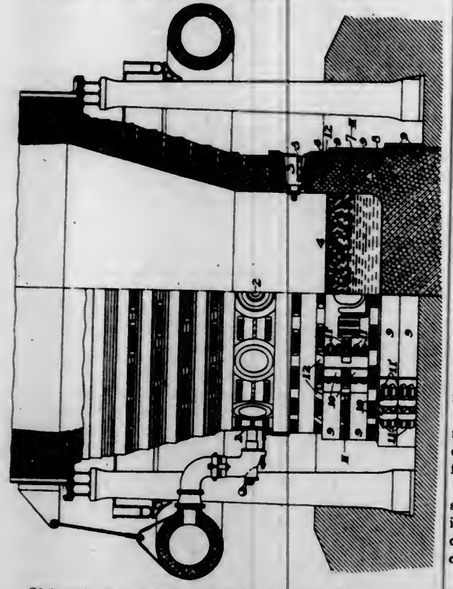
Claim.—1. The combination with a worm-wheel forming a part of a train of take-up mechanism, and a continuously-rotating gear *a*, of a worm-shaft having a worm, a toothed collar splined on said worm-shaft, and a bevel-pinion having teeth at one end and mounted loosely on said shaft, said bevel-pinion being adapted to be rotated continuously by said gear, a rod extended in the same direction as said shaft, and means operative on the stopping of the loom to move said rod and effect the disengagement of said collar and bevel-pinion when it is desired to stop the worm-shaft and suspend the operation of the take-up mechanism.

2. In a take-up mechanism, the combination with a worm and worm-wheel, a sand-roller having an attached toothed wheel, and a driving-train intermediate the shaft of said worm-wheel and the wheel of the sand-roller, of means for disconnecting and leaving loose one of the intermediate pinions of said driving-train that the sand-roller may be turned freely while the worm-wheel and worm remain at rest.

3. In take-up mechanism for looms, the combination with a worm-wheel, its shaft, and a gear connected therewith, and a sand-roller having a connected toothed wheel, of a pinion meshing with the gear carried by the shaft of the worm-wheel, a pinion meshing with the toothed wheel carried by the sand-roller and means for temporarily disconnecting said pinions that the sand-roller may be turned by hand and leave the worm-wheel and its shaft at rest.

4. In a take-up mechanism for looms, a take-up roller, a worm-shaft and an intermediate shaft for driving said take-up, means for driving said worm-shaft, and automatically-controlled means to stop the rotation of said worm-shaft whenever the shipper is moved.

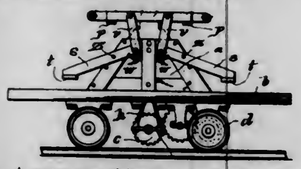
787,282. MEANS FOR PROTECTING BLAST-FURNACE HEARTHS. CHARLES H. DINKEY and HERMANN A. BRASSERT, North Braddock, Pa. Filed Oct. 19, 1903. Serial No. 177,594.



Claim.—1. A blast-furnace having a hearth-wall provided with circular rows of separated holes extending horizontally and inwardly from its outer vertically-extending face below the level of the cinder-notch, and water-cooled plates arranged in series in said holes, the outer vertically-extending face of the masonry wall being exposed and accessible between the sides of the plates, and separated horizontal retaining-bands between the rows, the hearth-wall being free from any inclosing jacket; substantially as described.

2. A blast-furnace having a hearth-wall provided with circular rows of separated holes extending inwardly from its outer face below the level of the cinder-notch, and water-cooled plates arranged in series in said holes, the outer vertically-extending face of the masonry wall being exposed between the sides of the plates, separated horizontal retaining-bands between the rows, and buckstaves between the bands, said structure constituting the sole retaining means for the hearth-wall; substantially as described.

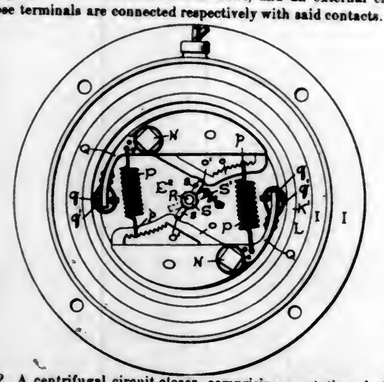
787,283. MOTOR FOR HAND-CARS. JOHN T. H. DRAKE, Altavista, Mo. Filed Feb. 7, 1905. Serial No. 244,537.



Claim.—A motor comprising a supporting-frame, a central lever centrally pivoted thereto, and having transverse handle-bars at its ends, a laterally-extended lever-frame carried by said lever, treadle-lever arms pivoted to said frame at its end portions and having transverse treadle-bars secured to their outer ends, links connecting said lever-frame to said lever-arms, driving-gear, and a pitman connecting said driving-gear to said central lever, substantially as specified.

787,284. SPEED-LIMITING DEVICE. HERMANN F. T. ERBEN, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 30, 1901. Serial No. 73,831.

Claim.—1. A centrifugal circuit-closer, comprising a rotating shaft, a stationary annular contact concentric with said shaft, a centrifugally-movable contact on said shaft, and an external circuit whose terminals are connected respectively with said contacts.



2. A centrifugal circuit-closer, comprising a rotating shaft, a stationary annular contact concentric with said shaft, a weight-pivoted on said shaft, and an external circuit whose terminals are connected respectively with the annular contact and the weight.

3. The combination with a rotatable shaft, of a single stationary ring-contact concentric therewith and forming one terminal of a circuit, and a weight pivoted on said shaft in the plane of said ring, and forming the other terminal of the circuit.

4. A centrifugal circuit-closer, comprising a rotating shaft, a stationary annular contact concentric with said shaft, studs projecting from the ends of said shaft, weights pivoted on said studs, springs connecting said weights, and an external circuit whose terminals are connected respectively with said annular contact and said weights.

5. A centrifugal circuit-closer, comprising a stationary sleeve, a contact-ring inside of and insulated from said sleeve, a rotatable shaft concentric with said sleeve, a weighted contact pivoted to the shaft, and an external circuit whose terminals are connected respectively with said ring and said weight.

6. The combination with a rotatable shaft, of a stationary sleeve concentric therewith and in electrical circuit with said shaft, a single-ring contact supported by and insulated from said sleeve, a pair of weights pivoted on the shaft in the plane of the ring, springs connecting said weights, and two terminals of a circuit, one connected with the sleeve and the other with the ring.

7. A centrifugal circuit-closer, comprising a rotating shaft, a stationary ring-contact concentric with said shaft, one or more studs projecting from the end of said shaft, a weight pivoted on each stud and adapted to make contact with said ring on an increase of speed, and a tailpiece on said weight adapted to make contact with said ring on a decrease of speed.

8. A centrifugal circuit-closer, comprising a rotating weight provided with a tailpiece having a flexible contact.

9. A centrifugal circuit-closer, comprising a rotating weight provided with a tailpiece carrying a flexible metallic loop.

10. A centrifugal circuit-closer, comprising a rotating weight provided with a tailpiece carrying a flexible metallic loop, and means for adjusting said loop.

11. A centrifugal circuit-closer, comprising a rotating weight provided with a tailpiece carrying a flexible metallic loop, and a screw in said tailpiece for adjusting said loop laterally.

12. A centrifugal circuit-closer, comprising two pivoted weighted contacts connected by springs, and a device for moving and holding said contacts out of circuit when the apparatus is not in motion.

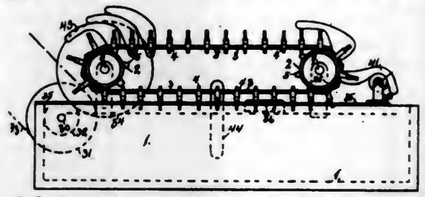
13. A centrifugal circuit-closer, comprising two pivoted weighted contacts, springs tending to move them together, and a rotatable device for separating said contacts against the tension of said springs.

14. A centrifugal circuit-closer, comprising two pivoted weighted contacts, springs tending to move them together, and means for holding them apart when still and autoniatically releasing them when in motion.

15. A centrifugal circuit-closer, comprising two pivoted weighted contacts, springs tending to move them together, a rotatable hub carrying arms adapted to separate said weights, and a spring to disengage said arms from said weights.

787,285. SKEIN-DYEING MACHINE. WILLIAM H. FLETCHER, Paterson, N. J. Filed Mar. 10, 1904. Serial No. 197,483.

Claim.—1. In a dyeing-machine for dyeing skeins, a chain-rack operated by sprocket-wheels located on the upper part of a dye-tub, sprocket-chain links so constructed as to support skein-holders, skein-holders consisting of pieces connecting the opposite ends, the one end forked to connect with said bars, and having a hollow opening to pass over and turn on the projection on the link which is constructed for this purpose, and the opposite end of the skein-holder consisting of the forked portion to connect with the connecting-bar, the barrel or cylindrical portion with its recessed center, having its one end closed or partially so, the spring, the sleeve or tube 24 the pin and slot 25 to receive the said pin, and the geared or roughed portion for the purpose of revolving the holder as set forth and described.

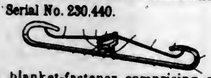


2. In a dyeing-machine for dyeing skeins, a double endless chain-rack, one on each side of the tub for supporting and conveying the skein-holders, said rack consisting of links having a projection on which the skein-holders turn, and a projecting piece 7 which is in sliding contact with a guide on top of the tub, and the piece 36 placed on the top of the tub for the purpose of turning the skein-holders as and for the purpose set forth and described.

3. In a skein-dyeing machine the combination between a dye-tub a driving mechanism attached, chain-racks, sprocket shafts and bearings, and a skein-holder consisting of fork-shaped ends, the connecting-channels 21, the cylindrical portions of each end, the recessed portions of each end, the sleeve and the toothed or roughed portion as set forth and described.

4. In a skein-dyeing machine the combination between the tub with the endless chain-rack and the means for operating the same and the skein-holder supported on the rack by means of the projection of the links, said links are placed alternately with plain links, and the projection on the top of the links which slide over the top of the tub to prevent the rack from sagging, the guide on the top of the tub on which the projections slide and the piece 30 with toothed or roughed tops as and for the purpose of revolving the holder as set forth and described.

787,286. BLANKET-PIN. SAMUEL GALLOWAY, Yale, Kans. Filed Oct. 28, 1904. Serial No. 230,440.

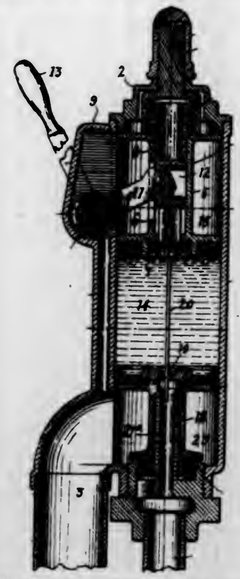


Claim.—1. A blanket-fastener comprising a member having its ends curved upwardly and inwardly and having grooves in the under sides of its curved portions, the free ends of said curved portions being spaced from each other, an upwardly-extending bracket connected with the member intermediate of its ends and lying between the free ends of the curved portions, and oppositely-extending spring-tongues secured at one end to the bracket and having their free ends sharpened, said tongues lying with their sharpened ends in the grooves of the curved portions.

2. A device of the class described comprising two metallic rods having their inner ends turned upwardly at right angles thereto, said upwardly-turned portions being disposed side by side and secured together, the upper ends of said upwardly-turned portions being spaced laterally from each other, said rods extending in opposite directions and having their free ends curved upwardly, curved fingers secured to the free ends of the rods and extending inwardly thereover in the direction of the meeting ends of the rods, said fingers having grooves in their under faces, and a helical spring mounted between the spaced portions, the ends of the wires of which the spring is formed extending in opposite directions and having their extremities sharpened, said sharpened extremities lying in the grooves of the fingers.

787,287. FLUSHING APPARATUS. HENRY W. GARDNER, Waukegan, Ill. Filed Apr. 11, 1904. Serial No. 202,490.

Claim.—1. In a flushing apparatus the combination of a casing having a screw-cap on its upper end and a supply-pipe connection at its lower end, of a plunger in the upper part of the casing having a slotted hollow piston-rod, a valve-stem having a slot in the hollow piston-rod, an auxiliary valve on the lower end of the stem, a spiral spring on said stem normally holding the auxiliary valve in closed position, a bell-crank lever pivotally secured in the casing one arm engaging the slots in the valve-stem and hollow piston-rod whereby the valve-stem and upper plunger are operated downwardly.



2. In a flushing apparatus the combination of a casing having a screw-cap on its upper end and a supply-pipe connection at its lower end, of a plunger in the upper part of the casing having a slotted hollow piston-rod, a valve-stem provided with a slot operating in the hollow piston-rod, a bell-crank lever pivotally secured in the casing one arm engaging the slot in the valve-stem and hollow piston-rod, an adjusting-screw on the upper portion of the casing adapted to regulate the upward movement of the plunger in the upper part of the casing, substantially as described.

3. In a flushing apparatus the combination of a casing having a screw-cap on its upper end and a supply-pipe connection at its lower end, of a plunger in the upper part of the casing having a slotted hollow piston-rod, a valve-stem provided with a slot operating in the hollow piston-rod, an auxiliary valve on the lower end of said valve-stem, a cleaning-rod one end of which is secured to the lower portion of the auxiliary valve and the opposite end adapted to pass through an aperture intermediate of the upper portion of the plunger in the lower part of the casing, an intermediate pipe one end of which telescopes into the hollow piston-rod of the plunger in the lower part of the casing and the opposite end thereof secured to said casing, a valve on the lower end of the piston-rod of said plunger, an outlet-passage or discharge-pipe communicating with the chamber formed in said plunger, substantially as described.

4. In a flushing apparatus the combination of the casing having a screw-cap on its upper end and a supply-pipe connection at its lower end, of a plunger in the upper part of the casing forming a chamber which communicates with an outlet-pipe, an auxiliary valve on the lower end of the stem of said plunger, a plunger in the lower part of the casing forming a chamber which communicates with an outlet-passage or discharge-pipe, an aperture on the upper end of said plunger, a cleaning-rod one end of which is secured to the auxiliary valve and the opposite end thereof adapted to pass through said aperture and into the hollow piston-rod of the plunger in the lower part of the casing, substantially as described.

787,288. SPRING-SHACKLE. FRED E. GRIBEL, Montgomery, Ala. Filed Sept. 9, 1904. Serial No. 223,851.

Claim.—1. A shackle for vehicle-springs, comprising a yoke adapted for attachment to the axle and a spring-supporting link sus-

pended from a pivot-pin in the arms of the yoke, said link consisting of two side pieces each having an inwardly-projecting half-sleeve at its upper end, and a pivot-pin for the spring secured to the lower end of the pieces.



2. A shackle for vehicle-springs, comprising a yoke adapted for attachment to the axle, a spring-supporting link suspended from a pivot-pin in the arms of the yoke, said link consisting of two side pieces each having an inwardly-projecting half-sleeve at its upper end, and one of said pieces having a pivot-pin for the spring formed integrally therewith and adapted to connect with the other piece.

3. A shackle for vehicle-springs, consisting of the yoke *b*, having arms *g*, *g'*, projecting outward and laterally therefrom, a spring-supporting link suspended from the yoke-arms by a pin *h*, and a pin *j* at the lower end of the link for connection to the vehicle-spring, said link consisting of side pieces *i*, *i'*, each having integrally formed therewith a half-sleeve bearing for the pin *h*, and the pin *j* being integrally formed with one of said side pieces and fitting in an eye in the other.

4. In a side-spring vehicle, the combination with the axles, of a vehicle-spring, shackles comprising yokes projecting upwardly from the said axles and extending laterally inward toward each other, and a longitudinal spring suspended at each end by links from the inturned ends of the yoke-arms, said links depending at an angle to the vertical so that normally the ends of the spring will lie in vertical planes passing centrally through the axle and shackles.

5. In a vehicle-spring, the combination with the axles, of shackles secured to the axles, and a longitudinal spring suspended at each end by a link from the shackle so that normally the ends of the spring will be outside of vertical planes passing centrally through the points of suspension of the links, whereby as the spring is weighted the ends will move still farther outward from these vertical planes and at the same time be lifted into close proximity to the horizontal plane through the points of suspension.

6. In a vehicle-spring, the combination with the axles, of shackles comprising yokes projecting upwardly from said axles and extending laterally inward toward each other, spring-supporting links suspended from the yoke-arms at points inside the center line of the shackles, and a spring suspended at each end by the links so that normally the ends of the spring will be in vertical planes passing centrally through the axles and shackles, but when the spring is weighted its ends will be carried outside the vertical plane of the axles and shackles, thereby equalizing the weight on both sides of the axle.

787,289. **SAD-IRON.** PETER C. GREENAWALT, Reading, Pa. Filed July 18, 1904. Serial No. 217,047.



Claim.—1. A device of the character described, comprising a body portion having a compartment formed therein, said body portion having an opening communicating with said compartment, a handle assembled with said body portion provided with a fastening mechanism carried by the base thereof, comprising a post, a head secured near one end of said post upon one side of said base, a lever-arm secured to said post near the opposite end thereof, and a bowed flexible member mounted upon said post intermediate of said lever-arm and base, said head being adapted to be positioned within the opening of said body for retaining said handle in an assembled position with the body.

2. A device of the character described, comprising a body, a handle secured thereto, of a locking mechanism carried by said handle, comprising a movable member, a head secured near one end of said member, lever means secured to said member near the opposite end, an integral lug projecting from said lever means for limiting the movement of said member, and a bowed spring surrounding said movable member intermediate its length and positively secured to said handle.

3. In a device of the character described, the combination of a body having a top, said top provided with a plurality of apertures, a handle removably mounted upon said body, comprising a base portion, a removable arched member secured to said base portion, said base portion having a central aperture and a plurality of recesses formed upon its upper surface, a post journaled in said central apertured portion, a head secured to said post near the lower end thereof, a lever-arm secured to the opposite end of said post, said arm comprising a body portion provided with extensions projecting therefrom upon opposite sides thereof, a grip carried by one of said extensions, an approximately flat spring bowed intermediate its ends and having notched end portions mounted upon said post adjacent to said arm, said notched ends normally projecting into the recessed portions of said base of the handle, and a plurality of integral extensions projecting from the lower surface of said base and normally engaging part of said apertures formed in the top of said body.

4. In a device of the character described, the combination with a body, of a handle provided with a face portion positioned thereon, locking means carried by said handle, comprising a revoluble member, a head secured to said revoluble member, lever means secured to said revoluble member, an angular spring positioned upon said revoluble member between said lever means and base portion of the handle, and means formed upon the lever means adapted to engage said spring for limiting movement of said revoluble member.

5. In a device of the character described, the combination with a body, a handle positioned thereon, of locking means carried by said handle, comprising a revoluble member, a head secured to said revoluble member, lever means carried by said revoluble member, cushioning means assembled with said revoluble means and handle, and means carried by said lever means adapted to engage said cushioning means for limiting movement of said revoluble member.

6. In a device of the character described, the combination with a body, a handle positioned thereon, of locking means for securing said handle in a positive assembled position with said body, comprising a revoluble member carried by said handle, a lever-arm secured to said member, a head formed upon said member, flexible means positioned upon said handle for normally holding the head of said revoluble member in a positive engaging position with said body, and means extending from said lever-arm adapted to engage said flexible means for limiting movement of said revoluble member.

7. The combination with a body, a handle removably positioned thereon, of a locking mechanism carried by said handle, comprising a movable member, a head secured near one end of said member, an arm mounted upon the opposite end of said member, flexible means interposed between said arm and handle, and means carried by said arm adapted to engage said flexible means for limiting movement of said member and its head.

787,290. **MECHANISM FOR RAG-CUTTERS.** CHARLES W. GRIFFIN, Riegelsville, N. J., assignor to Taylor Stiles & Company, Riegelsville, N. J., a Copartnership. Filed Aug. 25, 1904. Serial No. 223,069.

Claim.—1. The combination, in mechanism for rag-cutters, with a reciprocating blade-supporting member, of means to raise and lower the same during its reciprocal movement.

2. The combination, in mechanism for rag-cutters, with a blade-supporting cradle mounted to reciprocate, of oscillating carrier-blocks adapted to raise and lower the same during a portion of its reciprocal movement.

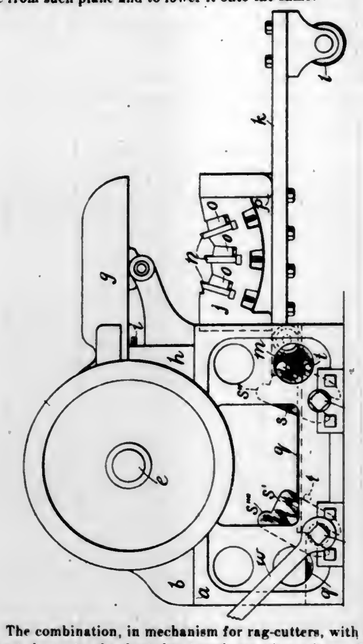
3. The combination, in mechanism for rag-cutters, with a blade-supporting cradle mounted to reciprocate, of oscillating carrier-blocks adapted to raise and lower said cradle during a portion of its reciprocal movement, and means to lock the cradle against forward displacement.

4. The combination, in mechanism for rag-cutters, with a blade-supporting cradle mounted to reciprocate, of oscillating carrier-blocks adapted to raise and lower said cradle during a portion of its reciprocal movement, and means to limit the rearward movement of the cradle.

5. The combination, in mechanism for rag-cutters, with a blade-supporting cradle mounted to reciprocate, of oscillating carrier-blocks adapted to raise and lower said cradle during a portion of its reciprocal movement, and means to limit the rearward movement of the cradle, such means being adapted to yield and release the cradle under supernormal pressure.

6. The combination, in mechanism for rag-cutters, with a blade-supporting cradle mounted to reciprocate, of oscillating carrier-blocks adapted to raise and lower said cradle during a portion of its reciprocal movement, and breakable means to normally restrain the cradle at the end of its normal rearward movement.

7. The combination, in mechanism for rag-cutters, with a cradle adapted to move on a given plane, of means adapted to raise said cradle from such plane and to lower it onto the same.



8. The combination, in mechanism for rag-cutters, with a cradle mounted on a truck adapted to travel on a given plane, of oscillating carrier-blocks adapted to raise said cradle and truck from their plane support and return them to the same.

9. The combination, in mechanism for rag-cutters, with a suitable frame provided with a track, of a blade-supporting cradle mounted on a truck provided with track and floor rollers, and oscillating carrier-blocks arranged to raise the cradle and truck from the roller-supports and lower them onto such supports, at the rearward end of the travel of the truck.

10. The combination, in mechanism for rag-cutters, with a reciprocating truck and a blade-supporting cradle mounted thereon, of oscillating carrier-blocks provided with lugs extending into the path of travel of one of the said reciprocating members.

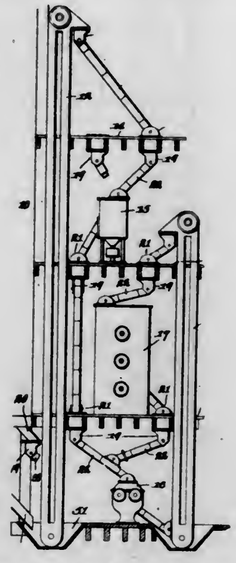
11. The combination, in mechanism for rag-cutters, with a reciprocating truck and a blade-supporting cradle mounted thereon and provided at its forward end with dogs, of a pair of front oscillating carrier-blocks provided with lugs extending into the path of travel of said dogs, and a pair of rear oscillating carrier-blocks provided with lugs extending into the path of travel of the rear end of the cradle, clearance being left between the lugs on the front carrier-blocks to permit of the passage of the rear end of the cradle, all of said carrier-blocks together being adapted when actuated to raise and lower the cradle.

12. The combination, in mechanism for rag-cutters, with a reciprocating blade-supporting cradle, of oscillating carrier-blocks arranged to raise and lower said cradle during a portion of its reciprocal movement, supports for said carrier-blocks, one or more of such supports being each provided with an angular head, and a lever adapted to fit such head.

787,291. **GRAIN-SPOUT.** ALBERT W. HAMLER, Lyons, Mich. Filed June 8, 1904. Serial No. 211,706.

Claim.—1. In a device of the character described, a head member for rotative attachment to the source of supply of the material to be spouted and having a spout-section swinging therefrom, a foot member for detachable connection to the receiver of the material and provided with a spout-section swinging therefrom, and a plurality of interchangeable spout-sections for connection together and to said swinging spout-sections.

2. In a device of the character described, a head member for rotative attachemnt to the source of supply of the material to be spouted and having a spout-section swinging therefrom, a foot member for detachable connection to the receiver of the material and provided with a spout-section swinging therefrom, and a plurality of interchangeable spout-sections for connection together and to said swinging spout-sections, one or more of said interchangeable spout-sections having lateral apertures for the connection of branch spouts thereto.



3. In a device of the character described, a head member for rotative attachment to the source of supply of the material to be spouted and having a spout-section swinging therefrom, a foot member for detachable connection to the receiver of the material and provided with a spout-section swinging therefrom, and a plurality of interchangeable spout-sections for connection together and to said swinging spout-sections, one or more of said interchangeable spout-sections having a swivel-head connected thereto for the rotative connection of lateral branch spouts.

4. In a device of the character described, a plate for permanent attachment to the structure containing the source of supply of the material to be spouted and having an annular guiding means a receiving-spout head provided with a ring rotatively engaging said guiding means and having a spout-section swinging therefrom, a discharge-spout head for coupling detachably to the receiver for the material and having a spout-section swinging therefrom, and a plurality of interchangeable spout-sections for connection together and to said head members.

5. In a device of the class described, a plurality of head members for rotative connection with independent sources of supply of the material to be spouted and each provided with a spout-section swinging therefrom, a foot member for detachable connection to the receiver for the material and provided with a spout-section swinging therefrom, a plurality of interchangeable spout-sections having means for connection together and to the swinging spout-section of said foot member and to one of the swinging spout-sections of one of said head members, one or more of said interchangeable spout-sections having a lateral aperture into which a spout formed by uniting a number of the interchangeable spout-sections may be connected from one or more of the other head member swinging spout-sections.

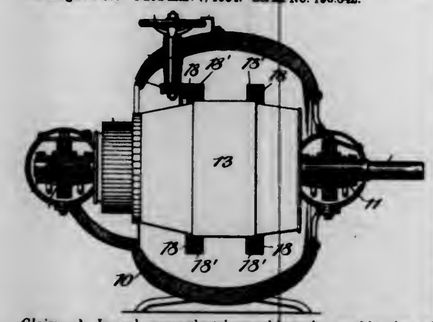
6. In a device of the character described a plate for permanent attachment to the structure containing the source of supply of the material to be spouted and having an annular guiding means, a receiving-spout head provided with a ring rotatively engaging said guiding means and having a spout-section pivoted by its side members within said head member for swinging upon the same, a flexible guard-plate within said spout-head and spaced from its rear wall and extending into said spout-section, a flexible guard-plate within said spout-section and extending from its front wall and over the front

face of said spout-section, said spout-section having a keeper extending over said front guard-plate and a flexible inner guard-plate extending in the rear of said rear guard-plate.

7. In a device of the class described, a member formed of semicircular side portions connected by a transverse portion extending partially over the same, a spout-section disposed for swinging between said side portions, a flexible guard-plate connected to said transverse portion and extending over said spout-section, and a keeper carried by said spout-section and extending over said guard-plate.

8. In a device of the character described, a head member for rotative attachment to the source of supply of the material to be spouted and having a spout-section swinging therefrom, a foot member for detachable connection to the receiver of the material and provided with a spout-section swinging therefrom, and a plurality of interchangeable spout-sections for connecting together and to said swinging spout-sections, one or more of said interchangeable spout-sections having lateral apertures, a sheathing member for the spout-section having the lateral aperture and provided with a lateral aperture for registration with the same, a plate having a flange for rotative engagement with said sheathing-aperture and adapted to support one of said foot members.

787,292. DYNAMO-ELECTRIC MACHINE. TRACY B. HATCH, Los Angeles, Cal. Filed Mar. 7, 1904. Serial No. 196,842.



Claim.—1. In a dynamo-electric machine, the combination of an armature, a commutating device, a field-magnet pole having a movable part, and agencies for varying the position of the movable part of said pole to vary its effective magnetic area, and adjusting the commutating device.

2. In a dynamo-electric machine, the combination of an armature, a commutating device, a field-magnet pole having a movable part, and agencies for varying the position of the movable part of said pole to vary its effective magnetic area, and simultaneously adjusting said commutating device.

3. In a dynamo-electric machine, the combination of an armature, a commutating device, a field-magnet, and agencies for adjusting a portion of the field-magnet circumferentially relative to the armature to vary its effective area, and adjusting the commutating device.

4. In a dynamo-electric machine, the combination of an armature, collecting-brushes therefor, a field-magnet pole having a movable part, and agencies for varying the position of said movable part of said field-magnet pole to vary the effective magnetic area of said field-magnet, and simultaneously moving the collecting-brushes consistently therewith.

5. In a dynamo-electric machine, the combination of an armature, a field-magnet pole having a movable part, a commutating device, and agencies for varying the position of the movable part of the field-magnet pole to vary the effective magnetic area of said field-magnet, and simultaneously adjusting the commutating devices, said agencies comprising a single operating member.

6. In a dynamo-electric machine, the combination of an armature, a commutating device, a field-magnet having a pole part movable to vary its effective magnetic area, and agencies for moving said part and adjusting the commutating device.

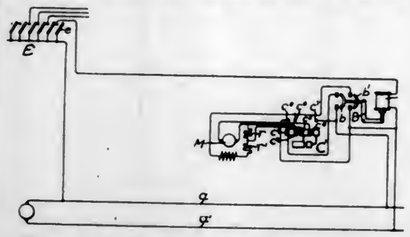
7. In a dynamo-electric machine, the combination of an armature, a commutating device, a field-magnet comprising pole-shoes adjustable circumferentially relative the armature, and agencies for adjusting said field-magnet pole-shoes and adjusting the commutating device.

8. In a dynamo-electric machine, confronting pole-cores, and a rotatable structure carrying adjustable pole-shoes, arranged to coact with said pole-cores and receive support therefrom.

9. In a dynamo-electric machine, confronting pole-cores, rotatably-adjustable pole-shoes, and a mechanical connection between said shoes, the shoes being arranged to receive support from the pole-cores.

10. In a dynamo-electric machine, an armature, a commutator, a field-magnet pole-core, a pole-shoe adjustable relative to its core, and a collecting-brush connected with the adjustable shoe for movement therewith.

787,293. CONTROL OF BULKHEAD-DOORS. LAURENCE A. HAWKINS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 30, 1904. Serial No. 226,625.



Claim.—1. In combination, an electric motor, a manually-operated reversing-switch therefor, means for holding said switch normally in one operative position, and a switch controllable locally or from a distance for completing the motor-circuit.

2. In combination, an electric motor, a manually-operated reversing-switch therefor, means for holding said switch normally in one operative position, and a switch controllable locally or from a distance for completing the motor-circuit when said reversing-switch is in said position, said reversing-switch being arranged in its other position to complete the motor-circuit independently of the other switch.

3. In combination, an electric motor, a reversing-switch therefor, means for holding said switch normally in one operative position, an operating-handle for said switch, a magnetically-operated switch adapted to complete the motor-circuit, and mechanical connections between said operating-handle and said magnetically-operated switch.

4. In combination, an electric motor, a reversing-switch therefor, means for holding said switch normally in one operative position, an operating-handle for said switch, a magnetically-operated switch adapted to complete the motor-circuit when said reversing-switch is in said position, said reversing-switch being arranged in its other position to complete the motor-circuit independently of the magnetically-operated switch, and mechanical connections between said operating-handle and said magnetically-operated switch.

5. In combination, an electric motor, a reversing-switch therefor, means for holding said switch normally in one operative position, a switch controllable from a distance and adapted to complete the motor-circuit, said reversing-switch being arranged in its other operative position to complete the motor-circuit independently of the second switch, an operating-handle, and operative connections between said handle and both of said switches whereby said reversing-switch is moved to its other position when said handle is moved in one direction, and the second switch is moved to its closed position when said handle is moved in the other direction.

6. In combination, an electric motor, a reversing-switch therefor, means for holding said switch normally in one operative position, a switch controllable from a distance and adapted to complete the motor-circuit, an operating-handle, and operative connections between said handle and both of said switches.

7. In a controller for electric motors, a manually-operated shaft, a reversing-switch loosely journaled thereon, means for holding said switch normally in one operative position, a switch controllable from a distance, a member loosely journaled on said shaft and adapted when moved to move the second switch to closed position, and operative connections between said shaft and both said reversing-switch and said member whereby said switch or said member is moved when said shaft is moved in one direction or the other.

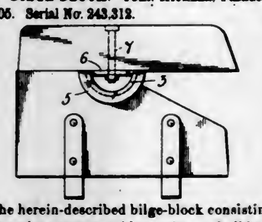
8. In a controller for electric motors, a manually-operated shaft, a reversing-switch loosely journaled thereon, means for holding said switch normally in one operative position, a switch controllable from a distance, a member loosely journaled on said shaft and adapted when moved to move the second switch to closed position, and means carried by said shaft for engaging said reversing-switch or said member when said shaft is moved in one direction or the other.

9. In combination, a switch, a magnet-winding adapted when energized to close said switch, a manually-controlled movable member, a spring connecting said switch to said member, said member being arranged to vary the direction of the tension of said spring on said switch, whereby said switch is opened and closed with a snap action by the movement of said member, and means for holding said member normally in position to open said switch.

10. In combination, a system of doors, a motor for raising and lowering each door, a reversing-switch for each motor, means for holding each switch normally in lowering position, a second switch for each motor adapted to complete the motor-circuit when the reversing-switch is in lowering position, means controllable from a distant point for operating the circuit-completing switches for the several doors, and means at each door for manually closing said circuit-completing switch or moving said reversing-switch to its raising position.

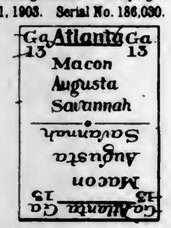
11. In combination, a system of doors, a motor for raising and lowering each door, a reversing-switch for each motor, means for holding each switch normally in lowering position, a second switch for each motor adapted to complete the motor-circuit when said reversing-switch is in lowering position, said reversing-switch being arranged in raising position to complete the motor-circuit independently of the second switch, an electromagnet for each circuit-completing switch, means at a distant point for controlling the circuits of the several electromagnets, and means at each door for manually closing the circuit-completing switch at that door or moving the reversing-switch to its raising position.

787,294. BILGE-BLOCK. JOHN HICKLER, Pasadena, Cal. Filed Jan. 30, 1905. Serial No. 243,312.



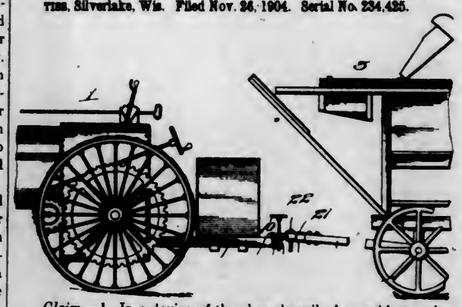
Claim.—The herein-described bilge-block consisting of a tilting member having a plane upper and lower face, a hollow semicircular bearing-plate having end flanges, a plane upper surface, a semicircular bearing-surface, said bearing-plate being secured to the tilting member by means of a bolt passing through said block and through the plane upper wall of the bearing-plate, and a bearing member having a semicircular recess therein to form a seat for the bearing-plate, the flanges at the ends of the bearing-plate serving to prevent sidewise movement of the tilting member, substantially as described.

787,295. PLAYING-CARDS. WILLIAM H. HIGGINS, Atlanta, Ga., assignor, by mesne assignments, to Campaigne Card Company, Atlanta, Ga. Filed Dec. 21, 1903. Serial No. 186,030.



Claim.—A deck of cards, representing by suits of four each State in the Federal Union, each card bearing the name of a city to indicate the suit to which it belongs, each card of each suit bearing the number of electoral votes to which the State of the suit is entitled, to indicate the value of a card, and the entire deck being separated by color, into four divisions of "North," "South," "East" and "West," with the number of electoral votes to which each section is entitled indicating the value of said section.

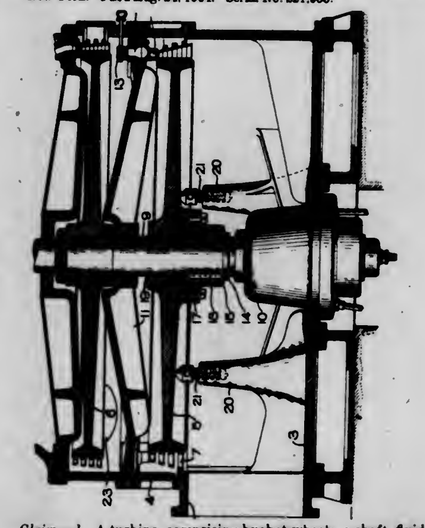
787,296. COUPLING. CHESTER L. HOCKNEY and WILLIAM R. CURTIS, Silverlake, Wis. Filed Nov. 26, 1904. Serial No. 234,425.



Claim.—1. In a device of the class described, a guide member adapted for attachment to a vehicle, a coupling member arranged for travel longitudinally of the guide member, a rotary actuating member carrying a pulley, a belt arranged upon and for movement by the pulley, said belt being connected with and designed for moving the coupler, and means for connecting the coupler with a second vehicle.

2. In a device of the class described, a guide-bar adapted for attachment to a vehicle, a coupling member arranged to travel on the bar, rotary shafts arranged adjacent the ends of the bar, pulleys carried by the shafts, a belt arranged for travel on the pulleys and connected with the coupler, and means for connecting the latter with a second vehicle.

787,297. ELASTIC-FLUID TURBINE. OSCAR JUNGGREN, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 24, 1904. Serial No. 221,955.



Claim.—1. A turbine, comprising bucket-wheels, a shaft, fluid-discharging devices, and a casing, in combination with a means for coupling and uncoupling one or more wheels from the shaft, and a means for holding the disconnected wheel or wheels free from the shaft.

2. A turbine, comprising bucket-wheels, a shaft, a fluid-discharging device, and a casing, in combination with a coupling for connecting and disconnecting one or more wheels from the shaft, and supports engaging a disconnected wheel and holding it out of engagement with the shaft.

3. A turbine, comprising bucket-wheels, a shaft, a fluid-discharging device, and a casing, in combination with a coupling one part of which is rigidly secured to the shaft, and supports for moving a disconnected wheel away from the part of the coupling carried by the shaft.

4. A turbine, comprising bucket-wheels, a shaft, fluid-discharging devices, and a casing having a chambered base, in combination with a coupling one part of which moves with the shaft, a means for securing the coupling and wheel, and supports located within the chambered base which are movable into engagement with a wheel to hold it in substantially its normal position when the coupling is released.

5. A turbine, comprising a vertical shaft, wheels mounted thereon one above the other, fluid-discharging devices, and a casing, in combination with a coupling for connecting and disconnecting one or more wheels from the shaft, and supports which raise the disconnected wheel or wheels from engagement with the coupling and maintain a clearance between it or them and the shaft.

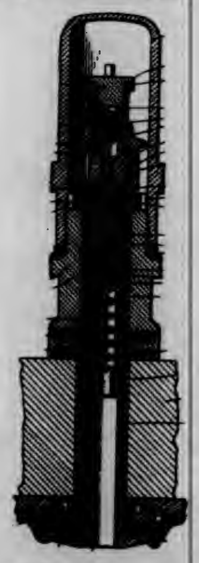
6. A compound turbine, comprising a shaft, a casing, walls for dividing the casing into compartments or stages, and bucket-wheels, in combination with a coupling located within the casing for disconnecting the wheel of one stage or more stages from the shaft, and supports for holding the disconnected wheel or wheels out of engagement with the shaft or coupling.

7. A turbine which is divided into stages, a shaft common to the stages, and bucket-wheels for the stages, in combination with a coupling for connecting or disconnecting one or more wheels from the shaft, a support for holding the idle wheel or wheels, and valves for preventing the entrance of motive fluid to the idle stage or stages.

8. A turbine which is divided into stages, a shaft common to the stages, and bucket-wheels for the stages, in combination with a coupling for connecting and disconnecting one or more wheels from the shaft, and angularly-displaced supports for the idle wheel or wheels which are composed of fixed columns and lifting-bolts.

9. A multistage-turbine, in combination with a coupling located within the casing for disconnecting one or more bucket-wheels from the shaft, and supports also located within the casing for supporting the disconnected bucket wheel or wheels.

787,298. **INFLATION-VALVE.** JOHN E. KELLER, Jr., Litchfield, Conn. Filed May 7, 1904. Serial No. 206,930.



Claim.—1. An inflation-valve comprising an externally-screw-threaded tubular stem for insertion through a rim, valve mechanism carried within the stem, a nut embracing the stem, and a washer to be interposed between the nut and the rim and comprising a metallic ring provided with a central opening of a diameter to slidably embrace the stem and also provided with an outer cylindrical flange, and a yieldable washer-ring fitted within the flange of the metal ring and projected at the outer edge of the flange.

2. An inflation-valve comprising an externally-screw-threaded tubular stem for insertion through a rim, valve mechanism carried within the stem, a nut embracing the stem, and a washer to be interposed between the nut and the rim and comprising a metallic ring member provided with a central opening of a diameter to slidably embrace the stem and also provided with an outer cylindrical flange projected away from the nut, and a yieldable washer-ring fitted within the flange of the metal ring and projected at the outer edge of the flange for engagement with a rim.

3. An inflation-valve comprising a tubular stem for insertion through a rim and externally screw-threaded, valve mechanism carried within the stem, a nut embracing the stem, and a washer to be interposed between the nut and a rim and comprising a metallic ring member having a cylindrical flange projecting at opposite sides thereof, and yieldable washer-rings fitted within the flanges of the metal ring and projected at the outer edges of said flanges.

4. An inflation-valve comprising a tubular stem to be inserted through a rim and having external screw-threads and a flattened portion intersecting the screw-threads, valve mechanism carried within the stem, a washer embracing the stem and made up of a metallic ring having an outer peripheral flange projected at opposite sides of the ring, the inner periphery of said ring having a flattened portion to engage the flattened portion of the stem, yieldable ring members fitted within the flanges and projected at the outer edges thereof, a nut fitted upon the stem to engage one of the yieldable members of the washer and provided at its outer end with a longitudinal projection, and a locking-washer fitted upon the stem with its inner periphery provided with a flat portion to engage the flat portion of the stem, said washer having one or more notches for the reception of the projection.

5. In an inflation-valve, the combination of a tubular externally-screwed-thread stem to be inserted through a rim and provided with a longitudinal flattened portion, valve mechanism carried within the stem, a valve-plug fitted in the outer end of the stem and projected beyond the same, a nut embracing the stem for engagement with a rim, a locking-washer embracing the stem and having its inner periphery provided with a flattened portion for engagement with the flattened portion of the stem, there being a pin-and-socket engagement between the nut and the washer, and a plug-retaining cap embracing the plug and the stem at the outer side of the locking-washer, said retaining-cap constituting a stop to prevent separation of the locking-washer from the nut.

6. In an inflation-valve, the combination of a tubular stem to be inserted through a rim and externally screw-threaded, valve mechanism carried within the stem, a rim-engaging nut fitted upon the stem, and a dust-cap embracing the stem and detachably carried by the nut.

7. In an inflation-valve, the combination with a valve-casing having an internally-screw-threaded nipple for engagement with the nipple of an air-pump, of a closure therefor comprising a screw-threaded plug to fit the nipple, and a carrier member swiveled upon the inner end of the plug and provided with a packing-ring or washer for engagement with the casing.

8. In an inflation-valve, the combination of a casing having an internally-screw-threaded nipple for connection with an air-pump and also provided with a valve mechanism including a stem, a screw-threaded closure-plug removably fitted within the nipple, and a washer-carrying member swiveled upon the inner end of the plug and provided with an opening constituting a guide for the valve-stem.

9. In an inflation-valve, the combination of a casing having an inner annular shoulder and a screw-threaded nipple for connection with an air-pump, a valve mechanism within the casing and including a stem, a screw-threaded closure for the nipple, a carrier member swiveled upon the inner end of the closure and provided with an opening constituting a guide for the valve-stem, and a washer carried by the carrier member for engagement with the inner shoulder of the casing.

10. In an inflation-valve, the combination of an externally-threaded and tubular stem to be inserted through a rim, valve mechanism carried within the stem, a rim-engaging nut embracing the stem and provided with an intermediate external annular shoulder having an annular seat in its outer face, the nut being externally screw-threaded at the seat side of the shoulder, a packing-ring fitted in the seat, and an internally-threaded dust-cap fitting the externally-threaded portion of the nut and engaging the packing-ring.

11. In an inflation-valve, the combination of a tubular stem to be inserted through a rim, valve mechanism carried within the stem, a rim-engaging member embracing the stem and provided with an external annular shoulder having an annular seat in its outer face, said member being externally screw-threaded at the seat side of the shoulder, a packing-ring fitted in the seat, and an internally-threaded dust-cap fitting the externally-threaded portion of the rim-engaging member and engaging the packing-ring.

12. In an inflation-valve, the combination of a tubular stem to be inserted through a rim, valve mechanism carried within the stem, a rim-engaging member fitted upon the stem, and a dust-cap embracing the stem and detachably carried by the rim-engaging member.

787,299. **ROCKING-CHAIR.** CARL D. KOEBER, Oshkosh, Wis. Filed June 2, 1904. Serial No. 210,869.



Claim.—1. In a device of the character described, the combination, with a base having a plurality of longitudinal grooves, of a spring removably mounted within each of said grooves, comprising a corrugated base having a plurality of angular coiled extensions projecting therefrom, and a seat removably mounted upon said springs.

2. In a device of the character described, the combination with a base, comprising a plurality of members, said members having grooves formed therein, of a spring removably mounted within each of said grooves, comprising an angular base portion having a plurality of angular extensions, each extension provided with a key-seat formed near its outer end, a seat provided with key-sockets, and means for positively securing said key-seats within said key-sockets.

3. A device of the character described, comprising a base having a plurality of grooves formed therein, a spring mounted within each groove comprising an angular base portion having a plurality of coiled extensions terminating in grooved ends, a seat assembled with said springs, and clamping means for retaining the grooved ends of the springs in a locked position with the seat portion.

4. In a device of the character described, the combination, of a base having a plurality of approximately longitudinal grooves, a spring provided with a corrugated base mounted within each of said grooves, binding-plates secured upon said base and engaging the corrugated portions of said spring, grooved, integral extensions secured to each of said springs, a seat provided with a plurality of recesses, said grooved extensions of said spring adapted to engage said recessed portions of the seat, and key-plates mounted upon said seat and engaging the grooved portion of said extensions.

5. A device of the character described, comprising a base, a plurality of flexible members mounted upon said base, a plate secured to said base above a portion of each of said members, each of said members comprising a base and coiled crossed portions secured thereto, a seat provided with clamping means secured above said base, and said clamping means adapted to secure the crossed portions of the flexible members in an assembled position with the seat.

6. A device of the character described, comprising a base, a seat secured above said base, and a flexible member connecting the base and seat and formed in a single piece of material, said member comprising a waved base portion and a pair of coiled, crossed extensions projecting from the ends of said base portion.

7. In a device of the character described, the combination with a base and a seat, of a spring member interposed between the base and seat and having integral, crossed extensions provided with longitudinally-extending grooves, a seat engaged by the grooved portions of the extensions, and corrugated retaining devices connected to the seat and engaging the grooved portions of the extensions.

8. A resilient seat-supporting device of the character described formed from a single piece of material and comprising a waved base, oppositely-inclined crossed extensions at the ends thereof, coils formed by the extensions, and end portions provided with longitudinal grooves projecting from the coils.

9. In a device of the character described, the combination with a base and a seat, of spring members interposed between the base and seat, each of said members comprising a horizontal body portion, oppositely-inclined crossed extensions at each end of said body portion, longitudinal grooves formed upon the extensions of each member, said seat provided with recesses, the grooved extensions of the members positioned within the recesses of the seat, key-plates provided with a corrugated portion positioned upon said seat, the corrugated portions of the key-plate engaging the grooved portion of the extensions for securing said extensions in a fixed position to the base.

10. In a device of the character described, the combination with a base having longitudinal grooves, of springs removably positioned within said grooves, each spring comprising a corrugated body portion, crossed extensions projecting from said body, a seat positioned above and engaging said springs, said seat provided with sockets, a head-block countersunk in each of said sockets, the extensions of said springs normally positioned within the head-blocks, means for locking said extensions within said head-blocks, and removable plates of approximately the same length as the body portion of the springs positioned upon the base and normally clamping the body portion of the springs within the grooved portion of the base.

11. A device of the character described, comprising a base, a seat assembled therewith, and flexible means connecting said base and seat comprising a corrugated base, coiled crossed extensions secured integrally to the ends of said base and engaging said seat, and clamping means for securing said flexible means in a fixed position with said base and seat.

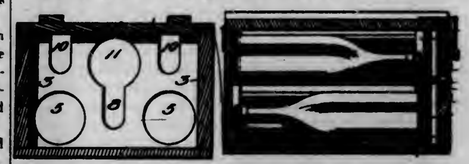
12. The combination with a base and a seat, of flexible members connecting said base and seat, each of said members comprising a corrugated body portion, integral, crossed extensions projecting from the ends thereof, removable plates positioned upon the corrugated body portions and clamping the same to said base, head-blocks provided with longitudinal openings secured to said seat, the extensions of said members positioned within said head-blocks, and means carried by said seat and engaging said extensions through the openings in said head-blocks for securing the extensions in an assembled position with said seat.

13. In a device of the character described, the combination with a base and a seat, of a flexible member connecting said base and seat, means for clamping said member to said base, said seat provided with sockets, head-blocks countersunk in said sockets, each of said head-blocks comprising an approximately cylindrical body portion having a flat side portion, said side portion having an opening, said flexible member being positioned within the head-blocks, and removable plates positioned upon said seat and engaging the flexible member through the openings of the head-blocks for locking the flexible member in an assembled position with the seat.

14. The combination with a base and seat, of flexible members connecting said seat and base, each of said members comprising an approximately flat body portion, removable, parallel members positioned upon said flat body portion and secured to said base, crossed, integral extensions projecting from the ends of said body portion, a coil formed upon each of said extensions intermediate their length, and clamping means for securing said extensions to the seat.

15. The combination with a base and a seat, of a flexible member connecting said base and seat, said flexible member provided with a longitudinal groove formed therein, said grooved portion having corrugated walls, the grooved portion of said member engaging said seat, a key member provided with a corrugated portion positioned upon said seat, said corrugated portion engaging the corrugated walls of the member for securing said member to said seat, and means for securing said member to said base.

787,300. **CASE FOR STORING BOTTLES.** JOHN J. KOONS, Saratoga Springs, N. Y. Filed Apr. 20, 1904. Serial No. 204,105.



Claim.—1. A case of the class set forth having the inner face of one of its ends provided near its lower edge with circular grooves and an elongated groove and near its upper edge with elongated grooves and a circular groove: and having the inner face of its other end provided near its lower edge with elongated grooves opposite the lower circular grooves of the first-mentioned end and a circular groove opposite the lower elongated groove of the first-mentioned end and

provided near its upper edge with circular grooves opposite the upper elongated grooves of the first-mentioned end and an elongated groove opposite the upper circular groove of the first-mentioned end, substantially as shown and described.

2. A case of the class set forth having the inner face of one of its ends provided near its lower edge with circular grooves and an elongated groove located between the circular grooves and near its upper edge with elongated grooves and a circular groove located between the elongated grooves and communicating with the lower elongated groove; and having the inner face of its other end provided near its lower edge with elongated grooves opposite the lower circular grooves of the first-mentioned end and a circular groove between the elongated grooves and opposite the lower elongated groove of the first-mentioned end and near its upper edge with circular grooves opposite the upper elongated grooves of the first-mentioned end and communicating with the lower elongated grooves of the last-mentioned end and an elongated groove opposite the upper circular groove of the first-mentioned end.

3. A case of the class set forth, having the inner face of one of its ends provided near its lower edge with circular grooves and an elongated groove and near its upper edge with elongated grooves and a circular groove, a follower arranged in the case and provided near its lower edge with elongated grooves opposite the lower circular grooves of said end and a circular groove opposite the lower elongated groove of said end and provided near its upper end with circular grooves opposite the upper elongated grooves of said end and an elongated groove opposite the upper circular groove of said end, and means for moving said follower.

4. A case of the class set forth, having the inner face of one of its ends provided with grooves, a follower arranged in the case and provided with grooves, and a bolt journaled in the other end of the case and having threaded connection with the follower, whereby the follower may be moved toward and away from the first-mentioned end.

5. A case of the class set forth having the inner face of one of its ends provided with grooves, a follower arranged in the case and provided with grooves, the other end of said case being provided with an opening, a bolt having an enlarged portion journaled in said opening and having threaded connection with the follower, whereby said follower may be moved toward and away from the first-named end, and means for retaining the bolt in applied position.

6. A case of the class set forth having the inner face of one of its ends provided with grooves, a follower arranged in the case and provided with grooves, the other end of said case being provided with an opening, a bolt having an enlarged portion journaled in said opening and having threaded connection with the follower, whereby said follower may be moved toward and away from said first-mentioned end, the outer end of said bolt being provided with a groove, and plates secured to the last-mentioned end to retain the bolt in applied position.

7. A case of the class set forth having the inner face of one of its ends provided with a circular groove, and the inner face of its other end provided with an elongated groove and a circular groove having communication with each other, said last-named elongated groove arranged in alinement with the first-named circular groove.

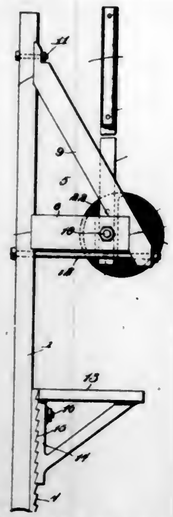
8. A case of the class set forth having the inner face of one of its ends provided with a circular groove, and an elongated groove, and the inner face of its other end provided with an elongated groove opposite said circular groove and a circular groove opposite the first-named elongated groove, said last-named circular and elongated grooves communicating with each other.

9. A case of the class set forth having the inner face of one of its ends provided with a circular groove, a follower provided with a circular groove and an elongated groove communicating with each other, said elongated groove being arranged opposite said first-named circular groove, and means for adjusting the follower.

10. A case of the class set forth having the inner face of one of its ends provided with an elongated groove, and a circular groove, a follower arranged in the casing and having a circular groove opposite the elongated groove and an elongated groove opposite the first-named circular groove, said last-named circular and elongated grooves communicating with each other, and means for adjusting the follower.

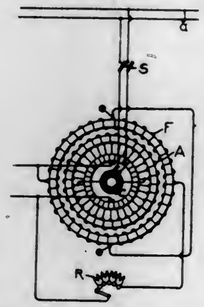
787,301. PRESS. HARRY O. LATHAM, Campbell, Mo. Filed Oct. 1, 1904. Serial No. 226,812.

Claim.—1. In a device of the class described, a vertical bed or support, a plate attached thereto and having transverse teeth and a longitudinal undercut guideway, a horizontal table having a depending portion provided with teeth in mesh with the teeth of the plate, a bolt movable longitudinally of the guideway and having a head seated in the undercut portion of the latter, said bolt being engaged with the depending portion of the table and operable for clamping the latter to the plate for maintaining the teeth on said parts in engagement, and a pressure member eccentrically pivoted above and operable for compressing material on the table.



2. In a device of the class described, a vertical bed or support, a pair of horizontal beams seated at one end in recesses formed in the support, a pair of diagonal beams having their upper ends seated in recesses in the support and their lower ends provided with recesses for the reception of the outer ends of the horizontal beams respectively, tie-bolts extended beneath the horizontal beams and engaged at their ends with the vertical support and the lower ends of the respective diagonal beams, a horizontal axle sustained by the horizontal beams, a pressure-head eccentrically pivoted upon the axle between the beams, an operating-handle fixed upon the head, and a vertically-adjustable table connected with the support at a point beneath and remote from the head.

787,302. SINGLE-PHASE DYNAMO-ELECTRIC MACHINE. MARIUS C. A. LATOUR, Paris, France, assignor to General Electric Company, a Corporation of New York. Filed Aug. 30, 1904. Serial No. 222,683.

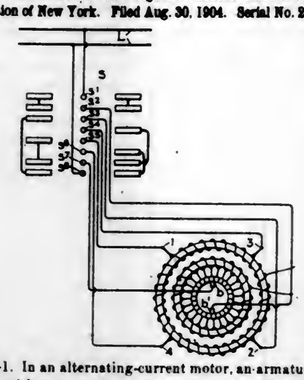


Claim.—1. In a dynamo-electric machine, a distributed field-winding connected to a source of direct current, a single-phase armature-winding, and a conductor short-circuiting equipotential points in the field-winding.

2. A single-phase rotary converter having a distributed field-winding, and a conductor connecting equipotential points on said winding.

3. In a dynamo-electric machine, a distributed field-winding, an armature provided with commutator and collector-rings, a source of single-phase current connected to said rings, and a conductor short-circuiting equipotential points on the field-winding.

787,303. ALTERNATING-CURRENT SERIES MOTOR. MARIUS C. A. LATOUR, Paris, France, assignor to General Electric Company, a Corporation of New York. Filed Aug. 30, 1904. Serial No. 222,684.



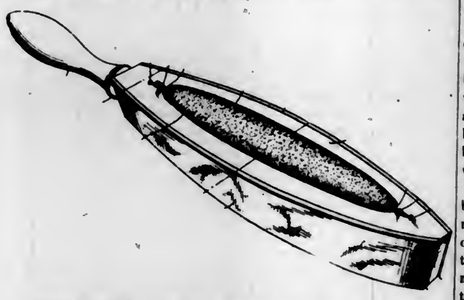
Claim.—1. In an alternating-current motor, an armature-winding provided with a commutator, and a distributed field-winding connected in series therewith and provided with two sets of terminals so disposed that the current through a portion only of said field-winding is reversed upon alternately connecting said two sets of terminals in circuit.

2. In an alternating-current motor, an armature-winding provided with a commutator, a distributed field-winding provided with two sets of terminals, each set being displaced at an angle to the line of magnetization produced by the armature-winding, and means for connecting either set of terminals in circuit with the armature.

3. In an alternaling-current motor, an armature-winding provided with a commutator, a distributed field-winding connected in series with the armature-winding, said field and armature windings being arranged to produce magnetizations at an angle of less than ninety electrical degrees, and means for reversing the direction of current through a portion only of said field-winding.

4. In an alternating-current motor, an armature-winding provided with a commutator, a distributed field-winding connected in series with the armature-winding, said field and armature windings being arranged to produce magnetizations at an angle of less than ninety electrical degrees, and means for reversing the direction of current in that portion of the field-winding which produces a magnetization at right angles to that of the armature without reversing the direction of current in that portion that produces a magnetization parallel to that of the armature.

787,304. RAZOR-STROP. GEORGE E. MAIER, Troy, Ohio. Filed July 15, 1904. Serial No. 216,715.



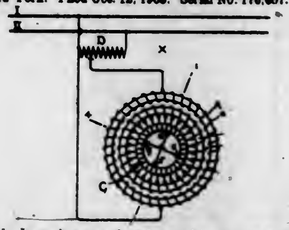
Claim.—1. A longitudinally bowed and twisted razor-strop.

2. A razor-strop twisted at its terminals and flat at its center.

3. A razor-strop comprising a stock having a longitudinally bowed and twisted face and a stropping-surface applied to the face.

4. A razor-strop having a revoluble hone mounted for longitudinal movement.

787,305. ALTERNATING-CURRENT MOTOR. MAURICE MILCH, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Oct. 12, 1903. Serial No. 176,607.



Claim.—1. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, and commutator-brushes and short-circuiting connections so arranged that the motor will have an initial starting torque and will operate at a substantially synchronous speed.

2. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, and a polyphase arrangement of short-circuiting brushes disposed on said commutator.

3. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, and a polyphase arrangement of short-circuiting brushes disposed on said commutator, the said brushes being so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply.

4. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, and a quarter-phase arrangement of short-circuiting brushes disposed on said commutator, said brushes being so positioned with respect to the line of the primary field that an intial starting torque will be produced when the primary winding is connected to a source of supply.

5. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding short-circuited on itself through a commutator, and a quarter-phase arrangement of short-circuiting brushes, the said brushes being so positioned that a line drawn through two of the brushes one hundred and eighty degrees apart on the commutator will be displaced by a small angle from the line of the primary field.

6. In a dynamo-electric machine, a single-phase primary member having a distributed winding, a secondary member having its winding connected to the segments of a commutator, and a polyphase arrangement of short-circuiting brushes disposed on said commutator, the said brushes being so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply.

7. In a dynamo-electric machine, a single-phase primary member having a distributed winding, a secondary member provided with a winding connected to the segments of a commutator, and a quarter-phase arrangement of short-circuiting brushes disposed on said commutator, said brushes being so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply.

8. In a dynamo-electric machine, a single-phase primary member having a distributed winding, a secondary member provided with a winding short-circuited on itself through a commutator, and a quarter-phase arrangement of short-circuiting brushes, the said brushes being so positioned that a line drawn through two of the brushes one hundred and eighty degrees apart on the commutator will be displaced by a small angle from the line of the primary field.

9. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, commutator-brushes and short-circuiting connections so arranged that the motor will have an initial starting torque and will operate at a substantially synchronous speed, and means for producing an auxiliary magnetization of proper magnitude and phase to compensate for the magnetizing component of the primary current.

10. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, commutator-brushes and short-circuiting connections so arranged that the motor will have an initial starting torque and will operate at a substantially synchronous speed, and a

source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in circuit with the commutator-brushes.

11. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator, and means for producing an auxiliary magnetization of proper magnitude and phase to compensate for the magnetizing component of the primary current.

12. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator, and a source of electromotive force of proper magnitude and phase connected to the winding on the secondary member so as to compensate for the magnetizing component of the primary current.

13. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current connected to the winding on the secondary member so as to produce an auxiliary magnetization along a line displaced in the neighborhood of ninety degrees from the primary field.

14. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in the circuit of the polyphase arrangement of short-circuiting brushes.

15. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in the circuit of the polyphase arrangement of short-circuiting brushes in such a manner as to produce an auxiliary magnetization along a line displaced in the neighborhood of ninety degrees from the primary field.

16. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a quarter-phase arrangement of short-circuiting brushes disposed on said commutator, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in the circuit of the quarter-phase arrangement of short-circuiting brushes.

17. In a dynamo-electric machine, a single-phase primary member, a secondary member having its winding connected to the segments of a commutator, a quarter-phase arrangement of short-circuiting brushes disposed on said commutator, the brushes which are displaced by one hundred and eighty degrees being connected by independent short circuits, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in the short-circuiting connection between the two brushes which are located along a line displaced by the greatest angle from the primary field.

18. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator and so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply, and means for producing an auxiliary magnetization of proper magnitude and phase to compensate for the magnetizing component of the primary current.

19. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator and so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply, and a source of electromotive force of proper magnitude and phase connected to the winding on the secondary member so as to compensate for the magnetizing component of the primary current.

20. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator and so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in the circuit of the polyphase arrangement of short-circuiting brushes.

21. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed on said commutator and so positioned with respect to the line of the primary field that an initial starting torque will be produced when the primary winding is connected to a source of supply, and a source of electromotive force of proper magnitude and phase to compensate for the magnetizing component of the primary current included in the circuit of the polyphase arrangement of short-circuiting brushes in such a manner as to produce an auxiliary magnetization along a line displaced in the neighborhood of ninety degrees from the primary field.

22. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, a polyphase arrangement of short-circuiting brushes disposed thereon, and means for including a portion of the winding of the primary member in the circuit of the polyphase arrangement of short-circuiting brushes in such a manner as to compensate for the magnetizing component of the primary current.

23. In a dynamo-electric machine, a single-phase primary member, a secondary member provided with a winding connected to the segments of a commutator, a quarter-phase arrangement of short-circuiting brushes disposed thereon, the brushes displaced by one hundred and eighty degrees being connected by independent short circuits, and means for including a portion of the winding on the primary member in the short circuit joining the commutator-brushes which are disposed along a line displaced by the greatest angle from the primary field.

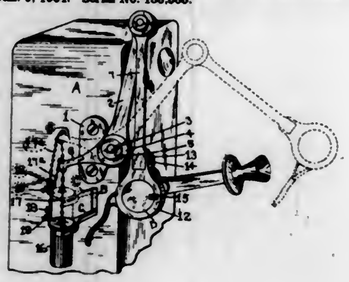
787,306. DETACHABLE HEEL. FRANK B. MOSS, Denver, Colo., assignor of one-half to Alfred T. Bowen, Denver, Colo. Filed Feb. 10, 1904. Serial No. 192,980.



Claim.—1. The combination with a heel-plate, of a chambered-out fastening-plate, one having pins and the other holes to receive said pins, and locking means, a part of which is connected with each plate, said locking means independent of the pins.

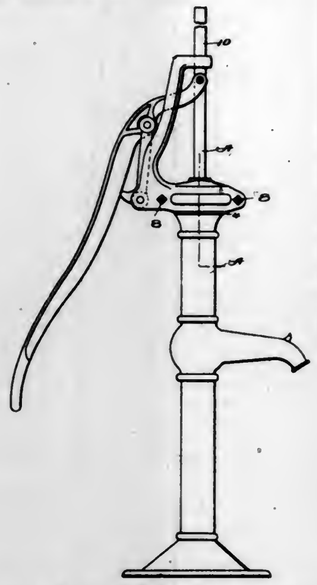
2. The combination with a heel-plate having a centrally-located fastening means, of a chambered-out fastening-plate, having locking mechanism thereon, one of the plates being provided with pins and the other with holes for the reception of the pins, said locking mechanism engaging and fastening the heel to the said centrally-located locking means.

787,307. JOINTED ADJUSTABLE SUPPORT FOR TELEPHONE RECEIVERS. EDWIN D. MCLEAN, Marissa, Ill., assignor of one-fourth to William W. McLean, Pittsburg, Pa., and one-fourth to Edward S. McLean and one-fourth to James M. McLean, Marissa, Ill. Filed Jan. 9, 1904. Serial No. 188,333.



Claim.—The combination with a transmitter-box, of a telephone instrument and a receiver-hook movable therein, of an arm swingingly connected to said box by a friction-joint, a finger carried by said arm, a weight suspended from said finger for engagement with said receiver-hook, a receiver-supporting arm swingingly connected to the outer end of said first-named arm by a friction-joint, and a receiver connected to said supporting-arm to swing around an axis perpendicular to the swinging axis of its supporting-arm, substantially as set forth.

787,308. PUMP. WILLIAM M. PRICE, Oshkosh, Wis. Filed Dec. 8, 1904. Serial No. 235,966.



Claim.—1. In a pump of the character described, a rod-bearing including a head comprising oppositely-disposed similar contacting sections forming a centrally-disposed rod-receiving aperture therebetween, means for securing the sections together, and a supporting-arm formed of similar sections one section being integral with each head-section, said arm-sections forming a rod-receiving aperture therebetween.

2. The combination with a pump-head having an annular projection thereon and an annular shoulder parallel with said projection; of a bearing-head surrounding one end of the pump-head and extending over said end, said bearing-head consisting of oppositely-disposed similar sections bearing on the shoulder and having an interior annular recess engaged by the annular projection on the pump-head.

3. The combination with a pump-head having an annular projection and a shoulder; of a bearing-head mounted upon the shoulder and surrounding a portion of the pump-head, said bearing-head consisting of oppositely-disposed similar sections engaging the annular projection on the pump-head and extending from one end of said pump-head, said sections having registering recesses forming a centrally-disposed rod-receiving aperture, and means for binding the bearing-head sections upon the pump-head and its projection.

4. The combination with a pump-head having an annular projection and a shoulder; of a bearing-head mounted upon the shoulder and surrounding a portion of the pump-head, said bearing-head consisting of oppositely-disposed similar sections engaging the annular projection on the pump-head and extending from one end of said pump-head, said sections having registering recesses forming a centrally-disposed rod-receiving aperture, a sectional supporting-arm extending from the bearing-head, the sections of said arm being integral with the respective sections of the bearing-head and said arms having registering recesses forming a rod-receiving aperture, and means for binding the sections of the bearing-head upon the pump-head and its projection.

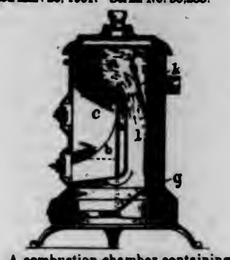
787,309. BOTTLE. THOMAS W. RUSSELL, Storrs, Mont. Filed July 8, 1904. Serial No. 215,768.



Claim.—1. A bottle having a tapering and inwardly-contracting bore in the neck thereof and also provided with a breaking-groove and notches, a tapered stopper of hard material inserted in the neck, a spring-catch secured to the inner end of the stopper and having engaging portions adapted to snap into said notches, and a packing-disk held between the spring-catch and the stopper, and having a diameter in excess of that of the inner end of the stopper, substantially as described.

2. A bottle having a tapering and inwardly-contracting bore in the neck thereof and also provided with a breaking-groove and a notch, a correspondingly-tapered stopper of hard material inserted in the neck, a packing-disk secured to the inner end of the stopper and having a diameter in excess of the inner end of the stopper, and a catch permanently secured to said stopper and extending inward beyond the packing-disk, said catch being adapted to snap into the said notch and interlock with the bottle-neck, substantially as described.

787,310. STOVE. CHARLES SCHWEIKER, Maplewood, Mass., assignor to American Heating Co., Boston, Mass., a Corporation of Maine. Filed Mar. 28, 1901. Serial No. 53,233.



Claim.—1. A combustion-chamber containing a grate and provided with an air-entrance above the grate and an air-exit below it and also with an air-entrance at the grate and an air-exit above it means constructed to control the air-exit below the grate and arranged to be adjusted, in open position, at an angle to the path of the products of combustion, and means constructed to control the other several air-entrances and exits, whereby the combustion-chamber may act by downdraft, or by updraft, as desired, substantially as described.

2. The combination with the combustion-chamber having a provision for both down and up draft, of the damper, *g*, constructed to be adjusted, in open position, at an angle to the path of the products of combustion, and to, in closed position, interrupt the downdraft, substantially as described.

3. A stove having a combustion-chamber containing a grate with lateral spaces between the grate-bars, a draft-opening and a smoke-discharge opening, and means for withdrawing unconsumed inflammable gases and returning the same to the spaces between the grate-bars in mixture with freshly-supplied air, substantially as described.

4. A stove having a combustion-chamber, a grate having hollow grate-bars with lateral openings, a draft-opening and discharge-opening, and means for withdrawing unconsumed inflammable gases and feeding the same to the hollow grate-bars and thence again within the zone of combustion, substantially as described.

5. A stove provided with a combustion-chamber, a grate having hollow grate-bars with lateral openings, air-supply openings and smoke-escape openings, a hood within the combustion-chamber for

withdrawing unconsumed inflammable gases and leading the same to the hollow grate-bars and thence within the zone of combustion, substantially as described.

6. A stove having a combustion-chamber and a grate, a draft-opening above the grate and an escape-opening below the grate, a hood within the combustion-chamber so disposed as to withdraw the combustible gases and return the same to the zone of combustion, a compartment to the rear of the combustion-chamber into which the escape-opening permits the products of combustion to enter, a vertically-sloping partition within the compartment causing the products of combustion to pass upward and then downward to the flue-opening, substantially as described.

7. The combination, in a stove, of the forward-inclined partition *k* and the damper *g*, constructed to be adjusted, in open position, at an angle to the path of the products of combustion and to said partition *k*, substantially as shown.

8. The combination of the forward-inclined partition, *k*, and the damper, *g*, with the combustion-chamber, forming the chamber, *l*, substantially as shown and described.

787,311. TIRE FOR VEHICLE-WHEELS. ELDRIDGE A. SCRIBNER, Detroit, Mich., assignor of one-fifth to John W. Krekeler, one-fifth to William W. Walters, one-fifth to Robert W. Jean, and one-fifth to Frederick S. Ross, Detroit, Mich. Filed Mar. 26, 1904. Serial No. 199,838.

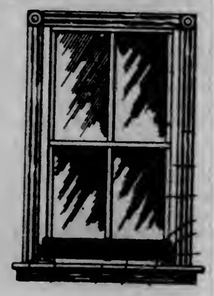


Claim.—1. The combination with a wheel-rim, of a series of spring members each formed of a strip of spring metal bent in the form of a loop extending outward from the rim with its ends secured thereto and said loop bent rearwardly in the plane of rotation of the wheel toward the convex outer side of the adjacent loop, which convex sides form the tread of the wheel and the concave inner sides form spring-supports for the tread.

2. The combination of a wheel-rim formed of an inner and an outer strip and a strip of resilient material between, a series of spring-loops secured at their inner open ends to said rim and all bent rearwardly in the plane of rotation of the wheel in one direction, each with its closed outer end above the inclined side of the adjacent loop, the said inclined sides forming the tread of the tire, and means for securing the loops to the rim

3. The combination with a wheel-rim, of parallel strips bent to form a series of elongated loops to extend outward from the rim in the plane of rotation of the wheel and all bent in one direction to overlap each other, each with its closed and rounded outer end above the inclined side of the adjacent loop and having integral flat portions connecting the loops, and means for securing the strips to the rim engaging the flat portions and with the loops of one strip alternating with the spaces between the loops of the other strip to form a continuous tread.

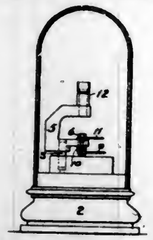
787,312. SCREEN. AARON V. SILER, Newark, Ohio. Filed Dec. 3, 1904. Serial No. 235,338.



Claim.—1. The combination with a roller, its shaft and tension-spring, of a screen-curtain attached to the roller, the transverse screen-braces, and the vertical coil-bracing-spring strip substantially as specified.

2. The combination with a window-sash and the face-strip thereon, of the roller, its shaft and spring, the curtain-screen, its transverse braces, and the vertical coil-bracing-spring strip, substantially as specified.

787,313. WATCHMAKER'S DEVICE. WILLIAM D. SMITH, Denver, Colo. Filed June 9, 1904. Serial No. 211,791.



Claim.—1. In a device for staking the roller-table and hair-spring on a balance-staff, a stump having two pointers, one adjustable relative to the other, and arranged to indicate the correct relative position of the hair-spring stud; substantially as described.

2. In a device for staking the roller-table and hair-spring on a balance-staff, a frame, a stump removable therefrom, and having two pointers, one adjustable relative to the other, and a punch arranged to fit in the frame and force the hair-spring and roller-table to place; substantially as described.

3. In a device for staking the roller-table and hair-spring on a balance-staff, a punch for forcing the hair-spring and roller-table to place, and two pointers, one adjustable relative to the other and arranged to indicate the proper position of the hair-spring stud; substantially as described.

4. In a device for staking the roller-table and hair-spring on a balance-staff, a stump having two pointers adjustable relative to each other, and a toothed punch arranged to turn the spring until the stud is over one of the pointers; substantially as described.

5. In a device for staking the roller-table and hair-spring on a balance-staff, a holder for the parts, means for forcing the spring and roller-table to place, and an adjustable pointer arranged to indicate the point of attachment of the hair-spring; substantially as described.

6. A watchmaker's indicator arranged to fit over the cock-bridge of the balance-wheel, and having one or more adjustable arms to determine whether a watch is on beat; substantially as described.

7. In a device for staking the roller-table and hair-spring on a balance-staff, a removable frame arranged to set over the cock-bridge of the balance-wheel and having one or more pointers, and a stand arranged to receive the frame when the pointer is adjusted, and a tool arranged to force the hair-spring and roller-table to place; substantially as described.

787,314. COTTON-PICKER. JOHN SUMMERFIELD, Dallas, Tex. Filed Aug. 4, 1902. Serial No. 118,357.



Claim.—1. In a device of the character indicated, a rotatable shaft, pickers mounted thereon, a second rotatable shaft, slidable plates supporting said shafts and wipers mounted upon said second shaft and cooperating with said pickers; substantially as described.

2. In a device of the character indicated, a casing, a picker-shaft, pickers thereon, a wiper-shaft, wipers thereon, gearing for said shafts outside of said casing, slidable plates supporting said shafts and a single housing for said gearing; substantially as described.

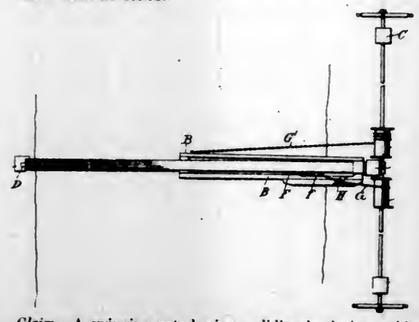
3. In a device for picking cotton, pickers, a casing having side walls provided with slots which open upon the ends of the walls, shafts in said slots and extending across the casing, and slidable plates in which said shafts are mounted; substantially as described.

4. In a device for picking cotton, pickers, a casing having side walls provided with slots which open upon the ends of the walls, shafts in said slots and extending across the casing, and slidable plates in which said shafts are mounted, said plates lying upon the outside of said side walls; substantially as described.

5. In a device for picking cotton, pickers, a casing having side walls provided with slots which open upon the ends of the walls, shafts in said slots and extending across said casing, slidable plates in which said shafts are mounted, one of said plates lying outside of the side wall of the casing, gears upon said shafts, and an intermediate gear mounted upon said plate; substantially as described.

6. In a device for picking cotton, pickers, a casing having side walls provided with slots which open upon the ends of said walls, shafts in said slots and extending across said casing, slidable frame-plates carrying said shafts, and removable bars secured to said casing and holding said frame in position; substantially as described.

787,315. SWINGING GATE. ANDREW TARRIS, Marion, Ind., assignor of one-half to Edwin M. Bocock, Marion, Ind. Filed Mar. 29, 1904. Serial No. 200,547.



Claim.—A swinging gate having a sliding latch, in combination with a turn-shaft approximately on a level, with the top rail, at right angles thereto, and having a windlass C[4] on each side of gate, one windlass connecting with the latch mechanism and the other with a point about midway of the gate as shown and described, for the purpose set forth.

787,316. SAD-IRON. OLE TVERDAHL, Canal Dover, Ohio, assignor to Charles T. Johnson, Canal Dover, Ohio. Filed Oct. 18, 1902. Serial No. 127,768.



Claim.—1. In a sad-iron, the combination of a central heating-core; a separable smoothing-plate; a case inclosing the top and sides of the core, provided with a handle and adapted to rest upon the smoothing-plate at the base of the core; locking devices carried by the case for simultaneously engaging the smoothing-plate and core; part of said devices being also adapted to engage and carry the core independently of the smoothing-plate.

2. In a sad-iron, the combination of a central heating-core; a separable smoothing-plate; a detachable core-inclosing case provided with a handle and adapted to bear against the smoothing-plate at the base of the core; means for locking the case to the smoothing-plate and core, and for locking the case to the vertical sides of the core independently of the smoothing-plate.

3. In a sad-iron of the class described, the combination of a heating-core, provided in its sides, with opposing apertures for the reception of the trunnions of the locking mechanism; a detachable core-inclosing case; a separable smoothing-plate, provided with opposing standards or bearings for engagement with locking-hooks; a locking-clamp, the lower ends of which are provided with opposing, inwardly-projecting trunnions having pivotal bearings in apertures formed in the walls of said case, hooks adapted to engage with the retaining-bearings of said smoothing-plate; and means for simultaneously throwing said trunnions and supporting-hooks into and out of engagement with said core and the locking-bearings of said smoothing-plate, substantially as set forth.

4. In a sad-iron of the class described, the combination of the heating-core A, provided with apertures L; a detachable core-inclosing case B, provided with outwardly-projecting contact-bearings N; a separable smoothing-plate C, having opposing standards M, provided with lugs K′ for engagement with the locking-hooks J′ of the clamp; locking-clamp F, the lower arms of which are provided with inwardly-projecting trunnions J, and lifting-hooks J′, said trunnions J having pivotal bearings in the apertures K, formed in the walls of said case, and adapted to engage at their inner ends in the retaining-apertures L of said core, said trunnions and supporting-hooks being adapted to be thrown out of engagement with said core and the lugs of said standards when the elastic arms G are in contact with said contact-bearings N, and to be thrown into engagement with said core and lugs by their own elasticity when removed from contact with said bearings N, all substantially as and for the purpose specified.

787,317. AUTOMATIC FISHING-REEL. JOHN H. VAN HORN, Syracuse, N. Y., assignor, by direct and mesne assignments, to Oneida Fishing Reel Co., a Corporation of New York. Filed Oct. 24, 1904. Serial No. 229,705.



Claim.—1. In a fishing-reel, the combination of a case, a revoluble spindle supported centrally in the case, a line-spool supported revolubly on the spindle, a spring actuating the spindle, means for winding the spring, mechanism imparting winding rotation from the spindle to the spool, manually-operated means independent of the spring-winding means for disconnecting the spool from the spindle to permit free and independent rotation of said spool, and a suitably-arranged brake-lever controlling the action of said mechanism as set forth.

2. In a fishing-reel, the combination of a case, a revoluble spindle projecting from the case, a line-spool supported rotatably on the spindle, a train of gears supported in the case and connecting said spool and spindle and imparting winding rotation thereto, a suitably-supported coiled spring actuating said gears, means for winding the spring, manually-operated means connected to the gearing independent of the spring-winding means and serving to disconnect the spool from the spindle to permit free and independent rotation of the spool, a friction-plate connected to one of the gears, and a brake-lever pivoted to the case and directly engaging said friction-plate to control the action of the gears in opposition to the spring, as set forth.

3. In a fishing-reel, the combination of an annular case, provided with a plurality of rigidly-projecting studs, a suitably-supported revoluble spindle projecting from the case, an annular plate disposed concentric with and detachably secured to said studs, a line-spool supported rotatably on the spindle, a train of gears connecting said spindle and spool and imparting winding rotation thereto, a coiled spring actuating said spindle, means for winding said spring, manually-operated means independent of the spring-winding means for throwing the spool out of gear to permit the same to be rotated independent of the spindle, a friction-plate connected to the train of gears, a lever pivoted to the case and provided with a brake-lock, and a spring engaging the lever and pressing the said brake-lock onto the friction-plate, as set forth.

4. In a fishing-reel, the combination of an annular case provided with a circumferential ring, a plurality of studs permanently projecting from said ring, an annular plate detachably secured to said studs and provided with a corresponding ring, a spring-actuated revoluble spindle journaled on the case and plate, a removable

line-spool confined between said plate and case and supported rotatably on said spindle, mechanism supported in the case and imparting winding rotation from the spindle to the spool, a drum for winding the spring, manually-operated means independent of the winding means for relieving the spool from the action of said mechanism to permit free and independent rotation of the spool, and means controlling the winding action of said mechanism, as set forth.

5. In a fishing-reel, the combination of an annular case provided with a circumferential ring and a plurality of rigid studs, an annular plate detachably secured to said studs and provided with a corresponding ring, a revoluble spindle journaled in the case and plate, a removable line-spool supported rotatably on said spindle, a train of gears supported in the case and imparting winding rotation from the spindle to the spool, manually-operated means connected to the gearing serving to permit independent rotation of the spool, a suitably-supported coiled spring actuating said spindle, means for winding said spring, a rotatable friction-plate connected to one of said gears, and a spring-pressed brake-lever pivoted to the case and provided with means for engaging said plate for controlling the action of the gears in opposition to the spring, as set forth.

6. In a fishing-reel, the combination of an annular case provided with a plurality of rigid studs, a plate arranged concentric with the case and supported removably on the studs with a space between the same, means for locking the plate on the studs, a suitably-journaled removable line-spool confined between the plate and case, spring-actuated mechanism imparting winding rotation to the spool, spring-winding means, manually-operated means connected to the mechanism independent of the spring-winding means serving to permit independent rotation of the spool, and a brake-lever for controlling the action of the mechanism in opposition to the spring, as set forth.

7. In a fishing-reel, the combination of an annular case provided with a plurality of rigidly-projecting studs or pins, an annular plate supported removably on said studs, means engaging the studs for locking the plate in its position, a suitably-journaled removable line-spool confined between said plate and case, a train of gears supported in the case and connected to the spool and rotating the latter in one direction for winding the line thereon, manually-operated means for throwing the spool out of gear to permit free rotation thereof, a coiled spring actuating said gears, means independent of the gears for winding said spring, a friction-plate connected to one of said gears, and a spring-pressed lever pivoted to the case and provided with a brake-lock directly engaging said friction-plate to control the action of the gears in opposition to the coiled spring, as set forth.

8. In a fishing-reel, the combination of an annular case provided with a plurality of rigid circumferentially-arranged studs, a removable annular plate provided with coinciding apertures receiving the ends of the studs and supported thereon, a retaining-ring disposed at the outer face of the plate and provided with means engaging the studs for locking the plate thereto, a suitably-journaled line-spool confined between the said case and plate, spring-actuated mechanism imparting winding rotation to said spool, spring-winding means, manually-controlled means, independent of said spring-winding means serving to permit free and independent rotation of the spool, and a manually-operated brake-lever extending into the case for controlling the winding action of said mechanism, as set forth.

9. In a fishing-reel, the combination of an annular case, provided with a plurality of studs, a plate supported removably on the studs, a revoluble spindle journaled in the case and plate, a line-spool supported rotatably on said spindle and confined between the plate and case, a train of spring-actuated gears supported in the case and imparting winding rotation from the spindle to the spool, manually-controlled means connected to the gearing serving to permit free and independent rotation of the spool, a brake-lever for controlling the winding action of the gears, a removable plate-retaining ring engaging the aforesaid studs and means for locking said ring to the plate, as set forth.

10. In a fishing-reel, the combination of an annular case, provided with a plurality of rigid studs, an annular plate disposed concentric with the case and supported removably on the outer ends of said studs, means engaging the studs for retaining the plate in its position, a revoluble spindle journaled in the case and plate, a removable line-spool supported rotatably on said spindle, a spring actuating said spindle, means for winding the spring, a train of gears supported in the case and connecting said spindle and spool and imparting winding rotation to the latter, manually-operated means connected to the gears independent of the spring-winding means serving to permit the spool to be rotated independently of the spindle, and means for controlling the winding action of the gears, as set forth.

11. In a fishing-reel, the combination of an annular case provided with a circumferential ring and with studs projecting from the ring, an annular concentric plate supported removably on said studs and formed with a corresponding ring, a revoluble spindle journaled in the case and plate, a removable line-spool supported rotatably on the spindle and confined between said rings, a train of gears supported in the case and connecting spindle and spool and imparting winding rotation to the spool, manually-operated means connected to the gearing and serving to permit free and independent rotation of the spool, a drum mounted revolubly on the plate, a retaining-ring sustaining the drum, a coiled spring attached at its respective ends to the interior of the drum and outer end of the spindle and operative for rotating the latter, ratchet-teeth on the drum, a pawl supported on the retaining-ring and engaging said ratchet-teeth, a friction-plate directly attached to one of the aforesaid gears, and a spring-pressed brake-lever pivoted to the case and provided with means for directly engaging the said friction-plate to control the winding action of the gears in opposition to the coiled spring, as set forth.

12. In a fishing-reel, the combination of a case, provided with studs, a plate supported removably on said studs, a revoluble spindle journaled in the case and plate, a line-spool supported rotatably on the spindle and confined between the case and plate, a train of gears supported in the case and transmitting winding motion from the spindle to the spool, manually-operated means acting upon the gears to permit free and independent rotation of the spool, a revoluble drum disposed on the outer face of the plate, a retaining-ring engaging the ends of the aforesaid studs and supporting the drum, means for locking the ring to the studs, a coiled spring within the drum and connected at its respective ends to the spindle and drum, ratchet-teeth on the drum, a pawl supported on the retaining-ring and engaging said ratchet-teeth, a rotary friction-plate connected to one of the gears, and a lever pivoted to the exterior of the case and extending into the same and provided with a brake-lock directly engaging said friction-plate to control the winding action of the gears, as set forth.

13. In a fishing-reel, the combination of an annular case provided with a plurality of rigidly-projecting studs formed with reduced outer end portions having kerfs, an annular plate provided with apertures receiving through them said reduced end portions of the studs, a revoluble drum disposed on the outer face of the plate and provided with a flange having ratchet-teeth, a retaining-ring provided with eyes receiving the aforesaid ends of the studs and with slots extending from the eyes whereby the rotation of said ring causes said kerfs to engage said slots to hold the plate in its position, a socket in the plate, a spring-plate fastened to the retaining-ring and provided with a pin for engaging the socket to lock the slots in their engagement with the kerfs, said ring loosely engaging the flange of the drum to support the latter, a spring attached to the ring and provided with a pawl engaging the aforesaid ratchet-teeth, a spindle supported revolubly in the case and plate, and extending into the drum, a coiled spring attached to the drum and spindle, a train of gears connecting said spindle and spool and imparting winding rotation to the latter, and means for controlling the action of said gears, as set forth.

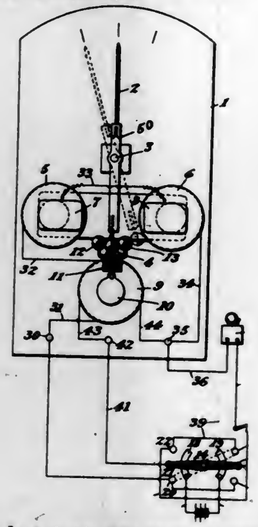
14. In a fishing-reel, the combination of the case, a revoluble spindle supported in the case, a line-spool supported rotatably on the spindle, a coiled spring actuating the spindle, mechanism comprising a main gear fastened to the spindle, a pinion fastened to the spool, a post revolubly supported in the case, a pinion secured to the post and engaging the main gear, a gear loosely mounted on the post and engaging the spool-pinion to permit the spool to be rotated free and independent of the spindle, manually-operated means for locking the said gear to the post to cause the spool to be rotated in winding direction by the spindle and gears through the unwinding of the aforesaid spring, manually-operated means for controlling the winding rotation of the spool, and means for winding the said spring, as set forth.

15. In a fishing-reel, the combination of a case, a revoluble spindle supported in the case, a coiled spring actuating said spindle, means for winding the spring, a line-spool journaled on said spindle, mechanism comprising a main gear fastened to the spindle, a revolubly-supported post in the case, a pinion fastened to the post and engaging said gear, a pinion fastened to the spool, a gear mounted loosely on the post and engaging the spool-pinion, manually-operated clamping means independent of the spring-winding means attached to the post and serving to lock the loose gear to and unlock

it from the post to cause the spool to be rotated in one direction with the spindle through the unwinding of the spring and to permit the spool to be rotated free and independently of the spindle, and a brake-lever for controlling the action of the gears in opposition to the spring, as set forth.

16. In a fishing-reel, the combination of a case, a revoluble spindle supported in the case, a line-spool supported revolubly on the spindle, a coiled spring actuating said spindle, means for winding the spring, mechanism comprising a main gear fastened to the spindle, a revolubly-supported post in the case, a pinion fastened to the post and engaging said gear, a pinion fastened to the spool, a gear loosely mounted on the post and engaging the latter pinion, flexible clamping-disks connected with the post and disposed at opposite sides of the loose gear, a cam-collar fastened to the post, a manually-actuated wheel loosely mounted on the post and provided with wedging projections on one face engaging the cam-collar and bearing with its opposite face against one of the clamping-disks, and by said engagement causing the clamping-disks to lock the aforesaid gear to the post, and release it therefrom to permit the spool to be rotated independent of the spindle, a supplemental gear journaled in the case, a pinion fastened to the latter gear and engaging the main gear, another suitably-journaled pinion connected to the supplemental gear, a friction-plate fastened to the latter pinion, and a lever pivoted to the case and provided with means engaging said friction-plate for the purpose set forth.

787,318. ELECTRIC SIGNAL DEVICE. LUDWIG S. WALLE, Brooklyn, N. Y., assignor to Fridtjof Jebsen, Bergen, Norway. Filed Dec. 29, 1903. Serial No. 187,079.



Claim.—1. In an electric signal device, the combination of an indicator a portion of which is a permanent magnet, an electromagnet for operating said indicator, means for the reversal of the current in the coil of said electromagnet, and an electrically-operated locking device to hold said indicator in a predetermined position when said electromagnet is inoperative.

2. In an electric signal device, the combination of an indicator a portion of which is a permanent magnet, an electromagnet for operating said indicator, means for the reversal of the current in the coil of said electromagnet, and an electrically-operated locking device acting in conjunction with the operating-magnet to release said indicator and allow it to be operated by said operating-magnet when the current flows in the coil thereof.

3. In an electric signal device, the combination of an indicator a portion of which is a permanent magnet, an electromagnet for operating said indicator, means for the reversal of the current in the coil of said electromagnet, and an electrically-operated locking device acting in conjunction with the operating-magnet to release said indicator and allow it to be operated by said operating-magnet when the current flows in the coil thereof, and means for releasing and returning said indicator to its initial position when current does not flow in said operating-coil, substantially as described.

4. In an electric signal device, the combination of an indicator a portion of which is a permanent magnet, an electromagnet for operating said indicator, means for the reversal of the current in the coil of said electromagnet, an electrically-operated locking device acting in conjunction with the operating-magnet to release said indicator and allow it to be operated by said operating-magnet when current flows in the coil thereof, and a counterweight for returning said indicator to its initial position when current does not flow in said operating-coil, substantially as described.

5. In an electric signal device, the combination of an indicator one end of which is a permanent magnet, an electromagnet for operating said indicator by means of a reversal of the current in the coil thereof, an electrically-operated locking device operative to release said indicator when the current flows in said operating-magnets and to hold said indicator in a predetermined position when the operating-circuit is cut out, and means for reversing said current in said operating-coil.

6. In an electric signal device, the combination of an indicator one end of which is a permanent magnet, a pair of electromagnets acting in conjunction with and on opposite sides of said indicator and in which the polarity is changed by the reversal of the current in the coils to move said indicator in accordance therewith, an electrically-operated locking device operative to release said indicator when the current flows in said operating-magnets and to hold said indicator in a predetermined position when the operating-circuit is cut out, and means for reversing said current in said operating-coils.

7. In an electric signal device, the combination of an indicator one end of which is a permanent magnet, a pair of electromagnets acting in conjunction with and on opposite sides of said indicator and in which the polarity is changed by the reversal of the current in the coils to move said indicator in accordance therewith, an electrically-operated locking device operative to release said indicator when the current flows in said operating-magnets and to hold said indicator in a predetermined position when the operating-circuit is cut out, and a circuit-closing switch for reversing the current in said operating-coils.

8. In an electric signal device, the combination of an indicator, an operating-magnet so placed in relation to said indicator that the reversal of the magnetizing-current produces a movement of said indicator to either side of the normal position thereof according to the direction of flow of said magnetizing-current, means for controlling said current, and a locking device operated in conjunction with said operating-magnet to release said indicator when the current flows in the coils thereof and to hold the indicator on either side of the normal position thereof when the current ceases to flow in said coils, substantially as described.

9. In an electric signal device, the combination of an indicator, an operating-magnet so placed in relation to said indicator that the reversal of the magnetizing-current produces a movement of said indicator to either side of the normal position thereof according to the direction of flow of said magnetizing-current, means for controlling said current, and a locking device operated in conjunction with said operating-magnet to release said indicator when current flows in the coils thereof and to hold the indicator on either side of the normal position thereof when the current ceases to flow in said coils, a counterweight at one end operative to bring said indicator to its normal position when released by said locking device, substantially as described.

10. In an electric signal device, the combination of an indicator an operating-magnet so placed in relation to said indicator that the reversal of the magnetizing-current produces a movement of said indicator to either side of the normal position thereof according to the direction of flow of the magnetizing-current, means for controlling said current, a locking device having a magnet-coil in series with said indicator-operating coil to release said indicator when the current flows in said coils and also having a second magnet-coil operating to release said locking device and allow the indicator to return to its normal position, a counterweight at one end operative to bring said indicator to its normal position when released by said locking device, substantially as described.

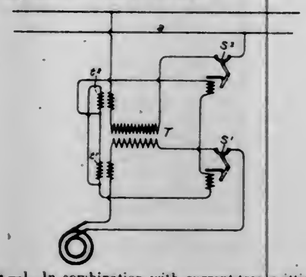
11. In an electric signal device, the combination of an indicator, an operating-magnet so placed in relation to said indicator that the reversal of the magnetizing-current produces a movement of said indicator to either side of the normal position thereof according to the direction of flow of the magnetizing-current, means for controlling said current, a locking device comprising a lever pivoted near the center, having one end adapted to retain said indicator in a pre-

determined position and having at the opposite end a counterweight forming an armature adapted to be operated by a magnet-coil to move said lever and release said indicator when the current flows therein and to return to its normal position retaining said indicator when said current ceases to flow, substantially as described.

12. In an electric signal device, the combination of an indicator, an operating-magnet so placed in relation to said indicator that the reversal of the magnetizing-current produces a movement of said indicator to either side of the normal position thereof according to the direction of flow of the magnetizing-current, means for controlling said current, a locking device comprising a lever pivoted near the center, having at one end a pair of extending arms adapted to retain said indicator in a predetermined position and having at the opposite end a counterweight forming an armature operated in conjunction with a pair of magnet-coils, one of which is connected in series with said indicator-operating coil, to move said lever and release said indicator when current flows in either of said coils and to return to its normal position retaining said indicator when the current ceases to flow, substantially as described.

787,319. PROTECTIVE DEVICE FOR ELECTRIC APPARATUS.

LEONARD WILSON, Pittsfield Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed May 12, 1904. Serial No. 207,689.



Claim.—1. In combination with current-transmitting apparatus, switches adapted to open the circuit thereof, means responsive to a change of the normal ratio of current input to output of said apparatus and adapted to operate said switches.

2. In combination with current-transmitting apparatus, switches adapted to open the circuits thereof, tripping-coils for said switches, and means for energizing said tripping-coils only upon a change of the normal ratio of current input to output of said apparatus.

3. In combination with alternating-current-transmitting apparatus, switches adapted to open the circuits of said apparatus, electroresponsive means adapted to operate said switches, and series transformers having their primaries connected in circuit with said apparatus on the receiving and delivering sides respectively and having their secondaries connected to said electroresponsive means, said transformers being adapted and connected to energize said means only upon a change of the normal ratio of current input to output of said device.

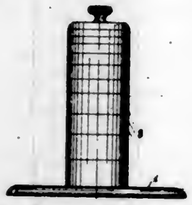
4. In combination with a transformer, switches adapted to open the circuits of the windings thereof, means responsive to a change of the normal ratio of the currents in the windings of said transformer and adapted to operate said switches.

5. In combination with a transformer, switches adapted to open the circuits of the windings thereof, tripping-coils for said switches, and means for energizing said tripping-coils only upon a change of the normal current ratio in said windings.

6. In combination with a transformer, switches adapted to open the circuits of the windings thereof, an electroresponsive device adapted to operate said switches, and series transformers each having its primary in series with one winding of said transformer and both transformers having their secondaries connected to said device, said transformers being adapted and arranged to energize said device only upon a change of the normal current ratio in said windings.

787,320. WEIGHT. JAMES B. ARTHUR, Pittsburg, Pa. Filed Sept. 17, 1904. Serial No. 224,783.

Claim.—1. A weight comprising a base and a vertical stem portion, a plurality of rings mounted upon said stem portion, and a screw-threaded cap secured in the end of the stem for retaining said rings thereon.



2. A movable weight comprising a base, a vertical stem and a cap on said stem, constituting a major weight, and a plurality of separable weight elements in the form of rings of different weight removably mounted on the stem and retained in position thereon by said cap.

3. A composite weight comprising a major weight and minor weights, said major weight being composed of a flat base, a hollow vertical stem and a cap screwing into said stem and extending beyond the sides thereof and said minor weights consisting of rings adapted to fit over said stem and to be retained in position thereon by said cap.

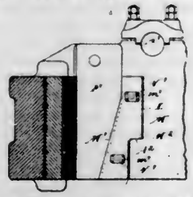
787,321. GAS-BURNER. FRANK M. ASHLEY, New York, N. Y. Filed May 25, 1899. Serial No. 718,229.



Claim.—1. A burner comprising a right cylindrical tube having an inlet-passage of contracted diameter within the end and at a distance therefrom, a tip within said tube upon which the gas is ignited after passing through the contracted passage, air-inlet openings in the sides of said tube, the said inlets being located in the rear of said tip and being inclined toward a point within the tube in advance of the contracted inlet-passage, and a gas-supply passage of larger diameter communicating with said contracted gas-inlet passage, substantially as described.

2. In a gas-burner, the combination of a Y-shaped pipe having its three branches integral with each other, tubes mounted upon the upper branches of said pipe and inclined toward each other at an angle in the same plane, a tip upon which the gas is ignited within each of said tubes, gas-inlet passages of small diameter in each of said tips and communicating with said pipe, the said pipe being of relatively large diameter to the inlet-passage, and air-inlet openings in the sides of said tubes located in the rear of the respective tips and inclined toward a common center within each of said tubes in advance of the tip, substantially as described.

787,322. ROCK-CRUSHER. EARLE C. BACON, New York, N. Y. Filed Mar. 23, 1904. Serial No. 199,547.

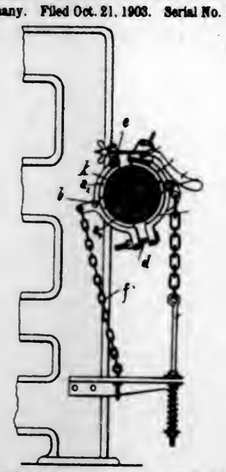


Claim.—1. An auxiliary cheek-piece having a shoulder, in combination with a crusher-frame recessed to receive said cheek-piece and support it by said shoulder, and with a fixed jaw, movable jaw, and cheek-plates, the latter supported and held in place by said cheek-pieces and fixed jaw, and means for adjusting said cheek-piece directly laterally toward and from its adjacent cheek-plate.

2. In a crusher having a fixed jaw, movable jaw, and cheek-plate, an auxiliary cheek-piece having a shoulder on its rear edge and transverse slots in different vertical planes with beveled sides, in combination with the crusher-frame having a recess matching to and receiving said cheek-piece, and bolts extending through said slots and frame, and having beveled heads matching said slots for direct lateral adjustment of the auxiliary cheek-piece.

3. In a crusher, a fixed jaw, a movable jaw, the frame having a recess in its inner face with shoulder in the outline of the recess, a cheek-plate, an auxiliary cheek-piece seated in said recess and having a shoulder to match the first-mentioned shoulder whereby the auxiliary cheek-piece is held against vertical movement, and means engaging the frame and auxiliary cheek-piece for direct adjustment thereof horizontally toward and from the cheek-plate.

787,323. BRAKE FOR WARP-BEAMS. CARL E. BUSCHMANN, Glauchau, Germany. Filed Oct. 21, 1903. Serial No. 177,963.



Claim.—1. A brake for warp-beams, comprising a ring-band composed of sections, each section in two hinged parts, means adjustably connecting the ends of the sections, and a lever pivoted upon one of the sections and connected with the means connecting the one end of said sections.

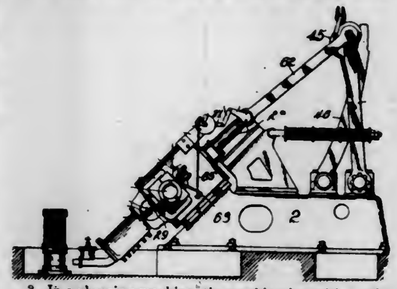
2. A brake for warp-beams, comprising a ring-band composed of sections, each section being in hinged parts, means adjustably connecting the ends of the sections, a lever pivoted on one of the parts of one of the sections and having a plurality of rests, and a latch pivoted on said section to engage the said rests.

3. A brake for warp-beams, comprising a ring-band in sections, each section composed of hinged parts, means adjustably connecting one end of said sections, an adjusting-screw connecting the other ends of said sections, a lever pivotally mounted on one of the sections and connected with said adjusting-screw and having a plurality of rests upon its outer face, a latch pivoted on said section to engage said rests, and chains connected at points on opposite sides of said band.

787,324. VALVE FOR SHEARING-MACHINES. ELBERT H. CARROLL, Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass., a Corporation of Massachusetts. Original application filed July 8, 1902, Serial No. 114,781. Divided and this application filed Aug. 3, 1903. Serial No. 168,101.

Claim.—1. In a shearing-machine, the combination with a piston and valve mechanism, the latter provided with a pilot-valve, of means for retaining the valve at one limit of its movement, mechanical means normally held under tension by the valve-retaining means and constantly tending to move the pilot-valve to its opposite limit of movement, a billet-operated tripping means for releasing the retaining means and means for subsequently engaging and returning the pilot-valve to its first position.

2. In a shearing-machine, the combination with a piston and cylinder, a valve mechanism, and a pilot-valve controlling the valve mechanism, of a rail, a carriage adjustably supported on the rail, and remaining stationary at the point to which it is adjusted, a gage pivotally mounted on the carriage, and normally lying in the path of the billets, a stop for retaining the pilot-valve in one position, means tending to move the valve to its opposite position, tripping means for releasing the valve, means connecting the gage and tripping mechanism and means for returning the valve to its first position.



3. In a shearing-machine, the combination with a valve mechanism, and a pilot-valve controlling the same, of a pivotally-mounted stop adapted to engage and retain the pilot-valve at one limit of its movement, adjustable tension means for bringing the stop into engagement with the valve, tension means constantly tending to move the valve to its opposite limit of movement and tripping mechanism for removing the stop from engagement with the valve.

4. In a shearing-machine, the combination with a valve mechanism, and a pilot-valve controlling the same, of a suitably-supported stud, a stop pivotally mounted on the stud, one end of the stop adapted to engage and retain the valve in one position, means constantly tending to move the valve to its opposite position, a lug projecting from the opposite end of the stop, a trip pivotally mounted on the stud and abutting the lug, billet-actuated means for impinging against the trip to release the stop and subsequently-operated means for automatically returning the valve to normal position.

5. In a shearing mechanism operated by a piston, the combination with a valve mechanism and a pilot-valve controlling the same, of means for normally retaining the valve at one limit of its movement, means constantly tending to move the valve in the opposite direction, billet-operated tripping means for releasing the retaining means, a pivoted bifurcated lever engaging the pilot-valve, and means actuated by the piston for operating the lever to return the pilot-valve to normal position.

6. In a shearing-machine, the combination with a cylinder and piston, a valve mechanism and a pilot-valve, of means for normally retaining the pilot-valve at one limit of its movement, means constantly tending to actuate the pilot-valve to its opposite limit of movement, billet-operated tripping means for releasing the valve, a lever for returning the valve to normal position, adjustable tension means secured to the lever for adjusting and retaining the latter with relation to the valve to regulate the throw of the lever, and means operated by the piston for actuating the lever.

7. In a shearing-machine, the combination with a cylinder and piston, a valve mechanism and a pilot-valve, of means for normally retaining the pilot-valve at one limit of its movement, means constantly tending to move the valve to its opposite limit of movement, tripping means for releasing the retaining means, a lever for returning the valve to its normal position, a rotatable recessed plate, a rod connecting the lever to the plate, and link mechanism connecting the plate and piston to automatically operate the lever.

8. In a shearing-machine, the combination with a piston, of a pilot-valve normally retained against tension in one position, means for tripping the retaining means, a lever for returning the valve to normal position, an adjustable spring secured to the lever, means for adjusting the throw of the lever and means connecting the throw-adjusting means and the piston for automatically operating the lever.

9. In a shearing-machine, the combination with a valve mechanism and a pilot-valve controlling the same, of a shouldered stem secured to the pilot-valve, an abutment through which the stem is slidingly received, means for normally retaining the valve at one limit of its movement, means for tripping the retaining means, a means constantly tending to move the valve to its opposite limit, a cushioning means carried by the valve-stem and engaging the abutment and means for returning the valve to normal position.

10. In a shearing-machine, the combination with a piston, intermediate mechanism, and a pilot-valve controlling the same, of means for normally retaining the pilot-valve at one limit of its movement, billet-operated means for tripping the retaining means, means constantly tending to actuate the valve to its opposite limit of movement, a lever adapted to engage the valve, a suitably-journaled shaft,

a rotatable perforated plate carried by the shaft, link-connected cranks carried by the shaft and piston, a rod connected at one end to the lever, a manually-operated crank pivotally secured to the plate, a pin carried by the outer end of the crank, one end of the pin receivable in any one of the perforations in the plate, the opposite end of the rod secured to the free end of the pin.

11. In a shearing-machine, the combination with a valve mechanism and a pilot-valve controlling the same, of a stop for retaining the valve at one limit of its movement, a lever for releasing the stop and valve, a gage-carriage located in approximate alinement with the shears, an arm pivotally mounted on the gage-carriage, a gage carried by the arm and extended into the path of a billet, a projecting bracket secured to the carriage, a spring connecting the bracket and arm for yieldingly retaining the gage in the path of the billet and means connecting the lever and arm for operating the former.

12. In a shearing-machine, the combination with a valve mechanism, and a pilot-valve controlling the same, the pilot-valve provided with a stem, of a stop for locking the pilot-valve at one limit of its movement, billet-operated means for releasing the valve, a suitably-supported lever, one end of which is bifurcated and loosely embraces the valve-stem intermediate its ends, the opposite end of the lever being perforated, a rod passing loosely through the perforation in the lever, an enlargement on the lower end of the rod, means for adjusting the rod relative to the lever and means for operating the rod.

13. In a shearing-machine, the combination with a piston, valve mechanism controlling the movement of the piston and a pilot-valve controlling the valve mechanism, of a stop for engaging and retaining the valve-stem at one limit of movement, a billet-operated means for releasing the engagement of the stop and valve-stem, a suitably-pivoted lever, one end of which loosely engages the valve-stem, the opposite end of the lever being perforated, a rod passing loosely through the perforation, an enlargement on the rod for engaging the lever, a crank to which the rod is secured, a rotatable disk with which the crank is adjustably connected, and means for operating the disk.

14. The combination in a shearing-machine, with a pair of shears, a piston for operating one of the shears, a valve mechanism controlling the movement of the piston and a pilot-valve governing the valve mechanism, of means for retaining the pilot-valve in one position against its normal tendency, billet-operated means for causing the release of the valve, a suitably-pivoted lever, one end of which loosely engages the valve, a rod loosely connected with the opposite end of the lever, an oscillatory member, means connecting the member and the piston for operating the former, a crank-arm to which the rod is connected and means for adjustably connecting the crank-arm and the oscillatory member for regulating the throw of the lever.

787,325. APPARATUS FOR CASTING. FREDERICK COWPER, Montreal, Canada, assignor of one-half to Robert Samuel Logan, Montreal, Canada. Original application filed May 21, 1904. Serial No. 209,083. Divided and this application filed July 14, 1904. Serial No. 216,544.



Claim.—1. A mold having an ingate and means inflammable at a comparatively low temperature for supporting a substance within the mold such means being located between the ingate and one of the walls of the mold.

2. A mold having an ingate and a horizontally-arranged open device within the mold between the ingate and one of the walls and such device being adapted to have a substance heaped loosely thereon, for the purpose set forth.

3. A mold having an ingate and a horizontally-arranged open device of plate form within the mold between the ingate and one of the walls and such device being adapted to have a substance heaped loosely thereon, for the purpose set forth.

4. A mold having an ingate, one wall of the mold being adapted to carry a substance different from the substance composing the wall of the mold and such wall being provided with vents communicating with the atmosphere.

5. A mold having an ingate, one wall of the mold being formed with a receptacle adapted to carry a substance, such wall being provided with vents communicating with the atmosphere.

6. A mold having an ingate, one wall of the mold having a series of apertures therein adapted to carry a substance, such wall being provided with vents communicating with the atmosphere.

7. A mold having an ingate, one wall of the mold being adapted to carry a substance different from the substance composing the wall of the mold and such wall being provided with vents communicating with the atmosphere, and means for supporting a second substance above the bottom of the mold and between the ingate and such wall of the mold, substantially as described and for the purpose set forth.

8. A mold having an ingate, one wall of the mold having a series of apertures therein adapted to carry a substance, and means for supporting a substance between the ingate and the wall having the apertures therein.

9. A mold having an ingate, one wall of the mold being formed with a receptacle adapted to carry a substance, and means for supporting a substance between the ingate and the wall having the receptacle therein.

10. A mold having an ingate, one wall of the mold having a series of apertures therein adapted to carry a substance and an inflammable device for supporting a substance between the ingate and the wall having the apertures therein.

11. A mold having an ingate, one wall of the mold having a series of apertures therein adapted to carry a substance and a paper device for supporting a substance between the ingate and the wall having the apertures therein.

12. A circular mold having its peripheral wall in the form of a chill and such chill having apertures therein adapted to carry a substance, an annular device for supporting a substance within the mold and adapted to be destroyed by the molten material being cast and means for supporting the device above the floor of the mold, for the purpose set forth.

13. A circular mold having its peripheral wall in the form of a chill and such chill having a receptacle formed therein adapted to carry a substance, an annular device for supporting a substance within the mold and adapted to be destroyed by the molten material being cast and means for supporting the device above the floor of the mold, for the purpose set forth.

14. A circular mold having its peripheral wall in the form of a chill and such chill having apertures therein adapted to carry a substance, a paper annulus for supporting a substance within the mold, and means for supporting the paper annulus above the floor of the mold, for the purpose set forth.

15. A circular mold having its peripheral wall in the form of a chill and such chill having apertures therein adapted to carry a substance, an annular device for supporting a substance within the mold and adapted to be destroyed by the molten material being cast, and a series of pins inserted in the floor of the mold for supporting the annular device, substantially as described and for the purpose set forth.

787,326. COMPOUND HINGE FOR DEPRESSIBLE RAILS. CHARLES J. DIEBOLD, Cleveland, Ohio, assignor to The Diebold Mine Supply Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb 8, 1905. Serial No. 244,715.



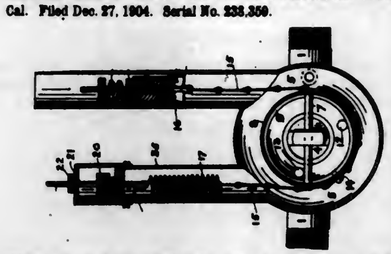
Claim.—1. A hinge connection for horizontal and inclined sections of a depressible rail comprising an axial shaft having a crank thereon, and brackets depending from the adjacent ends of the rail-sections and being pivoted to the crank at different distances from the shaft.

2. A hinge connection for separate sections of a depressible rail comprising an axial shaft having a crank thereon, and brackets depending from the adjacent ends of the rail-sections and being pivoted to the crank at different distances from the shaft.

3. A hinge connection for horizontal and inclined sections of a depressible rail comprising an axial shaft having a crank thereon, and brackets depending from the adjacent ends of the rail-sections and being pivoted to the crank.

4. A hinge connection for separate sections of a depressible rail comprising an axial shaft having a crank thereon, and brackets depending from the adjacent ends of the rail-sections and being pivoted to the crank.

787,327. DEVICE FOR AUTOMATICALLY REDUCING PRESSURE IN WATER-PIPES. GUSTAVE H. DWORSEK, San Francisco, Cal. Filed Dec. 27, 1904. Serial No. 238,359.



Claim.—1. A device of the character described, comprising a pipe having an inlet and an outlet, a valve therebetween, a chamber connected with the pipe between the valve and outlet, a tubular extension from said chamber, a plunger therein, a ring in said chamber attached to said valve, a chain around said ring attached thereto and to the plunger, and a spring resisting the turning of the ring by said plunger, substantially as described.

2. A device of the character described, comprising a pipe having an inlet and an outlet, a valve therein, a chamber connected with the pipe between the valve and outlet, tubular extensions from said chamber, a ring in said chamber attached to said valve, a plunger in one of said extensions, a chain attaching said plunger to said ring, and a spring in the other extension also attached by a chain to said ring, substantially as described.

3. A device of the character described, comprising a pipe having an inlet and an outlet, a valve therein, a chamber connected with the pipe between the valve and outlet, tubular extensions from said chamber, a ring in said chamber attached to said valve, a plunger in one of said extensions, a chain attaching said plunger to said ring, a spring in the other extension also attached by a chain to said ring, and means for adjusting the tension of said spring, substantially as described.

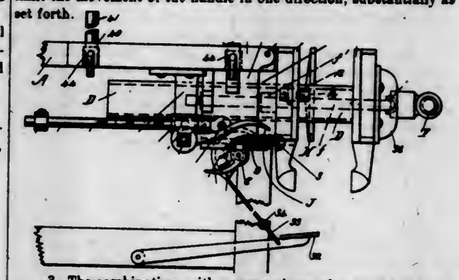
4. A device of the character described, comprising a pipe having an inlet and an outlet, a valve therein, a chamber connected with the pipe between the valve and outlet, tubular extensions from said chamber, a ring in said chamber attached to said valve, a plunger in one of said extensions, a chain yieldably attaching said plunger to said ring, and a spring in the other extension also attached by a chain to said ring, substantially as described.

5. A device of the character described, comprising a pipe having an inlet and an outlet, a valve therebetween, a chamber connected with said pipe between said valve and outlet and having tubular extensions, a ring in said chamber connected with the valve, a plunger in one of said extensions, a rod passing through said plunger, the plunger having overflow-channels around the rod, a spring interposed between said plunger and a stop upon the rod, a chain connecting said rod and ring, and a spring in the outer extension also connected by a chain with said ring, substantially as described.

787,328. VISE. JOSEPH F. EMMERT, Waynesboro, Pa. Filed June 1, 1904. Serial No. 210,665.

Claim.—1. The combination, with a stationary support, a socket hinged thereto, and vise-jaws carried by the said socket; of a bracket secured to the said support, a spring-clip pivoted to the said bracket, a rod pivoted to the said socket and slidable longitudinally in the said clip, and a handle pivoted to the said clip and provided with an inclined cam-surface for contracting the said clip upon the rod, substantially as set forth.

2. The combination, with a stationary support, a socket hinged thereto, and vise-jaws carried by the said socket; of a bracket secured to the said support, a spring-clip pivoted to the said bracket, a rod pivoted to the said socket and slidable longitudinally in the said clip, and a handle pivoted to the said clip and provided with an inclined cam-surface for contracting the said clip upon the rod, said clip and handle being also provided with interlocking stops which limit the movement of the handle in one direction, substantially as set forth.



3. The combination, with a supporting-socket provided on one side with a hole and a slot, a slidable outer vise-jaw provided with clamping mechanism, and a vise-jaw provided with a sleeve which is journaled in the said socket; of a locking-bolt slidable in the said hole and engaging with the said vise-jaw, a trigger pivoted on a pin in the said slot and engaging with the said bolt, an arm secured on the said pin and provided with a projection for engaging with the said trigger, a treadle, and a connection between the said treadle and arm, substantially as set forth.

4. The combination, with a supporting-socket provided on one side with a hole and a slot, a slidable outer vise-jaw provided with clamping mechanism, and a vise-jaw provided with a sleeve which is journaled in the said socket; of a locking-bolt slidable longitudinally in the hole in the said socket and engaging with the said vise-jaw, a spring secured in the said hole behind the said bolt, and a trigger pivoted in the said slot and provided with a nose for operating the said bolt and a stop for limiting its motion in one direction, substantially as set forth.

5. The combination, with a pair of vise-jaws, and clamping mechanism, one of the said jaws having a guide-hole formed transversely through its face; of an auxiliary vise-jaw having a knife-edge on its back and a stem which also projects from its back and in advance of the said knife-edge and which is slidable loosely in the said guide-hole, so that the said auxiliary vise-jaw may tilt with its said knife-edge in contact with the face of the vise-jaw which supports it.

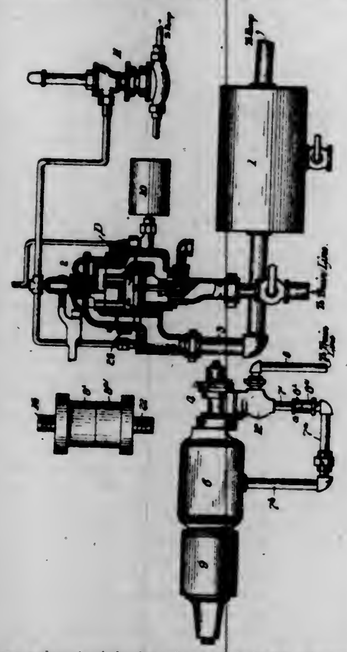
6. The combination, with a pair of vise-jaws, and clamping mechanism, one of the said jaws having a guide-hole and two grooves in its face, arranged one on each side of the said guide-hole; of an auxiliary vise-jaw having a projecting stem at the middle part of its back which stem is slidable loosely in the said guide-hole and having also two knife-edges which engage pivotally with the said grooves.

787,329. AIR-BRAKE. ALBERT H. OELTZ, Alliance, and LEE L. HOSACK, Youngstown, Ohio, assignors to Charles B. McLean, Pittsburg, Pa. Filed Nov. 28, 1903. Serial No. 182,962.

Claim.—1. The herein-described means for recharging the train-line and auxiliary reservoir of air-brakes while the brakes are set, comprising in connection with the main reservoir, the engineer's brake-valve connected thereto, the feed-valve, the triple valve, the auxiliary reservoir, the train-line connected to the feed-valve and triple-valve casing, and a connection between the triple-valve casing and the auxiliary reservoir, a supplemental passage-way or port leading from the top of the rotary member of the engineer's brake-valve and establishing communication between the chamber above said rotary member and the feed-valve when the engineer's brake-valve is on lap position, and a gravity-opening valve in the connection between the auxiliary reservoir and triple-valve casing which opens automatically on the equalization of pressure in the train-line and auxiliary reservoir.

2. A means for recharging the train-line and auxiliary reservoir of air-brakes while the brakes are set, comprising in combination with the main reservoir, the engineer's brake-valve, the triple valve, the auxiliary reservoir, and the train-line, of means for establishing communication from the chamber over the rotary member of the engineer's brake-valve to the train-line when the engineer's brake-valve is on lap position, a connection between the auxiliary reservoir and the triple-valve casing, and a valve in said connection which closes upon a reduction of pressure on train-line side of the triple valve and opens when pressure on train-line side and auxiliary-reservoir side of the triple valve equalizes.

3. A means for recharging the train-line and auxiliary reservoir of air-brakes while the brakes are set, comprising in combination with the main reservoir, the engineer's brake-valve, the triple valve, the auxiliary reservoir, and the train-line, of means for establishing communication from the chamber over the rotary member of the engineer's brake-valve to the train-line when the engineer's brake-valve is on lap position, a connection between the auxiliary reservoir and the triple-valve casing, and a valve in said connection which closes upon a reduction of pressure on train-line side of the triple valve and opens by gravity when pressure on train-line side and auxiliary-reservoir side of the triple valve equalizes.



4. In an engineer's air-brake valve provided with a feed-valve in communication with a train-line, and having a rotary member provided with a warning-port, the combination therewith of a supplemental port or passage-way which registers, when the brake-valve is on lap position, with the warning-port in the rotary member of the brake-valve, and establishes communication between the chamber over the rotary member and the train-line through the feed-valve, and said port being closed by the rotary member in all other positions of the latter.

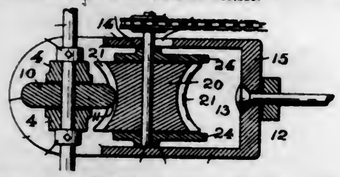
5. In air-brakes, the combination with the train-line, the triple valve and the auxiliary reservoir, of a connection between the triple-valve casing and the auxiliary reservoir, and independent of the main connection between said triple-valve casing and auxiliary reservoir, and a valve interposed in said independent connection which closes upon a reduction of pressure on the train-line side of the triple valve and opens by gravity when the pressure on the train-line side and the auxiliary-reservoir side of the triple valve is equalized.

6. In an engineer's air-brake valve including a feed-valve in communication with a train-line and having a rotary member, of a supplemental free port or open passage-way leading from a point within the periphery of the rotary member to a point in the feed-valve passage outside the periphery of the rotary member, and establishing communication when the valve is on lap position between the chamber over the rotary member and the train-line through the feed-valve, said supplemental port or passage-way being closed by the rotary member in all except lap position of the latter.

7. In air-brakes the combination with the train-line, the triple valve, and the auxiliary reservoir, of a supplemental air-passage between the train-line and the auxiliary reservoir, and independent of the main air-passage between said train-line and auxiliary reservoir, and a valve in said supplemental air-passage which closes upon a reduction of pressure on the train-line side of the triple valve and opens by gravity when the pressure on the train-line side and auxiliary-reservoir side of the triple valve is equalized.

8. A means for recharging the train-line and auxiliary reservoir of air-brakes while the brakes are set, comprising in combination with the main reservoir, the engineer's brake-valve, the triple valve, the auxiliary reservoir, and the train-line, of means for establishing communication from the main reservoir to the train-line when the engineer's brake-valve is on lap position, a connection from a point on the auxiliary-reservoir pressure side of the triple valve to the train-line, and a valve in said connection which closes upon a reduction of pressure on train-line side of the triple valve and opens when pressure on train-line side and auxiliary-reservoir side of the triple valve is equal.

787,330. **GEARING.** STEPHEN H. HANSON, Akron, Ohio. Original application filed May 10, 1904. Serial No. 207,236. Divided and this application filed Aug. 3, 1904. Serial No. 219,259.



Claim.—1. The combination, with a pair of revolving shafts, one of said shafts being capable of variable angular relation to the other shaft, a gear on each shaft, said gears having gear-teeth in operative mesh irrespective of the varying angular relations of one shaft to the other shaft, and means for forcing said gears from their operative mesh, substantially as and for the purposes set forth.

2. The combination, with a pair of revolving shafts, one of said shafts being capable of variable angular relation to the other shaft, a gear on each shaft, the teeth of one of said gears being concave and the teeth of the other gear being convex, and said gears having their gear-teeth in operative mesh irrespective of the varying angular relations of one shaft to the other shaft, and means for forcing said gears from their operative mesh, substantially as and for the purposes set forth.

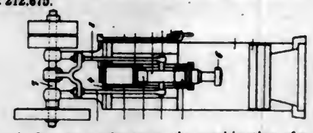
3. In a gearing, the combination, with a main frame having bearing portions, of a second frame provided with a pivotal stud and king-post arranged in said bearing portions, said second frame being capable of oscillatory movement in said main frame, a shaft revoluble in bearing portions in said second frame, a gear on said shaft, said gear being arranged between the sides of said second frame, a shaft revoluble in bearings in said main frame, and a gear on said shaft, said gears having their gear-teeth in operative mesh irrespective of the varying oscillatory movements of said second frame and its shaft, substantially as and for the purposes set forth.

4. In a gearing, the combination, with a main frame having bearing portions, of a second frame provided with a pivotal stud and king-post arranged in said bearing portions, said second frame being capable of oscillatory movement in said main frame, a shaft revoluble in bearing portions in said second frame, a gear on said shaft, said gear being arranged between the sides of said second frame, a shaft revoluble in bearings in said main frame, a gear on said shaft, said gears having their gear-teeth in operative mesh irrespective of the varying oscillatory movements of said second frame and its shaft, and means for forcing said gears from their operative mesh, substantially as and for the purposes set forth.

5. In a gearing, the combination, with a main frame having bearing portions, of a second frame provided with a pivotal stud and king-post arranged in said bearing portions, said second frame being capable of oscillatory movement in said main frame, a shaft revoluble in bearing portions in said second frame, a gear on said shaft, the teeth of said gear being convex, and said gear being arranged between the sides of said second frame, a shaft revoluble in bearings in said main frame, and a gear on said shaft, the teeth of said gear being concave, both gears having their gear-teeth in operative mesh irrespective of the varying oscillatory movements of said second frame and its shaft, substantially as and for the purposes set forth.

6. In a gearing, the combination, with a main frame having bearing portions, of a second frame provided with a pivotal stud and king-post arranged in said bearing portions, said second frame being capable of oscillatory movement in said main frame, a shaft revoluble in bearing portions in said second frame, a gear on said shaft, the teeth of said gear being convex, and said gear being arranged between the sides of said second frame, a shaft revoluble in bearings in said main frame, and a gear on said shaft, the teeth of said gear being concave, both gears having their gear-teeth in operative mesh irrespective of the varying oscillatory movements of said second frame and its shaft, and means for forcing said gears from their operative mesh, substantially as and for the purposes set forth.

787,331. **POWER-HAMMER.** JACOB HEINRICH and HEINRICH DORSCH, Fürth, Germany. Original application filed Oct. 5, 1903. Serial No. 175,864. Divided and this application filed June 15, 1904. Serial No. 212,675.



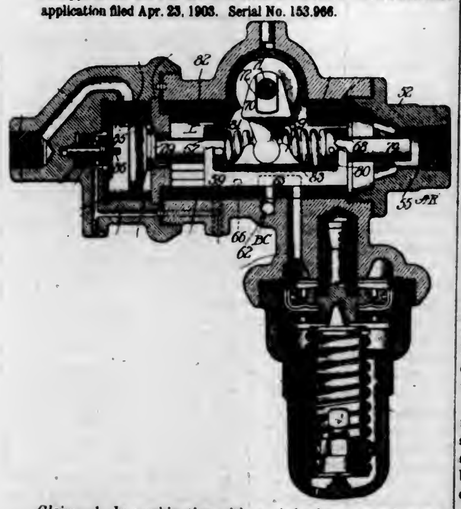
Claim.—1. In a power-hammer, the combination of a cylinder, a tubular piston working within said cylinder and having a hammer-head connected thereto, a plunger within the piston, power devices for reciprocating said plunger, and means for varying the admission of fluid to the cylinder to limit the movement imparted to the piston by said plunger.

2. In a power-hammer, the combination of a cylinder provided with an opening or port, a piston working within said cylinder and having a hammer-head connected thereto, power devices for reciprocating the piston, a swinging plate adapted to close the aforesaid opening or port in the cylinder, and means for holding said plate in the desired position, substantially as and for the purpose described.

3. In a power-hammer, the combination of a cylinder provided with an opening or port, a piston working within said cylinder and having a hammer-head connected thereto, power devices for reciprocating the piston, a plate movable to and from a position across said opening or port in the cylinder and provided with a passage for fluid, a valve for preventing the passage of fluid into the cylinder through the passage in said plate, and means for holding said plate in the desired position relative to the port in the cylinder.

4. In a power-hammer, the combination of a cylinder open at one end and having a hinged plate or cover at its other end, a piston arranged to work within the cylinder and having the hammer-head connected thereto, power devices for reciprocating the piston, and means for securing the hinged plate or cover in the desired position.

787,332. **FLUID-PRESSURE BRAKE SYSTEM.** MAURY W. HIBBARD, Chicago, Ill., assignor to Richard Fitzgerald, Chicago, Ill. Original application filed Feb. 25, 1903. Serial No. 145,018. Divided and this application filed Apr. 23, 1903. Serial No. 153,966.



Claim.—1. In combination with an air-brake system of a car, a supplemental reservoir, means for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and separate means for bleeding the auxiliary reservoir without releasing the supplemental reservoir.

2. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism coöperating therewith to produce a predetermined braking pressure in the brake-cylinder and arrangel to connect such supplemental reservoir with the auxiliary reservoir of the brake system to produce an increased braking pressure for a loaded car, and separate means for bleeding the auxiliary reservoir alone, without bleeding the supplemental reservoir.

3. In combination with an air-brake system of a car, a supplemental reservoir, means for connecting such supplemental reservoir and the auxiliary reservoir of the brake system, means for bleeding the auxiliary reservoir, and independent means for closing the connection between the reservoirs during the bleeding operation.

4. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, said valve mechanism being provided with separate means for disconnecting said reservoirs during the bleeding operation.

5. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, and means arranged to lock the valve mechanism in loaded-car position and also arranged to disconnect the two reservoirs during the bleeding operation.

6. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, a locking device actuated by the valve mechanism for locking the latter in loaded-car position, and a valve actuated by said locking device for closing communication between the two reservoirs during the bleeding operation.

7. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, a locking device actuated by the valve mechanism for locking the latter in loaded-car position, and a valve carried by said locking device for closing communication between the two reservoirs during the bleeding operation.

8. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, an air-controlled locking device actuated by the valve mechanism for locking the latter in loaded-car position, and means controlled by said locking device for disconnecting the two reservoirs during the bleeding operation.

9. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, a locking device controlled by the pressure of the brake system and operatively connected with the valve mechanism, and means carried by said locking device for disconnecting the two reservoirs during the bleeding operation.

10. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, a locking-disk continually exposed on one side to the auxiliary-reservoir pressure and operatively connected with the valve mechanism, means for relieving the pressure, during loaded-car braking, from the other side of said disk, and means for disconnecting the two reservoirs during the bleeding operation.

11. In combination with an air-brake system of a car, a supplemental reservoir, a valve-casing having a chamber for connecting such supplemental reservoir and the auxiliary reservoir of the brake system, a pressure-reducing valve having communication with the brake-cylinder, a main valve in said chamber for controlling said communication, and valve-locking mechanism carried by said main valve but having a movement independent thereof.

12. In combination with an air-brake system of a car, a supplemental reservoir, a valve-casing having a chamber for connecting such supplemental reservoir and the auxiliary reservoir of the brake system, a pressure-reducing valve having communication with the brake-cylinder, a main valve in said chamber for controlling said communication, a flanged holding-disk and cut-off valve carried by the main valve, said cut-off valve being arranged to interrupt communication between the reservoirs, and means for exhausting air-pressure from one side of said disk when moved in one direction.

13. In combination with an air-brake system of a car, a supplemental reservoir, a valve-casing having a chamber for connecting such supplemental reservoir and the auxiliary reservoir of the brake system, a pressure-reducing valve having communication with the brake-cylinder, a main valve in said chamber for controlling said communication, a ported partition arranged in said chamber, a flanged holding-disk and cut-off valve carried by the main valve, said cut-off valve being arranged to seat upon said partition to interrupt communication between the reservoirs, and means for exhausting air-pressure from one side of said disk when moved in one direction.

14. In combination with an air-brake system of a car, a supplemental reservoir, a casing having a valve-chamber and provided with a ported partition to form a supplemental chamber 75, a main valve working in said valve-chamber and having a stem projecting through said partition and into said chamber 75 and there provided with a flanged holding-disk arranged to seat at one end of the chamber 75, said stem also being provided with a cut-off valve 79, arranged to seat on said partition when the disk is unseated and to be unseated when the disk is seated, and means for holding the disk seated when seated.

15. In valve mechanism of the character described, the combination of a casing having a valve-chamber communicating between the usual auxiliary reservoir and a supplemental reservoir, a main valve therein having ears 67, 68, plates 80, 81 arranged between such ears, a stem 74 passing through said ears and plates and secured to the plate 80, a flanged disk 73 arranged on the end of such stem and adapted to seat on one end of the valve-chamber, the casing having passages between such end of the chamber and that part of such chamber adjacent the main valve which is adapted to govern such passages, and a spring arranged between said plates 80, 81.

16. In combination with an air-brake system of a car, a supplemental reservoir, valve mechanism for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir, and means carried by and having a yielding connection with said valve mechanism for disconnecting said reservoirs during the bleeding operation.

787,333. **APPARATUS FOR CLEANING TUBES.** BURTON S. HUGHES, Lockland, and CLARENCE T. HUGHES, Cincinnati, Ohio, assignors of one-third to Thomas K. Peters, St. Louis, Mo. Filed Sept. 27, 1901. Serial No. 76,754.



Claim.—1. In apparatus for cleaning boiler-tubes, a centrifugally-operating tool, consisting of end plates, a spacing-block between said end plates, diametrically opposite rods connecting said end plates, a series of pairs of carriers pivotally mounted on said rods, the carriers of each pair being oppositely mounted, sockets in the outer face of said carriers, rotary cutters pivotally mounted in said sockets, one of the end plates and the carriers being provided at their adjacent faces with complementary lugs and sockets so as to limit the outward swing of the carriers, substantially as and for the purpose described.

2. In apparatus for cleaning boiler-tubes, a centrifugally-operating tool, consisting of end plates, a spacing-block between said end plates, diametrically opposite rods connecting said end plates, a series of pairs of carriers pivotally mounted on said rods, the carriers of each pair being oppositely mounted, sockets in the outer face of said carriers, cutters secured in said sockets, one of the end plates and the carriers being provided at their adjacent faces with complementary lugs and sockets so as to limit the outward swing of the carriers, substantially as and for the purpose described.

787,334. **COMBINED MATCH DELIVERER, LIGHTER, AND CIGAR-CUTTER.** PETER LA BELLE, Anderson, Ind. Filed Feb. 26, 1903. Serial No. 145,277.

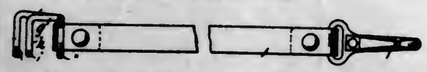
Claim.—1. In a match-safe, the combination of a casing having a receptacle 31 at one end and also having a slot 17 in its front, a hopper arranged in the casing and having a chute at its bottom and an opening in the end of the chute adjacent to the bottom thereof and also having a slot in the bottom of the chute, a fixed guide-rod disposed in the casing alongside the chute, a reciprocatory plunger movable on the guide-rod and having a flange extending upwardly through and movable in the slot in the direction of the length thereof; said flange normally extending through an opening in one end wall of the casing and resting under the receptacle 31, a spring for moving the plunger in one direction, and a thumb-piece connected to the plunger by means disposed in the slot 17.



2. In a device for the purpose described, the combination of a casing having a slot 17 in its front, a receptacle 31 at one end, an opening in its opposite end, and vertical guides on its inner side at opposite sides of said opening, a fixed anvil extending through said opening and roughened at its upper side, a spring-pressed hammer movable in the guides and having a portion roughened at its under side, a hopper arranged in the casing and having a chute at its bottom and an opening in the end of the chute adjacent to the bottom thereof and also having a slot in the bottom of the chute, a fixed guide-rod disposed in the casing alongside the chute, a reciprocatory plunger movable on the guide-rod and having a flange extending upwardly through and movable in the slot in the direction of the length thereof; said flange normally extending through an opening in one end wall of the casing and resting under the receptacle 31, a spring for moving the plunger in one direction, and a thumb-piece connected to the plunger by means disposed in the slot 17.

3. In a device for the purpose described, the combination of a casing having a slot 17 in its front, a receptacle 31 at one end, an opening in its opposite end, and vertical guides on its inner side at opposite sides of said opening, a fixed anvil extending through said opening and roughened at its upper side, a spring-pressed hammer movable in the guides and having a portion roughened at its under side, a hopper arranged in the casing and having a chute at its bottom and an opening in the end of the chute adjacent to the bottom thereof and also having a slot in the bottom of the chute, a fixed guide-rod disposed in the casing alongside the chute, a reciprocatory plunger movable on the guide-rod and having a flange extending upwardly through and movable in the slot in the direction of the length thereof; said flange normally extending through an opening in one end wall of the casing and resting under the receptacle 31, a spring for moving the plunger in one direction, a thumb-piece connected to the plunger by means disposed in the slot 17, and a horizontal lever connected to the plunger and having a cutting edge arranged to swing below an aperture in the casing.

787,335. **STRAP-FASTENER.** WILLIAM D. LAMBERT, Haverhill, Mass. Filed May 5, 1904. Serial No. 206,425.



Claim.—1. In a strap-buckle the combination with a strap-supporting bar, of a free-ended, strap-loop-holding bar, and a free-ended strap-engaging bar, adjacently disposed in parallelism, and yieldingly connected at their corresponding ends to said supporting-bar, thereby providing at their free ends an open strap-receiving passage, substantially as described.

2. In a strap-buckle the combination with a strap-supporting bar, of a free-ended, strap-loop-holding bar, and a free-ended strap-engaging bar, adjacently disposed in parallelism, the former above the latter, and yieldingly connected at their corresponding ends to said supporting-bar, thereby providing at their free ends an open, strap-receiving passage, substantially as described.

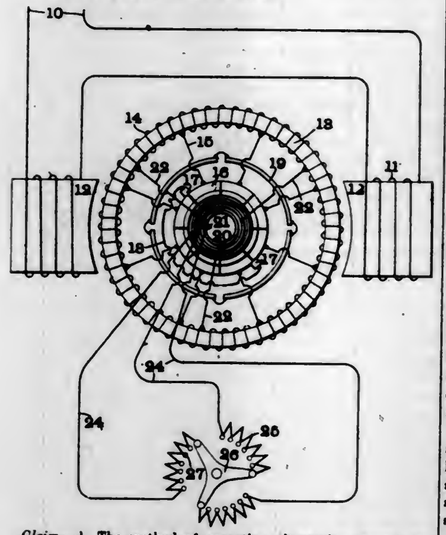
3. In a strap-buckle the combination with a strap-supporting bar, of a free-ended, strap-loop-holding bar, and a free-ended strap-engaging bar, adjacently disposed in parallelism, connected at corresponding ends to said supporting-bar and relatively yielding transversely of the buckle, thereby providing at their free ends an open, strap-receiving passage, substantially as described.

4. A strap-buckle comprising a strap-supporting bar, a strap-loop-holding bar, and a strap-engaging bar, said engaging bar being connected at one end to one end of said supporting-bar, and a spring-wire loop connected at one end to the opposite end of said supporting-bar, and arranged in a plane at an angle to the plane of said bars, said holding-bar being connected at one end to the opposite end of said loop, substantially as described.

5. A strap-buckle comprising a strap-supporting bar, a strap-loop-holding bar, and a strap-engaging bar, said engaging bar being connected at one end to one end of said supporting-bar, a spring-wire loop connected at one end to the opposite end of said supporting-bar, and arranged in a plane at an angle to the plane of said bars, said holding-bar being connected at one end to the opposite end of said loop, the opposite ends of said holding and engaging bars being free and providing at their free ends an open, strap-receiving passage, substantially as described.

6. A strap-buckle comprising a strap-supporting bar, a strap-loop-holding bar, and a strap-engaging bar, said engaging bar being connected at one end to one end of said supporting-bar, a spring-wire loop connected at one end to the opposite end of said supporting-bar, and arranged in a plane at an angle to the plane of said bars, said holding-bar being connected at one end to the opposite end of said loop, the opposite ends of said holding and engaging bars being free and providing at their free ends an open strap-receiving passage, and strap-retaining fingers at the free ends of said holding and engaging bars extending in opposite directions approximately parallel to the plane of said loop, substantially as described.

787,336. **METHOD OF OPERATING ALTERNATING-CURRENT MOTORS.** WALDO A. LATHAM, St. Louis, Mo. Original application filed Dec. 28, 1903, Serial No. 186,843. Divided and this application filed Sept. 3, 1904. Serial No. 223,171.



Claim.—1. The method of operating alternating-current motors, which consists in directing the current in one of the members thereof to produce definite magnetic poles, short-circuiting said member, and increasing the number of short circuits in said member.

2. The method of operating alternating-current motors, which consists in directing the current in one of the members thereof to produce definite magnetic poles at starting, short-circuiting said member, and increasing the number of short circuits in said member after the motor has started.

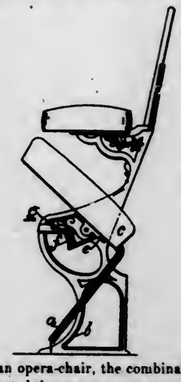
3. The method of operating alternating-current motors, which consists in directing the current in one of the members thereof to produce definite magnetic poles, gradually short-circuiting said member, and increasing the number of short circuits in said member.

4. The method of operating alternating-current motors, which consists in directing a portion of the current in one of the members thereof to produce definite magnetic poles, short-circuiting a portion of the current in said member, and then increasing the number of short circuits in said member.

5. The method of operating alternating-current motors, which consists in directing a portion of the current in one of the members thereof to produce definite magnetic poles, short-circuiting a portion of the current in said member, varying the amount of the short-circuited current, and increasing the number of short circuits in said member.

6. The method of operating alternating-current motors, which consists in directing a portion of the current in one of the members thereof to produce definite magnetic poles at starting, short-circuiting a portion of the current in said member before normal running speed is attained, varying the amount of the short-circuited current, and increasing the number of short circuits in said member when normal speed is attained.

787,337. **OPERA-CHAIR.** ABRAHAM LAZARUS, London, England. Filed June 13, 1904. Serial No. 212,382.



Claim.—1. In an opera-chair, the combination with a suitable frame, of a seat mounted thereon, means constructed to tip said seat out of its horizontal position, and a bracket carrying a spring adapted to abut against said frame when said seat is tilted and maintain the same at an acute angle to the back, substantially as described.

2. In an opera-chair, the combination with a suitable frame, of a seat mounted thereon, means constructed to tip said seat out of its horizontal position, a lug on said frame, a bracket on said seat, and a spring mounted on said bracket adapted to engage with said lug when said seat is tipped and maintain the same at an acute angle to the back, substantially as described.

3. In an opera-chair, the combination with a suitable frame, of a seat mounted thereon, means constructed to tip said seat out of its horizontal position, a lug on said frame, a forwardly-projecting bracket on the bottom of said seat, and a spring mounted on the upper face of said bracket and adapted to engage with the under face of said lug when said seat is tipped and maintain the same at an acute angle to the back, substantially as described.

4. In an opera-chair, the combination with a suitable frame, of a seat mounted thereon, means constructed to tip said seat out of its horizontal position, and a coiled spring mounted on the bottom of said seat adapted to abut against said frame when said seat is tipped and of such tension that said seat is maintained at an angle of substantially fifty degrees to the back, substantially as described.

787,338. **ROSETTE OR RECEPTACLE FOR CONDUITS FOR ELECTRIC WIRES.** GEORGE A. LUTZ, New York, N. Y., assignor, by mesne assignments, of one-half to Frank K. Boland, New York, N. Y. Filed May 23, 1901. Renewed June 5, 1903. Serial No. 160,262.



Claim.—1. A rosette for drop-light wires having therein suitable means for making electrical connections, provided with a gain to receive a molding-strip, and in combination therewith, substantially as described.

2. A rosette for drop-light wires having suitable means for electrical connections, provided with side wings and adapted to be secured astride a molding-strip, and in combination therewith, substantially as described.

3. A rosette for drop-light wires, having suitable means for elec-

trical connections, in combination with a molding-strip having electric wires therein, said rosette being attached to and held by said molding-strip, substantially as described.

4. A ceiling-rosette for electric wires, in combination with a molding-strip adapted to rest over the strip and secured thereto, said rosette comprising a base and a cap, substantially as described.

5. A device of the character described comprising a base provided with a transversely-extending groove or channel adapted to receive a conduit, substantially as described.

6. A device of the character described comprising a base having a transversely-extending groove provided with supplemental grooves or depressions in the walls of the main groove, adapted to receive corresponding projecting portions of a conduit, substantially as described.

7. A device of the character described comprising a base provided with a transversely-extending groove and with an opening in line with said groove, the groove being adapted to receive a conduit and said opening being adapted to permit the passage of wires from the conduit through the same, substantially as described.

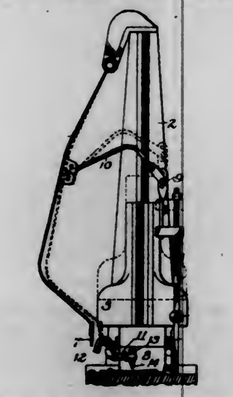
8. A device of the character described comprising a base having a transversely-extending groove that opens through one face of the base and an opening in the opposite face of the base alined with said groove, the groove being adapted to receive a conduit.

9. The combination of a conduit having one side open and provided with a cover, with a base having a transversely-extending groove adapted to receive said conduit, substantially as described.

10. The combination of a conduit having its sides bent to form outwardly-projecting portions providing grooves, and a cover adapted to fit said grooves, with a base having a transversely-extending groove and supplemental grooves in the walls thereof adapted to receive the conduit and the outwardly-projecting portions thereof respectively, said base being provided with an opening in line with the main groove, substantially as described.

11. A device of the character described, comprising a base provided with a transversely-extending groove or channel to receive a conduit and having an opening for the passage of a wire, and also having abutments on opposite sides of said opening projecting toward the groove or channel, substantially as described.

787,339. **ATTACHMENT FOR DROP-HAMMERS.** ROBERT F. MASSA, Chicago, Ill. Filed Oct. 22, 1904. Serial No. 229,539.



Claim.—1. In a tool of the class described, the combination of a movable and a stationary die, an air-conduit adapted to conduct air to the stationary die, and means connected with the hammer for automatically opening and closing said conduit at each stroke of the hammer.

2. In a tool of the class described, the combination of a movable and a stationary die, an air-conduit adapted to conduct air to the stationary die, a self-closing valve in said conduit, and means connected with said movable die for opening said valve.

3. In a tool of the class described, the combination of a movable and a stationary die, an air-pipe connected with the stationary die, said pipe provided with a self-closing valve, a hinged bar adapted to open said valve when moved in one direction, and means connected with the movable die for moving said hinged bar as the movable die is being raised to its suspended position.

4. In a tool of the class described, the combination of a movable and a stationary die, an air-pipe connected with the stationary die, said pipe provided with a self-closing valve, a bar hinged to a fixed part of the machine and adapted to open said valve when moved in one direction, a yielding hook connected with the movable die and arranged to engage with one end of the hinged bar when the movable die is down and to first raise said hinge-bar and then to be disengaged therefrom as said die is moved to its suspended position.

5. In a tool of the class described, the combination of a movable and a stationary die, an air-pipe connected with the stationary die, said pipe provided with a self-closing valve, a bar hinged to a fixed part of the machine and adapted to open said valve when moved in one direction, a sliding bar moving with the movable die supported thereby and portions arranged to contact with said supports to limit its movement, a spring-hook secured to said sliding bar and adapted to engage with one end of the hinged bar when the movable die is down and to first raise said hinge-bar and then to be disengaged therefrom as said die is moved to its suspended position.

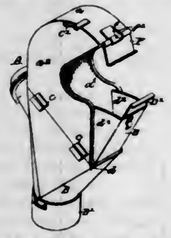
6. In a tool of the class described, the combination of a stationary die supported upon the base and provided with an air-duct communicating with a source of supply, a movable die carried by the hammer, a self-closing valve adapted to control said air-supply, means for opening said valve comprising in part an adjustable bar adapted to slide through supports carried by the hammer and provided with a hooked end and portions arranged to contact with said supports to limit its movement, and a make-and-break connection between the said hooked end of the bar and valve.

7. In a tool of the class described, the combination of a stationary die supported upon the base and provided with an air-duct communicating with a source of supply, a movable die carried by the hammer, a self-closing valve adapted to control said air-supply, means for opening said valve comprising in part an adjustable bar adapted to slide through supports carried by the hammer and provided with a hooked end, a means for cushioning the downward stroke of the bar, and a make-and-break connection between the said hooked end of the bar and valve.

8. In a tool of the class described, the combination of a stationary die supported upon the base and adapted to receive the article to be operated upon, and provided with an air-duct within said die communicating with a source of supply and terminating beneath the article, a movable hammer carrying the other die, and a make-and-break connection in the source of supply and means whereby said make-and-break connection is controlled by the movable hammer.

9. In a tool of the class described, the combination of a stationary die supported upon the base, a movable die carried by the hammer, the stationary die provided with an air-duct communicating with a source of supply, a self-closing valve in said source of supply, a movable hammer and a die carried by said hammer, a bar pivoted on the base and adapted to contact with said valve in a manner to open it when moved in one direction, and means for moving said bar comprising an upright sliding adjustable bar connected with the hammer and controlled thereby, said bar provided with a yielding hook adapted to engage with the valve-opening bar in its downward movement and to first raise said hinge-bar and then to be released therefrom during a portion of its upward movement, and a coiled spring surrounding the sliding bar adapted to cushion its stroke.

787,340. **HOOD FOR GRINDING AND POLISHING WHEELS.** HARRY N. MIDDLETON, Westville, N. J., assignor of one-half to Charles H. Gifford, Philadelphia, Pa. Filed Dec. 14, 1903. Serial No. 185,133.



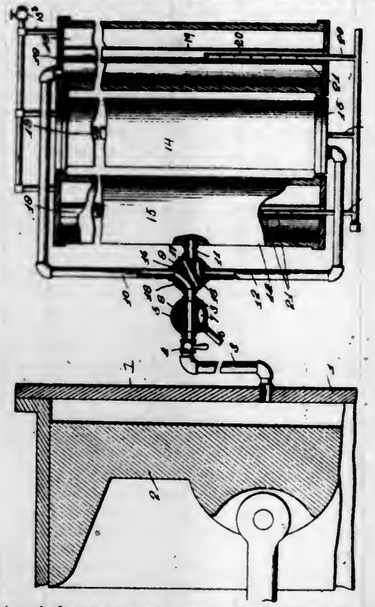
Claim.—1. A hood for grinding and polishing wheels, having a curved portion partly surrounding the wheel, a receptacle at the lower end of the hood, a detachable cap for the said receptacle, and an exhaust-pipe coupled to the hood at a point between the wheel and the receptacle, substantially as described.

2. The combination in a hood for grinding and polishing wheels, having a curved portion inclosing the wheel, a tapered body portion terminating in a receptacle, and an exhaust-pipe coupled to the body portion, with a detachable bottom for the receptacle, substantially as described.

3. The combination in an exhaust-hood for grinding and polishing wheels, of a casing having a receptacle formed therein, one side of the casing above the receptacle being hinged, a plate pivoted to the front of the body portion, and an exhaust-pipe connected to the casing above the receptacle, substantially as described.

4. The combination in an exhaust-hood for grinding and polishing wheels, of a body portion having a receptacle at its lower end, an exhaust-pipe, a shield pivoted to the upper end of the body portion and extending partly over the wheel, and means for locking said shield in its adjusted position, substantially as described.

787,341. **GAS-ENGINE STARTER.** REUBEN A. MITCHELL and LESTER L. LEWIS, Oil City, Pa. Filed Oct. 29, 1903. Serial No. 179,075.



Claim.—1. In a gas-engine starter, the combination with a gas-engine, of a plurality of tanks, a tube communicating with said gas-engine, an exhaust-valve interposed in said tube, tubing extending from said tanks and communicating with said tube, and a valve controlling communication between said tubing and the first-mentioned tube.

2. In a gas-engine starter, the combination with a gas-engine, of a plurality of tanks, a valve-casing, tubes extending from said tanks to said casing, a pipe leading from said casing to said engine, and means within said valve-casing for successively establishing communication between said tubes and pipe.

3. In a gas-engine starter, the combination with a gas-engine, of a plurality of tanks, a pipe communicating with said engine, tubing establishing communication between said tanks and pipe, a multiple-passage valve controlling communication between said tubing and pipe, and exhaust mechanism interposed in the length of said pipe.

4. In a gas-engine starter, the combination with a gas-engine, of a compressed-air tank, means of communication between said tank and engine, a pipe extending longitudinally through the interior of said tank, and an apertured gas-supply pipe extending into said pipe.

5. In a gas-engine starter, the combination with a gas-engine, a plurality of tanks, a tube communicating with said gas-engine, a tube extending from each of said tanks and communicating with said first-mentioned tube, and a valve controlling said communication formed with a plurality of passages adapted to be brought into line with the first-mentioned tube and with the respective last-mentioned tube.

6. In a gas-engine starter, the combination with a gas-engine of a plurality of sources of pressure-supply, a valve-casing, a pipe leading from each of said sources and communicating with said valve-casing, a valve within said casing formed with a number of passages equal to the number of said tubes, and a pipe extending from said casing to said cylinder.

7. In a gas-engine starter, the combination with a gas-engine, of a plurality of sources of pressure-supply, a coupling, a conduit leading from each of said sources of pressure-supply to said coupling, a conduit extending from said coupling to said cylinder, and means within said coupling for establishing communication between said last-mentioned conduit and said first-mentioned conduits successively.

8. In a gas-engine starter, the combination with a gas-engine, of a plurality of compressed-air-storage tanks, heating means therefor, a coupling, a conduit leading from each of said tanks and communicating with said coupling, a pipe leading from said coupling to said cylinder, and a valve in said coupling formed with a plurality of passages designed to register successively with said conduits for establishing communication between said pipe and the conduits.

9. In an explosive-engine starter, the combination with an explosive-engine, of a compressed-air reservoir in communication with said engine, and means for heating the air within said reservoir.

10. In an explosive-engine starter, the combination with an explosive-engine, of a compressed-air reservoir, means of communication between said reservoir and engine, means for heating the air within said reservoir, and means for controlling the discharge of heated air from said reservoir to said engine.

11. In an explosive-engine starter, the combination with an explosive-engine, of a compressed-air reservoir of less containing capacity than that of the cylinder of said engine, means for heating the air within said reservoir, and means for admitting the heated air from said reservoir to said engine.

12. In an explosive-engine starter, the combination with an explosive-engine, of a compressed-air-supply reservoir, means for heating the supply of air within said reservoir, and means for introducing the same into the cylinder of said engine for imparting the initial stroke to the piston of said engine.

13. In an explosive-engine starter, the combination with an explosive-engine, of means for introducing heated, compressed air into said engine for imparting the initial stroke to the piston thereof.

14. In an explosive-engine starter, the combination with an explosive-engine, of a reservoir for containing compressed air, means for raising the temperature of said compressed air to a superheated condition for multiplying the pressure thereof, and means for introducing such superheated air to the cylinder of said explosive-engine for imparting the initial stroke to the piston thereof.

15. In an explosive-engine starter, the combination with an explosive-engine, of a relatively small compressed-air tank, means for superheating the compressed air therein, and means for introducing the charge of superheated, compressed air into the cylinder of said engine for imparting the initial movement to the piston therein.

16. In an explosive-engine starter, the combination with an explosive-engine, of a compressed-air tank, means for heating all parts of the contained air substantially simultaneously for raising the same to a superheated condition, and means for introducing said superheated, compressed air into the cylinder of said engine for imparting the initial stroke to the piston within said cylinder.

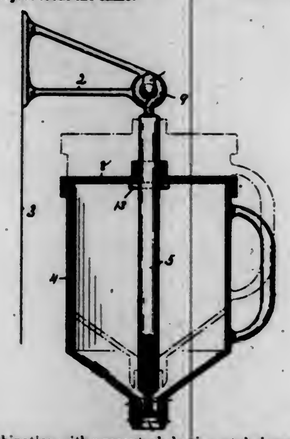
17. In an explosive-engine starter, the combination with an explosive-engine, of a compressed-air reservoir, a heating apparatus for raising the temperature of the air within said reservoir, the combustion of the heating means being supported by oxygen supplied from outside said reservoir, and means for establishing communication between said reservoir and engine.

787,342. **SOAP-DISPENSING MACHINE.** WILLIAM B. MOORE, Jersey City, N. J. Filed July 25, 1904. Serial No. 217,929.

Claim.—1. The combination with a receptacle having a tubular exit, of a plunger having an interior portion fitting said exit and adapted to pass therethrough and project from the same, said plunger having a reduced portion at the outer end of said interior portion, and a head beyond said reduced portion.

2. The combination with a receptacle having a tubular exit, of a plunger having at its extremity a head normally closing said exit, said plunger having adjacent to said head a reduced portion normally lying partly in the exit and partly in the receptacle, and having

an interior portion fitting the exit and adapted to pass freely therethrough and project from the same.



3. The combination with a receptacle having a tubular exit with a radially-enlarged outer portion forming at its inner end a stop, of a plunger having an interior portion fitting said exit and adapted to pass freely therethrough and project from the same, and having at its extremity a head fitting the enlarged portion of the exit and adapted to engage said stop, and having between said inner portion and head a reduced portion of greater length than the smaller portion of the exit.

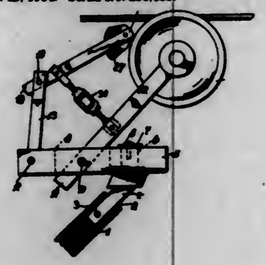
4. The combination with a receptacle having a tubular exit with a radially-enlarged outer portion forming at its inner end a stop, of a plunger having an interior portion fitting said exit and adapted to pass freely therethrough and project from the same, and having at its extremity a head fitting the enlarged portion of the exit and adapted to engage said stop, and having between said inner portion and head a reduced portion of greater length than the smaller portion of the exit and of less length than the entire exit.

5. The combination with the receptacle having a central bearing at one end and an exit-tube at the other, a plunger arranged in said bearing and having a head normally lying in said exit-tube, said plunger having adjacent to its head a recessed portion lying in both the exit-tube and the receptacle and means for supporting the entire device by the upper end of said plunger.

6. The combination with a receptacle having a tubular exit, of a plunger having portions fitting said exit and being reduced or recessed between said portions, said portions being adapted to enter said exit one from each end and one of them to travel inward past the limit of travel of the other, whereby the entire inner surface of the exit is cleaned at each operation of the machine.

7. The combination with a receptacle having a tubular exit with two portions of different diameters, of a plunger having two portions adapted to fit, respectively, the said portions of the exit and being reduced between said portions, said two portions of the plunger being adapted at each operation of the plunger to travel over the entire inner surface of the exit, and the said larger portion serving as a stop.

787,343. **WIRE-REPLACER FOR TROLLEYS.** WILLIAM PECK, Steubenville, Ohio, assignor of one-half to W. W. Harper, Toronto, Ohio. Filed Dec. 13, 1904. Serial No. 236,683.



Claim.—1. A device of the type set forth comprising a revoluble platform, a harp mounted upon said platform, a wheel journaled in said harp, a fork pivotally mounted upon said platform, grooved wheels mounted in said fork, means for adjusting said fork in respect to said harp, substantially as described.

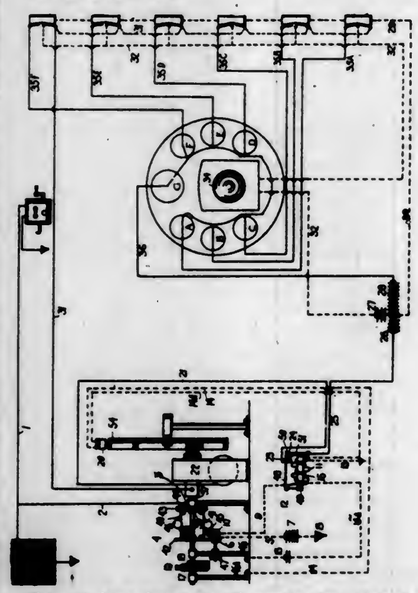
2. A device of the type set forth, comprising a revoluble platform, a harp carried by said platform, a trolley-wheel journaled in said harp, a fork pivotally mounted upon said platform, spirally-grooved wheels rotatably mounted within said fork, means whereby said wheels may slide within said fork, and means for adjusting the inclination of said fork, substantially as described.

3. In a device of the type set forth, the combination with a trolley-pole and a harp, of a revoluble platform carried by said pole, a fork pivotally mounted upon said platform, revoluble reciprocating wheels mounted in said fork, and means for adjusting the inclination of said fork, in respect to said harp.

4. The combination with a trolley-pole, and a trolley-harp having a wheel journaled therein, of a platform rotatably mounted upon said pole, a fork pivotally mounted upon said platform, revoluble reciprocating cone-shaped wheels mounted within said fork, said wheels having spirally-arranged grooves formed therein, and means for adjusting the inclination of said fork, substantially as described.

5. The combination with a trolley-pole and a trolley-harp having a wheel journaled therein, of a rotatable platform carried by said pole, a fork pivotally mounted upon said platform, said fork having grooves formed therein, rotatable cone-shaped spirally-grooved wheels mounted in said grooves, and means for adjusting the inclination of said fork, substantially as described and for the purpose set forth.

787,844. **ELECTRICAL FIRE-ALARM APPARATUS.** JAMES P. ROBERTSON, Sydney, New South Wales, Australia. Filed Aug. 13, 1902. Serial No. 119,571.



Claim.—1. In an alarm system, the combination with local signal transmitting mechanism comprising telephonographic signal-transmitting devices and an electric motor for operating the same, and a line-circuit for connecting said signal-transmitting mechanism with a distant station, of a local circuit supplying current to drive said motor, and a primary actuating device controlling said local circuit.

2. In a fire-alarm system, the combination with local signal-transmitting mechanism comprising telephonographic signal-transmitting devices and an electric motor for operating the same, and a line-circuit for connecting said signal-transmitting mechanism with a distant station, of a local circuit supplying current to drive said motor, and a thermostat controlling said local circuit.

3. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a main signal-transmitting device driven thereby, and means for transmitting a calling-signal comprising centrifugal contact mechanism operated by said motor, of a local circuit controlling said motor, and a primary actuating device controlling said local circuit.

4. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a main signal-transmitting device driven thereby, and means for transmitting a calling-signal comprising centrifugal contact mechanism operated by said motor, of a local circuit controlling said motor, and a thermostat controlling said local circuit.

5. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, main signal-transmitting circuit-varying means driven thereby, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and another contact in circuit with said main signal-transmitting circuit-varying means, of a primary actuating device and means operated thereby controlling said motor.

6. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, main signal-transmitting circuit-varying means driven thereby, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and another contact in circuit with said main signal-transmitting circuit-varying means, of a thermostat and means operated thereby controlling said motor.

7. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, main signal-transmitting circuit-varying means driven thereby, a local circuit controlled by said signal-transmitting device, an induction-coil arranged to connect said local circuit inductively with the line-circuit, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and a main-line contact, arranged respectively to transmit a calling-signal through the line and to complete the line-circuit through the induction-coil, and a local-circuit contact arranged to complete the said local circuit, of a primary actuating device and means operated thereby controlling said motor.

8. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, main signal-transmitting circuit-varying means driven thereby, a local circuit controlled by said signal-transmitting device, an induction-coil arranged to connect said local circuit inductively with the line-circuit, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and a main-line contact, arranged respectively to transmit a calling-signal through the line and to complete the line-circuit through the induction-coil, and a local-circuit contact arranged to complete the said local circuit, of a thermostat and means operated thereby controlling said motor.

9. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a telephonographic signal device driven thereby, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and another contact controlling the transmission of signals from said main signal-transmitting circuit-varying means through the line, of a primary actuating device and means operated thereby controlling said motor.

10. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a telephonographic signaling device driven thereby, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and another contact controlling the transmission of signals from said main signal-transmitting circuit-varying means through the line, of a thermostat and means operated thereby controlling said motor.

11. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a telephonographic signaling device driven thereby, a local circuit connected to said telephonographic signaling device, an induction-coil arranged to connect said local circuit inductively with the line-circuit, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and a main-line contact, arranged respectively to transmit a calling-signal through the line and to complete the line-circuit through the induction-coil, and a local-circuit contact arranged to complete the said local circuit, of a primary actuating device and means operated thereby controlling said motor.

12. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a telephonographic signaling device, an induction-coil arranged to connect said local circuit inductively with the line-circuit, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a ringing-contact and a main-line contact, arranged respectively to transmit a calling-signal through the line and to complete the line-circuit through the induction-coil, and a local-circuit contact arranged to complete the said local circuit, of a thermostat and means operated thereby controlling said motor.

13. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor having an electric controlling-circuit, main signal-transmitting circuit-varying means driven thereby, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a contact arranged to operatively connect said main signal-transmitting circuit-varying device with the line-circuit, of an automatic cut-out relay in the line-circuit, having contacts in the controlling-circuit of said motor, said relay arranged to respond only to incoming signals, and a primary actuating device controlling said motor.

14. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor having an electric controlling-circuit, a telephonographic signaling device driven thereby, a local circuit connected to said telephonographic signaling device, an induction-coil arranged to connect said local circuit inductively with the line-circuit, and centrifugal circuit-closing mechanism likewise driven by said motor, comprising a main-line contact adapted to complete the line-circuit through said induction-coil, said induction-coil having an armature and contacts in the said motor-controlling circuit, and constituting a cut-out relay arranged to respond only to incoming signals, of a primary actuating device controlling said motor-controlling circuit.

15. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, main signal-transmitting means driven thereby, and circuit-closing mechanism likewise driven by the motor comprising means for completing a ringing-contact while the motor is at low speed and for breaking the ringing-contact and completing a contact controlling transmission of signals from said main signal-transmitting means through the line, when the motor reaches higher speed, of a primary actuating device and means operated thereby controlling said motor.

16. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, main signal-transmitting means driven thereby, and circuit-closing mechanism likewise driven by the motor comprising means for completing a ringing-contact while the motor is at low speed and for breaking the ringing-contact and completing a contact controlling transmission of signals from said main signal-transmitting means through the line, when the motor reaches higher speed, of a thermostat and means operated thereby controlling said motor.

17. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmit ting mechanism comprising a motor, a telephonographic signaling device driven thereby comprising a movable actuating member and a combined reproducer and telephone-transmitter having a single

diaphragm performing the functions both of a reproducer-diaphragm and of a transmitter-diaphragm, and contacts controlling the transmission of signals through the line, of a primary actuating device and means operated thereby controlling said motor.

18. In a fire-alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a telephonographic signaling device driven thereby comprising a movable actuating member and a combined reproducer and telephone-transmitter having a single diaphragm performing the functions both of a reproducer-diaphragm and of a transmitter-diaphragm, and contacts controlling the transmission of signals through the line, of a thermostat and means operated thereby controlling said motor.

19. In an alarm system, the combination with local signal-transmitting mechanism comprising a telephonographic signaling device and a motor for operating the same, and a line-circuit for connecting said signal-transmitting mechanism with a distant station, of a local circuit for supplying current to drive said motor, a plurality of primary actuating devices each controlling said local circuit, and a plurality of local signaling devices, one for each of said primary actuating devices and controlled thereby.

20. In a fire-alarm system, the combination with local signal-transmitting mechanism comprising a telephonographic signaling device and a motor for operating the same, and a line-circuit for connecting said signal-transmitting mechanism with a distant station, of a local circuit for supplying current to drive said motor, a plurality of thermostats each controlling said local circuit, and a plurality of local signaling devices, one for each of said thermostats and controlled thereby.

21. In an alarm system, the combination with local signal-transmitting mechanism comprising a motor for operating the same, and a line-circuit for connecting said signal-transmitting mechanism with a distant station, of a local circuit controlling said motor, a plurality of primary actuating devices each controlling said local circuit, local signaling means comprising local signaling devices connected one in circuit with each of said primary actuating devices, and another signaling device connected in multiple circuit with all of said primary actuating devices, said primary actuating devices arranged to set in operation both the local signaling devices and the local signal-transmitting mechanism.

22. In a fire-alarm system, the combination with local signal-transmitting mechanism comprising a motor for operating the same, and a line-circuit for connecting said signal-transmitting mechanism with a distant station, of a local circuit controlling said motor, a plurality of thermostats each controlling said local circuit, local signaling means comprising local signaling devices connected one in circuit with each of said thermostats, and another signaling device connected in multiple circuit with all of said thermostats, said thermostats arranged to set in operation both the local signaling devices and the local signal-transmitting mechanism.

23. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor and means for transmitting calling and main signals driven thereby, of a primary actuating device and means operated thereby controlling said motor, and automatic repeating mechanism, likewise controlling said motor, arranged to cause repetition both of the calling and of the main signals.

24. In an alarm system, the combination with local signal-transmitting mechanism and a line-circuit for connecting said signal-transmitting mechanism with a distant station, said signal-transmitting mechanism comprising a motor, a main signal-transmitting device driven thereby, and means for transmitting a calling-signal comprising centrifugal contact mechanism operated by said motor, of a primary actuating device, means operated thereby controlling said motor, and automatic repeating mechanism likewise controlling said motor and arranged to cause repetition both of the calling and of the main signals.

25. In an alarm system, the combination with local signal-transmitting mechanism and a line conductor for connecting said signal-transmitting mechanism with a distant station, of automatic stopping means therefor connected with the same line conductor and arranged to respond only to incoming signals.

26. In an alarm system, the combination with local signal-transmitting mechanism, a line conductor for connecting said signal-transmitting mechanism with a distant station, and a local circuit controlling the operation of said signal-transmitting mechanism, of a stopping device controlling said local circuit and connected to the same line conductor and arranged to respond only to incoming signals in the circuit including said line conductor.

27. In an alarm system, the combination with local signal-transmitting mechanism comprising an electric motor, a local circuit for supplying current to drive said motor, and a line conductor for connecting said signal-transmitting mechanism with a distant station, of an automatic switch connected to the same line conductor arranged when operated to break said local circuit, and arranged to respond only to incoming signals in the circuit including said line conductor.

28. In an alarm system, the combination with an induction-coil, local signal-transmitting mechanism, and a local circuit operated thereby and passing through the primary of said induction-coil, of a line conductor for connecting said signal-transmitting mechanism with a distant station, connected to the secondary of said coil, a local circuit controlling the operation of said signal-transmitting mechanism, and contact mechanism operated by said induction-coil as a magnet connected to said local circuit, said contact mechanism arranged to be operated only by incoming signals in the circuit of said secondary coil.

787,345. PHASE-ROTATION INDICATOR. RUDOLPH F. SCHUCHARDT, Chicago, Ill. Filed May 13, 1904. Serial No. 207,558.



Claim.—1. A device of the class specified, comprising means operable by the energy of a polyphase system, and means whereby such operation can be interpreted to indicate the direction of phase rotation with reference to the leads of said system, substantially as described.

2. A device of the class specified, comprising a movable member, means whereby said member is moved in different directions by the energy of polyphase systems, and means whereby such different movements can be interpreted to indicate the direction of phase rotation with reference to the leads of said system, substantially as described.

3. A device of the class specified, comprising a rotary member, means whereby said member can be given a rotative movement in one direction or another according to the direction of phase rotation, and means whereby such rotative movements can be interpreted to indicate the direction of phase rotation with reference to the leads of said system, substantially as described.

4. A device of the class specified, comprising a rotary member, means whereby said member can be rotated in opposite directions according to the direction of phase rotation, a pointer carried by said rotary member, and a card or tablet bearing inscriptions to indicate the direction of phase rotation relatively to the leads of the system according as the pointer moves in one direction or the other, substantially as described.

5. A device of the class specified, comprising a rotary member, means whereby said member can be rotated in opposite directions according to the direction of phase rotation, a pointer carried by said rotary member, a card or tablet bearing inscriptions to indicate the phase rotation according as the pointer moves in one direction or the other, and a manually-operable index adapted to be set to indicate the direction in which the pointer has moved, substantially as described.

6. A device of the class specified, comprising a rotary member carrying a pointer, means whereby polyphase energy will give said rotary member a rotative movement in one direction or another according to the direction of phase rotation, a card bearing inscriptions to indicate the direction of phase rotation, an index in the form of a centrally-mounted rotary finger, and means for manually turning said finger, substantially as described.

7. A device of the class specified, comprising inductively-related members, one of which is mounted for rotation relative to the other, and means whereby the rotary movement of said member in opposite directions, can be interpreted to indicate the direction of phase rotation relatively to the leads of the system, substantially as described.

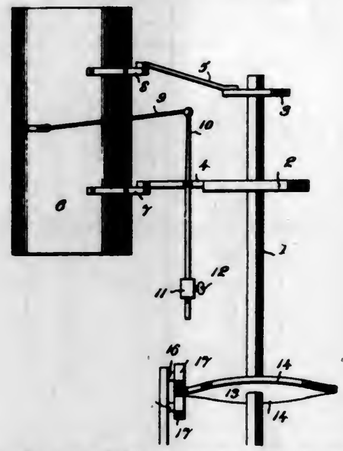
8. A device of the class specified, comprising an inductively-related field and armature, a pointer carried by the armature, and a card or tablet indicating the direction of phase rotation relatively to the leads of the system, substantially as described.

9. A device of the class specified, comprising an inductively-related field and armature, a pointer carried by the armature, a card or tablet indicating the direction of phase rotation relatively to the leads of the system, and stops for limiting the movement of the armature in opposite directions, substantially as described.

10. A device of the class specified, comprising an inductively-related field and armature, a pointer carried by the armature, a card or tablet indicating the direction of phase rotation which causes movement of the armature in opposite directions, and an index for marking the direction of movement of said pointer, substantially as described.

11. A device of the class specified, comprising an inductively-related field and armature, a pointer carried by the armature, a card or tablet indicating the direction of phase rotation which causes movement of the armature in opposite directions, stops for limiting the movement of the armature in opposite directions, and an index for marking the direction of movement of said pointer, substantially as described.

787,346. WIND-WHEEL. MARVIN A. SHARP and BIRD H. SHARP, Laporte, Tex. Filed Dec. 19, 1903. Serial No. 185,851.



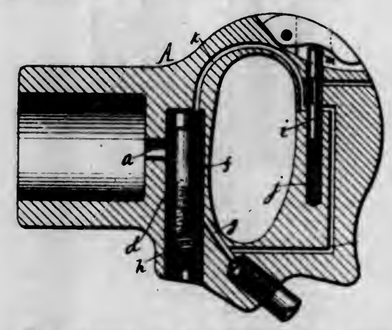
Claim.—In a windmill, the combination of a shaft, having hub-disks attached to the upper extremity thereof and spaced apart from each other, the disks being provided with rigid radial arms, curved blades hinged to the outer terminals of said arms at points above and below the horizontal centers of the said blades, depending levers fulcrumed at points intermediate of their lengths to the lower arms and located inside of the inner edges of the blades, said levers having counterpoise-weights adjustably held on their lower extremities, and connecting-rods movably attached to the upper ends of the levers and to the central portions of the sides of the blades, all of the connecting-rods being attached to the same sides of the blades.

787,347. HANDLE FOR PNEUMATIC TOOLS. JOSEPH H. TEMPLIN, New York, N. Y., assignor to Philadelphia Pneumatic Tool Company, a Corporation of New Jersey. Filed Sept. 22, 1903. Serial No. 174,160.

Claim.—1. The combination with the admission-valve of a pneumatic handle for chipping, riveting and other machines, of fluid-pressure means for opening said valve holding it open and for graduating its closing, and means constantly tending to close said valve against said opening means, said opening and closing means controlled by regulating the exhaust of the opening means.

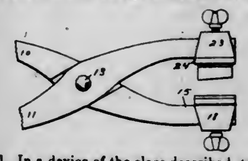
2. The combination with the admission-valve of a pneumatic handle for chipping, riveting and other machines, of fluid-pressure means for opening said valve, holding it open and for graduating its closing, and means constantly tending to close said valve against said opening means, said opening and closing means controlled by regulating the exhaust of the opening means by the hand of the operator.

3. The combination with the admission-valve of a pneumatic handle of chipping, riveting and other machines, of fluid-pressure means for opening said valve by pressure thereon, means constantly tending to close said valve against said opening means, means for exhausting said pressure, and means for controlling the exhaust by throttling it by the thumb or hand of the operator of the handle and thereby controlling the operation of the admission-valve.



4. The combination with the admission-valve of a pneumatic handle of chipping, riveting and other machines, of fluid-pressure means for opening said valve, means constantly tending to close said valve against said opening means, means for controlling said fluid-pressure consisting of a constant restricted air-supply and a normally open exhaust therefor adapted to be throttled by the thumb or hand of the operator for effecting operation of the admission-valve.

787,348. INTERCHANGEABLE MARKER AND PUNCH. EDDE J. HANSEN, Exira, Iowa. Filed Apr. 29, 1904. Serial No. 205,636.



Claim.—1. In a device of the class described, two jaws pivoted together, handles forming the rear portions of said jaws, a cutter-plate having a U-shaped member, a cutter-pad secured to the top portion of the U-shaped member, means for detachably securing the cutter-plate to said lower jaw, and a marking-blade attached to the upper jaw.

2. In a device of the class described, two jaws pivoted together, handles forming the rear portions of said jaws, a cutter-plate having a U-shaped member, a cutter-pad secured to the top portion of the U-shaped member, means for detachably securing the cutter-plate to said lower jaw, and a marking-blade detachably secured to the upper jaw.

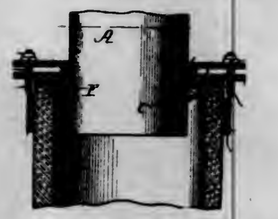
3. In a device of the class described, two jaws pivoted together, handles forming the rear portions of said jaws, a cutter-plate having a U-shaped member, a cutter-pad secured to the top portion of the U-shaped member, means for detachably securing the cutter-plate to said lower jaw, a marking-blade comprising a U-shaped member, a blade connected with the U-shaped member of any desirable size and shape, and means for detachably securing the marking-blade to the upper jaw.

REISSUES.

12,337. CONNECTION FOR SEWER AND SOIL PIPES. WILLIAM F. J. LUTZ, Chicago, Ill. Filed Aug. 26, 1904. Serial No. 222,186. Original No. 763,206, dated June 21, 1904.

Claim.—1. The combination with a sewer-pipe and a soil-pipe, which enters the same, of a joint or connection for said pipes comprising an upper and lower ring fitted over the end of the sewer-pipe and apertured to receive the soil-pipe, the lower one of said rings being provided with an annular flange around the soil-pipe to receive a packing which is adapted to be pressed by a part on the upper ring

to force said packing against said pipe, a packing between the lower ring and the sewer-pipe, and a single set of bolts for connecting the parts with the sewer-pipe and for clamping said packing against said pipes.



2. The combination with a sewer-pipe and a soil-pipe, which enters the same, of a joint or connection for said pipes comprising an upper and lower ring fitted over the end of the sewer-pipe and apertured to receive the soil-pipe, the lower one of said rings being provided with an annular flange which enters the sewer-pipe, and the other with an annular flange which enters the flange of the first ring, a gasket between the lower ring and the sewer-pipe, a second gasket between said two rings and bearing against the exterior surface of the soil-pipe, and a single set of bolts attached to the sewer-pipe and extending through alined apertures in said rings, and provided at their outer ends with nuts.

3. The combination with a sewer-pipe and a soil-pipe which enters the same, of a joint or connection for said pipes comprising an upper and lower ring fitted over the end of the sewer-pipe and apertured to receive the soil-pipe, the lower one of said rings being provided with an annular flange which enters the sewer-pipe, and the other with an annular flange which enters the flange of the first ring, a gasket between the lower ring and the sewer-pipe, a second gasket between said two rings and bearing against the exterior surface of the soil-pipe, a band encircling said soil-pipe and clamped thereto, and a plurality of bolts attached to said band and extending through alined openings in said rings and provided at their outer ends with clamping-nuts.

4. The combination with a sewer-pipe and a soil-pipe which enters the same, of a joint or connection for said pipe comprising two flat, generally parallel rings, made of greater diameter than the sewer-pipe, and apertured to receive the soil-pipe, the lower one of which is provided with a flange which enters the pipe, and the upper one with a flange which enters the flange of the first ring, a packing-ring between the lower ring and the end margin of the sewer-pipe, a second packing-gasket between said two rings and bearing against the exterior surface of the soil-pipe, and a single set of bolts for clamping said rings upon the pipe and together, and for compressing said gaskets, said rings entirely closing the end of the sewer-pipe and being free from overhanging pockets or recesses.

5. In a joint or connection between a sewer-pipe and a soil-pipe, the connection with suitable clamping members and gaskets surrounding the soil-pipe and closing the end of the sewer-pipe around the soil-pipe, of a metal band encircling said sewer-pipe and provided at its ends with parallel, laterally-extending lugs, a clamping-bolt extending through said lugs, a part interposed between said lugs laterally outside the bolt and a plurality of bolts attached to said band and extending upwardly through openings in said clamping members and provided at their upper ends with nuts.

6. In a joint or connection between a soil and a sewer pipe, the combination with suitable clamping members and gaskets surrounding the soil-pipe and closing the end of the sewer-pipe around the soil-pipe, of a metal band encircling the sewer-pipe and formed at its end to constitute parallel, laterally-extending lugs, the free end of one of said lugs being folded inwardly upon itself to engage the inner face of the other lug, a clamping-bolt extending through said lugs, and bolts attached to said band and extending upwardly through openings in said clamping members and provided at their outer ends with clamping-nuts.

DESIGNS.

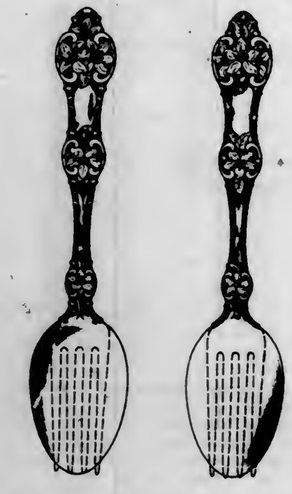
37,392. SPOON, FORK, OR SIMILAR ARTICLE. JAMES J. CONSON, Atlanta, Ga. Filed Mar. 17, 1905. Serial No. 250,687. Term of patent 7 years.

37,392.



Claim.—The ornamental design for a spoon, fork or similar article as shown.

37,393. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. FREDERICK HABENACK, Sag Harbor, N. Y., assignor to Fahys Watch Case Company, New York, N. Y., a Corporation of New York. Filed Feb. 2, 1905. Serial No. 243,893. Term of patent 7 years.



Claim.—The ornamental design for the handle of a spoon, fork or similar article, as shown.

37,394. POCKET-BOOK. JAY CLARENCE RYERSON, Wichita, Kans. Filed Feb. 7, 1905. Serial No. 244,664. Term of patent 7 years.



Claim.—The ornamental design for a pocket-book as shown.

37,395. TOY BANK. ADAM C. WILLIAMS, Ravenna, Ohio. Filed Feb. 26, 1904. Serial No. 195,482. Term of patent 14 years.



Claim.—The ornamental design for a toy bank as shown.

37,396. FONT OF TYPE. WILL BRADLEY, Concord, Mass., assignor to American Type Founders Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 15, 1905. Serial No. 250,235. Term of patent 14 years.

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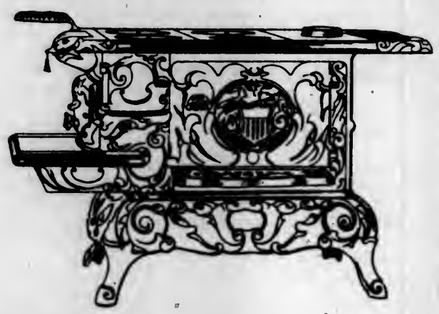
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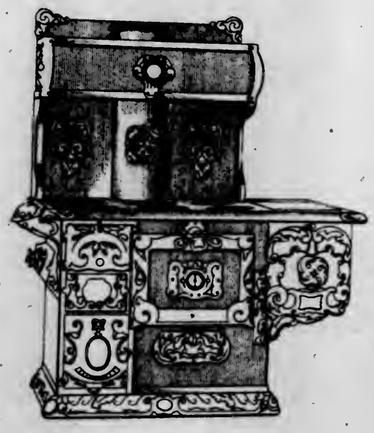
Claim.—The ornamental design for a font of type as herein shown.

37,397. COOKING STOVE OR RANGE. FRANK J. FREY, Quincy, Ill., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill., a Corporation. Filed Mar. 6, 1905. Serial No. 248,767. Term of patent 7 years.



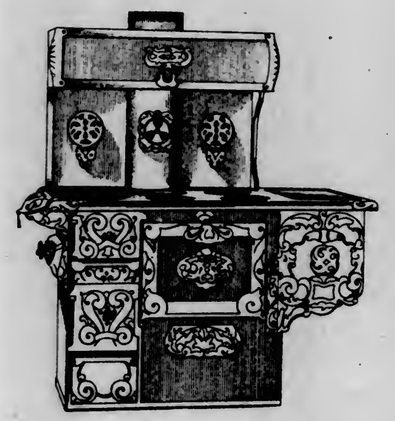
Claim.—The ornamental design for a cooking stove or range, as shown.

37,398. COOKING STOVE OR RANGE. MAX R. LEHMAN, Quincy, Ill., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill., a Corporation. Filed Mar. 6, 1905. Serial No. 248,772. Term of patent 7 years.



Claim.—The ornamental design for a cooking stove or range, as shown.

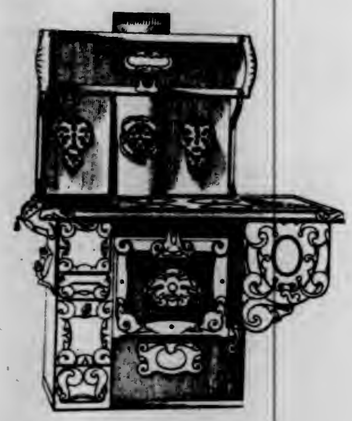
37,399. COOKING STOVE OR RANGE. MAX R. LEHMAN, Quincy, Ill., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill., a Corporation. Filed Mar. 6, 1905. Serial No. 248,773. Term of patent 7 years.



Claim.—The ornamental design for a cooking stove or range, as shown.

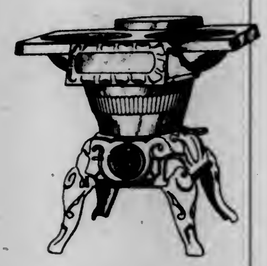
37,400. COOKING STOVE OR RANGE. MAX R. LEHMAN, Quincy, Ill., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill., a Corporation. Filed Mar. 6, 1905. Serial No. 248,774. Term of patent 7 years.

37,400.



Claim.—The ornamental design for a cooking stove or range, as shown.

37,401. STOVE. MAX R. LEHMAN, Quincy, Ill., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill., a Corporation. Filed Mar. 6, 1905. Serial No. 248,775. Term of patent 7 years.



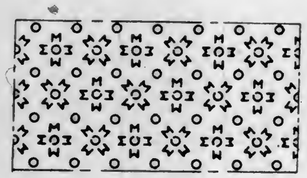
Claim.—The ornamental design for a stove, as shown.

37,402. HEATING-STOVE. MAX R. LEHMAN, Quincy, Ill., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill., a Corporation. Filed Mar. 6, 1905. Serial No. 248,776. Term of patent 7 years.



Claim.—The ornamental design for a heating-stove, as shown.

37,403. TEXTILE FABRIC. WILLIAM B. MCMECHEN, McMechen, W. Va. Filed Feb. 10, 1905. Serial No. 245,140. Term of patent 14 years.



Claim.—The ornamental design for textile fabric, as shown.

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NEW YORK

LABELS

REGISTERED APRIL 11, 1905.

12,028.—*Title:* "TAMPA CUSTOM HOUSE." (For Cigars.) D. A. SWITZER, Tampa, Fla. Filed February 28, 1905.

12,029.—*Title:* "GOOSE." (For Cigars.) EMIL STUTZ, Columbus, Ohio. Filed March 18, 1905.

12,030.—*Title:* "UNION TWIST." (For Cigars.) BATASTINI AND PACELLA CO., Chicago, Ill. Filed March 15, 1905.

12,031.—*Title:* "WENDEL'S SWISS LOZENGES." (For Swiss Lozenges.) HENRY EDWARD WENDEL, Philadelphia, Pa. Filed February 16, 1905.

12,032.—*Title:* "SINGLEY'S HAIR STRENGTH." (For Medicine.) BERNARD SINGLEY, Glens Falls, N. Y. Filed February 15, 1905.

12,033.—*Title:* "JAPANESE RAPID HEADACHE POWDERS." (For Medicine.) JAPAMER PHARMACAL COMPANY, St. Louis, Mo. Filed March 20, 1905.

12,034.—*Title:* "OWLARINO." (For Medicine.) WILLIAM F. BENTE, Denver, Colo. Filed March 9, 1905.

12,035.—*Title:* "FAGAN'S COMPOUND WINE OF TAR." (For Proprietary Medicines.) THOMAS F. E. FAGAN, Brooklyn, N. Y. Filed March 18, 1905.

12,036.—*Title:* "TALPA." (For Medicine.) THOMAS DYER, Providence, R. I. Filed March 18, 1905.

12,037.—*Title:* "MEXICAN RHEUMATIC OIL." (For Rheumatic Oil.) MAAR & JOHNSON, New York, N. Y. Filed March 15, 1905.

12,038.—*Title:* "BLEACHED MUSLIN." (For Bleached Cotton Goods.) JOHN S. BRITTAIN DRY GOODS COMPANY, St. Joseph, Mo. Filed February 21, 1905.

12,039.—*Title:* "JIU-JITSU WATER—'LITTLE JAP' FOOT EASE." (For Medicine.) W. M. BROCK, Birmingham, Ala. Filed March 20, 1905.

12,040.—*Title:* "BON TON,) "For Hose-Supporters.) CARSON, PIRIE, SCOTT AND COMPANY, Chicago, Ill. Filed March 18, 1905.

12,041.—*Title:* "BOY S FRIEND." (For Boots and Shoes.) MATHIASE J. MULLEN, Pittsburg, Pa. Filed March 21, 1905.

12,042.—*Title:* "U. S. FANCY PATENT." (For Flour.) THE COVINGTON GROCERY & GRAIN CO., LTD., Covington, La. Filed March 16, 1905.

12,043.—*Title:* "GOLD CREAM." (For Evaporated Cream.) HIRES CONDENSED MILK COMPANY, Malvern and Philadelphia, Pa. Filed March 15, 1905.

12,044.—*Title:* "COLONIAL CHOCOLATES." (For Confectionery.) REYMER & BROTHERS, INC., Pittsburg, Pa. Filed February 16, 1905.

12,045.—*Title:* "LITTLE STAR." (For Brooms.) CRITES BROOM MANUFACTURING COMPANY, Wichita Falls, Tex. Filed March 20, 1905.

12,046.—*Title:* "LITTLE LADY." (For Brooms.) CRITES BROOM MANUFACTURING COMPANY, Wichita Falls, Tex. Filed March 20, 1905.

12,047.—*Title:* "ANTI-FADE." (For a Certain Named Preparation.) JOHN SCHUTT, Jr., Buffalo, N. Y. Filed March 18, 1905.

12,048.—*Title:* "ROULETTE CARDS." (For Playing-Cards.) ALONZO K. FERRIS, New York, N. Y. Filed March 17, 1905.

12,049.—*Title* "EXCELSIOR RECORD." (For Talking-Machine Records.) INTERNATIONAL RECORD COMPANY, Yonkers and New York, N. Y. Filed March 11, 1905.

PRINTS

REGISTERED APRIL 11, 1905.

1,260.—*Title:* "PRINCE ALBERT AND ENGLISH WALKING FROCKS." (For Clothing.) BROKAW BROTHERS, New York, N. Y. Filed March 16, 1905.

1,261.—*Title:* "HAVE YOU VITOS, GOOD." (For Wheat Food.) PILLSBURY-WASHBURN FLOUR MILLS CO. LTD., Minneapolis, Minn. Filed March 10, 1905.

1,262.—*Title:* "PILLSBURY'S VITOS." (For Wheat Food.) PILLSBURY-WASHBURN FLOUR MILLS CO., LTD., Minneapolis, Minn. Filed March 10, 1905.

1,263.—*Title:* "CHEW AND SMOKE MAIL POUCH." (For Tobacco.) THE BLOCH BROTHERS TOBACCO CO., Wheeling, W. Va. Filed March 15, 1905.

1,264.—*Title:* "MAVERICK." (For Cigars.) WILLIAM FECHTELER, Kansas City, Mo. Filed September 19, 1904.

1,265.—*Title:* "WINE OF CARDUI." (For Medicine.) CHATTANOOGA MEDICINE CO., Chattanooga, Tenn. Filed March 21, 1905.

1,266.—*Title:* "U. S. SCORE PAD FOR THE GAME OF FIVE HUNDRED." (For Score-Pads.) THE UNITED STATES PLAYING CARD COMPANY, Cincinnati, Ohio. Filed March 14, 1905.

1,267.—*Title:* "SWIFT'S RETURN TUBULAR PORTABLE BOILER." (For Boilers.) EDWIN H. SWIFT, New York, N. Y. Filed March 20, 1905.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE NAEF.

Decided March 25, 1905.

1. ABANDONED APPLICATION—DELAY IN FILING PETITION FOR REVIVAL.

Where an applicant is notified that his application is *prima facie* abandoned for failure to act within the statutory period of one year and he delay spresenting a petition for revival for one year and a half thereafter without excuse, *Held* that the petition will be denied.

2. SAME—EXCUSE FOR DELAY MUST COVER WHOLE PERIOD.

The showing to warrant the revival of an abandoned case must include a sufficient excuse for the delay after the expiration of the year allowed by law as well as that before.

3. SAME—FAILURE TO ACT—MINISTERIAL DUTY OF EXAMINER—RECONSIDERATION.

Where no action whatever is taken by the applicant within the time fixed by law, the Primary Examiner is empowered to exercise no discretion upon the question of abandonment, but acts in a ministerial capacity, and therefore a letter asking him to reconsider his action holding the case abandoned is ineffective and improper.

4. SAME—INSUFFICIENT ACTION—EXAMINER'S DISCRETION.

Where action is taken on a case within the statutory period, but the Examiner holds that it is insufficient to save the case from abandonment, it is proper to ask for reconsideration, but such request should be made with diligence.

5. SAME—PAST DELAYS—EXCUSE FOR DELAY STRICTLY CONSTRUED.

Where it appears that in the past the applicant has availed himself of the full statutory period allowed him by law, he is not entitled to leniency in the consideration of excuses offered for delay in the last action.

6. SAME—MISTAKE IN OFFICE ACTION IMMATERIAL.

The allegation of a clerical error in the last Office action furnishes no excuse for delay in responding unless it is made to appear that the error misled the applicant and caused the delay.

ON PETITION.

METHOD AND APPARATUS FOR TREATING SOLID MATERIALS APPLICABLE TO THE MANUFACTURE OF GAS, COKE, ETC.

Mr. H. A. Seymour for the applicant.

ALLEN, *Commissioner:*

This is a petition from the Examiner's ruling that the above-entitled application is abandoned.

After three amendments each exactly or almost one year after the Office letter to which it was a reply a letter of rejection was written by the Examiner on June 30, 1902. No reply was made by the applicant until July 27, 1903, and he was thereupon informed that the application was abandoned. This petition was filed one year and a half thereafter, and it does not appear that any attempt has been made to excuse this delay.

The only action taken between the notice of abandonment and the filing of this petition was a letter from the attorney filed January 13, 1904, urging that the Examiner should enter and consider the amendment of July 27, 1903. This letter was clearly ineffective and not such action as called for by the condition of the case. Where there is a delay by the applicant of more than one year in acting upon a case, the application is *prima facie* abandoned, and the Examiner has no authority to revive it and act upon it as still pending, even where he is of the opinion that the delay was unavoidable. He has no discretion in the matter, but acts in a ministerial capacity in comparing the dates. The Commissioner is the only one authorized to exercise discretion and pass upon the excuse for the delay. It follows, therefore, that when the Examiner calls attention to a delay of more than one year the applicant's only remedy is by petition accompanied by affidavits setting forth the excuse for the delay. The applicant, furthermore, cannot delay such petition as a matter of right for the statutory period of one year, as he may an amendment, but must offer a sufficient excuse for any delay in presenting the petition, as well as the previous amendment. In other words, the delay after the expiration of the year, as well as that before, must be excused.

The Examiner's jurisdiction is, of course, more than ministerial where action is taken by the applicant within the year; but the Examiner regards the action as insufficient to save the case from abandonment. In such case it is proper to ask for reconsideration by the Examiner; but such request should be made with diligence and should be accompanied by a statement of reasons.

In the present case there is no affidavit of facts from which it can be concluded that the delay was unavoidable, either in presenting the amendment of July 27, 1903, or in presenting this petition. The delay is a long one, and the applicant is entitled to no leniency in the consideration of excuses offered, since he has, prior to abandonment, availed himself of the full statutory period allowed him by law.

In this petition attention is called to the fact that the Office letter of June 30, 1902, contained a clerical error in the serial number of this case; but it does not appear that such error misled the applicant or caused the delay. The error has not yet been corrected, and it is to be noted that the applicant seems to have no doubt now that this case was the one referred to, and it does not appear that he ever had any doubt. If such doubt existed, he could have dispelled it by communicating with this Office in regard to it.

The petition is denied.

EX PARTE ROBINSON.

Decided March 25, 1905.

1. PROSECUTION OF APPLICATION—AFFIDAVITS—ADMISSIBILITY.
   Where the claims in an application have not been rejected, *Held* that affidavits upon the patentability of the device are not in order.
2. SAME—SAME—SAME.
   Where affidavits are filed comparing the applicant's device with other devices not referred to by the Examiner or otherwise made pertinent to the case, *Held* that such affidavits are inconsequential to the patentability of the applicant's device and will be refused admission to the case.
3. SAME—SAME—SAME.
   Where claims are rejected on the ground of non-invention, affidavits offered in response to such rejection concerning the merits and efficiency of that for which a patent is sought will be admitted.

ON PETITION.

BRUSHES FOR PEELING VEGETABLES.

Mr. Harold S. Mackaye for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to admit and consider certain affidavits.

The applicant states that the affidavits are proposed in order to show the circumstances surrounding the origination of his device. In his opinion these circumstances are such as have been considered by the courts in other cases in determining the question of invention. The admission of the affidavits is urged as coming within the provisions of Rule 76, which authorize the admission of affidavits without the express authority of the Commissioner. It is requested, however, that in the event of an adverse decision upon the direct admissibility of the affidavits before the Primary Examiner their acceptance and consideration be specially authorized under the last clause of said rule.

Reference to the application file shows that the original claims were rejected on the grounds of anticipation and lack of invention in view of certain patents. The original claims have been canceled, however, and the claims now in the case have not been rejected, but are awaiting action by the Primary Examiner. The affidavits provided for by Rule 76 are those tending to overcome a ground of rejection or objection by reason of which a patent is withheld. If the Examiner when this case is reached for action finds the claims now presented to be allowable, there will be no reason for receiving the affidavits. Until the claims are rejected these affidavits are not in order and will not be received.

Upon reference to the affidavits themselves it is found that they contain comparisons of the applicant's device with other devices which, so far as appears, have not been referred to by the Examiner or been made pertinent to the present case in any other way. Such comparisons are entirely inconsequential to the question of the patentability of the applicant's device over the references now of record. The affidavits must also be refused admission on this ground.

If the Examiner when the case is reached for action rejects claims on the ground of non-invention, the applicant may undoubtedly present in response to such rejection and have admitted affidavits which include so much of the present affidavits as relate to the merits and efficiency of his device, but which omit the irrelevant statements made in these affidavits concerning the devices of others.

The petition is denied.

EX PARTE GIRARDOT.

Decided March 25, 1905.

APPLICATION—OATH—STATEMENTS CONCERNING FOREIGN APPLICATIONS AND PATENTS OF SAME INVENTOR.

Where the applicant in his oath cited his foreign application and stated that no other foreign application had been filed and that no patent had been granted upon an application filed in any foreign country more than twelve months before the date of the domestic application, *Held* that the applicant has made every allegation respecting his foreign applications and patents required by the rule or by the decision in the case of *ex parte Levenstein and Naef* (110 O. G., 1726) and the notice concerning this decision in the OFFICIAL GAZETTE, volume 110, page 2239, when said decision and notice are properly construed, and the requirement that he should further state that the foreign application was not filed more than twelve months prior to the filing of the domestic application is improper.

ON PETITION.

METHOD OF MOUNTING AND AUTOMATICALLY ADJUSTING THE LAMPS OF MOTOR ROAD-VEHICLES.

Messrs. Richards & Co. for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner objecting to the oath filed with the above-entitled application.

The Examiner's objection relates to the statements concerning the inventor's applications and patents in foreign countries. The inventor has sworn that he does not know and does not believe that the invention or discovery has been patented in any country foreign to the United States on an application filed twelve months before this application and that an application for patent upon his invention has been filed by him or his representatives or assigns in any country foreign to the United States, except one in France identified by date and number, the date given being within twelve months of the date of the application in this country. The Examiner's objection is that the oath does not positively state that the foreign application mentioned was not filed more than twelve months prior to the filing of this application.

The Examiner's position is not well taken. There is no good reason for requiring the applicant to state, in addition to the statements already made, that his foreign application was not filed more than twelve months before the filing of the application in this country. If the foreign application had been filed outside of the twelve-months period, the application here would nevertheless be entitled to full consideration, no patent having issued upon the foreign application. In citing his foreign application, in stating that no other foreign application has been filed and that no patent has been granted upon an application filed in any foreign country more than twelve months before the date of the domestic application the applicant has made every allegation respecting his foreign applications and patents required by the rule. The Examiner based his action upon *ex parte Levenstein and Naef* (110 O. G., 1726) and the notice concerning this decision published in the OFFICIAL GAZETTE, volume 110, page 2239. This decision and notice should not, however, be interpreted to require more than the applicant has already done in this case.

The petition is granted.

EX PARTE ALMY.

Decided March 29, 1905.

1. PROSECUTION OF APPLICATION—FINAL REJECTION.
   Where the application and the references present simple devices and the pertinence of the references and the Examiners' position with respect to the rejected claims has been repeatedly explained and it appears from the arguments filed that the issue between the applicant and the Examiner is clearly defined and the applicant is apparently not in doubt as to whether the features of his device upon which he relies to support the claims are disclosed in the references, but disagrees with the conclusion of the Examiner that these features do not render the claims allowable, and the claims were presented a second time with argument and without amendment, *Held* that the Examiner, adhering to his original opinion and having no new grounds of rejection to offer, very properly decided that the prosecution before him should close and made his action final.
2. SAME—AFTER FINAL REJECTION.
   The mere cancellation of the finally-rejected claims does not reopen the case for the prosecution of other claims.
3. SAME—SAME.
   In presenting cases without amendment for reconsideration applicants should contemplate the possibility of an adverse decision by the Examiner and be prepared thereupon to appeal to the Examiners-in-Chief or to abandon prosecution of the application except as may be necessary to put the case in condition for issue upon claims previously found by the Examiner to be allowable.

ON PETITION.

DISPLAY-RACK FOR ADVERTISING-CARDS.

Mr. Lewis J. Doolittle for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to admit a proposed amendment to the above-entitled application.

The Examiner refused to enter the proposed amendment because it was filed after final rejection. The applicant gives two reasons why, in his opinion, the proposed amendment should be entered. He points out, in the first place, that this amendment directs the cancellation of the finally-rejected claims and presents new claims in their stead. His second reason is that the final rejection was premature and improper in view of repeated requests for explanation of the Examiner's position, which, in the applicant's opinion, have not been fully and sufficiently responded to.

The argument that the case should be reopened after final rejection because the substitution of new claims for those finally rejected is directed is clearly without force. The final rejection is given to mark the close of the prosecution of the case before the Primary Examiner, not merely as to the claims finally rejected, but as to any other claims which the applicant may desire to present, except under extraordinary circumstances not appearing in this case. The mere cancellation of the finally-rejected claims does not reopen the case for prosecution of other claims.

The contention that the final rejection was not in order is not supported by the facts. The application and the references present simple devices. The pertinence of the references and the Examiner's position with respect to the rejected claims has been repeatedly explained. It appears from the arguments filed September 28, 1904, and November 8, 1904, that the issue between the applicant and the Examiner is clearly defined. The applicant is apparently not in doubt as to whether the features of his device upon which he relies to support the claims are disclosed in the references, but disagrees with the conclusion of the Examiner that these features do not render the claims allowable. The claims were presented a second time with argument and without amendment. The Examiner, adhering to his original opinion and having no new grounds of rejection to offer, very properly decided that the prosecution before him should close and made his action final.

I am of the opinion that the Examiner might well have answered more pertinently the specific questions contained in the applicant's letter filed September 28, 1904. The explanations given, however, were sufficient to have enabled the applicant to decide intelligently whether to amend his claims or to present them for reconsideration. More than this the applicant has no right to demand. In presenting cases without amendment for reconsideration applicants should contemplate the possibility of an adverse decision by the Examiner and be prepared thereupon to appeal to the Examiners-in-Chief or to abandon prosecution of the application except as may be necessary to put the case in condition for issue upon claims previously found by the Examiner to be allowable.

The petition is denied.

EX PARTE WIMMER.

Decided March 29, 1905.

SUFFICIENCY OF ACTION—REASONS FOR RECONSIDERATION.

Where an amendment is filed after an action on the merits and no reasons accompany that amendment in support of a request for reconsideration of claims not amended, but an argument is subsequently filed setting forth the reason of the applicant why, in his opinion, the Office should recede from its first rejection, and both the amendment and argument are filed within one year from the date of the rejection, *Held* that the actions taken by the applicant were sufficient to entitle him to further consideration.

ON PETITION.

SULFID PULP-MAKING SYSTEM.

Mr. Fred B. Fetherstonhaugh for the applicant.

ALLEN, *Commissioner:*

This is a petition from the refusal of the Examiner to act on an amendment filed after the first rejection of the claims originally submitted in the above-entitled application.

The Examiner is of the opinion that the applicant has not taken such action as the condition of the case requires, and he has refused for this reason to give consideration to the claims as amended. The records show that the application as originally presented contained four claims. All these claims were rejected by the Examiner. The applicant responded by filing an amendment canceling two claims, amending the two remaining claims, and inserting for the first time a new claim. The applicant did not accompany this amendment with a statement of reasons why the amendment avoided the previous objection. The Examiner called the applicant's attention to this fact, and the applicant responded by filing an argument setting forth quite fully his reasons for believing that the amendment warranted a favorable consideration of the claims.

As the applicant has not only amended the claims which are under rejection, but has submitted reasons why, in his opinion, the amended claims should be allowed, he is believed to have complied with the provisions of Rule 68 regarding the amendment of an application so as to entitle him to a further consideration.

The petition is granted.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

HOPE, JR., *v.* VOIGHT.

Decided February 7, 1905.

I. INTERFERENCE—CONCEPTION—EVIDENCE OF.

Where claims are advanced by a party of conception and disclosure at dates several years before any dates satisfactorily

EX PARTE ROBINSON.

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1. PROSECUTION OF APPLICATION—AFFIDAVITS—ADMISSIBILITY.
   Where the claims in an application have not been rejected, *Held* that affidavits upon the patentability of the device are not in order.
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2. SAME—AFTER FINAL REJECTION.
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   In presenting cases without amendment for reconsideration applicants should contemplate the possibility of an adverse decision by the Examiner and be prepared thereupon to appeal to the Examiners-in-Chief or to abandon prosecution of the application except as may be necessary to put the case in condition for issue upon claims previously found by the Examiner to be allowable.

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The contention that the final rejection was not in order is not supported by the facts. The application and the references present simple devices. The pertinence of the references and the Examiner's position with respect to the rejected claims has been repeatedly explained. It appears from the arguments filed September 28, 1904, and November 8, 1904, that the issue between the applicant and the Examiner is clearly defined. The applicant is apparently not in doubt as to whether the features of his device upon which he relies to support the claims are disclosed in the references, but disagrees with the conclusion of the Examiner that these features do not render the claims allowable. The claims were presented a second time with argument and without amendment. The Examiner, adhering to his original opinion and having no new grounds of rejection to offer, very properly decided that the prosecution before him should close and made his action final.

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The petition is denied.

EX PARTE WIMMER.

Decided March 29, 1905.

SUFFICIENCY OF ACTION—REASONS FOR RECONSIDERATION.

Where an amendment is filed after an action on the merits and no reasons accompany that amendment in support of a request for reconsideration of claims not amended, but an argument is subsequently filed setting forth the reason of the applicant why, in his opinion, the Office should recede from its first rejection, and both the amendment and argument are filed within one year from the date of the rejection, *Held* that the actions taken by the applicant were sufficient to entitle him to further consideration.

ON PETITION.

SULFID PULP-MAKING SYSTEM.

Mr. Fred B. Fetherstonhaugh for the applicant.

ALLEN, *Commissioner:*

This is a petition from the refusal of the Examiner to act on an amendment filed after the first rejection of the claims originally submitted in the above-entitled application.

The Examiner is of the opinion that the applicant has not taken such action as the condition of the case requires, and he has refused for this reason to give consideration to the claims as amended. The records show that the application as originally presented contained four claims. All these claims were rejected by the Examiner. The applicant responded by filing an amendment canceling two claims, amending the two remaining claims, and inserting for the first time a new claim. The applicant did not accompany this amendment with a statement of reasons why the amendment avoided the previous objection. The Examiner called the applicant's attention to this fact, and the applicant responded by filing an argument setting forth quite fully his reasons for believing that the amendment warranted a favorable consideration of the claims.

As the applicant has not only amended the claims which are under rejection, but has submitted reasons why, in his opinion, the amended claims should be allowed, he is believed to have complied with the provisions of Rule 68 regarding the amendment of an application so as to entitle him to a further consideration.

The petition is granted.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

HOPE, JR., *v.* VOIGHT.

Decided February 7, 1905.

1. INTERFERENCE—CONCEPTION—EVIDENCE OF.
   Where claims are advanced by a party of conception and disclosure at dates several years before any dates satisfactorily

proved and it appears that in the meantime manufacturers were demanding a device of the kind in issue and the party made no disclosure to such manufacturers nor any attempt to reduce to practice, but endeavored to sell patents upon prior devices and failed on the express ground that they did not possess the advantages found in the present invention, *Held* that said claims to early conception and disclosure are entitled to no consideration.

2. SAME—REDUCTION TO PRACTICE—PERFECTION OF EMBODIMENT OF THE INVENTION.

Where it was contended that a device was no more than a crude and experimental model, which was not fit for marketable use, the court found that it was a full-sized operative structure which, except for ornamentation and polish, was fit for commercial use and held the same to be a reduction to practice.

3. SAME—PRIORITY,

Held that the appellee Voight had conceived and disclosed the invention and reduced it to practice by May 6, 1902, whereas there is no satisfactory proof in the record that at any time before May 26, 1902, the appellant Hope had a conception of the invention. The decision appealed from awarding priority of invention to Voight affirmed.

Mr. Ellis Spear, Jr., and *Mr. James M. Spear* for the appellant.

Mr. R. C. Mitchell for the appellee.

MORRIS, *J.*:

This is an appeal from the Acting Commissioner of Patents in an interference case.

The matter of dispute is the ownership of an improvement in locks of the kind known in the trade as "unit locks," which are made in one integral piece. Patents for unit locks had been procured by John Hope, one of the parties to this contest, in 1889 and 1890; but the patents proved to be impracticable, for the reason that the locks were not adjustable to doors of different thickness. The element of adjustability is what makes valuable the improvement here in controversy, which is thus stated in two counts formulated in the proceedings in the Patent Office:

1. In combination, two separate frame-plates, separate knobs, roll-backs and slides mounted on said plates, and a latch-bolt operatively connected with said slides, whereby the said plates may be applied to doors of different thicknesses and the latch be operatively connected therewith.

2. In a lock, a frame arranged to be fitted to the outside of a door, another frame arranged to be fitted to the inside of a door, each of said frames carrying complete latch-operating mechanism arranged respectively outside and inside of said door and covered by said frames, a latch, said latch-operating mechanism being so secured thereto that the space between the frames may be varied without disconnecting either latch mechanism from the latch.

The appellant Hope claims to have conceived and disclosed the invention in January and February of 1890; to have made another disclosure of it in 1897, and still another in 1899; to have completed a model of it about June 4, 1902; and to have reduced it to practice about August 27, 1902. The appellee Voight filed a preliminary statement, which, for apparently good cause, he was allowed to amend; and the amended preliminary statement was to the effect that he conceived the invention about the middle of January, 1902; that he disclosed it about March 26, 1902; that the first structure embodying the features of the issue was completed about May 5, 1902; that no model was made as distinguished from a full-sized operative device; and that the first commercially made lock embodying said invention was completed about January 10, 1903.

Hope filed his application for a patent on December 22, 1902; Voight, on February 9, 1903.

The tribunals of the Patent Office with concurrent unanimity have awarded the merit of priority of invention to Voight; and Hope has appealed to this court.

We find no reason to disturb the conclusion reached by the Acting Commissioner of Patents, who sat in this case in the place of the Commissioner, fortified as it is by the concurrent decisions of the other tribunals of the Patent Office. We think that the testimony conclusively establishes the fact that, by the 6th of May, A. D. 1902, the appellee Voight had conceived and disclosed the invention and reduced it to practice; and we do not find that the appellant Hope had done anything until after that date to entitle him to the merit of invention. It is very true that the structure which was completed and exhibited by Voight on May 5, 1902, although fully conceded to contain the invention, is claimed on behalf of Hope to have been no more than a crude and experimental model, which was not fit for marketable use. But it was a full-sized operative structure; and except for the ornamentation and polish requisite for commercial use, it was for all the purposes of displaying the invention a full and complete reduction to practice. Of this there can be no reasonable doubt. The only question is as to what Hope did before or after the date mentioned, May 6, 1902.

As to Hope's claim that he had conceived and disclosed the invention as far back as 1890, and again in 1897 and 1900, no consideration is required by us. It appears that during all this time the manufacturers were demanding an adjustable lock, and that Hope had been attempting in vain to sell his patents of 1889 and 1890, and failed to succeed on the express ground that the lock which was required in the trade was a unit adjustable lock, which was not the kind of lock that was covered by the patents issued to him. Now, if during all this time he had a conception of the adjustable lock here in controversy, and had, as he claims, actually made disclosure of it, it is inconceivable that he should not have made disclosure of it to the manufacturers who sought the article, and even more inconceivable that he had made no effort to reduce it to practice. It is conceded by himself that all his experiments in that direction had been consigned to the scrap-heap. There is no satisfactory proof in the record that at any time before May 26, 1902, Hope had a conception of the invention. On that day he caused a wooden model of the invention to be commenced by a pattern-maker, which was completed about June 4, 1902; and based upon this model, there was a reduction of the invention to practice by him by the construction of a full-sized operative device on August 27, 1902. But all this had been anticipated by Voight's reduction to practice on May 5, 1902.

We think there was no error in the ruling of the tribunals of the Patent Office, and of the Acting Commissioner of Patents, whereby judgment of priority of invention was awarded to the appellee Voight; and we are of opinion that the judgment should be affirmed.

The clerk of the court will certify this opinion and the proceedings in this court in the premises to the Commissioner of Patents according to law. Affirmed.

Supreme Court of the District of Columbia.

MILLETT, REED, AND THE CROSBY STEAM GAGE & VALVE COMPANY *v.* FREDERICK I. ALLEN, COMMISSIONER OF PATENTS.

Decided March 11, 1905.

1. BILL IN EQUITY—SECTION 4915, REVISED STATUTES—RIGHT TO PATENT.

Bill in equity filed under section 4915, Revised Statutes, asking an adjudication that the complainants are entitled to a patent upon an alleged improvement in Bourdon tubes for steam-pressure gages, dismissed.

2. PATENTABILITY—STEAM-GAGE—LACK OF INVENTION.

Where the complainants ask for a patent upon a Bourdon tube for a steam-gage having a thin flattened middle portion and thickened ends provided with tapering screw-threads and it appears that before their alleged invention it was common in hydraulic gages to have tubes with thin flattened middle portions and thickened screw-threaded ends, and it appears, further, that it was common to use tapered screw-threads to make a steam-tight joint, *Held* that the complainants are not entitled to a patent.

3. SAME—SAME—DOUBLE USE.

Since it was common to use a tapered screw-threaded joint to make a steam-tight joint without solder, the substitution of this joint for the old soldered joint in a steam-gage when it was found desirable to make such gage without the use of solder was an obvious mechanical expedient involving no exercise of the inventive faculty.

4. SAME—SAME—SAME—SUBSTITUTION OF MECHANICAL EQUIVALENTS.

The use of a tapered screw-threaded joint on the Bourdon tube of a steam-gage is not a patentable invention in view of a prior patent showing a union-joint on such tubes, since the two joints are recognized mechanical equivalents in the art.

Mr. R. W. Foster and *Mr. W. H. Singleton* for the complainants.

Mr. John M. Coit for the defendant.

GOULD, *J.*:

This is a bill in equity filed under the provisions of section 4915, Revised Statutes of the United States, which gives the applicant for a patent, whose application has been refused by the Commissioner of Patents, the right to proceed in equity to establish his claim to a patent for his invention, and to that end to produce all competent evidence bearing upon his said invention. The history of the case is substantially as follows:

The complainants, Millett and Reed, as joint inventors, filed in the Patent Office on June 12, 1899, application No. 720,288, for a patent upon a steam-pressure gage. Their claims were rejected and on January 16, 1900, they filed a second application for the same device with amended claims. The second application was rejected, and on February 17, 1900, they filed a third application with amended claims. A copy of that application is found on pages 2 to 7 and page 22, of the transcript of record of the court of appeals, filed as an exhibit in this case. These claims having been rejected by the Examiner, appeal was taken to the Examiners-in-Chief, who affirmed the decision; appeal was then taken to the Commissioner of Patents, and from his decision to the Court of Appeals of the District, which affirmed the Commissioner, the opinion of the latter tribunal being reported in 18 D. C. App., 186. The present bill seeks a decree adjudging that the complainants are entitled to a patent upon one or more of the identical claims which have been passed upon by the tribunals above recited. This proceeding differs from that leading up to the final rejection of all the claims in that in this the complainants, as they had the right to do under the statute, have taken voluminous testimony in support of their contentions.

As I have stated, the alleged invention relates to steam-pressure gages. Such gages have a dial or face-plate like a clock, graduated and marked to indicate various pressures and a hand or pointer which is moved around that dial by the pressure of the steam. The steam passes into what is known as a Bourdon tube, so called from the name of the inventor. This tube is flattened, thin and circular. One end is fastened in a socket which is screwed into the boiler, and the other end is closed with a plug. The admission of steam from the boiler into the tube tends to straighten it by reason of and in proportion to the pressure. One end of the tube being fixed, the other moves, and that free end is connected by gearing to the spindle upon which the hand or pointer is mounted, so that the motion of the free end of the tube moves the hand and thus indicates on the dial the amount of pressure.

The complainants' alleged invention consists in the means for fastening the Bourdon tube to the socket which is attached to the boiler and the means for fastening in place the plug at the free end of the tube. Their specific contention is set forth in their bill as follows:

The invention consists in, or is the result of, taking a piece of the ordinary brass tube of commerce and turning it, with the exception of its ends, in a lathe to a thickness adapted to the uses intended in a pressure-gage. The ends of the tube are left to their original thickness and are cut by a taper thread for attachment to the tubular head and registering mechanism as aforesaid. The tube is then flattened throughout the turned portion, and curved to the form required. By means of these taper threads a joint is secured which is both firm and tight, though no solder is used, even when subjected to a very high degree of heat and steam-pressure.

The bill further recites that prior to the invention in question the Bourdon-tube spring employed in all steam-gages, was a brass tube of uniform thickness flattened throughout its length; and it was the custom to attach the flattened ends of this tube to the tubular head of the gage and to the registering mechanism of the gage by fitting one end of the tube over a projection of the tubular head, and the other end over a tip connected with the registering mechanism, and then soldering the joints. It further states that this practice is satisfactory where the steam-pressure is low and the tube itself protected against the introduction of steam. But when a high pressure is required to be measured, it is found that the severe heat melts the solder. It also states that for many years the complainants have been seeking a method of attaching a Bourbon-tube spring without the use of solder, and avers that they were unsuccessful until the device in question was discovered. Their claims are as follows:

1. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and held solely by frictional contact, as explained.

2. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and held by frictional contact, as explained.

3. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and held by a frictional binding-screw-joint connection, as explained.

4. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and tapering, as explained.

5. In a steam-gage, the Bourdon tube, D, having the threaded tapered end, *d*, in combination with the head, C, having the correspondingly-threaded tapered opening, c^2, as explained.

6. A Bourdon tube, having a reduced elastic portion and enlarged or reinforced threaded ends, in combination with a gage-case having threaded portions which engage the threaded ends of the tube.

7. The Bourdon tube, D, having the reduced elastic body portion, *d*, and the enlarged or reinforced end portions, in combination with the gage-case having correspondingly-threaded portions.

The defendant filed in answer denying that complainants, Millett and Reed, were "the original, first and joint inventors of the improvements in Bourdon-tube springs employed in steam or pressure gages" and alleging that all the material parts of the device were fully set forth in ten patents, described by name of inventor, serial number and date, which antedated complainants' application.

Before considering the voluminous testimony taken by appellants, it is instructive to examine the decision of the court of appeals to which reference has been made. It was there held that the invention of plaintiffs was anticipated by the application for a patent made by one Lane, which showed the device of said plaintiffs. And this decision

would be binding upon the court, except for a statement therein that—

If there was in fact a soldering in the device mentioned or shown in the Lane patent, and such soldering rendered that device essentially different from the invention of the appellants, it ought not to have been difficult to adduce some evidence of the fact. Whether, if shown, the fact of soldering would have differentiated the two devices, it is unnecessary for us to determine. The Commissioner of Patents was of the opinion that it would not have that effect.

So far as the fact of the use of soldering in the Lane patent is concerned, it may be taken as settled by the testimony that solder was intended to be used. (See Lane's testimony, p. 93 of record.)

Conceding, therefore, that there is testimony to the effect that Lane's patent involved the use of solder, it becomes necessary to consider the additional testimony taken by complainants upon which reliance is had to show invention. Briefly summarized, this is to the following effect: That prior to February, 1899, the only Bourdon-tube spring employed in steam-pressure gages was a flat one made of brass secured to the gage-socket and to the registering mechanism by a threadless, soldered joint; that under high pressure soldered joints are apt to melt and that for many years the complainant company (with which complainants Millett and Reed are officially connected) had been experimenting with a view to doing away with solder; that in February, 1899, Millett and Reed took a piece of cylindrical brass tubing, turned down and flattened its central portion, furnished its cylindrical ends with tapered threads, and screwed it to the gage-socket and to the registering mechanism of the gage. No solder was used and the tube-spring thus made worked successfully under high pressure; that there is a large and growing demand for the gages thus equipped and they are being adopted by numerous railroads, supplanting gages having soldered joints.

It will thus be seen that plaintiffs' claim to invention rests upon the following elements:

First. Turning down a round brass tube so that it shall have its central portion flattened, leaving cylindrical ends.

Second. Furnishing these cylindrical ends with tapered threads; the whole to form a steam-tight Bourdon-tube spring for a steam-gage without the use of solder.

In this connection, the testimony of one of the plaintiffs (Millett) becomes important:

At the time you conceived this idea, did you know of any Bourdon tube having thickened screw-threaded ends and thin flattened middle portions?

Ans. Yes; the Bourdon tube made of steel such as was used in the hydraulic gage.

Q. Had you used these tubes long in your factory?

Ans. Ever since the company was organized in 1875, in the same way and just as we do now.

Q. When Reed suggested tapering the screw-thread, was that the first time that you had ever heard of tapered threads to make a steam-tight joint?

A. No.

Q. You knew, then, that such threads would make a steam-tight joint?

A. Yes.

Q. Had your company been using tapered screw-threads on articles manufactured by it for use in connection with steam-boilers so that a steam-tight joint would be secured?

A. We had.

Q. How long have you used such threads?

A. Ever since the company has been in business.

Q. Do you use solder in those devices to make the joints steam-tight?

A. Probably not. (Record, p. 34.)

It is thus evident that what Millett and Reed did, and what they seek to have patented, is to make the tube for steam-gages in the same form in which they had been making for many years, a similar tube for hydraulic gages, *i. e.* with flattened center and cylindrical ends; and to insert in the cylindrical ends the tapering screw-joints which they had likewise for many years used on articles where a steam-tight joint was desired. Does this constitute invention?

It is well settled that a mere change in material does not involve invention. (*Hotchkiss* v. *Greenwood*, 11 How., 248.)

This would seem to cover the substitution of the flattened brass tube with cylindrical ends in the steam-gage for the similar steel tube used in the hydraulic gage.

Did the adaptation of the tapering screw-joint, used by plaintiffs on other articles manufactured by them where a steam-tight joint was required, to the ends of the tube in the steam-gage, where a similar joint was needed, involve invention, or was it merely an exercise of mechanical skill?

It does not seem to admit of doubt that the use of the tapered screw-threads in the Bourdon tube was an obvious mechanical expedient involving no exercise of the inventive faculty. Both plaintiffs, Millett and Reed, testify that for years prior to their alleged invention they had been using such threads on articles manufactured for use in connection with steam-boilers where a steam-tight joint was desired. They desired a steam-tight joint without solder on a Bourdon tube in a steam-gage and they used the tapered screw-joint they had been accustomed to use in such exigencies. The *form* of the tube they already used in their hydraulic gages; the tapered joint they used whenever a steam-tight joint was required. What more than mechanical skill was required or necessary to combine the two features in a steam-gage? The case seems to fall clearly within the principle laid down in *Penn. Ry. Co.* v. *Locomotive Engine Safety Truck Co.*, (110 U. S., 490,) in which Mr. Justice Gray says:

It is settled by many decisions of this Court, which it is unnecessary to quote from or refer to in detail, that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application and no result substantially distinct in its nature, will not sustain a patent, even if the new result has not been before contemplated.

And the English case of *Harwood* v. *Great Northern Ry. Co.*, (11 H. L. Cas., 654,) cited by Mr. Justice Gray on this point seems to bear a very close analogy to the case at bar.

This conclusion renders it unnecessary to discuss the numerous references cited by counsel for the Commissioner of Patents. It may be observed, however, that the English patent of Cowper, dated December 5, 1849, and offered as a reference; as interpreted by Reed, one of the complainants, in his testimony at page 71, shows a steam-tight joint (Exhibit 24). And that tapered threads and union-joints are recognized mechanical equivalents for making steam-tight joints is apparent from the fact that these plaintiffs show both as alternative forms in their present application for patent.

This case has been argued for complainants with great ability and earnestness and has received thorough consideration; but the court is unable to reach the conclusion that the elements added to the steam-gage either single or in combination, rise above the limit of mechanical skill. I will therefore sign a decree dismissing the bill.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 115—No. 7. TUESDAY, APRIL 18, 1905. PRICE—$5 per year.

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Trade-Marks	None.	
Labels	30	No. 12,050 to No. 12,079, inclusive.
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	.....	Nevada	.....	.....
Alaska Territory	.....	.....	New Hampshire	.....	.....
Arizona Territory	.....	.....	New Jersey	14	4
Arkansas	3	.....	New Mexico Ter't'y	.....	.....
California	15	.....	New York	85	1
Colorado	4	.....	North Carolina	5	.....
Connecticut	12	.....	North Dakota	2	.....
Delaware	.....	1	Ohio	35	3
District of Columbia	9	.....	Oklahoma Territ'y	.....	.....
Florida	.....	.....	Oregon	1	1
Georgia	8	.....	Pennsylvania	46	4
Hawaii Territory	1	.....	Porto Rico	.....	.....
Idaho	2	.....	Rhode Island	8	.....
Illinois	38	3	South Carolina	3	.....
Indian Territory	.....	.....	South Dakota	3	.....
Indiana	12	.....	Tennessee	2	1
Iowa	21	.....	Texas	7	1
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Louisiana	3	1	Virginia	2	.....
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Massachusetts	30	.....	Wisconsin	12	1
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Mississippi	2	.....	U. S. Navy	2	.....
Missouri	22	2			
Montana	1	.....	Total to citizens of the United States	475	28
Nebraska	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Netherlands	.....	.....
Austria-Hungary	2	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	1	.....
Brazil	.....	.....	New Zealand	1	.....
Canada	6	5	Norway	.....	.....
Cape Colony	.....	.....	Persia	.....	.....
Chile	.....	.....	Queensland	.....	.....
China	.....	.....	Roumania	.....	.....
Costa Rica	.....	.....	Russia	2	.....
Cuba	.....	.....	San Salvador	.....	.....
Danish West Indies	.....	.....	Scotland	4	.....
Denmark	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	13	.....	Sweden	2	.....
France	9	.....	Switzerland	.....	.....
Germany	30	.....	Transvaal, South Africa	1	.....
India	.....	.....	Victoria	.....	.....
Ireland	.....	.....	Western Australia	.....	.....
Italy	.....	.....			
Japan	.....	.....			
Java	.....	.....	Total to citizens of foreign countries	72	5
Mexico	.....	.....			

Attorneys.

(ORDER No. 1,638.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 10, 1905.

Pursuant to the provisions of section 487 of the Revised Statutes, and with the approval of the Secretary of the Interior, Howard J. Cowgill, formerly of Omaha, Nebr., but now of parts unknown, registry number 4181, is hereby disbarred from practice before the United States Patent Office for gross misconduct.

F. I. ALLEN,
Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 11, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Mar. 20	Mar. 27	185
327	XVIII. Steam-Engineering, etc....	Mar. 15	Mar. 20	181
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Store-Service, Tobacco, etc.	Mar. 13	Mar. 13	230
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel Gases, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Mar. 13	Mar. 10	470
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Mar. 13	Mar. 3	262
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Mar. 13	Jan. 27	633
244	XXXV. Baggage Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels, Photography.	Mar. 12	Mar. 28	324
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Mar. 11	Mar. 18	216
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Mar. 11	Mar. 16	188
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Surgery, Tents, Toilet, Umbrellas.	Mar. 11	Mar. 2	509
	Between one and two months.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Windwheels.	Mar. 8	Mar. 6	326
330	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Mar. 8	Feb. 9	548
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Mar. 7	Mar. 23	298
304	XXXIV. Railways, Railway-Brakes, Rolling-Stock.	Mar. 7	Mar 1	425
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Mar. 7	Feb. 25	441
321	I. Tillage, etc., Fences, and Railway Draft Appliances.	Mar. 6	Mar. 6	221
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Mar. 2	Feb. 14	368
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Harness, Ladders, Mechanical Motors, and Paper Manufactures.	Feb. 27	Jan. 18	515
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 23	Dec. 19	430
109	XVI. Telegraphy and Telephony..	Feb. 21	Feb. 6	250
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Feb. 15	Dec. 23	729
148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Feb. 14	Mar. 18	441

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Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
137	VIII. Beds, Chairs Furniture, Kitchen and Table Articles, Store Furniture.	Feb. 13	Feb. 13	643
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Optics, Signals, Time Controlling Mechanism.	Feb. 11	Feb. 15	490
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Feb. 11	Feb. 11	593
	Between two and three months.			
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Feb. 7	Feb. 1	400
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working.	Feb. 6	Mar. 6	420
332	X. Carriages and Wagons.....	Feb. 6	Mar. 6	466
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Feb. 2	Jan. 16	357
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 24	Feb. 1	635
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors, Pumps, Sewerage, and Water Distribution.	Jan. 24	Jan. 26	621
154	XI. Boot and Shoe Making, Boots, Shoes, and Leggings, Button, Eyelet and Rivet Setting, Leather Manufacturing, Nailing and Stapling, Check-Controlled Apparatus, Whips and Whip Apparatus.	Jan. 23	Jan. 19	447
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks, Sheet-Metal Ware, Making, Tools, Wire-Working.	Jan. 23	Dec. 28	353
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Jan. 20	Dec. 19	612
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Jan. 14	Jan. 5	804
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Jan. 13	Jan. 14	362
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Cutlery, Dentistry, Locks and Latches Safes, Undertaking.	Dec. 2	Dec. 7	619

Total number of applications awaiting action..... 16,012

	Under one month.			
159	XXXIII. DESIGNS, TRADE-MARKS, LABELS AND PRINTS.			
	Designs.....	Mar. 27	Apr. 10	41
	Trade-Marks.....	Apr. 1	Apr. 11	568
	Labels and Prints.....	Apr. 8	Apr. 10	7

Full Names of Applicants.

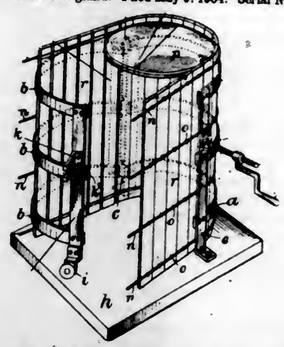
* * * All applications which disclose the full name of the applicant in the preamble of the specification will be received and considered as a sufficient compliance with Rule 40 of the Rules of Practice. (Order 521.)

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him. (Order 600.)

PATENTS

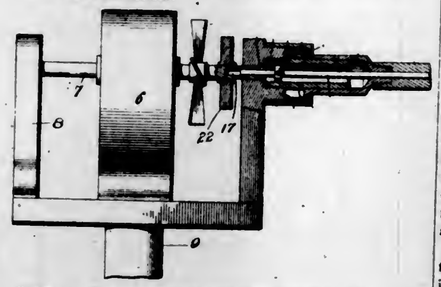
GRANTED APRIL 18, 1905.

787,349. APPARATUS FOR FORMING CASKS, BARRELS, OR OTHER SIMILAR RECEPTACLES MADE WITH STAVES. FRANK ALEXE, London, England. Filed May 9, 1904. Serial No. 207,068.



Claim.—In an apparatus of the character described, the combination with a base, of a vertically-arranged semicylindrical section fixedly secured at one end to the base, a vertically-arranged semicylindrical section having a pivotal connection at one of its vertical edges with a vertical edge of the fixed section, a roller mounted at the free end of the pivoted section and adapted to run upon the base, and means for drawing the movable section toward and locking it to the fixed section.

787,350. SHAFT ATTACHMENT FOR DENTAL MOTORS. WILLIAM B. ALFORD and EDWIN P. ALFORD, Sumter, S. C. Filed June 17, 1904. Serial No. 213,021.



Claim.—1. The combination with a driving-shaft and a support therefor, of a tube projecting from the support, a flexible shaft having a covering, and a sleeve at the end of the covering, slidable on said tube, to connect or disconnect the shafts.

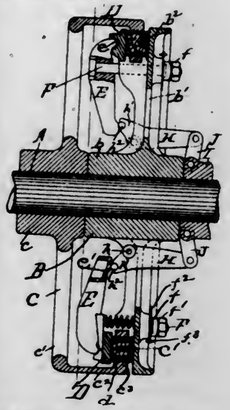
2. The combination with a drving-shaft and a support therefor, of a driven flexible shaft engageable with said shaft and having a covering, a tube secured to the support and into which the end of the flexible shaft extends, and a sleeve connecting the covering and the tube and slidable on the latter to connect or disconnect the shafts.

3. The combination with a driving-shaft, and a support having a bearing therefor, of an inner tube and outer sleeve projecting from the support around said bearing, and a flexible shaft engageable with the driving-shaft and having a tubular covering, and a sleeve at the end of said covering slidable between the tube and said outer sleeve, to engage or disengage the shafts.

4. The combination with a driving-shaft and a support therefor, of a flexible driven shaft engageable with the driving-shaft and having a tubular covering, and telescoping sleeves between the support and said covering, slidable in and out to engage or disengage the shafts, one of said sleeves having a stop to limit the outward movement.

5. The combination with a support, and a driving-shaft mounted in bearings therein and having a socket in the end, of a flexible shaft having a covering slidably connected to the support, and an end piece slidable in the socket, and constructed to engage or disengage the shafts.

787,351. FRICTION-CLUTCH. WILLIAM H. BROWN, Erie, Pa. Filed Nov. 21, 1902. Serial No. 132,221.



Claim.—1. In a friction-clutch the combination of the driven and driving members of the clutch, one of which has a projecting flange with the friction-surfaces thereon, and the other member having a friction-surface at the outside of the friction-surface of the flange; a friction-ring arranged within the flange and to operate upon the inside of the friction-surface of the flange; clutch-operating levers arranged within the flange in position to operate upon said ring; fulcrum-bolts extending intermediately of the ends of said levers to the member without the flange; and bell-crank levers arranged to operate upon said operating-levers.

2. In a friction-clutch the combination of a clutch-flange; a friction-ring arranged to operate upon the flange; a V-shaped lever having the ends of the arm arranged to operate upon said friction-ring; and means for operating said lever.

3. In a friction-clutch the combination of the friction-flange c^3; ring D arranged to operate on said flange; the V-shaped lever E having the arms arranged to operate upon the ring D; and a single lever mechanism at the apex of the V-shaped lever for operating both arms of the lever.

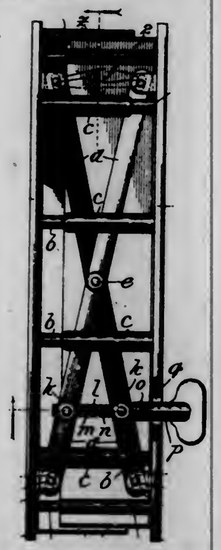
4. In a friction-clutch the combination of the member B, having the hub *b*, flange *b'*, and the friction-surface b^2; the member C having the hub *c*, web *c'*, projecting flange c^2, and inwardly-extending perforated friction-plate c^3; the friction-blocks C', arranged in said perforations; the section-ring D, arranged within the flange in position to operate upon said blocks C'; V-shaped levers E, having their outer arms arranged to operate upon the ring D; the fulcrum-bolts F; adjusting-nuts of said bolts F; and bell-crank levers arranged to operate upon the inner ends of the V-shaped levers.

787,352. **ARTIFICIAL TEETH.** COLIN T. CAMPBELL, Kentville, Canada. Filed Mar. 28, 1904. Serial No. 200,467.



Claim.—The combination, in vulcanite teeth, of a tooth having a perpendicular, circular, central cavity extending from the base of the tooth downward into the tooth, and an aperture extending at right angles from the central cavity outward to the palatal or lingual surface, and a groove circling both the central cavity and aperture obliquely, and a quarter-moon-shaped projection in the central cavity above the groove, with a removable U-shaped metallic spring-pin which fits into the groove, all as substantially set forth.

787,353. **LOOSE-LEAF BINDER.** CHARLES A. CARLSON, Chicago, Ill., assignor to Herbert B. Mounsey, Chicago, Ill. Filed June 24, 1904. Serial No. 214,016. (Model.)



Claim.—1. In a mechanism of the class described, the combination of a binding means comprising two relatively movable members, crossed levers having their ends operatively connected to such side members and provided with means for engaging a screw, and a screw operatively connected with such levers for oscillating them and thereby operating the side members, substantially as described.

2. In a mechanism of the class described, the combination of a binding means comprising two relatively movable side members, crossed levers pivoted at their longitudinal centers having their ends operatively connected with such side members, a back connected with the side members, and a screw operatively connected with such levers for operating them and thereby the side members, substantially as described.

3. In a loose-leaf binder, the combination of a pair of side binder-frames provided with binder-pin mechanism thereon, crossed levers pivoted together and having their ends operatively connected with such side binder-frames, and a screw operatively connected with such levers for operating them and thereby the side binder-frames, substantially as described.

4. In a loose-leaf binder, the combination of a pair of side binder-frames, a pair of levers pivotally connected together each having one end connected with each of such side binder-frames, a screw mounted between such side binder-frames, and means for operatively connecting such screw to such levers, substantially as described.

5. In a loose-leaf binder, the combination of a pair of side binder-frames provided with binder-pins extending therebetween, a pair of crossed levers pivotally connected together at their longitudinal center each having one end pivotally connected with each side binder-frame, an operating-screw mounted between such side binder-frames, and screw-engaging mechanism pivotally connected with such crossed levers and in threaded engagement with such screw, substantially as described.

6. In a loose-leaf binder, the combination of side binder-frames, lever mechanism connected with such side binder-frames, a pair of studs pivotally mounted upon oppositely-movable portions of such lever mechanism and provided with perforations for receiving a screw, and a screw mounted in such pivoted studs and extending at right angles with relation to the side binder-frames for operating such levers and thereby the side binder-frames, substantially as described.

7. In a loose-leaf binder, the combination of side binder-frames, lever mechanism connected with such side binder-frames, a pair of studs each provided with a threaded perforation therein and pivotally mounted upon adjacent oppositely-movable portions of such lever mechanism, and a screw provided with right and left screw-threads upon its opposite ends, respectively, in threaded engagement with such pivoted studs, substantially as described.

8. In a loose-leaf binder, the combination of side binder-frames, a pair of levers pivotally connected together each having one end connected with each side binder-frame, a pair of studs each pivotally mounted upon a separate lever at equal distances from the point at which such levers are pivotally connected and provided with threaded perforations having right and left screw-threads, respectively, and a screw provided with right and left screw-threads in threaded engagement with such pivoted studs, respectively, for operating the levers and thereby the side binder-frames, substantially as described.

9. In a loose-leaf binder, the combination of a pair of side binder-frames, a pair of levers pivotally connected together each having one end connected with each side binder-frame, a pair of studs each pivotally mounted upon a separate lever at equal distances from the point at which such levers are pivotally connected together and provided with threaded perforations having right and left screw-threads, respectively, a screw provided with right and left screw-threads in threaded engagement with such pivoted studs, respectively, for operating the levers and thereby the side binder-frames, and telescopic guides formed of tubes attached to one of such side binder-frames and pins attached to the other side binder-frame and extending slidably into the axial openings of such tubes, substantially as described.

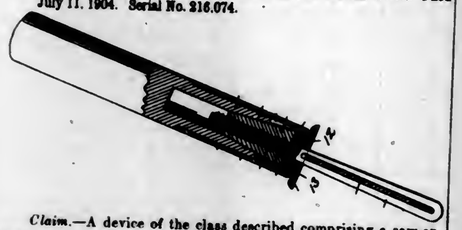
10. In a loose-leaf binder, the combination of side binder-frames, a pair of levers pivotally connected together each having one end connected with each side binder-frame, a pair of studs each pivotally mounted upon a separate lever at equal distance from the point at which such levers are pivotally connected and provided with threaded perforations having right and left screw-threads, respectively, a screw provided with right and left screw-threads in threaded engagement with such pivoted studs, respectively, for operating the levers and thereby the side binder-frames, and a back formed of two relatively movable portions each connected with one of such side binder-frames and extending in the direction of the opposite side binder-frame, substantially as described.

11. In a loose-leaf binder, the combination of side binder-frames provided with binder-pin mechanism mounted thereon, a pair of levers pivotally connected together at their longitudinal center and pivotally connected at their swinging ends with such side binder-frames, a pair of studs each pivotally mounted upon one of such levers and provided with right and left screw-threaded perforations, respectively, a screw provided with right and left screw-threads upon its opposite ends mounted in threaded engagement with such studs and extending at right angles to the side frames, a pair of separately-movable back portions each connected with one of such side binder-frames, and a pair of side cover-leaves each flexibly connected with a side binder-frame, substantially as described.

12. In a loose-leaf binder, the combination of a pair of side binder-frames provided with binder-pin mechanism mounted thereon, a pair of levers pivotally connected together at their longitudinal center and pivotally connected at their swinging ends with such side binder-frames, a pair of studs each pivotally mounted upon one of such levers and provided with right and left screw-threaded perforations respectively, a screw provided with right and left screw-threads upon its opposite ends mounted in threaded engagement with such studs and extending at right angles to the side frames, a pair of separately-movable back portions each connected with one of such side binder-frames, and a pair of side cover-leaves each provided with a flexible covering having an inner lap attached to the inner side of one of such side binder-frames and an outer lap extending around the outside of the side binder-frame and the back portion mounted thereon, substantially as described.

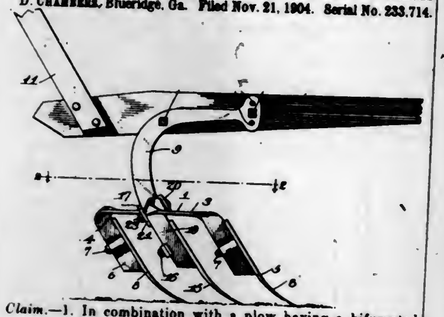
13. In a loose-leaf binder, the combination of side binder-frames, lever mechanism connected with such side binder-frames, a plurality of studs each pivotally mounted upon one of such levers, and a screw rotatably mounted in such pivoted studs for operating such levers and thereby the side binder-frames, substantially as described.

787,354. **SAW-HANDLE.** CHARLES CASSEL, Durbin, W. Va. Filed July 11, 1904. Serial No. 216,074.



Claim.—A device of the class described comprising a saw-engaging bar having a threaded stem, a handle having a terminal polygonal socket, a ferrule fitted to the handle and provided with an internally-threaded seat having a polygonal wedge-shaped exterior spaced from the walls of the ferrule and fitting the polygonal socket of the handle, an inner annular flange within the ferrule at the front of the seat, and a washer having a hub rotatable within the outer end of the ferrule and provided with an external annular groove receiving the flange of the ferrule.

787,355. **CULTIVATOR ATTACHMENT FOR PLOWS.** SAMUEL D. CHAMBERS, Blueridge, Ga. Filed Nov. 21, 1904. Serial No. 233,714.

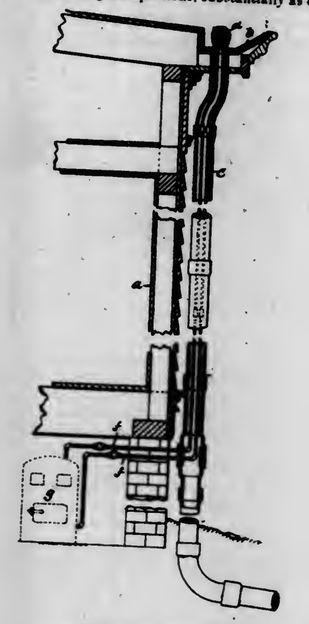


Claim.—1. In combination with a plow having a bifurcated standard, of an auxiliary beam having a loop externally engaging said standard and a holder fitted between the side members of the standard, said holder having a downturned lip engaging the front side of the loop and a downturned plate engaging the rear side of the standard; and connecting means.

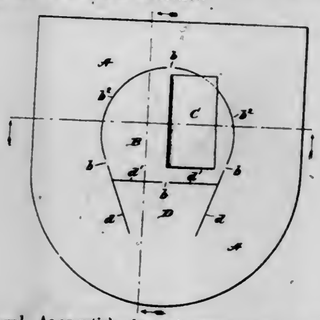
2. The combination of a plow having a bifurcated standard, an auxiliary beam having a loop externally engaging said standard, a resilient cuff constituting a holding device, said cuff including a body fitted between the members of the standard, a downturned lip engaging the front side of the loop and a downturned plate engaging the rear side of the standard, and a connecting-bolt.

787,356. **MEANS FOR HEATING AND MELTING.** JOHN COLLINS and JOHN FRALEY, Paterson, N. J. Filed Feb. 16, 1904. Serial No. 193,865.

Claim.—The combination of a water-conducting pipe, said pipe having a removable section provided with an enlarged portion forming a chamber in the pipe and said chamber having diametrically-opposed openings, plugs screwed into said openings and one of them having holes therethrough, and a tubular conductor for a heat-carrying medium having one section thereof disposed outside of said pipe and mounted at its ends in said holes in the plug and another section thereof disposed inside of said pipe and extending throughout substantially the length thereof, said last-named section comprising a vertical loop-shaped portion, substantially horizontal portions having their ends respectively mounted in said holes in the plug, and elbows connecting said portions, substantially as described.



787,357. **SANITARY DEVICE.** GEORGE H. DAVIS, Portland, Me. Filed May 10, 1904. Serial No. 207,267.



Claim.—1. As an article of manufacture, a sanitary device comprising a thin sheet having a removable central portion, and an auxiliary sheet or sheets of toilet-paper carried by said central portion.

2. As an article of manufacture, a sanitary device comprising a thin sheet having a removable central portion, and an auxiliary sheet or sheets of toilet-paper carried by said central portion, said thin sheet being folded to inclose the toilet-paper therewithin.

3. As an article of manufacture, a sanitary device comprising a thin sheet having a removable central portion, and an auxiliary sheet or sheets of toilet-paper carried by said central portion, said thin sheet being folded to inclose the toilet-paper therewithin and to protect the interior edges of the sheet.

4. As an article of manufacture, a sanitary device comprising a thin sheet adapted to overlie a closet-seat and having a removable portion, and a sheet or sheets of toilet-paper carried by said portion and removable therewith.

5. As an article of manufacture, a sanitary device comprising a thin sheet adapted to overlie a closet-seat and having a central portion designed to be removed to provide the usual opening, the securing means consisting of a few narrow widely-separated connecting-tabs intermediate the removable central portion and the main body

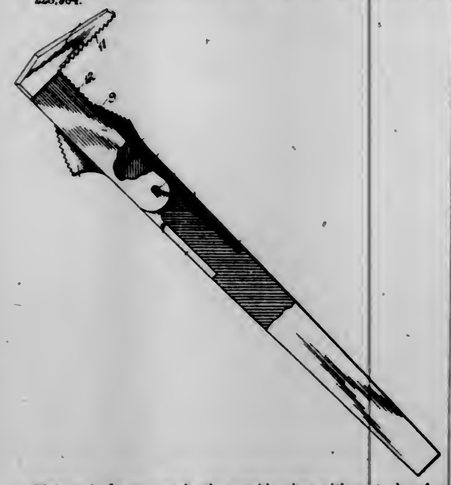
of the sheet, and a sheet or sheets of toilet-paper carried by said central portion, said sheets being folded to protect the interior edges and said securing means.

787,358. **BURGLAR-ALARM.** ALFRED A. DAY, Brockton, Mass. Filed Feb. 25, 1904. Serial No. 196,211.



Claim.—A burglar-alarm comprising a hammer element consisting of a single piece of material formed with eyes to receive attaching devices, fashioned at one end to provide a cap-support, having laterally-bent arms connected by a hammer guide-bar, bent laterally to form a dished hammer-support, coiled to provide a spring, and terminating in a free arm constituting a spring-hammer the end of which projects into the path of the trigger; and a trigger element provided with an incline to engage and release the hammer from its support, substantially as described.

787,359. **WRENCH.** JOSEPH DELANCY, Bucyrus, Ohio, assignor of one-half to F. A. Wise, Bucyrus, Ohio. Filed Sept. 10, 1904. Serial No. 223,984.



Claim.—1. In a wrench, the combination with a stock, of a swinging jaw pivoted to the stock at one end, a leaf-spring secured to the jaw and slidably extending longitudinally along one side of the stock, and a keeper extending transversely of the stock and across an intermediate portion of the spring, said spring having such intermediate portion slidably bearing against the keeper.

2. In a wrench, the combination with a stock having a tapered bifurcated head provided with serrated faces, said stock also having longitudinally-disposed slots in its opposite sides, which slots extend to the bifurcation, a swinging jaw having a stem located and pivoted in the bifurcation of the head, said jaw being reversible, a leaf-spring secured to the stem and adapted to be arranged in either of the slots, and a detachable keeper-pin for bridging the slots over the spring.

3. In a pipe-wrench, the stock shaped at one end to form a handle and having its other end enlarged into a jaw-head, which is tapered toward its free end, one tapering side being serrated or toothed and extending in a straight line, while the other tapering side is curved and slightly offset, said jaw-head being bifurcated, in combination with a swinging jaw having a right-angular extension pivoted in the bifurcation, and a leaf-spring carried by the jaw and having a slidable engagement with the stock.

787,360. **PROCESS OF MAKING DIALKYL-BARBITURIC ACID.** MAX ENGELMANN, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Jan. 5, 1905. Serial No. 239,788.

Claim.—1. The process for the production of dialkyl-barbituric acids having the above-given general formula, which process consists in first condensing dicyandiamid with dialkylated malonitrils by means of alkaline condensing agents and then splitting off the cyanimino group and the imino groups in 2- 4- and 6- position from the resulting 2-cyanimino-4-6-diimino-5-dialkyl-pyrimidins by treatment with acids, substantially as hereinbefore described.

2. The process for the production of diethyl-barbituric acid, which process consists in first condensing dicyandiamid with diethyl-malonitril by means of alkaline condensing agents, and then splitting off the cyanimino and the imino groups in 2-, 4- and 6- position from the resulting 2- cyanimino-4-6-diimino-5-diethyl-pyrimidin by treatment with acids, substantially as hereinbefore described.

3. The process for the production of diethyl-barbituric acid, which process consists in first condensing dicyandiamid with diethyl-malonitril by means of potassium ethylate and then splitting off the cyanimino group and the imino groups in 2-, 4- and 6- position from the resulting 2-cyanimino-4-6-diimino-5-diethyl-pyrimidin by treatment with hot sulfuric acid, substantially as hereinbefore described.

787,361. **TELEPHONE-TRANSMITTER.** JOHN ERICKSON, Chicago, Ill., assignor to Strowger Automatic Telephone Exchange, a Corporation of Illinois. Filed May 4, 1903. Renewed Oct. 3, 1904. Serial No. 227,022.



Claim.—1. In a telephone-transmitter, a case, a diaphragm, two electrodes in the case, one of which is stationary and the other one is cup-shaped and secured to the diaphragm with its cup surrounding the stationary electrode with an interspace therebetween, a packing surrounding the stationary electrode with its inner edge engaging therewith and its outer surface engaging the edge of the cup, and granular material within the space between the electrodes for the purpose stated.

2. In a telephone-transmitter, a perforated case, a diaphragm opposite the perforation, two electrodes, one of which is stationary and projects through the perforation and the other one is cup-shaped and secured to the diaphragm with its cup surrounding the inner end of the stationary electrode and forming an interspace therebetween, a ring of packing material surrounding the stationary electrode and in engagement therewith, one face of the ring engaging the case and the other face engaging the edge of the cup, said edge being intermediate the outer and inner edges of the ring, means for holding said edge in constant contact with said surface, and granular material within the space between the electrodes, for the purpose stated.

3. In a telephone-transmitter a casing comprising side and end walls, an electrode insulatingly disposed through the end wall and terminating in a body of carbon within the casing, a fibrous ring around and in contact with the electrode, a diaphragm consisting of a disk of thin material and having the marginal edges in contact with the casing and concentric with the electrode, a cup-shaped electrode secured at the center of the diaphragm, and the open end thereof partially inclosing the first-named electrode and in contact with the fibrous material, and a partial filling of granulated carbon between the electrodes, for the purpose stated.

4. In a telephone-transmitter, a case, an electrode therein, a packing encircling the electrode, a diaphragm, a cup-shaped electrode on the diaphragm, the interior of which is of a greater diameter than the other electrode with its internal wall parallel with the sides of said other electrode, and the external wall inclined to form a thin edge, said edge being in contact with the first-mentioned electrode.

5. In a telephone-transmitter, a perforated case provided with a cylindrical portion, an annular packing in said portion, an electrode having a projection extending through the perforation and the packing, a diaphragm for the case, a cup-like electrode secured thereto and partially inclosing the other electrode and engaging with the packing with its rim, and granular material in the interspace between the electrodes.

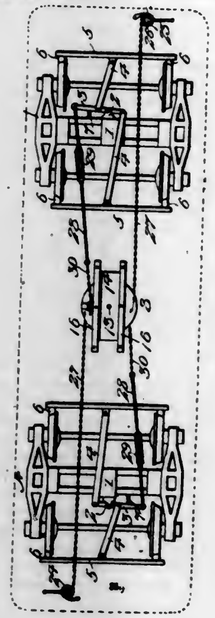
6. In a telephone-transmitter, a case, the periphery of which is screw-threaded, an electrode in the case, an annular packing around the electrode, a diaphragm for the case, a cup-like electrode secured thereto and partially inclosing the other electrode and engaging with the packing, granular material between the electrodes, an internally-screw-threaded cap on the case, and a compound spring between the cap and the case and provided with resilient arms, for the purpose stated.

787,362. **VEHICLE TIRE AND RIM.** FRED FELDHAUS, Akron, Ohio, assignor of one-half to Phillip Knierim, Akron, Ohio. Filed Sept. 26, 1904. Serial No. 225,955.



Claim.—The combination in a device for cushioning vehicle-wheels, of a felly, a flat base-rim thereon, an elastic tire mounted on said base-rim, a pair of rings having inturned edges, one of which is adapted to be pressed into the material of the felly below the base-rim and the other to clamp upon the elastic tire and means passing through the material of the tire to draw said rings toward one another and clamp them upon said elastic tire and felly substantially as shown and described and for the purpose stated.

787,363. **CAR-BRAKE.** CHARLES A. FISHER, Niagara Falls, N. Y., assignor of seventy-three one-hundredths to Louis Silberburg, Niagara Falls, N. Y., and Curt C. Andrus, North Tonawanda, N. Y. Filed May 14, 1904. Serial No. 208,017.



Claim.—1. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a carrier movably mounted, a drum provided with slots and independent winding-surfaces and rotatably mounted upon the carrier, leverage-multiplying means movable in said slots, and connections between the brake-staffs and said winding-surfaces and between the leverage-multiplying means and said brake devices.

2. In a car-brake mechanism, trucks provided with brake devices, brake-staffs provided with involute winding-heads, a carrier movably mounted, a controller journaled on said carrier, and connections between the said involute heads and controller and between the controller and said brake devices.

3. In a car-brake mechanism, trucks provided with brake devices, guides, brake-staffs provided with involute winding-heads, a carrier movably mounted on said guides, a controller journaled on said carrier and provided with slots and independent winding-surfaces, guards secured to the controller and provided with slots in alinement with the slots in the controller, spindles provided with rollers and movable in said slots, and connections between the winding-surfaces and involute heads and between the spindles and brake devices.

4. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a drum provided with slots and independent winding-surfaces, levering-multiplying means movable in said slots, and connections between the brake-staffs and said winding-surfaces and between the leverage-multiplying means and said brake devices.

5. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a carrier movably mounted, a controller journaled upon the carrier, and connections between the brake-staffs and controller and between the controller and brake devices.

6. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a controller having slots, guards secured to the controller and having slots in alinement with the slots in the controller, leverage-multiplying means movable in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

7. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a controller having slots, leverage-multiplying means mounted in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices, said leverage-multiplying means operating in said slots to draw the connections engaging the same closer to the center of the controller when the brakes are applied.

8. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a controller having radial slots, leverage-multiplying means movable in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

9. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a controller having radial slots, leverage-multiplying means movable in said slots, a carrier supporting said controller, said carrier being movable longitudinally whereby to compensate for the irregular relative position of the trucks, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

10. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a controller movably mounted whereby to compensate for the irregular relative positions of the trucks, said controller being provided with radial slots, leverage-multiplying means movable in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

11. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a controller provided with radial slots and movable longitudinally whereby to compensate for the irregular relative positions of the trucks, leverage-multiplying means movable in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

12. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a carrier movably mounted, a controller rotatably mounted upon the carrier and provided with leverage-multiplying means, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

13. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a carrier mounted upon the car to have a longitudinal movement, a controller rotatably mounted upon the carrier and provided with leverage-multiplying means, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

14. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a carrier movably mounted, a drum provided with slots and rotatably mounted upon the carrier, leverage-multiplying means mounted in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

15. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a carrier movably mounted, a drum provided with slots and rotatably mounted upon the carrier, spindles provided with rollers mounted in said slots, and connections between the drum and brake-staffs and between the spindles and brake devices.

16. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, guides, a carrier movaby mounted on the guides, a drum provided with slots and rotatably mounted upon the carrier, guards secured to the drum and provided with slots in alinement with the slots in the drum, spindles provided with rollers mounted in said slots, and connections between the drum and brake-staffs and between the spindles and brake devices.

17. In a car-brake mechanism, trucks provided with brake devices, brake-staffs, a rotatably-mounted controller having slots, leverage-multiplying means mounted in said slots, and connections between the controller and brake-staffs and between the leverage-multiplying means and brake devices.

787,364. THILL-TUG. PATRICK H. FONTAINE, Bethel Hill, N. C.
Filed Dec. 4, 1903. Serial No. 183,796.



Claim.—1. A support, comprising a looped member provided with fastening means secured at one end thereof, and means formed upon said member permitting of automatic sliding adjustment thereof and adapted to engage said fastening means for limiting the movement of the looped member.

2. A thill-tug, comprising a strap or billet bent upon itself to form a loop, in combination with a buckle secured to one end portion of said billet, the opposite end of said billet being normally free for engagement with a girth, and the portions thereof intermediate its ends being provided with a stop to arbitrarily determine the maximum size of said loop.

3. A thill-tug, comprising a billet or strap provided with a terminal buckle, said strap having an elongated slot in its body portion, said body portion having a plurality of adjusting-apertures, and said strap being formed into a loop and having its free end passed through the buckle with the tongue of said buckle engaging said slot.

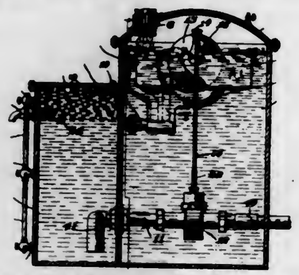
4. A thill-tug, comprising a billet or strap provided at one end with a buckle, said buckle enlarged at its lower end to receive said billet or strap, thereby permitting of the formation of a loop thereon, and said strap being provided in its body portion with means for limiting the maximum size of said loop.

5. A tug, comprising a billet or strap having an elongated slot and provided at one end with fastening means, and said strap being formed into a loop and having its end passed through the fastening means with a portion of the same engaging said slotted portion of the strap, thereby permitting a sliding adjustment of said strap for controlling the size of the loop formed thereon.

787,365. STEAM AND OIL TRAP. JAMES FRANEY, Chicago, Ill.
Filed Sept. 27, 1902. Serial No. 125,017.

Claim.—1. In a device of the class described, the combination with a receiving-chamber adapted to receive the mixed oil and water of condensation, of a separating-chamber in communication with said receiving-chamber in which the oil is adapted to separate from the water, a float in said receiving-chamber, and an outlet for said separating-chamber controlled by said float, and means for drawing off the oil from said separating-chamber, substantially as described.

2. In a device of the class described, the combination with a receiving-chamber connected with the passage for the exhaust-steam and adapted to receive the mixed oil and water of condensation, of a separating-chamber associated with said receiving-chamber and adapted to receive the overflow from said receiving-chamber, whereby any oil that may rise to the surface in the receiving-chamber is sure to flow into the separating-chamber, the oil being separated from the water in said separating-chamber, a float in said receiving-chamber, and an outlet for said separating-chamber controlled by said float, said outlet when opened being adapted to permit the escape of the water from said separating-chamber, and means for drawing off the oil from said separating-chamber, substantially as described.



3. In a device of the class described, the combination with a receiving-chamber connected with the exhaust and adapted to receive the mixed water of condensation and oil, of a separating-chamber associated with the said receiving-chamber in which the oil is intended to separate from the water, a cup in the upper part of said receiving-chamber and connected with the said separating-chamber, a float in said cup, and an outlet leading from the bottom of said separating-chamber and controlled by said float, substantially as described.

4. In a device of the class described, the combination with a receiving-chamber connected with the passage for the exhaust-steam and adapted to receive the mixed oil and water of condensation, of a separating-chamber associated with said receiving-chamber, an overflow leading from the receiving-chamber into the separating-chamber, a float in said receiving-chamber actuated when the separating-chamber is filled, an outlet for said separating-chamber and connected with the lower part thereof so as to draw the water therefrom, said outlet being controlled by the said float and arranged to be opened when the separating-chamber is filled, and means connected with the said separating-chamber for drawing off the oil, substantially as described.

5. In a device of the class described, the combination with a receiving-chamber adapted to receive the mixed oil and water, of a separating-chamber connected with said receiving-chamber by means of an overflow, the oil and water being separated in said separating-chamber, a float in said receiving-chamber and means controlled by said float for drawing off the water from the separating-chamber, other means for drawing off the oil from said separating-chamber and indicating means associated with the separating-chamber to show the depth of the oil therein, substantially as described.

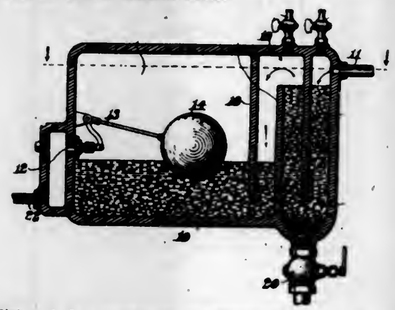
6. In a device of the class described, the combination with a receiving-chamber adapted to receive the mixed oil and water, of a separating-chamber connected with said receiving-chamber by means of an overflow, the oil and water being separated in said separating-chamber, a float in said receiving-chamber and means controlled by said float for drawing off the water from the separating-chamber, other means for drawing off the oil from said separating-chamber and a glass gage connected with said separating-chamber to indicate the relative depths of the oil and water in the chamber, substantially as described.

7. In a device of the class described, the combination with a receiving-chamber connected with the exhaust and adapted to receive the mixed oil and water, of a separating-chamber associated with said receiving-chamber, a cup mounted in the upper part of said receiving-chamber and adapted to receive the overflow of said chamber when it fills with oil and water, said cup connecting with the said separating-chamber, whereby when the latter fills with oil and water the cup also becomes filled, a float in said cup adapted to be lifted when the separating-reservoir becomes filled and the liquid in the cup rises, an outlet-pipe connected with the lower part of said separating-chamber, a valve in said pipe, a lever with which said float is connected and a rod extending between said lever and said valve, whereby when the separating-chamber fills and the liquid in the cup rises the float is lifted and actuates the valve to open the said outlet which permits the water from the said separating-chamber to escape,

a faucet connected with said separating-chamber near its upper portion and adapted when operated to draw off the oil from said chamber, and a gage connected with said separating-chamber to show the depth of oil therein, substantially as described.

8. The combination with a receiving-chamber for the mixed oil and water of condensation, of a second chamber connected with said receiving-chamber in which the oil is separated from the water, an outlet leading from said second chamber to conduct the water therefrom, a valve normally closing said outlet, and means for automatically operating said valve to open said outlet when the fluid in said receiving-chamber reaches a predetermined depth, and means for withdrawing the oil from said second chamber.

787,366. STEAM-TRAP. ALTON L. FRENCH, Brockton, Mass.
Filed Jan. 20, 1904. Serial No. 189,808.



Claim.—1. In a steam-trap, the combination of two partitions extending from the top nearly to the bottom, an intermediate partition extending from the bottom nearly to the top thereof, a steam-inlet, an outlet-valve, and a float for operating said valve.

2. In a steam-trap, the combination of two partitions extending from the top and provided with an opening at the bottom ends, an intermediate partition extending from the bottom and provided with an opening at its upper end, an inlet-opening, an outlet-opening, a valve closing one of the openings, and a float for operating said valve.

3. In a steam-trap, the combination of four chambers two pairs of which communicate at one end and each pair communicating with the other at the opposite end, an outlet-valve, a float for operating said valve, and a steam-inlet communicating with the closed end of the chamber most removed from said outlet-valve.

4. In a steam-trap, the combination of two partitions extending from the top nearly to the bottom, an intermediate partition extending from the bottom nearly to the top and forming thereby four communicating chambers, a steam-inlet communicating with the closed end of an outer chamber, an outlet-valve, and a float to operate said valve.

5. In a steam-trap, the combination of two partitions extending from the top nearly to the bottom, an intermediate partition extending from the bottom nearly to the top and forming thereby four communicating chambers, a steam-inlet communicating with the closed end of an outer chamber, and an air-cock communicating with the closed end of a chamber between said partitions.

6. In a steam-trap, the combination of two partitions extending from the top nearly to the bottom, an intermediate partition extending from the bottom nearly to the top and forming thereby four communicating chambers, a steam-inlet communicating with the closed end of an outer chamber, an outlet-valve from the opposite chamber, and a pivoted float for operating said valve.

7. In a steam-trap, the combination with a steam-inlet, an outlet-valve and a float to operate said valve, of two water seals intermediate said inlet and outlet.

8. In a steam-trap, the combination of two chambers communicating at the top, a partition extending from the top nearly to the bottom of each of said chambers, a steam-inlet communicating with the closed end of one of said chambers, an outlet-valve in the other chamber and a float for operating said valve.

9. In a steam-trap, the combination of an outlet-valve, a float for operating said valve, a steam-inlet, a sediment-chamber at the inlet end, a valve-chamber at the outlet end, and a partition between said sediment-chamber and said valve-chamber.

10. In a steam-trap, the combination of an outlet-valve, a float for operating said valve, a steam-inlet, a sediment-chamber at the inlet end, a valve-chamber at the outlet end, a partition between said sediment-chamber and valve-chamber, and means for drawing off the sediment from said chamber.

11. In a steam-trap, the combination of a partition dividing said trap into two chambers communicating at the top, a steam-inlet communicating with one of said chambers, a partition extending downwardly into the inlet-chamber, an outlet-valve, and a float for operating said valve.

12. In a steam-trap, the combination of a partition extending from the top and dividing said trap into two chambers communicating at the bottom, a steam-inlet communicating with one of said chambers, and a partition extending from the bottom nearly to the top of said inlet-chamber and outlet-valve, and a float for operating said valve.

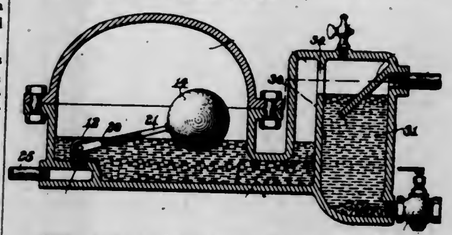
13. In a steam-trap, the combination of two partitions, a plurality of chambers containing water separated by a partition extending upwardly from the bottom thereof, an outlet-valve, a float for operating said valve, and a steam-inlet so situated that the steam from the latter will pass to said outlet through said chambers and the water therein contained.

14. In a steam-trap, the combination of four chambers, two pairs of which communicate at one end and each pair communicating with the other at the opposite end, an outlet-valve, a float for operating said valve, and a steam-inlet communicating with one of the chambers removed from said outlet-valve.

15. In a steam-trap, the combination of four chambers, two pairs of which communicate at one end and each pair communicating with the other at the opposite end, an outlet-valve, a float for operating said valve, and a steam-inlet so situated that the steam therefrom passing to the outlet-valve will pass through all four chambers.

16. In a steam-trap, the combination of an outlet-valve, a float for operating said valve, a steam-inlet, a water-seal chamber located adjacent to said steam-inlet, and a second water seal interposed between said chamber and said outlet-valve.

787,367. STEAM-TRAP. ALTON L. FRENCH, Brockton, Mass.
Filed Oct. 21, 1904. Serial No. 229,385.



Claim.—1. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber, a sediment-chamber communicating at the top with said valve-chamber near its lower end, and a deflecting member in said sediment-chamber to direct the inflow downward to a point below said communicating passage.

2. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber, an outlet-valve, means for automatically operating said valve, a sediment-chamber communicating at the top with said valve-chamber near its lower end, and a deflecting member in said sediment-chamber to direct the inflow downward to a point below said communicating passage.

3. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber, a rotary outlet-valve, means for automatically operating said valve, a sediment-chamber communicating at the top with said valve-chamber near its lower end, and a deflecting member in said sediment-chamber to direct the inflow downward to a point below said communicating passage.

4. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber, an outlet-valve, a float therefor, a sediment-chamber communicating at the top with said valve-chamber near its lower end, and a deflecting member in said sediment-chamber to direct the inflow downward to a point below said communicating passage.

5. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber communicating with a contracted passage extending upwardly from the bottom, a sediment-chamber

communicating at the top with said passage, and a deflecting member in said sediment-chamber to direct the inflow downward to a point below said communicating passage.

6. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber communicating with a contracted passage extending upwardly from the bottom, a sediment-chamber communicating at the top with said passage, and an inclined plate in front of the inlet-opening adapted to deflect the inflow downward to a point below said communicating passage.

7. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber communicating with a contracted passage extending upwardly from the bottom, a sediment-chamber communicating at the top with said passage, means for drawing off the sediment from said chamber, and an inclined plate in front of the inlet-opening adapted to deflect the inflow downward to a point below said communicating passage.

8. In a steam-trap provided with a steam-inlet and an outlet, the combination of a valve-chamber provided with a contracted passage extending upwardly from the bottom, a rotary valve, a float, a connector between said valve and said float, a sediment-chamber communicating at the top with said contracted passage, and a deflecting-plate in said sediment-chamber to direct the inflow downward to a point below said communicating passage.

9. In a steam-trap consisting of two compartments connected at the bottom by a contracted passage, a steam-inlet communicating with one of said compartments, a vertical partition dividing said inlet-compartment and forming a sediment-chamber and provided with a passage through said partition at the top, and a deflecting member in said chamber adapted to direct the inflow downward to a point below said communicating passage.

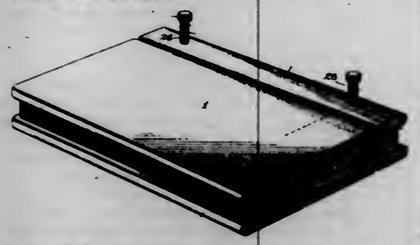
10. In a steam-trap consisting of two compartments connected at the bottom by a contracted passage, a steam-inlet communicating with one of said compartments, a vertical partition dividing said inlet-compartment and forming a sediment-chamber, a passage through said partition at the top, and an inclined plate in front of said steam-inlet adapted to direct the inflow downward to a point below said communicating passage.

11. In a steam-trap, provided with an outlet, the combination of a sediment-chamber, a plate dividing the upper part of said sediment-chamber into two compartments each communicating with said chamber at the bottom, a steam-inlet communicating with the top of one of said compartments, and a valve-chamber communicating with the top of the other compartment.

12. In a steam-trap, the combination of a float-chamber provided with a steam-inlet and an outlet communicating therewith, a cylindrical valve-casing provided with peripheral inlet and outlet openings one of which communicates with said chamber, a rotary valve therefor provided with trunnions extending beyond the ends of said casing, a float, and a connector between said float and said trunnions.

13. In a steam-trap, the combination of a float-chamber provided with a steam-inlet and an outlet communicating therewith, a cylindrical valve-casing provided with peripheral inlet and outlet openings one of which communicates with said chamber, a rotary valve for said casing provided with members projecting beyond the ends of said casing, a float, and a bifurcated arm for said float secured to said projecting members.

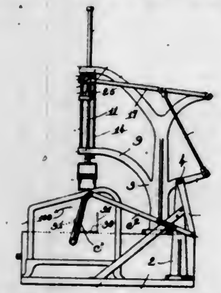
787,368. BINDER. ARTHUR W. FRISKEY, Chicago, Ill. Filed Feb. 24, 1903. Serial No. 95,218.



Claim.—1. In a binder the combination with the cover, of an impaling-pin comprising a plurality of male sections, a plurality of female sections, a base-section and a cap-section; each of said male sections comprising a shoulder at its largest diameter with a tenon at each end thereof and a male screw smaller than the tenons projecting from each of the latter, said female sections each consisting of a socket at each end for receiving either of said tenons and a female screw at the inner end of each of said sockets for receiving either of said male screws, said base-section comprising a female screw for receiving either of said male screws and means for attaching it to the cover, and said cap-section comprising a female screw for receiving either of said male screws.

2. In a binder, the combination of a hollow cover member, impaling-pins passing therethrough, two grip-blocks arranged loosely in and guided by said hollow cover member, and a screw swiveled in and immovable longitudinally with relation to one of said blocks and threaded in the other of said blocks for forcing said blocks against said impaling-pins.

787,369. APPARATUS FOR STAMPING CHECKS. FRANK W. FULLER, Boston, Mass. Filed July 16, 1904. Serial No. 216,852.



Claim.—1. In apparatus of the character specified, an adding or computing instrumentality for adding amounts represented by checks, a stamping mechanism extraneous thereto and including a stamp having a permanent impression-face to impress one check after another as the checks are manually superposed in a pile, and operating connections between the stamping mechanism and the adding instrumentality, whereby the former is operated by or through actuation of the adding instrumentality to stamp the top-most check on the pile.

2. In apparatus of the character specified, a stamp having a permanent impression-face, a reciprocating carrier therefor, means to reciprocate the carrier, an adding or computing instrumentality having an actuating member, and operating connections between the latter and the stamp-carrier, whereby the latter will be reciprocated by or through actuation of the adding instrumentality and simultaneously therewith, to impart the same impression at each actuation of said instrumentality.

3. The combination of a stamping-machine for stamping checks having their amounts previously indicated thereon, an adding-machine for adding the amounts indicated on the checks and connecting mechanism for operating the stamping mechanism when the adding mechanism is operated.

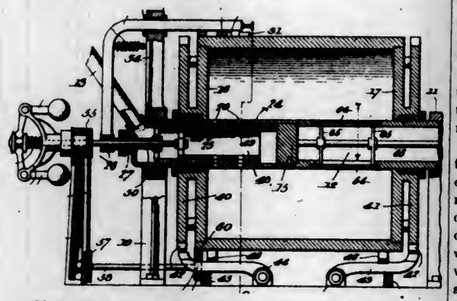
4. In apparatus of the character specified, a stamp, a reciprocating carrier to which it is attached, a radius-bar connected with the carrier, an adding instrumentality having an actuating member, and connections between said member and the radius-bar to swing the latter and operate the stamp-carrier when the adding instrumentality is operated.

5. In apparatus of the character specified, a stamp, a reciprocating carrier to which it is attached, an adding instrumentality having an actuating member, and connections between the latter and the stamp-carrier, said connections including means to permit uniform movement of said connections irrespective of the length of the stroke of the stamp-carrier.

6. In apparatus of the character specified, a stamp, a two-part carrier therefor, a support in which the carrier is reciprocable, a spring connection between the parts of the carrier and permitting a relative longitudinal movement of such parts, an adding instrumentality having a manually-controlled actuating member, and operating connections between said member and the carrier to operate the latter simultaneously with actuation of said instrumentality.

7. In apparatus of the character specified, a stand having bearings one above the other and a rigid upright guide therebetween, a stamp, a longitudinally-extensible carrier therefor vertically slidable in the bearings, blocks slidable on the guide and attached to the carrier, a spring connection between the parts of the latter, an adding instrumentality having a handle to actuate it, a rock-shaft connected with the handle, to be rocked when said instrumentality is actuated, and means intermediate the rock-shaft and stamp-carrier to operate the latter when the shaft is rocked.

787,370. ROTARY ENGINE. MORRIS E. FULLER, Tagus, N. D. Filed Jan. 31, 1905. Serial No. 243,529.



Claim.—1. In a rotary engine, a cylinder, revoluble wings carried thereby, cylinder-heads, intermittently-revoluble abutments carried by the heads, and means for locking the heads in position.

2. In a rotary engine, a cylinder, a stationary shaft, intermittently-revoluble cylinder-heads mounted on the shaft and serving as supports for the cylinder, means for locking the piston-heads in place, intermittently-revoluble abutments carried by the cylinder-heads, and revoluble wings carried by the cylinder.

3. In a rotary engine, the combination with a stationary shaft, of intermittently-revoluble cylinder-heads mounted thereon, means for locking the cylinder heads in position, intermittently-revoluble abutments secured to the cylinder-heads, a cylinder supported by the heads, wings carried by said cylinder and extending inward to the periphery of the shaft, and means carried by the cylinder for unlocking said heads.

4 The combination in a rotary engine, of a stationary shaft, channeled for the admittance of exhaust of fluid under pressure, a pair of cylinder-heads mounted on said shaft, means for locking said cylinder-heads from rotative movement, intermittently-revoluble abutments carried by the cylinder-heads, a cylinder carried by the heads, wings secured to the cylinder and extending inward to the periphery of the shaft, and means carried by the cylinder for unlocking the heads.

5. The combination in a rotary engine, of a stationary hollow shaft divided by a partition into steam inlet and exhaust spaces, ports leading through the hollow shaft, a hollow cylindrical cut off valve revolubly adjustable to present its ports in alinement with the shaft-ports, cylinder-heads mounted loosely on the shaft means for locking said cylinder-heads in place, intermittently-revoluble abutments carried by the cylinder-heads, a cylinder mounted on the heads, wings carried by the cylinder and extending inward to the periphery of the shaft, and cams carried by said cylinder for actuating the cut-off valve.

6. The combination in a rotary engine, of a hollow stationary shaft divided into steam inlet and exhaust spaces, cylinder-heads mounted on said shaft, means for locking said cylinder-heads from rotative movement, intermittently-revoluble abutments carried by the cylinder-heads, a cylinder mounted on said heads, wings carried by the cylinder and extending inward to he periphery of the shaft, ports leading from the interior of the shaft to the cylinder, a hollow cylindrical cut-off valve arranged within the steam-inlet space, means for adjusting said valve circumferentially in accordance with the direction in which the engine is to be rotated, an arm secured to the valve, and cams arranged on the cylinder and adapted to engage said arm.

7. The combination in a rotary engine, of a hollow stationary shaft divided by a partition into steam inlet and exhaust spaces, intermittently-revoluble cylinder-heads carried by the shaft, means for locking said cylinder-heads in position, intermittently-revoluble abutments carried by the heads, a cylinder mounted on said heads, wings carried by the cylinder and extending inward to the periphery of the shaft, a pair of sets of steam-inlet ports leading through the hollow shaft, a hollow cylindrical cut-off valve having a single set of ports, a stem carrying the valve, an angularly-bent stem-carrying member, a guide through which one arm of said member extends, means for adjusting said guide to effect circumferential adjustment of the valve, and valve-operating cams carried by the cylinder.

8. The combination in a rotary engine, of a hollow stationary shaft divided into steam inlet and exhaust spaces, intermittently-revoluble cylinder-heads mounted on the shaft, means for locking said heads from movement, intermittently-revoluble abutments carried by the heads, a cylinder mounted on said heads, wings secured to the heads and extending to the periphery of the shaft, steam-inlet ports leading through the shaft, a hollow cylindrical cut-off valve in the steam-inlet space, a stem connected to said valve, an operating-arm secured to the stem and extending over a portion of the periphery of the cylinder, a pin or antifriction-roller adjustable longitudinally of said arm, and a pair of cams carried by the periphery of the cylinder, and with either of which the pin or antifriction-roller may be adjusted for engagement.

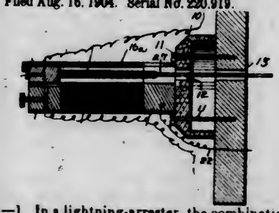
9. The combination in a rotary engine, of a hollow shaft, a fluid-pressure-supply pipe connected thereto, cylinder-heads mounted on the shaft, means for locking said cylinder-heads from rotative movement, intermittently-revoluble abutments carried by the cylinder-heads, a cylinder mounted on the heads, wings secured to the cylinder and extended inward to the periphery of the shaft, a cut-off valve arranged within the shaft, means for operating the cut-off valve, a governor-valve arranged within the cut-off valve, telescopically-disposed stems carrying the two valves, and a centrifugal governor connected to the stem of the governor-valve.

10. The combination in a rotary engine, of a hollow shaft, a steam-inlet pipe connected thereto, cylinder-heads mounted on the shaft, means for locking the cylinder-heads from rotative movement, intermittently-revoluble abutments carried by the cylinder-heads, a cylinder mounted on the heads, wings carried by the cylinder and extending inward to the periphery of the shaft, a cut-off valve arranged within the hollow shaft, means for operating the cut-off valve, a hollow cylindrical governor-valve arranged within the cut-off valve, telescopic stems carrying said valves, a centrifugal governor connected to the stem of the governor-valve, an annular rack carried by one of the cylinder-heads, a pinion intermeshing with said rack, a shaft carrying the pinion, a pulley mounted on the shaft, a governor-pulley, and a belting connecting between the two pulleys.

11. The combination in a rotary engine, of a hollow shaft, a central partition arranged therein and dividing the shaft into steam inlet and exhaust spaces, cylinder-heads mounted on said shaft, notched disks secured to the heads, pivotally-mounted spring-actuated levers engaging in said notches, and locking the heads from movement, intermittently-revoluble abutments carried by the heads, a cylinder mounted on said heads, means secured to the cylinder and extended inward to the periphery of the shaft, cams arranged on the periphery of the cylinder and adapted to engage the locking-levers, a cut-off valve in the steam-inlet space of the shaft, and cams carried by the cylinder and adapted to actuate said cut-off valve.

12. The combination in a rotary engine, of a cylinder, piston-wings carried thereby, a hollow shaft provided with steam-exhaust ports, the outer face of the shaft being recessed, exhaust-valves arranged in the recesses and connected for mutual movement, abutments adapted to engage and move said valves, and cylinder-heads carrying said abutments.

787,371. LIGHTNING-ARRESTER. LARA M. GATES, Chariton, Iowa. Filed Aug. 16, 1904. Serial No. 220,919.

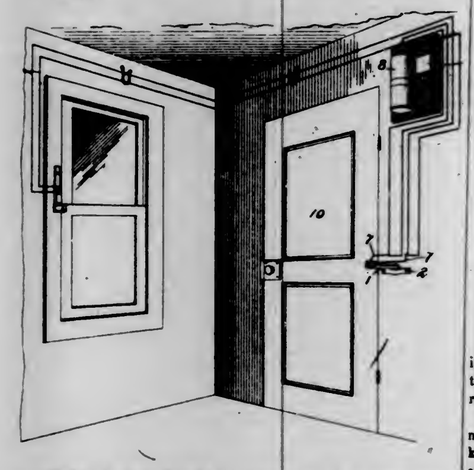


Claim.—1. In a lightning-arrester, the combination of a base to be secured to the wall and formed with an opening, a body portion connected with the base and comprising a metallic inner end, a service-wire connected therewith, a central portion made of insulating material, a metallic outer end, a ground-wire connected therewith, said insulating portion formed with a longitudinal opening, a metallic block slidingly mounted in said opening, a handle connected with the block and extended through an opening in the base, a line-

wire connected with the block, said block at the inner limit of its movement being in contact with the metal end connected with the service-wire and at its outer limit adjacent to and spaced apart from the metallic end connected with the ground-wire.

2. A lightning-arrester comprising a base formed with an opening, a body portion connected with the base, said body portion comprising a metallic inner end, a central portion formed of insulating material and a metallic outer end, said central portion formed with a longitudinal opening and a longitudinal slot at one side of the opening and also formed with an opening communicating between the longitudinal opening and the metal block at the outer end, a metal slide placed in the opening in the insulator in one position being in engagement with the block at the inner end of the body portion and in its other position being adjacent to and slightly spaced apart from the block at the outer end of the body portion, and a line-wire connected to the sliding block, a service-wire connected to the block at the inner end of the body portion, and a ground-wire connected to the block at the outer end of the body portion and an insulating-rod fixed to the sliding block and passed through the opening in the base, for the purposes stated.

787,372. **BURGLAR AND FIRE ALARM.** WILLIAM GILES and HENRY RAMSEY, Mammoth, W. Va. Filed Sept. 30, 1904. Serial No. 228,669.



Claim.—1. A combined window-stop and alarm comprising a pivotally-mounted stop, a pin slidably mounted in a hole in the stop, a plate arranged on the stop on either side of the hole, a point on the pin arranged to engage with the plates and close the circuit, a battery, a bell, a plurality of wires connecting the bell, battery, and plates, so that when the point on the pin engages the plates, it closes the circuit and rings the bell, substantially as described.

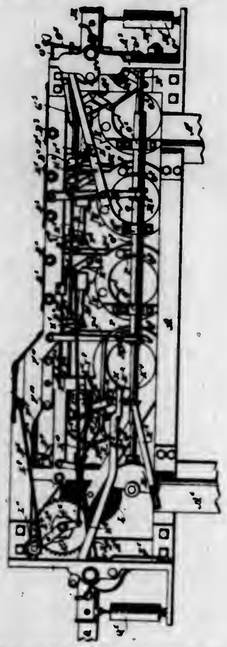
2. A combined window-stop and alarm comprising a pivotally-mounted stop, a pin slidably mounted in a hole in the stop, a lug on the pin arranged to slide within the slot in the stop and to hold the pin in place, a plate arranged on the stop on either side of the hole, and a point on the pin arranged to engage the plates and close a circuit, substantially as described.

3. A combined window-stop and alarm comprising a pivotally-mounted stop, a pin slidably mounted in a hole in the stop, a plate arranged on the stop on either side of the hole, and a point on the pin arranged to engage the plates and close a circuit, substantially as described.

4. An alarm comprising a pivotally-mounted stop arranged to engage with a door, a pin slidably mounted in the stop, a lug on the pin arranged to slide in a slot in the stop, and to hold the pin in place, and a plate arranged on either side of the pin and adapted to be engaged thereby, whereby the circuit is closed, substantially as described.

5. An alarm comprising a pivotally-mounted stop arranged to engage with a door, a pin slidably mounted in the stop, a lug on the pin arranged to slide in a slot in the stop, and to hold the pin in place, and a plate arranged on either side of the pin and adapted to be engaged thereby, whereby the circuit is closed, a battery, a bell, wire connections between the battery and bell and leading to the plates so that when the circuit is closed the bell is sounded, substantially as described.

787,373. **VOTING-MACHINE.** WILLIAM GLENN, Mount Vernon, Iowa. Filed May 10, 1903. Serial No. 156,668.



Claim.—1. In a voting-machine, the combination of a vote-designating member, a coördinate member normally out of register therewith, and a key adapted to coact with and move both when in register.

2. In a voting-machine, the combination of a vote-designating member, a coördinate member normally out of register therewith, a key adapted to coact with and move both members when in register, and means for moving the coördinate member to normal position, independent of the key.

3. In a voting-machine, the combination of a voting-slide, a coördinate slide-rod normally out of register therewith, and a key adapted to engage both when in register substantially as described.

4. In a voting-machine, the combination of a voting-slide, a slide-rod normally out of register therewith, and a key adapted to engage both when in register and move them concurrently, and independent means for moving the slide-rod to normal position.

5. In a voting-machine, the combination of a plurality of voting-slides, a slide-rod normally out of register, but adapted to coact therewith alternatively, and a key to engage the slides and the rod when in register.

6. In a voting-machine, the combination of a plurality of voting-slides, coördinate members adapted when in register with the slides to permit concurrent movement by a key, means for locking the slides, and a key adapted to unlock a slide and move it concurrently with the coördinate member, substantially as described.

7. In a voting-machine, the combination of a key-actuated voting-slide, a key-actuated coördinate slide-rod normally out of register with the slide, a key to engage both when in register, a lever to move the slide-rod to normal position, and a connection of said lever with the slide-rod.

8. In a voting-machine, the combination of a plurality of voting-slides, means for locking said slides against movement to voting position, a plurality of coördinate slide-rods adapted for key connection with the slides when in register, and normally out of register therewith, a key engaging both the slides and slide-rods when in register, and adapted to unlock the slide at its initial position, and means for moving the slide-rods to normal position independent of said key.

9. In a voting-machine, the combination with a series of vote-designating members corresponding to a party-ticket, an entrance-lever, and a connection thereof with said members adapted to move them positively to voting position before any vote-designating member can be moved separately, substantially as described.

10. In a voting-machine, the combination with a series of vote-designating members corresponding to a party-ticket, of an entrance-lever and a connection thereof with said series of members whereby they are moved positively to voting position, and a lock to prevent change in their position except singly and alternately.

11. In a voting-machine, the combination with locking mechanism normally out of register with vote-designating members, of a series of said members corresponding to a party-ticket, an entrance-lever, and mechanism connecting said lever with said series, whereby all are moved to voting position and in register with the locking mechanism by said entrance-lever.

12. In a voting-machine, the combination of multiple series of vote-designating members, mechanism adapted to lock all of said members except such as register therewith, and normally out of register with all of them, an entrance-lever, and mechanism connecting said lever alternatively with any one of saidseries and adapted to move it into register with the locking mechanism.

13. In a voting-machine, the combination of one or more series of voting-slides, mechanism adapted to lock them in normal position, a bail adapted to engage a series of slides and move them all into register with the locking mechanism, and an entrance-lever connected with said bail.

14. In a voting-machine, the combination of multiple series of voting-slides, locking mechanism therefor and normally out of register therewith, mechanism adapted to move a series of slides into register with the locking mechanism, and a key to engage the slides and the locking mechanism when in register, whereby the slides may be moved singly back and forth, substantially as described.

15. In a voting-machine, the combination of one or more vote-designating members, locking mechanism therefor, an entrance-lever connecting by suitable mechanism with said members and adapted to move them into register with the locking mechanism, and an exit-lever connecting with the locking mechanism, and adapted to move it out of register with said members.

16. In a voting-machine, the combination of multiple series of vote-designating members, a coördinate series of locking devices adapted, when in register, to coact therewith, a key adapted to engage both parts when in register, and a coupler for two or more of the locking devices, substantially as and for the purpose set forth.

17. In a voting-machine, the combination of voting-slides arranged in columns and rows, locking devices in rows corresponding to and coacting with the slides through the medium of a key, a mutually-engaging key, and a coupler to connect two or more of the locking devices.

18. In a voting-machine, the combination of multiple series of voting-slides normally locked out of voting position, locking mechanism normally out of register therewith, mechanism adapted to move any one series of slides into primary voting position and in register with the locking mechanism, and a key whereby the voter is enabled to move the slides and locking mechanism singly and alternately, and a coupler to connect two or more of the locking devices, substantially as and for the purpose set forth.

19. In a voting-machine, the combination with multiple series of voting-slides adapted for independent engagement with locking slide-rods, a series of reciprocating slide-rods adapted to engage singly with the slides, and a coupler to connect two or more of said rods, whereby the several candidates in any group may be voted for in any order singly but without duplication.

20. In a voting-machine, the combination with voting-slides corresponding to the various candidates, of a classifier comprising a series of reciprocating members corresponding to the various offices, means for connecting any desired number of them so as to move simultaneously, and a connection of each with a row of slides corresponding to an office.

21. In a voting-machine, the combination with voting-slides corresponding to the various candidates and offices, of a classifier comprising a series of reciprocating members with multiple points of engagement with actuating mechanism, a connection of each with a row of slides corresponding to an office, and a series of independently-moving bails, to engage said reciprocating members at diverse points, substantially as described.

22. In a voting-machine having movable vote-indicating members, a classifier comprising a series of movable members corresponding to the various offices, a connection thereof with their appropriate voting members, means for moving any number of selected classifier members, and means for restoring all to primary position.

23. In a voting-machine having voting-slides for the various candidates arranged as to tickets and offices, a classifier comprising a series of oscillating arms with removable studs at intervals thereon, a connection of said arms with slides of corresponding offices, a series of levers or bails adapted to engage such studs as lie in their paths, and means for bringing any one of said bails into action

24. In a voting-machine, having vote-slides for the various candidates, and connections thereof by offices with the classifier, a classifier comprising a series of oscillating members, each connecting with the vote-slides of its appropriate office, means for bringing any desired set of said members into action, and an indicator to denote the set so selected.

25. In a voting-machine, a classifier comprising a series of oscillating arms or sectors corresponding to the various offices, removable studs therefor, bails adapted to engage the studs lying in their paths, a sliding rock-shaft adapted to separately engage said bails, and means for oscillating said shaft and for restoring all the parts to primary position.

26. In a voting-machine, the described classifier, comprising a rock-shaft provided with a sector-engaging stud, a sleeve on said shaft, a bail fixed to said sleeve, a series of sectors mounted loosely on said sleeve, and provided with removable studs to engage actuating-bails, and one or more bails mounted loosely on said sleeve and adapted to engage the rock-shaft studs.

27. In a voting-machine having members corresponding to the various candidates arranged as to tickets and offices, an entrance-lever and connected mechanism adapted to move one party-ticket slide to voting position, a classifier adapted to separate therefrom certain candidates' slides, and a connection of the entrance-lever with the classifier whereby the secondary action of said lever throws out of action all slides not properly included in the particular class.

28. The combination in a voting-machine having voting-slides, substantially as shown, of a classifier adapted to throw certain voting-slides out of action, an entrance-lever and connected mechanism adapted to operate the canceling portion of said classifier, an exit-lever and connected mechanism to restore the whole classifier to primary position.

29. In a voting-machine having vote-designating slides for the regular candidates and covering-slides for independent candidates, a series of lock bars or rods independent of said slides and normally out of register therewith, a key adapted to actuate the slides and lock-bars when in register, a movable web for independent ballots normally covered by the independent-ticket slides, an exit-lever, mechanism adapted to restore the slides and lock-bars to initial position and advance the web, and a connection of the exit-lever with said restoring mechanism.

30. In a voting-machine having vote-designating members arranged as to tickets and offices, the combination of an entrance-lever, a ticket-selecting indicator adapted to bring the entrance-lever into actuating relation with the ticket-slides so indicated, and a connection of said lever with such selecting mechanism, whereby, through the joint action of the indicator and the entrance-lever the voter arranges a straight ballot as the first act in voting.

31. In a voting-machine having vote-designating members arranged as to tickets and offices, and mechanism adapted to move to voting position all of any set corresponding to a party-ticket, the combination of a lever connected with said mechanism, and a ticket-selecting indicator adapted to release the lever as to the ticket selected, and permit the voting of said party-ticket as a whole.

32. In a voting-machine having voting-slides an actuating-lever to move them to voting position, and connecting mechanism, substantially as described, a party-ticket-selecting indicator which sets the connecting mechanism and locks the machine, except as set for some party-ticket.

33. In a voting-machine having voting-slides arranged as to party-tickets and offices, bails adapted to move to voting position an entire set of party-ticket slides, a ticket-selector adapted to register with a single selected ticket-bail, and a lever connecting with said ticket-selector, substantially as described.

34. In a voting-machine having entrance and exit levers, voting-slides and connecting mechanism, a party-ticket-selecting device, and means adapted to normally lock the entrance-lever and to release the same only when the selecting device is set to any party-ticket, and a connection of said selecting device with the exit-lever whereby it is restored to normal position in the final act of voting.

35. A party-ticket-selecting device for a voting-machine, comprising a rotatable and sliding sleeve, an indicator adapted to turn the same, a lever and connection to slide said sleeve, studs projecting from the sleeve radially in different planes, and levers corresponding to the various party-tickets to engage said studs successively when brought into register with the indicator and moved by said lever.

36. In a voting-machine, the combination of a voting-slide, a pawl with an extended nose, connecting therewith, adapted to be lifted by a key, a counter with which said pawl engages in the final act of voting, and a carrier to engage said pawl-nose and support the pawl free from the counter until said final act.

37. In a voting-machine, the combination of a voting-slide, a key-actuated pawl with an extended nose, connected therewith, a carrier for said pawl-nose during the preliminary operations of voting, a counter with which the pawl finally engages, and a key to tilt the pawl while moving the slide back and forth.

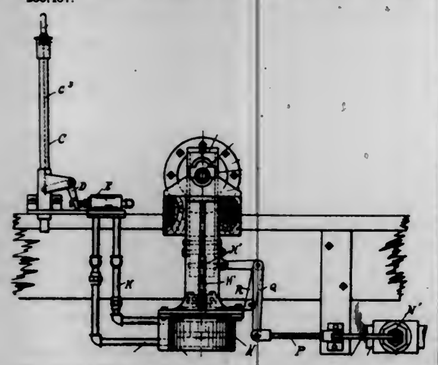
38. In a voting-machine, the combination of a voting-slide, a key-lifted pawl with an extended nose, attached thereto, a carrier adapted to support the pawl-nose when moved to voting position and to lock other pawls not in the same position, and a counter with which the pawl finally engages.

39. In a voting-machine, the combination of a voting-slide, a key-lifted pawl attached thereto, a counter with which the pawl finally engages, a carrier adapted to hold the pawl away from the counter, entrance and exit levers, a connection of the entrance-lever with the carrier, whereby it is moved to supporting position, and a connection of the exit-lever with the slide and carrier, whereby the latter is restored to primary position and the pawl is left unsupported.

40. In a voting-machine, a plurality of vote-arranging members for a multiple-candidate office, locking mechanism therefor adapted to act as a unit, and means whereby said vote-arranging members move the locking mechanism back and forth in arranging the ballot.

41. In a voting-machine, a plurality of vote-designating members corresponding to party-tickets and offices, locking mechanism therefor adapted to act as a unit in each office, and mechanism adapted to positively move to voted position a set of vote-designating members corresponding to a party-ticket as the initial act in voting, and before the locking mechanism can be moved back and forth in arranging the ballot.

787,374. **EMERGENCY-BRAKE FOR SAWMILL-CARRIAGES.** JOHN L. GRAHAM, Hazlewood, Mich. Filed Dec. 27, 1904. Serial No. 238,437.



Claim.—1. The combination with a piston-rod of a steam-feed; of a clamp adapted to grip said piston-rod; a sawyer's operating-lever; a movable handpiece carried by said lever and means connecting said handpiece to said clamp and adapted to automatically actuate said clamp to grip said piston-rod when the sawyer's hand is removed from the operating-lever.

2. The combination with the piston-rod of a steam-feed; of a clamp adapted to grip said piston-rod; a valve in the steam-pipe leading to the steam-feed; a sawyer's operating-lever; a movable handpiece carried by said lever; and means connecting said handpiece, clamp and valve, said means being adapted to automatically actuate said clamp to grip the piston-rod and to actuate said valve to shut off steam in said main steam-pipe when the sawyer's hand is removed from the operating-lever.

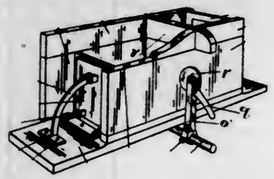
3. The combination with the piston-rod of a steam-feed; of a clamp adapted to grip said piston-rod; a sawyer's operating-lever; a cap slidably mounted on top of said operating-lever; a bell-crank lever pivotally mounted on said operating-lever; and means connecting said cap with said bell-crank lever; a valve actuated by said bell-crank lever; a cylinder with a movable piston and means connecting said movable piston with said clamp and adapted to actuate the clamp to grip the said steam-feed piston-rod when the sawyer's hand is removed from said operating-lever.

4. The combination with a steam-feed piston-rod; of a clamp adapted to grip said piston-rod; a sawyer's operating-lever; a cap slidably mounted on top of said operating-lever; a bell-crank lever pivotally mounted on said operating-lever; a movable rod connecting said cap with said bell-crank lever; a valve actuated by said bell-crank lever; a cylinder with a movable piston and means for connecting either end of said cylinder successively with said valve; and means connecting said piston with said clamp.

5. The combination with a steam-feed piston-rod, of an operating-lever; a cap mounted on said operating-lever; a bell-crank lever mounted on said operating-lever; and means for connecting the cap with said bell-crank lever; a valve actuated by said bell-crank lever; a cylinder with a movable piston and means for connecting either end of said cylinder successively with said valve; a piston-rod secured to said movable piston; a clamp comprising a lower stationary block adapted to support said steam-feed piston-rod, and an upper movable block and means connecting said movable block with said piston-rod, substantially as and for the purposes set forth.

6. The combination with a steam-feed cylinder, piston and piston-rod; of an operating-lever; a valve and means connecting said operating-lever to said valve and adapted to actuate said valve; a cylinder having a movable piston and means for connecting either end of said piston alternately with said valve; a piston-rod secured to said movable piston; a clamp adapted to grip said piston-rod and means for connecting said piston-rod with said clamp; together with a valve in the steam-supply pipe of said steam-feed cylinder and means connecting said movable piston to said valve, for closing said valve when the piston moves down, substantially as described.

787,375. **MOLD FOR THE MANUFACTURE OF CEMENT BLOCKS.** FRANK GUTTERIDGE, Seaforth, Canada. Filed Aug. 29, 1904. Serial No. 222,636.



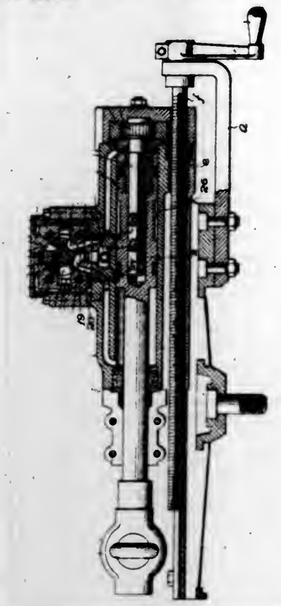
Claim.—1. A mold for making cement blocks and artificial stone consisting of a bottom member, end members articulatingly connected thereto, locking-arms for the end members to rigidly hold them in their closed position, side members removable from the bottom member and rotatable clamping-arms to engage the side members and hold them in position against the bottom and end members.

2. A mold for making cement blocks and artificial stone consisting of a bottom member, end members articulatingly connected thereto, locking-arms for the end members to rigidly hold them in their closed position, side members removable from the bottom member, rotatable clamping-arms to engage the side members and hold them in position against the bottom and end members, and a clamping means connected to one of the clamping-arms to increase the clamping pressure against the side members.

3. A mold for making cement blocks and artificial stone consisting of a bottom member, end members articulatingly connected thereto, locking-arms for the end members to rigidly hold them in their closed position, side members removable from the bottom member, a rotatable shaft below the bottom member, clamping-arms carried by the rotatable shaft one of which is adapted to engage the outer surface of one of the side members, and a clamping-lever fulcrumed to the other clamping-arm to engage the outer surface of the other side member.

4. A mold for making cement blocks and artificial stone consisting of a bottom member, end members articulatingly connected thereto, notched locking-arms for the end members to rigidly hold them in their closed position, side members removable from the bottom member, rotatable clamping-arms to engage the side members and slotted wear-plates for the bottom member to engage the notched locking-arms for the end members.

787,376. **ROCK-DRILL.** JOHN M. HAMOR, Philadelphia, Pa., assignor to John M. Rogers, Wilmington, Del. Filed Sept. 27, 1904. Serial No. 226,113.



Claim.—1. The combination, with the cylinder, the piston-chamber and piston therein, and the rotary valve and its casing, of a passage in the valve-casing adapted to be placed in constant communication with the exhaust, channels in opposite sides of the valve-casing adapted to be placed in constant communication with the supply, three channels in the valve adapted in either position of the valve to communicate with the three channels in the valve-casing, respectively, and passages leading from the ends of the piston-chamber to the valve-chamber, the valve, in its two movements, causing the exhaust-channel in the valve to connect with one or the other of said passages and causing one or the other of the supply-channels in the valve to connect with its corresponding passage, substantially as described.

2. The combination, with the cylinder, the piston-chamber and piston therein, and the rotary valve and its casing, of a passage in the valve-casing adapted to be placed in constant communication with the exhaust, channels in opposite sides of the valve-casing, passages in opposite ends of the valve-casing connecting with said channels and adapted to be placed in constant communication with the supply, three channels in the valve adapted in either position of the valve to communicate with the three channels in the valve-casing respectively, and passages in the cylinder connecting the ends of the piston-chamber with the valve-chamber, the valve, in its two movements, causing the exhaust-channel in the valve to connect with one or the other of said cylinder-passage and causing one or the other of the supply-channels in the valve to connect with the corresponding cylinder-passage, substantially as described.

3. The combination, with the cylinder, the piston-chamber and piston therein, and the valve and its casing, of a stationary piston on the valve-casing extending into a valve-piston chamber in the valve, three channels in the valve, ports connecting the two outside channels respectively with opposite sides of the valve-piston chamber, the said two outside channels being adapted to be placed in constant communication with the supply and the middle channel being adapted to be placed in constant communication with the exhaust, means whereby the valve, in its movement, connects opposite ends of the main piston-chamber respectively with the exhaust-channel and one of said supply-channels, and means controlled by the main piston to place opposite sides of the valve-piston chamber alternately in communication with the exhaust, substantially as described.

4. The combination, with the cylinder, the piston-chamber and piston therein, and the valve and its casing, of a stationary piston on the valve-casing extending into a valve-piston chamber in the valve, three channels in the valve, ports connecting the two outside channels respectively with opposite sides of the valve-piston chamber, three channels in the valve-casing adapted to register respectively with the three channels in the valve in either position of the valve, the two outside valve-casing channels being adapted to be placed in constant communication with the supply and the middle valve-casing channel being adapted to be placed in constant communication with the exhaust, means whereby the valve, in its movement, connects opposite ends of the main piston-chamber respectively with the middle valve-channels and one of the outside valve-channels, and means controlled by the main piston to place opposite sides of the valve-piston chamber alternately in communication with the exhaust, substantially as described.

5. The combination, with the cylinder, the piston-chamber and piston therein, and the valve and its casing, of a stationary piston on the valve-casing extending into a valve-piston chamber in the valve, three channels in the valve, ports connecting the two outside channels respectively with opposite sides of the valve-piston chamber, three channels in the valve-casing adapted to register respectively with the three channels in the valve in either position of the valve, two passages in the end of the valve-casing connected with the two outside valve-casing channels, said two passages being adapted to be placed in constant communication with the supply, an exhaust-chamber communicating with the middle valve-casing channel, means whereby the valve in its movement, connects opposite ends of the main piston-chamber respectively with the middle valve-channel and one of the outside valve-channels, and means controlled by the main piston to place opposite sides of the valve-piston chamber alternately in communication with the exhaust, substantially as described.

6. The combination, with the cylinder, the piston-chamber and piston therein and the valve and its casing, of a stationary piston on the valve-casing extending into a piston-chamber formed in the valve, means whereby motive fluid may be constantly admitted to said valve-piston chamber on both sides of said valve, passages extending from opposite sides of the valve to the piston-chamber, an annular channel formed in the piston adapted in the movement of the piston to be alternately connected with said passages, ports in said piston-chamber adapted to be placed in constant communication with the exhaust, said annular channel being adapted in the movement of the piston to be alternately connected with said ports, whereby in the movement of the piston the opposite sides of the valve-piston are alternately placed in communication with the exhaust, thereby shifting the valve, and means whereby the valve, so shifted, controls the reciprocation of the piston, substantially as described.

7. The combination, with the cylinder, the piston-chamber and the piston therein, of a cylindrical valve having formed in its face a piston-chamber and oppositely thereto an exhaust-channel and on each side of the exhaust-channel, a supply-channel, a valve-casing having formed on its opposite inner faces supply-channels extending longitudinally of the valve and in constant communication with the supply-channels in the valve-face in either position of the valve, said valve-casing having formed in its ends passages each of which connects the corresponding ends of the supply-channels in the valve-casing, one at least of said passages being adapted to be connected with the supply, means whereby the valve-channels, in the movement of the valve, controls the reciprocation of the piston, and means whereby the piston, in its reciprocation, creates an unbalancing of pressure in the piston-valve chamber, substantially as described.

8. The combination, with the cylinder, the piston-chamber, and the piston therein, of a cylindrical valve having supply and exhaust passages and a valve-piston chamber, a valve-casing having supply and exhaust passages communicating with the valve-piston chamber and the supply and exhaust passages in the valve, passages leading to the ends of the piston-chamber for controlling the admission of motive fluid thereto and passages controlled by the piston for actuating the valve, the arrangement of said passages in the valve and valve-casing being such that the valve-casing and valve may each be divided longitudinally or transversely into two halves substantially exact counterparts of each other, substantially as described.

9. The combination, with the cylinder and piston therein, of a rotary valve alongside the cylinder and whose axis extends at right angles thereto, a valve-casing secured to the cylinder and inclosing

the valve, a cover at each end of the valve, there being alining bolt-holes in casing and covers through which bolts extend to secure the same together, motive-fluid passages in the cylinder and valve, and motive-fluid passages in the valve-casing and covers, the ends of the passages in each cover communicating with the corresponding ends of passages in the valve-casing, thereby forming an air space or passage in the valve-casing and covers entirely surrounding the valve, whereby the valve and piston, in their reciprocation, each control the reciprocation of the other, substantially as described.

10. The combination, with the cylinder and piston therein, of a rotary valve, a valve-casing secured to the cylinder and inclosing the valve, a cover at each end of the valve secured to the casing, motive-fluid passages in the cylinder and valve, and motive-fluid passages in the valve-casing and covers, the ends of the passages in each cover communicating with the corresponding ends of passages in the valve-casing, thereby forming an air space or passage in the valve-casing and covers entirely surrounding the valve, whereby the valve and piston, in their reciprocations, each control the reciprocation of the other, the arrangement of passages being such that the valve-casing and valve may each be divided longitudinally or transversely into two substantially exact counterpart halves, the two covers being also substantially exact counterparts, substantially as described.

11. The combination, with the cylinder, the piston-chamber and piston therein, the rotary valve, and the valve-casing and end covers therefor, of passages connecting opposite ends of the main piston-chamber with the valve-chamber, an exhaust-chamber in the cylinder, oppositely-disposed openings therefrom adapted to receive an exhaust-pipe, a passage connecting the exhaust-chamber with the valve-chamber, an exhaust-channel formed in and extending longitudinally of the valve and in constant communication with the last-named passage, two supply-channels formed in the valve and extending longitudinally of the valve on either side of the exhaust-channel, supply-channels in the valve-casing extending longitudinally of the valve and in constant communication respectively with the supply-channels in the valve, a cover at each end of the valve-casing, supply-passages in each cover the opposite ends of each of which communicate respectively with the said supply-channels in the valve-casing, an opening from each supply-passage adapted to receive a supply-pipe, a valve-piston chamber formed in the periphery of and extending longitudinally of the valve, a valve-piston on the valve-casing projecting within said valve-piston chamber, ports connecting said valve-piston chamber with the supply-channels formed in the valve, a passage connecting one side of said valve-piston chamber with the main piston-chamber, on one side of its longitudinal center, a passage connecting the other side of said valve-piston chamber with the main piston-chamber on the other side of its longitudinal center, ports connecting the exhaust-chamber with the main piston-chamber, the openings thereof into the main piston-chamber being in substantial circumferential alinement respectively with the openings into the main piston-chamber of the last-named passages, and an annular channel formed in the main piston, the valve being adapted to rotate on its axis and thereby alternately connect the passages leading to the ends of the main piston-chamber with the exhaust, and the piston, by its reciprocation, alternately connecting the opposite sides of the valve-piston chamber with the exhaust by means of said annular channel and the said alining ports and passages, substantially as described.

787,377. **VENTILATOR.** SAMUEL D. HANNEY, Chicago, Ill. Filed Apr. 21, 1904. Serial No. 204,243.

Claim.—1. In a ventilator, the combination of a tubular member, a supporting-bracket encircling said member and having a hollow shank communicating with the interior of said member, extending transversely of said member and adapted to abut endwise against a wall or the like; a nipple of uniform external diameter adapted to pass through the wall and enter the adjacent end of the shank, and having threaded engagement therewith; a flange on the end of said nipple adapted to abut against the other side of the wall; and means within said member for controlling the passage of air therethrough, substantially as described.

2. In a ventilator, the combination of a tubular member having air-holes through its walls; a branch tube rigidly secured to said tubular member and having a longitudinal passage extending through the same and communicating with the interior of said member; a plug fitting one end of said member and movable therein; a valve-plate secured to said plug and extending along the interior of said member and adapted to control the flow of air through said branch tube and air-holes; and a part secured to the tube at the free end of said plate and having a seat bearing against the inner surface of said plate for supporting and guiding the plate, substantially as described.

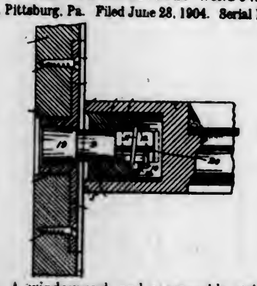


3. In a ventilator, the combination of a tubular member having air-holes through its walls; a branch tube rigidly secured to said tubular member and having a longitudinal passage extending through the same and communicating with the interior of said member; a plug fitting one end of said member and movable therein; a valve-plate secured to said plug and extending along the interior of said member and adapted to control the flow of air through said branch tube and air-holes; a second plug in the opposite end of said tube and having at its inner end a seat adapted to receive the free end of said plate, substantially as described.

4. In a ventilator, the combination of a tubular member having air-holes through its walls; a branch tube rigidly secured to said tubular member and having therein a longitudinal passage communicating with the interior of said member; a plug fitting one end of said member and rotatably mounted therein; a valve-plate secured to said plug and extending along the interior of said member and adapted to control the flow of air through said branch tube and air-holes; a second plug in the opposite end of said tube and having in its inner end an annular seat adapted to receive the free end of said plate, substantially as described.

5. In a ventilator, the combination of a tubular member having air-holes through its walls; a branch tube rigidly secured to said tubular member and having therein a longitudinal passage communicating with the interior of said member; a plug fitting one end of said member and rotatably mounted therein; a valve-plate secured to said plug and extending along the interior of said member and adapted to control the flow of air through said branch tube and air-holes; a stud projecting transversely from said plug, the walls of said tube being pressed outwardly to form a seat for said stud, and said seat being of suitable form to limit the rotation of the plug and prevent the same from being withdrawn from said member except when the plug is rotated to a certain position, substantially as described.

787,378. **HORIZONTALLY-PIVOTED WINDOW.** HARVEY B. HITTESHEW, Pittsburg, Pa. Filed June 28, 1904. Serial No. 214,454.



Claim.—1. A window-sash and a separable strip on its side edge, there being corresponding grooves and ridges on the adjoining faces, and a pivotal connection between the sash and the strip comprising a pivot having an endwise-movable non-rotatable bearing in the one and a rotatable tapered bearing in the other, and a spring acting to draw the sash and the strip together and to draw the pivot into the tapered bearing.

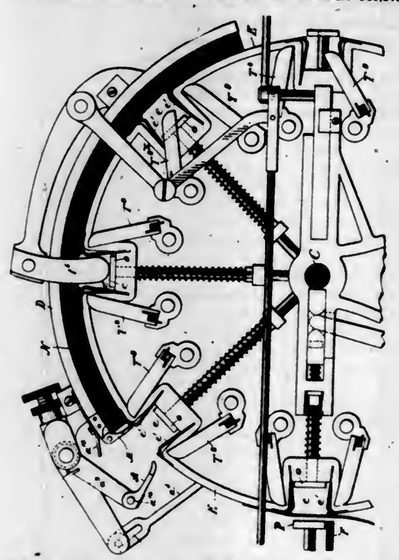
2. A pivotal connection for a window-sash and a separable strip comprising a pivot having an endwise-movable non-rotatable bearing in the one and a rotatable tapered bearing in the other, and a spring acting to draw the sash and the strip together and to draw the pivot into the tapered bearing.

3. A pivotal connection for a window-sash and a separable strip comprising plates having an axial aperture in the one and a tapered bearing in the other, a non-rotatable endwise-movable pivot in the aperture having an inwardly-tapered head in the bearing, and means for drawing the head into the bearing.

4. In a pivotal connection for a window-sash and a separable strip, a pivot having an endwise-movable non-rotatable bearing in the one and a rotatable tapered bearing in the other, and a spring acting to draw the pivot into the tapered bearing.

5. In a pivotal connection for a window-sash and a separable strip, a pivot having an endwise-movable non-rotatable bearing in the one and a rotatable tapered bearing in the other, and means for moving the pivot into the tapered bearing.

787,379. **WRAPPING-MACHINE.** ARCHIBALD H. HOPKINS, Dixon, Ill., assignor to Borden's Condensed Milk Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 9, 1903. Serial No. 146,872.



Claim.—1. In a wrapping-machine, in combination with a rotative shaft and an intermittently-rotated carrying-wheel provided in its periphery with a pocket adapted to hold an article partly enveloped in a wrapper, a rock-shaft mounted on a stationary part, an arm loosely mounted on said shaft, means for arresting the movement of said arm relatively to said shaft in one direction, a spring disposed to move said arm relatively to said shaft in the opposite direction, a folder journaled to, actuated by, and free to move relatively to said arm against spring-pressure, and means to actuate said rock-shaft whereby said folder is caused during a pause of said wheel to move yieldingly over said article and wrapper to make the first side fold of the wrapper, is stopped on encountering abnormal resistance and is retracted when said wheel is again rotated.

2. In a wrapping-machine, in combination with a rotative shaft and an intermittently-rotated carrying-wheel provided in its periphery with a pocket adapted to hold an article partly enveloped in a wrapper, a rock-shaft mounted on a stationary part, an arm sleeved on said shaft, a projection on said shaft normally bearing against a projection on said sleeve, a spring disposed to positively move said projection on said arm toward said projection on said shaft, a folder journaled to, actuated by, and free to move relatively to said arm against spring-pressure, and means to actuate said rock-shaft whereby said folder is caused during a pause of said wheel to move yieldingly over said article and wrapper to make the first side fold of the wrapper, is stopped on encountering abnormal resistance and is retracted when said wheel is again rotated.

3. In a wrapping-machine means for intermittently driving a carrying-wheel and during the pauses of said wheel actuating a folder movably mounted upon a stationary part, comprising in combination a rotary shaft on which said carrying-wheel is journaled a ratchet-wheel rigidly connected with said carrying-wheel, a crank on said driving-shaft, a lever pivoted on a stationary portion, a connecting-rod between said lever and crank, an arm loosely sleeved upon said shaft a longitudinally-adjustable rod connecting said lever and arm, a pawl on said arm and engaging said ratchet, and means connecting said arm with said folder to impart thereto the movements required.

4. In a wrapping-machine means for intermittently driving a carrying-wheel and actuating a folder during the pauses of said wheel comprising in combination a rotary shaft on which said carrying-wheel is journaled a ratchet-wheel rigidly connected with said carrying-wheel, a crank on said driving-shaft, a lever pivoted on a stationary portion, a connecting-rod between said lever and crank, an arm loosely sleeved upon said shaft a longitudinally-adjustable rod connecting said lever and arm, a pawl on said arm and engaging said ratchet, a rock-shaft journaled in a stationary part and means to connect said arm with said rock-shaft, and said rock-shaft with said folder.

5. In a wrapping-machine, the combination with a rotary carrying-wheel provided in its periphery with a pocket adapted to receive and carry an article partly enveloped in a wrapper, of a supporting member independent of said wheel, a movable finger loosely journaled to said member and having a free end adjacent to said periphery, said finger being, in its normal position disposed substantially radially relatively to said wheel, means to stop said finger from moving beyond normal position toward the direction from which said pocket advances, a spring disposed and supported to constantly force said finger toward and into said normal position and tensioned to yieldingly hold said finger in said position when said finger is contacted by projecting portions of said wrapper and to permit said finger to swing away from said periphery when said finger is contacted with more rigid projections from said pocket, whereby said projecting portions of said wrapper are folded to place by being carried to contact with and beyond said finger, and rotation of said wheel unimpeded by abnormal projections from said pocket.

6. In a wrapping-machine, the combination with a rotatery carrying-wheel provided in its periphery with a pocket adapted to receive and carry an article partly enveloped in a wrapper, of a supporting member independent of said wheel, a movable finger loosely journaled to said member and having a free end adjacent to said periphery and deflected in the direction of its rotation, said finger being, in its normal position, disposed substantially radially relatively to said wheel, means to stop said finger from moving beyond normal position toward the direction from which said pocket advances, a spring disposed and supported to constantly force said finger toward and into said normal position and tensioned to yieldingly hold said finger in said position when said finger is contacted by projecting portions of said wrapper and to permit said finger to swing away from said periphery when said finger is contacted with more rigid projections from said pocket, whereby said projecting portions of said wrapper are folded to place by being carried to contact with and beyond said finger, and rotation of said wheel unimpeded by abnormal projections from said pocket.

7. In a wrapping-machine the combination with a rotative carrying-wheel provided on its periphery with a pocket adapted to receive and carry an article partly enveloped in a wrapper of a brake-piece unsupported by said wheel, movably mounted, and supported, independently of said wheel, upon a stationary part, and disposed and shaped to engage against and bend down upon said partly-enveloped article, in a direction opposite to that of the rotation of said wheel, a portion of said wrapper projecting radially from the periphery of said wheel to make the second side fold in said wrapper, and a brush likewise mounted and supported, without dependence on said wheel, upon a stationary part adjacent to and behind said brake-piece the tips of the bristles of said brush being collectively concentric with said wheel and contacting in part with said wrapper during the operation of said brake-piece and sequentially thereafter during the rotation of said wheel.

8. In a wrapping-machine the combination with a rotative carrying-wheel, provided on its periphery with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of bristles each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said bristles independently of and without dependence on said wheel and its contents, whereby said article together with a fold of its said wrapper may be held continuously to place by yielding pressures imparted by said bristles during rotation of said wheel and the folding of other portions of said wrapper.

9. In a wrapping-machine the combination with a rotative carrying-wheel, provided on its periphery with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a hold-

ing device comprising a plurality of independent fingers each equally flexible and resilient in all directions transversely of its central longitudinal axis each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said independent fingers independently of and without dependence on said wheel and its contents, whereby said article together with a fold of its said wrapper may be held continuously to place by yielding pressures imparted by said independent fingers during rotation of said wheel and the folding of other portions of said wrapper.

10. In a wrapping-machine the combination with a rotative carrying-wheel, provided on its periphery with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of radially-disposed bristles each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said bristles independently of and without dependence on said wheel and its contents, whereby said article together with a fold of its said wrapper may be held continuously to place by yielding pressures imparted by said bristles during rotation of said wheel and the folding of other portions of said wrapper.

11. In a wrapping-machine the combination with a rotative carrying-wheel, provided on its periphery with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of radially-disposed independent fingers each equally flexible and resilient in all directions transversely of its central longitudinal axis each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said independent fingers independently of and without dependence on said wheel and its contents, whereby said article together with a fold of its said wrapper may be held continuously to place by yielding pressures imparted by said independent fingers during rotation of said wheel and the folding of other portions of said wrapper.

12. In a wrapping-machine the combination with a rotative carrying-wheel, provided on its periphery with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of radially-disposed bristles each having one of its ends free to move in contact with said wrapper and its remaining end stationary, a stationary segmental member concentrically disposed to thus support and hold said bristles, and means to support said member independently of and without dependence on said wheel and its contents, whereby said article together with a fold of its said wrapper may be held continuously to place by yielding pressures imparted by said bristles during rotation of said wheel and the folding of other portions of said wrapper.

13. In a wrapping-machine the combination with a rotative carrying-wheel, provided on its periphery with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of radially-disposed independent flexible and resilient fingers each having one of its ends free to move in contact with said wrapper and its remaining end stationary, a stationary segmental member concentrically disposed to thus support and hold said independent flexible and resilient fingers, and means to support said member independently of and without dependence on said wheel and its contents, whereby said article together with a fold of its said wrapper may be held continuously to place by yielding pressures imparted by said bristles during rotation of said wheel and the folding of other portions of said wrapper.

14. In a wrapping-machine an intermittently-rotated carrying-wheel provided in its periphery with a pocket adapted to hold an article partly enveloped in a flexible wrapper, a folder movably supported on a stationary part adjacent to said wheel, a spring supported and disposed to normally and positively move said folder in the direction of rotation of said wheel against a portion of the wrapper projecting radially from the pocket, and tensioned to impart to said folder impulse adequate to fold said wrapper, and means to intermittently retract and hold said folder from the wrapper against the stress of said spring during rotation of said wheel, whereby, when released by said retracting and holding means, said folder is positively actuated to fold, tangentially to said periphery, a radially-projecting portion of said wrapper by the impulse communicated to said folder by said spring and to pause when contacted by more rigid projections from said pocket, and the folder, the wheel, and the contents of the pocket exempted accordingly from injurious strains.

15. In a wrapping-machine the combination with a rotatory carrying-wheel provided in its periphery with a pocket adapted to receive and carry an article partly enveloped in a wrapper having radially-projecting portions, of a supporting member independent of said wheel, a movable finger loosely journaled to said member and having a free end adjacent to said periphery, said finger being in its normal position disposed substantially radially relatively to said wheel, means to stop said finger from moving beyond normal position toward the direction from which said pocket advances, a spring disposed and supported to constantly force said finger toward and into said normal position and tensioned to yieldingly hold said finger in said position when said finger is contacted by one of said radially-projecting portions of said wrapper and to permit said finger to swing away from said periphery when said finger is contacted by more rigid projections from said pocket, and, proximate to and behind said finger, a holding device comprising a plurality of bristles each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said bristles independently of and without dependence on said wheel and its contents, whereby on rotation of said wheel one of said projecting portions of said wrapper may be folded down upon said article by said finger and during such folding and thereafter held continually, and pressed, to place by yielding pressures imparted by said bristles during continued rotation of said wheel and the folding of other portions of said wrapper.

16. In a wrapping-machine the combination with a rotatory carrying-wheel provided in its periphery with a pocket adapted to receive and carry an article partly enveloped in a wrapper having radially-projecting portions, of a supporting member independent of said wheel, a folding-finger secured to said member and having a free end adjacent to said periphery, and, proximate to and behind said finger, a holding device comprising a plurality of bristles each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said bristles independently of and without dependence on said wheel and its contents, whereby on rotation of said wheel one of said projecting portions of said wrapper may be folded down upon said article by said finger and, during such folding and thereafter, held continually, and pressed, to place by yielding pressures imparted by said bristles during continued rotation of said wheel and the folding of other portions of said wrapper.

17. In a wrapping-machine the combination with a carrier provided with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of bristles, each having one of its ends free to move in contact with said wrapper and its other end stationary, and means to thus support and hold said bristles independently of and without dependence on said carrier and its contents, whereby said article, together with a fold of its said wrapper, may be held continuously to place by yielding pressures imparted by said bristles during rotation of said carrier and the folding of other portions of said wrapper.

18. In a wrapping-machine the combination with a carrier provided with pockets each adapted to receive and carry an article partly enveloped in a wrapper, of a holding device comprising a plurality of independent fingers each equally flexible and resilient in all directions transversely of its central longitudinal axis, each having one of its ends free to move in contact with said wrapper and its other end held stationary and means to thus support and hold said fingers independently of and without dependence on said carrier and its contents, whereby said article, together with a fold of its said wrapper, may be held continuously to place by yielding pressures imparted by said fingers during movement of said carrier and the folding of other portions of said wrapper.

787,380. PROCESS OF MAKING ALKALI CYANIDS. CHARLES B. JACOBS, Port Chester, and ROBERT A. WITHERSPOON and NATHANIEL THURLOW, Niagara Falls, N. Y., assignors, by mesne assignments, to Cyanide Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 20, 1903. Serial No. 157,968.

Claim.—1. The process of obtaining alkali cyanid which consists in reacting upon alkaline-earth cyanids or cyanamids with an alkali compound, forming a solution of the product of such reaction, cooling said solution to a temperature where the alkali cyanid formed separates out leaving the impurities in the solution.

2. The process of obtaining alkali cyanid which consists in reacting upon alkaline-earth cyanids or cyanamids with an alkali compound forming a solution of the product of such reaction, cooling said solution to a temperature of 5° centigrade or lower to separate out the alkali cyanid formed, leaving the impurities in the solution.

3. The process of obtaining alkali cyanid, which consists in reacting upon a cyanamid with an alkali, forming a solution of the reaction mass, concentrating and cooling said solution to a point where the alkali cyanid formed separates out leaving the impurities in solution.

4. The process of obtaining alkali cyanid, which consists in reacting upon a mass containing alkaline-earth cyanids and cyanamids with an alkaline carbonate to convert the cyanids and cyanamids into alkali cyanids, forming a solution of the reaction mass, cooling the solution so obtained, whereby the alkali cyanid resulting from the reaction separates out leaving the impurities in the solution, then separating the alkali cyanid from the solution.

5. The process of obtaining alkali cyanid, which consists in reacting upon a mass containing alkaline-earth cyanids and cyanamids and carbon with an alkaline carbonate, forming a solution of the reaction mass, concentrating and cooling the solution so obtained, whereby the alkali cyanid resulting from the reaction separates out leaving the impurities in the solution, and then separating the alkali cyanid from the solution.

6. The process of obtaining alkali cyanid, which consists in reacting upon a mass containing alkaline-earth cyanids and cyanamids with an alkaline carbonate, forming a solution of the reaction mass, cooling the solution so obtained, whereby the alkali cyanid resulting from the reaction separates out leaving the impurities in the solution, then separating the alkali cyanid from the solution, reconcentrating said solution containing the impurities until a further quantity of alkali cyanid separates out, adding the crystals so obtained to a fresh quantity of lixiviated solution of the reaction mass, concentrating this solution, cooling the same, filtering, and again cooling until sodium cyanid separates out.

7. The process substantially as herein described of treating a mixture of alkaline-earth cyanids and cyanamids with a fixed alkali carbonate at a red heat, thereby obtaining the fixed alkali cyanids, forming a solution of this in water together with the soluble impurities present, concentrating and cooling this solution to a point at which only cyanid of the alkali metal separates out leaving the impurities in solution.

8. The process of obtaining alkali cyanid, which consists in treating a mixture of alkaline-earth cyanids and cyanamids with a fixed alkali carbonate at a red heat, thereby obtaining the fixed alkali cyanids, forming a solution of this in water together with the soluble impurities present, removing from said solution the substances which are less soluble than the alkali cyanids to be produced, by precipitation of said substances with a reagent which leaves in the solution products of greater solubility than the said alkali cyanids, concentrating and cooling this solution to a point at which only cyanid of the alkali metal separates out leaving the impurities in solution.

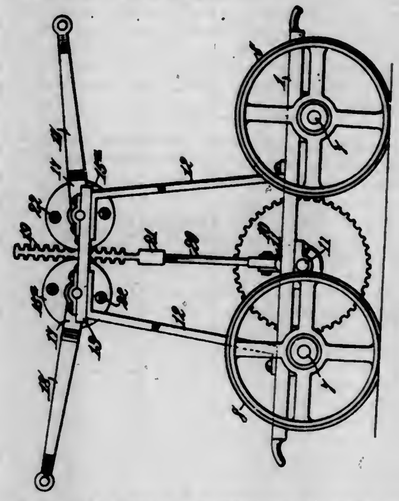
9. The process of obtaining alkali cyanid, which consists in reacting upon a mass containing alkaline-earth cyanids and cyanamids with an alkaline carbonate to convert the cyanids and cyanamids into alkali cyanids, forming a solution of the reaction mass, treating said solution with a precipitant for the alkaline-earth compounds present, removing said precipitate, concentrating and cooling the solution to a point where only the alkali cyanid separates out leaving the impurities in solution.

10. The process of obtaining alkali cyanid, which consists in treating a mixture of alkaline-earth cyanids and cyanamids with a fixed alkali carbonate at a red heat, thereby obtaining the fixed alkali cyanids, forming a solution of this in water together with the soluble impurities present, treating said solution with sodium bicarbonate, removing the precipitate formed, concentrating and cooling the solution to a point at which only cyanid of an alkali metal separates out leaving the impurities in solution.

11. The process which consists in treating a mixture of alkaline-earth cyanid and cyanamid with an alkali carbonate, heating the mass to a temperature to convert the cyanid and cyanamid to alkali cyanid, lixiviating the mass, precipitating from the solution so obtained the alkaline-earth compounds present, and concentrating and cooling the solution to a point where only the alkali cyanid separates out leaving the impurities in solution.

12. The process which consists in treating a mixture of alkaline-earth cyanid and cyanamid with an alkali carbonate, heating the mass to a temperature to convert the cyanid and cyanamid to alkali cyanid, lixiviating the mass, precipitating from the solution so obtained the alkaline-earth compounds, and concentrating and cooling the solution to precipitate some of the impurities, removing said impurities, then further concentrating and cooling the solution to a point where only the alkali cyanid separates out, leaving the remaining impurities in solution.

787,381. HAND-CAR. PAUL J. KAMPER, Sioux City, Iowa. Filed Aug. 24, 1904. Serial No. 222,001.



Claim.—1. In a hand-car, the combination of a frame having wheeled axles, one of the axles carrying a pinion, a master-gear meshing with the pinion, a crank-shaft on which the master-gear is disposed, a gallows rising from the frame, a connecting-rod attached to the crank of the shaft on which the master-gear is mounted, the connecting-rod being movable directly over the one face of the master-gear, a double rack-bar attached to the upper extremity of the connecting-rod, and prime operating means held by the gallows and engaging opposite sides of the rack-bar.

2. In a hand-car, the combination of a frame having wheeled axles, one of the axles having a pinion thereon, a master-gear held by the frame and meshing with the pinion, a double rack-bar for operating the master-gear, and prime operating means supported above the frame and meshing with the opposite sides of the rack-bar, the rack-bar and the said prime operating means being adjustable to take up wear.

3. In a hand-car, the combination of a frame having wheeled axles, a gallows supported thereon, reversible gears held on the gallows, a double rack-bar movably disposed between and held in continual mesh with the gears, and driving mechanism for one of the axles and to which the said rack-bar is attached.

4. In a hand-car, the combination of a frame having wheeled axles, driving mechanism held by the frame and one of the axles, a double rack-bar attached to a part of the driving mechanism, reversible gears supported above the frame and engaging the opposite sides of the rack-bar, heads movably attached to the gears, and hand-bars having inner yoked extremities engaging the heads.

5. The combination with a hand-car having driving mechanism for one of the axles, of a double rack-bar movably connected to a part of the driving mechanism, reversible gears held above the driving mechanism in close mesh with the opposite sides of the rack-bar, and means for operating the gears to actuate the rack-bar.

6. The combination with a hand-car having driving mechanism cooperating with one of the axles thereof, of a gallows thereon, gears having fixed shafts terminally held on the upper portion of the gallows, a double rack-bar movably disposed between the said gears and connected to a part of the driving mechanism, heads movably applied to opposite portions of the gears and operating to maintain the rack-bar in true vertical position, and hand-bars having inner yoked extremities let into the heads and provided with terminals engaging the shafts.

7. The combination with a hand-car having actuating mechanism for one of the axles thereof, of a double rack-bar connected to a part of the said mechanism, gears held above the mechanism and engaging opposite sides of the rack-bar, heads removably and rotatably mounted against opposite sides of the gears, and hand-bars connected to the heads.

8. In a hand-car, the combination of a wheeled frame having axles, one of the axles being provided with a pinion, a crank-shaft

mounted in a portion of the frame, a master-gear centrally connected to the crank-shaft, a double rack-bar attached to the crank of the said shaft and movable over one side of the master-gear, and gear elements held above the mechanism and engaging the opposite sides of the rack-bar, said gear elements confining the rack-bar between them and having projecting heads extending over the teeth of the rack-bar engaging the same to prevent contact therewith, of adjacent members.

787,382. **TUBULAR BRAID.** CHARLES KLEIN, Brooklyn, N. Y., assignor to The Castle Braid Company, a Corporation of New York. Filed July 30, 1903. Serial No. 117,622.



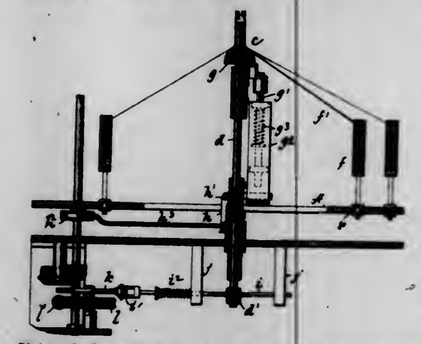
Claim.—1. As a new and useful article of manufacture, a tubular braid consisting of a braided body, having wales or ribs of a general undulating form running longitudinally thereof and selvage edges united by a thread or filament after the manner of a loop-stitch.

2. As a new and useful article of manufacture, a tubular braid having selvage edges of a general undulating form bound together by a thread substantially as set forth and ribs or wales of a general undulating form running longitudinally thereof.

3. As a new and useful article of manufacture, a tubular braid consisting of a braided body, having two selvage edges of wavy form, the waves of one edge fitting the waves of the other edge, and means for uniting said edges, substantially as described.

4. As a new and useful article of manufacture, a tubular braid having extending longitudinally thereof wavy edges, the waves of one edge fitting the depressions between the waves of the other edge, and a binder-thread entering both edges and binding the said edges together.

787,383. **BRAID-MACHINE.** CHARLES KLEIN, Brooklyn, N. Y., assignor to The Castle Braid Company, a Corporation of New York. Filed Aug. 2, 1902. Serial No. 118,152.



Claim.—1. In a braid-machine, the combination of a race-plate and spools which run therein, a central spindle around and upon which the braid is formed and means for imparting an oscillatory or twisting movement to the spindle at intervals, for the purpose described.

2. In a braid-machine, the combination of a race-plate and spools therein, of a central spindle around and upon which the braid is fabricated in tubular form, and a pusher located beneath the apex of the shed for stripping the tubular braid from the spindle.

3. In a braid-machine, a race-plate having a main race therein, spools adapted to travel back and forth from end to end in said race, a supplemental race intercepting the ends of the main race and spools adapted to travel therein, a central spindle around and upon which the braid is formed, and means for oscillating said spindle, for the purpose set forth.

4. In a braid-machine, a race-plate provided with a main race and a supplemental race intercepting the ends of the main race, spools traveling in the respective races, a central spindle around and upon which the braid is formed, and a pusher located beneath the apex of the shed and adapted to strip the braid from the spindle.

5. In a braiding-machine, the combination of a main race carrying spools for the body of the braid, a supplemental race carrying spools for binding the edges of the braid together, means for fabricating the braid in tubular form and means for twisting the braid while being fabricated.

6. In a braiding-machine, the combination of a race-plate, a main and a supplemental race therein, two sets of spools for the respective races, a central spindle to which the shed leads and around and upon which a tubular braid is formed, means for twisting the central spindle and a pattern for determining the extent and time of the twisting, substantially as described.

7. In a braiding-machine, the combination of a race-plate, a main and a supplemental race therein, two sets of spools for the respective races, a central spindle to which the shed leads and around and upon which a tubular braid is formed, a pinion on the central spindle, a rack engaging said pinion and a rotating pattern-cam adapted to move said rack, substantially as described.

8. In a machine for forming a tubular braid, the combination of traveling carriers for the threads, a braid-forming mandrel or finger, a race in which the carriers are adapted to travel, the said race having terminal loops adapted for the formation of a flat braid, and means for producing relative movement of rotation between the braid-forming mandrel or finger and the terminal points of the race and means for securing the edges of the flat braid together for forming a tubular braid, whereby there will be formed a tubular braid having selvage edges of a general undulating or wavy form bound together.

9. In a machine for forming a tubular braid, the combination of an organism constructed and arranged to produce a flat braid, the said organism comprising in its structure a braid-forming mandrel or finger and means for producing a relative movement of rotation between the mandrel or finger and other parts of the machine, and means for binding the edges of the flat braid together for forming a tubular braid.

10. In a machine for forming a tubular braid, the combination of means for forming a flat braid having selvage edges of a general undulating form, including a braid-forming mandrel or finger and means for rotating the same, and means operating simultaneously with the braiding devices during the production of the flat braid for binding the edges of the flat braid together for forming a tubular braid.

11. In a machine adapted to form a tubular braid, with undulating ribs, the combination of a flat braider combined with a rotary guiding device for a tubular braid and means for converting the flat braid into a tubular braid during its process of formation, whereby a braid with matched wavy selvage edges is formed.

12. A braiding-machine comprising in its structure a flat braider, including a device for forming guiding and twisting a braid during its process of formation, and means for binding together the edges of the flat braid while the same is being formed.

13. In a braiding-machine the combination of a flat braider, including means for forming a wavy braid having matched wavy, selvage edges, and means for throwing a thread for binding together the selvage edges when the same are being formed.

14. In a braiding organism the combination of a device for forming a braid with matched wavy selvage edges, and means for binding together the said selvage edges during the process of formation of the said selvage edges.

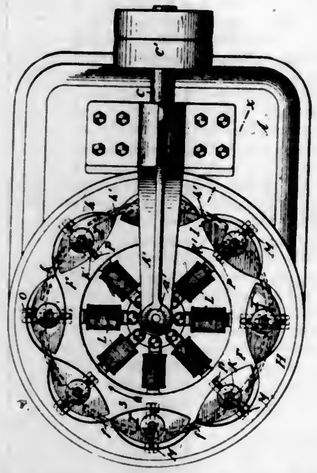
15. In a braiding organism, the combination of a guiding-finger provided with means for imparting an intermittent movement of rotation thereto, braiding devices for producing a braid having selvage edges and means operating in harmony with the braiding devices for binding the selvages of the braid together.

16. In a braiding organism, the combination of braiding devices including means for producing a wavy braid having matched wavy selvages and a thread-carrier coöperating therewith, and means for imparting thereto a movement such as to interweave its thread into the selvages of the braid.

17. In a braiding organism, the combination of braiding devices for producing a braid having matched, wavy selvages and a thread-carrier operating in harmony with the braiding devices to bind the selvages of the braid together.

787,384. **BRAIDING-MACHINE.** ALEXIS LE BLANC, New York, N. Y., assignor of one-third to Ira W. Henry, New York, N. Y. Filed Jan. 8, 1904. Serial No. 188,183.

Claim.—1. In a braiding-machine having two series of bobbins, and means for moving one series in a relatively opposite direction to the other; an automatically-actuated interlacing-plate, alternately shiftable to present alternate thread-guiding edges, substantially as described.



2. In a braiding-machine, a series of thread-carriers, a shiftable interlacing-plate for guiding one thread of the braid outwardly or inwardly past another thread, the said plate having outer and inner thread-guiding edges, and being automatically shifted by the passage of a thread-carrier along one guiding edge to present the other guiding edge to the next following thread-carrier, substantially as described.

3. A braiding-machine having two series of bobbins, means for moving one series in a relatively opposite direction to the other series, thread-carriers for moving the thread from one series, and a series of interlacing-plates having outer and inner thread-guiding edges and being automatically shifted by the passage of a thread-carrier on one guiding edge to present the other guiding edge to the next following thread-carrier, substantially as described.

4. In a braiding-machine having two series of bobbins, an inner wheel bearing one series of bobbins, an outer ring surrounding and having movement in an opposite direction relatively to the inner wheel, and alternately-shiftable guide or interlacing plates accompanying said ring, said plates carrying the other series of bobbins and adapted to guide the threads from the wheel outwardly or inwardly past the threads from said plates, substantially as described.

5. In a braiding-machine having two series of bobbins, an inner wheel bearing one series of bobbins an outer ring surrounding and having movement relatively to the wheel, and a series of interlacing-plates accompanying said ring, said plates being free to shift to present alternate guiding edges to guide the threads from one series of bobbins outwardly or inwardly past the threads of the other series, substantially as described.

6. In a braiding-machine having two series of threads, an inner wheel bearing one series, and an outer ring surrounding and having motion relative to said wheel, and provided with a series of recesses therein, guiding or interlacing plates shiftably disposed in the recesses of the ring, and means for shifting said plates so that they present alternately an inner and an outer guiding edge to guide the threads of said first-named series in a sinuous path outwardly and inwardly past the threads of the other series, substantially as described.

7. A braiding-machine having two series of threads, an inner wheel bearing one series of threads, an outer ring surrounding said wheel having a series of recesses on the inside thereof, and thread guiding or interlacing plates shiftably disposed in the recesses of the ring, said plates having a sliding connection with the inner wheel whereby said wheel may move past the guiding-plates though supporting them, substantially as described.

8. In a braiding-machine, an inner thread-carrier-moving wheel bearing one series of braiding-threads, an outer ring surrounding said wheel and having another series of threads accompanying it, thread-carriers moved by the said inner wheel, and shiftable interlacing-plates for automatically guiding the thread-carriers to one side or the other of the threads accompanying said ring, substantially as described.

9. In a braiding-machine, an inner wheel, an outer ring surrounding the said wheel and having a motion in an opposite direction relative to said wheel, a series of bobbins supported on said inner wheel, thread-carriers accompanying said inner wheel and moving the threads therefrom, shiftable interlacing or guiding plates in the path of said carriers, and another series of bobbins supported on said plates, substantially as described.

10. In a braiding-machine, an inner wheel, an outer ring surrounding the said wheel and having a motion in an opposite direction relative to said wheel, a series of bobbins supported on said inner wheel, thread-carriers accompanying said inner wheel and moving the threads therefrom, interlacing or guiding plates accompanying said outer ring in the path of the said thread-carriers, and a series of bobbins supported by said plates, substantially as described.

11. In a braiding-machine, an inner wheel rotary in one direction, an outer ring surrounding said wheel and rotating in an opposite direction to the inner wheel, a series of bobbins supported on said inner wheel, thread-carriers accompanying said inner wheel and moving the threads therefrom, interlacing or guiding plates having two opposite guiding edges accompanying said outer ring in the path of said thread-carriers, said plates having a rocking point and being shiftable by the passage of a thread-carrier to present another guiding edge to the next following carrier, and a series of bobbins on said plates between the guiding edges thereof, substantially as described.

12. In a braiding-machine, an inner, rotary wheel; a series of thread-carriers radially movable thereon; and interlacing or guiding plates in the path of movement of said carriers, said plates having opposite guiding edges, being shiftable to alternately present the guiding edges thereof to said carriers, and being movable oppositely to the direction of movement of the inner wheel; and means for thus moving said plates, substantially as described.

13. In a braiding-machine, the combination with a series of thread-carriers having radial movement outward and inward, of a series of alternately-shiftable interlacing or guiding plates in the path of said thread-carriers, said plates having two guiding edges and having means for holding braiding-threads, substantially as described.

14. In a braiding-machine having two series of bobbins, an inner rotary wheel, a series of thread-carriers having radial movement on said wheel for moving the threads from one series of bobbins, and an interlacing or thread-guiding plate in the path of movement of said carriers, said plate being automatically shiftable to alternately present one or the other of its edges to said carriers to guide said carriers to one side or the other of the threads from the other series of bobbins, substantially as described.

15. In a braiding-machine, an inner rotary wheel, a series of thread-carriers having radial movement on said wheel, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers, and supporting one series of braiding-threads, and having edges oppositely curved to each other outward and inward of the threads supported thereby, and means for moving the plates in a direction opposite to the rotation of the inner rotary wheel, substantially as described.

16. In a braiding-machine, an inner rotary wheel, a series of thread-carriers moving one series of braiding-threads, said carriers having radial movement on said wheel, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers and supporting another series of braiding-threads, said plates having oppositely-curved guiding edges outward and inward of the threads supported thereby, an outer rotating ring having recesses on the inner edge thereof conforming in shape to the outer edge of a plate, the said shiftable guiding-plates being disposed in the recesses of said ring, and thereby moved about the inner wheel by the rotation of said ring, substantially as described.

17. In a braiding-machine, an inner rotary wheel, a series of thread-carriers having radial movement on said wheel, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers, said plates supporting a series of threads and having oppositely-curved edges projecting outward and inward of the threads supported thereby, an outer rotating guide-plate-moving ring having recesses on its inner edge conforming in shape to the curve of the outer edge of said interlacing-plates, and forming pockets in which said plates are disposed, segments underneath said plates in alinement with the edge of the inner rotating wheel, said segments having sliding engagement with the circumference of said wheel, substantially as described.

18. In a braiding-machine, an inner rotary wheel, a series of thread-carriers having radial movement on said wheel, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers, said plates supporting a series of threads and having oppositely-curved guiding edges projecting outward and inward of the threads supported thereby, an outer rotating guide-plate-moving ring having recesses on its inner edge each conforming in shape to the curve of the outer edge of the said plate, and forming pockets in which said plates are shiftably disposed, grooved segments underneath said plates in alinement with the edge of the inner rotating wheel, and a series of tongues on the circumference of said wheel projecting into and having a sliding engagement with the grooves of the segments, substantially as described.

19. In a braiding-machine, an inner rotary wheel, a series of thread-carriers having radial movement on said wheel, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers, said plates supporting a series of braiding-threads and having oppositely-curved guiding edges projecting on either side of the threads supported thereby, an outer rotating ring, having recesses on its inner edge each conforming in shape to the curve of the outer edge of the said plates and forming pockets in which said plates are carried, grooved segments underneath said plates in alinement with the edge of the inner rotating wheel, and a series of tongues on the circumference of said wheel projecting into and having a sliding engagement with the grooves of the segments, the said outer ring between the recesses being grooved to permit the passage of the said tongues on the wheel, substantially as described.

20. In a braiding-machine, an inner rotary wheel, a series of thread-carriers, radial slideways on the wheel in which the said carriers move, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers, said plates supporting a series of braiding-threads and having oppositely-curved guiding edges projecting inward and outward of the threads supported thereby, mechanism for holding said plates from rotation with the inner rotary wheel and means for forcing said carriers against the curved edges of the said shiftable plates to shift the same, substantially as described.

21. In a braiding-machine, an inner rotary wheel, a series of thread-carriers, radial slideways on the wheel in which the said carriers move, a series of shiftable interlacing or thread-guiding plates in the path of movement of said carriers, said plates supporting a series of braiding-threads and having oppositely-curved guiding edges projecting inward and outward of the threads supported thereby, an outer ring having recesses in which said plates are disposed, said recesses conforming in shape to the outer edges of the plates, but larger than said plates, and springs in said radial slideways, the said springs acting to force the carriers against the inner edge of the guiding-plates, and the curve of the said recesses forcing said carrier against the outer edge whereby the plates are shifted by the passage of a carrier, substantially as described.

22. In a braiding-machine, an inner rotary wheel, an outer reversely-rotating ring, segments engaging with the circumference of said wheel but accompanying said ring in the direction of its movement, interlacing or thread-guiding plates mounted on said segments, and supporting one series of braiding-threads, a series of radially-moving thread-carriers traveling with said inner rotary wheel, and adapted to be moved out or in by the said guiding-plates, and means for forcing said carriers against the edges of the guiding-plates, substantially as described.

23. In a braiding-machine, an inner rotary wheel, segments engaging with the circumference of said wheel, a series of interlacing or thread-guiding plates mounted on said segments having reversely-curved edges, and supporting a series of braiding-threads, an outer ring mounted to rotate reversely to the inner wheel, and having recesses on the interior edge thereof in which the plates are disposed, said recesses conforming to the curve of the outer edges of the plates but larger than said plates, and thread-carriers accompanying the inner wheel and adapted to follow the curved edges of said guiding-plates and to shift the position of the guiding-plates by contact therewith, substantially as described.

24. In a braiding-machine, an inner rotary wheel; thread-carriers traveling with said wheel and moving one series of braiding-threads; segments engaging with the circumference of said wheel; and interlacing or thread-guiding plates in the path of said carriers mounted on said segments, said plates supporting another series of braiding-threads and having edges projecting outward and inward of the threads supported thereby, said plates being adapted to be shifted by the passage of a thread-carrier on one edge thereof so as to present the other guiding edge to the next following carrier, substantially as described.

25. In a braiding-machine, an inner rotary wheel; thread-carriers traveling with said wheel and moving one series of braiding-threads; segments engaging with the circumference of said wheel; interlacing or thread-guiding plates in the path of said carriers pivoted on said segments, supporting another series of braiding-threads and having edges projecting outward and inward of the threads supported thereby, said plates being adapted to be turned by the passage of a carrier on one edge thereof so as to present the other guiding edge to the next following carrier, substantially as described.

26. In a braiding-machine, an inner rotary wheel, an outer ring rotating reversely to said wheel and having a series of curved recesses on its inner face, segments having sliding engagement with the inner wheel, interlacing or thread-guiding plates having reversely-curved edges pivoted on said segments, the outer edge of each of said plates being engaged by said recesses in the outer ring to move therewith, radial slideways on said wheel, thread-carriers moving in and out on said slideways, and adapted to be acted upon by the edges of said guiding-plates, and means for forcing said carriers against the edges of the guiding-plates, each of said plates being adapted to be turned by the passage of a carrier on one edge thereof past the pivot-point of the plate so as to present the other edge of the plate to the next following carrier, substantially as described.

27. In a braiding-machine, an inner rotary wheel, an outer ring rotating reversely to said wheel and having a series of curved recesses on its inner face, segments having sliding engagement with the inner wheel, interlacing or thread-guiding plates having reversely-curved edges pivoted on said segments, the outer edge of each of said plates being engaged by said recesses in the outer ring to move therewith, radial slots on said wheel; slideways registering with the slots, attached to said wheel, and projecting outwardly beneath the said guiding-plates; thread-carriers having thread-tubes adapted to be acted upon by the edges of the guide-plates, and feet engaging with said radial slideways; and springs for forcing said carriers against the guide-plates; each of said plates being adapted to be turned by the passage of a carrier on one edge thereof past the pivot-point of the plate so that the opposite edge of the plate will be presented to the next following carrier, substantially as described.

28. In a braiding-machine, a shaft carrying an inner wheel, a sleeve-shaft surrounding said wheel-shaft and carrying an outer ring surrounding the inner wheel, said ring having a series of recesses therein, gearing for driving said shafts in reverse directions, one series of bobbins mounted on said inner wheel, radial slideways on the inner wheel, thread-carriers mounted to be moved in and out in said slideways for moving the threads from the wheel, a series of interlacing or thread-guiding plates in the path of movement of said carriers in the recesses of the outer-disposed ring and having a sliding engagement with the inner wheel, another series of bobbins mounted on said guiding-plates, and a braid-receiver to which the threads of the two series are led, the thread-guiding plates being adapted to be shifted by the passage of a carrier along one guiding edge so as to present another guiding edge to the next following carrier, substantially as described.

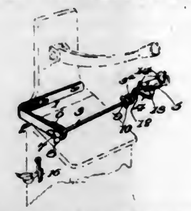
29. In a braiding-machine, a shaft carrying an inner wheel, a sleeve-shaft surrounding said wheel-shaft and carrying an outer ring surrounding the inner wheel, gearing for driving said shafts in reverse directions, a braid-receiver in line with the axis of the inner wheel, a series of bobbins mounted on said inner wheel, slideways on the inner wheel, thread-carriers mounted to be moved in and out in said slideways, thread-tubes on said carriers, a series of interlacing or thread-guiding plates in the path of movement of said carriers and mounted to have a sliding engagement with the inner wheel, and a bobbin mounted on each guiding-plate, said outer ring having recesses on the inner edge thereof in which said plates are disposed for rotation about the inner wheel, the said plates being adapted to be shifted by the passage of a carrier along one edge thereof so as to present the reverse guiding edge to the next following carrier, substantially as described.

787,385. **INSECTICIDE.** HERMAN LENZ. Philadelphia, Pa. Filed Aug. 8, 1904. Serial No. 219,822.

Claim.—1. The herein-described composition of matter, consisting of milk, turpentine, gasolene, creoline, oil of wintergreen, formaline, tartaric acid and sulfur, substantially as described and for the purpose specified.

2. The herein-described composition of matter for a vermicide, consisting of milk, two fluid ounces, turpentine, one fluid ounce, gasolene, three-fourths of a fluid ounce, creoline, one-fourth of a fluid ounce, oil of wintergreen, one-eighth of a fluid ounce, formaline, five drops, tartaric acid, one-half ounce, flowers of sulfur, one-eighth ounce, substantially as described.

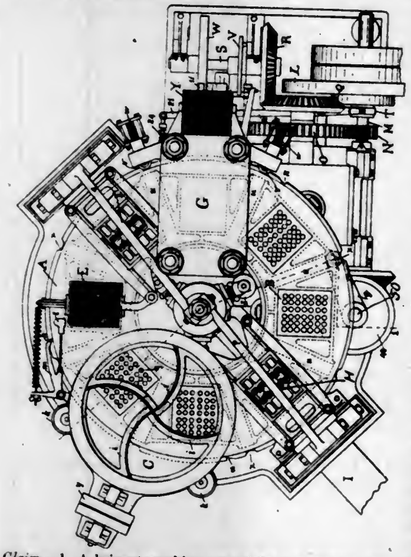
787,386. **SUPPORT FOR TELEPHONE-RECEIVERS.** ELDRIDGE H. LITTLE, Oskaloosa, Iowa. Filed Aug. 24, 1904. Serial No. 222,012.



Claim.—1. In a support for telephone-receivers, the combination of a bracket, an arm pivoted at its inner end to the bracket and vertically adjustable thereon, a binding-screw at the outer end of said arm, a supporting member rotatably mounted upon the binding-screw aforesaid, an adjusting-nut coöperating with the binding-screw to fix the position of the supporting member, and a holder carried by the said supporting member.

2. In a support for telephone-receivers, the combination of a bracket adapted for attachment to a wall or the like, a horizontal arm projecting from the bracket, a vertically-movable arm attached at its inner end to the horizontal arm of the bracket, a transverse binding-screw at the outer end of the pivoted arm provided with an opening therethrough, a nut coöperating with said screw, a supporting member provided with an extension received by the opening in the binding-screw, and a holder for the receiver rotatably mounted upon said supporting member.

787,387. **BRIQUET-MACHINE.** FREDERICK W. MEEKER, Rye, N. Y. Filed Sept. 19, 1904. Serial No. 225,105.



Claim.—1. A briquet-machine comprising an annular table, a series of molds held within said table, a driving-shaft, intermediate mechanism for imparting step-by-step rotary motion to the annular table for presenting each mold successively to the various operations; a filling device; an initial-compression press; an annular segmental plate beneath the annular table, a final-compression press; dies fixed upon the upper stationary head of the final-compression press; dies fixed upon the platen of the final-compression press facing the former dies and arranged to move with the platen toward the stationary dies during the period of rest of the annular table; whereby the mold is slightly raised from its support and the material compressed to a thickness determined by the final distance between the faces of the dies; and a punching-out press for removing the compressed material from the mold.

2. A briquet-machine comprising an annular table supported vertically and laterally upon rollers mounted in eccentric bearings to allow vertical and radial adjustment of the said table, radial guide-grooves in said table, a series of molds held within said table, a driving-shaft, a vertical shaft, intermediate gearing to transmit rotary motion from the said driving-shaft to the said vertical shaft, a horizontal crank fastened to the said vertical shaft, a crank-pin at the farther end of the said horizontal crank, and a sliding block mounted to turn on the said crank-pin and engaging the guide-groove in the said annular table, whereby the molds are successively presented to the various operations; a filling device; an initial-compression press; an annular segmental plate beneath the annular table; a final-compression press; dies fixed upon the upper stationary head of the final-compression press; dies fixed upon the platen of the final-compression press facing the former dies and arranged to move with the platen toward the stationary dies during the period of rest of the annular table, and a punching-out press for removing the compressed material from the mold.

3. A briquet-machine comprising an annular table provided with a series of recesses for holding mold-plates in proper position, the said recesses spaced at equal angular and equal radial distances and fitted with lugs containing adjustable bearings for the mold-plates; a series of mold-plates fitting the said recesses and supported loosely by the said bearings; a driving-shaft, intermediate mechanism for imparting step-by-step rotary motion to the annular table for presenting each mold successively to the various operations; a filling device; an initial-compression press; an annular segmental plate beneath the annular table; a final compression press; dies fixed upon the upper stationary head of the final-compression press; dies fixed upon the platen of the final-compression press facing the former dies and arranged to move with the platen toward the stationary dies during the period of rest of the annular table; and a punching-out press for removing the compressed material from the mold.

4. A briquet-machine comprising an annular table, a series of mold-plates with one or more perforations corresponding to the cross-section of the desired briquet, each mold-plate being provided with supporting-lips resting upon adjustable bearings in the table, a driving-shaft, intermediate mechanism for imparting step-by-step rotary motion to the annular table for presenting each mold successively to the various operations; a filling device consisting of a hollow revolving cylinder with transverse cross-arms at the bottom for moving the material across the molds; an initial-compression press; an annular segmental plate beneath the annular table; a final-compression press; dies fixed upon the upper, stationary head of the final-compression press; dies fixed upon the platen of the final-compression press facing the former dies and arranged to move with the platen toward the stationary dies during the period of rest of the annular table, and a punching-out press for removing the compressed material from the molds.

5. In a briquet-machine, one or more mold-plates loosely supported upon a movable carrier; a device for filling the molds; a press for initial compression of the material; a press for final compression of the material; a punching-out press for removing the compressed material from the molds; a plate placed beneath the carrier and extending from the said filling device past the said initial-compression press up to the platen of the final-compression press, the said plate to help retain the material within the molds and to receive the force of compression during the initial compression; mechanism for imparting step-by-step motion to the carrier so as to successively present the molds to the filling device, initial-compression press, final-compression press, and the discharging-press.

6. A briquet-machine comprising an annular table, a series of molds within said table, a driving-shaft, intermediate mechanism for imparting step-by-step rotary motion to the annular table for presenting each mold-plate successively to the various operations; a filling device; a device for dusting the upper surface of the filled mold-plates; an initial-compression press; an annular segmental plate extending beneath the annular table from the said filling device past the said compacting-press up to the platen of a final-compression press; a final-compression press; dies fixed to the press-head, dies arranged to rest upon the platen for compression and to be withdrawn for dusting between successive operations, a device for dusting the tops of the lower dies; and a punching-out press for removing the compressed material from the molds.

7. A briquet-machine comprising an annular table, a series of molds held within said table, a driving-shaft, intermediate mechanism for imparting step-by-step rotary motion to the annular table for presenting each mold successively to the various operations; a filling device; a device for dusting the upper surface of the filled molds; an initial-compression press; an annular segmental plate extending beneath the annular table from the said filling device past the said compacting-press up to the platen of a final-compression press; a final-compression press; dies fixed to the press-head, lower dies arranged to rest upon the platen for compression and to be withdrawn for dusting between successive operations; a device for dusting the tops of the lower dies; a suitable safety device; and a punching-out press for removing the compressed material from the molds.

8. In a briquet-machine, the combination of open-ended molds, a support therefor, means actuated while the molds rest upon said support for filling, dusting and preliminarily compressing the material; a press for final compression; suitable dies actuated by the said press, and means for presenting the molds to the dies and for withdrawing them for dusting between successive compressions.

787,388. **CARPET-CLEANING APPARATUS.** ALBERT E. MOORHEAD, Oakland, Cal. Filed June 15, 1904. Serial No. 212,718.



Claim.—1. In a carpet-cleaning device, a portable collecting-chamber, a handle swiveled thereupon, means for supplying air under pressure in said chamber, and for withdrawing the air therefrom, said chamber having a flat open side, and a sliding gate to close said side, substantially as specified.

2. In a carpet-cleaning device, a portable collecting-chamber, a handle swiveled thereupon, having a passage therein for the outgoing air-current, an air-pipe for supplying air under pressure to said chamber, and a plurality of outwardly-inclined nozzles for directing the air-currents against the places to be cleaned, substantially as specified.

3. In a carpet-cleaning device, a portable collecting-chamber, a handle swiveled thereupon, having a passage therein for the outgoing air-current, an air-pipe for supplying air under pressure to said chamber, said chamber having a flat open side, with a sliding gate to close the same, and inclined nozzles in said chamber for directing the air-currents against the places to be cleaned, substantially as specified.

4. In a carpet-cleaning device, a portable collecting-chamber having a flat top provided with annular grooves, a swivel-plate on said top with annular ribs fitting said grooves, said swivel-plate and top being provided with communicating passages for admitting air into said chamber, a guiding-handle secured to said swivel-plate, provided with an outlet-conduit for air from the chamber through said handle, swivel-plate and top, and inclined nozzles within said chamber in communication with said air-inlet passages, for directing the air-jets upon the surface operated upon, substantially as specified.

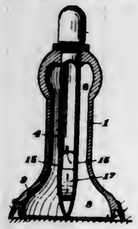
5. In a carpet-cleaning device, a portable collecting-chamber having a flat top provided with annular grooves, a swivel-plate on said top having annular ribs fitting said grooves, said swivel-plate and top being provided with inlet-ways for air through the same, and also with matched channels in each forming an annular passage for air in communication with said inlet-ways, and terminal nozzles within the chamber in communication with said inlet-ways, for directing the air-jets against the surface to be cleaned, said swivel-plate and top being also provided with a central outlet-passage from the chamber through them for delivery of mingled air and dust, substantially as specified.

6. In a carpet-cleaning device, a portable collecting-chamber having a flat top with a swivel-plate mounted thereon, said top and swivel-plate being provided with matching annular ribs and grooves, and also with a central outlet air-passage from the chamber through them; said swivel-plate and top being also provided with air-inlet passages to the chamber, in communication by means of matching grooved channels in each to form an annular air-passage, terminal nozzles in the chamber in communication with the said air-inlet passages, and a guiding-handle attached to said swivel-plate, substantially as specified.

7. In a carpet-cleaning device, a portable collecting-chamber having a flat top, with a swivel-plate mounted thereon, said top and swivel-plate being provided with interlocking guiding-ribs and grooves on the contacting surfaces thereof respectively, and also with an outlet air-passage through the center thereof from the chamber, means for introducing air under pressure to said chamber through said swivel-plate and top, and terminal nozzles within the chamber for directing the air upon the surface operated upon, said chamber having a flat open side with a sliding gate for closing the same, substantially as specified.

8. In a carpet-cleaning device, a portable collecting-chamber, having a guiding-handle swiveled thereupon, means for exhausting air and dust from said chamber, a pipe for conveying air under pressure into said chamber, and a terminal nozzle within said chamber, in communication with said pipe, set oblique to the bottom plane of the chamber, for directing the air-jet against the surface operated upon at the proper angle, substantially as specified.

787,389. **PNEUMATIC CLEANER.** ALBERT E. MOORHEAD, Oakland, Cal. Filed July 28, 1904. Serial No. 218,528.



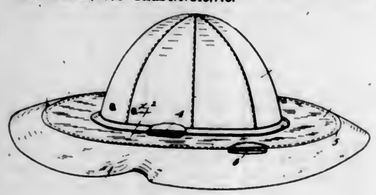
Claim.—1. In a pneumatic cleaning implement, a hollow main body adapted to be applied and moved by an operator's hand, an inlet-pipe for air under pressure, and an outlet-pipe for mingled air and dust to be removed, said main body having inlet-passages for external air near the bottom margin thereof, substantially as specified.

2. In a pneumatic cleaning implement, a hollow main body adapted to be applied and moved by hand, means for supplying air thereto and for withdrawing mingled air and dust therefrom, a flat fish-tail nozzle terminating close to the surface operated upon, spanning the hollow main body, and adjustable means for admitting external air to the cavity near the bottom, substantially as specified.

3. In a pneumatic cleaning implement, a hollow main body, means for supplying air thereto and for withdrawing mingled air and dust therefrom, a flaring margin around the bottom of said main body, with perforations therein, and an adjustable register-ring to vary the aperture of said perforations, substantially as specified.

4. In a penumatic cleaning implement, a hollow main body, means for supplying air thereto and for withdrawing mingled air and dust therefrom, a flaring margin around the bottom of said main body, with perforations therein, an adjustable register-ring to control the admission of air through said perforations, and a circular flange inside of said flaring margin, extending not quite down to the surface operated upon, for directing the air admitted through the perforations downward upon the said surface, substantially as specified.

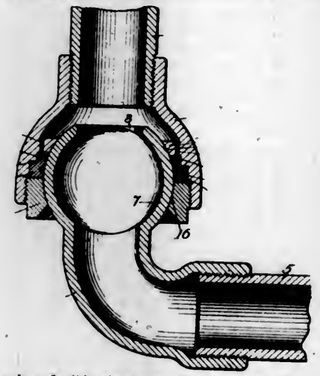
787,390. **OUTING-HAT.** FREDERICK W. NASH, Minneapolis, Minn. Filed June 23, 1904. Serial No. 213,773.



Claim.—1. In a folding hat of the character described, a spring thrust-ring applied in the brim thereof, inward of its margin, thereby leaving a flexible marginal brim portion and adapting the hat to be folded into small space, substantially as described.

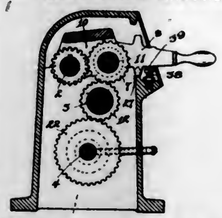
2. The combination with the hat made up of the flexible crown and brim, of the spring thrust-ring embedded in said brim and having its ends detachably united by a telescoping joint, substantially as described.

787,391. **BALL-AND-SOCKET PIPE-JOINT.** NICHOLAS F. NIERDERLANDER, St. Louis, Mo., assignor to Westinghouse Automatic Air & Steam Coupler Company, a Corporation of Illinois. Filed June 18, 1903. Serial No. 112,239.



Claim.—In a flexible pipe-joint, the combination of a socket-piece having an inner concave bearing-surface and an annular recess provided with a shoulder, a spherical head engaging said bearing, a gland having a concave bearing-surface engaging said spherical head, a gasket clamped between the said shoulder and the gland and having a tapered portion extending into the inner part of the recess, said gasket having a groove containing plumbago, and a passage for admitting fluid-pressure behind said extended portion of the gasket.

787,392. **VARIABLE-SPEED MECHANISM.** HENRY M. NORRIS, Cincinnati, Ohio. Filed Nov. 21, 1904. Serial No. 233,576.



Claim.—1. In a variable-speed device, a tumbler-shaft, a tumbler-lever sliding and rocking thereon, a pinion and tumbler-gear carried by the tumbler-lever on said shaft, an intermediate shaft having a series of eccentric bearings of different diameter, the peripheries of said bearings being flush at a given point, different-diameter gear-wheels journaled on said eccentric bearings with their teeth flush under the tumbling-gear, a third shaft, and a series of gear-wheels of different diameter thereon intermeshed respectively with the different-diameter gear-wheels on the intermediate shaft, substantially as described.

2. In a variable-speed device, a tumbler-shaft, a tumbler-lever, a pinion and tumbling-gear carried by said lever and rocking and sliding on said shaft, a second shaft, different-diameter gear-wheels adapted to be engaged by the tumbler gear-wheel, an intermeshing set of different-diameter gear-wheels fixed on said second shaft, a relatively small gear-wheel on the tumbler-shaft, an intermeshing gear-wheel of larger diameter loose on the second shaft, pawl-and-ratchet mechanism for connecting said loose gear-wheel to the second shaft, and means actuated by the changes of speed of the second shaft to engage and disengage said pawl-and-ratchet mechanism whereby when the tumbler is disengaged the second shaft will be driven at a relatively low speed, and when the tumbler is in engagement the speed-reducing mechanism will be thrown out of commission, substantially as described.

3. In a variable-speed device, a tumbler-shaft, a tumbler-lever sliding and rocking thereon, a pinion and tumbler-gear carried by the tumbler-lever on said shaft, an intermediate shaft having a series of eccentric bearings of different diameter, the peripheries of said bearings being flush at a given point, different-diameter gear-wheels journaled on said eccentric bearings with their teeth flush under the tumbling-gear, a third shaft, a series of gear-wheels of different diameter thereon intermeshed respectively with the different-diameter gear-wheels on the intermediate shaft, and means actuated by the change of speed of the driven shaft due to the disengagement of the tumbler-gear for imparting a relatively slow rotation to said third shaft, substantially as described.

4. In a variable-speed device, a tumbler-shaft, a tumbler-lever sliding and rocking thereon, a pinion and tumbler-gear carried by the said lever on said shaft, an intermediate shaft having a series of eccentric bearings of different diameter flush opposite the tumbling-gear, gear-wheels journaled on said bearings respectively, presenting a flush peripheral surface of teeth under the tumbler-gear, a third shaft, a series of different-diameter gear-wheels thereon intermeshed with the gear-wheels on the intermediate shaft, a casing containing said parts and provided with a slot, the lower wall of which is substantially parallel with the direction of the tumbler movement, said tumbler-lever extending through and resting upon the said wall when the tumbler-gear is in engagement, substantially as described.

5. In a variable-speed device, a driving and a driven shaft, a variable-speed mechanism on and between said shafts, a driving-pinion fixed on the driving-shaft, an intermeshing gear-wheel of larger diameter loose on the driven shaft, a pawl-and-ratchet mechanism for connecting said loose gear to the driven shaft, and means actuated by the speed of the gear-wheels on the driven shaft to automatically engage and disengage said pawl-and-ratchet mechanism, substantially as described.

6. In a variable-speed device, a driving and a driven shaft, a variable-speed mechanism on and between said shafts, a driving-pinion fixed on the driving-shaft, an intermeshing gear-wheel loose on the driven shaft, a ratchet-wheel fixed to the driven shaft, a cooperating pawl fixed to said gear-wheel, a slotted collar loose on the driven shaft, and a stem one end of which is attached to the pawl and the other end engages in the said slot of the collar, substantially as described.

7. In a variable-speed device, a driving and a driven shaft, a variable-speed mechanism on and between said shafts, a driving-pinion fixed on the driving-shaft, a ratchet-wheel having a projected hub fixed upon said driven shaft, a gear-wheel loosely journaled on said hub and intermeshed with said driving-pinion, a slotted collar loose on the driven shaft, and a stem one end of which is fixed to the pawl and the other end of which lies within the slot of said collar, whereby the pawl is held out of engagement with the ratchet-teeth during higher speeds of the driven shaft and held in engagement during lower speeds, as and for the purposes specified.

8. In a variable-speed device, a bearing-shaft having a series of eccentric bearings of different diameter, said bearings having their peripheries flush upon one side, gear-wheels journaled on said bearings, a second shaft having a series of concentrically-mounted gear-wheels of different diameter intermeshed respectively with the first-named series of gear-wheels, a shifting gear-wheel, and means for intermeshing said gear-wheel width the flush side of the first-named series of gear-wheels on the first-named shaft, substantially as described.

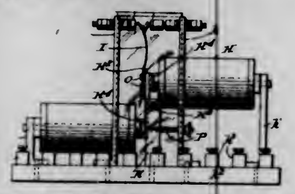
9. In a variable-speed device, a shaft, a series of gear-wheels of different diameter concentrically mounted thereon, an intermeshing series of gear-wheels of different diameter having their peripheries flush upon one side, and bearings for said second series of gear-wheels arranged with their axes non-coincident, substantially as described.

10. In a variable-speed device, a shaft, a series of gear-wheels of different diameter concentrically mounted thereon, an intermeshing series of gear-wheels of different diameter having their peripheries flush upon one side, bearings for said second series of gear-wheels arranged with their axes non-coincident, a shifting gear-wheel and means for engaging the said gear-wheel into said flush peripheries of said series of gear-wheels, substantially as described.

11. In a variable-speed device, a tumbler-shaft, a tumbler-lever, a pinion and tumbling-gear carried by said lever and rocking and

sliding on said shaft, a second shaft, different-diameter gear-wheels adapted to be engaged by the tumbler gear-wheel, an intermeshing set of gear-wheels on the second shaft, a gear-wheel on the tumbler-shaft, an intermeshing gear-wheel loose on the second shaft, pawl-and-ratchet mechanism for connecting said loose gear-wheel to the second shaft, and means actuated by the changes of speed of the second shaft to engage and disengage said pawl-and-ratchet mechanism whereby when the tumbler is disengaged the second shaft will be driven at a relatively low speed, and when the tumbler is in engagement the speed-reducing mechanism will be thrown out of commission, substantially as described.

787,393. **SIGNAL SYSTEM AND APPARATUS THEREFOR.** FRANK P. J. PATENALL and GEORGE H. DRYDEN, Baltimore, Md. Filed Jan. 23, 1905. Serial No. 242,399.



Claim.—1. In a signal system, the combination with a signal mechanism, and a relay embodying two magnets, and an armature-lever pivoted at a point intermediate its length and adapted to be swung in one direction by the attraction of both magnets, of a local signal-operating circuit controlled by the relay, a distant battery and a relay-operating circuit extending therefrom and including said magnets in multiple with each other said circuit being adapted to be short-circuited intermediate the battery and relay; substantially as described.

2. In a signal system, the combination with a signal mechanism and a relay embodying two oppositely-arranged magnets and an armature-lever pivoted at a point intermediate its length and between the magnets to be swung in one direction by both magnets, of a local signal-operating circuit controlled by the relay, a distant battery and a relay-operating circuit including the battery and said magnets, the latter being in multiple with each other; substantially as described.

3. In a signal system, the combination with a signal mechanism and a relay embodying two oppositely-arranged magnets located in different planes and an armature-lever pivoted at a point intermediate its length and between the magnets, of a local circuit controlled by the relay, a distant battery included in a closed circuit with the relay-magnets and means for short-circuiting the battery; substantially as described.

4. In a relay for signal-work, the combination with oppositely-arranged magnets located in different planes, of an armature-lever between the magnets carrying armatures for both magnets and pivoted at one side of its center of gravity and at a point intermediate its length and contacts controlled by said lever, whereby the lever will be moved in one direction by gravity and in the opposite direction by the simultaneous action of both magnets.

5. In a relay for signal-work, the combination with oppositely-arranged magnets located in different planes, of an armature-lever between the magnets and carrying armatures for both magnets, said lever being pivoted at one side of its center of gravity to normally tend to move away from the magnets under the influence of gravity and contacts controlled by the lever.

6. In a relay for signal-work, the combination with oppositely-arranged magnets located in different planes, of an armature-lever between the magnets and carrying armatures for both magnets, said lever being pivoted at one side of its center of gravity to normally tend to move away from the magnets under the influence of gravity, a spring-contact support mounted on the lever, a contact carried thereby and a fixed contact with which it engages, whereby the resiliency of the support will inaugurate the movement of the lever away from the magnets.

7. In a relay for signal-work, the combination with the oppositely-arranged relay-magnets located in different planes, parallel supporting-plates on which said magnets are mounted and fixed contacts carried by but insulated from said plates, of an armature-lever carrying armatures for both magnets said armature-lever being pivotally mounted at a point intermediate its length and between the magnets, contacts carried by said armature-lever and coöperating with the before-mentioned fixed contacts and a casing bridging the space between the supporting-plates and inclosing the armature-lever and contacts; substantially as described.

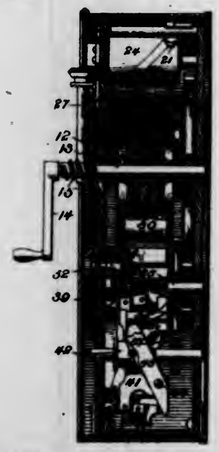
8. In a relay for signal-work, the combination with the base, the magnets mounted on said base with their poles oppositely arranged and in different planes, of an armature-lever pivotally mounted between the magnets and at one side of its center of gravity whereby it normally tends to move away from the magnets, movable contacts carried by the armature-lever, fixed contacts carried by the base and a removable casing inclosing the lever, contacts and pole-pieces of the magnets; substantially as described.

9. In a signal system for railways, the combination with the track-rails constituting conductors in the signal-circuits and a battery connected with said track-rails, of a relay connected with said contact-rails at a point distant from the battery and embodying oppositely-located relay-magnets in multiple with each other and an armature pivoted intermediate said magnets in position to be attracted by both of said magnets when they are simultaneously energized, whereby a train occupying the track-rails between the battery and relay connections will short-circuit the battery and deënergize the relay-magnets.

10. In a signal system, the combination with a railway-track divided into blocks, signals located at the meeting-points of said blocks and embodying block and caution signal indicators and two relays with local circuits controlled one by each relay for operating the respective signals, of a signal-circuit including the track-rails and one of said relays, whereby the presence of the train in the block will cause said relay to operate to render the danger-signal effective and a second signal-circuit including the other relay and a controller operated by the danger signal of a succeeding block-station and controlling the local circuit which renders the caution-signal effective whereby the caution-signal cannot be cleared until the danger-signal at the succeeding block-station is actuated.

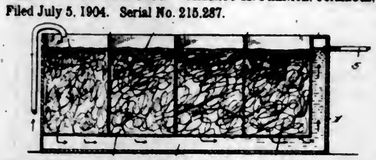
11. In a railway-signal system divided into blocks, a block-station equipment comprising danger and caution signals, a local operating-circuit for said signals and in which the signals are included in separate branches, a relay controlling said local circuit and itself controlled by the presence of a train in the block and a second relay controlling the caution-signal branch of the local circuit and itself controlled from a succeeding block-station; substantially as described.

787,394. **FIRE-ESCAPE.** JOSEPH PETERS, Chicago, Ill., assignor of one-fourth to Peter Fogelberg, Chicago, Ill. Filed June 30, 1904. Serial No. 214,740.



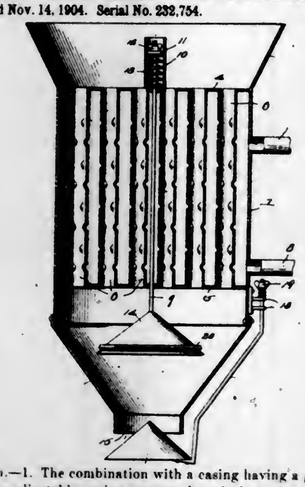
Claim.—In a fire-escape, the combination with a drum and rope wound thereon, of a brake-shaft geared to the drum, a fixed friction-ring extending around the shaft, brake-levers carried by the shaft and having at one end shoes arranged to contact with the ring, and having cam-faces at the other end, brackets extending from the shaft and weighted levers pivoted upon said brackets at right angles to the brake-levers and having projections bearing upon said faces, as and for the purpose described.

787,395. **MEANS FOR SEPARATING AND PURIFYING WATER OF CONDENSATION.** MILLROY M. PHENICE, Columbus, Ohio. Filed July 5, 1904. Serial No. 215,287.



Claim.—In a separator, the combination of a receptacle, a solid partition spaced from one end of the receptacle, a perforated support spaced from the bottom of the receptacle and extending from one end hereof to the solid partition adjacent the opposite end above-mentioned, the solid partition extending upward from the end of the said perforated support and forming a water-passage at the adjacent end of the receptacle, porous material disposed upon the perforated support between one end and the solid partition at the opposite end, and a plurality of vertical perforated partitions disposed upon the perforated support and in the filtering material.

787,396. **GRAIN-HEATER.** PETER PROVOST, Menominee, Mich. Filed Nov. 14, 1904. Serial No. 232,754.



Claim.—1. The combination with a casing having a grain-passage, of an adjustable spring-supported conical regulator disposed adjacent to the outlet and having an annular obstruction.

2. A heater-casing having a plurality of tubes for the passage of grain, and a regulator supported below said tubes, said regulator consisting of a cone having an annular obstruction.

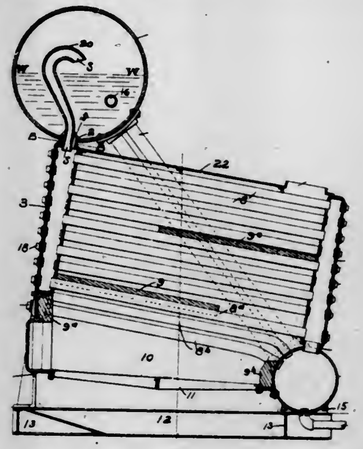
3. A grain-tube having a plurality of tubes for the passage of grain, and a conical regulator supported below said tubes, said regulator being provided upon the face thereof with obstructions to retard the passage of grain.

4. In a grain-heater, a cylindrical casing having an inlet-hopper and an outlet-funnel, diaphragms in said casing, grain-tubes connecting said diaphragms, and a conical regulator supported centrally below said grain-tubes, said regulator being provided with an annularly-supported obstructing-wire.

787,397. **STEAM-GENERATOR.** CHARLES B. REARICK, New York, N. Y. Filed Nov. 21, 1900. Serial No. 37,310.

Claim.—1. In a water-tube boiler, the combination of a series of heating-tubes, one or more headers at each end of such tubes with which same communicate, a steam and water drum connected below the water-line therein and along its length to the header or headers at one end of said heating-tubes, a water-drum connected along its length to the lower end of the header or headers at the other end of said heating-tubes, downflow-pipes connecting the said drums, with means for collecting the steam from the central or interior portion of the header or headers in communication with said steam and water drum and delivering it above the water-line therein.

2. In a water-tube boiler, the combination of a furnace, a series of heating-tubes, one or more headers at each end of such tubes with which same communicate, a steam and water drum connected below the water-line therein and along its length to the header or headers at one end of the said heating-tubes, a water-drum connected along its length to the lower end of the header or headers at the other end of said heating-tubes, downflow-pipes connecting the said drums, heating-tubes at the sides of the furnace and connecting the said water-drum direct with the header or headers in communication with said steam and water drum, with means for collecting the steam from the central or interior portions of the last-named header or headers and delivering same above the water-line in the said steam and water drum.



3. In a water-tube boiler, the combination of two headers connected by a series of heating-tubes, a steam and water drum closely connected along its length to the upper end of one header by straight pipes, a water and mud drum closely connected along its length to the lower end of the other header by straight pipes, and downflow-pipes, accessible for cleaning internally, directly connecting in straight lines the said drums, substantially as set forth.

4. In a steam-boiler, the combination of a series of heating-tubes, a series of headers at each end with which said tubes communicate, a steam and water drum closely connected along its length to the upper end of each header of one series by straight pipes, a water and mud drum closely connected along its length to the lower end of each of the other series of headers by straight pipes, and downflow-pipes, accessible for cleaning internally, directly connecting in straight lines the said drums, substantially as set forth.

5. In a water-tube boiler, the combination of a furnace, two headers, a series of heating-tubes connecting them, a water and mud drum connected along its length to the lower end of one header, downflow-pipes entering such water and mud drum, and heating-tubes at the sides of the furnace connected at one end to the water and mud drum and at the other end to the header, the upper end of which is in direct communication with a water and steam drum.

6. In a steam-boiler, the combination of a furnace, a series of heating-tubes, a series of headers at each end with which said tubes communicate, a water and steam drum connected along its length to the upper end of each header of one series, a water and mud drum connected along its length to the lower end of each header of the other series, and heating-tubes at the sides of furnace, respectively connected at one end to the water and mud drum and at the other to the end header of the series of headers in communication with the water and steam drum, as and for the purpose set forth.

7. In a steam-boiler, the combination of a header, a steam and water drum, one or more conduits connecting the header and drum and extending above the water-line in such drum, with one or more passages adjacent to and surrounding the periphery of each of the said conduits, such passages terminating below the water-line and affording communication in either direction between said header and drum.

8. In a steam-boiler, the combination of a series of headers, a steam and water drum, a conduit connecting each header with the

drum and extending above the water-line therein, with one or more passages adjacent to and surrounding the periphery of each of the said conduits, such passages terminating below the water-line and affording communication in either direction between said header and drum.

9. In a steam-boiler, the combination of a header, a steam and water drum, one or more conduits connecting the header and drum and extending above the water-line in such drum, and a passage substantially concentric with each of the said conduits, such concentric passages affording communication in either direction between said header and drum, all for the purpose set forth.

10. In a steam-boiler, the combination of a header, a steam and water drum, one or more conduits connecting the header and drum and extending above the water-line in such drum, the delivery end pointing downward, and a passage substantially concentric with each of the said conduits, such concentric passages affording communication in either direction between said header and drum, all for the purpose set forth.

11. In a steam-boiler, the combination of a series of headers, a steam and water drum, a conduit connecting each header with the drum and extending above the water-line therein, and a passage substantially concentric with each of the said conduits, such concentric passages affording communication in either direction between the said headers and drum, all for the purpose set forth.

12. In a steam-boiler, the combination of a series of headers, a steam and water drum, a conduit connecting each header with the drum and extending above the water-line therein, the delivery end pointing downward, and a passage substantially concentric with each of the said conduits, such concentric passages affording communication in either direction between said headers and drum, all for the purpose set forth.

13. In a steam-boiler, the combination of a header, a steam and water drum, one or more main conduits connecting the header and drum and extending above the water-line therein, a passage substantially concentric with each of the said conduits, such concentric passage affording communication in either direction between said header and drum, and a supplemental conduit for each main conduit leading into same and extending into the header and leaving a space respectively between each main and supplemental conduit, all for the purpose set forth.

14. In a steam-boiler, the combination of a header, a steam and water drum, one or more main conduits connecting the header and drum and extending above the water-line therein, a passage substantially concentric with each of the said conduits, such concentric passage affording communication in either direction between said header and drum, a supplemental conduit for each main conduit leading into same and extending into the header and leaving a space respectively between each main and supplemental conduit, and means for removably supporting said supplemental conduits whereby the latter may be advanced within the header, all for the purpose set forth.

15. In a steam-boiler, the combination of a series of headers, a steam and water drum, a main conduit connecting each header with the drum and extending above the water-line therein, a passage substantially concentric with each of the said conduits, such concentric passage affording communication in either direction between the said headers and drum, and a supplemental conduit extending into each header and leading into the main conduit, leaving a space respectively between each of the said main and supplemental conduits, for the purpose set forth.

16. In a steam-boiler, the combination of a series of headers, a steam and water drum, a main conduit connecting each header with the drum and extending above the water-line therein, a passage substantially concentric with each of the said conduits, such concentric passage affording communication in either direction between the said headers and drum, a supplemental conduit extending into each header and leading into a main conduit, leaving a space respectively between each of the said main and supplemental conduits, and means for removably supporting said supplemental conduit whereby the latter may be advanced within the header, for the purpose set forth.

17. In a steam-boiler, the combination of a header, a steam and water drum, one or more main conduits connecting the header and drum and extending above the water-line therein, with a supplemental conduit for each main conduit, same leading into such main conduit and extending into the header and leaving a space respectively between each main and supplemental conduit.

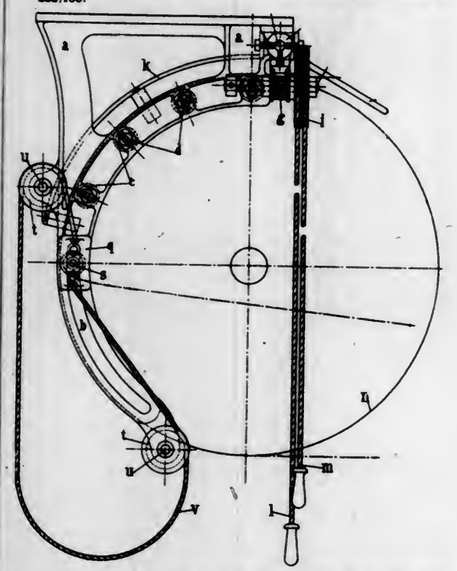
18. In a water-tube boiler, the combination of a header, a steam and water drum, one or more passages connecting the header and drum below the water-line therein, with one or more conduits affording means for collecting the steam from the central or interior portions of the header and delivering it above the water-line in the said drum.

19. In a water-tube boiler, the combination of a header, a steam and water drum, one or more passages connecting the header and drum below the water-line, and one or more conduits establishing communication between said header and drum, the upper end of each of such conduits extending above the water-line while the lower end enters and extends into the header.

20. In a water-tube boiler, the combination of a steam and water drum, a header, and one or more conduits establishing communication between the said header and drum and affording means for collecting the steam from the central and interior portions of the header and delivering it above the water-line in such drum.

21. In a steam-boiler, the combination with a generator wherein steam is generated and a steam and water drum connected to the generator, and receiving steam therefrom, the water-line being located in said drum, of one or more conduits affording means for collecting the steam from the central and interior portions of the passage-way between the generator and drum and delivering it above the water-line in the said drum.

787,398. **APPARATUS FOR DISCONNECTING BELT-GEARING.** JEAN J. RIBIER, Lure, France. Filed Aug. 25, 1904. Serial No. 222,135.



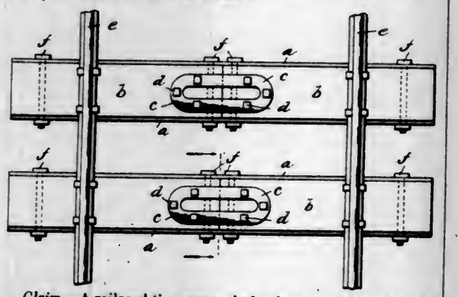
Claim.—1. In a device for bringing into and out of operation power-transmitting belts, a plurality of rollers placed near the rim of a pulley, a fixed support carrying said rollers, means for moving a belt from said pulley on to said rollers and from said rollers on to said pulley and means for relaxing the tension on said belt when at rest on said rollers, substantially as described.

2. In a device for bringing into and out of operation power-transmitting belts, a plurality of conical pivoted rollers placed near the rim of a pulley, a fixed support carrying said rollers, means for moving a belt from said pulley on to said rollers and from said rollers on to said pulley, and means for relaxing the tension on said belt when at rest on said rollers, substantially as described.

3. In a device for bringing into and out of operation power-transmitting belts, a plurality of rollers placed near the rim of a pulley, a fixed support carrying said rollers, means for moving a belt from said pulley on to said rollers and from said rollers on to said pulley, a movable slide carrying one of said rollers, there being a curved slot concentric with the pulley-rim in said roller-support, carrying said slide and means for moving said slide concentrically with said pulley to relax the tension of said belt when at rest on said rollers, substantially as described.

4. In a device for bringing into and out of operation power-transmitting belts, a plurality of conical pivoted rollers placed near the rim of a pulley, a fixed support carrying said rollers, means for moving a belt from said pulley on to said rollers and from said rollers on to said pulley, a movable slide carrying one of said rollers, there being a curved slot concentric with the pulley-rim in said roller-support carrying said slide and means for moving said slide concentrically with said pulley to relax the tension of said belt when at rest on said rollers, substantially as described.

787,399. **RAILROAD-TIE.** ZENAS C. ROBBINS, Washington, D. C. Filed Jan. 21, 1905. Serial No. 242,040.



Claim.—A railroad-tie composed of a sheet-metal trough *a*, and two rail-bearing sections *b*, *b*, each of which is one-half the length of said sheet-metal trough, and which are combined with each other and with said sheet-metal trough, substantially in the manner herein represented and described.

787,400. **METHOD OF MANUFACTURING HAIR-PINS OR THE LIKE.** THEOPHILUS ROOS, Newark, N. J. Filed Jan. 12, 1905. Serial No. 240,770.



Claim.—1. The method of forming hair-pins or the like which consists in cutting celluloid tubes into suitable lengths, inserting into these tubes wires of shorter length than the length of said tubes, so that equal lengths of the tubes project beyond the said wires, and pointing the ends of said tubes containing the said wires.

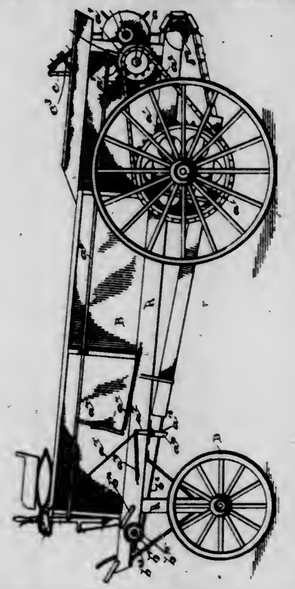
2. The herein-described method for the manufacture of hair-pins and like articles consisting in cutting celluloid tubes into suitable lengths, inserting into these tubes wires of shorter length than the length of said tubes, so that equal lengths of the tube project beyond the said wires, sealing the ends of the tubes with a suitable cement and finally pointing the ends of said tubes containing said wires.

3. The herein-described method for the manufacture of hair-pins and the like consisting in cutting celluloid tubes into suitable lengths, inserting into these tubes wires of shorter length than the length of said tubes, so that equal lengths of the tubes project beyond the said wires, sealing the ends of the tubes with a suitable cement, and finally compressing the said tubes containing the said wires in dies so as to point the ends thereof.

787,401. **MANURE-SPREADER.** ELMORE P. ROSS, Springfield, Ohio, assignor to The E. W. Ross Company, Springfield, Ohio, a Corporation of Ohio. Filed Mar. 17, 1904. Serial No. 198,543.

Claim.—1. In a manure-spreader, the combination of an operative shaft, a beater and a conveyer, gears connecting said beater and said shaft, and additional gears connecting said beater and said conveyer, means for raising and lowering one of said gears of each series, a spring adapted to be put under tension when said gears are lowered into connecting position, means for holding said spring against operation until the conveyer releases it, for the purpose of raising said gears out of connecting position, for the purpose specified.

2. In a manure-spreader, the combination of a main operating-shaft, a beater, connecting mechanism between said beater and said shaft normally out of operative position, a conveyer, a series of gears connecting said conveyer with said beater, one of said gears being formed eccentrically to its center, means for moving said gear eccentrically about its center simultaneously with the throwing of the connecting mechanism between the beater and the operating-shaft into operative position, a spring put under tension during said movement, means for holding said spring against operation and means formed on the conveyer for releasing said spring, for the purpose specified.



3. In a manure-spreader, the combination of a main operating-shaft, a beater, and connecting mechanism between the beater and the shaft, a conveyer, and a series of gears constituting the connecting mechanism between said conveyer and said beater, one of said gears being formed eccentrically to its center, means for moving said gear about its center simultaneously with the throwing of the connecting mechanism between the main shaft and the beater into operative position, pawl-levers for operating said series of gears for transmitting motion from said beater to said conveyer, a spring put under tension when said gears are thrown into mesh, means for holding said spring against movement and means formed on said conveyer for releasing said spring for the purpose of throwing said gears out of mesh, substantially as specified.

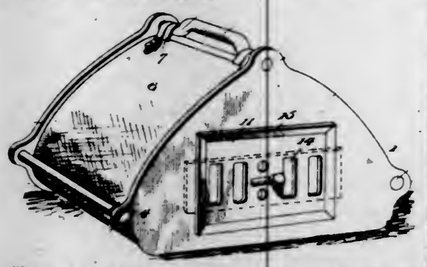
787,402. **SUCTION-ROLL FOR PAPER-MAKING MACHINES.** JOSEPH E. RUDOLPH, Upper Darby, Pa. Filed Dec. 24, 1903. Serial No. 186,494.



Claim.—A suction-roll comprising a longitudinal pipe having a series of threaded apertures, a shell surrounding the longitudinal pipe and having a series of non-threaded apertures, the inner ends of which are formed with countersunk recesses, the radial pipes threaded at their inner ends and fitted in the threaded apertures in the horizontal pipe, the outer ends of said radial pipes fitting in the countersunk recesses in the shell, said shell being made in sections, the spiders at the ends of the shell, one spider being constructed with a socket into which the end of the longitudinal pipe fits, and a journal for supporting the roll, the other spider having tubular central portion through which the longitudinal pipe passes, the sprocket-wheel mounted upon said pipe, the sprocket-chain for rotating the wheel, the suction-pipe having a valve, and the swivel-joint connect-

ing the suction and longitudinal pipes, and the steam supply and discharge pipes connected with the suction-pipe, for the purpose set forth.

787,403. FOOT-WARMER. ELIAS P. SANDERS, Pana, Ill. Filed Apr. 30, 1904. Serial No. 205,529.



Claim.—1. In a foot-warmer, the combination of a body, end plates, a fire-box disposed within the body, tie-rods disposed outside the body and connecting the end plates, a covering applied to the outer side of the body and received between said body and the tie-rods, and attaching means between the covering and a tie-rod.

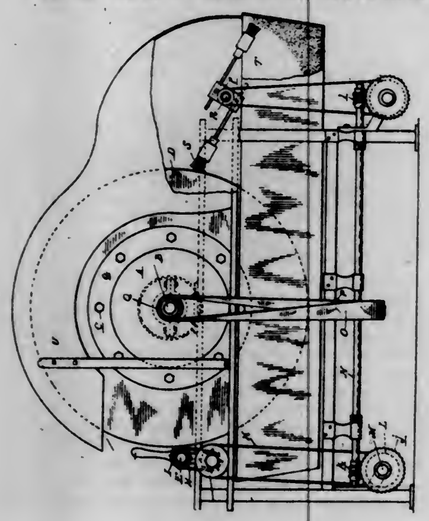
2. In a foot-warmer, the combination of a body, end plates, a fire-box disposed within the body, tie-rods disposed outside the body and connecting the end plates, a covering applied to the outer side of the body and received between said body and the tie-rods, attaching means between covering and tie-rods, and one of the tie-rods being deflected upwardly at a point between its ends to form a handle.

787,404. WHIRLING TOY. WILHELM SCHALLER, New York, N. Y. Filed Jan. 25, 1905. Serial No. 242,592.



Claim.—A whirling toy composed of a pair of disks, an intervening core and radial partitions to form a series of pockets, outwardly-extending curved vanes pivoted within the pockets, and doubled strings secured to the disks, substantially as specified.

787,405. GRINDING AND POLISHING MACHINE. ERNEST C. SCHRADER, Pittsburg, Pa. Filed Nov. 14, 1903. Serial No. 181,175.



Claim.—1. In a polishing-machine of the character described, the combination with a grinding-wheel, of a work-holder in operative relation thereto, means for depositing abrasion material on said wheel at a point spaced from said operative position of the work-holder, and connecting means for automatically imparting simultaneous movement to said wheel, holder and depositing means.

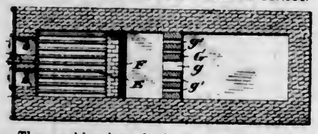
2. In a machine of the character described, the combination with a polishing member, of means for holding the work in operative relation thereto, including a rotary arbor, adapted to support the work at one end thereof, and a bail extending around said work-supporting end and secured at its respective ends to one of said bearings, and means on said bail for retaining the work against said end.

3. In a machine of the character described, the combination with a polishing member, of means for holding the work in operative relation thereto, including a rotary arbor, adapted to support the work at one end thereof, and a bail extending around said work-supporting end and pivotally secured at its respective ends to one of said bearings, and means on said bail for retaining the work against said end.

4. In a machine of the character described, the combination with a polishing member, of means for holding the work in operative relation thereto, including a rotary arbor adapted to support the work at one end thereof, and a bail extending around said work-supporting end and secured at its respective ends to one of said bearings, and adjustable means on said bail for retaining the work against said end.

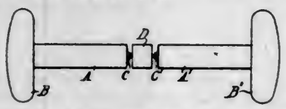
5. In a machine of the character described, the combination with a polishing member, means for holding the work in operative relation thereto, including a longitudinally-movable rotary arbor, bearings for the arbor, a bail secured to one of said bearings and extending around one end of the arbor, and resilient means on said arbor intermediate said bearings for normally retaining said arbor in adjacence to the end of said bail.

787,406. SMOKELESS FURNACE. FRANK D. SHEPHERD, Salt Lake City, Utah. Filed Mar. 12, 1903. Serial No. 147,504.



Claim.—The combination of a boiler, having walls forming an inclosed space beneath the same, a bridge-wall in the forward portion of said space, a grate supported by said bridge-wall and the front of said inclosing walls, said front wall having doors on both sides of the center of said grate and above and below said grate, and a wall in the rear of said bridge-wall, said last-mentioned wall extending from the floor to and fitting the lower surface of the boiler and being provided with a large central opening extending to the under surface of the boiler and being also provided with small apertures in the portions thereof on each side of the said opening and near the under surface of the boiler.

787,407. DUMB-BELL. GEORGE H. SHEPHERD, Paris, France. Filed Mar. 31, 1904. Serial No. 200,696.

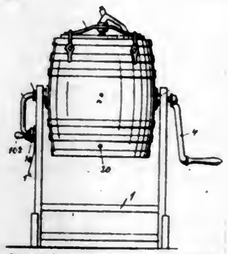


Claim.—1. A dumb-bell comprising two parts, each having a weight at its outer end, and a hinge at the middle of the grip portion said hinge adapted to form the only connection between said two parts.

2. A dumb-bell formed in two parts, a convex piece attached to one of said parts, a concave piece attached to the other of said parts adapted to fit over said convex piece and hinge said parts together whereby they may swing the one upon the other and be maintained in a parallel position with regard to each other, and a weight at the outer end of each of said parts.

787,408. BUTTER-WORKING CHURN. DANIEL A. SPRAGUE, Poland, N. Y. Filed Apr. 13, 1903. Serial No. 152,336.

Claim.—1. A butter-working churn consisting of a barrel mounted on bearings to rotate end over end, a worker pivoted adjacent to the bottom of the barrel at one side and free to swing at the other, a stationary crank within the barrel, a connecting-rod between the swinging edge of the worker and the stationary crank, substantially as set forth.



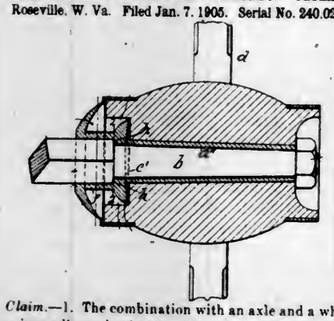
2. A butter-working churn consisting of a barrel mounted on bearings to rotate end over end, a worker pivoted adjacent to the bottom of the barrel at one side and free to swing at the other, a stationary crank within the barrel, a connecting-rod between the crank and the swinging edge of the worker and means for adjusting the position of the stationary crank, substantially as set forth.

3. A butter-working churn, consisting of a barrel mounted on bearings to rotate end over end, a worker movable toward and from the end or head of the barrel, a stationary crank arranged within the barrel and a connection between the worker and the crank, substantially as set forth.

4. The combination in a churn and butter-worker of a rotary churn-barrel, a worker movable toward and from the interior surface of the barrel, a stationary crank within the barrel and a connection between the crank and worker, substantially as set forth.

5. A combined churn and butter-worker having a rotary barrel, a worker located in the barrel and pivoted at one edge, a stationary crank within the barrel and a connection between the movable edge of the worker and the stationary crank, substantially as set forth.

787,409. SAND-BOX FOR VEHICLES. THOMAS H. STANSILL, Roseville, W. Va. Filed Jan. 7, 1905. Serial No. 240,021.



Claim.—1. The combination with an axle and a wheel-hub having an inwardly-projecting band *a*, of a sand-box device comprising an outer cup with its edge fitting within and adjacent to said band, a central collar on the axle and an inner disk or flange projecting outward from said collar and adapted to bear against the end of the axle-box, said cup and disk forming between them a dust-chamber *m*, substantially as described.

2. A detachable and adjustable sand-box device for excluding sand and dirt from an axle-box, consisting of an outer cup, a central collar having a longitudinal opening, partly rectangular and partly circular in cross-section, and interior bearing-shoulders, and an inner disk projecting outward from said collar, substantially as described.

3. The combination with an axle and a wheel-hub having an inwardly-projecting band *a* and a recess in its inner end, of a detachable sand-box device having an outwardly-projecting flange or disk fitting in said recess, an outer cup bearing against the end of the hub within its band and a connecting-collar having a longitudinal opening, partly rectangular and partly circular in cross-section for fitting on the rectangular axle and the circular spindle thereof, substantially as described.

787,410. FLEXIBLE SUPPORT FOR STREET-LIGHT HANGERS. JOHN STEVENSON, Jr., Portobello, Scotland. Filed Feb. 18, 1904. Serial No. 194,302.



Claim.—1. In a street-lamp hanger the combination with a pole, of a lamp-supporting cable, lamp-conducting cables, and a flexible support for said supporting and conducting cables including a link chain having rollers for said supporting-cable, said chain having lateral supports for said conducting-cables.

2. A link structure comprising lateral stamped members having tapered end projections extending in angular planes with respect to each other, top pieces projecting up and centrally disposed with respect to said tapered projections, bottom pieces bent upon themselves to form cable-supports, means whereby said lateral members may be fastened together, and connecting-links joined to said tapering end projections to form a chain.

3. A link structure comprising lateral members having end projections, top pieces projecting upward from said lateral members, bottom pieces bent upon themselves to form cable-supports, means securing said lateral members together, and connecting-links uniting said end projections to form a chain.

4. A chain-link comprising lateral members, each member being made from a blank having end pieces projecting in angular planes with respect to each other, a top piece projecting up centrally from said plate, a bottom piece bent in an upward and inward direction, and means whereby said lateral members are fastened together.

5. In a street-lamp hanger, the combination with a hollow pole having a curved or irregular-shaped portion, a link chain extending throughout and supported in said curved portion of the pole, and rollers rotatably mounted in said chain and spaced apart at intervals throughout its length, said rollers being adapted to carry a traveling supporting-cable.

6. In a street-lamp hanger, the combination with a pole having a curved or irregular-shaped portion, a link chain supported in and anchored upon said curved portion of the pole, and rollers rotatably mounted in said chain and adapted to carry a traveling supporting-cable.

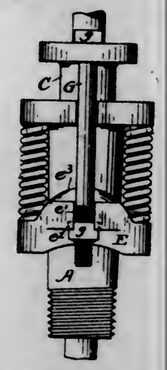
7. In a street-lamp hanger, the combination with a pole having a curved or irregular-shaped portion, a link chain supported by and anchored in said curved portion of the pole and antifriction mechanism carried by said chain, said mechanism directly supporting a traveling cable.

8. A flexible support for traveling cables, comprising a chain composed of separate links, and rollers mounted thereon for guiding the cable, said chain being provided with fastening-links for anchoring it to a stationary support.

9. A flexible support for traveling cables, comprising a chain

composed of separate links, means carried by said chain for guiding the cables, and fastening means for securing said chain to a stationary support.

787,411. STUFFING-BOX. JOHN W. SWAN, Lima, Ohio. Filed Feb. 2, 1904. Serial No. 191,659.



Claim.—1. In a stuffing-box, the combination of the box, a gland therefor, a yoke loosely surrounding the box, bolts connecting the yoke with the gland, and springs outside of the box located intermediate of the bolts for giving the yoke a tendency to move in the direction to force the gland into the box, substantially as described.

2. In a stuffing-box, in combination, a box, a gland adapted to seat therein and having a flange thereon, a yoke loosely surrounding the box, bolts connecting said yoke and flange, springs on opposite sides of the box placed intermediate of the bolts and tending to press the yoke away from said flange, substantially as described.

3. In a stuffing-box, in combination, a box having a flange, a gland seating within the box and also having a flange, a yoke loosely surrounding the box, bolts connecting the yoke and flange of the gland, and springs located intermediate of the bolts and on the outside of the box and compressed between the flange of the box and said yoke, substantially as described.

4. In a stuffing-box, in combination, a box having a flange, a gland seating in the box and also having a flange, a yoke loosely surrounding the box, bolts on diametrically opposite sides of the box securing the yoke and the flange of the gland, and springs on diametrically opposite sides of the box compressed between the yoke and the flange of the box, substantially as described.

5. In a stuffing-box, the combination of a box, a gland adapted to seat therein and having a flange, a yoke loosely surrounding the box, springs tending to force said yoke away from the flange, and bolts occupying openings in said flange and passing through open-ended slots in the sides of the yoke, substantially as described.

6. In a stuffing-box, in combination, a box, a gland adapted to seat therein and having a flange, a yoke loosely surrounding the box, springs tending to force said yoke away from the flange, bolts occupying openings in said flange and passing through open-ended slots in the sides of the yoke, and nuts on said bolts on the under side of said yoke occupying recesses in the yoke, substantially as described.

7. In a stuffing-box, in combination, a box having a flange, a gland adapted to seat within said box and having also a flange, a yoke loosely surrounding said box, springs on diametrically opposite sides of the box between the yoke and the flange of the box, bolts on diametrically opposite sides of the box midway of the springs occupying openings in the flange of the gland and extending through open-ended slots in the sides of the flange of the box and the sides of the yoke, and nuts beneath the yoke in which said bolts screw, substantially as described.

8. In a stuffing-box, in combination, a box having a flange, a gland adapted to seat within said box, a yoke loosely surrounding said box, springs on diametrically opposite sides of the box between the yoke and the flange of the box, bolts adapted to connect the yoke and gland, and nuts beneath the yoke in which said bolts screw, said yoke being arranged to bring the lower end of the springs substantially in the same plane with the upper face of the nuts, substantially as described.

9. In a stuffing-box, in combination, a box, a gland adapted to seat therein and having a flange, a yoke loosely surrounding the box, means tending to move said yoke away from said flange, bolts and coöperating nuts connecting the yoke to the flange, said bolts occupying contracted openings in the flange and having heads thereabove, said contracted openings having adjacent larger openings through which the heads may pass, substantially as described.

10. In a stuffing-box, in combination, a box, a gland adapted to seat therein and having a flange, a yoke loosely surrounding the box, means tending to move said yoke away from said flange, bolts and coöperating nuts connecting the yoke to the flange, said bolts occupying contracted openings in the flange and having heads thereabove, said contracted openings having adjacent larger openings through which the heads may pass and said yoke having open-ended slots in its sides which said bolts occupy and having beneath said slots recesses which the nuts occupy, substantially as described.

787,412. ART OF TRANSMITTING ELECTRICAL ENERGY THROUGH THE NATURAL MEDIUMS. NIKOLA TESLA, New York, N. Y. Filed May 16, 1900. Renewed June 17, 1902. Serial No. 112,034.



Claim.—1. The improvement in the art of transmitting electrical energy to a distance which consists in establishing stationary electrical waves in the earth, as set forth.

2. The improvement in the art of transmitting electrical energy to a distance which consists in impressing upon the earth electrical oscillations of such character as to produce stationary electrical waves therein as set forth.

3. The improvement in the art of transmitting and utilizing electrical energy which consists in establishing stationary electrical waves in the natural conducting media, and operating thereby one or more receiving devices remote from the source of energy, as set forth.

4. The improvement in the art of transmitting and utilizing electrical energy which consists in establishing in the natural conducting media, stationary electrical waves of predetermined length and operating thereby one or more receiving devices remote from the source of energy and properly located with respect to the position of such waves, as herein set forth.

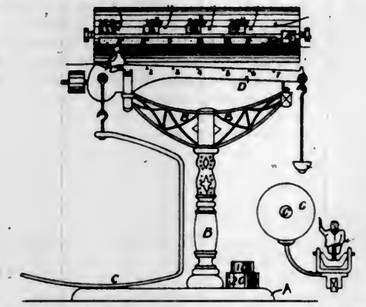
5. The improvement in the art of transmitting and utilizing electrical energy, which consists in establishing in the natural conducting media, stationary electrical waves, and varying the length of such waves, as herein set forth.

6. The improvement in the art of transmitting and utilizing electrical energy, which consists in establishing in the natural conducting media stationary electrical waves and shifting the nodal and ventral regions of these waves, as described.

787,413. COMPUTING APPARATUS FOR WEIGHING-SCALES. JOHN THOMAS, Summer Hill, near Sydney, New South Wales, Australia, assignor of one-half to Robert Sands, Sydney, New South Wales, Australia. Filed Mar. 1, 1904. Serial No. 195,983.

Claim.—1. A weighing-scale comprising a revolving cylinder and an inclosing cylindrical cover G, in combination with a chart of figures fixed round the cylinder, the cylindrical cover having apertures therein H I K K K, and L, so as to show concurrently by the figures on the chart the rate at which goods are charged and the values at such rate per pound, or other unit of weight representing pounds, ounces, or other fractions, which may be indicated on a graduated beam and also of heavier weights, which can be placed on

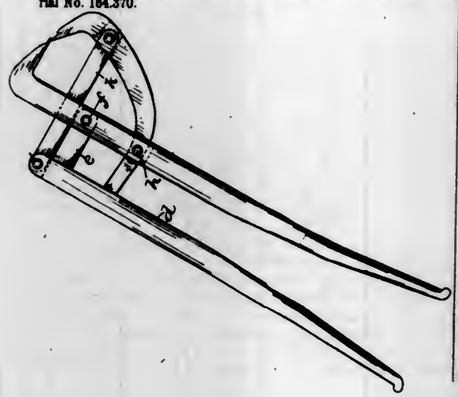
a counterpoise of the scale; a graduated beam D for the weighing-scale having indicating-marks thereon, a counterpoise F connected to said beam adapted to receive weights; a handle G' to operate the revolving cylinder until the (charging) rate required is shown at aperture H, a poise F movable on the beam, the said chart being so constructed as to include in one line thereon the rate to be charged, and the values of pounds and fractions of a pound (corresponding with the divisions on the beam) and three lines above, figures showing the value of ounces, or other fractions, and of slip-weights on the poise, and being also so constructed that other values are presented in the intervening lines for different rates, upon the like plan, substantially as described.



2. A chart of figures, for use in combination with the cylinder of a computing apparatus for weighing-scales, having on the right-hand side thereof a perpendicular column of figures representing different rates to be charged for goods, a horizontal line of figures opposite each figure in the perpendicular line representing values at such rate for different weights, the figures in the horizontal line being half the size of the figure representing the rate and in a line with the lower portion of said figures, and horizontal lines of figures between the before-mentioned horizontal rows and opposite the upper portion of each figure in the perpendicular column, showing the values of one, two and three ounces at the given rate, substantially as described.

3. A chart of figures, for use in combination with the cylinder of a computing apparatus for weighing-scales, having on the right-hand side thereof a perpendicular column of figures representing different rates to be charged for goods, a horizontal line of figures opposite each figure in the perpendicular line representing values at such rate for different weights, the figures in the horizontal line being half the size of the figure representing the rate and in a line with the lower portion of said figures, horizontal lines of figures between the before-mentioned horizontal rows and opposite the upper portion of each figure in the perpendicular column, showing the values of one, two and three ounces at the given rate, and at intervals along the same line figures showing the values of bigger weights, substantially as described.

787,414. PLIERS. RUSSELL WALTON, Cleveland, Ohio, assignor of one-half to Joseph I. Vacha, Cleveland, Ohio. Filed July 6, 1903. Serial No. 164,370.



Claim.—A plier comprising a jaw-carrying lever, a lever, an arm formed integral with said lever and pivotally secured at its free end to the jaw-carrying lever, a jaw-carrying arm pivoted at a point above its lower end to the jaw-carrying lever and having its lower end arranged to extend between said levers so as to form a stop to prevent the levers being brought too close together, and a link pivotally secured to said jaw-carrying arm and to the end of the last-mentioned lever, substantially as described and for the purpose set forth.

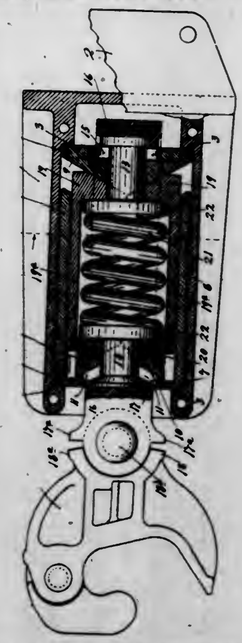
787,415. STORM-SHIELD FOR VEHICLES. WILLIAM W. WARNER, Cincinnati, Ohio. Filed Dec. 8, 1904. Serial No. 235,978.



Claim.—1. In combination with a carriage top and bow, a storm-curtain having a vertical shield portion, a pair of metal plates secured to the top corner edges of said shield portion, said edges of shield and plates being curved to conform to the curvature of the carriage-top bow, ball-and-socket connections between the said plates and the corner portions of said bow, and an elasitic tape connecting the inner edges of said plates, substantially as described.

2. In combination with the carriage top and bow, a storm-curtain having a vertical shield portion comprising two facings, having secured between them a pair of metal plates, the outer edges of which are curved to conform to the curvature of the corner portions of the bow, an elastic tape uniting the inner edges of said plates between the facings, and ball-and-socket connections between the plates and bow, substantially as described.

787,416. DRAFT-RIGGING. EDWIN C. WASHBURN, Minneapolis, Minn. Filed Apr. 11, 1904. Serial No. 202,517.



Claim.—1. In a draft-rigging, the combination with follower-abutments, coöperating followers, and a spring interposed between said followers, of a yoke embracing said followers and acting thereon, and a coupler-head directly pivoted to said yoke, substantially as described.

2. In a draft-rigging, the combination with follower-abutments, coöperating followers, and a spring interposed between the said followers, of a draft-yoke embracing the said followers and operating

thereon, a coupler-head pivoted to said yoke, and a frictional retarding device arranged to be thrown into action under movements of said yoke, substantially as described.

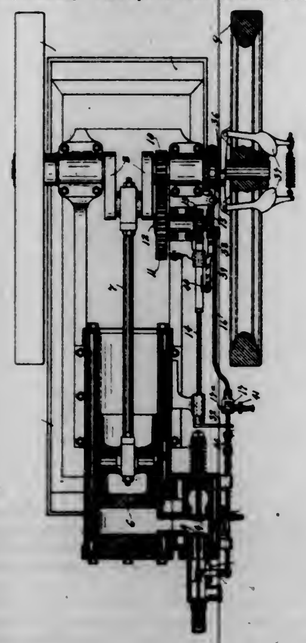
3. The combination with a pair of primary followers, having spreading-wedges, and one thereof having a frictional flange, of a pair of divided secondary followers frictionally telescoping one within the other, with their sections arranged to be spread by the wedges of said primary followers, one of the said secondary followers having frictional engagement with the flange of said flanged primary follower, and a cushioning-spring interposed between said secondary followers, substantially as described.

4. The combination with a pair of primary followers, both having spreading-wedges, and one thereof having an approximately cylindrical frictional flange, of a pair of divided secondary followers telescoping frictionally one within the other, and the outer secondary follower telescoping within the frictional flange of said flanged primary follower, the sections of said secondary follower being subject to the spreading-wedges of said primary follower, and a spring interposed between said secondary followers, substantially as described.

5. In a draft-rigging, the combination with follower-abutments and coöperating primary followers, of secondary followers, a cushioning-spring compressed between said secondary followers, said secondary followers having frictional engagement, a draft-yoke embracing said followers, and thrust-plungers interposed between said draft-yoke and said secondary followers, and permitting limited movements of said yoke without action on said primary followers, substantially as described.

6. In a draft-rigging, the combination with follower-abutments and coöperating primary followers, said primary followers having spreading-wedges, and one thereof having a frictional flange, of divided supplemental followers subject to the spreading-wedges of said primary followers, said supplemental followers having frictional engagement with each other, and one thereof having frictional engagement with the frictional flange of the flanged primary follower, a spring interposed between said secondary followers, a yoke embracing said followers, and thrust-plungers interposed between said yoke and said secondary followers, substantially as described.

787,417. **GOVERNING DEVICE FOR VALVE AND IGNITER GEAR FOR EXPLOSIVE-ENGINES.** EMIL WESTMAN, Minneapolis, Minn., assignor to The Enterprise Machine Company, Minneapolis, Minn., a Copartnership. Filed Apr. 18, 1904. Serial No. 203,579.



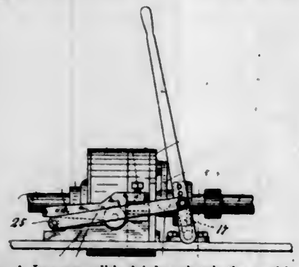
Claim.—1. In an explosive-engine, the combination with admission and exhaust valves and an igniter, of a gear for operating the same comprising a reciprocating trip-rod, having means for actuating said igniter and for holding said admission-valve closed, and a pair of engine-driven parts, the one operating on said trip-rod to impart an initial igniter-actuating movement thereto, and the other operating on said exhaust-valve, to open the same, and operating on said trip-rod to impart a secondary movement thereto, such secondary movement of said trip-rod serving to press said admission-valve to its seat under increased strain, while said exhaust-valve is open, substantially as described.

2. In an explosive-engine, the combination with admission and exhaust valves and an igniter, of a gear for operating the same, comprising a reciprocating trip-rod, having means for actuating said igniter and for holding said admission-valve closed, a pair of engine-driven parts, the one operating on said trip-rod to impart an initial igniter-actuating movement thereto, and the other operating on said exhaust-valve, to open the same, and operating on said trip to impart a secondary movement thereto, which secondary movement serves to press said admission-valve to its seat under increased strain, while said exhaust-valve is open, and a governor-controlled latch operative on said latter-noted engine-driven part to hold said exhaust-valve open, to hold said admission-valve seated, and to throw the igniter out of action, when the engine is running above a normal speed, substantially as described.

3. In an explosive-engine, the combination with admission and exhaust valves and an electric igniter, of a gear for operating the same, comprising a reciprocating trip-rod having means for actuating said igniter and for holding said admission-valve closed, an engine-driven cam and an engine-driven crank, a rocker operative on said trip-rod, to impart an initial igniter-actuating movement thereto, a rod connecting said rocker to said crank, a fixed and a loose collar on said trip-rod, a relatively weak spring between said fixed collar and a base of reaction, a relatively strong spring between said fixed and loose collars, and a thrust-rod subject to said cam, operative to open said exhaust-valve, and having a part engageable with said loose collar, to impart a secondary movement to said trip-rod, substantially as described.

4. In an explosive-engine, the combination with admission and exhaust valves and an electric igniter, of a gear for operating the same, comprising a reciprocating trip-rod having means for actuating said igniter and for holding said admission-valve closed, an engine-driven cam and an engine-driven crank, a crank-driven rocker operative on said trip-rod to impart an initial igniter-actuating movement thereto, a fixed and loose collar on said trip-rod, a relatively weak spring between said fixed collar and a base of reaction, a relatively strong spring between said fixed and loose collars, a cam-actuated thrust-rod operative to open said exhaust-valve and having a part engageable with said loose collar, to impart a secondary movement to said trip-rod, and a governor-actuated latch operative on said thrust-rod to lock the same in position to hold said exhaust-valve open, to throw said igniter out of action, and to hold said admission-valve closed, substantially as described.

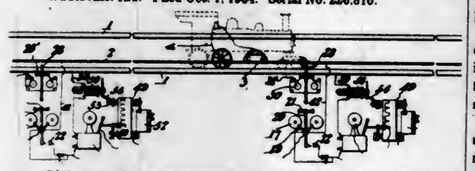
787,418. **REVERSIBLE DRIVING MECHANISM.** EMIL WESTMAN, Minneapolis, Minn., assignor to The Enterprise Machine Company, Minneapolis, Minn., a Copartnership. Filed Apr. 19, 1904. Serial No. 203,839.



Claim.—1. In a reversible driving-clutch, the combination with a divided shaft, of a drum having at one end an exposed fixed head that is loose on one shaft-section and is rigidly, but detachably, secured to said drum by means extending to, and adapted to be operated from, the exterior of the drum, said drum also having a loose head that is fixed on the other shaft-section, gears mounted within said drum and connecting the two shaft-sections, and an internal and an external clamping-ring, the former being carried by said loose drum-head and operating on the internal surface of said drum, and the other being anchored to a relatively fixed support, and operating on the exterior surface of said drum, substantially as described.

2. In a reversible driving-clutch, the combination with a divided shaft having at one end a fixed head that is loose on one shaft-section, having at its other end a loose head that is fixed on the other shaft-section, and having a central web dividing it into two compartments, stud-shafts projecting from said central web, passed through the fixed head of said drum, and provided, at their outer ends, with nuts rigidly, but detachably, holding said head to said drum, gears in one compartment of said drum, certain of which are loosely mounted on said studs and others of which are carried by the abutting ends of said shaft-sections, and an inner clamping-ring and an outer clamping-ring, engageable with the flange of the other compartment of said drum and working in the same plane, and which inner clamping-ring is carried by said loose drumhead, and which outer clamping-ring is anchored to a fixed support, substantially as described.

787,419. **ELECTRIC BLOCK-SIGNAL.** WALTER WILLIAMS, Wadesville, Ind. Filed Oct. 1, 1904. Serial No. 226,810.



Claim.—1. In an electric railway signaling system, a third rail or conductor, and a traffic-rail constituting a non-energized circuit an alarm connected in said circuit, a battery normally cut out of the circuit, a tappet-actuated member for connecting the battery in the circuit, and means controllable by the direction in which the train is traveling for determining the length of time the circuit is held closed.

2. In an electric railway signaling system, a third wire or conductor forming in connection with the traffic-rails a non-energized circuit, a battery, means operable by a passing train for connecting the battery in the circuit, and an electromagnetically-actuated recording means also connected in the circuit.

3. In an electric railway signaling system, a current-conductor arranged parallel with the traffic-rails and forming in connection therewith a normally closed non-energized circuit, independent sources of electrical energy arranged at different stations along the line, train-actuated means for connecting said source of energy in a circuit, alarms in the circuit, and means whereby the circuit is held closed for different periods of time by trains moving in different directions.

4. In an electrical railway signaling system, a signaling-circuit, a recording means, and means operable by passing trains for holding the circuit closed different lengths of time in accordance with the direction in which the train is traveling.

5. In an electric railway signaling system, a normally closed non-energized circuit, a recording means operable by said circuit, and means operable by passing trains for effecting the energizing of the circuit for different periods of time.

6. In an electric railway signaling system, a normally closed non-energized circuit, a recording device including a normally locked record-carrier, an electromagnetically-controlled means arranged in the circuit and serving to lock and release the recording device, and means operable by passing trains for effecting the energizing of the circuit.

7. In an electric railway signaling system, a normally closed non-energized circuit, a source of electrical energy, train-actuated means for connecting said source of energy in the circuit for a definite period of time when the train is traveling in one direction, and for making the same connection for a greater period of time when the train is traveling in the opposite direction, and a recording means also connected in said circuit.

8. In a railway train-signaling system, a non-energized circuit, a recording means controlled thereby, a source of electrical energy, train-actuated means for connecting said source of energy to the circuit for a definite period of time when the train is traveling in one direction, and for a greater period of time when the train is traveling in the opposite direction, and an alarm also connected in said circuit.

9. In an electric railway signaling system, a non-energized circuit, an alarm connected therein, a source of electrical energy, and means arranged at each station and operable by passing trains for closing the circuit with the battery a number of times dependent on the number of the station.

10. In an electric railway signaling system, the combination with a normally non-energized circuit, of a single-stroke bell connected therein, batteries or similar sources of energy at each station, and a train-actuated means at each station for closing the circuit with the battery a number of times dependent on the number of the station.

11. In an electric railway signaling system, a normally non-energized circuit, a single-stroke electric bell connected therein, batteries or similar sources of electrical energy at different stations along the line, train-actuated means arranged at the different stations and serving to close the batteries with the line a number of times dependent on the number of the station, a normally locked recording device, and an electromagnetically-actuated releasing device connected in the circuit.

12. In an electric railway signaling system, a circuit-closing means including a movable arm, a pair of normally locked gear-trains, means movable thereby for engaging and holding said arm for different periods of time respectively, and means operable by passing trains for releasing the gear-trains.

13. In an electric railway signaling system, a circuit-closing device including a pair of motors, lugs carried thereby, the lugs being, respectively, of different size, train-actuated releasing means for said motors, and a circuit-closing member adapted to be engaged and moved by the lugs to circuit-closing position.

14. A variable-signal tranemitter comprising a circuit-closing member, a pair of normally locked motors, lugs or projections carried thereby and adapted to engage the circuit-closing member, and a means operable by passing trains for releasing one of the motors when the train travels in one direction, and the other motor when the train travels in the opposite direction.

15. A variable-signal transmitter comprising a pivoted circuit-closing member, a pair of arms extending therefrom, a pair of normally locked motor-trains having arm-engaging lugs of different width, respectively, catches for holding said motor-train, a pivotally-mounted tappet-lever operable by passing trains, and means connecting said lever to the catches whereby one motor-train is released on the passage of a train in one direction, and the other on the passage of a train in the opposite direction.

16. In electric railway signaling system, a recorder including a normally locked record-strip carrier, and motor-trains connected thereto, means controllable by the signaling-circuit for releasing the record-strip, a marking device, and means for moving the marking device transversely of the record-strip carrier during the movement of the latter.

17. In an electric railway signaling system, a pair of record-strip-carrying rollers, a platen between them, a motor for the take-up roll, an electromagnetically-operated means for locking and releasing the motor, a single-stroke electric bell, a circuit in which the bell and locking device are stored, and means controlled by passing trains for energizing said circuit, and a marking device carried by the clapper-rod of the bell.

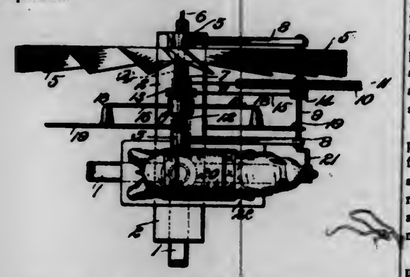
18. In signaling systems, an open-switch signaling-circuit comprising a third rail or conductor arranged parallel with the traffic-rail and forming in connection with the latter a normally opened circuit means controlled by the position of the switch-operating lever for making and breaking the circuit, and means, including a signaling device, arranged on the train for completing the circuit when the switch is open.

19. In a railway signaling system, a conductor forming in connection with the traffic-rails a normally closed non-energized circuit, alarms disposed therein, an alarm carried by the train and bridged in said circuit, and means operable from the train for effecting the energizing of the circuit.

787,420. **ADVERTISING APPARATUS.** ROBERT WILSON, St. Louis, Mo. Filed Dec. 12, 1904. Serial No. 236,624.

Claim.—1. An apparatus of the class described, comprising a shaft, a motor-wheel on said shaft, a series of revoluble arms upheld by said shaft, differential driving connections operable by the motor-wheel and adapted to move the arms at slower speed than the motor-wheel, an animal-form having a flexible limb connected to part of the driving connections, for the purpose specified, and a pivotally-supported frame supporting all of said parts.

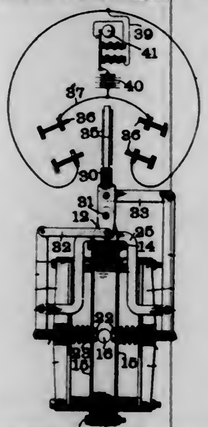
2. An apparatus of the class described comprising a motor-wheel, a shaft supporting said wheel, a sleeve upon said shaft, arms attached to said sleeve, and adapted to carry displays, differential driving connections between the motor-wheel and said sleeve, to move the latter at slower speed than the wheel, and an image having a flexible limb connected to part of the driving connection, for the purpose specified.



3. An apparatus of the class described comprising, a base, a frame pivoted thereon, a shaft carried by said frame, a motor-wheel on said shaft, a sleeve on said shaft, displays carried by said sleeve, a shaft 9, connections for rotating the shaft 9 when the motor-wheel moves, connections from the shaft 9 to the said sleeve and an image having a flexible limb leading to the said shaft 9.

4. An apparatus of the class described, comprising a frame, a shaft 4 carried by said frame, a motor-wheel on said shaft, a wheel 7 connected to the hub of said motor-wheel, a shaft 9, a wheel 10 thereon, a belt 11 passing around said wheels 7 and 10, a second wheel 14 on said shaft 9, a sleeve separate from the motor-wheel on said shaft 4, a wheel 13 on said sleeve, a belt passing around said wheels 14 and 13, a series of arms adapted to carry displays attached to said sleeve, a crank on the shaft 9, and an image having a flexible limb connected to the said crank, substantially as specified.

787,421. **FLUID-PRESSURE DEVICE.** LEO WOERNER, St. Louis, Mo. Filed June 17, 1904. Serial No. 212,966.



Claim.—1. The combination with a member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a pair of levers pivotally supported from said member at points intermediate of their length, connections between said levers and said diaphragms, an arm having a pivot fixed with relation to said member, and connections between said levers and arm at each side of said pivot.

2. The combination with a member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a yoke secured to said member, levers pivoted to said yoke, rods connecting said diaphragms and levers, a pivoted arm, and links connecting said levers with said arm.

3. The combination with an annular member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a pair of spiders secured to said annular member, rods carried by said diaphragms and sliding in said spiders, a pair of levers pivoted to said rods, an arm having a pivot fixed with respect to said annular member, and links connecting said levers with said arm at each side of said pivot.

4. The combination with an annular member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a pair of spiders secured to said annular member, rods secured to said diaphragms and sliding in said spiders, springs interposed between said spiders and said diaphragms, a yoke secured to said annular member, levers pivoted to said yoke and connected to said rods, a pivoted arm, and links connecting said levers and said arm.

5. The combination with an annular member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a pair of guides carried by said member, rods secured to said diaphragms and sliding in said guides, a pair of fixed arms carried by said member, levers pivoted to said arms and to said rods, an arm having a pivot fixed with relation to said member, and links connecting said levers with said pivoted arm at each side of said pivot.

6. The combination with an annular member, of a pair of diaphragms secured to said annular member and forming therewith a chamber for the fluid, a pair of spiders carried by said annular member, rods secured to said diaphragms and sliding in said spiders, a pair of fixed arms carried by said member, levers pivoted to said arms and to said rods, an arm having a pivot fixed with relation to said annular member, and links connecting said levers with said pivoted arm at each side of said pivot.

7. The combination with a member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a pair of guides carried by said member, rods secured to said diaphragms and sliding in said guides, a pair of fixed arms carried by said member, a pair of levers each pivoted at a point intermediate of its length to one of said fixed arms, each lever also having one end pivoted to said rods, an arm pivoted at a point intermediate of its length to said member, a link connecting one of said levers to said pivoted arm at one side of its pivot, and a second link connecting the other of said levers to said pivoted arm at the other side of its pivot.

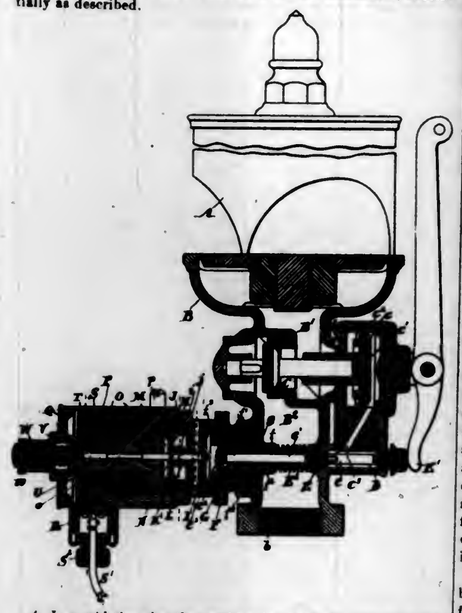
8. The combination with a member, of a pair of diaphragms secured to said member and forming therewith a chamber for the fluid, a pair of guides carried by said member, rods secured to said diaphragms and sliding in said guides, a pair of fixed arms carried by said member, a pair of levers each pivoted at a point intermediate of its length to one of said arms, each lever also having one end pivoted to one of said rods, an arm pivoted at a point intermediate of its length to said member, a link connecting one of said levers to said pivoted arm at one side of its pivot, and a second link connecting the other lever to said pivoted arm at the other side of its pivot.

787,422. **WHISTLE-VALVE.** FRANK L. WOLFE, Medford, Mass., assignor to Crosby Steam Gage and Valve Company, Boston, Mass., a Corporation of Massachusetts. Filed Feb. 15, 1904. Serial No. 193,760.

Claim.—1. In a whistle-valve the combination, with the valve-chamber and valve seated therein, of a cylinder outwardly projected from said valve-chamber and having passages leading thereto; a balanced piston located in said cylinder and attached by a rod or stem to said valve; a diaphragm-chamber, outwardly projected from said cylinder, with exhaust-passages and with a passage leading to said cylinder; a diaphragm arranged as a packing in said chamber; a valve normally seated in said cylinder having a stem extending into said diaphragm-chamber and resting against said diaphragm; an electromagnet attached to said diaphragm-chamber and furnished with an armature-stem resting against said diaphragm at a point opposite said valve-stem; together with springs arranged on said piston-rod or stem, on said valve-stem, and above said armature; substantially as described.

2. In a whistle-valve the combination, with the valve-chamber and valve seated therein, of an outwardly-projected cylinder with passages leading therefrom to said valve-chamber; a balanced piston located in said cylinder; an outwardly-projected diaphragm-chamber with exhaust-passages and with a passage into said cylinder; a diaphragm arranged in said diaphragm-chamber; a valve normally seated in said cylinder and closing said passage from the diaphragm-chamber; and an electromagnet attached to said diaphragm-chamber; together with intermediate mechanism; substantially as described.

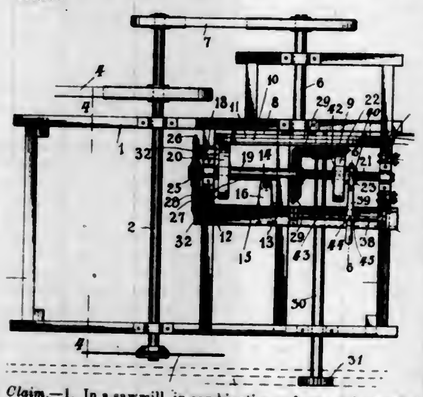
3. In a whistle-valve the combination, with the valve-chamber and valve seated therein, of a cylinder and balanced piston, a diaphragm-chamber connecting with said cylinder, a diaphragm, and an electromagnet, together with intermediate mechanism; substantially as described.



4. In a whistle-valve the combination, with the valve-chamber B^3 and valve E seated therein, of the cylinder F laterally projected therefrom, piston G located in said cylinder, valve I seated in said cylinder, chamber J communicating with the exhaust, diaphragm M arranged in said chamber J, and an electromagnet arranged to actuate said valve I, together with intermediate mechanism; substantially as described.

5. In a whistle-valve the combination, with the valve-chamber B^3 and valve E seated therein, of the cylinder F laterally projected from said chamber, piston G located in said cylinder, valve I seated in said cylinder, chamber J communicating with the exhaust, and diaphragm M arranged in said chamber J, together with intermediate mechanism, and with means for operating said valve I; substantially as described.

787,423. **FEEDING MECHANISM FOR SAWMILLS.** FREDERICK E. WOODWORTH, Grafton, Canada. Filed May 16, 1904. Serial No. 208,304.



Claim.—1. In a sawmill, in combination, a frame, a feed-wheel rotatably mounted thereupon, a feed-frame pivotally mounted upon said first frame, means for continuously driving said feed-wheel, an arbor rotatably mounted in said feed-frame, a feed-shaft, mechanism connecting said arbor with said feed-shaft for driving the latter, feed-rollers carried by said arbor the face whereof may engage the face of said feed-wheel, and means for moving said feed-frame upon the pivot thereof.

2. In a sawmill, in combination, a frame, a feed-wheel, means for continuously driving said feed-wheel, a feed-frame pivotally mounted upon said first frame, an arbor rotatably carried by said feed-frame, a feed-shaft, mechanism connecting said arbor with said feed-shaft for driving the latter, a feed-roller carried rigidly by said arbor, a second feed-roller slidably mounted upon said arbor and adapted to rotate therewith, means for adjusting the position of said last roller longitudinally upon said arbor, and means for moving said feed-frame upon the pivot thereof.

3. In a sawmill, in combination, a frame, a feed-wheel, means for continuously driving said feed-wheel, a feed-frame pivotally supported upon said first frame, an arbor carried rotatably by said feed-frame and disposed transversely of the face of said feed-wheel, feed-rollers carried by said arbor and adapted to contact with the face of said feed-wheel on opposite sides of the center thereof, a feed-shaft, means for driving said feed-shaft from said arbor, said last means including a flexible connection.

4. In a sawmill, in combination, a frame, a feed-wheel consisting substantially of a disk rotatably mounted in said frame, means for continuously driving said feed-wheel, a feed-frame pivotally mounted upon said first frame, said feed-frame having extensions disposed toward said feed-wheel, a feed-arbor rotatably mounted in said extension, links connecting said frame with said feed-frame, and constituting substantially a support for the latter, feed-rollers carried by said arbor respectively on opposite sides of the axis of said feed-wheel, said rollers being adapted to engage the face of said feed-wheel, means for tilting said feed-frame so as to engage either of said rollers with said feed-wheel, a feed-shaft, and means for driving the same from said arbor.

5. In a sawmill, in combination, a frame, a feed-wheel rotatably mounted therein, a feed-frame pivotally mounted upon said first frame, an arbor rotatably carried in said feed-frame, feed-rollers carried by said arbor and adapted to engage the face of said feed-wheel, a feed-shaft, a sprocket-wheel carried by said arbor, a sprocket-chain passing over said sprocket-wheel, and mechanism for driving said feed-shaft from said sprocket-chain.

787,424. **LIGHT-SEAL FOR PHOTOGRAPHIC-PLATE HOLDERS.** JOHN S. WRIGHT, Duxbury, Mass. Filed June 11, 1904. Serial No. 212,060.



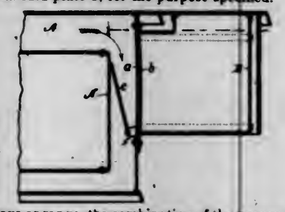
Claim.—1. A photographic-plate holder comprising in its construction a casing provided with a slot extending through one wall thereof and adapted to receive a light-shield slide, a light-guard having a flat top with a beveled edge constructed to slide transversely of said slot in ways provided in said casing, said casing provided with a recess adjacent to and extending transversely of said slot, into which recess said beveled edge is adapted to project, with said flat top extending across said slot, a guide-plate fast to said top adjacent to said beveled edge and extending upwardly therefrom at an acute angle to said slot, and a spring acting to normally hold said light-guard across said slot.

2. A photographic-plate holder comprising in its construction a casing provided with a slot extending through one wall thereof and adapted to receive a light-shield slide, a light-guard having a flat top constructed to slide transversely of said slot in ways provided in said casing, said casing provided with a recess adjacent to and extending transversely of said slot, said flat top extending entirely across said slot, a guide-plate fast to said top, extending upwardly therefrom at an actue angle to said slot and extending a portion of the length of said light-guard, and a spring acting to normally hold said light-guard across said slot.

787,425. **STOVE.** ARTHUR K. BECKWITH, Dowagiac, Mich. Filed Sept. 11, 1903. Serial No. 172,779.

Claim.—1. In a stove or range, the combination of the convex rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against the convex side of said back plate; a casing C for said reservoir; end plates C' for said casing; in-

turned flanges on said casing, adapted to be engaged by said straps B'; and a leaf-like damper *c* adapted to deflect the heated gases against or from said plate *a*, for the purpose specified.



2. In a stove or range, the combination of the convex rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against the convex side of said back plate; a casing C for said reservoir; and a leaf-like damper *c* adapted to deflect the heated gases against or from said plate *a*, for the purpose specified.

3. In a stove or range, the combination of a convex rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against the convex side of said back plate; a casing C for said reservoir; end plates C' for said casing; and inturned flanges on said casing adapted to be engaged by said straps B', for the purpose specified.

4. In a stove or range, the combination of the convex rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against the convex side of said back plate; and a casing C for said reservoir, for the purpose specified.

5. In a stove or range, the combination of the convex rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against the convex side of said back plate; and a leaf-like damper *c* adapted to deflect the heated gases against or from said plate *a*, for the purpose specified.

6. In a stove or range, the combination of the convex rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against the convex side of said back plate, for the purpose specified.

7. In a stove or range, the combination of the rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against said back plate; a casing C for said reservoir; end plates C' for said casing; inturned flanges on said casing, adapted to be engaged by said straps B'; and a leaf-like damper *c* adapted to deflect the heated gases against or from said plate *a*, for the purpose specified.

8. In a stove or range, the combination of the rigid back plate *a*; a reservoir B; supporting-straps B' about said reservoir, having lugs *b'* on their inner ends; bolts *c* through said lugs for clamping said reservoir against said back plate; a casing C for said reservoir; and a leaf-like damper *c* adapted to deflect the heated gases against or from said plate *a*, for the purpose specified.

9. In a stove or range, the combination of the convex rigid back plate; a sheet-metal reservoir; means for clamping said reservoir against the convex face of said plate; and a leaf-like damper adapted to deflect the heated gases against or from said plate, for the purpose specified.

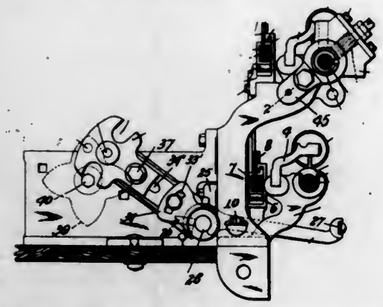
10. In a stove or range, the combination of the convex rigid back plate; a sheet-metal reservoir; means for clamping said reservoir against the convex face of said plate; and a suitable damper in said flue, for the purpose specified.

11. In a stove or range, the combination of the convex rigid back plate; a sheet-metal reservoir; and means for clamping said reservoir against the convex surface of said plate, for the purpose specified.

787,426. KNOTTING ATTACHMENT FOR TWISTING OR SPINNING MACHINES. HERBERT G. BEEDE. Pawtucket, R. I. Filed Dec. 3, 1903. Serial No. 183,681.

Claim.—1. In a twisting or spinning machine, the combination with the lower-roll stand, of a removable upper-roll stand carrying the upper rolls, and having its lower end yoke shape to straddle the foot of the lower-roll stand, substantially as shown and described.

2. In a twisting or spinning machine, the combination with the lower-roll stand, of a removable upper-roll stand carrying the upper rolls, and having its lower end yoke shape to straddle the foot of the lower-roll stand, and adapted to be secured to the same beam as the lower-roll stand, substantially as shown and described.



3. In a twisting or spinning machine, the combination with the lower-roll stand, of a removable upper-roll stand carrying the upper rolls, and having its lower end yoke shape to straddle the foot of the lower-roll stand, and having the rocker-shaft bearing attached to said upper-roll stand, substantially as shown and described.

4. In a twisting or spinning machine, the combination with the lower-roll stand, of a removable upper-roll stand carrying the upper rolls, and having its lower end yoke shape to straddle the foot of the lower-roll stand, and a bearing for the rocker-shaft detachably connected with said upper-roll stand, substantially as shown and described.

5. In a twisting or spinning machine, a removable upper-roll stand, carrying the upper feed-rolls and having a yoke-shape foot to extend over the foot of the lower-roll stand, and be secured to the same beam, of a guide-wire traverse-rod stand attached to the upper-roll stand, substantially as shown and described.

6. In a twisting or spinning machine, a removable upper-roll stand, carrying the upper feed-rolls, and having a yoke-shape foot to extend over the foot of the lower-roll stand, to be secured to the same beam, of a guide-wire traverse-rod stand detachably attached to the upper-roll stand, substantially as shown and described.

7. In a twisting or spinning machine, the combination with the knotting guide-bar, having recesses or notches therein, of a thread-guide secured to said bar in front of a notch, and comprising a guide wire or bar attached at each end, and a second parallel guide wire or bar attached at one end and free at the other, substantially as shown and described.

8. In a twisting or spininng machine, the combination with the knotting guide-bar, of a thread-guide for the knotting guide-bar, comprising two parallel strands of wire, connected at one end by an eye forming means of attachment for the guide, and disconnected at their other ends, with one end free to receive the thread thereunder, substantially as shown and described.

9. In a twisting or spinning machine, the combination with the lower guide-wire rod adapted to have a traverse motion, and the upper guide-wire rod adapted to have a traverse motion, of a rigid bar or plate detachably connected at each end to each of said rods intermediate the ends of each rod, to communicate the traverse motion of one to the other, substantially as shown and described.

10. In a twisting or spinning machine, the combination with the lower guide-wire rod adapted to have a traverse motion communicated thereto, and the upper guide-wire rod adapted to have a traverse motion communicated thereto, of a connection intermediate said guide-wire rods, detachably connected at each end to each of said rods intermediate the ends of each rod, to communicate the traverse motion of one to the other, substantially as shown and described.

11. In a twisting or spinning machine, the combination with the knotting guide-bar, supporting-arms therefor detachably connected with a rock-shaft, and said rock-shaft, of a rocker-lever for said shaft comprising three parts, a part fast on the shaft, a part having a pivotal adjustment thereon, and a part having a longitudinal adjustment, substantially as shown and described.

12. In a twisting or spinning machine, the combination with the knotting guide-bar, and a rock-shaft carrying the supporting-arms of said knotting guide-bar, of a rocker-lever for rocking the rock-shaft, comprising the lever proper fast on said shaft, a pivotal adjusting-piece having a hub loose on said shaft, and the engaging end adjustable longitudinally, substantially as shown and described.

13. In a twisting or spinning machine, the combination with the knotting guide-bar, and a rock-shaft carrying the supporting-arms of said guide-bar, of a rocker-lever for said shaft, said lever made in three parts and adjustable as to its length and as to its rocking position, of a cam and gear for operating said lever, said cam and gear adjustable relatively to said lever, substantially as shown and described.

14. In a twisting or spinning machine, the combination with a journal of the upper or lower rolls, of a shell or collar on said journal and connected therewith by a key and keyway, and having a clearance for rotary movement, for the purpose stated, substantially as shown and described.

15. In a twisting or spinning machine, the combination with a journal of the upper or lower rolls, of a shell or collar on said journal to drive the roll through the gear splined on said shell, said shell connected with said journal by a key extending into and having a slight rotary movement or clearance in a keyway, for the purpose stated, substantially as shown and described.

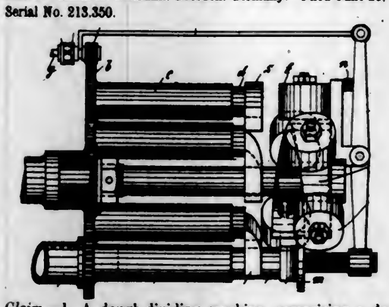
16. In a twisting or spinning machine, the combination with the lower-roll gear, the upper-roll gear, and the knotting-guide-bar-operating gear, of a chain of gears for operating the same, comprising a spur-gear, and a change-gear for each of said parts, to regulate the speed of each part, substantially as shown and described.

17. In a twisting or spinning machine, the combination with the lower-roll gear, the upper-roll gear, and the knotting-guide-bar-operating gear, of a chain of gears for operating the same, comprising a spur-gear, and a change-gear for each of said parts, and an independent adjustment for each change-gear, and a chain of three gears for driving all the spur and change gears, substantially as shown and described.

18. In a twisting or spinning machine, three sets of gears for operating the upper and lower roll gears, and the gear of the knotting-guide-bar mechanism, each set of gears operated from the same gear through a chain of three gears, and adjustable independently of each other, to vary the speed of the rolls, and of the knotting-guide-bar gear, independently, substantially as shown and described.

19. In a twisting or spinning machine, the gears of the upper and lower rolls, and the intermediate mutilated gears, all having sharp or pointed teeth, substantially as shown and described.

787,427. DIVIDING-MACHINE FOR PASTE, DOUGH, OR THE LIKE. KARL H. BINDLER. Dresden, Germany. Filed June 20, 1904. Serial No. 213,350.



Claim.—1. A dough-dividing machine, comprising a dough-feeding device, an intermittently-rotating dough-dividing plate, cylindrical dough-containing cells in said dividing-plate, pistons in said cells and an automatic dough-expelling device, in combination with an adjustable piston-operated starting and stopping device for said dividing-plate; substantially as set forth.

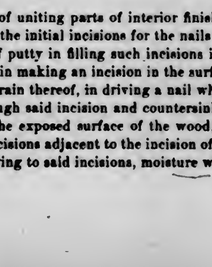
2. A dough-dividing machine, comprising a dough-feeding device, an intermittently-rotating dough-dividing plate, cylindrical dough-containing cells in said dividing-plate, pistons in said cells and cam-rollers, engaging with said pistons, in combination with an adjustable, piston-operated, starting and stopping device for said dividing-plate; substantially as set forth.

3. In a dough-dividing machine, a starting and stopping device for the dividing-plate comprising a double-armed lever adapted to be operated by the pistons of the dough-containing cells and by a returning-spring, and a clutch-coupling upon the driving-shaft operated by the said lever, substantially as described.

4. In a dough-dividing machine, a starting and stopping device for the dividing-plate comprising dough-containing cells, pistons in said cells, cam-heads for said pistons, a double-armed lever operated by said pistons and a clutch-coupling operated by said lever; substantially as set forth.

5. In a dough-dividing machine, a starting and stopping device for the dividing-plate comprising dough-containing cells, pistons in said cells, cam-heads for said pistons, a double-armed adjustable head-bearing lever, operated by said pistons, and a clutch-coupling operated by said lever; substantially as set forth.

787,428. INCANDESCENT ELECTRIC LAMP. FRANK H. BLACKBURN. Fostoria, Ohio, assignor to The National Electric Lamp Company, Cleveland, Ohio, a Corporation of New Jersey. Filed Jan 6, 1904. Serial No. 187,887.



Claim.—1. In an incandescent lamp, a bulb having a depression in its neck, and the tip which seals the air-exhaustion hole projecting from said depressed portion.

2. In an incandescent electric lamp, the combination of a bulb having a neck and a tip projecting laterally out from said neck, with a metallic base having a shell which embraces said neck and conceals and protects said tip.

3. In an incandescent electric lamp, the combination of a bulb having a depression in its neck and the tip projecting out from said depressed portion, with a base having a shell which embraces said neck and covers said depressed portion thereof and thereby conceals and protects said tip.

787,429. METHOD OF UNITING WOODWORK. WILLIAM J. BODA. Dayton, Ohio, assignor of one-half to Lee M. Boda, Columbus, Ohio. Filed Dec. 9, 1904. Serial No. 236,114.



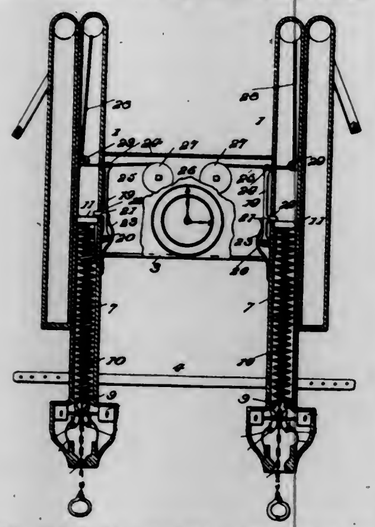
Claim.—1. The herein-described method of uniting interior finish and other fine woodwork, so that the nail incisions are closed without the use of putty, said method consisting in separating the grain or fibers of the wood in the surface thereof by making an incision parallel with the grain, in driving a nail oblong in cross-section through said incision and countersinking the head thereof, and in applying moisture to the wound or incision after the nail has been countersunk.

2. A method of uniting parts of interior finish and other fine woodwork so that the initial incisions for the nails will not be visible, and the use of putty in filling such incisions is obviated, said method consisting in making an incision in the surface of the wood parallel with the grain thereof, in driving a nail which is oblong in cross-section, through said incision and countersinking the head of said nail beyond the exposed surface of the wood, and in further making parallel incisions adjacent to the incision of the nail, and in subsequently applying to said incisions, moisture whereby the fiber

or grain of the wood is caused to close said incisions, substantially as set forth.

3. A method of uniting parts of interior finish and other fine woodwork so that the incisions will become invisible without the use of putty said method consisting in making an oblong incision in the surface of the wood parallel with the grain thereof, in driving a nail oblong in cross-section through said incision with the greatest cross-sectional width of said nail parallel with the grain of the wood, and in countersinking the head of said nail below the surface of the wood, in making an oblong incision on either side of the nail-incision and parallel therewith, and in applying to said incisions a liquid compound consisting of water, whiting and a pigment whereby the said incisions are caused to close and the effect of the acid in the wood coming in contact with the metallic nail is neutralized.

787,430. SHACKLE. EDWARD F. BONNEL and JOHN H. McGOWAN, Denver, Colo. Filed May 24, 1904. Serial No. 209,469.



Claim.—1. A shackle, comprising a frame, a chain carried thereby for giving the prisoner a limited amount of freedom for a predetermined length of time, and a clock mechanism for regulating the predetermined length of limited freedom of said chain.

2. A shackle, comprising a frame, a chain carried thereby for giving the prisoner a limited amount of freedom for a predetermined length of time, a clock mechanism for regulating the predetermined length of limited freedom of said chain, and means carried by said clock mechanism for changing the length of time of said predetermined limited freedom.

3. A shackle, comprising a frame, means for giving the prisoner a limited amount of freedom for a predetermined length of time, and a clock mechanism for regulating the predetermined length of limited freedom.

4. A shackle comprising a tube, a spring within said tube, a chain carried by the spring, gyves carried by the end of the chains, and means for holding the springs compressed, whereby the chains are out of the tube and a limited freedom is given the prisoner.

5. A shackle, comprising a tube, a spring within said tube, a chain carried by the spring, gyves carried by the ends of the chains, means for holding said springs compressed, and a clock mechanism for releasing said spring-holding mechanism.

6. A shackle, comprising a tube, chains within the tubes, means for preventing said chains from being pulled out of the tube, and means for automatically drawing said chains within the tubes.

7. A shackle, comprising a tube, chains within the tubes, gyves carried by the chains on the outside of the tube, means for preventing said chains from being pulled out of the tube, and a spring for automatically drawing said chain within the tube.

8. A shackle, comprising a tube, a chain within the tube, gyves carried by the chain on the outside of the tube, means for holding the spring compressed with the chain outwardly, means for releasing said spring, and means for preventing the chain from being drawn outward from said tube.

9. A shackle, comprising a tube, a chain therein, gyves carried by the chain on the outside of the tube, means for preventing the chain from being pulled out of the tube, means for releasing said chain-holding means, and means for automatically drawing said chain inward within the tube.

10. A shackle, comprising a tube, a chain extending within the tube, a spring normally drawing the chain within the tube, and means for holding the spring compressed with the chain in an outward position.

11. A shackle, comprising a tube, a chain extending within the tube, a spring normally drawing the chain within the tube, means for holding the spring compressed with the chain in an outward position, and means for preventing the chain from being drawn outwardly after the same has been drawn inward by the spring.

12. A shackle, comprising a tube, a chain extending within the tube, a spring normally drawing the chain within the tube, and means for preventing the chain from being drawn outwardly.

13. A shackle, comprising a tube, chain extending within the tube, a spring normally drawing the chain within the tube, and means for allowing the chain to be drawn inward but preventing it from being drawn outward.

14. A shackle, comprising a tube, a chain having one end extending within the tube, gyves carried by the opposite end of said chain, means for preventing the chain from being drawn outwardly, and means for automatically drawing the chain within the tube.

15. A shackle, comprising a tube, a chain having one end extending within the tube, gyves carried by the opposite end of the chain, means for preventing the chain from being drawn outward, and a spring surrounding the chain for automatically drawing the same within the tube.

16. A shackle, comprising a tube, a chain having one end within the tube, gyves carried by the opposite end of the chain, means for preventing the chain from being drawn outward a coil-spring within the tube and normally drawing the chain within the tube, and means for holding the spring compressed whereby the chain is out of the tube.

17. A shackle, comprising a tube, a chain extending therein, means for holding said chain in an outward position, a clock mechanism for releasing said holding means, and lock means for holding said chain in an inward position.

18. A shackle, comprising a tube, a chain therein, means for holding said chain in an outward position, means for releasing said holding means and means for automatically drawing the chain within the tube.

19. A shackle, comprising a tube, a chain therein, means for holding said chain in an outward position, means for releasing said holding means, means for automatically drawing the chain within the tube, and locking means for locking said chain in an inward position.

20. A shackle, comprising a tube, a chain therein, means for normally holding said chain in an inward position, means for locking said chain in an outward position, means for releasing said locking means, means for automatically drawing the chain within the tube, and locking means for locking said chain in an inward position.

21. A shackle, comprising a tube, a coil-spring therein, a chain passing within the tube and secured to the spring, means for holding said spring in a compressed position with the chain out of the tube, and a clock mechanism for releasing said spring-holding means.

22. A shackle, comprising a tube, a coil-spring therein, a chain passing within the tube and secured to the inner end of the coil-spring, means for holding said spring in a compressed position with the chain free to move outwardly, a clock mechanism for releasing said spring-holding means at a predetermined time, and means for holding said chain against outward movement after it has been drawn inward by the spring.

23. A shackle, comprising a tube, a coil-spring therein, a chain passing within the tube, gyves carried by the outer ends of said chain, means for securing the inner end of said chain to the spring, means for holding said spring in a compressed position with the chain free to move outward, a clock mechanism for releasing said spring-holding means at a predetermined time, and pawls adapted to allow of the free inward movement of the chain but preventing the same from being drawn outward.

24. A shackle, comprising a tube, a coil-spring therein, a chain passing within the tube, gyves carried by the outer end of said chain, means for securing the inner end of said chain to the spring, means for holding said spring in a compressed position with the chain free

to move outward, a clock mechanism for releasing said spring-holding means at a predetermined time, pawls adapted to allow of the free inward movement of the chain but preventing the same from being drawn outward, and a lock mechanism for releasing said pawls so that the chain may be drawn outward.

25. A shackle, comprising tubes passing over the shoulders, a belt carried thereby for securing the same to the body and gyves carried by the tubes and adapted to be secured to the arms and legs of the prisoner.

26. A shackle, comprising tube passing over the shoulders, a belt carried thereby for securing the same to the body, outwardly-yielding chains carried by said tubes, gyves carried by the chains passing over the legs and arms of the wearer, and means for limiting the movement of the chains.

27. A shackle comprising tubes passing over the shoulders, a belt carried thereby for securing the same to the body, outwardly-extending chains carried by the tubes and having a limited movement, gyves carried by the outer ends of said chains, means for holding said chains in an outward position and means for releasing said holding means, whereby the chains are drawn within the tubes.

28. A shackle, comprising a tube, a chain extending within the tube, a spring normally drawing the chain within the tube, means for holding the spring compressed with the chain in an outward position, and means for releasing said holding means.

29. A shackle, comprising a tube, a chain extending within the tube, a spring normally drawing the chain within the tube, means for holding the spring compressed with the chain in an outward position, means for releasing said spring-holding means, and means for preventing the chain from being drawn outward after the same has been drawn inward by the spring.

30. A shackle, comprising a tube, a chain extending within the tube, an inwardly-spring-pressed plunger carried by the chain within the tube, a pivoted catch carried by the tube and holding said plunger in an outward position, and a clock mechanism for releasing said catch.

31. A shackle, comprising a tube, a chain extending within the tube, an inwardly-spring-pressed plunger carried by the chain within the tube, a pivoted catch carried by the tube and holding said plunger in an outward position, a clock mechanism for releasing said catch, and spring-pressed catches carried by the tube and preventing the chain from being drawn outward.

32. A shackle, comprising a tube, chains extending within the tube, an inwardly-spring-pressed plunger carried by the chain within the tube, a pivoted catch carried by the tube and holding the plunger in an outward position, a clock mechanism for releasing said catch, spring-pressed pawls carried by the tube and preventing the chain from being drawn outward, and a lock connection with said pawls.

33. A shackle, comprising two U-shaped tubes side by side, and secured together, a chain passing in said tubes from opposite ends, means for drawing said chains within the tube, and a clock mechanism for determining the time of the inward movement of the chains.

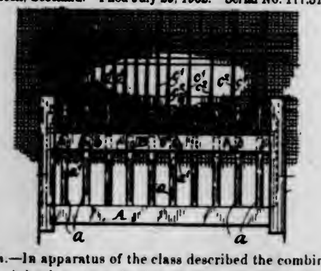
34. A shackle, comprising U-shaped tubes arranged parallel and a distance apart, a housing connecting said tubes, chains within the tubes and carrying gyves at their outer ends means for drawing said chains within the tubes, means for holding said chains in an outward position, and a clock mechanism for releasing said chain-holding means.

35. A shackle, comprising a tube, a chain passing therein and secured to a plunger, a spring surrounding said chain and normally holding the plunger inwardly, a pivoted spring-pressed member on the outside of said tube and having an inwardly-projecting pin adapted to hold the plunger in an outward position, and means for releasing said spring-pressed member whereby the plunger is released.

36. A shackle, comprising a tube, a chain passing within the tube, a plunger within the tube and to which is secured the chain, a spring surrounding the chain and bearing against the plunger and normally drawing the chain within the tube, means for preventing the chain from being drawn within the tube, means for releasing said holding means, a pivoted spring-pressed member on the outside of said tube, a pin carried by the said member and passing into the tube and adapted to hold the plunger in an outward position, and a locking member operatively connected to the said spring member and adapted to withdraw the pin from within the tube and release the plunger, whereby the chain is drawn within the tube.

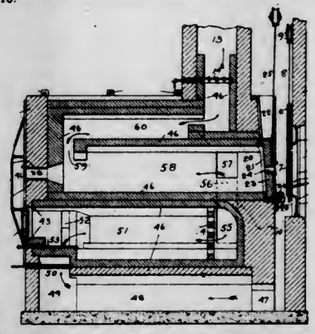
37. A shackle, comprising U-shaped tubes arranged in pairs a distance apart, a housing connecting said tubes, chains passing within the ends of said tube, gyves carried by the outer ends of said tubes, plungers carried by the inner ends of said tubes, springs normally drawing said chains inwardly, means for preventing the chains from being pulled outward, means for releasing the last-named means, means carried within one tube and adapted to hold the plunger of the adjoining tube in an outward position, and means carried by the housing for automatically releasing said plunger-holding means at a predetermined time.

787,431. DARNING APPARATUS. HELEN S. BRECHIN, county of Aberdeen, Scotland. Filed July 29, 1902. Serial No. 117,512.



Claim.—In apparatus of the class described the combination of a fixed comb having means for its attachment to a fabric and provided with grooved end pieces and prongs, and a movable comb having its ends slidable in the grooves of the end pieces of the fixed comb and provided with hooks to engage the yarn, substantially as described.

787,432. CREMATING-FURNACE. HENRY E. BRETT and ARTHUR B. BENTON, Los Angeles, Cal., assignors of one-third to William Le Moyne Wills, Los Angeles, Cal. Filed Nov. 7, 1901. Serial No. 81,510.



Claim.—1. A furnace provided with an incinerating-chamber having imperforate walls, floor, and roof, a fire-chamber below and in operative relation thereto and having a burner in one end thereof, the other end of said chamber having communications with one end of the incinerating-chamber and a combustion-chamber above and in operative relation to said incinerating-chamber and having communications with the other end of the latter.

2. A furnace provided with an incinerating-chamber, a fire-chamber therebelow and heating the same, a combustion-chamber above the incinerating-chamber and heating the latter and communications only at the ends of each of said chambers for passing the consuming medium successively through said fire, incinerating and combustion-chamber.

3. A furnace provided with an incinerating-chamber, a combustion-chamber thereabove, a fire-chamber below the incinerating-chamber, a warming-chamber below the fire-chamber, each of said chambers having imperforate walls, floors and tops and flues connecting the ends of said chambers whereby the medium is compelled to traverse each of said chambers from one end to the other.

4. A furnace provided with an incinerating-chamber having imperforate side walls, floor and top, a fire-chamber having imperforate side walls, floor and top, a warming-chamber having imperforate side walls, floor and top and flues connecting the ends of said chambers, whereby the medium is compelled to traverse the chambers from one end to the other.

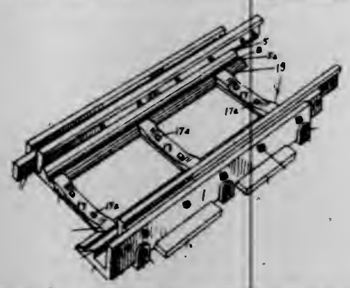
5. A furnace provided with an incinerating-chamber closed except at the ends thereof, a fire-chamber therebelow closed except at the ends thereof, a warming-chamber below the fire-chamber, and flues connecting the eduction end of the warming-chamber with the induction end of the fire-chamber, connecting the eduction end of the fire-chamber with the induction end of the incinerating-chamber, whereby the medium traverses each of said chambers successively.

6. A furnace provided with an incinerating-chamber, a fire-chamber therebelow, a vertical flue connecting the eduction end of the fire-chamber with the induction end of the incinerating-chamber, a warming-chamber below the fire-chamber, said chambers being closed except at the ends thereof, and a vertical flue connecting the eduction end of the warming-chamber with the induction end of the fire-chamber, whereby the medium is compelled to traverse the warming, fire and incinerating chambers, respectively from one end to the other.

7. A furnace provided with an incinerating-chamber, a superimposed combustion-chamber, a fire-chamber below the incinerating-chamber, a warming-chamber below the fire-chamber, each of said chambers being closed except at the ends thereof and being provided with connecting-flues, whereby the draft is compelled to traverse said warming, fire, incinerating and combustion chambers successively from one end to the other.

8. A furnace provided with an incinerating-chamber imperforate except at the ends thereof, a fire-chamber imperforate except at the ends of the same, a branched vertical flue connecting the open eduction end of said fire-chamber with the open induction end of said incinerating-chamber, a warming-chamber imperforate except at the ends thereof and a vertical branched flue connecting the open eduction end of said warming-chamber with the open induction end of said fire-chamber, whereby the draft is compelled to traverse said warming, fire and incinerating chambers successively from one end to the other.

787,433. CAR-RAIL AND BED. RICHARD M. BURKE, Utica, N. Y. Filed Sept. 21, 1903. Renewed Feb. 27, 1905. Serial No. 247,497.



Claim.—1. In a car-rail and bed, a rail-base with inner ridges and upwardly-extending flange and a rail-top with a downwardly-extending flange, the base being grooved to receive the opposed edge of the top and having a shoulder to support the tread of the rail-top in combination, substantially as shown.

2. In a car-rail and bed, rail-beds provided with a laterally-extended supporting-face and upwardly-extended guard-rail at one edge thereof and upwardly-extended ridges at the other edge thereof, the said ridges providing a groove between them, a guard-rail strip adjacent to the guard projecting beyond the end of the rail-bed, in combination with a rail-top adapted to be secured to the rail-bed, said base and top being adapted to break joint in road-building, in combination substantially as described.

3. In a car-rail and bed, a rail-base provided with a laterally-supporting surface and an upward-extending guard-rail at one edge thereof and upwardly-extending ridges at the other edge, the said ridges providing a groove between them and a rail-top provided with a horizontal wheel-supporting surface, the said rail-top being supported on the lateral surface of the base and on a shoulder of the guard-rail thereon, in combination, substantially as shown.

4. As a new article of manufacture, a car-rail composed of overlapping members, each having a single vertical portion, the one providing a base and the other a wheel-supporting surface, the former being provided with a groove to receive and confine the opposed edge of the latter, the base having additional grooves parallel with the wheel-supporting member, in combination, substantially as shown.

5. In a car-rail and bed, a rail-base provided with a laterally-extended supporting-face and upwardly-extended guard-rail adjacent to one edge thereof and upwardly-extended ridges adjacent to the other edge thereof, in combination, with a rail-top adapted to be secured to the rail-bed, said base and top being adapted to break joint, substantially as described.

6. In a car-rail, the combination of a base and a top each breaking joint with the other in the construction of a track, said base having inner grooves parallel with the top, means for securing the base and top, substantially as shown.

7. In a car-rail, the combination of a base, a top and a guard-rail, each breaking joint with the other in the construction of the track, said members being grooved to provide close engagement of the same and means for securing them, the base being provided with grooves parallel with the rail-top, substantially as shown.

8. In a car-rail and bed, the combination of a supporting-base and a wheel-supporting member, the said base being provided with vertically-extended outer and inner guards and with a guard-strip extending beyond the end of the base and breaking the joint of the base and the guard-strip adapted to be secured to the adjacent base, substantially as described.

9. In a car-rail and bed, the combination of a supporting-base, a wheel-supporting member, and a guard-strip, the said base being provided with vertically-extended guards and with a guard-strip extending beyond the end of the base and breaking the joint of the base and the guard-strip adapted to be secured to the adjacent base, substantially as described.

10. In a car-rail and bed, the combination of a supporting-base, a wheel-supporting member and a guard-strip, the said base being provided with vertically-extending guards and with a guard-strip, the said base, wheel-supporting member and guard-strip being severally adapted to break joint, substantially as described.

11. A car-rail and bed comprised of bed-plate, guard-strips and rail-strips, the three said members constructed to break joints each with respect to the other, in combination, substantially as shown.

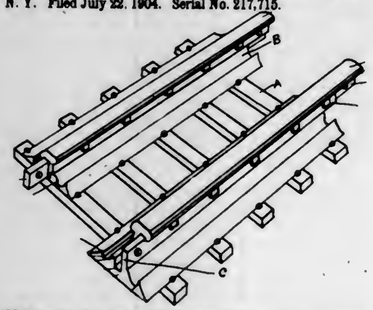
12. In a car-rail and bed, the combination of a supporting-base and a wheel-supporting member, the said base being provided with vertically-extended outer and inner guards and with a guard-strip extending beyond the end of the base, the said members being constructed to break joint each with respect to the other, substantially as described.

13. In a rail-bed comprising a horizontal base and a guard-rail extending vertically above the level of the wheel-supporting member and having an inner groove parallel with the guard-rail and a wheel-supporting member, in combination, substantially as shown.

14. In a railway-bed, the combination of a base and a top, the former having a plurality of longitudinal grooves and receiving in one of them the opposed edge of the top which is supported on the base structure against lateral movement thereon, the said base and top being constructed to break joint, substantially as shown.

15. In a railway-bed, the combination in a rail-supporting structure, of a base securely seated therein to provide against lateral movement of the base, the said base being longitudinally grooved, a top portion with its lower edge engaging in the base portion, and a guard-strip, substantially as shown.

787,434. RAIL CONSTRUCTION. RICHARD M. BURKE, Utica, N. Y. Filed July 22, 1904. Serial No. 217,715.



Claim.—1. A railway construction comprising a base with a vertical ridge and a horizontally-extended member on each side thereof, the said horizontal portion being provided on each side of the ridge with a groove adjacent to the rail-tread to receive the flange of the wheel in case of derailment, substantially as shown.

2. In a rail construction the combination of a base having grooves parallel with the rail-tread to engage the wheel-flange in case of derailment, and a rail-tread having a web to engage the base, the said base and web being pierced for bolts to permit the overlapping of the tread with respect to the base, substantially as shown.

3. In a rail construction, a laterally-extended base portion provided with a vertically-extended web portion, the latter extending beyond the horizontal portion, in combination with a rail-tread adapted to break joint with the horizontal portion of the base and with the vertical portion of the base, substantially as described.

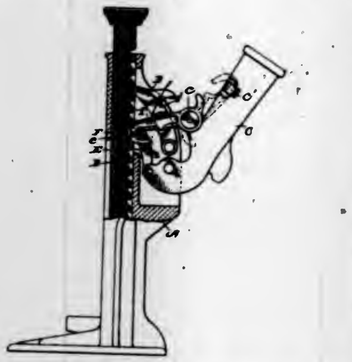
4. In a rail construction, a base extending laterally from the tread-supporting member and provided parallel therewith with a groove on each side thereof to receive the flange of the wheel upon derailment, and a tread member grooved to receive the tread-supporting member of the base and provided with a web to engage a groove in the said base, a groove provided in the said base to receive the web of the tread member, substantially as shown.

5. A rail construction comprising a base with a horizontally-extended portion, the latter being provided with a groove to engage the wheel-flange in case of derailment substantially parallel to the rail-tread, substantially as shown.

6. A railway construction comprising a ridged base with a horizontally-extended portion provided on each side of the ridge with a groove adjacent thereto to receive the flange of the wheel in the case of derailment, substantially as shown.

7. A railway construction comprising a base with a horizontally-extended portion being provided on each side of the center ridge with a groove parallel with the rail-tread to receive the flange of the wheel in case of derailment, subetantially as shown.

787,435. LIFTING-JACK. EUGENE COOK, Kalamazoo, Mich. Filed June 6, 1904. Serial No. 211,344.

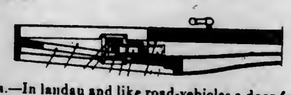


Claim.—1. In a lifting-jack, the combination of a frame; a lifting-bar; an operating-lever; a lifting-pawl pivotally secured to the inner end of said operating-lever and having a laterally-projecting pin toward its upper end; a holding-pawl having a notch in one edge thereof pivotally supported on said frame; a trip-hook pivotally secured to said lever adapted to engage the laterally-projecting pin on the lifting-pawl and having a laterally-projecting pin thereon adapted to pass through the said notch in said holding-pawl and engage the inner face thereof, said pin being so arranged as to withdraw said holding-pawl from engagement with said lifting-bar before said lifting-pawl is acted upon, for the purpose specified.

2. In a lifting-jack, the combination of a frame; a lifting-bar; an operating-lever; a lifting-pawl pivotally secured to the inner end of said operating-lever; a holding-pawl pivoted on said frame; a trip member pivotally secured to said lever adapted to engage said pawls successively, whereby said holding-pawl is withdrawn from engagement with said lifting-bar before said lifting-pawl is acted upon, for the purpose specified.

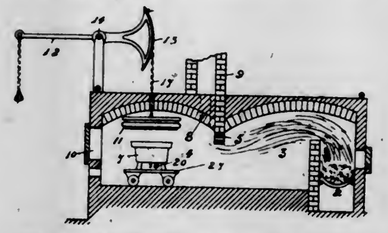
3. In a lifting-jack, the combination of a lifting-bar; an operating-lever; a lifting-pawl pivotally secured to the inner end of said operating-lever; a holding-pawl coacting with the said lifting-pawl; a trip member pivotally secured to said lever, adapted to engage said pawls successively whereby they are withdrawn successively from engagement with the said lifting-bar, for the purpose specified.

787,436. DOOR FOR LANDAUS OR OTHER VEHICLES. WILLIAM W. CULLENDER, Brighton, England. Filed Oct. 3, 1903. Serial No. 175,649.



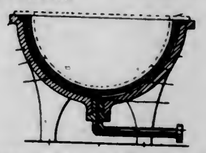
Claim.—In landau and like road-vehicles a door-frame having a recess in its inner face: a fork-ended arm pivoted in the said recess so as to normally hang out of the recess into the upward path of the window-sash: a roller on a spindle crossing the forked end of the said arm: a bolt hinged at one end to the free end of the said arm and free to move in a hole in the door-frame so as to enter a hole in the head of the door substantially as hereinbefore described.

787,437. FURNACE FOR BENDING AND SHAPING SHEET-GLASS, &c. WILLIAM CUTLER, Birmingham, England. Filed Mar. 30, 1904. Serial No. 200,738.



Claim.—The improvements in and relating to furnaces for vacuum bending and shaping sheet-glass and the like, characterized by a pair of heating and change chambers having a tramway connection between the two with truck for conveying the mold from one to the other, in combination with a mold, a clamp, an exhaust-pipe, a vertically-moving clutch operated from the exterior for raising and lowering the clamp, an aperture or door in the side of the furnace and means for coupling up the exhaust-pipe to the mold substantially for the purpose set forth.

787,438. MOLD FOR BENDING AND SHAPING SHEET-GLASS, &c. WILLIAM CUTLER, Birmingham, England. Filed Mar. 30, 1904. Serial No. 200,739.



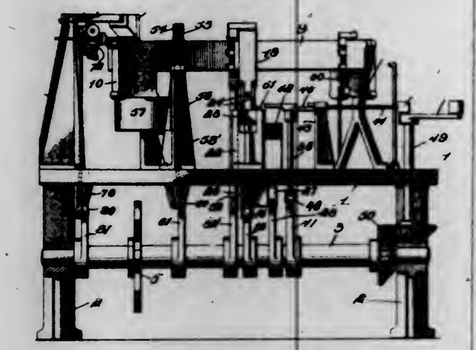
Claim.—1. In shaping or bending sheet-glass by the exhaust of the air so as to produce a vacuum, the combination with the mold of a false bottom or lining and a vacuum-chamber with air-passages between the mold and the chamber which are so distributed that the air is exhausted from various parts or at different points of the mold so as to accommodate the various articles to be shaped, substantially for the purpose set forth.

2. In shaping or bending sheet-glass in a mold by the exhaust of the air so as to produce a vacuum, a mold having a loose bottom or lining and vacuum-chamber with air-passages between the mold and the chamber which are so distributed that the air is exhausted from various parts or at different points of the mold so as to accommodate the various articles to be shaped, in combination with a stem or connection to the bottom or lining which is mounted to slide in the mold or casing so as to be operated from the exterior and enable the article to be raised from the mold, substantially for the purpose set forth.

787,439. CAN-BODY FORMING AND SOLDERING MACHINE. HENRY DIECKS, Eastport, Me. Filed Dec. 28, 1903. Serial No. 186,858.

Claim.—1. A blank-feeding mechanism including an electro-magnet having spaced poles, means for raising and lowering the electromagnet, and a pair of stripper-fingers adapted to engage the blank and slide the same laterally from contact with the poles of the

magnet, said fingers forming supports for holding the blank after it has been removed from the poles of the magnet.



2. In a can-forming machine, an electromagnet having widely-separated poles to permit the sagging of the central portion of the blank, a stripper, and a means for engaging the sagging portion of the blank to prevent backward movement thereof.

3. In a can-forming machine, an electromagnetic feeder having widely-separated poles, a pair of stripper-fingers for engaging the end portions of the blank, forming devices to which the blanks are successively fed, and ribs or fingers for engaging the sagging portion of the blank and retaining the same in position on the formers.

4. In a can-forming machine, an electromagnet for engaging and raising the blanks, a pair of fingers for engaging the blanks near the opposite ends thereof, said fingers being provided with surfaces for the reception and support of the blanks and having shoulders for engaging the edge portions of the blanks and sliding the same from the poles of the magnet.

5. In a can-forming machine, an electromagnet for rasing can-blanks, a pair of stripping-fingers having shoulders for engaging the edge portions of the blanks and stripping the same from the poles of the magnet, a cross-bar to which both fingers are connected, and a revoluble crank having a pin or antifriction-roller for engaging said cross-bar.

6. In a can-forming machine, a magnet for raising successive blanks, a rod supporting the magnet, a cam engaging and reciprocating said rod, a pair of shouldered fingers serving as strippers for removing the blank from the poles of the magnet and as carriers and supports for the blank after its removal from the magnet, a movable support for the fingers, and means for reciprocating said support and fingers.

7. In a can-forming machine, a mandrel, forming or bending arms for bending a blank around the mandrel, and a clamping means for engaging the overlapped edges of the blank on the mandrel.

8. In a can-forming machine, a mandrel forming arms for bending a blank around the mandrel and for overlapping the edges of the said blank, a clamping-finger for engaging said overlapping edges and holding the blank on the mandrel, and means for moving said clamping-finger to release position.

9. In a can-forming machine, a mandrel, a plurality of folding-arms of unequal length for bending the blank around the mandrel, a spring-pressed clamping-finger for engaging the overlapping edges of the blank and holding the same on the mandrel, and means for moving the finger to release position.

10. In a can-forming machine, a mandrel, means for moving the same, a blank-clamping bar movable in the direction of the mandrel to clamp the central portion of the blank thereagainst, a pair of forming-arms carried by the bar and serving to bend a blank around the mandrel, and means for clamping the blank in its bent position.

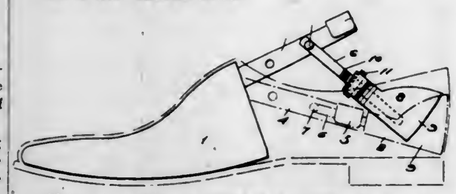
11. In a can-forming machine, a traveling mandrel, a clamping-bar movable in the direction of the mandrel to clamp a can-blank thereagainst, a pair of clamping-arms for bending the blank around the mandrel, said arms being of unequal length and serving to arrange the overlapping edges of the blank at one side of the vertical center of the mandrel.

12. In a can-forming machine, a traveling mandrel, a vertically-movable clamping-bar for engaging the central portion of a blank, a pair of forming-arms serving to bend a blank around the mandrel, a cross-head, a link connecting the cross-head to the arms for mutual movement, independent cams for actuating the clamping-bar and the cross-head, and means for clamping the bent blank in position on the mandrel.

13. In a can-forming machine, a traveling mandrel, a clamping-finger, a spring-pressed rod guided on the mandrel and serving as a support for the clamping-finger, an antifriction-roller disposed at the lower end of the rod forming means for bending a blank around the mandrel, and means for engaging the antifriction-roller and moving the clamping-finger to released position.

14. The combination with a can-body-carrying mandrel, of a revoluble support for the mandrel, a spring-pressed rod carried by the mandrel, a clamp secured to the rod and serving to hold the overlapping parts of the can-body in position, a stationary cam disposed in the path of movement of the rod and serving to move said clamp to release position, and strippers for engaging the can-body, to remove the same from the mandrel.

787,440. **SHOE-TREE.** NICKOLAS J. DOBEL, Buffalo, N. Y. Filed Mar. 12, 1904. Serial No. 197,741.

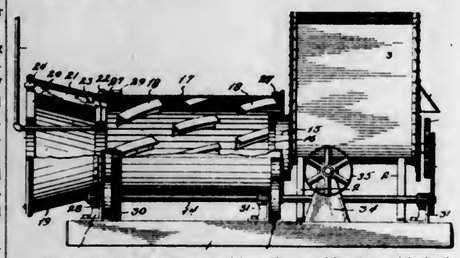


Claim.—1. A shoe-tree consisting of a vamp shell or former, a counter shell or former having overlapping spaced ends, a nut between such overlapping spaced ends, and an interposed toggle-lever comprising two members, one member pivoted to the vamp-shell and provided with a lock at its outer or free end, and the other member adjustably engaging the nut between the overlapping spaced ends and pivotally engaging the first member forward of the lock, all combined and operating as and for the purpose stated.

2. A shoe-tree consisting of a vamp-former composed of an outer fibrous shell having an inner metallic reinforce, a counter shell or former having overlapping spaced ends, a nut between such overlapping spaced ends and an interposed toggle-lever comprising two members, one member pivoted to the inner metallic reinforce and provided with a lock at its outer free end, and the other member adjustably engaging the nut between the overlapping spaced ends and pivotally engaging the first member forward of the lock, all combined and operating as and for the purpose stated.

3. A shoe-tree consisting of a resilient vamp-former composed of an outer fibrous shell, open underneath, and having an inner metallic reinforce, a counter shell or former having overlapping spaced ends, a nut between such overlapping spaced ends and an interposed toggle-lever comprising two members, one member pivoted to the inner metallic reinforce and provided with a lock at its outer free end, and the other member adjustably engaging the nut between the overlapping spaced ends and pivotally engaging the first member forward of the lock, all combined and operating as and for the purpose stated.

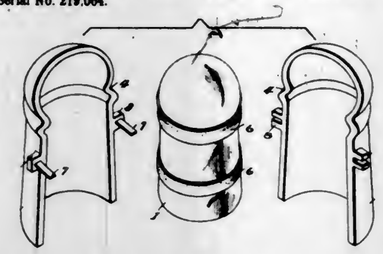
787,441. **MIXING-MACHINE.** JAMES EMBLETON, Columbus, Ohio, assignor to J. F. Angell, Columbus, Ohio. Filed Nov. 7, 1904. Serial No. 231,710.



Claim.—1. In a mixing-machine, the combination with feed-troughs having feeding devices, and means for driving the feeding devices, of a mixing-drum having internally-arranged mixing devices, a delivery-spout carried by the drum, jarring mixing means arranged within the spout, and means for imparting motion to the parts.

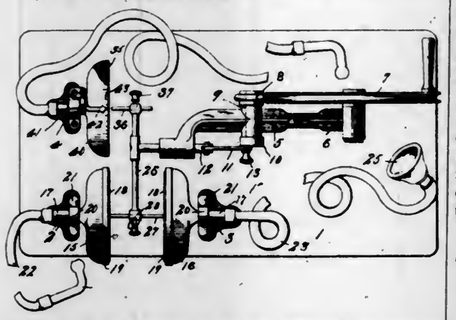
2. In a mixing-machine, the combination with feeding means, of a revolving mixing-drum having forwardly-inclined mixing devices arranged upon its inner periphery, a flaring delivery-spout carried upon the drum and movable therewith, a mixing-wheel fitting loosely in the spout, means projecting from the spout and engaging the mixing-wheel to cause the same to turn with the spout, means for introducing water into the spout, and means for imparting motion to the drum.

787,442. **INSULATOR FOR ELECTRIC WIRES.** SAMUEL B. FLINT and LEAMAN A. MAIDEN, Meridian, Miss. Filed Aug. 1, 1904. Serial No. 219,064.



Claim.—As a new article of manufacture, a protective casing for insulators comprising similar sections grooved externally to receive a binder, oppositely-arranged pairs of lugs upon one section, a single lug at opposite sides of the other section, the several lugs above mentioned being arranged adjacent to the joint of contiguous sections, and a flexible strip extending from the single lugs of the last-mentioned section and adapted to pass between the pairs of lugs of the first-mentioned section to be bent about one of each of said pairs of lugs.

787,443. **MASSAGING APPARATUS.** EMORY J. GODMAN and BERNARD F. FRIZZELL, Baltimore, Md. Filed Jan. 28, 1904. Renewed Mar. 17, 1905. Serial No. 250,663.

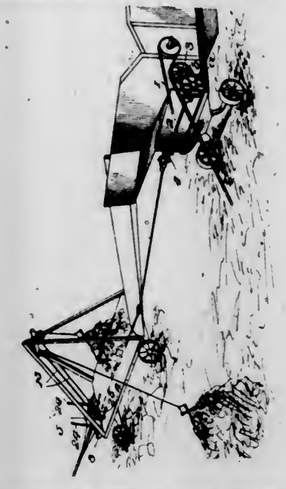


Claim.—1. In apparatus of the kind described, two separate non-communicating gas-conduits each having an opening adapted to be closed by application to the body to be treated, two vibratory diaphragms constituting parts of the conduits respectively, a rigid connection between the diaphragms, and a single actuating means joined to said connection for positively reciprocating the same to vibrate both diaphragms.

2. In apparatus of the kind described, a bell-shaped or cup-like member having a reduced tubular extension, a diaphragm closing the large end of said member, and a screw-thread connection between the tubular extension and a support, whereby rotation of the bell-shaped member varies the position of the diaphragm.

787,444. **HOISTING MECHANISM.** MONROE C. HALL, Winchester, Idaho. Filed Nov. 8, 1904. Serial No. 231,876.

Claim.—1. In actuating mechanism for hoisting machinery, the combination of a shaft, a driver loosely mounted upon said shaft, a drum, a brake coöperating with the drum, a cam secured to the shaft, a collar arranged between said cam and drum and having positive connection with each, and a lever extended from said collar to admit of turning the latter in either direction to move the drum either toward or from said driver, substantially as set forth.



2. In actuating mechanism for hoisting machinery, the combination of a fixed shaft, a driver loosely mounted upon said shaft to turn freely thereon but prevent it from longitudinal movement, a drum mounted upon said shaft to turn and move longitudinally thereon, a clutch between said driver and drum, a cam secured to the shaft a short distance from the drum, a collar loosely mounted upon the shaft between the drum and cam, means for positively connecting said collar to the drum and cam, and means for turning the collar in either direction to effect positive movement of the drum either toward or from the driver, substantially as set forth.

3. In combination, a stationary shaft, a driver loosely mounted thereon, set-collars secured to the shaft upon opposite sides of the driver, drums loosely mounted upon the shaft and arranged upon opposite sides of the driver, a clutch between each drum and driver, a brake for each drum, and independent means mounted upon the shaft for effecting a positive movement of each of the drums either toward or from the driver, substantially as set forth.

4. In combination, a fixed shaft, a driver loosely mounted thereon, a shaft for imparting movement to the driver and deriving power from the loose side of a drive-belt, a drum mounted upon said first-named shaft, a clutch between the drum and driver, a brake for the drum, and means for positively moving the drum toward and from the driver, substantially as set forth.

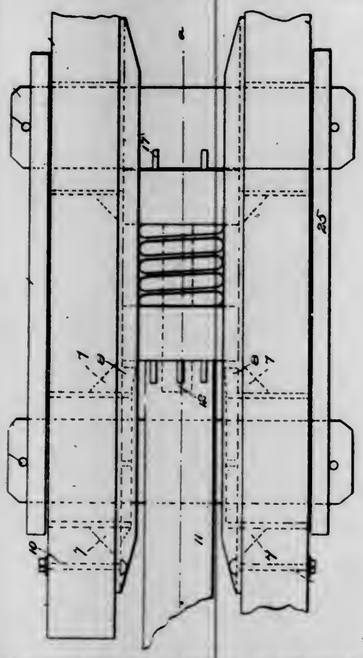
787,445. **DRAFT OR BUFFING GEAR OR RIGGING FOR CARS.** JOSEPH R. HERNDON, Marshall, Tex., assignor of one-eighth to Samuel R. Burnett, Marshall, Tex. Filed July 26, 1904. Serial No. 218,247.

Claim.—1. A device of the character described, comprising a plurality of keyway-liners, each keyway-liner comprising a body portion having a guideway formed upon one side and a plurality of housings formed upon the opposite side of said body portion, a plurality of followers movably mounted within said guideway, cushioning means interposed between said followers, a draw-bar assembled with said followers, and means connecting said draw-bar with each of said followers.

2. In a device of the character described, the combination with a plurality of draft-timbers, each of said draft-timbers provided with a plurality of elongated apertures, of keyway-liners for each of said draft-timbers comprising a body portion having a plurality of flanges extending therefrom upon one side, a plurality of housings projecting from the opposite side of the same length as the width of said draft-timbers, said housings adapted to be positioned within the upturned portion of said draft-timbers, cushioning means positioned within the guideways formed by said flanges of the liners, and a draw-bar secured in an operative position with said cushioning means.

3. In a device of the character described, the combination with a plurality of draft-timbers, each of said draft-timbers provided with

an aperture extending the entire width thereof, of a keyway-liner mounted within each of said apertured portions of said timbers, comprising a flanged body portion having an integral housing of the same width and diameter as said apertured portion of the draft-timbers, cushioning means movably mounted between said keyway-liners, and coupling-connecting means secured to said cushioning means.



4. In a device of the character described, the combination of a plurality of flanged members forming guideways, a primary and secondary follower slidably mounted within said guideways, each of said followers comprising a celled body portion provided with projections extending from their inner and outer faces, cushioning means positioned upon the projections formed upon the inner faces thereof, connecting means engaging the outer faces of said followers, and a draw-bar, or the like, connected with said follower-connecting means.

5. In a device of the character described, the combination with a pair of flanged members, said flanged members providing a guideway, of a plurality of followers positioned within said guideway, each of said followers comprising an approximately rectangular celled body portion, a plurality of parallel bosses secured upon the inner face thereof, projecting means formed upon the outer face of said followers, cushioning means mounted upon said bosses formed upon the inner face of said followers, cross-keys mounted upon said flanged members, connecting means for said cross-keys, one of said cross-keys normally in engagement with one of said followers, and a draw-bar mounted upon one of said cross-keys and normally in engagement with a follower.

6. In a device of the character described, the combination with a pair of draft-timbers having a pair of elongated apertures of the same width of said timber, a metallic liner secured upon each of said draft-timbers, said metallic liner comprising a body portion having a purality of flanges extending from one side thereof, a plurality of housings extending from the opposite side of said liner of the same dimensions as the apertured portion of said draft-timbers, said housings adapted to be positioned within said apertured portions, a stop formed upon the flanged portion of each of said liners and between said flanges, cushioning means interposed between said followers, transverse means positioned within said housings, connecting means secured to said transverse means, and coupler-connecting means engaging one of said followers and mounted upon said transverse means.

7. In a device of the character described, the combination with a plurality of apertured draft-timbers, of metallic housings of the same width as said apertured portion positioned therein, movable cushioned means assembled with said housings, and a coupler assembled with said cushioned means.

8. In a device of the character described, the combination with timbers having transverse apertures, a metallic liner positioned upon each of said draft-timbers, said liners provided with integral housings mounted within said apertured portions thereof and extending the entire width of the same, followers positioned between said liners, cushioning means interposed between said followers, connecting means assembled with said followers and normally retaining a coupler in engagement therewith.

9. In a device of the character described, the combination of a plurality of keyway-liners secured in parallel position, each of said keyway-liners comprising an approximately flat body portion having a guideway formed upon one side thereof, a stop formed in said guideway, a plurality of housings formed upon the opposite side of said body portion comprising an approximately rectangular casing, a plurality of followers positioned within said guideways of the liners, cushioning means interposed between said followers, a plurality of transverse members positioned within said housings of the liners, connecting means for said transverse members, and a draw-bar mounted upon one of said transverse members normally in engagement with one of the followers.

10. In a device of the character described, the combination with a plurality of draft-timbers, each draft-timber having a transverse aperture formed therein, of a reinforced housing extending the entire width of said apertured portion and mounted therein, said housing provided with parallel flanges secured thereto, movable cushioning means assembled with said housing, a draw-bar connecting with said cushioning means, and means for limiting the movement of said cushioning means.

11. A mechanism of the class described, comprising a pair of parallel members provided with inwardly-extending flanges and outwardly-projecting housings, a plurality of followers mounted between said parallel members and within said flanged portions, cushioning means positioned between said followers, a draw-bar connected with said followers, and means for retaining said draw-bar and followers in an operative, assembled position.

12. In combination, a plurality of metallic liners each comprising a body portion of substantially uniform thickness and having a continuous guideway formed in one side thereof from end to end, and a reinforced housing projecting laterally from the opposite sides of the body portion, a stop formed in the guideway of said liners, and cushioning means secured between the liners and normally retaining a draw-bar in an assembled position therewith.

13. In a device of the character described, the combination with parallel guiding means, of a primary and auxiliary follower assembled with said guiding means, said primary follower comprising a celled body portion and integral extensions projecting in diametrically opposite positions from the sides of said body portion, a plurality of bosses formed upon one side of said primary follower, a boss formed upon the opposite side of said follower, said auxiliary follower comprising a celled body portion, said body portion having a plurality of extensions formed upon the sides thereof and extending therefrom in diametrically opposite positions, integral bosses extending from one side of said auxiliary follower and a plurality of parallel extensions having recesses formed upon the opposite side of the same, a draw-bar assembled with and engaging the primary follower, and means connecting said draw-bar with the outer surface of the auxiliary follower.

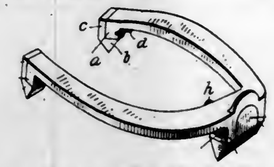
14. In a device of the character described, the combination with parallel apertured draft-timbers, a metallic lining for each of the apertured portions of said draft-timbers and of the same width, cushioned means assembled with said draft-timbers, and coupling means secured to said cushioned means.

15. In a device of the character described, the combination with apertured draft-timbers, of housings of the same dimensions as the apertured portions of the timbers positioned therein, movable means positioned within said housings, and a draw-bar or the like connected to said movable means.

16. In a device of the character described, the combination with parallel draft-timbers having transverse apertures, of metallic means of the same dimension as said apertured portions of said timbers positioned therein, movable transverse means positioned within the apertured portion of said timbers, cushioned means assembled with said transverse means, and a draw-bar or the like secured to said cushioned and transverse means.

17. In a device of the character described, the combination of a pair of parallel members having guide-grooves in their adjoining faces and extending from end to end thereof, each member having an integral stop formed in its grooved portion, cushioned means positioned between said members, and a draw-rod connected to said cushioned means.

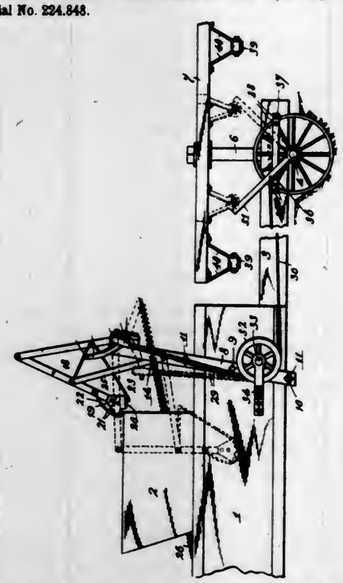
787,446. **HORSESHOE.** PAUL HERZOG, Washington, D. C. Filed Nov. 28, 1903. Serial No. 183,077.



Claim.—1. A horseshoe provided at each heel part and the toe part with an integral depending calk-support substantially the width of the shoe and having a flat unbroken bearing-face, each calk-support being provided with a lock-pin hole through it at a point below the wearing-face of the shoe, a calk bearing upon and covering said flat under surface of each calk-support and having an upward-extending part bearing against one side of the calk-support, and a lock-pin attached to said upward-extending part of each calk and passing through the lock-pin hole in the calk-support, for the purposes set forth.

2. A horseshoe provided with a removable toe-calk and a depending integral calk-support at each heel portion, each of these calk-supports being of substantially the same width as the shoe and provided with a lock-pin hole through it at a point below the wearing-face of the shoe, a calk bearing upon and covering the under surface of each calk-support and having an upward-extending part bearing against the rear face of the calk-support and the end of the shoe proper, and a lock-pin attached to said upward-extending part of each calk and passing through said lock-pin hole and terminating beyond the front wall of the calk-support just under the wearing-face of the shoe, for the purposes set forth.

787,447. **SELF-FEEDER FOR BALING-PRESSES.** EDWIN T. HISEY and JAMES W. MOORE, Blairstown, Mo. Filed Sept. 17, 1904. Serial No. 224,848.



Claim.—1. In a self-feeder for baling-presses, a pair of toggles mounted adjacent to the hopper of said press; means for forcing the free ends of the toggles down through the hopper and into the baling-chamber of the press, a spring for withdrawing the toggles from the baling-chamber, and releasing devices secured to the lower rear portions of the free ends of said toggles.

2. In a self-feeder for baling-presses, a condenser consisting of a pair of toggles mounted adjacent to the hopper of the press, and releasing devices secured to the front lower portions of the toggles.

3. In a self-feeder for baling-presses, a condenser consisting of a pair of toggles mounted adjacent to the hopper of the press, releasing devices secured to the lower rear portions of the free ends of the toggles, and releasing devices secured to the lower front portions of the free ends of the toggles.

4. A self-feeder for baling-presses consisting of a pair of standards secured to the opposite sides of the baling-chamber of the press, a transverse shaft mounted in the upper ends of said standards, means for oscillating said shaft, a condenser consisting of a pair of toggles mounted upon the shaft, and releasing devices secured to the free ends of said toggles.

5. In a self-feeder for presses, a pair of standards secured to the opposite sides of the baling-chamber of the press, a condenser comprising a pair of toggles mounted in the upper ends of the standards, a pair of arms approximately paralleling the rear portions of the toggles and pivoted at their opposite ends to the front portions of the toggles and the standards, triangular plates secured to the free ends of said toggles, and releasing devices secured to said plates and to the free ends of the toggles.

6. In a self-feeder for baling-presses, standards secured to the opposite sides of the baling-chamber of the press, a transverse shaft mounted in the upper ends of said standards, a condenser mounted upon said shaft, crank-arms secured to the opposite ends of said shaft, a roller arranged to travel on one of said arms, a depending yoke in the upper end of which the roller is journaled, means for pulling downwardly on the yoke, and a spring attached at its opposite ends to the other arm and the baling-chamber.

7. In a self-feeder for baling-presses, a condenser consisting of a pair of toggles mounted adjacent to the hopper of the press, and inverted-L-shaped releasing devices secured to the lower rear portions of the free ends of said toggles.

8. A self-feeder for baling-presses consisting of a pair of standards secured to the opposite sides of the baling-chamber of the press, a transverse shaft mounted in the upper ends of the standards, crank-arms secured to the opposite ends of said shaft, a condenser mounted upon the shaft, a lever fulcrumed on one of the axles of the press, a cable adjustably secured at one end to one of the crank-arms and suitably connected at its opposite end to the lever, a sheave-wheel beneath which the cable passes, a spring connected at its opposite ends to the other crank-arm and the baling-chamber, contact devices on the sweep of the press adapted to engage the lever and move it to the end of its backward stroke, and means for limiting the forward movement of said lever.

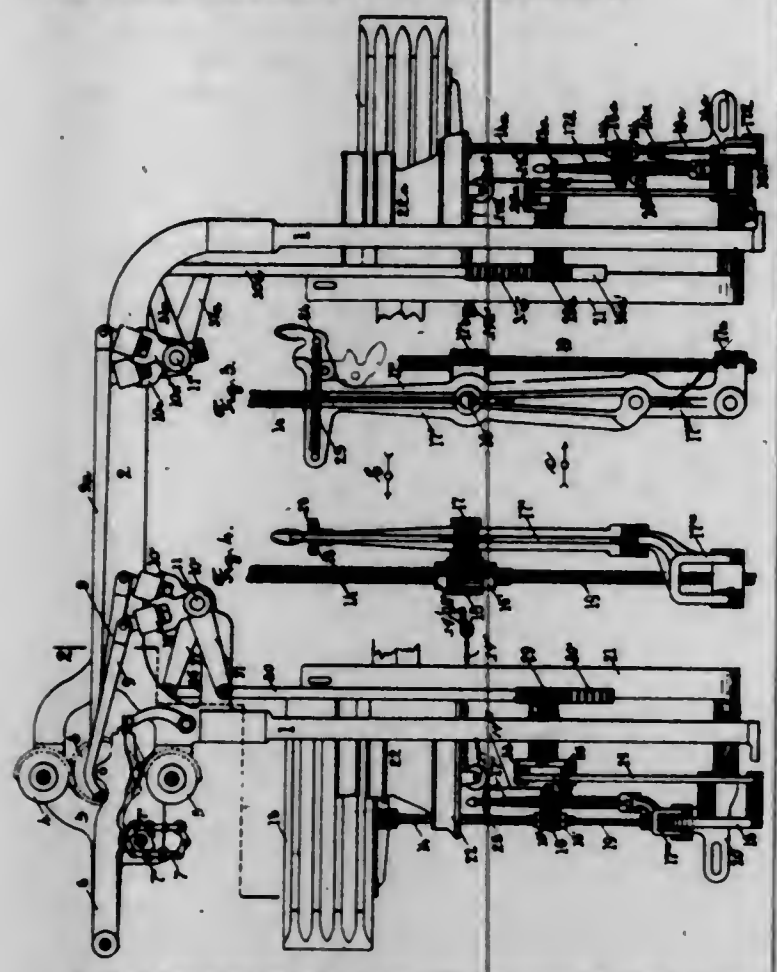
9. A self-feeder for baling-presses consisting of a pair of standards secured to the opposite sides of the baling-chamber, a transverse shaft mounted in the upper ends of said standards, crank-arms secured to the opposite ends of the shaft, a condenser mounted upon said shaft, a lever fulcrumed on one of the axles of the press, a cable adjustably secured at one end to one of the crank-arms and suitably connected at its opposite end to the lever, a sheave-wheel beneath which the cable operates, a spring attached at its opposite ends to the other crank-arm and to the baling-chamber, rollers secured to the sweep of the press and adapted to engage the lever and move it to the end of its backward stroke, a bar secured to one of the wheels of the press adjacent to the lever, and a stop-pin projecting from said bar to limit the forward movement of the lever.

10. In a self-feeder for baling-presses, a transverse shaft mounted adjacent to the hopper of the press, a pair of sleeves rigidly mounted upon said shaft and provided with sockets, a condenser secured in said sockets, a segmental crank-arm secured to the shaft, a stop-pin secured to the free end of said crank-arm, a roller arranged to travel upon the crank-arm and depress the latter with the condenser, means for drawing said roller downwardly, and means for raising the condenser to its normal position.

787,448. **SHUTTLE-BOX MOTION FOR LOOMS.** GEORGE F. HUTCHINS, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Apr. 14, 1904. Serial No. 203,066.

Claim.—1. In a box-motion of a loom, the combination with a lever moved by the pattern-surface, and the shuttle-boxes, of connections intermediate said lever and the shuttle-boxes, said connections having therein two cranks, each crank, at each movement

thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.



2. In a box-motion of a loom, the combination with a lever moved by the pattern-surface, and the shuttle-box lifting or vertically moving rod, of connections intermediate said lever and said rod, said connections having therein two cranks, one moving the other, through intermediate connections, and each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

3. In a box-motion of a loom, the combination with a lever moved by the pattern-surface, and the shuttle-boxes, of rigid or non-flexible connections, intermediate said lever and the shuttle-boxes, said connections having therein two cranks, to cause a shuttle-box to be moved from one position to another by a double-crank motion, and each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

4. In a box-motion of a loom, the combination with levers moved by the pattern-surface, and shuttle-boxes at each end of the loom, of connections intermediate said levers and said shuttle-boxes, each set of connections having therein two cranks, and each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

5. In a loom having movable shuttle-boxes at each end, the combination with the box pattern-surface, of connections therefrom to the shuttle-boxes at each end of the loom, each set of connections, intermediate a lever moved by the pattern-surface and the shuttle-boxes at each end of the loom, having therein two cranks, to cause a shuttle-box to be moved from one position to another by a double-crank motion, and each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

6. In a loom having movable shuttle-boxes at each end, the combination with the box pattern-surface, located at one end of the loom, of rigid or non-flexible connections therefrom to the shuttle-boxes at each end of the loom, each set of connections having therein two cranks, one moving the other, through intermediate connections to obtain a double-crank motion for each shuttle-box, and each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

7. In a loom, the combination with an upper cylinder-gear, and a lower cylinder-gear, vibrator-levers, vibrator gears or cranks, and one or more vibrator-connectors, of connections from said connectors to the shuttle-boxes, on one end of the loom, each set of connections having therein a crank, which, at each movement thereof, moves through an arc of substantially one hundred and eighty degrees, and one or more vibrator-connectors extending across the loom, and connections therefrom to the shuttle-boxes on the other end of the loom, each set of connections having therein a crank, which, at each movement thereof, moves through an arc of substantially one hundred and eighty degrees.

8. In a loom, the combination with the upper cylinder-gear, and the lower cylinder-gear, vibrator-levers, vibrator-gears, and one or more vibrator-connectors, of rigid or non-flexible connections therefrom to the shuttle-boxes on one end of the loom, and one or more vibrator-connectors extending across the loom, and rigid or non-flexible connections therefrom to the shuttle-boxes on the other end of the loom, substantially as shown and described.

9. In a loom, the combination with movable shuttle-boxes, a shuttle-box rod, a giveway connection adjustably attached thereto, a shuttle-box lever, and a vibrator-connector, of rigid or non-flexible connections intermediate said box-lever and said vibrator-connector, said connections comprising a connector, a crank, a shaft or stud, a pinion thereon, a tooth-rod meshing with said pinion and connected with a lever, and said lever mounted on a shaft, and said shaft, and a second lever connected with said vibrator-connector, substantially as shown and described.

10. In a loom, the combination with movable shuttle-boxes, a shuttle-box rod, a giveway connection adjustably attached thereto, a shuttle-box lever, and a vibrator-connector, of rigid or non-flexible connections intermediate said box-lever and said vibrator-connector, said connections comprising a connector, a crank, a shaft or stud, an eccentric-pinion thereon, a rod having a toothed portion meshing with said pinion and connected with a lever, and said lever mounted on a shaft, and said shaft, and a second lever connected with said vibrator-connector, substantially as shown and described.

11. In a loom, the combination with the shuttle-boxes, and the shuttle-box rod, of a collar adjustably mounted on said rod, a stud on said collar to be held in a giveway mechanism, and said giveway mechanism, and a flexible connection from said giveway connection to a counterbalance-spring, and said counterbalance-spring, substantially as shown and described.

12. In a loom, the combination with movable shuttle-boxes, a shuttle-box rod adjustably held in a collar, and said collar having a stud thereon, of a giveway mechanism comprising two parts recessed to receive the stud on the collar, and one part pivoted to the other, and said parts held together by a spring, and said spring, and a latch connected with said spring to release the tension thereof, substantially as shown and described.

13. In a box-motion of a loom, the combination with a lever moved by the pattern-surface, and the shuttle-boxes, and connections intermediate said lever and the shuttle-boxes, said connections having therein two cranks, each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, of a box-motion multiplier mechanism, substantially as shown and described.

14. In a box-motion of a loom, the combination with a lever moved by the pattern-surface, and movable shuttle-boxes at one end of the loom, of connections intermediate said lever and said shuttle-boxes, said connections having therein two cranks, each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

15. In a box-motion of a loom, the combination with levers moved by the pattern-surface, and movable shuttle-boxes at one end of the loom, of connections intermediate said levers and said shuttle-boxes, each set of connections intermediate a lever and the shuttle-boxes, having therein two cranks, each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

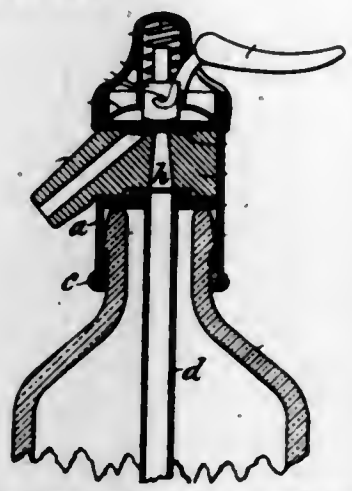
16. In a box-motion of a loom, the combination with levers moved by the pattern-surface, and movable shuttle-boxes at each end of the loom, of connections intermediate said levers and said shuttle-boxes, each set of connections intermediate a lever and the shuttle-boxes, having therein two cranks, each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

17. In a loom having movable shuttle-boxes at each end of the loom, and a shuttle-box lever or levers at each end of the loom, the combination with the box pattern-surface, located at one end of the loom, of connections therefrom to the shuttle-boxes at each end of the loom, each set of connections having therein two cranks, each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, substantially as shown and described.

18. In a loom, having movable shuttle-boxes at each end of the loom, and a shuttle-box lever or levers, the combination with the box pattern-surface located at one end of the loom, of connections therefrom to the shuttle-boxes at each end of the loom, each set of connections having therein two cranks, each crank, at each movement thereof, moving through an arc of substantially one hundred and eighty degrees, and the two cranks in each set of connections to the movable shuttle-boxes on the box-pattern-surface end of the loom, being at said end of the loom, and one of the two cranks in each set of connections to the shuttle-boxes at the other end of the loom, being located on the box-pattern-surface end of the loom, and the other on the opposite end of the loom, substantially as shown and described.

19. In the shuttle-box motion of a loom, the combination with the shuttle-boxes, and a vibrator gear or crank, of a second crank, and connections intermediate said vibrator-gear and said second crank, said connections having therein gear-teeth or toothed surfaces, substantially as shown and described.

787,449. HEAD OF SIPHON FOR AERATED LIQUIDS. THOMAS H. W. IDRIS and RICHARD H. GRIFFITH, London, England. Filed Dec. 5, 1904. Serial No. 235,614.



Claim.—1. The combination of a siphon-body, a cap fixed to the body, a valve inside the cap, a tube fixed in the cap, a block free to move in the tube as a guide and resting on the valve, a spring pressing the block onto the valve and a lever fulcrumed at the wall of the tube and acting on the block.

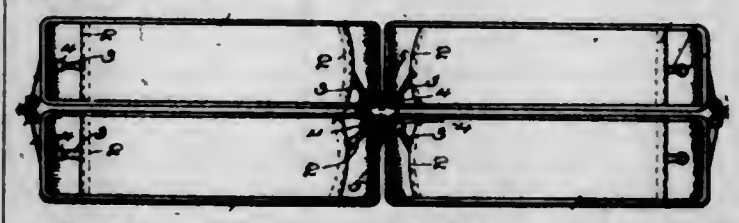
2. The combination of a siphon-body, a cap fixed to the body, a valve inside the cap, a slotted tube fixed in the cap, a block free to move in the tube as a guide and resting on the valve, a spring pressing the block onto the valve and a lever fulcrumed on the end of the slot in the tube and acting on the block.

3. The combination of a siphon-body, a block of earthenware or like material provided with a spout and having perforations in it leading to the inside of the siphon, and to the spout, a washer interposed between the block and the siphon-body, a tube secured to the siphon-body surrounding the block and extending above it, a disk on the upper face of the block, a cap above the disk secured to the upper end of the tube, a loose ring interposed between the cap and the disk, a cylinder fixed in the cap, a plunger free to move in the cylinder as a guide and resting on the disk, a spring pressing the plunger onto the disk and a lever fulcrumed at the wall of the cylinder and acting on the plunger.

4. The combination of a siphon-body, a block of earthenware or like material provided with a spout, and having perforations in it leading to the inside of the siphon, and to the spout, a washer interposed between the block and the siphon-body, a tube secured to the siphon-body surrounding the block and extending above it, a disk on the upper face of the block, a cap above the disk secured to the upper end of the tube, a loose ring interposed between the cap and the disk, a slotted cylinder fixed in the cap, a plunger free to move in the cylinder as a guide and resting on the disk, a spring pressing the plunger onto the disk and a lever fulcrumed on the end of the slot in the cylinder and acting on the plunger.

787,450. REVERSIBLE SECTION-MATTRESS. EVA K. JACOBS. Everett, Wash. Filed May 20, 1904. Serial No. 208,956.

Claim.—1. In a device of the character described, the combination of a plurality of sections, each section provided with transverse reinforcing means upon the ends near each corner thereof, a flexible member secured in an approximately central position to each of said reinforcing means, a ring or the like secured to the outer end of said flexible means, lacing means assembling the rings of said flexible means carried upon the meeting edges of said sections, and said flexible means and rings permitting of the sections to be secured in an engaging position.



2. A device of the character described, comprising a plurality of sections, each of said sections provided with a flexible strap secured near each corner upon each edge, each of said straps provided with looped means upon their outer ends, and means for retaining the looped means of said straps which are carried upon the engaging edges in an assembled position, permitting of the connected sections to be assembled together irrespective of the engaging position of said sections.

3. A device of the character described, comprising a plurality of sections, each section comprising a body portion, a similarly-constructed strap provided with looped means secured near each corner and upon each edge of said section, and means adapted to engage the looped means of said straps for retaining said sections in an engaging position, permitting of the sections to be assembled together irrespective of which of the edges of the sections are brought together.

4. In a device of the character described, the combination of a section, comprising a body portion, a reinforcing-strip formed upon the edge of said body portion near each corner thereof, means pivotally secured to the central portion of said reinforcing-strip provided with looped means, and an auxiliary section removably secured in an engaging position with said section.

5. A device of the character described, comprising a series of sections retained in an assembled position, each section provided near each end with similarly-constructed fastening means, comprising a movable, flexible member, and means adapted to engage the flexible members formed upon said sections for retaining the sections in an engaging position and permitting of the same to be folded together, thereby drawing the flexible members together near the inner contiguous corners of all the assembled sections.

6. A mattress, comprising approximately cube-shaped sections, straps secured an equal distance from each of the four corners of each section and upon the edges thereof, a ring secured to each of said straps, and lacing means connecting some of said rings for securing the sections in an engaging position with each other, whereby the top and bottom surface of all of the sections produce a level, unbroken surface.

7. A mechanism of the class described, comprising a plurality of similarly-constructed sections, each section provided with similarly-constructed fastening means secured centrally upon each edge and near each corner, said fastening means adapted to secure the sections of said mattress in a close-engaging position, whereby an upper, even-surfaced mattress is produced without intervening spaces formed between the assembled sections.

8. As an improved article of manufacture, a section for a sectional mattress, comprising a body portion, reinforcing means secured upon the ends of said body portion near each corner thereof, flexible straps secured to the reinforcing means and at an equal distance from each of the four corners of the body portion, and looped means secured to each of said straps.

9. A mattress, comprising sections, each section, comprising a body portion, a plurality of similarly-constructed, flexible members secured to each edge and near the corners of the section, a looped member secured to each of said flexible members, means for connecting some of said looped members for securing the sections in an engaging position with each other, whereby the top surface of all of the sections produce a level, unbroken surface.

787,451. CORE ELEMENT. ROSWELL G. JAMES, Louisville, Ky., assignor of one-half to Americus F. Callahan, Chicago, Ill. Filed June 17, 1904. Serial No. 213,045.



Claim.—1. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a container of combustible material holding the said layer in place upon

the core-bar, and a coating of refractory material surrounding the container, substantially as described.

2. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a container holding the said layer in place upon the core-bar, and a coating of refractory material about the container, substantially as described.

3. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a container of combustible material holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

4. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a container holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

5. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a flexible container holding the said layer in place upon the core-bar, and a coating of refractory material about the container, substantially as described.

6. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a flexible container holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

7. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a ribbon-like container of combustible material holding the said layer in place upon the core-bar, and a coating of refractory material surrounding the container, substantially as described.

8. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a ribbon-like container holding the said layer in place upon the core-bar, and a coating of refractory material about the container, substantially as described.

9. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a ribbon-like container of combustible material holding the said layer in place about the core-bar, substantially as described.

10. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a ribbon-like container holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

11. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a flexible ribbon-like container holding the said layer in place upon the core-bar, and a coating of refractory material about the container, substantially as described.

12. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a flexible ribbon-like container holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

13. A casting core-element comprising a core-bar, a loose layer of incombustible material surrounding the same, a spirally-wrapped ribbon-like container of combustible material holding the said layer in place upon the core-bar, and a coating of refractory material surrounding the container, substantially as described.

14. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a spirally-wrapped ribbon-like container holding the said layer in place upon the core-bar, and a coating of refractory material about the container, substantially as described.

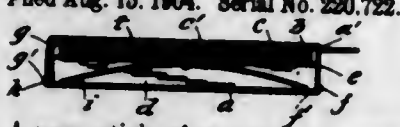
15. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a spirally-wrapped ribbon-like container of combustible material holding the said layer in place about the core-bar, substantially as described.

16. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a spirally-wrapped ribbon-like container holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

17. A casting core element comprising a core-bar, a loose layer of incombustible material surrounding the same, a spirally-wrapped flexible ribbon-like container holding the said layer in place upon the core-bar, and a coating of refractory material about the container, substantially as described.

18. A casting core element comprising a core-bar, a layer of comminuted incombustible material, whose particles are loose with respect to each other, surrounding the same, a spirally-wrapped flexible ribbon-like container holding the said layer in place about the core-bar, and a coating of refractory material about said layer, substantially as described.

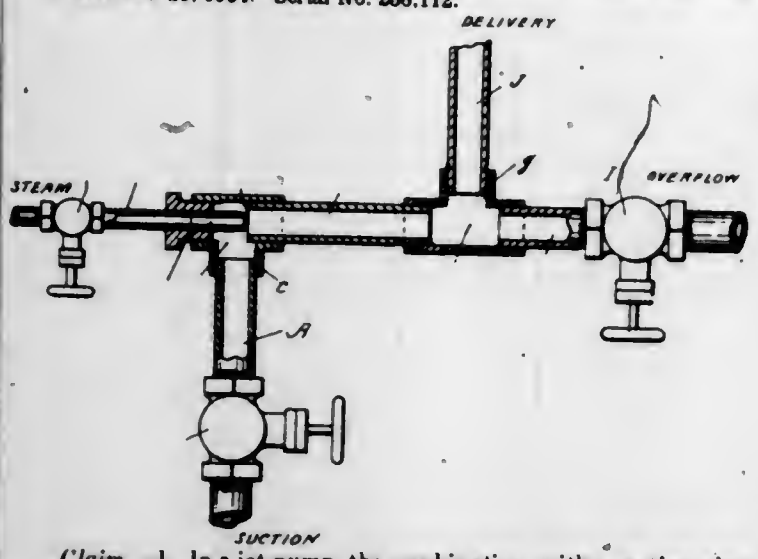
787,452. TICKET OR CARD HOLDER. ARTHUR L. JOHNSON, Seattle, Wash. Filed Aug. 15, 1904. Serial No. 220,722.



Claim.—1. A new article of manufacture, comprising an outer box-shaped case open at the top and provided with a ticket-delivery opening at one end; an inner case formed with a top having a spring-tongue, depending from one end of the top and formed with an outwardly-projecting end adapted to enter an aperture in the end of the case, and pendent sides having lugs at their lower corners entering apertures in the end of the case, said top being provided with an opening through which the fingers may be inserted to eject the contained tickets; and a spring-raised ticket-hoist.

2. The combination of the case part *a* provided with delivery-opening *a'* and apertures *f'* and *h*, the case part *b* provided with aperture *c'*, spring-latch *g* depending from one end of the cover and having an outwardly-projecting end adapted to engage the end of the case and sides *d* of case part *b* said sides being provided with forwardly-protruding lugs *f*, and a spring-raised hoist *e*, substantially as and for the purposes described.

787,453. JET-PUMP. EDMON W. KELLER, Cripplecreek, Colo. Filed Dec. 23, 1904. Serial No. 238,112.

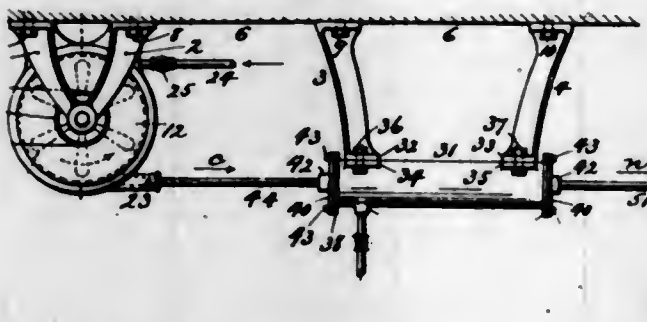


Claim.—1. In a jet-pump, the combination, with a suction-pipe, of a junction-piece having a branch secured to the said suction-pipe, a short straight pipe secured to one end portion of the said junction-piece with its end projecting slightly crosswise over the said suction-pipe, a steam-jet pipe secured in the other end portion of the said junction-piece in line with the said short pipe, a second junction-piece secured to the other end of the said short pipe, an overflow-pipe provided with a valve and secured to the last said junction-piece in line with the said short pipe, and a delivery-pipe secured to a branch of the last said junction-piece.

2. In a jet-pump, the combination, with a suction-pipe, of a T junction-piece having its branch secured to the said suction-pipe, a short straight pipe screwed into one end portion of the said T-piece with its end projecting slightly over the said suction-pipe, a bush in the other end of the said T-piece, a longitudinally-adjustable steam-pipe screwed into the said bush, a second T junction-piece secured to the other end of the said short pipe, an overflow-pipe provided with a valve and secured to the last said T-piece in line with the said short pipe, and a delivery-pipe secured to the branch of the last said T-piece.

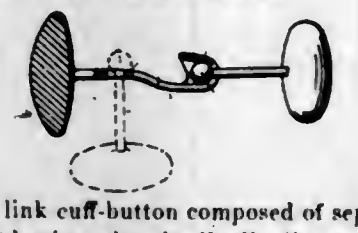
787,454. VENTILATING AND AIR-COOLING MECHANISM. JAMES KELLY, Providence, R. I. Filed June 14, 1904. Serial No. 212,575.

Claim.—1. In an air-cooling apparatus having a power-driven fan, a case wherein said fan is mounted and said case provided with an air-inlet, a pipe arranged to spray water in front of the inlet of said case and upon the blades of said fan, and an outlet-pipe from the bottom of said case, the combination therewith, of a separator, consisting of a cylinder mounted on proper supports; a collar mounted within said cylinder and provided with two concentric grooves; a conical deflector concentrically mounted on supports within said cylinder and provided with two concentric grooves; two cylindrical-shaped sheets of fine wire-gauze whose ends are mounted in the grooves of said collar and said deflector; a layer of porous material interposed between the wire-gauze; a head secured upon and closing one end of said cylinder and having a central annular flange for connecting thereto the end of said outlet-pipe; a head secured upon and closing the other end of said cylinder and having a central annular flange; and a discharge-pipe having its end secured in the flange of last-mentioned head, substantially as set forth.



2. In an air-cooling apparatus, the combination of a rotary fan; means to rotate said fan; a case wherein said fan is mounted; a water-pipe having a sprayer which is adapted to discharge jets of water against said fan; a pipe from the bottom of said case; a cylindrical separator having closed ends, one end of which the last-mentioned pipe centrally enters; two cylinders concentrically mounted in the separator and made of wire-gauze; a deflector concentrically mounted in the separator and provided with a conical surface arranged to deflect the mingled air and water from last-mentioned pipe over and upon said wire-gauze cylinders; a layer of sponge between said wire-gauze cylinders adapted to extract from the mingled air and water passing therethrough excess of moisture; and a discharge-pipe centrally connected to the opposite closed end of said separator, substantially as set forth.

787,455. LINK CUFF-BUTTON. CHARLES F. KING, Pawtucket, R. I. Filed Apr. 12, 1904. Serial No. 202,725.



Claim.—1. A link cuff-button composed of separable members one carrying a post having a longitudinally-disposed slot with a perforation at one end and a socket at the other end, the bearing-surface of the socket being at an angle to the sides of the post, the other member carrying a post having an enlarged extremity adapted to pass through the perforation in said first-named post and to lodge in said socket and having universal movement in the socket.

2. A link cuff-button composed of separable members, one carrying a rearwardly-projecting rigid post having a longitudinally-disposed slot with a perforation at one end and a socket at the other, the other member carrying a rearwardly-projecting rigid post with a ball on the end, said ball being capable of entering the perforation and of lodging in the socket and having universal movement in the latter.

3. A link cuff-button composed of separable sections, one carrying a tubular post with a slot on one side, said slot communicating at its inner end with a perforation and at its outer end with a socket in the end of the post, and a second member carrying a post with an enlargement on its end, said enlargement being adapted to pass through the said perforation into the tubular post and to lodge in the socket.

787,456. CAR BASKET-RACK. JOHN KIRBY, Jr., Dayton, Ohio, assignor to The Dayton Manufacturing Company, Dayton, Ohio. Filed Dec. 24, 1904. Serial No. 238,246.

Claim.—1. A basket-rack comprising a bottom member and brackets forming the ends of the rack-section and having provision for attaching the same to a suitable support, in combination with mechaniam for coupling the said bottom member to said brackets, the said mechaniam being located at the insides of said brackets and wholly within the rack-section.



2. A basket-rack comprising a bottom member consisting of a single structure and brackets forming the ends of the rack-section and having provision for attaching the same to a suitable support, in combination with mechanism for coupling the said bottom member to said brackets, the said mechanism being located at the insides of said brackets and wholly within the rack-section.

3. In a basket-rack, the combination with end brackets therefor, of a bottom member comprising in part a front and a back rod, an enlarged shoulder at each end of each of said rods, and coupling mechanism between said shoulders and the adjacent sides of their respective brackets for coupling the said bottom member and said brackets together, substantially as and for the purpose set forth.

4. In a basket-rack the combination with end brackets therefor, of a bottom member comprising a front and a back rod and a plurality of intermediate rods, connecting-bars by which the said rods are united to form a single structure, enlarged shoulders at each end of each of said front and back rods, and coupling mechanism between said shoulders and the adjacent sides of their respective brackets for coupling the said bottom member and said brackets together, substantially as and for the purpose set forth.

5. In a basket-rack, the combination with end brackets therefor, of a bottom member comprising a front and a back rod and a number of intermediate rods, connecting-bars, by which the said rods are united to form a single structure, enlarged shoulders at each end of the said front and back rods, screw-threaded members projecting laterally from each of said brackets, and screw-threaded couplings which engage the said members and which are provided with inwardly-disposed flanges adapted to engage the said shoulders and whereby the said bottom member and the said brackets are coupled together, substantially as and for the purpose set forth.

6. In a basket-rack, the combination with end brackets therefor, of a bottom member comprising in part a front and a back rod, enlarged shoulders at each end of said rods, screw-threaded members projecting laterally from each of said brackets, and screw-threaded couplings which engage the said members and which are provided with inwardly-disposed flanges adapted to engage the said shoulders and whereby the said bottom member and the said end brackets are coupled together, substantially as and for the purpose set forth.

7. A basket-rack comprising a bottom member and brackets forming the ends of the rack and having provision for rigidly attaching the same to a suitable support, in combination with coupling mechanism located at the ends of said bottom member and on the adjacent sides of said brackets for coupling the said parts together, whereby the said bottom member can be secured in and removed from its position between said brackets without removing either of the latter from their support.

8. A basket-rack comprising a bottom member consisting of a single structure and brackets forming the ends of the rack and having provision for rigidly attaching the same to a suitable support, in combination with coupling mechanism located at the ends of said bottom member and on the adjacent sides of said brackets for coupling the said parts together, whereby the said bottom member can be secured in and removed from its position between said brackets without removing either of the latter from their support.

9. A basket-rack compriaing a bottom member and brackets forming the ends of the rack and having provision for attaching the same to a suitable support, in combination with screw-threaded members attached to or forming part of and extending laterally from each of said brackets toward the center of the bottom member to be coupled thereto, and couplings which engage the said screw-threaded members and the said bottom member to couple the latter to said brackets, whereby the said bottom member can be secured in and removed from its position between said brackets without removing either of the latter from their support.

10. A basket-rack comprising a bottom member consisting of a single structure and brackets forming the ends of the rack and having provision for attaching the same to a suitable support, in combination with screw-threaded members attached to or forming part of and extending laterally from each of said brackets toward the center of the bottom member to be coupled thereto, and couplings which engage the said screw-threaded members and the said bottom member to couple the latter to said brackets, whereby the said bottom member can be secured in and removed from its position between said brackets without removing either of the latter from their support.

11. In a basket-rack, the combination of end brackets adapted to be secured to a suitable support, screw-threaded members attached to or forming part of and extending laterally from said brackets, connecting-rods between said members and whose ends abut the ends thereof, a bottom member intermediate the said rods and connected therewith, and coupling mechanism for uniting the ends of said rods with said screw-threaded members; whereby the entire bottom of the rack can be secured in and removed from its position between said brackets without removing either of the latter from their support.

12. In a continuous basket-rack comprising a plurality of sections, a separate bottom member for each section, and brackets therebetween, in combination with means for coupling the ends of said bottom members to the adjacent sides of their respective brackets independently of each of the others of said sections, whereby each bottom member can be secured in and removed from its position between said brackets without removing either of the latter from their support.

13. In a continuous basket-rack comprising a plurality of sections, a separate single-structure bottom member for each section, and brackets therebetween, in combination with means for coupling the ends of said bottom members to the adjacent sides of their respective brackets independently of each of the others of said sections, whereby each bottom member can be secured in and removed from its position between said brackets without removing either of the latter from their support.

14. As a new article of manufacture, a basket-rack bottom comprising a plurality of rods and an intermediate member, said rods having a shoulder at each end thereof, couplings on said rods which engage the said shoulders and which are adapted to couple the said rods with suitable end brackets, substantially as and for the purpose set forth.

15. As a new article of manufacture, a basket-rack bottom comprising a single structure in which there are two outer parallel rods provided with an enlarged shoulder at each end thereof, in combination with screw-threaded couplings on said rods having inturned flanges adapted to engage the said shoulders and whereby the bottom may be coupled to suitable end brackets, substantially as and for the purpose set forth.

16. As a new article of manufacture, a basket-rack bottom consisting of a plurality of parallel rods united by cross-bars to form a single structure, enlarged shoulders at the ends of the outer of said rods, and couplings which engage the said shoulders and by which the said bottom may be coupled to suitable end brackets, substantially as and for the purpose set forth.

17. As a new article of manufacture, a basket-rack end provided with laterally-projecting screw-threaded members, substantially as and for the purpose set forth.

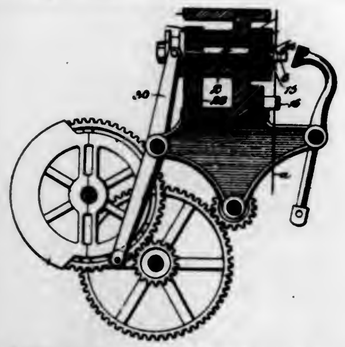
787,457. WIRE-FABRIC-MAKING MACHINE. ALVA L. KITSELMAN, Muncie, Ind. Filed Dec. 24, 1903. Serial No. 186,497.

Claim.—1. A rotary looping device for connecting the line and stay wires of woven-wire fabric, comprising a head, and a line-wire looper having a stay-wire channel, one side of which opens in a lateral direction with respect to the axis of the device.

2. A rotary looping device, comprising a head, and a line-wire looper formed with a stay-wire channel disposed transversely thereof and having an open side through which the stay-wire may be withdrawn in a lateral direction with respect to the axis of the device.

3. A rotary looping device, comprising a head, and a line-wire looper having a stay-wire channel formed in its side face to permit the free withdrawal of the stay-wire.

4. A rotary looping device, comprising a head and a line-wire looper, said looper having the form of a hook provided at one side with a transverse stay-wire channel for the reception of a stay-wire disposed substantially at right angles to the line-wire and passed through the loop thereof, one side of the stay-wire channel opening toward the advanced portion of the line-wire at the beginning of the wire-releasing movement of the looper.



5. A rotary looping device, comprising a head and a coaxial line-wire looper provided with a stay-wire channel and means for effecting the following movement of the parts to wit, the retraction of the looper to draw the line-wire into the head, the turning of the head and looper in unison to form in the line-wire a loop through which the stay-wire is guided by the stay-wire channel, the projection of the looper to withdraw the wires from the head, and the reverse turning of the head and looper in unison to release the wires from the looper, the stay-wire channel being formed in that side of the looper which is uppermost at the beginning of the reverse or wire-releasing movement of the parts.

6. A rotary looping device, comprising a head and a relatively movable line-wire looper having an open-sided stay-wire channel and means for closing the open side of said channel to prevent the lateral deflection of the stay-wire therethrough.

7. A rotary looping device, comprising a head and a relatively movable line-wire looper having an open-sided stay-wire channel, and means whereby the movement of the looper will effect the closing of the open side of said channel.

8. A rotary looping device, comprising a head having a socket, and a relatively movable line-wire looper having an open-sided stay-wire channel opposed to a wall of the socket in one position of the looper.

9. A rotary looping device, comprising a head formed with a socket, openings at opposite sides of the socket and narrow throats extending to the socket from said openings, and a line-wire looper movable into the socket and having a stay-wire channel.

10. A rotary looping device, comprising a head formed with a socket, openings at opposite sides of the socket and narrow throats extending to the socket from said openings, and a line-wire looper movable into the socket and having a stay-wire channel in its side face.

11. A rotary looping device, comprising a head, a line-wire looper having a stay-wire channel, and projections on the head to facilitate the passage of the looper under the line-wire when the twister is turned to form a line-wire loop.

12. A rotary looping device, comprising a head formed with a socket, openings at opposite sides thereof, narrow throats extending to the socket from the openings, and cam-lugs at the opposite sides of the socket and adjacent to the opposite ends thereof, and a line-wire looper movable in the socket of the head and having a stay-wire channel in its side face.

13. A rotary looping device, comprising a head and a line-wire looper, said head being composed of a body part having a concavity in its end, and a face-plate detachably secured to the end of said body part and having a socket and openings, the latter extending to the socket and located opposite the concavity, and said looper being movable in the socket and provided with a stay-wire channel.

14. A rotary looping device, comprising a head having a detachable face-plate formed with a socket, and a line-wire looper movable in said socket and having a stay-wire channel.

15. A rotary looping device, comprising a head and a line-wire looper having a stay-wire channel formed in its side face and substantially intersecting the axis of the twister.

16. A rotary looping device, comprising a head, and a line-wire looper having a shank coaxial with the head and a stay-wire channel formed in the side face of the looper and substantially intersecting the axis of the shank.

17. A rotary looping device, comprising a head and a line-wire looper, said elements having stay-wire grooves or channels opening in different directions, one of said grooves or channels being formed in a side face of the looper.

18. A rotary looping device, comprising a head having a stay-wire groove or channel, and a line-wire looper having a stay-wire groove or channel the open side of which is disposed in a plane substantially at right angles to the plane of the open side of the groove or channel in the head.

19. In a machine of the class described, the combination with a support, and a series of rotary looping devices each including a line-wire looper; of a stay-wire groove or channel extending from end to end of the series of twisters and formed in part in the loopers, and mechanism whereby all side openings of said groove or channel will be closed to prevent the lateral escape of the advancing end of the stay-wire.

20. In a machine of the character described, the combination with a support, and a series of rotary looping devices each including a line-wire looper; of a stay-wire groove or channel extending from end to end of the series of twisters, a gate for closing the open side of said groove intermediate of the loopers, and means whereby those portions of the groove or channel which are formed in the loopers will be guarded to prevent the deflection of the stay-wire in its passage through said loopers.

787,458. ARTIFICIAL FUEL AND PROCESS OF MAKING SAME. FREDERICK W. MEEKER, Rye, N. Y. Filed Sept. 15, 1904. Serial No. 224,526.

Claim.—1. The process of making artificial fuel comprising: mixing comminuted fuel with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to melt the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

2. The process of manufacturing artificial fuel comprising: mixing comminuted fuel with a binder and also with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to melt the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

3. The process of manufacturing artificial fuel comprising: mixing comminuted fuel with a binder containing a pigment and also with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to melt the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

4. The process of manufacturing artificial fuel comprising: mixing comminuted fuel with a substance exemplified by resin; molding the mass into briquets; compressing the briquets under a high pressure; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to melt the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

5. The process of manufacturing artificial fuel comprising: grading particles of coal into a plurality of sizes such that when compressed together they will form a mass approximately free from voids; mixing the coal particles with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to melt the resin and holding them at such temperature fo the time required to diffuse the resin throughout the briquet.

6. The process of manufacturing artificial fuel comprising: mixing comminuted anthracite and bituminous coal with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to melt the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

7. A compressed, strongly-adherent, approximately anhydrous briquet of artificial fuel consisting of comminuted coal and a substance exemplified by resin diffused therethrough.

8. A compressed, strongly-adherent, approximately anhydrous briquet of artificial fuel consisting of comminuted coal, a soluble agglutinant, and a substance exemplified by resin diffused therethrough.

9. A compressed, strongly-adherent, approximately anhydrous briquet of artificial fuel consisting of comminuted coal, a soluble agglutinant, a pigment, and a substance exemplified by resin diffused therethrough.

10. A compressed, strongly-adherent briquet of artificial fuel of approximately maximum density consisting of comminuted coal, the particles of which are graded in size, and a waterproofing material diffused therethrough.

11. A compressed, strongly-adherent briquet of artificial fuel of approximately maximum density consisting of comminuted coal, the particles of which are graded in size, and a substance exemplified by resin diffused therethrough.

12. A compressed, strongly-adherent briquet of artificial fuel of approximately maximum density consisting of comminuted coal, the particles of which are graded in size, a soluble agglutinant, and a waterproof coating.

13. A compressed, strongly-adherent briquet of artificial fuel of approximately maximum density consisting of comminuted coal, the particles of which are graded in size, a soluble agglutinant, a pigment, and a waterproof coating.

14. The process of making artificial fuel comprising: mixing comminuted fuel with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to liquefy and partially vaporize the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

15. The process of manufacturing artificial fuel comprising: mixing comminuted fuel with a binder and also with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to liquefy and partially vaporize the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

16. The process of manufacturing artificial fuel comprising: mixing comminuted fuel with a binder and also with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to liquefy and partially vaporize the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

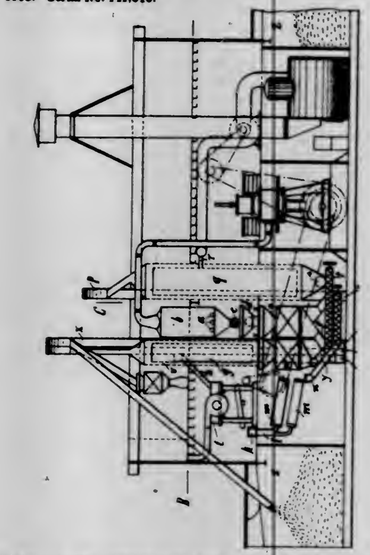
17. The process of manufacturing artificial fuel comprising: mixing comminuted fuel with a substance exemplified by resin; molding the mass into briquets; compressing the briquets under a high pressure; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to liquefy and partially vaporize the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

18. The process of manufacturing artificial fuel comprising: grading particles of coal into a plurality of sizes such that when compressed together they will form a mass approximately free from voids; mixing the coal particles with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to liquefy and partially vaporize the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

19. The process of manufacturing artificial fuel comprising: mixing comminuted anthracite and bituminous coal with a substance exemplified by resin; molding the mass into briquets; artificially heating the briquets to a temperature below the melting-point of the resin and for the time required to dry the briquets; and afterward heating the briquets to the temperature required to liquefy and par-

tially vaporize the resin and holding them at such temperature for the time required to diffuse the resin throughout the briquet.

787,459. APPARATUS FOR THE CONVEYANCE OF GRAIN TO OR FROM SHIPS. WILLY MEYER, Hamelin, Germany. Filed Feb. 4, 1903. Serial No. 141,810.



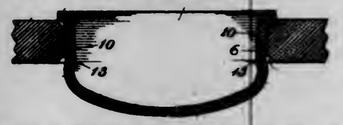
Claim.—1. The combination with a floating pneumatic grain-elevator of several elevating devices and weighing-hoppers, separators, sifters whereby the grain is freed from dust and impurities, a drying and a cooling apparatus and conveying devices to feed the grain into the different apparatuses, substantially as set forth.

2. The combination with a floating pneumatic grain-elevator of automatic weighing devices below the receiver, an elevator for the separators and sifters, separators and sifters for cleaning, a transport-screw and elevator for the drying apparatus, a drying apparatus, feeding-screws and elevator for the cooling apparatus a cooling apparatus and means for re-elevating and distributing of the grain.

3. The combination with a floating pneumatic grain-elevator of weighing-hoppers, separators, sifters, drying and cooling devices with means for elevating and transporting of the grain and store-receptacles in the elevator vessel itself.

4. In the combination with a floating pneumatic grain-elevator of weighing-hoppers, separators, sifters, drying and cooling devices, consisting of two concentric perforated tubes, between which the grain passes and means for transporting and elevating.

787,460. EXPANSIBLE PLUG. CHARLES D. MOSHER, New York, N. Y. Filed Oct. 2, 1903. Serial No. 175,476.



Claim.—1. A cup-shaped expansible plug provided with an annular interior bulging portion near its base, in combination with a shell having a hole therein and adapted to receive said plug.

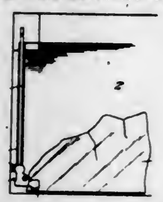
2. A cup-shaped expansible plug having tapering sides and provided with an interior annular bulging portion near its base, in combination with a shell having a hole therein and adapted to receive said plug.

3. A hollow or cup-shaped expansible plug having corrugations near its inner end.

4. A hollow or cup-shaped expansible plug having corrugations near its inner end, in combination with a shell having a hole in which said plug is expanded.

5. A hollow or cup-shaped plug with tapering sides and corrugations at its inner end, in combination with a shell having a hole therein, said corrugated portion being expansible against the inner surface of the shell.

787,461. SHOW-CASE. CHARLES F. MURRAY, Los Angeles, Cal., assignor to Murray's Patent Fixture Company, Los Angeles, Cal., a Corporation of California. Filed June 27, 1904. Serial No. 214,264.



Claim.—1. In combination with a show-case base and wooden back, plates forming the ends and front of the case, corner-pieces fitted to the angles formed by said plates, a top plate resting upon said corner-pieces, said corner-pieces provided with vertically-adjustable removable arms adapted to retain said top plate in place, said corner-pieces provided with means preventing lateral displacement of said arms and metal strips extending from said corner-pieces backward to and fastened upon the wooden back.

2. In combination in a show-case base and wooden back, plates forming the ends and front of the case, corner-pieces fitted to the angles formed by said plates, a top plate resting upon said corner-pieces and said end and front plates, said corner-pieces provided with vertically-adjustable removable arms adapted to hold said top plate in place, said corner-pieces provided with means preventing lateral displacement of said arms, metal strips connected to said corner-pieces and to said show-case back, and means holding said corner-pieces in fixed relation to said wooden base.

3. In combination, with a show-case base and back, plates forming the ends and front of the case, corner-pieces fitted to the angles formed by said plates, said corner-pieces provided with downwardly-projecting flanges embracing said abutting plates on both faces thereof, a top plate resting on said end and front plates, the outer flanges having beveled portions forming seats for adjustable arms, and arms adjustably mounted on said seats and adapted to embrace and hold said top plate in place.

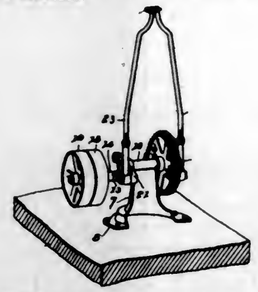
4. In combination, with a show-case base and back, plates forming the ends and front of the case, corner-pieces fitted to the angles formed by said plates and provided with downwardly-projecting flanges embracing said abutting plates on both faces thereof, a top plate resting on said end and front plates, the outer flanges of said corner-pieces having beveled portions forming seats for adjustable arms, arms adjustably mounted on said seats and adapted to embrace and hold said top plate in place, and metal strips connecting said corner-pieces and show-case back.

5. In combination, with a show-case base and back, plates forming the ends and front of the case, corner-pieces fitted to the angles formed by said plates and provided with downwardly-projecting flanges embracing said abutting plates on both faces thereof, a top plate resting on said end and front plates, the outer flanges of said corner-pieces having beveled or outset portions forming seats for adjustable arms, arms provided with beveled portions corresponding to the said seats, said arms provided with slots, means operating through said slots to adjustably hold said arms on said seats, and said arms provided with portions for embracing said top plate and holding the same in position.

787,462. PUMP-JACK. PHILIP A. MYERS, Ashland, Ohio, assignor to F. E. Myers and Bro., Ashland, Ohio, a Copartnership. Filed Aug. 6, 1904. Serial No. 219,701.

Claim.—1. A pumping-jack comprising a hollow standard and base, open at one side to receive the pump standard and base, and adapted for independent connection to the platform or support on which the pump is mounted and gearing mounted on said standard and adapted for connection with the pump-rod to convert the rotatory motion of said gearing to a reciprocating motion of the pump-rod, substantially as described.

2. A pumping-jack comprising a hollow standard and base, open at one side to receive the pump standard and base, and adapted for independent connection to the platform or support on which the pump is mounted, said jack-standard being provided with a bearing-sleeve at the top thereof adapted to bear against the pump-standard, a crank-shaft mounted in said bearing-sleeve, and pitmen connected with said crank-shaft and adapted to be connected to the pump-rod, substantially as described.

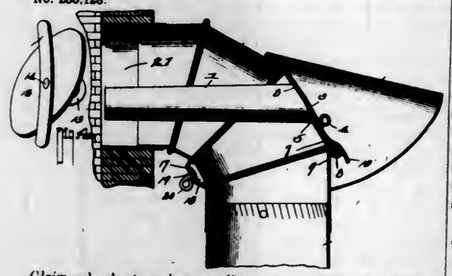


3. The combination, with a pump having a standard, rod and base, and a platform or support to which said base is secured, of a pumping-jack comprising a hollow standard and base, open at one side to receive the pump standard and base, said jack-standard having its base secured to the platform or support independently of the pump, and gearing mounted on said standard and connected with the pump-rod so as to convert the rotatory motion of the gearing to a reciprocating motion of the pump-rod, substantially as described.

4. The combination, with a pump having a standard and base, and a platform to which said base is secured, of a pumping-jack comprising a hollow standard and base, open at one side to receive the pump standard and base, said jack-standard having its base independently secured to the platform, said jack-standard being provided with a bearing-sleeve at its upper end arranged to bear against the pump-standard, a crank-shaft mounted in said bearing-sleeve and provided with pitmen adapted to be connected to the pump-rod, a second shaft mounted on said jack-standard and provided with a driving-pulley to receive a belt, and gearing connecting said shafts, substantially as described.

5. A pumping-jack comprising a hollow standard and base, open at one side to receive the pump-standard and its base, said jack-standard having a bearing-sleeve at its upper end, a second bearing-sleeve parallel with the first bearing-sleeve, said jack-standard also having a bracket supporting said second bearing-sleeve and consisting of a plate connecting said sleeves and a vertical plate connecting the first-mentioned plate and the jack-standard body, a crank-shaft mounted in one of said bearing-sleeves, pitman connected with said crank-shaft and adapted to be connected to the pump-rod, a shaft mounted in the other bearing-sleeve and provided with a pulley, and a train of gears connecting said shafts, substantially as described.

787,463. STOVEPIPE-VENTILATOR. JACK E. NELSON and CHARLES G. NELSON, Colorado City, Colo. Filed Oct. 26, 1904. Serial No. 230,128.



Claim.—1. A stovepipe-ventilator comprising an elbow, a draft-tube piercing the bend of the elbow and projected into one of the arms thereof, a damper for the outer end of the tube, and a hood carried by the elbow and embracing the outer end of the tube.

2. A stovepipe-ventilator comprising an elbow, a ventilating-tube piercing the bend of the elbow, and a hood embracing the elbow above the front end of the tube.

3. A stovepipe-ventilator comprising an elbow, a ventilating-tube piercing the elbow, a hood embracing the elbow above the tube with its opposite ends lying at the back of the elbow, and means to detachably connect the opposite ends of the hood to retain the latter upon the elbow.

4. A stovepipe-ventilator comprising an elbow, a ventilating-tube piercing the elbow, a hood embracing the elbow above the tube with its opposite ends overlapped across the back of the elbow, one end of the hood being provided with a slot and the opposite end having a rotatable latch capable of being received within the slot and turned thereacross to detachably connect the hood with the elbow.

5. A stovepipe-ventilator comprising an elbow having an external rib, and a ventilating-tube piercing the pipe and provided with means to grip the rib and retain the tube in place.

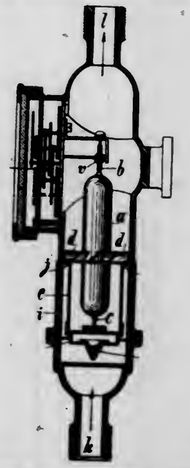
6. A stovepipe-ventilator comprising an elbow having an external rib, and a ventilating-tube piercing the elbow and provided with an elastic hook to grip the rib and maintain the tube upon the elbow.

7. A stovepipe-ventilator comprising an elbow having an external rib, a ventilating-tube piercing the elbow, a pair of spaced elastic hooks carried by the tube to detachably grip the rib, and a finger-piece projected from between the hooks.

8. A stovepipe-ventilator comprising an open-ended ventilating-tube to pierce a stovepipe and provided with a damper at its forward end, and a hood to embrace the stovepipe with its opposite ends provided with means for detachable connection thereof.

9. As a new article of manufacture, a stovepipe-ventilator consisting of an open-ended tube provided at its forward end with an external annular flange set obliquely upon the tube, an elastic hook projected from the flange, and a damper for the flanged end of the tube.

787,464. LIQUID-METER. FRANCISQUE PASCAL, Montplaisir, France. Filed Mar. 31, 1903. Serial No. 150,468.

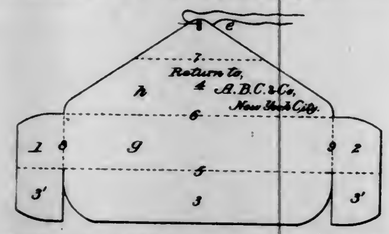


Claim.—In a liquid-meter, a rotatable cylinder and inclined blades arranged round the center of the cylinder, the latter and blades having the same specific gravity as the liquid to be measured, end pivots for the cylinder, the support for one of the pivots forming a cup, and a jacket arranged to leave an annular space communicating with the upper portion of the meter through openings *j*, the bottom of the said cup being perforated, a counter cup, *f*, and a valve seating in the latter cup and adapted to operate substantially as described.

787,465. PACKAGE-WRAP. WALTER H. POLLOCK, New York, N. Y., assignor to Mary C. Gorman, New York, N. Y. Filed July 13, 1904. Serial No. 216,406.

Claim.—1. A package-wrap of flexible material adapted to be made of a single piece, foldable along parallel transverse lines and having on its face at mid-length a pair of pockets closed along their bottoms and outer edges and open toward each other and toward the top of the wrap, the same being adapted to expose the goods between them and to serve as gages in determining the suitability of the wrap as to size and their closed outer edges serving to securely close the

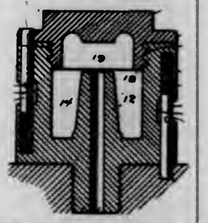
ends of the package, a bottom flap serving to cover the goods between the pockets at the beginning of the wrapping operation, and an outer flap at the top of the wrap for closing the package.



2. A package-wrap of flexible material adapted to be made of a single piece, foldable along parallel transverse lines and having on its face at mid-length a pairof pocketsclosed along their bottoms and outer edges and open toward each other and toward the top of the wrap, the same being adapted to expose the goods between them and to serve as gages in determining the suitability of the wrap as to size and their closed outer edges serving to securely close the ends of the package, a bottom flap serving to cover the goods between the pockets at the beginning of the wrapping operation, and an outer flap at the top of the wrap for closing the package, provided with an attached fastening.

3. A reversible package-wrap of flexible material adapted to be made of a single piece foldable along parallel transverse lines and having on its face at mid-length a pair of pockets closed along their bottoms and outer edges and open toward each other and toward the top of the wrap, the same being arranged to expose the goods between them and formed by folds, a bottom flap serving to cover the goods between the pockets at the beginning of the wrapping operation and an outer flap at the top of the wrap for closing the same, said outer flap including a front portion provided on one side with a return-address, the wrap as a whole being adapted to be reversed by refolding it on the same lines, to provide for the return of silk and like goods in their original folds, substantially as hereinbefore specified.

787,466. OIL-CUP FOR QUICK-MOVING BEARINGS. RICHARD J. PRESCH. Ansonia, Conn. Filed Oct. 5, 1904. Serial No. 227,225.



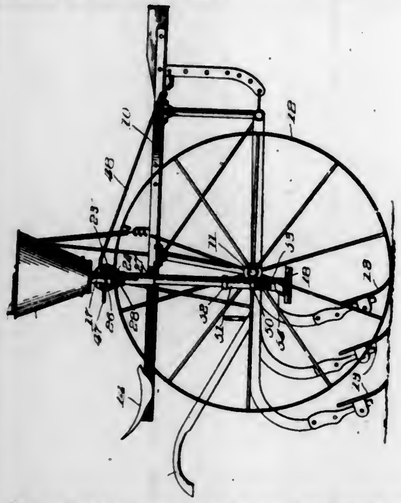
Claim.—1. An oil-cup comprising a body having a threaded hub for engagement with a bearing, housings, and spring-actuated locking-bolts in said housings and a cap threaded to engage the body and having a socket to receive the forward end of one of the locking-bolts, the forward end of the other locking-bolt being adapted to engage the bearing to lock the oil-cup in place.

2. An oil-cup comprising a body having means for attachment to a bearing, a cap having means for attachment to the body and provided with a socket, housings upon the body and spring-actuated locking-bolts in the housings, one of said locking-bolts being normally thrown upward to engage its end in the socket in the cap and the other normally thrown downward to engage its end with the bearing by which the oil-cup is carried.

787,467. SEEDER. EDMUND K. REA, Kansas City, Mo. Filed July 30, 1904. Serial No. 218,782.

Claim.—1. In a seeder, in combination, a frame, a supporting-wheel, a seeder located at the side of the wheel and having a rotatable distributer, a shaft set in the seeder, a friction-roller mounted on the shaft and running on the wheel, and gear connection between the roller and the distributer.

2. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, a rotatable distributer at the lower end of the tube, and gears connecting the roller and distributer.



3. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, a rotatable distributer at the lower end of the tube, gears connecting the roller and distributer, and a collar in sliding engagement with the tube and adapted for attachment to a vehicle-axle.

4. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, a rotatable distributer at the lower end of the tube, gears connecting the roller and distributer, a collar in sliding engagement with the tube and adapted for attachment to a vehicle-axle, and a brace for securing the upper end of the tube to a vehicle-frame.

5. A seeding device comprising a hopper, an extensible tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, a shaft rotatably carried by the tube and being longitudinally adjustable relatively thereto, a distributer secured to the shaft, a pinion adjustably fixed to the shaft, a gear meshing with the pinion, and a gear carried by the roller and meshing with the last-named gear.

6. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller adjustably mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, a rotatable distributer at the lower end of the tube, and gears connecting the roller and distributer.

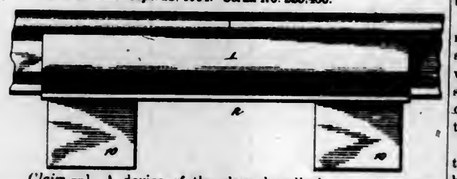
7. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller adjustably mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, a rotatable distributer at the lower end of the tube, gears connecting the roller and distributer, a sleeve-section mounted on the laterally-projecting shaft and having an oblique cam-slot, and being secured to but relatively rotatable as to the roller, and a pin set in said shaft and projecting through the cam-slot.

8. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, such roller comprising a sleeve and a pair of cone-heads carried upon the sleeve, a rotatable distributer at the lower end of the tube, and gears connecting the roller and distributer.

9. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, such roller comprising a sleeve and a pair of cone-heads carried upon the sleeve, a rotatable distributer at the lower end of the tube, and gears connecting the roller and distributer and being relatively adjustable on the sleeve.

10. A seeding device comprising a hopper, a tube leading therefrom, a shaft projecting laterally from one of such parts, a roller mounted on the shaft and adapted to rest upon the top of a vehicle-wheel, such roller comprising a sleeve and a pair of cone-heads carried upon the sleeve, a rotatable distributer at the lower end of the tube, and gears connecting the roller and distributer, one of said heads being in threaded engagement with the sleeve.

787,468. BOLTLESS RAIL-CHAIR. WILLIAM H. RISHEL, Danville, Pa. Filed Sept. 22, 1904. Serial No. 225,480.



Claim.—1. A device of the class described, comprising two jaws arranged to engage a rail at opposite sides thereof, and a rail-receiving hanger suspended from the jaws and arranged to draw the same inwardly against the rail when the latter is subjected to pressure.

2. A device of the class described, comprising a pair of rail-engaging jaws, and a rail-receiving hanger suspended from the upper portions of the jaws and terminating short of the bottoms of the same.

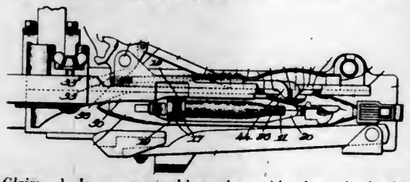
3. A device of the class described, comprising a pair of upwardly-converging jaws arranged to engage a rail beneath the head of the same, and a rail-receiving hanger connected with the engaging edges of the jaws and provided at the bottom with a rail-seat and terminating short of the bottoms of the jaws.

4. A device of the class described, comprising upwardly-converging jaws, and a substantially triangular rail-receiving hanger consisting of a horizontal bottom seat and upwardly-converging sides connected with the jaws at the engaging portions thereof.

5. A device of the class described, comprising upwardly-converging rail-engaging jaws provided at the bottom with attachment-flanges, and a rail-receiving hanger arranged between the jaws and provided with sides connected with the jaws at the engaging portion thereof.

6. A device of the class described, comprising a pair of rail-engaging jaws designed to be mounted on cross-ties or other supports, a rail-receiving hanger arranged between the jaws and having sides, and means for connecting the sides of the hanger to the jaws.

787,469. SHUTTLE-POSITIONING MEANS FOR FILLING-REPLENISHING LOOMS. CHARLES F. ROPER, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 26, 1904. Serial No. 230,012.



Claim.—1. In an organized loom, in combination, a lay having a shuttle-box, a shuttle, mechanism dependent for its proper operation upon a definite position of the shuttle in the shuttle-box, and separate means to positively engage and if necessary move the shuttle longitudinally in either direction into such position when said mechanism is brought into operation.

2. In an organized loom, in combination, a lay having a shuttle-box, a shuttle, mechanism dependent for its proper operation upon a definite position of the shuttle in the shuttle-box, and means carried by the lay to positively and automatically move the shuttle, if necessary, in either direction longitudinally to such definite position when said mechanism is brought into operation.

3. An organized loom having a lay provided with a shuttle-box, and a shuttle, combined with positioning means carried by the lay and acting automatically when a change occurs in the normal operation of the loom to positively engage and if necessary move the shuttle in either direction to a definite position in the shuttle-box.

4. The combination in an organized loom provided with mechanism to automatically insert a filling-carrier in the running shuttle, of means acting independently of the incoming filling-carrier to positively move the shuttle when necessary in either direction longitudinally into proper position to receive it.

5. An organized loom having a lay provided with a shuttle-box, an automatically self-threading shuttle, and mechanism to automatically insert a filling-carrier therein, combined with means acting independently of the incoming filling-carrier to engage the shuttle and when necessary move the same in either direction in the shuttle-box into proper position to receive such filling-carrier.

6. In an organized loom, means to sustain a reserve filling-carrier, means to engage and move it from its position of rest into the shuttle, a shuttle having means to engage and hold the filling-carrier when inserted therein, and means acting when necessary to move the shuttle in either direction to proper receiving position prior to co-operation of the incoming filling-carrier and the holding means therefor.

7. An organized loom having an intermittingly-movable feeder to support reserve filling-carriers, a running shuttle having notched holding-jaws, a transferrer to transfer a filling-carrier from the feeder to the jaws in the shuttle, combined with means independent of the shuttle and the transferrer and acting at the time of transfer to positively engage the shuttle and if necessary move it longitudinally in either direction to insure a uniform receiving position thereof in the shuttle-box.

8. The combination in an organized loom of a shuttle having notched jaws to hold a filling-carrier, a filling-carrier the head whereof is provided with annular projections to enter said notches, a transferrer to convey the filling-carrier into the notched jaws, and separate means to act upon the shuttle and when necessary move it in either direction to properly position the jaws to receive the projections of the incoming filling-carrier.

9. In an organized loom, a shuttle, a lay having a shuttle-box, means mounted thereon to engage and insure the proper positioning of the shuttle to receive an incoming filling-carrier, automatic mechanism to insert a filling-carrier in the shuttle, and an actuator for the shuttle-positioning means, governed by the operation of the replenishing mechanism.

10. The combination in an organized loom provided with mechanism to automatically insert a filling-carrier in the running shuttle, and a shuttle, of means, including two members movable a predetermined distance in opposite directions, to positively engage and insure a definite position of the shuttle in the shuttle-box, and an actuator for said means governed by or through said mechanism.

11. The combination in an organized loom provided with mechanism to automatically insert a filling-carrier in the running shuttle, and a shuttle having a lug thereon, of shuttle-positioning means, including two members movable toward each other to cooperate with opposite sides of the lug and thereby definitely position the shuttle in the shuttle-box, and an actuator for said means, operative automatically in advance of the insertion of a filling-carrier into the shuttle.

12. In an organized loom, a lay having a shuttle-box provided with an apertured wall, a shuttle, automatic filling-replenishing mechanism, and means to enter the aperture in the box-wall and engage the shuttle and when necessary move it in either direction into proper position for filling replenishment.

13. In an organized loom, a lay having a shuttle-box provided with an apertured wall, a shuttle, automatic filling-replenishing mechanism and shuttle-positioning means, including two oppositely-movable members adapted to enter the aperture in the box-wall and engage the shuttle, and move the same when necessary in either direction into proper position for filling replenishment.

14. In an organized loom, a lay having a shuttle-box provided with an apertured wall, a shuttle, automatic filling-replenishing mechanism, shuttle-positioning means to enter the aperture in the box-wall and engage the shuttle, and when necessary move it longitudinally in either direction, to insure its proper position for filling replenishment, and an instrumentality to retract said means from co-operation with the shuttle prior to ejection thereof from the shuttle-box.

15. In an organized loom, a lay having a shuttle-box provided with a fixed wall having an elongated aperture, the ends of the aperture being oppositely beveled, a shuttle having a lug on the side adjacent said wall, automatic filling-replenishing mechanism, and shuttle-positioning means including two members movable toward each other and adapted to project through the aperture and engage opposite sides of the lug on the shuttle, to accurately position the shuttle

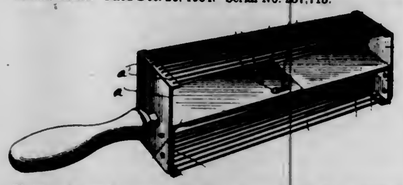
for filling replenishment, the beveled ends of the aperture directing the said movable members into and out of operative position.

16. In an organized loom, a lay having a shuttle-box provided with an apertured wall, a shuttle having a lug on the side adjacent thereto, automatic filling-replenishing mechanism, a rocker mounted on the box-wall and having oppositely-extended arms, shuttle-positioning fingers fulcrumed on the arms and having their free ends inturned to enter the aperture, a spring to act through the rocker and normally maintain the ends of the fingers separated and out of the shuttle-path, and an actuator governed by the operation of the replenishing mechanism and adapted to swing said rocker and thereby move the ends of the fingers toward each other into engagement with opposite sides of the lug on the shuttle, to accurately position the latter when in the shuttle-box for replenishment of filling.

17. In an organized loom, a lay having a shuttle-box thereon provided with a fixed wall having an elongated aperture oppositely beveled at its ends, a shuttle having a recess in its adjacent side wall, and a lug in the recess, shuttle-positioning fingers movable along the outer face of the box-wall and having their ends inturned to project into the aperture, each end having an inclined face to normally rest on the adjacent bevel of the aperture, automatic means to move the fingers oppositely and cause their inturned end to slide over the said beveled ends of the aperture and through the latter to engage the opposite sides of the lug on the shuttle and thereby insure the definite positioning of the shuttle in the box, reverse movement of the fingers releasing the shuttle and causing the inclined faces of the finger ends to slide along the beveled ends of the aperture out of the shuttle-path, and means to effect such reverse movement of the fingers.

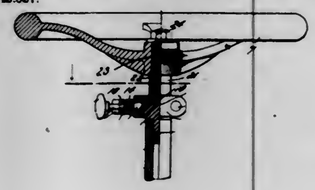
18. The combination, in an organized loom, of a lay provided with a shuttle-box having an apertured wall, a shuttle having notched holding-jaws, a filling-carrier having its head provided with annular projections to enter the notches of the jaws, a transferrer to transfer the filling-carrier to the holding-jaws, means, including a rock-shaft, to control the operation of the transferrer, shuttle-positioning means, including fingers movable through the aperture in the box-wall to engage the shuttle and positively move the same longitudinally in either direction into position to receive the incoming filling-carrier, and an actuator for the shuttle-positioning means, governed as to its operation by the said rock-shaft.

787,470. DEVICE FOR CLEANING COMBS. CHARLES B. ROSS. Parma, Idaho. Filed Dec. 20, 1904. Serial No. 237,713.



Claim.—A comb-cleaning device comprising two extensible members, one of which is provided with lugs and the other with slots to receive said lugs, wires connecting the angled ends of said members, plates, one secured to each of said members at right angles to the shank portion of each member provided each with an angled end which is perforated, wires secured in said perforations, a lug projecting from one of the members and provided with a threaded aperture, a screw passing through the lug and through the end of one of said members and the plate secured thereto, a handle on which said screw is mounted, and a collar on the shank portion of the screw adapted to bear against one end of one of said members, as set forth.

787,471. STEERING MECHANISM FOR MOTOR-VEHICLES. CLAYTON W. RUSSELL. Springfield, Ohio. Filed Feb. 9, 1903. Serial No. 142,527.



Claim.—In a steering mechanism for motor-vehicles, the combination, with a steering-column having a bearing at its upper end, of a steering-shaft mounted in said column and bearing and provided with a transversely-elongated head substantially rectangular in cross-section transversely to the shaft, said head having a detent-recess in one end thereof, and a steering-wheel provided with a part having a rectangular recess to receive the rectangular head of the shaft, said part being pivoted at one end to the head on one side of the shaft, and a beveled spring locking-bolt mounted in the other end of said part to engage the detent-recess, said pivot and bolt lying in the same transverse plane, substantially as described.

787,472. TRANSPORTING DEVICE. HERMANN SCHUSTER and FRIEDRICH METZE. Halle-on-the-Saale, Germany. Filed Apr. 2, 1904. Serial No. 201,263.



Claim.—1. In a rolling bridge with a perambulator placed upon it for rolling the latter up and down stairs, the combination with two metal parts *b*, equal in length of cross-pieces *c*, the parts *b* being U-shaped and fastened parallelly to each other to a common wooden top piece or cover *f* which is tapering from the middle toward the two ends, and of little wheels *d* arranged between the metal parts *b*, *c*, alternately and diametrically arranged fastening devices on the wooden piece *f*, substantially as set forth.

2. In a rolling bridge with a perambulator placed upon it for rolling the latter up and down stairs the combination of a bifurcated cross-piece *c*, with the fastening device of the axles in the metal parts, formed by the slit *k* in the axles *i*, and a round metal rod *l* substantially as and for the purpose set forth.

787,473. AIR-CUSHION. CARL R. SCHWALENBERG. Mannheim, Germany. Filed Nov. 30, 1903. Serial No. 183,258.



Claim.—1. In an elastic air-cushion, the combination of a ring-shaped india-rubber cushion with wedge-shaped pieces of tricot fixed to the wall of the cushion at the inside of the ring, each of these tricot pieces allowing independently from the other pieces, a limited stretching of that cushion part to which it is cemented, substantially as described and for the purpose set forth.

2. In an elastic air-cushion, the combination of a ring-formed india-rubber cushion, with a wedge-shaped piece of tricot, fixed to the inside of the wall of the cushion at the inside of the ring, the wedge-shaped tricot pieces partly permitting a stretching of their proper cushion parts in substantially radial direction, partly allowing a stretching in substantially circumferential direction, substantially as described and for the purpose set forth.

787,474. ROOFING-TILE. LESLIE G. SHARP. Chicago, Ill. Filed June 9, 1904. Serial No. 211,764.



Claim.—1. An improved roofing-tile, having a body part made with the greater portion of its two sides parallel to each other, an inward jog made in one of said sides in an upper corner of said body part, an outwardly-projecting part made on the other of said sides in the opposite upper corner of said body part, said outwardly-projecting part adapted to receive the inwardly-jogged overlapping part of a similar tile when such tile are laid together in forming a roof, a downwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said inward jog and following the contour of said inward jog to the upper end of the body part, an upwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said outwardly-projecting part and jogged around the lower end and corner of said outwardly-projecting part to the upper end of said body part, and suitable means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

2. An improved roofing-tile, having a body part made with the greater portion of its two sides parallel to each other, an inward jog made in one of said sides in an upper corner of said body part, an outwardly-projecting part made on the other of said sides in the opposite upper corner of said body part, said outwardly-projecting part adapted to receive the inwardly-jogged overlapping part of a similar tile when such tile are laid together in forming a roof, a downwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said inward jog and following the contour of said inward jog to the upper end of the body part, an upwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the outwardly-projecting part and following the contour of said outwardly-projecting part to the upper end of said body part, the notch or recess a^{19}, made in said downwardly-projecting marginal part or flange, an upwardly-projecting marginal flange made on the said body part and extended across the upper end thereof, an upwardly-projecting cross-rib made on the body part but located below the said upper end marginal flange, and means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

3. An improved roofing-tile, having a body part with the greater portion of the two sides thereof made parallel to each other, one of said sides made of convex-curved form, an inward jog made in said convex-curved part at the upper corner of said body part, an outwardly-projecting part made on the other of said sides in the opposite upper corner of said body part, said outwardly-projecting part adapted to receive the inwardly-jogged overlapping part of a similar tile when such tile are laid together in forming a roof, a downwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said inward jog and following the contour of said inward jog to the upper end of the body part, an upwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the outwardly-projecting part to the upper end of said body part, a downwardly-projecting marginal flange made on said body part and extended across the lower end thereof, the transverse groove a^{27}, made in said convex-curved part, and suitable means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

4. An improved roofing-tile, having a body part made with the greater portion of its two sides parallel to each other, an inward jog made in one of said sides in the upper corner of said body part, an outwardly-projecting part made on the other of said sides in an opposite upper corner of said body part, said outwardly-projecting part adapted to receive the inwardly-jogged overlapping part of a similar tile when such tile are laid together in forming a roof, a downwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said inward jog and following the contour of said inward jog to the upper end of the body part, an upwardly-projecting marginal stepped part or flange made on said body part and extended along the same side thereof that has the outwardly-projecting part, the bead or nose part a^{18}, made on the outer edge of said downwardly-projecting marginal part or flange, an upwardly-projecting marginal flange made on said body part and extended across the upper end thereof, a downwardly-projecting marginal cross-flange made on the lower end of said body part, and suitable means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

5. An improved roofing-tile, having a body part made with the greater portion of its two sides parallel to each other, an inward jog made in one of said sides in an upper corner of said body part, an outwardly-projecting part made on the other of said sides in the opposite upper corner of said body part, said outwardly-projecting part adapted to receive the inwardly-jogged overlapping part of a similar tile when such tile are laid together in forming a roof, a downwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said inward jog and following the contour of said inward jog to the upper end of the body part, an upwardly-projecting marginal stepped part or flange made on said body part and extended along the same side thereof that has the outwardly-projecting part, the bead or nose part a^{18}, made on the outer edge of said downwardly-projecting marginal part or flange, an upwardly-projecting marginal flange made on said body part and extended across the upper end thereof, a downwardly-projecting marginal cross-flange made on the lower end of said body part, and suitable means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

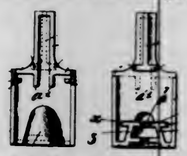
6. An improved gable-roofing tile, having a body part made with the greater portion of its two sides parallel to each other, a convex curve in its face, an outwardly-projecting part made in an upper corner of said body part, a downwardly-projecting part made on the convex portion of said body part and extended along the side thereof to the upper end of the body part, the horizontal flange *a*, made on said downwardly-projecting part, an upwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the outwardly-projecting part and following the contour of said outwardly-projecting part to the upper end of said body part, an upwardly-projecting marginal flange made on said body part and extended across the upper end thereof, a downwardly-projecting marginal cross-flange made on the lower end of said body part, and suitable means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

7. An improved roofing-tile, having a body part made with its face of a joined concave and convex curved form, the sides of said body part made parallel to each other, an inward jog made in one of said sides in the convex part at an upper corner of said body part, an outwardly-projecting part made on the other of said sides in the opposite upper corner of said body part, said outwardly-projecting part adapted to receive the inwardly-jogged overlapping part of a similar tile when such tile are laid together in forming a roof, a downwardly-projecting marginal part or flange made on said body part and extended along the same side thereof that has the said inward jog and following the contour of said inward jog to the upper end of the body part, an upwardly-projecting marginal stepped part or flange made on said body part and extended along the same side thereof that has the outwardly-projecting part and following the contour of said outwardly-projecting part to the upper end of said body part, an upwardly-projecting marginal flange made on said body part and extended across the upper end thereof, a downwardly-projecting marginal cross-flange made on the lower end of said body part, a downwardly-projecting rib or tongue made on the under side of said body part located above, but near and parallel to said last-mentioned downwardly-projecting marginal cross-flange, the recess a^{29}, made in the under side of said body part, and suitable means for securing said tile to a roof foundation, all when made substantially as described and for the purposes set forth.

787,475. ROOFING-SHINGLE. LESLIE G. SHARP. Chicago, Ill. Filed June 18, 1904. Serial No. 213,060.

Claim.—1. An improved shingle-tile, having a body part made of an oblong outline, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out

from the under side of said body part, a downwardly-projecting flange *z* made on the under side of said body part on the margin of the hollowed-out or cavity portion of said central raised part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.



2. An improved shingle-tile, having a body part made of an oblong outline, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part, a downwardly-projecting flange *z* made on the under side of said body part on the margin of the hollowed-out or cavity portion of said central raised part, a guard-rib made across the upper part of the hollowed-out portion of said central raised part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

3. An improved shingle-tile, having a body part made of an oblong outline, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

4. An improved shingle-tile, having a body part made of an oblong outline, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, a downwardly-projecting rib made across the upper part of the hollowed-out portion of said central raised part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth

5. An improved shingle-tile, having a body part made of an oblong outline, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, a downwardly-projecting flange *z* made on the under side of said body part on the margin of the hollowed-out or cavity portion of said central raised part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

6. An improved shingle-tile, having a body part made of an oblong outline, upwardly-projecting flanges made on the face portion of said body part and extended along its sides to the upper end of said body part, a downwardly-projecting flange made on the under side of said body part on its sides and lower end, a flange-opening made in said downwardly-projecting lower end flange, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

7. An improved shingle-tile, having a body part made of oblong outline, a downwardly-projecting flange made on the under side of said body part on its sides and lower end, upwardly-projecting flanges made on the face portion of said body part and extended along its sides to the upper end of said body part, said upwardly-projecting flanges suitably notched or cut away to receive the aforesaid downwardly-projecting flange on the lower end of a similar tile when the latter is laid above the first-mentioned tile in forming a roof, and suitable means for securing said tile to a roof foundation, all when made substantially as and for the purposes set forth.

8. An improved shingle-tile, having a body part made of an oblong outline, upwardly-projecting flanges made on the face portion of said body part and extended along the sides to the upper end of said body part, a downwardly-projecting flange made on the under side of said body part along its sides and lower end, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a downwardly-projecting transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, said upwardly-projecting flanges suitably notched or cut away to receive the aforesaid downwardly-projecting transverse closing part of a simliar tile when the latter is laid above the first-mentioned tile in forming a roof, and suitable means for securing said tile to a roof foundation, all when made substantially as and for the purposes set forth.

9. An improved shingle-tile, having a body part made of an oblong outline, upwardly-projecting flanges made on the face portion of said body part and extended along the sides to the upper end of said body part, a downwardly-projecting flange made on the under side of said body part along its sides and lower end, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, a flange-opening made in said transverse closing part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

10. An improved shingle-tile, having a body part made of an oblong outline, a downwardly-projecting flange made on the under side of said body part on its sides and lower end, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, said upwardly-projecting flange suitably notched or cut away to receive the aforesaid downwardly-projecting flange on the lower end of a similar tile when the latter is laid above the first-mentioned tile in forming a roof, a notch or opening made in said downwardly-projecting flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned tile in forming a roof, and suitable means for securing said tile to a roof foundation, all when made substantially as and for the purposes set forth.

11. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, a downwardly-projecting flange made on the under side and lower end of said body part, a flange-opening made in said downwardly-projecting lower end flange, a notch or opening made in said downwardly-projecting side flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned tile in forming a roof, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

12. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, a downwardly-projecting flange made on the under side along the sides and lower end of said body part, a central raised part made on the face of the lower portion of said body part, said central raised part hollowed out from the under side of said body part, said upwardly-projecting flange suitably notched or cut away to receive the aforesaid downwardly-projecting lower end flange of a similar shingle-tile when the latter is laid above the first-mentioned tile in forming a roof, a notch or opening made in said downwardly-projecting flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned tile in forming a roof, and suitable means for securing said tile to a roof foundation, all when made substantially as and for the purposes set forth.

13. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, a downwardly-projecting flange made on the under side and lower end of said body part, a central raised part made on the face of the lower portion of said body part, said central raised part hollowed out from the under side of said body part, a flange-opening made in said downwardly-projecting lower end flange, a notch or opening made in said downwardly-projecting side flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned tile in forming a roof, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

14. An improved shingle-tile, having an oblong body part with the sides of its lower portion made parallel to each other, the upper portion of said body part made of diminished width to reduce the weight thereof and dispense with unnecessary material therein, upwardly-projecting flanges made on the face of said body part and extended along its sides to the upper end thereof, a downwardly-projecting flange made on the under side of said body part and extended along the sides and end of the lower portion thereof, said upwardly-projecting flanges suitably notched or cut away to receive the aforesaid downwardly-projecting lower end flange of a similar tile when the latter is laid above the first-mentioned tile in forming a roof, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

15. An improved shingle-tile, having an oblong body part with the sides of its lower portion made parallel to each other, the upper portion of said body part made of diminished width to reduce the weight thereof and dispense with unnecessary material therein, upwardly-projecting flanges made on the face of said body part and extended along its sides to the upper end thereof, a downwardly-projecting flange made on the under side of said body part and extended along the sides and end of the lower portion thereof, with a flange-opening made in said downwardly-projecting flange on the lower end of said body part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

16. An improved shingle-tile, having a body part made of an oblong outline, upwardly-projecting flanges made on the face portion of said body part and extended along the sides to the upper end of said body part, a downwardly-projecting flange made on the under side of said body part along its sides and lower end, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, a flange-opening made in the aforesaid transverse closing part, a downwardly-projecting transverse joint-closing rib *x* made on the under side of said body part, as shown, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

17. An improved shingle-tile, having a body part made of an oblong outline, upwardly-projecting flanges made on the face portion of said body part and extended along the sides to the upper end of said body part, a downwardly-projecting flange made on the under side of said body part along its sides and lower end, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, a flange-opening made in the aforesaid transverse closing part, an upwardly-projecting joint-closing part *v* made on the top of an upwardly-projecting side flange made on the face of said body part, as shown, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

18. An improved shingle-tile, having an oblong body part with the sides of its lower portion made parallel to each other, the upper portion of said body part made of diminished width to reduce the weight thereof and dispense with unnecessary material therein, upwardly-projecting flanges made on the face of said body part and extended along its sides to the upper end thereof, a downwardly-projecting flange made on the under side of said body part along the sides and end of the lower portion thereof, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of said body part and made with a transverse closing part set back under, so as to form a recess or hood at the lower end of said central raised part, a flange-opening made in said transverse closing part, an upwardly-projecting joint-closing part *v'* made on the top of an upwardly-projecting side flange on the face side of said body part, as shown, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

19. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, a downwardly-projecting flange made on the under side and lower end of said body part, a flange-opening made in said lower end flange, a notch or opening made in said downwardly-projecting flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar tile when the latter is laid beneath the first-mentioned tile in forming a roof, a central raised part made on the face of the lower portion of said body part, said central raised part hollowed out from the under side of said body part, a downwardly-projecting transverse joint-closing rib *x* made on the under side of said body part, as shown, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

20. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, a downwardly-projecting flange made on the under side and lower end of said body part, a flange-opening made in said downwardly-projecting lower end flange, a notch or opening made in said downwardly-projecting side flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned shingle-tile in forming a roof, a central raised part made on the face of the lower portion of said body part, said central raised part hollowed out from the under side of said body part, an upwardly-projecting transverse joint-closing rib *w* made on the face of said body part, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

21. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side up to and across the upper end and down along the other side of said body part, a downwardly-projecting flange made on the under side and lower end of said body part, a central raised part made on the face of the lower portion of said body part, said central raised part hollowed out from the under side of said body part, a flange-opening made in said downwardly-projecting lower end flange, an upwardly-projecting joint-closing part *v* made on the top of an upwardly-projecting side flange made on the face of said body part, as shown, a notch or opening made in said downwardly-projecting side flange adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned tile in forming a roof, and suitable means for securing the tile to a roof foundation, all when made substantially as and for the purposes set forth.

22. An improved shingle-tile, having a body part made of an oblong outline, an upwardly-projecting flange made on the face portion of said body part and extended along one side and the upper end of said body part, a downwardly-projecting flange made on the under side of said body part at its lower end, a downwardly-projecting longitudinally-disposed rib or flange also made on the under side of said body part, a notch or opening made in said latter flange or rib adapted to receive the upwardly-projecting marginal flange on the upper end of a similar shingle-tile when the latter is laid beneath the first-mentioned shingle-tile in forming a roof, a central raised part made on the lower portion of the face of said body part, said central raised part hollowed out from the under side of the body part and made with a transverse closing part set back under, so as to form a recess or hood, a flange-opening made in said transverse closing part, a guard-rib made across the upper part of the hollowed-out portion of said central raised part, an upwardly-projecting joint-closing part *v* made on the top of an upwardly-projecting side flange made on the face of said body part, as shown, and suitable means for securing said shingle-tile to a roof foundation, all when made substantially as and for the purposes set forth.

787,476. MAIL-BOX. PETER A. SHELBY, Louisville, Ky. Filed Dec. 31, 1904. Serial No. 239,190.

Claim.—1. The combination with a receptacle, of means for holding the mouth of the receptacle in open position, and means for automatically closing said mouth after the latter and the holding means are separated.

2. The combination with a receptacle, of means for guiding articles in the open mouth thereof, and means for automatically closing said mouth after the receptacle and guiding means are detached.

3. The combination with a receptacle having a normally open mouth, of a receptacle-inclosing casing, means for supporting the receptacle within the casing, said supporting means yielding as the receptacle is pulled from the box, and means for automatically closing the mouth of the receptacle after its detachment from said supporting means.

4. The combination with a casing, of a removable receptacle arranged therein and having at its mouth a pair of locking-strips, means for engaging said strips to open the mouth of the receptacle as it is inserted within the casing, and for moving said strips to locking position as the receptacle is removed.

5. The combination with a mail-box having a mail-guiding throat, of a removable mail-receptacle arranged at the delivery end of the throat, locking-strips at the mouth of the receptacle, and cams engaging both strips and serving to move the same to closed position during the removal of the receptacle.



6. The combination with a mail-box, of a removable mail-receptacle arranged therein, locking-strips at the mouth of the receptacle, and cams arranged to engage and separate said strips and hold the mouth in open position, and to close said strips during the removal of the receptacle.

7. The combination with a mail-box having upper and lower doors, partitions arranged within the box and forming a contracted throat, spaced cams extending at the sides of the throat, a receptacle formed of flexible material insertible through the throat, locking-strips at the mouth of the receptacle, said locking-strips being engaged by the cams, and yieldable supports for said locking-strips.

8. The combination with a mail-box, having upper and lower doors, of a receptacle insertible through the upper door and removable through the bottom door, and an intermediate means for supporting the receptacle.

9. The combination with a casing, of a receptacle insertible at the upper portion and removable from the lower portion of said receptacle, and sets of cams arranged within the casing and engaging the mouth of the receptacle to open the latter as the receptacle is inserted, and to close the mouth as the receptacle is removed.

10. The combination with a casing having upper and lower doors, of a removable receptacle insertible at the upper door and removable through the lower door, means between the two doors for supporting the receptacle, and means for opening the mouth of the receptacle as it is inserted for retaining the mouth in open position, and for closing the mouth when the receptacle is withdrawn.

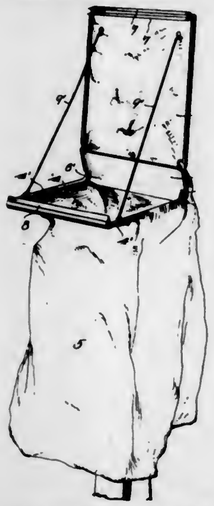
11. The combination with a mail-box having upper and lower doors, of cams arranged on each side of the box, a receptacle insertible at the upper door and removable at the lower door, said receptacle having strips at its mouth that project beyond the sides of the receptacle, said strips engaging the cams when the receptacle is inserted, thereby opening the mouth, the cams serving further to close said mouth during the withdrawal of the receptacle.

12. The combination with a mail-box having upper and lower doors, of partitions arranged within the box and forming a contracted throat, a cam extending through the throat at each side of the box, and widened at its lower end, auxiliary cams on each side of the central cam, said auxiliary cams having their lower ends arranged adjacent to each other, a removable mail-bag having closing-strips, the ends of which are arranged on opposite sides of the central cam, and yieldable supports for engaging and holding said strips in place.

13. The combination with a mail-box having upper and lower openings, partitions arranged within the box and forming a contracted throat, cams at the sides of the box, said cams extending through the throat, auxiliary cams, a mail-bag having closing-strips, the ends of which project beyond the sides of the bag and engage with the cams, and spring-tongues carried by the cams and serving as supports for said strips.

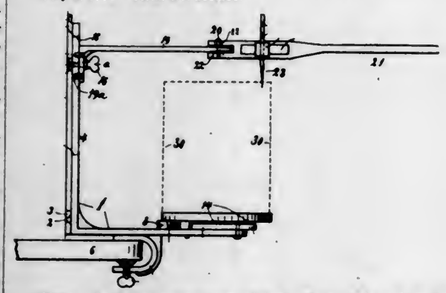
14. The combination with a mail-box having an upper receiving-door, and a lower delivery-door, of partitions arranged within the box and forming a contracted throat, pivotally-mounted fingers normally closing the throat, and yieldable on the insertion of the mail-matter, a door or cover for closing the upper opening, a finger-locking flap, and means for connecting the door or cover to the flap.

787,477. **FRUIT-PICKER.** JULIUS G. SMITH, Liberty, N. Y. Filed May 17, 1904. Serial No. 208,461.



Claim.—In a fruit-picker, a rectangular stationary jaw-plate having a socket for the reception of a handle-pole, a jaw-frame having side members bent at right angles to form approximately horizontal and approximately vertical members, said jaw-frame having hinge connection with the lower edge of the stationary jaw-plate, a fabric bag attached to the jaw-frame and having a flap attached to and forming an interior covering for the stationary jaw-plate, a strip of fabric stretched between the side members of the movable jaw-frame, cutters connected with the jaws, and means for manipulating the movable jaw.

787,478. **CAN-OPENER.** WILLIAM H. SMITH, St. Paul, Minn. Filed July 5, 1904. Serial No. 215,231.



Claim.—1. A can-opener comprising a frame adapted to be fixed to a table or wall, a pair of jaws pivoted thereto and a pivoted lever closing said jaws so as to hold a can between them, an operating-lever pivoted to the frame and a can-opening blade secured to the lever, said frame being extensible so as to bring the blade higher or lower according to the height of the can, said blade being adjustable along the operating-lever so as to open cans of various diameters, and said operating-lever having a vertically-swinging motion on its pivot.

2. A can-opener comprising a frame adapted to be fixed to a table or wall, a pair of jaws pivoted thereto and a pivoted lever closing said jaws so as to hold a can between them, an operating-lever pivoted to the frame and a can-opening blade secured to said lever, said operating-lever having elongated holes at the pivot so that it may be swung with the cutting-blade to and from the can.

3. A can-opener comprising a frame adapted to be fixed to a table or wall, a pair of jaws pivoted thereto, a pivoted lever closing said jaws so as to hold a can between them, and an operating-lever pivoted to the frame and a can-opening blade secured to said lever, said operating-lever having a longitudinal slot, a slotted bolt or post extending horizontally through said slot, a thumb-nut at the end of the bolt at one side the lever and a can-opening vertically-adjustable blade in the slot of the bolt at the other side of the lever.

4. A can-opener comprising a frame adapted to be fixed to a table or wall, a pair of jaws pivoted thereto, a pivoted lever closing said jaws so as to hold a can between them, an operating-lever pivoted to the frame, said operating-lever having a longitudinal slot, a slotted bolt or post extending through said slot, a thumb-nut at the end of the bolt at one side of the lever and a can-opening blade in the slot of the bolt at the other side of the lever, said blade having a series of notches and said bolt having a tooth projecting into its slot to engage the notches, to hold the blade firmly in variously-extended positions.

5. A can-opener comprising a vertically-extensible frame having a screw-clamp by which to secure it upon a table or similar object, and an upper and a lower horizontal arm, a pair of can-holding jaws pivoted upon the lower arm and having diagonal slots, a lever pivoted upon said arm and having pins engaging in the slots so as to spread and close the jaws, an operating-lever pivoted to the upper frame-arm and a can-opening blade secured to said lever, said frame being adjustable as to its height, and said blade being adjustable horizontally and vertically on the lever, and the latter having both horizontal and vertical swinging motion on its pivot, substantially as and for the purposes set forth.

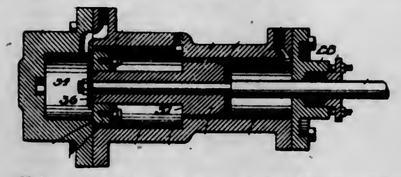
787,479. **CENTERING-MOTOR.** JULIUS R. TANNER, Pittsburg, Pa. Filed Sept. 2, 1903. Serial No. 171,642.



Claim.—1. In a centering-motor, a casing having a longitudinal opening consisting of two sections of different diameters, a lining in each section, an internal shoulder at the junction of the sections, a ring slidable in the larger section, a piston slidable in the smaller section and having a reduced portion slidable in the said ring, a rod secured to the piston to transmit the movement of the piston to a suitable point, a packing-ring seated on the outer end of the larger portion of said piston and bearing against the smaller lining, and a packing on the said ring bearing against the larger lining and the reduced portion of the piston, and means for supplying fluid-pressure to and exhausting it from the sections of the said opening in the casing, whereby the said piston may be caused to occupy a central position or a position on either side thereof.

2. In a centering-motor, a casing having a longitudinal opening consisting of two sections of different diameters, a lining in each section, an internal shoulder at the junction of the sections, an air-vent and waste pipe at the junction of the larger section and said shoulder, a ring slidable in the larger section, a piston slidable in the smaller section and having a reduced portion slidable in the said ring, a rod secured to the piston to transmit the movement of the piston to a suitable point, a packing-ring seated on the outer end of the larger portion of said piston and bearing against the smaller lining, and a packing on the said ring bearing against the larger lining and the reduced portion of the piston, and means for supplying fluid-pressure to and exhausting it from the sections of the said opening in the casing, whereby the said piston may be caused to occupy a central position or a position on either side thereof.

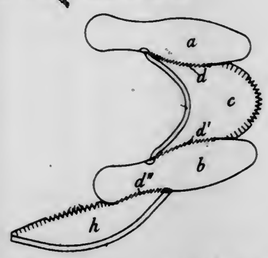
787,480. **CENTERING-MOTOR.** JULIUS R. TANNER, Pittsburg, Pa. Filed Mar. 1, 1904. Serial No. 196,033.



Claim.—1. In a centering-motor, a casing having a longitudinal opening consisting of two sections of different diameters and a third section, a lining in each of the first two sections, an internal shoulder at the junction of the first two sections, a ring slidable in the larger of the first two sections, a piston slidable in the smaller of the first two sections and having a reduced portion slidable in the said ring, a rod secured to the piston to transmit the movement of the piston to a suitable point, a packing-ring seated on the outer end of the larger portion of said piston and bearing against the smaller lining, and a packing on the said ring bearing against the larger lining and the reduced portion of the piston, and means involving the third section for supplying fluid-pressure to and exhausting it from the outer end of the ring, means for supplying pressure to and exhausting it from the enlarged portion of the piston and for supplying continuous pressure to the inner ends of the ring and the enlarged portion of the piston, whereby said piston may be caused to occupy a central position or a position either side thereof and means for limiting the outward movement of the ring.

2. In a centering-motor, a casing having a longitudinal opening consisting of two sections of different diameters and a third section, a lining in each of the first two sections, an internal shoulder at the junction of the first two sections, a central supply-passage at the junction of the larger of the first two sections and said shoulder for supplying continuous pressure, a ring slidable in the said larger section, a piston slidable in the smaller of the first two sections and having a reduced portion slidable in the said ring, a rod secured to the piston to transmit the movement of the piston to a suitable point, a packing-ring seated on the outer end of the larger portion of said piston and bearing against the smaller lining, and a packing on the said ring bearing against the larger lining and the reduced portion of the piston, means for supplying fluid-pressure to and exhausting it from the outer sections of the said opening in the casing, whereby the said piston may be caused to occupy a central position or a position on either side thereof and means for limiting the outward movement of the ring.

787,481. **SLIPPER.** HEINRICH THIEMANN, Dessau, Germany. Filed Feb. 10, 1904. Serial No. 192,944.



Claim.—1. A slipper consisting of an upper, and independent soles which are separately connected to the respective sides of the upper and superposed on each other.

2. A slipper consisting of an upper, independent soles which are separately connected to the respective sides of the upper and superposed on each other, and a heel-piece connected to said slipper.

3. A slipper consisting of an upper, independent soles which are separately connected to the respective sides of the upper and superposed on each other, and a heel-piece joined only to one of the soles in the slipper-blank.

787,482. BACK-GEARED MOTOR. LEONARD A. TERRILL, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Aug. 5, 1904. Serial No. 219,563.



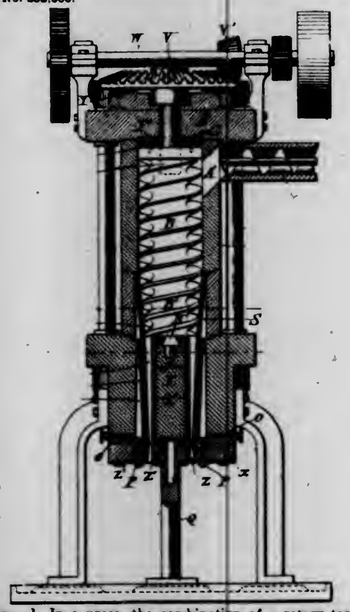
Claim.—1. In an electric motor, an end plate or member formed with an undercut channel in it, an armature-shaft journaled in said plate, a counter-shaft, a supporting member therefor, said supporting member being adjustably secured in said channel, a gear-wheel mounted on the armature-shaft, and a gear carried by the adjustable shaft meshing with the first-mentioned gear-wheel.

2. In an electric motor, an end plate or member having an annular undercut channel formed in it, an armature-shaft journaled in said end plate and carrying a gear-wheel, a counter-shaft, a gear-wheel carried thereby meshing with the gear-wheel on the armature-shaft, and means for adjustably securing said counter-shaft to the end plate, said means comprising a device engaging the walls of said undercut groove or channel.

3. In an electric motor, an end plate or head having an undercut channel or groove formed therein, an armature-shaft journaled in said end plate or head, a gear carried thereby, a counter-shaft adjustably clamped to said head by clamping means entering said undercut groove or channel, and a gear on said counter-shaft meshing with the gear on the armature-shaft.

4. In an electric motor, an end plate or head formed with an undercut channel in it, an armature-shaft journaled in said end plate or head, a gear carried by said armature-shaft, a counter-shaft-supporting member adjustably secured to said end plate or head by clamping means entering said undercut groove or channel, a counter-shaft and means for adjusting it relative to said supporting member, and a gear on said counter-shaft meshing with the gear on the armature-shaft.

787,483. OIL-PRESS. DANIEL A. TOMPKINS, THOMAS S. DIFFEY, and TALLAFERRO S. SIMPSON, Charlotte, N. C. Filed Nov. 9, 1904. Serial No. 232,006.



Claim.—1. In a press, the combination of a rotary tapering screw, a casing surrounding the same having tapering perforated walls adjacent to said screw and an outlet in alinement with said screw, and adjustable screen-sections in said outlet to vary the size of the latter.

2. In a press, the combination of a rotary tapering screw, a casing surrounding the same having tapering perforated walls adjacent to said screw and an outlet in alinement with said screw, and laterally-adjustable screen-sections in said outlet to vary the size of the latter.

3. In a press, the combination of a rotary tapering screw, a casing surrounding said screw and having an outlet in axial alinement therewith, a tapering screen-section removably mounted in said casing and surrounding said tapering screw, and adjustable screen-sections in said outlet to vary the size of the latter.

4. In a press, the combination of a rotary tapering screw, a casing surrounding said screw and having an outlet in axial alinement therewith, a tapering screen-section removably mounted in said casing and surrounding said tapering screw, screen-sections in said outlet, and means to adjust said screen-sections laterally in the outlet to vary the size of the latter.

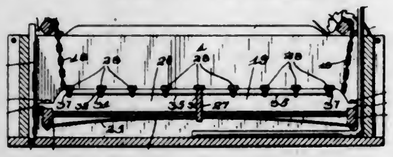
5. In a press, the combination of a rotary tapering screw, a tapering perforated screen surrounding said screw, an annular screen below and in axial alinement with said screw, screen-sections surrounding the annular screen, and means for adjusting said screen-sections toward and from the annular screen to regulate the discharge-outlet from the press.

6. In a press, the combination of a casing having a generally cylindrical bore, a rotary screw therein having a tapering end section, a tapering perforated screen surrounding the tapering screw-section, an annular screen below and in axial alinement with said screw, screen-sections surrounding the annular screen, and means for adjusting said screen-sections longitudinally and laterally with respect to said annular screen to regulate the discharge from the press.

7. In a press, the combination of a casing having a generally cylindrical bore, a rotary screw therein having a tapering end section, a tapering perforated screen surrounding the tapering screw-section, an annular screen below and in axial alinement with said screw, screen-sections surrounding the annular screen, and adjustable wedges for moving said screen-sections toward and from the annular screen to regulate the discharge from the press.

8. In a press, the combination of a casing having a generally cylindrical bore, a rotary screw therein having a tapering end section, a tapering perforated screen surrounding the tapering screw-section, an annular screen below and in axial alinement with said screw, screen-sections surrounding the annular screen, adjustable wedges for moving said screen-sections toward and from the annular screen, and set-screws for moving the ends of said screen-sections adjacent to the press-outlet toward and from the annular screen to regulate the discharge from the press.

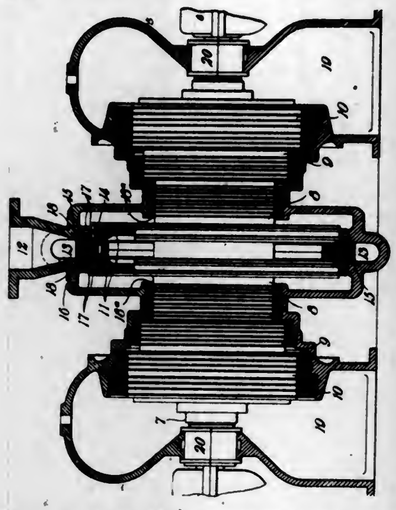
787,484. TOMATO-SCALDER. JACOB P. WALKER, Havre de Grace, Md. Filed May 31, 1904. Serial No. 210,598.



Claim.—1. In scalding apparatus of the class described, a raising and lowering frame having side pieces and a cross-piece and dowel-pins projecting upwardly from the side pieces, cross-bars to rest on the side pieces and having openings to receive the dowel-pins, means to connect a plurality of the said cross-bars together and to release them at will, winch-shafts at the ends of the tank, chains connecting the frame to the winches, and drive-chains connecting the winch-shafts for simultaneous revolution in the same direction, substantially as described.

2. In apparatus of the class described, a raising and lowering frame having side pieces and a cross-piece, the latter having lock-notches and the frame having upwardly-projecting dowel-pins, cross-bars to rest on the side pieces and having openings to receive the dowel-pins and further provided with alined openings, longitudinally-movable locking-rods in said alined openings to engage the lock-notches in the cross-piece, and means to lock said locking-rods, substantially as described.

787,485. FLUID-PRESSURE TURBINE. GEORGE WESTINGHOUSE, Pittsburg, Pa., assignor to The Westinghouse Machine Company, a Corporation of Pennsylvania. Filed July 3, 1903. Serial No. 164,143.



Claim.—1. In an elastic-fluid turbine, agents whereby a portion of the fluid-pressure is converted into velocity and translated without further expansion into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said agents is fractionally expanded and converted into rotary motion.

2. In a parallel-flow elastic-fluid turbine, agents whereby a definite proportion of the fluid-pressure is converted into velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said agents is fractionally expanded and converted into rotary motion.

3. In an elastic-fluid turbine, agents whereby a portion of the fluid-pressure is converted into velocity and fractionally translated without further expansion into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said agents is fractionally expanded and converted into rotary motion.

4. In an elastic-fluid turbine, agents whereby a portion of the fluid-pressure is converted into velocity and translated without further expansion into rotary motion, and instrumentalities receiving the fluid from said agents whereby it is fractionally expanded and converted into rotary motion.

5. In an elastic-fluid turbine, a plurality of stationary nozzles whereby a portion of the fluid-pressure is converted into velocity, agents whereby the energy due to said velocity is fractionally abstracted without further expansion, and a plurality of moving rows of blades and stationary vanes whereby the fluid received from said agents is fractionally expanded.

6. In an elastic-fluid turbine, divergent nozzles whereby a portion of the fluid-pressure is converted into velocity, agents whereby the energy due to said velocity is fractionally abstracted without further expansion and converted into rotary motion, and instrumentalities receiving the fluid from said agents whereby it is fractionally expanded and converted into rotary motion.

7. In an elastic-fluid turbine, a plurality of annularly-disposed nozzles whereby a portion of the fluid-pressure is converted into velocity, agents receiving the fluid from said nozzles whereby the energy due to said velocity is fractionally abstracted without further expansion, and instrumentalities receiving the fluid from said agents whereby it is fractionally expanded and converted into rotary motion by impact and reaction.

8. In an elastic-fluid turbine, oppositely-discharging nozzles, agents whereby the velocity energy of the fluid due to nozzle expansion is fractionally abstracted without further expansion and converted into rotary motion, and a plurality of alternate rows of moving blades and stationary vanes receiving the fluid from said agents whereby it is fractionally expanded and converted into rotary motion.

9. In an elastic-fluid turbine, agents whereby the fluid-pressure is converted into velocity, fractionally abstracted without further expansion and translated into rotary motion, instrumentalities whereby the fluid received from said agents is fractionally expanded and converted into rotary motion and means whereby the energy so obtained is applied to a shaft common to said agents and said instrumentalities.

10. In an elastic-fluid turbine, instrumentalities whereby a portion of the pressure of the working fluid is transformed into velocity, agents whereby the energy due to said velocity is fractionally abstracted without further expansion, and alternate rows of moving blades and stationary vanes whereby the fluid leaving said agents is fractionally expanded both in said moving and stationary rows and rotary motion obtained both by impulse and reaction.

11. In a double-flow elastic-fluid turbine, oppositely-discharging nozzles whereby a portion of the fluid-pressure is converted into velocity, agents whereby the energy due to said velocity is fractionally abstracted without further expansion, and instrumentalities receiving the fluid from said agents whereby it is fractionally expanded and converted into rotary motion by impact and reaction.

12. In a double-flow elastic-fluid turbine, oppositely-discharging agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and fractionally abstracted without further expansion, and alternate rows of stationary vanes and moving blades receiving the fluid from each of said agents whereby said fluid is fractionally expanded and converted into rotary motion.

13. In a double-flow elastic-fluid turbine, oppositely-discharging agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and fractionally abstracted without further expansion, and alternate rows of stationary vanes and moving blades receiving the fluid from each of said agents whereby said fluid is fractionally expanded both in said stationary and moving rows and converted into rotary motion.

14. In an elastic-fluid turbine, agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity, fractionally abstracted without further expansion and translated into rotary motion, and instrumentalities receiving the fluid from said agents whereby it is fractionally expanded and converted into rotary motion.

15. In an elastic-fluid turbine, agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of moving and stationary instrumentalities receiving the fluid from said agents whereby it is fractionally expanded in both said moving and stationary instrumentalities and converted into rotary motion.

16. In an elastic-fluid turbine, a primary stage employing nozzles whereby a definite proportion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity, and impulse-blades whereby the energy due to said velocity is abstracted without further expansion, and a secondary stage employing alternate rows of stationary vanes and moving blades whereby the fluid received from said primary stage is fractionally expanded both between the vanes in the stationary rows and the blades in the moving rows.

17. In an elastic-fluid turbine, agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and fractionally translated into rotary motion without further expansion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said agents is fractionally expanded and converted into rotary motion.

18. In an elastic-fluid turbine, agents whereby a portion of the thermal energy of the working fluid entering it is converted into kinetic energy in the form of velocity and abstracted without further expansion, and a plurality of movable and stationary instrumentalities receiving the fluid from said agents whereby it is fractionally expanded in both said moving and stationary instrumentalities and converted into rotary motion.

19. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the fluid-pressure is converted into velocity and translated into rotary motion without further expansion, a secondary stage comprising agents whereby a portion of the fluid-pressure is converted into velocity and the energy due to said velocity is fractionally abstracted, and a plurality of alternate rows of sta-

tionary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

20. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the fluid-pressure is converted into velocity and a row of movable impulse-blades whereby the energy due to said velocity is translated into rotary motion, a secondary stage comprising agents whereby a portion of the fluid-pressure is converted into velocity and the energy due thereto is fractionally abstracted, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

21. In a parallel-flow elastic-fluid turbine, a primary stage comprising agents whereby a definite proportion of the fluid-pressure is converted into velocity obstracted without further expansion and translated into rotary motion, a secondary stage comprising agents whereby a definite proportion of the fluid-pressure is converted into velocity fractionally abstracted without further expansion and translated into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

22. In a parallel-flow elastic-fluid turbine, a primary stage comprising agents whereby a definite proportiou of the fluid-pressure is converted into velocity and a moving row of impulse-blades whereby the energy due to said velocity is absorbed, a secondary stage comprising agents whereby a definite proportion of the fluid-pressure is converted into velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

23. In an elastic-fluid turbine, a primary stage comprising agents whereby a definite proportion of the fluid-pressure is converted into velocity, absorbed without further expansion and translated into rotary motion, a secondary stage comprising agents whereby a definite proportion of the fluid-pressure is converted into velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

24. In an elastic-fluid turbine, a primary stage comprising agents whereby a definite proportion of the fluid-pressure is converted into velocity and a moving row of impulse-blades whereby the energy due to said velocity is absorbed without further expansion and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a definite proportion of the pressure of said fluid is converted into velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

25. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the fluid-pressure is converted into velocity absorbed without further expansion and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the pressure of the fluid received is converted into velocity and fractionally translated into rotary motion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion.

26. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the fluid-pressure is converted into velocity and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the pressure of said fluid is converted into velocity and fractionally translated without further expansion into rotary motion, and instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion.

27. In a parallel-flow elastic-fluid turbine, a primary stage comprising agents whereby a certain portion of the fluid-pressure is converted into velocity and wholly absorbed without further expansion in one moving row of impulse-blades, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a certain portion of the pressure of said fluid is converted into velocity, fractionally abstracted without further expansion and translated into rotary motion, and instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion.

28. In an elastic-fluid turbine, a primary stage comprising a plurality of stationary nozzles whereby a porton of the fluid-pressure is converted into velocity and agents whereby the energy due to said velocity is absorbed without further expansion, a secondary stage receiving the fluid from said primary stage and comprising a plurality of sthtionary nozzles whereby a portion of the pressure of said fluid is converted into velocity and agents whereby said velocity is fractionally abstracted without further expansion, and a plurality of alternate rows of moving blades and stationary vanes receiving the fluid from said secondary stage whereby it is fractionally expanded.

29. In an elastic-fluid turbine, a primary stage comprising a plurality of stationary nozzles whereby a portion of the fluid-pressure is converted into velocity and a moving row of impulse-blades whereby the energy due to said velocity is absorbed without further expansion, a secondary stage receiving the fluid from said primary stage and comprising a plurality of stationary nozzles whereby a portion of the pressure of said fluid is converted into velocity and agents whereby the energy due to said velocity is fractionally abstracted without further expansion, and a plurality of rows of moving blades and stationary vanes receiving the fluid from said secondary stage whereby it is fractionally expanded.

30. In an elastic-fluid turbine, a primary stage comprising divergent nozzles whereby a portion of the fluid-pressure is converted into velocity and agents whereby the energy due to said velocity is absorbed without further expansion and converted into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising divergent nozzles whereby a portion of the fluid-pressure is converted into velocity and agents whereby the energy due to said velocity is fractionally abstracted and converted into rotary motion, and instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion.

31. In an elastic-fluid turbine, a primary stage comprising divergent nozzles whereby a portion of the fluid-pressure is converted into velocity and a moving row of impulse-blades whereby the energy due to said velocity is absorbed, a secondary stage receiving the fluid from said primary stage and comprising divergent nozzles whereby a portion of the pressure of said fluid is converted into velocity and agents whereby the energy due to said velocity is fractionally abstracted and converted into rotary motion, and instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion.

32. In an elastic-fluid turbine, a primary stage comprising a plurality of annularly-disposed nozzles whereby a portion of the fluid-pressure is converted into velocity and agents receiving the fluid from said nozzles whereby the energy due to said velocity is absorbed without further expansion, a secondary stage comprising a plurality of annularly-disposed nozzles whereby a portion of the fluid-pressure is converted into velocity and agents receiving the fluid from said nozzles whereby the energy due to said velocity is fractionally abstracted, and instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion by impact and reaction.

33. In an elastic-fluid turbine, a primary stage comprising oppositely-discharging nozzles and agents whereby the energy due to fluid velocity received from said nozzles is absorbed without further expansion and converted into rotary motion, a secondary stage comprising oppositely-discharging nozzles and agents whereby the energy due to fluid velocity received from said nozzles is fractionally abstracted and converted into rotary motion, and a plurality of alternate rows of moving blades and stationary vanes receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion.

34. In an elastic-fluid turbine, two primary stages having common oppositely-discharging nozzles, a moving row of impulse-blades in each primary stage whereby the energy due to fluid velocity received from said nozzles is absorbed and converted into rotary motion, two secondary stages each receiving the fluid from one primary stage and comprising nozzles and agents whereby the energy due to fluid velocity received therefrom is fractionally abstracted and converted into rotary motion, and a plurality of alternate rows of moving blades and stationary vanes receiving the fluid from each of said secondary stages whereby it is fractionally expanded and converted into rotary motion.

35. In a double-flow elastic-fluid turbine, two primary stages each of which comprises nozzles whereby a portion of the fluid-pressure is converted into velocity and agents whereby the energy due to said velocity is absorbed without further expansion, two secondary stages each comprising nozzles whereby a portion of the fluid-pressure is converted into velocity and agents whereby the energy due to said velocity is fractionally abstracted, and two sets of instrumentalities each receiving the fluid from one of said secondary stages whereby it is fractionally expanded and converted into rotary motion.

36. In a double-flow elastic-fluid turbine, a primary stage comprising agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and absorbed without further expansion, two secondary stages each comprising agents whereby a portion of the thermal energy of the working fluid received from said primary stage is converted into kinetic energy in the form of velocity and fractionally abstracted without further expansion, and two series of alternate rows of stationary vanes and moving blades each of which series receives the fluid from one of said secondary stages whereby said fluid is fractionally expanded and converted into rotary motion.

37. In a double-flow elastic-fluid turbine, a primary stage comprising agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and absorbed without further expansion, two secondary stages each of which comprises agents whereby a portion of the thermal energy of the working fluid received from said primary stage is converted into kinetic energy in the form of velocity and fractionally abstracted without further expansion, and two series of alternate rows of stationary vanes and moving blades each of which series receives the fluid from one of said secondary stages whereby said fluid is fractionally expanded and converted into rotary motion both in said stationary and moving rows.

38. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity, absorbed without further expansion and tranlated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity, fractionally abstracted and translated into rotary motion, and instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded and converted into rotary motion.

39. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity, absorbed without further expansion and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of movable and stationary instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded in both said moving and stationary instrumentalities and converted into rotary motion.

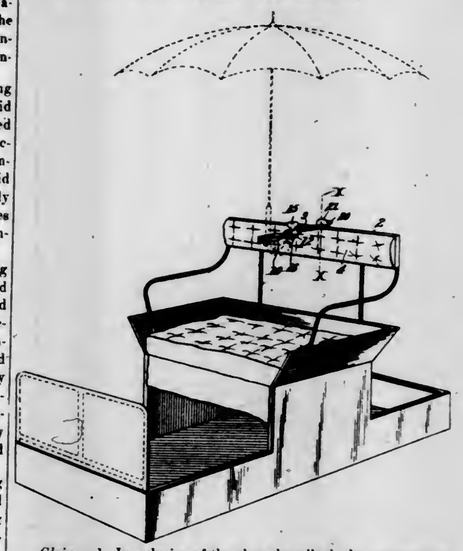
40. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and a moving row of impulse-blades whereby the energy due to said velocity is absorbed without further expansion and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of movable and stationary instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded in both said moving and stationary instrumentalities and converted into rotary motion.

41. In an elastic-fluid turbine, a primary stage comprising agents whereby a portion of the thermal energy of the working fluid in converted into kinetic energy in the form of velocity and a moving row of impulse-blades whereby the energy due to said velocity is absorbed without further expansion and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity, absorbed without further expansion and translated into rotary motion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a portion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity, fractionally abstracted without further expansion and translated into rotary motion, and a plurality of movable and stationary instrumentalities receiving the fluid from said secondary stage whereby it is fractionally expanded in both said moving and stationary instrumentalities and converted into rotary motion.

42. In an axial-flow elastic-fluid turbine, a primary stage comprising agents whereby a definite proportion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and absorbed without further expansion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a definite proportion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity and fractionally abstracted without further expansion, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said agents is fractionally expanded and converted into rotary motion.

43. In an axial-flow elastic-fluid turbine, a primary stage comprising agents whereby a definite proportion of the thermal energy of the working fluid is converted into kinetic energy in the form of velocity and absorbed without further expansion, a secondary stage receiving the fluid from said primary stage and comprising agents whereby a definite proportion of the thermal energy of said fluid is converted into kinetic energy in the form of velocity and fractionally abstracted, and a plurality of alternate rows of stationary vanes and moving blades whereby the fluid received from said secondary stage is fractionally expanded and converted into rotary motion; said expansions occurring both between the vanes in the stationary rows and the blades in the moving rows.

787,486. SUPPORT FOR UMBRELLAS. DURAND WHIPPLE, Little Rock, Ark. Filed Dec. 6, 1904. Serial No. 235,746.



Claim.—1. In a device of the class described, the combination with a supporting member secured to a base, said member being provided with a threaded aperture, an arm, a clamp carried by one end thereof, the other end being provided with a slot adapted to register with the aperture in the supporting member, and a screw, adapted to pass through the slot, said screw being provided with a metal-engaging portion adapted to engage the threads in the aperture and a wood-engaging extremity adapted to be screwed into the base.

2. In a device of the class described, the combination with a supporting member secured to a base, said member being provided with a threaded aperture, and having its upper face serrated, an arm composed of jointed members, a clamp carried by the extremity of one of the members, the free extremity of the other member being provided with a slot and having its lower face serrated, said face being adapted to coact with the serrated face of the supporting member, and a screw passing through the slot and engaging the threaded aperture for holding the faces in contact, the extremity of said screw being formed into a wood-screw adapted to be screwed into the base.

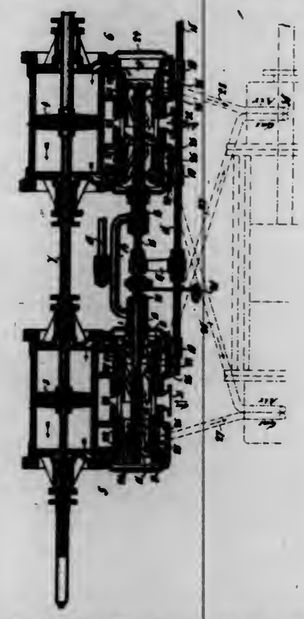
3. In a device of the class described the combination with a supporting-plate provided with a threaded aperture, a jointed arm having a slot near one end thereof, a clamp carried by the other end, the extremity of the slotted portion being disposed at an angle to the

plane of the body portion, and a screw passing through the slot and engaging the aperture whereby the angle of inclination of the arm may be varied.

4. A device of the class described, comprising a support and an arm, said arm being comprised of two members, one of said members being secured to the support, a socket carried by the free extremity thereof and provided with registering apertures, the second member being provided with a ball adapted to be seated in the socket, a clamp carried by the free extremity of the second member, and a bolt passing through the registering apertures in the socket and adapted to engage the ball to forcibly seat and hold the same in an adjusted position.

5. An umbrella-support comprising an arm composed of a supporting member and a clamping member, a socket carried by one of the members, a ball carried by the second member and seated in the socket, said socket being provided with registering apertures, one of said apertures being smooth, the other being smaller and provided with screw-threads, and a tapering bolt passing through the enlarged aperture and engaging the threads in the smaller aperture for forcibly seating the ball in the socket.

787,487. **INTERNAL-COMBUSTION ENGINE.** ARNOLD WILLNER, Linden, near Hanover, Germany. Filed May 3, 1904. Serial No. 206,109.



Claim.—1. In an internal-combustion engine having a two-stroke cycle, the combination of a cylinder; a piston working therein; a compression-pump for supplying rinsing-gas to said cylinder; a compression-pump for supplying combustible gas to said cylinder, the latter pump being adapted in the course of each cycle to begin to supply combustible gas later than the former pump begins to supply the rinsing-gas, in order that the combustible gas may be preceded by a rinsing charge; connecting-pipes between said compression-pumps and the cylinder of the combustion-engine; and means for automatically simultaneously causing a delay, corresponding to the decrease of the load, of the commencement of the compression periods of both of said compression-pumps in order that at all loads approximately the same rinsing charge may be supplied to the cylinder before the combustible charge, essentially as and for the purpose stated.

2. In an internal-combustion engine having a two-stroke cycle, the combination of a cylinder; a piston working therein; a compression-pump for supplying rinsing-gas to said cylinder, said pump having a pump-cylinder, a piston working therein, one or more inlet-ports, an inlet-valve controlling the latter, one or more delivery-ports, and one or more delivery-valves controlling the latter; a compression-pump for supplying combustible gas to the cylinder of the combustion-engine, said pump having a pump-cylinder, a piston working therein, one or more inlet-ports, an inlet-valve controlling the latter, one or more delivery-ports, and one or more delivery-valves controlling the latter, the inlet-valve of the latter pump being arranged at the beginning of the pressure-stroke, while the engine is under full load to allow a portion of the combustible gas to return through the inlet port or ports while the former pump is supplying rinsing-gas to the cylinder of the combustion-engine; connecting-pipes between said compression-pumps and the cylinder of the combustion-engine; and means for automatically simultaneously causing a delay, corresponding to the decrease of the load, of the commencement of the compression periods of both of said compression-pumps, in order that at all loads approximately the same rinsing charge may be supplied to the cylinder before the combustible charge, essentially as and for the purpose stated.

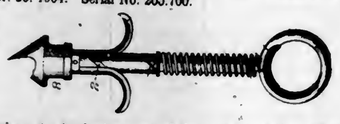
3. In an internal-combustion engine having a two-stroke cycle, the combination of a cylinder; a piston working therein; a compression-pump for supplying rinsing-gas to said cylinder; a compression-pump for supplying combustible gas to said cylinder, each of said pumps having a pump-cylinder, a piston working therein, one or more inlet-ports, an inlet-valve controlling the latter, one or more delivery-ports, and one or more delivery-valves controlling the latter, and the inlet-valve of the pump for supplying the combustible gas being so arranged at the beginning of the pressure-stroke, while the engine is under full load, as to allow a portion of the combustible gas to return through the inlet port or ports, while the pump for supplying the rinsing-gas is supplying rinsing-gas to the cylinder of the engine; and means for automatically producing, as the load decreases, during the initial period of the pressure-stroke of the pump supplying the rinsing-gas, a return of the rinsing-gas through the inlet port or ports of said pump and means for prolonging the initial period of the pressure-stroke of the pump supplying the combustible gas during which the combustible gas returns through the inlet port or ports of the pump, in order that at all loads approximately the same rinsing charge may be supplied to the cylinder before the combustible charge, essentially as and for the purpose stated.

4. In an internal-combustion engine having a two-stroke cycle, the combination of a cylinder; a piston working therein; a compression-pump for supplying rinsing-gas to said cylinder; a compression-pump for supplying combustible gas to said cylinder, each of said pumps having a pump-cylinder, a piston working therein, one or more inlet-ports, a main inlet-valve containing return-ports, and a supplementary return-valve coöperating with said main inlet-valve to control said return-ports, one or more delivery-ports, and one or more delivery-valves controlling the latter, and the inlet-valve of the pump for supplying the combustible gas being so arranged at the beginning of the pressure-stroke, while the engine is under full load, as to allow a portion of the combustible gas to return through the inlet port or ports, while the pump for supplying the rinsing-gas is supplying rinsing-gas to the cylinder of the engine; and means for automatically adjusting, as the load decreases, the supplementary return-valves in such a way that during the initial period of the pressure-stroke of the pump supplying the rinsing-gas, a return of the rinsing-gas through the inlet port or ports of said pump takes place, and so that the initial period of the pressure-stroke of the pump supplying the combustible gas during which the combustible gas returns through the inlet port or ports of the pump, is prolonged, in order that at all loads approximately the same rinsing charge may be supplied to the cylinder before the combustible charge, essentially as and for the purpose stated.

5. In an internal-combustion engine having a two-stroke cycle, the combination of a cylinder; a piston working therein; a compression-pump for supplying rinsing-gas to said cylinder; a compression-pump for supplying combustible gas to said cylinder, each of said pumps having a pump-cylinder, a piston working therein, one or more inlet-ports, a main inlet slide-valve containing return-ports arranged obliquely to the direction of travel of the valve, an adjustable supplementary return-valve coöperating with said main inlet-valve to control said return-ports and having oblique ports corresponding to said return-ports, one or more delivery-ports, and one or more delivery-valves controlling the latter, and the inlet-valve of the pump for supplying the combustible gas being so arranged at the beginning of the pressure-stroke, while the engine is under full load, as to allow a portion of the combustible gas to return through the inlet port or ports, while the pump for supplying the rinsing-gas is supplying rinsing-gas to the cylinder of the engine; and means for automatically adjusting, as the load decreases, the supplementary return-valves transversely with regard to the line of travel of the main slide-valves, so that during the initial period of the pressure-stroke of the pump supplying the rinsing-gas, a return of the rinsing-gas through the inlet port or ports and the oblique return-ports in the main valve and the corresponding ports in the supplementary valve takes place, and so that the initial period of the pressure-stroke of the pump supplying the combustible gas during which the combustible gas returns through the inlet port or ports of the pump is prolonged, in order that at all loads approximately the same rinsing charge may be supplied to the cylinder before the combustible charge, essentially as and for the purpose stated.

6. In an internal-combustion engine having a two-stroke cycle, the combination of a cylinder; a piston working therein; a compression-pump for supplying rinsing-gas to said cylinder; a compression-pump for supplying combustible gas to said cylinder; each of said pumps having a pump-cylinder, a piston working therein, one or more inlet-ports, a main inlet slide-valve 9 containing oblique return-ports 10, and adjustable supplementary return-valve 11 having oblique ports 12 corresponding to the ports 10, both of these valves being cylindrical and the valve 11 being arranged within the valve 10 and coöperating with said valve to control the return-ports 10, one or more delivery-ports 22, and one or more delivery-valves 25 controlling the latter, and the inlet-valve of the pump for supplying the combustible gas being so arranged at the beginning of the pressure-stroke, while the engine is under full load, as to allow a portion of the combustible gas to return through the inlet port or ports, while the pump for supplying the rinsing-gas is supplying rinsing-gas to the cylinder of the engine; and means for automatically turning the valve 11 within the valve 9, so that, as the load decreases, during the initial period of the pressure-stroke of the pump supplying the rinsing-gas, a return of the rinsing-gas through the inlet port or ports and the ports 10 in the valve 9 and the ports 12 in the valve 11 takes place, and so that the initial period of the pressure-stroke of the pump supplying the combustible gas during which the combustible gas returns through the inlet port or ports of the pump, is prolonged, in order that at all loads approximately the same rinsing charge may be supplied to the cylinder before the combustible charge, essentially as and for the purpose stated.

787,488. **INSTRUMENT FOR REMOVING EYES FROM FRUIT OR VEGETABLES.** FREDERICK G. YAWMAN, Rochester, N. Y. Filed Apr. 30, 1904. Serial No. 205,700.



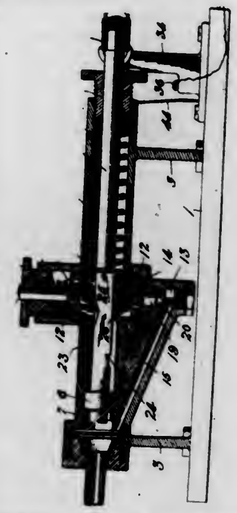
Claim.—1. An instrument of the class described embodying a tubular shaft and a tool at the outer end thereof having an offset cutting edge, of a handle or support extending into the opposite end of the shaft and having a finger-loop, a longitudinally-movable sleeve on the shaft provided with a helical slot and having a finger projection and a pin on the shaft coöperating with the slot.

2. In an instrument of the class described, the combination with a handle having a stem provided with a loop, a finger-shield arranged therein and a shaft journaled on the stem, of a tool carried on the shaft having an offset cutting edge, a movable member coöperating with the shaft to revolve it and laterally-extending projections on the member.

787,489. **CONTROLLER FOR PNEUMATIC COMPRESSORS.** BROR F. BERGH, New York, N. Y. Filed Dec. 12, 1903. Serial No. 184,939.

Claim.—1. In a pneumatic-pump controller, the combination of a motor-controlling vibratory member subjected to reservoir-pressure, a single spring opposing said pressure, means normally restraining said member against movement under reservoir-pressure, and a releasing device for said means and actuated by reservoir-pressure of a predetermined degree whereby the said vibratory member is actuated by the difference in pressure between that of reservoir pressure and said spring-pressure.

2. In a pneumatic-pump controller, the combination of a motor-controlling vibratory member subjected to reservoir-pressure, a single spring opposing said pressure, means normally restraining said member against movement by said spring when the reservoir-pressure falls below the spring tension, and a releasing device actuated against reservoir-pressure whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.



3. In a pneumatic-pump controller, the combination of a motor-controlling vibratory member subjected to reservoir-pressure, a single spring opposing said pressure, means normally restraining said member against movement by either the reservoir-pressure or the spring, and a releasing device for said means which device is actuated alternately by and against reservoir-pressure whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

4. In a pneumatic-pump controller, the combination of a motor-controlling reciprocating member subjected to reservoir-pressure, a single spring opposing said pressure, a detent holding said member against reservoir-pressure, and detent-releasing means actuated by reservoir-pressure of a predetermined degree whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

5. In a pneumatic-pump controller, the combination of a motor-controlling reciprocating member subjected to reservoir-pressure, a single spring opposing said pressure, means normally restraining said member against movement under reservoir-pressure, and a releasing device actuated by reservoir-pressure of a predetermined degree whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

6. In a pneumatic-pump controller, the combination of a circuit-closing device, a reciprocating member in operative relation therewith and subjected to reservoir-pressure, means normally restraining said member against movement under reservoir-pressure, and a releasing device actuated by reservoir-pressure of a predetermined degree whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

7. In a pneumatic-pump controller, the combination of a motor-controlling vibratory member subjected to reservoir-pressure, a single spring opposing said pressure, tension-adjusting means for said spring, means normally restraining said member against movement under reservoir-pressure, and a releasing device for said means and actuated by reservoir-pressure of a predetermined degree whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

8. In a pneumatic-pump controller, the combination of a motor-controlling vibratory member subjected to reservoir-pressure, a single spring opposing said pressure, tension-adjusting means for said spring, means normally restraining said member against movement by said spring when the reservoir-pressure falls below the spring tension, and a releasing device actuated against reservoir-pressure whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

9. In a pneumatic-pump controller, the combination of a cylin-

der open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, means controlled by reservoir-pressure for alternately restraining and releasing said piston-rod, and power-controlling means operated by the piston-rod.

10. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, and a detent normally restraining said piston against movement by reservoir-pressure.

11. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, and a detent restraining said piston for movement by said spring when the latter is compressed.

12. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, a detent normally restraining said piston against movement by reservoir-pressure, and a detent releasing device actuated by reservoir-pressure of a predetermined degree.

13. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, a detent restraining said piston from movement by said spring when the latter is compressed, and a detent-releasing device actuated against reservoir-pressure below a predetermined degree.

14. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, a detent normally restraining the piston-rod against movement by the piston, and a detent-releasing slide actuated by reservoir-pressure.

15. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, a detent restraining said piston-rod against movement by said spring when compressed, and a spring-actuated detent-releasing slide moving against reservoir-pressure.

16. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder and exposed on one side to said pressure, a spring acting on the other side of the piston, a piston-rod attached to said piston, power-controlling means operated by said rod, reversely-inclined detents alternately engaging the rod, whereby it is restrained from movement by the piston or the spring as the case may be, and a detent-releasing device controlled by reservoir-pressure.

17. In a pneumatic-pump controller, the combination of a vibratory member actuated in one direction by reservoir-pressure, a spring acting against said member in the opposite direction, power-controlling means operated by said member, a slide moving transversely to the path of said member, two detents carried by said slide and facing in opposite directions, oppositely-facing abutments on said member, means admitting reservoir-pressure to move the slide in one direction, and a spring opposing said movement.

18. In a device for controlling a pneumatic pump which is actuated by electricity, the combination of a vibratory member forming part of the circuit and subjected to reservoir-pressure tending to move it in one direction, a spring tending to move said member in the other direction, detents arranged to alternately oppose the movements of said member, and detent-releasing means automatically controlled by reservoir-pressure whereby the said vibratory member is actuated by the difference in pressure between that of reservoir-pressure and said spring-pressure.

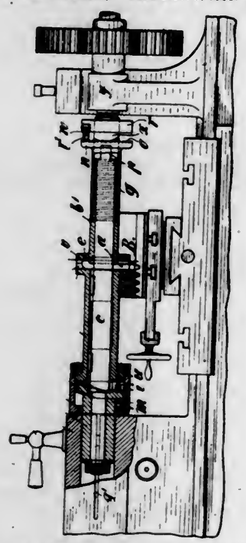
19. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to said reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, a cross-cylinder surrounding said piston-rod, a restraining device located in the cross-cylinder, and means actuated by reservoir-pressure for operating said device to alternately retain and release the piston-rod.

20. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to said reservoir-pressure, a spring on the other side of said piston, a piston-rod connected to said piston, a cross-cylinder surrounding said piston-rod, a piston in said cross-cylinder exposed to reservoir-pressure, means normally restraining said piston-rod against movement by either the reservoir-pressure or the spring, and a releasing device for said means actuated by the piston in said cross-cylinder.

21. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to said reservoir-pressure, a spring on the other side of said piston, a piston-rod attached to said piston, power-controlling means operated by the piston-rod, means for restraining the movement of the piston-rod located intermediate the piston and said spring, and a piston exposed to said reservoir-pressure for actuating said restraining means.

22. In a pneumatic-pump controller, the combination of a cylinder open at one end to reservoir-pressure, a piston in said cylinder exposed at one side to said reservoir-pressure, a spring on the other side of said piston, a piston-rod attachment to said piston, power-controlling means operated by the piston-rod, means for restraining the movement of said piston-rod, and a piston exposed to said reservoir-pressure for actuating said restraining means.

787,490. **GROOVE AND THREAD CUTTER.** FRIEDRICH BERSINSKY, Essen, Germany, assignor to De Fries & Co., Actien-Gesellschaft, Düsseldorf, Germany. Filed Nov. 3, 1903. Serial No. 179,687.

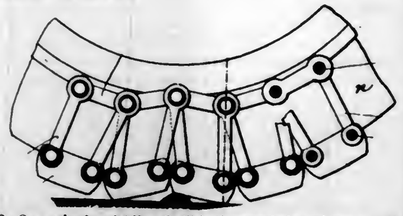


Claim.—1. In a groove-cutter, the combination of a rotatable spindle with a left sleeve rotatable with the spindle and having a diametric groove, means for reciprocating the sleeve, a reciprocable right sleeve having an eccentric groove, means for independently rotating the right sleeve upon the spindle, and a cutter positioned in the diametric groove and having a part engaging the eccentric groove, substantially as specified.

2. In a groove-cutter, the combination of a rotatable spindle with a left sleeve rotatable with the spindle and having a diametric groove, a cam for reciprocating the sleeve, a reciprocable spring-influenced right sleeve having an eccentric groove, a pawl and ratchet for independently rotating the right sleeve upon the spindle, and a cutter positioned in the diametric groove and having a part engaging the eccentric groove, substantially as specified.

787,491. **TIRE.** CARL A. BRACKELSBERG, Düsseldorf, Germany. Filed Feb. 29, 1904. Serial No. 195,763.

Claim.—1. On a wheel a yielding flexible tire consisting of two parallel closed rims composed of links jointed to each other by pivots, and segmental pieces forming the tread of the wheel and being connected with the aforesaid rims by pivoted curved levers or links, substantially as described.

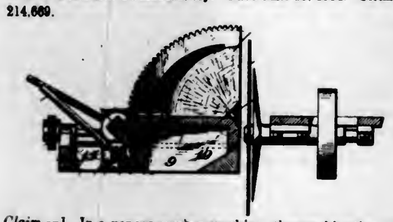


2. On a wheel a yielding flexible tire consisting of two parallel closed rims composed of links jointed to each other by pivots, and segmental pieces forming the tread of the wheel and being connected with the aforesaid rims by pivoted curved levers or links, slotted at the upper end, substantially as described and for the purposes set forth.

3. The combination of a flexible tire with a pair of linked endless chains arranged at opposite sides thereof, arms pivoted to the chain-links, and shoes pivoted to the arms and engaging the tread of the tire, substantially as specified.

4. The combination of a flexible tire with a pair of linked endless chains arranged at opposite sides thereof, shoes engaging the tread of the tire, and arms that yieldingly connect the chains to the shoes, substantially as specified.

787,492. **MACHINE FOR SAWING QUARTERED OAK OR MAHOGANY VENEERING.** AARON BROSIUS, Evansville, Ind., assignor to Z. T. Robinson, Owensboro, Ky. Filed June 29, 1904. Serial No. 214,669.



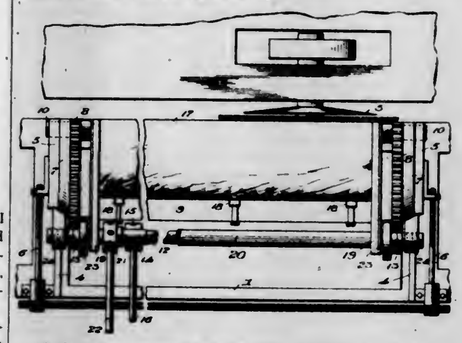
Claim.—1. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, a curved member, a shaft, and a shoe eccentrically mounted on said shaft and engageable with the curved member.

2. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, a stationary curved member, a shaft carried by the tilting stay-log and having an eccentrically-positioned portion, a shoe mounted on said eccentrically-positioned portion and adapted to be engaged with the curved member, a wheel having a plurality of sockets and secured to said shaft, and a lever adapted to be engaged in any of said sockets.

3. In a machine for sawing veneering, the combination with a carriage, of a tilting stay-log, stationary gear-sections, a shaft carried by the tilting stay-log, pinions on the shaft engageable with the gear-sections, a wheel on said shaft having sockets, a lever adapted for insertion in any of the sockets, stationary curved members, a shaft carried by the tilting stay-log and having eccentric members, shoes mounted on said eccentric members and engageable with the curved members, a wheel on said last-named shaft having a plurality of sockets, and a lever adapted to be inserted in any of said sockets last named.

787,493. **MACHINE FOR SAWING QUARTERED OAK OR MAHOGANY VENEERING.** AARON BROSIUS, Evansville, Ind., assignor to Z. T. Robinson, Owensboro, Ky. Filed Jan. 14, 1905. Serial No. 241,059.

Claim.—1. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft, clamping shoes or blocks movable longitudinally of the locking-shaft, means for operating said clamping shoes or blocks longitudinally of the locking-shaft, and means against which the said shoes can clamp.



2. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft, clamping shoes or blocks having a screw-threaded engagement with the locking-shaft by which they are advanced or retreated on turning said locking-shaft, and means against which the said shoes can clamp.

3. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft having right and left hand screw-threads, clamping shoes or blocks engaged with the respective screw-threaded portions of the locking-shaft, and means against which the said shoes can clamp.

4. In a veneer-sawing machine, the combination with a carriage, of a pivoted tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft having screw-threaded portions, beveled clamping shoes or blocks engaged with the respective screw-threaded portions aforesaid, and beveled members against which the beveled portions of the shoes are adapted to clamp, to draw the stay-log snug at its pivots.

5. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft, separated clamping members operated toward and away from each other by said shaft, and means adapted to be clamped between the shoes.

6. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft having screw-threaded portions, clamping blocks or shoes operated by said screw-threaded portions, abutment members carried by said shaft, and means adapted to be clamped between the shoes and abutment members.

7. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising a rotary locking-shaft having right and left hand screw-threaded portions, clamping blocks or shoes engaged by the respective screw-threaded portions aforesaid, abutment members rigid with the shaft, and means adapted to be clamped between the shoes and abutment members.

8. In a veneer-sawing machine, the combination with a carriage, of a tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising clamping shoes or blocks adjustable toward or away from each other, means for adjusting said shoes or blocks toward or away

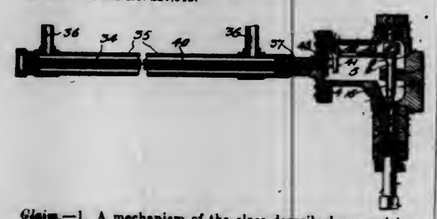
from each other, and means adapted to be clamped between said shoes or blocks.

9. In a veneer-sawing machine, the combination with a carriage, of a pivoted tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted comprising clamping shoes or blocks adjustable toward or away from each other, one of which has a beveled portion, means for adjusting said shoes or blocks toward or away from each other, and a beveled member against which the beveled portion of said shoe is adapted to clamp and against which the other shoe is also adapted to clamp, whereby the stay-log is both clamped to the member aforesaid and also drawn snug at its pivots.

10. In a veneer-sawing machine, the combination with a carriage, of a pivoted tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted embracing means for exerting a drawing action on the stay-log outwardly in relation to the pivots thereof to draw the stay-log snug at its pivots.

11. In a veneer-sawing machine, the combination with a carriage, of a pivoted tilting stay-log for holding the quarter-log, means for adjusting the tilting stay-log to different angles of inclination, and locking mechanism for securing the stay-log where adjusted embracing a relatively stationary beveled member, a movable beveled clamping or locking member carried by the stay-log, and adapted to bear against the stationary beveled member, and means for clamping and releasing the movable locking member.

787,494. **VALVE MECHANISM FOR FLUID-FUEL BURNERS.** HARRY M. BURNELL and MILLARD E. MOGG, Chicago, Ill. Filed Oct. 10, 1904. Serial No. 227,913.

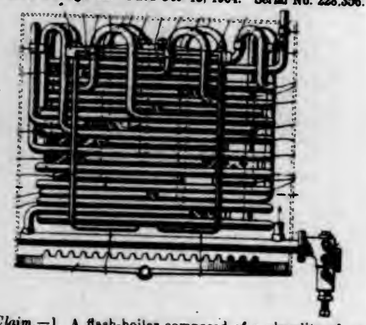


Claim.—1. A mechanism of the class described, comprising a casing having inlet and outlet openings, a valve-seat opening between the inlet and outlet openings, an adjustable valve-seat in said valve-seat opening, an opening opposite said valve-seat opening and a guide device between the valve-seat opening and the opening which is opposite the same, a longitudinally-movable valve in said casing, guided in said guide device and extending into said valve-seat opening, an adjustable valve-seat for said valve in said valve-seat opening and having a stem projecting out of said casing and serving as a means whereby said valve-seat may be adjusted, an adjustable stop device for the valve in the opening which is opposite the valve-seat opening, a bell-crank in said casing connected to said valve, and a thermostat to control said bell-crank and operate said valve.

2. A mechanism of the character described comprising a casing having inlet and outlet openings, internal screw-threads intermediate said openings, an integral guide above said screw-threads and an internal shoulder below the latter, a tubular element adjustably engaged with said screw-threads and formed with a valve-seat at its inner end and a series of apertures below said seat to afford communication between said tubular element and the interior of said casing below said screw-threads, a packing for the outer end of said element engaged with said internal shoulder, a packing-nut for said packing, and a valve slidably mounted in said guide and coacting with said valve-seat, substantially as described.

3. A mechanism of the character described comprising a casing consisting of a tubular portion having a hollow lateral extension or housing, inlet and outlet connections for the said casing, internal screw-threads in said casing intermediate said connections, an integral apertured guide in said casing above said screw-threads, an annular shoulder in said casing below said screw-threads, a tubular element adjustably engaged with said screw-threads and formed with a valve-seat at its inner end and a series of apertures adjacent to said seat to afford communication between said tubular element and the interior of said casing below said screw-threads, a packing surrounding said element and engaged with said annular shoulder in said casing, a packing-nut for said packing, a valve slidably mounted in said guide and coacting with said valve-seat, a cover-plate upon the outer end of said extension or housing, a bracket secured upon said cover-plate, a bell-crank pivotally mounted in said bracket and engaging said valve, and a rod for operating said bell-crank, substantially as described.

787,495. **FLASH-BOILER.** HARRY M. BURNELL and MILLARD E. MOGG, Chicago, Ill. Filed Oct. 13, 1904. Serial No. 228,356.

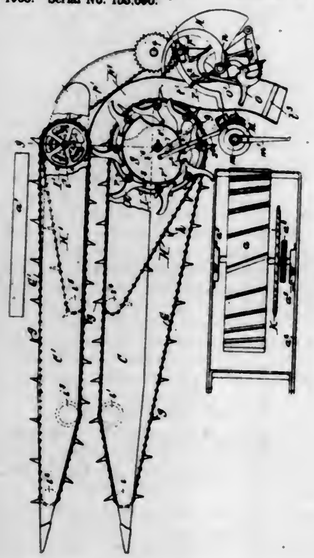


Claim.—1. A flash-boiler composed of a plurality of superimposed coils, a spider on the upper side thereof, and U-shaped stay-rods coacting with the spider to secure the coils together, substantially as described.

2. A flash-boiler composed of a plurality of superimposed coils, a spider on the upper side thereof, and U-shaped stay-rods, having their lower, intermediate portions radially disposed under the bottom coil, their inner arms extending up through spaces in the center of the mass of coils and their outer arms disposed on the outer side of the mass of coils, the said arms of the said stay-rods being secured to the spider, substantially as described.

3. A flash-boiler comprising superimposed units each having an upper coil and a lower coil, the width of one coil being less than that of the other, means to clamp the said units together, and spacers between said units disposed on the outer side of the narrower coils thereof and clamped between the broader coils thereof, substantially as described.

787,496. **GRAIN-HARVESTER.** HENRY J. CASE, Owasco, N. Y., assignor to Adriance Platt & Company, Poughkeepsie, N. Y. Filed Apr. 17, 1903. Serial No. 153,090.



Claim.—1. The combination of a stalk-passage having a longitudinal portion and a transverse portion which extends stubbleward from the rear end of the longitudinal portion, an endless conveyer-chain having its operative portion arranged in the longitudinal portion of the stalk-passage, a feed-wheel arranged at the stubbleward side of the stalk-passage at the junction of the longitudinal and transverse portions thereof and having movable teeth, means for projecting said teeth into the stalk-passage and removing the teeth therefrom, and a binder mechanism arranged in rear of the transverse portion of the stalk-passage, substantially as set forth.

2. The combination of a stalk-passage having a longitudinal portion and a transverse portion which extends stubbleward from the rear end of the longitudinal portion, endless conveyer-chains having their operative portions arranged on opposite sides of the longitudinal portion of the stalk-passage, a feed-wheel arranged at the stubbleward side of the stalk-passage at the junction of the longitudinal and transverse portions thereof and having movable teeth, a movable cam for projecting said teeth into the stalk-passage and withdrawing the teeth therefrom, a binder mechanism arranged in rear of the transverse portion of the stalk-passage, and means for automatically shifting said cam in unison with the binder mechanism, substantially as set forth.

3. The combination of a master-wheel on the stubbleward side of the machine, a stalk-passage having a longitudinal portion and a transverse portion which extends stubbleward in rear of the master-wheel, a binder mechanism arranged in rear of the stalk-passage and in rear of the master-wheel, an endless conveyer-chain having its operative portion arranged in the longitudinal portion of the stalk-passage, and a feed-wheel provided with movable teeth and arranged at the junction of the longitudinal and transverse portions of the stalk-passage, substantially as set forth.

4. The combination of a stalk-passage having a longitudinal portion and a transverse portion which extends stubbleward from the rear end of the longitudinal portion and which has a rearwardly-ascending bottom, an endless conveyer-chain having its operative portion arranged in the longitudinal portion of the stalk-passage, a feed-wheel arranged at the stubbleward side of the stalk-passage at the junction of the longitudinal and transverse portions thereof and having movable teeth, said feed-wheel having its axis arranged in a longitudinal vertical plane and leaning forwardly, a binder mechanism arranged in rear of the rear portion of the stalk-passage and having its upright shaft arranged in a longitudinal vertical plane and leaning forwardly, and a knotter mechanism arranged in front of the rear portion of the stalk-passage and having its upright shaft arranged in a longitudinal vertical plane and leaning forwardly, substantially as set forth.

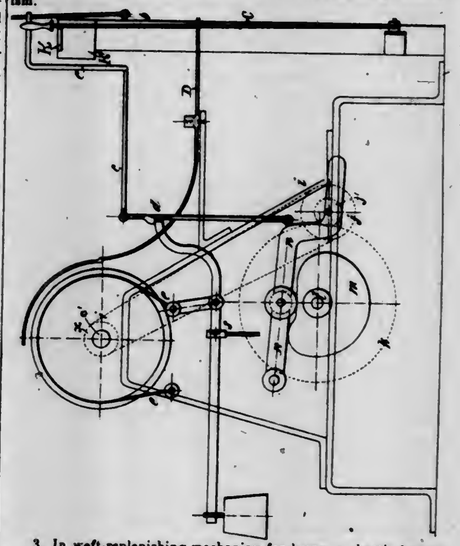
5. The combination of a stalk-passage, a butt-ejector adapted to be moved in the same, an actuating-crank arranged on one side of the stalk-passage and connected with one end of the ejector, and a guide in which the ejector rocks and slides and which is arranged adjacent to the stalk-passage between the actuated end of the ejector and the free end thereof, substantially as set forth.

6. The combination of a stalk-passage, a butt-ejector having a curved body and a straight end, which latter projects crosswise of the passage when the ejector is in its effective position, an actuating-crank arranged on one side of the stalk-passage and connected with one end of the ejector, and a guide in which the ejector rocks and slides and which is arranged adjacent to the stalk-passage between the actuated end of the ejector and the free end thereof, substantially as set forth.

787,497. **WEFT-REPLENISHING MECHANISM FOR LOOMS.** OSCAR COMBERAT, Amiens, France. Filed Jan. 3, 1903. Serial No. 88,611.

Claim.—1. In a loom, a shaft for actuating the same, a fast pulley on the shaft by which it is driven, two loose pulleys on said shaft one for receiving the belt when the loom-operating and weft-replenishing mechanism are both out of operation and the other for receiving the belt to operate the weft-replenishing mechanism independent of the loom-actuating mechanism, a belt-shifter for moving the belt to any one of the pulleys, weft-replenishing mechanism, driving connections continuously gearing one of the loose pulleys to said mechanism and belt-shifter-actuating means operating to move the belt onto the loose pulley which starts operating the weft-replenishing mechanism upon breaking or exhaustion of the thread.

2. In a loom, a brake for automatically stopping the loom-operating mechanism upon breaking or exhaustion of the weft-thread, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position to receive replenishment of the weft, said means operating at the same time to release the brake after the latter has arrested the loom-operating mechanism.



3. In weft-replenishing mechanism for looms, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position for receiving a replenishment of the weft and for returning it to its normal position, weft-replenishing means operating to automatically insert a fresh supply of weft in the shuttle-box while the latter is in its shifted position, means for automatically throwing the shuttle-box-shifting means and the weft-replenishing means into operation upon breaking or exhaustion of the weft-thread and out of operation upon the return of the shuttle-box to its normal position.

4. In weft-replenishing mechanism for looms, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position for receiving a replenishment of the weft and for returning it to its normal position, weft-replenishing means operating to automatically insert a fresh supply of weft in the shuttle-box while the latter is in its shifted position, loom-driving means, and means for automatically throwing the loom-driving means out of operation and the shuttle-box-shifting means and the weft-replenishing means into operation upon breaking or exhaustion of the weft-thread, and vice versa upon the return of the shuttle-box to its normal position.

5. In weft-replenishing mechanism for looms, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position for receiving a fresh supply of weft and for returning it to its normal position, loom-driving means, a brake therefor, means for automatically throwing the loom-driving means out of operation and the shuttle-box-shifting means into operation and applying the brake upon breaking or exhaustion of the weft-thread, and means automatically throwing the shuttle-box-shifting means out of operation and the loom-driving means into operation upon return of the shuttle-box to its normal position.

6. In a loom, a shaft for actuating the loom-operating mechanism, a fast pulley on the shaft, a loose pulley on said shaft, a belt-shifter for moving the belt to said loose pulley, driving connections continuously gearing the loose pulley to the shuttle-changing mechanism, belt-shifter-actuating means automatically operating the belt-shifter to move the belt onto said loose pulley, and shuttle-changing mechanism set in operation through said loose pulley upon breaking or exhaustion of the thread.

7. In shuttle-changing mechanism for looms, a brake automatically applied to stop the loom-operating mechanism upon breaking or exhaustion of the weft-thread, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position to receive a fresh shuttle said means operating at the same time to release the brake after the latter has arrested the loom-operating mechanism.

8. In shuttle-changing mechanism for looms, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position for receiving a fresh shuttle and for returning it to its normal position, shuttle-replenishing means operating to automatically insert a fresh shuttle in the shuttle-box while the latter is in its shifted position, loom-driving means, and means for automatically throwing the loom-driving means out of operation and the shuttle-box-shifting means and the shuttle-replenishing means into operation upon breaking or exhaustion of the shuttle-thread and vice versa upon the return of the shuttle-box to its normal position.

9. In shuttle-changing mechanism for looms, a magazine for full shuttles, a shuttle box or holder, shuttle-box-shifting means automatically moving said box from its normal position to a position for receiving a fresh shuttle and for returning it to its normal position, loom-driving means, a brake therefor, means for automatically throwing the loom-driving means out of operation the shuttle-box-shifting means into operation and applying the brake upon breaking or exhaustion of the shuttle-thread, and means automatically throwing the shuttle-box-shifting mechanism out of operation and the loom-driving means into operation upon return of the shuttle-box to its normal position.

10. In weft-replenishing mechanism for looms, a pivotally-suspended magazine for weft independent of the remainder of the mechanism, and movable at one end to proper position for the delivery of weft therefrom, and a shuttle-box adapted to engage said magazine to move it to the weft-delivering position and constituting the sole means for effecting said movement.

11. In weft-replenishing mechanism for looms, a pivotally-suspended magazine for weft movable at its lower end to proper position for delivery of weft therefrom, an ejector carried by and movable with the magazine for delivery of weft therefrom by a longitudinal movement, and automatically-operating ejector-actuating means.

12. In weft-replenishing mechanism, the combination of an oscillatory magazine for weft having a delivery-opening at its lower end, an ejector carried by and movable with the magazine and adapted to deliver the weft through said opening by a longitudinal movement, and automatically-operating ejector-actuating means.

13. In weft-replenishing mechanism, the combination of an oscillatory magazine for containing a pile of weft-carrying elements, an elongated gutter at the bottom of the magazine having a delivery-opening at one end, an ejector carried by and movable with the gutter and which when quiescent is located in the opposite end of the gutter the lowermost weft-carrying element of the pile being interposed between the ejector and delivery-opening, and automatic ejector-operating means.

14. In weft-replenishing mechanism, the combination of an oscillatory magazine for weft-carrying elements, an ejector carried by and movable with the magazine for delivering the weft-carrying elements therefrom and automatic ejector-operating mechanism for operating the ejector in any position of the magazine.

15. In weft-replenishing mechanism, the combination of an oscillatory magazine for weft-carrying elements, an ejector carried by and movable with the magazine for delivering the weft-carrying elements therefrom by a longitudinal movement, automatic ejector-operating mechanism, and flexible connection with the ejector to permit the oscillatory movements of the magazine.

16. In weft-replenishing mechanism, the combination of an oscillatory magazine for weft-carrying elements, an ejector movable with and working in the magazine for deliyering the weft-carrying elements therefrom, and automatic ejector-operating mechanism comprising a flexible cord or the like, a spring to which one end of said cord is connected, an ejector connected at an intermediate part of said cord, and means connected to the other end of the cord for pulling on the same to move the ejector.

17. In weft-replenishing mechanism for looms, a pivotally-suspended magazine for full shuttles, a guide mounted thereon, a shuttle-box and means for elevating the same to receive a supply of weft, said guide engaging the shuttle-box to exactly aline the lowermost full shuttle therein with the empty shuttle in the shuttle-box, and means imparting a longitudinal movement to the full shuttle, whereby it effects the ejectment of and replaces the empty shuttle

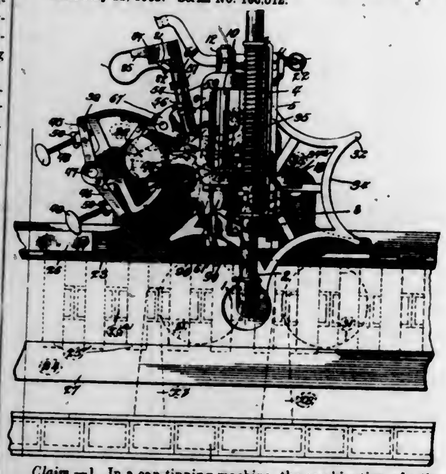
18. In a device of the kind described, a magazine containing full shuttles, means for replacing an empty shuttle by a full one, comprising a gutter for receiving the lowest of a series of full shuttles, a driver adapted to push out said full shuttle, so as to simultaneously remove the empty shuttle from the box and to take its place, a cam and transmission gear for actuating the driver and means for elevating the box with the empty shuttle to a position for receiving the full shuttle and lowering the box with the full shuttle, substantially as described.

787,498. COCKEYE. STERLING P. DAVIS, Canyoncreek, Mont. Filed June 6, 1904. Serial No. 211,425.



Claim.—A trace-fastener comprising a body having a laterally-offset longitudinal integral jaw at one end thereof, an integral cock-eye at the opposite end, a pair of transversely-alined spaced shoulders upon the body opposite the jaw, each shoulder having a bendable extension overhanging the body and extending toward the cock-eye, a movable jaw having its inner end resting against the body and provided with an intermediate terminal longitudinal tongue working between the shoulders and having opposite lateral pivot projections lying between the extensions of the shoulders and the body, said extensions being bent around the projections to form a permanent hinged connection between the jaws, and means to lock the movable jaw in its closed position.

787,499. TIPPING-MACHINE. FRED G. DICKERSON, Chicago, Ill. Filed July 22, 1903. Serial No. 166,512.



Claim.—1. In a can-tipping machine, the combination of a tipping-iron movable toward and with the can, a wheel having points arranged to be engaged and rotated by the cans, a sector having a lug arranged to be engaged and deflected by said points, an adjustable connection between said sector and iron for imparting the movement of said wheel to the iron, and means for adjusting said connection.

2. In a can-tipping machine, the combination of a tipping-iron movable toward and with the can, a sector, a pivoted lever movable with said sector, a set-screw passing through said lever and impinging said sector for adjusting the lever relatively thereto, a flexible connection secured to said lever and running against the periphery of the sector, means for operatively connecting said connection with the iron for rotating the latter, and means for oscillating said sector.

3. In a can-tipping machine, the combination of a tipping-iron movable toward and with the can, means for feeding solder to said iron, a rotary member having projections arranged to be engaged and rotated by the cans, two deflectable members arranged in the line of movement of said projections and adapted to be successively engaged thereby, means connecting said latter members with said solder-feeding means for respectively actuating the latter in opposite directions, and means for imparting the movement of said rotary member to said iron.

4. In a can-tipping machine, the combination of a tipping-iron

movable toward and with the can, means for feeding solder to said iron, a rotary member having projections arranged to be engaged and rotated by the cans, two deflectable members arranged in the line of movement of said projections and adapted to be engaged thereby, adjustable means operatively connecting said deflectable members with the solder-feeding means for moving the latter in opposite directions, and means for imparting the movement of said rotary member to said iron.

5. In a can-tipping machine, the combination of a tipping-iron movable toward and with the can, a rotary member having projections adapted to be engaged and rotated by the cans, a deflectable tongue arranged in the line of movement of said projections and adapted to be engaged thereby, means for feeding solder to said iron, an adjusting-screw operatively connected with said solder-feeding means and arranged to impinge said tongue, whereby said solder-feeding means is actuated in one direction, means for actuating said solder-feeding means in the opposite direction, and means for imparting the movement of said rotary member to said iron.

6. In a can-tipping machine, the combination of a tipping-iron movable toward and with the can, a pivot on which said iron is mounted and means for yieldingly holding said iron against rotation on said pivot.

7. In a can-tipping machine, the combination of a tipping-iron movable downwardly and laterally in the direction of movement of the can, and also movable pivotally, and means for yieldingly resisting said pivotal movement.

8. In a can-tipping machine, the combination of a tipping-iron movable laterally in the direction of movement of the can and also pivotally, means for yieldingly resisting said pivotal movement, and adjusting means for pivotally moving the iron against the action of said yielding resistance.

9. In a can-tipping machine, the combination of a tipping-iron movable laterally in the direction of movement of the can, a rotary shaft on which said iron is mounted, a spring for resisting the rotation of said shaft in one direction, and means for causing the rotation of said shaft against the resistance of said spring.

10. In a can-tipping machine, the combination of a tipping-iron movable laterally in the direction of movement of the can, a shaft supporting said iron, a spring for rotating said shaft in one direction, an arm secured to said shaft and an adjusting-screw for adjusting said arm and rotating said shaft against the action of said spring.

11. In a can-tipping machine, the combination of a tipping-iron movable downwardly and laterally, a sling movable laterally with said iron and having a step, a lug connected with said iron and movable therewith, and adapted to engage said step when the iron makes its lateral movement in the direction of movement of the can, a stop lor limiting the return movement of said sling, and a spring for producing the return movement of said sling.

787,500. TRACTION-ENGINE. BRAMAH J. DIPLOCK, Westminster, England. Filed Aug. 1, 1904. Serial No. 219,035.

Claim.—1. The combination of a vehicle-body, an oscillating rail pivoted to it, feet carried by it, means for placing the feet successively on the ground and rollers pivoted to the feet centrally above them and supporting the rail.

2. The combination of a vehicle-body, an axle and a rail carried by it, a pair of disks carried on the axle, guides on the disks, pairs of spokes working in the guides, feet pivoted to the spokes, means for placing the feet successively on the ground and rollers pivoted to the feet between the spokes and supporting the rail.

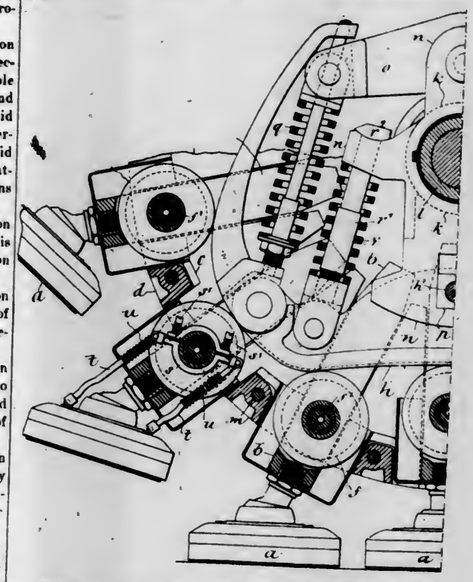
3. The combination with a foot for supporting a vehicle of a pair of spokes, a universal joint connecting the foot to the spokes, a pivot carried by the spokes and a roller mounted on the pivot.

4. The combination with a foot for supporting a vehicle of a pair of spokes, a universal joint connecting the foot to the spokes, a pivot carried by the spokes, a roller mounted on the pivot, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

5. The combination with a foot for supporting a vehicle of a pair of spokes, a universal joint connecting the foot to the spokes, a pivot carried by the spokes, a roller mounted on the pivot, a sleeve mounted on the pivot in frictional contact with the roller and a pair of rods carried by the sleeve and bearing on the foot.

6. The combination with a foot for supporting a vehicle of a pair of spokes, a universal joint connecting the foot to the spokes, a pivot carried by the spokes, a roller mounted on the pivot, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

7. The combination with a foot for supporting a vehicle of a pair of spokes, a universal joint connecting the foot to the spokes, a pivot carried by the spokes, a roller mounted on the pivot, a sleeve mounted on the pivot in frictional contact with the roller, a pair of rods carried by the sleeve, and ball-joints connecting the rods to the foot.



8. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground and rollers pivoted to the feet and supporting the rail.

9. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, springs surrounding the links, feet carried by the body, means for placing the feet successively on the ground and rollers pivoted to the feet and supporting the rail.

10. The combination of a vehicle-body, a lever pivoted to the body and supporting it, a pair of disks pivoted to the body, a rail between the disks, spring connections between the lever and rail, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, feet pivoted to the spokes, rollers pivoted to the spokes and means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail.

11. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground and rollers pivoted to the feet and supporting the rail.

12. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground and rollers pivoted to the feet and supporting the rail.

13. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground and rollers pivoted to the feet and supporting the rail.

14. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes and means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail.

15. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes and means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail.

16. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

17. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

18. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

19. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

20. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

21. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, springs surrounding the links, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller and means operated by the sleeve for turning the foot into position.

22. The combination of a vehicle-body, a lever pivoted to the body and supporting it, a pair of disks pivoted to the body, a rail between the disks, spring connections between the lever and rail, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, feet pivoted to the spokes, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, and means operated by the sleeve for turning the foot into position.

23. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot.

24. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot.

25. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot.

26. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot.

27. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot.

28. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rails, arms on the plate, links connecting the rail to the arms and limiting its movement, springs surrounding the links, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot.

29. The combination of a vehicle-body, a lever pivoted to the body and supporting it, a pair of disks pivoted to the body, a rail between the disks, spring connections between the lever and rail, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, feet pivoted to the spokes, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, and a pair of rods carried by the sleeve and bearing on the foot

30. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

31. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

32. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

33. The combination of a vehicle-body, a pair of disks pivoted to the body, a plate fixed to the body between the disks, a lever pivoted to the plate, a rail, a pivot at the middle of the rail working in the plate, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, universal joints at the ends of the spokes, feet carried by the joints, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

34. The combination of a vehicle-body, a plate fixed to the body, a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

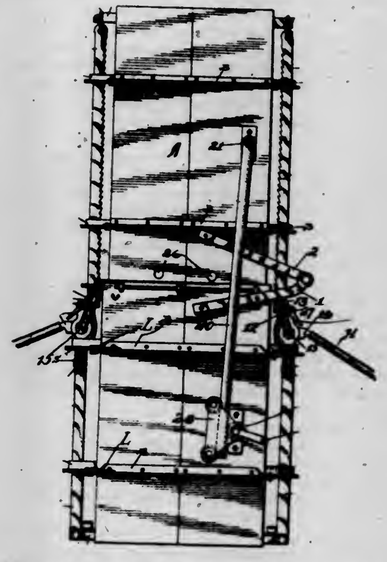
35. The combination of a vehicle-body, a plate fixed to the body a lever pivoted to the plate, a rail, spring connections between the lever and rail, arms on the plate, links connecting the rail to the arms and limiting its movement, springs surrounding the links, feet carried by the body, means for placing the feet successively on the ground, rollers pivoted to the feet and supporting the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

36. The combination of a vehicle-body, a lever pivoted to the body and supporting it, a pair of disks pivoted to the body, a rail between the disks, spring connections between the lever and rail, guides on the disks, spokes working in the guides, springs tending to draw the spokes inward, feet pivoted to the spokes, rollers pivoted to the spokes, means for forcing the rollers outward as the feet approach the ground and guiding them beneath the rail, a sleeve mounted on the pivot in frictional contact with the roller, means for adjusting the pressure of the sleeve upon the roller, and means operated by the sleeve for turning the foot into position.

787,501. BALING-PRESS. DONALD DONALD, Masterton, New Zealand. Filed Apr. 27, 1903. Renewed Feb. 20, 1905. Serial No. 246,404.

Claim.—1. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, and jack devices for drawing the connected plates together, substantially as described.

2. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, jack devices for drawing the connected plates together, and mechanism for raising the top box upon the lower box, substantially as described.



3. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, movable pressure-plate in the upper box, means for detachably connecting said plates, jack devices for drawing the connected plates together, and mechanism for raising the top box upon the lower box and for lowering the top box to the ground, substantially as described.

4. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, jack devices for drawing the connected plates together, and mechanism for swinging the top box upon its hinges comprising a rack-bar pivoted to one of the boxes, and a rotatable pinion journaled on the other box and held in engagement with the rack-bar to project or retract the same, substantially as described.

5. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, movable pressure-plate in the upper box, means for detachably connecting said plates, jack devices for drawing the connected plates together, mechanism for swinging the top box on its hinges comprising a rack-bar pivoted to the top box, a pinion journaled on the lower box and intermeshing with the rack-bar, and a crank for rotating said pinion, substantially as described.

6. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, a mechanism for swinging the top box on its hinges comprising a rack-bar pivoted to the upper box, a pinion journaled on the lower box, a crank rotating said pinion, and a swinging plate pivoted about the pinion-shaft and having parts embracing the rack-bar to hold it in mesh with the pinion, substantially as described.

7. A press consisting of a lower box, a top box hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, a mechanism for swinging the top box on its hinges comprising a rack-bar pivoted to the upper box, a pinion journaled on the lower box, a crank rotating said pinion, and a swinging plate pivoted about the pinion-shaft and carrying rollers engaging the back of the rack-bar to hold it in mesh with the pinion, substantially as described.

8. A press consisting of a lower box, a top box hinged to the lower box, a pressure-plate in the lower box, a movable pressure-

plate in the upper box, means for detachably connecting said plates, and jack devices for drawing the connected plates together, each comprising a ratchet-bar and a pair of pawls pivoted to an oscillatory fulcrum and engaging the ratchet-bar, one of said pawls being connected with the fulcrum at a greater distance from its axis of oscillation than the other, substantially as described.

9. A press consisting of a lower box, a top box hinged to the lower box, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, jack devices for drawing the connected plates together, each comprising a ratchet-bar and a pair of pawls pivoted to an oscillatory fulcrum and engaging the ratchet-bar, the outer one of said pawls being connected with the fulcrum at a greater distance from its axis of oscillation than the other, substantially as described.

10. A press consisting of a lower box, a top box, hinged to the lower box but adapted to be swung down beside it, a pressure-plate in the lower box, a movable pressure-plate in the upper box, means for detachably connecting said plates, jack devices for drawing the connected plates together, said jack devices each comprising a ratchet-bar and a pair of pawls pivoted to an oscillatory fulcrum and engaging the ratchet-bar, and a lever pivoted to the housing of the jack above the fulcrum and adapted to engage the pawls to force them away from the rack-bar, substantially as described.

11. A press consisting of two open-ended separable boxes, opposing pressure-plates in the respective boxes, and lever jack devices applied between the two plates to draw one toward and into the opposite box, substantially as described.

12. A press consisting of two open-ended separable boxes, two opposing pressure-plates, in the respective boxes, and jack devices for drawing one of the plates toward and into the opposite box, comprising ratchet-bars secured to one plate and lever, and pawl devices secured to the other plate and operatively engaging the ratchet-bars, substantially as described.

13. A press consisting of opposing pressure-plates and jack devices for drawing the connected plates together, each comprising a ratchet-bar and a pair of pawls pivoted to an oscillatory fulcrum and engaging the ratchet-bar, one of said pawls being connected with the fulcrum at a greater distance from its axis of oscillation than the other, substantially as described.

14. A press consisting of two open-ended separable boxes, two opposing pressure-plates, in the respective boxes and jack devices applied between the two plates to draw one toward and into the opposite box, each comprising a ratchet-bar, and a pair of pawls pivoted to an oscillatory fulcrum and engaging the teeth of the ratchet-bar, substantially as described.

15. A press consisting of a box, one side of which can be opened, and a press-carriage adapted to be moved into the box through its open side and comprising upper and lower pressure-plates, and jack devices for drawing the plates together within the box, substantially as described.

16. A press consisting of a box, one side of which can be opened, and a press-carriage adapted to be moved into the box through its open side and comprising upper and lower pressure-plates, and jack devices for drawing the plates together within the box, the sides of the box being provided with slots through which the jack devices project to bring their operating-levers outside of the box, substantially as described.

17. A press consisting of a lower box, one side of which can be opened, a top box hinged to the lower box, a press-carriage adapted to be moved into the lower box through its open side, and comprising a lower pressure-plate, and jack devices secured to said plate, a movable pressure-plate in the upper box, and means for detachably connecting the movable plate and jack devices, substantially as described.

18. A press consisting of a lower box, one side of which can be opened, a top box hinged to the lower box, a press-carriage adapted to be moved into the lower box through its open side, and comprising a lower pressure-plate, and jack devices secured to said plate, a movable pressure-plate in the upper box, the sides of the box being provided with slots through which the jack devices project to bring their operating-levers outside of the box, and means for detachably connecting the movable head and jack devices, substantially as described.

19. A press, consisting of two open-ended separable boxes placed open end to open end, a stationary pressure-plate closing one end of one of the boxes, a movable pressure-plate closing the opposite end of the other box, this movable pressure-plate being adapted to pass into the open end of the opposite box, and means for forcing the movable plate toward and into the other box to thereby compress the material therein and leave the first-named box empty and free to be removed.

20. A press consisting of two open-ended boxes placed open end to open end, one of the boxes being removable from the other and capable of being inverted, a pressure-plate in each of the boxes, and means for forcing one of the pressure-plates toward and into the open end of the box containing the other pressure-plate, for the purposes set forth.

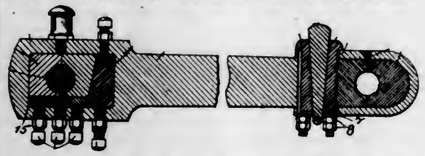
21. A press, consisting of two separable boxes placed one upon the other, the upper box being capable of being removed and inverted, removable means for holding the material in the upper box while the same is being placed upon the lower box, pressure-plates in the respective boxes, and means for forcing one of the pressure-plates toward and into the opposite box, for the purposes set forth.

22. A press, consisting of a lower box having its lower end closed by a pressure-plate, and its upper end open, an upper box mounted on the lower box and capable of being removed and inverted, a movable pressure-plate closing the upper end of the upper box, and means for drawing down the upper pressure-plate toward and into the lower box, for the purposes set forth.

23. A press, consisting of a box, one side of which can be opened, and a press-carriage adapted to be moved into the box through its open side, and comprising upper and lower pressure-plates, and jack devices for drawing the plates together within the box, said jack devices being connected to said pressure-plates and being removable from the press-box therewith.

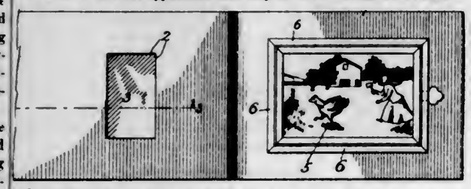
24. A press, consisting of a lower box, one side of which can be opened, a pressure-plate in this lower box, an upper box containing a pressure-plate, and means for drawing down the upper pressure-plate into the lower box, said means and said pressure-plates constituting a bale-clamping device which is capable of being removed through the open sides of the lower box.

787,502. **CONNECTION FOR DRIVING-RODS.** BENEDICT A. EIDEN, Scranton, Pa. Filed Jan. 12, 1905. Serial No. 240,825.



Claim.—The herein-described driving-rod having integrally-formed bearing-straps, brasses, a gib and key for taking up the wear of said brasses, flanged brasses arranged in the strap at the opposite end of said rod, a wedge-shaped adjusting-block, a jam-plate, set-screws arranged in said strap to adjust and hold said wedge-block and jam-plate, a crank-pin collar, and means whereby the same is connected to the end of a crank-pin to hold said driving-rod in place.

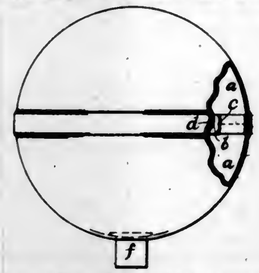
787,503. **PICTURE BOOK OR ALBUM.** ALBERT W. ENGEL, Chicago, Ill. Original application filed Sept. 23, 1902, Serial No. 124,887. Divided and application filed Jan. 12, 1903, Serial No. 138,701. Again divided and this application filed May 23, 1904. Serial No. 209,268.



Claim.—1. A picture-holding book or album having the cover apertured, and in said aperture a panel of transparent flexible material, the face of the first leaf exposed to view through said transparent panel, being provided with means for removably retaining a picture exposed in whole or in part through the panel.

2. A picture book or album having the face of the first leaf provided with means for removably securing a picture thereto, and having the cover provided with an aperture, and a panel of transparent material in such aperture at a position and of dimensions for exposing therethrough a segregable portion of the picture which is mounted on the first leaf.

787,504. **FLOAT.** FRANK ENGELHARD and FREDERICK H. ENGELHARD, Springfield, Mass. Filed June 29, 1903. Serial No. 163,460.



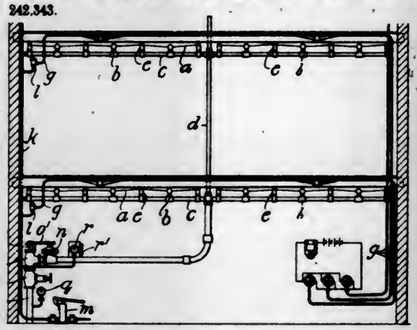
Claim.—1. As a new article of manufacture, a float having sections arranged with their edges abutting without extension or overlap, an external band deposited over and around the joint so formed, an additional external band or bands deposited upon said sections, each band intersecting another band, and a coating or deposit upon the outside of the sections and bands.

2. As a new article of manufacture, a float comprising sections semispherical and cylindrical in shape and arranged with their edges abutting without extension or overlap, an external band deposited over and around the joint so formed, and additional external bands deposited around the sections where the semispherical and cylindrical portions meet, and a coating or deposit upon the outside of the sections and bands.

3. The combination with a float having an exterior coating deposited thereon, of a nipple held to the outside of said float by said coating.

4. The combination with a float having external bands and an exterior coating deposited over all, of a flanged nipple held to said float by said bands and coating.

787,505. **FIRE-EXTINGUISHING SYSTEM.** JAMES FIDDES and JOHN F. WATT, Aberdeen, Scotland. Filed Jan. 23, 1905. Serial No. 242,343.



Claim.—1. In automatic fire-extinguishing apparatus, in combination, a water-pipe, a sprinkler, normally inactive, fitted on said pipe, automatically-acting devices for rendering said sprinkler active, air-tubing filled with compressed air, a frangible outlet in said tubing, a stretched wire, means adapted on expansion of said wire to destroy said connection, a valve normally preventing passage of water into said pipe, and means actuated on escape of air from said tubing to open said valve, substantially as described.

2. In automatic fire-extinguishing apparatus, in combination, a water-pipe, a sprinkler, normally inactive, fitted on said pipe, automatically-acting devices for rendering said sprinkler active, air-tubing filled with compressed air, a frangible outlet in said tubing, a stretched wire, a weight supported from said wire and released on expansion of said wire to fracture said frangible outlet, a valve normally preventing passage of water to said pipe and means actuated on escape of air from said tubing, to open said valve, substantially as described.

3. In automatic fire-extinguishing apparatus, in combination, a water branch pipe, a sprinkler, normally inactive, fitted on said pipe, automatically-acting devices for rendering said sprinkler active, air-tubing filled with compressed air, a frangible outlet in said tubing, a stretched wire, means adapted on expansion of said wire to fracture said frangible outlet, a valve normally preventing passage of water to said pipe, devices actuated on escape of air to open said valve, and an alarm actuated on reduction of air-pressure in said tubing, substantially as described.

4. In automatic fire-extinguishing apparatus, in combination, a water branch pipe, a sprinkler normally inactive fitted on said pipe, automatically-acting devices for rendering said sprinkler active, air-tubing filled with compressed air, a frangible outlet in said air-tubing, automatic means, more sensitive than said sprinkler-actuating means, adapted on abnormal rise of temperature to fracture said frangible outlet to permit escape of air from said tubing, a valve adapted to prevent passage of water into said pipe, and diaphragm apparatus connected to said tubing, normally holding said valve closed and adapted on reduction of air-pressure in said tubing to permit said valve to rise off its seat to admit water to the sprinklers, substantially as described.

5. In automatic fire-extinguishing apparatus, in combination, a water branch pipe, a sprinkler normally inactive fitted on said pipe, automatically-acting devices for rendering said sprinkler active, air-tubing filled with compressed air, a frangible outlet in said tubing, a stretched wire, a weighted lever, a catch supporting said lever from said wire and adapted on expansion of said wire to release said lever to fracture said frangible outlet, a valve normally preventing passage of water to said pipe, and diaphragm apparatus actuated on escape of air from said tubing to open said valve.

6. In automatic fire-extinguishing apparatus, in combination, a water-pipe, a sprinkler connected to said water-pipe, a frangible outlet, means normally maintaining said water-pipe dry without compressing air in said pipe, automatically-acting devices for fracturing said frangible outlet so as to open said sprinkler, and automatic devices more sensitive than said first-mentioned devices and adapted on sudden rise of temperature to effect admission of water to said pipe.

7. In automatic fire-extinguishing apparatus, in combination, a water-pipe, a valve, means normally maintaining said valve in position to prevent passage of water to said pipe, a sprinkler fitted on said water-pipe, frangible means normally closing the sprinkler-orifice, automatically-acting devices for fracturing the orifice-closing means, and automatic devices more sensitive than said first-mentioned devices and adapted on sudden rise of temperature to permit said valve to rise off its seat to admit water to said sprinkler.

8. In automatic fire-extinguishing apparatus, in combination, a water branch pipe normally kept dry without compressing air in said pipe, sprinkler devices normally inactive fitted on said pipe, automatic means adapted on sudden rise of temperature to render said sprinklers active, air-tubing filled with compressed air, a frangible outlet in said air-tubing, automatic means, more sensitive than said sprinkler-actuating means, adapted on abnormal rise of temperature to fracture said outlet to permit escape of air from said tubing, a valve adapted to prevent passage of water to said pipe, diaphragm apparatus connected to said tubing, normally holding said valve closed, and adapted, on reduction of air-pressure in said tubing, to permit said valve to open to admit water to the sprinklers, and an alarm operated on reduction of air-pressure in the tubing.

9. In automatic fire-extinguishing apparatus, in combination, a water branch pipe normally kept dry without compressing air in said pipe, sprinkler devices, normally inactive, fitted on said pipe, a stretched wire adapted on expansion to render said sprinklers active, air-tubing filled with compressed air, a frangible outlet in said air-tubing, a second stretched wire, means operated on expansion of said second wire to fracture said frangible outlet to permit escape of air from said tubing, a valve adapted to prevent passage of water to said water-pipe, and diaphragm apparatus connected to said tubing, normally holding said valve closed, and adapted on reduction of air-pressure in the tubing to permit said valve to rise off its seat to admit water to said water-pipe.

10. In automatic fire-extinguishing apparatus, in combination, a water branch pipe normally kept dry without compressing air in said pipe, said pipe having a discharge-orifice, a fragile dome normally closing the orifice, a stretched wire, a weighted lever, means normally supporting said lever from said wire but adapted on undue expansion of said wire to release said lever to break said dome, an air-tube filled with compressed air, a frangible outlet in said tube, a second stretched wire, a second weighted lever, means normally supporting said second lever from said second wire and adapted on dilation of said second wire to release said second lever to break said frangible outlet, a valve adapted to prevent passage of water to said branch pipe, and diaphragm apparatus normally holding said valve

closed, but adapted, on reduction of air-pressure in said tubing to permit said valve to rise off its seat to admit water to said branch pipe.

11. In automatic fire-extinguishing apparatus, in combination, water branch pipes normally kept dry without compressing air in said pipes, sprinkler devices normally inactive fitted on said pipes, stretched wires, devices adapted on expansion of said wires to render said sprinklers active, an air-duct, branch air-tubes, back-pressure valves connected to said air-tubes, an air-pump for filling said air-duct and branch tubes with compressed air, frangible outlets in said air-tubes, stretched wires, means more sensitive than said sprinkler-actuating means adapted on dilation of said last-named wires to break said frangible outlets, a valve adapted to prevent access of water to said pipes, and diaphragm apparatus normally holding said valve closed but on escape of air permitting said valve to open to admit water to said pipes.

787,506. PLOW. EDWARD FOWLER, Cedargrove, Ga., assignor, by direct and mesne assignments, to Julius L. Anderson, Ironton, Ohio. Filed Aug. 17, 1903. Serial No. 169,777.



Claim.—1. The combination in a plow of a plow-point and a landside abutting one another and each provided with a notch forming a part of a bolt-opening in its abutting edge, and a bolt passing through the bolt-opening thus formed to secure both parts against movement.

2. In a plow, the combination with a standard and a foot at the lower end thereof, of a plow-point and a landside each provided at one of its edges with a semicircular notch, a single bolt for securing the landside to the foot, a single bolt for securing the plow-point to the foot, and a single bolt for both semicircular notches in the abutting edges.

3. In a plow, the combination with the standard, of a plow-point extending in advance of the standard and having a vertical portion secured to one side of the standard and a horizontal portion extending underneath the standard and upon which the lower end of the standard rests, a landside having a vertical portion secured to the standard in the rear of the plow-point and a horizontal portion on which the standard rests, the vertical portions and the horizontal portions of the plow-point and the landside respectively forming continuations of one another, and a bolt engaging with the plow-point and with the landside.

4. In a plow, the combination with the standard, of a plow-point secured to the front portion of the standard and upon one side thereof, a landside separate from the plow-point secured on the same side of the standard and in the rear of the plow-point forming a continuation thereof, and a bolt engaging with the plow-point and with the landside.

787,507. AUTOMATIC ANNUNCIATOR-RESTORER. JAMES I. GEMMILL, Cleveland, Ohio, assignor to the Gemmill Telephone and Manufacturing Co., Orrville, Ohio. Filed Dec. 22, 1903. Serial No. 186,379.



Claim.—1. In an indicator device, the combination of a pivoted shutter adapted to fall to a horizontal position to display a signal; an extension on said shutter and an intermediate pin adapted to engage said extension; a train of three balls, one of said balls adapted to operate said pin; one adapted to engage the rear walls of the ball-containing chamber; the third ball being placed between the aforementioned two balls and adapted to lie partially in the path of a restoring-plug to be operated by said plug and to cooperate with the aforementioned two balls causing one of the said balls to engage the pin and actuate it so that the said pin will engage the said shutter by means of the extension thereon and thereby restore said shutter to its normal position all as shown and described.

2. In a switchboard, the combination with a jack and a drop, of a plurality of circular bodies, one of said bodies being stationary, a second being operatively related to the drop, and a third adapted to be forced between the other two bodies by the insertion of the operator's plug into the jack, thereby restoring the drop substantially as described.

3. In a signal-restoring device for switchboards; a toggle system of three rolling bodies together with a bolt and a drop-shutter; one of the rolling bodies adapted to act against the rear walls of the containing-chamber at a fixed or stationary member of the said toggle system; one body at a traveling member adapted to engage and actuate the bolt and the third body adapted to be forced between the other two bodies thereby imparting motion to the traveling member and the bolt causing said bolt to engage said shutter and restore it to its normal position.

4. In a switchboard-drop; the combination of a drop-shutter with an extension thereon and a bolt adapted to engage with said extension; a ball adapted to act against said bolt; a second ball adapted to act against fixed points or surfaces and a third ball adapted to be placed partially in the path of an operator's plug, in a jack, suitably placed; said plug to engage said ball in the jack and force it between the said two balls, thereby elongating the toggle system and imparting motion to the bolt; said bolt engaging said extension on the shutter and thereby restoring said shutter to its normal position, all as shown and described.

5. In switchboard-annunciators, in combination with a jack, a connecting-plug, a pivoted signal-drop, and an independent, rolling, drop-moving member, and means whereby said member may be actuated by said plug.

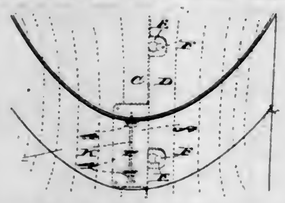
6. In switchboard-annunciators, in combination with a jack, a pivoted signal-drop, a connecting-plug, and an independent antifriction drop-moving member bodily movable from point to point and means whereby said plug may be pressed against said member and the drop actuated.

7. In a switchboard-annunciator, in combination with a jack, a drop, a connecting-plug, a rolling, drop-restoring member between said plug and drop and means whereby the said member moves back by its own weight to position to permit the drop to be released.

8. In a switchboard-annunciator in combination with a pivoted signal-drop, and plug, a drop-restoring device consisting of a ball operative between said drop and plug.

9. In a switchboard-annunciator in combination with a jack, a drop, and a plug, said jack having a slot and a loose, drop-restoring ball supported by said jack in said slot and adapted to project therethrough partially into the jack and having a limited to-and-fro movement between the jack and said drop.

787,508. BELT OR LONG-WAIST PIN ADJUSTER. JOSEPH GOLDBERG, New York, N. Y. Filed Dec. 2, 1903. Serial No. 183,448.



Claim.—1. A clip adapted to be adjustably secured to a corset-clasp, said clip having members adapted to pass on each side of the clasp and grip said clasp between them, and being also provided with a pin-loop on one face thereof.

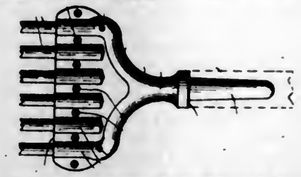
2. A clip adapted to be adjustably secured to a corset-clasp, said clip having members adapted to pass on each side of the clasp and grip said clasp between them, and being also provided with a pin-loop struck up from one face thereof.

3. A clip of the character described adapted to be secured to a corset-clasp, said clip being provided with an opening through which a fastening device on the clasp may pass and a loop adapted to act as an engaging and restraining device for a belt or waist pin.

4. In a device of the class described, a resilient metallic clip adapted to embrace adjustably the clasp of a corset, a pin, and loops upon the clip through which said pin may be thrust.

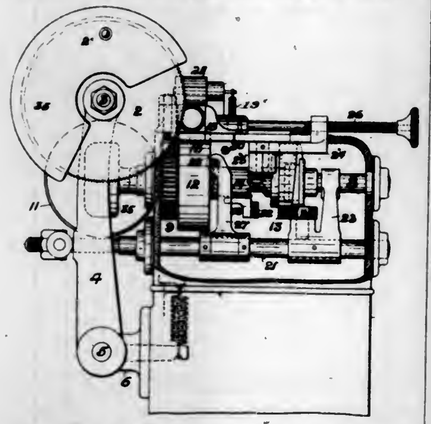
5. In a device of the class described, in combination, a resilient metallic clip adapted to embrace the clasp of a corset and having an opening through which the fastening device of said corset may project, a pin and spaced loops upon said clip through which said pin may be thrust.

787,509. ICE-PICK. CHARLES W. HALSEY, Evansville, Ind. Filed June 2, 1904. Serial No. 210,900.



Claim.—An ice-pick having a body composed of duplicate parts having alternating flat portions and substantially parallel matching half-sockets whose backs constitute ridges on the exterior of the body and which extend inwardly from an edge of the body, and terminate in abutments for the pick-points, said body being also provided with converging matching hollow half ribs or braces whose backs constitute ridges on the exterior of the body and which join and continue as a single hollow handle composed of matching half-sections, pick-points in the sockets aforesaid, and fastenings connecting the two parts of the body together.

787,510. CIRCULAR SAWING MACHINE. EDWARD G. HERBERT, Manchester, England. Filed Apr. 18, 1903. Serial No. 153,339.



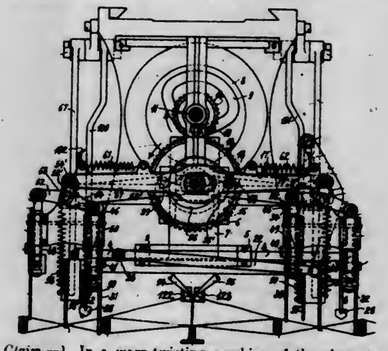
Claim.—1. In a machine for automatically cutting up rods, tubes, bars and the like into even predetermined lengths, a machine-base, a work-holding vise comprising fixed and loose jaws upon said base, a circular rotating saw, means for supporting the axis of the saw and allowing the saw to move in a plane at right angles to the work in the vise, a rotary shaft in the said base and means for imparting continuous rotary motion thereto, a double-faced cam loosely mounted upon such shaft but incapable of endwise movement, a slidable feed-shaft intermediate of such cam and the said saw-carrying means for alternately advancing and returning the saw against and through the work held in the vise, and means intermediate of the said cam and vise for alternately operating the loose jaw of the vise and thereby clamping and unclamping the work to be sawed, a feed-wheel also loosely mounted upon the said cam-carrying shaft but incapable of endwise movements, and serving, when rotated, after each cut, to advance the work, clutch-teeth on such feed-wheel and clutch-teeth on the cam, a sliding clutch-sleeve and means for keying the sleeve to the cam-carrying shaft, a spring located between the clutch-sleeve and feed-wheel and serving to urge the clutch-sleeve into engagement with the cam, a gage acted upon by the work in the vise, and a clutch-shifter on the slidable feed-shaft arranged to be acted upon by the said gage to release the clutch-sleeve, substantially as set forth.

2. In a machine of the kind described, a machine-base, a rotary shaft in such base, and means for imparting continuous rotary motion thereto, a double-faced cam and a work-feed wheel loosely mounted upon such shaft but incapable of endwise movements and each having clutch-teeth, a sliding clutch-sleeve on and rotating with the said cam-carrying shaft, a spring located between the feed-wheel and clutch-sleeve to urge the clutch-sleeve into engagement with the cam, a slidable saw-feed shaft, a bracket and bowl on the said feed-shaft with the bowl engaging the cam, a clutch-shifter on the feed-shaft adapted when the saw-feed shaft is making its return movement to engage the clutch-sleeve and hold it out of engagement with the cam and then in play with the feed-wheel, a gage acted upon by the work in the vise, and means intermediate of the gage and the clutch-shifter whereby the clutch-shifter is acted upon by the gage to release the clutch-sleeve, and also whereby the gage is acted upon by the clutch-shifter to move it sidewise, substantially as set forth.

3. In a machine of the kind described, a machine-base, a shaft in such base and means for imparting continuous rotary motion thereto, a double-faced cam and a work-feed wheel each provided with clutch-teeth and each loosely mounted on the said shaft but incapable of endwise movement, a sliding clutch-sleeve on and means for keying the sleeve to the cam-carrying shaft, a spring located between the feed-wheel and clutch-sleeve to urge the clutch-sleeve into engagement with the cam, a work-holding vise with fixed jaw and loose jaw upon the said base, a regulating-screw attached to the loose jaw, a slide through which the screw passes and which is loosely supported at one part upon the machine-base and at another part lies below the machine-base, a lever with long and short arms and pivotally carried by the said slide and with the shorter arm taking its fulcrum on the machine-base, a loose bowl upon said lever and a spring for acting on the lever and holding the bowl against the cam, substantially as set forth.

4. In a machine of the kind described, a machine-base, a shaft in such base and means for imparting continuous rotary motion thereto, a double-faced cam and a work-feed wheel each provided with clutch-teeth and each loosely mounted on the said shaft but incapable of endwise movement, a sliding clutch-sleeve on and means for keying the sleeve to the cam-carrying shaft, a spring located between the feed-wheel and clutch-sleeve to urge the clutch-sleeve into engagement with the cam, a circular rotating saw, means for supporting the axis of the saw, and allowing the saw to move in a plane parallel with the said cam-carrying shaft, a slidable feed-shaft connected to the said cam-carrying means, a bracket and bowl on the feed-shaft with the bowl engaging the cam, a gage arranged to be acted upon by the work, and a clutch-shifter on the feed-shaft arranged to be acted upon by the gage to release the clutch-sleeve, substantially as set forth.

787,511. WARP-TWISTING MACHINE. GUSTAV HILLER, Zittau, Germany. Filed Jan. 4, 1904. Serial No. 187,718.



Claim.—1. In a warp-twisting machine of the character described, the combination with means for twisting the ends of warp-threads, separators for dividing the ends of the threads from the unfinished lease, of pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for giving the pushers an upward-and-downward movement and means for giving said pushers a forward-and-backward oscillating movement, substantially as and for the purpose herein set forth.

2. In a warp-twisting machine of the character described, the combination of means for twisting the ends of warp-threads, separa-

tors for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement and means for the forward-and-backward oscillation of the pairs of pushers, substantially as and for the purpose herein set forth.

3. In a warp-twisting machine of the character described, the combination of means for twisting the ends of warp-threads, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the base, means for the upward-and-downward movement of the separators, inserting-hooks for conducting the ends of the threads to be twisted over the lowered gripping-hooks, and means for raising and lowering and for the forward-and-backward movement of the inserting-hooks, substantially as and for the purpose herein set forth.

4. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement, means for the forward-and-backward oscillation of the pairs of pushers, gripping-hooks for introducing the ends of the threads to be twisted, and means for the upward-and-downward movement of the gripping-hooks, substantially as and for the purpose herein set forth.

5. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement and means for the forward-and-backward oscillation of the pair of pushers, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks, inserting-hooks for conducting the ends of the threads to be twisted over the lowered gripping-hooks, and means for raising and lowering and for the forward-and-backward movement of the inserting-hooks, substantially as and for the purpose herein set forth.

6. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement and means for the forward-and-backward oscillation of the pairs of pushers, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks, inserting-hooks for conducting the ends of the threads to be twisted over the lowered gripping-hooks, means for raising and lowering and for the forward-and-backward movement of the inserting-hooks, and means for bringing the finished threads positively, and directly after the release from the means for the twisting, out of the reach of the operating parts and for laying the same upon the finished part of the lease, substantially as and for the purpose herein set forth.

7. In a warp-twisting machine of the character described, the combination of means for twisting the ends of warp-threads, separators for dividing the ends of the threads from the unfinished lease, a slide-rod upon which the separators are adapted to oscillate, means for guiding the slide-rod parallel to the threads, means for the to-and-fro movement of the slide-rod in the guides, and means for raising and lowering its guides, means for vertically guiding the latter, upwardly-extending arms on the separators, fixed guides for these arms, projections directed toward the guides and provided on the free ends of the arms, substantially as and for the purposes herein set forth.

8. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, holders adapted to be raised and lowered for the pushers capable of oscillating transversely thereon, vertical guides for the holders, bell-crank levers from which the holders are suspended, connecting-rods between the bell-crank levers of the holders adapted to move simultaneously in the same direction, and means for the to-and-fro movement of the connecting-rods, substantially as and for the purpose herein set forth.

9. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, holders adapted to be raised and lowered for the pushers capable of oscillating transversely thereon, upwardly-extending arms on the pushers, fixed guides adapted for guiding the arms of the pushers, springs for continually forcing the arms of the pushers against the guides, and recesses provided in the arms of the pushers and turned toward the guides, substantially as and for the purpose herein set forth.

10. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement and means for the forward-and-backward oscillation of the pairs of pushers, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks, inserting-hooks for conducting the ends of the threads to be twisted over the lowered gripping-hooks, means for raising and lowering and for the forward-and-backward movement of the inserting-hooks, hooks for taking back the twisted ends of the threads, and means for raising and lowering and for the forward-and-backward movement of the said hooks for taking back the twisted ends, substantially as and for the purpose herein set forth.

11. In a warp-twisting machine of the character described, the combination of means for twisting the ends of warp-threads, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, inserting-hooks for guiding the twisted ends of the threads over the lowered gripping-hooks, swings to which the inserting-hooks are jointed, endless guides for guiding the inserting-hooks during the whole movement and springs for continually raising the inserting-hooks, substantially as and for the purpose set forth.

12. In a warp-twisting machine of the character described, the combination of means for twisting the ends of warp-threads, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, inserting-hooks for guiding the twisted ends of the threads over the lowered gripping-hooks, swings to which the inserting-hooks are jointed, endless guides for guiding the inserting-hooks during the whole movement, an upper and a lower branch of the guides, an oblique connection in front between the two branches, and means for automatically closing the upper branch against the lower branch toward the inserting-hook guided in the said guides, substantially as and for the purpose herein set forth.

13. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement and means for the forward-and-backward oscillation of the pairs of pushers, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks for conducting the ends of the threads to be twisted over the lowered gripping-hooks, means for raising and lowering and for the forward-and-backward movement of the inserting-hooks, taking-back hooks for laying the twisted thread upon the finished lease, swings to which the taking-back hooks are jointed, endless guides for guiding the taking-back hooks during the whole movement, and springs for continually raising the taking-back hooks, substantially as and for the purpose herein set forth.

14. In a warp-twisting machine of the character described, the combination of means for twisting the ends of the warp-threads, separators for dividing the ends of the threads from the unfinished lease, means for the to-and-fro movement of the separators in the lease, means for oscillating the separators transversely to the lease, means for the upward-and-downward movement of the separators, pairs of pushers acting above and below in the lease for pushing away the unfinished lease for the entrance of the separators, means for the upward-and-downward movement and means for forward-and-backward oscillation of the pairs of pushers, gripping-hooks for introducing the ends of the threads to be twisted, means for the upward-and-downward movement of the gripping-hooks for conducting the ends of the threads to be twisted over the lowered gripping-hooks, means for raising and lowering and for the forward-and-backward movement of the inserting-hooks, taking-back hooks for laying the twisted thread upon the finished lease, swings to which the taking-back hooks are jointed, endless guides for guiding the taking-back hooks during the whole movement, springs for continually raising the taking-back hooks, an upper and a lower branch of the guides, an oblique connection in front between the two branches, and means for automatically closing the upper branch against the lower branch toward the taking-back hooks guided in the said guides, substantially as and for the purpose herein set forth.

787,512. FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME.

ABRAHAM L. A. HIMMELWRIGHT, New York, N. Y., assignor to The New Jersey Wire Cloth Company, Trenton, N. J., a Corporation of New Jersey. Filed Aug. 10, 1904. Serial No. 220,179.



Claim.—1. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection.

2. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection, and metallic supporting members carried by and extending below the beams and embedded in the beam protection.

3. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection, and clips arranged at intervals on the flanges of the beams and provided with arms extending below the beams and embedded in the beam protection.

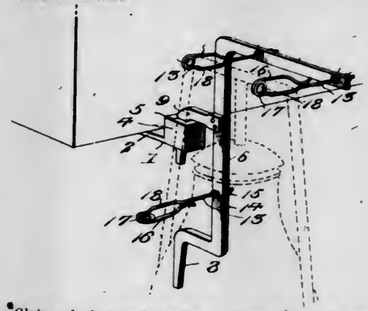
4. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection, clips arranged at intervals on the flanges of the beams and provided with inclined hooked arms extending below the beams and embedded in the beam protection

5. The method of building concrete floors or similar structures, which consists in pouring in thin concrete or similar material to fill the space around and below the bottoms of the beams to the desired height, filling in a portion of the coarser floor-concrete onto the thin concrete before the latter has set, and tamping the coarser concrete into the thin concrete and then completing the filling in of the floor-concrete.

6. The method of building concrete floors or similar structures, which consists in placing at suitable intervals along the beam clips having supporting-arms extending below the beams, pouring in thin concrete or similar material to fill the space around and below the bottoms of the beams and clips to the desired height, filling in a portion of the coarser floor-concrete onto the thin concrete before the latter has set, and tamping the coarser concrete into the thin concrete and then completing the filling in of the floor-concrete.

787,513. LAMP-BRACKET.

WILLIAM J. HOLDER, Rockwall, Tex., assignor of one-half to J. F. Corry, Rockwall, Tex. Filed Oct. 1, 1904. Serial No. 226,783.



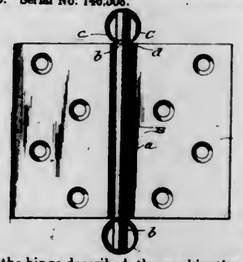
Claim.—1. In a device of the character described, a holder approximately the shape of an inverted L, hooks formed on the stem of the holder having the depending free portions thereof approximately parallel with the stem, a clip carried by the stem near its lower end, and clips carried by the angular portion of the holder.

2. In a device of the character described, a holder approximately the shape of an inverted L, hooks formed on the stem of the holder, a clip carried by the stem near its lower end and clips carried by the angular portion.

3. In a device of the character described, a holder approximately the shape of an inverted L, supporting means carried by the stem of the holder and lamp-engaging means carried by the stem and angular portion of the holder.

787,514. HINGE.

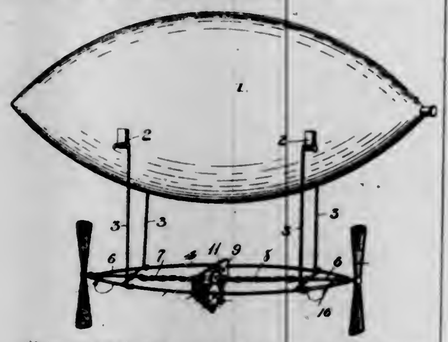
RICHARD W. HUBBARD, Ashtabula, Ohio. Filed Mar. 6, 1903. Serial No. 146,508.



Claim.—In the hinge described, the combination of members A having coincident knuckles, and a hinge-pin arranged in a knuckle or knuckles and consisting essentially of a shank having a circumferential groove *b* adjacent to one of its ends; said groove being disposed at one end of the hinge members A, and a hollow, globular tip of sheet metal having an opening *c* snugly receiving the shank and also having its edge which forms the wall of the opening *c* turned into the circumferential groove *b* in the shank, whereby it is held against movement off the shank; the distance between the circumferential groove *b* and the adjacent end of the shank corresponding

to the difference between the said edge of the tip and the opposite portion of the tip, whereby said portion is supported by the shank.

787,515. TOY AIR-SHIP. LESTER H. HUNTER, San Francisco, Cal. Filed Apr. 21, 1904. Serial No. 204,270.



Claim.—A toy air-ship comprising a buoyant body, a frame suspended therefrom, propeller-wheel shafts journaled in the opposite ends of said frame, propeller-wheels at the ends of said shafts, elastic bands connected to the propeller-shafts, a geared winding mechanism secured centrally to the frame for twisting the elastic bands, a holding device for the winding mechanism, and catches for holding the propeller-shafts while the elastic bands are being twisted, substantially as described.

787,516. GAME APPARATUS. PAUL W. JANNOCH, Pasadena, Cal., assignor of one-half to Hermann Haferland. Filed July 1, 1904. Serial No. 214,999.



Claim.—1. In a game apparatus of the character herein described the combination of a starting-board having a guideway extending longitudinally the center thereof; guide-frames secured to said starting-board and extending upward therefrom; said guideways and frame being adapted to support and guide a hoop to be rolled through said guideway.

2. In a game apparatus of the character herein described the starting-board B having strips D arranged longitudinal the center thereof; level C secured transversely the end of said starting-board; U-shaped guide-frames F secured to said starting-board and extending upwardly therefrom; brace-rods G secured to said starting-board and to said frames; said starting-board being adapted to support and guide hoop E adapted to be rolled through said guideway.

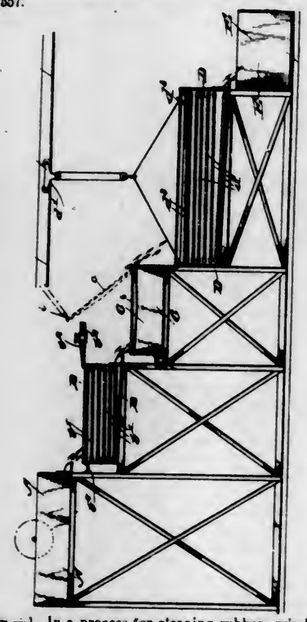
3. In a game apparatus of the character herein described the starting-board B having strips D arranged longitudinal the center thereof; level C secured transversely the end of said starting-board; U-shaped guide-frames F secured to said starting-board and extending upwardly therefrom; brace-rods G secured to said starting-board and to said frames; said starting-board being adapted to support and guide hoop E adapted to be rolled through said guideway; and springs I secured to frames F and having their ends united by bar J.

787,517. SASH-PULLEY. KARL KERR, Victor, Iowa. Filed Feb. 16, 1904. Serial No. 193,805.



Claim.—The combination of a pulley-frame designed to enter a slot in a window-casing and formed with a stop to limit its movement into the slot, a hollow axle in the pulley-frame, a pulley rotatable on the axle and a pin designed to pass through the hollow axle and be non-rotatably supported by the window-casing to firmly hold the pulley-frame in position in the casing.

787,518. CLEANING RUBBER. WILLIAM A. LAWRENCE, New York, N. Y., assignor to Continental Rubber Company, New York, N. Y., a Corporation of New Jersey. Filed July 21, 1904. Serial No. 217,557.



Claim.—1. In a process for cleaning rubber, grinding the impure rubber, increasing the density of the rubber to substantially that of water, and at the same time increasing the density of the woody impurities to more than that of water, subjecting the rubber and impurities to heated water, thereby causing the rubber and woody impurities to settle, and removing from the surface of the water those impurities which float, substantially as described.

2. The process for cleaning rubber which consists in grinding the impure rubber in company with water, increasing the density of the rubber to substantially that of water, and at the same time increasing the density of the woody impurities to more than that of water, subjecting the ground impure rubber to a hot-water bath, thereby causing the rubber and woody impurities to settle in the same, removing the impurities which float, drawing off the rubber and woody impurities and subjecting the mass to a liquid having a density greater than that of the hot-water bath, and removing the rubber from the surface of said denser liquid, substantially as described.

3. In a process for cleaning rubber, the water soaking in salt water of finely-ground impure rubber for such a length of time that the woody impurities therein acquire a density greater than that of salt water, separating the woody impurities from the rubber by allowing them to settle away from the rubber and removing the rubber from the surface of said salt-water bath, substantially as described.

4. The process for cleaning rubber which consists in grinding the uncleansed rubber, immersing the mass in heated water, removing any impurities resting near the water-surface, then floating the remaining mass of rubber on the surface of salty water, and allowing the impurities to settle away from the rubber substantially as described.

5. In a process for cleaning rubber, grinding the uncleansed rubber, immersing the ground mass in heated water and subjecting the surface of the water to a blast of air, whereby the floating impurities are removed, substantially as described.

6. The process for cleaning rubber which consists in grinding the uncleansed rubber, subjecting said ground mass to a hot-water bath, removing the surface floating impurities from said hot-water bath, subjecting the remaining mass to a liquid having a density greater than that of the rubber and removing the rubber from the surface of said liquid, substantially as described.

7. The process for cleaning rubber, which consists in grinding the uncleansed rubber, immersing the mass in heated water, removing any impurities resting near the water-surface, then mixing the remaining mass with a liquid having a density greater than that of the rubber in said mass and allowing the impurities in the mass to settle from the rubber, substantially as described.

8. The process for cleaning rubber, which consists in subjecting ground rubber to a hot-water bath, permitting the rubber and the heavier impurities to settle, subjecting such settled mass to a liquid having a density greater than that of the rubber in said mass, and separating the rubber from the impurities while in said liquid, substantially as described.

9. The process for cleaning rubber, which consists in subjecting ground uncleansed rubber to a hot-water bath, permitting the rubber and the heavier impurities to settle, subjecting such settled mass to a salty liquid, and separating the rubber from the impurities while in the salty liquid, substantially as described.

787,519. SAW-SET. OLAF E. LINDFORS, Beaver, Utah. Filed June 1, 1904. Serial No. 210,730.

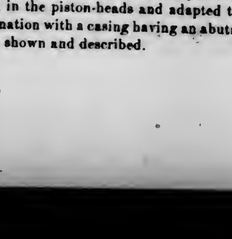


Claim.—1. A saw-set having a main frame or stock with handles, a pair of smaller adjustable frames mounted in the main frame, a shaft journaled in each of the small frames, a pair of intermeshing gear-wheels fixed one on each shaft, and at the opposite ends of the shafts detachably-secured die-wheels with teeth having inclined saw-tooth-engaging faces and with faces between the teeth inclined oppositely to the incline of the die-teeth so as to set a saw by rolling along opposite sides of its teeth, and means for adjusting said frames and die-wheels against each other, said means consisting of pivoted spring-opened levers engaging the small frames to close them together, said small levers or handles being arranged one near each of the main handles, in position to be grasped by the hands operating the latter.

2. A saw-set having a main frame or stock with handles, a pair of smaller adjustable frames mounted therein, a shaft journaled in each of the small frames, a pair of intermeshing gear-wheels fixed one on each shaft, and at the opposite ends of the shafts detachably-secured die-wheels with teeth having inclined saw-tooth-engaging faces and with faces between the teeth inclined oppositely to the incline of the die-teeth so as to set a saw by rolling along opposite sides of its teeth, and means for adjusting both of said frames and die-wheels against each other, said means consisting of pivoted spring-opened levers engaging the small frames to close them together, means for guiding the saw across the middle of the main frame, and means for insuring the closing of the small frames at the middle of the main frame.

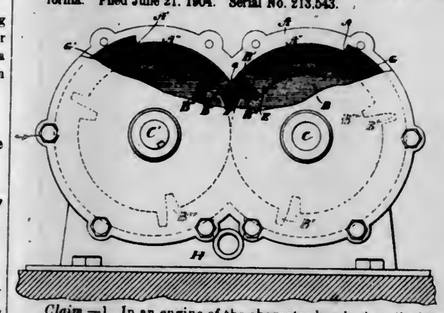
3. A saw-set having a main frame or stock with handles, a pair of smaller adjustable frames mounted therein, a shaft journaled in each of the small frames, a pair of intermeshing gear-wheels fixed one on the end of each shaft, and at the opposite ends of the shafts detachably-secured die-wheels with teeth having inclined saw-tooth-engaging faces and with faces between the teeth inclined oppositely to the incline of the die-teeth so as to set a saw by rolling along opposite sides of its teeth, and means for adjusting said frames and die-wheels against each other, said frames being pivoted together in a plane with the meshing gears on a line tangential to the meshing-point.

787,520. ARM-CLASP FOR CARRYING PACKAGES. CHRISTIAN F. LINN, Brooklyn, N. Y. Filed July 30, 1904. Serial No. 218,944.



Claim.—An arm-clasp for carrying packages, formed of a circular loop of springy material, with its ends spaced apart sufficiently to prevent the package from rotating, the ends having cord-engaging hooks whose extremities are located adjacent the body of the loop to provide contracted cord-entrances to the openings of the hooks.

787,521. ROTARY ENGINE. JOSEPH P. MAGNEY, Los Angeles, Cal., assignor to The Magney Engine Company, a Corporation of California. Filed June 21, 1904. Serial No. 213,543.



Claim.—1. In an engine of the character herein described having revoluble companion piston-heads mounted in the casing thereof, the said piston-heads having mounted on the periphery thereof projecting pistons and having recesses adjacent thereto adapted to receive the pistons on the companion piston-head; the casing being provided with an abutment extending from a point dividing the two piston-heads to a point marked A′ in the casing, the said abutment being concentric with the shaft C and adapted to provide a steam-tight joint between said shoulder and the pistons during the travel of the pistons along the abutment.

2. In an engine of the character herein described having two rotating piston-heads geared together as shown, the herein-described pistons B′ mounted on the periphery of the rotating piston-heads and adapted to enter into recesses in the companion piston-heads and recesses B″ disposed in the piston-heads and adapted to receive the pistons B′ in combination with a casing having an abutment A″ substantially as herein shown and described.

3. The herein-described rotary engine comprising two rotating piston-heads B mounted as shown, and having on the periphery thereof three pistons B′ and adjacent to each piston a recess B″, in combination with a casing A having abutment A″ disposed in the inner walls of the casing substantially as herein shown and described.

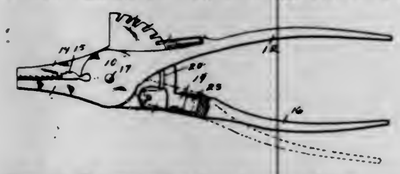
4. In a rotary engine of the character herein described provided with abutment A″ and having companion rotating piston-heads disposed in the casing thereof and geared to rotate in unison in said casing, inlet-ports for the admission of steam disposed in the side walls of said casing as shown and adapted to feed steam into the steam-chamber F on the rotation of the piston-heads and arranged to close the inlet-ports to the admission of steam before the pistons have passed the abutment A″.

787,522. DEVICE FOR TIGHTENING WIRES. GARLAND E. MARTIN, Norfolk, Va. Filed June 7, 1904. Serial No. 211,485.



Claim.—A wire twister and holder comprising a horizontal bar, a vertical bar, and a transverse connecting-bar having a central perforation; the ends of the vertical and horizontal bars being bent inward and provided with the hooked ends, the whole formed integral, substantially as described.

787,523. COMBINED PIPE-WRENCH AND PLIERS. GILBERT M. MASON, Cambridge, Iowa. Filed Mar. 22, 1904. Serial No. 199,358.



Claim.—1. The combination of two jaws pivotally connected, a fixed handle on one jaw, a pivoted handle on the other jaw and means for securing the fixed handle to the jaw having a pivoted handle.

2. The combination of two members pivotally connected, each comprising a jaw and a handle, one of the handles fixed to its jaw and the other handle pivoted to its jaw and means for adjustably securing the fixed handle to the jaw having the pivoted handle.

3. The combination of two members pivotally connected, each comprising a jaw and a handle, one of the handles fixed to its jaw and the other handle pivoted to its jaw and means for rigidly securing the pivoted handle to its jaw.

4. The combination of two members pivotally connected, each comprising a jaw and a handle, one of the handles fixed to its jaw and the other handle pivoted to its jaw, means for rigidly securing the pivoted handle to its jaw and means for securing the fixed handle to the jaw of the pivoted handle.

5. The combination of two jaw members pivoted together, a handle rigidly secured to one jaw member, means for adjustably connecting the said handle with the opposite jaw member, a second handle pivoted to the remaining jaw member and means for rigidly securing the latter handle to its jaw member.

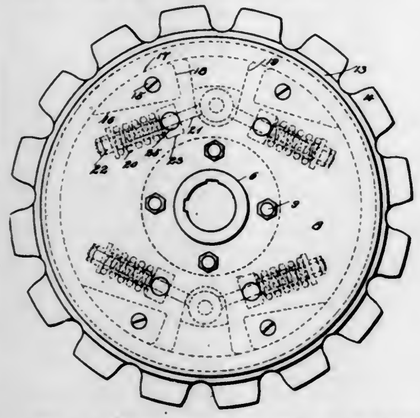
6. In an implement of the class described, the combination of a jaw member and an integral handle member thereon, a mating jaw member pivotally connected with the first, and a handle member connected with the second jaw member, in one position rigidly secured thereto and in its other position pivotally and slidingly connected thereto.

7. In an implement of the class described, the combination of a jaw member and an integral handle member thereon, a mating jaw member pivotally connected with the first, a handle member connected with the second jaw member, in one position rigidly secured thereto and in its other position pivotally and slidingly connected thereto, and means for adjustably securing the integral handle member to the second jaw member.

8. In an implement of the class described, the combination of a jaw member having a flat jaw and also having an integral handle, a second jaw member pivoted to the first and having a concave toothed surface thereon, said second jaw member provided with a notched rear end concentric with the jaw member, a slide on the integral handle member provided with a projection for entering said notches, and a handle member connected with the second jaw member, in one position rigidly secured thereto and in its other position pivotally and slidingly connected.

9. In an implement of the class described, the combination of a jaw member having a flat jaw and also having an integral handle, a second jaw member pivoted to the first and having a concave toothed surface thereon, said second jaw member provided with a notched rear end concentric with the jaw member, a slide on the integral handle member provided with a projection for entering said notches, said second jaw member also formed with a slot having a concentric portion, and a portion extending toward the center of the jaw member and a portion projecting outwardly therefrom, a projection on the second jaw member, and a handle member provided with a socket and also with lugs overlapping the sides of the concentric edge of the second jaw member, and a pin passed through said lugs and through the said slot, substantially as and for the purposes stated.

787,524. YIELDABLE GEAR-WHEEL. CYRUS C. MATTISON, Chicago, Ill. Filed Nov. 23, 1904. Serial No. 233,992.



Claim.—1. A yieldable wheel comprising a hub, spaced disks projecting therefrom and having blocks therebetween, and a yieldable rim which fits between the outer edges of the disks and rests upon said blocks.

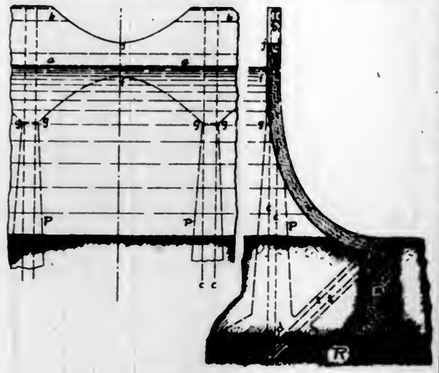
2. A yieldable wheel comprising a hub, spaced disks projecting therefrom, a rim movable upon the outer edges of the disks and having lugs projecting between said disks, springs connected to said lugs, and abutment-blocks for the springs, extending between said disks.

3. A yieldable wheel comprising a hub, spaced disks thereon, a rim movably supported at the outer edges of the disks and having lugs projecting therebetween, blocks extending across between the disks, rods connected to the lugs and extending through the blocks, and springs coiled around the rods and abutting against the blocks.

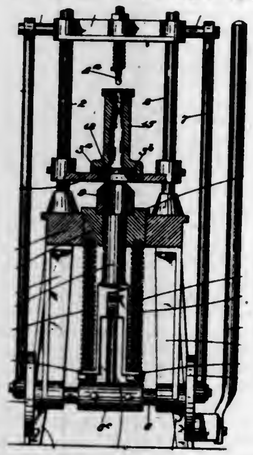
4. A yieldable wheel comprising a hub, spaced disks projecting therefrom, a pair of blocks between the disks, and a yieldable rim movably supported on the outer edge of the disks and having a lug which extends between the blocks and is constructed to stop against the same at the limit of yielding movement.

787,525. DAM. WILLIAM J. MEYERS, Fort Collins, Colo. Filed Dec. 29, 1904. Serial No. 238,700.

Claim.—An improvement in dams for resisting fluid-pressure, which said improvement consists of a substantially or sufficiently impervious sheet whose section in a plane normal to the crest of the dam is substantially everywhere convex to the impounded fluid, the said sheet being supported by compressively-stressed material the planes of compression in which are substantially normal to the crest of the dam, the load caused by the said compressive stresses being transmitted through the medium of beams or of arches or of beams and arches combined to ties and braces, through which ties and braces the said load is transmitted to the foundation of the structure, substantially as described in the foregoing specification, but without restriction of the class of curve to the circle, the hydrostatic arch or any other particular curve save that the curve be substantially everywhere convex to the impounded fluid.



787,526. GLASS-MOLDING MACHINE. EDWARD MILLER, Columbus, Ohio. Filed Jan. 19, 1905. Serial No. 241,767.



Claim.—1. In a glass-molding machine, the combination of a mold-support provided with an opening, means whereby a mold having an open end may be held with its opening coinciding with the opening in the mold-support, a receptacle for the molten glass having open ends adapted to be brought to coincide with the opening in the mold, and a cutter having a port the sides of which form a continuation of the sides of the cavity of the mold adapted to be interposed between the molten-glass receptacle and the mold to remove surplus glass from the end of the mold.

2. In a glass-molding machine, the combination of a mold-support provided with an opening with means whereby a mold having an opening may be held with its opening coinciding with the opening in said support, a cutter having a port adapted to be interposed between the support and the mold with the sides of its port coinciding with and forming a continuation of the sides of the opening in the support and to the mold and means for forcing molten glass through the openings in the support and cutter into the mold.

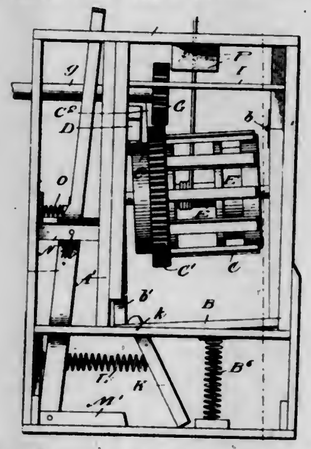
3. In a glass-molding machine, the combination of a mold-support provided with an opening, means whereby a mold having an opening may be held with its opening coinciding with the opening in said support, a carrier for a molten-glass receptacle having a plunger-opening, a movable molten-glass receptacle open at both ends adapted to be interposed between the said carrier and the mold-support with its open ends coinciding with the openings in said support and carrier, a plunger to work in said carrier, a punty to enter the other open end of the mold, and means for first closing the molten-glass receptacle against the mold-support and effecting the entry of the punty into the mold and subsequently operating the plunger to force the glass out of the receptacle into the mold.

4. In a glass-molding machine, the combination of a mold-support provided with an opening, means whereby a mold open at both ends may be held with one open end coinciding with the opening in said support, a carrier for a molten-glass receptacle having an opening, a movable molten-glass receptacle open at both ends adapted to be interposed between the said carrier and the mold-support with its open ends coinciding with the openings in said support and carrier, a plunger to work in said molten-glass carrier to force the glass out of the receptacle through one of the open ends of the mold, a punty to enter the other open end of the mold, means for effecting the entry of the punty into the mold and the operation of the plunger jointly.

5. In a glass-molding machine, the combination of a mold-support provided with an opening, means whereby a mold having an opening at each end may be held with one of its openings coinciding with the opening in said support, a carrier for a molten-glass receptacle having a plunger-opening, a movable molten-glass receptacle open at both ends adapted to be interposed between the said carrier and the mold-support with its open ends coinciding with the openings in said support and carrier, a plunger to work in said carrier, a punty to enter the other open end of the mold, and means for first closing the molten-glass receptacle against the mold-support and effecting the entry of the punty into the mold and subsequently operating the plunger to force the glass out of the receptacle into the mold.

6. In a glass-molding machine, the combination of a stationary table, a mold-support provided with an opening, means whereby a mold having an opening at each end may be held with one of its openings coinciding with the opening in said support, a movable carrier for a molten-glass receptacle having a plunger-opening, and sliding with a limited movement in said stationary table, a movable molten-glass receptacle open at both ends adapted to be interposed between the said carrier and the mold-support with its open ends coinciding with the openings in said support and carrier, a plunger to work in said carrier, a punty to enter the other open end of the mold, and means for first closing the molten-glass receptacle against the mold-support and effecting the entry of the punty into the mold and subsequently operating the plunger to force the glass out of the receptacle into the mold.

787,527. TROLLEY-RETRIEVER. FRANCIS M. MILLER, Arcadia, Ind. Filed Feb. 2, 1905. Serial No. 243,815.



Claim.—1. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a drum revolubly mounted in said casing and provided with ratchet-teeth, means for automatically throwing said pinion and ratchet-teeth into engagement, means for automatically locking said drum when the trolley-pole has been drawn down and means for releasing said drum, substantially as and for the purpose described.

2. In a trolley-retriever, the combination with a casing secured

to the car, of a continuously-revolving pinion mounted therein, a drum revolubly mounted in said casing, means whereby said drum will permit a limited play of the trolley-rope, ratchet-teeth on said drum, means for automatically throwing said pinion and ratchet-teeth into engagement, means for automatically locking said drum when the trolley-pole has been drawn down and means for releasing said drum, substantially as and for the purposes described.

3. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted thereon, a drum revolubly mounted in said casing and provided with ratchet-teeth, means for locking said drum, a smaller drum revolubly mounted within the larger drum, the amount of rotation of said smaller drum being limited, means for automatically unlocking said larger drum and throwing the teeth thereof into engagement with said pinion, means for automatically locking said larger drum when the trolley-pole has been drawn down and means for releasing said drum to permit the trolley-rope to be unwound therefrom, substantially as and for the purpose described.

4. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a frame hinged to and within said casing and normally retained in a lowered position, a drum revolubly mounted in said frame and provided with ratchet-teeth, means for automatically raising said frame to throw the teeth on said drum into engagement with said pinion, means for automatically locking said drum when the trolley-pole has been drawn down and means for releasing said drum, substantially as and for the purpose described.

5. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a frame hinged to and within said casing and normally retained in a lowered position, a drum revolubly mounted in said frame, means whereby said drum will permit a limited play of the trolley-rope, ratchet-teeth on said drum, means for automatically raising said frame to throw said teeth on said drum into engagement with said pinion, means for automatically locking said drum when the trolley-pole has been drawn down and means for releasing said drum, substantially as and for the purpose described.

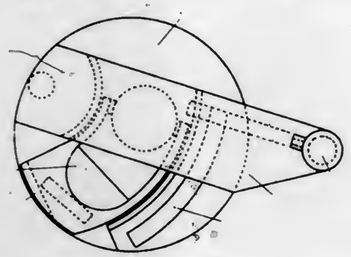
6. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a frame hinged to and within said casing and normally retained in a lowered position, a drum revolubly mounted in said frame and provided with ratchet-teeth, means for locking said drum when said frame is lowered, a smaller drum revolubly mounted in said larger drum, the amount of rotation of said smaller drum being limited, means for automatically unlocking said drum and raising said frame to throw the teeth on said drum into engagement with said pinion, means for automatically locking said larger drum when the trolley-pole has been drawn down and means for releasing said drum, substantially as and for the purpose described.

7. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a drum revolubly mounted in said casing, a series of ratchet-teeth extending partially around said drum, said drum being provided with a notch between the terminals of said series of teeth, means for automatically throwing said drum and ratchet-teeth into engagement, means for automatically locking said drum when said notch arrives under said pinion and means for releasing said drum, substantially as and for the purpose described.

8. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a drum revolubly mounted in said casing, a series of ratchet-teeth extending partially around said drum, said drum being provided with a notch between the terminals of said series of teeth, means for locking said drum, a smaller drum revolubly mounted in said larger drum the rotation of said smaller drum being limited, means for automatically unlocking said larger drum and throwing the teeth thereof into engagement with said pinion, means for automatically locking said larger drum when said notch arrives under said pinion and means for releasing said drum, substantially as and for the purpose described.

9. In a trolley-retriever, the combination with a casing secured to the car, of a continuously-revolving pinion mounted therein, a frame hinged to and within said casing and normally retained in a lowered position, a drum revolubly mounted in said frame, a series of ratchet-teeth extending partially around said drum, said drum being provided with a notch between the terminals of said series of teeth, means for automatically throwing said frame to throw said teeth into engagement with said pinion, means for automatically locking said drum when said notch arrives under said pinion and means for releasing said drum, substantially as and for the purpose described.

787,528. BREECH MECHANISM FOR QUICK-FIRING CANNON. MANUEL MONDRAGON, Courbevoie, France. Filed Sept. 18, 1903. Serial No. 173,743.



Claim.—1. In breech mechanism for ordnance, a gun-breech having a separate or independent threaded or grooved crown-segment on each side of and eccentric to the bore of the gun, one of the segments having a stop at one end, in combination with a block having its contacting portions threaded or grooved correspondingly and adapted to oscillate on a pin concentric to the crown-segments, and provided with a bar which contacts with the stop on the segment in its firing position.

2. In breech mechanism for ordnance a gun-breech having a separate or independent threaded or grooved crown-segment on each side of and eccentric to the bore of the gun, one of the segments having a stop at one end, in combination with a block having its contacting portions threaded or grooved correspondingly, and adapted to oscillate on a pin concentric to the crown-segments, said block having a bar which contacts with the stop on the segment in its firing position, and means for oscillating the same manually.

3. In breech mechanism for ordnance, a gun-breech having integral therewith a separate or independent threaded or grooved crown-segment on each side of and eccentric to the bore of the gun, one of the segments having a stop at one end, in combination with a block having its contacting portions correspondingly threaded or grooved, and adapted to oscillate to and fro across the bore of the gun, and having a bar which contacts with the stop on the segments in its firing position.

4. In breech mechanism for ordnance, a gun-breech having integral therewith a threaded or grooved crown-segment eccentric to the bore of the gun and provided with a groove concentric with the grooved segment and a recess or depression at one end of said groove, in combination with a breech-block, having corresponding grooved or threaded contact portions adapted to oscillate across the breech, said block having an operating-handle and means on said handle and coöperating with the concentric groove and recess therein whereby said block can be locked when in its firing position.

5. In breech mechanism for ordnance, a gun-breech having a separate or independent threaded or grooved crown-segment on each side of and eccentric to the bore of the gun, and having a stop at the end of one segment, in combination with a breech-block comprising a main bar with a right-angled operating-handle, to engage with said stop in its firing position, and a projecting boss threaded or grooved to coöperate with the crown-segments of the breech.

6. In breech mechanism for ordnance, a gun-breech having integral therewith a separate or independent threaded or grooved crown-segment on each side of and eccentric to the bore of the gun, and having a stop at the end of one segment, in combination with a breech-block comprising a main bar to engage with said stop in its firing position with an operating-handle and a projecting boss threaded or grooved to coöperate with the crown-segments of the breech.

7. In breech mechanism for ordnance a gun-breech having integral therewith separate or independent threaded or grooved crown-segments on each side of and eccentric to the bore of the gun, and having a stop at the end of one segment, in combination with a breech-block comprising a main bar with an operating-handle, and an integral inwardly-projecting boss threaded or grooved to coöperate with the crown-segments of the breech.

8. In breech mechanism for ordnance, a gun-breech having a threaded or grooved crown-segment on each side of and eccentric

to the bore of the gun, the outer face of one of said crown-segments having a concentric groove with a depression or recess therein, in combination with a breech-block comprising a main bar with a handle, a lever on said handle, having a beak to coöperate with said groove and depression or recess, and an inwardly-projecting boss threaded or grooved to coöperate with the crown-segments of the breech.

9. In breech mechanism for ordnance, a gun-breech having integral therewith a threaded or grooved crown-segment on each side of and eccentric to the bore of the gun, a concentric groove with a depression or recess at one end in the outer face of one of the segments, in combination with a breech-block pivoted at one end to the breech and provided with a bar to contact with said stop in its firing position having an integral inwardly-projecting boss threaded or grooved to coöperate with the crown segments of the breech, an operating-handle and a lever provided with a beak, and engaging with said groove and depression or recess for locking said block.

10. In breech mechanism for ordnance, a gun-breech, having integral therewith a separate or independent threaded or grooved crown-segment on each side of and eccentric to the bore of the gun and having a stop at the end of one segment, a groove or socket in the breech tangentially disposed to the bore between said crown-segments, in combination with a breech-block having a threaded or grooved portion coöperating with the aforesaid crown-segments, and an ejector between said breech and block, having a transverse rib at its outer end which rests in the tangential groove of the breech, a shoulder which engages with the breech-block when it is opened, and fingers which extend to opposite sides of the bore, as and for the purposes set forth.

11. In breech mechanism for ordnance, a gun-breech having a projecting threaded or grooved crown-segment on each side of and eccentric to the bore, a groove or socket in the breech, between the segments, tangentially disposed to the bore, one of the segments having on its face a concentric groove with a depression or recess at one end, in combination with a breech-block comprising a bar, having integral therewith a boss threaded or grooved to coöperate with the crown-segments, a handle having a lever with a beak to engage with the groove and depression or recess in the breech and an ejector between the breech and block having at its outer end a transverse rib to engage the tangential groove of the breech, and provided with fingers which extend to opposite sides of the bore, and a shoulder on the outer side of the ejector to engage with the block, as set forth.

12. In breech mechanism for ordnance, a breech having projecting threaded or grooved crown-segments, and a concentric groove and depression or recess in one of said segments, in combination with a breech-block coöperating with said crown-segments, said breech-block having a locking-catch coöperating with said groove and depression or recess, and means for disengaging said catch by the counter recoil of the gun.

13. In breech mechanism for ordnance, a breech having integral therewith projecting threaded or grooved crown-segments, one of the segments having a concentric groove and a recess therein, in combination with a breech-block coöperating with said crown-segments, a handle on said breech-block, and a fastening-lever on said handle coöperating with the concentric groove and recess on the segment, and a sliding block within the handle coacting with the lever and actuating same by the counter recoil of the gun.

787,529. HOSE-CONNECTOR. KARL O. MUEHLBERG, Homestead, Pa. Filed Feb. 18, 1904. Serial No. 194,216.



Claim.—1. A hose-connector comprising a body having a threaded exterior and a projecting portion provided with an external annular enlargement designed to be inserted inside the hose, said body being reduced back of the annular enlargement to a greater depth than the thickness of the hose and said annular enlargement being of less diameter than the body, and a clamping-sleeve having a straight threaded interior to engage the threaded exterior of the body and arranged to move outwardly over the hose and clamp the same against the annular enlargement.

2. A hose-connector comprising a member provided with a projecting nipple having an external annular enlargement, a collar or sleeve on said member and located externally of said nipple to leave an annular space therebetween, and a sleeve having a threaded connection with said collar and arranged to pass over the hose and clamp the same against the annular enlargement of said nipple.

3. A hose-connector comprising a member provided with a projecting nipple having an annular enlargement thereon, an annular collar or sleeve on said member and located externally of said nipple to leave an annular space therebetween, and a sleeve having a threaded connection with said collar and provided with an inwardly-projecting annular lip and arranged to pass over the hose and clamp the same against the annular enlargement of said nipple.

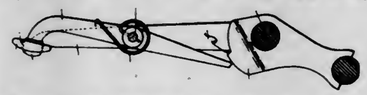
4. A hose-connector comprising a member provided with a projecting nipple having an annular enlargement thereon, a sleeve having a threaded connection with said member and located externally of said nipple so as to leave an annular space therebetween, and a clamping-sleeve having a threaded connection with said first-named sleeve and arranged to pass over the hose and clamp the same against the annular enlargement of said nipple.

5. A hose-connector comprising a member provided with a projecting nipple having an annular enlargement thereon, a sleeve having a threaded connection with said member and located externally of said nipple to leave an annular space therebetween, and a clamping-sleeve having a threaded connection with said first-named sleeve and provided with an inwardly-projecting rib or lip and arranged to pass over the hose and clamp the same against the annular enlargement of said nipple.

6. A hose-connector comprising an externally-threaded member provided on each end with a projecting nipple having an annular enlargement thereon, and having at each end an annular collar located externally of said nipples to leave annular spaces therebetween, and two clamping-sleeves internally threaded and engaging said collars and provided with inwardly-projecting ribs or lips and arranged to pass over the hose and clamp the same against the annular enlargements of said nipples.

7. A hose-connector comprising an externally-threaded member provided on each end with a projecting nipple having an annular enlargement thereon, a pair of collars internally threaded and engaging said member and in turn being externally threaded and arranged to project over said nipples to leave annular spaces therebetween and to clamp the hose against the annular enlargements on said nipples, and clamping-sleeves internally threaded and engaging the external threads of said collars and provided with inwardly-projecting beads or ribs arranged to pass over the hose and clamp the same against the annular enlargements of said nipples.

787,530. CLUTCH FOR AUTOMOBILES. HENRY G. MCCOMB, Ardmore, Pa., assignor to The Autocar Company, Ardmore, Pa., a Corporation of Pennsylvania. Filed Nov. 8, 1904. Serial No. 231,884.



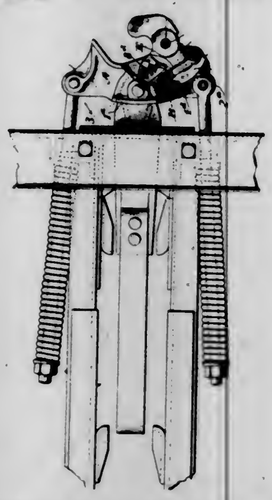
Claim.—1. The combination with a pivoted lever of an orificed foot-pad thereon, a stationary notched plate, a pawl pivoted on the lever, and a spring between the lever and pawl normally holding said pawl in line with said notch whereby when the lever is moved by the foot-pad the pawl will engage the notch and lock the lever, said pawl having a tailpiece normally projecting through said orifice and beyond the face of the foot-pad and adapted to be operated to move the pawl against the action of the spring out of line of the notch whereby when the foot-pad and tailpiece are operated in unison the pawl will be ineffective to lock the lever.

2. The combination with a lever pivoted at one end, an orificed foot-pad at the other end of the lever, a pawl pivoted between its ends to the lever, a locking-plate normally adapted to be engaged by one end of the pawl when the lever is moved by means of the foot-pad and a spring normally holding said pawl in its operative position, said pawl having on its other end a tailpiece extending through the orifice in the foot-pad, whereby the pawl may be moved against the action of the spring to bring its locking end out of line with the locking-plate.

787,531. CAR-COUPLING. WILLIAM MCCONWAY, Jr., Pittsburg, Pa., assignor to The McConway & Torley Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Dec. 3, 1904. Serial No. 235,361.

Claim.—1. In a car-coupler, the combination with a coupler-head, of a lock, a knuckle having a laterally-extending impact mem-

ber upon the locking side of the tail thereof, and means operative by the lock for opening said knuckle, substantially as and for the purposes specified.



2. In a car-coupler, the combination with a coupler-head, of a lock located upon the knuckle side thereof, means operated by the lock for opening the knuckle, and a knuckle the lugs portion and the tail portion whereof form an obtuse angle facing the guard-arm side of the coupler-head, said knuckle having an impact member upon the tail thereof adapted to receive the impact of an opposing knuckle in a coupling operation, substantially as and for the purposes specified.

3. In a car-coupler having a plurality of stems, the combination with a coupler-head, of a lock located upon the knuckle side thereof, a knuckle, and means for opening said knuckle, substantially as and for the purposes specified.

4. In a car-coupler having a plurality of stems, the combination with a coupler-head, of a lock located upon the knuckle side of the coupler-head, a knuckle, and a lock-set and knuckle-opener member adapted to support the lock in unlocked position and also to open the knuckle, substantially as and for the purposes specified.

5. In a car-coupler, the combination with a coupler-head, of a lock located upon the knuckle side thereof, a knuckle the lugs portion and the tail portion whereof form an obtuse angle facing the guard-arm side of the coupler-head, and a lock-set and a knuckle-opener member adapted to support the lock in unlocked position and also to open the knuckle, substantially as and for the purposes specified.

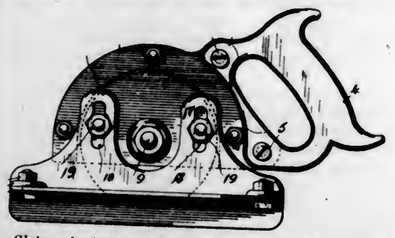
6. In a car-coupler, the combination with a coupler-head, of a lock located upon the knuckle side thereof, a knuckle the lugs portion and the tail portion whereof form an obtuse angle facing the guard-arm side of the coupler-head, said knuckle having an impact member upon the tail thereof, and a lock-set and knuckle-opener member adapted to support the lock in unlocked position and also to open the knuckle, substantially as and for the purposes specified.

7. A knuckle adapted for use with car-couplers having the lock located on the knuckle side of the coupler-head, said knuckle having a lugs portion and a tail portion, said tail portion being provided with a laterally-extending impact member and having an inclined projection adapted to actuate a lock-set member, substantially as and for the purposes specified.

8. In a car-coupler having a plurality of stems, the combination with a coupler-head, of a lock located upon the knuckle side thereof, a knuckle, and means automatically operative by an unlocking movement of the lock for supporting said lock in unlocked position while the knuckle is in closed position, substantially as and for the purposes specified.

9. In a car-coupler having a center stem and side stems, the combination with a coupler-head, of a knuckle having a laterally-projecting impact member upon the tail thereof, and a lock for said knuckle located upon the knuckle side of the coupler-head and interposed between the center stem and a side stem, substantially as and for the purposes specified.

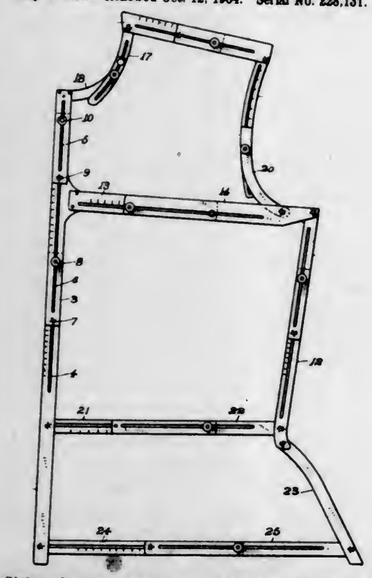
787,532. PORTABLE HANDSAW. ROBERT S. MCCREERY, Huntington, N. Y. Filed Aug. 11, 1904. Serial No. 220,328.



Claim.—1. A portable sawing-machine, comprising a frame-plate provided with a handle and with a laterally-projecting bearing, a shaft in said bearing, a circular saw on said shaft, a gage-plate vertically adjustable on said frame-plate to regulate the depth of the saw-kerf, and a lateral gage-plate horizontally adjustable on said first-mentioned gage-plate.

2. A portable sawing-machine comprising a frame having a handle and a bearing, a shaft in said bearing, a circular saw on said shaft, a removable guard attached to the said frame and adapted to surround the saw, a depth gage-plate adjustably secured to said frame, and a side gage-plate adjustably secured to said depth gage-plate.

787,533. CHART. WILLIAM MCDOWELL, New York, N. Y. Filed May 1, 1903. Renewed Oct. 12, 1904. Serial No. 228,131.



Claim.—1. A waist-chart, comprising front and side adjustable strips and shoulder, bust, waist and hip strips connecting the same, all of said connecting-strips being provided with portions capable of adjustment.

2. A waist-chart, comprising center and side strips, shoulder, waist and hip strips pivotally connected at their ends with the said center and side strips, a bust-strip fixed to the center strip and pivoted to the side strip and adjusting means interposed in all of said connecting-strips.

3. A waist-chart, comprising center and side strips having adjustable means interposed in their length, neck and armhole strips provided with adjustable connections, bust, waist and hip connecting-strips joining the center and side strips, a shoulder connecting-strip joining the neck and armhole strips and sliding adjustable means interposed in the length of all of said connecting-strips.

4. A waist-chart, comprising center and side strips, a neck-strip, armhole-strips and adjustable strips connecting the center strip with the armhole-strip and shoulder, waist and hip strips adjustably connecting the center and side strips.

5. A waist-chart, comprising center and side strips, waist-strips and hip-strips connecting center and side strips said waist and hip strips having an intermediate adjustable means and an adjustable means at their ends and adjustable means connecting the arm-strips with the center strips.

6. A waist-chart, comprising front and back portions the back portion having center and side strips, armhole-strips, a horizontal back strip connecting the center strip with the central portion of the arm-strip, a section of the armhole-strip being pivoted at adjacent ends to said horizontal connecting-strip and a shoulder connecting-strip.

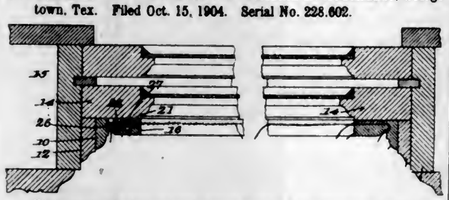
7. A waist-chart, comprising front and back portions the back portion having center and side strips and an armhole-strip the said armhole-strip being made up of upper and lower sections, a horizontal connecting-strip extending from the center strip to the arm-strip adjacent ends of the upper and lower armhole-sections being pivoted upon said connecting-strip, and intermeshing means interposed between the adjacent ends of the armhole-sections for limiting their adjustment with respect to each other.

8. A waist-chart, comprising center and side strips, an armhole-strip formed in two sections, the lower section being adjustably connected to the upper end of the upper side strip, a shoulder-strip adjustably connected with the upper armhole-section, a lateral connecting-strip supporting the adjacent ends of the armhole-strips and strips at right angles to each other for connecting the said lateral connecting-strip with the upper side strip.

9. A waist-chart, comprising front and back sections the back section having center and side strips, a horizontal strip projecting from the upper end of the side strip, an armhole-strip rising from said horizontal strip, a connecting-strip extending from the armhole-strip to the center back strip, a vertical bracing-strip interposed between the horizontal strip and the armhole connecting-strip and shoulder, waist and hip strips.

10. A waist-chart, comprising front and back sections the back section having center and side strips, an armhole-strip, a connecting-strip extending from the armhole-strip to the center strip, a vertical strip depending from said connecting-strip, a horizontal strip extending from the upper end of the side strip toward the center strip and adjustable means interposed between the same and the strip depending from the connecting-strip and shoulder, waist and hip strips.

787,534. WINDOW-SCREEN. WILLIAM H. MCGLAMERY, Georgetown, Tex. Filed Oct. 15, 1904. Serial No. 228,602.



Claim.—A window-screen having one of its stiles provided with a longitudinal groove, pins arranged in the groove, a supplemental stile disposed within the groove and having sockets to receive the pins, bow-springs interposed between the two stile members and held in place by the pins, and means carried by the supplemental stile member and engaging the upper end of the stile proper to hold the former against downward movement relatively to the latter, thereby to cause the pins always to be in alinement with the sockets, and to remove strain from the pins.

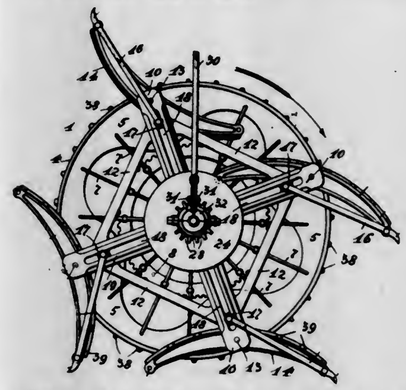
787,535. TRICK TOY. TIMOTHY W. MCGRATH, New York, N. Y., assignor to The Scientific Toy Company, New Haven, Conn., a Corporation of Connecticut. Filed May 19, 1904. Serial No. 208,740.



Claim.—1. A trick toy comprising a ring provided with a coin-shielding disk or diaphragm upon the under side thereof, and a device to cover the opposite or open side of the ring, said device having a shoulder to fit the ring and a deluding coin-holder, substantially as described.

2. A trick toy comprising a ring, a coin-shielding disk or diaphragm upon the under side of the ring, and a cover for the upper side of the ring provided with a deluding coin-holder and a shoulder to engage the ring, and a cup to inclose said cover, substantially as described.

787,536. TRACTION-WHEEL. CLAYTON A. MCINTOSH, Washington, Kans., assignor of one-half to Bond Shafer, Washington, Kans. Filed Dec. 12, 1904. Serial No. 236,562.



Claim.—1. In a traction-wheel, the combination with a flanged hub, of radially-disposed main spokes secured to one end thereof, a flanged rim or tire arranged on said main spokes, auxiliary spokes arranged between said main spokes and connected to the flanges of said rim and hub, channeled spokes secured to the opposite end of said hub, and disposed opposite to and parallel with said main spokes, segmental steppers pivoted between the outer ends of said main and channeled spokes, guide-blocks slidably mounted in said channeled spokes, pitman-rods connecting one end of said steppers with said guide-blocks, and means whereby the inward movement of said blocks is limited, thereby regulating the inward movement of said steppers, substantially as described.

2. In a traction-wheel, the combination with a flanged hub, of radially-disposed parallel spokes secured to the opposite ends of said hub, a rim or tire arranged on the outer ends of the spokes on one end of said hub, longitudinally-disposed channels formed in the other set of spokes, segment-shaped steppers pivotally mounted between the outer ends of said spokes, guide-blocks slidably mounted in the channels of said spokes, pitman-rods connecting one end of said steppers to said guide-blocks, adjusting-blocks also mounted in said channels to limit the inward movement of said guide-blocks, and means whereby said adjusting-blocks are shifted and held at different positions in said channels, substantially as and for the purpose described.

3. In a traction-wheel, the combination with a flanged hub, of radially-disposed parallel spokes secured to the opposite ends of said hub, a rim or tire arranged on the outer ends of the spokes on one end of said hub, longitudinally-disposed channels formed in the other set of spokes, segment-shaped steppers pivotally mounted between the outer ends of said spokes, guide-blocks slidably mounted in the channels of said spokes, pitman-rods connecting one end of said steppers to said guide-blocks, adjusting-blocks also mounted in said channels to limit the inward movement of said guide-blocks, an adjusting plate or disk loosely mounted on the end of the axle of said wheel, a spiral thread formed on the inner face of said plate or disk, a laterally-projecting pin formed on said adjusting-blocks to engage said spiral thread, means whereby said disk or plate is turned thereby moving said block outward in said channels and means whereby said plate may be shifted into and out of engagement with said pin, substantially as described.

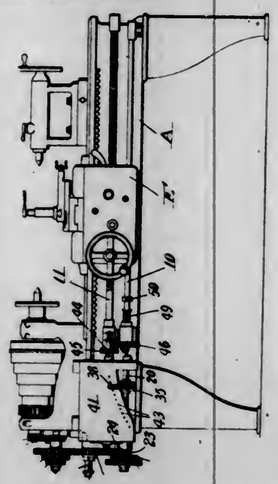
4. In a traction-wheel, the combination with a flanged hub, of radially-disposed parallel spokes secured to the opposite ends of said hub, a rim or tire arranged on the outer ends of the spokes on one end of said hub, longitudinally-disposed channels formed in the other set of spokes, segment-shaped steppers pivotally mounted between the outer ends of said spokes, guide-blocks slidably mounted in the channels of said spokes, pitman-rods connecting one end of said steppers to said guide-blocks, cushioned adjusting-blocks also

mounted in said channels to limit the inward movement of said guide-blocks, an adjusting plate or disk loosely mounted on the end of the axle of said wheel to normally turn with said wheel, a spiral thread formed on the inner face of said plate or disk, a pin formed on said adjusting-blocks to normally engage said thread, an annular series of notches formed on the outer face of said disk, a pivotally-mounted lever, adapted to be swung into and out of engagement with said notches whereby said disk or plate will be held against revolution, and means whereby said plate or disk is disengaged from the pins on said adjusting-blocks, substantially as described.

5. In a traction-wheel, the combination with a flanged hub, of radially-disposed parallel spokes secured to the opposite ends of said hub, a rim or tire arranged on the outer ends of the spokes on one end of said hub, longitudinally-disposed channels formed in the other set of spokes, segment-shaped steppers pivotally mounted between the outer ends of said spokes, guide-blocks slidably mounted in the channels of said spokes, pitman-rods connecting one end of said steppers to said guide-blocks, cushioned adjusting-blocks also mounted in said channels to limit the inward movement of said guide-blocks, an adjusting plate or disk loosely mounted on the end of the axle of said wheel to normally turn with said wheel, a spiral groove or thread formed on the inner face of said plate or disk, a pin formed on said adjusting-blocks to normally engage said thread, an annular series of notches formed on the outer face of said disk, an annularly-grooved hub formed on said plate, a two-part collar mounted on the extreme end of said axle and loosely connected to the grooved hub of said plate, a spring-retracted lever pivotally mounted on said collar, a lug formed on said lever and adapted to be moved thereby into engagement with the notches on said plate or disk to hold said plate against rotation, and a spiral thread formed on the end of said axle to engage a spiral groove in said collar whereby when said lever is turned ninety degrees around said axle said collar and said plate or disk will be shifted out of engagement with the pins on said adjusting-blocks, substantially as and for the purpose described.

787,537. CHANGE-SPEED GEARING FOR ENGINE-LATHES.

ALBERT E. NEWTON, Worcester, Mass., assignor to The Prentice Brothers Company, Worcester, Mass., a Corporation of Massachusetts. Filed July 7, 1903. Serial No. 164,571.



Claim.—1. In an apparatus of the class described, the combination of a support, a driven shaft projecting therefrom, three gears varying in size mounted on said shaft, another shaft journaled also in said support parallel to said driven shaft from which power is to be taken, another set of three gears varying in size mounted thereon, a sweep carrying a stud and an intermediate gear carried by said stud, said intermediate gear having a width not greater than the gears with which it meshes and means whereby the intermediate gear can be set on said stud in three different positions axially.

2. In an apparatus of the class described, the combination of a grooved shaft and means for driving it, a pinion keyed to slide on said shaft, a lever journaled on said shaft, an intermediate gear carried by said lever and meshed with said pinion, a counter-shaft, a series of gears arranged thereon into any one of which said intermediate can be meshed, two additional parallel shafts and means for driving them alternately from said counter-shaft, said means consisting of a slip-pinion slidingly mounted on said counter-shaft, and a gear on each of said parallel shafts, these two gears being out of alinement with each other and having their teeth in alinement with the teeth of the slip-pinion, whereby only one of the parallel shafts can be operated at the same time from said slip-pinion.

3. In an apparatus of the class described, the combination of a bed, a bracket attached thereto and having two sets of journals, a grooved shaft journaled in one set, a pinion keyed to and longitudinally adjustable on said grooved shaft, a lever hung on said grooved shaft, and an intermediate gear carried by said lever and meshed with said pinion, a counter-shaft journaled in the other set of bearings, a series of gears mounted on said counter-shaft into any one of which said intermediate can be meshed, and projections on the bed to which said bracket is secured.

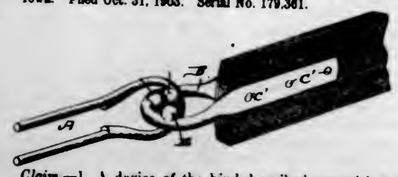
4. In an apparatus of the class described, the combination of a bed or support, a bracket having two sets of journals, a grooved shaft journaled in one set, a pinion keyed to and longitudinally adjustable on said grooved shaft, a lever hung on said grooved shaft, an intermediate gear carried by said lever and meshed with said pinion, a counter-shaft journaled in the other set of bearings, a series of gears mounted on said counter-shaft into any one of which said intermediate can be meshed, projections on the bed or support to which said bracket is secured, and an independent cover-plate also secured to said bed or support which cover-plate said lever engages.

5. In an apparatus of the class described, the combination of a bed or support, a bracket having two sets of journals, a grooved shaft journaled in one set, a slidable pinion carried thereby, a hook-shaped lever hung on said grooved shaft, an intermediate gear carried thereby, said gear being meshed with said pinion carried thereby, a counter-shaft journaled in the other set of bearings, a series of gears carried thereby into any one of which said intermediate can be meshed, and a cover-plate independently secured to the bed and having a guiding-rib which said hook-lever engages.

6. In an apparatus of the class described, the combination of a bed or support, a bracket attached thereto and having two sets of journals a grooved shaft journaled in one set of journals and a slidable pinion carried thereby, a lever hung on said shaft for sliding said pinion, an intermediate gearing carried by said lever, a series of gears mounted on the end of said shaft, a sweep hung concentric with said shaft, an intermediate mounted on said sweep and means for adjusting and holding it in different planes, a series of driven gears for actuating said intermediate, a counter-shaft journaled in the other set of bearings of the bracket, a series of gears arranged on said counter-shaft into any one of which said pinion can be meshed, a slip-pinion carried by said counter-shaft, and an additional pair of parallel shafts, a gear on each of said parallel shafts, these gears being adjacent to the slip-pinion whereby the slip-pinion may be meshed with either one or in both, for the purposes set forth.

787,538. HAME-STAPLE AND CLIP.

THOMAS E. OPP, Cambria, Iowa. Filed Oct. 31, 1903. Serial No. 179,361.



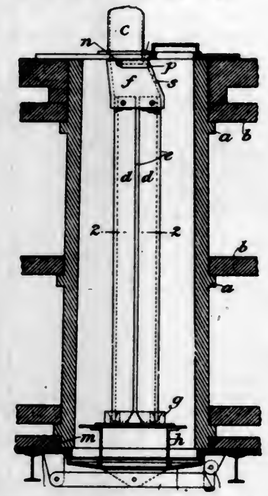
Claim.—1. A device of the kind described comprising a clip carrying inwardly-extending, spherical enlargements upon opposite sides of the bow portion of the clip, and a staple having spherical enlargements upon opposite sides of the bend and on the inner face of the staple, said enlargements being adapted to bear upon the enlargements of the clip and hold the clip from contact with the staple.

2. A device of the kind described comprising a staple having a plurality of spherical enlargements formed on its inner face, a clip having a plurality of spherical enlargements formed on its inner face and adapted to rock upon the enlargements formed on the staple, as and for the purpose set forth.

787,539. APPARATUS FOR GENERATING GAS.

GEORGE W. PARKER, New York, N. Y. Filed Feb. 1, 1904. Serial No. 191,453.

Claim.—1. In an apparatus for distilling coal and the like, the combination of a substantially vertical retort, and a tube constructed to collapse within the retort for collecting the gas.



2. In an apparatus for distilling coal and the like, the combination of a substantially vertical retort, and a tube constructed to collapse hung in the center of the retort and adapted to receive the gas as it is distilled.

3. In an apparatus for distilling coal and the like, the combination of a substantially vertical retort tapering toward the top, and a tube constructed to collapse within the retort for collecting the gas.

4. In an apparatus for distilling coal and the like, the combination of a substantially vertical retort, and a tube within the retort for collecting the gas, said tube comprising a plurality of longitudinal sections independent of each other and normally separated by spaces through which the gas may enter the tube.

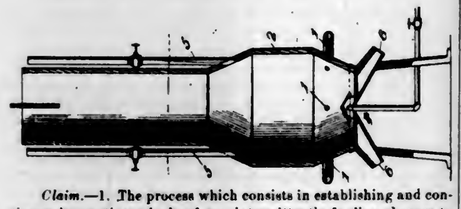
5. In an apparatus for distilling coal and the like, the combination of a substantially vertical retort, a collapsible tube within the retort composed of a plurality of longitudinal sections, a tube at the upper portion of the retort to which the sections are secured, and means in the lower portion of the retort to center the sections.

6. In an apparatus for distilling coal and the like, the combination with a supply-reservoir and a substantially vertical retort having a cover upon its lower end, of a collapsible tube within the retort, and a horizontally-slidable tube in the upper portion of the retort and communicating with the supply-reservoir.

7. In an apparatus for distilling coal and the like, the combination of a substantially vertical retort, a tube suspended within the retort to collect the gas, a cover upon the bottom of the retort, and means upon the cover to center the tube.

787,540. PROCESS OF ROASTING ORES.

SKELY B. PATTERSON, Phillipsburg, N. J. Filed Jan. 21, 1902. Serial No. 90,692.

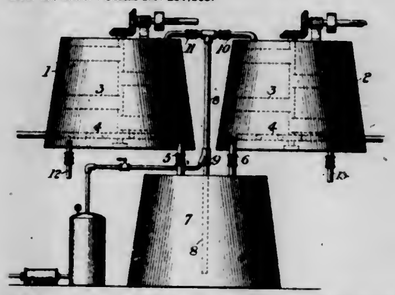


Claim.—1. The process which consists in establishing and continuously roasting a body of ore, intermittently feeding charges to the top of the body, intermittently subjecting the body throughout its length to the action of hot air, in the intervals repeatedly subjecting the lower portions of the body that have been subjected to the hot air to the action of steam, and withdrawing the roasted ores from the base of the body, substantially as described.

2. The process of roasting ore which consists in establishing a body of ore, intermittently feeding and withdrawing charges, and subjecting the body of ore alternately and in layers to the action of hot air and steam at lower temperature than the air, substantially as described.

787,541. PROCESS OF CONVERTING LEAD SULFATE INTO LEAD HYDROXID.

ALEXANDER S. RAMAGE, Detroit, Mich. Filed Dec. 16, 1904. Serial No. 237,165.



Claim.—1. The process of converting lead sulfate into lead hydroxid, which consists in treating lead sulfate with an excess of an alkali hydroxid and directly producing lead hydroxid and a solution containing lead, separating said lead hydroxid and solution, and treating said solution with another portion of lead sulfate, as set forth.

2. The process of converting lead sulfate into lead hydroxid, which consists in treating lead sulfate with an excess of an alkali hydroxid and directly producing lead hydroxid and a solution containing lead, separating said lead hydroxid and solution, treating said solution with another portion of lead sulfate, thereby producing a basic lead sulfate, and decomposing said basic lead sulfate with an alkali hydroxid, as set forth.

3. The process of converting lead sulfate into lead hydroxid, which consists in treating lead sulfate with an excess of an alkali hydroxid and directly producing lead hydroxid and a solution containing lead, separating said lead hydroxid and solution, causing said solution to react on another portion of lead sulfate, thereby precipitating the lead in solution as basic lead sulfate, and treating the resulting mixture of lead sulfate and basic lead sulfate with a solution containing an excess of an alkali hydroxid, as set forth.

4. The process of converting lead sulfate into lead hydroxid, which consists in treating lead sulfate with an excess of an alkali hydroxid and directly producing lead hydroxid and a solution containing lead, separating said lead hydroxid and solution, causing said solution to react on another portion of lead sulfate, thereby precipitating the lead in solution as basic lead sulfate, treating the resulting mixture of lead sulfate and basic lead sulfate with a solution containing an excess of an alkali hydroxid, separating the resulting solution, and repeating the same cycle of operations on successive portions of lead sulfate, as set forth.

787,542. WIPER FOR COPPER-PLATE-PRINTING MACHINES.

MICHAEL RUDOMETOFF, Gottschina, Russia. Filed Feb. 5, 1904. Serial No. 192,173.



Claim.—1. A wiper for copper-plate-printing machines, consisting of the combination of a backing, padding supported therefrom, a wiper fabric stretched over said padding, adjustable means for stretching the operative surface of the fabric at different parts to different extents, threads in said wiper fabric running diagonally with regard to the longitudinal axis of the wiper, and means for adjusting the wiper as a whole on a copper-plate-printing machine.

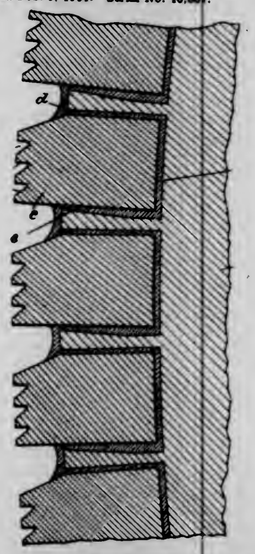
2. A wiper for copper-plate-printing machines, consisting, in combination, of a backing, padding supported therefrom, a wiper fabric stretched over said padding, adjustable means for stretching the operative surface of the fabric at different parts to different extents, threads in said wiper fabric running diagonally with regard to

the longitudinal axis of the wiper, incisions in the wiper fabric at the sides of the wiper, bulging parts on the under surface of the wiper, and means for adjusting the wiper as a whole on a copper-plate-printing machine.

3. A wiper for copper-plate-printing machines, consisting, in combination of a backing 4, strips of cloth 9 supported therefrom, a wiper fabric 10 stretched over said strips of cloth and supporting the same, a plate 8 resting on said strips, screws 5, 6, 7, in the plate 4, their ends being adapted to press upon plate 8, threads in said wiper fabric running diagonally with regard to the longitudinal axis of the wiper, incisions 13 in the wiper fabric at the sides of the wiper, bulging parts 14 on the under surface of the wiper, and means for adjusting the wiper as a whole on a copper-plate-printing machine.

4. A wiper for copper-plate-printing machines, consisting, in combination, of a backing 4, strips of cloth 9 supported therefrom, a wiper fabric 10 stretched over and supporting said strips of cloth, hooks 11 on the plate 4, plates 12, for securing said fabric on said hooks, a plate 8 resting on said strips, screws 5, 6, 7 in the plate 4, adapted to press upon and adjust said plate 8, threads in said wiper fabric running diagonally with regard to the longitudinal axis of the wiper, incisions 13 in the wiper fabric at the sides of the wiper, bulging parts 14 on the under surface of the same, and screws 2 for adjusting the wiper as a whole on a copper-plate-printing machine.

787,543. **RAG-ENGINE.** WILHELM SCHMIDT, Lambrecht, Germany. Filed Feb. 9, 1901. Serial No. 46,807.



Claim.—1. A grinding element, comprising a frame having a plurality of recesses, a filling forming a lining for each of said recesses, grinding members set in said recesses and embraced by the filling, said members projecting outwardly from the recesses, and wedges interposed between adjacent grinding members at their projecting portions and engaging the end faces of the filling and the end face of the frame between adjacent recesses.

2. A grinding element, comprising a frame having a plurality of recesses contracted at their mouths, a filling forming a lining for each of said recesses and made of varying thickness, so that its inner surface incloses a space of uniform width, grinding members set in said recesses and embraced by the filling, the side surfaces of a grinding member, within the recess, being substantially parallel, while the outwardly-projecting portions of adjoining grinding members have their adjacent faces disposed at an angle to each other, and wedges interposed between said adjacent faces.

787,544. **RAIL-JOINT.** ALFRED H. STEVENSON, Chunchula, Ala. Filed July 20, 1904. Serial No. 218,708.

Claim.—1. A rail-joint, comprising a chair having two parallel walls, one of the walls having internal projections, and the other wall having reinforced portions formed with perforations opposite the internal projections, adjusting-screws passing through the perforations, and fish-plates upon opposite sides of the rails, each fish-plate having reinforced portions formed with depressions, the depressions of one fish-plate receiving the internal projections of one wall, and the depressions of the other fish-plate receiving the adjusting-screws of the other wall.



2. A rail-joint, comprising a chair having side flanges and two parallel walls, one of the walls being thickened or enlarged at its upper end and having internal projections, and the other wall having reinforced portions extending upwardly from the base of the chair and formed with perforations opposite the internal projections, said reinforced portions having integral bearing-nuts thereon, adjusting-screws passing through the bearing-nuts, reinforced portions and wall, and fish-plates upon opposite sides of the rails, each fish-plate having inclined flanges and pyramidal-shaped reinforcing portions located between the inclined flanges and formed with depressions, the depressions of one plate receiving the internal projections of one wall and the depressions of the other plate receiving the adjusting-screws of the other wall.

787,545. **METHOD OF MANUFACTURING LUBRICANTS.** GEORGE W. VANDERSLICE, Clayton, N. J., and JAMES E. RILEY, Trenton, Mo. Filed Apr. 26, 1904. Serial No. 205,048.

Claim.—1. The method of forming a lubricant consisting in taking a suitable lubricating-oil, boiling the same, adding wood to the hot oil, whereby resin in the former is extracted and combined with the latter and then removing the spent wood leaving the resultant oil in condition for use.

2. The method of forming a lubricant consisting in taking a suitable lubricating-oil, boiling the same, drawing it off in hot condition without continuing the boiling, adding wood to the hot oil whereby the resin in the former is extracted and combined with the latter and then removing the spent wood, leaving the resultant oil in condition for use.

787,546. **STONE-MOLDING TOOL.** JAMES B. WILSON, Philadelphia, Pa. Filed Mar. 18, 1904. Serial No. 198,813.



Claim.—1. A stone-molding tool comprising a many-sided head formed of a plurality of polygonal plates of different widths, each side having a cutting edge and means for adjustably holding said plates, whereby every side of the head may be set with variable contours.

2. A stone-molding tool comprising a head formed of a plurality of plates of polygonal form in combination with means thereon for securing said plates with their adjacent faces in contact and presenting a working face for every side of the head, each face being adapted to be set with variable contours.

3. A stone-molding tool comprising a head formed of a plurality of plates of polygonal form, each having an aperture therein, in combination with a bolt and means thereon for securing said plates with their adjacent faces in contact and presenting a working face on every side of said head at predetermined distances from said bolt.

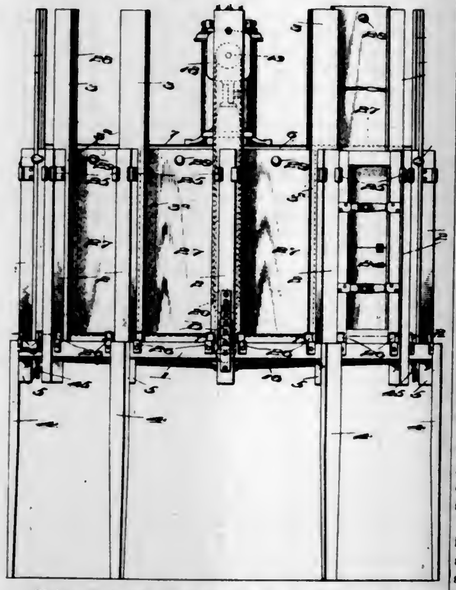
4. A stone-molding tool comprising a head formed of a plurality of plates each having an aperture, in combination with a bolt adapted to enter the apertures of said plates for maintaining said plates with their adjacent faces in contact and presenting a working face on each side of said head.

787,547. **BOTTLE-CLOSURE.** HERMAN J. D. WIPF, Narberth, Pa., assignor to John Wyeth & Brother, Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed July 30, 1904. Serial No. 218,817.



Claim.—A bottle-closure having its outer end formed into an eye-bath with an oval-shaped, curved rim to fit the portion of the face around the eye, and its inner end formed into a stopper to enter the neck of the bottle.

787,548. **PHOTOGRAPHIC-PRINTING APPARATUS.** NEHEMIAH D. WYMAN, Arlington, and PETER G. FLEMING, Elizabeth, N. J., assignors to Underwood and Underwood, Arlington, N. J., a Corporation of New Jersey. Filed May 5, 1904. Serial No. 206,442.



Claim.—1. In a device of the class described, a printing-frame, a source of light, a slide adapted to move between said frame and said source of light, a dog adapted to prevent said sliding movement, and automatic means for releasing said dog.

2. In a device of the class described, a printing-frame, a source of light, a slide adapted to move between said source of light and said frame, a dog adapted to prevent such sliding movement, a lever operatively connected to said dog, and automatic means adapted to depress said lever and release said dog from holding position.

3. In a device of the class described, a printing-frame, a source of light, a slide adapted to move between said frame and said source of light, a spring-pressed dog adapted to prevent such sliding movement, a lever operatively connected to said dog, and means adapted to depress said lever and release said dog from holding position.

4. In a device of the class described, a printing-frame, a source of light, an opaque body adapted to move between said frame and said source of light, a spring-pressed dog adapted to prevent such movement, a lever operatively connected to said dog, and automatic means adapted to depress said dog from holding position.

5. In a device of the class described, a printing-frame, a source of light, a slide adapted to move between said frame and said source of light, a dog adapted to prevent such sliding movement, a spring adapted to force said dog into engagement with said sliding, and a shoulder upon said dog adapted to limit the action of said spring.

6. In a device of the class described, a source of light, a printing-frame adapted to be exposed to the same, means carried by said frame adapted to determine the time at which such exposure shall be terminated, and automatic means adapted to terminate such exposure at the end of a predetermined time.

7. In a device of the class described, a source of light, a printing-frame adapted to be exposed to the same, means carried by said frame adapted to determine the time at which such exposure shall be terminated, and means adapted to terminate such exposure at the end of a predetermined time.

8. In a device of the class described, a horizontal movable member, a cup, and a rolling member supported in said cup and adapted to contact with said horizontal member.

9. In a device of the class described, a horizontal movable member, a cup supported beneath the same, and a rolling member supported in said cup and adapted to contact with said horizontal member.

10. In a device of the class described, a horizontal movable member, a cup adjustably supported beneath the same, and a rolling member in said cup adapted to contact with said horizontal member.

11. In a device of the class described, a rotatable member, a vertically-adjustable member located beneath the same and provided with a cup-shaped upper extremity and a ball located in said cup and adapted to support said rotating member.

12. In a device of the class described, a rotatable member, a plurality of vertical adjustable members located beneath the same and provided with cup-shaped extremities and adapted to support said rotating member.

13. In a device of the class described, a rotatable member, a bracket located beneath the same, a screw-threaded member provided with a cup-shaped head vertically disposed in said bracket, a nut upon said screw-threaded member adapted to adjust the vertical position thereof within said bracket, and a ball within said cup-shaped head adapted to contact with said rotating member.

14. In a device of the class described, a rotating member, a plurality of brackets located beneath the same, screw-threaded members provided with cup-shaped heads vertically positioned in said brackets, nuts upon said screw-threaded members adapted to adjust the vertical position thereof within said brackets, and balls within said cup-shaped heads adapted to contact with said rotatable member and support the same.

15. In a device of the class described, a source of light, a plurality of printing-frames facing said source of light, a slide adapted to be interposed between each of said frames and said source of light, and automatic means regulating the interposition of said slides.

16. In a device of the class described, a plurality of printing-frames facing a common line, a source of light upon said line, a slide adapted to be interposed between each of said frames and said source of light, and automatic means regulating the interposition of said slides.

17. In a device of the class described, a plurality of printing-frames facing a common point, a source of light located at said point, a slide adapted to be interposed between each of said frames and said source of light, and automatic means regulating the interposition of said slides.

18. In a device of the class described, a plurality of printing-frames arranged inwardly facing upon the sides of a polygon, a source of light at the center of said polygon, a slide adapted to be interposed between each of said frames and said source of light, and automatic means regulating the interposition of said slides.

19. In a device of the class described, a plurality of printing-frames facing a common line, a source of light upon said line, a slide adapted to fall between each of said printing-frames and said source of light, a spring-pressed dog adapted to hold said slide, and automatic means for releasing said dog.

20. In a device of the class described, a plurality of printing-frames facing a common point, a source of light located at said point, a slide adapted to move between each of said printing-frames and said source of light, a spring-pressed dog adapted to hold said slide, and automatic means for releasing said dog.

21. In a device of the class described, a plurality of printing-frames arranged inwardly facing upon the sides of a polygon, a source of light at the center of said polygon, a slide adapted to move

between each of said printing-frames and said source of light, a spring-pressed dog adapted to hold said slides, and automatic means for releasing said dog.

22. In a device of the class described, a plurality of printing-frames, a framework adapted to hold said frames facing a common line, a source of light located upon said line, an opaque body adapted to be interposed between each of said frames and said source of light, and automatic means adapted to interpose said body at the end of a predetermined time.

23. In a device of the class described, a source of light located upon a line, a plurality of printing-frames adapted to be arranged facing said source of light and exposed to the same, and automatic means for terminating such exposure at the end of a predetermined time.

24. In a device of the class described, a source of light located upon a line, a plurality of printing-frames adapted to be arranged facing said line and exposed to said source of light, and means carried by said frames adapted to determine the time at which said exposure shall be terminated.

25. In a device of the class described, a source of light located at a point, a plurality of frames adapted to be arranged facing said point and exposed to said source of light, means for automatically terminating such exposure, and means carried by said frame adapted to determine the time at which such exposure shall be terminated.

26. In a device of the class described, a printing-frame, a source of light to which said frame is adapted to be exposed, a slide adapted to be interposed between said source of light and said frame, and means carried by said frame adapted to determine the time at which said slide shall be interposed.

27. In a device of the class described, a printing-fraime, a source of light to which said frame is adapted to be exposed, a slide adapted to fall between said source of light and said frame, a dog adapted to support said slide, and means carried by said frame adapted to determine the time at which said dog shall be released.

28. In a device of the class described, a printing-frame, a source of light to which said frame is adapted to be exposed, a slide adapted to fall between said source of light and said frame, a spring-pressed dog adapted to support said slide, a lever connected to said dog, and means carried by said frame adapted to determine the time at which said lever shall be depressed and said dog released.

29. In a device of the class described, a printing-frame, a source of light to which said frame is adapted to be exposed, a slide adapted to fall between said source of light and said frame, a spring-pressed dog adapted to support said slide, a lever carried by said frame and adapted to coact with said first-mentioned lever, a rack carried by said frame, a pin pivotally connected with said second-mentioned lever and adapted to project between two adjacent teeth of said rack, and a pinion adapted to travel in said rack and press said pin and allow said slide to fall.

30. In a device of the class described, a plurality of printing-frames, a source of light to which said frames are adapted to be exposed, a slide adapted to fall between said source of light and each of said frames, spring-pressed dogs adapted to support said slides, levers operatively connected to said dogs, levers carried by said frames and adapted to coact with said first-mentioned levers, racks carried by said frames, pins pivotally connected with said second-mentioned levers and adapted to project between two adjacent teeth of said racks, pinions adapted to travel in said racks, and common means adapted to drive said pinions in said racks and adapted upon the contact of a pinion with its coacting pin to release the corresponding slide.

31. In a device of the class described, a plurality of printing-frames, a source of light to which said frames are adapted to be exposed, slides adapted to fall between said source of light and said frames, dogs adapted to support said slides, levers operatively connected to said dogs, levers carried by said frames and adapted to coact with said first-mentioned levers, racks carried by said frames, pins pivotally connected with said second-mentioned levers and adapted to project between two adjacent teeth of said racks, common means adapted to drive said pinions in said racks and adapted upon the contact of a pinion with its coacting pin to release the corresponding slide, and means adapted upon the removal of said frames to return the coacting parts to normal position.

32. In a device of the class described, a plurality of printing-frames, a source of light to which said frames are adapted to be exposed, slides adapted to fall between said source of light and said frames, dogs adapted to support said slides, levers operatively connected to said dogs, levers carried by said frames and adapted to coact with said first-mentioned levers, racks carried by said frames, pins pivotally connected with said second-mentioned levers and adapted to project between two adjacent teeth of said racks, common means adapted to drive said pinions in said racks and adapted upon the contact of a pinion with its coacting pin to release the corresponding slide, shafts, sleeves adapted to run thereon and guide said pinions, and springs adapted upon the removal of said frames to return the coacting parts to normal position.

33. In a device of the class described, a source of light upon a line, a plurality of printing-frames arranged facing said line, opaque bodies adapted to be interposed between said source of light and said frames, and means carried by said frames adapted to determine the time at which said opaque bodies shall be interposed.

34. In a device of the class described, a source of light upon a line, a plurality of printing-frames arranged facing said line, a slide adapted to be interposed between said source of light and each of said frames; and means carried by said frames adapted to determine the time at which said slides shall be interposed.

35. In a device of the class described, a source of light at a point, a plurality of printing-frames arranged facing said point, opaque bodies adapted to be interposed between said source of light and said frames, and means carried by said frames adapted to determine the time at which said opaque bodies shall be interposed.

36. In a device of the class described, a plurality of printing-frames facing a common point, a source of light located at said point, a slide adapted to fall between said source of light and each of said frames, and means carried by said frames adapted to determine the time at which each slide shall fall.

37. In a device of the class described, a plurality of printing-frames facing a common point, a source of light located at said point, a slide adapted to fall between said source of light and each of said frames, spring-pressed dogs adapted to support said slides, levers operatively connected to said dogs, and means carried by said frames adapted to determine the several times at which said dogs shall be released.

38. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to fall between said source of light and said frames, spring-pressed dogs supporting said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers, and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, and pinions adapted to run in said racks and actuate said pins.

39. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to move between said source of light and said frames, spring-pressed dogs retaining said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, and pinions driven from a common source of power adapted to travel in said racks and actuate said pins.

40. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to move between said source of light and said frames, spring-pressed dogs retaining said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions driven from a common source of power adapted to run in said racks and actuate said pins, and gears rigidly mounted upon the shafts of said pinions and adapted to be driven by a common driving member.

41. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to fall between said source of light and said frames, spring-pressed dogs supporting said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to run in said racks and actuate said pins, shafts to which said pinions are secured, sleeves upon which said shafts are mounted, and guides for said sleeves.

42. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to move between said source of light and said frames, spring-pressed dogs retaining said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to run in said racks and actuate said pins, shafts to which said pinions are secured, sleeves upon which said shafts are mounted, guides for said sleeves, and springs adapted to return said sleeves to a normal position upon the removal of said racks from said pinions.

43. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to fall between said source of light and said frames, spring-pressed dogs supporting said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to run in said racks and actuate said pins, spur-gears rigidly mounted upon the shafts of said pinions, and a crown-gear adapted to drive said spur-gears.

44. In a device of the class described, a plurality of printing-frames, a framework adapted to removably support said frames about the sides of a polygon, a source of light located at the center of said polygon, slides adapted to fall between said frames and said source of light, spring-pressed dogs adapted to support said slides, shoulders upon said dogs coacting with said framework to limit the action of said spring-pressing means, levers operatively connected to said dogs, levers upon said frames adapted to coact with said first-mentioned levers and release said slides, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to travel in said racks and actuate said pins, shafts to which said pinions are rigidly secured mounted upon sleeves, guides upon which said sleeves are adapted to run, springs adapted to return said sleeves to a normal position upon the separation of said racks and said pinions, and a common driving member for said pinions.

45. In a device of the class described, a plurality of printing-frames, a framework adapted to removably support said frames about the sides of a polygon, a source of light located at the center of said polygon, slides adapted to fall between said frames and said source of light, spring-pressed dogs adapted to support said slides, shoulders upon said dogs coacting with said framework to limit the action of said spring-pressing means, levers operatively connected to said dogs, levers upon said frames adapted to coact with said first-mentioned levers and release said slides, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to travel in said racks and actuate said pins, shafts to which said pinions are rigidly secured mounted upon sleeves, guides upon which said sleeves are adapted to run, springs adapted to return said sleeves to a normal position upon the separation of said racks and said pinions, spur-gears upon the shafts of said pinions, and a crown-gear adapted to drive said several spur-gears.

46. In a device of the class described, a plurality of printing-frames, slides adapted to cover the same, automatic means for determining the time at which said slides shall operate, a crown-gear adapted to drive said automatic means, and a cup-shaped supporting member located below said crown-gear containing a ball adapted to contact with and partially support the same.

47. In a device of the class described, a plurality of printing-frames, slides adapted to cover the same, automatic means determining the time at which said slides shall operate, a crown-gear adapted to drive said automatic means and a vertically-adjustable cup-shaped supporting member located below said crown-gear containing a ball adapted to contact with and partially support the same.

48. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to fall between said source of light and said frames, spring-pressed dogs supporting said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to run in said racks, and gears rigidly mounted upon the shafts of said pinions and adapted to be driven by a common driving member, said member being supported upon a plurality of cup-shaped members through balls interposed therebetween.

49. In a device of the class described, a plurality of printing-frames, a framework adapted to support said frames facing a common point, a source of light located at said point, slides adapted to fall between said source of light and said frames, spring-pressed dogs supporting said slides, levers operatively connected to said dogs, levers carried by said frames adapted to coact with said first-mentioned levers and release said dogs, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to run in said racks and actuate said pins, shafts to which said pinions are rigidly secured mounted upon the shafts of said pinions and adapted to be driven from a common driving member, said member being supported upon a plurality of vertically-adjustable cup-shaped members through balls interposed therebetween.

50. In a device of the class described, a plurality of printing-frames, a framework adapted removably to support said frames about the sides of a polygon, slides adapted to fall between said frames and said source of light, dogs adapted to support said slides, levers operatively connected to said dogs, levers upon said frames adapted to coact with said first-mentioned levers and release said slides, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to travel in said racks and actuate said pins, shafts to which said pinions are rigidly secured, spur-gears upon the shafts of said pinions, and a crown-gear adapted to drive said several spur-gears, said crown-gear being supported upon a plurality of cup-shaped members through the intermediation of balls interposed therebetween.

51. In a device of the class described, a plurality of printing-frames, a framework adapted removably to support said frames about the sides of a polygon, a source of light located at the center of said polygon, slides adapted to fall between said frames and said source of light, dogs adapted to support said slides, levers operatively connected to said dogs, levers upon said frames adapted to coact with said first-mentioned levers and release said slides, racks carried by said frames, pins pivotally connected to said second-mentioned levers and projecting between adjacent teeth of said racks, pinions adapted to travel in said racks and actuate said pins, shafts to which said pinions are rigidly secured, spur-gears upon the shafts of said pinions, and a crown-gear adapted to drive said several spur-gears, said crown-gear being supported upon a plurality of vertically-adjustable cup-shaped members through the intermediation of balls interposed therebetween.

52. In a device of the class described, a plurality of printing-frames, a framework adapted to support the same facing a common line, a source of light adapted to be placed upon said line, and a covering over said framework adapted to prevent a waste of light, said covering extending to the upright portions of said framework and resting upon the same.

53. In a device of the class described, a printing-frame, a source of light and means carried by said frame adapted to determine the time of exposure of said frame to said source of light.

54. In a device of the class described, a printing-frame, a source of light, means adapted to expose said frame to said source of light and means carried by said frame adapted to coact with said first-mentioned means and adapted to determine the duration of such exposure.

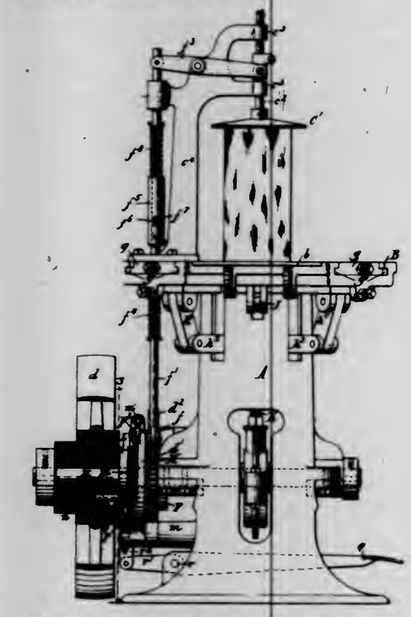
55. In a device of the class described, a printing-frame, a source of light, means adapted to expose said frame to said source of light, a rack carried by said frame, a lever pivoted upon said frame, and a pin pivotally connected to said lever and projecting between adjacent teeth of said rack, said rack, pin and lever being adapted to coact with said first-mentioned means and determine the duration of said exposure.

56. In a device of the class described, a printing-frame, a source of light and a rack carried by said frame adapted to coact with mechanism adjacent said source of light and to determine the time of exposure of said frame to said source of light.

787,549. DOUBLE-SEAMING MACHINE. EDMUND ZEH, Buffalo, N. Y., assignor to Niagara Machine & Tool Works, Buffalo, N. Y. Filed Oct. 9, 1902. Serial No. 126,461.

Claim.—1. The combination of a support for holding the work stationary in different positions, a seaming-die provided with a por-

tion for forming the seam and a portion for pressing the seam, a stationary guide in which the die is movable toward and from said support, said support in one position holding the seam-flanges opposite to the forming portion of the die, and connected mechanism for changing the position of said support to hold the partially-formed seam opposite to the pressing portion of the die and for moving said die toward said support before and after the change of position of said support, substantially as set forth.



2. In a can-heading machine, the combination of a mandrel for holding the can stationary at different elevations, seaming-dies each provided with a portion for forming the seam and a portion on a different elevation for pressing the seam, stationary guides in which said dies are movable toward and from said mandrel, said mandrel in one position holding the seam-flanges opposite to the forming portions of the dies, and connected mechanism for changing the elevation of the mandrel to hold the partially-formed seam opposite to the pressing portions of said dies and for moving said dies toward said mandrel before and after the change of elevation of said mandrel, substantially as set forth.

3. In a can-heading machine, the combination of a mandrel for holding the can stationary at different elevations, seaming-dies each having a portion for forming the seam and a portion above said forming portion for pressing the seam, stationary horizontal ways in which said dies slide toward and from said mandrel, said mandrel in one position holding the seam-flanges opposite to the forming portions of the dies, and connected mechanism which moves said dies to and from the seam, then elevates the mandrel to position the partially-formed seam opposite to the pressing portions of the dies, and then moves the dies to press the seam, substantially as set forth.

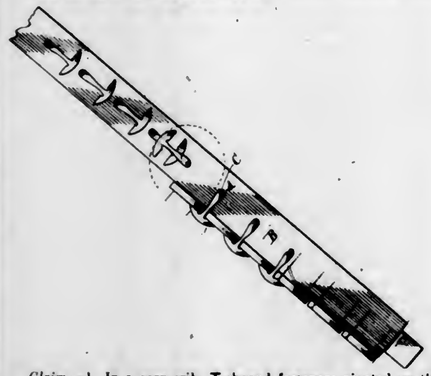
4. In a can-heading machine, the combination of a mandrel for supporting the can, seaming-dies, horizontal ways in which said dies are mounted to slide toward said mandrel, each die having a curved face for forming the seam and a substantially straight face above said curved face for pressing the seam, means for raising said mandrel to position the seam in operative relation to the pressing portions of said dies, and means for moving said dies toward said mandrel before and after the latter is raised, substantially as set forth.

5. In a can-heading machine, the combination of a stationary frame provided with a horizontal table, a vertically-movable mandrel for holding the can stationary at different elevations, stationary radial ways on said table, seaming-dies movable in said ways toward and from the mandrel and each provided with a portion for forming the seam, and a portion above said forming portion for pressing the seam, said mandrel in one position holding the seam-flanges opposite to the forming portions of the dies, and connected mechanism on said frame which moves the dies to form the seam, then elevates the mandrel to position the partially-formed seam opposite to the pressing portions of the dies, and then moves the dies to press the seam, substantially as set forth.

6. In a can-heading machine, the combination of a frame provided with a horizontal table, a mandrel for supporting the can mounted to move vertically in a bearing on said table, dies movable toward and from said mandrel in radial ways on said table, each die being provided with a portion for forming the seam and a portion above the forming portion for pressing the seam, a rotary shaft, connections between said shaft and said dies for moving the same toward and from said mandrel, a rotary shaft geared to said first-mentioned shaft to make one revolution to each two revolutions of said first-mentioned shaft, a cam carried by said second shaft, and a lever connected to said mandrel and operated by said cam to raise said mandrel after one revolution of said first-mentioned shaft, substantially as set forth.

7. In a can-heading machine, the combination of a chuck comprising oppositely-arranged heads for holding the can, means including an operating-rod for moving one of said heads toward the other to grasp the can, seaming-dies each provided with a portion for forming the seam and a portion for pressing the seam, said chuck in one position holding the seam-flanges opposite to the forming portions of the dies, means for moving one of said chuck-heads to hold the partially-formed can-seam opposite to the pressing portions of said seaming-dies, and means for moving said dies toward said chuck before and after the change of position of the latter, said operating-rod having a yielding portion whereby the chuck-head operated thereby is adapted to move with the other chuck-head without releasing the can, substantially as set forth.

787,550. **CORN-CRIB.** ARTHUR J. ANDREWS, Melbourne, Iowa. Filed Nov. 30, 1903. Serial No. 183,131.



Claim.—1. In a corn-crib, T-shaped fasteners pivoted on the sides of the studding, in combination therewith and with removable boards arranged to allow the lower arm of each fastener to engage the upper portion of the board below and to present the upper arm to receive and retain the lower portion of the board above, and by turning the fasteners successively upon their pivots to allow the engagement and release of the boards one by one, all substantially as herein specified.

2. In a corn-crib, a series of T-shaped fasteners of trough-section pivoted by screws C on the sides of the members of the studding, in combination therewith and with removable boards E arranged as shown so that the fasteners are supported by the faces of the boards below, all substantially as herein specified.

787,551. **CHAIN AND CUTTER-CARRYING DEVICE.** THOMAS G. AULTMAN, Fairmont, W. Va., assignor to Joseph Jeffrey, Columbus, Ohio. Filed June 28, 1902. Serial No. 113,664.

Claim.—1. In a cutting mechanism for mining-machines and similar purposes, a cutter-chain having a series of cutter-carrying links, each formed with a shank on the draft-line of the chain, and with a laterally-extending cutter-supporting body having a head, as at D, with two cutter-sockets inclined to the plane of the chain and extending continuously from the outer face of the head D through the shank part of the link, and a groove-like passage *d'* between said head and the shank adapted to receive a guiding-flange for said chain, substantially as set forth.



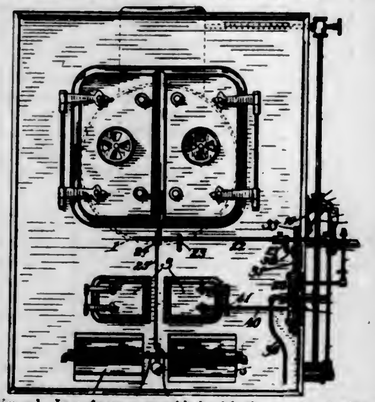
2. In a cutting mechanism for mining-machines and similar purposes, a cutter-chain having a series of cutter-carrying links each formed with a shank situated on the draft-line, and a laterally-extending cutter-supporting body formed with a head D having two independent cutter-sockets in planes transverse of the chain and arranged to hold one cutter in advance of the other, each socket extending through said head and shank, substantially as set forth.

3. In a cutting mechanism for mining-machines and similar purposes, a cutter-chain having a series of cutter-carrying links each formed with a shank situated on the draft-line, and a laterally-extending cutter-supporting body formed with a head D having two independent cutter-sockets in planes transverse of the chain and arranged to hold one cutter in advance of the other, and means for clamping the cutters in said sockets independently of each other, each socket extending longitudinally through said head-shank, substantially as set forth.

4. In a cutting mechanism for mining-machines and similar purposes, a cutter-chain having a series of cutter-carrying links, each formed with a shank on the draft-line of the chain and with a laterally-extending cutter-supporting body having a head as at D with two independent cutter-sockets arranged at an angle to each other and adapted to hold one bit in advance of the other and in different horizontal planes, said sockets extending continuously from the outer face of the head D through the shank part of the link, substantially as set forth.

5. In a cutting mechanism for mining-machines and similar purposes, a cutter-chain having a series of cutter-carrying links each formed with a shank on the draft-line of the chain with a laterally-extending cutter-supporting body having a neck as at D' with grooves *d'* at either side thereof adapted to receive the guide-flange for the chain on the cutter-carriage and a head as at D with two cutter-sockets extending continuously from the face of the head through the neck part and through the shank part of the link, in combination with cutters inserted in said sockets, and set-screws for fastening the cutters in position independently of each other, substantially as set forth.

787,552. **MEANS FOR PRODUCING COMPLETE COMBUSTION OF FUELS.** JAMES B. BARRETT, Washington, D. C., assignor to International Boiler Improvement Company, Pierre, S. D., a Corporation of South Dakota. Filed Apr. 22, 1904. Serial No. 204,312.



Claim.—1. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, adjustable means constructed to cause a flow of fluid through said conduits, whereby air will be drawn from the ash-pit, adjustable means constructed to control the admission of air to the ash-pit, and a common operating means constructed to actuate said several adjustable means, substantially as described.

2. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, adjustable means constructed to cause an injector discharge of fluid through said conduit, whereby air will be drawn from the ash-pit, adjustable means constructed to control the admission of air to the ash-pit, and a common operating means constructed to actuate said several adjustable means, substantially as described.

3. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, adjustable means constructed to cause a flow of fluid through said conduits, whereby air will be drawn from the ash-pit, adjustable means constructed to control the admission of air to the ash-pit, and a common operating means constructed to successively actuate said several adjustable means, substantially as described.

4. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, means constructed to cause an injector discharge of fluid through said conduits whereby air will be drawn from the ash-pit, means constructed to control the admission of air to the ash-pit, a common operating means, adjustable connections between said common operating means and said injector discharge and air-admission means, and means connecting said common operating means and the fire-door of the furnace and constructed to set the common operating means in operation upon movement of the fire-door, substantially as described.

5. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, adjustable means constructed to cause a flow of fluid through said conduits, whereby air will be drawn from the ash-pit, adjustable means constructed to control the entrance-orifices of said conduits, adjustable means constructed to control the admission of air to the ash-pit, and a common operating means constructed to actuate said several adjustable means, substantially as described.

6. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, means constructed to control a fluid-flow through said conduits whereby air will be drawn from the ash-pit, means constructed to control the entrance-orifices of said conduits, means constructed to control the admission of air to the ash-pit, a common operating means, adjustable connections between said common operating means and said several controlling means, means connecting said common operating means and the fire-door of the furnace and constructed to set the common operating means in operation upon movement of the fire-door, substantially as described.

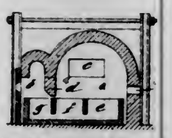
7. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, means constructed to control an injector discharge through said conduits whereby air will be drawn from the ash-pit, means constructed to control the entrance-orifices of said conduits, means constructed to control the admission of air to the ash-pit, a common operating means, adjustable connections between said common operating means and said several controlling means, means connecting said common operating means and the fire-door of the furnace and constructed to set the common operating means in operation upon movement of the fire-door, substantially as described.

8. In a furnace provided with the usual ash-pit and bridge-wall, the combination of conduits leading from the ash-pit and constructed to discharge at the rear of the bridge-wall, means constructed to cause an injector discharge of fluid through said conduits whereby air will be drawn from the ash-pit, means constructed to control the admission of air to the ash-pit, a common operating means, connections between said common operating means and said injector discharge and air-admission means, and means connecting said common operating means and the fire-door of the furnace and constructed to set the common operating means in operation upon movement of the fire-door, substantially as described.

787,553. **GLASS-MELTING FURNACE.** EUGENE BAUDOUX, Genappe, Belgium. Filed Oct. 17, 1904. Serial No. 228,904.

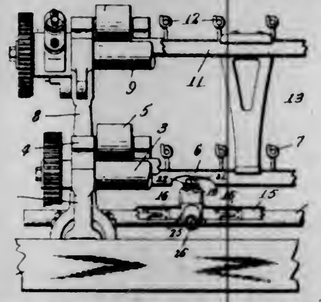
Claim.—1. A glass-melting furnace comprising two chambers, a vertical partition-wall separating said chambers and having openings at the bottom, a plurality of tanks inserted through the openings of the partition-wall, and a plurality of vertical partitions open at the

bottom and dividing each of said tanks into three compartments, one of said compartments being located in one of the furnace-chambers, and the other compartments being located in the other furnace-chamber.



2. A glass-melting furnace comprising a combustion-chamber and a working chamber, said combustion-chamber having gas-inlet and flame-outlet therein, a vertical partition-wall separating said chambers and having openings at the bottom, a plurality of tanks inserted through the openings of the partition-wall and a plurality of vertical partitions open at the bottom and dividing each of said tanks into a melting-compartment, a refining-compartment and a working compartment, the working compartment of each tank being located in the working chamber of the furnace and the melting-compartment and refining-compartment of each tank being located in the combustion-chamber of the furnace.

787,554. **TWISTING OR SPINNING MACHINE.** HERBERT G. BEEDE, Pawtucket, R. I. Filed June 9, 1904. Serial No. 211,737.



Claim.—1. In a twisting or spinning machine, the combination with a knotting guide-bar, of a supporting-arm adjustable longitudinally, to vary the position of the guide-bar, substantially as shown and described.

2. In a twisting or spinning machine, the combination with a rocker-shaft, and a block or support thereon, of a supporting-arm for the knotting guide-bar adjustably attached to said support, to vary the position of the guide-bar, and said guide-bar, substantially as shown and described.

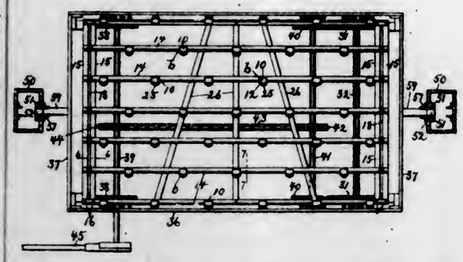
3. In a twisting or spinning machine, the combination with the supporting-arm of the knotting guide-bar, of the guide-bar, adjustably supported in said arm, to vary the position thereof, substantially as shown and described.

4. The combination with a supporting-arm having a curved recess therein, and a detachable cap or end piece having a corresponding curved recess therein, and means for securing the said cap or end piece to said supporting-arm, of a circular-shaped bearing, adapted to hold a bar or rod, and to extend within said curved recesses, and have a rotary motion therein to adjust the position or angle of said bar or rod relative to said supporting-arm, and to be secured in position in said recesses, substantially as shown and described.

5. The combination with a supporting-arm having a transverse recess therein, and a vertically-extending depression therein, and a detachable cap or end piece having a corresponding curved recess therein, and a vertically-extending projection thereon, and a screw for securing said cap or end piece to said supporting-arm, of a circular-shaped bearing made in two halves, and adapted to receive and hold between the two halves a bar or rod, and to extend within said curved recesses, and have a rotary motion therein to adjust the position or angle of said bar or rod relative to said supporting-arm, and to be secured in said recesses, substantially as shown and described.

6. The combination with a supporting-arm having a transverse recess therein, and a vertically-extending depression therein, and a detachable cap or end piece having a corresponding curved recess therein, and a vertically-extending projection thereon, and a screw for securing said cap or end piece to said supporting-arm, of a circular-shaped bearing made in two halves, and adapted to receive and hold between the two halves a bar or rod, and to extend within said curved recesses, and have a rotary motion therein to adjust the position or angle of said bar or rod, relative to said supporting-arm, and to be secured in position in said recesses, and provided with pins extending out therefrom and into grooves within said recesses, to prevent longitudinal motion of said bearing, substantially as shown and described.

787,555. **MATTRESS-TUFTING MACHINE.** GEORGE W. BENT, Hydepark, Mass. Filed Nov. 5, 1903. Serial No. 179,938.



Claim.—1. In an apparatus of the character described, in combination, a bed or support for the mattress, a needle-carrier movable toward and from said bed or support and comprising a frame provided with intermediate bars adjustably secured to said frame, needles adjustably secured to the said intermediate bars of said carrier, and means to move said carrier toward said bed or support, substantially as described.

2. In an apparatus of the character described, in combination, a bed or support for the mattress, a plurality of needles coöperating therewith, a carrier for said needles comprising side and end bars and intermediate bars adjustably secured to said end-bars, holders for said needles adjustably secured to said intermediate bars, rack-bars secured to said carrier, and gearing in mesh with said rack-bars to raise and lower said carrier, substantially as described.

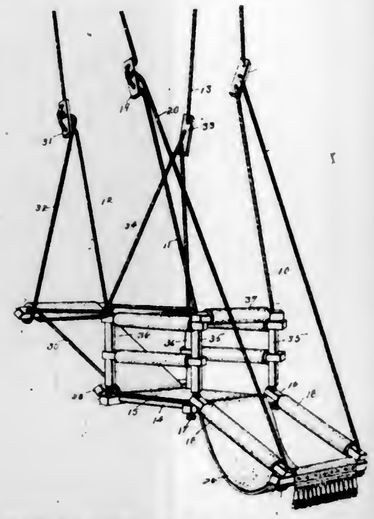
3. In an apparatus of the character described, in combination, a bed or support for the mattress comprising bars separated from one another, and a needle-carrier comprising side and end bars and intermediate bars, one of said parts being bodily movable with relation to the other, said intermediate bars being arranged out of line with the bars comprising the bed and in line with the spaces between said bars comprising the bed, and a plurality of needles adjustably secured to the intermediate bars of said carrier.

4. In an apparatus of the character described, in combination, a bed or support for the mattress, and a needle-carrier comprising a rigid frame, and intermediate bars movably attached to said rigid frame, one of said parts being bodily movable with relation to the other, and a plurality of needles attached to the intermediate bars of said carrier in longitudinal and transverse rows, substantially as described.

787,556. **SWINGING CHAIR.** ADOLPH P. BOTTGAR, Boone, Iowa, assignor of one-half to R. Sutton, Boone, Iowa. Filed Mar. 14, 1904. Serial No. 197,937.

Claim.—1. In a swinging chair, four ropes, two of which are designed to be connected at their upper ends on one side of the chair and the other two of which are designed to be connected at their upper ends on the other side of the chair, a bottom attached at the lower ends of said ropes, sides in said chair mounted on the ropes at each side thereof and capable of vertical adjustment on the ropes, a foot-rest attached to the forward rope on each side of the chair and capable of swinging movement relative to the bottom portion, blocks slidingly mounted on the forward rope on each side of the chair, ropes connecting said sliding blocks with the forward end of the foot-rest so that as the blocks are moved upwardly and downwardly on the ropes in the forward sides of the chair, the foot-rest will be adjusted.

2. In a swinging chair, four ropes, two of which are designed to be connected at their upper ends on one side of the chair and the other two of which are designed to be connected at their upper ends on the other side of the chair, a bottom attached at the lower ends of said ropes, sides in said chair mounted on the ropes at each side thereof and capable of vertical adjustment on the ropes, a foot-rest attached to the forward rope on each side of the chair and capable of swinging movement relative to the bottom portion, blocks slidingly mounted on the forward rope on each side of the chair, ropes connecting said sliding blocks with the forward end of the foot-rest so that as the blocks are moved upwardly and downwardly on the ropes in the forward sides of the chair, the foot-rest will be adjusted, a back swingingly connected with the rear of the bottom portion, a block slidingly mounted on each of the ropes at the rear of the sides of the chair, and a rope connecting each of the sliding blocks on the tops at the rear of the sides of the chair and the rear portion of the back so that if these blocks are moved vertically of the ropes on which they are mounted, the back will be adjusted



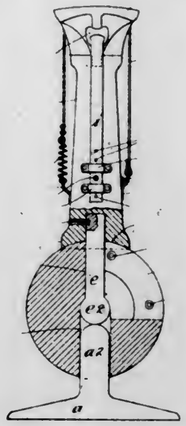
3. In a swinging chair, four ropes, two of which are designed to be connected at their upper ends on one side of the chair and the other two of which are designed to be connected at their upper ends on the other side of the chair, a bottom attached at the lower ends of said ropes, sides in said chair mounted on the ropes at each side thereof and capable of vertical adjustment on the ropes, a foot-rest attached to the forward rope on each side of the chair and capable of swinging movement relative to the bottom portion, blocks slidingly mounted on the forward rope on each side of the chair, ropes connecting said sliding blocks with the forward end of the foot-rest so that as the blocks are moved upwardly and downwardly on the ropes in the forward sides of the chair, the foot-rest will be adjusted, a back swingingly connected with the rear of the bottom portion, a block slidingly mounted on each of the ropes at the rear of the sides of the chair, a rope attached to each of said blocks extending through the rear upper portion of the back of the chair around the rear rope at each side of the chair and attached at its free end to the back of the chair, for the purposes stated.

787,557. **BOOT OR SHOE JACK.** ALBERT BOURGET and FRANK ROBERTS, Jr., Turners Falls, Mass. Filed June 23, 1904. Serial No. 213,881.

Claim.—1. A boot or shoe jack, comprising a base, a ball mounted thereon and provided in one quarter with a quadrantal recess, a pivot-pin mounted in said recess and projecting therefrom and adapted to turn therein and in a vertical plane and a last-holder secured to the projecting end of said pin, substantially as shown and described.

2. A boot or shoe jack, comprising a base, a ball mounted thereon and provided in one quarter with a quadrantal recess, a pivot-pin mounted in said recess and projecting therefrom and adapted to turn therein and in a vertical plane, and a last-holder secured to the projecting end of said pin, said ball and last-holder being adapted to turn on said base, substantially as shown and described.

3. A boot or shoe jack, comprising a base, a ball mounted thereon and provided in one quarter with a quadrantal recess, a pivot-pin mounted in said recess and projecting therefrom and adapted to turn therein and in a vertical plane, and a last-holder secured to the projecting end of said pin, said ball and last-holder being adapted to turn on said base, and said last-holder being also adapted to turn on said ball, substantially as shown and described.

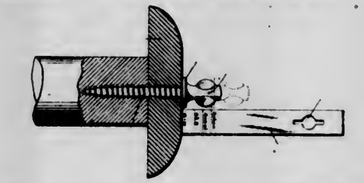


4. A boot or shoe jack, comprising a base, a ball mounted thereon and provided in one quarter with a quadrantal recess, a pivot-pin mounted in said recess and projecting therefrom and adapted to turn therein and in a vertical plane, and a last-holder secured to the projecting end of said pin, said ball and last-holder being adapted to turn on said base and said last-holder being also adapted to turn on said ball, and means for holding the pivot-pin at any desired angle in said quadrantal recess, substantially as shown and described.

5. A boot or shoe jack, comprising a base, a ball mounted thereon and adapted to turn horizontally, said ball being provided in one side thereof with a radially and vertically arranged recess, a pivot-pin mounted in said recess and adapted to turn in a vertical plane therein, means for holding said pin at any desired angle in said recess, and a last-holder connected with the end of said pin which projects from said recess, substantially as shown and described.

6. A boot or shoe jack, comprising a base, a ball mounted thereon and adapted to turn horizontally, said ball being provided in one side thereof with a radially and vertically arranged recess, a pivot-pin mounted in said recess and adapted to turn in a vertical plane therein, means for holding said pin at any desired angle in said recess, and a last-holder connected with the end of said pin which projects from said recess, said last-holder being adapted to turn with said ball and independently thereof, substantially as shown and described.

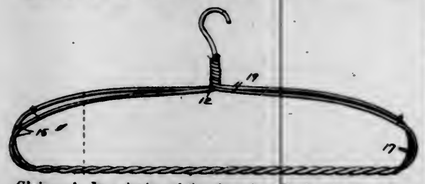
787,558. **MEANS FOR UTILIZING PERFORATED MUSIC-SHEETS FOR CONTROLLING AUTOMATIC MUSICAL INSTRUMENTS.** THEODORE P. BROWN, Worcester, Mass., assignor to The Simplex Piano Player Company, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 31, 1904. Serial No. 239,080.



Claim.—1. As an article of manufacture, a music-spool having a pin adjustably mounted therein, and adapted to be set to extend different distances from the end of the spool.

2. As an article of manufacture, a music-spool comprising a roll having end flanges, and a pin having a shank threaded into the end of the spool, said pin being provided with wings, and with a gage-collar to be located at different distances from the end of the spool when the spool is adapted for use in different instruments

787,559. CLOTHES-HANGER. JOHN A. BRYANT, Osceola, Iowa. Filed Apr. 26, 1904. Serial No. 204,731.



Claim.—1. In a device of the class described, a hook, a frame having two parts diverging from their point of attachment to the hook outwardly, bent downwardly at their extreme outer ends, a cross-bar connecting the ends of the frame with each other, constructed by twisting the parts of the wire together.

2. A coat-hanger, comprising a hook, a frame having two parts extending outwardly and downwardly from the hook, a cross-bar constructed by twisting two wires together and connecting the ends of the frame.

787,560. BUTTON ATTACHMENT FOR GARMENTS. JEREMIAH D. BURNS, Washington, D. C. Filed July 25, 1904. Serial No. 218,053.

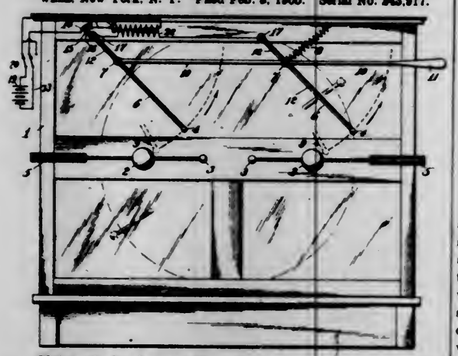


Claim.—1. A button attachment for garments comprising a button proper, a bent-wire shank attached to said button and having a spiral coil, the piercing point or portion extending laterally from said coil and being bent inward where it joins the coil, so that the entire body of the piercing-point lies in a plane nearer the plane of the button than the outer convolution of the coil, substantially as described.

2. The improved button attachment comprising a button proper and an attaching device consisting of a wire formed as a coil and having a piercing-point extended therefrom, the opposite end of the wire being provided with a head, and a disk rotatably attached to the head and secured to the button proper, substantially as described.

3. An improved button attachment comprising a button proper, and an attaching device consisting of a wire formed with a coil adjacent to the button and having a piercing-point, the point of connection between the button and the wire being eccentric to the former and the button being rotatable, substantially as described.

787,561. ELECTROSTATIC APPARATUS. EUGENE W. CALDWELL, New York, N. Y. Filed Feb. 3, 1905. Serial No. 243,917.



Claim.—1. In electrostatic apparatus, an electrostatic generator, an induction-coil comprising a break, a reverser and a switch in its primary circuit, a plurality of arms on said generator carrying exposed conductors electrically connected with the secondary of said induction-coil, stops to limit the movement of said arms and prevent actual contact between the same and the exposed parts of said generator and spring-actuating means for said arms normally holding them in inoperative position, said switch being automatically operated by said arms to energize said induction-coil as said arms move toward said generator.

2. In electrostatic apparatus, an electrostatic-plate generator, an induction-coil having a switch in its primary circuit, an arm movably mounted on said machine and electrically connected with the secondary of said induction-coil and actuating said switch and means to move said arm adjacent to a conductor of said generator to impart an initial charge thereto.

3. In electrostatic apparatus, an electrostatic generator, an induction-coil, an arm connected with said induction-coil, and movable into electrical relation with a conductor of said generator, means to operate said arm and means to reverse the polarity of said induction-coil.

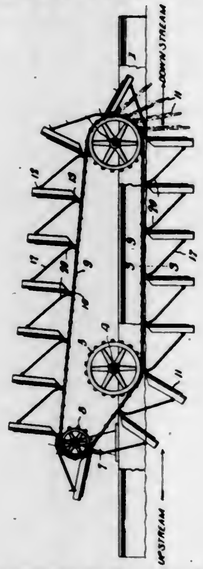
4. In electrostatic apparatus, an electrostatic generator, an induction-coil, means connected with said induction-coil to move into electrical relation with part of said generator to charge the same and means to reverse the polarity of said induction-coil.

5. In electrostatic apparatus, an electrostatic generator, an induction-coil and means connected with said induction-coil to move into electrical relation with part of said generator to charge the same.

6. In electrostatic apparatus, an electrostatic generator and means comprising an induction-coil to impart an initial charge to said generator.

7. In electrostatic apparatus, an electrostatic generator and electromagnetic means to impart an initial charge to said generator.

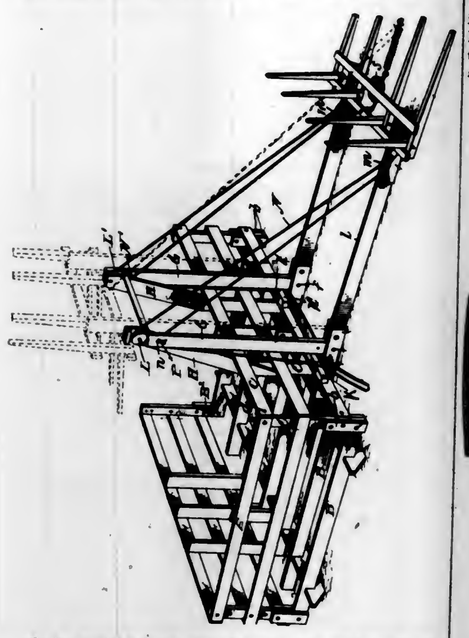
787,562. CURRENT-MOTOR. MYRON E. CARLEY and WILLIAM O. CARLEY, Colfax, Wash. Filed May 14, 1904. Serial No. 207,990.



Claim.—In a current-motor, the combination with a float having a longitudinal central opening to expose a stream, a downstream-shaft journaled across the float and provided with sprocket-wheels, an upstream-shaft journaled across the float in substantially horizontal alinement with the downstream-shaft and provided with sprocket-wheels, a guide-shaft located above and in advance of the upstream-shaft and provided with sprocket-wheels of less diameter than the other sprockets, endless sprocket-chains engaging the sprocket-wheels, hinge-links disposed at regular intervals upon the chains, paddles hinged to the hinge-links, and brace-rods having their outer ends hinged to the backs of the respective paddles with their inner ends hinged to the hinge-links next in rear of the paddles to which the respective rods are connected, the inner end of each rod being bowed to clear the sprocket-wheels of the guide-shaft.

787,563. STACK FILER AND INCLOSURE. JOHN H. CLARK, Pollock, Mo. Filed May 3, 1904. Serial No. 206,172.

Claim.—1. In a stacking device, a suitable inclosure having its two sides hinged, standards suitably supported with relation to the inclosures, arms pivoted to the inclosures, a head carried by the opposite ends of the arms and means for oscillating the said arms.



2. In a stacking device, suitable base-bars having beveled ends, strips extending transversely of the supports, posts pivotally connected to the strips, rails secured to the posts, standards suitably anchored with relation to the inclosure-arms pivoted with relation to the standards, pulleys on the outer ends of the arms, a head carried by the arms, pulleys near the tops of the standards, pulleys in fixed relation to the bottoms of the standards, and a flexible connection strung through the pulleys, whereby a single length of material operates the two arms, substantially as described.

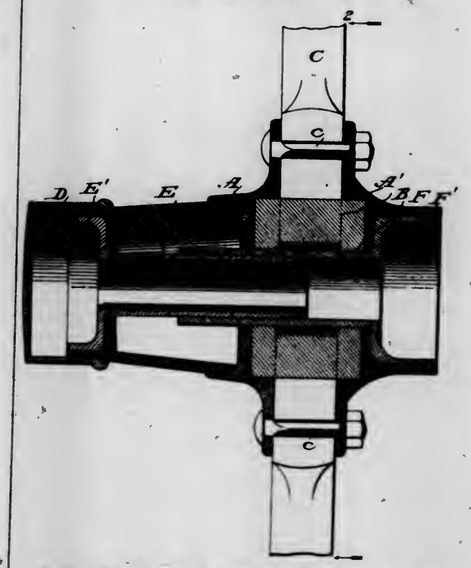
3. In a stacking device, a suitable inclosure comprising a base, pivoted side panels and suitable end panels, standards anchored with relation to the side panels, pulleys near the bottoms of the standards, pulleys mounted at the tops of the standards, arms pivoted with relation to the bottoms of the standards, pulleys on the outer ends of the arms, a head carried by the arms, a flexible connection strung through the pulley on the end of one arm and extending back to the pulley at the top of the corresponding standard, then extending down to the pulley near the bottom of the standard, then extended across approximately horizontally to the pulley near the base of the second-mentioned standard, then extended upward to the pulley at the top of the second-mentioned standard and then run out over the pulley on the opposite arm and back through the said standard and anchored, substantially as described.

4. In a stacking device, a suitable inclosure having its two sides hinged, arms pivoted to the inclosure, and adapted to rest normally on the ground, a head carried by the arms, means for raising said arms and head from the ground and automatic means for returning the same to their normal positions.

5. In a stacking device, a suitable inclosure, arms pivoted to the inclosure and adapted to rest normally on the ground, a head on the arms, a connection secured at one end to the head, its opposite end being anchored to the ground, said connection embodying a spring, as and for the purpose described.

787,564. WHEEL. JAMES C. COUPER, Flint, Mich., assignor to The Imperial Wheel Company, Flint, Mich. Filed Oct. 24, 1903. Serial No. 178,304.

Claim.—1. In a wheel structure, the combination of a short central hub-block B; mitered spokes C mortised thereinto; a front flange A with suitable hub front extension; a rear flange A′ with suitable hub rear extension, said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable bolts or rivets c; a boxing F with a ball-cup F at its inner end; a boxing E sleeved into said boxing F, with a ball-race E′ at its outer end, said boxes being fitted snugly into the center bore through said flanges and the hub-block, all coacting substantially as described and for the purpose specified.



2. In a wheel structure, the combination of a short central hub-block; mitered spokes mortised thereinto: a front flange with suitable hub front extension; a rear flange with suitable hub rear extension. said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable bolts or rivets; a boxing F; a boxing E sleeved into said boxing F. said boxings being fitted into the center bore through said flanges and the hub-block, substantially as described.

3. In a wheel structure, the combination of a short central hub-block; mitered spokes mortised thereinto: a front flange; a rear flange, said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable means; a boxing F; a boxing E sleeved into said boxing F, said boxings being fitted into the center bore through said flanges and the hub-block, substantially as described.

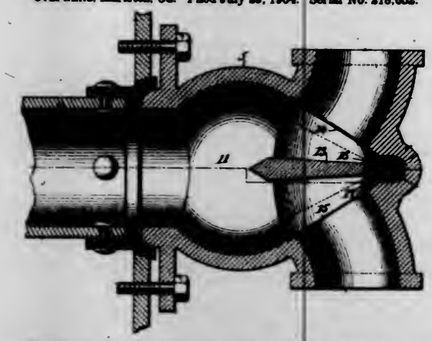
4. In a wheel structure, the combination of a short central hub-block; mitered spokes mortised thereinto; a front flange; a rear flange, said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable bolts therethrough; a boxing, said boxing being fitted into a center bore through said flanges and the hub-block.

5. In a wheel structure, the combination of a short central hub-block; mitered spokes mortised thereinto; a front flange with suitable hub front extension: a rear flange with suitable hub rear extension, said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable bolts therethrough; a boxing, said boxing being fitted into a center bore through said flanges, and the hub-block.

6. In a wheel structure, the combination of a short central hub-block; mitered spokes mortised thereinto; a front flange with suitable hub front extension; a rear flange with suitable hub rear extension, said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable bolts therethrough.

7. In a wheel structure, the combination of a short central hub-block; mitered spokes mortised thereinto; a front flange; a rear flange, said flanges being recessed toward the center to embrace the hub-block, and clamped upon the sides of the spokes by suitable bolts therethrough.

787,565. DRY-PIPE HEAD. HOWARD G. CORTELL and JOSEPH E. STEPHENS, Marietta, Ga. Filed July 29, 1904. Serial No. 218,652.

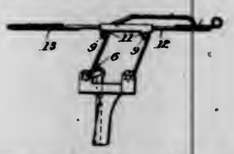


Claim.—1. In a locomotive, a dry-pipe head comprising a casing having opposite ports for providing communication with the locomotive steam-chest, and a valve mounted to swing in the casing to close either one of said ports, the said valve having a slight lateral swinging motion on its stem.

2. In a locomotive, a dry-pipe head, comprising a casing having opposite ports, a valve for controlling said ports, said valve being mounted to swing relatively to its stem, an operating-rod extending upward from the stem of the valve, a stuffing-box above the locomotive-jacket, through which said rod extends, a lever having connection with the rod, and a segment-plate to which the lever is adapted to be locked.

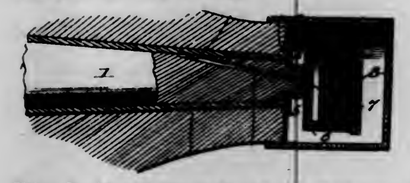
3. In a locomotive, a dry-pipe head comprising a casing having opposite ports, flat valve-seats at the inner ends of the ports, a disk valve mounted to swing in the casing and to swing relatively to its stem, the said valve having flat sides for engaging with said flat valve-seats, and means for swinging the valve laterally.

787,566. RIBBON-GUIDE FOR TYPE-WRITERS. CONNELL H. DOWLEN, Hillsboro, Tex. Filed June 23, 1904. Serial No. 213,809.



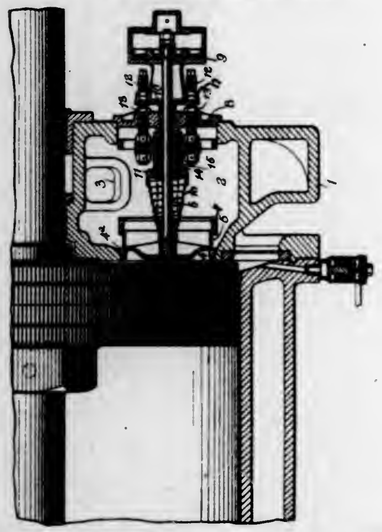
Claim.—In a type-writing machine, a ribbon guide and holder comprising a pair of relatively fixed tubes, rods slidable therein and having ribbon-loops at one end and a finger-piece at the other end, and a spring-latch between the tubes and rods and constructed to hold the arms at adjustment.

787,567. LUBRICATOR. FRANK B. ECKHART, Pullman, W. Va. Filed Aug. 29, 1903. Serial No. 171,285.



Claim.—In a lubricator for vehicle-axles, the combination with a hub, an axle-box, and a sand-cup upon the outer end of the hub, of an axle provided with a reduced threaded terminal and a feed-bore of restricted diameter extending through said terminal, a gasket about the outer end of the axle in rear of said terminal and bearing upon the outer end of the box, and a lubricator disposed within the sand-cup and comprising a base having a screw-threaded outwardly-extending flange, a screw-threaded inwardly-extending socket receiving the outer threaded terminal of the axle, the said base being provided with a restricted feed-outlet opening through the center of said socket and communicating with the bore in the axle, a head extending at right angles to said socket and parallel with the base-plate and bearing upon the outer shoulder of the axle and the gasket, said head being provided with an inwardly-extending annular flange surrounding said gasket and bearing upon the outer end of the hub, and a circumferential flange projecting beyond said inwardly-extending flange, a washer covering the outer end of the hub and bearing at its periphery upon the inner wall of the sand-cup and held at its inner edge between said inwardly-extending and circumferential flanges, and a screw-cap threaded upon the outwardly-extending flange of the body portion forming therewith a casing to contain a lubricant, substantially as described.

787,568. VALVE FOR BLOWING-ENGINES. JOSEPH FAWELL, Pittsburg, Pa. Filed Mar. 18, 1903. Serial No. 148,373.



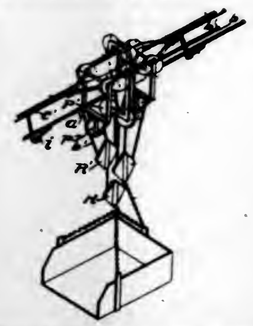
Claim.—1. A blowing-engine having in combination a cylinder-head provided with a chamber having an inlet-port, a valve controlling the flow of air through said port and provided with a stem extending out of said chamber, a dash-pot having its movable member connected to said stem, a movable head, a spring interposed between the valve and head, and rods extending outside of said chamber for shifting said head, substantially as set forth.

2. A blowing-engine having in combination a cylinder-head provided with a chamber having an inlet-port, and an opening for the insertion of a valve mechanism, a cover for said opening, a valve controlling the flow of air through said port and provided with a stem extending out of said chamber, a dash-pot connected to said stem, a movable head, a spring interposed between the valve and head, and adjusting-rods extending from said head through the cover, substantially as set forth.

3. A blowing-engine having in combination a cylinder-head provided with a chamber having an inlet-port and an opening for the insertion of a valve mechanism, a cover for said opening, a valve controlling the inlet-port and provided with a stem extending through the cover, a gland surrounding the stem, a movable head, a spring interposed between the valve and head, threaded rods connected to said head and passing through the gland, and nuts for shifting the head and gland, substantially as set forth.

787,569. AERIAL CABLEWAY. FREDERICK R. FRENCH, San Francisco, Cal.; Martha Hathaway French administratrix of said Frederick R. French, deceased. Filed Sept. 5, 1903. Serial No. 172,078.

Claim.—1. In hoisting and conveying apparatus, the combination of a hoist, a trackway, a carriage movable thereon, a fall-rope in two sections or units supported on said carriage and at one end of the trackway and extending to the hoist, fall-rope carriers and supporting means therefor, traction-ropes, said fall-rope sections each supporting an equal portion of the load and means for operating said fall-rope sections and traction-ropes correlatively.



2. In hoisting and conveying apparatus, the combination of a hoist, a trackway, a carriage movable thereon, traction-ropes, a fall-rope in two sections extending from the hoist, a burden-carrier supported equally by said sections, means for moving said fall-rope sections in unison with the traction-rope and means for moving one section relative to the other to dump the load.

3. In hoisting and conveying apparatus, the combination of a hoist, a trackway, a carriage thereon, traction means for said carriage, a fall-rope having a plurality of sections extending from the hoist, each sustaining an equal portion of the load, means for moving one section relative to another to effect the dump, means for operating the several sections in unison with the traction-ropes to prevent premature discharge.

4. In a hoisting and conveying apparatus, the combination of head and tail supports, parallel track-ropes between said supports, a carriage movable on the track-ropes, means for moving the carriage, a fall-rope and means for moving it in unison with the carriage movement, fall-rope carriers permanently fixed to the track-ropes and extending from one of said ropes to the other and maintained at fixed distances apart, said carriers disposed out of the range of action of the carriage and provided with a roller-support for the fall-rope, an aerial dump mechanism, connections between said dump mechanism and the fall-rope, means for directing the fall-rope above and outside of the track-ropes, and means whereby the dumping is effected by the operation of the fall-rope.

5. In hoisting and conveying apparatus the combination of a hoist, a trackway, a carriage thereon, traction-ropes, a fall-rope in two sections extending from the hoist to and beneath the carriage, blocks carried by said sections and each supporting an equal portion of the load, a burden-carrier intermediate of said blocks, fall-rope-supporting ropes independent of the fall-rope, fall-rope carriers and means for moving the fall-ropes and traction-ropes in unison.

6. In a hoisting and conveying apparatus, the combination of head and tail supports, track-ropes intermediate of said supports, a carriage movable on said track-ropes, means for moving the carriage, a fall-rope operated from the hoist, fall-rope carriers on the track-ropes, a burden-carrier suspended from the fall-rope beneath the carriage and direction-pulleys upon the carriage for conducting the fall-rope above and outside of the track-ropes.

7. In a hoisting and conveying apparatus, the combination of a trackway, a carriage movable thereon, a fall-rope and means on the carriage for conducting the fall-rope above and outside of and returning it beneath said trackway and a burden-carrier supported from said fall-rope.

8. In a hoisting and conveying apparatus, the combination with a trackway of a carriage movable thereon, traction means for reciprocating the carriage, a fall-rope in two sections operatable in unison with the moving carriage, direction-pulleys upon the carriage for conducting the sections above and outside of the trackway and returning them beneath the carriage, a burden-carrier supported by said sections and means for moving one section relative to the other.

9. In a hoisting and conveying apparatus, the combination of a trackway, a carriage thereon, inhaul and outhaul ropes connected with said carriage, a fall-rope in two sections, fall-rope supporters, direction-pulleys upon the carriage to conduct the fall-rope sections above and outside of and beneath the carriage, means by which the inhaul and outhaul ropes and the fall-rope sections are moved in unison, and means for giving one of said fall-rope sections a movement independent of the other.

10. In hoisting and conveying apparatus, the combination of a trackway, a carriage movable thereon, means for reciprocating the carriage, a sectional fall-rope and means upon the carriage for directing the sections of said fall-rope above and outside of and beneath the carriage, a block with which each of said sections connects, flexible connections between said blocks, a fall-block supported upon said flexible connections and means for giving movement to one of said fall-rope sections to move its block relative to the other.

11. In a hoisting and conveying apparatus, the combination of a trackway, a carriage thereon, a fall-rope, means upon the carriage for directing said fall-rope above and outside of and beneath said carriage, a fall-block supported by said fall-rope, a burden-carrier carried by said fall-block and connections between the fall-rope and the burden-carrier to discharge the latter automatically.

12. In hoisting and conveying apparatus, the combination with a trackway and a carriage thereon, of a fall-rope in two sections extending from the hoist to and beneath the carriage, burden-supporting means between the ends of the sections, each section supporting an equal portion of the load, said fall-rope sections adapted to pay out equally and in unison whereby the perfect equilibrium of the burden may be maintained during transit, and means for giving one section a movement independent of the other to effect the dump.

13. In hoisting and conveying apparatus, the combination with a trackway, a carriage, traction-cables and a hoist, of a combined fall-rope and dumping-rope having two load-supporting sections extending from the hoist to and beneath the carriage, and each adapted to support an equal portion of the load.

14. In a hoisting and conveying apparatus, the combination of head and tail supports, track-ropes between said supports, a carriage movable on said track-ropes, a fall-rope, fall-rope carriers fixedly secured to said track-ropes, a burden-carrier beneath the carriage and connections between the fall-rope and burden-carrier extending above and outside of the track-ropes.

15. In hoisting and conveying apparatus, the combination with an overhead trackway and a carriage thereon, of two fall-line sections supported from said carriage and having their terminals extending below said carriage, blocks carried by said lines, flexible connections independent of the fall-lines between said blocks, and a burden-carrier supported by said connections, one of said fall-line sections movable relative to the other section to effect the dump.

16. In hoisting and conveying apparatus, the combination with an overhead trackway and a carriage thereon, of two fall-line sections supported by said carriage, a block carried by each section, connections between said blocks, and a burden-carrying block carried by said connections, one of said fall-line sections movable relative to the other section to effect the dump.

17. In hoisting and conveying apparatus, the combination with an overhead trackway and a carriage thereon, of two fall-line sections, one movable relative to the other to effect the dump said sections supported from the carriage, a flexible support intermediate of the terminal of said sections, and a burden-carrier movable on said intermediate support.

18. In hoisting and conveying apparatus, the combination with an overhead trackway, and a carriage thereon, of fall-line sections supported from the carriage, a flexible support intermediate of the terminals of said sections, a burden-carrier on said intermediate support, and means operatable by the movement of one section relative to the other to effect the dump.

19. In hoisting and conveying apparatus, the combination with an overhead trackway and a carriage thereon, of two fall-line sections supported from the carriage, a block carried by each section, a flexible connection between said blocks, a burden-carrier on said flexible connection, and means operatable by the movement of one block relative to the other to effect the dump.

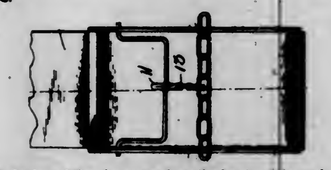
20. In apparatus of the class described, the combination with a trackway, a carriage and a hoist, of a burden-carrier, two supporting-lines each sustaining an equal portion of the weight of said carrier, spaced pulleys beneath one of said lines, a pulley above said line and movable intermediate of said spaced pulleys and means for reciprocating said superposed pulley.

787,570. COMBINED BUCKLE AND HOOK. GEORGE F. GREEN, Bastrop, Tex. Filed Nov. 22, 1904. Serial No. 233,847.

Claim.—1. A device of the character described comprising a base-plate having side flanges formed with alining recesses and a pivotally-mounted hook having an inturned end adapted to engage a trace to hold the same in said recesses, substantially as described.

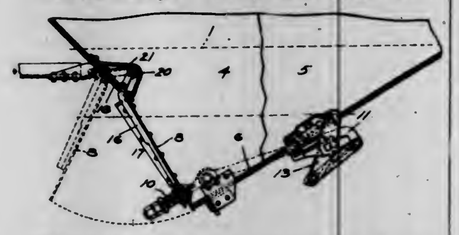
2. A device of the character described comprising a base-plate

having side flanges formed in their outer edges with centrally-disposed alining recesses, and a hook pivotally mounted in said side flanges and having an inturned end adapted to engage a trace to hold the same in said recesses and above said base-plate, substantially as described.



3. A device of the character described comprising a base-plate having side flanges formed with alining recesses, a hook pivotally mounted between said flanges and having an inturned end to engage a trace to hold the same in said recesses, and means upon the said base-plate for attaching a back-band thereto, substantially as described.

787,571. **DOOR ARRANGEMENT FOR HOPPER-CARS.** JOHN M. HANSEN, Pittsburg, Pa. Filed Feb. 10, 1905. Serial No. 245,164.



Claim.—1. The combination of a car-body having a door-opening, a door therefor, hinges connected to the door and extending at an angle thereto, and coöperating hinge-butts to which the hinges are pivoted, the axes of said hinges being located inside the plane of the door.

2. The combination of a car-body having a door-opening, a door therefor mounted to swing on horizontal pivots, hinges connected to the door and extending at an angle thereto, and coöperating hinge-butts to which the hinges are pivoted, the axes of said hinges being located inside the plane of the door.

3. The combination of a car-body having a door-opening and having slotted walls adjacent to said door-opening, a door therefor, hinges connected to the door and extending at an angle therefrom and through the slots in the car-walls, and cooperating hinge-butts to which the hinges are pivoted, the axes of said hinges being located inside the car-body.

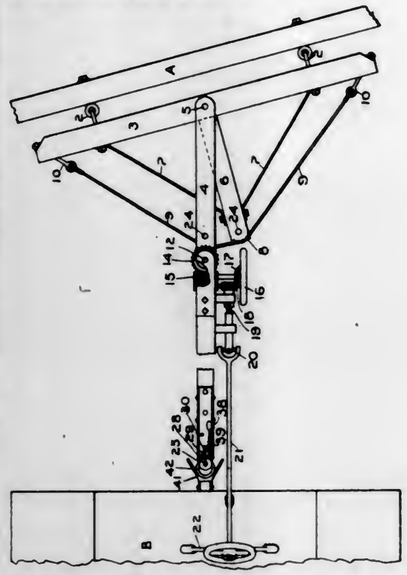
4. The combination of a car-body having a door-opening and slotted walls adjacent to said opening, a door therefor, hinges connected to the door and extending at an angle therefrom and through the slots in the wall of the car-body, and hooded butts located inside the car-body and over the slots in the walls thereof, and provided with means for the attachment of the hinges thereto.

5. The combination of a car-body, a downwardly-projecting hopper having inclined hopper-sheets and provided with a door-opening and with slots in the hopper-sheets, a door, hinges connected to the door and extending at an angle therefrom and through the slots in the hopper-sheets, and coöperating hinge-butts to which the hinges are pivoted, the pivots of said hinges being located inside the car-body.

6. The combination of a car-body, a downwardly-projecting hopper therefor having inclined hopper-sheets provided with a door-opening and with slots adjacent to said opening, hooded members secured to the hopper-plates inside of the hopper and over the slots in the hopper-plates, a door, and hinges connected to said door and extending at an angle therefrom and through the slots in the hopper-sheets and into the hooded members and being pivoted to said hooded members inside of the hopper-sheets.

787,572. **ADJUSTABLE COUPLING.** PAUL HARMANN, Long Prairie, Minn. Filed Aug. 12, 1904. Serial No. 220,479.

Claim.—1. A coupler of the class described, consisting of a cross-bar, a tongue having pivotal support thereon, a fixed tongue connected with said cross-bar in line with said pivotally-supported tongue, a drum carried by said pivotally-supported tongue, and a cable carried by said drum and extending around the end of said fixed tongue to the ends of said cross-bar.



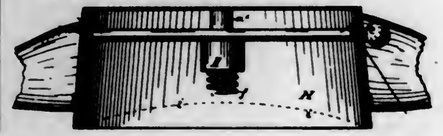
2. In combination with a cross-bar, a tongue having pivotal connection thereto, a fixed tongue connected with said cross-bar in line with said pivoted tongue, a winding-drum carried by said pivoted tongue, a cable carried by said winding-drum and connected with the opposite ends of the cross-bar, and a double cam carried by the end of said fixed tongue and engaging with said cable.

3. In combination a cross-bar, a tongue pivotally connected therewith, a fixed tongue connected with said cross-bar in line with said pivoted tongue, a drum carried by said pivoted tongue, a worm-wheel carried by said drum, a worm intermeshing with said wheel, an actuating-handle for said worm, a cable carried by said drum and connecting the opposite ends of said cross-bar, and a double cam carried by said fixed tongue and engaging with said cable.

4. In combination a cross-bar, a tongue having pivotal connection therewith, a tongue having fixed connection with said cross-bar in line with said pivoted tongue, a drum carried by said pivoted tongue, a worm-wheel carried by said drum, a worm intermeshing with said wheel, actuating means for said worm, a cable carried by said drum and connected with the opposite ends of said cross-bar, a double cam carried by the end of said fixed tongue and engaging with said cable, and a pin fitted to registering openings in said tongues.

5. In combination a cross-bar, a tongue having pivotal connection therewith, a tongue having fixed connection at one end with said cross-bar in line with said pivoted tongue, and means for detachable connection at its other end with an engine-platform, a drum carried by said pivoted tongue, a worm-wheel carried by said drum, a worm intermeshing with said wheel, a beveled gear connected with said worm, a rod carrying at one end a bevel-gear intermeshing with the bevel-gear carried by said worm, and an actuating-handle for said rod mounted upon said engine-platform.

787,573. **HAT-FASTENER.** FRANK B. HEFFERNAN, Salt Lake City, Utah. Filed Dec. 13, 1904. Serial No. 236,753.



Claim.—The combination of a hollow tube with brackets at either end of the same adapted to be attached to a hat, a threaded pin within said tube, a casing supported by said tube internally threaded at one end and closed at its other end with a small opening in the same for the passage of a spiral hair-engaging device, a threaded pinion working in the internal threaded groove of the casing and engaged by the threaded pin to be operated thereby, and a spiral hair-engaging device attached at one end to the threaded pinion and having its other end protruding in the opening in the casing.

787,574. **SAFETY APPLIANCE FOR STREET-CARS.** ROBERT HIRSCH, Teplitz-Schönau, Austria-Hungary. Filed Dec. 28, 1903. Serial No. 186,823.



Claim.—1. A safety appliance for street-cars, comprising a plate *d* secured to the car, a spindle *g* pendent from the plate, a pulley *h* driven by the car-axle loosely mounted on the spindle, a clutch *q* keyed to the spindle, pins *c*, *c'* pendent from the car and passing through the slots of and supporting the yoke, a bevel-wheel *l* meshing with the wheel *k*, mounted on the yoke, a sprocket-wheel *m* rigidly connected therewith, cross-bars *o*, *o'* pivoted at either end of said yoke, rollers *n*, *n'* mounted at the ends of the bars, sprockets *m'*, *m²* keyed to the shafts of said rollers and connected by chain to the sprocket *m*, means actuated by the bar *σ*, normally holding the clutch *q* out of engagement, means for retaining the yoke parallel to the car-front, and means for releasing the same whereby on the rollers meeting mith an obstruction, the bars *o*, *o'* oscillate and the rollers are set in motion in a direction opposite to that of the car-wheels, the yoke at the same time swinging round, whereby the obstruction is lifted and thrown from the track, substantially as described.

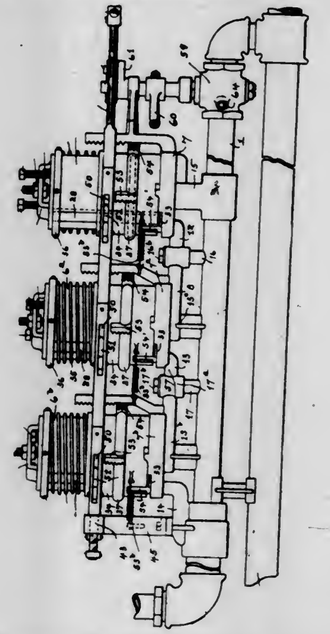
2. A safety appliance for street-cars, comprising a plate *d* secured to the car, a spindle *g* pendent from the plate, a pulley *h* driven by the car-axle loosely mounted on the spindle, a spring-actuated clutch *q* keyed to the spindle, pins *c*, *c'* pendent from the car and passing through the slots of and supporting the yoke, a bevel-wheel *l* meshing with the wheel *k*, mounted on the yoke, a sprocket-wheel *m* rigidly connected therewith, cross-bars *o*, *o'* pivoted at either end of said yoke, rollers *n*, *n'* mounted at the ends of the bars, sprockets *m'*, *m²* keyed to the shafts of said rollers and connected by chain to the sprocket *m*, a spring-actuated bell-lever *i* pivoted to the yoke, connected to the arms of the bar *o* and normally holding the clutch *q* out of engagement, means for retaining the yoke parallel to the car-front and means for releasing the same, substantially as described.

787,575. **COMBINATION FLUID-PRESSURE LOCK.** WILLIAM J. HOFSTATTER, Toledo, Ohio. Filed May 31, 1904. Serial No. 210,384.

Claim.—1. In a combination fluid-pressure lock, the combination with a door-bolt, of a lock adapted to receive the door-bolt, means in the lock-body adapted to automatically lock the door-bolt against withdrawal from the lock-body, means for automatically unlocking the door-bolt and requiring for such unlocking the application to said unlocking means of a definite and predetermined degree of fluid-pressure, no less and no more, and means to apply different fluid-pressures to said unlocking means, equal to, greater, or less than the pressure required.

2. In a combination fluid-pressure lock, the combination with a door-bolt, of a lock-body adapted to receive the door-bolt, mechanical means in the lock-body adapted to automatically engage and lock the door-bolt against withdrawal from the lock-body, and adapted to be actuated by fluid-pressure to release the door-bolt, fluid-pressure means normally disconnected from the lock-body, for unlocking the locking means, means to automatically connect the fluid-pressure means with the lock-body, comprising a series of spring-pressed pistons, adjustable to different resistances and adjusted to require for such connection the application thereto, in order of succession, of a predetermined combination of known, definite, and different fluid-pressures, and means to successively apply differential fluid-pressures to the pistons.

3. In a combination fluid-pressure lock, the combination with a door-bolt, of a lock-body adapted to receive the door-bolt, mechanical means in the lock-body adapted to automatically engage and lock the door-bolt against withdrawal from the lock-body, and adapted to be actuated by fluid-pressure to release the door-bolt, fluid-pressure means, normally disconnected from the lock-body, for unlocking the locking means, means to automatically connect the fluid-pressure means with the lock-body, comprising a sectional conduit having a series of movable sections normally disconnected from the line of the conduit, a shift-bar normally disengaged from the sections and adapted, when engaged, to connect them with the line, a series of spring-pressed pistons, one for each conduit-section, adapted to respectively engage and successively move their respective sections into engagement with the shift-bar, means to differently adjust the spring-pressure on the pistons, and means to successively apply different fluid-pressures to the pistons, and actuate them to move the sections successively into engagement with the shift-bar.



4. In a combination fluid-pressure lock, the combination with a door-bolt, of a lock-body adapted to receive the door-bolt, means to automatically lock the door-bolt against withdrawal from the lock-body, means in the lock-body for unlocking the locking means, and requiring the application thereto of a known and definite fluid-pressure for such unlocking, no less and no more, fluid-pressure means comprising a controllable fluid-pressure supply, a main conduit from the supply, and a sectional branch conduit adapted to connect the lock-body with the main conduit, said sectional conduit comprising stationary sections and a movable section normally disconnected from the stationary sections, means operated by fluid-pressure and manually-operated means for moving the movable section into line connection with the stationary sections, and requiring for the establishing of such connection the application to said fluid-pressure-operated means of a predetermined fluid-pressure of not less or more than a fixed number of units of pressure.

5. In a combination fluid-pressure lock the combination with a door-bolt of a lock-body adapted to receive the door-bolt, a reciprocative lock-bolt in the lock-body adapted, in either direction of its movement, to automatically engage and lock the door-bolt against withdrawal, and to release the door-bolt at a point intermediate of the extremes of its movement, a spring adapted to move the lock-bolt in one direction into locking engagement with the door-bolt, said spring having a known resistance when the lock-bolt is at the releasing-point of its movement, a piston adapted to move the lock-bolt in the opposite direction, and means to apply different fluid-

pressures to the piston equal to, less, or greater than the known resistance of the spring at the releasing-point of the lock-bolt.

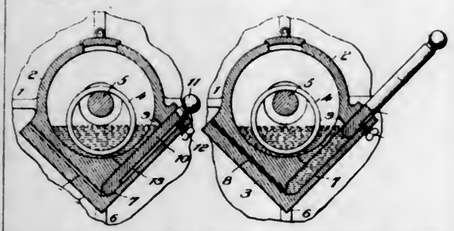
6. In a combination fluid-pressure lock the combination with a door-bolt of a lock-body adapted to receive the door-bolt, a reciprocative lock-bolt in the lock-body adapted, in either direction of its movement, to automatically engage and lock the door-bolt against withdrawal, and to release the door-bolt at a point intermediate of the extremes of its movement, a spring adapted to move the lock-bolt in one direction into locking engagement with the door-bolt, said spring having a known resistance when the lock-bolt is at the releasing-point of its movement, a piston adapted to move the lock-bolt in the opposite direction, means comprising a controllable fluid-pressure supply, and a sectional conduit adapted to connect the lock-body with the supply, said sectional conduit having one or more movable sections normally disconnected from the line of the conduit and disconnecting the lock-body from the fluid-pressure means, means to move the disconnected section or sections into line, comprising a cylinder for each disconnected section, a piston in each cylinder adapted to engage and move its section, a spring adjustably compressed on each piston to a predetermined resistance to the movement of the piston, and means to severally and successively apply different fluid-pressures to the pistons in their order of succession in the line, and to the piston of the lock-body.

7. In a combination fluid-pressure lock, the combination with a door-bolt, of a lock-body adapted to receive the door-bolt, means to automatically lock the door-bolt against withdrawal from the lock-body, means in the lock-body for unlocking the locking means, and requiring the application thereto of a known and definite fluid-pressure for such unlocking, no less and no more, fluid-pressure means comprising a controllable fluid-pressure supply, a main conduit from the supply, and a sectional branch conduit adapted to connect the lock-body with the main conduit, said sectional conduit comprising disconnected stationary sections having end ports in common horizontal and vertical planes, movable sections between the stationary sections and having end ports adapted to register with the end ports of the stationary sections and form a continuous line, the ports of said movable sections being normally out of the common horizontal and vertical planes of the ports of the stationary sections and disconnected therefrom, fluid-pressure means to successively lift the movable sections into the common horizontal plane of the ports of the stationary sections and other horizontal planes above and below said common horizontal plane, according as the pressure equals, or is less, or greater than a predetermined pressure, and means to shift the end ports of the movable sections in any one of the horizontal planes into the common vertical plane of the ports of the stationary sections and lock them in said plane, comprising a shift-bar, a pawl on the shift-bar for each movable section, a lug on each movable section adapted to be carried by the section into the path of the opposite pawl, a locking-standard for each movable section, and a locking-lug on each movable section, adapted to be moved into locking engagement with the standard by movement of the shift-bar.

8. In a combination fluid-pressure lock, in combination, a cylinder; a piston movable in the cylinder; a helical spring within the cylinder and adjustably compressed on one end of the piston to have a predetermined number of units of pressure on the piston at a predetermined distance of movement of the piston toward the spring; a conduit connecting the cylinder with a pressure-controlled fluid-supply and adapted to apply the pressure of the supply to the piston opposite to that of the spring; a by-pass from the conduit extending in the wall of the cylinder to a port in its outer wall; a port in the cylinder opposite the first port and a by-pass extending therefrom, connected or adapted to be connected to a fluid-pressure-controlled lock; a sleeve movably mounted on the cylinder, normally closing the cylinder-ports; a by-pass in the wall of the sleeve having opposite ports adapted to be brought into register with the ports of the cylinder; means connected to the piston and engaging the sleeve, adapted to raise the sleeve according as the piston is raised, and to bring the ports of the sleeve on a level with the ports of the cylinder when the opposed pressures of the spring and the fluid are balanced at the predetermined distance of movement of the piston; a locking-standard adjacent to the sleeve; a locking-lug on the sleeve, located to engage the standard when the sleeve is turned a distance, to bring the ports of the sleeve in register or vertical alinement with the ports of the cylinder; and manual means adapted to engage the sleeve when so raised, and turn the sleeve until the locking-lug is engaged with the standard.

9. In a combination fluid-pressure lock, the combination with a pressure-controlled fluid-supply conduit, and a pressure-controlled spring-lock, of a series of cylinders, each having by-passes extending from opposite ports; a sleeve movably mounted on each cylinder and having a by-pass extending between opposite ports adapted to be brought into register with the ports of the cylinder, the by-passes of the cylinders and the sleeves when all are so connected being adapted to form a continuous connection between the supply-conduit and the lock; connections from the by-passes to each cylinder; a piston in each cylinder adapted to be raised by the pressure of the fluid in the conduit; slide-hooks movable with and by the pistons and engaging and adapted to raise the sleeves as the pistons are severally raised; a spring in each cylinder adjusted to a predetermined pressure on the piston of the cylinder, when the ports of the sleeve are on a level with the ports of the cylinder; a spring on each cylinder, engaging the sleeve of the cylinder, and adapted to yieldingly hold the sleeve lowered on the cylinder, with the ports of the sleeve below the level of the ports of the cylinder and out of vertical alinement therewith; a locking-standard adjacent to each sleeve; a locking-lug on each sleeve, normally disengaged from the standard and adapted to be brought into engagement therewith when the sleeve is turned in one direction; a manually-movable shift-bar, mounted in guide-bearings and extending at one side past each cylinder; shifting-pawls, extending inward and forward from the shift-bar, one opposite each cylinder; a shoulder on each sleeve, normally below the level of the shifting bar, when the sleeve is in its normal position, and adapted to be raised into position to be engaged by the adjacent pawl when the sleeve is raised, and cause the sleeve to be turned until the locking-lug is locked to the standard when the shift-bar is pulled forward a fixed distance; notches in the sleeves, normally out of line with the hook-slides, and adapted to be brought into line therewith when the sleeves are turned and locked to the standards; a manual valve adapted to open and close the conduit, and means connected to and operated in closing the valve, to release the pressure and return the several parts to their normal positions, substantially as set forth.

787,576. **OIL-DISPLACER FOR JOURNAL-LUBRICATORS.** ALBERT H. JOHNSON, Takoma, Md. Filed Sept. 14, 1904. Serial No. 224,402.



Claim.—1. In a journal-lubricator, the oil-reservoir provided with bores or channels open at both ends above the level of the oil therein, said reservoir at its bottom having communication with the bore or channel, and a plunger adapted to close and open said communication and to eject from the open end of said bore the oil from the reservoir.

2. In a journal-lubricator, the oil-reservoir having its lower portion of V shape, a bore or channel in each side wall meeting at their lower ends and open at their upper ends, there being a passage or slot leading from the reservoir into one of said side bores, and a plunger adapted to close and to open said passage or slot and to eject the oil from the reservoir through said bores.

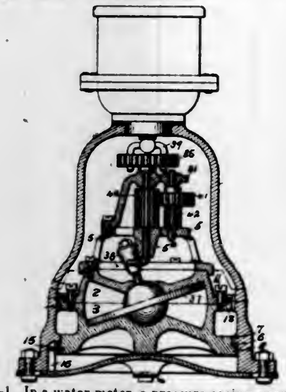
3. In a journal-lubricator, the oil-reservoir having its lower portion of V shape, there being a bore or channel in each side wall meeting at their lower ends and open at their upper ends, one of said side wall bores of greater diameter than the other, and a passage or slot leading from the reservoir into the larger of said side bores, and a plunger adapted to close and to open said passage or slot and to eject the oil from the reservoir through the small bore.

4. In a journal-lubricator, the oil-reservoir provided with bores or channels open at both ends above the level of the oil therein, said reservoir having a bottom communication with the bore or channel, a plunger adapted to close and to open said communication and to eject from the open end of said bore the oil from the reservoir, and means whereby the plunger is prevented from being withdrawn from said bore or channel.

5. In a journal-lubricator, the oil-reservoir, there being a channel or duct around its under side and flanking both its sides, and a passage or slot in the bottom of the wall leading from the oil-reservoir into one side of the duct or channel, and a plunger adapted to be reciprocated in one side of the channel or duct and to control the communication between the reservoir and said channel, for the purpose stated.

6. In a journal-lubricator, the oil-reservoir, there being a duct or channel below the same having communication below the same open at a point above the level of the oil, and a plunger within said duct or channel for ejecting the oil from the reservoir.

787,577. **WATER-METER.** FRANK LAMBERT, Brooklyn, N. Y. Filed May 10, 1902. Serial No. 106,730.



Claim.—1. In a water-meter, a pressure-casing, mounted therein a measuring-chamber made in sections each free to be forced independently of the other out of normal position under undue pressure, without damage to the meter, only one of said sections when in normal position fitting said pressure-casing.

2. In a water-meter, a pressure-casing, mounted therein a measuring-chamber made in sections each free to be forced independently of the other out of normal position under undue pressure, one of the said sections being axially registered in normal position by the said pressure-casing, while the other section is axially registered in normal position by the first said measuring-chamber section.

3. In a water-meter, a pressure-casing, mounted therein a measuring-chamber formed of sections, each section capable of being moved independently of the other out of normal position, without damage to the meter.

4. In a water-meter, a pressure-casing, mounted therein a measuring-chamber formed of sections, a train of gears resting on one of said sections, the said sections being held in face contact with each other by gravity only.

5. In a water-meter, a pressure-casing, mounted therein a measuring-chamber the sections of which are capable of being independently forced out of normal position, and means for preventing the rotation of said measuring-chamber when in normal position or in any other position in the pressure-casing to which it may be forced by undue pressure.

6. In a water-meter, a pressure-casing, mounted therein a measuring-chamber formed of sections each capable of being forced independently of the other out of normal position by undue internal pressure, without damage to the meter, and means to prevent said sections from getting wholly separated when forced out of normal position.

7. In a water-meter, a pressure-casing, mounted therein a measuring-chamber formed of sections axially registered together, each adapted to be forced independently of the other out of normal position by undue internal pressure; without damage to the meter, and means for keeping said registration between the said sections in all positions of the said measuring-chamber in said casing.

787,578. **CAP-NUT.** FRANK LAMBERT, Brooklyn, N. Y. Filed June 21, 1902. Serial No. 112,582.

Claim.—1. A cap-nut comprising an open nut having a groove in its top beyond and surrounding the opening, and a hollow cap the rim of which is held in said groove, the metal of the nut coming against each side of said rim.

2. A cap-nut comprising an open nut having a groove in its top beyond and surrounding the opening, an external and an internal cap, hollowed and having their rims inserted in the said groove as one cap for the nut, the metal of the nut outside the groove being pressed around the external cap, and the metal of the nut at the inner side of the groove supporting the caps at the inside of their rims.



787,579. **WATER-METER.** FRANK LAMBERT, Brooklyn, N. Y. Filed July 3, 1902. Serial No. 114,197.



Claim.—1. In a water-meter, a pressure-casing, a device for dividing the same into two compartments, one of which is free to the water passing through the meter, the other compartment being isolated from the water by said device, and yielding means for holding said device whereby the latter is capable of being forced by excessive internal pressure to open communication between said compartments without damage to the parts.

2. In a water-meter, a pressure-casing, and a measuring-chamber dividing the said casing into two compartments one of which is normally free to the water in the meter, yielding means for holding said chamber in normal position, the said chamber capable of being forced out of normal position under undue pressure to increase the space in the water-compartment under excessive internal pressure, while the casing remains water-tight.

3. In a water-meter, a pressure-casing, a measuring-chamber dividing the said casing into two compartments one serving as a water-compartment and the other as an air-compartment, with a spring device in said air-compartment adapted to hold the said chamber in normal position.

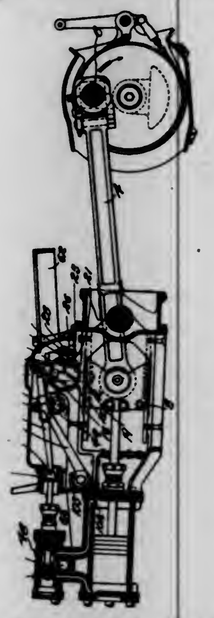
4. In a water-meter, a pressure-casing, a measuring-chamber dividing the said casing into two compartments one serving as a water-compartment and the other as an air-compartment, with a spring device in said air-compartment adapted to hold the said chamber in normal position, and means for adjusting the tension of said spring device in said compartment.

787,580. **VALVE-GEAR.** ALLEN LOOMIS, Jackson, Mich. Filed June 6, 1904. Serial No. 211,309.

Claim.—1. In a valve-gear for multiple-cylinder engines, of the type wherein the motion of each valve is derived from and compounded of the reciprocating motion of two main driving-linkages, the combination of rock-shafts so mounted in bearings in the frame of the engine as to be free to oscillate; rocking levers fixed on the rock-shafts; driving connections to each of said rocking levers from one of the main driving-linkages; bearings fixed relatively to said rock-shafts and having axes eccentric to the axes of the rock-shafts; curved links mounted in said bearings; link-blocks free to slide upon said curved links; driving connections from each of said link-blocks to one of the valves; means for regulating the position of said link-blocks upon said curved links; link-shaft arms fixed relatively to said curved links; rock-shaft arms fixed relatively to the rock-shafts; and short links connecting each link-shaft arm to a rock-shaft arm which is formed upon a rock-shaft other than that in which are the bearings of the link relatively to which the link-shaft arm is fixed.

2. In a valve-gear of the type described, the combination of rock-shafts free to oscillate in bearings fixed on the engine-frame; rocking levers fixed relatively to the rock-shafts; reducing-links connecting each rocking lever to a main driving-linkage in such a manner that the reciprocating motion of the driving-linkage is reproduced in the oscillation of the rock-shaft; curved links eccentrically mounted upon the rock-shafts and free to oscillate relatively to them; link-blocks adapted to slide upon the curved links; radius-rods connecting the link-blocks to the valves; a reverse-shaft adapted to regulate the position of the link-blocks in the links; link-shaft arms fixed relatively to the links; rock-shaft arms fixed relatively to

the rock-shaft; and short links connecting each link-shaft arm to a rock-shaft arm which is fixed relatively to a rock-shaft other than that upon which are mounted the bearings about which the link-shaft arm turns.



3. In combination, in a double valve-gear of the type described, two rock-shafts; two link-shafts eccentrically mounted upon them; a curved link and a link-shaft arm rigidly fixed upon each link-shaft; a rock-shaft arm rigidly fixed upon each rock-shaft; short links connecting each link-shaft arm to the opposite rock-shaft; link-blocks adapted to slide upon the curved links; a reverse-shaft; means mounted upon said reverse-shaft for regulating the position of the link-blocks on the links; and driving connection from each link-block to a valve.

4. In combination, in a double valve-gear of the type described, two rock-shafts adapted to oscillate in fixed bearings; two sets of bearings, each having one part fixed relatively to one of said rock-shafts and eccentric to the axis of the rock-shaft; curved links rigidly mounted upon the other parts of said bearings, each being adapted to oscillate relatively to the rock-shaft upon which it is mounted; driving connections to each curved link from the opposite rock-shaft, adapted to reproduce, in the angular motion of the link, the angular motion of said opposite rock-shaft; link-blocks adapted to slide upon said curved links; driving connection from each link-block to a valve; and means for regulating the position of the link-blocks upon the links.

5. In combination, in a valve-gear of the type described, two rock-shafts; a curved link eccentrically mounted upon each rock-shaft and adapted to oscillate relatively thereto; driving connections to each link from the opposite rock-shaft, adapted to reproduce in the link the angular motion of said opposite rock-shaft; link-blocks adapted to slide upon said curved links; driving connections from each link-block to the valve which admits steam to the piston driving the rock-shaft upon which the link is eccentrically mounted; and means for regulating the position of the link-blocks upon the links.

6. In combination, in a valve-gear of the type described, two rock-shafts supported in alinement; curved links mounted upon said rock-shafts and adapted to oscillate relatively thereto about axes eccentric to the common axis of the rock-shafts, one having its axis above, the other below, said common axis, regarding the motion of the remote end of the radius-rods as horizontal; link-blocks adapted to slide upon said curved links; radius-rods connecting and transmitting the motion of the link-blocks to the valves; link-shaft arms fixed relatively to the curved links; rock-shaft arms fixed relatively to the rock-shafts; short links forming driving connections from each rock-shaft arm to the arm of the opposite link-shaft; a reverse-shaft; and means mounted upon the reverse-shaft for simultaneously raising or lowering the link-blocks upon the links.

7. In combination, in a valve-gear of the type described, two rock-shafts supported in alinement; curved links mounted upon said rock-shafts and adapted to oscillate relatively thereto about axes eccentric to the common axis of the rock-shafts, one having its axis above, the other below, said common axis, regarding the motion of the remote ends of the radius-rods as horizontal; link-blocks adapted to slide upon said curved links; radius-rods connecting and transmitting the motion of the link-blocks to the valves; link-shaft arms fixed relatively to the curved links; rock-shaft arms fixed relatively to the rock-shafts; short links forming driving connections from each rock-shaft arm to the arm of the opposite link-shaft; a reverse-shaft; and drag-blocks mounted upon the reverse-shafts for simultaneously raising or lowering the link-blocks upon the links.

8. The combination, in a valve-gear, of a rock-shaft; driving connections to the rock-shaft from a main driving-linkage; a curved link eccentrically mounted upon said rock-shaft and adapted to oscillate relatively thereto; and a link-block adapted to slide upon said curved link and having driving connections to a valve.

9. In combination, in a double valve-gear of the type described, two rock-shafts supported in alinement; two sets of bearings, each having one part fixed relatively to one of said rock-shafts and eccentric to the axis of the rock-shaft; movable parts rigidly mounted upon the other parts of said bearings and adapted to oscillate relatively to the rock-shaft upon which they are mounted; and driving connections to each of said movable parts from the opposite rock-shaft, adapted to reproduce in each of said movable parts the angular motion of the opposite rock-shaft.

10. In combination, in a valve-gear of the type described, two rock-shafts; two sets of bearings, each having one part fixed relatively to one of said rock-shafts and eccentric to the axis of the rock-shaft; curved links rigidly mounted upon the other parts of said bearings and adapted to oscillate relatively to the rock-shafts; and link-blocks adapted to slide upon said curved links.

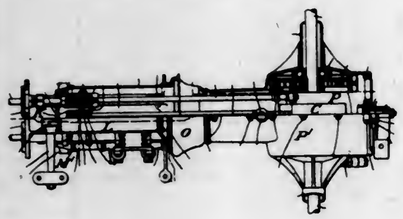
11. In a valve-gear, two rock-shafts supported in alinement, a movable part eccentrically mounted upon one of the rock-shafts and adapted to oscillate relatively thereto, and driving connection between the other rock-shaft and said movable part, adapted to reproduce in the one the angular motion of the other, independently of the angular motion of the rock-shaft upon which the movable part is mounted

12. In a valve-gear, a rock-shaft, a link mounted rotatably in said rock-shaft at one side of the axis thereof, means for oscillating the rock-shaft, means to oscillate said link relatively to the rock-shaft, and driving connections from said link to a valve.

13. In a valve-gear for an engine having a plurality of independently-operated pistons, a link, connections between one of the pistons and the link whereby the link is given a motion bodily of translation, connections between another piston and the link whereby the latter is oscillated, the connections between the several pistons and the link, whereby such motions of translation and oscillation are imparted to the link, being wholly independent of each other, and driving connections from said link to a valve.

14. In a valve-gear for an engine having a plurality of independently-operated pistons, an oscillatory member connected to one of the pistons in such manner as to be oscillated directly and exclusively by the movement of said piston, a link mounted rotatably with reference to said oscillatory member and connected thereto in such manner as to be moved bodily by the oscillations thereof connections between said link and another piston whereby movement of the piston oscillates the link, and connections between the link and a valve.

787,581. **AUTOMOBILE-ENGINE.** ALLEN LOOMIS, Ann Arbor, Mich. Filed Nov. 26, 1904. Serial No. 234,406.



Claim.—1. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, and a thrust member intermediate the connecting-rods and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other.

2. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a linkage adapted to restrict motion of the crank-housing across the chassis.

3. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing adapted to restrict motion of the crank-housing across the chassis.

4. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing, and a movable part interacting between the guide and the bearing and adapted to restrict motion of the crank-housing across the chassis.

5. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders, fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, and a thrust member intermediate the connecting-rods jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders while permitting the road-wheels to rise and fall independently of each other.

6. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, and a thrust member intermediate the connecting-rods universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other.

7. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a linkage adapted to restrict motion of the crank-housing across the chassis.

8. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a linkage adapted to restrict motion of the crank-housing across the chassis.

9. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing adapted to restrict motion of the crank-housing across the chassis.

10. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing adapted to restrict motion of the crank-housing across the chassis.

11. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing, and a movable part interacting between the guide and the bearing and adapted to restrict motion of the crank-housing across the chassis.

12. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fix-

edly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods, universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing, and a movable part interacting between the guide and the bearing and adapted to restrict motion of the crank-housing across the chassis.

13. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, and thrust mechanism jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other.

14. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, and thrust mechanism universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other.

15. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a linkage adapted to restrict motion of the crank-housing across the chassis.

16. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a linkage adapted to restrict motion of the crank-housing across the chassis.

17. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing adapted to restrict motion of the crank-housing across the chassis.

18. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections, and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing adapted to restrict motion of the crank-housing across the chassis.

19. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing and the bearing and adapted to restrict motion of the crank-housing across the chassis.

20. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing, and a movable part interacting between the guide and the bearing and adapted to restrict motion of the crank-housing across the chassis.

21. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, and thrust mechanism adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other.

22. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a linkage adapted to restrict motion of the crank-housing across the chassis.

23. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism adapted to maintain a substantially constant distance between

the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing adapted to restrict motion of the crank-housing across the chassis.

24. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, a guide and a bearing, one fixed relatively to the chassis, the other fixed relatively to the crank-housing, and a movable part interacting between the guide and the bearing and adapted to restrict motion of the crank-housing across the chassis.

25. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections.

26. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

27. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections.

28. In combination in an automoblie, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

29. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housing, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housings, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

30. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housings, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, a thrust member intermediate the connecting-rods universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

31 In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections.

32 In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

33. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections.

34. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis and articularly connected to the crank-housing, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism universally jointed to the cylinders and adapted to maintain a substantially constant distance between the crank-housing and the cylinders, while

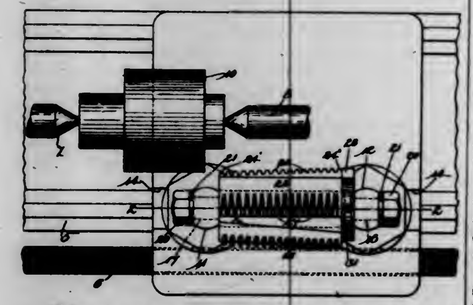
permitting the road-wheels to rise and fall independently of each other, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

35. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism, and a flexible sleeve closing the crank end of the space occupied by the piston connections.

36. In combination in an automobile, road-wheel axle-sections, each of which is driven, a multiple-cranked driving member intermediate the axle-sections and having with them a common axis of rotation, a differential gear making driving connection from said cranked member to the axle-sections, crank and axle housings, a chassis mounted on springs, substantially horizontal cylinders fixedly secured to the chassis, pistons working in the cylinders, driving connecting-rods from the pistons to the crank-pins, thrust mechanism, and a flexible sleeve closing the crank end of the space occupied by the piston connections and the head end of the crank-housing.

787,582. EXTERNAL SCREW-THREAD AND WORM CUTTER.

JAMES F. MALONEY, Brookline, Mass. Filed May 20, 1904. Serial No. 208,852.



Claim.—1. An external-screw-thread cutter comprising in its construction a sleeve formed of a single piece of metal having upon its periphery a series of cutting-teeth extending longitudinally thereof, a cylindrical stud fast to and extending through said sleeve and beyond the opposite ends thereof, respectively, the projecting ends of said studs flattened for the purpose specified and the cutting edges of said teeth located at different distances from the median line of said stud.

2. An external-screw-thread cutter comprising in its construction a sleeve formed of a single piece of metal having upon its periphery a series of cutting-teeth extending longitudinally thereof, a cylindrical stud fast to and extending through said sleeve and beyond the opposite ends thereof, respectively, the projecting ends of said stud flattened and the cutting edges of said teeth located at different distances from the median line of said stud; in combination with a lathe having a feed-table provided with a slot and two tool-posts, each provided with a vertical slot through which the flattened ends of said stud, respectively, project, means to clamp said stud to said posts, and means to move said table longitudinally of said lathe.

3. An external-screw-thread cutter comprising in its construction a sleeve formed of a single piece of metal having upon its periphery a series of cutting-teeth, extending longitudinally thereof, a cylindrical stud fast to and extending through said sleeve and beyond the opposite ends thereof, respectively, the projecting ends of said stud flattened and the cutting edges of said teeth located at different distances from the median line of said stud; in combination with a lathe having a feed-table provided with a slot and two tool-posts, each provided with a vertical slot through which the flattened ends of said stud, respectively, project means to clamp said stud to said posts, means to raise and lower said flattened ends in said vertical slots, and means to move said table longitudinally of said lathe.

4. An external-screw-thread cutter comprising in its construction a sleeve formed of a single piece of metal having upon its periphery a series of cutting-teeth extending longitudinally thereof, a cylindrical stud fast to and extending through said sleeve and beyond the opposite ends thereof, respectively, the projecting ends of said stud flattened for the purpose specified and the cutting edges of said teeth located at different distances from the median line of said stud, and a trimming-cutter fast to said sleeve in a slot extending transversely and at one end thereof.

5. An external-screw-thread cutter comprising in its construction a sleeve formed of a single piece of metal having upon its periphery a series of cutting-teeth extending longitudinally thereof, a cylindrical stud fast to and extending through said sleeve and beyond the opposite ends thereof, respectively, the projecting ends of said stud flattened for the purpose specified and the cutting edges of said teeth located at different distances from the median line of said stud, a trimming-cutter fast to said sleeve in a slot extending transversely and at one end thereof, and an adjusting-screw extending transversely through said stud and adapted to bear against the inner end of said trimming-cutter.

787,583. TELEPHONE-RECEIVER.

CHARLES T. MASON, Sumter, S. C., assignor to Sumter Telephone Manufacturing Company, Sumter, S. C. Filed Feb. 27, 1905. Serial No. 247,457.



Claim.—1. In a telephone-receiver, the combination of a magnet structure having a cup at its front end and a block at its rear end, a cap on the cup, with the diaphragm clamped therebetween, a shell inclosing the magnet structure and having locking engagement at its front end with the cap, and a rear end piece removably secured to the block, against the rear end of the sleeve.

2. In a telephone-receiver, in combination, a shell, a magnet structure therein having a cup fixed to its front end with its rim against the front end of the shell, a threaded block fixed to the rear end of the structure, and a cap screwed on the block and against the rear end of the shell.

3. In a telephone-receiver, in combination, a shell, a magnet structure therein having a projecting cup forming an abutment for the front end of the shell, a block fixed to the rear end of the magnet and having a projecting threaded portion, and a cap screwed on the threaded portion, and against the end of the shell.

4. In a telephone-receiver, the combination with a magnet having a cup upon the front end thereof, of pole-pieces secured to the magnet and extending through the bottom of the cup and having shoulders resting thereon, coils on the pole-pieces in the cup, a cap over the cup, and a diaphragm clamped between the cap and cup.

5. A telephone-receiver casing, comprising a cap, and a shell, having interlocking projections preventing them from being turned with respect to each other, and means to bind the cap and shell together.

6. In a telephone-receiver, in combination, a cup, a magnet structure fixed thereto, a cap screwed on the cup and having a rim extending beyond the screw-threads, a shell fitting within said rim, the rim and shell having interlocking devices preventing relative turning of the parts, and a removable cap secured to the magnet structure and bearing against the rear end of the shell.

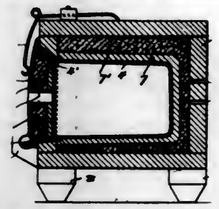
7. In a telephone-receiver, the combination with a cup in the casing, of pole-pieces fitting through slots in the bottom of the cup and having shoulders resting upon said bottom, a block fixed under the bottom of the cup, between the pole-pieces, whereby the pole-pieces and cup are rigidly secured together, and a magnet connected to the pole-pieces.

787,584. DENTAL FURNACE.

ARTHUR E. MATTESON, Chicago, Ill. Filed Sept. 19, 1904. Serial No. 225,040.

Claim.—1. In a dental furnace, a muffle provided upon its surface with a plurality of projecting holding members and adapted to have wound thereupon from one to the other a heat-conductor for said furnace.

2. In a dental furnace, a muffle provided with a plurality of lugs distributed over the surface thereof and adapted to have attached thereto a heat-conductor passed from one lug to another over the surface of said muffle, for the purpose described.



3. In a dental furnace, a muffle provided on its exterior surface with a plurality of undercut lugs distributed over said surface and adapted to have an electric-current conductor attached thereto, and a conductor passing from one lug to another over the surface of said muffle, substantially as and for the purpose described.

4. In a dental furnace a muffle having one side open and provided with a plurality of holding members closely distributed thereupon around said opening, other holding members distributed over the body of said muffle toward the rear end thereof, and a heat-conductor wound upon said holding members, substantially as described.

5. In a dental furnace, a furnace-body or outer casing having an opening at one side thereof, a muffle mounted within said outer casing and having an opening in register with the opening into said outer casing, a closure for said openings, an electric-current conductor applied to said muffle and to said closure for heating same, and a coating of insulating matter rendered friable by heat applied to said muffle and closure and covering said conductor, that part of the conductor running to the closure and to the muffle being connected in multiple, substantially as described.

6. In a dental furnace, a furnace-body or outer casing having an opening at one side thereof, a muffle mounted within said outer casing and having an opening in register with the opening into said outer casing, a plurality of holding members mounted upon the surface of said muffle and adapted to have attached thereto an electric-current conductor, a closure for said furnace, said closure also provided with a plurality of holding members adapted to have applied thereto an electric-current conductor, and an electric-current conductor applied to said muffle and to said closure for heating the same, those parts of said conductor running to said closure and to said muffle being connected in multiple, substantially as described.

7. In a dental furnace, an outer casing, a muffle of thin refractory material mounted within said outer casing and provided with a plurality of holding members distributed thereupon and adapted to have attached thereto a heat-conductor, a closure for said furnace, and a heat-conductor applied to said holding members and passing from one to another over the surface of the muffle, for the purpose described.

8. In a dental furnace, an outer casing, a muffle of thin refractory material mounted within said outer casing and provided with a plurality of holding members distributed thereupon and adapted to have attached thereto a heating medium, a heating medium applied to said holding members, a coating of insulating matter applied to said muffle over said holding members and said heating medium, and a closure for said furnace, substantially as described.

9. In a dental furnace, an outer casing, a muffle of thin refractory material mounted within said outer casing and provided with a plurality of holding-lugs distributed over the surface thereof and adapted to have attached thereto an electric-current conductor, a conductor applied to said lugs, passing from one to the other over the surface of said muffle, a coating of insulating matter applied to said muffle over said lugs and said conductor, a filling of hard-coal ashes or analogous matter between the interior of the outer casing and the muffle, and a closure for said muffle and outer casing, substantially as described.

10. In a dental furnace, an outer casing, a muffle of comparatively thin refractory material mounted within said casing and provided with an electric-current conductor wound thereupon, a coating of insulating matter applied over said conductor and rendered friable, a closure for said furnace also provided with an electric-current conductor and a coating of insulating matter over said conductor, and electric connections between said closure and said muffle-winding, whereby to simultaneously heat said muffle and said closure by passing electric current though said conductor, substantially as described.

11. In a dental furnace, a muffle therefor provided with a heat-conductor wound thereupon, and an insulating matter applied thereto over said conductor, said insulating matter comprising a cohesive mass of mortar-like substance deprived of its cohesive properties under the influence of heat.

12. In a dental furnace, a muffle therefor provided with a heat-conductor wound thereupon, and an insulating substance applied thereto over said conductor, said insulating substance comprising a mixture of silex, gum-arabic and water, or an analogous mixture, substantially as and for the purpose described.

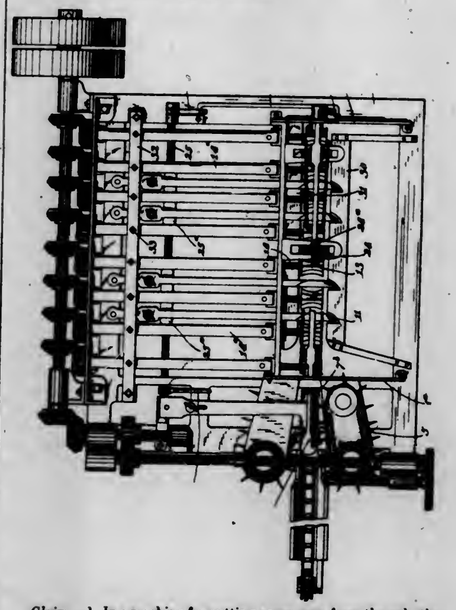
13. A furnace of the character referred to having a wall of material substantially non-expansible under the influence of heat and provided with a beveled opening therethrough, and a closure therefor having a correspondingly-beveled edge fitting the inner edge of said opening, whereby said closure as is expands under the influence of heat moves outwardly upon the beveled edge of said opening without binding or causing an opening between the edges of said closure and said wall, substantially as described.

14. In a dental furnace, an outer casing or furnace-body of box-like construction provided with an opening in one side thereof, a closure hinged upon said furnace-body, the hinges of which constitute contact-points, contact-arms mounted upon said furnace-body and engaging said hinge contact-points, a heat-conductor applied to said closure and connected with said contact-points, a muffle mounted within said furnace-body and provided thereupon with a heat-conductor connected with said contact-arms, and an insulating-filling within said furnace-body around said muffle, substantially as and for the purpose described.

15. In a dental furnace, a furnace-body composed of refractory material, a muffle removably mounted therein, a heat-conductor wound upon said muffle, an insulating-filling around said muffle within said furnace-body, a closure for said furnace-body provided with a heat-conductor and having a chamber therein adapted to be filled with heat-insulating substance, and electric connections between said muffle and said closure, whereby said conductor is connected in mutiple in said muffle and said closure, substantially as described.

787,585. MACHINE FOR CUTTING GREEN CORN FROM THE COB.

SAMUEL E. MORRAL and WILLIAM W. MORRAL, Morral, Ohio. Filed July 7, 1903. Serial No. 164,531.



Claim.—1. In a machine for cutting green corn from the cob, the combination with a series of pairs of spring-held successively-acting cutters and scrapers, and a series of successively-acting intermediate pairs of ear-feeding wheels, of manual means mounted on the frame

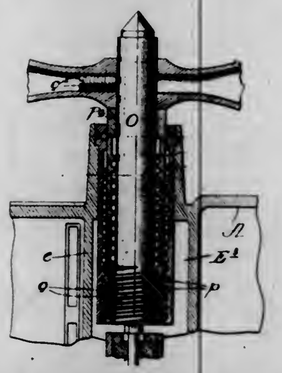
of the machine for simultaneously operating said cutters and scrapers to separate them to permit the free passage of ears between them.

2. In a machine for cutting green corn from the cob, the combination with vertically and horizontally arranged spring-held scrapers, of means adapted to positively separate the vertically-arranged scrapers, and means adapted to positively separate the horizontally-arranged scrapers, and manual means mounted on the frame of the machine for simultaneously operating both the aforesaid means.

3. In a machine for cutting green corn from the cob, the combination of a series of pairs of cutters and scrapers, and a series of pairs of intermediate feed-wheels arranged to feed the ears through said cutters and scrapers, of guide-bars arranged longitudinally on each side of and parallel to the path of movement of the ears through the series of feed-wheels adapted to direct veering ears into the proper path through said wheels and scrapers.

4. In a machine for cutting green corn from the cob, the combination of cutters and scrapers, pairs of feed-wheels between them, each member of said pairs of feed-wheels being movable vertically, a separate spring for each member of each pair of feed-wheels to press each toward the other, and a separate device for each of said springs adapted to regulate the pressure thereof independently of the other.

787,586. PORTABLE PNEUMATIC MOTOR. REINHOLD A. NORLING, Aurora, Ill., assignor to Aurora Automatic Machinery Company, Aurora, Ill., a Corporation of Illinois. Filed Nov. 19, 1903. Serial No. 181,803.

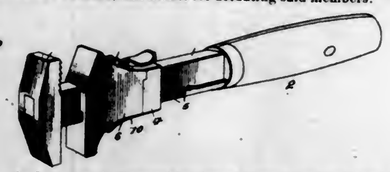


Claim.—1. In a portable pneumatic motor the combination of a rotative tool-carrying spindle provided with a recess adapted to receive the shank of a tool, an endwise-movable ejecting-pin mounted in the inner end of said spindle, and a feed-screw mounted in the casing and adapted for contact with the outer end of said ejecting-pin when said feed-screw is near the inward limit of its movement and which is adapted to force said pin inward to eject the tool from said tapered recess.

2. In a portable pneumatic motor, the combination with the casing thereof containing two power-cylinders arranged at an angle to each other and a space or chamber between said cylinders, of a rotative tool-carrying spindle mounted in the lower part of said casing with its upper end adjacent to the bottom of said space or chamber, and a feed-screw mounted in the upper part of the casing in axial alinement with the tool-carrying spindle, said feed-screw comprising a central rotative spindle provided at its outer end with means by which it may be turned by hand, and a plurality of telescopic tubes which have screw-threaded engagement with each other, the innermost of said tubes having screw-threaded engagement with said central spindle, and the outermost of said tubes being rigidly attached at its upper end to the upper wall of the casing and extending at its lower end into the said space or chamber so that the moving parts of the screw will project from the casing when extended, but will occupy said space or chamber in the casing when contracted.

787,587. WRENCH. KNUDT G. OVERLAND, Fertile, Minn. Filed Nov. 15, 1904. Serial No. 232,855.

Claim.—1. In a wrench, the combination of a shank provided with sets of rack-teeth longitudinally thereof, a fixed jaw, a movable jaw, clutch members carried by the movable jaw for coöperation with the sets of rack-teeth of the shank, and link connection between the clutch members, and means for actuating said members.



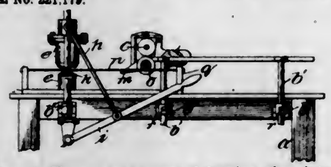
2. In a wrench, the combination of a shank provided upon opposite sides thereof with reversely-disposed sets of rack-teeth, a rigid jaw, a movable jaw, and reversely-operating clutch members slidably mounted upon the movable jaw and coöperating with the sets of rack-teeth of the shank.

3. In a wrench, the combination of a shank having reverse sets of rack-teeth, a rigid jaw, a movable jaw, coacting reversely-movable clutch members mounted upon the movable jaw for coöperation with the sets of rack-teeth of the shank, means for normally holding the clutch members in engagement with the respective sets of teeth of the shank, a link connection between the clutch members, and a member carried by one of said clutch members for simultaneous actuation of said members.

4. In a wrench, the combination of a shank provided with oppositely-disposed sets of rack-teeth, a rigid jaw, a movable jaw, reversely-movable clutch members coöperating with the sets of rack-teeth of the shank, a spring engaging one clutch member and normally holding said clutch members in engagement with the rack-teeth, and means for simultaneously actuating said clutch members.

5. In a wrench, the combination of a shank provided upon opposite sides thereof with reversely-disposed sets of rack-teeth, a rigid jaw at one end of the shank and a handle at the other end, a movable jaw mounted upon the shank, clutch members mounted in the sides of the movable jaw, reversely-disposed teeth upon the said clutch members coöperating with the respective teeth of the shank, a spring carried by the movable jaw to normally hold the clutch members in engagement with the rack-teeth of the shank, a link connection between said clutch members for effecting simultaneous movement thereof, and a pressure-piece carried by one of the clutch members for the purpose specified.

787,588. ART OF WORKING GLASS AND MECHANISM THEREFOR. SELLERS H. PELTIER, Ottawa, Ill. Filed Aug. 18, 1904. Serial No. 221,179.



Claim.—1. The art or process of forming glass into desired shapes which consists in first rolling glass into sheets, then passing it onto a moving receiving-die and then passing said charged die under its counterpart and therewith both cutting and forming the glass while yet in its plastic condition.

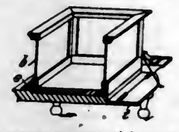
2. The combination with a vertically-adjustable receiving-table, and rollers adjustable therewith, of a horizontally-reciprocable table under said table with receiving-die thereon, a counterpart to said die, and means to reciprocate said counterpart and table.

3. The combination with a vertically-adjustable receiving-table and rollers adjustable therewith, of a horizontally-reciprocable table under said table with receiving-die thereon a counterpart to said die and means to time in unison the action of said rollers and reciprocating table.

4. The art or process of forming glass into desired shapes which consists in first heating and rolling glass into sheets then subjecting the still hot glass to the action of dies and therewith both cutting and forming the glass while yet in its plastic condition.

787,589. ILLUSION APPARATUS. CARL ROSENFELD, Berlin, Germany. Filed Dec. 6, 1904. Serial No. 235,721.

Claim.—1. An illusion apparatus comprising a transparent tank, a support sustaining the same, and means at the back of the support for supporting a person outside the tank, said means being in a lower plane than the front of the support.

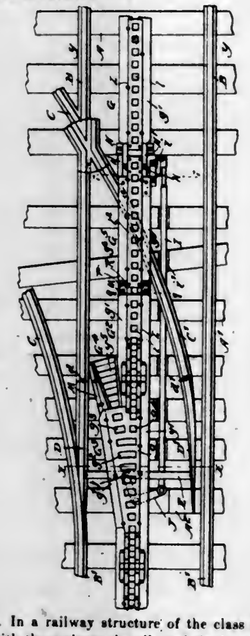


2. An illusion apparatus, comprising a transparent tank, and a support sustaining the same and having hinged flaps at the rear of the tank, presenting accommodation, concealed from the view of persons in front of the apparatus, for a recumbent performer, substantially as described.

3. An illusion apparatus, comprising a transparent tank, a support sustaining the same and recessed at the rear of the tank, and a flap hinged to such recessed portion, whereby accommodation, concealed from the view of persons in front of the apparatus, is presented for a recumbent performer, substantially as described.

4. An illusion apparatus, comprising a transparent tank, a support sustaining the same and recessed at the rear of the tank, a fillet concealing the juncture between tank and support, and a flap hinged to the recessed portion of the support, whereby accommodation, screened from the view of persons in front of the apparatus, is presented for a recumbent performer, substantially as described.

787,590. SWITCH MECHANISM FOR RAILWAY RACK-RAILS. FRANK L. SESSIONS, Columbus, Ohio, assignor to The Jeffrey Manufacturing Company, Columbus, Ohio, a Corporation of Ohio. Filed Jan. 4, 1905. Serial No. 239,628.



Claim.—1. In a railway structure of the class described, the combination with the main-track rails and the branch-track rails, having fixed track-sections between the main-track rails, of a traction-rack having fixed main-track sections, and a vertically-swinging rack-section adapted to be thrown to and from its normal or active position by swinging it in vertical planes transverse to the said fixed intermediate rail-section.

2. In a railway structure of the class described, the combination of the main-track rails and branch-track rails, having an intermediate branch section between the lines of the main-track rails, a traction-rack having main sections parallel to the main-track sections, and a movable section normally alining with the main-track sections, while lying over and transverse to said intermediate branch-track sections, and adapted to swing in vertical planes around a horizontal axis and to be supported in an elevated position in the path of a vehicle on the main track whereby it is adapted to be thrown by said vehicle into its active or normal position, substantially as set forth.

3. In a railway structure of the class described, the combination of the main-track rails, the branch-track rails, and the adjustable switch-points of the traction-rack, having the main stationary sections parallel to the main-track rails, the intermediate fixed section G^3 alined with the main rack-sections; the triangular or tapering rack-section G^2, and the stationary rack-section G^4 having a series of rack teeth or projections gradually varying in height; substantially as set forth.

787,591. ANTISEPTIC BOTTLE. FRANCK SONNENFELD and JACOB GLASS, New York, N. Y. Filed June 20, 1904. Serial No. 213,332.



Claim.—1. A receptacle having a shoulder in its upper part, in combination with a removable neck having means for securing it to the receptacle, a float-valve carried by the neck, and a perforated plate resting on said shoulder and having a tube extending therefrom nearly to the bottom of the receptacle.

2. A non-metallic receptacle having a shoulder in its upper part, in combination with a perforated non-metallic plate resting on said shoulder and having a tube extending toward the bottom of the receptacle, a float-valve for controlling the discharge of material from the receptacle, and a nozzle in communication with the interior of the receptacle and having a rosette at its end.

3. In a receptacle, the combination of a main portion, a removable neck therefor having a passage therethrough, and a valve for closing said passage, comprising a hollow body adapted to be held against its seat by the pressure of a fluid in the receptacle.

4. In a receptacle, the combination of a non-metallic main portion, a removable non-metallic neck therefor having a passage therethrough, a valve for closing said passage, comprising a hollow non-metallic body, and positive yielding means for holding the valve in closed position.

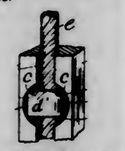
5. In a receptacle, the combination of a glass main portion, a removable glass neck therefor having a passage therethrough, a valve for closing said passage, comprising a hollow body of glass and provided with an upwardly-extending stem, a button, means on said stem for securing the valve to the button, and a rubber spring mounted between the button and the neck.

6. In a receptacle, the combination of a main portion, a removable neck therefor having a passage therethrough, a valve for closing said passage, comprising a hollow body adapted to be held in closed position, and a plate mounted on said main portion below said neck and having a tube extending therefrom to the vicinity of the bottom of the receptacle.

7. In a receptacle, the combination of a glass main portion having an upwardly-extending portion or neck thereon provided with a recess and with a shoulder, a removable glass neck provided with projections adapted to engage in said recess for securing the said neck upon the main portion of the receptacle, a glass plate mounted

on said shoulder and having a tube extending therefrom to near the bottom of the receptacle, said removable neck having an enlarged chamber above said plate, and a passage extending therefrom to the exterior thereof and provided with a nozzle having a rosette at the end thereof, a hollow glass valve for closing said passage, and yielding means for retaining said valve in position.

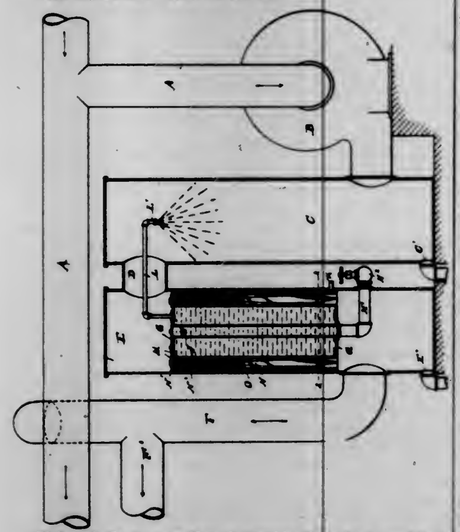
787,592. SASH-CORD FASTENER. PETER S. STAUFFER, Springfield, Mass., and FRANK R. IVES, Wallingford, Conn. Filed Feb. 20, 1904. Serial No. 194,518.



Claim.—1. As a new article of manufacture, a sash-cord fastener comprising a strip of metal bent vertically to form two horizontal arms and provided with points at the open and closed terminals and with spurs projecting inwardly from the arms intermediate of said terminals.

2. As a new article of manufacture, a sash-cord fastener consisting of two arms joined together at one end, points rising from the upper edges of said arms at their junction and free ends, prongs adapted to penetrate a cord extending inwardly from the upper and lower edges of both of said arms, and guide-prongs extending inwardly from the upper and lower edges of one of said arms both sides of the first-mentioned prongs.

787,593. GAS-PURIFIER. ALFRED STEINHART, Carlstadt, N. J. Filed May 12, 1904. Serial No. 207,560.



Claim.—1. In a gas-purifier, the combination with a vessel having tubes, each containing a helical duct, of means for conducting water into said vessel, means for conveying gas to said ducts, means for conducting water from the above-mentioned vessel having tubes, and a spraying device connected with said means for conducting water from said vessel and located in the gas-conduit in advance of the said ducts, substantially as set forth.

2. In a gas-purifier, the combination with two vessels, connected at their upper ends, of means for conveying gas into one of said vessels, means for causing a difference in pressure in said vessel, means for withdrawing gas from the other vessel, a water-spraying device in the first-mentioned vessel, and a series of vertical gas-ducts in the second-mentioned vessel, each duct having a helical path for the gas, substantially as set forth.

3. In a gas-purifier, the combination with a vessel, of two partitions in the same, tubes connecting the partitions, cores in said partitions, which cores gradually increase in diameter and then decrease at one end, of a web extending helically around each core, the pitch of the web gradually increasing at the point where the diameter of the core increases, said web ending parallel with the axis of the core to the point of the core, substantially as set forth.

4. In a gas-purifier, the combination with a vessel, of partitions in the same, vertical tubes connecting the partitions, cores hung in said tubes, pins extending across the upper ends of said tubes and through the upper ends of the cores, and resting on the upper partition and helical webs formed on said cores, substantially as set forth.

5. In a gas-purifier, the combination with a vessel, of two horizontal partitions in the same, a central tube uniting them, open at its upper end and a water-supply pipe connected with its lower end, a series of tubes connecting the horizontal partitions around the central tube, a core in each of the tubes surrounding the central tube, each core having a helical web and means for conveying gas into the upper part of said vessel and through the tubes surrounding the central tube, substantially as set forth.

787,594. VETERINARY INSTRUMENT. HENRY M. STEVENSON, Perry, Iowa, assignor of one-half to Clarence E. Beaver, Perry, Iowa. Filed June 14, 1904. Serial No. 212,538.



Claim.—1. In a veterinary instrument, the combination of a main shank, a head adjustable upon said shank, and an embryotome movably mounted upon head.

2. In a veterinary instrument, the combination of the main shank, a head having adjustable threaded connection with said main shank, the embryotome movably mounted upon the head, said head being adapted to be adjusted to effect engagement of the shank with the embryotome.

3. In a veterinary instrument, the combination of a main shank, an embryotome comprising a shank revolubly mounted upon the main shank, and a knife pivoted to said revoluble shank.

4. In a veterinary instrument, the combination of a shank having a tubular portion, a head received by said tubular portion, and an embryotome mounted upon said head, the shank cooperating with the embryotome to hold same in position.

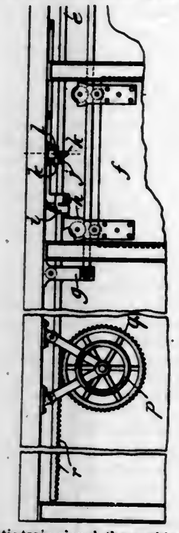
5. In a veterinary instrument, the combination of a main shank provided at one end with a handle and at the other end with a tubular portion, a head threaded into the tubular portion and provided with a longitudinal slot therein, an embryotome comprising a knife having a shank swiveled in the slot of the head, a pivotal connection between the knife and its shank, the main shank being adapted to engage the shank of the embryotome to hold the latter in position.

787,595. ELECTRIC TRAIN-SIGNAL. ALBERT W. SULLIVAN and WILLIAM RENSHAW, Chicago, Ill. Filed Aug. 5, 1904. Serial No. 219,608.

Claim.—1. In an automatic signal for railway-trains, the combination of a signaling device arranged in the cab of a locomotive or motor-car, a car or cars provided with a plurality of side-opening doors, a source of electric energy, an electric circuit embracing said source of electric energy and the signaling device, and means arranged to be operated by and during the movements of one or all of said doors for making the circuit when one or more of the doors are opened and breaking it only when all of the doors are closed, substantially as described.

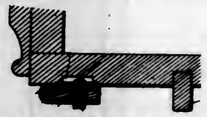
2. In an automatic train-signal, the combination of a signaling device arranged in the cab of a locomotive or motor-car, a car or cars composing the train provided with a plurality of side-opening doors slidably arranged therein, a source of electric energy, an electric circuit embracing said source of electric energy and signaling device, and a bar in each car arranged to be operated by and during the movements of one or all of the sliding doors and make said circuit when one or more of said doors are opened and break it only when all have been closed, substantially as described.

3. In an automatic train-signal, the combination of a signal-bell arranged in a locomotive or motor-car, a car or cars provided with a plurality of sliding doors on one or both sides, a source of electric energy, an electric circuit embracing said source of electric energy and signal-bell, and bar mechanism arranged in each car to be operated by and during the movements of one or more of the sliding doors and make said circuit when one or more of the doors are opened and break it only when all have been closed, substantially as described.



4. In an automatic train-signal, the combination of a signal-bell arranged in the cab of a locomotive or motor-car, a car or cars provided with a plurality of sliding doors on each side, two sliding bars—one arranged adjacent to each set of sliding doors and adapted to be operated by one or more of the same, a source of electric energy, and an electric circuit embracing said source of electric energy and signal-bell and arranged to be made when one or both of such sliding bars are operated by and during the opening of one or more of the sliding doors and to be broken only when both of said bars have been moved in the opposite direction and all of the doors have been closed, substantially as described.

787,596. ADJUSTABLE STOP-BEAD FASTENER. WASHINGTON VAN GAASBEEK, Brooklyn, N. Y. Filed June 11, 1904. Serial No. 212,210.



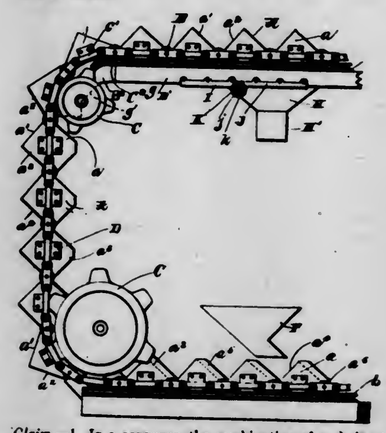
Claim.—A window-bead fastener comprising a slotted plate, adapted to be fixed to a window-frame, a polygonal nut adapted to be driven into a stop-bead, and a screw fitted to said nut having a head and a reduced neck, the latter adapted to slide in the slot in the aforesaid plate.

787,597. AXLE. THERSTON O. WATKINS, Hattiesburg, Miss. Filed Nov. 10, 1904. Serial No. 232,949.



Claim.—In axle structure, the combination of an axletree having its arms provided with longitudinal bores inclined toward and leading through to the under side thereof, the tree being provided upon its under side with a groove between the inner termini of the bores aforesaid, a truss-rod received by the bores at the ends thereof and having its extremities projected beyond the extremities of the axle-arms, the central portion of the truss-rod being received in the groove upon the under side of the axletree, exteriorly-threaded collars or rings disposed upon the ends of the truss-rod and abutting against the adjacent extremities of the axle-arms, nuts screwed upon the ends of the truss-rod and engaging the collars or rings aforesaid to prevent displacement thereof, a skein mounted upon each axle-arm, and an axle-nut screwed upon the collar or ring at each end of the axletree and coöperating with the skein to prevent displacement thereof.

787,598. CONVEYER. ALFRED J. WEBSTER, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Nov. 30, 1897. Serial No. 660,277.



Claim.—1. In a conveyer, the combination of a chain at each side of the conveyer, a substantially endless series of buckets, each closely adjacent to those next to it, each rigidly connected to the chains, and each having a closed side a^4 which projects upward at a forward inclination relative to the loading "run" of the chain, and an open receiving side projecting upward and backward and extending substantially entirely to the upper edge of said side, a^5, whereby the material begins to escape from the bucket immediately upon its passing the upward wheel of the conveyer, as at C, and whereby the said side a^5 can serve as a flight or scraper upon the emptied material, substantially as set forth.

2. In a conveyer, the combination of the chain at each side of the conveyer, the stationary floor, G, a substantially endless series of buckets, each rigidly connected to the chains, each having the plane side a^5, which is inclined forward from the rear corner of the bucket when it is on the loading "run" of the conveyer, and having an open side extending from the upper edge of the plane side, a^5, whereby each bucket can be entirely inverted when passing along a run parallel to the loading "run," and this side, a^4, serve as a scraping-flight upon the floor, G, substantially as set forth.

3. In a conveyer, the combination of a series of box-like buckets each having three closed sides and closed ends and an open side, and each provided with two guide-flanges opposite the open side of the next bucket, and two parallel chains at the ends of the buckets, each chain having rigid links rigidly secured to the buckets, and intermediate links provided with rollers for supporting the conveyer on a track, substantially as set forth.

4. The combination of the series of buckets, each formed with four sides, three of said sides being closed, and the fourth open, means for connecting together the said buckets in series, and arranged to hold each with its open side upward and to the front, and means for inverting the buckets successively and bringing the open side of each to the bottom and to the front when emptying, substantially as set forth.

5. The combination of the series of buckets, each formed with four sides inclined to the horizon, three of said sides being closed, two of the closed sides forming a bottom when the bucket is loading, the open side being at the top and to the front when the bucket is loading and the top closed side having guide lips or flanges adjacent to the open side of the next bucket, means for flexibly connecting together the series of buckets, and means for inverting them at points near their emptying positions, substantially as set forth.

6. The combination of a series of buckets arranged to travel on a lower horizontal line and then on an upper horizontal line, each bucket being formed with two closed sides which are at the bottom when the bucket is on the lower horizontal line, and with one closed and one open side at the top, all of said sides being at an inclination to the horizontal, and two parallel chains rigidly secured to the ends of the buckets and the guide-wheels or the chains arranged substantially as set forth to invert the buckets from their position on the lower horizontal line to their position on the upper horizontal line, substantially as described.

7. The combination with the series of material-transporting devices, of the parallel chains at the ends thereof, each consisting of a series of roller-carrying links and intermediate links formed of flat bars or straps rigidly secured to the ends of the material-transporting devices, and the pintles having flattened ends connecting the straps or bars with the roller-links, substantially as set forth.

8. The combination with the series of material-transporting devices, of the parallel chains at the ends thereof consisting of a series of strap-links secured to the ends of the said devices, and intermediate links each provided with a flanged wheel adapted to rest upon a track or guideway, substantially as set forth.

9. In a conveyer the combination with a series of material-transporting devices, of the chains to which such devices are connected, consisting of a series of links formed of flat bars or straps which are rigidly connected to the said transporting devices, intermediate links uniting the said bar or strap links, and the pintles connecting the different links of the chain having flattened ends connected with the strap bars or links whereby the pintles are locked thereto and prevented from turning therein, and having also prolonged wearing-surfaces between the said flattened ends which engage with the said intermediate connecting-links, substantially as set forth.

10. In a conveyer the combination of an endless chain and a series of buckets rigidly secured thereto, each bucket having an open side arranged obliquely to the portion of the chain to which it is secured, and a closed side a^3 inclined in the direction in which the conveyer moves and having its free edge situated on the inner side of the conveyer, and constituting one edge of the said open side of the bucket, substantially as set forth.

11. In a conveyer the combination of an endless chain, and a series of material-transporting devices each rigidly secured to a portion of the chain and having a side a^3 arranged on the inside of the conveyer, inclined in the direction in which the conveyer moves and disposed at a divergent angle to the adjacent portion of the chain whereby it is arranged to serve as a loading-chute on the lower run of the conveyer and as a scraper on the upper run of the conveyer, substantially as set forth.

12. In a conveyer the combination of an endless chain and a series of material-transporting devices each rigidly secured to a portion of the chain, and each comprising a transversely-arranged piece a^3 arranged on the inner side of the conveyer and inclined in the direction in which the conveyer moves and provided on its rear face with the flanges a^2, substantially as set forth.

13. In a conveyer the combination of a pair of parallel chains, a series of buckets arranged between the chains, each being rigidly connected thereto and formed with an open side which is disposed obliquely relative to a horizontal plane which includes both chains, and which open side is situated on the inner side of the conveyer and is open in the direction in which the conveyer moves, and with two sides which are parallel to each other and whose edges bound the said open side of the bucket, substantially as set forth.

14. In a conveyer the combination of a pair of endless chains, means for supporting and guiding the chains, a series of buckets rigidly attached to the chains, each bucket having an open side, and a closed side a^3 arranged on the inside of the conveyer and inclining in the direction in which the conveyer moves, means for filling the buckets while on the lower run, a trough adjacent to the upper run of the conveyer and extending into immediate proximity to the guide-wheels by which the conveyer is turned into the upper run, and delivery devices leading from said trough, the said sides a^3 of the buckets operating as scrapers to convey the material through the said trough, substantially as set forth.

15. In a conveyer, the combination of a bucket-carrying device with a series of buckets carried thereby and attached thereto so that the middle line of the bucket approximately corresponds with the line of the axis of the carrier and the opening of the bucket lies beyond the middle line of such carrier, a series of direction-changing devices to change the direction of travel of such buckets, a deep trough carried about one of said direction-changing devices toward which the buckets move in their ascent, said buckets adapted to receive and independently retain their loads of material while traveling in certain directions and to discharge same into said trough and push or pull their loads through and along such trough while traveling substantially parallel therewith, the bucket-carrier lying above and outside of said trough.

16. In a conveyer, the combination of a bucket-carrier with a series of buckets thereon, each bucket mounted so that the middle line of the bucket approximately corresponds with the line of the axis of the carrier and the opening of the bucket lies beyond the line of its attachment to the carrier, and shaped so as to retain its load while traveling in certain directions, a deep trough in which the buckets travel when inverted, and through which they push or pull their loads.

17. In a conveyer, the combination of a bucket-carrier with a series of buckets thereon, each bucket mounted so that the middle line of the bucket approximately corresponds with the line of the axis of the carrier and the opening of the bucket lies beyond the line of its attachment to the carrier, and shaped so as to retain its load while traveling in certain directions, a deep trough in which the buckets travel when inverted and through which they push or pull their loads, and the bucket-carrier adapted to travel above and outside of said trough.

18. In a conveyer, the combination of an endless chain-like traveling structure with a continuous series of buckets, each secured to the chain-like structure so as to approximately divide its load into equal parts on opposite sides of the axis of such traveling chain-like structure, when the latter is on its vertical run, and each of said buckets open at one side so as to freely open upwardly on the lower run to receive its load and to freely open downwardly on the upper run to discharge its load while the buckets are traveling in an approximately horizontal line.

19. In a conveyer, the combination of a traveling chain-like bucket-carrier with a series of buckets attached thereto so that their loads are approximately balanced on opposite sides of the axis of such bucket-carrier, said buckets open at one side, and a trough in which said buckets travel when they are inverted so as to push or pull their loads along through such trough.

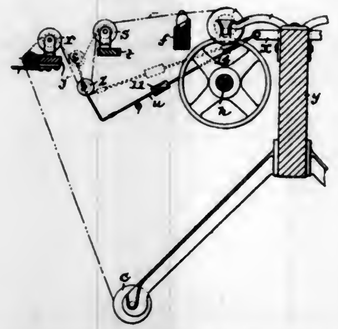
20. In a conveyer, the combination of a bucket-carrying device with a series of buckets carried thereby, a series of direction-changing devices to change the direction of travel of such buckets, a trough carried about one of said direction-changing devices, toward which the buckets move in their ascent, said buckets adapted to receive and independently retain their loads of material while traveling in certain directions, and to discharge the same against said trough and push or pull their loads through and along the bottom of such trough while traveling substantially parallel therewith, said buckets being mounted in the bucket-carrying device so as to project approximately equally on opposite sides of the line along which they are attached to the carrying device.

21. In a conveyer, the combination of a bucket-carrier with a series of buckets attached thereto, and a deep trough in which the buckets run when inverted, each bucket shaped so as to retain its load of material when traveling in a certain predetermined direction and position, and to push or pull its load through the trough, or along the bottom of the same, when traveling in its inverted position, and a direction-changing device to invert the buckets, the buckets arranged so that they lie approximately one-half on each side of the axis of the carrier.

22. In a conveyer, the combination of a bucket-carrier with a series of buckets attached thereto, and a deep trough in which the buckets run when inverted, each bucket shaped so as to retain its load of material when traveling with its opening upward, and to push or pull its load through the trough or along the bottom of the same when traveling in its inverted position, and a direction-changing device to invert the buckets, the buckets arranged so that they lie approximately one-half on each side of the axis of the carrier.

787,599. **MECHANISM FOR DETECTING IRREGULARITIES IN SILK THREAD.** JOSEPH B. WHITNEY, Brooklyn, N. Y. Filed Feb. 26, 1904. Serial No. 195,419.

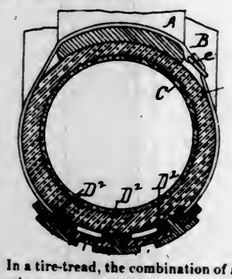
Claim.—1. In a mechanism for detecting undue enlargements or other irregularities in thread, the combination of a means for drawing the thread lengthwise comprising two coengaging rotary members on one of which the thread is wound and the other of which is the driving member, and one of which, also, is movable into and out of engagement with the other, a thread-checking means adapted to stop the drawing of the thread upon said checking means being met by an irregularity in the thread, and a controller for the drawing means engageable with the thread between the checking means and drawing means and movable against said movable member of the latter to disturb the engagement between said members upon a checking of the thread by the checking means and the consequent drawing of the thread by the drawing means toward the straight-line position, substantially as described.



2. In a mechanism for detecting undue enlargements or other irregularities in thread, the combination of a means for drawing the thread lengthwise comprising two coengaging rotary members on one of which the thread is wound and the other of which is the driving member, and one of which, also, is movable into and out of engagement with the other, a thread-checking means adapted to stop the drawing of the thread upon said checking means being met by an irregularity in the thread, and a pivoted controller for the drawing means engageable with the thread between the checking means and drawing means and movable against said movable member of the latter to disturb the engagement between said members upon a checking of the thread by the checking means and the consequent drawing of the thread by the drawing means toward the straight-line position, substantially as described.

3. In a mechanism for detecting undue enlargements or other irregularities in silk thread, a controller device comprising a supporting-bracket and a lever comprising a plate pivoted in said bracket, a rod secured at one end to said plate, a roller carried at the free end of said rod, and a weight penetrated by and snugly fitted to said rod, substantially as described.

787,600. **TIRE-TREAD.** JOHN R. WHITTEMORE, Erie, Pa. Filed Jan. 20, 1905. Serial No. 242,019.



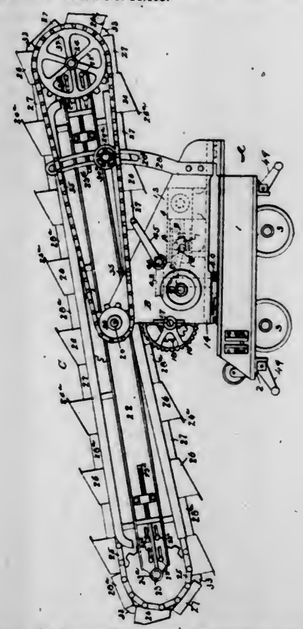
Claim.—1. In a tire-tread, the combination of a flexible body; a series of metallic pieces secured on the outer surface of the tread, and covering less than the entire surface thereof, and forming a wearing and non-skidding armor for the tire-tread; and metallic pieces secured within the flexible body and overlapping the pieces on the outer surface.

2. In a tire-tread, the combination of a flexible body; a series of rivets having a large head on the exterior surface of the tread forming a wearing and non-skidding surface therefor; and a series of rivets with a large head within the flexible body, and overlapping the large heads on the exterior surface.

3. In a tire-tread, the combination of a flexible body having means for attaching the same to a tire; a series of metallic pieces secured on the outer surface of the tread and covering less than the entire surface thereof, and forming a wearing and non-skidding armor for the tire-tread; and metallic pieces secured within the flexible body and overlapping the pieces on the outer surface.

4. In a tire-tread, the combination of a flexible body; a series of rivets having enlarged heads formed integrally with the shanks of the rivets, the heads being arranged on the outer surface of the treads, and forming a wearing and non-skidding surface therefor; the removable heads of smaller dimensions arranged within the body of the tread and secured to the shanks of the rivets, having the enlarged heads on the outer surface; a series of rivets having enlarged heads within the flexible body overlapping the enlarged heads on the exterior surface, said heads being secured to the shank of the rivet and smaller heads on the exterior surface of the tread formed integrally with the shanks of the rivets to which the enlarged interior heads are secured.

787,601. **PORTABLE CONVEYER.** FREEMAN R. WILLSON, Jr., Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Apr. 24, 1900. Serial No. 14,113.



Claim.—1. In a portable conveyer for loading ore and coal in mines, the combination of a low railway-carriage, a horizontally-turning frame thereon, an inclinable conveyer mounted on said frame on a horizontal transverse axis at a relatively small elevation above the carriage and having a series of digging and conveying buckets and ore-retaining chutes between the buckets, and an engine on said frame for actuating the conveyer, substantially as set forth.

2. In a portable conveyer for loading ore, and other purposes, the combination of a car, a carriage supported thereon, and formed with upward-extending frame-pieces, a vertical pivot uniting the carriage and the car, about which the former is arranged to turn, means for adjusting the carriage about the said pivot, a conveyer-frame comprising side bars, and laterally-extending trunnions connected with the side bars of the conveyer-frame near its middle portion, longitudinally, the said trunnions being fitted in bearings in the said upward-extending frame-pieces of the carriage, a shaft 20 passing through the said trunnions and free to rotate therein, an endless conveyer mounted in the conveyer-frame, and having digging and conveying buckets and ore-containing chutes between said buckets, a motor on the carriage and driving-gearing between the motor and the said shaft 20 and between the shaft 20 and the conveyer, substantially as set forth.

3. In a conveyer for loading ore, and other purposes, the combination of a car, a carriage pivotally mounted thereon and having upward-extending frame-pieces, a conveyer-frame pivotally connected near its middle portion, with the said upward-extending frame-

pieces of the carriage, an endless conveyer mounted in the said conveyer-frame, the slotted uprights 28 secured to the carriage and extending upward at either side of the conveyer-frame and clamping means carried by the conveyer-frame and extending through the slots of the said uprights, and arranged to clamp or unite the conveyer-frame with the said uprights, substantially as set forth.

4. In a conveyer for loading ore, and other purposes, the combination of a suitable support, an elevator-frame pivotally supported therein and arranged to be operated at an angle but little inclined to the horizon, an endless conveyer mounted in the frame and comprising a sprocket-chain, a series of self-loading buckets attached to the said chain at suitable intervals apart, and intermediate pans or guide-chutes connected with the said sprocket-chain and arranged between the buckets, and longitudinally-extending supports for sustaining the upper run or leg of the conveyer, whereby it is prevented from unduly sagging, substantially as set forth.

5. In a portable conveyer for loading ore and other purposes, the combination of an endless elevator and means for supporting and actuating the same, said elevator having a series of self-loading buckets or receptacles, between said buckets trough-like conveying devices, and extensions 34 overlying the spaces between the buckets and said conveying devices.

6. In a portable conveyer for loading ore and other purposes, the combination of an endless elevator, a car on which said elevator is mounted on a horizontal axis, an engine on said car for driving the elevator-belt, and means for adjusting the elevator vertically around said axis, said elevator having a series of self-loading buckets or receptacles, between said buckets trough-like conveying devices and extensions 34 overlying the spaces between the buckets and said conveying devices.

7. In a portable conveyer for loading ore and other purposes, the combination of an endless elevator, and means for supporting and actuating the same, said elevator having a series of self-loading buckets or receptacles, between said buckets trough-like conveying devices with their bottoms and sides substantially in line with the bottoms and sides of said buckets, respectively, and extensions having bottoms and sides lying respectively above and within said bottoms and sides of the buckets and trough-like devices and overlying the spaces between said buckets and devices.

8. In a portable conveyer for loading and other purposes, the combination of a carriage, a frame mounted thereon, an inclinable endless conveyer carried on said frame on a horizontal axis transverse to the carriage and conveyer, and means for actuating the conveyer, said frame being arranged to turn relative to the carriage on a vertical axis situated relatively near and beneath the upper end of the conveyer, substantially as set forth.

9. In a portable conveyer for loading and other purposes, the combination of a carriage, a frame mounted thereon, an inclinable endless conveyer carried on said frame on a horizontal transverse axis, and means for actuating the conveyer, said carriage having a rearward extension toward the upper end of the conveyer and said frame being arranged to turn on a vertical axis on said extension, substantially as set forth.

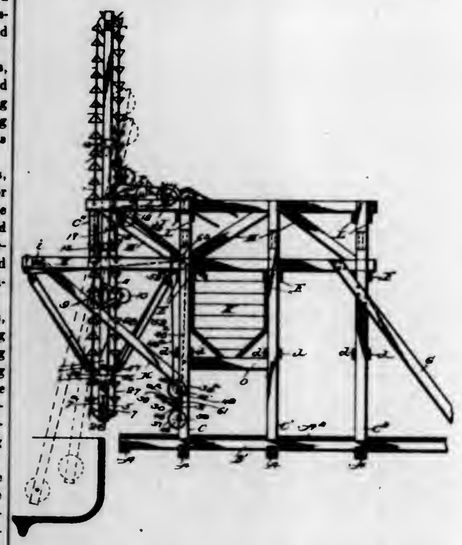
10. In a portable conveyer for loading and other purposes, the combination of a carriage, a rigid frame mounted thereon having a rearward extension pivotally connected with the carriage on a vertical axis and a higher forward portion, an inclinable endless conveyer mounted on said higher portion of the frame on a horizontal transverse axis with its upper end near and above said vertical axis of the frame, and means for actuating the conveyer, substantially as set forth.

11. The combination with the carriage, and the inclinable conveyer, of the frame B on said carriage, supporting the conveyer on a horizontal transverse axis and connected with the carriage by a vertical pivot, the rack on said carriage, the shaft 41 mounted in said frame and having a wheel engaging the rack, and the horizontal shaft 44 having actuating means and operatively connected with said shaft 41, substantially as set forth.

12. In a conveyer, for loading and other purposes, the combination of an endless elevator and means supporting and actuating the same, said elevator having a series of self-loading buckets with pan-like conveyer-sections between the buckets, the front wall of each bucket having an extension at 26 adapted to pick up the material, and the rear wall of each bucket being provided with an extension 34 adapted to overlap the edge of the pan-like section immediately in front of the bucket, substantially as set forth.

13. In a portable conveyer for loading and other purposes, the combination of a carriage, a rigid framework thereon having a relatively higher forward portion and a rearward extension pivotally connected to said carriage on a vertical axis, an inclinable endless conveyer mounted on said higher portion of the frame on a horizontal transverse axis and having its upper end near and above said vertical axis of the frame, a support for said upper end of the conveyer carried by the frame, and a motor for actuating the conveyer, arranged on said carriage between said pivotal connection and said transverse axis, substantially as set forth.

787,602. **ELEVATOR.** FREEMAN R. WILLSON, Jr., Worthington, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Aug. 21, 1903. Serial No. 170,535.



Claim.—1. In an elevator, the under-acting endless bucket conveyer bodily adjustable vertically and adapted to have the buckets scoop up their loads at the lower end of the elevator and to move upward to the emptying-point and then horizontally to cause the buckets to discharge their loads under the action of gravity and to move from said emptying-point upward and outward, and then again upward and outward and downward on the outside of the path of the upwardly-rising loaded buckets, substantially as set forth.

2. The combination with the adjustable elevator-leg and the stationary supporting-frame therefor, of an endless chain and a series of buckets secured thereto, having the lower part thereof adjustable to different heights vertically and from one position horizontally to another, and arranged to have the loaded buckets hang from the stationary frame and to have the chain travel vertically with said loaded buckets, then travel horizontally for emptying them, then travel upward and outward and downward on the outside of the path of the upwardly-rising loaded buckets, substantially as set forth.

3. The combination with the elevator-leg and the supporting-frame therefor, of an endless chain and a series of buckets secured thereto, having the lower part thereof adjustable to different positions horizontally and arranged to have the loaded buckets hang from the stationary frame and to have the chain travel vertically when the buckets are loaded, then travel horizontally for emptying, then upward relatively to the supporting-frame, and then outward and finally downward on the outside of the path of the upwardly-rising loaded buckets, substantially as set forth.

4. The combination with the head-wheel 19, the elevator-leg, slidable longitudinally as to said wheel, and the stationary supporting-frame therefor, of an endless chain and a series of buckets secured thereto, having the lower part thereof adjustable to different heights vertically, and arranged to have the chains travel vertically with the loaded buckets, then travel horizontally for emptying them, then travel upward and outward, and finally downward on the outside of the path of the upwardly-rising loaded buckets, substantially as set forth

5. The combination with the head-wheel 19, the elevator-leg slidable longitudinally as to said wheel, and the supporting-frame therefor, of an endless chain and a series of buckets having the lower part thereof vertically and horizontally adjustable and arranged to travel vertically with the loaded buckets, then travel horizontally for emptying them, and then travel upward and outward and downward, substantially as set forth.

6. The combination of the fixed frame, the adjustable frame, and a discharge-receiver, with an endless chain having a series of empty buckets supported on the adjustable frame, and a series of loaded buckets supported on the fixed frame, and the adjustable head-wheel for the chain adapted to be adjusted to compensate for the movements of the adjustable frame, substantially as set forth.

7. The combination of the fixed frame, the adjustable frame, and the discharge-receiver, with the endless chain having a series of buckets secured thereto supported partly on the adjustable frame and partly on the fixed frame, the adjustable head-wheel for that part of the chain which passes from the adjustable frame toward the fixed frame, and the wheel adjustable in the opposite direction for that part of the chain which is returning from the fixed frame to the upper part of the adjustable frame, substantially as set forth.

8. The combination with the fixed frame, the frame adjustable relatively to the fixed frame, and the discharge-receiver, of an endless chain with a series of empty buckets supported on the adjustable frame and a series of loaded buckets supported on the fixed frame, and arranged to have the buckets tilted as they move along the fixed frame at points adjacent to the discharge-receiver and to afterward move from the guide on the fixed frame outward toward the upper part of the adjustable frame, substantially as set forth.

9. The combination with the fixed frame, the frame adjustable relatively to the fixed frame, and a discharge-receiver, of an endless chain with a series of buckets supported partly on the adjustable frame and partly on the fixed frame, and arranged to move downward on the outer side of the adjustable frame and upward on the inner side thereof, and to travel approximately horizontally toward the chain-supports on the fixed frame and to return from said supports to the upper part of the adjustable frame, substantially as set forth.

10. In a chain-and-bucket elevator or conveyer, the combination, with a relatively fixed frame, of an adjustable frame hinged to the fixed frame and slidable longitudinally relatively to the hinge, a discharge-receiver, a chain carrying a series of buckets supported partly on the adjustable frame and partly on the fixed frame at points adjacent to the discharge-receiver, said chain and buckets passing from the lower part of the adjustable frame around the supports on the fixed frame, and thence back to the upper part of the adjustable frame, and mechanism for taking up or regulating slack in the chain to compensate for the varying positions of the adjustable frame, substantially as set forth.

11. In a chain-and-bucket elevator or conveyer, the combination of the two-part framework, the two parts of which are hinged together, a stationary guide-wheel on the fixed part of said frame, a receiving chute or hopper, two chain-wheels connected to the swinging part of the framework and adapted to be moved thereby relative to the wheel on the first part of the frame, and a chain with a series of buckets traveling approximately vertically on the second part of the frame and approximately horizontally on the first part of the frame, substantially as set forth.

12. In a chain-and-bucket elevator or conveyer, the combination, with an endless chain and a series of buckets secured thereto, of the two-part frame-support for the chain and buckets, the two parts of which are hinged together, and upon which the chain travels approximately vertically and then approximately horizontally, the first part of said frame-support having a chain-guide wheel thereon toward which the chain travels from the second part of the frame and around which the chain and buckets travel from its lower to its upper side, and from which it returns to the second part of the framework, and two chain-wheels adjustable relatively to the last said wheel and connected to the second part of the frame, and two supplemental vertically-adjustable chain-wheels on the second part of the frame, substantially as set forth.

13. In a chain-and-bucket elevator or conveyer, the combination, with an endless chain and a series of buckets thereon, of a two-part framework-support for the chain and buckets the two parts of which are hinged together, the first part having one or more guide-wheels for the buckets and chains, on an axis fixed as to the frame-hinge, and the second part having two bucket and chain guides on two separate axes which both vibrate about the hinge-axis, but are connected by a line not passing through said axis, substantially as set forth.

14. The combination of the two-part supporting-frame, one of whose parts is relatively fixed, and the other of which parts is movable relatively to the fixed part, and an endless chain having buckets secured thereto, supported partly upon each part of said frame, the movable part of the frame being formed in two sections, of which one section is pivoted to the fixed frame and the other section is slidably connected with the pivoted section, substantially as set forth.

15. The combination of the two-part supporting-frame, one of whose parts is relatively fixed, and the other of which parts is movable and formed in two sections, one section being pivoted to the fixed frame, and the other section being slidably connected to the pivoted section, and an endless chain having buckets secured thereto and supported partly upon the fixed frame, and partly upon each of the sections of the movable frame, substantially as set forth.

16. The combination of the two-part supporting-frame, one of which parts is relatively fixed, and the other of which is movable relatively to the fixed frame, a chain-wheel on the fixed frame, a chain-wheel on the upper part of the movable frame, a chain-wheel on the lower part of the movable frame, a hinge connecting the two frames, a chain-wheel on the movable frame immediately above the hinge, a chain-wheel on the movable frame immediately below the hinge, and an endless chain with a series of buckets arranged to move around the bottom wheel of the movable frame, then around the lower wheel adjacent to the hinge, then around the wheel on the fixed frame, then around the wheel above the hinge, then around the upper wheel on the movable frame, and thence to the lower wheel on the movable frame, substantially as set forth.

17. The combination with the fixed frame and the hinged frame, of the endless chain with a series of buckets secured thereto and supported partly on the hinged frame and partly on the fixed frame, and the movable discharge-receiver adjustable automatically with the hinged frame, substantially as set forth.

18. The combination of the fixed frame, the vertically-adjustable leg-frame, the upper wheel 4 on the leg-frame, the lower wheel 5 on the leg-frame, the bodily-movable head-wheel 19, the wheel 22 on the fixed frame, the wheel 18 and the chain with its series of buckets secured thereto adapted to travel around the wheels in the series recited, substantially as set forth.

19. The combination of the fixed frame, the leg-frame adjustable relatively thereto, the upper wheel 4 on the leg-frame, the inner wheel 5 on the leg-frame, the head-wheel, the wheel 22 on the fixed frame, the wheel 18 connected to and adjustable with the leg-frame, and the chain with its series of buckets secured thereto, and adapted to travel around the wheels in the series recited.

20. The combination of the vertically-adjustable leg-frame, the fixed frame on the inside and on the outside of the leg-frame, the longitudinally-extensible support for the lower part of the leg-frame connecting it with the outside part of the fixed frame, and the longitudinally-extensible support connected to the lower part of the leg-frame and connected to the inner part of the fixed frame, substantially as set forth.

21. The combination of the fixed frame, the vertically-sliding leg-frame, the hinge interposed between the leg-frame and the fixed frame, and the means for bodily sustaining the leg-frame adapted to turn the leg-frame about said hinge, substantially as set forth.

22. In an elevator, an endless under-acting bucket conveyer arranged to have the loaded buckets travel vertically, then turn and travel approximately horizontally for emptying, then travel upward and outward, then pass around another turning axis through an approximately vertical path, the lower part of the series of buckets at the region of loading being vertically adjustable relatively to both of the aforesaid lines around which they turn from and to the vertical, substantially as set forth.

23. In an elevator, an endless under-acting bucket conveyer arranged to have the loaded buckets travel vertically, then turn to travel horizontally for emptying, the lower part of the series of buckets at the region of loading being vertically adjustable relatively to the line around which the buckets turn as they leave their vertical path, and the buckets being arranged to travel upward from their discharging-points and then outward and downward on the outside of the upwardly-rising loaded buckets.

24. The combination of the fixed frame, the vertical-sliding leg-frame, the hinge interposed between the leg and the fixed frame, and means for simultaneously adjusting the leg-frame vertically and horizontally, substantially as set forth.

25. The combination of the fixed frame, the vertically-sliding leg-frame, the hinge interposed between the leg-frame and the fixed frame, and means for bodily sustaining the leg-frame adapted to turn it about said hinge and to adjust it vertically relative to said hinge, substantially as set forth.

5. The combination with the head-wheel 19, the elevator-leg slidable longitudinally as to said wheel, and the supporting-frame therefor, of an endless chain and a series of buckets having the lower part thereof vertically and horizontally adjustable and arranged to travel vertically with the loaded buckets, then travel horizontally for emptying them, and then travel upward and outward and downward, substantially as set forth.

6. The combination of the fixed frame, the adjustable frame, and a discharge-receiver, with an endless chain having a series of empty buckets supported on the adjustable frame, and a series of loaded buckets supported on the fixed frame, and the adjustable head-wheel for the chain adapted to be adjusted to compensate for the movements of the adjustable frame, substantially as set forth.

7. The combination of the fixed frame, the adjustable frame, and the discharge-receiver, with the endless chain having a series of buckets secured thereto supported partly on the adjustable frame and partly on the fixed frame, the adjustable head-wheel for that part of the chain which passes from the adjustable frame toward the fixed frame, and the wheel adjustable in the opposite direction for that part of the chain which is returning from the fixed frame to the upper part of the adjustable frame, substantially as set forth.

8. The combination with the fixed frame, the frame adjustable relatively to the fixed frame, and the discharge-receiver, of an endless chain with a series of empty buckets supported on the adjustable frame and a series of loaded buckets supported on the fixed frame, and arranged to have the buckets tilted as they move along the fixed frame at points adjacent to the discharge-receiver and to afterward move from the guide on the fixed frame outward toward the upper part of the adjustable frame, substantially as set forth.

9. The combination with the fixed frame, the frame adjustable relatively to the fixed frame, and a discharge-receiver, of an endless chain with a series of buckets supported partly on the adjustable frame and partly on the fixed frame, and arranged to move downward on the outer side of the adjustable frame and upward on the inner side thereof, and to travel approximately horizontally toward the chain-supports on the fixed frame and to return from said supports to the upper part of the adjustable frame, substantially as set forth.

10. In a chain-and-bucket elevator or conveyer, the combination, with a relatively fixed frame, of an adjustable frame hinged to the fixed frame and slidable longitudinally relatively to the hinge, a discharge-receiver, a chain carrying a series of buckets supported

14. The combination of the two-part supporting-frame, one of whose parts is relatively fixed, and the other of which parts is movable relatively to the fixed part, and an endless chain having buckets secured thereto, supported partly upon each part of said frame, the movable part of the frame being formed in two sections, of which one section is pivoted to the fixed frame and the other section is slidably connected with the pivoted section, substantially as set forth.

15. The combination of the two-part supporting-frame, one of whose parts is relatively fixed, and the other of which parts is movable and formed in two sections, one section being pivoted to the fixed frame, and the other section being slidably connected to the pivoted section, and an endless chain having buckets secured thereto and supported partly upon the fixed frame, and partly upon each of the sections of the movable frame, substantially as set forth.

16. The combination of the two-part supporting-frame, one of which parts is relatively fixed, and the other of which is movable relatively to the fixed frame, a chain-wheel on the fixed frame, a chain-wheel on the upper part of the movable frame, a chain-wheel on the lower part of the movable frame, a hinge connecting the two frames, a chain-wheel on the movable frame immediately above the hinge, a chain-wheel on the movable frame immediately below the hinge, and an endless chain with a series of buckets arranged to move around the bottom wheel of the movable frame, then around the lower wheel adjacent to the hinge, then around the wheel on the fixed frame, then around the wheel above the hinge, then around the upper wheel on the movable frame, and thence to the lower wheel on the movable frame, substantially as set forth.

17. The combination with the fixed frame and the hinged frame, of the endless chain with a series of buckets secured thereto and supported partly on the hinged frame and partly on the fixed frame, and the movable discharge-receiver adjustable automatically with the hinged frame, substantially as set forth.

18. The combination of the fixed frame, the vertically-adjustable leg-frame, the upper wheel 4 on the leg-frame, the lower wheel 5 on the leg-frame, the bodily-movable head-wheel 19, the wheel 22 on the fixed frame, the wheel 18 and the chain with its series of buckets secured thereto adapted to travel around the wheels in the series recited, substantially as set forth.

19. The combination of the fixed frame, the leg-frame adjustable relatively thereto, the upper wheel 4 on the leg-frame, the inner wheel 5 on the leg-frame, the head-wheel, the wheel 22 on the fixed

26. The combination of the fixed frame, the guiding-frame hinged to said fixed frame, the vertically-adjustable leg-frame mounted in said guiding-frame, an endless chain having a series of buckets supported on the adjustable frame and a series of buckets supported on the fixed frame, and sprocket-wheels for the chain on the guiding-frame adapted to move therewith to compensate for the movements of the adjustable frame, substantially as set forth.

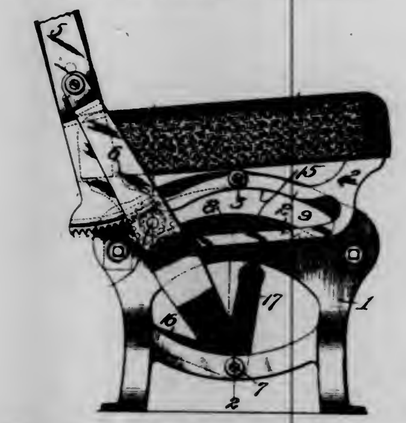
27. In a chain-and-bucket elevator or conveyer, the combination with the relatively fixed frame, of a guide-frame hinged to the fixed frame, an adjustable leg-frame in said guide-frame, a stationary power-driven wheel on the fixed frame, two chain-wheels on the hinged guide-frame having their axes of rotation in horizontal planes on opposite sides of the horizontal plane through the axis of rotation of said power-driven wheel, and a chain carrying a series of buckets, said chain extending around the adjustable leg-frame and around and between said sprocket-wheels on the guide-frame and around the power-driven wheel on the fixed frame, substantially as set forth.

28. In a chain-and-bucket elevator or conveyer, the combination of the fixed frame, the vertically-sliding leg-frame, the hinge interposed between the leg-frame and the fixed frame, and a chain carrying a series of buckets supported partly on the adjustable frame and partly on the fixed frame, substantially as set forth.

29. In a chain-and-bucket elevator or conveyer, the combination of the fixed frame, the vertically-sliding leg-frame, the guide-frame therefor hinged to the fixed frame, a driving-wheel on the fixed frame, and two chain-wheels on the guide-frame adapted to be moved relative to the axis of the driving-wheel, and an endless chain engaging with said wheels and extending around the leg-frame and carrying a series of buckets, substantially as set forth.

30. In an adjustable leg-elevator, the combination of a relatively fixed frame, a depending leg-frame pivotally connected on a horizontal axis to the relatively fixed frame, and having its lower end adjustable vertically to different positions relatively to said axis, means for supporting the pivoted leg-frame at different inclinations to the fixed frame, and an endless elevator supported partly on said fixed frame and partly on said leg-frame and having its buckets arranged to travel empty downward on an outer line and to travel upward loaded on an inner line, and then horizontally for emptying and then outward prior to again traveling downward on the outer line, substantially as set forth.

787,603. **CAR-SEAT.** Hubert Witte, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation of Missouri. Filed Apr. 29, 1904. Serial No. 206,575.



Claim.—1. In a car-seat, the combination with a seat proper, a seat-back, rockable levers arranged on each side of the back for pivotally supporting the same, seat-tilting members carried by said back-supporting levers, and a connection between the back below its pivotal point and said seat-tilting members for tilting the back in opposite directions and for causing each of the seat-tilting members to alternately contact with a portion of the seat near its respective longitudinal edges whereby said seat will be tilted; substantially as described

2. In a car-seat, the combination with a seat proper, and a back movable from one side of the seat to the other thereof, of a movable supporting member upon which said back is pivoted, a gear carried by said supporting member, a rack over which said gear travels as said supporting member is moved from one side of said seat to the other thereof, a rack upon said seat-back, and operative connection between said rack and said gear; substantially as described.

3. In a car-seat, the combination with a seat proper, and a seat-back, of a supporting-lever to which said seat-back is pivoted, a gear carried by said supporting-lever, a rack over which said gear moves, a rack upon said seat-back, and operative connection between said rack and said gear; substantially as described.

4. In a car-seat, the combination with a seat proper, and a seat-back movable from one side of said seat to the other thereof, of a movable supporting member to which said seat-back is pivoted, a gear carried by said supporting member, a rack over which said gear travels, a second gear connected to said first gear, and a rack upon said seat-back coöperating with said second gear; substantially as described.

5. In a car-seat, the combination with a relatively fixed member provided with a slot, a seat proper, and a seat-back movable from one side of said seat to the other thereof, of a supporting member to which said seat-back is pivoted, a revolving pinion carried by said supporting member, a rack over which said pinion travels from end to end, operative connection between said pinion and said seat-back for rocking the latter upon its pivot, and a member connected to said pinion and received in said slot, whereby the walls of said slot serve to limit the movement of said pinion; substantially as described.

6. In a car-seat, the combination with an end support having a slot, a seat proper, and a seat-back movable from one side of said seat proper to the other thereof, of a movable supporting member to which said seat-back is pivoted, a rotatable member carried by said supporting member and extending through said slot, a gear upon one end of said rotatable member, a rack over which said gear travels, a second gear upon said rotatable member and at the other end of the same, and a rack upon said seat-back and coöperating with said second gear; substantially as described.

7. In a car-seat, the combination with a frame member, a seat proper, a seat-back movable from one side of said seat proper to the other side thereof, levers pivoted below the seat and pivotally supporting said back, a segmental rack, a pinion movable over said rack, and a rack rigid with the seat-back and engaging said pinion; substantially as described.

8. In a car-seat, the combination with a seat proper, a seat-back, rockable levers arranged on each side of the back for pivotally supporting the same, members carried by said back-supporting levers to which rotary motion is imparted when the levers are moved, said members being carried intermediate the ends of the levers, and means below the pivotal point of the seat-back and rigid with said seat-back and in engagement with the rotary members whereby the back will be tilted in opposite directions in its shifted positions; substantially as described.

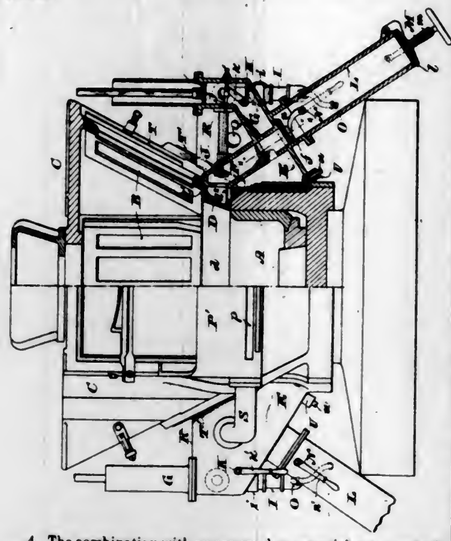
9. In a car-seat, a supporting-lever rockable from one side of said seat to the other thereof, a pivoted back carried by said lever, a rotatable member carried by said lever, means on the seat-back in engagement with said rotatable member but independent thereof for tilting the back in opposite directions in the shifted positions of the lever, and means on the seat to contact with the rotatable member whereby the seat will be tilted in either of the tilted positions of the seat-back; substantially as described.

787,604. **ORE-CRUSHER.** Frederick E. Woodbury, Milwaukee, Wis. Filed Mar. 7, 1902. Serial No. 97,030.

Claim.—1. The combination with an ore-crusher comprising a receptacle in which ore is crushed, means for crushing the ore and a grate through which the pulp is discharged, of a catch-box having an opening into said receptacle inside of the grate, an opening below provided with a screen, and means for producing an upward pulsating current of water through said screen and catch-box into said receptacle, substantially as described.

2. The combination with a receptacle provided with means for crushing ore and a grate for the discharge of crushed ore, of a catch-box communicating with said receptacle inside of the grate and having a lateral discharge-opening and an opening below provided with a screen, a closure for said discharge-opening, a water-supply conduit communicating with said catch-box through said screen, and means for producing an upward pulsating current of water through said screen and catch-box into said receptacle, substantially as described.

3. The combination with an ore-crusher comprising a receptacle for crushing ore and a grate for discharging crushed ore, of a catch-box communicating with said receptacle inside of the grate and having an opening provided with a screen in the lower part and a valve-controlled opening in one side, a water-supply conduit communicating with said catch-box through said screen, a discharge-conduit communicating with said catch-box through its side opening and having a discharge-opening and a closure therefor, and means for keeping said discharge-conduit filled with water, substantially as described.



4. The combination with an ore-crusher comprising a receptacle for crushing ore and a grate for the discharge of crushed ore, of a catch-box having an opening which is provided with a screen and communicating above said screen with said receptacle through a restricted opening, and means for producing an upward pulsating current of water through said screen and catch-box, substantially as described.

5. The combination with an ore-crusher having a grate for discharging the pulp, of a catch-box having an opening in the upper part into the ore-crusher inside of the grate, a screen in the lower part and a discharge-opening in one side provided with a valve, a water-supply conduit communicating with said catch-box through said screen, means for producing a pulsating current of water upwardly through said screen and catch-box, and a discharge-conduit communicating with said catch-box through its lateral opening and having a valve-controlled discharge-opening, substantially as described.

6. The combination with an ore-crusher having a grate for discharging the crushed ore or pulp, of a catch-box having an opening in the upper part into the ore-crusher inside of the grate, a discharge-opening in one side and an opening provided with a screen in the lower part, means for producing an upward current of water through said screen, a trap connected with the side opening in said catch-box by a descending discharge-conduit and provided at its lower end with a discharge-opening and valve, and valves controlling the openings between the discharge-conduit and said catch-box and trap, substantially as described.

7. The combination with an ore-crusher having a grate for discharging the pulp, of a catch-box having an opening in the upper part into the ore-crusher inside of the grate, and a screen in the lower part, a water-supply conduit communicating with said catch-box through said screen, and a plunger arranged to produce pulsations of water through said screen, substantially as described.

8. The combination with an ore-crusher having a grate for discharging the pulp, of a catch-box having an opening in the upper part into the ore-crusher inside of the grate and an opening provided with a screen in the lower part, a hutch with which the catch-box communicates through the opening in the lower part thereof, a water-supply conduit leading into said hutch and having an upward extension, and a plunger fitted to work in said extension, substantially as described.

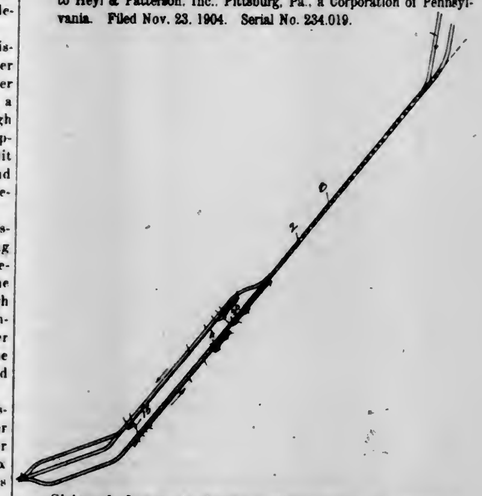
9. The combination with an ore-crusher having a grate for discharging the pulp, of a catch-box having an opening in the upper part into the ore-crusher inside of the grate, an opening in the lower part provided with a screen and a lateral discharge-opening, a water-supply conduit communicating with the catch-box through the opening in the lower part thereof, a trap connected by a discharge-conduit with the lateral opening in the catch-box and having a discharge-opening provided with a valve, valves for closing the openings between said discharge-conduit and the catch-box and trap, and a valve-controlled water-supply connection leading into said trap, substantially as described.

10. The combination with an ore-crusher having a grate for discharging pulp, of a catch-box having an opening in the upper part into the ore-crusher inside of the grate, an opening provided with a screen in the lower part, and a lateral discharge-opening provided with a valve, a hutch communicating with said catch-box through said screen and having a discharge-opening in the lower part, a discharge-conduit into the upper part of which the catch-box opens at one side, having a discharge-opening and valve at the lower end, and a water-supply conduit leading into said hutch, substantially as described.

11. The combination with an ore-crusher having a grate for discharging pulp, of a catch-box having an opening in the upper part into the ore-crusher and an opening provided with a screen in the lower part, a discharge-conduit leading downwardly from a lateral opening in the catch-box and provided with a valve, a water-supply conduit communicating with the catch-box through the screen in the lower part thereof, and a trough formed by the upper walls of said discharge and water-supply conduits and adapted to receive and conduct off the pulp passing through the adjacent grate of the ore-crusher, substantially as described.

12. The combination with an ore-crusher comprising a grate for the discharge of ore of and below a certain size, of a receptacle communicating with the ore-crusher inside of said grate, means for retaining a body of ore in said receptacle to form a jigging-bed, means for discharging metal or concentrate without withdrawing the water from said receptacle, and means for producing a pulsating current of water through the jigging-bed contained in said receptacle whereby rock and light pieces of ore are returned into the ore-crusher, substantially as described.

787,605. **CAR-HAUL.** Alfred M. Acklin, Pittsburg, Pa., assignor to Heyl & Patterson, Inc., Pittsburg, Pa., a Corporation of Pennsylvania. Filed Nov. 23, 1904. Serial No. 234,019.



Claim.—1. In a car-haul, the combination of a cable, means for driving same, a car having a gripping device extending out from the side thereof, and means for causing said gripping device to grip said cable by the traction of said cable.

2. In a car-haul, the combination of a cable, means for driving same, a car, a gripping device on said car having automatic gripping jaws, and means for holding said jaws in alinement with said cable.

3. In a car-haul, the combination of a cable, means for driving same, a car, a pivotally-mounted arm on said car having gripping-

jaws, and means for bringing said jaws into alinement with said cable.

4. In a car-haul, the combination of a cable, means for driving same, a car, and an arm vertically pivoted on said car having gripping-jaws.

5. In a car-haul, the combination of a cable, means for driving same, a car, a pivotally-mounted arm on said car having gripping-jaws, and a guide with which said arm is adapted to engage.

6. In a car-haul, the combination of a cable, means for driving same, a car, a pivotally-mounted arm on said car having gripping-jaws, and a yielding guide with which said arm is adapted to engage.

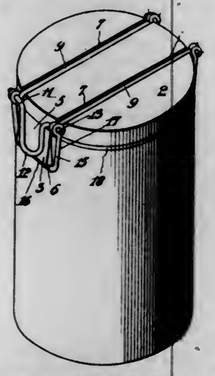
7. In a car-haul, the combination of a cable, means for driving same, a pivotally-mounted arm on said car having gripping-jaws, a weighted lever, and a guide-bar carried by said lever with which said arm engages.

8. In a car-haul, the combination of a cable, means for driving same, a car, a pivotally-mounted arm on said car, a forked projection on said arm having gripping-jaws, and means for bringing said jaws into alinement with said cable.

9. In a car-haul, the combination of a cable, means for driving same, a car, a pivotally-mounted arm on said car having gripping-jaws, and stops in the path of said arm.

10. In a car-haul, the combination of a cable, means for driving same, parallel tracks one above and to one side of the other, sheaves arranged to conduct said cable in operative position with reference to both said tracks, a car, and a gripping device carried by said car adapted to engage said cable.

787,606. PRESERVING-JAR. JAMES C. ANDERSON, Victoria, Canada. Filed Apr. 14, 1904. Serial No. 203,062.



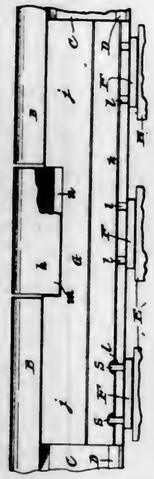
Claim.—1. In combination, a jar presenting projecting shoulders, a cover, a fastener adapted to clamp said cover upon said jar and having yokes adapted to be received under said shoulders, said yokes having eyes, a lever having shanks, and means for rotatably supporting said shanks, said shanks having offset extensions passing through said eyes.

2. In combination, a jar having laterally-disposed shoulders, a cover above said jar, a fastener adapted to clamp said cover upon said jar and comprising laterally-disposed bars lying upon said cover, said bars having eyes in the extremities thereof, levers having shanks rotatably mounted in said eyes, said shanks having offset extensions beyond said eyes, and yokes attached to said offset extensions and adapted to be received under said shoulders.

3. In combination, a jar having oppositely-disposed lugs at the upper edge thereof, said lugs presenting inclined outer faces and shoulders at the under sides thereof, a cover, a pair of transversely-disposed bars having eyes at the extremities thereof adjacent to the sides of said lugs, yokes adapted to be received under said shoulders and having eyes substantially alining with said first eyes, and levers having shanks rotatably mounted in said eyes, said shanks having offset extensions, said levers being adapted to fold down upon said inclined faces to clamp said cover to said jar.

4. In combination, a jar having oppositely-disposed lugs at the upper edge thereof, said lugs presenting inclined outer faces and concave shoulders therebelow, a cover disposed above said jar and having transverse channels in the upper face thereof, bars lying in said channels and having extremities with eyes formed therein lying adjacent to the sides of said lugs, yokes adapted to be received under said concave portions and also having eyes substantially in alinement with said first eyes, and levers having laterally-disposed shanks passing through said eyes, said shanks having offset extensions.

787,607. RAIL-JOINT. JOHN W. ANDERSON, Jefferson City, Tenn. Filed Feb. 11, 1905. Serial No. 245,173.



Claim.—1. As a device for forming a rail-joint, an H-form yoke comprising a body conforming in cross-section approximately to the cross-section of a railroad-rail and arms adapted to extend along opposite sides of a railroad-rail and bear against the heads and feet of said rails, the arms at one side of said yoke being the ends of a bar separable from said yoke, substantially as described.

2. As a device for forming a rail-joint, an H-form yoke comprising a body conforming in cross-section approximately to the cross-section of a railroad-rail and arms adapted to extend along opposite sides of a railroad-rail and bear against the heads and feet of said rails and having each a lateral flange adapted to extend over the feet of the rails, the arms at one side of said yoke being the ends of a bar separable from said yoke, substantially as described.

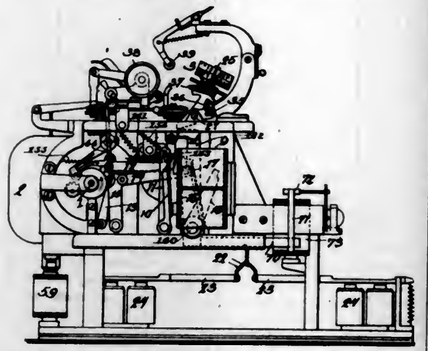
3. As a device for forming a rail-joint, an H-form yoke comprising a body conforming in cross-section approximately to the cross-section of a railroad-rail and arms adapted to extend along opposite sides of a railroad-rail and bear against the heads and feet of said rails and each having a notched lateral flange adapted to extend over the feet of the rails, the arms at one side of said yoke being the ends of a bar separable from said yoke, substantially as described.

4. As a device for forming a rail-joint, an H-form yoke comprising a body conforming in cross-section approximately to the cross-section of a railroad-rail and arms adapted to extend along opposite sides of a railroad-rail and bear against the heads and feet of said rails, the arms at one side of said yoke being the ends of a bar separable from said yoke, and said body having an undercut lateral extension to engage said bar, substantially as described.

5. As a device for forming a rail-joint, an H-form yoke comprising a body conforming in cross-section approximately to the cross-section of a railroad-rail and arms adapted to extend along opposite sides of a railroad-rail and bear against the heads and feet of said rails and having each a lateral flange adapted to extend over the feet of the rails, the arms at one side of said yoke being the ends of a bar separable from said yoke, and said body having an undercut lateral extension to engage said bar, substantially as described.

6. As a device for forming a rail-joint, an H-form yoke comprising a body conforming in cross-section approximately to the cross-section of a railroad-rail and arms adapted to extend along opposite sides of a railroad-rail and bear against the heads and feet of said rails and each having a notched lateral flange adapted to extend over the feet of the rails, the arms at one side of said yoke being the ends of a bar separable from said yoke, and said body having an undercut lateral extension to engage said bar, substantially as described.

787,608. PRINTING-TELEGRAPH. JOHN C. BARCLAY, New York, N. Y. Filed July 9, 1904. Serial No. 215,916.



Claim.—1. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising means, including selecting devices corresponding to different characters, for bringing selected characters into operative position, means for communicating motion from said power member to said printing mechanism, and selecting mechanism controlled by electrically-transmitted signals and determining the action of said selecting devices, of means controlling the transmission of power to said printing mechanism, operated simultaneously with the operation of the printing mechanism by said selecting mechanism.

2. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising means, including selecting devices corresponding to different characters, for bringing selected characters into operative position, means for communicating motion from said power member to said printing mechanism, and selecting mechanism controlled by electrically-transmitted signals and determining the action of said selecting devices, of means controlling the transmission of power to said printing mechanism, said means operated by the selecting mechanism simultaneously with the operation of the printing mechanism thereby.

3. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising a rotary type member and means for rotating the same and for obtaining impressions therefrom, driven from said power member and including selecting devices corresponding to different characters, and selecting mechanism determining the action of the printing mechanism and controlled by electrically-transmitted signals, of means controlling the transmission of power to the printing mechanism from said power member, said means arranged to be operated simultaneously with the operation of the printing mechanism by said selecting mechanism.

4. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising a rotary type member and means for rotating the same and for striking the same against a surface to be printed upon driven from said power member and including selecting devices corresponding to different characters, and selecting mechanism determining the action of the printing mechanism and controlled by electrically-transmitted signals, of means controlling the transmission of power to the printing mechanism from said power member, said means arranged to be operated simultaneously with the operation of the printing mechanism by said selecting mechanism.

5. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising a rotary type member and means for rotating the same and for obtaining impressions therefrom driven from said power member, and tumblers corresponding to different characters determining the degree to which said type member is rotated, and selecting mechanism for operating said tumblers controlled by electrically-transmitted signals, of means controlling the transmission of power to the printing mechanism from said power member, said means arranged to be operated simultaneously with the operation of said tumblers by the selecting mechanism.

6. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising a rotary type member and means for rotating the same and for striking the same against a surface to be printed upon driven from said power member, and tumblers corresponding to different characters determining the degree to which said type member is rotated, and selecting mechanism for operating said tumblers controlled by electrically-transmitted signals, of means controlling the transmission of power to the printing mechanism from said power member, said means arranged to be operated simultaneously with the operation of said tumblers by the selecting mechanism.

7. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism arranged to be operated therefrom, and selecting mechanism determining the action of the printing mechanism and comprising an electrically-controlled sunflower, a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means, of means for connecting and disconnecting operatively the power member and the printing mechanism, said means arranged to be operated simultaneously with the operation of the printing mechanism by said selecting mechanism.

8. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism arranged to be operated therefrom, and selecting mechanism determining the action of the printing mechanism and comprising an electrically-controlled sunflower, a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means, of means for connecting and disconnecting operatively the power member and the printing mechanism, said means operated by the selecting mechanism simultaneously with the operation of the printing mechanism thereby.

9. In a printing-telegraph, the combination with printing mechanism, a plurality of printing-magnets for operating the same, and selecting mechanism for determining the particular printing-magnet to be energized controlled by electrically-transmitted signals, of a power member, a transmission device for communicating motion from the power member to the printing mechanism, and a magnet for controlling the operation of the printing mechanism from said power member, controlled by said selecting mechanism.

10. In a printing-telegraph, the combination with printing mechanism, a plurality of printing-magnets for operating the same, and selecting mechanism for determining the particular printing-magnet to be energized, of a power member, a transmission device for communicating motion from the power member to the printing mechanism, means operated thereby for effecting spacing independent of the operation of the printing mechanism, and a magnet for controlling the operation of said printing mechanism and spacing means from said power member, in circuit with each of said printing-magnets and also in a circuit arranged to be completed through said selecting mechanism independent of said printing-magnets.

11. In a printing-telegraph, the combination with printing mechanism, printing-magnets for operating the same and selecting mechanism for determining the particular printing-magnet to be energized, said magnets located in independent circuits arranged to be completed independently through said selecting mechanism and having a common return, of a power member, a transmission device for communicating power from the power member to said printing mechanism, means operated by said power member for effecting spacing independent of the operation of the printing mechanism, and a magnet controlling the operation of said spacing mechanism, in the common return of the printing-magnet circuits, and likewise in a circuit arranged to be completed through the selecting mechanism independent of said printing-magnets.

12. In a printing-telegraph, the combination with printing mechanism, printing-magnets for operating the same, and selecting mechanism for determining the particular printing-magnet to be energized, and comprising an electrically-controlled sunflower, a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means, of a power member, a transmission device for connecting and disconnecting operatively the power member and the printing mechanism, and a magnet for operating said transmission device, controlled by said selecting mechanism.

13. In a printing-telegraph, the combination with printing mechanism, printing-magnets for operating the same, and selecting mechanism for determining the particular printing-magnet to be energized, and comprising an electrically-controlled sunflower, a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means, of a power member, a transmission device for connecting and disconnecting operatively the power member and the printing mechanism, means operated thereby for effecting spacing independent of the operating of the printing mechanism, and a magnet for operating said transmission device, in circuit with each of said printing-magnets and also in a circuit arranged to be completed through said selecting mechanism independent of said printing-magnets.

14. In a printing-telegraph, the combination with printing mechanism, printing-magnets for operating the same, and selecting mechanism for determining the particular printing-magnet to be energized, and comprising an electrically-controlled sunflower, a separating-relay, selecting-circuits, primary and secondary selecting-relays and restoring means, said printing-magnets located in independent circuits arranged to be completed independently through said selecting mechanism and having a common return, of a power member, a transmission device for connecting and disconnecting operatively the power member and the printing mechanism, means operated thereby for effecting spacing independent of the operation of the printing mechanism, and a magnet for operating said transmission device, in the common return of the printing-magnet circuits, and likewise in a circuit arranged to be completed by the selecting mechanism independent of said printing-magnets.

15. In a printing-telegraph, the combination with a power member, an actuating device arranged to be operated thereby, a transmission device for connecting and disconnecting operatively the power member and actuating device, a plurality of tumblers, corresponding pawls, and printing-magnets each adapted when energized, to bring a corresponding pawl into engagement with said actuating device, of means actuated by said pawls when themselves operated by said actuating device, for operating their corresponding tumblers, printing means operated by the tumblers and adapted to print a character corresponding to whichever tumbler is operated, and a magnet controlling said transmission device.

16. In a printing-telegraph, the combination with a movable actuating device, means for driving the same, a plurality of pawls adapted to engage said actuating device, but normally disengaged therefrom, printing means, and means for operating the same actuated by the several pawls, of printing-magnets, armatures therefor, and sliding rods connected to said armatures and mounted to move in proximity each to a corresponding pawl, and each provided with means for engaging its corresponding pawl and moving the same into engagement with said actuating device.

17. In a printing-telegraph, the combination with a movable actuating device, means for driving the same, a plurality of pawls adapted to engage said actuating device, but normally disengaged therefrom, springs normally holding said pawls out of such engagement, and combs for said springs, of printing-magnets, and means operated thereby for drawing the several pawls into engagement with said actuating device, printing means, and means for operating the same actuated by the several pawls.

18. In a printing-telegraph, the combination with a movable actuating device, means for driving the same, a plurality of pawls adapted to engage said actuating device, but normally disengaged therefrom, springs normally holding said pawls out of such engagement, sliding rods for actuating the several pawls, guide-bars therefor, and printing-magnets and means operated thereby for operating the several rods.

19. In a printing-telegraph, the combination with printing mechanism, a plurality of printing-magnets for operating the same, selecting mechanism for selecting the particular printing-magnet to be energized, a sliding carriage, and means for feeding the same during the printing, of a power-shaft, carriage-return mechanism adapted to be operated thereby but normally disengaged therefrom, a carriage-return magnet likewise controlled by said selecting mechanism, and means actuated by said carriage-return magnet for operatively connecting the carriage-return mechanism and power-shaft.

20. In a printing-telegraph, the combination with printing mechanism, a plurality of printing-magnets for operating the same, selecting mechanism for selecting the particular printing-magnet to be energized, a sliding carriage, and means for feeding the same during the printing, of a power-shaft, carriage-return mechanism adapted to be operated thereby but normally disengaged therefrom, a carriage-return magnet located at the front of the machine in front of said printing mechanism, said magnet likewise controlled by said selecting mechanism, an armature for said magnet, and a lever operated thereby, connected with said carriage-return mechanism and arranged to bring the same into operative engagement with said power-shaft.

21. In a printing-telegraph, the combination with printing mechanism, printing-magnets for operating the same, selecting mechanism determining the action of the printing-magnets, and comprising an electrically-controlled sunflower, a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means, a sliding carriage, and means for feeding the same during the printing, of a power-shaft, carriage-return mechanism adapted to be operated thereby but normally disengaged therefrom, a carriage-return magnet likewise controlled by said selecting mechanism, and means actuated by said carriage-return magnet for operatively connecting the carriage-return mechanism and power-shaft.

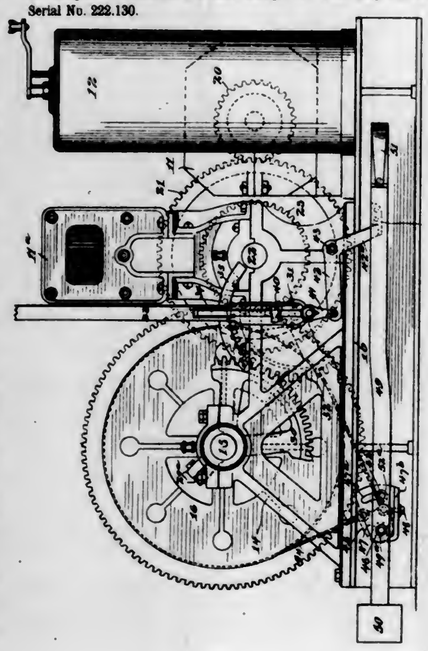
22. In a printing-telegraph, the combination with a carriage, adapted to be moved back and forth during the operation of the machine, ratchet-operated paper-feed devices thereon, and a rod for operating said paper-feed, located upon said carriage in a position substantially parallel to the direction of motion of the carriage, of a paper-feed magnet, printing mechanism, printing-magnets therefor, selecting mechanism determining the action of the printing and paper-feed magnets and comprising an electrically-controlled sunflower, a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means; and means operated by the paper-feed magnet for operating the said rod on the carriage.

23. In a printing-telegraph, the combination with a type-wheel provided with a plurality of rows of characters and movable axially and rotatively, and likewise movable bodily for forming the impression, printing mechanism for rotating said wheel to bring the desired character opposite the printing position, printing-magnets for operating said printing mechanism, a shift-magnet, and means operated thereby for moving said type-wheel axially comprising means for permitting the bodily movement of said wheel by which the impression is given, of selecting mechanism for determining the action of said printing and shift magnets, comprising a separator-relay, selecting-circuits, primary and secondary selecting-relays and restoring means.

24. In a printing-telegraph, the combination with a constantly-moving power member, printing mechanism comprising means, including selecting devices corresponding to different characters, for bringing selected characters into operative position, and means, including a clutch, for communicating motion from said power member to said printing mechanism, of a plurality of printing-magnets, each corresponding to and arranged to bring into operation one of said selecting devices, and another magnet and clutch-closing means operated thereby to close said clutch.

25. In a printing-telegraph, the combination of a constantly-moving power member, a clutch driven thereby, printing mechanism, and means for driving the same driven from said clutch, of means normally holding the clutch open, a releasing member arranged when operated to permit said clutch to close, and an electromagnet operating said releasing member.

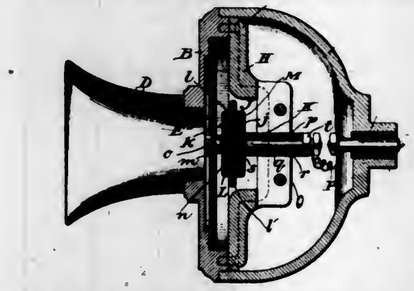
787,609. **HOISTING-MACHINE.** WENDELL A. BARKER, Chicago, Ill., assignor to Emmet A. Thomas, Chicago, Ill. Filed Aug. 25, 1904. Serial No. 222,130.



Claim.—1. In a hoisting-machine, the combination with a drum-shaft and a driving-gear fast thereon carrying one member of a friction-clutch, of a winding-drum loosely mounted on said shaft and carrying on one head the coöperating member of said friction-clutch, stationary and movable coöperating cam-faced members embracing said shaft, said movable cam member abutting against the other head of said drum, an operating-lever, means actuated thereby for oscillating said movable cam-faced member to shift the drum and engage the clutch members, means normally tending to separate said clutch members, a brake carried by said drum, a brake applying and releasing lever, and an interlocking connection between the latter and said clutch-operating lever whereby when said clutch-operating lever is in releasing position said brake-actuating lever is locked in brake-applying position, substantially as described.

2. In a hoisting-machine, the combination with a drum-shaft and a driving-gear fast thereon carrying one member of a clutch, of a winding-drum loosely mounted on said shaft carrying on one head the coöperating member of said clutch, a stationary cam-faced member embracing said shaft, a coöperating movable cam-faced member surrounding said shaft and abutting against the other head of said drum, a radially-extending segment-gear carried by said movable cam-faced member, an operating-lever and another segment-gear actuated thereby and coöperating with said first-named segment-gear, means normally tending to separate said clutch members, a brake carried by said drum, a brake applying and releasing lever, and an interlocking connection between the latter and said operating-lever whereby when the latter is in releasing position said brake applying and releasing lever is locked in brake-applying position, substantially as described.

787,610. **TELEPHONE-TRANSMITTER.** HENRY P. CLAUSEN, Chicago, Ill., assignor to American Electric Telephone Company, a Corporation of New Jersey. Filed Aug. 19, 1901. Serial No. 72,623.



Claim.—1. In a telephone-transmitter, the combination with the diaphragm and mountings thereof, of a carbon-holding receptacle comprising flexible springing walls and an intermediate inflexible rim, a carbon disk comprising one of the electrodes within said receptacle rigidly connected with the diaphragm, one of the said walls being also connected with said diaphragm, and yielding under the influence thereof, another disk of carbon within said receptacle constituting the back electrode, also connected with the other flexible wall which likewise yields under the influence of the diaphragm, said back electrode being stationary, and granular carbon intermediate between said electrodes, whereby the said walls move with the movement of the diaphragm.

2. A telephone-transmitter comprising a diaphragm, front and back electrodes, the front electrode being connected by a stem with the said diaphragm, granular carbon between said electrodes, a sheet-metal box or casing inclosing said electrodes and granular carbon, said box or casing being provided with springy or resilient front and back walls which yield and permit the front electrode to approach the back electrode, and a backing for holding the back electrode and the middle portion of the said springy or resilient back wall against movement.

3. A telephone-transmitter comprising a diaphragm, a front electrode connected to vibrate with said diaphragm, a back electrode held by a stationary backing, granular carbon between said electrodes, the said front electrode being provided on its back with a hub or raised portion, a box or casing inclosing said electrodes and granular carbon, said box or casing being provided with relatively thin springy or resilient front and back walls, a nut and sleeve for clamping the said front wall against the said hub or raised portion on the front electrode, the said front wall thereby being permitted to flex or bend in either direction, a nut and sleeve for clamping the middle portion of the said back wall against the flat back or outer surface of the said back electrode, the said back wall thereby being permitted to flex or bend in one direction only, and the two resilient or springy walls thus held being adapted to yield to the thrust of the diaphragm and permit the front electrode to approach the back electrode.

4. A telephone-transmitter comprising a diaphragm, a backing, a springy or resilient sheet-metal box or casing serving as a yielding connection between said diaphragm and said backing, front and back electrodes and granular carbon inclosed by said box or casing, suitable insulation for insulating the said box or casing from the said back electrode, said front electrode being electrically connected with said box or casing, a suitable transmitter casing or body structure, electrical connection between said casing or body structure and said springy or resilient box or casing, the said transmitter casing or body structure thereby serving as one terminal of the electrical circuit, and a terminal or contact piece electrically connected with the back electrode and insulated from said transmitter casing or body structure.

5. A telephone-transmitter comprising a suitable body structure, a diaphragm, a relatively large front electrode connected to vibrate with said diaphragm, a relatively small back electrode, the said front electrode having its middle portion provided with a hub or raised portion, a sheet-metal casing having springy or resilient front and back walls, a nut and sleeve for clamping the front wall against the said hub or raised portion on the front electrode, granular carbon between the two electrodes and inclosed by said box or casing, a sleeve of less diameter than the back electrode having its end portion adapted to clamp the middle portion of the said back wall against the back electrode, insulation between said sleeve and said back electrode, a bridge having a middle portion adapted to clamp upon the said sleeve, so as to hold the back electrode against movement, an insulated terminal with which the said back electrode is electrically connected, and the said body structure serving as the other terminal and being electrically connected through the medium of the said sheet-metal box or casing with the front electrode.

6. A telephone-transmitter comprising a suitable body structure, a diaphragm and front electrode connected to vibrate together, a back electrode of less diameter than the front electrode, a stem extending from the back of said back electrode, a stem and a hub or raised portion projecting from the outer surface of the front electrode, a sheet-metal box or casing inclosing said electrodes, granular carbon between said electrodes, a nut and a sleeve applied to the stem on the front electrode, so as to clamp the front wall of said box or casing against said hub or raised portion on the front electrode, a metal sleeve insulated from the stem on the back electrode, a nut applied to the stem on the back electrode and adapted to clamp said insulated sleeve and the middle portion of the back wall of said box or casing against the said back electrode, an insulating-ring for insulating the granular carbon from the said box or casing, a layer of insulation between the back electrode and said box or casing, a bridge or clamping piece adapted to clamp upon the sleeve or the stem of the back electrode, so as to hold the back electrode against movement, the said bridge and the box or casing serving as medium of electrical connection between the front electrode and the body structure, and an insulated terminal or contact piece having electrical connection with the stem of the back electrode.

7. In a telephone-transmitter, the combination of a suitable diaphragm, oppositely-arranged electrodes, one of said electrodes being connected to vibrate with said diaphragm, a springy or resilient sheet-metal casing composed of two sheet-metal cups having joined marginal portions and adapted to inclose said electrodes, granular carbon between said electrodes, and a backing for holding one of said electrodes and a portion of said springy or resilient sheet-metal casing against movement.

8. In a telephone-transmitter, the combination of a diaphragm, a front electrode having suitable connection with said diaphragm, a stationary back electrode, granular carbon between said electrodes, and a springy or resilient sheet-metal casing inclosing said carbon electrodes, and said casing being composed of two cup-shaped parts having joined perimeters

9. In a telephone-transmitter, the combination of a suitable diaphragm, a front electrode connected to vibrate with said diaphragm, a stationary back electrode, granular carbon between said electrodes, a springy or resilient sheet-metal casing composed of two sections and arranged to inclose said carbon and electrodes, each section of the sheet-metal casing being provided with a flange, and a clamping-ring applied to said flanges and adapted to join the two sections of said box or casing.

10. In a telephone-transmitter, the combination of a diaphragm, front and back electrodes, granular carbon between said electrodes, mechanical connection between the front electrode and the diaphragm, a stationary backing for said back electrode, a springy or resilient sheet-metal casing serving as electrical connection between said front electrode and said backing, said casing being composed of two cup-shaped parts having their perimeters joined and inclosing said granular carbon and said electrodes.

11. In a telephone-transmitter, the combination of a suitable diaphragm, relatively movable electrodes, granular carbon interposed between said electrodes, suitable connection whereby the vibration of the diaphragm causes relative movement between said electrodes, a springy wall between said electrodes and said diaphragm, a springy wall on the other side of said electrodes, a non-yielding connection between said walls, and a member for preventing movement on the part of the middle portion of said last-mentioned wall, the springy character of the two walls permitting the vibrations of the diaphragm to cause the desired relative movement between the two electrodes.

12. In a telephone-transmitter, the combination of a main diaphragm, front and back supplemental springy diaphragms suitably connected with said main diaphragm, front and back electrode-surfaces, granular carbon interposed between and resting in contact with said electrode-surfaces, and a stationary backing connected with the central portion of the said back supplemental diaphragm and adapted to prevent vibrations of the central portion of the said back supplemental diaphragm, the front and back electrode-surfaces being vibratory relatively to each other.

13. In a telephone-transmitter, the combination with a suitable diaphragm, of a chamber yieldingly mounted thereon, an electrode in said chamber and moving therewith, the electrode having a greater extent of movement than the chamber, an independently and adjustably supported stationary electrode opposed to said first-mentioned electrode and having a piston-like movement relative to said chamber, and comminuted material between said electrodes, the said chamber having a springy wall constituting a part and secured to the balance thereof to which springy wall the independently-supported electrode is secured.

14. In a telephone-transmitter, the combination with a suitable diaphragm, of a chamber yieldingly mounted thereon, an electrode in said chamber and moving therewith, the electrode having a greater extent of movement than the chamber, an independently and adjustably supported stationary electrode opposed to said first-mentioned electrode and having a piston-like movement relative to said chamber, and comminuted material between said electrodes, the said chamber having a springy wall constituting a part and secured to the balance thereof to which springy wall the independently-supported electrode is secured.

15. In a telephone-transmitter, the combination with a suitable diaphragm, of a chamber yieldingly mounted thereon, an electrode in said chamber and moving therewith, the electrode having a greater extent of movement than the chamber, a rigidly-secured electrode opposed to said first-mentioned electrode, and having a piston-like movement relative to said chamber, and comminuted material between said electrodes, the said chamber having a springy wall constituting a part and secured to the balance thereof to which springy wall the rigidly-supported electrode is secured, and means whereby relative adjustment between the said electrodes may be effected.

16. In a telephone-transmitter, the combination with a suitable diaphragm, of a chamber yieldingly mounted thereon, an electrode in said chamber and moving therewith, the electrode having a greater extent of movement than the chamber, an independently-supported stationary electrode opposed to said first-mentioned electrode and having a piston-like movement relative to said chamber, and comminuted material between said electrodes, said chamber having a springy wall constituting a part and secured to the balance thereof to which springy wall the independently-supported electrode is secured, and means whereby relative adjustment between the said electrodes may be effected.

17. In a telephone-transmitter, the combination of a diaphragm, front and back electrodes, a metallic box inclosing the said electrodes, comminuted material interposed between said electrodes, insulation between said comminuted material and the inner surface of said box, the front electrode being electrically connected with the box and the back electrode being insulated therefrom, a metallic stem secured to the back electrode, a sleeve of insulation on said stem, a metallic sleeve on said sleeve of insulation, the said metallic sleeve being electrically connected with said box, and a metallic member in which said metallic sleeve is adjustably clamped.

18. In a telephone-transmitter, the combination of a diaphragm front and back electrodes, comminuted material interposed between said electrodes, a box inclosing said electrodes and comminuted material and provided with springy front and back walls, a terminal having electrical connection with said back electrode, a bridge for adjustably supporting the back electrode, another terminal, an electrical connection between said last-mentioned terminal and the front electrode including said bridge and box, the comminuted material and back electrode being insulated from the box and bridge.

19. In a telephone-transmitter, the combination of a diaphragm, front and back electrodes, the front electrode being connected with said diaphragm, a bridge for adjustably supporting the stationary back electrode, comminuted material interposed between said electrodes, and a box inclosing said electrodes and comminuted material, said box having flexible and springy front and back walls serving as medium of yielding connection between the said diaphragm and bridge.

20. In a telephone-transmitter, the combination of a main diaphragm, a movable electrode carried by said diaphragm, a suitable support, a stationary electrode mounted upon said support, comminuted material between the opposing surfaces of said electrodes, and a box inclosing said electrodes and comminuted material, said box having flat front and back walls of thin, flexible and springy material adapted to serve as medium of resilient connection between said diaphragm and support.

21. In a telephone-transmitter, the combination of a main diaphragm, a front electrode-surface adapted to vibrate with the diaphragm, a suitable support, a back electrode-surface adapted to remain stationary with said support, comminuted material interposed between said electrode-surfaces, and means for inclosing said comminuted material including front and back supplemental diaphragms, said supplemental diaphragms consisting of thin flat pieces of springy material adapted to serve as medium of resilient connection between the main diaphragm and said support.

22. In a telephone-transmitter, the combination of a main diaphragm, a vibratory electrode connected with said diaphragm, a stationary electrode opposed to said vibratory electrode, comminuted material interposed between said electrodes, and a box inclosing said electrodes and comminuted material, said box having front and back springy walls, the wall which is associated with the vibratory electrode being adapted to alternately become concave and convex on its outer surface during the vibration of the said diaphragm, and the wall which is associated with the stationary electrode being held against becoming convex on its outer surface.

23. In a telephone-transmitter, the combination of a main diaphragm, front and back supplemental diaphragms of yielding and springy material, front and back electrode-surfaces carried by said front and back supplemental diaphragms respectively, comminuted material interposed between said electrode-surfaces, suitable connection between the main diaphragm and the front electrode-surface and supplemental diaphragm, a bridge, and adjustable connection between the said bridge and the said back electrode-surface and supplemental diaphragm, the center of said back supplemental diaphragm being held stationary by said adjustable connection, whereby said bridge and supplemental diaphragms yieldingly oppose the vibrations of the main diaphragm in both directions.

24. In a telephone-transmitter, the combination of a metallic sleeve, a metallic box or inclosure, a vibratory front electrode, a mass of granular carbon, a stationary back electrode, and a metallic stem, all connected up in series in the order mentioned, the said sleeve inclosing the said stem, a diaphragm connected to vibrate said front electrode, and a bridge supporting the said sleeve and stem and holding the back electrode against movement.

25. In a telephone-transmitter, the combination of a metallic sleeve, a metal box with a flexible back wall, a vibratory front electrode, a mass of granular material, a stationary back electrode, and a metallic stem, all connected up in series in the order mentioned, the said sleeve inclosing the said stem, a diaphragm connected to vibrate said front electrode, such vibrations being yieldingly opposed by said flexible wall, and a bridge supporting the sleeve and stem and holding the back electrode against movement.

26. In a telephone-transmitter, the combination of a metallic sleeve, a metallic box composed of front and back walls having their perimeters or peripheral portions tightly fastened together, a vibratory front electrode, a mass of granular material, a stationary back electrode, and a metallic stem, all connected up in series in the order mentioned, the said sleeve inclosing the said stem, a diaphragm connected to vibrate said front electrode, and a bridge adjustably supporting said sleeve and thereby normally holding said back electrode against movement.

27. In a telephone-transmitter, the combination of a vibratory front electrode, a stationary back electrode, granular carbon interposed between said electrodes, a diaphragm for vibrating the said front electrode, and a bodily-vibratory box inclosing said electrodes and granular carbon, said box having thin flat resilient front and back walls, whereby the bodily vibrations of said box are of less amplitude than the vibrations of said front electrode.

28. In a telephone-transmitter, the combination of a metallic sleeve, a metallic auxiliary diaphragm, a vibratory front electrode, a mass of granular carbon, a stationary back electrode, and a metallic stem, all connected up in series in the order mentioned, the said sleeve inclosing the said stem, a diaphragm for vibrating the front electrode, and a metallic member adjustably supporting the said sleeve and thereby normally holding said back electrode against movement.

29. A telephone-transmitter, comprising front and back electrode-surfaces, granular carbon interposed in suitable quantity directly between said surfaces, a main diaphragm connected with the front electrode-surface, a suitable vibration-opposing member connected with the rear electrode-surface, the granular carbon being inclosed by a box having thin and perfectly-flat resilient front and back walls connected respectively with said diaphragm and member, and said box having also an annular non-yielding wall or peripheral portion connecting said resilient front and back walls, whereby said flat front and back walls constitute medium of resilient connection between said diaphragm and member, and whereby said carbon is subjected to variable pressure by said electrode-surfaces together with a casing rigidly connected with said member, whereby the center of said resilient back wall is held stationary.

30. A telephone-transmitter comprising a back electrode, a stem on said electrode, a metal plate through which the stem extends, insulation between the said plate and electrode, a sleeve mounted on and insulated from the said stem, a nut on said stem, and insulation between the nut and sleeve, whereby the plate, insulation and sleeve are clamped tightly between the nut and electrode.

31. A telephone-transmitter comprising a back electrode provided with a threaded stem, a metal cup through which the stem extends, said cup inclosing the electrode, insulation between the cup and electrode, a metal sleeve mounted on said stem and insulated therefrom, one end of said sleeve engaging the central portion of said cup, a couple of nuts on the threaded end of said stem, and insulation encircling the stem and interposed between the said nuts and the end of the sleeve, whereby the cup, insulation and sleeve are clamped tightly between the electrode and one of said nuts.

32. A telephone-transmitter comprising a disk having its face acting as an electrode and its back provided with a threaded stem, a metal cup inclosing the electrode and through which the said stem extends, a nut on the end of said stem, a sleeve mounted on the stem and insulated therefrom, said sleeve being clamped endwise between the cup and nut, and suitable insulation between the electrode and cup.

33. A telephone-transmitter comprising two thin and perfectly smooth resilient auxiliary diaphragms carrying front and back electrode-surfaces with granular carbon interposed in suitable quantity directly between said surfaces, means for holding the center of one of said diaphragms stationary, together with main diaphragm means adapted to receive the voice vibration and connected to alternately compress the centers of said auxiliary diaphragms toward each other and draw the same apart, and to thereby produce the relative movement between the two opposed electrodes.

34. A telephone-transmitter comprising a box composed of a rigid ring closed at each side by a thin resilient auxiliary diaphragm, oppositely-arranged electrodes secured to middle portions of said thin resilient auxiliary diaphragms, granular carbon interposed between said electrodes, a casing rigidly connected with one of said electrodes, together with main diaphragm means adapted to receive the voice vibration and connected to alternately compress the centers of said auxiliary diaphragms toward each other and draw the same apart, and to thereby produce the relative movement between the two opposed electrodes.

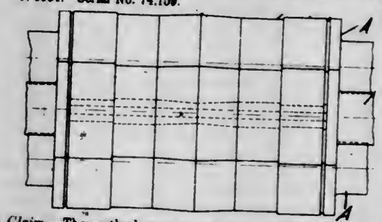
35. A telephone-transmitter comprising a casing, a pair of oppositely-arranged electrodes, granular carbon between said electrodes, means for inclosing the electrodes and granular carbon consisting of two thin resilient auxiliary diaphragms rigidly separated at their margins, and as to the three elements, to wit, one electrode, another electrode, and the means for rigidly separating the two resilient auxiliary diaphragms, at least one of such elements being stationary and rigidly connected with the said casing, together with main diaphragm means adapted to receive the voice vibration and connected to alternately compress the centers of said auxiliary diaphragms toward each other and draw the same apart, and to thereby produce the relative movement between the two opposed electrodes.

36. A telephone-transmitter comprising a casing, a pair of oppositely-arranged electrodes, granular carbon between said electrodes, means for inclosing the electrodes and granular carbon consisting of two thin resilient auxiliary diaphragms rigidly separated at their margins, and as to the three elements, to wit, one electrode, another electrode, and the means for rigidly separating the two resilient auxiliary diaphragms, at least one of said elements being stationary and rigidly connected with the said casing, together with main diaphragm means adapted to receive the voice vibration and connected to alternately compress the centers of said auxiliary diaphragms toward each other and draw the same apart, and to thereby produce the relative movement between the two opposed electrodes.

787,611. **TREATING TOBACCO.** JOHN L. DANIELS, Jr., New York, N. Y., assignor to American Cigar Company, a Corporation of New York. Filed June 17, 1903. Serial No. 161,865.

Claim.—The herein-described treatment of tobacco, which consists in moistening the leaves with a solution of hypophosphite of soda, then exposing them to oxygen in the form of ozone, as set forth.

787,612. **METHOD OF SHAPING METALLIC INGOTS BY TRANSVERSE ROLLING.** LEONARD D. DAVIS, Erie, Pa. Filed Sept. 3, 1901. Serial No. 74,159.



Claim.—The method or process of shaping metallic ingots, which consists in first piercing the ingot, with a relatively small opening and smoothing and compacting the walls of the opening so made, and then transversely rolling the ingot without axial movement of the ingot so pierced for shaping its outer surface.

787,613. **METALLIC POLE.** GIOSUE D'ESPOSITO, Pittsburg, Pa., assignor of one-half to Stuart Patterson, Pittsburg, Pa. Filed Apr. 27, 1904. Serial No. 205,095.



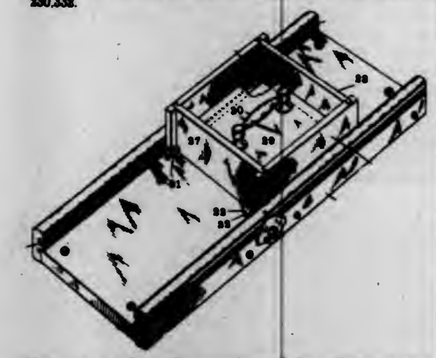
Claim.—1. An angular metallic pole formed of a plurality of similar plates, each plate having one edge bent to form an angle and having its opposite edge straight and unbent, the angle of one plate corresponding with the angles of the other plates, said straight unbent edge of one plate located in the angle of and abutting against a contiguous plate, substantially as described.

2. An angular metallic pole formed of a plurality of similar plates, each plate having one edge bent to form an angle and having its opposite edge straight and unbent, the angle of one plate corresponding with the angles of the other plates, said straight unbent edge of one plate located in the angle of and abutting against a contiguous plate, and exterior clamping means whereby the plates are held firmly together, substantially as described.

3. An angular tapering metallic pole formed of a plurality of tapering plates, each plate having an inwardly-bent angular portion along one edge and having the opposite edge straight and unbent, the straight portions of said plates adapted to fit within the angular

portions of the adjacent plates and to abut against the same, and exterior bands whereby said plates are clamped together, substantially as described.

787,614. **VEGETABLE-CUTTER.** ROBERT L. DORSEY, Indianapolis, Ind., assignor to Tucker & Dorsey Manufacturing Company, Indianapolis, Ind., a Corporation of Indiana. Filed Oct. 28, 1904. Serial No. 230,332.

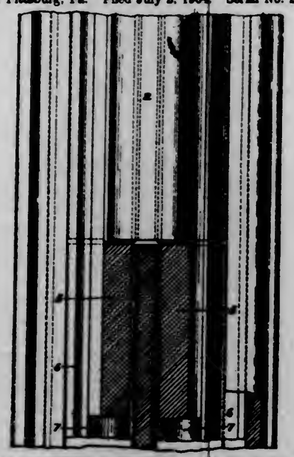


Claim.—1. A polygonal receptacle consisting of interengaging sides and a locking-strip secured to one of said sides at an angle thereto and projecting sidewise therefrom, said strip entering the adjacent end of another side whereby said strip forms a projecting guide-lip and a lock to prevent separation of the two sides in one direction.

2. A polygonal receptacle consisting of a pair of substantially parallel sides and connecting interlocking sides, of a pair of strips secured to two of the sides and let into adjacent ends of the connecting sides to prevent transverse separation thereof, said strips lying at an angle to the several sides and projecting sidewise from two of them to form guide-lips for the receptacle.

3. A polygonal receptacle consisting of a pair of parallel sides and interlocking connecting sides, the said parallel sides being narrower than the connected sides, guide-strips of greater width than the thickness of the parallel sides attached to the edges of said substantially parallel sides and let into the adjacent ends of the connecting sides, finishing-strips arranged in alinement with the narrower sides to complete the same beyond the locking-strip, and fastening means extending through said finishing-strips and locking-strips into the narrow sides, substantially as and for the purpose set forth.

787,615. **RAIL-JOINT.** JOHN EDWARDS, Homestead, and JOHN JARRETT, Pittsburg, Pa. Filed July 2, 1904. Serial No. 215,143.



Claim.—1. In a rail-joint, the combination of a chair and a two-part fish-bar, the lower portion of the fish-bar being adapted to be seated in the chair, and being provided with a seat for the upper portion of the fish-bar, the upper portion of the fish-bar being adapted to be driven between the head of the rail and the lower portion of the fish-bar; substantially as specified.

2. In a rail-joint, the combination of a chair having a seat for the reception of the lower portion of the fish-bar, a seat formed in the lower portion of the fish-bar, and a bar adapted to be driven between this seat and the head of the rail; substantially as specified.

3. In a rail-joint, the combination of a chair having a seat for the reception of the rail, and a seat for the reception of the flange of the fish-bar, the angle of the base of this seat corresponding with the angle of the upper face of the base of the rail, and a two-part fish-bar, the flange of the lower portion being adapted to fit in the seat of the chair, and the upper portion being adapted to be driven between the head of the rail and the lower portion of the fish-bar; substantially as specified.

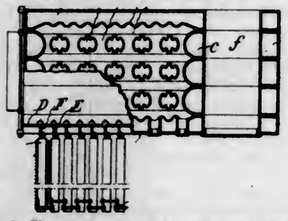
4. In a rail-joint, the combination of a chair having a seat for the reception of the lower portion of a fish-bar, and a two-part fish-bar the lower portion of which is provided with a curved seat, and the upper portion of which is provided with a curved side adapted to fit in the curved seat of the lower portion, the upper portion of the fish-bar being adapted to be driven between the lower portion of the fish-bar and the head of the rail; substantially as specified.

787,616. **SYSTEM OF DECORATING.** JESSE T. EVANS, St. Louis, Mo. Filed Oct. 24, 1901. Serial No. 79,805.



Claim.—The combination with a transparent column, of a rotary sprayer mounted within said column near the top throwing water therefrom onto the inner surface of said column, in a downwardly and outwardly direction, a lamp arranged at the bottom of the column, an inverted-cone-shaped reflector surrounding the lamp and directing the rays from the light upwardly, and a transparent top over the reflector.

787,617. **HEATING SYSTEM.** QUIMBY N. EVANS, New York, N. Y. Filed Dec. 26, 1903. Serial No. 186,722.



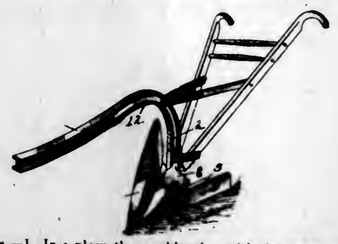
Claim.—1. The combination with a heater, of a series of flat radiators arranged in vertical planes alongside said heater, projecting laterally therefrom and communicating therewith, and means independent of the communications between the heater and radiators for supporting each of the radiators separately from the heater.

2. The combination with a heater, of a radiator communicating therewith and having a lug E at the upper end of one edge, a rib D on the top of the boiler, and a connecting member between the rib D and lug E for supporting the radiator from the boiler.

3. The combination with a heater, of a radiator, said heater and said radiator having communicating ports, and means at the top and bottom of the radiator and independent of the communications between said ports for holding the radiator to the side wall of said heater.

4. The combination with a heater having a projection, of a radiator having a complementary projection, and a wedge, the projections being so positioned that the wedge may be forced between them to force the radiator toward the heater.

787,618. **PLOW.** EDWARD FOWLER, Cedargrove, Ga., assignor, by direct and mesne assignments, to Julius L. Anderson, Ironton, Ohio. Original application filed Aug. 17, 1903, Serial No. 169,777. Divided and this application filed Mar. 12, 1904. Serial No. 197,878.



Claim.—1. In a plow, the combination with the standard, of a revolving disk, a journal-bearing for the disk secured to and mounted on one side of the standard and disposed to hold the disk on an angle to the line of draft and the rear edge of the disk on the side of the standard opposite to that on which the journal-bearing is mounted, and a plow-point mounted in the rear of the disk and on the side of the standard upon which the journal-bearing is mounted.

2. In a plow, the combination with the standard, of a revolving disk, a journal-bearing for the disk secured to and mounted on one side of the standard and disposed to hold the disk on an angle to the line of draft and the rear edge of the disk on the side of the standard opposite to that on which the journal-bearing is mounted, and a plow-point carried by the standard on the side upon which the journal-bearing is mounted and in the rear of the disk.

3. In a plow, the combination with a standard and a beam, extending forwardly in alinement with the standard, of a revolving disk secured to the standard at an angle to the line of draft and in a position to cut a concave furrow in a line directly underneath the beam and directly in front of the standard but with the greatest depth of the furrow to one side of the standard, and a plow-point secured to the other or land side of the standard in the rear of the disk and upon the land side of the furrow.

4. In a plow, the combination with a beam, a standard and a revolving disk, of a journal-bearing for the disk secured to and mounted on one side of the standard and disposed to hold the disk on an angle to the line of draft and the rear edge of the disk on the side of the standard opposite to that on which the journal-bearing is mounted, and a plow-point carried by the standard on the side on which the bearing is mounted and in the rear of the disk.

5. In a plow, the combination with a beam, of a revolving disk with its center directly beneath the beam and on an inclined axis at an angle to the line of draft so as to cut a furrow in a line directly underneath the beam having its greatest depth to one side of the beam, and a plow-point cutting in the rear of the disk and on the other or land side of the furrow made by the disk.

6. In a plow, the combination with the beam and the standard, of a foot on the standard, a plow-point secured to and on the land side of the foot, a journal secured to the land side of the standard and providing an axis at an angle to the line of draft and in front of the standard, and a disk mounted on the journal and operating in front of the plow-point at a point in a vertical line underneath the beam and a horizontal line in front of the standard.

7. In a plow, the combination with the beam and the standard, a disk-bearing secured upon one side of the standard, a disk supported by said bearing in advance of the standard, with its axis extending slightly upwardly in front of the standard and at an angle to the line of draft, and with its rear edge on the side of the standard opposite the bearing, and a plow-point secured upon that side of the standard upon which the bearing is secured and in the rear of the disk.

8. In a hand-plow, the combination with the beam and the standard made from a metallic beam of I cross-section, of a rearwardly-extending foot integral with the lower end of the standard and deflected to the vertical plane of the flanges on the land side of the standard, an attaching-plate secured to the standard on the land side thereof between the flanges thereon, a journal-bearing carried by the attaching-plate, a revolving disk supported by the journal-bearing with its axis extending slightly upwardly in front of the standard and at an angle to the line of draft, and with its rear edge on the side of the standard opposite the bearing, and a plow-point secured upon that side of the standard upon which the bearing is secured and in the rear of the disk.

9. In a hand-plow, the combination with the beam and the standard made from a metallic beam of I cross-section, of a rearwardly-extending foot integral with the lower end of the standard and deflected to the vertical plane of the flanges on the land side of the standard, an attaching-plate secured to the standard on the land side thereof between the flanges thereon, a journal-bearing carried by the attaching-plate, removable bearing-blocks in the bearing, a revolving disk supported by the journal-bearing with its axis extending slightly upwardly in front of the standard and at an angle to the line of draft, and with its rear edge on the side of the standard opposite the bearing, and a plow-point secured upon that side of the standard upon which the bearing is secured and in the rear of the disk.

10. In a plow, the combination of a standard of I cross-section, having its lower end flattened and deflected to the vertical plane of the flanges on one side of the standard, a plow-point secured on this side of the standard and extending in front of the lower end of the same, a disk, and a journal-bearing for the disk adjustably secured between the flanges of the standard on the side on which the landside and the plow-point are secured.

11. A plow having a beam and standard, a disk secured to the standard and having its cutting edge in advance of the standard and beneath the beam, and a point, also secured to the standard, in rear of the central cutting edge of the disk.

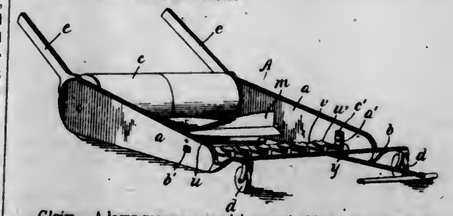
12. A plow having a beam and standard, a disk secured to the standard and having its cutting edge in advance of the standard and beneath the beam, and a point, also secured to the standard, in rear of and lower than a portion of the cutting edge of the disk.

13. A plow having a beam and standard, a disk secured to the standard and having its cutting edge in advance of the standard and beneath the beam, and a guide element, also secured to the standard, having a point, and disposed in rear of the cutting edge of the disk.

14. A plow having a beam and standard, a disk secured to the standard and having its cutting edge in advance of the standard and beneath the beam, the disk being rearwardly and upwardly inclined and also disposed obliquely with reference to the beam, and a guide element, also secured to the standard, having a landside and a point and disposed in rear of the cutting edge of the disk, the said point being spaced laterally from the rear side of the disk, and having its mold side, which is opposed to the disk, inclined at an angle which widens rearwardly and upwardly with reference to the disk to form a corresponding clearance-space between the point and the disk.

15. A plow having a beam and standard, a guide element at the lower end of the latter and having a landside and a point, a disk-carrier secured on the side of the standard corresponding to the land side and having a forwardly and outwardly extending bracket-arm, and a disk having its axle carried by the said bracket-arm, said disk being on the inner side of said bracket-arm, and supported thereby in an oblique position with reference to the beam and also in a rearwardly and upwardly inclined position, beneath the beam, the point being disposed in rear of the cutting edge of the disk.

787,619. **LAWN-MOWER.** ISAAC GERMAN, Baltimore, Md. Filed Nov. 5, 1904. Serial No. 231,475.



Claim.—A lawn-mower comprising a suitable frame, caster-rollers carrying the forward end of the mower, transversely-positioned shafts *i*, *h*, *g*, and *f* mounted in the frame, a transportation-roller journaled on the shaft *i*, a gear-wheel journaled on the shaft *i*, an

idler-gear *k*, loosely mounted on the shaft *h*, a gear *l* mounted on the revolving cutter-shaft, and the gear *n* on the shaft *f* formed with a bevel-face gearing *o*, a longitudinally-arranged shaft, a bevel-gear thereon to mesh with the gear *o*, a disk fixedly secured on the longitudinal shaft, a pitman eccentrically connected to the disk, reciprocable cutters mounted at the front of the machine and operated by the pitman and revolving cutters mounted on the shaft *g*, whereby the material is given a preliminary severance in advance of the cut of the revolving cutters.

787,620. WINDPROOF LIGHTING DEVICE. HENRY A. GIBBONS, Kansas City, Kans. Filed Jan. 8, 1904. Serial No. 188,191.



Claim.—1. A device of the character described, consisting of a suitable shell open at its upper end and provided with perforations near its lower end, a band slidingly arranged upon the shell and arranged to open and close the perforations in the latter, a lid hinged to the upper portion of the shell, a connecting-rod operatively securing the lid to the band, and abrasive material arranged in an opening in the shell.

2. A device of the character described consisting of a shell open at its upper end and provided with perforations, a torch secured to the lower end of the shell, abrasive material arranged in an opening in the shell near the torch-wick, a band slidingly arranged upon the shell to open and close the perforations, a lid hinged to the upper portion of the shell, and a connecting-rod operatively securing the lid to the band.

3. A device of the character described consisting of a shell composed of opaque and transparent materials open at the top and provided with a series of perforations, abrasive material arranged in an opening in one side of the shell, a band slidingly arranged upon the shell to open and close the perforations, a lid hinged to the upper portion of the shell, and a connecting-rod operatively securing the lid to the band.

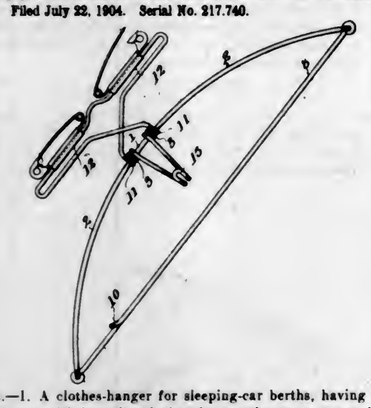
4. A device of the charected described consisting of a shell open at its upper portion and provided with a series of perforations, a receptacle secured to the lower end of the shell, abrasive material arranged in an opening in the shell, a band slidingly arranged upon the shell to open and close the perforations, a lid hinged to the upper portion of the shell, and a connecting-rod operatively securing the lid to the band.

787,621. ADJUSTER FOR DEEP-WELL SUCKER-RODS. EDWIN R. GRAHAM, Bakersfield, Cal., assignor of one-half to William M. Graham, Santa Barbara, Cal. Filed Apr. 12, 1904. Serial No. 202,799.



Claim.—A device of the character described having in combination a walking-beam, a sucker-rod, a pump-barrel, the upper and lower valves of a deep-well pump, a swivel union connected to the sucker-rod, a threaded rod connected to the union, and a yoke from which the threaded rod is suspended said yoke consisting of a single piece of metal folded upon itself and with its bight spread or open to receive and embrace the end of the walking-beam, and having its side arms converging downwardly, and opposing clamp members on said arms and adapted to clamp the threaded rod, said yoke and clamp members consisting of a unitary structure, substantially as described.

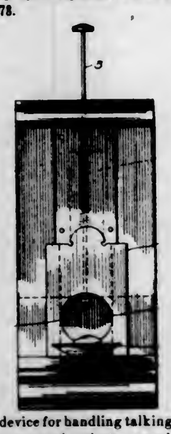
787,622. CLOTHES-HANGER. EUGENE W. HAWLEY, Milwaukee, Wis. Filed July 22, 1904. Serial No. 217,740.



Claim.—1. A clothes-hanger for sleeping-car berths, having a swinging frame with fastening devices for attachment to a curtain for the lower berth, and a swinging hook for engagement with the curtain-rod for the upper berth of a sleeping-car, the said frame and said hook being attached so that either may be moved up into operative position for either berth, as desired, and so that both may be folded within the limits of the hanger proper, for storage or transportation.

2. In combination with a clothes-hanger comprising a doubled-wire frame whose lower ends are connected by a stay-rod for holding the garments, a swinging and folding suspension-frame pivotally attached to the clothes-holding frame, and safety-pins rigidly secured to said suspension-frame

787,623. DEVICE FOR HANDLING TALKING-MACHINE NEEDLES. DELAWARE J. HOOD, Philadelphia, Pa., assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed July 6, 1903. Serial No. 164,278.



Claim.—1. A device for handling talking-machine needles, comprising a support, a magnetic selector movably carried thereby and a receptacle adjacent said support, which said selector is adapted to enter to successively remove needles therefrom.

2. A device for handling talking-machine needles, comprising a support, a magnetic selector movably carried thereby, a hopper adjacent said support, and a receptacle adapted to receive needles from said hopper, said selector being adapted to enter said receptacle and to successively remove needles therefrom.

3. A device for handling talking-machine needles, comprising a support, a magnetic selector movably carried thereby, a receptacle fixed to said support with which said selector is adapted to coöperate

to successively remove needles therefrom and means for detaching needles from said selector.

4. A device for handling talking-machine needles, comprising a support or casing, a magnetic selector carried by said support and adapted to reciprocate thereon, a receptacle carried by said support and adapted to have the needles removed therefrom by said selector, means for detaching needles from said selector and a secondary receptacle adapted to receive the needles when detached from said selector.

5. A device for handling talking-machine needles, comprising a support or casing, a magnetic selector carried thereby and adapted to reciprocate thereon, a hopper, a receptacle having communication with said hopper and adapted to be entered by said selector to remove needles therefrom, a stripper for said selector, and a secondary receptacle adapted to receive needles when detached from said selector.

6. A device for handling talking-machine needles, comprising a part having a wedge-shaped recess, there being an opening in the lower portion thereof, means located adjacent said opening to receive needles therefrom, a magnetic selector adapted to withdraw the needles from said part, means for detaching needles from said selector and a secondary receptacle adapted to receive said needles successively when detached from said selector.

7. A device for handling talking-machine needles, comprising a support, a magnetic selector carried thereby, and adapted to reciprocate thereon, a spring having one end in contact with said selector so as to detach needles therefrom, a receptacle for the needles, which said selector is adapted to enter, so that the needles are attracted and held thereby and a secondary receptacle for the needles.

8. A device for handling talking-machine needles; in combination with the casing of a talking-machine, of a receptacle for said needles, means to permit needles to be delivered to the exterior of said casing, a magnetic selector attached to said casing and adapted to coöperate with said means to successively remove needles therefrom.

9. A device for handling talking-machine needles, in combination with the casing of a talking-machine, of a storage-receptacle for said needles located within said casing, said receptacle having communication with the exterior of said casing, means for receiving needles from said storage-receptacle, a magnetic selector adapted to enter said receiving means and raising needles therefrom, means for detaching needles from said selector and a secondary receptacle for receiving the needles so detached.

10. A device for handling talking-machine needles, in combination with a casing of a talking-machine, of a needle-receptacle attached thereto, a magnetized bar also attached thereto and adapted to reciprocate thereon, a spring for holding said bar in its inoperative position, said bar being adapted to coöperate with said receptacle to successively remove the needles therefrom.

787,624. CARPENTER'S PLANE. ALEXANDER KALLA, New York, N. Y. Filed Dec. 10, 1904. Serial No. 236,272.

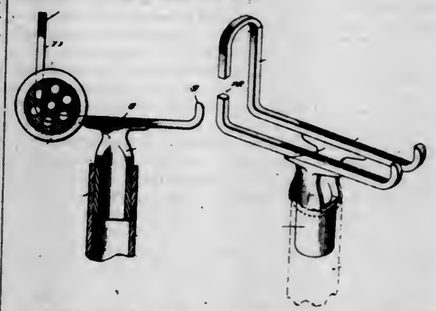


Claim.—A combination carpenter's plane, comprising a shoe, said shoe having in the bottom thereof an opening, a plane-stock having a projection adapted to fit in said opening, said projection being thicker than the bottom of said shoe, and an adjustable gib, carried by said plane-stock, said gib being equal in thickness to the difference between the depth of said projection on said plane-stock and the thickness of the bottom of said shoe, and means adapted to position and lock said plane-stock, and gib thereon, firmly to said shoe and to bring the bottom of said plane-stock substantially in line with the bottom of said shoe.

787,625. ROTARY SUPPORT FOR PULL-RODS. JOHN KERLIN, Montpelier, Ind. Filed Aug. 15, 1904. Serial No. 220,825.

Claim.—1. In a support for pull-rods, the combination of a post, a support carried by said post and provided with spaced horizontal bars, a pulley having its trunnions mounted upon said bars and movable longitudinally thereof, and stop means at the ends of said bars for limiting the movement of the pulley therealong.

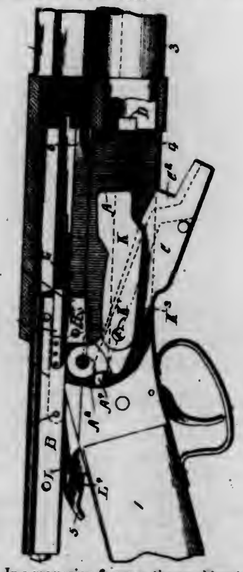
2. In a support for pull-rods, the combination of a support comprising spaced bars horizontally disposed, a pulley having its trunnions mounted upon said bars and movable longitudinally thereof, stops at corresponding ends of the bars, and a guide-loop projected upwardly from the one end of the bars.



3. In a support for pull-rods, the combination of a support comprising spaced bars horizontally disposed, a pulley having its trunnions mounted upon said bars and movable longitudinally thereof, stops at corresponding ends of the bars, and a guide-loop projected upwardly from the one end of the bars, one of the sides of said guide-loop being cut away for the purpose specified.

4. In combination, a post, a support carried by said post and comprising a shank and bifurcated portion at the upper end thereof, horizontal bars at the upper extremities of the bifurcated portions, and a pulley mounted upon the support and movable longitudinally of the bars aforesaid.

787,626. FIREARM. MICHAEL KUTCHER, Philadelphia, Pa. Filed Jan. 23, 1904. Serial No. 190,306.

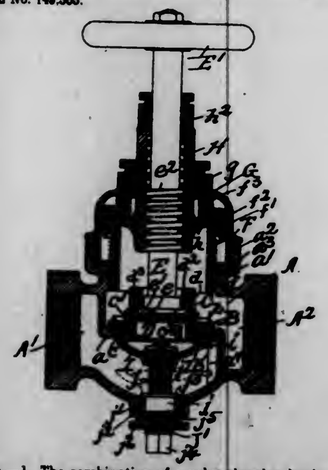


Claim.—1. In a magazine-firearm, the combination of a longitudinally-reciprocating breech-block, a slidable action-bar provided with a recess, a pawl pivoted to the breech-block having an offset extending laterally from the body of the pawl adapted to engage the recess in the action-bar, corresponding rearwardly-inclined edges at the forward ends of the recess and the offset of the pawl whereby said action-bar and pawl are held in engagement during rearward movement of the action-bar, corresponding rearwardly-inclined edges at the rear end of the recess and the offset of the pawl, a casing inclosing the breech mechanism of the gun and provided with a

longitudinal groove in which the action-bar slides whereby the action-bar and the offset of the pawl are held in engagement by the upper side of the groove in the casing against the tendency of the rear inclined edges of the recess and the offset of the pawl to separate the parts on forward movement of the action-bar, and means for releasing the engagement between the offset of the pawl and the recess at the termination of the forward movement of the action-bar.

2. In a magazine-firearm, the combination of a longitudinally-reciprocating breech-block, a slidable action-bar provided with a recess, a pawl pivoted to the breech-block having an offset extending laterally from the body of the pawl adapted to engage the recess in the action-bar, corresponding rearwardly-inclined edges at the forward ends of the recess and the offset of the pawl whereby said action-bar and pawl are held in engagement during rearward movement of the action-bar, corresponding rearwardly-inclined edges at the rear end of the recess and the offset of the pawl, a casing inclosing the breech mechanism of the gun and provided with a longitudinal groove in which the action-bar slides whereby the action-bar and the offset of the pawl are held in engagement by the upper side of the groove in the casing against the tendency of the rear inclined edges of the recess and the offset of the pawl to separate the parts on forward movement of the action-bar, and a cut-away portion in the casing at the forward end of the groove adapted to receive the offset of the pawl at the termination of the forward movement of the action-bar whereby the engagement between the pawl and action-bar is released.

787,627. VALVE. Henry Lippold, Erie, Pa. Filed Mar. 24, 1903. Serial No. 149,303.



Claim.—1. The combination of a valve-chamber having a passage therein; a primary valve controlling said passage and two secondary valves arranged to close the passage controlled by the primary valve and to permit of the removal of the primary valve during such closure.

2. The combination of a valve-chamber having a passage therein, a valve-seat arranged in said chamber around said passage; the primary valve arranged to operate upon said seat; and two secondary valves arranged to close the passage controlled by the primary valve and to permit of the removal of the primary valve and its seat during such closure.

3. The combination of a valve-chamber, a primary valve and a secondary valve, one of said valves being hollow and of sufficient size to allow the removal or insertion of the other through it; and a valve arranged opposite said valve and arranged to close the passage controlled by said primary valve.

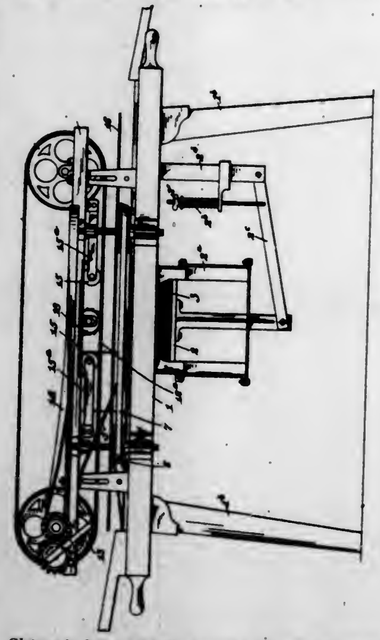
4. The combination of a valve-chamber having a removable valve-seat therein; a primary valve and secondary valve, one of said valves being hollow and of sufficient size to allow the removal or insertion of the other and its valve-seat through it; and a valve arranged opposite said valves for closing the passage controlled by said primary valve and arranged to permit the removal of said primary valve and seat during said closure.

5. The combination of a valve-chamber having a removable valve-seat therein; a primary valve arranged to operate upon said seat; a secondary valve having an opening through it of sufficient size to allow the removal of the valve-seat through said opening; and a third valve arranged opposite said primary and secondary valves and arranged to close the passage controlled by the primary valve during the removal of said seat.

6. The combination of a valve-chamber having the diaphragm a, said diapraghm being provided with an opening; the ring B in said diaphragm; the removable seat C in the ring B; the primary valve operating upon said seat C; and the valve I of a size to permit of its passage through the opening in the diaphragm and arranged to form a closure of the passage controlled by the primary valve.

7. The combination of a valve-chamber having a primary valve; a secondary valve I arranged opposite the primary valve; means for preventing the rotation of the valve I; the screw J having a head j'; the portion j journaled in the chamber; and the gland comprising the packing j^3 and nut j^4 arranged upon the extension J'; and the extension J' on the screw J.

787,628. CAN-LABELING MACHINE. Samuel E. Morral, Morral, and John Morral, Larue, Ohio, assignors, by direct and mesne assignments, to said Samuel E. Morral and William W. Morral, Morral, Ohio. Filed Sept. 1, 1903. Serial No. 171,499.



Claim.—1. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, an endless paste-belt to travel across said runway in front of the label-holder to deliver paste to the can and across the rear end of the label to deliver paste to the label, and a source of paste to supply the paste-belt.

2. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, an endless paste-belt crossing the runway at two points, the portion of the belt crossing at one point adapted to apply paste to the can and the portion crossing at the other adapted to apply paste to the label, and a source of paste to supply the said belt.

3. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, and a paste-belt to travel edgewise across said runway in front of the label.

4. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, and a paste-belt to travel edgewise across said runway in front of the label and also across the rear end of the label.

5. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway and a paste-belt to travel edgewise across said runway in front of the label and edgewise across the rear end of the label.

6. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, a paste-belt to travel edgewise across said runway and means to incline said belt toward the direction in which the cans move.

7. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, a plate with openings arranged to hold the end of the label down in said runway, and a paste-belt to travel adjacent to said plate and adapted to be moved onto said plate by the can passing through the runway.

8. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, a plate arranged to hold the end of the label down in said runway, a paste-belt to travel adjacent to said plate and adapted to be moved onto said plate, and a plate arranged over said belt adapted to be moved by a can passing through the runway onto said belt.

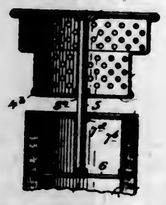
9. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, a plate arranged to hold the end of the label down in said runway, a paste-belt to travel adjacent to said plate and adapted to be moved onto said plate, and a plate with openings arranged over said belt adapted to be depressed onto the belt by a can passing through the runway.

10. In a can-labeling machine, the combination of a runway for the cans, a label-holder adapted to expose a label in said runway, a plate arranged to hold the rear end of the label down in said runway, and an independent arm pivoted at one end above the runway to swing in a vertical plane and having its other or free end normally extending into the path of the cans and adapted to rest on the forward end of the exposed label to hold the same down, said arm being lifted by the can passing through the runway and under the arm.

11. In a can-labeling machine, the combination of a runway for the cans, a paste-belt for applying paste directly to the sides of the cans crossing said runway, covers at the sides of the runway adapted to extend over said belt to prevent the application of paste to the sides of the can near its ends.

12. In a can-labeling machine, the combination of a runway for the cans, a paste-belt for applying paste directly to the sides of the cans crossing said runway, depressible covers at the sides of the runway adapted to extend over said paste-belt to prevent the application of paste to the sides of the can near its ends.

787,629. LAMP-BURNER. Stephen B. Morse, Rahway, N. J. Filed Aug. 18, 1903. Serial No. 169,863.



Claim.—1. In a burner the combination of wick-casing tubes and an air-distributer supported thereover providing a space between its lower portion and said tubes, with an extinguisher beneath the distributer and within said space, and means for guiding said extinguisher independently of the distributer when raised by the wick, substantially as described.

2. In a burner, the combination of wick-casing tubes and an air-distributer, with means for supporting said distributer above said tubes, an extinguisher adapted to overlie the space between the tubes and to rest on said tubes and located beneath said distributer and adapted to engage the same when raised by a wick, the means that supports the distributer guiding said extinguisher to travel in the space between the tubes and the air-distributer, substantially as described.

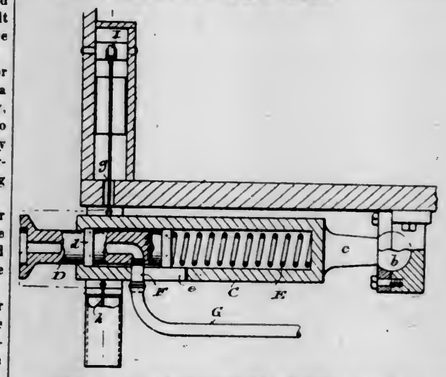
3. In a burner the combination of wick-casing tubes, a standard rising centrally within the inner tube, an air-distributer attached to said standard and extending above said tubes, and an extinguisher adapted to overlie said tubes and provided with a bearing guided to travel on said standard, substantially as described.

4. In a burner, the combination of wick-casing tubes, a standard secured to the inner tube, an air-distributer attached to the standard and located wholly above said tubes providing a space therebetween, and an extinguisher arranged to overlie said tubes and be guided by said standard and located in the space between said tubes and the distributer and arranged to engage the distributer when raised by the wick to limit the upward movement of the wick, substantially as described.

5. In a burner the combination of wick-casing tubes, a standard secured thereto and extending thereabove, an air-distributer attached to said standard and extending above the tubes, and an extinguisher adapted to rest upon the wick and provided with a bearing guided by said standard and having an interior space for the passage of air through the inner tube to the air-distributer, substantially as described.

6. In a burner, the combination of wick-casing tubes and an extinguisher adapted to rest thereon and provided with an inwardly-extended apertured portion, an air-distributer, means for supporting the same above the tubes and for guiding the extinguisher, substantially as described.

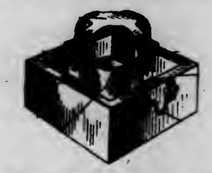
787,630. TRAIN-PIPE COUPLING. Henry J. Noll, Milwaukee, Wis. Filed Aug. 19, 1904. Serial No. 221,350.



Claim.—1. A train-pipe coupling consisting of a box in ball-and-socket counterbalanced self-centering connection with a car, a barrel having sliding engagement with the box, a depending barrel-nipple engaging a play-slot in said box, and a spring under compression in the aforesaid box against the inner end of the barrel; the outer projecting end of said barrel being provided with a slot intersecting its bore.

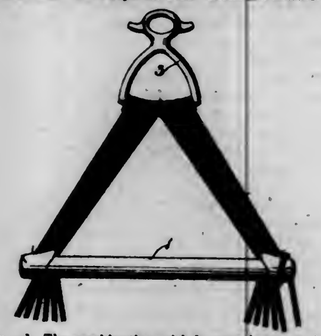
2. A train-pipe coupling consisting of a box having a shank end in ball-and-socket connection with the car, a lever from which the other end of the box is suspended, a counterweight hung from the lever, a barrel in sliding engagement with said box and provided with a depending nipple engaging a slot in the same, a spring under compression in the aforesaid box against the inner end of the barrel, a weight in suspension by a flexible device from the forward portion of the box, and a guide for the flexible device and suspended weight, the outer projecting end of the barrel being provided with a slot intersecting its bore.

787,631. SPARK-ARRESTER. Alexander H. O'Quinn, Jessup, Ga. Filed Feb. 8, 1905. Serial No. 244,776.



Claim.—A spark-arrester comprising a receptacle having an apertured bottom adapted to be placed in the flue of a chimney, a conical thimble fitted over said aperture, a deflecting-disk having radial arms which are downwardly curved and provided with lateral flanges adapted to rest upon the upper edges of said receptacle at positions opposite each other with the lower ends of said arms bearing against the inner faces of said receptacle, as set forth.

787,632. **STRETCHER OR SPREADER.** ISAAC E. PALMER, Middletown, Conn. Filed Sept. 15, 1904. Serial No. 224,611.



Claim.—1. The combination with hammock-suspension cords, of a stretcher or spreader engaged with the cords, the said spreader being provided with an inclined bearing at its end exterior to the outermost cord engaged therewith, the said inclined bearing having a slant toward the axis of the spreader as it extends from the outermost cord toward the end of the spreader and located on that side of the spreader opposite that which the hammock occupies for preventing the catching of a cord on the end of the spreader.

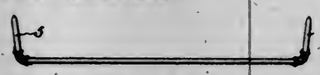
2. The combination with hammock-suspension cords, of a hammock-spreader provided with a ferrule at its end exterior to the suspension-cords, the said ferrule being provided with an inclined cord-bearing surface in proximity to the group of suspension-cords.

3. The combination with hammock-suspension cords, of a hammock stretcher or spreader provided with a ferrule on its end exterior to the group of suspension-cords, the said ferrule being provided with an inclined cord-bearing surface in proximity to the suspension-cords and with a slot for the reception of one or more of the outermost of said cords.

4. The combination with hammock-suspension cords, of a stretcher or spreader having a cap-socket ferrule on its end, the said cap-socket ferrule being provided on its top with an inclined cord-bearing surface and with a slot for the reception of the outermost of the hammock-suspension cords.

5. The combination with a hammock stretcher or spreader having a ferrule on its end, of hammock-suspension cords engaged with the spreader and leading from the upper or outer side of the spreader at a point intermediate of the inner and outer ends of the ferrule.

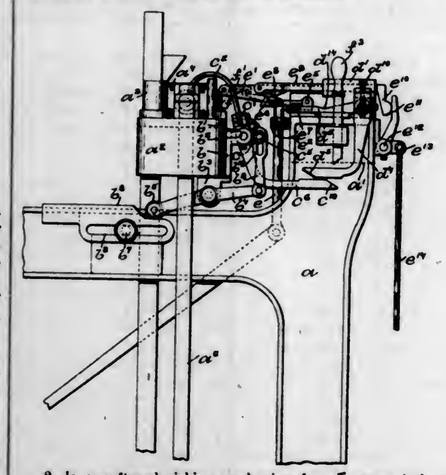
787,633. **HAMMOCK.** ISAAC E. PALMER, Middletown, Conn. Filed Sept. 22, 1904. Serial No. 226,513.



Claim.—The combination with the body of the hammock, of a spreader provided with a substantially straight portion extending across and engaged with the body for holding the same extended laterally, said spreader having its ends upturned at an abrupt angle to the body portion and engaged with the body of the hammock, for a distance back from its opposite edges to hold the said opposite edges of the hammock-body in position to form side walls for retaining a pillow in position.

787,634. **WEFT-REPLENISHING MECHANISM FOR LOOMS.** GEORGE H. PARKER and WILLIAM A. TWISS, New Bedford, Mass. Filed Aug. 5, 1903. Serial No. 168,301.

Claim.—1. In a weft-replenishing mechanism for an automatic loom, an open-top shuttle-box, a feeler-arm pivotally secured to the lay and adapted to move inward to the bobbin in the shuttle by a spring at the forward beat of the lay, a cam-plate on the loom side, means for connecting the feeler-arm with the cam-plate to raise the feeler-arm from the shuttle-box on the backward beat of the lay, a connecting-arm adapted to move with the feeler-arm, means for adjusting the connecting-arm, a rock-shaft on the breast-beam, an operating-arm on the rock-shaft in a position to engage with the connecting-arm on the forward beat of the lay and when the feeler-arm has reached its inward limit on the bobbin, means for adjusting the operating-arm, a lifting-lever on the rock-shaft, a weft-hammer having a pivoted operating-hook engaging with the lifting-lever and a hook to engage with the weft-fork, a slide on the breast-beam having a hook to engage with the operating-hook on the weft-hammer, an arm engaging with the slide and secured on a shaft having means to operate the bobbin-changing mechanism of the loom to eject the old bobbin before it is exhausted and replace it with a full bobbin without stopping the loom, and means for stopping the loom when the weft-thread breaks, for the purpose as described.

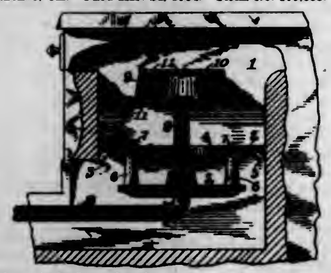


2. In a weft-replenishing mechanism for an automatic loom, the combination with mechanism controlling the bobbin-changing mechanism to eject the old bobbin before it is exhausted and replace it with a full bobbin, of means for adjusting the connecting-arm c^6 pivoted on the rock-shaft b^3 consisting of the arm c^7 secured on the rock-shaft b^3 and having the bolt c^8 passing through the slot c^9 in the upper end of the connecting-arm c^6, as described.

3. In a weft-replenishing mechanism for an automatic loom, the combination with mechanism controlling the bobbin-changing mechanism, of means for adjusting the operating-arm d^4 on the rock-shaft d^3, consisting of the slot d^5 in the arm, the inwardly-bent upper end d^7, the supporting member d^9 on the rock-shaft, the screw d^9 passing through the slot d^5 into the supporting member d^9, and the adjusting-bolt d^{10} in the end d^7 bearing on the supporting member d^9, as described.

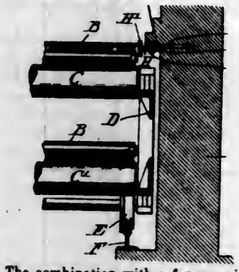
4. In a weft-replenishing mechanism for an automatic loom, the combination with mechanism controlling the bobbin-changing mechanism, of the weft-hammer e having the hook e', the collar e^3 secured on the weft-hammer by the screw e^4, the arm e^5 on the collar having the end e^6 and the operating-hook e^4 pivotally secured in the end e^6 and having the arm e^7 to engage with the lifting-lever d^{11}, as described.

787,635. **HYDROCARBON-BURNER.** ALBERT PHINNEY, San Francisco, Cal. Filed Mar. 24, 1904. Serial No. 199,655.



Claim.—A hydrocarbon-burner comprising a carrying-plate having an aperture, a feed-pipe passing upwardly through said aperture, a vaporizing-pan carried upon and communicating with the upper end of the feed-pipe, and adapted to receive the oil therefrom, a firing-pan secured to said feed-pipe and to the carrying-plate below the aperture therein, and adapted to receive the initial overflow from the vaporizing-pan, a cover closely fitted to the vaporizing-pan having a depending flange extending to approximately the lower edge of the pan, the walls of the pan being grooved beneath the cover to provide exits for the vapor.

787,636. **FURNACE.** HERMAN A. POPPENHUSEN, Evanston, Ill. Filed Mar. 21, 1904. Serial No. 199,169.



Claim.—1. The combination with a furnace side wall and an endless traveling grate, of a plate for closing the space between the said side wall and grate and means for positively adjusting said plate on the side wall toward and from the margin of the grate.

2. The combination with a furnace side wall and an endless traveling grate, of a plate for closing the space between the said side wall and the grate which is detachably supported on the side wall and means for positively adjusting the plate toward and from the margin of the grate.

3. The combination with a furnace side wall and an endless traveling grate, of a plate for closing the space between the said side wall and the margin of the grate, consisting of a plate which is adjustable on the side wall toward and from the margin of the grate and is provided with a vertically-extending marginal flange.

4. The combination with the side wall of a furnace provided with a recess and with a horizontal supporting-plate which extends inwardly from said wall at the upper side of said recess, a frame, the end parts of which extend into said recess and an endless traveling grate supported on said frame, of a plate for closing the space between said side wall and the margin of the grate which is detachably and adjustably secured to the said supporting-plate.

5. The combination with the side wall of a furnace provided with a recess and with a horizontal apertured supporting-plate which extends inwardly from said side wall at the upper side of said recess, a frame the end parts of which extend into said recess, and an endless traveling grate supported on said frame, of a laterally-adjustable plate for closing the space between said side wall and the margin of said grate said adjustable plate being provided with transverse slots, and bolts inserted through the apertures in the supporting-plate and said slots for securing the adjustable plate to the supporting-plate.

6. The combination with the side wall of a furnace provided with a recess and with a horizontal apertured supporting-plate which extends inwardly from said side wall at the upper side of said recess, a frame the end parts of which extend into said recess and an endless traveling grate supported on said frame, of a laterally-adjustable plate for closing the space between the said side wall and the margin of said grate, said adjustable plate being provided with transverse slots and bolts for connecting the supporting and laterally-adjustable plates; the bolt-apertures in the supporting-plate being elongated longitudinally of said plate to afford endwise adjustment of said adjustable plate.

787,637. **WATCHCASE.** WILSON E. PORTER, New Haven, Conn., assignor to New Haven Clock Co., New Haven, Conn., a Corporation. Filed Apr. 16, 1904. Serial No. 203,455.



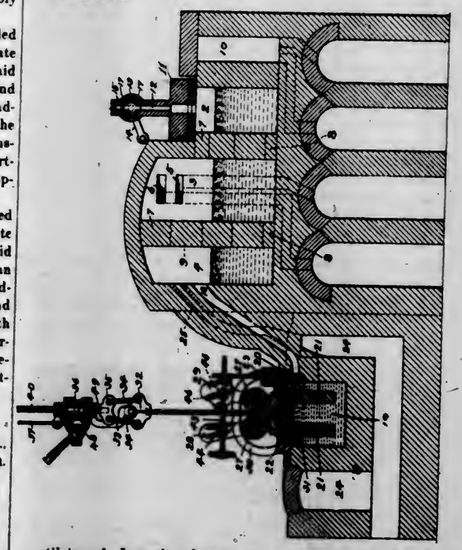
Claim.—1. In a watch, the combination with a case-center having an inside cap, of a watch-movement made sufficiently small to be set into the said case-center from the front thereof, a movement-support resting upon the said cap, one or more anchor-screws passing from rear to front through the said inside cap and screwing into the front plate of the said movement and coacting with the said cap to draw the movement rearward and seat its front plate firmly upon the said support and in turn to draw the said support rearward and seat the same firmly upon the said cap; and a case-back or outside cap fitted over the case-center to cover the said inside cap.

2. In a watch, the combination with a case-center having an integral inside cap, of a watch-movement made sufficiently small to be set into the said case-center from the front thereof, a movement-support resting upon the said cap and forming a seat for the said movement, and one or more screws passing from rear to front through the said cap, entering the said movement and coacting with the said cap to draw the said movement rearward and seat the same firmly upon the said movement-support and in turn to draw the said movement-support rearward and seat the same firmly upon the said cap.

3. In a watch, the combination with a case-center having an integral inside cap, of a watch-movement made sufficiently small to be set into the said case-center from the front thereof, a ring forming a support for the said watch-movement and encircling and projecting rearward beyond the rear plate thereof, and anchor-screws passing from rear to front through the said cap into the front plate of the said movement and coacting with the said cap to draw the movement rearward so as to seat the same upon the said ring, and in turn to draw the said movement-support rearward and seat the projecting rear edge thereof on the inner face of the said cap.

4. In a watch, the combination with a case-center having an integral inside cap, of a watch-movement made sufficiently small to be set into the said case-center from the front thereof, a ring encircling and projecting rearward beyond the rear plate of the said watch-movement, and at its forward edge extending under and forming a bearing for the front plate of the said movement, and anchor-screws passing from front to rear through the said inside cap and through the said rear plate and inside of the said ring and screwing into the said front plate and coacting with the said cap to draw the said movement rearward so as to seat its front plate upon the forward edge of the said ring, and in turn to draw the said movement-support rearward and seat its projecting rear edge upon the inner face of the said cap.

787,638. **DRAWING APPARATUS FOR GLASS-TANK FURNACES.** JULIUS PROBGER, Pittsburg, Pa. Filed Apr. 13, 1904. Serial No. 202,934.



Claim.—1. In a glass-furnace, the combination of a source of supply of molten glass, a drawing-chamber, passages leading from the source of supply to the drawing-chamber, a wing, or wings, situate in the drawing-chamber and dividing it into two or more compartments, said compartments communicating with each other be-

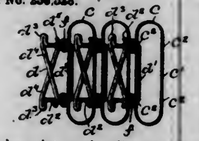
low the normal level of the glass in said chamber, and fluid-pressure devices for causing the glass to rise in the compartment of the drawing or gathering tank; substantially as specified.

2. In a glass-furnace, the combination of a drawing-tank having one or more wings dividing said tank into compartments, a slot in the cover of said tank, above one of said compartments, an opening for fluid-pressure, leading into the tank, in another of said compartments, said compartments communicating with each other below the normal surface of the glass; substantially as specified.

3. In a glass-furnace, the combination of a drawing-chamber having a wing, or wings, dividing said chamber into compartments, said compartments communicating with each other at a point below the normal surface of the glass, a slot in the cover of said tank above one of said compartments, adjustable rolls situate above said slot, and a device for drawing the molten glass through the slot and between the rolls; substantially as specified.

4. In a glass-furnace, the combination of a drawing-tank having a slot in the cover of the same, a two-part drawing-mold adapted to be lowered to the mouth of the slot, rolls situate above said slot and mounted in swinging housings, said housings being adjustably connected with each other, the rolls being adapted to be separated to allow the passage of the drawing-mold; substantially as specified.

787,639. **BRACELET.** JOSEPH F. RIOUX, Providence, R. I., assignor of one-half to A. A. Greene & Co., Providence, R. I. Filed Dec. 12, 1904. Serial No. 236,628.



Claim.—1. In a bracelet, a plurality of spring-actuated units, each unit consisting of a shell having sides in which are slots, a combination connecting-link and spring formed integral from a spring-wire bent substantially U-shaped and then bent inwardly to form spring-arms, and a back plate, as described.

2. In a bracelet, a plurality of spring-actuated units, each unit consisting of a shell having sides in which are slots, a combination connecting-link and spring formed integral from spring-wire bent first substantially U-shaped, then outwardly and back to form stops, and then inwardly to form spring-arms, and a back plate secured to the shell by rolling the edge of the shell over the plate, as described.

3. In a bracelet composed of a plurality of spring-actuated units, a combination connecting-link and spring formed integral of spring-wire bent to form the bar d', the connecting-stems d^3 d^3, the stops d^3 d^3, and the spring-arms d^4 d^4, as described.

4. A bracelet composed of a plurality of the spring-actuated units b b, each unit consisting of a shell c having the sides c' c' in which are the slots c^3 c^3, a combination connecting-link and spring d formed integral of spring-wire to have the bar d', the connecting-stems d^3 d^3, the stops d^3 d^3, the spring-arms d^4 d^4, a back plate e having the depressed lip e', and means for securing the back plate to the shell, as described.

787,640. **COMBINED VESTIBULE DOOR AND GATE FOR RAILWAY-CARS.** EDWARD T. ROBINSON, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed June 30, 1904. Serial No. 214,836.



Claim.—1. In a combined door and gate of the character described, the combination of a pair of mating lower sections, a pair of mating upper sections, and a pair of stop-bars carried by one pair of said sections to receive and restrict the movement of the other pair of said sections; one of said stop-bars serving to limit the outward movement of an opposing section and the other stop-bar serving to limit the inward movement of another opposing section.

2. In a combined door and gate of the character described, the combination of a pair of lower sections, a pair of upper sections, and stop-bars of angle shape in cross-section carried by a portion of said sections for confining them to the other sections, substantially as set forth.

3. In a combined door and gate of the character described, the combination of a pair of lower sections, a pair of upper sections, and angle stop-bars surmounting the upper edges of said lower sections, one of said stop-bars having its vertical flange disposed at the outer side of one of the lower door-sections, and the other stop-bar having its vertical flange disposed at the inner side of the other lower section; one of said stop-bars serving to restrict outward movement of one of said upper sections and the other stop-bar serving to restrict inward movement of the other upper section, substantially as set forth.

4. In a combined door and gate of the character described, the combination of a pair of lower sections, a pair of upper sections, and angle stop-bars surmounting the upper edges of said lower sections, one of said stop-bars having its vertical flange disposed at the outer side of one of the lower door-sections, and the other stop-bar having its vertical flange disposed at the inner side of the other lower section; one of the sections of both the upper and lower set of sections being longer than the other corresponding sections; one of said stop-bars serving to restrict outward movement of one of said upper sections and the other stop-bar serving to restrict inward movement of the other upper section, substantially as set forth.

5. In a combined door and gate of the character described, the combination of upper and lower swinging sections, a hand-rail carried by one of said lower sections, a lock-bar carried by the other lower section for engagement with said hand-rail, and means independent of said hand-rail for receiving the engagement of said lock-bar to hold said lower sections in closed condition, substantially as set forth.

6. In a combined door and gate of the character described, the combination with door-posts, of upper and lower sections hinged to one of said posts and hinged to each other in pairs, a keeper in the other of said posts, a lock-bar carried by one of said lower sections for engagement with said keeper and provided with a hook, and a hand-rail carried by the other of said lower sections to receive the engagement of said lock-bar hook, substantially as set forth.

7. In a combined door and gate of the character described, the combination with a pair of door-posts, of sections hinged to one of said door-posts and foldingly hinged together, a hand-rail carried by one of said sections, a lock-bar carried by the other of said sections for engaging said hand-rail, and a second door-post and a cushion-pin seated in the door-post to which said sections are hinged and adapted to receive the engagement of said hand-rail, substantially as set forth.

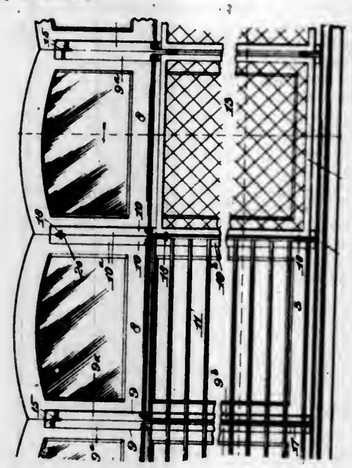
787,641. **GUARD AND SASH-RETAINER FOR STREET-CARS.** EDWARD T. ROBINSON, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed Sept. 2, 1904. Serial No. 223,093.

Claim.—1. In an article of the character described, the combination of uprights, means whereby a portion of said uprights are hinged together in pairs, guard means connecting said uprights, and means for securing the unhinged uprights, substantially as set forth.

2. In an article of the character described, the combination of hinged members for attachment to a car, uprights provided with hinge members for association with said car-hinge members, guard means secured to said uprights, and separate uprights secured to said guard means and adapted to be secured to the car by means independent of the hinges that secure said first-named uprights, substantially as set forth.

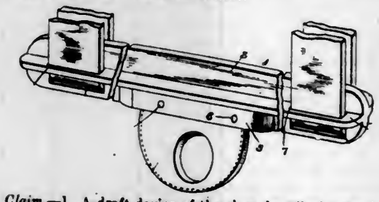
3. In an article of the character described, the combination with the wall of a car containing window-ways, of a pair of guard members, and means whereby said guard members are jointly and detachably connected to the car at said window-ways, substantially as set forth.

4. A guard comprising a plurality of uprights, window-way guard portions interposed between said uprights, and means whereby a portion of said uprights are hinged together and secured to the window-posts of a car in pairs, and means whereby the remainder of the uprights are held in pairs to others of the car-window posts, substantially as set forth.



5. The combination with the window-posts of a car, of hinge-pintles carried by a portion of said posts and turn-buttons carried by the remainder of said posts, pairs of uprights provided with hinge members for association with said hinge-pintles, separate pairs of uprights adapted to be engaged by said buttons, and window-way guard portions interposed between said separated pairs of uprights, substantially as set forth.

787,642. **YOKE CONSTRUCTION.** NOBLE H. ROE, Marceline, Mo. Filed Dec. 9, 1904. Serial No. 236,227.



Claim.—1. A draft device of the class described comprising a bar having longitudinal wings at opposite sides and upon the under side thereof, each of said wings having adjacent open slots at the ends thereof to receive breast-straps.

2. A draft device of the class described, comprising a bar having longitudinal wings or webs extending the entire length thereof, one of said wings being provided with a slot at a point between the ends thereof.

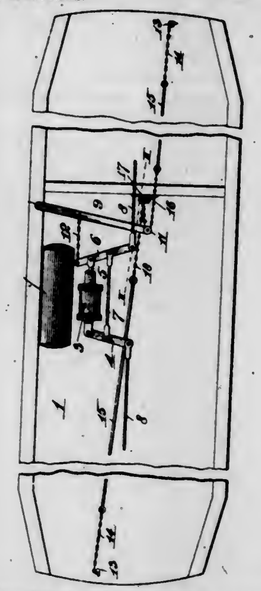
3. A draft device comprising a bar of cruciform having a plurality of longitudinal wings or webs, the wings upon opposite sides and upon the under side of the bar being provided near the ends thereof with adjacent open slots to receive breast-straps, the uppermost wing being solid throughout its length substantially as specified.

4. A draft device of the type described, comprising a bar having longitudinal wings or webs, one of said webs being transversely widened between the ends thereof and provided with a longitudinal slot in the transversely-widened portion.

5. A draft device of the type described, comprising a bar having longitudinal wings or webs, one of said webs being transversely widened between the ends thereof and provided with a longitudinal slot in the transversely-widened portion, said slot extending from the outer edge portion of the wing, and an attaching device secured in the longitudinal slot aforesaid.

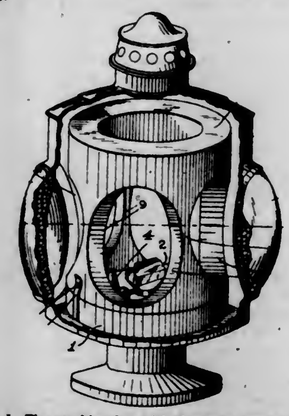
787,643. **CAR-BRAKE.** JACOB ROEDIGER, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed July 15, 1904. Serial No. 216,636.

Claim.—1. In a combined hand and air brake for cars, a brake-lever pivoted at one end to the car-frame, a flexible connection from said lever to one of the air-brake levers, a sheave carried by the free end of the pivoted lever, a second sheave fixed to the car-body around which sheave passes the chain that connects the hand-brake rods, substantially as set forth.



2. In a car-brake, an air-brake mechanism, a hand-operated brake mechanism comprising a pair of brake-rods, a single lever pivotally secured to the under side of the car-body, a connection from said lever to one of the air-brake levers, and a flexible connection between the brake-rods of the hand-operated brake mechanism and connected to the free end of said single lever, substantially as described.

787,644. **FONT FOR LAMPS OR LANTERNS.** GEORGE H. ROLFES, St. Louis, Mo., assignor to Handlan-Buck Manufacturing Company, St. Louis, Mo., a Corporation. Filed Apr. 2, 1904. Serial No. 201,335.

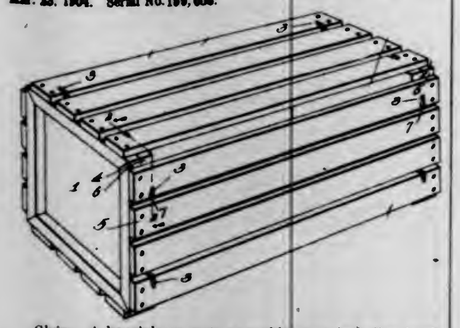


Claim.—1. The combination with the main font of a lamp or lantern, of an auxiliary font detachably fitted to said main font and consisting of inner and outer walls connected at their upper and lower ends and spaced apart to provide an annular oil-chamber; said inner and outer walls being cut out intermediate their upper

and lower ends to provide a light passage-way spaced from the upper and lower ends of the walls.

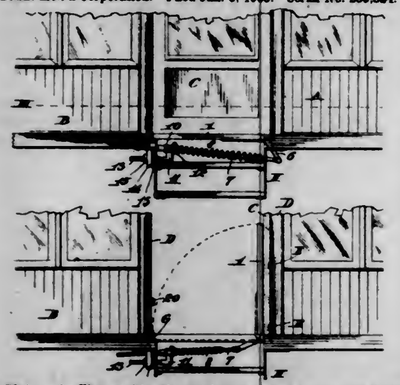
2. The combination with the main font of a lamp or lantern, of an auxiliary font detachably fitted to said main font and consisting of inner and outer walls connected at their upper and lower ends and spaced apart to provide an annular oil-chamber; said inner and outer walls being cut out intermediate their upper and lower ends to provide a plurailty of light passage-ways spaced apart and spaced from the upper and lower ends of the walls.

787,645. **FOLDING CRATE.** JAMES M. RUSSELL, Flora, Ill. Filed Mar. 23, 1904. Serial No. 199,608.



Claim.—A knockdown crate or packing-case including heads or end pieces, angle-screws rotatably engaging and extending from the edges of said end pieces, and side members having cleats exteriorly abutting upon the end pieces, said side members being provided with slots for the passage of the heads of the angle-screws and the latter being adapted, when turned to engaging position, to tighten against the side members.

787,646. **TRAP-DOOR FOR CAR-VESTIBULE FLOORS.** KARL SCHLIEPMANN, St. Charles, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed Jan. 3, 1905. Serial No. 239,524.

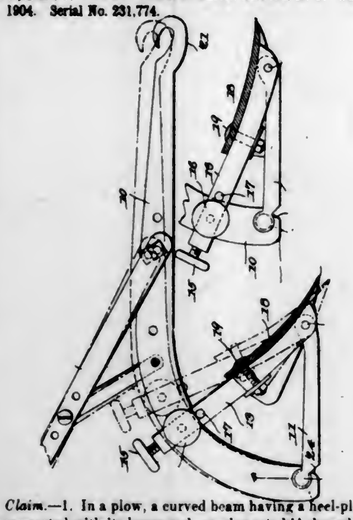


Claim.—1. The combination with a trap-door for car-vestibules, of a rock-shaft to which said door is attached, a pull-rod connected to said rock-shaft, a sleeve in which said pull-rod is slidably fitted, a spring connecting said pull-rod and said sleeve, means for supporting said sleeve, and means whereby said sleeve-supporting means is adjusted longitudinally with respect to said pull-rod, substantially as set forth.

2. The combination with a trap-door for car-vestibules, of a rock-shaft to which said door is attached, a pull-rod connected to said rock-shaft, a sleeve in which said pull-rod is slidably fitted, a spring connecting said pull-rod and said sleeve, a yoke in which said sleeve is swingingly mounted, and means for adjusting said yoke longitudinally with respect to said pull-rod, substantially as set forth.

3. The combination with a trap car-vestibule door, of spring-controlled means for raising said door in elevated position, a latch-tongue for engagement with said door to hold it in lowered position, a box in which said tongue is seated and a slide in said box for releasing said latch-tongue from said door, substantially as set forth.

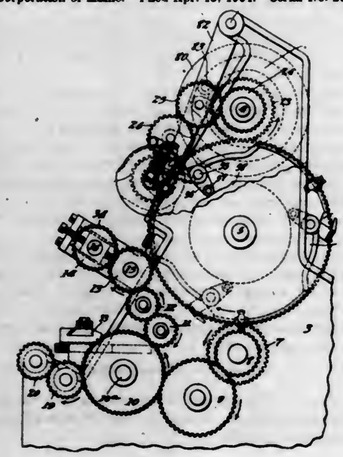
787,647. **PLOW.** JAMES P. SMITH, Raeford, N. C. Filed Nov. 7, 1904. Serial No. 231,774.



Claim.—1. In a plow, a curved beam having a heel-plate pivotally connected with its lower end, an elongated U-shaped standard straddling the beam and connected pivotally by its spaced ends with opposite sides of the forward end of the heel-bar, a transverse member connecting the sides of the U-shaped standard and supporting the lower edge of the beam which is curved eccentrically to the pivotal connecting-point of the heel-plate and the standard, and which is thereby adjustable by said standard, and means for securing the latter in adjusted position with relation to the beam.

2. In a plow, the beam having a transverse socket-cavity in its heel end with convex walls, a heel-plate having a stub at one end for engaging said cavity and with concave sides corresponding to the convex walls of the cavity, said socket-cavity adapted to be closed around said stub portion by compressing the beam material at one side of the cavity, a standard connected to swing from the forward end of said heel-plate and adjustably associated with said beam, and a moldboard connected to said standard.

787,648. **PAPER-BAG MACHINE.** FREDERICK E. STRASBURG, Rumford Falls, Me., assignor to Continental Paper Bag Company, a Corporation of Maine. Filed Apr. 13, 1904. Serial No. 202,987.



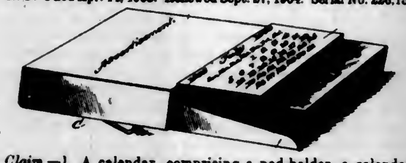
Claim.—1. The combination of a pair of rolls 17, 18, a creaser-blade 47 in one of the rolls, and a creaser-groove 48 in the other roll, a slacker-bar in each of said rolls, means for supporting each slacker-bar to yield in the line of its travel, a creaser-blade 45 in one of the slacker-bars, and a creaser-groove 46 in the other slacker-bar; all combined and operating together substantially as described.

2. The combination of a pair of rolls 17, 18, a creaser-blade 47 in one of the rolls, and a creaser-groove 48 in the other roll, a slacker-bar in each of said rolls, means for supporting each slacker-bar to yield in the line of its travel, means to adjust the strokes respectively of the slacker-bars, a creaser-blade 45 in one of the slacker-bars, and a creaser-groove 46 in the other slacker-bar; all combined and operating together substantially as described.

3. The combination of a pair of rolls 17, 18, a creaser-blade 47 in one of the rolls, and a creaser-groove 48 in the other roll, slacker-bars 36, 37 in said rolls, respectively, means for pivotally supporting each slacker-bar to yield in the direction of its travel, a creaser-blade 45 in one of the slacker-bars, and a creaser-groove 46 in the other slacker-bar; all combined and operating together substantially as described.

4. In a paper-bag machine, the combination of a pair of rolls 17, 18, a creaser-blade 47 in one of the rolls, and a creaser-groove 48 in the other roll, a slacker-bar in each of said rolls, means for supporting each slacker-bar to yield in the line of its travel, a creaser-blade 45 in one of the slacker-bars, and a creaser-groove 46 in the other slacker-bar, a folding-bed 52, having side clips 54 thereon, an oscillating gripper-carrier 60, fingers 78, 79, and side clips 64, 65 thereon, a cam 30 for closing side clips 64, 65, and means to close said side clips from said cam; all combined and operating together substantially as described.

787,649. **DESK-CALENDAR.** FREDERICK M. TURCK, New York, N. Y. Filed Apr. 14, 1903. Renewed Sept. 27, 1904. Serial No. 226,154.



Claim.—1. A calendar, comprising a pad-holder, a calendar-pad carried thereby, a hinged cover therefor, said hinged cover being adapted when thrown back to serve as a receptacle for the sheets of the pad as they are turned back at intervals, and a supplementary cover adapted to shut down over said first cover when the first cover is thrown back, and carrying a calendar adapted to read in conjunction with the readings of the pad-calendar.

2. A calendar, comprising a pad-holder, a hinged cover therefor, an arm connected to said pad-holder adapted when said cover is thrown back to serve as a support therefor and to prevent hinging movement of the cover relative to the holder, the construction and arrangement being such that said arm may be released to permit said hinging movement.

3. A calendar, comprising a pad-holder, a cover therefor hinged thereto, an arm pivotally mounted with reference to said holder and having an end thereof adapted to engage a bayonet-slot in said cover such that when said cover is thrown back the arm enters the angle of the slot and movement of the cover relative to the holder is prevented until said arm is released and permitted to play freely in said slot.

4. A calendar, comprising a holder having a clip or pocket in connection therewith in which the cover of a pad-calendar is adapted to be inserted, a cover hinged to said holder and adapted to fold thereover, said cover being provided with a flange adapted to cooperate with the clip on the holder to prevent disengagement of the pad carried by said holder.

5. A calendar, comprising a pad-holder, a hinged cover therefor adapted when thrown back on its hinges to serve as a receptacle for the sheets of the pad when they are thrown back, a pad carried by said holder and provided with daily indications and memorandum-spaces, and a supplementary cover adapted to be swung down over said first cover and carrying a monthly calendar adapted when the supplementary cover is so thrown down to conceal the memorandum-spaces and to read in conjunction with the daily record of the pad-calendar.

6. A calendar comprising a pad-holder carrying a pad provided with daily indications and a member mounted for swinging movement with reference thereto and provided both with a yearly calendar and with a monthly calendar, one of said calendars being adapted to read directly in conjunction with the reading of the pad-calendar.

7. A calendar, comprising a pad-holder, a hinged cover therefor, said hinged cover being adapted when thrown back to serve as a receptacle for the sheets of the pad as they are turned back at intervals, and a supplementary cover adapted to shut down over said first cover when the first cover is thrown back.

8. A desk-calendar, comprising a pad-holder, a pad carried thereby having leaves adapted to be folded back to expose consecutive sheets, a member connected to said holder adapted to receive said sheets when they are folded back, and a member adapted to lie above said second member to hold said sheets therein.

9. A desk-calendar, comprising a pad-holder, a pad carried thereby having leaves adapted to be folded back to expose consecutive sheets, a member connected to said holder adapted to receive said sheets when they are folded back, and a member adapted to lie above said second member to hold said sheets therein and to rest on the top of said pad.

787,650. **SPEED-INDICATOR.** EUGENE T. TURNEY, San Rafael, Cal. Filed July 28, 1904. Serial No. 218,485.



Claim.—1. A speed-indicator consisting of an indicating needle and dial, means operated by pneumatic exhaust for actuating the needle, a mechanism controlled by the travel of the body, the speed of which is to be indicated, for establishing said exhaust and a means for regulating said established exhaust conformably to the calibration of the needle-dial.

2. A speed-indicator consisting of an indicating needle and dial, means operated by pneumatic exhaust for actuating the needle, a mechanism controlled by the travel of the body, the speed of which is to be indicated, for establishing said exhaust, and a means for regulating said established exhaust conformably to the calibration of the needle-dial consisting of an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable valve controlling said inlet.

3. A speed-indicator consisting of an indicating-needle, a bellows, and mechanism by which the movement of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the speed of which is to be indicated, exhaust connections from said device to the bellows, and an adjustable valve controlling the communication between said exhaust connections and the bellows.

4. A speed-indicator consisting of an indicating-needle, a bellows, and mechanism by which the movement of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the speed of which is to be indicated, exhaust connections from said device to the bellows, and means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows, and an adjustable valve controlling said inlet.

5. A speed-indicator consisting of an indicating-needle, a bellows, and mechanism by which the movement of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the speed of which is to be indicated, exhaust connections from said device to the bellows, and an adjustable valve controlling the communication between said exhaust connections and the bellows, and means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows, and an adjustable valve controlling said inlet.

6. A speed-indicator consisting of a spring-controlled indicating-needle, a spring-controlled exhaust-bellows, and mechanism by which the collapsing of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the

speed of which is to be indicated, exhaust connections from said device to the bellows, and means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows, and an adjustable valve controlling said inlet.

7. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the speed of which is to be indicated, exhaust connections from said device to the bellows, and an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable controlling-valve.

8. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the speed of which is to be indicated, exhaust connections from said device to the bellows, an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable controlling-valve, and means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows and an adjustable valve controlling said inlet.

9. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an air-exhaust device operated and controlled by the travel of the body, the speed of which is to be indicated, exhaust connections from said device to the bellows, an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable controlling-valve, means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows and an adjustable valve controlling said inlet, and an adjustable valve controlling the communication between the exhaust connections and the bellows.

10. A speed-indicator consisting of an indicating needle and dial, means operated by pneumatic exhaust for actuating the needle, an exhaust-pump, driving mechanism for the pump operated by the traveling body conformably to its speed, exhaust connections from said pump to the needle-actuating means, and a means let into said exhaust connections for regulating the exhaust-pressure conformably to the calibration of the needle-dial.

11. A speed-indicator consisting of an indicating-needle, means operated by pneumatic exhaust for actuating the needle, an exhaust-pump, driving mechanism for the pump operated by the traveling body conformably to its speed, exhaust connections from said pump to the needle-actuating means, and an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable valve controlling said inlet.

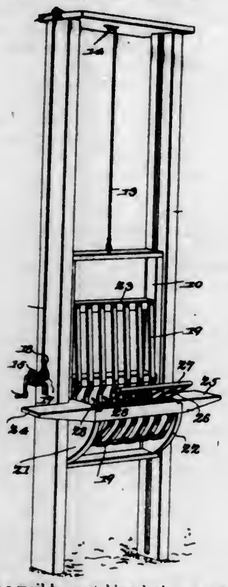
12. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an exhaust-pump, driving mechanism for the pump operated by the traveling body conformably to its speed exhaust connections from said pump to the bellows, and means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows and an adjustable valve controlling said inlet.

13. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an exhaust-pump, driving mechanism for the pump operated by the traveling body conformably to its speed, exhaust connections from said pump to the bellows, and an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable valve controlling said inlet.

14. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an exhaust-pump, driving mechanism for the pump operated by the traveling body conformably to its speed, exhaust connections from said pump to the bellows, means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows and an adjustable valve controlling said inlet, and an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable valve controlling said inlet.

15. A speed-indicator consisting of an indicating-needle, an exhaust-bellows, and mechanism by which the movement of the bellows actuates the needle, an exhaust-pump, driving mechanism for the pump operated by the traveling body conformably to its speed, exhaust connections from said pump to the bellows, means for relieving the exhaust-pressure on the bellows consisting of an air-inlet to the bellows and an adjustable valve controlling said inlet, an air-reservoir let into the exhaust connections, said reservoir being provided with an air-inlet and an adjustable valve controlling said inlet, and an adjustable valve controlling the communication between said exhaust connections and the bellows.

787,651. MAIL-BAG CATCHER. GEORGE W. WALKER, St. Albans, W. Va. Filed Nov. 4, 1904. Serial No. 231,406.



Claim.—1. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and provided with an elevated rear side.

2. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and a wing member mounted to swing from the outer edge of the receptacle for temporarily increasing the width of the same.

3. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and a wing member mounted to swing from the outer edge of the receptacle for temporarily increasing the width of the same, and a stop for limiting the outward movement of said swinging wing.

4. A mail-bag catcher comprising a receptacle having an open top, a guard rising above the rear side of the open top, a cover hinged to the front of the open top, and a trip carried by the cover and disposed across the open top of the receptacle in the path of a bag entering the latter to close the closure.

5. In a mail-bag-catching device, a receptacle mounted for vertical movement adjacent to the path of the mail-car, and a wing member mounted to swing from the outer edge of the receptacle for temporarily increasing the width of the same.

6. In a mail-bag-catching device, a receptacle mounted for vertical movement adjacent to the path of the mail-car and with the rear side elevated, and a wing member mounted to swing from the outer edge of the receptacle.

7. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and provided with an elevated rear side, and a wing member mounted to swing from the forward edge of the same.

8. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and a wing member mounted to swing from the outer edge of the receptacle for temporarily increasing the width of the same, and spaced fingers extending from said swinging wing transversely of said receptacle and partaking of the motion of said swinging wing.

9. In a mail-bag-catching device, a receptacle mounted for vertical movement adjacent to the path of the mail-car and with the rear side elevated, and a wing member mounted to swing from the outer edge of the receptacle, said wing member having spaced fingers extending therefrom transversely of the receptacle.

10. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and provided with an elevated rear side and longitudinally-extending wings, and with a wing member mounted to swing from the forward side and provided with spaced fingers extending transversely of said receptacle.

11. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and a wing member mounted to swing from the outer edge of the receptacle for temporarily increasing the width of the same and provided with spaced fingers extending therefrom transversely of the receptacle, and a stop carried by said receptacle for limiting the outward movement of said swinging wing.

12. In a mail-bag-catching device, a receptacle disposed for receiving the mail-bag from a moving car and provided with an elevated rear side, longitudinally-extending wings, and a wing mounted to swing from the forward side of the receptacle and provided with spaced fingers extending transversely of the receptacle when the swinging wing is in extended position.

13. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, and a receptacle for receiving the mail-bags delivered from said car and partaking of the movement of the frame and provided with wings extending longitudinally of said receptacle and beyond the sides of the frame.

14. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, and a receptacle for receiving the mail-bags delivered from said car and partaking of the movement of the frame and elevated at the rear side.

15. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car and partaking of the movement of the frame, and provided with a wing swinging from the forward side of the same.

16. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car and partaking of the movement of the frame and elevated at the rear side and provided with wings extending longitudinally of the same and beyond the sides of the frame, and a wing mounted to swing from the forward side of the receptacle and having spaced fingers extending therefrom transversely of the receptacle.

17. In a mail-bag-catching device spaced vertical guides adjacent to the path of the mail-car, a frame mounted for movement between said guide members, and a receptacle for the mail-bags delivered from the moving car connected to said frame and partaking of its movements.

18. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car consisting of end members extending from the sides of the frame and connected at the forward ends by a transverse rod, and a plurality of spaced bars connected by one end to said rod and curving downwardly and rearwardly and thence upwardly and connected by their other ends to said frame above the line of said rod.

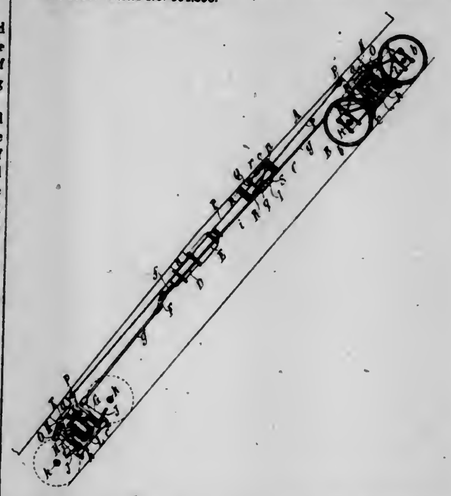
19. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car consisting of end members extending from the sides of the frame and connected at the forward ends by a transverse rod, a plurality of spaced bars connected by one end to said rod and curving downwardly and rearwardly and thence upwardly and connected by their other ends to said frame above the line of said rod, and wings extending in opposite directions from said end members.

20. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car consisting of end members extending from the sides of the frame and connected at the forward ends by a transverse rod, a plurality of spaced bars connected by one end to said rod and curving downwardly and rearwardly and thence upwardly and connected by their other ends to said frame above the line of said rod, and a bar member mounted to swing upon said transverse rod and provided with a wing member extending therefrom and adapted for projection forwardly of said receptacle to increase the width of the same temporarily.

21. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car consisting of end members extending from the sides of the frame and connected at the forward ends by a transverse rod, a plurality of spaced bars connected by one end to said rod and curving downwardly and rearwardly and thence upwardly and connected by their other ends to said frame above the line of said rod, and a bar member mounted to swing upon said transverse rod and provided with a wing member extending therefrom and adapted for projection forwardly of said receptacle to increase the width of the same temporarily and with spaced fingers extending transversely of said receptacle and partaking of the motion of the swinging wing.

22. In a mail-bag-catching device, a supporting-frame mounted for vertical movement adjacent to the path of a mail-car, a receptacle for receiving the mail-bags delivered from said car consisting of end members extending from the sides of the frame and connected at the forward ends by a transverse rod, a plurality of spaced bars connected by one end to said rod and curving downwardly and rearwardly and thence upwardly and connected by their other ends to said frame above the line of said rod, a bar member mounted to swing upon said transverse rod and provided with a wing member extending therefrom and adapted for projection forwardly of said receptacle to increase the width of the same temporarily and with spaced fingers extending transversely of said receptacle and partaking of the motion of the swinging wing, and a stop member extending between said end members for limiting the outward movement of said swinging member.

787,652. CAR-BRAKE OR THE LIKE. JAMES N. WHEELY, Jersey City, N. J., assignor to George Holt Fraser, Brooklyn, N. Y. Filed Dec. 29, 1897. Serial No. 664,398.



Claim.—1. In a brake system or like apparatus, the combination with a brake-shoe, a source of power, and a connection between such shoe and power adapted to be carried by the vehicle, of means automatically diminishing and increasing the length of said connection with variations in the length of the vehicle.

2. The combination with a vehicle having a body and multiple trucks, brake-shoes for said trucks, a source of power, and a connection between such shoes and said source, varying the length of said connection with variation in the distance between said trucks.

3. In brake systems, the combination with a vehicle-body, multiple trucks therefor, brake-shoes, a source of power, and a connection between said shoes and such source, of means automatically elongating such connection with elongation of the distance between said trucks.

4. In brake systems, a vehicle-body, multiple trucks therefor, brake-shoes, a source of power, and a connection between said shoes and such source, in combination with means automatically elongating and shortening such connection with variations in the distance between said trucks.

5. In brake systems, a vehicle having running-gear, brake-shoes, a source of power, and a connection between said shoes and such source comprising a lever I and rods *f g* pivoted on fixed fulcrums thereto, in combination with means connected to said lever and automatically changing its position relative to said rods with variations in the condition of the vehicle.

6. In brake systems, a vehicle having separated trucks, brake-shoes therefor, a source of power, and a connection between said shoes and such source, in combination with an adjusting device in said connection for changing its length, and a connection between such device and the body of the vehicle automatically operating the

former with variations in the length of the latter to shorten and lengthen said connection.

7. In brake systems, a multiple-truck vehicle, brake-shoes, a source of power, and a connection between such shoes and such source, in combination with a lever in said connection and a cam for changing its fulcrum-point and means automatically operating said cam operated by variations in the condition of the vehicle and adjusting such system to such variations.

8. In brake systems, a body A having trucks B, brake-shoes, a source of power, and a connection between such shoes and said source, in combination with a connection P between remote portions of said body, and means operated by the connection P automatically adjusting the connection between such source and said shoes in accordance with variations in the condition of the vehicle.

9. In brake systems, a vehicle having running-gear comprising a member subject to vertical movement by variation of load, and a member having no substantial degree of vertical movement, brake-shoes and brake-levers carried by said running-gear, a source of power carried by said vehicle, and a connection between said source and one of said levers, in combination with means automatically elevating the other of said levers with the depression of said member subject to vertical movement.

10. The combination with a truck, brake-shoes and the dead lever and brake system, of means automatically varying the throw of the dead lever with variations in the load on the truck.

11. The combination with a truck, brake-shoes, and the dead lever of a brake system, of a movable connection between the free end of the dead lever and the truck, and means moving said connection automatically with the load carried by the truck.

12. The combination with a truck having yielding and unyielding members, of brake-shoes and levers W supporting said shoes movably from one of said members and controlled by the other of said members.

13. The combination with a truck having a relatively movable member and a brake system carried thereby, of a lever T connected to said system and fulcrumed intermediate of its ends to the movable member of the truck and swung by the increase of load on the latter, said lever diminishing the movement of the shoes when so swung.

14. The combination with a truck, brake-shoes and brake-levers, of a lever T fulcrumed intermediate of its ends to the movable member of the truck, link O connecting one of said brake-levers with said lever T, and means elevating such brake-lever with increase of load on the truck to diminish the throw of the brake-lever.

15. In a brake apparatus, the combination with the dead levers, of means for adjusting said levers independently of each other according to the weight at each end of a car to which the apparatus is attached.

16. In a brake apparatus, the combination with the live and dead levers of means whereby the said levers at each end of a car are adjusted independently at each end of the car, according to the load.

787,653. ELECTRICAL STOP-MOTION MECHANISM FOR TEXTILE MACHINERY. Joseph B. Whitney, New York, N. Y. Filed June 30, 1903. Serial No. 163,727.

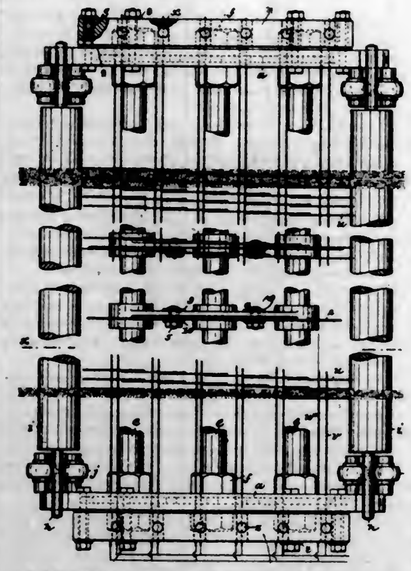
Claim.—1. In a stop-motion mechanism for textile machinery, the combination of pivoted detectors or fallers, wires, each of said detectors or fallers being adapted to coact with said wires as a circuit-closer, and means for maintaining said wires under tension, substantially as described.

2. The combination of spaced supports, a pair of wires constituting contact devices, fallers pivoted on one of said wires and movable into engagement with the other wire, and means, adjustably mounted in said supports, for securing said wires under tension, substantially as described.

3. In a stop-motion mechanism for textile machinery, the combination of pivoted detectors or fallers, wires, each of said detectors or fallers being adapted to coact with said wires as a circuit-closer, and means, comprising individual clamps for each wire and mounted independently of each other, for maintaining said wires under tension, substantially as described.

4. In a stop-motion mechanism for textile machinery, the combination of pivoted detectors or fallers, wires, each of said detectors or fallers being adapted to coact with said wires as a circuit-closer, a suitable supporting structure, and means, adjustable in said structure transversely of the wires, for maintaining said wires under tension, substantially as described.

5. The combination of spaced supports, a pair of wires constituting contact devices and penetrating said supports, fallers pivoted on one of said wires and movable into engagement with the other wire, and adjustable clamping means adapted to maintain said wires under tension and arranged against the relatively outer sides of said supports, substantially as described.

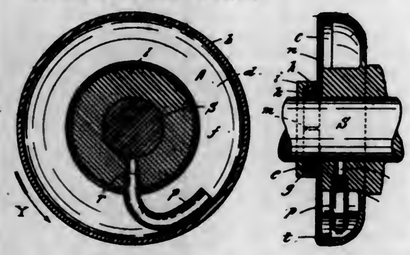


6. The combination of spaced supports, pairs of bars arranged against the relatively outer sides of said supports, sets of wires penetrating said supports, means for clamping each set of wires in one of the pairs of bars under tension, detectors or fallers pivoted on one set of wires and engageable with the other set of wires, and means for adjustably securing said bars to the supports, substantially as described.

7. The combination of spaced supports, wires, means for securing said wires to the supports under tension, an auxiliary support for the wires disposed between and spaced from said first-named supports, and fallers or detectors arranged on some of said wires and adapted to contact with the others, substantially as described.

8. The combination of spaced means for holding a series of threads taut, and pivoted fallers normally engaging said threads at intervals between said holding means and pressing upwardly thereon, the pivots of the fallers remote from the holding means being higher than the pivots of those adjacent the holding means, substantially as described.

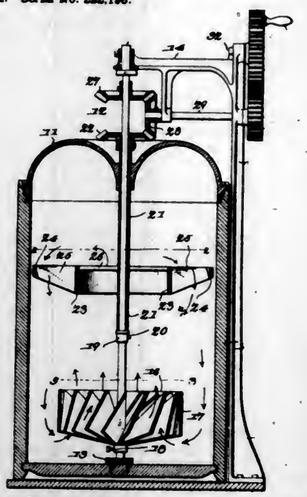
787,654. LUBRICATOR. Charles H. Allmond, Seattle, Wash. Filed June 13, 1904. Serial No. 212,246.



Claim.—1. The combination with a shaft and a loose pulley, of a lubricator of the class described, comprising an oil-receptacle provided with a longitudinally-projecting collar having an axial conical bore, a tapering sleeve registering with said bore, a cap adapted to be screwed upon the said collar, and a bent pipe secured to the hub of said pulley interiorly of the oil-receptacle.

2. A lubricator of the class described comprising a shaft and a loose pulley, an oil-receptacle provided with a longitudinally-projecting collar having an axial bore, a tapering sleeve registering with said bore, a cap adapted to be secured upon the said collar, there being a passage-way through the hub of the pulley and connecting the interior of the casing with the bearing-surface of the shaft and means for conveying the oil from the receptacle to the passage-way.

787,655. CHURN. Charley F. Anthony, Ely, Iowa. Filed Aug. 25, 1904. Serial No. 222,198.



Claim.—1. In a churn, the combination with a cream-receptacle, of a lower and an upper dasher member mounted for rotation in opposite directions within said receptacle; said lower dasher member comprising a hub and radiating inclined blades for moving the contents of the receptacle in an inward and upward direction; and said upper dasher member comprising concentric annular rims spaced from each other and from the axial supporting member, and inclined blades mounted between said rims for moving the contents of the receptacle in an outward and downward direction.

2. In a churn, the combination with a cream-receptacle, of a lower and an upper dasher member mounted for rotation in opposite directions upon a vertical axis; the upper dasher member being of annular form and spaced from the axial supporting means; and the lower dasher member comprising a hub and inclined blades for moving the contents of the receptacle in an upward direction through the eye of the upper dasher member.

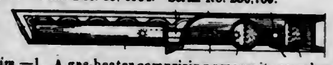
787,656. WATER-HEATER. Quimby S. Backus, Brandon, Vt. Filed Dec. 13, 1904. Serial No. 236,708.



Claim.—1. In a water-heater, the combination with the casing of a burner and heating-coil within said casing, said heating-coil being composed of a continuous pipe and including nearly vertically-disposed spiral coils at the incoming and outgoing ends of the heating-coil, said end coils being in close proximity to the burner, with their upper ends over the burner, substantially as described.

2. In a water-heater, the combination with an inclosing casing of a burner and heating-coil within the said casing, said heating-coil being composed of a single continuous pipe formed into a spiral coil, the ends of which are disposed in a nearly vertical position in close proximity to the burner with intervening positions directly above the burner, substantially as described.

787,657. GAS FIREPLACE-HEATER. Quimby S. Backus, Brandon, Vt. Filed Dec. 13, 1904. Serial No. 236,709.



Claim.—1. A gas-heater comprising among its members, a face-plate having at its top and sides inclined flanges extending rearwardly and forming with the face-plate a shallow casing, the rear edges of said flanges ending in the same vertical plane, and heating devices located wholly within said casing, whereby the flanges of the casing can be placed against a plain wall without defacing the same, substantially as described.

2. In a radiating gas-heater, the combination of a face-plate having inclined edges forming a shallow casing with a burner, a water-log and steam-radiator, connected with said water-log located within said shallow casing, substantially as described.

3. In a radiating gas-heater, the combination with a face-plate having inclined edges forming a shallow casing, of a gas-burner, a water-log, a steam-radiator connected with the water-log, the water-pan and means for conveying heat to the water in the pan, the whole located within the said shallow casing, substantially as described.

4. A fireplace-heater comprising among its members, a face-plate having at its top and sides rearwardly-extending inclined flanges forming a shallow casing, said casing being provided with a fireplace-niche extending rearwardly to or near to the plane of the rear edges of said flanges, a heating device within said fireplace-niche, and a connected radiating device within said casing above said fireplace-niche, said heating devices being located forward of the vertical plane of the rear edges of the said flanges of the casing, substantially as described.

5. A gas-heater comprising among its members, a face-plate provided at its top and sides with rearwardly-inclined flanges whose rear edges end in the same vertical plane, said flanges being provided with openings, a heating device in said casing located forward of the plane of the rear edges of said flanges, whereby the said casing can be placed against a plain wall and currents of air permitted to enter said casing to be heated and thereafter escape therefrom, substantially as described.

787,658. INDUCTION-COIL. John A. Baker, Seguin, Tex. Filed June 13, 1904. Serial No. 212,284.



Claim.—1. In an induction-coil, a primary winding composed of a broad strip of metal disposed with its plane parallel with the axis of the core and having a secondary winding upon each side thereof and adjacent thereto, the number of secondary windings exceeding the primary windings by one and occupying the extremes of the coil.

2. In an induction-coil, a primary winding composed of a broad strip of metal wound about a core in successive convolutions, insulating material disposed between the convolutions and all disposed in the form of a disk with its axis parallel with the plane of the strip and having a secondary winding upon each side thereof and adjacent thereto, the number of secondary windings exceeding the primary windings by one and occupying each end of the completed coil.

3. An induction-coil comprising a core, insulating-disks disposed upon the core perpendicular thereto, a primary coil composed of a broad strip of metal wound in successive convolutions about the core filling the space between two insulating-disks and having its plane parallel with and presenting but a single winding longitudinal of the core, insulating material disposed between the convolutions, a secondary circuit composed of insulated wire wound about the core

and filling the space between two insulating-disks upon each side of the primary coil and occupying the ends of the coil and means for electrically connecting the secondary winding.

4. An induction-coil having a core composed of fine soft-iron wires, incased within a soft-iron cylinder in combination with insulating-disks disposed upon the core with their planes perpendicular to the axis of said core, a primary coil composed of a broad strip of metal wound in successive convolutions filling the space between two insulating-disks and having its plane parallel with and presenting but a single winding longitudinal of the axis of the core, insulating material disposed between the convolutions, a secondary circuit composed of insulated wire wound and filling the space between two insulating-disks upon each side of and adjacent to the primary coil and electrically connected, the said core having its ends projected beyond each end of the coil.

5. An induction-coil comprising alternate primary and secondary windings divided into sections longitudinal of the core, separated by and filling the spaces between insulating-disks perpendicular to and embracing the core, and having the extreme secondary sections tapered at their outer ends.

6. An induction-coil comprising alternate primary and secondary windings divided into sections longitudinal of the core separated by and filling the spaces between insulating-disks perpendicular to and embracing the core, the number of sections of secondary windings exceeding the primary sections by one, the extreme secondary sections being tapered at their outer ends and a core composed of soft-iron wires projected beyond each end of the coil.

7. An induction-coil comprising insulating-disks disposed upon and embracing the core with their planes perpendicular to the axis thereof, a primary coil composed of a ribbon of metal with its plane parallel with and wound in successive convolutions about the core filling the space between two insulating-disks and presenting but a single winding longitudinal thereof, insulating material disposed between the convolutions, a secondary circuit composed of insulated wire wound and filling the space between two insulating-disks upon each side of and adjacent to the primary coil and electrically connected and having the extreme secondary coils tapered at their outer ends.

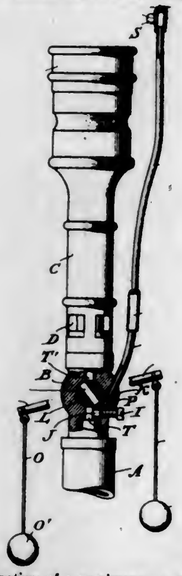
8. An induction-coil comprising a metallic core, alternate primary and secondary windings longitudinal of said core, insulating-disks mounted upon and embracing the core and having their planes perpendicular to the axis thereof, the primary winding consisting of a metallic conductor wound in successive convolutions about the core and presenting but a single winding longitudinal thereof and filling the space between two insulating-disks, the secondary windings being wound about the core and disposed upon either side of and adjacent to the primary winding, means for supplying electric current to the primary winding and means for electrically connecting the secondary windings adapted to conduct an induced current, the number of said secondary windings exceeding the primary windings by one and occupying the ends of the coil, the extreme secondary windings being tapered at their outer ends.

9. An induction-coil comprising a core composed of fine metallic wires primary and secondary windings alternating longitudinally of the core, insulating-disks mounted upon and embracing the core with their planes perpendicular to the axis thereof and each one separating a primary from a secondary winding, the primary winding consisting of a metallic ribbon wound in successive insulated convolutions about the core with its plane parallel with and presenting but a single winding longitudinal of the axis thereof and filling the space between two insulating-disks, the secondary winding being wound about the core and disposed upon either side of and adjacent to the primary windings and exceeding the number of primary windings by one, electric connections with each end of the metallic ribbon forming the primary winding and means for electrically connecting the secondary windings, the extreme secondary windings being tapered at their outer ends.

10. An induction-coil comprising alternate primary and secondary windings divided into sections longitudinal of the core, separated by and filling the spaces between insulating-disks perpendicular to and embracing the core, the number of sections of secondary windings exceeding the primary sections by one, the extreme secondary sections being tapered at their outer ends and a core projected beyond each end of the coil.

787,659. PILOT-LIGHT FOR BUNSEN OR OTHER GAS-BURNERS USING INCANDESCENT GAS-MANTLES. FRANK M. BROOKS, New York, N. Y. Filed Jan. 7, 1905. Serial No. 239,906.

Claim.—1. The combination of a gas-burner, a pilot-light therefor, a gas-regulating cock having ports for transmitting gas to the burner and to the pilot, a plug for the cock having a single gas-passage therein, and an auxiliary port in the cock through which additional gas will be supplied to the pilot through the passage in the plug during its movement from its closed to its open position.



2. The combination of a gas-burner, a pilot-light therefor, a gas-regulating cock having ports for transmitting gas to the burner and to the pilot, a plug for the cock having a single gas-passage therein, and an auxiliary port in the cock through which additional gas will be momentarily supplied to the pilot through the passage in the plug during its movement from its closed to its open position, said additional gas-supply being cut off when the plug is in its fully-opened position.

3. The combination of a gas-burner and pilot-light therefor, a gas-regulating cock and plug for transmitting gas to the burner and to the pilot, means whereby additional gas will be supplied to the pilot during the movement of the plug from its closed to its open position, and an opening in the side of the pilot-tube, whereby the pilot flame or jet will be directed into the gas escaping from the burner proper.

4. The combination of a gas-burner and pilot-light therefor, a gas-regulating cock and plug having ports for transmitting gas to the burner and to the pilot and an auxiliary port in the cock, the ports in the parts respectively being of such size and so located as that during the movement of the plug from its closed to its open position, an additional supply of gas will flow to the said auxiliary port through the port in the plug which supplies gas to the burner.

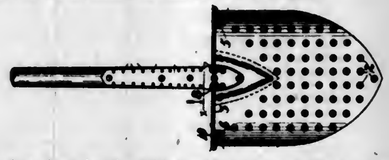
5. The combination of a gas-burner and pilot-light therefor, a gas-regulating cock and plug having ports for transmitting gas to the burner and to the pilot and an auxiliary port in the cock for increasing the supply of gas to the pilot, the ports in the parts respectively being of such size and so arranged that the increased supply of gas to the pilot cannot be had without simultaneously supplying gas to the burner.

787,660. SHOVEL OR SPADE. MICHAEL CAHILL, San Francisco, Cal. Filed Aug. 4, 1904. Serial No. 219,571.

Claim.—1. An implement of the character described having a perforated blade and with the walls of the perforations converging from opposite sides of the blades toward the center thereof to form interior cutting edges.

2. A spade or shovel having a perforated blade, the perforations in the blade each having walls diverging from the central portion of the blade toward opposite sides thereof whereby the junction of said walls forms an interior cutting edge.

3. A spade or shovel having cavities formed in the handle-socket on either side of the handle, said cavities provided with outlets adjacent to the blade, and closures for the cavities.



4. A spade or shovel provided with liquid-containing chambers, said chambers having outlets onto the back of the blade.

5. The combination with a spade or shovel of a removable presser-plate having means of attachment with the blade, said plate having one end bearing against the handle, and guides on the handle with which the plate loosely engages to prevent twist.

6. The combination with a spade or shovel of a removable presser-plate having means of attachment with the blade, said plate having one end bearing against the handle, and guides on the handle with which the plate loosely engages to prevent twist, and a roller supported at the outer end of said plate.

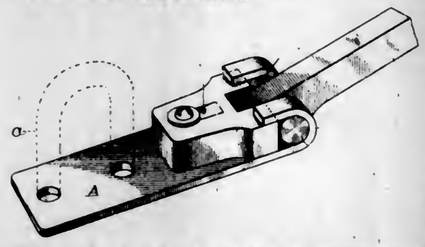
7. A presser-plate for spades and shovels, having means of attachment with the blade thereof, and a resilient covering for said plate.

8. A presser-plate for spades and shovels, having means of attachment with the blade thereof and a resilient perforated covering for said plate.

9. A presser-plate for spades and shovels having means of attachment with the blade thereof, and a roller carried by said plate

10. A presser-plate for spades and shovels having means of attachment with the blade thereof and a roller disposed at the end of and transverse to the plate.

787,661. THILL-COUPLING. MORTIMER CAHILL, Chicago, Ill. Filed Oct. 1, 1904. Serial No. 226,741.

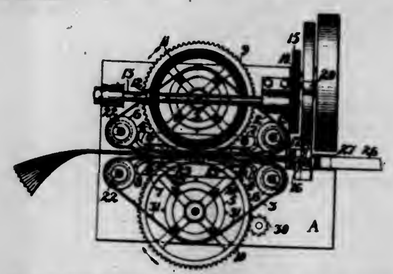


Claim.—1. In a device of the class described, the combination with an axle-plate, bifurcated at its end to form ears, the said ears being turned up and back to form hooks, of a thill-iron having laterally-projecting pins, adapted to lie within said hooks and a bifurcated block pivoted to the axle-plate and arranged to swing up behind said pins when the thill is raised, and to be locked in position by engagement of the end of the thill with the furcation in the block when the thill is lowered.

2. In a device of the class described, the combination with an axle-plate, bifurcated at its end to form ears, the said ears being turned up and back to form hooks, of a thill-iron having laterally-projecting pins, adapted to lie within said hooks, a bifuracted block pivoted to the axle-plate and arranged to swing up behind said pins when the thill is raised and to be locked in position by engagement of the end of the thill with the furcation in the block when the thill is lowered, and a block of resilient material interposed between said block and its pivot to exert a yielding pressure upon the thill-iron.

787,662. RIBBON-PAPER FEEDER AND CUTTER. EDWIN D. CASTERLINE, San Francisco, Cal., assignor to Interlook Paper Company, San Francisco, Cal., a Corporation of California. Filed Aug. 29, 1904. Serial No. 222,563.

Claim.—1. A mechanism for feeding and cutting strips of material into uniform lengths comprising two endless carriers having parallel opposed coöperating conveying-surfaces, means comprising two opposed parallel adjustably-mounted guides for varying the distance between said surfaces, and a cutting device arranged in, and operating transversely across the path of the material conveyed by said carriers.



2. A mechanism for feeding and cutting strips of material into uniform lengths comprising two endless carriers having parallel opposed coöperating conveying-surfaces, means comprising two opposed parallel adjustably-mounted guides for varying the distance between said surfaces, a cutting device arranged in the path of the material conveyed by said carriers, and means for operating said device coördinately with the movement of said carriers and in a plane substantially at right angles to the travel of the strips.

3. The combination of two opposed parallel transversely-adjustable guides, endless carriers having each a plane supported by a respective guide, means for operating said carriers simultaneously and oppositely, and a transversely-operating cutting device relative to the interspace between said guides.

4. The combination of two opposed parallel transversely-adjustable guides, endless carriers having each a plane supported by a respective guide, means for operating said carriers simultaneously and oppositely, a transversely-operating cutting device relative to the interspace between said guides and means for operating said cutting device and carriers coördinately.

5. The combination of two opposed parallel, adjustable guides, endless carriers having each a plane supported by a respective guide, means for operating said carriers, and transversely-operating cutting means in the path of material conveyed by said carriers.

6. The combination of two opposed parallel, adjustable guides, endless carriers having each a plane supported by a respective guide, means for operating said carriers, transversely-operating cutting means in the path of material conveyed by said carriers and means for operating said carriers continuously and for operating said cutting device coördinately with the carriers.

7. The combination of two coöperating endless carriers, having each a plane arranged parallel to a plane of the other, means comprising two opposed parallel adjustably-mounted guides for effecting an adjustment of said planes to vary their interspace, means for operating the carriers, and a transversely-operating cutting device in the path of the material conveyed by said planes.

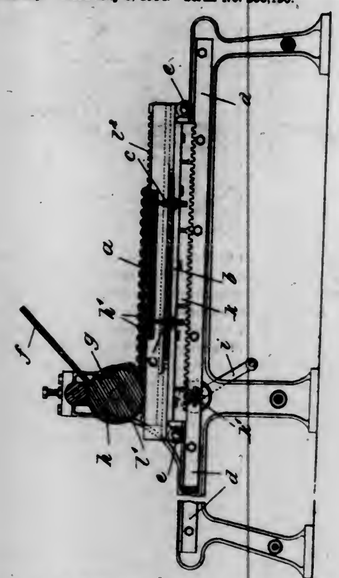
8. The combination of two coöperating endless carriers, having each a plane arranged parallel to a plane of the other, means comprising two opposed parallel adjustably-mounted guides for effecting an adjustment of said planes to vary their interspace, means for operating the carriers, a transversely-operating cutting device in the path of the material conveyed by said planes and means for operating said cutting device coördinately with the carriers.

9. The combination of two coöperating endless carriers, having each a plane arranged parallel to a plane of the other, means, including adjustable longitudinal guides, for varying the space between said planes, other guides carried by the first-named guides and bridging said interspace, and a transversely-operating cutting device associated with the carriers.

10. The combination of two coöperating endless carriers, having each a plane arranged parallel to a plane of the other, means, including adjustable longitudinal guides, for varying the space between said planes, other guides carried by the first-named guides and bridging said interspace, a transversely-operating cutting device associated with the carriers and means for operating the cutting device and carriers coördinately.

11. The combination with a suitable support, of two coöperating endless carriers having parallel opposed conveying-surfaces, sprockets on which said carriers travel, guide-pulleys for the carriers and guides for directing the carriers into coöperative relation, said guide-pulleys and guides being adjustable, and a transversely-operating cutting device in the path of material conveyed by said carriers.

787,663. APPARATUS FOR THE PRODUCTION OF GELATIN PICTURES. PAUL CHARLES and STEPHAN FAUJAT, Frankfort-on-the-Main, Germany, assignors to Joe Livingston, Frankfort-on-the-Main, Germany. Filed May 3, 1904. Serial No. 206,190.



Claim.—1. In apparatus for the production of gelatin pictures, a roller *h* adapted to remove the excess of the gelatin color from the printing-form, and a plurality of rollers *h'* serving to exert pressure upon the gelatin color remaining in the cavities of the printing-form and upon the paper sheet adhering thereto during the hardening of the gelatin color, substantially as described.

2. In apparatus for the production of gelatin pictures, a roller *h* adapted to remove the excess of the gelatin color from the printing-form, and a plurality of rollers *h'* serving to exert pressure upon the gelatin color remaining in the cavities of the printing-form and upon the paper sheet adhering thereto during the hardening of the gelatin color, said rollers *h* being adapted to be removed when the apparatus is used for printing upon flexible sheets of material impervious to moisture, substantially as described.

787,664. BORING-TOOL. MASCHIL D. CONVERSE, Newark, N. J. Filed Dec. 7, 1903. Serial No. 184,186.



Claim.—1. In an expansible boring-bit, a shank having a lead-screw, and a tapered pin fitted transversely through the head part of the shank, in combination with an expansible cutter having an integral arm of cylindrical cross-section and one flattened side adapted to be engaged by said tapered pin and secured in position thereby.

2. In an expansible boring-bit, a shank having a lead-screw, and an expansible cutter having its edge when in operable position located rearward of a diametral line of the lead-screw center parallel with the main portion of the cutter, in combination with means for adjustably securing said cutter in such rearward position.

3. In an expansible boring-bit, a shank having a lead-screw, and a cutter-armhole transversely of its head, a cutter having an arm parallel to its cutting edge and returned above the horizontal plane of the same and slidably fitted in the armhole, in combination with means for adjustably securing the cutter just rearward of the lead-screw.

4. In an expansible boring-bit, a shank having a lead-screw, a cutter-armhole transversely of its head, a second hole right angularly to the first intersecting its upper margin, and a cutter having an arm with a flat upper surface parallel to its cutting edge and returned above the horizontal plane of the same and slidably fitted in the transverse hole in the head, in combination with a tapered pin slidably fitted in the second hole and adapted to engage the arm transversely and adjustably secure the cutter in position just rearward of the lead-screw.

5. In an expansible boring-bit, a shank carrying an expansible cutter, in combination with an annularly-concave-grooved lead-screw.

6. In an expansible boring-bit, a shank carrying an expansible cutter, in combination with an annularly-concave-grooved detachable lead-screw.

7. In a boring-bit or auger, an annularly-concave-grooved lead-screw, in combination with cutting edges terminated in the neck of the concave groove.

8. In a boring-bit, or auger, an annularly-concave-grooved detachable lead-screw, in combination with cutting edges terminated in the neck of the concave groove.

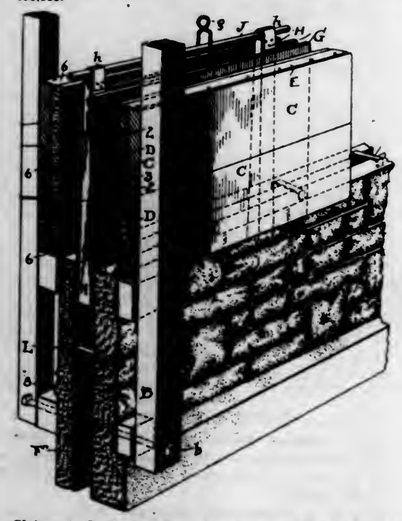
9. A cutter for an expansible boring-bit having an arm above and parallel to the cutting edge of the cutter united by a web cross-piece at one of their respective adjacent outer ends.

10. In an expansible boring-bit, a cutter having its edge when in operative position located rearward of a diametral line of the lead-screw parallel with the main portion of the cutter, in combination with a spur having its extreme point located on the said center diametral line of said lead-screw and on the line of radial adjustment.

11. In a dual-cutter expansible boring-bit, cutters having half-round arms above and parallel to the cutting edges, a shank provided with a lead-screw and having a hole transversely the head for adjustably carrying the half-round arms back to back with the cutter edges rearward of the lead-screw, in combination with means for adjustably securing the same in position.

12. In a dual-cutter expansible boring-bit, cutters having half-round arms above and parallel to the cutting edges, the upper edges of which are slightly flattened, a shank provided with a lead-screw and having a hole transversely the head for adjustably carrying the half-round arms back to back with the cutter edges rearward of the lead-screw, and a second hole right angular to the first intersecting its upper margin, in combination with a tapered pin slidably fitted in the second hole and adapted to engage the upper flattened surfaces of both arms transversely and adjustably secure the cutters in position just rearward of the lead-screw.

787,665. BUILDING CONCRETE WALLS. REED DEEDS and WILBUR C. DEEDS, Cuyahoga Falls, Ohio. Filed Mar. 19, 1904. Serial No. 198,883.



Claim.—1. In the building of concrete and like walls, a temporary construction-wall comprising plain-surfaced supports, sheet-metal forms on the inner face of said supports and molds fixed in said forms, substantially as described.

2. The means substantially as described for constructing concrete walls, the same comprising suitable molds, a back support for the molds and metallic division-walls between the molds fixed to said back support and constructed to lock said molds in working position, substantially as described.

3. A temporary construction-wall for the erection of permanent walls for buildings comprising a suitable flat-sided support, forms fixed thereon having the outline of blocks of natural stone of varying sizes and a separate mold fixed in each form, said forms having one edge turned to bear against the edge of the mold, substantially as described.

4. In a system of building concrete walls, oppositely-arranged construction-walls formed of flat-faced supports one above the other in the same plane vertically and a framework sustaining said supports, angle-iron forms fixed on the said supports and projecting inward therefrom, and molds confined in said forms, substantially as described.

5. In concrete and other wall constructions, a set of oppositely-disposed construction-walls, separate removable metallic forms fixed to said walls, and separate removable molds in said forms, in combination with parts to form a hollow space in the wall, said parts comprising oppositely-disposed wedge portions, substantially as described.

6. In the construction of hollow building-walls, flat-sided outer construction-walls, forms fixed on the said walls and molds to give shape to the product confined in said forms, in combination with double-sided inner wedge-shaped construction-walls, wedges to spread said construction-walls laterally to the width of the hollow the wall is to have, and means to raise and support the said wedges in locking position, said means connected with the upper reduced ends of said wedges, substantially as described.

7. In concrete and other walls, a suitable flat-sided support and separate interchangeable metallic forms thereon having edges reversely turned to form courses between molded blocks and to lock said blocks in position, in combination with mold-blocks secured by said forms, substantially as described.

787,666. TWYER. ROBERT M. DOWNIE, Beaverfalls, Pa., assignor to Keystone Driller Company, Beaverfalls, Pa. Filed Aug. 3, 1904. Serial No. 219,405.



Claim.—1. A twyer having an air-inlet, an air-outlet and an open water-outlet, means for introducing steam into the twyer and entraining air thereby through the inlet, and means located in the twyer and the path of movement of the steam for condensing and collecting the moisture thereof and directing the same to the outlet.

2. A twyer having an air-inlet, an air-outlet and an open water-outlet, means for introducing steam into the twyer and entraining air thereby through the inlet, and baffle devices located in the twyer and the path of movement of mixed steam and air for condensing the steam and collecting the vapor thereof, the moisture so condensed escaping freely through said water-outlet.

3. A twyer having an air-inlet, an air-outlet and an open water-outlet, means for introducing steam into the twyer contiguous to the inlet and thereby entraining air therethrough, and means located within the twyer for eliminating the steam and vapor from the air prior to its discharge from the outlet and directing the same to the water-outlet.

4. A twyer having an air-inlet, an air-outlet, and a tortuous passage-way connecting the same, means for introducing steam into the twyer, entraining air thereby through the inlet and projecting the same against certain of the walls for condensing the steam, said twyer having an open water-outlet in its lower portion that permits the free escape of the water collected on the walls of the tortuous passage-way.

5. In a twyer, the combination with a body having an air-inlet, an air-outlet, and an indirect passage-way connecting the same, of means for directing steam into said passage-way and thereby entraining air through the inlet, said body having a water-outlet communicating with the passage-way, and means for directing the water condensed in said passage-way to the outlet.

6. A twyer having an air-inlet, separate and freely-open air and water outlets, and a tortuous passage-way connecting the same, means for introducing steam into the twyer, entraining air thereby through the inlet and projecting the same against certain of the walls for condensing the steam and collecting the vapor thereof, means for directing condensed water to the water-outlet, and baffle devices located in the passage-way and engaging the wall against which the mixture is projected.

7. In a twyer, the combination with a body having an air-inlet, an air-outlet, and an indirect passage-way connecting the same, of means for directing steam into said passage-way and thereby entraining air through the inlet, the bottom of said passage-way being provided with a freely-open water-outlet and inclining downwardly toward the same to permit the escape of the water condensed on the walls of said passage-way.

8. In a twyer, the combination with a body having an air-inlet, an air-outlet, and an indirect passage-way connecting the same, of means for directing steam into said passage-way and thereby entraining air through the inlet, the bottom of said passage-way being provided on its outer edge with a plurality of water-outlet openings, and said bottom inclining downwardly toward said edge.

9. A twyer having an air-inlet, an air-outlet, an indirect passage-way connecting the same, and an open water-outlet communicating with the lower portion of the passage-way, perforate baffle-walls extending across the passage-way, and a steam-nozzle projecting into the twyer contiguous to the air-inlet.

10. A twyer having an air-inlet, an air-outlet and convolute passage-way connecting the inlet and outlet, and means for eliminating the steam and vapor from the air during its passage through the passage-way, said twyer having a water-outlet communicating with the convolute passage-way to permit the escape of the condensed vapor therefrom.

11. In a twyer, the combination with a body having an air-inlet, an air-outlet and an open liquid-outlet, of means for injecting steam under pressure into the body to entrain the air through the inlet, and means for condensing the steam in the twyer and permitting the free escape of the liquid therefrom through the outlet.

12. In a twyer, the combination with a body having an air-inlet, an air-outlet at its top and a freely-open liquid-outlet at its bottom, of means for injecting steam to entrain the air through the inlet, and means for condensing the steam within the body prior to the escape of the air through the outlet, the moisture freely passing through the liquid-outlet.

13. A twyer having an air-inlet, an air-outlet, a convolute passage-way connecting the air-inlet and air-outlet, and a liquid-outlet communicating with the convolute passage-way, and a nozzle for introducing steam into the twyer and thereby entraining air through the inlet, the water of condensation from such steam escaping through said liquid-outlet.

14. A twyer having an air-inlet, an air-outlet, an indirect passage connecting the same and a liquid-outlet communicating with the lower portion of the indirect passage-way, a nozzle for injecting steam into the twyer, and condensing means located in the passage-way, the water of condensation from such steam in said passage escaping through the liquid-outlet.

15. In a twyer, the combination with a body having an air-inlet, an inner chamber provided with an air-outlet, an indirect passage-way connecting the inlet and chamber and a liquid-outlet communicating with the lower portion of the indirect passage-way, of means for introducing steam into the passage-way to thereby entrain air thereinto, the water of condensation from such steam escaping through the liquid-outlet.

16. In a twyer, the combination with a body having an air-inlet, an inner chamber provided with an air-outlet, a convolute passage-way connecting the inlet and chamber and a liquid-outlet communicating with the lower portion of the convolute passage-way, of means for introducing steam into said passage-way and thereby entraining air thereinto, the water of condensation from such steam escaping through the liquid-outlet.

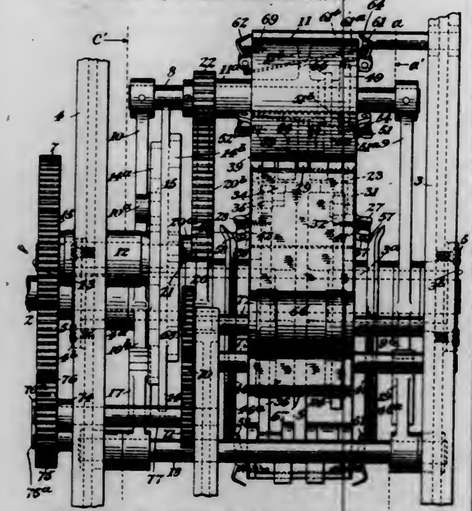
17. In a twyer, a body comprising inner and outer side walls defining an inner chamber and an indirect passage-way leading thereto, said passage-way having an air-inlet communicating therewith, a cap having air-outlets, a bottom plate, and a device extending through the inner chamber of the body and connecting the cap and bottom plate to secure the same in place.

18. A twyer, comprising inner and outer side walls defining an open-ended inner chamber and an indirect passage-way leading thereto, said passage-way having an air-inlet communicating therewith, a perforate cap covering the upper end of the chamber, and a bottom plate closing the bottom of the body and having a series of openings communicating with the indirect passage-way.

19. In a twyer, a body comprising an outer wall and a convolute inner wall, said walls defining an inner chamber and a convolute passage-way leading thereto, a perforate cap covering the top of the chamber, a bottom plate covering the bottom of the body and having openings communicating with the convolute chamber, and means for injecting steam into the convolute passage-way and thereby entraining air thereinto.

20. In a twyer, the combination with a body comprising spaced inner and outer walls forming a tortuous passage-way, a cap located on the top of the body, a bottom covering the lower portion of the body, a connection between the cap and bottom for securing the same in place, said top having a plurality of air-outlets, of a neck connected to the body and communicating with the tortuous passage-way, said neck having at its free end an air-inlet, a nozzle projecting into the neck, and baffle devices located in the passage-way for condensing the steam passing therethrough, said bottom having openings to permit the escape of the moisture condensed from the steam.

787,667. **PAPER-BAG MACHINE.** HERMAN ELSAS, New York, N. Y., assignor to Continental Paper Bag Company, a Corporation of Maine. Filed May 25, 1904. Serial No. 209,730.



Claim.—1. The combination of a revoluble carrier 6, an oscillatable folding-bed 30 mounted thereon, a pair of side clips on the folding-bed, a folding-roll 11 oscillatable about its own axis and about the axis of the carrier, and a pair of side clips 51, 52, and a front clip 29 on the folding-roll; all combined and operating together substantially as described.

2. The combination of a revoluble carrier 6, an oscillatable folding-bed 30 mounted thereon, a pair of side clips on the folding-bed, a folding-roll 11 oscillatable about its own axis and about the axis of the carrier and a pair of side clips 51, 52 on the folding-roll, all combined and operating together, substantially as described.

3. The combination of a revoluble folding-bed mounted for oscillation toward and away from its axis of revolution, a pair of side clips on the folding-bed, a folding-roll 11 oscillatable about its own axis and about the axis of revolution of the folding-bed and a pair of side clips 51, 52 on the folding-roll all combined and operating together substantially as described.

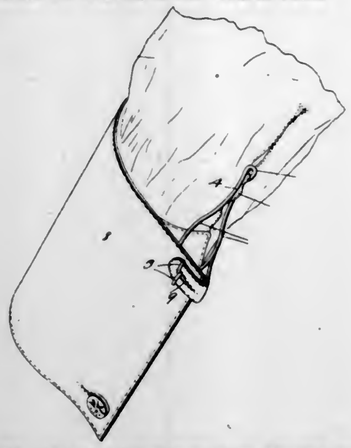
4. The combination of a revoluble folding-bed mounted for oscillation toward and away from its axis of revolution, a pair of side clips on the folding-bed, a folding-roll 11 oscillatable about its own axis and about the axis of revolution of the folding-bed and two pairs of side clips 51, 52 and 61, 62 respectively on the folding-roll all combined and operating together substantially as described.

5. The combination of a revoluble folding-bed mounted for oscillation toward and away from its axis of revolution, a pair of side clips on the folding-bed, a folding-roll 11 oscillatable about its own axis and about the axis of revolution of the folding-bed, side clips 51, 52 on the folding-roll and an ironer 80 all combined and operating together substantially as described.

6. The combination of a revoluble carrier 6, an oscillatable folding-bed 30 mounted thereon, a pair of side clips on the folding-bed, a folding-roll 11 oscillatable about its own axis and about the axis of the carrier, a pair of side clips 51, 52 on the folding-roll and an ironer 80, all combined and operating together, substantially as described.

7. The combination of a revoluble carrier 6, an oscillatable folding-bed 30 mounted thereon, a pair of side clips and a front clip on the folding-bed, a folding-roll 11 oscillating about its own axis and about the axis of the carrier, and a pair of side clips 51, 52, and a front clip 29 on the folding-roll; all combined and operating together substantially as described.

787,668. **GARMENT-SUPPORTER.** WILLIAM F. HEINE, Milton Junction, Wis. Filed July 15, 1904. Serial No. 216,733.



Claim.—As a new article of manufacture, a garment-supporter formed from a single length of wire bent intermediate of its ends into an elongated loop which is reduced to a narrow slot adjacent the bend of the wire, the ends of the wire being brought together and bent transversely in the same direction at substantially right angles to the plane of the loop, said end portions being intertwisted to form a rigid shank with the extremities of the wire spread and extended in opposite directions from the outer end of the shank longitudinally of the device to form a head upon the outer end of the shank.

787,669. **BOTTLE-STOPPER.** GEORGE HOOKHAM, Birmingham, England. Filed Feb. 18, 1904. Serial No. 194,277.



Claim.—1. A bottle-stopper in which the body consists of a roll of corrugated paper protected from the contents of the bottle, substantially as described.

2. A bottle-stopper in which the body consists of a roll of corrugated paper protected from the contents of the bottle by a capsule over the inner end of the body, substantially as described.

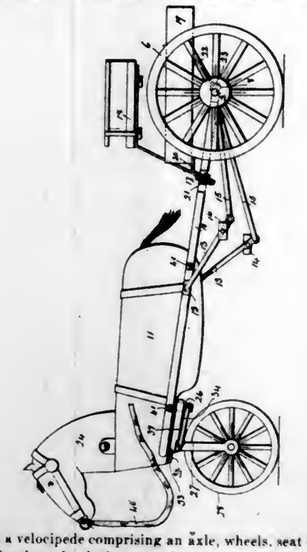
3. A bottle-stopper in which the body consists of a roll of corrugated paper entirely inclosed by capsules, substantially as described.

4. A bottle-stopper in which the body consists of a roll of corrugated paper surrounded by a yielding substance and protected by a capsule on its inner end, substantially as described.

5. A bottle-stopper in which the body consists of a roll of corrugated paper surrounded by a yielding substance and inclosed by capsules, substantially as described.

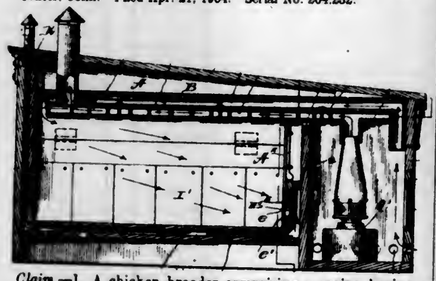
787,670. **VELOCIPEDE.** EBEN W. HYDE, New Haven, Conn. Filed Jan. 28, 1904. Serial No. 190,954.

Claim.—1. In a velocipede comprising an axle, wheels, seat and shafts, the combination of a body secured between the said shafts, a forward wheel, a fork in which said wheel is mounted, a post on said fork extending upward through the body, a rearwardly-extending arm carried by said fork and having an antifriction-roller, and pivotal arms adapted to bear on opposite sides of said roller and connected together by a spiral spring, substantially as described.



2. In a velocipede comprising an axle, wheels, seat and shafts, the combination of a body secured to the said shafts, a forward wheel for supporting said body, a fork in which said wheel is mounted, a post on said fork extending upward through said body, means for turning said post, an arm extending rearward from said fork with which it is directly connected and carrying a roller, pivotal arms extending into engagement with said roller and drawn together by a spiral spring, and means for limiting the movement of said arm, substantially as described

787,671. **CHICKEN-BROODER.** JOHN N. JACOBSON, Mansfield Center, Conn. Filed Apr. 21, 1904. Serial No. 204,232.



Claim.—1. A chicken-brooder comprising a casing having a double bottom and a double end, a hinged cover to said casing, a fresh-air-heating chamber fastened to said cover, a compartment heating-chamber attached to and beneath said fresh-air-heating chamber, a brooding-compartment underneath said chambers, a heater communicating with said compartment heating-chamber, said fresh-air-heating chamber communicating with the interior of said casing, and the latter communicating with the atmosphere through a passage-way leading from the brooding-compartment through the double bottom and end of the casing, as set forth.

2. A chicken-brooder comprising a casing having a double bottom and a double end, a brooding-chamber, a hinged cover to said casing, a fresh-air-heating chamber secured to said cover, a heater communicating with said fresh-air-heating chamber, a compartment heating-chamber, partitions therein fastened to and beneath said heating-chamber, said compartment heating-chamber having a passage-way leading about alternate ends of said partitions, pipes carried by said cover, said fresh-air-heating chamber communicating with the interior of said brooding-chamber, and the latter communicating with the atmosphere through a passage-way leading between the double flooring and double end, and said pipes, as set forth.

3. A brooder comprising a casing having a double bottom and one double end with spaces intervening between said double bottom and double end, a hinged cover to the casing, pipes carried by said cover, a fresh-air-heating chamber secured to the cover, a compartment heating-chamber secured to the bottom of said fresh-air-heating chamber, a brooding-compartment below said chambers, a heater adapted to communicate with said compartment heating-chamber, said fresh-air-heating chamber opening into said brooding-compartment near the top and rear wall of the latter, said brooding-chamber communicating with the atmosphere through the space intervening between said double bottom and double end wall, and said pipes, as set forth.

4. A chicken-brooder comprising a casing, a hinged cover mounted thereon, a two-compartment heating-chamber carried by said cover, one of said compartments having a series of partitions so arranged as to form a circuitous course for the passage of heat, a lamp-containing compartment having communication with said partitions-heating compartment, a double bottom and a double side to the brooder, with spaces intervening between the bottom and double side, which spaces form a passage-way, pipes carried by the hinged cover and adapted, when the cover is closed, to communicate with said passage-way, as set forth.

5. A brooder comprising a casing with hinged cover, a brooding-chamber within said casing, a heating-chamber having a contracted end carried by said cover and divided into two compartments, one for the passage of the products of combustion through a circuitous passage-way, the other for the admission of fresh air and adapted to open into the brooder-chamber, a lamp-containing box, said heating-chamber having a passage-way leading from its contracted end and adapted to fit over the chimney of a lamp within said box, a downwardly-projecting portion of said heating-chamber affording an inlet-passage for fresh air, said contracted portion of the heating-chamber adapted to enter a cut-away portion of the casing as the cover is closed, a double flooring and double end walls with space intervening between the two floors and double end walls, a flue communicating with the space between the double flooring and having openings leading therefrom into the brooding-chamber near the bottom thereof, an apertured strip closing the space between the double end walls of the casing, pipes passing through apertures in the cover and adapted to register with the apertures in said strip when the cover is closed, as set forth.

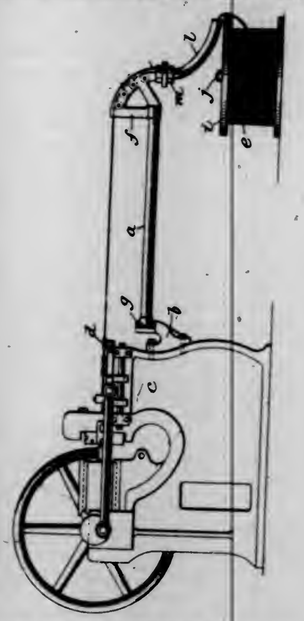
6. A brooder comprising a casing divided into two compartments, a cover hinged to said casing, a partition between said compartments, a door hinged to said partition, a fabric secured to the edge of said door, a fresh-air-heating chamber secured to said cover and having a contracted portion, a compartment heating-chamber underneath and secured to said fresh-air-heating chamber, said casing having a double bottom and a double end, with communicating spaces between the double bottom and the double end, which spaces communicate with the interior brooding-chamber near the bottom thereof, a lamp and box therefor into which the contracted portion of the compartment heating-chamber is adapted to be positioned when the cover is closed, and a duct opening into the compartment-chamber and adapted to telescope over the chimney of the lamp in said box, said fresh-air-heating chamber having a passage-way for the admission of fresh air, and a communicating passage-way between the fresh-air-heating chamber and the brooding-compartment, as set forth.

787,672. **APPARATUS FOR FEEDING WIRE-NAIL MACHINES.** GEORGE JEWETT, Pittsburg, Pa., assignor to American Steel & Wire Company of New Jersey, Worcester, Mass., a Corporation of New Jersey. Filed Aug. 17, 1904. Serial No. 221,062.

Claim.—1. An apparatus for continuously feeding wire to a nail-machine from a plurality of stationary coils or reels, said apparatus comprising an arm pivoted to the machine and extending to and overhanging the coils, and adapted to be swung by the wire from one to another of said coils, said arm carrying a wire-guide at its free end.

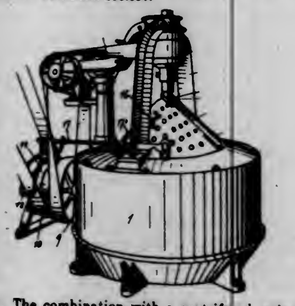
2. An apparatus for continuously feeding wire to a nail-machine from a plurality of stationary coils or reels, said apparatus consisting of an arm pivoted to the machine in substantially the vertical plane where the wire enters, and extending to and overhanging the coils and adapted to be swung by the wire from one to another,

and a guide for the wire swiveled upon the free end of the arm and adapted to follow the wire around the coil as it unwinds.



3. An apparatus for continuously feeding wire to a nail-machine from a plurality of stationary coils or reels, said apparatus consisting of an arm *a* pivoted to the machine substantially in the vertical plane in which the wire enters, and extending to and overhanging the coils and adapted to swing from one to another, a bracket *f* carrying guide-rollers *k* secured to the free end of the arm, and a tubular guide *l* for the wire swiveled to the bracket and adapted to follow the wire around the coil as it unwinds.

787,673. **SAFETY APPLIANCE FOR CENTRIFUGAL MACHINES.** JAMES S. JOHNSTON and THOMAS H. MURPHY, Utica, N. Y., assignors to Johnston Novelty & Mill Specialty Co., Utica, N. Y. Filed May 16, 1904. Serial No. 208,087.



Claim.—1. The combination with a centrifugal wringing-machine having a rotary basket, an open-topped surrounding casing for the basket, and means for mounting and driving the basket, of a protective cover of a general parabolical form hinged at its corners, means for controlling the application of power to drive the basket, and an interfering connection between the cover and controlling means, whereby the power cannot be applied while the cover is in open position and the cover cannot be open while the power is applied, substantially as set forth.

2. The combination with a centrifugal machine of the character described, having an inclosing casing, of a guard adapted to close the machine from the filling or accessible position, a driving mechanism for operating the machine, and means for controlling the driving mechanism, and an interfering connection between the guard and controlling mechanism, whereby the machine can only be put in operation when the guard is in closed position, substantially as set forth.

3. The combination with a centrifugal wringing-machine having a rotary basket, an open-topped surrounding casing for the basket, means for mounting and driving the basket, consisting, in part, of a suspended shaft and a frame for supporting the shaft above the casing, of a protective cover of a general parabolical form hinged at its corners to said frame and having a slotted opening to receive the shaft, means for controlling the application of power to drive the basket, and an interfering connection between the cover and controlling means, whereby the power cannot be applied while the cover is in open position, and the cover cannot be opened while the power is applied, substantially as set forth.

787,674. **LEG-REST.** GEORGE KELLY, Mineralpoint, Wis. Filed July 21, 1903. Serial No. 166,487.



Claim.—1. A device of the class described, comprising a stationary frame provided with a base and having upright standards provided at their upper portions with alined perforations arranged at intervals, a rest composed of spaced hangers located at the inner faces of the standards, a leg-supporting bar connecting the lower ends of the hangers, and a receptacle connecting the upper portions of the hangers, the latter being extended upwardly beyond the receptacle and provided with perforations, and supporting-pivots passing through the extended portions of the hangers and arranged in perforations of the standards, said pivots being removable and adapted to engage any of the perforations of the standards to permit the rest to be raised and lowered.

2. A device of the class described, comprising a stationary frame provided with a base and having upright standards provided at their upper portions with alined perforations arranged at intervals, a rest composed of spaced hangers located at the inner faces of the standards, a leg-supporting bar connecting the lower ends of the hangers and provided at its upper face with opposite leg-receiving seats consisting of curved recesses, and a receptacle connecting the upper portions of the hangers, the latter being extended upwardly beyond the receptacle and provided with perforations, and supporting-pivots passing through the extended portions of the hangers and arranged in perforations of the standards, said pivots being removable and adapted to engage any of the perforations of the standards to permit the rest to be raised and lowered.

787,675. **COMBINATION LEG-SUPPORT AND CARRIAGE.** GEORGE KELLY, Mineralpoint, Wis. Filed June 30, 1903. Renewed Mar. 6, 1905. Serial No. 248,657.

Claim.—1. As an article of manufacture, the combination with a leg-supporting member, of means for movably supporting the member, and means for detachably connecting the leg-supporting member to an ordinary chair, said means comprising a seat element that detachably rests upon the usual chair-seat.

2. As an article of manufacture, the combination with a leg-supporting member, of means for supporting one end of the member, and means for detachably connecting the other end of the member to an ordinary chair, said means comprising a seat element that detachably rests upon the usual chair-seat and is hinged to the said end of the supporting member.

3. In a structure of the class described, the combination with a seat member constructed to be placed in an ordinary rocking-chair, of a leg-supporting member hinged to the seat member and having a vertical and lateral swinging movement with respect thereto.

4. As an article of manufacture, the combination with a leg-supporting member, of means for movably supporting one end of the leg-supporting member, and means for detachably connecting the leg-supporting member to an ordinary chair, said connecting means comprising a seat-plate that detachably rests upon the usual chair-seat.



5. As an article of manufacture, the combination with a leg-supporting member, of wheels connected to one end of the member for movably supporting the same, and means for detachably connecting the other end of the leg-supporting member to an ordinary chair, said means comprising an upholstered seat-plate that detachably rests upon the usual chair-seat and is hinged to the supporting member.

6. In a structure of the class described, the combination with a leg-supporting member, of supports for the member located at the ends thereof, and means for attaching one end of the support to a rocking-chair with the support for that end elevated to permit the vertical movement of said end.

7. In a structure of the class described, the combination with a leg-supporting member having wheels at its ends, of means hinged to one end of the support for engaging a chair and suspending said end with the wheel carried thereby in spaced relation to the floor.

8. In a structure of the class described, the combination with a leg-supporting member, of a seat member foldable upon one face of the leg-supporting member, and wheels carried by the opposite face of said leg-supporting member.

9. In a structure of the class described, the combination with a leg-supporting member having a tapered end, of means for detachably and hingedly connecting the tapered end to a chair, handles connected to the opposite end of the leg-supporting member, a guard-rail surrounding the end of the member having the handles, said rail terminating short of the tapered end, and supporting means for the leg-supporting member, said supporting means permitting the movement of the member both when attached to the chair and when detached therefrom, whereby the structure may be employed as a child's carriage when detached.

10. In a structure of the class described, the combination with a leg-supporting member, of a seat-supporting member hinged at one end to the leg-supporting member and foldable upon the same, a handle attached to the opposite end of the leg-supporting member, and wheels carried by the under side of the leg-supporting member.

11. In a structure of the class described, the combination with a cushioned seat member constructed to be placed in and supported on the seat of an ordinary rocking-chair, of a leg-supporting member hinged to the seat member and forming a continuation thereof, said leg-supporting member being provided with wheels to traverse the floor in the rocking movements of the chair.

12. In a structure of the class described, the combination with a cushioned seat member constructed to be placed in and supported on the seat of an ordinary rocking-chair, of a leg-supporting member hinged to the said member and provided with wheels at each end, the wheels at one end being adapted to traverse the floor in the ordinary rocking movements of the chair, while the wheel or wheels at the other end are elevated above the floor, said seat member being removable from the rocking-chair and foldable upon the leg-supporting member, whereby the latter may serve as a child's carriage when used separately from the rocking-chair.

13. In a structure of the class described, the combination with a cushioned seat member constructed to be placed on the seat of an ordinary rocking-chair, of a leg-supporting member hinged to the seat member and provided with wheels which traverse the floor in the ordinary rocking movements of the chair, said seat member being adapted to be removed from the chair and folded on top of the leg-supporting member, whereby the latter may be used as an article of furniture separately from the chair.

787,676. **LEG-REST.** GEORGE KELLY, Mineralpoint, Wis. Filed July 21, 1903. Renewed Mar. 6, 1905. Serial No. 248,658.



Claim.—1. In a leg-rest, the combination with a base having an extended neck, of means for securing the base to a chair with the neck projecting beyond the front end thereof, and a leg-supporting member hinged to the neck.

2. In a leg-rest, the combination with a base having an extended neck, of means for securing the base to the under side of a chair-seat with the neck projecting beyond the front end thereof, a leg-supporting member hinged at one end to the neck, and a wheel supporting the other end of the leg-supporting member.

3. In a leg-rest, the combination with a base, of means for securing the base to a chair with one portion of said base in line with the upper face of the seat, and a leg-supporting member movably secured to the base.

4. In a leg-rest, the combination with a base having its upper side recessed to receive a chair-seat, of a leg-supporting member hinged to the base, and a wheel for supporting the member.

5. In a leg-rest, the combination with a base having an extended neck, said base being provided with a recess in rear of the neck to receive a chair-seat, a leg-supporting member hinged to the front end of the neck, and a wheel for supporting the front end of the leg-supporting member.

6. In a leg-rest, the combination with a leg-supporting member, of a wheel for supporting one end of the member, a leg for supporting the other end, and means for attaching the member to a chair with the leg elevated above the surface upon which said chair rests.

7. In a leg-rest, the combination with a leg-supporting member, of wheels journaled upon the front end of the member for supporting the same, spaced legs depending from the opposite end of the member and constituting a support for said end, and means for attaching the member to a chair with the leg elevated.

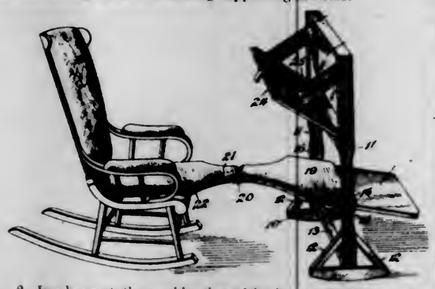
8. In a leg-rest, the combination with a leg-supporting platform, of wheels located at one end of the platform for supporting the same, a bracket secured to the under side of the other end of the platform and having spaced legs provided with outturned feet, and means for supporting the platform from a chair with the legs elevated.

9. In a leg-rest, the combination with a leg-supporting member, of means for supporting one end of the member from a chair, said member having a depressed foot-receiving portion at its lower end.

10. In a leg-rest, the combination with a leg-supporting member, of means for supporting one end of the member from a chair, said member having a cushioned upper portion and a depressed foot-receiving portion below said cushion.

787,677. **LEG-REST.** GEORGE KELLY, Mineralpoint, Wis. Filed July 21, 1903. Renewed Mar. 6, 1905. Serial No. 248,659.

Claim.—1. In a leg-rest, the combination with a frame comprising rockers, standards mounted on the rockers, and connections between the standards, of a leg-supporting member pivotally connected with the standards, and means hingedly connected to the leg-supporting member and arranged to be frictionally supported on a chair for connecting such chair and leg-supporting member.



2. In a leg-rest, the combination with a leg-supporting member, of a movable support for the member, means for adjustably connecting the member and the support, and means hingedly connected to the leg-supporting member and arranged to be frictionally supported on a chair for connecting such chair and leg-supporting member.

3. In a leg-rest, the combination with a movable support, of a leg-supporting member having a vertical adjustment on the support, and a seat member hingedly connected to the leg-supporting member and arranged to be placed upon a chair-seat.

4. In a leg-rest, the combination with a frame comprising rockers carrying spaced upright standards, of a cross-bar extending completely across the space between and having its opposite ends adjustably mounted on the standards, a leg-supporting platform pivotally attached to and supported by the cross-bar, and means for hingedly connecting the leg-supporting platform to a chair.

5. In a leg-rest, the combination with a frame comprising rockers carrying spaced standards, of a cross-bar detachably mounted on the standards and vertically adjustable thereon, said cross-bar having annular grooves, and a leg-supporting platform having depending clips that detachably engage in the grooves of the cross-bar.

6. In a leg-rest, the combination with a leg-supporting member, of a rocker-frame for movably supporting the member, and means for detachably connecting the leg-supporting member to an ordinary chair, said means comprising a seat member that detachably rests upon the usual chair-seat.

7. In a leg-rest, the combination with a leg-supporting platform, of a rocker-frame having a pivotal connection with the platform, and means for detachably connecting the leg-supporting member to an ordinary rocking-chair, said means comprising a seat element that detachably rests upon the usual chair-seat and is hinged to one end of the supporting-platform.

787,678. MINER'S LAMP. FERDINAND KOCH, West Hazleton, Pa. Filed Oct. 25, 1904. Serial No. 229,971.



Claim.—1. In a miner's lamp, a wick-spout having a longitudinal slot, an inner fixed tube having a slot and provided with inwardly-turned teeth, a bar mounted to slide between the spout and tube and having a finger-piece extended outward through the first-named slot, a wick-engaging plate slidable within the inner tube, and a part extended through the second-named slot and connecting said plate and bar.

2. In a miner's lamp, a wick-spout having a longitudinal slot near the lower end, an inner fixed tube having a slot near the upper end, the said tube having inwardly-turned teeth at its upper end, a bar mounted to slide between the tube and spout and having a finger-piece extended through the first-named slot, a transversely-concaved plate arranged within the tube and having its upper end curved inward, and a pin extended from said plate through the second-named slot and connecting with said bar.

3. A miner's lamp having a wick-spout provided with a longitudinal depression having an outwardly-opening slot, a tube fixedly arranged within the spout and having a slot in line with said depression, the said tube having inwardly-turned teeth at its upper end, a bar movable in said depression and having a finger-piece extended through the first-named slot, a wick-engaging device arranged within the tube, and a pin extended through the second-named slot and connecting said plate with the bar.

4. In a miner's lamp, a wick-spout having a longitudinal slot near the lower end, a tube fixedly arranged in said spout and having a spout in its upper end, the said tube having inwardly-turned teeth at its upper end, a bar slidable between the tube and spout and having a finger-piece extended through the first-named slot, a transversely-curved resilient plate within the tube and having an inwardly-turned upper end, and a pin passing through the tube-slot connecting said plate and bar.

787,679. FISH-HOOK. WILLIAM E. KOCH, Whitehall, N. Y. Filed Nov. 30, 1904. Serial No. 234,868.



Claim.—1. A fish-hook, a plate secured to the shank thereof, and a loop below the plate to which a gang of hooks may be connected.

2. A main fish-hook, a loop, a gang of hooks for connection with said loop, and a swivel in said connection.

3. A main fish-hook, a line-attaching swivel on the hook, and a gang-attaching loop below the swivel.

4. A main fish-hook, a line-attaching swivel on the hook, a gang-attaching loop, and a plate between the swivel and loop.

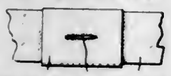
5. A main fish-hook, a line-attaching swivel on the hook, a gang-attaching loop below the swivel, and a sinker on the hook.

6. A main fish-hook, a line-attaching swivel thereon, a plate on the hook-shank, a loop extended from said plate toward the bend of the hook, and a sinker movable on the hook.

7. A main fish-hook, a plate attached to the shank thereof, the plane of said plate being at right angles to the bend of the hook, and a loop on the lower end of said plate.

8. A main fish-hook, a plate of substantially triangular form secured to the shank of the hook with one of its straight edges toward the bend, a loop on the plate at said straight edge, and a line-attaching swivel on the shank.

787,680. NECKTIE-FASTENER. CHARLES KOLSHORN, Savannah, Ga. Filed July 15, 1904. Serial No. 216,749.



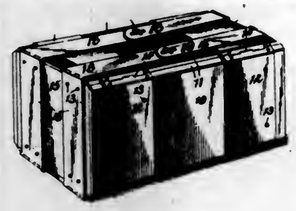
Claim.—1. The combination with the band of a necktie, of a rear-button connection or fastener consisting of a flexible slide mounted on and adapted to slide lengthwise of the band and having a buttonhole to receive the rear collar-button carried by the shirt.

2. The combination with the band of a necktie, of a fastener consisting of flexible endless sleeves mounted to slide lengthwise of the band and connected for simultaneous movement, the interval between the sleeves forming a buttonhole.

3. A fastening device for neckties and the like, embodying tapes or stays arranged side by side and terminally attached to the neckband of the tie, and a slide movable on said tapes and adapted to engage the collar-button.

787,681. FOLDING BOX. WILLIAM KRONENWETTER, St. Marys, Pa. Filed Feb. 12, 1903. Serial No. 143,123.

Claim.—In a folding box, the combination with side walls having their outer longitudinal margins beveled, the outer faces of the beveled portions being substantially alined when the box is set up, of transversely-disposed reinforcing-strips secured to the side walls and having their terminal portions offset and secured upon the bevveled margins, the coacting ends of said strips being hinged together and constituting hinge connections between the side walls, end walls or covers fitting between the side walls for holding the box in set-up condition, reinforcing-strips secured longitudinally to one of the side walls, reinforcing-strips secured to the end walls and hinged to the ends of said longitudinal strips, and means for securing the free ends of the reinforcing-strips of the end walls together over one of the side walls.



787,682. CAR CONSTRUCTION. FREDRICK W. LANGKENNIG, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed Nov. 21, 1904. Serial No. 233,704.



Claim.—1. In a car construction, the combination of side sills, insert tie-plates positioned between said sills and extending upwardly therefrom, and posts secured to said tie-plates, substantially as set forth.

2. In a arc construction, the combination of side sills having channel-beams as members thereof, insert tie-plates interposed between said channel-beams and extending above the tops of said beams, and posts secured to the extended portions of said tie-plates, substantially as set forth.

3. In a car construction, the combination of side sills, insert tie-plates positioned in said sills and extending above the tops of the sills, truss-planks and seat-rails surmounting said sills at opposite sides of said tie-plates, posts seated upon said seat-rails alongside of said tie-plates, and means for connecting said truss-planks, seat-rails and posts to said tie-plates, substantially as set forth.

787,683. VAPOR OR SHOWER BATH ATTACHMENT FOR BATH-TUBS. HERBERT L. LARZELERE, Rochester, N. Y. Filed Dec. 30, 1903. Serial No. 187,182.

Claim.—1. In a device of the class described, a hollow standard having a shower-head at its upper extremity, a curtain-ring having a collar at one side loosely encircling the standard and always unfastened and freely movable thereon whereby said curtain-ring may slide longitudinally or swing laterally on said standard, a spring supported from the upper portion of said standard and connected to said curtain to counterbalance it and drapery supported from the curtain-ring, substantially as set forth.

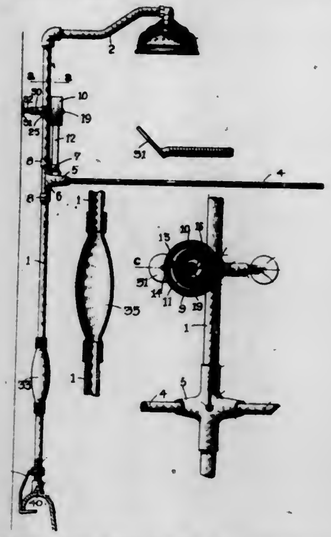
2. In a device of the class described, a standard and a curtain-ring loosely mounted on said standard; said counterbalanced curtain-ring being always unfastened and freely adjustable on said standard both laterally and longitudinally, substantially as set forth.

3. In a device of the class described, a standard, loosely-mounted curtain-ring on said standard and a balancing device including a spring-tensioned flexible band connecting to the curtain-ring.

4. In a device of the class described, a standard and a bracket for supporting said standard from a wall having a substantially V-shaped bifurcated portion compored of two extensible diverging members.

5. In a device of the class described, a standard, and a bracket for supporting said standard from a wall including a ring having attachment to the standard, two diverging interiorly-screw-threaded sockets extending from said ring and plates adapted to be secured to a wall and having two diverging screw-bars engaging in the sockets.

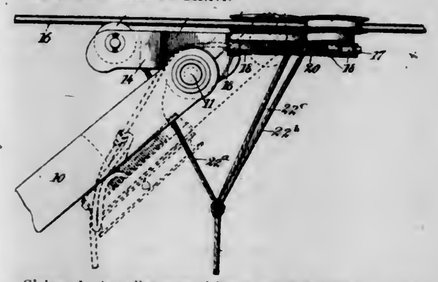
6. In a device of the class described, a standard having its lower end upon the rim of a bath-tub or the like, a hook adapted to catch under said rim and having an eye through which the lower end of the standard loosely passes, a nut on the standard for adjusting the hook, substantially as set forth.



7. In a device of the class described, a standard having a screw-threaded lower end, a hook adapted to catch under the rim of a bath-tub or the like and having an eye through which the lower end of the standard loosely passes, a socket or cap upon the lower end of the standard adapted to clamp against the top surface of the said rim, and a nut on the standard for adjusting the hook, substantially as set forth.

8. In a device of the class described, a standard having a screw-threaded lower end, a hook adapted to catch under the rim of a bath-tub or the like and having an eye through which the lower end of the standard loosely passes, a socket or cap upon the lower end of the standard adapted to clamp against the top surface of the said rim and having a side opening in which one end of a conducting-pipe is adapted to be fitted.

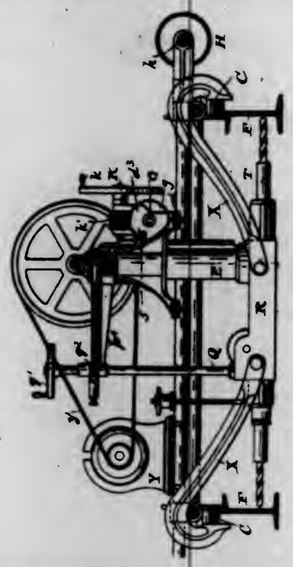
787,684. TROLLEY. LOUIS LEUENBERGER, Van Nest, N. Y. Filed Jan. 28, 1905. Serial No. 243,071.



Claim.—1. A trolley comprising a pivoted harp, a contact-roller at the front portion thereof, two hingedly-mounted plates carried at the rear portion thereof, rollers carried by said plates, a spring for pressing the plates and rollers into active position, and a branched cord or flexible connection having one branch attached to the harp and the other branches attached respectively to said plates.

2. A trolley comprising a pivoted harp, a roller at the front portion thereof and adapted to engage the wire, two hingedly-mounted members carried at the rear portion of the harp, rollers mounted respectively on said members, means for yieldingly pressing the members and rollers into position, and a branch cord or flexible connection having one branch attached to the harp and the other branches attached respectively to said hinged members.

787,685. TRACK-DRILL. WILLIAM E. LUDLOW, Cleveland, Ohio. Filed Jan. 16, 1904. Serial No. 189,295.



Claim.—1. In a track-drilling machine, the combination of a drill-truck, a suspended supporting mechanism including a horizontal frame member, a drill-shaft rotatable in said suspended frame and capable of moving endwise in its bearings, mechanism for rotating said drill-shaft, a non-rotatable sleeve embracing the drill-shaft between collars thereon, said sleeve being provided with a rack, a pinion engaging said rack, a worm-wheel attached to said pinion, a vertical shaft carrying a worm engaging with said worm-wheel, a toothed wheel secured to said vertical shaft, a rocker mounted upon said shaft, a reversible spring-pawl carried by said rocker, and mechanism for operating said rocker, substantially as and for the purpose specified.

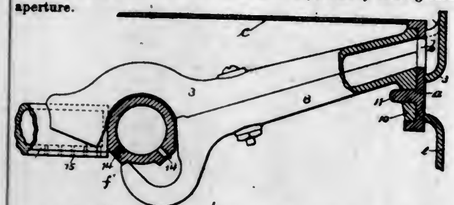
2. In a track-drilling machine, the combination of a wheel-truck, a tubular drill-frame supported thereon, a tubular post vertically movable through said frame, means for moving it vertically, a frame for supporting a drill-shaft secured to the lower end of this post, a drill-shaft rotatably mounted in said frame and movable endwise in its bearings, a beveled gear splined to the drill-shaft, a vertical shaft passing down through said post and having on its lower end a beveled gear engaging the beveled gear on the drill-shaft, means for rotating said vertical shaft, an eccentric secured to the upper end thereof, a non-rotatable endwise movable sleeve embracing the drill-shaft between collars fixed thereon, a vertical shaft, a ratchet-wheel secured to said shaft, mechanism intermediate of said shaft and said sleeve whereby the latter is moved endwise, a rocker upon said vertical shaft, an eccentric-strap connecting the rocker with the eccentric herein named, and a reversible pawl carried by said rocker for engagement with said toothed wheel, substantially as and for the purpose specified.

787,686. GAS-RANGE. JOHN F. MILLS, Port Chester, N. Y. Filed Nov. 16, 1903. Serial No. 181,271.

Claim.—1. In a gas-range having an oven, oven-bottom and lower chamber, and in combination, a front plate having an opening, an oven-door having a part extending over and covering said opening, a burner and a flame-conductor therefrom terminating at said opening.

2. In a gas-range, and in combination, an oven, a broiling-chamber, an oven-door, a division-plate in the front of the range between the oven and broiling-chamber having an aperture therein, a gas-burner located beneath the oven-bottom, a flame-conductor leading from said burner to the aperture in said division-plate, and means connected with the bottom of the oven-door for normally covering said aperture.

3. In a gas-range, and in combination, an oven, a broiling-chamber, an oven-door, a division-plate in the front of the range between the oven and broiling-chamber having an aperture therein, a gas-burner located beneath the oven-bottom and having holes therein, a flame-conductor having one end covering one or more of said holes and the other end opening into said aperture, and means connected with the bottom of the oven-door for normally closing said aperture.

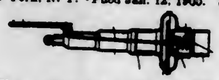


4. In a gas-range, and in combination, an oven, a broiling-chamber, an oven-door, a division-plate in the front of the range between the oven and broiling-chamber having an aperture therein, gas-burners located beneath the oven-bottom and having holes therein, a tubular flame-conductor in communication at one end with said burners and at the other opening into said aperture, and a downward projection integral with the oven-door and adapted when the said door is closed to cover said aperture.

5. A gas-stove having an oven, a burner for heating the oven, a casing surrounding the burner, an aperture in said casing communicating to the outside of the oven, a flame-conductor extending from the burner to said aperture, a door on said oven and means whereby the opening or closing of the oven-door operates to open or close the aperture in the casing.

6. A gas-stove having an oven, a burner for heating the oven and having holes therein, a casing surrounding the burner, an aperture in said casing communicating to the outside of the oven and a tubular flame-conductor having one end covering one or more of said holes and the other end opening into said aperture, a door on said oven and means whereby the opening or closing of the oven-door operates to open or close the aperture in the casing.

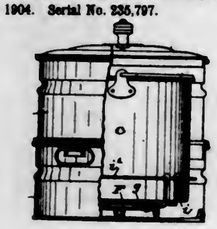
787,687. SAFETY ATTACHMENT FOR GAS-BURNERS. BEN A. NEMO, New York, N. Y. Filed Jan. 12, 1905. Serial No. 240,748.



Claim.—1. The combination, with a burner-tube, of a liquid-containing tube adjacent the burner-tip thereof, a liquid-containing hollow diaphragm within said burner-tube and in communication with said liquid-containing tube, and a normally closed valve below said diaphragm and adapted to be engaged and opened by the bottom thereof upon the heating of said liquid-containing tube.

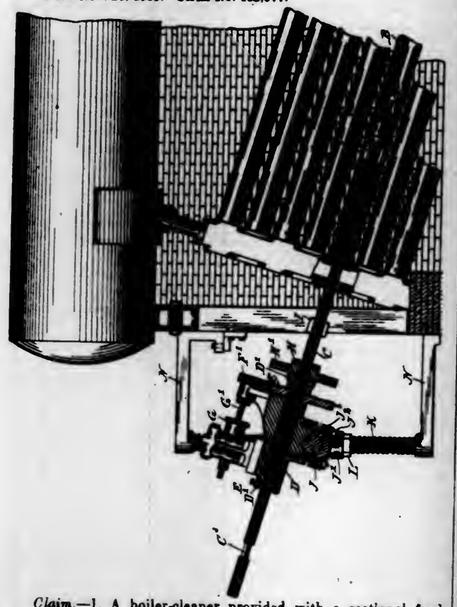
2. The combination, with a burner-tube and a burner-tip mounted thereon, of a ring-shaped tube disposed in a plane parallel to the outlet-opening in said tip, said ring-shaped tube being connected to the burner-tube by a shank disposed at approximately right angles thereto, a downwardly-extending interior tube connected to said shank, a hollow diaphragm in communication with said downwardly-extending tube, a normally closed valve arranged beneath said diaphragm and adapted to be engaged and opened thereby upon the expansion thereof, and an expansible liquid contained in said ring-shaped and downwardly-extending tubes and in said diaphragm.

787,688. COOKER. CHARLES J. PARKER, Havre de Grace, Md. Filed Dec. 7, 1904. Serial No. 235,797.



Claim.—A cooker having in combination an outer case provided with a perforated bottom; an invertible stand within said case and resting on the bottom and having two sets of feet—one set being higher than the other, and the feet of each set projecting in opposite directions; and a cooking vessel in said case supported on said stand.

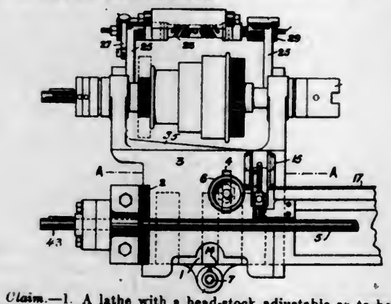
787,689. BOILER-CLEANER. THOMAS J. PASCOE, Norway, Mich. Filed Nov. 28, 1903. Serial No. 182,977.



Claim.—1. A boiler-cleaner provided with a sectional feed-screw having reduced blank portions, means for removably connecting the sections with each other, to render the thread continuous, and bearings made in parts and adapted to be fitted on said reduced blank portions of the feed-screw, as set forth.

2. A boiler-cleaner, comprising a support, a sleeve mounted to turn in the support and held against longitudinal movement therein gearing for rotating the sleeve, a feed-screw mounted to slide back and forth in the sleeve and to be rotated thereby, a handle-nut through which the screw passes, said nut being adapted to be held stationary to permit the screw to be fed lengthwise, a tool on the end of the screw, reduced blank portions on the screw between the feed-nut and the head, and bearings made in parts and fitted on said blank portions.

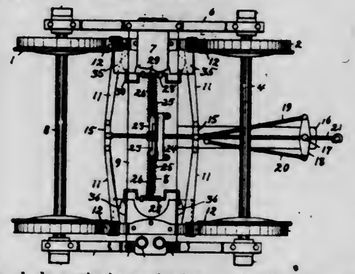
787,690. LATHE. JOSEPH J. PEALING, Liverpool, England. Filed Dec. 10, 1903. Serial No. 184,528.



Claim.—1. A lathe with a head-stock adjustable as to height comprising a lathe-bed; two vertical extension-pieces on said head-stock adapted to slide on said lathe-bed; guides on said lathe-bed adapted to guide said extension-pieces; screw means for raising and lowering said head-stock; means for clamping said head-stock in position, substantially as described and set forth.

2. In a lathe with a head-stock adjustable as to height; a lathe-bed; a head-stock comprising the usual live-spindle, two downwardly-projecting extension-pieces adapted to slide and be clamped on the lathe-bed and means for raising and lowering said head-stock substantially as described.

787,691. CAR-BRAKE. JOHN W. PEPPLE, Hillsboro, Tex., assignor to The Pepple Brake Company, Hillsboro, Tex., a Corporation. Filed Aug. 4, 1904. Serial No. 219,494.



Claim.—1. In car-brake mechanism, a plurality of coacting brake-levers in coöperation with the brake-shoes; movable fulcrums for the said levers automatically adjustable by the gravity of the car; means for compensating for the movement of the fulcrums; and means for actuating the said levers.

2. Car-brake mechanism consisting of a plurality of pivoted, wedge-shaped brake-levers provided with brake-shoes; movable fulcrums for said levers automatically adjustable by the gravity of the car; a yielding bolster adapted to actuate the said fulcrums in proportion to the gravity of the car; means for compensating for the movement of the fulcrums; and means for actuating the said levers.

3. In car-brake mechanism a plurality of pivoted brake-levers provided with brake-shoes, and having their outer ends wedge-shaped to equalize the travel of their inner ends under variations of gravity of the car for the purpose specified; movable fulcrums for the said levers automatically adjustable by the gravity of the car; means for actuating the fulcrums from the same point and proportional to the weight of the car; means for compensating for the movement of the fulcrums; and means for actuating the said levers.

4. In car-brake mechanism a plurality of pivoted brake-levers having their outer ends wedge-shaped and provided with brake-shoes; movable fulcrums for the said levers; means for actuating the movable fulcrums from the same point with a power proportional to the weight of the car; means for compensating for the movement of the fulcrums; means for actuating the said levers; and means for compensating in a loaded car, for the locked fulcrums when the brakes had been previously set by hand; and means for actuating the said brake-levers.

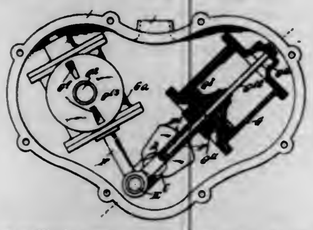
5. In car-brake mechanism a plurality of wedge-shaped pivoted brake-levers carrying brake-shoes; longitudinally-adjustable fulcrums for the said levers; a vertically-yielding bolster adapted to actuate the fulcrums with a power proportional to the load; means for actuating the said brake-levers; means for equalizing the power exerted upon the said levers in use; means for enabling the fulcrums to resist their actuating means; and means for equalizing the movement of the fulcrums under an unequally distributed or balanced load.

787,692. AIR-MOTOR. JAMES L. PILLING, Bucyrus, Ohio. Filed Sept. 12, 1903. Serial No. 172,877.

Claim.—1. In an oscillating engine, a cylinder having a bearing-surface on one side thereof having the ports therein, a trunnion upon the side of said cylinder opposite to said bearing-surface, a pin bearing at its center and end upon the end of said trunnion, and departing from the surface of the end of said trunnion toward the periphery of its end, and a spring acting to press said pin against said trunnion.

2. In an oscillating engine, a cylinder having a bearing-surface on one side thereof having the ports therein, a trunnion upon the side of said cylinder opposite to said bearing-surface, a pin bearing at its center and end upon the end of said trunnion and departing from the surface of the end of said trunnion toward the periphery

of its end, and a spring acting to press said pin against said trunnion, and means for adjusting the tension of said spring.



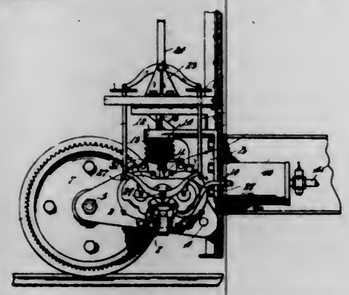
3. In an oscillating engine, a cylinder having a bearing-surface on one side thereof having ports therein, a trunnion on the other side lying in a cylindrical bearing, a pin having bearing-surfaces on its inner end, a cap over the outer end of said bearing provided with screw-threads engaging with screw-threads connected with said cylinder, a spring bearing against said pin and against said cap and means for securing said cap against accidental movement, for the purpose described.

4. In an oscillating engine, the combination of the pivoted cylinder, a piston therein, a piston-rod extending from said piston through one of the cylinder-heads, said piston-rod being provided with a longitudinal cavity therein, a rod secured at one end to a cylinder-head and extending inward therefrom and into said cavity, for the purpose described.

5. In an oscillating engine, the combination of the pivoted cylinder, a piston therein, a piston-rod extending from said piston through one of the cylinder-heads, said piston-rod being provided with a longitudinal cavity therein closed at its outer end, a rod secured at one end to a cylinder-head and extending in ward therefrom and fitting closely, in said cavity, for the purpose described.

6. In an oscillating engine, a casing inclosing the cylinders, a side plate for said casing having passages therein, a projection from said plate having extensions of said passages therein, an induction-passage for the working fluid leading to the interior of said projection, and a valve mechanism in said projection adapted to adjust the connection of the ports, the passages in said projection opening at the outer end thereof, and a plate adapted to be secured to the outer end of said projection to close said passages.

787,693. MOTOR FOR TURN-TABLES OR SIMILAR STRUCTURES. JAMES L. PILLING, Bucyrus, Ohio. Filed Aug. 8, 1904. Serial No. 219,872.



Claim.—1. In combination with a bracket adapted to be attached to a truck, a trailing wheel journaled in a support pivotally connected to said bracket, a gear-wheel on said trailing wheel, a pinion meshing with said gear-wheel supported on said bracket, an engine mounted on said support adapted to actuate said pinion, and a bearing between the support and the bracket, substantially as described.

2. A motor for actuating turn-tables, having in combination a bracket adapted to be attached to the turn-table, a trailing wheel, a pivotal connection between the bracket and trailing wheel, a motor carried at a radially-fixed distance from the trailing wheel, means for communicating motion from the motor to the trailing wheel, and means for regulating said motor from the turn-table, substantially as described.

3. As a means for actuating a turn-table, a trailing wheel, a pivotal connection between the trailing wheel and the turn-table, a motor in operative relation with the trailing wheel, a valve in the exhaust of said motor, a reach-rod and foot-plate for actuating said valve from the turn-table, and suitable supports for said reach-rod and foot-plate, substantially as described.

4. As a means for actuating a turn-table, a gear-wheel connected to said turn-table, a motor-driven shaft, a pinion on said shaft meshing with said gear-wheel, a foot-actuated valve controlling said motor, and a reach-rod and foot-plate for actuating said valve, substantially as described.

5. In a mechanism for actuating a turn-table, the combination of a bracket, a trailing wheel, an arm pivoted to the bracket and supported on the journal of said trailing wheel, a motor, a reach-rod and foot-plate for actuating said valve, and suitable supports for said reach-rod and foot-plate carried on said arm, a cushioned pressure-regulating plate interposed between said arm and said truck, and means for regulating the tension on said plate, substantially as described.

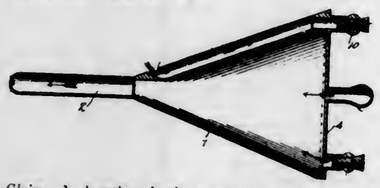
6. In a mechanism for actuating a turn-table, the combination of a trailing wheel, connections between the said wheel and the truck, means for rotating said trailing wheel and a pressure-regulating screw between the truck and the wheel, and means for actuating said screw from the truck, substantially as described.

7. In combination with a bracket adapted to be attached to a turn-table, a trailing wheel pivotally connected therewith, a bracket-supported platform, and valve-controlling levers extending above said platform, substantially as described.

8. In a mechanism for actuating a turn-table, in combination with the trailing wheel, an engine arranged to actuate the same, a valve arranged to close the exhaust-passages of said engine, whereby the engine serves as a brake to prevent the wheel from turning, substantially as described.

9. In a mechanism for actuating a turn-table, in combination with a trailing wheel and an engine adapted to actuate said wheel, a storage-tank for motor fluid carried on said turn-table, and located intermediate the engine and a source of supply of said motor fluid, substantially as described.

787,694. SYRINGE. WILLIAM H. PONTIOUS, Chicago, Ill. Filed Dec. 19, 1903. Serial No. 185,870.



Claim.—1. A syringe having a mixing-chamber provided with an outlet-opening at one end, a plurality of separate and independent inlet-openings at the other end, for the purposes specified and means for preventing the mixing of the used with the unused irrigating liquid.

2. A syringe having a mixing-chamber provided with a plurality of separate inlet-openings for the admission of different substances simultaneously thereto, and means for controlling the outlet-flow of used liquid whereby the liquid may be retained in or discharged from the flushed cavity.

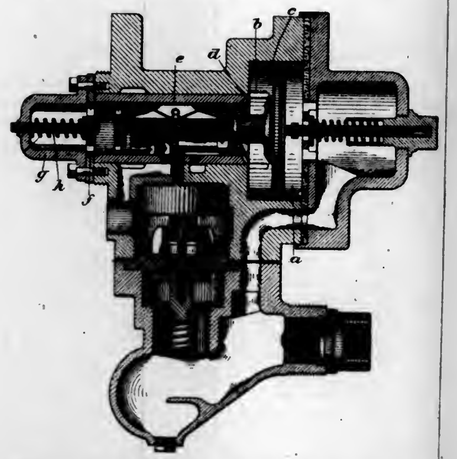
3. A syringe having a mixing-chamber provided with a plurality of separate inlet-openings for the admission of different substances thereto, a tubular discharge-nozzle and a separate outlet for the used irrigating liquid whereby contact of the used with the unused liquid is prevented.

4. A syringe having a mixing-chamber provided with a plurality of separate inlet-openings for the admission of different substances simultaneously thereto, a tubular discharge-nozzle and a separate outlet for the used irrigating liquid whereby contact of the used with the unused liquid is prevented, and means for closing and opening the outlet to control the outflow of the used liquid.

5. A syringe having a conical mixing-chamber provided with a plurality of separate inlet-openings for the admission of different substances thereto, an elongated tubular discharge-nozzle extending from the apex and an outlet-tube formed within and adjacent to the wall of the mixing-chamber, said tube being provided at one end with an external opening adjacent to the discharge-nozzle and at the other end with means for attaching a flexible tube thereto.

6. A syringe comprising a hollow conical body, constituting a mixing-chamber having its apex end extended to form a reduced tubular discharge-nozzle, an inlet-nipple carried by the opposite end or head of the body, a passage within the mixing-chamber with one end piercing the front portion of the side wall of the chamber and its opposite end piercing the head of the chamber but without communication with the interior of the chamber, and a removable closure for the rear end of the passage.

787,695. TRIPLE VALVE. JOSEPH B. PURDY, Hilo, Hawaii. Filed Aug. 9, 1904. Serial No. 220,086.



Claim.—1. A triple-valve device having two feed-grooves in the bushing of the cavity for the piston thereof, one being longer than the other, and also having correspondingly-located grooves in the adjacent end of the bushing for the valve-chamber.

2. A triple-valve device having two feed-grooves in the bushing of the cavity for the piston thereof, one being longer than the other, and also having correspondingly-located grooves in the adjacent end of the bushing for the valve-chamber, and means tending to move the piston outward past the shorter of said grooves.

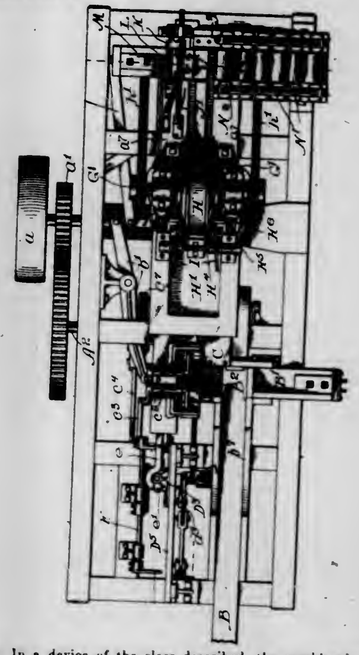
3. A triple-valve device having a plurality of feed-grooves in the bushing of the cavity for the piston thereof, together with an additional groove of greater length, and also having a plurality of correspondingly-located grooves in the adjacent end of the bushing for the valve-chamber.

4. A triple-valve device having a plurality of feed-grooves in the bushing of the cavity for the piston thereof, together with an additional groove of greater length, and also having a plurality of correspondingly-located grooves in the adjacent end of the bushing for the valve-chamber, and means tending to move the piston outward past said first-named grooves.

787,696. MACHINE FOR CLOSING AND SEALING THE TOPS OF CARTONS. CHARLIE REDD, Chicago, Ill., assignor of one-half to Isaac Pieser and one-half to Charles G. Livingston, Chicago, Ill. Filed July 13, 1903. Serial No. 165,267.

Claim.—1. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, mechanism for advancing the carton along a predetermined path, and mechanism for folding the side flaps, of a gluing-wheel interposed between the two folding mechanisms, a glue-pot through which the wheel runs, a rock-shaft mounted adjacent to the gluing-wheel, stirrers actuated by said rock-shaft and having their free ends adjacent to the surfaces of the gluing-wheel within the glue-pot, and mechanism actuated by the gluing-wheel for rocking the rock-shaft to move said stirrers.

2. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, mechanism for advancing the carton along a predetermined path, and mechanism for folding the side flaps, of a gluing-wheel interposed between the two folding mechanisms, a glue-pot through which the wheel runs, a rock-shaft mounted adjacent to the gluing-wheel, stirrers actuated by said rock-shaft and having their free ends adjacent to the surfaces of the gluing-wheel within the glue-pot, an eccentric upon the shaft of the gluing-wheel and connections between said eccentric and said rock-shaft whereby said rock-shaft is rocked as said wheel is rotated.



3. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, mechanism for advancing the carton along a predetermined path, and mechanism for folding the side flaps, of a rock-shaft mounted adjacent to said gluing-wheel and above said glue-pot, stirrers passing through a perforation in said shaft and loosely fitting the same, and means for rocking said rock-shaft.

4. In a device of the class described, the combination with means for gluing and folding the flaps of a carton, of propelling devices for said cartons, adapted to move the same through the machine, and containing an engagement member adapted to move alternately in the path of the carton and out of the path of the carton.

5. In a device of the class described, the combination with means for gluing and folding the flaps of a carton, of propelling devices for said cartons, adapted to move the same through the machine, and containing a plurality of paddles hinged thereto, means for moving said paddles into a position at right angles to the line of reciprocation of said frame during its forward movement, and means for swinging said paddles into the line of reciprocation and out of the path of the cartons during the retrograde movement thereof.

6. In a device of the class described, the combination with mechanism for gluing and folding the flaps of cartons, of a reciprocating propelling-frame, means for reciprocating the same, a plurality of paddles and means for swinging said paddles into a position at right angles to said frame before it commences its forward motion and for swinging said paddles into line with the frame and out of the path of the cartons before the frame commences its return movement.

7. In a device of the class described, the combination with mechanism for gluing and folding the flaps of cartons, of a reciprocating propelling-frame, paddles hinged thereto, a connecting-rod secured to the paddles, means for reciprocating the frame, and means for moving the connecting-rod with reference to the frame to swing the paddles into a position at right angles to the frame at the beginning of the forward movement of the frame and into a position against the same at the beginning of the return movement thereof.

8. In a device of the class described, the combination with mechanism for gluing and folding the flaps of cartons, of a recipro-

cating propelling-frame, paddles hinged thereto, arms upon the paddles, a connecting-rod secured to the arms, a reciprocable rack-bar mounted to move longitudinally of the frame, a pinion in engagement with said rack-bar, an arm-and-link connection between said connecting-rod and said pinion, means for reciprocating the frame, and means for moving the rack-bar with reference to the frame to swing the paddles at right angles to the frame at the beginning of the forward movement thereof and against the same at the beginning of the return movement thereof.

9. In a device of the class described, the combination with mechanism for gluing and folding the flaps of cartons, of a reciprocating propelling-frame, paddles hinged thereto, arms upon the paddles, a connecting-rod secured to the arms, a reciprocable rack-bar mounted to move longitudinally of the frame, a pinion in engagement with said rack-bar, an arm-and-link connection between said pinion and said connecting-rod, means for reciprocating the frame, a reciprocating shaft mounted adjacent and parallel to the propelling-frame, means for reciprocating the shaft, and projecting ears secured to said shaft and adapted to come into contact with the rack-bar to shift the same longitudinally of the frame, and swing the paddles into a position at right angles to the frame at the beginning of the forward movement thereof and against the same at the beginning of the return movement.

10. In a device of the class described, the combination with a suitable frame, means for conveying cartons in succession through the machine, folding devices for the front and rear flaps of the cartons, and means for applying glue to the inner surfaces of the side flaps, of a single folder arranged to operate successively on one of the side flaps of each carton, means for moving the folder forward with, and at the same speed as the carton while operating thereon and for swinging the same down upon the top of the carton to fold the side flap, and suitable means for folding down the last side flap.

11. In a device of the class described, the combination with means for folding the front and rear ends of the cartons, means for applying glue to the inner surface of the side flaps, and means for conveying cartons in succession through the machine, of a second folder, operating upon each carton successively to fold the first side flap, said folder being constructed to engage with the carton-advancing mechanism to be moved forward with, and at the same speed as, each successive carton, means for pressing the folder down upon each successive carton as it is moved forward and means for subsequently folding the second side flap.

12. In a device of the class described, the combination with means for folding the front and rear flaps of cartons and applying glue to the inner surfaces of the side flaps, and means for propelling the cartons through the machine, of a rotatable and longitudinally-reciprocable shaft mounted adjacent and parallel to the path of the cartons, a folding-vane secured to said shaft, means for reciprocating said shaft with a forward movement simultaneously with the passage of a carton and at the same speed with the same, means for rotating said shaft while in longitudinal motion to bring said vane down upon the carton to hold one of the side flaps, and means for subsequently folding the other side flap.

13. In a device of the class described, the combination with means for folding the front and rear flaps of cartons and applying glue to the inner surfaces of the side flaps, and means for propelling the cartons through the machine, of a rotatable and longitudinally-reciprocable shaft mounted adjacent and parallel to the path of the cartons, a folding-vane secured to said shaft, means for reciprocating said shaft with a forward movement simultaneously with and of equal speed with the passage of a carton, a projecting arm upon said shaft, a spiral guide engaging with said arm and adapted to rotate said arm as it is reciprocated to bring said vane down upon a carton to fold one of the side flaps and means for subsequently folding the other side flap.

14. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, means for applying glue to the side flaps, and a reciprocating propelling-frame adapted to propel the carriers through the machine, of a rotatable and longitudinally-reciprocable shaft mounted adjacent to the path of the cartons and parallel to the same, a flap-folding vane secured to said shaft, an arm also secured to said shaft, a stationary spiral guide adapted to engage with said arm to rotate said shaft when it is reciprocated and bring said flap-folding vane down upon the carton to fold one of the side flaps thereof, a projecting member secured to said shaft and in the path of the reciprocating frame, whereby the shaft is moved forward at the same speed with the carton, means for withdrawing said shaft to its original position, and means for subsequently folding the second flap of the carton.

15. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, means for applying glue to the side flaps, and a reciprocating propeller-frame adapted to propel the cartons through the machine, of a rotatable and longitudinally-reciprocable shaft mounted adjacent to the path of the cartons and parallel to the same, a flap-folding vane secured to said shaft, an arm also secured to said shaft and a stationary spiral guide adapted to engage with said arm to rotate said shaft when it is reciprocated and bring said flap-folding vane down upon the carton to fold one of the side flaps thereof, a projecting member secured to said shaft and in the path of the reciprocating frame, whereby the shaft is moved forward at the same speed with the carton, a second projecting member secured to said shaft adapted to engage with an ear upon said frame to withdraw said shaft to its original position after the former has been retracted more than the length of the carton, and means for subsequently folding the second side flap.

16. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, means for applying glue to the side flaps, and means for advancing the carton through the machine and leaving the same at rest opposite the eduction-trough, of a folding-vane moving at the same speed with the carton, means for actuating the vane to fold one of the flaps of the carton, and means for shifting the carton bodily into the eduction-trough while the vane is in contact therewith, the second flap coming into contact with the top of the eduction-trough and being folded thereby.

17. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, means for applying glue to the side flaps, and means for advancing the carton through the machine and leaving the same at rest opposite the eduction-trough, of a folding-vane moving at the same speed with the carton, means for actuating the vane to fold one of the flaps of the carton, and a reciprocating plunger oscillating in the path of the carton and adapted to shift the same bodily sidewise into the eduction-trough while the vane is in contact therewith, the second flap coming into contact with the top of the eduction-trough and being folded thereby.

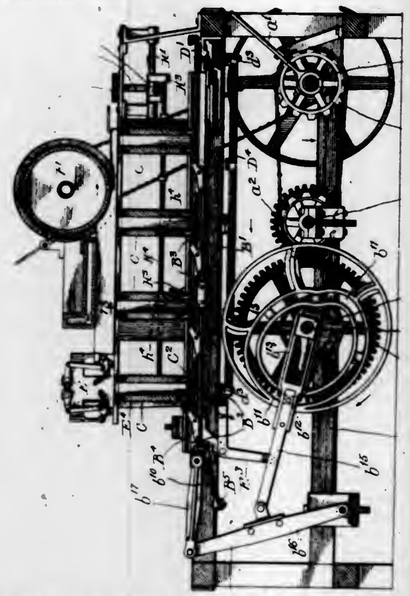
18. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, mechanism for applying glue to the side flaps, a reciprocating propeller adapted to move the carton through the machine and leave the same stationary before the eduction-trough, a folding-vane moving at the same speed as the propeller, means for swinging the vane down upon the carton to fold one of the side flaps, means for retracting the propeller before the vane is removed from the carton, means for shifting the carton sidewise after the retraction of the frame but before the retraction of the vane, the carton passing into the eduction-trough and the remaining side flap coming into contact with the top thereof and being folded thereby.

19. In a device of the class described, the combination with mechanism for folding the front and rear flaps of a carton, mechanism for applying glue to the side flaps, a reciprocating propeller adapted to move the carton through the machine and leave the same stationary before the eduction-trough, a folding-vane moving at the same speed as the propeller, means for swinging the vane down upon the carton to fold one of the side flaps, means for retracting the propeller before the vane is removed from the carton, and a reciprocating plunger timed to move across the path of the carton after the retraction of the propeller and before the retraction of the vane and to shift the carton bodily sidewise into an eduction-trough, the remaining side flap coming in contact with the top of the eduction-trough and being folded thereby.

787,697. MACHINE FOR CLOSING AND SEALING THE BOTTOM FLAPS OF CARTONS. CHARLES REDD, Rockford, Ill., assignor of one-half to Isaac Pieser and one-half to Charles G. Livingston, Chicago, Ill. Filed Dec. 26, 1903. Serial No. 186,679.

Claim.—1. In a device of the class described, the combination with suitable gluing and folding devices, of an endless rectangular guideway having two transverse and two longitudinal guides, a series of blocks in the guideway, a reciprocating table in each longitudinal guide, means for reciprocating the table, a plurality of dogs pivoted to the tables, having points extending into the path of the blocks, the points on each series of said dogs extending in opposite directions and each being movable in one direction with respect to the blocks and not movable in the opposite direction, and mechanism for propelling the blocks through the transverse guides.

2. In a device of the class described, the combination with suitable gluing and folding devices, of an endless rectangular guideway having two transverse and two longitudinal guides, a series of blocks in the guideway, a longitudinally-reciprocable table in each of the longitudinal guides, means for reciprocating the tables, dogs pivoted to the tables and having points extending upward into the path of the blocks, the points of the dogs upon the two tables extending in opposite directions, and a plunger operating adjacent to the end of each transverse guide, and adapted to force each block in succession into the mouth thereof.



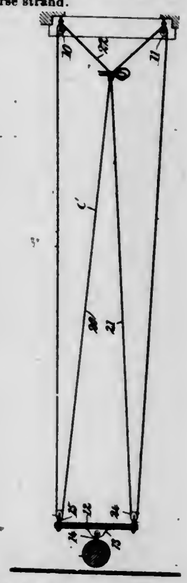
3. In a device of the class described, the combination with suitable folding and gluing devices, a guideway extending adjacent to said folding and gluing devices, a plurality of blocks, and means for moving them through the guideway with a step-by-step movement, of a spider situated above the guideway and beyond the last folding device, rods extending through said spider and movable therein, plates on the lower ends of said rods, springs surrounding the rods, exerting a downward pressure upon the plates with respect to the spider, means for lowering the spider to bring the same into contact with the blocks when the blocks are at rest and for raising the spider before the blocks begin to move.

4. In a device of the class described, the combination with suitable folding and gluing devices, a guideway extending adjacent to said folding and gluing devices, and a plurality of blocks in the guideways, of a spider situated above the guideway and beyond the last folding device, rods extending through the spider and movable therein, plates on the lower ends of the rods, springs surrounding the rods and exerting a downward pressure upon the plates with respect to the spider, means for moving the blocks beneath the spider with a step-by-step movement, and means for lowering the spider to press the plates into contact with the blocks when the blocks are at rest and for raising the spider before the blocks begin to move.

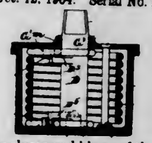
787,698. PULLEY CLOTHES-LINE. JOHN ROBERTS, New York, N. Y. Filed Aug. 2, 1904. Serial No. 219,179.

Claim.—1. In pulley-line construction, opposing supports, horizontally-opposing roller-guides attached to one of the supports, an equalizing-bar pivotally connected with the other support, roller-guides at the end portions of the equalizing-bar, and in line in one length and arranged in outer and intermediate longitudinal strands and a transverse strand, said line being carried by the said roller-supports, and the intermediate longitudinal strands having direct connection with the transverse strand.

2. In pulley-line construction, opposing supports one of which is provided with an opening, pulleys attached to the support having the opening, one pulley at each side of the opening, an equalizing-bar centrally and pivotally attached to the other support, a pulley removably connected with each end of the equalizing-bar, and a line passed over the pulley at each side of the opening, forming a transverse strand, the ends of the line being passed over the pulleys on the equalizing-bar and convergingly carried to a connection with the transverse strand, forming thereby outer parallel strands, a transverse strand and intermediate strands extending from one support to the other, converging toward their connection with the transverse strand.



787,699. HINGE FOR DOUBLE-SWING DOORS. ALBERT J. ROSENTRETER, Boonton, N. J., assignor to himself, Gerald Hannay, East Orange, N. J., and Thomas Hannah, Pittsburg, Pa. Filed June 23, 1903. Renewed Oct. 12, 1904. Serial No. 228,130.



Claim.—1. In a door closer and hinge of the character set forth, a casing, a pintle mounted therein and arranged to turn with a door, a coiled spring in said casing attached at each end directly to said pintle by encircling the latter, and means for increasing the tension of said spring by the turning of said pintle in either direction.

2. In a door closer and hinge of the character set forth a casing, a pintle mounted therein and arranged to turn with a door to which it is connected, a coiled spring in said casing having an arm at each end, the said arms extending inwardly and terminating in loops loosely encircling said pintle in opposite directions, means carried by said pintle for engaging said arms and holding said spring under tension, and abutments on said casing each arranged to oppose the movement of its adjacent arm in one direction.

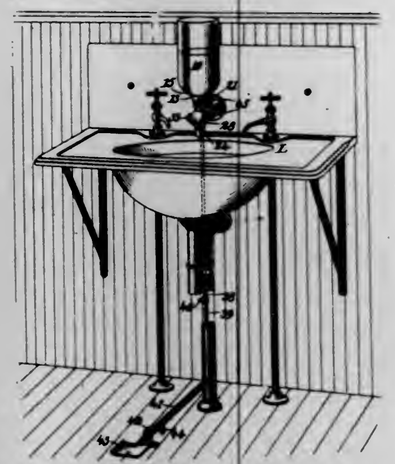
3. In a door closer and hinge of the character set forth, a casing, a pintle mounted therein to turn with a door, a coiled spring in said casing having axial portions within which said pintle is received, said pintle and casing provided with means coöperating with said spring to increase the tension of the latter by the turning of the pintle.

4. In a door closer and hinge, a casing, a pintle mounted therein and arranged to turn with a door to which it is connected, a coiled spring in said casing, having an arm at each end terminating in a loop encircling said pintle, the said arms extending inwardly and said loops loosely encircling said pintle in opposite directions, and fingers on said pintle engaging the inner faces of said arms and holding said spring under tension, and abutments on the interior of

said casing engaging the same faces of said arms adjacent to said fingers.

5. In a door closer and-hinge, a casing, a pintle mounted therein and arranged to turn with a door to which it is connected, a coiled spring in said casing having its upper and lower coils ending in arms extending inwardly and terminating in loops loosely encircling said pintle in opposite directions with both arms normally under tension, abutments on said casing adapted to prevent the movement of the lower arm in one direction and the upper arm in the opposite direction, and means carried by said pintle for engaging said arms and holding said spring under tension and causing one or the other of said arms to move with the pintle to increase the tension, the other arm being held against such movement by its abutment.

787,700. **SOAP-DISPENSING APPARATUS.** WILL R. SALTZGABER and CAWOOD J. CARMICHAEL, Knoxville, Tenn. Filed May 27, 1904. Serial No. 210,073.



Claim.—1. A soap-dispensing apparatus comprising a valve-casing, a receptacle separably connected therewith, a bracket, a union connecting the bracket and casing, a valve rotatable within the casing, and a treadle connected with the valve.

2. A soap-dispensing apparatus comprising a receptacle, a valve for controlling the discharge therefrom, an operating-arm for the valve, a treadle, a link connecting the arm and treadle, and means for varying the length of the link.

3. A soap-dispensing apparatus comprising a receptacle, a delivery-conduit leading therefrom and having its end of reduced diameter, and a nozzle surrounding the end of the conduit and being provided with an opening opposite the reduced portion thereof.

787,701. **PLATING APPARATUS.** LOUIS SCHULTE, New York, N. Y. Filed Sept. 17, 1904. Serial No. 224,836.

Claim.—1. A plating apparatus comprising a tank for containing the electrolyte, spaced anode-plates arranged horizontally in the said tank, an insulated endless cathode-carrier having exposed contact-points, and a fixed contact member connected with the source of the electrical energy and with the contact-points of the said cathode-carrier, the latter traveling through the electrolyte between the said anode-plates and carrying on its contact-points the article to be plated.

2. A plating apparatus provided with a traveling endless cathode-carrier for carrying the article to be plated through the electrolyte, the said cathode-carrier consisting of connected insulated endless cables having exposed contact-points for supporting the article to be plated.

3. A plating apparatus provided with a movable cathode-carrier, a fixed contact member in contact with the movable cathode-carrier, the said movable cathode-carrier consisting of an endless insulated skeleton frame having exposed contact-points for engagement with the fixed contact member.

4. A plating apparatus provided with a movable cathode-carrier, a fixed contact member in contact with the movable cathode-carrier, the said movable cathode-carrier consisting of an endless insulated skeleton frame having exposed contact-points for engagement with the fixed contact member, the latter being spring-supported



5. A plating apparatus provided with a movable cathode-carrier, a fixed contact member in contact with the said cathode-carrier, the latter consisting of an endless insulated skeleton frame having exposed contact-points for engagement with the fixed member, and spaced rollers for the skeleton frame to travel on.

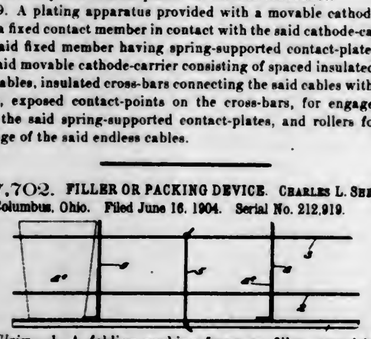
6. A plating apparatus provided with a movable cathode-carrier, a fixed contact member in contact with the said cathode-carrier, the latter consisting of an endless insulated skeleton frame having exposed contact-points for engagement with the fixed contact member, and spaced rollers for the skeleton frame to travel on, one of the rollers being driven.

7. A plating apparatus provided with a movable cathode-carrier, a fixed contact member in contact with the said cathode-carrier, the latter consisting of an endless insulated skeleton frame having exposed contact-points for engagement with the fixed contact member, spaced rollers for the skeleton frame to travel on, and intermediate rollers and idlers for the same, between which intermediate rollers and idlers the said skeleton frame passes.

8. A plating apparatus provided with a movable cathode-carrier for supporting the article to be plated and carrying it through the electrolyte, the said cathode-carrier consisting of spaced insulated endless cables, insulated cross-bars connecting the cables with each other and exposed contact-points on the said cross-bars.

9. A plating apparatus provided with a movable cathode-carrier, a fixed contact member in contact with the said cathode-carrier, the said fixed member having spring-supported contact-plates and the said movable cathode-carrier consisting of spaced insulated endless cables, insulated cross-bars connecting the said cables with each other, exposed contact-points on the cross-bars, for engagement with the said spring-supported contact-plates, and rollers for the passage of the said endless cables.

787,702. **FILLER OR PACKING DEVICE.** CHARLES L. SHELTON, Columbus, Ohio. Filed June 16, 1904. Serial No. 212,919.



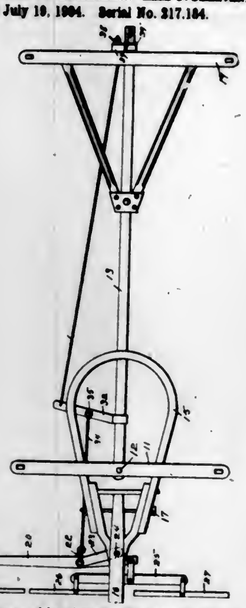
Claim.—1. A folding packing-frame or filler comprising in combination a base portion, posts shouldered in different horizontal planes hinged to said base, and filler-boards slotted and supported at the slots on said shoulders.

2. A folding packing-frame or filler comprising in combination a base portion, shouldered posts hinged thereto, and filler-boards supported on said posts.

3. A folding packing-frame or filler comprising in combination a base portion, posts shouldered in different horizontal planes hinged to said base, the shoulders on the lower portions of said posts having the greater lateral extension, and filler-boards slotted and supported at the slots on said shoulders.

4. A folding packing-frame or filler comprising a base portion, shouldered posts hinged to said base, and a filler-board supported on said posts, combined with flexible cords connecting the base and filler-board and tending to retain the filler-board on the posts.

787,703. **DRAFT-EQUALIZER.** LARS O. SEHEVEN, Marshalltown, Iowa. Filed July 18, 1904. Serial No. 217,164.



Claim.—1. The combination of a draft-equalizer, means for supporting it at its draft center upon the wagon-tongue, a draft-rod pivoted to the draft center of the draft-equalizer and extended rearwardly, a lever designed to be fulcrumed to the front portion of a wagon running-gear and having said draft-rod pivoted to its central portion, a second draft-rod pivoted to the outer end of said lever projected rearwardly and inwardly and means for connecting its rear end to the rear portion of a wagon running-gear.

2. The combination of a bar formed with a loop at one end and an opening at its other end, a lever pivoted to said bar, an evener-bar, a draft-rod attached to the evener-bar and to said lever and a second draft-rod attached to the lever and extended in a direction opposite from the first draft-rod.

3. The combination of a lever, an evener-bar, a draft-rod attached to the evener-bar and to said lever, a second draft-rod attached to the lever and a device shaped to receive the rear end of a wagon-reach and to engage the rear of a wagon-axle having said second draft-rod attached thereto.

4. The combination of a bar formed with a loop on one end and an opening at its other end, a downward extension on the end thereof having said loop, a lever pivoted to said downward extension, an evener-bar, a draft-rod attached to the evener-bar and to said lever and a second draft-rod attached to the lever and means for connecting it with the rear of a wagon.

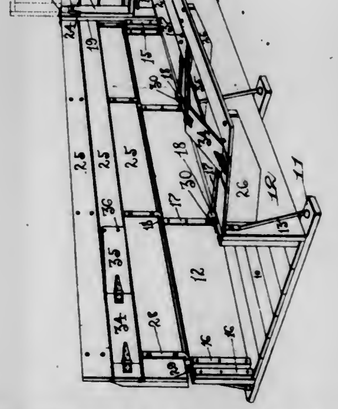
5. The combination of an evener-bar, a lever designed to be attached to the front portion of a wagon, a draft-rod connecting the evener-bar and the lever, a second draft-rod attached to the lever and a device attached to the other end of the second draft-rod comprising a block having the draft-rod attached thereto and designed to rest against the rear axle of a wagon and a loop connected with the block shaped to encircle the rear end portion of a wagon-reach.

6. The combination of an evener-bar, a draft-rod connected with the evener-bar, a bar formed with a loop at its top on one end, an opening in its other end and a downward extension on the end having said loop, a lever pivoted to the downward extension, said draft-rod connected to the central portion of said lever, a second draft-rod attached to the outer end of said lever, a block attached to the rear end of said second draft-rod and a loop connected with the block designed to encircle the reach of a wagon.

7. The combination with a wagon running-gear, of an evener-bar, a supporting-bar pivoted to the evener-bar and to the wagon-tongue, a bar formed with a loop at the top of one end a downward extension at the bottom of said end and an opening in the other end said loop designed to receive the wagon-reach and said opening designed to receive a king-bolt between the front axle and front bolster of the wagon, a lever pivoted to the under surface of the downward extension and projected laterally having said draft-rod connected to its central portion, a second draft-rod pivoted to the outer end of said lever and a block resting against the rear face of the rear axle having, said draft-rod attached thereto, and formed with a loop to encircle the rear end of the wagon-reach.

8. The combination of an evener-bar, a swingletree attached to one end, a doubletree attached to the other end, a clevis pivoted to the evener-bar at a point adjacent to the end to which the doubletree is attached, draft devices connected to said clevis and a supporting-bar pivoted to the evener-bar at the point where the clevis is attached projecting toward the end to which the doubletree is attached to support the evener-bar on a wagon-tongue with the tongue near the central portion of the doubletree.

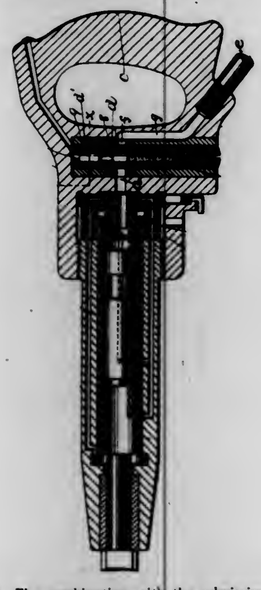
787,704. **TRANSFORMABLE WAGON-BED.** ALBERT R. STONER, Thayer, Iowa. Filed Dec. 30, 1901. Serial No. 87,682.



Claim.—A transformable stock and hay rack for wagons, comprising in combination, a wagon-bed comprising bottom, sides and front, all permanently connected, a strip secured to the inner face of the front end portion of each side, said strips spaced apart from the end of the wagon-bed, a detachable extension-front comprising uprights designed to enter between said strips and the front of the wagon-bed and to engage the inner surfaces of the sides of the wagon-bed and projected above the said sides, cross-strips fixed to the front edges of the uprights to hold them spaced apart, said cross-strips in vertical alinement with the front of the wagon-bed, a hinged top on the extension-front susceptible of hanging downwardly in the rear of the cross-pieces and also of standing vertically in line with the uprights of the extension-front, the upper one of said cross-pieces limiting the movement of the hinged portion forwardly, hinge members fixed to the sides of the wagon-bed, extension sides, hinge

members fixed to the extension sides and connected with the hinge members on the sides of the wagon-bed and means for attaching the extension sides to the extension-front.

787,705. **HANDLE FOR PNEUMATIC TOOLS.** JOSEPH H. TEMPLIN, New York, N. Y., assignor to Philadelphia Pneumatic Tool Company, a Corporation of New Jersey. Filed Feb. 23, 1904. Serial No. 194,709.

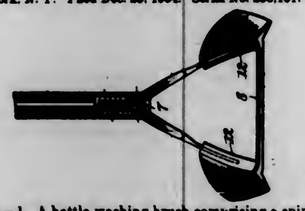


Claim.—1. The combination with the admission-valve of a pneumatic handle of chipping, riveting and other machines, of fluid-pressure means for opening said valve, holding it open and for graduating its closing, and means constantly tending to close said valve against said opening means, said opening, holding and graduating means consisting of a restricted air-supply admitted through a part of the admission-valve and a normally open exhaust therefor adapted to be throttled by the thumb or hand of the operator.

2. The combination with the admission-valve of a pneumatic handle of chipping, riveting and other machines, of fluid-pressure means for opening said valve, holding it open and for graduating its closing, and means constantly tending to close said valve against said opening means, the supply and exhaust passages of said opening means being independent of each other and the exhaust-passage being adapted to be throttled by the thumb or hand of the operator.

3. In a pneumatic tool-handle, a throttle-valve located wholly outside of the grasping part of said handle, fluid-pressure means for opening said valve, and means constantly tending to close said valve against said opening means, the supply and exhaust passages of said opening means being independent of each other and the exhaust-passage being adapted to be throttled by the thumb or hand of the operator.

787,706. **BOTTLE-WASHING BRUSH.** CARL K. VOLCKENING, New York, N. Y. Filed Dec. 23, 1904. Serial No. 238,101.

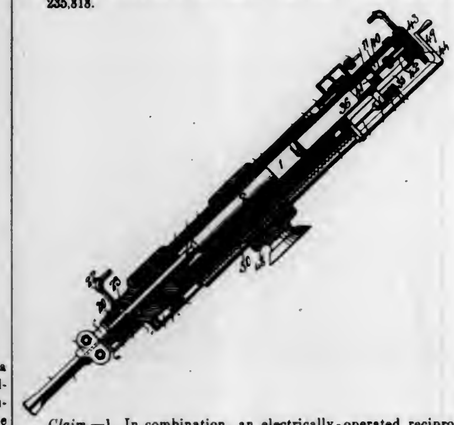


Claim.—1. A bottle-washing brush comprising a spindle, a ferrule thereon, fingers pivotally connected to the ferrule, a spring arranged within the ferrule and engaging with the inner ends of the said fingers, and a rubber-brush material having socket members for receiving the outer ends of said fingers.

2. A bottle-washing brush comprising a spindle, a ferrule attached thereto and having opposite slots at its end, fingers having their ends extended through said slots and pivoted within the ferrule, a pin extended across the ferrule between said fingers, a spring-pressed plunger within the ferrule and engaging with the inner ends of said fingers and a rubber brush engaged with the fingers.

3. A bottle-washing brush comprising a spindle, a ferrule thereon, fingers having their inner ends extended into said ferrule and pivoted, a spring-pressed plunger in said ferrule and engaging with said inner ends, the outer ends of said fingers being flattened and slotted, and a rubber brush having socket members for engaging with said flattened ends and whereby opposite walls of the socket members may expand into said slots.

787,707. **ELECTRIC TOOL-DRIVER.** WILLIAM F. WAGNER, New York, N. Y., assignor to American Inventions Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 7, 1904. Serial No. 235,818.



Claim.—1. In combination, an electrically-operated reciprocating driver and a reciprocating commutator, comprising a solenoid and contacts arranged to coöperate with the core of the solenoid.

2. In combination, a reciprocating driver comprising a solenoid and a reciprocating commutator comprising a solenoid, the coils of the solenoid-driver being in circuit with the coils of the solenoid-commutator.

3. A reciprocating driver and electromagnetic coils for operating it in combination with a reciprocating commutator having electric contact-points at its opposite ends housed in the hollow cores of electromagnets.

4. In combination, a reciprocating driver, electromagnetic coils for reciprocating the driver and demagnetizing-coils for releasing the driver at the opposite ends of its stroke.

5. In combination, a reciprocating driver, electromagnetic coils for operating the driver, means for applying the force of the driver in one direction to a tool to move the tool longitudinally, and means independent of the driver for applying the force of the driver in the opposite direction to rotate the tool.

6. In combination, an electrically-driven reciprocating driver, means for applying the force of the driver in one direction to drive a tool longitudinally and means for applying the force of the driver in the opposite direction to force a fluid to the tool.

7. In combination, an electrically-driven reciprocating driver, means for applying the force of the driver in one direction to drive a tool longitudinally and means for applying the force of the driver in the opposite direction to rotate the tool and force a fluid to the tool.

8. In combination, an electrically-driven reciprocating driver, means for placing a tool under the impact of the driver when the latter moves in one direction, a reciprocating plunger independent of the driver and under the impact of the driver moving in the opposite direction, a ratchet-and-pawl mechanism for rotating the tool and a cam connected with the plunger for actuating the ratchet-and-pawl mechanism.

9. In combination, a reciprocating driver, electromagnetic coils for operating the driver, means for placing a tool under the impact of the driver moving in one direction, a reciprocating plunger under the impact of the driver moving in the opposite direction, means under the control of the plunger for rotating the tool and a demagnetizing-coil for returning the plunger and releasing the driver.

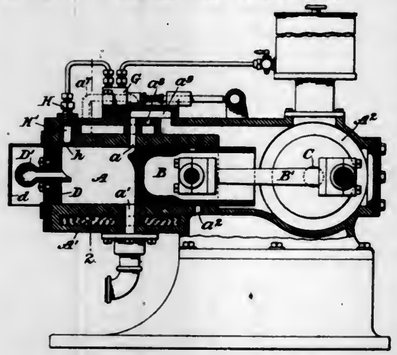
10. In combination, a reciprocating driver, electromagnetic coils for operating the driver in opposite directions, means for placing a tool under the impact of the driver in one direction, a reciprocating plunger under the impact of the driver in the opposite direction, demagnetizing-coils for releasing the driver at each end of its stroke and means for simultaneously energizing and deënergizing a driver-actuating coil and a demagnetizing-coil at each stroke of the driver.

787,708. **COMBINED MOP-HEAD AND WRINGER.** JOHN W. WALTERS, Webster City, Iowa. Filed Apr. 25, 1904. Serial No. 204,724.



Claim.—In a device of the class described, a handle, a frame fixed thereto, a shaft mounted in the lower part of the sides of the frame, a roller mounted on said shaft, a crank mounted on said shaft, a roller-supporting frame pivoted to said fixed frame at the central portions of the sides of the frames, a roller mounted in the pivoted frame adjacent to the lower end thereof and opposite the first-mentioned roller, a pin pivotally attached to the upper portion of the pivoted frame and passing loosely through the handle and a coiled spring on said pin between the handle and the pivoted frame.

787,709. **INTERNAL-COMBUSTION ENGINE.** CARL W. WEISS, New York, N. Y. Filed July 1, 1903. Serial No. 163,845.



Claim.—1. In an internal-combustion engine, the combination of a working cylinder, an auxiliary chamber communicating with the working cylinder through a relatively small but unobstructed passage to receive air from the working cylinder during the compression-stroke and to discharge the same into the cylinder as the pressure therein is reduced, a vaporizer and igniter independent of said auxiliary chamber, and means to supply the fuel basis of the charge to said auxiliary chamber before the pressure in the cylinder is reduced, whereby the fuel basis of the charge is sprayed into the working cylinder by the air discharged from the auxiliary chamber and the pressure in the working cylinder is reduced, substantially as described.

2. In an internal-combustion engine, the combination of a working cylinder, an auxiliary chamber communicating with the working cylinder through a relatively small but unobstructed passage to receive air from the working cylinder during the compression-stroke and to discharge the same into the cylinder as the pressure therein is reduced, a nozzle through which the fuel basis of the charge is delivered to the auxiliary chamber, a vaporizer and igniter independent of said auxiliary chamber, and a pump timed to supply the fuel basis of the charge to said nozzle before the pressure in the cylinder is reduced, whereby the fuel basis of the charge is sprayed into the working cylinder by the air discharged from the auxiliary chamber and the pressure in the working cylinder is reduced, substantially as described.

787,710. **TOOL FOR BUDDING.** HERBERT C. WHITE, Valdosta, Ga. Filed Sept. 5, 1903. Serial No. 172,901.



Claim.—1. A budding or girdling implement for annular or ring budding, having handles provided with cutters, and a calipering device on the inner faces of the handles and independent of the cutters, as set forth.

2. A budding or girdling implement comprising handles hinged at one extreme end and provided with cutters, and registering half-round recesses in opposite faces of the handles to form graduated calipering-holes, said calipering-holes being independent of the cutters, as set forth.

3. A budding or girdling implement having handles hinged together, and knives secured on the said handles and arranged in opposite directions, to allow the use of the knives by right or left handed persons.

4. A budding or girdling implement having handles hinged together, and knives secured on the said handles and arranged in opposite directions, to allow the use of the knives by right or left handed persons, the inner and outer edges of the said knives being curved, as set forth.

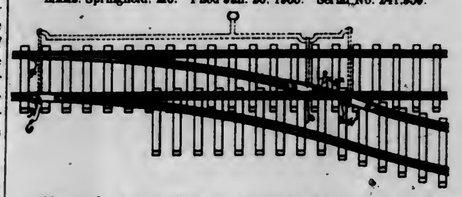
5. A budding or girdling implement having two handles hinged together at one end, a knife at the hinged end of each handle, and sets of oppositely-disposed cutters secured to the top and bottom of the handles and having their cutting edges concaved, the lower cutters being fractionally more recessed or concaved than the upper cutters, as set forth.

6. A budding or tree-girdling implement for annular or ring budding, comprising hinged handles, and sets of oppositely-disposed cutters secured to the top and bottom of the handles and having their cutting edges concaved, the lower cutters being fractionally more recessed or concaved than the upper cutters to compensate for the different diameters of the tree or branch at the points where the cuts are made, thereby preventing the cutters from making a spiral cut, as set forth.

7. A budding or girdling implement having handles hinged together, knives secured on the said handles, and sets of oppositely-disposed cutters on the handles, as set forth.

8. A budding or girdling implement having two handles hinged together at one end, sets of oppositely-disposed cutters secured to the top and bottom of the handles, and a series of registering half-round recesses in the inner faces of the handles to form graduated calipering-holes, the said calipering-holes being located between the said cutters and the free ends of the handles, as set forth.

787,711. **EMERGENCY SWITCH AND FROG.** CHARLES H. WILLIAMS, Springfield, Mo. Filed Jan. 20, 1905. Serial No. 241,950.

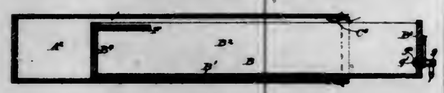


Claim.—1. A connection for a switch-track with the main line having a hinged point, one part of said point passes upon and over the main rail and another part of said point entering the groove of the main rail combined with a clamp and a wedge for securing the same, substantially as shown and described.

2. A point for connecting a temporary track with the main line consisting of a part to pass upon the top of the rail of the main track and a part to enter the groove of the main-track rail combined with

a clamp and wedge to hold the same in position substantially as shown and described.

787,712. **SHELF-GOODS BOX.** COLLINS ARNOLD, Albany, N. Y. Filed Apr. 21, 1904. Serial No. 204,286.



Claim.—1. In a shelf-box, the combination of a casing open at its front end, and a throat-piece fitted around the open end of the casing and reinforcing the same; with a drawer slidably fitted within said casing, substantially as described.

2. In a shelf-box, the combination of a casing open at front, and a reinforcing metallic throat-piece secured to the front end of the casing around the opening therein, and having a dust-guard; with a drawer slidably fitted within said casing, substantially as described.

3. In a shelf-box comprising a casing having an open front end, a metallic throat-piece fitted to and around the opening of the casing having a dust-guard; and a drawer slidably fitted in the casing and having a projecting front end adapted to engage the dust-guard, substantially as described.

4. In a shelf-box, the combination of a casing open at its front end and having its walls formed of layers of light material, and a metallic flanged throat-piece secured to the front end of the box around the opening therein; with a drawer having its walls formed of layers of light material, and slidably fitted in the casing, substantially as described.

5. In a shelf-box, the combination of the casing having an open front end and imperforate top, bottom, side and rear end walls, and a metallic throat-piece fitted to and around the opening in the casing and having a depending dust-guard on its upper part; with a drawer slidably fitted in the casing and having an upwardly-projecting front end adapted to engage the dust-guard, for the purpose and substantially as described.

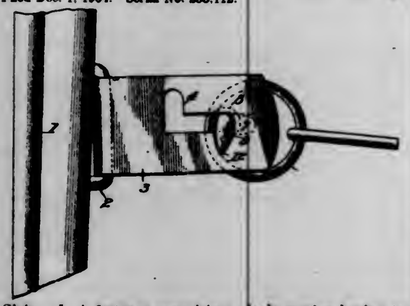
6. In combination, a casing having an open end and a throat-piece surrounding the edges of the casing at the open end thereof, said throat-piece consisting of strips of metal each bent upon itself to reinforce the front edges of the case, substantially as described.

7. In combination, an open-ended casing and a throat-piece surrounding the edges of the casing at its open end, said throat-piece having portions forming a lining for the front and inner edges of the case, and other portions covering the outer edge of the case.

8. A shelf-box comprising a casing having an open front end, a throat-piece fitted to and around the open end of the casing, a drawer fitted in the casing, and a device attached to the rear end of the casing to prevent longitudinal displacement thereof as the drawer is inserted or removed, substantially as described.

9. In combination, a series of superimposed shelf-boxes, a drawer in each box, and a device attached to the rear end of each box whereby the lowermost box may be engaged with the shelf or support, and each upper box may be engaged with the next lower box, so as to prevent longitudinal displacement of the boxes as the drawers are withdrawn, substantially as described.

787,713. **TRACE-FASTENER.** CHARLES R. AUSTIN, Lind, Wash. Filed Dec. 1, 1904. Serial No. 235,112.



Claim.—1. A fastener comprising a body portion having two parallel members formed with substantially L-shaped slots in alinement, and a locking member adapted to be inserted in the slots, consisting of a shank headed on one end and provided at its opposite end and intermediately of its ends with laterally-extending projections disposed at the same angle to each other as the angle formed by the two branches of the said L-shaped slots.

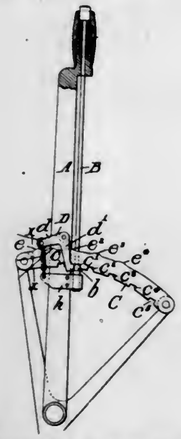
2. A trace-fastener comprising a body portion formed with an opening to receive the trace and an L-shaped slot communicating with said opening, and a locking member adapted to be inserted in said slot and movable therein having a shank formed with a shoulder on one end and a laterally-extending projection to extend into said opening in the body portion and a laterally-extending projection on the opposite end to extend upon the outer side of the body portion, said projections being at the same angle as the angle formed by the two branches of the L-shaped slot.

3. A trace-fastener comprising a body portion having two parallel members provided with substantially L-shaped slots in alinement, and a locking member adapted to be inserted in said slots and movable therein having a shank formed with a shoulder on one end, a laterally-extending projection to extend between the two members of the body portion and a laterally-extending projection on the opposite end to extend upon the outer side of the body portion, said projections being at the same angle as the two branches of the L-shaped slots.

4. A trace-fastener comprising a body having the parallel members thereof formed with substantially L-shaped slots in alinement, and a locking member adapted to be inserted into said slots comprising a shank with a shoulder of larger size than the slots on one end thereof and a lateral projection on the opposite end adapted to extend upon the outer side of the body portion and to be turned transversely of the slots and means to automatically hold said projection transversely of the slots.

5. A trace-fastener comprising a body having the parallel members thereof formed with substantially L-shaped slots in alinement, and a locking member adapted to be inserted into said slots comprising a shank with a shoulder of larger size than the slots on one end thereof and a lateral projection on the opposite end adapted to extend upon the outer side of the body portion and to be turned transversely of the slots and means acted on by the trace to hold said projection transversely of the slots.

787,714. **LEVER-AND-QUADRANT APPARATUS.** HERBERT AUSTIN, Birmingham, England. Filed Nov. 12, 1904. Serial No. 232,435.



Claim.—1. In lever-and-quadrant apparatus, the combination of a lever, a slider carried by the lever, a quadrant having notches with any one of which the slider may be engaged, a spring for moving the slider into engagement with a notch, means by which the slider may be moved out of engagement with a notch, a catch or holder carried hy the lever, means by which such catch or holder is engaged with the slider when the latter has been moved out of engagement with a notch and prevents its reëngaging therewith, and a releaser which is also carried by the lever, there being an obstruction placed in the path through which the releaser is moved, substantially as and for the purpose set forth.

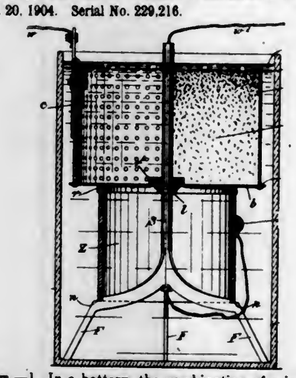
2. In lever-and-quadrant apparatus, the combination of a lever, a slider carried by the lever, a quadrant having notches with any one of which the slider may be engaged, a spring for moving the slider into engagement with a notch, means by which the slider may be moved out of engagement with a notch, a catch or holder carried by the lever, means by which such catch or holder is engaged with the slider when the latter has been moved out of engagement with a notch and prevents it reëngaging therewith, and a releaser which is also carried by the lever, and adapted to bear against the quadrant, there being a projection of the quadrant with which the releaser comes in contact, as the lever is turned on its axis, and which moves the releaser and thereby disengages the catch or holder from the slider, substantially as and for the purpose set forth.

3. In lever-and-quadrant apparatus, the combination of a lever, a slider carried by the lever, a quadrant having notches with any one of which the slider may be engaged, a spring for moving the slider into engagement with a notch, means by which the slider may be moved out of engagement with a notch, a catch or holder carried by the lever, means by which such catch or holder is engaged with the slider when the latter has been moved out of engagement with a notch and prevents its reëngaging therewith, and a releaser formed with such catch or holder, there being an obstruction placed in the path through which the releaser is moved, substantially as and for the purpose set forth.

4. In lever-and-quadrant apparatus, the combination of a lever, a slider carried by the lever, a quadrant having notches with any one of which the slider may be engaged, a spring for moving the slider into engagement with a notch, means by which the slider may be moved out of engagement with a notch, a catch or holder carried by the lever, means by which such catch or holder is engaged with the slider when the latter has been moved out of engagement with a notch and prevents it reëngaging therewith, a releaser which is also carried by the lever, a portion of the releaser which is adapted to bear against the quadrant, and a spring which presses such portion of the releaser against the quadrant, there being a projection of the quadrant with which the releaser comes in contact as the lever is turned on its axis, and which moves the releaser and thereby disengages the catch or holder from the slider, substantially as and for the purpose set forth.

5. In lever-and-quadrant apparatus, the combination of a lever, a slider carried by the lever, a quadrant having notches with any one of which the slider may be engaged, a spring for moving the slider into engagement with a notch, means by which the slider may be moved out of engagement with a notch, a catch or holder carried by the lever, means by which such catch or holder is engaged with the slider when the latter has been moved out of engagement with a notch and prevents it reëngaging therewith, a releaser formed with such catch or holder, a roller carried by the outer end of such releaser, and a spring which presses such roller against the quadrant, there being a projection of the quadrant with which such roller comes in contact, as the lever is turned on its axis, and which moves the releaser and thereby disengages the catch or holder from the slider, substantially as and for the purpose set forth.

787,715. **BATTERY.** WILLIAM C. BANKS, New York, N. Y. Filed Oct. 20, 1904. Serial No. 229,216.



Claim.—1. In a battery, the combination of a jar, a standard supporting the remaining parts and having a tube portion supported above the bottom, a zinc supported on said standard, a basket substantially concentric with the tube located above said zinc, and terminals, all substantially as set forth.

2. In a battery, the combination of a jar, a standard supporting the remaining parts and having a tube portion supported above the bottom, a zinc supported on said standard, a basket substantially concentric with the tube located above said zinc, and terminals, one of which leads down through the tube and to its appropriate element, all substantially as set forth.

3. In a battery, the combination of a jar, a standard supporting the remaining parts and having a tube portion supported above the bottom, a zinc supported on said standard, a basket substantially concentric with the tube composed of a cylinder and a base-plate, located above said zinc, and terminals, all substantially as set forth.

4. In a battery, the combination of a jar, a standard supporting the remaining parts and having a tube portion supported above the bottom, a zinc supported on said standard, a basket substantially concentric with the tube located above said zinc and at least partially supported by it, and terminals, all substantially as set forth.

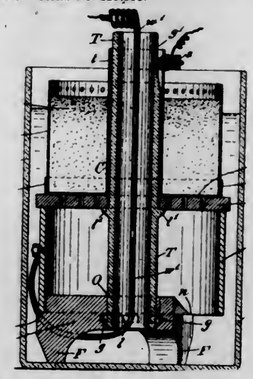
5. In a battery, the combination of a jar, a standard supporting the remaining parts and having a tube portion supported above the bottom and provided with seats for the zinc and supporting-lugs for the depolarizer-basket, a zinc supported on said standard, a basket substantially concentric with the tube located above said zinc, and terminals, all substantially as set forth.

6. In a battery, the combination of a jar, a standard supporting the remaining parts and having a tube portion supported above the bottom, a zinc supported on said standard, a basket substantially concentric with the tube located above said zinc, and terminals and insulators, all substantially as set forth.

7. In a battery, the combination of a jar, an insulated zinc, a depolarizer-basket placed above said zinc, an insulator interposed between said zinc and said basket, and supports, terminals and connections, all substantially as set forth.

8. In a battery, the combination of a jar, a standard, a zinc supported on said standard above the bottom, a basket located above said zinc and sustained by the standard, and terminals, all substantially as set forth.

787,716. **BATTERY.** WILLIAM C. BANKS, New York, N. Y. Filed Oct. 22, 1904. Serial No. 229,535.



Claim.—1. In a battery the combination of a jar, an insulating-support for the positive element, an insulating-tube extending upward from said support to a point above the intended solution-line, a positive element resting on said support, a depolarizer-basket, insulated from the positive element and provided with a terminal and a connection leading from the positive element to and through said insulating-tube, all substantially as set forth.

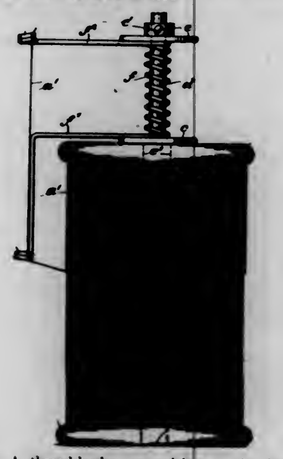
2. In a battery the combination of a jar, an insulating-support for the positive element, an insulating-tube matched to fit to and lock with said support and extending upward from said support to a point above the intended solution-line, a positive element resting on said support a depolarizer-basket, insulated from the positive element and provided with a terminal and a connection leading from the positive element to and through said insulating-tube all substantially as set forth.

3. In a battery, the combination of a jar, an insulating-zinc support, a zinc thereon, an insulating-tube extending upward from said support, an insulating-plate above the zinc and around the tube, a

depolarizer-basket with outer perforated walls, inner walls surrounding said insulating-tube and a base resting above the insulating-plate and completing the basket inclosure, together with terminals and connections, all substantially as set forth.

4. In a battery, the combination of a jar, an insulating-zinc support, an insulating-tube, locked to but detachable from the zinc-support, and extending from said support to a point above the intended solution-line, a zinc surrounding said tube and resting upon said support, an insulating-plate placed over the zinc and about the tube, an annular depolarizer-basket placed on said plate and surrounding said tube and composed of a tube about the insulating-tube, an outer wall and a base extending from the inner to the outer wall, a connection leading from the zinc to the lower part of the insulating-tube and up through said tube and a terminal secured to the upper end of the tube portion of the depolarizer-basket, all substantially as set forth.

787,717. **THREAD-BRAKE.** HENRY A. BATES, Middletown, Conn. Filed Jan. 18, 1905. Serial No. 241,554.



Claim.—1. A thread-brake, comprising a wire helix, arms formed as continuations of the free ends thereof, and eye ends to said arms, an axial support member about which said helix is revoluble, and means for applying a gentle regulatable friction to said helix and its arms.

2. A thread-brake, comprising a wire helix, arms formed as continuations of the free ends thereof and eye ends or terminations to said arms, one of said arms having portions bent at right angles to one another so as to reach toward the center of the spool or cop, the other of said arms being a straight prolongation, an axial member about which said helix is revoluble, and means for applying a gentle regulatable friction to said helix and its arms.

3. A thread-brake comprising a wire helix, arms formed as continuations of the free ends thereof and eye ends to said arms the said arms being offset or out of the same vertical plane with reference to one another, an axial member about which said helix is revoluble, and means for applying a gentle regulatable friction to said helix and its arms.

4. A thread-brake comprising a wire helix, arms formed as continuations of the free ends thereof, and eye ends to said arms, an axial support member about which said helix is revoluble, and a common means for holding the said helix and its arms to the axial member and for applying a gentle regulatable friction to said helix and its arms.

5. A thread-brake, comprising a wire helix, arms formed as continuations of the free ends thereof and eye ends to said arms, the said arms being offset or out of the same vertical plane with reference to one another, an axial member about which said helix is revoluble, and a common means for holding the said helix and its arms to the axial member and for applying a gentle regulatable friction to said helix and its arms.

6. A thread-brake, comprising a wire helix, arms formed as continuations of the free ends thereof and eye ends to said arms, the said prolongations or arms in an initial position diverging from horizontal parallel planes, an axial member about which the said helix is revoluble, and means for applying a gentle regulatable friction to said helix and its arms.

7. A thread-brake, comprising a wire helix, arms formed as continuations of the free ends thereof and eye ends to said arms, the said prolongations or arms in an initial position diverging from horizontal parallel planes, an axial member about which said helix is revoluble, a means for holding the helix and its arms upon the axial member and a means for applying a gentle regulatable friction to said helix and its arms.

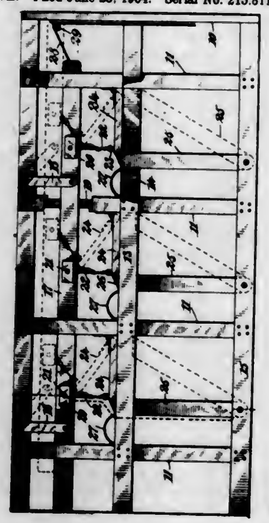
8. A thread-brake, comprising a wire helix, arms formed as continuations of the free ends thereof and eye ends to said arms, the said arms being offset, and in an initial position diverging from horizontal parallel planes, an axial member about which said helix is revoluble, a means for holding the helix and its arms upon the axial member and a means for applying a gentle regulatable friction to said helix and its arms.

9. A thread-brake, comprising a disk, a hub adapted to pass into the opening in a spool or cop, an axial member formed as a part of said disk and hub, a disk and hub apertured to pass over the said axial member, and means for securing the position of said disk and hub upon the axial member, a wire helix adapted to pass freely over the axial member and to be revolved thereon, arms formed as continuations of the free opposite ends of the helix and eye end terminations to said arms.

10. A thread-brake, comprising a disk, a hub adapted to pass into the opening in a spool or cop, an axial member formed as a part of said disk and hub, a disk and hub apertured to pass over the said axial member, means for securing the position of said disk and hub upon the axial member, a wire helix adapted to pass freely over the axial member and to be revoluble thereon, arms formed as continuations of the free opposite ends of the helix and eye end terminations to said arms, the said arms in an initial condition diverging or being out of parallel horizontal planes with reference to one another, and consequently bearing upon the opposite flat faces of the aforesaid disks, substantially as set forth.

11. A thread-brake, comprising a disk, a hub adapted to pass into the opening in a spool or cop, an axial member formed as a part of said disk and hub, a disk and hub apertured to pass over the said axial member, and means for securing the position of said disk and hub upon the axial member, a wire helix adapted to pass freely over the axial member and to be revoluble thereon, arms formed as continuations of the free opposite ends of the helix, eye end terminations to said arms, the said arms in an initial condition diverging or being out of parallel horizontal planes with reference to one another and consequently bearing upon the opposite flat faces of the aforesaid disks, and said arms being normally offset from one another or out of the same vertical planes, substantially as set forth.

787,718. **STANCHION-OPENING DEVICE.** EDWIN O. BERGH, Beloit, Wis. Filed June 23, 1904. Serial No. 213,811.



Claim.—1. In stanchion-opening devices, a frame, stanchions pivoted at their lower ends in the frame and having upper beveled surfaces, locking-blocks adapted for engagement with the beveled end portions of the stanchions, springs acting upon the stanchions in opposition to the locking-blocks, a shifting device, and connections between the shifting device and the locking-blocks.

2. In stanchion-opening devices, a frame, stanchions pivoted at their lower ends in the frame, locking devices hinged at one end to the frame, their free ends being adapted for locking engagement with the stanchions, springs attached to the frame and having tensional bearing against the stanchions in direction of the locking-blocks, a shifting device carried by the frame, and connections between the said locking-blocks and the shifting device.

3. In stanchion-opening devices, a frame, stanchions pivoted at their lower ends in the frame, locking devices hinged at one end to the frame, having their free ends adapted for locking engagement with the stanchions, springs attached to the frame and having tensional bearing against the stanchions in direction of the locking-blocks, a shifting bar having swinging connection with the frame, guide-loops secured to the shifting bar, and connecting-loops having guided movement in the loops on the shifting bar, the said connecting-loops having pivotal engagement with the free ends of the locking-blocks, as described.

787,719. **TENT-FASTENER.** JOHN BLAIR, Jr., Rock Springs, Wyo. Filed Jan. 6, 1905. Serial No. 239,857.



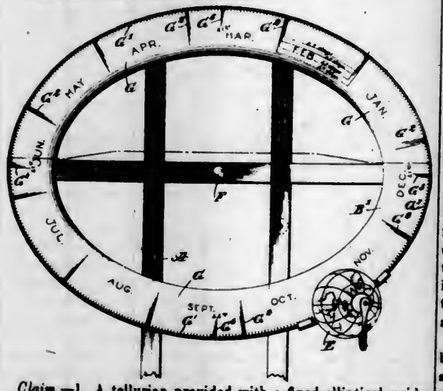
Claim.—1. A strap adapted to attach to the lower edge of a tent-wall, and a link supported upon said strap, said link presenting an edge adapted to engage an anchor-peg.

2. A link having a transverse bar presenting an edge adapted to engage an anchor-peg, and means for attaching said link to the edge of a tent-wall.

3. A strap having a pair of wings adapted to superpose and receive an edge of a tent-wall therebetween, said strap having a loop projecting beyond said edge, and a link having an upper bar passing through said loop and a lower bar adapted to engage an anchor-peg.

4. A strap having a pair of oppositely-disposed wings adapted to be superposed and to receive the lower edge of a tent-wall therebetween, said strap projecting below said edge to form a loop, a link having an upper bar supported in said loop and a lower bar adapted to engage the side of an anchor-peg, and a keeper surrounding said loop above said upper bar.

787,720. **TELLURIAN.** CHARLES F. BLAKESLEE, Farmington, Ill. Filed Aug. 1, 1903. Serial No. 167,837.



Claim.—1. A tellurian provided with a fixed elliptical guideway having a graduation indicating the twelve months of the year and days of the month and a subdivision into quarters of one day in each month, a carriage mounted to travel on the said guideway and carrying a globe, and a pointer on the carriage, indicating on the said graduation, as set forth.

2. A tellurian comprising a fixed elliptical guideway representing a yearly orbit of the earth, a carriage mounted to travel on the said guideway, a gravity-support comprising a shaft extending transversely and journaled on the said carriage, the said shaft being provided at one end with a weight, an angular arm at the other end of the shaft, and a curved arm extending from the last-mentioned end of the shaft, and a globe journaled in bearings in the said arms and having its axis standing at an angle to the axis of the said guideway, as set forth.

3. A tellurian comprising a fixed elliptical guideway representing the yearly orbit of the earth, a carriage mounted to travel on the said guideway, a gravity-support extending transversely and journaled on the said carriage, a globe journaled in the said support and having its axis standing at an angle to the axis of the said guideway, and a friction device on the said carriage, engaging the said guideway, for holding the carriage at any point on the guideway, as set forth.

4. A tellurian, comprising a supporting-frame, a fixed elliptical guideway on said frame, the said guideway having an inwardly-extending web provided on the front face with graduations indicating the months of the year and days of the month, and one day of each month having a subdivision representing quarter-days, a carriage mounted to travel on the said guideway, a globe carried by said carriage, and having its axis standing at an angle to the axis of the said guideway, a pointer on the carriage indicating on the said graduation, and a forwardly-projecting rod arranged in the axis of the guideway and carrying the representation of the sun, the said representation of the sun being located in a vertical plane parallel to the guideway and extending through the center of the globe, as set forth.

787,721. **LOOSE-LEAF BINDER.** PHILIP A. BOWEN, Passaic, N. J., assignor of one-half to Roy C. Bowen, Passaic, N. J. Filed June 13, 1904. Serial No. 212,268.



Claim.—1. In a loose-leaf binder, the combination with each of the connecting-rods of the stationary and slidable binding-bars, of an interior sleeve provided with one or more ball-receiving apertures slidably supported upon the bar-connecting rod; an exterior sleeve formed with a wedging surface on its inner side rigidly affixed at one end to the slidable binding-bar; a ball or balls located in the aperture or apertures of the inner sleeve between said exterior sleeve and said connecting-rod and means for automatically drawing the interior sleeve with said ball or balls into said exterior sleeve, whereby said ball is caused to impinge against said connecting-rod and lock said sleeves and rod together.

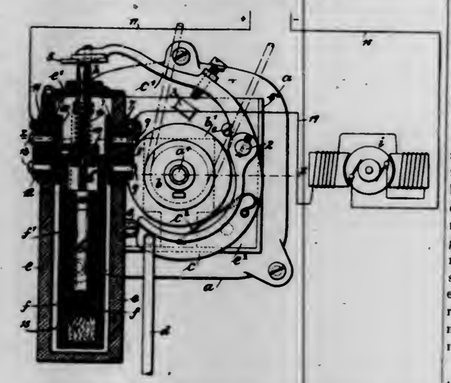
2. In a loose-leaf binder of the described class, the combination with the several rods by which the binding-bars are adjustably connected together, of a pair of telescoping sleeves connected with each of said binding-rods, one of each pair of said sleeves being rigidly connected at one end with one of said binding-bars and the other sleeve being slidably supported upon the connecting-rods within said first-named sleeve; means for automatically locking said telescoping sleeves and rods together and a single releasing-bar connected with the protruding ends of all of said interior sleeves and adapted as it is moved away from the binding-bar to simultaneously disengage the fastening mechanism by which said sleeves and connecting-rods are interlocked together, substantially as set forth.

3. In a loose-leaf binder, the combination with each of the rods by which the binding-bars are connected together, of an interior sleeve slidably supported upon said rods, an exterior ball-receiving sleeve having inwardly-converging walls at one end and a spring-receiving chamber at its opposite end; balls located in apertures of the inner sleeve; a spiral spring located in said spring-receiving chamber adapted to retain said sleeve, balls and rods in their inter-

locking position and means for simultaneously partially withdrawing said inner sleeves from said exterior sleeves and releasing the locking mechanism preparatory to separating and adjusting said binding-bars, substantially as set forth.

787,722. MOTOR CONTROLLING AND REGULATING DEVICE.

OTTO C. BRITSCH, New York, N. Y., assignor to David Wald, New York, N. Y. Filed Aug. 31, 1903. Serial No. 171,943.



Claim.—1. The combination with a motor, means coacting therewith for driving a mechanism, electric-circuit wires and a manually-operated mechanism, of a plunger device, a vessel and electric conducting fluid therein in which the plunger moves and is brought into action by the operation of the latter mechanism for closing the electric circuit with its initial movement and through a maximum of resistance for starting the motor, and which plunger device progressively moved lessens or cuts out the resistance for gradually increasing the electric current and augmenting the speed and power of the motor.

2. The combination with a motor, means coacting therewith for driving a mechanism, electric-circuit wires and a manually-operated mechanism acting in one direction to establish the electric circuit and in the opposite direction as a brake, of a plunger device, a vessel and electric conducting fluid therein in which the plunger moves and is brought into action by the operation of the latter mechanism for closing the electric circuit with its initial movement and through a maximum of resistance for starting the motor, and which plunger device progressively moved lessens or cuts out resistance for gradually increasing the electric current and augmenting the speed and power of the motor

3. The combination with a motor, means coacting therewith for driving a mechanism, and electric-circuit wires, of a device comprising a pivotally-mounted brake shoe and arm, a treadle-rod connected to said device for swinging the same on its pivot, a vertically-moving plunger device actuated by the said brake shoe and arm, a cylindrical vessel receiving the plunger and supports therefor, a body of mercury in said cylindrical vessel which with the downward movement of the plunger, progressively moves along the surface thereof, acting as a switch to change the strength of the electric current flowing through the motor, so as to decrease the resistance and increase the current.

4. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake-wheel also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a brake-spring extending across the inner curved surface of the brake-shoe and adapted to contact with the surface of the brake-wheel, a treadle-rod for moving the same and means for regulating the movement of the brake shoe and arm.

5. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake-wheel also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a brake-spring extending across the inner curved surface of the brake-shoe and adapted to contact with the surface of the brake-wheel, a treadle-rod for moving the same, means for regulating the movement of the brake shoe and arm and comprising a lug and an adjusting-screw passing through the arm.

6. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake device also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a brake-spring extending across the inner curved surface of the brake-shoe and adapted to contact with the surface of the brake-wheel, a treadle-rod for moving the same, means for regulating the movement of the brake shoe and arm, and a vertically-moving spring-returned plunger device actuated by said treadle-rod and brake shoe and arm for completing the electric circuit at maximum resistance and with its movement progressively lessening the resistance of the current and augmenting the strength of the motor.

7. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake-wheel also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a brake-spring extending across the inner curved surface of the brake-shoe and adapted to contact with the surface of the brake-wheel, a treadle-rod for moving the same, means for regulating the movement of the brake shoe and arm, a vertically-movable spring-returned plunger device actuated by the treadle-rod, brake shoe and arm with its movement, a vessel containing mercury and receiving the said plunger device, tubular insulating-lining to said vessel whereby the current is obliged to pass through the mercury to the bottom of the vessel, the contact of said plunger with the mercury establishing the electric circuit and bringing into the same the maximum amount of resistance which is gradually reduced or cut out with the further movement of the plunger into the mercury, so as to increase the current and augment the speed of the motor.

8. In a motor controlling and regulating device, the combination with a cylindrical closure, of a cylindrical vessel within the same and supports therefor from said closure, a bottomless lining of insulating material within said cylindrical vessel, a plunger and plunger-rod received within said cylindrical vessel and its lining, a bracket-support through which the plunger-rod passes, a spring around the plunger-rod between the bracket-support and the support of the cylindrical vessel and means substantially as shown and described for moving the plunger down into the cylindrical vessel against the action of said spring and a body of mercury within said cylindrical vessel with which the said plunger contacts, substantially as set forth.

9. In a motor controlling and regulating device, the combination with a cylindrical closure, of a cylindrical vessel within the same and supports therefor from said closure, a bottomless lining of insulating material within said cylindrical vessel, a plunger and plunger-rod received within said cylindrical vessel and its lining, a bracket-support through which the plunger-rod passes, a spring around the plunger-rod between the bracket-support and the head of the plunger-rod, said plunger comprising a body of carbon forming a resistance in its length and provided on its lower end with an insulating-cap so as to quickly make and break the electric circuit at the line of division between said parts.

10. In a motor controlling and regulating device, the combination with a cylindrical closure, of a cylindrical vessel within the same and supports therefor from said closure, a bottomless lining of insulating material within said cylindrical vessel, a plunger and plunger-rod received within said cylindrical vessel and its lining, a bracket-support through which the plunger-rod passes, a spring around the plunger-rod between the bracket-support and the head of the plunger-rod, means substantially as shown and described for moving the spring-returned plunger down into the cylindrical vessel to contact with a body of mercury contained therein, electrical connections arranged in series and connected to the surface of the said cylindrical vessel, electric-circuit wires connected therewith and electrical resistance devices with which said circuit-wires engage, substantially as set forth.

11. In a motor controlling and regulating device, the combination with a cylindrical closure, of a cylindrical vessel within the same and supports therefor from said closure, a bottomless lining of insulating material within said cylindrical vessel, a plunger and plunger-rod received within said cylindrical vessel and its lining, a bracket-support through which the plunger-rod passes, a spring around the plunger-rod between the bracket-support and the head of the plunger-rod, a removable cup-guide through which the plunger-rod passes and which is received in an aperture in said bracket-support and against the inner surface of which said spring bears so that the plunger and plunger-rod are readily removable from the cylindrical closure and electric-circuit wires extending from the said bracket-support and cylindrical vessel.

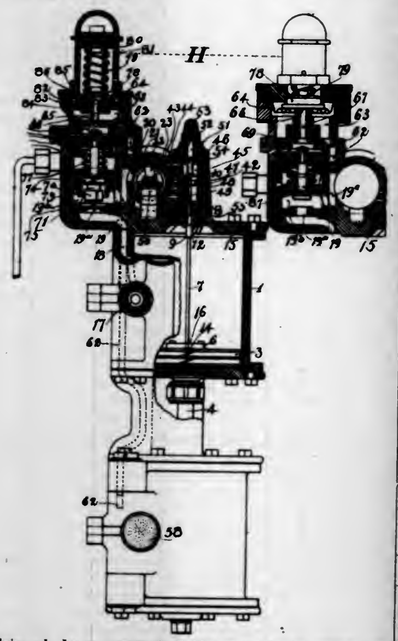
12. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake-wheel also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a treadle-rod for moving the same, means for regulating the movement of the brake shoe and arm and comprising a lug and an adjusting-screw passing through the arm.

13. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake device also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a treadle-rod for moving the same, means for regulating the movement of the brake shoe and arm, and a vertically-moving spring-returned plunger device actuated by said treadle-rod and brake shoe and arm for completing the electric circuit at maximum resistance and with its movement progressively lessening the resistance of the current and augmenting the strength of the motor.

14. In a motor controlling and regulating device, the combination with the motor-shaft, a pulley thereon and a band extending to the device to be operated, and a brake-wheel also on said shaft, of a pivotally-mounted device comprising a brake shoe and arm, a treadle-rod for moving the same, means for regulating the movement of the brake shoe and arm, a vertically-movable spring-returned plunger device actuated by the treadle-rod, brake shoe and arm with its movement, a vessel containing mercury and receiving the said plunger device, tubular insulating-lining to said vessel whereby the current is obliged to pass through the mercury to the bottom of the vessel, the contact of said plunger with the mercury establishing the electric circuit and bringing into the same the maximum amount of resistance which is gradually reduced or cut out with the further movement of the plunger into the mercury, so as to increase the current and augment the speed of the motor.

787,723. QUICK-ACTION AUTOMATIC FLUID-PRESSURE BRAKE SYSTEM.

JOHN S. BUBB, Kittanning, Pa. Filed Dec. 29, 1904. Serial No. 238,733.



Claim.—1. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having duplex automatic governor-retaining-valve feed-valve means on each car or vehicle, operated by excess fluid-pressure, controlled by the engineer, so adapted to open and close a passage leading from the main train or brake pipe to the brake-piston cylinder, and to close the passage leading from the brake-piston cylinder to the atmosphere, the device is so adapted to charge the brake-piston cylinder when excess fluid under pressure is in the main train or brake pipe, after the main service-valve has been shifted to a released position by the said excess pressure in the main train or brake pipe above the normal, so there will be a certain amount of fluid under pressure, in the brake-piston cylinder, to perpetuate an application of the brakes, after the main-service-valve chamber and auxiliary reservoir have been cut off from the main train or brake pipe, also other automatic governor means controlled by said devices to keep the exhaust-passage closed, leading from the brake-piston cylinder, to the atmosphere, when the fluid-pressure in the main train or brake pipe is greater than that in the main-service-valve chamber, and auxiliary reservoir, until the fluid-pressure in the main train or brake pipe has been reduced to normal therein, substantially as set forth.

2. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and brake-piston cylinder, having duplex automatic governor-retaining-valve feed-valve devices on each car or vehicle, that will automatically open and admit a certain portion of fluid under pressure when an excess fluid-pressure exists in the main train or brake pipe, the said pressure will flow into the brake-piston cylinder, when a certain amount of excess fluid-pressure from the main train or brake pipe, operates the duplex automatic governor-retaining-valve feed-valve devices, closing the exhaust-passage to retain the fluid under pressure that the engineer wishes in the said brake-piston cylinder, a governor-valve adapted to cut off communication between the main train or brake pipe and the brake-piston cylinder simultaneously keeping the exhaust-passage closed to perpetuate an application of the brakes, after the main service-valve has been shifted to a released position and the main-service-valve chamber and auxiliary reservoir is cut off from the main train or brake pipe, and the pressure therein is less than that in the main train or brake pipe and greater than that in the brake-piston cylinder, substantially as set forth.

3. In an automatic fluid-pressure brake system, the combination of an automatic regulating device, to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having governor means on each car or vehicle, so adapted that three or more different fluid-pressures may be had at the same time on said car or vehicle, after the main service-valve has been shifted to a released position. By an excess fluid-pressure in the main train or brake pipe, said excess pressure operates means to govern the fluid under pressure in the main-service-valve chamber, and also operates a duplex automatic governor, retaining-valve feed-valve device, to retain fluid in, and feed the brake-piston cylinder with fluid-pressure, when a perpetuation of the brakes is desired, substantially as set forth.

4. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means so adapted on each car or vehicle, to reciprocate between pressures opening and closing a passage leading from the main train or brake pipe, to the brake-piston cylinder. The pressure on the one side of said means is a governor-spring and fluid under pressure from the brake-piston cylinder, while the fluid-pressure on the other or inlet side is that from the main train or brake pipe, after the main service-valve has been shifted to a released position, opening a passage leading from the retaining-valve chamber to the brake-piston cylinder, substantially as set forth.

5. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a

main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having duplex automatic governor-retaining-valve feed-valve devices to perpetuate an application of the brakes, said device being so adapted to release the brakes through the exhaust-cavity on the under side of the main service-valve, without shifting the same, after a perpetuation of the brakes has been had and the excess fluid under pressure in the main train or brake pipe is reduced to normal, the application being perpetuated after the main service-valve is cut off from the main train or brake pipe, and simultaneously feeding the brake-piston cylinder from the main service-valve chamber and auxiliary reservoir, substantially as set forth.

6. In an automatic fluid-pressure brake system, the combination of an automatic regulating device, to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having means in an automatic governor device to cut off the main train or brake pipe from the main-service-valve chamber and to admit fluid under pressure from the main-service-valve chamber and auxiliary reservoir, into the brake-piston cylinder, after the main service-valve has been shifted to a released position, and when the excess fluid under pressure in the main train or brake pipe has operated the duplex automatic governor-retaining-valve feed-valve device, to perpetuate an application of the brakes, substantially as set forth.

7. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means on a locomotive so adapted to change the pressure in the main train or brake pipe, so an application of the brakes may be had or perpetuated, and the same released without shifting the main service slide-valve on each car or vehicle, in the fluid-pressure brake system, governor means on each car or vehicle to control the pressure in the main-service-valve chamber, while there is an excess pressure in the main train or brake pipe, substantially as set forth.

8. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having an automatic governor fluid compressing and regulating device to compress fluid under pressure from the atmosphere and discharge the same into the system to any predetermined point of pressure desired, having a supply-pipe from the locomotive for the flow of steam independent of any governor or regulating means in the same, to control the steam before it enters the passage cored in the castings of the device, but after the steam flows through the pipe from the locomotive into the cored passages in the casting of the device, it then flows through the automatic governor valve chambers; thence into parts to operate a steam-piston after it flows through said governor-valve device, located and formed in the main casting of the device that compresses fluid under pressure so that fluid-pressure drawn from the atmosphere by the air-piston will be charged to any predetermined point of pressure in the receiving-chamber formed or cored in the main casting, such pressure being regulated independent of any other reservoirs or pipes connected therewith, that is, the device to compress fluid under pressure will automatically regulate the air fluid under pressure in the receiving-chamber formed in the casting, if it is disconnected from any other outlet, said air-fluid pressure after being drawn from the atmosphere will be compressed under any predetermined pressure desired, before it flows into any other reservoirs or pipes in the air-brake system, the device is so adapted to have an always open and unobstructed steam-passage between the boiler of the locomotive and the device, the air-piston is operated by the steam-piston, a cored passage leading from the fluid-pressure chamber of the device into the flexible-diaphragm chamber of the automatic governor device for the purpose of having open communication at all times between the fluid-pressure chamber and the automatic governor flexible-diaphragm chamber, so that as the pressure increases in the fluid-pressure chamber it likewise increases in the flexible-diaphragm chamber, the governor-spring in the governor device is set to a predetermined point of pressure, when the pressure in the flexible-diaphragm chamber reaches that certain predetermined point it forces the flexible diaphragm against the governor-spring, opening the pin-valve from its seat and admitting air fluid under pressure into a piston-chamber which piston therein being connected to a valve which when acted upon will cut off the steam from flowing into the steam-piston cylinder of the device, thus regulating the pressure in the fluid-pressure chamber before the pressure is admitted to flow into any other chambers, pipes, or reservoirs, substantially as set forth.

9. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having duplex means on a locomotive so adapted that they may be manipulated to increase the fluid under pressure in the main train or brake pipe without shifting the screw-plug in the governor-spring chamber, the governor-spring chamber being separated from the main train or brake pipe by means of a non-porous or solid pressure-plate, the tension of the governor-spring may be increased to any point of pressure desired by simply rotating the handle engaged with the periphery of the ring to simply compress the governor-spring to any point of pressure desired leaving the screw-plug set at the normal fluid under pressure in the main train or brake pipe, while the fluid under pressure is flowing through the ports of the rotary valve and entering such governor device, thence into the main train or brake pipe, the method of this operation is for the purpose of having means within the reach of the engineer so that while the normal fluid under pressure is flowing through said means into the main train or brake pipe, that the means may be manipulated in a way that will increase the fluid under pressure in the main train or brake pipe for the purpose of operating a duplex automatic governor-retaining-valve feed-valve device on each car or vehicle, and to cut off the fluid under pressure from flowing from the main train or brake pipe into the main-service-valve chamber and auxiliary reservoir in order that a perpetuation of the brakes may be had without increasing the fluid-pressure in the main-service-valve chamber and the auxiliary reservoir, and also adapted to cut off the fluid under pressure from flowing from the main reservoirs into the main train or brake pipe at any time at the wishes of the engineer, also means to release this excess pressure from the main train or brake pipe to the atmosphere without shifting the main service-valve on each car or vehicle, substantially as set forth.

10. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having a device on the locomotive, to indicate the pressure both in the main train or brake pipe, the main reservoirs, and the brake-piston cylinder, and a device to make an application of the brakes and to control the air under pressure, in the main train or brake pipe, so that it will operate devices so adapted to control the fluid under pressure in the main-service-valve chamber, and auxiliary reservoir on each car or vehicle, and also to admit the flow of fluid-pressure from the auxiliary reservoir through said device, and the exhaust-passage into the brake-piston cylinder, after the main service-valve has been shifted to a released position, to perpetuate an application of the brakes, the retaining-valve mechanism being operated by excess pressure to open passages for the same to flow into the brake-piston cylinder, substantially as set forth.

11. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means in an automatic regulating and compressing device to compress fluid under pressure, the regulating or governor means being fitted in a chamber that forms a part of the main casting and located in the steam-passages cored in the castings of the mechanism, to govern and regulate the movement of the steam-piston therein, so that any predetermined point of pressure may be had in the chambers in communication with the air-piston moving in the air-piston chamber, and operated by the steam-piston connected thereto, an air-fluid passage being cored through the main casting leading from the air-pressure chamber into the flexible-diaphragm chamber of the governor device for the flow of air under pressure into said flexible-diaphragm chamber, to raise the valve therein by

the movement of the diaphragm, which unseated valve will admit air to act on a piston, said piston forces a valve down on its seat, which cuts off the steam from flowing from the passage in the mechanism into and through the governor-valve chamber, thence into the main steam-piston cylinder and remains closed until the air in the fluid-pressure chamber and main reservoir becomes reduced, when the valve will open as before, admitting steam into the steam-piston cylinder, the passage connecting the fluid-pressure chamber of the device with that of the flexible-diaphragm chamber of the automatic governor device is independent and not connected with any other source of supply, substantially as set forth.

12. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, and a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having in an automatic mechanism to compress air fluid under pressure from the atmosphere and the same to be governed by an automatic governor device before the fluid-pressure is admitted from the fluid-pressure chambers in the mechanism into any pipes or other reservoirs, the automatic regulating device is formed in the castings of the mechanism to cut off the flow of steam after it enters the passages in the mechanism and before it flows into the differential piston and slide-valve chamber, thence into the main piston-cylinder, an always-open passage through a pipe between the boiler of the locomotive and the nozzle of the mechanism to which it is attached for the flow of steam into the passages and operative means in the mechanism for the purpose of compressing air from the atmosphere to any predetermined point of pressure desired, and to be regulated to any predetermined point of pressure desired before the air-fluid pressure is admitted from the fluid-pressure chambers in the mechanism to its source of flow, said governor-valve being in a supply steam-passage formed in the casting of the device that compresses fluid under pressure, regulating the steam to any predetermined point of pressure desired, to operate the steam-piston therein, said governor-valve chamber which is formed in the main casting of the device that compresses air fluid under pressure being always in communication on the one side of its opening-port with the supply-passage in the main fluid-pressure device and at the outlet-passage the differential-piston and slide-valve chamber, all adapted to cut off the flow of steam as the steam flows through the passages cored and formed in one of the main castings of the device that compresses air fluid under pressure to supply the air-brake system, a passage leading from the air-piston-supply pressure-chamber formed in the main castings, and through the castings into the flexible-diaphragm chamber of the governor device, to operate a steam-governor valve when the fluid-pressure in the air-chambers and passages in the castings of the mechanism reaches a predetermined point of pressure, when such pressure is reached and exists in the fluid-pressure chamber and the passage leading from said chamber to the flexible-diaphragm chamber of the governor device, to a predetermined point of pressure, said flexible diaphragm will yield and compress a governor-spring the same unseating a valve, which opens the passage between the fluid-pressure chamber and the piston-chamber, containing a piston with a steam-valve attached thereto, adapted to be forced to its seat by said pressure acting upon the upper surface of said piston, thus cutting off the flow of live steam in the passages cored and formed in the main casting of a mechanism that is adapted by the pressure of steam to compress air fluid under pressure to any predetermined point desired, substantially as set forth.

13. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having an automatic duplex mechanism to compress air fluid under pressure from the atmosphere and discharging the same into a fluid-pressure chamber, an automatic duplex governor or regulating device formed in the main castings of the mechanism with an always-open passage between the nozzle of the mechanism and the boiler of the locomotive for the flow of live steam through said passage thence into the passage formed in the casting of the mechanism thence through a duplex automatic governor device formed in the main casting of which forms a part of the main mechanism containing parts of the operative means that are used to compress fluid under pressure from the atmosphere, a passage in said mechanism always open between said governor steam-valve chamber in the casting, and the differential slide-valve piston-chamber, said duplex governor-valve being always in communication through a passage cored in the castings of the mechanism with a fluid-pressure chamber, which chamber is used as the receiving-chamber for which the fluid under pressure from the atmosphere is forced into and governed therein before it flows into any other pipes or reservoirs in the air-brake system, the passage leading from the fluid-pressure chamber through the castings of the mechanism into the flexible-diaphragm chamber, such pressure being equal at all times in the fluid-pressure chamber, in said passage and said flexible-diaphragm chamber, so that when fluid in said pressure-chamber reaches a predetermined point of pressure, said pressure will act on the flexible diaphragm in the flexible-diaphragm chamber of the governor device compressing a governor-spring unseating a valve for the flow of air-fluid pressure to act on a piston having a steam-valve connected thereto for the purpose of cutting off the live steam flowing through a passage cored in the mechanism from flowing into the differential-piston and slide-valve chambers, adapted to stop the movement of the steam-pistons in the mechanism when the fluid air-pressure becomes to that predetermined point of pressure desired, said mechanism is so adapted in its automatic construction that it will regulate itself if the outlet-nozzle from the fluid-pressure chamber is closed, that is when the certain pressure exists in said chamber, the pressure will operate the governor device and cut off the flow of steam from operating the steam-piston, which piston is connected with the air-piston, all independent of any other regulating means than those formed in the castings of the mechanism, substantially as set forth.

14. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means to admit live steam direct from the boiler of the locomotive into an equalizing-reservoir, through the controlling or application device, into the main train or brake pipe, thence through the retaining-valve devices and chambers, into the brake-piston cylinder, to perpetuate an application of the brakes, automatic means on the locomotive and each car or vehicle, to control, govern or regulate, any flow of fluid under pressure, without shifting the screw-plug in the governor-spring chambers, an indicating-gage to indicate the fluid under pressure in the main train or brake pipe and brake-piston cylinder after the main service slide-valve has been shifted to a released position, and opening communication between the auxiliary reservoir and th brake-piston cylinder, substantially as set forth.

15. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having an automatic governor controlling or application device, so adapted to first admit the flow of pressure from an equalizing-reservoir to atmosphere, said manipulation reduces the pressure above a gravity-piston, as the pressure is reduced above the gravity-piston the fluid-pressure in the main train or brake pipe forces the piston to an uppermost position, thereby allowing fluid-pressure in the main train or brake pipe to escape to atmosphere to make an application of the brakes by a reduction of fluid-pressure in the system, other means to regulate or govern at any time all the fluid under pressure in the main train or brake pipe and the brake-piston cylinder, before or after the main-service-valve chamber and auxiliary reservoir is cut off from the main train or brake pipe by the automatic governor and feed valve device, and also when the duplex automatic governor-retaining-valve feed-valve is being operated to feed, retain, and govern the fluid under pressure in the brake-piston cylinder said governor means being so manipulated by the engineer so that the governor-spring may be compressed to any point of pressure desired, to increase the fluid under pressure in the main train or brake pipe and the brake-piston cylinder, or it may be reduced or changed at will so that the indicating-gage will indicate at any time any point of pressure desired above the normal, such being done without moving the screw-plug in the governor-spring chamber, the governor-spring being interposed between the spring-cap at the one end and bearing at the other end against the disk hub, the latter forcing a solid or a non-porous pressure-plate against its seat in the valve-chamber, the pressure-plate forms an air-tight partition between the valve-chamber and the governor-spring chamber, said spring-chamber being

vented to atmosphere, and no communication with the main train or brake pipe, the method of operating or manipulating the automatic governor pressure-spring in such a manner is for the purpose of increasing the fluid under pressure in the main train or brake pipe above that pressure already flowing through the rotary valve-ports, for the purpose of operating the duplex automatic governor-retaining-valve feed-valve device, to feed, retain, and govern the fluid under pressure in the brake-piston cylinder on each car or vehicle, after the main service-valve and auxiliary reservoir has been cut off from such excess pressure in the main train or brake pipe, substantially as set forth.

16. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure; a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having a device to admit steam into the main train or brake pipe directly from the boiler of the locomotive after the main service-valve on each car or vehicle, has been shifted to a released position to open communication between the main train or brake pipe through the retaining-valve mechanism into the brake-piston cylinder, to perpetuate an application of the brakes, automatic means to govern the flow of fluid-pressure to any point of predetermined pressure desired, also means to regulate the fluid under pressure in the main-service-valve chamber, so that it does not become higher than that of the normal at a time when the retaining-valve mechanism and the main-service slide-valve open communication between the main train or brake pipe and the brake-piston cylinder, also means to indicate the pressure in the brake-piston cylinder, substantially as set forth.

17. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, and an auxiliary reservoir, and a brake-piston cylinder, having a multiple automatic governor device, with no communication between the governor-spring chambers and the main train or brake pipe and instead thereof a non-porous or solid pressure-plate, with means so adapted that the governor-spring may be compressed against the pressure-plate to any predetermined point of pressure desired, without moving or shifting the screw-plug in the governor-spring chamber from a normal or fixed pressure said means are to increase the fluid under pressure in the main train or brake pipe and brake-piston cylinder, to any predetermined point of pressure desired, said pressure being admitted into the main train or brake pipe by a supplemental device, operating a rotary valve to admit through the governor-valve any excess fluid-pressure above a certain fixed pressure, had in the last position of that admitted by the rotary or taper valve into one of the said governor-valves as P, R, T, X, so that as the rotary valve is rotated or moved from one position to another so that each succeeding position of the rotary valve admit a higher pressure of fluid into the system, from the chambers and reservoirs charged with fluid under pressure, said pressure to be that above the normal in the main train or brake pipe, after the excess or amount of fluid-pressure above the normal has been cut off from the main-service-valve chamber and auxiliary reservoir, so that a duplex automatic governor-retaining-valve feed-valve device is being operated to feed retain and govern the fluid under pressure in the brake-piston cylinder and not increase the fluid-pressure in the main-service-valve chamber and auxiliary reservoir above the normal, substantially as set forth.

18. In an automatic fluid-pressure brake system, the combination of an automatic regulating device, to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-pipe cylinder, having automatic valve means in the controlling or application device so adapted that when opened it will reduce the pressure in the main train or brake pipe, thereby making an application of the brakes, and also by a similar manipulation of the device it will release the brakes by reducing the excess pressure in the main train or brake pipe to normal, its functions are such that the same number of pounds of either excess or normal pressure the engineer takes from the equalizing-reservoir, that this application device will take from the main train or brake pipe, means also adapted to change the fluid-pressure in the main train or brake pipe, at the will of the engineer, without shifting a screw-plug in the automatic governor-spring chamber simultaneously while the normal fluid-pressure is flowing through the said application device and controlling-governor or regulating means into the main train or brake pipe, an automatic governor feed-valve being one with automatic means to control the fluid under pressure in the main train or brake pipe above the normal, and in the brake-piston cylinder below the normal, said governor device being operated, when the application parts thereof is open, by simply rotating the handle that engages in the periphery of the ring forcing only the governor-spring to oppose a solid and non-porous pressure-plate, with a higher tension of pressure the method of operation of this application and automatic governor device is such, that the engineer may open the application parts of the mechanism admitting normal fluid under pressure, into the main train or brake pipe, leaving such parts open and then manipulating the governor-valve-device handle to increase said pressure in the main train or brake pipe to any predetermined point of pressure desired, which will be indicated by the indicating-gage, the same being in communication with the main train or brake pipe, the first means referred to is what is called the running position of an application mechanism, the second manipulation referred to is what is termed as an excess-pressure position, for the purpose of operating a duplex automatic retaining-valve feed-valve device to feed, retain and govern the fluid-pressure in the brake-piston cylinder at a time when a perpetuation of the brake is desired, such excess pressure also operates an automatic governor feed-valve device, governs all that fluid-pressure in the main-service-valve chamber and auxiliary reservoir, and opens communication between the main-service-valve chamber, auxiliary reservoir, and the brake-piston cylinder, substantially as set forth.

19. In an automatic fluid-pressure brake system, the combination of an automatic regulating device, to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means in a controlling or application device so adapted that when one of said means is rotated, it will allow air under pressure to pass from the equalizing-reservoir to the atmosphere, thereby causing an application of the brakes, while the other means when rotated, will open communication between the main train or brake pipe through the different automatic governor devices, as P, R, T, X, into the main train or brake pipe opening the retaining-valve mechanism by said pressure, thence being admitted into the brake-piston cylinder, to a certain predetermined point of pressure governed by the retaining-valve governor, a retaining-valve piston adapted to be reciprocated between pressures so that it will cut off the flow of fluid under pressure from the main train or brake pipe into the brake-piston cylinder and not shift the retaining slide-valve to an exhaust position, substantially as set forth.

20. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having an automatic governor device with duplex means to set the regulating or governor spring at any predetermined point of pressure desired, simultaneously when the fluid is flowing through the main train or brake pipe into the air-brake apparatus on each car or vehicle, also automatic means to govern the fluid under pressure in the air-brake system on each car or vehicle and the locomotive, substantially as set forth.

21. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having a controlling or regulating valve device to admit, control, or discharge or increase the fluid under pressure in the main train or brake pipe, to make an application of the brakes by such increase of fluid under pressure in the main train or brake pipe through an automatic air-brake system operating a duplex automatic governor retaining-valve feed-valve device, adapted to feed, retain and govern the fluid under pressure in the brake-piston cylinder, such application being made and released without shifting the main-service-valve device, the means to increase the fluid-pressure in the main train or brake pipe to an excess pressure is such that may be manipulated by the engineer without moving the screw-plug in the governor-spring chamber, the device simply compresses the governor-spring, forcing the pressure-plate against its seat under a higher tension of pressure, an equalizing-reservoir being in communication with such device, an indicating-gage to indicate the pressure in such equalizing-reservoir when there is an excess of fluid-pressure in the main train or brake pipe greater than that in the main-service-valve chamber and auxiliary reservoir, so that an application and a continuous application of the brakes may be had direct from the main train or brake pipe without shifting the main-service-valve device, the pressure in the brake-piston cylinder being less than that in the main train or brake pipe and the main-service-valve chamber and auxiliary reservoir, the fluid-pressure in the brake-piston cylinder being governed to any predetermined point of pressure desired, a pressure-plate adapted to be shifted in the duplex retaining-valve feed-valve mechanism so that it cuts off the flow of fluid-pressure from the main train or brake pipe into the brake-piston cylinder, and simultaneously holding the exhaust-passage closed, leading from the brake-piston cylinder to the atmosphere, means so adapted in the duplex retaining-valve feed-valve device, to keep the exhaust-passage closed leading from the brake-piston cylinder to the atmosphere, until the excess fluid-pressure is reduced in an automatic governor-valve chamber, which chamber and valve therein is so adapted to control or admit a certain amount of excess pressure into a chamber carrying a moving pressure-plate, said pressure-plate operating a device to close the exhaust-passage and to keep it closed until the aforesaid governor-valve is closed when a reduction of the excess pressure takes place in the main train or brake pipe, substantially as set forth.

22. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means so adapted that when the main service slide-valve is being held to its seat, by fluid under pressure of seventy pounds or normal, fluid-pressure that leaks past the driving-piston of the main-service-valve device will flow through open passages, opened by the governor valve device that governs the fluid under pressure in the main-service-valve chamber, said open passage then will communicate with the retaining-valve chamber and thence with the cavity on the under side of the main service slide-valve to the brake-piston cylinder, while the brakes are being perpetuated, and without loss of fluid under pressure in the system, substantially as set forth.

23. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means in an automatic governor device located in the steam-passages, that are cored in the main casting, formed in the chest or casing of a mechanism that is adapted to compress air fluid under pressure, said device forms a part of the casting of said mechanism of a casting that has open passages leading into a differential piston and slide-valve chamber, also the flexible-diaphragm chamber communicates through a cored passage in the main castings with a fluid-pressure chamber that communicates with the main-air-piston cylinder of the mechanism, and so adapted that the governor-spring in said governor valve mechanism may be compressed to any point of pressure desired by admitting fluid under pressure to act on the piston in the piston-chamber above the governor-spring, such fluid-pressure may be admitted from any source of supply, the method of which is so that the air fluid-pressure in the mechanism may be to that point of pressure of steam in the boiler of the locomotive, substantially as set forth.

24. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means operative to govern the fluid-pressure in the main-service-valve chamber, and auxiliary reservoir to any predetermined point of pressure desired and simultaneously admitting fluid under pressure into the brake-piston cylinder after the retaining-valve is closed and admitting fluid from the main train or brake pipe, into the brake-piston cylinder, substantially as set forth.

25. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means to cut off the flow of fluid from flowing into the main-service-valve chamber and auxiliary reservoir when there is an excess of fluid-pressure in the main train or brake pipe, and simultaneously admitting fluid from the main-service-valve chamber into the brake-piston cylinder after the retaining-valve is closed and admitting fluid from the main train or brake pipe into the brake-piston cylinder, perpetuating an application of the brakes, substantially as set forth.

26. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having duplex automatic governor retaining-valve feed-valve device to feed, retain and govern the fluid under pressure in the brake-piston cylinder to any predetermined point of pressure desired, perpetuating an application of the brakes without loss of fluid under pressure from the device or brake-piston cylinder, through the functions of said device, means being so adapted to feed retain and hold the pressure in the brake-piston cylinder until a reduction of the excess pressure in the main train or brake pipe takes place, the method of which is to reduce the pressure therein by an application device, changing the tension of pressure at the will of the engineer by the supplemental governor in conjunction with the application device, secured to suitable parts of the locomotive so that the engineer can operate the same at will, an automatic reducing-valve in communication with a passage that leads from the main-service-valve chamber to the brake-piston cylinder for the purpose of reducing the pressure in such passages and brake-piston cylinder when the pressure therein reaches a predetermined point of pressure, also means to communicate the main-service-valve chamber and auxiliary reservoir with the brake-piston cylinder when an excess pressure exists in the main train or brake pipe and the main service-valve has been shifted to a released position, substantially as set forth.

27. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having automatic means to cut off the fluid under pressure from flowing through a port and passage into the main service-valve chamber and auxiliary reservoir, on each car or vehicle in the air-brake system, said means adapted to govern and regulate the fluid under pressure in the main-service-valve chamber and auxiliary reservoir, a main service slide-valve having two functions; first, to admit the flow of exhaust-pressure flowing from the brake-piston cylinder to the atmosphere; second, to admit the flow of fluid under pressure from the main train or brake pipe through the duplex automatic governor-retaining-valve feed-valve device, thence through the cavity on the under side of the main service slide-valve into passages leading to the brake-piston cylinder, after the main service-valve has been shifted to a released position, all done without a loss of pressure in said devices while an excess pressure exists in the main train or brake pipe above the normal, substantially as set forth.

28. In an automatic fluid-pressure brake system, the combination of an automatic fluid-pressure device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having automatic means on each car or vehicle to cut off fluid under pressure that is flowing from parts containing a higher pressure into parts adapted to contain a lower pressure than that from the source of supply, governing the fluid under pressure in the main-service-valve chamber and auxiliary reservoir, a regulated amount of excess fluid-pressure in the main train or brake pipe being admitted from the said main train or brake pipe into the duplex automatic governor-retaining-valve feed-valve device to feed, retain and govern the fluid-pressure flowing from the excess pressure of supply into the brake-piston cylinder, automatic means to hold fluid under pressure in the brake-piston cylinder, and simultaneously feed fluid-pressure thereinto from the excess pressure in the main

train or brake pipe, said pressure being that above the pressure in the main-service-valve chamber, auxiliary reservoir and brake-piston cylinder, also means adapted to feed the brake-piston cylinder from the main-service-valve chamber and auxiliary reservoir, simultaneously with that from the main train or brake pipe when there is an excess of fluid-pressure in the main train or brake pipe, and the main-service-valve device has been shifted to a released position and fluid under pressure has been cut off from said main-service-valve chamber and auxiliary reservoir, means within reach of the engineer adapted to change the pressure from normal pressure in the main train or brake pipe to any desired excess pressure for the purpose of operating said devices, said manipulation being done without changing the position of the screw-plug in the governor-spring chamber of the automatic governor device, being a supplement to the controlling and application device of the air-brake system, substantially as set forth.

29. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, means to admit fluid under pressure into the brake-piston cylinder from the main-service-valve chamber and auxiliary reservoir when there is an excess of fluid-pressure in the main train or brake pipe, substantially as set forth.

30. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means in a duplex automatic governor retaining-valve feed-valve device, that will feed, retain and govern the fluid-pressure in the brake-piston cylinder so adapted to close the exhaust-passage leading from the brake-piston cylinder to atmosphere, only by excess pressure in the main train or brake pipe, and simultaneously opening a passage leading from the main train or brake pipe to the brake-piston cylinder, so that the fluid under pressure in the brake-piston cylinder may be increased or decreased according to the will of the engineer, said changes of pressure in the main train or brake pipe is being done by the engineer in manipulating a multiple governor controlling and application device by increasing the tension of the governor-spring against a solid and non-porous pressure-plate between the governor-spring chamber and the governor-valve chamber of said device, while there is a perpetuation of the brakes being had, said means adapted to open said exhaust-passage only by reduction of excess fluid-pressure in the main train or brake pipe, the fluid under pressure in the main-service-valve chamber and auxiliary reservoir being cut off from the main train or brake pipe and less than that pressure in said main train or brake pipe, substantially as set forth.

31. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having automatic governor means adapted in a governing mechanism so that when a pressure-plate is moved from its seat by fluid under pressure, such movement admits the flow of pressure into a chamber to operate a device so that the device closes communication between the main train or brake pipe and the main-service-valve chamber and auxiliary reservoir and simultaneously governing the fluid under pressure in said chamber and reservoir and opening communications between said chamber and reservoir and the brake-piston cylinder, when an excess fluid-pressure in the main train or brake pipe operates a duplex automatic retaining-valve feed-valve device, adapted to retain, feed and govern fluid under pressure in the brake-piston cylinder without any loss of pressure in said device and cylinders, the normal exhaust-passage is being closed, a governor-piston adapted to reciprocate between excess fluid-pressure from the main train or brake pipe on the one side, and the fluid under pressure in the brake-piston cylinder in conjunction with the pressure of the governor-spring on the other side, set to a predetermined point of pressure desired in the brake-piston cylinder, said device so adapted to have open exhaust-passage at the time of normal or service application of the brakes, and not to be obstructed in any way so long as normal fluid-pressure exists in the main train or brake pipe for either a service or an emergency application by a reduction of fluid-pressure therein, substantially as set forth.

32. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having a duplex automatic governor means adapted in a retaining-valve feed-valve mechanism so that when a pressure-plate is moved from its seat, to admit fluid-pressure into the brake-piston cylinder, and govern or regulate the same therein to any predetermined point of pressure desired, such movement admits the flow of excess fluid-pressure through an automatic governor device into a chamber adapted to operate a second governor pressure-plate, and a device so that said device closes the exhaust-passage leading from the brake-piston cylinder to the atmosphere, simultaneously admitting fluid under pressure directly from the main train or brake pipe to the brake-piston cylinder, keeping the brakes supplied by the pressure being perpetuated in the brake-piston cylinder to any predetermined point desired, after the main service-valve chamber and auxiliary reservoir have been cut off from the main train or brake pipe, and the fluid-pressure therein is less than that in the main train or brake pipe, and greater than that pressure in the brake-piston cylinder, means also adapted to communicate the auxiliary reservoir with the brake-piston cylinder after the main service-valve has been shifted to a released position and an excess fluid-pressure exists in the main train or brake pipe, substantially as set forth.

33. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governor attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having automatic leakage means in a passage leading from the main service-valve chamber to the brake-piston cylinder, a passage leading from said automatic leakage means to an exhaust-valve chamber a duplex automatic governor-retaining-valve feed-valve device, having vent-ports to relieve the fluid-pressure between one automatic governor-valve device and the fluid-pressure plate adapted to allow the pressure to leak to atmosphere as the exhaust-passage is being opened after a perpetuation of the brakes has been had, leakage means so adapted to reduce the fluid-pressure in the brake-piston cylinder, to prevent the skidding of the car-wheel, when such pressure reaches a certain predetermined point, a governor device adapted to be set under any predetermined point of pressure desired to admit from the main train or brake pipe, such excess pressure therein that may be required to force a pressure-plate against the governor-spring, the movement of said pressure-plate feeds, retains and governs the fluid-pressure in the brake-piston cylinder, said pressure-plate is adapted to reciprocate between pressures, so that as soon as required pressure reaches or flows into the brake-piston cylinder, said flow of excess pressure is cut off until the pressure in the brake-piston cylinder has been reduced then the excess pressure shifts the pressure-plate opening a passage to the brake-piston cylinder simultaneously holding the exhaust-passage closed while the pressure-plate is being reciprocated between pressures, substantially as set forth.

34. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having automatic duplex governor means on each car or vehicle, in a retaining-valve mechanism, so adapted that one of said governor-springs is set under a certain predetermined point of pressure, by the screw-plug to hold the valve closed in the flexible-diaphragm chamber until the desired pressure in said chamber compresses the said governor-spring by raising the flexible diaphragm or pressure-plate, enough to admit the flow of pressure into a passage leading into the piston-chamber containing the governor-retaining slide-valve piston, which piston is set against the head-inlet casting under a certain predetermined point of pressure by the screw-plug in the retaining-valve chamber, compressing the governor-spring to hold the slide-valve with open exhaust and to resist the fluid-pressure from the source of supply, in excess of the desired amount of fluid-pressure required in the brake-piston cylinder, to perpetuate an application of the brakes, to any degree of pressure desired therein, the

flow of fluid-pressure will continue to flow through the groove in said piston-chamber bushing until the desired amount is reached in the brake-piston cylinder, holding the retaining slide-valve to close the exhaust-passage leading from the brake-piston cylinder to the atmosphere, until the piston moves in the cylinder being equalized between pressures, and will remain in such position until the fluid-pressure in said brake-piston cylinder, becomes reduced, then the piston will shift so as to admit more fluid-pressure from the source of supply without opening the exhaust-passage leading from the brake-piston cylinder to the atmosphere, substantially as set forth.

35. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservior, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having operative means in a duplex automatic governor-retaining-valve feed-valve device adapted to hold open an exhaust-passage during all service and emergency applications of the brakes, made by a reduction of fluid under pressure in the main train or brake pipe, retaining-valve feed-valve device adapted to close only the exhaust-passage leading from the brake-piston cylinder to atmosphere, and to feed said brake-piston cylinder through same exhaust-passage and govern the same therein while the pressure is flowing from the retaining-valve chamber to the brake-piston cylinder after the fluid under pressure in the main service-valve chamber and auxiliary reservoir is governed to any predetermined point of pressure desired cutting off the excess pressure that is in the main train or brake pipe so that only a normal pressure exists in the main service-valve chamber and auxiliary reservoir, substantially as set forth.

36. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and brake-piston cylinder, having automatic indicating means to indicate the fluid under pressure simultaneously in the main train or brake pipe and the brake-piston cylinder, after the fluid under pressure in the main train or brake pipe is cut off from flowing into the main service-valve chamber, auxiliary reservoir, and brake-piston cylinder, the fluid-pressure admitted into said brake-piston cylinder from an excess pressure in the main train or brake pipe through a duplex automatic governor-retaining-valve feed-valve device, the exhaust-passage from the brake-piston cylinder being used as a supply-passage from the main train or brake pipe to the brake-piston cylinder to supply the brake-piston cylinder with any desired amount of the excess fluid-pressure in the main train or brake pipe, a steam-supply pipe communicating the boiler of the locomotive with the equalizing-reservoir adapted to charge the air-brake system with steam when the air-fluid pressure in the system is not to that point of pressure desired for an application of the brakes, or to continue an application the steam-pressure being governed and regulated by the application and controlling device without shifting the screw-plug in the governor-spring chamber of such controlling mechanism, a solid or non-porous pressure-plate between the governor-spring chamber and the main train or brake pipe pressure, substantially as set forth.

37. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having means in an application controlling or regulating device to control the fluid under pressure in the system, by manipulation, first, to admit normal fluid-pressure into the main train or brake pipe from the source of supply and reduce the same therein by admitting it to atmosphere, for service or emergency application of the brakes, second, to regulate the excess fluid under pressure in the main train or brake pipe, without increasing the fluid-pressure in the main service-valve chamber and auxiliary reservoir, by manipulating the governor portions thereof to only compress the governor-spring to a higher tension of pressure, without turning the spring-chamber or screw-plug therein, by means disconnected from the spring-chamber and screw-plug, for the purpose of feeding the brake-piston cylinder with fluid-pressure while the excess pressure exists in the main train or brake pipe to make a direct application of the brakes or perpetuate an application of the brakes through a duplex, automatic governor-retaining-valve feed-valve device, a solid or non-porous pressure-plate forms a tight partition between the governor-spring chamber and the passages and chambers that communicate with the main train or brake pipe, substantially as set forth.

38. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary-reservoir, and a brake-piston cylinder, having a main steam-cylinder forming a part of the casting to compress fluid under pressure of a cylinder-head, a main distribution-valve working in a chamber, a differential piston in said chamber, consisting of two pistons of different areas, connected to the main valve, one of said pistons being exposed at all times on one side to the fluid-pressure in the exhaust-passage leading to the atmosphere, and the other piston being exposed alternately to live-steam-fluid pressure after flowing through the governor-valve chamber in the same casting, and also to the pressure in the exhaust-passage, and a reversing-valve controlling the supply to and release of steam from the latter piston, through separate ports said reversing-valve being connected to a stem which extends centrally into the main steam-cylinder and is moved directly by the main steam-piston at the extremity of its stroke in either direction, a passage leading from the nozzle formed in the casting to the governor-valve chamber, an automatic governor-valve fitted therein, adapted to be secured to a piston operated thereby by a pressure flowing through cored passages in the castings forming the mechanism to compress fluid under pressure, said passage is an always-open one between the air-fluid-compressure chamber and the flexible-diaphragm chamber, substantially as set forth.

39. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having an automatic regulating device to compress fluid under pressure adapted to have a main distribution-valve, of a reversing-valve controlling the movements of the main valve, and a stem connected to the reversing-valve and moved in either direction by the movement of the main piston, said stem being alternately exposed to pressure of live steam direct from an automatic-governor-valve chamber formed in the casting of the mechanism, or exhaust-steam at its opposite end, whereby it is held in its proper position by live-steam pressure until moved by the main steam-piston, a passage leading from the air-fluid-pressure chamber to the flexible-diaphragm chamber through the castings of the mechanism so that when a certain pressure exists in said passage and said chambers, such pressure will operate means in the flexible-diaphragm chamber to admit the flow of pressure to operate a device to cut off the steam from operating said main steam-piston, an always-open pipe between the device or mechanism that compresses air fluid under pressure and the boiler of the locomotive, the device is so adapted that the air fluid under pressure drawn through valves from the atmosphere and charged through valves into an air-fluid-pressure chamber that the fluid-pressure in said chamber will be governed to any predetermined point of fluid-pressure desired before flowing into pipes and main reservoirs of the air-brake system, substantially as set forth.

40. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having in an automatic mechanism, automatically regulated only by the pressure in said mechanism and adapted to be operated by steam direct from the locomotive to compress air fluid under pressure to any point desired, the combination of a main distribution-valve, and a differential piston connected thereto for the moving of said valve, a reversing-valve controlling the supply of steam to the larger end only of said piston through a port opening into the end of the piston-chamber, and the exhaust of steam through a separate port located some distance from the end of the piston-chamber, whereby the piston may close the exhaust-port before reaching the end of its stroke and thereby cause the piston to be cushioned, a valve adapted to be shifted on a flat seat between the differential pistons in said chamber, which chamber is formed in one of the castings and a passage leading therefrom through the casting to an automatic governor device, that may be formed in the same casting or

any other casting which makes up, the entire mechanism that compresses air fluid under pressure from the atmosphere, and discharging the same into a fluid-pressure chamber, which chamber has an open passage at all times leading to the flexible-diaphragm chamber of the governor device, said passage is cored through the several castings that form said mechanism, an always-open passage leading from the automatic-governor steam-valve chamber to the nozzle of the mechanism, at which place or part the main steam-pipe is connected for the flow of live steam from the boiler of the locomotive, a governor having a piston formed in the guideway for the purpose of preventing leakage of steam from the governor steam-valve chamber to atmosphere, a main distribution-valve and differential-piston chamber may be formed in the same casting with that of the automatic governor device, which device governs or cuts off the steam while the steam is flowing through the cored passage in the mechanism through said distribution and differential-piston chamber, the said differential-piston and distribution valve is operated by a steam-pressure for the pupose of admitting live steam into a main-piston cylinder, and exhaust therefrom, a connecting-piston-rod, connecting a main steam-piston with that of a main air-fluid piston, so that the main steam-piston will operate or shift the main air-piston to compress fluid under pressure from the atmosphere through valves, and discharge the same through similar valves into a fluid-pressure chamber, the pressure flowing in said chamber will be regulated to any predetermined point of pressure desired before it flows into other parts of the fluid-pressure brake system, substantially as set forth.

41. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having means in a fluid-pressure brake system adapted so that live steam will flow through the pipes from the boiler of the locomotive into the application and controlling device, also into the equalizing-reservoir, attached thereto, for the purpose of communicating the boiler with the main train or brake pipe, so that the system may be charged with steam instead of air pressure, a vent and escape pipe from the governor device formed in the casting, of the device that compresses fluid under pressure to the atmosphere, substantially as set forth.

42. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, and an auxiliary reservoir, and a brake-piston cylinder, having in a duplex air-compressing mechanism consisting of two steam-cylinders, containing pistons connected with pistons in two air-cylinders, two steam-valves arranged in line with said pistons and actuated by them, a series of ports connecting each steam-valve with both ends of the opposite cylinder, so that the action of each piston controls the movement of the other, two air-cylinders with inlet-valves from the atmosphere to the larger cylinder, valves between the larger cylinder and the smaller cylinder, which will, admit air to the smaller cylinder, first from the atmosphere through the main-inlet-valve chambers, and secondly, from the larger cylinder to the smaller cylinder, and valves between the smaller cylinder and a passage leading to a compressure-chamber, a passage leading or cored through the castings of the duplex mechanism into a flexible-diaphragm chamber of an automatic governor device, formed in one of the castings that forms a part of the mechanism, an automatic governor mechanism formed in the main casting independent of any threaded-pipe means for the flow of live steam from the boiler of the locomotive, a passage leading from the nozzle of the steam-inlet to said automatic-governor steam-valve chamber, a passage leading from the automatic-governor steam-valve chamber to the distribution-valve chamber, substantially as set forth.

43. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having automatic means to compress air fluid under pressure and the same to be governed automatically by the mechanism before it flows into other parts of the fluid-pressure brake system, a passage leading from the fluid-pressure chamber through the castings into the flexible-diaphragm chamber of the automatic governor device, forms and becomes one of the chambers forming the mechanism, actuated by live-steam pressure from the locomotive to compress air-fluid pressure to any point of predetermined fluid-pressure desired, an automatic governor device formed in the castings of the mechanism, independent of any threaded means or pipe connections to its chamber governing the steam-inlet to and through the differential-piston and distribution-valve chamber, a device with an automatic regulator to regulate or govern the fluid under pressure in the mechanism, so that the pistons both the main steam-piston and the main air-piston would cease operations if the outlet-nozzle of the fluid-compressure chamber be closed, said operations of the main pistons will cease when the fluid-pressure in the fluid-pressure chamber reaches a certain predetermined point of pressure, the same being governed independent of any other source of supply than that from the fluid-pressure chamber, substantially as set forth.

44. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having in an application or controlling device, the combination of a main valve, a discharge-valve and connections by which the discharge-valve may be opened or acted upon by fluid under pressure from the main train or brake pipe in an emergency application of the brakes, said main valve so adapted to release air from the main train or brake pipe when in position to make an emergency application of the brakes, by a reduction of fluid-pressure in the main train or brake pipe, a discharge-valve and connections by which the discharge-valve is opened by fluid under pressure and adapted to release air from the main train or brake pipe, when the main valve is in position to make an emergency application of the brakes, an automatic governor adapted to be regulated so that the devices increase the tension of pressure in a governor-spring without turning the screw-plug in the governor-spring chamber, so manipulated by the will of the engineer, the manipulation being done by the second handle from that of the discharge-valve, a solid or non-porous pressure-plate between the governor-spring chamber and the main train or brake pipe, substantially as set forth.

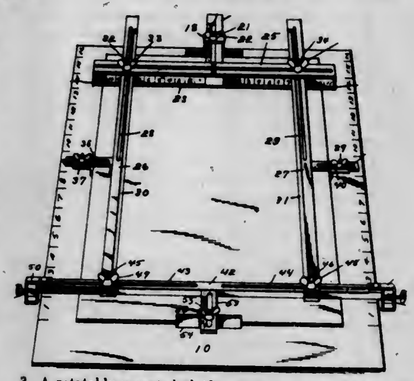
45. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir and a brake-piston cylinder, having a discharge-valve or a device to release fluid under pressure from the main train or brake pipe, a piston or diaphragm connected thereto and operated by variations of fluid under pressure, on the one side from that of the equalizing-reservoir, while on the opposite side for the release of fluid under pressure from the main train or brake pipe, having ports and passages from a multiple number of automatic governor devices, and also from the main train or brake pipe, and from one side of the piston or diaphragm directly to the atmosphere in an emergency application of the brakes, by a reduction of fluid under pressure in the main train or brake pipe, said reduction may be from the excess pressure in the main train or brake pipe down to the normal of said pressure, changing the pressure in the main train or brake pipe by a manipulated governor device with a feed-passage from that of the source of supply and connected therewith an equalizing-reservoir, and a passage leading from the manipulated device to and through the controlling mechanism into the main train or brake pipe, the fluid-pressure is changed by the manipulated governor device by reducing the tension of pressure in the governor-spring without turning or unseating the screw-plug in the governor-spring chamber, a solid or non-porous pressure-plate forming a partition between the main train or brake pipe and the governor-spring chamber, in a controlling device for releasing the air from the main train or brake pipe, a piston or diaphragm connected to the discharge-valve and exposed to fluid-pressure on its opposite sides, an exhaust-port in the seat of the main valve, through which fluid under pressure is released in making an emergency application of the brakes by releasing the air releases the fluid under pressure in the main train or brake pipe, a passage in the main valve through which the fluid-pressure is released from one side of a piston to said exhaust-port, when the main valve is in a service position, the excess fluid under pressure in the main train or brake pipe is first to close communications between the main-service-valve chamber, auxiliary reservoir, and main train or brake pipe, and all automatically govern the fluid-pressure in said chamber and reservoir, second, to operate a duplex automatic retaining-valve feed-valve device to retain, feed and govern the fluid-pressure that flows through the cavity on the under side of the main service-valve into passages leading to a reducing or leakage device and thence into the brake-piston cylinder, such pressure being governed by the duplex means to that predetermined point less than that either in the main train or brake pipe or the main-service-valve chamber and auxiliary reservoir, substantially as set forth.

46. In an automatic fluid-pressure brake system, the combination of an automatic regulating device to compress fluid under pressure, a main supply-pipe, a main reservoir, a controlling or an application device, with supplemental governors attached thereto, an indicating-gage, an equalizing-reservoir, a main train or brake pipe, a main service-valve, an auxiliary reservoir, and a brake-piston cylinder, having in a controlling or an application device adapted to be operated by the engineer, secured to convenient parts of the locomotive and in communication with the source of supply of both steam and air, to admit, govern and control the fluid under pressure, either steam or air into and to operate the air-brake system on each car or vehicle, a passage from the controlling device to the main train or brake pipe, a multiple regulating-valve in the passage, with means to increase the tension of pressure in the governor-spring at will, and the piston or diaphragm which is independent of such regulating or governor means and is moved by the pressure of a spring to effect the opening of a valve when the main train or brake pipe is below a determined maximum, and is moved by fluid-pressure to permit the closure of the valve by the pressure pressing against a solid or non-porous pressure-plate, said pressure-plate being held to resist such fluid-pressure by a governor-spring so adapted to have its tension of pressure increased, to any point of pressure desired, to permit the closure of the valve when the main train or brake pipe pressure is above the determined maximum, a cap-section which covers the main valve, a section on which a raised seat is formed for the main valve, and a lower section containing the piston-chamber of the discharge-valve, with suitable means to attach and communicate the passages with that of the main train or brake pipe, a passage leading from the chamber above the main rotary valve, into a series of governor-valves, so adapted that as the pressure is admitted through said passage to govern the fluid-pressure in the main train or brake pipe as the pressure is admitted into and through each succeeding governor device, an upper section which covers the main rotary valve and forms the bearing for its stem, a middle section having a raised seat for the main rotary valve, which covers the piston-chamber of the discharge-valve and a lower section which contains the piston-chamber of the discharge-valve and is connected to one or more pipes including that of the main train or brake pipe, the said piston-chamber being in communication with an automatic governor slide-valve feed-valve device, adapted to admit fluid under pressure from the source of supply through a slide-valve feed-valve chamber, and also adapted to admit the fluid-pressure in the rear of the piston of the slide-valve feed-valve through a passage and port into and through a flexible diaphragm and valve chamber, thence communicating with the main train or brake pipe, a solid or non-porous pressure-plate forming an air-tight partition between such admission-valves and the governor-spring chamber, cutting off communication between the chambers and passages that communicate with the main train or brake pipe, with that of the governor-spring chamber, which carries a governor-spring formed and compressed under a certain predetermined point of pressure, set at a normal tension of pressure, and adapted to be compressed to a higher tension of pressure, without unseating the screw-plug or turning the governor-spring chamber, the means to increase the tension of the governor-spring is such that may be manipulated by the engineer at will, a slide-valve adapted to cut off the pressure from flowing through the device after the pin-valve is closed, substantially as set forth.

787,724. CUTTING-BOARD. WILBUR W. CAMPTON and GLENN A. BERRY, Des Moines, Iowa. Filed June 1, 1904. Serial No. 210,696.

Claim.—1. A cutting-board, adjustable knife-guides having beveled inner edges, means for pivotally securing the knife-guides to one end of the cutting-board, a spring-actuated locking mechanism for securing the knife-guides to the other end of the cutting-board.

2. A rotatably-mounted platform, a metal surface on the platform, two beveled knife-guides extending longitudinally of the cutting-board, two beveled guides extending across the cutting-board and connected with the knife-guides, extending longitudinally of the cutting-board, means for securing these guides adjustably together, mat-retaining devices connected with the knife-guides, means for pivotally supporting the knife-guides and means for locking the knife-guides in position against the cutting-board, for the purposes stated.



3. A rotatably-mounted platform, a metal surface on the platform, two beveled knife-guides extending longitudinally of the cutting-board, two beveled guides extending across the cutting-board and connected with the knife-guides, extending longitudinally of the cutting-board, means for securing these guides adjustably together, mat-retaining devices connected with the knife-guides, means for pivotally supporting the knife-guides, means for locking the knife-guides in position against the cutting-board, and measuring devices at the edges of the cutting-board and on the knife-guides which extend transversely of the cutting-board.

4. A rotatably-mounted platform, a metal surface on the platform, two beveled knife-guides extending longitudinally of the cutting-board, two beveled guides extending across the cutting-board and connected with the knife-guides extending longitudinally of the cutting-board, means for securing these guides adjustably together, mat-retaining devices connected with the knife-guides, means for pivotally supporting the knife-guides, means for locking the knife-guides in position against the cutting-board, measuring devices at the edges of the cutting-board and on the knife-guides which extend transversely of the cutting-board, and a measurer on each of the mat-retaining devices.

5. A cutting-board, knife-guides connected with each other and hinged to the cutting-board, and spring-actuated means for securing the knife-guides in position relative to the cutting-board.

6. A cutting-board, knife-guides connected with each other and hinged to the cutting-board, spring-actuated means for securing the knife-guides in position relative to the cutting-board, and means for holding a mat in position relative to the knife-guide.

7. A cutting-board, knife-guides connected with each other and hinged to the cutting-board, spring-actuated means for securing the knife-guides in position relative to the cutting-board, and adjustable mat-retaining means connected with the knife-guides.

8. A cutting-board, knife-guides, and spring-actuated means for securing the knife-guides to the cutting-board.

9. A cutting-board, knife-guides, spring-actuated means for securing the knife-guides to the cutting-board, and means connected with the knife-guides for holding a mat against lateral or longitudinal movement of the cutting-board.

10. A cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, and means for securing the adjustable knife-guides in position relative to each other.

11. A cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, means for securing the adjustable knife-guides in position relative to each other, and adjustable means for securing a mat in position relative to the knife-guides.

12. A cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, means for securing the adjustable knife-guides in position relative to each other, and measuring devices for determining the adjustment of the knife-guides toward or away from each other.

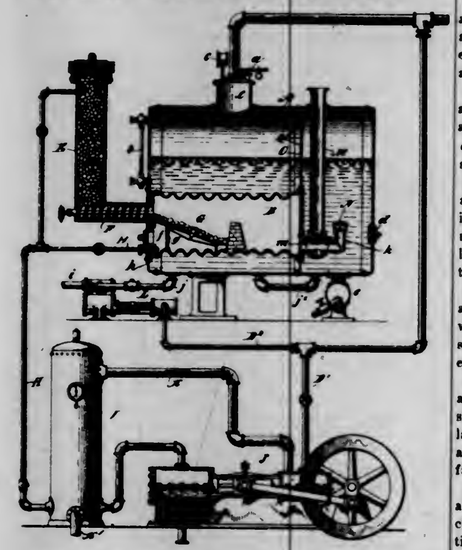
13. A cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, means for securing the adjustable knife-guides in position relative to each other, adjustable means for securing a mat in position relative to the knife-guides, and measuring devices for determining the adjustment of the knife-guides toward or away from each other.

14. A rotatably-mounted cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, and means for securing the adjustable knife-guides in position relative to each other.

15. A rotatably-mounted cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, means for securing the adjustable knife-guides in position relative to each other, and adjustable means for securing a mat in position relative to the knife-guides.

16. A rotatably-mounted cutting-board, knife-guides adjustably connected with each other, pivotally connected with the cutting-board, spring-actuated means for securing the knife-guides to the cutting-board, means for securing the adjustable knife-guides in position relative to each other, and measuring devices for determining the adjustment of the knife-guides toward or away from each other.

787,725. MEANS FOR EFFECTING COMBUSTION. WILLIAM J. CARTWRIGHT, New York, N. Y., assignor of one-half to Frank L. Wing, New York, N. Y. Filed Feb. 27, 1899. Serial No. 706,943.

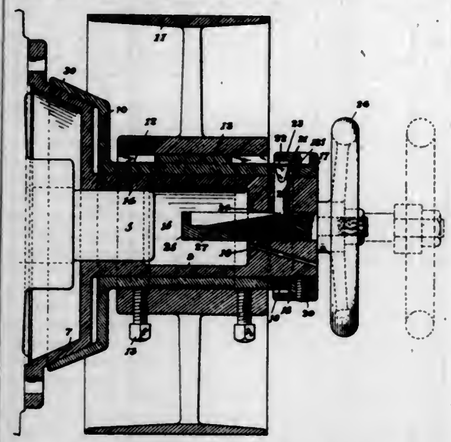


Claim.—1. The combination with a furnace closed to the atmosphere and having means for effecting back pressure at its gas-outlet, of a compressed-air holder, a pipe therein for exhaust-steam, an engine having its exhaust connected with said pipe, a pipe connecting said holder with said furnace for supplying compressed air to same, and means for suppyling fuel automatically to said furnace in regulated quantity, substantially as set forth.

2. The combination with the boiler A, of the furnace or combustion-chamber B, therein and closed to the atmosphere, the gas-outlet *k*, from said chamber opening into the boiler below the water-level therein, the pipe M, the multiple-way valve in said outlet *k*, the pipe H, for introducing compressed air to said chamber B, and a stoking device for feeding fuel to said furnace automatically, substantially as set forth.

787,726. CLUTCH. ARTHUR W. CASE, Newark, N. J. Filed Oct. 24, 1904. Serial No. 229,711.

Claim.—1. The combination with the power-shaft and its clutch member and stud, of a driving-pulley, a coöperative clutch member and a hub arranged on said stud, a split ring engaging the end of said hub, and means for expanding said ring and forcing said hub lengthwise of said stud, substantially as set forth.



2. The combination with the power-shaft and its clutch member and stud, of a driving-pulley having a coöperating clutch member and a hub arranged on said stud, a split ring having an inclined side engaging the end of said hub, and a wedge for expanding said ring and forcing said hub lengthwise of said stud.

3. The combination with the power-shaft and its clutch member and stud, of a driving-pulley having a coöperating clutch member and a hub arranged on said stud, a split ring having an inclined side engaging the end of said hub, and a wedge and cam for expanding said ring and forcing said hub lengthwise of said stud.

4. In a clutch, the combination with the clutching members, of a split ring interposed between said members and provided with an inclined side, a wedge-pin inserted between the ends of said split ring and a cam for moving said wedge-pin in the direction of the longer axis of said pin and spreading the ends farther apart, substantially as set forth.

5. In a clutch, the combination with the clutching members, of a resilient split ring interposed between said members and provided with an inclined side, a wedge-pin inserted between the ends of said split ring, and a cam for moving said wedge-pin and spreading the ends farther apart, substantially as set forth.

6. In a clutch, the combination with the clutching members, of a split ring interposed between said members and having inclined sides engaging the said members to move the same into clutching relation, a wedge-pin inserted between the ends of said split ring, and a handled cam-pin for moving said wedge-pin and spreading the ends farther apart, substantially as set forth.

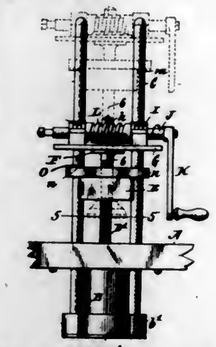
7. In a clutch, the combination with the clutching members, of a split ring interposed between said members and having its sides inclined to effect a movement of the members toward clutching relation, a wedge-pin for spreading the ends of said split ring farther apart and driving the said members into clutching engagement and a handled cam for moving the wedge-pin.

8. The combination with a clutch member having a stud and a wedge-pin arranged therein, of a second clutch member having a hub on said stnd, a nut on said stud, a split ring arranged on said stud between said nut and hub, said ring having inclined sides, the said wedge-pin extending between the ends of said split ring, and a handled cam for operating said wedge-pin.

9. The combination with a clutch member having a stud and a wedge-pin arranged therein, of a second clutch member having a hub on said stud, a nut on said stud, a split ring arranged on said stud between said nut and hub, said ring having inclined sides, the said wedge-pin extending between the ends of said split ring, and a handled cam-pin inserted in said stud and engaging the wedge-pin, said cam-pin having a longitudinal groove with an inclined bottom for operating said wedge-pin.

10. The combination with a clutch member having a stud and a wedge-pin arranged therein, of a second clutch member having a hub on said stud, a threaded nut locked on said stud and having an extension within which a split ring may lie concealed, a split ring arranged on said stud between said nut and hub, said ring having inclined sides, a wedge-pin extending between the ends of said split ring, and means for actuating said wedge-pin.

787,727. MACHINE FOR MAKING MACARONI. VINCENZO CHIAPPINELLI, Buffalo, N. Y., assignor of one-third to Salvatore Paterno and one-third to Domenico Dolce, Buffalo, N. Y. Filed Apr. 11, 1904. Serial No. 202,694.



Claim.—1. The combination of a cylinder having vertical guide-rods extending upwardly therefrom, a cross-head slidable on the guide-rods, means for holding said cross-head in different positions on the guide-rods, a plunger adapted for movement above and within the cylinder, a plunger-screw held to revolve in said cross-head, and operating mechanism for imparting movement to said plunger-screw, said operating mechanism being slidably mounted on said guide-rods so as to permit of elevating the same independent of or with the cross-head.

2. In a machine for making macaroni, &c., the combination of a cylinder having guide-rods extending from the upper end thereof, a cross-head movable on said guide-rods, a plunger, a plunger-screw carrying said plunger and being threaded into the cross-head for movement therein, and means for actuating said plunger-screw, said means being movable on the guide-rods independent of or with the cross-head.

3. In a machine for making macaroni, &c., the combination of a cylinder having guide-rods, a cross-head guided for movement on said guide-rods, a plunger adapted for movement above and within said cylinder, a plunger-screw carrying said plunger and being threaded into the cross-head for movement therein, means for actuating said plunger, said means being guided on the guide-rods so as to be elevated and lowered independent of the cross-head by force of gravity and by an upward thrust exerted thereagainst, and means for holding said actuating means at certain points on the guide-rods.

4. In a machine for making macaroni, &c., the combination of a cylinder having guide-rods extending from the upper end thereof, a cross-head guided for movement on said guide-rod and having a threaded opening in line with the axis of said cylinder, a plunger, a plunger-screw having said plunger secured to the lower end thereof and being threaded into the threaded opening in said cross-head, a transverse shaft journaled and supported to raise and lower with said plunger-screw at all times, and operative connection between said transverse shaft and the plunger-screw.

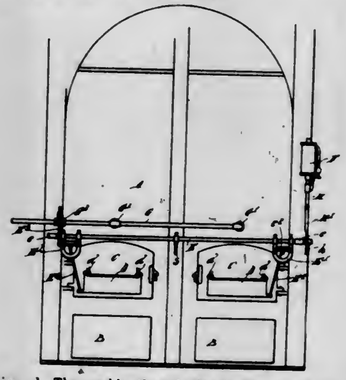
5. In a machine for making macaroni, &c., the combination of a cylinder having vertical guide-rods secured thereto at diametrically opposite points, a cross-head having a threaded opening and being supported on said guide-rods and capable of vertical movement thereon, a plunger, a plunger-screw secured to said plunger and passing through the threaded opening in said cross-head, a supporting-plate carried on said plunger-screw and being guided on the guide-rods, so as to move with or independent of the cross-head, a worm-wheel secured to the plunger-screw, a worm meshing with said worm-wheel and being journaled on said supporting-plate, and means for revolving said worm.

6. In a machine for making macaroni, &c., the combination with the cylinder, and guides extending upward therefrom and having each an aperture near its upper end and a second aperture at a suitable point below said first-mentioned aperture, of a cross-head slidable on said guide-rods, means carried by the cross-head for pressing the contents of the cylinder, pins fitting the first-mentioned apertures for holding the cross-head and supported parts elevated, and pins fitting the second-mentioned apertures and serving to hold the cross-head against movement when pressing the contents of the cylinder.

7. In a machine for making macaroni, &c., the combination with the cylinder and guide-rods extending upward therefrom, of a cross-head supported on said guide-rods, a plunger-screw threaded for movement in said cross-head, and a horizontal shaft movable toward and from the cross-head and having operative connection with the plunger-screw.

8. In a machine for making macaroni, &c., the combination with the cylinder and guide-rods extending upward therefrom, of a cross-head supported on said guide-rods, a plunger-screw having a collar near its upper extremity, a plunger at the lower end of said screw, a supporting-plate resting on said collar and being guided on said guide-rods, and a horizontal shaft journaled on said supporting-plate and having operative connection with the plunger-screw to revolve the same.

787,728. SMOKE-CONSUMER. GEORGE CRAMOND, Detroit, Mich. Filed Apr. 22, 1904. Serial No. 204,306.



Claim.—1. The combination of a fire-door, a shaft horizontally journaled thereabove, a U-shaped lever-arm having its terminals attached to said shaft and depending therefrom in front of said fire-door so as to be contacted and rocked thereby, an auxiliary door hinged to said fire-door and covering an opening therein, a link connecting said lever-arm with said last-mentioned door and adapted to actuate the same when said lever-arm is contacted and lifted by said fire-door, a steam-pipe adjacent to said shaft, a valve controlling the entrance of steam thereinto and a lever connection between said U-shaped lever-arm and said valve, and adapted to regulate the flow therethrough by the movement thereof, substantially as described.

2. The combination of a fire-door, a shaft pivoted above said fire-door, an arm on said shaft extending above and in front of said fire-door and forming a cam-surface adapted to be contracted and acted upon as a cam-surface by said fire-door, said arm having a notch or bend adapted to engage said fire-door, an opening in said fire-door, a second door hinged thereto and adapted to close said opening, means for connecting said second door with said arm, a steam-pipe provided with a valve, and means for connecting said arm with said valve.

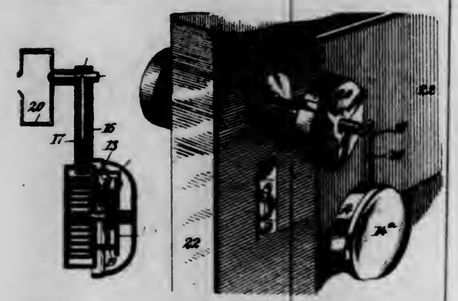
3. The combination of a fire-door, a shaft rotatably journaled thereabove, a lever-arm extending from said shaft and structurally integral therewith, a U-shaped lever-arm depending from said shaft in front of said door, and affording a cam-surface adapted to be acted upon thereby, an opening in said fire-door, a second door hinged to said fire-door and adapted to close said opening, a link connecting said second door with said lever-arm, a steam-pipe provided with a plurality of jets, a valve therein, a connecting-rod joining said valve with said lever-arm, a second lever-arm upon said shaft, a cylinder and a piston linked thereto, and adapted to retard the movement of said shaft and the mechanism connected therewith while returning to its normal position, substantially as described.

4. In a furnace, the combination of a fire-door C, provided with an opening therethrough, a door D hinged thereupon, and adapted to close said opening, a shaft E extending above the door C and adapted to rotate in a plane at right angles to that of the door C, a U-shaped lever-arm E′, depending in front of said door C and struc-

turally integral with said shaft having a notch M, a steam-pipe G, a valve G^3, controlling the flow through said pipe, a connecting-rod joining the lever-arm E' with the valve G^3, and a connecting-rod joining the lever-arm E', with the door D and adapted to actuate the same by movements of the shaft E, a cataract-gear, and means for connecting said shaft E therewith, substantially as described.

5. In a furnace, the combination of a fire-door C, provided with an opening therethrough, a door D, pivoted upon the door C, and adapted to close said opening, a shaft E extending above the door C, and pivoted to turn in a plane at right angles to the plane in which the door C turns, a lever-arm E', shaped to form a cam extending over and in front of the door C, and provided with a notch M', and adapted to be actuated by the engagement thereagainst of said door C, a steam-pipe C, provided with a valve G^3, a connecting-rod joining the lever-arm E' with the valve G^3, and a connecting-rod joining the lever-arm E' with the door D, a cataract-gear and means for connecting said shaft with said cataract-gear, and an adjustable arm S on said shaft.

787,729. **ALARM DEVICE.** THOMAS N. DERBY, Roundlake, N. Y., assignor to Charles H. Stockwell, Troy, N. Y. Filed Sept. 16, 1904. Serial No. 224,633.



Claim.—1. In an alarm device, a body-casing, a clockwork mechanism in the casing, including a gong, a pallet or escapement wheel, a pallet engaging with the wheel, an arched striking-arm carried by the pallet, a spring having lifting action on the arched portion of the striking-arm, a trip-rod having guided movement in the body and having bearing on said spring, a pintle mounted to turn on the upper end of the trip-rod, having a recess therein to receive the outer end of the rod, and means connected with the pintle, adapted for attachment to a movable object.

2. The combination with a casing, a clockwork mechanism within the said casing, including a pallet or escapement wheel, a pallet, an arched striking-arm carried by the pallet, a gong supported on said body-casing, adapted to be acted upon by the striking-arm, and a tubular extension from the said body-casing, of a spring secured at one end to the said casing, which spring extends beneath the arched portion of the striking-arm and in engagement therewith, the spring having a lifting action upon the striking-arm, whereby to normally hold the pallet in engagement with the escapement-wheel, a trip-bar mounted to slide in the tubular extension of said casing and having its inner end in engagement with the free end of the said spring, and means within the tubular extension for operating the trip-rod through the movement of the object to which the alarm may be applied.

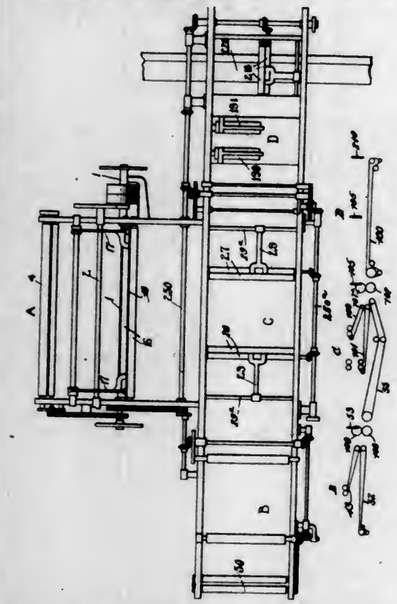
3. The combination with a casing, a clockwork mechanism within the casing, including a pallet or escapement wheel, a pallet, an arched striking-arm carried by the pallet, a gong supported on said body-casing, adapted to be acted upon by the striking-arm, and a tubular extension from the said body-casing, of a spring secured at one end to said casing, which spring extends beneath the arched portion of the striking-arm and in engagement therewith, the spring having a lifting action upon the striking-arm whereby to normally hold the pallet in engagement with the escapement-wheel, a trip-bar mounted to slide in the tubular extension of said casing and having its inner end in engagement with the free end of said spring, a pintle mounted to turn at the outer end portion of the tubular extension from said casing and beyond the outer end of the trip-bar, which pintle within the tubular extension is provided with a recess adapted to receive the upper end of the trip-bar, and means attached to said pintle, whereby the device may be secured to a door-knob or similar object.

4. The combination with a casing containing a clockwork and a gong operated by the clockwork, and provided with a trip-rod projecting from the casing, of clamping-jaws, and a revoluble pintle carried by said jaws and with which the upper end of the trip-rod engages.

5. The combination with a casing containing a clockwork and a gong operated by the clockwork and provided with a tubular extension and a trip-rod extending into the tubular extension, of a pintle mounted in the upper end of the tubular extension and having a recess therein to receive the upper end of the trip-rod, and clamping-jaws carrying the said pintle.

6. In an alarm, the combination of a casing provided with a guide, a clockwork and gong in the casing, a trip-rod projecting from the casing, and a member adapted for attachment to a movable object, said member working in the guide of the casing and engaged by the said trip-rod.

787,730. **PAPER ASSEMBLING, STITCHING, AND FOLDING MACHINE.** TALBOT C. DEXTER, Pearl River, N. Y., assignor to Dexter Folder Company, Pearl River, N. Y., a Corporation of New York. Filed Feb. 29, 1904. Serial No. 196,635.



Claim.—1. In a machine of the character described, the combination of an assemblage-conveyer adapted to carry both complete and incomplete assemblages of sheets or signatures, means for feeding the individual sheets or signatures along different paths to the assemblage-conveyer, and sheet-actuated controlling devices adapted to detect complete and incomplete assemblages and to cause the complete assemblages to be arrested at a certain point and to permit the incomplete assemblages to pass on beyond the arresting-point and out of the machine, substantially as set forth.

2. In a machine of the character described, the combination of an assemblage-conveyer adapted to carry both complete and incomplete assemblages of sheets or signatures, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the assemblage-conveyer, a final-fold gage for assembling sheets or signatures upon the assemblage-conveyer, and sheet-actuated controlling devices adapted to detect complete and incomplete assemblages and to cause the operation of the final-fold gage to arrest the complete assemblages and to prevent the operation of the final-fold gage when the assemblages are incomplete so as to permit the latter to pass on beyond the arresting-point and out of the machine, substantially as set forth.

3. In a machine of the character described, the combination of a mechanism adapted to act upon assemblages of sheets or signatures, an assemblage-conveyer adapted to carry both complete and

incomplete assemblages of sheets or signatures to said mechanism, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the assemblage-conveyer, an assemblage-gage for assembling sheets or signatures upon the assemblage-conveyer, and sheet-actuated controlling devices adapted to detect complete or incomplete assemblages and cause the operation of said mechanism when the assemblages are complete and prevent the operation of said mechanism when the assemblages are incomplete and permit the incomplete assemblages to pass on beyond the assemblage-gage and out of the machine, substantially as set forth.

4. In a machine of the character described, the combination of a binding mechanism adapted to act upon assemblages of sheets or signatures, an assemblage-conveyer adapted to carry both complete and incomplete assemblages of sheets or signatures past said binding mechanism, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the assemblage-conveyer, an assemblage-gage for assembling the sheets or signatures upon the assemblage-conveyer and sheet-actuated controlling devices adapted to detect both complete and incomplete assemblages and cause the operation of the binding mechanism when the assemblages are complete and prevent the operation of the binding mechanism when the assemblages are incomplete and permit the incomplete assemblages to pass on beyond the assemblage-gage and out of the machine, substantially as set forth.

5. In a machine of the character described, the combination of a binding mechanism adapted to act upon assemblages of sheets or signatures, a final-fold mechanism, an assemblage-conveyer adapted to carry both complete and incomplete assemblages of sheets or signatures to the binding and final-fold mechanisms, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the assemblage-conveyer, an assemblage-gage for assembling sheets or signatures upon the assemblage-conveyer, and sheet-actuated controlling devices adapted to detect both complete and incomplete assemblages and cause the operation of the binding and final-fold mechanisms when the assemblages are complete and prevent the operation of the binding and final-fold mechanisms when the assemblages are incomplete and permit the incomplete assemblages to pass on beyond the assemblage-gage and out of the machine, substantially as set forth.

6. In a machine of the character described, the combination of suitable binding and final-fold mechanisms adapted to act upon assemblages of sheets or signatures, means for positioning assemblages with relation to the binding and final-fold mechanisms, an assemblage-conveyer adapted to carry both complete and incomplete assemblages of sheets or signatures to the binding and final-fold mechanisms, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the assemblage-conveyer, an assemblage-gage for assembling sheets or signatures upon the assemblage-conveyer, and sheet-actuated controlling devices adapted to detect both complete and incomplete assemblages and cause the operation of the binding and final-fold mechanisms and the positioning means when the assemblages presented by the conveyer are complete, and prevent the operation of the binding and final-fold mechanisms and the positioning means when the assemblages presented are incomplete and permit the incomplete assemblages to pass on beyond the assemblage-gage and out of the machine, substantially as set forth.

7. In a machine of the character described, the combination of a conveyer adapted to receive and convey both complete and incomplete assemblages of sheets or signatures, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the conveyer, a gage for assembling the sheets or signatures upon the conveyer, a stapling or stitching machine supported adjacent to the path of the successive assemblages of sheets or signatures, a final-fold mechanism adapted to fold and deliver assemblages, controlling means under the influence of all of the individual sheets or signatures adapted to arrest the action of said stapling or stitching machine when an incomplete assemblage is presented to it, and auxiliary controlling means actuated by the stapling or stitching machine and adapted to arrest the action of the final-fold mechanism when an incomplete unbound assemblage is presented to it and permit the incomplete unbound assemblages to pass on beyond the final-fold mechanism and out of the machine, substantially as set forth.

8. In a machine of the character described, the combination of a conveyer adapted to receive and convey both complete and incomplete assemblages of sheets or signatures, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the conveyer, a gage for assembling the sheets or signatures upon the conveyer, separate deliveries for the complete and incomplete assemblages, a binding mechanism adapted to act upon assemblages of sheets or signatures, a folding mechanism adapted to fold the successive complete assemblages of sheets or signatures and direct them to the delivery for complete assemblages, and controlling means under the influence of all of the individual sheets or signatures, adapted to arrest the action of the binding mechanism and the folding mechanism without stopping the machine when an incomplete assemblage is presented, allow the incomplete assemblage to pass on beyond the folding mechanism to the delivery for incomplete assemblages and cause the action of the said binding mechanism and folding mechanism when a complete assemblage is presented, substantially as set forth.

9. In a machine of the character described, the combination of a main conveyer adapted to receive and convey both complete and incomplete assemblages of sheets or signatures, a plurality of auxiliary conveyers adapted to feed the individual sheets or signatures and collections of sheets or signatures along different paths to the main conveyer, an assemblage-gage operating to assemble the sheets or signatures upon the main conveyer, a mechanism supported adjacent to the path of the main conveyer and adapted to act upon assemblages of sheets or signatures thereon, and controlling means under the influence of all of the individual sheets or signatures, adapted to prevent the action of said mechanism when an incomplete assemblage of sheets or signatures is presented and permit the incomplete assemblages to pass on beyond said mechanism and to cause the action of said mechanism when a complete assemblage of sheets or signatures is presented, substantially as set forth.

10. In a machine of the character described, the combination of a conveyer adapted to receive and convey both complete and incomplete assemblages of sheets or signatures, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the conveyer, a gage for assembling the sheets or signatures upon the conveyer, a mechanism supported adjacent to the path of the conveyer and adapted to act upon assemblages of sheets or signatures thereon, controlling means under the influence of all the individual sheets or signatures, adapted to prevent the action of said mechanism when an incomplete assemblage of sheets or signatures is presented and permit the incomplete assemblages to pass on beyond said mechanism and to cause the action of said mechanism when a complete assemblage of sheets or signatures is presented, and means controlled by said mechanism, adapted to separate the complete and incomplete assemblages of sheets or signatures as they pass from the machine, substantially as set forth.

11. In a machine of the character described, the combination of a conveyer adapted to receive and convey both complete and incomplete assemblages of sheets or signatures, means for feeding the individual sheets or signatures and collections of sheets or signatures along different paths to the conveyer, a gage for assembling the sheets or signatures upon the conveyer, and means, under control of all of the individual sheets or signatures, adapted to arrest and separate the complete from the incomplete assemblages of sheets or signatures and permit the incomplete assemblages to pass on beyond the said arresting and separating means, substantially as set forth.

12. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is arranged to receive sheets or signatures from all of the others, said plurality of conveyers being adapted to carry to the rear end of the machine the successive assemblages of sheets or signatures whether complete or incomplete, separate deliveries at the rear end of the machine for the complete and incomplete assemblages of sheets or signatures, and sheet-actuated controlling mechanism adapted to direct the complete assemblages of sheets or signatures to the proper delivery and permit the passage of the incomplete assemblages of sheets or signatures beyond the delivery for the complete assemblages to the other delivery of the machine, substantially as set forth.

13. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is arranged to receive sheets or signatures from all of the others, said plurality of conveyers being adapted to carry to the rear end of the machine the successive assemblages of sheets or signatures whether complete or incomplete, separate receptacles for the complete and incomplete assemblages of sheets or signatures at the rear end of the machine, and sheet-actuated controlling mechanism adapted to direct the complete assemblages of sheets or signatures into the proper receptacle while permitting the incomplete assemblages to pass on beyond the receptacle for the complete assemblages to the receptacle for incomplete assemblages, substantially as set forth.

14. In a machine of the character described, the combination with auxiliary conveyers of an assemblage-conveyer adapted to carry both complete and incomplete assemblages to the rear end of the machine, separate deliveries at the rear end of the machine for complete and incomplete assemblages, respectively, and controlling devices actuated by the sheets for directing the complete assemblages to their proper delivery while permitting the incomplete assemblages to pass on to the proper delivery beyond the delivery for the complete assemblages, substantially as set forth.

15. In a machine of the character described, the combination with auxiliary conveyers of an assemblage-conveyer adapted to carry both complete and incomplete assemblages to the rear end of the machine, separate deliveries at the rear end of the machine for complete and incomplete assemblages, respectively, binding mechanism located adjacent to the path of the assemblage-conveyer, and controlling devices actuated by the sheets and adapted to cause the operation of the binding mechanism when the assemblages are complete and permit them to be conveyed to their proper delivery, and prevent the operation of the binding mechanism when the assemblages are incomplete and permit the assemblage-conveyer to convey the incomplete assemblages to their proper delivery beyond the delivery for the complete assemblages without binding; substantially as set forth.

16. In a machine of the character described, the combination with auxiliary conveyers of an assemblage-conveyer adapted to carry both complete and incomplete assemblages to the rear end of the machine, separate deliveries at the rear end of the machine for complete and incomplete assemblages, respectively, binding mechanism located adjacent to the path of the assemblage-conveyer, a gage for positioning the assemblages upon the assemblage-conveyer with relation to the binding mechanism, and controlling devices actuated by the sheets and adapted to cause the operation of the binding mechanism when the assemblages are complete and permit them to be conveyed to their proper delivery, and prevent the operation of the binding mechanism when the assemblages are incomplete and permit the assemblage-conveyer to convey the incomplete assemblages to their proper delivery beyond the delivery for the complete assemblages without binding; substantially as set forth.

17. In a machine of the character described, the combination with auxiliary conveyers of an assemblage-conveyer adapted to carry both complete and incomplete assemblages to the rear end of the machine, separate deliveries at the rear end of the machine for complete and incomplete assemblages, respectively, binding and final-fold mechanisms located adjacent to the path of the assemblage-conveyer, and controlling devices actuated by the sheets and adapted to cause the operation of the binding and final-fold mechanisms when the assemblages are complete and permit them to be conveyed to their proper delivery, and prevent the operation of the binding and final-fold mechanisms when the assemblages are incomplete and permit the assemblage-conveyer to convey the incomplete assemblages to their proper delivery beyond the delivery for the complete assemblages without binding or final folding; substantially as set forth.

18. In a machine of the character described, the combination with auxiliary conveyers of an assemblage-conveyer adapted to carry both complete and incomplete assemblages to the rear end of the machine, a receptacle for complete assemblages located beneath the assemblage-conveyer, a receptacle for incomplete assemblages located at the end of the assemblage-conveyer, binding and final-fold mechanisms located adjacent to the path of the assemblage-conveyer, and controlling devices actuated by the sheets and adapted to cause the operation of the binding and final-fold mechanisms when the assemblages are complete and permit them to be conveyed to their proper receptacle, and prevent the operation of the binding and final-fold mechanisms when the assemblages are incomplete and permit the assemblage-conveyer to deliver the incomplete assemblages into their proper receptacle beyond the receptacle for the complete assemblages without binding or final folding; substantially as set forth.

19. In a machine of the character described, the combination with auxiliary conveyers of an assemblage-conveyer adapted to carry both complete and incomplete assemblages to the rear end of the machine, receptacles at the rear end of the machine for complete and incomplete assemblages, respectively, binding and final-fold mechanisms located adjacent to the path of the assemblage-conveyer, means for positioning the assemblages upon the assemblage-conveyer with relation to the binding and final-fold mechanisms, and controlling devices actuated by the sheets and adapted to cause the operation of the binding and final-fold mechanisms when the assemblages are complete and permit them to be conveyed to their proper receptacle, and prevent the operation of the binding and final-fold mechanisms when the assemblages are incomplete and permit the assemblage-conveyer to deliver the incomplete assemblages into their proper receptacle beyond the receptacle for the complete assemblages without binding or final folding; substantially as set forth.

20. In a machine of the character described, the combination of a plurality of sheet or signature feeding conveyers, an assemblage-conveyer adapted to carry both complete and incomplete assemblages from the feeding-conveyers to the rear end of the machine, separate deliveries at the rear end of the machine for complete and incomplete assemblages, respectively, binding mechanism located adjacent to the path of the assemblage-conveyer, and controlling devices actuated by the sheets or signatures and adapted to cause the operation of the binding mechanism when the assemblages are complete and permit them to be conveyed to their proper delivery and prevent the operation of the binding mechanism when the assemblages are incomplete and permit the assemblage-conveyer to convey the incomplete assemblages to their proper delivery beyond the delivery for the complete assemblages without binding; substantially as set forth.

21. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is arranged to receive sheets or signatures from all of the others, said plurality of conveyers being adapted to carry to the rear end of the machine the successive assemblages of sheets or signatures whether complete or incomplete, mechanism supported adjacent to the path of the assemblages of sheets or signatures and adapted to act upon assemblages of sheets or signatures, separate deliveries for the complete and incomplete assemblages of sheets or signatures, and sheet-actuated controlling means adapted to prevent the action of said mechanism when an incomplete assemblage is presented, cause the action of said mechanism when a complete assemblage is presented, direct the complete assemblages of sheets or signatures to the proper delivery and permit the incomplete assemblages of sheets or signatures to pass on to the proper delivery beyond the delivery for the complete assemblages, substantially as set forth.

22. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is adapted to receive sheets or signatures from the others, a mechanism supported adjacent to the path of, and adapted to operate upon assemblages of sheets or signatures, separate receptacles for receiving respectively the complete and incomplete assemblages of sheets or signatures, and sheet-actuated controlling means constructed and arranged to prevent the action of said mechanism when incomplete assemblages are presented to it and cause the action of said mechanism when complete assemblages are presented, and means actuated by said mechanism for directing the complete assemblages of sheets or signatures into the proper receptacle, and permitting the incomplete assemblages to pass on to the receptacle beyond the receptacle for the complete assemblages, substantially as set forth.

23. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is adapted to receive sheets or signatures from the others, a stitching or stapling machine supported adjacent to the path of, and adapted to bind assemblages of sheets or signatures, separate deliveries for the complete bound and incomplete unbound assemblages of sheets or signatures, sheet-actuated controlling means constructed and arranged to prevent the action of said stitching or stapling machine when incomplete assemblages are presented to it and cause the action of said stitching or stapling machine when complete assemblages are presented, and means actuated by said stitching or stapling machine for directing the complete assemblages of sheets or signatures to the proper delivery and permitting the incomplete assemblages to pass on to the delivery beyond the delivery for the complete assemblages, substantially as set forth.

24. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is adapted to receive sheets or signatures from the others, a stitching or stapling machine supported adjacent to the path of the assemblages of sheets or signatures, separate deliveries for the complete bound and incomplete unbound assemblages of sheets or signatures, final-fold mechanism adapted to fold and deliver complete bound assemblages of sheets or signatures, sheet-actuated controlling means constructed and arranged to prevent the action of said stitching or stapling machine when incomplete assemblages are presented to it and cause the action of said stitching or stapling machine when complete assemblages are presented, and means actuated by said stitching or stapling machine for controlling said final-fold mechanism to cause it to final fold and deliver complete bound assemblages and to arrest its operation upon incomplete unbound assemblages, substantially as set forth.

25. In a machine of the character described, the combination of a main conveyer for carrying sheets or signatures to the rear end of the machine, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller operatively connected with all of said tripping devices, separate deliveries for the complete and incomplete assemblages of sheets or signatures, and a final gage under the control of said controller, adapted to direct the complete assemblages to the proper delivery without preventing the passage of incomplete assemblages to the proper delivery beyond the delivery for the complete assemblages, substantially as set forth.

26. In a machine of the character described, the combination of a main conveyer for carrying sheets or signatures, a stapling or stitching machine interposed in the path of the main conveyer adapted to bind assemblages of sheets or signatures, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers leading to one or more of the auxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller operatively connected with all of said tripping devices and adapted to prevent the operation of the stapling or stitching machine when an incomplete assemblage of sheets or signatures is presented to it and cause the operation of said machine when a complete assemblage is presented to it, a final-fold mechanism, and means, controlled by the stapling or stitching machine, adapted to prevent the action of the final-fold mechanism when an incomplete unbound assemblage is presented to it and allow the action of said final-fold mechanism when a complete bound assemblage is presented to it, substantially as set forth.

27. In a machine of the character described, the combination of a main conveyer for carrying sheets or signatures, a stapling or stitching machine interposed in the path of the main conveyer adapted to bind assemblages of sheets or signatures, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers leading to one or more of the auxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller operatively connected with all of said tripping devices and adapted to prevent the operation of the stapling or stitching machine when an incomplete assemblage of sheets or signatures is presented to it and cause the operation of said machine when a complete assemblage is presented to it, separate deliveries for the complete bound and incomplete unbound assemblages, and means, controlled by said stapling or stitching machine, adapted to direct the complete assemblages to the proper delivery while permitting the incomplete assemblages to pass on to the proper delivery beyond the delivery for the complete assemblages, substantially as set forth.

28. In a machine of the character described, the combination of a main conveyer for carrying sheets or signatures, a stapling or stitching machine interposed in the path of the main conveyer adapted to bind assemblages of sheets or signatures, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers leading to one or more of the auxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller operatively connected with all of said tripping devices and adapted to prevent the operation of the stapling or stitching machine when an incomplete assemblage of sheets or signatures is presented to it and cause the operation of said machine when a complete assemblage is presented to it, a final-fold mechanism, separate deliveries for the complete bound and incomplete unbound assemblages, and means, controlled by said stapling or stitching machine, adapted to arrest the action of the final-fold mechanism when an incomplete unbound assemblage is presented to it and permit said incomplete assemblage to pass on to the delivery for incomplete assemblages, and cause the action of said final-fold mechanism when a complete bound assemblage is presented to it, said final-fold mechanism being arranged to fold and deliver complete bound assemblages to the delivery for complete assemblages, substantially as set forth.

29. In a machine of the character described, the combination of a mechanism adapted to act upon assemblages of sheets or signatures, a main conveyer for carrying sheets or signatures to the rear end of the machine, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller operatively connected with all of said tripping devices, separate deliveries for the complete and incomplete assemblages of sheets or signatures, and a final gage under the control of said controller, adapted to direct the complete assemblages to the proper delivery without preventing the passage of incomplete assemblages to the proper delivery beyond the delivery for the complete assemblages, substantially as set forth.

30. In a machine of the character described, the combination of conveyers for carrying complete and incomplete assemblages of sheets or signatures to the rear end of the machine, a plurality of gages adapted to assemble sheets or signatures at a plurality of points, a plurality of sheet-actuated tripping devices, one of which is arranged in the path of each sheet or signature to be assembled, a common controlling device under the direct control of all of said sheet-actuating devices and adapted to determine the disposition at the rear end of the machine of the complete assemblages of sheets or signatures while permitting the incomplete assemblages of sheets or signatures to pass on beyond the depository for the complete assemblages, substantially as set forth.

31. In a machine of the character described, the combination of a plurality of sheet-conveying mechanisms adapted to convey sheets or signatures to a common point of assemblage, an independent sheet-actuated tripping device supported in the path of each sheet or signature to be assembled, a common conveyer leading from the point of assemblage and adapted to convey to the rear end of the machine the successive assemblages whether complete or incomplete, mechanism adapted to operate upon complete assemblages, and controlling means, under the direct control of all of the individual sheet-actuated tripping devices, adapted to prevent the action of said mechanism when incomplete assemblages are presented to it and to permit the latter to pass on beyond and out of the machine, substantially as set forth.

32. In a machine of the character described, the combination of a mechanism to be controlled, with a constantly-rotating frame or spider carrying a circumferential series of shiftable controlling parts successively passing into and out of controlling relation with said mechanism, and means for shifting said controlling parts independently parallel with the axis of the frame or spider, substantially as set forth.

33. In a machine of the character described, the combination of a mechanism to be controlled, with a rotating frame or spider carrying a circumferential series of shiftable controlling parts arranged to successively pass into and out of controlling relation with said mechanism, means for returning said controlling parts to inactive position after they have been operated, and automatically-operated means for shifting said controlling parts independently into active position parallel with the axis of the frame or spider, substantially as set forth.

34. In a machine of the character described, the combination of a mechanism to be controlled, with a rotating frame carrying a circumferential series of independent shiftable controlling parts which successively pass into and out of controlling relation with said mechanism, and are adapted to be shifted transversely of their direction of rotation, a device mounted in operative relation to said shiftable controlling parts adapted to return said parts to inactive position in their supporting-frame, and automatically-operated means adapted to shift said controlling parts independently into active position parallel with the axis of the frame, substantially as set forth.

35. In a machine of the character described, the combination of an intermittently-operating mechanism to be controlled, with a constantly-rotating frame carrying a circumferential series of independent laterally-shiftable controlling parts which successively pass into and out of controlling relation with said mechanism, a device mounted in operative relation to said shiftable controlling parts adapted to return said parts to inactive position in their supporting-frame, and automatically-operated means adapted to shift said controlling parts independently into active position parallel with the axis of the frame, substantially as set forth.

36. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, and a mechanism adapted to operate upon said sheets or signatures, with a controller for said mechanism including an intermittently-operated part, a constantly-rotating frame carrying a circumferential series of shiftable

parts arranged to successively pass into and out of controlling relation with said intermittently-operated part, an automatically-operated pin or bolt for shifting said shiftable parts independently into active position parallel with the axis of the frame, and means for returning said shiftable parts to their inactive position, substantially as set forth.

37. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, and a mechanism adapted to operate upon said sheets or signatures, with a controller for said mechanism including an intermittently-operated part, a rotating frame carrying a circumferential series of laterally-shiftable parts arranged to successively pass into and out of controlling relation with said intermittently-operated part, a movable pin or bolt for shifting said shiftable parts independently into active position parallel with the axis of the frame, sheet-actuated means controlling the movement of said pin-bolt, and means for returning said shiftable parts to inactive position, substantially as set forth.

38. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, one of which is adapted to carry successive assemblages of sheets or signatures, and a stapling or stitching machine adapted to bind complete assemblages of sheets or signatures, with a controller for said machine, including an intermittently-operated bar, a constantly-rotating frame carrying a circumferential series of shiftable tappets arranged to successively pass into and out of controlling relation with said intermittently-operated bar, sheet-actuated means for shifting said tappets independently into active position parallel with the axis of the frame, and means for returning said tappets to their inactive position, substantially as set forth.

39. In a machine of the character described, the combination of a plurality of sheet or signature conveyers, and a mechanism adapted to operate upon said sheets or signatures, with a controller for said mechanism, including an intermittently-operated part, a constantly-rotating frame, a circumferential series of shiftable tappets mounted in said frame and carried thereby successively past the intermittently-operated part of the controller, sheet-actuated means for shifting said tappets independently in said rotating frame to move them into active position parallel with the axis of the frame, and means for returning said tappets to their inactive position after they have performed their work, substantially as set forth.

40. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, mechanism for operating upon complete assemblages of sheets or signatures, a series of independent conveyers for feeding said sheets or signatures to the main conveyer, with a controller for said mechanism including an intermittently-operated part, a rotating frame, a circumferential series of shiftable tappets mounted in said frame parallel with the axis of the frame and carried thereby successively past the intermittently-operated part of the controller, a movable pin having means for projecting it into and withdrawing it from the path of said tappets, sheet-actuated tripping devices supported in the path of sheets or signatures and controlling the movement of said pin, and means for returning the tappets to inactive position in their supporting-frame, substantially as set forth.

41. In a machine of the character described, the combination of a plurality of conveyers one of which is adapted to carry to the rear end of the machine a succession of assemblages of sheets or signatures, mechanism interposed in the path of said assemblage-carrying conveyer adapted to operate upon assemblages of sheets or signatures, a controlling-bar operatively connected with and controlling the action of said mechanism, a controller-arm connected with said controlling-bar, a rotating frame independent of the conveyers and carrying a series of shiftable tappets which are adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said rotating series of tappets and adapted to be moved into and out of their path, and sheet-actuated tripping devices supported in the path of some of said conveyers and operatively connected with said pin or bolt, substantially as set forth.

42. In a machine of the character described, the combination of a plurality of conveyers, one of which is adapted to carry to the rear end of the machine a succession of assemblages of sheets or signatures, mechanism interposed in the path of said assemblage-carrying conveyer adapted to operate upon assemblages of sheets or signatures, a controlling-bar operatively connected with and controlling the action of said mechanism, a controller-arm connected with said controlling-bar, a rotating frame or spider independent of the assemblage-carrying conveyer, a series of shiftable tappets mounted upon the frame or spider and adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said rotating series of tappets and adapted to be moved into and out of their path, to engage the tappets and shift them into active position, sheet-actuated tripping devices supported in the path of some of said conveyers and operatively connected with said pin or bolt, and means for returning the shiftable tappets to inactive position in their supporting frame or spider, substantially as set forth.

43. In a machine of the character described, the combination of a plurality of conveyers adapted to carry sheets or signatures and assemblages of sheets or signatures, mechanism interposed in the path of one of said conveyers adapted to operate upon assemblages of sheets or signatures, a controlling-bar operatively connected with and controlling the action of said mechanism, sheet-actuated tripping devices supported in the path of some of said conveyers and directly controlling said controller-bar, a controller-arm also connected with said controlling-bar, a rotating frame carrying a series of shiftable tappets which are adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said rotating series of tappets and adapted to be moved into and out of their path to engage the tappets and shift them into active position, and other sheet-actuated tripping devices supported in the path of other conveyers and operatively connected with said pin or bolt, substantially as set forth.

44. In a machine of the character described, the combination of a plurality of conveyers adapted to carry sheets or signatures and assemblages of sheets or signatures, mechanism interposed in the path of one of said conveyers adapted to operate upon assemblages of sheets or signatures, a controlling-bar operatively connected with and controlling the action of said mechanism, sheet-actuated tripping devices supported in the path of some of said conveyers and directly controlling said controlling-bar, a controller-arm also connected with said controlling-bar, a rotating frame carrying a series of shiftable tappets which are adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said tappets and adapted to be moved into and out of their path to engage the tappets and shift them into active position, means for returning the shiftable tappets to inactive position in their supporting-frame, and other sheet-actuated tripping devices supported in the path of other conveyers and operatively connected with said pin or bolt, substantially as set forth.

45. In a machine of the character described, the combination of a conveyer adapted to carry to the rear end of the machine a succession of assemblages of sheets or signatures, whether complete or incomplete, mechanism interposed in the path of said conveyer adapted to operate upon assemblages of sheets or signatures, a plurality of auxiliary conveyers leading to the main conveyer, a controlling-bar operatively connected with and controlling the action of said mechanism, sheet-actuated tripping devices supported in the path of some of said auxiliary conveyers and operatively connected with said controlling-bar, a controller-arm also connected with said controlling-bar, a rotating frame carrying a series of shiftable tappets which are adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said rotating series of tappets and adapted to be moved into and out of their path, a plurality of subauxiliary conveyers leading to one or more of the auxiliary conveyers, and sheet-actuated tripping devices supported in the path of said subauxiliary conveyers and operatively connected with said pin or bolt, substantially as set forth.

46. In a machine of the character described, the combination of a conveyer adapted to convey successive assemblages of sheets or signatures, whether complete or incomplete, mechanism adapted to operate upon assemblages of sheets or signatures, and means for feeding a plurality of sheets or signatures to said assemblage-conveyer, with a controller for said mechanism including an intermittently-operated part, a rotating frame independent of said conveyer, a series of normally inactive shiftable parts mounted upon said rotating frame and carried thereby successively past said intermittently-movable part, means for shifting said shiftable parts independently for rendering them active, and a plurality of sheet-actuated devices each independently controlling said shifting means, one of said sheet-actuated devices being provided for each of the sheets or signatures to be fed to the assemblage-conveyer, whereby the absence of any one of the sheets or signatures of an assemblage will be detected and one of the shiftable parts of the controller will be set to actuate the controller and prevent the operation of said mechanism when the incomplete assemblage is presented to it, substantially as set forth.

47. In a machine of the character described, the combination of a conveyer adapted to carry to the rear end of the machine a succession of complete and incomplete assemblages of sheets or signatures, mechanism interposed in the path of said conveyer adapted to operate upon assemblages of sheets or signatures, three auxiliary conveyers leading to the main conveyer, a controlling-bar operatively connected with and controlling the action of said mechanism, connected sheet-actuated tripping devices supported in the paths of two of said auxiliary conveyers and means operatively connecting one of said connected tripping devices with said controlling-bar, a controller-arm also connected with said controlling-bar, a rotating frame carrying a series of shiftable tappets which are adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said rotating series of tappets and adapted to be shifted into and out of their path, a plurality of subauxiliary conveyers leading to the third one of the auxiliary conveyers, and sheet-actuated tripping devices supported in the paths of said subauxiliary conveyers and operatively connected with said pin or bolt, substantially as set forth.

48. In a machine of the character described, the combination of a main conveyer adapted to carry to the rear end of the machine a succession of complete and incomplete assemblages of sheets or signatures, mechanism interposed in the path of said main conveyer adapted to operate upon assemblages of sheets or signatures, three auxiliary conveyers leading to the main conveyer, a controlling-bar operatively connected with and controlling the action of said mechanism, sheet-actuated tripping devices supported in the paths of two of said auxiliary conveyers, means operatively connecting one of said auxiliary tripping devices with said controlling-bar, a loose-joint connection between said two auxiliary tripping devices, a controller-arm also connected with said controlling-bar, a rotating frame carrying a series of shiftable tappets which are adapted to be brought successively into operative relation with said controller-arm, a pin or bolt arranged adjacent to said rotating series of tappets and adapted to be shifted into and out of their path, a plurality of subauxiliary conveyers leading to the third one of the auxiliary conveyers, and sheet-actuated tripping devices supported in the paths of said subauxiliary conveyers and operatively connected with said pin or bolt, substantially as set forth.

49. In a machine of the character described, the combination of a plurality of sheet-conveyers, mechanism adapted to operate upon assemblages of sheets, a controlling-bar operatively connected with and controlling the action of said mechanism, a controller-arm connected with said controlling-bar, a rotating frame, a series of tappets mounted in said frame and adapted to be shifted transversely therein for engaging the controller-arm, each of said tappets being formed with beveled ends, a pin or bolt supported adjacent to said rotating frame and adapted to be moved into the path of and engage one of the beveled ends of a tappet and shift the tappet laterally in the frame into active position, sheet-actuated tripping devices supported in the path of some of said conveyers and operatively connected with said pin or bolt, and a rigid arm projecting into the path of the opposite beveled end of said shifted tappet for returning the tappet into inactive position, substantially as set forth.

50. In a machine of the character described, the combination of a plurality of sheet-conveyers, mechanism adapted to operate upon assemblages of sheets, a controlling-bar operatively connected with and controlling the action of said mechanism, a controller-arm connected with said controlling-bar, a rotating frame, a series of tappets mounted in said frame and adapted to be shifted therein for engaging the controller-arm, each of said tappets being formed with limiting-shoulders, spring-arms mounted upon said rotating frame and engaging said tappets between said limiting-shoulders, a pin or bolt supported adjacent to said rotating frame and adapted to be moved into the path of the tappets to engage and shift the tappets into active position in the frame, sheet-actuated tripping devices supported in the path of some of said conveyers and operatively connected with said pin or bolt, and means for returning the tappets into inactive position, substantially as set forth.

51. In a machine of the character described, the combination of a plurality of sheet-conveyers, mechanism adapted to operate upon assemblages of sheets, a controlling-bar operatively connected with and controlling the action of said mechanism, a controller-arm connected with said controlling-bar, a rotating frame, a series of tappets mounted in said frame and adapted to be shifted transversely therein for engaging the controller-arm, each of said tappets being formed with oppositely-presented beveled ends and intermediate limiting-shoulders, spring-arms mounted upon said rotating frame and engaging said tappets between said limiting-shoulders, a pin or bolt supported adjacent to said rotating frame and adapted to be moved into the path of and engage one of the beveled ends of a tappet and shift the tappet into active position in the frame, sheet-actuated tripping devices supported in the path of some of said conveyers and operatively connected with said pin or bolt, and a rigid arm projecting into the path of the opposite beveled end of said shifted tappet for returning the tappet into inactive position, substantially as set forth.

52. In a machine of the character described, the combination of a conveyer adapted to receive and convey successive assemblages of sheets or signatures, means for feeding the individual sheets or signatures and collections of sheets or signatures to the conveyer, a gage for assembling the sheets or signatures upon the conveyer, a stapling or stitching machine supported adjacent to the path of the successive assemblages of sheets or signatures upon the conveyer and adapted to bind complete assemblages, a folding mechanism adapted to finally fold and deliver complete bound assemblages, controlling means under the influence of all of the individual sheets or signatures adapted to arrest the action of the stapling or stitching machine when incomplete assemblages are presented to it, and cause the action of said stapling or stitching machine when complete assemblages are presented to it, a rotating series of shiftable tappets, a device, controlled by said tappets, for throwing said folding mechanism into and out of action, and a pin or bolt operated by the stitching-machine and movable into and out of the path of said tappets and adapted to render the tappets active, substantially as set forth.

53. In a machine of the character described, the combination of a conveyer adapted to carry assemblages of sheets or signatures, a stapling or stitching machine interposed in the path of said conveyer and adapted to bind complete assemblages of sheets or signatures, automatically-operating means for controlling the said stapling-machine, a final-fold mechanism arranged to fold the bound assemblages of sheets or signatures, said final-fold mechanism including a final-fold gage, folding-rollers, and a folding-knife, an oscillating shaft operatively connected with the final-fold gage for raising and lowering it, an arm projecting from the folding-blade, a spring-released dog adapted to engage said arm for holding the blade in raised position, a cam-arm upon said oscillating shaft adapted to move said dog into engagement with the folding-blade arm, a controlling-cam controlling the oscillations of said shaft, a reciprocating bar connected with said shaft, a dog engaging said bar for holding it against movement, a rotating series of shiftable tappets adapted to disengage said dog from said bar, a pin or bolt adapted to be moved into the path of said tappets for shifting them, and connections between said pin or bolt and the stapling or stitching machine, substantially as set forth.

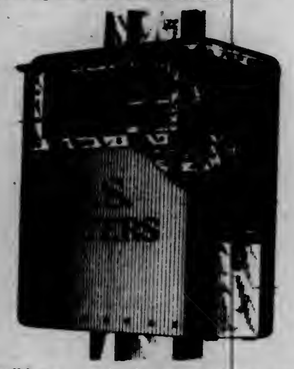
54. In a machine of the character described, the combination of a conveyer adapted to carry assemblages of sheets or signatures, a stapling or stitching machine, a folding mechanism interposed in the path of said conveyer and adapted to fold complete assemblages of sheets or signatures, said folding mechanism including a gage, folding-rollers, and a folding-knife, an oscillating shaft operatively connected with said gage for raising and lowering it, an arm projecting from the folding-blade, a spring-released dog adapted to engage said blade-arm for holding the blade in raised position, a cam-arm upon said oscillating shaft adapted to actuate said dog, a rotary controlling-cam controlling the oscillations of said shaft, a reciprocating bar connected with said shaft, a dog normally engaging said bar for holding said shaft against movement to thereby retain the gage in lowered gaging position and allow the folding-blade to operate, a rotating series of normally inactive shiftable tappets adapted when shifted to disengage said dog from said bar, a pin or bolt adapted to be moved into the path of said tappets, and connections between said bolt and the stapling or stitching machine, substantially as set forth.

787,731. MAIL-BOX. JAMES H. DICKSON, Polk, Pa. Filed Dec. 20, 1904. Serial No. 237,668.

Claim.—1. In mail-boxes, a casing having an opening therein through which mail-matter is inserted, a pocket secured to the inner face of the casing, at the opening therein, and having an opening in its bottom, a chute extending from the bottom of the pocket below the opening thereof, a slide for closing the lower end of the chute, a hinged plate-like door for closing the opening of the casing, and mechanism between the door and slide for operating the latter from the former.

2. In mail-boxes, a casing having an opening through which mail-matter is inserted, a hinged plate-like door for closing the said opening, a pocket having a segmental bottom with an opening therein and secured to the inner face of the casing at the opening thereof, a chute secured to the bottom below the opening in said bottom, a counterpoise-slide for closing the lower end of the chute, and operat-

ing means between the pivot of the door of the casing and the said slide for operating the latter from the former.



3. In mail-boxes, a casing having an opening therein, a shaft mounted to rock at the upper portion of the said opening, a door for the opening, secured to said shaft, a pocket at the rear of the said opening, being secured to the said casing in which the said door has movement, a chute secured to the said pocket in communication therewith at the top, being open at the bottom, a slide capable of covering the bottom of the chute, carriers for the slide fulcrumed upon the chute, a counterpoise-weight for the carriers, and connections between the carriers and the shaft for the door, which connections impart movement to the slide at the opening and closing of the door.

4. In mail-boxes, a casing having an opening therein, a shaft mounted to rock at the upper portion of the said opening, a door for the opening, secured to the said shaft, a pocket fixed within the said casing at the rear of the said opening, in which pocket the said door has movement, the pocket being provided with an opening in its bottom portion, a chute open at the top and at the bottom, which chute is secured to the bottom portion of the said pocket in registry with the opening in the pocket, a slide capable of covering or of uncovering the bottom of the chute, carriers for the slide, fulcrumed upon the chute, a counterpoise-weight attached to the carriers above and at one side of their fulcrums, upwardly-extending arms also secured to the carriers above and at opposite sides of their fulcrums, crank-arms secured to the said shaft for the door, and link connections between the crank-arms and the extension-arms of the carriers.

5. In a mail-box, a casing having an opening for the insertion of mail-matter, a plate-like door for closing said opening, a pocket secured to the inside of the casing at the opening therein, a chute extending from the bottom of the pocket and in communication with the said pocket, a swinging and counterpoised closure for the bottom of the chute, and mechanism for operating the closure from the door.

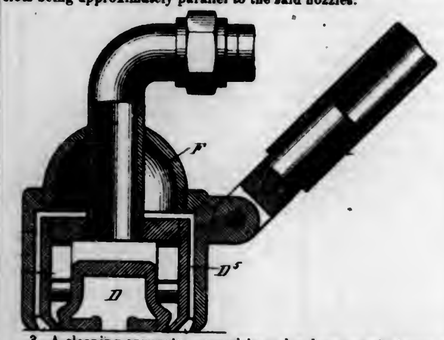
6. In a mail-box, a casing having an opening for the insertion of mail-matter, a pocket on the inside of the casing at the opening therein, a swinging door for closing the opening of the casing, a chute in communication with the pocket, a swinging closure for the bottom of the chute, having members pivoted on the outer sides of the chute, a counterpoise connected with one of the members of the closure, and mechanism between the pivot of the door and one member of the swinging closure for operating the latter from the former.

7. In a mail-box, the combination of a swinging door, a chute, a slide for closing the lower end of the chute, carriers for the slide pivoted to the chute and provided with diverging arms at their pivoted ends; a counterpoise secured to the forwardly-projecting arms of the carriers, crank-arms on the axis of the swinging door, and links connecting the crank-arms with the rearwardly-projecting arms of the carriers.

787,782. CLEANING APPARATUS. HENRY L. DORR, New York, N. Y. Filed July 5, 1904. Serial No. 215,376.

Claim.—1. A cleaning apparatus provided with a suction-chamber having an inlet-slot, and a blast-chamber having discharge-nozzles on opposite sides of the said suction-chamber inlet-slot, the nozzles converging at an angle, the apex of which is in vertical alinement with the said inlet-slot and the said nozzles being spaced from the sides of the said inlet-slot, the terminals of the nozzles lying approximately in a plane containing the said inlet-slot.

2. A cleaning apparatus provided with a suction-chamber having a main inlet-slot and auxiliary inlet-slots spaced from and located on opposite sides of the main inlet-slot, and a blast-chamber having discharge-nozzles located on opposite sides of the main inlet-slot and between the latter and the auxiliary inlet-slots, the said nozzles being spaced from the said main slot and the said auxiliary slots, the said nozzles being converging and the mouths of the auxiliary inlet-slots being approximately parallel to the said nozzles.



3. A cleaning apparatus comprising a head open at the bottom and provided at the top with a suction-discharge, a blast-chamber within the said head and having an inlet-pipe extending through the suction-discharge, the said blast-chamber terminating at its bottom in converging discharge-nozzles, and a suction-chamber within the said head and provided at its bottom with a main inlet-slot located between the said nozzles, the upper end of the said suction-chamber opening into the head, and the said main inlet-slot being spaced from the said converging discharge-nozzles.

4. A cleaning apparatus comprising a head open at the bottom and provided at the top with a suction-discharge, a blast-chamber within the said head and spaced from the walls thereof to form with the latter auxiliary suction inlet-slots, the blast-chamber having at its top an inlet-pipe extending through the said suction-discharge, and the said blast-chamber terminating at its bottom in spaced converging discharge-nozzles, and a suction-chamber within the said head, provided at its bottom with a main inlet-slot located between the said nozzles, the upper end of the suction-chamber opening into the head at the top thereof.

787,783. SETTING. GEORGE W. DOVER, Cranston, R. I. Filed Dec. 8, 1904. Serial No. 235,929.



Claim.—1. A gem-setting comprising a plurality of rings in frictional contact with each other, and means upon the rings for engaging the gems.

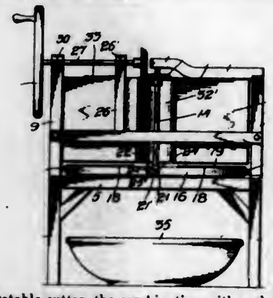
2. A gem-setting comprising a plurality of rings assembled one within another and arranged in frictional contact with each other, and annular flanges upon the rings adapted to engage the gems.

3. A gem-setting comprising inner and outer rings fixed with respect to each other, flanges, on the rings, having continuous free edges arranged to be bent against opposite sides of a plurality of gems disposed between the flanges, and a ring fixed inside of the inner of the first-mentioned rings and having a flange provided with a continuous free edge arranged to be bent inwardly against a large, central gem.

4. A gem-setting comprising inner and outer rings fixed with respect to each other, and having shoulders c' and b', respectively, and also having portions forming conical seats d, flanges on the rings, having continuous free edges arranged to be bent against opposite sides of a plurality of gems disposed between the flanges, and a ring fixed inside of the inner of the first-mentioned rings and having a shoulder a' and also having a flange provided with a continuous free edge arranged to be bent inwardly against a large, central gem.

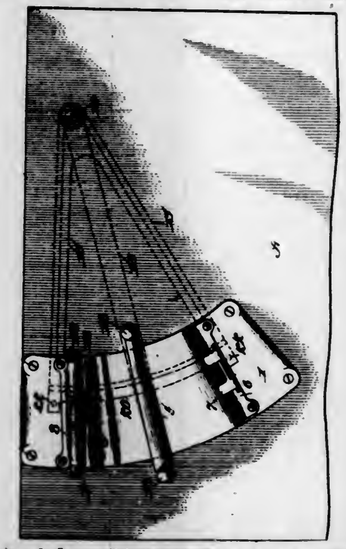
787,784. VEGETABLE-CUTTER. JACOB J. DRONG, Browerville, Minn. Filed May 9, 1904. Serial No. 207,096.

Claim.—1. A vegetable-cutter including a revoluble disk having radial slots, blades pivoted in the slots with their cutting edges above the surface of the disk and arranged for movement of said edges vertically, said blades having ears extending over the periphery of the disk, and set-screws engaged in the ears and arranged for engagement of the periphery of the disk to hold the blades at different points of their pivotal movement.



2. In a vegetable-cutter, the combination with a platform having an opening therethrough, of a disk revolubly mounted above the opening and having radial slots and grooves connecting the outer ends of the slots with the periphery of the disk, said grooves also communicating with the upper face of the disk, blades having downwardly-turned ends disposed in the slots and grooves with their ends pivoted to the disk one at the inner end of the slot and the other at the periphery and with their cutting edges projecting above the upper surface of the disk in the same direction, a set-screw engaged with the outer end of each blade for movement into engagement with the periphery of the disk to prevent pivotal movement of the blades, means for revolving the disk and means for holding matter in position to be engaged by the blades.

787,785. RADIAL CIGAR-BUNCH MACHINE. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed Nov. 11, 1903. Serial No. 180,765.



Claim.—1. In a radial cigar-bunch machine, the combination of the arcuate rolling-table, the rolling-apron, the conical wrapping-roller coöperating with said table and belt, means for supporting the roller consisting of a swinging lever having a fixed fulcrum and a head pivotally mounted on a vertical axis upon the lever, and on which the roller is supported.

2. In a radial cigar-bunch machine, the combination of the rolling-table, the roller coöperating with said table, and means for supporting the roller consisting of a swinging lever, a head pivotally mounted on a vertical axis upon the lever, and on which the roller is supported, and a tongue-and-groove connection between the head and the lever to limit the movement of the head.

3. In a radial cigar-bunch machine, the combination of the rolling-table, the roller coöperating with said table and the support for said roller consisting of the swinging lever located entirely within planes below the table, the head mounted upon the swinging end of the lever, projecting on opposite sides of the table, and supporting the roller; and the track, and its coöperating roller mounted, one on the fixed part of the machine and the other on the swing-lever to afford vertical support for the swinging end of the lever.

4. In a radial cigar-bunch machine, the combination of the rolling-table, the roller coöperating with the table, and the support for the roller comprising a swinging lever below the table, the head pivotally mounted upon the swinging end of the lever at right angles to the direction of travel of the lever, projecting on opposite sides of the table and supporting the roller.

5. In a radial cigar-bunch machine, the combination of the rolling-table, the roller coöperating with said table and the support for said roller consisting of the swinging lever below the table, the head centrally and pivotally mounted upon the swinging end of the lever, projecting on opposite sides of the table, and supporting the roller; and the track, and its coöperating roller mounted, one on the fixed part of the machine and the other on the swinging lever to afford vertical support for the swinging end of the lever.

6. In a radial cigar-bunch machine, the combination of the rolling-table, the segmental extension on said table, projecting therefrom and disposed entirely within planes lower than the table, the swinging arm pivoted in said segmental extension swinging beneath the table and having a head projecting on opposite sides of the table, and the bunching-roller supported on said head.

7. In a cigar-bunch machine, the combination of the rolling-table, the apron, the swinging lever mounted below the table, the head projecting on opposite sides of the table, the vertically-adjustable posts threaded in said head, a single bunching-roller, and an axle on which the roller is mounted, threaded into one of said posts and passing through the other.

8. In a cigar-bunch machine, the combination of the rolling-table, the swinging lever mounted below the table, the head centrally and pivotally mounted on the lever and projecting on opposite sides of the table, the vertically-adjustable posts threaded in said head, and the bunching-roller mounted on an axle secured in said posts.

9. In combination with the rolling-table and bunching-roller of a radial cigar-bunch machine, a centrally-pivoted head extending upward on either side of the table, adjustable supports for said roller mounted in said head and a support for the head.

10. In a cigar-bunch machine, the combination with the rolling-apron, of means for adjustably securing an end of the apron consisting of the socket, into which a loop of the apron may be introduced, a rotatable rod passing through the loop of the apron in said socket, and the nut on said rod for securing it in any position to which it is rotated.

11. A cigar-bunching machine, having a rolling table and apron, a roller coöperating with the apron, and the moving support for the roller; said roller being mounted upon its moving support by a pivot normal to the axis of the roller.

12. In a cigar-bunching machine, a roller, a support for the roller, and a pivot for the roller, normal to the axis of the roller and to the direction of travel of the roller.

13. In a cigar-bunch machine, the combination with the rolling-apron, of means for adjustably securing an end of the apron comprising a socket, into which an end of the apron is introduced, a rotatable rod of non-circular cross-section fitted in the socket and engaging the apron, and means for securing the rod in any position to which it may be rotated.

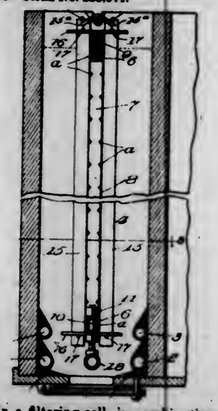
14. In a cigar-bunch machine, the combination with the rolling-apron, of means for adjustably securing an end of the apron comprising a socket, and a rotatable rod fitted in the socket and engaging the apron, and cone portions at the ends of the rods adjustable relatively to one another to hold the rod in any position to which it may be rotated.

15. In a cigar-bunch machine, the combination with the rolling-apron, of means for adjustably securing an end of the apron comprising a socket, and a rotatable rod of non-circular cross-section fitted in the socket and engaging the apron, a conical head at one end of the rod, and a conical nut threaded on the opposite end of the rod to bind the rod in the socket.

16. In a radial cigar-bunch machine, the combination of the rolling-table, the segmental extension on said table projecting therefrom, the swinging lever pivoted to the segmental extension, swing-

ing beneath the table, a head on the segmental extension projecting on opposite sides of the table, a bunching-roller supported on said head, a track on a fixed part of the machine below the table, and a roller revolving on a horizontal axis, carried by the swinging lever and moving on the track.

787,736. **FILTERING-CELL FOR SEPARATING SLIMES IN ORE TREATMENT.** GUSTAVUS A. DUNCAN, Deadwood, S. D. Filed Sept. 10, 1904. Serial No. 223,971.



Claim.—1. In a filtering-cell, in combination with a filtering-bag, a frame lodged in the bag for holding it extended, comprising vertical spacing-bars at relatively short intervals in the length of the cell; nipples set through the bottom bar of such frame and extending through the bottom of the bag and made water-tight thereat, and an exhaust and supply pipe to which such nipples are connected, extending underneath the cell.

2. A filtering-cell for the purpose indicated comprising, in combination with a filtering-bag, a frame lodged within the bag for holding the same extended, comprising a plurality of spacing-bars at relatively short intervals in the length of the bag, the bag being deeper than the height of the frame, and a rod upon which the excess of the sides of the bag which extends above the frame is rolled for closing the cell at the top, and means for supporting and exhausting the cell.

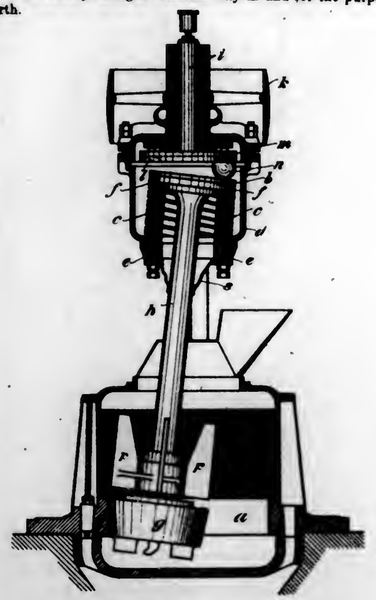
3. In a filtering-cell for the purpose indicated, in combination with a filtering-bag closed upon all sides, a frame within the bag for extending the same, comprising a plurality of vertical spacing-bars at relatively short intervals in the length of the bag; exterior check-bars arranged in pairs, the two of each pair being separate and locked opposite each other at opposite sides of the bag, and slotted plates which receive the corresponding ends of the two bars of each pair for connecting them together at both ends for binding the check-bars against the upper and lower side bars of the frame.

4. In a filtering-cell for the purpose indicated, in combination with a filtering-bag closed upon all sides, a frame within the bag for extending the same, comprising a plurality of vertical spacing-bars at relatively short intervals in the length of the bag; exterior check-bars extending vertically at the opposite sides of the bag, such check-bars being bound together in pairs against the frame in position intermediate the positions of the space-bars.

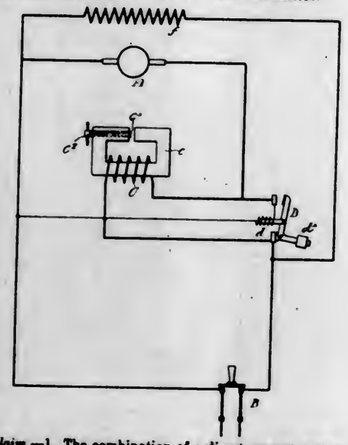
5. In a filtering-cell for the purpose indicated, in combination with a filtering-bag which is closed at all sides, a frame within the bag for extending the same comprising vertical spacing-bars at relatively short intervals in the length of the cell; exterior check-bars extending vertically at opposite sides of the cell; slotted plates which bind the check-bars together in pairs on the cell; a hanger, 18, connected with the upper ends of the check-bars of each pair, and a rod extending under the hangers for supporting the cell.

787,737. **DRIVING DEVICE FOR PENDULUM-MILLS.** JACOB DÜRRHOLA, Kalk, Germany. Filed July 7, 1904. Serial No. 215,592.

Claim.—In a driving device for pendulum-mills, in combination, a grinding-pendulum *g h* resting on springs *c* by means of a disk *b* in the center over the grinding-surface and of a single rolling body *n* inserted between the disk *b* and another disk *m*, near the periphery, the disk *m* being rotated from the outside and the pendulum, being by springs pressed against the rolling body, is moved thereby out of its perpendicular central position into an inclined position with regard to the grinding-surface, which position is, in consequence of the rotation of the disk *m* and the rolling around in a circle of the rolling body constantly changed, substantially as and for the purpose set forth.



787,738. **MOTOR-STARTING DEVICE.** ARTHUR C. EASTWOOD, Cleveland, Ohio. Filed Sept. 9, 1904. Serial No. 223,857.



Claim.—1. The combination of a direct-current motor, a body of inductive starting resistance in addition to the motor-windings, in circuit with said motor, with means dependent for its action on the counter electromotive force of the motor for automatically cutting said starting resistance out of circuit when said counter electromotive force rises to a predetermined point, substantially as described.

2. The combination of a direct-current motor having in series with it a body of inductive starting resistance in addition to its field-windings, and an automatic switch in shunt to said starting resistance, substantially as described.

3. The combination of a motor having in its circuit a body of inductive starting resistance in addition to its own windings, and an electromagnetic switch in shunt to said starting resistance.

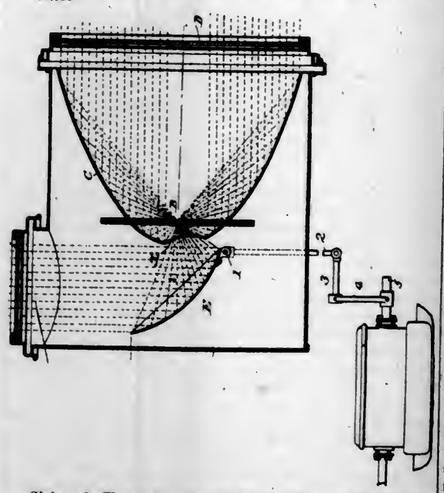
4. The combination of a motor, a body of inductive starting resistance in addition to said motor-windings, in circuit with said motor, with an electromagnetic switch placed to cut out said starting resistance and having an actuating-coil connected to cause its operation after the counter electromotive force of the armature reaches a predetermined point, substantially as described.

5. The combination of a motor having in series with it an inductive starting resistance in addition to its own field-windings, a switch provided with means tending to maintain it in an open condition, said switch being in shunt to said starting resistance, with a coil for operating said switch, said coil having its ends connected respectively to the armature-terminals of the motor, substantially as described.

6. The combination of a motor, a body of inductive starting resistance in circuit therewith, means for varying the inductance of the winding comprising said resistance and a switch depending for its action on the counter electromotive force of the motor for cutting said body of starting resistance into and out of circuit, substantially as described.

7. The combination of a motor, with a body of starting resistance, a body of magnetic material adjacent to said starting resistance and forming a magnetic circuit therefor, means for adjusting the reluctance of said magnetic circuit, and an automatic switch for cutting said starting resistance into and out of circuit with the motor, substantially as described.

787,739. **SIGNAL-LIGHT.** EDGAR A. EDWARDS, Cincinnati, Ohio, assignor, by mesne assignments, to Metropolitan Trust & Savings Bank, trustee, a Corporation of Illinois. Filed Nov. 25, 1901. Serial No. 83,533.



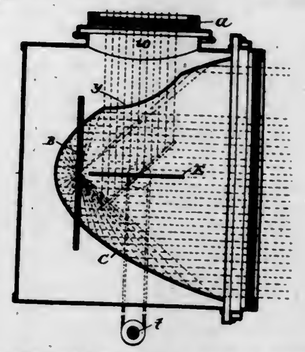
Claim.—1. The combination with a headlight, and its lamp and reflector, of an opening permitting the light-rays to pass to the rear of the reflector, and a supplemental reflector arranged to receive such rays and project them upward, substantially as described.

2. The combination with the casing of a locomotive-headlight, of a lamp, a concave reflector having an opening at the rear of the lamp, and a supplemental reflector at the rear of said opening arranged to reflect upward the light-rays passing through said opening, substantially as described.

3. The combination with the casing of a locomotive-headlight, of a lamp, a concave reflector having an opening at the rear of the lamp, and a supplemental parabolic reflector at the rear of said opening arranged to reflect upward the light-rays passing through said opening, substantially as described.

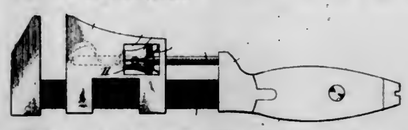
4. The combination with the casing of a locomotive-headlight, of a lamp, a concave reflector having an opening at the rear of the lamp, and a supplemental reflector at the rear of said opening arranged to reflect upward the light-rays passing through said opening, with an opening in the top of the casing above the supplemental reflector, substantially as described.

787,740. **SIGNAL-LIGHT.** EDGAR A. EDWARDS, Cincinnati, Ohio, assignor, by mesne assignments, to Metropolitan Trust & Savings Bank, trustee, a Corporation of Illinois. Filed Nov. 25, 1901. Serial No. 83,534.



Claim.—The combination with the casing and stationary concave reflector C, having openings for the passage upward of light-rays, of a supplemental reflector within the reflector C, and means for rotating the supplemental reflector, substantially as set forth.

787,741. **WRENCH.** LEROY G. EGGER, Buffalo, Iowa. Filed Apr. 20, 1904. Serial No. 204,033.



Claim.—1. A wrench comprising a shank having a handle at one end and a fixed jaw at the other end, a movable jaw mounted to slide on the shank, and having a longitudinal bore and a transverse opening intersecting said bore, the front wall of said transverse opening being provided with a tapered recess around said bore, said movable jaw being cut away on its sides between its ends to render the central portion thereof comparatively thin, a threaded stem extending from the handle into the bore of the movable jaw, a nut formed of two longitudinal sections pivoted together and mounted on the stem within said transverse opening, said nut being provided with a tapered front end to enter said tapered recess, the inner walls of said nut in advance of its pivot-point being provided with threads, and the rear inner walls of the nut being flared outwardly, springs having one end secured to the rear wall of the opening in the movable jaw with their free ends pressing the rear end of the nut, and V-shaped springs interposed between the flared ends of the nut and acting directly upon said ends to force them from each other whereby to cause the threaded end of the nut to clamp the threaded stem, said central thin portion of the movable jaw being of less thickness than the diameter of the nut to permit the nut to be easily grasped by the fingers of the operator, and the end portions of the movable jaw being thicker than the diameter of said nut to permit the wrench to be laid upon a bench without engaging the nut.

2. A wrench consisting of a shank having a handle at one end and a fixed jaw at the other end, a movable jaw mounted to slide on the shank and having a longitudinal bore and a transverse opening, the front wall of which is provided with a tapered recess around said bore, a threaded stem secured to the handle and extending into the bore of the movable jaw, a nut formed of sections pivoted together and mounted on the stem in the transverse opening of the movable jaw, said nut having a tapered front end to enter said tapered recess and provided with internal threads at its forward end, the inner walls of the nut in rear of the threaded portion being flared outwardly, springs having one end secured to the rear wall of the opening in the movable jaw with their free ends forked to partially receive the threaded stem and pressing the rear end of the nut, and V-shaped springs interposed between the flared ends of the nut and acting directly upon said ends to force them from each other, whereby to cause the threaded end of the nut to positively clamp the threaded stem, as set forth.

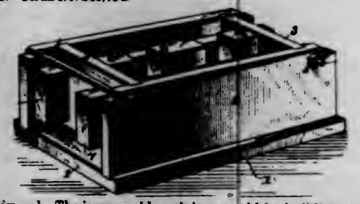
787,742. METHOD OF WELDING. OTTO EIGEN, Duisburg, Germany, assignor to Duisburger Maschinenbau-Actien-Gesellschaft, vormals Bechem & Keetman, Duisburg, Germany. Filed May 13, 1903. Serial No. 156,880.



Claim.—1. The method herein described of welding by means of rolling pressures, which consists in providing the members to be welded with bevels, heating said members, placing said bevels together face to face, and subjecting said members to rolling pressures which force said members directly toward each other in two independent directions crossing the general direction of the bevels.

2. The method herein described of welding by means of rolling pressures, which consists in providing the articles with oppositely-disposed members having bevels, placing said bevels in contact face to face, and forcing said members toward each other in two independent directions crossing the general planes of said bevels.

787,743. MOLD FOR FORMING CEMENT BUILDING-BLOCKS. BILLY ELY and JAMES I. TAYLOR, Rock Rapids, Iowa. Filed Jan. 19, 1905. Serial No. 241,754.



Claim.—1. The improved knockdown mold for building-blocks, comprising a base, sides, and ends, the latter having openings, longitudinal bars or filling-pieces adapted to be inserted and supported in said openings and spaced from the top, bottom, and sides of the mold, and upright blocks secured to the base and spaced apart and from the filling-pieces in the longitudinal middle of the mold, the two end blocks being located close to the ends of the mold-box, substantially as described.

2. The improved knockdown mold for building-blocks, comprising a base, sides, and ends which are provided with openings, longitudinal bars or filling-pieces adapted to be inserted in and withdrawn from said openings, and upright blocks secured to the base, and spaced apart and from the said filling-pieces, substantially as described.

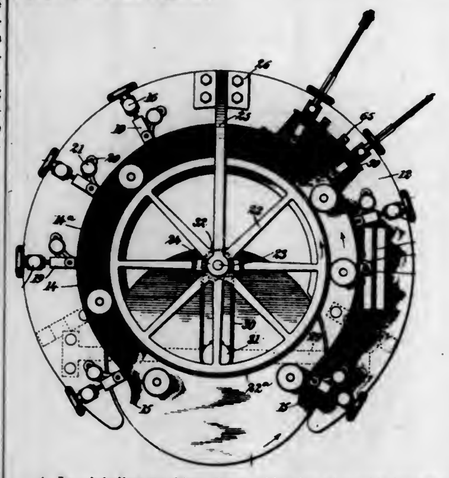
3. The improved knockdown mold for building-blocks comprising a base, sides and ends, and means for holding them temporarily together, upright blocks secured to the base and arranged in alinement along the longitudinal middle of the mold-box, and a removable metal plate adapted to be placed in the mold-box, in parallel position and in contact with said upright blocks, and a longitudinal filling-piece held detachably in the ends of the mold-box, and spaced from the insertible plate and the sides and base of the mold-box, substantially as described.

787,744. LABELING-MACHINE. FRED C. FISHER and PERRY PERDUE, Muncie, Ind. Filed Nov. 14, 1903. Serial No. 181,158.

Claim.—1. In a labeling-machine, the combination with means for advancing a can, and means for applying adhesive material to the can, of means for successively presenting labels to the can, and means for exposing to the coated can a portion of the label next succeeding the one being affixed.

2. In a labeling-machine, a curved raceway having one member rotatable and presenting a moving surface around the raceway, whereby to advance the articles and also rotate them on their axes, means for applying adhesive material to the article, and a feed mechanism comprising a rotatable table, the opposite sides of which respectively move adjacent to the receiving and discharging portions of the raceway.

3. In a labeling-machine, the combination of a table having a curved and vertical plate secured thereto, a wheel revolving at a fixed distance opposite said plate, thereby forming an approximately circular raceway, the said plate having an opening therein, gumming means arranged at said opening and projected therethrough, said plate having a second opening in advance of said first-named opening, means for feeding the labels successively at said second opening, and means at said second opening in the plate for preventing said labels from being forced therethrough by said feeding means, said latter means being also arranged to permit the labels to pass through said opening when the gummed can is caused to move past said opening by said movable member, said gumming means being disposed relatively to said label-feeding means, to thereby gum the article at a fractional portion of its periphery, which portion will be partially engaged by the end of the label.



4. In a labeling-machine, the combination of a table having a curved and vertical plate secured thereto, a wheel revolving at a fixed distance opposite said plate, thereby forming an approximately circular raceway, the said plate having an opening therein, gumming means arranged at said opening and projected therethrough, said plate having a second opening in advance of said first-named opening, means for feeding the labels successively at said second opening, and means at said second opening in the plate for preventing said labels from being forced therethrough by said feeding means, said latter means being also arranged to permit the labels to pass through said opening when the gummed can is caused to move past said opening by said movable member, said gumming means being disposed relatively to said label-feeding means, to thereby gum the article at a fractional portion of its periphery, which portion will be partially engaged by the end of the label, said gumming and labeling means being also arranged so that the other end of the label will be brought into engagement with the remaining part of said gummed portion.

5. In a labeling-machine, the combination of a table having a curved and vertical plate secured thereto, a wheel revolving at a fixed distance opposite said plate, thereby forming an approximately circular raceway, the said plate having an opening therein, gumming means arranged at said opening and projected therethrough, said plate having a second opening in advance of said first-named opening, means for feeding the labels successively at said second opening, means at said second opening in the plate for preventing said labels from being forced therethrough by said feeding means, said latter means being also arranged to permit the labels to pass through said opening when the gummed can is caused to move past said opening by said movable member, said gumming means being disposed relatively to said label-feeding means, to thereby gum the article at a fractional portion of its periphery, which portion will be partially engaged by the end of the label, and means for causing said gummed portion of the article to apply gum to the finally-applied end portion of the succeeding label.

6. In a labeling-machine, the combination of a table, an upright plate on said table disposed in a portion of a circle, a wheel arranged to rotate concentric with said circular plate, and of less diameter than said plate, means for adjusting said plate to and from the periphery of the said wheel, said means comprising a plurality of radially-disposed devices each composed of an upright post secured to the plate, a screw-rod rotatable in said post, and a link pivotally connected with the plate, said link having a threaded aperture at its other end in which said rod is threaded.

7. In a labeling-machine, the combination of a table, an upright plate on said table disposed in a portion of a circle, a wheel arranged to rotate concentric with said circular plate, and of less diameter than said plate, means for adjusting said plate to and from the periphery of the said wheel, said means comprising a plurality of radially-disposed devices each composed of an upright post secured to the plate, a screw-rod rotatable in said post, a link pivotally connected with the plate, said link having a threaded aperture at its other end in which said rod is threaded, a slotted arm secured to the plate in proximity to said link attachment, and a bolt passing through said slotted arm and tapped into said plate.

8. In a labeling-machine, the combination of a table, an upright plate on said table disposed in a portion of a circle, a revoluble wheel concentric with said circle and of less diameter than said plate, and a revoluble disk arranged at the end of said upright plate, with its face in the same plane as the face of the table in proximity to said upright plate.

9. In a labeling-machine, the combination of a table, an upright plate on said table disposed in a portion of a circle, a revoluble wheel concentric with said circle and of less diameter than said plate, a revoluble disk arranged at the end of said upright plate, with its face in the same plane as the face of the table in proximity to said upright plate, and means for revolving said disk from said wheel.

10. The combination with a raceway formed by an upright plate, a table and a can-actuating means, of gum-applying rollers arranged to rotate with their peripheries projected slightly through said plate into said raceway, and means for adjusting said rollers along said plate in the path of movement of the article through the raceway.

11. The combination with a raceway formed by an upright plate, a table and a can-actuating means, the said plate having an opening therein, of one or more gum-applying rollers arranged to rotate with their peripheries projected slightly through said opening into said raceway, means for adjusting said rollers along said plate in the path of movement of the article through the raceway, means for adjusting said plate to and from said can-moving means, a receptacle for gum, a rotatable disk arranged to rotate with one portion in said receptacle and another portion in contact with said rollers, a bearing for said disk secured to the under side of the table, and means for adjusting the disk to compensate for the adjustment of the said upright plate and rollers.

12. In a labeling-machine, the combination with a table having an upright plate thereon and a means for moving the article along the table and in contact with said plate, said plate having an opening therein, of means for feeding labels successively up to said opening in the plate, and a plurality of small prongs disposed on the plate at the upper and lower edges of said opening and arranged to prevent the labels being forced through the opening by said feeding means, but permitting the labels to be drawn through the opening when applied to the article.

13. In a labeling-machine, the combination of a table having a raceway formed thereon by means of a stationary plate, and a movable member located opposite said plate, means for applying gum to a portion only of the article to be labeled, said plate having an opening therein beyond said gumming means in the path of movement of the article through said raceway, means for feeding labels successively up to said opening, means for preventing the articles being passed through said opening by said feeding means, said preventing means being arranged to permit the label to be drawn through said opening when in engagement with the article, and a wire arranged transversely of said opening near the advanced end portion thereof.

14. In a device of the character described, the combination with a table, and a stationary vertical plate on the table and having an aperture at which the labels are fed, of a post secured to the table opposite said aperture, a bar slidable in said post, a follower-plate connected with said bar and thereby movable to and from the opening in the plate, and a cord and weight arranged for causing the follower-plate to feed the labels up to said opening.

15. In a device of the character described, the combination of a table, an upright plate thereon having an opening therein, a pair of rollers rotatable on an axis parallel with said plate and projecting through said opening, the rollers being disposed a short distance apart, and a member movable opposite said plate, and having an article-engaging face located opposite the said space intermediate the rollers.

16. In a labeling-machine, the combination with a curved plate, and a revoluble member forming with the plate an approximately circular raceway for a can or the like and in which the can is caused to traverse by said movable member, of spaced rollers projecting through the plate for applying an adhesive material to the article in stripes, as and for the purpose set forth.

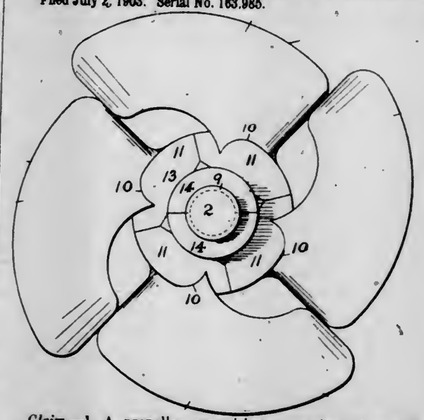
17. In a labeling-machine, the combination with a curved vertical plate, provided with openings, and a wheel mounted to revolve opposite the said plate and forming therewith an approximately circular raceway for a can or the like and in which the can is caused to traverse by said wheel, of a pair of rollers mounted on the plate at the openings thereof, and projecting through said openings, said rollers being spaced apart and adapted to apply an adhesive material to the article in stripes.

18. In a labeling-machine, the combination with a table, a curved vertical plate on the table and having openings therein, and a wheel mounted to revolve opposite said plate to form an approximately circular raceway, of rollers mounted at the openings of the plate and projecting through said openings, a receptacle for containing an adhesive material arranged below the table, and a disk mounted to revolve in the receptacle and in contact with the said rollers.

19. In a labeling-machine, the combination of a table, a curved vertical plate provided with openings, a strip adjustably secured to the plate at the opening and forming the upper edge of the same, a wheel mounted to revolve opposite the plate and forming therewith a raceway, means for applying an adhesive material to the article, and means for feeding labels to the opening of the plate.

20. In a labeling-machine, the combination of a table, a vertical plate on the table, a movable member opposite the plate and forming therewith a raceway, means for applying gum to the article, said plate having an opening beyond the gumming means, and a wire extending vertically across the opening near one end thereof.

787,745. PROPELLER. CALVIN T. FREID, West Orange, N. J., assignor to Freid Engineering Company, a Corporation of New Jersey. Filed July 2, 1903. Serial No. 163,985.



Claim.—1. A propeller comprising a number of propeller-blades, each blade consisting of a face, representing the thrust area of the blade, and an outer marginal and curved edge on each blade, said edge being part of increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

2. A propeller comprising, a number of propeller-blades, each blade consisting of a face, representing the thrust area of the blade, the said face extending in a rearward direction from the root of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

3. A propeller comprising a number of propeller-blades, each blade consisting of a face, representing the thrust area of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force created due to the mass of the element upon which the blades act during their advance upon the same and directly as to the average torque of con-

tact with the said element, whereby said blades utilize the power expended in the creation of the aforesaid centrifugal force, by increasing the thrust parallel to the central axis of the propeller in like ratio, substantially as and for the purposes set forth

4. The combination, with a propeller-shaft having a squared extension forming with the said shaft a thrust-receiving shoulder, of a series of separately-constructed propeller-blades, and means for securing said blades in position upon said squared extension, substantially as and for the purposes set forth.

5. The combination, with a propeller-shaft, of a series of separately-constructed propeller-blades, and means for securing said blades in position upon said shaft, each blade consisting of a face, representing the thrust area of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

6. The combination, with a propeller-shaft, of a series of separately-constructed propeller-blades, and means for securing said blades in position upon said shaft, each blade consisting of a face, representing the thrust area of the blade, the said face extending in a rearward direction from the root of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

7. The combination, with a propeller-shaft having a squared extension forming with the said shaft a thrust-receiving shoulder, said extension being provided with a series of dovetail grooves, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, and a dovetail connected with each hub member registering with a dovetail groove, substantially as and for the purposes set forth.

8. The combination, with a propeller-shaft having a thrust-receiving shoulder, and a series of dovetail grooves, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, and a dovetail connected with each hub member registering with a dovetail groove, and each blade consisting of a face, representing the thrust area of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force on the propeller, substantially as and for the purposes set forth.

9. The combination, with a propeller-shaft having a thrust-receiving shoulder, and a series of dovetail grooves, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, and a dovetail connected with each hub member registering with a dovetail, and each blade consisting of a face, representing the thrust area of the blade, the said face extending in a rearward direction from the root of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

10. The combination, with a propeller-shaft, having a thrust-receiving shoulder, a series of dovetail grooves, and an annular groove and annular shoulder, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, a dovetail connected with each member registering with a dovetail groove, and a retaining-collar in said annular groove, comprising a pair of half-sections, and bolts for securing said half-sections together, substantially as and for the purposes set forth.

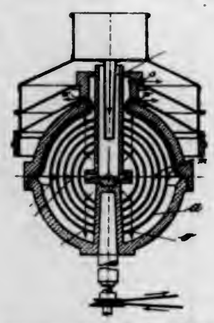
11. The combination, with a propeller-shaft having a thrust-receiving shoulder, a series of dovetail grooves, an annular groove and shoulder, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, a dovetail connected with each member registering with a dovetail groove, and a retaining-collar in said annular groove, comprising, a pair of half-sections, and bolts for securing said half-sections together, and each propeller-blade consisting of a face, representing the thrust area of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

12. The combination, with a propeller-shaft having a thrust-receiving shoulder, a series of dovetail grooves, an annular groove and annular shoulder, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, a dovetail connected with each member registering with a dovetail groove, and a retaining-collar in said annular groove, comprising a pair of half-sections, and bolts for securing said half-sections together, and each propeller-blade consisting of a face, representing the thrust area of the blade, the said face extending in a rearward direction from the root of the blade, and an outer marginal and curved edge on each blade, said edge being part of an increased spiral starting at the center of the propeller and said spiral representing the line of centrifugal force of the propeller, substantially as and for the purposes set forth.

13. The combination, with a propeller-shaft having a thrust-receiving shoulder, and a series of dovetail grooves, each dovetail groove extending in the direction of the central axis of the shaft and each dovetail groove having its central axis located at one side of said central axis of the shaft, to provide an arrangement of dovetail grooves eccentric with the said shaft, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, and a dovetail connected with each hub member registering with a dovetail groove, substantially as and for the purposes set forth.

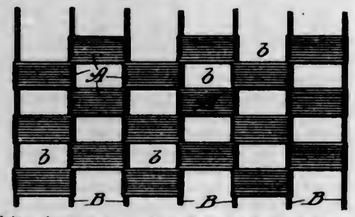
14. The combination, with a propeller-shaft having a thrust-receiving shoulder, and a series of dovetail grooves, each dovetail groove extending in the direction of the central axis of the shaft and each dovetail groove having its central axis located at one side of said central axis of the shaft, to provide an arrangement of dovetail grooves eccentric with the said shaft, said shaft being provided with an annular groove and an annular shoulder, of a series of separately-constructed propeller-blades, a hub member at the root of each blade, a dovetail connected with each member registering with a dovetail groove, and a retaining-collar in said annular groove, comprising a pair of half-sections, and bolts for securing said half-sections together, substantially as and for the purposes set forth.

787,746. **CENTRIFUGAL LIQUID-SEPARATOR.** JOHANN I. FRIEDRICH, Düsseldorf, Germany. Filed Feb. 26, 1901. Serial No. 48,939.



Claim.—A separator composed of an inlet-pipe, surrounding partitions to form a series of nested chambers which communicate with each other by a first set of alined perforations along the inlet-pipe and by a second set of staggered perforations at points of the partitions located at the greatest distance from the inlet-pipe, and means for separately discharging the cream and the skimmed milk from the outermost chamber, substantially as specified.

787,747. **FLEXIBLE METAL FABRIC.** CHARLES T. GILMORE, Chicago, Ill. Filed Aug. 22, 1904. Serial No. 221,691.



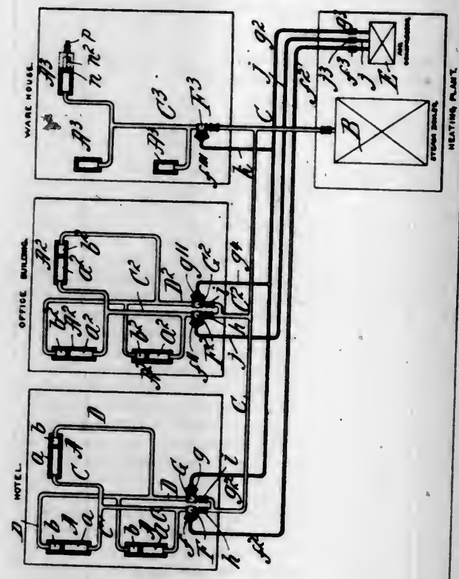
Claim.—1. As a new article of manufacture, a flexible metal fabric comprising parallel series of sheet-metal links with intervening spaces alternating with the links in each series thereof, and parallel metal bars hinging the series of links together, substantially as described.

2. As a new article of manufacture, a flexible metal fabric comprising parallel series of sheet-metal links with intervening spaces alternating with the links in each series thereof, said links having eyes on their ends, and parallel metal bars hinging the series of links together at said eyes, substantially as described.

3. As a new article of manufacture, a flexible metal fabric comprising parallel series of sheet-metal links with intervening spaces alternating with the links in each series thereof, and parallel metal bars hinging the series of links together, said links being disposed in staggered relation from series to series, substantially as described.

4. As a new article of manufacture, a flexible metal fabric comprising parallel metal rods and parallel series of sheet-metal links having eyes on their opposite ends through which said rods are passed to hinge said link series together with the links overlapping one another from series to series thereof and disposed in staggered relation from one series to the other and forming spaces alternating with the links in each series thereof, substantially as described.

787,748. **HEATING SYSTEM.** ERNST GLANTZBERG, Springfield, Mass. Filed Apr. 11, 1904. Serial No. 202,573.



Claim.—1. In a heating system, a plurality of groups of heaters one or more thereof comprising separate chambers in the heaters of each group, a common source of steam-supply, a main steam-pipe connected with one set of the chambers of one of the groups of heaters, and having a branch connected with the other set of chambers of such group, said steam-pipe and its branch having respectively motor-controlled valves, and independently-operable means controlling said motors, a branch of the main steam-pipe connected with a set of the heating-chambers of another of the heater groups, having a motor-controlled valve therefor, and motor-actuating means operable independently of the means for controlling the first-named valve-controlling motors.

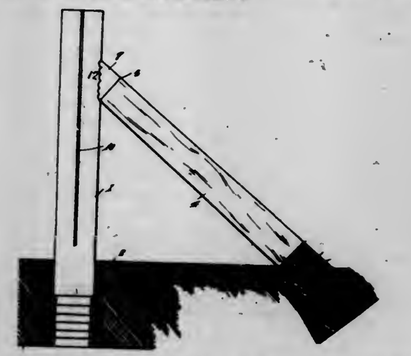
2. In a heating system, a plurality of groups of heaters, comprising separate chambers in the heaters of each group, a common source of steam-supply, a main steam-pipe, connected with one of the chambers of one of the groups of heaters, and having a branch connected with the other set of heating-chambers of such group, said steam-pipe and its branch having respectively motor-controlled valves, and independently-operable means controlling said motors, a branch of the main steam-pipe connected with a set of the chambers of another of the heater groups, having a motor-controlled valve therefor, and motor-actuating means operable independently of the means for controlling the first-named valve-controlling motors, and a steam-pipe branch of the last-named branch connected with the other set of chambers of the said other heater group and having a valve and controlling-motor therefor, said motor being operated by the means for operating one of the first-named motor-controlling valves.

3. In a heating system, a plurality of groups of heaters, one or more thereof comprising separate heating-chambers in each group, a common source of steam-supply, a main steam-pipe, connected with one set of heating-chambers of one of the groups of heaters, and having a branch connected with the other set of heating-chambers of such group, said steam-pipe and its branch having respectively motor-controlled valves, a branch of the main steam-pipe connected with a set of the heating-chambers of another of the heater groups, having a motor-controlled valve therefor, a source of motor fluid, independent pipe connections between said source and the respectively provided valve-controlling motors

4. In a heating system, a group of heaters A, comprising separate heating-chambers a b, and a group of heaters A^2 having chambers a^2, a common source of steam-supply, a main steam-pipe C connected with the set of chambers a, and having a branch D connected with the other set of chambers b, said steam-pipe and its branch having respectively the valves F and G with motors f and g, a branch C^2 of the main steam-pipe C connected with the set A^2 of the heating-chambers, having a valve F^2 and a controlling-motor f'' therefor, a compressed-air reservoir, and the air-pipes f^2 g^2 and j connecting said reservoir respectively with the valve-motors f g and f'' and valves f^2 g^2 and j^2 individually provided in the said air-pipes.

5. In a heating system, a plurality of groups of heaters A and A^2 comprising separate heating-chambers a b and a^2 b^2 respectively, a common source of steam-supply, a main steam-pipe C connected with the set of chambers a, and having a branch D connected with the set of chambers b, and having a branch D connected with the other set b of the chambers, said steam-pipe and its branch having respectively the valves F and G with motors f and g, a branch C^2 of the main steam-pipe C connected with the set of heating-chambers a^2 having a valve F^2 and a controlling-motor f'' therefor, and a branch D^2 of pipe branch C^2 connected with the set of heater-chambers b^2, having a controlling-motor g'' therefor, a compressed-air reservoir, the air-pipes f^2 g^2 and j connecting said reservoir respectively, with the valve-motors f g and f'', and valves f^2 g^2 and j^2 individually provided in the said air-pipes, and a branch of the air-pipe g^2 connected with said valve-motor g''.

787,749. **FENCE-POST.** ALFRED P. GOODELL, Highland, Mich. Filed Sept. 26, 1904. Serial No. 225,902



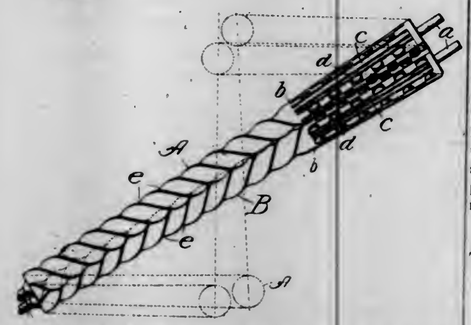
Claim.—1. A fence-post having at its base portion a projecting part entering an undercut portion adjoining the opening into which the post is inserted, whereby any disturbance of the normal condition of the earth above said undercut portion incident to planting the post is obviated.

2. A fence-post having a plastic base provided with a projecting part entering an undercut portion adjoining the opening into which the post is inserted, whereby any disturbance of the normal condition of the earth above said undercut portion incident to planting the post is obviated.

3. A fence-post having a plastic base provided with a projecting part entering an undercut portion adjoining the opening into which the post is inserted, said plastic base also filling the space intermediate the wall of said opening and the surface of the post, whereby any disturbance of the normal condition of the earth above said undercut portion incident to planting the post is obviated.

4. The method of planting fence-posts which consists in forming a receiving-opening for the post, undercutting a portion of the earth adjoining said opening without disturbing the normal condition of the earth above said undercut portion, inserting the post into said opening, and filling said undercut space and the spaces intermediate the wall of the opening and surface of the post with a plastic mass.

787,750. SNAPPING-ROLLERS FOR CORN-HARVESTERS. JAMES R. GOODSUR, St. Charles, Ill. Filed Jan. 3, 1905. Serial No. 239,389.



Claim.—1. In combination, a pair of rotary coöperating snapping-rollers relatively shaped and supported to extend spirally with relation to each other along adjacent surfaces.

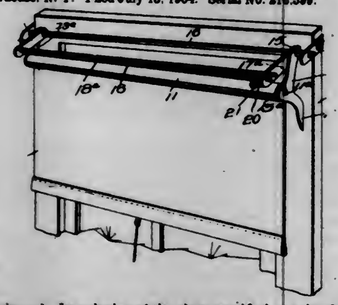
2. In combination, a pair of rotary coöperating snapping-rollers flaring toward opposite end portions and supported to extend spirally with relation to each other along adjacent surfaces.

3. In combination, a pair of rotary coöperating snapping-rollers inclinedly supported to extend with relation to each other at their lower ends in one plane and at their upper ends in a plane at a greater angle to the horizontal and shaped to extend throughout a large part of their intermediate adjacent surfaces spirally with relation to each other, for the purpose set forth.

4. In combination, a pair of rotary coöperating snapping-rollers inclinedly supported to extend with relation to each other at their lower ends in one plane and at their upper ends in a plane at a greater angle to the horizontal and shaped to extend throughout a large part of their intermediate adjacent surfaces spirally with relation to each other, the rollers being formed with coöperating spiral stalk-engaging grooves along their lower end portions, for the purpose set forth.

5. In combination, a pair of rotary coöperating snapping-rollers inclinedly supported to extend with relation to each other at their lower ends in one plane and at their upper ends in a plane at a greater angle to the horizontal and shaped to extend throughout a large part of their intermediate adjacent surfaces spirally with relation to each other, the rollers being formed with coöperating spiral stalk-engaging grooves along their lower end portions, and with coöperating cam-surfaces and pockets along their upper end portions, for the purpose set forth.

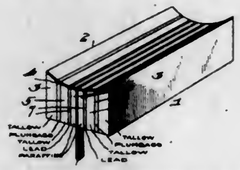
787,751. WINDOW-CURTAIN FIXTURE. LUMAN A. GRANT, Syracuse, N. Y. Filed July 13, 1904. Serial No. 216,399.



Claim.—1. In a device of the class specified, a pair of brackets having their upper and lower ends adapted to engage against the face of a window-frame, the upper ends of said brackets being provided with non-circular openings, a rod non-circular in cross-section extending through said openings, hangers or strips having non-circular openings for the reception of the rod, means for securing said hangers or strips to the sides of the window-frame and thereby draw the upper and lower ends of the brackets against the face of the window-frame, said brackets being adapted for the reception of a curtain-roller and being independently adjustable longitudinally of the rod, and drapery-supporting brackets having non-circular openings for the passage of the rod and independently adjustable thereon.

2. In a device of the class specified, a pair of curtain-roller brackets having non-circular openings at their upper ends, a rod non-circular in cross-section extending through the openings, hangers or strips having non-circular openings for the reception of the end portions of the rod, means for securing the ends of said hangers or strips to the side walls of the window-frame, thereby forcing the upper and lower ends of the brackets into contact with the face of the window-frame, drapery-supporting brackets having non-circular openings for the passage of the rod and adjustable independently thereon, the inner ends of said drapery-supporting brackets bearing against the front of the window-frame, and their outer ends being provided with slots, drapery-rods extending through the slots, and means for clamping said drapery-rods together.

787,752. LUBRICATING-BLOCK. WILLIAM B. GRIFFEN, Franklin, Pa. Filed Apr. 18, 1904. Serial No. 203,751.



Claim.—1. A lubricating-block composed of a plurality of layers or sections, some of the layers or sections being formed of lubricating material different from that composing some of the other layers or sections, and adapted to contact simultaneously with the axle, whereby a lubricant combining the lubricants of the different layers or sections is formed at the point of lubrication.

2. A lubricating-block composed of a plurality of layers or sections, some of the layers or sections being formed of lubricating material different from that composing some of the other layers or sections, and adapted to contact simultaneously with the axle for the purpose set forth, in combination with one or more layers or sections of non-lubricating supporting material.

3. A lubricating-block composed of a plurality of layers or sections, some of the layers or sections being formed of lubricating material different from that composing some of the other layers and adapted to contact simultaneously with the axle, in combination with a suitable wick and oil-supply whereby oil is supplied to the face of the block and to the axle in addition to the other lubricants, substantially as and for the purpose set forth.

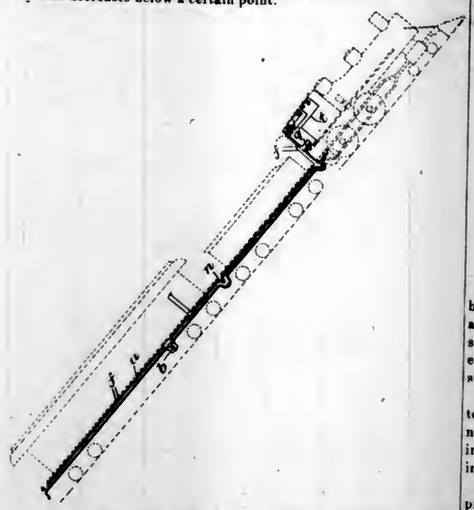
4. A lubricating-block composed of a plurality of layers or sections, some of the layers or sections being formed of lubricating material different from that composing some of the other layers, in combination with one or more sections of supporting material, and means for holding the block in contact with the axle, substantially as and for the purpose set forth.

787,753. SIGNAL APPARATUS. CLARENCE B. GUNN, Collinwood, Ohio. Filed Dec. 15, 1904. Serial No. 236,967.

Claim.—1. The combination with a brake system, of an electric circuit, a signal device, means for controlling the electric circuit in response to changes of pressure in the brake system, and means for sending a current through the signal device when said electric circuit is broken.

2. The combination of a brake system with an electric circuit, a second circuit which is normally broken, a signal device in the second circuit, means for closing the second circuit from the first-mentioned circuit, and means for opening the first circuit when the pressure in the brake system decreases below a certain point.

3. The combination with a brake system, of an electric circuit, an electromagnet in the circuit having an armature, a second circuit which is normally broken, a signal device in the second circuit, means for closing the second circuit when the magnet is deënergized, and means for opening the first circuit when the pressure in the brake system decreases below a certain point.



4. The combination with a brake system, of an electric circuit, an electromagnet in the circuit having an armature, a second circuit which is normally broken, a signal device in the second circuit, means for closing the second circuit when the magnet is deënergized, and means for opening the first circuit when the pressure in the brake system decreases below a certain point; said first-named means comprising a pair of contact-pieces insulated from each other and each constituting a terminal of the second circuit, said armature constituting an electrical connection between said contact-pieces when the maguet is deënergized.

5. The combination with an electric circuit, and an electromagnet therein having an armature, of a second circuit which is normally open, a signal device in the second circuit, and means for closing said second circuit when the magnet is deënergized.

6. The combination with a brake system, of an electric circuit, an electromagnet in the circuit having an armature, a second circuit which is normally broken, a signal device in the second circuit, means for closing the second circuit when the magnet is deënergized, and means for opening the first circuit when the pressure in the brake system decreases below a certain point; said last-named means comprising a cylinder communicating with the brake system, a plunger in the cylinder, and means connected with the plunger and adapted to keep said first circuit closed when a certain pressure exists in the cylinder.

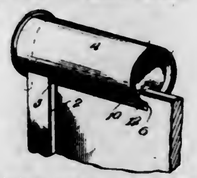
7. The combination with a conductor containing fluid under pressure, a cylinder connected with said conductor, a plunger in the cylinder, an electric circuit, and means connected with the plunger and adapted to keep the circuit closed when the pressure within the cylinder is above a certain point.

8. The combination with a conductor containing fluid under pressure, a cylinder connected with said conductor, a plunger in the cylinder, an electric circuit, means connected with the plunger and adapted to keep the circuit closed when the pressure within the cylinder is above a certain point, and means for moving the plunger and disengaging said means from the circuit when said pressure decreases below said point.

9. The combination with a conductor containing fluid under pressure, of a cylinder communicating with said conductor, a plunger in the cylinder, a rod connected with the plunger, an adjustable nut connected with the cylinder, a spring located between the nut and the plunger, an insulating-block, and an electric system having terminals within said block, said plunger being adapted to pass into said block and normally hold said terminals in contact with each other when the plunger is forced toward the terminals by the pressure within the cylinder.

10. The combination with a conductor containing fluid under pressure for a railway-train, of a signal device located in the locomotive connected with the train, and means for giving a signal thereon when the pressure in said system decreases below a certain point; said means comprising an electric circuit extending from the rear car to the locomotive, and a coupling for the two conductors of the electric circuit mounted on each car.

787,754. FURNITURE-ROLL. BRUNO M. HAUBOLD, Oxford, N. C. Filed Sept. 16, 1904. Serial No. 224,756.



Claim.—1. A hollow furniture-roll comprising a thin wood backing-sheet permanently bent into the form of the roll and having a veneer sheet glued to and forming its outer face, and an internal support to which said sheets are secured and held, the longitudinal edges of said sheet separated to form a longitudinal opening, substantially as described.

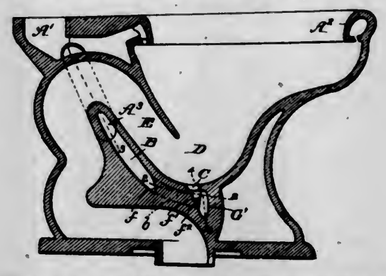
2. In a bedstead, in combination, a footboard comprising a top rail, and a hollow foot-roll comprising one or more sheets of veneer bent and dried in permanent roll form with a longitudinal opening receiving the top portion of said rail, said roll having one or more internal supports fitting down on and secured to said rail.

3. In combination, in an article of furniture, an element comprising posts and a cross-rail, and a hollow roll comprising a curved sheet of veneer having its longitudinal edges separated to receive said rail and permit the roll to fit down on the same, said roll provided with internal supporting-disks fixed therein and grooved to receive and fit down on the rail.

4. A furniture-roll comprising one or more sheets of veneer bent and dried in curved form with their longitudinal edges separated, and transverse supporting members secured within said roll and having curved edges fitting and conforming to the inner curved surface of the roll from one edge to the other thereof, said members between said edges of the roll cut to fit the body to which the roll is to be secured.

5. As a new article of manufacture, a hollow evener furniture-roll comprising a thin sheet of wood and a facing-sheet of veneer glued thereto, said sheets dried in permanent roll form with their longitudinal edges separated, and internal supporting means to which the sheets are permanently secured.

787,755. WATER-CLOSET BOWL. MICHAEL D. HELFRICH, Evansville, Ind. Filed Nov. 15, 1904. Serial No. 232,837.



Claim.—1. A closet-bowl having an inlet, side channels leading thence, and a jet-pipe to which said side channels discharge, such jet-pipe being provided at its lower end with a jet-hole, below the same with a double concave deflecting-surface and in advance of said jet-hole with a guard tapering to an edge at its front end and having its rear side inclining rearwardly from its upper toward its lower portion and provided in its rear end with an upright channel in line with the jet-hole, and also having the ribs or flanges at the opposite sides of said channel substantially as set forth.

2. A closet-bowl having a jet-pipe discharging at its lower end to a jet-hole and provided in advance of said jet-hole with a guard dividing the pipe into opposite side channels and having a deflecting-surface in rear of the jet-hole.

3. A closet-bowl having a jet-pipe discharging to a jet-hole and a guard in the pipe in advance of said jet-hole and dividing the pipe longitudinally into separate channels.

4. A closet-bowl having a jet-pipe leading to a jet-hole and a guard in the pipe in advance of said jet-hole and dividing the pipe into separate channels, the latter discharging in opposite directions toward each other and to the said jet-hole.

5. A closet-bowl having a trap, a jet-hole discharging in line with said trap and a jet-pipe leading to said jet-hole and a guard in the pipe in advance of the jet-hole and dividing it into separate channels discharging to said jet-hole.

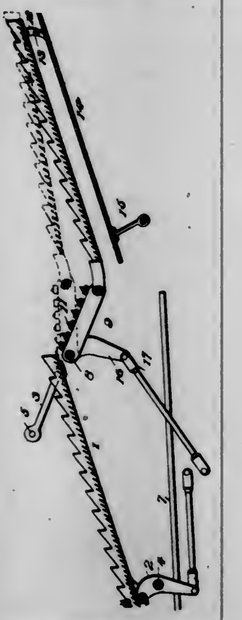
6. A closet-bowl having a jet-pipe discharging to the jet-hole and provided in said jet-pipe in advance of the jet-hole with a wedge-shape guard dividing the pipe into separate channels.

7. A closet-bowl having a jet-pipe and a jet-hole to which said jet-pipe discharges, and provided in the jet-pipe in advance of the said hole with a wedge-shape guard and having a double concave deflector at the lower end of the jet-pipe and below the jet-hole.

8. A closet-bowl having a jet-hole and a jet-pipe having in advance of the jet-hole a guard in the form of a partition within the jet-pipe and provided at its lower end with the rearwardly-projecting edge ribs or flanges.

9. A closet-bowl having a jet-hole, a jet-pipe discharging to said hole and divided in advance of the hole into separate side channels and having at the lower rear end of the jet-pipe a double concave deflector with its sections meeting in a line midway between the opposite channels.

787,756. SEPARATING AND THRESHING APPLIANCE. HELMER HENDRICKSON, Decorah, Iowa. Filed June 22, 1904. Serial No. 213,676.

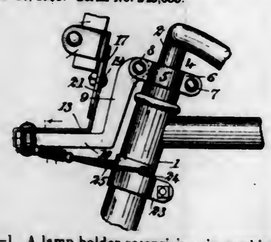


Claim.—1. In combination, a straw-pan, a tailer, a toss-pan pivoted at one end under one end of the straw-pan and its opposite end pivotally connected to the tailer, a pivotal support for the opposite end of the tailer, the support being such that the throw at the joint between the toss-pan and tailer will be greater than at the support, and means for operating the toss-pan and tailer, substantially as described.

2. In combination, a straw-pan, hangers for supporting said pan, said hangers being mounted to throw the pan higher at one end than at the other, a toss-pan pivoted at one end next the straw-pan, a tailer mounted at one end on a pivotal support and pivotally connected at its opposite end to the toss-pan, the toss-pan throwing the grain up while the tailer throws it up and at the same time moves it rearwardly, and means for operating the toss-pan and tailer, substantially as described.

3. In combination, a straw-pan, a tailer, a toss-pan pivoted at one end adjacent the straw-pan and at its opposite end pivotally connected to the tailer, pivotally-mounted hangers for supporting the opposite end of the tailer, and mechanism connected to the toss-pan for operating the toss-pan and tailer, the mounting of the toss-pan and tailer being such that the adjacent ends of the toss-pan and tailer are thrown a greater distance upwardly than their ends, substantially as described.

787,757. LAMP-HOLDER. EUGENE E. HENRY, Georgetown, S. C. Filed Feb. 10, 1905. Serial No. 245,055.



Claim.—1. A lamp-holder comprising, in combination, a member adapted to be attached to the forward portion of a vehicle, an arm having an inclined body pivotally attached to said member and extending downwardly therefrom, said arm further having a horizontal extension and a swivel-head formed at the forward extremity thereof, a lamp-bracket, the body whereof is disposed above said horizontal extension, said lamp-bracket having a wing integral therewith bent under said swivel-head, said wing affording means for reinforcing the joint at said swivel-head, a bolt passing through said swivel-head and attaching said bracket, and chains connecting a moving part with said wing and controlling the position of said bracket, the body of said bracket being disposed rearwardly from said swivel-head and having a forwardly-inclined rearward extension lying adjacent to the inclined body of said arm.

2. In a device of the class described, in combination, an arm having an inclined body and a substantially horizontal extension, means for supporting said arm at the rear, said arm having a swivel-head formed on the forward extremity of said horizontal extension, a lamp-bracket the body whereof is disposed substantially horizontal above said horizontal extension and having an integral wing bent under said swivel-head, a bolt passing through said swivel-head and attaching to said bracket, and chains connecting a moving part with said wing and controlling said bracket.

787,758. PROCESS OF TREATING PRODUCTS CONTAINING VANADIUM, MOLYBDENUM, TITANIUM, AND TUNGSTEN. HENRI L. HERRENSCHMIDT, Le Genest, France. Filed Aug. 13, 1903. Serial No. 169,378.

Claim.—1. A process of treating ores or products containing vanadium for the purpose of obtaining vanadic acid, the same being characterized by the following operations, to wit: (*a*) the refining of a vanadate-of-soda liquor by evaporation and crystallization; (*b*) the precipitation of the vanadium contained in the purified liquor by the action of concentrated sulfuric acid upon said liquor, previously concentrated to a syrupy condition; and (*c*) the process of reduction by a reducing agent.

2. The herein-described process of treating ores containing vanadium, which consists in reducing the ore to a solution, refining the same and precipitating the vanadium contained in the liquid, and then reducing the vanadium salts or compound to an alloy.

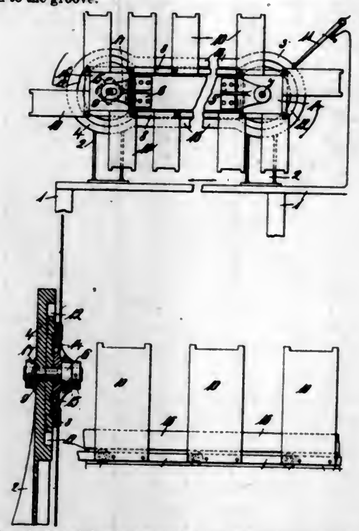
3. The herein-described process of treating ores containing vanadium, which consists in reducing the ore to a solution, refining such solution, concentrating the same to a syrupy state, and precipitating the vanadium by means of a soluble salt or an acid, and then reducing the vanadium salts or compound to an alloy

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787,759. MACHINE FOR MAKING PAPER BAGS. OTTO HESSER, Cannstatt, Germany. Filed June 24, 1904. Serial No. 214,063.

Claim.—1. In a device of the class specified, a frame having a groove, the intermediate portions of which are arranged in parallel lines, and the end portions in curved lines in order to connect with

the parallel portions, angular disks arranged at the curved ends, and a link belt passing over said angular disk and having rollers adapted to the groove.



2. In a device of the class specified, an endless carrier formed of a plurality of links having projecting pins or antifriction-rollers, a frame member having a continuous groove, portions of which are arranged in parallel relation, and other portions in curved lines, said groove receiving the antifriction-rollers, shafts arranged within the area surrounded by the circular portions of the groove, rectangular plates mounted on said shafts and engaging the links, one of the shafts being movable toward and from the other, and forming-plates carried by the conveyer.

3. In a device of the class specified, an endless conveyer formed of a plurality of pivotally-connected links, antifriction-rollers projecting from the links, a pair of shafts of which one is movable toward and from the other, each of said shafts carrying an angular disk for engagement with the links of the conveyer, and a frame having a continuous groove extending partly in parallel lines, the connecting portions of the grooves being curved around the shafts,

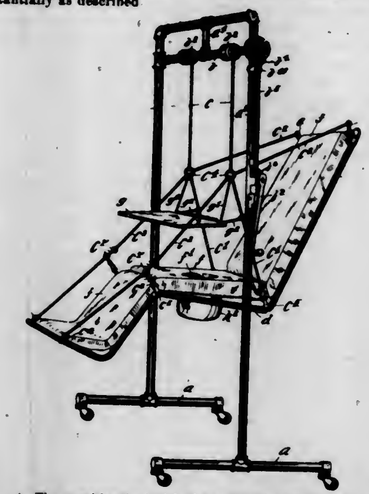
4. The combination with a grooved frame-plate, of a pair of shafts, one of which is movable toward and from the other, rectangular disks mounted on the shafts, one of said disks being provided with a cam-groove, a stationary pin engaging said cam-groove, said frame-plate being further provided with a continuous groove extending in curved lines around the shafts and having parallel portions connecting the curved portions of the groove, an endless conveyer formed of links extending around the rectangular disks, antifriction-rollers projecting from the links, and entering the groove, and forming-plates carried by said links.

787,760. PORTABLE INVALID'S CHAIR. ELMER E. HIGGINS, St. Paul, Minn. Filed Apr. 21, 1904. Serial No. 204,155.

Claim.—1. The combination with the supporting-frame and the three-section folding chair, of suspending-cables, having back, seat and foot branches, with the seat branch anchored to the central section of the chair at or near the hip-joint, the back branch securable to the back-section of the chair in any desired adjustment lengthwise thereof, and the foot branch anchored to the forward end of the foot-section, and adapted also to be anchored to the chair at or near the knee-joint thereof, all for coöperation, substantially as described.

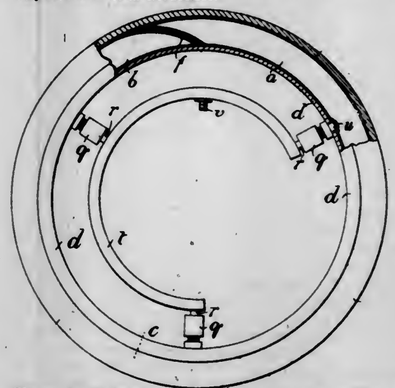
2. The combination with the supporting-frame and the three-section folding chair, of the suspending-cables composed of the main and the branch sections, the central member of which branches is anchored to the seat-section of the chair, at or near the hip-joint thereof, the forward branch anchored to the foot-section of the chair, and the rear branch connected to the back-section of the chair by an adjustable grapple, including a cam-lever reacting against the frame of the chair-section to effect the anchorage at any desired point thereof for the proper angular adjustment of the chair, substantially as described.

3. The combination with the supporting-frame and the sectional folding chair, of the suspending-cables supporting said chair, and a tray having hook-ended arms, engageable with certain portions of the cables, and fork-ended braces engageable with other portions of said cables, for supporting the tray in proper working position, substantially as described.



4. The combination with the supporting-frame, the sectional folding chair, the main and branch suspending-cables, connected by rings, of the tray, having hook-ended arms engageable with the cable-rings, and fork-ended braces engageable, at will, either with the central branch cable or the forward branch cable, substantially as and for the purposes set forth.

787,761. INNER TUBE AND MEANS FOR INFLATING SAME. WILLIAM A. HOLLIS and HERBERT S. HOLLIS, Hove, England. Filed July 12, 1904. Serial No. 216,219.



Claim.—1. An inner tube for a pneumatic tire, consisting of two or more sections of rubber tubing tapered and overlapping at their ends for a considerable distance, said sections having thickened curved walls at their ends, as set forth.

2. An inner tube for a pneumatic tire, comprising in combination, two or more sections of tubing, valves attached to the several sections of said tubing, screw-threads on the nipples of said valves, screw-threaded collars adapted to be attached to said nipples by a single turn, tubes held to said nipples by said collars, a connecting-tube attached to said tubes, and a connection adapted for supplying air to said connecting-tube, as set forth.

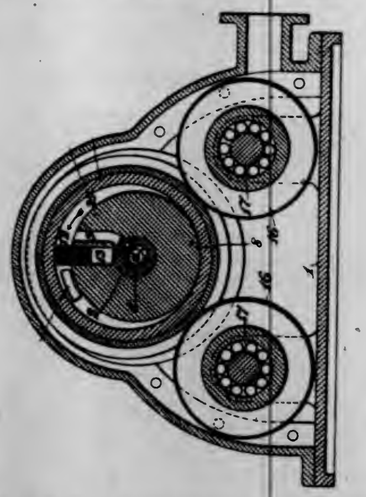
3. An inner tube for a pneumatic tire, comprising in combination, two or more sections of tubing, said sections being tapered and overlapping at their ends, valves attached to the several sections of

said tubing, screw-threads on the nipples of said valves, screw-threaded collars adapted to be attached to said nipples by a single turn, tubes held to the nipples by said collars, a connecting-tube attached to said tubes, and a connection adapted for supplying air to said connecting-tube, as set forth.

4. An inner tube for a pneumatic tire, comprising in combination, two or more sections of rubber tubing tapered and overlapping at their ends, said sections being closed by thickened rubber at their overlapping ends, valves attached to the several sections of said tubing, screw-threads on the nipples of said valves, screw-threaded collars adapted to be attached to said nipples by a single turn, tubes held to the nipples by said collars, a connecting-tube attached to said tubes, and a connection adapted for supplying air to said connecting-tube, as set forth.

5. An inner tube for a pneumatic tire, comprising in combination, two or more sections of rubber tubing tapered and overlapping at their ends, said sections being closed by thickened rubber at their overlapping ends, valves attached to the several sections of said tubing, screw-threads on the nipples of said valves, screw-threaded collars adapted to be attached to said nipples by a single turn, tubes held to the nipples by said collars, a connecting-tube attached to said tubes, and an inflating-nipple attached to said connecting-tube, as set forth.

787,762. ROTARY ENGINE. CARL A. HULT and OSCAR W. HULT, Stockholm, Sweden. Filed Sept. 22, 1904. Serial No. 225,522.

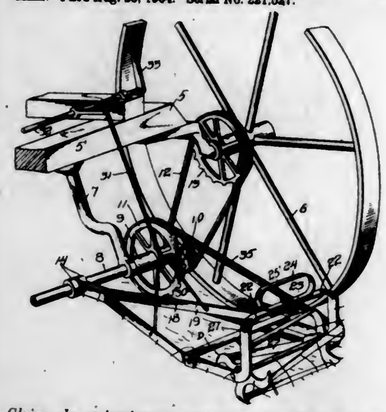


Claim.—1. In rotary engines, pumps and the like the combination of a rotating cylinder, consisting of a ring which is free from the end walls of the cylinder, a piston-drum mounted eccentric in the said cylinder, and the end walls of the cylinder forming end pieces on the said drum and fitting against the ends of the said ring, substantially as described and for the purpose set forth.

2. In rotary engines, pumps and the like the combination of a rotating cylinder, consisting of a ring which is free from the end walls of the cylinder, a piston-drum mounted eccentric in the said cylinder, the end walls of the cylinder forming end pieces on the said drum and fitting against the ends of the said ring, one or more tightening-rings in the end surfaces of the cylinder-ring and means for pressing said tightening-rings against the end walls of the cylinder, subetantially as described and for the purpose set forth.

3. In rotary engines, pumps and the like the combination of a rotating cylinder, consisting of a ring which is free from the end walls of the cylinder, a piston-drum mounted eccentric in the said cylinder, the end walls of the cylinder forming end pieces on the said drum and fitting against the ends of the said ring, one or more tightening-rings in the end surfaces of the cylinder-ring, the sliding piston or pistons of the drum, said pistons consisting of plates independent of each other and mounted at the side of each other, and grooves provided in the said end pieces of the drum and guiding the said piston or pistons, substantially as described and for the purpose set forth.

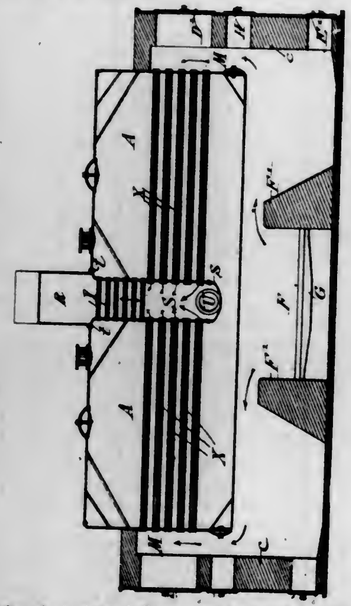
787,763. CULTIVATOR. WILLIAM H. HUNDREDMARK, Caledonia, Minn. Filed Aug. 20, 1904. Serial No. 221,527.



Claim.—In an implement of the class described, the combination with a wheeled frame, of brackets depending from the frame, a shaft rigidly mounted in the brackets, sleeves revolubly mounted upon the shaft, connections between the wheels and the sleeves for rotation of the latter when the wheels are revolved, spaced frames pivotally connected with the shaft between the brackets, said frames comprising rearwardly-extending divergent members, cultivating-bodies revolubly mounted between the rearward ends of the divergent members, connections between the cultivating-bodies and the sleeves for rotation of said bodies when the sleeves are revolved, said second-named frames being arranged to lie normally with their cultivating-bodies in engagement with the ground, and means for moving the second-named frames upon the shaft to bring them out of their normal positions

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787,764. STEAM-BOILER. LEVI HUSSEY, New York, N. Y., assignor of one-half to Alexander Miller, New York, N. Y. Filed Dec. 29, 1904. Serial No. 238,831.



Claim.—1. A steam-boiler comprising a shell, an interior smoke-box, fire-tubes connecting the heads of said shell with said smoke-box, and superheating-tubes extending through said smoke-box and connecting the steam-spaces at either side thereof.

2. A steam-boiler comprising a shell, an interior smoke-box, fire-tubes extending between said smoke-box and the heads of said shell, and superheating-tubes connecting opposite side walls of said smoke-box.

3. A steam-boiler comprising a shell, an interior smoke-box, fire-tubes extending between said smoke-box and the heads of said shell, and horizontally-disposed superheating-tubes connecting opposite side walls of said smoke-box.

4. A steam-boiler comprising a shell, an interior smoke-box, fire-tubes extending between opposite side walls of said smoke-box and the heads of said shell, and superheating-tubes connecting said opposite side walls and disposed above said fire-tubes.

5. A steam-boiler comprising a shell, an interior smoke-box, fire-tubes communicating with opposite side walls of said smoke-box, and superheating-tubes connecting said opposite side walls, said superheating-tubes being divided into a plurality of groups.

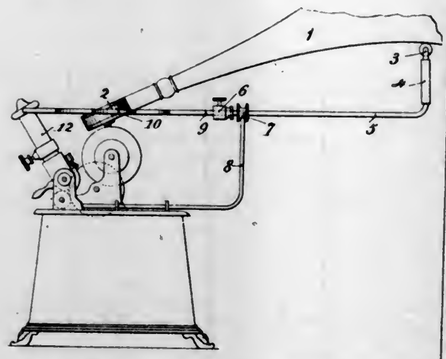
6. A steam-boiler comprising a shell, an interior smoke-box, fire-tubes communicating with opposite side walls of said smoke-box, and superheating-tubes connecting said opposite side walls, said superheating-tubes being vertically divided into groups.

7. In a steam-boiler, the combination with the shell, of an interior smoke-box, a horizontally-disposed flue superposed on said shell and constituting the top of said smoke-box, and fire-tubes extending between said smoke-box and the heads of said shell.

8. The combination, with a horizontal fire-tube steam-boiler, of a centrally-arranged furnace beneath the same, bridge-walls located symmetrically to the vertical transverse center plane of the boiler, and end walls extending above the fire-tubes and spaced from the boiler-heads.

9. The combination, with a horizontal fire-tube steam-boiler, of a centrally-arranged furnace beneath the same, bridge-walls located symmetrically to the vertical transverse center plane of the boiler, and end walls extending above the fire-tubes and spaced from the boiler-heads, each of said end walls being provided with openings and doors giving access to the fire-tubes.

787,765. PHONOGRAPH. ERNEST A. IVATTS, Paris, France, assignor to La Compagnie Générale de Phonographes, Cinématographes & Appareils de Precision, Paris, France. Filed Feb. 16, 1904. Serial No. 193,814.

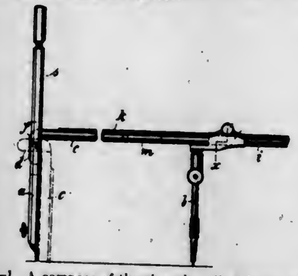


Claim.—1. A support for the horn of a phonograph mounted for movement longitudinally of the cylinder, the support being hollow for the reception of the diaphragm, and having an arm or extension thereon for the support of the horn at its enlarged end.

2. A support for the horn of a phonograph mounted for movement longitudinally of the cylinder, the support being hollow for the reception of the diaphragm, and having an arm or extension thereon for the support of the horn at its enlarged end, and a bearing on which said support rolls at a point intermediate its ends.

3. A support for the horn of a phonograph mounted for movement longitudinally of the cylinder, the support being hollow for the reception of the diaphragm, and having an arm or extension thereon for the support of the horn at its enlarged end, a roller carried by said support at a point intermediate its ends and a supporting-rail on which said roller bears.

787,766. BEAM-COMPASS. RICHARD JENSEN and PAUL JUNGNICKEL, Berlin, Germany; said Jungnickel assignor to said Jensen. Filed Jan. 3, 1905. Serial No. 239,507.



Claim.—1. A compass of the class described involving a beam provided with a feather, a leg to which said beam is foldably connected, a slidable member on the beam, provided with a leg, said feather serving to prevent turning motion of the slidable member, and means to hold said slidable member in an adjusted position.

2. A compass involving a beam, a leg between the ends of which said beam is foldably connected, said leg having a handle at its upper end, a second leg, a slide movable on the beam and to which said second leg is permanently connected, and means for holding the slide in an adjusted position.

3. A compass of the class described involving a beam, a leg to which said beam is foldably connected, a slide on the beam having, as a permanent part thereof, a leg to coöperate with the first-mentioned leg, and the beam having a feather to prevent turning motion of the slide, and means independent of the feather to hold the slide in an adjusted position.

4. A compass of the class described involving a beam, a leg to which said beam is hingedly connected, a second leg, a device adjustable on the beam and carrying said second leg, and an extension, the diameter of which agrees with that of the beam, the extension being removably fitted to the beam to bring the two parts in concentric relation, and said second-leg-carrying device being freely movable from the beam to the extension, means for holding said device in an adjusted position, and means for holding the extension against turning motion.

5. A compass of the class described involving a leg, a beam connected with the leg and having an aperture, an extension provided with a reduced stem to enter said aperture, the beam and extension each having a feather in alinement longitudinally of the beam, and the beam having a recess to receive the feather of the extension, a slide movable from the beam to the extension and provided with a leg complemental to said first-mentioned leg, said feather serving to prevent turning motion of the slide, and means to hold the slide in an adjusted position.

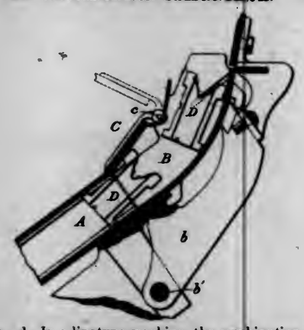
787,767. ORANGE-RED AZO DYE. PAUL JULIUS and ERNST FUSSENEGGER, Ludwigshafen-on-the-Rhine, Germany, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Nov. 15, 1904. Serial No. 232,897. (Specimens.)

Claim.—As new articles of manufacture, the azo coloring-matters which can be obtained by combining a hereinbefore-defined diazotized 3.4-dichlor-anilin-sulfo-acid with beta-naphthol, which coloring-matters are soluble in water, which in the form of their barium-aluminium lakes possess an orange-red color, and which on reduction with tin and hydrochloric acid yield 3.4-dichlor-anilin-sulfo-acid and amido-naphthol.

787,768. BLUE-RED AZO DYE. PAUL JULIUS and ERNST FUSSENEGGER, Ludwigshafen-on-the-Rhine, Germany, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Nov. 16, 1904. Serial No. 233,027. (Specimens.)

Claim.—As a new article of manufacture, the azo coloring-matter which can be obtained by combining diazotized 3.4-dichlor-anilin with beta-naphthol-disulfo-acid R, which coloring-matter is soluble in water, which in the form of its barium-aluminum lake possesses a bluish-red color, and which on reduction with tin and hydrochloric acid yields 3.4-dichlor-anilin and amido-naphthol-disulfo-acid.

787,769. **LINOTYPE-MACHINE.** DAVID B. KENNEDY, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Jan. 31, 1905. Serial No. 243,543.



Claim.—1. In a linotype-machine, the combination of a magazine A, channeled throat or entrance, B, and a top plate, C, hinged to the latter and arranged to close against the magazine.

2. In a linotype-machine, the combination of a stationary magazine A, the coöperating throat B, hinged to swing away from the magazine, and the top plate C, hinged to the throat.

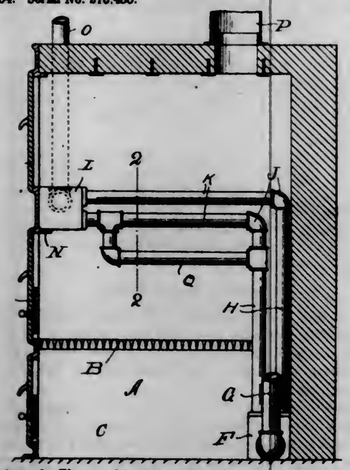
3. The channeled throat or entrance, B, having a movable plate C, applied to its upper side, whereby access is afforded to the channels without moving the throat from its operative position.

787,770. **PROCESS OF MANUFACTURING FIRE-BRICKS, CRUCIBLES, RETORTS, OR OTHER REFRACTORY ARTICLES.** PAUL KLEIN, Riga, Russia. Filed Oct. 2, 1903. Serial No. 175,518.

Claim.—1. A process for manufacturing refractory articles, consisting in pulverizing chrome ore, separating the easily-fusible admixtures therefrom, mixing the chrome ore thus obtained with pulverized fire-clay and with pure hydrate of alumina, molding and pressing and then burning such mixture, substantially as herein described.

2. As a new product, a refractory article made of a mixture of pulverized chrome ore from which the easily-fusible admixtures have been removed, pulverized fire-clay, pure hydrate of alumina and carbonaceous material, the said mixture being molded and pressed and then burned, substantially as herein described.

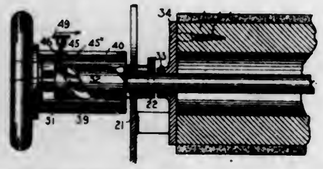
787,771. **COMBINED WATER-HEATER AND GARBAGE-BURNER.** FERDINAND C. KUMMEROW, Chicago, Ill. Filed May 31, 1904. Serial No. 210,455.



Claim.—1. The combination with a furnace and a grate, of a water-receptacle below the grate and adjacent the rear wall of the furnace, a second water-receptacle above the grate and adjacent the front wall of the furnace, a row of L-shaped pipes connected to both receptacles, a second row of similarly-shaped pipes arranged adjacent to and parallel with said first-named row and connected to both receptacles, the vertical and horizontal branches of said second row of pipes carrying branch pipes connecting said vertical and horizontal branches.

2. In a device of the kind specified, the combination of a furnace having a rear wall and a chimney-flue leading from in front of said wall, with a lower water-receptacle located at the bottom of the furnace adjacent said rear wall, an upper water-receptacle supported on the front wall of the furnace and within the same, a grate arranged in the furnace, between the upper and lower water-receptacles, a row of L-shaped pipes connecting the upper and lower water-receptacles, the vertical portions of said pipes being disposed adjacent said rear wall, and horizontally-disposed branch pipes connecting the horizontal portions of one of said L-shaped pipes at each side of the row with the vertical portions of the same, said branch pipes being located below the horizontal portions of said L-shaped pipes.

787,772. **TYPE-WRITING MACHINE.** CHARLES S. LABOFISH, Washington, D. C., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 4, 1901. Serial No. 77,562.



Claim.—1. In a type-writing machine, the combination of line-feed mechanism, automatically-operated line-feed-indicating means, means for preventing the feed of the paper by said line-feed mechanism, and means for throwing said indicating means out of operation.

2. In a type-writing machine, the combination of line-feed mechanism, automatically-operated line-feed-indicating means, locking means for preventing the feed of the paper by said line-feed mechanism, and means for throwing said locking means out of operation.

3. In a type-writing machine, the combination of line-feed mechanism, automatically-operated line-feed-indicating means, locking means for preventing the feed of the paper by said line-feed mechanism, and means for simultaneously throwing indicating and locking means out of operation.

4. In a type-writing machine, the combination of a line-feed mechanism, an automatic lock therefor, means for rendering said lock entirely inoperative at will, and coöperating line-feed-indicating means.

5. In a type-writing machine, the combination of a line-feeding mechanism including a platen, a locking member which is constructed and arranged to be disconnected from and to be moved longitudinally of the platen to predetermine the point at which the line-feeding mechanism shall be locked, and to be operatively connected to and moved longitudinally of the platen to effect the locking of said feed mechanism, and a line-feed-indicating scale which extends longitudinally of the platen and coöperates with said locking member.

6. In a type-writing machine, the combination with line-feed mechanism, of an automatic lock for preventing the line-feed of the paper by said line-feed mechanism, one member of said lock being a non-rotating reciprocating member and means for throwing the lock out of operation.

7. In a type-writing machine, the combination with line-feed mechanism, of an automatic lock for preventing the line-feed of the paper by said paper-feeding mechanism, one member of said lock being a non-rotating reciprocating member, and means for adjusting said non-rotating member independently of the line-feed mechanism, so as to set the locking members to lock said line-feed mechanism when a predetermined line or part of the paper reaches the printing-point.

8. In a type-writing machine, the combination of a platen, a platen-actuated lock for arresting the line-feed of the paper, one member of said lock being a non-rotating member which moves in the direction of the length of the platen and is adjustable independently of the means for moving it, and a scale which extends in the direction of the length of the platen and coöperates with the non-rotating member.

9. In a type-writing machine, the combination of a carriage, a platen, an automatically-operated line-space-indicating slide that travels with the carriage and may be adjusted independently of the means for effecting its automatic movement, and an index or scale carried by the carriage and extending longitudinally of the platen and which coöperates with the slide.

10. In a type-writing machine, the combination of a platen, a line-space indicating and locking slide coöperating with said platen, means coöperating with the slide to prevent the rotation of the platen after a predetermined number of line-space movements thereof, and a relatively fixed line-space index coöperating with the slide and extending in the direction of the movement thereof, and means that afford an adjustment of the slide independently of the platen.

11. In a type-writing machine, the combination of a platen, a line-space-locking slide coöperating with said platen, means coöperating with the slide to prevent the rotation of the platen after a predetermined number of line-space movements thereof, a line-space index coöperating with the slide and means for throwing said slide out of operation.

12. In a type-writing machine, the combination of a platen, a worm which is rotated by said platen, a slide which is moved by said worm and is adapted to be moved out of coöperation therewith and means which coöperate with the slide to lock the platen against rotation.

13. In a type-writing machine, the combination of a platen, a worm, which is rotated by said platen, a slide which is moved by said worm, means which coöperate with the slide to lock the platen against rotation, an index with which the slide coöperates and means for moving said slide out of engagement with the worm.

14. In a type-writing machine, the combination of a platen, a worm which is connected to and rotates with said platen, a slide which is moved by said worm and a slotted casing in which said slide moves and which coöperates with the slide to lock the platen against rotation.

15. In a type-writing machine, the combination of a platen, a worm which is connected to and rotates with said platen, a slide which is moved by said worm, a slotted casing in which said slide moves and which coöperates with the slide to lock the platen against rotation, an index with which the slide coöperates and means for moving said slide out of engagement with the worm.

16. In a type-writing machine, the combination of a platen, a worm which is connected to and rotates with said platen, a slide which is moved by said worm, a spring for maintaining the slide in engagement with the worm and means for moving the slide against the tension of the spring to disengage it from the said worm.

17. In a type-writing machine, the combination of a platen, a worm which is connected to and rotates with said platen, a combined indicating and locking slide which is moved by said worm, a spring for maintaining the slide in engagement with the worm, means for moving the slide against the tension of its spring to disengage it from the said worm, and an index with which the slide coöperates.

18. In a type-writing machine, the combination of a platen, a worm which is connected to and rotates with said platen, a combined indicating and locking slide which is moved by said worm, a spring for maintaining the slide in engagement with the worm, means for moving the slide against the tension of its spring to disengage it from the said worm an index and locking means which coöperate with the slide to provide a line-spacing indicator and locking means to automatically lock the platen against rotation after a predetermined number of line-space movements.

19. In a type-writing machine, the combination of a platen and a slide which is adapted to be operatively connected to said platen, said slide having two movements one at right angles to the other, the one a feed movement and the other an engaging or disengaging movement.

20. In a type-writing machine, the combination of a platen, a movable cam controlled by said platen, a combined line-space indicator and platen-lock controlled by said cam, a relatively fixed scale-index that extends in the direction of movement of and with which said combined line-space indicator and platen-lock coöperate, and means for affording a disconnection between said cam and the combined indicator and lock.

21. In a type-writing machine, the combination of a platen, a cam secured to the platen-rod, a slide controlled by said cam, a relatively fixed guide in which slide moves, and an index which coöperates with the slide.

22. In a type-writing machine, the combination of a platen, a cam secured to the platen-rod, a slide controlled by said cam, a relatively fixed guide in which said slide moves and a locking element which coöperates with the slide to limit the number of line-space movements of the platen.

23. In a type-writing machine, the combination of a platen, a cam secured to the platen-rod, a combined locking and indicating slide controlled by said cam, a relatively fixed guide in which said slide moves, an index which coöperates with said slide and a locking element which coöperates with the slide to limit the number of line-space movements of the platen.

24. In a type-writing machine, the combination of a platen, a movable cam controlled by said platen, a platen-lock controlled by said cam and hand-operated means for throwing the platen-lock out of operation.

25. In a type-writing machine, the combination of a platen, a cam secured to the platen-rod, a combined locking and indicating slide controlled by said cam, a relatively fixed guide in which said slide moves, an index which coöperates with said slide, a locking element which coöperates with the slide to limit the number of line-space movements of the platen and hand-operated means for throwing the slide out of coöperation with said cam.

26. In a type-writing machine, the combination of line-feeding mechanism, means for regulating said feeding mechanism to feed any one of a plurality of extents of feed at each operation and indicating means which coöperate with the feed mechanism to properly indicate the number of lines written or to be written on the sheet irrespective of its extent of feed at each operation.

27. In a type-writing machine, the combination of line-feeding mechanism, means for regulating said feeding mechanism to feed any one of a plurality of extents of feed at each operation, separate sets of indicating means which coöperate with the feed mechanism irrespective of its extent of feed and means for automatically locking the feeding mechanism against movement.

28. In a type-writing machine, the combination of line-feeding mechanism, means for regulating said feeding mechanism to feed any one of a plurality of extents of feed at each operation, indicating means which coöperate with the feed mechanism to properly indicate the number of lines spaced on a sheet irrespective of the extent of line-feed at each operation and adjustable locking means that may be connected to or disconnected from the feeding mechanism to set the parts to automatically lock the feeding mechanism against movement when a predetermined line or part of the paper has reached the printing-point.

29. In a type-writing machine, the combination of line-feeding mechanism, means for regulating said feeding mechanism to feed any one of a plurality of extents of feed at each operation, an automatically-operated indicating member and a plurality of indexes which coöperate with the indicating member, one index being employed for each extent of feed of the line-feeding mechanism.

30. In a type-writing machine, the combination of line-feeding mechanism, means for regulating said line-feeding mechanism to feed any one of a plurality of extents at each operation, a slide that may be operatively connected to the line-feeding mechanism or may be disconnected therefrom to set the slide, and indicating means coöperating with said slide to properly indicate the number of lines written or to be written irrespective of the extent of feed at each operation.

31. In a type-writing machine, the combination of line-feeding mechanism, means for regulating said line-feeding mechanism to feed any one of a plurality of extents at each operation, a combined indicating and locking slide that may be operatively connected to the line-feeding mechanism or may be disconnected therefrom to set the slide, indicating means coöperating with said slide to properly indicate the number of lines written or to be written irrespective of the extent of feed at each operation, and a locking member that coöperates with said slide to automatically lock the line-feeding mechanism at a predetermined point, as determined by the setting of said slide.

32. In a type-writing machine, the combination of a platen, means for effecting line-feed movements of the platen, and means which are operative for locking the platen against a forward feed movement at a predetermined point in the line-feed thereof but which are at all times inoperative to prevent a reverse movement of the platen

33. In a type-writing machine, the combination of a platen, means for effecting line-feed movements of the platen, and a locking-slide controlled by the platen and which is adapted to lock the platen against rotation in one direction when the slide reaches the limit of movement in one direction but which is at all times free to move in an opposite direction, to at all times afford a reverse rotation of the platen.

34. In a type-writing machine, the combination of a rotating

platen, a locking-slide operatively connected to the platen to be moved thereby during a rotation of the platen in either direction and means coöperating with the slide to arrest its movement in one direction but to at all times afford a free movement of the slide in an opposite direction, whereby the platen may be automatically locked at a predetermined point in its forward feed but is at all times free to rotate in an opposite direction.

35. In a type-writing machine, the combination of a rotating platen, a locking-slide operatively connected to the platen to be moved thereby during a rotation of the platen in either direction, means coöperating with the slide to arrest its movement in one direction but to at all times afford a free movement of the slide in an opposite direction, whereby the platen may be automatically locked at a predetermined point in its forward feed but is at all times free to rotate in an opposite direction, and line-indicating means coöperating with said slide.

787,773. SHIPPING CRATE OR DRUM. JULES LAINE and GEO. CASTILLON, New Orleans, La. Filed Nov. 27, 1903. Serial No. 182,848.



Claim.—1. A crate or drum for fruit comprising an outer protecting-casing made up of a series of staves, the said casing being open at the ends, a flexible lining fastened within the casing and projecting beyond one end thereof, a door hinged to the other end of the casing, and when closed forming a protecting-base therefor, and means passing through the staves and flexible lining at intervals for binding the lining and staves together, and holding the said lining in position.

2. A crate or drum for fruit comprising a casing formed of a series of slats, the said casing being open at the ends, hoops upon the outer surface of the casing for holding them together, a lining secured within the casing and projecting loosely at one end thereof, a padding material inserted between the lining and the staves for protecting the contents of the casing, and means for drawing the flexible end of the lining together for closing the top of the casing.

3. A crate for shipping bananas on the stem comprising a casing formed of a series of slats having perforations therein, the casing being opened at the ends, a hinged inflexible door for closing one end of the casing, a flexible lining or fabric mounted in the casing and extending loosely at one end thereof for closing it, lacing-cords passing through the apertures in the staves and through the fabric forming the lining for holding the lining in position within the casing.

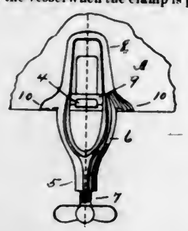
4. A shipping crate or receptacle comprising an outer protecting-casing, an inner flexible lining, lacing-cords passed through the casing and the said lining at intervals so as to form pockets between the lining and casing and material inserted in said pockets forming a padding for the protection of the contents of the crate.

5. A banana-crate comprising a protecting-casing opened at both ends so that bananas on the stem may pass through it, a lining fabric mounted in the casing and projecting loosely at one end of the casing, a hoop engaging the other end of the fabric for holding it in place in the casing, a series of binding-cords passed through the casing and the fabric at intervals to form pockets within the casing, soft materials placed in the pockets for padding the inner surface of the casing, cord in the loose end of the fabric for drawing it together, and a hinged door forming a protecting-base for the other end of the casing.

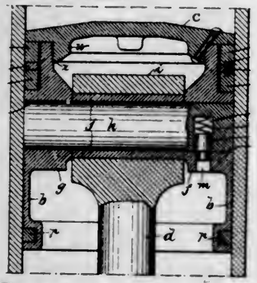
787,774. MIXING VESSEL AND CLAMP. JOSEPH F. LAMB, New Britain, Conn., assignor to Landers, Frary and Clark, New Britain, Conn., a Corporation. Filed Aug. 15, 1904. Serial No. 220,715.

Claim.—1. The herein-described vessel and clamp consisting of the vessel with the upwardly-presented open-mouthed hook secured to the side of the said vessel near the bottom and the screw-clamp having the upwardly-extended and open member, the cross-bar within the said member for engaging the said hook, and the curved base, the said base and upwardly-extended member being fitted to engage the side of the vessel as set forth.

2. The combination of a vessel having substantially vertical sides, a bottom face designed to rest upon a suitable support and a keeper above the said bottom face, with a detachable clamp having a holding portion for engaging the said keeper, a member for engaging the side of the vessel and in connection with the said holder acting to prevent the vessel from tipping when the clamp draws the vessel toward its support, and a member for engaging the side of the vessel and in connection with the said keeper acting to prevent the vessel from twisting on the clamp, the said keeper and its holder also having means for necessitating the engagement of the said two members with the side of the vessel when the clamp is put in place thereon.



787,775. PISTON. DEAN C. LEWIS, Ardmore, Pa., assignor to The Autocar Company, Ardmore, Pa., a Corporation of Pennsylvania. Filed Dec. 29, 1904. Serial No. 238,765.



Claim.—1. The combination, with a piston and piston-rod, of alining orifices in the same, a pin seated in one orifice and extending into the other orifice, and a spring in the first orifice tending to maintain the pin in its extended position, substantially as described.

2. The combination, with a piston and piston-rod, of alining orifices of different diameters in the piston and piston-rod respectively, a spring in the orifice of greater diameter, and a pin having its ends relatively enlarged and reduced, the enlarged end being seated in the orifice of greater diameter and being pressed outwardly by the spring therein so as to project and hold the reduced end in the orifice of smaller diameter, substantially as described.

3. The combination, with a piston having an inwardly-extending boss and a piston-rod having a cross-pin extending within said boss, of alining orifices in the said cross-pin and boss, and a spring-pressed locking-pin engaging both orifices, substantially as described.

4. The combination, with a piston having inwardly-projecting hollow bosses, and a piston-rod having a cross-pin adapted to enter said bosses, there being an orifice in the cross-pin adapted to aline with an orifice in one of the bosses, of a spring seated in the orifice in the cross-pin, and a locking-pin extending into both orifices and held within the orifice in the boss by means of the spring, substantially as described.

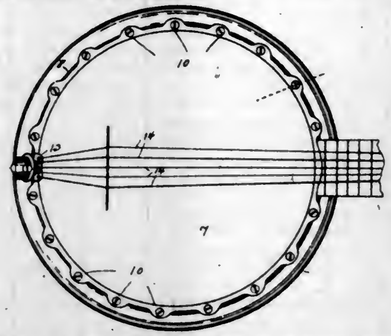
5. The combination, with a piston having inwardly-projecting hollow bosses and a piston-rod having a cross-pin adapted to enter said bosses, there being an orifice in the cross-pin and an alining orifice of smaller diameter extending through one of the bosses, of a locking-pin having its ends relatively enlarged and reduced, the enlarged end of the pin extending into the orifice in the cross-pin and the reduced end of the pin extending into the orifice in the boss, and a spring seated in the orifice in the cross-pin and so projecting the locking-pin into the orifice in the boss, substantially as described.

787,776. ANTISEPTIC SOAP AND PROCESS OF MAKING SAME. OTTO LIEBKNECHT, Frankfort-on-the-Main, Germany, assignor to Roessler & Hasslacher Chemical Company, New York, N. Y. Filed Sept. 15, 1904. Serial No. 224,546.

Claim.—1. The herein-described process of manufacturing antiseptic and cosmetic soaps which consists in melting by heat ordinary household-soap and then stirring the mass while adding peroxid of zinc and finally molding the mass into pieces of proper shape and size substantially as set forth.

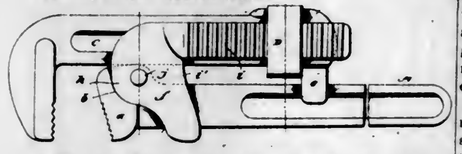
2. As an article of manufacture a soap made as described and containing peroxid of zinc substantially as set forth.

787,777. BANJO. FREDERICK A. LINTON, New Britain, Conn. Filed Apr. 19, 1904. Serial No. 203,946.



Claim.—In a banjo, the combination of the rim having a flaring bell-shaped body with the parchment, hoop, ring, and rotating clamping-screws, the said clamping-screws passing through holes in the said ring and through the slanting sides of the flaring bell-shaped portion of the said rim, and screwed into threaded holes inside of the outer slanting surface of the said bell-shaped rim.

787,778. WRENCH. CLARENCE C. LONGARD, Halifax, Canada. Filed July 15, 1904. Serial No. 216,671.



Claim.—1. In a wrench, the combination of a handle, a jaw carried thereby, a cradle mounted to rock on the handle and having exteriorly-threaded portions, a jaw having a shank disposed between the exteriorly-threaded portions of the cradle and provided with abutments, and a nut interposed between the said abutments of the shank and surrounding and engaging the threaded portions of the cradle.

2. In a wrench, the combination of a handle provided with a jaw, a cradle fulcrumed on the handle and having a transverse portion arranged to bring up against the handle, and also having exteriorly-threaded portions, a jaw having a shank disposed between the exteriorly-threaded portions of the cradle and provided with an abutment and a saddle, the latter being arranged to straddle the handle, and a nut interposed between the saddle and the other abutment of the shank and surrounding and engaging the threaded portions of the cradle.

3. In a wrench, the combination of a handle, a jaw carried by the handle and having concavities at its inner side, a cradle having an apertured portion receiving the handle and pivotally connected thereto and provided with rounded portions complementary to the concavities of the jaw, and also having a transverse portion arranged to bring up against the handle, and rearwardly-extending, exteriorly-threaded portions, a jaw having a shank disposed between the threaded portions of the cradle, and having an abutment and a saddle, the latter being arranged to straddle the handle, and a nut interposed between the saddle and the other abutment of the shank and surrounding and engaging the threaded portions of the cradle.

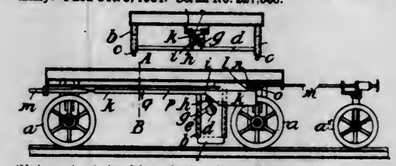
4. In a wrench, the combination of a handle, a jaw carried by the handle, a cradle mounted to rock on the handle and having exteriorly-threaded portions, a jaw having a shank disposed between the exteriorly-threaded portions of the cradle and provided with abutments, and also provided on its rear portion with a saddle arranged to bring up against the handle, and a nut interposed between the abutments of the shank and surrounding and engaging the threaded portions of the cradle.

5. In a wrench, the combination of a handle, a jaw carried thereby, a cradle mounted to rock on the handle and having exteriorly-threaded portions, a jaw having a shank disposed between the exteriorly-threaded portions of the cradle, and an interiorly-threaded nut carried by and movable with the shank, and surrounding and engaging the threaded portions of the cradle.

6. In a wrench, the combination of a handle, a jaw on the outer end thereof, a rocking cradle carried by the handle and provided with a thread, a jaw having a shank guided by the cradle and provided on its inner portion with a saddle arranged to straddle the handle, and a nut carried by and movable with the shank and engaging the threaded cradle.

7. In a wrench, the combination of a handle, a jaw on the outer end thereof, a rocking cradle carried by the handle and provided with a thread, a jaw having a shank guided by the cradle and provided on its inner portion with a saddle arranged to straddle the handle, and means on the cradle for adjusting and adjustably fixing the jaw and its shank with respect thereto.

787,779. BRAKING DEVICE. RICHARD MARX, Hamburg, Germany. Filed Oct. 3, 1904. Serial No. 227,068.



Claim.—1. A braking device for railway-trains consisting of the combination, with a railway-vehicle frame, of a brake-block, means for supporting the same in proximity to the surface of the rails, an eccentric e engaging with said brake-block, a shaft *d* carrying said eccentric, members having slots parallel to the rail-track, in which slots the ends of the shaft engage, an arm *g* fixed on said shaft, a slide having an oblique surface contacting with said arm, means for guiding said slide parallel to the axis of the frame, and means for moving said slide to operate said brake-block on the occurrence of a collision, substantially as described.

2. A braking device for railway-trains consisting of the combination, with a railway-vehicle frame, of a brake-block, means for supporting the same in proximity to the surface of the rails, an eccentric e engaging with said brake-block, a shaft *d* carrying said eccentric, members having slots parallel to the rail-track, in which slots the ends of the shaft engage, an arm *g* fixed on said shaft, a slide having an oblique surface contacting with said arm, means for guiding said slide parallel to the axis of the frame, a fore-carriage preceding the railway-vehicle frame, a connecting-rod on said fore-carriage connecting the same with the railway-vehicle frame, and a pressure-finger on said rod contacting with the slide, substantially as and for the purpose set forth.

787,780. WIRELESS TELEGRAPHIC SYSTEM. WALTER W. MASSIE, Providence, R. I. Filed Nov. 1, 1904. Serial No. 230,931.

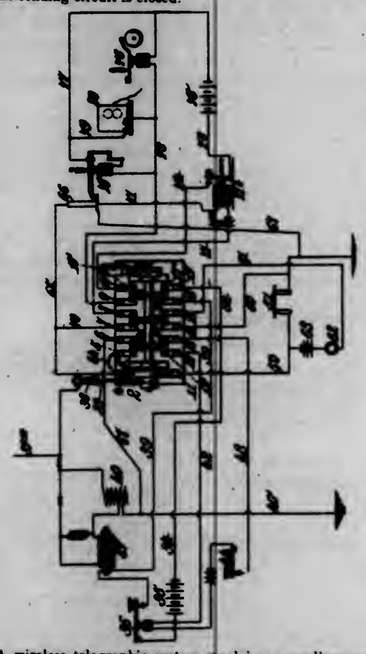
Claim.—1. A wireless telegraphic system involving a sending and at least two receiving circuits, each of the latter involving a receiving instrument, and the receiving instruments being of different character, and a means common to the three circuits for closing them.

2. A wireless telegraphic system involving a sending and at least two receiving circuits, each of the latter having a wave-responsive device and a receiving instrument, the wave-responsive devices and receiving instruments each being of different character, and means common to the three circuits for closing them in desired order.

3. A wireless telegraphic system involving a sending and at least two receiving circuits, each of the latter having a receiving instrument, the receiving instruments each being of different character, and a means common to the three circuits for closing them in sequence and for protecting each receiving instrument while the sending-circuit is closed.

4. A wireless telegraphic system involving a sending and at least two receiving circuits, each of the latter having a wave-responsive device and a receiving instrument, the wave-responsive devices

and receiving instruments each being of different character, and means common to the several circuits for closing them in succession and for protecting each receiving-circuit and the instrument therein while the sending-circuit is closed.



5. A wireless telegraphic system involving a sending and at least two receiving circuits, and means common to the several circuits for closing them in sequence, said means having a movable member provided with circuit-closing means, and a circuit-controlling member arranged for operation by said movable member during a portion only of its movement.

6. A wireless telegraphic system involving a plurality of circuits, and means common to said circuits for closing them in succession, said means having a movable member provided with circuit-closing means, and a circuit-controlling member arranged for operation by said movable member during a portion only of its movement.

7. A wireless telegraphic system involving a plurality of circuits, and means common to the several circuits for closing them in succession, said means having a movable member carrying non-conducting disks provided with circuit-controlling means, and a circuit-controlling member arranged for operation by said movable member during a portion only of its movement.

8. A wireless telegraphic system involving a sending and at least two receiving circuits, and means common to the several circuits for closing them in succession, said means having a shaft carrying circuit-closing means, and a circuit-controlling member associated with the shaft and arranged for operation by said shaft for a portion only of its movement.

9. A wireless telegraphic system involving a plurality of circuits, means common to the several circuits for closing them in succession, said means having a movable member provided with circuit-closing means, a circuit-controlling member arranged for operation by said movable member during a portion only of its movement, and means for holding the movable member positively in different positions.

10. A switching device for use in a wireless telegraphic system involving a movable member provided with circuit-closing means, a circuit-controller movably connected with said movable member, and an extensible connection between said circuit-controller and movable member.

11. A switching device for use in a wireless telegraphic system involving a movable member provided with circuit-closing means, a circuit-controller movably connected with said movable member, and a spring connecting the circuit-controller and movable member.

12. A switching device for use in a wireless telegraphic system involving a movable member provided with circuit-closing means, a contact device rigidly associated with said movable member and provided with non-conducting portions, a circuit-controller movably connected with said movable member, and an extensible connection between the circuit-controller and movable member.

13. A switching device for use in wireless telegraphic systems involving a movable member, disks rigidly associated with the movable member and provided with circuit-closing means, a contact-wheel rigidly associated with said movable member and provided with peripheral shoes of non-conducting material, and a circuit-controller arranged for operation by said movable member during a portion only of its movement.

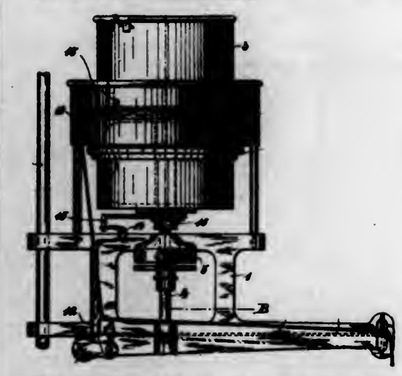
14. A switching device for use in wireless telegraphic systems, involving a movable member provided with circuit-closing means, a contact-wheel rigidly associated with said movable member, a circuit-controller movably connected with said movable member, a spring connecting the circuit-controller and contact-wheel, and a pin on the wheel to engage the said circuit-controller.

15. A wireless telegraphic system involving a sending and at least two receiving circuits and a means common to the several circuits for closing them in sequence, said means having a movable member provided with circuit-controlling means and a circuit-controlling member yieldingly connected with said movable member

16. A switching device for use in a wireless telegraphic system, involving a movable member provided with circuit-closing means, and a circuit-controller yieldably connected with said movable member.

17. A switching device for use in a wireless telegraphic system, involving a movable member provided with circuit-closing means, and a circuit-controller yieldingly connected with said movable member, the latter being provided with means for positively operating said circuit-controller.

787,781. **TWINE-HOLDER.** Erikb E. Matsson, Mora, Sweden. Filed Jan. 28, 1901. Serial No. 45,184.



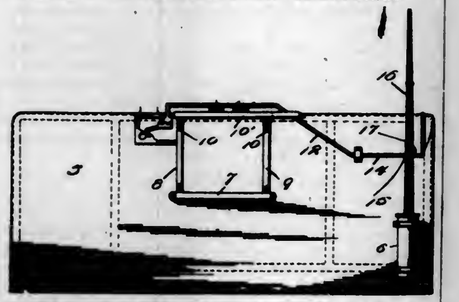
Claim.—1. The combination with a twine-holder having a turnable ball-box for the twine, and a motor adapted to cause the said ball-box to coil back the extracted twine when released, of a balanced beam adapted to carry the free end of the twine, and means on said balanced beam for stopping the rotation of the ball-box when the end of twine hanging down from the said balanced beam becomes too short to weigh down the end of the beam from which it hangs down, substantially as and for the purpose set forth.

2. The combination with a twine-holder having a turnable ball-box for the twine, and a motor adapted to cause the said ball-box to coil back the extracted twine, of a balanced beam adapted to carry the free end of the twine, means on said balanced beam for stopping the rotation of the ball-box when the end of twine hanging down from the said balanced beam becomes too short to weigh down the end of the beam from which it hangs down, and a weight on said beam, substantially as and for the purpose set forth.

3. In a twine-holder, the combination of, a frame, a cylinder, an axle for said cylinder journaled in said frame, a spiral spring attached to said axle and frame, a balanced beam pivoted to said frame, an eye on said beam, an arm extending from said axle, a friction-coupling on said axle adapted to connect one end of said arm to said axle, and an arm attached to said beam and adapted to engage with the first-mentioned arm, substantially as and for the purpose set forth.

4. In a twine-holder the combination of, a frame, a cylinder, an axle for said cylinder journaled in said frame, a spiral spring attached to said axle and frame, a balanced beam pivoted to said frame, a weight on said balanced beam, an eye on said balanced beam, an arm extending from said axle, a friction-coupling on said axle adapted to connect the said arm to said axle, and an arm attached to said balanced beam and adapted to engage with the first-mentioned arm, substantially as and for the purpose set forth.

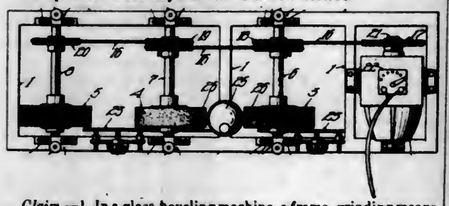
787,782. **WHIP AND LINE LOCK.** Blair Moore, Pittsburg, Pa. Filed Mar. 7, 1904. Renewed Feb. 27, 1905. Serial No. 247,498.



Claim.—1. A combined whip and line lock comprising a whip-holding jaw, a line-holding jaw, a member comprising a jaw disposed to coöperate with the whip-holding jaw and a jaw disposed to coöperate with the line-holding jaw, and means for holding said member with the jaws in active position.

2. A combined whip and line lock comprising a fixed whip-holding jaw, a fixed line-holding jaw, a member comprising a whip-holding jaw, a line-holding jaw and a diagonal portion connecting them, said diagonal portion being slidably engaged through a portion of the fixed line-holding jaw, for movement of said member with its jaws laterally when its line-holding jaw is moved in the direction of the fixed line-holding jaw and means for holding said member with its jaws in active positions.

787,783. **GLASS-BEVELING MACHINE.** John H. McBride. Lompoc, Cal. Filed May 25, 1904. Serial No. 209,664.



Claim.—1. In a glass-beveling machine, a frame, grinding means thereon, and gage means for engaging the edge of the glass to guide the frame.

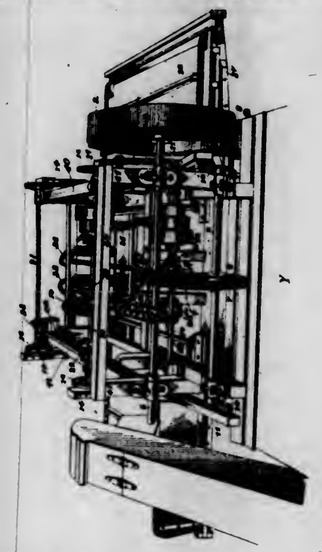
2. A glass-beveling machine comprising a transportable longitudinally-movable frame, a grinding-wheel journaled on said frame to rotate in the plane of longitudinal movement, said frame being provided with gage means for engaging and guiding the frame in its longitudinal movement, and driving means connected to said grinding-wheel

3. In a glass-beveling machine a transportable longitudinally-movable carrying-frame provided with gage means to engage the edge of the glass and to guide it in its longitudinal movement, a plurality of grinding-wheels of different grinding power and a buffing-wheel journaled on said frame to rotate in the same plane longitudinal of the frame, driving means connected to said grinding and buffing means and a flexible power connection for said driving means.

4. A glass-beveling machine comprising a transportable longitudinally-movable frame, a grinding-wheel journaled on said frame to rotate in the plane of longitudinal movement, said frame being provided with gage means for engaging the edge of the glass to guide the frame in its longitudinal movement, means for adjusting the angular position of the grinding-wheel, and driving means connected to said grinding-wheel.

5. A glass-beveling machine comprising a transportable longitudinally-movable frame, a grinding-wheel journaled on said frame to rotate in the plane of longitudinal movement, said frame being provided with means for guiding it in its longitudinal movement, means for adjusting the vertical position of the grinding-wheel, and driving means connected to said grinding-wheel.

787,784. **BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES.** Harry T. McCormick and Sam E. McCormick, Winchester, Ky. Filed Aug. 30, 1904. Serial No. 222,695.



Claim.—1. A cutter and feeder for feeding grain-bundles to a thresher, consisting of a laterally-extending wing provided with an endless feed-apron, a horizontal finger-bar arranged transversely above the feed-apron, vertical guides for the ends of the finger-bar, means for reciprocating this finger-bar vertically on its guides, a horizontally-arranged sickle guided in said finger-bar and means for reciprocating it longitudinally substantially as described.

2. In a cutter and feeder for threshing-machines, the combination with the thresher-frame and laterally-projecting feed-wings; of two transversely-arranged finger-bars carrying longitudinally-sliding sickles, two vertical guides for each finger-bar, two pitmen for each finger-bar, two cross-shafts having at their ends wrist-pins connecting with the pitmen, connecting mechanism for the two shafts and gears for driving them substantially as described.

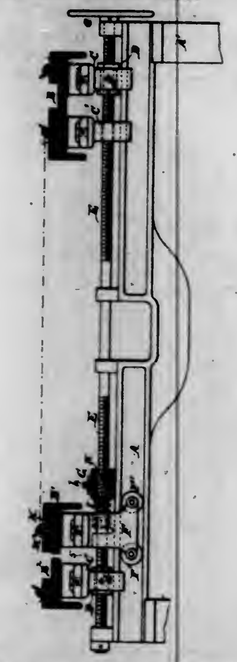
3. In a cutter and feeder for threshing-machines, the combination with the thresher-frame and laterally-projecting wings with endless feed-aprons and vertically-reciprocating finger-bars with horizontal sickles arranged above said feed-aprons; of the means for driving them, consisting of the shaft 5 with sprocket 6, the chain belt 7, the shaft 9 with sprocket 8, and cranks 10 at its ends, the pitmen 11 connecting the cranks to the sickles, the sprocket-wheel 17 on shaft 6 with chain belt 18, the cross-shafts 20 and 21, the sprocket 19 on shaft 20, the finger-bar pitmen 14 connected to the ends of the shafts 20 and 21, the shaft 29 with belt and stepped pulleys connecting it to shaft 20, the longitudinal shafts 30 and 31 connected by bevel-gears to shaft 29 and having sprockets on their other ends and chain belts connecting these sprockets to those of the feed-aprons substantially as described.

4. The combination with the longitudinally-arranged cutter and the laterally-projecting feed-apron and frame for supporting the cutter and feed-apron; of a chute arranged beneath the same and slideways for supporting the chute whereby it is made horizontally adjustable to give access to the threshing-cylinder as described.

5. The combination with the longitudinally-arranged cutter and the laterally-projecting feed-apron; of a horizontally-adjustable chute arranged beneath the same and having movable floor-sections mounted on eccentrics, each floor-section having also pendent and

flexible flaps at the delivery ends, and a cross-bar with a sheet extending from beneath these flaps to the thresher-bottom substantially as described.

787,785. **TENTERING-MACHINE.** ANDREW MCLEAN, Passaic, N. J. Filed Apr. 11, 1904. Serial No. 202,834.



Claim.—1. In a tentering-machine, the combination of two traveling flexible cloth-stretching conveyers, guides therefor arranged substantially parallel and having portions adapted to cause the conveyers to travel in a sinuous or zigzag course, and means for holding the guides apart with an elastic pressure to keep the cloth stretched and compensate for variation in its width.

2. In a tentering-machine, the combination of two traveling flexible cloth-stretching conveyers, guides therefor arranged substantially parallel and each having portions adapted to cause the conveyers to travel in a sinuous or zigzag course and simultaneously in the same direction, and means for holding the guides apart with an elastic pressure to keep the cloth stretched and compensate for variation in its width.

3. In a tentering-machine, the combination of two traveling flexible cloth-stretching conveyers, guides therefor arranged substantially parallel and having portions adapted to cause the conveyers to travel in a sinuous or zigzag course, means for holding the guides apart with an elastic pressure to keep the cloth stretched and compensate for variations in its width, and means for adjusting the guides nearer together or farther apart to suit fabrics of different widths.

4. In a tentering-machine, the combination of two traveling flexible cloth-stretching conveyers, guides therefor arranged substantially parallel and having portions adapted to cause the conveyers to travel in a sinuous or zigzag course, and one of which guides is made in sections, means for independently adjusting the different portions of the guides nearer together or farther apart to suit fabrics of different widths and vary the degree of tension at different portions of the length of the guides, and springs acting upon the several sections of the guide for moving them with an elastic pressure to keep the cloth under tension and compensate for variations in its width.

5. In a tentering-machine, the combination of two traveling flexible cloth-stretching conveyers, guides therefor arranged substantially parallel and having portions adapted to cause the conveyers to travel in a sinuous or zigzag course, means for adjusting the normal position of the guides nearer together or farther apart to suit fabrics of different widths, and spring devices for automatically operating upon one set of the conveyers and guides to yieldingly force it away from the other set of the conveyers and guides to keep the fabric under tension.

6. In a tentering-machine, the combination of two traveling flexible cloth-stretching conveyers, guides therefor arranged substantially parallel and having portions adapted to cause the conveyers to travel in a sinuous or zigzag course, means for holding the guides apart with an elastic pressure to keep the cloth stretched and compensate for variations in its width and power devices for moving the two conveyers at the same speed.

7. In a tentering-machine, the combination of a longitudinal guide-frame having a chain-guide one portion of which is irregular to form substantially a sinuous path, a second longitudinal guide-frame also having a chain-guide corresponding with that of the first-mentioned frame, transverse adjusting-screws for normally adjusting the two frames to or from each other, spring tension devices between one of the guide-frames and the several transverse screws, and two endless laterally-flexible chains adapted to the chain-guides and provided with suitable means for holding the selvages of the fabric and stretching said fabric between the guides.

8. In a tentering-machine, the combination of a longitudinal guide-frame having a chain-guide one portion of which is irregular to form substantially a sinuous path, a second longitudinal guide-frame also having a chain-guide corresponding with that of the first-mentioned frame, transverse adjusting-screws for normally adjusting the two frames to or from each other, spring tension devices between one of the guide-frames and the several transverse screws consisting of a nut screwed upon the screw and adapted to be fed along the screw and a spring interposed between the nut and chain-guide frame, guiding devices for guiding the automatically-adjustable guide-frame transversely to its length, and two endless laterally-flexible chains adapted to the chain-guides and provided with suitable means for holding the selvages of the fabric and stretching said fabric between the guides.

9. In a tentering-machine, the combination of a longitudinal chain-guide frame having one portion of its guide made of irregular or sinuous form, a second longitudinal chain-guide frame divided longitudinally into sections and having a chain-guide one portion of which is made of irregular or sinuous form, a series of carriages to which the several sections of the guide-frame are pivoted end to end in pairs, a series of transverse screws, nuts upon the screws, springs between the nuts and carriages, and traveling chains for the chain-guides having means for holding the selvages of the cloth and stretching it.

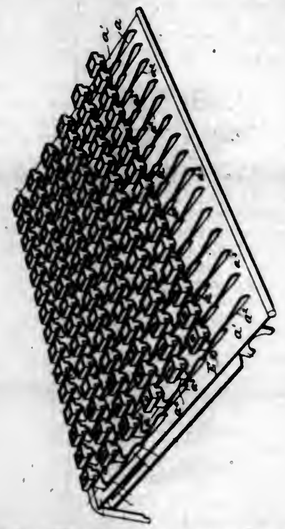
10. In a tentering-machine, the combination of two longitudinal frames, means to support the frames and hold them against longitudinal movement, means to adjust the frames relatively to or from each other, means for holding the frames apart with an elastic pressure to keep the fabric under tension and compensate for variations in its width, two endless chains having means for holding the selvages of the fabric for stretching it, and means carried by the frames for guiding the chains in a serpentine or zigzag course, whereby the fabric during its forward travel is pulled transversely alternately in opposite directions.

11. In a tentering-machine, the combination of two longitudinal frames, means to support the frames and hold them against longitudinal movement, means for holding the guides apart with an elastic pressure to keep the cloth stretched and compensate for variations in its width, two endless chains having means for holding the selvages of the fabric for stretching it, and means carried by the frames for guiding the chains in a serpentine or zigzag course, whereby the fabric during its forward travel is pulled transversely alternately in opposite directions.

12. In a tentering-machine, the combination of two longitudinal frames, means to support the frames and hold them against longitudinal movement, spring devices to cause one of the frames to have a yielding capacity to compensate for abnormal variations in width of the fabric, two endless chains having means for holding the selvages of the fabric for stretching it, and means carried by the frames for guiding the chains in a serpentine or zigzag course, whereby the fabric during its forward travel is pulled transversely alternately in opposite directions.

787,786. **LINOTYPE-MACHINE.** SIGURD C. NIELSEN, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Nov. 30, 1904. Serial No. 234,939.

Claim.—1. The keyboard consisting essentially of two parallel slotted plates and the intermediate key-levers, each guided in both plates and seated for pivotal motion in one plate, substantially as described.



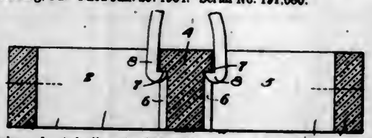
2. In a keyboard for a linotype or analogous machine, a slotted plate in combination with a flat key-arm seated in the slot and notched at one end to embrace the plate.

3. In a keyboard for a linotype or kindred machine, the combination of a slotted plate, finger-keys seated in the slot and embracing the plate at one end, and means for limiting the vertical motion of the keys.

4. In a keyboard, a vertically-slotted plate and a finger-key seated in the slot, said key notched at one end to embrace the plate and having the opposite end formed to prevent longitudinal movement.

5. In a keyboard for a linotype or analogous machine, a slotted top plate and a slotted bottom plate fixed in relation thereto, in combination with the notched key-arms extending through both plates and seated at the notched end astride of one plate.

787,787. **CONCRETE BUILDING-BLOCK.** GEORGE L. PEABODY, Pittsburg, Pa. Filed Jan. 29, 1904. Serial No. 191,080.



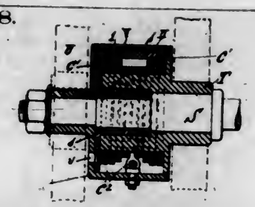
Claim.—1. A hollow building-block provided with vertical inner walls, and a transverse bridge-wall having lifting-abutments on its opposite sides formed by shoulders of the wall above the lower surface of the block, substantially as set forth.

2. A hollow building-block provided with a bridge-wall having recessed cavities on its opposite sides terminating at their upper portion in supporting-shoulders, substantially as set forth.

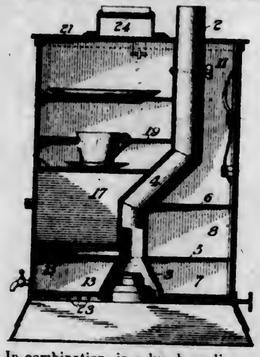
787,788. **CLUTCH DEVICE.** CLAUDE PINARD, Chalon-sur-Saône, France, assignor to the Firm of Compagnie Internationale de l'Electro-Typographe Moray et Rosar, Paris, France. Filed Dec. 23, 1902. Serial No. 136,377.

Claim.—A rotating shaft, a fixed concentric bearing therefor, a casing adapted to turn to a limited extent on said shaft, and means for revolving the casing and shaft, a bushing *s* keyed to the shaft, a pair of helices having flexible ends, and a spring connecting them, their other ends being secured to the bushing *s*, and a stud in the casing adapted to move one of said flexible ends, whereby one helix is caused to disengage the bearing during the limited motion herein referred to in advance of the motion of the shaft.

787,788.



787,789. **SELF-HEATING LUNCH OR DINNER PAIL.** ROBERT RAINES, Chicago, Ill. Filed June 16, 1904. Serial No. 212,776.



Claim.—1. In combination, in a lunch or dinner pail, a body portion having a pipe extending perpendicularly through the same and having a centrally-deflected portion, horizontal partitions on one side of said pipe in the lower portion of the body providing two compartments, a vertical wall removable from the body to give access to said compartments and provided with pockets to receive table implements, a beverage-compartment in the lower portion of the body having a filling-opening in its upper wall, a movable draw arranged above the beverage-receptacle removable to give access to the filling-opening thereof, a partition above said draw, a second partition above the first having an opening in the same, a third partition above the second having a relatively larger opening, a removable top, and a lamp-stove providing a base for the body.

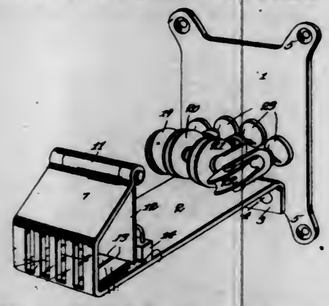
2. In combination, in a lunch or dinner pail, a body portion having a pipe extending perpendicularly through the same and having a centrally-deflected portion, horizontal partitions on one side of said pipe in the lower portion of the body providing two compartments, a vertical wall removable from the body to give access to said compartments and provided with pockets to receive table implements, a beverage-compartment in the lower portion of the body having a filling-opening in its upper wall, a movable draw arranged above the beverage-receptacle removable to give access to the filling-opening thereof, a partition above said draw, a second partition above the first having an opening in the same, a third partition above the second having a relatively larger opening, a removable top, a flange at the base of the body provided with a series of openings, and a lamp-stove secured to said flange having its burner extending up within the pipe; said openings in the flange providing means for the inlet of air into the lower portion of the pipe about the burner, substantially as described.

3. In a lunch or dinner pail, a body having a pipe extending perpendicularly therethrough provided with an offset intermediate of its length and provided with a conical lower end, a slide removably mounted in the body and providing one side wall thereof, compartments located in the lower portion of the body to one side of the pipe normally closed by said slide, a beverage-receptacle located in the lower portion of the body upon the opposite side of the pipe to said compartments, a series of dish-supporting partitions, a draw removably mounted in the body having a rear wall shaped to conform to the perpendicular and offset portions of the pipe, a removable top, and a lamp-stove secured to the base of the body, the font of said stove providing an enlarged base for the body and the burner of the stove extending into the conical portion of the pipe.

4. A lunch or dinner pail, comprising a body having a removable rear perpendicular wall and guideways at the rear of each of its

side walls to receive said rear wall, a series of compartments arranged within the body, a detachable top having a carrying-handle arranged substantially centrally thereof, a lamp-stove secured to the bottom of the body and having its burner arranged substantially centrally of the same, and a flue-pipe extending perpendicularly through the body and having an offset intermediate portion to provide an increased heating-surface and to bring the upper end of said pipe to one side of said centrally-arranged handle.

787,790. HANGER FOR QUILTING-FRAMES. JAMES L. RENICK, Hardyville, Ky. Filed July 27, 1904. Serial No. 218,396.



Claim.—1. A device of the class described comprising an attaching-plate, a plurality of sheaves carried thereby, a hanger supported by the plate, and a cord-locking dog carried by the hanger.

2. A device of the class described comprising an attaching-plate, a plurality of swiveled sheaves carried thereby, a hanger combined with the plate, and a cord-locking dog carried by the hanger.

3. A device of the class described comprising an attaching-plate, a plurality of swiveled sheaves carried thereby, a hanger combined therewith and having an offset disposed at an angle to the shank of the hanger, and a cord-locking dog carried by the offset.

4. A device of the class described comprising an attaching-plate, a plurality of sheaves carried thereby, a hanger combined with the plate and provided with an offset disposed at an angle to the shank of the hanger, and a cord-locking dog hinged to the free end of the offset.

5. A device of the class described comprising an attaching-plate, a hanger projecting therefrom and provided with a slotted base portion and an angular offset, and a cord-locking dog hinged to the free end of the offset.

6. A device of the class described comprising an attaching-plate, a plurality of sheaves carried thereby, a hanger projecting from the plate and provided with a slotted base and an angular offset, a head-block secured to the hanger and carrying a guide, a plurality of tension devices disposed below the head-block, and a cord-locking dog coacting with the tension devices and the head-block.

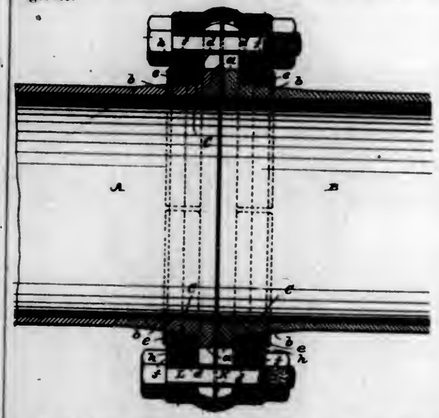
7. A device of the class described comprising an attaching-plate, a plurality of swiveled sheaves carried thereby, a hanger projecting from the attaching-plate and provided with a slotted base and an angular offset, a head-block secured to the shank of the hanger and provided with a guide, a series of tension devices secured to the shank of the hanger and having their free ends disposed within a rabbet in the under side of the head-block, and a cord-locking dog hinged to the free end of the offset and coacting with the tension devices.

8. A device of the class described comprising an attaching-plate, a series of sheaves swiveled thereto and arranged in the segment of a circle, a hanger, a combined head-block and guide carried thereby, and a dog carried by the hanger and coacting with the head-block.

787,791. PIPE-COUPLING. GEORGE H. REYNOLDS, Mansfield Depot, Conn. Filed Aug. 20, 1904. Serial No. 223,545.

Claim.—1. In a pipe-coupling, the combination with the flanged ends of pipes, of sectional rings to encircle the pipe and engage the back of said flanges, rings for holding the sections together and each bearing an outwardly-disposed flange to register with that of the other, a packing-ring intermediate of and engaged by the ends of the pipes, and means for drawing the rings and ends of pipes together.

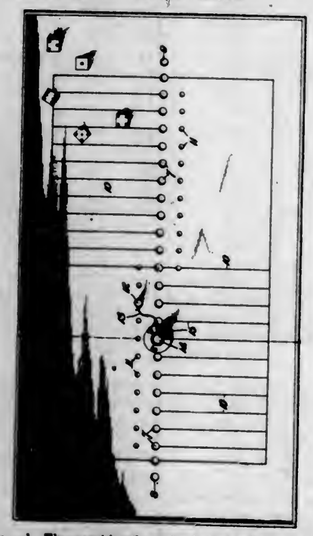
2. A pipe-coupling comprising sectional rings to engage the back of a pipe-flange and having an enlarged inner edge and reduced outer edge forming a shoulder, clamping-rings containing a corresponding shoulder on its inner face to engage the shoulders of the sectional rings, and inwardly-disposed flanges on their outer edges adapted to register with each other, a packing-ring intermediate of both the pipe and ring flanges, and bolts to draw the parts together.



3. In a pipe-coupling the combination with pipes having their ends provided with flanges and reinforcements adjacent thereto, of sectional rings encircling the pipe and the backs of the flanges, rings encircling the sectional rings and bearing forwardly-disposed flanges, a packing-ring intermediate of the flanges of the rings and the ends of the pipes and bolts to draw the parts together.

4. In a pipe-coupling, the combination with forged pipes having flanged and reinforced ends, of attachable sectional rings to engage the flanges of the pipes and bearing-shoulders, complete rings bearing shoulders corresponding with the shoulders of the sectional rings and an annular projection from said complete ring, and means for securing the parts together.

787,792. AMUSEMENT DEVICE. FRANK T. RILEY, Kansas City, Mo. Filed Feb. 23, 1904. Serial No. 194,664.



Claim.—1. The combination of a board provided with a field, divided into "yard-lines" a suitable distance apart, and with holes coincidental with said lines and extra or goal-post holes at the ends of the field, a movable "ball-peg" to fit in any of said holes, and means for determining toward which end of the field said object shall be moved or whether it shall be moved at all; said peg having marks to be disposed successively toward the "yard-line" coincidental with the peg to indicate first, second or third down.

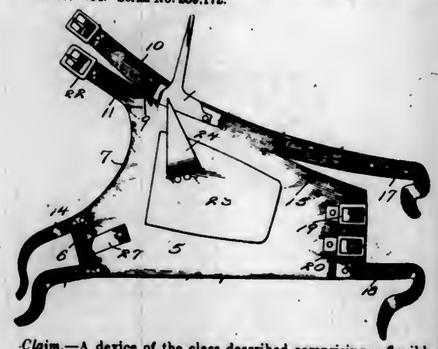
2. The combination of a board provided with a field divided into "yard-lines," an object movable on said field and representative of a foot-ball, means for determining toward which end of the field said object shall be moved or whether it shall be moved at all, and means flexibly connected with said object and movable across the field to remain upon the "yard-line" from which said object has been previously moved.

3. The combination of a board provided with a field divided into "yard-lines" and with two series of holes coincidental with said lines, a pin for engagement with one hole of one of said series of holes and representative of a foot-ball, a second pin for engagement with one of the other series of holes and representative of a "lineman," and a flexible connection between said pins.

4. The combination of a board provided with a field, divided into "yard-lines," a rotatable object representative of a foot-ball and adapted to be moved across said field and to be stationed on the desired line and provided with a plurality of different marks for registration with the line upon which the object is stationed, and means for determining to which line of the field said object shall be moved or whether it shall be rotated to cause one of said marks to register with the line upon which it is stationed.

5. The combination of a board provided with a field divided into "yard-lines," and a series of holes coincidental with said lines, a pin for engagement with one of said holes, and provided with a flange containing different marks, and means for determining into which hole said pin shall be fitted or whether it shall be simply arranged to dispose a mark on its flange in register with the "yard-line" on which said pin is located.

787,793. CORN-HUSKER. ANTON J. ROKUSEK, Tabor, S. D. Filed Dec. 31, 1904. Serial No. 239,172.



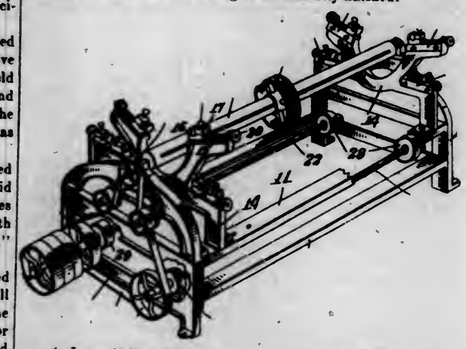
Claim.—A device of the class described comprising a flexible body portion adapted for attachment to the hand, a hook carried by the body portion and arranged to project in the direction of the fingers of the hand to which the body portion is attached, and a plate carried by the body portion and arranged for engagement by the fingers of the user to move it into engagement with the point of the hook, and a second hook carried by the plate.

787,794. CARD-GRINDING MACHINE. SYLVANUS B. ROY, Worcester, Mass. Filed Oct. 29, 1904. Serial No. 230,491.

Claim.—1. In a grinding-machine, the combination of a grinding-wheel, means for presenting a roll to the grinding-wheel, and means for simultaneously finishing a pair of rolls by rotating them in contact with each other.

2. In a grinding-machine, the combination of a grinding-wheel, adjustable bearings and driving connections for presenting two rolls to the grinding-wheel, and two sets of adjustable bearings and driving connections for simultaneously finishing the two pairs of rolls by rotating them in contact with each other.

3. In a grinding-machine, the combination of the frame, two bottom shafts, a central grinding-shaft, a belt connecting said shafts, adjustable bearings for presenting two rolls to the grinding-wheel, two sets of adjustable bearings for simultaneously holding two pairs of rolls in position to burnish or finish each other, two pulleys for turning the rolls while being ground, and two pulleys for turning the two sets of rolls which are being simultaneously finished.



4. In a grinding-machine, the combination of a framework, comprising end frames, side rails connecting the end frames, brackets adjustably fastened on the side rails, each bracket having a pair of extending arms, adjustable bearings mounted on the extending arms for presenting rolls to the grinding-wheel, each of said bearings comprising a block with an upwardly-extending finger, and a retaining-piece clamped on the block and having an inclined end coöperating with the finger, and each of said brackets having two sets of bearings for supporting two sets of rolls to be rotated in engagement with each other, and driving connections comprising two bottom shafts, a belt connecting the two bottom shafts and grinding-shaft, and pulleys on the bottom shafts for turning the rolls which are being ground and the rolls which are being burnished respectively.

787,795. VENDING-MACHINE. ADOLPH RYDQUIST, Rochester, N. Y. Filed Jan. 11, 1904. Serial No. 188,635.



Claim.—1. In a vending-machine, an ejector, a rockable coin-grip, a rockable ratchet member adapted to release said coin-grip, and a slidable carriage on which said members are supported.

2. In a vending-machine, a carriage, a rockable ejector thereon, a fixed coin-grip on said carriage, a rockable coin-grip carried by said ejector and connected thereto above the pivotal point thereof, and means on said carriage adapted to release said coin-grip at a predetermined time.

3. In a vending-machine, a carriage, a plunger connected therewith, a rockable ejector supported on said carriage, coin-gripe carried by said ejector, coin-ejecting means on said grips, and means for simultaneously releasing said coin and actuating said ejectors.

4. In a vending-machine, the combination with a casing, of a carriage slidably mounted therein, an ejector pivotally mounted upon said carriage, means normally pressing said ejector out of an ejecting position, a spring normally retaining said carriage out of an operative position, means engaged by said ejector for elevating the ejector to an elevating position under the pressure of said spring while the carriage is out of an operative position, and coin-supported means for maintaining said ejector in its elevated position during movement of the carriage.

5. In a vending-machine, the combination of a slidably-mounted carriage, an ejector pivotally mounted therein, a spring pressing said ejector for normally swinging the same upon its pivot out of an ejecting position, said ejector being formed with a curved rear surface, an inclined surface in the path of movement of said ejector for elevating the same to an ejecting position when said surfaces are

brought into contact, means for bringing said surfaces into contact with sufficient force for effecting elevation of said ejector against the pressure of said spring, and coin-controlled means for sustaining said ejector in such elevated position.

6. In a vending-machine, the combination of a slidably-mounted carriage, an ejector pivotally mounted thereon, a spring depressing said ejector out of an ejecting position, a fixed surface adapted to be engaged by said ejector for elevating the ejector, means for moving said carriage for bringing said ejector into elevating engagement with said surface, and coin-controlled means for maintaining said ejector in an elevated position.

7. In a vending-machine, the combination with a slidably-mounted carriage, of an ejector carried thereby, coin-controlled means for supporting said ejector in an ejecting position, an arm pivotally carried by said carriage and projecting forwardly therefrom, means for depressing said arm at approximately the termination of the movement of the carriage, and means actuated by the arm when depressed for releasing said coin-controlled support.

8. In a vending-machine, the combination with a horizontally-moving carriage and a spring normally retaining the carriage in a retracted condition, of an ejector pivotally mounted on such carriage, means normally depressing said ejector out of an ejecting position, a fixed surface in the path of movement of said ejector adapted to be engaged by the ejector under the pressure of said spring for elevating the ejector against the pressure of said depressing means, and coin-controlled means for sustaining said ejector in its ejecting position.

9. In a vending-machine, the combination of a slidably-mounted carriage, an ejector pivotally mounted thereon, means normally depressing said ejector out of an ejecting position, means for elevating said ejector to an ejecting position, coin-controlled means for sustaining said ejector in such position, an arm engaging said coin-controlled means, a beveled surface on said arm, and means adapted to engage said surface for releasing the coin-controlled mechanism supporting said ejector for permitting depression thereof.

787,796. **PUZZLE.** ADOLPH RYDQUIST, Rochester, N.Y. Filed Apr. 19, 1904. Serial No. 203,904.



Claim.—1. A puzzle comprising a series of U-shaped links connected together, a flat key made in a single piece and provided with an elongated slot which may be slipped through portions of the links and threaded over other parts of the links, and a terminal U-shaped link at one end of the puzzle arranged to lie in an opposite direction to the other links.

2. A puzzle comprising intermeshing oppositely-extending links, a series of joined links engaging one of the oppositely-extending links, the said joined links being connected by eyes at their ends and an open key made in a single piece and capable of insertion through the said eyes and of being threaded over some of the links for connecting and disconnecting the key from the puzzle.

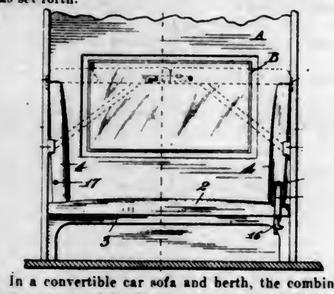
3. A puzzle comprising a series of links having centrally-looped portions and eyes at their ends, the eyes of some of the links engaging the loops of others, a terminal U-shaped link arranged so as to extend in a direction opposite to the other links and connected with the end link of the series and an integral key having an elongated loop for engaging the loops and eyes of the links in removing and replacing the key from the puzzle.

4. A puzzle comprising a number of U-shaped links connected together, all of said links extending in one direction except one which latter link lies in an opposite direction, and a removable key engaging the said links.

5. A puzzle comprising a plurality of links having folded portions and eyes in their ends, a U-shaped link having its looped or folded portion extending in the opposite direction from the other links and its eyes engaging the eyes of the adjacent link, the interlocked eyes of the reversed links lying approximately in the same plane, and a removable member having a loop capable of being passed over the links and through the eyes thereof.

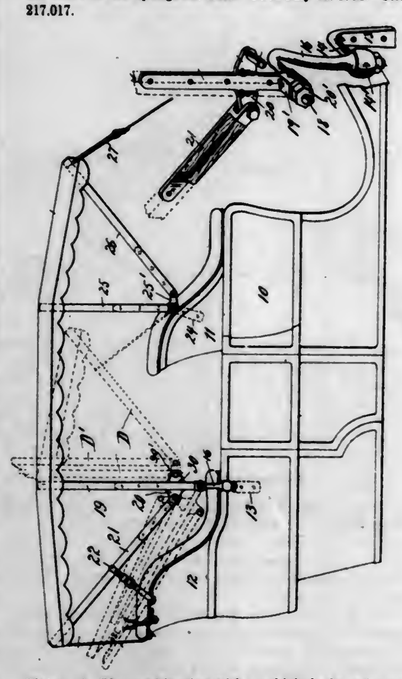
787,797. **CONVERTIBLE CAR SEAT AND BERTH.** KARL SCHLIEPMANN, St. Charles, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed Jan. 3, 1905. Serial No. 239,525.

Claim.—1. In a convertible car sofa and berth, the combination of partitions spaced apart, a seat-bottom located between said partitions, seat end sections hinged to said partitions above said seat-bottom and adapted to be swung upwardly into horizontal positions, stays hinged to said end sections, and socket-boxes attached to said partitions and adapted to receive the free ends of said stays, substantially as set forth.



2. In a convertible car sofa and berth, the combination of a seat-bottom, seat end sections surmounting said seat-bottom and having hinged supports at their upper ends to permit of their being swung into horizontal positions, means for supporting said seat end sections in horizontal positions, and means for connecting the free ends of the sections when they are in horizontal positions; said last-named means comprising a latch-bar pivoted to one of the sections and provided with an extension-arm, a latch pivoted to said latch-bar rearward of the extension-arm, a pin on the other seat-section for engagement with said extension-arm and said latch, and a stop for engagement with the upper face of said latch-bar, substantially as set forth.

787,798. **EXTENSION TOP OR CANOPY FOR VEHICLES.** HINSDALE SMITH, Springfield, Mass. Filed July 18, 1904. Serial No. 217,017.

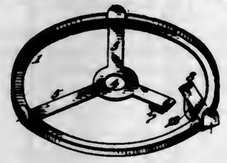


Claim.—1. The combination with a vehicle-body and a canopy-top, comprising a single strip of flexible material forming a plurality of connected collapsible sections, of side brackets secured to opposite sides of the body at the front and rear thereof and each having a laterally-extended journal-pin, front and rear supporting-arms for the canopy-sections, pivotally supported respectively on the journal-pin of the said front and rear-side brackets, the said rear arms each having a laterally-projecting pin, and the front arms each having an apertured boss, the construction being such that the front arms may be removed from the journal-pins of the front brackets, the canopy folded back and the apertured bosses fitted over the laterally-projecting pins on the rear arms.

2. The combination with a vehicle-body and a canopy-top, comprising a single strip of flexible material constituting a plurality of collapsible connected sections, of brackets secured to opposite sides of the body at the front and rear thereof and each having a laterally-extending journal-pin, front and rear supporting-arms for the canopy-sections removably pivoted to the journal-pins on the said front and rear brackets respectively, the said rear arms each having a laterally-projecting integral pin, and the front arms each having an apertured boss by which they are pivoted to the journal-pin on the front brackets, the arrangement being such that said front arms may be removed from their journal-pins, the canopy folded back and the apertured bosses fitted over the laterally-projecting pins on the rear arms, and detachable means for retaining the said arms on the pins.

3. The combination with a vehicle-body and a canopy-top, comprising a single strip of flexible material constituting a plurality of connected collapsible sections, of brackets secured to opposite sides of the body at the front and rear thereof, each bracket having an outwardly-bent stud, front and rear supporting-arms for the canopy-sections each having an apertured boss constituting the means for attaching the arms to the studs on the front and rear brackets respectively, a lug on each rear arm, and a laterally-projecting pin integral with each lug, the arrangement being such that the front arms may be removed from their studs, the canopy-sections folded back and the apertured bosses fitted over the laterally-projecting pins on the rear arms and detachable means for retaining the said arms on their pins, substantially as described.

787,799. **SUPPORT FOR GLOBES OR CHIMNEYS.** ISADORE L. SMITH, San Francisco, Cal. Filed Jan. 19, 1905. Serial No. 241,796.



Claim.—1. In a support for gas-globes, &c., a gallery having fixed lugs, and spider-arms intersecting the gallery; one of said arms being formed in two parts of which one is pivoted to the gallery and is provided with a lug, while the fixed part of said arm is provided with means for receiving the free ends of the pivoted part, whereby said arm is completed.

2. In a support for gas-globes, &c., a gallery having fixed lugs and spider-arms; one of said arms extending only part way toward the gallery and having an opening or recess, an arm pivoted to the gallery and having a lug adapted to coincide with the gallery or to be swung out of line with it; the inwardly-extending free end being adapted for connection and disconnection relatively to the opening or recess in the short spider-arm.

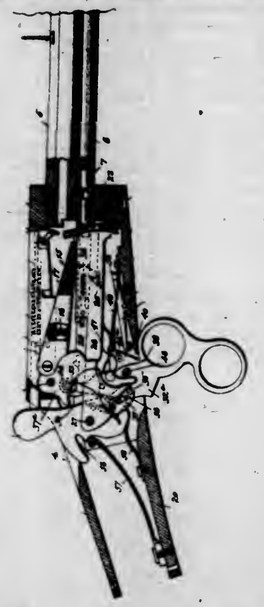
787,800. **MAGAZINE-FIREARM.** WILLIAM SONNENBERG, Winona, Minn. Filed June 30, 1903. Serial No. 163,771.

Claim.—1. A magazine-firearm comprising a cartridge-carrier for conveying the cartridge to the barrel, a plunger carried by said carrier for delivering the cartridge from said carrier, a shell-extractor, and a trigger, the movement of the latter controlling the operation of all the first-named elements.

2. A magazine-firearm comprising a pivoted cartridge-carrier, a pivoted trigger having an extended upper portion, a spring-operated dog arranged on one side of said extended portion, a pin secured to the opposite side of said extended portion, said pin and dog engaging said carrier, and a plunger for delivering the cartridge from said carrier.

3. A magazine-firearm comprising a pivoted cartridge-carrier having a series of cam-surfaces on its lower face, a pivoted trigger having an extended upper portion carrying a spring-dog and a pin adapted to engage said cam-surfaces, and a plunger carried by said carrier for ejecting the cartridges therefrom.

4. A magazine-firearm comprising a pivoted cartridge-carrier having a series of cam-surfaces on its lower face, a plunger for ejecting the cartridges from said carrier, and a pivoted trigger having an extended portion carrying a spring-operated dog at one side and a pin at the other side for engaging said cam-surfaces, whereby the movement of the trigger operates the carrier and the plunger.



5. A magazine-firearm comprising a pivoted cartridge-carrier having a series of cam-surfaces on its lower face, a plunger for ejecting the cartridges from said carrier, a pivoted trigger, a spring-operated dog carried by said trigger, a pin secured to said trigger, and a friction-roller carried by said trigger for operating said plunger.

6. A magazine-firearm comprising a pivoted cartridge-carrier, a cartridge-ejecting device carried by said carrier and consisting of a slide-bar and a plunger loosely connected together with a spring arranged between them, and a pivoted trigger engaging said slide-bar and carrier to operate the same.

7. A magazine-firearm comprising a cartridge-carrier having a cartridge-ejecting device consisting of a slide-bar and a plunger slidingly secured together, a pivoted trigger having an extended upper portion, a friction-roller carried by said trigger and adapted to engage and operate said slide-bar, a spring-dog carried by said trigger, and a laterally-projecting pin carried by said trigger, the dog and pin being adapted to engage and operate said carrier when the trigger is pulled backward.

8. A magazine-firearm comprising a pivoted trigger having an extended upper portion carrying a laterally-projecting pin, a sliding bolt operated by said pin, a spring-plunger operated by said bolt, and a shell-extractor operated by said plunger upon the release of said bolt.

9. A magazine-firearm, comprising a pivoted trigger having an extended upper portion carrying a laterally-projecting pin, a sliding bolt operated by said pin, a spring-plunger operated by said bolt, a shell-extractor operated by said plunger upon the release of said bolt, and a spring-bolt to return said extractor into place.

10. A magazine-firearm comprising a pivoted trigger having an extended upper portion carrying a laterally-projecting pin, a sliding bolt notched on its lower side and operated by said pin, a spring-held pivoted sear to engage said notch, a spring-plunger, a shell-extractor operated by said plunger when the sear releases the bolt, and a spring-bolt to return said extractor into place.

11. In a magazine-firearm, a pivoted trigger having an extended upper portion carrying a laterally-projecting pin, a notched sliding bolt operated by said pin, a spring-held pivoted sear for engaging said sliding bolt, a pin engaging said sear, a spring-plunger, a shell-extractor operated by said plunger when the sear releases said bolt, and a spring-operated bolt for returning said extractor into place.

12. A magazine-firearm comprising a pivoted trigger having an extended upper portion carrying laterally-projecting pins, tumblers pivoted to the side casing and operated by said pins, and a pivoted breech-block carrying a firing-pin, said tumblers acting on said breech-block to tilt it into line with the barrel-chamber.

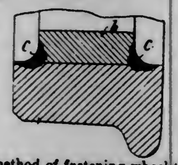
13. A magazine-firearm comprising a pivoted trigger having an extended upper portion carrying laterally-projecting pins, tumblers pivoted to the side casing and operated by said pins, and a pivoted breech-block having curved haunches and carrying a firing-pin operated by said tumblers to tilt it into line with the barrel-chamber.

14. A magazine-firearm comprising a pivoted trigger having an extended upper portion carrying laterally-projecting pins, tumblers pivoted to the side casing and operated by said pins, a pivoted breech-block having curved haunches and carrying a firing-pin, said breech-block being tilted by said tumblers into line with the barrel-chamber, and a hammer to operate said firing-pin.

15. A magazine-firearm comprising a trigger, a shell-ejector and means for operating the same, and a breech-block having a pivoted spring-held web curved rearward and outward to deflect the ejected shell.

787,801. METHOD OF FASTENING WHEEL-TIRES TO THE WHEEL-BODIES IN WHEELS FOR RAILWAY-VEHICLES.

THOMAS STAPF, Fernitz, Austria-Hungary. Filed Sept. 28, 1904. Serial No. 226,393.



Claim.—1. A method of fastening wheel-tires to wheel-bodies which consists in bringing a mass of metal in the angle formed by the wheel-body and the wheel-tire and welding the mass of metal to the wheel-body and the wheel-tire.

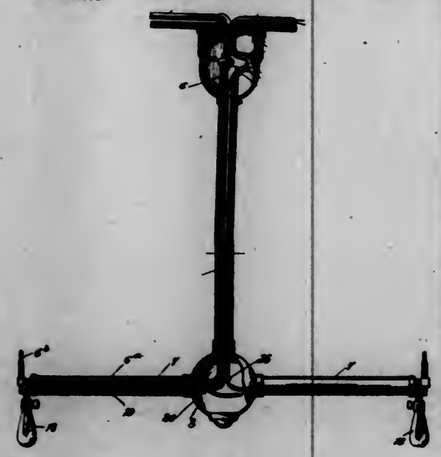
2. A method of fastening wheel-tires to wheel-bodies which consists in bringing masses of metal in both angles formed by the wheel-body and the wheel-tire on both sides of the wheel and welding each mass of metal to the wheel-body and the wheel-tire.

3. A method of fastening wheel-tires to wheel-bodies which consists in bringing masses of metal in the angle formed by the wheel-body and the wheel-tire only at single places of the periphery and welding the masses of metal to the wheel-body and the wheel-tire.

4. A method of fastening wheel-tires to wheel-bodies which consists in bringing masses of metal in both angles formed by the wheel-body and the wheel-tire on both sides of the wheel only at single places of the periphery and welding the masses of metal to the wheel-body and the wheel-tire.

787,802. COMBINATION GAS AND ELECTRIC FIXTURE.

CHARLES S. STEINBERG, New York, N. Y. Filed May 4, 1903. Serial No. 155,532.



Claim.—1. A combination-fixture wherein a gas-pipe is housed in a casing, said fixture having a tube arranged to house conductor-wires from contact with said gas-pipe, and a canopy clamped adjustably to the upper part of the casing, the end portions of the tube being open for ready access in passing the wires through said tube, and the upper end of said tube being extended laterally beyond the casing and into the canopy.

2. A combination-fixture wherein a gas-pipe is housed in a casing, said fixture having a canopy clamped adjustably to the casing, and a tube alongside of the gas-pipe and having a bent end extended to one side of the casing and into the chamber of the canopy.

3. A combination-fixture wherein a gas-pipe is housed in a casing, the combination with a canopy fitted adjustably on said casing, of a tube having its upper end extended outside of the casing and into the space of the canopy, the latter being adjustable relatively to the extended end of said tube.

4. A combination-fixture having a hollow stem, an arm, a center piece uniting the arm and stem, a gas-pipe extending continuously through the stem, arm and the center piece, and insulating-tubes within the stem and the arm thereof, the adjacent open ends of said tubes terminating within the center piece and providing for ready access to the conductors which are arranged to pass from one tube to the other.

5. A combination gas and electric fixture, comprising a hollow stem and a hollow arm united by a center piece, a continuous gas-pipe located in said stem and its arm, and separate conductor insulating-tubes supported within said stem and its hollow arm and disposed adjacent to the gas-pipe therein, the adjacent ends of the insulating-tube being separated within the center piece, and each tube having an insulating-tip at the respective ends thereof.

6. A combination gas and electric fixture comprising a hollow stem and a hollow arm united by a center piece, a continuous gas-pipe within said stem and its arm, a canopy clamped to the upper part of the stem, and a conductor insulating-tube disposed within said stem and provided at its respective ends with insulating-tips, said end portions of the tube being extended beyond the stem into the canopy and the center piece.

7. A combination gas and electric fixture, comprising a hollow stem having a hollow arm, a continnous pipe within said stem, and a conductor insulating-tube disposed within said stem, one end of said tube being deflected laterally, and the open ends of the tube being provided with insulating tips or bushings.

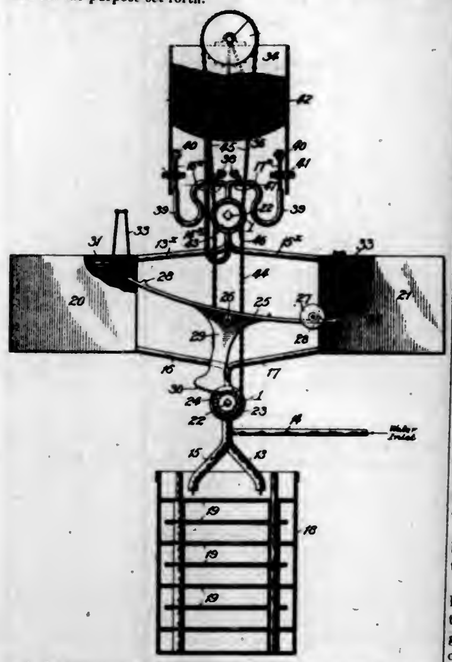
787,803. WATER-PURIFYING APPARATUS.

BERT B. SUSANKA, Chicago, Ill. Filed July 20, 1904. Serial No. 217,355.

Claim.—1. In water-purifying apparatus of the character described, the combination with the precipitating-tank and a mixing-tank, of a valve device, a discharge-pipe leading from an opening in the valve device to the precipitating-tank and a pipe connecting another opening in the valve device with the mixing-tank, and a supply-pipe for the water to be treated leading to another opening in the valve device, means for operating said valve, in the path of the flow to the apparatus of the water to be treated, to be actuated thereby, a chemical-solution tank communicating with the said mixing-tank, and means for proportioning the supply of solution entering the mixing-tank to that of the raw water to be treated entering therein.

2. In water-purifying apparatus of the character described, the combination with the precipitating-tank and a mixing-tank discharging therein, of a supply-pipe for the water to be treated leading to said mixing-tank, a chemical-solution tank, a valve device, a pipe leading from the solution-tank to an opening in the valve device, a pipe leading from another opening in the valve device to said mixing-tank and an adjustable vented flexible pipe leading from another opening in the valve device, means for operating said valve, and means for proportioning the supply to the mixing-tank of raw water to be treated to that of solution entering said mixing-tank from the chemical-solution tank.

3. In water-purifying apparatus of the character described, the combination with the precipitating-tank, of a pair of mixing-tanks and a chemical-solution tank, lower and upper valve devices supported, respectively, adjacent to said precipitating-tank and said solution-tank, discharge-pipes leading from two openings in the lower valve device to the precipitating-tank, a raw-water-supply pipe leading to a third opening in said lower valve device, pipes leading from said two openings to said mixing-tanks, a pipe leading from said solution-tank to an opening in the upper valve device, pipes leading from two other openings in said lower valve device to the respective mixing-tanks, and vented pipes leading from the two said openings in the upper valve device, a lever geared to the lower valve, floats in the mixing-tanks connected with said lever near its opposite ends, and a connection between the upper and lower valves for effecting operation of the one by that of the other, substantially as and for the purpose set forth.



4. In water-purifying apparatus of the character described, the combination with the precipitating-tank, of a pair of mixing-tanks and a chemical-solution tank, lower and upper valve devices supported, respectively, adjacent to said precipitating-tank and said solution-tank, discharge-pipes leading from two openings in the lower valve device to the precipitating-tank, a raw-water-supply pipe leading to a third opening in said lower valve device, pipes leading from said two openings to said mixing-tanks, a pipe leading from said solution-tank to an opening in the upper valve device, pipes leading from two other openings in the upper valve device to the respective mixing-tanks, and vented pipes leading from the two said openings in the upper valve device, a lever fulcrumed between its ends and having an arm provided with a segmental rack engaging said pinion, a weight movably confined on said lever, floats in the mixing-tanks connected with said lever near its opposite ends, and a connection between the upper and lower valves for effecting operation of the one by that of the other, substantially as and for the purpose set forth.

5. In water-purifying apparatus of the character described, the combination with the precipitating-tank of a pair of mixing-tanks, and a chemical-solution tank carrying a rock-shaft with stirrers depending therefrom into the tank, lower and upper valve devices supported, respectively, adjacent to said precipitating-tank and said solution-tank, discharge-pipes leading from two openings in the lower valve device to the precipitating-tank, a raw-water-supply pipe leading to a third opening in the lower valve device, pipes leading from said two openings to said mixing-tanks, a pipe leading from said solution-tank to an opening in the upper valve device, pipes leading from two other openings in the upper valve device to the respective mixing-tanks, and adjustable vented flexible pipes leading from the two said openings in the upper valve device, a pinion on the lower valve-sprockets on both valves and a chain connecting the sprockets, a lever fulcrumed between its ends and having an arm provided with a segmental rack engaging said pinion, a weight movably confined on said lever, floats in the mixing-tanks connected with said lever near its opposite ends, and a belt-and-pulley connection between said upper valve and said stirrer-shaft, the whole being constructed and arranged to operate substantially as described.

787,804. NUT-LOCK.

BURCHARD D. THOMPSON, Bradford, Pa. Filed Jan. 20, 1905. Serial No. 241,978.



Claim.—1. The combination with a bolt, of a nut thereon, a transverse rotatable thread-engaging member within the nut, and a transverse sliding key entering the nut and adapted to lock said member within the nut.

2. The combination with a bolt, of a nut thereon, a transverse rotatable thread-engaging member within the nut, and a transverse sliding key entering the nut and adapted to lock said member within the nut and also against rotation.

3. The combination with a bolt, of a nut thereon, a transverse rotatable thread-engaging member within the nut, and a transverse sliding key entering the nut and interlocking with rotatable member and adapted to hold the same within the nut and against rotation when engaging the threads.

4. The combination with a bolt, of a nut thereon, a transverse rotatable thread-engaging member within the nut, and a transverse sliding key entering the nut and normally outwardly held and interlocking with the rotatable member and adapted to hold the same within the nut, and also against rotation when the same is engaging the threads of the bolt.

5. The combination with a bolt, of a nut thereon, a transverse member intersecting the opening in the nut and having a cut-away portion to allow the threads of the bolt to pass, said member having on another side the thread-engaging teeth, and a member carried by the nut and extending at right angles to the transverse member and adapted to lock said member within the nut and to lock it with either the cut-away portion or teeth opposite the threads of the nut.

6. The combination with a bolt, of a nut thereon, a transverse key carried by the nut and a transverse member interlocking with the key and holding each other within the nut.

7. The combination with a bolt, of a nut thereon, a transverse key loosely extending within the nut and adapted to engage the threads of the bolt, and a transverse member extending at right angles to the key and interlocking with the same, and holding each other within said nut.

8. The combination with a bolt, of a nut thereon, a transverse key carried by the nut and a transverse member interlocking with the key and holding each other within the nut, and means carried by the transverse member for locking the key in its adjusted position.

9. The combination with a bolt, of a nut thereon, a transverse rotatable key carried by the nut and adapted to engage the threads of the bolt, a transverse member interlocking with the key and holding each other within the nut, and means carried by the transverse member for holding the key in its adjusted position against rotation.

10. The combination with a bolt, of a nut thereon, a transverse rotatable key carried by the nut and having a concaved face to allow the threads of the bolt to pass, teeth carried by said key and adapted to engage the threads of the bolt, an outwardly spring-pressed member interlocking with the key and holding each other within the nut, and means carried by said member for holding the key in its rotating position, and means carried by said member for allowing the rotation of the key.

11. The combination with a bolt, of a nut thereon and having a transverse opening intersecting one side of the bolt-opening, a rotatable transverse key in said opening wholly within the nut, said key having one face thereof opposite the bolt-opening cut away and another face provided with transverse thread-engaging teeth, the inner end of the key provided with a cut-away portion forming three flat faces, said nut having a second opening at right angles to the key-opening and squarely intersecting the same, a spring within the inner end of said opening, a member within said opening and normally outwardly spring-held, said member having a deep transverse cut-away portion adjacent its outer end and a shallower cut-away portion communicating therewith and extending adjacent the inner end of said member, and adapted to interlock with the cut-away portion of the key, and to hold the same against rotation, and when the said member is depressed, the enlarged cut-away portion registering with the key and allowing of the rotation thereof.

12. The combination with a bolt, of a nut thereon, a transverse member loosely extending within the nut and adapted to engage the threads of the bolt, and a transverse key outwardly spring-pressed, and interlocking with the transverse member, and holding each other within said nut.

13. The combination with a bolt, of a nut thereon, a transverse rotatable member therein and adapted to engage the threads of the bolt, and a transverse outwardly spring-pressed key interlocking with the transverse member and holding each other within the nut.

14. The combination with a bolt, of a nut thereon, a transverse rotatable member therein and adapted to engage the threads of the bolt, and a transverse sliding key adapted to lock the member against rotation.

15. The combination with a bolt, of a nut thereon, a transverse rotatable member therein and adapted to engage the threads of the bolt, and a sliding key extending at right angles to the said member and interlocking with the same and adapted to lock said member in its rotated position, and the interlocking of the member and key adapted to hold each other within the nut.

16. The combination with a bolt, of a nut thereon, a transverse rotatable member therein and adapted to engage the threads of the bolt, and a sliding key extending at right angles to the said rotatable member, and interlocking with the said member, a spring normally holding the said key in an outward position, and the interlocking of the key adapted to hold the member in its rotated position and holding each other within the nut.

17. The combination with a bolt, of a nut thereon and having a transverse opening intersecting one side of the bolt-opening, a rotatable transverse member in said opening wholly within the nut, the outer end of said key having a reduced squared portion for the reception of a key, said member having one face thereof opposite the bolt-opening cut away and another face provided with transverse thread-engaging teeth, the inner end of the said member provided with a cut-away portion forming three flat faces, said nut having a second opening at right angles to the first opening and squarely intersecting the same, a coiled spring within the inner end of said opening a member within said opening and normally outwardly spring-held and held therein by interlocking with the thread-engaging member, said member having a deep transverse cut-away portion adjacent its outer end and a shallower cut-away portion communicating therewith and extending adjacent the inner end of said member, and adapted to interlock with the cut-away portion of the key and to hold the same against rotation, and when said key is depressed the enlarged cut-away portion registering with the thread-engaging member and allowing of the rotation thereof.

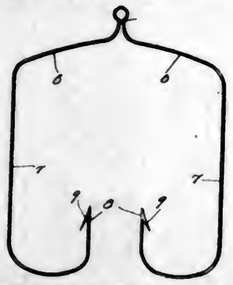
787,805. **BULB-MANIPULATOR.** WILLIAM H. THOMPSON, Philadelphia, Pa., assignor of one-half to William W. Dryden, Philadelphia, Pa. Filed June 25, 1904. Serial No. 214,091.



Claim.—In a globe-manipulating device, the combination with a pole or rod, a yoke-frame pivotally clamped to said rod, said yoke-frame having a central transverse opening or seat for a pulley-wheel, and an end opening at right angles to the pulley-seat forming a bearing for a shaft carrying gripping-fingers mounted in said bearing, a grooved pulley-wheel, and means for clamping the pulley-wheel to its shaft and thereby preventing removal of the shaft from said yoke-frame, of an adjustable tightening device on the rod and an endless-cord connection between said pulley-wheel and tightening device, substantially as and for the purposes described.

787,806. **FISH-HOOK.** HALVOR TORGERSON, Kelvin, N. D. Filed Aug. 3, 1904. Serial No. 219,382.

Claim.—1. A device of the class described comprising two hooked members, each including a shank, a bill and a connecting-bight, said bills and shanks of both members lying in a common plane and parallel to each other, the bills of both members lying between the shanks thereof and being spaced from each other, and a horizontally-extending portion connected with the ends of the shanks opposite to the bights, said horizontal portion being adapted for attachment of a line thereto.



2. A device of the class described comprising a member having transverse vertical passages formed through its ends, said member having an eye secured thereto intermediate of its ends, and two hooked members each including a shank, a bill and a connecting-bight disposed with the ends of their shanks engaged in the passages and with their bills lying between their shanks and spaced from each other, said bills being turned to extend at right angles to the member.

787,807. **DEVICE FOR FORMING STAVE-CASKS.** JULIUS TROPP, Frankenthal, Germany. Filed Dec. 1, 1904. Serial No. 235,050.



Claim.—1. In a device for forming stave-casks the combination of a number of strong flexible strips and a common hoop keeping all the strips at their upper end in position, as and for the purpose specified.

2. In a device for forming stave-casks the combination of a hoop, a number of strong flexible strips fastened with their upper end to the hoop, and a suspending device attached to the latter, as and for the purpose specified.

3. In a device for forming stave-casks the combination of a hoop, a number of strong flexible steel strips made in the form of staves fastened with their upper end to the hoop, and a suspending device attached to the latter, as and for the purpose specified.

4. In a device for forming stave-casks the combination of a hoop, a number of steel strips made in the form of staves fastened with their upper ends to the hoop, means causing the contraction of the strips in the middle of their length, and a suspending device attached to the hoop, as and for the purpose specified.

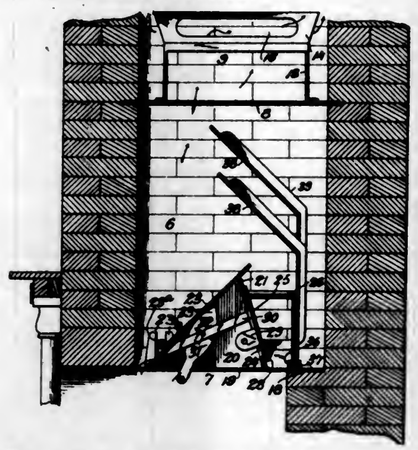
5. In a device for forming stave-casks the combination of a hoop, a number of steel strips made in the form of staves fastened with their upper ends to the hoop, a band causing the contraction of the strips in the middle of their length, means to produce a certain elasticity in the contraction, and a suspending device attached to the hoop, as and for the purpose specified.

6. In a device for forming stave-casks the combination of a hoop, a number of steel strips made in the form of staves fastened with their upper end to the hoop, a band causing the contraction of the strips in the middle of their length, a spiral spring arranged on the contracting screw-bolt of said band, and a suspending device attached to the hoop, as and for the purpose specified.

787,808. **SOOT-ARRESTER AND DRAFT-REGULATOR.** CHARLES H. TURVER, New York, N. Y. Filed Oct. 23, 1904. Serial No. 229,674.

Claim.—1. A combined soot-arrester and draft-regulator comprising the combination of a base-plate adapted to fit the throat of a fireplace-flue and provided with upwardly-extending inclined walls having openings, doors for said openings, an upper deflector made up of horizontal portions connected by substantially vertical walls

provided with openings, and deflectors intermediate said deflector and base-plate and formed with inclined walls.



2. A combined soot-arrester and draft-regulator comprising the combination of a deflector adapted to fit the throat of a fireplace and provided with swinging doors, a second deflector above the first deflector and formed with horizontal platforms supported by substantially vertical sides perforated for the passage of smoke and gaseous currents, and inclined deflectors intermediate said deflectors.

3. A combined soot-arrester and draft-regulator comprising the combination of a base-plate adapted to fit the throat of a fireplace and formed with inclined walls extending upward therefrom, said walls having openings; swinging doors adapted to close said openings and having their pivots resting in sockets; a deflector above said base-plate and formed with vertical walls provided with openings for the passage of smoke and the like; and inclined deflectors intermediate said deflector and base-plate.

4. A combined soot-arrester and draft-regulator comprising the combination of a base-plate adapted to fit across the throat of a fireplace and formed with an opening; inclined walls around the opening in said base-plate and formed with openings; a swinging door on one of the inclined sides; a cam beneath the door for controlling the same; swinging doors for the openings in the other inclined wall; housings for the latter swinging doors said housings being formed with openings in their vertical sides and fitted between lugs projecting from said base-plate; a deflector above said base-plate and made up of horizontal portions connected by substantially vertical walls formed with openings; and inclined deflectors intermediate said base-plate and said deflector.

5. A combined soot-arrester and draft-regulator comprising the combination of a base-plate formed with openings and with lugs on its upper face, and built into the throat of a fireplace; said fireplace; detachable doors; detachable means for operating said doors; detachable housings formed with pivotal bearings for said doors; a removable deflector above said base-plate; and deflectors of different heights adapted to be held in place by said housings and the lugs on said base-plate.

6. The combination in a structure of the class described of a base-plate having apertured walls projecting from its upper surface; doors for controlling the apertures in said walls; and a deflector having inclined sides mounted on said base-plate and overhanging said doors.

7. The combination in a structure of the class described of a base-plate formed with an opening and having apertured walls projecting from its upper surface; doors for controlling the apertures in said walls; and a deflector having inclined sides mounted on and freely detachable from said base-plate and accessible and removable through said opening therein.

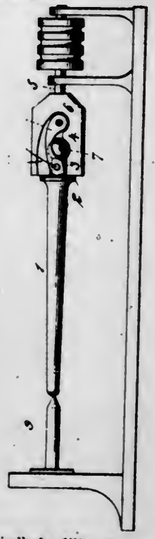
8. The combination with a chimney and supporting members built therein of a removable soot-arrester; said supporting members being spaced apart a suitable distance to permit the removal of said soot-arrester therebetween and said soot-arrester being formed with openings in its sides to permit the passage of smoke.

9. A soot-arrester made up of vertical side walls connected by horizontal portions from which rise outwardly-flaring walls connected by solid crown portions; said walls being formed with holes for the passage of smoke.

10. A soot-arrester made up of vertical side walls having outwardly-projecting flanges at the bottom and being connected at the top by horizontal portions having upwardly-turned lips; said horizontal portions being connected with solid crown portions by outwardly-flaring walls perforated for the passage of smoke.

11. A combined soot-arrester and draft-regulator comprising in combination a flue mounted across the throat of which is a base-plate; said base-plate formed with an opening and having reversely-inclined walls projecting from its upper face; doors for controlling apertures in said walls; and a deflector the crown and base portions of which are connected by apertured walls, said deflector being mounted above said base-plate and removable through the opening therein.

787,809. **SPINDLE.** JULES WAHL, Nancy, France. Filed Dec. 19, 1903. Serial No. 185,855.



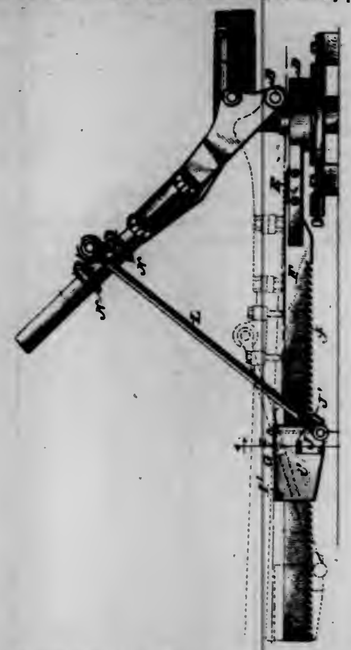
Claim.—1. In a spindle for filling, the combination of the spindle proper upon which the yarn is wound, a support at one end thereof and integral therewith, the said support comprising a shank and an enlarged end, a holder provided with a recess into which the said support is arranged to enter, and a catch for holding the spindle in the recess, substantially as set forth.

2. The combination of a spindle for filling comprising a body portion upon which the yarn is wound, and a support at one end thereof having a shank or stem portion of reduced size and an enlarged head or end, a holder for the spindle having a socket open at one side and shaped to fit the support of the spindle, and means for confining the spindle-support in such socket, substantially as set forth.

787,810. **TROLLEY-POLE CATCHER.** JOHN H. WALKER, Lexington, Ky. Filed June 6, 1904. Serial No. 211,283.

Claim.—1. The combination of the turn-table having the projecting lug provided with the slots for the ends of the track-rail, the track-rail consisting of a bar of metal bent at its middle and having its ends secured in the slots of the turn-table lug, the side sections of the track being arranged vertically edgewise and being toothed in their lower edges, the trolley-pole having a main pivot at its lower end in connection with the turn-table, the carrier having a box or body embracing and slidable along the track, the rocker pivoted at its upper rear end to the body or box of the carrier and provided at its lower front end with a dog extending beneath and normally free from engagement with the teeth of the track-rails, the rods connecting such rocker with the trolley-pole, and the spring secured to the body or box of the carrier and having a rounded boss engaging with the rocker, whereby to hold the same yieldingly in both positions, substantially as and for the purposes set forth.

2. The combination in an apparatus substantially as described, of the track extending longitudinally from the base of the trolley-pole, the trolley-pole, a carrier slidable along the track and having a rocker provided with a dog movable into and out of engagement with the track and connections between the rocker and the trolley-pole.



3. The combination in an apparatus substantially as described, of the track, the trolley-pole, a carrier slidable along the track and having a rocker provided with a dog movable into and out of engagement with the track, connections between the rocker and the trolley-pole and means for holding the dog of the rocker normally out of engagement with the track.

4. The combination with the track, and the trolley-pole, of a carrier movable along the track and comprising a box or body embracing the track, and a rocker pivoted to said box or body and provided with a dog movable into and out of engagement with the track, and a spring for yieldingly holding the rocker in its different positions, substantially as set forth.

5. The combination with the turn-table having the projecting lug, of the track composed of a bar bent forming opposite side sections secured at their free ends to the lug of the turn-table, the trolley-pole, the carrier having a box sliding along the track, and a rocker pivoted to the box and having a dog movable into and out of engagement with the track, connections between the rocker and the pole, and a spring for holding the rocker in its different positions, substantially as set forth.

6. The combination of the trolley-pole, the turn-table having a projecting lug, the track composed of a bar bent between its ends forming the side sections secured at their ends to the lug of the turn-table, and toothed on their lower edges, the carrier comprising a box or body slidable along the track, and the rocker pivoted at its upper rear end to the box and provided at its lower front end with a dog to engage with the teeth of the track-section, the spring secured to the box or body and having a rounded boss engaging with the rocker to secure the same in its different positions and connections between the rocker and the trolley-pole, substantially as and for the purposes set forth.

7. The combination with the track and the trolley-pole, of a carrier movable along the track and comprising a box or body embracing the track, and a rocker pivoted at one end to such box or body and provided at its other end with a dog movable into and out of engagement with the track and connections between the trolley-pole and the rocker.

8. The combination of a trolley-pole having a main pivot at its lower end, a track extending longitudinally from the base of the trolley-pole, a rocker movable longitudinally along said track and provided with a dog which may be set into and out of engagement with the track, and connections between the rocker and the trolley-pole whereby the latter on its sudden upward movement when it has escaped from the wire, will throw the dog into engagement with the track to limit the upward movement of the trolley-pole, substantially as described.

9. The combination with the trolley-pole, and the track, of a carrier sliding on the track and comprising a box or body embracing the track, and a hood pivoted to the box or body and having means for engagement with the track, and a spring operating between the box or body and the hood for securing the latter in its different positions, substantially as set forth.

10. The combination in an apparatus substantially as described, of the carrier box or body, the rocker consisting of a hood pivoted to the box or body, whereby it may rock in connection therewith, and a dog having side lugs secured to the rocking hood, and a spring operating between the box or body and the hood for securing the latter in its different positions.

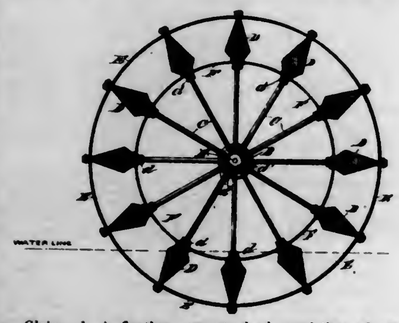
11. The combination of the trolley-pole having a main pivot, the longitudinally-extending track, a sliding carrier movable along the track and having locking means for engagement with the track, to lock the trolley against upward movement on its sudden escape from the wire and means whereby the initial upward movement of the trolley-pole on escaping from the wire will throw such locking means into engagement with the track to lock the trolley-pole against further upward movement.

12. The combination in an apparatus substantially as described, of a trolley-pole having a main pivot at its lower end, a track extending longitudinally from the base of the trolley-pole and provided with a rack, and a dog carried by the trolley-pole, the dog and rack being movable relatively and arranged to be thrown into engagement on the initial upward movement of the trolley-pole on escaping from the wire, whereby to lock the trolley-pole against further upward movement substantially as described.

13. The combination in an apparatus substantially as described, a trolley-pole, the track extending longitudinally from the base of the trolley-pole, and provided with a rack, a dog movable longitudinally along the track and into and out of engagement with the rack, and connections between the dog and the trolley-pole.

14. The combination with the trolley-pole, of a track extending longitudinally from the base of the trolley-pole, a carrier movable along the track, a rocker pivoted at one end to the carrier and movable therewith along the track, and provided at its other end with a dog movable into and out of engagement with the track, and a connecting-rod between the rocker and the trolley-pole.

787,811. **FLOATING CURRENT-WHEEL.** PHINEAS M. WARREN, Nyssa, Oreg., assignor of one-half to Thomas J. Huff, Nyssa, Oreg. Filed Mar. 22, 1904. Renewed Mar. 18, 1905. Serial No. 250,808.



Claim.—1. A floating current-wheel consisting of an axial shaft, a series of buoyant hollow buckets arranged parallel to the said shaft in circular series around the shaft and removed from the same, a circular brace connecting the buckets, and a series of radial hollow spokes communicating at their outer ends with the inner edges of the buckets and at their inner ends being connected with the central shaft and having openings as described whereby the hollow spokes form an integral part of the wheel and also act as drainage-tubes substantially as described.

2. A floating current-wheel, consisting of a connected series of buoyant hollow buckets, tubular radial spokes connected to and communicating with the interior of the buckets, said tubular spokes being connected at their inner ends and provided with lateral outlets substantially as and for the purpose described.

3. A floating current-wheel, consisting of a series of parallel hollow buckets made diamond shape in cross-section, a ring connecting the outer angles of the diamond, a ring connecting the inner ends of the diamond, an axial shaft and spokes connecting the buckets to the shaft substantially as shown and described.

787,812. **SHOE-LACE FASTENER.** GEORGE WEINBERG, Pittsfield, Mass. Filed Aug. 30, 1904. Serial No. 222,583.



Claim.—The combination with a shoe having a front opening in its upper portion, of a series of hooks at each side of said opening, each of said hooks comprising a stem of cylindrical shape, a flange at the upper end of the stem and projecting laterally away from the front opening of the shoe to an extent less than the thickness of the shoe-lace, a shoe-lace engaged with the shoe and with the hooks, and an elastic retaining-strap bridging the opening of the shoe above the hooks and attached to the shoe at both sides of said opening.

787,813. **BROOM-GUARD.** STEPHEN G. WILSON, Philadelphia, Pa. Filed Feb. 26, 1904. Serial No. 195,351.



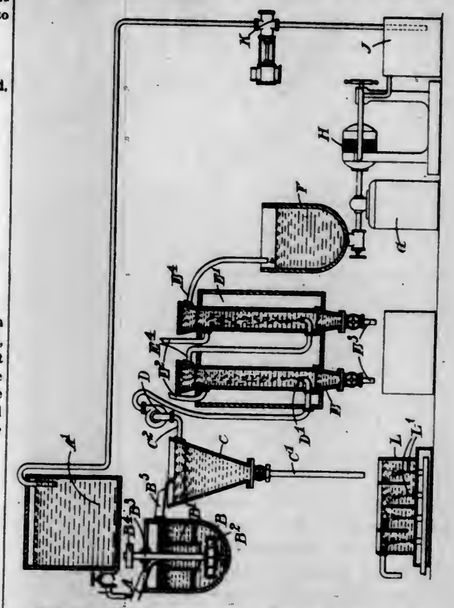
Claim.—1. A detachable resilient broom-guard comprising two wires each having an arch-shaped portion with an integral spring therein contacting with the face of the broom, the ends of said wires being united at the edges of the broom and bent to form hooks detachably engageable with any of the lines of stitching on the broom.

2. A detachable resilient broom-guard comprising two wires each having an arch-shaped portion with an integral spring therein contacting with the face of the broom, the ends of said wires being twisted together at the edges of the broom and provided at their upper ends with inwardly-projecting reverted hooks detachably engageable with any of the lines of stitching on the broom.

787,814. **SEPARATION OF METALS FROM THEIR ORES.** JACOB D. WOLF, London, England. Filed May 22, 1903. Serial No. 158,346.

Claim.—1. The herein-described process of separating metals from their ores which consists in agitating pulps with oil until the oil has taken up all the metallic-mineral contents with some gangue, separating the mineral-bearing oil from the pulps, removing suspended particles of gangue from the oil by passing it through warm water and separating metallic minerals from the oil.

2. The herein-described process of separating metals from their ores which consists in agitating pulps with oil until the oil has taken up all the metallic-mineral contents with some gangue, separating the mineral-bearing oil from the pulps, removing suspended particles of gangue from the oil by passing it through warm water, separating metallic minerals from the oil which can be used again and recovering oil from the waste pulps by blowing air through them.



3. The herein-described process of separating metals from their ores which consists in agitating pulps with sulfo-chlorinated oil until the oil has taken up all the metallic-mineral contents with some gangue, separating the mineral-bearing oil from the pulps by flotation and removing suspended particles of gangue from the oil by passing the finely-divided oil upward through warm water.

4. The herein-described process of separating metals from their ores which consists in agitating pulps with sulfo-chlorinated oil until the oil has taken up all the metallic-mineral contents with some gangue, separating the mineral-bearing oil from the pulps by flotation, removing suspended particles of gangue from the oil by passing the finely-divided oil upward through warm water and filter-pressing the oil to separate out the metallic minerals from the oil.

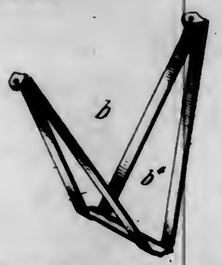
5. The herein-described process of separating metals from their ores which consists in agitating pulps with mineral oil mixed with viscous oil and treated with chlorid of sulfur until the oil has taken up all the metallic-mineral contents with some gangue, separating the mineral-bearing oil from the pulps by flotation, removing suspended particles of gangue from the oil by passing the finely-divided oil upward through warm water and filter-pressing the oil to separate out the metallic minerals from the oil.

6. The herein-described process of separating metals from their ores which consists in agitating pulps with mineral oil mixed with viscous oil and treated with chlorid of sulfur until the oil has taken up all the metallic-mineral contents with some gangue, separating the mineral-bearing oil from the pulps by flotation, removing suspended particles of gangue from the oil by passing the finely-divided oil upward through warm water, filter-pressing the oil to separate out the metallic minerals from the oil and removing oil-globules from the waste pulps by spraying jets of air and steam upward through the pulps and skimming off the oil which floats.

787,815. **WHEEL.** ARTHUR J. ADAMS, Chicago, Ill. Filed Oct. 8 1904. Serial No. 227,700.

Claim.—1. A wheel comprising a rim, spokes of sheet material having narrow tips joined directly to the rim and wide bases with outwardly-projecting tenons, and rings fitted and secured upon said

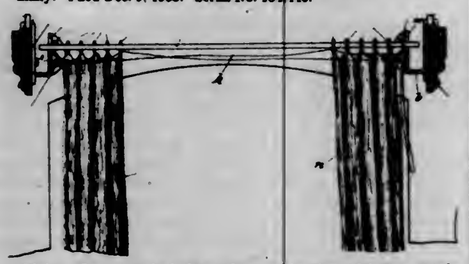
tenons and binding the bases of the spokes together, the spokes having triangular openings extending from base to tip, whereby inclined mutually-bracing members are afforded extending from hub to rim, for the purpose set forth.



2. A wheel comprising a rim, sheet-metal members, each cut and bent to form a central hub portion and two spokes having narrow tips and wide bases with outwardly-projecting tenons at said bases, said tips being bent and joined directly to said rim, the spokes having triangular openings extending from tip to base and webs at the bases forming said hub portions, whereby inclined mutually-bracing and base-connected members extending from hub to rim are afforded, and rings fitted and secured upon said tenons, for the purpose set forth.

3. A wheel comprising a rim, sheet-metal members, each cut and bent to form a central hub portion and two spokes having narrow tips and wide bases with outwardly-projecting tenons at said bases, said tips being bent and joined directly to said rim, the spokes having triangular openings extending from tip to base and webs at the bases forming said hub portions, whereby inclined mutually-bracing and base-connected members extending from hub to rim are afforded, a hub-tube interposed between said hub portions of said first-named members, and rings fitted upon said tenons, said hub-tube having end flanges securing said rings, for the purpose set forth.

787,816. CURTAIN-HOLDER. HEINRICH ALBERTS, Cologne, Germany. Filed Dec. 9, 1903. Serial No. 184,440.



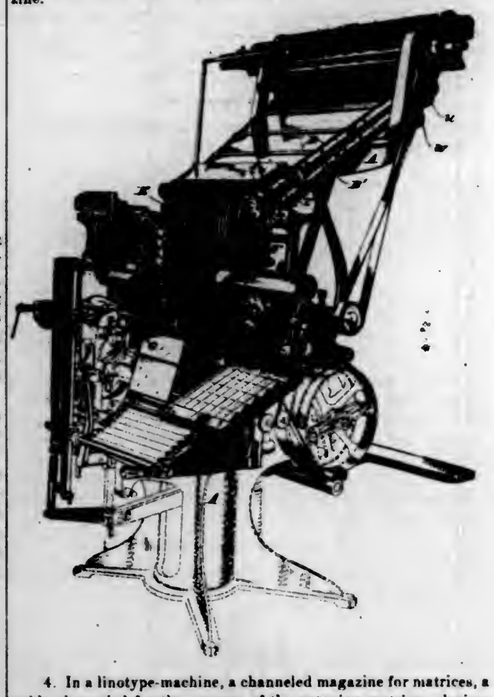
Claim.—In a curtain-holder, the combination with the curtain-frame, of flat iron pieces secured to the frame and having a plurality of bends, wall-hooks for engagement with said iron pieces, curtain-poles inserted through slots in said iron pieces, curtain-rings on said poles, curtains secured to said rings, pins inserted through said iron pieces and engaging said curtain-poles and the outer of said curtain-rings, bolts journaled in said iron pieces, and cords secured to the inner curtain-rings and passing over said bolts, substantially as described and for the purpose set forth.

787,817. LINOTYPE-MACHINE. CHRISTIAN A. ALBRECHT, Berlin, Germany, assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Apr. 27, 1904. Serial No. 205,083.

Claim.—1. In a linotype-machine, a detachable magazine, carrying matrix-releasing devices at its upper side, in combination with a main frame and devices mounted in the latter beyond the end of the magazine for operating the matrix-releasing devices, whereby the operation of said releasing devices is secured without extending them through the magazine and without impeding the removal and replacement of the latter.

2. In a linotype-machine, a plurality of magazines, each provided with matrix-releasing devices, a supporting-frame therefor, and means mounted in said frame beyond the delivery ends of the magazines for operating the releasing devices of one magazine or the other at will.

3. In a linotype-machine, a detachable magazine having a fixed operative position and provided with matrix-releasing escapements on the upper side, a supporting-frame, devices mounted in the frame exterior to the magazine and adapted to operate the escapements, and means for operating said devices from a point below the magazine.



4. In a linotype-machine, a channeled magazine for matrices, a guide channeled for the passage of the outgoing matrices, devices controlling the delivery of the matrices from the magazine, and operating means for said devices located exterior to the magazine and between the paths of the matrices.

5. In a linotype-machine, and in combination, two magazines, one overlying the other and each provided with matrix-delivering devices, a supporting-frame, and means seated in said frame independent of the magazine for actuating the releasing devices whereby the removal of one magazine independently of the other is permitted without disturbance of the actuating devices.

6. In a linotype-machine, magazines B B', one overlying the other, a fixed guide D independent of the magazines, with channels therethrough for the passage of the matrices, escapements in the magazines to control the discharge of matrices, and slides O mounted in the guide D and adapted to operate the escapements, whereby the removal of the magazine is permitted without disturbing the actuating-slides, and one set of slides adapted to actuate the escapements of a series of interchangeable magazines.

7. In a linotype-machine, a removable magazine provided with matrix-delivering escapements, a supporting-frame, means seated in the frame for actuating the escapements, and means for shifting the magazine endwise to effect the disengagement of the actuating devices preparatory to the removal of the magazine.

8. In a linotype-machine and in combination with a removable magazine, a supporting-frame, and a rock-shaft W, adapted to move the magazine endwise.

9. In a linotype-machine and in combination with a magazine removable endwise, means for temporarily holding the magazine in rear of its operative position preparatory to its removal.

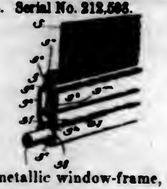
10. In a linotype-machine, the two magazines, one overlying the other and each provided with escapements, in combination with a stationary supporting-frame, channeled or slotted for the passage of the outgoing matrices, slides mounted in said frame exterior to the magazine and adapted to actuate the escapements of both magazines, and means for locking the escapements of either magazine at will.

11. In a linotype-machine, the combination of a magazine provided with escapements, a stationary supporting-frame, slides O, mounted in the frame exterior to the magazines and adapted to engage the escapements, slide-operating levers P, springs s^8 tending to move the escapements in one direction, springs S tending through the slides O to move the escapements in the opposite direction, means for moving the slides, means for preventing the escapement of matrices from either magazine at will.

12. In a linotype-machine, the combination of the matrix-magazine and channeled throat or entrance, detachably coupled to its upper end and instantly removable from the machine at will.

13. In a linotype-machine, the two magazines in combination with a double throat or entrance, detachably secured in position and adapted for instantaneous independent removal at will, whereby its removal is permitted preparatory to the removal of either magazine.

787,818. WINDOW-SCREEN. WILLIAM J. BAKER, Newport, Ky. Filed June 15, 1904. Serial No. 212,566.



Claim.—1. In a metallic window-frame, a spring-metal frame-section, having a flat base and parallel sides, the upper end of one of said sides being bent inwardly and terminating in a hook-shaped edge, the upper end of the other side being bent inwardly at an angle thereto, a locking member comprising a sheet-metal strip having a straight edge for entering the hook-shaped edge of the frame-section, and having its other edge bent inwardly to coöperate with the inwardly-bent edge of the second side portion of the frame-section all being arranged substantially as shown whereby to bring the body of the screen in a plane outside of the frame to prevent the water trickling down into the frame-section as set forth.

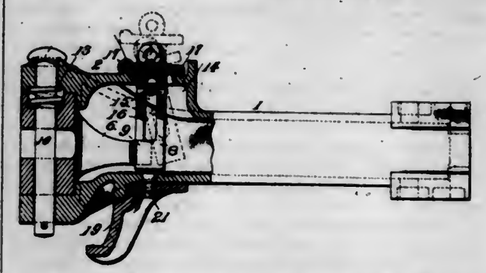
2. A screen comprising a metallic frame composed of side, top and bottom sections 3, and a screen-wire S, each of said sections 3 comprising a pair of sheet-metal strips 3^a 3^b, the strip 3^a being provided with a bent-over edge, hook-shaped in cross-section, the strip 3^b having its upper edge interlocked with said bent-over hook-shaped edge and having its lower portion provided with an inwardly-projecting member 3^m curved in cross-section, said strip 3^a having a correspondingly-formed inwardly-projecting portion 3^y to interlock with the member 3^m, the screen-wire being disposed between the pair of metal strips substantially as shown and described.

3. A screen-wire-clamping member, comprising, in combination with the screen-wire, a sheet-metal strip having its upper edge bent over into a hook shape, and having its other edge bent and curved in cross-section, a second sheet-metal strip held in the hook portion of the first sheet-metal strip and having its lower edge bent and curved in cross-section, to interlock with the bent curved edge of the first strip, said screen-wire being disposed between the two strips and held between and clamped by the upper edge of the second strip and the bent-over hook-shaped edge of the first strip substantially as shown and described.

4. A screen including a frame comprising, in combination with the screen-wire, a sheet-metal strip having its upper edge bent over into a hook shape and having its other edge bent and curved in cross-section, a second sheet-metal strip having its upper edge held in the hook portion of the first sheet-metal strip and having its lower edge bent and curved in cross-section to interlock with the bent curved edge of the first strip, said screen-wire being disposed between the two strips and held between and clamped by the upper edges of the said strips, and a stiffener-rod disposed within said frame, substantially as shown and described.

5. A screen including a frame comprising, in combination with the screen-wire, a pair of interlocked sheet-metal strips 3^a 3^b, one of said strips 3^a, having an inwardly-bent portion 3^d and an upwardly-extending portion 3^e and a hook-shaped bent-over edge portion 3^z said strip 3^b being also provided with a U-shaped portion having an inwardly-bent member 3^r curved in cross-section, said second strip having an upper edge 3^p for coöperating with the hook-shaped edge 3^z and an inwardly-bent member 3^m for coöperating with the similarly-formed member 3^r, said first and second strips being so arranged as to hold the screen-wire between their upper interlocked portions and to be interlocked with each other, and said hook-shaped edge 3^z being adapted to hold the screen-wire in a vertical plane outside of the vertical plane of the second sheet-metal strip substantially as shown and for the purposes specified.

787,819. CAR-COUPLING. GEORGE W. BARFIELD, North Birmingham, Ala. Filed Jan. 4, 1905. Serial No. 239,640.

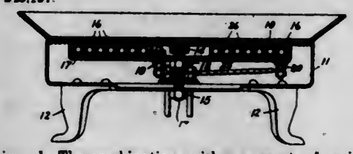


Claim.—1. The combination with the draw-head having a pivoted knuckle and an opening in its top, and a rib surrounding said opening, of the locking-pin fitted in said opening and having a flange for engaging said rib, said rib being higher at one point than another to form a fulcrum for said pin.

2. The combination with the draw-head having a pivoted knuckle and an opening in its top, and a rib surrounding said opening, the forward portion of said rib being of greater height than the remaining portions thereof, of the locking-pin fitted in said opening and having a flange surrounding said rib, that portion of the flange engaging the higher portion of the rib being higher than the remaining portions of said flange.

3. The combination with the draw-head having an opening and a rib or ridge surrounding said opening, of a knuckle, and a pivot-pin therefor fitted in said opening and having its head formed with a groove to accommodate said ridge, said groove being some distance inwardly from the periphery of said head.

787,820. INSULATION FOR ELECTRIC CONDUCTORS. LAWRENCE E. BARRINGER, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Jan. 30, 1905. Serial No. 243,197.



Claim.—1. The combination, with a support, of an insulation thereon comprising a coating of a fusible adhesive substance, and particles of an insulating material fusible only at a higher temperature than said adhesive substance embedded in said adhesive coating and projecting beyond the outer surface of the same.

2. The combination, with a support, of an insulation thereon comprising a coating of enamel, and particles of relatively refractory insulating material embedded in said enamel and projecting beyond the outer surface of the same.

3. The combination, with a support, of an insulation thereon comprising a coating of a low-fusing adhesive substance, and particles of quartz embedded in said adhesive coating and projecting beyond the outer surface of the same.

4. The combination, with a support, of an insulation thereon comprising a coating of enamel, and particles of crushed quartz embedded in said enamel and projecting beyond the outer surface of the same.

5. The combination of an electrical conductor, a support therefor, and insulation between said conductor and support comprising a layer of insulating particles held together by a coating of adhesive material having a thickness less than the thickness of the layer of particles.

6. The combination of an electrical conductor, a support therefor, and insulation between said conductor and support comprising a layer of insulating particles having a high fusing-point and a binder for said particles having a thickness less than the thickness of said layer of particles and having a lower fusing-point.

7. The combination of an electrical conductor, a support therefor, and insulation between said conductor and support comprising a layer of crushed quartz particles held together by a coating of adhesive material having a thickness less than the thickness of the layer of particles.

8. The combination of an electrical conductor, a support therefor, and insulation between said conductor and support comprising a layer of insulating particles held together by a coating of enamel having a thickness less than the thickness of the layer of particles.

9. The combination of an electrical conductor, a support therefor, and insulation between said conductor and support comprising a layer of crushed quartz particles held together by a coating of enamel having a thickness less than the thickness of the layer of particles.

10. The combination with a support, of an insulation thereon comprising a layer of insulating particles having a high fusing-point, and a non-carbonizable binder for said particles having a lower fusing-point.

11. The combination with a support, of an insulation thereon comprising a layer of insulating particles having a high fusing-point, and an incombustible binder for said particles having a lower fusing-point.

12. The combination with a support, of an insulation thereon comprising a coating of enamel, and particles of insulating material embedded in said enamel.

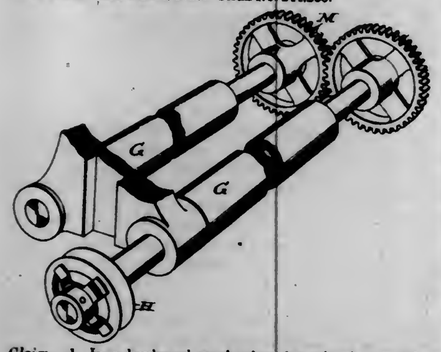
13. The combination with a support, of an insulation thereon comprising a coating of a low-fusing adhesive substance, and particles of crushed quartz embedded therein.

14. The combination with a support, of an insulation thereon comprising a coating of enamel, and particles of quartz embedded therein.

15. An electrical heater comprising a resistance-wire supported between two metal bodies and insulated by a vitreous coating and an adhesive layer of insulating fragments infusible at a red heat of the wire.

16. The combination of a resistance-wire fusing above a red heat, a support therefor covered with vitreous insulation, and a spacer between the two consisting of a material which is neither softened nor decomposed at a red-heat temperature of the conductor, said material being affixed to the vitreous insulation when the latter is soft.

787,821. **LINOTYPE-MACHINE.** RICHARD M. BEDELL, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Feb. 4, 1905. Serial No. 244,206.



Claim.—1. In a keyboard mechanism for releasing matrices, comprising two series of cam-actuated levers and two rolls for actuating the cams, positive driving connections between said rolls, whereby the actuation of the parts in equal times by the two rolls is insured and the transposition of the matrices prevented.

2. In a linotype-machine, the combination of a series of matrix-releasing escapements, two series of yokes and connections for actuating the alternate escapements, actuating-cams mounted in said yokes, and two cam-actuating rolls and gears connecting said rolls.

3. In combination with the magazine, A, escapements B and springs *b*, actuating-reeds, D, springs C, cam-carrying yokes E, arranged in two series, two corresponding rolls, positive driving connections between said rolls, and finger-key connections controlling the respective yokes, whereby the uniform delivery of the matrices is secured and transpositions prevented, notwithstanding the variable resistance offered to the respective rolls.

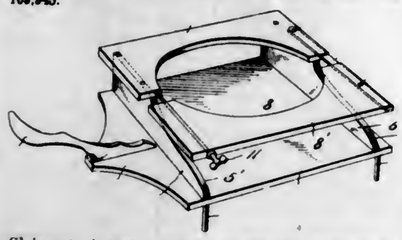
787,822. **ANTI-INCRUSTATION FLUID.** MATTHEW S. BELL, Mayfair, near Johannesburg, Transvaal. Filed Feb. 23, 1905. Serial No. 246,869.

Claim.—1. An anti-incrustation fluid for steam-boilers produced by boiling in water black treacle, wattle-bark, leather (tanned skins of animals) licorice-root and caustic soda in suitable quantities or proportions.

2. An anti-incrustation fluid for steam-boilers produced by boiling in water black treacle, wattle-bark, shreds or shavings of leather, licorice-root and caustic soda substantially in the proportions hereinbefore specified.

3. An anti-incrustation fluid for steam-boilers produced by boiling slowly in water thirty-eight and six-thirteenths percentum black treacle, nineteen and three-thirteenths per cent. wattle-bark, nine and eight-thirteenths per cent shreds or shavings of leather, three and eleven-thirteenths per cent. licorice-root and twenty-eight and eleven-thirteenths per cent. of caustic soda, substantially as described.

787,823. **FRUIT-JAR HOLDER AND SPIRAL WRENCH.** SAMUEL J. BLOCHER, Bentonville, Ark. Filed Aug. 18, 1903. Serial No. 169,945.



Claim.—1. A device of the class described comprising a base, uprights secured thereto and having their ends inclined toward one edge of the base, a fixed jaw secured to the uprights, a movable jaw pivotally connected to the fixed jaw and disposed above the inclined ends of the uprights, and means for maintaining the movable jaw in clamping position.

2. A device of the class described comprising a base, uprights secured thereto and having their ends inclined toward one edge of the base, a fixed jaw secured to the uprights and provided with a marginal recess, a movable jaw disposed above the inclined ends of the uprights and also provided with a marginal recess, a rod engaging said recesses and forming a pivotal connection between said jaws, and a clamping-screw extending through the movable jaw and engaging the fixed jaw for maintaining the former in clamping position.

787,824. **PROCESS OF MAKING BLACK DYES.** RENÉ BOHN, Mannheim, Germany, assignor to The Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Apr. 29, 1904. Serial No. 205,587.

Claim.—1. The process for the production of coloring-matters by condensing naphthazarin with a sulfo-acid of an aromatic amin.

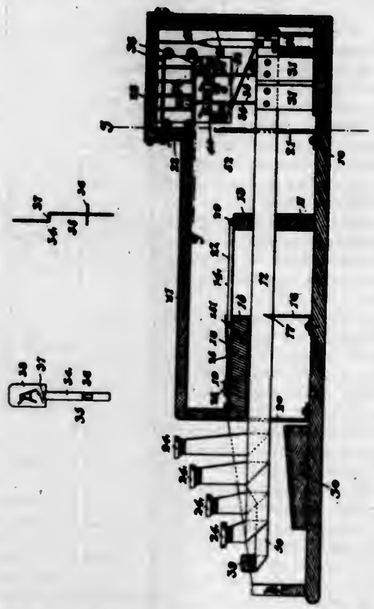
2. The process for the production of coloring-matter by condensing naphthazarin with metanilic acid.

787,825. **FINGER-EXERCISER FOR STUDENTS OF TYPEWRITING.** JOHN T. BRATTIN, Irvington, N. J., assignor of one-half to William G. Rensland, Newark, N. J. Filed Sept. 30, 1904. Serial No. 226,621.

Claim.—1. The improved finger-exerciser for students of typewriting comprising a case raised at the rear end and having a hinged lid or cover at said rear, and at the front having an opening through which the key-levers may extend, a fulcrum within said case, a series of finger-key levers having finger-keys at said opening, and a series of vertically-sliding indicator-plates arranged to be lifted into view by said finger-key levers, and means for holding said indicator-plates in elevated positions after the return of said key-levers to their normal positions, substantially as set forth.

2. The improved finger-exerciser, comprising a case, a series of levers within said case and adapted to be worked by the fingers of the student, and sliding indicating-plates operated by said levers, the levers at their ends opposite the finger-keys extending beneath said sliding plates to raise the same when said levers are pressed by the fingers, substantially as set forth.

3. The improved finger-exerciser, comprising a case, a series of levers within said case and adapted to be worked by the fingers of the student, and indicating-plates operated by said levers, and means for holding said indicating-plates in an elevated position temporarily after having been acted on by said levers and the descent of said levers from said plates, substantially as set forth.



4. The improved finger-exerciser, comprising a case, a series of levers within said case and adapted to be worked by the fingers of the student, indicating-plates operated by said levers, and a resting-bar on which said indicating-plates may be seated, substantially as set forth.

5. The improved finger-exerciser, comprising a case, a series of levers adapted to be operated by the fingers of the student, indicating-plates adapted to be lifted by said levers, means movable independent of said levers for holding said plates in their raised positions and means for throwing the holding means from holding relation, substantially as set forth.

6. The improved finger-exerciser, comprising a case, a series of levers adapted to be operated by the fingers of the student, sliding indicating-plates adapted to be lifted by said levers, means for holding said plates in their raised positions and means for throwing the holding means from holding relation, substantially as set forth.

7. The improved finger-exerciser, comprising a case, a series of levers adapted to be operated by the fingers of the student, indicating-plates adapted to be lifted by said levers, a movable transverse seat adapted to enter beneath said indicating-plates for holding said plates in their raised positions, and means for throwing the holding means from holding relation, substantially as set forth.

8. The improved finger-exerciser, comprising a case, having finger-keys and connections adapted to transmit power therefrom to indicating-plates, said indicating-plates adapted to be moved into a position of exposure when said keys are operated, and slotted plates stationed adjacent to the finger-key connections, and holding said indicating-plates in position to be acted on by said keys and connections, substantially as set forth.

9. The improved finger-exerciser, in which is combined with the finger-key levers, a series of indicating-plates, each adapted to be lifted by one of said levers, and a transverse seat adapted to enter automatically into holding relation with the elevated plate and be engaged by said levers to effect a release of said indicating-plates, substantially as set forth.

10. The combination with the finger-keys and indicating-plates, of a transverse pivotal seat for said plates and a spring for operating said seat, substantially as set forth.

11. The combination with the finger-keys and indicating-plates, of a transverse pivotal resting-bar, a spring adapted to force the said bar into holding relation to said indicating-plates and means adapted to transmit motion from said keys to said resting-bars and indicating-plates.

12. The combination with a case open at the front and rear, of finger-keys at the front opening and indicating-plates at the rear opening, a transverse pivotal resting-bar, a spring adapted to force the said bar into holding relation to said indicating-plates and means adapted to transmit motion from said keys to said resting-bars and indicating-plates.

13. The combination with the finger-keys and indicating-plates of a transverse resting-bar movable to and from holding relation to said indicating-plates, a spring in connection with said bar and tending to force the said bar into plate-holding relation to said indicating-plates and means adapted to transmit motion from said keys to said resting-bars and indicating-plates.

14. In a finger-exerciser, the combination with the finger-key levers each having a notch on the under side, of a sheet-metal fulcrum extending into the notches of the said levers, said fulcrum extending transversely from lever to lever of the exerciser, a cross-piece on which the levers normally rest, a transverse pressure-bar lying on said levers, and a spring for effecting ample pressure upon the said levers, and indicating-plates adapted to be forced by said levers, at their ends opposite the finger-keys thereof, into positions of exposure to view, substantially as set forth.

15. In a finger-exerciser, the combination with the finger-key levers, and means for limiting movements of the same, of a spring-controlled cross-piece bearing on the said levers, a frame fastened to said cross-piece, the connection of said frame and cross-piece being at the opposite ends of the latter and said spring bearing on said frame near the center of said frame, substantially as set forth.

16. In a finger-exerciser, the combination with the key-levers and a cross-piece bearing down on said levers, of a wire frame fulcrumed at side and at its opposite side connected to said cross-piece, and a spring bearing on said frame at a point intermediate of the cross-piece fulcrum, substantially as set forth.

17. In a finger-exerciser, the combination with the key-levers and a cross-piece thereon, of a frame, bent at the center to form a spring bearing-arm and at its opposite ends having long arms extending to the cross-piece, and a spring bearing on said spring bearing-arm and forcing said frame and the cross-piece toward said key-levers substantially as set forth.

18. In a finger-exerciser, the combination with the key-levers and a cross-piece lying thereon, of a wire frame doubled at the center to form a spring bearing-arm, the bearing for the spring lying at the extremity of said arm, the opposite ends of said spring extending parallel with said spring bearing-arm and projecting in the direction of and beyond said spring bearing-arm and at the ends of the opposite projections or extensions being fastened to said cross-piece and a spring engaging the extremity of said spring bearing-arm, substantially as set forth.

19. In a finger-exerciser, the combination with the finger-key levers, of indicating-plates independent of the levers but disposed at the ends of said levers opposite the finger-keys thereof, and a spring for pressing the said ends opposite the finger-keys downward, while the indicating-plates raised by the levers remain temporarily in their elevated positions, substantially as set forth.

20. In a finger-exerciser, the combination with the finger-key levers, of indicating-plates disposed at the ends of said levers opposite the finger-keys and free to gravitate when released, means for holding said indicating-plates in indicated position, means for drawing the holding means automatically into holding relation, and a spring controlled by the cross-bar for resisting the pressure of the fingers on said finger-key levers, substantially as set forth.

21. In combination with the key-levers, and spring-controlled cross-bar, of a slotted indicating-plate holder, indicating-plates slidably arranged in the slots of said holder and having horizontally-projecting lips, a pivotal bar providing a seat for said lips, a spring for drawing the pivotal bar underneath said lips, substantially as set forth.

787,826. **DENTAL FLASK.** GEORGE L. BRUCE, Baltimore, Md., assignor to Ferdinand Groshans, Baltimore, Md. Filed Dec. 21, 1904. Serial No. 237,745.



Claim.—1. A dental flask comprising one or more receptacle-sections and each section having laterally-projecting side flanges for the reception of a lifting-tool.

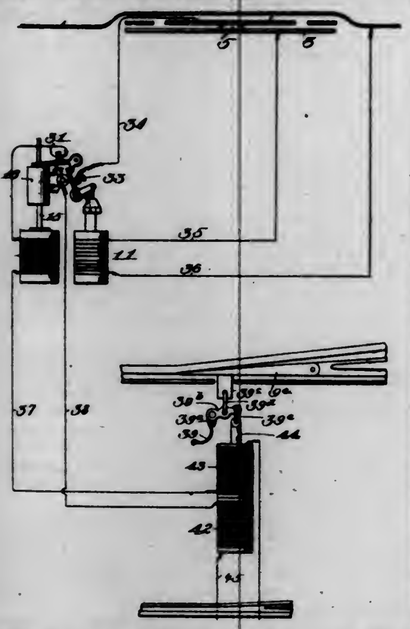
2. A dental flask having a laterally-projecting side flange provided with a perforation, and a cover-plate having a perforated lug projecting therefrom, said perforated side flange and perforated lug serving for the engagement of a lifting-tool.

3. A dental flask comprising a plurality of separable receptacle-sections and each of said sections adjacent their abutting edges having an exteriorly-projecting side flange for the reception of a lifting-tool, and the flange on one section being spaced from the flange on the next adjoining section for the reception of a prying-tool.

4. A dental flask comprising a plurality of receptacle-sections and each section having vertically-extending side flanges and a laterally-projecting perforated side flange adjacent said vertical side flange, as and for the purpose set forth.

787,827. ELECTRICALLY-CONTROLLED RAILWAY-SWITCH.

ROBERT V. CHEATHAM, Louisville, Ky., assignor to Cheatham Electric Switching Device Company, Louisville, Ky., a Corporation of Kentucky. Filed Aug. 9, 1904. Serial No. 220,137.



Claim.—1. An electrically-controlled railway-switch comprising means for automatically closing a main switch-tongue-throwing circuit when power is shut off from the car and for breaking said circuit when the trolley carried by the car has its travel momentarily arrested in the trolley-bracket, and means for automatically closing an auxiliary switch-tongue-throwing circuit when power is supplied to the car.

2. An electrically-controlled railway-switch comprising means for automatically closing a main switch-tongue-throwing circuit when power is shut off from the car and for breaking said circuit when the travel of the trolley is momentarily arrested in the trolley-bracket, said means provided with a retarder to prevent breaking of the said circuit during the uninterrupted travel of the trolley through the trolley-bracket when power has been shut off from the car, and means for automatically closing an auxiliary switch-tongue-throwing circuit during the supply of power to the car.

3. An electrically-controlled railway-switch involving a switch-tongue-throwing mechanism comprising a pair of solenoids, a core common to both solenoids and connected with and adapted to shift the switch-tongue when either of said solenoids are energized, and a bow-shaped spring connected with said core and adapted to retain the switch-tongue in its shifted position when the solenoids are de-energized.

4. An electrically-controlled railway-switch involving a circuit-changing mechanism, said mechanism comprising a pair of solenoids, one of which is provided with a retarder, a pair of levers adapted to contact with each other when one of said solenoids is de-energized and to be moved out of engagement with each other when the other of said solenoids is energized, and a contact-pin coöperating with one of said levers.

5. An electrically-controlled railway-switch involving a circuit-changing mechanism, said mechanism comprising a pair of solenoids, one of which is provided with a retarder, a pair of levers adapted to contact with each other when one of said solenoids is de-energized and to be moved out of engagement with each other when the other of said solenoids is energized, and a contact-pin coöperating with one of said levers, combined with a switch-tongue-throwing mechanism, a source of electrical energy, and suitable electrical connections between said source, lever, contact-pin, solenoids and switch-tongue-throwing mechanism.

6. An electrically-controlled railway-switch involving a circuit-changing mechanism interposed between a source of electrical energy and a switch-tongue-throwing mechanism, said circuit-changing mechanism comprising a pair of solenoids provided with movable cores, means carried by one of the solenoids for retarding the movement of its core, a pair of circuit making and breaking levers connected with said cores, a contact-pin coöperating with one of said levers, suitable electrical connections between the source of electrical energy and one of said levers, suitable electrical connections between the source of electrical energy and one of said solenoids, and suitable electrical connections between said contact-pin, the other of said solenoids, and said switch-tongue-throwing mechanism.

7. An electrically-controlled railway-switch involving a circuit-changing mechanism interposed between the source of electrical energy and the switch-tongue-throwing mechanism, said circuit-changing mechanism comprising a pair of solenoids, a movable core for each of said solenoids, a pair of circuit breaking and making levers adapted to contact with each other, means carried by the core of one of said solenoids for operating one of said levers when the solenoid is energized, and means carried by the core of the other of said solenoids for returning the other lever to its normal position after one of the levers has been operated.

8. An electrically-controlled railway-switch involving a circuit-changing mechanism interposed between the source of electrical energy and the switch-tongue-throwing mechanism, said circuit-changing mechanism comprising a pair of solenoids, a movable core for each of said solenoids, a pair of circuit breaking and making levers adapted to contact with each other, means carried by the core of one of said solenoids for operating one of said levers when the solenoid is energized, means carried by the core of the other of said solenoids for returning the other lever to its normal position after one of the levers has been operated, and a contact-pin adapted to be engaged by the lever which has been operated by the core of the energized solenoid.

9. An electrically-controlled railway-switch involving a circuit-changing mechanism interposed between the source of electrical energy and the switch-tongue-throwing mechanism, said circuit-changing mechanism comprising a pair of solenoids, a movable core for each of said solenoids, a pair of circuit breaking and making levers adapted to contact with each other, means carried by the core of one of said solenoids for operating one of said levers when the solenoid is energized, means carried by the core of the other of said solenoids for returning the other lever to its normal position after one of the levers has been operated, and a contact-pin adapted to be engaged by the lever which has been operated by the core of the energized solenoid, combined with electrical connections between the source of electrical energy and one of said levers and one of said solenoids, electrical connections between the other of said levers and the other of said solenoids, electrical connections between said contact-pin and the switch-tongue-throwing mechanism, and electrical connections between one of the solenoids and the switch-tongue-throwing mechanism.

10. An electrically-controlled railway-switch involving a circuit-changing mechanism for closing main and auxiliary switch-tongue-throwing circuits, said mechanism comprising a pair of solenoids, one for the main and the other for the auxiliary switch-tongue-throwing circuit, means for energizing said solenoids when closing their respective circuits, and a retarder carried by the solenoid in the main circuit to prevent the breaking of the main circuit when the solenoid of the main circuit is momentarily energized.

11. An electrically-controlled railway-switch involving a circuit-changing mechanism for closing main and auxiliary switch-tongue-throwing circuits, said mechanism comprising a solenoid in the main circuit, a solenoid in the auxiliary circuit, a movable core for each of said solenoids, contact means operated by the core of the solenoid in the auxiliary circuit when the said solenoid is energized thereby opening the main circuit and closing the auxiliary circuit, and means arranged within the solenoid in the main circuit for retarding the movement of its core when said solenoid is energized, thereby preventing the breaking of the main circuit.

12. An electrically-controlled railway-switch involving a circuit-changing mechanism for closing main and auxiliary switch-tongue-throwing circuits, said mechanism comprising a solenoid in the main circuit, a solenoid in the auxiliary circuit, a movable core for each of said solenoids, a lever connected with and actuated by the movable core of the solenoid in the auxiliary circuit when the solenoid is energized, a lever adapted to contact with the first-mentioned lever for closing the main circuit, means arranged in the solenoid in the main circuit for retarding the movement of the core thereof to prevent the disengagement of said levers and the opening of the main circuit when the solenoid in the main circuit is energized, and a contact-pin adapted to be engaged by the lever connected with the core of the solenoid in the auxiliary circuit when said solenoid is energized.

13. An electrically-controlled railway-switch involving a circuit-changing mechanism for closing main and auxiliary switch-tongue-throwing circuits, said mechanism comprising a solenoid in the main circuit, a solenoid in the auxiliary circuit, a movable core for each of said solenoids, a weighted lever connected with and actuated by the movable core of the solenoid in the auxiliary circuit when the solenoid is energized, a lever adapted to contact with the first-mentioned lever for closing the main circuit, means arranged in the solenoid in the main circuit for retarding the movement of the core thereof to prevent the disengagement of said levers and the opening of the main circuit when the solenoid in the main circuit is energized, and a contact-pin adapted to be engaged by the lever connected with the core of the solenoid in the auxiliary circuit when said solenoid is energized.

14. An electrically-controlled railway-switch comprising a double solenoid, a core common to both solenoids, suitable connections between said core and the switch-tongue, a solenoid, a movable core therefor, a lever connected to said core, suitable connections between said solenoid and the source of electrical energy, suitable connections between said lever and source of electrical energy, a solenoid, a movable core therefor, a retarder in said last-mentioned solenoid for the core thereof, a contact-pin, suitable electrical connections between said contact-pin and said double solenoid, a lever having a nose adapted to contact with said first-mentioned lever, and suitable electrical connections between said lever provided with a nose and said solenoid provided with a retarder.

15. An electrically-controlled railway-switch involving a switch-tongue-throwing mechanism, said mechanism comprising means connected with the switch-tongue for shifting it, a gasket for forming a seal, a brass nut for securing said gasket in position, and a bow-shaped spring for retaining the switch-tongue in shifted position.

16. An electrically-controlled railway-switch involving a switch-tongue-throwing mechanism, said mechanism comprising means connected with the switch-tongue for shifting it, a gasket for forming a seal, a nut for securing said gasket in position, and a bow-shaped spring for retaining the switch-tongue in shifted position.

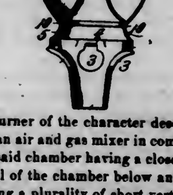
17. An electrically-controlled railway-switch involving a switch-tongue-throwing mechanism, said mechanism comprising a pair of solenoids suitably connected with an electrical source, a movable core common to both solenoids and connected with the switch-tongue for shifting it when the solenoids are energized, a gasket surrounding the solenoid, and adapted to form a sealing means, a brass nut for securing said gasket in position, and a bow-shaped spring for retaining the switch-tongue in its shifted position

18. An electrically-controlled railway-switch involving a switch-tongue-throwing mechanism, said mechanism comprising a pair of solenoids suitably connected with an electrical source, a movable core common to both solenoids and connected with the switch-tongue for shifting it when the solenoids are energized, a gasket surrounding the solenoid and adapted to form a sealing means, a nut for securing said gasket in position, and a bow-shaped spring for retaining the switch-tongue in its shifted position.

787,828. ANESTHETIC-MASK.

HENRY CLAYTON, Philadelphia, Pa. Filed Oct. 11, 1904. Serial No. 228,002.

Claim.—1. A mask of the character stated, comprising a frame composed of wire and including a wire base portion, said base portion being bent to form a locking member engaging interlocking portions, wire bridge members secured to said base, said frame adapted to receive a cloth, a wire locking member having portions bent to engage said base bent portions to form a separable hinge connection therewith, said locking member adapted to be sprung over said bridge members to hold the cloth in place and to hold the locking member with its bent-base-engaging portions in engagement with the base substantially as shown and described.



2. A mask of the class described comprising a base, bent into the desired shape to form a body portion, a neck portion and a hook portion, said neck portion including S-shaped bends to form bearing portions, a plurality of wire members secured to said base and forming a cage portion to receive a cloth thereover, a locking member bent to form bearing portions to coöperate with the S-shaped bearing portions of the base, said locking member adapted to be sprung over said cage portion to hold the cloth in place.

3. A mask of the class described, comprising a base, bent into the desired shape to form a body portion, a neck portion and a hook portion, said neck portion including S-shaped bends to form bearing portions, a plurality of wire members secured to said base and forming a cage portion to receive a cloth thereover, a locking member bent to form bearing portions to coöperate with the S-shaped bearing portions of the base, said locking member adapted to be sprung over said cage portion to hold the cloth in place, and means for holding said locking member from lateral displacement.

4. A mask of the character described, comprising a wire frame or cage to receive a cloth, said frame or cage comprising a wire base portion, and wire bridge members connected thereto, said wire base portion being bent to form engaging portions, a locking member having bent portions for engaging with the engaging portions of the base member forming a hinge connection therewith, said locking member adapted to be sprung over said bridge members to hold the cloth in place and said locking member being removably connected to said base member at its base-member-engaging portions, substantially as shown and described.

787,829. GAS STOVE OR HEATER.

HERBERT CLAYTON, Brooklyn, N. Y. Filed Jan. 19, 1905. Serial No. 241,834.



Claim.—1. A burner of the character described, comprising a receiving-chamber, an air and gas mixer in communication with the receiving-chamber, said chamber having a closed upper utensil-supporting end, the wall of the chamber below and adjacent its closed supporting end having a plurality of short vertical narrow slots arranged around the chamber and forming a burner at the upper end only of said chamber.

2. A burner of the character described, including a receiving-chamber having a vertically-arranged burner formed around its upper portion, and an outwardly-extending flange above the burner, a closure for the receiving-chamber above the burner, the closure having a recess to receive the flange, and prongs projecting over the flange, the flange having a notch adapted to register with one of the prongs to permit the assembling and disassembling of the parts, and an air and gas mixer communicating with the receiving-chamber.

3. A burner of the character described, including a shell-like receiving-chamber having a vertically and circumferentially arranged burner at its upper portion, the shell having an upper open

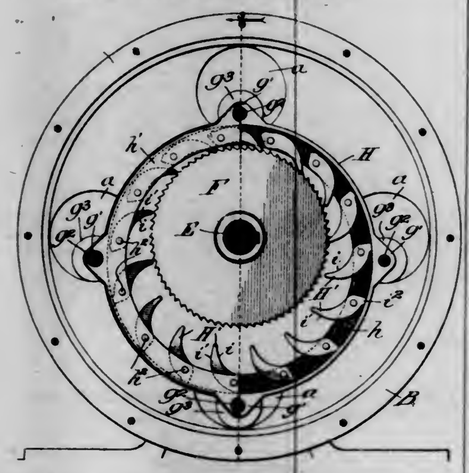
end above the burner, and a closure for the open end of the shell, the closure and the shell having detachable interlocking members, and an air and gas mixer in communication with the receiving-chamber.

4. A burner of the character described, including a shell-like receiving-chamber having a circumferentially and vertically arranged burner at its upper portion, and an outwardly-extending flange above the burner, a closure for the upper end of the shell which includes a ring having a recess in its under side, a disk placed in the said recess, the recess adapted to receive the shell flange outside of the disk, the ring having members adapted to interlock with the said flange.

5. An improved burner, including a receiving-chamber the wall of which is provided with a plurality of upwardly-arranged slits circumferentially assembled in respect to the receiving-chamber, the walls between the slits being arranged to form deflectors for the issuing mixture, and an air and gas mixer in communication with the receiving-chamber.

6. An improved burner, comprising a receiving-chamber the wall of which is provided with a plurality of upwardly-extending slits arranged circumferentially in respect to the receiving-chamber, the walls of the slits extending at an angle to the wall of said chamber for the purpose described.

787,830. **VARIABLE-SPEED GEARING.** WILLIAM C. CONANT, Atlanta, Ga. Filed Oct. 18, 1904. Serial No. 228,914.



Claim.—1. The combination with driving and driven bodies, of variable-speed gearing interposed between them having positively-engaging members one of which is yieldable relatively to the other to maintain them in rolling contact, and one transversely adjustable with relation to the other to change the relative diameters of their engaging parts.

2. The combination with driving and driven bodies, of variable-speed gearing interposed between them having toothed intermeshing engaging members one of which is yieldable with relation to the other to maintain them in rolling contact, and one transversely adjustable with relation to the other to change the relative diameters of their pitch-circles.

3. The combination with driving and driven bodies, of variable-speed gearing, interposed between them, having positively-engaging members in rolling contact transversely adjustable one with relation to the other to change the relative diameters of their engaging parts, and means for giving gyratory motion to one of said members.

4. The combination with driving and driven bodies, of variable-speed gearing interposed between them having toothed engaging members one of which is yieldable relatively to the other to maintain them in rolling contact, and one transversely adjustable with relation to the other, the teeth of one member being radially yielding under pressure against them of the other member to change the relative diameters of their pitch-circles.

5. The combination with driving and driven bodies, of variable-speed gearing interposed between them having movable positively-engaging members one of which is yieldable relatively to the other to maintain them in rolling contact, the members being operatively connected with said bodies respectively, and one member being transversely adjustable with relation to the other to change the relative diameters of their engaging parts.

6. The combination with driving and driven bodies, of variable-speed gearing interposed between them having a rotary toothed member operatively connected with one of said bodies, a toothed gyratory member operatively connected with the other of said bodies and meshing with said rotary member, the teeth of one of the said members being yielding, and means for adjusting the members transversely one with relation to the other to change the relative diameters of their engaging parts.

7. The combination with driving and driven bodies, of variable-speed gearing interposed between them having positively-engaging members in rolling contact one of which rotates and the other of which is eccentric to the first and gyrates, means for adjusting the gyratory member transversely to vary its eccentricity and thereby change the relative diameters of the engaging parts of the members.

8. The combination with driving and driven bodies, of variable-speed gearing interposed between them having positively-engaging members one of which rotates and the other of which is eccentric to the first and gyrates, means for adjusting the gyratory member transversely to vary its eccentricity and thereby change the relative diameters of the engaging parts of the members, and an adjustable counterbalance for the said gyratory member.

9. In a variable-speed gearing, the combination with driving and driven shafts in alinement with each other, of a member comprising a ratchet-wheel on one shaft, an eccentric internally-toothed gyratory member on the other shaft around and engaging the other member in rolling contact, the teeth of one of the said members being radially yielding, and means for changing the eccentricity of the said gyratory member.

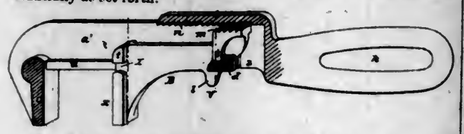
10. In a variable-speed gearing, the combination with driving and driven shafts in alinement with each other, of a casing into which the shafts extend and in which they are journaled near adjacent ends, a cam and crank, carried by one shaft, relatively adjustable with each other, a cam-block pivoted to the crank and adjusted by the said cam, an internally-toothed gyratory member surrounding the cam-block and held by the casing against axial movement, a rotary member in the form of a ratchet-wheel carried by the other shaft within the gyratory member and meshing therewith, substantially as and for the purpose set forth.

11. In a variable-speed gearing, the combination with driving and driven shafts in alinement with each other, of a casing into which the shafts extend and in which they are journaled near adjacent ends, a cam and crank carried by one shaft relatively adjustable with each other, a cam-block pivoted to the crank and adjusted by the said cam, an internally-toothed gyratory member surrounding the cam-block and held by the casing against axial movement, a rotary member in the form of a ratchet-wheel carried by the other shaft within the gyratory member and meshing therewith, and a counterbalance for the gyratory member adjustable therewith, substantially as and for the purpose set forth.

12 In a variable-speed gearing, the combination of a casing, driving and driven shafts extending into the casing in alinement with each other, oppositely-extending cams on the inner end portion of one shaft, a quill on the same shaft carrying a double crank, means for adjusting the quill and shaft to change the positions of the said cams with relation to the said crank, a cam-block on one of said cams pivotally connected with one end portion of the crank, a counterbalance on the other of said cams pivotally connected with the opposite end portion of said crank, an internally-toothed gyratory member loosely surrounding the cam-block, there being guide-recesses in the casing with which the gyratory member engages to hold it against axial movement, and a rotary member comprising a ratchet-wheel on the other of said shafts within and meshing with the gyratory member, the teeth of one of the said members being yielding, all constructed and arranged to operate substantially as and for the purpose set forth.

787,831. **NUT-WRENCH.** FRANK G. CORNELL, Louisville, Ky., assignor of one-fourth to Augustus B. Wilson, Louisville, Ky. Filed Mar. 23, 1904. Serial No. 200,304.

Claim.—1. In a wrench the combination of the fixed jaw, its jaw-bar having a space within the same and inwardly-projecting teeth *n* at the back of the jaw-bar in said space, and the movable jaw-bar fitting and slidable in said space, having a jaw at its forward end, backwardly-projecting teeth *m* at its rear end, and an adjusting-trigger extending down from the movable jaw-bar near the rear end of the latter in a direction transverse to the direction of sliding, substantially as set forth.



2. In a wrench the combination of the fixed jaw, its jaw-bar having a space within the same and inwardly-projecting flanges or guides *w*, with a slot between them and having inwardly-projecting teeth *n* in said space, and the movable jaw-bar fitting within said space, having means whereby it at its forward end engages said flanges to slide and tilt thereon and having backwardly-projecting teeth *m* at its rear end, substantially as set forth.

3. In a wrench the combination of the fixed jaw-bar having parallel side bars *a'* arranged with a space and a slot between them, the fixed jaw uniting the side bars at the forward end, the handle uniting the side bars at the rear end, the serrated arch *c* at the back of the rear part of the side bars, the movable jaw-bar mounted between the side bars with its jaw extending through said slot at a point between the handle and the fixed jaw and teeth *m* on the movable jaw-bar adapted to engage the serrations of said arch, substantially as set forth.

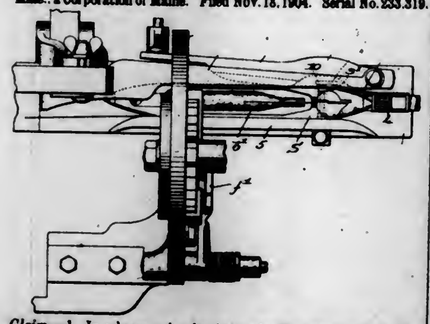
4. In a wrench the combination of the fixed jaw-bar having an interior space and inwardly-projecting guides *w*, inwardly-projecting teeth *n* in said space, the sliding jaw-bar mounted in said space on said guides and longitudinally movable and tiltable on the same, and backwardly-projecting teeth on the sliding jaw-bar arranged for engagement with the teeth *n*, the guides being provided at the rear end with a stop adapted to be upset as described to retain the sliding jaw-bar, substantially as set forth.

5. In a wrench the combination of the fixed jaw, its jaw-bar having a space within the same and inwardly-projectng teeth at the back of the jaw-bar in said space, and the movable jaw-bar fitting and slidable and tiltable in said space, having a jaw at its forward end and having at its rear end a backwardly-extending lug *j* arranged to engage said teeth, and an adjusting-trigger extending without the fixed jaw-bar near the rear end of the same, substantially as set forth.

6. In a wrench, the combination of the fixed jaw-bar and the sliding jaw-bar, one of said parts being provided with a stop arranged to be upset by the operation of the sliding jaw-bar, to contract the space by which the sliding jaw-bar must be removed and thereby prevent the accidental separation of the parts of the wrench, substantially as set forth.

7. In a wrench the combination of a fixed jaw and bar and a movable jaw and bar both shaped for mutual engagement and sliding, the movable jaw-bar being laterally insertible into a space within the fixed jaw-bar, and a stop adapted to be upset after the insertion of the movable jaw-bar, substantially as set forth.

787,832. **SHUTTLE-LOCKING MEANS FOR LOOMS.** HENRY CORT, West Warren, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 18, 1904. Serial No. 233,319.



Claim.—1. In a loom, a lay having a shuttle-box, a picker, and means movable therewith to automatically lock the shuttle in the box and prevent rebound.

2. In a loom, a lay having a shuttle-box, a picker, means movable therewith to automatically lock the shuttle in the box as it moves to the end of its stroke with the picker, and means to release the shuttle by or through the inward stroke of the picker.

3. A loom having in combination a lay provided with a shuttle-box, a picker, a locking member carried thereby, and means to effect positive engagement of the said member and the shuttle as the latter reaches the end of its stroke.

4. A loom having in combination a lay provided with a shuttle-box, a picker, means to temporarily and positively connect the picker and the incoming shuttle to prevent its rebound, and a controlling device for said means.

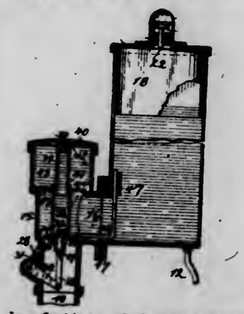
5. A loom having in combination a lay provided with a shuttle-box, a picker, a spring-catch mounted thereon, a shuttle having a recess to be engaged by the catch, to effect the connection of the shuttle with the picker, and a controller fixedly mounted on the lay, to press the catch into engagement with the shuttle as the latter reaches the end of its stroke, the catch releasing the shuttle when the inward stroke of the picker has carried the catch beyond the range of the controller.

6. In a loom, in combination, mechanism to automatically insert a fresh supply of filling in the shuttle, a picker, and automatic means movable therewith to automatically lock the shuttle in position to receive a fresh supply of filling, said means releasing the shuttle by or through the inward stroke of the picker.

7. In a loom, in combination, mechanism to automatically insert a fresh supply of filling in the shuttle, a picker, a yielding catch mounted thereon and having a projection at its inner end, a shuttle having a recess adapted to receive said projection when the shuttle is to be locked, and means on the lay to force the projection into the recess when the shuttle has reached a predetermined point in its movement, to thereby retain the shuttle in position for filling replenishment.

8. In a loom, a lay provided with a shuttle-box, a binder, a picker, and means movable therewith and operating independently of the binder to lock the shuttle from rebound and to automatically release it by or through the inward stroke of the picker.

787,833. **FLUSHING OUTFIT FOR CLOSETS.** THOMAS F. CRARY, Middleport, Ohio, assignor to Silas W. Loller, McCracken, Pa. Filed Oct. 17, 1904. Serial No. 228,867.



Claim.—1. In a flushing outfit for water-closets, the combination of a storage-tank, a float fitted inside so as to rise and fall with the water-level, a flush-pipe in communication with the tank, a valve controlling this communication, means to open this valve and a push-rod supported so as to be raised by this opening of the valve into the path of the descending float whereby this latter closes the valve by means of the push-rod.

2. In a flushing outfit for water-closets, the combination of a storage-tank, a supply-pipe and a flush-pipe both in communication therewith, a valve controlling communication with the flush-pipe, means to open this valve, a push-rod supported in a position so as to be raised by this valve when opened, an air-valve at the top of the tank, a stem on its under side and projecting into the tank and a float fitted into this latter so as to be free to rise or fall with the water-level as the same moves therein so that when rising it closes the air-valve by acting on the stem thereof and when descending it opens this latter and thereafter closes the valve mentioned by acting on the push-rod described.

3. In a flushing outfit for water-closets, the combination of a storage-tank, a valve-housing and a flush-pipe, all arranged as shown, a main flush-valve controlling passage through the flush-pipe, a hol-

low valve-stem rising from the upper side of this valve, an auxiliary starting-valve fitted into this latter and surrounded by the hollow valve-stem which forms a valve-chamber therefor, a hollow valve-guide for this stem, both fitted for telescopic engagement with each other, openings whereby these hollow members are placed in open communication with the storage-tank and means for operating the valves, the engagement of these means being such that in their manipulation for opening, the starting-valve is opened first, permitting a preliminary discharge from the main tank through the hollow valve-stem and its hollow guide.

4. In a flushing outfit for water-closets, the combination of a storage-tank, a valve-housing and a flush-pipe all arranged as shown, a main flush-valve-controlling passage through the flush-pipe, a hollow valve-stem rising from the upper side of this valve, an auxiliary starting-valve fitted into this latter and surrounded by the hollow valve-stem which forms a valve-chamber therefor, a hollow valve-guide for this stem, both fitted for telescopic engagement with each other, a port near this upper end of the hollow valve-guide whereby this latter and the hollow valve-stem are placed in open communication with the storage-tank, means for adjusting the size of the passage through this port and mechanism for manipulating the valves, the operation being such that in opening, the starting-valve precedes the main valve, thereby permitting a preliminary discharge through the flush-pipe.

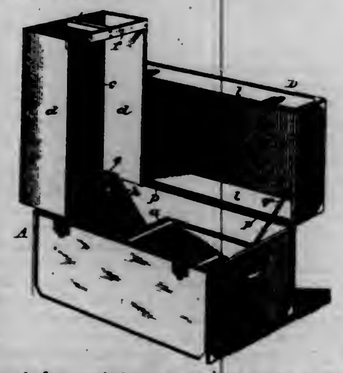
787,834. **NUT-LOCK.** JOHN T. CRENSHAW, Dermott, Ark. Filed Aug. 29, 1903. Serial No. 171,247.



Claim.—1. The combination with fish-plates having reversely-threaded openings, the openings in one fish-plate being tapered, of bolts having oppositely-threaded portions, the threaded portion adjacent the head being tapered, nuts and the locking-plates screwed upon the outer ends of the bolts, each locking-plate having one end bent under and adapted to engage the top of a nut, the opposite end of the plate having a rib adapted to engage the under side of the nut, substantially as described.

2. The combination with the bolt and nut, of a locking-plate having a threaded opening, one end of the plate being bent under and adapted to engage the top of the nut, the opposite end of the plate being provided with a rib adapted to be forced into engagement with the bottom sides of the nut, substantially as described.

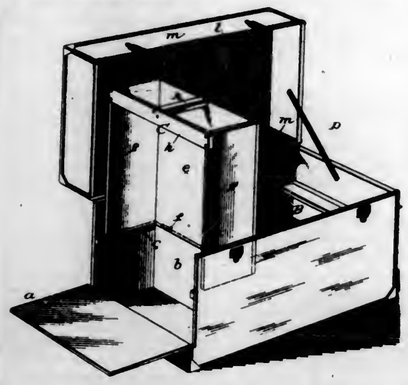
787,835. **TRUNK.** HERMAN DAVIS, New Orleans, La. Filed Jan. 3, 1905. Serial No. 239,406.



Claim.—1. In a wardrobe-trunk, the combination of a body, a swinging tray hinged at one end to one end of the body and comprising a main wall, side walls and a shallow inner end wall; said tray and body being so relatively arranged that when the tray is swung into a horizontal position it will project above the upper edge of the body, while when the tray is swung into an upright position the free edge of its shallow end wall will rest above the edge of one end wall of the body, and a top hinged to one side of the body and comprising a main wall and flanges, whereby when said top is closed it is adapted to receive the projecting portion of the tray.

2. In a wardrobe-trunk, the combination of a body, a swinging tray hinged to one upright wall of the body and comprising a main wall and side walls extending inwardly from said main wall; said tray and body being so relatively arranged that when the tray is swung into a horizontal position it will project above the upper edge of the body, and a top hinged to one upright wall of the body, other than the upright wall mentioned, and comprising a main wall and flanges, whereby when said top is closed it is adapted to receive the projecting portion of the tray.

787,836. **TRUNK.** HERMAN DAVIS, New Orleans, La. Filed Jan. 3, 1905. Serial No. 239,407.



Claim.—1. In a wardrobe-trunk, the combination of a body, a vertically-swinging tray hinged to the body adjacent to one upright end wall thereof and comprising a main wall and side walls; said tray and body being so relatively arranged that when the tray is swung into a horizontal position it will project above the body, and a top hinged to an upright wall of the body other than the end wall mentioned, and comprising a main wall and flanges; said top being arranged when closed to receive the upwardly-projecting portion of the tray.

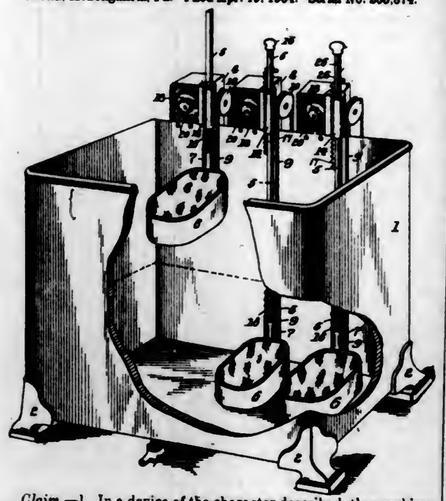
2. In a wardrobe-trunk, the combination of a body, a swinging tray hinged at one end in the body at an intermediate point in the length of the body and adjacent to one end thereof and comprising a main wall and side walls extending from the main wall toward the said end of the body; said tray and body being so relatively arranged that when the tray is swung into a horizontal position it will project partly above and partly below the upper edge of the body, and a top hinged to an upright wall of the body other than the end wall mentioned and comprising a main wall and flanges, whereby when said top is closed it is adapted to receive the upwardly-projecting portion of the tray.

3. In a wardrobe-trunk, the combination of a body, a swinging tray hinged to the body and comprising a main wall, side walls, a cross-bar connecting the free edges of the side walls at the outer ends thereof and a bar interposed between the main wall and the cross-bar and adapted to support garment-hangers or the like; said tray and body being so relatively arranged that when the tray is swung into a horizontal position it will project above and below the upper edge of the body, and a top hinged to the body and comprising a main wall and flanges, whereby when said top is closed it is adapted to receive the upwardly-projecting portion of the tray.

4. In a wardrobe-trunk, the combination of a body having a hinged, downwardly-swinging wall at one end, means for retaining said wall in its closed position, a swinging tray hinged at one end in the body at a point adjacent to the hinged end wall and comprising a main wall and side walls extending from the main wall toward the said hinged end wall of the body; said tray and body being so relatively arranged that when the tray is swung into a horizontal position it will project partly above and partly below the upper edge of the body, and a top hinged to an upright wall of the body, other than the first-mentioned wall, and comprising a main wall and flanges, whereby when said top is closed it is adapted to receive the upwardly-projecting portion of the tray.

5. In a wardrobe-trunk, the combination of a body having a transverse partition-wall of a less height than its other upright walls, a swinging tray comprising a main wall hinged at one end to the upper end of said partition-wall and side walls disposed at right angles to the main wall; said side walls being arranged to project upwardly from the main wall and above the upper edges of the body when the tray is in a horizontal position, and a top hinged to the body and comprising a main wall and flanges, whereby when said top is closed it is adapted to receive the upwardly-projecting portion of the tray.

787,837. **APPARATUS FOR BOILING EGGS.** CLARK A. W. DE VORE, Monongahela, Pa. Filed Apr. 19, 1904. Serial No. 203,874.



Claim.—1. In a device of the character described, the combination of a vertically-movable rod, a basket carried by said rod, a weight attached to the rod, a clockwork mechanism actuated by said rod in its upward movement and adapted to retard said upward movement.

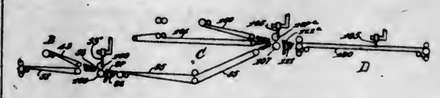
2. In a device of the character described, the combination of a vertically-movable rod having a rack on its side, a basket carried by said rod, a clockwork mechanism having a gear-wheel meshing with said rack, a weight connected to the rod and adapted to lift the same.

3. In a device of the character described, a vertically-movable rod having a rack arranged on one side, a pin adapted to limit the movement of the rod, a basket carried on the lower end of the rod, a weight connected to said rod, a clockwork mechanism meshing with said rack.

4. In a device of the character described, the combination with a vertically-movable rod having a rack on its side, a basket carried by said rod, a clockwork mechanism having a loose gear-wheel meshing with said rack, a dog on said gear-wheel engaging a ratchet-wheel on one shaft of said clockwork, and a weight connected to said rod, the said rack being of less length than the rod, so that at a certain position of the rod the rack will be disengaged from said gear-wheel.

787,838. **PAPER ASSEMBLING, STITCHING, AND FOLDING MACHINE.** TALBOT C. DEXTER, Pearl River, N. Y., assignor, by mesne assignments, to Dexter Folder Company, Pearl River, N. Y., a Corporation of New York. Filed Aug. 5, 1903. Serial No. 168,446.

Claim.—1. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to assemble sheets at a plurality of points, with controlling means constructed and arranged to be operated by the sheets or signatures assembled at one point to control the disposition of the sheets or signatures subsequently assembled at another point, substantially as set forth.



3. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to assemble sheets or signatures at a plurality of points, means conveying the assembled sheets or signatures to a common assembling-point, sheet-actuated controlling means constructed and arranged to control the sheets or signatures assembled at one point, and sheet-actuated controlling means adapted to determine the disposition of the sheets or signatures assembled at the common point of assembling, substantially as set forth.

4. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to assemble sheets at a plurality of points, with a plurality of independent sheet-actuated controlling devices, each of which devices controls the disposition of sheets assembled at one point, substantially as set forth.

5. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to assemble sheets at a plurality of points, with a plurality of sets of independent sheet-actuated tripping devices, and a plurality of sheet-controlling mechanisms, one of which is under control of each set of tripping devices, substantially as set forth.

6. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to successively assemble sheets or signatures at a plurality of points, with a plurality of sheet-actuated controlling devices, each of which controls the disposition of sheets or signatures assembled at one point, whereby the first-assembled sheets or signatures control the disposition of the subsequently-assembled sheets or signatures, substantially as set forth.

7. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to assemble sheets or signatures at a plurality of points, means conveying the assembled sheets or signatures to a common assembling-point, and a plurality of independent sheet-actuated controlling devices adapted to determine the disposition of the sheets or signatures assembled at the several points of assembling, substantially as set forth.

8. In a machine of the character described, the combination of a plurality of assembling mechanisms adapted to assemble sheets or signatures at a plurality of points, means conveying the assembled sheets or signatures to a common assembling-point, controlling means constructed and arranged to be operated by the sheets and signatures assembled at one point to control the disposition of sheets or signatures assembled at another point, and sheet-actuated controlling means adapted to determine the disposition of the sheets or signatures assembled at the common point of assembling, substantially as set forth.

9. In a machine of the character described, the combination of a main conveyer for assembling sheets or signatures, a sheet-controlling device interposed in the path of the main conveyer, a plurality of auxiliary sheet-conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer and adapted to control the sheet-controlling device of the main conveyer, an auxiliary sheet-controlling device interposed in the path of one of the auxiliary conveyers, a plurality of subauxiliary conveyers leading to one of the auxiliary conveyers, and a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer and controlling the sheet-controlling device of the auxiliary conveyer, substantially as set forth.

10. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a sheet-controlling device interposed in the path of the main conveyer, a plurality of auxiliary sheet-conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer and adapted to control the sheet-controlling device of the main conveyer, an auxiliary sheet-controlling device interposed in the path of each of the auxiliary conveyers, a plurality of subauxiliary conveyers leading to the assembling-point of the auxiliary conveyers,

and a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer and controlling the sheet-controlling devices of their respective auxiliary conveyers, substantially as set forth.

11. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a main sheet-deflecting switch interposed in the path of the main conveyer, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer and suitably connected with the main sheet-deflecting switch of the main conveyer, an auxiliary sheet-deflecting switch interposed in the path of one of the auxiliary conveyers, a plurality of subauxiliary conveyers leading to one of the auxiliary conveyers, and a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer and controlling the operation of the auxiliary switch, substantially as set forth.

12. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a device interposed in the path of the main conveyer adapted to act upon the assembled sheets or signatures, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer and suitably connected with first-named device, a sheet-deflecting switch interposed in the path of one of the auxiliary conveyers, a plurality of subauxiliary conveyers leading to the said auxiliary conveyer, and a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer and controlling the operation of the switch, substantially as set forth.

13. In a machine of the character described, the combination of a plurality of sheet-conveyers, a plurality of assembling-gages, one for each point of assemblage, a plurality of throw-out switches, one for each point of assemblage, and sheet-actuated means, the sheet-actuated means being constructed and arranged to be operated by the passing sheets or signatures and unitedly close said switches, substantially as set forth.

14. In a machine of the character described, the combination of three sheet-conveyers adapted to assemble sheets at a common point, means controlling the disposition of the sheets at the point of assemblage, a sheet-actuated tripping device supported in the path of each sheet-conveyer, means operatively connecting two of said tripping devices with the sheet-controlling means, and means connecting the third tripping device with one of the other tripping devices, substantially as set forth.

15. In a machine of the character described, the combination of a plurality of sheet-conveyers adapted to assemble sheets or signatures at a common point, sheet-controlling means constructed and arranged to control the disposition of sheets or signatures at the point of assemblage, a plurality of sheet-actuated tripping devices supported in the paths of some of said conveyers and operatively connected with the controlling means, and another sheet-actuated tripping device supported in the path of another one of said conveyers and operatively connected with one of the controller-connected tripping devices and detached from the controlling means, substantially as set forth.

16. In a machine of the character described, the combination of a plurality of sheet-conveyers adapted to assemble sheets at a common point, suitable controlling means including a movable controller-bar, members connected with said controller-bar for preventing its movement, a plurality of sheet-actuated tripping devices adapted to engage said controller-bar members, and another sheet-actuated tripping device operatively connected with one of said first-named tripping devices, substantially as set forth.

17. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a sheet-controlling device interposed in the path of the main conveyer, a plurality of auxiliary sheet-conveyers leading to said main conveyers, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, means connecting two of said tripping devices with the sheet-controlling device, and means connecting the third tripping device with one of the other two tripping devices, substantially as set forth.

18. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a sheet-deflecting switch interposed in the path of the main conveyer, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, controlling means suitably connected with the sheet-deflecting switch, means connecting two of the tripping devices with the controlling means, and a loose-joint connection between the third tripping device and one of the other two tripping devices, substantially as set forth.

19. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a sheet-controlling device interposed in the path of the main conveyer, a plurality of auxiliary sheet-conveyers leading to said main conveyer, a sheet-folding mechanism, means for cutting into two parts the sheets passed through said folding mechanism, means for conveying the two sections of said sheets to two of the auxiliary conveyers, and a sheet-actuated tripping device interposed in the path of each auxiliary conveyer and adapted to control the sheet-controlling device of the main conveyer, the tripping device of one of the conveyers being detached from the controlling device and operatively connected with another tripping device, substantially as set forth.

20. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a sheet-controlling device interposed in the path of the main conveyer, a controller-bar connected therewith, a plurality of auxiliary sheet-conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer and adapted to control the sheet-controlling device of the main conveyer, rock-shafts having arms connected with the controller-bar, fingers connected with said rock-shafts and engaged by some of said tripping devices, a rock-shaft disconnected from said controller-bar and carrying a finger engaged by one of said tripping devices, and a connection between said disconnected rock-shaft and one of the tripping devices which engage the fingers of the controller-connected rock shafts, substantially as set forth.

21. In a machine of the character described, the combination of three conveying mechanisms leading to a common assembling-point, a gage at said assembling-point, and operating means constructed and arranged to cause two of said mechanisms to alternately deliver their sheets, signatures, or collections of sheets or signatures at the assembling-gage and assemble the successive sheets, signatures or collections of sheets or signatures conveyed by the third mechanism alternately with the sheets, signatures or collections of sheets or signatures conveyed by said other two mechanisms, thereby producing assemblages of two sheets, signatures or collections of sheets or signatures, substantially as described.

22. In a machine of the character described, the combination of three conveying mechanisms leading to a common assembling-point, a gage at said assembling-point, and operating means constructed and arranged to cause one of said mechanisms to assemble its sheets, signatures or collections of sheets or signatures alternately with the sheets, signatures, or collections of sheets or signatures delivered by the other two mechanisms, thereby producing assemblages of two sheets, signatures or collections of sheets or signatures, substantially as described.

23. In a machine of the character described, the combination of a plurality of conveying mechanisms adapted to convey sheets, signatures or collections of sheets or signatures to a common assembling-point, a gage arranged at the point of assembling, controlling means adapted to control the disposition of the sheets, signatures or collections of sheets or signatures conveyed to the gage, a sheet-actuated tripping device interposed in the path of each conveying mechanism and operatively connected with said sheet-controlling means, and means for operating said mechanisms so constructed and arranged that the sheets, signatures or collections of sheets or signatures conveyed by one of said mechanisms will be assembled in turns with the sheets, signatures, or collections of sheets or signatures delivered by the other mechanisms successively, the sheets, signatures or collections of sheets or signatures from said other mechanisms forming parts of different assemblages, substantially as described.

24. In a machine of the character described, the combination of a plurality of sheet-conveying mechanisms leading to a common assembling-point, a sheet-controlling device at or adjacent to said assembling-point, a sheet-actuated tripping device interposed in the path of each conveying mechanism and adapted to control said sheet-controlling device, the tripping device of one of the conveyers being detached from the controlling device and operatively connected with another tripping device which is connected with the controlling device, and means for operating the several conveying mechanisms, said operating means being so constructed and arranged that the sheets, signatures or collections of sheets or signatures conveyed by one mechanism will be assembled in turns with the sheets, signatures or collections of sheets or signatures delivered by the other mechanisms successively, the sheets, signatures or collections of sheets or signatures from said other mechanisms forming parts of different assemblages, substantially as described.

25. In a machine of the character described, the combination of a plurality of conveying mechanisms adapted to convey sheets, signatures or collections of sheets or signatures to an assembling-point, operating means for said plurality of conveying mechanisms, constructed and arranged to cause said mechanisms to successively deliver their sheets, signatures or collections of sheets or signatures to the assembling-point, an independent conveying mechanism also adapted to convey sheets, signatures or collections of sheets or signatures to the said assembling-point, operating means for said independent conveying mechanism constructed and arranged to cause it to deliver its successive sheets, signatures or collections of sheets or signatures to said assembling-point to successively meet, one at a time, the sheets, signatures or collections of sheets or signatures from said plurality of conveying mechanisms, and an assembling-gage at said assembling-point adapted to assemble each successive sheet, signature or collection of sheets or signatures from the independent conveying mechanism with one of the sheets, signatures or collections of sheets or signatures delivered by one of the said plurality of conveying mechanisms, substantially as set forth.

26. In a machine of the character described, the combination of a plurality of conveyers adapted to convey sheets, signatures or collections of sheets or signatures to an assembling-point, operating means for said conveyers constructed and arranged to cause two or more of said conveyers to successively deliver their sheets, signatures or collections of sheets or signatures to said assembling-point and one of said conveyers to deliver a sheet, signature or collection of sheets or signatures to the assembling-point to meet each one of the sheets, signatures or collections of signatures delivered by said two or more conveyers, and an assembling-gage at the assembling-point adapted to successively assemble the meeting sheets, signatures or collections of sheets or signatures, each assemblage being made up of deliveries from two conveyers, as set forth.

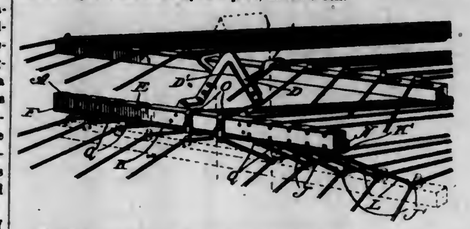
27. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a mechanism interposed in the path of the main conveyer adapted to act upon complete assemblages of sheets or signatures, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers leading to one or more of the auxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller arranged to control the operation of said mechanism, and means operatively connecting all of said tripping devices with said controller, whereby the absence of a sheet or signature from any one of the conveyers will cause the arrest of operation of said mechanism when the incomplete assemblage of sheets or signatures is presented to it, and, when all of the sheets or signatures of an assemblage are present upon their respective conveyers at the proper time, said controller will be so controlled that it will throw into action said mechanism to cause it to operate upon said complete assemblage of sheets or signatures when said complete assemblage is presented to the said mechanism, substantially as set forth.

28. In a machine of the character described, the combination of a main conveyer for assembled sheets or signatures, a stapling or stitching machine interposed in the path of the main conveyer adapted to bind complete assemblages of sheets or signatures, a plurality of auxiliary conveyers leading to said main conveyer, a sheet-actuated tripping device interposed in the path of each auxiliary conveyer, a plurality of subauxiliary conveyers leading to one or more of the auxiliary conveyers, a sheet-actuated tripping device arranged in the path of each subauxiliary conveyer, a controller arranged to control the operation of said stapling or stitching machine, and means operatively connecting all of said tripping devices with said controller, whereby the absence of a sheet or signature from any one of the conveyers will cause the arrest of operation of said machine when the incomplete assemblage of sheets or signatures is presented to it, and, when all of the sheets or signatures of an assemblage are present upon their respective conveyers at the proper time, said controller will be so controlled that it will throw into action said stapling or stitching machine to cause it to bind said complete assemblage of sheets or signatures when said complete assemblage is presented to the stapling or stitching machine, substantially as set forth.

787,839. MECHANICAL ARM. WILLIAM H. ERNST, Bloomington, Ind. Filed Nov. 17, 1904. Serial No. 233,207.

Claim.—1. A mechanical arm for use in connection with poles for replacing cross-arms, comprising a bar having slots in the edge thereof designed to temporarily hold the line-wires, and a metallic bracket member having a sharp edge adapted to cut into the top of a pole, as set forth.

2. A mechanical arm for use in connection with poles for replacing cross-arms, comprising a bar having slots in the edge thereof designed to temporarily hold the line-wires, a metallic bracket member having a sharp edge adapted to cut into the top of a pole, angled arms secured to said bracket member adapted for engagement with the cross-piece mounted upon a pole, as set forth.

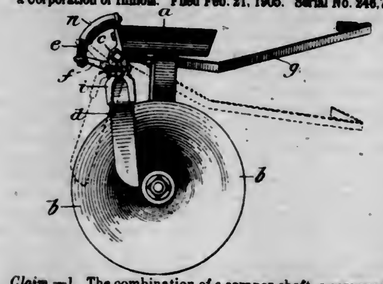


3. A mechanical arm for use in connection with poles for replacing cross-arms, comprising a bar having slots in the edge thereof designed to temporarily hold the line-wires, a metallic bracket member having a cutting edge in a plane parallel with the plane of the vertical faces of said bar and designed to cut into the top of a pole, and arms projecting from said bracket member and adapted for engagement with the cross-piece of a pole, as set forth.

4. A mechanical arm for use in connection with poles for replacing cross-arms, comprising a bar having slots in the edge thereof designed to temporarily hold the line-wires, a metallic bracket member having a sharp edge adapted to cut into the top of a pole, a strap secured to the ends of said bar, stirrups secured to said strap and a series of straps of different lengths and provided with snap-hooks at their ends, designed to engage said stirrups, as set forth.

5. A mechanical arm for use in connection with poles for replacing cross-arms, comprising a bar having slots in the edge thereof designed to temporarily hold the line-wires, and a metallic bracket member having a sharp edge adapted to cut into the top of a pole, hooks secured to the ends of said bar, a strap having bails secured thereto, the end bails of said strap adapted for engagement with said hooks, a series of straps of different lengths, and snap-hooks at the ends thereof for engagement with said bails, as set forth.

787,840. SCRAPER FOR DISK HARROWS. CHARLES P. A. FRIBERG, Moline, Ill., assignor to Deere and Mansur Company, Moline, Ill., a Corporation of Illinois. Filed Feb. 21, 1905. Serial No. 246,731.



Claim.—1. The combination of a scraper-shaft, a scraper-blade, and a pair of clamping-jaws forming a single means to secure the scraper to the shaft, and to detachably fasten the blade to the clamp.

2. The combination, to form a means for securing a scraper-blade to its shaft, of a pair of jaws having one end fitting the shaft, and the other fitting the blade, and means for clamping the jaws together on the shaft with the blade between them.

3. The combination, to form a scraper with a detachable blade, of a pair of jaws *i*, *i*, recessed to receive the blade edgewise, a scraper-blade having notches or cuts *l*, *l*, in its edges, projections *m*, *m*, in the recesses of the jaws to fit the notches in the blade, and means for clamping the jaws together.

787,841. CURTAIN-FIXTURE FOR OPEN CARS. GEORGE B. GILMAN, West Newbury, Mass. Filed Feb. 13, 1905. Serial No. 245,486.

Claim.—1. In a curtain-fixture for open cars, the combination of the car-body having oppositely-arranged side posts disposed out-

side of the seat ends and provided in their opposing edges with guiding-grooves, a suitably-arranged winding-roller, and the flexible curtain-body winding and unwinding on said roller and having its side edges working in said grooves, said curtain-body being provided at its bottom edge with a rigid base-board adapted to overlap and project below the car-floor level.



2. In a curtain-fixture for open cars, the combination with the car-body having side posts disposed outside of the seat ends and provided with longitudinal guiding-grooves, a suitably-arranged winding-roller, a flexible curtain-body winding and unwinding on said roller and having its edges projecting into said grooves, a series of rigid transverse batten-strips extending across the curtain-body the full width thereof and having their ends also projecting into said grooves, and a rigid base-board fitted to the bottom edge of the curtain-body and arranged to overlap and project below the level of the car-floor.

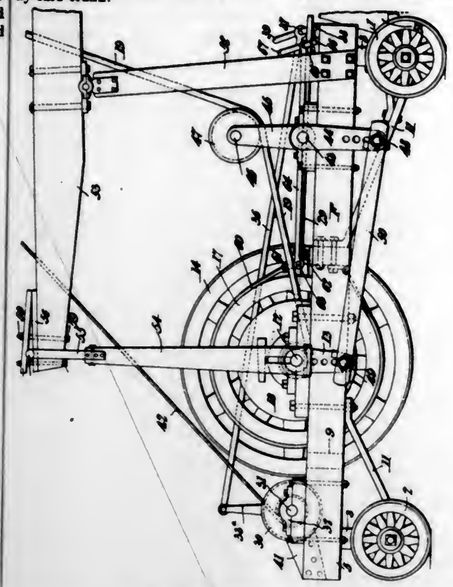
3. In a curtain-fixture for open cars, the combination with the car-body having side posts disposed outside of the seat ends and provided with longitudinal guiding-grooves therein, a flexible curtain-body having its side edges held and guided in said grooves, a spring-actuated winding-roller for the curtain-body, and a wide rigid base-board secured to the bottom edge of the roller and having its ends working in said guiding-grooves, said wide base-board being arranged to overlap and project below the level of the car-floor and provided at its ends with checking-springs frictionally engaging the bases of the guiding-grooves.

4. In a curtain-fixture for open cars, the combination with the car-body having side posts disposed outside of the seat ends and provided with longitudinal guiding-grooves therein, a flexible curtain-body having its side edges held and guided in said grooves and provided with a folded bottom edge, a metallic binding-strip inserted in said folded bottom edge, a rigid wide base-board provided in its top edge with a kerf receiving the folded bottom edge of the curtain-body, and fastening devices passed through the base-board and the curtain edge therein.

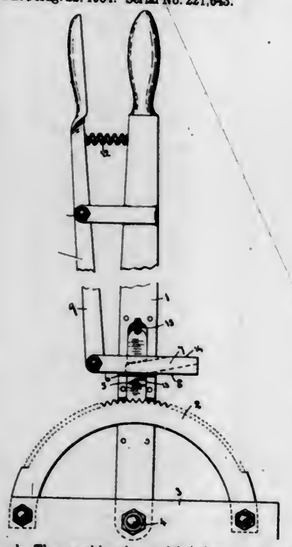
5. In a curtain-fixture for open cars, the combination with the car-body having side posts disposed outside of the seat ends and provided therein with longitudinal guiding-grooves, a flexible curtain-body having its edges held and guided in said grooves, a suitably-arranged winding-roller for said curtain-body, and a wide rigid base-board secured to the lower edge of the curtain-body and provided with inner and outer lifting-knobs and also with an inner stop-pin, the latter being adapted to arrest the base-board in a position in which it overlaps and projects below the level of the car-floor.

787,842. WELL-DRILLING MACHINE. John R. Griffith and Leslie G. Cooper, Independence, Kans. Filed July 5, 1904. Serial No. 215,394.

Claim.—In a well-drilling machine, a frame having side members, a driven main shaft, a tubular bull-shaft mounted upon said main shaft, means for connecting said bull-shaft operatively with, and disconnecting it from the main shaft, a crank at the end of the latter, a rock-shaft journaled upon the frame and having a crank at its outer end, a pitman connecting said crank with the crank upon the main shaft, a crank upon the rock-shaft intermediate of the side members of the frame, and a drill-rope-engaging pulley supported by said crank.



787,843. LOCK FOR LEVERS. William Honscheid, Elmira, N. Y. Filed Aug. 22, 1904. Serial No. 221,643.



Claim.—1. The combination, with a lever and a serrated segment, of a latch-bar adapted to be reciprocated in a longitudinal guideway on the lever and provided with one or more teeth to engage corresponding teeth on the segment, a combined shifting and locking member in operative-engagement with the latch-bar whereby the latch-bar is thrown into and out of engagement with the segment-teeth and positively locked against motion when in engagement therewith, an operating-lever on the main lever coupled to said shifting member, and a spring to hold said operating-lever and shifting member normally in position to lock the latch-bar against the segment.

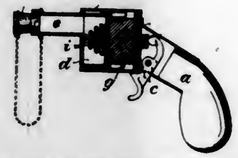
2. The combination, with a lever and a serrated segment, of a latch-bar adapted to be reciprocated in a longitudinal guideway on the lever and provided with one or more teeth to engage corresponding teeth on the segment, a shifting and locking member reciprocating in a transverse guideway on the lever and acting upon the latch-bar to throw it into and out of engagement with the segment-teeth, an operating-lever on the main lever coupled to said shifting member, and a spring to hold said operating-lever and shifting member normally in position to lock the latch-bar against the segment.

3. The combination, with a lever and a serrated segment, of a latch-bar adapted to be reciprocated in a longitudinal guideway on the lever and provided with one or more teeth to engage corresponding teeth on the segment, a bar reciprocating in a transverse guideway on the lever and provided with inclined surfaces in engagement with corresponding surfaces formed on the latch-bar, whereby the latch-bar may be thrown out of and into engagement with the segment-teeth, an operating-lever on the main lever coupled to said reciprocating bar, and a spring to hold said operating-lever and bar normally in position to lock the latch-bar against the segment.

4. The combination, with a lever and a serrated segment, of a latch-bar adapted to be reciprocated in a longitudinal guideway on the lever and provided with one or more teeth to engage corresponding teeth on the segment, an operating-lever for said latch-bar, a bar coupled to said lever and reciprocating in a transverse guideway on the main lever, said bar being provided at one side with an inclined tongue in engagement with an inclined groove on the latch-bar, and said tongue having its end which lies nearest the segment cut at right angles to the line of motion of the latch-bar and extending across the latch-bar when the latter is in engagement with the segment, and a spring to hold said parts in their normal locking positions.

5. The combination, with a reciprocating latch-bar, of a lock-bar mounted in a guideway transverse to the latch-bar, said lock-bar having an inclined tongue in engagement with an inclined groove on the latch-bar and the tongue having an end cut off on a line which will oppose motion in the latch-bar when the end of the tongue lies across said bar.

787,844. CHILD'S PISTOL. Heinrich Kaiser, Hilden, Germany. Filed Dec. 1, 1904. Serial No. 235,051.



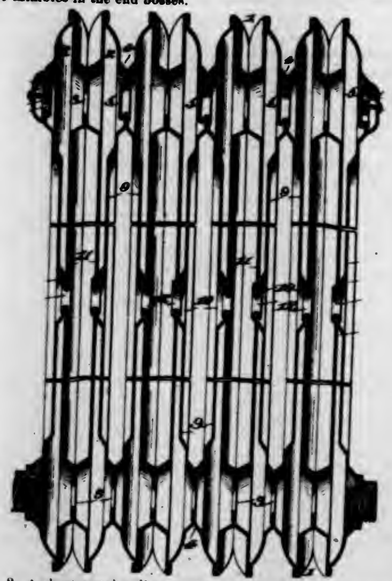
Claim.—1. In a child's pistol the combination of a handle, an air-chamber fastened to the same, a barrel extending from the front side of the air-chamber, a piston guided within the latter, a rubber pipe one end of which is fastened to the air-chamber and the other end to the piston, a spring pushing the piston back and a trigger pivoted in the handle which actuates the piston, as and for the purpose specified.

2. In a child's pistol the combination of a handle, a cylindrical drum fastened to the same, an air-chamber arranged within said drum, a barrel extending from the front side of the air-chamber, a piston guided within the latter, a rubber pipe one end of which is fastened to the air-chamber and the other end to the piston, a spring pushing the piston back and a trigger pivoted in the handle which actuates the piston, as and for the purpose specified.

3. In a child's pistol the combination of a handle, a cylindrical drum fastened to the same, an air-chamber arranged within said drum, a barrel extending from the front side of the air-chamber, a piston guided within the latter, a rubber pipe one end of which is fastened to the air-chamber and the other end to the piston, a spring pushing the piston back and a lever pivoted in the handle one end of which actuates the piston and the other end extending outward serves as trigger, as and for the purpose specified.

787,845. SHEET-METAL RADIATOR. William R. Kinnear, New York, N. Y. Filed Dec. 21, 1903. Serial No. 186,033.

Claim.—1. A sheet-metal radiator comprising a plurality of units constructed of sheet metal, open bosses extending from the outer walls of the units and connecting adjacent units; inwardly-projecting radial flanges in the openings between the units, thimbles closing the passages between the units, having an open side, the metal of said thimbles extending on opposite sides of the inwardly-projecting flanges and covering-caps provided on the open sides of the thimbles in the end bosses.



2. A sheet-metal radiator unit constructed of two symmetrical halves abutting along their vertical edges and having their abutting sides concave between said vertical edges and separated at top and bottom so as to form a vertical air-flue through the unit; each of said halves being constructed of two sheets of metal united completely around their edges but spaced apart between their edges to form a chamber for the reception of a heating medium.

3. In combination with a radiator having an opening therein, a closure for said opening comprising a thimble having a closed end, inserted in said opening and expanded on opposite sides of the opening to hold it in place therein and a cap covering the open end of said thimble, a nut secured to the inner face of the closed end of the thimble, and a bolt securing the cap to said nut.

4. In a sheet-metal radiator unit, a wall depressed inwardly to form a stiffening-panel, an opposed wall, a portion of the depressed panel being pressed still further inwardly into abutment with the opposed wall, and suitable connections between the opposed wall and the abutting portion of the depressed panel to prevent expanding of the walls under internal pressure.

5. A sheet-metal radiator unit having one of two opposed walls depressed to form a longitudinal stiffening-panel, with a space between said panel and the other opposed wall, and having a boss depressed from said panel into abutment with said other opposed wall, and a thimble passing through the parts and uniting them.

6. A sheet-metal radiator unit constructed of inner and outer tubes with a central air-space: the outer tubes being depressed to form stiffening-panels, and having portions of said panels depressed to form bosses abutting against the inner tubes of the unit, and thimbles passing through the bosses and inner tubes and tying said parts together.

7. A sheet-metal radiator unit constructed of two symmetrical halves united along their vertical edges, spaced apart between said edges and separated at top and bottom so as to form a vertical air-flue through the unit; each of said halves being constructed of two sheets of metal united completely around their edges, but spaced apart between their edges to form a chamber for the reception of the heating medium.

8. A sheet-metal radiator unit constructed of two symmetrical halves united along their vertical edges, spaced apart between said edges and separated at top and bottom so as to form a vertical air-flue through the unit; each of said halves being constructed of two sheets of metal united completely around their edges, but spaced apart between their edges to form a chamber for the reception of the heating medium, the inner walls of the respective halves being con-

nected by struck-up open bosses to form a circulating-passage between the halves.

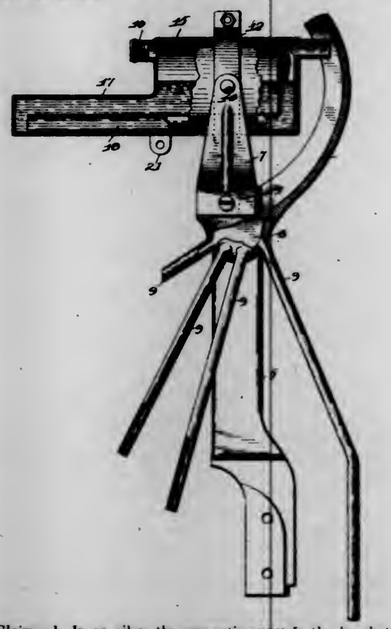
9. A sheet-metal radiator comprising a plurality of units each constructed of two symmetrical halves united along their vertical edges, spaced apart between said edges and separated at top and bottom so as to form a vertical air-flue through the unit; each of said halves being constructed of two sheets of metal united completely around their edges, but spaced apart between their edges to form a chamber for the reception of the heating medium, the inner walls of the respective halves being connected by struck-up open bosses to form a circulating-passage between the halves and the outer walls of said halves being also provided with struck-up open bosses, and the opposed outer bosses thus formed being suitably united to connect the units of the radiator together.

10. A sheet-metal radiator formed of two members each comprising inner and outer walls with a chamber between them and united by seams along their edges to close said chamber; said members being connected along their vertical edges, by clamping-strips engaging the seams thereof, to form an air-flue between the members.

11. A sheet-metal radiator unit comprising two members each formed of inner and outer walls united along their edges to form a chamber for the circulating medium and having the vertical edges of the members connected to form an air-flue between the members; the opposed inner walls of said members being connected at upper and lower points by circulating-passages between the chambers; and the inner and outer walls of each member being brought into abutment and suitably tied together at points between said upper and lower circulating-passages.

12. A sheet-metal radiator comprising two chambers each formed by an inner wall and an outer wall suitably connected along their vertical edges by outwardly-projecting seams, and binding-strips having flanges engaging behind the adjacent seams of the respective members, holding the members together and closing the air-flue formed between them.

787,846. OILER. JOHN KNECHT, Bluffton, Ind. Filed Dec. 1, 1904. Serial No. 234,988.

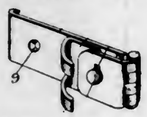


Claim.—1. In an oiler: the supporting-post 5; the brackets 6 and 7 extending upwardly from the post; there being an oil-distributing chamber 8 in the upper end of the post; the oil-feeding tube 9 leading downwardly from the chamber; the channel guide-arm 10 leading upwardly from the oil-distributing chamber and the oil-can pivotally mounted between the brackets and adapted to discharge into the oil-chamber when in the vertical position; the discharge end of the oil-can being in the channel-bar 10 so as to conduct the drippings to the oil-chamber.

2. In an oiler: a distributing-chamber; the channel guide-arm leading upwardly from the distributing-chamber; the oil-can 15 pivotally mounted above the distributing-chamber; the measuring-tube 18 mounted in the oil-can; said measure-tube being Z-shaped and the discharge end of the measuring-tube extending into the channel-arm so that the measuring-tube will be discharged when in a vertical position.

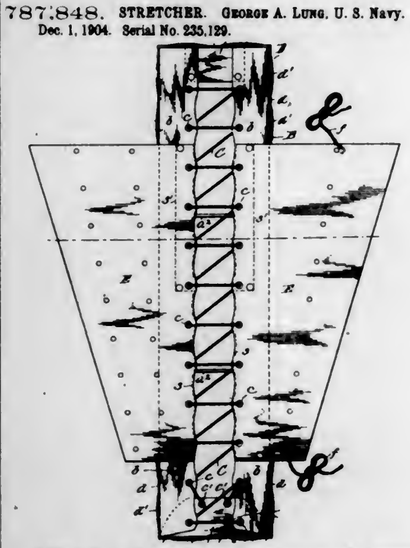
3. In an oiler: a suitable support having an oil-distributing chamber; a channel-arm leading upwardly from the oil-distributing chamber; the oil-can 15 pivotally mounted above the oil-distributing chamber; the tube 17 extending upwardly from the oil-can; the measuring-tube 18 mounted in the tube 17; and extending to the bottom of the can 15; there being an elbow-bend at the bottom of the can so that the measuring-tube leads along the bottom of the can to the opposite side; and a second elbow-bend leading downwardly through the bottom of the can; the lower end of said second elbow-bend being in the channel of the guide-arm; substantially as specified.

787,847. DOOR-FASTENER. THEODORE KOLLME, East St. Louis, Ill. Filed Nov. 17, 1904. Serial No. 233,056.



Claim.—In a door-fastener: a plate having a central opening; teeth extending from one end of the plate; a second plate hinged to the other end of the first plate; a third plate slidingly connected to the second plate; a button carried by the third plate to engage in the opening of the first plate; and stops extending form the third plate.

787,848. STRETCHER. GEORGE A. LUNG, U. S. Navy. Filed Dec. 1, 1904. Serial No. 235,129.



Claim.—1. In a stretcher, the combination, of a support, an apron attached longitudinally to the central portion of said support, and means for securing the apron closely over the body of a person placed on the stretcher.

2. In a stretcher, the combination, of a support, an apron attached longitudinally to the central portion of said support and adapted to cover the body and legs of a person placed thereon, and means for drawing the apron together closely over the body and legs.

3. In a stretcher, the combination, of a support, an apron adapted to cover the body and legs of a person placed on the support and comprising two portions or flaps attached longitudinally to the central portion of said support, and means for drawing said portions or flaps together closely over the body and legs of the person.

4. In a stretcher, the combination, of a support, an apron comprising two portions or flaps attached longitudinally to said support and adapted to cover the body and legs of a person placed on the stretcher, and means for drawing the two portions or flaps together closely over the body and legs of the person.

5. In a stretcher, the combination, of a support, an apron attached longitudinally to the central portion of said support and adapted to cover the body and legs of a person placed thereon, and lacing-strings for drawing the apron together closely over the body and legs of the person.

6. In a stretcher, the combination, of a support, an apron comprising two portions or flaps attached longitudinally to the central portion of said support and adapted to cover the body and legs of a person placed thereon, hooks near the free longitudinal edges of said flaps, and lacing-strings adapted to engage the hooks and draw the flaps together closely over the body and legs of the person.

7. In a stretcher, the combination, of a support, an apron attached longitudinally to the central portion of said support at opposite sides of the longitudinal center thereof and at one end farther from said center than at the other end, and means for drawing the apron closely over the body and legs of a person placed on the stretcher.

8. In a stretcher, the combination, of a support, an apron comprising two portions or flaps attached longitudinally to the central portion of said support at opposite sides of the longitudinal center thereof and at one end farther away from said center than at the other end, and means for drawing the flaps together closely over the body and legs of a person placed on the stretcher.

9. In a stretcher, the combination, of a support, an apron comprising two portions or flaps attached longitudinally to the central portion of said support at opposite sides of the longitudinal center thereof and at one end farther away from said center than at the other end, hooks attached to the free longitudinal edges of the flaps, and lacings engaging said hooks and adapted to draw the flaps closely over the body and legs of a person placed on the stretcher.

10. In a stretcher, the combination, of a support, an apron comprising two portions or flaps attached to the central portion of said support and at one end further attached nearer the edges of the support, and means for drawing the portions or flaps together and securing them.

11. In a stretcher, the combination, of a supporting-frame comprising side pieces and cross-pieces connected to said side pieces, a bag-like covering placed over said frame and extending across the upper and lower sides thereof, an apron attached longitudinally to the central portion of the covering at opposite sides of the longitudinal center thereof and adapted to cover the body and legs of a person placed on the stretcher, and means for drawing the apron together closely over the body and legs of the person.

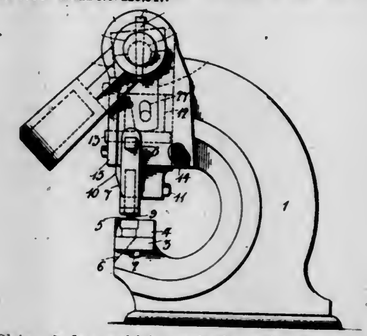
12. In a stretcher, the combination, of a supporting-frame comprising side pieces and cross-pieces connecting the same, a bag-like covering placed over said frame, straps attached to the ends and sides of the bag-like covering, and an apron attached longitudinally to the bag-like covering and provided with means for securing the same.

13. In a stretcher, the combination, of a supporting-frame comprising side pieces and cross-pieces connecting the same, a bag-like covering placed over the frame, straps attached to the ends and sides of said bag-like covering, an apron comprising two parts or flaps attached longitudinally to the bag-like covering and provided with hooks, and a lacing-string engaging the hooks.

14. In a stretcher, the combination, of a frame, a bag-like covering placed over the same and having an opening in one side thereof, a lacing-cord for drawing the parts of the bag together, straps at the ends and sides of the bag to provide grasping portions, an apron comprising two parts or flaps attached to the bag-like covering at the edges of the opening therein, and a lacing for drawing the portions or flaps of the apron together and securing the same, substantially as shown and described.

15. In a stretcher, the combination, of a frame comprising side pieces, end pieces, and intermediate cross-pieces, the upper edges of the latter being below the plane of the upper edges of the side pieces, a bag-like covering placed over said frame to extend across the upper and lower sides thereof, said covering having a longitudinal opening in one side thereof, a lacing-cord connecting the portions of the bag at opposite sides of the opening and adapted to stretch the covering over the frame, straps secured to the ends and sides of the bag-like covering to provide grasping portions or loops, an apron comprising two portions or flaps attached to the bag-like covering at the edges of the longitudinal opening therein, hooks on said flaps, and a lacing-cord adapted to engage the hooks and draw the portions or flaps of the apron together over the body of a person on the stretcher, substantially as herein shown and described.

787,849. MULTIPLE PUNCH. GEORGE E. W. MARSDEN, Janesville, Wis., assignor to Badger State Machine Company, Janesville, Wis., a Corporation of Wisconsin. Filed Nov. 18, 1903. Renewed Oct. 15, 1904. Serial No. 228,547.



Claim.—1. In a multiple punch, the combination with eccentric yokes and means for operating them, of tails projecting from said yokes and having curved lower ends, mandrels adapted to be reciprocated vertically, means connecting said tails and mandrels whereby downward movement of the tails is permitted while the mandrels are normally at rest and by which the mandrels are raised from their lowered positions, and removable keys, the said mandrels having openings to receive said keys and hold them in the paths of the descending tails whereby said mandrels are forced downwardly, the curved ends of said tails bearing and rocking directly upon said keys.

2. In a multiple punch, the combination with eccentric yokes and means for operating them, of tails projecting from said yokes and having curved lower ends, mandrels adapted to be reciprocated vertically and having recesses in their upper ends, means connecting said tails and mandrels within said recesses whereby downward movement of the tails is permitted while the mandrels are normally at rest and by which the mandrels are raised from their lowered positions, and removable keys, the said mandrels having openings to receive said keys into said recesses and to hold the keys in the paths of the descending tails whereby said mandrels are forced downwardly, the curved ends of said tails bearing and rocking directly upon said keys.

3. In a multiple punch, the combination with the eccentrics and means for rotating them, of tails operated by said eccentrics, mandrels arranged to be reciprocated vertically, each mandrel having a recess in its upper end, the said tails entering the said recesses and movable up and down therein without contact with the bottoms of the said recesses, keys adapted to be inserted in the mandrels and resting upon the bottoms of said recesses in the path of the descending tails whereby the said mandrels are forced downwardly, the said tails being provided with longitudinal slots, and pins passing through said slots and through the sides of the mandrels whereby the mandrels are raised after punching.

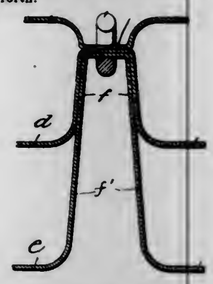
787,850. CARTRIDGE-CLIP. ANSON MILLS, Washington, D. C. Filed June 13, 1904. Serial No. 212,287.



Claim.—The hereinbefore-described cartridge-clip consisting of the sheet-metal body A, and the spring B, having rounded ends bordered each by an outwardly and downwardly inclined crescent-shaped flange c, which is of a contour to embrace the rim of the cartridge adjacent to it, and decreases in width toward its ends, which merge into the sides of the spring, substantially as and for the purposes hereinbefore set forth.

787,851. SEAMLESS WOVEN CARTRIDGE-POCKET. ANSON MILLS, Washington, D. C. Filed July 30, 1904. Serial No. 218,939.

Claim.—A seamless multiply-woven-fabric pocket, having an internal partition formed of an intermediate ply which extends between the side walls of the pocket and merges into the same, said side walls being formed for a portion of their breadth of the conjoined plies which enter into the partition and the front wall of the pocket, respectively, and, for another portion of their breadth, of the ply which enters into the front wall of the pocket, substantially as hereinbefore set forth.



787,852. WOVEN PISTOL CASE OR HOLSTER. ANSON MILLS, Washington, D. C. Filed Feb. 9, 1905. Serial No. 244,957.



Claim.—1. A pistol case or holster the body of which is composed of a tubular seamless multiply fabric of two diameters, the portion of larger diameter to receive the cylinder and adjoining parts, and the portion of smaller diameter to receive the barrel, of the pistol, the portion of larger diameter projecting laterally beyond the portion of smaller diameter along one of the edges only of the case, substantially as and for the purposes hereinbefore set forth.

2. A pistol case or holster composed of a tubular seamless multiply fabric having end portions of different diameters, the portion of larger diameter projecting laterally beyond the portion of smaller diameter along one edge only of the case, and having the bottom of this projecting portion closed along an inclined line *a*, substantially as and for the purposes hereinbefore set forth.

3. A pistol case or holster having a body composed of a tubular seamless multiply fabric with end portions of different diameters as described, and a covering-flap integral with the fabric which forms the back wall of the case, substantially as and for the purposes hereinbefore set forth.

4. A pistol case or holster having a body composed of a tubular seamless multiply fabric with end portions of different diameters as described, and a fabric loop integral with, and upon the exterior of, the fabric which forms the back wall of the case, substantially as and for the purposes hereinbefore set forth.

5. A pistol case or holster, consisting of a body composed of a tubular seamless multiply fabric with end portions A, B, of different diameters, the covering-flap integral with, and formed as an extension of, the fabric which constitutes the back wall of the case, and the fabric loop D integral with and located on the exterior of the said back-wall fabric, substantially as and for the purposes hereinbefore set forth.

787,853. WOVEN-FABRIC CARTRIDGE-BELT. ANSON MILLS, Washington, D. C. Filed Feb. 9, 1905. Serial No. 244,958.



Claim.—1. In a woven-fabric cartridge-belt, a double-hook end fastener *l l* on the end of the belt, and a fabric sleeve woven in one with the body of the belt and located on the inner face, and crosswise, of the belt, to receive the said hooks, substantially as and for the purposes hereinbefore set forth.

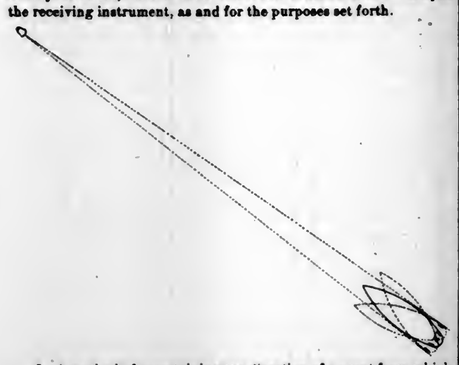
2. A multiply woven-fabric cartridge-belt with cartridge-pockets on its exterior and integral with it, double-hook end fasteners on each end of the belt, and sleeves *m* to receive said hooks, woven integral with the body of the belt and located on the inner face thereof opposite the intervals between the cartridge-pockets on the other face of the belt, substantially as and for the purposes hereinbefore set forth

787,854. METHOD OF FINDING THE DIRECTION OF SOUND. ARTHUR J. MUNDY and JOSIAH B. MILLET, Boston, Mass. Filed Aug. 20, 1904. Serial No. 221,481.

Claim.—1. The method of ascertaining the direction of a point from which submerged, sound-signals emanate, comprising the employing upon a moving vessel of two sound-receiving instruments placed upon the side of a vessel near one end or the other thereof, but at a distance therefrom of at least the wave length of the dominant note of the sound to be received, and causing said moving vessel to be turned in one direction or the other whereby the respective values of the two instruments in several positions of the vessel may be compared with each other and the direction of the source of said sound-waves from the vessel be ascertained.

2. A method of ascertaining the direction of a point from which submerged sound-signaling waves emanate, comprising the employment of one or more sound-receiving instrumentalities upon the side of a moving vessel near its end, but a distance therefrom of at least

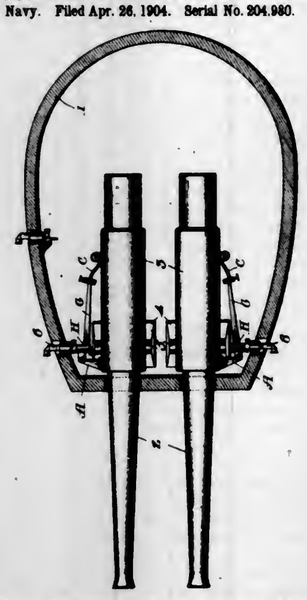
the wave length of the dominant note of the sound to be received, and the turning of said vessel with respect to the signaling-waves to vary the effect, value or force of the vibrations of such waves upon the receiving instrument, as and for the purposes set forth.



3. A method of ascertaining the direction of a point from which submerged sound-signaling waves emanate, comprising the employment of one or more sound-receiving instrumentalities upon the side of a moving vessel near its end, but a distance therefrom and from the keel of the vessel of at least the wave length of the dominant note of the sound to be received, and the turning of said vessel with respect to the signaling-waves to vary the effect, value or force of the vibrations of such waves upon the receiving instrument, as and for the purposes set forth.

4. The method of ascertaining the direction of a point from which submerged sound-signaling waves emanate, comprising the employment of two sound-receiving instrumentalities upon the side of a moving vessel near its end, but a distance therefrom of at least the wave length of the dominant note of the sound to be received, and the turning of the vessel in various positions with respect to the signaling-waves to vary the effect, value or force of the vibrations of such waves upon the receiving instrumentalities until the said effect is equal upon both instrumentalities and the direction thereof determined, as described.

787,855. TELESCOPIC ORDNANCE-SIGHT. HENRY C. MUSTIN, U. S. Navy. Filed Apr. 26, 1904. Serial No. 204,980.



Claim.—1. The combination with a gun, of a telescope, having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

2. The combination with a gun of a telescope, having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

3. The combination with a gun of a telescope having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope vertically with respect to the line of bore of the gun.

4. The combination with a gun of a telescope, having an angular line of sight substantially as described, operatively connected therewith and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope vertically and laterally with respect to the line of bore of the gun.

5. The combination with a gun, of a support so pivotally mounted substantially at the axis of the gun-trunnions as to be capable of vertical and lateral swing, and operatively connected at its free end with said gun, means for adjusting said support around its pivotal axis, and a telescopic sight carried on said support at its pivoted end, with the eyepiece of the telescope disposed in alinement with the trunnion-axis.

6. The combination with a gun, of a pivoted support operatively connected at its free end therewith, means for adjusting said support around its pivotal axis, and a telescope having an angular line of sight substantially as described, carried by said support and longitudinally disposed substantially along the line of axis of the trunnions of the gun.

7. The combination with a gun, of a pivoted sight-bar operatively connected at its free end therewith, means for vertically adjusting said sight-bar, an azimuth-leaf operatively connected to said bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

8. The combination with a gun, of a pivoted sight-bar operatively connected at its free end therewith, means for vertically adjusting said sight-bar, an azimuth-leaf pivotally mounted on said sight-bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described, supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

9. The combination with a gun, of a telescope-support operatively associated therewith, means for adjusting said support in altitude and azimuth, and means independent of said adjusting means for bodily operating said telescope-support laterally of the gun.

10. The combination with a gun, of a telescope-support operatively associated therewith, means for adjusting said support in altitude and azimuth, and means independent of said adjusting means for bodily operating said telescope-support laterally of the gun substantially along the line of axis of the gun-trunnions.

11. The combination with a gun, of a detachably-mounted telescope-support operatively associated therewith, a telescope having an angular line of sight substantially as described carried by said telescope-support and extending laterally of the gun substantially along the line of axis of the gun-trunnions, means for adjusting said telescope and its support in altitude and azimuth, and means independent of said adjusting means for bodily operating said telescope and its support laterally of the gun.

12. The combination with a gun, of a pivoted sight-bar operatively connected therewith, and means for vertically adjusting the same, an azimuth-leaf mounted on said sight-bar, and means for laterally adjusting the same thereon, and a detachable telescope-support carried by said azimuth-leaf, and means for bodily operating said telescope-support laterally of the gun.

13. The combination with a gun, of a pivoted support operatively connected therewith, means for adiusting said support around its pivotal axis, a channeled guideway formed transversely of said pivoted support, a telescope-support carried thereby, and means for operating said telescope-support along said channeled guideway.

14. The combination with a gun, of a pivoted support operatively connected therewith, means for adjusting said support around its pivotal axis, an arm formed transversely of said pivoted support, a channeled guideway extending longitudinally of said transverse

arm, a housing formed at the outer end of said transverse arm, a telescope-support carried by said transverse arm, and means for operating said telescope-support along said channeled guideway into said housing.

15. The combination with a gun, of a pivoted support operatively connected therewith, means for adjusting said support around its pivotal axis, an arm extending transversely of said pivoted support, a channeled guideway formed longitudinally of said transverse arm, a housing formed at the outer end of said transverse arm, a detachable telescope-support carried by said transverse arm, means for operating said telescope-support along said channeled guideway, a portion of said channeled guideway being broken away at the inner end of said transverse arm for removing said telescope-support when withdrawn from said housing.

16. The combination with a gun, of a vertically and laterally swinging support and means for adjusting the vertical and lateral disposition of said support relatively to the bore of the gun, a guideway carried by said support and normally disposed along the line of axis of the gun-trunnions, a telescope-support operatively mounted in said guideway, and means for operating said telescope-support along said guideway.

17. The combination with a gun, of a pivoted sight-bar operatively connected therewith, an azimuth-leaf operatively connected with said sight-bar, a transverse arm on said azimuth-leaf provided with a channeled guideway, a telescopic support mounted in said guideway, means for operating said telescope-support along said channeled guideway, means for vertically adjusting said sight-bar and azimuth-leaf, and means for laterally adjusting said azimuth-leaf independently of said sight-bar.

18. The combination with a gun, of a sight-bar pivotally supported at one end adjacent the gun-trunnions, an azimuth-leaf pivoted to said sight-bar and having an arm extending transversely therefrom substantially along the line of axis of the gun-trunnions, a telescope-support carried by said transverse arm, means for operating said telescope-support along said transverse arm, and means for vertically adjusting said sight-bar and laterally adjusting said azimuth-leaf around their pivotal axes respectively.

19. The combination with a gun, of vertically and laterally swinging supports and means for adjusting said supports relatively to the line of bore of the gun, an arm formed on said laterally-swinging support and normally disposed substantially along the line of axis of the gun-trunnions, a guideway formed on said transverse arm, a telescope-support mounted in said guideway, and means for operating said telescope-support along said guideway, comprising a lug operative parallel to said guideway and adapted to engage said telescope-support, and means for operating said lug.

20. The combination with a gun and its sleeve, of a telescope, having an angular line of sight substantially as described, operatively connected with said sleeve and longitudinally disposed laterally of said gun, and means for adjusting said telescope relatively to the line of bore of the gun.

21. The combination with a gun and its sleeve, of a telescope, having an angular line of sight substantially as described, operatively connected with said sleeve and longitudinally disposed substantially along the line of axis of the trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

22. The combination with a gun and its sleeve, of a pivoted support operatively connected with said sleeve, means for adjusting said support around its pivotal axis, and a telescope having an angular line of sight substantially as described, carried by said support and longitudinally disposed substantially along the line of axis of the trunnions of the gun.

23. The combination with a gun and its sleeve, of a pivoted sight-bar operatively connected with said sleeve, means for vertically adjusting said sight-bar, an azimuth-leaf operatively connected to said bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

24. The combination with a gun and its sleeve, of a pivoted sight-bar operatively connected with said sleeve, means for vertically adjusting said sight-bar, an azimuth-leaf pivotally mounted on said sight-bar, means for adjusting said azimuth-leaf laterally with respect to the line of bore, and a telescope having an angular line of sight substantially as described, supported on said azimuth-leaf and normally extending laterally thereof substantially along the line of axis of the gun-trunnions.

25. The combination with a gun and its sleeve, a pivoted support carried by said sleeve, means for adjusting said support around its pivotal axis, a telescope-support carried by said pivoted support, and means for operating said telescope-support laterally of said gun.

26. The combination with a gun and its sleeve, of a pivoted sight-bar carried thereby, means for adjusting said sight-bar around its pivotal axis, a detachably-mounted telescope-support carried by said sight-bar, and means for operating said telescope-support laterally of said sight-bar.

27. The combination with a gun and its sleeve, of a pivoted sight-bar carried thereby, means for adjusting said bar around its pivotal axis, a telescope-support carried by said sight-bar, and means for operating said telescope-support laterally thereof substantially along the line of axis of the trunnions.

28. The combination with a turret or similar protecting-guard, of a gun, and a telescope having an angular line of sight, operatively connected with said gun and projecting substantially transversely of the same beyond said turret or guard.

29. The combination with a turret or similar protecting-guard, of a gun, and a telescope, having an angular line of sight, operatively connected therewith and extending beyond said turret or guard substantially on the line of axis of the gun-trunnions.

30. The combination with a turret or similar protecting-guard, of a gun, a telescope, having an angular line of sight, operatively connected therewith and extending transversely of the gun beyond said turret or guard, and means for adjusting said telescope relatively to the line of bore of the gun.

31. The combination with a turret or similar protecting-guard, of a gun, a telescope having an angular line of sight, operatively connected therewith and extending transversely of the gun beyond said turret or guard, and means for adjusting said telescope vertically and laterally with respect to the line of bore of the gun.

32. The combination with a turret or similar protecting-guard, of a gun, a telescope, having an angular line of sight, operatively connected therewith and extending beyond said turret or guard substantially on the line of axis of the gun-trunnions, and means for adjusting said telescope relatively to the line of bore of the gun.

33. The combination with a turret or similar protecting-guard, of a gun, a telescope, having an angular line of sight, operatively connected therewith and extending beyond said turret or guard substantially on the line of axis of the gun-trunnions, and means for adjusting said telescope vertically and laterally with respect to the line of bore of the gun.

34. The combination with a turret or similar protecting-guard, of a gun, a pivotal support operatively connected therewith, means for adjusting said support around its pivotal axis, and a telescope, having an angular line of sight, mounted on said support and extending laterally, beyond said turret or guard, with respect to the bore of the gun.

35. The combination with a turret or similar protecting-guard, of a gun, a pivotal support operatively connected therewith, means for adjusting said support around its pivotal axis, and a telescope, having an angular line of sight, mounted on said support and extending laterally beyond said turret or guard substantially on the line of axis of the gun-trunnions.

36. The combination with a turret or similar protecting-guard, of a gun, a pivoted sight-bar operatively connected therewith, an azimuth-leaf operatively connected with said sight-bar, a telescopic sight mounted on said azimuth-leaf and extending transversely thereof beyond said turret or guard, and means for adjusting said sight-bar and azimuth-leaf vertically with respect to the line of bore, and means for adjusting said azimuth-leaf laterally, independently of said sight-bar.

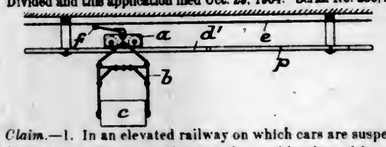
37. The combination with a turret or similar protecting-guard, of a gun and its sleeve, a pivoted sight-bar carried by said sleeve, an azimuth-leaf pivotally supported on said sight-bar, a telescope, having an angular line of sight, mounted on said azimuth-leaf and extending transversely of said gun to the outside of said turret or guard, and means for vertically and laterally adjusting said sight-bar and azimuth-leaf respectively.

38. The combination with a turret or similar protecting-guard, of a gun and its sleeve, a pivoted sight-bar carried by said sleeve, an azimuth-leaf, pivotally mounted on said sight-bar, and having a transverse arm normally extending substantially on the line of axis of the trunnions, a telescope, having an angular line of sight, mounted on said transverse arm and normally extending laterally beyond said turret or guard, means for adjusting said sight-bar around its pivotal axis, and means for adjusting said azimuth-leaf around its pivotal axis independently of said sight-bar.

39. The combination with a turret or similar protecting-guard, of a gun and its sleeve, a pivoted sight-bar carried by said sleeve, an azimuth-leaf pivoted to said sight-bar and having a guideway thereon normally on the line of axis of the gun's trunnions, a telescope-support mounted in said guideway, means for operating said telescope-support along said guideway, a telescope having an angular line of sight carried by said telescope-support, means for adjusting said sight-bar around its pivotal axis, and means for adjusting said azimuth-leaf around its pivotal axis on said sight-bar.

787,856. SWITCH FOR SUSPENDED ELECTRIC RAILWAYS.

RUDOLF PFAFFENBACH, Leipsic, and HERMANN MÜLLER, Leipsic-Gohlis, Germany. Original application filed Jan. 13, 1904. Serial No. 188,876. Divided and this application filed Oct. 29, 1904. Serial No. 230,495.



Claim.—1. In an elevated railway on which cars are suspended and driven by electromotors thereon, the combination with a main line, of a branch connection having a switch-rail, an electrical conductor along the main line and the branch connection, and means for electrically insulating the portion of the conductor situated along the switch-rail and the adjoining portion of the branch connection from the remainder of the conductor by the switch-rail being opened, and for reconnecting the insulated portion with the source of electricity by the closure of the switch-rail, substantially as described and for the purpose set forth.

2. In an elevated railway from which electric-motor cars are suspended, the combination with a main line, of a branch line having a switch-rail, an electric conductor extending along the main line and branch connection and having a normally dead portion corresponding to the switch-rail, and an electric switch normally open and interposed between the live and dead portions of the conductor, the lever of the electric switch being located in the path of closing movement of the switch-rail; substantially as described and for the purpose set forth.

787,857. AIR-BRAKE-GASKET-REPLACING TOOL.

GEORGE J. PILGER, Scranton, Pa. Filed Feb. 3, 1905. Serial No. 243,943.



Claim.—1. A tool for replacing worn-out gaskets in air-brake hose-couplings, consisting of a flat piece of metal or the like shaped with a projecting prong on each side, adapted to enter the gasket-groove of the coupling.

2. A tool for replacing worn-out gaskets in air-brake hose-couplings, consisting of a flat piece of metal or the like, F, provided at its front end with a hook-shaped prong G, turned up at the end, and on each side with a pair of prongs, H, I, turned up at their ends in opposite directions, the prongs H, H, being adapted to enter the gasket-groove of the coupling; said flat piece of metal F being rounded off at its rear end and provided with a peripheral flange K, substantially as described.

787,858. BOTTLE-CLEANING MACHINE.

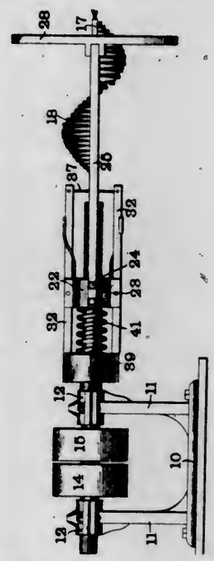
LOUIS SCHAFER, St. Louis, Mo. Filed Sept. 10, 1904. Serial No. 223,950.

Claim.—1. In a bottle-cleaning machine, the combination with a holder, of a pliable cleaning device carried by said holder and adapted to engage with the groove in the neck of a bottle, and means for causing relative rotary movement between said cleaning device and a bottle.

2. In a bottle-cleaning machine, the combination with a holder, of a pliable cleaning device carried by said holder, means for moving said cleaning device into engagement with the groove in the neck of a bottle, and means for causing relative rotary movement between said cleaning device and a bottle.

3. In a bottle-cleaning machine, the combination with a holder, of a strip of pliable material carried by said holder and adapted to engage with the groove in the neck of a bottle, and means for causing relative rotary movement between said strip and a bottle.

4. In a bottle-cleaning machine, the combination with a holder, of a strip of flexible material carried by said holder, means for moving said strip into engagement with the groove in the neck of a bottle, and means for causing relative rotary movement between said strip and a bottle.



5. In a bottle-cleaning machine, the combination with a pair of separable arms, of a strip of flexible material carried by said arms and adapted to engage with the groove in the neck of a bottle, and means for causing relative rotary movement between said arms and a bottle.

6. In a bottle-cleaning machine, the combination with a pair of pivoted arms, of a strip of flexible material carried by said arms, means for separating the ends of said arms to bring said strip into engagement with the groove in the neck of a bottle, and means for causing relative rotary movement between said arms and a bottle.

7. In a bottle-cleaning machine, the combination with a pair of pivoted arms provided with bevels at one end, of a strip of flexible material secured to the opposite ends of said arms, a member coöperating with said beveled ends to separate the opposite ends of the arms and bring said flexible strip into engagement with the groove in the neck of a bottle, and means for causing relative rotary movement between said arms and a bottle.

8. In a bottle-cleaning machine, the combination with a pair of pivoted arms, of a strip of pliable material carried by said arms, means for rotating said arms, operating mechanism rotatable with said arms and adapted to separate the same to bring said strip into engagement with the groove in the neck of a bottle, and a non-rotary member for actuating said operating mechanism.

9. In a bottle-cleaning machine, the combination with a pair of pivoted arms provided with bevels at one end, of a strip of pliable material secured to the opposite ends of said arms, means for rotating said arms, a member rotatable with said arms and coöperating with the beveled ends thereof to separate the opposite ends and bring said pliable strip into engagement with the groove in the neck of a bottle, and a non-rotary member for actuating said member.

10. In a bottle-cleaning machine, the combination with a rotary member, of a cleaning device carried by said member and adapted to enter the interior of a bottle, arms carried by said member and provided with cleaning devices adapted to engage with the exterior of the bottle, an annular guard carried by said arms, and a cleaning device carried by said guard.

11. In a bottle-cleaning machine, the combination with means for cleaning the interior of a bottle, of means for cleaning the exterior of a bottle, and a device for cleaning the groove in the neck of a bottle.

12. In a bottle-cleaning machine, the combination with means for cleaning the interior of a bottle, of means for cleaning the exterior of a bottle, a holder a strip of flexible material carried by said

holder and adapted to engage with the groove in the neck of a bottle, and means for causing relative rotary movement between said strip and a bottle.

13. In a bottle-cleaning machine, the combination with a spindle, of means for rotating said spindle, a cleaning device carried by said spindle and adapted to engage with the groove in the neck of a bottle, and a member movable longitudinal of said spindle for actuating said cleaning device.

14. In a bottle-cleaning machine, the combination with a spindle, of means for rotating said spindle, a cleaning device carried by said spindle and adapted to engage with the groove in the neck of a bottle, a member movable longitudinal of said spindle for actuating said cleaning device, and a spring holding said member in normal position.

15. In a bottle-cleaning machine, the combination with means for cleaning the interior of a bottle, of means for cleaning the exterior of a bottle, a pair of pivoted arms provided with bevels at one end, a strip of flexible material secured to the opposite ends of said arms, and a member coöperating with said beveled ends to separate the opposite ends of said arms and bring said flexible strip into engagement with the groove in the neck of a bottle, and means for causing relative rotary movement between said arms and a bottle.

787,859. ANTHRACENE COMPOUND AND PROCESS OF MAKING SAME. ROLAND H. SCHOLL, Karlsruhe, and OSCAR BALLY, Mannheim, Germany, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Jan. 7, 1905. Serial No. 240,099.

Claim.—1. The process for the production of new anthracene compounds called benzanthrones by condensing a hereinbefore-defined anthracene body free from nitrogen with glycerin.

2. The process for the production of new anthracene compounds called benzanthrones by condensing a hereinbefore-defined anthracene body free from nitrogen with glycerin in the presence of sulfuric acid.

3. The process for the production of new anthracene compounds called benzanthrones by condensing oxanthranol with glycerin.

4. The process for the production of new anthracene compounds called benzanthrones by condensing oxanthranol with glycerin in the presence of sulfuric acid.

5. As new articles of manufacture the anthracene compounds called benzanthrones such as can be obtained by condensing a hereinbefore-defined anthracene body with glycerin, which compounds dissolve in concentrated sulfuric acid yielding from orange to green solutions with green to red fluorescence, and which on melting with caustic alkali yield violet-blue coloring-matters which from an alkaline-hydrosulfite vat dye vegetable fiber substantively.

6. As a new article of manufacture the anthracene compound called benzanthrone such as can be obtained by condensing oxanthranol with glycerin, which compound dissolves in concentrated sulfuric acid giving an orange-red solution with an orange-red fluorescence, which is insoluble in water, and which on melting with caustic alkali yields a violet-blue coloring-matter which from an alkaline-hydrosulfite vat dyes vegetable fiber substantively.

787,860. EXHAUST-MUFFLER. NATHAN W. H. SHARPE, London, England. Filed July 2, 1904. Serial No. 215,163.



Claim.—1. In a silencer for explosive-engines, the combination with a casing, of a plurality of intercommunicating expansion-chambers located therein, a closed tube projecting into one of said chambers at one end of the silencer and provided with a plurality of jet-orifices for receiving and discharging into said chamber, in finely-divided sprays, the exhaust from the engine, and means for discharging the spent gases from the last expansion-chamber of the series in finely-divided sprays.

2. In a silencer for explosive-engines, the combination with a casing, of a plurality of globularly-formed intercommunicating expansion-chambers, the walls of said chambers at their neck ends being spaced from said casing and forming therewith cooling-spaces between said chambers and said casing, a closed tube projecting into one of said chambers and provided with a plurality of jet-orifices, for receiving and discharging therein in finely-divided sprays the exhaust from the engine, and means for discharging the spent gases from the last expansion-chamber of the series in finely-divided sprays.

3. In a silencer for explosive-engines, the combination with a casing, of a plurality of intercommunicating expansion-chambers formed therein, means for delivering the exhaust from said engine into one of said chambers and breaking up the gases into finely-divided sprays, means for discharging the spent gases from the last expansion-chamber of the series into said casing in finely-divided sprays, and means for conducting said gases to the opposite end of said casing between said chambers and said casing and discharging said gases into the open air.

4. In a silencer for explosive-engines, the combination with a casing provided with a top having a plurality of apertures therein, of a plurality of globularly-formed expansion-chambers within said casing provided with circumferentially-disposed series of longitudinally-extending grooves on their peripheral walls forming small passage-ways between said casing and globular walls, the neck portion of said globular walls also forming with said casing enlarged expansion-chambers, means for delivering the exhaust from said engine into one of said chambers, means for breaking up the exhaust-gases into finely-divided sprays, and means for discharging in finely-divided sprays the spent gases from the last expansion-chamber of the series into said casing.

5. In a silencer for explosive-engines, the combination with a casing provided with a top having a plurality of apertures therein, of a plurality of globularly-formed expansion-chambers within said casing and provided with circumferentially-disposed series of longitudinally-extending grooves on their peripheral walls forming small passage-ways between said casing and globular walls, the neck portion of said globular walls also forming with said casing enlarged expansion-chambers, and a closed tube projecting into one of said chambers and provided with a plurality of jet-orifices for receiving and discharging into said chamber, in finely-divided sprays, the exhaust from the engine, the last chamber of the series being provided with a plurality of jet-orifices for discharging the spent gases in finely-divided sprays into said casing.

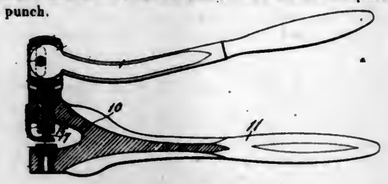
787,861. APPARATUS FOR STRAIGHTENING TEETH. WILLARD B. SHELP, St. Louis, Mo. Filed Dec. 27, 1904. Serial No. 238,287.



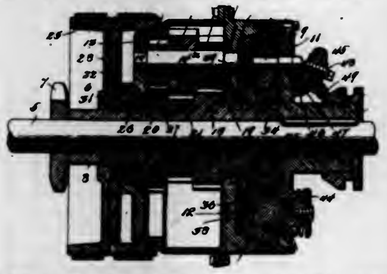
Claim.—In an apparatus for straightening teeth: sockets adapted to be connected to the back teeth one on each side of the mouth; bearing-blocks secured to the sockets; a strap having screw-threaded nipples extending through the bearing-blocks; said strap extending from one socket to the other; nuts upon the screw-threaded nipples; and a rubber cushion secured to the inner face of the strap to engage the front teeth; substantially as specified.

787,862. HAND-PUNCH. ANDREW SKOW, Newton, Iowa. Filed June 9, 1902. Serial No. 110,739.

Claim.—A hand-punch, comprising the head furcated in its upper and lower portions at right angles to each other, a matrix in the lower portion of the head, a handle extending from the lower arm of the head, a plunger in the upper portion of the head and entering the lower furcate thereof and formed with a recess in its upper portion parallel with the upper furcate of the head and closed at its top, said plunger also formed with a slot in its upper portion at right angles to said recess, a fulcrum-pin connecting the upper arms of the head through the slot in the plunger, which pin extends across the recess in the plunger, a lever-handle formed with a head having a circular perimeter, which head of the handle is mounted in the recess in the upper portion of the plunger and pivoted eccentrically on said fulcrum-pin, the perimeter of the handle-head arranged for engagement with the plunger at the top and bottom of the recess therein, a punch in the plunger opposite the matrix, and a stripper on the head and extended within the lower furcate thereof and forked for the passage of the punch.



787,863. VARIABLE-SPEED GEARING. JOHN L. SPENCER, Elmira Heights, N. Y. Filed Oct. 14, 1902. Serial No. 127,272.



Claim.—1. A variable-speed gearing comprising a driving member; a casing carried thereby and having a common movement therewith; a driven member; gears carried by said casing; and sleeves carried by the driven member, said sleeves having an operative connection with said gears; and independent retarding means for each sleeve, whereby a positive connection may be made between the driving and driven members through said gears.

2. A variable-speed gearing comprising a driving member; a casing carried thereby and having a common movement therewith; a driven member; gears carried by said casing; sleeves carried by the driven member, said sleeves having an operative connection with said gears; independent retarding means for each sleeve, whereby a positive connection may be made between the driving and driven members through said gears; and a clutch mechanism for connecting the driving and driven members independent of the gears.

3. A variable-speed gearing comprising a driving member; a casing carried thereby and having a common movement therewith; a driven member; gears carried by said casing; sleeves carried by the driven member, said sleeves having an operative connection with said gears; independent retarding means for each sleeve, whereby a positive connection may be made between the driving and driven members through said gears; and a clutch mechanism for connecting the driving and driven members independent of the gears, the clutch-faces being located within the casing.

4. A variable-speed gearing comprising a shaft; a casing carried thereby and having a common movement therewith, said casing having spaced inwardly-extending flanges; a driven member, a sleeve loosely mounted on said shaft carrying the driven member, said sleeve having an external gear; gears of different diameters carried by said casing between said flanges, one of said gears having an operative engagement with the gear of said sleeve; and sleeves loosely mounted concentrically on said first-mentioned sleeve, said sleeves having an operative engagement with the remaining gears; and independent retarding means for each sleeve, whereby a positive connection may be made between the driving and driven members through said gears.

5. A variable-speed gearing comprising a shaft; a casing carried thereby and having a common movement therewith, said casing having spaced inwardly-extending flanges; a driven member, a sleeve loosely mounted on said shaft, carrying the driven member, said sleeve having an external gear; gears of different diameters carried by said casing between said flanges, one of said gears having an operative engagement with the gear of said sleeve; sleeves loosely mounted concentrically on said first-mentioned sleeve, said sleeves having an operative engagement with the remaining gears; independent retarding means for each sleeve, whereby a positive connection may be made between the driving and driven members through said gears; and a clutch mechanism carried by said casing.

6. A variable-speed gearing, comprising a driving member; a casing carried thereby, and having a common movement therewith; a driven member; gears carried by said casing; sleeves carried by the driven member and having an operative connection with said gears; retarding means for each sleeve, and a clutch mechanism carried by said casing.

7. A variable-speed gearing, comprising a driving member; a casing carried thereby, and having a common movement therewith; a driven member; gears carried by said casing; sleeves carried by the driven member, and having an operative connection with said gears; independent retarding means for each of said sleeves; and a clutch mechanism carried by said casing the clutching-faces thereof being located within the casing.

8. A variable-speed gearing, comprising a driving member; a casing carried thereby, and having a common movement therewith; a driven member; gears carried by said casing; sleeves carried by the driven member, and having an operative connection with said gears; retarding means for each of said sleeves; and a clutch mechanism carried by said casing the clutching-faces of which are located within the casing, one of said faces being formed on the casing.

9. A variable-speed gearing, comprising a driving member; a casing carried thereby, and having a common movement therewith; a driven member; gears carried by said casing; sleeves carried by the driven member, and having an operative connection with said gears; retarding means for each of said sleeves; a clutch mechanism carried by said casing, having its clutching-faces, located within the casing, one of said faces being formed on the casing; and a clutch-operating device carried by the casing adapted to move the clutch-faces into frictional engagement.

10. The combination with a driving-shaft, of two gears independently revoluble upon said shaft; a driven member so connected with one of said gears as to be revoluble therewith; means adapted to hold the other gear against rotation; gearing connections between said gears; and a support revoluble with said shaft, adapted to revolubly support said gearing connections; whereby said driven member may revolve independently of said driving-shaft, or be driven at a lower speed than that of said shaft.

11. The combination with a driving-shaft of a fly-wheel so attached to said shaft as to revolve therewith; two gears within said fly-wheel and independently revoluble upon said shaft; a driven member connected with one of said gears so as to be revoluble therewith; means adapted to hold the other said gear against rotation; and gearing connections between said gears, revolubly supported by and within said fly-wheel.

12. The combination with a driving-shaft, of two concentric sleeves independently revoluble upon said shaft; a gear attached to each of said sleeves; a driven member attached to one of said sleeves, and revoluble therewith; means for holding the other sleeve against rotation; gearing connections between said gears on said sleeves; and a support, revoluble with the driving-shaft adapted to revolubly support said gearing connections.

13. The combination with a driving-shaft, of concentric sleeves independently revoluble upon said shaft, two gears attached to said sleeves respectively: a sprocket attached to one sleeve, a brake-wheel attached to the other sleeve, means for holding said brake-wheel against rotation, a fly-wheel attached to said driving-shaft and revoluble therewith, two gears revolubly supported in said fly-wheel and adapted to mesh with said gears attached to said sleeves, and means for connecting said gears carried in said fly-wheel, whereby they revolve together.

14. A transmission-gear mechanism comprising a set of differential pinions, a support therefor, a revoluble shaft, a pinion fixed on said shaft and engaging one of said differential pinions, a pinion engaging one of said differential pinions and having a sleeve loose on said shaft, mechanism for holding said sleeve, a pinion engaging one of said differential pinions and having a sleeve loose on said first sleeve, and mechanism for holding said second sleeve, substantially as specified.

15. A transmission-gear mechanism comprising a set of differential pinions, a support therefor, a revoluble shaft, a pinion fixed on said shaft and engaging one of said differential pinions, a pinion en-

gaging one of said differential pinions and having a sleeve loose on said shaft, a clutch mechanism connected with said sleeve for holding the same, a pinion engaging one of said differential pinions and having a sleeve loose on said first sleeve and a clutch mechanism connected with said second sleeve for holding the same, substantially as specified.

16. A transmission-gear mechanism comprising a set of differential pinions, a support therefor, a revoluble shaft, a pinion fixed on said shaft and engaging one of said differential pinions, a pinion engaging one of said differential pinions and having a sleeve loose on said shaft, a brake-wheel connected with said sleeve, a brake-band for holding said brake-wheel, a pinion engaging one of said differential pinions and having a sleeve loose on said first sleeve, a brake-wheel connected with said second sleeve, and a brake-band for holding said second brake-wheel, substantially as specified.

17. A transmission-gear comprising a compound planetary pinion, a support therefor, a revoluble shaft, an externally-toothed pinion fixed on said revoluble shaft and engaging said planetary pinion, an externally-toothed pinion engaging said planetary pinion, and having a sleeve loose on said shaft, a wheel fixed to said sleeve, an externally-toothed pinion engaging said planetary pinion and having a sleeve loose on said first sleeve, a wheel fixed to said second sleeve, and mechanism for holding said wheels, substantially as specified.

18. A speed-changing mechanism comprising a cylindrical casing, a clutching member fixed therein, a shaft having a clutching member fixed thereto to engage said first clutching member, members for engaging and disengaging said clutching members, planetary gearing, gearing carried by said shaft and engaging said planetary gearing, and a cylindrical casing connected with said first casing and inclosing said gearing, substantially as specified.

19. A speed-changing mechanism comprising a shaft, a clutching member fixed thereto, a second shaft, a clutching member fixed to said second shaft and adapted to engage with said first clutching member, a gear fixed on said second shaft, a plurality of gears loose on said second shaft, mechanism for holding said loose gears, a compound planetary pinion journaled in bearings carried by said first shaft and having its differentials in engagement with the pinions on said second shaft, and a substantially oil-proof inclosing mechanism for said clutching members and gears, substantially as specified.

787,864. **DRAFT-RIGGING FOR RAILWAY-CARS.** ALBERT W. SULLIVAN and WILLIAM RENSHAW, Chicago, Ill. Filed Mar. 5, 1904. Renewed Feb. 8, 1905. Serial No. 244,680.



Claim.—1. In mechanisms of the class described, the combination of main center sills, a supporting-plate extending across the space between such sills and secured to the bottom portion of both of such sills, supporting-straps arranged longitudinally of and secured to the supporting-plate, and draft-rigging movably mounted and supported in such supporting-straps, substantially as described.

2. In mechanisms of the class described, the combination of main center sills, a supporting-plate extending across the space between and secured to such center sills, supporting-straps arranged longitudinally of and secured to the lower side of the supporting-plate, draft-rigging movably supported in such straps, and shoulder-bars interposed between the supporting plate and straps to take the end thrust off such straps, substantially as described.

3. In mechanisms of the class described, the combination of main center and subcenter sills, a supporting-plate extending across the space between and secured to both main and sub center sills, and draft-rigging secured to and supported by such supporting-plate, substantially as described.

4. In mechanisms of the class described, the combination of main center and subcenter sills, a supporting-plate extending across the space between such sills and secured in position between both the adjacent faces of both main center and subcenter sills and to both of such sills, and a draft-rigging secured to and supported by the supporting-plate, substantially as described.

5. In mechanisms of the class described, the combination of main center sills, a supporting-plate extending across the space between such sills and secured to both of the same, supporting-straps arranged longitudinally of and secured to the supporting-plate, draft-rigging movably mounted in and supported by the supporting-straps, and shoulder I-bars interposed between the supporting-plate and supporting-straps with the shoulders abutting against the ends of the same and clamped in position therebetween to receive the end thrust of the supporting-straps, substantially as described.

6. In mechanisms of the class described, the combination of a pair of main center sills formed of metal I-beams, a supporting-plate extending across the space between the same and secured to the under surfaces of the lower flanges of said sills, supporting-straps secured to the supporting-plate, and draft-rigging movably mounted and supported in such supporting-straps, substantially as described.

7. In mechanisms of the class described, the combination of a pair of main center sills formed of metal I-beams, a supporting-plate extending across the space between and secured to the under face of the lower flanges of said sills, a pair of supporting-straps arranged longitudinally of and secured to and beneath the supporting-plate, draft-rigging movably mounted and supported in the supporting-straps, and shoulder-bars interposed between the supporting-plate and supporting-strap and secured to both to receive the end thrust of such supporting-straps, substantially as described.

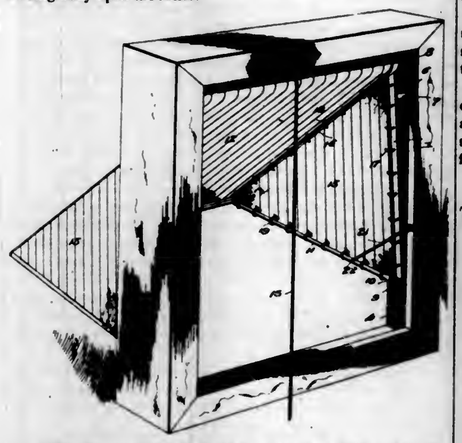
8. In mechanisms of the class described, the combination of a pair of main center sills formed of metal I-beams, a pair of subcenter sills arranged underneath and secured to the lower flanges of the main center sills, a supporting-plate extending across the space between such main and sub center sills and clamped in position by and between the adjacent flanges of the sills, to both pairs of which it is secured, a pair of supporting-straps arranged longitudinally of and secured to the under surface of such supporting-plate, shoulder I-bars interposed between the supporting-plate and supporting-straps with their head portions arranged outside of and their shoulders contacting the ends of both supporting plate and straps to receive the end thrust of the straps, and bolt mechanism for securing such supporting plate, straps and I-bars together, substantially as described.

787,865. **AWNING.** FREDERICK L. TEMPLE, Prince George, Va. Filed July 19, 1904. Serial No. 217,253.

Claim.—1. The combination in an awning, of opposite riser-bars provided with attaching means, a spring-actuated roller arranged in the upper ends of the bars, an awning-frame loosely connected to the bars below the roller, and an awning-body attached to the frame and to the roller.

2. The combination in an awning, of opposite riser-bars provided with attaching means and having their upper ends extended laterally to form supports and below the supports having bearings, a roller mounted in the bearings, a hood mounted on the supports above the roller, a lower awning-frame, and an awning-body attached thereto and to the roller, and means for operating the roller.

3. The combination, in an awning, of opposite bearing-supports, a roller arranged therein, a lower hinged awning-frame, an awning-body attached thereto and wound upon the roller, opposite side awning-sections secured to the front end of the awning and provided along their upper edges with rings, and ropes attached to the front end of the frame passed through said rings and wound with the awning-body upon the roller.



4. The combination, in an awning, of opposite riser-bars having attaching means and opposite bearings, a spring-actuated roller mounted in the bearings, an awning-frame connected to the riser-bars below the roller, an awning-body attached to the roller and to the frame, an operating-rope attached to the roller and wound with said awning-body on the roller, opposite side ropes attached to the awning-frame and wound with the awning-body about and attached to the roller, opposite side awning-sections provided with rings running on the side ropes, said awning-sections being attached at their front ends to the awning-frame and at their rear ends to the risers.

787,866. **CORSET-EYE.** FRANK E. VANDERCOOK, Waterbury, Conn., assignor of one-third to William E. Vandercook and one-third to Horace G. Fosdick, Ansonia, Conn. Filed Mar. 11, 1902. Serial No. 97,652.



Claim.—1. A corset-eye formed of a single piece of wire bent and flattened and consisting of a loop, a shank therefor having a return reinforcement, and a rivet end at a right angle to and on said return reinforcement.

2. A corset-eye made of a single piece of wire comprising a stud-engaging loop, shank portions, reinforcements of and lying parallel with said shanks, and rivet ends located on the ends of said reinforcements, substantially as described.

3. A corset-eye comprising a single piece of wire flattened and bent to form an engaging loop, shanks formed on the loop, reinforcements of said shanks returned and disposed against the main shank-wire, and rivet ends formed on the ends of said reinforcements and at a right angle thereto.

4. A corset-eye consisting of a single piece of wire comprising an engaging eye, shanks, reinforcements disposed against the inner edge of each of said shanks and rivet ends at a right angle to said shanks.

5. A corset-eye comprising a single piece of wire flattened and bent to form a suitable loop, and shanks, each of the latter consisting of a main wire, reinforcements thereof comprising parallel returned wires flattened to form a broad shoulder, a rivet end formed on each of said reinforcements and located intermediate of the shank.

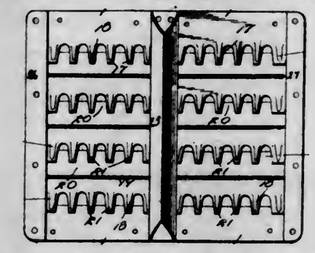
6. A corset-eye formed of one piece of wire bent and swaged and comprising a flat engaging loop, broad flattened shanks and rivet ends protruding at a right angle from and intermediate of the length of such shanks.

7. A corset-eye comprising a single piece of wire bent and swaged to form a flattened engaging loop, shanks integral with the loop and having return reinforcements to increase their breadth, rivet ends disposed at a right angle to and intermediate of the length of the shanks.

8. A corset-eye comprising a single piece of wire bent to form an engaging loop, shanks of such loop, reinforcements of such shanks, with means intermediate of the length of the shanks for their attachment to a steel.

9. A corset-eye made of a single piece of wire bent to form an engaging loop and with its free ends bent to form shanks with parallel reinforcements disposed against said shank, an integral round attaching rivet ends disposed from and at right angles to such reinforcements and the main body.

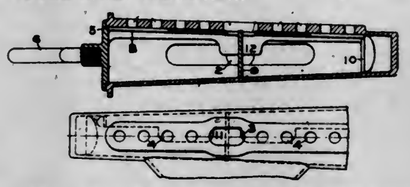
787,867. **SIEVE FOR THRESHING-MACHINES.** CHARLES W. VAN WYE, Freeport, Kans. Filed Aug. 3, 1904. Serial No. 219,351.



Claim.—1. A sieve comprising a frame, a series of rods journaled in the frame, means for rocking the rods and a slat secured to each of the rods, each of the slats consisting of a plate bent near its center into a tube on a line approximately parallel with its side edges, the tube extending from end to end of the plate and lying wholly at one side of the plate and encircling the rod.

2. A slat for sieves consisting of a plate bent near its center into a tube on a line approximately parallel with its side edges, the tube extending from end to end of the plate and lying wholly at one side of said plate, and a supporting-rod encircled by the tube.

787,868. **TWYER-IRON.** GEORGE A. WALTER, Prescott, Wis. Filed Mar. 10, 1903. Serial No. 147,060.



Claim.—1. A twyer-iron comprising a tubular casing provided with a relatively large central opening and a series of smaller openings on either side thereof, and a valve rotatably fitted within said casing and curved to conform thereto, said valve being formed with an opening to register with said large outlet-opening, and with openings to register with a portion of the smaller openings upon both sides of the large opening while said large opening is closed.

2. A twyer-iron comprising a conical casing provided with an inlet-opening and with a series of outlet-openings, a valve rotatably fitted within said casing and curved to conform thereto, said valve being provided with an opening to register with the central one of said outlet-openings, and being provided upon one side with a wing to close said central opening while leaving a portion of the remaining outlet-openings uncovered.

3. A twyer-iron, comprising a tubular casing provided with inlet and outlet openings, a valve removably fitted in said casing, and inwardly-extending lips carried by the inner end of said valve, as and for the purpose set forth.

4. A twyer-iron, comprising a tubular casing provided with an inlet-opening, and with an outlet-opening consisting of a central relatively large opening and smaller openings on either side thereof, and a valve fitted in said casing provided with a central partition, said valve being formed with an opening to register with said large outlet-opening, and with openings to register with a part of said smaller openings, said valve also being cut away to register with all of said outlet-openings in the rotation of said valve.

787,869. METHOD OF MAKING REFRACTORY BODIES. EDWARD G. ACHESON, Stamford township, Ontario, Canada, assignor, by mesne assignments, to North American Trust Company, trustee, a Corporation of New York. Original application filed Nov. 20, 1902, Serial No. 132,170. Divided and this application filed Dec. 12, 1904. Serial No. 236,607.

Claim.—1. The method which consists in shaping a material consisting essentially of silicon, oxygen and carbon, in chemical combination, and firing it to form a coherent self-bonded mass, substantially as described.

2. The method which consists in shaping a material consisting essentially of silicon, oxygen, carbon, in chemical combination, and a temporary binder, and firing it to form a coherent self-bonded mass, substantially as described.

787,870. COUPLING. MENNARD G. ADEN, Gothenburg, Nebr. Filed July 11, 1904. Serial No. 216,050.



Claim.—1. In a device of the character described, the combination with a casing having an opening therein; of a tubular stem slidably mounted within and extending from the casing, oppositely-extending curved outlets at the inner end of the stem, and a spring-pressed follower for holding the outlets normally in contact with and closed by one end of the casing.

2. In a device of the character described, the combination with a casing having an outlet; of a tubular stem slidably mounted within and extending from the casing, a head at the outer end of the stem, oppositely-extending curved outlets at the inner end of the stem, and a spring-pressed follower within the casing for holding the outlets normally in contact with and closed by one end of the casing.

3. In a device of the character described, the combination with a casing having an outlet; of a tubular stem slidably mounted within and projecting from the casing, a head at the outer end of the stem, a resilient block therein having an enlarged aperture therethrough, oppositely-extending curved outlets at the inner end of the stem, and a spring-pressed follower contacting with the stem and adapted to hold the outlets normally in contact with and closed by one end of the casing.

787,871. ANCHOR FOR RAILWAY-RAILS. BURCHARD F. BECKMAN, Redoak, Iowa. Filed Feb. 21, 1905. Serial No. 246,672.



Claim.—1. In rail-anchors, a pair of clamps of a longitudinal dimension less than their vertical dimension and adapted to be applied to the opposite edges of the lower flange of a railway-rail, each of their lower ends being extended down to engage a side of a railway-tie and being held out of engagement with each other, and means to draw and hold the clamps together.

2. In rail-anchors, a pair of clamps of a longitudinal dimension less than their vertical dimension and adapted to be applied to the opposite edges of the lower flange of a railway-rail, each of their lower ends being extended down and widened out to engage a side of a railway-tie near its center, said clamps being held out of engagement with each other, and means to draw and hold the clamps together.

3. In rail-anchors, a pair of clamps of a longitudinal dimension less than their vertical dimension and adapted to be applied to the opposite edges of the lower flange of a railway-rail, each of their lower ends being extended down and inclined out so their lower corners will first engage a side of a railway-tie, said clamps being held out of engagement with each other, and means to draw and hold said clamps in engagement with the flanges of the rail.

4. In rail-anchors, a pair of clamps each having a pair of jaws adapted to engage the opposite edges of the lower flange of a railway-rail and their lower ends to abut against a side of a railway-tie, central connecting parts having holes for a bolt, a lower web to connect the lower ends together, and a bolt to hold the clamps together.

5. In rail-anchors, a pair of clamps each having a pair of jaws adapted to engage the opposite edges of the lower flange of a railway-rail and their lower ends to abut against a side of a railway-tie, central connecting parts having holes for a bolt, the lower ends being widened out toward the side of the tie and connected together by a horizontally-disposed web, and a bolt to hold the clamps together.

6. In rail-anchors, a pair of clamps each having a pair of jaws adapted to engage the opposite edges of the lower flange of a railway-rail and their lower ends to abut against a side of a railway-tie, central connecting parts having holes for a bolt, the lower ends being inclined so as to bring them toward the side of the tie, a horizontally-disposed web to connect said lower ends together and a bolt to hold the clamps together.

7. In the construction of rail-anchors, a clamp having its lower or abutting end made wider than its upper or clamping end, said widened end being extended out substantially equal distances on each side from the vertical center of the clamp.

8. In the construction of rail-anchors, a clamp having its abutting edges extended out by inclines toward its lower end, said extensions being approximately equal distances from the vertical center of the clamp.

9. In the construction of rail-anchors consisting of a pair of clamps having upper clamping ends and lower abutting ends, a central hole for a bolt having its longitudinal sides tapered or made oblong so as to permit the setting of the clamps obliquely upon the rail.

10. In combination a pair of railway-anchors consisting of two pairs of clamps adjusted upon the lower flanges of adjacent rails of a railway-track, and a bolt passed through said clamps and having threads on each end, and burs mounted upon said thread so as to hold said clamps upon said flanges and to adjust the gage of the rails substantially as described.

787,872. CAST-OFF. CASPER BLOOMBERG, New York, N. Y. Filed Dec. 15, 1904. Serial No. 236,935.



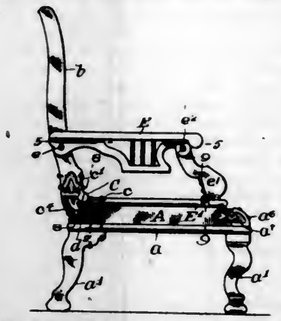
Claim.—A cast-off comprising a single wear-resisting flexible strip, and an outer flexible strip, a locking device securing the lower ends of the strips together, a chape, the two upper overlapped ends of the strips being looped through the chape, and a locking device securing the overlapped ends and strips together at the lapped part with the wear-resisting strip disposed in engagement with the chape, that portion of the outer strip between the said locking devices being of greater length than that of the inner wear-resisting strip, causing a bulging of the outer strip when the strips are not folded.

787,873. CHAIR. JAMES H. BROWNELL, Chicago, Ill., assignor of one-fourth to Rasmus Mickelsen, Oak Park, Ill. Filed Aug. 1, 1904. Serial No. 219,018.

Claim.—1. In a chair, the combination with a rigid bottom frame and legs, of a back hinged to the bottom frame, a pair of arms hinged to the back at one end, a pair of uprights hinged to the other ends of said arms and hinged to the bottom frame, hinges between the back and bottom frame, one of the leaves of which contains a curved slot concentric with the pivotal axis and the other of which is provided with an inwardly-extending spindle, a roller supported between the spindles of the two hinges, a spring coiled upon the roller and tending to crowd the back forward and a clamping-rod secured in the bottom frame and provided at its ends with means bearing upon the slotted portion of the hinges to clamp the back against pivotal movement upon the axis of the latter.

2. In a chair, the combination with a rigid bottom frame, of a back hinged thereto by means of hinges comprising the leaves, c, c',

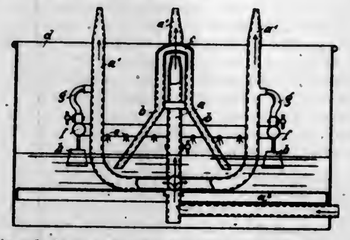
one of which is provided with a curved slot concentric with the pivotal axis, and the other of which is provided with an inwardly-extending spindle, a roller supported between the spindles of the two hinges, a spring supported upon the roller and tending to crowd the back forward, and a clamping-rod secured in the bottom frame and provided at its ends with means bearing upon the slotted portion of the hinges to clamp the back against pivotal movement upon the axis of the latter.



3. In a knockdown chair, a rigid bottom frame made up of side pieces provided with legs, a removable front piece, a cross-bolt clamping the side pieces to the front piece and having nuts upon the outsides of the side pieces, a molding secured between the side pieces in front of said bolts, corner-pieces having hollow bosses covering said nuts, sockets secured to the sides of the rear portions of the side pieces, screw-threaded studs upon said sockets, a rear cross-bar between said sockets containing perforations for said studs and openings adjacent to the ends thereof and nuts upon the ends of said studs within said openings clamping the rear cross-bars to the sockets.

4. In a chair of the class described, the combination with a rigid bottom frame and back, of hinges between the bottom frame and back, comprising the leaves, c, c', one of which bears the slotted segment, c^4, a tubular strut, D, secured in the side pieces, a rod extending through said strut and through the slots in the segment, c^4, and means for tightening said rod upon the segments and the strut to clamp the back against pivotal movement upon the hinges.

787,874. ATOMIZING INHALER. ANTON BULLING, Munich, Germany, assignor to Carl Ritter Von Wesely, Vienna, Austria-Hungary. Filed Mar. 2, 1904. Serial No. 196,219.



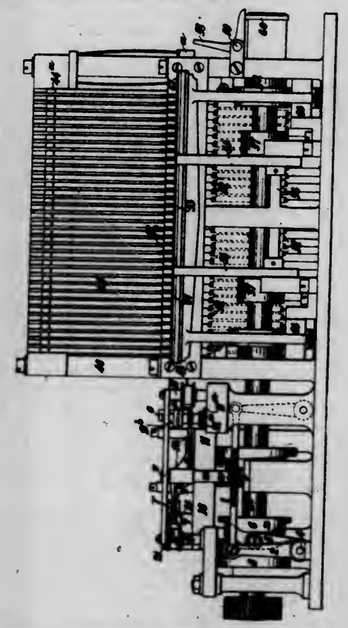
Claim.—1. In an atomizer, the combination with a vessel for containing medicaments and a liquid vehicle, an atomizing-chamber, and a passage for conducting the medicaments thereto, of a float sustained by the liquid vehicle and means carried by the float and arranged to direct a current of air under pressure upon the surface of the medicaments and thereby diffusing the medicaments in the liquid vehicle.

2. In an atomizer, the combination with a vessel for containing oily medicaments and a liquid vehicle, an atomizing-chamber and passages leading from below the surface of the vehicle to the atomizing-chamber, of a pipe supported above the surface of the liquid and having perforations on its under side, and means for forcing air under pressure through said perforations downward upon the surface of the oily medicaments adjacent to the inlets of the passages.

3. In an atomizer, the combination with a vessel for containing oily medicaments and a liquid vehicle, of a passage leading from a convenient source of compressed air and terminating in a central discharge tube and nozzle, a cap surrounding the nozzle and serving as an atomizing-chamber, passages leading to the atomizing-chamber from below the surface of the liquid vehicle, a pipe arranged horizontally about discharge-tube and communicating therewith, perforations in the lower side of the horizontal pipe, and means consisting of floats for maintaining the horizontal pipe a uniform distance above the surface of the liquid.

4. In an atomizer, the combination with a vessel for containing oily medicaments and a liquid vehicle, of a passage leading from a convenient source of compressed air and terminating in a plurality of discharge-nozzles one being arranged centrally of the others, a cap surrounding the central discharge and serving as an atomizing-chamber, passages leading to the atomizing-chamber frow below the surface of the liquid vehicle, a pipe arranged horizontally about the discharge-tubes and communicating therewith, perforations in the lower side of the horizontal pipe, and means consisting of floats maintaining the horizontal pipe a uniform distance above the surface of the liquid.

787,875. APPARATUS FOR CONTROLLING TYPE-WRITING MACHINES. FREDERICK G. CREED, Lenzie, Scotland, assignor to himself, and William Arthur Coulson, Mile End, Glasgow, Scotland. Filed Oct. 12, 1903. Serial No. 176,663.



Claim.—1. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device the extent of whose successive feeding movements is capable of variation, and mechanism for determining the amount of such feeding movement, said mechanism being controlled by the perforated tape.

2. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, mechanism for actuating said feeding device, and means for determining the extent of movement of said actuating mechanism and consequently of the feeding device and the action of which is dependent upon the position in the successive portions of tape of the perforations and spaces representing successive letters.

3. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, feeding mechanism having a variable motion and adapted to drive said tape-feeding device in a forward direction, and selecting mechanism adapted to determine the extent of movement of the feeding mechanism and tape-feeding device and the action of which is also vari-

able and dependent upon the position in the successive portions of tape of the perforations and spaces representing successive letters.

4. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, feeding mechanism for actuating said feeding device in one direction, means for moving said actuating mechanism alternately in opposite directions, and adjustable means under the control of the perforated tape for causing the extent of successive backward movements of the feeding mechanism to correspond to the length of successive letters in the tape.

5. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, means for actuating said feeding device and the tape engaged thereforth in a forward direction, and a series of stops corresponding to different lengths of letters in the tape and adapted to determine the extent of successive feeding movements of the said feeding device and tape, the particular stop used for determining the extent of each feeding movement being arranged to be selected by the portion of tape containing the corresponding letter to be reproduced or translated.

6. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, feeding mechanism whereby said feeding device can be moved in a forward direction but not in a backward direction, driving means for moving said feeding mechanism alternately in opposite directions, a yielding device arranged between the driving means and the feeding mechanism and adapted to permit of said mechanism, when moved in one direction, coming to rest before the driving means has completed its movement in the corresponding direction, a series of stops corresponding to different lengths of letters in a perforated tape and the positions of which are controlled by the tape, and means arranged to be operated by the feeding mechanism and the extent of movement of which and of said mechanism in a backward direction, is determined by that stop of the series that is selected by the tape and corresponds to the length of the letter about to be reproduced or translated.

7. Apparatus of the kind herein referred to for operating or controlling type-writing, type-setting, or type-casting mechanism by means of perforated tape, wherein the intermittent feeding movement of the tape is controlled by selecting mechanism comprising a number of movable stops, and a number of pairs of selector-bars so arranged that when the portion of tape representing the letter about to be translated is moved laterally relatively to the pairs of selector-bars, that pair of selector-bars corresponding in position to the space included in the said letter will be moved by the blank tape and will permit the corresponding movable stop to determine the extent to which the tape will be fed forward at the next feeding operation.

8. In apparatus for operating or controlling type-writing, type-setting, or type-casting mechanism by means of perforated tape, the combination with means for actuating or controlling the type-writing or type-setting mechanism and adapted to be operated by lateral movement of the tape, a laterally-movable tape-guiding device, a tape-feeding device, and driving mechanism, of feed-operating mechanism that is driven from the driving mechanism and engages the feeding device and the extent of movement of which is variable, and selecting mechanism for controlling or determining the movement of the feed-operating mechanism and the action of which is also capable of variation and is dependent upon the position in the successive portions of tape of the perforations and spaces representing successive letters.

9. In apparatus of the kind herein referred to for reproducing letters from perforated tape, the combination with a series of endwise-movable combs such as described for actuating or controlling mechanism for reproducing letters, a laterally-movable tape-guiding device, and means for operating such device, of a tape-feeding device, feed-operating mechanism, means for actuating said mechanism, and an exploring-bar connected to the feed-operating mechanism and selecting mechanism.

10. In apparatus of the kind herein referred to wherein combs arranged to be moved endwise by blank portions of tape are used to actuate or control type-writing, type-setting, or type-casting mechanism, the combination with the said combs, a laterally-movable tape-guiding device and variable tape-feeding mechanism as set forth, of means such as a longitudinal bar or plate carried by the tape-feeding device and operated from the variable tape-feeding mechanism in such a manner that it will be moved backward to an extent depending upon the length of the letter to be translated and will force back all the combs corresponding to the portion of tape following that occupied by the letter being translated so as to produce on such combs the effect of blank tape in the said following portion of tape.

11. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, feeding mechanism arranged to be moved alternately in backward and forward directions and to move said feeding device in a forward direction only, driving means for said feeding mechanism, a series of stops controlled by the perforated tape and adapted to limit the backward movement of the feeding mechanism to an extent dependent upon the length of the letter to be translated, and a yielding connection between the feeding mechanism and driving means and whereby the feeding mechanism can be brought to rest by the selected stop before the driving means has completed its stroke.

12. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, feeding mechanism adapted to move said tape-feeding device in a forward direction only, an exploring device connected to said feeding mechanism and moved thereby, driving means for said feeding mechanism, a yielding connection between said feeding mechanism and driving means, a series of movable stops corresponding to letters of different lengths and arranged to limit the extent of movement of said exploring device and feeding mechanism in one direction, and means under the control of the tape for causing the stop corresponding to the letter about to be reproduced or translated to become operative to limit the movement of the exploring-bar.

13. In apparatus for operating or controlling mechanism for reproducing or translating into ordinary characters information that is in the form of perforations in a tape, a tape-feeding device, feeding mechanism for intermittently moving said device in a forward direction, a tape-guiding device, means for moving the same sidewise, and selecting mechanism comprising a number of movable stops adapted to limit the extent of backward movement of the feeding mechanism, and a number of pairs of selector-bars arranged so that when the portion of tape representing the letter about to be translated is moved laterally by said tape-guiding device relatively to the pairs of selector-bars, that pair of selector-bars corresponding in position to the space included in the said letter, will be moved by the blank tape and will permit the corresponding movable stop to determine, through the feeding mechanism, the extent of forward motion of the feeding device.

14. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with means for operating or controlling a type-writing, type-setting or other machine for the dissemination of information, and the action of which is governed by lateral movement of the tape, a laterally-movable tape-guiding device, a tape-feeding device, and driving mechanism, of feeding mechanism driven from the driving mechanism and engaging the feeding device and the extent of movement of which is variable, and selecting mechanism arranged to be actuated by movement of the tape relatively thereto and whereby the extent of movement of the feeding mechanism is made dependent upon the position in the successive portions of tape of the perforations and spaces representing successive letters.

15. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with a plurality of assembling devices for actuating or controlling mechanism for reproducing letters, a laterally-movable tape-guiding device, and means for operating said device, of a tape-feeding device, feed-operating mechanism, means for actuating said mechanism alternately in opposite directions, an exploring-bar connected to the feed-operating mechanism, and selecting mechanism comprising a number of pairs of selector-bars arranged to be operated by blank portions of the tape when the same is moved laterally toward the same, and a number of stops arranged one behind the other and adapted to come into the path of the exploring-bar, each stop being controlled by a pair of selector-bars.

16. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination of a plurality of controlling devices the relative positions of which are determined by the perforations and blank spaces representing each letter in the tape and which control mechanism for reproducing each letter, tape-feeding mechanism adapted to intermittently move the tape forward to variable extents depending upon the lengths of successive letters in the tape, and a device arranged to be operated in unison with the tape-feeding mechanism and to move backward at each operation to an extent depending upon the length of the letter about to be translated so as to uncover only the portion of the tape containing that letter and to cover the next succeeding letter or letters and have the effect of blank tape on the controlling devices.

17. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination of a series of controlling devices arranged side by side and adapted to control the action of mechanism for producing ordinary characters, selecting mechanism comprising a series of pairs of selector-bars and stops controlled by said bars, a tape-guiding device arranged between said controlling devices and selector-bars and means for moving it sidewise relatively to said devices and bars and causing a rearrangement thereof for the purposes set forth, a feed-wheel adapted to engage the tape extending through said tape-guiding device, a clutch device for rotating said feed-wheel in a forward direction only, an exploring-bar arranged to work in a guideway across which said stops can extend, a lever connected to said exploring-bar and clutch device, means for oscillating said lever, driving mechanism, and a yielding connection between said oscillating means and driving mechanism.

18. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination of a series of controlling devices arranged side by side and adapted to control the action of mechanism for producing ordinary characters, a tape-guiding device and means for moving the same sidewise relatively to said controlling devices, a tape-feeding device, means under the control of the tape for causing said feeding device to move the tape forward in an intermittent manner to extents depending upon the length of the successive letters in the tape, and a shutter carried by said tape-guiding device on the side next the controlling devices and arranged to be moved backward at each operation of the apparatus to an extent corresponding to the length of the letter to be reproduced and cover the portion of tape containing the next succeeding letter.

19. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination of a series of controlling devices arranged side by side and adapted to control the action of mechanism for producing ordinary characters, a series of selector-bars, a tape-guiding device arranged between the inner ends of the controlling devices and selector-bars and having perforations in its sides, the inner ends of the controlling devices and selector-bars and the holes in the tape-guiding device corresponding in position to the possible position in the tape of perforations to represent any letter to be translated, a feed-wheel adapted to engage the tape, a clutch device for moving said feed-wheel in a forward direction, a support for said selector-bars, means for holding the selector-bars in their normal and inoperative position, but adapted to allow of their being moved by blank portions of tape into the operative position, a series of stops normally held in the inoperative position by the selector-bars, means for moving each stop into an operative position across a guideway in said support when the corresponding selector-bars are moved into the operative position, an exploring-bar arranged to work in said guideway and to be arrested by one or other of said stops, feeding mechanism connected to said clutch and exploring-bar, driving mechanism for moving said feeding mechanism with clutch and exploring-bar alternately in opposite directions, and means for enabling the motion of said feeding mechanism and attached parts to be arrested on the backward motion before the driving means has completed its motion in the same direction.

20. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination of a series of controlling devices arranged side by side and adapted to control the action of mechanism for producing ordinary characters, a series of selector-bars arranged in pairs, a tape-guiding device arranged longitudinally between the inner ends of the controlling devices and selector-bars and having perforations through its side in which the inner ends of the controlling devices and selector-bars can work, means for moving said tape-guiding device sidewise alternately in opposite directions, a fixed support in which said selector-bars can move endwise, springs acting to normally hold the selector-bars in their inner position, stops arranged to move across a guideway in said support but each normally held in its back or inoperative position by a pair of the selector-bars, springs acting to move said stops across said guideway when released by outward movement of the corresponding pair of selector-bars, a feed-wheel adapted to engage the tape, feeding mechanism for moving said feed-wheel in a forward direction only, an exploring-bar connected to said feeding mechanism and arranged to work in said guideway, driving mechanism adapted to move said feeding mechanism and attached parts in opposite directions, and connecting means arranged between said driving and feeding mechanism and adapted to yield in a backward direction.

21. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination of a series of controlling devices arranged side by side and adapted to control the action of mechanism for producing ordinary characters, selecting mechanism comprising a series of independently-movable stops, a tape-guiding device and means for reciprocating the same between said controlling devices and selecting mechanism to cause the tape to adjust the position of said devices and mechanism, a feed-wheel adapted to feed the tape forward, a clutch for moving said feed-wheel in a forward direction only, feeding mechanism engaging said clutch, means for moving said feeding mechanism alternately in opposite directions, an exploring device connected to said feeding mechanism and adapted to limit the backward movement of said feeding mechanism under the action of one or other of said stops, and a shutter carried by said tape-guiding device and arranged to be moved backward to the same extent as the exploring device.

22. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with a number of pairs of endwise-movable combs for controlling mechanism for producing ordinary characters, a tape-guiding device, and means for moving the latter toward and from said combs, of selecting mechanism comprising selecting-bars and stops arranged at the opposite side of said tape-guiding device and adapted to be operated by the blank portions of tape representing the space at the end of each letter, a support adapted to carry said selecting mechanism and formed with a guideway at right angles to said stops and across which the stops can move, a shutter mounted to slide in said tape-guiding device on the side thereof next the combs and connected to a rack, a feed-wheel adapted to engage the tape, a clutch adapted to rotate said feed-wheel when moved in one direction but to be inoperative thereon when moved in the opposite direction, a toothed wheel connected to said clutch and in gear with said rack, an exploring-bar arranged to work endwise in said guideway and connected to a second rack, a two-armed lever having at its ends toothed segments one of which is in gear with the said toothed wheel and the other with the rack connected to the exploring-bar, means for oscillating said lever, driving means, and a connecting device arranged between said oscillating means and driving means and adapted to yield in one direction.

23. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with a series of combs for controlling mechanism for producing letters in ordinary characters, a tape-guiding device, means for moving the same toward and from said combs, and a tape-feeding device, of feeding mechanism for actuating said feeding device in one direction, selector mechanism under the control of the tape and whereby the movement of the feeding mechanism can be varied, driving mechanism for moving said feeding mechanism in opposite directions, and a yielding driving device between said feeding mechanism and driving mechanism, said yielding driving device comprising a spindle adapted to be operated by the driving mechanism, a lever-arm loose on said shaft, a spring connected at one end to said shaft and at the other end to said lever-arm, and a spring-blade fixed to said shaft and arranged to act against said lever-arm in an opposite direction to said spring.

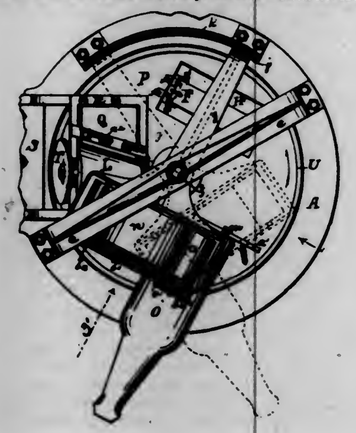
24. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with a series of combs for controlling mechanism for producing letters in ordinary characters, a tape-guiding device, means for moving the same toward and from said combs, and a tape-feeding device, of feeding mechanism for actuating said feeding device in one direction, means for moving said mechanism alternately in opposite directions, an exploring-bar connected to said feeding mechanism, and selecting mechanism under the control of the tape for determining the extent of each backward movement of the feeding mechanism and consequently the extent of the next forward movement of the tape-feeding device, said selecting mechanism comprising a fixed support arranged at the opposite side of the tape-guiding device to that at which the combs are arranged and having a longitudinal guideway 17 therein and also shoulders or abutments thereon, a number of pairs of selector-bars 22 arranged to slide endwise in said support at right angles to said guideway and having pointed inner ends arranged to be acted upon by blank portions of

tape when the same are moved toward them and be thereby moved in an outward direction and notched outer ends having inwardly-turned projections 24, a series of stops *r* mounted to slide in said support and across the guideway therein, each stop being provided at its inner end with projections 25 normally engaged with the projections 24 on the corresponding pair of selector-bars, springs arranged normally to hold each selector-bar separately in its inward position against the shoulder or abutment on said support, and other springs each adapted to move one of said stops across the guideway when the corresponding pair of selector-bars are moved outward by the tape.

25. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with a series of combs for controlling mechanism for producing letters in ordinary characters, a tape-guiding device, means for moving the same toward and from said combs, and a tape-feeding device, of a series of adjustable stops, stop-selecting mechanism under the control of the tape, an exploring-bar *q* connected to a rack 15 and the movement of which in a backward direction is limited by one or other of said stops, a spindle carrying a feed-wheel *n* and a ratchet-wheel 12ª, a toothed wheel 11 mounted to rotate about said spindle and carrying a pawl in engagement with said ratchet-wheel, a lever *o p* having toothed segments 10 and 14 in gear respectively with the toothed wheel 11 and the rack 15, a toothed wheel *w* fixed to said lever, a reciprocatory rack 1 in gear with the wheel *w*, a spindle 4, a lever-arm 2 free to turn on this spindle and connected to said rack 1, a lever-arm 5 fixed to said spindle 4, a rotary cam 6 arranged to oscillate said lever-arm 5, a coiled spring connected at one end to said spindle 4 and at the other end to said lever-arm 2, and a spring-blade 8 fixed at one end to said spindle and arranged to act at its other end against a lateral pin 9 fixed to the lever-arm 2.

26. In apparatus for reproducing or translating into ordinary characters, information that is in the form of perforations in a tape, the combination with a series of combs for controlling mechanism for producing letters in ordinary characters, a tape-guiding device, means for moving the same toward and from said combs, and a tape-feeding device, of a series of adjustable stops, stop-selecting mechanism under the control of the tape, an exploring-bar *q* connected to a rack 15 and the movement of which in a backward direction is limited by one or other of said stops, a spindle carrying a feed-wheel *n* and a ratchet-wheel 12ª, a toothed wheel 11 mounted to rotate about said spindle and carrying a pawl in engagement with said ratchet-wheel, a lever *o p* having toothed segments 10 and 14 in gear respectively with the toothed wheel 11 and the rack 15, a shutter 30 mounted to slide endwise in the tape-guiding device, a rack 31, in gear with said wheel 11, a spring-blade 31ª connecting said shutter to the rack 31, a toothed wheel *w* fixed to said lever, a rack 1 in gear with said wheel *w*, driving mechanism having a yielding action in one direction for reciprocating said rack 1, and stops 36 and 37 for limiting the motion of said lever *o p* and rack 31 in a forward direction.

787,876. LABELING-MACHINE. LUTHER C. CROWELL, South Wellfleet, Mass., assignor of one-third to Robert W. Howard and Charles F. A. Smith, Boston, Mass.; Luther F. Crowell administrator of said Luther C. Crowell, deceased. Filed Sept. 22, 1902. Serial No. 124,383.



Claim.—1. A horizontal label-supporting device in combination with a rotating table having a central device mounted at a fixed point for holding a bottle-nose during rotation of the bottle in contact with the label, substantially as described.

2. A label-supporting device in combination with a rotating table having a central device mounted at a fixed point for holding a bottle-nose during rotation of the bottle, said device being mounted to rotate to permit the bottle to be moved longitudinally of the label as the bottle is rotated, substantially as described.

3. A horizontal label-supporting device in combination with a rotating table having a central device mounted at a fixed point for holding a bottle-nose during rotation of the bottle in contact with the label, and means for applying adhesive material to the label, substantially as described.

4. A rotating table having a supporting device for holding a pile of labels in combination with a central device mounted at a fixed point for holding a bottle-nose during rotation of the bottle in contact with the top label, and an automatic label-supply mechanism for advancing the pile of labels, substantially as described.

5. A rotating table having a supporting device for holding a pile of labels, in combination with a device mounted at a fixed point for holding a bottle-nose during rotation of the bottle in contact with the top label, an automatic label-supply mechanism for advancing the pile of labels, and means for applying adhesive material to the labels, substantially as described.

6. The combination with a central device mounted at a fixed point for holding a bottle-nose during rotation of the bottle, of a rotating table carrying labels into position for application to a bottle, and a label-supply mechanism actuated by the rotation of the table, substantially as described.

7. The combination with a central device mounted at a fixed point for holding a bottle-nose during the rotation of the bottle, and adhesive-applying means, of a rotating table for carrying labels into position to receive adhesive and into position for application to a bottle held by the central device, substantially as described.

8. The combination with a central device mounted at a fixed point for holding a bottle-nose during rotation of the bottle, and adhesive-applying means, of a rotating table for carrying piles of labels, and means actuated by the rotation of the table for advancing the piles of labels as labels are withdrawn, substantially as described.

9. The combination with a supporting device for a block of labels secured together by adhesive at one end, of a rotating table having a central device mounted at a fixed point for holding the bottle-nose during rotation of the bottle, said device being mounted to rotate to permit the bottle to be moved over the block of labels from the free to the secured ends of the labels during the rotation of the bottle, substantially as described.

10. The combination with a supporting device for a block of labels secured together by adhesive at one end, of a device mounted at a fixed point for holding the bottle-nose during rotation of the bottle, said device being mounted to rotate to permit the bottle to be moved over the block of labels from the free to the secured ends of the labels during the rotation of the bottle, and a rotating table for carrying the block of labels into position for the application of a label to a bottle, substantially as described.

11. The combination with a supporting device for a block of labels secured together by adhesive at one end, of a device mounted at a fixed point for holding the bottle-nose during rotation of the bottle, and mounted to rotate to permit the bottle to be moved over the block of labels from the free to the secured ends of the labels during the rotation of the bottle, an adhesive-applying roller, and a rotating table for carrying the block of labels into position for receiving adhesive and for the application of a label to the bottle, substantially as described.

12. The combination with the cap V for holding an article for application of a label, of means for adjusting said cap horizontally and vertically, and a label-holder for the label being applied, substantially as described.

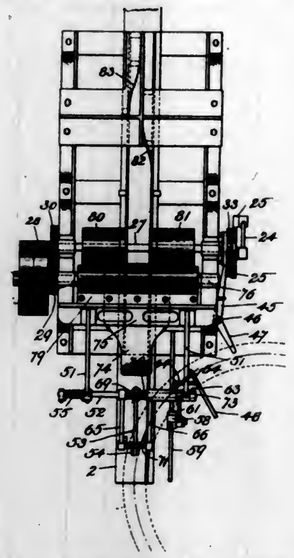
13. A bottle-labeling machine provided with means for holding a bottle and means for applying a body-label, and a central device mounted at a fixed point for holding the nose of the reversed bottle for application of a neck-label, substantially as described.

14. The combination with means for holding a bottle or similar article, of a rotating table for carrying labels into position for receiving adhesive and into position for receiving the body of the bottle and a moving belt for rotating the bottle in contact with a label, substantially as described.

15. The combination with a rotating label-carrier, of a support for a bottle or similar article, a rotating carrier, and a driven belt on said carrier for rotating the bottle in contact with a label, substantially as described.

16. A bottle-labeling machine having neck-labels with means for applying same and provided with a rotating table having a central device mounted at a fixed point thereon for holding the nose of a reversed bottle for application of a neck-label, substantially as shown and described.

787,877. MACHINE FOR CLOSING AND SEALING THE ENDS OF CARTONS. WILLIAM H. DOBLE, Quincy, Mass. Filed Jan. 4, 1904. Serial No. 187,639.



Claim.—1. In a machine for closing the flaps on the upper end of filled cartons, mechanism which moves the filled cartons in an upright position in a horizontal path, a rearwardly-projecting arm pivoted above the path of movement of the filled cartons, said arm being pivoted to oscillate in a vertical plane and being provided with a downwardly-turned flap-folding finger, mechanism which swings the flap-folding finger forward in the direction of movement of the carton into engagement with the rear flap on the upper end of the carton, and means by which the carton-moving mechanism controls the starting of the flap-folding mechanism.

2. In a machine for closing the flaps on the upper end of filled cartons, carton-moving mechanism, a rearwardly-projecting arm having a finger which overhangs the path of movement of the filled carton, said arm being pivoted so as to oscillate in a vertical plane, mechanism controlled by the carton-moving mechanism to swing the said flap-folding finger downward and forward into engagement with the rear flaps of the carton, and spreaders controlled by the movement of the said end-flap-folding arm to spread the side flaps before the folding of the said rear flap, substantially as described.

3. In a machine for closing the flaps on the upper end of filled cartons, a reciprocating slide which carries carton-moving fingers, a rearwardly-projecting arm having a flap-folding finger which overhangs the path of movement of the filled carton, said arm being pivoted so as to oscillate in a vertical plane, a spring which tends to turn said arm and finger downward, a rod connected with said slide and having a stop which engages said flap-folding arm to hold the finger above the path of the carton and which is moved by said slide in its forward movement with the carton so that the flap-folding arm yields to the pressure of its spring and causes the finger to fold the rear flap, the said connecting-rod and stop being actuated by the rearward movement of the said slide to again raise the flap-folding arm, substantially as described.

4. In a machine for closing the flaps on the upper end of filled cartons, carton-moving mechanism, a rock-shaft having secured thereto a rearwardly-projecting arm having a flap-folding finger which overhangs the path of movement of the filled carton, a spring which tends to turn said rock-shaft in a direction to swing the flap-folding finger downward and forward, rearwardly-extending arms journaled on said shaft on opposite sides of said flap-folding arm having wedge-fingers adapted to engage and spread the side flaps when moved downward and having springs which tend to swing said arms downward, the movement of said side arms being controlled by the said flap-folding arm, a movable stop controlled by the movement of the carton-carrier to prevent the rock-shaft from yielding to its spring until the said carrier moves, said stop being moved by the forward movement of the carrier to permit said flap-folding finger to move into engagement with the rear end flap and permit the side fingers to engage and spread the side flaps, substantially as described.

5. In a machine for closing the flaps on the upper end of a carton, carton-moving mechanism, a rearwardly-projecting arm having a flap-folding finger which overhangs the path of movement of the carton, said arm being pivoted so as to oscillate said finger in a vertical plane, mechanism controlled by the moving carrier to swing the flap-folding finger downward and forward into engagement with the rear flap of the carton, vertically-swinging arms hung at opposite sides of said end-flap-folding arm, and whose movement is controlled by the movement of the said end-flap-folding arm, said side arms being provided with wedge-fingers which partially spread the side flaps, and a rearwardly-extending tapering arm which engages the forward carton-flap and folds it over the first folded flap and spreads outward and two side flaps, substantially as described.

6. In a machine for handling cartons, a slide, means for reciprocating said slide, a rearwardly-extending arm pivotally connected with said slide and provided with a finger which points transversely of the path of movement of the carton, mechanism actuated by the slide in the first part of its forward movement to swing said arm and bring said finger transversely of the path of movement of the carton, the slide in the latter part of its forward movement drawing the said finger forward, and mechanism actuated by the rearward movement of the slide to swing said arm and finger outward in the first part of its movement and then move them rearward, substantially as described.

7. In a machine for handling cartons, two reciprocable slide-blocks movable on parallel guides, driving mechanism connected with one of said slide-blocks, an oscillating lever fulcrumed intermediate its ends to the other slide-block, one end of said lever having a slot which engages with a pin on said driven slide-block, the other end of said lever having fixed thereto an arm which extends rearwardly outside of the path of movement of said slide-blocks, said arm having a carton-moving finger which points transversely inward, stops carried on opposite sides of said lever, and adapted to alternately engage with the block to which the lever is fulcrumed and limit the turning movement of said lever and cause it to then move with the slide-block.

8. A machine for filling and closing cartons having weighing mechanism including a scale, mechanism for filling the carton, mechanism for closing the flaps which form the top of the filled carton, an intermittently-moving carrier which moves the cartons to the scale and from the scale to the top-closing mechanism, means by which the tipping of the scale controls the starting of the carrier, and means by which the moving carrier controls the starting of the top-closing mechanism.

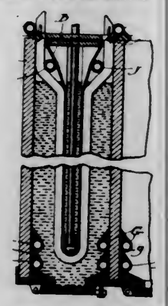
9. In combination with a carton filling and weighing machine, a scale, an intermittently-moving carton-carrier, which successively moves the cartons to the scale and carries them from the scale, means by which the tipping of the scale controls the starting of said carrier, mechanism for closing and sealing the flaps which form the top end of the carton, mechanism which moves the filled packages from the place where they are deposited by the carrier of the weighing-machine, to positions for receiving the operations of the closing and sealing mechanism, driving mechanism and mechanism having clutch connection therewith which actuate the flap closing and sealing mechanisms and carton-moving mechanisms connected therewith to each perform its part of the operation of moving, folding and sealing one carton at each cycle of movement, arresting mechanism which disengages the said clutch at the end of each cycle of movement, mechanism actuated by the movement of the carrier of the weighing-machine to release said arresting mechanism from the clutch, and means for again engaging said clutch, whereby the carton weighing and filling mechanism controls the closing and sealing mechanism to complete the closing and sealing of one carton for every new carton that is filled and weighed, substantially as described.

10. In a machine for handling cartons and giving them a step-by-step movement along a track, a reciprocating head, a lever piv-

oted to the reciprocating head carrying an arm which extends rearwardly outside of the path of movement of the carton and provided with a finger at its rear end which points transversely of the path of movement of the carton, and mechanism actuated by the initial rearward movement of the head to move the said finger away from the path of the carton and actuated by the initial forward movement to draw the finger inward transversely of the path of movement of the carton and mechanism which retains the finger in the last-mentioned position during the forward movement, substantially as described.

11. In combination, weighing mechanism, mechanism for filling cartons, mechanism for closing the flaps which form the top end of the filled carton, an intermittently-moving carrier which moves the cartons from the scale to the top-closing mechanism, and means by which the tipping of the scale controls the starting of the top-closing mechanism.

787,878. **PROCESS OF TREATING SLIMES IN ORE REDUCTION.** GUSTAVUS A. DUNCAN, Deadwood, S. D. Original application filed Mar. 27, 1904. Serial No. 205,070. Divided and this application filed July 2, 1904. Serial No. 215,173.



Claim.—1. The process of treating ore slimes which consists in accumulating the slimes upon the exterior of a filtering-cell immersed in the slime-bearing liquid, by suction from within the cell and exhausting the liquor from about such accumulated slimes, surrounding the cell having the slimes thus accumulated thereon with fresh metal-solvent liquor, and drawing such liquor by suction within the cell through the slimes so accumulated on its exterior, and subsequently detaching the residual slimes from the cell.

2. The process of treating ore slimes which consists in accumulating the slimes on the exterior of a filtering-cell by suction from the interior of the cell while the latter is immersed in the slime-bearing liquid contained in a tank into which the cell intrudes; cutting off the supply of slime-bearing liquid from about the cell and substituting a metal-solvent liquor; drawing such liquor into the cell through the slimes accumulated thereon, and conducting it away; withdrawing the solvent liquor from around the cell, and subsequently detaching the residual slimes from the cell.

3. The process of treating ore slimes which consists in accumulating the slimes on the exterior of a filtering-cell by suction from within the cell while the latter is immersed in the slime-bearing liquid; cutting off the supply of slime-bearing liquid from around the cell; substituting a metal-solvent liquor; sucking such liquor through the slimes so accumulated into and through the cell; cutting off the supply of solvent liquor from around the cell; substituting a non-solvent liquid; sucking such liquid through the residual accumulated slimes for washing the solvent liquor from the latter, and subsequently detaching the residual slimes from the cell.

4. The process of treating ore slimes which consists in accumulating the slimes on the exterior of a filtering-cell by suction from within the cell while the latter is immersed in the slime-bearing liquid; sucking the metal-solvent liquor through the slimes so accumulated thereon; subsequently directing water-jets against the accumulated slimes for detaching them from the cell and cleansing the latter.

5. The process of treating ore slimes which consists in accumulating the slimes on the exterior of a filtering-cell fixedly intruded into a tank; surrounding the cells within the tank with a slime-bearing liquid, and applying suction within the cells for drawing the liquid through the cell-walls; cutting off the supply of liquid from around the cells and substituting a metal-solvent liquor; sucking such metal-solvent liquor through the accumulated slimes into and through the cell; cutting off the supply of solvent liquor from the tank; substituting non-solvent liquid; sucking such non-solvent liquid through the accumulated slimes into and through the cell; withdrawing the non-solvent liquid and detaching the residual slimes from the cell.

6. A process of treating ore slimes which consists in accumulating the slimes on the exterior of a filtering-cell by suction from within the cell while the latter is immersed in the slime-bearing liquid; drawing the metal-solvent liquor by suction into the cell through the slimes so accumulated thereon and conducting away the metal-bearing liquor; cutting off the supply of solvent liquor from around the cell and substituting a non-solvent liquid; sucking such liquid through the residual accumulated slimes for washing the solvent liquor from the latter, and subsequently forcing water into and out through the walls of the cell to detach the residual slimes from the exterior thereof.

7. A process of treating ore slimes which consists in accumulating the slimes on the exterior of a filtering-cell by suction from within the cell while the latter is immersed in the slime-bearing liquid; cutting off the supply of slime-bearing liquid from around the cell; substituting a metal-solvent liquor; sucking such liquor through the slimes so accumulated into and through the cell; cutting off the supply of solvent liquor from around the cell; substituting a non-solvent liquid; sucking such liquid through the residual accumulated slimes for washing the solvent liquor from the latter; applying liquid-pressure within the cell operating outward for detaching the residual slimes, and simultaneously directing water-jets against the outer surface of the cell at the top of the accumulated slimes.

787,879. **TELEPHONE CALL OR RINGER.** CHARLES E. EGAN, Durham, N. C. Filed Aug. 13, 1902. Serial No. 119,562.

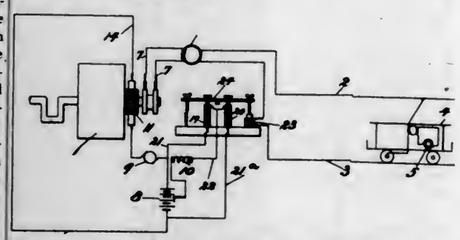


Claim.—1. In combination with the magnets of a telephone call-bell; a supporting member therefor; and a condenser, independent of the magnets, secured to said supporting member.

2. In combination with the magnets of a telephone call-bell; a supporting member for said magnets; and an independent condenser supported by said member over the magnets in close proximity thereto, substantially as and for the purposes described.

3. In combination with the magnets of a telephone call-bell; a supporting member for said magnets; an arm connected to said member; and a condenser formed independently of said magnets and supported by said arm, said condenser lying approximately parallel to the magnets.

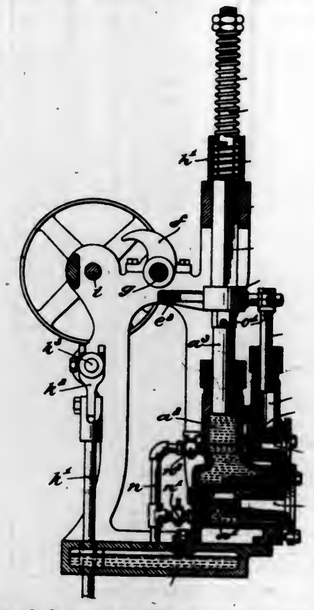
787,880. **SYSTEM OF ELECTRICAL DISTRIBUTION.** JUSTUS B. ENTZ, Philadelphia, Pa., assignor to The Electric Storage Battery Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Apr. 23, 1904. Serial No. 204,528.



Claim.—1. A system of electrical distribution comprising the combination of a working circuit, a battery provided with a booster and its circuit connections, a generator for generating alternating current and feeding the working circuit, a prime mover for driving the generator, transforming provisions interposed between the working circuit and battery for converting direct and alternating current to permit the battery to charge and discharge, and means for mechanically insuring synchronism of the generator and transforming provisions whereby the frequency of the current generated by the alternating generator and of the superimposed battery-current is the same, substantially as described.

2. A system of electrical distribution comprising the combination of a working circuit, a battery provided with a booster and its circuit connection, an alternating generator feeding the working circuit and provided with a commutator, a prime mover for driving the generator, and connections between the commutator and battery, whereby the frequency of the current generated and of the superimposed battery-current is the same, substantially as described.

787,881. **BOTTLE-CAPPING MACHINE.** SAMUEL R. HARRIS, Philadelphia, Pa. Filed July 5, 1904. Serial No. 215,217.



Claim.—1. In a machine of the character described, an elastic cup, a chamber in which the cup is mounted, a cylinder in communication with the chamber, a plunger mounted in the cylinder, a continuously-driven driving mechanism, and means adapted to connect the plunger with said driving mechanism, at the proper time.

2. In a machine of the character described, an elastic cup, a chamber in which the cup is mounted, a cylinder in communication with the chamber, a plunger mounted in the cylinder, a cam adapted to force the plunger into the cylinder, a continuously-driven driving mechanism, and means adapted to connect the cam with said driving mechanism, at the proper time.

3. In a machine of the character described, an elastic cup, a chamber in which the cup is mounted, a cylinder in communication with the chamber, a plunger mounted in the cylinder, means for filling said chamber, a cam adapted to force the plunger into the cylinder, means for operating the cam and a treadle mechanism adapted to control the actuation of said cam.

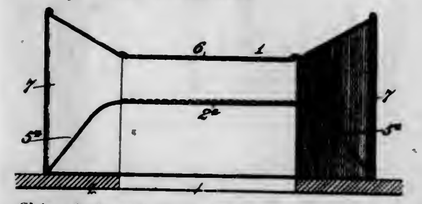
4. In a machine of the character described, a plurality of elastic cups, chambers in which the cups are respectively mounted, a cylinder communicating with each of the chambers, a plunger mounted in each of the cylinders, and means for filling and draining either chamber and its cylinder, as required.

5. In a machine of the character described, a plurality of elastic cups, chambers in which the cups are mounted, a cylinder communicating with each of the chambers, a plunger mounted in each of the cylinders, a pump controlling the amount of fluid forced into the chamber and its cylinder, and means for draining either chamber and its cylinder.

6. In a machine of the character described, a hollow standard forming a reservoir for fluid, an elastic cup arranged to receive the cap and neck of a bottle, a fluid-chamber surrounding the cup, a pump arranged to force fluid in regulated quantity from the reservoir into the fluid-chamber and a plunger arranged to reciprocate in the fluid-chamber.

7. In a machine of the character described, a hollow standard forming a reservoir for fluid, an elastic cup arranged to receive the neck of a bottle with a cap, a fluid-chamber surrounding the cup, a cylinder connected with said chamber, means adapted to connect said reservoir with said chamber and cylinder, a hollow plunger arranged to reciprocate in said cylinder, and a valve-controlled duct leading from the interior of the plunger to the exterior atmosphere.

787,882. **VENTILATOR.** SAMUEL H. JACOBSON, New York, N. Y. Filed Dec. 23, 1903. Serial No. 186,404.



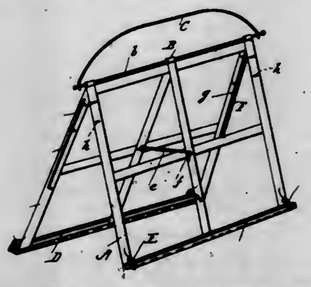
Claim.—1. A ventilator comprising a casing having its ends open, a chamber within said casing having a closed top, the said chamber opening on one side to the space to be ventilated and on the other side, through perforations, to the said casing, and deflectors at the ends of said chamber.

2. A ventilator comprising a casing having its ends open, a chamber within said casing having a closed top, the said chamber opening on one side to the space to be ventilated and on the other side, through perforations, to the said casing, and angularly-arranged deflectors secured in the ends of said chamber.

3. A ventilator comprising a casing having a longitudinal passage therethrough, a perforated web extending from the top to one of the side walls of said casing and forming therein a chamber which communicates with the space to be ventilated, and deflectors at the opposite ends of said chamber.

4. A ventilator comprising a casing having a longitudinal passage therethrough and having expanded or funnel-shaped ends, a perforated web secured along its upper edge to the top wall of said casing and forming a chamber which communicates with the space to be ventilated, the side and bottom walls of said chamber being separated from the adjacent walls of said casing, and deflectors secured at the upper inner corners of said casing, extending downwardly and longitudinally therefrom and merging into and closing the ends of said chamber.

787,883. **PAPER-HOLDER.** GEORGE KAPHINGST and PAUL SMITH, Appleton, Wis., assignors of one-third to D. P. Nicholson. Filed June 6, 1904. Serial No. 211,325.



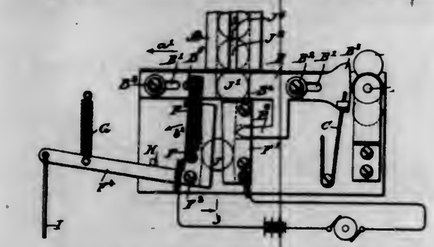
Claim.—1. The combination, with two pivoted frames provided with catch-troughs for the purpose of catching liquid, of means for locking the said frames together.

2. The combination, with two pivoted frames provided with catch-troughs for the purpose of catching liquid, of retaining-springs connected to the said frames adjacent to the said catch-troughs, and means for locking the said frames together when arranged at an angle to each other.

3. The combination, with two pivoted frames provided with

catch-troughs, of locking devices for locking the said frames together when arranged at an angle to each other, and separate locking devices for locking the said frames together when spread out flat.

787,884. MAGAZINE COIN-CONTROLLED MECHANISM. HERMANN MEYER, New York, N.Y. Filed Nov. 11, 1904. Serial No. 232,266.



Claim.—1. A magazine coin-controlled mechanism comprising a starting-circuit adapted to be closed by a coin, a coin-retaining device in the said circuit, for holding the coin in a circuit-closing position, the said retaining device being controlled by the stopping device of the machine on which the mechanism is applied, and means capable of being controlled manually and automatically controlled by the said retaining device, to receive the coin and deliver it to the said coin-retaining device.

2. A magazine coin-controlled mechanism comprising a coin-retaining device forming part of an electric circuit for the motor of the machine on which the said coin-controlled mechanism is applied, and constructed of a stationary member and a yieldable member, the said retaining device being controlled by the stopping mechanism for the said machine, and a delivery-slide, actuated by the movable member of said retaining device, for the latter to release its circuit-closing coin and for the said slide to deliver another coin to the said coin-retaining device.

3. A magazine coin-controlled mechanism for machines having a motor, comprising a slide for receiving a coin from a coin-chute, spaced contact members for retaining a circuit-closing coin and of which members one is movable and connected with the said slide and with the stopping mechanism of the machine, and an arm on the said slide, for receiving a coin from the slide, for temporarily holding the coin and for finally delivering the coin to the said spaced contact members.

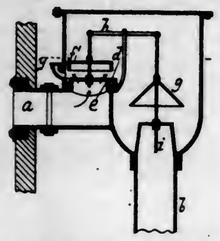
4. A magazine coin-controlled mechanism for machines having a motor, comprising a slide for receiving a coin from a coin-chute, spaced contact members for retaining a circuit-closing coin and of which members one is movable and connected with the said slide and with the stopping mechanism of the machine, an arm on the said slide, for receiving a coin from the slide, for temporarily holding the coin and for finally delivering the coin to the said spaced contact members, and a manually-controlled pusher for operating the said slide, independent of the said movable contact member.

5. A magazine coin-controlled mechanism for machines having a motor and an electric starting device for the said motor, comprising a coin-chute, a spring-pressed slide under the chute and having a recess for the reception of a coin from the said chute, an arm on the said slide, for supporting a coin after its passage through the recess, and contact members in the said electric circuit, arranged for receiving a coin from the said arm and holding it in place for the coin to close the circuit, one of the said members being fixed and the other in the form of a lever connected with the said slide and with the stopping device of the machine.

REISSUES.

12,338. FRESH-AIR INLET FOR SANITARY VENTILATION OF THE DRAINAGE SYSTEMS OF HOUSES, BUILDINGS, OR THE LIKE. GEORGE CODY, Flushing, N. Y., assignor of one-half to Louis Munzinger, New York, N. Y. Filed Aug. 17, 1904. Serial No. 221,460. Original No. 736,220, dated Aug. 11, 1903.

Claim.—1. An air-inlet pipe and a spigot-pipe combined with a chamber provided with a non-evaporating sealing medium or liquid, a sealing-disk made to coact with the liquid to form a valve, and a hood made to counterbalance the disk and placed at the spigot-pipe to receive back pressure so as to be actuated for closing the valve.



2. An air-inlet pipe and a spigot-pipe combined with a non-evaporating sealing medium or liquid, a lever fulcrumed between the inlet-pipe and the spigot, a sealing-disk and a hood suspended from opposite ends of the lever so as to come respectively over the inlet and spigot.

3. A chamber, an inlet-pipe and a spigot-pipe both made to open upwardly into the chamber, a sealing-disk and a hood made to balance one another and located respectively over the inlet and spigot so that on back pressure from the spigot the hood is actuated to close the disk.

4. An air-inlet pipe, a spigot-pipe, a hood and a sealing-disk, said hood and disk being made to balance one another so as to hold the parts normally in open or unsealing position, and said hood being made to receive back pressure from the spigot so as to bring the disk to sealing or closing position.

5. An air-inlet pipe extended through a house-wall to the outer air, a chamber made to communicate with the inlet and placed in the cellar of the house so as to be accessible from the interior and to be protected against interference from the exterior, a spigot-pipe made to communicate with the chamber, and a normally open sealing disk or valve and hood in the chamber, said hood being actuated by the back pressure from the spigot to close or move the disk or valve to the inlet.

6. An air-inlet pipe extended through a house-wall to the outer air, a chamber made to communicate with the inlet and placed in the cellar of the house so as to be accessible from the interior and to be protected against interference from the exterior and a spigot-pipe made to communicate with the chamber, and a valve inclosed in said chamber to be operated by the back pressure from the spigot-pipe.

DESIGNS.

37,404. BADGE. WILLIAM H. ATKINS, Medford, Mass., assignor to Joseph B. McCall, Philadelphia, Pa., president of association of Edison illuminating companies, in trust for said association. Filed Mar. 3, 1905. Serial No. 249,960. Term of patent 14 years.



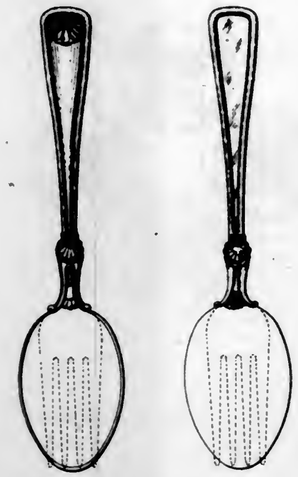
Claim.—The ornamental design for a badge as shown.

37,405. SPOON. BENJAMIN D. LORING, Plymouth, Mass. Filed Mar. 16, 1905. Serial No. 250,473. Term of patent 7 years.



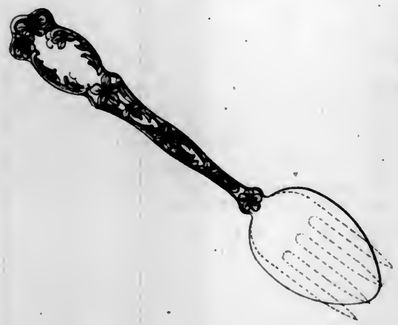
Claim.—The ornamental design for a spoon, as shown.

37,406. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. WILLIAM C. CODMAN, Providence, R. I., assignor to Gorham Manufacturing Company, Providence, R. I. Filed Mar. 25, 1905. Serial No. 252,079. Term of patent 14 years.



Claim.—The ornamental design for the handle of a spoon, fork or similar article, as shown.

37,407. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. RUDOLPH VON HAGEN, Wallingford, Conn., assignor to The Simeon L. and George H. Rogers Co., Wallingford, Conn., a Firm. Filed Mar. 25, 1905. Serial No. 252,082. Term of patent 7 years.

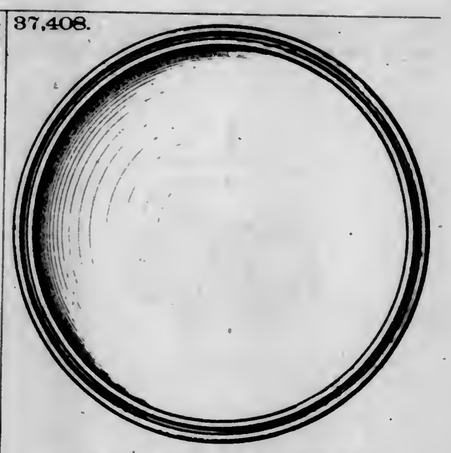


Claim.—The ornamental design for a handle for a spoon, fork or similar article as shown.

37,408. DISH. OSCAR S. STRAUS, New York, N. Y., assignor to L. Straus & Sons, New York, N. Y. Filed Mar. 25, 1905. Serial No. 252,080. Term of patent 14 years.

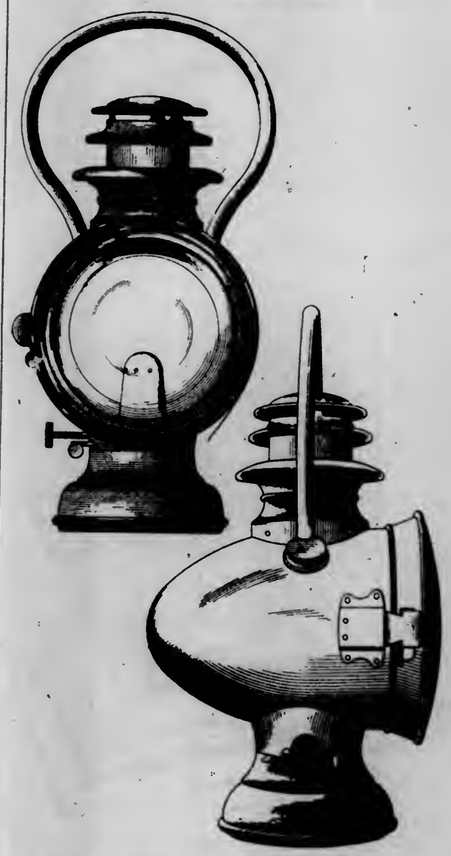


37,408.



Claim.—The ornamental design for a dish, as shown.

37,409. LAMP. WILLIAM GRAY, Amesbury, Mass. Filed Feb. 11, 1905. Serial No. 245,326. Term of patent 7 years.



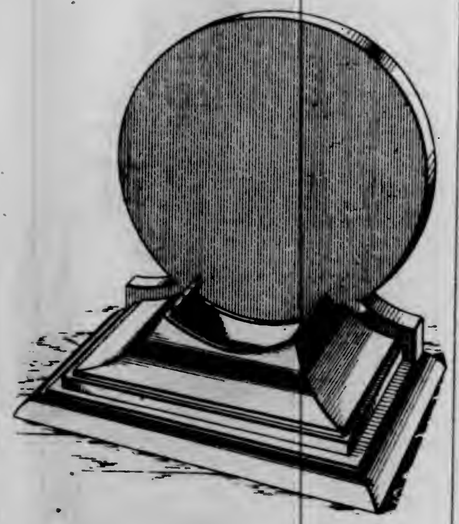
Claim.—The ornamental design for a lamp, as shown.

37,410. ELECTRIC-LIGHT CLUSTER. JOHN D. O'BRYAN, Pittsburg, Pa. Filed Mar. 3, 1905. Serial No. 248,169. Term of patent 3½ years.



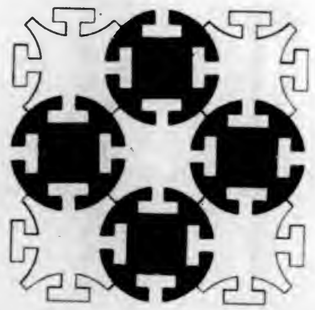
Claim.—The ornamental design for an electric-light cluster, as shown.

37,411. CLOCK-SUPPORT. WALTER EDWARD MCGRAW, Everett, Mass. Filed Mar. 3, 1905. Serial No. 248,334. Term of patent 14 years.



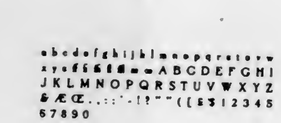
Claim.—The ornamental design for a clock-support, as shown.

37,412. TILING. DAVID W. AUSTIN, Brooklyn, N. Y. Filed Mar. 16, 1905. Serial No 250,528. Term of patent 3½ years.



Claim.—The ornamental design for tiling, as shown.

37,413. FONT OF TYPE. GEORGE OSWALD OTTLEY, Detroit, Mich., assignor to Barnhart Brothers & Spindler, Chicago, Ill., a Corporation of Illinois. Filed Mar. 20, 1905. Serial No. 251,151. Term of patent 7 years.



Claim.—The ornamental design for a font of type, as shown.

37,414. FONT OF TYPE. WILLIAM A. SCHRAUBSTADTER, St. Louis, Mo., assignor to Inland Type Foundry, St. Louis, Mo., a Corporation of Missouri. Filed Oct. 8, 1904. Serial No. 227,736. Term of patent 14 years.



Claim.—The ornamental design for a font of type herein shown.

PHOTO LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

LABELS

REGISTERED APRIL 18, 1905.

12,050.—*Title:* "THE KOBOLO TONIC." (For Medicine.) J. L. SMITH, Chicago, Ill. Filed March 22, 1905.

12,051.—*Title:* "LIQUID THYRINOIDS." (For Medicine.) FRANK C. REIGHTER, Chicago, Ill. Filed March 23, 1905.

12,052.—*Title:* "PARSLEY COMPOUND." (For Medicine.) THE GUYER MEDICINE CO., Hudson, Mich. Filed March 22, 1905.

12,053.—*Title:* "H-Y-O-C-H." (For a Remedy for Rheumatism.) JOHN S. YOUNG, Louisville, Ky. Filed February 15, 1905.

12,054.—*Title:* "PINE TREE SALVE." (For Salve.) BLEWETT BROS. CO., Minneapolis, Minn. Filed March 1, 1905.

12,055.—*Title:* "FLEE-FLEA DOG SOAP." (For Dog-Soap.) CHRISTOPHER KOCH, Philadelphia, Pa. Filed March 22, 1905.

12,056.—*Title:* "ACADEMY." (For Boots and Shoes.) MATHIASE J. MULLEN, Pittsburg, Pa. Filed March 23, 1905.

12,057.—*Title:* "OLD HICKORY." (For Boots and Shoes.) MATHIASE J. MULLEN, Pittsburg, Pa. Filed March 22, 1905.

12,058.—*Title:* "LIVON RICE." (For Rice.) AMERICAN RICE CEREAL CO., Kansas City, Mo. Filed March 22, 1905.

12,059.—*Title:* "VIOLET OATS." (For Rolled Oats.) ALBERS BROS. MILLING CO., Portland, Oreg. Filed March 25, 1905.

12,060.—*Title:* "PURITAN WAFERS." (For Biscuits, Crackers, and Wafers.) THE TOLEDO BISCUIT CO., Toledo, Ohio. Filed March 23, 1905.

12,061.—*Title:* "SALADA." (For Tea.) PETER CHAS. LARKIN, Toronto, Canada. Filed February 25, 1905.

12,062.—*Title:* "SALADA." (For Tea.) PETER CHAS. LARKIN, Toronto, Canada. Filed February 25, 1905.

12,063.—*Title:* "SALADA." (For Tea.) PETER CHAS. LARKIN, Toronto, Canada. Filed February 25, 1905.

12,064.—*Title:* "SALADA." (For Tea.) PETER CHAS. LARKIN, Toronto, Canada. Filed February 25, 1905.

12,065.—*Title:* "SALADA." (For Tea.) PETER CHAS. LARKIN, Toronto, Canada. Filed February 25, 1905.

12,066.—*Title:* "ROYAL LIQUID COFFEE." (For Liquid Coffee.) ROYAL COFFEE CO., Fort Worth, Tex. Filed March 23, 1905.

12,067.—*Title:* "DIAMOND STATE RYE WHISKEY." (For Whisky.) LOUIS J. LEVY, Dover, Del. Filed February 21, 1905.

12,068.—*Title:* "SI PERKINS." (For Whisky.) GEO. ANDREAS & CO., St. Louis, Mo. Filed March 22, 1905.

12,069.—*Title:* "JOSH BILLINGS." (For Cigars.) ISRAEL LEWIS, Newark, N. J. Filed March 20, 1905.

12,070.—*Title:* "SIGNAL." (For Cigars.) GEORGE H. MAXWELL, Carthage, N. Y. Filed February 18, 1905.

12,071.—*Title:* "SUNNY CASTLE." (For Cigars and Tobacco.) HAUSFELD & HUENNEKENS, Milwaukee, Wis. Filed March 27, 1905.

12,072.—*Title:* "QUICKSHINE." (For Shoe-Dressing.) EDWARD TEMPLAR, Chicago, Ill. Filed March 27, 1905.

12,073.—*Title:* "THE MAGIC CURLER." (For Hair-Curlers.) MAGIC CURLER COMPANY, Philadelphia, Pa. Filed March 25, 1905.

12,074.—*Title:* "CROWN PHONOGRAPH OIL." (For Oil.) THOMAS C. HOUGH, Minneapolis, Minn. Filed March 28, 1905.

12,075.—*Title:* "SURE GRIP." (For a Certain Named Preparation.) LOUIS J. GELPI, New Orleans, La. Filed March 11, 1905.

12,076.—*Title:* "JAP-O-SIZE." (For a Color-Drier.) BECKWITH-CHANDLER COMPANY, Newark, N. J. Filed March 18, 1905.

12,077.—*Title:* "LAC-ER-ALL." (For Varnish Stains.) CAWLEY, CLARK & CO., INC., Newark, N. J. Filed March 17, 1905.

12,078.—*Title:* "CRESCENT MIXED PAINTS." (For Mixed Paints.) CAWLEY, CLARK & CO., INC., Newark, N. J. Filed March 17, 1905.

12,079.—*Title:* "THE KATZENJAMMER MIXUP." (For a Game.) THE FAN CRAZE CO., Cincinnati, Ohio. Filed March 21, 1905.

PRINTS

REGISTERED APRIL 18, 1905.

1,268.—*Title:* "KNEADED EVERYWHERE." (For Flour.) WASHBURN-CROSBY COMPANY, Minneapolis, Minn. Filed March 28, 1905.

1,269.—*Title:* "THE WONDERFUL ELECTRIC CANDY MACHINE." (For Candy-Machines.) THE ELECTRIC CANDY MACHINE CO., Nashville, Tenn. Filed March 17, 1905.

1,270.—*Title:* "BULL FROG BRAND." (For India-Rubber Hose.) THE TOLEDO RUBBER COMPANY, Toledo, Ohio. Filed March 16, 1905.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

NEWELL v. HUBBARD.

Decided February 8, 1905.

INTERFERENCE—APPEAL—MOOT QUESTION.

Where the Examiner dissolves the interference because the issue is not patentable, *Held* that an appeal relating to interference in fact involves a moot question and will not be determined.

APPEAL on motion.

BRAKES FOR ELECTRIC CARS.

Patent granted Frank C. Newell. Application of Moses G. Hubbard, Jr.

Mr. Edward A. Wright for Newell.

Messrs. Bakewell & Bakewell for Hubbard.

ALLEN, *Commissioner:*

This is an appeal by Hubbard from the decision of the Primary Examiner dissolving the interference upon the ground that there is no interference as to counts 2, 3, 4, and 6.

It appears that the Primary Examiner at the same time at which he held that there was no interference in fact as to these counts held also that Hubbard had no right to make claims in the terms of such counts. On appeal to the Examiners-in-Chief upon his right to make these counts the decision of the Primary Examiner was sustained, so that the question of interference in fact as to these same counts, which it was held that Hubbard has no right to make, is a moot question, which will not be decided, and this appeal is accordingly dismissed.

OCUMPAUGH v. MCELROY.

Decided March 17, 1905.

APPEAL—MATTER NOT CONSIDERED BY ORIGINAL TRIBUNAL—NOT REVIEWED ON APPEAL.

Where a decision is rendered by a tribunal and it appears that an affidavit relating to the matters at issue was filed too late to be considered, *Held* that the appellant should move for a rehearing, rather than appeal, since matters not considered by the tribunal of original jurisdiction will not be reviewed on appeal.

APPEAL on motion.

VOTING-MACHINES.

Application of Charles H. Ocumpaugh. Application of John H. McElroy.

Mr. Benjamin R. Catlin for Ocumpaugh.

Mr. McElroy pro se.

ALLEN, *Commissioner:*

This is an appeal by McElroy from the decision of the Examiner of Interferences granting Ocumpaugh, the junior party, an additional thirty days within which to take his testimony.

It appears that the Examiner of Interferences when he rendered his decision found no opposition in behalf of McElroy. The hearing before the Examiner of Interferences was at ten a. m., and he rendered his decision promptly. McElroy's brief and affidavit were received in this Office in the afternoon mail of that date. Under these circumstances McElroy should have filed a motion for rehearing before the Examiner of Interferences. On this appeal McElroy seeks to have his affidavit considered. The matters not considered by the tribunal of original jurisdiction will not be reviewed on appeal. It appears, however, that the original motion of Ocumpaugh requested the grant of sixty days within which to take his testimony. The Examiner of Interferences, in consideration of all the facts, granted Ocumpaugh thirty days. It is believed that a grant of this short time to a junior party for the purpose of taking his testimony needs but little showing to justify such action. Should Ocumpaugh not take testimony, judgment on the record would be given in favor of McElroy. Such judgments on technical grounds are not looked upon with favor by this Office. Under all the circumstances of this case it is believed that the grant of an additional thirty days in which Ocumpaugh may take his testimony was right.

The decision of the Examiner of Interferences is affirmed.

WHITE v. HEWITT AND NOLEN.

Decided March 25, 1905.

1. INTERFERENCE—MOTION TO VACATE JUDGMENT—PRELIMINARY STATEMENT.

   Motion to vacate judgment on the record and permit the filing of a preliminary statement *denied* where it appears that the failure to file the statement before judgment and within the time fixed in notices from this Office was due to carelessness.

2. SAME—NOTICE TO ATTORNEY—PRELIMINARY STATEMENT.

   Notice to a party's attorney of the declaration of an interference and the requirement for a preliminary statement must be taken as notice to him, and it is immaterial whether or not he has actual personal notice.

3. SAME—SAME—SAME—CARELESSNESS.

   Where notices were sent by this Office to the attorney and the party himself admits actual knowledge of those notices before his time for filing a preliminary statement had expired, but he alleges that he did not know that it was necessary for him to take any personal action, *Held* that there was gross negligence by the party or his then attorney.

APPEAL on motion.

ELECTROTHERMAL SWITCHES.

Application of Charles E. White. Application of Richard B. Hewitt and James G. Nolen.

Mr. Robert P. Haine for White.

Mr. Frank D. Thomason for Hewitt and Nolen.

ALLEN, *Commissioner:*

This is an appeal by White from the decision of the Ex-

aminer of Interferences denying his motion to set aside the judgment rendered against him on the record.

This interference was declared November 1, 1904, and since White did not file a preliminary statement within the time fixed an order was made December 1, 1904, requiring him to show cause on or before December 21, 1904, why judgment should not be rendered against him on the record. On December 19 White asked for an extension of time, and the time was extended to January 3, 1905. No showing was made by White and no preliminary statement was filed, and therefore on January 6, 1905, judgment was entered against him. The present motion to vacate was filed January 23, 1905, and on that date White filed a preliminary statement, which he asks the Office to receive and consider.

Notice of the interference was of course sent to the attorneys then acting for White; but White says in an affidavit filed that he did not have personal knowledge of the declaration until November 23, 1904. He then had six days within which to file his preliminary statement and seems to have known that he was called upon to file one. He then transferred some interest in the invention to one Cook and says that he—

presumed that nothing more was required of him, as the interference would be taken care of in some way as between Cook, his (deponent's) attorneys, and the opposing parties and their attorney.

He further says that he—

did not know that it was necessary for him to file a preliminary statement, in spite of his arrangement with said Cook.

He then left the city and paid no attention to the interference until after his return on December 12, 1904, when he learned its condition from his attorneys. He then made the motion of December 19 for an extension of time, but says that the extended time was not sufficient to enable him to prepare the necessary showing under the Examiner's order to show cause why judgment should not be entered against him.

It is very clear that White did not exercise proper care and diligence in discovering what action was necessary and in taking the action required. His alleged ignorance of the requirements, notwithstanding the various notices from this Office, must be regarded as due to gross negligence either on his part or on the part of his then attorneys. He had employed attorneys to represent him before this Office and to advise him, and therefore notice to the attorneys must be taken as notice to him. He admits personal notice November 23, and if he did not then obtain a clear and complete idea of the situation it must be regarded as his own fault.

The allegations in the affidavits filed as to what White would expect to prove if his present motion were granted do not affect the question as to his excuse for the delay. The question now is not whether he could have proved his case if he had acted within the time fixed, but whether he should be permitted to attempt to do so after he has by negligence allowed judgment against him by default.

It is held that the decision of the Examiner of Interferences denying the motion is right, and therefore it is affirmed.

EX PARTE PAULING.

Decided March 29, 1905.

1. DATE OF APPLICATION UNDER INTERNATIONAL CONVENTION—FOREIGN APPLICATION MUST BE PROVED.

The benefit of the date of a foreign application filed under the International Convention cannot be secured by the mere allegation that such application has been filed, but only by proving such foreign application.

2. SAME—SAME—PROOF NEED NOT BE MADE WITH APPLICATION.

There is no necessity for proving a foreign application and thereby securing the benefit of its date under section 4887 of the Revised Statutes until some occasion arises for wishing to secure the benefit of that date. Such proof need not be filed with the application.

3. SAME—DATE OF FILING IN THIS COUNTRY MUST APPEAR.

Even where a party secures for his application here the benefit of the filing date of a foreign application the actual filing date in this country must appear and cannot be changed to the foreign filing date.

ON PETITION.

PROCESS FOR THE PRODUCTION OF NITRIC ACID FROM AIR.

Messrs. Arthur and *Harry Pauling pro se.*

ALLEN, *Commissioner:*

This is a petition that this application be given as a date of filing the date on which an application is said to have been filed in Germany covering the same invention.

The applicants wish to secure the benefit of the date of their foreign application under the provisions of the International Convention for the Protection of Industrial Property and under the provisions of section 4887 of the Revised Statutes. It is clear, however, that they cannot secure that benefit by the mere allegation that they have filed a foreign application which entitles them to claim the benefit, but only by proving the foreign application. It is equally clear that the date of filing in this country cannot be changed to the date of filing abroad, even where the foreign application is proved. The present application may—

have the same force and effect as the same application would have if filed in this country on the date on which the application * * * was first filed in such foreign country—

but the actual date of filing in this country must appear and cannot be changed.

It would seem that there is no necessity for proving a foreign application to secure the benefit of its date under section 4887 of the Revised Statutes until some occasion arises for wishing to secure the benefit of that date. The proof may be presented whenever the applicant wishes to take advantage of the foreign filing date and need not be presented at the time that the application is filed here.

The petition is denied.

EX PARTE MURPHY.

Decided March 29, 1905.

ABANDONED APPLICATION—DELAY FOR PURPOSE OF IMPROVEMENT.

Delay in acting upon an application is not to be excused for the purpose of permitting the applicant to devise means for making the alleged invention practical and useful. The law does not contemplate the filing of applications upon incomplete or useless inventions.

ON PETITION.

ELECTRIC NON-MAGNETIC METAL-SEPARATORS.

Mr. Thomas J. Murphy pro se.

ALLEN, *Commissioner:*

This is a petition for the revival of the above-entitled application, which was *prima facie* abandoned for lack of prosecution.

The claims were rejected December 8, 1902, and no action was taken by the applicant until more than two years thereafter. The applicant says:

His reason for temporary abandonment was that he was not aware of any means in the arts whereby an electric current could be caused to undulate with sufficient power for the purposes of his invention.

It thus appears that the applicant intentionally refrained

from acting, because his invention was based upon theory merely and was not regarded as practical. This confession that the alleged invention was regarded by the inventor himself as useless until he devised or discovered the means of rendering it practical is clearly not a showing that the delay in acting was unavoidable. The law does not contemplate the filing of applications covering imperfect and useless inventions with the idea of perfecting them thereafter, and therefore delay in acting is not to be excused because of such alleged imperfection.

The petition is denied.

EX PARTE SNYDER.

Decided March 30, 1905.

TRADE-MARKS—"DIAMONDDUST" REFUSED ON "DIAMOND" AND "DIAMOND MILLS."

The word "Diamonddust" refused registration as a trade-mark in view of the prior marks "Diamond" and "Diamond Mills" applied to the same class of goods.

ON APPEAL.

TRADE-MARK FOR CEREALS.

Mr. Lewis Heininger for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Diamonddust" as a trade-mark for flour in view of the prior registered marks to Lyons & Co., No. 12,592, September 22, 1885, and to North Dakota Milling Company, No. 22,319, January 10, 1893.

The first of these registered marks consists of the words "Diamond Mills" for flour, and the second consists of the word "Diamond" placed upon the figure of a diamond, behind which appears the representation of stalks of wheat.

The sole question here is whether the word "Diamonddust" so nearly resembles the previously-registered marks "Diamond" and "Diamond Mills" as to be likely to deceive purchasers as to the origin of the goods upon which the marks appear. The word "Diamond" is undoubtedly the predominating feature of all of these marks and the one which would be likely to be remembered by the purchasers for the purpose of identifying the goods desired in making purchases subsequently. It is therefore believed that the marks so closely resemble each other that purchasers would be likely to accept goods sold under one of them supposing them to be the goods of the manufacturer using the other as a trade-mark.

The decision of the Examiner of Trade-Marks refusing registration is affirmed.

EX PARTE KEET & ROUNTREE DRYGOODS COMPANY.

Decided March 31, 1905.

1. TRADE-MARKS—"OZARK"—GEOGRAPHICAL NAME—REGISTRATION REFUSED.

The word "Ozark" refused registration as a trade-mark, since its meaning is primarily geographical.

2. SAME—SAME—SAME—SECONDARY MEANINGS NOT APPRECIATED.

While the word "Ozark" may have meanings other than geographical, such meanings would not be known or appreciated by the ordinary purchaser seeing the word used as a trade-mark upon goods.

ON APPEAL.

TRADE-MARK FOR SHIRTS, PANTS, OVERALLS, ETC.

Messrs. Knight Bros. for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Ozark" as a trade-mark for pants, overalls, and duck coats.

The word "Ozark" has a well-known geographical meaning, and registration has been refused upon the ground that its meaning is primarily geographical. The appellant states that the word "Ozark" has other meanings besides its geographical meaning, and as an illustration says that in the Indian language it means "elevated and high." It urges that the geographical meaning of the word is secondary and that it was not adopted as a trade-mark because of that meaning.

While it may be true that the word has the meanings stated by the appellant, it is nevertheless true that these meanings would not be known or appreciated by the ordinary purchasers seeing the word used as a trade-mark upon goods. This case seems to be analogous to that considered in *ex parte Falkenberg*, (115 O. G., 1065,) wherein it was said:

While the word "Mattawan" is of Indian origin, it is believed that its significance as such is known only to students of Indian languages and cannot, therefore, be held to have to the general public an arbitrary significance which outweighs the geographical meaning which is to be ascribed to it.

I am satisfied that the arbitrary or fanciful meaning of the word "Ozark" does not transcend its geographical meaning so as to give to the word an arbitrary significance when applied to articles of merchandise offered for sale. The primary meaning of the word to purchasers would be geographical, and therefore it was properly refused registration. (*Ex parte Siloam Springs Water Company*, 113 O. G., 1420.)

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE CRECELIUS.

Decided April 6, 1905.

APPLICATION—SUPERFLUOUS ILLUSTRATION AND DESCRIPTION—APPARATUS AND ARTICLE.

Where certain figures of the drawing show apparatus for making an article and all claims to such apparatus have been divided from the case and these figures do not aid in obtaining an understanding of the article, *Held* that these figures and the description of the apparatus illustrated therein should be canceled.

ON PETITION.

TOOL FOR GROOVING PLASTIC SIDEWALK MATERIAL AND PROCESS OF MAKING THE SAME.

Messrs. Higdon & Longan for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring that Figures 1 and 2 and all specific reference thereto in the specification be canceled.

The application as filed disclosed and claimed an article and the process of making the same. Division was required and all claims to the process removed. Figs. 1 and 2 illustrate apparatus used in carrying out this process. These figures do not show the article which forms the subject of the present claim, nor do they aid in obtaining an understanding of this article. There is no more reason for illustrating this apparatus in this application than there is for showing here tools or machinery to effect the grinding which is to be performed. As superfluous matter encumbers the records, tends to confusion, and adds to the expense of printing and photolithography, it should, as far as practicable, be eliminated. The Examiner's action requiring cancellation of Figs. 1 and 2 was proper and must be

complied with. For the same reasons the description in the specification of the apparatus illustrated in Figs. 1 and 2 should also be canceled.

The petition is denied.

EX PARTE WELCH.

Decided April 6, 1905.

APPLICATION—PROPER USE OF TERMS.

Where the word "stretcher" has been applied by the applicant to a device used in pressing and stretching trousers, though the stretching is effected by the operator rather than by the device, but it appears that the invention can be readily understood from the language used, that the claims are not rendered indefinite by this word, and that this use of the word is not absurd or clearly erroneous, *Held* that the word as thus used is not objectionable.

ON PETITION.

TROUSERS PRESS AND STRETCHER.

Mr. James R. Rogers for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner objecting to the word "stretcher" as used in the specification and claims of this case.

The invention is entitled "Trousers press and stretcher." The device disclosed comprises means for holding trousers at one end while they are stretched by hand and means for applying pressure throughout the length of the trousers to hold them in the stretched condition. The Examiner objects to the use of the word "stretcher" to designate this device on the ground that the stretching is effected by the operator rather than by the device, which he maintains is therefore merely a press. He also calls attention to the separate classification in the Office of devices for stretching trousers and those for pressing them. The Examiner does not state that the alleged invention cannot be fully and readily understood from the present specification, nor does it appear that such is the case. Neither does it appear that the claims are rendered indefinite or ambiguous by the word "stretcher" or that the applicant's use of this word is absurd or clearly erroneous. On the other hand, the noun formed from the verb is commonly applied to things used in connection with, but not themselves performing, the act which the verb denotes. Common examples of such use of the word under consideration are found in the name of the frame upon which painters' canvas is held and in the name of the device upon which the sick or dead are laid and carried. Both of these are properly designated "stretchers," though in neither case is the stretching effected by the device so named. Nor does it appear that applicant's language should be restricted in this case by the Office classification, to which attention has been called. The application and the patent, if one issues, will be classified with regard to the structure disclosed, its operation and uses, and without regard to particular language used in presenting these.

The petitioner also prays that the Primary Examiner in charge of this application be instructed to pass the claims of the application to issue and that the petitioner may have such further and other relief in the premises as the nature of the circumstances of the case may require. No reason appears why the Examiner should be here directed to pass this case to issue, nor does it appear that any further relief is required than has been granted above.

The petition is granted to the extent indicated.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

OCUMPAUGH *v.* NORTON.

Decided February 21, 1905.

1. INTERFERENCE—PRIORITY—REDUCTION TO PRACTICE.

A device which merely illustrates the mode of mechanical construction and operation of the conceived idea and which may be said to be an embodiment of the invention in visible form is not necessarily a reduction to practice, for though the device is operative as a mechanical movement there is no certainty that it will perform its function when put to use under full conditions of practical use.

2. SAME—SAME—SAME.

Where an exhibit embodies an invention and is operative as a mechanical movement, yet various parts of the structure which are the essence of a practical working machine are so crude and even certain of derangement that no one would seriously consider building machines in accordance with the exhibit without further experiments, *Held* that such device is not a reduction to practice.

3. SAME—SAME—SAME.

Where the evidence is not convincing that the device under consideration is capable of being used for practical purposes and an examination of the device in connection with a consideration of the facts of record warrants the opinion that it is essentially an experimental device and never passed beyond that stage, *Held* that such device is not a reduction to practice.

4. SAME—SAME—SAME.

Held that the proofs tending to establish a reduction to practice must be considered as a whole and the attendant circumstances of the case must be borne in mind, and the action of the inventor with respect to the exhibit prior to the necessity for its use in the interference proceeding, his failure to construct other machines or promptly file an application, and the fact that the application when filed discloses different features from those in the exhibit all tend to show that the device was not a reduction to practice, but merely an experimental device.

Mr. Benj. R. Catlin and *Mr. John R. Bennett* for the appellant.

Mr. F. F. Church and *Mr. Melville Church* for the appellee.

DUELL, *J.:*

This is an appeal by Ocumpaugh from a decision of the Commissioner of Patents awarding priority to Norton of an invention which is embodied in the following issue:

In a voting-machine, the combination with a series of registers, of a series of ballot-indicators forming part of the permanent structure, one for each register, freely movable into and out of co-operative relation with their corresponding registers, interlocking devices for preventing the operation of more than a predetermined number of indicators, and means for causing the simultaneous operation of all the registers whose indicators are in operative position.

Norton is the senior party, having filed his application February 27, 1897. Upon the proofs it is established that he had a conception of the invention as early as November, 1894, and had constructed as early as the middle of December a full-sized machine which was publicly operated in the early part of February, 1895. The testimony shows a high degree of diligence, for, having made an actual reduction to practice, it was not incumbent upon him, either to preserve his rights or to demonstrate his entire good faith, that he should file an application for patent earlier than required by the statute relating to that subject which was in force at that time.

Ocumpaugh, the junior party, filed his application May 11, 1897, something like three years after the proofs show that he had a conception of the invention, and substantially three years after his Exhibit C, which he claims as a reduction to practice, was built.

The three tribunals of the Patent Office have agreed in awarding priority to Norton.

Counsel for appellant, after stating that fact, frankly states Ocumpaugh's position. He says:

The case, therefore, comes before this court under the well-settled rule, that where all three tribunals in the Patent Office have agreed in their finding of fact, this court will not disturb those findings, except under very unusual circumstances. We will, therefore, present this case solely upon the questions of law involved, for the essential facts have been found in favor of Ocumpaugh.

In view of the position thus assumed no good purpose would be served by restating the evidence upon which the tribunals of the Patent Office have reached the conclusion that Norton was the prior inventor. It is sufficient to say that an examination of the record discloses nothing that would warrant a reversal of the findings of fact.

We will, therefore, proceed to the consideration of Exhibit C, which, viewing the case from any standpoint is the pivot upon which everything material, as we view the question at issue, turns.

If Exhibit C be found to be a reduction to practice of the invention Ocumpaugh is entitled to an award of priority for he was the first to conceive and disclose, and after such conception was diligent in constructing the exhibit referred to. In fact no question of diligence enters into this case if the exhibit is a reduction to practice for it was completed some five months before Norton entered the field.

If on the other hand the exhibit is not a reduction to practice it is equally clear that Norton is entitled to prevail for Ocumpaugh did nothing further tending toward or amounting to either an actual or constructive reduction until long after Norton entered the field, and he has failed to show any diligence, or to excuse in a satisfactory manner his lack thereof.

Exhibit C is a crude affair. It is admitted to be made from odds and ends—a small packing-box, parts taken from a camera, parts of an old cash-carrier system, parts of collar-buttons, split rings for wash-vests. Ingenuity was certainly displayed in levying tribute upon the scrap-heap. These were put together in a fashion, and when united with other parts, without doubt, as the Examiners-in-Chief correctly say, served to illustrate—

the mode of mechanical construction and operation of the idea which Ocumpaugh had conceived.

The structure may be the embodiment of the invention in visible form, but something more than this is required to constitute an actual reduction to practice. As we have said in the recent case of *Gallagher* v. *Hien* mechanical perfection is not requisite for a reduction to practice but the device must show that—

the work of the inventor is finished, physically as well as mentally. Nothing must be left for the inventive genius of the public. (*Robinson on Patents*, vol. 1, p. 183.)

We are far from being convinced that the exhibit proves that the invention was reduced "to a fixed, positive, and practical form." (1 *Story*, 590–599.). We agree with the Examiners-in-Chief that—

It cannot be assumed from an examination of this device that it will certainly perform its function when put to use under the full conditions of practical use although it is operative as a mechanical movement.

Various parts of the structure, and such parts being of the essence of a practical working voting-machine are so crude and even certain of derangement that no one would seriously consider building machines in accordance with the exhibit until he had further experimented with it. We refer specially to the interlocking devices and the counters or registers. In short the evidence does not convince us that Exhibit C is a device capable of being used for practical purposes. We are rather of the opinion that it is essentially an experimental device and never passed beyond that stage.

We are not unmindful that it is asserted that it was proven to be an operative machine by its alleged use to elect the directors of a certain corporation. Conceding its use at the time and for the purpose stated we fail to find sufficient in the record to convince us that any test to which it was put was sufficient to demonstrate anything more than that it was "operative as a mechanical movement."

The proofs on behalf of Ocumpaugh must be considered as a whole and the attendant circumstances of the case must be borne in mind in coming to a correct conclusion as to the weight to be given to this exhibit and what weight Ocumpaugh gave to it prior to the necessity for its use in the present interference proceedings. These circumstances may be grouped together, and when so considered they raise such a cloud of doubt that Ocumpaugh's evidence fails to overcome the presumption in favor of Norton which follows his being the first to file an allowable application for patent.

Ocumpaugh's failure to follow up this invention in the same manner he did a later invention in the same art is a circumstance that cannot but be given some weight. Early in 1896 he filed an application for such invention, having previously made a working machine embodying that invention. Another circumstance to be taken into account is that in the winter of 1896–97 he engaged one Turpin to make drawings of the machine shown in his application involved herein, and that instead of giving him Exhibit C to work from he made a new rough pencil sketch as a guide.

Again it appears that when he came to file this application he showed in the drawings registers of different character from those used in Exhibit C, which tends to indicate that the structure, at least in that respect, was of an experimental character.

These straws taken, each by itself, prove little, but when taken together, and in the light of Ocumpaugh's testimony, which in many respects is inconclusive, coupled with his long delay in filing his application which delay is not satisfactorily excused, would compel us, were we in doubt, to resolve such doubt against Ocumpaugh.

To reverse the award in favor of Norton would require us to depart from a long line of authorities. It may be open to argument whether, at times, a too-rigid rule as to what constitutes reduction to practice may not have been laid down. There is nothing however in the facts of the case at bar to call for any reexaminations of the questions of law involved in the decision of what constitutes a reduction to practice. Nor is it necessary to cite any of the many decisions of this court in justification of our conclusion herein.

The Commissioner of Patents correctly awarded priority to Norton and his decision is affirmed.

The clerk of the court will certify this opinion, and the proceedings in this court in the premises, to the Commissioner of Patents according to law. Affirmed.

Amended Trade-Mark Rules.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., April 13, 1905.

The following amendments have been made in the Rules

of Practice of this Office relating to the registration of trade-marks:

In Rule 17 the following words have been canceled:

In such cases it is not necessary that the trade-mark shall have been used in commerce with the United States or among the States thereof,

and the following substituted therefor:

In such cases it is not necessary to state in the application that the trade-mark has been used in commerce with the United States or among the States thereof.

The rule so amended reads as follows:

17. No trade-mark will be registered to an applicant residing or located in a foreign country unless such country by treaty, convention, or law, affords similar privileges to the citizens of the United States, nor unless the trade-mark has been registered by the applicant in the foreign country in which he resides or is located. In such cases it is not necessary to state in the application that the trade-mark has been used in commerce with the United States or among the States thereof. (See Rule 31.)

In Rule 30 the following words have been canceled:

act, make oath to facts showing such actual use for the period specified, and that, to the best of his knowledge and belief, such use has been exclusive for the period specified, and that the mark is now and has been continuously used by the applicant, or his predecessors, or by those from whom title to the same is derived, as a trade-mark,

and the following substituted therefor:

act, make oath to such actual use of the mark as a trade-mark by himself, or his predecessors, or by those from whom title to the same is derived, for the period specified, and that, to the best of his knowledge and belief, such use has been exclusive.

The rule so amended reads as follows:

30. Where application is made under section 5 of the act of February 20, 1905, on the ground that the mark has been in actual and exclusive use as a trade-mark by the applicant, or his predecessors from whom he derived title, for ten years next preceding the passage of said act, the applicant shall, in addition to the requirements of section 2 of said act, make oath to such actual use of the mark as a trade-mark by himself, or his predecessors, or by those from whom title to the same is derived, for the period specified, and that, to the best of his knowledge and belief, such use has been exclusive. (See Form 8, p. 33.)

In section 6 of Rule 34 the following words have been canceled:

Drawings should be rolled for transmission to the Office—not folded—

and the following substituted therefor:

Drawings transmitted to the Office should be sent flat, protected by a sheet of heavy binders' board. They should not be rolled or folded.

The second paragraph under section 6 of Rule 34 is made section 7, so that sections 6 and 7 read as follows:

(6) Drawings transmitted to the Office should be sent flat, protected by a sheet of heavy binders' board. They should not be rolled or folded.

(7) An agent's or attorney's stamp, or advertisement, or written address will not be permitted upon the face of a drawing, within or without the marginal line.

In line 3 of Rule 62 the words "an illustration of the trade-mark" are canceled, so that this rule reads as follows:

62. The Official Gazette of the Patent Office will contain a list of all trade-marks registered, with the name and address of the registrant in each case, a description of the trade-mark itself, and a recitation of the particular description of goods to which it is applied.

F. I. ALLEN,
Commissioner.

PATENT AND TRADE-MARK LAW OF PANAMA.

Law 88 of 1904, (July 5,) containing certain provisions with regard to fiscal administration.

The National Convention of Panama decrees:

TITLE I—CHAPTER I.

ARTICLE 1. In the Republic there shall be collected the taxes hereinafter mentioned, as well as others established by laws or ordinances which are not repealed:

* * * * * * *

Fees for patents of invention and registration of trade-marks.

CHAPTER V.

ART. 38. Every discovery or new invention in any branch of industry gives to its author the right to profit exclusively by his discovery or invention.

This right is guaranteed by means of certificates issued by the Government of the Republic under the name of Patents of Invention.

ART. 39. The granting of a patent shall involve the payment of a fee by the patentee in favor of the Treasury of the Republic at the rate of 20 pesos for each year for which the patent is granted, payable at one time upon receiving the patent. A person soliciting a patent shall state the number of years during which he is to use the same, and shall pay down the amount of one year, which he shall forfeit if the patent is not granted, but which shall be credited to him as part of the fee for the patent if the latter is granted.

ART. 40. The fees of the National Treasury for the registration of every trade-mark (*marca de fábrica*) and "commercial mark" (*marca de comercio*) are fixed at $50 and $30 respectively.

ART. 41. By a *marca de fábrica* is meant any phrase or sign employed to distinguish or determine a special product intended for industry or commerce, and by *marca de comercio* the phrase or distinctive sign of an article of commerce intended for a commercial person or house.

ART. 42. In the issuance of patents of invention and the registration of trade-marks there shall be observed the rules prescribed in the Colombian laws of May 15, 1848, and 35 of May 13, 1869, as well as other provisions which supplement or modify them, wherever they are not contrary to the provisions of the present law.

Given in Panama on the thirtieth of June, nineteen hundred and four.

JERARDO ORTEGA, *President.*
LADISLAO SOSA, *Secretary.*

National Executive Power, Panama, July 5, 1904.
Let it be published and executed:
M. AMADOR GUERRERO.
The Secretary of the Treasury,
F. V. DE LA ESPRIELLA.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	6	.....	Nevada	.....	.....
Alaska Territory	.....	.....	New Hampshire	1	.....
Arizona Territory	.....	.....	New Jersey	31	.....
Arkansas	1	.....	New Mexico Territ'y	3	.....
California	18	.....	New York	87	7
Colorado	14	.....	North Carolina	2	.....
Connecticut	13	.....	North Dakota	3	.....
Delaware	.....	.....	Ohio	42	5
District of Columbia	8	.....	Oklahoma Territ'y	4	.....
Florida	2	.....	Oregon	4	.....
Georgia	3	.....	Pennsylvania	58	1
Hawaii Territory	.....	.....	Porto Rico	.....	.....
Idaho	.....	.....	Rhode Island	5	.....
Illinois	56	3	South Carolina	5	.....
Indian Territory	1	.....	South Dakota	2	.....
Indiana	17	.....	Tennessee	2	.....
Iowa	18	1	Texas	6	.....
Kansas	7	.....	Utah	2	.....
Kentucky	6	1	Vermont	2	.....
Louisiana	8	.....	Virginia	4	2
Maine	8	.....	Washington	13	.....
Maryland	6	1	West Virginia	2	.....
Massachusetts	25	3	Wisconsin	16	.....
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Minnesota	11	.....	U. S. Army	.....	.....
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TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	1	.....
British West Indies	.....	.....	Norway	.....	.....
Canada	7	.....	Portugal	.....	.....
Cape Colony	.....	.....	Queensland	1	.....
Ceylon	.....	.....	Russia	.....	.....
Costa Rica	.....	.....	Scotland	3	.....
Cuba	1	.....	South Africa	.....	.....
Denmark	2	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	13	.....	Sweden	2	.....
France	10	.....	Switzerland	1	.....
Germany	11	.....	Tasmania	1	.....
Guatemala	.....	.....	Transvaal, South Africa	.....	.....
India	.....	.....	Victoria	1	.....
Ireland	.....	.....	Western Australia	1	.....
Italy	1	.....			
Japan	1	.....	Total to citizens of foreign countries	59	.....
Java	.....	.....			
Mexico	.....	.....			

Regulations in Relation to Mail-Matter.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of the city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

Trade-Marks.

The publication of trade-marks under the act of February 20, 1905, in the OFFICIAL GAZETTE, will commence May 2, 1905, and will appear in each weekly number of the GAZETTE thereafter.

Extra copies of the trade-mark portion of the GAZETTE, which will be sold separately, may be obtained for five cents each. Coupons will be taken in payment therefor.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business April 18, 1905.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Mar. 28	Apr. 3	185
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Mar. 23	Mar. 23	299
128	II. Bee Culture, Dairy, Label-Affixers, Paper Files and Binders, Presses, Store-Service, Tobacco, etc.	Mar. 20	Mar. 14	260
167	V. Fine Arts, Bookbinding, Harvesters, Jewelry, and Music.	Mar. 20	Mar. 10	259
329	XIII. Arms, Projectiles, and Explosive Charges, Making, Metal-Working, Needle and Pin Making.	Mar. 20	Feb. 20	550
144	XXIV. Apparel, Apparel Apparatus, Canes, Canopies, Sewing-Machines, Surgery, Tents, Toilet, Umbrellas.	Mar. 19	Mar. 9	473
244	XXXV. Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Deposit and Collection Receptacles, Package and Article Carriers, Packing and Storing Vessels, Photography.	Mar. 18	Apr. 3	322
327	XVIII. Steam-Engineering, etc....	Mar. 18	Mar. 27	145
	Between one and two months.			
175	III. Annealing and Tempering, Coating with Metal, Electrochemistry, Metal-Founding, Metallurgy, Shaping Fluid Metal.	Mar. 17	Apr. 3	261
308	XV. Bread, Pastry, and Confections, Making, Coating, Laminated Sheets and Fabrics, Fuel, Glass, Hydraulic Lime and Cement, Paper-Making, Paving and Plastics.	Mar. 17	Mar. 23	447
318	VI. Bleaching and Dyeing, Chemicals, Explosives, Fertilizers, Medicines, Preserving, Sugar and Salt.	Mar. 17	Mar. 21	201
232	IV. Bridges and Masonry, Conveyers, Cranes and Derricks, Excavating, Fireproof Buildings, Hoisting, Hydraulic Engineering, Loading and Unloading, and Towers.	Mar. 17	Jan. 27	674
324	XII. Elevators, Journal-Boxes, Lubricators, Machine Elements, Pulleys and Shafting.	Mar. 15	Mar. 3	438
172	XXXI. Alcohol, Charcoal and Coke, Distillation, Gas, Heating and Illuminating, Hides, Skins, and Leather, Liquid Coating Compositions, Oils, Fats, and Glue, Water Purification.	Mar. 13	Mar. 18	264
304	XXXIV. Railways, Railway-Brakes, Rolling-Stock.	Mar. 13	Feb 27	422
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Mar. 9	Feb. 25	381
321	I. Tillage, etc., Fences, and Railway Draft Appliances.	Mar. 8	Mar. 9	205
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Harness, Ladders, Mechanical Motors, and Paper Manufactures.	Mar. 3	Jan. 20	533
109	XVI. Telegraphy and Telephony..	Mar. 1	Feb. 16	274
107	XXXVII. Electricity, Conductors, Lighting, Signaling, Special Apparatus.	Feb. 25	Jan. 3	730
148	XXXII. Carbonating Beverages, Dispensing Beverages, Dispensing-Cans, Metallic Shipping and Storing Vessels, Packaging Liquids, Paper Receptacles, Refrigeration, Wooden Receptacles.	Feb. 23	Mar. 23	442
112	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Feb. 23	Dec. 19	445

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
137	VIII. Beds, Chairs, Furniture, Kitchen and Table Articles, Store Furniture.	Feb. 20	Feb. 23	621
303	XVII. Linotyping, Printing and Type-Writing Machines, Matrix-Making.	Feb. 20	Feb. 17	574
379	XXIII. Acoustics, Coin-Handling, Horology, Recorders, Registers, Optics, Signals, Time Controlling Mechanism.	Feb. 18	Feb. 15	504
	Between two and three months.			
133	XXII. Air-Guns, Ammunition and Explosive Devices, Boats and Buoys, Catapults and Targets, Firearms, Marine Propulsion, Ordnance, Ships.	Feb. 14	Feb. 9	416
378	XXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Fishing and Trapping, Stationery, Stone-Working.	Feb. 13	Mar. 18	400
332	X. Carriages and Wagons.....	Feb. 11	Mar. 17	450
147	XXIX. Coopering, Roofs, Wheelwright-Machines, Wooden Buildings, Wood-Sawing, Wood-Turning, Woodworking-Tools.	Feb. 11	Jan. 14	350
307	XIV. Cutting and Punching Sheets and Bars, Farriery, Metal-Bending, Metal-Ornamenting, Metal Personal Wear, Making, Nut and Bolt Locks, Sheet-Metal Ware, Making, Tools, Wire-Working.	Feb. 6	Jan. 5	360
142	IX. Baths and Closets, Fire-Extinguishers, Hydraulic Motors, Pumps, Sewerage, and Water Distribution.	Feb. 4	Jan. 26	569
375	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, Washing Apparatus.	Feb. 4	Dec. 19	621
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Feb. 2	Feb. 1	663
105	XXVI. Electricity, Generation, Electricity, Medical and Surgical, Electric Heaters, Electric Railways, Motive Power.	Feb. 2	Jan. 27	374
154	XI. Boot and Shoe Making, Boots, Shoes, and Leggings, Button, Eyelet, and Rivet Setting, Leather Manufacturing, Nailing and Stapling, Check-Controlled Apparatus, Whips and Whip Apparatus.	Jan. 23	Jan. 25	441
382	XXVIII. Air and Gas Engines, Air and Gas Pumps, Pneumatics.	Jan. 23	Jan. 13	837
	Between four and five months.			
179	XX. Artificial Limbs, Builders' Hardware, Cutlery, Dentistry, Locks and Latches, Safes, Undertaking.	Dec. 7	Dec. 14	636

Total number of applications awaiting action..... 16,026

	Under one month.			
159	XXXIII. DESIGNS, TRADE-MARKS, LABELS AND PRINTS.			
	Designs.....	Mar. 27	Apr. 10	55
	Trade-Marks.....	Apr. 1	Apr. 14	1094
	Labels and Prints.....	Apr. 18	Apr. 17	3

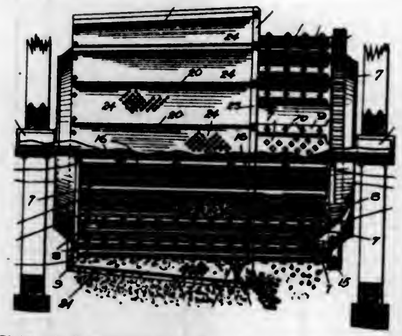
Preparation of Specifications and Amendments for the Printer.

The Examiners are directed before passing applications to issue to carefully examine all the papers and see that they are in such shape and condition as to avoid all possibility of error being made by the printers. Whenever interlineations or erasures have been made in the specifications or amendments which would lead to confusion and mistake, the Examiners should require the entire specification to be rewritten before passing the case to issue.

PATENTS

GRANTED APRIL 25, 1905.

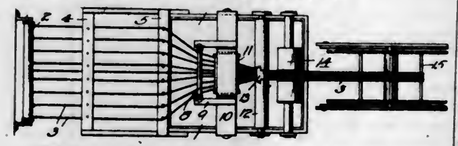
787,885. COAL-BREAKER. ALFRED M. ACKLIN, Pittsburg, Pa., assignor to Heyl and Patterson, Pittsburg, Pa., a Copartnership of Pennsylvania. Filed Mar. 28, 1904. Serial No. 200,302.



Claim.—1. In a coal-breaker, the combination of a rotary perforated cylinder of uniform diameter having an inlet at one end and a discharge-outlet at the opposite end, with means for conveying the refuse out the discharge end, means therein for lifting and dropping the coal, and a perforated jacket extending from the receiving end of said cylinder to a point beyond the mid-point thereof, said jacket having its outer end entirely open.

2. In a coal-breaker, the combination of a rotary perforated cylinder of uniform diameter having an inlet at one end and a discharge-outlet at the opposite end, with means for conveying the refuse out the discharge end, means therein for lifting and dropping the coal, and an outwardly-flaring perforated jacket extending from the receiving end of said cylinder for a portion of the length of said cylinder, said perforated jacket having its outer end entirely open.

787,886. MACHINE FOR MAKING TAPE. FREDERIC J. ANET, York, Pa. Filed Jan. 6, 1905. Serial No. 239,902.



Claim.—1. A device or apparatus for producing tape comprising a tank for holding an adhesive solution, means for passing a plurality of threads or strands through said solution, and means for laying said strands side by side and causing their edges to adhere to form a tape, substantially as described.

2. In combination, a tank for holding an adhesive solution, means for passing a plurality of threads or strands through the same, a tapered guide for drawing the coated threads together in the same plane with their edges in contact, and a reel for winding up said tape, substantially as described.

3. In combination, a tank for holding an adhesive solution, means for passing a plurality of threads therethrough, presser-rollers between which the threads pass after leaving the solution, a cylindrical guide having a tapering groove through which said strands pass whereby they are assembled to form a tape, and a guide-roller having an annular groove conforming in width to said tape, substantially as described.

787,887. CHOCOLATE CONFECTION. WINTHROP M. BAKER, Newton, Mass. Filed Apr. 20, 1904. Serial No. 204,055.



Claim.—1. A chocolate confection comprising a body, a coating, and a separately-manufactured chocolate symbol or ornament attached to the coated surface.

2. The combination with a chocolate-coated edible body, of a chocolate symbol or ornament attached to said coated body, the said symbol or ornamentation being of a relatively hard consistence as compared with the coating of the body.

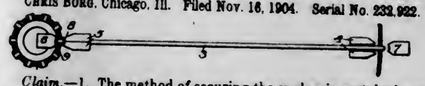
787,888. FULCRUM-BLOCK FOR BRAKE-BEAMS. CARL E. BAUER, Hammond, Ind., assignor to Simplex Railway Appliance Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 2, 1903. Serial No. 171,583.



Claim.—1. A brake beam fulcrum comprising a member embracing the base and one side of the flange of the beam, and a locking member attached to the other member by a tongue-and-groove joint, substantially as described.

2. In a brake beam fulcrum the combination of a block having jaws for the brake lever and an arm embracing the flange of the beam, the seat on the flange extending over the edge of the same and having a slot therein, and a complementary locking block having a projection engaging the slot in the first block and riveted to the brake beam, substantially as described.

787,889. METHOD OF MANUFACTURING METAL WHEELS. CHRIS BORG, Chicago, Ill. Filed Nov. 16, 1904. Serial No. 233,922.



Claim.—1. The method of securing the spokes in metal wheels, which consists in assembling the spokes in the wheels, forming shoulders on the spokes by stretching them and thereby providing the necessary metal for the shoulders, and upsetting the metal so provided to form the shoulders.

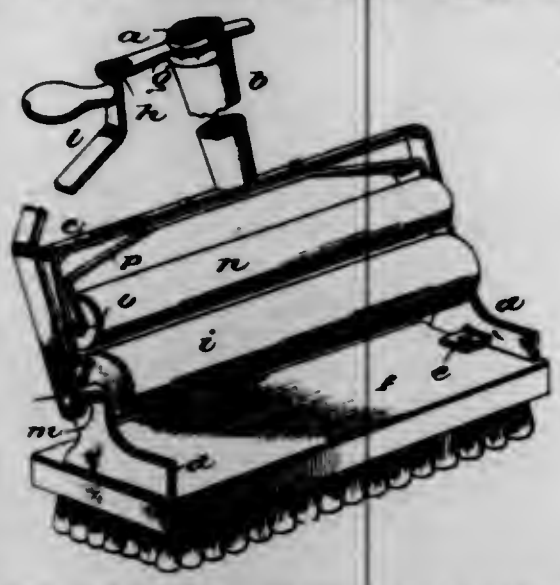
2. The method of manufacturing metal wheels, consisting in stretching the spoke to provide metal for a shoulder, and simultaneously therewith upsetting the material thereof to form said shoulder against one side of the adjacent wheel member, and forming an opposing head on the spoke on the other side of said wheel member.

3. The method of manufacturing metal wheels, consisting in stretching the spoke to provide metal for a shoulder, upsetting the material thereof to form said shoulder against one side of the adjacent wheel member, and forming an opposing head on the spoke on the opposite side of said wheel member, the several steps being performed simultaneously.

4. The method of manufacturing metal wheels, consisting in uniting one end of the spoke to the adjacent wheel member, securing said spoke end against endwise movement by means independent of its connection with said member, stretching the spoke an amount sufficient to provide material for a shoulder on the other end of the spoke, and simultaneously upsetting the metal to form said shoulder.

5. The method of forming a shoulder on a spoke, which consists in holding the spoke near one end against longitudinal movement grasping the other end, and forming the shoulder on such end by stretching the spoke and thus upsetting the metal.

787,890. **COMBINED MOP HEAD AND WRINGER.** CHARLES R. CARPENTER, Racine, Wis. Filed May 8, 1903. Serial No. 156,276.



Claim.—1. In a mop, in combination, a mop-head frame comprising side bars, having bearing sockets or depressions opening outwardly through the longitudinal edges thereof, an independently-removable wringer-roll carrying a mop-cloth and provided with an operating-handle and with end pintles removably confined and turning in said depressions, a spring-held pressure-roll coöperating with and removably holding the wringer-roll with its pintles in said depressions, and pressure-roll-supporting means independent of and disconnected from said wringer-roll.

2. A mop-head provided with removable wringer-rolls, one of said rolls having end pintles, and a plate-spring having its downwardly-pressing free ends extending beside the end faces of said roll and bearing against and notched to receive said pintles, said free ends tending to spring toward each other and removably grip said roll when the other roll is removed.

3. In combination, a mop-head frame having side bars, a transversely-arranged plate or block secured to the lower ends thereof, a pair of parallel removable rotary wringer-rolls adapted to receive a mop-cloth between them, the side bars of the frame having open end sockets, and the lower roll having pintles removably resting in said sockets, the upper roll having pintles between the side bars, and spring ends secured to the frame with their extremities extending beside the end faces of said upper roll and bearing against the pintles thereof and removably carrying and supporting said roll when the lower roll and cloth are removed.

4. In a mop, in combination, a U-shaped frame having a handle-socket projecting upwardly from the top bar of said frame and provided with the lateral rigid handhold located above said frame top bar and at one end formed with a catch, and rotary spring-held wringer-rolls carried by said frame, one of said rolls having an end crank-handle outside of said frame arranged to spring into locking engagement with said catch.

5. In a mop, in combination, a frame comprising downwardly-extending sides at their lower portions having bearing-sockets opening outwardly through the edges of said sides, and horizontally-elongated parallel vertical guide-plates extending forwardly from the lower ends of said sides, a horizontally-disposed deflector-plate rigid with and connecting said guide-plates, said guide-plates extending transversely across the top face of said deflector-plate, a removable rotary crank-roll provided with a hand-crank and having journals removably fitting in said sockets, and a spring-pressed wringer-roll yieldingly held to said crank-roll and holding the same removably in said frame.

6. In a mop, in combination, a frame comprising downwardly-extending sides and vertical horizontally-elongated guide-plates having lateral securing-flanges at their lower longitudinal edges, a horizontal transversely-arranged deflector-plate, said guide-plates extending transversely across the ends of said deflector-plate approximately to the front edge thereof with said flanges resting on the top face thereof and rigidly secured thereto, a wringer-roll mounted in said sides above said plate and means coacting with said roll to compress a mop-cloth thereon.

7. In combination, a mop-head comprising side bars, a deflector arranged transversely between the side bars and rigid with the lower ends thereof, said side bars extending upwardly and rearwardly from the top face of the deflector and at an angle thereto, said side bars formed with horizontally-elongated vertical guide-plates extending transversely across the top face of the deflector and secured thereto, a removable rotary wringer-roll mounted in said bars and arranged above the top face of said deflector, and means coöperating with said roll to compress a mop-cloth.

8. A mop comprising in combination, a head-frame having downwardly-extending sides formed at their longitudinal edges with the outwardly-opening bearing depressions or sockets, an independently-removable wringer-roll having its journals normally confined to turn in said depressions, said roll adapted to carry an endless mop-cloth removable with said roll, and spring-held means disconnected from said roll and compressing the cloth thereon and yieldingly holding said roll against lateral displacement from said depressions, whereby outward lateral pressure against said roll will laterally displace said means and permit independent removal of said roll with the cloth, thereby permitting endwise removal of the roll from the cloth.

9. In a mop, in combination, a frame having downwardly-extending sides, a transversely-arranged deflector-plate rigid with said sides, said frame sides having bearing-sockets opening outwardly through the longitudinal edges thereof, a removable rotary wringer-roll between said frame sides and having its journals removably confined and turning in said sockets and carrying an endless mop-cloth removable with said roll, and yielding roller-retaining means yieldingly retaining the roll, with its journals in said sockets, said plate arranged below said roll and upholding said mop-cloth.

10. A combined mop head and wringer comprising a transverse deflector-plate, a rotary wringer-roll arranged just above said plate, and carrying an endless mop-cloth extending transversely across the top face of said plate, said plate upholding and deflecting said cloth, yielding means compressing the cloth on the roll, and mop-cloth guides extending transversely across the top face of said plate.

11. In a mop, in combination, a mop-head frame, a rotary wringer-roll carried thereby, an endless mop-cloth carried by said roll, means compressing the cloth, and a mop-cloth deflector and water-shed rigid with said frame and arranged closely beneath said roll and upholding and deflecting the mop-cloth to one side of the vertical plane of the falling water squeezed from said cloth, said water-shed extending into said plane of the falling water and thereby deflecting said water from the mop-cloth.

12. A mop comprising a mop head or frame having the horizontally-disposed wide water-shed or deflector-plate rigid therewith, a removable wringer-roll mounted in said frame close above said plate, an endless mop-cloth passing around and removable with said roll with its under ply arranged transversely across the top face of said plate and depending from the front edge thereof.

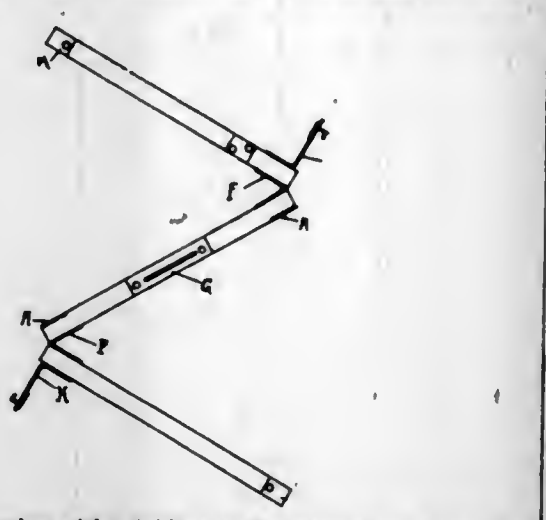
13. In a mop, in combination, a transverse wide horizontally-disposed deflector-plate, mop-head-frame sides rigid with and extending upwardly and rearwardly from the end portions of said plate, said plate having mop-cloth guides extending transversely across the end portions of its top face, a removable wringer-roll close above said plate and between and removably mounted in said arms, and mop-cloth-compressing means coöperating with said roll.

14. In a mop, in combination, a mop-head frame having downwardly-extending sides, a rotary wringer-roll mounted in said sides, an endless mop-cloth carried by said roll, means coöperating with said roll to compress said cloth thereon, and a flat wide transverse deflector-plate rigid with the lower ends of said sides and arranged closely below said roll and coöperating with said mop-cloth to uphold and deflect the mop-cloth laterally from the path of the water squeezed from the cloth, said cloth passing transversely across the top face of said deflector and hanging from the front edge thereof.

787,891. **MECHANIC'S FOLDING PLUMB AND LEVEL.** CLARENCE E. CASTLE, Ogdensburg, N. Y. Filed Mar. 28, 1904. Serial No. 200,491.

Claim.—1. The combination with a folding staff consisting of a plurality of members, of a detachable plumb bob and cord; a spirit plumb-tube inserted near one end of said staff; a spirit-level tube inserted in one edge of the middle part of said staff; metal hinges secured alternately upon the opposite faces of said staff at the several joints thereof respectively and so as to permit the extension of the said several members of said staff to form a continuous straight line and allow free play to said plumb-cord; a locking-latch located at

each of said joints and on the face of said staff opposite to each of said hinges respectively, and comprising an apertured plate adapted to be secured to one of the members of said staff and carrying a transverse groove on its outer face, and on its reverse face and near the aperture therein a spiral cam, and a hinged plate adapted to be secured to an adjoining member of said staff and carrying on its free part a transverse rib adapted to register with the groove in said apertured plate and a rotatable key adapted to pass through the aperture in said first-described plate and when rotated engage the said cam; and means for attaching said tubes, hinges and plates to the appropriate members of said staff, substantially in the manner shown and described.

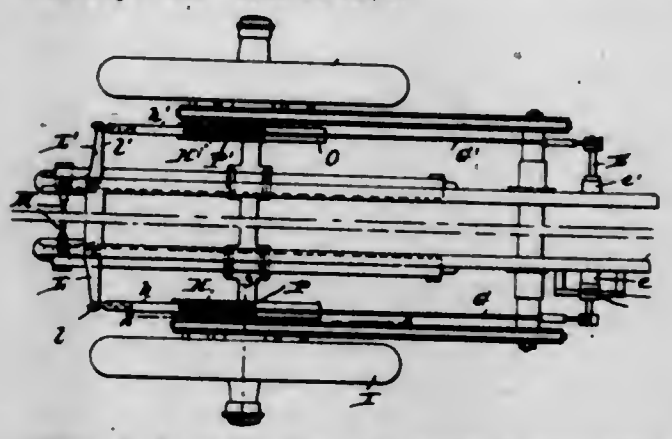


2. The combination with a folding staff consisting of a plurality of members, of a detachable plumb bob and cord; a spirit-level tube inserted in one edge of the middle part of said staff; metal hinges secured alternately upon the opposite faces of said staff at the several joints thereof respectively and so as to permit the extension of said several members of said staff to form a continuous straight line and allow free play to said plumb-cord; a locking-latch located at each of said joints and on the face of said staff opposite to each of said hinges respectively, and comprising an apertured plate adapted to be secured to one of the members of said staff and carrying a transverse groove on its outer face, and on its reverse face and near the aperture therein a spiral cam, and a hinged plate adapted to be secured to an adjoining member of said staff and carrying on its free part a transverse rib adapted to register with the groove in said apertured plate and a rotatable key adapted to pass through the aperture in said first-described plate and when rotated engage the said cam; and means for attaching said tube, hinges and plates to the appropriate members of said staff, substantially in the manner shown and described.

3. The combination with a folding staff consisting of a plurality of members, of a detachable plumb bob and cord; metal hinges secured alternately upon the opposite faces of said staff at the several joints thereof reapectively and so as to permit the extension of the said several members of said staff to form a continuous straight line and allow free play to said plumb-cord; a locking-latch located at each of said joints and on the face of said staff opposite to each of said hinges respectively, and comprising an apertured plate adapted to be secured to one of the members of said staff and carrying a transverse groove on its outer face, and on its reverse face and near the aperture therein a spiral cam, and a hinged plate adapted to be secured to an adjoining member of said staff and carrying on its free part a transverse rib adapted to register with the groove in said apertured plate and a rotatable key adapted to pass through the aperture in said first-described plate and when rotated engage the said cam; and means for attaching said hinges and plates to the appropriate members of said staff, substantially in the manner shown and described.

4. The combination with a folding staff consisting of a plurality of members, of a spirit plumb-tube inserted near one end of said staff; a spirit-level tube inserted in one edge of the middle part of said staff; metal hinges secured alternately upon the opposite faces of said staff at the several joints thereof reapectively and so as to permit the extension of the said several members of said staff to form a continuous straight; a locking-latch located at each of said joints and on the face of said staff opposite to each of said hinges respectively, and comprising an apertured plate adapted to be secured to one of the members of said staff and carrying a transverse groove on its outer face, and on its reverse face and near the aperture therein a spiral cam, and a hinged plate adapted to be secured to an adjoining member of said staff and carrying on its free part a transverse rib adapted to register with the groove in said apertured plate and a rotatable key adapted to pass through the aperture in said first-described plate and when rotated engage the said cam; and means for attaching said tubes, hinges and plates to the appropriate members of said staff, substantially in the manner shown and described.

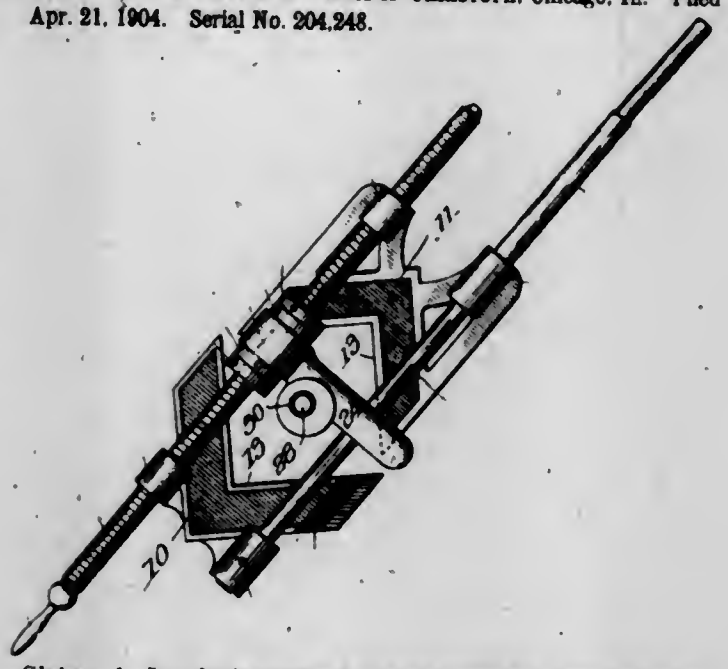
787,892. **BAND-BRAKE.** LEE S. CHADWICK, Ridley Park, Pa. Filed Aug. 4, 1903. Serial No. 168,137.



Claim.—1. In combination, brake-wheels, a brake-band upon each wheel, a brake-lever and connection between said brake-lever and one end of each brake-band, bell-crank levers, one for each brake-band, the end of one brake-band opposite to that connected with the brake-lever being connected to one bell-crank and the end of the other brake-band opposite to that connected with the brake-lever being connected to the other bell-crank and a connecting-rod connecting said bell-cranks.

2. In combination, brake-wheels, a brake-band upon each wheel, a brake-lever, a rock-shaft operated by said lever, connections between said rock-shaft and one end of each of said brake-bands, bell-crank levers, one brake-band at its end opposite to its connection with the rock-shaft being connected to one of said bell-crank levers, the other brake-band at its end opposite to the connection with the rock-shaft being connected to the other of said bell-crank levers and a connecting-rod connecting said bell-crank levers.

787,893. **CENTER-JIG.** EMIL A. CHRISTOPH, Chicago, Ill. Filed Apr. 21, 1904. Serial No. 204,248.



Claim.—1. In a device of the character described, a pair of jaws, a guide for the jaws, a screw-rod for clamping the jaws upon the work, and a drill-guide pivotally mounted on said screw-rod.

2. In a device of the character described, a guide-rod, a screw-rod, a pair of jaws on said rods, and a drill-guide pivotally mounted on the screw-rod and arranged to rest upon the guide-rod.

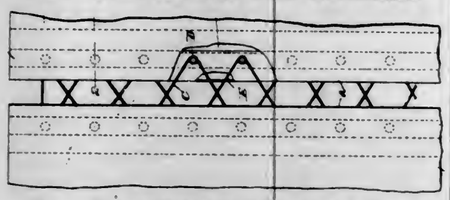
3. In a device of the character described, a guide-rod and a screw-rod, a pair of jaws carried by said rods, and an arm pivotally mounted on the screw-rod and arranged to rest upon the guide-rod and provided with a drill-guide opening located centrally of the jaws.

4. In a device of the character described, a guide-rod and a reversely-threaded screw-rod, a pair of jaws carried by said rods, said screw-rod being unthreaded at or about its middle, and a drill-guide adjustably and pivotally mounted on said unthreaded portion of the screw-rod and arranged to rest upon the guide-rod.

5. In a device of the character described, a guide-rod and a re-

versely-threaded screw-rod, a pair of jaws carried by said rods, one of said jaws being slotted lengthwise between its ends to receive the other jaw, and a drill-guide pivotally mounted on the screw-rod.

787,894. **INVISIBLE LACING.** ALBERT R. COLTON, Newark, N. J. Filed July 2, 1903. Renewed Sept. 30, 1904. Serial No. 226,693.



Claim.—1. In a structure such as described the fabric formed into two edge flaps for the admission of the lacing between them, studs around which the lacing passes secured at the ends to the portions of the fabric forming the inner sides of said flaps and between the portions of the fabric forming the outer sides of said flaps so as to be concealed thereby, and a strain-distributing stiffener secured in the fabric on the inner side of the said studs; substantially as described.

2. In a structure such as described, the fabric formed into two edge flaps for the admission of the lacing between them, studs around which the lacing passes secured at the ends to the portions of the fabric forming the inner sides of the flaps and between the portions of the fabric forming the outer sides of the flaps so as to be concealed thereby, and a strain-distributing stiffener secured between the sides of the fabric in rear of and in the plane of the studs, said stiffeners giving a thickness to the structure corresponding to the thickness through the studs to prevent the formation of projections by the studs or lacing; substantially as described.

3. In a structure such as described, the fabric formed into two edge flaps between which the lacing passes, studs around which the lacing passes having their ends secured to the portions of the fabric forming the inner sides of the edge flaps and underlying and concealed by the portions of the fabric forming the outer sides of the said flaps and a stiffener held in one of the flaps in proximity to, but independent of the studs to stiffen the edge of the flap; substantially as described.

787,895. **RAILWAY SIGNAL AND GATE.** JAMES G. O. COMBS and ISAAC D. COMBS, Harold, Mo. Filed Nov. 19, 1904. Serial No. 233,455.

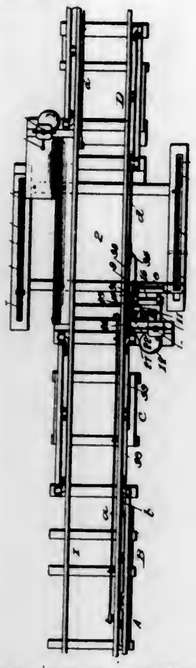
Claim.—1. In safety appliance for railways, the combination of a signal, operating mechanism therefor comprising elements normally disengaged, a trip adapted to be actuated by an approaching train for throwing the said disengaged parts into engaging position, and a second trip normally in position to be moved by the train to effect operation of the signal-actuating mechanism after the disengaged parts have been thrown into operative position for operating the signal to give warning of impending danger.

2. In safety appliance for railways, the combination of a signal, operating mechanism therefor comprising parts normally disengaged, a gate, gate-operating mechanism comprising parts normally disengaged, a trip for throwing the disengaged parts of the signal-operating mechanism into engaging position, a second trip for operating the signal and bringing the disengaged parts of the gate-operating mechanism into engaging position, and a third trip for actuating the gate.

3. In safety appliance for railways, the combination of a signal, operating mechanism therefor, a gate, gate-operating mechanism normally out of action, a trip operatively connected with the signal-operating mechanism for actuating the same, means actuated by the signal-operating mechanism to throw the gate-operating mechanism into gear or working position, a trip for projecting the gate across the roadway.

4. In safety appliance for railways, the combination of a signal, operating mechanism therefor comprising elements normally out of action, a gate, operating mechanism therefor normally out of action, a signal-setting trip for throwing the signal-operating mechanism into gear, a signal-operating trip for actuating the signal-operating mechanism, means actuated by the signal-operating mechanism to throw the gate-operating mechanism into working position, and a gate-operating trip for actuating the gate-operating mechanism.

5. In safety appliance for railways, the combination of a signal, operating mechanism therefor comprising elements normally out of action, a gate, operating mechanism therefor normally out of action, a signal-setting trip for throwing the signal-operating mechanism into gear, a signal-operating trip for actuating the signal-operating mechanism, means actuated by the signal-operating mechanism to throw the gate-operating mechanism into working position, a gate-operating trip for actuating the gate-operating mechanism, a resetting-trip, and independent connections between the resetting-trip and the signal and gate operating mechanism for restoring the working parts to a normal position.



6. In combination, a signal, operating mechanism therefor comprising coöperating suitable elements, a lifter normally holding said elements separated and out of action, a trip connected with the lifter to effect movement thereof to permit the aforesaid separable elements to come into working condition, and a second trip connected with one of the aforesaid separable elements for actuating it and the signal-operating mechanism, substantially as set forth.

7. In combination, a signal, operating mechanism therefor comprising coöperating separable parts, a pivoted lifter normally holding said parts separated, a trip connected with said lifter for operating it to permit said separable parts to come into working position, and a second trip connected with one of said separable elements to impart movement thereto and to the signaling-operating mechanism, substantially as set forth.

8. In combination, a signal, operating mechanism therefor comprising coöperating separable parts, a pivoted lifter normally holding said parts separated, a trip connected with said lifter for operating it to permit said separable parts to come into working position, a second trip connected with one of said separable elements to impart movement thereto and to the signaling-operating mechanism, a resetting-trip, and a loose connection between said resetting-trip and the said lifter for restoring the parts to normal position.

9. In combination, a signal, operating mechanism therefor comprising coöperating elements normally separated, a gate, operating means therefor normally held out of action by the signal-operating mechanism, a trip for throwing the parts of the signal mechanism into gear, a second trip for actuating the signal-operating mechanism and throwing the gate-operating mechanism into gear, and a third trip for actuating the gate-operating mechanism.

10. In combination, a signal, operating mechanism therefor comprising coöperating elements normally separated, a gate, operating means therefor normally held out of action by the signal-operating mechanism, a trip for throwing the parts of the signal mechanism into gear, a second trip for actuating the signal-operating and throwing the gate-operating mechanism into gear, a third trip for actuating the gate-operating mechanism, a fourth trip, independent connections between the fourth trip and the gate, and signal-operating mechanisms for restoring the individual parts to normal position, substantially as set forth.

11. In combination, a signal, a rock-shaft connected with the signal and having a crank portion, a dog normally extended across the path of said crank portion, a trip connected with said dog, a lifter normally holding said dog away from the aforesaid crank portion of the rock-shaft, and a trip for actuating said lifter to permit the dog to assume a position for imparting movement to said rock-shaft when the dog is actuated, substantially as set forth.

12. In combination, a signal, a rock-shaft connected with the signal and having a crank portion, a dog normally extended across the path of said crank portion, a trip connected with said dog, a lifter normally holding said dog away from the aforesaid crank portion of the rock-shaft, a trip for actuating said lifter to permit the dog to assume a position for imparting movement to said rock-shaft when the dog is actuated, a resetting-trip, a connection between the resetting-trip and the crank portion of the rock-shaft, and a coupling member between said connection and lifter for restoring the said parts to normal position upon actuation of the resetting-trip, substantially as set forth.

13. In combination, a signal, a rock-shaft connected thereto and having oppositely-extended crank portions, a dog normally extended across the path of one of said crank portions, a lifter normally holding said dog out of engagement with its coöperating crank portion, a gate, a rock-shaft for actuating the gate and having a crank portion, a link coöperating with the gate-operating rock-shaft and normally resting upon the other crank portion of the signal-operating rock-shaft, and a series of independent trips for successively operating the lifter, the signal-operating mechanism and the gate-actuating means, substantially as set forth.

14. In combination, a signal, a rock-shaft connected thereto and having oppositely-extended crank portions, a dog normally extended across the path of one of said crank portions, a lifter normally holding said dog out of engagement with its coöperating crank portion, a gate, a rock-shaft for actuating the gate and having a crank portion, a link coöperating with the gate-operating rock-shaft and normally resting upon the other crank portion of the signal-operating rock-shaft, a series of independent trips for successively operating the lifter, the signal-operating mechanism and the gate-actuating means, and a resetting-trip having independent connection with crank portion of the signal and gate operating rock-shaft and with the lifter, substantially as set forth.

15. In railway safety appliance, the combination of a safeguard, actuating means therefor, and a trip, the latter comprising oppositely-disposed pivoted bars, links pendent from the inner ends of said bars and pivotally connected, a lever forming connecting means between one of said links and the rod for transmitting motion to the operating means of the safeguard, substantially as set forth.

787,896. **PLUMB-BOB.** MASCHIL D. CONVERSE, Newark, N. J. Filed Dec. 9, 1903. Serial No. 184,450.



Claim.—1. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, open at top and bottom, a filling pierced vertically by a stem, shouldered midway of its ends, and having a conical point with a neck at the base of the cone, and provided with screw-threads at the opposite upper reduced end, in combination with a correspondingly-screw-threaded cap.

2. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, open at top and bottom, a filling pierced vertically by a stem, shouldered midway of its ends, having a conical point and provided with screw-threads at the opposite upper reduced end, in combination with a correspondingly-screw-threaded cap.

3. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, and open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with a neck at the base thereof and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

4. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

5. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with a neck at the base thereof said base extended beyond the exterior surface of the shell, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

6. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, having a bead at its greatest diameter, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with the base thereof extended beyond the exterior surface of the shell, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

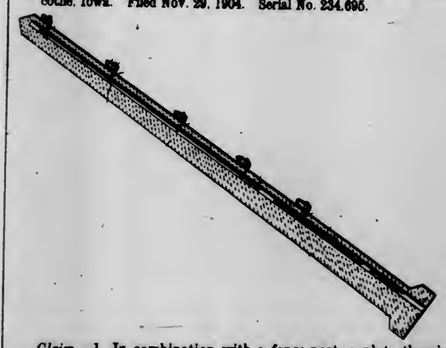
7. A plumb-bob comprising a shell of uniform thickness of wall in any given zone, open at top and bottom, a filling pierced vertically by a hole having a reduced diameter along its upper part, a stem conformed to the shape of this hole having a conical point with a neck at the base thereof and said base extended beyond the exterior surface of the shell, and screw-threads at the opposite reduced end, in combination with a correspondingly-screw-threaded cap.

8. In a plumb-bob a filled shell, having an annularly-flanged opening at its top, mounted upon a shouldered conical-pointed stem, with screw-threaded upper end, in combination with a flanged screw-cap.

9. In a plumb-bob a shell terminated by a tubular opening at its lower end, in combination with a conical-pointed stem entered therethrough provided with a neck into which the end of said tubular termination is compressed.

10. A plumb-bob comprising a body portion, a bead at the greatest diameter of said body portion, mounted upon a shouldered conical-pointed stem, having screw-threads at its upper reduced end, and having the base of said cone extended annularly beyond the exterior surface of said body portion, in combination with a screw-cap.

787,897. **FENCE-WIRE FASTENER.** ALBERT COTTON, Chillicothe, Iowa. Filed Nov. 29, 1904. Serial No. 234,695.



Claim.—1. In combination with a fence-post, a plate therein provided with a series of openings, a series of shanks or stems fitted in said openings and provided with a seat for the wires and a recess

or channel leading to said seat, and a vertical doubled or inverted-V-shaped spring portion having a head at its lower end adapted to engage the wires for securing them in the seat.

2. In combination with a fence-post having a plate therein provided with a series of openings, a horizontal stem or shank fitting in said openings and provided with a wire-seat, and a recess leading to said seat and a spring having an engaging head in the form of a cam at its free end to secure the wire in the seat.

787,898. VEHICLE-TIRE. LINCOLN C. CUMMINGS, Brookline, Mass. Filed Oct 22, 1904. Serial No. 229,563.

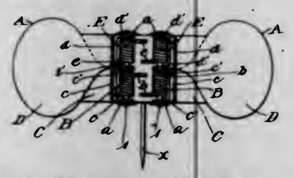


Claim.—1. A pneumatic vehicle-tire having an outer tube provided with a series of separate non-overlapping pieces of relatively thin leather cemented thereto and having their adjacent margins oppositely scarfed or skived to form transverse depressions in the tread-surface of the tire, said pieces of leather being further united to the outer tubes by seams of stitches sewed through and through the pieces of leather and the outer tube along the scarfed margins of the pieces of leather.

2. A pneumatic vehicle-tire comprising an outer flexible shoe or cover, having a curved tread-surface, a series of individual leather pads fashioned to fit the tread, cemented thereto, extending entirely around the same, and having skived abutting adjacent edges, and stitching extending through the skived edges of the respective pads.

3. A pneumatic vehicle-tire having on its outer tread-surface a series of abutting leather pads each having its edges skived from top to bottom, cemented to the tire and having fastenings extending through the outer edges.

787,899. VEIL-PIN. FLORENCE A. CURRY, Newtonville, Mass. Filed Jan. 26, 1904. Serial No. 190,688.



Claim.—1. A veil-fastener composed of a base-plate, an attaching device therefor, two or more spring-controlled leaves superimposed one above the other, carried by the base and adapted to hold the veil, a spring or springs for normally holding said leaf or leaves closed, an extension of each leaf for applying the pressure of the fingers to opening said fastener by lifting the leaf against the retractile force of a spring; ears on said base-plate and on said extensions, and rods journaled in said ears and supporting said springs; substantially as shown.

2. A veil-fastener composed of a base-plate A, provided with ears and adapted to be attached to a support, two leaves C, C having the extensions c, c and the ears c', c', c', c'; two springs B, B adapted to normally hold said leaves close upon said base-plate, rods 1, 1, sustaining said springs and journaled in said ears, two leaves D, D having extensions d, d and ears d', d', d', d', two springs E, E adapted to normally hold said leaves D, D close upon said leaves C, C, and rods 1, 1, sustaining said springs and journaled in said last-named ears, and the ears on the base-plate; substantially as shown.

3. In a veil-fastener, the combination of a base-plate, an attaching device therefor, a leaf C, having an extension c, a spring B, a leaf D having an extension d and superimposed above leaf C, a spring E, and means for holding said springs, base-plate, leaves and extensions in place; substantially as shown.

787,900. PLUG AND SPRING-JACK SWITCH. WILLIAM W. DEAN, Chicago, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 14, 1902. Renewed Sept. 28, 1904. Serial No. 226,283.



Claim.—1. The combination with a spring-jack having a thimble or test-ring *e* and a contact-spring *i* substantially in alinement with the axis of the thimble, of a connecting-plug having an outer shank or sleeve adapted to engage the thimble of the jack, and an inner contact-piece *b* inclosed by said shank and insulated therefrom, said contact-piece *b* having an axial bore at the end, the said contact-spring *i* being adapted to enter said bore and make engagement with the inner surface thereof when the plug is inserted in the jack.

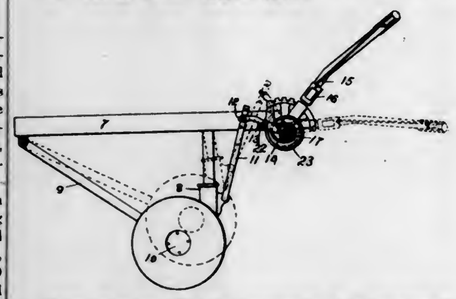
2. The combination with a spring-jack having a test-ring or thimble, a line-spring *h* adapted to engage the outer surface of the tip of an inserted plug and a contact *i* having a narrow tongue in substantial alinement with the axis of the thimble, of a connecting-plug having a shank or sleeve *c* for engaging said thimble, a barrel or ring contact on the outside of the tip of the plug, and a central stem inclosed by the shank and ring, said stem having a bore in its tip, adapted to be engaged by the contact *i* of the jack.

3. The combination with a spring-jack frame having front and rear supporting-strips, of a pair of contact-springs secured to the rear strip and extending forward, one above the other, the upper spring having a hole therein, a contact ring or thimble in the front strip, having a tongue extending over the two contact-springs back to the rear strip, to afford means for attaching the connecting-wire, and an insulating-stud attached to the under side of the aforesaid tongue and projecting through the hole in the upper contact-spring, to form a stop for the lower spring, said stud having a shoulder forming a stop for the upper spring, as set forth.

4. The combination with a tubular plug having inner and outer contact-surfaces, insulated from one another, of a spring-jack having front and rear supporting-strips, a thimble *e* adapted to be engaged by an outer contact of the plug, a contact-spring *i* adapted to engage the inner contact of the plug, a tongue *e'* extending from the thimble *e* back to the rear supporting-strip, and a stop for a contact-spring of the jack, mounted upon said tongue between the two supporting-strips.

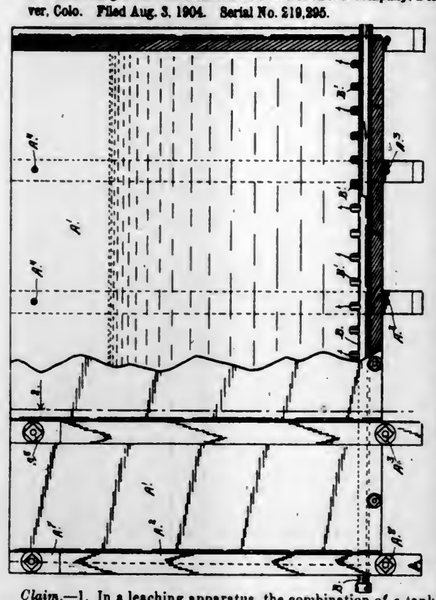
5. The combination with front and rear supporting-strips, of a contact-spring secured to the rear supporting-strip and extending toward the front, a contact ring or thimble in the front strip, having a tongue extending back to the rear strip to afford means for attaching the connecting-wires, and an insulating-stud mounted upon said tongue between the supporting-strips to serve as a stop for the contact-spring, as set forth.

787,901. GRAIN-DRILL. GAYLORD W. DENYES, Chicago, Ill., assignor to International Harvester Company, a Corporation of New Jersey. Filed Jan. 7, 1905. Serial No. 240,007.



Claim.—In a grain-drill, the combination of a vertically-movable furrow-opening device, a rock-shaft, a clip secured to said rock-shaft, said clip having forwardly-projecting parallel ears upon opposite ends thereof, intermediate ears between said parallel ears, an arm having two side bars connected near their central portion by a bridge-piece, said side bars being pivotally connected at their rear ends to said clips by means of a pin passing through said bar and said series of ears, said bars having a heel portion that contacts with said clips to limit their downward swing, a link pivotally connected with said furrow-opening device, a sleeve movable upon the upper end of said link, said sleeve pivotally connected upon opposite sides to the forward ends of the side bars of said arm, and a volute spring encircling said rock-shaft and having one end engaging with the bridge portion of said arm and its opposite end with the pivotal connection of the arm and clip between the said intermediate ears.

787,902. LEACHING APPARATUS. CHAUNCEY E. DEWEY, Denver, Colo., assignor to The American Zinc and Chemical Company, Denver, Colo. Filed Aug. 3, 1904. Serial No. 219,295.



Claim.—1. In a leaching apparatus, the combination of a tank V-shaped in cross-section, and a lead conduit located in the bottom of the tank and provided with vertically-disposed orificed nozzles, the said nozzles being of sufficient length to cause the fluid introduced into the conduit to be carried upwardly into the tank in vertical jets or streams.

2. In a leaching apparatus, the combination of a tank V-shaped in cross-section and provided with a longitudinally-disposed soft-metal conduit located in the bottom of the tank and provided with vertically-disposed orificed nozzles, the said nozzles having tips of harder material applied thereto, substantially as described and for the purpose set forth.

3. The combination of a V-shaped tank provided with a lead conduit located in the bottom of the tank and extending the entire length thereof, the said conduit being provided with orificed nozzles located in a straight line, the said nozzles having tips of harder material for the purpose set forth.

4. The combination with a V-shaped tank provided with a conduit located in the bottom of the tank, the said conduit being provided with upwardly-projecting orificed nozzles.

5. The combination of a V-shaped tank provided with a conduit located in the bottom of the tank and extending the entire length or approximately the entire length thereof, the said conduit being provided with upwardly-projecting orificed nozzles radially disposed with reference to the axis of the conduit.

6. The combination with a tank, of a conduit located in the tank and provided with upwardly-projecting orificed nozzles having tips of harder material than the body of the nozzles.

787,903. HAIR-ROLL. CHARLES V. D'OSSONE, Philadelphia, Pa. Filed June 15, 1904. Serial No. 212,638.

Claim.—1. A tubular braided-wire hair-roll, having its free ends flattened and having eyelets secured to and passing transversely through said ends respectively, adapted to receive a pin for securing the roll to the hair, substantially as and for the purpose specified.

2. A tubular, braided-wire hair-roll, having its free ends flattened, and having a tubular net covering, and having eyelets secured to and passing transversely through said ends respectively and through said covering, whereby said covering is fastened to said ends, substantially as and for the purpose set forth.



787,904. MECHANISM FOR THE TRANSMISSION OF POWER OR MOTION. JOHN DEING, London, England. Filed June 16, 1902. Serial No. 111,923.

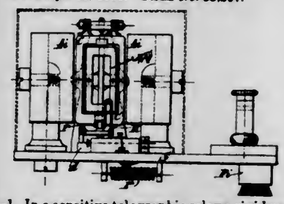


Claim.—1. Mechanism for the transmission of power or motion in a longitudinal or axial direction comprising a closely-wound helix of wire of transverse section other than circular constituting an incompressible member and a flexible inextensible member passing freely through said incompressible member and movable longitudinally therein.

2. Mechanism for the transmission of power or motion in a longitudinal or axial direction comprising an incompressible member and a flexible endwise-movable inextensible member passing freely therethrough, said incompressible member consisting of a closely-wound helix of wire of transverse section other than circular.

3. Mechanism for the transmission of power or motion in a longitudinal or axial direction comprising a closely-wound helix of wire of concaved crescent section constituting the incompressible member and a flexible inextensible member passing freely through said incompressible member.

787,905. TELEGRAPHIC RELAY. EUGENE DUCRETET, Paris, France. Filed Apr. 10, 1901. Serial No. 55,207.



Claim.—1. In a sensitive telegraphic relay a rigid metallic plate, the rotatable disk *d*, a movable frame, a spring arranged to act upon the said disk, an antagonistic spring, and a regulating-screw controlling the antagonistic spring by means of said disk to give the required sensitiveness to said frame.

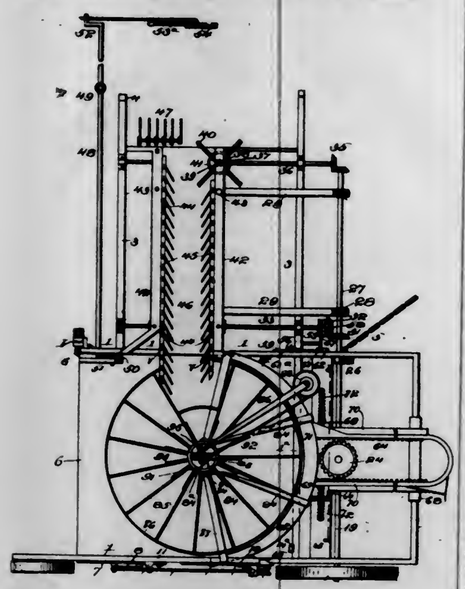
2. In a sensitive telegraphic relay the combination of a rigid metallic plate, a rotatable disk, a spring cooperating therewith, a movable frame, a regulating-screw for controlling said spring through the medium of said disk to give the required sensitiveness to said frame, a magnet of a form to place said frame in a homogeneous and powerful magnetic field.

3. In a magnetic or telegraphic relay, the combination of a movable frame, the spindle thereof, the antagonistic spring controlling said spindle, a rotatable disk controlling said spring and a regulating-screw whereby the sensitiveness may be adjusted as required.

787,906. GRAIN-SHOCKING MACHINE. LEVI B. EBERLY, Smithville, Ohio. Filed Feb. 29, 1904. Serial No. 195,728.

Claim.—1. A grain-shocking machine, consisting of a suitable frame, a tilting platform pivotally attached to said frame, a shock forming and discharging mechanism mounted above said tilting platform, means for operating said shock forming and discharging mechanism when said platform is tilted, mechanism for receiving sheaves from the binder and tilting the same to an upright position and moving and feeding the same in said upright position to said

shock forming and discharging mechanism, and means connected to said tilting platform for throwing said last-mentioned mechanism into and out of operation when said platform is operated.



2. In a grain-shocking machine, the combination with a U-shaped rack and pinion, and pusher-arms formed at the ends of said rack to discharge the shock; of a top-compressing mechanism attached to and mounted above the ends of said pusher-arms, and means for raising and releasing said top-compressing mechanism when the shock is discharged.

3. In a grain-shocking machine, the combination with a tilting platform, a shock-discharging mechanism mounted above said tilting platform, and means for operating said tilting platform and shock-discharging mechanism; of a top-compressing mechanism mounted above said tilting platform and attached to said shock-discharging mechanism, and means for raising and releasing said top-compressing mechanism when a shock is discharged.

4. In a grain-shocking machine, the combination with a tilting platform, and means for moving the shock rearwardly in an upright position on said tilting platform to discharge it therefrom; of top-compressing mechanism attached to and mounted above said means for moving the shock rearwardly, and means for raising and releasing said top-compressing mechanism when a shock is discharged.

5. In a grain-shocking machine, the combination with means for receiving and tilting the sheaves to a vertical position as received from the binder, means for feeding the sheaves in a vertical position to a tilting platform, a tilting platform suitably mounted, and a shock-discharging mechanism mounted above said tilting platform; of a shock-forming and top-compressing mechanism attached to said shock-discharging mechanism, and means for operating and releasing said shock-forming and top-compressing mechanism when a shock is discharged.

6. In a grain-shocking machine, the combination with a tilting platform and sheaf-feeding mechanism; of a shock-discharging mechanism mounted above said tilting platform, and means for operating said mechanism and throwing said sheaf-feeding mechanism out of operation when the platform is tilted.

7. A shock-forming and top-compressing mechanism for grain-shocking machines, consisting of a ring pivotally mounted above a platform, a series of downwardly and outwardly extending arms pivotally secured to said ring, an annular elastic band secured to the outer or lower ends of said arms, a recess or opening formed in said band between two of said arms, a vertical post pivotally mounted and supported at its base end and extending upwardly within said ring, a ferrule slidably mounted upon said vertical post, a series of radially-extending supporting-arms secured to said ferrule and pivotally secured at their outer ends to said outwardly-extending arms, and means for raising and releasing said arms when a shock is discharged.

8. In a grain-shocking machine, the combination with a tilting platform, and a shock-discharging mechanism mounted above said tilting platform; of a top-compressing mechanism attached to said shock-discharging mechanism, and means for raising and releasing said top-compressing mechanism when a shock is discharged.

9. A shock-discharging and top-compressing mechanism for grain-shocking machines, consisting of a tilting platform, a rack and pusher-arms adapted to discharge the shock rearwardly when the platform is tilted, a top-compressing mechanism attached to said pusher-arms, and means for raising and releasing said top-compressing mechanism when a shock is discharged.

10. In a shock-forming and top-compressing mechanism for grain-shocking machines, the combination with a tilting platform, a ring pivotally mounted above the platform, a series of downwardly and outwardly extending arms pivotally secured to said ring, an annular elastic band secured to the outer or lower ends of said arms, and a vertical post pivotally mounted and extending upwardly within said ring; of a ferrule slidably mounted upon said vertical post, a series of radially-extending supporting-arms secured to said ferrule and pivotally secured at their outer ends to said outwardly-extending arms, and means for raising and releasing said arms.

11. A grain-shocking machine, consisting of a suitable frame, a tilting platform pivotally attached to said frame, a shock forming and discharging mechanism mounted above said tilting platform, means for operating said shock forming and discharging mechanism when said platform is tilted, means for receiving sheaves from the binder and tilting and moving the same in a vertical position to a series of horizontally-disposed feeding-bars, a series of horizontally-disposed feeding-bars suitably mounted and interposed between said means for receiving, tilting, and moving the sheaves from the binder and said shock forming and discharging mechanism, and means for throwing said last-mentioned mechanism into and out of operation when said platform is operated.

12. In a grain-shocking machine, the combination with a tilting platform pivotally attached to a frame, a shock forming and discharging mechanism mounted above said tilting platform, and means for operating said shock forming and discharging mechanism when said platform is tilted; of means for receiving sheaves from the binder and tilting and moving the same in a vertical position to a series of feeding-bars, a series of horizontally-disposed feeding-bars suitably mounted and interposed between said means for receiving, tilting, and moving the sheaves from the binder and said shock forming and discharging mechanism, and means for throwing said feeding-bars out of operation when said platform is tilted.

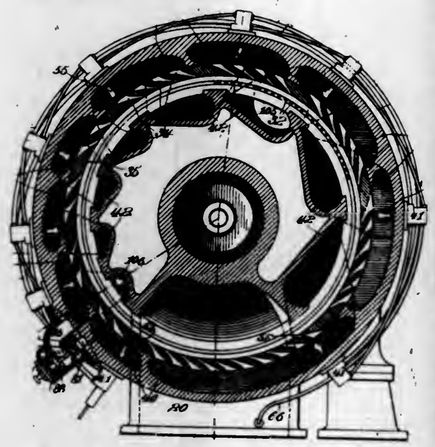
13. In a grain-shocking machine, the combination with a series of horizontally-disposed feeding-bars suitably mounted, and a tilting platform suitably mounted at the ends thereof, and means for throwing said feeding-bars out of operation when the platform is tilted; of a shock forming and discharging mechanism mounted at the ends of said feeding-bars and adapted to form the sheaves in a vertical position on a tilting platform, and means for operating said shock forming and discharging mechanism when said platform is tilted.

14. In a grain-shocking machine, the combination with a tilting platform, and means for operating the same; of means for receiving and moving the sheaves from the binder to said platform in a vertical position, a shock-discharging and top-compressing mechanism suitably mounted above said tilting platform, means for operating said shock-discharging mechanism when the platform is tilted, and means for raising and releasing said top-compressing mechanism when a shock is discharged.

15. In a grain-shocking machine, the combination with a shock-forming and top-compressing mechanism, consisting of a ring pivotally mounted above a platform, a series of downwardly and outwardly extending arms pivotally secured to said ring, an annular elastic band secured to the outer or lower ends of said arms, a recess or opening formed in said band between two of said arms, a vertical post pivotally mounted and supported at its base end and extending upwardly within said ring, a ferrule slidably mounted upon said vertical post, a series of radially-extending supporting-arms secured to said ferrule and pivotally secured at their outer ends to said outwardly-extending arms, and means for raising and releasing said arms when a shock is discharged; of a tilting platform suitably mounted immediately beneath said shock-forming and top-compressing mechanism, means for tilting and moving the sheaves from the binder in a vertical position, and a series of horizontally-disposed feeding-bars suitably mounted and interposed between said shock-forming mechanism and said means for tilting the sheaves when discharged from the binder.

16. In a grain-shocking machine, the combination with a shock-forming and top-compressing mechanism, consisting of a ring pivotally mounted, a tilting platform suitably mounted beneath said shock-forming and top-compressing mechanism, a series of downwardly and outwardly extending arms pivotally secured to said ring, an annular elastic band secured to the outer or lower ends of said arms, a recess or opening formed in said band between two of said arms, a vertical post pivotally mounted and supported at its base end and extending upwardly within said ring, a ferrule slidably mounted upon said vertical post, a series of radially-extending supporting-arms secured to said ferrule and pivotally secured at their outer ends to said outwardly-extending arms, and means for raising and releasing said arms when a shock is discharged; of a series of horizontally-disposed feeding-bars suitably mounted and adapted to convey the sheaves in a vertical position to said shock-forming and top-compressing mechanism, and means for throwing the same out of operation when the platform is tilted.

787,907. TURBINE-ENGINE. ELMER S. FARWELL, Ridgewood, N. J., assignor to Edwin H. Ludeman, Brooklyn, N. Y. Filed Dec. 4, 1903. Serial No. 183,687.



Claim.—1. In a turbine-engine, the combination with a rotatable element having upon it a ring of vanes, of chambers about the path of movement of such element; nozzles from said chambers to pass steam to the vanes; chambers to receive the steam after its passage, the same to store it for a subsequent passage; automatically-controlled valves to admit the steam from the second chambers into the first chambers for such subsequent passage.

2. In a turbine-engine, the combination with a rotatable element having upon each side of its periphery a number of concentric rings of vanes or buckets, of a ring of guide vanes or buckets coöperative therewith; a series of chambers about the path of movement of the buckets upon each side of the element; a second series of chambers about such path; nozzles for admitting fluid from the respective chambers of the first series through the buckets and into the chambers of the second series; ports between the several chambers of the second series and the respective chambers of the first series; valves to control such ports; steam-controlled means to actuate the valves successively one from the other; and governor-controlled means to actuate one of the valves.

3. In a turbine-engine, the combination with a rotatable element having upon it a ring of vanes or buckets, of a series of chambers about the path of movement of such element; a second series of chambers about such path; nozzles for admitting fluid from the respective chambers of the first series through the ring of buckets and into the chambers of the second series; means of communicating between the several chambers of the second series and the respective chambers of the first series; valves for controlling such communication; and steam-controlled means for actuating the valves successively one from the other.

4. In a turbine-engine, the combination with a rotatable element having upon it a ring of vanes or buckets, of a series of chambers contiguous to the path of movement of such element; a second series of chambers contiguous to such path; automatic means to control the admission of steam to one of the chambers of the first series; nozzles for admitting fluid from one of the first series of chambers through the ring of buckets and into one of the chambers of the second series; means of communication between such chamber of the second series and the succeeding chamber of the first series; a valve to control such communication; and steam-actuated means to control the valve.

5. In a turbine-engine, the combination with a wheel having about its perimeter a ring of vanes disposed substantially parallel with the axis of the wheel; a ring of nozzles for directing the jets of steam upon the vanes the prolongation of the line of jet forming a secant to such ring; a series of chambers outside of the nozzle-ring to receive steam and discharge the same through the nozzles; a series of chambers within the nozzle-ring to respectively receive the steam discharged from the several chambers of the first series; and automatically-controlled means to admit the steam from the chambers of the second series respectively into the chambers of the first series.

6. In a turbine-engine, the combination with a wheel having about its perimeter a ring of vanes disposed substantially parallel with the axis of the wheel; a ring of nozzles for directing the jets of steam upon the vanes the prolongation of the line of jet forming a secant to such ring; a series of chambers outside of the nozzle-ring to receive steam and discharge the same through the nozzles; a series of chambers within the nozzle-ring to respectively receive the steam discharged from the several chambers of the first series; and automatically-controlled means to admit the steam from the chambers of the second series respectively into the chambers of the first series, but each to a later chamber than that from which it received the steam.

7. In a turbine-engine, the combination with a casing, of a wheel journaled therein; a ring of vanes carried upon each side of the perimeter of the wheel; means to divide the expansion of steam into several stages; a valve and port to control the passage of steam from one stage to the next stage; and automatic means to actuate said valves.

8. In a turbine-engine, the combination with a casing, of a wheel journaled therein; a ring of vanes carried upon each side of the perimeter of the wheel; means for supplying steam at several successive stages to such vanes upon each side; and automatic means to control the steam at each stage.

9. In a turbine-engine, the combination with a casing, of a wheel journaled therein; a ring of vanes carried upon each side of the perimeter of the wheel; means for supplying steam at several successive stages to such vanes upon each side; a series of valves to control the steam at each stage; and automatic means to actuate the valves.

10. In a turbine-engine, the combination with the casing, of a turbine-head mounted therein; vanes upon the turbine-head; nozzles organized to direct steam upon the vanes; and a sereis of chambers for supplying portions of the nozzles successively with steam; a governor-actuated valve to control the admission of steam to the first chamber of the series; and valves to control the admission of steam to each succeeding chamber, each actuated by the preceding valve.

11. In a turbine-engine, the combination with a turbine-head carrying a number of vanes, of a number of chambers surrounding the same, chambers upon the opposite side of the ring of vanes to receive the fluid; and valves for admitting the fluid from one receiving-chamber to the next supply-chamber in sequence.

12. In a turbine-engine, the combination with a rotatable body and a ring of vanes carried thereby, of means to direct steam upon the vanes at successive stages; a chamber for each of such directing means proportionate to each of the others to discharge in equal timing therewith; a chamber to receive the steam at each stage after its passage through the vanes; a valved conduit from each of the respective receiving-chambers to the next succeeding primary chambers; and means to actuate the valves of such conduits in sequence.

13. In a turbine-engine, the combination with a rotatable body and a ring of vanes carried thereby, of means to direct steam upon the vanes at successive stages; a chamber for each of such directing means proportionate to each of the others to discharge in equal timing therewith; a chamber to receive the steam at each stage after its passage through the vanes; a valved conduit from each of the respective receiving-chambers to the next succeeding primary chambers; and automatic means to actuate the valves of such conduits in sequence.

14. In a turbine-engine, the combination with a rotatable body and a ring of vanes carried thereby, of means to direct steam upon

the vanes at successive stages; a chamber for each of such directing means proportionate to each of the others to discharge in equal timing therewith; a chamber to receive the steam at each stage after its passage through the vanes, a valved conduit from each of the respective receiving-chambers to the next succeeding primary chambers; and means controlled by the steam-pressure to actuate the valves.

15. In a turbine-engine, the combination with a rotatable body and a series of buckets carried thereby, of nozzles to direct steam upon such buckets; a number of chambers each constituting a steam-chest for a distinctive portion of the nozzles; ports thereto from the chambers; a valve to control each of such ports; yieldable means to seat the same; a piston-valve cylinder adjacent to each valve closed at one end and open to the steam-pressure of the chest at the other end; a piston-valve within each cylinder and carrying the valve; a slide-valve cylinder open at one end to the steam at the pressure of the first steam-chest; a port from the median portion of the slide-valve cylinder to the closed end of the first valve-cylinder; a port from such slide-valve cylinder at a point beyond such port to the second steam-chest, the organization being such that the slide-valve may admit steam to the closed end of the first valve-cylinder to hold the valve on its seat, and upon movement may exhaust from such cylinder into the second chest and permit the first valve to open; a port from each valve-cylinder at a position to be closed by the movement of the piston-valve to the open end of the cylinder and opened by the said piston-valve when at the closed end of the cylinder to the closed end of the next succeeding cylinder; a by-pass adapted to be opened and closed by said respective movements of the piston-valve to the steam-chest to pass steam from one chest through such port to the cylinder of the next piston-valve to cause the same to open and close responsive to the opening and closing of the previous valve; a port from each piston-valve cylinder to the second succeeding steam-chest and from the next to the last of the series to the exhaust, and opened to the ports from the succeeding piston-valve cylinder by the opening of the valve, whereby one valve upon its opening permits the next succeeding valve to open, and upon closing permits the same to close.

16. The combination with a movable element, of impact-receiving members thereon; means to direct jets of steam thereon; a number of steam-chests; a port from each steam-chest to a portion of the jet-directing means; a valve to close each port; yieldable means to close each valve; means to maintain a balanced steam-pressure on each side thereof; means to exhaust from one side of the first of the closing means to overbalance the yieldability thereof; and means controlled by each valve to overbalance the yieldability of the closing means of the next succeeding valve.

17. In a turbine-engine, the combination with a wheel, of a casing therefor divided into two portions on substantially the plane of the center of the wheel; means to secure said portions together; a ring of buckets on each side of the perimeter of the wheel; a pair of nozzle-rings one for each side of the wheel and held in place by the securement of the casing; a series of chambers about the path of movement of each of such rings of buckets and in communication with the respective nozzle-rings; a second series of chambers adjacent to each of the first series and adapted to receive fluid after its passage through the nozzles and the buckets; means of communication between the several chambers of the second series and the respective chambers of the first series upon each side of the wheel; valves for controlling such communication; and fluid-controlled means to actuate the valves successively one from the other.

18. In a turbine-engine, the combination with a wheel, of a casing therefor divided into two portions; means to secure said portions together; buckets on the perimeter of the wheel; a nozzle-ring held in place by the securement of the casing; a series of chambers about the path of movement of such wheel and in communication with the nozzle-ring; a second series of chambers adjacent thereto and adapted to receive fluid after its passage through the nozzles and the buckets; means of communication between the several chambers of the second series and the respective chambers of the first series; valves for controlling such communication; and fluid-controlled means to actuate the valves successively one from the other.

19. In a turbine-engine, the combination with a wheel carrying vanes; of means to direct steam upon the vanes at each of several successive stages; a port to pass the steam from one stage to the next successive stage; valves to control such ports; means controlled automatically by the load to actuate the first valve; and means controlled by such first valve to actuate the balance of the valves in sequence.

20. In a turbine-engine, the combination with a rotatable body; of buckets or vanes carried thereby to receive steam at each of several successive stages; chambers to divide the steam into a number of stages; nozzles communicating from such chambers to the buckets; a supply; a valve to control the steam at its supply and direct the same into the first or a succeeding chamber; and comprising a valve having a seat at each end; ports running from the said seats to the said respective chambers; a piston carried by such valve; a cylinder for the piston; a pilot-piston adjacent thereto open at one end to the exhaust and at the other end to the atmosphere; a spring for pressing the piston against the atmosphere; a chamber medially disposed in such piston; a port from the supply to such chamber; a port from such chamber to the piston on said valve; a by-pass around the piston to make communication between the port going to the valve-piston and the port to the exhaust; and governor-controlled means for breaking the vacuum in such port.

21. In a turbine-engine, the combination with a wheel having buckets thereon; of chambers to receive steam at each of several successive stages; nozzles to pass the steam to the buckets; chambers to receive the steam and pass it to the next successive chamber; a supply; an exhaust; a valve to direct the steam into the first or the succeeding chamber; means controlled by the governor and by the exhaust to actuate said valve; a valve to prevent the back pressure reaching the first chamber when cut out; a piston carried by said valve; a pilot-valve to control the same open at one end to the exhaust and at the other end to the atmosphere; a chamber in such pilot-valve; and ports controlled by the same to admit steam to such piston or to exhaust from the same; and means connected to the governor to actuate the same.

22. In a turbine-engine, the combination with a wheel carrying vanes; of means to direct steam upon the vanes at each of several successive stages; a port to pass the steam from one stage to the next successive stage; valves to control such ports; means controlled automatically by the load to actuate the first valve; and means controlled by such first valve to actuate the balance of the valves in sequence and comprising yieldable means to seat the valves; a slide-valve cylinder open at one end to the steam at the pressure of the first stage; ports controlled by the slide-valve to open and close said valves; and governor-controlled means to actuate the slide-valve.

23. In a turbine-engine, the combination with a rotatable body, and vanes carried thereby; of means to direct expansive fluid under pressure upon the vanes at successive stages; means to receive the fluid from each stage after its passage through the vanes; ports to admit steam from such means to the next set of nozzles; valves to control such ports; and automatic means to actuate the valves in sequence.

24. In a turbine-engine, the combination with a rotatable body, and a ring of vanes carried thereby; of means to direct expansive fluid under pressure upon the vanes at successive stages; means to receive the fluid from each stage after its passage through the vanes; ports to admit steam from such means to the next set of nozzles; valves to control such ports; and means automatically controlled by the load to actuate said valves.

25. In a turbine-engine, the combination with a wheel carrying a ring of vanes; means to direct steam upon the vanes at each of several successive stages; a port to pass the steam from one stage to the next successive stage; a valve to control such port; and means to actuate the valve in sequence.

26. A turbine-engine having a rotary element carrying concentric rings of vanes; a casing therefor having vanes interposed between the vanes upon said rotary element; means to direct steam successively against said rings of vanes at each of several portions thereof; and automatic valves to control the admission of steam to such several portions.

27. In a turbine-engine, employing steam at several successive stages; a governing mechanism comprising a series of valves to control the admission of steam to such stages; means to actuate the first valve; and means controlled by such first valve to actuate the balance of the valves in sequence.

28. In a turbine-engine, a governing mechanism comprising a series of valves all of which are in active operation; means to actuate the first valve; and means controlled by each valve to actuate the next succeeding valve.

29. In a turbine-engine employing steam at several successive stages; a governing mechanism comprising a series of valves to control the admission of steam to such stages, and means to periodically actuate said valves in sequence.

30. In a turbine-engine, employing steam at several successive stages; a governing mechanism comprising a valve for each stage, means to close each valve; means to maintain a balanced steam-pressure on each side thereof; means to exhaust from one side of the first of the closing means, to open the valve; and means controlled by each valve to open the next succeeding valve.

31. In a turbine-engine, the combination with a casing, of a wheel rotatable therein and carrying a number of rings of vanes; and a nozzle-ring for each ring of vanes, the nozzle-rings severally constituted for disassemblage from the engine.

32. In a turbine-engine the combination with a wheel, of a casing therefor divided on substantially the central plane of the wheel; means to secure the portions of the casing together; means on the wheel to receive the impulse from jets of steam; and a ring perforate with nozzles to direct jets upon said means and held between the portions of the casing by said securing means.

33. In a turbine-engine the combination with a wheel, of a casing therefor divided into two portions on substantially the plane of the center of the wheel; means to secure said portions together; a ring of buckets on each side of the perimeter of the wheel; and a pair of nozzle-rings one for each side of the wheel and held in place by the securement of the casing.

34. In a turbine-engine, the combination with a body carrying vanes; of a series of sets of nozzles delivering intermittently jets of steam against such vanes; a chamber supplying each set of nozzles, each chamber and its set of nozzles being proportioned to discharge its contents in equal time with that of every other chamber and set of nozzles.

35. In a turbine-engine the combination with a body carrying vanes, of a series of sets of nozzles delivering intermittent jets of steam against such vanes in successive stages; a series of chambers each supplying a set of nozzles, such chambers having a progressively-increasing cubic capacity proportionate with the discharge capacity of their respective sets of nozzles, that the contents of every chamber shall be discharged in equal intervals of time.

36. In a turbine-engine the combination with a plurality of expansion-chambers to accommodate the successive stages of steam in its work; of ports to the respective chambers progressively increasing in delivery capacity; means to supply steam; an exhaust; and means controlled by the load to determine at which chamber the steam shall be supplied.

37. In a turbine-engine, the combination with a plurality of expansion-chambers to accommodate the successive stages of steam in its work; each successive chamber adapted to contain steam at a lower pressure; of ports to the respective chambers progressively increasing in delivery capacity; means to supply steam; a primary exhaust; and automatic means to connect one of the chambers containing steam below atmospheric pressure with a secondary exhaust.

38. In a turbine-engine, the combination with a body adapted to be driven by steam, of a series of expansion-chambers effective in sequence upon said body at successive stages of the steam each at a lower pressure; ports from chamber to chamber progressively increasing in delivery capacity; means to exhaust by vacuum from the end of the series; means to supply steam to the first or a succeeding chamber of the series; means controlled by loss of vacuum to admit steam to the second or a succeeding chamber; and means also controlled by loss of vacuum to connect one of the chambers normally containing the steam at a pressure below atmosphere with the atmosphere.

39. In an engine, the combination with a body adapted to be driven by steam, of a series of expansion-chambers effective in sequence upon said body at successive stages of the steam; ports from chamber to chamber progressively increasing in delivery capacity; means to exhaust by vacuum from the end of the series; means to supply to the beginning of the series; and means controlled by loss of vacuum to cut out one or more of the ports and chambers at both ends of the series.

40. In an engine, the combination with a body adapted to be driven by steam, of a series of expansion-chambers effective in sequence upon said body at successive stages of the steam; ports from chamber to chamber progressively increasing in delivery capacity; means to exhaust by vacuum from the end of the series; means to supply to the begininng of the series; and automatic means to cut out one or more of the ports and chambers at the beginning of the series.

41. In an engine, the combination with a body adapted to be driven by steam, of a series of expansion-chambers effective in sequence upon said body at successive stages of the steam; ports from chamber to chamber progressively increasing in delivery capacity; means to exhaust by vacuum from the end of the series; means to supply to the beginning of the series; and means controlled by the load to cut out one or more of the ports and chambers at the beginning of the series.

42. In a turbine-engine, the combination with a member having an undercut channel for the reception of vanes, of a series of vanes each having a flaring base portion whereby the vanes may be secured within such channel, and means to secure the last vane of the ring comprising a vane having an end equal in width to the width of the channel, a split in such end, and a wedge to spread the same to embrace the undercut.

43. In a turbine-engine, the combination with a member, of an undercut channel therein; buckets carried thereby and comprising a body portion, a base portion to enter the said channel and having end faces flaring to fit the same, such end faces disposed upon the respective sides of a line transverse to their planes.

44. In a turbine-engine, the combination with a member, of an undercut channel therein; buckets carried thereby and comprising a body portion, a base portion to enter the said channel and having end faces flaring to fit the same, such end faces disposed upon the respective sides of a line transverse to their planes, and heads to abut each other.

45. In a turbine-engine, the combination with a wheel, of an undercut channel therein; buckets carried thereby and comprising a body portion; a base portion to enter the said channel and having end faces flaring to fit the same, such end face disposed upon the respective sides of a line transverse to their planes, and vanes having bases split to receive wedges to cause the same to conform to the channel.

46. In a turbine-engine, the combination with a rotatable body and a series of buckets carried thereby, of nozzles to direct steam upon such buckets; a number of chambers each constituting a steam-chest for a distinctive portion of the nozzles; a valve to control the admission to each of such chambers; a cylinder adjacent to each valve open to the steam-pressure of the chest at one end; a piston within each cylinder connected to the valve and operating as a valve to control the succeeding valve; and means for controlling the first valve of the series.

47. In a controlling mechanism for a turbine-engine, the combination with two or more valves and seats forming exits for corresponding chests, of a cylinder adjacent to each valve closed at one end and open at the chest at the other end; a piston within such cylinder connected to and operating the valve; a pilot-valve controlling admission to and exhaust from the closed end of the cylinder; ports in the cylinder so placed that the piston working in the cylinder will control the admission to and exhaust from the closed end of the succeeding cylinder; and means for operating said pilot-valve.

48. In a turbine-engine the combination with a rotatable body, of buckets or vanes carried thereby to receive expansive fluid at each of several successive stages; chambers to divide the steam into a number of stages; a supply; and a valve to control the fluid at its supply and direct the same into the first or a succeeding chamber.

49. In a turbine-engine the combination with a rotatable body, of buckets or vanes carried thereby to receive expansive fluid at each of several successive stages; chambers to divide the steam into a number of stages; nozzles communicating from such chambers to the buckets; a supply; and a valve to control the fluid at its supply and direct the same into the first or a succeeding chamber, and comprising a valve having a seat at each end; ports running from said seats to the said respective chambers; and means for automatically shifting the valve from one seat to the other.

50. In a turbine-engine the combination with a rotatable body, of buckets or vanes carried thereby to receive expansive fluid at each of several successive stages; chambers to divide the fluid into a number of stages; nozzles communicating from such chambers to the buckets; a supply; and a valve to control the fluid at its supply and direct the same into the first or a succeeding chamber, and comprising a valve having a seat at each end; ports running from the said seats to the said respective chambers; a piston carried by such valve, a cylinder for the piston, a pilot-valve adjacent thereto adapted to control the port to said valve-piston; and governor-controlled means for operating said pilot-valve.

51. In a turbine-engine, the combination with a wheel having buckets thereon; of chambers to receive steam at each of several successive stages; nozzles to pass the steam to the buckets; chambers to receive the steam and pass it to the next successive chamber; a supply; an exhaust; a valve to direct the steam into the first or a succeeding chamber; means controlled by the governor and by the exhaust to actuate said valve; a valve to prevent the back pressure reaching the first chamber when cut out; and automatic means for operating said valve.

52. In a turbine-engine, the combination with a wheel having buckets thereon; of chambers to receive steam at each of several successive stages; nozzles to pass the steam to the buckets; chambers to

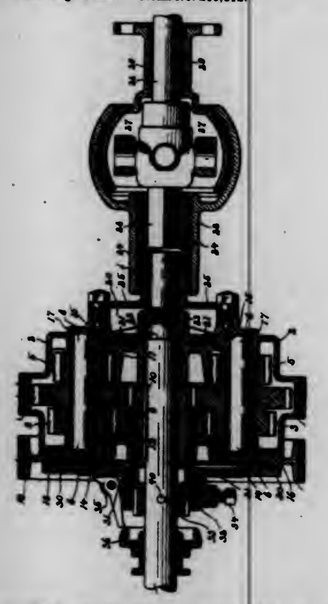
receive the steam and pass it to the next successive chamber; means controlled by the governor and by the exhaust to actuate said valve; a valve to prevent the back pressure reaching the first chamber when cut out; a piston carried by said valve moving in a suitable cylinder; a pilot-valve to control the admission to the exhaust from the cylinder; and means for operating said pilot-valve.

53. In a turbine-engine, the combination with a casing having a series of chambers formed therein separated by partitions integral with the casing; of a nozzle-ring slightly conical on its surface; a surface of said casing and partitions correspondingly conical; said nozzle-ring when in place forming one wall of the said chambers and making a tight fit with said casing and partitions; and means for securing said nozzle-ring in place.

54. In a turbine-engine the combination with a member, of an undercut channel therein; buckets carried thereby and comprising a body portion, a base portion to enter the said channel equal in width to the width of the channel; a split in such base and a wedge to spread the same to embrace the undercut.

55. A bucket for a turbine-engine comprising a body portion, a base portion having opposite faces substantially parallel; a split in such base and a wedge to spread the same for the purpose of fastening.

787,908. **AUTOMOBILE DRIVE-GEAR.** HENRY FORD, Detroit, Mich. Filed Aug. 1, 1904. Serial No. 219,012.



Claim.—1. The combination with a driving-shaft, of a primary driving-gear fast upon the shaft, a secondary driving-gear and a driven gear loose upon the shaft and each provided with a clamping member, a brake-drum between said clamping members and adapted to rotate independently thereof and of the shaft, planetary gears carried by the brake-drum and meshing with the driving and driven gears and means for actuating the clamping members to clamp the drum fast between them.

2. The combination with a driving-shaft, of a primary driving-gear fast upon the shaft, a secondary driving-gear and a driven gear loose upon the shaft and each provided with flanges, a brake-drum interposed between said flanges and supported thereon free to rotate independently thereof and of the shaft, the flanges being adapted to form clamping members, a set of planetary gears carried by the drum and meshing with the driving and driven gears and means for actuating the clamping members to clamp the drum fast between them.

3. The combination with the driving-shaft and driven sleeve, of a primary driving-gear fast on the shaft, a secondary driving-gear and a driven gear sleeved upon the shaft and laterally slidable thereon, a brake-drum concentrically inclosing said driving and driven gears, a set of planetary gears carried by the drum and meshing with the driving and driven gears, the secondary driving-gear and the driven gear being provided with flanges adapted to frictionally engage the sides of the drum and with offsets projecting into openings in the sides of the drum and supporting the same in position between the clamping-flanges free to rotate or to be clamped between the same and means for actuating the clamping-flanges to clamp the drum between them.

4. The combination with the driving-shaft and driven sleeve, of a primary driving-gear fast upon the shaft, a secondary driving-gear and a driven gear sleeved upon the shaft and laterally slidable thereon, a brake-drum concentrically inclosing said driving and driven gears, planetary gears carried by the brake-drum and meshing with the driving and driven gears, the secondary driving-gear and the driven gear provided with clamping-flanges adapted to support the drum between them free to rotate or to clamp the same fast between them, two clamping-disks carried by the driving-shaft and forming with said clamping-flanges and drum members of a friction-clutch, and means for actuating said clutch.

5. The combination with the driving-shaft and a driven sleeve, of a primary driving-gear fast on the shaft, a secondary driving-gear and a driven gear rotatable and laterally slidable on the shaft, a brake-drum concentrically inclosing the driving and driven gears, a planetary set of gears carried by the drum and meshing with the driving and driven gears, the secondary driving-gear and driven gear provided with clamping-flanges adapted to clamp the drum between them and with bearings upon which the drum is journaled, a laterally-slidable clamping-disk adapted to frictionally engage upon the outer face of the clamping-flange of the secondary driving-gear, means for actuating the same into engagement therewith and a fixed clamping-disk on the shaft adapted to frictionally engage with the outer face of the clamping-flange on the driven gear.

6. The combination with the driving-shaft and driven sleeve, of a primary driving-gear fast upon the shaft, a secondary driving-gear and a driven gear loose upon the shaft and laterally slidable thereon, a rotary brake-drum concentrically inclosing said driving and driven gears, planetary gears carried by the brake-drum and meshing with the aforesaid gears, the secondary driving-gear and the driven gear provided with flanges adapted to clamp the drum fast between them and with bearings supporting the drum, a clamping-disk laterally slidably carried by the shaft and provided with means for actuating it into frictional engagement with the outer face of the clamping-disk of the secondary driving-gear, and a fixed clamping-disk upon the shaft adapted to frictionally engage with the outer face of the clamping-flange of the driven gear, said clamping-flange being recessed and forming a housing for the fixed clamping-disk.

7. The combination with the driving-shaft, of a primary driving-gear thereon, a secondary driving-gear and a driven gear laterally slidable upon the shaft and provided with clamping-flanges, a rotary brake-drum interposed between said clamping-flanges, planetary gears carried by said brake-drum and meshing with the driving and driven gears, a laterally-slidable clamping-disk adapted to frictionally engage with the outer face of the clamping-flange of the secondary driving-gear, means for actuating the same, a fixed clamping-disk upon the shaft adapted to frictionally engage with the outer face of the clamping-flange of the driven gear, and a driven sleeve secured to said driven clamping-flange and forming in connection therewith an inclosed housing for the fixed clamping-disk.

8. The combination with the driving-shaft, of a primary driving-gear thereon, a secondary driving-gear and a driven gear laterally slidable upon the shaft and provided with clamping-flanges, a rotary brake-drum interposed between said clamping-flanges, planetary gears carried by said brake-drum and intermeshing with the driving and driven gears, a laterally-sliding clamping-disk adapted to frictionally engage with the outer face of the clamping-flange of the secondary driving-gear, means for actuating said clamping-disk, a clamping-disk fixed upon the shaft and adapted to frictionally engage with the outer face of the clamping-flange of the driven gear, a driven sleeve secured upon said outer face, and brake devices for holding either the brake-drum or the secondary driving-gear from rotating.

9. The combination with the balance-wheel of the motor, of a detachable distance-piece carried on the hub of the wheel, a driving-shaft detachably secured to said distance-piece axially with the balance-wheel, and a power-transmitting device upon the drive-shaft terminating in a driven sleeve extending beyond the end of the drive-shaft and provided with a socket for detachably receiving a driven shaft and transmitting motion thereto.

10. The combination with the motor, of a drive-shaft at the end of the motor-shaft and continuously revolving therewith; a power-transmitting device upon the drive-shaft of the planetary type having a driven member loose upon the drive-shaft and controlling means operating wholly through friction, said driven member adapted to be revolved at the same speed with the drive-shaft or at a slower speed in either direction, a sleeve carried by the driven member and projecting beyond the end of the drive-shaft, a driven shaft having a portion thereof adjacent to the end of the drive-shaft socketed in said sleeve, a bearing in which said sleeve is supported, and a universal joint in the drive-shaft adjacent to its socketed portion.

11. The combination with the balance-wheel of the motor, of a driving-shaft detachably secured to the hub of said wheel in axial alinement therewith, a power-transmitting device upon said shaft terminating at the end of the shaft in a driven sleeve and adapted to transmit motion thereto from the shaft at the same speed as that of the driving-shaft or at a slower speed in either direction, said driven sleeve having a portion extending beyond the end of the driving-shaft, a driven shaft detachably engaging into said extended portion of the driven sleeve and adapted to rotate therewith, a universal joint in said driven shaft adjacent to the end of the driven sleeve, a bearing in which the drive-sleeve is journaled, a bearing for the driving-shaft adjacent to the universal joint and a ball-and-socket connection between said bearings concentrically inclosing the universal joint.

12. The combination with the drive-shaft, of a closed brake-drum the sides of which form friction-disks and have openings therein, planetary gears inclosed within said drum, spur-wheels upon the driving-shaft within the drum and meshing with the planetary gears, the spur-wheels adjacent to the sides of the drum provided with clamping members adapted to frictionally engage the sides of the drum and with offsets projecting into the openings therein and forming bearings for the drum to revolve upon, said openings being of a size to permit the introduction and removal of the parts inclosed within the drum, and means to actuate the clamping-flanges into frictional contact with the sides of the drum.

13. The combination with the drive-shaft, of a brake-drum the sides of which form friction-disks and have openings therein, planetary gears carried within said brake-drum, spur-wheels upon the drive-shaft within the drum and meshing with the planetary gears—the spur-wheels adjacent to the sides of the drum being loose upon the drive-shaft and provided with clamping members adapted to frictionally engage the sides of the drum and with offsets projecting into the openings therein, friction-brakes for one of said clamping members and for the brake-drum, a drive connection between the other clamping member and a driven shaft, and means for actuating the clamping members to clamp the drum fast between them.

14. The combination with the motor, of a drive-shaft rigidly connected with the shaft of the motor and continuously revolving with it, a power-transmitting device upon said shaft of the planetary type having a driven member loose upon the drive-shaft and controlling devices operating wholly through friction said driven member adapted to be revolved at the same speed with the shaft or at a slower speed in either direction, a sleeve carried by said driven member and projecting beyond the end of the drive-shaft and a driven shaft at the end of the drive-shaft having a portion thereof adjacent to the drive-shaft socketed in the end of the sleeve in rigid alinement with the drive-shaft and in continuous operative engagement with the sleeve.

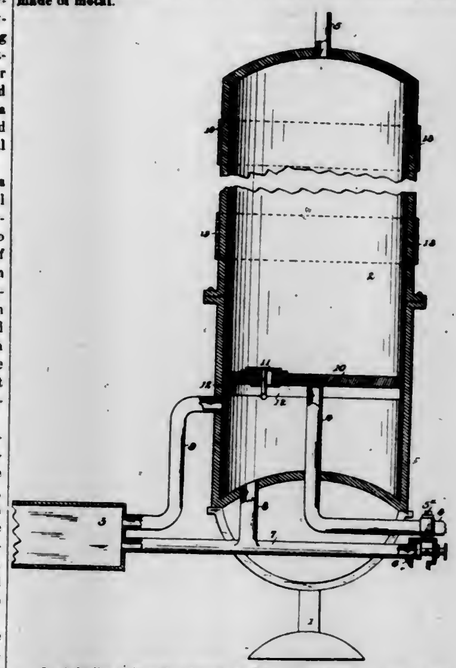
787,909. **BOILER.** WILLIAM T. FOX, Rochester, N. Y. Filed Apr. 1, 1904. Serial No. 201,079.

Claim.—1. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, said means comprising a piston.

2. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, said means comprising a valved piston.

3. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, said means comprising a valved piston and a peripheral packing to prevent ascent of water about the piston.

4. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, and means comprising a valved piston and a peripheral packing to prevent ascent of water about the piston, said packing being made of metal.



5. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, said means comprising a valved piston, said valve being free to open when the piston is stopped by the upper wall of the boiler.

6. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, said means comprising a valved piston, and a stop for the piston.

7. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from the heated water, said means comprising a valved piston, and a stop for the piston consisting of the cold-water-admission pipe.

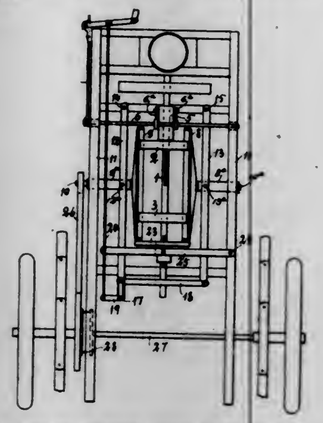
8. A boiler, pipes for drawing off heated water and simultaneously admitting colder water, means to heat the water, and means within the boiler to continuously separate the cold from theheated water, said means comprising a valved piston and a stop for the piston, consisting of the cold-water-admission pipe, said stop being above a water-back hot-water-admission pipe.

787,910. **DOUBLE FRICTION-GEAR FOR MOTOR-CARS.** HANS C. FREDERIKSEN, Copenhagen, Denmark. Filed Oct. 10, 1904. Serial No. 227,847.

Claim.—1. A speed-changing and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks in parallel relation therewith having inturned margins forming peripheral engaging faces, said disks being laterally movable with respect to said shaft, a driving-wheel non-rotatively and slidably mounted on said shaft, means for changing the position of said driving-wheel, an idler mounted on said shaft, a braking and reversing disk non-rotatively and slidably mounted on said shaft and adapted to engage the inturned peripheries of said disks, said driving-wheel and reversing-disk engaging said friction-disks on opposite sides of the axes thereof, and a single controlling device whereby engagement may be effected alternately between said friction-disks and driving-wheel, and said reversing and friction disks.

2. A speed-changing and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks in parallel

relation therewith having inturned margins forming peripheral engaging faces, said disks being laterally movable with respect to said shaft, a driving-wheel non-rotatively and slidably mounted on said shaft, means for changing the position of said driving-wheel, an idler mounted on said shaft, a braking and reversing disk non-rotatively and slidably mounted on said shaft and adapted to engage the inturned peripheries of said disks, said driving-wheel and reversing-disk engaging said friction-disks on opposite sides of the axes thereof, and a single controlling device whereby engagement may be effected alternately between said friction-disks and driving-wheel, said reversing and friction disks, and a single controlling-lever for said device.



3. A driving and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks in parallel relation therewith, said disks being movable laterally with respect to said shaft, a driving-wheel non-rotatively mounted on said shaft, an idler mounted on said shaft, a braking and reversing disk non-rotatively and slidably mounted on said shaft and adapted to engage the peripheries of said friction-disks, said driving-wheel and reversing-disk engaging said friction-disks on opposite sides of the axes thereof, and a single controlling device whereby engagement may be effected alternately between said friction-disks and driving-wheel, and said reversing and friction disks.

4. A speed-changing and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks laterally movable in planes parallel with said shaft, a driving-wheel non-rotatively and slidably mounted on said shaft, means for changing the position of said driving-wheel with respect to said disks, an idler secured on said shaft, a braking and reversing disk non-rotatively and slidably mounted on said shaft, said reversing-disk and driving-wheel engaging said friction-disks on opposite sides of the axes thereof, and a single controlling device whereby engagement may be effected alternately between said friction-disks and driving-wheel, and said reversing and friction disks.

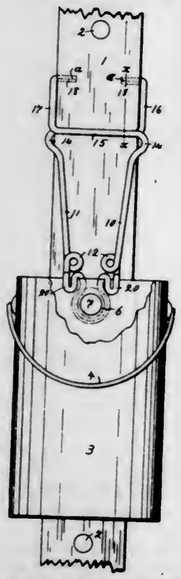
5. A driving and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks laterally movable in planes parallel with said shaft, a driving-wheel non-rotatively mounted on said shaft, an idler for said shaft, a braking or reversing disk non-rotatively and slidably mounted on said shaft, said reversing-disk and driving-wheel engaging said friction-disks on opposite sides of the axes thereof, and a single controlling device whereby engagement may be alternately effected between said friction-disks and driving-wheel, and said reversing and friction disks.

6. A driving and braking friction-gear comprising a continuously-driven shaft, axially-alined friction-disks laterally movable in planes parallel with said shaft, a driving-wheel non-rotatively mounted on said shaft, an idler for said shaft, a braking-disk adapted to engage the peripheries of said friction-disks, and a single controlling device whereby engagement may be alternately effected between said friction-disks and driving-wheel, and said braking and friction disks.

7. A speed-changing and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks laterally movable in planes parallel with said shaft, a driving-wheel non-rotatively and slidably mounted on said shaft, means for changing the position of said driving-wheel with respect to said disks, an idler secured on said shaft, a braking and reversing disk non-rotatively and slidably mounted on said shaft said reversing-disk and driving-wheel engaging said friction-disks on opposite sides of the axes thereof, and a single controlling device whereby engagement may be alternately effected between said friction-disks and driving-wheel, and said reversing and friction disks, and a single controlling-lever for said device.

8. A speed-changing and reversing friction-gear comprising a continuously-driven shaft, axially-alined friction-disks laterally movable in planes parallel with said driven shaft, a driving-wheel slidably and non-rotatively mounted on said shaft, an idler mounted on said shaft, a braking and reversing disk non-rotatively and slidably mounted on said shaft and adapted to engage the peripheries of said friction-disks, friction-disk-operating levers pivotally united between their ends to said friction-disks and extending therefrom in parallel relation to said driving-shaft, said friction-disk levers being pivotally mounted to stationary parts adjacent said driving-wheel, a bell-crank lever pivotally mounted upon the free end of one of said levers, a transverse bell-crank bar connected with said bell-crank and the free end of the remaining disk-lever, a reversing-disk lever pivotally mounted at one end to a stationary part and connected between its ends with said reversing-disk, and a main actuating-rod connected with said bell-crank and the free end of said reversing-disk lever whereby movement of said rod in one direction serves to engage said friction-disks with said driving-wheel and movement in an opposite direction serves to engage said reversing-disk with said friction-disks.

787,911. **RECEPTACLE-SUPPORTING ATTACHMENT.** ALWIN J. GERHARDT, HENRY O'CONNOR, and CHARLES A. VIOLET, Milwaukee, Wis. Filed Mar. 28, 1904. Renewed Feb. 20, 1905. Serial No. 246,495.



Claim.—1. The combination with a receptacle of a resilient clamp connected to one side thereof and having outwardly-projecting arms adapted to engage the side bar of a ladder.

2. The combination with a receptacle, of a support connected to one side thereof and having resilient crossed arms adapted to engage the side bar of a ladder.

3. The combination with a receptacle, of a support connected to one side thereof and having resilient crossed arms adapted to engage the side bar of the ladder, said resilient arms being arranged to extend diagonally across the edges of the ladder side bar, with portions bearing upon its inner and outer faces.

4. The combination with a receptacle, of a resilient clamp secured to one side thereof, said clamp having arms extending diagonally outwardly from the receptacle and adapted to engage the side bar of the ladder.

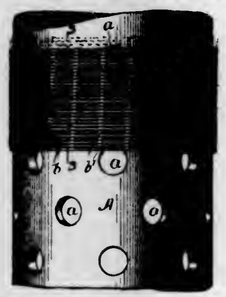
5. The combination with a receptacle, of a resilient clamp connected with the receptacle by suitable actuating-arms, said actuating-arms being provided with hooked portions, engaging over the edge of the receptacle.

6. The combination with a receptacle, of a resilient clamp provided with actuating-arms connected to form an eye at their lower ends; a resilient loop pivotally secured to the side of the receptacle near its upper edge and adapted to be removably engaged in said eye.

7. The combination with a receptacle, of a resilient clamp provided with actuating-arms connected to form an eye at their lower ends; a resilient loop pivotally secured to the side of the receptacle near its upper edge and adapted to be removably engaged in said eye, said loop being arranged to project downwardly from the point of connection with the receptacle when in use, but adapted to be swung upwardly and to project above the edge of the receptacle when in position of release.

8. The combination with a receptacle of a resilient clamp connected to one side thereof and provided with outwardly-extending diagonal arms adapted to embrace the side bar of a ladder and formed to bear upon the inner and outer surfaces of said bar.

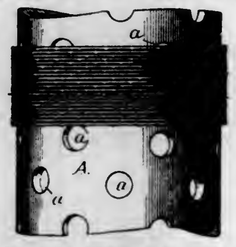
787,912. **STRAINER FOR OIL OR WATER WELLS.** FRED I. GETTY, Jennings, La., assignor of one-fourth to William H. Rowbotham, Jennings, La. Filed Feb. 5, 1904. Serial No. 192,091.



Claim.—1. In a device of the class described, the combination with a suitably-perforated pipe, of a coil of wire surrounding said pipe and overlying said perforations, the wire composing said coil having a plain surface on one side, and a series of depressions on the opposite side, the plain surface lying approximately at right angles to the axis of the pipe, and two curved surfaces, one of which contacts with the wall of the pipe.

2. In a device of the class described, the combination with a suitably-perforated pipe, of a coil of wire surrounding said pipe and overlying said perforations, the wire composing said coil having two flat surfaces, one of which is plain and the other being composed of a series of closely-spaced flat-bottomed depressions sunk into the wire, the said two surfaces being approximately at right angles to the axis of the pipe, and two curved surfaces, one of which contacts with the wall of the pipe.

787,913. **STRAINER FOR OIL OR WATER WELLS.** FRED I. GETTY, Jennings, La., assignor of one-fourth to William H. Rowbotham, Jennings, La. Filed Dec. 1, 1904. Serial No. 235,124.



Claim.—1. In a device of the class described, the combination with a perforated pipe, of a wire spirally wound upon the same, said wire having a horizontal web in contact with the surface of the pipe, a vertical web outside the horizontal web overhanging to form arch-shaped spaces between the turns of wire, and suitable lugs which contact with the next adjacent turn to space the wire apart.

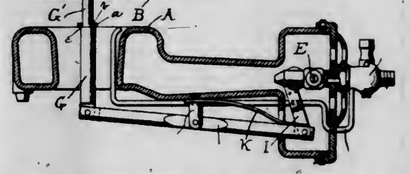
2. In a device of the class described, the combination with a perforated pipe, of a wire spirally wound upon the same, said wire being T-shaped in cross-section, one web of the wire being in contact with the pipe, and the other web overhanging the spaces between the two adjacent turns of wire to form arch-shaped spaces, and having lugs which space the turns apart.

3. In a device of the class described, the combination with a perforated pipe, of a wire spirally wound upon the same, said wire having a horizontal web in contact with the surface of the pipe, a vertical web having a convex outer face, said vertical web being outside and overhanging the horizontal web so as to form arch-shaped spaces between the turns of wire and a series of depressions separated by lugs whose faces contact with the adjacent coil; substantially as, and for the purpose stated.

4. In a device of the class described, the combination with a perforated pipe, of a wire spirally wound upon the same, said wire having a horizontal web in contact with the surface of the pipe, a vertical web outside of and overhanging the horizontal web, said vertical web having two faces which are approximately at right angles to the axis of the perforated pipe, said faces forming the sides of the openings through which the fluid passes on entering the strainer to the passage-way inside and between the coils, and a series of depressions separated by lugs; substantially as described.

5. In a device of the class described, the combination with a perforated pipe, of a wire spirally wound upon the same, said wire having a horizontal web in contact with the surface of said pipe whose sides are parallel with each other, a vertical web outside of and overhanging the horizontal web, said vertical web having two faces which are approximately at right angles to the axis of the perforated pipe, said faces forming the sides of the openings through which the fluid passes, on entering the strainer, to the passage-way inside and below the coils and a series of depressions separated by lugs; substantially as described.

787,914. **GAS-STOVE.** ANNA L. GIBSON, Philadelphia, Pa. Filed May 19, 1904. Serial No. 208,692.



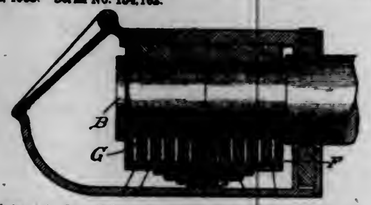
Claim.—1. In combination with a gas-burner having an auxiliary valve, a wing on the valve-stem of the auxiliary valve, a depending lug removably secured to the burner, a lever pivoted intermediate its length to the lug, a link connecting an end of the lever and the wing, a rod vertically slidable through the burner, said rod being pivoted at one end to the lever, a button adjustably held by the upper end of the rod, a spring held at one end against the burner by the removable lug, the free end of the spring bearing against an end of the lever to elevate the rod, and means on the burner for limiting the movement of the rod in one direction.

2. In combination with a gas-burner having an auxiliary valve, a wing on the valve-stem of the auxiliary valve, a depending lug removably secured to the burner, a lever pivoted intermediate its length to the lug, a link connecting an end of the lever and the wing, a rod vertically slidable through the burner, said rod being pivoted at one end to the lever, a button adjustably held by the upper end of the rod, a spring held at one end against the burner by the removable lug, the free end of the spring bearing against an end of the lever to elevate the rod and guiding means for the rod carried by the burner.

3. In combination with a gas-burner having an auxiliary valve, a wing on the valve-stem of the auxiliary valve, a depending lug removably secured to the burner, a lever pivoted intermediate its length to the lug, a link connecting an end of the lever and the wing, a cross-piece on the burner having an aperture, a rod having a reduced upper end slidable through the aperture of the cross-piece, said cross-piece acting as a guide and the shoulder formed by the reduced portion limiting the upward movement of the rod said rod being pivoted at its lower end to an end of the lever, an adjustable but-

ton on the upper end of the rod, and spring means carried by the burner and bearing against the lever for holding the rod normally elevated.

787,915. **LUBRICATOR.** JOHN B. GILL, Franklin, Pa. Filed Apr. 24, 1903. Serial No. 154,162.



Claim.—1. In a lubricator, the combination with the journal-box, of a cake of solid lubricant, said lubricant being provided with means opening upon its lubricating-face for containing a liquid said lubricating means being closed at its bottom.

2. A lubricating device, comprising a solid lubricant, there being fluid-containing means, closed at its bottom, opening upon the lubricating-face of said solid lubricant, and means for holding said solid lubricant in contact with the journal to be lubricated.

3. A lubricating device, comprising a cake of solid lubricant, there being fluid-containing means contained therein, closed at one end and opening upon the lubricating-face of said solid lubricant, and means for feeding said solid lubricant to the journal to be lubricated.

4. A lubricating device comprising a journal-box, a supporting-plate, a spring mounted between said supporting-plate and the journal-box, and a lubricating means mounted upon said plate and held by said spring in contact with the journal, said lubricating means comprising a solid lubricant and means for supplying a fluid to the lubricating-surface thereof.

5. In a lubricator, the combination with a supporting-plate, of a pad carried thereby, and a fluid-receptacle arranged adjoining said pad in such a manner that the fluid therein will be fed to the lubricating-face of said pad by the rotating action of the journal to be lubricated, and means for holding said lubricating device in operative contact with the journal to be lubricated.

6. A luhricating device comprising a cake of solid lubricant containing a receptacle for a fluid, said receptacle being closed at one end and so arranged that said fluid may be fed to the lubricating-face of said solid lubricant during the rotation of the journal, and means for holding said cake of lubricant adjacent to the journal to be lubricated.

7. A lubricating device comprising a cake of solid lubricant, a plurality of soft-metal receptacles embedded therein and opening upon the lubricating-face thereof and means for holding said solid lubricant in contact with the journal to be lubricated.

8. A lubricating device comprising a cake of solid lubricant, a plurality of fluid-receptacles closed at one end and opening upon the lubricating-face of said cake, and means for feeding the contents of said receptacles to the journal to be lubricated.

9. In a lubricating device, the combination with a cake of solid lubricant, of means for holding said cake of lubricant in contact with the journal to be lubricated, and means for supplying a fluid upwardly to the lubricating-face of said lubricant.

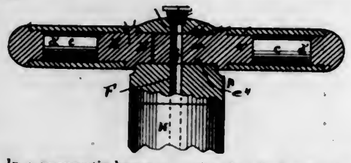
10. In a lubricating device, the combination with a cake of solid lubricant, of wicking mounted in said lubricant and communicating with a source of supply so as to feed a fluid to the lubricating-face of said cake of lubricant, and means for holding said cake of lubricant in contact with the journal to be lubricated.

11. In a lubricating device, the combination with a cake of solid lubricant, of a fluid-receptacle arranged below the journal, means for feeding said fluid from said receptacle to the lubricating-face of said cake of solid lubricant, and means for holding said solid lubricant in contact with the journal to be lubricated.

12. In a lubricating device, the combination with a cake of solid lubricant having a fluid-receptacle arranged below the journal to be lubricated, of means for feeding said fluid from the receptacle to the face of said cake of solid lubricant, and means for holding said solid lubricant in contact with the journal to be lubricated.

787,916. **HANDLE AND CONNECTING-PLUG FOR PNEUMATIC HAMMERS.** MARTIN HARDCOG, Osborne, Iowa. Filed July 26, 1904. Serial No. 218,547.

Claim.—1. In a pneumatic hammer, a plug for closing the end of the main frame or cylinder and having therein a cross-hole and a central passage for pressure, and a handle formed of two grabs secured in the plug on opposite sides thereof, one of the grabs having connected therewith a movable valve member entering into the cross-hole of the plug and having a cross-passage adapted to register with the pressure-passage for controlling said passage, substantially as described.



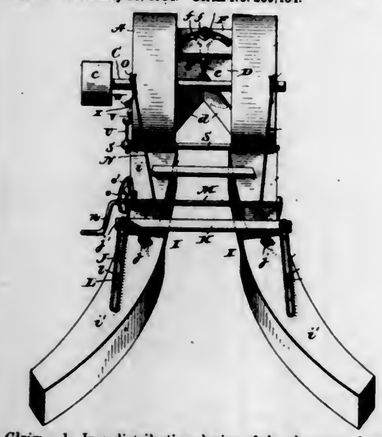
2. In a pneumatic hammer, a plug for closing the end of the main frame or cylinder and having therein a cross-hole, a coupling-plug entered into one end of the cross-hole, a tube into one end of which the coupling-plug enters, and a closing-cap for the outer end of the tube, substantially as described.

3. In a pneumatic hammer, a plug for closing the end of the main frame or cylinder and having therein a cross-hole and a central passage for pressure, a coupling-plug entered into one end of the cross-hole, a tube into one end of which the coupling-plug enters, a closing-cap for the outer end of the tube, and a revoluble valve member on the coupling-plug and entered into the cross-hole of the plug and having a cross-passage adapted to be revolved to coact with the pressure-passage in the plug, substantially as described.

4. In a pneumatic hammer, a closure for the end of the main frame or cylinder and having therein a cross-hole and a passage for pressure leading to the cross-hole and from the cross-hole to the cylinder, a revoluble valve member entered into the cross-hole and having a cross-passage for opening and closing communication to the cylinder through the pressure-passage, said valve member terminating in an outwardly-projecting handle adapted to revolve the valve member, substantially as described.

5. In a pneumatic hammer, a plug for closing the end of the main frame or cylinder and having therein a cross-hole and a longitudinal passage for pressure, a plug screw-threaded into one end of the cross-hole, a plug revolubly mounted in the other end of the cross-hole and provided with a cross-passage adapted to register with the longitudinal passage for pressure, and two handles secured to and outwardly projecting from the plugs, substantially as described.

787,917. **DISTRIBUTING DEVICE.** HENRY P. HARPSTRITE, Marne, Ill. Filed May 21, 1904. Serial No. 209,134.



Claim.—1. In a distributing device of the character described, a pair of fans, a receiving-hopper interposed between the fans, and means within the hopper for directing the material fed thereinto to either of the fans or permitting the feeding of the material to both of said fans.

2. In a distributing device of the character described, a pair of fans, a receiving-hopper interposed between the fans, and an adjustable deflector in said hopper to adjust the feeding of the material to the fans.

3. In a distributing device of the character described, a pair of fans, a receiving-hopper interposed between the fans, an upwardly-directed pivoted deflector in said hopper for regulating the feeding of the material to the fans, and adjusting means for said deflector.

4. In a distributing device of the character described, a pair of fans, a pair of spouts flexibly connected to the fan-casings, means whereby said spouts may be adjusted vertically, and means whereby they may be adjusted laterally independently of each other.

5. In a distributing device of the character described, a pair of fans, a pair of spouts for receiving the material therefrom, and means whereby said spouts may be adjusted laterally independently of each other.

6. In a distributing device of the character described, fanning instrumentalities, a pair of spouts for receiving the material therefrom, and means whereby said spouts may be adjusted laterally independently of each other.

7. In a distributing device of the character described, a pair of fans, a pair of spouts for receiving the material therefrom, and means whereby said spouts may be adjusted both laterally independently of each other and vertically

8. In a distributing device of the character described, a pair of fans, a pair of spouts leading from said fans in substantially the same general direction for receiving the material therefrom, and means independently operable with respect to each spout whereby said spouts may be shifted to adjust the same relative to the fans.

9. In a distributing device of the character described, a pair of fans, a receiving-hopper interposed between the fans, and an adjustable deflector in said hopper for regulating the feeding of the material to the fans.

10. In a distributing device of the character described, fanning instrumentalities, a pair of spouts for receiving the material therefrom, and means whereby said spouts may each be adjusted laterally independently of each other.

11. In a distributing device of the character described, fanning instrumentalities, a pair of spouts for receiving the material therefrom, and means whereby said spouts may each be adjusted laterally independently of each other and vertically.

12. In a distributing device, of the character described, a pair of fans, a pair of spouts for receiving the material therefrom, and means independently operable with respect to each spout whereby said spouts may be shifted to adjust the same relative to the fans.

13. In a distributing device of the character described, fanning instrumentalities, a pair of spouts leading therefrom in substantially the same general direction, and means independently operable with respect to each spout whereby said spouts may be shifted to adjust the same relative to the fans.

14. In a distributing device of the character described, a fan, a casing therefor, said casing having an adjustable bottom, and means for adjusting said bottom.

15. In a distributing device of the character described, a fan, a casing therefor, said casing having a pivoted bottom section, and means engaging the free end of said section for adjusting the same.

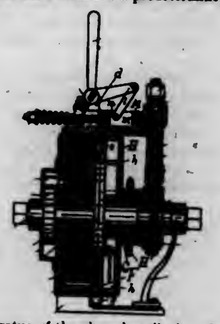
16. In a distributing device of the character described, a fan, a casing therefor, said casing having pivoted bottom sections overlapping each other at their free ends, and means operatively related to said overlapping ends for adjusting the same.

17. In a distributing device of the character described, a fan, said fan being composed of a supporting-spider, and laterally-disposed blades secured thereto, the inner operating edge of each blade being turned over.

18. In a distributing device of the character described, a fan, said fan being composed of a supporting-spider, and laterally-disposed blades secured thereto, the inner operating edge of each blade being outwardly inclined and turned over.

787,918. **GAS-ENGINE STARTER.** NOBLE W. HARTMAN, Toledo, Ohio, assignor to The Gas Engine Starter Company, Toledo, Ohio, a Corporation of Ohio. Filed Mar. 14, 1904. Serial No. 198,083.

Claim.—1. In an apparatus of the class described, a normally stationary shaft rotatable in one direction, a coiled spring secured thereto, a rotatable member actuated by said spring, a sprocket adapted to be rotated by and to have rotation independent of said member, a clutch adapted when thrown into operation to actuate said shaft to wind said spring, and mechanism having connection with said clutch adapted to be moved to permit rotation of said rotatable member and sprocket or to lock said member against movement and move said clutch into operative position for rewinding said spring, and means for causing an automatic release of said clutch when said spring has been wound to a predetermined tension.



2. In an apparatus of the class described, a shaft rotatable in one direction, a rotatable disk and an independently-movable sprocket loosely mounted on said shaft, a coiled spring secured to said shaft and adapted to actuate said disk, means for causing said sprocket to rotate with said disk, a clutch adapted to be thrown into engagement with said sprocket to rotate said shaft for winding said spring, and mechanism for normally locking said disk against movement and retaining said clutch in inoperative position, said mechanism adapted to be moved to permit said disk to rotate and to throw said clutch into operative position.

3. In an apparatus of the class described, a shaft rotatable in one direction, a rotatable disk and an independently-rotatable sprocket loosely mounted on said shaft, said sprocket being adapted to be moved by the rotation of said disk, a coiled spring for actuating said disk, means for automatically winding said spring after it has spent its energy, and a vertically and horizontally movable controlling mechanism normally positioned to lock said disk against movement and to retain said winding means in inoperative position.

4. In an apparatus of the class described, a shaft rotatable in one direction, a rotatable member and an independently-rotatable sprocket loosely mounted on said shaft, a spring for causing a movement of said rotatable member when released, means for causing said sprocket to move with said member, means for automatically winding said spring after it has spent its energy, a vertically and horizontally movable controlling member normally positioned to lock said rotatable member against movement and to retain said winding means in inoperative position, and adapted to be moved to permit said rotatable member to rotate and then to lock the same against movement and to throw said winding means into operative position, and means for causing a cessation of the winding of said spring when it has been wound to a predetermined tension.

5. In an apparatus of the class described, a shaft rotatable in one direction, an actuating member secured thereto, a disk loosely mounted on said shaft and moved by said actuating member, an independently-movable sprocket, a disk secured to said sprocket and having a peripheral flange, a series of pawls secured to said former disk and adapted to frictionally engage the flange of said latter disk and impart motion to said sprocket, a clutch mechanism adapted to be thrown into engagement with said sprocket to rotate said shaft, a vertically and horizontally movable controlling-block having connection with said clutch mechanism and adapted to be moved to permit a movement of said actuating member, means tending to draw said block in one direction and retain said clutch in operative position for storing energy in said actuating member, and means adapted to throw said clutch into inoperative position when sufficient energy has been stored in said member.

6. In an apparatus of the class described, a shaft rotatable in one direction, a coiled spring having its inner end secured thereto and adapted to be wound in the direction of rotation of said shaft, a rotatable member loose on said shaft and adapted to be rotated by a centripetal unwinding movement of said spring, a sprocket loose on said shaft and adapted to be moved by and have an independent movement of said rotatable member, and mechanism for controlling the movement of said member.

7. In an apparatus of the class described, a shaft rotatable in one direction, a coiled spring having its inner end secured thereto and adapted to be wound in the direction of rotation of said shaft, a rotatable member loosely mounted on said shaft and adapted to be rotated by a centripetal unwinding of said spring, a power-trans-

mission element loosely mounted on said shaft and adapted to be moved by and to have an independent movement of said member, a clutch mechanism, and mechanism for controlling the movement of said rotatable member adapted to be moved to throw said clutch mechanism into operative or inoperative position for the purpose described.

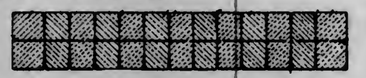
8. In an apparatus of the class described, a shaft rotatable in one direction, a spring secured thereto, a member rotated by said spring and having one or more notches on its periphery, an element movable by said member, controlling mechanism for said member comprising a vertical reciprocatory block having a portion shaped to engage the notches in said member, and means for moving said block out of engagement with said notches to permit of a movement of said parts.

9. In an apparatus of the class described, a shaft rotatable in one direction, a spring secured thereto, a rotatable member actuated by said spring and having one or more notches in its periphery, a power-transmission element movable by said member, a clutch mechanism adapted to engage said element and cause a rotation of said shaft to store energy in said spring, and means for controlling said parts comprising a vertically and horizontally movable block having connection with said clutch mechanism, means tending to move said block to throw said clutch into operation, an operating-lever for moving said block out of engagement with said rotatable member, and a portion provided on said block adapted to coact in such manner with one of the notches on said member as to cause said block to move and throw said clutch mechanism into inoperative position when said spring has been wound to a predetermined tension.

10. In an apparatus of the class described, the combination of a spring, a disk, and an independently-movable member actuated by said spring, a clutch mechanism adapted to be moved to wind said spring, a controlling member having operative connection with said clutch mechanism and having parts coacting with said disk and adapted to be moved into a series of operative positions with respect to said disk, the coacting parts of said member and disk being shaped to adapt them when in one position to cause a movement of said member to move said clutch to inoperative position when the spring has been wound to a predetermined tension and permit said disk and clutch mechanism to stand at rest.

11. In an apparatus of the class described the engine-shaft, an auxiliary shaft rotatable in one direction, a rotatable member, means for actuating said member in one direction, connection between said means and said auxiliary shaft, a power-transmission element connected to the engine-shaft, adapted to be moved by and have movement independent of said member, and mechanism adapted to be moved to permit said member to rotate, or to lock the same against movement and simultaneously connect the engine-shaft with said actuating means whereby to automatically cause the energy lost in the rotating of said member to be restored to said actuating means.

787,919. **MACHINERY-DRIVING BELT.** JAMES HENDRY, ALEXANDER HENDRY, and MALCOLM A. HENDRY, Glasgow, Scotland. Filed May 20, 1904. Serial No. 208,857.



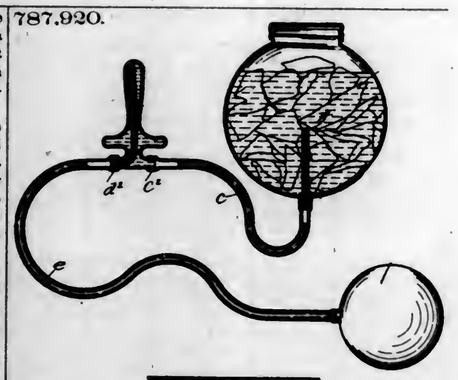
Claim.—Machinery-driving belts of the laminated type comprising continuous strips of leather having narrow angled strips cut off their edges laid side by side and secured together by stitching substantially as described.

787,920. **MEDICAL APPARATUS.** FREDERICK HOFMANN, New York, N. Y. Filed Mar. 31, 1904. Serial No. 200,934.

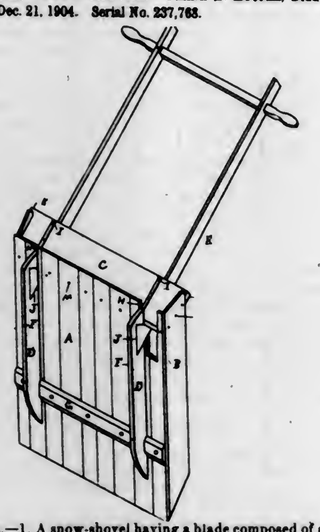
Claim.—1. In a medical device, a compressible bulb, a tube leading therefrom, a hollow tip attached to said tube, an inner spout in said tip connected with said tube, a second tube leading from said tip to a receptacle, constructed to contain water and ice, the whole apparatus adapted to maintain a flow of the liquid about the said tip in one direction and its return about the said tip in the opposite direction, without diminution of the supply of liquid used.

2. In a medical device the combination of a closed air-tight receptacle adapted to contain water and ice, a tube leading therefrom, a hollow non-flexible tip attached to said tube, a flexible bulb, and a tube leading from said bulb to said non-flexible tip, a spout leading from the bulb-tube into and up into the interior of the said hollow tip.

787,920.



787,921. **SNOW-SHOVEL.** FRANK E. HOOPER, Biddeford, Me. Filed Dec. 21, 1904. Serial No. 237,763.



Claim.—1. A snow-shovel having a blade composed of a bottom, sides and back, shoes on the bottom thereof, handles secured to the back of the blade, shoe-irons secured to the shoes and back of the blade and bolts passing through the shoe-irons back of the blades and handles.

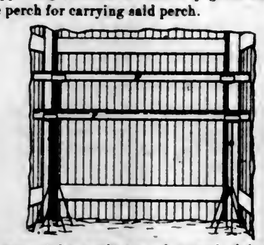
2. A snow-shovel having a blade composed of a bottom, sides and a back inserted between the sides and resting on the bottom of the blade at a point slightly in front of the rear end thereof, recesses extending into the bottom of the blade to a point adjacent to said back, shoes on the bottom of the blade and shoe-irons extending over the shoes into said recesses and along the back of the blade and means for securing the shoe-irons and back of the blade and bolts passing through the irons, back of the blade and handles.

3. A snow-shovel having a blade, shoes on the bottom thereof, said shoes having recesses in the top edges thereof and handles secured to the back of the blade and having their extremities entering and interlocking in the recesses in the shoe.

787,922. **PERCH-SUPPORT.** ARTHUR S. HOXIE, Brooklyn, N. Y. Filed Feb. 11, 1904. Serial No. 193,078.

Claim.—1. A support for poultry-perches, embodying two oppositely-disposed angular legs pivoted to have an opening movement at one end and a simultaneous closing movement at the other end thereof the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed clamps secured respectively to the upper ends of said legs and having supporting-surfaces of relatively great length in the direction of the perch for carrying said perch.

2. A support for poultry-perches, embodying two oppositely-disposed angular legs having an opening movement at one end and a simultaneous closing movement at the other end thereof about a common pivot the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed clamps secured respectively to the upper ends of said legs and having supporting-surfaces of relatively great length in the direction of the perch for carrying said perch.



3. A support for poultry-perches, embodying two oppositely-disposed angular legs pivotally connected at the apexes of their angles to have an opening movement at one end and a simultaneous closing movement at the other end thereof the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed clamps secured respectively to the upper ends of said legs and having supporting-surfaces of relatively great length in the direction of the perch for carrying said perch.

4. A support of the class specified, embodying two oppositely-disposed angular legs pivoted to have an opening movement at one end and a simultaneous closing movement at the other end thereof and one of which legs is forked to form with the other leg a triangular base for the support the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed clamps secured respectively to the upper ends of said legs.

5. A support of the class specified, embodying two oppositely-disposed angular legs pivoted to have an opening movement at one end and a simultaneous closing movement at the other end thereof and one of which legs has a pair of feet diverging therefrom to form with the other leg a triangular base for the support the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed clamps secured respectively to the upper ends of said legs.

6. A support for poultry-perches, embodying two oppositely-disposed angular legs pivoted to have an opening movement at one end and a simultaneous closing movement at the other end thereof the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed angular clamps secured respectively to the upper ends of said legs and having supporting-surfaces of relatively great length in the direction of the perch and parallel clamping-walls for holding said perch.

7. A support for poultry-perches, embodying two oppositely-disposed angular legs pivoted to have an opening movement at one end and a simultaneous closing movement at the other end thereof the upper ends of said legs being spread apart in all positions of the support, in combination with a pair of oppositely-disposed clamps secured respectively to the upper ends of said legs and having supporting-surfaces of relatively great length in the direction of the perch, and means for securing said legs together.

787,923. **TREATING SHEEP'S WOOL.** ALBERT KANN, Heidelberg, Germany. Filed July 24, 1901. Serial No. 69,568. (Specimens.)

Claim.—1. The process of treating wool or keratinic fiber in any form which consists in subjecting the fiber to the action of formaldehyde, and subsequently subjecting it to an alkaline solution containing formaldehyde, for substantially the purposes set forth.

2. In treating wool or keratinic fiber the process which consists in subjecting the fiber to the action of formaldehyde, and subsequently subjecting it to an alkaline solution, for substantially the purposes set forth.

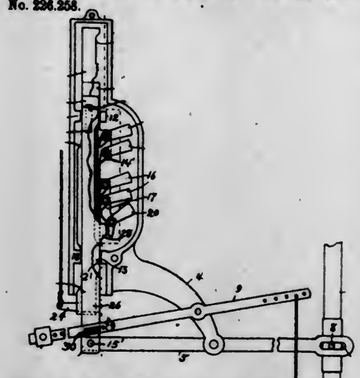
3. In treating wool or keratinic fiber, the process which consists in subjecting the fiber to the action of formaldehyde and subsequently subjecting it to a hot alkaline solution which would be injurious to the wool not treated with formaldehyde, for substantially the purposes set forth.

4. In treating wool or keratinic fiber, the improvement which consists in treating the fiber to the action of formaldehyde and an alkaline solution, for substantially the purposes set forth.

5. In treating wool or keratinic fiber, the improvement which consists in treating the fiber to the action of formaldehyde and an alkaline heated solution, for substantially the purposes set forth.

6. As a new article of manufacture, a wool product characterized by its having hardened fibers which retain substantially their natural elasticity, and are substantially insoluble in an alkaline solution such as will dissolve ordinary wool, and further characterized by the fact that when the product is treated with hot hydrochloric acid and dried and then heated, it has a peculiar sharp formaldehyde odor.

787,924. **AUTOMATIC REGULATOR FOR WINDMILLS.** CHARLES F. KNOTHE, Fort Wayne, Ind. Filed Sept. 28, 1904. Serial No. 226,258.



Claim.—1. An automatic regulator for windmills consisting of a vertically-reciprocating driving-bar pivotally connected at its lower end with the pump-rod; a vertical rack-bar in coöperative relation with the driving-bar, and having its lower end connected to the rudder of the mill; a pawl or pawls pivotally mounted on the driving-bar and adapted for an actuating engagement with the rack-bar; a pawl or pawls in fixed relation to the rack-bar and adapted for a holding engagement therewith against any upward movement thereof; a vertical shifting bar adapted in its upward movement to release the rack-bar; means for temporarily securing the shifting bar in its elevated position; and a vertically-movable operating-bar pivotally connected with the float, and adapted to elevate the shifting bar, and also to release the same as described.

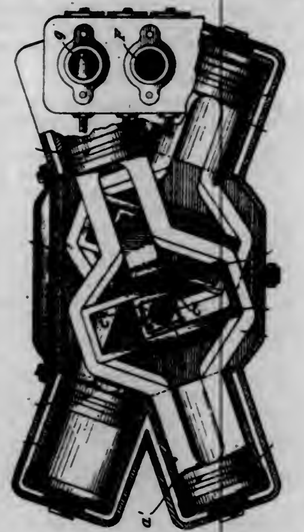
2. In an automatic windmill-regulator a vertically-movable driving-bar having a pivotal connection with the pump-rod; a vertical rack-bar in coöperative relation with the driving-bar; means for elevating the rack-bar under the conditions described; means for actuating the rack-bar downwardly in unison with the movements of the driving-bar; means for securing the rack-bar against a return movement during its descent; a vertical shifting bar adapted to release the rack-bar from its retaining and actuating means; a vertically-movable operating-bar adapted to actuate the shifting bar; means for actuating the operating-bar; and a containing-casing for the said bars.

3. The combination in an automatic regulator for windmills, a driving-bar having a vertical reciprocation by means of a pivotal connection with the pump-rod; a vertically-movable rack-bar; a flexible connection between the rack-bar and the rudder; an actuating connection between the rack-bar and the driving-bar for moving the rack-bar to its lowest limit; means for securing the rack-bar during its descent against an upward movement; a vertical shifting bar to release the rack-bar from its retaining and actuating engagement; a vertically-movable operating-bar adapted to actuate the shifting bar in both directions; and means for connecting the operating-bar with the actuating-float.

4. In an automatic regulator for windmills, a closed casing open only at its lower end; and containing the regulator-actuating means; and means for operatively connecting the said actuating means with the regulator at its lower end.

787,925. **EXPLOSIVE-ENGINE.** RAWSON H. LAYTON and JOHN B. PFEIFFER, South Bend, Ind. Filed May 14, 1903. Serial No. 157,185.

Claim.—1. In an engine the combination with a plurality of cylinders arranged one above the other in pairs radially of a common center, and obliquely with adjacent cylinders, of a piston in each cylinder, a shaft extending between the cylinders, cranks thereon, a piston-rod rigidly connecting oppositely-disposed pistons on opposite sides of the shaft, transverse guides carried on the piston-rods, a sliding box in the guides of each rod each engaging on one of the cranks, and valve-controlled operating-ports for the engine.



2. The combination in an explosive-engine, of cylinders arranged in alinement with each other in pairs, each pair of cylinders crossing the other obliquely at a common center, a piston in each cylinder, a shaft, oppositely-disposed cranks thereon between the cylinders, a yoked piston-rod connecting the oppositely-disposed pistons, and transverse guides in said yokes in which the cranks have bearing and means for admitting the explosive mixture successively into one of each pair of cylinders.

3. The combination in a gasolene-engine, with a frame comprising two castings adapted to be bolted together along a central line, of two cylinders at the outer end of each casting arranged obliquely with and one above the other and in alinement with a corresponding cylinder on the other castings, pistons in said cylinders, a yoked piston-rod rigidly connecting oppositely-disposed pistons and crossing each other at the center, transverse guides carried centrally on each piston-rod, a shaft extending centrally through the engine, oppositely-disposed cranks thereon and having sliding engagement in said guides and valves arranged to admit a charge into corresponding cylinders at each end of the engine thereby preventing said cranks being simultaneously at a dead-center.

4. The combination with obliquely-arranged pairs of oppositely-disposed cylinders, of a piston in each cylinder, a yoked piston-rod connecting each pair, a bearing-block adapted to reciprocate transversely of each yoke, a transverse shaft, cranks thereon engaging in said blocks and slidable transversely of the yokes therewith.

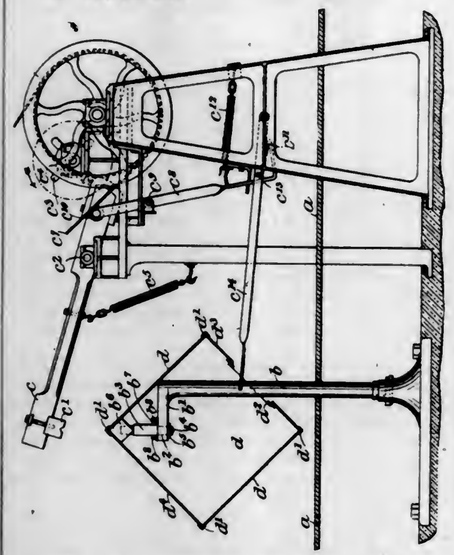
5. In an engine the combination with oppositely-disposed pairs of cylinders arranged obliquely with respect to each other and one above the other, of pistons therein, piston-rods connecting corresponding pistons, transverse guides on each piston-rod, a slidable bearing-box in each set of guides, a shaft extending between the cylinders, a crank engaging in each bearing-box and means providing opposite impulses in one of the cylinders of each pair simultaneously and successively.

6. In an engine the combination with a central shaft provided with a plurality of cylinders arranged in the same vertical plane radially with respect to the shaft, and obliquely with respect to each other, oppositely-disposed pistons in said cylinders, rigid piston-rods connecting the same, cranks on said shaft engaging the piston-rods, said piston-rods at the center being disposed laterally to permit the same to cross each other and valves operated from the shaft and acting to control the inlet of the operating fluid.

787,926. **PROCESS OF TREATING IRON, CAST-IRON, AND STEEL.** JEAN LECARME, Paris, France. Filed Oct. 3, 1903. Serial No. 175,681.

Claim.—The process of hardening and transforming into steel of variable qualities the entire or part of the surface of objects, rotary cutters, screw-taps and other tools and bells and other sonorous instruments made of iron, cast-iron, or mild steel, said process consisting of coating the objects on the surfaces or parts to be treated with a composition containing charcoal in powder, cyanid of potassium, and a combustible agglutinant body and then heating these bodies to a bright red excluded from the air, substantially as herein set forth.

787,927. **ANVIL FOR MAKING TANKS, CISTERNS, BOXES, OR THE LIKE.** THOMAS B. LEECH, Leytonstone, and THOMAS LANE, Blackwall, England; said Lane assignor to said Leech. Filed Jan. 18, 1904. Serial No. 189,591.



Claim.—1. In means employed in the manufacture of metal tanks, cisterns, boxes, or the like, a vertical pillar adapted to pass through a hole in the tank and having a horizontal crank at its upper end, a vertical stud at the end of said crank and an anvil having an inverted-V-shaped upper edge supported by said stud substantially as herein shown and described and for the purpose stated.

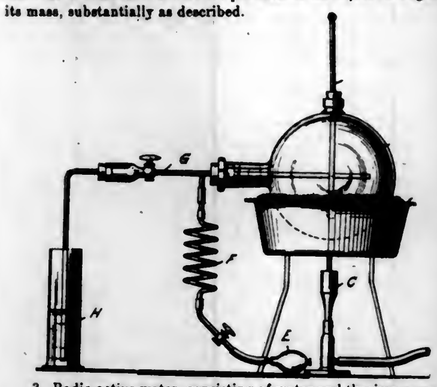
2. In means employed in the manufacture of metal tanks, cisterns, boxes, or the like, a vertical pillar adapted to pass through a hole in the tank and having a horizontal crank at its upper end, a vertical stud revolubly mounted at the end of said crank and an anvil having an inverted-V-shaped upper edge supported by said stud substantially as herein shown and described and for the purpose stated.

3. In means employed in the manufacture of metal tanks, cisterns, boxes, or the like, a vertical pillar adapted to pass through a hole in the tank and cranked to bring its upper end into the required central position with relation to the tank and an adjustable anvil having an inverted-V-shaped upper edge supported by the upper end of said pillar substantially as herein shown and described and for the purpose stated.

787,928. **RADIO-ACTIVE MATTER AND PROCESS OF MAKING SAME.** HUGO LIEBER, New York, N. Y. Filed Mar. 12, 1904. Serial No. 197,838.

Claim.—1. Radio-active matter, consisting of matter having cohesive particles and thorium emanations in combination with the particles of the matter throughout its mass, the matter being free from the thorium from which emanations were obtained and radio-active by reason of the thorium emanations in combination with the particles of the matter throughout its mass, substantially as described.

2. Radio-active liquid, consisting of a liquid and thorium emanations in combination with the particles of the liquid throughout its mass, the liquid being free from the thorium from which emanations were obtained and radio-active by reason of the thorium emanations in combination with the particles of the liquid throughout its mass, substantially as described.



3. Radio-active water, consisting of water and thorium emanations in combination with the particles of the water throughout its mass, the water being free from the thorium from which emanations were obtained and radio-active by reason of the thorium emanations in combination with the particles of the water throughout its mass, substantially as described.

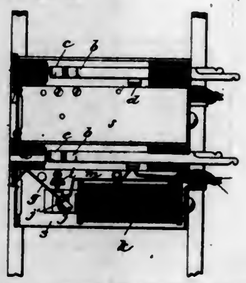
4. The method of rendering matter having cohesive particles radio-active, consisting in heating thorium below red heat, then separating the thorium emanations from the thorium, and then impregnating the matter with the thorium emanations by combining the thorium emanations free from the thorium from which they were obtained with the particles of the matter throughout its mass, substantially as described.

5. The method of rendering matter having cohesive particles radio-active, consisting in heating thorium below red heat and then embodying the thorium emanations within the matter by blowing the thorium emanations into the matter, substantially as described.

6. The method of rendering matter having cohesive particles persistently radio-active, consisting in combining thorium emanations free from the thorium from which they were obtained with the particles of the matter throughout its mass, substantially as described.

7. The method of rendering matter having cohesive particles radio-active consisting in embodying thorium emanations within the matter by blowing thorium emanations into the matter, substantially as described.

787,929. **TELEPHONE-SWITCHBOARD.** CHARLES T. MASON, Sumter, S. C., assignor to The Sumter Telephone Manufacturing Company, Sumter, S. C., a Corporation of South Carolina. Filed Sept. 8, 1904. Serial No. 223,745.



Claim.—1. In a telephone-switchboard, the combination of a series of jack-strips, each containing a plurality of jacks, and a series of drops corresponding to the jacks, said drops being supported by the jack-strips and each removable therefrom as a whole without dissociating or separating the parts thereof.

2. In a telephone-switchboard, the combination of a series of jack-strips, each containing a plurality of jacks, and a series of drops corresponding to the jacks, and means for separately and removably connecting the individual drops to the jack-strips without dissociating or separating the parts of the several drops.

3. In a telephone-switchboard, the combination of a series of jack-strips each containing a plurality of jacks, a series of drops, corresponding to the jacks, individually and removably supported by the jack-strips without dissociating or separating the parts of the several drops, and means for automatically connecting the drops with the corresponding jacks as said drops are placed in position on the jack-strips.

4. In a telephone-switchboard, the combination of a series of jack-strips, each containing a plurality of spring-jacks, a series of drops individually and removably supported by the jack-strips without dissociating or separating the parts of the several drops, contacts on the jack-springs and springs on the drops engaging said contacts to connect the respective jacks and drops as the latter are placed in position on the jack-strips.

5. In a telephone-switchboard, the combination of parallel series of jack-strips, each strip containing a plurality of spring-jacks, a series of drops individually and removably supported between adjacent rows of jack-strips without dissociating or separating the parts of the several drops, contacts on the jack-springs, and springs on the drops engaging said contacts to connect the respective jacks and drops as the latter are placed in position on the jack-strips.

6. In a telephone-switchboard, the combination of a series of jack-strips each strip containing a plurality of spring-jacks, separate and independent drops removably supported on said strips without dissociating or separating the parts of the several drops, each drop having a lug whereby the same is secured to a jack-strip, and contacts on the respective jacks and drops which are brought into engagement to electrically connect the jacks and drops when said jacks and drops are mechanically connected.

7. In a telephone-switchboard, the combination of a series of jack-strips, each strip containing a plurality of spring-jacks, separate and independent drops removably supported on said strips without dissociating or separating the parts of the several drops, circuit connections between the respective jacks and drops which are automatically established when the drops are applied to the strips, and a relay-circuit for each drop which is closed when the drop-shutter falls, to hold said shutter in exposed position until the circuit is broken by the insertion of a plug in the corresponding jack.

8. The combination of a jack-strip containing a plurality of jacks, a series of drops corresponding to the jacks, each of said drops being individually and removably supported upon the jack-strip without dissociating or separating the parts of the several drops, and means for automatically connecting the drops with the corresponding jacks as said drops are placed in position on the jack-strip.

9. The combination of a jack, a drop supported thereon so as to be separately removable therefrom without dissociating or separating any of the parts of the drop, and means for automatically establishing electrical connection between the drop and the jack as said drop is placed in position on the jack.

787,930. **TELEPHONE-SWITCHBOARD.** CHARLES T. MASON, Sumter, S. C., assignor to The Sumter Telephone Manufacturing Company, Sumter, S. C., a Corporation of South Carolina. Filed Feb. 4, 1905. Serial No. 244,203.



Claim.—1. The combination in a drop, of a magnet, a pivotal armature coöperating therewith, a pivotal shutter coöperating with the armature to lock said shutter in retracted position, and to lock the armature in attracted position, and means projecting beyond the face of the drop for restoring the shutter after the same has been actuated.

2. The combination in a drop, of a magnet, a pivotal armature coöperating therewith, a pivotal shutter coöperating with the armature to lock said shutter in retracted position, a tail on the shutter to lock said armature in attracted position, and means projecting beyond the face of the drop for restoring the shutter after the same has been actuated.

3. The combination in a drop, of a magnet, a pivotal armature coöperating therewith, a pivotal shutter having a tail coöperating with the armature to lock the latter in attracted position, and to lock said shutter in retracted position, and a pendular lever having a finger projecting beyond the face of the drop, whereby the shutter is retracted.

4. The combination in a drop, of a magnet, a pivotal armature coöperating therewith, a pivotal shutter having a tail coöperating with the armature to lock the latter in attracted position, and to lock said shutter in retracted position, and a pendular lever having a finger projecting beyond the face of the drop and a second finger engaging the drop, whereby said shutter may be restored by operating said lever from the front of the drop.

5. The combination in a drop, of a magnet, a pivotal armature coöperating therewith, a pivotal shutter having a rearwardly-extending tail coöperating with said armature to lock the latter in attracted position and to lock said shutter in retracted position, means projecting beyond the face of the drop whereby the shutter is restored, and a signal-circuit and terminals therefor closed by the armature while the latter is in attracted position.

6. The combination of a drop, comprising a magnet, a pivotal armature coöperating therewith, a pivotal shutter having a tail coöperating with said armature to lock the latter in attracted position and to lock said shutter in retracted position, a pendular lever for restoring the shutter having a finger projecting beyond the face of the drop, and a jack below the drop, said finger overhanging the jack to be engaged by a plug inserted in the jack.

7. The combination of a drop having a slot in its face through which the shutter falls, and a pendular lever pivoted behind the face of said drop and adapted to engage the shutter, said lever having a finger projecting beyond the drop-face by which the lever is swung to restore the shutter.

8. The combination of a drop having a slot in its face through which the shutter falls, a pendular lever pivoted behind the face of said drop and adapted to engage the shutter, said lever having a finger projecting beyond the drop-face, and a jack below said drop to receive the plug which engages the finger to swing the pendular lever and restore the shutter.

9. The combination of a drop having a magnet provided with spring-contacts secured thereto, a jack on which said drop is mounted and provided with spring-contacts, and means on the jack-contacts to guide the magnet-contacts into engagement with said jack-contacts when the drop is placed in position on the jack.

10. The combination of a drop having a magnet provided with spring-contacts secured thereto, a jack on which said drop is mounted and provided with plug-engaging spring-contacts and intermediate contacts, the latter having flared wings or extensions to guide the magnet-contacts into engagement with said intermediate jack-contacts when the drop is placed in position on the jack.

11. The combination of a drop-frame, a magnet removably mounted therein, and contact-springs secured to said magnet and removable therewith, said frame having a cut-away portion to receive said contact-springs.

12. The combination of a series of drops, jack-strips between which said drops are removably supported, coöperating contacts on the drops and jacks to automatically establish the drop-circuits when the drops are applied to the jack-strips, auxiliary signals operated by the drops, contact-springs on the drops, and fixed contacts on the jack-strips, whereby the auxiliary signal-circuits are also established when the drops are applied to the jack-strips.

787,931. CONSTRUCTION OF CONCRETE RAILROAD-TIES. ALONZO C. MATHER, Chicago, Ill. Filed Dec. 21, 1904. Serial No. 237,764.

Claim.—1. A railroad-tie consisting of a metal truss-frame, short wooden blocks under the rails and between the chords of said truss, and a concrete body inclosing said truss.

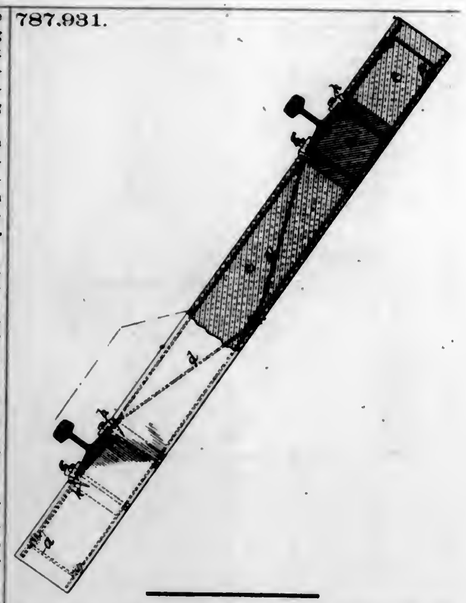
2. A railroad-tie consisting of a metal truss-frame, short wooden blocks under the rails and between the top and bottom truss-chords and diagonal braces between said blocks, and a concrete body inclosing said truss.

3. A railroad-tie consisting of a metal truss-frame, short wooden blocks under the rails set equally on each side of the longitudinal rail centers, bolts through said blocks and truss-frames and a wedge under the bolt-head, and a concrete body inclosing said truss.

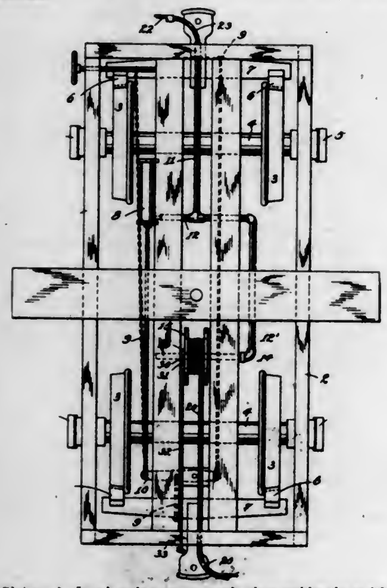
4. A railroad-tie consisting of a metal truss-frame short wooden blocks under the rails set equally on each side of the longitudinal rail centers, bolts through said blocks and truss-frames and a heeled and slotted wedge under the bolt-head and a concrete body inclosing said truss.

5. A railroad-tie consisting of a foraminated metal truss-frame, short wooden blocks under the rails and between the cords of said truss, and a concrete body inclosing said truss.

787,931.



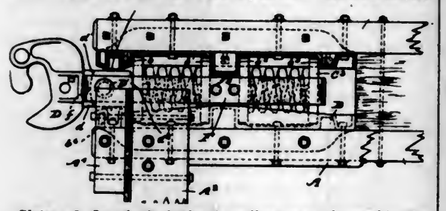
787,932. AIR-BRAKE ATTACHMENT FOR LOGGING-TRAINS. ATWILL D. MILLER, Seattle, Wash. Filed May 28, 1904. Serial No. 210,151.



Claim.—1. In a logging car or truck, the combination with the brake appliances including an air-cylinder, and a train-pipe terminating in a flexible end provided with a half-coupling; of a hose communicating with the train-pipe and provided with a half-coupling, a reel for the hose, and a retractile spring for causing the reel to rotate and wind up the hose.

2. In combination with a railway truck or car provided with brake appliances including an air-cylinder and a train-pipe; of a hollow shaft, a reel rotatably mounted upon the shaft, a retractile spring connected to the reel and to the shaft, a hose wound about the reel and communicating with the train-pipe through the hollow shaft, a ratchet-wheel integrally connected with the reel, a pawl normally engaging the ratchet-wheel, and means extending to the end of the truck or car for disengaging the pawl.

787,933. DRAFT-RIGGING FOR RAILWAY-CARS. WILLIAM H. MINER, Chicago, Ill., assignor to W. H. Miner Company, Chicago, Ill., a Corporation of Illinois. Filed July 21, 1904. Serial No. 217,438.



Claim.—1. In a draft-rigging for railway-cars, the combination with the car-frame of side plates or stop-castings secured thereto, having stops for the followers to abut against, and furnished with rounded guides or bearings on their inner faces at their front ends, tandem springs and followers, a draw-strap or yoke embracing the springs and followers and extending to the front end of the car, and provided with rounded flanges or shoulders on its upper and lower limbs at the front ends thereof, and a coupler draw-head having a pivot lug or stub pivotally connected to the front end of said draw-strap and having rounded shoulders engaging the rounded shoulders on the draw-strap substantially as specified.

2. In a draft-rigging for railway-cars, the combination with the car-frame of side plates or stop-castings secured thereto, having stops for the followers to abut against, and furnished with rounded guides or bearings on their inner faces at their front ends, tandem springs and followers, a draw-strap or yoke embracing the springs and followers and extending to the front end of the car, and provided with rounded flanges or shoulders on its upper and lower limbs at the front ends thereof, and a coupler draw-head having a pivot lug or stub pivotally connected to the front end of said draw-strap and having rounded shoulders engaging said rounded shoulders on the draw-strap, said pivot lug or stub having a rounded rear end bearing against the front follower, substantially as specified.

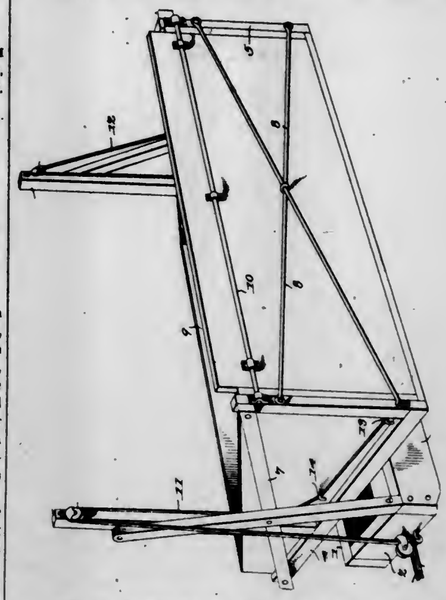
3. In a draft-rigging for railway-cars, the combination with a spring and followers, of a draw-strap or yoke extending to the front end of the car, side plates or stop-castings extending to the front end of the car and having stops for the followers to abut against and provided with curved guides or bearings on their inner faces at the front ends thereof, and a coupler draw-head having a pivot lug or stub, and a pivot-pin extending through said lug and through the front end of the draw-strap or yoke, the upper and lower limbs of said draw-strap or yoke being provided with curved shoulders, and the pivot-lug of the draw-head having curved shoulders engaging said curved shoulders on the draw-strap or yoke, substantially as specified.

4. In a draft-rigging for railway-cars, the combination with a spring and followers of a draw-strap or yoke extending to the front end of the car, side plates or stop-castings extending to the front end of the car and having stops for the followers to abut against and provided with curved guides or bearings on their inner faces at the front ends thereof, and a coupler draw-head having a pivot lug or stub, and a pivot-pin extending through said lug and through the front end of the draw-strap or yoke, the upper and lower limbs of said draw-strap or yoke being provided with curved shoulders, and the pivot-lug of the draw-head having curved shoulders engaging said curved shoulders on the draw-strap or yoke, said pivot-lug on the draw-head having also a rounded rear end engaging the front follower, substantially as specified.

5. In a draft-rigging, the combination with a draw-strap extending to the front end of the car, of a coupler draw-head having a pivot-lug, and a pivot-pin connecting said draw-head to the front end of the draw-strap, said pivot-lug and draw-strap having interengaging rounded shoulders, substantially as specified.

6. In a draft-rigging, the combination with a draw-strap extending to the front end of the car, of a coupler draw-head having a pivot-lug, a pivot-pin connecting said draw-head to the front end of the draw-strap, said pivot-lug and draw-strap having interengaging rounded shoulders, and said pivot-lug having a rounded rear end to communicate thrust to the front follower while permitting the coupler-head to swing laterally on its pivot, substantially as specified.

787,934. DUMPING-WAGON. JEROME R. MORGAN, Coats, Kans. Filed Sept. 8, 1904. Serial No. 223,744.



Claim.—1. In a device of the class described, a pair of cross-braces, posts at the ends of said braces, diagonal members connecting the upper and lower ends of said posts, and a wagon-box connected pivotally at one side with the upper ends of said posts, the side of said wagon-box being normally supported against said diagonal members.

2. In a device of the class described, a pair of posts, a wagon-box connected pivotally at one side thereof with the upper ends of said posts, upright spaced apart from said posts, pulleys at the upper ends of said uprights, and suitably-guided flexible hoisting elements connected with the wagon-body adjacent to the posts and reeved through the pulleys at the upper ends of the uprights.

3. A pair of posts, a wagon-box connected pivotally at one side thereof with the upper ends of said posts, uprights spaced apart from said posts, rope-guides at the upper ends of said uprights, guides or catches upon the ends of the wagon-box, flexible hoisting elements connected with the wagon-box adjacent to the post, guided over the catches upon the ends of the wagon-box and reeved through the rope-guides at the upper ends of the uprights, and auxiliary guiding members for said hoisting elements whereby the latter may be joined together for the attachment of draft.

4. In a dumping-wagon, a pair of wagon-sills, suitably spaced and connected, cross-braces upon said sills, posts at the ends of said braces, uprights supported upon said braces and spaced apart from the posts, pulleys at the upper ends of said uprights, a wagon-box connected pivotally with the posts at the upper corners of one side of said box, catches or guides upon the ends of the wagon-box, flexible hoisting elements connected with the ends of the wagon-box adjacent to the post, said flexible elements being guided under the catches upon the ends of the wagon-box and reeved through the pulleys at the upper ends of the uprights, and guide-pulleys for said flexible elements whereby they are guided to the point of attachment of the draft.

787,935. CENTRIFUGAL LIQUID-SEPARATOR. HERBERT MCCORNACK, Westchester, Pa. Filed Aug. 27, 1904. Serial No. 222,372.

Claim.—1. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device, intersecting connecting-bars provided with suitably spaced and inclined plate-engaging notches.

2. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device, intersecting connecting-bars provided with suitably spaced

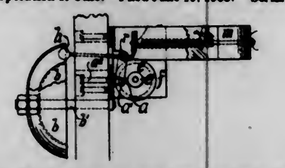
and inclined plate-engaging notches, and key-bars to rigidly secure the engaged parts.



3. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device, twin intersecting connecting-bars provided with suitably spaced and inclined plate-engaging notches oppositely arranged, and key-bars to rigidly secure the engaged parts.

4. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device, and each provided with a series of oblong openings arranged in alinement with corresponding openings in adjacent plates, and intersecting connecting-bars and keys for the same in the alined openings, said bars being provided with suitably spaced and inclined plate-engaging notches.

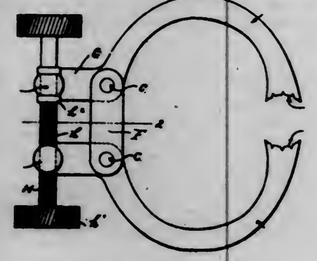
787,936. SELECTIVE SIGNALING DEVICE. CHAS. H. NORTH, Cleveland, Ohio, assignor to The North Electric Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 19, 1903. Serial No. 162,236.



Claim.—1. The combination with two oppositely-disposed and oppositely and permanently magnetized pole-pieces, of a single-core electromagnet without the normal field between said permanently-magnetized pole-pieces and with its bare pole-pieces respectively adjacent to the permanently-magnetized pole-pieces, movable armature parts operated upon mutually by the permanently-magnetized pole-pieces and by the pole-pieces of the electromagnet, and mechanism actuated by said armature parts, substantially as set forth.

2. The combination with two oppositely-disposed and oppositely and permanently magnetized pole-pieces, of a single-core electromagnet disposed without the normal field between said permanently-magnetized pole-pieces and with its bare pole-pieces respectively adjacent to the permanently-magnetized pole-pieces, pivoted armature parts operated upon mutually by the permanently-magnetized pole-pieces and by the pole-pieces of the electromagnet when the latter is excited, a signaling device, and means associated with the armature parts for actuating said signaling device, substantially as set forth.

787,937. OPERATIVE DENTAL INSTRUMENT. FREDERICK L. NORTON, Bath, Me. Filed Jan. 23, 1904. Serial No. 191,075.



Claim.—1. In a device for clamping rubber dams to teeth, the combination of a pair of jaws, each of said jaws consisting of a curved or bowed member and an extension of said member, a link between said members and adjacent to the junction with said members of the extensions, pivotal connections between said members and said link, and means for adjusting said extensions toward and from each other, substantially as described.

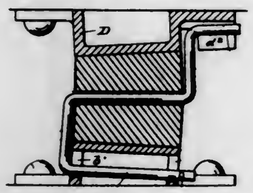
2. In a device for clamping rubber dams to teeth, the combination of a pair of pivoted jaws, a post rigid with each of said jaws, and operating means engaging said posts to adjust said jaws toward and from each other, substantially as described.

3. In a device for clamping rubber dams to teeth, the combination of a pair of downwardly and outwardly curved jaws each having at one extremity means for engaging a tooth and at the other extremity a post, a pivot for each of said jaws intermediate its extremities, and means engaging said posts to adjust said jaws toward and from each other, substantially as described.

4. In a device for clamping rubber dams to teeth, the combination of a pair of jaws, each of said jaws consisting of a curved member and an extension rigid therewith, a pair of links embracing each of said jaws adjacent to the junction therewith of its extension and pivoted thereto, a vertical post connected with each of said extensions, and an adjusting-shaft passing through said posts, substantially as described.

5. In a device of the character described, the combination of a pair of jaws, each jaw comprising a downwardly and outwardly curved member and a rearward extension thereof, a link having its ends pivoted to said jaws at the point of junction of the curved member and its extension, a vertical post rigid with each of said extensions, one of said posts having a screw-threaded opening therethrough and the other having an unthreaded opening therethrough, a shaft extending through said posts and having a threaded portion engaging the threaded opening of one of said posts and an unthreaded portion extending through the opening in the other post, and a collar rigid with said shaft on each side of said last-mentioned post, substantially as described.

787,938. ROLLER SIDE BEARING FOR RAILWAY-CARS. JOHN F. O'CONNOR, Chicago, Ill., assignor to W. H. Miner Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 28, 1905. Serial No. 243,017.



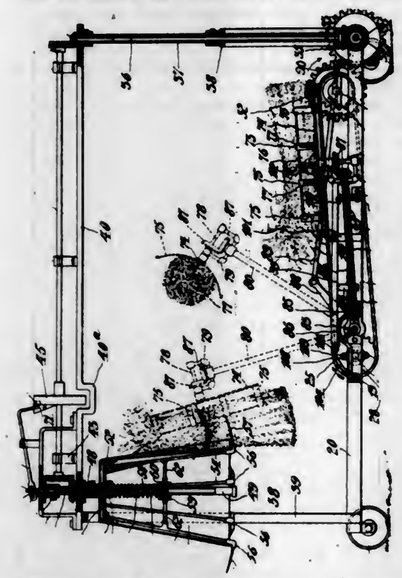
Claim.—1. In a roller side bearing for railway-cars, the combination with upper and lower bearing-plates, of a bearing-roller interposed between the same, and a roller regulating or positioning device extending through the roller and having a depending arm furnished with a pivot member extending through and fitting in a closed slot with which the lower bearing-plate is provided, and having an upright arm furnished with a pivot member fitting in an open slot with which the upper bearing-plate is provided, substantially as specified.

2. In a roller side bearing for railway-cars, the combination with upper and lower bearing-plates each having a transversely-extending slot, of a bearing-roller interposed between said bearing-plates and having an axial opening, of a roller regulating or positioning bent lever extending through said roller and having a depending arm furnished with a pivot member fitting in the transverse slot of the lower bearing-plate, and an upright arm furnished with a pivot member fitting in the transverse slot of the upper bearing-plate, substantially as specified.

3. In a roller side bearing for railway-cars, the combination with upper and lower bearing-plates, of a bearing-roller interposed between the same, and a roller regulating and positioning device extending through the roller and having a depending arm furnished with a pivot member extending through and fitting in a closed slot with which the lower bearing-plate is provided, and having an upright arm furnished with a pivot member fitting in an open slot with which the upper bearing-plate is provided, said upper and lower bearing-plates having curved tracks for the roller, and said bearing-roller being of frusto-conical form, substantially as specified.

4. In a roller side bearing for railway-cars, the combination with upper and lower bearing-plates each having a transversely-extending slot, of a bearing-roller interposed between said bearing-plates and having an axial opening, of a roller regulating or positioning bent lever extending through said roller and having a depending arm furnished with a pivot member fitting in the transverse slot of the lower bearing-plate, and an upright arm furnished with a pivot member fitting in the transverse slot of the upper bearing-plate, said upper and lower bearing-plates having curved tracks for the roller, and said bearing-roller being of frusto-conical form, substantially as specified.

787,939. SHOCKING-MACHINE. ROBERT OLIVER, Portage la Prairie, Canada, assignor of one-half to David Hewitson, Portage la Prairie, Canada. Filed Nov. 9, 1903. Serial No. 180,291.



Claim.—1. In an implement of the class described, in combination, a rotatable member having a substantially vertical axis, means for supporting a plurality of sheaves about said member, and automatic means for releasing said sheaves, comprising a lever connecting with said supporting means and a cam-wheel arranged to actuate the lever.

2. In an implement of the class described, in combination, a rotatable member having a substantially vertical axis, means for automatically imparting a rotary movement to said member, means for supporting a plurality of sheaves disposed about the periphery of said member, and automatic means for releasing said sheaves and forming a shock, comprising a lever connecting with said supporting means and a cam-wheel arranged to actuate the lever.

3. In an implement of the class described, in combination, a substantially conical member, means carried thereby for supporting a plurality of sheaves against the outer wall thereof, said member being in an elevated position, and automatic means for releasing said sheaves whereby they may fall below said conical member to form a shock thereunder, said releasing means comprising a lever connecting with said supporting means and a cam-wheel arranged to actuate the lever.

4. In an implement of the class described, in combination, a rotatable body, members carried thereby and projecting therefrom, said members being adapted to receive sheaves to support the same, and automatic means for withdrawing said members to release said sheaves and form a shock, comprising a lever connecting with said projecting members and a cam-wheel arranged to actuate said lever.

5. In an implement of the class described, in combination, a rotatable member, forks carried thereby and adapted to support sheaves thereabout, means for placing sheaves upon said forks, and means for rotating said member to present said forks successively to said last means.

6. In an implement of the class described, in combination, a rotatable member, forks carried thereby and adapted to receive sheaves, means for intermittently rotating said member, a cradle adapted to receive sheaves, and means for actuating said cradle to deposit sheaves upon said forks.

7. In an implement of the class described, in combination, a body presenting a lateral surface disposed in a general vertical direction, forks projecting outwardly beyond said lateral surface, means for depositing sheaves upon said forks, and means for withdrawing said forks inwardly to release said sheaves.

8. In an implement of the class described, a plurality of forks disposed about a substantially central axis, said forks being adapted to receive sheaves thereupon, means in conjunction with said forks against which said sheaves may rest, means for depositing sheaves upon said forks, and automatic means for withdrawing said forks to release said sheaves.

9. In an implement of the class described, in combination, a plurality of forks disposed about a substantially central axis, means for intermittently rotating said forks about said axis, means for depositing sheaves successively upon said forks, and automatic means for withdrawing said forks from said sheaves.

10. In an implement of the class described, in combination, a member constituting the body of a shock-former, arms pivotally mounted therein, forks carried by said arms and projecting outwardly from said body, a movable member within said body, links connecting said arms with said movable member, means for rotating said body, and means for actuating said movable member.

11. In an implement of the class described, a shock-former comprising, in combination, a body, a substantially central shaft therein, a ring, a plurality of arms carried by said ring, forks attached to said arms and projecting laterally from said body, a runner longitudinally movable upon said shaft, links attached to said runner and said arms, means for rotating said body, and means for moving said runner longitudinally upon said shaft.

12. In an implement of the class described, a shock-former comprising, in combination, a body, a plurality of forks having handles pivoted to said body, said forks projecting laterally beyond said body, a movable member disposed within said body, means for constraining the same into an extreme position, links connecting said movable member with said handles, and automatic means for actuating said movable member.

13. In an implement of the class described, a member constituting the body of a shock-former, a shaft constituting a substantially central axis for said body and rotating therewith, a stem disposed longitudinally with respect to said shaft, a runner movably mounted upon said shaft, forks having pivotally-mounted handles, links connecting said runner with said handles, and means for actuating said stem to move said runner.

14. In an implement of the class described, in combination, a member constituting a body for a shock-former, a centrally-disposed tubular shaft rotating with said body and having a longitudinally-disposed slot therein, a runner guided upon said shaft, a pin carried by the runner, a stem mounted within said shaft and adapted to strike the pin and actuate said runner, a spring constraining said runner, forks having handles, links connecting said runner with said handles, means for rotating said body, and means for actuating said stem.

15. In an implement of the class described, a substantially vertical shaft, a cone disposed thereabout, a ring within said cone, a plurality of handles pivotally carried by said ring, forks attached to said handles, a runner movably mounted upon said shaft, means for constraining said runner toward an extreme position, links connecting said runner with said handles, means for rotating said cone, a cam rotating coincidently with said cone, and means for actuating said runner by said cam.

16. In an implement of the class described, in combination, a circumferentially-disposed member, forks projecting outwardly therefrom, handles carrying said forks, mechanism for simultaneously actuating said forks to draw the same inwardly, automatic means for controlling said mechanism, and means for rotating said member.

17. In an implement of the class described, in combination, a cradle adapted to receive the sheaves from a binder-deck, a shock-former, comprising a cone-shaped, vertically-disposed member and retaining members radially projecting therefrom and means for actuating said cradle to present in upright position a sheaf carried thereby to said shock-former.

18. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, a shock-former, comprising a cone-shaped, vertically-disposed member and retaining members radially projecting therefrom, mechanism for actuating said cradle to present a sheaf in upright position upon the retaining members, mechanism for actuating said shock-former to coöperate with said cradle, and automatic means for controlling said mechanism.

19. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, a shock-former, comprising a cone-shaped, vertically-disposed member and retaining members radially projecting therefrom, means for actuating said cradle to present sheaves in upright position to said retaining members, mechanism for actuating said shock-former to coöperate with said cradle, a clutch through which said last means are driven, and automatic means for controlling said clutch.

20. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, a shock-former, comprising a cone-shaped, vertically-disposed member and retaining members radially projecting therefrom, an arm carrying said cradle, and means for actuating said arm to present in upright position a sheaf carried by said cradle to said shock-former.

21. In an implement of the class described, in combination, a shock-former comprising a cone-shaped, vertically-disposed member and retaining members projecting radially therefrom adapted to support a plurality of sheaves, a cradle adapted to receive sheaves one by one from a binder-deck, an arm carrying said cradle, means for actuating said arm to present in upright position a sheaf carried by said cradle to said shock-former, and means for intermittently rotating said shock-former.

22. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, a shock-former disposed rearwardly of said cradle with respect to the direction of advance of said implement, said shock-former being adapted to support a plurality of sheaves in a substantially upright position, means for actuating said cradle to present a sheaf carried thereby to said shock-former, means for rotating said cradle, a lever arranged to release sheaves from said supporting member and a cam-wheel arranged to actuate said lever.

23. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, said cradle having a substantially centrally disposed spindle constituting an axis of rotation therefor, a shock-former, an arm carrying said cradle and comprising a rotatable shaft, means for actuating said arm to present a sheaf carried by said cradle to said shock-former, and means for rotating said shaft when said arm moves.

24. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, said cradle having an axis of rotation, an arm carrying said cradle, a shaft carried by said arm and adapted to rotate said cradle, a pinion carried by said shaft, a segment coöperating with said pinion, a shock-former, and means for actuating said arm to present a sheaf carried by said cradle to said shock-former.

25. In an implement of the class described, in combination, a cradle adapted to receive a sheaf from a binder-deck, a tubular arm carrying said cradle and having a head, a spindle carried by said cradle and rotatably mounted in said head, a shaft carried in said tubular arm, gear-wheels carried by said shaft and said spindle, a pinion carried by said shaft, a segment coöperating with said pinion, a shock-former, and means for actuating said arm to present a sheaf carried by said cradle to said shock-former.

26. In an implement of the class described, in combination, a shock-former, comprising a cone-shaped, vertically-disposed member and retaining members projecting radially therefrom, a cradle adapted to receive a sheaf from a binder-deck, means for actuating said cradle to present a sheaf carried thereby to said shock-former, a clutch through which said shock-former and said last means are actuated, a lever controlling said clutch, said lever being actuated by the falling of the sheaf upon said cradle, and means for automatically actuating said retaining members to release the sheaves from the shock-former.

27. In an implement of the class described, in combination, a shock-former, a cradle adapted to receive a sheaf from a binder-deck, an arm carrying said cradle, means for actuating said arm to present a sheaf carried by said cradle to said shock-former, a catch adapted to lock said arm normally in a depressed position, and a lever adjacent to said cradle adapted to release said catch.

28. In an implement of the class described, in combination, a shock-former, a cradle, an arm carrying said cradle, mechanism for actuating said arm to present a sheaf carried by said cradle to said shock-former, a clutch through which said mechanism and said shock-former may be actuated, means for locking said arm normally in a depressed position, and automatic means for simultaneously controlling said clutch and releasing said arm.

29. In an implement of the class described, a shock-former, a cradle adapted to present sheaves received from the binder-deck to said shock-former, a clutch, mechanism for driving said shock-former and said cradle through said clutch, said clutch including a driving-dog, and a lever projecting into the path of said dog and lying adjacent to said cradle.

30. In an implement of the class described, in combination, a shock-former, comprising a vertically-disposed, cone-shaped member and retaining members radially projecting therefrom, a moving cradle coöperating therewith and adapted to receive a sheaf from a binder-deck, mechanism for actuating said shock-former to present its successive faces to the cradle and mechanism actuating said cradle to present sheaves in upright position to said retaining members, a clutch including a driving member, a driving-dog, a spring constraining said driving-dog to maintain said clutch in a closed relation, and a lever which may project into the path of said dog, said lever lying adjacent to said cradle and adapted to be operated by a sheaf falling thereon.

31. In an implement of the class described, in combination, a shock-former, comprising a vertically-disposed, cone-shaped member and radially-disposed retaining members projecting therefrom, a moving cradle coöperating therewith to present sheaves thereto in upright position, mechanism for driving said shock-former and said cradle, a clutch through which said mechanism is driven comprising a continuously-moving driving member, a roller carried thereby, a driven member, a driving-dog carried thereby, means for constraining said driving-dog into the path of said roller to maintain said clutch in a closed relation, a lever which may project into the path of said dog and lying adjacent to said cradle to be struck by a sheaf falling thereupon, and a spring constraining said lever.

32. In an implement of the class described, in combination, a shock-former, a vertically-disposed, cone-shaped member and retaining members radially projecting therefrom, a cradle adapted to receive a sheaf from the binder-deck, an arm carrying said cradle, means for actuating said arm to present a sheaf in upright position to each of said retaining members to coöperate with said shock-former, said arm normally occupying a depressed position, and means for constraining said arm toward an erect position.

33. In an implement of the class described, in combination, a shock-former, comprising a cone-shaped, vertically-disposed member and members projecting radially therefrom, a cradle adapted to receive a sheaf from the binder-deck, an arm carrying said cradle and coöperating with said shock-former, said cradle being constructed and arranged to present a sheaf in upright position to said retaining members, and a spring constraining said arm toward an erect position.

34. In an implement of the class described, in combination, a shock-former, a cradle adapted to receive a sheaf from a binder-deck, an arm carrying said cradle and coöperating with said shock-former, said arm normally occupying a depressed position, a second arm rigid with said first arm, and a spring attached to said second arm and constraining said first arm toward an erect position.

35. In an implement of the class described, a shock-former comprising a plurality of forks disposed about an axis, said forks being arranged in sets disposed at different distances from said axis, adjacent forks being generally in different sets, a cradle adapted to receive a sheaf from a binder-deck, an arm carrying said cradle, means for actuating said arm to present a sheaf carried by said cradle to said shock-former, and means for intermittently rotating said shock-former to present alternate forks carried thereby to receive said sheaf.

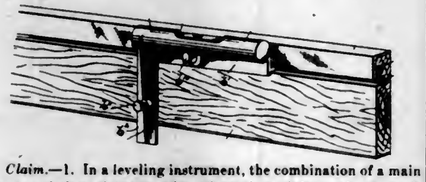
36. In an implement of the class described, in combination, a shock-former, a cradle coöperating therewith and adapted to receive a sheaf from a binder-deck, said cradle having a spur adapted to impale a sheaf received by said cradle.

37. In an implement of the class described, a substantially rectangular frame disposed longitudinally in the direction in which said implement advances, said frame being adjacent to the edge of the binder-deck of said implement, an arm having a foot rotatably mounted in said frame and normally occupying a depressed position, said foot being disposed toward the rear of said implement, a cradle carried by the forward extremity of said arm and adapted to receive a sheaf from said binder-deck, and a rotatable shock-former disposed rearwardly of said arm and coöperating with said cradle.

38. In an implement of the class described, in combination, a member having a substantially vertical axis and constituting the body for a shock-former, a centrally-disposed tubular shaft rigid therewith, a driving-shaft, gears connecting said driving-shaft with said vertical shaft and adapted to rotate said member, forks carried within said member and adapted to receive sheaves, a vertically-disposed stem carried within said vertical shaft, mechanism connecting said stem with said forks for operating the same, a lever adapted to actuate said stem, and a cam carried by said driving-shaft to actuate said lever.

39. In an implement of the class described, in combination, a frame, a superstructure carried thereby, a rotatable shock-former supported by said superstructure at the rear of said frame, a shaft carried by said superstructure and adapted to actuate said shock-former, an arm having a foot pivotally attached in said frame and normally occupying a depressed position, a cradle carried by said arm and adapted to receive a sheaf from the binder-deck, means for actuating said arm to present a sheaf carried by said cradle to said shock-former, and means for driving said shaft.

787,940. **SPIRIT-LEVEL ATTACHMENT FOR STRAIGHT-EDGES.** ALBERT J. PERKS, Springfield, Ohio, assignor to Webster & Perks Tool Co., a copartnership composed of Albert J. Perks and Herman Voges, Jr., Springfield, Ohio. Filed July 23, 1904. Serial No. 217,792.



Claim.—1. In a leveling instrument, the combination of a main frame consisting of two portions formed at right angles to each other, a bubble-tube mounted on one of said frame portions, a straight-edge provided with a guideway for a cutting-tool, and means on each of said frame portions for attaching said main frame by engagement with said guideway, substantially as specified.

2. In a leveling instrument, the combination of a main frame having a bubble-tube mounted thereon, a straight-edge having an overhanging guiding portion, and means on said frame engaging with said overhanging portion for removably securing said frame to said straight-edge in a position to bring said bubble-tube either at right angles to or parallel with the longitudinal plane of said straight-edge, substantially as specified.

3. In a leveling instrument, the combination of a straight-edge provided with a guideway for a cutting-tool, said guideway consisting of a groove having an overhanging strip, a bubble-tube mounted on a frame, said frame having a way or gib to receive said overhanging strip, and means for clamping said way or gib to said strip, substantially as specified.

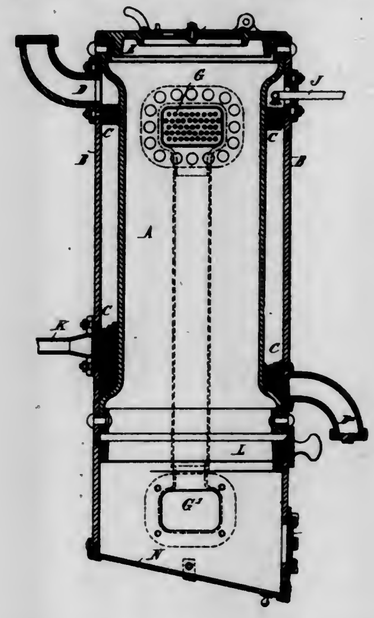
4. In a leveling instrument, the combination of a straight-edge having a guideway for a cutting-tool consisting of a groove having an overhanging strip, a bubble-tube mounted on a frame, said frame having two portions at right angles to each other, ways or gibs on the under side of each of said frame portions adapted to engage with said overhanging strip, and a set-screw on each of said frame portions to clamp said ways or gibs to said strip, substantially as specified.

5. In a leveling instrument, the combination of a main frame consisting of two portions formed at right angles to each other, a bubble-tube mounted on one of said frame portions, a straight-edge, an overhanging guiding portion on said straight-edge, and means on each of said frame portions for removably securing the same to said overhanging guiding portion, substantially as specified.

6. In a leveling instrument, the combination of a straight-edge, an overhanging guiding portion on said straight-edge, a frame formed of two portions at right angles to each other, a bubble-tube mounted on one of said frame portions, ways or gibs on each of said frame portions adapted to engage with said overhanging guiding portion, and a set-screw on each of said frame portions to clamp said ways or gibs to said overhanging guiding portion, substantially as specified.

787,941. **STEAM-GENERATOR.** ARTHUR PHILIPPE and EMILE BOIVIN, Paris, France. Filed Oct. 6, 1902. Serial No. 126,161.

Claim.—In a steam-generator, the combination with an inner shell A forming a fire-box, of an outer shell B, said shells being separated from each other to form a steam and water space surrounding the inner shell, heat-conducting bodies arranged within the steam and water space, a door closing the upper end of the shell A, and having air-inlet openings, a grate within said shell A at a point just below the lower end of the steam and water space, a conduit G, G′, arranged exteriorly of the outer shell B with its upper end leading from near the upper end of the shell A and its opposite or lower end discharging within the shell A at a point below the grate, an outlet H for products of combustion leading from the inner shell at a point above the grate, an outlet K for steam leading from the lower part of the water and steam space, and an inlet for water leading into the upper part of the steam-space, the outer shell being provided with charging and discharging openings for the heat-conducting bodies.



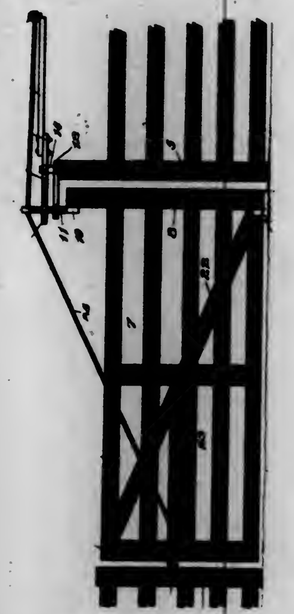
787,942. **COMPOUND FOR PAVING-BRICKS.** THEODORE S. PIERCE, Walla Walla, Wash. Filed Aug. 26, 1903. Serial No. 170,815.

Claim.—The herein-described composition of matter, consisting of four parts of slag, one part of cement mixed together and then reduced to a plastic mass by the addition of a solution consisting of fifteen pounds of silicate of soda, two and one-half pounds litharge, one pound of sulfuric acid and forty gallons water in about the proportions specified.

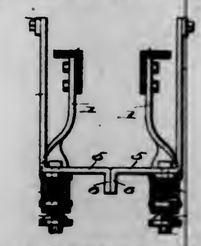
787,943. **GATE.** LARKIN G. PRICE, Kings Valley, Oreg. Filed June 2, 1902. Serial No. 109,891.

Claim.—The combination with gate-posts, of a gate disposed therebetween, said gate including uprights, connecting-rails and a vertically-movable latch-bar pivotally mounted for engagement with one of the posts, the upright of the gate at the opposite end from the latch being pivoted at its lower end and being shorter than the adjacent post, a bearing-plate disposed against said adjacent post and projecting over and beyond the pivoted upright and having a bearing therein beyond said upright, a plate secured to the upper end of the pivoted upright of the gate and having a pintle engaged in the bearing of the bearing-plate and projecting above the latter, said pintle having an eye at its upper end, a pinion fixed upon the pintle below the eye, a pivot-pin passed through the bearing-plate into the post on which it is disposed, a segmental gear mounted upon the pivot-pin and engaging the pinion, a lever attached to the gear, and a cord secured to the free end of the lever and passed through the eye of the pintle and connected directly with the latch-bar, whereby when the cord is grasped between the eye and the free end of the lever and

pulled, the latch will rise and the lever subsequently swing to open the gate.



787,944. MOTOR SUSPENSION FOR TRUCKS, &c. WILLIAM G. PRICE, Kingston, N. Y., assignor to The Peckham Manufacturing Company, Kingston, N. Y., a Corporation of New York. Original application filed Jan. 29, 1903. Serial No. 140,973. Divided and this application filed Oct. 17, 1903. Serial No. 177,418.



Claim.—1. In a truck, in combination with the truck-frame and the transoms, an elastically-supported member on each side of the transoms adapted to support the heel of a motor, each of said members having a part connected therewith adapted to extend beneath said transoms, the ends of said parts being brought into frictional contact with each other.

2. In a truck-frame, in combination with the truck-frame and transoms, a means for supporting the heel of a motor on each side of the transoms, said means comprising members elastically supported from said transoms, and means whereby the weight and movement of the motor on one side of the transoms is balanced by the weight and motion of the motor on the other side of the transoms, the support means of each of said motors being free from connection with that of the other.

3. In a truck, in combination with the truck-frame and transoms, means for supporting the heel of a motor on each side of the transoms, said means comprising members elastically supported from the transoms, said members having their ends extended inwardly beneath the transoms, and a slipping or rubbing connection between said ends, whereby a movement of one motor without a corresponding movement of the other will be accompanied by friction between said ends.

4. In a car-truck, in combination with the truck-frame and transoms, a support for a motor on each side of the transoms, said supports comprising yokes 1 1 and elastically-supported members 2 2, said members 2 2 having their ends extended inwardly and brought together so as to provide a slipping and rubbing connection between said members.

5. In motor-supports, in combination, a plurality of motor-casings each supported upon an axle, a truck-frame and means extending from said motor-casings resiliently supported upon said truck-frame resting in contact one with another and free from positive connection.

6. In combination, a truck-frame, axles upon which said frame is mounted, motor-casings resting upon said axles and members connected with said motor-casings and resiliently supported from said truck-frame projecting beyond the point of their resilient support and having their free ends in contact with and unconnected to one another.

7. In a motor-support, in combination, a truck-frame, axles upon which said frame is mounted, motor-casings supported on said axles and members secured to said motor-casings and resiliently supported from said truck-frame having a frictional engagement one with another.

8. In motor-supports, in combination, a truck-frame, axles upon which said frame is mounted, motor-casings mounted on said axles, stirrups secured to the transoms of said truck-frame, and members fixed to each of said motor-casings resiliently supported upon said stirrups and having ends projecting inwardly with reference to the center of the truck, the free ends of said members fixed upon one motor-casing resting against the free ends of those fixed to the other motor-casing and having a frictional unconnected engagement therewith.

787,945. HEAD, FACE, AND NECK MUFFLER. BERNARD RAUTENBERG, Toronto, Canada. Filed Dec. 15, 1904. Serial No. 236,995.



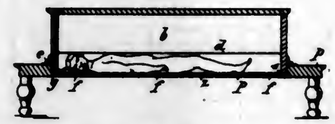
Claim.—1. In a muffler for the head, face and neck, a blank comprising a knitted fabric having the ribs running longitudinally and divided into an end neck portion and an end face portion, and reduced intermediate portions the broader portion of these being next to the neck portion and the narrower portion being next to the face portion as and for the purpose specified.

2. In a muffler for the head, face and neck, a blank comprising a knitted fabric having the ribs running longitudinally and divided into an end neck portion and an end face portion of such a width as to be doubled back on itself, and reduced intermediate portions, the broader portion being next to the neck portion and the narrower portion being next to the face portion as and for the purpose specified.

3. A knitted-fabric muffler having the ribs running longitudinally and comprising a broad face portion doubled back on itself, and intermediate reduced portions, the top edge of the major reduced portion being fastened to the side of the minor reduced portion and the bottom edge of the doubled face portion being fastened to the sides of the major reduced portion and to the top of the narrow portion, whereby a face-opening is provided and the front divided below the face-opening as and for the purpose specified.

4. A knitted-fabric muffler having the ribs running longitudinally and comprising a broad face portion doubled back on itself, and intermediate reduced portion, the top edge of the major reduced portion being fastened to the side of the minor reduced portion and the bottom edge of the doubled face portion being fastened to the sides of the major reduced portion and to the top of the narrow portion, whereby a face-opening is provided and the front divided below the face-opening, and a fastening means for connecting the divided edges as and for the purpose specified.

787,946. APPARATUS FOR PRODUCING ILLUSORY EFFECTS. CARL ROSENFELD, Berlin, Germany. Filed Sept. 13, 1904. Serial No. 224,339.



Claim.—1. An apparatus for producing illusory effects, comprising a support, a transparent water-receptacle let into the support, a spring-actuated rising bottom located in the receptacle, and means for normally holding the said spring-actuated bottom in depressed position, substantially as described.

2. An apparatus for producing illusory effects comprising a support, a transparent water-receptacle let into the support, a spring-controlled cover located at the level of the top of the support, substantially as described.

3. An apparatus for producing illusory effects, comprising a support, a transparent water-receptacle let into the support, a spring-controlled cover located at the level of the top of the support, and means normally holding the cover stretched, substantially as described.

4. An apparatus for producing illusory effects, comprising a support, a transparent water-receptacle let into the support and having a hollow pillar, and an air-pipe passing through the said pillar to the bottom of the receptacle, substantially as described.

787,947. DENTAL PLIERS FOR SHAPING CLASPS AND HALF-COLLAR CROWNS. RODERICK M. SANGER, East Orange, N. J. Filed Dec. 29, 1904. Serial No. 238,712.



Claim.—1. A dental pliers having a bending-jaw with a substantially straight working face, and the opposite jaw having a concave socket of substantially different depth at different points in its length and the ends of the jaws flat and flush with one another, whereby it may be used for bending clasps and also for turning half-collar crowns.

2. A dental pliers having one jaw provided with the concave socket and cheeks at opposite sides of said socket with flat seats thereon, and the opposite jaw arranged and operated to press into the said socket, and projected flush with the said seats.

3. A dental pliers having one jaw provided with the concave socket and cheeks at opposite sides with flat seats around the top of the socket, and the opposite bending-jaw fitted to the said socket, whereby a half-collar crown can be turned and flanged upon the said seats.

4. A dental pliers having one jaw provided with the concave socket of greater depth than the width, and the opposed bending-jaw arranged and operated to press into the said socket, the ends of the jaws being flat and flush with one another for turning half-collar crowns, substantially as herein set forth.

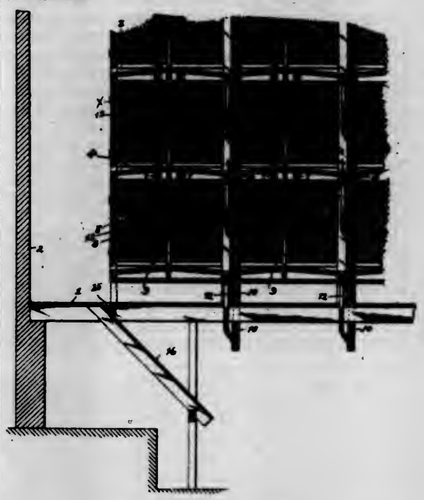
5. A dental pliers having the working side of the bending-jaw substantially radial from the jaw-pivot C, and the opposite jaw having at its outer end a socket of greater depth than width, the edge of the socket next the hinge-plates extending on a radial line from the pivot C, and the mouth of the socket formed of lugs projected beyond such line, whereby the jaw may be used for bending clasps, and also for turning half-collar crowns.

787,948. POULTRY-HOUSE. GERARD C. SCOTT, Columbus, Ohio. Filed Feb. 15, 1904. Serial No. 193,453.

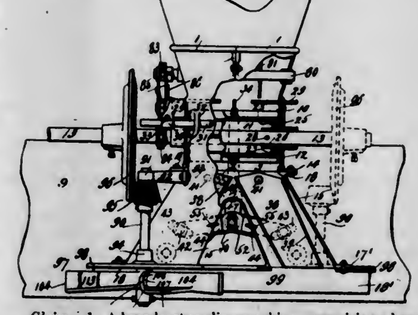
Claim.—1. In a poultry-house, the combination with a compartment having an inclined floor, of a conduit for supplying feed to the floor, and a conduit arranged at the lower end of the floor for removing waste and feed.

2. In a poultry-house, the combination with a compartment having an inclined floor, of a conduit provided with a discharge-spout disposed in close proximity to the upper portion of the floor, and a conduit provided with a hopper arranged at the lower end of the inclined floor.

787,948.



787,949. BROADCAST SEEDING-MACHINE. CHARLES M. SESTER, Peoria, Ill., assignor, by mesne assignments, to Peoria Drill and Seeder Co., Peoria, Ill., a Corporation of Illinois. Filed May 12, 1903. Serial No. 156,793.



Claim.—1. A broadcast seeding-machine, comprising a hopper-support having a cup-shaped receptacle, a driving-shaft, a force-feed roller mounted on the shaft within the cup, having a fluted surface, diverging spouts leading from the receptacle, wind-shifts pivotally supported in said spouts, an operating-lever centrally disposed behind said hopper and arms pivotally connected at one end to the respective shifts and their opposite ends adjustably connected with the operating-lever, substantially as and for the purposes set forth.

2. A broadcast seeding-machine, comprising a hopper-support having a cup-shaped receptacle, a force-feed roller mounted on a driving part in said receptacle, the said roller having a centrally-arranged flange and oppositely-disposed fluted portions, a partition dividing the receptacle beneath the roller, diverging spouts leading from the receptacle, oscillating wind-shifts in the spouts, shifting mechanism for such wind-shifts comprising a lever, and arms attached to said shifts and adjustably connected with said lever, for the purposes specified.

3. In a broadcast seeding-machine, the combination of a receptacle and seeding devices, oppositely-disposed spouts leading from said receptacle, wind-shifts mounted for oscillation in the spouts, a lever, arms pivotally connected with said wind-shifts and adjustably connected with the lever, for the purposes specified.

4. In a broadcast seeding-machine, the combination with suitable seeding mechanism, of grain-spouts depending and diverging therefrom, wind-shifts pivotally mounted in said spouts, a shifting-lever, a member having radial extensions pivotally connected with

said lever, and adjustable connecting devices between the wind-shifts and the aforesaid radial extensions, for the purposes specified.

5. In a broadcast seeding-machine, the combination of a seeding-receptacle having a cup-shaped portion and a chambered extension thereof, a force-feed roller mounted for rotation in said cup portion, a grass-seed receptacle integral with the seeding-receptacle and communicating with the chambered portion thereof, a hopper-support attached to said grass-seed receptacle, a grass-seed force-feed roller, having oppositely-disposed fluted portions divided by an integral flange, a valve-plate mounted above the grass-seed roller having oppositely-arranged seed-openings, and oppositely-disposed slidable valves for controlling the openings in the valve-plates, substantially for the purposes specified.

6. In a broadcast seeding-machine, the combination therewith, of a grass-seed attachment comprising a seed-receptacle, a force-feed roller rotatably mounted in said receptacle, oppositely-placed seed-openings above the roller, slidable valve-plates for controlling either or both of said seed-openings, and an agitator-shaft extending through the receptacle above the valve-plates and carrying two agitators, each disposed above the seed-openings, substantially for the purposes specified.

7. In combination with seeding mechanism, of a grain-spout leading therefrom, provided with a wind-shift, a fan-shaft and means for rotating said shaft, a distributing-fan carried by said shaft having conjoined radial wings which extend downwardly from their hub portions, and each provided with flange portions extending approximately at right angles to each other, and having outer sinuous portions, said flanges adjacent to their hub portions extending vertically a short distance and then bent obliquely inwardly, and the outer sweeps of the flanges extending vertically outwardly and at a suitable point reversed vertically inwardly, for the purposes specified.

8. A distributing-fan, comprising a series of conjoined radial wings bearing approximately at right angles to each other, each provided with flange portions which extending radially have straight, and then sinuous, portions, and said flanges, as they bear vertically, are provided with vertical, and then inwardly-extended, portions adjacent to the centers of said fan, and merging into vertically and outwardly arranged portions, which at a suitable point are bent vertically and inwardly, for the purposes specified.

9. A distributing-fan, composed of a series of conjoined radial wings, each having flanges which, bearing radially, have outer sinuous portions, said flanges at their outer sweeps provided with the obliquely outwardly arranged portions 106, and the obliquely inwardly arranged portions 108, to provide the lateral crevice 107, for the purposes specified.

10. In a seeding-machine, the combination of a series of grain-spouts, wind-shifts pivotally arranged in said spouts, a shifting-lever having extended therefrom at a point beneath its fulcrum, a stem, a member having lateral extensions and provided with a slotted portion pivotally connected with the stem of the lever, and operating-rods pivotally connected at one end with the wind-shifts and at their opposite ends adjustably connected with the extensions of the lever, for the purposes specified.

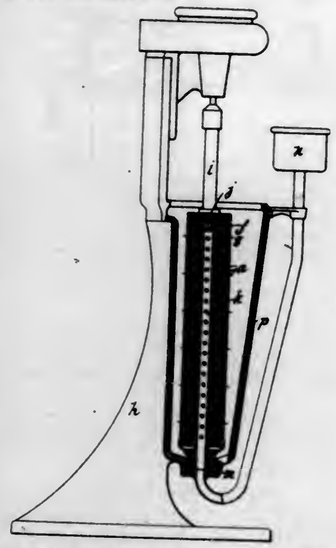
11. A force-feed roller for seeding-machines provided with oppositely-disposed fluted portions, divided by an integral partition, lug portions arranged in the bore of the roller at opposite ends thereof, and extending toward each other, detachable bearings forming hub portions for the roller, having lateral extensions adapted to be connected with the roller by engagement with the lug portions thereof, for the purposes specified.

12. In combination with a driving-shaft, a force-feed roller, having a smooth central bore and provided with oppositely-extended members, detachable hub portions for said roller forming bearings upon the shaft, comprising two members, having radial extensions for detachable connection with the aforesaid members of the roller, one of said hub portions provided with a slot, and a pin carried through the shaft to engage the slot of the hub, for the purposes specified.

787,950. DIVISION DEVICE FOR CENTRIFUGAL SEPARATORS AND MEANS FOR CLEANING SAME. DAVID T. SHARPLES, Westchester, Pa. Filed Dec. 26, 1903. Serial No. 136,566.

Claim.—1. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device and connecting-bars engaging and holding each separate intersecting plate independently of other intersecting plates.

2. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device and connecting-bars engaging each separate intersecting plate to support the same in positively-spaced position thereon independently of other intersecting plates.

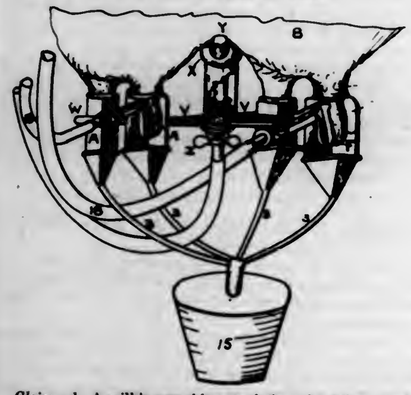


3. A division device for centrifugal liquid-separators comprising a series of division-plates extending across the radial lines of the device and screw-threaded connecting-bars engaging each separate intersecting plate to support the same in positively-spaced position thereon independently of other intersecting plates.

4. The combination with a division device for centrifugal liquid-separators composed of a circular series of longitudinal division-plates united to form an independently-rigid structure, said plates being arranged across the radial lines and forming an axial opening with spaces between the plates communicating with said axial space, of a spindle for said division device, and a fluid-supply conduit extending into said axial space.

5. A division device for centrifugal liquid-separators comprising cylindrically-grouped approximately parallel division-plates extending across the radial lines of the device and intersecting spacing-bars each engaging alined openings in a series of overlying plates to orm a rigid structure, and having their outer ends extending as far as the outer edges of the plates to contact with the wall of the separator-bowl.

787,951. MILKING-MACHINE. WILLIAM SIM, Underwood, New Zealand. Filed July 14, 1903. Serial No. 165,438.



Claim.—1. A milking-machine consisting of a tube, a pad secured therein, a tongue suspended in said tube opposite said pad, means for securing said tube to a teat, and means for operating said tongue substantially as described.

2. A milking-machine consisting of a tube, a pad secured therein, said pad having its upper part curved forward and its lower part rounded off a tongue opposite said pad provided with a pin at its upper end guides in said tube for said pin means for securing said tube to a teat and means for operating said tongue substantially as described.

3. A milking-machine consisting of a tube, a pad secured therein, said pad having its upper part curved forward and its lower part rounded off a tongue opposite said pad slightly crowned from all sides with its edges slightly curved backward a pin at the upper end of said tongue, guides in said tube for said pin means for securing said tube to a teat, and means for operating said tongue substantially as described.

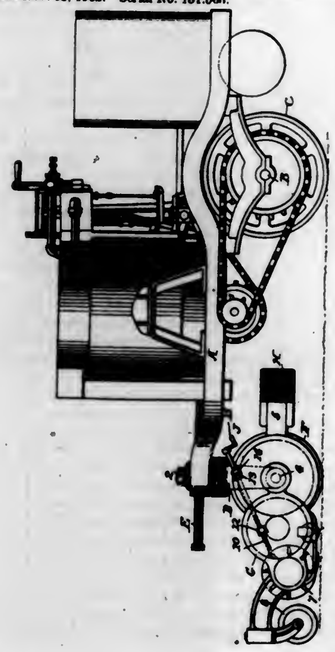
4. A milking-machine consisting of a tube, a pad secured therein, said pad having its upper part curved forward and its lower part rounded off, a tongue opposite said pad slightly crowned from all sides with its edges slightly curved backward, a pin at the upper end of said tongue, guides in said tube for said pin, a rod pivotally secured to said tongue by a second pin slightly longer than the width of said tube, grooves on each side of said tube for said second pin, means for securing said tube to a teat and means for actuating said rod substantially as described.

5. A milking-machine consisting of a tube, a pad secured therein, a tongue opposite said pad provided with a pin at its upper end, guides in said tube for said pin, means for operating said tongue, means for securing said tube to a teat, and means for periodically bumping the udder substantially as described.

6. A milking-machine consisting of a slotted holder, bumper mechanism adjustably secured thereto, bent arms secured to said holder, a milker secured to the end of each arm, means for securing said slotted holder to a cow and a milker to each teat, and mechanism actuating said bumper and milkers substantially as described.

7. In a milking-machine the bumper mechanism consisting of a cylinder secured to a slotted holder, a dome-shaped flange at the upper end of said cylinder, an aperture in said upper end, a piston-rod carrying a bumper at its upper end, means for securing said bumper mechanism to a cow, and means for operating said piston-rod substantially as and for the purposes set forth.

787,952. LAWN ROLLER AND MOWER. HOWARD C. SLATER, Ridley Park, Pa., assignor to William P. Simpson, Overbrook, Pa. Filed Nov. 15, 1902. Serial No. 131,563.

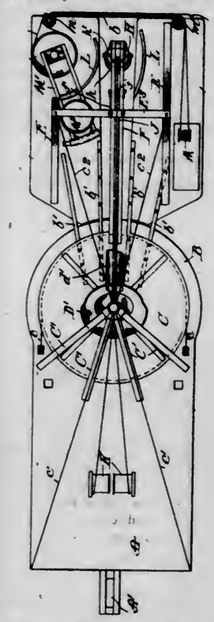


Claim.—1. The combination with the roller-frame having a platform for the operator, of a front roller, its axle, a cutter-frame, and means whereby substantially its entire weight is carried on the said axle, a frame D also supported on said axle and connected by a universal-jointed connection with the roller-frame, and means adjacent to the operator's position on the platform for swinging horizontally the said frame D, substantially as set forth.

2. The combination with the roller-frame having a platform for the operator, of a front roller, its axle, a cutter-frame, and means whereby substantially its entire weight may be carried on the said axle, a frame D also supported on said axle and connected by a universal-jointed connection with the roller-frame, and means supported by the frame D for limiting the movement of the cutter-frame toward the ground, substantially as set forth.

3. The combination in a lawn roller and mower, of a main frame, a pivoted front frame D, an adjustable counterbalanced cutter-frame, and means supported by the frame D for normally and positively limiting the downward movement of the cutter-frame toward the ground to secure the desired height of cut without limiting the free upward movement of such frame, substantially as set forth.

787,953. DREDGING-MACHINE. AMBROSE N. SMITH, Chicago, Ill. Filed July 7, 1904. Serial No. 215,582.



Claim.—1. In a dredge the combination with a scow, two pontoons adjustably connected to the forward end of said scow, said pontoons being separated to permit the dredging apparatus to work therebetween, substantially as described.

2. In a dredge, the combination with a scow having a turn-table upon the forward end thereof, pontoons secured to and moving with said turn-table, said pontoons being separated to permit a dredging apparatus to work therebetween, substantially as described.

3. In a dredge, the combination with a scow, of a turn-table upon the forward end thereof, pontoons secured to and adapted to move with said turn-table, a movable platform mounted upon one of said pontoons, a track upon which said platform travels, and suitable means for moving said platform over the track, substantially as described.

4. In a dredge, the combination with a scow, of a turn-table upon the forward end thereof, pontoons secured to and adapted to move with said turn-table, a main derrick, a crane, one end of which is guyed to said derrick, the opposite end secured to and moving with the said turn-table, a scoop or dipper supported by a cable passing over one end of said crane and suitable mechanism for operating said scoop, substantially as described.

5. In a dredge, the combination with a scow, a turn-table mounted upon the forward end thereof, pontoons rigidly secured to said turn-table, dredging apparatus mounted upon said pontoons and adapted to be moved therewith, and suitable mechanism for turning said turn-table, pontoons and dredge, substantially as described.

6. In a dredge, the combination with a scow, of a turn-table upon the forward end thereof, pontoons secured to and adapted to move with said turn-table, dredging apparatus adapted to operate between said pontoons, and a receptacle located at the rear of the dredging apparatus adapted to receive the load from the dredge, substantially as described.

7. In a dredging-machine, the combination of a scow, dredging apparatus operating therefrom, means for adjusting the position of said dredging apparatus, a receiving-bucket secured to and traveling with a carrier upon a track supported upon derricks, said bucket adapted to receive a load from said dredging apparatus, substantially as described.

8. In a dredging-machine, the combination with the scow and pontoons, dredging apparatus mounted upon and operated therefrom, means for moving said dredging apparatus to the right or left of said scow, and a receptacle for receiving the load from the dredge, substantially as described.

9. In a dredge, the combination with a scow, of a turn-table upon the forward end thereof, pontoons secured to and adapted to move with said turn-table, a main derrick supported by the aforesaid scow, a second derrick supported by the pontoons, a dredging apparatus secured to said derricks, and means for operating the same, a movable platform secured to one of the aforesaid pontoons upon which a receiving-bucket rests, means for moving said platform and bucket into position to receive the load from the dredge, and means for elevating said receiving-bucket, substantially as described.

787,954. CAR-COUPLING. JOSEPH SNYDER Harrisburg, Pa. Filed June 11, 1904. Serial No. 212,068.

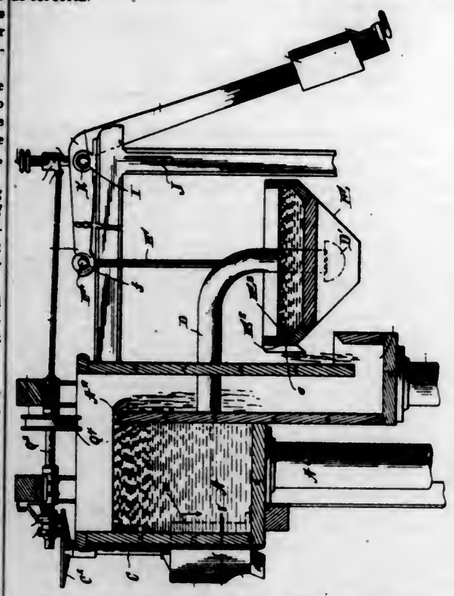


Claim.—1. A car-coupler comprising a knuckle, a draw-head having a vertical opening for the locking-pin, a shoulder formed in the front wall of the upper section of said vertical opening, a locking-pin formed of two sections hinged together, the lower section thereof having a groove adapted to engage said shoulder to suspend the pin in its unlocking position and to engage the floor of the draw-head to support said pin in its locking position, a shoulder formed on the rear side of the lower section of said pin, and a pin for engaging said last-named shoulder to cause the groove to engage the shoulder formed in the locking-pin opening.

2. A car-coupler comprising a knuckle, a draw-head having a vertical opening for the locking-pin, the upper section of said opening being square and the lower section triangular in cross-section, a shoulder formed in the upper section of said opening, a locking-pin formed of two sections hinged together, the lower of said sections having a groove adapted to engage the shoulder in the opening to support the pin in its unlocking position, and lower end of said lower section being triangular in cross-section, a shoulder formed on the rear side of the lower section of said locking-pin, and a transverse pin for engaging said last-named shoulder.

787,955. AUTOMATIC STOCK-REGULATOR. EDWIN F. STEWART and FREDERICK W. MCNAMARA, Madison, Me. Filed Oct. 21, 1904. Serial No. 229,463.

Claim.—1. An automatic stock-feeding apparatus for paper-machines, comprising a measuring device, a stuff-box and means for supplying the stuff thereto, a measuring-receptacle, communicating with said box, and means for measuring a given quantity of the stuff fed into the measuring-receptacle, a flow-box, communicating with the stuff-box, and means intermediate the said flow-box and measuring apparatus for automatically regulating the feeding of the stuff, as set forth.



2. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box with overflow, a supply-pipe leading to said box, a measuring-receptacle opening into said box, provided with a suitable discharge-opening, a rotatable shaft mounted within said measuring-receptacle and wings upon said shaft, a counterbalanced flow-box communicating with said stuff-box; connections intermediate said flow-box and shaft, whereby the stock being fed into the flow-box regulates the rotary speed of said winged shaft and means for driving the shaft, as set forth..

3. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box with overflow, a supply-pipe leading to said box, a measuring-receptacle opening into said box, provided with a suitable discharge-opening, a rotatable shaft mounted within said measuring-receptacle and wings upon said shaft, a counterbalanced flow-box communicating with said stuff-box, a friction-disk mounted to rotate with said shaft, a driving-shaft, an antifriction-pulley splined to said driving-shaft, and adapted to bear against said friction-disk, and means intermediate said counterbalanced flow-box and friction-pulley for moving the latter toward the center or circumference of said friction-disk, as set forth.

4. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box with overflow, a supply-pipe leading to said box, a measuring-receptacle opening into said box, provided with a suitable discharge-opening, a rotatable shaft mounted within said measuring-receptacle and wings upon said shaft, a counterbalanced flow-box communicating with said stuff-box, a friction-disk mounted to rotate with said shaft, a driving-shaft, an antifriction-pulley splined to said driving-shaft, and adapted to bear against said friction-disk, a pivotal lever, having arms engaging said friction-pulley, and means intermediate said lever and counterbalanced flow-box for actuating said lever, whereby the friction-pulley may be moved nearer toward the center or circumference of said friction-disk, as set forth.

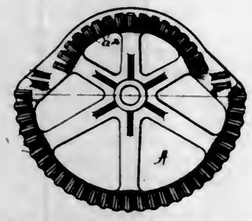
5. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box, a measuring-cylinder communicating therewith, a winged shaft rotating within said cylinder, a friction-disk fixed to said shaft and rotating horizontally, a driving-shaft and friction-pulley splined thereon, a lever engaging said friction-pulley, a flow-box communicating with said stuff-box, a pivotally-mounted angled lever supporting said flow-box, an adjustable weight upon said lever, connections between said lever and friction-pulley, whereby the weight of the stock, being fed to the flow-box, may regulate the rotary movement of said winged shaft, as set forth.

6. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box, a measuring-cylinder communicating therewith, a winged shaft rotating within said cylinder, a friction-disk fixed to said shaft and rotating horizontally, a driving-shaft and friction-pulley splined thereon, a lever engaging said friction-pulley, a flow-box communicating with said stuff-box, a pivotally-mounted angled lever supporting said flow-box, an adjustable weight upon said lever, a rock-shaft upon which said angled lever is mounted, a post rising from said shaft, an adjustable sleeve upon said post and connection between the latter and said antifriction-disk, as set forth.

7. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box, a supply-pipe leading thereto, a measuring-cylinder opening into said stuff-box, a rotary winged shaft in said cylinder, a friction-disk fixed to rotate with said shaft, a driving-shaft and a friction-pulley splined thereon and in contact with said friction-disk, a lever engaging said friction-pulley, a flow-box having a weir at one edge thereof, a pipe leading from said stuff-box and opening into the flow-box, rods supporting said flow-box, an angled lever with counterbalanced weight thereon, a shaft upon which said angled lever is fulcrumed, the arms of said lever having hooked ends in which the flow-box-supporting rods have bearings, a post rising from the fulcrumed shaft of the angled lever, an adjustable sleeve mounted upon said post and a rod connecting said post with said pivotal lever engaging said friction-pulley, as set forth.

8. An automatic stock-feeding apparatus for paper-machines, comprising a stuff-box, a supply-pipe leading thereto, a measuring-cylinder opening into said stuff-box, a rotary winged shaft in said cylinder, a friction-disk fixed to rotate with said shaft, a driving-shaft and a friction-pulley splined thereon and in contact with said friction-disk, a lever engaging said friction-pulley, a flow-box, a weir upon one side of said flow-box, pins therein, rods secured to said flow-box, a pipe leading from the stuff-box into the flow-box, a shield at the end of said pipe, a counterbalanced angled lever and a shaft upon which it is fulcrumed, a cross-piece connecting said rods and provided with a knife-edge resting in the hooked arms of said angled lever, a post rising from said fulcrumed shaft, an adjustable sleeve upon said post and a rod connecting said sleeve with said pivotal lever which actuates the friction-pulley, as set forth.

787,956. BEVEL-GEARING. JOHN A. STONE, Chicago, Ill. Filed Sept. 19, 1903. Serial No. 173,784.

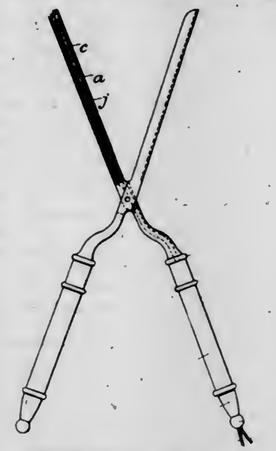


Claim.—1. In a pair of driving-gears, the combination of a bevel-gear having inner and outer segments of teeth with different angular pitch, the said segments being located at different radial distances from the common apex of their pitch-cones, intermediate segments or steps between the said inner and outer segments, and a pinion having the several sections of its teeth uniform in number and longitudinally coincident, but of a pitch to correspond respectively with the pitch of the teeth of the several segments.

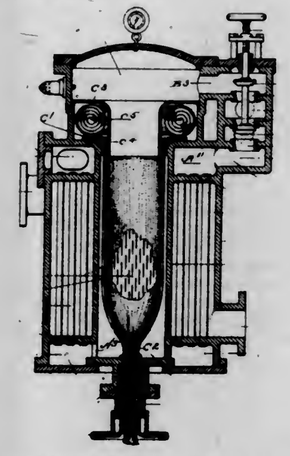
2. In a pair of gears, the combination of a bevel-gear having an inner and an outer segment of different radial distances from the common apex of their cones and intermediate steps or segments between the said outer and inner segments, and a bevel-pinion of uniform number of teeth throughout its length, said teeth arranged longitudinally coincident, but having a portion of their length made to correspond in pitch and length of face with the segments of said gear.

787,957. ELECTRICALLY-HEATED CURLING-IRON. JULES SZÖLLÖSY, Brighton, England, assignor of one-half to Louis Hyman, Brighton, England. Filed Jan. 11, 1905. Serial No. 240,656.

Claim.—In electrically-heated hair-dressing tongs and like devices, in combination, a resistance insulated and located within a tong, insulated electric connections leading to and from the resistance and passing through the tong-handle, all such parts being adapted to move together, a flanged socket connected with but free to rotate about the handle end, a non-conducting head engaging with said flanged socket and having contacts adapted to contact with those located in the handle, and a non-conducting plug serving to carry the current-conveying wires and having contacts adapted to contact with those of the head, such flanged socket-head plug and wires being adapted to move together, the handle with the parts moving therewith and the flanged socket with the parts moving therewith being free to rotate independently of each other with the respective electrical contacts remaining in sliding contact, as set forth.



787,958. COMBINED FEED-WATER FILTER AND HEATER. HENRY C. TABRETT and WALTER LEWIN, San Francisco, Cal. Filed May 11, 1904. Serial No. 207,467.



Claim.—1. In a combined heater and filter, an annular chamber formed about a center well; radiator-tubes extending between the top and bottom of said chamber inlets and outlets in said chamber; annular compartments formed adjacent the ends of said tubes; a perforated filter-tube dependent within said center well, and closed at the bottom by a gland; a dome formed above said filter-tube, a flanged diaphragm within the dome, having a tubular extension within the mouth of the filter-tube; a tubular filter fabric rolled inwardly upon itself, and located within the dome under said diaphragm; with its end carried downward within the filter-tube, and through the said gland; outlets from said center well through the tubes; and a triple-acting valve controlling the inlet to the filter, the outlet from the heater, and having a by-pass cutting out both filter and heater.

2. In a combined heater and filter; a heater comprising an annular chamber formed about a center well; radiator-tubes extending between the top and bottom of said chamber, inlets and outlets in

said chamber; annular sectional compartments formed adjacent the ends of said tubes; a filter comprising a perforated filter-tube dependent within said center well, and closed at the bottom by a gland; a dome formed above said filter-tube, a flanged diaphragm within said dome, having a tubular extension within the mouth of said filter-tube; a pressure-gage and a relief-valve on said dome; a tubular filter fabric rolled upon itself and located adjacent the mouth of the filter-tube, with its end carried downwardly within the filter-tube and through the said gland; outlets from center well through the heater; a triple-acting valve comprising a center diaphragm dividing the inlet from the outlet of the apparatus, a diaphragm dividing the said inlet from the filter, and a diaphragm dividing the said outlet from the outlet of the heater, a valve-stem controlling valve-gates located in line with valve-seats formed in said diaphragms.

3. A filter comprising a well, a dome formed above said well; a perforated filter-tube dependent in said well, and closed at the bottom by a gland; a flanged diaphragm dividing said dome, and having a tubular extension within the mouth of the filter-tube; a tubular filter fabric rolled upon itself and located in the dome beneath said diaphragm, with its end carried downwardly within the filter-tube, and through said gland; an inlet to said dome, and an outlet from said center well; valves controlling said inlet and outlet; and a pressure-gage and relief-valve located on said dome.

4. In a combined heater and filter; a heater comprising an annular chamber formed about a center well; radiator-tubes extending between the top and bottom of said chamber, inlets, and outlets in said chamber; annular compartments formed adjacent the ends of said tubes; a perforated filter-tube dependent within said center well, and closed at the bottom by a gland; a dome formed above said filter-tube, a flanged diaphragm within the dome, having a tubular extension within the mouth of the filter-tube; a tubular filter fabric rolled upon itself, and located within the dome under said diaphragm, with its end carried downwardly within the filter-tube, and through the said gland; outlets from said center well through the heater, and a triple-acting valve controlling the inlet to the filter, the outlet from the heater, and having a by-pass cutting out both filter and heater; a three-way cock on the main inlet with a branch connection direct through the heater to the outlet thereof; a secondary triple-acting valve comprising a center diaphragm dividing the outlet from the well, from the outlet through the first-mentioned triple-acting valve, a diaphragm dividing the outlet from the well from the inlet to the heater, and a diaphragm dividing the inlet through the three-way cock, from the outlet through the first-mentioned triple-acting valve; a valve-stem controlling valve-gates in line with valve-seats formed in said diaphragms; and an independent pipe and valve leading direct from the heater to main outlet.

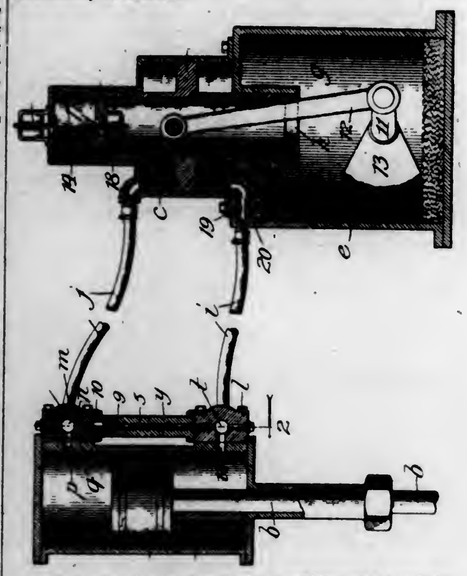
787,959. PNEUMATICALLY-ACTUATED TOOL. ROBERT TEMPLE, Denver, Colo., assignor to The Temple Gas Engine & Machine Company, Denver, Colo., a Corporation of Colorado. Filed Jan. 13, 1904. Renewed Feb. 16, 1905. Serial No. 245,877.

Claim.—1. In a tool of the class described, the combination of a reciprocating tool-piston, a pulsating-engine connected therewith to furnish motive fluid for reciprocating the same, a reservoir connected with said engine, and a priming-piston for maintaining fluid under pressure in said reservoir, substantially as described.

2. In a tool of the class described, the combination of a tool-cylinder, a reciprocating piston mounted therein, a pulsating-engine provided with a pulsating piston connected with the cylinder of the reciprocating tool, a reservoir for said pulsating-engine containing a quantity of oil and air under pressure to lubricate the parts by the movement of air under pressure through the same, and means for maintaining air under pressure in said reservoir, substantially as described.

3. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a pulsating engine-cylinder, a hollow trunk pulsating piston therein, a reservoir containing oil and air under pressure connected with the cylinder of said pulsating-engine, a priming-engine connected with said pulsating-engine and provided with a reciprocating piston connected with the pulsating piston, and means whereby air as it is formed under pressure is passed into the air-reservoir, substantially as described.

4. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston in said cylinder, a pulsating engine-cylinder, a reciprocating pulsating hollow trunk-piston mounted therein, a reservoir upon which the engine-cylinder is mounted adapted to contain oil and air under pressure, a valved connection between the reservoir and engine-cylinder, a priming-engine connected to the pulsating-engine, a piston reciprocatingly mounted therein and connected with the pulsating piston, a passage between the priming-engine and the outer air provided with a check-valve connection, a passage through the trunk-piston connecting the priming-piston with the air-reservoir, and a check-valve in said passage, substantially as described.



5. In a tool of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, an air and oil reservoir, a pulsating-engine mounted upon said air-reservoir, a valved connection between the air-reservoir and the pulsating engine-cylinder, a trunk pulsating piston in said pulsating-engine with its open end in communication with the air-reservoir, pipe connections between the pulsating engine-cylinder and both sides of the tool-piston, a main shaft rotatingly mounted in the air and oil reservoir, and connections between said main shaft and the pulsating piston, substantially as described.

6. In a tool of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, an air and oil reservoir, a pulsating-engine mounted upon said air-reservoir, a valved connection between the air-reservoir and the pulsating engine-cylinder, a trunk pulsating piston in said pulsating-engine with its open end in communication with the air-reservoir, pipe connections between the pulsating engine-cylinder and both sides of the tool-piston, a main shaft rotatingly mounted in the air and oil reservoir, connections between said main shaft and the pulsating piston, a priming-cylinder attached to the pulsating engine-cylinder, a reciprocating piston therein connected with the pulsating piston, and valved inlet and outlet passages connecting said priming engine-cylinder with the atmosphere and air-reservoir, substantially as described.

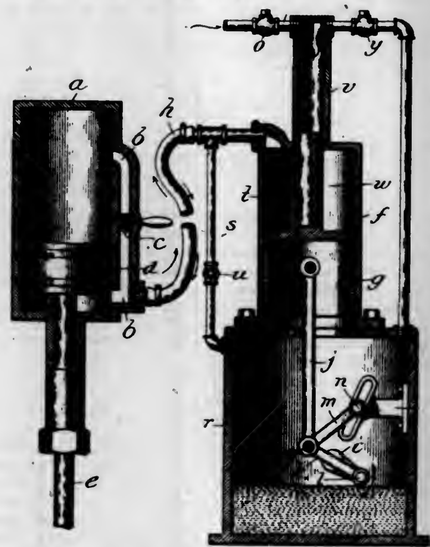
7. In a tool of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, a pulsating-engine connected with both ends of the tool-cylinder, passages connecting each end of the tool-cylinder with the other, check-valve mechanisms, one in each of said passages and oppositely arranged, and valve mechanism at one end of the tool-cylinder for connecting either of said passages with that end of the cylinder and the opposite end to guide the motive fluid in either direction and cut off the connections therebetween, substantially as described.

8. In a tool of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, a pulsating-engine connected with both ends of the tool-cylinder, passages connecting each end of the tool-cylinder with the other, check-valve mechanisms, one in each of said passages and oppositely arranged, and a hollow plug-cock at one end of the tool-cylinder provided with longitudinal and transverse openings for controlling the direction of air or flow of motive fluid from one end of the cylinder to the other and for cutting off or opening the same, substantially as described.

9. In a tool of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, a pulsating-engine connected with both ends of the tool-cylinder, passages connecting each end of the tool-cylinder with the other, check-valve mechanisms, one in each of said passages and oppositely arranged, a hollow plug-cock at one end of the tool-cylinder provided with longitudinal and transverse openings for controlling the direction of air or flow of motive fluid from one end of the cylinder to the other and for cutting off or opening the same, and a casting for said plug-cock provided with transverse passages extending entirely therethrough and detachably secured to said tool-cylinder at one and so as to permit the reversible arrangement of said casting thereon, substantially as described.

10. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a valved casing detachably and reversibly secured to one end of said tool-cylinder, a plug-cock therein provided with a longitudinal passage forming the main passage thereof and three radial passages for shutting off the motive fluid and controlling the direction or flow of the same to and from that end of the tool-cylinder, a second casting detachably and reversibly secured to the other end of the tool-cylinder and provided with a longitudinal and three radial passages—one connecting with that end of the tool-cylinder and the other leading to and adapted to be connected with the other end of the tool-cylinder, an intermediate casting provided with two passages leading therethrough and adapted to be brought into connection with the detachable castings at each end of the tool-cylinder and register with two of the radial passages therein, oppositely-arranged check-valve mechanism for each of such passages of the intermediate casting, and a pulsating-engine connected with the passages in the castings at each end of the tool-cylinder, substantially as described.

787,960. PNEUMATICALLY-ACTUATED TOOL. ROBERT TEMPLE, Denver, Colo., assignor to The Temple Gas Engine & Machine Company, Denver, Colo., a Corporation of Colorado. Filed Jan. 13, 1904. Renewed Feb. 16, 1905. Serial No. 245,878.



Claim.—1. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston therein dividing said cylinder into two closed chambers, a pulsating engine-cylinder, a pulsating piston therein, and a single pipe or passage connecting the pulsating engine-cylinder with one chamber of the tool-cylinder to furnish a column of compressed air to said chamber which operates the tool-piston, thereby alternately compressing and permitting the air to expand in the other chamber of said tool-cylinder and thus reciprocating the tool-piston, substantially as described.

2. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston therein dividing said cylinder into two closed chambers, a pulsating engine-cylinder, a pulsating piston therein, a single pipe or passage connecting the pulsating engine-cylinder with the chamber of the tool-cylinder to furnish a column of compressed air to said chamber which operates the tool-piston, thereby alternately compressing and permitting the air to expand in the other chamber of said tool-cylinder and thus reciprocating the tool-piston, a passage b connecting both chambers of the tool-cylinder together, and a valve in said passage to open and close the same so as to permit of the building up of pressure in the second chamber of the tool-cylinder, substantially as described.

3. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a pulsating engine-cylinder provided with a pulsating piston, a single pipe or passage connecting one end of the pulsating engine-cylinder with passages leading to both ends of the tool-piston, and a valve for cutting off and opening passages in the tool-cylinder so as to control the admission and exhaust of the pulsations of compressed air to one or both ends of the tool-cylinder, substantially as described.

4. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston therein, an inlet and exhaust passage in said tool-cylinder leading from one end to the other, means for connecting one end of such passages with a source of air pulsations, and a valve in said passages to normally close the same against the passage of air from one end of the cylinder to the other and adapted to be opened so as to admit air from below the tool-piston to above the same, whereby the tool-piston is normally retracted by the pulsations of the air and forced forward by the air compressed above said tool-piston as the air below the same is exhausted, substantially as described.

5. In a tool-cylinder of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, a pulsating engine-cylinder connected with the tool-cylinder to reciprocate the tool-piston therein, a pulsating piston in said pulsating-engine, a main driving crank-shaft, a compound connecting-rod connecting the wrist-pin of the crank-shaft with the pulsating piston, and a controlling-link pivotally connected to the frame of the machine and to the compound connecting-rods, substantially as described.

6. In a tool-cylinder of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein, a pulsating engine-cylinder connected with the tool-cylinder to reciprocate the tool-piston therein, a pulsating piston in said pulsating-engine, a main driving crank-shaft, a compound connecting-rod connecting the wrist-pin of the crank-shaft with the pulsating piston, and a controlling-link pivotally connected to the frame of the machine and to the compound connecting-rods at their common fulcrum-point, substantially as described.

7. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a pulsating engine-cylinder connected with said tool-cylinder to furnish a circuit of compressed air to reciprocate the tool-piston, a pulsating piston mounted therein, a main crank-shaft, a compound connecting-rod pivotally connected with the wrist-pin of the crank-shaft and with the pulsating piston, and a controlling-link pivotally and adjustably secured to the frame of the machine and pivotally secured to the compound connecting-rods at their common fulcrum-point, substantially as described.

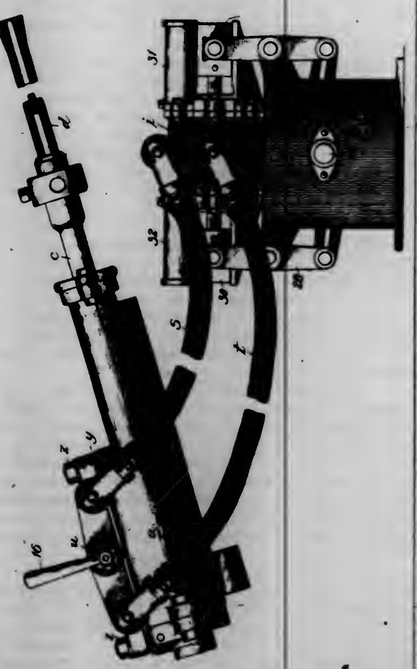
8. In a machine of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a pulsating engine-cylinder provided with a single pipe or passage connecting it with both ends of the tool-cylinder, valve mechanism on the tool-cylinder to regulate or control the pulsations of compressed air to one or both ends of the tool-cylinder, a pulsating piston in said pulsating engine-cylinder, a reservoir for holding compressed air connected with the pulsating engine-cylinder so as to maintain a desired pressure therein, a priming-cylinder and a priming-piston therein, and a pipe or passage leading from said cylinder to the air-reservoir, substantially as described.

9. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a single-acting pulsating-engine provided with a trunk-piston connected by a single pipe or passage with both ends of the tool-cylinder, valve mechanism for regulating and controlling the pulsations of air to one or both ends of the tool-cylinder, a frame or base portion providing an air-reservoir and with the open end of the single-acting engine-cylinder opening into the same, a pipe or passage leading from said air-reservoir to the single-acting engine-cylinder and provided with a check-valve, a priming engine-cylinder provided with a valve-passage connecting it with the air-reservoir, and a priming-piston reciprocat-

ingly mounted in said priming engine-cylinder, substantially as described.

10. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, a single-acting pulsating-engine provided with a trunk-piston connected by a single pipe or passage with both ends of the tool-cylinder, valve mechanism for regulating and controlling the pulsations of air to one or both ends of the tool-cylinder, a frame or base portion providing an air-reservoir and with the open end of the single-acting engine-cylinder opening into the same, a pipe or passage leading from said air-reservoir to the single-acting engine-cylinder and provided with a check-valve, a priming engine-cylinder provided with a valve-passage connecting it with the air-reservoir, a priming-piston reciprocatingly mounted in said priming engine-cylinder, a main driving crank-shaft, a compound connecting-rod pivotally secured to the wrist-pin of the crank-shaft and the trunk-piston of the pulsating-engine, and a controlling-link pivotally and adjustably secured to the frame of the machine and pivotally secured to the common fulcrum-point of the compound connecting-rod, substantially as described.

787,961. **PNEUMATICALLY-ACTUATED TOOL.** ROBERT TEMPLE, Denver, Colo., assignor to The Temple Gas Engine & Machine Company, Denver, Colo., a Corporation of Colorado. Filed Aug. 10, 1903. Renewed Feb. 16, 1905. Serial No. 245,879.



Claim.—1. In mechanisms of the class described, the combination of a pulsating engine-cylinder, piston mechanism movably mounted therein, a tool-cylinder, piston mechanism reciprocatingly mounted therein and dividing the tool-cylinder into two chambers, tubular mechanism connecting the chambers of the tool-cylinder and pulsating engine-cylinder together, a passage connecting both chambers of the tool-cylinder together, check-valve mechanism in such passage, and a manually-operatable controlling-valve for throwing the check-valve mechanism into and out of operative position, substantially as described.

2. In mechanisms of the class described, the combination of a pulsating engine-cylinder, piston mechanism reciprocatingly mounted therein, a tool-cylinder, reciprocating piston mechanism therein and dividing the tool-cylinder into two chambers, tubular mechanism connecting the chambers of the tool and pulsating engine cylinders together, a passage connecting both chambers of the tool-cylinder together, and a manually-operatable controlling-valve provided with a check-valved passage mounted in the last-named passage, substantially as described.

3. In mechanisms of the class described, the combination of a pulsating engine-cylinder, piston mechanism reciprocatingly mounted therein, a tool-cylinder connected with the pulsating engine-cylinder, a reciprocating piston movably mounted in the tool-cylinder and dividing the same into two chambers, a passage connecting both ends of the tool-cylinder together, check-valve mechanism in said passage, and means for moving said check-valves so as to reverse the direction of flow of air from one chamber of the tool-cylinder to the other and vice versa, substantially as described.

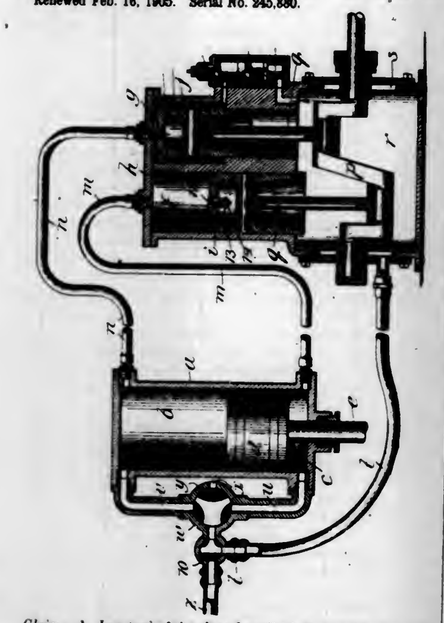
4. In mechanisms of the class described, the combination of a pulsating engine-cylinder mechanism, reciprocating piston mechanism movably mounted therein and providing in connection therewith a plurality of generating-chambers, a tool-cylinder, a reciprocating piston mounted therein and dividing the same into two chambers, tubular mechanism connecting both chambers of the tool-cylinder with the several chambers of the pulsating engine-cylinder mechanism, a passage connecting both ends of the tool-cylinder together, a manually-operated controlling-valve mounted therein and provided with automatic check-valve mechanism arranged to be moved into three positions—one position which connects both ends of the tool-cylinder together so as to permit an excess of compressed air to pass from one end of the tool-cylinder to the other and when moved in a second position to reverse the arrangement and permit any excess of compressed air in the last-named end of the tool-cylinder to pass to the first-named end, and a third position where all connection between both ends of the tool-cylinder is cut off, substantially as described.

5. In mechanisms of the class described, the combination of a pulsating engine-cylinder, reciprocating piston mechanism movably mounted therein and dividing the same into a plurality of generating-chambers, a tool-cylinder, a reciprocating piston mounted therein and dividing the same into two chambers, tubular mechanism connecting both chambers of the tool-cylinder with the several chambers of the pulsating engine-cylinder, a supplementary passage connecting both ends of the tool-cylinder and thereby the tubular connections between the same and the pulsating engine-cylinder, a manually-operated controlling-valve mounted therein and provided with automatic check-valve mechanism arranged to be moved into three positions—one position which connects both ends of the tool-cylinder together so as to permit an excess of compressed air to pass from one end of the tool-cylinder to the other and when moved in a second position to reverse the arrangement and permit any excess of compressed air in the last-named end of the tool-cylinder to pass to the first-named end, and a third position where all connection between both ends of the tool-cylinder is cut off, substantially as described.

6. In mechanisms of the class described, the combination of a pulsating engine-cylinder, reciprocating piston mechanisms movably mounted therein and dividing the same into a plurality of generating-chambers, a tool-cylinder, a reciprocating piston mounted therein and dividing the same into two chambers, tubular mechanism connecting both chambers of the tool-cylinder with the several chambers of the pulsating engine-cylinder, a supplementary passage connecting both ends of the tool-cylinder and thereby the tubular connections between the same and the pulsating engine-cylinder, a manually-operated controlling-valve mounted therein and provided with automatic check-valve mechanism arranged to be moved into three positions—one position which connects both ends of the tool-cylinder together so as to permit an excess of compressed air to pass from end of the tool-cylinder to the other and when moved in a second position to reverse the arrangement and permit any excess of compressed air in the last-named end of the tool-cylinder to pass to the first-named end, and a third position where all connection between both ends of the tool-cylinder is cut off, and a controlling-valve casing *u* detachably secured to the tool-cylinder and having therein the supplementary passage above named, substantially as described.

7. In tools of the class described, the combination of a tool-cylinder, a reciprocating piston therein provided with a piston-rod extending out therefrom to which any desired tool may be secured, a pulsating engine-cylinder, two reciprocating pistons mounted therein and provided with a piston-rod extending out through opposite ends of the engine-cylinder, cross-heads on such piston-rods, eccentric and lever mechanism for operating said cross-heads and thereby the pulsating pistons, two flexible tubes connecting the chambers formed by the pistons in the pulsating engine-cylinder with each end of the reciprocating tool-piston, controlling-valve mechanism arranged in the connections between the two cylinders to control the circuit of air and govern the pulsations of the reciprocating tool-piston, a compressing-cylinder connected with the pulsating engine-cylinder, a reciprocating piston therein connected with the cross-head mechanism so as to be moved thereby and prime or build up and maintain the fluid-pressure in the pulsating engine-cylinder, and check-valve mechanism arranged in the connections between the compressing and pulsating engine-cylinder, substantially as described.

787,962. **PNEUMATICALLY-ACTUATED TOOL.** ROBERT TEMPLE, Denver, Colo., assignor to The Temple Gas Engine & Machine Company, Denver, Colo., a Corporation of Colorado. Filed Mar. 26, 1904. Renewed Feb. 16, 1905. Serial No. 245,880.



Claim.—1. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, two pulsating engine-cylinders closed at one end and open at the other, a single-acting pulsating piston in each of the said pulsating engine-cylinders, a pipe or passage leading from one of said pulsating-cylinders to one end of the tool-cylinder, a pipe or passage leading from the other pulsating-cylinder to the other end of the tool-cylinder, a casing forming a chamber connecting the open ends of each of the pulsating engine-cylinders together, and means for operating the pulsating pistons, substantially as described.

2. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, two pulsating engine-cylinders closed at one end and open at the other, a single-acting pulsating piston mounted in each of the pulsating engine-cylinders, a pipe or passage leading from one pulsating engine-cylinder to one end of the tool-cylinder, a pipe or passage leading from the other pulsating engine-cylinder to the other end of the tool-cylinder, branched passages connecting both ends of the tool-cylinder with a source of fluid-pressure supply to furnish the system with the proper fluid under pressure, and a valve in said branch passage to connect and disconnect the branched passages with the source of fluid under pressure, substantially as described.

3. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, two pulsating engine-cylinders closed at one end and open at the other, a pipe or passage connecting one of said pulsating-cylinders with one end of the tool-cylinder, a second pipe or passage connecting the other pulsating engine-cylinder with the other end of the tool-cylinder, a casing forming a reservoir-chamber which connects both the open ends of the pulsating engine-cylinders together, a pulsating piston in each of said pulsating-cylinders, crank-shaft mechanism for reciprocating the pulsating piston mechanism, means for furnishing said reservoir with a supply of fluid under pressure, and a pipe or passage connecting both ends of the tool-cylinder with said reservoir to supply the system with the desired fluid under pressure, substantially as described.

4. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, pulsating-engine-cylinder mechanism connected with both ends of the tool-cylinder, pulsating piston mechanism dividing one of said pulsating-cylinders into two chambers—one a pulsating and the other a compressing side, and a reservoir connected with the system and with the compressing-chamber to receive its initial supply of fluid under pressure, substantially as described.

5. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, pulsating-engine-cylinder mechanism connected with both ends of the tool-cylinder, a casing providing an air-reservoir, a shouldered pulsating piston in one of the pulsating engine-cylinders dividing such cylinder into two chambers—a pulsating and a compressing chamber, a pipe or passage connecting the reservoir with both sides of the tool-piston to furnish the system with a supply of compressed air, a valved passage connecting the compressing side of the pulsating engine-cylinder with the reservoir, and means for operating the pulsating piston mechanism, substantially as described.

6. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, pulsating-engine-cylinder mechanism connected with both ends of the tool-piston, a compressed-air reservoir connected with the system to furnish it with a supply of compressed air, a shouldered pulsating piston reciprocatingly mounted in the pulsating-engine-cylinder mechanism and dividing one of the cylinders into two chambers—a pulsating and an annular compressing chamber, means for reciprocating the pulsating piston mechanism, and a valved passage connecting the compressing-chamber of the pulsating engine mechanism with the air-reservoir, substantially as described.

7. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, pulsating-engine-cylinder mechanism connected with both ends of the tool-cylinder, a compressed-air reservoir connected with the system to furnish it its supply of compressed air, a shouldered pulsating piston reciprocatingly mounted in one of the pulsating engine-cylinders and dividing it into two chambers—a pulsating-chamber on one side of the shouldered piston and an annular air-compressing chamber on the opposite side thereof, a valved passage connecting the annular compressing-chamber with the air-reservoir, and means for reciprocating the pulsating piston mechanism, substantially as described.

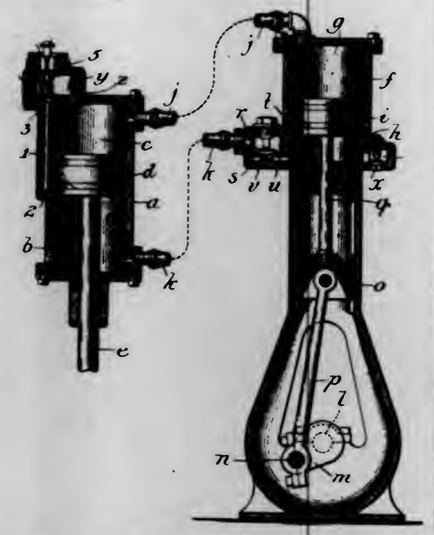
8. In a tool of the class described, the combination of a tool-cylinder, a tool-piston reciprocatingly mounted therein two pulsating engine-cylinders arranged parallel to each other closed at one end and open at the other—one connected with one end of the tool-cylinder and the other with the other end thereof, a casing providing a compressed-air reservoir connecting the open end of the pulsating engine-cylinders together, a pulsating piston in each of said pulsating engine-cylinders one of said pistons having a shoulder which divides its cylinder into two chambers—a pulsating and an annular compressing chamber, a valved passage connecting the annular compressing-chamber with the air-reservoir, and a passage or pipe connecting the air-reservoir with the system to furnish it a supply of air under pressure, substantially as described.

9. In a tool of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein, two parallel-arranged pulsating engine-cylinders of less combined volume than the tool-cylinder and closed at their outer and open at their inner ends, one of said cylinders being connected with one end of the tool-cylinder and the other with the other end, a casing providing a compressed-air reservoir connecting the open ends of the pulsating engine-cylinders together, a pulsating piston in each of said pulsating engine-cylinders, means for furnishing the air-reservoir a supply of compressed air, and a passage connecting the air-reservoir with a system of compressed air, substantially as described.

10. In a tool of the class described, the combination of a tool-cylinder provided with a reciprocating tool-piston, two parallel-arranged pulsating engine-cylinders of less combined volume than the tool-cylinder and closed at their outer and open at their inner ends, a pipe or passage connecting one of said pulsating engine-cylinders with one end of the tool-cylinder, a pipe or passage connecting the other end of said pulsating engine-cylinder with the other end of the tool-cylinder, branched pipes or passages connected with both ends of the tool-cylinder, a casing providing a reservoir connecting the

open ends of the pulsating engine-cylinders together, pulsating piston mechanism in each of the pulsating engine-cylinders, a shoulder on one of said pulsating pistons which divides its cylindrical chamber into two parts—a pulsating-chamber and an annular compressing-chamber, a valved passage connecting the annular compressing-chamber with the air-reservoir, an air-inlet valve for said annular compressing-chamber, a pipe or passage connecting the air-reservoir with the branched passages of the tool-cylinder, a valve-casing connected with the branched passages of the tool-cylinder, air-reservoir pipe and atmosphere, a valve in said valve-casing to connect and disconnect the passages therein named, and means for reciprocating the pulsating piston mechanism, substantially as described.

787,963. **PNEUMATICALLY-ACTUATED TOOL.** ROBERT TEMPLE, Denver, Colo., assignor to The Temple Gas Engine & Machine Company, Denver, Colo., a Corporation of Colorado. Filed Dec. 10, 1904. Serial No. 236,381.



Claim.—1. In mechanisms of the class described, the combination of a tool-cylinder, a reciprocating tool-piston therein, pulsating-engine-cylinder mechanism the chambers of which are of less combined volume than the chambers of the tool-cylinder, pulsating piston mechanism in the pulsating-engine-cylinder mechanism, and tubular mechanism connecting the chambers of the tool and pulsating engine cylinders together, substantially as described.

2. In mechanisms of the class described, the combination of a tool-cylinder, a reciprocating tool-piston mounted therein and dividing it into two chambers, pulsating-engine-cylinder mechanism provided with a plurality of chambers which are of less combined volume than the chambers of the tool-cylinder, pulsating piston mechanism in the pulsating-engine-cylinder mechanism, and tubular mechanism connecting the chambers of the tool and pulsating engine cylinders together, substantially as described.

3. In mechanisms of the class described, the combination of a tool-cylinder having a reciprocating tool-piston mounted therein and dividing the same into two chambers, a pulsating engine-cylinder, a reciprocating piston therein, tubular mechanism connecting the chambers of the pulsating engine and tool cylinders together, a double-ported passage connecting one chamber of the pulsating engine-cylinder with one end of the tubular mechanism that leads to the tool-cylinder mechanism, one of said ports being located adjacent to the head of the pulsating engine-cylinder and the other a short distance therefrom and arranged to be covered entirely during the reciprocations of the pulsating piston, a check-valve in the port adjacent the cylinder-head, an emergency inlet-port connecting the last-designated chamber of the pulsating engine-cylinder with the open air and provided with an automatic check-valve arranged to be opened when the air under pressure therein falls below the atmospheric point, substantially as described.

4. In mechanisms of the class described, the combination of a tool-cylinder having a reciprocating piston therein dividing said cylinder into two chambers, a by-pass or passage leading from the chamber at one end of the tool-cylinder to a point substantially midway between both ends of the cylinder, a check-valve in said passage arranged to be opened and closed during the reciprocations of the tool-piston to admit air under pressure from the chamber at one end of said cylinder to the chamber at the other end, pulsating-engine-cylinder mechanism, reciprocating piston mechanism in said engine-cylinder mechanism, tubular mechanism connecting the chambers of the pulsating engine and tool cylinders together, and an emergency inlet port or passage in the chamber at one end of the pulsating engine-cylinder provided with an automatic check-valve for opening and closing the same when the pressure in said chamber falls below or rises above the atmospheric point, substantially as described.

5. In mechanisms of the class described, the combination of a tool-cylinder having a reciprocating tool-piston mounted therein and dividing the same into two chambers—a front and a rear chamber—a by-pass connecting the rear chamber at its rear end with said front chamber at a point substantially midway of the ends of said tool-cylinder, a check-valve in said by-pass arranged to open and close the same so as to admit air under pressure from the forward to the rear chamber, pulsating-engine-cylinder mechanism, a reciprocating piston mounted therein, tubular mechanism connecting the chambers of the pulsating engine and tool cylinders together, a casing providing a supplemental chamber on the pulsating engine-cylinder with which one end of said tubular mechanism is connected, a main port connecting such supplemental chamber with the chamber at one end of the pulsating-engine-cylinder mechanism and a short distance from the head thereof so as to be covered and uncovered during the reciprocations of the pulsating pistons, an auxiliary passage provided with a check-valve connecting said supplemental chamber with the designated chamber of the pulsating engine-cylinder and adjacent to the head thereof so as to permit air to enter said chamber when the main port is closed but prevent its return from the supplemental chamber to said chamber of the pulsating engine-cylinder until such main port is again uncovered, and an emergency inlet-passage connecting the designated chamber of the pulsating engin-cylinder with the outer air and provided with a check-valve to open and close the same when the pressure in said chamber falls below and rises above the atmospheric point, substantially as described.

6. In mechanisms of the class described, the combination of a tool-cylinder having a reciprocating piston therein dividing the same into front and rear chambers, a by-pass connecting the rear end of the rear chamber with the forward chamber at a point substantially between the ends of said tool-cylinder, a check-valve in said by-pass arranged to be opened during the reciprocations of the tool-piston to admit air under pressure from the forward to the rear chamber of said tool-cylinder, an emergency outlet-passage connecting the rear chamber of said tool-piston with the outer air and provided with a manually-operated valve for opening and closing said passage so as to exhaust the air under pressure from said chamber and permit the air under pressure in the front thereof to move the tool-piston rearwardly, pulsating-engine-cylinder mechanism, pulsating piston mechanism therein, tubular mechanism connecting the chambers of the pulsating engine and tool cylinders together, and an emergency inlet-passage connecting one chamber of the pulsating-engine-cylinder mechanism with the outer air and provided with a check-valve to open and close the same when the pressure in said designated chamber falls below or rises above the atmospheric point, substantially as described.

7. In mechanisms of the class described, the combination of a tool-cylinder having a reciprocating tool-piston in said cylinder dividing the same into two chambers—a forward and rear chamber, a supplemental chamber in said tool-cylinder and connected with the rear chamber at the rear end thereof, a by-pass in said tool-cylinder arranged to connect the supplemental chamber with the forward chamber at a point substantially midway of the ends thereof, a check-valve in said by-pass to admit air from the forward to the supplemental chamber and therethrough into the rear chamber of the tool-cylinder, an emergency outlet-passage in line with the by-pass for connecting said supplemental chamber with the open air, a manually-operated check-valve arranged therein and adapted to be opened to exhaust air from said supplemental chamber and thereby from the rear chamber of the tool-cylinder so as to permit air under pressure in the front chamber to force the tool-piston rearwardly, spring mechanism interposed between both of said check-valves to keep them normally seated, pulsating-engine-cylinder mechanism, a reciprocating piston mounted therein, tubular mechanism connecting the chambers of the pulsating engine and tool cylinders together, a supplemental chamber on the pulsating engine-cylinder with which one end of said tubular mechanism is connected, a main port connecting such supplemental chamber with the chamber at one end of the pulsating-engine-cylinder mechanism and a short distance from the head thereof so as to be covered and uncovered during the reciprocations of the pulsating piston, an auxiliary passage connecting said supplemental chamber with the designated chamber of the pulsating engine-cylinder and adjacent to the head thereof and provided with a check-valve to permit air to enter said chamber when the main port is closed but prevent its return from said supplemental chamber into the designated chamber of the pulsating engine-cylinder until such main port is again uncovered, and an emergency inlet-passage connecting the last-designated chamber of the pulsating engine-cylinder with the outer air and provided with a check-valve to open and close the said passage when the pressure in the designated pulsating engine-chamber falls below and rises above the atmospheric point, substantially as described.

787,964. **BALLAST-SPREADER.** CHARLOTTE F. TORREY, Detroit, Mich., administratrix of Augustus Torrey, deceased. Filed July 18, 1904. Serial No. 217,014.



Claim.—1. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework and adjustable in a vertical plane to different inclined positions, and means for holding such wing rigidly in any positlon to which it is adjusted, substantially as described.

2. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework and adjustable in a vertical plane to different inclined positions, means for raising and lowering such wing bodily with relation to the framework and permitting it to be adjusted to any desired inclined position, and means for holding it rigidly in such inclined position, substantially as described.

3. In a machine of the class described, the combination of a portable framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework and adjustable in a vertical plane to different inclined positions, vertically-movable wing-supporting mechanism mounted in such framework, and a vertical pivot intermediate such vertically-movable supporting member and the wing pivotally connecting such members for permitting the pivotal movement of the wing in a horizontal plane, substantially as described.

4. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame and adjustable in a vertical plane to different inclined and horizontal positions, vertically-movable supporting mechanism mounted in such main supporting-frame, means for raising and lowering such vertically-movable supporting mechanism and thereby the wing bodily to different horizontal planes, and a vertical pivot arranged intermediate such vertically-movable supporting member and the wing for permitting the pivotal movement of the wing in a horizontal plane, substantially as described.

5. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame and adjustable to different inclined positions, vertically-movable supporting mechanism mounted in such main supporting-frame, means for raising and lowering such vertically-movable supporting mechanism and thereby the wing bodily to different horizontal planes, and vertical and horizontal pivots arranged intermediate such vertically-movable supporting member and wing for permitting the pivotal movement of the wing in horizontal and vertical planes, substantially as described.

6. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame adjustable to different inclined positions for raising ballast and earth and to different horizontal positions for leveling the same, vertical and horizontal pivot mechanism arranged intermediate such wing and supporting-frame for permitting the pivotal movement thereof in vertical and horizontal planes, and means for holding such wing in any position to which it is adapted to be adjusted, substantially as described.

7. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame adjustable to different inclined positions for raising ballast and earth and to different horizontal positions for leveling the same, vertically-movable supporting mechanism mounted in such main supporting-frame, means for raising and lowering such vertically-movable supporting mechanism and thereby the wing bodily to different horizontal planes, vertical and horizontal pivots arranged intermediate such vertically-movable supporting member and the wing for permitting the pivotal movement of such wing in vertical and horizontal planes, and means for holding such wing in any position to which it is adjusted, substantially as described.

8. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework, vertically-movable wing-supporting mechanism slidably mounted in such framework, a depending arm having its lower end connected to such wing and its upper end pivotally connected to such vertically-movable member for supporting and permitting the pivotal movement of the wing in a horizontal plane and holding it in position, and horizontal pivot-pin mechanism connected with the wing for permitting the pivotal movement of the wing in a vertical plane to any desired incline, substantially as described.

9. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework, vertically-movable wing-supporting mechanism slidably mounted in such framework, a depending arm having its lower end connected to such wing and its upper end pivotally connected to such vertically-movable member for supporting and permitting the pivotal movement of the wing in a horizontal plane and holding it in position, horizontal pivot-pin mechanism connected with the wing for permitting the pivotal movement of the wing in a vertical plane to any desired incline, braces pivotally attached to the wing and supporting-framework for holding such wing in any desired inclined position, and means for raising and lowering the wing-supporting mechanism and thereby such wing to any desired position with relation to the supporting-framework, substantially as described.

10. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework, vertically-movable wing-supporting mechanism mounted in such frame-

work having a vertical pivot mounted thereon and connected with the wing for permitting the pivotal movement of the wing in a horizontal plane, horizontal pivot mechanism for permitting the pivotal movement of the wing in a vertical plane to any desired incline, a rack mounted upon such vertically-movable wing-supporting mechanism, and a pinion rotatably mounted in the framework in toothed engagement with such rack adapted to be connected with a suitable source of power, substantially as described.

11. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, and a wing extending laterally beyond the side of such framework and pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism, substantially as described.

12. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, and a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism and extending laterally beyond the side of the car, substantially as described.

13. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism movable in a vertical plane and extending laterally beyond the side of the car, and a depending arm pivotally connected at its upper end with the vertically-slidable wing-supporting member and its lower end connected with the wing, substantially as described.

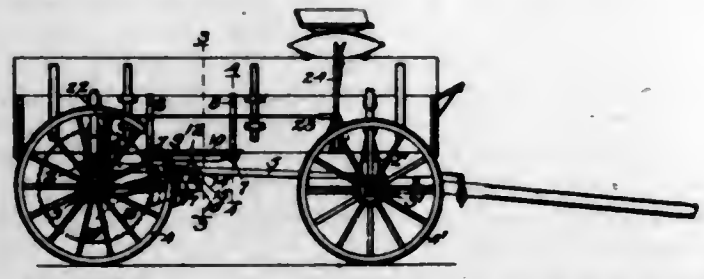
14. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism movable in a vertical plane and extending laterally beyond the side of the car, a depending arm pivotally connected at its upper end with the vertically-slidable wing-supporting member and its lower end connected with the wing, and braces pivotally connecting such wing with the main supporting-frame, substantially as described.

15. In a machine of the class described, the combination of a portable supporting-framework, wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism movable in a vertical plane and extending laterally beyond the side of the car, and means for holding such wing in any desired incline position, substantially as described.

16. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism and extending laterally beyond the side of the car, means for raising and lowering such vertically-movable wing-supporting mechanism and thereby the horizontally-swinging portion thereof with the wing, and means for holding such wing in position to extend outward and rearward at an angle beyond the side of the framework and for permitting the outer end of the wing to be raised or lowered with relation to the inner end thereof, substantially as described.

787,965. WAGON-BRAKE. WILLIAM H. WEBER, Chicago, Ill., assignor to International Harvester Company, a Corporation of New Jersey. Filed Jan. 9, 1905. Serial No. 240,219.

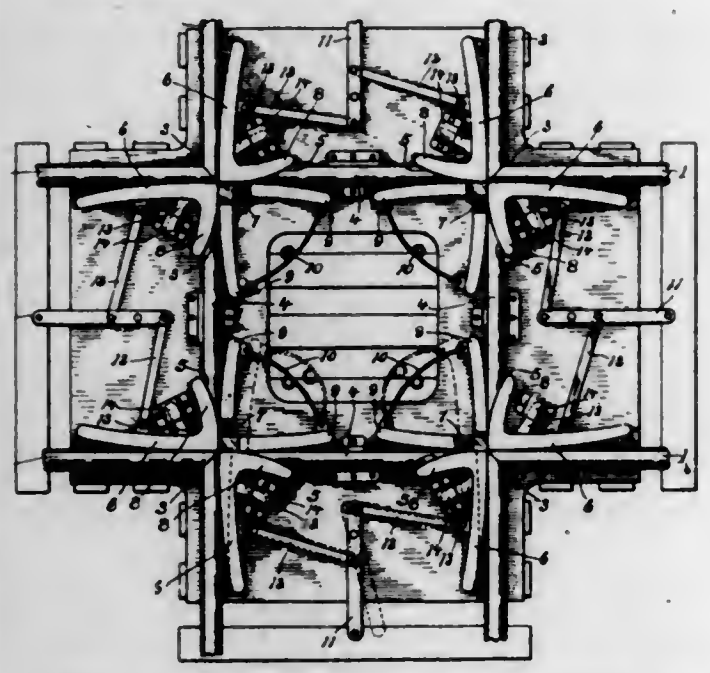
Claim.—1. In a gear-brake provided with the usual brake-beam, in combination, a wagon-box having two transversely-disposed cross-sills thereunder, and a box connection for said gear-brake comprising a longitudinally-extending bar arranged on each side of said wagon-box and secured to the under side of the cross-sills, and hook-bolts slidably engaging said bars at their upper end for supporting the brake-beam.



2. In a gear-brake provided with the usual brake-beam, in combination, a wagon-box and a box connection for said gear-brake comprising a longitudinally-extending bar arranged on each side of the said wagon-box, longitudinally-adjustable means slidably mounted thereon for supporting the brake-beam, and a transversely-extending brake-bar for releasably holding said means against longitudinal movement.

3. In a gear-brake provided with the usual brake-beam, in combination, a wagon-box having two transversely-disposed cross-sills thereunder, and a box connection for said gear-brake comprising a longitudinally-extending bar arranged on each side of said wagon-box and secured to the under side of the cross-sills, hook-bolts, slidably engaging said bars at their upper ends, for supporting the brake-beam, and a transversely-extending brake-bar secured at its ends to said hook-bolts and arranged to releasably engage the rear hounds of the wagon.

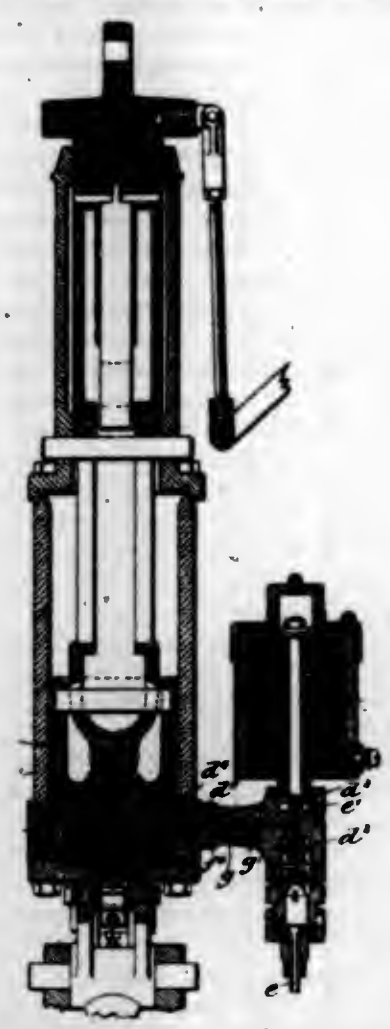
787,966. RAILWAY-CROSSING. GEORGE W. WILLEBRANDS, Detroit, and JOHN W. BENNETT, Sturgis, Mich. Filed Aug. 25, 1904. Serial No. 222,049.



Claim.—1. In a railway-crossing, the combination with the main-track rails having gaps therein at the junction of said rails, a pair of movable members at each junction each member pivoted at one end adjacent to the inner side of its rail and having an end extending through one of said gaps and crossing the extended end of the other member of the pair, springs connecting the extended ends of each pair to hold the members against their rails, and means between the rails of each track attached to one member of each adjacent pair of movable members to move said members against the action of said springs.

2. In a railway-crossing, the combination with the main-track rails having gaps therein at the junction of each of said rails of one track with those of the other track, a pair of movable members at each junction adapted to normally fill the gaps, springs connecting the members of each pair to hold the same in their normal position, a lever pivoted between the rails of each track, and links pivotally attached at one end to said lever and at their opposite ends to one member of each adjacent pair of members to move and hold said members to allow the flange of the wheel to pass.

787,967. **RAILWAY-SIGNAL.** ASBURY G. WILSON, Wilkinsburg, Pa., assignor to The Union Switch and Signal Company, Swissvale, Pa., a Corporation of Pennsylvania. Filed Feb. 3, 1905. Serial No. 243,965.



Claim.—1. In apparatus for operating railway-signals, the combination with a cylinder and a piston therein, of a conduit for conveying fluid-pressure from a source of supply to the cylinder below the piston, a check-valve in said conduit, and a by-pass from said conduit around the check-valve.

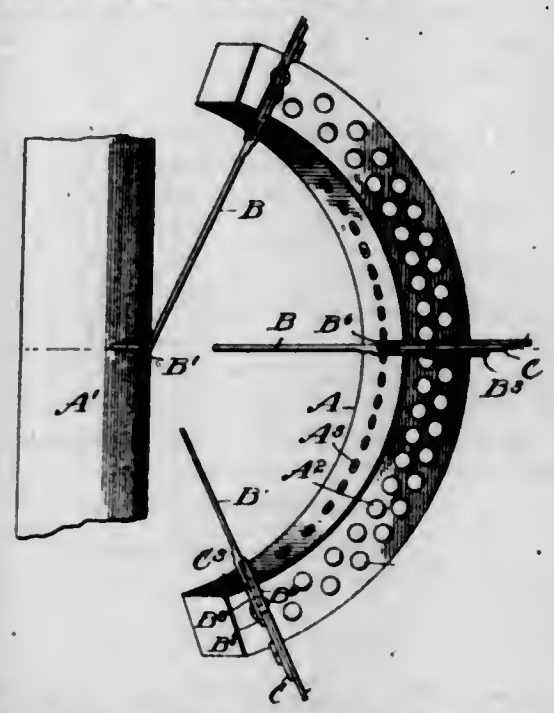
2. In apparatus for operating railway-signals, the combination with a cylinder and a piston therein, of a conduit for conveying fluid-pressure from a source of supply to the cylinder below the piston, inlet and exhaust valves in said conduit, a check-valve in said conduit between the cylinder and the inlet and exhaust valves, and a by-pass from said conduit around the check-valve.

3. In apparatus for operating railway-signals, the combination with a cylinder and a piston therein, of a conduit for conveying fluid-pressure from a source of supply to the cylinder below the piston, electrically-controlled inlet and exhaust valves in said conduit, a freely-movable check-valve in the conduit between the cylinder and the inlet and exhaust valves, and a by-pass from said conduit around the check-valve.

4. In apparatus for operating railway-signals, the combination with a cylinder and a piston therein, of a plug fitted in the cylinder-head and having a tubular inner end portion provided with a valve-seat, a check-valve loosely supported within said tubular end portion, the said head having an annular chamber surrounding the inner end of the plug and a passage leading therefrom to the cylinder below the piston, and said plug having a longitudinal passage and a branch passage leading therefrom in rear of check-valve to said annular chamber, and means for conveying fluid-pressure to or from the central passage in the plug.

5. In apparatus for operating railway-signals, the combination with a cylinder and a piston therein, of a plug fitted in the cylinder-head and having a reduced, tubular, inner end portion provided with a valve-seat and a longitudinal passage leading from said valve-seat to the outer end of the plug, a check-valve loosely supported within the tubular end portion, means for limiting the opening movement of the valve, the cylinder-head having an annular chamber therein surrounding the inner end of the plug and a passage leading therefrom to the cylinder below the piston, and said plug having a passage leading from the said annular chamber to the said longitudinal passage in rear of the check-valve, and valve-controlled means for delivering fluid-pressure to and exhausting it from said longitudinal passage.

787,968. **TYPE-BAR AND SUPPORT.** JOHN WILSON, Brooklyn, N. Y. Filed Mar. 12, 1904. Serial No. 197,812.



Claim.—1. A type-bar segment having a face disposed diagonally to a vertical line and provided with a series of vertical openings therein inclined radially upon the opposite sides of the center from one face of the segment downward toward a common center beneath the segment, and a series of type-bars disposed in said openings and having their pivots in horizontal planes.

2. A type-bar segment having a face disposed diagonally to a vertical line and provided with a series of openings therein inclined radially upon opposite sides of the center from one face of the segment downward toward a common center beneath the segment, and a series of type-bars disposed in said segment to lie in vertical planes radial to a printing-point at one side of the same.

3. In a type-bar, a platen, a segment disposed with its upper face at substantially thirty degrees to the vertical axis of the platen and provided with openings in vertical planes at a right angle to the horizontal axis of the platen and diverging radially at opposite sides of its center at successive different angles from the center of the segment toward a common center beneath the same.

4. A type-bar having a bifurcated portion terminating with an open end between the ends of the bar, a pivotal point at one side of said portion, a bracket-plate to which the bar is pivoted and provided with a segmental peripheral portion extending into the bifurcated portion of the bar, means for adjusting the members of the bifurcated portion toward and from the periphery of said plate, a locking member carried by the bracket-plate at one side thereof, and coöperating means carried by the bar to embrace said member at one extreme of the movement of the bar.

5. A type-bar having a bifurcated portion between its ends, a pivotal point at one side of said portion, a bracket-plate to which the bar is pivoted and provided with a portion extending into the bifurcated portion of the bar, means for adjusting the members of the bifurcated portion toward and from the periphery of said plate, a locking member extending upward from the bracket-plate at one side thereof, coöperating means carried by one face of the bar to embrace said member at one extreme of the movement of the bar, and a pivot-screw for the bar having a tapered bearing upon its head contacting with the bar, and a lock-nut upon the threaded end thereof extended through the bracket-plate.

6. A type-bar bracket-plate having at one side of the base thereof an upwardly-extending locking projection, a type-bar having a portion between its ends to embrace the periphery of said plate, a pivot for said bar upon said plate, and a coöperating member carried by the inner face of the bar to lie parallel to said projection and lock the bar.

7. In a type-bar bracket, a plate having a curved face extending concentric to a pivoting-aperture, a locking projection extending upwardly from the base of the plate at one side of said curved portion, and a type-bar having a portion to embrace said curved face and opposite lugs on one side to embrace said projection.

8. A type-bar bracket comprising a plate adapted to pivotally receive a type-bar, and a supporting-pin having a slotted head adapted for attachment at different points upon a face of the plate.

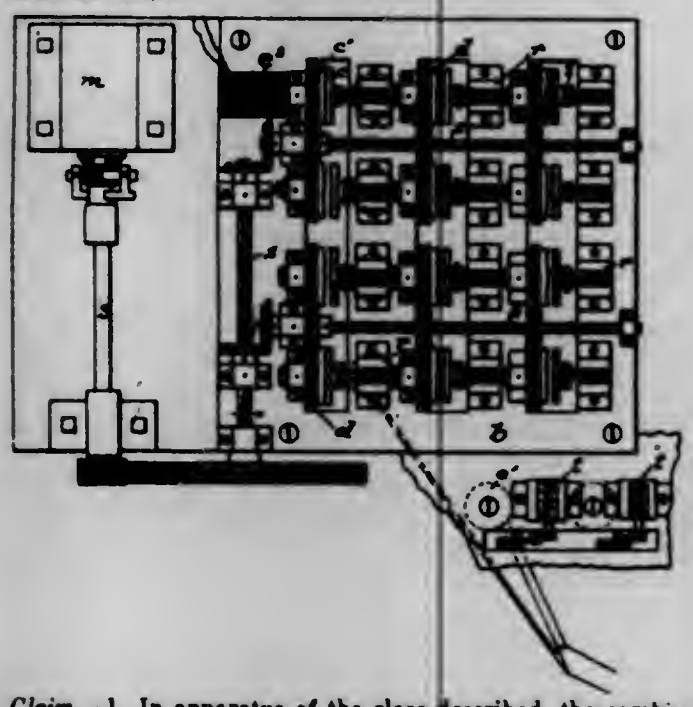
9. A type-bar provided with a pivoting-aperture and a tail at

one side of said aperture, a bifurcated portion upon said bar between the aperture and opposite end thereof, a bracket-plate having a curved face extended within said bifurcated portion, laterally-extended lugs at one side of the bifurcated portion, and a projection upon the plate at one side of the curved portion to be embraced by said lugs.

10. A type-bar having an aperture, a hardened bushing-disk having a beveled pivoting-aperture therein secured within the type-bar aperture, and a screw having a beveled face to engage said pivoting-aperture and provide a bearing for the bar.

11. A type-bar having a bifurcated portion one arm of which terminates intermediate of the ends of the bar, a bracket-plate disposed parallel with one arm of the bifurcated portion and embraced at its periphery by the shorter arm of the bifurcated portion, a pivot extending through the bar and bracket-plate, a lock-nut upon said pivot bearing upon the face of the bracket opposite the bar, and an adjusting means extending between the opposite arms of the bifurcated portion at the periphery of the bracket.

787,969. **REGISTERING APPARATUS FOR TELEPHONE-EXCHANGES.** DAVID A. YODER, Toledo, Ohio. Filed Aug. 25, 1904. Serial No. 222,065.



Claim.—1. In apparatus of the class described, the combination with a substantially constant speed motor device, of shafting driven thereby, a registering-train, electromagnetic means for positively connecting it temporarily to be driven by the shafting, and an electrically-controlled counting appliance associated with the said registering-train, substantially as set forth.

2. In apparatus of the class described, the combination with a motor device operated at substantially constant speed, of a registering-train associated therewith, clutch mechanism, and electrically-controlled means for connecting the registering-train temporarily with the motor through the clutch mechanism, substantially as set forth.

3. In apparatus of the class described, the combination with a motor device operated at practically constant speed, of a registering-train associated therewith, intermediate clutch mechanism, an electromagnet adapted temporarily to connect the said clutch, and an electrically-controlled counting appliance operated in conjunction therewith, substantially as set forth.

4. In apparatus of the class described, the combination with a motor operated at practically constant speed, of shafting driven thereby, a plurality of registering-trains, clutch mechanism for each adapted to connect them with the shafting for positive actuation thereby, electromagnets controlling the latter, electrically-controlled counting appliances, and telephone-exchange circuits respectively connected to actuate the latter and control the former recording-trains, substantially as set forth.

5. In apparatus of the class described, the combination with a suitable motor device actuated at practically constant speed, registering mechanism adapted to be connected therewith for actuation, counting mechanism associated with the latter, electromagnetic means for connecting the registering mechanism temporarily to be driven by the motor, and for intermittently actuating the counting mechanism, and a controlling electric circuit associated with said electromagnetic means, substantially as set forth.

6. The combination with a controlling telephone-exchange circuit, of a sluggish electromagnet connected therewith, a counting-train actuated thereby, a substantially-constant-speed motor device, a registering-train, clutch mechanism adapted temporarily to connect the same positively with the motor, and an electromagnet connected with the above-named circuit for controlling the clutch mechanism, substantially as set forth.

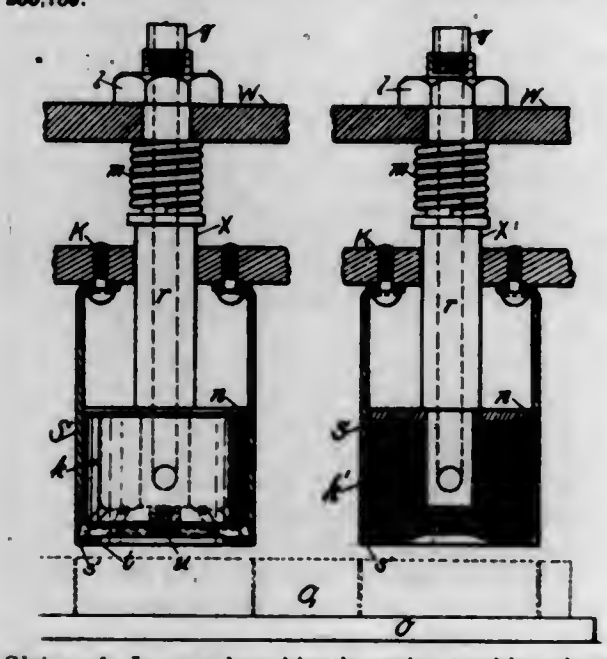
7. The combination with a constantly-driven motor, of shafting driven thereby, a plurality of registering-trains, intermediate clutch devices for each adapted positively to connect them temporarily for actuation by the motor, electromagnetically-controlled means for governing each of the clutch devices, counting-trains associated with the registering-trains each to each, electromagnetically-controlled means for actuating the counting-trains, and telephone-operators' circuits respectively connected electrically to control a registering and a counting train together, substantially as set forth.

8. In apparatus of the class described, the combination with a motor device actuated at practically constant speed, of registering-trains associated therewith, means for intermittently driving the same by the motor, electrically-actuated counting-trains respectively associated with the registering-trains, and electromagnets in circuit therewith and with a telephone-exchange circuit, whereby the calls are accurately recorded on the registering-trains and counted, substantially as set forth.

9. In apparatus of the class described, the combination with an electric motor actuated at substantially constant speed, a series of registering-trains one for each operator's position, corresponding counting-trains, electromagnets respectively connected in circuit at the operators' positions, one series thereof associated with the counting-trains and the others with the registering-trains, and means controlled by the latter for positively connecting the registering-trains individually with the motor, substantially as set forth.

10. In apparatus of the class described, the combination with a motor device actuated at practically constant speed, of registering and counting trains, electromagnets respectively associated therewith, means for connecting the former with the motor device during the excitation of the controlling-magnet, means for actuating the latter train upon the excitation of its magnet, and a controlling electric circuit wherein the electromagnets are connected, substantially as set forth.

787,970. **CANDY OR BISCUIT CUTTING MACHINE.** OLIVER B. ZIMMERMAN, Madison, Wis., and JAMES M. FOWLER, Chicago, Ill.; said Fowler assignor to said Zimmerman. Filed Nov. 21, 1904. Serial No. 233,759.



Claim.—1. In a candy or biscuit cutting machine, the combination of a relatively reciprocating multiple hollow cutter with internal ejectors, and a lubricating-conduit formed in said ejector, terminating so as to permit a lubricant to pass to the cutting edge and bottom of the ejector, substantially as described.

2. In a candy or biscuit cutting machine the combination of a relatively reciprocating multiple hollow cutter with internal and external ejectors, a cutting-pad and a lubricating-conduit formed in said internal ejectors, terminating so as to permit a lubricant to pass to the cutting edge of said cutter and bottom of the ejector, substantially as described and for the purposes set forth.

3. In a candy or biscuit cutting machine, the combination of a hollow cutter with an elastic cutting-pad, an internal ejector having

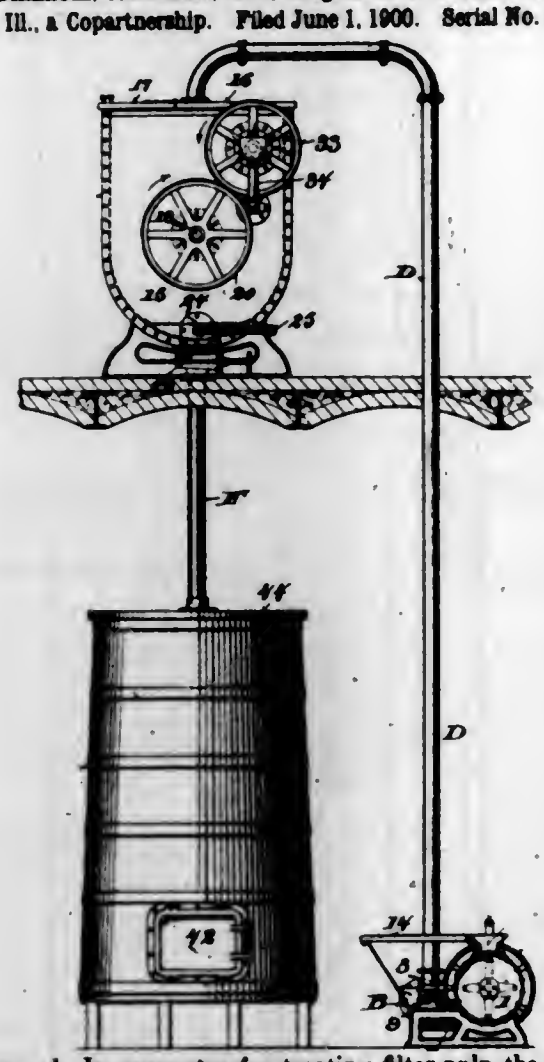
radial lubricating-ducts connected to the hollow of the supporting-stem, and a peripheral groove for the termination of the radial ducts, substantially as described and for the purposes set forth.

4. In a candy or biscuit cutting machine the combination of an internal ejector having radial ducts connected to the supporting-stem and terminating in a peripheral groove, and a circumscribing hollow cutter having an internal beveled cutting edge arranged to form, during a portion of the cycle of motion a part of the lubricating-duct, substantially as described and for the purposes set forth.

5. In a candy or biscuit cutting machine, the combination of an internal ejector having radial ducts terminating in a peripheral groove, said ducts being connected to a lubricating feed-pipe, with a circumscribing hollow cutter having an internal beveled edge arranged to form during a portion of the cycle of motion a part of the lubricating-duct, and an adjustment to vary the dwell position of the cutter relative to the said peripheral groove, substantially as described and for the purposes set forth.

6. In a candy or biscuit cutting machine, the combination of an internal ejector having radial ducts terminating in a peripheral groove, with a circumscribing hollow cutter having an internal beveled edge, an adjustment to vary the dwell position of the cutter relative to said peripheral groove, and an adjustable pressure-screw to vary the depth of imprint of said cutter upon a cutting-pad, substantially as described and for the purposes set forth.

787,971. APPARATUS FOR TREATING FILTER-PULP. RICHARD BIRKHOLZ, Milwaukee, Wis., assignor to E. Goldman & Co., Chicago, Ill., a Copartnership. Filed June 1, 1900. Serial No. 18,720.



Claim.—1. In apparatus for treating filter-pulp the combination of a mixer, a washer located in a separate room above the mixer and provided with a stirrer and with water and steam supply connections and an overflow, and a pump having a suction connection with the lower part of the mixer and a discharge connection with the washer, substantially as and for the purposes set forth.

2. In apparatus for treating filter-pulp the combination of a mixer located in the filter-cellar, a washer located in a room above the filter-cellar, a pump having connections with the mixer and washer and adapted to elevate the pulp from the mixer into the washer, and a strainer-tank located in the filter-cellar and connected by a pipe with the lower part of the washer, substantially as and for the purposes set forth.

3. In apparatus for treating filter-pulp the combination of a mixer, a washer connected with the lower part of the mixer and a strainer-tank connected with the lower part of the washer, substantially as and for the purposes set forth.

4. In apparatus for treating filter-pulp the combination of a mixer consisting of a receptacle provided with a stirrer, a washer consisting of a receptacle connected by a pipe with the lower part of the mixer-receptacle and provided with a stirrer and with water and steam supply connections and an overflow, and a strainer consisting of a receptacle connected by a pipe with the lower part of the washer and provided with a vertically-disposed screen and with a drain-opening in the lower part of the water-space, substantially as and for the purposes set forth.

5. In apparatus for treating filter-pulp the combination of a horizontally-disposed trough or cylinder having an opening in the top to receive the pulp, and a rotary stirrer consisting of a shaft supported lengthwise in said trough by bearings in the ends thereof and provided with arms, and a pump having a valve-controlled suction connection with the bottom of said trough and geared with one end of the stirrer-shaft, substantially as and for the purposes set forth.

6. In apparatus for treating filter-pulp the combination of a receptacle provided with a water-supply connection, a horizontally-disposed rotary stirrer and a rotary overflow-screen having an outlet-opening through one end and arranged above and parallel with said stirrer to that side thereof toward which it turns, and means for turning said stirrer and overflow-screen in opposite directions, substantially as and for the purposes set forth.

7. In apparatus for treating filter-pulp the combination with a horizontally-disposed pulp-receptacle having a water-supply connection, a rotary stirrer supported horizontally by bearings in the ends of said receptacle, and a rotary overflow-screen arranged parallel with the stirrer and composed of a perforated cylinder having an outlet-opening through one end and longitudinal ribs on the outside and of wire-cloth wrapped around said cylinder over the ribs thereon, substantially as and for the purposes set forth.

8. In apparatus for treating filter-pulp the combination of a tank provided on the inside with vertical slats and a screen attached to the inner sides of said slats which form descending waterways outside of said screen, said waterways communicating at their lower ends with an outlet-opening in the lower part of the tank, and a separate opening for the removal of the pulp being formed through the lower part of the tank and screen and closed to said waterways, substantially as and for the purposes set forth.

9. In apparatus for treating filter-pulp the combination of a tank provided at or near the bottom with an opening for removing the pulp therefrom and with a closure for said opening, and a screen attached to vertically-disposed slats forming descending waterways which communicate with an outlet-opening in the lower part of the tank and are closed to the opening for the removal of the pulp, substantially as and for the purposes set forth.

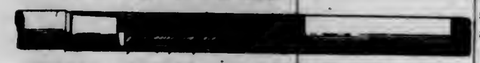
10. In apparatus for treating filter-pulp, a strainer-tank having a central perforated column the interior of which communicates with an outlet-opening at the bottom, and a screen surrounding the interior of the tank at a distance from its inner wall and forming therewith a water-space which communicates at the bottom with an outlet-opening through the tank which has a discharge-opening for the pulp communicating with the lower part of the space between said column and screen and provided with a closure, substantially as and for the purposes set forth.

11. In apparatus for treating filter-pulp, a strainer-tank provided with a vertically-disposed screen surrounding the interior of the tank at a distance from its inner wall and forming a water way or space which communicates at the bottom with an outlet-opening, and a hollow perforated column surrounded by a screen and communicating inside at the bottom with an outlet-opening, said tank having a door opening through the lower part thereof into the space between said screens, substantially as and for the purposes set forth.

12. In apparatus for treating filter-pulp the combination of a tank having a discharge-opening provided with a closure at or near the bottom, a hollow perforated column having a conical top and communicating at the bottom with an outlet-opening through the tank, and an inlet connection opening into said tank over the apex of said column, substantially as and for the purposes set forth.

13. In apparatus for treating filter-pulp the combination of a tank having a closed cover, a central hollow perforated column, a screen surrounding said column near the inner wall of the tank, a discharge-door opening through the tank into the space between said column and screen, waste-openings through the tank into the lower part of the water ways or spaces outside of said screen and inside of said column, and an inlet connection opening into the top of said tank over said column, substantially as and for the purposes set forth.

787,972. WHIPHANDLE. REINHOLD BORSELT, Westphalia, Tex. Filed Dec. 3, 1903. Serial No. 183,631.



Claim.—A whip-stock, a sleeve permanently connected therewith and forming a receptacle, a handle detachably connected with the opposite end of the sleeve, an awl connected to the handle, said awl having a bowed or arched portion, and an axially-perforated spool mounted upon the awl in engagement with the bowed portion thereof; said awl and spool being accommodated in the receptacle formed by the connecting-sleeve.

787,973. COCOA CONFECTION AND PROCESS OF MAKING SAME. CHARLES H. BURCKETT and MARY M. BURCKETT, Glenridge, N. J.; said Charles H. Burckett assignor to said Mary M. Burckett. Filed Sept. 2, 1903. Serial No. 171,871.

Claim.—1. A composition of matter containing cocoa-beans in which the starch has been converted into malt sugar, maltose and dextrine; water; sugar; and a free diastatic ferment.

2. The herein-described process of heating cocoa-beans with water, to break the starch-cells thereof; digesting with a starch-converting ferment until the starch is converted into malt sugar, maltose and dextrine; emulsifying the butter of the cocoa-bean throughout the mixture by evaporating and stirring.

3. The herein-described process of roasting cocoa-beans, removing the shells, grinding and heating with water until the starch-grains are broken, adding a starch-converting ferment, and digesting until the starch is converted into malt sugar, maltose, and dextrine, emulsifying the butter of the cocoa-bean with the other elements, by evaporating the mixture, and rapidly stirring.

4. The herein-described process of making a confection consisting in roasting cocoa-beans, removing the shells, grinding and boiling with water until the starch-grains are broken, next adding a starch-converting ferment and digesting until the starch is converted into malt sugar; maltose and dextrine, emulsifying the butter of the cocoa-beans with the other elements by evaporating and stirring the mixture, then adding a diastatic ferment, evaporating and again stirring to obtain a compound with a free diastatic ferment.

5. The herein-described process of making a confection consisting in roasting cocoa-beans, removing the shells, grinding and boiling with water until the starch-grains are broken, adding malt extract, and digesting until the starch is converted into malt sugar, emulsifying the butter of the cocoa-beans with the other elements by boiling the mixture down and rapidly stirring, adding a diastatic ferment, evaporating, stirring, and adding sugar.

6. The herein-described process of making a confection consisting in roasting in the proportion of one hundred pounds of cocoa-beans, crushing them and removing the shells, grinding and boiling with two hundred pounds of water until all the starch-grains are broken, adding fifty pounds of malt extract, digesting at 170° Fahrenheit until the starch is converted into malt sugar, boiling down and stirring until the butter of the cocoa is emulsified throughout the mixture, adding a diastatic ferment and sugar.

787,974. TAILOR'S BUTTONHOLE-RULER. SILAS I. CLARK, Marshall, Mo. Filed Mar. 3, 1904. Serial No. 196,420.

Claim.—1. A scale divided into spaces of uniform length, each space having a set of graduations, the distance between any two consecutive graduation-marks of one set being different from the distance between any two consecutive graduation-marks of the remaining sets, all of said sets being arranged in alinement adjacent one edge of the scale and provided with an equal number of graduations.

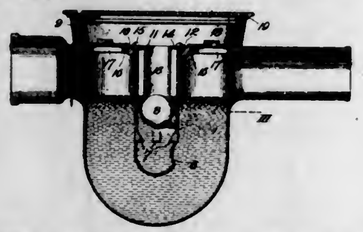
2. A scale divided into spaces of uniform length, each space having an equal number of graduations arranged parallel to one edge of the scale, the distance between any two consecutive graduation-marks of one space being different from the distance between any two consecutive graduation-marks of the remaining spaces.

3. A scale divided into spaces of uniform length, each space having a set of graduations arranged in alinement adjacent to one edge of the scale, the distance between the graduation-marks of each set being different from the distance between the graduation-marks of the remaining sets, the correspondingly-located graduation-marks of the several sets bearing corresponding designating characters.

4. A scale divided into spaces of uniform length one of which is provided with an index and each with a plurality of graduations constituting a set, the distance between any two consecutive graduation-marks of one set being different from the distance between any two consecutive graduation-marks of the remaining sets, all of said sets being arranged adjacent one edge of the scale and provided with an equal number of graduations.



787,975. COMBINED HOUSE-TRAP AND CELLAR-DRAIN. FREDERICK C. EDELEN, Kansas City, Mo. Filed June 25, 1904. Serial No. 214,126.



Claim.—1. A combined house-trap and cellar-drain, comprising a trap of substantially U form with one leg provided with an opening, a chamber between said legs and communicating with said opening, lugs projecting inwardly of said chamber above said opening, a drain-pan, a tube depending from the drain-pan into said chamber and establishing communication between them, and a float-valve in said chamber between the lower end of the tube and said lugs.

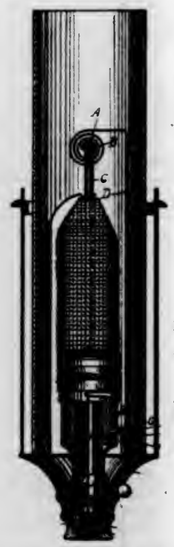
2. A combined house-trap and cellar-drain, comprising a trap of substantially U form with one leg provided with an opening, a chamber between said legs and communicating with said opening, lugs projecting inwardly of said chamber above said opening, a drain-pan, a tube depending from the drain-pan into said chamber and establishing communication between them, a float-valve in said chamber between the lower end of the tube and said lugs, and one or more trap-screws controlling communication between the drain-pan and the trap.

3. A combined house-trap and cellar-drain, comprising a trap of substantially U form with one leg provided with an opening, a chamber between said legs and communicating with said opening, lugs projecting inwardly of said chamber above said opening, a drain-pan having an opening communicating with said chamber, a tube depending from the drain-pan into said chamber and establishing communication between them, and provided with an outwardly-projecting flange closing the upper end of said chamber and resting on the bottom of the drain-pan and detachably secured thereto, and a float-valve in said chamber and between the lower end of the tube and said lugs.

4. A combined house-trap and cellar-drain, comprising a substantially U-form trap having a chamber formed between its legs and communicating at its lower end with one of said legs, a supply-pipe communicating with the upper end of one leg and a discharge-pipe communicating with the upper end of the other leg, a drain-pan above the trap and provided with a grate, openings in its bottom registering with the trap and an opening registering with said chamber, trap-screws normally closing the first-named openings, a tube depending through the other opening into said chamber and provided with an outwardly-projecting flange secured to the bottom of the pan and closing the upper end of said chamber, and a float-valve normally held by the pressure of the water in the trap and chamber against the lower end of said tube.

5. A combined house-trap and cellar-drain, comprising a trap of substantially U form, a chamber communicating with said trap, a drain-pan above the trap, having a grate and provided with one or more openings communicating with the trap, and an opening communicating with the chamber, one or more trap-screws controlling the first-named opening or openings, a tube depending through the other opening into the said chamber, a valve to close the lower end of said tube, and means to prevent the valve from closing communication between the chamber and the trap

787,976. GAS-BURNER. EVERETT S. EDWARDS, Omaha, Nebr. Filed June 1, 1903. Serial No. 159,504.

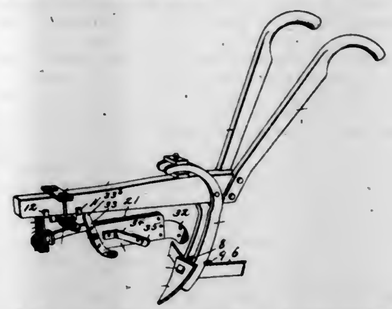


Claim.—1. In combination with a gas-burner, a thermostatic coil, a support for the same, a rod connected to the end of said thermostat; a valve adjustable on its stem, a seat for said valve, a second rod fastened to said valve-stem, means for connecting the said rods together so that the valve is held open when the thermostat is heated, and held shut when the thermostat is cooled; substantially as shown and described.

2. In combination with a gas-burner, a thermostat, a support for the same, a rod connected to the end of said thermostat; a valve adjustable on its stem, a seat for said valve, a second rod fastened to said valve-stem, means for connecting the said rods so that the valve is held open when the thermostat is heated, and held closed when the thermostat is cooled; a catch with a cam-like end, capable of being operated by hand, and arranged to open the said valve against the pressure of the said thermostat, means to return the said catch to its original position when the thermostat becomes heated, substantially as set forth.

787,977. PLOW ATTACHMENT. WILLIAM F. EDWARDS, Covington, Ga. Filed Aug. 2, 1904. Serial No. 219,199.

Claim.—1. In a device of the class described, a clamping device including a pair of plates provided at their outer edges with pairs of upturned lugs, pairs of downturned lugs, and intermediately-disposed, outwardly-extending tongues, in combination with a plow-beam inserted between the upturned lugs of said clamping-plates, a transversely-disposed slotted bracket inserted between the downturned lugs of said clamping-plates, a transversely-disposed clip-plate, and connecting means.



2. The combination with a plow-beam, of a laterally-adjustable bracket, a beam connected with and vertically adjustable with relation to said bracket, a fender carried by said beam, and a wing secured to the inner side of said fender intermediate its upper and lower edges.

3. In a plow attachment of the class described, a laterally and vertically adjustable beam carrying a fender, and an inwardly-curved wing at the rear end of said fender.

4. In a plow attachment of the class described, a laterally and vertically adjustable beam, a fender carried by said beam, a subsoiler at the front end of said fender, and an oblique, inwardly-extending wing connected with said fender in rear of the subsoiler and intermediate the upper and lower edges of said fender.

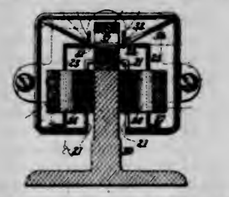
5. In a plow attachment of the class described, a vertically and laterally adjustable fender-carrying beam, a subsoiler at the front end of the latter, an inwardly-curved wing at the rear end of said fender, an obliquely-disposed bracket intermediate the front and rear ends and upper and lower edges of the fender, and an auxiliary wing connected with said bracket.

6. In a plow attachment of the class described, a clamping device, an L-shaped bracket connected with the plow-beam by said clamping device, a beam-clamping device connected adjustably with the downwardly-extending arm of said bracket and including a member having a slotted arm, a fender-carrying beam extending through the slot of said arm, and a set-screw engaging a perforation in said arm and bearing against the lower edge of the fender-carrying beam.

7. In a plow attachment of the class described, the combination with a fender, of a bar connected reversibly and detachably therewith and provided at its opposite ends with ground-engaging points.

8. In a plow attachment of the class described, the combination of a fender, a bar connected reversibly and detachably with said fender and having a foot formed at one end thereof, and a subsoiling-point mounted upon said foot.

787,978. LUBRICATOR FOR ELEVATOR-GUIDES. CHARLES H. EGOLER, New York, N. Y. Filed Jan. 19, 1905. Serial No. 241,734.



Claim.—1. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the oil, and an integral folded strip of absorbent material mounted within said receptacle and extending from within said reservoir upwardly

above the adjacent walls of the latter, combined with means for firmly holding said strip, and means for yieldingly flexing the upper folded portion of said strip into contact with said guide; substantially as set forth.

2. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the oil, and an integral strip of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with means for firmly holding said strip at its ends, and means for yieldingly flexing the upper portion of said strip into contact with said guide; substantially as set forth.

3. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the oil, and three integral strips of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with means for firmly holding said strips at their ends, and means for yieldingly pressing the upper portions of said strips into contact with the edge and sides of said guide; substantially as set forth.

4. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guides and forming in its lower part a reservoir for the lubricant, and a folded strip of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with means for firmly holding said strip, and the spring over which said strip is folded and which is flexed to yieldingly press the upper folded portion of said strip against said guide; substantially as set forth.

5. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the oil, and three folded strips of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with means for firmly holding said strips, and means for pressing the upper folded portions of said strips against said guide; substantially as set forth.

6. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the lubricant, and three folded strips of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with means for firmly holding said strips, and the springs over which said strips are folded and which are flexed to yieldingly press the upper folded portions of said strips against said guide; substantially as set forth.

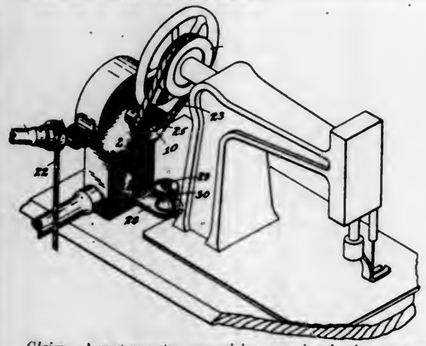
7. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the lubricant, and a body of absorbent material within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, said absorbent material not filling said reservoir and said reservoir being adapted to hold a quantity of oil covering the lower portion of said body, combined with means for securing said body within said receptacle, and means for pressing the upper portion of said body into contact with the said guide; substantially as set forth.

8. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the lubricant, and a body of absorbent material within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, said absorbent material not filling said reservoir and said reservoir being adapted to hold a quantity of oil covering the lower portion of said body, combined with a detachable frame carrying said body, and means carried by said frame for pressing the upper portion of said body into contact with the said guide; substantially as set forth.

9. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the lubricant, and three folded strips of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with a frame removable from said receptacle and carrying said strips, means independently securing said strips to said frame, and means for pressing the upper folded portions of said strips against said guide; substantially as set forth.

10. A lubricator for elevator-guides and to be carried by the car, said lubricator comprising a receptacle adapted to pass upon the guide and forming in its lower part a reservoir for the lubricant, and three folded strips of absorbent material mounted within said receptacle and extending from within said reservoir upwardly above the adjacent walls of the latter, combined with a frame removable from said receptacle and carrying said strips, and the springs secured to said frame and over which said strips are folded and which serve to yieldingly press the upper folded portions of said strips against said guide; substantially as set forth.

787,979. **WATER-MOTOR.** LEROY D. FALCONER, Seattle, Wash. Filed June 16, 1904. Serial No. 212,781.



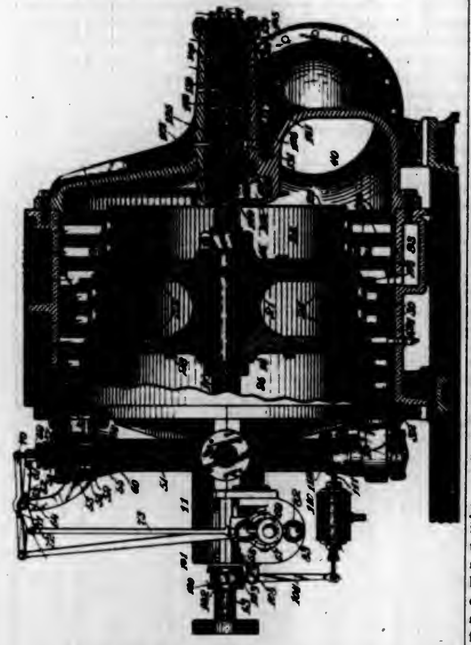
Claim.—A water-motor comprising a casing having an upper cylindrical portion and a chambered pedestal therebeneath provided with a discharge-opening and fastening-lug, shaft-openings in the upper cylindrical portion, interior and exterior tubular projections on opposite sides of the shaft-openings, shaft bush-pieces in said exterior tubular projections and provided at their outer extremities with conical-shaped annular recesses, set-collars having conical inner ends to register with the said annular recesses of the bush-pieces, a shaft passing through the openings of upper portion of casing and resting in the bush-pieces, a water-wheel attached to the shaft in the casing and between the two interior tubular projections, buckets on said water-wheel, a driving-sleeve attached to the shaft, a nozzle connected with a water-supply and projecting interiorly of the casing, said nozzle being directed so as to deliver a stream of water tangentially of the wheel and at inclined angles to the opposite faces of its buckets.

787,980. **TURBINE-ENGINE.** ELMER S. FARWELL, Ridgewood, N. J., assignor to Edwin H. Ludeman, Brooklyn, N. Y. Filed Dec. 22, 1903. Serial No. 186,191.

Claim.—1. A turbine-engine having upon its rotary element a series of vanes; a series of ports of progressively-increasing area to admit an expansive fluid thereto and arranged at various points about the path of rotation of the said vanes; means to convey the fluid supplied to the vanes from one port to the next port in the progression; a passage leading to the first port; a passage leading to a subsequent port in the progression; a single valve adapted to admit steam to either of said passages in impulses; and governor-controlled means to shift the range of activity of said single valve from one to the other of said passages.

2. A turbine-engine having upon its rotary element a series of working faces to receive the influence of an expansive elastic fluid; a series of ports of progressively-increasing area to admit the fluid thereto and arranged at various points about the path of rotation of the said series of faces; means to convey the fluid supplied to the working faces from one port to the next port in the progression; a chamber leading to the first port; a chamber leading to a subsequent port in the progression; a port in communication with each of said chambers; a single slide-valve for said ports; means to reciprocate the slide-valve, and means to change its region of reciprocation.

3. A turbine-engine having upon its rotary element a series of working faces to receive the influence of an expansive elastic fluid; a series of ports of progressively-increasing area to admit the fluid thereto and arranged at various points of utilization about the path of rotation of the said series of faces; means to convey the fluid supplied to the working faces from one port to the next port in the progression; means to supply the fluid to the first port; an exhaust normally connected with the last point of utilization; means controlled by the load to shift the supply to a subsequent port in the progression; and means controlled by the pressure in the exhaust to shift the connection of the exhaust to an earlier point of utilization.



4. In a turbine-engine, the combination with a series of vanes arranged at different points along the perimeter of a turbine-head, of means to supply steam to the rings at one end of the head, an exhaust at the other end of the head and means controlled by the pressure in the exhaust to exhaust the steam from a point intermediate the said supply and the said exhaust.

5. In a turbine-engine, the combination with a casing, of a rotary element supported therein; means for driving the rotary element by the action of an elastic fluid at successive expansive stages; means for producing a pressure toward the supply end of the engine; and means controlled by such rotary element for maintaining an equilibrium between said pressure, and pressures tending to move the rotary element in the opposite direction.

6. In a turbine-engine, the combination with a casing, of a rotary element supported therein, adapted to receive a pressure toward the discharge end, the diameters of successive portions of which decrease toward the discharge end receiving a pressure toward the supply end; means for driving the rotary element by the action of an elastic fluid at successive expansive stages and means for equalizing the said pressures.

7. In a turbine-engine, the combination with a casing, of a rotary element supported therein, the diameter of successive portions of which decreases toward the discharge end; a series of rings of vanes upon the perimeter thereof; means for supplying steam to said vanes, which when so supplied acts on the decreasing area of said rotary element to press the same toward the supply end of the engine; a chamber formed by the head of the rotary element and the casing at the supply end adapted to contain steam, causing a pressure toward the discharge end; and means for maintaining an equilibrium between said pressures.

8. In a turbine-engine, the combination of a casing carrying journal-bearings, of a turbine having journals supported by said bearings and embodying a drum portion, a series of rings of vanes upon the perimeter thereof to receive the reaction of steam at its successive expansive stages, the diameter of successive portions of the drum decreasing and having shoulders adjacent thereto with substantially radially extending faces directed away from the supply end of the engine; means to supply steam to the ring of vanes at the first stage; means to exhaust from the ring of vanes at the last stage; chambers formed by the drum, its respective shoulders and the casing and when containing steam tending to cause the turbine to press toward the supply end of the engine; a chamber formed by the head of the drum and the casing at the supply end; a chamber formed by the casing and the drum at the exhaust end; a conduit having a valve connecting said chambers at the respective ends of the drum; and means controlled by the turbine when the pressure upon the head of the drum at the supply end is not balanced by the pressure upon the said radial shoulders and the head of the drum at the exhaust end to actuate said valve.

9. In a turbine-engine, the combination of a casing carrying journal-bearings, of a turbine having journals supported by said bearings and embodying a hub portion, a series of rings of vanes upon the perimeter thereof to receive the reaction of steam at its successive expansive stages, the length of the vanes of the respective rings progressively increasing from stage to stage and the diameters of the portions of the hubs respectively carrying the same correspondingly decreasing and having shoulders adjacent thereto with substantially radially extending faces directed away from the supply end of the engine; means to supply steam to the ring of vanes at the first stage; means to exhaust from the ring of vanes at the last stage; chambers formed by the hub and its respective shoulders and the casing and when containing steam tending to cause the turbine to press toward the supply end of the engine; a chamber formed by the head of the hub and the casing at the supply end; a chamber formed by the casing and the hub at the exhaust end; a conduit having a valve connecting said chambers at the respective ends of the hub; and means controlled by the turbine when the pressure upon the head of the hub at the supply end is not balanced by the pressure upon the said radial shoulders and the head of the hub at the exhaust end to actuate said valve.

10. In a turbine-engine, the combination with a casing having journal-bearings, of a turbine having journals carried by said bearings and embodying an enlarged hub, a series of rings of vanes upon the perimeter thereof to receive the reaction of steam at its successive stages, the length of the vanes increasing from the first stage to the last stage and the diameters of the portions of the hub respectively carrying the same correspondingly decreasing and having shoulders adjacent thereto with substantially radially extending faces such faces directed away from the supply end of the engine; means to supply steam to the first ring; means to exhaust from the last ring; chambers formed by the hub, its respective shoulders and the casing and when containing steam tending to cause the turbine to shift on its journals toward the supply end of the engine; a chamber formed by the head of the hub and the casing at the supply end and adapted to receive leakage steam; a chamber formed by the casing and the hub at the exhaust end and open to the exhaust; a conduit having a valve connecting said chambers at the respective ends of the hub; and means controlled by the turbine in its movement incident to the unbalancing of the pressure between such radial shoulders and the head of the hub at the exhaust end and the head of the hub at the supply end to open and close said valve and maintain the balance.

11. In a turbine-engine, the combination with a casing having journal-bearings, of a turbine having journals carried by said bearings and embodying a series of rings upon the perimeter thereof to receive the reaction of steam at its successive stages, the turbine having shoulders with substantially radially extending faces such faces directed away from the supply end of the engine; means to supply steam to the first ring; means to exhaust from the last ring, chambers formed by the turbine, its respective shoulders and the casing and when containing steam tending to cause the turbine to shift on its journals toward the supply end of the engine; a chamber formed by the head of the turbine and the casing at the supply end and adapted to contain steam; means to supply steam thereto; a chamber formed by the casing and the head of the turbine at the exhaust end and open to the exhaust; a conduit having a valve connecting said chambers at the respective ends of the turbine; and means controlled by the turbine in its movement incident to the unbalancing of the pressure between such radial shoulders and the head of the turbine at the exhaust end and the head of the turbine at the supply end to open and close said valve and maintain the balance.

12. In an engine, the combination with a casing, of a wheel rotatable therein; means for driving the wheel by the influence of steam; a shaft upon which the same is mounted; and a valve controlled by such shaft in its longitudinal movement to equalize the pressure tending to move the shaft endwise.

13. The combination with a casing, of a shaft; a steam-driven wheel mounted upon the shaft and located within the casing and

making compartments at each end thereof, and means controlled by the longitudinal movement of the shaft incident to unequal pressures within such chambers at the heads of the wheel to open and close a port between such chambers.

14. In a steam-engine the combination with a casing, of a turbine journaled therein and having an amount of play longitudinally of its journals; an exhaust open to the casing at one side of the turbine, a compartment within the casing at the other side thereof, and means controlled by the longitudinal movement of the journals to balance the pressure upon the respective sides of the turbine.

787,981. DENTAL DISK-SHIELD. WILLIAM F. GREEN, Modesto, Cal. Filed Aug. 24, 1904. Serial No. 221,976.

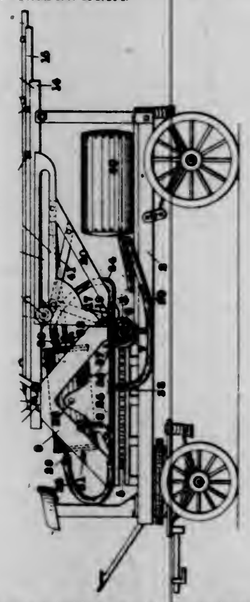


Claim.—1. A disk-shield comprising spaced plates adapted to receive the disk between them, said plates being cut away to expose a portion of the disk and being movably connected to permit of exposure of the entire disk, and means for attaching the shield to the chuck of the dental engine.

2. A disk-shield formed to contain a disk and to expose the active part thereof, the members of said shield being movable with respect to each other to expose at times the entire disk, and means for holding the shield in active relation to the disk and against movement therewith.

3. A disk-shield comprising hinged plates adapted to receive a disk therebetween, said plates being cut away to expose a portion of the disk, means for holding the plates with the disk therebetween, and a sleeve connected to one of the plates and adapted to engage a part of a dental engine.

787,982. TRUCK-LADDER. THOS. HAINES, St. Louis, Mo. Filed Feb. 1, 1904. Serial No. 191,414.



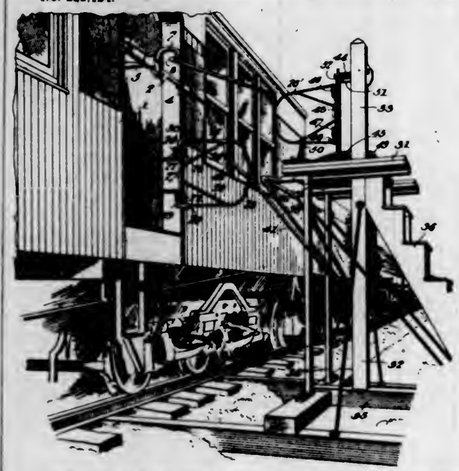
Claim.—1. A truck-ladder comprising a platform, a ladder pivotally mounted thereon, rollers mounted on said ladder rearward of its pivot-point, pivoted ladder-elevating frames having slots for cooperation with said rollers, an actuating-cylinder mounted on said platform and provided with a piston and piston-rod, and means operatively connecting said piston-rod and said ladder-elevating frames.

2. A truck-ladder comprising a platform, a ladder pivotally mounted thereon, ladder-elevating frames pivoted on said platform and each provided with a slot substantially parallel with said ladder in its lowered position, rollers on said ladder and engaging said slots, respectively, near the vertical plane through the pivot of said elevating-frames when said ladder is in its lowered position, and means to actuate said elevating-frames to raise said ladder.

3. A truck-ladder comprising a platform, a ladder pivotally mounted thereon, ladder-elevating frames pivoted on said platform and each provided with a slot substantially parallel with said ladder in its lowered position, rollers on said ladder engaging said slots, respectively, near the vertical plane through the pivot of said elevating-frames when said ladder is in its lowered position, and an actuating fluid-pressure cylinder mounted on said platform and operatively connected to said elevating-frames to actuate the same and raise said ladder.

4. A truck-ladder comprising a platform, a ladder pivotally mounted thereon, ladder-elevating frames pivoted on said platform and each provided with a slot substantially parallel with said ladder in its lowered position, projections on said ladder extending into said slots, respectively, and engaging said frames near the vertical plane of their pivots when said ladder is in its lowered position, a fluid-pressure cylinder mounted on said platform, and a piston and piston-rod therein operatively connected with said elevating-frames at points lying in a plane through their pivot-points approximately perpendicular to the direction of said piston-rod.

787,983. MAIL-BAG DELIVERING AND CATCHING APPARATUS. OLIVER G. HOFF, Baltimore, Md. Filed Dec. 23, 1904. Serial No. 238,124.



Claim.—1. An apparatus of the class described having a car device including a bracket supported within the car at the inner side of the door-frame, a horizontal swinging member mounted upon the bracket and limited in its movement by the door-frame, and a horizontally-swinging bracket carried by the outer end of the pivotally-mounted member and capable of being swung outwardly through the doorway of the car, and a mail-bag carrier having a detachable supporting engagement with the swinging bracket.

2. An apparatus of the class described having a car device including a bracket mounted within the car, upper and lower links pivotally supported upon the bracket, a yoke-shaped swinging bracket pivotally supported upon the outer ends of the links and capable of being swung outwardly through the car-door, and a bag-carrier having a detachable supporting engagement with the swinging bracket.

3. An apparatus of the class described having a car device including a crane mounted within the car and capable of being projected outwardly through the door, a bag-carrier having a detachable supporting engagement with the crane, and means to automatically interlock the crane with one side of the door-frame when the former is projected outwardly through the doorway into operative position.

4. An apparatus of the class described having a car device including a horizontally-swinging crane mounted to be swung outwardly through the doorway of the car and limited in its swinging movement by the door-frame, a catch upon the door-frame, a spring-latch upon the crane for engagement with the catch in the operative position of the crane, and a bag-carrier having a detachable supporting engagement with the crane.

5. An apparatus of the class described having a bag-carrier to be carried by a train, a carrier-catcher, and a downwardly-inclined chute communicating with and leading away from the catcher and upon which the carrier is adapted to travel after being engaged with the catcher.

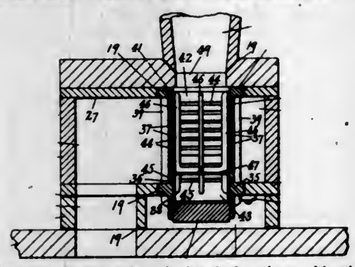
6. An apparatus of the class described having a bag-carrying link to be carried by a car, and a link-catching device including an arm to enter the link and an arm-supporting shank leading from the rear end of the arm and inclined downwardly therefrom and away from the railway-track.

7. An apparatus of the class described including a bag-carrier to be removably carried by a car, a support at one side of the railway-track, a rod carried by the support and inclined upwardly toward the railway-track, and a substantially horizontal carrier-catching arm carried by the upper end of the rod, said rod constituting a chute upon which the carrier is adapted to travel away from the catching-arm after being engaged therewith.

8. An apparatus of the class described comprising a support erected at one side of a railway-track, an elevated substantially horizontal bar carried by the support with its opposite ends inclined downwardly away from the railway-track and connected to the support and then inclined upwardly toward the railway-track with the extremities of the bar extending outwardly in opposite directions in substantial parallelism with the railway-track.

9. In an apparatus of the class described, a crane having a foot provided with a seat in its upper face, vertically-alined substantially U-shaped spring-clips carried by the crane above the foot, and a bag-carrying link having a straight vertical side for detachable engagement with the spring-clips, the lower side of the link being formed to removably fit the seat of the foot and the straight side of the link having a shoulder to engage the top of the upper spring-clip.

787,984. SOUND-PRODUCING DEVICE. ROBERT HOPE-JONES, Hartford, Conn. Filed Nov. 6, 1903. Serial No. 180,090.



Claim.—1. In a sound-producing device, the combination with a resonator and a chamber for a supply of fluid under pressure, of a cylinder provided with a series of speaking-ports, and an engine-port, a tubular piston working in the cylinder, and having a partition dividing its interior space into two chambers, one of which is provided with a series of speaking-ports corresponding with those of the cylinder, the other chamber being provided with an engine-port, corresponding to that of the cylinder.

2. In a sound-producing device, the combination with a resonator and a chamber for a supply of fluid under pressure, of a cylinder having a bore of uniform diameter throughout, a tubular piston mounted to slide in said bore and having its interior space divided into two chambers opening at opposite ends of the piston, one of the said chambers being provided with speaking-ports, and the other chamber with an engine-port, and the cylinder being provided with a corresponding series of speaking and engine ports.

3. In a sound-producing device, the combination with a resonator and a chamber for a supply of fluid under pressure, a cylinder provided with a series of speaking-ports and with an engine-port, a tubular piston of uniform diameter fitting the bore of the cylinder and having its interior space divided by a partition into two chambers opening at the opposite end of the piston, one of the chambers being provided with a series of speaking-ports corresponding with those of the cylinder, and the other chamber being provided with an engine-port communicating with that of the cylinder when the speaking-ports are out of communication.

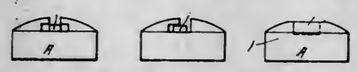
4. In a sound-producing device, the combination with a chamber for a supply of fluid under pressure, of a cylinder provided with a series of speaking-ports and an engine-port communicating with the said chamber, a tubular piston provided with separated chambers, a series of speaking-ports, and an engine-port corresponding with those of the cylinder, and, opening into the separate chambers of the piston, the engine-ports being arranged to communicate when the piston is at the lower end of the stroke, and the speaking-ports to communicate at the upper end of the stroke.

5. In a sound-producing device, the combination with a resonator, and a chamber for a supply of fluid under pressure, of a cylinder provided with a series of ports, a piston working in the said cylinder, and provided with a corresponding series of ports, the cylinder and the piston constituting a fluid-pressure engine, the ports of one series being wider than those of the other series to permit slight overrun of the piston-stroke, without reducing the area of the passage through.

6. In a sound-producing device, the combination with a resonator, and a chamber for a supply of fluid under pressure, of a cylinder provided with a series of ports, a piston working in the said cylinder, and provided with a corresponding series of ports, the cylinder and the piston constituting a fluid-pressure engine, the ports of one series being wider than those of the other series to permit slight overrun of the piston-stroke, without reducing the area of the passage through, and stops at the ends of the piston for preventing it from exceeding the predetermined amount of overrun of its stroke.

7. In a sound-producing device, the combination with a resonator, and with a chamber for a supply of fluid under pressure, of a cylinder provided with a series of speaking-ports and with an engine-port communicating between the said chamber and the interior of the cylinder, a tubular piston of uniform diameter mounted to slide in the said cylinder and provided with a series of speaking-ports, and an engine-port corresponding with those of the cylinder, but separated by an interior partition of the piston, the ports of one series being wider than those of the other series, to permit slight overrun of the stroke without reducing the area of the passage through.

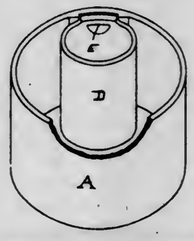
787,985. PEDESTAL FOR WRITING-MACHINES. FRANK W. HUTCHINGS, Detroit, Mich. Filed Nov. 26, 1904. Serial No. 234,352.



Claim.—1. A pedestal for type-writing machines comprising a soft aponge-rubber base having a convex upper surface and means on the upper convex surface adapted to engage the lower portion of the frame of the writing-machine.

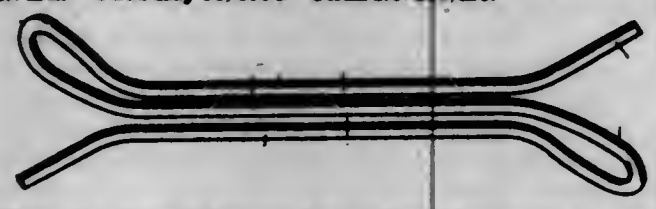
2. A pedestal for type-writing machines comprising a soft aponge-rubber base having a convex upper surface and a groove in the upper convex surface adapted to engage the lower portion of the frame of the writing-machine.

787,986. RECEPTACLE FOR HOLDING PASTE. FRANCIS J. KELLIHER, Albany, N. Y., assignor to The Diamond Paste Company, Albany, N. Y., a Corporation of New York. Filed Mar. 4, 1904. Serial No. 196,617.



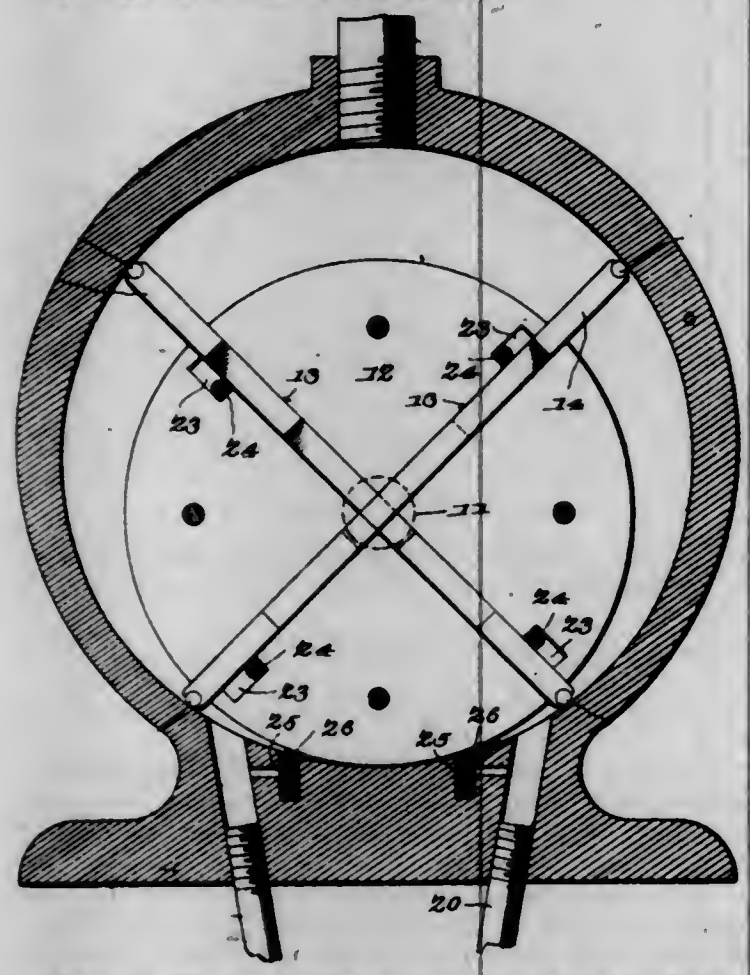
Claim.—A receptacle for holding wet paste, consisting of a paste-cup; undercut cleats arranged on the sides thereof; a water-well; a plate connected with said water-well, adapted to engage the undercut portions of said cleats; a shoulder formed on said water-well, by means of which the well may be removed from the paste-cup, substantially as described and for the purposes set forth.

787,987. CLOTHES-PIN. ALFRED W. KRIEGER, Santa Rosa, N. Mex. Filed May 11, 1904. Serial No. 207,426.



Claim.—A wire clothes-pin bent to form three arms of approximately equal length, all of said arms being disposed in parallel relation throughout the greater portion of their length, the wire end and the loop constituting one end of the pin being outwardly flared, and the similar portions of the opposite end of the pin being likewise flared, but in directions at right angles to the first, and the loops at each end of the pin being slightly spread.

787,988. ROTARY ENGINE. THEOPHILUS W. MOORE, Leesburg, Fla. Filed Jan. 19, 1905. Serial No. 241,819.



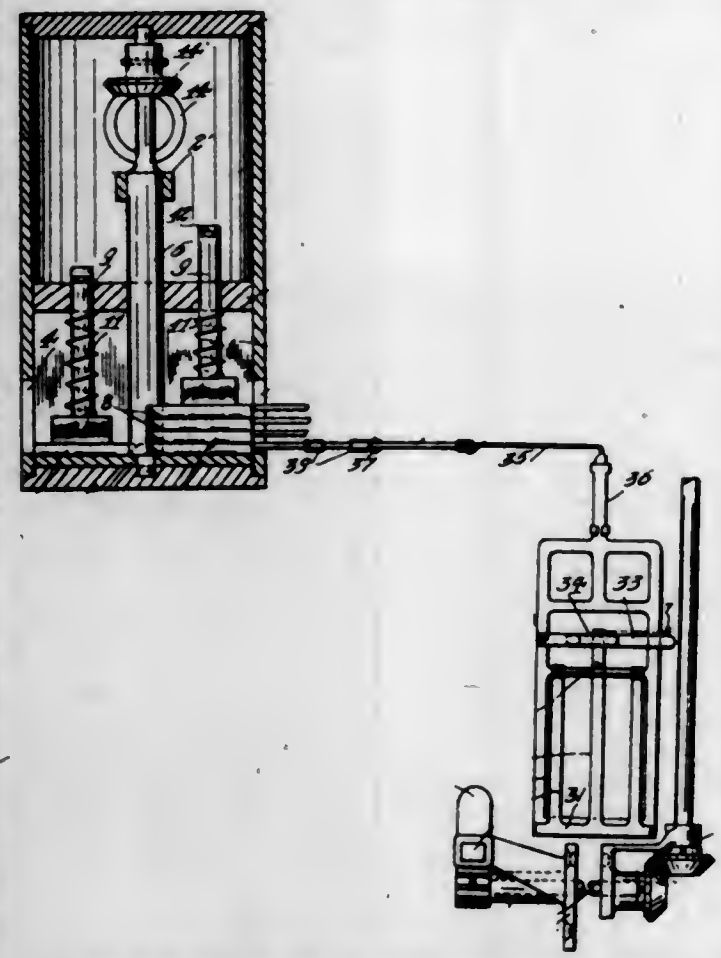
Claim.—1. The combination in a rotary engine, of a cylinder, an eccentric piston-drum arranged within the same, said drum being formed of a pair of members of similar contour, each provided with a pair of intersecting and diametrically-extending grooves, the intermediate portions of the grooves being of less depth than the thickness of said members, and the outer portions of said grooves extending entirely through said members, and piston-wings having enlarged or widened end portions corresponding in width to the width of the drum, and having reduced shanks fitting within the shallower portions of the grooves, each of the wings having a recess at its point of intersection with the other wing.

2. The combination in a rotary engine, of a cylinder, an eccentric piston-drum arranged therein and having its perimeter in contact with the inner wall of the cylinder, said cylinder-wall being provided with a transverse recess near the point of contact of the drum and cylinder, a yieldably-mounted roller arranged within said recess and normally forced by steam-pressure into contact with the perimeter of said drum, and slidable wings carried by said piston-drum.

787,989. MUSIC-LEAF TURNER. WILLIAM J. MORRIS, Marysville, Wash. Filed Aug. 25, 1904. Serial No. 221,119.

Claim.—1. In a music-leaf turner, the combination with a standard, of a carrier rotatably mounted therein, and provided with arm-engaging means, and a leaf-turning arm operable by said carrier and having an axis common therewith, said arm being movable longitudinally of said axis whereby it is engaged with and disengaged from said means.

2. In a music-leaf turner, the combination with a standard, of a plurality of leaf-turning arms swingingly mounted therein and having a common path of swing, said arms being consecutively movable longitudinally of their axis to or from said path at a limit of their swing.



3. In a music-leaf turner, the combination with a standard, of a plurality of leaf-turning arms swingingly mounted therein and having a common path of swing, said arms being consecutively movable longitudinally of their axis to or from said path at both limits of their swing.

4. In a music-leaf turner, the combination with a standard, of a plurality of leaf-turning arms swingingly mounted therein for movement about a common axis and having a common path of swing, said arms being consecutively movable longitudinally of said axis to or from said path at the limits of their swing, the line of said longitudinal movements being in the same direction relatively to said path at each of said limits.

5. In a music-leaf turner, the combination with a standard, of a leaf-turning arm swingingly mounted therein and being movable longitudinally of the axis to or from its path of swing at the limits of said swing, the line of said longitudinal movements being in the same direction relatively to said path at each of said limits, and means to swing said arm.

6. In a music-leaf turner, the combination with a standard, of a plurality of leaf-turning arms swingingly mounted therein for movement about a common axis and having a common path of swing, said arms being consecutively movable longitudinally of said axis to or from said path at the limits of their swing, and means at said limits to yieldingly press said arms toward said path.

7. In a music-leaf turner, the combination with a standard, of a plurality of leaf-turning arms swingingly mounted therein for movement about a common axis and having a common path of swing, said arms being consecutively movable longitudinally of said axis to or from said path at the limits of said swing, means at said limits to yieldingly press said arms toward said path, and means to forcibly move said arms reversely to the action of the said first means when swung to said limits.

8. In a music-leaf turner, the combination with a standard, of a carrier rotatably mounted therein, and a plurality of leaf-turning arms operable by said carrier in a common path of swing, said arms being movable consecutively to or from said path at the limits of their swing.

9. In a music-leaf turner, the combination with a standard, of a carrier rotatably mounted therein and provided with arm-engaging means, a plurality of leaf-turning arms adapted to be moved consecutively by said carrier in a common path of swing, said arms being movable consecutively to or from said path at the limits of their

swing, and means at said limits to yieldingly press said arms toward said path.

10. In a music-leaf turner, the combination with a standard, of a carrier rotatably mounted therein, a plurality of leaf-turning arms adapted to be moved consecutively by said carrier in a common path of swing, said arms being movable consecutively to or from said path at the limits of their swing, means at said limits to yieldingly press said arms toward said path, and means to move said arms against action of said first means by a movement of said carrier.

11. In a music-leaf turner, the combination with a standard, of a carrier rotatably mounted therein and provided with an arm-engaging groove, and a leaf-turning arm disposed radially to said carrier and operable thereby, said arm being movable to and from the carrier for engagement with and disengagement from said groove.

12. In a music-leaf turner, the combination with a standard, of a carrier rotatably mounted therein and provided with a radially-disposed arm-engaging groove having side walls diverging outwardly from the bottom, a leaf-turning arm disposed radially to said carrier and operable thereby, said arm being movable longitudinally of the axis of said carrier for engagement with and disengagement from said groove, opposite means to limit the movement of said arm with the carrier, and means at said limiting means to yieldingly press said arm toward said carrier.

13. In a music-leaf turner, the combination of a standard having a semicircular guideway formed with vertical end extensions, a carrier rotatably mounted in said standard and provided with a radially-disposed arm-engaging groove having side walls diverging outwardly from the bottom, a leaf-turning arm in said way disposed radially to said carrier and operable thereby, said arm being movable in said extensions longitudinally of the axis of said carrier for engagement with and disengagement from said groove, and means adjacent said extensions to yieldingly press said arm toward the carrier.

14. In a music-leaf turner, the combination of a standard having a semicircular guideway, a carrier rotatably mounted in said standard and provided with radially-disposed arm-engaging grooves, a plurality of leaf-turning arms disposed radially to said carrier and fitting in said way, said arms being movable consecutively at the ends of said way to and from said carrier for engagement with and disengagement from said grooves, and spring-pressed plungers adjacent said ends adapted to yieldingly press said arms toward said carrier.

15. In a music-leaf turner, the combination of a standard having a semicircular guideway formed with vertical end extensions, a carrier rotatably mounted in said standard and provided with opposite radially-disposed arm-engaging grooves having side walls diverging outwardly from the bottom, a plurality of leaf-turning arms disposed radially to said carrier and fitting in said way, said arms being movable consecutively at said extensions to and from said carrier, and spring-pressed plungers adjacent said extensions adapted to yieldingly press said arms toward said carrier.

16. In a music-leaf turner, the combination of a standard having a semicircular guideway formed with vertical end extensions, of a vertical spindle rotatably mounted in said standard, a carrier secured to said spindle adjacent said way and provided with radially-disposed arm-engaging grooves having side walls diverging outwardly from the bottom, a plurality of radially-disposed leaf-turning arms in said way having portions fitting freely between said standard and spindle and partially embracing the latter, and means adjacent said extensions adapted to yieldingly press said arms toward the carrier.

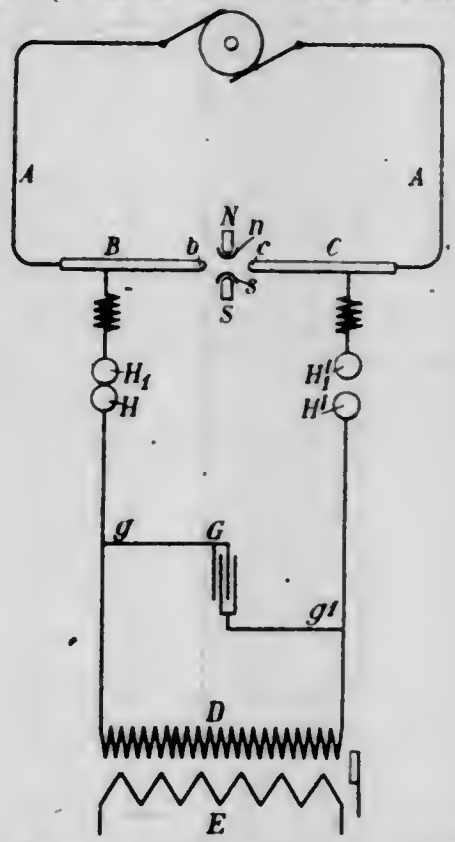
17. In a music-leaf turner, the combination with a standard having a semicircular guideway formed with vertical end extensions, of a vertical spindle rotatably mounted in said standard, a carrier secured to said spindle adjacent said way and provided with opposite radially-disposed arm-engaging grooves having side walls diverging outwardly from the bottom, a plurality of radially-disposed leaf-turning arms in said way having portions corresponding to said grooves and fitting freely between said standard and spindle and partially embracing the latter and spring-pressed plungers adjacent said extensions adapted to yieldingly press said arms toward the carrier.

18. In a music-leaf turner, the combination with a standard and a horizontal leaf-turning arm swingingly mounted therein and movable longitudinally of its axis, of a vertically-disposed clasp connected with said arm and comprising a flat base part, a jaw swingingly connected therewith, and means to secure the jaw in a partly-open position or in a closed position.

19. In a music-leaf turner, the combination with a horizontal leaf-turning arm swingingly mounted therein, of a clasp comprising a flat base part, a jaw swingingly connected therewith and having an upwardly-projecting resilient tongue, and a latch for said tongue mounted on said base and provided with a finger on the back side.

20. In a music-leaf turner the combination with a standard and a horizontal leaf-turning arm swingingly mounted therein, of a vertically-disposed leaf-engaging part having a horizontal stem part pivotally connected with said arm to swing on a vertical axis, and means to limit the swing of said stem part on said axis.

787,990. **ELECTRICAL INTERRUPTER.** THOMAS J. MURPHY, New York, N. Y. Filed Sept. 14, 1903. Serial No. 173,213.



Claim.—1. The means of obtaining rapid interruptions of electric currents; comprising a gap in a circuit of relatively low self-induction; a circuit containing a condenser, means whereby the disruptive discharge of said condenser renders said gap conductive for the passage of currents in the circuit of relatively low self-induction, means for disrupting the currents established between said electrodes, and further means for preventing currents from the circuit of relatively low self-induction from interfering with the functions of said condenser-circuit, as shown and described.

2. In an electric interrupter the combination of a gap in a circuit having a low coefficient of self-induction, a condenser arranged to be discharged across said gap, an induction-coil to renew the charge of said condenser, and a magnetic field arranged to react upon electric current in the gap, substantially as set forth.

3. In an interrupter of electric currents, the combination of a spark-gap in a circuit of small self-induction to be interrupted and restored; a condenser arranged to be discharged across said gap to render it conductive together with means of renewing charge of said condenser, and further means of rupturing principal current flowing through the gap, as set forth.

787,991. **CAR-COUPLING.** WILLIAM MCCONWAY, Jr., Pittsburg, Pa., assignor to The McConway & Torley Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Oct. 11, 1904. Serial No. 228,051.



Claim.—1. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set and knuckle-opener member having a detent-finger arranged out of the path of movement of the lock when the latter is in locked position and adapted to move into engagement with and to retain said lock in unlocked position when the knuckle is in locked position, and means whereby said lock is released from said lock-set and knuckle-opener member upon the opening movement of said knuckle, substantially as and for the purposes specified.

2. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a member having a trip-finger and a detent-finger thereon, said detent-finger arranged out of the path of movement of the lock when the latter is in locked position and adapted to move into supporting engagement with said lock and said trip-finger adapted to coact with said knuckle upon an opening movement of the latter to release said lock from said detent-finger, substantially as and for the purposes specified.

3. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a member having a trip-finger, a detent-finger and a knuckle-opener arm, said detent-finger arranged out of the path of movement of the lock when the latter is in locked position and adapted to move into supporting engagement with said lock, said trip-finger adapted to coact with said knuckle upon an opening movement of the latter to release said lock from said detent-finger, and said knuckle-opener arm adapted to coact with said detent-finger to open said knuckle, substantially as and for the purposes specified.

4. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a member loosely mounted in the coupler-head and adapted to move into supporting engagement with said lock, and a projection upon the tail of said knuckle adapted to disengage said loosely-mounted member from supporting engagement with said lock upon an opening movement of said knuckle, substantially as and for the purposes specified.

5. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a lock-set and knuckle-opener member having a detent-finger arranged out of the path of movement of the lock when the latter is in locked position and adapted to move into supporting engagement with said lock and to be disengaged from said lock upon an opening movement of said knuckle, substantially as and for the purposes specified.

6. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a lock-set and knuckle-opener member adapted to move into supporting engagement with said lock and to have a movement in any direction in the plane of its operation, substantially as and for the purposes specified.

7. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a lock-set and knuckle-opener member having a pin-and-slot connection with said coupler-head adapted to permit movement of said lock-set and knuckle-opener member in any direction in the plane of its operation, substantially as and for the purposes specified.

8. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a knuckle-opener member adapted to move into engagement with said lock and to have a movement in any direction in the plane of its operation, substantially as and for the purposes specified.

9. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a knuckle-opener member having a pin-and-slot connection with said coupler-head adapted to permit movement of said knuckle-opener member in any direction in the plane of its operation, substantially as and for the purposes specified.

10. In a car-coupler, the combination with a knuckle, of a lock for said knuckle, and a lock-set member adapted to move into supporting engagement with said lock and to have a movement in any direction in the plane of its operation, substantially as and for the purposes specified.

11. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a lock-set member adapted to move into supporting engagement with said lock and having a pin-and-slot connection with said coupler-head adapted to permit movement of said lock-set member in any direction in the plane of its operation, substantially as and for the purposes specified.

12. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and a lock-set member, said last-named member having a trip-finger, a detent-finger and means adapted to form a pin-and-slot connection with the coupler-head whereby said lock-set member may have movement in any direction in the plane of its operation, substantially as and for the purposes specified.

13. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set and knuckle-opener member having a detent-finger arranged out of the path of movement of the lock when the latter is in locked position and adapted to move into supporting engagement with said lock, and means independent of said lock-set and knuckle-opener member for releasing said lock from such supporting engagement, substantially as and for the purposes specified.

14. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set and knuckle-opener member having a detent-finger arranged out of the path of movement of the lock when the latter is in locked position and adapted to move into engagement with and to retain said lock in unlocked position when the knuckle is in locked position, means whereby said lock is released from said lock-set and knuckle-opener member upon the opening movement of said knuckle, and means whereby said lock may be released from said lock-set and knuckle-opener member independently of the movement of said knuckle, substantially as and for the purposes specified.

15. A knuckle for vertical-plane car-couplers, said knuckle having a projection on the upper surface of the tail thereof and a substantially wedge-shaped shelf beyond the same, substantially as and for the purposes specified.

16. A knuckle for vertical-plane car-couplers, said knuckle having a knuckle-pin hole, an inclined projection on the upper surface of the tail thereof, and a shelf having its outer border eccentric to the knuckle-pin hole, substantially as and for the purposes specified.

17. A knuckle for vertical-plane car-couplers, said knuckle having a knuckle-pin hole, a projection upon the upper surface of the tail thereof, a hook portion, and a locking-face extending a greater distance radially from the knuckle-pin hole than does said hook portion, substantially as and for the purposes specified.

18. A knuckle for vertical-plane car-couplers, said knuckle having a projection upon the upper portion of the tail thereof and a shelf beyond the same, substantially as and for the purposes specified.

19. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and emergency releaser means comprising a curved lever having pintles adapted to engage said lock, substantially as and for the purposes specified.

20. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle having a bifurcating channel therein, and a curved lever housed within said channel and provided with pintles adapted to engage said lock, substantially as and for the purposes specified.

21. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and emergency releaser means adapted to engage a portion of the coupler-head to prevent accidental unlocking of said lock, substantially as and for the purposes specified.

22. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, and an emergency releaser-lever adapted to pivotally engage said lock within the coupler-head and to engage a portion of the coupler-head to prevent accidental unlocking of said lock, substantially as and for the purposes specified.

23. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle having a bifurcating channel and provided with inclined guideways, and a curved lever housed within said channel and provided with means for engaging the inclined guideways of said lock, substantially as and for the purposes specified.

24. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle having a bifurcating channel and provided with inclined guideways, and a curved lever housed within said channel and provided with pintles adapted to engage the inclined guideways of said lock within the coupler-head, substantially as and for the purposes specified.

25. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set member adapted to move into supporting engagement with said lock, and means housed within said lock for releasing the latter from such supporting engagement of said lock-set member, substantially as and for the purposes specified.

26. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set member adapted to move into engagement with and to retain said lock in unlocked position when the knuckle is in locked position, means whereby said lock is released from said lock-set member upon the opening movement of said knuckle, and means housed within said lock for releasing the latter from said lock-set member independently of the movement of said knuckle, substantially as and for the purposes specified.

27. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set member adapted to supportingly engage said lock, and a cam-slide for releasing said lock from such supporting engagement of said lock-set member, substantially as and for the purposes specified.

28. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle, a lock-set member adapted to supportingly engage said lock, and a cam-slide housed within said lock for releasing the latter from such supporting engagement of said lock-set member, substantially as and for the purposes specified.

29. In a car-coupler, the combination with a coupler-head, of a knuckle, a lock for said knuckle provided with a pocket adapted to receive a lock-set member and with a slot communicating with said pocket, a lock-set member, and a cam-slide within the said slot adapted to engage said lock-set member, substantially as and for the purposes specified.

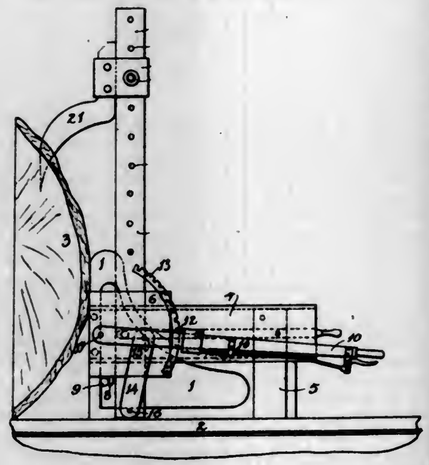
30. A lock for vertical-plane car-couplers, said lock provided with a channel and with inclined guideways adapted to receive an emergency releaser member, substantially as and for the purposes specified.

31. A lock for vertical-plane car-couplers, said lock provided with a pocket adapted to receive a lock-set member and with a slot communicating with said pocket, said slot being adapted to receive a lock-set release member, substantially as and for the purposes specified.

32. A lock for vertical-plane car-couplers, said lock provided with means adapted to pivotally engage an emergency releaser-lever and with a bifurcating channel adapted to receive such emergency releaser-lever, substantially as and for the purposes specified.

33. A knuckle for vertical-plane couplers having a knuckle-pin hole, a projection upon the upper surface of the tail thereof, and a projecting locking-face of washer form adapted to stand back of a portion of the locking-pin when in a locked position, substantially as and for the purposes specified.

787,992. RECEDING DOG. ARTHUR B. MCCULLOCH, Kapowsin, Wash. Filed Apr. 7, 1904. Serial No. 201,952.



Claim.—1. In a sawmill-dog, the combination with the knee mounted on the carriage, of a horizontal guide-plate secured to said knee, a carrier-block mounted on and freely sliding on said guide-plate, a vertically-sliding tooth-bar mounted on and sliding with said carrier-block and carrying a tooth, a hand-lever pivoted to and sliding with said carrier-block, a link connecting said hand-lever with said vertical tooth-bar, and a quadrant mounted on said carrier-block and adapted to be engaged by and to hold said hand-lever in any position thereon.

2. In a sawmill-dog, the combination with the knee mounted on the carriage, of a horizontal guide-plate secured to said knee, a carrier-block mounted on and freely sliding on said guide-plate, a stop mounted on said guide-plate whereby said carrier-block is prevented from passing too far forward on said guide-plate, a vertically-sliding tooth-bar mounted on and sliding with said carrier-block and carrying a tooth, a hand-lever pivoted to and sliding with said carrier-block, a link connecting said hand-lever with said vertical tooth-bar, and a quadrant mounted on said carrier-block and adapted to be engaged by and to hold said hand-lever in any position thereon.

3. In a sawmill-dog, the combination with the knee mounted on the carriage, of a horizontal guide-plate secured to said knee, a carrier-block mounted on and freely sliding on said guide-plate, a removable stop mounted on said guide-plate whereby said carrier-block is prevented from passing too far forward on said guide-plate, a horizontal lever pivoted to said knee and engaging said stop to remove it, a vertically-sliding tooth-bar mounted on and sliding with said carrier-block and carrying a tooth, a hand-lever pivoted to and sliding with said carrier-block, a link connecting said hand-lever with said vertical tooth-bar, and a quadrant mounted on said carrier-block and adapted to be engaged by and to hold said hand-lever in any position thereon.

787,993. GUARD FOR SCARF-PINS, &c. HENRY ROHRDANTZ, Buffalo, N. Y. Filed Oct. 29, 1903. Renewed Sept. 13, 1904. Serial No. 224,298.



Claim.—1. A pin-guard, comprising a sleeve, and a wedge movable lengthwise in the sleeve and provided with a longitudinal pin-groove a portion of which is shallower than the pin adapted to lie in the groove, whereby the pin is clamped between the bottom of said groove and the opposing wall of the sleeve when the wedge is tightened, substantially as set forth.

2. A pin-guard, comprising a sleeve adapted to surround a pin and provided with a flaring bore, and a clamping-wedge arranged in said sleeve and having a longitudinal pin-groove which increases in depth toward the front end of the wedge, substantially as set forth.

3. A pin-guard, comprising a sleeve having an internal shoulder, and a wedge movable lengthwise in the sleeve and provided at its inner end with a stop lip or flange arranged to encounter said shoulder, substantially as set forth.

4. A pin-guard, comprising a sleeve adapted to receive a pin, and a wedge arranged in the sleeve and having its outer end bent at an angle to the body of the wedge, substantially as set forth.

5. A pin-guard, comprising a sleeve adapted to receive a pin, and a wedge arranged in the sleeve and having a longitudinal pin-groove increasing in depth toward the front end of the wedge, and a laterally-bent outer end arranged in line with said groove, substantially as set forth.

787,994. HARNESS-SADDLE. WALTER P. SAWYER, Jonesport, Me. Filed May 8, 1901. Serial No. 59,266.



Claim.—A harness-saddle comprising two trees of metal, a spring-bow having wings secured to the respective metal trees,

short broad straps disposed between said wings and trees, a pad secured to each tree and extending a considerable distance below the lower end thereof, a broad strap over each pad and extending to the lower end thereof, girth-straps projecting from the lower ends of said last-mentioned broad straps and thill-straps secured at their upper ends between the said broad straps.

787,995. LIFTING-JACK. ARTHUR L. STANFORD, Chicago, Ill. Filed Nov. 23, 1904. Serial No. 233,833.



Claim.—1. In a lifting-jack the combination of a frame, a lifting-bar, an operating-lever for raising said bar operatively connected therewith, a fulcrum for supporting the lever upon the frame, a bearing with which the fulcrum engages and a curved guard moving with the lever and struck on an arc from the point of contact between the fulcrum and said bearing for holding the fulcrum and bearing together.

2. In a lifting-jack the combination of a frame, a lifting-bar, a lever fulcrumed on the frame, an operative connection between the lever and the said bar for raising the bar, comprising a bearing and a hanger engaging the bearing, said bearing and hanger being connected one with the lever and the other with the bar and adapted to rock one upon the other, and a curved guard for holding the hanger and bearing in contact, struck on an arc from the point of contact between said hanger and bearing.

3. In a lifting-jack the combination of a frame, a lifting-bar, a lever for operating said bar, a fulcrum for the lever, a bearing for said fulcrum, a curved guard for holding the bearing and fulcrum together struck on an arc from the point of contact between said bearing and fulcrum, an operative connection between said bar and lever comprising a bearing reversed with respect to said first bearing and a support engaging said second bearing whereby the oscillation of the lever will be imparted to the said bar through the intermediary of the second bearing and said support, and a curved guard for holding said second bearing and support in contact, struck on an arc from the last-said point of contact and reversed with respect to said first guard.

4. In a lifting-jack the combination of a frame, a lifting-bar, an operating-lever, a knife-edge fulcrum for the lever, a bearing-block having a depression for receiving the edge of said fulcrum, a curved guard engaging the fulcrum on the side opposite said bearing-block, and an operative connection between the lever and the said bar for raising the latter.

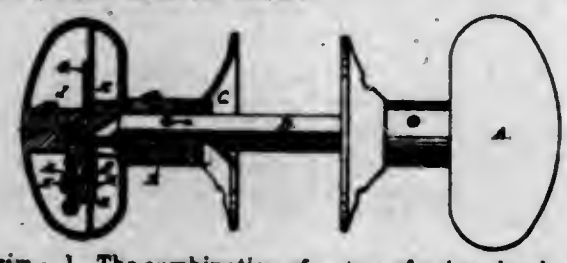
5. In a lifting-jack the combination of a frame, a lifting-bar, an operating-lever, a knife-edge fulcrum on the frame for the lever, a hanger having a knife-edge support for connecting the lever with the bar, said knife-edges being inverted with respect to each other, and bearing-blocks removably seated in the lever and engaging said edges respectively.

6. In a lifting-jack the combination of a frame, a lifting-bar, an operating-lever, two independent bearing-blocks removably seated in said lever, and arranged one against the other whereby they will mutually guard against their displacement, a fulcrum for the lever against which one of said blocks engages, and an operative connection between the said bar and the lever comprising a support engaging with the other of said blocks and adapted to rock thereon.

7. In a lifting-jack the combination of a frame, a lifting-bar, an operating-lever, fulcrumed on said frame and having seats for independent bearing-blocks, independent bearing-blocks adapted to be inserted into said seats and having depressed surfaces, an operative connection between the lever and the said bar comprising a knife-edge support adapted to engage in said depressed surfaces, and means for holding said support from moving directly away from said bearing-block, the latter said means, said support and bearing-block being so proportioned that the knife-edge of the support may be turned to one side above the top of the bearing-block and the bearing-block inserted thereunder when it is thus elevated, and means for holding the bearing-block from moving in the direction opposite that in which it is inserted into its seat.

8. In a lifting-jack the combination of a frame, a lifting-bar an operating-lever operatively connected with the said bar for raising it, and having two arms embracing the frame and provided with apertures in their sides, bearing-blocks seated in the upper sides of said apertures, flanges projecting downwardly partially over the ends of said bearing-blocks for holding them in place, and a fulcrum-pin passing through said apertures and frame and supporting said blocks.

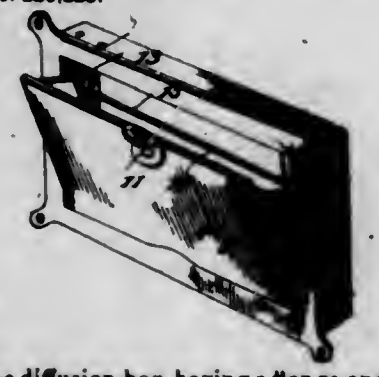
787,996. COMBINATION DOOR-KNOB, DOOR-BELL, AND BURGLAR-ALARM. ELMER STEWART, Kansas City, Mo. Filed Feb. 12, 1904. Serial No. 193,318.



Claim.—1. The combination of a stem of a door-knob, a bell attached to the stem of a door-knob, a gear-wheel attached to said stem, a striking device connecting with said stem through said gear-wheel, a rose-plate c, a striker-carrying arm D attached to rose-plate c, the remainder of the mechanism rotatable relatively to this arm D, so that the striking device will be operated by turning the stem of the knob.

2. The combination of a bell secured to the stem of a door-knob, a gear-wheel attached to said stem, a striking device, an opening through said stem, a fixed striker-carrying arm extending through said opening and upon which said striking device is secured, the striker-carrying arm being fixed and immovable relative to the rotation of the balance of the mechanism, whereby when the stem of the knob is turned the bell will be sounded.

787,997. VENTILATING DEVICE. ROSS TAYLOR and WILLIAM G. CREAMER, New York, N. Y., assignors to Automatic Ventilator Company, New York, N. Y., a Corporation of New York. Filed Aug. 10, 1904. Serial No. 220,223.



Claim.—1. The diffusion-box having a flange and adapted to be secured in position within the wall or other part of a car, in combination with an interior plate or door having returned ends pivotally connected at its lower portion to the box, and with a series of recesses or depressions in the edge of one of said ends; and a flat metal spring with one end secured to the upper portion of the box, and its free end provided with a projection adapted to coöperate with the recesses or depressions in the end portion of the plate or door, substantially as and for the purposes set forth.

2. In a diffusion-box such as described, in combination with the box, vibrating plate or door, and spring for holding the latter in adjusted positions, louvers arranged within the box and terminating longitudinally in a plane away from the ends of the diffusion-box, whereby a space is provided for the ends of the vibrative plate or door, substantially as hereinbefore set forth.

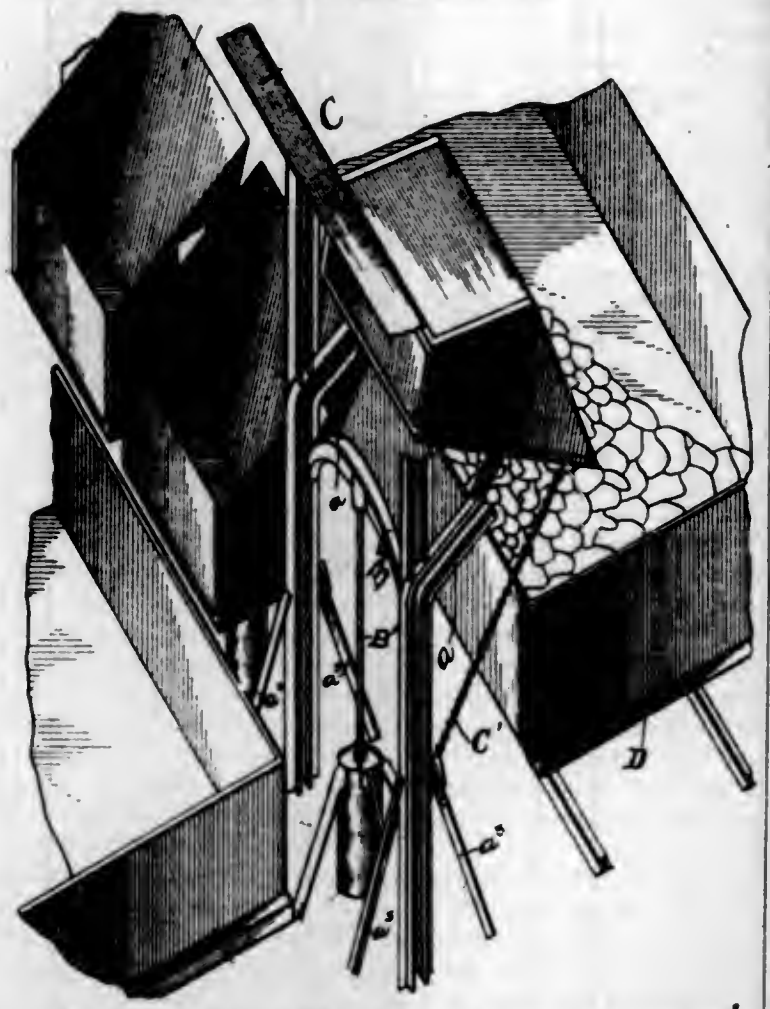
3. In a diffusion-box such as described, louvers secured therein and consisting of an outer rectangular frame secured at its upper end to the diffusion-box, and parallel strips with returned ends attached to the ends of the rectangular frame portion, substantially as described.

787,998. AUTOMATIC HOIST AND DUMP. EUGENE J. TRUDEAU, Chicago, Ill. Filed Oct. 16, 1903. Serial No. 127,501.

Claim.—1. The combination with upwardly and laterally extending ways, of a yoke movable therein, upwardly-extending arms pivoted on said yoke, a bucket pivotally secured on the upper end of said arms and flexible means engaged thereon adapted to dump the contents at a predetermined point.

2. The combination with vertical ways, of a truck movable

therein, a bucket pivoted on the upper end of the truck an normally in an upright position, a yoke pivoted on the lower end of the truck, and means engaged on the bucket acting to dump the same laterally as the bucket is moved upwardly and outwardly.



3. The combination with a source of power, of a pivotally-supported truck operated therefrom and movable upwardly and laterally, a bucket pivoted on the truck, and a flexible conuection engaged on said bucket and acting to dump the same when at the limit of its movement.

4. The combination with uprights provided ou their inner faces with parallel ways which at their upper end extend obliquely upward and laterally from the uprights, a truck movable in said ways, a bucket pivoted at the upper end of the truck, means for moving said truck and bucket upwardly and outwardly in said ways and a chain or the like engaged at one end at one side of the bucket and at the other end engaged on the frame and acting when the bucket is at the limit of its movement to invert the bucket.

5. The combination with a bucket having an elongated rear side, of a truck pivoted near the top thereof for elevating the bucket and carrying the same laterally and means for arresting the movement of the forward end of the bucket while the rear end is elevated.

6. The combination with uprights, of a pneumatic cylinder located between the same, a piston movable thereby, a bucket pivotally engaged on the piston and movable upwardly and laterally between the uprights, means for controlling the admission of air to the cylinder and a chain or the like engaged on the top of the bucket and acting when the bucket is elevated to invert the same laterally.

7. The combination with uprights provided on their inner side with parallel upwardly and laterally directed channels, of a truck movable in the channels, pneumatic means for operating said trucks, a bucket pivoted at the upper end of the truck out of engagement with said uprights and moved upwardly and outwardly by said truck and a positive connection between the top of the bucket and a rigid part of the frame whereby the bucket is partly inverted when elevated.

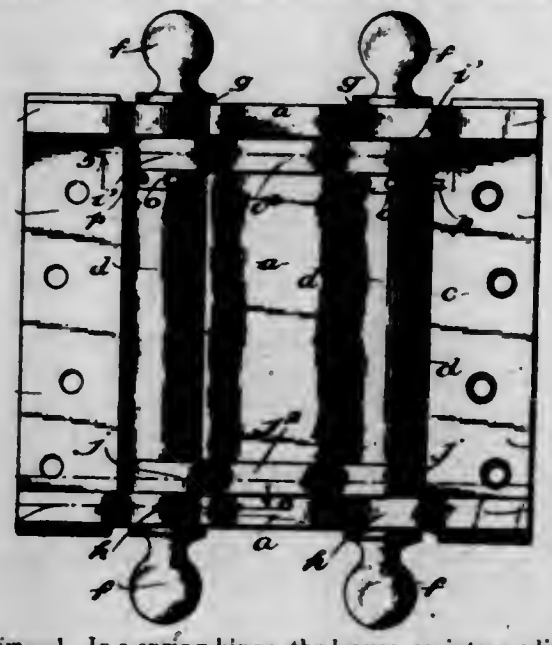
8. The combination with a supporting-frame comprising vertical channeled uprights, of vertically and laterally movable buckets between the uprights, a chain on each bucket and connected with an adjacent upright acting to partly invert the same when in its most elevated position.

9. The combination with a main track, of a bucket pivoted adjacent to the track and movable upwardly and toward the track, pneumatic means for actuating the bucket, and a chain engaged on the side of the bucket adjacent to the track and acting to partly invert the same when moved upwardly and over the track.

10. The combination with a railway-track, of a frame located adjacent to the track, a bucket pivoted in the frame and movable upwardly therein and toward the track and having the side of the same adjacent to the track elongated and flexible means engaged on the long side of the bucket and to the frame below and acting to invert the same over the track when at the limit of its upward and outward movement.

11. The combination with a plurality of railway-tracks, of a frame located between the tracks provided with upwardly and laterally directed ways, a bucket pivoted in each pair of ways and having one comparatively low side and a high side forming a chute, means for moving the bucket upwardly and outwardly above the respective tracks and means attached to the bucket and to the frame acting to partly invert each bucket when at the limit of its upward movement whereby the chute side of the bucket acts to direct the material therein into receiving means supported upon the track.

787,999. **SPRING-HINGE.** HARRY J. VALENTINE, Cleveland, Ohio, assignor to The Columbian Hardware Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 18, 1904. Serial No. 194,152.

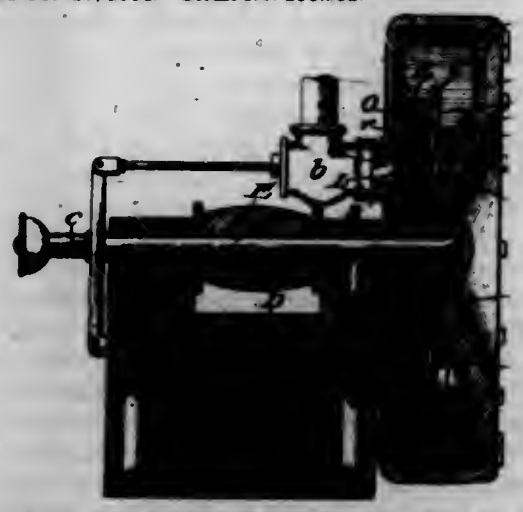


Claim.—1. In a spring-hinge, the leaves, an intermediate member or web, and strips, formed with knuckles and secured transversely thereon at some distance from the ends of the said member, substantially as described.

2. In a spring-hinge, the combination of the intermediate member, leaves, transverse strips on the said member and leaves formed with cylindrical knuckles, and pintles passing through the knuckles, substantially as described.

3. In a spring-hinge, the combination of a knuckle member, in which a recess is located at one side of a knuckle, a bushing or plug substantially filling said knuckle and of irregular shape to provide a nose or projection to engage said recess to prevent turning of the bushing, a spring connected at one end with said bushing, a leaf or second knuckle member, a pintle passing through the knuckles and bushing, said second knuckle member being subjected to the action of the other end of said spring, and a spring and pintle casing.

788,000. **TURBINE-ENGINE.** ADOLPH WAHLE, Davenport, Iowa. Filed Oct. 27, 1904. Serial No. 230,232.



Claim.—1. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough, the buckets in

each of said series increasing in length toward the outer circumference of said disk.

2. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough and inclined from each end in the direction of revolution of said disk, the buckets in each of said series increasing in length toward the outer circumference of said disk.

3. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough that are smaller at the inlet end than at the outlet end, the buckets in each of said series increasing in length toward the outer circumference of said disk.

4. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough that are smaller at the inlet end than at the outlet end, and having each end portion converging toward each other in the direction of revolution of said disk, the buckets in each of said series increasing in length toward the outer circumference of said disk.

5. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough, that are smaller at the inlet end than at the outlet end and arranged so that the inlets of one series of buckets are on one side of the disk and the inlet ends of another series are on the opposite side thereof, the buckets in each of said series increasing in length toward the outer circumference of said disk.

6. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough, the inlet end of one series of buckets being on one side of the disk and the inlet ends of another series being on the opposite side thereof, the buckets in each of said series increasing in length toward the outer circumference of said disk.

7. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough and inclined from each end in the direction of revolution of said disk, the inlet end of one series of buckets being on one side of the disk and the inlet end of another series being on the opposite side thereof, the buckets in each of said series increasing in length toward the outer circumference of said disk.

8. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough that are smaller at the inlet end than at the outlet end, the inlet end of one series of buckets being on one side of the disk and the outlet end of another series being on the opposite side thereof, the buckets in each of said series increasing in length toward the outer circumference of said disk.

9. In a turbine-engine a disk having several concentric series of buckets extending transversely therethrough that are smaller at the inlet end than at the outlet end, and having each end portion converging toward each other in the direction of revolution of said disk, the inlet end of one series of buckets being on one side of the disk and the inlet-opening of another series being on the opposite side thereof, the buckets in each of said series increasing in length toward the outer circumference of said disk.

10. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with a pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk.

11. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with a pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the bottom of the said pocket with the opposite side of said disk.

12. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with a pocket the length of which is arranged radially to the center of the disk and have at the center of length thereof a small opening connecting the bottom of the said pocket with the opposite side of said disk.

13. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk.

14. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the bottom of the said pocket with the opposite side of said disk.

15. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have at the center of length thereof a small opening connecting the bottom of the said pocket with the opposite side of said disk.

16. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk in an oblique plane intersecting the bottom of said pocket.

17. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the bottom of the said pocket with the opposite side of said disk in an oblique plane intersecting the bottom of said pocket.

18. In a turbine-engine a disk having a concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have at the center of length thereof a small opening connecting the bottom of the said pocket with the opposite side of said disk in an oblique plane intersecting the bottom of said pocket.

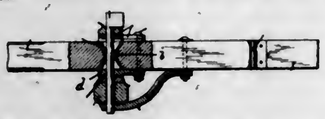
19. In a turbine-engine a disk having several concentric series of buckets extending transversely through the disk, which buckets are each provided with a pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk.

20. In a turbine-engine a disk having several concentric series of buckets extending transversely through the disk, which buckets are each provided with a pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk, said buckets being so arranged that those of one series have their pockets on one side of the disk while those of another series have their pockets on the opposite side of the disk.

21. In a turbine-engine a disk having several concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk; said buckets being so arranged that those of one series have their pockets on one side of the disk while those of another series have their pockets on the opposite side of the disk.

22. In a turbine-engine a disk having several concentric series of buckets extending transversely through the disk, which buckets are each provided with an obliquely-cut pocket the length of which is arranged radially to the center of the disk and have a small opening connecting the said pocket with the opposite side of said disk in an oblique plane intersecting the bottom of said pocket; said buckets being so arranged that those of one series have their pockets on one side of the disk while those of another series have their pockets on the opposite side of the disk.

788,001. POLE-COUPLING FOR VEHICLES. DAVID S. WATSON, Canastota, N. Y., assignor to Watson Wagon Company, Canastota, N. Y., a Corporation of New York. Filed Aug. 22, 1904. Serial No. 221,797.

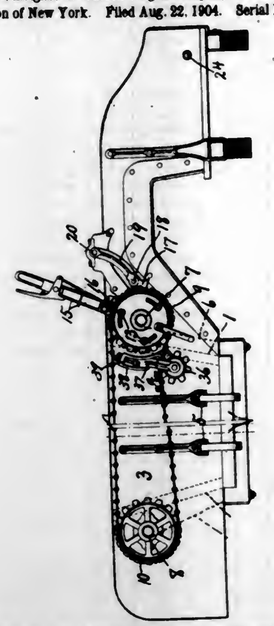


Claim.—1. In combination with the front gear of a vehicle having a vertical bolt-opening, a bolt in said opening and a pole having a hollow metal bushing receiving said bolt and having its central portion of substantially the same diameter as the bolt and its upper and lower ends elongated in the direction of the extension of the pole, whereby the pole is free to rock vertically upon the bolt.

2. A pole-coupling for vehicles, consisting of a metal bushing having a lengthwise opening circular in cross-section at the center, but elongated at the ends, and a bolt fitting in the circular part of the opening.

3. A pole or tongue for vehicles, said pole or tongue having a vertical opening, and a metal bushing inserted in the opening and having its ends expanded in the direction of extension of the pole and of greater diameter in one direction than the center of the bushing, in combination with a bolt of substantially the same diameter as the center of the opening in the bushing.

788,002. DUMPING-WAGON. DAVID S. WATSON, Canastota, N. Y., assignor to Watson Wagon Company, Canastota, N. Y., a Corporation of New York. Filed Aug. 22, 1904. Serial No. 221,798.



Claim.—1. In a dump-wagon, the combination with a dump-box having laterally-swinging bottom doors, drums at the opposite ends of the doors, chains connecting the drums to the adjacent ends of the doors, a link belt connected to transmit motion from one drum to the other, means for rotating one of the drums, and a toothed element riding in the links of the belt to expel stones and foreign matter from the links.

2. The combination with the dumping-doors of a dump-wagon and means to control the operation of said doors including a chain, of a rotary toothed idler having its teeth entering the links of the chain to expel foreign matter therefrom.

3. In a dump-wagon, the combination with two rotary horizontal drums and a link belt connected to transmit motion from one drum to the other, of a toothed member entering the links of the part of the chain below the axes of the drums to expel foreign matter from said links.

4. The combination with the bottom doors of a dump-wagon, of front and rear drums connected to raise and lower the doors, means to rotate the front drum, a link belt connected to transmit rotary motion from the front to the rear drum, and a rotary toothed idler having its teeth projecting through the links from the under side of the lower part of the chain near the front drum to expel foreign matter from said links.

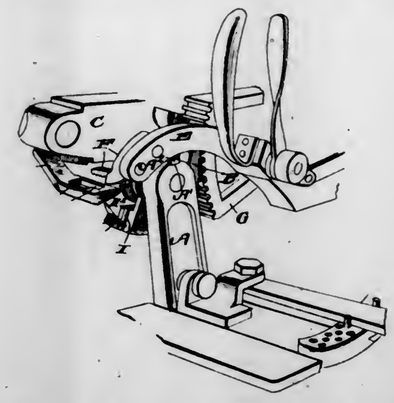
5. In a dump-wagon, a dump-box having swinging bottom doors, front and rear drums connected to said doors, means to rotate the front drum, a link belt connected to transmit rotary motion from the front to the rear drum, and a toothed idler adjustably mounted on the box and engaged with the belt to take up the slack and at the same time to remove foreign matter from the links of the belt.

6. In a dump-wagon, a dump-box having swinging bottom doors, front and rear drums connected to said doors, means to rotate the front drum, a link belt connected to transmit rotary motion from the front to the rear drum, a guide on the box at the rear of the front drum, a bracket vertically adjustable on the guide, means to adjust and to hold the bracket, and a toothed idler on the bracket engaging the links of the belt to take up the slack and remove foreign matter from the belt.

7. In a dump-wagon, a dump-box having swinging bottom doors, a pawl and ratchet operatively connected to operate the doors, a pivoted holding-pawl and a rocking support therefor, a weighted arm connected to rock the support, a locking-lever for said arm and a second lever operatively connected to rock the weighted arm to trip the holding-pawl.

8. A rock-shaft having a rearwardly-extending arm and a forwardly-extending arm, a holding-pawl pivoted to the rearwardly-extending arm to engage and hold the ratchet-wheel in its adjusted position, a locking member for the forwardly-projecting arm, and a pedal operatively connected to elevate the forwardly-projecting arm to trip the holding-pawl.

788,003. STITCH-SEPARATOR AND WELT-INDENTOR. SAMUEL J. WENTWORTH, Newport, Ky. Filed July 29, 1902. Serial No. 117,482.



Claim.—1. The combination of the awl-segment, awl-cap and welt-indenting and separating tool, said tool comprising the body portion, and the upwardly-curved blade, of the work-table having a throat or aperture adapted to receive the blade of the said tool, the presser-foot and the arm for carrying the same, and a rest-block arranged upon the end of the bracket carrying the awl-segment, whereby the presser-foot is held elevated above the work-table, as and for the purpose set forth.

2. In a rotary boot-stitching machine the combination of a curved awl, a segment to which it is attached, means for rotating the segment, an awl-cap attached to the segment for holding the awl in place and a pricker-blade fast with the cap.

3. In a rotary boot-stitching machine, the combination of a curved awl, a segment to which it is attached, means for rotating the segment, an awl-cap for securing the awl to the segment and a curved pricker-blade formed with the cap and concentric with the awl.

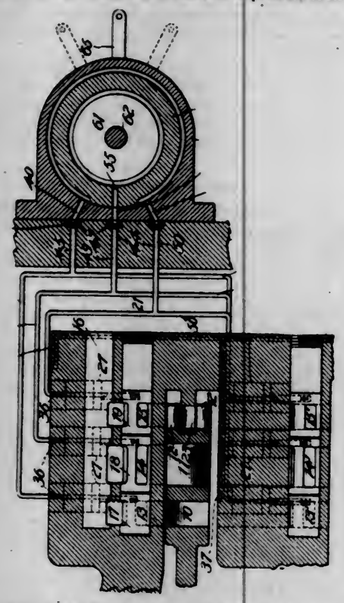
4. In a shoe-stitching meachine the combination of a segment, means for rotating the segment, an awl-cap attached to the segment, a curved awl and a concentrically-curved pricker-blade or indentor secured to the cap, and means for relatively adjusting the awl and pricker-blade.

788,004. CONTROLLER MECHANISM FOR MARINE TURBINES. JAMES WILKINSON, Birmingham, Ala., assignor to Wilkinson Turbine Company, Birmingham, Ala., a Corporation of Alabama. Filed Aug. 18, 1904. Serial No. 221,280.

Claim.—1. In a controller mechanism for a multiple-nozzle turbine, fluid-pressure-operated means to throw the nozzles into or out of service, conduits for the controller fluid-pressure, an adjustable valve having ports which communicate with part of said conduits at a time, while the others are exposed to a pressure which throws the nozzles under their control out of service, and a controller device to open or close the ports of said valve and the conduits communicating therewith to control the admission of fluid-pressure thereto.

2. In combination with a multiple-nozzle turbine, means to open and close the turbine-nozzles, a plurality of passages for conducting fluid-actuating pressure to said means, and means to regulate the supply of motor fluid to the turbine by controlling the pressure in said passages, said means comprising an adjustable valve having a plurality of ports adapted to register with different pas-

sages in different operating positions, and a controller device movable over said valve to control the admission of pressure to its ports.



3. In an elastic-fluid turbine having a plurality of fluid-actuated valves, a controller mechanism comprising a plurality of conduits for valve-actuating fluid opening into a controller-chamber, a valve therein to open a part of said conduits to the admission of fluid-pressure, and a controller device within said chamber to control the admission of pressure to said other conduits.

4. In a turbine, a plurality of motor-fluid valves, and fluid-pressure-controller means to actuate said valves comprising fluid-conduits, a movable casing, a controller-chamber therein having a port or ports which register with a part of said conduits, and a controller device in said chamber to expose said ports to a high or low pressure.

5. In a turbine, a plurality of nozzles which discharge motor fluid against a bucket-bearing element with different driving effects, fluid-actuated valves to control said nozzles, conduits for the fluid-pressure which controls the operation of said valves, a multiported valve to control the admission of pressure to said conduits in groups, and a slide-valve acting between two pressures and operating to successively admit one or the other of them to the conduits of a group.

6. A controller mechanism for a multiple-valve turbine comprising a movable chamber exposed to a valve-controlling pressure, and a plurality of passages a part of which are adapted to communicate with said chamber and conduct fluid-pressure to control the operation of the turbine-valves.

7. A controller mechanism for a multiple-valve turbine comprising a movable element provided with a controller-chamber therein adapted to communicate a high or low pressure to a plurality of passages in groups, said passages being adapted to conduct fluid-pressure to control the operation of turbine-valves, and a slide-valve in said chamber to open its ports to a high or low pressure.

8. In a controller mechanism for a multiple-valve turbine, a casing, an adjustable valve-seat therein having a plurality of ports, a plurality of passages entering said casing, a different group of said passages registering with the ports in said valve-seat in its different operating positions, and a slide-valve movable over said seat to control the admission of fluid-pressure to a group of said passages to control the operation of turbine-valves.

9. In a controller mechanism for a reversing-turbine, a forward-driving nozzle and fluid-pressure-controlled valve therefor, a reversing-nozzle and fluid-pressure-controlled valve therefor, said nozzles discharging motor fluid with opposite driving effects against a bucket-bearing element, and means to control the operation of said valves comprising fluid-pressure passages, a movable pressure-controller chamber which registers with one of said passages, and means in said chamber to admit or exhaust pressure from said passages.

10. In a controller mechanism for a multiple-valve turbine, a controller-casing, a plurality of conduits leading therefrom and communicating with valve-motors, a controller-chamber in a movable element in said casing adapted to control the operation of said valves in groups, and means in said chamber to control the operation of the several valves of a group.

11. In a controller mechanism for a turbine, a casing exposed to a constant pressure, a controller-chamber in said casing exposed to high and low pressures, conduits for valve-controlling pressures entering said casing and communicating with said chamber, and means in said chamber to expose said passages to the high or exhaust pressure therein.

12. In a controller mechanism for a turbine, a casing exposed to high pressure, a plurality of ports leading therethrough and communicating with passages for conducting valve-controlling fluid-pressure to means which operate to vary the fluid-pressure supply to the turbine, a movable controller pressure-chamber in said casing acting as a valve to open a part of said ports to the pressure in said casing which holds said valve to its seat, and means to admit the pressure of said chamber to the passages not exposed to the pressure in said casing.

13. In a controller mechanism for a turbine, a multiported casing, a multiported valve-shell whose ports are adapted to register with different groups of ports in said casing, and a piston-valve movable in said shell and operating to expose the ports thereof to a high or low pressure, and means to control the operation of turbine-valves by passages communicating with the ports in said casing and with motors for actuating said valves.

14. In a reversing-turbine, forward-driving nozzles, reversing-nozzles, fluid-actuated means to cut said nozzles out of service, conduits to conduct the controller fluid-pressure to said means, a controller-casing having two sets of ports, one communicating with the conduits for the forward-driving nozzles, and the other set with the conduits for the reversing-nozzles, ports admitting a high and an exhaust pressure to said casing, a valve therein which opens one group of conduits to a pressure which cuts the nozzles under their control out of service, and a controller device therein which admits said high or exhaust pressure to the other conduits.

15. In a turbine, a plurality of groups of nozzles which act to drive the turbine forward at full and fractional speeds and to reverse it, fluid-pressure-actuated valves to control said nozzles, conduits for the valve-actuating fluid-pressure, a multiported valve to control the admission of fluid-pressure to the conduit or conduits leading to the valve or valves controlling the nozzles which admit motor fluid to produce one of said driving effects, while admitting fluid-pressure to the other of said conduits to cause the valves under their control to close, and a slide-valve acting to control the admission of pressure to the active nozzle or nozzles by opening the ports of said controller-valve.

16. In a turbine, a fluid-pressure-controller mechanism for varying the supply of motor fluid, comprising a casing communicating at one end with a high pressure, a cylindrical shell therein having a port at one end to admit said high pressure thereinto and exposed at its other end to an exhaust-pressure, a plurality of ports in said shell, a plurality of conduits for conducting fluid-pressure to means for varying the fluid-supply, means to move said shell so that its ports register with certain of said conduits, a piston in said shell which controls the admission of said pressures to said conduits, and means to actuate said piston.

17. In a controller mechanism for a turbine, a casing supplied with high pressure, a multiported valve-seat therein, a valve-shell mounted on said seat and having a set of ports, a port admitting low pressure to said shell, means to move the ports in said shell into register with part of the ports in said seat, means to open the ports in said shell successively to said low pressure, said shell acting as a valve to admit the high pressure in said casing to the ports in said seat not exposed to said low pressure, and means to connect the ports in said seat with fluid-pressure-controlled means to vary the fluid-pressure supply to the turbine.

18. In a controller mechanism for a turbine, a controller-casing, a longitudinally-shouldered valve-shell therein, a row of ports in said shouldered portion, a circular multiported seat for said shell, a controller-piston in said shell, means to admit a high pressure to said shell and to said casing around said shell whereby the shouldered portion thereof is held against said seat, means to admit atmospheric pressure to said shell, means to move the ports in said shell into register with a set of the ports in its seat, and means to connect the ports in said seat with fluid-pressure-controlled means to vary the fluid-pressure supply to the turbine.

19. In a turbine, groups of working passages at different distances from the shaft center, means to cut said working passages out of service, and a fluid-pressure-controller mechanism for controlling the admission of motor fluid to said groups of passages independently comprising a controller-valve and an adjustable seat therefor.

20. In a turbine, groups of working passages at different distances from the shaft center, means to cut said working passages out of service comprising supply and stage valves, fluid-pressure-controller means for said valves comprising motors to actuate said valves, conduits connected up to the supply and stage valves of each group and a controller-chamber, and a controller-valve and an adjustable seat therefor in said chamber to control the operation of the valves of each group of working passages independently.

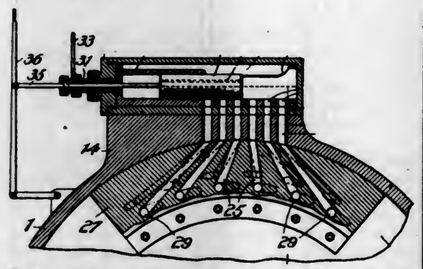
21. In a fluid-pressure-controller mechanism for a turbine, fluid-actuated means to vary the flow of fluid through the turbine, conduits to conduct the actuating fluid to said means, a movable pressure-controller chamber for controlling the admission of pressure to said conduits in groups, and a piston in said chamber for controlling the admission of a high or exhaust pressure to part of said conduits, an actuating-stem for said piston, a rack connected thereto, and gear means for shifting said piston.

22. In a controller mechanism for a set of turbines which are coupled up in series, fluid-pressure-controller mechanism for varying the admission of motor fluid to said turbines comprising pressure-controller chambers exposed to high and exhaust pressures, controller devices in said chambers, operating-stems for said devices, toothed racks carried by said stems, and a common controller-rod carrying a plurality of gear-wheels which mesh with said racks, and by means of which said devices may be moved simultaneously.

23. In a controller mechanism for a set of turbines, groups of working passages in each turbine disposed at different distances from the shaft center, means to cut said working passages out of service, a fluid-pressure-controller mechanism for each turbine adapted to control the admission of motor fluid to the groups of passages thereof independently, each mechanism comprising a controller-valve and an adjustable seat therefor, means to adjust the said seats of both mechanisms, and means to actuate said adjusting means simultaneously

24. In a controller mechanism for a set of turbines, groups of working passages in each turbine disposed at different distances from the shaft center, means to cut said working passages out of service, a fluid-pressure-controller mechanism for each turbine adapted to control the admission of motor fluid to the groups of passages thereof independently, each mechanism comprising a controller-valve and an adjustable seat therefor, means to adjust the said seats simultaneously, and means to simultaneously effect a corresponding movement of said controller-valves.

788,005. **CONTROLLER MECHANISM FOR TURBINES.** JAMES WILKINSON, Birmingham, Ala., assignor to Wilkinson Turbine Company, Birmingham, Ala., a Corporation of Alabama. Filed Aug. 18, 1904. Serial No. 221,261.



Claim.—1. In a controller mechanism for a turbine having a plurality of fluid-admission passages, a multiported valve operating to control the opening and closing of said passages in groups, and a controller device to control the admission of motor fluid to the passages of the group not closed under the control of said valve.

2. In a controller mechanism for a turbine having a plurality of groups of motor-fluid-admission passages, a multiported valve to control the admission of fluid-pressure to the groups of passages, and a movable controller device to cut the passages of a group out of service.

3. A controller mechanism for a turbine having a plurality of fluid-induction nozzles, comprising a fluid-pressure-supply chamber for said nozzles and an adjustable device to cut off the admission of fluid-pressure to said nozzles in groups, in combination with means to open or close said other nozzles to vary the motor-fluid supply to the turbine.

4. A controller mechanism for a turbine, comprising a plurality of fluid-pressure-supply passages, a fluid-pressure-supply chamber, a valve to direct the fluid-pressure into a group of said passages, and valve means to control the volume of fluid-pressure discharged by said group of passages against movable buckets within the turbine.

5. In combination with a multiple-nozzle turbine, a controller mechanism which controls the admission of motor fluid to said nozzles in groups, said mechanism comprising a multiported valve adapted to open one group of nozzles to admit motor fluid thereto after closing the other group, and to vary the admission of motor fluid to the nozzles of the open group.

6. In a turbine, a plurality of motor-fluid-induction passages, rotatable buckets, a multiported valve to close part of said passages, and a controller means to vary the volume of motor fluid discharged by the passages not closed by said valve against such buckets.

7. The combination with a turbine comprising a plurality of nozzles and rows of rotating buckets, said nozzles being controlled in groups which discharge motor fluid against said buckets to produce different driving effects, of a controller mechanism for opening and closing said groups of nozzles comprising an adjustable multiported valve-seat and a controller-valve thereon.

8. In a turbine, a plurality of motor-fluid-induction passages, a movable multiported valve-seat adapted to close part of said passages, and a valve on said seat which controls the admission of motor fluid to the ports thereof which register with other of said passages and admit fluid-pressure thereto.

9. In a turbine, a plurality of nozzle-passages, an adjustable valve-seat adapted to close part of said passages, ports in said seat which communicate with other of said passages, and a slide-valve to control the admission of motor fluid to said ports successively.

10. In a turbine, a plurality of nozzle-passages, a motor-fluid-supply chamber with which said passages communicate, a valve in said chamber to maintain a plurality of said nozzle-passages closed, and a second valve to control the admission of motor fluid to other of said nozzle-passages.

11. In a turbine, a plurality of nozzle-passages, a motor-fluid-supply chamber with which said passages communicate, a valve to maintain different groups comprising each a plurality of said nozzle-passages closed, and a second valve to successively open or close other of said nozzle-passages.

12. In a turbine, two groups of nozzles which discharge motor fluid against a bucket-wheel with different driving effects, a set of supply-ports for said nozzles opening into a fluid-supply chamber, an adjustable valve having ports adapted to register with one of said sets of ports and admit motor fluid from said chamber thereto, while it closes the other sets of ports and a controller-valve to vary the volume of motor fluid discharged against a bucket-wheel by the set of nozzles not closed by said adjustable valve.

13. In a turbine, a plurality of groups of supply-passages which discharge fluid-pressure against a bucket-bearing element with different driving effects, and valve means to control the admission of fluid-pressure to said groups independently comprising a controller-valve and an adjustable seat therefor.

14. In a turbine, a plurality of nozzle-passages, a movable valve-shell through a port or ports in which pressure is admitted to a group of said nozzle-passages at a time, and a piston-valve in said shell to open or close said port or ports to vary the supply of motor fluid to said group of nozzle-passages.

15. In a turbine, a plurality of groups of supply-passages which discharge fluid-pressure against a bucket-bearing element with different driving effects, and valve means to control the admission of fluid-pressure to said groups independently comprising a controller-valve and an adjustable seat therefor having ports communicating with the group of passages under control.

16. In a turbine, a plurality of groups of supply-passages which discharge fluid-pressure against a bucket-bearing element with different driving effects, and valve means to control the admission of fluid-pressure to said groups independently comprising a piston-valve and a rotatable multiported seat therefor.

17. In a turbine, a plurality of groups of supply-passages which discharge motor-fluid pressure against a bucket-bearing element with different driving effects, a fluid-pressure-supply chamber for said passages, a valve having a plurality of ports adapted to register

with one or another of said groups of passages, and a controller device adapted to successively open or close said ports in the valve.

18. In an elastic-fluid turbine having two sets of nozzle-passages at different distances from the shaft center, a tubular rotary shell communicating with a source of motor-fluid pressure and provided with one or more ports adapted to register with either of said sets of nozzle-passages to admit motor fluid thereto, the other sets of nozzle-passages being closed.

19. In a turbine having a plurality of nozzles acting with different driving effects against a bucket-wheel, a fluid-pressure-supply chamber, a slide-valve, a rotary valve-shell open to said pressure and acting to divert it into one or the other of said nozzles under the control of said slide-valve, said pressure acting to hold said valve-shell to its seat.

20. In a turbine operating by stage expansion and provided with an outer shell surrounding the inner casing, a fluid-supply chamber formed between said shell and casing, a controller-casing communicating with said chamber, a multiported valve-seat in said casing, the ports of which communicate with nozzle-passages, a valve having ports adapted to register with a group of ports in said seat, and a valve to open and close the ports in said first-mentioned valve.

21. A compound turbine having a plurality of working passages comprising supply-nozzles, and nozzles between wheel-compartments, fluid-pressure means to open and close said latter nozzles under the control of a multiported valve which opens or closes the corresponding supply-nozzles.

22. In a turbine operating by stage expansion and having a plurality of working passages, a valve to control the supply of motor fluid to said passages, independent valves to control the fluid's flow through said passages between stages which operate under the control of said first-mentioned supply-valve.

23. In a turbine operating by stage expansion, valves to control the flow of fluid between stages, fluid-pressure actuating means for said valves, and a controller-valve to admit motor fluid to supply nozzles and control the admission of fluid-pressure to the actuating means for said stage-valves.

24. In a turbine operating by stage expansion, supply and stage nozzle passages, stage-valves to open and close the stage-nozzles, fluid-pressure means to operate the said valves comprising motors and fluid-conduits, a controller mechanism comprising a casing with which the supply-nozzles and said conduits communicate, and a rotary multiported valve to control the admission of pressure to the supply and stage nozzles.

25. In a turbine operating by stage expansion, a plurality of groups of working passages comprising supply and stage nozzle passages and interposed rows of rotating buckets which operate with different driving effects, means to open and close said stage-nozzles, and means to control the supply and flow of motor fluid through said working passages comprising a multiported valve acting to control the admission of pressure to all of the working passages and to conduits which control the operation of said stage-valves.

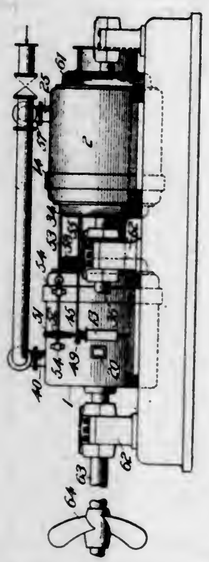
26. A controller mechanism for a multiple-stage reversing turbine comprising a fluid-supply chamber, a circular valve-seat therein, ports in said seat which communicate with supply-nozzle passages, a rotary valve-shell thereon held to its seat by pressure and provided with ports through which pressure is admitted to forward or reversing nozzles, fluid-actuated valves to control the flow of fluid between stages, conduits to conduct fluid to control said valves which open into said circular valve-seat, and two groups of auxiliary ports in said shell which register with the conduits for controlling the forward or reversing stage-valves according to the position of said shell, means to expose the conduits not in communication with said auxiliary ports to the atmosphere, and valve means to control the admission of pressure to the several ports in said shell.

788,006. COMPOUND MARINE TURBINE. JAMES WILKINSON, Birmingham, Ala., assignor to Wilkinson Turbine Company, Birmingham, Ala., a Corporation of Alabama. Filed Aug. 24, 1904. Serial No. 221,986.

Claim.—1. In a set of turbines driving separate shafts, a high-pressure multicellular turbine having full and cruising speed working passages, and one or more turbines coupled up in series with said high-pressure turbine.

2. In a set of turbines driving separate shafts, a high-pressure multicellular turbine having full and cruising speed working passages, and a plurality of turbines coupled up in series with said high-pressure turbine.

3. In a set of turbines driving separate shafts, a high-pressure multicellular turbine having full and cruising speed, forward-driving, working passages, one or more low-pressure turbines having forward-driving working passages, and means to connect said latter working passages in series with the working passages of said high-pressure turbine.



4. In a set of turbines driving independent shafts and having independent working passages, a high-pressure turbine having an exhaust-head, a low-pressure turbine having a supply-head, a conduit between said heads, valve means to control the admission of motor fluid successively to the several supply-nozzles for the working passages of the low-pressure turbine and to control the exhaust from said high-pressure turbine.

5. In a set of marine turbines driving independent shafts, a plurality of turbines operating in series, the low-pressure turbine or turbines connected to an exhaust or condenser and having a plurality of valve-controlled, motor-fluid-supply passages, and means to open or close said passages to control both the supply to the low-pressure turbines and the exhaust from the high-pressure turbine.

6. In a set of marine turbines operating in series and driving independent shafts, a high-pressure turbine, one or more low-pressure turbines having a plurality of motor-fluid-admission passages, a motor-fluid-supply chamber or chambers for said passages into which said high-pressure turbine exhausts, and means to control the coöperation of the set of turbines by opening or closing said passages.

7. In a set of marine turbines driving different shafts, a high-pressure turbine, one or more two-speed, axial-flow, reversible turbines, and means to compound said turbines.

8. A plurality of turbines driving independent shafts, a two-speed, non-reversible, high-pressure turbine with substantially the same initial and exhaust pressure for both driving speeds, a low-pressure turbine, and means to exhaust the pressure from said high to said low pressure turbine.

9. In a set of marine turbines, a high-pressure turbine operating by the instrumentality of different working passages to drive forward at full and cruising speeds, and one or more turbines compounded with said high-pressure turbine and adapted to operate as low-pressure forward-driving turbines and as independent high-pressure reversing-turbines, said latter turbines operating in either direction at substantially the same speed and efficiency.

10. In a set of multicellular marine turbines driving different shafts, a two-speed, forward-driving, high-pressure turbine, a low-pressure forward-driving turbine adapted to reverse at high torque, and means to connect said turbines so that they operate in series in driving forward.

11. In a set of marine turbines, a high-pressure turbine, one or more turbines having axially-disposed forward and reversing working passages, means to supply high pressure to said reversing working passages and to said high-pressure turbine, and means to exhaust the pressure from said latter turbine into the forward-driving working passages of said reversible turbines.

12. In a set of marine turbines driving different shafts, one or more multicellular reversible turbines having independent working passages, a high-pressure turbine, connections to direct the motor fluid in series from said high-pressure turbine through the low-pressure working passages of said reversible turbine or turbines, and means to admit a high pressure to the other working passages of said latter turbine or turbines.

13. In a set of marine turbines driving different shafts, a high-pressure two-speed non-reversible turbine, two or more axial-flow high-torque reversible turbines, conduits to connect said turbines with said high-pressure turbine so that they operate in series therewith in driving forward, and means to admit high pressure to the high-torque reversing-passages of said reversible turbines.

14. In a set of compound axial-flow turbines, an initial high-pressure, forward-driving, turbine having working passages for driving a propeller-shaft at full speed, and working passages for driving said propeller-shaft at a lower speed, a secondary turbine having low-pressure working passages connected up in series with said initial turbine, and high-pressure, high-torque, reversing-passages, and means to control the admission of motor fluid to the working passages of said turbines.

15. In a two-speed forward-driving turbine, high-speed working passages, low-speed working passages, means to close one set of passages while controlling the admission of pressure to the other set, said means being also adapted to control the admission simultaneously to both sets of working passages.

16. In a two-speed forward-driving turbine, one or more working passages operating efficiently to drive the turbine at full speed, one or more working passages operating efficiently to drive the turbine at a low speed, means to cut said working passages into or out of service, and a controller mechanism for said means adapted to control either the full or low speed passage or passages, while cutting the other passage or passages out of service, and to control the admission of motor fluid to the working passages for both driving speeds to compensate overload conditions.

17. In a set of marine turbines, an initial high-pressure turbine operating in series with one or more low-pressure turbines, said high-pressure turbine comprising independent working passages to drive its propeller-shaft at two speeds in the same direction, and a controller means which varies the admission of motor fluid to high or low speed working passages under normal-load conditions, and which admits motor fluid under control to all of the working passages under overload conditions.

18. In a set of marine turbines, an initial high-pressure turbine provided with independent groups of full and cruising speed working passages, means to control the admission of high pressure to either or both of said groups of passages, and one or more low-pressure turbines adapted to operate in series with said high-pressure turbine.

19. In a turbine adapted to drive a propeller-shaft efficiently at full and cruising speeds, working passages for effecting said driving speeds, and means to control the admission of pressure to said passages either independently or jointly, one or more secondary turbines having working passages coupled up in series with said two-speed turbine, and means to control the admission of pressure to the several working passages of said secondary turbine or turbines independently.

20. The combination of a compound turbine operating by stage expansion and having two independent working passages adapted to drive the turbine forward and comprising means to fractionally expand the motor fluid and abstract the velocity thereof a greater number of times in one than in the other of said passages, means to control the admission of motor fluid to either or both of said working passages, with one or more turbines operating in series with said first-mentioned turbine.

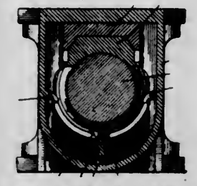
21. A turbine having two independent sets of working passages designed to drive the turbine at different speeds of rotation by the interposition of a greater number of rows of buckets in one than in the other of said sets of working passages, a controller mechanism adapted to control the admission of motor fluid to either set of working passages while closing the other, one or more secondary turbines operating in series with said first-mentioned turbine, and means to admit an overload supply of motor fluid to said set of turbines by admitting motor fluid to both sets of working passages in said first-mentioned turbine.

22. In combination with a multicellular turbine having working passages at different distances from its shaft center, the working passages being adapted to drive the turbine forward at different speeds, one or more secondary turbines having working passages at different distances from its shaft center, one set of said working passages operating in series with either or both of the working passages of said first-mentioned turbine, and means to admit high pressure to the other working passages of said latter turbine or turbines for the purpose of reversing it or them at high torque.

23. In an elastic-fluid turbine, two sets of nozzle-passages at different distances from the shaft center, different sets of rotatable buckets coöperating with said sets of nozzles, independent valves for controlling the flow of motor fluid through said nozzles, in combination with a controller mechanism adapted to close one set of nozzle-passages, while controlling the flow of motor fluid through the other set, and to simultaneously control the volume of motor fluid flowing through both sets of nozzle-passages and discharged thereby against said rotatable buckets.

24. In an elastic-fluid turbine, two sets of nozzle-passages, two independent sets of rotatable buckets coöperating respectively with said sets of nozzles, one set of nozzles and coöperating buckets being adapted to drive the turbine efficiently at a lower rate of speed than the other set of nozzles and coöperating buckets, fluid-actuated valve means to cut the nozzle-passages of each set out of service, and a controller mechanism for said valve means which is adapted to simultaneously control the volume of motor fluid discharged through said nozzle-passages against both sets of buckets.

788,007. CAR JOURNAL-BOX. HENRY C. WILLIAMSON and HERMAN PRIES, Michigan City, Ind. Filed Nov. 21, 1904. Serial No. 233,689.

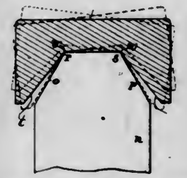


Claim.—1. A car journal-box having longitudinally-arranged downwardly-curved hooks projecting from the inner faces of its side walls.

2. A car journal-box having longitudinally-arranged downwardly-curved hooks projecting from the inner faces of its side walls; a longitudinal rib rising from its bottom; and a series of laterally-projecting hooks at the top of the rib.

3. A car journal-box having longitudinally-arranged downwardly-curved hooks projecting from the inner faces of its side walls, and two series of longitudinally-disposed, laterally-directed hooks rising from the bottom of the box.

788,008. ROCKING OR SHAKING GRATE-BAR. ALFRED B. WILLOUGHBY, Philadelphia, Pa. Filed July 9, 1902. Serial No. 114,869.



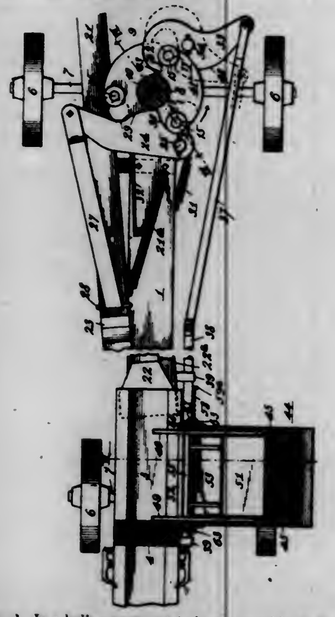
Claim.—1. The combination of a grate, consisting of a series of bars, each having a horizontal and two downwardly-inclined bearing-surfaces with bearing projections each having horizontal and downwardly-inclined bearing-surfaces, the angles between the horizontal and inclined bearing-surfaces of the grate-bars being greater than the angles between the horizontal and inclined bearing-surfaces of said projections, said elements and features being so related as to provide bearings at the points of junction between the horizontal and inclined bearing-surfaces of said bars and projections upon which the bars alternately rotate, when rocked, and to limit the movement and prevent the shifting of said bars on said projections by the

alternate contact between their inclined bearing-surfaces, substantially as and for the purposes described.

2. The combination of a grate, consisting of a series of bars, each having a horizontal and two downwardly-inclined bearing-surfaces with bearing projections each having a horizontal and two downwardly-inclined bearing-surfaces, the angles between the horizontal and inclined bearing-surfaces of the grate-bars being greater than the angles between the horizontal and inclined bearing-surfaces of said projections, said elements and features being so related as to provide normal bearing-surfaces of the horizontal portions of said bars and projections and bearings at the points of junction between the horizontal and inclined bearing-surfaces of said bars and projections upon which the bars alternately rotate, when rocked, and to limit the movement and prevent the shifting of said bars on said projections by the alternate contact between their inclined bearing-surfaces, substantially as and for the purposes described.

3. The combination of a grate, consisting of a series of bars, each having a horizontal and two downwardly-inclined bearing-surfaces and parallel and transverse cutting edges at their upper surfaces, with bearing projections each having a horizontal and two downwardly-inclined bearing-surfaces, the angles between the horizontal and inclined bearing-surfaces of the grate-bars being greater than the angles between the horizontal and inclined bearing-surfaces of said projections, said elements and features being so related as to provide normal bearing-surfaces of the horizontal portions of said bars and projections and auxiliary bearing-surfaces at the points of junction between the horizontal and inclined bearing-surfaces of said bars and projections upon which the bars alternately rotate, when rocked, and to limit the movement and prevent the shifting of said bars on said projections by the alternate contact between their inclined bearing-surfaces, substantially as and for the purposes described.

788,009. **BALING-PRESS.** JOHN M. WILSON, Kansas City, Mo. Filed Apr. 1, 1904. Serial No. 201,156.



Claim.—1. In a baling-press, a trip-lever rotatably mounted, a lever fulcrumed adjacent to said trip-lever which is swung on its forward stroke thereby, an auxiliary pitman pivotally secured to the free end of the lever, a pitman arranged to receive its forward stroke from the auxiliary pitman and the trip-lever, and means for retracting the first-mentioned lever in advance of the rebound of the pitman.

2. In a baling-press, a trip-lever rotatably mounted, a lever fulcrumed adjacent to said trip-lever which is swung on its forward stroke thereby, a pitman arranged to receive part of its forward stroke from the trip-lever, a shoulder secured to the pitman, an auxiliary pitman pivotally secured at its rear end to the free end of the lever and arranged to engage the shoulder with its forward end, and means for retracting the first-mentioned lever in advance of the rebound of the pitman so the shoulder on the latter will not strike the forward end of the auxiliary pitman.

3. In a baling-press, a lever fulcrumed to the bed-plate of the press, an auxiliary pitman pivotally secured to the lever, a fork depending from the forward end of the auxiliary pitman, a main pitman which is straddled by the fork, a shoulder on said main pitman adapted to be engaged by the front end of the auxiliary pitman, and a journaled trip-lever which advances the first-mentioned lever and engages and advances the main pitman before disengaging said first-mentioned lever.

4. In a baling-press, a vertical shaft, a lever having a reverse curve and a communicating curve which latter is concentric with the vertical shaft when the lever is at the end of its forward stroke, a pitman which is suitably connected to the lever, and a trip-lever mounted upon the shaft which engages the reverse curve and thereby swings the lever to the end of its forward stroke and then engages the concentric curve and holds the lever in its advanced position until said trip-lever engages the end of the pitman.

5. In a baling-press, a trip-lever rotatably mounted, consisting of a circular plate provided with a plurality of equally-spaced lugs, stub-shafts projecting upwardly and downwardly from the lugs and rollers journaled on said stub-shafts, in combination with a lever fulcrumed adjacent to said trip-lever which is swung on its forward stroke by the rollers on top of the trip-lever, an auxiliary pitman pivotally secured to the free end of the swinging lever which is advanced and retracted by the latter, and a pitman arranged to receive its forward stroke from the auxiliary pitman and the rollers at the under side of the trip-lever.

6. In a baling-press, a bed-plate, a trip-lever rotatably mounted upon the bed-plate, a lever fulcrumed adjacent to said trip-lever which is swung on its forward stroke thereby, a bracket secured to the bed-plate to assist in supporting the swinging lever, an auxiliary pitman pivotally secured to the free end of the swinging lever which is advanced and retracted by the latter, and a pitman arranged to receive its forward stroke from the auxiliary pitman and the trip-lever.

7. In a baling-press, a bed-plate, a baling-chamber secured thereon having a feed-opening, a hopper communicating with said opening, a feeder pivotally mounted in the hopper, a lever of the first class suitably connected to the feeder, a trip-lever which operates the lever of the first class, a shaft upon which the trip-lever is journaled, a pedestal formed integral with the bed-plate to support the shaft, a pitman, and a lever of the third class suitably connected to the pitman which is moved on its forward stroke by the trip-lever after the latter moves the lever of the first class on its forward stroke.

8. In a baling-press, a baling-chamber having a feed-opening therein, a hopper communicating with said opening, a feeder pivotally mounted in the hopper, a transverse shaft slidingly secured to the feeder, means for lowering and raising the shaft, and means for causing said shaft to move away from the pivotal point of the feeder while lowering the latter so the same will be lowered with decreasing speed and increasing power.

9. In a baling-press, a baling-chamber having a feed-opening at one side thereof, a hopper communicating with said feed-opening, a feeder pivotally mounted in the hopper, a transverse shaft slidingly secured to the feeder, means for lowering and raising the shaft, and irregular-spaced slots in the sides of the hopper for receiving the opposite ends of the transverse shaft and causing said shaft to move away from the pivotal point of the feeder while lowering the latter so the same will be lowered with decreasing speed and increasing power.

10. In a baling-press, a baling-chamber having a feed-opening therein, a hopper communicating with said feed-opening provided at its opposite sides with irregular-shaped slots comprising segmental upper portions and downwardly-extending communicating oblique portions; a feeder pivotally mounted in the hopper, the axis of the pivot being arranged concentrically with the segmental portions of the slots, a transverse shaft slidingly secured to the feeder and extending through the slots, and means for lowering and raising said shaft.

11. In a baling-press, a baling-chamber having a feed-opening therein, a hopper communicating with said feed-opening and provided with irregular-shaped slots in its opposite sides, tracks secured to said sides and paralleling portions of the slots, a transverse shaft slidingly secured to the feeder and projecting through the slots, rollers mounted on said shaft and adapted to travel on the tracks, and means for lowering and raising the shaft.

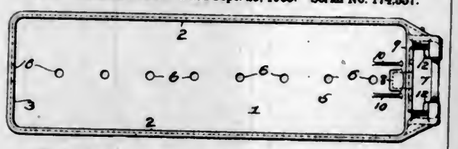
12. In a baling-press, a baling-chamber having a feed-opening therein of less height than the baling-chamber, a hopper communicating with said feed-opening having a large feed-opening and a throat reduced to the size of the opening in the baling-chamber, a feeder pivotally mounted in the hopper above the baling-chamber, an apron pivoted in the hopper at the upper edge of the said opening in the baling-chamber and bearing at its upper end against the feeder in order to close the opening between the latter in the top of the baling-chamber, and means for lowering and raising the feeder.

13. In a baling-press, a trip-lever rotatably mounted, a lever fulcrumed adjacent to the trip-lever and provided with a curved edge along which the trip-lever travels and swings it to the end of its backward stroke, a communicating curve extending concentrically with the axes of the trip-lever when the swinging lever is at the end of its backward stroke and against which the trip-lever travels in order to hold the swinging lever at the end of its backward stroke and a communicating straight edge along which the trip-lever travels and advances the swinging lever to the end of its forward stroke; a feeder, and suitable connections between the latter and the swinging lever whereby the feeder is lowered and raised by the backward and forward strokes of the swinging lever.

14. In a baling-press, a trip-lever rotatably mounted, a lever fulcrumed adjacent to the trip-lever which is swung backward and forward by the latter, a rod slidingly mounted in guides secured to the frame of the press, a connecting-rod pivotally secured at its opposite ends to the sliding rod and one end of the swinging lever, and a feeder operatively connected to the sliding rod.

15. In a baling-press, a trip-lever rotatably mounted, a lever fulcrumed adjacent to the trip-lever which is swung backward and forward by the latter, a hopper, a feeder pivotally mounted therein, a shaft slidingly secured to the feeder, links secured to the opposite ends of the shaft, a pair of cables operating over sheave-wheels and attached at their upper ends to the lower terminals of the links, and suitable connections between the lower terminals of the cables and one end of the swinging lever.

788,010. **FURNACE-CHARGING BOX.** HARRY WRIGHT, Columbus, Ohio, assignor to The Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Filed Sept. 23, 1903. Serial No. 174,357.



Claim.—1. A cast-metal furnace-charging box having cast integral with one end thereof, a rearwardly-projected pocketed enlargement, and webs connecting said enlargement with the end of the box.

2. A cast-metal furnace-charging box having cast integral with the rear end thereof, a rearwardly-projecting pocketed enlargement, and webs connecting the rear end of the box with the bottom thereof.

3. A cast-metal furnace-charging box having an integral socketed part projecting inwardly through the rear end of the box, and a rearwardly-projecting enlargement cast integral with the rear end of the box and having a pocket communicating with said socketed portion.

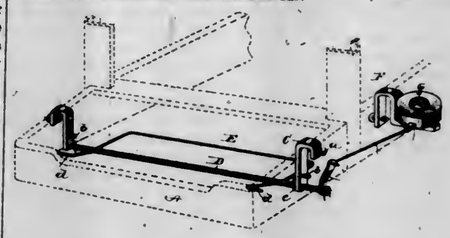
4. A cast-metal furnace-charging box having flaring side and front end walls, and having an integral pocketed enlargement cast on its rear end wall and projecting outwardly therefrom and means for bracing said enlargement.

5. A charging-box made in a single piece and having sloping side walls and a sloping forward end wall, and a pocketed portion at one end of said box and made integral therewith.

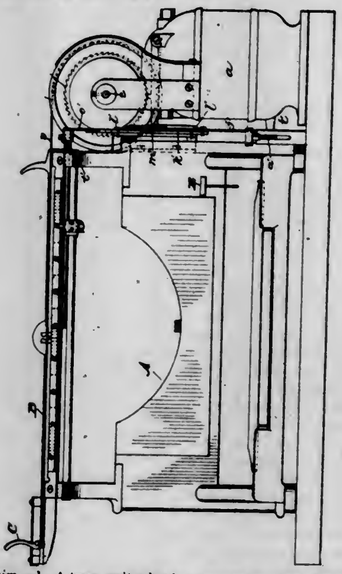
6. An end for a furnace-charging box consisting of a casting provided with a socket for receiving the end of the charging-bar, and having strengthening-ribs extending from the upper ends of the side portions of said socket out to and around the corners.

788,011. **TYPE-WRITER WORD-REGISTERING DEVICE.** ROBERT ALLEN, Bigtimber, Mont. Filed June 3, 1902. Serial No. 110,092.

Claim.—A word-registering attachment for type-writing machines comprising a pair of clamps having hooked upper ends whereby they are hung from the machine-frame, set-screws extending through the hooked upper ends and adapted to bear against the outer sides of the machine-frame, adjusting-screws extending through the lower parts of the clamps and adapted to bear against the inner sides of the machine-frame, a shaft mounted in the lower ends of the clamps, a frame secured to the shaft and having its ends adapted to project beneath the bars of the space-key, a crank-arm secured to the shaft, a bracket adapted to be clamped to the machine-frame, a registering device having an operating slide-bar, and a rod connecting the crank-arm with the slide-bar.



788,012. **TYPE-WRITER.** NEAL L. ANDERSON, Montgomery, Ala. Filed Sept. 26, 1904. Serial No. 225,981.



Claim.—1. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a key-released stop for said motor, means for locking the stop in releasing position, and means on the paper-carriage for disengaging the lock to permit the stop to engage the motor.

2. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a stop for said motor, a key-lever for releasing said stop, means for locking said stop in releasing position, means on the paper-carriage for disengaging the lock to permit the stop to engage the motor, and connections between the key-lever and the stop to permit the latter to operate independently of the key-lever.

3. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a pawl for stopping said motor, a lever for releasing said pawl, a key for actuating the lever to release the pawl, a latch for connecting the key and the lever, an abutment for throwing said latch to disengage the key and lever when the latter have been operated, a sliding bar connected to said lever, a pivoted pawl on the type-writer frame engaging said bar to lock the lever when the latter has been depressed, and means on the carriage to rock said pawl and release the lever when the carriage returns to a starting-point.

4. A type-writer having a paper-carriage, a lever thereon for spacing the platen and returning the carriage, a motor for returning the carriage, a connection between the motor and the spacing-lever, a key-released stop for said motor, means for locking the stop in releasing position, and means on the paper-carriage for disengaging the lock to permit the stop to engage the motor.

5. A type-writer having a paper-carriage, a lever thereon for spacing the platen and returning the carriage, a motor for returning the carriage, a band connecting the motor and the spacing-lever, a stop for said motor, a key-lever for releasing said stop, means for locking said stop in releasing position, means on the paper-carriage for disengaging the lock to permit the stop to engage the motor, and connections between the key-lever and the stop to permit the latter to operate independently of the key-lever.

6. A type-writer having a paper-carriage, a motor for returning the carriage, a stop for said motor, a key-lever for releasing said stop, a sliding bar connected to said key-lever, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod adapted to engage the sliding bar to lock said bar and said stop in motor-releasing position, an adjustable stop on said rod, and a detent on the carriage adapted to engage the adjustable stop to rock the rod and release the key-lever and the motor-stop.

7. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a pawl for stopping said motor, a lever for releasing said pawl, a key for actuating the lever to release the pawl, a latch for connecting the key and the lever, an abutment for throwing said latch to disengage the key and lever when the latter have been operated, a sliding bar connected to said lever, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod adapted to engage the sliding bar to lock said bar, the pawl for stopping the motor in releasing position, an adjustable stop on said rod, and a detent on the carriage adapted to engage the adjustable stop to rock the rod and release the lever and motor-stop.

8. A type-writer having a paper-carriage, a motor for returning the carriage, a key-released stop for said motor, means for locking the stop in releasing position comprising a sliding bar connected to the key, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod and engaging said rod when the key is depressed, an adjustable margin-stop surrounding said rod, a stop fast to said rod and movably connected to said margin-stop, and a detent on the carriage adapted to engage the last-mentioned stop to rock the rod and release the key and motor-stop.

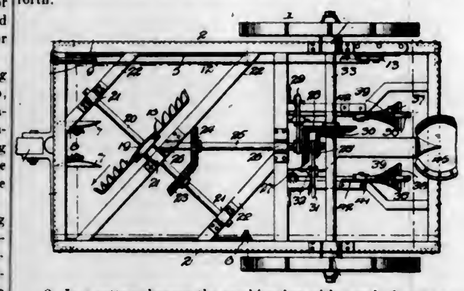
9. A type-writer having a paper-carriage, a motor for returning the carriage, a platen-spacing lever connected to said motor, a key-released stop for said motor, a sliding bar connected to the key, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod, a stop fast to said rod, and a detent on the carriage coöperating therewith to rock the rod, the stop on the rod and the detent on the carriage having a relatively long period of engagement, whereby when a short line has been written, the motor may be operated to space the platen without returning the carriage.

10. A type-writer having a paper-carriage, a motor for returning the carriage, a platen-spacing lever connected to said motor, a key-released stop for said motor, a sliding bar connected to the key, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod, a stop fast to said rod, and an elongated detent on the carriage engaging the stop on the rod to hold the rod and its pawl in inoperative position until the carriage passes the paragraph-point, whereby when a short line has been written, the motor may be operated to space the platen without returning the carriage.

11. A type-writer having a paper-carriage, and a spring-retracted platen-spacing lever, a motor for returning the carriage, a band-wheel having a flexible connection with said platen-spacing lever, a clutch for connecting the spring-motor and the band-wheel, a clutch on the carriage for locking the flexible connection to the carriage, and a stop on the machine-frame adapted to release the last-mentioned clutch and permit the spacing-lever to return to normal position after the band has been released from clutched engagement with the motor.

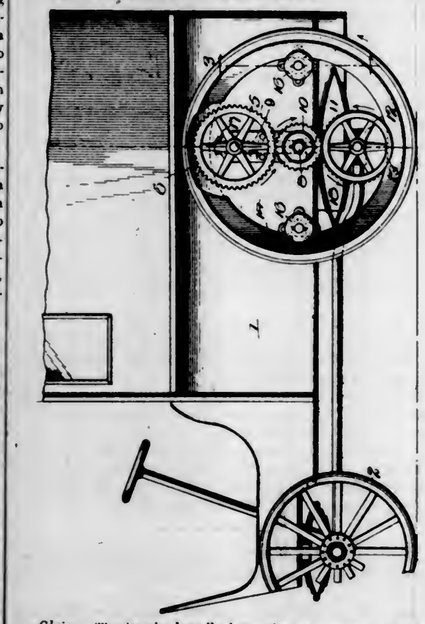
788,013. COMBINED COTTON CHOPPER AND CULTIVATOR. WILLARD M. ARNOLD, Wynnewood, Ind. Ter. Filed Mar. 29, 1904. Serial No. 200,595.

Claim.—1. In a cotton-chopper the combination with a main frame having supporting-wheels and a chopper-disk mounted thereon, of an auxiliary frame pivotally secured to said main frame, supporting means for the free end of said auxiliary frame, a spring 47 adapted to keep said main and auxiliary frames in juxtaposition to each other, a controlling-lever 9 pivotally secured to said main frame, an antifriction-roller carried by said lever and adapted to rest upon a contiguous part of said auxiliary frame, an actuating-lever 13 carried by the main frame and a controlling-bar connecting said lever 13 and the upper end of said controlling-lever 9, whereby when the lever 13 is actuated the forward end of the main frame and the chopper-disk carried thereby, will be raised or lowered, and a spring to move said lever 9 in the opposite direction when the actuating-lever is released, one end of said spring being secured to the main frame and the opposite end to the free end of said controlling-lever, as set forth.



2. In a cotton-chopper the combination with a main frame carrying a chopping-disk, of an auxillary frame pivotally secured to said main frame, a spring interposed between the free ends of said main and auxiliary frames adapted to hold the same in juxtaposition to each other, a controlling-bar pivotally secured to said main frame and carrying an antifriction-roller at its lower end adapted to engage a contiguous part of the auxiliary frame and means to operate said controlling-lever, whereby the forward end of said main frame and chopper-disk carried thereby may be raised or lowered as desired, and a spring secured at one end to the main frame and its opposite end to the upper end of said controlling-lever whereby said lever will be returned to its normal position when the operating means is released, as set forth.

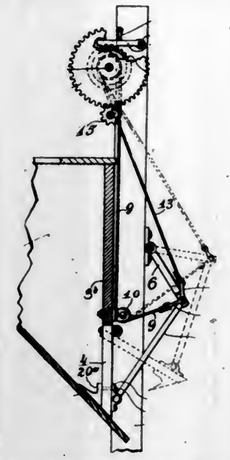
788,014. TRACTION-WHEEL. WILLIAM A. BANOS, Kingston, Wis. Filed Dec. 29, 1904. Serial No. 238,786.



Claim.—The herein-described traction or carrying wheel and means to actuate the same, comprising the wheels or rims 7, each

having upon its inner face a plurality of cogs and also having an inwardly-projecting rib 14, in combination with a driving-gear 5 meshing with said cogs and operatively connected with the motor, a gear 12 having a pair of separated flanges to receive said rib 14 between them, one of said flanges having a plurality of cogs or teeth; an idler-gear 10 serving as an intermediary between said driving-gear and the gear 12; suitable means to mount the gears 12 and hold the same in engagement with said rib and additional means coöperating with the rib 14 to secure the same against lateral movement whereby said rim or wheel 7 may be continuously or intermittently driven in either direction, all combined substantially as specified and for the purpose set forth.

788,015. DOOR AND OPERATING MEANS THEREFOR. OSCAR BERGMAN, Two Harbors, Minn. Filed July 30, 1904. Serial No. 218,858.



Claim.—1. In a door-lifter, the combination with a relatively fixed support containing a hinged door, of a lever comprising two link-bars hinged together and having one of its ends pivoted to said door and the other of its ends pivoted to said support, a guide, a windlass, flexible means engaging said windlass and in part loosely engaging said guide and connected to said lever and adapted by the operation of said windlass in one direction to bend said lever at its hinge and by the operation of said windlass in the opposite direction to spread said lever, and means for operating said windlass.

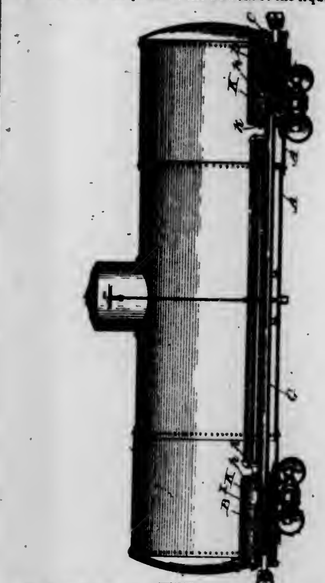
2. In a door-lifter, the combination with a suitable support containing a door, of a lever comprising two bars hinged together and pivoted at one end to said door and at the other end to said support, a guide, a windlass, flexible means secured at one end to said lever and led rearwardly and deflected in its course by said guide and thence led to and around said windlass and secured in engagement therewith, flexible means secured at one end to said lever and led to and around said windlass by a different course than the first said flexible means and secured in engagement with said windlass, means for operating said windlass, and means for locking the same against operation.

3. The combination with the discharge-floor of a bin or pocket, of teeth secured to the free end of said door and directed inwardly and each comprising a point, a flange adapted to bear against the inner face of said door, a bolt portion projected through said door and a nut mounted on the outer end of said bolt portion, substantially as described.

4. A tooth, comprising a point, a flange, and a bolt portion joining said flange at the side opposite to said point and at a higher plane than the plane of junction of said point with said flange, substantially as described.

788,016. TANK-CAR. WILLIAM P. BETTENDORF, Davenport, Iowa. Filed Mar. 30, 1904. Serial No. 200,830.

Claim.—1. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, and draft-rigging embedded in each end of the same whose line of draft is within the circumference of said tank and above the plane of the bottom of the liquid contents thereof



2. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, and draft-rigging the line of draft of which is within the circumference of said tank and above the plane of the bottom of the liquid contents thereof.

3. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, draft-rigging embedded in each end thereof, and a longitudinally-disposed buffer-column connecting said rigging above the plane of the bottom of the liquid contents thereof.

4. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, draft-rigging embedded in each end thereof, and a longitudinally-disposed tubular buffer-column connecting said rigging above the plane of the bottom of the liquid contents thereof.

5. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, draft-rigging embedded in the ends thereof, and a longitudinally-disposed buffer-column located within the circumference of said tank and connecting said draft-rigging above the plane of the bottom of the liquid contents thereof.

6. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, draft-rigging embedded in the ends thereof, and a longitudinally-disposed tubular buffer-column connecting said draft-rigging and located within the circumference of said tank above the plane of the bottom of the liquid contents thereof.

7. A tank-car comprising a tank, draft-rigging embedded in the ends thereof, a longitudinally-disposed tubular buffer-column within said tank connecting said draft-rigging, and steam connections communicating with said column.

8. A tank-car comprising a tank extending from end to end of the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, draft-rigging embedded in each end thereof, and means independent of said tank connecting the same above the plane of the bottom of the liquid contents of said tank.

9. A tank-car comprising a tank extending from end to end of

the car over the trucks, with the bottom thereof in the same plane from end to end and with the major part of the circumference thereof above the line of draft, draft-rigging embedded in each end thereof, the line of draft of which is within the circumference of said tank, and means alining with said line of draft and connecting said draft-riggings above the plane of the bottom of the liquid contents of said tank.

10. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and draft-riggings secured within and closing said openings.

11. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and integral draft-riggings secured within and closing said openings.

12. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and draft-riggings cast in one piece of metal and secured within and closing said openings.

13. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and draft-riggings secured within and closing said openings, the line of draft of which comes within the circumference of said tank.

14. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and integral draft-riggings secured within and closing said openings, the line of draft of which comes within the circumference of said tank.

15. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and draft-riggings cast in one piece of metal and secured within and closing said openings, the line of draft of which comes within the circumference of said tank.

16. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings secured within and closing said openings, and means independent of the said tank connecting said draft-rigging.

17. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, integral draft-riggings secured within and closing said openings, and means independent of the said tank connecting said draft-rigging.

18. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings cast in one piece of metal and secured within and closing said openings, and means independent of the said tank connecting said draft-rigging.

19. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging secured within and closing said openings, and a longitudinally-disposed buffer-column connecting said rigging.

20. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings secured within and closing said openings, and a longitudinally-disposed tubular buffer-column connecting said rigging.

21. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging secured within and closing said openings, and a longitudinally-disposed buffer-column connecting said rigging and located within the circumference of said tank.

22. A tank-car comprising a tank and draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank.

23. A tank-car comprising a tank and draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank.

24. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank, and a longitudinally-disposed buffer-column connecting said rigging.

25. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank, and a longitudinally-disposed buffer-column connecting said rigging.

26. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank, and a longitudinally-disposed tubular buffer-column connecting said rigging.

27. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank, and a longitudinally-disposed tubular buffer-column connecting said rigging.

28. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank, and a longitudinally-disposed buffer-column connecting said rigging within the circumference of said tank.

29. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank, and a longitudinally-disposed buffer-column connecting said rigging within the circumference of said tank.

30. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank, and a longitudinally-disposed tubular buffer-column connecting said rigging within the circumference of said tank.

31. A tank-car comprising a tank, draft-rigging comprising an imperforate inverted-channel-shaped structure which is cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank, and a longitudinally-disposed tubular buffer-column connecting said rigging within the circumference of said tank.

32. A tank-car comprising a tank and draft-rigging cast in one piece and embedded in each end of said tank and extending from the end of the car past the transverse plane of the adjacent truck-bearings.

33. A tank-car comprising a tank and draft-rigging cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank, and extending from the end of the car part the transverse plane of the adjacent truck-bearings.

34. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank and extending from the end of the car past the transverse plane of the adjacent truck-bearings, and a longitudinally-disposed buffer-column connecting said rigging.

35. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank, and extending from the end of the car past the transverse plane of the adjacent truck-bearing, and a longitudinally-disposed buffer-column connecting said rigging.

36. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank and extending from the end of the car past the transverse plane of the adjacent truck-bearing, and a longitudinally-disposed tubular buffer-column connecting said rigging.

37. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank and extending from the end of the car past the transverse plane of the adjacent truck-bearing, and a longitudinally-disposed tubular buffer-column connecting said rigging.

38. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank and extending from the end of the car past the transverse plane of the adjacent truck-bearing and a longitudinally-disposed buffer-column connecting said rigging within the circumference of said tank.

39. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank the line of draft of which is within the circumference of said tank and extending from the end of the car past the transverse plane of the adjacent truck-bearing, and a longitudinally-disposed buffer-column connecting said rigging within the circumference of said tank.

40. A tank-car comprising a tank, draft-rigging cast in one piece and embedded in each end of said tank, and extending from the end of the car past the transverse plane of the adjacent truck-bearing, and a longitudinally-disposed tubular buffer-column connecting said rigging within the circumference of said tank.

41. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and a draft-rigging cast in one piece and secured within and closing said openings.

42. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and a draft-rigging cast in one piece and secured within and closing said openings and extending from the end of the car past the transverse plane of the adjacent truck-bearing.

43. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging cast in one piece and secured within and closing said openings the line of draft of which is within the circumference of said tank.

44. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof draft-rigging cast in one piece and secured within and closing said openings, and a longitudinally-disposed buffer-column connecting said rigging.

45. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof draft-rigging cast in one piece and secured within and closing said openings, and a longitudinally-disposed tubular buffer-column connecting said riggings.

46. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof draft-rigging cast in one piece and secured within and closing said openings the line of draft of which is within the circumference of the said tank, and a longitudinally-disposed buffer-column connecting said riggings.

47. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging cast in one piece and secured within and closing said openings, and a longitudinally-disposed buffer-column connecting said riggings within the circumference of said tank.

48. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging cast in one piece and secured in and closing said openings, and a longitudinally-disposed tubular buffer-column connecting said draft-rigging.

49. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging cast in one piece and secured in and closing said openings, and a longitudinally-disposed tubular buffer-column connecting said draft-rigging within the circumference of said tank.

50. A tank-car comprising a tank, draft-rigging embedded in each end thereof, a longitudinally-disposed buffer-column connecting said rigging above the plane of the bottom of the liquid contents of said tank, and means within said tank covering over said draft-rigging.

51. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-rigging secured within and closing said openings, and means within said tank covering over said draft-rigging.

52. A tank-car comprising a tank having chambers made in the under side thereof adjacent to each end, and draft-rigging embedded in said tank in the bottom of the shell of the same below said chambers.

53. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings secured with and closing said openings and provided with a buffer-head at the end thereof farthest from the adjacent head of the tank, and a buffer-column interposed between the buffer-heads of the draft-riggings at each end of the tank.

54. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings secured within and closing said openings and provided with a buffer-head at the end thereof farthest from the adjacent head of the tank inclosed within said tank, and a buffer-column interposed between the buffer-heads of the draft-riggings at each end of the tank.

55. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings secured within and closing said openings and provided with a buffer-head at the end thereof farthest from the adjacent head of the tank inclosed within said tank, and a tubular buffer-column interposed between the buffer-heads of the draft-riggings at each end of the tank.

56. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end, draft-riggings cast in one piece of metal secured within and closing said openings and having integral buffer-heads at the ends thereof farthest from the adjacent head of the tank, and a buffer-column connecting said buffer-heads.

57. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, draft-riggings secured within and closing said openings, and a tubular buffer-column connecting said buffer-heads, which latter are provided with steam-inlet ports communicating with the bore of said buffer-column.

58. A tank-car comprising a tank, draft-rigging frames at each end thereof, and a longitudinally-disposed buffer-column connecting said draft-rigging frames.

59. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, channel-shaped draft-rigging frames cast in one piece of metal and secured in and closing said openings.

60. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and cast-metal channel-shaped draft-rigging frames having their ends farthest from the adjacent heads of said tank extended over the body center-plates of the tank.

61. A tank-car comprising a tank having a longitudinally-elongated opening in the under side of each end thereof, and cast metal channel-shaped draft-rigging frames having their ends farthest from the adjacent heads of said tank extended over the body center-plates of the tank and terminating in buffer-heads, and a buffer-column connecting said buffer-heads.

62. A tank-car comprising a tank, an imperforate inverted channel-shaped draft-rigging frame at each end thereof, the line of draft which is above the bottom of the liquid contents of the tank extending from the end of said tank over the truck-bolster of said car, and body center-plates connected directly to said frames.

63. A tank-car comprising a tank, an imperforate inverted channel-shaped draft-rigging frame at each end thereof cast in one piece of metal and the line of draft which is above the bottom of the liquid contents of the tank extending from the end of said tank over the truck-bolster of said car, and body center-plates connected directly to said frames.

64. A tank-car comprising a tank, a channeled draft-rigging at each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car whose line of draft is above the bottom of the liquid contents of the tank, and body center-plates secured direct to said extension.

65. A tank-car comprising a tank, a channeled draft-rigging at each end thereof cast in one piece of metal and having an integral extension extending beyond said channeled portion over the truck-bolster of said car whose line of draft is above the bottom of the liquid contents of the tank, and body center-plates secured direct to said extension.

66. A tank-car comprising a tank, a channeled draft-rigging at each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, and buffer-heads connected with and arising from the end of said extensions farthest from the said channeled portion, a longitudinally-disposed buffer-column connecting said buffer-heads, and a body center-plate connected to said extension between said buffer-heads and the channeled portions of said rigging.

67. A tank-car comprising a tank, a draft-rigging frame at each end thereof extending from the end of said tank over the truck-bolster of said car, body center-plates connected directly to said frames, and a longitudinally-disposed buffer-column connecting said frames.

68. A tank-car comprising a tank, a draft-rigging frame at each end thereof cast in one piece of metal and extending from the end of said tank over the truck-bolster of said car, body center-plates connected directly to said frames, and a longitudinally-disposed buffer-column connecting said frames.

69. A tank-car comprising a tank, a channeled draft-rigging at each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, body center-plates secured direct to said extension, and a longitudinally-disposed buffer-column connecting said draft-riggings.

70. A tank-car comprising a tank, a channeled draft-rigging at each end thereof cast in one piece of metal and having an integral extension extending beyond said channeled portion over the truck-bolster of said car, body center-plates secured direct to said extension, and a longitudinally-disposed buffer-column connecting said draft-rigging.

71. A tank-car comprising a tank, a channeled draft-rigging at each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, and buffer-heads connected with and arising from the end of said extensions farthest from the said channeled portion, a longitudinally-disposed tubular buffer-column connecting said buffer-heads within said tank, and a body center-plate connected to said extension between said buffer-heads and the channeled portions of said rigging.

72. A tank-car comprising a tank, a draft-rigging frame embedded in each end thereof extending from the end of said tank over the truck-bolster of said car, and body center-plates connected directly to said frames.

73. A tank-car comprising a tank, a draft-rigging frame embedded in each end thereof cast in one piece of metal and extending

from the end of said tank over the truck-bolster of said car, and body center-plates connected directly to said frames.

74. A tank-car comprising a tank, a channeled draft-rigging embedded in each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, and body center-plates secured direct to said extension.

75. A tank-car comprising a tank, a channeled draft-rigging embedded in each end thereof cast in one piece of metal and having an integral extension extending beyond said channeled portion over the truck-bolster of said car, and body center-plates secured direct to said extension.

76. A tank-car comprising a tank, a channeled draft-rigging embedded in each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, and buffer-heads connected with and arising from the end of said extensions farthest from the said channeled portion, a longitudinally-disposed buffer-column connecting said buffer-heads, and a body center-plate connected to said extension between said buffer-heads and the channeled portions of said rigging.

77. A tank-car comprising a tank, a draft-rigging frame embedded in each end thereof extending from the end of said tank over the truck-bolster of said car, body center-plates connected directly to said frames, and a longitudinally-disposed buffer-column connecting said frames.

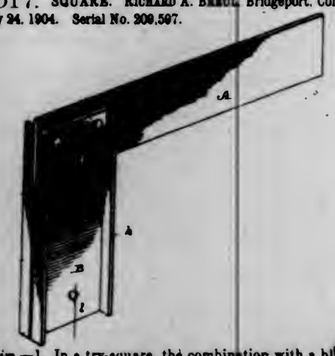
78. A tank-car comprising a tank, a draft-rigging frame embedded in each end thereof cast in one piece of metal and extending from the end of said tank over the truck-bolster of said car, body center-plates connected directly to said frames, and a longitudinally-disposed buffer-column connecting said frames.

79. A tank-car comprising a tank, a channeled draft-rigging embedded in each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, body center-plates secured direct to said extension, and a longitudinally-disposed buffer-column connecting said draft-riggings.

80. A tank-car comprising a tank, a channeled draft-rigging embedded in each end thereof cast in one piece of metal and having an integral extension extending beyond said channeled portion over the truck-bolster of said car, body center-plates secured direct to said extension, and a longitudinally-disposed buffer-column connecting said draft-rigging.

81. A tank-car comprising a tank, a channeled draft-rigging embedded in each end thereof having an extension extending beyond said channeled portion over the truck-bolster of said car, and buffer-heads connected with and arising from the end of said extensions farthest from the said channeled portion, a longitudinally-disposed tubular buffer-column connecting said buffer-heads within said tank, and a body center-plate connected to said extension between said buffer-heads and the channeled portions of said rigging.

788,017. **SQUARE.** RICHARD A. BREUL, Bridgeport, Conn. Filed May 24, 1904. Serial No. 209,597.



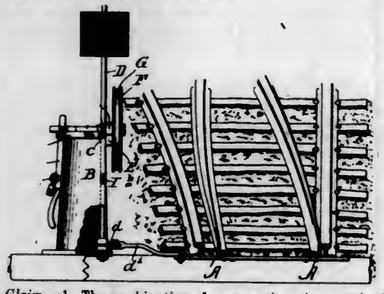
Claim.—1. In a try-square, the combination with a blade, of a back bent completely from sheet metal, the sides of said back containing offsets and shoulders to receive and inclose the blade, the remaining side portions of said back meeting close together, and rivets for securing said back portions and blade together.

2. In a try-square, the combination with a blade, of two plates of sheet metal each having lengthwise outwardly-bent flanges and a straight transverse offset in their end portions to jointly inclose the blade, said plates being in close contact with each other below such offsets and means for securing the blade and plates together.

3. A try-square comprising a back formed of two layers of sheet metal shaped to lie close together throughout their lower portions; to form an opening intermediate of their upper ends, and to comprise longitudinal flanges along their side edges, and a blade fitted in said opening and means for securing said parts together.

4. In a try-square, the combination with a blade, of a back bent completely from sheet metal, and comprising offsets and shoulders to receive and inclose the blade, the remaining portion of said back meeting close together, and rivets for securing said back and blade together.

788,018. **SWITCH-STAND.** ROBERT E. BROYLES, Birmingham, Ala., assignor of one-half to Luther W. Clark, Birmingham, Ala. Filed Sept. 29, 1904. Serial No. 226,584.

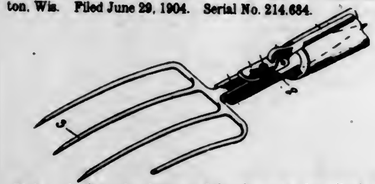


Claim.—1. The combination of a supporting-plate, a wheel, signal-operating means attached to the wheel, a target-rod, switch-operating means attached to the target-rod, an operating-lever attached to the target-rod adapted to engage a recess in and lock the wheel when the switch is open, a lever-arm pivotally connected with the operating-lever adapted to engage the wheel and revolve it when the switch is closed.

2. The combination of a supporting-plate, a wheel, signal-operating means attached to the wheel, a target-rod, switch-operating means attached to the target-rod, an operating-lever secured to the target-rod adapted to engage a recess in and lock the wheel when the switch is open, a lever-arm pivotally attached to the operating-lever adapted to engage the wheel and revolve it when the switch is closed, and means to lock the mechanism when the switch is in either position.

3. The combination of a supporting-plate having a recess for a target-rod, a vertical target-rod in the recess, a wheel revolubly mounted on the plate and carrying means for operating a distant signal, means connecting the target-rod and switch-rails adjustable so as to regulate the throw of the switch-rails, and means for rotating the target-rod and revolving the wheel and locking them.

788,019. **HAY FORK AND HOOK.** CHARLIE B. CADY, Shennington, Wis. Filed June 29, 1904. Serial No. 214,684.

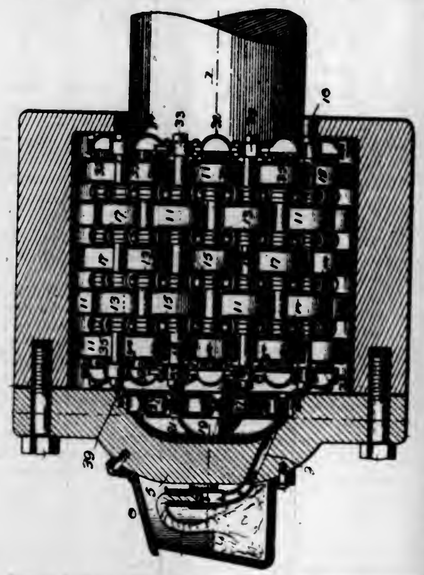


Claim.—1. In an implement of the character described, the combination of a stem, a tool pivotally connected to the stem and adapted to be turned to any adjusted position, a lock-plate pivotally connected to the stem and adapted to be turned either to clear or to engage with the shank of the tool, and a lock-lever pivotally connected to the lock-plate and adapted to exert a pressure against said stem to secure the lock-plate when in engagement with the shank of the tool, substantially as set forth.

2. In a tool of the character described, the combination of a stem having one end bifurcated and a notch in one side in communication with the bifurcation, a tool having its shank pivoted between the bifurcations and adapted to enter said notch, a lock-plate pivoted to the stem and adapted to extend over the notch to hold the shank of the tool therein or to come in the rear of said shank when the tool is turned at an angle to the stem, and means cooperating with

the lock-plate for securing it in operative position, substantially as set forth.

788,020. **ANTIFRICTION-BEARING.** CHRISTIAN H. CHRISTIANSON, Chicago, Ill. Filed Aug. 12, 1904. Serial No. 220,557.



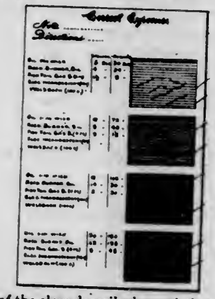
Claim.—1. In an antifriction-bearing for axles, the combination with the axle, of a housing or journal-box therefor, a plurality of antifriction-rollers occupying the annular space between the journal and its housing, a plurality of carrying-shafts for said antifriction-rollers, a plurality of collars located upon said shafts, said collars having integral extensions upon diametrically opposite sides thereof, one of said extensions terminating in a screw-threaded portion while the other extension is provided with an interiorly-threaded socket, the extension having the socket being designed to receive the threaded end of the next succeeding extension, and rotating collars or wheels carried by the threaded ends of said extensions and disposed in coöperation with the faces of the antifriction-rollers whereby said rollers will be disposed and held a predetermined distance apart upon the carrying-shafts, as set forth.

2. In an antifriction-bearing for axles, a plurality of carrying-shafts, a plurality of antifriction-rollers mounted upon said shafts means to carry said shafts and rollers thereon in a group comprising collars having extensions on diametrically opposite sides thereof, one of said extensions being reduced in size at its outer end to form a shoulder, the extreme outer end of said reduced portion being threaded, the opposite extension being provided with an interiorly-threaded socket to receive the threaded end of the next succeeding extension, and collars rotatably mounted upon the reduced portion of said extensions and held in position between the shoulder upon one extension and the end of the socketed extension, all combined substantially as set forth.

3. In antifriction-bearings, the combination with a plurality of carrying-shafts and antifriction-rollers mounted thereon, of means to unite said shafts and rollers into a continuous group, and collars or wheels carried by said means and disposed at right angles to the plane of said antifriction-rollers adapted to properly space said rollers, as set forth.

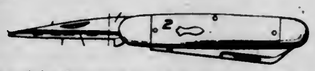
788,021. **PHOTOGRAPHIC-PRINT EXPOSURE-METER.** SAMUEL COHEN, San Francisco, Cal. Filed June 23, 1903. Serial No. 163,802.

Claim.—1. A device of the class described, consisting of a frame having a series of perforations arranged upon one side thereof in perpendicular alinement; a series of translucent negatives arranged over the said perforations, said negatives being of different densities; and a series of print-exposure tables arranged in perpendicular alinement along the side of the frame opposite the disposition of said perforations, the tables being arranged with relation to corresponding negatives.



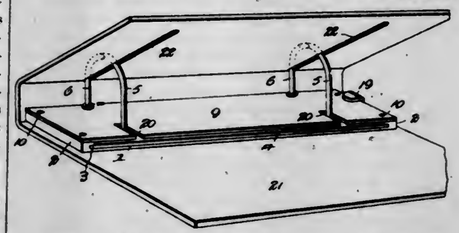
2. A device of the class described, consisting of a frame having perforations therein; a series of translucent negatives arranged over the perforations, said negatives being of different densities; and a series of print-exposure tables arranged upon the frame, the tables being arranged fixedly with relation to corresponding negatives.

788,022. **LEATHER-PUNCH.** JAMES E. COOPER, Perry, N. Y., assignor to Robeson Cutlery Company. Filed Jan. 3, 1905. Serial No. 239,326.



Claim.—A leather-punch consisting of a tapered blade that is flat on one side, and on the other is curved outwardly in the arc of a circle, and that has at its lower edge a groove also cut in the arc of a circle, which intersects the convex side of the blade to form a cutting edge, substantially as shown and described.

788,023. **BILL OR INVOICE FILE.** BURL COUCH and JOHN D. KNEEDLER, Sioux City, Iowa. Filed Mar. 31, 1904. Serial No. 200,979.



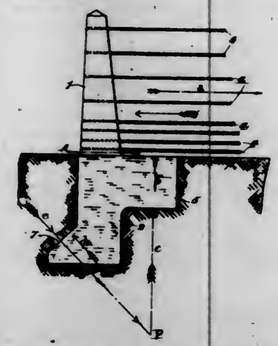
Claim.—1. The herein-described bill and invoice file comprising a casing having a pair of hook members 6 rigidly mounted thereon, a plate laterally movable and mounted in said casing and having the bill-hooks 5 complementary to the hook members 6, means to move said plate and the bill-hooks carried thereby inward or outward comprising a bar having fingers upon one side thereof, downwardly-directed lugs secured to the outer ends of said fingers and adapted to engage obliquely-disposed slots in said plate, and an extension 14 upon the opposite side of said bar having a lug adapted to engage a longitudinal slot in the casing, substantially as and for the purpose set forth.

2. The herein-described bill and invoice file for papers of any character, comprising a suitable casing, a movable plate 4 mounted in said casing, hook members 6 rigidly secured to said casing and additional hooks 5 carried by said movable plate, a controlling-bar having obliquely-disposed extensions, lugs secured to the outer ends of said extensions adapted to engage obliquely-disposed slots in said plate and a member 14 having a depending lug adapted to engage a longitudinal slot in the casing whereby, when said bar is moved longitudinally outward, said bar will be held against lateral movement and the plate moved from the casing and the paper-engaging devices separated, all combined substantially as set forth.

3. A bill and invoice file comprising a suitable casing having recesses 3 in the end sections thereof, hook members 6 rigidly secured

to said casing, a plate mounted in said casing the ends thereof taking into said recesses and slidable transversely therein, bill-hooks 5 carried by said plate and protruding through the casing, a bar longitudinally, movably secured in said casing, said bar having a pair of obliquely-disposed arms protruding from one side thereof, said arms having depending lugs adapted to engage obliquely-disposed slots in said plate, and an extension 14 protruding from the opposite side of said bar, also having a depending lug to engage a longitudinal slot in the casing, substantially as and for the purpose set forth.

788,024. FENCE-POST. JOHN R. COVEY, Linton, Ind. Filed Feb. 20, 1905. Serial No. 246,579.



Claim.—1. A one-piece fence-post comprising an upper vertically-extending post portion and a lower downwardly-extending integral foundation or base portion, of an integral projecting or spur portion situated at and extending from one side of the top of the base on the strained or wire side of the post and having its under flat side extending at a right angle with the vertical center of said post.

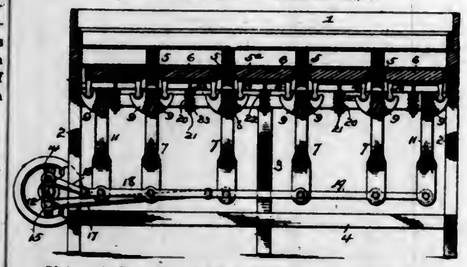
2. A one-piece fence-post comprising an upper vertically-extending portion and a lower downwardly-extending integral foundation or base portion, said upper vertically-extending portion expanding or tapering toward its base on the fence-wire side thereof, of an integral projecting or spur portion situated at and extending from one side of the top of the base on the fence-wire side thereof to have its top surface on a plane with the level of the ground and projecting at right angles with the vertical center of the post.

3. A one-piece fence-post comprising an upper vertically-extending portion and a lower downwardly-extending integral foundation or base portion, said upper vertically-extending portion expanding or tapering toward its base on the fence-wire side thereof, of an integral projecting or spur portion situated at and extending from one side of the top of the base portion on the fence-wire side thereof to have its top surface on a plane with the level of the ground and projecting at right angles with the vertical center of the post, and an opposing base-projecting portion or spur situated on the bottom end of the opposite side of said base.

4. A one-piece fence-post comprising an upper vertically-extending portion and a lower downwardly-extending integral foundation or base portion, said upper vertically-extending portion expanding or tapering toward its base on the fence-wire side of said base, of an integral projecting or spur portion situated at and extending from one side of the top of the base portion on the fence-wire side thereof to have its top surface on a plane with the level of the ground and projecting at right angles with the vertical center of the post, and an opposing base-projecting portion situated on the bottom end of the opposite side of said base and having an inclined upper bearing-surface and a lower flat base-surface.

5. A one-piece fence-post comprising an upper vertically-extending portion and a lower downwardly-extending integral foundation or base portion, said upper vertically-extending portion expanding or tapering toward its base on the fence-wire side of said base, of an integral projecting or spur portion situated at and extending from one side of the top of the base portion on the fence-wire side thereof to have its top surface on a plane with the level of the ground and projecting at right angles with the vertical center of the post, and an opposing base-projecting portion situated on the bottom end of the opposite side of said base and having an inclined upper bearing-surface and a lower flat base-surface on a level with the bottom end of the base of the post.

788,025. PULP-SCREENING MACHINE. WILLIAM H. CROSBY, Waterville, Me. Filed Feb. 10, 1905. Serial No. 245,106.



Claim.—1. In a pulp-screening machine, the combination with a box or casing, of a screen-plate therein, a diaphragm below the screen-plate, bellows-plates secured to the diaphragm, an oscillating lever, and a block secured to the lever and constructed to alternately move two of said bellows-plates.

2. In a pulp-screening machine, the combination with a box or casing, of a screen-plate therein, a diaphragm below the screen-plate, bellows-plates secured to the diaphragm and movable between fixed cross-bars to which the diaphragm is secured, T-shaped levers pivotally supported at the ends of their horizontal members, means for oscillating the lower ends of said levers, and blocks on the horizontal members of the levers, constructed to engage alternately the bellows-plates at opposite sides thereof.

3. In a pulp-screening machine, the combination with a box or casing, of a screen-plate therein, cross-bars below and spaced from the screen-plate, a diaphragm secured upon said cross-bars, bellows-plates secured to the lower face of the diaphragm between the cross-bars, T-shaped levers having rotary mounting at the ends of their horizontal members, means for oscillating the lower ends of said levers, and blocks secured to the horizontal members and adapted to engage the bellows-plates at both sides thereof.

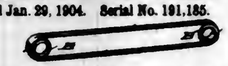
4. In a pulp-screening machine, the combination with a box or casing, of a screen-plate therein, cross-bars spaced below the screen-plate, a diaphragm secured on the cross-bars, bellows-plates secured to the diaphragm between the cross-bars, T-shaped levers pivotally supported at the ends of their horizontal members constructed to alternately engage the bellows-plates at opposite sides thereof, links connecting alternate levers, and a double-crank shaft connected with and constructed to reciprocate said links.

5. In a pulp-screening machine, the combination with a box or casing and cross-timbers connecting the sides thereof, of a screen-plate in the box above the cross-timbers, a diaphragm secured on the cross-timbers, bellows-plates secured to the diaphragm between the cross-timbers, cross-bars parallel with and between the cross-timbers, guide-pins on the bellows-plates movable in openings in the cross-bars, springs on the pins below the bars normally drawing down the diaphragm and bellows-plates, T-shaped levers fulcrumed at the ends of their horizontal members in the box or casing, means for oscillating the lower ends of said levers, and blocks on the horizontal members constructed to alternately engage the bellows-plates at opposite sides thereof.

6. In a pulp-screening machine, the combination with a box or casing, cross-bars connecting the sides of the box, a screen-plate in the box above the cross-bars, and a diaphragm secured on the cross-bars, of bellows-plates secured to the diaphragm between the cross-bars, T-shaped levers fulcrumed at the ends of their horizontal members, means for oscillating the lower ends of the levers, blocks secured to the horizontal members and constructed to engage alternately the bellows-plates at opposite sides of the levers, and means for so oscillating the levers to compel two levers to exert power against each bellows-plate either to raise them or permit them to lower by moving away from them.

7. In a pulp-screening apparatus, the combination with a box or casing, cross-timbers connecting the sides thereof, a screen-plate above the cross-bars, a diaphragm secured on the cross-bars, bellows-plates secured to the diaphragm between the cross-timbers, T-shaped levers fulcrumed at the ends of their horizontal members, blocks secured to the horizontal members of the levers and constructed to alternately engage the bellows-plates at opposite sides thereof, guide-pins secured to and depending from the bellows-plates, cross-bars having openings to receive and guide the pins, springs on the pins below the bars normally pulling downward on the bellows-plates and means for oscillating the levers.

788,026. RIBBON-RUNNER. RUDISELL CULBRETH, Baltimore, Md. Filed Jan. 29, 1904. Serial No. 191,185.



Claim.—1. In a device of the character set forth, a continuous metallic strip formed with parallel, spaced arms, looped at both ends between said arms, and having rounded, widened surfaces formed exteriorly thereon at its ends, substantially as set forth.

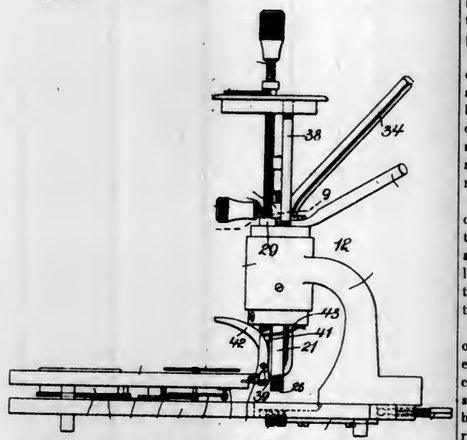
2. A ribbon-runner having looped portions at each end thereof, each loop having a widened, integral, rounded portion upon its outer face and spaced, parallel arms leading from the opposite faces of the widened portions of the loops and connecting the loops, substantially as described.

3. In an article of the character described, a continuous member formed with parallel spaced arms, and a coiled loop formed at one end between the arms having a rounded widened exterior surface, substantially as described.

4. A ribbon-runner comprising an open body portion formed with parallel spaced arms and coiled loops formed between the arms at each end thereof, substantially as described.

5. A ribbon-runner comprising an open body portion formed of parallel spaced arms and a coiled loop disposed between the arms and at one end thereof, substantially as described.

788,027. APPARATUS FOR ADJUSTING HAIR-SPRINGS. EMERSON DE BARTHE, Waltham, Mass. Filed Jan. 4, 1905. Serial No. 239,587.



Claim.—1. An apparatus for adjusting hair-springs having a watch or clock train, and a balance-holding cock adjustable toward and from said train to bring the balance held thereby into engagement with the escapement mechanism of said train.

2. An apparatus for adjusting hair-springs having a watch or clock train, a balance-holding cock adjustable toward and from said train to bring the balance held thereby into engagement with the escapement mechanism of said train, and means for moving said cock toward and from the train.

3. In an apparatus for adjusting hair-springs, a holder for a balance, and gripping members arranged to engage a portion of the hair-spring carried by the balance and adapted for actuation to shift the portion of the hair-spring which is engaged by them.

4. In an apparatus for adjusting hair-springs, a holder for a balance, and rotatable gripping members arranged to engage a portion of the hair-spring carried by the balance and adapted for actuation to shift the portion of the hair-spring which is engaged by them.

5. In an apparatus for adjusting hair-springs, a balance holder or cock having bearings for holding the staff of a balance, and means for holding the outer end portion of the hair-spring carried by the balance, the said means being completely rotatable about the axis of said bearings.

6. In an apparatus for adjusting hair-springs, a balance-cock having a base and a standard, bearings for holding the staff of a balance carried by said cock, a rotatable member supported by said standard concentrically with respect to the axis of said bearings, and means for holding the free end portion of a hair-spring carried by said rotatable member, the latter and the hair-spring-holding means being completely rotatable about the axis of the bearings.

7. In an apparatus for adjusting hair-springs, a holder for a balance, gripping members arranged to engage a portion of the hair-spring carried by the balance, and a micrometer adjustment by which the gripping members may be actuated to vary the length of the hair-spring between its point of engagement with the gripping members and its point of attachment to the balance.

8. In an apparatus for adjusting hair-springs, a holder for a balance, a pair of rotatable gripping members adapted to grasp a portion of the hair-spring which is connected to the balance, means whereby one of said gripping members may be rotated to move the portion of the spring engaged by them, and provisions for measuring the amount of rotation of said member.

9. In an apparatus for adjusting hair-springs, a holder for a balance, a pair of rotatable gripping members adapted to grasp a portion of the hair-spring which is connected to the balance, means whereby one of said gripping members may be rotated to move the portion of the spring engaged by them, and provisions for measuring the amount of rotation of said member comprising a pointer and a graduated dial adjacent the pointer, one of the latter elements being carried by said member.

10. In an apparatus for adjusting hair-springs, a balance holder or cock comprising bearing members adapted to engage the staff of a balance, gripping members located at one side of the bearing members and adapted to grasp the outer end portion of the hair-spring carried by the balance, and nippers located adjacent the gripping members at an invariable distance therefrom and adapted to be actuated to grip the end of the hair-spring projecting from the gripping members.

11. In an apparatus for adjusting hair-springs, a balance holder or cock comprising bearing members adapted to engage the staff of a balance, gripping members located at one side of the bearing members and adapted to grasp the outer end portion of the hair-spring carried by the balance, and nippers located adjacent the gripping members at an invariable distance therefrom, the gripping members and nippers being completely rotatable about the axis of the bearing members.

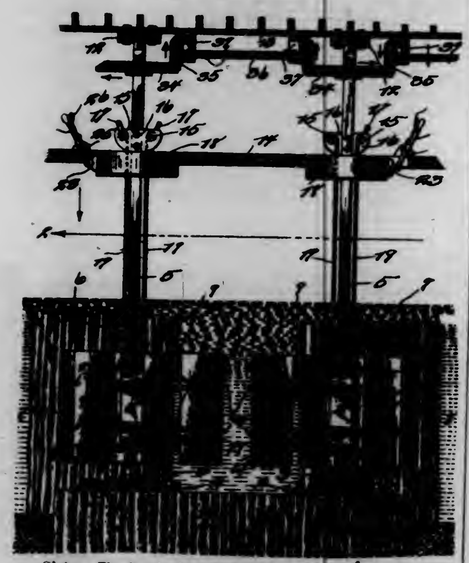
12. In an apparatus for adjusting hair-springs, a balance holder or cock comprising a base, a standard rising from and overhanging the base, a bearing for the staff of a balance supported by the standard, a complemental balance-staff bearing mounted in the base in line with said first-named bearing and adjustable toward and from the same, and means for adjustably holding the outer end portion of the hair-spring connected to the balance.

13. In an apparatus for adjusting hair-springs, a balance holder or cock comprising a base, a bearing for the staff of a balance mounted in the base, a standard rising from and overhanging the base, a container rotatably mounted in the overhanging portion of the standard, a spindle axially mounted in said container in line with said bearing mounted for movement toward and from the same and carrying a complemental balance-staff bearing, and gripping members also mounted in the container and comprising a rotatable spindle at one side of the first said spindle and a pivoted arm carrying at one end a roller arranged to engage the second of said spindles, the said bearings being adapted to hold the staff of a balance and the said gripping members to grasp between their engaging portions the outer end portion of a hair-spring carried by the balance.

14. In an apparatus for adjusting hair-springs, a balance holder or cock comprising a base, a bearing for the staff of a balance mounted in the base, a standard rising from and overhanging the base, a container rotatably mounted in the overhanging portion of the standard, a spindle axially mounted in said container in line with said bearing mounted for movement toward and from the same and carrying a complemental balance-staff bearing, gripping members also mounted in the container and comprising a rotatable spindle at one side of the first said spindle and a pivoted arm carrying at one end a roller arranged to engage the second of said spindles, the said bearings being adapted to hold the staff of a balance and the said gripping members to grasp between their engaging portions the outer end portion of a hair-spring carried by the balance, and nippers mounted in the container adjacent the gripping members.

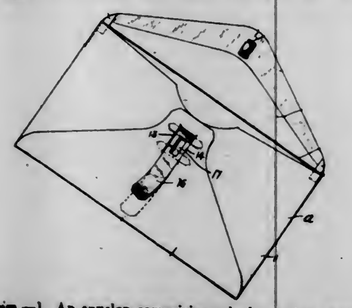
15. In an apparatus for adjusting hair-springs, a balance holder or cock having bearings for the staff of a balance, and gripping members for holding the outer end portion of a hair-spring carried by the balance comprising a rotatable spindle having a peripheral groove and a pivoted arm movable toward and away from said spindle carrying a roller arranged to project into said groove.

788,028. WATER-MOTOR. ISAAC B. DE FORD, Winston, Mo. Filed Sept. 26, 1904. Serial No. 226,419.



Claim.—The herein-described water-motor comprising a plurality of blades; suitable arms pivotally connected to said blades whereby they may swing freely in one direction but cannot pass beyond the plane of said arms in the other direction; a suitable collar or collars attached to said arms; a shaft fitting in said collar and operatively mounted in an upright position; a circular platform attached near the upper end of said shaft, a brake-shoe adapted to engage the edge of said circular platform, a controlling-lever to operate said brake-shoe; a suitable winding drum or drums mounted in brackets carried by said shaft and cables connecting said collars and winding-drums whereby the collars and the parts carried thereby may be bodily raised out of the water or lowered into the same as desired, all combined substantially as specified and for the purpose set forth.

788,029. SEALING MEANS FOR ENVELOPS, &c. BENJAMIN R. DYER, Hobart, Tasmania, Australia. Filed June 13, 1904. Serial No. 212,422.

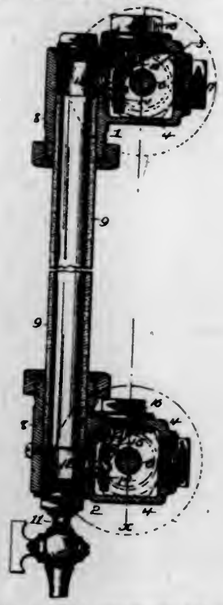


Claim.—1. An envelop comprising a body portion, main, rear and side sealing-flaps carried thereby, the main sealing-flap carrying a hook and the rear sealing-flap carrying a movable slotted paper tab and a cross-head arranged in one end of the said tab.

2. An envelop comprising a body portion, main, rear, and side sealing-flaps carried thereby, the main flap being formed with an adhesive surface and carrying a hook at a point central thereof, the rear sealing-flap being provided with longitudinal slits, a cross-head slidably secured within the said slits and a tab carried thereby, said tab being provided with a longitudinal slot, the said hook being adapted to engage the cross-head, the former passing through the said slot.

3. An envelop comprising a body portion, main, rear and side sealing-flaps carried thereby, the main flap being formed with an adhesive surface and carrying a hook at a point central thereof, and a longitudinally-movable, frangible tab secured within the rear sealing-flap adapted to have one end thereof engaged by the said hook.

788,030. WATER-GAGE. CHARLEY R. ELLIOTT, Denver, Colo. Filed July 26, 1904. Serial No. 218,236.



Claim.—1. In a gage, the combination with two fixtures, each having a sleeve, a glass tube connecting said sleeves, removable devices closing said sleeves and permitting the insertion and removal of the glass tube through either sleeve, said fixtures having lateral chambers communicating with the sleeves, and flap-valves in said chambers and designed to automatically close communication with the sleeves when the tube breaks.

2. In a gage, the combination of two fixtures, each having a sleeve and each having a chamber laterally removed from the sleeve and communicating therewith, a glass tube mounted at its ends in said sleeves, and removable devices closing the outer ends of said sleeves, and permitting the insertion and removal of the glass tube through either sleeve, a manually-operated valve carried by each fixture for shutting off communication between the fixtures and the boiler, and automatic flap-valves mounted in said lateral chambers for closing communication between said chambers and the sleeves carrying the tube, when the latter breaks.

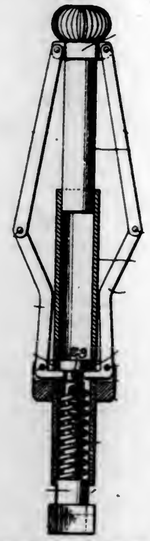
3. In a gage, the combination of two fixtures, each comprising a chamber and a sleeve arranged side by side and communicating with each other, means permitting the insertion of a gage-tube through either of said sleeves, each chamber having an opening in its top, plugs in said openings, and flap-valves suspended from said plugs and adapted to automatically close communication between said chambers and sleeves when the gage-tube breaks.

788,031. WATCH-HAND REMOVER. AUGUSTIN ELLIS, Bedford, Ind. Filed Feb. 2, 1905. Serial No. 243,595.

Claim.—1. In an implement of the class described, a tubular stock, a plunger movably disposed within said stock and having a socket in one end for engaging the object to be detached, and means for forcibly withdrawing said plunger into said stock.

2. In an implement of the class described, a tubular stock, a plunger movably disposed within said stock and having a socket in one end for engaging the object to be detached, a spring operating to maintain said plunger in projected position, and means for forcibly withdrawing said plunger into said stock.

3. In an implement of the class described, a tubular stock having a transverse recess through one end, a plunger disposed for movement in said tubular stock and provided with a laterally-extending foot portion projecting through said recess, said foot portion having a socket for engaging the object to be detached, and means for forcibly moving said plunger and its foot member longitudinally of said tubular stock.



4. In an implement of the class described, a tubular stock, a plunger movably disposed within said stock and having a socket in one end for engaging the object to be detached, said socket being formed with converging undercut sides, and means for forcibly moving said plunger longitudinally of said tubular stock.

5. In an implement of the class described, a tubular stock having a transverse recess through one end, and with an annular collar disposed intermediately thereon, a plunger movable in said tubular stock and provided with a lateral foot extending through said recess, said foot portion having a socket for engaging the object to be detached, a spring operating to maintain said plunger in projected position, levers pivoted in said collar and engaging said plunger within said tubular stock, and means for operating said levers.

6. In an implement of the class described, a tubular stock, a plunger movably disposed within said stock and having a socket in one end for engaging the object to be detached, levers pivoted upon said stock and engaging said plunger, a guide-rod slidably disposed within said stock, and links connecting said guide-rod and the free ends of said levers.

7. In an implement of the class described, a tubular stock, a plunger movably disposed within said stock and having a socket in one end for engaging the object to be detached, levers pivoted upon said stock and engaging said plunger, a spring operating to maintain said plunger in projected position, a guide-rod slidably disposed within said stock, and links connecting said guide-rod and the free ends of said levers.

788,032. ROTARY PUMP. GEORGE H. ELLITHORPE, Port Clinton, Ohio. Filed Apr. 2, 1903. Serial No. 150,765.

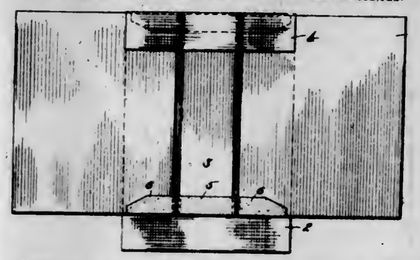


Claim.—1. In a rotary pump, of the character, substantially as described, the combination of a pump-casing, a rotary drive-wheel arranged therein, means for rotating the same, said wheel comprising a rim and spiral blades extending from the center of the wheel to the rim, and each of the same pitch from end to end and forming the inlet-openings from center to rim between the ends of said blades, and a series of inclined stationary blades approximately extending completely around the space within said casing and arranged closely adjacent to the delivery end of said wheel, to deflect from said wheel the whirling water delivered thereby, said stationary blades being greater in number than and inclined in an opposite direction to and at a different angle from the blades of said wheel, and forming the water-outlets between their receiving and delivery ends.

2. In combination, in a rotary pump, a pump-casing, a rotary drive-wheel therein comprising a rim and several similar spiral blades extending from the wheel center to said rim and approximately completely around the space within the rim and forming the water-inlets between the ends of said blades and from the center to the rim of said wheel, each blade being of approximately the same pitch from its receiving to its discharge end, a stationary wheel arranged closely adjacent to the delivery end of said drive-wheel and comprising a rim and a series of inclined blades extending from the center to the rim of said wheel and forming a number of water-passages between the ends of said blades, said stationary blades being greater in number than the blades of said drive-wheel and inclined in an opposite direction therefrom to deflect from the drive-wheel the water delivered thereby, each stationary blade being of the same pitch from end to end, and a drive-shaft for the drive-wheel passing through the center of said stationary wheel, substantially as described.

3. In a rotary pump, in combination, a pump-casing, a rotary drive-wheel therein, means for rotating said wheel, and a stationary wheel arranged closely adjacent to the delivery end of said drive-wheel to deflect therefrom the whirling water delivered thereby, said wheels comprising rims and inclined blades extending from the centers to the rims of the wheels and approximately completely around the spaces within said rims and forming the water-passages between the receiving and delivery ends of the blades, the blades of the drive-wheel extending, each, approximately one-half around the wheel, and the blades of the stationary wheel extending each, approximately, one-quarter around the wheel, substantially as described.

788,033. BINDING OR COVER FOR BOOKS. GILBERT D. EMERSON, Philadelphia, Pa. Filed June 17, 1904. Serial No. 212,922.



Claim.—1. A binding or cover for books, comprising a flexible back, sides connected by said back and strips of tough, flexible material connecting adjacent corners of said sides, the ends of the flexible material of said flexible back being folded over said corners and said strips and retained in said position.

2. A binding or cover for books, comprising a flexible back, sides connected by said back, strips of parchment or similar tough fibrous material connecting adjacent corners of said sides at the ends of said back, for reinforcing the same.

3. A binding or cover for books, comprising a flexible back, having a stiffening portion, sides connected by said back, and reinforcing-strips of tough, flexible material connecting said sides and passing inside of said stiffening portion.

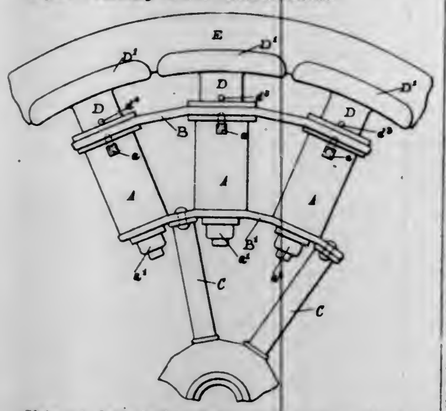
4. A binding or cover for books, comprising a flexible back, a stiffening portion for said back, sides connected by said back, and strips of tough, flexible material connecting adjacent corners of said sides, the ends of the flexible material of said back being folded inwardly over said stiffening portions and said strips.

5. A binding or cover for books, comprising a flexible back, sides connected by said back, strips of tough, flexible material connecting adjacent corners of said sides, leaves for said book, said leaves being connected with said sides, by means of a strip of fabric, which is cemented to said sides, adjacent their edges, said strips of tough flexible material being independent of said strip of fabric.

6. A binding or cover for books, comprising a flexible back, sides connected by said back, strips of parchment connecting adja-

cent corners of said sides, leaves for said book, said leaves being connected with said sides, by means of a strip of fabric, which is cemented to said sides, adjacent their edges, said strips of parchment being independent of said strip of fabric.

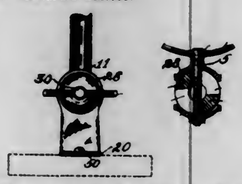
788,034. VEHICLE-WHEEL. WILLIAM R. FASEY, Snaresbrook, England. Filed Aug. 29, 1904. Serial No. 222,602.



Claim.—1. In a wheel for motor and other vehicles, fixed rims secured to the spokes, radial cylinders carried by the fixed rims having valves for the supply of compressed air, plungers within the cylinders supported by the air-cushion, and an outer rim and tire upon the ends of the plungers, substantially as herein described.

2. In a wheel for motor and other vehicles the combination of rims B and B' to the inner of which the spokes C are secured, radial cylinders A between the said rims, valves at the inner ends of the cylinders for the supply of compressed air, outer rim-sections D' on the ends of the plungers and tire E carried by the rim-sections D', substantially as herein described.

788,035. JOINT. ALAN R. FERGUSSON, New York, N. Y. Filed Mar. 25, 1904. Serial No. 200,003.

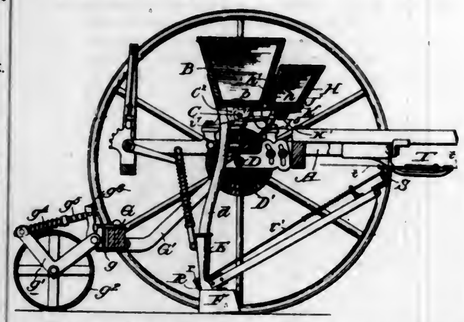


Claim.—1. The combination of a base, an arm and a joint interposed between the two, said joint embodying a pair of opposed concave socket-forming parts carried by said base, a ball from which the arm extends, and a diametral clamping member having a portion engaging with one portion of the socket and a threaded engagement with another portion of the socket and passing through the ball, said ball having an equatorial slot for the passage of the member during adjustment.

2. The combination of a base, an arm and a joint interposed between the two, the joint embodying a pair of opposed concave socket-forming parts extending from the base, a ball from which the arm extends, and a diametral clamping-bolt having a shoulder engaging with one of the socket-forming parts and a threaded engagement with the other socket-forming part and passing through the ball, said ball having an equatorial slot for the passage of the bolt during adjustment.

3. The combination of a base part, an arm part, and a joint interposed between the two, said joint comprising a pair of opposed concave socket-forming members carried by one of said parts, a ball from which the other of said parts extends and a diametral clamping-bolt passing through the ball and having a portion engaging one of the socket members and carrying threaded means engaging the other socket member, said ball having an equatorial slot for the bolt during adjustment.

788,036. GRAIN-DRILL. WILLIAM FETZER, Middletown, Ohio. Filed Sept. 1, 1904. Serial No. 222,965.



Claim.—1. In a grain-drilling machine, the combination with drilling instrumentalities, of an independent planter associated with and located adjacent the hopper, having a series of independent feed plates or rings operated by the drill-actuating means, means for conducting seed from the planter, and means for planting the seed in hills a distance apart.

2. In a grain-drill, the combination with drilling mechanism comprising a plurality of feeds, boots and soil-openers, of an independent planter associated with and adjacent the drilling mechanism and actuated by the drill-actuating means, a series of independent feeding devices in the planter less in number than the feeding devices of the drill, means for actuating the planter-feeds, and mechanism for depositing the seeds from the planter in hill form, substantially as described.

3. In a grain-drilling machine, the combination with the drilling instrumentalities, of an independent seed-planter associated with and located adjacent the hopper, a series of independent feeding means for actuating the said planter-feeding means connected with the drill-actuating means, and means for collecting and depositing seeds from the planter in hill form.

4. In a grain-drilling machine, the combination with a series of furrow-openers, a grain-hopper, feed-tubes leading from the hopper to the openers, of an independent planter attachment located adjacent the grain-hopper, a series of independent feeding devices for the planter attachment to the openers, independent means for actuating the feeding devices, and a check-row attachment for regulating the discharge of the material from the planter attachment.

5. In a grain-drilling machine, the combination with drilling instrumentalities, of an independent corn-planter attachment comprising a hopper located adjacent the drill-hopper, and a series of independent feed-plates, of a series of independent means for actuating the plates operatively associated with the drill-actuating mechanism, and a check-row mechanism for depositing the seeds in hill form.

6. In a drilling-machine, the combination with a series of furrow-openers and drilling instrumentalities comprising a hopper, and feeding-tubes, of an independent planter attachment located adjacent the hopper, having an independent series of feed devices actuated by the drill-actuating mechanism, and seed-conducting tubes less in number than the seed-conducting tubes of the drill whereby the seeds from the planter are deposited at distances apart greater than the distance of the rows deposited by the drill.

7. In a grain-drilling machine, the combination with furrow-openers in number corresponding with the number of feed-tubes in the drill-machine, of an independent planter attachment adjacent thereto having a series of independent feed plates or rings and feed-tubes leading to the openers less in number than that of the drill, and means actuated by the drill-actuating mechanism for actuating the feeding devices of the planter attachment to cause the seed therefrom to be discharged into the tubes.

8. In a grain-drilling machine, the combination with drilling instrumentalities comprising furrow-openers and feed-tubes, of an independent planter attachment located adjacent the hopper, actuated by the drill-actuating means and comprising a series of independently-operated feeding plates or rings, and a check-row mechanism for governing the feed of the planter attachment.

9. In a grain-drill, the combination with a seed-hopper having feeding mechanism, and means for actuating said mechanism, of a supplemental independent planter-hopper adjacent the drill-hopper having a series of independent feeding devices less in number than those of the drill and independent connecting-gearing for driving said feeding mechanisms.

10. In a grain-drill, the combination with drilling mechanism, of a planter attachment therefor, arranged adjacent the drill-hopper and having a series of feeds to discharge the seeds in rows a distance apart greater than those of the drill-discharge operable independent of the drill, and connecting-gearing for operating the planter independently of the drilling mechanism.

11. In a grain-drill, the combination with feed-operating mechanism, of a separate adjacently-located planter mechanism having a series of independent feeds separated a distance different from those of the drill, and a plurality of connecting mechanism for operating the planter-feed mechanism through the drill-feeding mechanism.

12. In a grain-drill, the combination with drilling instrumentalities, of a separate supplemental seed-receptacle adjacent the drill-hopper, a series of independent feeding mechanism for said receptacle differing in number from the feeding mechanism of the drilling instrumentalities, and associated mechanism for operating the feeds, substantially as described.

13. In a grain-drill, the combination with drilling instrumentalities, of a corn-planter attachment located adjacent the drill-hopper, a plurality of independent connecting mechanism between the actuating mechanisms for the drilling and planter attachment, and independent rotary feeding devices in the planter attachment.

14. In a grain-drill, the combination with drilling instrumentalities comprising seed-conducting tubes, of an independent planter attachment adjacent the hopper having a less number of discharges than the drill and entering certain drill-tubes, boots at the ends of the tubes, a series of independent feeding devices for the planter, and means for moving certain boots out of active position.

15. In a grain-drill, the combination with drilling instrumentalities, of a planter attachment for the drill comprising a hopper located adjacent the drill-hopper, and a series of independent feeding means, connected mechanism for actuating the planter-attachment feed independently of the drill-feed, and adjustable gearing for varying the speed of the planter-feed mechanism.

16. In a grain-drill, the combination with drilling instrumentalities, of a planter-hopper adjacently located having a series of independent feeding devices less in number than the feeding devices of the drill, means for connecting the feed of the planter with the tubes of the drill, and means for elevating the furrow-opening parts of the drilling instrumentalities independent of the planter-feed.

17. In a planter, the combination with a supporting-plate having a circular cavity therein, a feed-plate located in the cavity, a divided casting supported on the supporting-plate above the feed-plate, a bolt passing through the plates and securing the parts of the casting in place the said parts of the casting having adjacent recesses, an ejector pivotally secured in the said recesses of the casting, a groove in one part of the casting, and a spring-pressed dog in the groove all of the parts being retained in place by the said bolt.

18. The combination with the frame, of a planter-hopper provided with a plate having a recess provided with a central upstanding tubular stud, a bevel-gear journaled on said stud, a second bevel-gear meshing with the first gear and supported below the plate, a feed ring or plate actuated by the first bevel-gear and rotating in said recess, a pair of castings attached to the plate above the feed-plate, one of said castings having a projection covering the central portion of the feed-plate, and also having a parti-circular opening to permit seed to pass to the apertures in the feed-plate, a spring-actuated clearer at one end of the slot, and a gavity seed-ejector confined between the castings and the seed-plate, substantially as described.

19. In a drill, the combination with a planter-hopper, a feed device therein having a discharge-opening surrounded by a collar, means for actuating said feed device, a seed-conducting pipe, and a collar or funnel attached to the upper end of said pipe adapted to loosely engage the flange around the discharge-opening and provided with a hook adapted to engage the plate and detachably connect the feed-pipe thereto, substantially as described.

20. In a grain-drill the combination with drilling instrumentalities, of an adjacent planter attachment comprising a series of independent feeds, but of a number less than the drill feeds and conductors from the planter-feeds to the furrow-openers of the drill.

21. In a grain-drill, the combination with drilling instrumentalities, of an adjacent planter attachment having feeds less in number than the drill-feeds, said planter-feeds consisting of a series of independently-actuated horizontally-rotatable plates, and conductors from the planter-feeds to the drill-furrow openers.

22. In a grain-drill, the combination with the drilling instrumentalities comprising openers, of a planter attachment located adjacent the drill-hopper and provided with a plurality of separated independently-operated feed devices, less in number than the feeds of the drill, means for conducting the seeds from the planter to the openers, and means for depositing the feeds from the planter in hills.

23. In a grain-drilling machine, the combination with drilling instrumentalities, of an adjacent planter attachment provided with a series of horizontally-rotatable feeding devices having provisions for separating and discharging a given number of seeds, conducting-tubes to the furrow-openers of the drill, and means for depositing the seeds in hills a distance apart.

24. In a grain-drilling machine, the combination with drilling instrumentalities, of a planter attachment adjacent the drill-hopper, and provided with a series of horizontally-rotatable feeding plates or rings formed to discharge a given number of seeds from the planter-hopper, said planter-feeds being less in number than those of the drill and conducting-tubes leading from the planter attachment to the furrow-openers of the drill.

25. In a grain-drilling machine, the combination with drilling instrumentalities, of a planter attachment adjacent the drill-hopper, and provided with a series of horizontally-rotatable feeding plates or rings formed to discharge a given number of seeds from the planter-hopper, and connected mechanism for the feeds of the drill and planter.

26. In a planter-feeding mechanism, the combination with a casting having an upturned flange part, a feed-plate mounted in the casting, a conducting-tube having at one side an upward extenison formed with a return-bend constituting a hook part taking over said flange part of the casting, and a depending tubular extension on the casting communicating with the conducting-tube.

27. In a grain-drill and in combination, drilling instrumentalities, an independent planter associated with and located adjacent to the hopper of the drill and operated by independent gearing actuated by the feed-actuating gearing, and means for changing the gear to cause the planter-feeds to rotate at different speeds, said planter-feeds being less in number than the drill-feeds.

28. In a grain-drill and in combination with drilling mechanism having a plurality of feeds, conducting-tubes and furrow-openers, of adjustable mechanism for variably actuating the feeds of the drill, an independent planter adjacent the hopper of the drill and having a series of feeding devices therein, and independent connections between the drilling-actuating devices and the planter-feed-acutating devices.

29. In a drilling-machine and in combination with drilling instrumentalities, of an independent corn-planter attachment comprising a hopper extending across the machine and located adjacent the drill-hopper, independent feed plates or rings in the planter-hopper, independent means for actuating the plates or rings operatively associated with the drill-actuating mechanism, and a check-row attachment for the machine.

30. In a grain-drill and in combination with the drilling instrumentalities, of a corn-planter attachment adjacent the hopper of the drill, said attachment being provided with a series of horizontally-arranged feeding members provided with cells or the like, for separating and distributing one or more seed at a time from the planter said planter-feeds being less in number than the drill-feeds and having independent operating connections with the drill-operating mechanism.

31. In a grain-drilling machine and in combination with drilling instrumentalities, of a corn-planter attachment adjacent the hopper of the drill and having a series of independently-actuated feeding plates or rings less in number than the number of feeds of the drill, and the said drill being provided with a series of furrow-openers the widely-separated members of which are employed for the planter attachment.

32. In a grain-drill and in combination with drilling instrumentalities, of means for actuating the said drilling instrumentalities, of a supplemental planter-hopper adjacent to the drill-hopper, independent means actuated by the drill-feed-actuating mechanism for actuating the planter mechanism, a valve for collecting seeds from the planter, and a check-row attachment for actuating said valve.

33. In a grain-drill the combination with the carrying wheels and frame, of a planter attachment arranged adjacent the drill-hopper and comprising a series of independently-operated feeding devices, valves for collecting the seed from the planter-feeds, and a check-row attachment for actuating the valves.

34. In a grain-drill the combination with a seed-hopper having feeding mechanism, and means for actuating the said mechanism, of

a supplemental planter-hopper adjacent to the drill-hopper having a series of feeding devices less in number than those of the drill, connecting-gearing for driving said feeding mechanism, and a check-row attachment for the planter.

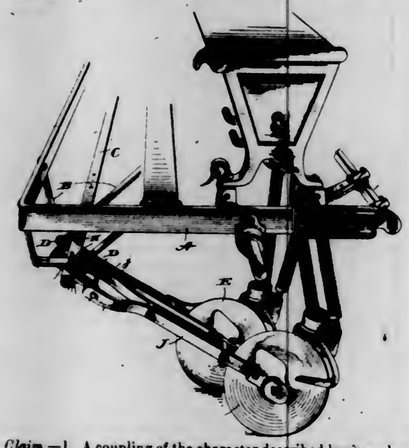
35. In a grain-drill, the combination with a seed-hopper having feeding mechanism, and means for actuating said mechanism, of a supplemental planter-hopper adjacent the drill-hopper having a series of feed devices less in number than those of the drill, and a changeable-gear connection for driving the said feeding mechanism.

36. In a grain-drill the combination with a seed-hopper having feeding mechanism, and means for actuating said mechanism, of a supplemental planter-hopper adjacent the drill-hopper extending across the machine and having a series of feeding devices less in number than those of the drill, and connecting-gearing for driving said feeding mechanism.

37. In a grain-drilling machine, the combination with drilling instrumentalities, of an independent planter associated with and located adjacent the hopper of the drill and operated by the drill-actuating means, means for feeding seed from the planter, and a check-row device for depositing the seeds in hills a distance apart.

38. In a grain-drilling machine, the combination with drilling instrumentalities, of an independent planter associated with and located adjacent to the hopper of the drill, means for feeding seed from the planter comprising an independent series of feeding devices, and a sprocket connection from the grain-drill-feed mechanism to the planter-feeding devices.

788,037. **COUPLING AND DRAW-BAR FOR GRAIN-DRILLS.** WILLIAM PETERS, Middletown, Ohio. Filed Nov. 19, 1904. Serial No. 233,452.



Claim.—1. A coupling of the character described having a horizontally-disposed securing portion provided with seats in its upper and lower surfaces adapted to engage a two-part draw-bar, and an outwardly and downwardly extending portion adapted to engage a drag-bar.

2. In a machine of the character described, a draw-bar consisting of a flat metallic member having provision for the attachment thereto of coupling members, said draw-bar occupying transversely a true horizontal position whereby said coupling members may be projected or retracted relative to the draw-bar.

3. In a machine of the character described, a draw-bar consisting of superposed flat metallic members having provision for the attachment therebetween of coupling members, said flat metallic members occupying transversely true horizontal positions whereby said coupling members may be projected or retracted relative to the draw-bar.

4. In a machine of the character described, a draw-bar, an implement, means whereby the implement may be adjustably secured to said draw-bar, brackets, and means for removably securing the draw-bar to said brackets whereby it may be bodily shifted to different positions of adjustment.

5. In a machine of the character described, a draw-bar, a coupling thereon adapted to be projected and retracted relative thereto, an implement connected with said coupling, and means for removably securing the draw-bar in place whereby it may be bodily shifted to different positions of adjustment.

6. In a machine of the character described, a draw-bar, a series of couplings thereon adapted to be projected or retracted relative thereto, implements connected with said couplings, and means for securing the draw-bar in place whereby it may be bodily shifted to different positions of adjustment.

7. In a machine of the character described, the combination with an implement, and its drag-bar, a draw-bar, and a coupling on said draw-bar arranged between the same and said drag-bar and adapted to occupy a projected or retracted position relative to the draw-bar.

8. In a machine of the character described, the combination with a series of implements and their drag-bars, of a draw-bar, and a corresponding series of couplings on said draw-bar one arranged between the same and each drag-bar and adapted to occupy a projected or retracted position relative to the draw-bar.

9. In a machine of the character described, the combination with a series of implements and their drag-bars, a draw-bar and a corresponding series of couplings on said draw-bar one connected with each drag-bar, and instrumentalities whereby any of said coupling members may be projected or retracted relative to the draw-bar independently of the other couplings.

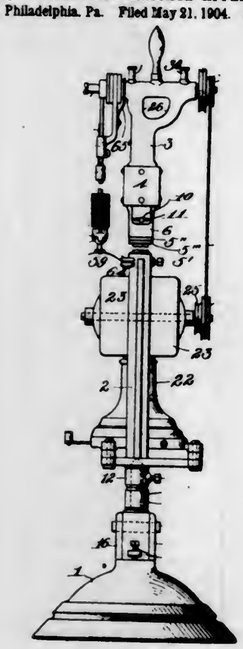
10. In combination with a draw-bar, a coupling thereon adapted to occupy a projected or retracted position relative thereto, and means whereby a drag-bar may be secured to the coupling.

11. In combination with a draw-bar, removable coupling members thereon occupying alternately projected and retracted positions relative to said draw-bar.

12. In combination with a draw-bar, removable coupling members thereon occupying alernately projected and retracted positions relative to said draw-bar, a drag-bar secured to each coupling member, and an implement operatively associated with the drag-bar.

13. A draw-bar of the character described comprising superposed members having opposing surfaces adapted to receive removable couplings therebetween, whereby said couplings may occupy a projected or retracted position relative to the draw-bar, in combination with said removable couplings, means operatively associated with said opposing members for creating a binding pressure therebetween, drag-bars connected to the couplings, and implements operatively associated with the drag-bars.

788,038. **VIBRATORY MASSAGE APPLIANCE.** GEORGE B. FRALEY, Philadelphia, Pa. Filed May 21, 1904. Serial No. 209,066.



Claim.—1. In a massage-machine, a terminal, means for vibrating said terminal, an electromagnet, and a jointed connection between the magnet and the terminal adapted to permit angular movement of the terminal relatively to the magnet and the latter when energized serving to maintain the members of the jointed connection in frictional contact.

2. In a massage-machine, a terminal, means for vibrating the same, an electromagnet, and a ball-and-socket joint connecting the terminal and the magnet.

3. In a massage-machine, a massage-rod, and a swivel-guide having a tube through which the rod works.

4. In a massage-machine, a flexible massage-rod, a swivel-guide having a tube through which the said rod works, and a spring in the tube connected with said rod.

5. In a massage-machine, an operating-shaft, a disk carried by said shaft, a wrist-pin carrier pivoted eccentrically to the disk, means for holding the wrist-pin carrier in different adjusted positions, a wrist-pin on the carrier, and a massage-rod operatively connected with the pin.

6. In a massage-machine, a cushioned head, a shaft journaled therein, driving mechanism carried by one end of the shaft, an adjustable wrist-pin carried by the opposite end of the shaft, and a massage-rod operatively connected with the pin.

7. In a massage-machine, a cushioned head, a shaft journaled therein, driving mechanism carried by one end of the shaft, a disk carried by the opposite end of the shaft, an adjustable lever on the disk, a wrist-pin carried by the lever, and a massage-rod operatively connected with the pin.

8. In a massage-machine, a head, an operating-shaft journaled therein, a guide supported by the head and having its free end provided with a bearing, an adjustable wrist-pin operatively connected with the shaft, and a massage-rod connected with the pin and engaging the bearing.

9. In a massage-machine, a frame provided with a motor, a head above said frame, a flexible connection between the head and frame, and massage means associated with said head and operable by the motor on said frame..

10. In a massage-machine, a supporting-frame, comprising a base, a motor-frame, means interposed between the frame and the base for permitting a yielding movement of the frame, and for causing its automatic return to normal position, a head supporting the hand-attaching mechanism, and cushioning means between the motor-frame and the head.

11. In a massage-machine, a base, a motor-supporting frame, yielding supports engaging the lower portion of the frame, a head connected with the motor-frame, and means interposed between the head and the frame for preventing the transmission of the vibration of the frame to the head.

12. In a massage-machine, a motor-supporting frame, a head yieldingly supported thereby and carrying the hand-attaching mechanism, a base carrying springs, and a connection between the motor-frame and the base and having portions to engage the springs.

13. In a massage-machine, a motor-supporting frame, a head, a flexible sleeve connected with the head, a tube connected with the motor-supporting frame and also with said sleeve and mounted for turning movement, means for limiting the motion of the sleeve, and massage means associated with said head and operable by the motor on said frame.

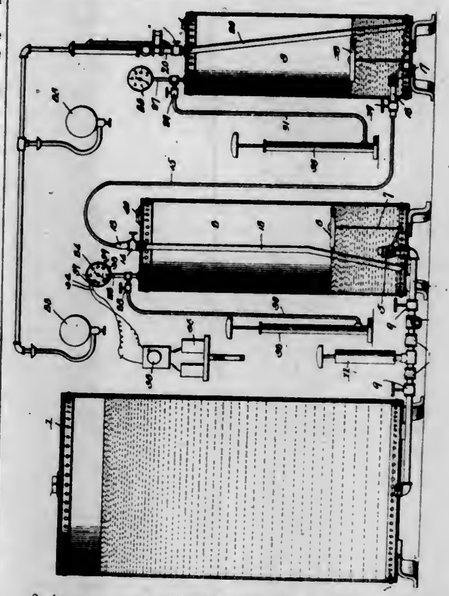
14. In a massage-machine, a head, a shaft, massage means associated with said shaft, a guide for the massage means, supported for swinging movement by the head, and a spring connected respectively with the guide and head to prevent shock to the guide and massage means when the same are released by the user.

15. In a massage-machine, a motor-supporting frame, and a head above the same provided with hand-attaching mechanism, and a flexible sleeve uniting the head and frame.

16. In a massage-machine, a motor-supporting frame, and a head above the same provided with hand-attaching mechaniam, and a flexible sleeve uniting the head and frame, said sleeve being arranged for turning motion relative to the frame.

788,039. **DEVICE FOR FEEDING HYDROCARBON TO VAPOR-BURNERS.** NORMAN P. FRASER, Carsonville, Mich., assignor of one-half to George C. Fraser, Carsonville, Mich. Filed Aug. 25, 1904. Serial No. 222,145.

Claim.—1. In an apparatus of the class described, a container constituting a feed-tank, means for maintaining a pressure of air in said tank, a generator, a valved pipe connecting the tank with the generator, a container constituting a pressure-tank, means for maintaining a pressure of air in the latter, an automatic valve in the feed-tank, a float within said tank operating said valve, and a pipe connecting the feed-tank with the pressure-tank.



2. In an apparatus of the class described, a container constituting a feed-tank, means for maintaining a pressure of air in said tank, a generator, a valved pipe connecting the feed-tank with the generator, a container constituting a pressure-tank, means for maintaining a pressure of air in the latter, means for forcing liquid into said tank against the pressure of air existing therein, an automatic valve constituting the inlet to said pressure-tank, a float operating said valve, an automatic valve in the feed-tank, a pipe connecting the latter with the pressure-tank, and a float within the feed-tank operating the automatic valve therein

3. In an apparatus of the class described, a storage-tank, a pressure-tank and a feed-tank, means for injecting air into the pressure-tank and into the feed-tank, means for transferring the contents of the storage-tank to the pressure-tank against the pressure existing in the latter, an automatically-operated valve constituting a check against the injection of liquid into pressure-tank beyond a predetermined point, and means of communication between the pressure-tank and the feed-tank, said means including an automatically-operated valve adapted to close when the liquid in the feed-tank reaches a predetermined level.

4. In an apparatus of the class described, a feed-tank, a generator, valved means of communication between said feed-tank and generator, a pressure-gage connected with the feed-tank, means for maintaining a pressure of air in the latter, a pressure-tank, means of communication between the feed-tank and the pressure-tank, including an automatically-operated valve, means for maintaining a pressure of air in the pressure-tank, a pressure-gage connected with said tank, a storage-tank, means of communication between the pressure-tank and the storage-tank, including an automatically-operated valve, and pumping means for transferring the contents of the storage-tank to the pressure-tank through the automatically-operated valve.

5. In an apparatus of the class described, a container constituting a feed-tank, means for maintaining a pressure of air in said tank, a generator, a valved pipe connecting the tank with the generator, a container constituting a pressure-tank, means for maintaining a pressure of air in the latter, communicating means between the pressure-tank and the feed-tank, including an automatically-operated valve, a pressure-gage connected with the pressure-tank, an electrical circuit including an electric bell and having contacts connected with the dial of the pressure-gage, and a circuit-closer connected with the pointer of said gage.

788,040. ADJUSTABLE BIPLANE MITER-BOX. CALVIN V. FRIEND, Altona, Ill., assignor of one-half to John M. McKie, Altona, Ill. Filed Feb. 6, 1904. Serial No. 192,447.



Claim.—1. In a device of the class described, the combination with a work-supporting table having back and suitable supporting-legs, of an intermediate support arranged at the back of the table and secured thereto pivotally so as to be movable in a vertical plane perpendicular to the table whereby it may be folded under the table, a saw-guide, and means whereby said saw-guide is adjustably secured to said support, substantially as described.

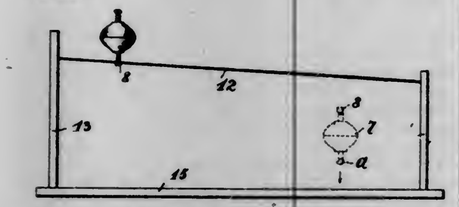
2. In a device of the class described, the combination with a table having a back, of a support arranged at the back of the table, means pivotally supporting said support whereby it may move in a vertical plane perpendicular to the table, a block pivotally connected to said support, the pivotal axis of said block being perpendicular to the pivotal axis of the support and a saw-guide carried by said block, substantially as described.

3. In a device of the class described, the combination with a table having a back, of a support located at the back of the table, means pivotally connecting said support to the table, the pivotal axis being parallel with the table, a block, means pivotally connecting said block to said support, the pivotal axis of the block being perpendicular to the pivotal axis of the support, a saw-guide mounted upon said block, the pivotal axis of the saw-guide being perpendicular to the pivotal axis of the block, and means for holding the several parts to their adjustment, substantially as described.

4. In a device of the class described, the combination with a table, of a support located at one side of the table, a block, means pivotally connecting said block to said support with its pivotal axis horizontal and transverse to the table, a protractor for showing the inclination of said block, said block having a vertical socket which is perpendicular to its pivotal axis, a saw-guide having a stem occupying said socket, and a protractor on the block in operative relation to the saw-guide, substantially as described.

5. In a device of the class described, the combination with the table and supporting-legs, of an intermediate support, means pivotally connecting it to the table, at the rear side thereof, means carried by said support for carrying the saw-guide, a saw-guide and means for removably attaching it to said carrying means, substantially as described.

788,041. TOP. JOHN M. FULTS, Quincy, Ill., assignor of one-half to Aug. H. Wehmeyer, Quincy, Ill. Filed July 28, 1904. Serial No. 218,568.



Claim.—1. A top having a central tubular shaft, a wheel mounted thereon, a shell within which the shaft is journaled at its opposite ends, a split ring mounted to revolve in one of the ends of the shaft and means on the opposite end of the shaft to hold a match.

2. A combined spinning and detonating toy comprising a hollow shaft, a wheel mounted thereon, said shaft being split for holding a match at one end and a rotatable split ring mounted in the opposite end of said shaft for spinning the top upon a string or wire, substantially as described.

3. A detonating-top comprising a central wheel, a hollow shaft passing through the wheel, said shaft being split at one end to hold a match, and a split ring mounted to revolve in the opposite end of the shaft, said top designed to be spun upon a cord or wire and permitted to drop from said cord or wire to explode a match, substantially as described.

788,042. SWEEPING COMPOUND. AUGUST GETZ, San Francisco, Cal. Filed Jan. 17, 1905. Serial No. 241,439.

Claim.—A dustless-sweeping compound comprising a mixture of sawdust, silicious material, a non-drying oil, rosin and pine-tar, the whole being intermixed in about the proportions set forth.

788,043. PAPER-COATING. FRANCIS X. GOVERS, Owego, N. Y. Filed Sept. 6, 1904. Serial No. 223,461.

Claim.—1. A new composition comprising saponified wax and casein.

2. A new composition adapted for coating paper and the like, comprising superwaxy saponified wax and casein.

3. A new composition adapted for coating paper and the like, comprising saponified wax, casein, water and an alkali.

4. A new composition adapted for coating paper and the like comprising saponified wax containing uncombined wax, casein, water and an alkali.

5. A new composition adapted for coating paper and the like, containing approximately twenty parts of saponified wax, thirty parts of casein, one part of alkali one hundred parts water, and six hundred parts of a mineral base.

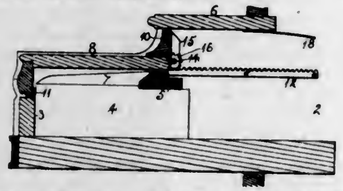
6. A new composition adapted for coating paper and the like, which comprises saponified vegetable wax, casein, water and an alkali.

7. A new composition adapted for coating paper and the like comprising saponified wax, casein and a mineral base.

8. A new composition adapted for coating paper comprising superwaxy saponified wax, casein and a mineral base.

9. A new composition adapted for coating paper and the like consisting of saponified vegetable wax, casein, water, an alkali and a mineral base, substantially as hereinbefore described.

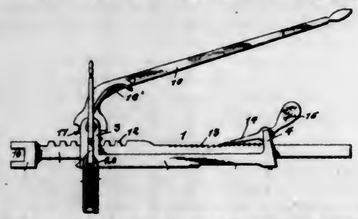
788,044. PIANO. CHARLES A. HADDORFF, Rockford, Ill., assignor to Haddorff Piano Company, Rockford, Ill., a Corporation of Illinois. Filed Dec. 16, 1904. Serial No. 237,129.



Claim.—1. In a piano, a fall-board having a sliding movement within the casing, and yielding means with which the upper edge of the fall-board engages when in its open position, to prevent jingling.

2. In a piano, a fall-board having a sliding movement within the casing, and a spring with which the fall-board engages when in its open position.

788,045. FLOOR-CLAMP. FRANK W. HAMMOND and FRANK E. HENDERSON, Comstock, Nebr., assignors of one-third to Charles W. Hammond, Comstock, Nebr. Filed Dec. 1, 1904. Serial No. 235,130.



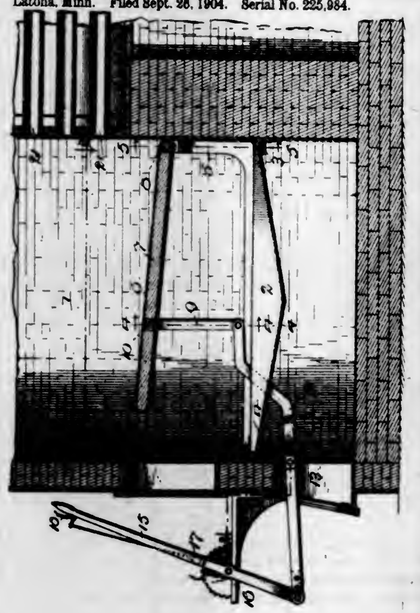
Claim.—1. In a clamping device of the character described, the combination with a supporting-frame comprising a longitudinally-channeled base-plate having upwardly-projecting bearing-lugs and laterally-projecting arms formed on its forward end, an upwardly-projecting apertured guide-lug formed on its opposite end, of a push-bar slidably mounted in the channel of said base-plate and through said apertured guide-lug, a board-engaging head arranged on the forward end of said push-bar, an operating-lever pivotally mounted in said frame, means whereby the same is engaged with said bar to project and retract the same, means for holding the same in projected position, clamping-jaws adjustably mounted on the laterally-projecting arms of said frame whereby the same may be applied to joists of different thicknesses, and means whereby said frame is secured to said joists, substantially as described.

2. In a clamping device of the character described, the combination with a supporting-frame, comprising a base-plate having laterally-projecting arms formed on the forward end of the same, clamping-jaws adjustably mounted on said arms, whereby said frame may be engaged with joists of different thicknesses, a clamping-lever pivotally mounted in one of said jaws, a needle connected to the lower end of said lever and slidably mounted in an aperture in said jaw whereby the same may be forced into a joist, a prong arranged on the opposite end of said frame to engage said joist at this end of the frame, of a push-bar slidably mounted in said frame, means whereby said push-bar is projected and retracted, and means whereby the same is held in its projected positions, substantially as described.

3. In a clamping device of the character described, the combination with a supporting and guiding frame comprising a base-plate having a recess formed in its lower side, of a holding-chisel removably mounted in said recess, a holding-prong arranged on the rear end of said base-plate, a push-bar slidably mounted on said plate, a board-engaging head formed on said bar, an operating-lever mounted in said frame to engage said bar whereby the same is projected and retracted, and a locking-pawl pivotally mounted on said frame to engage and hold said bar in its projected positions, substantially as described.

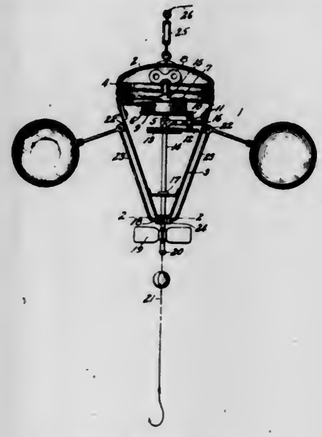
4. In a clamping device of the character described, the combination with a supporting and guiding frame, comprising a base-plate having a recess formed in its lower side, of a holding-chisel removably mounted in said recess, a holding-prong arranged on the rear end of said base-plate, a push-bar slidably mounted on said plate, a board-engaging head formed on said bar, a spring-retracted operating-lever mounted in said frame to engage said bar whereby the latter is projected and retracted, and a locking-pawl pivotally mounted on said frame to engage and hold said bar in its projected positions, substantially as described.

788,046. ATTACHMENT FOR FURNACES. FRANK A. HOEFT, Latona, Minn. Filed Sept. 26, 1904. Serial No. 225,984.



Claim.—The herein-described attachment for the fire-boxes of furnaces, comprising the combination with the grate-bars, of a pair of standards erected thereon and located near the inner ends: a damper-plate consisting of an outer metallic covering and an inner filling of fire-clay or the like pivotally mounted at its inner end upon said standards and extending over the grate-bars; a controlling-shaft 14 having a bifurcated inner end the branches of which are placed in pivotal communication with the outer end of the damper-plate by means of the link members 9 and a controlling-lever 15 operatively mounted in position and pivotally connected to the shaft 14 whereby said shaft may be reciprocated and the damper-plate raised or lowered at its outer end, all combined substantially as specified and for the purpose set forth.

788,047. BAIT-MOVING DEVICE. OTTO HOLS and PAUL HAERRY, Schenectady, N. Y. Filed Oct. 31, 1904. Serial No. 230,689.



Claim.—1. In a fishing device, the combination of a bait-suspending line, and a motor operatively related to said line for producing motion thereof.

2. A bait-moving device, comprising the combination of a float, a bait-suspending means connected to said float, and a motor.

3. A bait-moving device, comprising the combination of a float, a motor, and means outside of the float for controlling the movements of the motor.

4. A bait-moving device, comprising the combination of a float, a motor, a device for limiting the rotation of the motor, and automatic means for starting and stopping the motor.

5. A bait-moving device, comprising the combination of a float, a motor, and a retarding device for the motor.

6. A bait-moving device, comprising the combination of a float, a motor, and a means to which the bait is suspended under the control of the motor.

7. A bait-moving device, comprising the combination of a float, a motor, a means to which the bait is suspended, and automatic means for controlling the operation of the motor.

8. In a bait device, the combination of a float, a motor, gearing therefor, a shaft, and a bait-suspending means attached thereto.

9. In a bait device, the combination of a float, a motor, gearing therefor, a shaft, and a retarding means attached to said shaft.

10. In a bait device, the combination of a float, a motor, and means for starting said motor.

11. In a bait device, the combination of a two-part float, a removable cap, a motor, and means for controlling said motor.

12. In a bait device, the combination of a float, a motor, and automatic means for starting or stopping the motor.

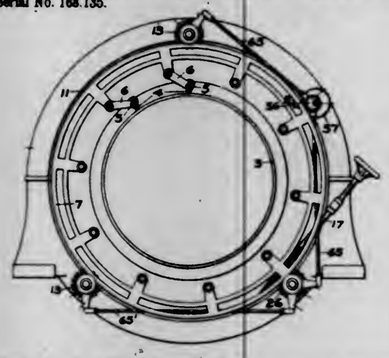
788,048. PUZZLE. ELDRED G. JENSEN, Arlington, Mass. Filed Nov. 26, 1904. Serial No. 234,227.

Claim.—1. A puzzle comprising a pair of helical coils, each formed from a single piece of wire, the two ends of which are at a distance, less than the diameter of said wire, from an adjacent coil thereof.

2. A puzzle comprising a pair of helices or conical spiral coils, each formed from a single piece of wire of the same uniform diameter throughout, with the two extreme end portions thereof in such near proximity to an adjacent coil of said helix that the wire of the other helix cannot be passed between said end portion and the adjacent coil thereof.



788,049. **RECIPROCATING DEVICE FOR BRUSHES.** CHARLES W. JOHNSON, Norwood, Ohio, assignor, by mesne assignments, to The Bullock Electric Company, a Corporation of Ohio. Filed Aug. 4, 1903. Serial No. 168,135.



Claim.—1. In a device for imparting reciprocating motion to the brushes of a dynamo-electric machine the combination of a brush-yoke, roller-supports therefor, and means for imparting axial movement to said supports.

2. In a device for imparting reciprocating motion to the brushes of a dynamo-electric machine the combination of a brush-yoke, supports therefor, and means for imparting an intermittent axial movement in each direction to said supports.

3. In a device for imparting reciprocal motion to the brushes of a dynamo-electric machine the combination of a brush-yoke, supports therefor, and means comprising an intermittent clutch device for imparting axial movement to said supports.

4. In a device for imparting reciprocating motion to the brushes of a dynamo-electric machine the combination of an eccentric, means for driving said eccentric, rods driven by said eccentric, intermittent clutch devices operated by said rods and means operated by each of said clutch devices for imparting axial movement to the brushes.

5. In a device for imparting reciprocating motion to the brushes of a dynamo-electric machine the combination of an eccentric, means for driving said eccentric from the main shaft of the machine, rods driven by said eccentric, intermittent clutch devices operated by said rods and means operated by each of said clutch devices for imparting axial movement to the brushes.

6. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of an eccentric, gearing for driving said eccentric from the main shaft of the machine, rods driven by said eccentric, intermittent clutch devices operated by said rods and means operated by each of said clutch devices for imparting axial movement to the brushes.

7. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of gearing driven from the main shaft of the machine, an eccentric operated by said gearing, rods driven by said eccentric, a pawl and ratchet driven by each rod and means operated by each of said ratchets for imparting axial movement to the brushes.

8. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of gearing driven from the main shaft of the machine, an eccentric operated by said gearing, rods driven by said eccentric, a pawl and ratchet driven by each rod, a collar secured to each of said ratchets, each of said collars having a roller connected thereto and a follower engaging an inclined groove in a fixed support, the rollers forming a support for the brush-yoke.

9. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of a brush-yoke, having its periphery engaged by rollers, fixed sleeve-supports for said rollers, said supports having inclined grooves, collars mounted on said supports and each carrying a follower engaging said inclined grooves, said collars being connected to said rollers, and an intermittent clutch device operated from the main shaft of the machine for imparting rotation to said collars.

10. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of a brush-yoke, having its periphery engaged by rollers, fixed sleeve-supports for said rollers, said supports having inclined grooves, collars mounted on said supports and each carrying a follower engaging said inclined grooves, said collars being connected to said rollers, and pawl-and-ratchet mechanisms operated from the main shaft of the machine for imparting rotation to said collars.

11. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of a brush-yoke, having its periphery engaged by rollers, fixed sleeve-supports for said rollers, said supports having inclined grooves, collars mounted on said supports and each carrying a follower engaging said inclined grooves, said collars being connected to said rollers, pawl-and-ratchet mechanisms, rods connected to the pawl-carrying members and an eccentric for imparting reciprocating motion to said rods, said eccentric being operated from the main shaft of the machine.

12. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of a brush-yoke, having its periphery engaged by rollers, fixed sleeve-supports for said rollers, said supports having inclined grooves, collars mounted on said supports and each carrying a follower engaging said inclined grooves, said collars being connected to said rollers, pawl-and ratchet mechanisms, rods connected to the pawl-carrying members, an eccentric for imparting reciprocating motion to said rods and gearing for operating said eccentric from the main shaft of the machine.

13. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of a brush-yoke, having its periphery engaged by rollers, fixed sleeve-supports for said rollers, said supports having inclined grooves, collars mounted on said supports and each carrying a follower engaging said inclined grooves, said collars being connected to said rollers, pawl-and-ratchet mechanisms, rods connected to the pawl-carrying members, an eccentric for imparting reciprocating motion to said rods, gearing for operating said eccentric from the main shaft of the machine, said gearing comprising a belt around the main shaft, a pulley operated thereby and gears between said pulley and eccentric.

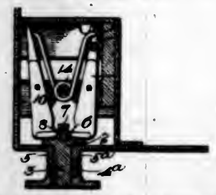
14. In a device for imparting axial movement to the brushes of a dynamo-electric machine the combination of a brush-yoke, having its periphery engaged by rollers, fixed sleeve-supports for said rollers, said supports having inclined grooves, collars mounted on said supports and each carrying a follower engaging said inclined grooves, said collars being connected to said rollers, pawl-and-ratchet mechanisms, rods connected to pawl-carrying members, an eccentric for imparting reciprocating motion to the rods, and gearing comprising a belt around the main shaft, a pulley operated thereby, gearing driven by said pulley and a driving-shaft extending to the opposite side of the machine and gearing connected to said shaft for operating said eccentric.

788,050. **ILLUMINATED SIGN.** WALTER F. JOHNSON, Chattanooga, Tenn. Filed Aug. 11, 1904. Serial No. 220,408.



Claim.—A sign comprising a pair of glass plates, light-proof packing-strips between them at certain of their sides, frames in which said plates are secured and having light-proof packing-strips between their opposing, proximate sides, said frames having chambers exposing certain edges of the plates, each of said chambers being open on one side and having a door to close said opening, and an artificial light on the inner side of said door to illuminate the glass plates through the exposed edges thereof when said door is closed.

788,051. **HINGE.** CALVIN KEITH and GEORGE F. LISTER, Mansfield, Ohio. Filed July 1, 1904. Serial No. 214,945.



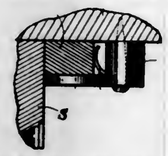
Claim.—1. A hinge comprising a frame adapted to be pivotally mounted upon a fixture, a pin having a disk arranged within said frame, said pin extending through said frame and secured to said fixture, oppositely-arranged roller-sleeves on said disk, and spring-pressed jaws adapted to engage either one of said roller-sleeves separately or both at the same time.

2. A hinge comprising a frame adapted to be pivotally mounted upon said fixture, a pin having a disk arranged within said frame, said pin extending through said frame and secured to said fixture, oppositely-arranged pins on said disk, roller-sleeves mounted on said pins, and spring-pressed jaws, each having a centrally-arranged groove adapted to engage said roller-sleeve.

3. A hinge comprising a frame adapted to be pivotally mounted upon the fixture, a pin having a disk arranged within said frame, said pin extending through said frame and secured to said fixture, oppositely-arranged pins on said disk, roller-sleeves mounted on said disks, jaws pivoted to said frame and each having a perforation with a socket-opening therein, and a spring having each of its extremities extending into the perforation and engaging the socket in one of said jaws.

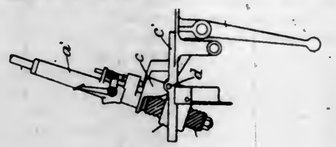
4. A hinge comprising a frame, a pivotal bearing comprising a floor-plate and a ring secured to said frame, a pin having a disk arranged within said frame, said pin extending through said frame and engaging said floor-plate, oppositely-arranged pins on said disk, roller-sleeves mounted on said pins and spring-pressed jaws adapted to engage either one of said sleeves separately or both at the same time whereby the door is held rigidly at different points in the circle of movement.

788,052. **WINDOW-SASH ANTIRATTLER.** FREDERICK KLING, Blandinsville, Ill. Filed July 23, 1904. Serial No. 217,842.



Claim.—A window-sash antirattler comprising a block adapted to be secured to the window-frame, a nose on said block adapted to overlap the stop-bead of the frame, said stop-bead being yieldingly mounted to said frame, and a flexed spring at the base of the nose adapted to bear with its free end against the adjacent edge of the stop-bead and force the latter against the sash, substantially as set forth.

788,053. **STEERING-GEAR FOR VEHICLES.** FRED A. LAW, Hartford, Conn., assignor to Electric Vehicle Company, Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed Apr. 3, 1902. Serial No. 101,290.



Claim.—1. In combination in a steering mechanism, a hinged steering-pillar, a steering-shaft, movable with said hinged pillar and provided with a screw-thread, a traverse-nut, adapted to assume different positions axially of the steering-shaft, a steering-lever and connections intermediate of the traverse-nut and steering-lever, whereby a free swinging movement of the steering-pillar is permitted, irrespective of the position of the steering-lever.

2. In combination in a steering mechanism, a hinged pillar, a steering-shaft, movable with said pillar and having a movement relatively thereto a traverse-nut adapted for movement along the steering-shaft and controlled by the relative movement of the steering pillar and shaft, a steering-arm and connections intermediate of the arm and traverse-nut, whereby the position of the former is unaffected by the swinging movement of the steering-pillar.

3. In combination in a steering mechanism, a hinged steering-pillar, a traverse-nut and steering-shaft adapted to move with said pillar in its swinging movement and adapted for movements relatively thereto, a steering-arm provided with guideways and slide-blocks, the latter pivotally connected to the traverse-nut, whereby a movement of the traverse-nut is permitted relatively to the steering-arm.

4. In combination in a steering mechanism, a pillar comprising a rotating shaft and a support therefor, a threaded lower end portion on said rotating shaft, a traverse-nut surrounding said threaded portion of said shaft, a pivoted steering-arm having one arm engaging with said nut, and said connections between said arm and nut including guideways, preventing the rotation of said nut.

5. In a steering-gear for vehicles, a steering-pillar, a threaded portion on the lower end thereof adapted to be rotated by the occupant of the vehicle, a traverse-nut engaging with said threaded portion, a pivoted two-arm lever having one of its arms coöperating with connections to the steering-wheels of the vehicle, the other arm thereof engaging the traverse-nut, guideways coacting with said nut to prevent its rotation and permitting only its longitudinal movement when the steering-pillar is rotated.

6. In automobile steering-gear, a base for attachment to the floor or frame of the vehicle, a support or thrust-bearing on said base for a rotating steering-pillar, a rotating steering-pillar and a screw portion thereon below the support on said base, a second bearing in said base for the support of a transverse oscillating shaft, a depending oscillating arm on said shaft, connections between said threaded lower portion of the steering-shaft and the transverse shaft for oscillating the latter as and for the purpose described.

7. In automobile steering-gear, a rotating shaft, a wheel or lever in proximity to the occupant's seat to rotate said shaft, a base-support including a base-plate attached to the vehicle, a non-rotatable journal or supporting-pillar projecting upwardly from said base-plate, said rotating shaft journaled in said supporting-pillar and extending downwardly through the same, means on said rotating shaft and pillar to prevent relative longitudinal movement, a quick-pitch threaded portion on the lower end of said rotatable shaft, a traverse-nut mounted on said quick-pitch portion, means engaging said traverse-nut to prevent its rotation, connections from the steering-wheels and a two-armed pivoted lever, one arm of which is attached to said connections while the other arm is connected with and adapted to be moved by the traverse-nut.

8. In automobile steering mechanism, a rotating shaft, a journal or supporting-sleeve mounted on the body floor or frame of a vehicle, means coacting with said sleeve and said shaft whereby longitudinal relative movement is prevented, a quick-pitch screw on the lower end of said rotating shaft, a traverse-nut on said quick-pitch screw, and a two-armed or angle lever pivoted to the framework or body-floor of said vehicle and thereby rigidly supported in fixed relation to the shaft-support, one arm thereof flexibly connected with and adapted to be moved by said traverse-nut and the other arm connected to parts extending to the steering-wheels.

9. In automobile steering mechanism, a rotating shaft, a journal or supporting-sleeve mounted on the body floor or frame of a vehicle, means coacting with said sleeve and said shaft whereby longitudinal relative movement is prevented, a quick-pitch screw on the lower end of said rotating shaft, a traverse-nut on said quick-pitch screw, and a two-armed or angle lever pivoted to the framework or body-floor of said vehicle and thereby rigidly supported in fixed relation to the shaft-support, one arm thereof flexibly connected with and adapted to be moved by said traverse-nut and the other arm connected by links or bars to the steering-wheels, and means on said pivoted lever and traverse-nut coöperating whereby rotation of the nut is prevented.

10. In steering-gear for automobiles, a rotating shaft, a base-supporting pillar, a journal therein to support said shaft, a quick-

pitch screw on the lower end of said shaft, a traverse-nut on said quick-pitch screw, a two-armed lever journaled on the lower side of said base, one arm of said lever including a yoked end embracing said traverse-nut, and connections from the steering-wheels to the other arm thereof, as and for the purpose described.

11. In combination in a base or foot for a steering-gear on a vehicle-body, a base-plate, a journal or supporting-pillar, a journal for a two-armed lever, a two-armed lever, a quick-pitch screw below said pillar-journal, a traverse-nut thereon and means for preventing rotation of said traverse-nut.

12. In a steering-gear for automobiles, a rotating shaft, a base or foot therefor supported on the body floor or frame and carrying a journal, a steering-shaft supported in said journal, another journal or bearing in said base and means supported therein carrying a substantially vertical arm connected with the links to operate the steering-wheels, a threaded portion on the lower part of said shaft, a threaded traverse member coacting with the threaded portion of the shaft and adapted to move axially of the shaft, means to prevent rotation of said threaded traverse member and connections between the vertical arm or its supporting means and the traverse member whereby movement of the latter longitudinally of the steering-shaft will oscillate the arm and thereby deflect the steering-wheels.

13. In combination in a base or foot for a steering-gear on a vehicle frame or body, a base-plate, a journal or supporting-pillar, pivotal connections between said journal or support and the base-plate, a journal for a two-armed lever, a two-armed lever, a quick-pitch screw below said pillar-journal, a traverse-nut thereon, and means for preventing rotation of said traverse-nut.

14. In steering-gear for automobiles, a rotating shaft, a pivoted journal or supporting-pillar, a quick-pitch screw on said shaft below said support, a traverse-nut coöperating therewith to be moved longitudinally by the rotation of said shaft, a latch mounted upon said pivoted pillar-support or journal.

15. In a steering mechanism for automobiles, a rotating shaft, with a free upper portion, the lower portion mounted within a journal or sleeve, a quick-pitch-screw portion on said lower portion, a traverse-nut, means to prevent the rotation of said traverse-nut and connections with said steering-wheels flexibly coacting with said traverse-nut and independent of said means.

16. In a steering mechanism for automobiles, a rotating shaft with a free upper portion, the lower portion mounted within a journal or pillar, a threaded part on said lower portion, a traverse member, means to prevent the rotation of said traverse member and connections with said steering-wheels coacting with said traverse member, an operating-wheel on the upper free end of said steering-pillar, hinged connection whereby the operating-wheel may be moved to and fro, means to lock said operating-wheel in a predetermined position.

17. In a steering mechanism for an automobile, a rotating shaft having a free upper portion, an operating-wheel thereon normally in proximity to the operator's seat, the lower portion mounted within a pillar, a threaded part on said lower portion, an engaging threaded block or member adapted to move longitudinally thereof, means to prevent rotation of said block or member, and connections to the steering-wheels flexibly engaging with said threaded block or member and hinged connections whereby the operating-wheel may be thrown out of its normal position away from the operator's seat.

18. In a steering-gear for motor-vehicles, an upright rotating steering-pillar, a support therefor, means for moving the steering-shaft away from and to the occupant of the vehicle, a foot-press mounted on and moving with the members moving to and away from the occupant, a latch to hold the steering-pillar in a predetermined position, said foot-press coöperating to release the latch and also to move the pillar or steering-shaft away from the occupant, as and for the purpose described.

19. In steering-gear for motor-vehicles, a hinged steering-pillar, and a latch mounted upon said pillar including a foot-press.

20. In a steering-gear for motor-vehicles, a steering-shaft, a hinged pillar or support at the base thereof, a steering-wheel at the free upper end thereof, the vehicle-support for said steering-gear, latch parts mounted on the vehicle proper and the hinged pillar, and means for operating the latch on the pillar and movable therewith.

21. In a steering-gear for motor-vehicles, a steering-shaft and means for rotating the same, a pillar or supporting-bearing for the base thereof, a screw on the lower part of the shaft, a traverse-block on said threaded portion, means for preventing rotation of said block, a pivoted steering connection-lever, and connections between said block and said lever including a pin and engaging slot.

22. In a steering-gear for motor-vehicles, a steering-shaft, and means for rotating the same, a pillar or support-bearing for the base thereof, a screw on the lower part of the shaft, a traverse-block on said threaded portion, a pivoted steering connection-lever, connections between said arm and said block including a trunnion with a block and a slotted guide.

23. In a steering-gear for motor-vehicles, a rotating member adapted to be moved by the operator, an engaging screw-threaded member moving axially of said first member and connected with a pivoted lever, the connections including a forked arm, guides in said forked arm, a trunnion-block and a trunnion having bearings in said block and means for preventing rotation of the second threaded member.

24. In steering mechanism for motor-vehicles, the combination of a bracket adapted to be secured to the running-gear, and having an upwardly-extended inclined bearing-sleeve, a steering-shaft mounted in and projecting through said sleeve, and having, at its lower end, a quick-pitch screw, and having, at its upper end, means for turning said shaft, with a nut upon the threaded end of said shaft, a rocker engaging with and adapted to be operated by said nut, means preventing the rotation of the nut, and mechanism connecting the rocker with the steering-wheels of the vehicle, substantially as specified.

25. In steering mechanism for motor-vehicles, the combination of a sleeve, a steering-shaft mounted in and projecting through said sleeve, and having, at its lower end, a quick-pitch screw, and having, at its upper end, means for turning said shaft, with a nut upon the threaded end of said shaft, a rocker, forked connections between the rocker and the nut, and mechanism connecting the rocker with the steering-wheels of the vehicle, substantially as specified.

26. In steering mechanism for motor-vehicles, the combination of a bracket adapted to be secured to the running-gear, having an upwardly-extended inclined bearing-sleeve and depending supports for a rocker, a steering-shaft rotatably mounted in said sleeve and projecting beyond both ends thereof, and having a quick-pitch screw at its lower end and means for turning at its upper end, with a nut upon the threaded end of said shaft, a rocker mounted in said bracket, forked connections between the rocker and the nut, and mechanism connecting the rocker with the steering-wheels of the vehicle, substantially as specified.

27. In a steering mechanism for motor-vehicles, the combination of a shaft having a screw, a threaded element thereon, a bearing element on said shaft, said bearing and screw-threaded elements being relatively movable axially by rotation of the shaft, means to hold one of said elements against the axial thrust of the shaft, a member connected with the other element for transmitting the axial movement thereof to the steering-wheels of the vehicle, and provisions for permitting the shaft and its two elements to swing with respect to said member without varying the relative axial position of said elements.

28. In a steering mechanism for motor-vehicles, the combination of a shaft having a screw, a screw-threaded element thereon, a bearing element on said shaft, said bearing and screw-threaded elements being relatively movable axially by rotation of the shaft, means to hold one of said elements against the axial thrust of the shaft, a member connected with the other element for transmitting the axial movement thereof to the steering-wheels of the vehicle, provisions for permitting the shaft and its said two elements to swing with respect to said member without varying the relative axial position of said elements, and means for locking said shaft against swinging movement.

29. In combination with a steering mechanism, a rotating shaft, a threaded portion on said shaft, a traverse-nut surrounding said threaded portion, a second shaft carrying a member in operative engagement with said nut, means for preventing rotation of said nut, and a base for attachment to the vehicle having an elongated support for the first-named shaft and bearings for the second-named shaft, whereby the second shaft is supported in fixed relation to the first-named shaft-support.

30. In combination in a steering mechanism, a base-plate for attachment to the vehicle having a base or foot for the steering-gear, an elongated upright support for a shaft carried by the base or foot and comprising a journal for the shaft, a shaft, a quick-pitch screw alined with said journal, a traverse-nut, a member engaging said traverse-nut, and means for preventing rotation of said traverse-nut.

31. In combination in a steering mechanism for automobiles, a base-plate and support for a steering-shaft, a steering-shaft, a threaded portion on the lower end of said steering-shaft, a depending two-armed rocker having pivotal support in fixed relation with said plate, one arm of said rocker being bifurcated and embracing a nut, said nut mounted on the threaded portion of said shaft and having sliding trunnion-bearings in said bifurcated rocker-arm.

32. In combination in a steering mechanism, a rotating shaft and a support therefor, a threaded lower portion on said rotating shaft, a traverse-nut surrounding said threaded portion of said shaft, a pivoted steering-arm having an arm engaging with said nut, close-fitting, interengaging means between said arm and said nut coöperating to prevent rotation of said nut.

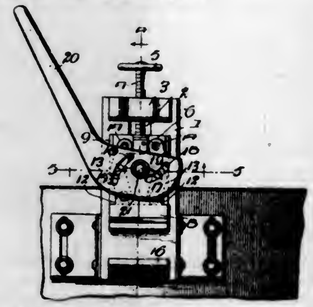
33. In a steering-gear for motor-vehicles, a steering-shaft and means for rotating same, a supporting-bearing for the base thereof, a screw on the lower portion of said shaft, a threaded sleeve on said threaded portion, means for preventing rotation of said sleeve, a pivoted steering connection-lever, and connections between said sleeve and said lever, including a trunnion and coöperating sliding member.

34. In combination in a steering mechanism, a steering-arm and connections intermediate of the arm and the steering-wheels, a rotary screw-threaded member, a threaded nut thereon and adapted for movement upon rotation of said threaded member, and connections intermediate of the nut and steering-arm whereby motion is transmitted to said steering-arm only upon movement of the nut incidental to the rotation of said screw-threaded member, an upwardly-extending steering-shaft, and a base-plate adapted for attachment to the vehicle body or floor, said screw-threaded member and steering-arm being supported in bearings carried by said base-plate.

35. In a steering mechanism for vehicles, a rotary steering-shaft mounted for swinging movement independent of its rotary steering movement, a device in operative engagement with said shaft and partaking of said swinging movement, and steering connections in operative relation with said device and comprising provisions for permitting said swinging movement.

36. In a steering mechanism for vehicles, a rotary steering-shaft mounted for swinging movement independent of its rotary steering movement, a device in operative engagement with said shaft and partaking of said swinging movement, steering connections in operative relation with said device and comprising provisions for permitting said swinging movement, and means for locking the shaft against said swinging movement.

788,054. LOOP-BOX. WILLIAM C. LAWRENCE, Portland, Oreg. Filed Sept. 26, 1904. Serial No. 226,013.

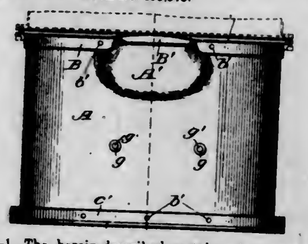


Claim.—1. The herein-described loop-box comprising a suitable frame, means to anchor the frame in its operative position; a fixed and movable jaw carried by the frame, means to adjust the relative approximation of said jaws and additional means to operate the movable jaw comprising a controlling-lever, a head for said lever having cam-slots therein, a plurality of arms interposed between the means to adjust the approximation of said jaws and the movable jaw, rods uniting said arms, said rods being of sufficient length to extend through the cam-slots in said head whereby when said lever is operated, said movable jaw may be moved toward or away from the fixed jaw, substantially as specified and for the purpose set forth.

2. In a loop-box, the combination with a frame having a fixed jaw at one end thereof and a projected bracket at its opposite end, of an extension 7 reciprocatingly mounted in a slotted opening in said body portion, a movable jaw carried by one end of said extension, a screw-threaded shaft operatively mounted in said projected bracket, a cross-head secured to the inner end of said shaft, a controlling-lever pivotally mounted upon said extension 7, a head formed integral with said lever and having cam-slots therein, arms 13 pivotally secured to said movable jaw, arms 14 and 15 arranged in pairs, the outer ends of which are pivotally secured to the cross-head and the arms 13 between the inner ends thereof, shafts pivotally securing said arms together, said shafts being of sufficient length to extend through the cam-slots in said head whereby, when said lever is operated, the movable jaw will be moved toward or away from the fixed jaw, substantially as specified and for the purpose set forth.

3. In a loop-box, the combination with a body portion having a fixed jaw at one end and a bracket at the opposite end, of an adjustable shaft, a cross-head secured at the inner end of said adjustable shaft, an extension reciprocatingly secured in a slot in said body portion, a controlling-lever having a head pivotally secured to said extension, and means interposed between said movable jaw and the cross-head adapted to coöperate with said lever whereby, when the lever is operated, the movable jaw will be moved inwardly or outwardly, substantially as specified.

788,055. METALLIC CRATE. JOSEPH MATHY, Washington, D. C. Filed Feb. 27, 1904. Serial No. 196,575.



Claim.—1. The herein-described metal crate, composed of a body rounded at the corners, and having a reinforcing-band secured externally to and around the upper edge of the body, said band being bent at diametrically opposite points at the ends of the body, and the end of said body being bulged inwardly adjacent to the bends of the top band, a bottom piece of larger diameter than the body and projecting beyond the sides thereof but secured thereto by flanges, substantially as described, and a reinforcing-band of larger diameter than the top of the body and secured to the flanges of the bottom and body, substantially as specified.

2. The herein-described metal crate, having a strengthening metal band around its top and secured externally thereto, parts of the said band at diametrically opposite points being bent or flared outwardly to form handles, and the adjacent portions of the body being bulged inwardly to facilitate the grasping of the handles, substantially as described.

3. The herein-described metal crate, consisting of a body portion having a reinforcing metal band around its top, an outwardly-extending horizontal flange at its bottom provided on its outer edge with a downwardly-depending flange, and a bottom piece fitted within the outwardly-projecting flange of the body and having a downwardly-projecting flange fitted to the downwardly-projecting flange of the body, and a metal reinforcing-band L-shaped in cross-section fitted within the parallel flanges of the bottom and body and having its L part extending outwardly and underneath all said flanges, substantially as described.

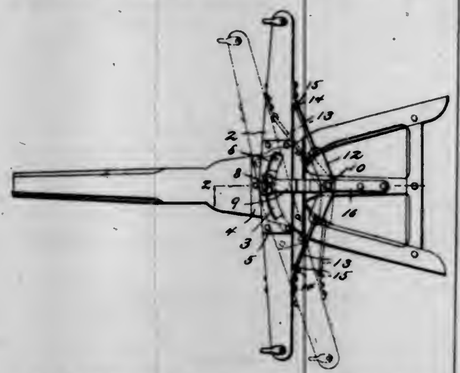
4. The herein-described metal crate, consisting of a sheet-metal body, a bottom secured to the lower edges of the body by horizontal and vertical flanges extending outside the plane of the body; a reinforcing metal band L-shaped in cross-section secured within said vertical flanges, said band being of larger internal diameter than the external diameter of the top or bottom of the body; and having its L part extending outwardly beneath said flanges, substantially as described.

5. The herein-described metal crate comprising a sheet-metal body, a bottom secured to the lower edges of the body by coincident horizontal and vertical flanges on the body and bottom, the body-flange being upturned around the lower part of the bottom flange, and a reinforcing metal strap L-shaped in cross-section secured to and within the vertical flanges on the bottom and body with its L part extending beneath the said flanges, substantially as described.

788,056. DRAFT-EQUALIZER. JESS MATLOCK, Ralph, Ark. Filed Aug. 29, 1904. Serial No. 222,635.

Claim.—1. In a draft-equalizer, the combination with a support having an upstanding pin, of a draw-bar having a longitudinally-

disposed arcuate slot receiving the pin with the bar capable of slidable movements upon the pin, and braces pivoted at a common point to the support in rear of the draw-bar in alinement with the pin and also loosely connected to the draw-bar.



2. In a draft-equalizer, the combination with a support having a pin, of a draw-bar having a longitudinally-disposed arcuate slot receiving the pin with the draw-bar capable of endwise and pivotal movements upon the pin, a bell-crank lever fulcrumed upon the support in rear of the draw-bar and in alinement with the pin, and links loosely connected to the respective ends of the lever and also loosely connected to the draw-bar.

3. In a draft-equalizer, the combination with a support having a pin, of a draw-bar having a longitudinally-disposed arcuate slot receiving the pin with the bar capable of endwise and pivotal movements upon the pin, sockets carried by the back of the draw-bar beyond the ends of the slot, a bell-crank lever fulcrumed upon the support in rear of the draw-bar in longitudinal alinement with the pin, links loosely connected to the respective ends of the lever with their outer ends provided with hooks loosely engaged with the respective sockets.

4. In a draft-equalizer, the combination with a support having a pin, of a draw-bar having a longitudinally-disposed arcuate slot receiving the pin and said bar capable of endwise and pivotal movements upon the pin, a keeper secured to the support in rear of the draw-bar with its forward end overlapping the slotted portion of the bar and engaging the pin to brace the same, and braces pivoted at a common point upon the support in rear of the draw-bar and loosely connected to said draw-bar at opposite sides of the keeper.

5. In a draft-equalizer, the combination with a support having a pin, of a draw-bar having a longitudinally-disposed arcuate slot with the draw-bar capable of pivotal and endwise movements upon the pin, a keeper secured to the support in rear of the draw-bar with its forward end overlapping said bar and connected to the pin, a bell-crank lever fulcrumed upon the keeper in rear of the draw-bar, links loosely connected to the respective ends of the lever and terminating at their outer ends in hooks, sockets carried by the back of the draw-bar for the loose reception of the hooks, and a brace secured to the support and engaged with the fulcrum of the lever.

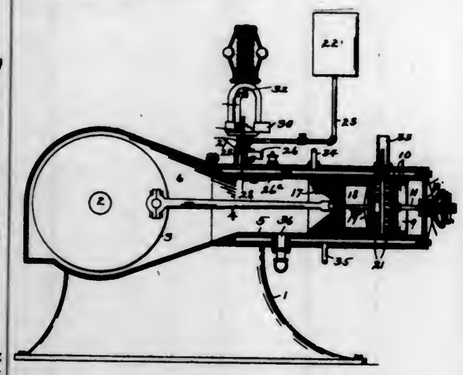
788,057. **CRUDE-OIL ENGINE.** DUDLEY R. MORRISON, Hartford City, Ind. Filed Apr. 16, 1904. Serial No. 203,407.

Claim.—1. In an explosive-engine, a cylinder, a piston reciprocating therein, a movable head mounted in one end of the cylinder having an outwardly-extended threaded bolt, an internally-threaded sleeve to receive said threaded bolt said sleeve having capacity for rotation without translation.

2. In an explosive-engine, a cylinder, a piston reciprocating therein, a movable head mounted in one end of the cylinder having an outwardly-extended threaded bolt, an internally-threaded sleeve to receive said threaded bolt said sleeve being capable of a motion of rotation but not of translation and means for locking the sleeve against rotation.

3. In an explosive-engine, a hollow piston having a removable outer end closure, with outwardly-projecting annular concentric flanges, said closure having conical walls to contact with a correspondingly-shaped seat in the hollow end of the piston, and a center bolt to connect the piston and end closure.

4. In an explosive-engine, a cylinder, a piston reciprocating therein, an adjustable head in one end of the cylinder having an outwardly-extended threaded bolt, a threaded member to receive said bolt, and means for locking said threaded member against rotation, said piston and removable head having projecting flanges on their adjacent surfaces.

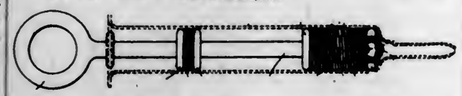


788,058. **NUT-LOCK.** WILLIAM L. MORROW, Stockton, Cal. Filed Sept. 9, 1904. Serial No. 223,832.



Claim.—In combination with a bolt having a longitudinal groove, a main nut on said bolt having in its outer face a series of short sockets extending radially from the central aperture of the nut, a jam-nut of ordinary construction and of size to completely cover said sockets, and a key in the groove having its head in one of the sockets and passing underneath the jam-nut, said key being of soft metal and swaged or swelled between the jam-nut and the groove whereby said key acts as a cushion to reduce the vibration transmitted to the jam-nut, substantially as described.

788,059. **SYRINGE.** PATRICK J. MCELROY, Cambridge, Mass. Filed June 30, 1904. Serial No. 214,785.



Claim.—1. A syringe-piston comprising a rod or stem provided with head-confining abutments, and a compressible packing filling the space between said abutments, the rod being provided between the abutments with means for preventing the endwise displacement of the packing.

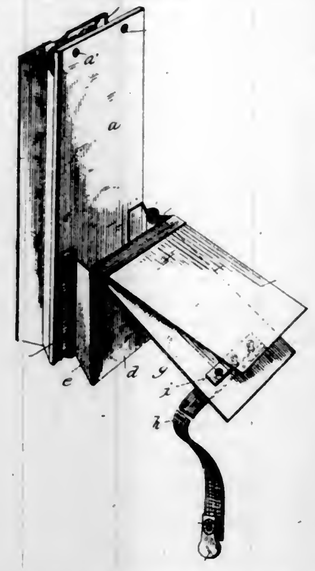
2. A syringe-piston comprising a rod, or stem provided with head-confining abutments, and with alternating peripheral projections and grooves between said abutments to engage a compressible packing.

3. A syringe-piston comprising a rod having at its outer end a packing abutment provided in its periphery with notches and at its inner side with spurs, and a yielding cushion or buffer composed of a cord or thread engaged with said spurs and notches.

4. A syringe-piston comprising a rod, a piston-head affixed to the rod, and a steadying enlargement affixed to the rod at a distance from the head and provided with a yielding periphery, the said enlargement being of substantially the same diameter as the piston-head and adapted to bear on the interior of the syringe-barrel.

5. A syringe-piston comprising a rod, a piston-head affixed to the rod, and a steadying enlargement composed of rigid flanges located side by side on the rod, and an annular filling of compressible material confined between said flanges, its periphery being formed to bear on the interior of the syringe-barrel.

788,060. **BILL-HOLDER.** HORACE Y. OTTO, Williamsport, Pa. Filed Oct. 29, 1904. Serial No. 230,540.



Claim.—1. A bill-holder consisting of a main board, a flexible pocket on its rear face extending approximately the full length of the board, a flexible pocket on its front face at its lower end, a closure-flap hinged to the upper front face-plate of the front pocket and having a width substantially equal thereto and extending to near the top of the board, a slate-card also hinged to the upper end of the front wall of the pocket and lying against the inner face of the closure-flap, and a fastening device adapted to surround the rear pocket and the closure-flap and clamp the same to the board and thereby close both pockets and clamp the contents thereof against the board.

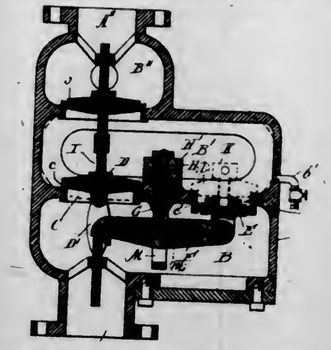
2. In combination with a board, a front pocket flexibly connected to the front face of the board and adapted to fold against the same, this pocket extending but part way up the board, a collapsible vertical pen or pencil pocket secured to the exterior of one of the flexible side walls of the pocket and adapted to lie within the side edge of the board when the pocket is closed, and a closure-flap hinged to the upper end of the front wall of the pocket, and a fastening device for the closure-flap.

3. In combination with a main support or board, a front pocket open at its upper end and flexibly connected to the front face of the board, this pocket being located at the lower end of the board and extending but part way up the same, a closure-flap hinged to the front wall of said pocket, and a memoranda-card hinged to the front wall of the pocket and lying against the inner side of the flap, and a fastening device for clamping the closure-flap and the memoranda-card against the board, for the purposes set forth.

788,061. **VALVE FOR AUTOMATIC FIRE-EXTINGUISHERS.** EDWIN G. PATTEE, Chicago, Ill. Filed Feb. 6, 1904. Serial No. 192,399.

Claim.—1. In a device of the class described, the combination with a casing having a chamber and provided with two ports opening thereinto for the admission of water and a port opening therefrom for the escape of water to the system, of two valves for controlling the water-inlet ports, one of said valves seating with the other against the water-pressure, intervening mechanism whereby the valves oppose each other with a counterbalancing effect, the preponderance of water-pressure being in favor of the valve seating against the water-pressure, and means controlled by the pressure in the system for overcoming said preponderance and holding the valves normally seated, whereby when the pressure in the system is reduced the pressure of the water will automatically unseat said valves, substantially as described.

2. In a device of the class described, the combination with a casing having a chamber and provided with two ports opening thereinto for the admission of water and a port opening therefrom for the escape of the water to the system, of two differential valves for controlling the water-inlet ports, one of said valves seating with and the other against the water-pressure and the preponderance of the differential being in favor of the valve seating against the water-pressure, intervening mechanism through the medium of which said valves oppose each other with a counterbalancing effect, and means controlled by the pressure in the system for overcoming said preponderance and holding the valves normally seated, whereby when the pressure in the system is reduced the pressure of the water will automatically unseat said valves, substantially as described.



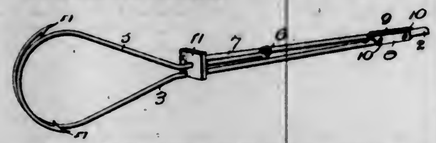
3. In a device of the class described, the combination with a casing having a chamber and provided with two ports opening thereinto for the admission of water and a port opening therefrom for the escape of water to the system, of two valves for controlling the water-inlet ports, one of said valves seating with and the other against the water-pressure, said ports and valves being disposed side by side and out of axial alinement with each other, a lever, fulcrumed between the two valves, through the medium of which they oppose each other with a counterbalancing effect, and means controlled by the pressure in the system for holding the valves seated in opposition to the preponderance of water-pressure against them, said preponderance being in favor of the valve seating against the water-pressure whereby upon a reduction of the pressure in the system the water-pressure will automatically unseat the valves, substantially as described.

4. In a device of the class described, the combination of a casing having a low-pressure chamber and provided with two ports opening thereinto for the admission of water and a port opening therefrom for the escape of water to the system, of two valves for controlling the water-inlet ports, one of said valves seating with and the other against the water-pressure, intervening mechanism through the medium of which said valves oppose each other with a counterbalancing effect, an air-valve for controlling the port-opening to the system, and means for transmitting pressure from said air-valve to the water-valves for holding them seated in opposition to the preponderance of water-pressure against them, said preponderance being in favor of the valve seating against the water-pressure, substantially as described.

5. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber communicating with the water-chamber through two ports, and an air-chamber communicating with the low-pressure chamber through a port, of differential valves, one seating with the water-pressure, the other seating against the water-pressure, the preponderance of the differential being in favor of the valve seating against the water-pressure, intervening mechanism through the medium of which said valves oppose each other with a counterbalancing effect, a valve for controlling the air-port aforesaid, and means for transmitting pressure from said air-valve to the water-valves whereby the preponderance of water-pressure is overcome, substantially as described.

6. In a device of the class described, the combination with a casing having two ports for the admission of water, and a pair of valves for controlling said ports, one of said valves seating with and the other against the water-pressure, of a lever for transmitting pressure from one of said valves to the other, so that each has a counterbalancing effect upon the other, and a fulcrum for the lever, the lever being free to fall away from its fulcrum and carry with it one of said valves, substantially as described.

788,062. FISH-HOOK. FRANK B. PETERS, Iowa City, Iowa. Filed Dec. 30, 1904. Serial No. 238,793.



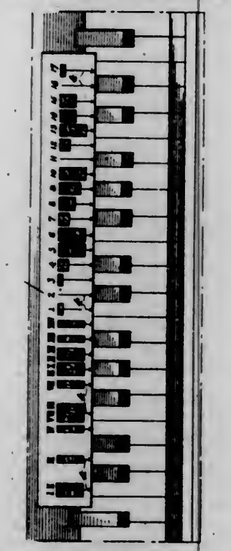
Claim.—1. The herein-described fish-hook, comprising the combination of the hook 3 having an elongated stem and line-engaging member 1, of an arm 7 secured thereto; a hook pivoted near the end of said arm; a torsion-plate movably mounted upon said hook and the end of said arm whereby said plate will turn upon both of said members, said plate also having a corner-recess 12 whereby when the plate is turned upon the members 5 and 7 the hook 3 may be engaged in said recess and released therefrom by a slight strain, all combined substantially as specified and for the purpose set forth.

2. In a fish-hook, the combination with a hook having an elongated stem and a line-engaging member, of a spring-actuated arm secured to said stem; a hook pivoted to said arm near the free end thereof and means rotatably mounted upon the free end of said arm adapted to hold said hooks closed when desired, as set forth.

3. In a fish-hook, the combination with a hook having an elongated stem, of a spring-arm secured to said stem; an additional hook loosely pivoted to said arm and a plate rotatably secured to the free end of said arm adapted to engage and retain said hooks in their closed positions, as set forth.

4. In a fish-hook, a main hook; an arm secured thereto; an auxiliary hook pivotally secured to said arm and a plate rotatably secured to said arm and adapted to engage said main and auxiliary hooks and secure them in a closed position, all combined substantially as specified and for the purpose set forth.

788,063. DEVICE FOR TEACHING MUSIC. MARCUS L. QUINN, Chicago, Ill. Filed Feb. 18, 1903. Serial No. 143,962.



Claim.—1. A device for teaching music comprising a strip or bar adapted to be placed upon the keyboard of an instrument and having marked thereon a series of indexes which are spaced apart a distance substantially equal to the distance between the centers of two adjoining keys or a multiple of said distance, each index having applied thereto an indicating character, the characters indicating the notes of each chord being identical with each other and different from all the other designating characters, the bass notes of the chords being indicated by an additional and distinctive symbol, said symbol being different from all the other symbols on the bar, whereby said bass notes may be readily identified.

2. A device for teaching music comprising a strip adapted to be placed upon the keyboard of an instrument and having marked thereon a series of indexes which register with the keys, each index having applied thereto a note-indicating color, the notes of each chord being indicated by the same color and the color of the notes of each chord being different from all the other colors, the bass notes of the chords being indicated by an additional distinctive notation-symbol.

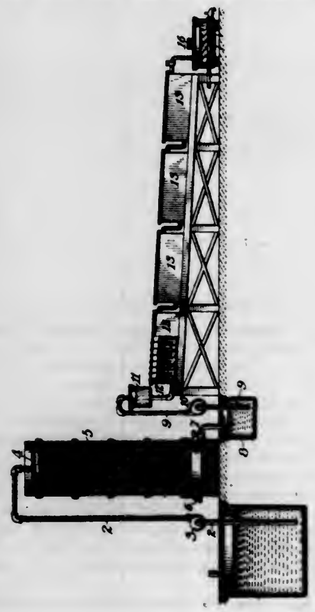
3. A device for teaching music comprising a strip adapted to be placed upon the keyboard of an instrument and having marked thereon a series of indexes which are spaced apart a distance equal to the distance between the centers of two adjoining keys, or a multiple of said distance, each index having applied thereto a note-indicating color, the notes of each chord being indicated by the same color and the color of the notes of each chord being different from all the other colors, the bass notes of the chords being indicated by color-spots of one shape and the treble notes by color-spots of a different shape, the bass notes of the chords being indicated by an additional distinctive notation-symbol.

4. A device for teaching music comprising a strip or bar adapted to be placed upon the keyboard of an instrument and having marked thereon a series of indexes which register with the keys, each index having applied thereto an indicating character, the characters indicating the notes of each chord being identical with each other and different from all the other designating characters, and a notation character applied to each index.

5. A device for teaching music comprising a plurality of indexes spaced to register with the keys of an instrument, the instrument-keys of each chord being indicated by similar indexes differentiated from the indexes denoting the instrument-keys of all of the other chords represented, a distinctive character to designate each series of similar indexes applied to the bass note thereof, and a distinctive designating character applied to each treble note and differentiated from the chord-indexes applied to said treble notes, substantially as described.

6. A device for teaching music comprising a plurality of colored indexes adapted to register with the keys of an instrument, the keys of each chord being indicated by indexes of the same color and the different chords being indicated by indexes of different colors, and a distinctive notation character to designate each series of indexes of the same color and applied to the bass notes of the chords.

788,064. UTILIZING SPENT PICKLE LIQUOR. ALEXANDER S. RAMAGE, Detroit, Mich. Filed Jan. 31, 1905. Serial No. 243,558.

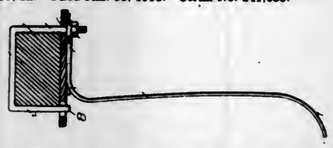


Claim.—1. The process of utilizing spent sulfuric-acid pickle liquor, which consists in dissolving sulfur dioxid in the liquor, electrolyzing the resulting solution with insoluble anodes, thereby depositing metal at the cathode, and freeing the combined acid and oxidizing the dissolved sulfur dioxid at the anode, and employing the regenerated liquor to pickle metal, substantially as described.

2. The process of utilizing spent sulfuric-acid liquor from pickling iron, which consists in dissolving sulfur dioxid in the liquor, electrolyzing the solution with insoluble anodes, thereby depositing iron at the cathode and freeing the combined acid and oxidizing the dissolved sulfur dioxid at the anode, and employing the regenerated liquor to pickle iron, substantially as described.

3. The process of regenerating spent pickle liquors containing ferrous sulfate, which consists in dissolving sulfur dioxid in the liquor, and electrolyzing the solution with insoluble anodes, thereby depositing iron at the cathode and freeing the combined acid and oxidizing the dissolved sulfur dioxid at the anode, substantially as described.

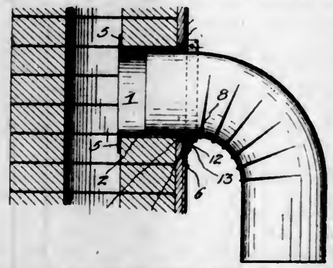
788,065. WEED-HOOK FOR PLOWS. GEORGE W. REIMAN, Murphysboro, Ill. Filed Jan. 18, 1905. Serial No. 241,655.



Claim.—1. In combination, a clamp device consisting of a clamp member of approximately U form, one of the sides of the clamp member being provided with a head transversely thereof, the other side of the clamp member having a nut threaded thereon, a clamp-plate provided at one end with an elongated opening to receive the head of the clamp member aforesaid and at its opposite end with an opening to receive the side of the clamp member having the clamp-nut thereon, and a weed-hook secured to the clamp device by the nut and having its lower end curved.

2. In combination, a clamp device embodying a clamp-plate having spaced projecting portions, a weed-hook embodying a tang received between the projecting portions of the clamp-plate, and securing means for attaching the weed-hook to the clamp device.

788,066. STOVEPIPE THIMBLE AND CLAMP. HARRY W. RENICK, Silverstar, Mont. Filed Oct. 13, 1904. Serial No. 228,349.



Claim.—1. A combined stovepipe thimble, collar and clamping device, consisting of a tubular thimble, having its inner end slitted to permit said end to be turned outwardly into engagement with the wall of the chimney-flue, a radially-projecting annular collar secured to the opposite end of said thimble to engage the outer wall of said chimney and provided with projecting headed pins, an annular stovepipe-clamping band provided with slotted lugs to engage the headed pins on the annular collar, and means for securing said clamping-band to a stovepipe, substantially as described.

2. A combined stovepipe thimble, collar and clamping device, consisting of a tubular thimble, having its inner end slitted to permit said end to be turned outwardly into engagement with the wall of the chimney-flue, a radially-projecting annular collar secured to the opposite end of said thimble to engage the outer wall of said chimney, an annular open stovepipe-clamping band arranged on the outer face of said collar, headed studs or rivets secured to and projecting from the outer face of said collar, radially-projecting lugs secured to said band, said lugs having formed therein keyhole-slots whereby the same and said band are adjustably connected to said headed studs, said band having laterally-projecting apertured lugs formed on the ends thereof, and a clamping-bolt adapted to be passed through said lugs whereby said band may be clamped on the end of a stovepipe, substantially as described.

788,067. VAPOR-BURNER. LEVI RHODES, Spokane, Wash., assignor to Motor Traction Company, Spokane, Wash., a Corporation. Filed Mar. 1, 1904. Serial No. 195,990.



Claim.—1. A vapor-burner comprising a vapor-chamber having an outlet, a closure arranged to seat thereon and to be operated by the vapor-pressure, a stem secured to said closure extending through and below said chamber, a spring connected to said stem to seat said closure against the vapor-pressure, and means for rotating said stem and closure, substantially as and for the purpose set forth.

2. A vapor-burner comprising a vapor-chamber, a closure for the outlet of said chamber adapted to be operated by the vapor-pressure within said chamber, a stem for said closure, extending through said chamber to the exterior thereof, a guide for said stem projected from the burner, and a spring carried by said stem and having one end seating on said guide, as and for the purpose set forth.

3. A vapor-burner comprising, a vapor-chamber, a closure for the outlet of said chamber adapted to be operated by vapor-pressure within said chamber, a stem for said closure, extending through said chamber to the exterior thereof, a projected guide for said stem, a spring connected to said stem to seat said closure against the vapor-pressure, and means for rotating said stem and closure, substantially as and for the purpose set forth.

4. A vapor-burner comprising, a vapor-chamber, a closure for the outlet of said chamber adapted to be operated by the vapor-pressure within said chamber, a stem for said closure, extending through said chamber to the exterior thereof, a projected guide for said stem, a spring carried by said stem and adapted to seat at one end against said guide, a seat for the other end of said spring, movable upon the stem, and means for adjusting said seat, as and for the purpose set forth.

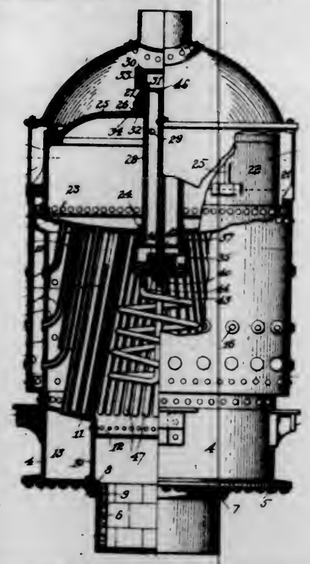
5. A vapor-burner comprising a vapor-chamber, a closure for the outlet of said chamber, adapted to be operated by the vapor-pressure within said chamber, a stem for said closure, extending through said chamber to the exterior thereof, a spring carried by said stem for placing said closure under a seating pressure, and a crank-handle carried by said stem for rotating the same, as and for the purpose set forth.

6. A vapor-burner comprising a vapor-chamber having an outwardly-flared outlet and a horizontally-arranged seat surrounding the outlet, a closure for the outlet, adapted to be supported on said seat, and having a central tapering portion to fit said outlet, a stem carrying said closure, and a spring connected to said stem to seat said closure against the vapor-pressure, substantially as and for the purpose set forth.

788,068. STEAM-BOILER. LEVI RHODES, Spokane, Wash., assignor to Motor Traction Company, Spokane, Wash., a Corporation. Filed May 6, 1904. Serial No. 206,690.

Claim.—1. The combination in a steam-boiler having a fire-box, of a water-drum surrounding said fire-box, a water-jacket surrounding the central portion of said boiler above said water-drum, a steam and water drum positioned above said water-jacket, and two sets of water-tubes, one set connecting the water-jacket with the steam and

water drum, and the other set connecting said drum with the lower drum, substantially as and for the purpose set forth.



2. A water-tube boiler consisting of an inner and outer shell to provide a water-space, and having an upper and a lower water-drum, water-tubes connecting said water-space with the upper drum and the latter with the lower drum, a dry-steam pipe connected with said upper drum, a superheating-coil communicating with said dry-steam pipe, the whole arranged and operating substantially as and for the purpose set forth.

3. The combination in a steam-boiler having a fire-box of a water-drum surrounding said fire-box, a water-jacket surrounding the central portion of said boiler above said water-drum, a steam and water drum positioned above said water-jacket, two sets of water-tubes, one set connecting the water-jacket with the steam and water drum, and the other set connecting said drum with the lower drum, and an upstanding baffle between the water-tubes, substantially as and for the purpose set forth.

4. The combination, in a steam-boiler having a fire-box, of a water-drum surrounding said fire-box, a water-jacket surrounding the central portion of said boiler above said water-drum, a steam and water drum positioned at a point above said water-jacket, two sets of water-tubes arranged in a parallel series, one set connecting the water-jacket with the steam and water drum, and the other set connecting said drum with the lower drum, an upstanding baffle between said water-tube, a dry-steam pipe arranged in communication with said steam and water drum, and a superheating-coil communicating with said dry-steam pipe and terminating in a steam-delivery pipe, substantially as and for the purpose set forth.

5. The combination in a steam-boiler having a fire-box, of a water-drum surrounding said fire-box, a water-jacket surrounding the central portion of said boiler above said water-drum, a steam and water drum positioned above said water-jacket and in spaced relation thereto to provide a passage for the products of combustion around said drum, two sets of water-tubes, one set connecting the water-jacket with the steam and water drum, and the other set connecting said drum with the water-drum, and an inner upstanding and an outer depending baffle-wall arranged between the water-tubes, substantially as and for the purpose set forth.

6. The combination in a steam-boiler having a fire-box, of a water-drum surrounding said fire-box, a water-jacket surrounding the central portion of said boiler above said water-drum, a steam and water drum positioned at a point above said water-jacket, two sets of water-tubes arranged in a parallel series, one set connecting the water-jacket with the steam and water drum, and the other set connecting said drum with the lower drum, a baffle-wall extending upward from said lower drum, and a baffle-wall depending from the steam and water drum, a dry-steam pipe in communication with said steam and water drum, and a superheating-coil communicating with said dry-steam pipe and terminating in a steam-delivery pipe, substantially as and for the purpose set forth.

7. The combination of an upright boiler-shell, a smoke-hood superimposed on said shell, a fire-box arranged centrally under said shell, a heating-chamber space formed centrally within said shell, a water-jacket surrounding said shell, a steam and water drum located above said heating-chamber and positioned in a manner to provide an annular draft-exit between said drum and the walls of said heating-chamber to the smoke-space formed by said hood, a lower water-drum, water-tubes arranged to connect the steam and water drum with the water-jacket and with the lower water-drum, substantially as and for the purpose set forth.

8. The combination of an upright boiler-shell, a smoke-hood superimposed on said shell, a fire-box arranged centrally under said shell, a heating-chamber space formed centrally within said shell, a water-jacket surrounding said shell, a steam and water drum located above said heating-chamber and positioned in a manner to provide an annular draft-exit between said drum and the walls of said heating-chamber to the smoke-space formed by said hood, a lower water-drum, water-tubes arranged to connect the steam and water drum with the water-jacket and with the lower water-drum, a dry-steam pipe arranged as shown in connection with said steam and water drum, and a superheating-coil communicating with said dry-steam pipe and terminating in a steam-delivery pipe, substantially as and for the purpose set forth.

9. In a water-tube boiler the combination with a water-jacket, an elevated steam and water drum, a lower mud-drum, a double series of tubes connecting respectively, the water-jacket with the elevated drum and the latter with the mud-drum, baffle-walls for controlling the course of the heated gases through the series of water-tubes, with which they are adjacently arranged, a dry-steam pipe connected to said elevated drum, and a superheating-coil communicating with said dry-steam pipe, substantially as and for the purpose set forth.

10. In a water-tube boiler, the combination of an elevated steam and water drum, a fire-box, a lower mud-drum surrounding said fire-box, an interior set of vertical water-tubes connecting said elevated drum with said lower drum, a heating-chamber surrounding said water-tube, a water-jacket surrounding said heating-chamber, an outer series of water-tubes arranged within said heating-chamber, that connect the water-jacket to said elevated drum, a dry-steam pipe arranged in communication with the steam-space of said elevated drum, a superheating-coil communicating with said dry-steam pipe and arranged in the central heat zone of said heating-chamber, and terminating in a steam-delivery pipe, substantially as and for the purpose set forth.

11. A boiler comprising a shell or casing, a fire-box, a mud-drum surrounding said fire-box, a combustion or heating chamber arranged above said fire-box, a double series of water-tubes arranged within said combustion-chamber, a water-jacket surrounding said combustion-chamber, an elevated steam and water drum, the said water-jacket and mud-drum being reversely connected through the steam and water drum by the series of water-tubes, a dry-steam pipe connected with said steam and water drum, and a superheating-coil communicating with said dry-steam pipe, substantially as and for the purpose set forth.

12. In a steam-boiler the combination with the steam and water drum, of a water chamber or chambers surrounding the combustion-chamber of the boiler, water-tubes connecting said water chamber or chambers with the steam and water drum, a dry-steam chamber in communication with the steam-space of the steam and water drum, and a superheating-coil in the combustion-chamber and in communication with the dry-steam chamber, substantially as and for the purpose set forth.

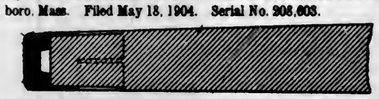
13. In a steam-boiler the combination with the steam and water drum, of a water chamber or chambers surrounding the combustion-chamber of the boiler, water-tubes connecting said water chamber or chambers with the steam and water drum, a dry-steam chamber in communication with the steam-space of the steam and water drum, and a superheating-coil within the combustion-chamber and in communication with the dry-steam chamber, said coil having a return-riser extending through said dry-steam chamber and terminating in a steam-delivery pipe, substantially as and for the purpose set forth.

14. In a steam-boiler the combination with a main outer shell, of a water-chamber surrounding the fire-box, having its outer shell extending within said main outer shell and spaced therefrom, upper and lower connecting portions for said shells, a steam-chamber, and tubes connecting the same with the water-chamber and the water-space between the inner and outer shell, substantially as and for the purpose set forth.

15. In a steam-boiler having a steam and water drum, a water-drum, and tubes connecting said drums, the combination with the boiler-shell, of a bottom plate therefor having a central opening, a fire-box disposed within said opening, having a flange or shoulder adapted to seat on the inner side of said bottom plate and having a screw-threaded portion adjacent said flange or shoulder, a screw-threaded clamping-collar adapted for operation on said screw-threaded portion of the fire-box, and a tube-sheet connecting said fire-box with the boiler-shell, substantially as and for the purpose set forth.

16. In a steam-boiler having a steam and water drum, a water-drum below the same, and tubes connecting said drums, the combination with the boiler-shell, of a bottom plate therefor having a central opening, a fire-box disposed within said opening, having a flange or shoulder adapted to seat on the inner side of said bottom plate, a clamping-collar movably mounted on said fire-box, and a tube-sheet connecting said fire-box with the boiler-shell, substantially as and for the purpose set forth.

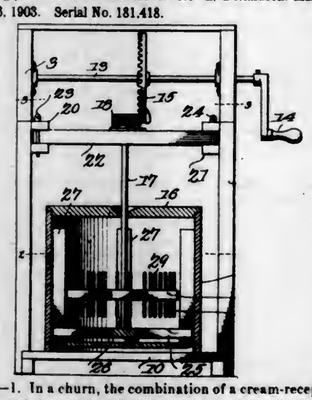
788,069. BILLIARD-CUE TIP. EDWIN L. ROBINSON, North Attleboro, Mass. Filed May 18, 1904. Serial No. 208,603.



Claim.—1. In a billiard-cue tip the combination of the recessed leather tip and the ferrule provided at its end with the hollow perforated cap extending into the recess of the leather tip, with the spreading prongs held within the hollow cap of the ferrule, and extending through the perforations of the cap outwardly into the leather tip, substantially as described.

2. In a billiard-cue tip the combination of the recessed leather tip and the hollow perforated cap, extending into the recess of the said tip, and provided at its base with the holding-flange, with the spreading prongs held within the hollow cap, and extending through the perforations of the cap outwardly into the leather tip, substantially as described.

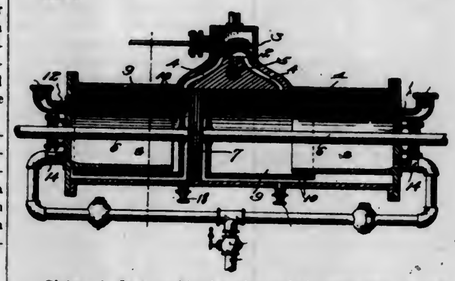
788,070. CHURN. ALFRED N. ROWE, Donaldson, Minn. Filed Nov. 16, 1903. Serial No. 181,418.



Claim.—1. In a churn, the combination of a cream-receptacle, a frame supported therein, said frame comprising two members crossing each other at right angles, a spacing member interposed between said members at their points of intersection with the bottom of the receptacle, and uprights at the outer ends of the arms formed by the crossed members, said uprights being extended downwardly to bear upon the bottom of the cream-receptacle and upwardly in contact with the walls of the latter, said frame being thereby spaced above the bottom of the churn; and a dasher stepped for rotation in said frame, and concentrically of the uprights of the latter, said dasher comprising a central shaft, transverse, flat, horizontally-disposed arms, each having two or more rows of staggered perforations, and pins extending vertically through said perforations.

2. In a churn, a dasher composed of a plurality of flat blades radiating from a central stem or staff, each of said blades being provided with a plurality of rows of perforations disposed in staggering relation to each other, and pins extending through said perforations and projecting above and below the blades.

788,071. COMBINED ENGINE AND AIR-COMPRESSOR. DANIEL SCHIFFBAUER, Stauffer, Pa. Filed Oct. 17, 1904. Serial No. 228,827.



Claim.—1. In a combined engine and air-compressor, in combination with an engine-cylinder having an inwardly-extending cylinder at one end, a piston operating in the engine-cylinder and having a piston-rod, cylinders in the engine-cylinder secured to the piston-rod, movable with the piston, and having slidable telescopic connections with the first-named interior cylinders, a valve to admit air to the telescopically-disposed cylinder, and an air-duct leading from said telescopically-disposed cylinders, and having a valve, substantially as described.

2. In a combined engine and air-compressor, the combination with the cylinder, of a piston-rod slidably mounted therein, a piston fixed on said rod, a pumping mechanism arranged in said cylinder, said pumping mechanism consisting of a pair of hollow telescoping cylinders arranged on each side of said piston, one member of each of said pairs of cylinders being secured to the inner wall of one of the cylinder-heads and the other member of each of said pairs being secured to the piston-rods adjacent to each side of said piston whereby when said piston-rod is reciprocated said pairs of cylinders will be alternately opened and closed thereby pumping air to a suitable storage receptacle or reservoir, a valved inlet-pipe, and a valved discharge-pipe arranged in each head of said cylinder whereby the admission and discharge of air to and from said pumping-cylinders will be automatically controlled, substantially as described.

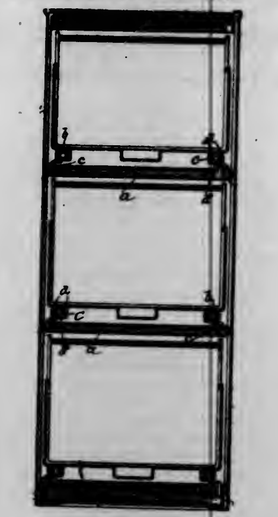
3. In a combined engine and air-compressor, the combination with the cylinder, of a piston-rod slidably mounted therein, a piston fixed on said rod, a pumping mechanism arranged in said cylinder, said pumping mechanism consisting of a pair of hollow telescoping cylinders arranged on each side of said piston, one member of each of said pairs of cylinders being secured to the inner wall of one of the cylinder-heads and the other member of each of said pairs being secured to the piston-rod adjacent to each side of said piston whereby when said piston-rod is reciprocated said pairs of cylinders will be alternately opened and closed thereby pumping air to a suitable storage receptacle or reservoir, a valved inlet-pipe, and a valved discharge-pipe arranged in each head of said cylinder whereby the admission and discharge of air to and from said pumping-cylinders will be automatically controlled, an air-conduit connecting said discharge-pipes and a manually-operated cut-off valve arranged in said conduit whereby the air may be held in said cylinders, substantially as and for the purposes described.

788,072. FILING-CABINET. GEORGE A. SHOEMAKER, Chicago, Ill., assignor to Metal Sectional Furniture Company, Portland, Me., a Corporation. Filed Oct. 26, 1903. Serial No. 178,506.

Claim.—1. In a filing-cabinet, the combination of a roller-track a roller-slide having telescopic rolling engagement with said track, a drawer having engagement with said roller-slide and means for operating said slide in relation with said drawer consisting of a stud fitted to the front of said drawer and in opposition to the forward end of said slide, a stud fitted to the forward end of said slide, and a stud fitted to the bottom of said drawer, back of and in opposition to the said stud fitted to the said slide.

2. The combination in a filing-cabinet, of a drawer fitted on its bottom with bearing-ribs, with a drawer-support consisting of hollow roller-tracks, secured to the frame of said cabinet and slotted along their upper sides in opposition to said bearing-ribs, supports mounted upon rollers, which rollers have engagement with said roller-tracks and said bearing-ribs, and means for projecting and retiring said supports from and into said tracks, substantially as described, and for the purposes herein set forth.

3. The combination in a filing-cabinet, of a drawer fitted with bearing-ribs on its bottom, with a drawer-support consisting of roller-tracks secured to the frame of said cabinet and in opposition to said bearing-ribs, supports mounted upon rollers, which rollers have engagement with said track and bearing-ribs, and means for projecting and retiring said supports from and within the face of said cabinet in relation with the action of said drawer, consisting of an inturned stud fitted to each of said supports and in opposition thereto, other studs fitted to the bottom of said drawer front and back on either side of said studs so fitted to the supports, substantially as described, and for the purposes herein set forth.



788,073. SURGICAL PAD. HENRY O. SOMMER, Washington, D. C. Filed Nov. 30, 1904. Serial No. 234,912.



Claim.—In a surgical pad, the bottom portion being thin, flexible, and elastic, a flexible and elastic ring in the center of the bottom portion and integral therewith, a button adapted to close the aperture formed by the said ring, said button consisting of a disk having a groove adapted to receive said ring, substantially as specified.

788,074. LABORATORY-WEIGHTS. CHRISTIAN H. STOELTING, Chicago, Ill. Filed Aug. 15, 1903. Serial No. 169,603.

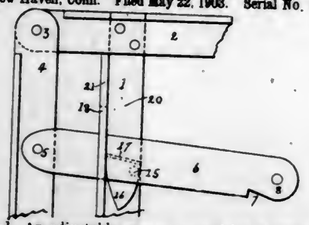


Claim.—1. A series of laboratory-weights comprising a number of interchangeable weights having interlocking connection with each other, consisting of a hook fitted to one end of each of said weights and a corresponding eyelet fitted within the opposite end of each weight, which eyelet lies within a recess and within a recess and on the inside of the plane passing through the edges of said recess, substantially as described.

2. A series of laboratory-weights comprising a number of interchangeable weights of different sizes and means for interlocking said weights consisting of corresponding hooks and eyelets secured to each weight and on opposite sides, which eyelets lie within recesses and within a recess and on the inside of the plane passing through the edges of said recess, substantially as described.

3. A series of laboratory-weights comprising a number of weights of approximate cylindrical form, each weight being fitted at one end with an outwardly-projecting hook and at the other end with an eyelet recessed within a recess and on the inside of the plane passing through the edges of said recess, the hook of each weight being fitted to engage with the eyelet of any one of the other weights, substantially as described.

788,075. ADJUSTABLE SUPPORT FOR SOFA-BEDSTEADS OR THE LIKE. DAVID C. STORR, New York, N. Y., and JOSEPH LUPINO, New Haven, Conn. Filed May 22, 1903. Serial No. 158,263.

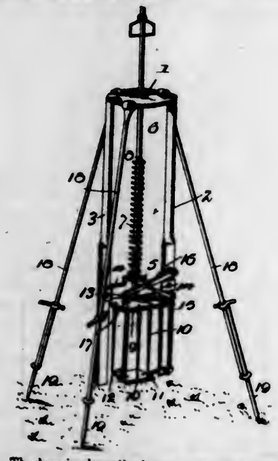


Claim.—1. An adjustable support comprising a relatively stationary upright having a guide in it, a movable part pivotally secured to the upright and a notched part pivotally secured to the movable part with its free end extending through the guide, said notch engaging the bottom of the guide on the upward movement of the movable part, a switch having a yielding horizontal face carried by one of said parts, and a stud on the other part; the stud and switch coöperating on the continued upward movement of the movable part to lift the horizontal face of the switch and permit the stud to pass along it thereby carrying the notch out of engagement with the bottom of the guide.

2. An adjustable support comprising a fixed part having a guide in it, a switch carried by said fixed part and having a yielding horizontal face in juxtaposition to the guide, a movable part pivotally secured to the fixed part, a notched brace pivotally secured to the movable part and passing through the guide and having at or near its notched end a stud adapted to engage the switch and pass over the horizontal face on a continued upward movement of the movable part thereby carrying the notch out of engagement with the bottom of the guide.

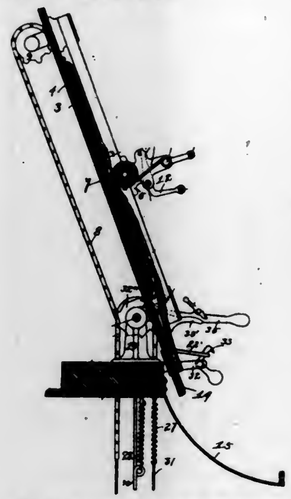
3. An adjustable support comprising a fixed part of L-shaped cross-section having a slot in its front face and an upwardly-movable switch secured to the back face, a movable part pivotally secured to the fixed part and a brace pivotally secured to the movable part and passing through the slot in the fixed part, a notch near the end of the brace adapted to engage the bottom of the slot when the movable part is raised, a stud near the notched end of the brace adapted to ride up the front face of the fixed part on the further upward movement of the movable part and pass the switch whereby the notch will be carried past the bottom of the slot without engaging it.

788,076. MOLE-TRAP. ABIJAH Y. SWOPE, Winlock, Wash. Filed Aug. 1, 1904. Serial No. 219,075.



Claim.—The herein-described trap comprising the main or body portion 1, having depending arms or brackets 2 and 3 rigidly secured thereto, supporting-legs, the upper ends of which are pivotally secured to said body portion, extensions adjustably secured to the lower ends of said supporting-legs, whereby the trap may be properly adjusted on uneven ground, a cross-bar uniting said depending brackets 2 and 3, said cross-bar having a laterally-directed lip, a shaft playing loosely through an opening in said bar and the member 1 and having on its lower end a cross-head provided with a plurality of projections or teeth 10, a trigger adapted to be disposed in the path or burrow of the mole, a detent having a finger 15 adapted to engage said cross-head and hold the teeth elevated, and devices intermediate said detent and trigger designed to release the detent when the trigger is elevated, and a spring surrounding said shaft, one end of which is secured to said shaft and the opposite end to said laterally-directed lip, all combined substantially as specified and for the purpose set forth.

788,077. TOBACCO-LEAF-SIZING MACHINE. ALBERT R. TIFFANY, Dayton, Ohio, assignor to Walter M. Brenner, Dayton, Ohio. Filed Jan. 18, 1905. Serial No. 241,597.



Claim.—1. In a tobacco-leaf-sizing machine, a table upon which bunches of leaves are placed, and a traveling roller moving over said table and releasing leaves of uniform lengths.

2. In a tobacco-leaf-sizing machine, an inclined table upon which the bunches of leaves are blaced, and a traveling roller having intermittent movement over said table and releasing leaves of uniform lengths.

3. In a tobacco-leaf-sizing machine, a tilting table upon which bunches of tobacco-leaves are placed, a traveling roller having intermittent movement over the bunches and releasing the individual leaves of uniform lengths, and means for elevating said roller in moving it to the initial point of operation.

4. In a tobacco-leaf-sizing machine, a table, a butt-board adjacent thereto and adapted to assume different positions in the movements of said table to its different operative positions and a traveling releasing-roller movable lengthwise of the tobacco-leaves, and releasing leaves of uniform lengthe in such movements.

5. In a tobacco-leaf-sizing machine, a tilting table, means for holding said table in different inclined positions, a traveling releasing-roller, said roller being supported upon a movable frame, and said frame being supported upon a movable carriage.

6. In a tobacco-leaf-sizing machine, a tilting table upon which the bunches of tobacco-leaves are placed, a shaker arranged beneath said bunches, and a traveling releasing-roller movable lengthwise of and over said bunches and releasing the individual leaves of uniform lengths.

7. In a tobacco-leaf-sizing machine, a tilting table having a padded portion upon which the bunches of tobacco-leaves are placed, said table having tracks, and a traveling releasing-roller movable on said tracks in directions parallel with the lengths of said bunches.

8. In a tobacco-leaf-sizing machine, a traveling releasing-roller, an independent frame upon which said roller is mounted, a carriage upon which said roller-frame is mounted, and means connected to said carriage for moving it back and forth over the table.

9. In a tobacco-leaf-sizing machine, a table adapted to assume two degrees of inclination, a traveling releasing-roller movable over said table, and means for supporting bunches of leaves upon said table preparatory to the roller being moved to its initial position.

10. In a tobacco-leaf-sizing machine, a table adapted to assume two degrees of inclination, a traveling roller movable over said table, a shaker adapted to agitate the bunches of tobacco-leaves during the releasing movements of the roller, and means for supporting the bunches of tobacco-leaves at their butts prior to the releasing operations of the roller, said means permitting the assorted leaves to fall from the table when released by said roller.

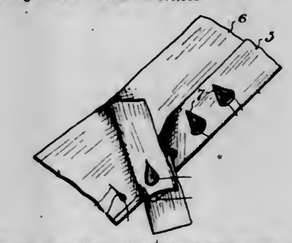
11. In a tobacco-leaf-sizing machine, an inclined tilting table, in combination with a traveling releasing-roller, and means for elevating said roller to permit it to be moved to its initial position, and further means for maintaining said roller in its lower position during the operations of releasing the tobacco-leaves.

12. In a tobacco-leaf-sizing machine, a table movable to one position to receive the tobacco-leaves to be sized, and to another position for the sizing operation, a releasing-roller movable intermittently over said table to release all leaves of a uniform length in each movement, and a device for shaking the leaves during said releasing in order to separate each individual leaf.

13. In a tobacco-leaf-sizing machine, a tilting table, a releasing-roller traveling over said table, means for elevating said roller while moving in one direction, and means for holding it against the tobacco-leaves while moving in the other direction.

14. In a tobacco-leaf-sizing machine, a tilting table, a releasing-roller traveling over said table, means for elevating said roller while moving in one direction, means for holding it against the tobacco-leaves while moving in the other direction, and means for permitting a reversal of the movement of said roller.

788,078. BUTTONHOLE. HENRY WALDEN, Philadelphia, Pa. Filed Aug. 9, 1904. Serial No. 220,061.



Claim.—1. In a shoe, a lining having a buttonhole therein and an outer leather having a buttonhole therein registering with and covering the edges of said first buttonhole, said outer leather and said lining being detached about said buttonholes, substantially as specified.

2. In a shoe, a lining having a buttonhole therein, a stay for supporting said buttonhole, and an outer leather having a buttonhole therein registering with said first buttonhole, said outer leather covering said stay, and the edges of said first buttonhole substantially as specified.

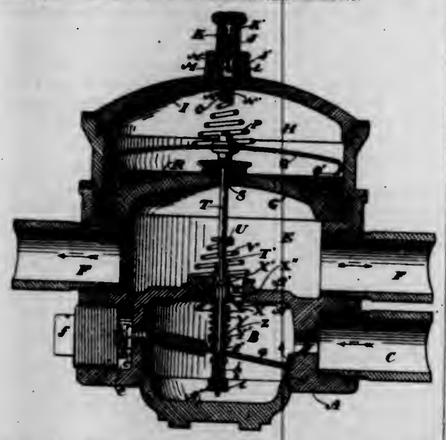
3. In a shoe, lining members having a buttonhole therein, a stay and stitching for supporting said buttonhole, and an outer leather having a buttonhole therein registering with said first buttonhole, said outer leather being detached from said lining members around said buttonholes and covering said stay and stitching, substantially as specified.

4. In a shoe, an upper comprising lining members having registering holes therein, means for securing said members together around said holes, and an outer leather member having holes therein registering with the holes in said lining members, said outer member extending beyond the edges of the holes of said lining members and covering said means for connecting them, substantially as specified.

788,079. GAS-REGULATOR. FERDINAND WHEELER, Los Angeles, Cal. Filed May 20, 1904. Serial No. 208,980.

Claim.—1. A gas-regulator having an inlet-chamber, an outlet-chamber and a float-chamber; a float in the float-chamber; a valve-operating stem carried by said float and passing therefrom down

through the outlet-chamber into the inlet-chamber; a duplex inlet-closing valve carried by said stem adapted to open and close the opening between said inlet and outlet chambers and the opening leading from the service-mains into the inlet-chamber.



2. In a gas-regulator of the character herein described the swinging valve *a* pivoted in the side of the valve-chamber in the socket *c*, the said valve being operatively connected at its center thereof with the valve-stem and means to move the said valve against the seat thereof and provide for any opening between the valve and the seat caused by the wear of the valve on the seat.

3. A gas-regulator, comprising an inlet-chamber; an outlet-chamber above said inlet-chamber and in communication therewith; a float-chamber above the distributing-chamber and in communication therewith, sealing fluid in said float-chamber; an inverted-cup-shaped float in the chamber; a spring in said chamber bearing on said float; an adjusting-screw bearing on said spring; a stem secured to said float and passing downwardly through the outlet-chamber and into the inlet-chamber; valves on said stem adapted to regulate opening in the port connecting said chambers the upper valve being bell-shaped and slidingly mounted on said stem and having an aperture extending therethrough; a lower valve on and rigidly secured to said stem; a spring on said stem adapted to bear against said valves and adapted to normally keep the valves apart; said two valves being adapted to close the communication between the inlet and outlet chambers, said lower valve being adapted to close the aperture through the upper valve.

4. A gas-regulator comprising an inlet-chamber; an outlet-chamber in communication therewith; a float-chamber above the outlet-chamber and in communication therewith; sealing fluid in said float-chamber; an inverted-cup-shaped float in said float-chamber; a spring in said chamber bearing on said float; an adjusting-screw bearing on said spring said adjusting-screw having a channel therein connecting the interior of said chamber with the external air; a valve to control said channel; a stem secured to said float and passing downwardly through the outlet-chamber and into the inlet-chamber; two valves on said stem one above the other, said upper valve being larger than the lower valve and being slidingly mounted on said stem and having an aperture extending therethrough; a spring mounted on the lower of said valves and bearing against the upper valve and adapted to normally keep the valves apart, said two valves being adapted to entirely close the communication between the inlet and outlet chambers when no gas is being consumed, the lower valve being adapted to close the aperture through the upper valve; a swinging valve in the inlet-chamber operatively connected to said stem, whereby on the rise or fall thereof said swinging valve will close or open the inlet into said inlet-chamber.

5. In a regulator of the character herein described having a float-chamber, an outlet-chamber and an inlet-chamber; a float in the float-chamber carrying a vertically-arranged valve-stem depending therefrom, said valve-stem projecting downwardly through the outlet-chamber and into the inlet-chamber; a swinging gate-valve in the inlet-chamber adapted to open and close the inlet thereto, the said swinging gate-valve being workably connected to said valve-stem; a high-pressure valve on said stem; a low-pressure regulating-valve disposed above the same; a spiral spring adapted to spread the valves apart, the low-pressure regulating-valve having an upward hollow extension and provided with a plurality of outlet-ports, said low-pressure regulating-valve being bell-shaped at the mouth thereof and adapted when in its elevated position to contact with a valve-seat surrounding the port connecting the inlet and outlet chambers together; an offset shoulder on said stem adapted to contact with the upper end of the low-pressure valve and depress the same when the pressure on the gas falls and open the low-pressure valve.

6. In a gas-regulator of the character herein described having a pressure-regulating float; a stem secured to said float, the said stem extending centrally from the float-chamber through the outlet-chamber into the inlet-chamber; a swinging valve workably secured on said stem and adapted to close the inlet-port between the inlet-chamber and the gas-mains; a high-pressure regulating valve-stopper rigidly mounted on said stem; a low-pressure regulating valve-stopper slidingly mounted on said stem above said high-pressure valve-stopper and having discharge-ports in the upper extension thereof; a spiral spring disposed between the upper and lower valve-stoppers and adapted to normally hold said stoppers apart; a volute spring surrounding said stem and resting upon the partition dividing the inlet and outlet chambers and bearing at its upper end against an annular lug on the valve-stem.

7. In a gas-regulator such as herein described; a duplex valve adapted to close the port leading from the inlet to the outlet chamber comprising a valve-stem secured at its upper end to a pressure-regulating float, the said stem extending downwardly through said port and carrying thereon a high and low pressure regulating-valve, comprising the bell-shaped low-pressure regulating-valve X slidably mounted on said stem; a high-pressure regulating-valve rigidly affixed to said stem below the low-pressure regulating-valve and a spiral spring disposed on said stem between said valves.

8. In a gas-regulator of the character herein described, means to open and close the inlet-port between the inlet-chamber and the gas-mains and the ports between the inlet-chamber and the outlet-chamber comprising the swinging valve *b* pivoted on the side of said chamber and adapted to open and close the inlet into said inlet-chamber upon the movement up and down of the valve-stem T; the low-pressure regulating-valve X slidably mounted on said valve-stem being bell-shaped and adapted when in its elevated position to close the port W leading from the inlet to the outlet chamber, the said valve being provided with openings X′ therein for the passage therethrough of gas; a high-pressure valve Y rigidly secured to said stem; a spiral spring disposed between said valves the lower end thereof resting upon the valve Y and the upper end contacting with the valve X.

9. In a gas-regulator having an inlet-chamber and an inlet-port leading thereinto; a swinging valve in said chamber adapted to close the port leading thereinto, the said chamber having a valve-seat concentric with the pivot of said swinging valve and means to move the pivot on which said valve works substantially as herein shown and described.

10. In a gas-regulator of the character herein described a chamber for the reception of gas; a port leading thereinto; a swinging valve adapted to close said port upon the movement of the valve-stem and means to keep said valve in frictional engagement with the seat thereof.

11. A gas-regulator having an inlet-chamber and an outlet-chamber and a float-chamber; a float in the float-chamber; a valve-operating stem carried by said float and passing therefrom down through the outlet into the inlet chamber; a swinging valve workably connected with said valve-stem and adapted to be operated thereby, the said swinging valve being pivoted on one side of the outlet-chamber on an adjustable base, the said base being provided with means for its adjustment substantially as shown whereby the wear on the face of the swinging valve and the seat thereof may be provided for.

788,080. RAIL-JOINT. ROBERT M. WILLIAMS, Perkins, Okla. Filed Nov. 15, 1904. Serial No. 232,842.

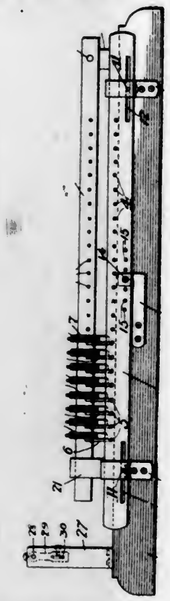


Claim.—1. The herein-described rail-joint comprising an integral extension for each end of the rail and protruding from one side

thereof, one of said extensions having an outwardly-curved terminal while the other extension is provided with a curved socket to receive the terminal of the next succeeding rail whereby, when the rails are joined together and said terminal entered in said socket, the rails cannot be disconnected except that they be moved inwardly out of alinement, all combined substantially as specified and for the purpose set forth.

2. As an article of manufacture, a track-rail having outwardly-protruding extensions, one of said extensions having a curved socket and the opposite extension being provided with an outwardly-curved terminal, substantially as set forth.

788,081. PLAITING-MACHINE. WILLIAM WOLKAU, Portland, Oreg. Filed Oct. 28, 1903. Serial No. 178,815.



Claim.—1. In a plaiting-machine, the combination of a base, a series of plaiting-blades mounted thereon, and means for simultaneously changing the direction of the plaiting-blades across the base.

2. In a plaiting-machine, the combination of a base, a series of plaiting-blades mounted thereon, and a longitudinally-movable plate for simultaneously changing the direction of the plaiting-blades across the base.

3. In a plaiting-machine, the combination of a base, a plate fixed to one side thereof, a longitudinally-movable plate mounted on the opposite side of said base, means for locking said movable plate in its several adjustments, and a series of plaiting-blades loosely mounted in said plates.

4. In a plaiting-machine, the combination of a base, a series of parallel plaiting-blades carried edgewise by said base, and means for simultaneously tilting the blades.

5. In a plaiting-machine, the combination of a base, a series of plaiting-blades mounted thereon, and means for simultaneously tilting the blades.

6. In a plaiting-machine, the combination of a base, a series of plaiting-blades pivotally mounted thereon, and a longitudinally-movable bar engaging the several blades for simultaneously tilting them.

7. In a plaiting-machine, the combination of a base, a series of plaiting-blades pivotally mounted at their opposite ends on the base, a longitudinally-movable bar engaging the several blades for simultaneously tilting them, and means for locking the bar against movement.

8. In a plaiting-machine, the combination of a base, plates secured to said base, a series of plaiting-blades having pintles at opposite ends thereof journaled in said plates, and a longitudinally-movable bar mounted on the base and connected with the blades for simultaneously rocking them upon their pivots.

9. In a plaiting-machine, the combination of a base, a series of plaiting-blades pivotally mounted thereon, a bar engaging the several plaiting-blades for simultaneously tilting them, a fixed support within which one end of the bar is loosely mounted, a lever carrying the opposite end of said bar, and means for locking the lever against movement.

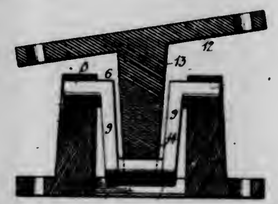
10. In a plaiting-machine, the combination of a base, a series of parallel plaiting-blades mounted thereon, a longitudinally-movable bar connected to each of the blades, and a lever pivotally connected to the movable bar, whereby the position of the plaiting-blades may be simultaneously changed without altering their parallelism.

11. In a plaiting-machine, the combination of a base, plates secured to the sides thereof, a series of plaiting-blades pivotally mounted in said plates, and a longitudinally-movable bar for simultaneously tilting the blades.

12. In a plaiting-machine, the combination of a base, plates secured to the sides thereof, one of said plates being movable longitudinally, and a longitudinally-movable bar connected to the several plaiting-blades for tilting them.

13. In a plaiting-machine, the combination of a base, plates on opposite sides thereof, one of said plates being movable longitudinally, means for locking said movable plates, plaiting-blades pivotally mounted in said plates, and a longitudinally-movable bar connected to the several plaiting-blades.

788,082. SIDE BEARING FOR RAILWAY ROLLING-STOCK. GEORGE H. WOOD, Tyler, Tex. Filed Feb. 13, 1905. Serial No. 245,505.



Claim.—1. In a side bearing of the character described, the combination with parallel upwardly-projecting bearing-blocks arranged on the ends of the truck-bolster, and having formed in their upper ends elongated bearing-apertures, of swinging bails or crank-shafts slidably journaled in said apertures, and means whereby the ends of the body-bolster are engaged with and supported upon said crank-shafts, substantially as described.

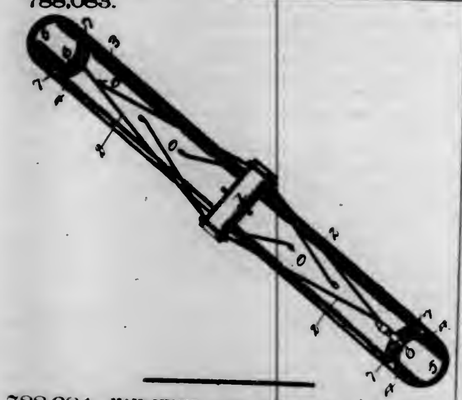
2. In a side bearing of the character described, the combination with parallel upwardly-projecting bearing-blocks arranged on the ends of the truck-bolster and having formed in their upper ends elongated bearing-apertures, of swinging bails or crank-shafts slidably journaled in said apertures, and downwardly-projecting bearing-blocks arranged on the ends of the body-bolster, said blocks having formed in their lower ends semicircular bearing-apertures to engage said bails or crank-shafts, substantially as described.

3. In a side bearing of the character described, the combination with an attaching-plate, of upwardly-projecting parallel bearing-blocks formed thereon, said blocks having formed in their upper ends elongated bearing-apertures, crank-shafts slidably journaled in said apertures, attaching-plates secured to the ends of the body-bolster, and downwardly-projecting bearing-blocks formed on said plates, said blocks having formed in their lower ends semicircular bearing-apertures to engage said crank-shafts, substantially as described.

788,083. PNEUMATIC TIRE. EARLE B. WORKMAN, Woodward, Okla. Filed Sept. 26, 1904. Serial No. 225,998.

Claim.—In a pneumatic tire, the combination with a wheel-rim having a seat in its peripheral face, of a tire, said tire being provided with outwardly-directed flanges 4, the inner edges of said flanges being of less thickness than the outer edges thereof, an insert 6 of a greater resiliency than the tire proper disposed between said outwardly-directed flanges, said insert being of greater thickness than the meeting edges of the outwardly-directed flanges whereby, when said tire is inflated, the outwardly-directed flanges and the insert 6 will be forced into the seat in the rim, substantially as set forth.

788,083.

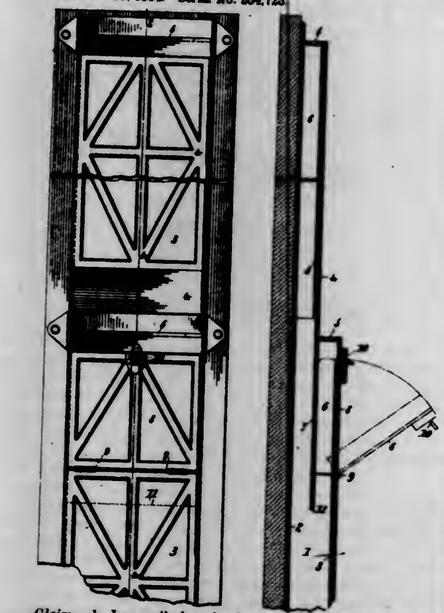


4. In a mail-chute, a plurality of mail-receiving apertures in different horizontal and vertical planes and so constructed that at each aperture an enlarged path is provided for mail-matter, guards at each aperture below the top so placed as to form with the front of the chute narrow passages immediately below the mailing-slot, adapted to trap and retain mail-matter which will not readily pass through the chute, and a door in the chute at each of said narrow passages through which obstructing matter may be reached and recovered.

5. In a mail-chute, a mailing-slot, a transparent door just below said mailing-slot adapted to give access to a narrow passage beneath said mailing-slot in which mail-matter which will not readily pass through the chute will be trapped and retained.

6. In a mail-chute having a plurality of mail-receiving apertures, a corresponding number of doors, each immediately below its respective mail-receiving aperture, adapted to give access to a narrow passage leading from each aperture wherein too bulky mail-matter will be trapped and retained.

788,084. MAIL-CHUTE. FRANK B. ANDERSON, New York, N. Y. Filed Nov. 29, 1904. Serial No. 234,723.

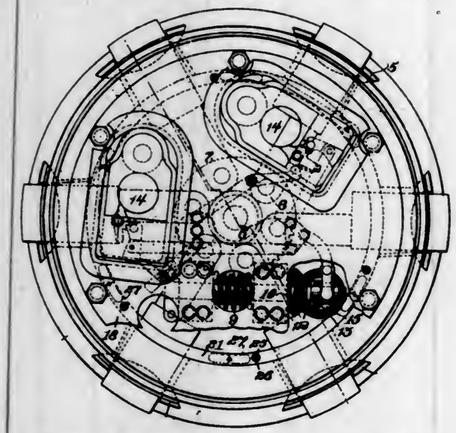


Claim.—1. In a mail-chute having a mailing-slot, a rear wall or guard immediately below said mailing-slot adapted to form with the front wall of said chute a narrow passage adapted to trap and retain mail-matter which will not readily pass through the chute, and a door in said chute at said narrow passage through which the obstructing matter may be reached and removed.

2. In a mail-chute having a plurality of mail-receiving apertures and so constructed as to provide a path for the mail enlarged at each aperture below the top, guards placed at each aperture parallel with and flush with the face of the chute, and forming with the front wall of the chute a narrow passage adapted to trap and retain mail-matter which will not readily pass through the chute, and a door in the chute at said narrow passage through which obstructing matter may be reached and recovered.

3. In a mail-chute having a plurality of mail-receiving apertures in different horizontal planes and with a path for the mail enlarged at each aperture, guards fixed at each aperture below the top, but not projecting into the path of descending mail, and forming with the front of the chute a narrow passage adapted to trap and retain mail-matter which will not readily pass through the chute, and a door in the chute at said narrow passage through which obstructing matter may be reached and recovered.

788,085. DOGGING MECHANISM FOR SAFE OR VAULT BOLTING MECHANISMS. ORLANDO W. BEDELL, Princess Bay, N. Y., and HENRY D. HIBBARD, Plainfield, N. J., assignors to Manganese Steel Safe Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 4, 1904. Serial No. 191,924.



Claim.—1. The combination with a safe or vault door having a back plate, of bolt mechanism, lock mechanism for controlling the operation of said bolt mechanism, and means entirely independent of the lock mechanism or any part thereof and under the control of the back plate for dogging the bolts.

2. The combination with a safe or vault door, of bolt mechanism, lock mechanism therefor, and means entirely independent of such lock mechanism or any part thereof and controlled by a fixed or rigid part secured to the door, for dogging the bolts.

3. The combination with bolt mechanism comprising a plurality of bolts projecting in different directions, of dogging means for such bolts comprising a single member shiftable to engage each and simultaneously dog all of the bolts.

4. The combination with bolt mechanism, of a depressible spring-engaged annular means normally held under depression for simultaneously dogging several of the bolts to prevent the retraction of the same.

5. The combination with bolt mechanism of a positively-controlled, depressible ring-shaped member, normally held within the surface of the door for engaging each and dogging all of the bolts simultaneously to prevent the retraction thereof.

6. The combination of a plurality of radially-shiftable bolts each having a recess and a depressible member normally held within the surface of the door and adapted to enter each of said bolt-recesses for dogging all of the bolts simultaneously, and means for releasing said member.

7. The combination with a safe or vault door, of bolts, a movable ring carried by the door, normally held out of engagement with the bolts and shiftable to engage all of the bolts simultaneously to lock the same against retraction, and means for controlling the movement of said ring.

8. The combination of a safe or vault door having a recess located therein and also having a back plate, bolt mechanism, and means located in said recess and adapted to be shifted into position to engage the bolt mechanism and lock the same against movement, and means connected with the back plate for maintaining said locking means in its recess.

9. The combination of a safe or vault door having a recess located therein and also having a back plate, bolt mechanism, and means located in said recess and adapted to be shifted into position to engage the bolt mechanism and lock the same against movement, and means connected with the back plate for shifting said locking means into position to engage the bolt mechanism.

10. The combination of a door having a recess and also having a back plate, bolt mechanism, and means located in said recess and adapted to be shifted into position to engage the bolt mechanism and lock the same against movement, and means connected with the back plate for maintaining said locking means in its recess and also effective to shift said locking means into engagement with the bolt mechanism.

11. The combination of a door, bolt mechanism therefor, and an annular member carried by said door between the door-body and bolt mechanism and normally held within the recess formed in the metal of the door and adapted to be shifted into position to engage the bolt mechanism and lock the same against movement, and means for controlling the movement of said member.

12. A safe or vault door having a recess, a bolt, a wedge-shaped device located in said recess and normally held within such recess and adapted to be shifted into position to lock the bolt and prevent movement thereof, and means for controlling the movement of said device.

13. A safe or vault door having a recess and a back plate, a bolt, a device located in said recess and adapted to be shifted into position to lock the bolt and prevent movement thereof, and means for preventing the movement of said device, said means comprising a stem located between and in engagement with the back plate and said device.

14. A safe or vault door having a back plate and an annular recess formed in the metal of such door, bolts passing over such recess, dogging means located in such recess and normally held within such recess and adapted to engage and dog the bolts and means under the control of the back plate for controlling the position of such dogging means.

15. A safe or vault door having a recess and a back plate, a bolt, a member located in said recess and effective to engage the bolt and lock the same against movement, and means for shifting said locking member into position to lock the bolt, said shifting means comprising a device secured to said locking member and to a fixed part of the door, said fixed part comprising the back plate secured to the door, and means located between said back plate and said locking member to maintain it out of engagement with the bolt.

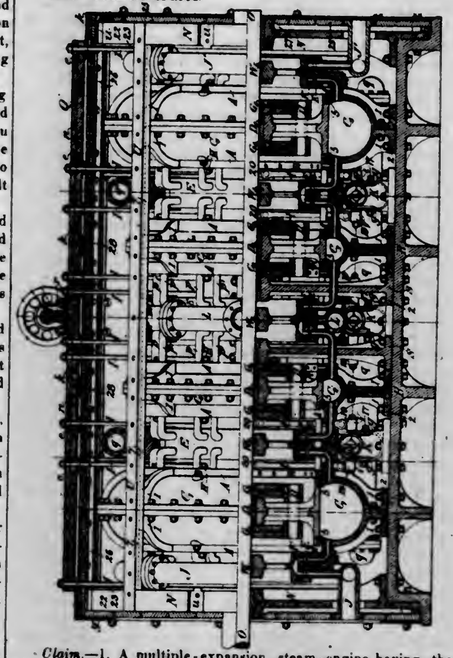
16. A safe or vault door having a recess, a bolt, a device located in said recess for locking the bolt, means for shifting said locking device into engagement with the bolt, and means for maintaining it in its locking position, said means comprising a spring adapted to enter a notch or recess in the side wall of such recess.

17. A circular safe or vault door comprising a body and a flange, said body having an annular recess located therein, bolt mechanism, an annular ring located in said recess and adapted to coöperate with the bolts to lock the same against movement, means for preventing the shifting of said ring, a back plate secured to the door, means between the back plate and the ring for maintaining it in its normal unlocking position, and means connecting said ring with the back plate, whereby on the displacement of the latter the bolts will be locked.

18. A circular safe or vault door comprising a body and an integral flange, said body having an annular recess located therein, bolt mechanism, an annular ring located in said recess and adapted to coöperate with the bolts to lock the same against movement, means for preventing the shifting of said ring, a back plate secured to the door, means between the back plate and the ring for maintaining it in its normal unlocking position, means connecting said ring with the back plate, whereby on the displacement of the latter the bolts will be locked, and means for maintaining said ring in engagement with the bolts.

19. In a safe or vault door having a back plate, the combination with bolting mechanism and lock mechanism connected with the bolt mechanism, of means independent of and free of any connection with such lock mechanism for locking said bolt mechanism against movement and shifted into its locking position on the displacement of the back plate, and means for holding such locking means in its bolt-locking position thereby to maintain the bolts locked against movement.

788,086. MULTIPLE-EXPANSION VIBRATORY STEAM-ENGINE. ANTONIO BENEDETTO, Washington, D. C. Filed June 28, 1904. Serial No. 214,564.



Claim.—1. A multiple-expansion steam-engine having the steam-chest formed by two parts joined together and fastened by bolts at the periphery, having an internal space similar to a cylindrical ring, open at the internal periphery and closed by the rim of a central driving-wheel; said steam-chests provided on each side with an annular rib containing a number of openings for the steam-passages which are met internally by openings directed toward the center of the ring, the internal periphery of said annular ribs being covered by opening rings each having a reversing-bar attached to one side of it, and provided with openings corresponding to the openings in the annular ribs which are leading to the steam-passages; each part of the steam-chest provided externally with several ribs running normally to said annular rib and with a horizontal rib at the base by which the steam-chest is fastened to a bed-plate; the internal space of the steam-chest divided into several compartments by fixed abutments or partitions formed by two identical pieces joined together and traversed by one or more bolts which will also hold together the two parts of the steam-chest, substantially as specified.

2. A multiple-expansion steam-engine having a longitudinal shaft passing through the center of the engine, supported at the extremities by two engine-heads, an annular feed-pipe forming a chamber similar to a cylindrical ring, surrounding the shaft in the middle of the engine, and the internal periphery of which is provided with feed-ports directed toward the center of the ring, which may be provided with valves for controlling the admission of the steam; two steam-chests for each stage of expansion, one on each side of said annular feed-pipe, disposed symmetrically and having a disposition similar to the feed-pipe, the high-pressure steam-chests being the nearest to said feed-pipe so that the pressure decreases proceeding toward the extremities of the engine, two annular exhaust-pipes, one on each extremity of the engine, forming two exhaust-chambers similar to cylindrical rings, the internal periphery of which is provided with exhaust-ports similar to the feed-ports of the feed-pipe in the middle; the shaft carrying a multivalve-wheel in each space between two consecutive steam-chests, and between the two low-pressure steam-chests and exhaust-pipes, provided with cavities on

the external surface of the rim forming a number of separate valves, said wheels fixed to the shaft with the valves located as set forth in the specification; the wheel in the center of the engine having two rows of cavities alternating each other to the right and to the left; the feed-ports in the center leading the steam through a connecting and a reversing ring against the external surface of the rim of said multivalve-wheel in the center which will distribute the steam to the high-pressure steam-chests on the right and on the left of said feed-pipe alternatively, each steam-chest provided on both sides with steam-passages or elbows of steam-pipe, held in place by fastening-rings, and that by means of the connecting-rings lead the steam from one steam-chest to another, through the several stages of expansion to the exhaust, always passing through the valves of the multivalve-wheels carried by the shaft, substantially as specified.

3. A multiple-expansion steam-engine having an annular feed-chamber in the middle, provided with feed-ports directed toward the center; steam-chests of annular form, two for each stage of expansion, disposed symmetrically, one on each side of the said feed-chamber, fastened to a bed-plate, and which have the internal space open at the internal periphery, and divided into several compartments by fixed abutments or partitions; two annular exhaust-chambers, one at each extremity of the engine; a longitudinal shaft passing through the center of the rings formed by the feed-chamber, steam-chests and exhaust-chambers, the whole inclosed in a covering; a number of valves closing and opening the steam-passages between the feed-chamber and the adjacent steam-chests, between two consecutive steam-chests and between steam-chests and exhaust-chambers, regulated by the revolving of the shaft; a driving-wheel in the center of each steam-chest through the hub of which the shaft passes; all the driving-wheels connected in series on each side of the center, which connection enables them to have an alternate reciprocating motion as set forth in the specification, and said driving-wheels having a rim which closes the internal space of the steam-chests, which rim is provided on each side with a packing-ring, to make the said internal space steam-tight; each driving-wheel carrying a number of piston-heads or paddles at the periphery, one in each compartment of the steam-chests, each piston-head being provided around the portion of its periphery that is in contact with the walls of the steam-chest with a portion of packing-ring so as to divide each compartment into two steam-tight chambers, the fixed abutments or partitions being provided at the base with a packing-piece pressed against the external surface of the rim of the driving-wheel by two springs one on each side of the partition; said driving-wheels transmitting to the shaft the power of the steam by means of two diametrically opposite couples of double pawls attached to each wheel, which pawls engage with ratchet-wheels carried by the shaft and located in respect to the pawls in the manner set forth in the specification, said pawls being pressed against the periphery of the ratchet-wheels by the action of the steam by means of pins having their heads exposed to the steam-pressure in certain chambers of the steam-chests, and the said pawls being kept in a normal position when the engine is at rest by means of springs, substantially as specified.

4. A multiple-expansion steam-engine, having an annular feed-chamber in the middle; two series of annular steam-chests, which have a symmetrical disposition on each side of the feed-chamber, fastened at the base to a bed-plate, the internal space of each one of them divided into a number of compartments; two annular exhaust-chambers, one at each extremity of the engine; a longitudinal shaft in the center, passing through the hub of driving-wheels, one of which is provided in the center of every steam-chest; said driving-wheels all connected in series, provided at the periphery with paddles or piston-heads inclosed in the internal space of the steam-chest one to each compartment, and transmitting to the shaft the action received from the steam; a series of multivalve-wheels fixed to the shaft, which are provided with cavities or valves around their periphery; each wheel located between two consecutive steam-chests and between the low-pressure steam-chest and the exhaust-chamber at the two extremities of the engine, the middle one of said multivalve-wheels being double and corresponding to the annular feed-chamber; each multivalve-wheel surrounded by a reversing-ring provided with two lines of square openings around the periphery disposed near the outer edges of the cavities or valves of the wheel, the reversing-ring surrounding the multivalve-wheel in the center being provided with three lines of openings around the periphery, all the said openings located as set forth in the specification; each reversing-ring surrounded by a connecting-ring with openings corresponding to the steam-passages to which they are connected, said rings being provided externally with two diametrically opposite projections which enter two cavities of the fastening-rings by which they will be held in a steady position; reversing-bars attached to the reversing-rings, fastened at the top to a longitudinal piece to which is fixed in a midway a segment of gear-wheel which engages with a screw supported by two posts fastened to stationary parts of the engine, said screw provided with a hand-wheel at one extremity, so that by giving to it a few turns all the reversing-bars are enabled to swing together of a certain angle and make the reversing-rings rotate of a small arc so as to cut off the steam from one series of steam-passages from the connecting-rings and to open the other one, substantially as specified.

5. A multiple-expansion vibratory steam-engine having a longitudinal shaft passing through the hub of driving-wheels in the center of the steam-chests; said wheels connected to each other, through which connection they are allowed to oscillate around the shaft for a certain portion of the circumference, each driving-wheel having a reciprocal oscillatory motion contrary to that of its adjacent driving-wheels, said connection consisting of two pins to each driving-wheel, passing through the horizontal arm of said wheel, one on each side of the center, connected at the extremities on each side of the wheel to a link by means of a cross-joint so as to permit the link to have a free movement independently of the driving-wheel; two posts between every two consecutive steam-chests, one on each side of the longitudinal center line fixed to the bed-plate, provided with bearings on each side, with cap surrounded and held by a strap fastened to the same post by a bolt, and supporting an oscillating beam by means of a transversal pin having the extremities extending beyond the bearings, said beam connected at the two extremities to the links above mentioned by means of cross-joints similar to the previous ones so as to allow the links to have a free movement independently of the beam; two spiral springs to each post, one on each side of the beam, fastened to the bed-plate together with the post, connected to the transversal pin fixed in the center of the beam, each extremity of said pin that is extending beyond the bearings, provided with a slot into which the spring is engaged and fastened to it by means of a small cross-pin, said springs tending to hold the beam in a horizontal or normal position substantially as specified.

6. A multiple-expansion steam-engine having steam-chests provided with steam-passages on both sides, leading the steam to and from valves carried by multivalve-wheels between the steam-chests, said steam-passages entering openings around the periphery of connecting-rings, both, steam-passages and connecting-rings being held in place by fastening-rings, which for convenience of construction are made in two sections connected together, except two of them, that are the ones near to the exhaust-pipes, which consist of a single piece bolted to the annular rib of the steam-chests; said fastening-rings having two diametrically opposite cavities in the internal periphery, into which are confined the two projections of the connecting-rings substantially as specified.

7. A multiple-expansion vibratory steam-engine, having, an annular feed-chamber in the middle, provided with a number of feed-ports directed toward the center of the ring formed by the said feed-chamber, which feed-ports are provided with valves by means of which the steam passing through the feed-ports can be regulated or cut off at any time and on any number of them; one series of annular steam-chests on each side of the said annular feed-chamber, fastened at the base to a bed-plate, each series consisting of one steam-chest for each stage of expansion, the high-pressure steam-chest of each series being next to the feed-chamber, the low-pressure steam-chests following it, toward the extremity of the engine; an annular exhaust-chamber at each extremity of the engine, next to the last low-pressure steam-chest of each series, and provided with exhaust-ports without valves, having the same direction and disposition as the feed-ports; a longitudinal shaft passing through the center of the engine supported by two engine-heads at the extremities; each steam-chest provided with a driving-wheel in the center, through the hub of which the shaft passes, the internal space of each steam-chest, which has an annular form and is opened at the internal periphery, being closed by the rim of the said driving-wheel, and divided into a number of compartments by fixed partitions in each compartment being inclosed a piston-head which is fixed to the periphery of the driving-wheel dividing the compartment into two separate chambers; each chamber of the steam-chests provided with openings leading to the atmosphere, which openings can be closed or opened by means of opening-rings, and the said chambers provided with a steam-passage, inlet and outlet, which leads through valves or cavities around the periphery of multivalve-wheels fixed to the shaft, one of which is located between every two consecutive steam-chests, and between the last low-pressure steam-chests and exhaust-chambers, and surrounded at the periphery by a reversing-ring, moved by means of reversing-bars, and provided with openings around the periphery located as set forth in the specification, said reversing-ring surrounded by a connecting-ring; all the driving-wheels connected in series, through which connection they have an alternate reciprocating vibratory motion under the action of the steam, and transmitting to the shaft the motive force they receive from the steam, by means of pawls attached to them and of ratchet-wheels fixed to the shaft; a covering inclosing the whole body of the engine, substantially as specified.

8. A multiple-expansion vibratory steam-engine having a heating apparatus, and inclosed in a covering consistiug of two engine-heads fastened to the bed-plate in two ways, horizontally and vertically, the periphery of which is formed by a rib provided with grooves, said rib having a shoudler in the internal side; said engine-heads having an opening in the center for the shaft and one below for the exhaust-pipe, for convenience of construction each of them being made in two sections joined together on a horizontal rib, and having the exterior side covered with boards held against them by a plate-ring, leaving an empty space between the boards and the surface of the wall of the same engine-heads, which space may be filled with a non-conducting substance; said engine-heads connected to each other by several longitudinal ⊔-bars fastened at their extremities in the grooves at the periphery of the same pieces or engine-heads, some of said ⊔-bars preventing also the steam-chests from vibration by means of the arrangement set forth in the specification; longitudinal metal sheets lying between the ⊔-bars and resting at the extremities on a shoulder in the internal side of the engine-heads; longitudinal boards resting at the extremities on the periphery of the engine-heads and fastened by several metal strings surrounding the whole body of the engine, an empty space being left between the metal sheets and the boards, which space may be filled with some non-conducting substance; the top of the covering consisting of a longitudinal sheet provided with transversal openings corresponding to reversing-bars and covered internally with boards, a piece of metal sheet attached to each reversing-bar covering said transversal opening and being in contact with the longitudinal top sheet, substantially as specified.

Claim.—1. In a thresher, the combination of a concave, rubbing-plates mounted thereon, each of said plates comprising duplicate corrugated members, the corrugations of one member inclining reversely from the corrugations of the adjacent member, a cylinder, and rubber members removably secured thereon, substantially as described.

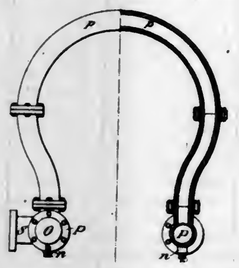
2. In a thresher, the combination with a concave having rubbing members thereon; a cylinder, transverse supporting members removably secured to the cylinder, and L-shaped rubber members having their upper face corrugated and provided with depending portions engaging with the side faces of the transverse members, each of said members having its corrugations inclined in a direction reverse to the inclination of the corrugations of the next succeeding member, substantially as described.

3. In a threshing-machine, a concave, concave-sections mounted thereon having corrugated rubbing-plates comprising duplicate members each provided with corrugations extending in opposite directions, and a cylinder having rubbing members adapted to coöperate with the rubbing-plate of the concave-sections, substantially as described.

4. In a thresher, the combination of a concave, a concave-section mounted thereon provided with spaced corrugated rubbing-plates, each of said plates comprising duplicate members having corrugations extending in opposite directions and a cylinder coöperating with the concave provided with L-shaped rubbers having corrugated upper surfaces and depending side portions, substantially as described.

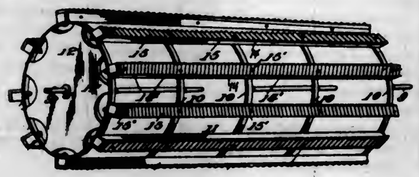
5. In a thresher, the combination with a concave, having rubbing-plates thereon, a cylinder, transverse supporting members removably secured thereto, and rubbers comprising L-shaped plates detachably secured to the transverse members, the upper portion of said plates being corrugated and the depending portions thereof engaging the sides of the transverse members and extending to and bearing against the cylinder, substantially as described.

788,087. CYLINDER-JACKET. ANTONIO BENEDETTO, Washington, D. C. Filed Jan. 12, 1905. Serial No. 240,745.



Claim.—A cylinder-jacket for a steam-engine, consisting of two parallel longitudinal pipes closed at the extremities by removable heads, said pipes separated by some interval between them and communicating with each other by means of a series of pipes having a curved shape, conforming to the periphery of the steam-cylinders of the engine, one of said longitudinal pipes provided with a joint or inlet to be connected to the main steam-pipe or to the heating-supply, and each longitudinal pipe provided at the lower part with openings for steam-traps, which openings are provided with removable plugs, substantially as specified.

788,088. CONCAVE AND CYLINDER FOR THRESHING-MACHINES. JACOB F. BERNDT, Fessenden, N. D. Filed Nov. 9, 1904. Serial No. 232,016.



788,089. DOMESTIC WATER-HEATER AND TANK SYSTEM. JOSEPH J. BLACKMORE, Brooklyn, N. Y. Filed June 25, 1904. Serial No. 214,121.



Claim.—1. A domestic water-heater and tank system, comprising a reservoir-tank, the steam water-heater C with water connections at its opposite ends to the upper and lower parts of the tank, a steam-generator having furnace to generate the steam, steam-pipes within the steam water-heater having a connection therefrom to the steam-space of the generator, and an outlet for the condensed water, the fuel water-heater B having a furnace to heat the water for use in emergencies and in summer, and branch water-pipes connecting the opposite ends of the steam water-heater with the upper and lower parts of the fuel water-heater, whereby the tank can be supplied with hot water from the fuel water-heater when the steam-generator is not in use.

2. A domestic water-heater and tank system, comprising a reservoir-tank, a steam-generator having a furnace for generating the steam, a steam water-heater having a water-jacket of wrought tubing with pipe-crosses at opposite ends, and stuffing-boxes upon the end outlets, the pipe *b* connecting the lower part of the tank with the jacket, steam-tubes immersed in the water within the water-jacket with steam-pipes extended therefrom through the stuffing-boxes to the top and bottom of the steam-generator, a fuel water-heater for use in emergencies and in summer and having a furnace to heat the water, and branch water-pipes connected respectively with the side openings of the pipe-crosses and with the upper and lower ports of the fuel water-heater, whereby when the steam is not available, the water from the fuel water-heater may be circulated to the tank across the opposite ends of the steam water-heater.

3. A domestic water-heater and tank system comprising the reservoir-tank D, the steam-generator A having furnace therein for

generating the steam, the fuel water-heater B having furnace therein for heating the water, and the steam water-heater C having steam-pipes for heating water, the steam water-heater having its water-chamber connected at opposite ends to the upper and lower parts of the tank D, and its steam-chamber connected at opposite ends to the upper and lower parts of the steam-generator A, an outlet for hot water from the tank D, an inlet upon the tank for fresh water, and branch water-pipes F and G connecting the opposite ends of the water-chamber of the steam water-heater with the upper and lower parts of the fuel water-heater B, whereby steam from the generator may be used to heat the tank-water in the cold season, and the fuel water-heater B may be used to heat the tank-water in the summer season.

788,090. TIRE. LAWRENCE F. BRAINE, Newark, N. J. Filed May 10, 1904. Serial No. 208,655.



Claim.—1. A tire-cover comprising a network having a plurality of longitudinal strands, and a transverse strand woven back and forth across the longitudinal strands so as to include a larger or smaller number of longitudinal strands each time it crosses the longitudinal strands.

2. A tire-cover comprising a network having a plurality of longitudinal strands, and a transverse strand woven back and forth across the longitudinal strands so as to include one less longitudinal strand toward the edge of the cover each time it crosses the longitudinal strands.

3. A tire-cover comprising a network having a plurality of longitudinal strands, and a transverse strand woven back and forth across the longitudinal strands under one and over the next so as to include one less longitudinal strand toward the edge of the cover each time it crosses the longitudinal strands.

788,091. AUTOMATIC RAILROAD-BRAKE. JÁNOS BRITZ, Budapest, Austria-Hungary. Filed Sept. 29, 1904. Serial No. 226,465.



Claim.—1. An automatic stopping device for vehicles, comprising an air-brake, an operating-lever, inclined abutments carried by a fixed portion of the vehicle adjacent to the lever and arranged to be actuated by excessive oscillations of the vehicle to operate the lever.

2. In means for operating the brakes on excessive oscillation of railway-vehicles, the arrangement of inclined surfaces on adjustable abutments adapted to release the closing device of the brake-pipe.

3. In means for operating the brakes on excessive oscillation of railway-vehicles, the arrangement of inclined surfaces on abutments adapted to release the closing device of the brake-pipe, means for adjusting said abutments horizontally and means for adjusting said abutments vertically.

4. In a stopping device for vehicles, a brake, means for operating the same, and means for marking on the roadway the location where the brake was operated.

5. In a stopping device for vehicles, an air-brake, means actuated by excessive oscillation of the vehicle to apply the brake, and means for marking on the roadway the location where the brake was applied.

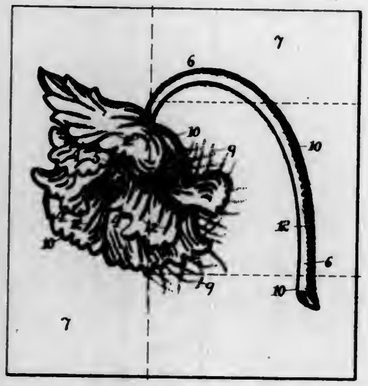
6. In a stopping device for vehicles, an air-brake, an operating-lever, inclined abutments adjustably mounted on a fixed portion of the vehicle adjacent to the lever and arranged to engage therewith upon excessive horizontal or vertical oscillation of the vehicle to apply the brake, and means for marking the location where the brake was applied.

7. The combination with the arrangement of the abutments described of a stopping device with indicating arrangement comprising a box connected to the brake-pipe and closed by a convenient number of suitably-colored disks pressed against the box by the operating device acted upon by said abutments and said disks being freed on displacement of said operating device.

8. An indicating arrangement comprising a box connected to the brake-pipe and closed by a number of disks, the outer of said disks being provided with a projection engaged by a projection provided on the lever operated by abutments mounted on parts connected rigidly with the axle-bearings of the car.

9. An automatic stopping device for vehicles, comprising an air-brake, a valve arranged in the air-supply pipe, metallic disks removably arranged on the valve-seat, a lever bearing upon the outer disk to hold the valve closed, inclined abutments adjustably mounted upon the vehicle on each side of and adjacent to the lever, whereby excessive oscillation of the vehicle in either direction will actuate the lever, releasing the disks, applying the brake and indicating by the scattered disks the location where the brake was applied.

788,092. ORNAMENTAL LEATHER-WORK. ELIZABETH E. BURTON, Santa Barbara, Cal. Filed Dec. 13, 1900. Serial No. 39,684.



Claim.—1. Ornamental or decorative leather-work comprising a leather backing or background having applied pieces of leather arranged to form any suitable design, the component parts of said design comprising pieces of leather superposed as described, so that a part of the surface of one shall be seen beyond the edge of another, said pieces being fastened down at their edges upon the background and the edge of the superposed piece being fastened down upon the piece beneath, all in the manner described to give an enhanced effect of relief.

2. Ornamental or decorative leather-work comprising a leather backing and applied pieces of leather of suitable form according to the selected design said pieces being outlined by a burned line upon the surface of the background and also having its edges charred or burned.

3. In ornamental or decorative leather-work, an ornamental leather surface shaded by burning and colored with a wash color applied over the burned surface as described.

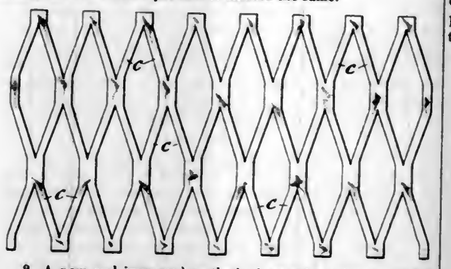
4. In ornamental or decorative leather-work, a suitable leather backing having a leather ornament or design of a light shade applied to the surface thereof and burned and colored with a wash color applied over the burned surface as and for the purpose described.

5. The herein-described improvement in producing different shades of color upon a leather surface consisting in shading the same by burning or charring according to the varying depths of color desired and then applying a wash color to the burned or charred surface.

6. The herein-described improvement in producing ornamental colored effects upon the surface of leather consisting in the burning or charring of the same according to the depth or intensity of the color required and then applying a wash color to the burned portions of the surface.

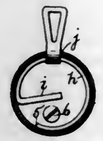
788,093. METHOD OF MANUFACTURING EXPANDED METAL. NORRIS B. CLARK, Plainville, Conn. Filed Dec. 23, 1904. Serial No. 238,063.

Claim.—1. A new and improved method for manufacturing expanded metal which comprises, first, slitting the metal to from strands, then opening said slits to separate said strands, and finally rolling the thus-formed product to smooth the same.



2. A new and improved method of manufacturing expanded metal which comprises, first, slitting the metal to form strands, then opening said slits to separate said strands, and finally rolling the thus-formed product to elongate and stiffen the strands.

788,094. DEVICE FOR ATTACHING CHAINS OR CORDS. JOHN B. CLERMONT, Williams Bridge, N. Y. Filed Dec. 15, 1902. Serial No. 135,208.



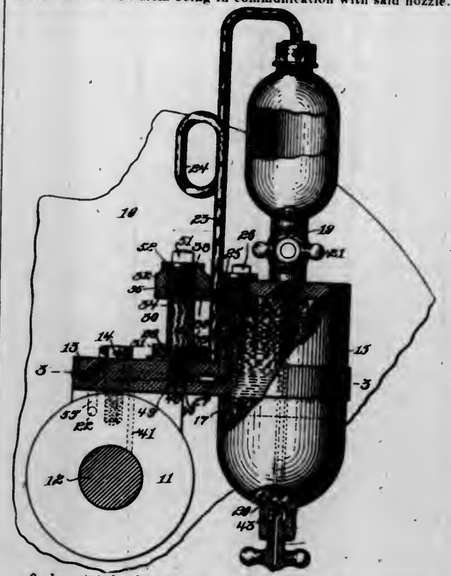
Claim.—1. In a fastening device of the character described, in combination, a cylindrical shell or body provided with a slot in its circumference and having a head, a metal ring fitted within said cylindrical shell or body to engage the circumference thereof and provided with an inwardly-extended arm, means on the cylindrical body or shell for retaining said metal ring against longitudinal movement within said shell or body, and means on said head projected into the path of movement of the said ring to be engaged by said arm and restrict movement of the ring in one direction, substantially as described.

2. In a fastening device of the character described, in combination, a cylindrical shell or body having a slot in its circumference, a metal ring fitted within said shell to engage the circumference thereof and provided with an inwardly-extended arm, means within said shell to retain said ring against longitudinal movement therein, and means within said shell for engaging the arm on said ring to restrict movement of the ring within the shell in one direction, substantially as described.

3. The combination with a window provided with a cylindrical socket in its sash and with a longitudinal groove or slot extended from said socket, of a cylindrical shell of substantially the diameter of said socket and fitted therein, said shell having a slot in its circumference, and means on its inner circumference to retain a metal ring, said metal ring engaging the inner circumference of said shell and provided with an inwardly-extended arm, and a screw for fastening said shell in its socket, said screw coöperating with the arm on said ring, substantially as described.

788,095. LUBRICATOR. CHESTER COMSTOCK, Brooklyn, N. Y. Filed Oct. 26, 1903. Serial No. 178,469.

Claim.—1. A lubricating device for a bearing exposed to the pressure of steam within an inclosure, comprising the combination with a tank adapted to hold a liquid and having an outlet at a point near its top, of a reservoir communicating from its bottom to the bottom of the tank; means adapted to conduct steam from said inclosure to said reservoir; a base-block having a socket in communication with the said tank; an oil-cup comprising a top member provided with a screw-threaded bore, a sight-glass, a screw-threaded plug for said bore traversed by an opening and bearing on the said glass, and a plug to close said bore and leaving a chamber between the plugs, and a bottom member connected to the top member by side members and having a screw-threaded stem to fit the socket in said base and having a chamber within it, the face of the bottom member having an annular chamber, and the said base-block having a conduit entering its face and leading to the bearing and registering with the said annular chamber, and said side members having conduits entering the annular chamber and the chamber between the plugs; and an inlet-nozzle to the cup carried by the bottom member, the chamber in the stem being in communication with said nozzle.



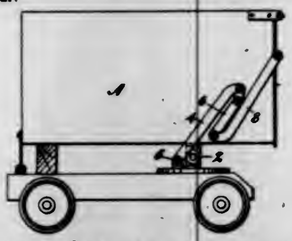
2. In a lubricating device the combination with a bracket to support the same and provided with plane faces upon two of its sides and a portion of an oil-conduit in such bracket opening at said plane faces, of an oil-cup having a plane face to rest upon one of said plane faces and chambered to receive the oil-discharge, and means of attachment comprising a single screw adapted to so hold the oil-cup upon the bracket; a journal-bearing having a plane face to receive the other of said plane faces of the bracket, and a portion of said oil-conduit in said bearing opening at such face and at the bearing-surface; and a bolt to unite the bracket and bearing and cause the portions of the said oil-conduit to register.

3. In a lubricating device the combination with a supporting-bracket provided with plane faces upon two of its sides and a portion of an oil-conduit and a portion of a steam-conduit in such bracket severally opening at both said plane faces; of an oil-cup having a plane face to register with one of said plane faces and chambered to receive the oil-discharge, and means of attachment comprising a single screw adapted to hold the oil-cup upon the bracket; a journal-bearing having a plane face and a portion of said oil-conduit and a portion of said steam-conduit in said bearing respectively opening at such plane face, the oil-conduit opening at the bearing-surface and the steam-conduit opening at a point adjacent thereto, the plane face of the bearing registering with the other of the said plane faces of the bracket; and a bolt to unite the bracket and bearing and cause the several portions of the said conduit to register.

4. In a lubricating device the combination with a supporting-bracket provided with plane faces upon two of its sides and a portion of an oil-discharge conduit and a portion of a steam-conduit in such bracket severally opening at both said plane faces, an oil-chamber in one of said faces and a supply-conduit leading thereto; of an oil-cup communicating with said plane face, a nozzle communicating with the chamber in the bracket, and means of attachment comprising a single screw adapted to hold the oil-cup upon said bracket; a journal-bearing communicating with the oil-discharge conduit and the steam-conduit; and a bolt to unite the bracket and bearing and cause the several portions of the said conduits to register.

788,096. DUMPING-CAR. ANDREW W. DANNER, Sonora, Cal. Filed Jan. 21, 1905. Serial No. 242,047.

Claim.—1. An opening, closing and locking device for the door of dumping-cars, said device comprising a lever fulcrumed to the side of the car so as to provide a long and a short arm, a link connecting the long arm of the lever with the hinged door, and a second link connecting the short arm of the lever with a fulcrum fixed with relation to the car.



2. An opening, closing and locking device for the doors of dumping-cars, said device consisting of a lever fulcrumed to the side of the car so as to provide a long and short arm, a curved link having one end connected with the short arm of the fulcrumed lever, and the other with a point stationary with relation to the car, and a second curved link having one end connected with the hinged swinging door and the other with the long arm of the fulcrumed lever.

3. The combination with a tiltable dumping-car, and the hinged swinging door thereof, of a locking device, said device consisting of a curved lever fulcrumed to the side of the car so as to provide a long and short arm, a curved link connecting the long arm of said lever with the door, a second curved link having one end connected with the short arm of the lever, and the other end with a fixed point, said lever and links acting to automatically open the door when the car is tilted, and to similarly close and lock the door when the car is returned to its normal position.

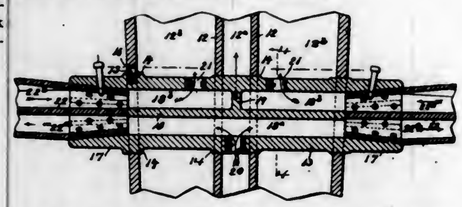
788,097. FLUID-PRESSURE TURBINE. RAYMOND N. EHRHART, Pittsburg, Pa., assignor to The Westinghouse Machine Company, a Corporation of Pennsylvania. Filed Aug. 8, 1903. Serial No. 168,732.



Claim.—In a turbine the combination of a working member having buckets, means for directing a fluid against said buckets at one point in the circumference of said working member, a guide-passage having a bend leading from the point of exhaust of said first point of application to a second point of application on said working member, and a supplemental guide or deflector arranged in the bend of said second passage for receiving the impact of the fluid at said bend and being coterminous with said bend and shorter than said passage.

788,098. ROASTING-FURNACE. FREDERIC J. FALDING, New York, N. Y. Filed Mar. 5, 1904. Serial No. 196,695.

Claim.—1. In a roasting-furnace, the combination of a series of superimposed hearths having concentric openings, a rotatable shaft extending through said openings, detachable fittings carried by and extending bodily into the shaft, and stirring-arms detachably supported by said fittings, substantially as described.



2. In a roasting-furnace, the combination of a series of superimposed hearths having concentric openings, a rotatable shaft extending through said openings, detachable fittings carried by and extending bodily into the shaft, and stirring-arms detachably supported by said fittings, the shaft and the stirring-arms having connecting-passages for the circulation of a cooling fluid longitudinally through the shaft and the stirring-arms, substantially as described.

3. In a roasting-furnace, the combination with a series of superimposed hearths having concentric openings, a rotatable hollow shaft extending through said openings, fittings detachably mounted in said shaft and extending transversely through the shaft with their ends extending through openings in the wall of the shaft, and stirring-arms detachably supported by said fittings, substantially as described.

4. In a roasting-furnace, the combination with a series of superimposed hearths having concentric openings, a rotatable hollow shaft extending through said openings, fittings detachably mounted in said shaft and extending transversely through the shaft with their ends extending through openings in the wall of the shaft, and stirring-arms detachably supported by said fitting, the shaft and the stirring-arms and the fittings having connecting-passages for the circulation of a cooling fluid longitudinally through the shaft and the stirring-arms, substantially as described.

5. In a roasting-furnace, the combination of a rotatable hollow shaft, a fitting detachably mounted in said shaft and arranged transversely thereof and extending bodily into the shaft through an opening in the wall of the shaft, and a stirring-arm detachably supported by said fitting, substantially as described.

6. In a roasting-furnace, the combination of a rotatable hollow shaft, a fitting detachably mounted in said shaft and extending transversely through the shaft with its ends extending through openings in the wall of the shaft, and stirring-arms detachably supported by said fitting, substantially as described.

7. In a roasting-furnace, the combination of a rotatable hollow shaft, a fitting detachably mounted in said shaft and extending transversely through the shaft with its ends extending through openings in the wall of the shaft, and stirring-arms detachably supported by said fitting, the shaft and the stirring-arms and the fitting having connecting-passages for the circulation of a cooling fluid longitudinally through the shaft and the stirring-arms, substantially as described.

8. In a roasting-furnace, the combination of a rotatable hollow shaft, a fitting detachably mounted in said shaft and extending transversely through the shaft with its ends extending through openings in the wall of the shaft and having sockets formed in its ends, and stirring-arms having ends formed to fit in the sockets in the ends of the fitting, substantially as described.

9. In a roasting-furnace, the combination of a rotatable hollow shaft divided internally to form longitudinally-extending inlet and outlet passages for a cooling fluid, fittings detachably mounted in said shaft and extending transversely through the shaft with their ends extending through openings in the wall of the shaft, said fittings being formed with inlet-passages and ports connecting with the inlet-passage of the shaft, and outlet-passages communicating with the outlet-passage of the shaft, and stirring-arms detachably supported by said fittings and having longitudinal outwardly-extending passages connecting with the inlet-passages of the fittings and return-passages connecting with the outlet-passages of the fittings, substantially as described.

10. A fitting for roasting-furnaces for connecting stirring-arms with a hollow rotating shaft, said fitting being formed of a sleeve adapted to extend transversely through the shaft and having its ends formed to connect with and support the ends of the stirring-arms, and having annular bosses to fit openings in the walls of the shaft, substantially as described.

11. A fitting for roasting-furnaces for connecting stirring-arms with a hollow rotating shaft, said fitting being formed to extend through the shaft and having its ends formed to connect with and support the ends of the stirring-arms, substantially as described.

12. A fitting for roasting-furnaces for connecting stirring-arms with a hollow rotating shaft, said fitting being formed of a hollow sleeve adapted to extend transversely through the shaft and divided internally to form inlet and outlet passages to communicate with inlet and outlet passages of the stirring-arms and having ports for connecting its inlet and outlet passages with inlet and outlet passages of the shaft, substantially as described.

13. A fitting for roasting-furnaces for connecting stirring-arms with a hollow rotating shaft, said fitting being formed of a hollow sleeve adapted to extend transversely through the shaft and divided internally to form inlet and outlet passages to connect with the inlet and outlet passages of the stirring-arms, and having inlet and outlet ports for said passages, substantially as described.

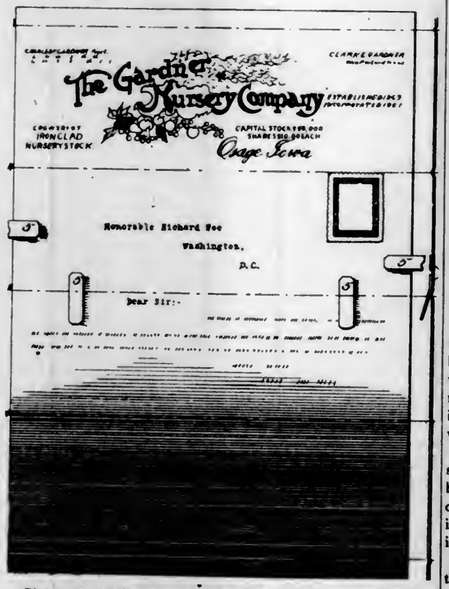
14. In a roasting-furnace, the combination of a rotatable shaft, a socket carried by said shaft, and a stirring-arm having its end set in said socket, the shaft and the stirring-arm having connecting-passages for the circulation of a cooling fluid, the end of the stirring-arms being formed with perforations 25 connecting with grooves 24 for the circulation of the cooling fluid between the end of the stirring-arm and the socket, substantially as described.

15. In a roasting-furnace, the combination of a rotating shaft, and a hollow stirring-arm carried by said shaft having a horizontally-arranged partition and having a hollow vertically-extending longitudinal strengthening-rib 28, substantially as described.

16. In a roasting-furnace, the combination of a rotatable hollow shaft, a tapering fitting detachably mounted in said shaft and extending transversely through the shaft with the ends extending through openings in the shaft-walls, and stirring-arms detachably supported by said fitting, substantially as described.

17. In a roasting-furnace, the combination of a rotatable hollow shaft, a detachable fitting carried by and extending bodily into the shaft, a stirring-arm detachably supported by said fitting, and means for causing the circulation of a cooling fluid through the shaft, substantially as described.

788,099. PAPER-CLIP. CLARKE E. GARDNER, Osage, Iowa. Filed May 13, 1904. Serial No. 207,760.



Claim.—1. A clip adapted for holding paper sheets and the like, comprising a strip of material having a coating capable of adhesion thereto and insoluble in water and upon said insoluble coating, a coating capable of becoming adhesive by the application of moisture thereto.

2. A clip adapted for holding letter-sheets and the like in a folded state, consisting of a substantially plain piece of sheet metal, a coat of shellac upon one side thereof and upon the shellac a coating of a substance capable of becoming adhesive by the application of moisture thereto.

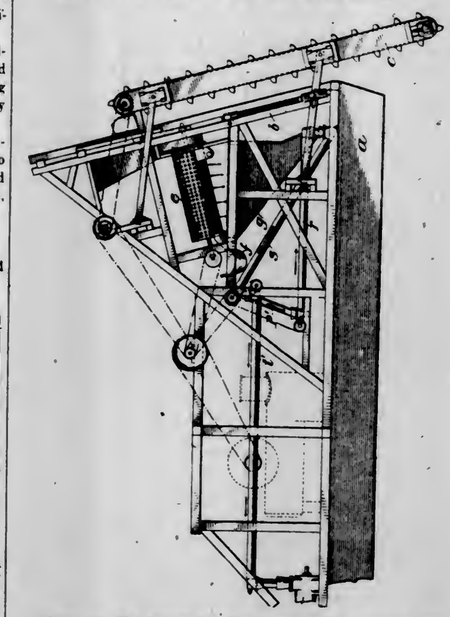
3. A clip adapted for holding paper sheets and the like, comprising a strip of material having a coating of shellac thereon and upon the shellac a coating capable of becoming adhesive by the application of moisture thereto.

4. A clip adapted for holding paper sheets and the like consisting of a substantially plain piece of sheet metal having upon one side thereof a coating of material capable of adhesion thereto and impervious to moisture, and upon such impervious coating a coating of material capable of becoming adhesive by the application thereto of moisture.

5. A clip adapted for holding paper sheets and the like comprising a strip of material having a coating of shellac thereon and on the shellac coating a coating of glue.

6. A clip adapted for holding paper sheets and the like consisting of a substantially plain piece of sheet metal provided upon one side with a coating of shellac and upon such shellac coating a coating of glue.

788,100. PROCESS OF TREATING PEAT. WALTER T. GRIFFIN, Limoges, France. Filed Feb. 25, 1903. Serial No. 145,115.



Claim.—1. The herein-described process for treating peat, which consists in passing the material through a zone of sufficient length and high degree of temperature to heat the peat to a degree which will cause the cells thereof to burst, and relieving said material of the effects of said zone substantially at the moment of the bursting of the cells to arrest the tendency of the oils or hydrocarbons to volatilize, substantially as described.

2. The herein-described process for treating peat, which consists in passing the material through a zone of sufficient length and high degree of temperature to heat the peat to a degree which will cause the cells thereof to burst, and subjecting the material to a cooling and separating action before material volatilization of the oils in the peat ensues, substantially as described.

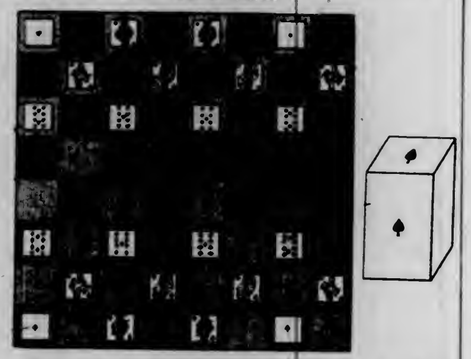
3. The herein-described process for the treatment of peat and the like, which consists in passing the material through a circuitous path, said path including substantially regularly-spaced heating zones and stations extending from the outlet end of one zone to the inlet end of the succeeding zone at which stations the material is subjected to a cooling and a positive separating action, substantially as described.

4. The herein-described process for the excavation and continuous treatment of peat, &c., which consists in excavating the material in thin layers, separating the extraneous matter from the peat, draining the free water from the material, subjecting the drained peat a plurality of times first to the action of heat, and then to cooling and separating actions, and finally compressing the material, substantially as described.

5. The herein-described process for treating peat, &c., which consists in excavating the peat in thin layers, conveying the latter to a screening-station, separating the extraneous matter from the peat, delivering the separated peat to a draining-station, separating the free water from the material by gravity, permitting the escape of said water, conveying the material from the latter station to a compressing-station and subjecting the peat in transit alternately and successively a plurality of times first to the action of heat by passing the same through heated zones arranged in a spiral path and then to cooling and separating actions, substantially as described.

6. The herein-described process for the treatment of peat, which consists of passing the material through a zone heated to a degree to raise the temperature of the peat to between 190° and 275° Fahrenheit and suddenly arresting the increase in temperature of the peat and rapidly cooling the same before the temperature of said material reaches 300° Fahrenheit substantially as described.

788,101. GAME APPARATUS. ANDREW GROSS, New York, N. Y. Filed Jan. 16, 1904. Serial No. 189,256.



Claim.—A set of pieces or blocks, consisting of a plurality of blocks formed of rectangular prisms, and each block having card delineations on the front and the rear sides and on the top face thereof, and the delineations portrayed on any single block being identical in value with each other.

788,102. RAIN-WATER FILTER. CHESTER E. HENING, North Baltimore, Ohio. Filed Dec. 21, 1904. Serial No. 237,760.

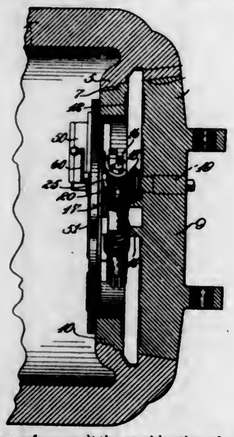


Claim.—1. A rain-water filter comprising a casing, a partition dividing the casing into two chambers and provided with passages for water, a structure containing a filtering medium disposed in one of the chambers, an inclined screen submerged in the other chamber, an upturned portion forming a pocket at the lower end of said screen, a water-inlet at the top of the chamber containing the submerged screen, and an outlet at the bottom of the other chamber, substantially as described.

2. A rain-water filter comprising a casing, a removable partition provided with passages for water through its upper portion, said partition dividing the casing into two chambers, an inlet for water at the top of one of the chambers, an outlet at the bottom of the other chamber, an inclined screen submerged in the chamber having the water-inlet and removably seated in said chamber, said screen having an upturned lower portion, and a reticulated structure containing filtering material carried by the removable partition and disposed within the chamber provided with the water-outlet, substantially as described.

3. In a rain-water filter, a casing, a partition dividing the casing into two chambers, slidably secured between its front and rear walls, said partition having passages through its upper portion, a pocket containing filtering material arranged in front of said passages, a reticulated basket containing filtering material carried by said partition and occupying the lower portion of the chamber on one side of the partition, an inclined screen provided with an upturned lower portion submerged in the chamber on the other side of said partition, said screen being removably seated in said chamber, an inlet leading into the top of the chamber containing the inclined screen, and an outlet at the bottom of the other chamber below the reticulated basket, substantially as described.

788,103. SAFE OR VAULT. HENRY D. HIBBARD, Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y., a Corporation of New Jersey. Filed Aug. 19, 1903. Serial No. 169,962.



Claim.—1. In a safe or vault the combination of a body having a doorway, a door therefor, a set of bolts, a worm-wheel having connection with each of said bolts, a worm in engagement with said worm-wheel, clutch mechanism for controlling the movement of said worm and thereby the bolts, a time-lock, means controlled thereby and effective to throw the clutch members into operative connection, and means for actuating said bolts through clutch mechanism and also operative to effect the disengagement of said clutch members.

2. In a safe or vault, the combination of a body having a doorway, a door therefor, locking mechanism for the door, mechanism embodying clutch mechanism operatively connected with said locking mechanism, and means for operating said locking mechanism through the clutch mechanism, and also operative to effect the disengagement of the clutch members.

3. A safe or vault door bolting mechanism comprising bolts, mechanism for throwing and retracting said bolts including a bolting-spindle, which same spindle is also effective to throw a part of the mechanism out of operative connection thereby to prevent the operation of said bolts by said spindle, means intermediate said spindle and said part and lock mechanism for controlling a part of the mechanism, said bolting-spindle being separate from such lock mechanism.

4. In a safe or vault, the combination of a body, a door therefor, locking mechanism for the door, a spindle coöperating with said locking mechanism to lock or unlock the door, and which same spindle is also operative to effect a disconnection of some of the operating parts thereby to prevent the unlocking of the door by said spindle, means through which said spindle operates to effect such disconnection and automatically operative means effective to restore the connection between such operating parts thereby to permit the unlocking of the door through the medium of said spindle.

5. In a safe or vault, the combination of a body, a door therefor, locking mechanism for the door, means for actuating said locking mechanism to lock or unlock the door, said actuating means also being effective to disconnect some of the operating parts thereby to prevent the unlocking of the door, and lock mechanism controlling the effectiveness of such actuating means at one period, but over the operation of which the latter has no control.

6. In a safe or vault, the combination of a body, a door therefor, locking mechanism for the door, a single actuating device for operating the locking mechanism to lock or unlock the door, means connecting said device with such locking mechanism, said actuating device also being effective to disconnect certain of the operating parts thereby to prevent the locking mechanism from being operated to unlock the door, and lock mechanism, said actuating device not being effective to operate such lock mechanism.

7. In a safe or vault, the combination of a body having a doorway, a door therefor, locking mechanism for the door, time-lock mechanism for controlling the operation of said locking mechanism, a single actuating device for operating said locking mechanism thereby to lock or unlock the door and also effective to throw some of the operating parts out of connection thereby to prevent the unlocking of the door except on the running down of the time-lock mechanism and means for establishing connection between said device and the locking mechanism.

8. In a safe or vault, the combination of a body having a doorway, a door therefor, locking mechanism for the door, a single actuating-spindle for operating said locking mechanism to lock or unlock the door, and also effective after the locking of the door to throw certain of the operating parts out of connection thereby to prevent the unlocking of the door, means for making connection between said spindle and the locking mechanism, and time-lock mechanism effective at a predetermined period to permit the unlocking of the door by such single actuating-spindle.

9. In a safe or vault the combination with a body having a doorway, of a door therefor, bolting mechanism for the door, means for operating the bolting mechanism and embodying a pair of clutch members, time-lock mechanism for controlling the engagement of said clutch members, a single actuating means for actuating the bolts and for controlling said clutch members to prevent the engagement thereof except at a predetermined period through the medium of the time-lock mechanism and means through the medium of which said spindle acts to prevent such engagement.

10. In a safe or vault, the combination of door-locking mechanism including an actuating device effective to lock the door, and which same device is also effective to interfere with the unlocking of the door except at a certain time, means through which said device operates to accomplish such interference, and time-lock mechanism controlling the effectiveness of the actuating device at one period.

11. In a safe or vault, the combination with a body having a doorway, of a door therefor, locking means for the door, means for controlling said locking means, a manually-operated actuating means for actuating said controlling means to unlock the door and also to so shift the parts that the unlocking of the door is prevented by said actuating means except at a predetermined period, and automatic mechanism for throwing the controlling means into position to permit the operation of the locking means by said actuating means.

12. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a spindle other than a combination-lock spindle, effective on rotation in one direction to operate the bolts and effective on rotation in the opposite direction to interfere with the operation of such bolts.

13. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, and a single spindle, time-lock mechanism, means controlled thereby for throwing said clutch members into operative connection, and means effective on the operation of said spindle in one direction to prevent the engagement of said clutch members other than through the medium of the time-lock mechanism.

14. In a safe or vault, the combination of a body having a doorway, a door therefor, a set of bolts, means for operating said bolts comprising gear mechanism and a pair of clutch members, a spindle for operating said gear mechanism, time-lock mechanism for controlling the operation of said clutch members, and means controlled by said spindle for interfering with the connection of said clutch members except through the medium of said time-lock mechanism.

15. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, and means for disengaging said clutch members after the locking of the door.

16. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, and means for effecting the relocking of said plunger.

17. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, means for disengaging said clutch members after the locking of the door, and means for effecting the relocking of said plunger.

18. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, means for effecting the relocking of said plunger, and means effective to maintain the clutch members in engagement while the plunger is in its locked position.

19. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, and means for disengaging said clutch members after the locking of the door and comprising a stop member and pawl-and-ratchet means.

20. In a safe or vault, the combination with a doorway of a door therefor, a set of bolts, means for operating said bolts and including a spindle and a pair of clutch members, time-lock mechanism for controlling the connection of said clutch members, means connecting the time-lock mechanism with one of the clutch members, and stop mechanism effective to maintain the clutch members in engagement.

21. In a safe or vault, the combination with a doorway of a door therefor, a set of bolts, means for operating said bolts and including a spindle and a pair of clutch members, time-lock mechanism for controlling the connection of said clutch members, means connecting the time-lock mechanism with one of the clutch members, stop mechanism effective to maintain the clutch members in engagement, and means controlled by said spindle for operating said stop mechanism.

22. In a safe or vault, the combination with a doorway, of a door therefor, a set of bolts, means for operating said bolts and including a spindle and a pair of clutch members, time-lock mechanism for controlling the connection of said clutch members, means connecting the time-lock mechanism with one of the clutch members, stop mechanism effective to maintain the clutch members in engagement, and a handle for operating said stop mechanism.

23. In a safe or vault, the combination with a doorway of a door therefor, a set of bolts, means for operating said bolts and including a spindle and a pair of clutch members, automatic mechanism for controlling the connection of said clutch members, means connect-

ing the automatic mechanism with one of the clutch members, means effective to maintain the clutch members in engagement, to permit the retraction or protraction of the bolts, and means controlled by said spindle for shifting said means after the door is locked.

24. In a safe or vault, the combination with a doorway of a door therefor, a set of bolts, means for operating said bolts and including a spindle and a pair of clutch members, time-lock mechanism for controlling the connection of said clutch members, means connecting the time-lock mechanism with one of the clutch members, stop mechanism effective to maintain the clutch members in engagement, and means controlled by said spindle for operating said stop mechanism after the door is locked and comprising a pawl-and-ratchet mechanism.

25. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism, comprising a pair of levers connected for movement together and independently of each other, connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, and means for disengaging said clutch members after the locking of the door.

26. In a safe or vault, the combination with a body having a doorway, of a door therefor, a set of bolts, means for operating said bolts and embodying a pair of clutch members, time-lock mechanism for controlling the connection of such clutch members, a dog operatively connected with the time-lock mechanism, a spring-actuated plunger coöperating with said dog, lever mechanism, comprising a pair of levers connected for movement together and independently of each other, connected with said spring-actuated plunger and with one of said clutch members and effective to make connection of the clutch members on the release of the plunger by the dog, and means for disengaging said clutch members after the locking of the door and comprising stop mechanism effective to coöperate with one of said levers and maintain engagement of said clutch members during the locking of the door.

27. The combination with a safe or vault door bolting mechanism, of a spindle for shifting the bolts, automatic means for making connection between the bolts and spindle to permit the bolts to be retracted on the turning of such spindle, and means free of control by said automatic means and operative when the bolts are protracted to break connection between said spindle and the bolts, thereby to interfere with the retraction of the bolts by the spindle until the operation of said automatic means.

28. The combination with a safe or vault door bolting mechanism, of a spindle for shifting the bolts, automatic means for automatically making connection between the bolts and spindle to permit the bolts to be retracted on the turning of such spindle, and means operative through the medium of the spindle when the bolts are protracted to break connection between said spindle and the bolts, thereby to interfere with the retraction of the bolts by the spindle until the operation of said automatic means.

29. The combination with a safe or vault door bolting mechanism, of a spindle for shifting the bolts, automatic means for automatically making connection between the bolts and spindle to permit the bolts to be retracted on the turning of such spindle, and manually-operated means operative when the bolts are protracted to break connection between said spindle and the bolts, thereby to interfere with the retraction of the bolts by the spindle until the operation of said automatic means.

30. The combination of a safe or vault door bolting mechanism comprising bolts, worm-gearing for imparting movement to said bolts, a spindle effective to shift the bolts through the medium of said worm-gearing, automatic means for automatically making connection between the worm-gearing and the spindle to permit the bolts to be retracted on the turning of such spindle, and means operative when the bolts are protracted to break connection between such spindle and the worm-gearing.

31. The combination of a safe or vault door bolting mechanism comprising bolts, worm-gearing for shifting said bolts, clutch mechanism, a spindle effective to shift the bolts through the medium of the worm-gearing when the clutch members are in mesh, automatic means for making connection between the clutch members thereby to enable the spindle to operate the worm-gearing to retract the bolts on the turning of such spindle, and means operative by the spindle when the bolts are protracted to break connection between said clutch members and thereby between the spindle and the worm-gearing to prevent the retraction of the bolts by the spindle.

32. The combination of bolting mechanism, a spindle for shifting the bolts, automatic means for automatically connecting up the spindle with the bolts to permit the withdrawal of the bolts by the spindle, and means effective after the bolts are protracted to break connection between said spindle and bolts thereby to prevent the operation of the bolts by the spindle until the operation of said automatic means, said means being operated on the rotation of the spindle in one direction.

33. The combination of bolts, worm-gearing connected with the bolts, a spindle for actuating said worm-gearing, automatic means for connecting up the spindle with said worm-gearing and including an automatically-operated device, clutch mechanism, a clutch-shifter between said device and clutch mechanism, and means operated by the spindle for breaking connection of certain parts to prevent retraction of the bolts by the spindle.

34. The combination of bolts, worm-gearing connected with the bolts, a spindle for actuating said worm-gearing, automatic means for connecting up the spindle with said worm-gearing and including an automatically-operated device, clutch mechanism, a clutch-shifter between said device and clutch mechanism, and means including pawl-and-ratchet mechanism for effecting disengagement of certain parts to prevent retraction of the bolts by the spindle, said means being operative by the spindle on the turning thereof in a direction reverse to that for shifting the bolts.

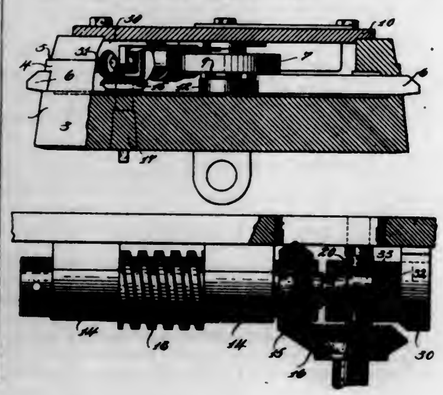
35. A safe or vault door having mechanism including a spindle other than a combination-lock spindle, the rotation of which in one direction secures the door to its seat, while the rotation thereof in the opposite direction actuates means to prevent the door from being shifted relatively to its seat.

36. A safe or vault door provided with mechanism including a spindle, the rotation of which in one direction results in securing the door to its seat, while the rotation thereof in the opposite direction results in preventing the door from being shifted relatively to its seat, until a predetermined period and automatically-operative means operative to control the effectiveness of said spindle after the door is secured in its seat.

37. In a safe or vault, the combination of a body, a door therefor, locking mechanism for the door, and a spindle other than a combination-lock spindle, coöperating with said locking mechanism and effective on the rotation thereof in one direction to lock the door against movement relatively to its seat, and effective on its movement in an opposite direction to prevent the operation of said locking mechanism until a predetermined period determined automatically.

38. A safe or vault door having mechanism including a spindle, the rotation of which in one direction is effective to secure the door to its seat, while the rotation thereof in the other direction immediately after the door is locked in its seat is effective to prevent the unlocking of the door until a predetermined period.

788,104. ACTUATING LOCKING MEANS FOR SAFES OR VAULTS. HENRY D. HIBBARD, Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y., a Corporation of New Jersey. Filed Sept. 15, 1903. Serial No. 173,237.



Claim.—1. A safe or vault door bolting mechanism comprising bolts, a worm-shaft, a pair of locking members having coöperating locking faces or devices, one secured to said worm-shaft against independent rotary movement and the other supported independently of said shaft, and one movable toward and from the other and effective when in engagement therewith to prevent movement of said shaft, and means for shifting said movable member.

2. A safe or vault door having bolts, actuating means therefor having a part connected with said bolts and having an actuator interlocked with said part in such manner that the dogging or locking of the actuator will prevent the retraction of the bolts, and a pair of locking members having coöperating locking-faces for locking such actuator against movement, one of said members forming part of said actuating means and shiftable from its companion locking member into position to effect connection between parts of such actuating means to permit the actuator to be shifted.

3. A safe or vault door having bolts, actuating means therefor having a part connected with said bolts and having an actuator interlocked with said part in such manner that the dogging or locking of one of said parts will prevent the retraction of the bolts, and means comprising a pair of devices one having a circular series of teeth, and one shiftable laterally into and out of engagement with the other for locking said part and thereby the bolts against retraction.

4. A safe or vault door having bolts, actuating means having a part connected with said bolts for shifting them and having an actuator interlocked with said part in such manner that on the dogging or locking of the actuator, the retraction of the bolts is prevented, and means for locking said actuator against movement, and comprising a pair of laterally-engaging devices each having a circular series of interlocking faces.

5. A safe or vault door having radially-movable swinging bolts, actuating means therefor embodying a member pivotally connected with said bolts, and a rotary shaft carrying teeth or threads interlocked with the teeth or threads of said pivotally-connected member so that on the locking or dogging of the shaft the retraction of the bolts is prevented, and means comprising a pair of interlocking toothed devices one carried by and rotatable with said rotary shaft and shiftable into and out of engagement with the other, for locking said actuator against movement.

6. In a safe or vault door, the combination of bolts, a rocking plate to which the bolts are connected, an actuator for said rocking plate, means for operating said actuator, a combination-lock for controlling the operation of the bolts and effective to disconnect certain of the parts thereby to prevent the operation of such bolts, and means for locking said actuator against movement when the bolts are protracted and when the combination-lock effects such disconnection of the parts.

7. In a safe or vault door the combination with bolting mechanism, a worm-wheel-rocking plate to which said bolts are pivoted, a worm in engagement with said worm-wheel, and locking means for locking said worm against movement.

8. In a safe or vault door the combination with bolting mechanism, a worm-wheel-rocking plate to which said bolts are pivoted, a worm in engagement with said worm-wheel, and locking means for locking said worm against movement; said locking means comprising a pair of members one shiftable relatively to the other.

9. In a safe or vault door the combination with bolting mechanism, a worm-wheel-rocking plate to which said bolts are pivoted, a worm in engagement with said worm-wheel, and locking means for locking said worm against movement; said locking means comprising a pair of members one shiftable relatively to the other, and having a plurality of coöperating projections or teeth.

10. In a safe or vault door the combination of bolts, actuating means for shifting said bolts, clutch mechanism for controlling the operation of said actuating means, and locking means for locking said actuating means against movement.

11. In a safe or vault the combination with a door having a plurality of bolts, of actuating means for throwing the same, clutch mechanism for controlling the operation of said actuating means, and locking means coöperative with such clutch mechanism to prevent at a predetermined time the operation of said actuating means.

12. In a safe or vault door the combination of a plurality of bolts, a worm-wheel-rocking plate connected therewith, a worm in engagement with said rocking plate, clutch mechanism for controlling the operation of said worm, and locking means for locking said worm against movement at a predetermined time.

13. In a safe or vault the combination with a door having a plurality of bolts, of a worm-wheel-rocking plate connected therewith, a worm-shaft in mesh with said rocking plate, a bevel-gear loosely mounted on said worm-shaft and having a clutch member connected therewith, a splined clutch member mounted on said worm-shaft, a clutch-shifting means for controlling the engagement of said clutch members, and locking means for locking said worm-shaft against movement.

14. In a safe or vault the combination with a door having a plurality of bolts, of a worm-wheel-rocking plate connected therewith, a worm-shaft in mesh with said rocking plate, a bevel-gear loosely mounted on said worm-shaft and having a clutch member connected therewith, a splined clutch member mounted on said worm-shaft, a clutch-shifting means for controlling the engagement of said clutch members, and locking means for locking said worm-shaft against movement; said locking means coöperating with the splined clutch member.

15. In a safe or vault the combination with a door having a plurality of bolts, of a worm-wheel-rocking plate connected therewith, a worm-shaft in mesh with said rocking plate, a bevel-gear loosely mounted on said worm-shaft and having a clutch member connected therewith, a splined clutch member mounted on said worm-shaft, a clutch-shifting means for controlling the engagement of said clutch members, and locking means for locking said worm-shaft against movement; said locking means comprising a pair of members one shiftable relatively to the other and provided with engaging surfaces.

16. In a safe or vault the combination with a door having a plurality of bolts, of a worm-wheel-rocking plate connected therewith, a worm-shaft in mesh with said rocking plate, a bevel-gear loosely mounted in said worm-shaft and having a clutch member connected therewith, a splined clutch member mounted on said worm-shaft, a clutch-shifting means for controlling the engagement of said clutch members, and locking means for locking said worm-shaft against movement; said locking means comprising a pair of members one shiftable relatively to the other and provided with engaging surfaces comprising teeth.

17. A safe or vault door bolting mechanism comprising bolts, worm-gearing for shifting said bolts, a spindle in operative connection with said worm-gearing, lock-controlled means for rendering said spindle effective or ineffective to shift the bolts, and means for locking or dogging said worm-gearing against movement when the bolts are protracted, thereby to prevent the retraction of the bolts by vibration, and means effective to unlock or undog said worm-gearing to permit the shifting of the bolts.

18. In a safe or vault the combination with a door having door-locking mechanism, of rotary actuating means therefor, and locking means for locking said rotary actuating means against movement at a predetermined time, said locking means comprising a pair of members one shiftable into and out of engagement with the other and having locking-faces, the shiftable member having connection with the rotary actuating means for rotary movement therewith.

19. In a safe or vault door the combination with door-locking means, of rotary actuating means therefor, a clutch for controlling the operation of said rotary actuating means, and locking means for locking the rotary actuating means against movement.

20. In a safe or vault door the combination with door-locking means, of rotary actuating means therefor, a clutch for controlling the operation of said rotary actuating means, and locking means for locking the rotary actuating means against movement and comprising a pair of members having locking-faces and one shiftable with a member of said clutch.

21. In a safe or vault door the combination with door-locking means, of rotary actuating means therefor, a clutch for controlling the operation of said rotary actuating means, and locking means for locking the rotary actuating means against movement and comprising a ring-shaped member having internal teeth and a member having peripherally-located teeth.

22. In a safe or vault the combination of a door having door-locking means, actuating means therefor, embodying a rotary member, and a pair of bevel-gears one having a clutch member connected therewith, and a shiftable clutch member splined to said rotary member and locking means for locking said rotary member against movement at a predetermined time.

23. In a safe or vault the combination of a door having door-locking means, actuating means therefor, embodying a rotary member, and a pair of bevel-gears one having a clutch member connected therewith, and a shiftable clutch member splined to said rotary member and locking means effective to lock the shiftable clutch member against rotary movement and thereby the rotary actuating means against movement at a predetermined time.

24. In a safe or vault the combination of a door having door-

locking means, actuating means therefor, embodying a rotary member, and a pair of bevel-gears one having a clutch member connected therewith, and a shiftable clutch member splined to said rotary member and locking means effective to lock said rotary actuating member against movement at a predetermined time and comprising a pair of members having locking-faces and one connected with such rotary member for movement therewith.

25. In a safe or vault the combination of a door having door-locking means, actuating means therefor, embodying a rotary member, and a pair of bevel-gears one having a clutch member connected therewith, and a shiftable clutch member splined to said rotary member, and locking means for locking said rotary member against movement, and comprising a pair of locking members having teeth and one connected with said rotary member for movement therewith and for movement independently thereof.

26. A safe or vault door having a plurality of bolts, actuating means therefor embodying a rotary member and locking means for said actuating means, and comprising a pair of members, one secured to said actuating means for rotation therewith and for movement independently thereof.

27. A safe or vault door having a plurality of bolts, actuating means therefor embodying a rotary member and locking means for said actuating means, and comprising a pair of members, one secured to said actuating means for rotation therewith and for movement independently thereof, said members having tooth-engaging surfaces.

28. A safe or vault door bolting mechanism comprising bolts, means for operating said bolts and embodying a rotary member, lock mechanism for controlling the operation of said member, independent means for locking said bolts against movement when protracted and comprising a pair of devices one mounted on said rotary member and one supported independently thereof, and one shiftable into and out of engagement with the other, and means for shifting said member.

29. A safe or vault door having bolts, of actuating means for shifting said bolts, and embodying a rotary member, and means for locking said rotary member against movement, one part of said locking means formed as a clutch member.

30. A safe or vault door having a plurality of bolts, an actuator therefor, a clutch for transmitting motion to the actuator and embodying a shiftable member, and means for locking said shiftable clutch member and thereby the actuator against movement.

31. A safe or vault door having a plurality of bolts, an actuator therefor, a clutch for transmitting motion to the actuator and embodying a shiftable member, and means for locking said shiftable clutch member and thereby the actuator against movement, said means comprising a pair of toothed surfaces.

32. A safe or vault door having a plurality of bolts, an actuator therefor, a clutch for transmitting motion to the actuator and embodying a shiftable member, and means for locking said shiftable clutch member and thereby the actuator against movement, said means comprising a pair of toothed surfaces, one formed as a part of said clutch member.

33. In a safe or vault the combination of a door having a plurality of bolts, actuating means therefor comprising a worm-wheel-rocking plate, and a worm in mesh therewith, a clutch embodying a shiftable member, a clutch-member-locking device, and means for shifting said clutch member out of its operative position and into engagement with the said locking device and vice versa.

34. In a safe or vault, the combination with a door having a plurality of bolts, of a worm-wheel-rocking plate connected therewith, a worm-shaft in mesh with said rocking plate, a gear loosely mounted on said worm-shaft, means for rotating said gear, a clutch for positively connecting said gear with said worm-shaft, a locking device, means for throwing one member of said clutch into engagement with its companion member, or into engagement with said locking device.

35. In a safe or vault, the combination with a door having a plurality of bolts, of a worm-wheel-rocking plate connected therewith, a worm-shaft in mesh with said rocking plate, a gear loosely mounted on said worm-shaft, means for rotating said gear, a clutch for positively connecting said gear with said worm-shaft, a locking device, means for throwing one member of said clutch into engagement with its companion member, or into engagement with said locking device, and a combination-lock connected with said clutch-member-operating means.

36. A safe or vault door having bolts, actuating means having a part connected with said bolts for shifting them and an actuator interlocked with said part in such manner that the dogging or locking of the actuator will prevent retraction of the bolts, means for locking said actuator against movement and comprising a pair of devices having a circular series of interlocking faces, and a combination-lock for operating said locking means.

37. In a safe or vault the combination with a plurality of bolts, actuating means therefor embodying a clutch mechanism, a combination-lock for controlling the operation of the clutch mechanism, and locking means for locking said actuating means against movement at a predetermined time.

38. In a safe or vault the combination with a door having a plurality of bolts, of actuating means therefor, a clutch, means for shifting one member thereof out of its engaging position with the other member thereof, and into position to be locked and vice versa, and a device for locking the shiftable clutch member in its inoperative position.

39. In a safe or vault the combination with a door having a plurality of bolts, of actuating means therefor, a clutch, means for shifting one member thereof out of its engaging position with the other member thereof, and into position to be locked and vice versa, and a device for locking the shiftable clutch member in its inoperative position, said clutch-shifting means being controlled by locking mechanism.

40. In a safe or vault door, the combination with bolting mechanism comprising bolts and actuating means therefor, of a combination-lock effective to disconnect parts of such mechanism thereby to prevent the withdrawal of the bolts, and means controlled by said combination-lock for dogging a part of said mechanism on the disconnection of such parts by the combination-lock to prevent the withdrawal of the bolts prematurely.

41. A safe or vault door having a plurality of bolts, means for actuating said bolts, and means for locking said bolts against movement during a predetermined time, said locking means comprising a pair of toothed members, and means for engaging and disengaging said members, the bolts being locked or dogged against retraction when such members are in engagement, and unlocked or undogged when out of engagement.

42. In a safe or vault the combination of a circular door having a plurality of bolts, a worm-wheel-rocking plate to which the inner ends of said bolts are pivotally secured, a worm-shaft the worm of which is in mesh with said worm-wheel, a bevel-gear loosely mounted on said worm-shaft and having connected therewith a clutch member, a spindle projecting through the door and having a bevel-gear carried thereby and in mesh with said worm-shaft bevel-gear, a clutch member splined to said worm-shaft and provided with a peripheral set of locking-teeth, a locking device having an interiorly-located set of teeth coöperating with the teeth of said clutch member, a clutch-shifter for throwing said splined clutch member into engagement with the bevel-gear clutch member and out of engagement with the locking device and vice versa, and means for operating said clutch-shifter.

43. In a safe or vault the combination of a circular door having a plurality of bolts, a worm-wheel-rocking plate to which the inner ends of said bolts are pivotally secured, a worm-shaft the worm of which is in mesh with said worm-wheel, a bevel-gear loosely mounted on said worm-shaft and having connected therewith a clutch member, a spindle projecting through the door and having a bevel-gear carried thereby and in mesh with said worm-shaft bevel-gear, a clutch member splined to said worm-shaft and provided with a peripheral set of locking-teeth, a locking device having an interiorly-located set of teeth coöperating with the teeth of said clutch member, a clutch-shifter for throwing said splined clutch member into engagement with the bevel-gear clutch member and out of engagement with the locking device and vice versa, means for operating said clutch-shifter, said means comprising a combination-lock having a part connected with said clutch-shifter.

44. In a safe or vault the combination of a circular door having a plurality of bolts, a worm-wheel-rocking plate to which the inner ends of said bolts are pivotally secured, a worm-shaft the worm of which is in mesh with said worm-wheel, a bevel-gear loosely mounted on said worm-shaft and having connected therewith a clutch member, a spindle projecting through the door and having a bevel-gear carried thereby and in mesh with said worm-shaft bevel-gear, a clutch member splined to said worm-shaft and provided with a peripheral set of locking-teeth, a locking device having an interiorly-located set of teeth coöperating with the teeth of said clutch member, a clutch-shifter for throwing said splined clutch member into engagement with the bevel-gear clutch member and out of engagement with the locking device and vice versa, means for operating said clutch-shifter, said means comprising a combination-lock having a part connected with said clutch-shifter, and means for preventing the disengagement of such clutch member from its locking device and comprising time-lock mechanism.

45. In a safe or vault door the combination with a plurality of bolts, actuating means therefor, locking means for preventing the movement of such actuating means at a predetermined time, means for controlling the operation of said locking means, and means for preventing the controlling means from being operated.

46. In a safe or vault door the combination with a plurality of bolts, actuating means therefor, locking means for preventing the movement of such actuating means at a predetermined time, means for controlling the operation of said locking means, and means for preventing the controlling means from being operated and comprising time-lock mechanism.

47. In a safe or vault the combination of a door having locking means, actuating means embodying a rotary actuator, and a pair of locking means for locking said actuator against movement, and means for throwing said locking means into operative and inoperative positions, the organization being such that when one of said locking means is thrown into an inoperative position the other is shifted into a similar position.

48. In a safe or vault door, the combination with a plurality of bolts, actuating means therefor embodying a worm-shaft, a pair of clutches mounted on said shaft, a pair of clutch-shifters, and a pair of locking devices coöperating with said clutches, one clutch having connections with the locking device of the other clutch so that when the clutch members of one clutch are in engagement both of said locking devices are in position to permit the rotation of the worm-shaft.

49. In a safe or vault, the combination of a circular door, a plurality of bolts carried thereby, a worm-wheel connected with said bolts, a worm-shaft in mesh with said worm-wheel, a pair of clutches mounted on said shaft one member of each being splined thereto, a clutch-shifter for each splined clutch member, and a pair of locking members shiftably secured to said door each connected with a clutch-shifter, the organization being such that when one pair of clutch members are in engagement the worm-shaft is free for rotary movement.

50. A safe or vault door having a plurality of bolts, rotary actuating means therefor, a pair of clutches for controlling the movement of said actuating means, one member of each pair having toothed locking-faces, shiftable locking members coöperating with said toothed clutch member, a pair of clutch-shifters, the clutch-shifter of one clutch being connected with the locking member of the other clutch so that both shiftable clutch members will be unlocked at the same time thereby to permit movement of the rotary actuator.

51. A safe or vault door having bolts, actuating means therefor having a part connected with said bolts for shifting them and having an actuator interlocked with said part in such manner that the dogging or locking of the actuator will prevent the retraction of the bolts, and a plurality of locking means for locking said actuator against movement, each having a circular series of interlocking faces or teeth.

52. A safe or vault door having bolts, actuating means therefor having a part connected with said bolts for shifting them and having an actuator interlocked with said part in such manner that the dogging or locking of the actuator will prevent the retraction of the bolts, and a plurality of locking means for locking said actuator against movement, each having a circular series of interlocking faces or teeth, said locking means being operatively connected so that on the operation of one of such locking means the other will be correspondingly operated to permit the actuator to be operated.

53. In a safe or vault door the combination of door-locking means, actuating means therefor, a pair of clutch mechanisms, and a pair of locking means for positively locking said clutch mechanisms and thereby the actuating means against movement.

54. In a safe or vault door the combination of door-locking means, actuating means therefor, a pair of clutch mechanisms, and a pair of locking means for locking a pair of said clutch mechanisms and thereby the actuating means against movement, said locking means being operatively connected so that both clutch mechanisms will be unlocked simultaneously.

55. A safe or vault door having bolts, actuating means therefor having a part connected with said bolts for shifting them and having a rotary actuator interlocked with said part in such manner that the dogging or locking of the actuator will prevent the retraction of the bolts, and a plurality of interlocking toothed-formed locking means for locking said actuator, one splined to the actuator for preventing rotation thereof.

56. In a safe or vault door the combination of door-locking means therefor, actuating means for said locking means, a plurality of locking means for locking said actuating means against movement at a predetermined time, and a combination-lock for controlling each of said locking means.

57. In a safe or vault door the combination of door-locking means therefor, actuating means for said locking means, a plurality of locking means for locking said actuating means against movement at a predetermined time, and a combination-lock for controlling each of said locking means, said locking means being operatively connected so that both of said locking means are controlled simultaneously on the operation of either combination-lock.

58. In a safe or vault door the combination of a plurality of bolts, a worm-wheel-rocking plate connected therewith, a worm-shaft for rocking said plate, a pair of clutches carried by said shaft, a pair of clutch-shifters, a combination-lock in connection with each clutch-shifter, and a pair of locking devices for locking the worm-shaft against movement, each of said locking devices being controlled by one of said combination-locks.

59. In a safe or vault door the combination of a plurality of bolts, a worm-wheel-rocking plate connected therewith, a worm-shaft for rocking said plate, a pair of clutches carried by said shaft, a pair of clutch-shifters, a combination-lock in connection with each clutch-shifter, and a pair of locking devices for locking the worm-shaft against movement, each of said locking devices being controlled by one of said combination-locks, and said locking devices being operatively connected whereby the operation of one combination-lock controls both of said locking devices.

60. A safe or vault door having a plurality of bolts, actuating means therefor comprising a worm-wheel connected with said bolts, and a worm-shaft, a pair of clutches mounted on said shaft, a pair of combination-locks controlling said clutches, and duplex locking means for locking said bolts against movement when the clutch members are disengaged through the medium of the combination-locks.

61. A safe or vault door having a plurality of bolts, actuating means therefor comprising a worm-wheel connected with said bolts, and a worm-shaft, a pair of clutches mounted on said shaft, a pair of combination-locks controlling said clutches, and duplex locking means for locking said bolts against movement, said duplex locking means being controlled by said combination-locks.

62. A safe or vault door having a plurality of bolts, actuating means therefor comprising a worm-wheel connected with said bolts, and a worm-shaft, a pair of clutches mounted on said shaft, a pair of combination-locks controlling said clutches, and duplex locking means for locking said bolts against movement, said duplex locking means being controlled by said combination-locks, and said locking means being operatively connected so that both are controlled on the operation of either combination-lock.

63. A safe or vault door having a plurality of bolts, actuating means therefor comprising a worm-wheel connected with said bolts, and a worm-shaft, a pair of clutches mounted on said shaft, a pair of combination-locks controlling said clutches, and duplex locking means for locking said bolts against movement, said duplex locking means being controlled by said combination-locks, and said locking means being operatively connected so that both are controlled on the operation of either combination-lock, the locking of said bolts being effected through the locking of a part of the actuating means.

64. A safe or vault door having a plurality of bolts, actuating means therefor comprising a worm-wheel connected with said bolts, and a worm-shaft, a pair of clutches mounted on said shaft, a pair of combination-locks controlling said clutches, and duplex locking means for locking said bolts against movement, said duplex locking means being controlled by said combination-locks, and said locking means being operatively connected so that both are controlled on the operation of either combination-lock, the locking of said bolts being effected through the locking of a part of the actuating means, such part comprising the worm-shaft.

65. A safe or vault door having a plurality of bolts, actuating means therefor comprising a worm-wheel connected with said bolts, and a worm-shaft, a pair of clutches mounted on said shaft, a pair of combination-locks controlling said clutches, and duplex locking means for locking said bolts against movement, said duplex locking means being controlled by said combination-locks, and said locking means being operatively connected so that both are controlled on the operation of either combination-lock, the locking of said bolts being effected through the locking of a part of the actuating means by locking the clutch member of each clutch against rotary movement.

66. In a safe or vault door the combination of locking means therefor, actuating means for said locking means, locking means for

said actuating means and comprising a pair of toothed members the teeth of which are beveled so that they will effectively engage each other in whatever position such members may be relatively to each other.

67. A safe or vault door having a plurality of bolts, actuating means therefor, and locking means for locking the bolts against retraction comprising a pair of toothed members, one formed to receive the other, the teeth of said members being beveled thereby to permit the engagement of such members in whatever rotative position they may be relatively to each other.

68. The combination of a plurality of bolts for a safe or vault door, actuating means for throwing said bolts radially and laterally, locking means for preventing the withdrawal of said bolts and comprising a pair of toothed members, and means for controlling the engagement of said toothed members.

69. A safe or vault door having a plurality of bolts, actuating means embodying a rotary actuator, means for rotating said actuator, and locking means for preventing the rotation of said actuator and comprising a pair of toothed surfaces one rigidly secured thereto and shiftable longitudinally thereof and the other in position to receive said shiftable member at a predetermined time and means for shifting one of said members into engagement with the other.

70. A safe or vault door bolting mechanism comprising bolts, actuating means including worm-gearing for shifting said bolts, means for rendering said worm-gearing ineffective to shift the bolts, means, comprising a pair of toothed members, for preventing movement of said worm-gearing when idle thereby to prevent the retraction of the bolts by vibration, and means for disengaging said toothed members to permit the retraction of said bolts.

71. A safe or vault door bolting mechanism comprising bolts, actuating means including worm-gearing for shifting said bolts, means for rendering said worm-gearing ineffective to shift the bolts, means for locking or dogging a part of said worm-gearing against movement when idle thereby to prevent retraction of the bolts by vibration, and means effective to unlock or undog said part to permit the shifting of the bolts.

72. A safe or vault door bolting mechanism comprising bolts, a worm-shaft for shifting said bolts, means for rendering said worm-shaft ineffective to shift the bolts, means for locking said worm-shaft against movement when idle, thereby to prevent retraction of the bolts by vibration, and means for unlocking the said shaft to permit the shifting of the bolts.

73. A safe or vault door bolting mechanism comprising bolts, a worm-shaft for shifting said bolts, means for rendering said worm-shaft ineffective to shift the bolts, means for locking said worm-shaft against movement when idle, thereby to prevent retraction of the bolts by vibration, and means for unlocking the said shaft to permit the shifting of the bolts, said locking means comprising a pair of toothed members one shiftable into and out of engagement with the other.

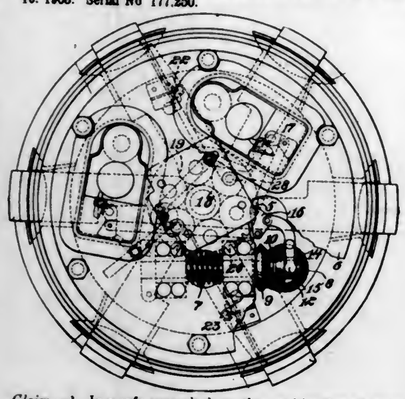
74. The combination with safe or vault door bolts and actuating means therefor, of a pair of independent combination-locks each effective to disconnect parts of such mechanism thereby to prevent the withdrawal of the bolts, and means controlled by each of said combination-locks for dogging a part of the mechanism on the disconnection of such parts by said locks.

75. The combination with safe or vault door bolts and actuating means therefor, of a pair of independent combination-locks each effective to disconnect parts of such mechanism, thereby to prevent the withdrawal of the bolts, and means controlled by each of said combination-locks and comprising a pair of toothed members for dogging a part of the bolt mechanism on the disconnection of such parts.

76. A safe or vault door bolting mechanism comprising bolts, a worm-shaft connected with said bolts, a pair of independent combination-locks for controlling the operation of said bolts through said worm-shaft and each effective to effect the disconnection of parts of the mechanism to prevent the withdrawal of the bolts, and locking means controlled by each of said combination-locks for dogging a part of the bolt mechanism on the disconnection of such parts, said dogging means comprising a pair of members mounted on said worm-shaft, and one supported independently thereof, and one shiftable into and out of engagement with the other.

77. A safe or vault door bolting mechanism comprising bolts, and actuating means therefor, including a spindle, lock-controlled means for connecting up or disconnecting said spindle with another part of said actuating means, thereby to respectively permit or prevent the shifting of the bolts through said spindle, and means also controlled by said lock for dogging a part of said bolt mechanism to prevent the premature retraction of the bolts on the disconnection of the parts by said lock.

788,105. **BOLTING MECHANISM FOR SAFES OR VAULTS.** HENRY D. HIBBARD, Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y., a Corporation of New Jersey. Filed Oct. 16, 1903. Serial No. 177,250.



Claim.—1. In a safe or vault door, the combination of a plurality of bolts, in edgewise contact one with the other, and a device located centrally of the door for preventing the retraction of said bolts.

2. In a safe or vault door, the combination of a plurality of bolts having their inner edges in contact one with the other, and a boss located centrally of the door for preventing the retraction of said bolts.

3. In a safe or vault door, the combination of a plurality of bolts, each having its inner end constructed to contact with a companion bolt at the edge thereof, throughout the movements of said bolts, and means in position to engage the inner ends of said bolts to prevent the retraction thereof.

4. In a safe or vault door, the combination of a plurality of bolts each provided with means to contact with a companion bolt at its edge, throughout the movements of such bolts, means in engagement with the inner ends of said bolts for preventing the retraction thereof, and means for rocking said bolts to shift the same radially.

5. In a safe or vault door the combination of bolting mechanism comprising a series of bolts having their inner ends located in a circle, and in contact with one another throughout said circle.

6. In a safe or vault door, the combination of bolting mechanism comprising a circular series of bolts one in contact with another throughout said series and means for rocking said bolts thereby to shift the same radially.

7. In a safe or vault door, the combination of bolting mechanism comprising a series of bolts having their inner ends located in a circle, one in contact with another throughout said series, and means for engaging said bolts to prevent the retraction thereof.

8. In a safe or vault door the combination of bolting mechanism comprising a series of circularly-located bolts constructed to contact one with another throughout said series, and a boss rigid with the door and in position to be engaged by the inner ends of the bolts and prevent the retraction thereof.

9. In a safe or vault door the combination of bolting mechanism comprising series of circularly-located bolts constructed to contact one with another throughout said series, and a boss integral with the door and in position to be engaged by the inner end of the bolts and prevent the retraction thereof, and means for rocking said bolts to shift the same radially.

10. A circular safe or vault door constructed of hard unmachineable metal, and comprising an integral body and flange, the latter having bolt-openings, a circular series of radially-located bolts constructed to contact with one another throughout the series, and means connecting all of said bolts together for simultaneous movement in or out.

11. A circular safe or vault door constructed of hard unmachineable metal, and comprising an integral body and flange, the latter having bolt-openings, a circular series of radially-located bolts constructed to contact with one another throughout the series, means connecting all of said bolts together for simultaneous movement in or out, and a centrally-located device integral with the door and in position to engage the inner ends of the bolts and prevent the retraction thereof.

12. In a safe or vault door, the combination of a plurality of bolts each constructed to contact with the edge of a companion bolt throughout the movements of such bolts, and means connecting all of said bolts together for simultaneous movement.

13. The combination with a circular safe or vault door, of a plurality of bolts having their inner ends constructed to contact with one another throughout the movements of the bolts, and means for maintaining such permanent engagement and effective to shift said bolts into and out of their protracted position and comprising a rocking plate.

14. The combination with a circular safe or vault door, of a plurality of bolts having their inner ends constructed to contact with one another throughout the movements of such bolts, means for maintaining such permanent engagement and effective to shift said bolts into and out of their protracted position, and means rigid with the door and in position to engage the inner ends of said bolts to prevent the withdrawal thereof.

15. The combination with a safe or vault door, of bolts projecting at the several sides of such door, the inner ends of all of such bolts constructed to contact with each other throughout the shifting thereof.

16. The combination with a safe or vault door, of bolts projecting at the several sides of such door, the inner ends of all of such bolts constructed to contact with each other throughout the shifting thereof, and means for maintaining such bolts in contact and for shifting them.

17. The combination with a safe or vault door, of bolts projecting at the several sides of such door, the inner ends of all of such bolts constructed to contact with each other throughout the shifting thereof, and means adapted to be engaged by the inner ends of such bolts to prevent the retraction thereof.

18. The combination with a safe or vault door, of bolts projecting at the several sides thereof, the inner ends of the several bolts being enlarged to contact one with the other throughout the entire series thereof.

19. In a safe or vault door the combination of bolting mechanism, and means for preventing the retraction of the bolts thereof and comprising a device having contact with one only of several of such bolts.

20. In a safe or vault door, the combination of bolting mechanism, and means for preventing the retraction of the bolts thereof and comprising a wedge located between and to contact with one of the bolts and the wall of its opening.

21. The combination of bolting mechanism, a device located between and in contact with one of the bolts and the wall of the opening to prevent the retraction of the bolts, and means for automatically shifting such device to permit the withdrawal of the bolts.

22. The combination of bolting mechanism, a device working in conjunction with one only of the bolts to prevent the retraction of such bolts, and means connected with said device and with a part of said bolting mechanism for controlling the movement of the device and permit the retraction of the bolts.

23. In a safe or vault door the combination of bolting mechanism, a device located between and in contact with one of the bolts and the door-wall of its opening and connected with a companion bolt and effective to prevent the retraction of the bolts.

24. In a safe or vault door, the combination of bolting mechanism, a device coöperating with one of the bolts to prevent the retraction of the bolts, and connected with another of said bolts with which it does not primarily coöperate as a locking means, for effecting the release of the bolts to permit the retraction thereof.

25. In a safe or vault door the combination of bolting mechanism, a wedge coöperating with one of the bolts to prevent the retraction of the bolts, and connected with another of said bolts with which such wedge does not primarily coöperate as a locking means to permit the shifting of such bolts.

26. The combination of a plurality of bolts located to project in different directions, and a device located at one side of and in engagement with one only of several such bolts to prevent the retraction of all of the bolts.

27. The combination with a safe or vault door having independent and separated bolt-openings, of a bolt working in each of such openings, and a device located in one of said openings and coöperating with the bolt located in such opening to prevent the retraction of all of said bolts.

28. The combination with a safe or vault door having a plurality of independent and separated bolt-openings, of bolt mechanism comprising bolts located one in each of said openings, a wedge working in one of said openings and coöperating with the bolt located therein to prevent the retraction of said bolts, said means having connection with a movable part of the bolt mechanism to shift such wedge and permit the retraction of the bolts.

29. The combination with a safe or vault door having a bolt-opening, a bolt working therein, one of said parts having an inclined wall or surface, a wedge engaging at one side the wall of the bolt-opening and at the other side the bolt so that said wedge lies between a fixed surface and a movable surface for wedging such bolt against retraction, and means for releasing the wedge thereby to permit retraction of the bolt.

30. In a safe or vault door, the combination of bolting mechanism, means for preventing the retraction of the bolts, and means operative independently of any operation of the bolts or of lock mechanism to lock said means against movement.

31. In a safe or vault door, the combination of bolting mechanism, means for locking said bolts against withdrawal, and comprising one or more wedges coöperating with said bolts, and means operative independently of any operation of the bolts or of lock mechanism to lock said wedge or wedges against movement.

32. The combination of a bolt, a wedge coöperating with said bolt to prevent retraction thereof, means for automatically shifting said wedge to permit the retraction of said bolt, and means operative independently of any operation of said bolt or of lock mechanism to lock said wedge against movement.

33. The combination of a pair of bolts, a wedge coöperating with one of said bolts, to prevent the retraction of said bolts, means connecting said wedge with the other of said bolts thereby to shift said wedge to permit the retraction of the bolts, and means operative independently of any operation of said bolts or of lock mechanism for locking said wedge against movement.

34. The combination of bolting mechanism, a device coöperating with one of the bolts to prevent the retraction of the bolts, means connected with said device and with a part of the bolting mechanism for shifting said device to permit the retraction of the bolts, and means operative independently of any operation of the bolts or of lock mechanism for locking said device against movement.

35. The combination with a safe or vault door, having a plurality of independent and separated bolt-openings, bolt mechanism comprising bolts located one in each of said openings, a device working in one of said openings and effective to prevent retraction of said bolts, means for connecting said device with another of said bolts, whereby the bolts may be released to permit their retraction, and means for locking said means against movement at a predetermined time.

36. The combination of a safe or vault door having a bolt-opening provided with an inclined surface, a bolt working therein, a wedge coöperating with said surface and with the bolt for wedging the bolt against retraction, means for releasing said wedge thereby to permit the retraction of the bolt, and means for locking the wedge against retraction.

37. In a safe or vault door, the combination of bolting mechanism, a device coöperating with one of the bolts to prevent retraction of the bolts and connected with a companion bolt, with which it does not primarily coöperate as a locking means, for effecting the release of the bolts, and means for locking said device against movement.

38. A safe or vault door having a back plate, bolt mechanism, means for locking the bolts against withdrawal and comprising one or more wedges, and means for locking said wedge or wedges against retraction and having connection with the back plate.

39. In a safe or vault door, the combination of a bolt, a wedge, having a tongue-and-groove connection with said bolt, for preventing the retraction thereof, means for automatically shifting said wedge to permit the retraction of said bolt, and means for holding said wedge against movement and embodying a spring.

40. The combination with a safe or vault door having a plurality of bolt-openings and a back plate, bolt mechanism comprising bolts located one in each of said openings, means working in one of said openings to prevent the retraction of said bolts, said means having connection with a movable part of the bolt mechanism, whereby the bolts may be released to permit their retraction, and a device for locking said means against movement at a predetermined time, said locking device having connection with the back plate of the door.

41. The combination of a circular door having a plurality of tapered bolt-openings, bolts working one in each of said openings, and a wedge located at the side of one of said bolts and working in its opening and connected with a companion bolt whereby on the retraction of said bolts the wedge will be withdrawn, and means for locking said wedge against retraction at a predetermined time.

42. The combination of a circular door having a plurality of tapered bolt-openings, bolts working one in each of said openings, a wedge located at the side of one of said bolts and working in its opening and connected with a companion bolt whereby on the retraction of said bolts the wedge will be withdrawn, and means for locking said wedge against retraction at a predetermined time, and connected with a part of the door.

43. The combination of a circular door having a plurality of bolt-openings, bolts located one in each of said openings, a back plate secured to the door, a locking-wedge working in one of said openings and connected with one of the bolts for movement with the bolts, and a locking device for preventing the retraction of said wedge and connected with the back plate whereby when the back plate is forced away from the door the wedge will be locked against retraction.

44. The combination of a circular door having a plurality of bolt-openings located around the same, bolts working one in each of said openings, the inner ends of said bolts constructed to engage each other, means coöperating with the inner ends of said bolts for preventing the withdrawal thereof, means for rocking said bolts thereby to shift the same radially, locking means for preventing the retraction of said bolts and comprising a wedge working in one of the bolt-openings, and connected with a companion bolt, and means for locking said wedge against retraction at a predetermined period, said means having connection with a part of the door.

45. The combination of a circular door having a back plate and a plurality of tapered bolt-openings, bolts working one in each of said openings, the inner ends of said bolts constructed to engage each other, an integral boss coöperating with the inner ends of said bolts for preventing the withdrawal thereof, means for rocking said bolts thereby to shift the same radially, a locking-wedge working in one of the bolt-openings for preventing the retraction of said bolts and connected with a companion bolt, and means for locking said wedge against retraction at a predetermined period, and having connection with the back plate.

46. The combination with a safe or vault door having a back plate, of bolting mechanism, means independent of lock-dogging mechanism for locking the bolting mechanism against retraction, and means for locking said means against movement and connected with the back plate.

47. The combination of a safe or vault door bolting mechanism, means for locking the same against retraction and comprising a wedge coöperating with one of said bolts, and shifted by another of said bolts, and means for locking said wedge against retraction, said means having connection with a fixture carried by the door.

48. The combination of safe or vault door bolting mechanism, the bolts having their inner ends in engagement, means for engaging therewith, and means independent of lock-dogging mechanism for locking the bolts against retraction.

49. The combination of safe or vault door bolting mechanism, the bolts having their inner ends in engagement, means for engaging the inner ends of said bolts to prevent their retraction, and means for locking the bolts against retraction and comprising a wedge coöperating with one of said bolts, and shifted by another of said bolts.

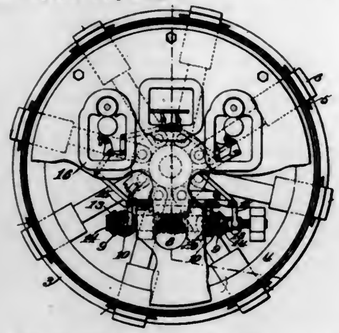
50. The combination with a bolt having a recess, of means for locking said bolt against retraction, and a locking device carried in said recess for locking said locking means against movement, and a pin connected with said locking device for shifting the same into its locking position, and means for operating said pin.

788,106. ACTUATOR-LOCKING MECHANISM FOR SAFES OR VAULTS. HENRY D. HIBBARD, Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 28, 1903. Serial No. 182,332.

Claim.—1. In a safe or vault door, the combination of bolt mechanism, actuating means therefor, and means for locking said actuating means against movement when the bolts are protracted including a pawl-and-ratchet mechanism.

2. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, and means for locking said actuating means against movement when the bolts are protracted and comprising pawl-and-ratchet mechanism, and a lever system for controlling the operation of said pawl.

3. A safe or vault door bolting mechanism comprising bolts, manually-operated actuating means therefor including a rotary member having locking faces or teeth rigid therewith, the organization being such that the locking or dogging of said rotary member will prevent the retraction of the bolts, and means for engaging one or more of said teeth in whatever position the rotary member may be when the bolts are protracted thereby to lock said rotary member against movement and prevent the retraction of such bolts, and means for unlocking said rotary member.



4. A safe or vault door bolting mechanism comprising bolts, a rotary actuator therefor so connected with the bolts that the locking of such actuator will prevent the retraction of the bolts, and locking means for the actuator comprising locking faces or teeth rigid with said actuator, and a locking member coöperating with said teeth, and means for disengaging said member from said teeth.

5. A safe or vault door bolting mechanism comprising bolts, actuating means therefor, locking means for such actuating means and comprising a member having teeth, and a spring-actuated locking member in engagement therewith, and means for releasing said toothed member.

6. A safe or vault door bolting mechanism comprising bolts, actuating means therefor including a worm-shaft so connected with the bolts that the locking or dogging of said shaft will prevent the retraction of the bolts, one or more locking-faces carried by said worm-shaft against rotation independently thereof, a movable locking member adapted to engage said locking face or faces to prevent movement of said shaft when the bolts are protracted, lock-controlled means for shifting said locking member to permit movement of the shaft and thereby the bolts, a spindle, and means connecting said spindle with the worm-shaft for rotating the latter.

7. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including clutch mechanism, locking means for said actuating means and comprising a pawl-and-ratchet mechanism, a clutch-shifter, and means connected therewith for controlling the operation of said pawl.

8. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, including a shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet carried by said shaft, a pawl in engagement with said ratchet for preventing movement thereof and of the shaft, and means connected with said clutch-shifters for controlling the operation of said pawl.

9. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet-wheel fixedly secured to said worm-shaft, a pawl in engagement with said ratchet-wheel for preventing movement thereof and of the worm-shaft, and means connected with said clutch-shifters for controlling the operation of said pawl, said means comprising a pair of levers.

10. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet-wheel fixedly secured to said worm-shaft, a pawl in engagement with said ratchet-wheel for preventing movement thereof and of the worm-shaft and having an inclined face, and means connected with said clutch-shifters for controlling the operation of said pawl, said means comprising a pair of levers, each having an inclined face coöperating with the inclined face of the pawl.

11. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet-wheel fixedly secured to said worm-shaft, a pawl in engagement with said ratchet-wheel for preventing movement thereof, and of the worm-shaft, and means for controlling the operation of said pawl and comprising a pair of swinging members.

12. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, a ratchet-wheel connected with said actuating means, a pawl in engagement with said ratchet-wheel for preventing movement of said bolts, and a swinging device for controlling the movement of said pawl.

13. In a safe or vault door the combination of bolting mechanism, actuating means therefor including a shaft, means for controlling the movement of said shaft, a ratchet carried by said shaft, a pawl in engagement with said ratchet for preventing movement of said shaft at a certain time, and a device for controlling the position of said pawl.

14. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a shaft, clutch mechanism, a clutch-shifter for controlling the movement of said shaft, a ratchet carried by said shaft, a pawl in engagement with said ratchet for preventing movement of said shaft at a certain time, and a device connected with said clutch-shifter for controlling the position of said pawl.

15. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a worm-shaft, clutch mechanism, a clutch-shifter for controlling the movement of said shaft, a ratchet carried by said shaft, a pawl in engagement with said ratchet for preventing movement of said shaft at a certain time, and a swinging device connected with said clutch-shifter for controlling the position of said pawl.

16. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a worm-shaft, clutch mechanism for controlling the movement of said worm-shaft, a clutch-shifter, a ratchet carried by said shaft, a pawl in engagement with said ratchet for locking said shaft when idle and having an inclined surface, and a swinging device connected with said clutch-shifter for controlling the movement of said pawl, said swinging device comprising a lever having an inclined surface coöperating with the inclined surface of the pawl.

17. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, locking means for said actuating means and comprising a device rigidly secured to a part thereof against movement independently thereof, and provided with a locking face or faces, a locking member coöperating therewith, means for controlling the position of said locking member, a combination-lock, and means connecting said controlling means with the combination-lock for movement thereby.

18. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, and pawl-and-ratchet mechanism for locking said bolting mechanism against movement at a predetermined time.

19. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, and pawl-and-ratchet mechanism effective to prevent movement of the bolts during a predetermined period, said ratchet mechanism having a part thereof rigidly secured to a part of the actuating means and held against movement independently thereof.

20. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, a pawl and ratchet effective to prevent movement of the bolts during a predetermined period, a combination-lock, and means controlled thereby for controlling the operation of said ratchet mechanism.

21. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, a pawl-and-ratchet mechanism effective to prevent movement of the bolts during a predetermined period, clutch mechanism, and means controlled thereby for controlling the operation of said ratchet mechanism.

22. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, a pawl-and-ratchet mechanism effective to prevent movement of the bolts during a predetermined period, clutch mechanism, means controlled thereby for controlling the operation of said ratchet mechanism, and a combination-lock for controlling the operation of said clutch mechanism.

23. In a safe or vault, the combination of bolting mechanism, a worm-shaft, a pair of locking-faces one rigid with said shaft for movement only therewith, and the other coöperating therewith to prevent movement of said shaft, means for releasing said shaft, a spindle, and means controlled thereby for actuating said shaft.

24. In a safe or vault, the combination of bolting mechanism, actuating means therefor including clutch mechanism, a pair of locking-faces one rigid with a part of said actuating means for movement only therewith, and the other coöperating therewith to prevent movement thereof, and means connected with said clutch mechanism for disengaging said coöperating locking-faces to permit movement of said rigid locking-face, and a combination-lock controlling said clutch mechanism.

25. In a safe or vault door, the combination of bolts, a worm-shaft, a pair of locking-faces one secured to said shaft against independent rotary movement, and the other carried by a pivoted member and coöperating therewith to prevent movement thereof and thereby said shaft, and means for disengaging said coöperating locking-faces to permit movement of said worm-shaft.

26. In a safe or vault, the combination of bolting mechanism, a pair of locking-faces one rigid with a rotary part of such mechanism for movement only therewith, and the other coöperating therewith to prevent movement thereof, a spindle, means connecting it with said rotary part to permit the shifting of the bolts, and lock-controlled means for disengaging said coöperating locking-faces to permit rotary movement of said rigid locking-face.

27. A safe or vault door bolting mechanism comprising bolts, manually-operated actuating means having a part connected with said bolts and having an actuator interlocked with said part in such manner that the dogging or locking of the actuator will prevent the retraction of the bolts, means for locking said actuator against movement and comprising a member having a locking-face, and a spring-actuated locking device adapted to engage said face, and means for shifting said locking device.

28. In a safe or vault door, the combination of bolting mechanism, ratchet means effective to lock such bolting mechanism against movement at a predetermined time, and oscillatory means for controlling the operation of said ratchet-locking means.

29. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, means for locking such actuating means against movement at a predetermined time, and oscillatory means for controlling the operation of said locking means.

30. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, ratchet means for locking such actuating means against movement at a predetermined time, and oscillatory means for controlling the operation of said ratchet-locking means.

31. A safe or vault door bolting mechanism comprising bolts, actuating means therefor having a part connected with said bolts and having an actuator interlocked with said part in such manner that the dogging or locking of one of said parts will prevent the retraction of the bolts, means comprising a pair of coöperating devices one having a circular series of teeth for locking one of said parts and thereby the bolts against retraction and rigid with said part and means for disengaging said locking devices to permit movement of the bolts.

32. A safe or vault door bolting mechanism comprising bolts, a rotary shaft so connected with such bolts that the locking or dogging of said shaft will prevent retraction of the bolts, means for locking or dogging the shaft and comprising a pair of coöperating locking members, one having teeth, and one carried by said shaft against movement independently thereof, and means for disengaging said locking members to permit movement of said shaft and bolts.

33. A safe or vault door bolting mechanism comprising bolts, a worm for shifting said bolts, locking or dogging means for said worm and comprising one or more locking faces or teeth carried by or rigid with said worm and a locking-pawl in engagement therewith and means for shifting said pawl to permit the retraction of the bolts.

34. In a safe or vault door, the combination of bolt mechanism, actuating means therefor, ratchet-locking means effective to prevent movement of the bolts during a predetermined period, a combination-lock, and oscillatory means controlled thereby for controlling the operation of said ratchet-locking means.

35. In a safe or vault door, the combination of bolt mechanism, actuating means therefor, locking mechanism effective to prevent movement of the bolts when the actuating means is idle, clutch mechanism independent of said locking mechanism, and means controlled by said clutch mechanism for controlling the operation of the locking mechanism.

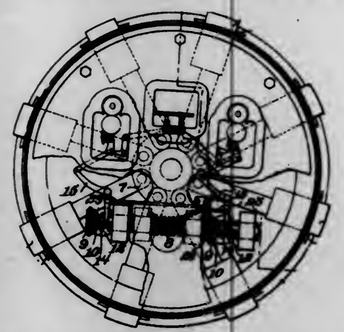
36. A safe or vault door bolting mechanism, comprising bolts, actuating means including worm-gearing for shifting said bolts, means for rendering said worm-gearing ineffective to shift the bolts, said means comprising a toothed member, and a locking-pawl for preventing movement of said worm-gearing when idle, thereby to prevent retraction of the bolts by vibration, and means effective to shift said locking-pawl.

37. A safe or vault door bolting mechanism comprising bolts, actuating means including worm-gearing for shifting said bolts, means for rendering said worm-gear ineffective to shift the bolts, said means comprising a toothed member, and a locking-pawl for preventing movement of said worm-gearing when idle, thereby to

prevent retraction of the bolts by vibration, and means including a swinging or oscillatory member effective to shift said locking-pawl.

38. A safe or vault door bolting mechanism comprising bolts, and actuating means therefor including a spindle, lock-controlled means for connecting up or disconnecting said spindle with another part of said actuating means thereby to respectively permit or prevent the shifting of the bolts through said spindle, and means also controlled by said lock for dogging a part of said bolt mechanism to prevent the premature retraction of the bolts after the disconnection of the parts by said lock, and comprising a pair of members one carried by a pivoted member and one movable toward and from the other.

788,107. **ACTUATOR-LOCKING MEANS FOR SAFES OR VAULTS.** HENRY D. HIBBARD and WILLIAM C. PECK, Plainfield, N. J., assignors to Manganese Steel Safe Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 4, 1903. Serial No. 183,706.



Claim.—1. In a safe or vault door the combination of bolting mechanism, means, other than time or combination lock mechanism, effective to lock such bolting means against movement at a predetermined time, and reciprocatory means for controlling the operation of said locking means.

2. In a safe or vault door the combination of bolting mechanism, ratchet means effective to lock such bolting means against movement at a predetermined time, and reciprocatory means for controlling the operation of said ratchet-locking means.

3. In a safe or vault door the combination of bolting mechanism, actuating means therefor, means, other than time or combination lock mechanism, effective to lock such actuating means against movement at a predetermined time, and reciprocatory means for controlling the operation of said locking means.

4. In a safe or vault door the combination of bolting mechanism, actuating means therefor, ratchet means for locking said actuating means against movement at a predetermined time, and reciprocatory means for controlling the operation of said ratchet-locking means.

5. A safe or vault door bolting mechanism comprising bolts and actuating means therefor including a spindle, lock-controlled means for connecting up or disconnecting said spindle with another part of said actuating means thereby to permit or prevent the shifting of the bolts by means of said spindle, a lock, means for dogging a part of said bolt mechanism to prevent the premature retraction of the bolts after the disconnection of the parts by said lock, and reciprocatory means controlled by said lock for controlling the operation of said locking means.

6. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, a combination-lock, clutch mechanism in operative connection therewith, locking means for locking said actuating means against movement, and reciprocatory means in operative connection with said clutch mechanism for controlling the effectiveness of said locking means.

7. In a safe or vault door, the combination of bolting mechanism, actuating means therefor, means for locking such actuating means and comprising pawl-and-ratchet mechanism, and a rod for controlling the operation of said pawl.

8. In a safe or vault door, the combination of bolting mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet fixedly secured to said worm-shaft, a pawl in engagement with said ratchet, and reciprocatory means connected with said clutch-shifters for controlling the operation of said pawl.

9. In a safe or vault door, the combination of bolt mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet fixedly secured to said worm-shaft, a pawl in engagement with said ratchet, and a pair of reciprocatory rods connected with said clutch-shifters for controlling the operation of said pawl.

10. In a safe or vault door the combination of bolt mechanism, actuating means therefor including a worm-shaft, a pair of clutch mechanisms mounted thereon, a pair of clutch-shifters, a ratchet fixedly secured to said worm-shaft, a pawl in engagement with said ratchet, and a pair of reciprocatory rods connected with said clutch-shifters for controlling the operation of said pawl, each of said rods having a cam-face coöperating with said pawl.

11. In a safe or vault door, the combination of bolt mechanism, actuating means therefor including a worm-shaft, a clutch, a clutch-shifter for controlling the clutch, a ratchet secured to said shaft, a pawl in engagement with said ratchet for preventing the movement of said shaft when idle, and a reciprocatory rod connected with said clutch-shifter for controlling the movement of said pawl.

12. In a safe or vault door, the combination of bolt mechanism, actuating means therefor including a worm-shaft, a clutch, a clutch-shifter for controlling the clutch, a ratchet secured to said shaft, a pawl in engagement with said ratchet for preventing the movement of said shaft when idle, and a reciprocatory rod connected with said clutch-shifter for controlling the movement of said pawl, said rod having a cam-face.

13. In a safe or vault door, the combination of bolt mechanism, actuating means therefor, locking means other than time or combination lock mechanism effective to prevent movement of the bolts during a predetermined period, a combination-lock and reciprocatory means controlled thereby for controlling the operation of said locking means.

14. In a safe or vault door the combination of bolt mechanism, actuating means therefor, ratchet mechanism effective to prevent movement of the bolts during a predetermined period, a combination-lock, and reciprocatory means controlled thereby for controlling the operation of said ratchet mechanism.

15. A safe or vault door having bolt mechanism, actuating means therefor including a rotary shaft, a member having a circular series of locking faces or teeth fixedly secured thereto, a locking member in engagement with said toothed member for preventing movement of said shaft when the bolts are protracted, a cam-faced reciprocating rod operative to raise or lower said locking member, and means for controlling the operation of said rod and embodying lock mechanism.

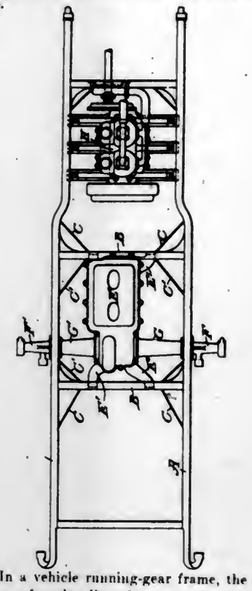
16. A safe or vault door having bolt mechanism, actuating means therefor including a rotary member having a series of locking faces or teeth fixedly secured thereto, a locking member in engagement with said toothed member for preventing movement of said rotary member when the bolts are protracted, a reciprocating member operative to shift said locking member, and means for shifting said reciprocating member, the organization being such that the locking of the rotary member prevents retraction of the bolts.

17. A safe or vault door bolting mechanism, comprising bolts, actuating means including worm-gearing for shifting said bolts, means for rendering said worm-gearing ineffective to shift the bolts, means comprising a toothed member and a locking-pawl for preventing movement of said worm-gearing when idle, thereby to prevent retraction of the bolts by vibration, and means including a reciprocatory member effective to shift said locking-bolts.

18. A safe or vault door bolting mechanism, comprising bolts, a worm for shifting said bolts, locking or dogging means for said worm and comprising one or more locking faces or teeth carried by and rigid with said worm, and a locking-pawl for engagement therewith, and means including a reciprocatory rod for shifting said pawl to permit the retraction of the bolts.

19. A safe or vault door bolting mechanism comprising bolts and actuating means therefor including a pair of spindles, lock-controlled means for connecting up or disconnecting each of said spindles with another part of said actuating means thereby to permit or prevent the shifting of the bolts by means of either of said spindles, a pair of locks, means for dogging a part of said bolt mechanism to prevent the premature retraction of the bolts after the disconnection of the parts by either of said locks, and a pair of reciprocatory devices controlled by said locks and either effective to control the operation of said locking means.

788,108. **VEHICLE RUNNING-GEAR.** GEORGE H. JONES, Philadelphia, Pa., assignor to Jones-Corbin Automobile Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Aug. 11, 1904. Serial No. 220,304.



Claim.—1. In a vehicle running-gear frame, the combination with side reaches, of a plurality of transverse trusses, horizontal brackets abutting against said reaches and trusses, a speed-gear case carried by and rigidly attached to two adjacent transverse trusses, a pair of sprocket-hangers rigidly attached to said side reaches, a pair of projecting conical casings from said speed-case forming a bearing for a sprocket-shaft and being rigidly fastened to said speed-case and sprocket-hangers, substantially as described.

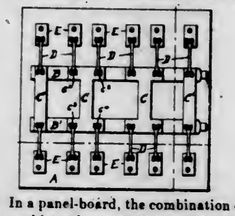
2. In a vehicle running-gear frame, the combination with side reaches of a plurality of transverse trusses, horizontal brackets abutting against said reaches and trusses, a speed-gear case carried by and rigidly attached to two adjacent transverse trusses by means of extending arms forming a series of braces to preserve the rigidity of the structure, a pair of sprocket-hangers rigidly attached to said reaches, a pair of projecting conical casings from said speed-case forming a bearing for a sprocket-shaft and being rigidly fastened to said speed-case and sprocket-hangers, substantially as described.

3. In a vehicle running-gear frame, the combination with side reaches of a plurality of transverse trusses, horizontal webs disposed at right angles on opposite sides of said trusses at the point where said trusses are joined to said reaches, a speed-gear case carried by and rigidly attached to two adjacent transverse trusses, a pair of sprocket-hangers rigidly attached to said side reaches, a pair of projecting conical casings from said speed-case forming a bearing for a sprocket-shaft and being rigidly fastened to said speed-case and sprocket-hangers, substantially as described.

4. In a vehicle running-gear frame, the combination with side reaches of a plurality of transverse trusses, horizontal webs disposed at right angles on opposite sides of said trusses at the point where said trusses are joined to said reaches, vertical webs disposed at right angles on opposite sides of said trusses at the point where said trusses are joined to said reaches, a speed-gear case carried by and rigidly attached to two adjacent transverse trusses, a pair of sprocket hangers rigidly attached to said side reaches, a pair of projecting conical casings from said speed-case forming a bearing for a sprocket-shaft and being rigidly fastened to said speed-case and sprocket-hangers, substantially as described.

5. In a vehicle running-gear frame, the combination with side reaches of a plurality of transverse trusses formed from sheet-metal members rigidly joined together and forming a cross-brace between said reaches and also forming a support for a speed-gear case, horizontal brackets abutting against said reaches and trusses, a speed-gear case carried by and rigidly attached to two adjacent transverse trusses, a pair of sprocket-hangers rigidly attached to said side reaches, a pair of projecting conical casings from said speed-case forming a bearing for a sprocket-shaft and being rigidly fastened to said speed-case and sprocket-hangers, substantially as described.

788,109. **ELECTRICAL PANEL-BOARD.** HUBERT KRANTZ, New York, N. Y. Filed Dec. 6, 1904. Serial No. 235,736.



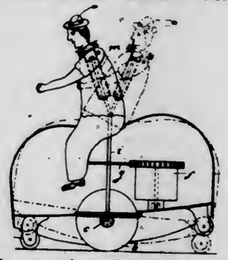
Claim.—1. In a panel-board, the combination of bus-bars, with cross-bars supported in a plane at a distance away from the plane in which the bus-bars are placed, and fuses connected to the cross-bars at points approximately in line with the bus-bars crosswise of the board.

2. In a panel-board, the combination of bus-bars, with cross-bars ending approximately flush with the bus-bars, crosswise of the board, fuse connection-pieces, said cross-bars and said pieces being in a plane parallel with, but at a distance from, the plane in which the bus-bars lie.

3. In a panel-board, the combination of bus-bars, with cross-bars having fuse connection-points in a plane parallel with, and at a distance from, the plane of the bus-bars, but substantially within the limits of the space occupied by the bus-bars crosswise of the board.

4. In a panel-board, the combination of bus-bars, with a cross-bar ending approximately flush with the bus-bars, crosswise of the board, and having side extensions at its ends to provide four fuse connecting-points, said extensions being supported at a distance away from the bus-bars.

788,110. **TOY.** ERNST P. LEHMANN, Brandenburg-on-the-Havel, Germany. Filed Oct. 21, 1903. Serial No. 177,951.



Claim.—1. In a toy, the combination, with a base, of a shaft having one or more portions of its length bent or deflected from a straight line at an obtuse angle, a figure carried by the deflected portion of said shaft, a covering for said figure and including the point of deflection of the shaft, and means for imparting motion to the shaft about its axis.

2. In a toy, the combination, with a base, of a shaft having one or more portions of its length bent or deflected from the straight line, means for imparting motion to the shaft, a figure carried by said shaft, and flexible material loosely surrounding the figure and the shaft including the point of deflection.

3. In a toy, the combination, with the base, of a shaft having one or more portions of its length bent or deflected from the straight line, a figure eccentrically carried by the free end of said shaft, flexible material loosely surrounding said figure and the shaft including the point of deflection, and mechanism for imparting motion to said shaft.

4. In a toy, the combination, with a base, and wheels pivotally supporting the same and permitting it to rock, of a shaft mounted on the base substantially over the axle of the wheels and having a portion of its length deflected from a straight line, a figure mounted upon the deflected portion of the shaft, and means for imparting motion to the shaft.

5. In a toy, the combination, with a base, and wheels supporting the same at the center of equilibrium, of a shaft mounted on the base substantially over the axle of the wheels and having a portion of its length deflected from a straight line, a figure mounted upon the deflected portion of the shaft, and means for imparting motion to the shaft.

6. In a toy, the combination, with a base, of a set of wheels supporting the same, a wheel-axle about which the said frame is capable of rocking, a shaft mounted on the base substantially over the axle of the wheels and having one or more portions of its length deflected from the straight line, a figure mounted upon the bent portion of said shaft, and means for imparting motion to the said shaft and thereby rocking the base.

7. In a toy, the combination, with a base, wheels pivotally supporting the same at the center of equilibrium, other wheels arranged on each side of the rocking wheels, the two sets of wheels occupying different horizontal planes, of a shaft mounted on the base substantially at the center of equilibrium and having a portion of its length deflected from a straight line, a figure mounted upon the free end of the shaft, and means for imparting motion to the shaft about its axis.

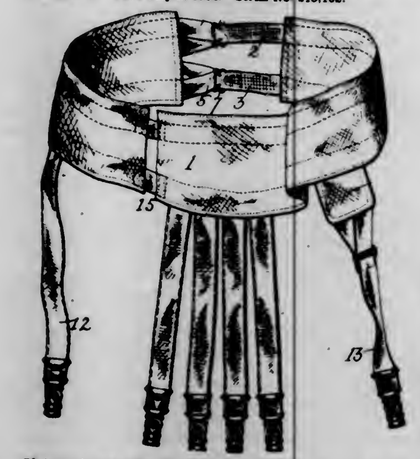
8. In a toy, the combination, with a base, wheels pivotally supporting the same at the center of equilibrium, other wheels arranged on each side of the rocking wheels and disposed at an angle to the line of travel thereof, of a shaft mounted on the base substantially over the center of equilibrium and having a portion of its length deflected from a straight line, a figure mounted upon the deflected portion of the shaft, and means for imparting motion to the shaft.

9. In a toy, the combination, with a base, of a shaft secured thereto at one end and having a portion of its length deflected from a straight line, the free end of said shaft being out of line with the axis of the shaft, a figure mounted on the deflected portion of the shaft and having a body of flexible material loosely surrounding said shaft including the point of deflection, and means for imparting motion to said shaft about its axis.

10. In a toy, the combination, with a base, and wheels supporting the same, of a shaft mounted on said base and having a portion of its length deflected from a straight line, a figure mounted upon the deflected portion of the shaft, a motor for imparting rotary motion to the shaft, and means for throwing said shaft at intervals into gear with the different supporting wheels.

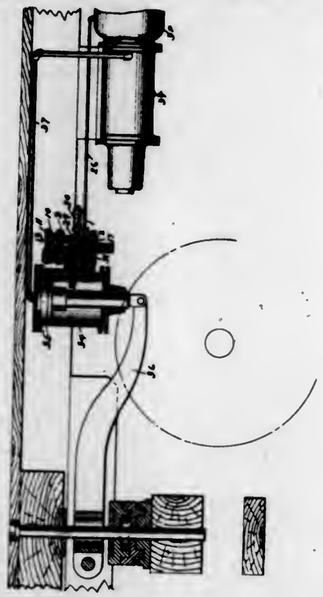
11. In a toy, the combination, with a base, and a pair of wheels pivotally supporting the base and permitting it to rock, of a shaft mounted on the base substantially over the axle of the wheels and having a portion of its length deflected from a straight line, a figure mounted on the deflected portion of the shaft, a motor arranged to impart rotary motion to the shaft, a mutilated gear carried by the shaft and engaging alternately with each of the pair of wheels.

788,111. **HOSE-SUPPORTER.** MATTHEW L. MARGOLISH, New York, N. Y. Filed July 2, 1904. Serial No. 215,102.



Claim.—A supporter of the class described, comprising an abdominal band adapted to encircle the body about the abdomen and tapering toward both ends, a plurality of pressure-straps secured to said band and extending longitudinally thereof throughout its entire extent, said straps at one end being folded to produce V-shaped loops projecting beyond one end of the abdominal band and the other ends of said straps forming fastening ends projecting freely beyond the opposite end of the band, buckles loosely hung in said V-shaped loops and engaged by the free strap ends, pendent supporter members attached to and hanging from the bottom edge of the abdominal band at the front thereof, and other supporter members attached to and hanging from the bottom edge of the band at the sides thereof.

788,112. **FLUID-PRESSURE BRAKE.** HARRY R. MASON, Chicago, Ill., assignor to The Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 26, 1903. Serial No. 163,223.



Claim.—1. The combination with a fluid-pressure brake apparatus adapted to operate with light braking power or with heavy braking power, of a device for adjusting the apparatus to operate at either braking power, according to the load on the car, and means normally tending to shift said device to "heavy-load" position.

2. In a fluid-pressure brake apparatus, the combination with a device for adjusting said apparatus to operate either with light braking power or with heavy braking power, according to the load, of means controlled by the fluid-pressure of the brake system for normally shifting said device to its "heavy-load" position.

3. In a fluid-pressure brake apparatus, the combination with a valve device for adjusting said apparatus to operate either with light braking power or with heavy braking power, according to the load, of means normally tending to shift said valve device to its "heavy-load" position.

4. In a fluid-pressure brake apparatus, the combination with a valve device for adjusting said apparatus to operate either with light braking power or with heavy braking power, according to the load, of means controlled by the fluid-pressure of the brake system for normally shifting said valve device to its "heavy-load" position.

5. In a fluid-pressure brake apparatus, the combination with a valve device for adjusting said apparatus to operate either with light braking power or with heavy braking power, according to the load, of means actuated by the fluid-pressure of the brake system for holding said valve device in its "light-load" position when adjusted to that position.

6. In a fluid-pressure brake apparatus, the combination with a valve device for adjusting said apparatus to operate either with light braking power or with heavy braking power, according to the load, of means controlled by the fluid-pressure of the brake system for holding the valve device in its light-load position when set to that position and for returning said valve device to its normal heavy-load position when the pressure leaks off the brake system.

7. In a fluid-pressure brake, the combination with a valve device controlling ports for securing either light braking power or heavy braking power, of a pressure-operated lifting mechanism for controlling the adjustment of said valve device.

8. In a fluid-pressure brake apparatus, the combination with a device for adjusting said apparatus to operate either with light braking power or with heavy braking power, of a pressure-operated lifting mechanism for controlling the adjustment of said device.

9. In a fluid-pressure brake apparatus, the combination with a pressure-actuated valve device controlling ports for adjusting the apparatus to operate either with light braking power or with heavy braking power, of a pressure-operated lifting mechanism and means operated thereby for admitting fluid under pressure to actuate said valve device.

10. In a fluid-pressure brake apparatus, the combination with a device for adjusting said apparatus to operate either with light braking power or with heavy braking power, of a pressure-operated lifting mechanism, and means governed thereby for admitting fluid under pressure to actuate said device.

11. In a fluid-pressure brake apparatus, the combination with a valve device for adjusting said apparatus to operate either with light braking power or with heavy braking power, of a pressure-operated lifting mechanism for controlling the adjustment of said device, and means for holding said valve device in its light-load position when adjusted to that position.

12. In a fluid-pressure brake apparatus, the combination with a valve device for adjusting said apparatus to operate either with light braking power or with heavy braking power, of a lifting mechanism operated by brake-cylinder pressure for controlling the adjustment of said valve device, and pressure-operated means for holding said valve device in its light-load position when adjusted to that position.

13. A valve device for air-brakes, comprising a valve controlling ports for securing either light braking power or heavy braking power, a piston connected to said valve and normally balanced as to fluid-pressure, mechanism governed by the load on the car for adjusting said valve and means for releasing fluid-pressure from one side of said piston for holding the valve in the position to which it is adjusted.

14. A valve device for air-brakes, comprising a valve controlling ports for securing either light braking power or heavy braking power, a piston normally balanced as to fluid-pressure connected with said valve, mechanism for adjusting the position of said valve, and means for releasing pressure from one side of said piston for holding the valve in its adjusted position.

15. A valve device for air-brakes, comprising a valve controlling ports for securing either light braking power or heavy braking power, a piston normally balanced as to fluid-pressure connected with said valve, mechanism for adjusting the position of the valve according to the load on the car, and means controlled by the movement of said valve for releasing pressure from one side of said piston.

16. In a fluid-pressure brake apparatus, the combination of a valve controlling ports for adjusting said apparatus to operate either with light braking power or with heavy braking power, a piston normally balanced as to fluid-pressure connected with said valve, a spring acting to move said valve to its "heavy-load" position, mechanism for shifting the valve to its light-load position and means controlled by the movement of the valve to its light-load position for releasing pressure from one side of said piston.

17. In a fluid-pressure brake apparatus, the combination of a valve controlling ports for adjusting the braking power of the apparatus according to the load, a piston normally balanced as to fluid-pressure connected to said valve, ports also controlled by the valve for releasing pressure from one side of said piston, and pressure-operated means governed by the weight of the load for moving said valve from its normal position.

18. In a fluid-pressure brake apparatus, the combination of a valve controlling ports for adjusting the braking power of the apparatus according to the load, a piston normally balanced as to fluid-pressure connected with said valve, means controlled by the movement of the valve for releasing pressure from one side of said piston, another piston for moving said valve and means governed by the weight of the load for admitting fluid under pressure to said last-named piston.

19. In a fluid-pressure brake-apparatus, the combination of a valve controlling ports for adjusting the braking power of the apparatus according to the load, a piston balanced as to fluid-pressure in its heavy-load position and connected to said valve, ports also controlled by the valve for releasing pressure from one side of the piston when the valve is moved to light-load position, fluid-pressure mechanism for shifting the valve to its "light-load" position, and a spring for returning the valve to its "heavy-load" position.

20. In a fluid-pressure brake apparatus, the combination of a valve-casing communicating with the auxiliary reservoir of the brake apparatus, a piston and valve in said casing, ports controlled by said valve for adjusting the braking power of the apparatus according to the load, a spring for holding said piston and valve in normal heavy-load position, means for balancing the pressure on opposite sides of the piston in its normal position and for releasing pressure from one side of the piston when moved to light-load position, and mechanism for moving said valve to its light-load position.

21. In a fluid-pressure brake apparatus, the combination of a valve controlling ports for adjusting the braking power of the apparatus according to the load, a piston for moving the valve to its light-load position and another piston for holding the valve in said position.

22. In a fluid-pressure brake apparatus the combination of a valve controlling ports for adjusting the braking power of the apparatus according to the load, a spring for normally holding said valve in its heavy-load position, a piston for moving the valve to its light-load position and another piston for holding the valve in said light-load position.

23. In a fluid-pressure brake apparatus, the combination with a valve-casing and valve controlling ports for adjusting the braking power of the apparatus accordiug to the load, of a piston loosely connected with the valve for making a tight joint with the casing, and means engaging the outer side of the piston for moving said valve.

24. In a fluid-pressure brake apparatus, the combination with a valve-casing and valve controlling ports for adjusting the braking power of the apparatus according to the load, of a piston for moving said valve in one direction, and another smaller piston loosely connected with said valve and opposing the movement of the larger piston.

25. In a fluid-pressure brake apparatus, the combination with a valve-casing in open communication with fluid-pressure from the brake system and a valve therein controlling ports for adjusting the braking power of the apparatus according to the load, of a piston for moving said valve to its light-load position, a smaller piston loosely connected to said valve for maintaining a tight joint with the casing and opposing the movement of the larger piston, and another piston for holding said valve in light-load position.

26. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, of a valve device for controlling communication between said reservoirs, and automatic means for normally shifting said valve device to open such communication.

27. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, of a valve device for controlling communication between said reservoirs, and means controlled by the fluid-pressure of the brake system for normally shifting said valve device to open such communication.

28. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, of a valve device for controlling communication between said reservoirs, and means actuated by the fluid-pressure of the brake system for holding the valve device in position to close such communication when adjusted to that position.

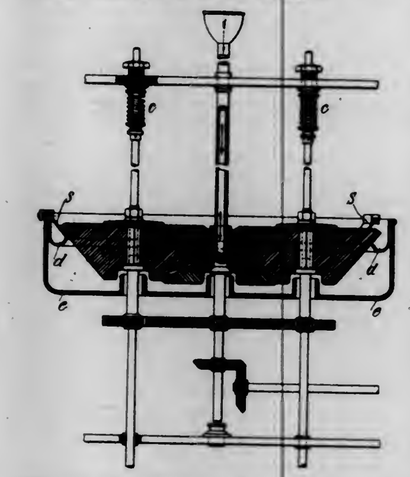
29. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, of a valve for controlling communication between said reservoirs, and means controlled by the fluid-pressure of the brake system for holding the valve closed when set to that position, and means for automatically opening said valve when the pressure leaks off the brake system.

30. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, a passage for connecting said reservoirs together, and an additional feed-passage for said reservoirs, of a valve device for controlling said passages, and means governed by the fluid-pressure of the brake system for normally shifting the valve device to open said passages.

31. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, a passage for connecting the same together, and an additional feed-passage therefor, of a valve device for controlling said passages, and means actuated by the fluid-pressure of the brake system for holding the valve device in position to close said passages when adjusted to that position.

32. The combination with a fluid-pressure brake apparatus having auxiliary and supplemental reservoirs, of a valve-casing in open communication with the auxiliary reservoir, a port in said casing communicating with the supplemental reservoir, a valve controlling said port, a piston normally balanced as to fluid-pressure and connected to said valve, and a port controlled by the valve for releasing the pressure from one side of said piston.

788,118. **GRINDING-MACHINE.** HENRI E. MESNIER, Paris, France. Filed May 20, 1904. Serial No. 208,907.



Claim.—1. A grinding-machine, comprising a central conical stone, means for rotating it, inverted conical stones with their surfaces adjacent to said central stone, and means to cause them at all times to bear upon the surface of said central stone, means for rotating said inverted cones, the central and inverted stones having different circumferential velocities, and means for feeding the material to be ground to the surface of the central stone at its greater diameter.

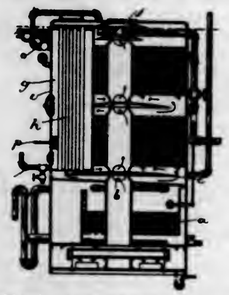
2. A grinding-machine, comprising a central conical stone with its smallest diameter uppermost, interior feed-channels in said stone adapted for feeding material to its surface at a point near its largest diameter, and gearing for rotating the stone, in combination with inverted conical stones of greater diameter, having their surfaces adjacent to and bearing upon the surafce of said central stone and gearing for rotating them at a greater speed than said central stone.

3. A grinding-machine, comprising a central conical stone with its smallest diameter uppermost, means for feeding material to its surface at a point near its largest diameter and gearing for rotating the stone, in combination with inverted conical stones of greater diameter, having their surfaces adjacent to and bearing upon the surface of said central stone and gearing for rotating them at a greater speed than said central stone, a trough in which all said stones rotate, a channel at the upper part thereof and scrapers adjacent to said channel and adapted to bear upon the inverted stones near their surfaces of greatest diameter.

4. A grinding-machine, comprising a trough, a central vertical shaft therein, a conical stone on said shaft with its greatest diameter lowermost, and having feed-openings from its center to the outside surface of greater diameter, adjacent inverted conical stones, and means for driving said inverted stones at a greater circumferential speed than said center stone, a channel surrounding said stones and having its inner edge beneath the upper edge of said inverted stones, and a scraper adapted to bear on said stone adjacent to its upper edge.

788,114. **FEED-WATER HEATER AND PURIFIER.** HENRY B. MOFFAT, Woodstock, Canada. Filed May 23, 1903. Renewed Feb. 20, 1905. Serial No. 246,591.

Claim.—1. The combination of a feed-water heater having steam and feed-water inlets respectively, and a filtering means interposed between the steam and feed-water inlets; with a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets, flow and return pipes for the tubular water-heating appliance.



2. The combination of a feed-water heater having steam and feed-water inlets respectively, and a filtering means interposed between the steam and feed-water inlets with a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets, and flow and return pipes for the tubular water-heating appliance.

3. The combination of a feed-water heater having steam and feed-water inlets respectively and a filtering means interposed between the steam and feed-water inlets; with a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets, and a live-steam-feed pipe for the tubular water-heating appliance.

4. The combination of a feed-water heater having steam and feed-water inlets respectively, and a filtering means interposed between the steam and feed-water inlets; with a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets, flow and return pipes for the tubular water-heating appliance, a live-steam-feed pipe for the tubular water-heating appliance, and a safety-valve-controlled discharge-pipe.

5. The combination of a feed-water heater having steam and feed-water inlets respectively, and a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets.

6. The combination of a feed-water heater having steam and feed-water inlets respectively, a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets, and flow and return pipes to maintain a circulation for the water within the tubular water-heating appliance independent of the circulation of the water within the feed-water heater.

7. The combination of a feed-water heater having steam and feed-water inlets respectively, and a tubular water-heating appliance having both ends of its tubes in circulation with the steam and water space of the feed-water heater between the steam and feed-water inlets and clear of the path of the water descending from the feed-water inlet but in the path of the steam ascending from the steam-inlet.

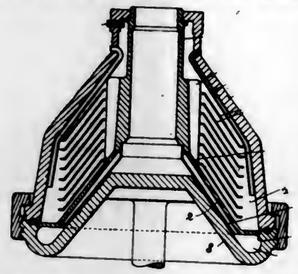
788,115. **NON-REFILLABLE BOTTLE.** FREDERICK A. MULLER, Oakland, Cal. Filed Nov. 10, 1904. Serial No. 232,093.



Claim.—1. A bottle having a seat at the junction of the neck and body, a valve closable upon the seat, a plug fixed above the valve composed of a plurality of separated disks, with openings which do not register, and intermediate shanks of smaller diameter, and a second plug fixed above the first-named plug and having a tortuous passage therethrough.

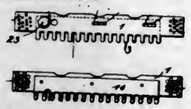
2. A bottle having a seat at the junction of the neck and body, a valve closable upon the seat, a superposed plug composed of parallel disks with openings which do not register and intermediate shanks of smaller diameter, a second plug located above that first named, and having a tortuous passage therethrough and devices by which said plugs are permanently fixed in the bottle-neck.

788,116. **LINER FOR CENTRIFUGAL SEPARATORS.** ERIK NYLEN, Stocksund, Sweden. Filed June 16, 1904. Serial No. 213,857.



Claim.—The combination with a centrifugal-separator bowl having discharging devices for the blue milk and the cream, of a central inlet-pipe, a funnel-shaped portion on the latter provided with a number of holes and dividing the bowl in an upper and a lower chamber, a liner in the said upper chamber, and a funnel in the said lower chamber dividing the latter in two parts, substantially as and for the purpose set forth.

788,117. **HAT-FASTENER.** LOUIS PEROTTI, Newark, N. J. Filed Oct. 6, 1904. Serial No. 227,482.



Claim.—A hat-fastener comprising a plate having stitch-holes and being bent to correspond with the shape of the hollow of the hat and adapted to be attached to the inner wall thereof, a second comb connected therewith and arranged at the back thereof, said second comb being longitudinally movable and adapted to clamp the hair between its teeth and those of the first comb, the teeth of both combs being at their free ends bent inward and slightly upward, and means for locking the movable comb in either of its end positions, substantially and for the purpose as specified.

788,118. **LIQUID-DISTRIBUTER.** LOUIS PEROTTI, Newark, N. J. Filed Nov. 16, 1904. Serial No. 233,363.



Claim.—1. In a liquid or medicine measurer or distributer, the combination with a hollow stopper fitting into the mouth of a bottle, of a glass bulb of a predetermined size to receive a prescribed quantity of the liquid, said bulb having at one end a discharge-opening and at its opposite end an open connection with the stopper, means for connecting the stopper with the glass bulb, and a valve to close the discharge-opening of the glass bulb, substantially and for the purpose as specified.

2. In a liquid or medicine measurer the combination with a hollow stopper fitting into the mouth of a bottle, of a glass bulb of a predetermined size to receive a prescribed quantity of the liquid, a connecting-piece attached at one end to the stopper and at the opposite end to the glass bulb, said piece being of contractive material and having a passage leading from the passage of the stopper into the glass bulb, said passage being at an intermediate part contracted to normally form a tight closure between the bottle and the bulb, the said contracted part being adapted to widen upon exertion of a lateral pressure thereon to open the passage, and a valve to close the discharge-opening of the bulb, substantially and for the purpose as specified.

3. In a liquid or medicine measurer the combination with a hollow stopper fitting into the mouth of a bottle, of a glass bulb of a predetermined size to receive a prescribed quantity of the liquid, a piece of contractive material between the stopper and the bulb, the said piece having at one end a hollow neck for its engagement with the stopper and at its opposite end a longitudinal projection for its connection with the bulb containing a passage open to the bulb and contracted at the end which terminates in the hollow neck of said piece, and a valve to close the discharge-opening of the glass bulb, substantially and for the purpose as specified.

4. In a liquid or medicine measurer or distributer the combination with a hollow stopper fitting into the mouth of a bottle, of a glass bulb of a predetermined size to receive a prescribed quantity of the liquid, said bulb having at its one end a nozzle and at its opposite end a hollow neck, a piece of contractive material having at its one end a longitudinal projection fitting into the hollow neck of the bulb and at its opposite end a hollow neck engaging the stopper, the said longitudinal projection having a passage open to the glass bulb and contracted at the end which terminates in the hollow neck of said piece, and a valve to close the discharge-opening of the bulb, substantially and for the purpose as specified.

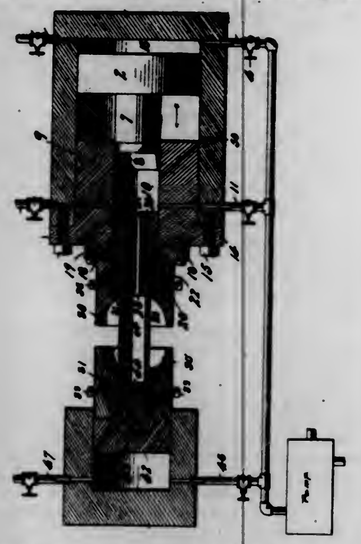
5. In a liquid or medicine measurer or distributer, the combination with a hollow stopper fitting into the mouth of a bottle, of a glass bulb of a predetermined size, to receive a prescribed quantity of the liquid contained in the bottle, said bulb having at one end a discharge-nozzle and at its opposite end a hollow neck, a hollow hump adjacent to the discharge-nozzle, a glass ball to close the inner end of the nozzle and to fit in its open position in the hollow hump, a piece of contractive material being at one end engaged with the hollow neck of the bulb and at its opposite end with the hollow stopper, said contractive piece having a passage leading into the bulb, said passage being contracted at the end which terminates in the hollow stopper, substantially and for the purpose as specified.

6. In a liquid or medicine distributer, the combination with a hollow glass stopper having a cork mantle on its outer surface to fit into the mouth of a bottle and a head on its outer end, a piece of contractive material and partially ball-shaped, having at one end a hollow neck to engage the head of the stopper and at its opposite end a cylindrical longitudinal projection, a glass bulb having a discharge-nozzle at one end and a hollow neck at its opposite end, the said hollow neck being adapted to receive the longitudinal projection of the contractive piece, having a passage open to the glass bulb and contracted at its end which terminates in the hollow neck of said contractive piece, a hollow hump adjacent to the nozzle, a glass ball fitting upon the inner end of the nozzle and in the hollow hump, said ball being adapted to close the discharge-opening of the bulb when the bottle is reversed and to rest in the hump when the liquid is discharged from the glass bulb, substantially as specified.

788,119. **HYDRAULIC TUBE EXPANDING AND COMPRESSING MACHINE.** ALFRED T. POPE, Louisville, Ky., assignor of two-thirds to Curran Pope and Frederick B. Heinig, Louisville, Ky. Filed Mar. 19, 1904. Serial No. 199,049.

Claim.—1. In a hydraulic tube expander and press, a hydraulic cylinder having a piston therein and a plunger on said piston, a reinforce in said cylinder having a chamber into which said plunger fits, a water-supply tube leading to said chamber, a water-supply tube leading into the cylinder behind the piston, a forming-shell attached

to the cylinder and having a passage thereto from the said plunger-chamber, and means for supporting a tube in the forming-shell.



2. In a hydraulic tube expander and press, the combination of a hydraulic cylinder and plunger, a tube-bearing core in front of said plunger and having a passage for fluid from the cylinder, means for closing the opposite end of the tube, and separable shells surrounding the intermediate part of the tube, one of said shells being fixed to the cylinder.

3. The combination of a hydraulic cylinder and piston, a tube-holding core through which fluid may be forced by said piston, means for closing the other end of said tube, a separable shell surrounding the intermediate part of the tube, and means for compressing the tube lengthwise while expanding its body into the shell by fluid-pressure.

4. In a hydraulic tube expanding and compressing machine, a hydraulic cylinder, a shell attached to said cylinder, means for forcing a liquid into said shell, a second cylinder facing the first, a piston within this second cylinder, and a second shell attached to the shell piston in position to close against the first-mentioned shell, all combined.

5. In a hydraulic tube expanding and compressing machine, the combination of a face-plate; a plug entering a recess in said face-plate and having a projecting cylindrical core, a forming-shell into which said core extends, ring-sections in said chamber outside the core, and means for expanding or contracting the ring-sections.

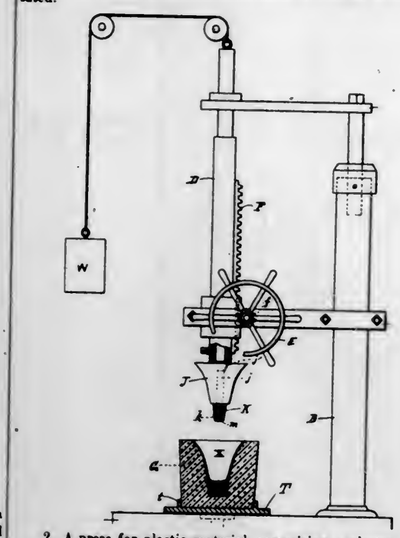
6. The combination with the forming-shell of a hydraulic tube-press, of a central core, a divided ring surrounding the core at a distance sufficient to admit the tube, and means on the shell for holding or releasing the ring-sections.

7. The combination with a hydraulic cylinder having a piston and plunger therein, of a reinforce attached to the cylinder and having a central chamber into which said plunger closes, a face-plate secured to said reinforce and having a central passage, a plug removably attached to said face-plate and having a continuation of said central passage, and a former-shell surrounding said plug and resting against the face-plate.

8. In a tube compressing and expanding machine, the combination of a fixed tube-holding core with a passage therethrough, a divided ring surrounding said core, a shell-section surrounding said ring and provided with set-screws bearing on the ring, means for forcing fluid through the core into the tube, and means for closing the opposite end of the tube and for compressing the same longitudinally.

788,120. PRESS FOR PLASTIC MATERIAL. GEORGE W. THOMAS, East Liverpool, Ohio, assignor to The R. Thomas and Sons Company, East Liverpool, Ohio, a Corporation of Ohio. Filed July 21, 1904. Serial No. 217,556.

Claim.—1. A press for plastic material, comprising a mold and a mandrel having a fabric jacket whose upper margin is open to the mouth of the mold when the mandrel has been pressed into the mold, whereby the withdrawal of the mandrel from the mold is facilitated.



2. A press for plastic material, comprising a plaster mold in combination with a mandrel having a fabric jacket whose upper margin is open to the mouth of the mold when the mandrel has been pressed into the mold, whereby the withdrawal of the mandrel from the mold is facilitated.

3. A press for plastic material, comprising a mold, in combination with a mandrel in two parts, a body portion and a terminal threaded portion separable from each other in the press, and a fabric jacket for the body portion adapted to facilitate the withdrawal of said body portion from the mold.

4. A press for plastic material, comprising a mold, in combination with a mandrel in two parts, consisting of a body portion having an air-vent and a terminal threaded portion also with an air-vent and separable from the body portion in the press.

5. A press for plastic material, comprising a mold in combination with a mandrel, having an air-vent and a separate disk detached from the mandrel to close the air-vent during the pressing operation.

6. A press for plastic material, comprising a mold, in combination with a mandrel having an air-vent and a disk of combustible material to close the air-vent during the pressing operation.

7. A press for plastic material, comprising a mold and a supporting twirler-table therefor, in combination with a mandrel having a screw-threaded part, the axis of rotation of the twirler and the screw-threaded part being the same, whereby withdrawal of the screw-threaded part from the mold is facilitated.

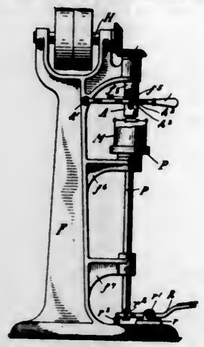
8. A press for plastic material, comprising a mold and a supporting twirler-table therefor in combination with a mandrel in two parts, one a body portion and the other a terminal threaded portion separable from the body portion in the press, the axis of rotation of the twirler and the terminal threaded portion being the same, whereby withdrawal of said threaded terminal portion is facilitated.

9. A press for plastic material, comprising a mold in combination with a mandrel in two parts, consisting of a non-rotating body portion having a fabric jacket adapted to facilitate the withdrawal of the said body portion from the mold, and a terminal threaded portion separable from the body portion in the press.

10. A press for plastic material, comprising a plaster mold in combination with a mandrel in two parts, consisting of a body portion having a fabric jacket for the purpose set forth, and a terminal threaded portion separable from the body portion in the press.

788,121. CAN-CAPPING TOOL. SAMUEL B. TOWNSEND, Brewster, N. Y. Filed Mar. 16, 1904. Serial No. 198,401.

Claim.—1. In a can-cap-expanding mechanism, the combination of a rotatory shell, a plurality of equidistantly-disposed and radially-vibratable hangers suspended in, and equidistantly from the axis of rotation of, said shell, a roller journaled to the free end of each said hanger, a spring supported and disposed to press each said hanger inwardly toward said axes, a longitudinally-movable core having its longitudinal axis coincident with said axis of rotation, means to rotate said shell, and means to intermittently advance said core during said rotation longitudinally, between, and with equal pressure simultaneously against said rollers whereby said hangers and their said rollers are forced radially and uniformly outward.



2. In a can-cap-expanding mechanism, the combination of a rotatory shell, a plurality of equidistantly-disposed and radially-vibratable hangers suspended in, and equidistantly from the axis of rotation of, said shell, a roller journaled to the free end of each said hanger, a longitudinally-movable core having its longitudinal axis coincident with said axis of rotation, a roller journaled to the said core, means to rotate said shell, means to intermittently during said rotation advance said core including its said roller longitudinally, between and with equal pressure simultaneously against said rollers, whereby said hangers and their rollers are forced radially and uniformly outward, and a spring supported and disposed to press each said hanger inwardly toward said axis.

3. In a can-cap-expanding mechanism, the combination of a rotatory shell, a plurality of equidistantly-disposed and radially-vibratable hangers suspended in, and equidistantly from the axis of rotation of, said shell, a roller having a beveled portion journaled to the free end of each said hanger, a longitudinally-movable core having its longitudinal axis coincident with said axis of rotation, a roller journaled to said core and having a portion beveled inversely to the beveled portions of said rollers on said hangers, means to rotate said shell, means to intermittently during said rotation advance said core including its said roller longitudinally between and, with equal pressure, simultaneously against said rollers, whereby said hangers and their rollers are forced radially and uniformly outward, and means to intermittently retract said core to normal position.

4. In a can-cap-expanding mechanism, the combination of a rotatory shell, a plurality of equidistantly-disposed and radially-vibratable hangers suspended in, and equidistantly from the axis of rotation of, said shell, a roller journaled to the free end of each said hanger, a spring supported and disposed to press each said hanger inwardly, a longitudinally-movable core having its longitudinal axis coincident with said axis of rotation, means to rotate said shell, means to intermittently advance said core during said rotation longitudinally, between and, with equal pressure, simultaneously against said rollers whereby said hangers and their rollers are forced radially and uniformly outward, and means to intermittently retract said core to normal position.

5. In a can-cap-expanding mechanism, the combination of a rotatory shell, a plurality of equidistantly-disposed and radially-vibratable hangers suspended in, and equidistantly from the axis of rotation of, said shell, a roller having a beveled portion journaled to the free end of each said hanger, a longitudinally-movable core having its longitudinal axis coincident with said axis of rotation, a roller journaled to said core and having a portion beveled inversely to the beveled portions of said rollers on said hangers, means to rotate said shell, means to intermittently during said rotation advance said core including its said roller longitudinally, between and, with equal pressure simultaneously, against said rollers, whereby said hangers and their rollers are forced radially and uniformly outward, a spring supported and disposed to press each said hanger inwardly toward said axis, and means to intermittently retract said core to normal position.

788,122. SEAL FOR CANS. SAMUEL B. TOWNSEND, Brewster, N. Y. Filed Mar. 16, 1904. Serial No. 198,407.



Claim.—1. A sheet-metal can having a top provided with an opening surrounded by a continuous inwardly-projecting flange, in combination with a cap provided with a continuously-surrounding expanded portion abutted and bearing directly against the edge of said flange in a direction directly opposite to that of its said inward projection.

2. A sheet-metal can having a top provided with an opening surrounded by a continuous inwardly-projecting flange, in combination with a cap having a flange disposed to bear against said top outside said can, and inside said can, a continuously-surrounding expanded portion abutted and bearing directly against the edge of said flange of the top in a direction directly opposite to that of its said inward projection.

3. A sheet-metal can having a top provided with an opening surrounded by a continuous flange disposed to project into the can toward, and at an oblique angle with, its central longitudinal axis, in combination with a cap provided with a continuously-surrounding expanded portion abutted and bearing directly against the edge of said flange in a direction directly opposite to that of its said inward projection.

4. A sheet-metal can having a top provided with an opening

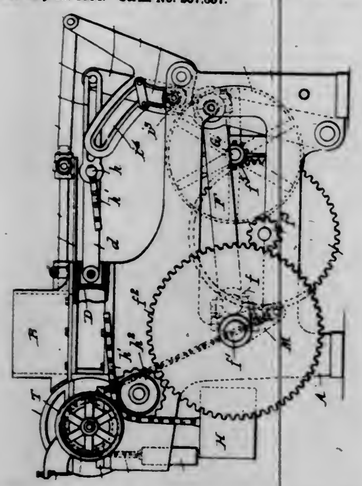
surrounded by a continuous flange disposed to project into the can toward, and at an oblique angle with, its central longitudinal axis, in combination with a cap having a flange disposed to bear against said top outside said can, and, inside said can, a continuously-surrounding expanded portion abutted and bearing directly against the edge of said flange of the top in a direction directly opposite to that of its said inward projection.

5. A sheet-metal can having a top provided with an opening surrounded by a continuous angular bend in the constituent metal and by a continuous flange disposed to project into the can toward and at an angle with its central longitudinal axis, in combination with a cap surrounded, outside the can, by a continuous flange opposed to, and bearing toward the apex of said angular bend, and, inside the can, by a continuous expanded portion abutted and bearing directly against the edge of said flange of the top in a direction directly opposite to that of its inward projection, whereby the cap is positively prohibited from outward movement, strain on said flange of the top forces said apex of said angular bend against said outside flange of said cap and thus a double seal is provided between the respective metals of the two members.

6. A sheet-metal can having a top provided with a closed inwardly-communicating expansion-chamber and with an opening surrounded by a continuously inwardly projecting flange, in combination with a cap provided with a continuously-surrounding expanded portion abutted and bearing directly against the edge of said flange in a direction directly opposite to that of its said inward projection.

7. A sheet-metal cap having a top provided with a closed inwardly-communicating expansion-chamber and with an opening surrounded by a continuous inwardly-projecting flange, in combination with a cap having a flange disposed to bear directly against said top outside said can, and having inside said can a continuously-surrounding expanded portion abutted and bearing directly against the edge of said flange of the top in a direction directly opposite to that of its said inward projection.

788,123. DOUGH-DIVIDING MACHINE. FRANK H. VAN HOUTEN, Fishkill-on-the-Hudson, N. Y., assignor to Dutchess Tool Company, Fishkill-on-the-Hudson, N. Y., a Corporation of New York. Filed May 13, 1904. Serial No. 207,837.



Claim.—1. In a dough-divider, the combination with a hopper, a channel for receiving dough therefrom, a measuring-receptacle adapted to aline with said channel and a reciprocatory plunger for discharging the dough from said channel into the measuring-receptacle, of an oscillating lever, a driven crank-shaft for oscillating said lever positively in both directions, a loose connection between the lever and plunger whereby the lever is free to advance without affecting the plunger and a weight connected with said plunger for advancing the plunger when relieved of the restraining influence of the lever.

2. In a dough-divider, the combination with a hopper, a channel for receiving dough therefrom, a measuring-receptacle adapted to aline with said channel and a reciprocatory plunger for discharging dough from said channel into the receptacle, of an operating-lever pivoted at one end, means for positively reciprocating said lever in both directions, a connecting-rod intermediate said lever and plunger, a loose connection between said connecting-rod and lever, a weight and a connection between said weight and connecting-rod, for advancing the plunger when unrestrained by the operating-lever; substantially as described.

3. In a dough-divider, the combination with the hopper a channel for receiving dough therefrom, a measuring-receptacle adapted to aline with said channel, a reciprocatory plunger for discharging the dough from said channel into the measuring-receptacle, a weight for advancing said plunger, a positively-reciprocated operating-lever for retracting the plunger, a cut-off for closing communication between the hopper and channel and connections between said cut-off and operating-lever whereby movement is imparted to the cut-off.

4. In a dough-divider, the combination with a hopper, a channel for receiving the dough therefrom, a measuring-receptacle adapted to aline with said channel and a reciprocatory plunger for discharging the dough from said channel into the receptacle, of a weight for advancing the plunger, an operating-lever for retracting the plunger, a cut-off for closing communication between the hopper and channel and a cut-off lever having a cam-groove, a projection on the operating-lever working in said cam-groove and adapted to impart a full closing movement to the cut-off during the initial advance movement of the operating-lever; substantially as described.

5. In a dough-divider, the combination with a forcing mechanism embodying a reciprocatory plunger, a weight for advancing the plunger and a driving mechanism for retracting the plunger, of a measuring-receptacle adapted to receive the dough from the forcing mechanism, a cut-off adapted to advance in the same direction as the plunger for closing the feed-opening to the forcing mechanism and means for imparting an accelerated closing movement to the cut-off during the initial movement of the plunger; substantially as described.

6. In a dough-divider, the combination with the hopper, channel and measuring-compartment for receiving dough from the channel, of the reciprocatory plunger working in the channel, the reciprocatory cut-off for closing communication between the channel and hopper and driving mechanism for reciprocating the plunger and cut-off simultaneously in the same direction but at different speeds whereby the cut-off is closed during the initial movement of the plunger; substantially as described.

7. In a dough-divider, the combination with the hopper, channel and measuring-compartment for receiving dough from the channel, of the reciprocatory plunger working in the channel, the cut-off for closing communication between the hopper and channel, said plunger and cut-off being adapted to advance simultaneously in the same direction, oscillating levers connected respectively with the plunger and cut-off, and a driving mechanism with connections for imparting to the cut-off lever an initial accelerated movement; substantially as described.

8. In a dough-divider, the combination with the forcing mechanism, of a measuring mechanism embodying a rotary head having a plurality of receptacles therein, followers in said receptacles and mechaniam for adjusting said followers simultaneously, extending longitudinally of the axis of the head and provided with a controlling part or hand-wheel outside of the head; substantially as described.

9. In a dough-divider, the combination with the forcing mechanism, of a measuring mechanism embodying a rotary head having a plurality of pairs of oppositely-located receptacles therein, followers in said receptacles, adjusting-screws connecting the followers in each pair of receptacles and an operating mechanism extending longitudinally of the axis of the head for adjusting all of said followers simultaneously, substantially as described.

10. In a dough-divider, the combination with the forcing mechanism, of a measuring mechanism embodying a head having measuring-receptacles therein and journaled to move said receptacles into and out of registry with the forcing mechanism, followers in said receptacles and adjusting mechanism for said followers embodying transverse adjusting-screws, an adjusting-screw arranged axially of the head and gearing intermediate said transverse and axial screws; substantially as described.

11. In a dough-divider, a measuring mechanism embodying a cylindrical head journaled at each end and having a series of diametrically-arranged receptacles therein, followers in said receptacles, the followers on opposite sides being adjustably connected for simultaneous movement, and an adjusting mechanism for said followers having a controlling part projecting through the journal at one end of the head; substantially as described.

12. In a dough-divider, a measuring mechanism embodying a cylindrical head journaled at each end and having a series of diametrically-arranged measuring-receptacles therein, followers in said receptacles, screw-stems on said followers pinion-sleeves connecting said stems, and a bar for rotating said sleeves arranged longitudinally of the head; substantially as described.

13. In a dough-divider, a measuring mechanism embodying a cylindrical head journaled at each end and having a series of diametrically-arranged measuring-receptacles therein, followers in said receptacles, screw-stems on said followers, pinion-sleeves connecting said stems, a rack-bar engaging said sleeves and a screw extending out at one end of the head for adjusting said rack-bar and followers; substantially as described.

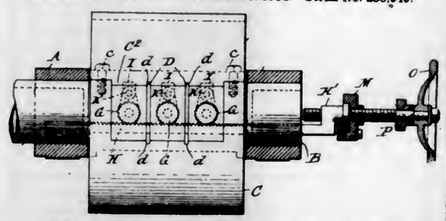
14. In a dough-divider, a measuring mechanism embodying a cylindrical head having a series of measuring-receptacles therein, followers in said receptacles having projections thereon and a removable plate in said head constituting a stop coöperating with said projections for limiting the outward movement of the followers; substantially as described.

15. In a dough-divider, a cylindrical measuring-head, having a channel formed diametrically through the same, removable transverse partitions in said channel to divide the same into receptacles, and means for retaining said partitions in place; substantially as described.

16. In a dough-divider, a cylindrical measuring-head having a channel formed diametrically through the same, removable transverse partitions in said channel to divide the same into receptacles, followers in said receptacles and a removable plate for holding the partitions in place and limiting the outward movement of the followers; substantially as described.

17. In a dough-divider, the combination with the hopper, channel-plunger and rotary head having diametrically-arranged measuring-receptacles therein, of the driving mechanism for the plunger and head embodying a crank-shaft having cranks set at an angle with relation to each other for operating the plunger and head, and whereby the head is rotated to move the receptacles therein out of registry with the channel before the retrograde movement of the plunger commences; substantially as described.

788,124. DOUGH-DIVIDER. FRANK H. VAN HOUTEN, Fishkill-on-the-Hudson, N. Y. Filed Dec. 30, 1904. Serial No. 238,949.



Claim.—1. A measuring mechanism for dough-dividers embodying a head having a cylindrical contour, with measuring-chambers extending transversely thereof and arranged in series axially of the head, a segment of said head being removable to give access to the chambers; substantially as described.

2. A measuring mechanism for dough-dividers embodying a cylindrical head formed of separable segments and having measuring-chambers formed by openings extending through the head parallel with the plane of separation of the segments; substantially as described.

3. A measuring mechanism, for dough-dividers embodying a cylindrical head formed of separable segments and having measuring-chambers formed by openings in one of the segments extending through the head parallel with the plane of the separation of the segments, one side of said chambers being formed by the other segment; substantially as described.

4. A measuring mechanism, for dough-dividers embodying a cylindrical head formed of separable segments one of which is provided with axially-extending journals, and channels extending through the latter segment to form measuring-chambers, one side of said channels being closed by the other segment; substantially as described.

5. A measuring mechanism for dough-dividers embodying a cylindrical head formed of separable segments and having measuring-chambers extending diametrically thereof at one side of but contiguous to the plane of separation of the segments; substantially as described.

6. In a measuring mechanism for dough-dividers, the combination with a rotary cylindrical head formed of separable segments and having diametrically-arranged measuring-chambers therein, of adjustably-connected followers in said chambers and means for limiting the outward movement of each follower; substantially as described.

7. In a measuring mechanism for dough-dividers the combination with a rotary cylindrical head formed of separable segments and having diametrically-arranged measuring-chambers therein, of adjustably-connected followers in said chambers, means for limiting the outward movement of the followers and means for limiting the relative movement of the followers when removed from the chambers; substantially as described.

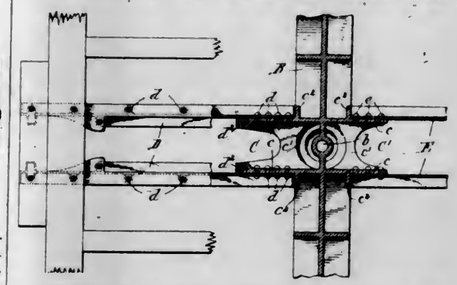
8. In measuring mechanism for dough-dividers, a pair of followers, adjusting mechanism intermediate the followers and means for limiting the relative movement of the followers to prevent their disengagement from the adjusting mechanism or rotation with respect to each other; substantially as described.

9. In a measuring mechanism for dough-dividers, a pair of followers, adjusting mechanism intermediate the followers and a guide-rod loosely connecting the followers to prevent their disengagement from the adjusting mechanism or rotation independently of each other; substantially as described.

10. A measuring mechanism for dough-dividers, embodying a rotary cylindrical head formed of separable segments, with diametrically-arranged measuring-chambers therein, one of said segments carrying shoulders for limiting the outward movement of followers in the chambers and followers in said chambers having projections for coöperating with said shoulders; substantially as described.

11. A measuring mechanism for dough-dividers embodying a cylindrical head formed of separable segments, channels constituting measuring-chambers, in one of said segments, and mechanism located in said channels for varying the capacity of the chambers, said mechanism being removable transversely from the chambers when the segments of the head are separated; substantially as described.

788,125. CAR STRUCTURE AND BOLSTER. HENRY H. VAUGHAN, Cleveland, Ohio. Filed Dec. 9, 1903. Serial No. 184,369.



Claim.—1. In a car structure, the combination of a bolster, a lug rigidly connected to and projecting from the bolster in a direction longitudinally of the car, draft-beams secured to said lug, and parts on said draft-beams which abut against lateral portions of said lug, substantially as set forth.

2. In a car structure, the combination of a bolster, a lug rigidly connected to and extending from the bolster in a direction longitudinally of the car, and draft-beams secured to said lug, said lug projecting between the beams to provide a rigid abutment of the buffing-gear, and having at opposite sides lateral abutments for the inner ends of said draft-beams, substantially as set forth.

3. In a car structure, the combination of a bolster, a lug rigidly connected to and extending from the bolster in a direction longitudinally of the car, draft-beams secured to the outer sides of said lug and having on their inner sides projections which abut against the end of said lug, and said lug having at opposite sides lateral abutments for the inner ends of said draft-beams, substantially as set forth.

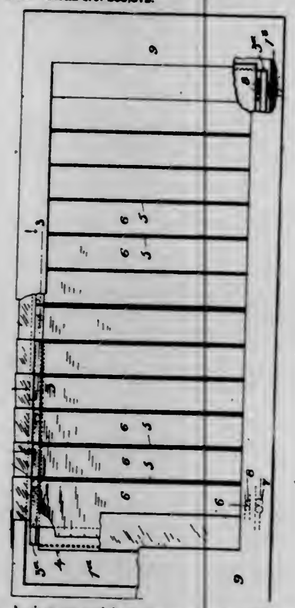
4. In a car structure, the combination of a bolster, rigid lugs projecting from opposite sides of said bolster in a direction longitudi-

nally of the car, draft-beams secured to the lug on one side of said bolster, and abutting beams secured to the lug on the other side of the bolster, said draft-beams having parts which abut against lateral portions of said lugs, substantially as set forth.

5. In a car structure, the combination of bolsters each provided with lugs projecting outwardly and inwardly therefrom in a direction longitudinally of the car, draft-beams secured to said outwardly-projecting lugs, and abutting beams secured to said inwardly-projecting lugs of the bolsters, said inwardly-projecting lugs having lateral abutments for the ends of said abutting beams, substantially as set forth.

6. As an article of manufacture, a bolster provided with rigid lugs integral with the central portion of the bolster and which project from the opposite sides of the bolster in a direction longitudinally of the car to which the bolster is applied, for the attachment of draft and abutting beams, said lugs having lateral abutments for parts of the draft and abutting beams, substantially as set forth.

788,126. **SIGN.** NATHAN B. WOOD, New York, N. Y., assignor to The Wood Changing Sign Company, a Corporation of New York. Filed May 17, 1904. Serial No. 208,372.



Claim.—1. A sign comprising a support provided with a plurality of strips, a plurality of members each provided with a plurality of strips arranged to overlap each other when in one position of adjustment and at the same time overlap the first-named strips, said members being arranged to be moved independently so that the strips of one member may expose the strips of the other member and the strips of the last-named member may expose the first-named strips, and means connected with one movable member to cause the movable members to move conjointly to cause their strips to simultaneously conceal the first-named strips, substantially as described.

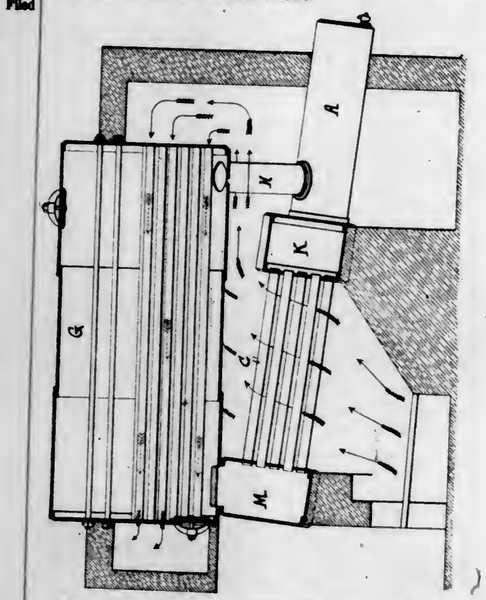
2. A sign comprising a support provided with a plurality of strips, movable members located on opposite sides of the sign and each provided with a plurality of strips to expose and conceal the first-named strips, a movable piece adapted to spread said members apart, means to operate the same, and means to move said members toward each other, substantially as described.

3. A sign comprising a support provided with a plurality of strips, movable members located on opposite sides of the sign and each provided with a plurality of strips to expose and conceal the first-named strips, an oscillatory piece arranged to spread said members apart, an arm connected with said piece, a block adapted to operate said arm, and means for operating said block, substantially as described.

4. A sign comprising a support provided with a plurality of strips, a plurality of members located on opposite sides of said support and adapted to be moved independently in opposite directions and provided with strips adapted to expose and conceal the first-named strips, a plurality of independent oscillatory pieces to operate opposed members, means for independently operating said pieces, and means for moving said members toward each other, substantially as described.

5. A sign comprising a support provided with a plurality of strips, a plurality of members located on opposite sides of said support and adapted to be moved independently in opposite directions and provided with strips adapted to expose and conceal the first-named strips, a plurality of independent oscillatory pieces interposed between opposed members, said pieces being provided with independent arms, blocks to independently operate said arms, means for operating said blocks, and means for moving said members toward each other, substantially as described.

788,127. **STEAM-BOILER.** HUGH W. AITKEN, Glasgow, Scotland. Filed Apr. 12, 1904. Serial No. 202,855.



Claim.—1. A steam-boiler, comprising a boiler proper, a number of inclined water-tubes in rows, a header for the upper ends of said tubes in communication with one end of the boiler, a water-drum of large area and cross-section, one end open to and its interior facing tubes of a number of said rows, the said drum extending rearwardly of the boiler and communicating with the adjacent end of the boiler.

2. A steam-boiler, comprising a boiler proper, a communicating header at the forward lower end thereof and another and lower header near the rear thereof, rows of water-tubes connecting said headers, a water-drum open at one end to the header, its open end facing a number of rows of tubes and a downcomer-pipe communicating with said drum near its forward end.

3. A steam-boiler, comprising a boiler proper, a communicating header at the forward lower end thereof and another and lower header near the rear thereof, rows of water-tubes connecting said headers, a water-drum open at one end to the header, its open end facing all of said tubes and a downcomer-pipe communicating with said drum near its forward end

788,128. **BOTTLE OR OTHER VESSEL WITH GROUND STOPPER.** JÖNS ANDERSSON, Brunshög, near Lund, Sweden. Filed July 14, 1904. Serial No. 216,597.

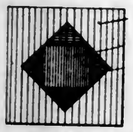
Claim.—1. The combination with a bottle, of a glass stopper having a portion projecting to the outside of the neck and a part rigid with said projecting portion extending laterally therefrom, a link pivotally connected to said laterally-extending part, a locking member pivotally connected to the bottle-neck, and a connection between said locking member and the lower end of the link, substantially as described.



2. The combination with a bottle, of a glass stopper having a portion projecting upon the outside of the neck and a part rigid therewith extending laterally from said projecting portion, a link pivotally connected to said laterally-extending part, a locking member connected to the bottle-neck, and engaging parts on said member and link for locking the stopper in place, substantially as described.

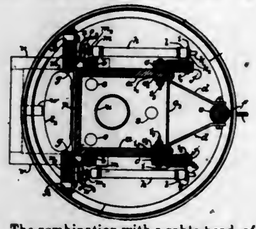
3. The combination with a bottle, of a stopper of vitreous material having a head provided with a rigid lug extending beyond the edge of the neck, a link permanently connected at one end to the lug, a locking member secured to the bottle-neck, and a connection between the lower end of the link and said member, substantially as described.

788,129. **PROCESS OF MAKING WATERPROOF TRANSPARENT CELLULOID PICTURES.** ALFRED BECHER, Bielefeld, Germany. Filed Mar. 16, 1904. Serial No. 198,359.



Claim.—A process for making waterproof transparent celluloid pictures consisting essentially in dissolving a color in water or alcohol, adding to this mixture a quantity of acetic acid, and dipping the translucent celluloid plate, coated partially with a fatty or oily substance into the color-path, substantially as specified.

788,130. **COMBINED CABLE-HEAD AND POLE-HOUSE.** FRANK B. COOK, Chicago, Ill. Filed Dec. 28, 1903. Serial No. 186,806.



Claim.—1. The combination with a cable-head, of a series of tubular fuses for each of two opposite sides of the cable-head and mounted thereon, mounting-springs for the respective fuses adapted to automatically clamp the fuses in place, a series of lightning-arresters for each of the said two opposite sides of the cable-head and mounted between the respective series of fuses and the cable-head, each lightning-arrester engaging a fuse-clamping spring as a connection-terminal and having one end exposed to permit of free access thereto, and means for connecting the said fuses and lightning-arresters as protective devices for electric circuits, substantially as described.

2. The combination of a hollow cable-head having one open side, a lid for the said open side of the cable-head and removably mounted thereon, a cylindrical cover for the cable-head, three parallel supports for the cover, and a plate on which the cable-head is mounted, provided with apertures therethrough through which conductors pass to the inner part of the cable-head and also from the said cover, respectively, substantially as described.

3. The combination with a cable-head, of a circular plate on which the head is mounted, a cylindrical cover for the cable-head and adapted to fit over said plate, three parallel guides for the said cover and secured to the cable-head, a spring attached to the cover and adapted to slide on one guide, the said spring being adapted to hold the said cover to the other guides, and a catch for the said spring, adapted to engage same when the cover is lifted, substantially as described.

4. The combination with a cable-head, of a circular plate to which the head is secured, the said plate forming part of a bracket for mounting the cable-head to some means of support, a cover for the cable-head provided with a hole therethrough near the open end thereof, three parallel guides for the said cover, and a lock adapted to be locked through the said hole only and thereby lock the said cover in place when the same is placed over the cable-head, the lock engaging the said plate when the cover is slightly lifted, substantially as described.

5. The combination with a cable-head, of a plate on which same is mounted, a cover for the cable-head, a spring secured to the inner side of the cover, three supports for the said cover, one support being provided with a groove therein in which the said spring rests, a notch in the said spring, and a pin in the said groove adapted to engage the said notch when the cover is lifted and thereby secure the cover in place, the tension in the said spring holding the cover to the said supports and securing it in whatever position it may be placed, substantially as described.

6. The combination with a cable-head and protective devices mounted thereon, of a cylindrical, sheet-metal cover for same, parallel supports for the cover, one support being provided with a longitudinal groove therein, the other supports being provided with holes therethrough for conductors leading to the protective devices, a spring secured to the said cover and adapted to slide in the said longitudinal groove, a bracket-support to which the cable-head is secured, and means whereby the protective devices may be connected as protectors to electrical circuits, substantially as described.

7. The combination with a cable-head, of a series of tubular fuses mounted upon opposite sides of the head, a ground-strip on the said opposite sides of the head, a series of lightning-arresters mounted between the series of fuses and the ground-strip, springs for each fuse which automatically clamp the fuses in place, a circular plate upon which the cable-head is mounted, provided with an aperture therein through which the line conductors pass, the said plate being part of a supporting-bracket for the cable-head, a tube extending through the said plate and forming an opening into the hollow portion of the cable-head, suitable binding-posts on the inner surface of the cable-head, the said binding-posts being connected to the respective protective devices, strips provided with holes through which the line conductors pass, the said strips forming supports for a cover, a third strip also forming a support for the cover, a cylindrical cover adapted to inclose the whole, a spring secured to the said cover and adapted to engage the said third strip and thereby secure the cover in position, and means for connecting the said fuses and lightning-arresters as protectors for electrical circuits, substantially as described.

8. The combination with a cable-head, of a series of tubular fuses therefor, clamping-springs for the respective fuses, suitably mounted on the cable-head and adapted to automatically clamp the fuses in place, one clamping-spring for each fuse exerting a torsion on a portion of the latter when same is in place, and suitable connection-terminals for the respective circuit-conductors, substantially as described.

9. The combination with a hollow, inclosed, cable-head, of a series of fuses mounted upon an exterior surface thereof and extending parallel with the said surface, spring clamping devices for mounting the said fuses, suitably mounted on the cable-head and adapted to automatically clamp the fuses in place, one spring clamping device for each fuse exerting a torsion on a portion of the fuse when same is in place, and suitable connection-terminals for the respective fuses, one connection-terminal for each fuse being within the hollow cable-head, substantially as described.

10. The combination with a hollow, inclosed, cable-head, of a series of tubular fuses mounted upon an exterior surface thereof and extending parallel with the said surface, spring clamping devices for the respective fuses suitably mounted on the cable-head and adapted to automatically clamp the fuses in place, a ground-plate conductively secured to the cable-head, lightning-arresters mounted between the respective fuses and the ground-plate and each having one end freely exposed to permit of free access thereto, and suitable connection-terminals for the fuses and lightning-arresters, one connection-terminal for each fuse and its lightning-arrester being within the hollow cable-head, substantially as described.

11. The combination with a cable-head, of a series of tubular fuses for each of two opposite sides thereof and mounted thereon so that the fuses extend parallel with the said sides of the cable-head, spring clamping devices for mounting the respective fuses suitably mounted on the cable-head and adapted to automatically clamp the fuses in place, and suitable connection-terminals for the respective circuit-conductors, substantially as described.

12. The combination with a cable-head, of a series of tubular fuses for each of two opposite sides thereof, series of springs mounted on the cable-head and adapted to automatically clamp the fuses in place, one clamping-spring for each fuse exerting a torsion on a portion thereof when same is in place, and suitable connection-terminals for the circuit-conductors, substantially as described.

13. The combination with a hollow, inclosed, cable-head, of a series of fuses for each of two opposite sides thereof, mounted upon exterior surfaces of same and extending parallel with the said sides of the cable-head, spring clamping devices for the respective fuses mounted on the cable-head and adapted to automatically clamp the fuses in place, one spring clamping device for each fuse exerting a torsion on a portion of the fuse when same is put in place, and suitable connection-terminals for the respective fuses, one connection-terminal for each fuse being within the hollow cable-head, substantially as described.

14. The combination with a hollow, inclosed, cable-head, of a series of tubular fuses for each of two opposite sides of the cable-head, mounted upon exterior surfaces thereof and extending parallel with said surfaces, the said fuses being insulated from each other and from the cable-head, spring clamping devices for the respective fuses mounted on the cable-head and adapted to automatically clamp the fuses in place, a ground-plate for each of the said two opposite sides of the cable-head and conductively secured thereto, lightning-arresters mounted between the respective fuses and their ground-plate, and suitable connection-terminals for the fuses and lightning-arresters, one connection-terminal for each fuse and its lightning-arrester being within the hollow cable-head, substantially as described.

15. The combination with a distributing-head, of a circular plate on which same is mounted, a cylindrical cover adapted to inclose the distributing-head and provided with a hole near the open end thereof, suitable parallel guides for the cover, and a lock adapted to be locked through the said hole only and thereby lock the cover in place when same is placed over the distributing-head, the said lock engaging the plate when the cover is slightly raised, substantially as described.

16. The combination with a cable-head, of a plate on which the head is mounted, a cylindrical cover for the cable-head, suitable parallel guides for the said cover and entirely within same, and a spring attached to the cover and adapted to slide in a groove in one guide and thereby hold the cover to the others.

17. The combination of a hollow, inclosed, cable-head provided with an opening through which conductors pass to the interior thereof, a cylindrical cover for the cable-head, suitable parallel guides for the cover, provided with series of holes through which the circuit-conductors pass, and a circular plate on which the cable-head is mounted, provided with an aperture through which conductors pass from the said cover when same is placed over the cable-head, substantially as described.

788,131. **METHOD OF MANUFACTURING REFRACTORY MATERIAL.** GUILFORD C. GLYNN, Iola, Kans., assignor of one-third to Frank B. Smith. Filed July 25, 1904. Serial No. 218,107.

Claim.—1. The herein-described method of preparing refractory material, which consists in taking a mass of kaolinite, freeing it from moisture or any uncombined water, pulverizing it, then burning the pulverized mass in the presence of free air to eliminate organic and volatile impurities and to reduce the ferric compound to metallic iron, and then precipitating the product, while heated, into a water-bath.

2. The herein-described method of preparing refractory material, which consists in taking a mass of kaolinite, freeing it from moisture or any uncombined water, pulverizing it, then burning the mass in the presence of free air to eliminate organic and volatile impurities and to reduce the ferric compound to metallic iron, precipitating the heated product into a cold water-bath to cause the particles to disintegrate, then allowing the mass to cool, then removing it from the bath and placing it in molds, subjecting it to high pressure therein, then drying and finally burning at a high heat.

3. The herein-described method of preparing refractory material, which consists in taking a mass of kaolinite, freeing it from moisture or any uncombined water, pulverizing it, then burning the mass in the presence of free air to eliminate organic and volatile impurities and to reduce the ferric compound to metallic iron, then precipitating the heated product into a cold water-bath in conjunction with a flux, then allowing the mass to cool, then removing it from the bath and placing it in molds, subjecting it to high pressure therein, then drying and finally burning at a high heat.

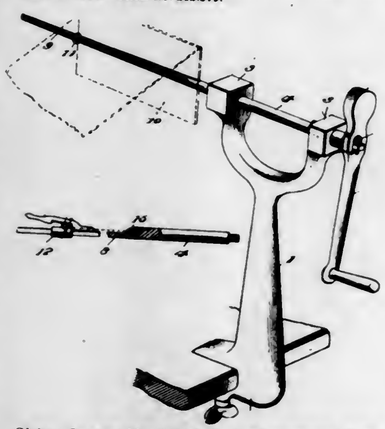
788,132. **REFRACTORY MATERIAL AND METHOD OF MAKING SAME.** GUILFORD C. GLYNN, Iola, Kans., assignor of one-third to Frank B. Smith. Filed July 25, 1904. Serial No. 218,108.

Claim.—1. A compound to form a refractory material, consisting of finely-divided aluminium, ferric oxid, titanic iron ore, and a binding agent substantially in the proportion specified.

2. A compound to form a refractory material, consisting of the following ingredients substantially in the proportion specified by weight, finely-divided aluminium, one (1) part, ferric oxid, three (3) parts, titanic iron ore, containing approximately sixty per cent. of titanic oxid, four (4) parts, and a binding agent.

3. A compound to form a refractory material, consisting of the following ingredients substantially in the proportions specified by weight, finely-divided aluminium one part, ferric oxid three parts, titanic iron ore, containing approximately sixty per cent. of titanic oxid, four parts, and a binding agent consisting of a solution of ammonium chlorid of acid reaction.

788,133. **DEVICE FOR WINDING OR UNWINDING GOODS.** JOSEPH S. HARRISON and ROBERT L. SIMPSON, Greeley, Colo. Filed June 14, 1904. Serial No. 212,579.



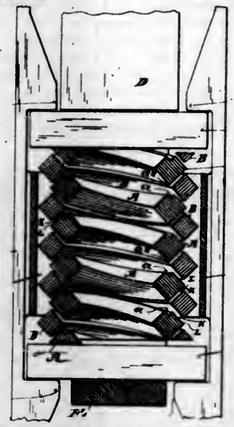
Claim.—In a machine for winding and unwinding goods, and in combination with a standard provided with attaching means, a spindle journaled to said standard and having an end portion extended to provide a holder and having a projection at the inner end of the holder spaced therefrom, a sleeve slidable upon the holder, and a spring-actuated clamp member pivoted to said sleeve and adapted to coöperate with the holder to materially assist in securing a card or the like thereto and forming a support for the goods, substantially as set forth.

788,134. **SPRING.** GEORGE L. HARVEY, Chicago, Ill. Filed Mar. 2, 1904. Serial No. 196,236.

Claim.—1. In a friction device, inner and outer frictionally-contacting springs, each comprising a succession of coils, and interfitting parts for preventing the buckling of the friction device under load, substantially as described.

2. In a friction device, inner and outer frictionally-contacting springs each comprising a succession of coils, and means, carried by one of said springs, for preventing the buckling of the friction device under load, substantially as described.

3. In a friction device, inner and outer frictionally-contacting springs, each comprising a succession of coils, one of said springs having its adjacent bearing-surfaces provided with means for preventing the slipping or sliding of the coils thereof under load, substantially as described.



4. In a friction device, inner and outer frictionally-contacting springs each comprising a succession of coils and one of which is wound non-concentrically with respect to the axis of the friction device, and means for preventing the buckling of the friction device under load, substantially as described.

5. In a friction device, inner and outer frictionally-contacting springs each comprising a succession of coils, the successive coils of one of said springs being non-parallel, substantially as described.

6. In a friction device, inner and outer frictionally-contacting springs each comprising a succession of coils, the successive coils of one of said springs being non-parallel, and the springs being disposed non-parallel with respect to each other, substantially as described.

7. A spring comprising a succession of non-parallel coils and provided with means for preventing buckling of the spring under load, substantially as described.

8. In a draft-rigging for cars, follower-plates, connections between the follower-plates and a draw-bar, and yielding means comprising inner and outer non-parallel springs each provided with a succession of coils, the successive coils of one spring being non-parallel, substantially as described.

9. In a draft-rigging for cars, follower-plates, connections between the follower-plates and a draw-bar, stops permitting limited movements of the follower-plates toward each other, and yielding means, comprising inner and outer frictionally-contacting springs normally separated from each other, substantially as described.

10. In a draft-rigging for cars, draft-beams, follower-plates movable between the draft-beams, connections between the follower-plates and a draw-bar, a tube fitted between and connected with the draft-beams, said tube permitting limited movements of the follower-plates toward each other, and yielding means surrounded by said tube and fitted between the follower-plates, substantially as described.

11. A spring made of a single piece, forming a succession of non-parallel connected coils and having a continuous groove along one bearing-surface of the several coils and an engaging edge, formed along the coöperating bearing-surface of said coils, substantially as described.

12. A spring comprising a succession of non-parallel coils, said coils being provided with coöperating grooves and edge parts upon the adjaccent bearing-surfaces, substantially as described.

13. A spring comprising a succession of coils which are diamond-shaped in section, said coils being provided along one bearing-surface with a groove adapted to engage the edge of the other bearing-surface, substantially as described.

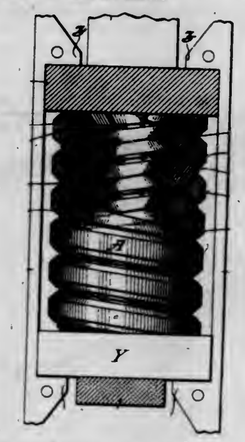
14. A spring comprising inner and outer frictionally-contacting coiled members, one of which is provided with coöperating grooves and edge parts upon its adjacent bearing-surfaces, substantially as described.

15. A spring comprising inner and outer frictionally-contacting members, one of which is made up of a succession of coils provided with coöperating grooves and edge parts upon its adjacent bearing-surfaces, substantially as described.

16. A spring comprising inner and outer frictionally-contacting members, one of which is made up of a succession of non-parallel coils provided with coöperating grooves and edge parts upon its adjacent bearing-surfaces, substantially as described.

17. A spring comprising inner and outer frictionally-contacting members, one of which is made up of a succession of non-parallel coils, substantially as described.

788,135. **FRICTION DEVICE.** GEORGE L. HARVEY, Chicago, Ill. Filed July 5, 1904. Serial No. 215,213.



Claim.—1. In a friction device, a member provided with a succession of frictional blocks or frictional bodies, in combination with a coöperating coiled member having frictional surfaces for engaging the blocks or bodies aforesaid, substantially as described.

2. In a friction device, a member comprising a loop or coil provided with a succession of frictional blocks or frictional bodies, in combination with a coöperating coiled member having frictional surfaces for engaging the blocks or bodies aforesaid, substantially as described.

3. In a friction device, a member provided with a succession of frictional blocks or frictional bodies integral with the member, in combination with a coöperating coiled member having frictional surfaces for engaging the blocks or bodies aforesaid, substantially as described.

4. In a friction device, a member consisting of a loop or coil provided with a succession of frictional blocks or frictional bodies integral with the loop or coil, in combination with a coöperating member having frictional surfaces for engaging the blocks or bodies aforesaid, substantially as described.

5. In a friction device, a member comprising a continuous loop or coil cut at intervals to render the loop or coil more flexible and provided with a succession of frictional blocks or frictional bodies, in combination with a coöperating member having frictional surfaces for engaging the blocks or bodies aforesaid, substantially as described.

6. In a friction device, a member comprising a continuous loop or coil having frictional surfaces which are cut at intervals to render the coil or loop more flexible, in combination with a coöperating member having frictional surfaces for engaging the frictional surfaces of the first-named member, substantially as described.

7. In a friction device, inner and outer coiled members having coöperating frictional surfaces, the frictional surfaces of one member consisting of a succession of frictional blocks or bodies, substantially as described.

8. In a friction device, a member provided with a succession of attached frictional blocks, in combination with a coöperating coiled member having frictional surfaces for engaging the frictional blocks aforesaid, substantially as described.

9. In a friction device, outer and inner coiled members, one of said coils being notched, the frictional surfaces of both coils being in contact during the entire operation of the spring, substantially as described.

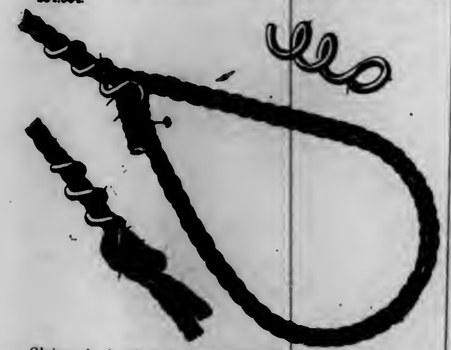
10. In a friction device, outer and inner coiled members having

their frictional surfaces in contact during the entire operation of the device, one of said coiled members having an alternating large and small cross-section, substantially as described.

11. In a friction device, a spring with frictional surfaces, the body of the spring having alternating large and small cross-section, substantially as described.

12. In a friction device, a coiled member, said member having a body of alternating large and small cross-section, substantially as described.

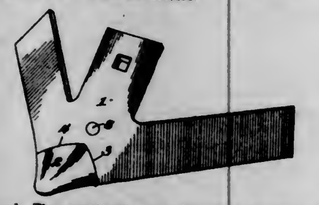
788,136. SPIRAL SLIP-LOOP FOR HITCHING ROPES. CHRISTIAN HEILRATH, Sacramento, Cal. Filed Apr. 30, 1904. Serial No. 204,064.



Claim.—1. A spiral slip-loop comprising a slidable wire spiral adapted to receive and permit the free passage therethrough of a rope, the convolutions of said spiral being spaced apart sufficiently to permit the introduction and removal of the rope, and an integral closed eye located at one end of the spiral, said eye being disposed at an inclination to the longitudinal axis of the slip-loop.

2. A spiral slip-loop comprising a slidable wire spiral adapted to receive and permit the free passage therethrough of a rope, the convolutions of said spiral being spaced apart sufficiently to permit the introduction and removal of the rope, and an integral closed eye located at one end of the spiral and formed by bending one end of the wire so that the terminal thereof abuts against an intermediate portion of said wire, said eye being offset from the spiral and extending longitudinally with respect thereto.

788,137. PLOW-POINT. WALTER H. HUXFORD, Huxford, Miss. Filed May 11, 1904. Serial No. 207,450.

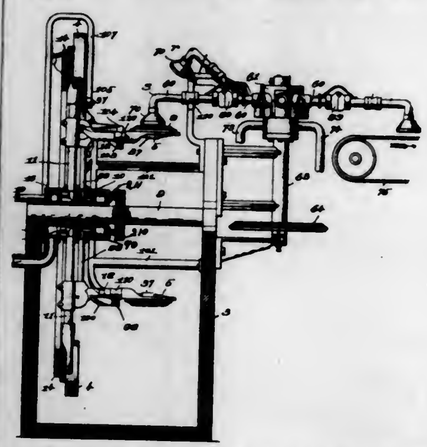


Claim.—1. The combination of a plowshare having a recess or cut-away portion and provided at opposite sides of the same with projecting supporting-flanges, and a plow-point fitting within the recess or cut-away portion and completing the plowshare and supported in the same plane as the said plowshare and provided between the flanges with a projecting shank detachably secured to the plowshare, said plow-point being also provided with lugs engaging the flanges and forming with the same an interlocking connection between the plow-point and the plowshare.

2. The combination of a plowshare provided with a recess or cut-away portion and having projecting supporting-flanges at opposite sides thereof, and a plow-point fitting within the recess or cut-away portion and supported by the flanges and provided between the same with a shank detachably secured to the plowshare, said plow-point being also provided beyond the supporting-flanges with projecting lugs fitting against the outer side edges of the flanges and engaging the plowshare, the shank, lugs and flanges forming an interlocking connection between the plow-point and the plowshare.

3. The combination of a plowshare provided with a central tapering recess or cut-away portion and having projecting supporting-flanges at opposite sides thereof, and a plow-point having a tapered inner portion fitting within the recess or cut-away portion and provided at a point between the said flanges with a projecting shank detachably secured to the plowshare, said plow-point being also provided with projecting lugs arranged beyond and fitting against the outer side edges of the supporting-flanges and engaging the lower face of the plowshare, the shank, lugs and flanges forming an interlocking connection between the plow-point and the plowshare.

788,138. APPARATUS FOR MAKING ARTICLES FROM PULP. MARTIN L. KEYES, Cambridge, Mass. Filed Dec. 9, 1901. Serial No. 85,134.



Claim.—1. In an apparatus of the class described, a traveling mold having a plurality of coöperating faces constructed to form between them an article from pulp, a pulp-vat into which one only of said faces dips to receive a layer of pulp, and means to compress said faces together at a point farther on in the travel of the molds to form said article.

2. In an apparatus for making articles from pulp, a pulp-containing vat, a traveling mold having a plurality of coöperating faces adapted to form an article between them, means to pass one only of said faces into the pulp in the vat, suction devices operating to deposit a layer of pulp on said face while it is immersed in the pulp, and means to compress the layer of pulp and shape the article between said faces farther on in the traveling movement of the mold.

3. In apparatus for making pulp articles, a pulp-receptacle, a two-part mold comprising hollow members having coöperating perforated faces, means to periodically immerse one member only of said mold in said receptacle, means to exhaust the air from said mold member while it is thus immersed, whereby a layer of pulp is drawn onto the face thereof, means to compress said pulp between the faces of the two mold members, and shape the article, and means to loosen the shaped article from the mold-faces by a blast of air.

4. In apparatus for making pulp articles, a pulp-receptacle, a two-part mold comprising two hollow mold members having perforated coöperating mold-faces, means to periodically immerse one only of the mold members in said receptacle, the other of said mold members being held out of the pulp, means to cause a layer of pulp to adhere to the face of said first-named member, means to press said layer of pulp and shape the pulp article between the mold members, and means to loosen the shaped article from the mold-faces by a blast of air.

5. In apparatus for making pulp articles, a pulp-containing vat, a two-part mold comprising two mold members having coöperating perforated faces, means to periodically immerse one only of the mold members in the pulp, means to automatically exhaust the air from said member while thus immersed, whereby a layer of pulp is deposited on the face thereof, means to compress said pulp layer between the members, and means to loosen the shaped article from the mold-faces by a blast of air.

6. In an apparatus of the class described, a pulp-containing vat, a revolving mold-carrier comprising a hub having a series of radially-arranged hollow arms extended therefrom, each arm having fixed thereto a mold member, and pivoted thereto a coöperating mold member, a compressed-air chamber and a vacuum-chamber, two series of ports in said hub, the ports of one series communicating with the fixed mold members, while the ports of the other series communicate with the movable mold members, and means whereby as the mold-carrier rotates, the fixed mold members are successively immersed in the pulp, and the ports communicating therewith are simultaneously brought into register with the vacuum-chamber, and subsequently the ports of each series are brought into register with the compressed-air chamber, and means for closing the two mold members together subsequent to the immersion of the fixed mold member in the tank, and previous to the time of admission of compressed air thereto.

7. In an apparatus of the class described, a pulp-containing vat, a two-part traveling mold comprising two hollow members having perforated coöperating faces, means to deposit a layer of pulp on said mold during its traveling movement, means to close said members and compress said pulp layer between the same, means to admit compressed air to one mold member and exhaust the air from the coöperating member, whereby said members are opened and the shaped article is caused to adhere to the mold member having vacuum therein, and means to remove said article from said member.

8. In an apparatus of the class described a pulp-containing vat, a series of traveling two-part molds, one part of each of said molds being periodically immersed in the pulp during the traveling movement of the mold, means to deposit a layer of pulp on said mold while it is immersed in the pulp, means to close together the members of each mold in succession, means to admit compressed air to one of each of said molds subsequent to the closing of the same together, and simultaneously exhaust air from the coöperating member whereby the mold members are opened and the shaped article is caused to adhere to the mold member having a vacuum therein, and means to subsequently admit compressed air to said last-named mold member to force the article therefrom.

9. In an apparatus of the class described, a vat for containing pulp, a rotary mold-carrier, a series of mold members fixed thereto and a second series of mold members pivoted thereto, the fixed mold members being immersed in the pulp during a portion of the rotation of the carrier, and a guide controlling the movement of the pivoted mold members and operating to hold the same out of the pulp while the fixed members are immersed therein, and then close each pivoted mold member against its corresponding fixed member and subsequently to separate said members.

10. In an apparatus of the class described, a vat to contain pulp, a rotating mold-carrier comprising radial arms, a mold member fixed to the end of each arm, and a coöperating mold member pivoted to each arm, and a track or guide to control the movement of the pivoted mold member, the construction being such that during each rotation of the mold-carrier the pivoted mold member is for the first portion of its rotation held separated from its coöperating fixed mold member while the pulp is being deposited on the latter and during the continued rotation of the mold-carrier said pivoted mold member is first closed against the coöperating mold member to compress said layer of pulp, and subsequently moved away from its coöperating mold member whereby the pulp article is exposed for removal.

11. In an apparatus of the class described, a vat to contain pulp, a rotary mold-carrier supported above the vat to rotate about a horizontal axis, said mold-carrier having a series of radial arms, a mold member fixed to the end of each arm and adapted during the rotation of said carrier to be immersed in the pulp, a coöperating mold member pivoted to each arm intermediate its ends, and a guide to control the movements of the pivoted mold member, said guide being so shaped as to hold each pivoted mold member in a substantially horizontal position above the pulp while the coöperating member is immersed in the pulp and to close each of said pivoted mold members against its coöperating fixed member after the latter leaves the pulp and subsequently to swing each pivoted member away from its coöperating member, whereby the article may be removed.

12. In an apparatus for making articles from pulp, a mold having a molding-face, a vat to contain pulp, means to move the molding-face into and out from the pulp in the vat, means to deposit a layer of pulp on the molding-face, a compressing member coacting with the molding-face to compress the pulp deposited on the said molding-face, and a guide for the compressing member, said guide acting to move said compressing member positively toward and from the molding-face at the proper time.

13. In a pulp-molding machine in combination, a receptacle adapted to contain a suitable pulp, a perforated mold-face, means to cause the same to dip into the pulp therein, a suction device to apply suction through the same and cause a layer of pulp to be deposited thereon, a perforated receiving-face, means to bring said faces together and separate the same, and means to cause suction through said receiving-face before said faces are separated, to cause said receiving face to retain said article.

14. In a pulp-molding machine in combination, a receptacle adapted to contain a suitable pulp, a perforated mold-face, means to cause the same to dip into the pulp therein, a suction device to apply suction through the same and cause a layer of pulp to be deposited thereon, a perforated receiving-face, means to bring said faces together and separate the same, a valve device to shut off suction through said first face, and means to cause suction through said receiving-face before said faces are separated, to cause said receiving-face to retain said article.

15. In a pulp-molding machine in combination, a receptacle adapted to contain a suitable pulp, a perforated mold-face, means to cause the same to dip into the pulp therein, a suction device to apply suction through the same and cause a layer of pulp to be deposited thereon, a perforated receiving-face nesting with said first face, means to bring said faces together and separate the same, and means to cause suction through said receiving-face before said faces are separated, to cause said receiving-face to retain said article.

16. In a pulp-machine in combination, a receptacle adapted to contain a suitable pulp, a perforated mold-face adapted to dip into the pulp therein, a suction device to apply suction through the same to cause a layer of pulp to be deposited thereon, a second perforated mold-face, means to press said faces together to form said article and separate the same, and means to cause suction through said second face before said faces separate whereby said article is retained by said second face.

17. In a pulp-machine in combination, a receptacle adapted to contain a suitable pulp, a perforated sloping-sided mold-face adapted to dip into the pulp therein, a suction device to apply suction through the same to cause a layer of pulp to be deposited thereon, a second sloping-sided perforated mold-face nesting with said first face, means to press said faces together to form said article and separate the same, and means to cause suction through said second face before said faces separate whereby said article is retained by said second face.

18. In a pulp-machine in combination, a receptacle adapted to contain a suitable pulp, a perforated mold-face adapted to dip into the pulp therein, a suction device to apply suction through the same to cause a layer of pulp to be deposited thereon, a second perforated mold-face, means to press said faces together to form said article and separate the same, and means to cause suction through said second face before and until after said faces separate whereby said article is retained by said second face.

19. In a machine for molding articles from pulp, a mold having a forming and a receiving-face, means to apply a layer of pulp to the forming-face, means to compress said layer between faces and separate them, and means to apply suction to the receiving-face before the faces are separated, whereby the article is retained by the receiving-face.

20. In a machine of the class described, a mold comprising a plurality of separable mold-faces, means to dip one face into a body of pulp to receive a layer thereof, means to compress the pulp layer between the faces, and means to apply suction to one of the faces before the faces are separated whereby the article is retained by said face.

21. In an apparatus of the class described, a rotatable mold-carrier, a mold supported thereby and comprising separable members, each member having a molding-face, one member being fixed to the carrier and the other member pivoted thereto, and means to guide the pivoted mold member in its movement toward and from the fixed member.

22. In an apparatus of the class described, a rotatable mold-carrier, a mold supported thereby and comprising a member fixed to the carrier and another member pivoted thereto, each member having a molding-face, a vat to contain pulp, the rotation of the mold-carrier causing the fixed member of the mold to dip into the pulp, and a guide for the pivoted mold member operating to hold the latter out of the body of pulp while the fixed member is immersed therein.

23. In an apparatus of the class described, a vat to contain pulp, a movable mold-carrier, a mold supported thereby, said mold comprising a member fixed to the carrier and a member pivoted thereto, each member having a molding-face, the movement of the carrier carrying the fixed mold member into the pulp, and a guide for con-

trolling the movement of the pivoted mold member toward and from the fixed member.

24. In a machine for molding articles from pulp, a vat to contain pulp, a traveling mold formed of a plurality of separable members each having a molding-face, a rotatable member carrying said mold, one of said mold-faces being pivoted on a pivot transverse to the axis of said rotatable member, means to cause one of said faces to dip into the pulp in the vat and receive a layer of pulp, means to press said faces together to form the article, and a wedge-shaped separator to enter between the mold members during the travel of the mold to force the faces apart after the article is formed.

25. In a machine for molding articles from pulp, a vat to contain pulp, a traveling mold formed of a plurality of separable faces, a rotatable member carrying said mold, one of said mold-faces being pivoted on a pivot transverse to the axis of said rotatable member, means to cause one of said faces to dip into the pulp in the vat and receive a layer of pulp, means to compress said faces together to form the article, a separator to force the faces apart after the article is formed, and means to apply suction to one of said faces before they are separated, whereby the article is retained thereby.

26. In a machine for molding articles from pulp, a traveling mold formed of a plurality of separable faces, a rotatable member carrying said mold, one of said mold-faces being pivoted on a pivot transverse to the axis of said rotatable member, the rotation of the member causing one of the faces to dip in the pulp into the vat to receive a layer thereof, means to press said faces together to form said article, and a guide to control the movement of the pivoted face toward and from the other face.

27. In a machine for forming articles from pulp, a pulp-vat, a mold formed of a plurality of separable faces, a rotatable mold-carrier supporting said mold, one of the mold-faces being pivoted to move toward and from the other mold-face, and means to guide the pivoted face in its movement toward and from the mold-face, the rotation of the mold-carrier operating to cause one of said faces to dip into the pulp to receive a layer thereof.

28. In a machine for forming articles from pulp, a vat, a rotatable mold-carrier, a mold supported thereby and comprising two separable members each having a perforated mold-face, said carrier having two ports at different radial distances from its axis of rotation, each communicating with one of the mold members, a member having vacuum and compressed-air chambers provided with ports adapted to register with the ports in the mold-carrier, the ports in the vacuum-chamber registering with those in the mold-carrrier which are nearest the axis of rotation, and those of the compressed-air chamber registering with the other ports of the mold-carrier.

29. In a machine for molding articles from pulp, a pulp-vat, a pivotal shaft, a mold-carrier rotatable about the shaft, said carrier comprising a hub having hollow radial arms, a mold secured to each arm, each mold comprising separable members, said hub having a lateral port communicating with each arm and a fixed collar having vacuum and compressed-air chambers provided with ports which register with those in the hub.

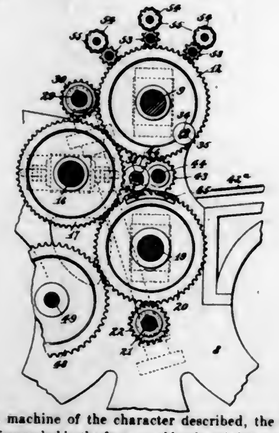
30. In a machine for forming pulp articles, a receptacle for containing pulp, a perforated mold-face, automatic means to give a relative movement between said face and receptacle, whereby the said face is caused to dip into the pulp in the receptacle and rise therefrom, a suction device to apply suction through said face, whereby the latter receives a layer of pulp while it is immersed therein, a receiving-face at all times outside of the pulp in said receptacle, means to move said faces together, and means to apply suction to said receiving-face to transfer the article to said face.

788,139. **LITHOGRAPHIC MACHINE.** CHARLES M. KNEPPLER, New York, N. Y., assignor to Louis B. Knoppler, New York, N. Y. Filed Oct. 27, 1904. Serial No. 230,161.

Claim.—1. In a machine of the character described, the combination with a shaft journaled in the frame and having a gear tightly secured thereto for rotating the same, of a plate-cylinder loosely mounted on said shaft and means for yieldingly locking said plate-cylinder to said gear, substantially as described.

2. In a machine of the character described, the combination with a shaft journaled in the frame and having tightly secured thereto a gear for rotating the same, of a plate-cylinder loosely mounted on said shaft and a pin sliding in said gear and engaging said cylinder for yieldingly locking the same together, substantially as described.

3. In a machine of the character described, the combination with a shaft journaled in the frame and having tightly secured thereto a gear for rotating the same, of a plate-cylinder loosely mounted on said shaft, a pin sliding in said gear and engaging at one end with said cylinder, and a cam secured to the frame and engaging the opposite end of said pin for locking said cylinder to said gear, substantially as described.



4. In a machine of the character described, the combination with a shaft journaled in the frame and having tightly secured thereto a gear for rotating the same, of a plate-cylinder loosely mounted on said shaft and provided with a conical-shaped pocket at one end, a pin sliding in said gear and provided on one end with a cone adapted to fit in said cone-shaped pocket, and a cam secured to the frame and adapted to engage with the opposite end of said pin, substantially as described.

5. In a machine of the character described, the combination with a plate-cylinder, of a gear secured thereto for rotating the same, an impression-cylinder provided with a gear adapted to mesh with said former gear, a pressure-cylinder having a gear secured thereto and meshing with the gear on said impression-cylinder, a main driving-shaft journaled in the frame and provided with a gear meshing with the gear on said pressure-cylinder, and a shaft provided with a gear also meshing with the gear on said plate-cylinder and driven by the gears on said main driving-shaft, substantially as described.

6. In a machine of the character described, the combination with a shaft 9 journaled in the frame and having a gear 12 secured thereto, of a plate-cylinder 10 mounted on said shaft and connected with said gear, a shaft carrying an impression-cylinder and having a gear 17 secured thereto and meshing with said former gear 12, a shaft 29 the ends of which are journaled in said frame and having a gear 30 secured thereto also meshing with said gear 12, said shaft also carrying on its opposite end the gear 31, a gear 13 loosely mounted on said shaft 9 and meshing with said gear 31, a pressure-cylinder 18 provided with a gear 20 meshing with said gear 17, a main driving-shaft provided with a gear 22 meshing with said gear 20, and intermediate gears connected to said driving-shaft and with said shaft 29 for rotating said gear 31, substantially as described.

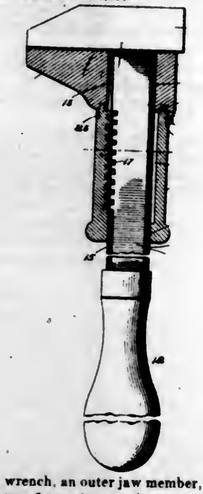
7. In a machine of the character described, the combination with a shaft the ends of which are journaled in the frame, of a tight and loose gear mounted on said shaft, a plate-cylinder loosely mounted on said shaft and yieldingly secured to said tight gear, and a main driving-shaft provided with gears adapted to rotate said tight and loose gears on said former shaft, substantially as described.

788,140. **CONNECTION FOR SHEET-METAL RADIATORS.** HERBERT W. NOWELL, New York, N. Y., assignor to Kinnear-Hood Steel Company, New York, N. Y., a Corporation of New Jersey. Filed May 7, 1904. Serial No. 206,920.



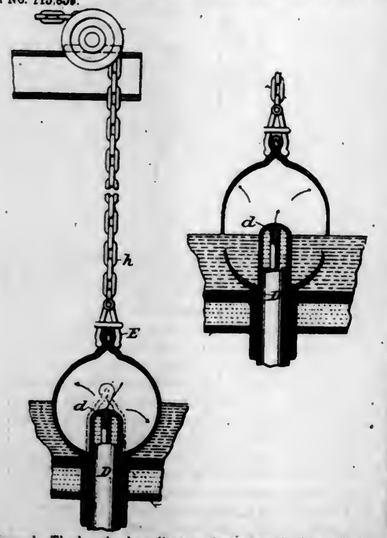
Claim.—A connection for sheet-metal radiators comprising tapering bosses struck up from opposite walls of two adjacent radiator units, collars formed with bases having tapered outer faces in contact with the inner walls of the bosses throughout the length of the bosses and in alinement at their inner ends with the inner walls of the units, rivets passing through the bosses and through the tapered bases of the collars, and a thimble connecting a pair of collars.

788,141. **WRENCH.** HARRY J. PAWLING, New Columbia, Pa. Filed Apr. 30, 1904. Serial No. 205,789.



Claim.—In a wrench, an outer jaw member, a stock rigid therewith and having two flat and two curved sides, one of the curved sides being smooth, and the other threaded, an inner slidable jaw mounted on the stock, and an internally-threaded sleeve connected to the slidable jaw, the threads extending completely around the internal wall of the sleeve except for a distance about equal to the width of one of the curved faces of the stock, that end of the sleeve remote from the jaw having an inturned flange bearing against the unthreaded curved face of the stock and serving as a rigid support when said unthreaded curved face is directly opposite the unthreaded portion of the sleeve, substantially as specified.

788,142. **METHOD OR ART OF MANUFACTURING BODIES OF GLASS.** ROGER S. PEASE, Rose, Minn. Filed July 16, 1902. Serial No. 115,859.



Claim.—1. The herein-described method of producing cylinders and other bodies of glass, which consists in chilling or partially setting a film or layer of molten glass; introducing within or beneath the film or layer thus formed, air or gas under pressure and thereby producing a bulb or globule; expanding said globule by internal fluid-pressure to the desired diameter; and lastly, elevating the upper portion of the globule and thereby causing its skirt or edge to carry upward from the mass of molten metal a cylinder or body of glass, substantially as described.

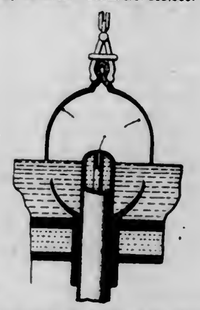
2. The herein-described method or art of producing cylinders and like bodies of glass, which consists in producing within the mass of molten glass a hollow body or film of chilled or partially-set glass; expanding the same by internal fluid-pressure and causing the same to rise above the level of the molten glass and to assume the desired diameter; and finally, elevating the upper portion of the expanded bulb and thereby causing its skirt to carry up from the mass of molten metal a cylinder or hollow body of glass, substantially as described.

3. In the manufacture of glass cylinders and like bodies, the following steps: first, the formation within a mass of molten metal of a hollow film or body of chilled or partially-set glass; and second, the expansion of such partially-set or chilled film or body to the desired diameter by fluid-pressure from within, substantially as described.

4. In the manufacture of glass cylinders and like bodies, the following steps performed in the order stated, viz., first, producing within a mass of molten glass or metal a hollow body or film of partially-set or chilled glass; second, expanding said body or film by fluid-pressure applied within it and thereby stripping the film from the chilling-surface and exposing it to the fusing heat of the surrounding mass of metal; third, elevating the upper portion of the expanded body and thereby carrying upward from the molten metal a cylinder or body of glass of a form and thickness corresponding to the form and thickness of the skirt or depending edge of the elevated body, substantially as described.

5. In the manufacture of glass cylinders and like bodies, the following steps performed in the order stated, viz., first, producing within a mass of molten glass metal a hollow body of partially-set or chilled glass; second, expanding the same by fluid-pressure from within and thereby forcing the sides of said body away from the chilling-surface and holding it in contact with the surrounding molten metal, whereby the film is softened at or about the upper level of the molten mass; third, elevating the upper portion of the expanded body and simultaneously producing or maintaining within it a fluid-pressure, substantially as set forth.

788,143. **GLASS-MAKING APPARATUS.** ROGER S. PEASE, Rose, Minn. Filed July 16, 1902. Serial No. 115,860.



Claim.—1. In apparatus for making glass, the combination of a receptacle to contain molten glass or metal; means for chilling a layer or film of glass or metal in said vessel; and means for introducing air or gas under pressure beneath said film and thereby producing a bulb or hollow globule, substantially as described.

2. In apparatus for making glass, the combination of a vessel or receptacle to contain molten glass or metal; a central core rising within said receptacle; means for cooling said core and thereby forming a film of partially-set or chilled glass over and about the same; and means for introducing air or gas under pressure within or beneath the film thus formed and thereby forming a bulb or enlargement of said film, substantially as described.

3. In apparatus for making glass, the combination of a vessel or receptacle to contain molten glass or metal; a core rising within said vessel; means for cooling or chilling said core; a tube or pipe for the introduction of air or gas under pressure at the top of the core; and a lifting device above said core, said parts being constructed and ar-

ranged substantially as described, whereby a film of glass lying over and about said core may be partially set or chilled, expanded to form a bulb, grasped and lifted by the hoisting device and further expanded, and finally drawn upward in the form of a cylinder, substantially as described.

4. The herein-described apparatus for the manufacture of glass, comprising a receptacle B adapted to receive within its walls a cooling medium; a central core or body D; a pipe *d* passing through the core and opening at the upper end thereof to permit the introduction of air or gas under pressure at said point; a clamp or gripping device E located above the core; and hoisting devices connected with said clamp, all substantially as shown.

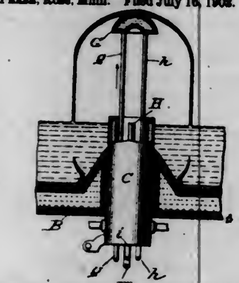
5. In combination with vessel B, core D adapted to be cooled or chilled; means for elevating or lowering said core; and a pipe *d* within said core, adapted to convey air or gas under pressure to the top of the core, substantially as and for the purpose set forth.

6. In apparatus for drawing glass the combination of the receptacle arranged to contain the molten glass of means for chilling a layer or film of the glass in said vessel and means for expanding the film to produce a hollow bait; substantially as described.

7. In glass-drawing apparatus, a vessel arranged to contain molten glass, a core within the receptacle arranged to form a film of chilled glass and means for raising and expanding the film to form a glass bait; substantially as described.

788,144. APPARATUS FOR THE MANUFACTURE OF GLASS.

ROGER S. PEASE, Rose, Minn. Filed July 16, 1903. Serial No. 165,861.



Claim.—1. In an apparatus for the manufacture of glass cylinders and like bodies, the combination of a vessel adapted to contain molten glass or metal; means for chilling said vessel; a core or chill within said vessel; a head on said core or chill provided with means for cooling or chilling the same; means for elevating and lowering said head; and a pipe or inlet for the admission of air or other gas under pressure beneath said head, all substantially as described.

2. In combination with a vessel adapted to contain molten glass or metal, provided with a core or chill rising above the bottom of said vessel, means for cooling said core; a head above said core; means for cooling or chilling said head; elevating devices for raising said head; and means for introducing air or other gas beneath said head, whereby, through the chilling action of the head and core, a film of glass may be chilled or set thereon, and by the elevation of said head and the introduction of air or other gas said film may be expanded to form a bait and to draw from the molten metal a cylinder or like body.

3. In an apparatus for the manufacture of glass, the combination of a vessel adapted to contain molten metal; a central core provided with means for cooling or chilling the same; a vertically-movable head above said core; a pipe for the introduction of air or other gas below said head; a support for said head comprising an inlet and an outlet pipe for the introduction and escape of water or other cooling medium; and means, substantially as described and shown, for elevating and lowering the head.

4. In an apparatus for the manufacture of glass, the combination of a vessel adapted to contain molten metal; a central core provided with means for cooling or chilling the same; a vertically-movable head above said core; a pipe for the introduction of air or other gas below said head; a support for said head comprising an inlet and an outlet pipe for the introduction and escape of water or other cooling medium, and a third pipe closed against communication with the interior of the head but perforated near its upper end to afford escape for air from within the body being drawn; and means substantially as described and shown, for elevating and lowering the head.

5. In an apparatus for the manufacture of glass cylinders and like bodies, the combination of a vessel for containing molten glass or metal; means for chilling or partially setting a film of glass within said vessel; a head arranged to contact with the molten glass and to stand beneath the film thus produced; means for elevating said head; and means for introducing air or other gas into the hollow film.

6. In an apparatus for the manufacture of glass cylinders and like bodies, the combination of a vessel for containing molten glass or metal; means for chilling or partially setting a film of glass within said vessel; a head arranged to contact with the molten glass and to stand beneath the film thus produced; means for elevating said head; means for introducing air or other gas into the hollow film; and means for severing the cylinder or other body formed by the elevation of the head and film.

7. In an apparatus for the manufacture of glass cylinders and like bodies, the combination of a vessel for containing molten glass or metal; means for chilling or partially setting a film of glass within said vessel; a head located within said vessel and adapted to stand beneath the film thus produced; means for elevating said head; means for introducing air or other gas into the hollow film; and a severing device for said cylinder or other body consisting of an encircling hollow ring provided with a series of jet-openings and communicating with a suitable gas-supply.

8. In combination with vessel B; core or chill C; head G; pipes or conductors for supplying a cooling medium to the core C and head G; and means for elevating the head G, all substantially as described.

9. In combination with vessel B and core C; head G; pipes *g* and *h* communicating with the interior of said head and serving to introduce a cooling medium thereinto; pipe I having an opening near its top but closed against communication with said head G; and pipe H serving to introduce air or other gas under pressure within the core C, all substantially as described.

10. In glass-drawing apparatus a vessel arranged to contain molten glass, a core within the vessel, means for chilling a film and elevating it above the core, and means for expanding said film; substantially as described.

11. In apparatus for drawing glass, a receptacle for molten glass a core, means for forming a film on the core within the glass and means for expanding the film so that it may be used as a bait; substantially as described.

788,145. FILTER.

FREDERIC W. PENDERGAST, Waltham, Mass. Filed Apr. 9, 1904. Serial No. 202,290.

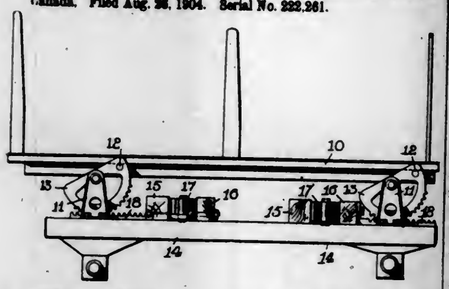


Claim.—1. The combination with a casing, of a filter therein forming chambers, a screw-plate having a central lug thereon, a complementary lug on the casing at the opposite side of the filter for securing said filter, an extension at the top of the casing having a valve-seat with elongated ports, a stationary valve-plug with a transverse partition therein and ports arranged at each side of said partition out of alinement and adapted to register with said elongated ports, separate communication being established between said chambers and elongated ports, a pin on the valve-plug and a shoulder on the casing to limit the movement of the casing, and means whereby the flow of water through the filter may be reversed.

2. The combination with a casing and a filter forming chambers therein, a removable plate having a lug thereon and a complementary lug on the casing for securing the filter, an extension formed on said casing having a tapered valve-seat with elongated ports on opposite sides thereof, a stationary valve-plug, a transverse partition in the plug and ports at each side thereof to register with the elongated ports, passages connecting the chambers separately with the elongated ports, a handle integral with the casing, said casing being pivotally supported on the valve-plug and adapted to be rotated bodily to reverse the flow of water through the filter, a pin in the valve-plug, and a shoulder on the casing to limit the movement of the casing.

788,146. WHEELED VEHICLE.

DAVID SHARMAN, Brandon, Canada. Filed Aug. 26, 1904. Serial No. 222,261.

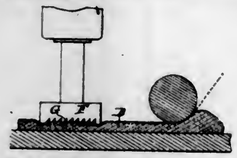


Claim.—1. A wheeled vehicle, comprising a frame, springs secured to the frame and disposed to extend and compress horizontally, cross-beams acting on the springs, racks arranged to slide with the cross-beams, gears arranged in mesh with the racks, studs projecting inwardly from the gears, and a body arranged to rest on the studs

2. A vehicle comprising a frame, horizontally-moving springs supported by the frame, sliding racks supported on the frame and connected operatively to the springs, gears supported on the frame in mesh with the racks, and a body pivoted to the gears off their supporting-axes.

788,147. PROCESS OF MANUFACTURING WIRE PRISM-GLASS.

ARNO SHUMAN, Philadelphia, Pa., assignor to The Continuous Glass Press Company, a Corporation of Pennsylvania. Filed Aug. 20, 1904. Serial No. 221,516.



Claim.—1. The herein-described process of making wire prism-glass which consists in rolling a ball of molten glass into a sheet with a meshed wire embedded in its surface, and then simultaneously forcing the meshed wire down into the body of the glass and molding the glass which passes above the meshed wire into prismatic ribs.

2. The herein-described process of making wire prism-glass which consists in rolling molten glass into a sheet with meshed wire embedded into its upper part and then, while still hot, molding the glass above the wire into prismatic ribs.

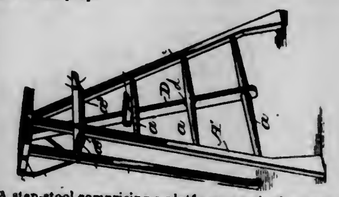
3. The herein-described process of making wire prism-glass which consists in first rolling the molten glass into a sheet with meshed wire embedded in it and then forcing the meshed wire down into the upper part of the sheet of glass and simultaneously molding the glass above the meshed wire into prismatic ribs

788,148. STEP-STOOL.

ANDREW A. SMITH, Paonia, Colo. Filed Jan. 17, 1905. Serial No. 241,490.

Claim.—1. A step-stool comprising a platform having a longitudinal slot widened at one end, bolts extending transversely through the platform, a front support clamped at its upper end in the front end of said slot and one of the bolts passing through the upper end of said support, and a swinging prop extending at its upper end into the rear widened end of the slot, and a pivot-bolt extending through the platform and prop.

2. A step-stool comprising a platform having a longitudinal slot widened at one end, bolts extending transversely through the platform, a front support comprising stiles converging at their upper ends and there clamped in the front end of said slot, a single prop extending at its upper end into the rear widened end of the slot, a pivot-bolt extending through the platform and prop, and a yoke, mounted at its upper ends on the ends of said pivot-bolt and secured at its lower end to the prop.



3. A step-stool comprising a platform, a swinging prop pivoted at its upper end to the rear end of the platform, a front support secured rigidly at its upper end to the front end of the platform and formed of converging stiles having connecting-rounds, and a step formed of parallel pieces bolted together and between which, the said stiles are firmly clamped, the ends of the said pieces extending beyond the stiles and forming projecting steps.

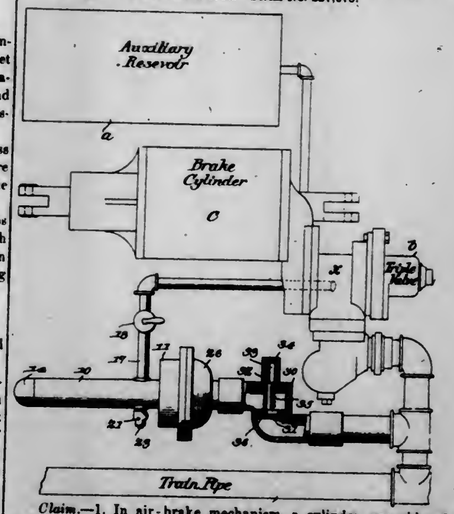
4. A step-stool comprising a platform a swinging prop pivoted at its upper end to the rear end of the platform, a front support secured rigidly at its upper end to the front end of the platform and formed of converging stiles having connecting-rounds, and a brace-bar secured to the lower round and extending upwardly and secured to the platform between the ends thereof.

5. A step-stool comprising a platform a swinging prop pivoted at its upper end to the rear end of the platform a front support secured rigidly at its upper end to the front end of the platform and formed of converging stiles having connecting-rounds, a brace secured to the lower round and extending upwardly and secured to the platform between the ends thereof, and a step secured to the said brace and projecting forwardly across one of said rounds.

6. A step-stool consisting of a platform having a longitudinal slot widened at its rear end, transverse clamping-bolts passed through the platform and a transverse pivot-bolt also passed through the platform at the rear end, a single prop mounted at its upper end on said pivot-bolt, a V-shape front support clamped at its upper end in the front end of the platform-slot upon one of said bolts, and provided with rounds, and a brace mounted on the lower round and at its upper end clamped in said platform-slot.

788,149. AIR-BRAKE.

DAVID F. SNYDER, Harrisburg, Pa., assignor of one-fourth to Joseph C. Smith and William F. Garman, Harrisburg, Pa. Filed Oct. 8, 1904. Serial No. 227,678.

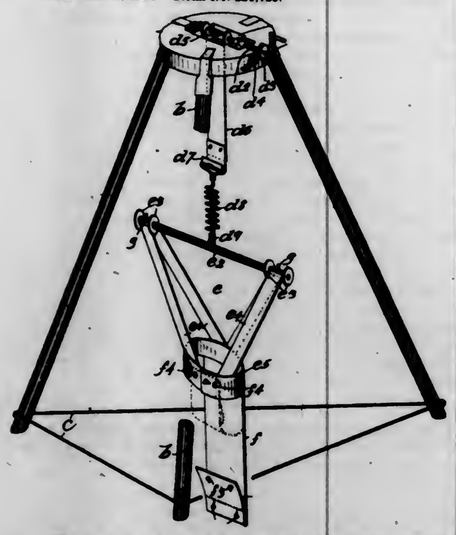


Claim.—1. In air-brake mechanism, a cylinder, one side of which is connected to the train-pipe, a piston arranged in the cylinder and exposed to train-pipe pressure, a valve-casing connected to the cylinder at that side opposite the train-pipe connection, and hav-

ing ports, one of which is in communication with the exhaust-port of the triple valve, and another with the outer air, a valve normally closing the latter port, a pressure-retaining valve connected to the casing and normally in free communication with the interior thereof, and with the port leading from the exhaust-port of the triple valve, a valve arranged in the casing, a spring also arranged in the casing and acting to prevent any movement of the piston under ordinary train-pipe pressure, said spring also maintaining the valve in a position to prevent communication between the interior of the casing and the outer air.

2. In air-brake systems, a valve for controlling the exhaust of air from the brake-cylinder, a piston connected to said valve, a casing in which said piston is contained, said cylinder being connected to the train-pipe, and a check-valve arranged in the train-pipe connection and opening in the direction of the cylinder, there being a leakage-port for permitting gradual reduction of pressure between the check-valve and the cylinder.

788,150. **BABY-HOLDER.** JAMES W. WINN, New Orleans, La. Filed Oct. 17, 1904. Serial No. 228,739.



Claim.—1. In a device of the class described, a frame composed of a top member and legs pivoted thereto, a shaft mounted in said top member, a strap suspended from said shaft, means for turning said shaft in one direction, means for preventing the rotation of the shaft in the opposite direction, a spring suspended from the strap and a baby harness or holder suspended from said spring, substantially as shown and described.

2. In a device of the class described, a support, a shaft mounted therein, a strap suspended from said shaft, means for turning said shaft in one direction, means for preventing the turning of said shaft in the opposite direction, and a baby-suspending device connected with said strap, substantially as shown and described.

788,151. **X-RAY METER.** THOMAS P. HALL, Chicago, Ill., assignor of one-half to Samuel T. Hutton, Chicago, Ill. Filed Feb. 15, 1904. Serial No. 193,617.

Claim.—1. In a device for measuring X-rays, a screen and two measuring-strips of different opacity to X-rays extending in front of said screen and movable relatively to each other.

2. In a device for measuring X-rays, a screen and two measuring-strips of different opacity to X-rays extending in front of said screen and movable relatively to each other and to the screen.

3. In a device for measuring X-rays, a screen, two relatively movable measuring-strips extending in front of said screen, said strips being of different opacity to X-rays and each of gradually-increasing opacity from one end to the other.

4. In a device for measuring X-rays, a screen and two relatively movable measuring-strips of different opacity to X-rays, extending in front of said screen, said strips increasing in thickness from end to end.



5. In a device for measuring X-rays, a screen and two measuring-strips of different opacity to X-rays extending in front of said screen, the thickness of said strips increasing in a ratio of geometrical progression from end to end thereof.

6. In a device for measuring X-rays, a screen and two measuring strips of different opacity to X-rays extending in front of said screen, the thickness of said strips increasing in a ratio of geometrical progression from end to end, and said strips being movable relatively to each other.

7. In a device for measuring X-rays, a screen and two relatively movable measuring-strips of different opacity to X-rays extending in front of said screen in edge-to-edge relation and entirely covering said screen.

8. In a device for measuring X-rays, a screen and two measuring-strips of different opacity to X-rays extending in front of said screen in edge relation and entirely covering said screen, said strips increasing in thickness from end to end and being movable relatively to each other.

9. In a device for measuring X-rays, a screen and two measuring-strips of different opacity to X-rays extending in front of the screen, said strips being movable relatively to each other, and a scale associated with said strips for determining the relative movement thereof.

10. In a device for measuring X-rays, a screen, two measuring-strips of different opacity to X-rays extending in front of the screen, said strips being movable relatively to each other and to the screen, a scale associated with the strips for determining the relative movement thereof, and a second scale associated with one of the strips and a stationary part of the device for determining the extent of movement of the strips relatively to the screen.

11. In a device for measuring X-rays, a screen and two annular measuring-strips of different opacity to X-rays and both arranged to move in front of the screens with their parts in edge-to-edge relation in a manner to cover the screens.

12. In a device for measuring X-rays, a screen and two annular measuring-strips of different opacity to X-rays and both arranged to move in front of the screen with their parts in edge-to-edge relation in a manner to cover the screen, said strip being made of increasing thickness from end to end.

13. In a device for measuring X-rays, a screen and two annular, coaxial measuring-strips of different opacity to X-rays and of different diameters and arranged to pass by rotation thereof in front of the screen, and to cover an edge-to-edge relation of said screen.

14. In a device for measuring X-rays, a screen and two annular measuring-strips, of different opacity to X-rays and of different diameters and the smaller one located radially inside the other, said strips being arranged to pass by rotation thereof in front of the screen, and the strips being made of increasing thickness from end to end and movable relatively to each other.

15. In a device for measuring X-rays, a screen and two independently-rotative disks in front of said screen and each carrying an annular measuring-strip which strips are designed to pass in front and cover in edge-to-edge relation said screen, said strips being of different opacity to X-rays.

16. In a device for measuring X-rays, a screen and two independently-rotative, coaxially-disposed disks in front of the screen, and each carrying an annular measuring-strip, said strips being of different opacity to X-rays and one located radially within the other in edge-to-edge relation and covering by their combined widths the screen.

17. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, and two measuring-strips extending in front of said screen of different opacity to X-rays, said strips being made of increasing opacity from end to end and movable relatively to each other.

18. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, and two measuring-strips extending in front of said screen, of different opacity to X-rays, said strips being made of increasing thickness from end to end and movable relatively to each other.

19. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, annular measuring-strips of the character set forth adapted to pass in front of said screen in edge-to-edge relation and means for rotating said strips relatively to each other.

20. A device for measuring X-rays comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, annular measuring-strips of the character set forth adapted to pass in front of said screen in edge-to-edge relation, and gear-wheels associated with and independently rotating said strips and provided with actuating-shafts extending outside of said tube or box.

21. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, annular measuring-strips of the character set forth adapted to pass in front of said screen in edge-to-edge relation, a gear-wheel associated with and independently rotating said strips and provided with actuating-shafts extending outside of the tube or box and a scale associated with said shafts for determining the relative rotation of said strips.

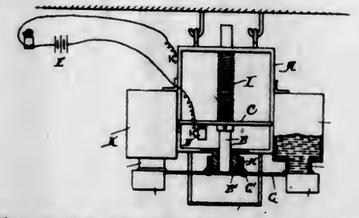
22. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, coaxially disposed, annular measuring-strips of the character set forth adapted to pass in front of said screen in edge-to-edge relation, gear-wheels associated with and independently rotating said strips and provided with actuating-shafts extending outside of the tube or box, one of said shafts being made hollow and the other shaft extending therethrough, and turning disks on the end of said shafts, one of which is provided with a scale, and the other with an indicator cooperating therewith.

23. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, two disks in front of said opening, each carrying an annular measuring-strip of the character set forth and arranged to pass in edge-to-edge relation in front of the screen, two rotative beveled gears attached one to each disk, a shaft extending at right angles to the axes of said disks and provided with a beveled gear-wheel which meshes with the gear-wheel of one of the disks, and a tubular shaft surrounding said last-mentioned shaft and provided with a beveled gear-wheel which meshes with the beveled gear-wheel of the other disk, said shafts extending outside of the tube or box and provided with hand-disks for rotating the same.

24. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, two disks in front of said opening, each carrying an annular measuring-strip of the character set forth, and arranged to pass in edge-to-edge relation in front of the screen, two rotative beveled gears attached one to each disk, a shaft extending at right angles to the axes of said disks and provided with a beveled gear-wheel which meshes with the gear-wheel of one of the disks, a tubular shaft surrounding said last-mentioned shaft and provided with a beveled gear-wheel which meshes with the beveled gear-wheel of the other disk, said shafts extending outside of the wall of the tube or box and provided with hand-disks for rotating the same, and a spring-pressed means for retaining said beveled gear-wheels in meshing relation.

25. A device for measuring X-rays, comprising an opaque tube or box provided in its wall with an opening, a screen extending across said opening, two disks in front of said opening, each carrying an annular measuring-strip of the character set forth and arranged to pass in edge-to-edge relation in front of the screen, two rotative beveled gear-wheels attached one to each disk, a shaft extending at right angles to the axes of said disks and provided with a beveled gear-wheel which meshes with the gear-wheel of one of the disks, a tubular shaft surrounding said last-mentioned shaft and provided with a beveled gear-wheel which meshes with the beveled gear-wheel of the other disk, said shafts extending outside of the wall of the tube or box and provided with hand-disks for rotating the same, and means acting endwise on said shafts for maintaining said gear-wheels in mesh and serving also as a brake to prevent accidental rotation of said shafts and the disks.

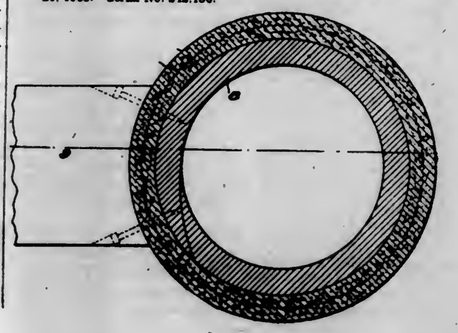
788,152. **FIRE-ALARM AND FIRE-EXTINGUISHING APPARATUS.** JAMES HARTLEY, Philadelphia, Pa. Filed July 1, 1904. Serial No. 214,863.



Claim.—1. In a device of the character described, a frame secured in juxtaposition to the ceiling, a sliding rod arranged within said frame, two contacts carried by and insulated from the rod, the other arranged upon the frame, wires leading from each contact to and through a suitable source of electricity, an alarm device, a spring tending to force said contacts together, means for holding the contacts normally apart, said means being held in position by solder adapted to melt at a predetermined point, a fire-extinguishing device containing a fire-extinguishing fluid, said fluid held against escaping by the same means as holds the contacts apart so that the fluid is released and the contacts forced together simultaneously, as and for the purpose specified.

2. In a device of the character described, a frame suspended from the ceiling, a vertically-sliding rod extending through the frame, a cross-piece secured to said rod, a contact carried by said cross-piece and insulated therefrom, a wire extending from said contact to one terminal of the source of electricity, a wire extending from the other terminal of the source of electricity through a suitable alarm device back to the frame, a spring coiled about the rod tending to force said contact in contact with the frame, an exteriorly-threaded boss depending from the frame through which the lower end of the rod extends, an interiorly-threaded ring normally threaded upon said boss, a strip soldered across the lower end of said ring with a solder adapted to melt at a predetermined temperature, the lower end of said rod resting upon said strip, receptacles secured to the frame containing fire-extinguishing fluid, said receptacles provided with openings through their lower end, said strip extending normally across said openings and being soldered to the receptacles to hold the liquid within the same, weights secured to each end of the strip, and a guard or cage depending from the frame to catch the strip when it falls, as specified.

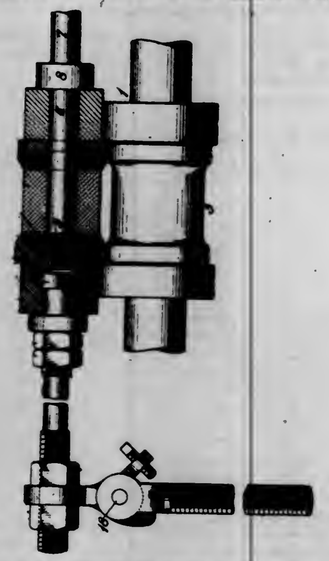
788,163. **COLUMN.** RUDOLPH HEGENER, Chicago, Ill. Filed Jan. 21, 1905. Serial No. 242,136.



Claim.—1. A hollow building-column having movable wooden rings fitting therein and adapted for the attachment of rails to the column.

2. A hollow column of plastic material having a sheet of perforated metal embedded in and extending throughout the wall thereof, and wooden rings fitting inside the same.

788,154. **MANDREL.** JOHN A. HOCK and HENRY W. HOCK, Youngstown, Ohio. Filed Sept. 22, 1903. Serial No. 174,207.



Claim.—1. In apparatus for welding recessed pipe-couplings and the like, the combination of welding-rolls each provided with a working face and flanges or collars at the sides of said working face, and a mandrel coöperating with said rolls, said mandrel comprising a central portion corresponding in diameter and shape to the interior of the coupling, a portion of enlarged diameter at one side of said central portion and arranged to contact with the flanges of the rolls, said central and enlarged portions being in separate parts, means for securing said parts together, and means for advancing said enlarged portion toward said central portion to compensate for wear.

2. A mandrel for use in welding recessed pipe-couplings and the like, comprising a central sleeve corresponding in diameter and shape to the interior of the coupling, a sleeve of enlarged diameter at one side of said central sleeve, an arbor on which said sleeves are mounted, a shoulder on said arbor, and a wear-compensating disk between said shoulder and the enlarged sleeve whereby the latter may be advanced toward the central sleeve to compensate for wear.

3. A mandrel for use in welding recessed pipe-couplings and the like, comprising an arbor, separate sleeves thereon forming respectively a central working portion, an enlarged portion at one side thereof and an annular bearing-shoulder, and a wear-compensating disk interposed between the sleeves forming the enlarged portion and the annular shoulder.

4. In apparatus for forming recessed pipe-couplings and the like, the combination of a roll provided with a working face and flanges at the sides thereof and having an annular bearing-shoulder formed on one of said flanges, and a mandrel coöperating with said roll and comprising an arbor, and sleeve portions thereon forming respectively a central working face, an enlarged portion at one side thereof and an annular bearing-shoulder arranged to coöperate with the bearing-shoulder of the roll, and a wear-compensating disk interposed between the sleeves forming the enlarged portion and the annular bearing-shoulder.

5. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections, one comprising a central portion corresponding in diameter and shape to the interior of the coupling, a portion of enlarged diameter at one side of said central portion, said central and enlarged portions being formed as separate parts, means for securing said parts together, and means for advancing said enlarged portion toward said central portion to compensate for wear.

6. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections, one section comprising an enlarged end portion and the other section comprising a central sleeve corresponding in diameter and shape to the interior of the coupling, an end sleeve of enlarged diameter, an arbor on which said sleeves are mounted, a shoulder on said arbor, and a wear-compensating disk placed between said shoulder and said enlarged sleeve whereby to advance the latter toward the central sleeve to compensate for wear.

7. In apparatus for forming recessed pipe-couplings and the like, the combination of a roll provided with a working face and flanges on the sides thereof and having an annular bearing-shoulder formed on one of said flanges, and a mandrel comprising two transversely-separable sections, one of said sections forming an enlarged end portion projecting into the pass of the rolls and the other consisting of an arbor and three sleeves or collars thereon, one forming the central portion of the mandrel, another forming an enlarged end portion projecting into the pass of the rolls, and the third forming an annular shoulder to coöperate with the annular shoulder of the roll, and a disk interposed between the last two sleeves to compensate for wear.

8. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections, one comprising the main body portion and an enlargement at one end thereof, and the other being an enlarged end portion, a stationary shaft on which the latter is rotatably mounted, and means for adjusting said end portion longitudinally on said shaft to compensate for wear.

9. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections, one comprising the main body and an enlarged end portion and the other comprising an enlarged end portion formed as a sleeve provided with an enlarged bore, a stationary shaft provided with a head fitting in the bore of said sleeve, and an adjusting-nut on said shaft and holding said sleeve toward said head.

10. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections one of said sections comprising the main body and an enlarged end portion, and the other comprising an enlarged end portion, a shaft on which said latter section is rotatably mounted, and means for adjusting said shaft longitudinally to compensate for wear.

11. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections, one comprising an enlarged end portion provided with a socket, a stationary shaft on which the same is mounted, means for moving the same longitudinally to compensate for wear, and the other portion comprising an arbor provided with a shoulder, a sleeve thereon forming the central portion of the mandrel, another sleeve thereon forming an enlarged end portion, a wear-compensating disk between said last sleeve and a shoulder on the mandrel, and a nut on the end of the arbor securing said sleeves in position and adapted to enter the recess in the other mandrel-section.

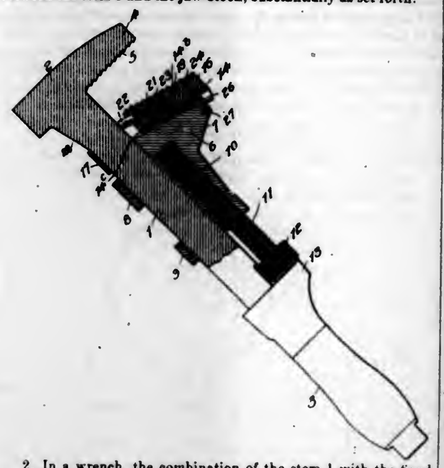
12. A mandrel for use in welding recessed pipe-couplings and the like, consisting of two transversely-separable sections one comprising a central portion and an enlarged portion at one side thereof, said central and enlarged portions being formed as separate sleeves, an arbor on which the same are mounted a shoulder on said arbor, a wear-compensating disk between said shoulder and the sleeve forming the enlarged end portion, and the other mandrel-section comprising an enlarged end portion, a stationary shaft on which the same is rotatably mounted, and a nut for adjusting the same longitudinally on said shaft.

788,155. **COMPOSITION FOR DESTROYING PEAR BLIGHT.** OLIVER E. HORTON, Jefferson, La. Filed Jan. 20, 1905. Serial No. 242,035.

Claim.—The herein-described composition of matter, consisting of oil of peppermint, aqua-ammonia, calomel, and linseed-oil, substantially as described and for the purpose specified.

788,156. **PIPE-WRENCH.** JACOB W. KING, Galesburg, Ill., assignor, by direct and mesne assignments, to Albert J. Perry, trustee, Galesburg, Ill. Filed Oct. 26, 1904. Serial No. 230,944.

Claim.—1. In a pipe-wrench, the combination with the stem 1 having a fixed head 2 with the teeth 5, of the adjustable head 6, the strap-loop surrounding the stem 1 and slidably mounted on the head 6, the jaw-block 14 hinged at 16 in the strap-loop, the antifriction-rollers between the jaw-block and the head, means for fastening the jaw-block 14 against rotation on the hinge, and the spring interposed between the stem 1 and the jaw-block, substantially as set forth.



2. In a wrench, the combination of the stem 1 with the fixed head 2 having the teeth 5, the sliding head 6, the bolt 11 for adjusting the head along the stem 1, the antifriction-rollers bearing upon the sliding head 6, the strap-loop 15 17 surrounding the stem 1, and fitted in a guideway in the head 6, the jaw-block 14 hinged in the strap-loop and adapted to be turned to permit access to the inner surfaces and parts, and the spring interposed between the jaw-block and the stem 1, substantially as set forth.

3. In a pipe-wrench, the combination of the stem 1, having the head 2 with the teeth 5, of the adjustable head 6 formed with a downwardly and outwardly inclined bearing and guiding surface, the antifriction-rollers resting upon said surface, the jaw-block 14 resting upon the said rollers and arranged to travel on inclined lines to and from the stem, the sliding strap-loop having the part 17 surrounding the stem and the downwardly-inclined parts slidably mounted on the head 6 and carrying the jaw-block 14 having a series of teeth 19 parallel to the inclined bearing-surface on the head 6 and to the series of rollers, substantially as set forth.

4. In a pipe-wrench, the combination with the shank, the fixed jaw, the sliding jaw, and the means for varying the distance between the fixed jaw and the sliding jaw, of means for automatically varying the travel of the sliding jaw toward and from the shank.

5. In a wrench, the combination of the shank, the relatively fixed jaw, the head adjustable along the shank, the sliding jaw on the head, manually-operated devices for adjusting the head, and automatically-actuated devices for adjusting the travel of the sliding jaw on the head while the head is being adjusted by the manually-operated adjusting devices, substantially as set forth.

6. In a wrench, the combination with the fixed jaw, the shank connected thereto, and a tapered portion as at 28, a head 6 sliding along the shank, a sliding jaw 14, a holding and stopping device for the sliding jaw, adapted to engage with the tapered part of the shank and to hold the sliding jaw in different positions relatively to the shank, substantially as set forth.

788,157. **BROOM.** FRANK R. LAY, Indianapolis, Ind., assignor of one-half to Henry C. Churchman, Indianapolis, Ind. Filed Jan. 4, 1904. Serial No. 187,695.



Claim.—A broom-head having the butt-ends of its broom fibers exposed and saturated with pitch, a retaining-band encircling the saturated portion of the head and having its overlapping ends interlocked, a handle having a pointed end inserted in the head, fastening devices passing through the interlocking ends of the retaining-band and engaging the handle, staples engaging the band and head on each side of the handle, an auxiliary retaining-band spaced from the first-named band, staples passing through the auxiliary band and engaging the broom-head, and fastening devices engaging the auxiliary band and the pointed end of said handle.

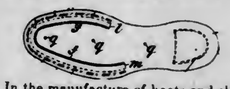
788,158. **FASTENING MEANS FOR BOTTLES OR SIMILAR THINGS.** MATHIAS A. LAZARUFF, New York, N. Y., assignor to The Royal Glass Jar and Bottle Company, New York, N. Y., a Corporation of the District of Columbia. Filed May 6, 1904. Serial No. 206,627.



Claim.—1. The combination with a hollow vessel having internal lugs near its mouth, of a closure or cap adapted to fit against the mouth of the said vessel, the closure having an inwardly-extending body portion in which is securely held a circumferential ring having projecting lugs to engage the lugs of the hollow vessel.

2. The combination with a jar or bottle having inwardly-projecting lugs in its neck, of a cap or closure fitting into the bottle-neck and having a flange to close against the top of the bottle-neck, the said cap having a circumferential ring held fast therein and provided with projecting lugs to engage the lugs of the bottle-neck.

788,159. **MANUFACTURE OF SOLES FOR BOOTS OR SHOES.** ALFRED LEADBEATER and TOM LEADBEATER, Leeds, England, assignors to the Elbeegee Syndicate, Limited, London, England, a Corporation of England. Filed May 9, 1904. Serial No. 207,101.



Claim.—1. In the manufacture of boots and shoes, the method of forming a sole having a detachable outer portion which consists in cutting marginal slits in the fore parts of two layers forming the middle sole, superposing said layers upon the outer sole, connecting the severed marginal portions of said layers to the outer sole to form a flange thereon, and then separating the two layers forming the middle sole from the said marginal portions, whereby a flange is formed on the removable outer sole conforming to the fore part of the middle sole.

2. In the manufacture of boots and shoes, the method of forming a sole having a detachable outer portion, which consists in making marginal slits in the fore part of two layers forming the middle sole, the slit in the upper layer being farther from the periphery of the sole than the slit in the lower layer, superposing said layers upon the outer sole, connecting the severed marginal portions of the middle sole with the outer sole to form a retaining-flange thereon, and finally separating the body portions of the middle sole from the said marginal portions thereof, whereby the outer sole is formed with an undercut flange conforming to the contour of the middle sole.

3. In the manufacture of boots and shoes, the method of forming a sole having a detachable outer portion, which consists in cutting several layers of material to the same external shape, forming marginal slits in the fore parts of two layers constituting a middle sole, said slits being at different distances from the periphery, superposing the slitted layers upon an outer sole, then temporarily connecting the said layers, then stitching the severed marginal portions of the middle sole to the outer sole, and then separating the body portions of the middle sole from the severed marginal portions thereof.

4. In the manufacture of boots and shoes, the method of forming a sole having a detachable outer portion, which consists in cutting marginal slits in the fore parts of two suitably-shaped layers of sole material, said slits being respectively at different distances from the peripheries of said layers, superposing said layers upon a third layer of said material, stitching the severed marginal portions of the first-mentioned layers to the last-mentioned layer to form a flange thereon, and finally cutting the body portions of the two first-named layers from the severed marginal portions, whereby the single layer is provided with an undercut flange conforming to the fore parts of the other layers.

788,160. SOLE FOR BOOTS OR SHOES. ALFRED LEADBEATER and TOM LEADBEATER, Leeds, England, assignors to The Elbeogo Syndicate, Limited, London, England, a Corporation of England. Filed July 30, 1904. Serial No. 218,986.



Claim.—1. The combination with a shoe and with a heel-block permanently connected thereto, of a sole normally constituted for disassemblage therefrom and to interlock at its forward portion with the shoe, said sole having an integral loop at its rear end which loop surrounds and is removably connected to the heel-block and serves to secure the sole upon the shoe.

2. The combination with a shoe and with a heel-block permanently connected thereto, of a sole normally constituted for disassemblage therefrom and to interlock at its forward portion with the shoe, said sole having a loop at its rear end extending backward of said heel-block and surrounding the same, and means comprising a removable heel to hold the loop in position.

3. The combination with a shoe having a permanent sole, of a heel-block carried by the shoe, a removable sole having a loop surrounding such heel-block; and a removable heel imposed upon said heel-block and loop.

4. The combination in a shoe, of a permanent sole having a block at its rearward portion, a removable sole having a loop surrounding such block, a heel imposed upon such loop and block, and means to secure the heel in position.

5. The combination in a shoe, of a sole, a block at the rearward portion thereof, a removable sole having means of attachment to the sole of the shoe and having a loop surrounding such block, and a removable heel imposed upon such block and loop and sole adjacent thereto, and means to secure the heel to the block.

6. The combination with a shoe having a sole provided at the forward portion with a channel at its sides and end, and provided with a heel-block, of a removable sole having flanges to take into said grooves and having a loop to rearwardly surround said heel-block, and a removable heel adapted for attachment to said heel-block and to lock said loop in position.

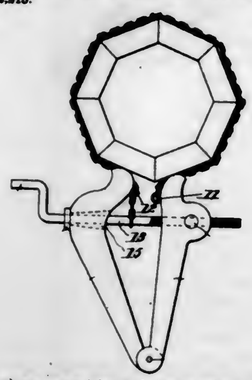
7. The combination with a shoe having a sole secured thereto such sole having a channel in its edge and such shoe also carrying a heel-block having a channel surrounding the same, a removable sole provided with a loop and having a flange or rim provided with a channel, the flange formed by such channel adapted for entry into the channel in the sole, and the flange formed by the channel in the permanent sole adapted for entrance into the channel in the removable sole, the said loop of the removable sole adapted to surround the heel-block, a removable heel provided with a rim having a channel leaving a flange adapted to enter the channel in the heel-block and hold the said loop from displacement.

8. The combination with a shoe having a heel-block having at its forward side a sole-receiving channel and having at its sides and back a heel-receiving channel upon a lower plane than said sole-receiving channel, a removable sole having interlocking engagement with the forward part of the shoe and having a loop to surround the heel-block and having a lip to enter the sole-receiving channel and at such portion to be held from displacement by the ledge overhanging such channel, and a removable heel having a rim upon it, such rim having a channel, the channel adapted to receive the flange formed by the heel-receiving channel and the flange upon such rim formed by the channel thereon adapted to enter the heel-receiving channel in the heel-block, said removable heel adapted to hold the loop in place.

9. In a shoe, the combination with a body portion, of a permanent sole secured to said body portion, a heel-block secured upon said permanent sole near its rear end, a removable sole normally constituted for disassemblage interlocking at the forward part of the shoe and having a loop passing about said heel-block, the said removable sole overlying the said permanent sole and being flush therewith at the back and sides of the rear portion of said permanent sole and a heel normally constituted for disassemblage from and interlocking with said heel-block, and forming at its rear and sides flush joints with said removable sole.

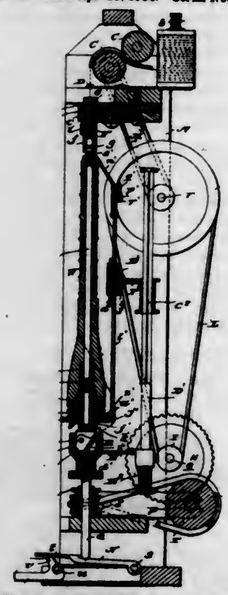
10. The combination with a shoe having a middle sole provided with a groove at its forward part overhung by a flange and a heel-block having a groove overhung by a flange, of a removable sole having at its forward part a rim provided with a groove overhung by a flange, the flanges on the respective sole portions being adapted to interlock, said removable sole having a loop adapted to surround said block, such block being provided at its forward face with a channel or groove and a flange, the channel adapted to receive and the flange to overlie a portion of the removable sole; and a removable heel having a tread portion and a groove overhung by a flange adapted to mate with and interlock with similar portions upon said heel-block and to overlie the loop of the sole and lock the same in position, the outer edges of such heel, the removable sole and the middle sole to constitute when the parts are assembled the heel-surface of the shoe, and means to hold the removable heel in position.

788,161. CLAMP. LUDGER MARCHAU, Kankakee, Ill., assignor of one-half to John Paulissen, Kankakee, Ill. Filed June 11, 1904. Serial No. 212,315.



Claim.—A clamp comprising a chain, arms hinged to each other at one end and having recesses in the other ends through which the chain extends, the extremities of said ends being constructed to bear slidably against the work on each side of the recesses, attaching means for the chain, on the inner side of said arms, and means to draw the arms together.

788,162. SPINNING MECHANISM. ARTHUR L. MATHEWSON, Norwich, Conn. Filed Apr. 23, 1904. Serial No. 204,596. (Model.)



Claim.—1. In a spinning mechanism, the combination of a spindle, an idler receiving the spindle and having a passage for the material to be spun, a bobbin mounted on the spindle, and a rotary carrier receiving the idler and arranged to rotate the spindle and carry the material to be spun around.

2. In a spinning mechanism, the combination of a spindle, an idler receiving the spindle and having a passage for the material to be spun, a bobbin mounted on the spindle, a rotary carrier receiving the idler, and arranged to carry the material to be spun around, and coacting means on the spindle and the rotary carrier whereby the former is rotated by the latter.

3. In a spinning mechanism, the combination of a spindle, an idler having means for holding the material to be spun, a rotary carrier arranged to carry the material to be spun around, and a driving connection between the rotary carrier and the spindle for rotating the latter by the former.

4. In a spinning mechanism, the combination of a rotary carrier having a socket in its body, and adapted to carry the material to be spun around, an idler having a reduced portion arranged in the socket of the carrier, and provided with a passage for the material to be spun, and also having a socket, a spindle arranged in the socket of the idler and adapted to receive a bobbin, and a driving connection between the carrier and the spindle for rotating the latter by the former.

5. In a spinning mechanism, the combination of a rotary carrier comprising a cup-shaped body having a notch in its side, an idler having a reduced portion arranged in the cup-shaped body of the carrier and provided with a passage for the material to be spun, and also having a socket, a spindle arranged in the socket of the idler and adapted to receive a bobbin, and a driving connection between the carrier and the spindle for rotating the latter by the former.

6. In a spinning mechanism, the combination of a rotary carrier arranged to carry the material to be spun around, and having a cup-shaped body and opposite arms on the same, an idler arranged in the cup-shaped body of the carrier and having a socket, and also having a passage, a spindle arranged in the socket of the idler, and adapted to receive a body, and a plate connected with the spindle and arranged to be engaged by the arms of the carrier.

7. In a spinning mechanism, the combination of a rotary carrier arranged to carry the material to be spun around, and having a cup-shaped body and opposite arms on the same, an idler arranged in the cup-shaped body of the carrier and having a socket, a passage for material, and an eccentric, a spindle arranged in the socket of the idler, and a plate receiving the eccentric on the idler and connected with the spindle and arranged to be engaged by the arms of the carrier.

8. In a spinning mechanism, the combination of a rotary carrier having a cup-shaped body provided with a notch in its side and opposite arms on said body, an idler arranged in the cup-shaped body of the carrier and having a socket, a passage for material and an eccentric, a spindle arranged in the socket of the idler, and having a plate provided with a notch, and a plate receiving the eccentric on the idler, and having a lug disposed in the notch of the plate on the spindle; said eccentric-plate being arranged to be engaged by the arms of the carrier.

9. In a spinning mechanism, the combination of a rotary carrier having a cup-shaped body arranged to carry the material to be spun around, an idler having a socket, and also having a bifurcated portion disposed in the body of the carrier, and a swinging piece in said bifurcated portion, provided in its side with a groove, a spindle arranged in the socket of the idler, and means intermediate of the carrier and the spindle for rotating the latter by the former.

10. The combination, in a spinning mechanism, of a bifurcated part, and a swinging piece mounted in said bifurcation of the part and having a groove in its side; said groove being arranged to be closed by one wall of the bifurcation when the swinging piece is in the bifurcation and to be exposed when the swinging piece is swung out of the bifurcation.

11. In a spinning mechanism, the combination of a frame, a spindle adapted to receive a bobbin, a top support for the spindle with which the latter is removably engaged, a vertically-adjustable, rotary carrier arranged to carry the material to be spun around, and having a socket, means for adjusting said rotary carrier, an idler arranged in the socket of the carrier and having a socket receiving the lower end of the spindle, and also having a passage for the material to be spun, a bobbin removably arranged on the spindle, and means intermediate of the rotary carrier and the spindle for rotating the latter by the former.

12. In a spinning mechanism, the combination of a frame, a rotary carrier arranged to carry the material to be spun around, and having a socket, an idler disposed in the socket of the carrier, and having a socket, and a passage for the material to be spun, a spindle arranged in the socket of the idler, means intermediate of the rotary carrier and the spindle for rotating the latter by the former, a shaft mounted to rock in the frame alongside of the spindle, means for rocking said shaft in one direction, an arm on the shaft, and a tappet device fixed with respect to the rotary carrier and arranged to engage the arm so as to rock the shaft in the other direction, a device for putting material to be spun on a bobbin; the said device being mounted on the shaft so as to rock therewith and move longitudinally thereon and suitable means for actuating said device.

13. In a spinning mechanism, the combination of a frame, a rotary carrier arranged to carry the material to be spun around, and having a socket, an idler disposed in the socket of the carrier and a passage for the material to be spun, a bar fixed to and extending upwardly from the idler, a slide movable on said bar and having a finger, a spindle arranged in the socket of the idler, a shaft mounted to rock in the frame alongside of the spindle and having a lateral arm, means for rocking said shaft in one direction, a tappet device fixed with respect to the rotary carrier and arranged to engage the arm so as to rock the shaft in the other direction, and a device for putting material to be spun on a bobbin; the said device being mounted on the shaft so as to rock therewith and move longitudinally thereon.

14. In a spinning mechanism, the combination of a frame, material-delivering rolls mounted in the frame, a primary driver, a driving connection between the driver and one of the rolls for rotating the latter by the former, a rotary carrier arranged to carry the material to be spun around, a driving connection between the primary driver and said carrier, an idler having a socket, and a passage for the material to be spun, a spindle arranged in the socket of the idler, and a connection between the carrier and the spindle for driving the latter by the former.

15. In a spinning mechanism, the combination of a frame, a spindle, a top support for the spindle, journaled in the frame, coacting means on the spindle and top support whereby the former is enabled to turn the latter, a vertically-adjustable, rotary carrier arranged to carry the material to be spun around, and having a socket in its upper side, means for adjusting said carrier vertically, an idler disposed in the socket of the carrier and having a socket receiving the lower end of the spindle, and also having a passage for the material to be spun, and means for transmitting motion from the rotary carrier to the spindle.

16. In a spinning mechanism, the combination of a spindle, an idler receiving the spindle and having a passage for the material to be spun, a bobbin mounted on the spindle, a rotary carrier receiving the idler and arranged to rotate the spindle and carry the material to be spun around, a horizontally-rocking device movable vertically at the side of the bobbin and having fingers, means whereby said device is enabled to hold the idler against rotation and suitable means for actuating the said device.

17. In a spinning mechanism, the combination of a spindle, an idler receiving the spindle and having a passage for the material to be spun, a bobbin mounted on the spindle, a rotary carrier receiving the idler and arranged to rotate the spindle and carry the material to be spun around, a horizontally-rocking device movable vertically at the side of the bobbin and having fingers, means whereby said device is enabled to hold the idler against rotation, suitable means for actuating the said device, a slide having a finger and arranged to be moved by the said device.

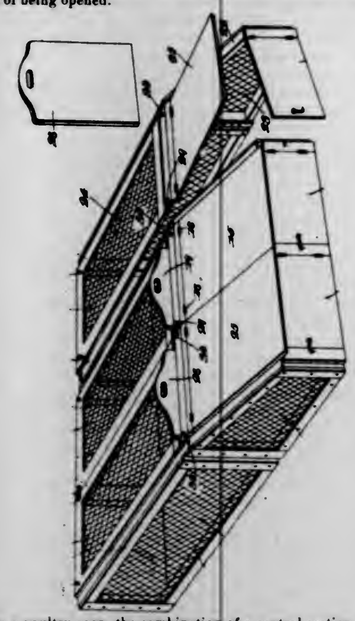
788,163. POULTRY-COOP. WILLIAM MITCHELL, North Yakima, Wash. Filed Oct. 27, 1904. Serial No. 230,240.

Claim.—1. A poultry-coop comprising a central section having spaced side walls, a roof and end closures, side sections each having one side wall, a roof and end closures, and means for detachably coupling said sections to form a plurality of separate sections having their side walls in common.

2. A poultry-coop comprising a central section having side walls, a roof, opposite end closures, a slidable partition dividing the section into compartments, and side sections, each side section having one side wall, a roof, opposite end closures, a slidable partition dividing the section into compartments, and means for detachably connecting the sections.

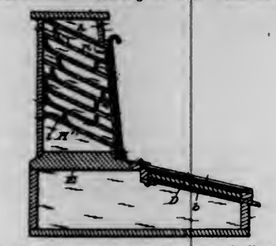
3. In a poultry-coop, the combination of a central section having side walls, a roof, opposite end closures, and a slidable partition dividing the section into compartments, the portion of the roof over one of the compartments capable of being opened, and detachable side sections, each side section comprising a side wall, a roof, opposite end closures, and a slidable partition dividing the section into

compartments, that portion of the roof over one of the compartments capable of being opened.



4. In a poultry-coop, the combination of a central section having side walls, a roof, opposite end closures, a slidable partition dividing the section into compartments and working through the roof, side sections each having a side wall, a roof, opposite end closures and a slidable partition operating through the roof and dividing the section into compartments, and means to detachably connect the sections.

788,164. CREDIT-ACCOUNTING APPLIANCE. PERRY A. MCCASKEY, Lisbon, Ohio. Filed Aug. 29, 1904. Serial No. 222,554.



Claim.—1. Credit-accounting appliances including a case having holder-guides, bill-holders mounted removably in the guides, and movable gage-plates mounted on the case and normally retaining the holders in the guides.

2. Credit-accounting appliances including a case having inclined guides, bill-holders mounted slidingly in the guides and having upturned rear ends, and gate-plates mounted on the case limiting the forward movements of the bill-holders.

3. Credit-accounting appliances including a case having inclined guides, bill-holders mounted slidingly in the guides and having upturned fingers at their forward ends and also having upturned rear ends, and gage-plates mounted on the case limiting the forward movements of the bill-holders.

4. Credit-accounting appliances including a case having inclined guides and also provided with gage-plates at the forward ends of the guides adapted for the application of index characters thereto, bill-holders mounted in the guides and retained therein by the gage-plates and provided with upturned fingers at the fronts thereof.

5. Credit-accounting appliances including a case having guides therein, bill-holders mounted slidingly in the guides, gage-plates having slots therein and serving to retain the holders in the guides, and securing devices attached to the case and extending through the slots in the gage-plates serving to support the gage-plates and permit movements thereof to release the bill-holders.

6. Credit-accounting appliances including a case comprising ends and partitions, bill-holders mounted removably in the case, gage-plates connected movably to the fronts of the partitions and the ends of the case and having notches therein through which the bill-holders may be removed from the case.

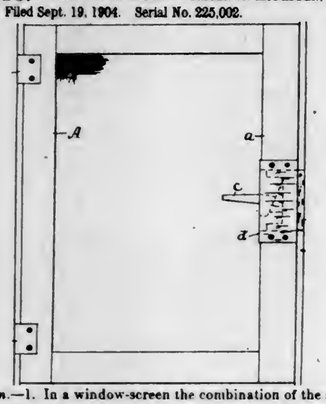
7. Credit-accounting appliances including a desk part, a cabinet part mounted on the desk part and comprising a case, a hinged door for the case, bill-holders mounted slidingly and removably in the case, and gage-plates mounted movably on the case and normally retaining the bill-holders and also gaging the movements thereof, substantially as set forth.

8. A device of the character described comprising a case, holders in said case, said holders being each provided with retaining means at their front ends and with an upwardly and rearwardly inclined rear portion.

9. A device of the character described comprising a case, inclined guides therein, holders slidably mounted in said guides, each of said holders being provided at its front end with upwardly-extending retaining means and having its rear portion upwardly and rearwardly inclined.

10. A device of the character described, comprising a case having guides therein, holders movably supported in said guides, and gage-plates adjustably secured to said case and adapted in one position to permit the withdrawal of the holders from the case and in another position to engage said holders to prevent such withdrawal.

788,165. WINDOW-SCREEN. ORIGEN A. MCFADDEN, Fairfield, Me. Filed Sept. 19, 1904. Serial No. 225,002.

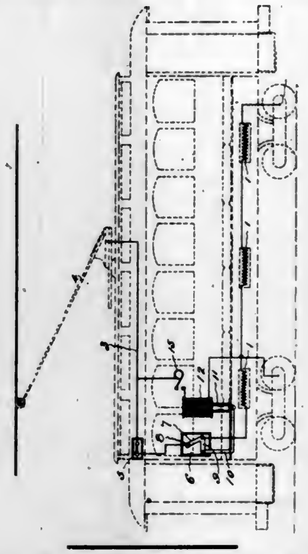


Claim.—1. In a window-screen the combination of the side bar having a rabbeted recess formed in its outer edge, a tongue in the casing fitting said recess, a plate slidably mounted in said side bar and adapted to overlap the side of said tongue to hold the screen in place, said plate having a flange on its inner portion projecting inward at right angles to form a bearing, a fixed plate on the outer edge of the side bar on the edge of which the sliding plate slides, a spring interposed between said fixed plate and said flange, a wedge-shaped projection on the back of said flange and a sliding wedge acting against said projection to force out said plate.

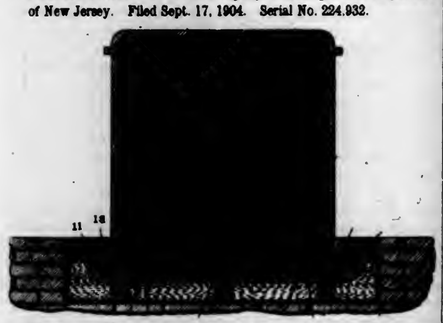
2. In a window-screen, the combination of the side bar having a rabbeted recess formed in its outer edge a tongue in the casing fitting said recess, a plate slidably mounted in said side bar and adapted to overlap the side of said tongue to hold the screen in place, said plate having a flange on its inner portion projecting inward at right angles to form a bearing, a fixed plate on the outer edge of the side bar on the edge of which the sliding plate slides, a spring interposed between the fixed plate and said flange, a wedge-shaped projection on the back of said flange, a sliding wedge cooperating with said projection having formed thereon a handle at right angles to said wedge with a groove or recess between them, a covering-plate having a flange fitting said groove or recess to hold said wedge in place.

788,166. ELECTRICAL SYSTEM OF HEATING. ARTHUR D. NEWTON, Hartford, Conn. Filed July 9, 1904. Serial No. 215,859.

Claim.—In an electrically-propelled traveling vehicle, in combination, an electrical circuit from a traveling contact to a ground or a return wire, a plural number of heaters disposed about the interior of the vehicle and connected in said circuit, a manually-operative cut-out in said circuit, an automatically-operative switch in said circuit, an electrical circuit from the traveling contact to a ground or a return wire, a thermostat connected in said latter circuit and arranged to open said circuit when the temperature is above a predetermined degree and to close said circuit when the temperature is below a predetermined degree, a magnet connected in said thermostatic circuit, an armature adapted to be moved by said magnet, and a mechanical connection between the armature in the thermostatic circuit and the automatic switch in the heater-circuit, substantially as specified.



788,167. PROCESS OF COLORING STEEL OR IRON PLATE. THOMAS O'BRIEN and WILLIAM P. LONG, Elwood, Ind., assignors to American Sheet and Tin Plate Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Sept. 17, 1904. Serial No. 224,932.



Claim.—1. That method of coloring metal sheets, which consists in heating the same in a closed receptacle, reducing the temperature of the receptacle and sheets, and thereafter introducing an oxidizing liquid into the receptacle while the plates are hot and the cover remains over the sheets.

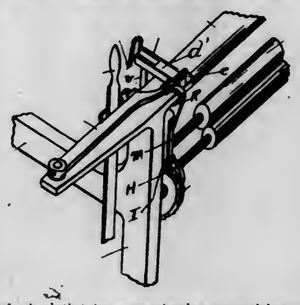
2. That method of coloring metal sheets, which consists in inclosing the same in a closed box, sealing with a permeable seal, subjecting the box and plates to a high degree of heat, withdrawing the heated box and its contents and placing the same in a shallow tank of an oxidizing liquid whereby the liquid may percolate into the bottom of the interior of the box while the plates are in a heated condition.

3. That method of coloring metal sheets, which consists in stacking the same horizontally in a shallow pan, covering with an inverted box-cover, heating, and then inserting water into the pan and interior of the cover while the plates are hot and the cover remains over the sheets.

4. That method of coloring metal sheets, which consists in heating the same in a closed receptacle and thereafter introducing water into the receptacle while the plates are hot and the cover remains over the sheets.

5. That method of coloring metal sheets, which consists in inclosing the same in a closed box, sealing with a permeable seal, subjecting the box and plates to a high degree of heat, withdrawing the heated box and its contents and allowing the same to stand until partially cool, placing the box with its contents in a shallow tank of water and allowing the same to stand therein and the water to enter the box, removing said tank and contents from said basin and allowing the same to stand until sufficiently cool to handle before opening.

788,168. STOP-MOTION FOR CLOTH-TAKE-UP ROLLS. FELIX O'DONNELL, Pawtucket, R. I., assignor of one-half to Susan A. Brown, Pawtucket, R. I. Filed Apr. 25, 1903. Serial No. 154,257.



Claim.—1. A cloth-take-up mechanism comprising a take-up roll, a ratchet-wheel and detent-pawl for operating said roll, a weft-fork, a supporting-plate therefor, a guide in which said plate reciprocates, a shipper-operating lever having a finger extending transversely across the top face of said plate, whereby the latter is held in said guide, and a pivoted dog operated by said plate and normally engaging said detent-pawl.

2. A cloth-take-up mechanism comprising a take-up roll, a ratchet-wheel and detent-pawl for operating said roll, a weft-fork, a supporting-plate therefor, a guide in which said plate reciprocates, a shipper-operating lever having a finger extending transversely across the top face of said plate, whereby the latter is held in said guide, and a pivoted dog having a laterally-extended arm engaged with said plate, said dog normally engaging said detent-pawl.

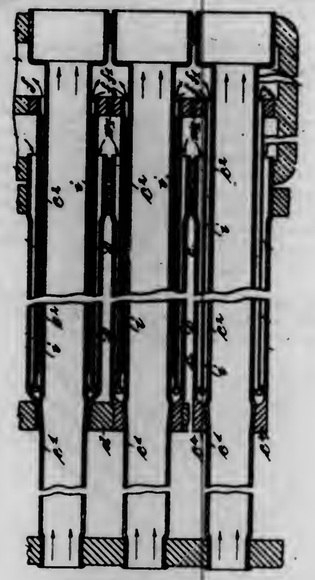
788,169. SUPERHEATER FOR TUBE-BOILERS. WILHELM SCHMIDT, Wilhelmshöhe, near Cassel, Germany. Filed Nov. 21, 1904. Serial No. 233,645.

Claim.—1. In a tube-boiler, the combination of the boiler-body proper, of a plurality of flues, mantle-tubes surrounding some of the flues on part of their length and so fastened to their respective flues as to help anchoring, means for leading steam to be superheated and serving for cooling the said flues, through the annular space between the flues and the surrounding mantle-tubes, substantially as and for the purpose set forth.

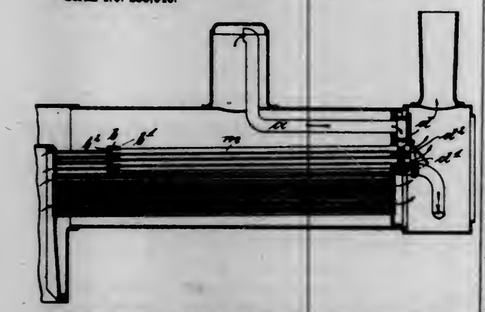
2. In a tube-boiler, the combination of the boiler-body proper, of a plurality of flues, mantle-tubes surrounding some of the flues on part of their length and each so fastened with one end to its respective flue as to help anchoring, means for leading steam to be superheated and serving for cooling the said flues, through the annular space between the flues and the surrounding mantle-tubes, substantially as and for the purpose set forth.

3. In a tube-boiler, the combination of the boiler-body proper, of a plurality of flues, mantle-tubes surrounding some of the flues on part of their length and so fastened to their respective flues as to help anchoring, an intermediate tube placed into the annular space between said flues and the surrounding mantle-tubes, so as to form return-channels, means for leading steam to be superheated and serving for cooling the said flues, through the annular space between the flues and the surrounding mantle-tubes, substantially as and for the purpose set forth.

788,169.



788,170. SUPERHEATER FOR FLUE-BOILERS. WILHELM SCHMIDT, Wilhelmshöhe, near Cassel, Germany. Filed Nov. 21, 1904. Serial No. 233,646.



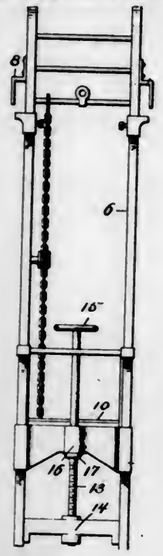
Claim.—1. In a superheater for flue-boilers, the combination with the boiler-body proper, of a plurality of flues, some of them being concentrically surrounded by two tubes so as to form heat-insulated spaces between the flues and the mantle-tubes, means for leading the steam to be superheated through the annular spaces between the flues and the mantle-tube, for the purpose as set forth.

2. In a superheater for flue-boilers, the combination with the boiler-body proper, of a plurality of flues, some of them being concentrically surrounded by two tubes tightly placed upon each other, one of both consisting of heat-insulating material, and means for leading steam to be superheated through the annular space between the flues and the mantle-tubes, substantially as described and for the purpose set forth.

3. In a superheater for flue-boilers, the combination with the boiler-body proper, of a plurality of flues, some of them being concentrically surrounded by two tubes tightly placed upon each other, one of both consisting of heat-insulating material, a partition arranged within the annular spaces between the flues and the mantle-tubes, so as to create return-channels, and means for leading the steam to be superheated through these return-channels, substantially as described and for the purpose set forth.

788,171. SCAFFOLD. OSWALD SCHWERIN, Chicago, Ill. Filed Aug. 4, 1904. Serial No. 219,577.

Claim.—A scaffold comprising a ladder; a frame slidably mounted thereon and carrying a foldable platform; putlogs secured under the platform and extensible outwardly therefrom and having rollers at their outer ends; a screw for adjusting said putlogs; and a screw for operating the sliding frame to raise and lower the same.



788,172. AIR-COUPLING. CLAYTON A. SEILER, Washington, D. C. Filed May 24, 1904. Serial No. 209,518.



Claim.—1. A device of the character described comprising a stem provided with a head or enlargement at one extremity, a coupling mounted to rotate upon said stem, packing interposed between the abutting faces of said coupling and said head, and means for locking said coupling from movement and simultaneously compressing said packing to take up any wear thereupon, whereby an air-tight joint is maintained.

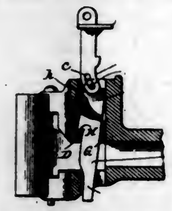
2. A device of the character described comprising a threaded stem provided with a head or enlargement at one extremity, a coupling loosely mounted upon said stem, packing interposed between the abutting faces of said coupling and said head, and a lock-nut working on said stem and adapted to lock said coupling from movement and simultaneously compress said packing to take up any wear thereupon, whereby an air-tight joint is maintained.

3. A device of the character described comprising a stem provided with a head or enlargement at one extremity, a coupling mounted to rotate upon said stem, said coupling being formed of separable members, packing interposed between the abutting faces of said coupling and said head, means for locking said coupling from movement and simultaneously compressing said packing to take up wear thereupon, and packing interposed between the abutting portions of the separable members of said coupling.

4. A device of the character described comprising a coupling having an interior chamber, a stem upon which said coupling is loosely mounted and provided with a head located within said chamber and adjacent the upper end thereof, packing interposed between said head and the abutting end of said chamber, and means for locking said coupling from movement and simultaneously compressing said packing to take up wear thereupon.

5. A device of the character described comprising a cup-like member, a sleeve adjustably united thereto, a stem upon which said sleeve is loosely mounted and provided with a head located within said sleeve and adjacent the end wall thereof, packing interposed between said head and the abutting end wall of said sleeve, and a nut working on said stem and adapted to engage the exterior of the end wall of said sleeve, said nut serving to lock said sleeve from movement and simultaneously compress said packing to take up wear thereupon.

788,173. CAR-COUPLING. JOSEPH SNYDER, Harrisburg, Pa. Filed Feb. 14, 1905. Serial No. 245,563.



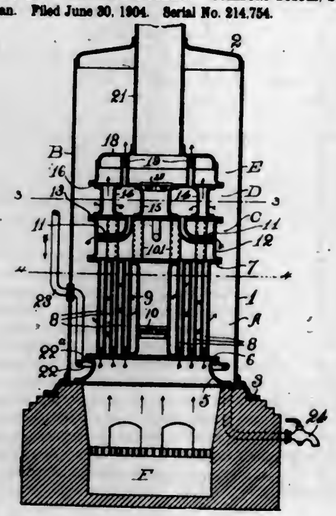
Claim.—1. In a car-coupler, the combination with a draw-head having a locking-pin opening one wall of which inclines away from the other for a part of its length, a transverse shoulder at the bottom of said inclining part, a locking-pin comprising a lifting-section having a tongue at one end formed with a curved slot, a locking-section having a curved groove into which said tongue fits, a pin for securing said tongue loosely in said groove, and a shoulder on said locking-section adapted to engage the shoulder in the locking-pin opening.

2. A car-coupler comprising a draw-head having a locking-pin opening, a shoulder in said pin-opening, a check-pin arranged transversely across said opening, a locking-pin comprising a lifting-section and a locking-section, the lifting-section having a tongue at its lower end formed with a curved slot, and a shoulder on the rear side of said section, the locking-section having a curved groove at its upper end to receive the tongue, a pin for securing said tongue in the groove, and a shoulder on the forward face of said locking-section.

3. A car-coupler comprising a draw-head having a locking-pin opening formed with an inclining wall, and a locking-pin comprising a lifting-section, and a locking-section, the said lifting-section having a tongue formed with a curved slot, and the said locking-section having a groove into which aid tongue fits, and a pin for securing said tongue movably in said groove.

4. A car-coupler comprising a draw-head having a locking-pin opening formed with an inclining wall, and a locking-pin comprising a lifting-section having a tongue formed with a curved slot at its lower end, and a perforated ear at its upper end, said ear being to one side of the center line of said pin, and a locking-section having a curved groove to receive said tongue, and a pin for securing said tongue movably in said groove.

788,174. VERTICAL BOILER. TOSABURO SUZUKI, Sunamura, Japan. Filed June 30, 1904. Serial No. 214,754.



Claim.—1. The combination with a furnace and a vertical boiler superposed thereon, of a fire-chamber within said boiler comprising a cylindrical chamber having water-pipes therein communicating with the boiler and bent to bring them at right angles to the path of the flames or heated products of combustion, a series of vertical water-pipes passing through said chamber, and means for directing the furnace-flames through said chamber.

2. The combination with the furnace and superposed boiler, of the fire-chamber A extending up within the boiler and comprising a central flame-trunk of diameter sufficient to admit a man, and a plurality of surrounding fire-flues, and the superposed fire-chamber C having exterior cylinder 12 and central flame-openings of diameter corresponding to the flame-trunk beneath, with vertical and curved water-pipes connecting with the boiler.

3. The combination with a furnace, of a vertical boiler superposed thereon, a base ring or plate for said boiler, shielded from direct contact with the flames, and fire-chambers extending vertically into said boiler, comprising a chamber C having curved and vertical water-tubes connecting with the water of the boiler and exposed to the flames from the furnace, and a superposed fire-chamber D open to the boiler and to which said water-tubes deliver, having a central flame-trunk, and a plurality of fire-flues surrounding said trunk.

4. The combination with a furnace, of a vertical boiler superposed thereon, a base ring or plate for said boiler, shielded from direct contact with the flames, and fire-chambers extending vertically into said boiler, comprising a chamber C having curved and vertical water-tubes connecting with the water of the boiler and exposed to the flames from the furnace, a superposed fire-chamber D open to the boiler and to which said water-tubes deliver, having a central flame-trunk, and a plurality of fire-flues surrounding said trunk, a third fire-chamber E superposed upon chamber D, provided with water-flues 19 between the fire-flues and central trunk of chamber D, and a flame-trunk 21 leading from said last chamber through the top of the boiler.

5. The combination with a furnace, of a vertical boiler superposed thereon, a base ring or plate for said boiler, a short main flue shielding said ring from direct contact with the flame, a fire-chamber A above said flue comprising a central flame-trunk and a plurality of circumferentially-disposed fire-flues, a second fire-chamber C above said chamber A, comprising a cylinder centrally perforated to register with the flame-trunk beneath and having water-pipes therein fed from the boiler and exposed to the heated products of combustion coming from said trunk and flues, a third fire-chamber D, superimposed upon chamber C, and provided with central flame-trunk and a plurality of surrounding fire-flues, a final chamber E, receiving from said trunk and the fire-flues of chamber D, and provided with a series of vertical water-tubes between the trunk and flues, and a flame-trunk conducting from this chamber through the top of the boiler.

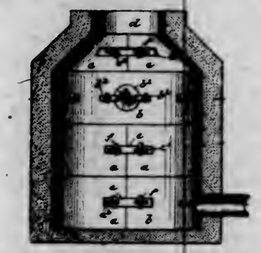
6. The combination with a furnace and a vertical boiler supported thereon, of a plurality of superposed communicating fire-chambers within said boiler comprising cylindric chambers having water-pipes therein communicating with the boiler, the pipes of one of said chambers being bent to bring them at right angles to the path of the flames or heated products of combustion, and means whereby the flames are directed through said chamber.

7. The combination with a furnace, of a vertical boiler supported thereon, a base-plate for the boiler, a short main flue 5 shielding said base-plate from direct contact with the flames of the furnace, and a plurality of superposed communicating fire-chambers over said flue extending up within the boiler, each chamber comprising annular top and bottom plates carrying a plurality of fire-flues and central connecting flame-trunks for said chambers of sufficient diameter to admit a man.

8. The combination with a furnace, of a vertical boiler supported thereon, a base-plate for the boiler, a short main flue 5 shielding said base-plate from direct contact with the flames of the furnace, and a plurality of superposed communicating fire-chambers over said flue, extending up within the boiler, each chamber comprising annular top and bottom plates carrying a plurality of fire-flues, and an annular feed or distributing pipe surrounding said short main flue and distributing feed-water to the boiler at a point nearest the furnace.

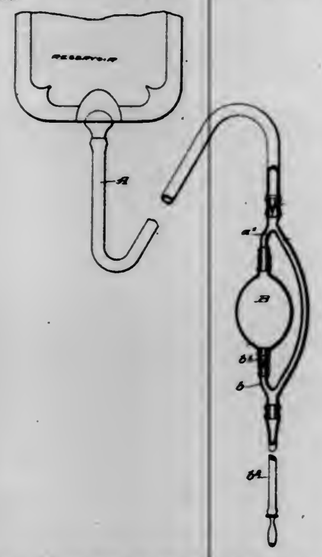
9. The combination with a furnace and a vertical boiler superposed thereon, a plurality of fire-chambers extending up within said boiler, each comprising water-pipes communicating with said boiler and combustion-tubes communicating with said furnace and an outlet, the water-pipes of one chamber extending transversely of the path of the products of combustion passing through upper and lower adjacent chambers.

788,175. MOLD FOR SEWER-TRAPS, &c. GEORGE H. TAYLOR, Joliet, Ill. Filed June 8, 1904. Serial No. 211,577.



Claim.—In a mold for hollow cylindric structures of the class described, a series of segmental plates, each provided near its ends with lugs a^3 having a slot extending diagonally thereof substantially as described, and formed with an inclined edge, a slotted link adapted to engage said lugs and a wedge adapted to fit the slot in the lug, for the purpose set forth.

788,176. SYRINGE. WEBSTER F. TRAVES, Cleveland, Ohio, assignor to The Duplex Rubber Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 4, 1903. Renewed Sept. 22, 1904. Serial No. 225,459.



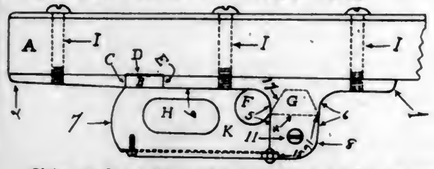
Claim.—1. In a syringe, the combination of a source of liquid-supply, a discharge-tube, manually-operated means connecting said supply and said tube for forcing liquid from said supply through said tube, and means arranged to allow a flow of liquid from said source into said tube without using said manually-operated means as a part of the passage from said supply to said tube.

2. In a syringe, the combination of a source of liquid-supply, a bulb, a discharging-tube connected with the latter, said bulb arranged to receive liquid from said supply, and means constructed to permit an independent flow from said supply to said discharge-tube, such latter flow not contacting said bulb.

3. In a syringe, the combination of a reservoir, a bulb, a supply-tube connecting said bulb and reservoir, a discharge-tube connected with said bulb, suitable valves intermediate of the interior of the bulb and reservoir and the interior of the bulb and discharge end of said discharge-tube and a separate tube connecting said supply and discharge tubes independently of said bulb.

4. In a syringe, the combination of a reservoir, a supply-tube connected with the latter, a discharge-tube, a bulb connected with said supply-tube and arranged to discharge liquid through said discharge-tube, and a separate tube connecting said supply and discharge tubes independently of said bulb, the internal diameter of said supply-tube being greater than that of either said independent or discharge tubes.

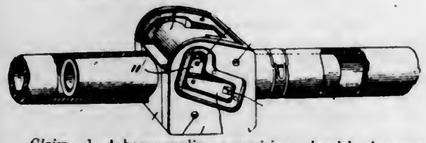
788,177. NECK-YOKE HOLDBACK. JOSIAH TREGELLAS, Cripplecreek, Colo. Filed Feb. 13, 1904. Serial No. 193,433.



Claim.—1. In a locking, safety, neck-yoke holdback, the combination of a base-plate portion having a holdback extension which has a cheek and hinge screw or bolt, with a locking-lever hinged to or in the said cheek by the said screw or bolt, the said locking-lever having the loop H, the opening F for the neck-yoke ring, the recessed spring, the lug B, the locking-bar, and the recess for the locking-bar, as described and for the purpose specified.

2. In a locking, safety, neck-yoke holdback, the combination of a base-plate having an opening for the locking-lever lug, which lug the said opening is to receive to coöperate with the cheek in the holdback extension of the base-plate in bracing the locking-lever, the rear end of which, in opening, swings to the front wall of the recess in the base of the holdback extension of the base-plate, which wall serves as a stop for the locking-lever.

788,178. HOSE-COUPLING. LOUIS VOGT, Conneaut, Ohio, assignor of one-half to John R. Simpson, Conneaut, Ohio. Filed Feb. 10, 1905. Serial No. 245,048.



Claim.—1. A hose-coupling comprising a head having spaced cheeks and a rod extending across therebetween, and a swinging jaw therein, a block fitting in between the cheeks and having hooks engageable respectively with the rod and jaw, and means to release the jaw.

2. In a hose-coupling, in combination, a head having a swinging jaw therein, a block fitting in the head and having hooks one of which is engaged by the jaw, and a lever located in a recess in the head and connected to the jaw and operating to release the same.

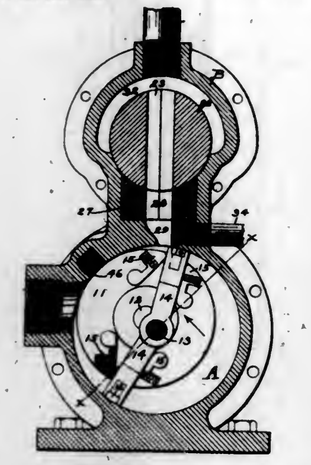
788,179. ROTARY ENGINE. WILLIAM W. WHEELER, Meriden, Conn. Filed Feb. 21, 1905. Serial No. 246,687.

Claim.—1. In a rotary engine, the combination of a cylinder having a cylindrical piston-chamber with a longitudinally-slotted piston mounted in the said chamber for bearing on one side of the said piston-chamber, a piston-wing mounted within the said slotted piston for bearing on the walls of the said piston-chamber, and a packing-strip in the wall of the said piston-chamber for bearing on the said piston and wing, the said strip extending longitudinally of the said piston-chamber at a slight angle to the length of the said wing against which it acts.

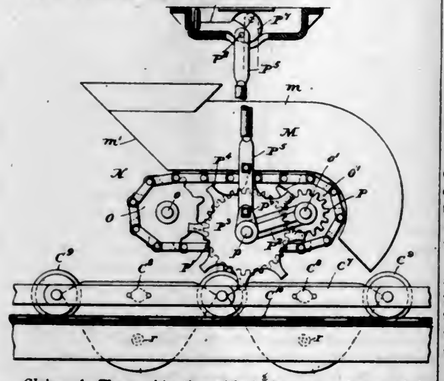
2. In a rotary engine, the combination of a cylinder having a cylindrical piston-chamber, a piston mounted therein, a packing-disk at one end of the said piston-chamber, and an adjusting-disk having an exteriorly-threaded hub mounted in the cylinder-head at that end of the said cylinder having the said packing-disk.

3. In a rotary engine, the combination of the cylinder and piston with a valve-chamber and cylindrical valve having an orifice that opens at the periphery of the said valve, a governor-slide mounted to move parallel to the axis of the said valve in the wall of the said valve-chamber and forming a part of the curved wall of the said valve-chamber to which the said valve is fitted, and a governor operatively connected with the said slide for moving it in the longitudinal direction of the valve-axis to cover and uncover the peripheral orifice of the said valve.

4. In a rotary engine, the combination of the cylinder and piston with a valve-chamber and a cylindrical valve having an orifice that opens at the periphery of the said valve and is wide at the middle portion and narrower toward each end, a governor-slide having a similarly shaped and disposed orifice, the said slide being arranged between the said valve and the piston-chamber to move in the longitudinal direction of the valve-axis and in the line of the narrowed ends of the said orifices, and means for moving the said slide, whereby a movement of the said governor-slide parallel to the axis of the valve acts to vary the effective width of the valve-orifice in the transverse direction of the said axis.



788,180. CONVEYER-LOADING DEVICE. FREEMAN R. WILLSON, Jr., Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed May 22, 1902. Serial No. 108,596.



Claim.—1. The combination with the hopper or chute, and the series of conveyer buckets or receptacles of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, and automatically-acting devices movable to and from an operative position for imparting a step-by-step movement to said carrier, its said movements being always in one direction, substantially as set forth.

2. The combination with the hopper or chute, and the series of conveyer buckets or receptacles of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, and an intermittently-moving wheel rotating continuously in one direction and engaging with the conveyer for imparting a step-by-step movement to said carrier, its said movements being always in one direction, substantially as set forth.

3. The combination with the hopper or chute, and the series of conveyer buckets or receptacles of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, and an intermittently-moving wheel rotating continuously in one direction and movable from and to an operative position for imparting a step-by-step movement to said carrier, its said movements being always in one direction, substantially as set forth.

4. The combination with a hopper or chute and the series of conveyer buckets or receptacles, of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, automatically-acting devices engaging with the conveyer for imparting a step-by-step movement to said carrier, and means for moving said automatically-acting devices into and out of working relation with the conveyer, substantially as set forth.

5. The combination with a hopper or chute and the series of conveyer buckets or receptacles, of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, automatically-acting devices engaging with the conveyer for imparting a step-by-step movement to said carrier, and means for locking said automatically-acting devices in and out of working relation with said conveyer, substantially as set forth.

6. The combination with the hopper or chute, and a series of conveyer buckets or receptacles, of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, and an intermittently-moving toothed wheel engaging with the conveyer for imparting a step-by-step movement to said carrier, its movement being always in one direction, substantially as described.

788,181. BURGLAR-TRAP. GEORGE W. WRIGHT, Laurinburg, N. C. Filed Oct. 3, 1904. Serial No. 227,759.



Claim.—1. A device of the class described, comprising a well or casing, a vertically-movable trap-door operating within the well or casing, a device for yieldably supporting the trap-door at the top of the well or casing, means for closing the top of the well or casing when the trap is sprung, and connections between the trap-door and the said means for closing the latter.

2. A device of the class described, comprising a well or casing, a vertically-movable trap-door operating in the well or casing, means for yieldably supporting the trap-door in an elevated position to set the same, slidable doors for closing the top of the well or casing when the trap is sprung, and means actuated by the trap-door for closing the slidable doors.

3. A device of the class described, comprising a well or casing, a vertically-movable trap-door, means for closing the well or casing when the trap is sprung, and mechanism actuated by the trap-door for operating the said means.

4. A device of the class described, comprising a well or casing, a trap-door, slidable doors for closing the well or casing when the trap is sprung, and means for setting the trap-door.

5. A device of the class described, comprising a well or casing, a trap-door, means for setting the trap for the same, sliding doors for closing the well or casing when the trap-door is sprung, and means for closing the sliding doors.

6. A device of the class described, comprising a well or casing, a trap-door, slidable doors mounted at the top of the well or casing and separable to permit the trap-door to be arranged at the top of the said well or casing, and means for setting the trap-door, and means for closing the sliding doors when the trap-door is sprung.

7. A device of the class described, comprising a well or casing, a vertically-movable trap-door, a slidable door arranged at the top of

the well or casing, a movable frame located in the path of the trap-door, and means for connecting the movable frame with the sliding door for closing the same when it is actuated by the trap-door.

8. A device of the class described, comprising a well or casing, a vertically-movable trap-door, slidable doors mounted at the top of the well or casing, movable frames arranged in the path of the trap-door, and flexible connections extending from the movable frames to the sliding doors.

9. A device of the class described, comprising a well or casing, a vertically-movable trap-door having opposite projections, oblong frames receiving the projections and arranged in the path of the same, sliding doors, and means for connecting the sliding doors with the said frames.

10. A device of the class described, comprising a well or casing, a vertically-movable trap-door provided with opposite projections, vertically-movable frames receiving the projections and arranged in the path of the same and composed of rods and upper and lower connecting-pieces, one of the connecting-pieces being adjustable, sliding doors, and means for connecting the sliding doors with the said frames.

11. A device of the class described, comprising a well or casing, a trap-door movable vertically from the top to the bottom of the well or casing, means for setting the trap-door, and a locking device for positively holding the trap-door in its set position at the top of the casing.

12. A device of the class described, comprising a well or casing, a vertically-movable trap-door, means for setting the trap-door, means for closing the well or casing when the trap-door is sprung, a locking device for positively holding the trap-door in its set position, and means for operating the locking device.

13. A device of the class described, comprising a well or casing, a vertically-movable trap-door provided with opposite pulleys, a setting rope or cable secured at one side of the well or casing and extending beneath the trap-door and received by the pulleys thereof, a guide-pulley arranged at the side opposite that at which the setting rope or cable is secured and receiving the free end of the same, and means for setting the trap-door.

14. A device of the class described, comprising a well or casing, a vertically-movable trap-door, a yieldable device for setting the trap-door, a slidable locking device having a loop and adapted to positively hold the trap-door in its set position, a fixed loop forming a fulcrum, and a removable bar or lever adapted to be placed in the fixed loop for engaging the loop of the slidable locking device.

15. A device of the class described, comprising a well or casing, a trap-door, means for setting the trap-door, slidable doors for closing the top of the well or casing when the trap-door is sprung, means operated by the trap-door for closing the sliding doors, and an automatic locking device arranged at the inner ends of the sliding doors when the latter are closed for securing the same in their closed position.

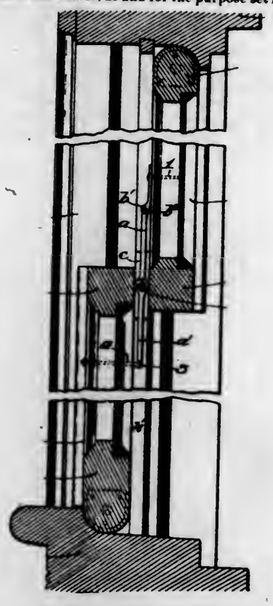
788,182. HOLDER FOR WINDOW-SASHES. EDWARD G. ABELL, Brisbane, Queensland, Australia. Filed Dec. 26, 1903. Serial No. 186,554.

Claim.—1. In combination, a window-frame, sashes therefor, a pin rotatably secured thereto, levers pivoted to the pin and movable independently of each other, the ends of the levers terminating in eyes, means for holding the levers on said pin, and for preventing said independent movement and pivotal connections between the eyes of the levers and the window-sashes.

2. In combination, a window-frame, sashes therefor, a pin rotatably secured thereto, levers pivoted thereto and movable independently of each other, the ends of said levers terminating in eyes, means for holding the levers on said pin and for preventing said independent movement, an arm pivotally secured to an eye of one of the levers, and an eyebolt pivotally secured to the eye of the remaining lever, said arm and eyebolt being secured to the upper and lower sash of the window-frame respectively.

3. In combination, a window-frame, sashes therefor, a pin movably secured to the frame, levers pivoted to the pin and movable independently of each other, and means for holding the levers on said pin and for preventing said independent movement, the ends of said levers being pivotally secured to the sashes, as and for the purpose set forth.

4. In combination, a window-frame having a parting-strip, sashes therefor, a plate secured to the parting-strip of the frame, a pin held by the plate, said pin being free to rotate, a fixed plate on the pin, an adjustable nut on the pin and levers pivoted at one end to the pin between the fixed plate and nut, the opposite ends being pivotally secured to the sashes, as and for the purpose set forth.



788,183. NECKBAND-STRETCHER. WILLIAM M. BARNES, Philadelphia, Pa. Filed July 21, 1903. Serial No. 166,451.



Claim.—1. In combination, a neckband-stretcher, comprising a central portion and wings projecting from said central portion and movable to and from said central portion, said wings each having a gear, a gear for each of said wing-gears, interconnection between said gears whereby they move in unison, a cam, and a connection between said cam and said gears, whereby in the movement of said cam, said gears are operated to move the wings.

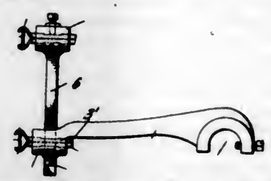
2. In combination, a neckband-stretcher, having a central portion and a wing projecting from said central portion and movable to and from said central portion, said wing having a gear, a gear meshing with said wing-gear, a pin secured to said gear, and a cam having a spiral slot in which said pin rests.

3. In combination, a neckband-stretcher, comprising a central portion and wings projecting from said central portion and movable to and from said central portion, said wings each having a gear, a gear for each wing-gear, interconnection between said gears whereby they move in unison with each other, a pin on one of said gears, and a cam having a spiral slot in which said pin rests.

788,184. ADJUSTABLE BEARING. HERBERT G. BEEDE, Pawtucket, R. I. Filed Feb. 16, 1903. Serial No. 145,328.

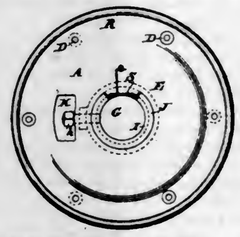
Claim.—1. The combination with a supporting-arm, having an opening therein, of a bearing or support for a bar or rod, supported and held in said opening, and comprising two parts movable longitudinally on each other, to adjust the angle and position of said bar or rod, substantially as shown and described.

2. The combination with a supporting-arm, having a hub or boss thereon, and a bearing or support for a bar or rod, supported and held in said boss, and comprising two parts movable longitudinally on each other, to adjust the angle and position of said bar or rod, of a second supporting-arm, attached to the first-mentioned supporting-arm, and having a hub or boss thereon, for a bearing or support for a second bar or rod, and said bearing or support, substantially as shown and described.



3. The combination with a supporting-arm having an opening therein for a bearing or support for a bar or rod, and said support, comprising two parts movable longitudinally on each other, to adjust the angle and position of said bar or rod, of a second supporting-arm having an opening therein for a bearing or support, and a clamp for securing said second supporting-arm to the first-mentioned supporting-arm, substantially as shown and described.

788,185. SHEET-METAL PULLEY. RUSSELL H. BOWEN, Palmyra, N. J., assignor to The American Pulley Company, a Corporation of Pennsylvania. Filed Mar. 23, 1904. Serial No. 199,535.



Claim.—1. A sheet-metal pulley consisting of two annular sheet-metal halves secured together having their outer parts flanged and their inner parts bulged or spread to form an annular chamber, in combination with a tubular hub consisting of an iron casting having a central thickened portion to receive a set-screw and two thin tubular extensions thoroughly malleableized and flanged over the edges of the sheet-metal halves adjacent to the hub, and a set-screw extending through the central thickened portion.

2. A sheet-metal pulley consisting of two annular sheet-metal halves secured together having their outer parts flanged and their inner parts bulged or spread to form an annular chamber, in combination with a tubular hub consisting of an iron casting having a central thickened portion to receive a set-screw and two thin tubular extensions thoroughly malleableized and flanged over the edges of the sheet-metal halves adjacent to the hub, the said tubular hub further having flattened portions S on the said thin tubular extensions to receive corresponding parts *e* of the sheet-metal-pulley parts to prevent the hub turning within said sheet-metal parts, and a set-screw extending through the central thickened portion.

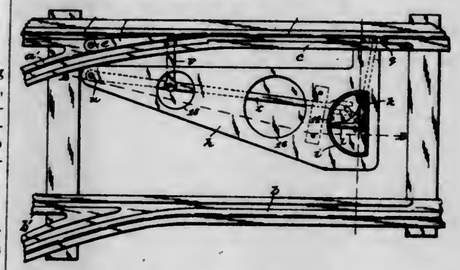
3. A sheet-metal pulley consisting of two annular sheet-metal halves secured together having their outer parts flanged and their inner parts bulged or spread to form an annular chamber and having an aperture K opening through the sheet-metal parts into the annular chamber, in combination with a tubular hub consisting of an iron casting having a central thickened portion to receive a set-screw located in alinement with the said aperture K, two thin tubular extensions thoroughly malleableized and flanged over the edges of the sheet-metal halves adjacent to the hub, and a set-screw arranged in the thickened portion of the hub and to which access may be had to it through the aperture K.

4. A pulley combined with a hub for a sheet-metal pulley formed of a thick tubular casting having shoulders *i i* near each end and thin tubular extensions I I beyond the shoulder thoroughly malleableized.

5. A pulley combined with a hub for a sheet-metal pulley formed of a thick tubular casting having shoulders *i i* near each end and thin tubular extensions I I beyond the shoulder thoroughly malleableized and also having a thickened portion or hub H projecting laterally intermediate of the shoulders *i i*.

6. A pulley combined with a hub for a sheet-metal pulley formed of a thick tubular casting having shoulders *i i* near each end and thin tubular extensions I I beyond the shoulder thoroughly malleableized and also having flattened portions S S on their outer surfaces.

788,186. AUTOMATIC RAILWAY-SWITCH ADJUSTER. LLOYD C. BROWN, Wichita, Kans., assignor of three-eighths to Ambrose D. Blanton and three-eighths to Llewellyn H. Blanton, Indianapolis, Ind. Filed July 27, 1904. Serial No. 218,331.



Claim.—1. A railway-switch provided with an operating-arm coöperating to shift the switch-point of the switch, a vertically-movable switch-operating device coöperating with the operating-arm to shift the switch-point and including a normally depressed horizontal operating-lever, a normally elevated vertically-movable device, and means connected to the vertically-movable device coöperating to elevate the horizontal operating-lever.

2. A railway-switch provided with a pivoted horizontally-movable operating-arm coöperating to shift the switch-point of the switch, a vertically-movable switch-operating lever coöperating with the operating-arm, a pivoted lever coöperating to elevate the switch-operating lever, and a vertically-movable device connected to the pivoted lever coöperating therewith to elevate the switch-operating lever.

3. A railway-switch adjuster including a movable switch-point, a housing, an operating-arm coöperating to shift the switch-point, a depressed switch-operating lever coöperating with the operating-arm, a pivoted lever coöperating with the switch-operating lever, a guard attached to the housing for the switch-operating lever, and a depressible device connected to the pivoted lever coöperating to elevate the switch-operating lever.

4. A railway-switch provided with an operating-arm coöperating to switch the switch-point, a vertical shaft mounted so as to move rotatively and provided with a pair of operating-levers adapted to be elevated, mechanism operatively connecting the vertical shaft with the operating-arm, a pivoted lever coöperating to elevate the pair of operating-levers, and a vertically-movable device connected to the pivoted lever coöperating therewith to elevate the pair of operating-levers.

5. Automatic switch-adjusting apparatus including a movable switch-point, a pivoted arm coöperating to shift the switch-point, a vertically-movable switch-operating device coöperating with the pivoted arm to shift the switch-point and normally situated in a depressed position, a vertically-adjustable device adapted to operate the operating device mounted on a car or similar vehicle, and a movable device adapted to be depressed coöperating to elevate the switch-operating device to the path of the adjustable device and automatically depressed by a wheel of the car or vehicle.

6. The combination with a railway-rail and a switch-point operating therewith, of a presser-bar movably mounted at a side of the rail and having its top approximately in the plane of the top of the rail, a pivoted lever connected to the presser-bar, a rotative crank-shaft movable vertically and controlled by the pivoted lever, a pair of switch-levers secured to the rotative crank-shaft, and means coöperating with the crank-shaft and operatively connected with and controlling the switch-point.

7. The combination with a railway-rail and a switch-point operating therewith, of a housing, a presser-bar movably mounted at a side of the rail, a pivoted lever connected to the presser-bar, a rotative crank-shaft mounted in the housing, a pair of switch-operating

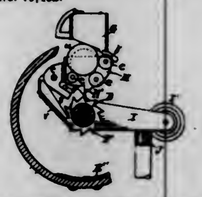
levers mounted on the crank-shaft and adapted to be elevated by the pivoted lever, a guard attached to the housing and extending about the switch-operating levers, and means coöperating with the crank-shaft and operatively connected with and controlling the switch-point.

8. The combination with a railway-rail and a switch-point operating therewith, of a housing, a presser-bar movably mounted at a side of the rail, a lever connected to the presser-bar and pivotally supported by the housing, a rotative crank-shaft mounted in the housing, a pair of switch-operating levers mounted on the crank-shaft and operatively connected with the lever so as to be elevated thereby, a guard for the operating-levers, a pivoted arm coöperating with the crank-shaft, and means connected with the pivoted arm and also with the switch-point coöperating to shift the switch-point and to control the position thereof.

9. The combination with a railway-rail and a switch-point in operative connection therewith, of a housing, a rotative shaft mounted vertically in the housing and provided with a vertically-adjustable switch-operating device at the top thereof, means coöperating with the rotative shaft and operatively connected with and controlling the switch-point, and controlling means for the switch-operating device coöperating to adjust the positions thereof in different vertical planes.

10. In automatic switch-adjusting apparatus, the combination of a movable switch-point, a housing, an arm pivoted at one end thereof and having a slot in the opposite end thereof, positive connections between the arm and the switch-point coöperating to control and readjust the switch-point, a rotative crank-shaft mounted in the housing and coöperating with the arm in the slot thereof, a pair of switch-operating levers mounted on the rotative shaft so as to be elevated, a lever pivoted in the housing and coöperating to elevate and depress the pair of levers, a presser-bar connected to the lever, means for automatically depressing the presser-bar, automatic means for elevating the presser-bar, and movable means for engaging and operating the switch-operating levers.

788,187. **VENDING-MACHINE.** LEO J. BURDICK, Sturgis, Mich., assignor to The Burdick & De Blois Manufacturing Company, Incorporated, Hartford, Conn., a Corporation of Connecticut. Filed Oct. 21, 1901. Serial No. 79,402.



Claim.—1. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft, having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder according to the extent of its rotation; a locking-ratchet for said shaft; a pivoted pawl therefor; an actuating-ratchet; an actuating-lever adapted to engage said pawl for said locking-ratchet at the limit of its stroke; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a plate with a flange adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during the period of said engagement which is controlled by the length of said flange, all coacting for the purpose specified.

2. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft, having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder according to the extent of its rotation; a locking-ratchet for said shaft; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a plate with a flange adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during the period of said engagement which is controlled by the length of said flange, all coacting for the purpose specified.

3. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft, having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets, whereby one or more articles will be delivered by said cylinder according to the extent of its rotation; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a plate with a flange adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during the period of said engagement which is controlled by the length of said flange, all coacting for the purpose specified.

4. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft, having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder according to the extent of its rotation; a locking-ratchet for said shaft; a pivoted pawl therefor; an actuating-ratchet; an actuating-lever adapted to engage said pawl for said locking-ratchet at the limit of its stroke; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; and a plate with a flange adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during the period of said engagement which is controlled by the length of said flange, all coacting for the purpose specified.

5. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft, having spirally-arranged delivery-pockets therein, a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder according to the extent of its rotation; a locking-ratchet for said shaft; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; and a plate with a flange adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during the period of said engagement which is controlled by the length of said flange, all coacting for the purpose specified.

6. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft, having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder according to the extent of its rotation; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; and a plate with a flange adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during the period of said engagement which is controlled by the length of said flange, all coacting for the purpose specified.

7. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder, according to the extent of its rotation; a locking-ratchet for said shaft; a pivoted pawl therefor; an actuating-ratchet; an actuating-lever adapted to engage said pawl for said locking-ratchet at the limit of its stroke; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a cam-plate adapted to be engaged by a coin carried by said carrier to force the said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during predetermined periods which are controlled by the size of the coin, for the purpose specified.

8. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder, according to the extent of its rotation; a locking-ratchet for said shaft; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a cam-plate adapted to be engaged by a coin carried by said carrier to force the said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during predetermined periods which are controlled by the size of the coin, for the purpose specified.

9. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets, whereby one or more articles will be delivered by said cylinder, according to the extent of its rotation; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a cam-plate adapted to be engaged by a coin carried by said carrier to force the said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during predetermined periods which are controlled by the size of the coin, for the purpose specified.

10. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder, according to the extent of its rotation; a locking-ratchet for said shaft; a pivoted pawl therefor; an actuating-ratchet; an actuating-lever adapted to engage said pawl for said locking-ratchet at the limit of its stroke; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; and a cam-plate adapted to be engaged by a coin carried by said carrier to force the said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during predetermined periods which are controlled by the size of the coin, for the purpose specified.

11. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder, according to the extent of its rotation; a locking-ratchet for said shaft; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; a coin-chute adapted to deliver coins to said carrier; a pivoted lid or cover for said coin-chute adapted to automatically close when the machine is actuated; an arm on said lid adapted to be engaged by said coin-carrier when in its initial position for opening the same; and a cam-plate adapted to be engaged by a coin carried by said carrier to force the said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during predetermined periods which are controlled by the size of the coin, for the purpose specified.

12. In a vending-machine, the combination of a shaft; a cylinder carried by said shaft having spirally-arranged delivery-pockets therein; a plurality of merchandise-magazines adapted to deliver to said pockets whereby one or more articles will be delivered by said cylinder, according to the extent of its rotation; an actuating-ratchet; an actuating-lever; a coin-carrier pivotally mounted on said actuating-lever, having a tooth for engaging said actuating-ratchet; and a cam-plate adapted to be engaged by a coin carried by said carrier to force said carrier into engagement with said actuating-ratchet, whereby the same will be actuated during predetermined periods which are controlled by the size of the coin, for the purpose specified.

13. In a vending-machine, the combination of a suitable magazine; an article-delivery device, adapted to deliver one or more articles according to the extent of its actuation; an actuating-ratchet therefor; an operating-lever; a coin carrier or holder carried by said operating-lever, adapted to engage said actuating-ratchet; and a cam-plate adapted to engage a coin carried by said carrier whereby it is caused to engage said actuating-ratchet at a predetermined point in the movement of said actuating-lever, depending on the size of the coin, for the purpose specified.

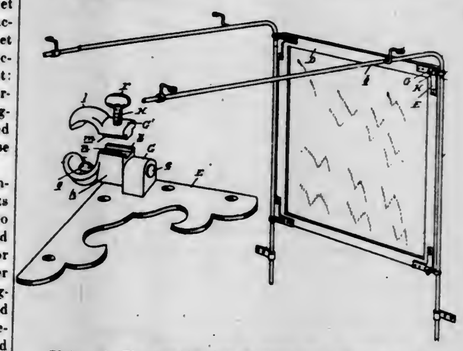
14. In a vending-machine, the combination of a suitable magazine; an article-delivery device adapted to deliver one or more articles according to the extent of its actuation; an operating-lever; a coin-carrier carried by said operating-lever, adapted to engage said article-delivery device; and a cam-plate adapted to engage a coin carried by said carrier whereby said carrier is caused to engage said article-delivery device at a predetermined point in the movement of said actuating-lever, depending on the size of the coin, for the purpose specified.

15. In a vending-machine, the combination of a suitable magazine; an article-delivery device adapted to deliver one or more articles according to the extent of its actuation; a coin-carrier adapted to engage said article-delivery device; and a cam-plate adapted to engage a coin carried by said carrier and cause it to engage said article-delivery device at a predetermined point in the movement thereof, depending on teh size of the coin, for the purpose specified.

16. In a coin-controlled vending-machine, the combination of an article-delivery device adapted to deliver one or more articles according to the extent of its actuation; an actuating-lever; a pivoted or yielding coin-carrier mounted thereon; a ratchet adapted to be engaged by said coin-carrier; and a cam-plate adapted to engage a coin carried by said carrier to cause it to engage said ratchet at a predetermined point in the movement of said actuating-lever, depending on the size of the coin, for the purpose specified.

17. In a vending-machine, the combination of a suitable article-delivery device adapted to deliver one or more articles according to the extent of its actuation; an operating-lever; a coin-carrier mounted thereon; and a cam-plate adapted to engage the coin as it is carried by said carrier to cause it to engage said delivery mechanism, whereby said delivery mechanism is actuated at a predetermined point in the movement of the lever, for the purpose specified.

788,188. **MOVABLE FRONT FOR AUTOMOBILES.** CHARLES E. CHAMBERLIN, Detroit, Mich., assignor to Joseph N. Smith & Company, Detroit, Mich., a Corporation of Michigan. Filed Oct. 31, 1904. Serial No. 230,817.



Claim.—1. The combination of guide-bars adapted to be arranged at the front and beneath the top of an automobile, of a sash and clamping-jaws and guides pivoted to the sash and engaging the guide-bars, substantially as described.

2. The combination of the guide-bars adapted to be secured to the front and top of an automobile and extending vertically and horizontally with a connecting curved portion, of a sash, of heads pivoted thereto at each corner, curved extensions i thereon, the complementary member G having a curved portion *l*, and means for clamping the members *l* and i together against the guide members or loosening them for the purpose described.

3. The combination of vertical and horizontal guide-bars and a connecting curved portion adapted to be secured to the front and top of an automobile, of a sash adapted to fit between the guide-bars, brackets on the sash, pivoted clamping members and guides secured to said brackets, and a ball fitting in the outer member of said clamps and adapted to run upon the top of the horizontal portion of the guide-bars for the purpose described.

788,189. **STAVED COLUMN, SHAFT, OR SIMILAR ARTICLE.** HENRY S. CONROW, Asbury Park, N. J. Filed Jan. 20, 1905. Serial No. 242,011.

Claim.—1. A staved article of manufacture comprising staves having longitudinal grooves or channels formed in their inner angles at acute angles to the edges of the staves, and angled strips forming keys adapted to enter the grooves or channels of adjoining or abut-

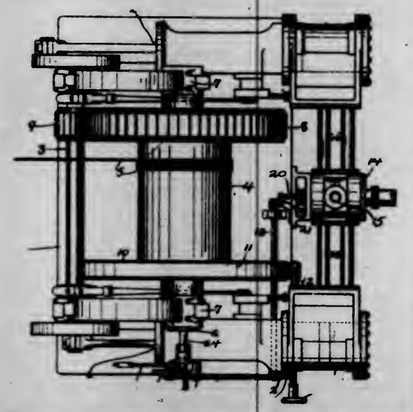
ting staves to lock the same together and to cover the joint between the staves.



2. A staved article of manufacture comprising a series of staves having longitudinally-extending grooves or channels formed in their inner angles at each side and extending diagonally into the staves away from their edges, and locking means fitting over the inner joints between the staves, and consisting of angled keys fitting into the adjacent grooves or channels.

3. A staved article of manufacture comprising staves having longitudinal grooves or channels formed in their edges, said grooves or channels being formed by the removal of the inner angles of the staves and extending diagonally into said staves, the channels and the edge surface of the staves forming an outwardly-directed acute angle, and locking means fitting over the inner joint between the staves and consisting of angled keys fitted into the grooves of channels.

788,190. TOWING-MACHINE. EDMUND DALGLEISH, Cleveland, Ohio, assignor to The Chase Machine Company, Cleveland, Ohio. Filed Oct. 6, 1904. Serial No. 227,506.



Claim.—1. The combination with a towing-machine having a valve, valve-controlling mechanism, means for forming an operative connection between the drum of the towing-machine and the valve-controlling mechanism while said drum is being rotated a predetermined number of times in either direction and means for disengaging said drum from the valve-controlling mechanism as soon as said drum exceeds said predetermined number of rotations; of means for causing an immediate reengagement of the drum with the valve-controlling mechanism as soon as the drum begins to rotate in the reverse direction to that in which it was rotating when it was disengaged from the valve-controlling mechanism, which said means is independent of the first-mentioned means for forming an operative connection between the drum and the valve-controlling mechanism.

2. In a towing-machine, the combination with an engine, a drum operatively connected with said engine, a valve, mechanism for operating said valve, a link secured to said valve-operating mechanism, means operatively connected with said drum and arranged to engage with said link while the drum is being rotated a predetermined amount in either direction and means for causing a disengagement of said means from said link when the rotation of said drum exceeds the predetermined amount; of independent means arranged to immediately reengage said link, as soon as said drum begins to rotate in the direction opposite to that in which it was rotating when the first-mentioned means was disengaged from said link.

3. In a towing-machine, the combination with an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link secured at one end to said valve-operating mechanism, a wheel operatively connected with said drum, means arranged on said wheel for engaging with said link while the wheel is being rotated a predetermined amount in either direction, and means for causing a disengagement of said means from said link when the rotation of said wheel exceeds the predetermined amount; of independent means for causing an immediate reengagement of said wheel and said link, as soon as said wheel begins to rotate in the direction opposite to that in which it was rotating when the first-mentioned means was disengaged from said link.

4. In a towing-machine, the combination with an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link operatively connected at one end to said valve-operating mechanism, a wheel operatively connected with said drum, means for causing an engagement between said wheel and said link when the tow-line is under normal strain and means for causing a disengagement of said means when the strain on the tow-line becomes abnormal; of independent means for causing a reengagement of the wheel and the link as soon as the abnormal strain ceases to exist.

5. In a towing-machine, the combination with an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link operatively connected to said valve-operating mechanism and provided with two pairs of shoulders, a wheel operatively connected with said drum, pins arranged on said wheel and the arrangement of the pins is such that one of said pins will engage with one pair of shoulders when the strain on the tow-line is normal and the other pins will engage with the other pair of shoulders only after an abnormal strain has been on the tow-line and has ceased to exist.

6. In a towing-machine, the combination of an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link operatively connected at one end to said valve-operating mechanism, a wheel, means for operatively connecting said wheel and said drum, means for throwing said wheel out of connection with said drum, means for causing an engagement between said wheel and said link when the tow-line is under normal strain, means for causing a disengagement of said means when the strain on the tow-line becomes abnormal, and means for causing a reengagement of said wheel and the link as soon as the abnormal strain ceases to exist.

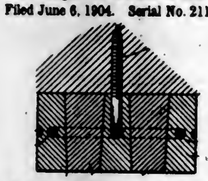
7. In a towing-machine the combination of an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link operatively connected to said valve-controlling mechanism and provided with two pairs of shoulders, said pairs of shoulders being arranged in different vertical and horizontal planes, a wheel operatively connected with said drum, pins arranged on said wheel and the arrangement of the pins is such that one of said pins will engage with one pair of the shoulders when the strain on the tow-line is normal and the other pins will engage with the other pair of shoulders only after an abnormal strain has been on the tow-line and has ceased to exist.

8. The combination with a towing-machine of a valve, means for automatically controlling the operation of said valve while the towing-machine is operating under normal conditions, means for automatically disconnecting the valve-controlling means from the towing-machine when the towing-machine begins to operate under abnormal conditions and means for automatically connecting the valve-controlling means and the towing-machine as soon as the abnormal conditions cease to exist, which said last-mentioned means can only operate after the disconnecting means has been caused to operate through the machine operating under abnormal conditions.

9. In a towing-machine the combination of an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link operatively connected to said valve-operating mechanism and provided with two pairs of shoulders, said pairs of shoulders being arranged in different vertical and horizontal planes, a pinion secured on the end of the drum-shaft, an arm pivotally supported near said pinion, a wheel rotatably mounted on said arm and arranged to mesh with said pinion when the said arm is raised to its operative position, means for locking said arm in its operative position, a long pin arranged on said arm and adapted to engage with the shoulders farthest from said wheel, and a short pin arranged on said wheel and adapted to engage with the shoulders nearest the wheel.

10. In a towing-machine, the combination of an engine, a drum operatively connected with said engine, a valve, valve-operating mechanism, a link operatively connected to said valve-operating mechanism and provided with two pairs of shoulders said pairs of shoulders being arranged in different vertical and horizontal planes, a pinion secured on the end of the drum-shaft, an arm movably supported near said pinion, a wheel rotatably mounted on said arm and arranged to mesh with said pinion when the said arm is raised to its operative position, means for locking said arm in its operative position, and means arranged on said wheel for engaging with both of said pairs of shoulders, and the said means is so arranged that it will engage with only one of the said pair of shoulders at one time.

788,191. ELASTIC HEEL-PROTECTOR. DANIEL H. DERRY, Bridgeport, Conn., assignor of one-half to Charles J. Mercer, Bridgeport, Conn. Filed June 6, 1904. Serial No. 211,249.



Claim.—1. An elastic heel-protector comprising a rubber pad and an attaching-screw provided with a ring-shaped head lying in a plane at a right angle to the longitudinal plane of the screw and connected to the screw by a shank, said ring-shaped head and shank being molded into the protector and the shank serving to prevent the protector from turning on the screw.

2. A heel-protector consisting of an elastic pad provided with outwardly-converging holes, tapering rawhide plugs in said holes, and an attaching-screw having a ring-shaped head molded in the pad and inclosing the plugs.

3. An elastic heel-protector consisting of a rubber plug, an attaching-screw provided with a ring-shaped head molded therein and an exterior retaining-band at its mid-height.

4. In a heel-protector, the combination with a soft-rubber pad having a plurality of outwardly-converging holes, of an attaching-screw having a head molded in the pad and rawhide plugs secured in the holes.

5. In a heel-protector, the combination with a soft-rubber pad having a plurality of outwardly-converging holes, of an attaching-screw having a ring-shaped head molded therein and tapering rawhide plugs in the holes, said plugs being inclosed by the head.

788,192. TIRE-BRAKE. JOHN DEMPSEY, Millerton, N. Y. Filed Nov. 28, 1904. Serial No. 234,500.



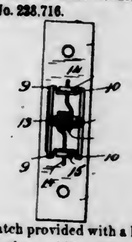
Claim.—1. A brake comprising a carrier having dovetails upon its edges and a concave recess in its outer face, a brake-block having in its inner face ways which receive the dovetails, a holder having a convex outer face to engage the recess in the carrier and a bolt passing through the carrier and holder by which said parts are secured to a brake-lever.

2. A brake comprising a carrier having dovetails upon its edges, a concave recess in its outer face, a longitudinal slot, a recess in which the slot terminates and convex shoulders in the recess on opposite sides of the slot, a brake-block having in its inner face ways which receive the dovetails, a holder having a convex outer face which engages the recess in the carrier and a bolt passing through the carrier and holder and having a head engaging the convex shoulders, by which the carrier and brake-block are adjustably secured to the holder and the holder is secured to a brake-lever.

3. A brake comprising a carrier having downwardly and inwardly inclined dovetails upon its edges and a concave recess in its outer face, a brake-block having in its inner face ways which receive the dovetails, a holder having a convex outer face to engage the recess in the carrier and a bolt passing through the carrier and the holder from the front by which the carrier is locked to the holder and the holder is secured to the brake-lever.

4. A brake comprising a carrier having dovetails upon its edges and a concave recess in its outer face, a brake-block having in its inner face ways which receive the dovetails, a holder adjustable relative to the carrier, a bolt passing through the carrier and holder from the front by which said parts are secured to a brake-lever and a set-bolt bearing upon the carrier by which the carrier and brake-block are locked at any desired adjustment.

788,193. DOOR-CATCH. GEORGE DOVAS, New York, N. Y. Filed Oct. 17, 1904. Serial No. 228,716.



Claim.—1. A door-catch provided with a latch which is adapted to engage with the door-casing, said latch being adapted to oscillate by moving from different pivotal points, and means for resisting the latch in its oscillating movements.

2. A door-catch comprising a plate, a latch mounted thereon and adapted to oscillate from both sides transversely of the latch and a spring adapted to resist the oscillation of said latch.

3. A door-catch comprising a plate, a latch having a plurality of lugs engaging with the plate and on which the said latch is adapted to oscillate from either side when the latch is pressed from either side and a spring adapted to resist the movement of the latch.

4. A door-catch comprising a plate having inturned lugs and an aperture, a latch having sets of lugs 9 and 10 engaging the casing, a cross-spindle engaging the latch, a spring engaging said spindle and said inturned lugs whereby the spring will hold the latch in place and resist its oscillating action either on the lugs 9 or 10.

788,194. SEPARABLE BUCKLE. WILLIAM L. DUDLEY, Nashville, Tenn. Filed Dec. 1, 1904. Serial No. 235,026.



Claim.—1. In a separable buckle, the combination with a tongue member provided with a bar, of a tongue check member provided with hooks and having a slot extending transversely therethrough, said hooks and said bar being adapted to be engaged and disengaged by a relative movement in a direction parallel to said tongue check member.

2. In a separable buckle, the combination with a tongue member having a shoulder on the tongue thereof, of a tongue check member, and means for detachably connecting said members.

3. In a separable buckle, the combination with a tongue member comprising a tongue and a bar, of a tongue check member, means for detachably connecting said members, and means on the tongue of said tongue check member for preventing accidental disengagement of said members.

4. In a separable buckle, the combination with a tongue member comprising a tongue portion and a headed bar, of a tongue check member provided with hooks engaging the bar and having a slot extending transversely therethrough.

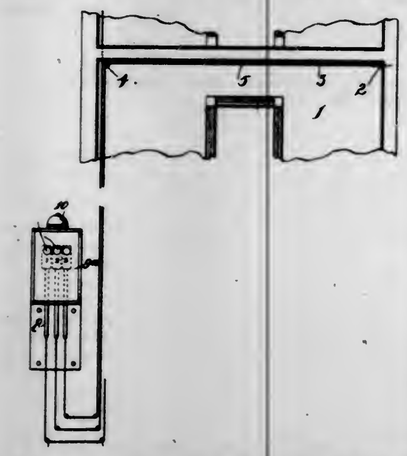
5. A separable buckle comprising detachably-connected complementary members one of which is a tongue check member having side bars, end bars, an intermediate bar and hooks and the other of which is a tongue member provided with a bar detachably engaging the hooks.

6. In a separable buckle, the combination with a tongue member, of a tongue check member provided with hooks on the under side thereof, one of said members being provided with a keeper for the free end of a strap or the like, and the keeper having means adapted to engage said hooks for detachably connecting said members.

788,195. FIRE-ALARM. PERCY H. EATON, Newcastle, Canada. Filed June 27, 1904. Serial No. 214,316.

Claim.—1. In a fire-alarm apparatus, an indicator-case, an alarm connected therewith, a plunger, a plate adapted to impinge said plunger, a spring-actuated reciprocatory member normally out

of contact with said plate and adapted to forcibly engage and move said plate and force it against said plunger, and means for holding said reciprocatory member normally out of contact with said plate.



2. In a fire-alarm apparatus, an indicator-case, an alarm connected therewith, a plunger, a hinged plate normally out of contact with said plate and adapted to forcibly engage and impinge said plunger, a spring-actuated reciprocatory member adapted to move said plate and force it against said plunger, and means for holding said reciprocatory member normally out of contact with said plate.

3. In a fire-alarm apparatus, an indicator-case, an alarm connected therewith, a plunger, a plate adapted to impinge said plunger, a spring-actuated reciprocatory member normally out of contact with said plate and adapted to forcibly engage and move said plate and force it against said plunger, and combustible means for holding said reciprocatory member normally out of contact with said plate.

4. In a fire-alarm apparatus, an indicator-case, an alarm connected therewith, a contact member coöperating with said alarm, a plurality of reciprocatory members normally out of contact with said member, and an interposed member adapted to be forced into engagement therewith to sound an alarm, actuating-springs therefor, indicators connected with said reciprocatory members, and means for holding said reciprocatory members normally in a retracted position.

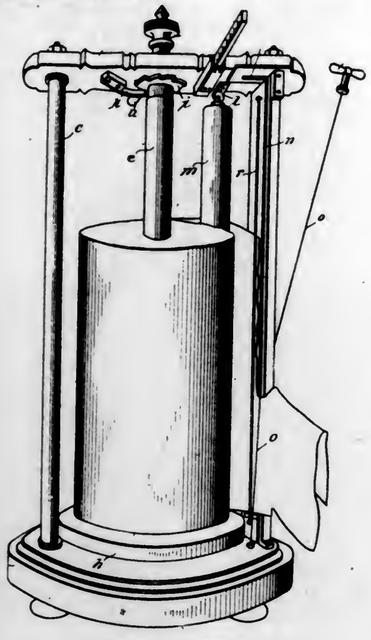
5. In a fire-alarm apparatus, an indicator-case, an alarm connected therewith, a contact member coöperating with said alarm, a hinged plate adapted to impinge said contact member, reciprocatory members normally out of engagement with said hinged plate and adapted to be forcibly engaged therewith, springs coöperating therewith, cross-arms connected with said reciprocatory members, and indicators carried by said cross-arms.

6. In a fire-alarm apparatus, an indicator-case, an alarm connected therewith, a contact member coöperating with said alarm, a hinged plate adapted to impinge said contact member, perforated reciprocatory members normally out of contact with said hinged plate and adapted to be forcibly thrown into direct engagement therewith, springs coöperating therewith, cross-arms connected with said reciprocatory members, and indicators carried by said cross-arms.

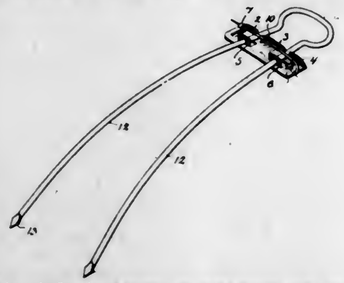
788,196. **PAPER-CUTTING DEVICE.** CARL T. HENNIGER. Kirchheim, Germany. Filed Apr. 11, 1903. Serial No. 152,256.

Claim.—1. A paper-cutting device, comprising a frame, a supply-roll rotatably journaled in said frame, a cutting-wire secured with its one end to said frame and adapted to be pulled with its free end through a slot in said frame, and means for suitably guiding the paper in front of and past the said slot, substantially as and for the purpose set forth.

2. A paper-cutting device, comprising a frame, a supply-roll rotatably journaled in said frame, means for ordinarily preventing backward rotation of said supply-roll and for braking its forward rotation, a cutting-wire secured with one end in said frame, a handle at the other end of said wire, the wire adapted to be pulled through a slot in said frame, means for suitably guiding the paper off the supply-roll close to and past the said slot in the frame, means for retaining the free-handled end of said wire in its inoperative position, and means for measuring off definite lengths and widths of paper, substantially as set forth.



788,197. **HAT-FASTENER.** HORACE S. FAIRBANKS and CHARLES H. FAIRBANKS, Racine, Wis. Filed Dec. 19, 1904. Serial No. 237,495.



Claim.—1. In a hat-fastener, the combination with a plate having a grooved flange, perforated lips and a bent catch struck up therefrom, and formed with a notched end and a hole adjacent thereto, of a pin passed through said hole and bent around said notch and under said catch, and a spring-wire formed into a head and divergent legs passed through the grooves in the plate-flange and the perforations in the said lips.

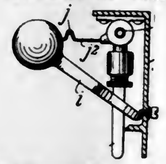
2. In a hat-fastener, the combination with a plate adapted to be secured to the edge of the crown and brim of a hat, and formed with a grooved flange and struck-up perforated lips, of a spring-wire formed into a head and divergent legs passed through the grooves in the plate-flange and the perforations in the said lips, and having the ends of said legs flattened into diamond-shaped points of greater width than that of said legs.

788,198. **OVERALL GARMENT.** JOHN C. FERGER, Albuquerque, N. Mex. Filed Jan. 3, 1905. Serial No. 239,395.

Claim.—An overall garment comprising a body portion and leg portions formed in one piece with the body portion, and having a depending bight extending across the back of its body portion, an elastic strip connected at one end to said bight and at its opposite end to the back of the body portion, a resilient strip connected to the back of the body portion, with its lower end disposed in the bight thereof, a seat-flap in the back of its body portion and arranged with its upper edge normally resting under and covered by the depending bight, and means for detachably connecting the upper edge of the seat-flap to the body portion.



788,199. **FIRE-ALARM.** JAMES FIDDES and JOHN F. WATT, Aberdeen, Scotland. Filed Jan. 23, 1905. Serial No. 242,344.



Claim.—1. In an automatic fire-alarm system, in combination, a main air-duct, means for supplying said air-duct with compressed air, branch air-tubes connected to said air-duct, back-pressure valves fitted in said branch air-tubes, indicators connected to said air-tubes, a frangible outlet in each tube, automatic means for fracturing said frangible outlets on abnormal rise of temperature to permit escape of air from said tube, and an electrical bell-circuit closed on actuation of any of said indicators, substantially as described.

2. In an automatic fire-alarm system, in combination, tubing filled with compressed air, a frangible outlet in said tubing, a stretched wire, means actuated on expansion of said wire to fracture said frangible outlet to permit escape of air, and an alarm actuated on reduction of pressure in said tubing, substantially as described.

3. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air, a frangible outlet in said tubing, a taut metallic wire, a weight maintaining said wire under tension and on its release due to expansion of said wire destroying said frangible outlet, and an alarm actuated on reduction of pressure in said tubing.

4. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air, a frangible outlet in said tubing, a metallic wire, a weight, a catch supporting said weight from said wire and adapted to release said weight on expansion of said wire to destroy said frangible outlet, and an alarm actuated on reduction of pressure in said tubing.

5. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air, a frangible outlet in said tubing, a metallic wire, adjustable supports for said wire, a weight, a catch supporting said weight from said wire and adapted to release said weight on undue rise of temperature to fracture said connection and an alarm actuated on reduction of pressure in said tubing.

6. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air, a frangible outlet in said tubing, a metallic wire, a weighted lever, a pin supporting said lever from said wire and adapted on expansion of said wire to release said lever so as to fracture said outlet, and an alarm actuated on reduction of pressure in the tubing.

7. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air with an opening for escape of air, a glass tube closed at one end and normally preventing escape of air, a stretched wire, a weight supported by said wire but released on expansion of said wire to fracture said closed tube, and an alarm actuated on reduction of pressure in said tubing.

8. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air with an opening for escape of air, a glass tube closed at one end normally preventing escape of air, a stretched metal wire, a jointless weighted lever having a slot embracing said closed tube, said lever being supported by said wire but released on expansion of said wire to break said closed tube, and an alarm actuated on reduction of air-pressure in the tubing.

9. In an automatic fire-alarm system, in combination, air-tubing filled with compressed air with an opening for escape of air, a glass tube closed at one end normally preventing escape of air, a stretched wire, a weighted lever supported by said wire and having a slot embracing said closed tube, a pin supporting said lever from said wire and adapted to release said lever on undue expansion of said wire, and an alarm actuated on reduction of pressure in said tubing.

10. In an automatic fire-alarm system, in combination, a plurality of air-tubes filled with compressed air, a frangible outlet in each tube, stretched wires, means adapted on undue expansion of said wire to fracture said frangible outlets and a gage connected to each tube and comprising a marked dial and a pivoted shutter turned on undue fall of pressure in said tube to uncover a mark on the dial.

11. In an automatic fire-alarm system, in combination, a plurality of air-tubes filled with compressed air, a frangible outlet in each tube, stretched wires, weights supported from said wires but released on undue expansion of said wires to fracture said outlets and a gage connected to each tube comprising a marked dial and a shutter turned on undue fall of pressure in said tube to uncover a mark on said dial.

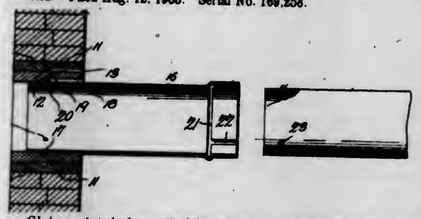
12. In an automatic fire-alarm system, in combination, a plurality of tubes filled with compressed air, a frangible outlet in each tube, stretched wires, weighted levers and catches supporting said levers from said wires but releasing said levers on undue expansion of said wires to fracture said outlets and an indicator connected to each tube comprising a marked dial and a shutter turned on fall of pressure in said tube to uncover a mark on said dial.

13. In an automatic fire-alarm system, in combination, a plurality of air-tubes filled with compressed air, a frangible outlet in each tube, stretched wires, weighted levers and catches supporting said levers from said wires, but releasing said levers on undue expansion of said wires to fracture said outlets, an electrical bell-circuit and a gage connected to each tube comprising a marked dial, a pivoted shutter and a pointer serving on its turning movement due to fall of pressure in the tube to close said circuit.

14. In an automatic fire-alarm system, in combination, an air-duct, branch air-tubes, back-pressure valves in said tubes, an air-pump, frangible outlets in said tubes, stretched wires, devices released on expansion of said wires to fracture said outlets and an alarm operated on escape of air from said air-tubes.

15. The improved automatic fire-alarm system, comprising, in combination, an air-duct, branch air-tubes, back-pressure valves in said tubes, frangible outlets in each tube, stretched wires, weighted levers, catches supporting said levers from said wires but releasing the levers on undue expansion of said wires to fracture said outlets, an electrical bell-circuit and a combined gage and indicator device connected to each tube and operated on fall of pressure in said tube to close said circuit.

788,200. **STOVEPIPE-THIMBLE.** ERNEST FINCH, Richmond Ind. Filed Aug. 12, 1903. Serial No. 169,258.



Claim.—A tubular cylindrical primary thimble having exterior and interior annular grooves formed in the body thereof and interior longitudinal grooves communicating at their inner ends with the interior annular grooves, in combination with a tubular cylindrical secondary reducing thimble of an exterior diameter equal to the interior diameter of the primary thimble and of a thickness of body sufficient to effect the desired reduction, said secondary thimble being provided with exterior lugs to engage the interior grooves of the primary thimble and with an interior annular groove formed in the body thereof, and with longitudinal grooves likewise formed in the body thereof and communicating at their inner ends with said annular groove.

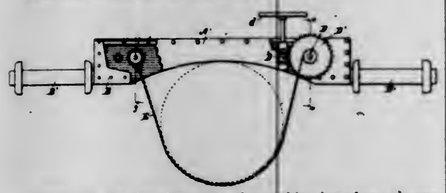
788,201. **FISH-HOOK.** SAMUEL H. FRIEND, Kent, Ohio. Filed Aug. 24, 1904. Serial No. 222,080.

Claim.—1. A plurality of hooks, two of which are provided each with a loop at the upper end of its shank, and the terminating points of the loops spaced in opposite directions from the respective shanks on which they are formed, substantially as and for the purpose specified.



2. A plurality of hooks, two of which are provided each with a loop at the upper end of its shank, and said loops open at the terminating points thereof located in opposite directions from the respective shanks on which they are formed, substantially as and for the purpose specified.

788,202. LOGGING-TRUCK. HERBERT B. GILLETTE, Benton Harbor, Mich. Filed Mar. 25, 1903. Serial No. 149,450.



Claim.—1. In a logging-truck, the combination of an axle consisting of the top piece A of angle-iron; side pieces A′ secured rigidly thereto; parts B fitted between said side pieces, rigidly secured to said side and top pieces; spindles projecting therefrom; a roller C supported between said side pieces toward one end thereof; a roller D supported between said side pieces toward the opposite end; a worm-gear on the axle of said roller D; a worm D″ provided with a suitable hand-wheel for operating said gear; and a chain secured at one end to said roller D and having its opposite end detachably secured to said roller C, all coacting for the purpose specified.

2. In a logging-truck, the combination of an axle consisting of a top piece formed of channel-iron; side pieces rigidly secured thereto; end parts fitted between said side pieces rigidly secured thereto; spindles projecting from said end parts; a roller between said side pieces toward one end of said axle; a worm-gear thereon; a worm provided with a suitable hand-wheel for operating said gear; and a chain adapted to be detachably secured to said roller, for the purpose specified.

3. In a logging-truck, the combination of an axle consisting of a channel-iron top piece having side pieces rigidly secured thereto; a part fitted between said side pieces and rigidly secured thereto, having spindles projecting therefrom; a roller arranged between said side pieces; means for controlling said roller; and a chain adapted to be secured to said roller, for the purpose specified.

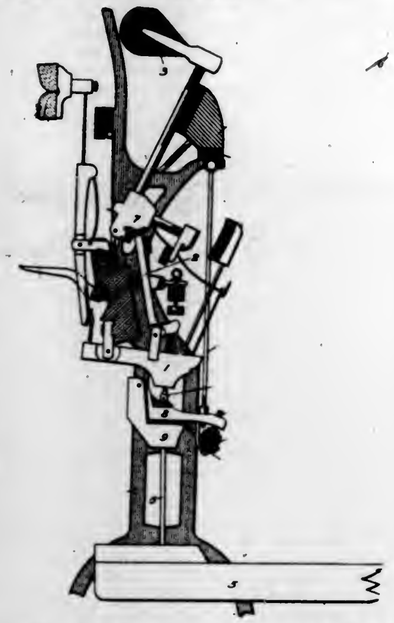
4. In a logging-truck, the combination of an axle consisting of a channel-iron top piece having side pieces rigidly secured thereto; a part fitted between said side pieces and rigidly secured thereto, having spindles projecting therefrom; a roller arranged between said side pieces; means for controlling said roller; and means for grappling a log, for the purpose specified.

5. In a logging-truck, the combination of an axle having side pieces or plates; a roller arranged between said side pieces; a worm-gear on said roller; a worm provided with a suitable hand-wheel for operating said gear; and a chain, coacting for the purpose specified.

6. In a logging-truck, the combination of an axle; a windlass arranged toward one end thereof; a worm driving-gear for said windlass; a worm for said gear, having a suitable means for operating the same; and a grappling-chain connected to said windlass and to the opposite end of said axle, coacting for the purpose specified.

7. In a logging-truck, the combination of an axle; a windlass; a worm driving-gear for said windlass; a worm for said gear, having a suitable means for operating the same; and a grappling-chain, one end of which is adapted to be wound on said windlass, coacting for the purpose specified.

788,203. PIANISSIMO DEVICE. OTTO GLATT, Toronto, Canada, assignor of one-half to William James Richardson, Toronto, Canada. Filed Mar. 7, 1904. Serial No. 196,933.



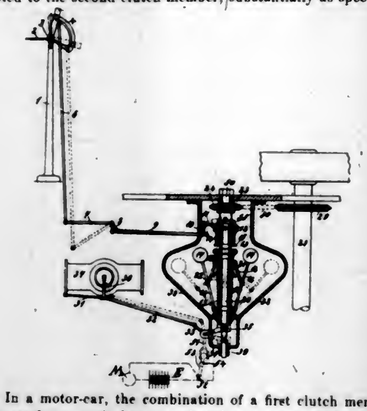
Claim.—1. In combination with a key and a dowel or pivot-block-supporting rod carried thereby, a block mounted on the said dowel, a lever pivoted on said block, a wippen supported at its free end on said lever, a pivoted jack supported by said wippen, a hammer-butt in contact with said jack, a movable hammer-rail, a device extending under the free end of the lever, and means connecting said device to said hammer-rail in order that the movement of the latter into pianissimo position may correspondingly move the said jack, thereby automatically maintaining such contact substantially as and for the purpose set forth.

2. In combination with a key and a dowel or pivot-block-supporting rod carried thereby, a block mounted on said dowel, a lever pivoted on said block, a wippen, a capstan whereby the free end of said wippen is adjustably supported on said lever, a pivoted jack supported by said wippen, a hammer-butt in contact with said jack, a movable hammer-rail, a device extending under the free end of the lever, and means connecting said device to said hammer-rail, in order that the movement of the latter into pianissimo position may correspondingly move the said jack, thereby automatically maintaining such contact substantially as and for the purpose set forth.

3. In combination with a key and a dowel or pivot-block-supporting rod carried thereby, a block mounted on the said dowel, a lever pivoted on said block, a wippen, supported at its free end on said lever, a pivoted jack supported by said wippen, a hammer-butt in contact with said jack, a movable hammer-rail, a lifting-rail extending under the free end of the lever, a rod connected to said hammer-rail and provided at its lower end with a hook extending under the said lifting-rail in order that the movement of said hammer-rail into pianissimo position may correspondingly lift the said jack thereby maintaining such contact, the said rod being constructed of screw-threaded and coupled sections permitting its adjustment as to length.

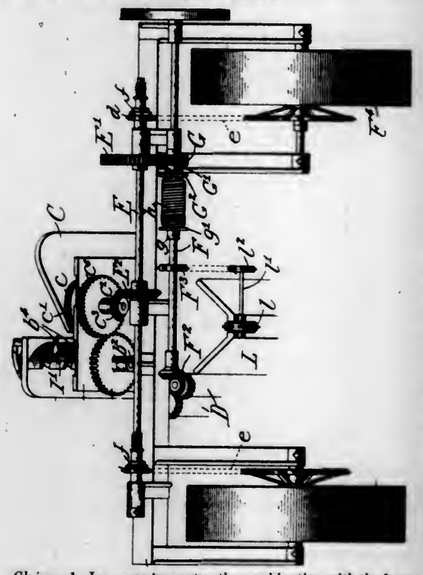
788,204. SPEED-CONTROLLING APPARATUS FOR MOTOR-DRIVEN VEHICLES. JOHANNES H. E. GORTER, Heckkathen, near Bergedorf, Germany. Filed Oct. 3, 1904. Serial No. 226,951.

Claim.—1. In a motor-car, the combination of a first clutch member with means for operatively connecting the same to one of the car-axles, a rotatable sleeve, an inclosed slidable spindle, a spring-influenced second clutch member slidably mounted on the sleeve, a governor carried by the sleeve and operatively connected to the spindle, a valve controlled by the spindle, and an indicator operatively connected to the second clutch member, substantially as specified.



2. In a motor-car, the combination of a first clutch member with means for operatively connecting the same to one of the car-axles, a rotatable and slidable spindle, a sleeve embracing the same, a second clutch member slidably mounted upon the sleeve, a governor carried by the sleeve, a collar operated by the governor and engaging the spindle, a valve controlled by the spindle, and an indicator operatively connected to the second clutch member, substantially as specified.

788,205. CORN-HARVESTER. JAMES E. GOODHUE, St. Charles, Ill. Filed Jan. 25, 1905. Serial No. 242,644.



Claim.—1. In a corn-harvester, the combination with the frame, running-gear and snapping-rollers, of a drive-shaft for said rollers, and a yielding, starting and driving connection interposed between the shaft and rollers.

2. In a corn-harvester, the combination with the running-gear and snapping-rollers, of snapping-roller-driving mechanism actuated from the running-gear, and a resilient connection coöperating with said mechanism to yieldingly control the starting and stopping operations of the rollers.

3. In a corn-harvester, the combination with the running-gear and snapping-rollers, of snapping-roller-operating mechanism provided with a fly-wheel, and a yielding starting and driving connection between the running-gear and said mechanism.

4. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers and main drive-shaft, of a counter-shaft for rotating the snapping-rollers, and a yielding, starting and driving connection between the said main shaft and the counter-shaft.

5. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers and main drive-shaft, of a counter-shaft for rotating the snapping-rollers, a fly-wheel on the counter-shaft, and a yielding, starting, and driving connection between the said main shaft and counter-shaft.

6. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers and a yielding, starting, and driving connection between the said main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally engaging the first said clutch member, a collar keyed to the counter-shaft, and a starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member.

7. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers, and a yielding, starting and driving connection between the said main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally engaging the first said clutch member, a collar keyed to the counter-shaft, a starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member, and a slidable sleeve surrounded by the spring.

8. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers and a yielding, starting and driving connection between the said main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally engaging the first said clutch member, a collar keyed to the counter-shaft, a starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member, and a slidable sleeve surrounded by the spring and intermeshing with the said collar.

9. In a corn-harvester, the combination with the frame, running-gear, snapping-rollers, and main drive-shaft, of a counter-shaft for rotating the snapping-rollers and a yielding, starting and driving connection between the said main shaft and the counter-shaft, comprising a pinion loose upon the counter-shaft and rotated from the drive-shaft, a clutch member integral with the pinion, a second clutch member also loose upon the counter-shaft normally engaging the first said clutch member, a collar keyed to the counter-shaft, a starting and driving spring about the shaft connected at opposite ends respectively with said collar and said second clutch member, a slidable sleeve surrounded by the spring and intermeshing with the said collar, and a second spring within the sleeve pressing said second clutch member normally into engagement with the first said clutch member.

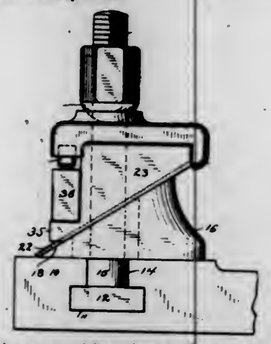
10. In an ear-gathering corn-harvester, the combination with the traveling frame, snapping-rollers, gathering-chains and driving means therefor on the frame, of a waste-material-receiving platform at the rear ends of the gathering-chain, and rotary throw-off fingers above the platform actuated from said driving means.

788,206. TOOL-POST. CHARLES W. GRANT, Derby, Conn. Filed Apr. 7, 1904. Serial No. 202,068.

Claim.—1. A tool-post comprising a base having a straight inclined toothed upper surface and formed with a slot elongated in the direction of the length of said inclined surface, a tool-rest having its under side formed with a corresponding toothed incline, a clamping-piece above the tool-rest, a portion of said tool-rest and a portion of said clamping-piece being adapted to coöperate to clamp a tool, and a bolt extending through the slot of the base and through the tool-rest and having a nut whereby pressure may be exerted upon the clamping-piece to clamp a tool.

2. A tool-post comprising a base having a straight inclined toothed upper surface and formed with a slot elongated in the direction of the length of said inclined surface, a tool-rest having its under side formed with a corresponding toothed incline, and having a depression in its top, a clamping-piece resting in said depression in

the top of the tool-rest, a portion of said tool-rest and a portion of said clamping-piece being adapted to coöperate to clamp a tool, and a bolt extending through the slot of the base and through the tool-rest and having a nut whereby pressure may be exerted upon the clamping-piece to clamp a tool.



3. A tool-rest comprising a base having upon its upper side a straight incline, at the center of said incline a channel or depression and on opposite sides of the channel ribs provided with teeth, a tool-rest having upon its under side a corresponding incline, at the center of said incline a rib adapted to engage the channel in the base and on opposite sides channels or depressions adapted to receive the ribs on the base and having at their bottoms teeth corresponding with the teeth on the ribs, a clamping-piece above the tool-rest and means for locking said parts together and retaining the device in position for use, said ribs and channels preventing lateral movement of the tool-rest on the base and the interlocking teeth preventing sliding of the tool-rest on the base, the base being adjustable in the direction of its length under the tool-rest.

788,207. CRUSHING-MACHINE. THOMAS J. GRAY, Chicago, Ill., assignor to National Drill and Manufacturing Company, Chicago, Ill., a Corporation of West Virginia. Filed Oct. 20, 1903. Serial No. 177,753.



Claim.—1. In a crushing-machine, a reciprocating jaw supported for tilting and bodily forward-and-back movement; a toggle action for operating the reciprocating jaw comprising a pitman, an arm rigid with the reciprocating jaw and extending back to and having a separable hinge connection with the pitman, and a pair of swinging tie-bars hinge-connected with the pitman and tied to an axis forward of the reciprocating jaw; and a tension-rod extending between the reciprocating jaw and the pitman and arranged substantially parallel with and adjacent to a right line between the central portion of the reciprocating jaw and the point of hinge connection between the jaw-arm and the pitman, the tension-rod thus arranged between the reciprocating jaw and the pitman having jointed connections therewith and having a spring interposed in one connection to maintain the jaw-arm in hinge connection with the pitman.

2. In a crushing-machine, a reciprocating jaw supported for tilting and bodily forward-and-back movement; a toggle action for operating the reciprocating jaw comprising a pitman, an arm rigid with the reciprocating jaw and extending back to and having a separable hinge connection with the pitman, and a pair of swinging tie-bars hinge-connected with the pitman and tied to an axis forward of the reciprocating jaw; and a tension-rod extending between the reciprocating jaw and the pitman and arranged substantially on a level with the hinge connection between the jaw-arm and the pitman, and a point midway of the upper and lower ends of the jaw-face, the tension-rod thus arranged between the reciprocating jaw and the pitman having jointed connections therewith and having a spring interposed in one connection to maintain the jaw-arm in hinge connection with the pitman.

3. In a crushing-machine, a reciprocating crushing-jaw; a pitman for operating the reciprocating crushing-jaw; and vibratory side bars having their ends connected by transverse rods or pivots respectively engaging the pitman and a bearing forward of the reciprocating crushing-jaw; one or more of the ends of such vibratory bars being recessed and having openings through the side walls of such recess for a rod or pivot, and provided with a staple-shaped clamp engaging the rod or pivot, an end plate through which the end portions of the staple-shaped clamp extend; and nuts fitted upon threaded ends of the staple-shaped clamp and serving to hold the plate against the end of the bar.

4. A crushing-machine comprising a stationary jaw; a reciprocating jaw having a rearwardly-extending arm rigid therewith; a pair of swinging suspending links H pivotally supported at their upper ends and attached at their lower ends to a transverse shaft 7 upon which the reciprocating jaw is pivotally supported; a pitman with which the said arm of the reciprocating jaw has a jointed connection; swinging tension-rods having jointed connection with the pitman and tied to swing about an axis forward of the reciprocating crushing-jaw; and a spring tension-rod forming a yielding connection between the reciprocating jaw and the pitman and arranged substantially parallel with the swinging tension-rods which are tied to swing about an axis forward of the reciprocating crushing-jaw.

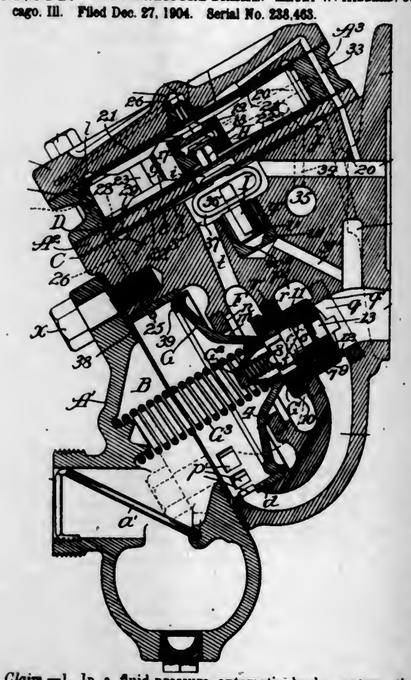
5. A crushing-machine comprising a stationary jaw; a reciprocating jaw having a rearwardly-extending arm rigid therewith; a pair of swinging links H pivotally supported at their upper ends and attached at their lower ends to a transverse shaft 7 upon which the reciprocating jaw is pivotally supported; a pitman with which the said arm of the reciprocating jaw has a jointed connection; a pair of swinging tension-rods having jointed connection with the pitman and tied to swing about an axis forward of the reciprocating crushing-jaw; and a spring tension-rod providing a yielding spring connection between the pitman and the reciprocating crushing-jaw and arranged parallel or substantially parallel with a right line extending forward from the connection between the jaw-arm and the pitman and intersecting the reciprocating jaw at a point between the axis of the pivot-shaft 7 and an axis about which the suspending links swing, the connection between the jaw-arm and pitman being at a point between the axis of the pivotal or jointed connection between the tension-rods K and the pitman, and the axis about which the pitman operates.

6. In a crushing-machine, a reciprocating crushing-jaw and an arm extending rearwardly therefrom; a pitman engaging said arm and having its rear side provided with a bearing-recess 21, and a rearwardly-projecting ledge 22 formed with end portions 23; vibratory arms having their rear ends connected by a transverse rod or pivot 19 removably fitted in the said bearing-recess, and having their opposite ends tied to an axis forward of the reciprocating jaw; the ledge 22 being adapted to form a receptacle having end portions 23 which serve to support the rod or pivot 19 when the latter is removed from the bearing-recess.

7. In a crushing-machine, a reciprocating jaw; a toggle comprising a pitman, an arm rigid with the reciprocating jaw and having a separable hinge connection with the pitman, and a pair of tie-bars hinge-connected with the pitman and tied to an axis forward of the reciprocating jaw; and a tension-rod interposed as a connection between the reciprocating jaw and the pitman and to such end tied at its forward end to the jaw-arm at the axis of the hinge-joint between such jaw-arm and the pitman and extending back through an opening in the pitman and having a spring connection with the latter.

8. In a crushing-machine, the combination of a suitable body-frame; a stationary jaw secured to said body-frame; a movable jaw opposed to said stationary jaw and provided with a rigid rearwardly-extending toggle-arm; swinging links pivoted at their upper end to the body-frame and their lower ends being pivotally connected with the lower portion of the movable jaw; a vertically-reciprocating pitman actuated at its lower end by an eccentric device, said pitman being provided between its upper and lower end with a bearing adapted to engage the rear end of said toggle-arm; swinging arms K connecting the upper end of the pitman with an axis forward of the movable jaw; a rod hinged at one end to the arm of the movable jaw and extending back through an opening in the pitman; and a spring arranged between the back of the pitman and a shoulder with which the rear end portion of said rod is provided; the opening in the pitman through which the rod passes being suitably enlarged to permit the rod to have an up and down swinging play independent of the pitman and said opening being formed in the pitman at a point between the eccentric and the point where the movable jaw-arm engages the pitman.

788,208. FLUID-PRESSURE BRAKE. MAURY W. HIBBARD, Chicago, Ill. Filed Dec. 27, 1904. Serial No. 238,463.



Claim.—1. In a fluid-pressure automatic brake system, the combination with a train-pipe, triple valve, auxiliary reservoir and brake cylinder, of means for producing temporary retrogression of pressure from the brake-cylinder to the train-pipe, before any venting thereof to the atmosphere, during the rise of train-pipe pressure following emergency action, for the purpose set forth.

2. In a triple-valve device, the combination with means for temporarily venting train-pipe pressure to the brake-cylinder direct in emergency action, of means for causing temporary retrogression of pressure to the train-pipe from the brake-cylinder, before any venting thereof to the atmosphere, during the rise of train-pipe pressure following emergency action, for the purpose set forth.

3. In a triple-valve device for air-brakes, the combination of a chamber communicating with the train-pipe, an emergency-valve-operating piston in said chamber, emergency-ports in said chamber opened and then closed by the piston in its emergency-valve-opening movement to temporarily vent pressure from the train-pipe to the brake-cylinder direct, and opened and closed in the emergency-valve-seating movement of the piston to temporarily vent pressure from the brake-cylinder to the train-pipe, for the purpose set forth.

4. In a triple-valve device for air-brakes, the combination of a pair of coöperating flexible diaphragms, exposed at their outer sides, respectively, to train-pipe and reservoir pressures and at their inner sides to the atmosphere, and governing the movements of the feed and release valves, and distance mechanism between the diaphragms formed of independently-movable sections.

5. In a triple-valve device for air-brakes, the combination of a pair of coöperating flexible diaphragms exposed at their outer sides, respectively, to train-pipe and reservoir pressures and at their inner sides to the atmosphere, and governing the movements of the feed and release valves, and distance mechanism between the diaphragms formed of independently-movable sections, each said section consisting of a pair of diaphragm-engaging plates and a distance-pin separating the plates.

6. In a triple-valve device for air-brakes, the combination of a pair of coöperating flexible diaphragms exposed at their outer sides, respectively, to train-pipe and reservoir pressures and at their inner sides to the atmosphere, and governing the movements of the feed and release valves, and distance mechanism between the diaphragms formed of independently-movable sections, each said section consisting of a pair of diaphragm-engaging plates and distance-pins bearing pivotally at opposite ends against said plates.

7. In a triple-valve device for air-brakes, the combination of a pair of coöperating flexible diaphragms exposed at their outer sides, respectively, to train-pipe and reservoir pressures and at their inner sides to the atmosphere, and governing the movements of the feed and release valves, and distance mechanism between the diaphragms formed of independently-movable sections, each said section consisting of a pair of diaphragm-engaging plates provided with concave sockets on their adjacent sides, and a distance-pin having convex ends fitting said sockets.

8. In a triple-valve device for air-brakes, the combination with feed and release valves, a diaphragm device for actuating said valves, an emergency-valve and an emergency-valve-actuating piston, of a service-valve and a flexible service-valve-actuating diaphragm mounted independently of said piston and diaphragm device.

9. In a triple-valve device for air-brakes, the combination with feed and release valves, a diaphragm device for actuating said valves, an emergency-valve and an emergency-valve-actutaing piston, of a service-valve, a flexible service-valve-actuating diaphragm mounted independently of said piston and diaphragm device, and of greater flexibility than said diaphragm device.

10. In a triple-valve device for air-brakes, the combination with feed and release valves and operating means therefor, of a service-valve, a flexible service-valve-actuating diaphragm and means upon the diaphragm for loosely engaging the service-valve to permit limited independent movement between them.

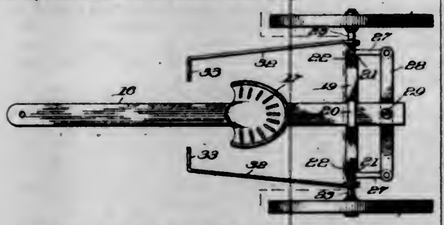
11. In a fluid-pressure automatic brake system, the combination with a train-pipe, triple valve, auxiliary reservoir and brake-cylinder, of means for causing venting of the auxiliary-reservoir and brake-cylinder pressures to the train-pipe under slow and prolonged reduction of train-pipe pressure, for the purpose set forth.

12. In a fluid-pressure automatic brake system, the combination with a train-pipe, triple valve, auxiliary reservoir and brake-cylinder, of means for causing venting of the auxiliary-reservoir and brake-cylinder pressures after equalization to the train-pipe under slow and prolonged reduction of train-pipe pressure, comprising a piston movable in a bushing and loosely fitting the same, and subject on opposite sides to reservoir and train-pipe pressures and seating under preponderance of pressure from the train-pipe to shut off communication between the train-pipe and brake-cylinder, but movable from its seat under comparatively great preponderance of auxiliary-reservoir pressure to permit the latter and brake-cylinder pressures to pass by the piston to the train-pipe, substantially as and for the purpose set forth.

788,209. CULTIVATOR. GEORGE D. HOUSTON, Rushville, Ill. Filed Oct. 6, 1904. Serial No. 227,350.

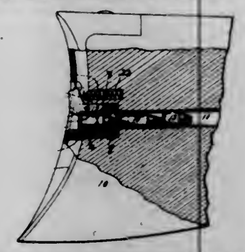
Claim.—1. A four-wheeled riding-cultivator comprising a wheeled walking-cultivator, and a wheeled carriage comprising a reach pivotally connected to the rear end of the tongue of the cultivator, an arch rigidly fastened to the reach near its rear end, lugs on the sides of the upright members of said arch, rods pivotally mount-

ed in said lugs and having their lower ends bent outward to form axles for the carrying-wheels, means for turning said rods simultaneously to change the direction of movement of the wheels, guide-bars fastened to said axles and projecting forwardly in rear of the cultivator-gangs, and a seat on the reach above said guide-bars and in adjacent relation to the handles of the gangs.



2. A four-wheeled riding-cultivator comprising a wheeled walking-cultivator, and a wheeled carriage comprising a reach pivotally connected to the rear end of the tongue of the cultivator, an arch clamped to said reach near its rear end, lugs on the sides of said arch, upright rods pivotally mounted in said lugs and having their lower ends bent outward to form axles, carrying-wheels mounted on said axles, a cross-bar normally fastened to the reach, links pivotally connecting the ends of the cross-bar and the upper ends of said rods, forwardly-projecting guide-bars connected to said axles, foot-rests on the ends of said guide-bars behind the cultivator-gangs, and a seat on the reach above said foot-rests.

788,210. GUN. THOMAS C. JOHNSON, New Haven, Conn., assignor to Winchester Repeating Arms Company, New Haven, Conn., a Corporation. Filed June 1, 1904. Serial No. 210,719.



Claim.—1. In a gun, the combination with a butt-stock having a cartridge-receiving chamber extending forward into it from its rear end, of a mouthpiece located at the rear end of the said chamber and forming a continuation thereof, and a manually-operated double-acting cartridge-gate having two cartridge cut-offs located one in advance of the other and alternately moved into the passage of the mouthpiece whereby only one cartridge can be removed at a time from the said chamber.

2. In a gun, the combination with a butt-stock having a cartridge-receiving chamber, of a mouthpiece, a manually-operated double-acting cartridge-gate mounted in the said mouthpiece and having two cartridge cut-offs located one in advance of the other and alternately entering the cartridge-passage of the said mouthpiece for engaging with the cartridges, whereby only one cartridge can be removed at a time from the said chamber, and a butt-plate applied to the butt-stock over the said mouthpiece and having a cartridge-feeding opening registering with the said cartridge-receiving chamber.

3. In a gun, the combination with a butt-stock having a cartridge-receiving chamber extending forward into it from its rear end, of a mouthpiece, a pivotally-mounted double-acting cartridge-gate having a finger-piece by means of which it is operated, and also having a rear cut-off and a front cut-off alternately entered by the swinging of the said gate on its pivot into the path of the cartridges through the mouthpiece, and a spring coacting with the said gate to hold it in its normal position.

4. In a gun, the combination with a butt-stock having a cartridge-receiving chamber, of a tubular mouthpiece having a cartridge-passage, a double-acting cartridge-gate pivotally mounted in the said mouthpiece and formed with a front and a rear cut-off alternately entering the said passage as the gate is operated, whereby only one cartridge can be removed at a time, and a butt-plate having a feeding-opening registering with the cartridge-passage of the mouthpiece, a slot for the reception of the outer end of the gate, and a recess to facilitate the operation thereof.

5. In a gun, the combination with a butt-stock having a cartridge-receiving chamber, of a mouthpiece having a cartridge-passage, a double-acting cartridge-gate in the general form of a bell-crank lever, the said gate being pivotally mounted in the said mouthpiece and comprising an upwardly-extending finger-piece and a forwardly-extending shank and formed with a front and a rear cut-off alternately entering the said passage as the lever is swung on its pivot by its said finger-piece whereby only one cartridge can be removed at one time, and a butt-plate registering with the cartridge-passage of the mouthpiece and having a slot for the reception of the finger-piece of the gate which is thus exposed for the manual operation of the gate.

788,211. COMBINED DREDGE AND MINING-SLUICE. CHARLES H. LEWIS, Baltimore, Md. Filed Feb. 10, 1905. Serial No. 245,007.



Claim.—1. A combined dredge and mining-sluice, which comprises a rotatable vessel provided at or near its forward end, with a series of angularly-placed and projecting scoops in communication with the interior of the vessel, and having at its rear end, an outlet-opening, substantially as specified.

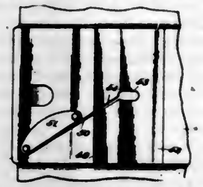
2. A combined dredge and mining-sluice, which comprises a rotatable vessel provided at or near its forward end, with a series of angularly-placed and projecting scoops in communication with the interior of the vessel, and having at its rear end, an outlet-opening, together with appliances whereby the device may be drawn along a bed of sand beneath water, substantially as specified.

3. A combined dredge and mining-sluice, which comprises a rotatable vessel having at or near its forward end, a series of angularly-placed scoops in communication with the interior of the vessel, which scoops extend laterally beyond the vessel, and having at its rear end an outlet-opening, the said sluice being provided with removable riffles, substantially as specified.

4. In a combined dredge and mining-sluice, the dredge portion thereof having a conical head and the series of scoops arranged circumferentially around the dredge in the rear of the conical head and which project in an angular position and beyond the circumference of the dredge, substantially as specified.

5. A dredge and mining-sluice which are hinged together and provided with fastenings whereby the two parts of the device may be held in a closed condition, the said dredge having radially-projecting and angularly-placed scoops which extend beyond the longitudinal wall of the dredge and are in communication with the interior of the dredge, substantially as specified.

788,212. THREAD-CUTTER FOR SEWING-MACHINES. ROBERT L. LYONS, Waltham, Mass. Filed May 5, 1903. Serial No. 155,913.

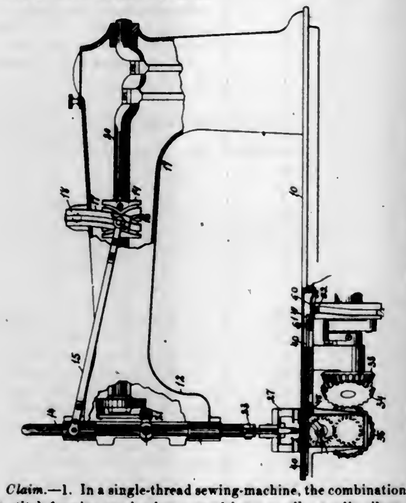


Claim.—1. In a sewing-machine, a work-support furnished with a slot, extending from the needle-hole, the converging edges of which slot form the shuttle-thread-gripping device.

2. In a sewing-machine, a work-support comprising a throat-plate having a needle-hole and a slot extending therefrom, and a plate in which the throat-plate is movably secured and having a slot with which the slot of the throat-plate is designed to register, and a thread-cutting device positioned in line with said slot.

3. In a sewing-machine, a work-supporting plate, having a slot, the converging edges of which form a thread-gripping device, a cutter adapted to act on thread extending through said slot, and a throat-plate removably secured to said supporting-plate and having a needle-hole and a slot extending from said hole and adapted to register with the slot in said supporting-plate.

788,213. STITCH-FORMING MECHANISM FOR BUTTON-SEWING MACHINES. ROBERT L. LYONS, Waltham, Mass. Filed May 23, 1904. Serial No. 209,172.

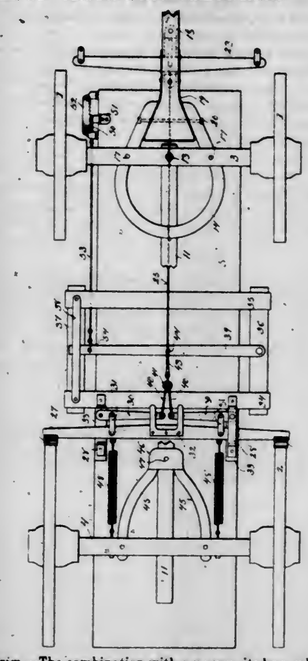


Claim.—1. In a single-thread sewing-machine, the combination with stitch-forming mechanism comprising a needle, needle vibrating and driving mechanism, and a looper, of a thread-positioner movably mounted to engage the needle-thread beneath the work and to move the same laterally, and actuating means for said positioner in driving connection with the main shaft.

2. In a single-thread sewing-machine, the combination with stitch-forming means comprising a needle, means for vibrating the needle, and a looper, of a needle-thread positioner movably mounted beneath the work and having a path of movement across the needle-path, and means for actuating said positioner to move the needle-thread laterally at alternate loop-delivery movements of the needle, as and for the purpose described.

3. In a sewing-machine, the combination with stitch-forming means including a needle and a looper, of the bed-plate 10, the slide 40 movably mounted in a guide in said bed-plate, the arm 45 pivotally mounted on said slide, plates adjustably mounted on the bed-plate and having pins for intercepting said arm, and connections between the slide and the main shaft for effecting the reciprocation of said slide, as and for the purpose described.

788,214. WAGON-BRAKE. CHARLES J. A. MACHUT, Sheboygan Falls, Wis. Filed Dec. 5, 1904. Serial No. 235,486.



Claim.—The combination with a wagon, its box, wheels, axles, bolsters and tongue, of a movable brake-beam having shoes for engagement with the rear wheels; retracting-springs connecting said brake-beam with the rear bolster; levers linked to said brake-beam; a frame secured to the under side of said box; a transverse lever pivotally secured to said frame; a flexible connection between said lever and the levers linked to said brake-beam; a toothed rack and a pivoted hand-lever for engagement therewith, both secured to the said wagon-box; and a flexible connection between this hand-lever and the said transverse lever.

788,215. SPARE-TIRE RECEPTACLE FOR AUTOMOBILES. GEORGE E. MITCHELL, Chelsea, Mass. Filed Sept. 26, 1904. Serial No. 225,880.



Claim.—1. A receptacle for automobile shoes or tires, comprising a circular top and bottom, a flexible side wall united at its upper and lower edges, respectively, to the edges of the top and bottom, said side wall having an elongated opening therein extending substantially from the top to the bottom of the receptacle and circumferentially thereof, flexible means to completely close the circumferential opening, and fastenings to secure said means in closed position completely closing said opening.

2. A receptacle for automobile shoes or tires, comprising a circular top and bottom of flexible waterproof material, a flexible side wall united at its upper and lower edges to the edges of the top and bottom, said side wall having an elongated opening extending from one to the other of said united edges and circumferentially of the receptacle, external flaps secured to the receptacle above and below the opening in the side wall and extended beyond the ends of the open-

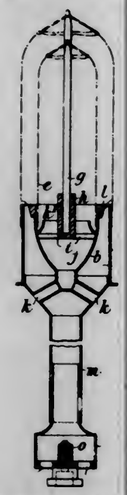
ing, and adapted to overlap and close the same, and fastening means to secure the flaps in overlapped, closed position.

3. A receptacle for automobile shoes or tires, comprising a circular top and bottom, a flexible side wall united to the edges of the top and bottom, said side wall having an elongated opening substantially the width of the side wall and extending circumferentially of the receptacle, flaps secured to the edges of the top and bottom and longer than the opening, and adapted to meet each other to close the receptacle, and fastening means to draw the flaps together and retain them in closed position.

4. A receptacle for automobile shoes or tires, comprising a circular top and bottom, an annular side wall connecting the same and having formed therein an elongated side inlet extending circumferentially thereof, flaps to close the inlet, fastening means to secure the flaps in closed position, and straps attached to the top of the receptacle, whereby the latter may be secured in place leaving the side inlet accessible.

5. A receptacle for automobile shoes or tires, comprising a circular top and bottom of heavy canvas, having their edges overturned, a canvas side wall united to the overturned edges, said side wall having an elongated opening extending from one to the other overturned edge, flaps secured to the said edges, extended beyond the ends of the opening and adapted to meet each other, to close the receptacle, and fastening means to draw the flaps tightly together when in closed position.

788,216. **BUNSEN BURNER FOR LIGHTING AND HEATING PURPOSES.** JULIUS MOELLER, London, England. Filed June 8, 1904. Serial No. 211,621.



Claim.—1. A Bunsen burner provided with a head having a vertical annular passage therethrough formed by two smooth walls, circular in cross-section and substantially parallel for a portion of their length, the outer wall being vertical throughout its length, and the inner wall tapering sharply outward at a point adjacent to its upper end to form a narrow annular burner-orifice, whereby the combustible vapor is discharged at high velocity without employing artificial means, and without retarding the flow of vapor before it reaches the point of discharge, said head being provided with a central air-passage in communication at its lower end with the atmosphere, means for supporting a mantle outside of said head, and means for supporting a mantle within said central air-passage whereby the combustible vapor is delivered from the burner-orifice between said mantles, substantially as described.

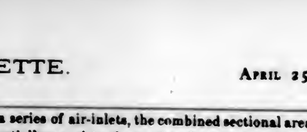
2. In a Bunsen burner, the combination with the hollow head provided with an annular and uninterrupted discharge-aperture at its upper end formed by two concentric smooth circular walls, one of said walls being inclined to the other, to facilitate the discharge of the mixture at high velocity, of a supply-tube connected to said head having its sectional area substantially equal to that of the annular discharge-aperture, and a mixing-chamber connected to the lower end of said tube and having its bottom provided with a gas-inlet and a series of air-inlets, the combined sectional areas of which are substantially equal to the sectional area of said tube, substantially as described.

3. In a Bunsen burner adapted for use with two mantles, the combination with the head having a chamber within the same, into which the inner mantle depends, means for introducing an independent air-supply into said chamber, and an annular deflector, extending from the inner walls of said chamber toward the center thereof, for protecting the lower end of said inner mantle from the air-supply, substantially as described.

4. In a Bunsen burner adapted for use with two mantles, the combination with the head provided with an annular and uninterrupted discharge-aperture for combustible mixture, and having a chamber within said annular discharge-aperture to receive the inner mantle, said head being also provided with air-supply passages extending from the exterior thereof to the said chamber, and an annular deflector within said chamber extending from the walls thereof toward the center and being also curved upwardly, to protect the lower edge of the inner mantle, a supply-tube connected with said head and communicating with said annular discharge-passage, and a mixing-chamber connected to said tube and provided with gas and air inlets, substantially as described.

5. A Bunsen burner provided with a head having a vertical annular passage therethrough formed by two smooth walls, circular in cross-section and substantially parallel for a portion of their length, the outer wall being vertical throughout its length, and the inner wall tapering sharply outward at a point adjacent to its upper end to form a narrow annular burner-orifice, whereby the combustible vapor is discharged at high velocity without employing artificial means, and without retarding the flow of vapor before it reaches the point of discharge, said head being provided with a central air-passage in communication at its lower end with the atmosphere, means for supporting a mantle outside of said head, and means for supporting a mantle within said central air-passage whereby the combustible vapor is delivered from the burner-orifice between said mantles, and a deflector secured to the inner wall of said central air-passage and projecting inwardly to protect the lower end of the inner mantle, substantially as described.

788,217. **WASHER-CUTTER.** WILLIAM H. MOHR, Plantsville, Conn. Filed Aug. 4, 1904. Serial No. 219,570.



Claim.—1. A washer-cutter comprising a shank, an annular chambered head, and a cutting edge, said shank formed with a longitudinal recess opening into said head, and a slot in the side of the shank opening into said recess, a stripper comprising a spindle extending into said recess and a head located in said chamber, and means connected with said stripper and extending through said slot whereby the stripper may be moved independently of the cutter, substantially as described.

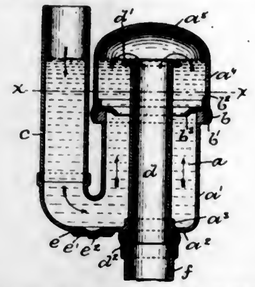
2. A washer-cutter comprising a shank and a chambered head having an annular cutting edge, said shank longitudinally recessed, a stripper having a spindle extending into said recess, and a head within said chamber, said head formed with an annular marking edge, substantially as described.

3. A washer-cutter comprising a shank, an annular chambered head, and a cutting edge, said shank formed with a longitudinal recess opening into said head, a stripper comprising a spindle within said recess and a head within said chamber, said stripper provided with a head having an annular marking edge, and means for moving said stripper independent of the cutter, substantially as described.

788,218. **SANITARY TRAP.** JOHN W. MCAULIFFE, Providence, R. I., assignor to The McAuliffe Manufacturing Co., Providence, R. I., a Corporation of Rhode Island. Filed Aug. 26, 1903. Serial No. 170,594.

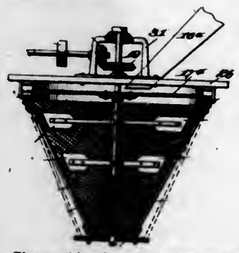
Claim.—1. A sanitary trap, consisting of a two-part body having inlet and outlet ducts and a connecting-ring provided with an inwardly-extending annular flange and adapted to secure the upper part of the body having a larger area to the lower part of the body having a smaller area below the water-line, as described.

2. A sanitary trap, consisting of a two-part body, the upper part having a greater area than the lower part, a ring having an inwardly-extending annular flange adapted to secure the two parts of the body together below the water-line, an inlet-duct connecting with the lower part of the body, an outlet-duct in the body extending centrally from a point above the connecting-ring downward through the bottom of the trap and having a smaller area than the waste-pipe to which it is connected, and a cover closing a clean-out hole in the bottom of the trap, as described.



3. In a sanitary trap, the combination of the two-part cylindrical body *a* consisting of the lower part *a'* having the bottom a^2 with the screw-threaded opening a^3, and the enlarged upper part a^4 having the dome-shaped top a^5, the connecting-ring *b* having the internal screw-threaded portion *b'*, the external screw-threaded portion b^2, and the inwardly-extending annular flange b^3, the inlet-duct *c*, the outlet-duct *d* having the lip *d'* on its inner end and secured by screwing the lower end into the opening a^3, the cover *e'* with the nut-head e^2 for the clean-out hole *e*, and means for securing the waste-pipe *f* to the outlet-duct *d* consisting of the screw-threaded connection d^2, all for the purpose as described.

788,219. **SCREEN.** GRAHAM L. OGLE, Louisville, Ky. Filed July 19, 1904. Serial No. 217,258.



Claim.—1. The combination of a screen-surface in the form of an inverted frustum having an inlet at its top and a discharge at its bottom, and composed of a plurality of abutting screen-sections arranged in an endless series, and means for moving the sections to vary the inclination of the entire screen-surface.

2. The combination of a screen-surface in the form of an inverted frustum having an inlet at its top and a discharge at its bottom, and composed of a plurality of abutting screen-sections arranged in an endless series, means for moving the sections to vary the inclination of the entire screen-surface, and fabric extensions on the sides of the screen-sections for covering the spaces between the sections when in the various positions.

3. The combination of a screen-surface in the form of an inverted frustum having an inlet at its top and a discharge at its bottom, means for varying the inclination of the entire screen-surface, and means for distributing material on the inner surface of the screen.

4. The combination of a screen-surface in the form of an inverted frustum having an inlet at its top and a discharge at its bottom, means for varying the inclination of the entire screen-surface, and a rotary disk for distributing material on the inner surface of the screen.

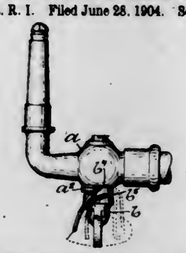
5. The combination of a screen-surface in the form of an inverted frustum having an inlet at its top and a discharge at its bottom, means for varying the inclination of the entire screen-surface, means for distributing material on the inner surface of the screen, and means for causing a blast to act on the material while on the screen.

6. The combination of a screen-surface in the form of an inverted frustum having an inlet at its top and a discharge at its bottom, means for varying the inclination of the entire screen-surface, a rotary shaft surrounded by the screen-surface, a disk carried by the shaft, and fan-blades carried by the shaft.

7. A non-rotatable screen-surface in the form of an inverted frustum having a discharge at its bottom and divided into a plurality of sections adjustable to vary the inclination of the screen-surface.

8. A non-rotatable screen-surface in the form of an inverted frustum having a discharge at its bottom and divided into a plurality of sections adjustable to vary the inclination of the screen-surface, and means for distributing material over the inner surface of the screen.

788,220. **SAFETY ATTACHMENT FOR GAS-COCKS.** JOHN A. OLSON, Pawtucket, R. I. Filed June 28, 1904. Serial No. 214,545.



Claim.—The combination with a gas-cock having stop-shoulders and a plug-valve in which is a central transverse hole on a line with the stop-shoulders and an off-center parallel hole, of an automatic safety locking attachment consisting of a spring-wire bent together approximately in the center and formed into a lever having a lower L-shaped arm forming the fulcrum of the lever and an upper spring-arm bent at right angles with a curved bend to form a locking-pin, the two arms of the locking attachment being supported in the respective holes in the plug-valve, and means for securing the locking attachment to the gas-cock, as described.

788,221. **BRACELET.** HENRY B. RICHARDSON, Attleboro, Mass., assignor to Smith & Richardson, Attleboro, Mass. Filed July 15, 1904. Serial No. 216,680.



Claim.—1. In a bracelet, the combination of the spring-metal band *a* and the flexible woven-wire tubular casing b^2 constructed from the flat woven-wire stock *b*, and the locking-coil *b'*, as described.

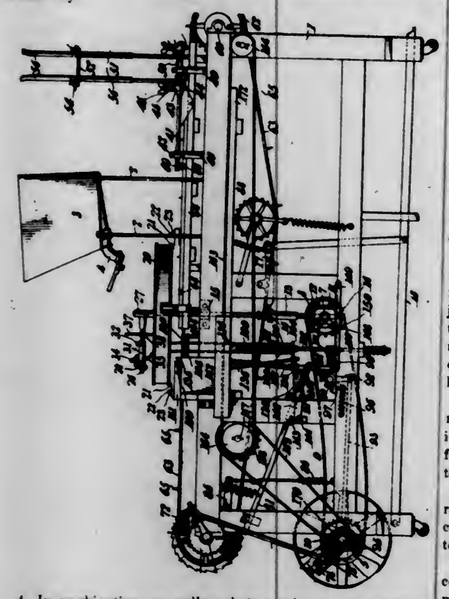
2. In a bracelet, the combination of the spring-metal band *a*, the flexible seamless woven-wire tubular casing b^2 formed by interwoven coils of wire, and the ornamental ends *c c*, as described.

788,222. **MACHINE FOR ICING CAKES.** JOB F. SCOTT and ALBERT B. CURTIS, Toledo, Ohio, assignors, by direct and mesne assignments, to National Biscuit Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 8, 1904. Serial No. 202,256.

Claim.—1. In combination, a tray having an opening, a vertical shaft extending through an opening at the center of the tray, an arm adjustably secured to the shaft, a scraper-blade adjustably secured to the arm, means for varying the angular position of the blade with respect to the tray, and means for presenting articles below the opening.

2. In combination, a tray, having an opening, a vertical shaft extending through an opening in the center of the tray, an arm adjustably secured to said shaft, a scraper-blade adjustably secured to the arm, a deflector carried by the shaft and serving to force material from the center of the tray into the path of movement of the blade, and means for presenting articles below the opening.

3. In an icing-machine, a tray for receiving a limited quantity of icing, said tray having an opening, means for presenting cakes under the opening, a scraping-blade adapted to travel over the bottom of the tray and opening, and an icing-reservoir mounted above the tray and having an adjustable means for the continuous feed of icing to said tray.



4. In combination, an endless-chain carrier, means for intermittently moving the same in one direction, and means for reversing the direction of movement to an extent less than that of the feeding movement after the completion of such feeding movement.

5. In combination, a reservoir, an icing-table, an endless-chain conveyer for feeding articles from the reservoir to the icing-table, means for effecting an intermittent feeding movement of the chain and means for reversing the movement of the chain at the completion of each feeding movement.

6. In combination, a cake-reservoir, an icing-table, an endless-chain conveyer having pins for engaging the cakes, means for effecting intermittent feeding movement of the chain, and means for reversing the direction of movement of such chain at the completion of every feeding movement.

7. In combination, a cake-reservoir, an icing-table, an endless conveyer having cake-engaging pins, means for effecting intermittent feeding movement of the chain, and means for effecting a reversal of the movement of the chain to a limited extent in order to free the pins from the cakes at the completion of each feeding movement.

8. In combination, a cake-reservoir, an icing-table, an endless chain having pins for engaging the cakes, a ratchet-wheel, a pawl for effecting intermittent feeding movement of the chain conveyer, and a second ratchet-wheel and pawl for reversing the direction of movement of the chain to a limited extent at the completion of each feeding movement.

9. The combination with an endless-chain conveyer having feeding-pins or the like, of a pair of sprocket-wheels, shafts supporting the wheels, a ratchet-wheel carried by one of the shafts, a pawl engaging said ratchet-wheel, means for operating the pawl, to effect an intermittent feeding movement of the chain, a second ratchet-wheel carried by one of the shafts, a pawl engaging the second ratchet-wheel, and means for operating said pawl to effect a limited movement of the chain the reverse of that which it moves during feeding operation, the forward and reverse movements being alternated.

10. The combination with an icing-machine, of a cake-reservoir having a bottom discharge, and including a plurality of spaced rods, means for adjusting the positions of the rods to alter the horizontal area of the reservoir, a lower table or bottom on which the contents of the reservoir may rest, and means for supporting the lower end of one of said rods at a distance from the bottom of the reservoir proportioned to the thickness of the articles which said reservoir is to contain.

11. The combination with an icing-machine, of a cake-reservoir including a plurality of vertically-disposed rods adjustable to alter the horizontal area of said reservoir, and means for supporting one of said rods in position above the bottom of the reservoir to form a side discharge-opening adjacent to the reservoir-bottom.

12. The combination with an icing-machine, of a cake-reservoir, including a pair of sectional supports, means for adjustably connecting the sections, and parallel rods adjustably connected to said supports, one of said rods being held at a distance above the bottom of the reservoir to form a discharge-opening.

13. The combination with an icing-machine, of a cake-reservoir, including a pair of spaced supports, a pair of rods adjustably mounted thereon, a sectional carrier adjustably secured to said rods, a second sectional carrier connected to the first and supported thereby, and a plurality of rods adjustably connected to the two sectional carriers.

14. The combination with an icing-machine, of a cake-reservoir including a pair of adjustable supporting-rods, a second pair of rods arranged approximately at right angles to the first pair and adjustably supported thereby, a sectional carrier adjustably secured to the second pair of rods, a second carrier supported by the first carrier, and a plurality of rods disposed in vertical position and connected adjustably to the carriers in order to prevent adjustment of the horizontal area of said reservoir.

15. The combination with an icing-applying means, of a cake-receiving table, means for feeding cakes to the table, guards for checking movement of the cake across the table under the impulse of the feeding means, and means for moving said guards into and out of the path of movement of the cakes.

16. The combination with an icing-applying means, of a cake-receiving table, spring-held guards for checking movement of the cakes as they are fed to the tables, and means retracting said guards to permit the discharge of the cake from the table

17. The combination with icing-applying means, of a cake-receiving table, a pair of spring-held guard-fingers for checking movement of the cakes across the table, means for adjusting the position of the fingers with respect to the center of the table, and means for retracting the fingers to permit the discharge of the cake.

18. The combination with an icing-support having an opening, of a cake-receiving table, a plurality of cake-engaging devices for contact with the edges of the cake, and springs tending to move said engaging devices toward each other.

19. The combination with an icing-support having an opening, of a cake-receiving table, a plurality of rods for engaging the edges of the cakes, and means for moving the rods away from the cakes to permit the discharge of the latter.

20. The combination with an icing-applying means, of a cake-receiving table, a plurality of rods for engaging the edges of the cakes, and means for limiting the inward movement of said rods

21. The combination with an icing-applying means, of a cake-receiving table, rods for engaging the edges of the cakes, springs tending to move the rods toward each other, and means for automatically spreading the rods to remove the cake.

22. The combination with an icing-applying means, of a cake-receiver, a plurality of rods for engaging the edges of the cakes, means for spreading the rods to permit of the discharge of the cakes and for permitting inward movement of said rods to cake-engaging position.

23. The combination with an icing-support having an opening, of a cake-receiving table, a plurality of rods for engaging the edges of the cake, said rods being yieldable to permit continued movement of the table in the direction of the opening after the rods have come into contact with the support.

24. The combination with an icing-support having an opening, of a cake-receiving table, a plurality of members for receiving the edge of the cake, said members serving as strippers to positively remove the cake after the application of the icing, and means for spreading the members to release said cake.

25. The combination with an icing-support having an opening, a cake-receiving table, a plurality of rods recessed at their upper ends for engaging with the edges of the cake, means for moving both the rods and the table in a vertical direction, a pair of rock-shafts, rocker-arms secured thereto, bars carried by the rocker-arms, auxiliary rocker-arms also secured to the shafts and stops disposed in the path of movement of the auxiliary arms and serving to effect outward movement of the rods to release the cakes.

26. The combination with an icing-support having an opening, of a cake-receiving table, a carrier including a pair of superposed plates, yieldably-mounted cake-engaging rods guided and supported by said plates, rock-shafts carried by the upper plate, a plurality of rocker-arms extending from the shafts, spreader-bars connected in pairs to certain of the rocker-arms, and stops disposed in the path of movement of other rocker-arms and serving by engagement therewith to effect spreading movement of the rods.

27. The combination in an icing-machine, of a cake-receiver including a pair of superposed carrying-plates, lifter-rods secured thereto, means for imparting vertical movement to the lifter-rods, a plurality of cake-engaging rods guided and supported by the plates, the lower ends of said rods passing loosely through the lower plate and being guided in slots in the upper plate, springs on which the rods are supported, slotted strips secured to the upper plate and adjustable to limit movement of the rods, a cake-receiving table, and means for spreading said rods.

28. The combination in an icing-machine, of a cake-receiver including a pair of superposed plates, lifter-rods rigidly secured to the plates, an upper slotted plate, a feed-belt extending through the slot, a slotted table mounted yieldably on the slotted plate, a plurality of cake-engaging rods, means for adjusting the extent of movement of said rods, and means for imparting vertical movement to the lifter-rods.

29. The combination in an icing-machine, of a cake-receiver comprising a plurality of superposed plates, lifter-rods secured to the plates, a spring-mounted table for receiving cakes, guard-fingers for preventing excessive movement of the cakes, rods carrying said guard-fingers, and a cam for moving said fingers to a position below the table.

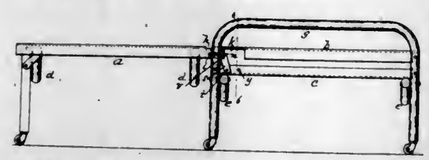
30. The combination in an icing-machine, of a main table having a central slot, a vertically-movable cake-receiving table also slotted and onto which the cakes are fed, a feed-belt having cake-engaging pins projecting through the slots, an icing device disposed above the cake-receiving table, means for imparting vertical movement to the cake receiving table independent of the belt, and a discharge-table and deflector for moving the cakes laterally, a chute leading from the discharge-table, and an endless carrier onto which the cakes are discharged from the chute.

788,223. CARPENTER'S SQUARE. JOHN R. SIMPSON, Chicago, Ill. Filed June 11, 1904. Serial No. 212,177.



Claim.—A folding square having one limb divided into two parts, one of said parts being integral with the other limb and having an end provided with a notch having inclined walls and a mortise, screws in said part extending across said mortise, and a steady-block having inclined sides or faces, and the other part of said first-named limb having a tenon on its end provided with a longitudinal slot and having a notch adapted to engage said steady-block, and inclined shoulders on said part to interlock with the notch on the first-mentioned part, one of said screws passing through said slot and forming a pivot for the second part of said limb.

788,224. SPRING BED-BOTTOM. FRANKLIN S. SPRAGUE, Boston, Mass. Filed Nov. 16, 1904. Serial No. 232,958.



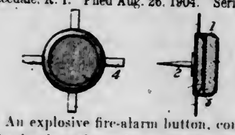
Claim.—1. In a bed-bottom of the character described, the lifting-dog *s* pivotally secured at its lower end to the stationary section of the bed-bottom; and a bar extending substantially horizontally from the sliding section, and adapted to engage the outer end of the lifting-dog as the bed is extended, and swing it upward beyond its pivotal point, thereby raising the inner edge of the sliding section, for the purpose set forth

2. In a bed-bottom of the character described, a bar extending from the sliding section of the bed-bottom near its inner edge; and a lifting-dog pivotally sustained at its lower end by the stationary section and resting normally in an inclined position with its upper end toward the outer end of the stationary section, whereby said upper end is in the path of said bar as the sliding section is drawn out, thereby engaging said bar and lifting the inner end of the sliding section.

3. In a bed-bottom of the character described, the bent bar *m*, *n* extending substantially horizontally from the end rail of one of the sliding sections, the portion *n* of said bar being notched on its under side; the lifting-dog pivotally secured at one end to a bar on the stationary portion of the bed-bottom and formed at the outer end with a notch *v*; and means for supporting said dog normally in an inclined and outwardly-pointing position, whereby as the sliding section is drawn out from under the stationary section, the notched portion *n* of the bar engages with the notched end of the lifting-dog and swings said dog upward and beyond its pivotal point, thereby lifting the inner edge of the sliding section.

4. In a bed-bottom of the character described, the angle-shaped end bar *a* of the sliding section of the bed-bottom, provided on its horizontal portion next the inner edge of the sliding section with the recess *h*; the bar *m*, *n* extending outward from the inner end of said end rail; the angle-shaped end rail *b* in the stationary portion of the bed-bottom, provided with the recess *k*; the bar *c* in the stationary portion; the dog *s* pivoted to the bar *c*; and means for holding the free end of the dog in the path of the bar *m*, *n* as the sliding portion is moved from under the stationary portion, whereby said bar engages and lifts the dog, for the purpose set forth.

788,225. EXPLOSIVE FIRE-ALARM BUTTON. EDGAR A. SWEET, Peacedale, R. I. Filed Aug. 26, 1904. Serial No. 222,345.



Claim.—1. An explosive fire-alarm button, comprising a shallow receptacle having lateral openings at various points around its periphery, an explosive charge in said receptacle, integral fuses extending from said charge through said lateral openings, and means for confining said charge, as set forth.

2. An explosive fire-alarm button, comprising a shallow receptacle having a spur projecting from its back and a lateral opening or openings, a separate packet of an explosive in said receptacle having an integral fuse or fuses extending through said lateral opening or openings, and means for confining said explosive, as set forth.

3. An explosive fire-alarm button, comprising a shallow receptacle having lateral openings at various points around its periphery, an explosive charge in said receptacle, a paper charge-container having integral fuses extending through said lateral openings, and means for confining said charge, as set forth.

4. An explosive fire-alarm button, comprising a shallow receptacle having attaching means at its back and lateral openings at various points around its periphery, an explosive charge in said receptacle, fuses extending from said charge through said lateral openings, and an easily frangible confiner for said charge, as set forth.

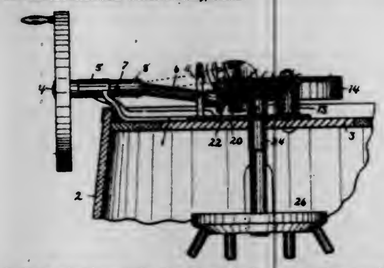
5. An explosive fire-alarm button, comprising a shallow receptacle having a spur projecting from its back and a lateral opening or openings, a separate packet of an explosive in said receptacle having an integral fuse or fuses extending through said lateral opening or openings, and a layer of a plastic composition confining said charge, as set forth.

788,226. MECHANICAL MOVEMENT. WARREN SWEET, Fort Wayne, Ind., assignor to The Horton Manufacturing Company, a Corporation of Indiana. Filed Sept. 19, 1904. Serial No. 224,978.

Claim.—1. In mechanism of the class described, a casting having a stud; suitable driving mechanism mounted in said casting; an intermediate driving member mounted upon said stud and adapted to oscillate thereon; a suitable support for said casting; and a bolt connected with said support, extending through said stud, and having means in connection with its upper end to retain said casting upon said support and also prevent said intermediate member from rising.

2. In mechanism of the class described, a casting; a suitably-hinged support therefor; driving mechanism in connection with said

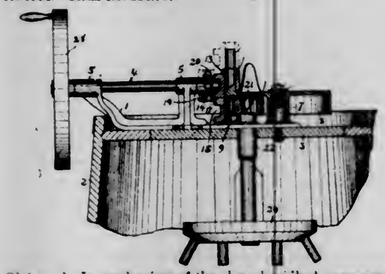
casting and comprising in part an intermediate driving member having a circular top, the said intermediate member serving also as a rest for the mechanism when swung back.



3. In mechanism of the class described, a supporting-casting; a driven shaft mounted in said casting and a pinion mounted thereon; an intermediate driving member mounted on said casting, having an internal rack adapted to engage and drive said pinion, the said driving member having a flange and serving as a shield for said rack and pinion; and suitable driving mechanism in connection with said intermediate member to actuate the same.

4. In mechanism of the class described, a supporting-casting; a driven shaft mounted in said casting and a pinion mounted thereon; an intermediate driving member having an internal rack adapted to engage and drive said pinion and an external series of pins radially disposed, the said member having also a closed top and depending flange; a driving-shaft and tumbling-shaft loosely coupled together to permit vertical play of the latter; and the pinion mounted on the tumbling-shaft and engaged with said series of pins.

788,227. MECHANICAL MOVEMENT FOR WASHING-MACHINES. WARREN SWEET, Fort Wayne, Ind., assignor to The Horton Manufacturing Company, a Corporation of Indiana. Filed Sept. 19, 1904. Serial No. 224,979.



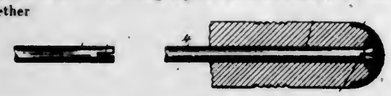
Claim.—1. In mechanism of the class described, a supporting-casting; a drive-shaft mounted in suitable bearings in said casting; a driving-pinion mounted upon said shaft; a driving member suitably mounted to be oscillated and carrying a vertical guide-post near the periphery thereof; and a shifting rack mounted upon said guide-post and adapted to be shifted vertically thereon, and to be actuated by said pinion.

2. In mechanism of the class described, a supporting-casting; a drive-shaft mounted in suitable bearings on said casting; a driving-pinion mounted upon said shaft; an oscillating intermediate member suitably mounted upon said casting, and having a vertical guide-post near its periphery, and carrying also an internal rack; a shaft having means in connection with said oscillating member to be actuated thereby; and a shifting rack mounted in connection with said intermediate member, and being adapted to be shifted vertically upon said guide-post and to be actuated by said pinion.

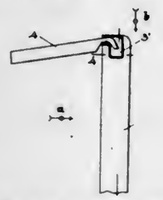
3. In mechanism of the class described, a supporting-casting; a drive-shaft carried by said casting; an oscillating member having thereon a guide-post, and also vertically-disposed beads; a shifting rack mounted in connection with said oscillating member, and adapted to move vertically upon said guide-post and rest upon said beads; and means in connection with said drive-shaft and shifting rack to actuate the latter.

788,228. SCREW-DRIVER OR KINDRED TOOL. WILLIAM S. THOMSON, Plantsville, Conn. Filed Apr. 9, 1904. Serial No. 202,422.

Claim.—In a tool, such as a screw-driver or kindred tool, the combination with a handle having a central longitudinal hole or passage, of a shank passing through the said passage and having its outer end formed with a transverse slot to permit it to be spread to form two retaining-fingers; and a cap concavo-convex in general form and having an inwardly-projecting centrally-arranged boss formed with an undercut concentric chamber containing a centrally-arranged wedge, whereby when the cap and shank are forced together the outer end of the shank enters the said chamber in the cap and meets the said wedge which enters the said slot and spreads the shank to form two retaining-fingers which bind the shank and cap together



788,229. PILE-WIRE. WILLIAM WATTIE, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 11, 1903. Serial No. 184,735.



Claim.—1. In a loom of the class described, the combination with an individual upright supporting-blade, of a pile-wire detachably connected therewith, to be readily removable therefrom.

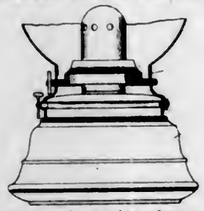
2. In a loom of the class described, the combination with an upright supporting-blade, of a flexible pile-wire detachably connected therewith to be readily removable therefrom.

3. In a loom of the class described, the combination with an upright supporting-blade, of a pile-wire having a pivotal and detachable connection therewith.

4. In a loom of the class described, the combination with a strip or bar and a pile-wire-supporting blade attached thereto, of a pile-wire detachably connected with said blade to be readily removable therefrom.

5. In a device of the character described, the combination with a strip or bar having an offset or bend therein, a pile-wire-supporting blade carried by said heddle, of a pile-wire detachably connected to said blade to be readily removable therefrom.

788,230. SPRING-CLASP. RICHARD H. WELLES, Kenosha, Wis., assignor to Badger Brass Manufacturing Company, Kenosha, Wis., a Corporation of Wisconsin. Filed May 26, 1904. Serial No. 209,931.



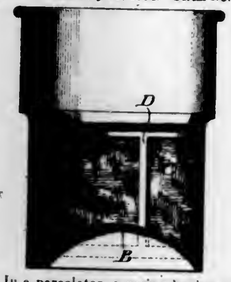
Claim.—1. In combination, a lamp-font provided exteriorly around its neck portion with a groove, a lamp-casing provided interiorly around its neck portion with a corresponding groove adapted to register with said first groove when the two neck portions are telescopically engaged, a spring band member seated within one of said grooves and adapted to be moved to partially occupy both grooves to prevent the separation of said font and casing, and a latch member upon one end of said spring member and adapted to move the opposite end thereof by a cam engagement into said locking position, substantially as described.

2. In combination, a lamp-font provided exteriorly around its neck portion with a groove, a lamp-casing provided interiorly around its neck portion with a corresponding groove of greater depth adapted to register with said first groove when said parts are telescopically engaged, a spring band member seated within said deeper groove and having its ends projected through the wall of said lamp-casing, a latch member pivotally attached to one end of said band member and provided with a spiral cam-surface terminating in a seat and adapted to engage the opposite end of said spring band member and to move it by cam engagement into said seat, whereby said band member is moved into partial engagement with both of said grooves to prevent the separation of said lamp-casing and said font, substantially as described.

3. A clasp for locking two telescoping members together, comprising a spring-body embedded in a circumferential groove upon the interior of the outer member and provided at one end with a locking-shoulder and at the other end with a latch member having a spiral cam-surface which terminates in a retaining-notch and is adapted to draw the ends of said spring-body toward each other into locking position.

4. A clasp for locking two telescoping members together, comprising a spring-body embedded in a circumferential groove upon the interior of the outer member and projected at one end through an aperture in the wall of said outer member and at the other end through a circumferentially-extending slot through said wall and provided on one end with a latch member having a spiral cam-surface which terminates in a retaining-notch and is adapted to draw the ends of said spring-body toward each other into locking position, substantially as described.

788,231. PERCOLATOR FOR COFFEE, &c. FINLEY ACKER, Philadelphia, Pa. Filed July 28, 1904. Serial No. 218,483.



Claim.—1. In a percolator, a casing having a foraminous side wall and an upwardly-deflected imperforate bottom and a filter contacting with the interior of said wall, said filter having an open frame consisting of upright pieces and horizontal rings at the top and bottom thereof, the filtering material being connected with said rings and said frame supporting said filter on the peripheral portion of said imperforate bottom.

2. In a percolator, a casing having a perforated side wall, an imperforate bottom, a filter contacting with the interior of said perforated side wall and means for removably supporting said filter on the peripheral portion of said imperforate bottom.

3. In a percolator, a casing having a foraminous side wall, an upwardly-deflected imperforate bottom and a filter contacting with the interior of said foraminous wall and resting on the peripheral portion of said bottom.

4. In a percolator, a casing having a closed bottom, a foraminous side wall, a filter lining the interior of said wall and a support for said lining sustaining said filter on the peripheral portion of the bottom.

5. In a percolator, a casing having the lower portion of its side wall, foraminous, the side wall of its upper portion imperforate, an upwardly-deflected imperforate bottom and a removable filter lining the interior of the foraminous wall, said filter having an open frame to which the filtering material is secured and which sustains said filter on the peripheral portion of said imperforate bottom.

788,232. PEN-WIPER. ROBERT ADDISON, New York, N. Y. Filed Jan. 17, 1905. Serial No. 241,432.

Claim.—1. A pen-wiper comprising a comparatively thin base, a standard rising from the base near one end, an elongated support carried by the standard, and a wiping member surrounding the support.

2. A pen-wiper comprising a base, a standard rising from the base, a support carried by the standard, a strip of fibrous material extending about the support to points at each side of the standard, and means for securing the ends of the strip together.



3. A pen-wiper comprising a base, a standard rising from the base, a support carried by the standard, an endless wiping-belt extending about the support to points at each side of the standard, and means for securing the belt in position.

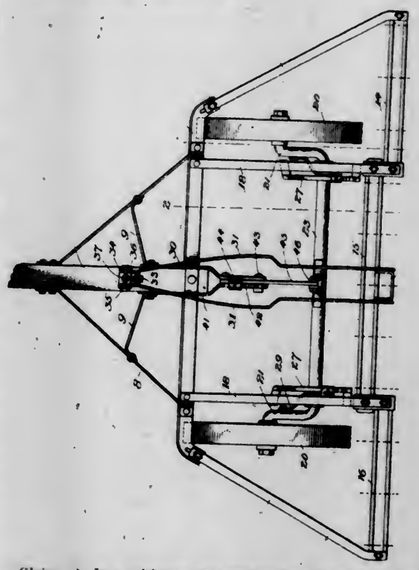
4. A pen-wiper comprising a base, a standard rising from the base, a support carried by the standard, an endless wiping-belt extending about the support to points at each side of the standard, and means for securing the belt in position extending through said belt.

5. A pen-wiper comprising a base, a standard rising from the base, a support carried by the standard, an endless wiping-belt extending about the support to points at each side of the standard, and coacting rods extending through said belt.

6. A pen-wiper comprising a base, a standard rising from the base, a support carried by the standard, an endless wiping-belt extending about the support to points at each side of the standard, and rods extending through the belt and having curved engaging portions.

7. A pen-wiper comprising a base, a standard rising from the base, a support carried by the standard, a strip of fibrous material extending about the support to points at each side of the standard, a plurality of yieldable sections of gradually-varying widths interposed between the strip and support, and means for securing the ends of the strip together.

788,233. CULTIVATOR. SAMUEL L. ALLEN, Moorestown, N. J. Filed July 5, 1901. Serial No. 67,135.



Claim.—1. In a cultivator, the combination with a main tool-carrying frame having a rear transverse tool-carrying bar, of laterally-extending tool-carrying frames having rear tool-carrying bars forming extensions of, and adjustably clamped to, the main tool-carrying bar.

2. In a cultivator, the combination with a substantially rectangular main tool-carrying frame having a rear transverse tool-carrying bar, of laterally-extending tool-carrying frames adjustably connected at their forward ends to said main frame and having rear

tool-carrying bars forming extensions of and adjustably clamped to, the main tool-carrying bar.

3. In a cultivator, the combination with a substantially rectangular tool-carrying frame having a rear transverse tool-carrying bar, of laterally-extending triangular tool-carrying frames adjustably connected at their forward ends to said main frame and having rear tool-carrying bars forming extensions of, and adjustably clamped to, the main tool-carrying bar.

4. In a cultivator, the combination of a main supporting-frame, a tool-support comprising a central section secured to the main frame, end sections clamped to the central section adjacent to the ends thereof adapted to be adjusted laterally for changing the width of the machine, side bars pivoted to the outer ends of the movable sections of the tool-carrying bar and having their other ends pivoted in slotted openings formed on the forward portion of the frame of the machine, for the purpose described.

5. The combination of a main tool-frame, of a tool-support comprising three sections, each section being composed of twin bars closed at their ends, means for clamping the said bars to the main frame of the machine, and means to permit of sliding the end sections of said tool-support inwardly for changing the width of the machine.

6. In a cultivator, the combination with a main frame, of a tool-support comprising an intermediate section composed of horizontally-disposed twin bars, side sections composed of twin bars, a clamp at each end of the intermediate section adapted to embrace the inner ends of the side sections, means for securing the said clamp to the supporting-frame, side bars pivoted at one end to the outer ends of the side sections of the tool-carrying frame and having their other ends pivoted in a slotted opening formed in the front bar of the main frame.

7. In a cultivator, the combination with the wheels, independently-pivoted crank-axles for each wheel, a main axle connecting said crank-axles, a tool-frame carried by said main axle and a seat having supports connected with the bearing portions of said crank-axles.

8. In a cultivator, the combination with the supporting-wheels, of a crank-axle for each wheel, a tubular section into which the upper portions of each crank are telescoped, a main tool-frame fixed above said tubular section, a seat supported from the bearing portions of said crank-axle, and mechanism connected with each crank-axle whereby they may be turned to raise or lower one side of the frame independently of the other and independently of the seat.

9. In a cultivator, the combination with the supporting-wheels, of a crank-axle for each wheel, a tubular axle into which the inner ends of each crank-axle are telescoped, a tool-frame pivoted at its forward end to the tongue of the machine, and fixed in relation to said tubular axle, a ratchet-lever mounted on each crank-axle, and a lever mechanism connected with said frame and said tubular axle for raising and lowering the former.

10. In a cultivator, the combination of a supporting-frame, a centrally-disposed tongue to which the forward end of the tool-frame is pivoted, the supporting-wheels, a crank-axle for each of said supporting-wheels, a main axle to which the upper ends of the crank-axles are pivoted, means for connecting said main axle with the tool-frame, crank-plates loosely mounted on the crank-axles having their lower ends rigidly secured to the intermediate section of the cranks, an operating-lever secured to the upper arm of the crank-plate and a rack and pawl adapted to hold the operating-lever in a fixed position.

11. In a cultivator, the combination of a main supporting-frame, a tongue to which the forward portion of said supporting-frame is pivoted, independently-pivoted crank-axles on which the supporting-wheels of the machine are mounted, an operating-lever having its fulcrum in brackets carried by the tongue, a bracket carried by the intermediate section of the axle, a connection between this bracket and the operating-lever, a segmental rack adapted to be engaged by a spring-pawl carried by the said operating-lever, and means for turning said crank-axles independently of said operating-lever.

12. The combination of a tool-frame having its forward end pivoted to the tongue-bar of the machine, supporting-wheels, crank-axles for each supporting-wheel, a main axle, connecting each of said crank-axles, connections between the supporting-frame and the main axle, mechanism for raising and lowering each side of the machine independently of the other, a seat-supporting frame, carried by the bearing portions of the crank-axles and pivoted connections between the said seat-supporting frame and the tongue, for allowing the seat to maintain its normal position when the main supporting-frame of the machine is inclined laterally.

13. The combination with the main tool-frame, supporting-wheels therefor, an independently-pivoted crank-axle for each wheel, connections between the main axle and the supporting-frame, means for lifting each side of the machine independent of the other, a seat-frame connected by a universal joint to the tongue, and supporting-bars for said seat-frame connected to the crank-axles adjacent the wheel-bearings.

14. The combination of a tool-frame, supporting-wheels therefor, crank-axles for each supporting-wheel, an intermediate tubular section connecting the two crank-axles so that each can be turned independently of the other, a connection adjacent the inner portions of the crank-axles, for supporting the main tool-frame, means for raising each side of the supporting-frame independently of the other, a seat-supporting frame secured to the tongue of the machine by a universal joint, loose collars carried by the crank-axles adjacent to the wheel-hubs, and supporting-bars pivoted to the under side of said collars at one end and at the other ends to the seat-carrying frame.

15. In a cultivator, the combination with the supporting-wheels, of crank-axles for each wheel, an intermediate tubular axle into which each opposing end of the crank-axles fits, a main supporting-frame, a connection between said frame and points adjacent the ends of intermediate axle, mechanism for turning each crank-axle to raise or lower each side of the main frame, a tongue to which the forward portion of the main frame is pivoted, a seat-supporting frame, supporting-bars for said frame having their lower ends pivoted to a loose collar carried by the wheel-axles, and a universal-joint connection between the forward end of the seat-frame and the tongue.

16. In an agricultural implement, a frame comprising a horizontally-disposed front bar, a tongue having the front bar pivoted to the sides thereof, a tool-carrying frame consisting of an intermediate section and two side sections overlapping the rear of the intermediate section, boxes embracing the ends of the intermediate section and the inner ends of the side sections, frame-bars connected to the front frame-bar and to the boxes, and movable side bars connected to the ends of the side sections of the tool-frame and to the front frame-bar, for the purpose described.

17. In an agricultural implement, a frame comprising a horizontally-disposed frame-bar, a centrally-disposed tongue, having the front bar pivoted to the side thereof, a tool-frame consisting of a central section and two side sections in a plane therewith having their inner ends overlapping the ends of the central section, boxes embracing the inner section and the side sections, transversely-arranged twin supporting-bars secured to the top and bottom of the boxes and to the front frame-bar, and movable twin side bars pivoted to the front frame-bar and to the outer ends of the side sections of the side tool-frame, whereby the said sections can be removed inwardly to change the width of the machine.

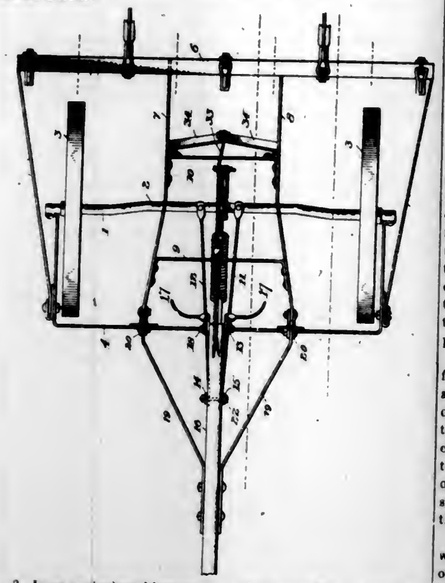
18. The combination of a frame comprising a front frame-bar arranged transversely below the tongue, a rear tool-support, side bars and intermediate bars connecting the tool-support and the front frame-bar, a centrally-disposed tongue, a pivoted connection between the sides of said tongue and the front frame-bar, a main axle having two offset wheel-bearings, a seat-frame having its forward end connected to the tongue by a universal joint, and supporting-bars connected to the intermediate section of the seat-frame and to loose boxes carried by offset portions of the axle of the machine.

19. A seat-frame for agricultural implements comprising a pair of rearwardly-inclined bars connected at their ends, a universal joint at the forward end of said frame, adapted to connect the same with the tongue of the machine, transverse obliquely-disposed supporting-bars, secured at their upper ends to the seat-frame bars and at their lower ends adjacent the bearing ends of the axle of the machine.

788,284. CULTIVATOR. SAMUEL L. ALLEN, Moorestown, N. J. Filed Jan. 10, 1903. Serial No. 138,449.

Claim.—1. In an agricultural implement, a rigid supporting-frame, a tool-carrying frame pivotally mounted thereon, a lifting mechanism carried by the supporting-frame and connected to the pivoted frame, a compensating spring connected to the supporting-frame and means for connecting said spring with said lifting mechanism and tool-carrying frame, tending to rotate the former and raise the latter.

2. In an agricultural implement, a wheel-supported frame, a tool-carrying frame pivoted thereon a lifting-lever carried by the supporting-frame, a connection between the lifting-lever and the pivoted tool-frame, a rack-and-pawl mechanism for the lifting-lever, a compensating spring connected to the supporting-frame and to the lifting mechanism and tending to rotate the latter in relation to the main frame.



3. In an agricultural implement, a rigid main frame, a tool-carrying frame pivotally mounted thereon, a hand-operated lever connected to the tool-frame, foot-levers acting in conjunction with the hand-lever for depressing the tool-frame, a compensating spring connected to the main frame and indirectly with the tool-carrying frame and adapted to assist in lifting the latter, said spring acting rotatively on said levers and having a tendency to support and raise said tool-carrying frame.

4. In an agricultural implement, a main frame, a tool-carrying frame pivoted thereto, a lifting-lever fulcrumed on the main frame and connected indirectly with the tool-carrying frame, means for holding the lifting-lever adjustably in position, the tension-spring connected to the main frame and to the lifting mechanism, so as to act rotatively on said lifting-lever and assist in raising said tool-carrying frame, and foot-levers operatively connected with the lifting mechanism.

5. In an agricultural implement, a rigid supporting-frame, a tool-carrying frame pivoted to the rigid frame, a lifting-lever fulcrumed on the machine-axle, connections between the end of the lifting-lever and the pivoted tool-frame, foot-levers for depressing the tool-frame pivoted to the main supporting-frame of the machine, and pivoted connecting-rods secured to said foot-levers and to the lifting-lever back of its fulcrum, for the purpose described.

6. In an agricultural implement, a rigid supporting-frame, a tool-carrying frame pivoted to the main frame, a lifting-lever fulcrumed on the machine-axle, connections between the rear ends of the lifting-lever and the pivoted tool-frame, foot-levers pivoted to the main supporting-frame, connecting-rods pivoted to the foot-levers and to an extension of the lifting-lever beyond its fulcrum, and an extension-spring pivoted to the main frame and to the lifting-lever above its fulcrum-point, for the purpose described.

7. In an agricultural implement, a rigid frame, a tool-carrying frame pivoted thereto, a segmental cam loosely mounted on the machine-axle, a hand-lever rigidly secured to said cam having connections with the tool-frame, and a coil-spring connected at one end to the rigid frame and at its other end to the segmental cam and adapted to assist in lifting the tool-frame, for the purpose described.

8. In an agricultural implement, a rigid frame, a tool-carrying frame pivoted to the main frame, a segmental cam pivotally mounted upon the machine-axle, an operating-lever secured to said cam, a connection between the rear end of the operating-lever and the pivoted frame, means for holding the operating-lever in its adjusted position, and an extension-spring pivoted to the forward part of the rigid frame and connecting with the upper face of the cam in rear of its pivotal point and adapted to assist in lifting the tool-frame, for the purpose described.

9. In an agricultural implement, a rigid frame, a tool-carrying frame pivoted thereto, a segmental cam loosely mounted on the machine-axle, a hand-lever rigidly secured to said cam, a connection between the rear end of the hand-lever and the tool-frame, a spiral tension-spring connected at one end to the rigid frame, a flexible connection connected to the other end of said spring and having its other end extending over the surface of the segmental cam and secured to the rear end of said cam, said spring serving to assist in lifting the tool-frame, substantially as described.

10. In an agricultural implement, a main frame adapted to support the wheels, a tool-supporting frame pivotally mounted on the forward part of the main frame, a segmental cam pivotally mounted on the machine-axle, an operating-lever rigidly secured to said cam, means for holding the operating-lever in its adjusted position, a connection between the rear end of the operating-lever and the pivoted tool-carrying frame, a spiral tension-spring secured to the top of the cam and to the forward part of the main frame, foot-levers pivoted to the forward part of the main frame, and connecting-rods pivoted to the foot-levers and to the cam adjacent its rear end, for the purpose described.

11. The combination with the axle and its supporting-wheels, a frame-bar extending forwardly having its rear ends secured to the axle, a segmental rack having one end secured to the axle and its other end to the front frame-bar for bracing the same to the axle, a tool-carrying frame pivoted to the frame-bar, an operating-lever fulcrumed on the axle having a pawl mechanism adapted to engage the teeth of the segmental rack, a connection between the rear end of the operating-lever and the pivoted tool-frame, and a compensating spring acting on the lifting-lever above its fulcrum and secured to the rigid supporting-frame, substantially as described.

12. The combination with a crank-axle and its supporting-wheels, a frame-bar having its ends secured to the said axle, a pivoted tool-carrying frame carried by the said frame-bar, rigid braces connecting the axle with the frame-bar, a segmental cam pivotally mounted on the central portion of the axle, an operating-lever secured to the said segment, means for holding the said lever in its adjusted position, a connection between the rear end of the operating-lever and the pivoted tool-carrying frame, foot-levers pivotally mounted on the front portion of the rigid frame, downwardly-projecting arm formed on the lower end of the segmental cam below its pivot, and connecting-rods pivotally secured to the foot-piece at one end and to the foot-levers at their other ends, substantially as described.

13. In combination, a rigid axle and supporting-frame a tongue having its end pivotally mounted on the supporting-frame, rigid arms extending forward from the supporting-frame, and bars pivoted to the said arms and adjustably connected to the tongue, for the purpose substantially as described.

14. In combination, a rigid supporting-frame and axle, a tongue having its rear end pivotally mounted on the supporting-frame, rigid arms extending forward from the supporting-frame, vertically-disposed bars pivoted to the ends of the rigid arms having a series of bolt-holes provided therein, and a bolt for securing the bars to the tongue, substantially as described.

15. In combination with the machine-axle and its supporting-wheels, a front frame secured to the axle and rigidly braced thereto, a tongue having its end pivotally mounted on the front frame, arms pivoted on the front frame having their rear ends secured to the machine-axle and their front ends extending forward beyond the tongue-pivot, vertically-disposed bars pivoted to the ends of the arms and adjustably connected to the tongue, substantially as described.

16. The combination with the front frame and axle of a tongue pivotally mounted on the front frame, arms secured to the tongue-pivot having their rear ends rigidly secured to the machine-axle and their forward ends extending beyond the tongue-pivot, vertically-disposed bars secured to the forward ends of the arms adapted to embrace the tongue on each side thereof, a series of apertures provided in the said bars, and a bolt passing through one of said apertures and through the tongue, for the purpose described.

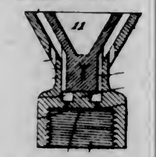
17. The combination with the front frame and the axle, of a tongue pivotally mounted on the front frame, inclined arms secured to the tongue-pivot having their rear ends rigidly secured to the machine-axle and their forward ends extending some distance beyond the tongue-pivot, vertically-disposed bars secured to the forward ends of the said arms adapted to embrace the tongue on each side thereof, a series of apertures provided in the vertical bars, a bolt adapted to pass through one of said apertures and through the tongue, and a doubletree secured to the said vertical bars below the tongue

and adjustable by means of the apertures and connecting-bolt, substantially as and for the purpose described.

18. The combination with the front frame and axle, of a tongue pivotally mounted on the front frame, rigid arms secured to the tongue-pivot having their rear ends rigidly secured to the machine-axle and their forward ends extending beyond the tongue-pivot, vertically-disposed bars secured to the forward ends of the said arms adapted to embrace the tongue on each side thereof, a securing-bolt adapted to pass through the said bars and through the tongue, and braces pivotally secured to the front frame of the machine and to the tongue on each side thereof, substantially as described.

19. The combination with the arched axle adapted to support the wheels, a rectangular frame-bar attached to the ends of the axle on the outside of the wheels, rigid braces connecting the front frame-bar with the axle, a transversely-disposed tool-bar located in rear of the wheel, inclined side bars pivotally mounted at their forward ends to the front frame-bar and rigidly secured at their rear ends to the tool-bar, intermediate frame-bars pivotally secured at their forward ends to the front frame-bar and rigidly secured at their rear ends to the tool-bars, transverse braces provided between the intermediate frame-bars, and mechanism pivoted on the arched axle and connected with the supporting-frame for raising and lowering the pivoted tool-carrying frame, substantially as described.

788,235. GAS-BURNER. FRANK M. ASHLEY, New York, N. Y. Filed May 25, 1899. Serial No. 718,241.



Claim.—1. In a gas-burner, the combination of a base having an outwardly-flaring flange and communicating with the source of gas-supply, a mixing-chamber in said base, a diaphragm between said mixing-chamber and said source of gas-supply, an expansion-chamber in said body portion, a plurality of passages between said expansion-chamber and said source of gas-supply, and a core having an outwardly-expanded head, said head and said flange forming an annular mixing-chamber therebetween, and a plurality of passages between said expansion-chamber and said mixing-chamber, substantially as described.

2. In a gas-burner, the combination of a base having a bell-shaped flange and adapted to be connected with the source of gas-supply, a diaphragm between said bell-shaped flange and said source of gas-supply, an expansion-chamber in said base, a plurality of passages between said chamber and said source of gas-supply, and a core having a conical head and a plurality of passages, said core being adapted to be inserted in said base, whereby an annular passage will be formed between said conical head and said bell-shaped flange and said passages will lead from said expansion-chamber to said annular passage, substantially as described.

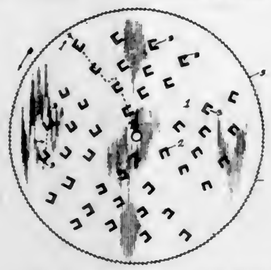
3. In a gas-burner, the combination of a base having a bell-shaped flange and a contracted neck, a source of gas-supply with which said base is adapted to be connected, an expansion-chamber in said contracted neck, a plurality of contracted passages between said source of gas-supply and said expansion-chamber, a core adapted to be inserted in said base and having a conical head whereby an annular passage will be formed between said head and said base, a plurality of passages between said expansion-chamber and said annular passage, and a plurality of openings from the atmosphere to said annular chamber, substantially as described.

4. In a gas-burner, a body portion having an annular expansion-chamber in its base, communication between a gas-supply and said expansion-chamber, an annular mixing-chamber above the expansion-chamber, communication between said mixing and expansion chambers and direct communication between said mixing-chamber and the atmosphere, substantially as described.

5. In a gas-burner, the combination of a body portion comprising a spreading flange, a gas-inlet opening, and a dividing-diaphragm having openings therein, and a core mounted in said base within said flange, said core being of less diameter than said flange whereby an annular mixing-chamber is formed between said core and said flange, openings through said flange, and a communication from the gas-supply to the mixing-chamber formed between said core and base, substantially as described.

6. In a gas-burner, the combination of a body portion comprising a spreading flange, a gas-inlet opening and a dividing-diaphragm having openings therein, and a core frictionally mounted in said base within said flange, said core being of less diameter than said flange whereby an annular mixing-chamber is formed between said core and said flange, openings through said flange, and passages, the sides of which are formed by the body portion and the core, between the gas-inlet openings and the mixing-chamber, substantially as described.

788,236. SAW. EUGENE E. BARTHOLOMEW, Cleveland, Ohio, assignor to The Single Stave Barrel Company, Cincinnati, Ohio, a Corporation of Ohio. Filed June 22, 1904. Serial No. 213,610.



Claim.—1. A saw having cutters projecting laterally from the face thereof arranged in series from the cutting edge toward the inactive part, the cutters more remote from the edge projecting farther than those nearer the edge.

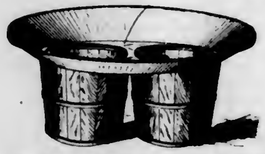
2. A saw having cutters projecting laterally from both faces thereof arranged in series from the cutting edge toward the inactive part, the cutters more remote from the edge projecting farther than those nearer the edge.

3. A circular saw having cutters projecting laterally from the face thereof arranged in series from the edge toward the center, the cutters nearer the center projecting farther than those nearer the edge.

4. A circular saw having cutters projecting laterally from both faces thereof arranged in series from the edge or perimeter toward the center, the cutters nearer the center projecting farther than those nearer the edge.

5. A circular saw having cutters projecting laterally from both faces thereof arranged in series from the edge or perimeter toward the center, the cutters nearer the center projecting farther than those nearer the edge and the amount of such projection decreasing gradually from the center toward the edge.

788,237. SPLASH-GUARD FOR BATHING APPARATUS. EDGAR J. BISSELL, Bartold, Mo. Filed Nov. 5, 1903. Serial No. 179,937.



Claim.—1. In a bathing device an elongated splash-guard having flaring sides, and a flat bottom with an opening in the bottom at one end thereof.

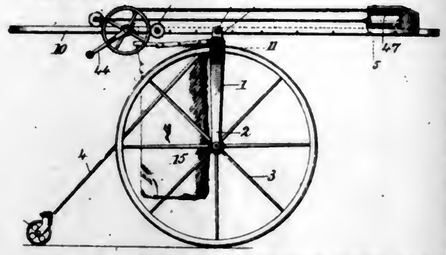
2. In a bathing device, a splash-guard having a pair of flanges on the under side of the bottom, the bottom having an opening therein registering with the inner periphery of one of said flanges.

3. In a bathing device, a splash-guard having a pair of flanges on the under side of the bottom thereof, said bottom having an opening that registers with the inner periphery of each of said flanges.

4. In a bathing device, a splash-guard having a pair of flanges on the under side of the bottom thereof, said bottom having an opening that registers with the inner periphery of each of said flanges, and a cover arranged to close one of said openings in the bottom.

5. In a bathing device, a splash-guard comprising a flat bottom of substantially elliptical outline, and side portions that flare outwardly, the bottom having a pair of flanges secured to the under side thereof, said bottom having an opening therein that registers with the inner periphery of each of said flanges.

788,238. COTTON-PICKER. SOBIESKI L. BOND, Charleston, S. C. Filed July 23, 1904. Serial No. 217,809.



Claim.—1. In a cotton-picker, in combination, a frame, wheels supporting the same, a table making a substantially universal joint with said frame, and pickers carried by said table.

2. In a cotton-picker in combination, a frame mounted upon wheels, a swivel-head mounted in said frame, an elongated table carried by said swivel-head, having a horizontal axis of rotation thereupon, picking-cylinders disposed longitudinally of said table and disposed apart, a conveyer-belt mounted upon said table between said picker-cylinders and leading rearwardly therefrom, a receptacle adapted to receive the cotton from said conveyer-belt, and means for driving said conveyer-belt and actuating said picker-cylinders.

3. In a cotton-picker in combination, a freely-mounted portable table, a pair of oppositely-disposed picker-cylinders carried thereby, a belt carried by said table between said picker-cylinders, means for transmitting rotary movement between said cylinders, and means for actuating said belt and rotating one of said picker-cylinders.

4. In a cotton-picker in combination, a table, a pair of oppositely-disposed picker-cylinders mounted upon said table, a hood incasing same, a covered way leading from said picker-cylinders and communicating with the interior of said hood, an endless belt, said table having openings through which said belt passes, the upper run of said belt passing through said covered way, means for actuating said cylinders and said belt, and means for supporting a receptacle to receive cotton from said belt.

5. In a cotton-picker in combination, a table, a pair of oppositely-disposed picker-cylinders mounted thereupon and disposed apart, gear-wheels carried at adjacent extremities of said picker-cylinders, said gear-wheels affording means for transmitting movement between said cylinders, a shaft mounted upon said table and connecting with the extremity of one of said cylinders remote from said gear-wheels, a conveyer-belt disposed between said cylinders, and means for driving said belt and said shaft.

6. In a cotton-picker in combination, a table, a pair of oppositely-disposed picker-cylinders, means for transmitting a uniform rotation between said cylinders, opposite in direction, said cylinders being disposed apart, a conveyer-belt mounted upon said table between said picker-cylinders, a shaft leading substantially in the same direction as said belt and connecting with the axle of one of said cylinders, and means for continuously driving said belt and said shaft.

7. In a cotton-picker in combination, a table, a pair of opposite picker-cylinders carried by said table and disposed apart, bevel gear-wheels carried by the adjacent extremities of said cylinders, other bevel gear-wheels affording means for transmitting movement between said cylinders and meshing with said first bevel-gears, an endless belt carried by said table and lying between said picker-cylinders, a shaft extending in the same direction with said belt and connecting with the axle of one of said cylinders, a roller from which the remote extremity of said belt passes, a crank adapted to rotate said roller, and a bevel-gear adapted to transmit movement from said crank to said shaft.

8. A cotton-picker comprising in combination, a rotatable shell having openings through the wall thereof, an eccentric bar mounted in said shell, a sleeve mounted upon said eccentric bar and within said shell, and a plurality of teeth carried loosely by said sleeve and projecting through said openings.

9. A cotton-picker comprising in combination, a rotatable shell having a plurality of openings in the wall thereof, an eccentric bar mounted within said shell, a sleeve mounted upon said bar, tooth-shafts loosely mounted upon said sleeve, and a plurality of teeth the extremities whereof attach in said tooth-shafts, said teeth projecting through said openings.

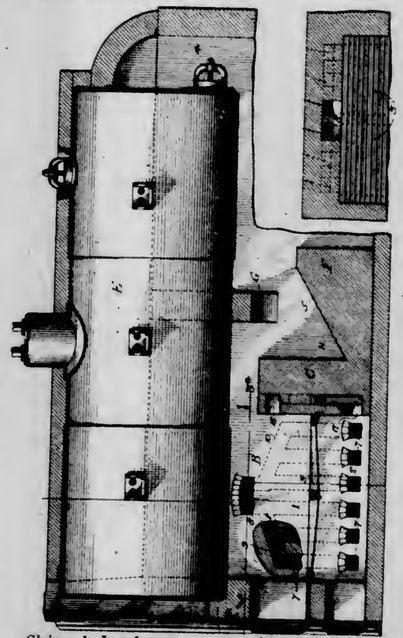
10. A cotton-picker comprising in combination, a rotatable shell having a plurality of alining openings, an eccentric bar mounted in said shell, a sleeve loosely carried by said bar, a plurality of tooth-shafts carried rotatively by said sleeve, and a plurality of teeth attaching to said tooth-shafts and projecting through said openings.

11. A cotton-picker comprising in combination, a bracket, a second bracket, a cylinder rotatively mounted therebetween and having a trunnion rotatively mounted in said first bracket, said cylinder having a head terminating against the face of said second bracket, said head having an opening therethrough, an eccentric bar mounted within said cylinder and projecting through said opening, means for fixing the projecting extremity of said eccentric bar in said second bracket, said cylinder having a plurality of openings in the wall thereof, a plurality of teeth projecting from the interior of said cylinder through said openings, and means for mounting said teeth in gangs upon said eccentric bar.

12. A cotton-picker comprising in combination, a bracket, a second bracket, a cylinder rotatively mounted therebetween, said cylinder having a head terminating against the face of said second bracket and another head having a trunnion rotatively mounted in said first bracket, said trunnion and the head opposite the same having alining bores passing therethrough, an eccentric bar mounted within said cylinder, the extremities whereof lie in said bores, means for attaching said bar rigidly in said second bracket, said cylinder having a plurality of openings in the wall thereof, a plurality of teeth projecting through said openings, and means for mounting said teeth upon said bar.

13. In a cotton-picker in combination, a picker-cylinder, teeth projecting therefrom and having transverse intersecting slits in the extremities thereof, and means for rotating said cylinder.

788,239. FURNACE. ARTHUR M. BOUGHTON, Harvey, Ill. Filed Mar. 26, 1904. Serial No. 200,149.

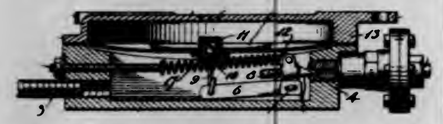


Claim.—1. In a furnace constructed with a combustion-chamber and ash-pit, a series of air-passages opening into the ash-pit at each of two opposite sides thereof, inclined passages intersected by such upright passages at points along opposite sides of the combustion-chamber, the inclined passage at each side being connected with an opening arranged to discharge into the combustion-chamber.

2. In a furnace constructed with a combustion-chamber, an

ash-pit, and a grate between the combustion-chamber and ash-pit; a series of air-passages formed in a longitudinal side wall of the furnace and arranged to open in the ash-pit below the grate and to extend upwardly from such openings to points above the plane of the grate; an outlet common to said passages opening into the combustion-chamber between the front and rear passages of said series; and longitudinally-arranged passage connection between said outlet and the upper ends of the air-passages of said series.

788,240. **PRESSURE-REDUCING VALVE.** EUGENE M. BOURNONVILLE, Jersey City, N. J. Filed Nov. 2, 1904. Serial No. 231,058.



Claim.—1. In a pressure-reducing apparatus, a case, a diaphragm forming one of the walls of said case, an inlet and an outlet, a valve-seat at said inlet, a valve coöperating with said seat, a valve-support said valve being laterally movable in said support, a connection between said diaphragm and said valve-support whereby the latter may be moved in a direction to close the valve.

2. In a pressure-reducing apparatus, a case, a diaphragm forming one of the walls of said case, an inlet and an outlet, a valve-seat at said inlet, a valve coöperating with said seat, a valve-support said valve being laterally movable in said support, a connection between said diaphragm and said valve-support whereby the latter may be moved in a direction to close the valve, and a spring for reversing said movement.

3. In a pressure-reducing apparatus, a case, a diaphragm forming one of the walls of said case, an inlet and an outlet, a valve-seat at said inlet, a valve coöperating with said seat, a valve-support said valve being laterally movable in said support, a connection between said diaphragm and said valve-support whereby the latter may be moved in a direction to close the valve, and a spring for reversing said movement, said spring being connected to said support and arranged to move the same and said diaphragm simultaneously with opening of said valve.

4. In a pressure-reducing apparatus, a case, a diaphragm forming one of the walls of said case, an inlet and an outlet, a valve-seat at said inlet, a valve coöperating with said seat, a valve-support said valve being laterally movable in said support, a connection between said diaphragm and said valve-support whereby the latter may be moved in a direction to close the valve, a spring for opening said valve, and means for varying the pull of said spring.

5. In a pressure-regulator, a case, a gas inlet and outlet, an enlarged tapered valve-seat for said inlet said seat being rounded at its inner end, a tapered valve having a rounded end the forward part of said valve being loosely supported by said seat when open, an enlarged socket loosely supporting the rear end of said valve, and a diaphragm connected to said socket whereby the valve may be positively seated when said diaphragm moves in one direction.

6. In a pressure-regulator, a case, a gas inlet and outlet, an enlarged tapered valve-seat at the end of said inlet, the end of said seat being rounded, a tapered valve having a rounded end, the forward part of said valve being supported in said seat, and a socket loosely supporting the rear end of said valve, a diaphragm and connecting means between said diaphragm and said socket whereby the latter may be positively moved to seat said valve.

788,241. **CALENDAR.** EDWARD J. BRANDT, Watertown, Wis., assignor to Brandt Cashier Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 18, 1904. Serial No. 233,100.

Claim.—1. In a calendar of the character described, the combination with a horizontal supporting-rod, of a pair of disks mounted on said rod, said disks having lateral flanges extending toward each other, and a group of tablets having lugs at their upper ends engaging said flanges, whereby said tablets are suspended with capacity for a bodily-swinging movement of each tablet from one side of the group over the rod to the other side of the group, substantially as described.

2. In a calendar of the character described, the combination with a horizontal supporting-rod, of a pair of disks rotatably mounted on said rod, said disks having lateral flanges extending toward each other, and a group of tablets having laterally-projecting lugs at their upper ends engaging said flanges, whereby said tablets are suspended with capacity for a bodily-swinging movement of each tablet from one side of the group over the rod to the other side of the group, substantially as described.



3. In a calendar of the character described, the combination with a horizontal supporting-rod, of a pair of disks mounted on said rod, said disks having lateral flanges extending toward each other, a spacing-sleeve on said rod between said disks, and a group of tablets having laterally-projecting lugs at their upper ends engaging said flanges, whereby said tablets are suspended with capacity for a bodily-swinging movement of each tablet from one side of the group over the rod to the other side of the group.

4. In a calendar of the character described, the combination with a horizontal supporting-rod, of a series of pairs of disks mounted on said rod, the two disks of each pair having lateral flanges extending toward each other, and a plurality of groups of tablets having laterally-projecting lugs at their upper ends, the several groups being suspended by their lugs from and between the flanges of the respective pairs of disks, the tablets of one group being marked with characters indicating the days of the week, the tablets of another group being marked with characters indicating the months of the year, and the tablets of the third group being marked with characters indicating the days of the month, substantially as described.

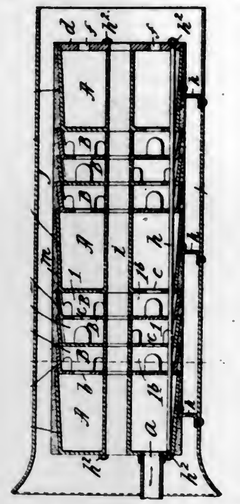
5. In a calendar of the character described, the combination with a supporting-rod, of a plurality of groups of tablets, the tablets of one group being marked with characters indicating the days of the week, the tablets of another group being marked with characters indicating the months of the year, and the tablets of the third group being marked with characters indicating the days of the month, the tablets of the several groups being so marked on both sides as to unitedly present the same matter on both sides of the calendar, and connections between said rod and groups of tablets permitting a bodily-swinging movement of a tablet on one side of a group around the rod to a position on the opposite side of the group, substantially as described.

6. In a calendar of the character described, adapted to be suspended against a wall, the combination with a horizontal supporting-rod, of one or more groups of tablets, connections between said rod and tablets permitting a bodily-swinging movement of a tablet on one side of the group over the rod to a position on the opposite side of the group, and a hinged support in the free ends of which said supporting-rod is mounted, substantially as described.

7. In a calendar of the character described adapted to be suspended against a wall, the combination with a horizontal supporting-rod, of one or more groups of tablets, connections between said rod and tablets permitting a bodily-swinging movement of a tablet on one side of a group over the rod to a position on the opposite side of the group, and a pair of arms hinged at their inner ends to a suitable support and at their outer ends carrying between them said supporting-rod, substantially as described.

8. In a calendar of the character described, the combination with a supporting-rod, of a plurality of pairs of disks mounted thereon, the members of each pair of said disks having lateral flanges disposed toward each other, and a corresponding plurality of groups of tablets, the vertical sides whereof are notched near their upper ends to provide lugs engaging the inner peripheries of said flanges, whereby the several groups may be disposed in close edgewise proximity, substantially as described.

788,242. **MUFFLER.** WILLIAM W. BROSA, Springfield, Mass. Filed Apr. 25, 1904. Renewed Jan. 9, 1905. Serial No. 240,191.



Claim.—1. A muffler comprising an annular casing having a plurality of transverse partitions dividing the casing into a plurality of annular chambers having positions variously along the length of the muffler, one or more of such chambers having the opening or passage therein devious around, and with a course generally perpendicular to the axis of the casing, with communicating openings or ports leading into the primary divisional chamber, and endwise from the one to the next-succeeding chamber, and with an outlet-opening.

2. A muffler consisting of a casing having a plurality of annular chambers, one endwise beyond the other, each having the passage therein, devious about, and with a course substantially perpendicular to, the axis of the casing, and having endwise-located and longitudinally-directed inlet and outlet openings, the outlet of one chamber constituting the inlet for the chamber next endwise thereto beyond.

3. A muffler comprising a plurality of annular transversely partitioned and separated chambers, certain thereof having the passages or openings therein devious around and having a course substantially perpendicular to the axis of the muffler, and certain of said chambers having the areas therein non-devious and unobstructed, each chamber having an opening leading in a longitudinal direction into the succeeding chamber, and the first and last chambers, in the endwise-extended series thereof, having respectively inlet and discharge apertures.

4. A muffler comprising annular chambers, one endwise beyond another and having the openings therein devious around, and with a course generally perpendicular to, the axis of the muffler, and having endwise-located inlet and outlet openings, alternated with other and relatively intermediate chambers having the spaces therein unobstructed and of greater area than that of each of the first-named chambers, and in endwise communication therewith.

5. A muffler comprising a series of annular axially-alined casings having the chambers or passages therein devious about the axis of the casings, and having endwise-located inlet and outlet openings leading from one to another of the chambers, said series of such chambers being endwise in connection with annular expansion-chambers, and a cylindrical shell surrounding the alined chambers, with an intermediate annular cooling-chamber.

6. A muffler comprising a series of annular axially-alined casings having the chambers or passages therein devious about the axis of the casings, and having endwise-located inlet and outlet openings leading from one to another of the chambers, and annular expansion-chambers with which the first-named chambers are endwise in connection, the central axial space within the several chambers being open from end to end, and a cylindrical shell surrounding the alined chambers, of greater diameter than such chambers, and open at both ends thereof.

7. In a muffler, a circular casing having in the end thereof an inlet-opening, and oppositely-extending passages leading partially around within the casing, and having ports or openings arranged in opposition, and an outlet-passage leading from the space in the casing between said oppositely-arranged ports.

8. A muffler comprising a circular casing having in the end thereof an inlet-opening, and oppositely-extending passages leading partially around within the casing and having ports or openings arranged in opposition, and an outlet-passage endwise leading from the casing, adjacent said opposite ports, and a chamber to which said endwise-located outlet leads having the space therein unobstructed throughout the entire area thereof, and provided, also, with an outlet-opening.

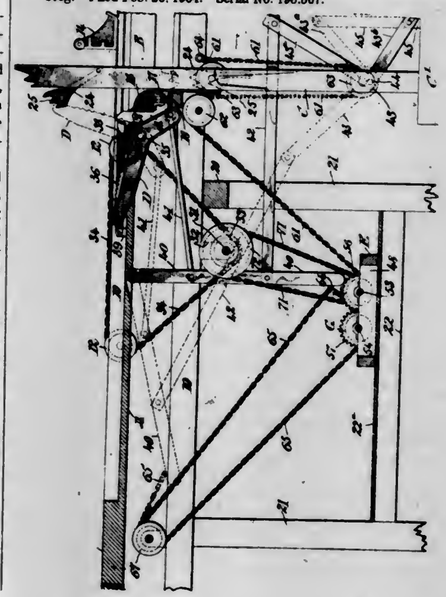
9. In a muffler, a series of annular casings each being internally of cellular form, with opposite endwise-located inlet and outlet ports, and having internally-located ports connecting the cell-chambers one with another.

10. A muffler comprising one or more communicating annular casings, each being of annular cellular form, with an endwise-located inlet-port, a space to which such port leads, and series of cells, arranged at opposite sides of the said space, having ports or openings leading one to the next, a compartment opposite the inlet-connected space, at which the tortuous passages through the opposite cell-chambers are approached, and an outlet-opening leading from the said compartment.

11. A muffler comprising a casing having therein a succession of intercommunicating chambers, certain thereof having the space or passage therearound and therewithin devious or tortuous, and along planes substantially perpendicular to the axis of the device, and relatively intermediate ones having the spaces therein unobstructed and non-devious and of increased area, said chambers having locations variously of the lengths of the muffler and partitioned by walls transverse of the length of the muffler.

12. A muffler comprising a series of annular axially-alined casings having the chambers or passages therein devious about the axis of the casings, and having endwise-located inlet and outlet openings leading from one to another of the chambers, and annular expansion-chambers with which the first-named chambers are endwise in connection, the central axial space within the several chambers being open from end to end, the series of axially-alined casings having covering of asbestos or like heat-non-conducting material, and a cylindrical shell surrounding the alined chambers, of greater diameter than such chambers, and open at both ends thereof.

788,243. **LOG-SAWING MACHINE.** CHARLIE E. BROWN, Stayton, Oreg. Filed Feb. 26, 1904. Serial No. 196,367.



Claim.—1. In a log-sawing machine, a frame, a carriage mounted to travel upon the frame, a nigger mounted for movement on the frame and through the carriage, a hydraulic cushion for the nigger, a dog carried by the nigger, and means upon the carriage for closing the dog in the nigger at the downward movement of the latter, as described.

2. In a log-sawing machine, a frame, a carriage mounted upon the frame, a nigger mounted for movement in the frame and through the carriage, a hydraulic cushion for the nigger, a dog carried by the nigger, adapted to enter the same and drop therefrom by gravity, a cam-surface upon the carriage for directing the dog within the nigger at its downward movement, a driving mechanism, and a lifting connection between the said driving mechanism and the nigger, as described.

3. In a log-sawing machine, a frame, a carriage mounted upon the frame, a nigger mounted for movement in the frame and through the carriage, a hydraulic cushion for the nigger, a dog carried by the nigger, adapted to enter the same and to drop therefrom by gravity, a cam-surface upon the carriage for directing the dog into the nigger in its downward movement, a driving mechanism for the nigger, adapted to lift the same, which driving mechanism comprises a drive-shaft having a clutch thereon, a spool on the said shaft, a shifting device for the spool, pulleys located upon the frame and within the said nigger, and a flexible connecting medium between the said spool and the frame, which connecting medium engages with the pulleys, passing over the pulley on the frame and under the pulley carried by the nigger, as described.

4. In a log-sawing machine, a frame, a carriage mounted upon the frame, a nigger mounted for movement in the frame and through the carriage, a hydraulic cushion for the lower end of the nigger, a driving-shaft, a clutch secured to the driving-shaft, a spool mounted to slide on the driving-shaft, constructed in two diameters, a spiral flange located at the junction of the two diameters of the spool, a shifting device for carrying the spool to and from the clutch, a friction-roller on the frame, a second friction-roller mounted in the said nigger, and a chain attached to the said spool, which chain is passed over the pulley on the frame and under the pulley in the nigger to an attachment to the frame, whereby the initial upward movement of the nigger is rapid by reason of the chain winding on the larger portion of the spool, and whereby the final upward movement of the said nigger is slow and is increased in strength by reason of the chain winding at such time on the smaller diameter of the said spool, as described.

5. In a log-sawing machine, a frame, a nigger mounted for movement in the frame, a hydraulic cushion for the bottom of the nigger, a dog carried by the said nigger, a pulley mounted on the frame, a second pulley mounted in the nigger, a drive-shaft, a clutch on the said shaft, and a spool in two diameters and provided with a peripheral annular flange, adapted to impart differential speed, a shifting device for the spool, and a chain connected with the spool and with the frame, which chain passes over the pulley on the frame and under the pulley carried by the nigger, as described.

6. In a log-sawing machine, a nigger, a hydraulic-cushion tank for the nigger, means for moving the nigger and releasing the same, the nigger dropping by gravity, an annular push-bar pivoted in the frame, its upper member being provided with teeth and adapted in one position of the push-bar to incline in direction of the nigger, a controlling-bar in pivotal connection with the frame, a hydraulic cushion for the controlling-bar, a drive-shaft, a clutch secured on the drive-shaft, a spool loosely mounted on the drive-shaft, a shifting-lever connected with the said spool, a pulley mounted on the frame, an operating device for the push-bar, and a chain connected with said spool, which chain is passed over the said pulley and is connected with the said operating device for the push-bar.

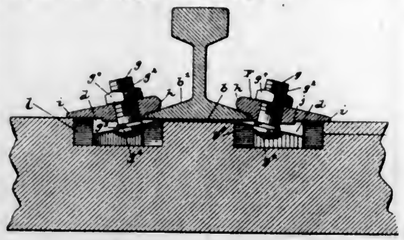
788,244. CHAIR FOR RAILROAD-RAILS. SHELLMAN B. BROWN, Annapolis, Md. Filed Aug. 4, 1904. Serial No. 219,459.

Claim.—1. A chair for rails having a top surface to serve as a seat for the bottom of a rail and provided at opposite sides with straight slots having side walls with inclines, and also provided with flanges projecting downward below the bottom of said seat.

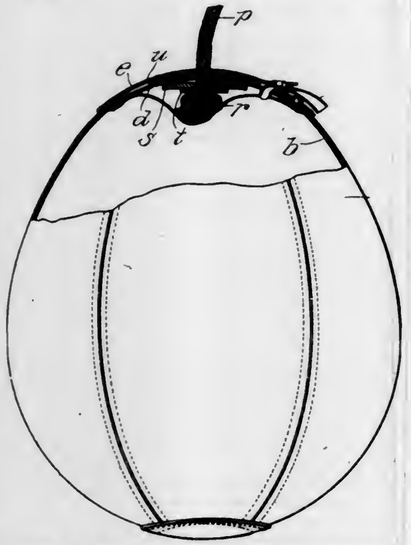
2. A chair for rails having a top surface to serve as a seat for the bottom of a rail and provided at opposite sides with straight slots having at one end an enlargement or widening.

3. A chair for rails having a top surface to serve as a seat for the bottom of a rail and provided at opposite sides with straight slots having at one end an enlargement or widening, said slots having side walls with inclines.

4. The combination of a chair for rails having a top surface to serve as a seat for the bottom of a rail and provided at opposite sides with straight slots and seated against the inclined side walls; a dog-plate at each side and having an end nose designed to take on the bottom flange of the rail; a screw-bolt in each slot—the bolt-head being downward and seated against the inclined side walls; and a nut on the bolt and pressing down on the dog-plate.



788,245. PUNCHING-BAG. ALBERT F. BURTT, Plymouth, N. H., assignor to The Draper and Maynard Company, Plymouth, N. H., a Corporation of New Hampshire. Filed Aug. 31, 1904. Serial No. 222,844.



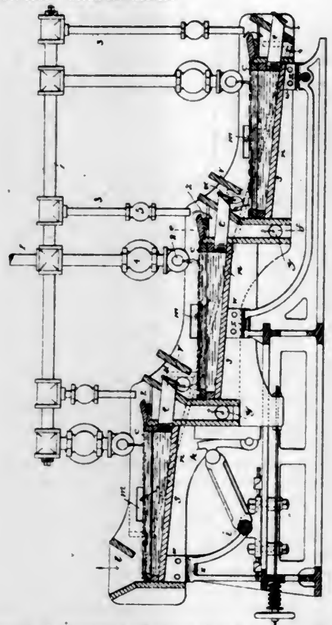
Claim.—1. A punching-bag comprising a cover member, a cap consisting of superposed inner and outer flexible cap-pieces secured to the cover member, and a suspension-cord passing through both cap-pieces and provided with an enlargement engaging the inner cap-piece.

2. In a punching-bag, the combination with the cover, of inner and outer superposed flexible cap-pieces secured to the cover, the inner cap-piece being formed with a diametrical slit and the outer cap-piece having a central hole and an elongated slit between the central hole and the edge of the cap-piece, and devices for closing the slits in the cap-pieces.

3. In a punching-bag having a bladder provided with an inflation-tube and an outer cover, an inner cap-piece secured to the cover, having a diametrical slit and a hole at one side of said slit to receive the inflation-tube, an outer cap-piece secured to the cover over the inner cap-piece and having a central hole and a slit, a flap secured to the outer cap-piece and overlying said slit, and provisions for holding said flap in position to close the slit.

4. In a punching-bag having a bladder provided with an inflation-tube and an outer cover, an inner cap-piece secured to the cover having a diametrical slit and a hole at one side thereof to receive the inflation-tube, a device for closing said slit, an outer cap-piece, secured to the cover over said inner cap-piece and provided with a central hole and a slit beside the hole, a reinforcing-piece secured to said outer cap-piece surrounding the hole, a flap secured to said outer cap-piece overlying the slit therein, a device for holding said flap in position to close the slit, and a suspension-cord extending through the hole in the outer cap-piece and the slit in the inner cap-piece and provided with an enlargement engaging the inner cap-piece.

788,246. SUBMERGED SCREEN SIZER OR SEPARATOR. JOHN M. CALLOW, Salt Lake City, Utah. Filed Mar. 13, 1902. Renewed Jan. 31, 1905. Serial No. 243,465.



Claim.—1. In a submerged screen sizing apparatus, the combination of a tank and a screen supported therein, means for imparting a differential, reciprocating, shaking motion to the screen in a horizontal direction, means for delivering the material to be screened to one end of the screen, means for delivering water onto the ore above the screen, means for maintaining the water at a substantially uniform level in the tank and below the delivery end of the screen, and a receptacle into which the oversize ore is discharged from the delivery end of the screen, substantilly as set forth.

2. In a submerged screen sizing apparatus, the combination of a tank and a screen supported therein, means for imparting a differential, reciprocating, shaking motion to the screen in a horizontal direction, means for delivering the material to be screened to one end of the screen, means for delivering water onto the ore above the screen, means for maintaining the water at a substantially uniform level in the tank, and an inclined lip at the discharge end of the screen above the level of the water in the tank and over which the oversize ore passes from the screen, substantially as set forth.

3. In a submerged screen sizing apparatus, the combination of a tank and a screen supported therein, means for imparting a differential, reciprocating, shaking motion to the screen in a horizontal direction, means for delivering the material to be screened to one end of the screen, means for delivering water onto the ore above the screen, means for maintaining the water at a substantially uniform level in the tank, an inclined lip at the discharge end of the screen above the level of the water in the tank and over which the oversize ore passes from the screen, and means for delivering water on the oversize ore as it is discharged from the screen, substantially as set forth.

788,247. ORE CONCENTRATION. ARTHUR E. CATTERMOLE, HENRY L. SULMAN, and HUGH F. KIRKPATRICK-PICARD, London, England. Filed Mar. 29, 1904. Serial No. 200,646.

Claim.—1. The herein-described process of concentrating ores which consists in mixing a freely-flowing ore pulp with a soap solution and a mineral acid so as to liberate the organic acid from the soap throughout the suspended ore mass in intimate contact therewith, whereby the organic acid coats the desired mineral particles and not the gangue, and thereafter separating the coated mineral matter from the noncoated gangue

2. The herein-described process of concentrating ores which consists in mixing the ore pulp with a soap solution and a mineral acid which liberates the organic acid from the soap, separating the coated mineral matter from the noncoated gangue and adding alkali to the coated mineral matter to reproduce the soluble soap.

3. The herein-described process of concentrating ores which consists in mixing a freely-flowing ore pulp with a soap solution and a mineral acid so as to liberate the organic acid from the soap throughout the suspended ore mass in intimate contact therewith, bringing the liquor into intimate contact with a gas which will adhere to the coated particles and separating out the coated mineral matter which floats.

4. The herein-described process of concentrating ores which consists in mixing the ore pulp with a soap solution and a mineral acid which liberates the organic acid from the soap, bringing the liquor into intimate contact with a gas, separating out the coated mineral matter which floats and adding thereto an alkali which reproduces the soluble soap

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788,248. CULTIVATOR. SAMUEL H. COLEMAN, Villisca, Iowa. Filed Oct. 6, 1904. Serial No. 227,378.

Claim.—1. In a cultivator, a wheel-supported frame, an arch adjustable in the said frame, standards carried by the said arch, and blades carried by the standards.

2. In cultivators, a wheel-supported frame, an arch capable of forward and rear movement in the frame, standards vertically and laterally adjustable upon the arch, blades carried by the said standards, and a yielding lifting device for the said standards and operatively mounted on the said frame.

3. In a cultivator, a wheeled support, segmental members extending rearwardly from the said support and in direction of the sides of the implement, standards adjustably supported by said segmental members, said standards comprising an upper and downwardly and forwardly curved side members, guides carried by the support, posts extending from the standards, and passing loosely

through said guides, and transversely-curved blades supported by the side members of the standards, the standards occupying such position that the rear ends of the blades converge and their forward ends diverge, and means for adjusting the transverse inclination of the said blades.

4. In a cultivator, a wheel-supported adjustable arch, provided with upper horizontal outwardly-extending fixed arms and lower outwardly-extending horizontal arms having vertical movement on the arch, segmental members extending from the movable arms, which segmental members are curved rearwardly and outwardly in direction of the sides of the implement, said segmental members being provided with longitudinal slots, standards each comprising an upper member and downwardly and forwardly curved side members, means for adjustably attaching the upper members of said standards to the said segmental members of the lower adjustable arms on the arch, said standards approaching each other at the rear and diverging at the forward portion of the machine, transversely-curved blades adjustably supported by the side members of the said standards, guides carried by the arms extending from the arch, posts secured to the upper portions of the standards and passed loosely through said guides, adjusting-levers, and connections between the adjusting-levers and the said standards, to raise and lower the same.

5. In a cultivator, a wheel-supported adjustable arch, provided with upper horizontal outwardly-extending fixed arms and lower outwardly-extending horizontal arms having vertical movement on the arch, segmental members extending from the movable arms, which segmental members are curved rearwardly and outwardly in direction of the sides of the implement, said segmental members being provided with longitudinal slots, standards each comprising an upper member and downwardly and forwardly curved side members, means for adjustably attaching the upper members of the standards to said segmental members of the lower adjustable arms on the arch, said standards approaching each other at the rear and diverging at the forward portion of the machine, transversely-curved blades adjustably supported by the side members of the said standards, guides carried by the arms extending from the arch, posts secured to the upper portions of the standards and passed loosely through said guides, elbow-levers located one above each of the said standards, supports for the levers, springs located between the standards and the said levers, the springs being closely wound and provided with upper members connected with the elbow-levers and with lower members connected with the standards.

6. In a cultivator, standards each having an upper horizontal member, supports for the standards, cultivator-blades carried by the standards, angle-arms having horizontal members connected by clips to the upper horizontal members of the standards and vertical members extending in a downward direction between opposing cultivator-blades, shields consisting of parallel plates, having sliding movement on the vertical members of the angle-arms, and connections between the upper portions of the said shields.

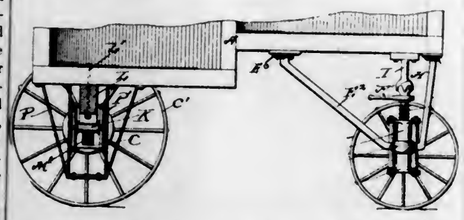
7. In a cultivator, a wheeled support, inverted-U-shaped standards adjustably connected with the said support, the standards being located one opposite the other and at angles to each other, blades carried by said standards, converging at their rear ends and diverging at their forward ends, angle-arms having horizontal members secured to the upper members of the standards and vertical members extending downwardly between the standards, shields adjustably attached to the vertical members of the said angle-arms, means for connecting the shields at their upper ends, and foot-rests carried by the said angle-arms, for the purpose described.

8. In a cultivator, a wheel-supported frame, an arch carried by said frame, fixed arms and adjustable arms on said arch, standards carried by the adjustable arms, posts extending from the standards and having guided movement on the arms of the arch, blades carried by the standards, an adjusting-lever, and a yielding connection between the adjusting-lever, and the standards.

9. In a cultivator, a wheel-supported frame, an arch carried by said frame and having upper fixed arms and lower adjustable arms, segmental members extending from the adjustable arms, standards each having an upper horizontal member and downwardly-extending side members, means for adjustably connecting the upper members of the standards to the said segmental members, blades carried by the side members of the standards, posts extending from the upper members of the standards, and extending through guides on the arms carried by the arch, and a yielding lifting device for the standards mounted on the frame.

10. In a cultivator, a wheel-supported frame, an arch carried by the frame, having upper horizontal outwardly-extending fixed arms, and lower outwardly-extending horizontal arms having vertical movement on the arch, segmental members carried by the movable arms, standards adjustably connected with said segmental members, blades carried by the standards, guides carried by the arms extending from the arch, and posts connected with the standards and extending through said guides.

788,249. LEVELING DEVICE FOR THRESHING OR SIMILAR MACHINES. WILLIAM COLLINS, Rosecreek, Minn. Filed July 6, 1904. Serial No. 215,524.



Claim.—1. The combination with an axle, of a bolster pivotally supported thereon, a worm mounted upon the axle at one end and adapted to engage a worm-rack carried at the adjacent end of the bolster, and means for locking the bolster as set forth.

2. The combination with a skeleton axle, of a bolster pivotally mounted thereon, the toothed segments arranged at the ends of the bolster, the worm arranged at one end of the axle, a locking-dog at the opposite end with means for operating said worm and dog.

3. The combination with the skeleton axle having stubs at the ends, of a bolster pivotally mounted upon said axle, the toothed segments at each end of the bolster, a worm carried by one stub-axle and a dog carried by the other stub-axle, and means for moving said worm and dog.

4. The combination with the skeleton axle, of the fulcrum-pin, arranged therein, the bolster pivoted upon said pin, the segment arranged upon said bolster, the recessed stub-axles, the worm arranged in one stub-axle and the dog in the other stub-axle, and means for moving said worm and dog.

5. The combination with a skeleton axle of the recessed stub-axles, the fulcrum-pin arranged in the skeleton axle, the bolster pivoted upon said pin, the toothed segments arranged at the ends of said bolster, a worm arranged in one recessed stub-axle and a dog arranged in the other recessed stub-axle, means for moving the worm, the lever, the rod and spring for moving the dog, as set forth.

6. The combination with a skeleton axle, of a threaded sleeve arranged therein, a screw working in said sleeve, and having a ball at its end, a standard having a socket, the lever for working the screw, the collar sliding upon the sleeve, and the braces connected to the said collar and the brackets to which the braces are connected as described.

7. The combination with the case of the front and rear skeleton axles, the stub-axles, the threaded sleeve, attached to the front axle, the screw and lever, the standard, the ball-and-socket joint, and the braces, the fulcrum-pin, the bolster, the segments, the worm, mounted in one stub-axle and the dog in the other, the lever and rod for operating the dog and means for operating the worm substantially as described.

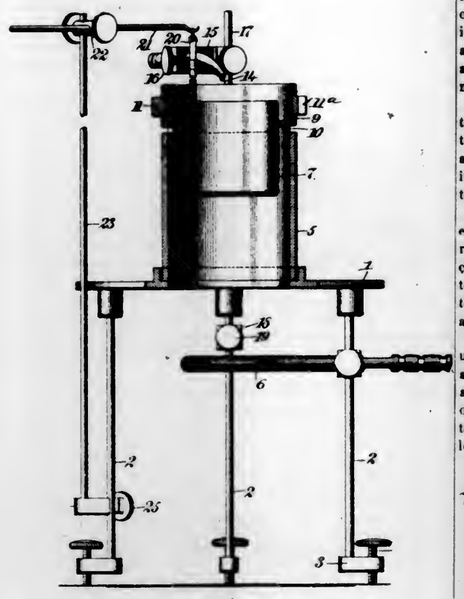
788,250. FLASH-TESTER. FERNAND A. COURTOIS, Newark, N. J., assignor to Fiske Brothers Refining Company, New York, N. Y. Filed Jan. 11, 1905. Serial No. 240,584.

Claim.—1. A flash-tester comprising a support, a heater arranged underneath the support, a flue on the support, a test-cup removably placed in the flue and having a trough around its upper portion, a burner-tip for extending over the test-cup, and a thermometer-support.

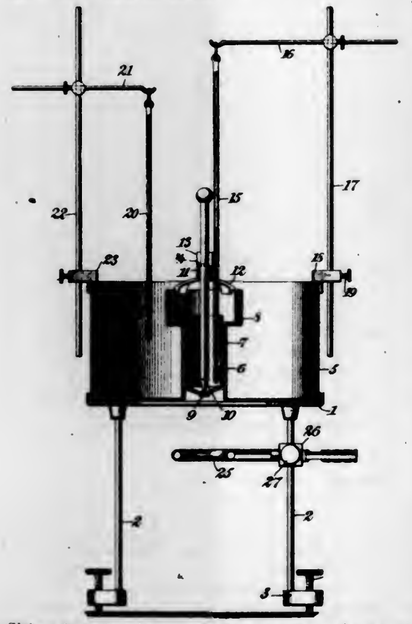
2. In a flash-tester, a support, means for leveling the support, a heating device arranged underneath the support, a flue on the support, a test-cup removably placed in the flue and having a trough around its upper portion, a gas tip or jet adjustable over the test-cup, and means for suspending a thermometer in the cup.

3. An oil-testing device comprising a flue, a heater arranged underneath the flue, a test-cup removably placed in the flue and having a trough surrounding its upper portion, and means for suspending a thermometer in the cup.

788,250.



788,251. VISCOSIMETER. FERNAND A. COURTOIS, Newark, N. J., assignor to Fiske Brothers Refining Company, New York, N. Y. Filed Jan. 11, 1905. Serial No. 240,585.



Claim.—1. A viscosimeter comprising an oil-container having an upwardly-extended tube open at the bottom, a test-cup removably placed in said tube and having an opening in its lower end, a valve for said opening, a heating device arranged below the container, and means for supporting thermometers in the container and test-cup.

2. A viscosimeter comprising a support, an oil-container arranged on said support and having a central upwardly-extended tube open at the upper and lower ends, a test-cup for removably engaging in said tube, the said test-cup having a trough at its upper end, and an opening through its lower end, a valve for said opening, a burner arranged underneath the container, and means for supporting thermometers in the container and cup.

3. A viscosimeter comprising a ring-like support, an oil-container arranged thereon and having a central upwardly-extended tube open at the bottom, a test-cup removably placed in said tube and having a trough at its upper end and also having a perforation in its lower end, a valve for said perforation, a burner arranged under the container, and adjustable thermometer-supports.

4. A viscosimeter comprising a ring-like support, legs connected to said support, leveling devices on the legs, a container or bath removably placed on the support and having an upwardly-extended central tube open at the bottom, a test-cup removably placed in said tube and having a perforation in its lower end and also having a trough at its upper end, a needle-valve for controlling said opening, and a heating device supported by one of the legs.

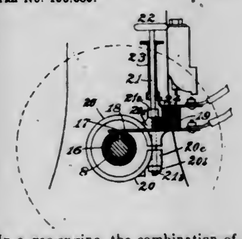
5. A viscosimeter comprising an oil-container having a central upwardly-extended tube open at the lower end, a test-cup removably arranged in said tube and having an opening in its lower end, and also having a trough at the upper end, a spider supported on the outer wall of said trough, a sleeve on the spider, a valve guided through said sleeve and adapted to control the opening through the lower end of the cup, and a heater arranged below the container.

788,252. NAPKIN-HOLDER. EDWIN S. DALTON, Auburn, N. Y. Filed Dec. 19, 1904. Serial No. 237,466.



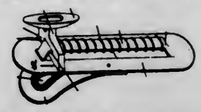
Claim.—A napkin-holder, comprising a clasp U-shaped in form, one member of the said clasp being concavo-convex in cross-section and wider than the other member and having serrated side edges projecting downwardly in the plane of its curvature, and the other said member having an integrally-formed spring-tongue which projects toward the first said member.

788,253. ELECTRIC SPARKING DEVICE FOR EXPLOSIVE-ENGINES. CHARLES S. DUTTON, Perth Amboy, N. J. Filed Jan 26, 1904. Serial No. 190,689.



Claim.—In a gas-engine, the combination of an igniting-plug located in the cylinder of the engine, a terminal in the line of an electric circuit connected with the igniting-plug, a shifting or actuating rod, and a metal piece movable on the shifting or actuating rod into and out of contact with the terminal.

788,254. FASTENING DEVICE FOR GARMENTS. LEON A. FERRANDINI, Baltimore, Md. Filed Oct. 24, 1904. Serial No. 229,732



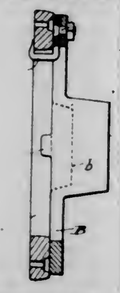
Claim.—1. In a garment-fastening the combination with a base-plate, of a head movably secured to said base-plate; a button carried by said head; means for yieldingly sustaining the head and button, and means for securing the base-plate to a garment.

2. In a garment-fastening the combination with a base-plate, of a bar on said base-plate; a head sliding on said bar; a button on said

head; a spring to keep the head and button in its normal position and a tab for securing the base-plate to a garment.

3. In a garment-fastening the combination with a base-plate, of a tab at one side of the base-plate and having a buttonhole; a bridge-bar at the other side of said base-plate; a head movably secured on said bridge-bar; a button on said head, and a spring surrounding the bridge-bar and in contact with said head.

788,255. **HORSESHOE ATTACHMENT.** CHARLES R. FLEISCHMANN, Chicago, Ill. Filed July 24, 1903. Serial No. 166,802.



Claim.—1. A horseshoe attachment consisting of a shoe-shaped band having depending calks rigid therewith and provided at the quarters thereof with clearance-spaces, shoe-engaging clips set in the clearance-spaces of the band, bolts extending from the clips through said band, and nuts run on the bolts.

2. A horseshoe attachment consisting of a shoe-shaped band having depending calks rigid therewith and provided with shoe-opposing inner toe and quarter lugs, shoe-engaging clips set in clearance-spaces in the quarters of the band, bolts extending from the clips through said band, and nuts run on the bolts.

3. A horseshoe attachment consisting of a shoe-shaped band having depending toe and heel calks rigid therewith and recessed to clear blunt toe and heel calks of the horseshoe, clips engageable with said horseshoe and clearance-spaces in the band, bolts extending from the clips through said band, and nuts run on the bolts.

788,256. **PROCESS OF OBTAINING OXYGEN FROM ALKALI PEROXID.** HANS FORRSTERLING and HERBERT PHILIPP, Perth Amboy, N. J., assignors to The Roessler and Hasslacher Chemical Company, New York, N. Y., a Corporation. Filed Feb. 5, 1904. Serial No. 192,131.

Claim.—1. The process of obtaining oxygen gas from an alkali peroxid consisting in the bringing of a solidified, fused mass of alkali peroxid into contact with any suitable liquid, as and for the purpose described.

2. The process of obtaining oxygen gas from an alkali peroxid consisting in the bringing of a solidified, fused mass of alkali peroxid into contact with water, as and for the purpose described.

3. The process of obtaining oxygen gas from fused sodium peroxid consisting in bringing a solidified, fused mass into contact with any suitable liquid, as and for the purpose described.

4. The process of obtaining oxygen gas from fused sodium peroxid consisting in bringing the solidified, fused mass into contact with water, as and for the purpose set forth.

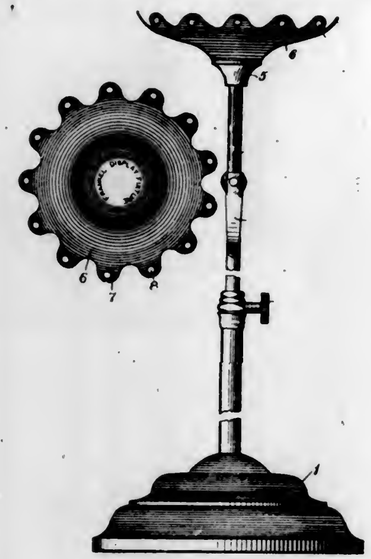
788,257. **DISPLAY-FIXTURE.** HARRY FRANKEL, New York, N. Y. Filed Nov. 3, 1904. Serial No. 231,146.

Claim.—1. In a display-fixture for hats and the like, the combination of a supporting-rod, a socket secured thereon, a top member formed of sheet metal, secured to said socket member and being curved upwardly and outwardly and having a notched or scalloped upturned edge for the purpose specified.

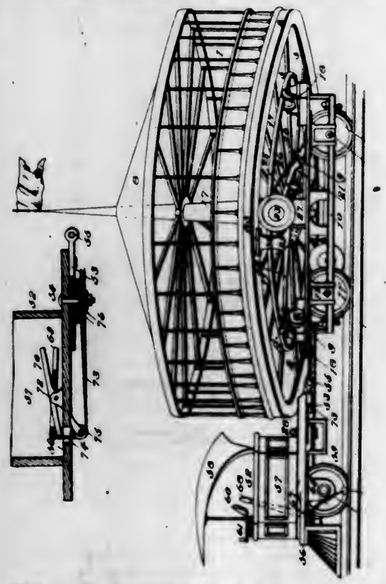
2. A top for a hat-display fixture formed of sheet metal and having a depressed center and a notched outer edge integral therewith and curved outwardly and upwardly, substantially as described.

3. A top for a hat-display fixture comprising a sheet-metal body having an integral, sharp, upturned, notched or scalloped edge with a series of perforations for the purpose specified, and means for securing the top portion to a supporting rod or stand, substantially as described.

4. In a display-fixture, the combination of a base, a supporting-rod and a top member formed of sheet metal and having integral therewith a series of curved knife-like metallic edges for supporting a hat or similar device.



788,258. **PLEASURE-RAILWAY.** JOHN H. GOODFELLOW, St. Louis, Mo., assignor of one-half to Edgar P. Voll, St. Louis, Mo. Filed Nov. 21, 1903. Serial No. 182,104.



Claim.—1. In a pleasure-railway, in combination with a track, of a car to travel along the track, and means to impart an independent movement to the car during such travel.

2. In a pleasure-railway, in combination with a track, of a car to travel along said track, and means to impart an independent rotary movement to the car during such travel.

3. In a pleasure-railway, in combination with a track, of a car adapted for travel along the track and for movement independent of such travel.

4. In a pleasure-railway, in combination with a track, of a car adapted to travel along the track, means to move the car independent of such travel, and means to control said latter means.

5. In a pleasure-railway, in combination with a track, of a car adapted to travel along the track, means to impart a rotary movement to the car during such travel, and means to control such rotary means.

6. In a pleasure-railway, in combination with a track, of a car adapted to travel along the track, means to impart a rotary movement to the car, a cab connected to the car, and means operative from the cab for controlling the rotary movement of the car.

7. In a pleasure-railway, in combination with a track, of a car adapted to travel along the track, means to impart a rotary movement to the car, a cab connected to the car, and means operative from the cab for controlling all the movements of the car.

8. In a pleasure-railway, a track, a truck movable along the track, and a car-body rotatably supported by the truck.

9. In a pleasure-railway, a track, a truck movable along the track, a car-body rotatably supported by the truck, and means to rotate the car-body.

10. In a pleasure-railway, a track, a main truck, movable along the track, an auxiliary truck connected thereto, a car-body supported by the trucks, and means to impart movement to the car independent of its movement due to the travel of the trucks.

11. In a pleasure-railway, a track, a main truck, movable along the track, an auxiliary truck connected thereto, a car-body supported by the trucks, and means to impart rotary movement to the car independent of its movement due to the travel of the trucks.

12. In a pleasure-railway, a track, a main truck movable along the track, an auxiliary truck connected to the main truck, a car-body supported by the trucks, and means carried by the main truck to impart independent movement to the car-body.

13. In a pleasure-railway, a track, a main truck movable along the track, an auxiliary truck connected to the main truck, a car-body supported by the trucks, and means carried by the main truck to impart independent rotary movement to the car-body.

14. In a pleasure-railway, a track, a main truck movable along the track, an auxiliary truck connected to the main truck, a track for the auxiliary truck, a car-body rotatively supported by the main truck, and means to rotate said car-body during its travel due to the movements of the trucks.

15. In a pleasure-railway, a track, a main truck, movable along the track, an auxiliary truck connected to the main truck, a track for the auxiliary truck, a car-body rotatably supported by the main truck, means for supporting the car-body from the auxiliary truck, and means to rotate said car-body during its travel due to the movements of the trucks.

16. In a pleasure-railway, a track, a truck movable along the track, a car-body movably mounted on the truck, and means operative in the movement of the truck to impart independent movement to the car-body.

17. In a pleasure-railway, a track, a truck movable along the track, a car-body rotatively mounted on the truck and means operative in the movement of the truck to impart an independent rotary movement to the car-body.

18. In a pleasure-railway, a track, a truck movable along the track, a car-body rotatively mounted on the truck, and friction-gearing operative in the movement of the truck to impart an independent rotary movement to the car-body.

19. In a pleasure-railway, a track, a truck movable along the track, a car-body rotatively mounted on the truck, means operative in the movement of the truck to impart an independent rotary movement to the car-body, and means to control said rotating means.

20. In a pleasure-railway, a track, a truck movable along the track, a car-body rotatively mounted on the truck, means operative in the movement of the truck to impart an independent rotary movement to the car-body, and a brake to affect the rotary means.

21. In a pleasure-railway, a track, a truck, to travel along the track, a car-body supported by the track, means operative in the movement of the truck to impart independent movement to the car-body, a braking mechanism for such independent movement, a cab connected to the truck, and means carried by the cab for controlling said rotating means and said brake.

22. In a pleasure-railway, a track, a truck, to travel along the track, a car-body supported by the track, means operative in the movement of the truck to impart independent movement to the car-body, a braking mechanism for such independent movement, a cab connected to the truck, and means carried by the cab for simultaneously controlling the rotating means and the braking mechanism.

23. In a pleasure-railway, a truck adapted for travel along a track, a car-body rotatively supported by the truck, a friction-plate carried by the car-body, and means carried by the truck to engage the friction-plate and revolve the car-body.

24. In a pleasure-railway, a truck adapted for travel along a track, a car-body rotatively supported by the truck, a friction-plate carried by the car-body, and means carried by the truck and operative during its travel to engage the friction-plate and revolve the car-body.

25. In a pleasure-railway, a truck adapted for movement, a car-body supported thereby, and means operative only during movement for the truck to impart an independent movement to the car-body.

26. In a pleasure-railway, a truck adapted for movement, a car-body rotatively supported thereby, and means operative only during movement of the truck to impart an independent rotary movement to the car-body.

27. In a pleasure-railway, a truck, a car-body rotatively supported thereby, a track supported by the car-body, idlers supported by the truck and engaging said track, and means carried by the truck to impart independent rotary movement to the car-body, such rotary movement being guided by the track and idlers.

28. In a pleasure-railway, a track, a truck movable along said track, a cab preceding the truck and connected thereto, a car-body supported by the truck, a friction-gearing driven by the movement of the truck to impart a rotary movement to the car, and means carried by the cab for controlling said friction-gearing.

29. In a pleasure-railway, a truck, adapted for travel along a track, a car-body rotatively supported by the truck, a friction-plate secured on the car-body, a friction-wheel carried by the truck and operated in the movement thereof, and means to cause operative engagement of the wheel and friction-plate at the will of the operator.

30. In a pleasure-railway, a truck adapted for travel along the track, a car-body movably supported by the truck, a track fixed to the car-body, idlers mounted on the truck and coöperating with said track, a friction-plate secured on the car-body, a friction-wheel mounted on and operative in the movement of the truck, a brake mounted on the truck, and means operative to move the friction-wheel and brake in opposite directions, whereby the movement of the car-body is controlled by the will of the operator.

31. In a pleasure-railway, in combination with a car, a pair of rails constituting a track therefor, one of said rails following at predetermined localities an undulatory profile with reference to the other, substantially as hereinbefore set forth.

32. In combination with a car, of a track therefor, the rails of said track being arranged in different and varying longitudinal profiles, as and for the purpose stated.

33. In combination with a car, of a track therefor, one rail of said track extending in a comparatively horizontal plane, and the other rail extending in an undulatory profile.

34. In combination with a car and a track comprising the usual parallel track-rails to support the car, of a third rail to support the car and arranged beyond the track-rails, said third rail extending in an undulatory profile.

35. In combination with a car and the usual supporting parallel track-rails, of a third rail to additionally support the car, said third rail being arranged to rock the car during travel.

36. In a pleasure-railway, a track, a car movable on the track, means for rotating the car, and means for rocking the car during its travel.

37. In a pleasure-railway, a traveling car, means for rotating the car, and means for rocking the car, both said means being operative during travel of the car.

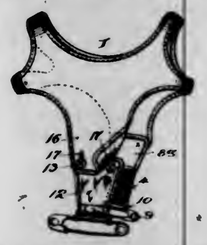
38. In a pleasure-railway, a traveling car, means for rotating the car, and means for rocking the car, both said means being simultaneously operative during travel of the car.

39. A car arranged for travel along a track, means for rotating the car during such travel, and means for rocking the car during its rotary movement.

40. A car arranged for travel along a track, and means for rotating the car during its travel, one rail of the track being extended in an undulatory profile, whereby to impart a rocking movement to the car.

41. In a pleasure-railway, in combination with a car, a pair of rails forming a track therefor, one rail of said track following an undulatory profile with reference to the other of said rails.

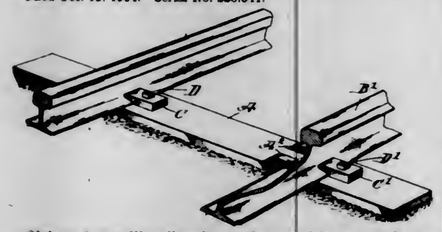
788,259. GARMENT-SUPPORTER. EDWIN A. GUINZBURG, New York, N. Y. Filed Jan. 6, 1905. Serial No. 239,870.



Claim.—1. A garment-supporter comprising a suitable suspender, having a vertical separation and ends 7 adapted to be held together by suitable buttons, buttonholes 6 in said ends, and an elastic tab, secured to each of the ends 7 by means of buttons 5, arranged away from the vertical line of the said suspender, whereby the ends 7 and the tab 4 are secured together.

2. A garment-supporter comprising a suspender having front and rear depending portions, the rear portion being vertically divided and provided on each side of the division with fastening means, an elastic tab removably secured to each of said depending portions, the attaching means for the tab connected to the said rear portion being located on opposite sides of the said division, the lower ends of each of said tabs being provided with means for attachment thereof to the garment to be supported.

788,260. RAILROAD CROSS-TIE. SIMON HOAGLAND, Astor, Fla. Filed Oct. 15, 1904. Serial No. 228,541.



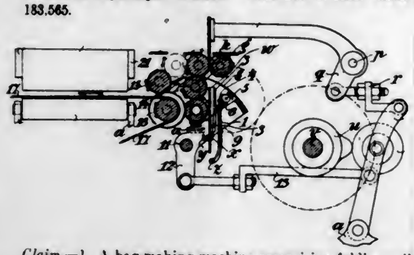
Claim.—A metallic railroad cross-tie comprising a body having sets of integral lugs, one set being arranged for engaging the outer edge of the base of one of the track-rails and the other set being arranged for engaging the inner edge of the base of the other track-rail, removable lugs, one for each rail, to engage the opposite edge of the base engaged by the corresponding set of lugs and each removable lug alternating with the integral lugs in the corresponding set, bolts for removably securing the said removable lugs in position on the said body, the said bolts extending through the body of the cross-tie and said lugs having polygonal heads engaging correspondingly-shaped recesses in the bottom of the body of the cross-tie, and nuts on the upper ends of the bolts and engaging the upper faces of said removable lugs, the said lugs resting on the upper flat surface of the body of the tie and mounted to turn on the bolts when the nuts are loosened, so that the tie can be readily slipped into position under the rails.

788,261. RAKE. CHRISTIAN IDLY, Oklahoma, Okla., assignor to J. Paul Idly, Oklahoma, Okla. Filed Dec. 20, 1904. Serial No. 237,717.



Claim.—In a rake, the combination of a handle, a head attached to said handle, a plurality of teeth secured to said head, and runners secured to the head, each runner consisting of a shank passing vertically through the head, said shank being extended forwardly to form a runner portion and thence bent rearwardly and passed horizontally through the head to form a brace portion, the rear extremity of the brace portion being headed to prevent displacement of the runner from the head.

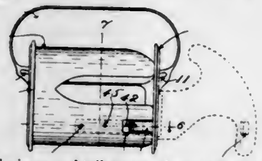
788,262. MACHINE FOR MAKING PAPER BAGS. BERNHARDT J. JENSEN, Copenhagen, Denmark. Filed Dec. 3, 1903. Serial No. 183,565.



Claim.—1. A bag-making machine comprising folding-rollers, a folding-knife coacting therewith, a guide-plate, a rail adjustable on said plate, and a plurality of swinging rods forward of the plate.

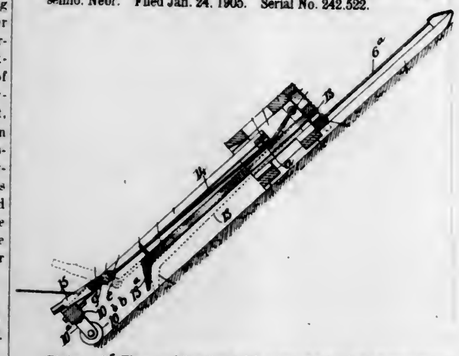
2. In a bag-making machine, a pair of folding-rollers, a guide-plate below the rollers, a bar adjustable on the plate, a swinging arm forward of the guide-plate, a cross-bar attached to said arm, a plurality of rods connected to said bar, and a cam for swinging the arm toward the guide-plate.

788,263. TOILET-PAPER FIXTURE. GEORGE T. JOHNSON, Cambridge, and GUY F. BULLARD, Boston, Mass. Filed Apr. 9, 1904. Serial No. 202,347.



Claim.—The improved toilet-paper fixture having the wide web-like concave roll-support, and the relatively movable side arms, with one of which the said roll-support is fixedly connected.

788,264. HAY-SWEEP ATTACHMENT. JAMES R. JUDGE, Anselmo, Nebr. Filed Jan. 24, 1905. Serial No. 242,522.



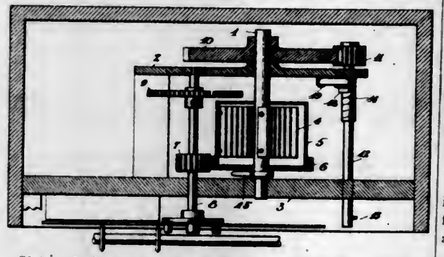
Claim.—1. The combination with a hay-gathering sweep adapted for forward and rearward movement, of a guard-frame held to slide over the teeth of the sweep, a holder-bar on the guard-frame, adapted for engaging one end with the ground when the teeth of the sweep are drawn backward, and means for controlling the holder-bar.

2. The combination with a hay-gathering sweep having spaced fork-teeth at the front, pusher-beams for controlling the movement of the teeth and extended rearward, and means for connecting draft-animals to the beams, of a guard-frame seated transversely on the fork-teeth, guides engaging the guard-frame, a holder-bar projected rearward from the guard-frame and having a foot on its rear end adapted to rock into engagement with the ground, means for raising the foot from the ground, and means for releasably holding the foot raised.

3. The combination with a hay-sweep, comprising a transverse rectangular frame, spaced teeth projected forward from the frame at its lower side, two pusher-beams held to rock together at their forward ends on the sweep-frame, a cross-beam on rear ends of the pusher-beams and swingletrees on said cross-beam, of a transverse guard-frame over the teeth of the sweep and held to slide on guide-rods carried by certain of said teeth, a holder-bar extended rearward from the guard-frame through the sweep-frame, and having a rearwardly and downwardly extended foot thereon, a link-rod pivoted at its forward end upon the sweep-frame above the holder-bar and extended between the pusher-beams, a handle-bar pivoted on the rear end of said link-bar, the handle-bar having a hook thereon, and a cross-bar carried by the pusher-beams, whereon the handle-bar may be hooked and rocked.

4. The herein-described attachment for a hay-sweep, comprising a guard-frame adapted for reciprocation on the teeth of the sweep, a holder-bar projected rearward from the guard-frame at its center of length, said bar having a rearwardly and downwardly projecting tapered foot on its free rear end, a link-rod loosely engaged with a projection on the holder-bar, and means for lifting or lowering the rear end of said link-rod and correspondingly moving the rear end and foot on the holder-bar.

788,265. OPERATING MECHANISM FOR AUTOMATIC MUSICAL INSTRUMENTS. ALFRED KELLER, St. Croix, Switzerland, assignor to Louis Philippe Mermod, Gustave Alfred Mermod, and Leon Marcel Mermod, copartners trading as Mermod Frères, St. Croix, Switzerland. Filed Apr. 22, 1903. Serial No. 153,736.



Claim.—1. In an operating mechanism for an automatic musical instrument, the combination of a stationary plate, a winding-arbor and a wide, flat clutch-band surrounding said arbor having one end free and the other end secured to said stationary plate and a spring-pressed train of gears normally restrained by said clutch and winding-arbor for the purpose specified.

2. In an operating mechanism for an automatic musical instrument, the combination of a system of gears, a driving-spring for rotating the same, a stationary plate, a rotary shaft pivoted in said plate, and a friction clutch-band wound around said shaft having one end absolutely free and the other end secured to said plate, and normally holding one end of said spring stationary, substantially as described.

788,266. SHORT-RANGE OR GALLERY CARTRIDGE. THOMAS S. KING and JAMES E. BELL, Washington, D. C. Filed Apr. 9, 1904. Serial No. 202,398.



Claim.—1. A short-range or gallery cartridge, comprising a shell having a primer, and a powder charge consisting of a tube of thin, flexible, explosive material of predetermined thickness and area, arranged longitudinally within said shell, as set forth.

2. A short-range or gallery cartridge, compriaing a shell having a primer, a tube of thin, flexible, explosive material of predetermined thickness and area, arranged longitudinally within said shell, and a bullet seated upon said tube, as set forth.

3. A short-range or gallery cartridge, comprising a bottle-neck shell having a primer, and a powder charge consisting of a tube of thin, flexible, explosive material of predetermined thickness and area, supported longitudinally in the neck of said shell, as set forth.

4. A short-range or gallery cartridge, comprising a bottle-neck shell having a primer, a powder charge consisting of a tube of thin, flexible, explosive material of predetermined thickness and area, supported longitudinally in the neck of said shell, and a bullet seated upon said tube, as set forth.

5. A short-range or gallery cartridge, comprising a shell having a primer, and a powder charge consisting of a tube of explosive, nitrocellulose paper of predetermined thickness and area, arranged longitudinally within said shell, as set forth.

6. A short-range or gallery cartridge, comprising a shell having a primer, a tube of explosive, nitrocellulose paper of predetermined thickness and area, arranged longitudinally within said shell, and a bullet seated upon said tube, as set forth.

7. A short-range or gallery cartridge, comprising a bottle-neck shell having a primer, and a powder charge consisting of a tube of explosive, nitrocellulose paper of predetermined thickness and area, supported longitudinally in the neck of said shell, as set forth.

8. A short-range or gallery cartridge, comprising a bottle-neck shell having a primer, a powder charge consisting of a tube of explosive, nitrocellulose paper of predetermined thickness and area, supported longitudinally in the neck of said shell, and a bullet seated upon said tube, as set forth.

9. A cartridge, comprising a shell having a primer, and a tube of explosive, nitrocellulose paper arranged longitudinally within said shell and having a bottom in front of said primer, as set forth.

10. A cartridge, comprising a shell having a primer, a tube of explosive, nitrocellulose paper arranged longitudinally within said shell and having a bottom in front of said primer, and a bullet seated upon said tube, as set forth.

11. A cartridge, comprising a bottle-neck shell having a primer, and a tube of explosive, nitrocellulose paper supported longitudinally in the neck of said shell and having a bottom in front of said primer, as set forth.

12. A cartridge, comprising a bottle-neck shell having a primer, a tube of explosive, nitrocellulose paper supported longitudinally in the neck of said shell and having a bottom in front of said primer, and a bullet seated upon said tube, as set forth.

13. A short-range or gallery cartridge, comprising a shell having a primer, and a powder charge consisting of a piece of thin, flexible, explosive material of predetermined thickness and area, arranged longitudinally within said shell, as set forth.

14. A short-range or gallery cartridge, comprising a shell having a primer, and a powder charge consisting of an explosive in the form of a piece of thin, flexible material of predetermined thickness and area, as set forth.

15. A short-range or gallery cartridge, comprising a shell having a primer, and a powder charge consisting of a rolled piece of thin, flexible, explosive material arranged longitudinally within said shell, as set forth.

16. A short-range or gallery cartridge, comprising a shell having a primer, a bullet, and a powder charge and bullet-stop of thin, flexible, explosive material of predetermined thickness and area, as set forth.

17. A short-range or gallery cartridge, comprising a shell having a primer, a powder charge consisting of a piece of explosive material of predetermined thickness and area, arranged longitudinally within said shell, and a bullet seated upon the end of said piece, as set forth.

18. A short-range or gallery cartridge, comprising a shell having a primer, a powder charge consisting of a piece of thin, flexible, explosive material of predetermined thickness and area, arranged longitudinally within said shell, and a bullet seated upon the end of said piece, as set forth.

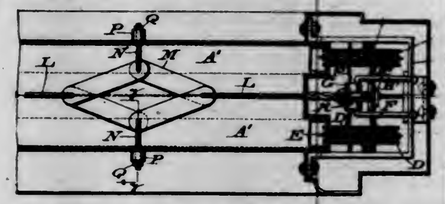
19. A short-range or gallery cartridge, comprising a shell having a primer, a powder charge consisting of a rolled piece of thin, flexible, explosive material of predetermined thickness and area, arranged longitudinally within said shell, and a bullet seated upon the end of said piece, as set forth.

788,267. FIREPROOF WINDOW. ARTHUR KONSALIK, Philadelphia, Pa. Filed Sept. 26, 1904. Serial No. 225,889.

Claim.—1. In a window, a sash, a sash-pulley, a brake on the latter adapted to permit said sash to move under normal condition, a controller for said brake, a rod connected with said controller, a piece of fusible material supported on said rod and independent means for retaining said piece in position at the adjacent portion of the window-frame, said piece being intermediate of said means and an adjacent portion of the window-frame.

2. In a window, a sash, a sash-pulley, a brake on the latter

adapted to permit said sash to move under normal condition, a holder for said brake, a rod connected with said holder, a nut on said rod, and a piece of fusible material rested on said rod intermediate of said nut and the adjacent portion of the window-frame.



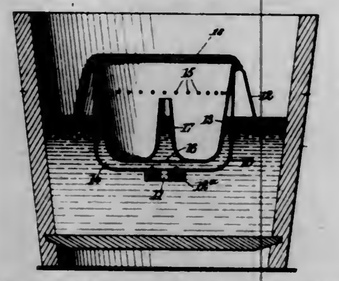
3. In a fireproof window, a controlling device for a sash-pulley, a piece of fusible material, a support for said piece, the same being connected with a member of said device, and independent means on said support for retaining said piece thereon, said piece being interposed between said means and an adjacent portion of a window-frame.

4. In a window, a sash, sash-pulleys, a brake engaging with the hubs of said pulleys and common to both, a lever, a connection between said lever and said brake and a fusible device connected with said lever.

5. In a window, a sash, a plurality of sash-pulleys, a brake engaging said pulleys and common to both, a stirrup connected with one end of said brake, and a fixed member, a bolt adjustably connected with the other end of said brake, a fusible device and a connection between said device and said bolt.

6. In a window, a sash, a sash-pulley, a brake for said pulley, an end of said brake having a hook thereon, a stirrup having said hook fitted on the cross-bar thereof, said stirrup being connected with a fixed member, a movable bolt connected with the other end of said brake and an adjusting-nut on said bolt, one end of said brake with said nut being within said stirrup and the other end thereof adjacent to the same.

788,268. DISINFECTING DEVICE. GEORGE KRUEGER. Johnstown, Pa. Filed July 13, 1904. Serial No. 216,423.



Claim.—1. A disinfecting device comprising a fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, and a receptacle for a combustible extending into the fluid-receiver through the main opening and having an opening communicating with the fluid-receiver above the fluid-level, said fluid-receiver and combustible-receptacle being connected to move together in use.

2. A disinfecting device comprising a fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, and a receptacle for a combustible extending into the fluid-receiver through the main opening and tightly fitting the same, but leaving below an intermediate space, said combustible-receptacle having an opening connected with the upper portion of this space.

3. A disinfecting device comprising a fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, and a receptacle for a combustible extending into the fluid-receiver through the main opening, but leaving below an intermediate space, said combustible-receptacle having a series of openings connected with the upper portion of this space.

4. A disinfecting device comprising a fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, a receptacle for a combustible extending into the fluid-receiver through the main opening and having an opening communicating with said fluid-receiver, and a float carried by the upper portion of the fluid-receiver.

5. A disinfecting device comprising a fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, a receptacle for a combustible extending into the fluid-receiver through the main opening and having an opening communicating with the fluid-receiver, and an imperforate flange depending from the upper portion of the fluid-receiver.

6. A disinfecting device comprising a buoyant fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, a receptacle for a combustible extending into the fluid-receiver through the main opening and having an opening communicating with the fluid-receiver, and a weight secured at the bottom of the fluid-receiver.

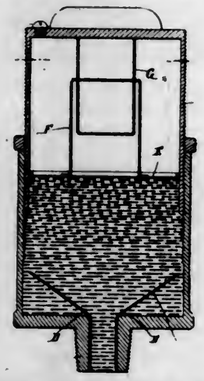
7. A disinfecting device comprising a buoyant fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, a receptacle for a combustible extending into the fluid-receiver through the main opening and having a bottom opening, and a tubular extension surrounding said opening.

8. A disinfecting device comprising a buoyant fluid-receiver provided with a main opening and a second opening for the introduction of the fluid, a receptacle for a combustible extending into the fluid-receiver through the main opening and having an opening communicating with the fluid-receiver, and a removable perforate cover for the combustible-receptacle.

9. A disinfecting device comprising a fluid-receiver, a receptacle for a combustible carried by and communicating with the fluid-receiver, and a flange depending from the upper portion of the fluid-receiver and serving as a float.

10. A disinfecting device comprising a buoyant fluid-receiver, and a receptacle for a combustible extending into the receiver below the fluid-level and having an opening establishing communication with the receiver above the fluid-level.

788,269. AUTOMATIC GREASE-CUP. JOHN F. LEWIS. Philadelphia, Pa. Filed Jan. 3, 1905. Serial No. 239,351.



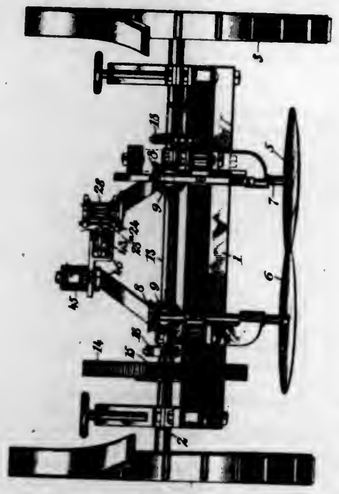
Claim.—1. In a grease-cup, two cup-shaped portions inverted relative to one another and threaded one into the other, the lower portion being provided with a nipple depending from the same and adapted to be secured in a bearing, said nipple provided with an opening formed therethrough, the lower portion adapted to contain the grease, a disk fitting loosely within the upper portion and adapted to rest upon the grease, means for guiding said disk while sliding vertically relative to the upper portion and causing said disk to revolve when the upper portion is turned, as and for the purpose specified.

2. In an automatic grease-cup, two cup-shaped portions inverted relative to one another, the upper portion threaded into the lower portion, the lower portion provided with an opening extending through the bottom thereof, the lower portion adapted to contain grease, a disk fitted loosely within the upper portion and adapted to lie upon the top of the grease, means adapted to guide the disk while sliding vertically relative to the upper portion and to cause said disk to revolve with the upper portion when said upper portion is turned, and means for retaining a certain amount of grease within the cup against the air-pressure when the upper portion is threaded into the lower portion as far as possible.

3. In an automatic grease-cup, two cup-shaped portions inverted relative to one another, the upper portion threaded into the lower portion, the lower portion provided with a nipple extending downward therefrom, said nipple provided with an opening formed therethrough, a funnel located in the lower portion, the neck of the funnel communicating with the opening through the nipple, the hopper of the funnel lying within the lower portion, the greatest diameter of said hopper being less in diameter than the diameter of the interior of the upper portion of the cup, the hopper provided with a series of openings formed through the same just above the bottom of the lower portion, the lower portion adapted to contain grease, a disk fitting loosely within the upper portion and adapted to lie upon the top of the grease, means for guiding said disk while sliding in a vertical direction relative to the upper portion and causing said disk to revolve with the upper portion when the same is turned, a screw threaded through the wall of the upper portion for the purpose of venting the upper portion when the same is to be removed from the lower portion.

4. In an automatic grease-cup, two cup-shaped portions inverted relative to one another, the upper portion threaded into the lower portion, the lower portion provided with an opening formed through the bottom thereof, the lower portion adapted to contain the grease, a disk fitting loosely within the upper portion and adapted to lie upon the top of the grease, means for guiding the disk when sliding vertically relative to the upper portion and to cause said disk to revolve with the upper portion when said portion is turned, means for retaining a certain amount of grease within the cup against the air-pressure when the upper portion is threaded into the lower portion as far as possible, said grease retained in the cup adapted to displace sufficient air within the cup to create an air-pressure sufficient to expel all the grease except the retained portion, and means for holding the retained portion so that the same will be free of the walls of the cup, as specified.

788,270. CANE-HARVESTER. GEORGE D. LUCE. New Orleans, La. Filed Jan. 6, 1905. Serial No. 239,843.



Claim.—1. In a cane-harvester, a feeding and carrying mechanism comprising a pair of endless chains arranged one above the other, connecting-bars at intervals along said chains, an endless chain for engaging the cane at the opposite side of that engaged by the pair of chains and between the same, and means for operating the chains.

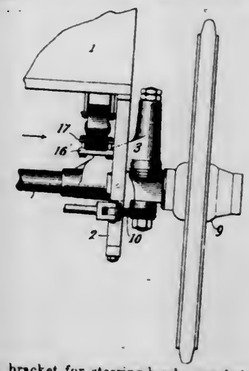
2. In a cane-harvester, a feeding and carrying mechanism comprising a pair of chains arranged one above the other, sprocket-wheels with which said chains engage, idler-sprockets for engaging with the inner stretches of the chains, an opposing chain having its inner stretch arranged to move between the pair of chains, sprocket-wheels with which said single chain engages, and yielding idlers with which the inner stretch of said single chain engages.

3. In a cane-harvester, a wheel-mounted frame, bars extended above the frame and lengthwise thereof, pairs of sprocket-wheels carried by one of said bars, chains engaging with said sprocket-wheels, idler-sprockets supported by the bar and engaging with the inner stretches of said chains, sprocket-wheels in the other of said bars, a carrier-chain engaging therewith, spring-pressed idlers supported by said other bar and engaging with the inner stretch of the last-named chain, and driving connections between the axle of the machine and the forward sprocket-wheels.

4. In a cane-harvester, a wheel-mounted main frame, bars extended lengthwise of the frame and above the same, the forward ends of said bars being divergent, cutting devices carried by the frame, pick-up devices carried by the frame, a pair of endless chains supported by one of the bars, one above the other, a chain supported by the other of said bars and arranged to pass between the pair of chains, spring-pressed idlers for the last-named chain, and means for imparting motion to the chain.

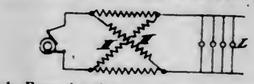
5. In a cane-harvester, a wheel-supported main frame, bars extended longitudinally of the same and having divergent ends, a pair of carrier-chains movable on one of the bars, one chain being arranged above the other, an endless chain carried by the other of said bars and having its inner stretch movable between the inner stretches of the first-named chains, spring-pressed idlers for engaging with the last-named chain, fingers mounted on the chains, and means actuated from the axle of the machine for moving said chains.

788,271. STEERING-HEAD FOR VEHICLES. ALBERT F. MADDEN. Newark, N. J., assignor to Vehicle Equipment Company, New York, N. Y., a Corporation of New York. Filed May 11, 1904. Serial No. 207,353.



Claim.—A bracket for steering-heads, consisting of a single member having a horizontal socket for securement to the axle, a vertical socket for the vertical pivot of a wheel-spindle, said vertical socket being located entirely above the horizontal socket, a boss or plate above the axle-socket providing a seat for the vehicle-spring, and vertical flanges on the sides of the bracket for engagement with means to prevent sidewise displacement of the bracket and the parts carried thereby, said horizontal and vertical sockets, spring-boss, and flanges, being integral with the body of the bracket, as set forth.

788,272. MEANS FOR OBTAINING REDRESSED CURRENTS. LUIGI MAGRINI. Milan, Italy. Filed Oct. 20, 1903. Serial No. 177,742.



Claim.—1. For redressing the current or currents in a single-phase or polyphase alternating-current circuit or circuits, the combination of a plurality of choking-coils inserted in series into the main of each circuit, two choking-coils, each of which connects one end of one of said series coils with the opposite end of the other, a device for varying the impedance of each of said coils synchronously with the phases of the alternating current flowing through the circuit, consisting in a frame on which said coils are secured at suitable angles to each other while two □-shaped diametrically opposed laminated iron pieces, caused to revolve by a synchronous motor, alternately face the cores of said coils.

2. For redressing the current or currents in a single-phase or

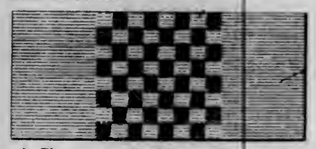
polyphase alternating-current circuit or circuits, the combination of two choking-coils inserted in series into the mains of each circuit, two choking-coils, each of which connects one end of one of said series coils with the opposite end of the other, a device for varying the impedance of each of said couple of coils synchronously with the phases of the alternating current flowing through the circuit, consisting in a frame on which said couples of coils are secured at ninety degrees to each other while two C-shaped diametrically opposed laminated iron pieces, caused to revolve by a synchronous motor, alternately face the cores of each couple of said coils.

788,273. HAIR-TONIC. ELISE MAROST, New York, N. Y. Filed Aug. 30, 1904. Serial No. 222,704.

Claim.—1. The herein-described hair-tonic, containing an infusion of mustard-seed, rosin, turpentine, lavender-spirit, and perfume, in about the proportions stated.

2. The herein-described hair-tonic, consisting of an infusion of mustard-seed, rosin, turpentine, lavender-spirit, oil of lavender, and Florida water, in about the proportions stated.

788,274. PROCESS OF MAKING PRINTS ON DARK BACKGROUNDS. GEORGE E. MATTHEWS, Buffalo, N. Y. Filed May 26, 1904. Serial No. 209,905.



Claim.—1. The process of making a half-tone print which consists in making two impressions on a dark background, one impression being made in light ink and the other being made in dark ink, the two impressions being superimposed.

2. The process of making a print which consists in making two impressions on a dark background, the first being in light ink and the second in dark ink, the two impressions being superimposed and blended one with the other.

3. The process of making a print which consists in making two impressions on a dark background, the first being in white ink and the second in dark ink, the two impressions being superimposed and blended one with the other.

4. The process of making a print which consists in taking two impressions on a dark background, one in light ink from a negative plate and another in dark ink from a positive plate, the two impressions being superimposed.

5. The process of making a print which consists in taking two impressions on a dark background, one in white ink from a negative plate and another in dark ink from a positive plate, the two impressions being superimposed.

6. The process of printing on a dark background which consists in inking a negative plate in light ink, taking an impression from said negative plate on dark paper, inking a positive plate in dark ink and taking a second impression from the latter plate, the two impressions being superimposed.

7. The process of printing on a dark background which consists in inking a negative plate in white ink, taking an impression from said negative plate on dark paper, inking a positive plate in dark ink and taking a second impression from the latter plate, the two impressions being superimposed.

8. The process of making a half-tone print which consists in making a negative half-tone printing-plate and a positive half-tone printing-plate, inking the negative half-tone printing-plate in a light ink and the positive plate in a dark ink, taking an impression from each plate, the two impressions being superimposed.

9. The process of making a half-tone print on a dark background which consists in making a negative half-tone printing-plate and a positive half-tone printing-plate, inking the negative half-tone printing-plate in white ink and the positive plate in dark ink, taking an impression on a dark paper or other background from each plate, the two impressions being superimposed.

10. The process of making a half-tone print which consists in making a negative half-tone printing-plate and a positive half-tone printing-plate, inking the negative half-tone printing-plate in a light ink and the positive plate in a dark ink, taking an impression first from the negative plate and then taking a second impression from the positive plate, the two impressions being superimposed.

11. The process of making a half-tone printing-plate on a dark background which consists in making a negative half-tone printing-plate and a positive half-tone printing-plate, inking the negative half-tone printing-plate in white ink and the positive plate in a dark ink, taking an impression first from the negative plate on a dark paper or other material having a dark background and then taking a second impression from the positive plate, the two impressions being superimposed.

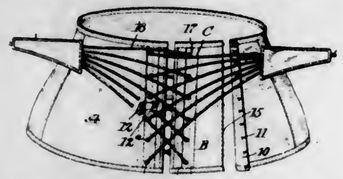
12. The process of making a half-tone print which consists in making a negative, making from said negative a half-tone printing-plate, making from said negative a positive, making from said positive a positive half-tone printing-plate, inking the negative printing-plate in a light-colored ink, taking an impression therefrom, inking the positive printing-plate in a dark ink and taking an impression therefrom, the two impressions being superimposed.

13. The process of making a half-tone printing-plate on a dark background which consists in making a negative, making from said negative a half-tone printing-plate, also making from said negative a positive, making from said positive a half-tone printing-plate, inking the negative printing-plate in a white ink, taking an impression therefrom on a dark paper or other material having a dark background, inking the positive printing-plate in a dark ink and taking an impression therefrom, the two impressions being superimposed.

14. The process of making a half-tone print which consists in making a negative, making a half-tone negative from said negative, making a half-tone printing-plate from said half-tone negative, making a positive from the first negative, making a half-tone positive from said positive, making a half-tone printing-plate from the half-tone positive, inking the negative printing-plate in a light ink, taking an impression from this printing-plate, inking the positive printing-plate in a dark ink and taking an impression from said second plate, the two impressions being superimposed.

15. The process of making a half-tone printing-plate on a dark background which consists in making a negative, making a half-tone negative from said negative, making a half-tone printing-plate from said half-tone negative, making a positive from the first negative, making a half-tone positive from said positive, making a half-tone printing-plate from the half-tone positive, inking the half-tone printing-plate in white ink, taking an impression from this printing-plate on a dark paper or other material having a dark background, inking the positive printing-plate in a dark ink and taking an impression from said second plate, the two impressions being superimposed.

788,275. ABDOMINAL CORSET. CHARLES MUNTER, New York, N. Y. Filed Nov. 30, 1904. Serial No. 234,873.



Claim.—An abdominal corset constructed of pliable material and adapted to conform to the shape of the waist, abdomen and hips of the wearer, and comprising a body-section having a stay at one edge, and a rear intermediate section having a stay in its edge opposite to the other stay, said stays being provided with releasable fastening devices, and said body-section and intermediate section each having parallel stays at its other edge, with a row of eyelets therebetween, and independent laces passed between corresponding eyelets, crossed and given an upward direction to the waist-line at the front portion, said laces being brought together and provided at their ends with tabs having hooks adapted to engage with eyes located on said body-section at the upper end or waist portion of the corset, whereby the tendency is to lift the parts inclosed upwardly and at the same time compress said parts.

788,276. CARD-INDEX FILE OR CABINET. JOHN S. NOWOTNY, Madisonville, Ohio. Filed July 18, 1904. Serial No. 217,131.

Claim.—1. A filing device comprising a body portion having elongated side walls, frictional engaging devices extended along said side walls and a follower transversely extended in the body portion with ends engaged on said frictional engaging devices.

2. A filing device comprising a body portion having elongated side walls, elastic engaging devices extended along said side walls and a follower transversely extended in the body portion with ends engaged on said elastic engaging devices

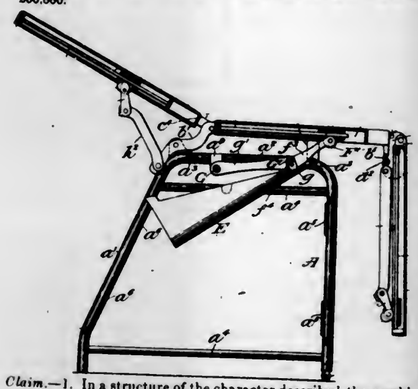


3. A filing device comprising a body portion having elongated side walls, metal plates extended along the side walls with resilient portions extended inward beyond the inner surfaces thereof and a follower transversely extended in the body portion with ends engaged on the extended resilient portions of the metal plates at the side walls of said body portion.

4. A filing device comprising a body portion having elongated side walls, metal plates extended along the inner surfaces of the side walls with central resilient portions pressed inward in the body portion out of contact with the side walls and with upper edges extended over the upper edges of the side walls and a follower transversely extended in the body portion with arms rested on said upper edges of the side walls and ends frictionally engaged by the resilient central portions of said metal plates.

5. A filing device comprising an elongated body portion adapted to receive index-cards or the like and having its rear end wall inclined forwardly and downwardly for holding said cards in rearwardly-inclined position, a follower movable back and forth within said body portion, and a horizontal flat bar provided along the lower edge of the follower, elevated slightly above the bottom of the said body portion and projecting forwardly and rearwardly beyond the said lower edge of the follower, the forwardly-projecting edge of the flat bar being adapted for engagement with the front wall of said body portion when the latter is full to hold the follower spaced from said front wall and the rearwardly-projecting edge of the flat bar being adapted for engagement with the inclined cards for holding them in position with the follower spaced away therefrom for ready manipulation.

788,277. OPERATING-TABLE OR SIMILAR STRUCTURE. GEORGE L. POLL, New York, N. Y. Filed Mar. 31, 1904. Serial No. 200,380.

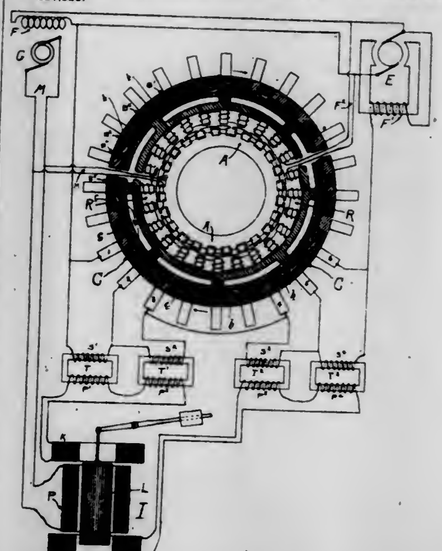


Claim.—1. In a structure of the character described, the combination of a main or supporting frame, a swinging section provided with a guide a slotted sleeve slidingly mounted on said guide, a pivoted cam carried by said sleeve and adapted to swing within the slot, and a connection disposed in a plane parallel with the plane of movement of the cam pivotally attached both with respect to the cam and a fulcrum independent of the pivotal connection of the swinging section.

2. In a structure of the character described, the combination of a main or supporting frame, a swinging section provided with a guide, a slotted sleeve slidingly mounted on said guide, a pivoted cam carried by said sleeve and adapted to swing within the slot, a connection pivotally attached both with respect to the cam and a fulcrum, the latter independent of the pivotal connection of the swinging section and said connection disposed in a plane parallel with the plane of movement of the cam, and means for actuating said connection by hand.

3. In a structure of the character described, the combination of a main or supporting frame, a swinging section provided with a plurality of guides, slotted sleeves slidingly mounted in said guides, a pivoted cam carried by each sleeve and adapted to swing within the slot thereof, a connection having a common pivotal attachment with said cams to unitarily move the same and disposed in a plane parallel with the plane of movement of the cam, said connection also having a pivotal fulcrum independent of the pivotal connection of the swinging section

788,278. POTENTIAL-REGULATOR. EDWIN H. PORTER and BURLEIGH CURRIER, Philadelphia, Pa. Filed Oct. 7, 1904. Serial No. 227,520.



Claim.—1. The combination of a direct-current field-magnet circuit, a source of alternating electromotive force dependent upon said direct-current field-magnet circuit, means for translating said alternating electromotive force into two unidirectional pulsating electromotive forces of opposite sign, means for connecting said unidirectional electromotive forces in series with said direct-current field-magnet circuit, and means for automatically varying one or both of the opposing electromotive forces in response to variations in said alternating electromotive force.

2. The combination of a direct-current field-magnet circuit, a source of alternating electromotive force dependent upon said direct-current field-magnet circuit, means of deriving a plurality of alternating electromotive forces of differing phase relation from said alternating electromotive forces, means of connecting said different-phased alternating electromotive forces in series with said direct-current field-magnet circuit, a synchronously-revolving commutator arranged with brushes to short-circuit synchronously all electromotive forces of other than one sign, and means for regulating the resultant unidirectional electromotive force in response to variations in said alternating electromotive force by regulating automatically the alternating electromotive forces and current applied in series with said field-circuit.

3. The combination of a direct-current field-magnet circuit, a source of alternating electromotive force dependent upon said direct-current field-magnet circuit, means for translating said alternating electromotive force into a plurality of unidirectional electromotive forces of opposite signs whose algebraic sum is zero, and means for automatically varying some or all of said unidirectional electromotive forces so that their algebraic sum is greater or less than zero in response to variations in said alternating electromotive force said unidirectional electromotive force being in series with said direct-current field-magnet circuit.

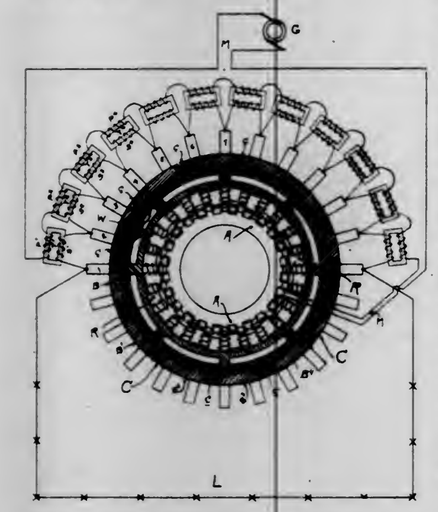
4. The combination of a direct-current field-magnet circuit, a source of alternating electromotive force to be regulated dependent upon said direct-current field-magnet circuit, a rectifier having

brushes and commutator in series with said direct-current field-magnet circuit, said rectifier connected to said source of alternating electromotive force through transformers and an induction-regulator automatically responsive to variations in said alternating electromotive force, said rectifier and transformers arranged so as to provide two or more independent circuits through it for the direct-current field-current.

5. The combination in a voltage-regulator, of a direct-current field-magnet circuit, a source of alternating electromotive force dependent upon said field-circuit, a plurality of pairs of transformers whose primaries receive current from said source of alternating electromotive force through an induction-regulator responsive automatically to variations in said electromotive force, primaries of each pair of said transformers being in series; secondaries of each pair of transformers joined in series and in series with said direct-current field-circuit and joined to pairs of brushes in opposition, so that the electromotive force of each pair at the brushes is zero; a commutator of a plurality of insulated bars arranged with brushes to short-circuit one electromotive force of each pair of secondaries synchronously in succession.

6. The combination of a direct-current field-magnet circuit F, an alternating-current main circuit M, transformers $T' T^2 T^3 T^4$, induction-regulator I, commutator C, or bars $B' B^2 B^3 B^4$, &c., a synchronous driving-motor for said commutator, all arranged connected together and for the purpose substantially as set forth.

788,279. ALTERNATING-CURRENT RECTIFIER. EDWIN H. PORTER and BURLEIGH CURRIER, Philadelphia, Pa. Filed Oct. 7, 1904. Serial No. 227,521.



Claim.—1. In an alternating-current rectifier the combination of a source of alternating current and electromotive force supplying currents of opposing phase relation, a circuit embracing the opposing electromotive forces in series and means for synchronously short-circuiting the electromotive forces of undesired sign to produce a unidirectional pulsating electromotive force and current.

2. In an alternating-current rectifier the combination of a source of alternating electromotive forces of different phase relation whose algebraic sum is zero, a circuit embracing said electromotive forces in series with a work-circuit and means for successively synchronously short-circuiting all electromotive forces opposed to the flow of current in a desired direction in said work-circuit.

3. In an alternating-current rectifier the combination of a source of alternating electromotive forces whose algebraic sum is zero, a work-circuit embracing said electromotive forces in series and a synchronously-revolving commutator having insulated bars with brushes arranged to short-circuit all electromotive forces opposed to a desired flow of undirectional current in the work-circuit.

4. The combination in an alternating-current rectifier of a source of alternating electromotive forces of a plurality of phases whose algebraic sum is zero, a work-circuit embracing said electromotive forces in series, brushes connecting to said electromotive forces and to said work-circuit, a commutator of insulated separate bars revolving synchronously and arranged so as to short-circuit all electromotive forces of a negative sign.

5. The combination in an alternating-current rectifier of a source of alternating electromotive forces of a plurality of phases whose algebraic sum is zero, a work-circuit embracing said electromotive forces in series, brushes connecting to said electromotive forces and to said work-circuit, a commutator of insulated separate bars revolving synchronously and arranged so as to short-circuit all electromotive forces of a positive sign.

6. The combination in a rectifier for alternating currents of a source of alternating currents, a transformer having its secondary joined to a pair of brushes, another transformer having its secondary coil joined to another pair of brushes, the brushes so connected with the secondaries that the secondaries are in series, each giving an electromotive force in a reverse direction, the primaries of the transformers also in series supplied from said source of alternating electromotive force and a revolving commutator arranged to short-circuit each pair of brushes and connected secondaries in succession.

7. The combination in a rectifier for alternating currents, of a source of alternating currents, a set of transformers having their secondaries each joined to a pair of brushes, another set of transformers having their secondaries each joined to another pair of brushes, the brushes and secondaries so connected that each like set of secondaries is in series with the second set of secondaries giving an electromotive force in a reverse direction, the primaries of each set of transformers also in series with the primaries of the other set and supplied from said source of electromotive force and a revolving commutator arranged to short-circuit each set of brushes and connected secondaries in succession.

8. The combination of a source of alternating electromotive force, a synchronous motor operating from said electromotive force, the revolving element of said motor carrying a commutator of a plurality of insulated bars, brushes bearing on said commutator, opposing and equal electromotive forces of alternating direction applied between adjacent brushes in series with a work-circuit, the whole arranged to successively synchronously short-circuit all electromotive forces of one sign.

9. In an alternating-current rectifier the combination of two sources of alternating electromotive force of opposing phase relation, both electromotive forces being in series with a work-circuit, means for short-circuiting one electromotive force, and for opposing an opposite electromotive force at the time of removing the short-circuit, and for short-circuiting the opposing electromotive force as soon as the first short-circuit is removed.

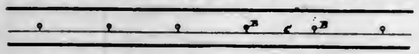
10. A rectifying-commutator having a plurality of insulated bars, stationary brushes in contact with said bars, said bars being of such size and so arranged as to short-circuit successive adjacent brushes in pairs.

11. A rectifying-commutator having successive adjacent bars electrically short-circuited together in pairs, each pair insulated from all other pairs.

12. A synchronously-revolving commutator having a speed of bars per second equal to twice the cycles per second of the current to be rectified, adjacent bars being connected together in pairs by a low-resistance contact, each pair insulated from all other pairs.

13. A rectifier for alternating currents consisting of stationary brushes, transformers supplying alternating current of opposite phase relation to adjacent brushes, the algebraic sum of the electromotive forces of adjacent pairs of brushes being zero, a synchronously-revolving commutator having insulated bars arranged to short-circuit successively between all pairs of brushes bearing an electromotive force of like sign.

788,280. ELECTRIC RAILWAY. LEON W. PULLEN, Philadelphia, Pa., assignor to Wireless Railway Company, a Corporation of the District of Columbia. Filed July 18, 1904. Serial No. 216,984.



Claim.—1. In an electric railway, a circuit-closing-switch box consisting of the combination of contact-block for supplying current to the collector of the car, two contact-pieces one of which is electrically connected with the contact-block and the other with a source of electric energy and said contact-pieces having opposing faces slightly separated, a tubular armature of magnetic material adapted to be raised and form an electrical connection between the two contact-pieces, and a transverse support upon which the tubular armature is loosely hung.

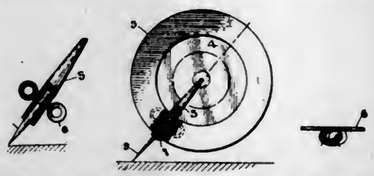
2. In an electric railway, a circuit-closing-switch box consisting of the combination of contact-block for supplying current to the collector of the car, two contact-pieces one of which is electrically connected with the contact-block and the other with a source of electric energy and said contact-pieces having opposing faces slightly separated and located nearer one of the contact-pieces than the other so that when the armature falls it is given a slight rotary motion, a tubular armature of magnetic material adapted to be raised and form an electrical connection between the two contact-pieces, and a transverse support upon which the tubular armature is loosely hung.

3. In an electric railway, a circuit-closing-switch box consisting of the combination of contact-block for supplying current to the collector of the car, two contact-pieces one of which is electrically connected with the contact-block and the other with a source of electric energy and said contact-pieces having opposing faces slightly separated and having inclined surfaces covered with copper and constituting a V-opening, a tubular armature of magnetic material adapted to be raised and form an electrical connection between the two contact-pieces and having its circumference coated with copper, and a transverse support upon which the tubular armature is loosely hung.

4. In a circuit-closing-switch box for an electric railway, the combination of a case, two contact-pieces arranged within the case and slightly separated so as to form a longitudinal slit between them and two opposing contact-surfaces, a tubular armature of magnetic material adapted to rise and fall to close the circuit between the contact-pieces, and a transverse support extending into both ends of the tubular armature to hold it loosely in position below the contact parts and permit it to rise sufficiently to close the circuit between the contact-pieces.

5. In a circuit-closing-switch box for an electric railway, the combination of a case, two contact-pieces arranged within the case and slightly separated so as to form a longitudinal slit between them and two opposing contact-surfaces, a tubular armature of magnetic material adapted to rise and fall to close the circuit between the contact-pieces, and a transverse support extending into both ends of the tubular armature to hold it loosely in position below the contact parts and permit it to rise sufficiently to close the circuit between the contact-pieces and said support being arranged nearer the one of the contact-surfaces than to the other so as to cause a slight rotation to the armature when it falls.

788,281. DEVICE FOR SECURING SOUND-BOX NEEDLES. BENTLEY L. RINEHART, Camden, N. J., assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed Mar. 14, 1903. Serial No. 147,763.



Claim.—1. A talking-machine having a stylus-socket formed by fixed walls, said walls having a plurality of clamping-faces situated on opposite sides of, and at different points in, the length of the socket, and adaped for frictional engagement with opposite sides of the stylus at different points only in its length by a lateral movement of said stylus, and adapted to hold the stylus against yielding when reproducing, and serving to operatively secure the stylus within said socket independent of any other securing means.

2. A talking-machine having a stylus-socket formed by fixed walls, and a removable stylus capable of lateral movement within said socket to bring said stylus into frictional engagement with the walls of the socket at a plurality of independent points, whereby said stylus is clamped by a lateral movement of itself, said frictional engagement serving to clamp the stylus against yielding when reproducing, and serving to operatively secure said stylus within said socket independent of any other means.

3. A sound-box for talking-machines having a stylus-socket provided with magnetic means and mechanical means for holding a stylus therein, said mechanical means serving to hold the stylus without yielding in a direction transverse to the diaphragm of the sound-box.

4. A sound-box for talking-machines having a stylus-socket provided with magnetic means for holding a stylus inoperatively, and mechanical means for holding the stylus operatively within said socket without yielding in a direction transverse to the diaphragm of said sound-box.

5. A sound-box for talking-machines comprising a stylus-socket, magnetic means for holding a stylus inoperatively within said socket and mechanical means for holding the stylus operatively within said socket without yielding in a direction transverse to the diaphragm of said sound-box.

6. A talking-machine having a wedge-shaped stylus-socket, the walls of said socket being magnetized.

7. A sound-box for talking-machines employing a record having a zigzag groove, said sound-box having a stylus-socket formed by fixed walls, said walls having clamping-faces situated at different points in its length and on opposite sides of the socket for frictional engagement with a stylus to clamp the same without yielding in a direction transverse to the diaphragm of the sound-box.

8. In a talking-machine, a stylus-bar having a wedge-shaped socket therein, which is adapted to clamp the stylus or needle.

9. In a sound-box for talking-machines, a stylus-bar having a socket therein, said socket being formed at each end with a wedge-shaped portion, said wedge-shaped portion at one end being on the opposite side of the socket from the wedge-shaped portion at the other end.

10. In a talking-machine adapted to reproduce from a horizontally-disposed flat record having a record-groove with lateral undulations in the sides thereof, a sound-box having a stylus-socket, and a stylus in said socket, the axes of said socket and stylus being at an incline to said record when reproducing, the end portions of said socket having clamping-faces, frictionally engaging opposite sides of said stylus, the frictional engagement between said stylus and clamping-faces being maintained by the operative contact of the stylus and record in reproducing, and serving to prevent said stylus from yielding within said socket in a direction transverse to the diaphragm.

11. In a sound-box for talking-machines, a stylus-bar having a socket therein, the walls of said socket approaching each other so as to clamp the needle therein without yielding in a direction transverse to the diaphragm of the sound-box.

12. In a sound-box for talking-machines, a stylus-bar having a transversely wedge-shaped socket therein, which is adapted to clamp the stylus or needle.

13. In a sound-box for talking-machines, a stylus-bar having a socket therein which is double-wedge-shaped transversely and which is adapted to clamp the needle or stylus.

14. In a sound-box for talking-machines, a stylus-bar having a transversely double-wedge-shaped socket extending longitudinally thereof, said socket being of substantially the same size throughout its length and adapted to hold the needle or stylus therein by clamping the same at two points.

15. In a sound-box for talking-machines, a stylus-bar of magnetic material having a needle-receiving socket therein, said stylus-bar being magnetized to retain said needle in position within said socket, and means independent of said magnetic means for securing the needle in operative position within said socket.

16. In a sound-box for talking-machines, a stylus-bar having a socket therein, the walls of said socket approaching each other so as to clamp the needle therein without yielding in a direction transverse to the diaphragm of the sound-box, said stylus-bar being magnetized to retain said needle in position.

17. In a sound-box for talking-machines, a stylus-bar having a transversely wedge-shaped socket therein, which is adapted to clamp the needle or stylus, said stylus-bar being magnetized to retain the needle or stylus in position when not otherwise held.

18. In a sound-box for talking-machines, a stylus-bar having a transversely double-wedge-shaped socket therein, which is adapted to clamp the needle or stylus, said stylus-bar being magnetized to retain the needle or stylus in position when not otherwise held.

19. In a sound-box for talking-machines, a stylus-bar having a transversely double-wedge-shaped socket extending longitudinally thereof, said socket being of substantially the same size and shape throughout its length and adapted to hold the needle or stylus therein by clamping the same at two points, said stylus-bar being magnetized to hold the needle or stylus in position when not otherwise held.

20. A reproducer for talking-machines, having a wedge-shape stylus-socket which is adapted to clamp the stylus or needle.

21. A reproducer for talking-machines, having a wedge-shape stylus-socket which is adapted to clamp the stylus or needle, the walls of said socket being magnetized.

22. In a talking-machine, a stylus-bar, having a stylus-socket formed by fixed walls, said walls being adapted to clamp a stylus without elasticity by a lateral movement of said stylus, and forming the sole means for holding a stylus operative therein when reproducing.

23. A talking-machine, having a stylus-socket formed by fixed walls which serve as the sole means for holding a stylus operative therein when reproducing, said walls being adapted to clamp a stylus by a lateral movement of the latter, the force holding said stylus in position being due to the frictional contact between the stylus and the socket-wall when the stylus is in operative contact with the record when reproducing.

24. A talking-machine adapted to reproduce from a flat record having a record-groove with lateral undulations in the sides thereof, having a stylus-socket formed by fixed walls, the axis of said socket being at an incline to the record when reproducing, whereby the axis of a stylus inserted therein will also be at an ineline to the record, the operative contact between the stylus and record serving to wedge the stylus by a lateral movement within said socket, and the frictional engagement between the walls of said socket and stylus serving as the sole means for holding the stylus operatively therein.

25. In a reproducer for talking-machines, a holder for the needle or stylus, having a wedge-shape socket therein adapted to clamp said needle or stylus.

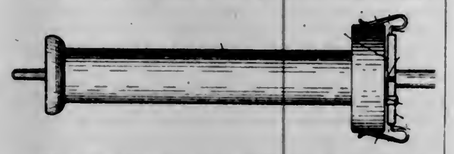
26. In a reproducer for talking-machines, a holder for the needle or stylus, having a wedge-shape socket therein adapted to clamp said needle or stylus, said holder being magnetized.

27. In a reproducer for talking-machines, a holder for the needle or stylus which is tapered toward both ends, whereby the needle, when inserted in said holder and rocked toward either end thereof, may be clamped at its point end in the outer portion of one end of the holder, and at its butt-end in the inner portion of the opposite end of the holder, substantially as set forth.

28. In a reproducer for talking-machines, a diaphragm, and a stylus-bar for vibrating the same, having a stylus-socket formed by fixed walls, said walls being adapted to clamp a stylus without elasticity by a lateral movement of said stylus.

29. A sound-box for talking-machines, comprising a stylus-socket, means for holding a stylus loosely and inoperatively within said socket, and independent means for holding a stylus operatively within said socket.

788,282. SPINDLE AND BOBBIN CONNECTOR. FREDERICK W. SAWORSKI, Walpole, Mass. Filed Sept. 1, 1904. Serial No. 222,942.



Claim.—1. A bobbin and spindle connector comprising a pair of spring-fingers connected to said spindle and adjustable with relation thereto, and means for locking said fingers in the various positions to which they may be adjusted, substantially as described.

2. A bobbin and spindle connector comprising a support connected to said spindle, having guide-grooves therein, a pair of spring-fingers mounted in said grooves and slidable radially therein, and means for locking said fingers at various positions in said grooves, substantially as described.

3. A bobbin and spindle connector comprising a support connected to said spindle and having parallel, horizontally-extending guide-grooves therein equidistant from and at opposite sides of the spindle, a pair of oppositely-disposed spring-fingers slidably mounted in said grooves and means for locking said fingers at different positions therein, substantially as described.

4. A bobbin and spindle connector comprising a support connected to said spindle, a pair of oppositely-disposed spring-fingers having bifurcated shanks extending at opposite sides of said spindle and slidably mounted in said support, and means for locking said shanks to said support, substantially as described.

5. A bobbin and spindle connector comprising a pair of spring-fingers connected to said spindle and adjustable with relation thereto, and means for simultaneously locking said fingers in the various positions to which they may be adjusted, substantially as described.

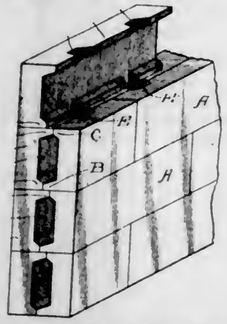
6. A bobbin and spindle connector comprising a support connected to said spindle and having guide-grooves therein, a pair of oppositely-disposed spring-fingers having bifurcated shanks extending at opposite sides of said spindle and slidably mounted, one above the other in said grooves, and a spring-actuated clip for simultaneously engaging said shanks at different points to lock said fingers to said support, substantially as described.

7. A bobbin and spindle connector comprising a support connected to said spindle and having guide-grooves therein, a pair of oppositely-disposed spring-fingers having bifurcated shanks extending at opposite sides of said spindle and slidably mounted, one above the other in said grooves, the overlapping portions of said shanks each having a series of recesses therein, and a spring-actuated locking-clip arranged to engage each shank in one of the recesses thereof simultaneously, substantially as described.

8. A bobbin and spindle connector comprising a support connected to said spindle and having guide-grooves therein, a pair of oppositely-disposed spring-fingers having bifurcated shanks extending at opposite sides of said spindle and slidably mounted, one above the other in said grooves, the overlapping portions of said shanks each having a series of recesses therein, and said support having an aperture leading to the recesses of said shanks, a spring-clip mounted on said support and having a locking-tongue adapted to enter said aperture and to engage each shank in one of the recesses thereof simultaneously, substantially as described.

9. A bobbin and spindle connector comprising a support connected to said spindle and having guide-grooves therein, a pair of oppositely-disposed spring-fingers having bifurcated shanks extending at opposite sides of said spindle and slidably mounted, one above the other, in said grooves, the overlapping portions of said shanks each having a series of recesses therein, and said support having an aperture leading to the recesses of said shanks, a spring-clip slidably mounted on said support and having a locking-tongue adapted to enter said aperture and to engage each shank in one of the recesses thereof simultaneously, substantially as described.

788,283. BUILDING-BLOCK. JOSEPH SCHALL, Evergreen Park, Ill. Filed May 11, 1904. Serial No. 207,390.



Claim.—1. A wall composed of building-blocks disposed on opposite sides thereof, each of said building-blocks being provided on two edges with a long and a short flange respectively and being relatively so laid that the short flange of each abuts against the long flange of the other.

2. A wall composed of building-blocks disposed on opposite sides thereof, each of said building-blocks being provided on two edges with a long and a short flange respectively and being relatively so laid that the short flange of each abuts against the long flange of the other, said blocks being laid in horizontal courses so that the free ends of the long flanges of the blocks of each course overlap and rest upon the free ends of the long flanges of blocks disposed on the opposite side of the wall in the next lower course.

3. A wall composed of blocks each provided on one edge with a horizontally-disposed flange, said blocks being relatively so disposed on opposite sides of the wall that the flange of each block abuts against a part of the opposite block, said blocks being laid in horizontal courses relatively so disposed that the free ends of the flanges of blocks of one course overlap and rest upon the free ends of the flanges of blocks in the next lower course disposed on the opposite side of the wall, thereby forming a cross-bond between each two courses.

4. A wall composed of blocks each provided on one edge with a horizontally-disposed flange, said blocks being relatively so disposed on opposite sides of the wall that the flange of each block abuts against a part of the opposite block, said blocks being laid in horizontal courses relatively so disposed that the free ends of the flanges of blocks of one course overlap and rest upon the free ends of the flanges of blocks in the next lower course disposed on the opposite side of the wall, thereby forming a cross-bond between each two courses, the free spaces between the flanges of oppositely-disposed blocks of each course forming horizontal flues.

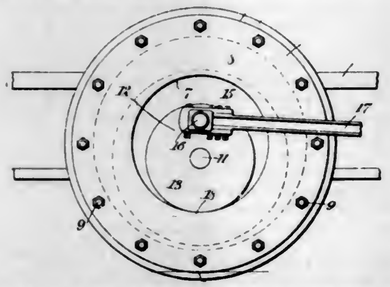
5. A wall composed of blocks each provided on one edge with a flange, said blocks being relatively so disposed on opposite sides of the wall that the flange of each block abuts against a part of the opposite block, said blocks being laid in horizontal courses relatively so disposed that the free ends of the flanges of blocks of one course overlap and rest upon the free ends of the flanges of blocks in the next lower course disposed on the opposite side of the wall, thereby forming a cross-bond between each two courses, the free spaces between the flanges of oppositely-disposed blocks of each course forming horizontal flues, said flues being connected by vertical passages in said flanges.

6. A wall composed of blocks each provided with a recess, a flange on one edge of said block, and a projection on each block adapted to enter said recess of an adjacent block, said blocks being disposed on opposite sides of the wall so that the flange of each bears at its free end against a part of the opposite block, said flanges of blocks of one course overlapping and resting upon the flanges of oppositely-disposed blocks of the next adjacent course, said projections and recesses forming interlocking means.

7. A wall composed of building-blocks each provided with a recess, a flange on one side of said blocks, and a projection on said flange, said blocks being disposed in horizontal courses on opposite sides of the wall and the flange of each being adapted to abut against a part of the opposite block, the projections on said flanges of blocks disposed on one side of the wall being adapted to enter recesses in blocks disposed on the opposite side of the wall, and said flanges being horizontally disposed and each overlapping and resting partly upon the flanges of oppositely-disposed blocks of the next lower course.

8. A wall composed of blocks each provided on two edges with flanges of different lengths, said blocks being laid in courses and disposed on opposite sides of the wall so that the longer flange of each abuts against the shorter flange of the other, each of said longer flanges being provided at its free end with a projection and having a recess inwardly of said projection, said courses being so disposed that the longer flanges of said blocks of each course overlap the longer flanges of oppositely-disposed blocks of the next adjacent course, and said projections on the flanges of one course enter the recesses in the flanges of the next adjacent course, thereby interlocking the oppositely-disposed blocks with each other.

788,284. DRIVER-WHEEL. EDWIN STANCLIFF, New York, N. Y. Filed Dec. 14, 1904. Serial No. 236,886.



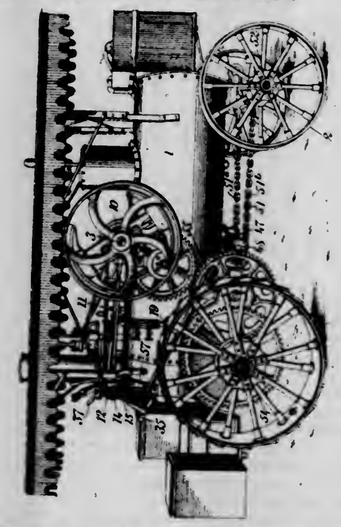
Claim.—1. A wheel comprising a rim and an inner wheel, said rim having a circumferentially-disposed face and said inner wheel having a circumferentially-disposed face adapted to roll upon said first face, one of said faces having a flange projecting therefrom and the other of said faces having an annular recess receiving said flange, the circumferential face of said flange being maintained out of contact with adjacent parts and said flange affording means for maintaining the parts of said wheel in connection.

2. A wheel comprising a rim presenting a substantially circular opening and an annular recess, and an inner wheel having an enlarged body adapted to roll on the face of said opening, said body having a flange projecting into said recess and rotating freely therein.

3. A driving-wheel consisting of a rim having an annular recess in the side face thereof, a keeper-plate attached over said recess, said keeper-plate and said rim having concentric alining central openings, and an inner wheel adapted to roll on the inner faces of said openings, said wheel having a flange projecting laterally therefrom and extending into said recess, said flange affording means for locking said rim against lateral displacement, the circumferential face of said flange being maintained out of contact with adjacent parts.

4. A wheel comprising an annular rim presenting a recess in the face thereof, an inner wheel presenting a body adapted to roll upon the inner face of said rim and having a projecting flange at the side face thereof extending into said recess, and an annular keeper-plate attached to said rim over said annular recess and retaining said flange, the circumferential face of said flange being maintained out of contact with adjacent parts.

788,285. TRACTION-ENGINE. BENJAMIN B. STAUFFER, Kansas City, Mo. Filed Dec. 31, 1904. Serial No. 239,115.



Claim.—1. In a traction-engine, in combination, a shaft by which the engine may be advanced, a clutch carried on said shaft, a sprocket-wheel carried coaxially by one of the members of said clutch, a chain passing over said sprocket-wheel, a second sprocket-wheel receiving said chain, steering mechanism, and means for driving the same through said second sprocket-wheel.

2. In a traction-engine, in combination, a main shaft adapted to advance the engine, a clutch mounted upon said shaft, a worm-shaft, a second clutch in connection with said worm-shaft and adapted to drive the same in either direction, and means for driving said second clutch through said first clutch.

3. In a traction-engine, in combination, a transversely-disposed main shaft, a clutch carried by said shaft, a lever adapted to close said clutch, a bar attached to said lever and projecting rearwardly therefrom, a second clutch adapted to be driven through said first clutch, a lever controlling said second clutch and disposed near the extremity of said bar, and steering mechanism driven through said second clutch.

4. In a traction-engine, in combination, a main shaft, mechanism driven thereby for advancing said engine, a collar rigidly carried by said shaft and constituting a clutch member, a second collar loosely carried by said shaft and constituting a clutch member coöperating with the aforesaid clutch member, a sprocket-wheel rigid with said loose collar, a chain driven by said sprocket-wheel, a sec-

ond sprocket-wheel driven by said chain, a clutch driven by said second sprocket-wheel, a shaft driven by said second clutch, a lever controlling the direction in which said second clutch drives said last-named shaft, and steering mechanism driven by said last-named shaft.

5. A steering-clutch, comprising, in combination, a shaft, a pair of oppositely-disposed wheels loosely mounted thereon, means for continuously driving said wheels in opposite directions, disks carried rigidly by said shaft, levers having fulcrums on said disks, mechanism operated respectively by said levers for causing frictional connection between said disks and said wheels, a link connecting said levers, and a third lever for controlling said link.

6. In a steering mechanism, in combination, a spindle, a lever having a head loosely mounted upon said spindle, a spur-wheel attached rigidly to said spindle and presenting circumferentially-disposed recesses, and a removable pin carried by said head and adapted to occupy one of said recesses.

7. In a steering mechanism, in combination, a spindle, a lever having a head loosely mounted upon said spindle and presenting a pair of oppositely-disposed plates, a spur-wheel mounted between said plates and rigidly attached to said spindle, said spur-wheel having a plurality of circumferentially-disposed recesses, and a removable pin disposed across the space between said plates and adapted to occupy one of said recesses.

788,286. **FINGER-BOWL.** AMBROSE S. STEBBINS, Palmyra, and LILLIAN M. LAUER, New York, N. Y. Filed July 2, 1904. Serial No. 215,169.



Claim.—1. A finger-bowl consisting of a vessel for holding liquid, and a cover for the bowl, the cover having an elongated opening adapted to receive a flexible body or cloth, as a napkin.

2. A finger-bowl consisting of a hollow vessel containing liquid, and a slotted cover for the bowl adapted to receive a body, as a napkin, and hold the same with its lower end immersed.

3. A device, such as described, comprising a hollow vessel, a cover for the vessel, formed with an opening at the top, rollers carried by the cover beneath said opening, and means for actuating the rollers.

4. A device, such as described, comprising a hollow vessel, a cover for the vessel, formed with an opening at the top, a pair of co-acting rollers held by the cover under the opening, the rollers being movable toward or from each other, and means for controlling them, said cover and rollers preventing access with the fingers to the liquid within the vessel.

5. A finger-bowl comprising a vessel, a cover for the vessel having a diametrical opening, a pair of independent coacting rollers pending within the cover beneath said opening, pivotal hangers for the rollers, and means for turning the hangers on their bearings to move the rollers together or apart.

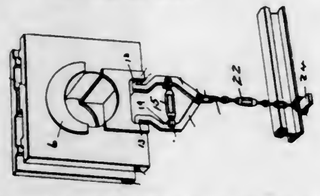
6. A finger-bowl comprising a hollow open vessel, a perforated band around the mouth of the vessel, a cover for the vessel and the band, adapted to turn on the latter and having a diametrical opening at the top, a pair of coacting rollers carried by the cover beneath said opening each having a lengthened axis engaging in a perforation of the band.

7. A device of the kind described, having an open vessel, a band having opposite inclined openings rigid with the vessel, a cover for the vessel adapted to turn on the band and having a slot at the top, a pair of rollers carried by the cover and coacting with said slot, each roller having an extended and a short axle, the two extended axles being turned in opposite directions and occupying said inclined openings, respectively, and rests in said openings for the extended axles.

8. A finger-bowl consisting of a vessel, a slotted cover for the vessel, a pair of rollers within the cover, pivotal hangers for the rollers pending from the cover and adapted to swing on their bearings to bring the rollers together and adjacent to the slot of the cover, with the opening between the rollers coincident with said slot, and stops limiting the swinging motions of the hangers.

9. As an improved article of manufacture, a finger-bowl, comprising a hollow open vessel, means for closing the open end thereof to prevent insertion of the fingers and permitting the insertion of a napkin, and means within the said vessel and supported by the closing means for removing the surplus of the liquid as the napkin is withdrawn through the egress-opening in the closing means.

788,287. **DEVICE FOR REMOVING OIL-CELLARS FROM THE DRIVING-AXLE BOXES OF LOCOMOTIVES.** PETER SWANSON, Soudan, Minn., assignor of one-half to Norman A. Gray, St. Paul, Minn. Filed Dec. 1, 1902. Serial No. 133,376.



Claim.—1. A device for removing oil-cellars from the driving-axle boxes of locomotives, comprising arms hinged together at one end and provided with outwardly-turned opposite ends, a series of teeth provided on the inner edge of one of said arms, a bolt pivoted on the other arm, a second bolt having a beveled head to engage said teeth and a turnbuckle having right and left hand threaded connections with said bolts, substantially as described.

2. A device of the class described, comprising arms 10 and 11 having a connecting-pivot 12 and outwardly-turned ends 13 on the ends opposite said pivot, a series of ratchet-teeth 19 provided on said arm 11, a bolt 14 pivoted on the other arm, a bolt 16 having a head provided with a beveled face to engage said teeth, and a turnbuckle 15 having a right and left hand thread connection with said bolts and provided between the same, substantially as described.

3. A device of the class described, comprising curved arms pivotally connected at one end and having outwardly-turned opposite ends, means for separating said arms and preventing their movement toward one another while in use, a chain connected with the pivoted ends of said arms, a turnbuckle provided in said chain and having right and left hand thread connections therewith, and means provided in said chain and adapted to engage a bar placed under the rails.

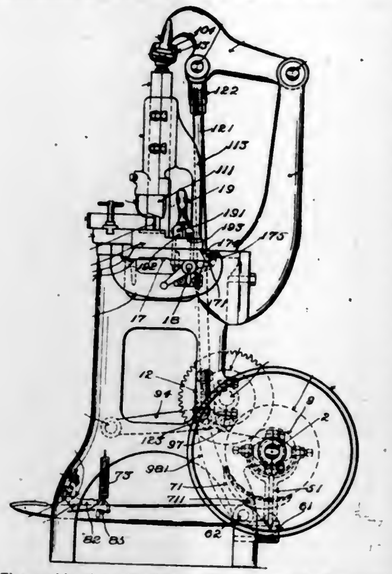
4. A device of the class described, comprising pivotally-connected arms having means to engage an oil-cellar, and means pivotally connected with one of said arms only and arranged to engage the other arm to force the arms apart and lock them, substantially as described.

5. A device of the class described, comprising pivotally-connected arms having means for engaging an oil-cellar, and an adjustable device pivotally supported on one arm and arranged to engage with a series of teeth provided on the other arm to force said arms apart and lock them, substantially as described.

6. A device of the class described, comprising pivotally-connected arms having means for engaging an oil-cellar, and a longitudinally-adjustable device pivotally supported on one arm only and arranged to engage the other arm.

788,288. **MACHINE FOR MITERING AND CORNERING BOX-BLANKS.** EUGENE H. TAYLOR, Lynn, Mass. Filed Apr. 2, 1903. Serial No. 150,788.

Claim.—1. The combination with the movable cutters, actuating devices therefor, and driving mechanism embracing a power-controlling treadle, of a lock movably mounted upon the said treadle for engagement with a fixed stop to hold the power on and the machine running, and adapted to be thrown into and out of action at will by the operator's foot independently of the movements which are communicated to the treadle, and the said fixed stops.



2. The combination with the movable cutters, guides therefor, and means to effect adjustment of the said guides to vary the distance between the said cutters, of actuating mechanism for the said cutters having a cross-bar and a movable support or carrier for said cross-bar, and connections between said cross-bar and said cutters, adjustable in the direction of the length of the cross-bar, and transmitting movement from the cross-bar to the cutters positively in both directions.

3. The combination with the movable cutters, guides therefor, and means for adjusting the said guides toward and from each other, of mechanism for actuating the said cutters, the said mechanism embracing a moving frame, and connections between said frame and the cutters, adjustable transversely on the frame in unison with the adjustments of the guides for the cutters, and transmitting movement from the frame to the cutters positively in both directions of movement of the frame.

4. The combination with the movable cutters, the cutter-heads, guides therefor, and means for adjusting the said guides to vary the distance between the cutters, of actuating mechanism embracing a cross-bar, and connections between said cross-bar and said cutter-heads embracing for each cutter a member movable longitudinally along the cross-bar, a second member movable across the first member at right angles to the cross-bar, a socket mounted on the cutter-head and in rocking engagement with said second member, and means for connecting said socket and second member together.

5. The combination with the movable cutters, the turn-tables mounted to be swung or turned into different working positions and provided with guides for the said cutters, and means to effect adjustment of the said turn-tables to vary the distance between the said cutters, of actuating mechanism for the said cutters embracing a moving frame, and connections between the said frame and the cutters, adjustable transversely on the frame in unison with the adjustments of the turn-tables, swiveling to permit the turning movements of the turn-tables, and transmitting movement from the frame to the cutters positively in both directions of movement of the frame.

6. The combination with the movable cutters, the turn-tables mounted to swing or be turned into different working positions and provided with guides for the said cutters, and means to adjust the said turn-tables at different distances apart, of actuating mechanism for the said cutters having a cross-bar, and connections between said cross-bar and said cutters, adjustable in the direction of the length of the cross-bar, swiveling to permit of the turning movements of the turn-tables, and transmitting movement from the cross-bar to the cutters positively in both directions.

7. The combination with the vibrating frame or arm having the cross-bar, and means to operate the said frame or arm, of the block movable lengthwise of the said cross-bar and engaging therewith, the second block engaging with the first block and movable transversely with relation thereto and to the cross-bar, the guide for the movable cutter-head, means for adjusting said guide in the direction of the length of the cross-bar, removable cutter, its cutter-head, and connector devices joining said cutter-head and second block and in rocking engagement with said second block.

8. The combination with the movable cutters, the cutter-heads, the turn-tables mounted to be swung or turned into different working positions and having guides to which the said cutter-heads are fitted, and means to adjust the said turn-tables at different distances apart, of actuating mechanism for the said cutters having a cross-bar, and means for transmitting movement positively in both directions from said cross-bar to said cutter-heads, embracing for each cutter a member movable longitudinally along the cross-bar, a second member movable across the first member at right angles to the cross-bar, and a rocking and swiveling connection between said second member and said cutter-head.

9. The combination with the vibrating frame or arm and mechanism for actuating the same, the said frame or arm having a cross-bar, of the movable cutter, its cutter-head, the guide for said cutter-head, means for adjusting said guide lengthwise of the cross-bar, and devices for connecting the cutter-head to the said cross-bar and transmitting movement from the latter to the former positively in both directions, comprising, essentially, a member adjustable longitudinally of the said cross-bar in unison with the adjustment of the guide for the movable cutter, and connections between said member and said cutter-head constructed to move transversely relative to the said cross-bar.

10. The combination with the vibrating frame or arm and actuating mechanism therefor, the said frame or arm having the cross-bar, the movable cutter, its cutter-head, the guide for said cutter-head, and means for adjusting the said guide in the direction of the length of the said cross-bar, of means for transmitting movement positively in both directions from the cross-bar to the cutter-head comprising, essentially, a block adjustable on the cross-bar lengthwise of the latter, a second block in transversely-sliding engagement with the first block, a socket applied to the said cutter-head and to which the second block is fitted, a screw connecting the second block and socket together, the second block, socket, and head of the screw having concentric curved surfaces fitted to one another to permit relative rocking movement of the parts.

11. The combination with the movable cutters, the cutter-heads, the turn-tables mounted to be swung or turned into different working positions and having guides to which the said cutter-heads are fitted, and means to adjust the said turn-tables at different distances apart, of actuating mechanism for the said cutters having a cross-bar, and means for transmitting movement positively in both directions from said cross-bar to said cutter-heads embracing for each cutter-head a block adjustable on the cross-bar lengthwise of the latter, a second block mounted to slide transversely across the first block, a socket applied to the said cutter-head and fitting the second block in a manner which permits relative turning and swinging movements of the two, and a screw connecting the second block and socket together.

12. In a mitering and cornering machine for box-blanks, the combination with the movable cutters, the turn-tables provided with guides for the said cutters and adapted to be shifted to change the cutters from the position for mitering to the position for cornering, and vice versa, of the back-edge gages in operative connection with the said turn-tables, and shifting their positions in unison with the cutters.

13. In a machine for mitering and cornering box-blanks, the combination with the turn-tables provided with guides for the movable cutters, the movable cutters, and their cutter-heads, of back-edge gages for the box-blanks, carried by the said guides, and shifted in unison with the movable cutters by the turning of the turn-tables.

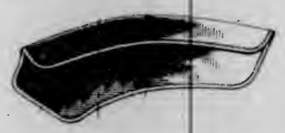
14. In a machine for mitering and cornering box-blanks, the combination with the movable cutters, their cutter-heads, and the turn-tables provided with guides for the said cutter-heads, of the back-edge gages for the box-blanks carried by the said guides and shifting in unison with the movable cutters when the turn-tables are turned, and means to adjust the said gages horizontally upon the said guides.

15. The combination with a movable cutter, its cutter-head, and a turn-table provided with a guide for the said cutter-head, of a back-edge gage mounted upon the said guide, and a screw for adjusting the said gage upon the said guide relative to the said cutter, the said gage being shifted in unison with the cutter when the turn-table is swung around its pivot.

16. In a machine for mitering and cornering box-blanks, in combination, a turn-table, cutters supported thereby, a support on which said turn-table is pivoted and adapted to be swung into different positions to shift the working positions of the cutters, the said support having an undercut slot, and the headed bolt applied to the said turn-table and working in the said slot, the engagement of the head of the bolt with the sides of the slot serving to restrain the turn-table from tipping under the action of the knives.

17. In a machine for mitering and cornering box-blanks, in combination, a turn-table, cutters supported thereby, a support on which said turn-table is pivoted and adapted to be swung into different positions to shift the working positions of the cutters, the said support having a groove or slot with holes or depressions at its opposite ends, and a locking pin or bolt applied to the said turn-table, working in the said groove or slot, and entering the said holes or depressions to lock the turn-table in its respective positions.

788,289. CORSET-SHIELD. JOHN W. THAYER. Los Angeles, Cal. Filed May 10, 1904. Serial No. 207,218.



Claim.—1. A corset-shield comprising an elongated shield portion proper having an enlarged end and tapering or diminishing in width from said enlarged end toward its opposite end, a relatively narrow flap coextensive in length with said shield and secured to the upper edge thereof, and depending therefrom, and a layer of material impervious to moisture secured to said shield portion and flap, substantially as specified.

2. A corset-shield comprising an elongated shield portion proper having an enlarged end and tapering or diminishing in width from said enlarged end toward its opposite end, a relatively narrow flap coextensive in length with said shield and secured to the upper edge thereof, and depending therefrom, and a layer of protective material secured to said shield, substantially as specified.

788,290. PROTECTED THIRD-RAIL SYSTEM. ISAAC C. THORNE. Glencove, N. Y. Filed Jan. 2, 1904. Serial No. 187,470.



Claim.—1. The combination with an exposed primary conductor from which current is superficially derived, of a second exposed safety-conductor arranged adjacent to the first conductor and forming part of an auxiliary normally open circuit, a feeder normally in electrical connection with the said primary conductor, and means for cutting out the primary conductor when the two conductors are connected for the passage of the current from the primary conductor to the safety-conductor.

2. The combination with an exposed primary conductor from which current is superficially derived, of a second exposed safety-conductor arranged adjacent to the first conductor and forming part of an auxiliary normally open circuit, a feeder normally in electrical connection with the primary conductor, and means for cutting out the primary conductor when the two conductors are connected for the passage of the current from the primary conductor to the safety-conductor by a bridge-piece adapted to span both conductors.

3. The combination with an exposed primary conductor from which current is superficially derived, of a second exposed safety-conductor arranged adjacent to the first conductor and forming part of an auxiliary normally open circuit, a feeder normally in electrical connection with the primary conductor, and cut-outs for devitalizing the primary conductor when the two conductors are electrically connected for the passage of the current from the primary conductor to the safety-conductor.

4. In an electric-railway system, the combination of a single line of exposed primary conductors for supplying current to the motor of the car; a safety-conductor arranged adjacent to this exposed line and forming part of an auxiliary normally open circuit; a feeder for supplying current to the said primary conductor normally in electrical connection with the exposed primary conductor, and means within the said auxiliary normally open circuit for cutting out the primary conductor when the latter and the safety-conductor are electrically connected for the passage of the current.

5. In an electric-railway system, the combination of a single line of exposed conductors for supplying current to the motor of the car; a safety-conductor arranged adjacent to the exposed line and forming part of an auxiliary normally open circuit; a feeder normally in electrical connection with the said primary conductor, and electrical ground connection with intermediate coil forming part of said auxiliary normally open circuit and actuating-switch for cutting out the primary conductor when the two conductors are connected for the passage of a current from the primary conductor to the safety-conductor.

6. The combination with an exposed sectional primary conductor from which current is superficially derived, of a second sectional exposed safety-conductor arranged adjacent to the first conductor in corresponding sections and forming part of an auxiliary normally open circuit, a feeder normally in electrical connection with the said primary conductor, and means for cutting out individual sections when the corresponding sections of the two conductors are connected for the passage of the current from the primary conductor to the safety-conductor.

7. In an electric-railway system, the combination of a single line of exposed sectional conductors for supplying current to the motor of the car, a second sectional exposed safety-conductor arranged adjacent to the first conductor and forming part of an auxiliary normally open circuit, a continuous feeder normally in electrical connection with the primary conductors, and means within the said auxiliary normally open circuit for cutting out individual sections when the two sections of the primary conductor and safety-conductor are electrically connected for the passage of the current from the primary conductor to the safety-conductor.

8. In an electrical-railway system, the combination with a single line of exposed sectional conductors for supplying current to the motor of the car, a line of sectional safety-conductors arranged adjacent to the former forming part of an auxiliary normally open circuit, a continuous feeder normally in electrical connection with the primary conductors, and means in connection with the feeder; the sections of the primary conductor and the said safety-conductor and the ground for cutting out the primary conductor when the corresponding sections of the two conductors are connected for the passage of the current from the primary conductor to the safety-conductor.

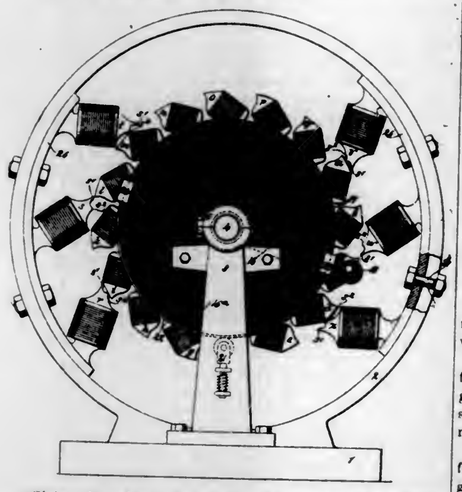
9. In an electric-railway system, the combination of a single line of exposed primary conductors for supplying current to the motor of the car, a safety-conductor arranged adjacent to the former conductor and forming part of an auxiliary normally open circuit; a feeder for supplying current to the primary conductor and normally in electric connection with the latter, means on the car adapted to span both conductors; and means within the said auxiliary normally open circuit for cutting out the primary conductor when the two conductors are thus spanned.

10. In an electric-railway system, the combination of a sectional exposed primary conductor for supplying current to the motor of the car, a sectional safety-conductor arranged adjacent to the former conductor, a continuous feeder for supplying current to the sections of the primary conductor normally in electric connection with the latter, and means for cutting out a plurality of corresponding sections of the primary conductor and the safety-conductor when electrical communication is established between the two conductors of one section.

11. In an electric-railway system, the combination of a sectional exposed primary conductor for supplying current to the car, a sectional safety-conductor arranged adjacent to the former conductor, a continuous feeder for supplying current to the sections of the primary conductor normally in electric connection with the latter, means for cutting out a plurality of corresponding sections of the primary conductor and the safety-conductor when electrical communication is established between the two conductors of one section, and interpolated signals.

12. The combination with an exposed sectional primary conductor from which current is superficially derived, of a second sectional exposed safety-conductor arranged adjacent to the first conductor in corresponding sections and forming part of an auxiliary normally open circuit, a feeder normally in electrical connection with the said primary conductor, means for cutting out individual sections when the corresponding sections of the two conductors are connected for the passage of the current, and interpolated signals.

788,291. DYNAMO OR MOTOR. JOHN A. TITZEL, Sr., Franklin, Pa. Filed Nov. 9, 1901. Serial No. 81,654.



Claim.—1. A dynamo or motor, comprising a frame, a revoluble armature adjacent to the same, and a fragmentary field built up of segregated groups of magnets, each group being detachably secured upon said frame, and electric connections for said armature and said field.

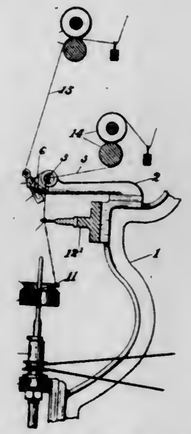
2. A dynamo or motor, comprising a frame provided with an annular member, a revoluble armature concentric with said annular member, and a composite field built up of separate groups of magnets, each of said groups being mounted upon a sector-shaped block, and means for detachably securing said blocks upon said annular member.

3. A dynamo or motor, comprising a frame provided with an annular member, a cylindrical armature concentric with said member, a plurality of sector-shaped blocks for detachably engaging said annular member and provided with field-magnets, means for adjusting at will the relative positions of said blocks, and electric connections for said armature and said field-magnets.

4. A dynamo or motor, comprising a revoluble cylindrical armature provided with magnets and with sector-shaped contacts connected therewith, consecutive contacts being connected with magnets not consecutive but arranged in a definite order, normally stationary field-magnets disposed radially from said armature and spaced apart, brushes for supplying currents to said sector-shaped contacts, the arrangement being such that when currents are supplied to said sector-shaped contacts consecutively said currents intermittently energize the magnets of said armature in a regular but not consecutive order, the seat of magnetic attraction being constantly shifted.

5. A dynamo or motor, comprising a revoluble cylindrical armature provided with magnets and with sector-shaped contacts, each contact being connected with a magnet, consecutive contacts being connected with magnets not consecutive but arranged in a definite order, normally stationary field-magnets disposed radially from said armature and spaced apart, brushes for supplying the currents to said sector-shaped contacts, and means controllable at will for shifting the position of said brushes, for the purpose of energizing said armature-magnets in a different order relatively to the positions occupied by the stationary field-magnets, for the purpose of reversing the direction of rotation of the armature.

788,292. MACHINE FOR TWISTING AND DOUBLING YARNS. JACOB S. VERLENDEN, Darby, Pa. Filed Aug. 27, 1904. Serial No. 222,370.



Claim.—1. The combination with a device for twisting yarn, of means for causing the strands of the yarn to approach each other at varying angles.

2. The combination with a device for twisting yarn, of means for causing the strands of the yarn to approach each other at an angle, and means for intermittently varying the relative tension of said strands to cause one strand to be wound upon another with varying numbers of turns.

3. The combination with a device for twisting yarn, of guides for causing the strands of the yarn to approach each other at an angle, and means for causing said strands to approach each other with relatively variable speeds in their forward motions so that one strand will be wound upon another with varying numbers of turns.

4. The combination with a device for twisting yarn, a series of guides having triangular relation with each other so that the strands of the yarn are carried by the third guide, and means for varying the relative tensions of the strands so that one strand will be intermittently wound upon another with varying numbers of turns.

5. The combination with a device for twisting yarn, of a pair of feed-rolls for each strand of the yarn, said feed-rolls having relatively varying speeds, guides over which said strands are adapted to pass so as to approach each other at an angle and a guide through which the completed yarn is adapted to pass to the spindle or twisting device.

6. The combination in a device for twisting yarns, of guides for causing the strands of said yarn to approach each other at an angle, one of said guides comprising a rod, slotted arms carrying said rod, a support to which said slotted arm is adjustably secured, and means for causing said strands to be fed with relatively varying speeds.

7. As an article of manufacture, an attachment for devices for twisting yarns comprising suitable supports adapted to be attached

to said devices, adjustable arms carried by said supports, and a rod carried by said adjustable arms, said attachment being adapted to coöperate with feed-rolls having relatively varying speeds of rotation.

788,293. **AUTOMATIC PIANO-PLAYER.** JOHN B. WALKER New York, N. Y. Filed June 13, 1904. Serial No. 212,264.



Claim.—1. The combination of a perforated music-sheet containing all the perforations for the music to be played, a tracker-board, ducts, primary pneumatics, secondary pneumatics controlling main pneumatics, separate and independent theme and accompaniment exhaust boxes, separate theme and accompaniment expression boxes, with a pneumatic-switching sheet, adapted to travel simultaneously with and at the same speed as said music-sheet, said pneumatic-switching sheet containing perforations corresponding to the theme and other selected notes of the said music-sheet that are to be played with separate expression from the rest of the said music on said music-sheet, a switching-board and pneumatic connections therefrom to the flexible draphragms of a plurality of pneumatic-switches, for the purpose of switching said main pneumatics into the control of said theme expression-box for the purpose of playing said theme-notes with independent expression.

2. The combination of a music-sheet and a pneumatic-switching sheet, adapted to roll and unroll side by side on the same pair of rollers, said sheets being separated by a slot of predetermined, normal width, with a tracker-board, a pneumatic-switching board, and a tracker-guide of the same width as said slot, when said slot is of its normal width, said tracker-guide being located centrally between said tracker-board and said switching-board, for the purpose of guiding said sheets by bearing against their inner edges.

3. The combination of a sheet of perforated paper for playing music, divided centrally throughout its length by a slot of uniform width, a tracker-board, a switching-board, both provided with ducts, and a V-shaped tracker-guide of the same width as said slot, with a pair of music-sheet rollers, having flanges at their outer ends, the width between said flanges being approximately equal to the normal width of said paper, and said flanges coacting with said tracker-guide to guide said paper across said tracker-board and switching-board, so that the inner edges of said slot shall always bear against the narrowest point of said tracker-guide, for the purposes specified.

4. The combination of striking mechanism for depressing a key, a main pneumatic connected with said striking mechanism, a secondary pneumatic and a puppet-valve connected together for controlling said main pneumatic, a pair of separate exhaust-boxes independently controlled by separate expression-boxes, and mechanism for making and breaking pneumatic communication between said main pneumatic and each of said exhaust-boxes.

5. The combination of a main exhaust-chest, a pair of exhaust-boxes independent of each other, a pair of expression-boxes interposed between said main exhaust-chest and said exhaust-boxes, said expression-boxes being independent of each other and adapted respectively to control different groups of related notes in a composition, a pneumatic-switch connected with both of said exhaust-boxes and adapted to throw either of said expression-boxes into action and the other of said expression-boxes out of action relatively to the striking of a single key, means for actuating said switch, and pneumatic mechanism controllable by said switch for striking said single key.

6. The combination of a main exhaust-chest, a pair of exhaust-boxes, a pair of expression-boxes interposed between said main exhaust-chest and said exhaust-boxes, said expression-boxes being independent of each other, a single switch common to both of said exhaust-boxes, and pneumatically-operated mechanism for striking a single key, said pneumatically-operated mechanism being so disposed as to communicate with either one or other of said exhaust-boxes, according to the position of said switch, and means for actuating said switch.

7. The combination of a tracker-board provided with ducts for admitting the air, a longitudinal sheet engaging said tracker-board and provided with perforations adapted to register with said ducts, a guide member engaging said sheet intermediate of the outer edges thereof, so as to guide said sheet from its approximate center, and means for moving said sheet relatively to said tracker-board.

8. The combination of mechanism provided with a plurality of ducts for admitting air, a sheet movable relatively to said mechanism and provided with perforations adapted to register with said ducts, a guide engaging said sheet at its approximate center for the purpose of subdividing inequalities in the width of said sheet, thus reducing the inequalities of registration, laterally of said perforations with said ducts, and means for actuating said sheet.

9. The combination of a tracker-board and a switchboard, each provided with ducts, a tracker-guide located intermediate of said tracker-board and said switching-board, a perforated sheet divided into separate members one engaging said tracker-board and the other engaging said switching-board, the inside adjoining edges of said separate members being free to engage said tracker-guide, means for actuating said perforated sheet, and pneumatic mechanism connected with said ducts and controllable thereby for actuating a musical instrument.

10. The combination of a shaft movable in the direction of the length of its axis, also adapted to rock in a plane crossing said axis, a tempo-control device and an expression-box connected in operative relation with said shaft and actuated independently and respectively by the respective endwise and rocking movements thereof, antifriction-bearings so engaging said shaft, so as to permit said movements to take place, and means for actuating said shaft.

11. The combination of a shaft movable in the direction of the length of its axis and also adapted to rock in a plane crossing said axis, a tempo-control and an expression-box connected in operative relation with said shaft and actuated independently and respectively by the respective endwise and rocking movement thereof, a member for supporting the bearings of said shaft, rollers mounted upon said member and engaging said shaft, said rollers being so positioned relatively to said shaft as to facilitate both the longitudinal and rocking movements thereof, and revoluble upon axes crossing the length of said shaft, and means for actuating said shaft.

12. The combination of a main pneumatic for striking a note, a pair of exhaust-boxes independent of each other, a pneumatic-switching valve for connecting said main pneumatic with either of said exhaust-boxes, a switching-board provided with a duct for supplying air to said pneumatic-switching valve, a tracker-board provided with a duct corresponding to said main pneumatic, and a music-sheet provided with perforations for registering with said ducts respectively, the perforation for registering with the duct in said switching-board being slightly in advance of the other perforation, so as to actuate said switch before said main pneumatic is operated.

13. The combination of a main pneumatic, a closed member connected therewith and provided with an air-passage, a pair of exhaust-boxes adapted to exert air-pressures independently of each other, and provided respectively with ports opening into said air-passage, a secondary pneumatic and a puppet-valve connected together and adapted to open and close communication between said main pneumatic and said air-passage, means for closing said ports alternately, and separate expression-boxes connected with said exhaust-boxes respectively.

14. The combination of a main pneumatic, a closed member connected therewith, and provided with an air-passage, a pair of exhaust-boxes adapted to exert air-pressures independently of each other and provided respectively with ports opening into said air-passage, separate expression-boxes connected with said exhaust-boxes, a secondary pneumatic and a puppet-valve connected together and adapted to open and close communication between said main pneumatic and said closed member, a single puppet-valve for closing said ports alternately, and a pair of pneumatic-diaphragms of unequal areas and actuated by differential air-pressures, for moving said last-mentioned puppet-valves.

15. The combination of a pair of independent exhaust-boxes, a pair of manually-operated expression-boxes, independent of each other, for regulating the exhaust in the said exhaust-boxes respectively, a pneumatic-switching valve for connecting either of said exhaust-boxes with a common air-passage, and a main pneumatic adapted to be connected with said common air-passage for striking a note.

16. The combination of a perforated sheet containing as many perforations as there are theme-notes and other selected notes of a musical composition to be played under separate manual control of their expression, a pneumatic-switching board, a plurality of ducts leading therefrom to a plurality of pneumatic-switches, one for each key of the piano, main pneumatics, and two independent exhaust-boxes each independently capable of being varied in tension from high to low tension as desired, means for varying said tension, and means for connecting said exhaust-boxes with said main pneumatics, and of disconnecting them therefrom by the operation of said pneumatic-switches.

17. The combination of a perforated sheet for playing music with a roller provided with flanges adapted to guide the outer edges of said sheet, a central longitudinal slot in said sheet, and a tracker guide or strip adapted to engage said central, longitudinal slot in said sheet, so that said sheet may be guided at its outer edges at said roller and at its center at said tracker-guide, said sheet being free, in expanding, to move on said roller from its outer edges toward its center, tending to close the center slot, and at said tracker-guide to expand from its center toward its outer edges for the purposes specified.

18. The combination of a music-sheet and a tracker-board, arranged for playing all the notes of a musical composition, with a pneumatic-switching sheet, a separate switching-board, a separate manually-controlled expression-box, and means, controllable from said switching-board, for playing the theme-notes and other selected notes of said composition under the control of said separate manually-controlled expression-box.

19. The combination with a tempo device and an expression-box, of a shaft movable in the direction of its axis for the control of said tempo device, and adapted to rock in a plane crossing said axis for the control of said expression-box, mechanisms connecting said shaft with said tempo device and with said expression-box, and two pairs of roller-bearings, one pair at each end of said shaft, on which said shaft may move freely in its longitudinal movement and in which it may turn freely in its rocking movement.

20. In a piano-player, the combination of a mechanism for the joint manual control of the tempo and expression of said piano-player, said mechanism comprising a rock-shaft free to move in the horizontal direction of its axis and to rock in a vertical plane crossing said axis, with a hollow shaft, concentric with and inclosing, but not touching said rock-shaft, and having bearings at its end, said bearings permitting of a rocking movement of said hollow shaft in unison with said rock-shaft.

21. In a piano-player, the combination of a mechanism for the joint manual control of the tempo and expression of the said piano-player, said mechanism consisting of a central rock-shaft, a hollow shaft inclosing but not touching the same, a crank-arm mounted upon said hollow shaft, a horizontal bearing-plate, formed integrally with said hollow shaft, a hand-lever passing through a horizontal slot in said hollow shaft, and attached rigidly to said central rock-shaft, and provided with a loose roller-wheel, adapted to bear upon the said bearing-plate, and by the downward and upward movement of said hand-lever to cause said hollow shaft to rock for the purpose of rocking said crank-arm.

22. The combination of two expression-boxes and two exhaust-boxes, adapted respectively to control theme-notes and accompaniment-notes distinctively as such, a single pneumatic-switch common to both of said exhaust-boxes and adapted to throw the same into action alternately and out of action alternately, with reference to a particular key to be struck, and mechanism controllable by said switch, for striking said particular key so as to sound either a theme-note or an accompaniment-note, according to the condition of said switch at the moment when said key is struck.

23. The combination of main pneumatic for striking a note, a pair of exhaust-boxes independent of each other, and each capable of being given a variable tension independently of the other at the will of the operator during playing, means for varying such tension, a pneumatic-switching valve for connecting said main pneumatic for either of said exhaust-boxes, mechanism provided with a duct corresponding to said main pneumatic and with a duct for controlling said pneumatic-switch, and a music-sheet provided with perforations for registering with said ducts respectively for admitting air thereto.

24. The combination with a tempo device and a volume-of-sound expression-box, of a horizontal rock-shaft, a manually-operated lever rigidly attached thereto and capable of moving said shaft in the direction of its axis, with a concentric hollow rock-shaft, inclosing but not touching said first-mentioned rock-shaft, a roller carried on said lever, said hollow rock-shaft being provided with a crank-arm and with a horizontal bearing-plate upon which said manually-operated lever may bear and roll by means of said roller carried on said lever, for the purpose of rocking said crank-arm on said hollow rock-shaft, and connections from said first-named shaft to said tempo-control device, and from said hollow shaft to said volume-of-sound expression-box, for the purpose of operating the same respectively and simultaneously.

25. The combination of a pair of independent exhaust-boxes, a pair of manually-operated expression-boxes, independent of each other, for regulating the exhaust in said exhaust-boxes respectively, a main pneumatic, and means for simultaneously making communication between said main pneumatic and one of said exhaust-boxes together with its expression-box, and breaking communication between said main pneumatic and the other of said exhaust-boxes together with its expression-box.

26. The combination of striking mechanism for sounding a note, a main pneumatic for actuating said striking mechanism, a secondary pneumatic for governing said main pneumatic, a pair of separate expression-boxes connected with said main pneumatic and controllable independently of each other for varying the expression of said note, and means for making and breaking communication between said main pneumatic and each of said expression-boxes for the purposes specified.

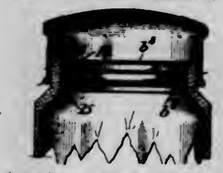
27. The combination of striking mechanism for sounding a note, a main pneumatic for actuating said striking mechanism, a secondary pneumatic for governing said main pneumatic, a pair of manually-operated expression-boxes, connected with said main pneumatic and controllable independently of each other while the device is in action for varying the expression of said note, valve mechanism for making and breaking communication between said main pneumatic and each of said expression-boxes, and means for automatically actuating said valve mechanism.

28. The combination of a music-sheet containing as many perforations as there are notes to be played in a musical composition, a tracker-board, ducts leading therefrom to primary pneumatics, secondary pneumatics, puppet-valves operated by said secondary pneumatics, striking-pneumatics, air-passages leading from said striking-pneumatics through said puppet-valves to a pair of exhaust-boxes, each member of the pair being independently capable of being varied in tension from high to low tension, as desired, means for varying said tension, and pneumatically-operated switching-valves, for connecting said air-passages and said main pneumatics with one or other of said exhaust-boxes.

29. In a piano-player, the combination of a perforated music-sheet, containing perforations for all the music to be played, a set of ducts, primary pneumatics, scondary pneumatics, and main pneumatics, for each key of the keyboard, an exhaust-chamber preferably known as the accompaniment exhaust-chamber, a manually-operated expression-box for controlling said exhaust-chamber, said separate pneumatic mechanisms being normally operated in combination with said exhaust-chamber, with a second and independent exhaust-chamber, a pneumatic-switching board, and a pneumatic-switch controlled from said pneumatic-switching board and capable of cutting out the accompaniment exhaust-chamber and cutting in the second exhaust-chamber, preferably known as the theme exhaust-chamber, whenever theme-notes or other selected notes are to be played.

30. The combination of striking mechanism for sounding a note, a main pneumatic for actuating said striking mechanism, a secondary pneumatic and a valve connected together for governing said main pneumatic, a plurality of separate mechanisms including separate expression-boxes controllable independently while the device is in action, and each in turn adapted to control said main pneumatic when in communication therewith, for the purpose of controlling the expression of said note independently of the position thereof in the musical scale, and means for making and breaking communication between said main pneumatic and each of said separate mechanisms.

788,294. **COVER FOR RECEPTACLES.** ARTHUR Q. WALSH, New York, N. Y. Filed Dec. 16, 1904. Serial No. 237,169.



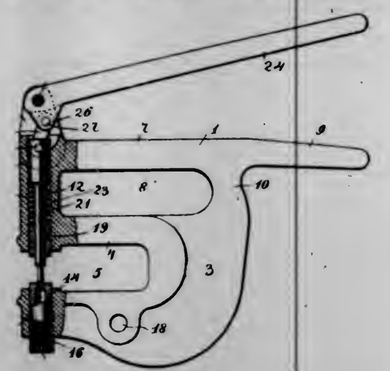
Claim.—1. As an improved article of manufacture, a cover for receptacles, provided with an inner inverted-U-shaped pocket at its

lower side portion, which pocket has an annular recess in its inner wall and a yielding washer fitted to said recess and adapted to have bearing on the inner face of the receptacle, and whereby the outer face of the side portion of the cover may be substantially without projections.

2. A cover for receptacles, bent upon itself at its lower edge to form an upwardly-extending intermediate wall, an upper inner horizontal wall and a downwardly-extending inner wall, the space between the inner and intermediate walls being substantially inverted-U shape in cross-section, the inner wall having an annular groove in its outer face, and a washer sprung into the said groove, for the purpose described.

3. The combination with a receptacle having an annular neck, the surfaces of which neck are smooth, of a cover comprising a body portion bent upon itself at its lower edge to form a lower marginal bead, and an upwardly-extending intermediate wall close to the outer wall, an inner horizontal wall and a downwardly-extending inner wall, the inner wall having an annular groove produced in its outer face, the space between the intermediate and inner walls being adapted to receive the neck of the receptacle, and a washer of elastic material sprung into the recess in the inner wall, which washer engages with the inner face of the said neck, as described.

788,295. PORTABLE PUNCHING-MACHINE. MATHIAS WEIXLER, Louisville, Ky. Filed Jan. 18, 1904. Serial No. 189,567.



Claim.—1. A punching-machine having a frame provided with a tubular die, movable in the direction of its length, a tubular head spaced from the die, a tubular guide and stripper in said head, opposite the die and adjustable toward and from the latter, a punch operating in the bore of the tubular guide and stripper and the bore of the die and extending into the tubular head of the frame, means to operate the punch, means to secure the movable die, and means to secure the movable tubular guide and stripper, whereby they may be set and held at any required adjusted position, said guide and stripper when thus adjusted being immovable by the punch.

2. A punching-machine having a frame provided with a tubular die, movable in the direction of its length, a tubular head spaced from the die, a tubular guide and stripper in said head, opposite the die and adjustable toward and from the latter, a punch operating in the bore of the tubular guide and stripper and the bore of the die and extending into the tubular head of the frame, means to operate the punch, means to secure the movable die, and means to secure the movable tubular guide and stripper, whereby they may be set and held in any required adjusted position, said guide and stripper when thus adjusted being immovable by the punch, the latter having a working end of less diameter than the bore of the tubular guide and stripper, substantially as described.

788,296. FISH-HOOK. HOWARD S. WEST, Council Bluffs, Iowa. Filed June 9, 1904. Serial No. 211,813.

Claim.—1. A fish-hook and a weed-guard, consisting of wire supported on the hook-shank and provided with a loop for engaging under the hook-point, and spring-coils formed in the wire at right angles to each other between the loop and shank.

2. A fish-hook and a weed-guard therefor, comprising wire supported on the hook and provided with spring-coils arranged at right angles to each other between its ends, and a loop on the outer end of the guard having divergent members terminating in convergent members which are turned inward toward the shank of the hook and terminate in a small loop for engaging underneath the hook-point.

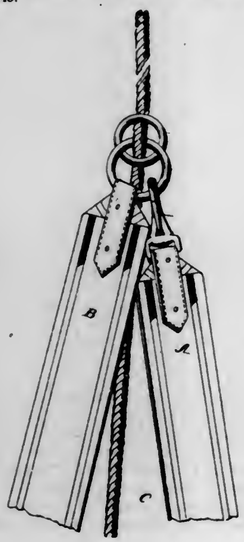


3. A fish-hook, a sinker secured to the shank thereof, a wire having a loop portion, the ends of which are provided with spring-coils and extended into the sinker, the meeting ends of the loop members being turned to form a shank-engaging member, a wire then being carried outward and formed into coils, and terminating in a loop for engaging with the hook-point.

4. A hook, a sinker secured to the shank thereof, a spring-wire extended from the sinker along the shank of the hook, a wire bent to form a loop member having coiled portions, the ends of the loop being secured in the sinker, the meeting ends of the loop being turned to form a shank-engaging member, a wire then being carried outward and provided with two spring-coils at right angles to each other, the said wire terminating in a loop for engaging with the hook-point, and a cord or other flexible device passing through the first-named spring-coils and adapted to engage with said spring-clip.

5. The combination with a fish-hook, of wire formed with a loop portion having its ends supported on the hook-shank, a weed-guard portion extended from the loop, and means for detachably engaging the front end of the loop with the hook-shank.

788,297. FIRE-ESCAPE. HIRAM C. WHITLEY, Emporia, Kans., assignor to W. E. Haynes, Emporia, Kans. Filed June 21, 1904. Serial No. 213,545.



Claim.—1. The improved fire-escape herein described, comprising a rope, a ring of a given diameter, a slightly-larger ring projecting partially into the smaller ring, the rope being passed through the smaller ring, thence through the larger ring and thence back through the smaller ring forming a bight securing the larger ring and means for supporting the descending person from the larger ring, substantially as set forth.

2. In a fire-escape the combination with a comparatively small ring, of a slightly-larger ring arranged to project partially into the smaller ring, and a rope disposed in a bight through said rings, substantially as described.

788,298. FLEXIBLE ELASTIC BINDER. CHARLES T. WHITSETT, Indianapolis, Ind. Filed May 7, 1904. Serial No. 206,873.



Claim.—A binder of the character described, comprising a flexible elastic device having hooks at the ends, each hook being formed of a single piece of wire doubled at its middle portion and having the two members thus formed twisted together near their extremities and attached to said device, said members diverging from each other from said middle portion of the wire, and being thence deflected in wide inturned bends and converging toward each other from said bends to the twisted portions thereof, as and for the purpose set forth.

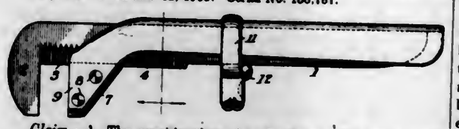
788,299. BINDER ATTACHMENT. ALBERT WILLIAMS, Joliet, Mont. Filed Feb. 24, 1905. Serial No. 247,123.



Claim.—1. The combination of the binder-deck inclined downwardly toward its outer edge, the binding devices and the trip, and the box provided at its upper edge with an inwardly-projecting flange secured beneath the binder-deck at the lower edge of the latter, the said box being also provided in its upper edge at its inner side with a notch adapted to receive the trip while the bundle or sheaf is being discharged from the binder, substantially as set forth.

2. The combination with the binder-deck, the box having an end gate or door, cross-braces extending over the top of the box, flanges at the upper inner edge of the box and arranged to underlie the binder-deck, means securing the flanges to the deck, the box being notched in its upper edge to receive the trip, and means for bracing the box from the binder-frame, substantially as set forth.

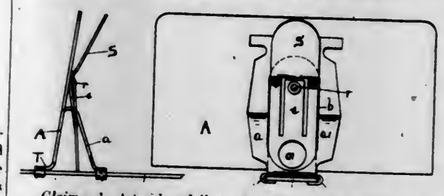
788,300. ADJUSTABLE WRENCH. MELVILLE C. WILSON, Oil City, Pa. Filed Jan. 12, 1903. Serial No. 138,787.



Claim.—1. The combination of a shank provided with a jaw said shank having a V-shaped toothed edge, a handle provided with a jaw, said jaw and handle held in fixed relative position, the jaw provided with a V-shaped groove having teeth adapted to mesh with the teeth on the shank and means for holding the handle and shank in adjusted engagement with each other, substantially as and for the purpose set forth.

2. In an adjustable wrench the combination of a shank with V-shaped lower edge and V-shaped teeth thereon, and a block-jaw with V-shaped indenture, and V-notched teeth corresponding to and suitable to engage in V-teeth of the shank, of a handle curved or bent in a U shape over the top and embracing the sides of the shank, said handle being divided at forward part, with lips curving downward and embracing the sides of shank, and of the block-jaw, with jaw in proper position to engage V-shaped indenture astride V-shaped bottom of shank, and interlocking teeth thereof, to which jaw the curved lips of handle are rigidly fixed by means of rivets, substantially as shown.

788,301. FOLLOWER-BLOCK AND CLUTCH THEREFOR FOR CARD-INDEXES, DOCUMENT-FILES, &c. CHARLES ZIMMERLI, Rochester, N. Y. Filed July 8, 1904. Serial No. 215,722.



Claim.—1. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track and formed integrally with and bent from the normal plane of the main body of such follower-block at different points thereon two members arranged to engage such track at points correspondingly different and separated longitudinally thereon.

2. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track and formed integrally with and bent from the normal plane of the main body of such follower-block and in different planes two members arranged to engage such track at points correspondingly different and separated longitudinally thereon.

3. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track and formed integrally with and each bent from the normal plane of the main body of such follower-block two different members arranged to engage such track at points correspondingly different and separated longitudinally thereon.

4. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track, having formed on one edge thereof a member arranged to engage such track and having bent away from the normal plane of the main body portion of such follower-block a second and different member arranged also to engage such track at a different point longitudinally thereon from that engaged by such first member.

5. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track, formed integrally with and bent from the normal plane of the main body of such follower-block at different points thereon two members arranged to engage such track at points correspondingly different and separated longitudinally thereon and a clamping-plate connected to such follower-block and arranged to engage such track at a point thereon longitudinally between the points of engagement thereof with such two members.

6. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track, formed integrally with and bent from the normal plane of the main body of such follower-block and in different planes two members arranged to engage such track at points correspondingly different and separated longitudinally thereon and a clamping-plate connected to such follower-block and arranged to engage such track at a point thereon longitudinally between the points of engagement thereof with such two members.

7. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track, formed integrally with and each bent from the normal plane of the main body of such follower-block two different members ar-

ranged to engage such track at points correspondingly different and separated longitudinally thereon and a clamping-plate connected to such follower-block and arranged to engage such track at a point thereon longitudinally between the points of engagement thereof with such two members.

8. A track, a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having its main body portion extending in a plane transversely or nearly so of such track, having formed on one edge thereof a first member arranged to engage such track and having bent away from the normal plane of the main body portion of such follower-block a second and different member arranged also to engage such track at a different point longitudinally thereon from that engaged by such first member and a clamping-plate connected to such follower-block and arranged to engage such track at a point thereon longitudinally between the points of engagement thereof with such first and second members.

9. A track and a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having formed thereon two members arranged to engage such track at two correspondingly-different points longitudinally thereof, and a clamping-plate attached to such follower-block by means of a spring-tongue pressed outwardly from the normal plane of such clamping-plate, such tongue extending obliquely from near the lower end of such clamping-plate toward its connection with such follower-block plate and constituting also a spring for normally holding such clamping-plate in engagement with such track.

10. A track and a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having formed on one edge thereof a member arranged to engage such track and having pressed out and away from the normal plane of such follower-block a second member arranged also to engage such track at a different point longitudinally thereon from that engaged by such first-named member and a clamping-plate attached to such follower-block by means of a spring-tongue pressed outwardly from the normal plane of such clamping-plate, such tongue extending obliquely from near the lower end of such clamping-plate toward its connection with such follower-block plate and constituting also a spring for normally holding such clamping-plate in engagement with such track.

11. A track and a follower-block arranged to slide thereon, such follower-block consisting in a sheet of metal having formed thereon two members arranged to engage such track at two correspondingly-different points longitudinally thereof, and a clamping-plate attached to said follower-block by means of a spring-tongue pressed outwardly from the normal plane of such clamping-plate, such tongue extending obliquely from near the lower end of such clamping-plate toward itsconnection with such follower-block plate and constituting also a spring for normally holding such clamping-plate in engagement with such track, such clamping-plate arranged to engage such track at a point longitudinally thereon between the engagement thereof with the two members on such follower-block.

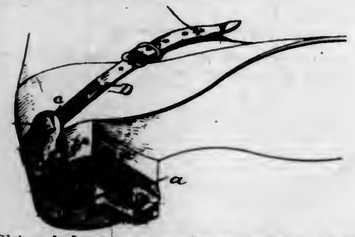
12. A track and a follower-block arranged to slide thereon, such follower-block consisting in a sheet of suitable material having formed on one edge thereof a member arranged to engage such track and having pressed out and away from the normal plane of such follower-block a second member arranged also to engage such track at a different point longitudinally thereon from that engaged by such first-named member and a clamping-plate attached to such follower-block by means of a spring-tongue pressed outwardly from the normal plane of such clamping-plate, such tongue extending obliquely from near the lower end of such clamping-plate toward its connection with such follower-block plate and constituting also a spring for normally holding such clamping-plate in engagement with such track, such clamping-plate arranged to engage such track at a point longitudinally thereon between the engagement thereof with the two members on such follower-block.

13. A track and a follower-block arranged to slide thereon, a clamping-plate connected to such follower-block for engaging such track, such clamping-plate consisting in a sheet of metal having struck therefrom a spring-tongue such spring-tongue attached to such follower-block and constituting a connection between such clamping-plate and such follower-block and also a spring for normally holding such clamping-plate in engagement with such track.

14. A track and a follower-block arranged to slide thereon, a clamping-plate for engaging such track, a connection between such clamping-plate and such follower-block comprising a spring-tongue operating to force such clamping-plate into engagement with such track and arranged to receive the stress exerted in such clamping action between such follower-block and such track.

15. A track and a follower-block arranged to slide thereon, a clamping-plate connected to such follower-block for engaging such track, such clamping-plate comprising a plate of suitable elastic material fulcrumed against such follower-block and carrying a spring-tongue having its free end attached to such follower-block and operating to force such clamping-plate into engagement with such track.

788,302. ICE-CREEPER. EDWARD C. BARTLEY, Mifflintown, Pa. Filed Sept. 21, 1904. Serial No. 225,341.



Claim.—1. In an ice-creeper the combination with a base-plate provided with calks or spurs, and having an upturned flange at its front edge, of laterally slidably adjustable plates on the lower face of the base-plate, side braces hinged to said laterally-slidable plates, and a strap or band adjustably secured to the upper ends of the side braces.

2. In an ice-creeper the combination with a base-plate having calks or spurs projecting from its lower face, of laterally slidably adjustable plates fitted to the lower face of said base-plate, side braces hinged at their lower ends to said laterally-slidable plates and provided at or near their upper ends with an oblique and a vertical slit, and a strap or band threaded through said slits.

3. In an ice-creeper the combination with a base-plate having lateral slots therethrough, of a pair of laterally slidably adjustable slotted plates secured to the lower face of the base-plate by screws passing through the slots in the slidable plates, said plates provided with lugs or projections fitting in the lateral slots of the base-plate, and means for securing the device to the heel of a shoe.

4. In an ice-creeper the combination with a base-plate having calks or spurs and provided with lateral slots therethrough and threaded openings adjacent to said slots, of a pair of slotted laterally-slidable plates having upturned outer ends and secured to the lower face of the base-plate, screws passing through the slots of the slidable plates into the threaded openings in the base-plate, side plates or braces hinged at their lower ends to the said upturned ends of the slidable plates and having at or near their upper ends an oblique and a vertical slit, and a strap or band threaded through said slits and adapted to pass around the heel of a shoe and be secured over the ankle of the wearer.

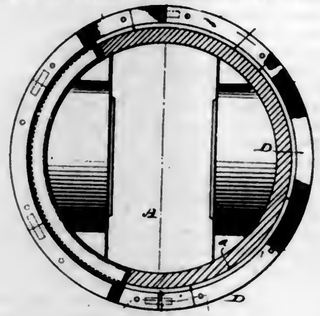
5. In an ice-creeper the combination with a base-plate having an upwardly-extending flange at its front end and provided with lateral slots and a threaded opening adjacent to said slots, of laterally-slidable slotted plates secured to the lower face of the base-plate, screws passing through the slots of the slidable plates into the threaded openings of the base-plate, said slidable plates provided with lugs or projections on their upper face fitting in the lateral slots of the base-plate, and said slidable plates having upturned outer ends, side plates or braces hinged at their lower ends to the upturned ends of the slidable plates, and having at or near their upper ends an oblique and a vertical slit, and a strap or band threaded through said slits.

788,303. METALLIC PISTON-PACKING. NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed Feb. 27, 1901. Serial No. 49,070.

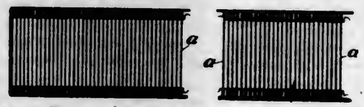
Claim.—1. Metallic piston-packing, consisting of a number of segmental sections adapted to overlap and slip endwise upon each other at their ends, the several sections formed with sockets in their ends, and springs inserted in said sockets and tending to separate the several sections and to expand the packing, substantially as described.

2. Metallic piston-packing, consisting of segmental sections each composed of square and L-shaped parts secured together so as to project one by the other at each end and break joints with adjoining sections, the ends of the square parts of the several sections being formed with sockets, and springs inserted in said sockets and tending to spread the sections, substantially as described.

3. The combination with a piston formed with a circumferential packing-groove and openings leading from one end of the piston into the bottom of said groove, of a packing-ring fitted in said groove and consisting of segemental sections, each of which is composed of square and L-shaped parts secured together so as to project one by the other at each end and break joints with adjoining sections, the ends of the sections being formed with sockets, and springs inserted in said sockets and tending to spread the sections and expand the packing-ring in the cylinder, substantially as described.



788,304. MULTIPLE-ARTICLE HOLDER AND METHOD OF FORMING SAME. HENRY H. CUMMINGS, Malden, Mass. Filed Aug. 10, 1903. Serial No. 168,906.



Claim.—1. The method of forming a multiple-article holder which consists in fluting or crimping a double band or strip of thin material and forming thereby pairs of oppositely-arranged pockets and causing said strips to maintain substantially the same relative position.

2. The method of forming a multiple-acticle holder which consists in fluting or crimping a double band or strip of material and forming thereby pairs of oppositely-arranged pockets and binding the said strips into a definite relation with each other about their fluted sides.

3. The method of forming a multiple-article holder which consists in fluting or crimping a double band or strip of thin material to form thereby pairs of oppositely-arranged coöperating pockets.

4. A multiple-article holder comprising oppositely-arranged fluted holding-strips and presenting oppositely-disposed coöperating retaining-pockets formed by the corresponding folds in the opposite strips.

5. A multiple-article holder comprising oppositely-arranged fluted holding-strips to present pairs of coöperating pockets and a binding member attached to the said holder.

6. A holder for holding a series of cards or other articles of like form or configuration comprising a fluted holding member having retaining-pockets formed by the adjacent walls of the successive folds, said walls being substantially plane and parallel to afford most efficient engagement with the plane faces of the cards or other articles.

7. A flexible holder for a series of cards or other like articles providing holding means for holding the end portions of the cards but permitting the separation of the cards at their opposite end portions when the holder is bent.

8. A multiple-article holder having a continuous pocket-forming holding-strip providing pockets having each substantially parallel plane, opposing retaining-walls.

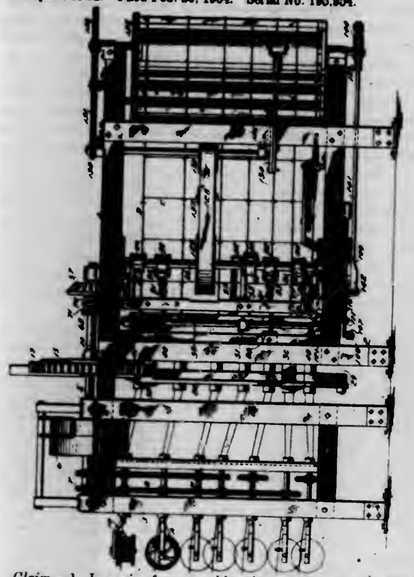
9. A rotary multiple-article holder having circularly-arranged fluted holding means.

10. A rotary multiple-article holder having a pocket-forming strip with circularly-arranged pockets thereon.

11. A rotary multiple-article holder for holding a series of like articles, having a flexible pocket-forming wall thereon.

12. A rotary multiple-article holder for holding a series of similar cards or other like articles, having peripheral holding means engaging the sides of said articles to permit radial withdrawal of the same and leaving unconfined a portion of the radially inner edges of the said articles for engagement with suitable extractor means.

788,305. WIRE-FENCE MACHINE. JOSEPH M. DENNING, Cedar Rapids, Iowa. Filed Feb. 29, 1904. Serial No. 195,954.



Claim.—1. In a wire-fence machine, in combination with mechanism for attaching stay-wires to a plurality of strand-wires, a spool for one of the strand-wires of each longitudinal cable, and an offset rotating shaft therefor holding the spool practically central to the axis of said shaft and adapted to rotate the spool about the other strand of the cable.

2. In a wire-fence machine, in combination with mechanism adapted to attach stay-wires to a series of longitudinal cables and for feeding the finished fence forward intermittently, a twisting device for each cable, comprising a single spool of strand-wire and a rotating shaft on which it is mounted to turn sidewise and around the other strand-wire.

3. In a wire-fence machine, the combination with mechanism adapted to attach stay-wires to a series of longitudinal cables, and for feeding the finished fence forward intermittently, twisting mechanism for the strand-wires of the cables, comprising a single spool for each cable, a shaft on which it is mounted so as to rotate around the other strand sidewise, and bearings for the series of spool-shafts arranged in staggered order, with means for rotating them.

4. In a wire-fence machine adapted to attach stay-wires to a plurality of longitudinal cables each composed of a plurality of strand-wires, spools for one strand of each cable, means for rotating them continuously to twist the wires together, and mechanism independent thereof adapted to intermittently fasten the stay-wires and twist the cables, untwisting thereby the twist made by the rotation of the spools.

5. In a wire-fence machine adapted to attach stay-wires to a plurality of twisted longitudinal cables and to feed the finished fence forward intermittently, twisting mechanism for the cables, comprising a single spool for each cable, a shaft on which it is mounted to rotate sidewise, and having enlarged bearings with holes therein for the strand-wires external to the shafts.

6. In a fence-machine adapted to attach stay-wires to a series of strand-wires, and to feed the finished fence forward intermittently, a series of coilers for attaching said stay-wires and for twisting the strands of the longitudinal cables, pinions on said coilers adapted to make a clutch connection therewith, a rack engaging said pinions, means for reciprocating said rack continuously, and mechanism adapted to shift said rack and pinions sidewise during a part of its movement.

7. In a fence-machine adapted to attach stay-wires to a series of longitudinal cables and to feed the finished fence forward inter-

mittently, coilers adapted to attach said stay-wires and twist the strands of the cables, pinions on said coilers, engaging therewith by clutches, a rack engaging said pinions both to rotate them and to move them sidewise, means for reciprocating said rack, springs to hold them sidewise in one direction and tilting shoes adapted to throw the rack in the opposite direction during a part of its stroke.

8. The herein-described mechanism for intermittently rotating the coilers of a fence-machine, comprising a clutch-collar on each coiler-spindle, a pinion loosely mounted adjacent thereto, having a lateral clutch with a circumferential groove therein, a rack engaging said pinions, with an adjacent rib entering said clutch-groove, guides for the rack, springs to hold it sidewise in one direction, shoes opposite thereto adapted to tilt and push the rack outwardly during a part of its stroke, depressions in the face of the rack next to said shoes, and means for reciprocating the rack.

9. In a fence-machine, the combination with a series of coilers adapted to attach stay-wires to longitudinal cables, and to twist the cables, pinions on said coilers engaging therewith by a clutch connection, a reciprocating rack to rotate the pinions in alternate directions, means for shifting the rack sidewise during a part of its stroke and for disengaging the clutches, and a stop-collar and pawl for each coiler, adapted to prevent movement thereof during the back stroke of the rack.

10. In a fence-machine having coilers adapted to attach stay-wires to longitudinal cables and to twist the cables, the combination of pinions engaging said coilers by a clutch connection, a reciprocating rack engaging said pinions, means for shifting it and the pinions sidewise to disengage the clutches, and mechanism adapted to lock said coilers from turning in either direction until moved forward by said rack and pinions.

11. In a fence-machine adapted to attach stay-wires to a plurality of longitudinal cables and to feed the fence intermittently forward, a gang of coilers adapted to attach the ends of stay-wires to the cables and to twist the latter, a spreader working inside each coiler, to separate the strands and allow the stay-wires to feed between them, and means for advancing said spreader for the feed, and retiring it after the feed is completed.

12. In combination with the stay-wire coiler and twister of a fence-machine, substantially as described, a cable-wire spreader mounted to slide inside the coiler, and groove at the sides for the passage of the strand-wires, studs projecting from said spreader laterally, slots in the walls of the coiler for said studs, and collars embracing the coiler-spindle and connecting with mechanism adapted to move them endwise thereon.

13. A stay-wire coiler and cable-twister for a fence-machine, comprising a tubular shaft or spindle, a coiler-head at one end, a collar at the other end with diagonal wire-holes therein leading to the inside of the tube, a plunger mounted to slide inside said tube, and grooved at the sides for the passage of wires, and mechanism connecting with said plunger adapted to advance it toward the head to separate the wires at that point, and to retire it later to allow the wires to twist together.

14. A stay-wire coiler and cable-twister for fence-machines, comprising a tubular shaft or spindle, a coiler-head at one end with a central hole therein and having lateral recesses therein to take the strand-wires as spread apart, a transverse hole to receive the stay-wire, a spreader mounted to slide endwise inside said spindle, and means for moving it toward the head to separate the wires at that point and for retiring it to normal position.

15. In a fence-machine the combination of mechanism to attach stay-wires to plural longitudinal cables and to feed the finished fence forward intermittently, an independent barbing device, comprising a wire-feed, a cut-off for the barb, a coiler to coil it on one of the cable-wires, and means for actuating the barbing mechanism intermittently, and independent of the stay-wire-attaching mechanism.

16. In a fence-machine adapted to attach stay-wires to plural longitudinal cables and to feed the finished fence forward intermittently, a coiler adapted to secure the stay-wires to the cables, and twist the latter, a barbing-spindle mounted inside the coiler, and adapted to rotate independently thereof, and mechanism adapted to successively rotate the barbing-spindle and the coiler.

17. In a fence-machine adapted to attach stay-wires to plural longitudinal cables and feed the finished fence forward intermittently, a coiler adapted to attach said stay-wires to said cables, and twist the latter, a barbing-spindle mounted to revolve inside the coiler, feed mechanism for the barb-wire, a cut-off therefor, and mechanism adapted to first rotate the barbing-spindle to form the barb, and then rotate the coiler.

18. In a fence-machine adapted to attach stay-wires to plural longitudinal cables and to advance the finished fence intermittently, a coiler adapted to attach a stay-wire to one of said cables and to twist the cable, a barbing-spindle rotatably mounted therein, a latch to lock it to the coiler, and mechanism for feeding the wire to said spindle, cutting it off, and successively rotating the barbing-spindle and the coiler and spindle concurrently, and for engaging and disengaging the latch.

19. In a fence-machine adapted to make fence having longitudinal twisted cables and transverse stay-wires, the combination with a tubular coiler for attaching said stay-wires, of a barbing-spindle rotatively mounted therein, a pinion on said spindle, a reciprocating rack adapted to engage said spindle, and means for successively actuating said rack and rotating the coiler.

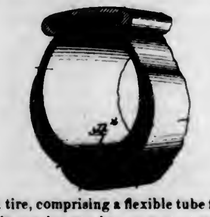
20. In a machine adapted to make wire fence having twisted longitudinal cable-strands and transverse stay-wires, the combination with a coiler for attaching said stay-wires, of a barbing-spindle rotatably mounted inside the coiler, a pinion on said spindle, a reciprocating rack to engage the pinion, a cross-head carrying said rack, and mechanism adapted to advance the cross-head to engage the rack and pinion, for reciprocating the rack, and for rotating the coiler.

21. In a fence-machine substantially as described, the combination of a stay-wire coiler adapted to twist the strand-wire cables, a barbing-spindle mounted to rotate inside the coiler, a pinion on said spindle, a flat-faced shoulder adjacent to the pinion, a rack adapted to engage the pinion and having terminal flat-faced ribs adjacent to its ends to engage the pinion-shoulder, a cross-head carrying said rack, and means for advancing the cross-head, reciprocating the rack and rotating the coiler.

22. In a fence-machine, the combination of mechanism for intermittently advancing and twisting together in pairs a plurality of longitudinal cable-strands, mechanism for feeding, cutting off and attaching to said cables separate pieces of stay-wire spanning the spaces between the cables, said pieces of wire being crossed between the strand-wires and the crossed ends coiled about the strands.

23. In a fence-machine, the combination of mechanism for intermittently advancing and twisting together pairs of longitudinal strand-wires, mechanism for feeding between said strand-wires separate stay-wires, for cutting off said wires in lengths to span the spaces between the strand-wires, for coiling the crossed ends about the strand-wires, and for attaching barbs to one or more strands in the space between two stay-wires.

788,306. **PNEUMATIC TIRE.** GEORGE DEVOLL, Boston, Mass., and GEORGE H. RISLEY, Brielle, N. J. Filed June 28, 1904. Serial No. 214,481.



Claim.—1. A tire, comprising a flexible tube formed with an integral tongue having undercut edges, a protector approximately U-shaped in cross-section with tapering side members fitting onto the sides of the tube, the protector being formed on its inner face at the bottom thereof with a dovetailed groove to receive the tongue of the tube and on its outer face below the groove with a tongue having undercut edges, and a tread having a dovetailed groove on its inner face to receive the tongue of the protector.

2. A tire comprising a flexible tube formed with an external integral locking-tongue, a protector, approximately U-shaped in cross-section and fitting the said tube externally, the protector being formed on its inner face with a dovetailed groove for the reception of the said locking-tongue, and a tread on the outside of the said protector and having a tongue-and-groove connection therewith.

3. A tire comprising a flexible tube formed with an external integral locking-tongue, a protector, approximately U-shaped in cross-section and fitting the said tube externally, the protector being formed on its inner face with a dovetailed groove for the reception of the said locking-tongue and also formed on its outer surface with a tongue having undercut edges, and a tread having a dovetailed groove on its inner face engaging the said tongue on the protector, to lock the tread in position on the protector.

788,307. **CAMERA.** GEORGE H. DORR, New Rochelle, N. Y., assignor to Blair Camera Company, Rochester, N. Y., a Corporation of Maine. Filed Dec. 5, 1902. Serial No. 133,940.



Claim.—1. In a camera the combination with the outer box or casing and having the lens at one end and the focusing-screen at the other, of the roll-holder vertically movable in the casing between the lens and screen having the spool-chambers at the sides of the forward portion, the removable slide or cover and the removable closure for said holder embodying the side and end boards, the back being provided with a sight-opening therein.

2. In a camera the combination with the outer box or casing having the lens at one end and the focusing-screen at the other, of the roll-holder vertically movable in the casing between the lens and screen, having the outwardly-opening spool-chambers at the sides of the forward portion and the film-guides at the rear, the interior walls of said holder forming an exposing-chamber, the cover for the film and the removable closure extending around the rear end of the holder and over the outer sides of the spool-chambers.

3. In a camera and in combination, a box, a lens and focusing-glass associated therewith, and a film-holder, carrying the entire film, permanently connected to said box movably mounted therein to carry the film into and out of the compass of the light-rays passing through said lens, substantially as described.

4. In a camera and in combination, a box comprising a lens and shutter-operating section, a focusing-glass section, and a film-holder-receiving chamber interposed between said sections, and a film-carrier permanently attached to said box and movable bodily into and out of said chamber, substantially as described.

5. In a camera and in combination, a section carrying a lens and a focusing-glass, and a film-holder permanently connected thereto and telescopically mounted therein, substantially as described.

6. In a camera and in combination, a box, a lens and focusing-glass associated therewith, said box having a film-bolder-receiving chamber therein, a film-carrier movable into and out of said box, and coacting flanges on the box and holder for closing said chamber to exclude the light therefrom, substantially as described.

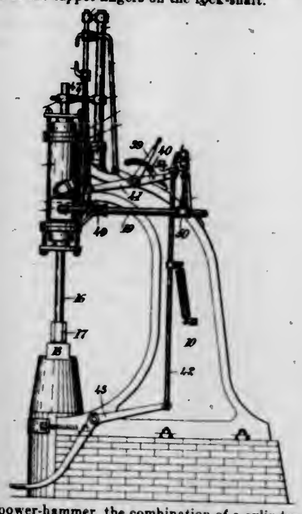
7. In a camera and in combination, a box, a lens, and focusing-glass associated therewith, said box having a film-holder-receiving chamber therein, a film-carrier movable into and out of said box, overhanging flanges on the edges of the walls of said chamber, and flanges on the holder coacting therewith, substantially as described.

8. In a camera and in combination, a box, a lens and focusing-glass associated therewith, said box having a film-holder-receiving section, a flange overhanging the wall thereof, a film-holder movably mounted in said chamber to carry the film into either of two positions, said holder including a top and bottom, each having a flange coacting with the first-mentioned flange, substantially as described.

9. In a camera and in combination, a box, a lens and focusing-glass associated therewith, said box having a film-holder-receiving chamber, and a film-holder movably mounted in said chamber, comprising a permanent front wall having an exposure-opening therein, a top and bottom, a film-guide arranged between the same, a detachable sectional casing having the vertical edges of the side sections thereof secured to the vertical edges of said front wall, guideways secured to said wall, and a slide for closing said opening guided in said ways and having a part accessible through the top of said holder, substantially as described.

788,308. **STEAM-HAMMER.** FRANK C. ESTRICK, Bluehill, Nebr. Filed Dec. 12, 1903. Serial No. 184,954.

Claim.—1. The combination of a cylinder, a piston therein, a rod attached to the piston, projecting members attached to the rod outside of the cylinder, a support upon which one of the said members has guided movement, a valve for controlling the movement of the motive fluid in the cylinder, a rock-shaft, means for operating the valve from the rock-shaft, tappet-fingers mounted to slide on the shaft but to turn therewith and adapted to be engaged by the other projecting member of the piston-rod, and independent means for sliding each of the tappet-fingers on the rock-shaft.



2. In a power-hammer, the combination of a cylinder, a piston therein, projecting members on the piston-rod, a support adjacent to and projecting above the cylinder, and upon which one of the members of the piston-rod has sliding movement, a rock-shaft mounted in the support, tappets mounted to slide on the rock-shaft but to turn therewith, said tappets being adapted to be engaged by the other projecting member of the piston-rod, separate and independent means for sliding each tappet, a valve for controlling the motive agent to the cylinder, and a connection between the rock-shaft and the stem of the said valve.

3. The combination of a cylinder, a piston therein, a rod attached to the piston, means for controlling the movement of the motive fluid in the cylinder, a rocking shaft in connection with said means, tappet-fingers longitudinally adjustable on the shaft, a member mounted to move in time with the piston-rod and coacting with the tappet-fingers, a hand-lever having connection with one of the tappet-fingers to facilitate its adjustment, and a treadle-lever having connection with the other tappet-finger to facilitate its adjustment.

4. In a power-hammer, the combination of a cylinder, a piston therein and carrying a projection on its piston-rod outside of the cylinder, a valve for controlling the motive agent to the cylinder, a rock-shaft connected with the valve, tappets on the rock-shaft and adapted to be engaged by the projection of the piston-rod, one of the tappets being adjustable on said shaft, means for adjusting said tappet, a throttle and means for operating the throttle from the tappet-operating means.

5. In a power-hammer, the combination of a cylinder, a piston therein and provided with a projection on its piston-rod outside of the cylinder, a valve for controlling the admission of the motive agent to the cylinder, a rock-shaft connected with the valve, tappets on the rock-shaft and adapted to be engaged by the projection of the piston-rod, one of the tappets being mounted to slide on the said shaft, a lever mechanism for operating the tappet, a throttle, and means for operating the throttle from the said lever mechanism.

6. In a power-hammer, the combination of a cylinder, a piston therein, a valve for controlling the admission of the motive agent to the cylinder, mechanism for operating the valve from the piston, said mechanism including tappets one of which is adjustable, a lever connected with said adjustable tappet, means for operating the lever, a throttle, and mechanism for operating the throttle from said lever.

7. In a power-hammer, the combination of a cylinder, a piston therein, a valve for controlling the admission of the motive agent to the cylinder, mechanism for operating the valve from the piston,

said mechanism including tappets, one of which is adjustable, a lever connected with the adjustable tappet, means for operating said lever, a throttle-valve, a lever connected with the throttle-valve, and means for operating the throttle-valve lever from the tappet-operating lever.

8. In a power-hammer, the combination of a cylinder, a piston thereon, a valve for controlling the admission of the motive agent to the cylinder, mechanism for operating the valve from the piston, said mechanism including tappets, one of which is adjustable, a lever connected with the adjustable tappet, means for operating the lever, a throttle-valve, a lever connected with the throttle-valve, and a pivoted dog carried by the tappet-operating lever and engaging the throttle-lever to swing said lever to open and close said valve.

9. In a steam-hammer, the combination with the throttle-valve, of a lever, a dog movably mounted thereon, a relatively stationary cam coacting with the dog, and a member in connection with the throttle-valve and adapted to be operated by the dog.

10. In a steam-hammer, the combination with the throttle-valve, of a movably-mounted member, a dog movable thereon, and having two projecting portions, a stationary cam coacting with the dog, and a member in connection with the throttle-valve and adapted to be actuated from the dog, to operate the throttle.

11. In a power-hammer, the combination with a throttle, and a lever connected therewith, of a second lever, a pivoted and spring-pressed dog carried by the second lever and provided with a bill at its lower end and with a projection at its upper end, and a stationary cam with which the dog engages

12. In a power-hammer, the combination of a cylinder, a valve for controlling the motive agent to the cylinder, mechanism for operating the valve from the piston, said mechanism including tappets, one of which is adjustable, a lever connected with the adjustable tappet, a throttle-valve, a lever connected with the throttle-valve, and means carried by the tappet-operating lever and engaging the throttle-lever to swing said lever to open and close said valve.

13. In a power-hammer, a cylinder, a valve for controlling the motive agent to the cylinder, a piston in the cylinder and provided with a projection on its piston-rod, a rock-shaft, means for operating the valve from the said shaft, tappets on the rock-shaft, and adapted to be engaged by the projection of the piston-rod, one of the tappets being adjustable, a lever having one end connected with the adjustable tappet, a treadle connected with the other end of said lever, a throttle-valve, and means for operating the throttle-valve from said lever.

14. A power-hammer comprising a cylinder, a valve for controlling the motive agent to the cylinder, a piston in the cylinder and provided with a projection on its piston-rod, a rock-shaft, means for operating the valve from the rock-shaft, tappets mounted to slide on the rock-shaft but to turn therewith, said tappets being adapted to be engaged by the projection of the piston-rod, a handle-lever connected with one tappet, a lever having one end connected with the other tappet, a treadle connected with the other end of said lever, a throttle-valve, and means for operating the throttle-valve from the lever connected with the treadle.

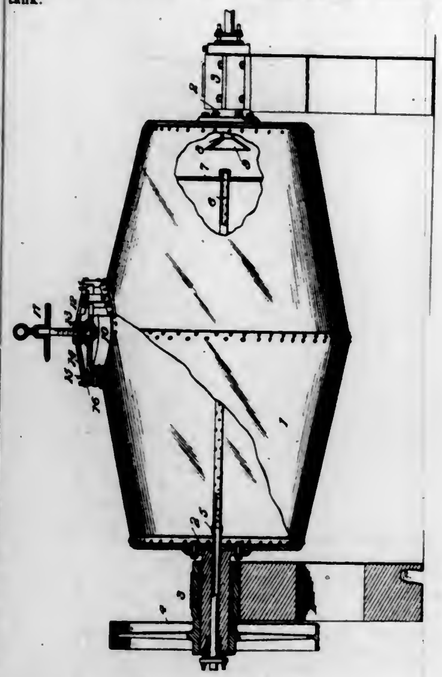
788,309. **TIRE.** ROBERT W. FERGUSON, West Orange, N. J. Filed May 3, 1904. Serial No. 206,233.



Claim.—A tire comprising an outer shoe having an inner flap connected to one edge thereof and overlapping the inner portion of the other edge, an inflatable tube within said outer shoe, and an auxiliary intermediate shoe interposed between the outer shoe and the inner inflatable tube, one edge of the intermediate shoe terminating at the junction of the flap with the outer shoe, and the other edge of the intermediate shoe lying between said flap and the other edge of the outer shoe, substantially as described.

788,310. **APPARATUS FOR DISTILLING TURPENTINE.** SIDNEY S. FLEMING, Brunswick, Ga. Filed July 28, 1904. Serial No. 218,549.

Claim.—The herein-described apparatus for distilling turpentine from a loose mass of finely-ground wood, comprising a tank or retort of double-truncation formation, axial bearings therefor at the ends thereof, a steam-pipe extending through one end of the tank and longitudinally thereof to near the other end, said pipe being perforated within the tank, an outlet-pipe leading from the other end of the tank in axial line with the steam-inlet pipe and having a funnel-like mouth, a strainer over said mouth, and means for rotating the tank.



788,311. **COMBINATION FURNITURE.** DAVID FROEHLICH, New York, N. Y. Filed Jan. 30, 1905. Serial No. 243,218.

Claim.—1. An article of furniture of the class described, comprising a main-bed frame having upright corner-posts, a top member hinged to the back corner-posts and adapted to rest on the front corner-posts, a supplemental bed or crib frame composed of end bars and long and short legs connected with the opposite ends thereof, said legs being connected below the end bars by horizontal rods, and the short legs being hinged to the front corner-posts of the main frame midway thereof, whereby the supplemental bed or crib frame may be folded into the main-bed frame and the cover of the main-bed frame may be folded thereover, substantially as shown and described.

2. An article of furniture of the class described, comprising a main-bed frame having upright corner-posts, a top member hinged to the back corner-posts and adapted to rest on the front corner-posts, a supplemental bed or crib frame composed of end bars and long and short legs connected with the opposite ends thereof, said legs being connected below the end bars by horizontal rods, and the short legs being hinged to the front corner-posts of the main frame midway thereof, whereby the supplemental bed or crib frame may be folded into the main-bed frame and the cover of the main-bed frame may be folded thereover, said cover of the main-bed frame and the supplemental bed or crib frame being also provided with bed-springs, substantially as shown and described.

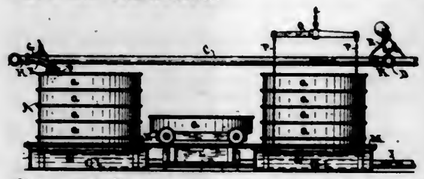
3. An article of furniture of the class described, comprising a main-bed frame having corner-posts, a top member for the main-bed frame hinged to the top of the back corner-posts and adapted to rest on the top of the front corner-posts, a supplemental bed or crib frame hinged to the front corner-posts of the main frame and adapted to be folded into the main frame or extended for use as a supplemental bed or crib frame, said supplemental bed or crib frame and

the top hinged part of the main-bed frame being provided with bed-springs, substantially as shown and described.



4. In an article of furniture of the class described, a main-bed frame having a top member hinged to the back top portion thereof and composed of end bars having hangers connected by horizontal rods and provided with a bed-spring, said top member being adapted to rest on the front corner portion of the main-bed frame, and a supplemental bed or crib frame hinged centrally to the corner front portions of the main-bed frame and adapted to fold into the latter and form a wardrobe-couch thereby, substantially as shown and described.

788,312. **FILTER.** JACOB L. GREATSINGER, Brooklyn, N. Y. Filed June 14, 1904. Serial No. 212,491.



Claim.—1. A filter comprising a plurality of filter-sections through which, consecutively, the liquid to be filtered is passed, means for removing said sections from the intake end as they become fouled, means for moving forward the remaining sections, and means for inserting fresh sections at the outlet end.

2. A filter comprising a plurality of filter-sections stacked one upon another, means for delivering the liquid to be filtered to the top section, means for drawing off the clarified liquid as it passes from the bottom section, and means for raising and lowering the entire stack and the individual sections thereof, whereby the top sections as they become fouled may be removed and fresh sections inserted at the bottom of the stack.

3. A filter system comprising a plurality of filter-stacks, each stack consisting of a plurality of individual filter-sections, means for delivering the liquid to be filtered to the top of each filter-stack, means for drawing off the clarified liquid from the bottom of all the stacks, and means for raising and lowering each stack in its place and effecting changes in the individual sections, whereby fouled sections may be removed from the top and fresh sections inserted at the bottom.

4. A filter system comprising a plurality of filter-stacks set in a row, each stack consisting of a plurality of individual filter-sections, means for delivering the liquid to be filtered to the top of each stack, means for drawing off the clarified liquid from all the stacks, a track running parallel with the row of stacks, transverse tracks at the foot of each stack, a truck on the main track carrying transverse tracks corresponding to the tracks at the foot of the stacks, a second truck mounted upon the first-named truck, and means for raising and lowering the stacks, whereby the filter-sections may be changed, substantially as and for the purpose set forth.

5. A filter system comprising a plurality of filter-stacks set in a row, each stack consisting of a plurality of individual filter-sections, means for delivering the liquid to be filtered to the top of each stack, a receiving-tank for the clarified liquid below the stacks, a track running along by the side of said tank, transverse tracks laid across the tank at the foot of each stack, a truck on the main track carrying transverse tracks corresponding to the tracks across the tank, a second truck mounted upon the first-named truck, and means for raising and lowering the stacks and the individual sections, whereby said sections may be changed, substantially as and for the purpose set forth.

6. A filter system comprising a plurality of open gravity-filter stacks positioned over a common receiving-tank, filter-beds arranged in layers in said stacks, means for delivering the liquid to be filtered to the top of each stack, means for removing the upper portions of the filter-beds as they become fouled, and means for inserting fresh filter-beds at the bottoms of the stacks, said changes being effected without changing the positions of the stacks over the receiving-tank.

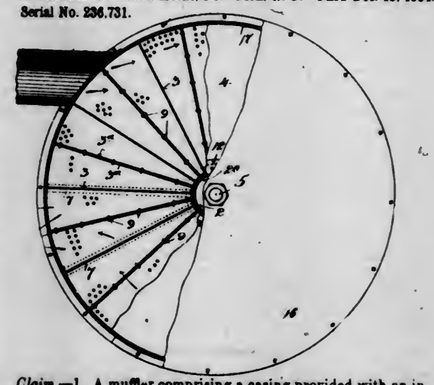
7. A built-up gravity-filter comprising a plurality of filter-beds spaced apart, means for delivering the liquid to be filtered to the top of the filter, means for drawing off the clarified liquid from the bottom of the filter, and means for removing portions of the filter-beds from time to time from the top of the filter and replacing them by fresh portions inserted at the bottom of the filter.

8. A gravity-filter comprising a stack of separable filter-sections, a supply-pipe for the liquid to be filtered positioned at one side and above said filter, a flexible spout leading from an offset from said pipe into the top of the filter, a float, a valve in the offset actuated by said float as the liquid rises in the filter, and means for throwing the spout and float away from the filter, when the filter-sections are to be changed.

9. A gravity-filter comprising a plurality of filter-sections stacked one upon another, means for delivering the liquid to be filtered to the top of the filter, means for drawing off the clarified liquid from the bottom of the filter, and means for removing fouled sections from the top of the filter and replacing them by fresh sections inserted at the bottom of the filter, said changes of sections being made without interrupting the discharge of liquid from the filter.

10. In a gravity-filter, means for removing portions of the filtering medium from the top of the filter and inserting portions of fresh filtering medium at the bottom of the filter, said changes being effected without interrupting the discharge of liquid from the filter.

788,313. **MUFFLER.** FRANK J. HECHT, New York, N. Y., assignor of one-half to Michael Hecht, New York, N. Y. Filed Dec. 13, 1904. Serial No. 236,731.



Claim.—1. A muffler comprising a casing provided with an inlet disposed substantially tangentially and an outlet, and a rotative wheel provided with walls located within said casing in line with the inlet to be engaged and rotated by spent products of combustion entering the casing through said inlet to discharge said products through said outlet, substantially as described.

2. A muffler comprising a casing provided with an inlet and an outlet, and a rotative wheel mounted within said casing and provided with perforated walls providing pockets to receive spent products of combustion and to discharge them by the rotation of the wheel through said outlet, the inlet being disposed on a plane substantially tangential with respect to the axis of the wheel, said walls being located adjacent to the inlet so that exhaust products will impinge directly upon the walls as discharged from the inlet, substantially as described.

3. A muffler comprising a casing provided with an inlet and an outlet, and a wheel having radially-disposed walls, certain of said walls extending substantially parallel to the axis of the wheel and other of said walls extending at an angle to the axis of said wheel providing pockets to receive spent products of combustion from the inlet and deliver them to the outlet by the rotation of the wheel, substantially as described.

4. In a muffler, a rotative wheel provided with perforated walls and disks at the ends of the walls providing pockets to receive and deliver spent products of combustion, substantially as described.

5. In a muffler, a rotative wheel provided with radially-disposed walls, certain of said walls extending substantially parallel with the axis of the wheel and certain other walls extending at an angle with respect to said axis, forming pockets to receive and discharge spent products of combustion, substantially as described.

6. In a muffler, a rotative wheel having radially-disposed perforated walls extending at an angle with respect to the axis of the wheel, adjacent walls being secured together substantially centrally, and means for firmly holding the outer edges of said walls, substantially as described.

7. In a muffler, a rotative wheel provided with radially-disposed walls that are bent in angular form extending at angles to the axis of the wheel, the angles of adjacent walls being secured together, and means for firmly holding the edges of said walls, substantially as described.

8. In a muffler, a rotative wheel comprising radially-disposed walls, certain of which walls extend substantially parallel to the axis of the wheel and certain other of said walls being located between said parallel walls and bent substantially centrally, the angular portions of two walls abutting, and means for firmly connecting said walls, substantially as described.

9. In a muffler, a rotative wheel having a hub provided with radially-disposed walls extending at an angle to the axis of the wheel, the angles of adjacent walls being located between the outer edges of the walls, substantially as described.

10. In a muffler, a rotative wheel having a hub provided with divided spokes, radially-disposed walls secured at their edges between the members of said spokes, and disks located at the ends of said walls, providing pockets to receive and discharge spent gases, substantially as described.

11. In a muffler, a rotative wheel having a hub provided with divided spokes, radially-disposed walls having their edges secured between the members of said spokes, certain of said walls extending substantially parallel with the axis of said wheel and certain other walls extending at an angle to said axis, and disks secured adjacent to the edges of said walls, providing pockets to receive and discharge spent products of combustion, substantially as described.

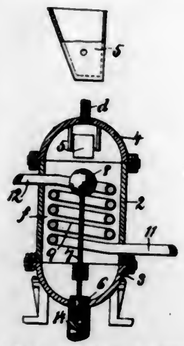
12. In a muffler, a rotative wheel provided with a hub, radially-disposed perforated walls, means for firmly holding the walls, and fireproof insulation placed between the walls and upon the hub, substantially as described.

13. A muffler comprising a casing provided with an inlet and an outlet, a rotative wheel having a hub and radially-disposed perforated walls, and disks at the ends of said walls, providing pockets to receive and discharge spent products of combustion, substantially as described.

14. A muffler comprising a casing provided with an inlet and an outlet, and a rotative wheel having a hub and radially-disposed perforated walls, and disks at the ends of said walls, certain of said walls extending substantially parallel with the axis of the wheel and certain other walls extending at an angle to said axis, the angular walls being secured together, substantially as described.

788,314. LIQUID-RETURN SYSTEM. HARRY L. HEPBURN, New York, N. Y. Filed Aug. 30, 1904. Serial No. 221,453.

Claim.—1. The combination with a generator, of supply-pipes leading therefrom, one or more vapor-utilizing devices, a liquid-cooled trap, drip-pipes leading from the vapor-utilizing devices and the supply-pipes to said trap, and means for passing the generator-feed through said trap and cooling the same independently of the contents of the trap.



2. The combination with a generator, of a supply-pipe leading therefrom, one or more vapor-utilizing devices, a liquid-cooled trap, drip-pipes leading to said trap, a drip-pipe leading from the said supply-pipe to the said trap, means within said trap for receiving and discharging the liquid of condensation and entrainment into said trap, and means for automatically discharging said trap.

3. The combination with a generator, of a supply-pipe leading therefrom, one or more vapor-utilizing devices, a liquid-cooled trap, a self-emptying pivotally-mounted receptacle therein, a discharge-valve, a rod and ball-float within said trap and connected to said discharge-valve, and a pipe-coil also within said trap and through which the cooling fluid is conveyed, drip-pipes leading to said trap and a drip-pipe leading from the said supply-pipe to the said trap.

4. The combination with a generator, of a supply-pipe leading therefrom, one or more vapor-utilizing devices, a liquid-cooled trap, a self-emptying pivotally-mounted receptacle within the same, a discharge-valve, a rod and ball-float within said trap and connected to said discharge-valve, a pipe-coil also within said trap and through which the cooling fluid is conveyed, drip-pipes leading from vapor-utilizing devices to said trap, a drip-pipe leading from the said supply-pipe to the said trap, a tank, a feed-pump, and connections from the said trap to said tank and from the tank to the feed-pump suction.

5. The combination with a generator, of a supply-pipe leading therefrom, one or more vapor-utilizing devices, a liquid-cooled trap, drip-pipes leading to said trap, a drip-pipe leading from the said supply-pipe to the said trap, and means for automatically discharging said trap.

6. The combination in a vapor generating and utilizing system, of a liquid-cooled trap, a connection therefrom to the vapor-utilizing devices, and means for passing the feed-supply for the generator through said trap independent of the contents of the trap.

7. The combination in a vapor generating and utilizing system, of a liquid-cooled trap, a connection therefrom to the vapor-utilizing devices, means for automatically delivering the condensed vapor into the trap, and means for passing the feed-supply for the generator through said trap independent of the contents of the trap.

8. The combination in a vapor generating and utilizing system, of a liquid-cooled trap, a connection therefrom to the vapor-utilizing devices, means for automatically delivering the condensed vapor into the trap, means for passing the feed-supply for the generator through said trap independent of the contents of the trap, and means for removing the contents of the trap and passing the same with the feed-supply to the generator.

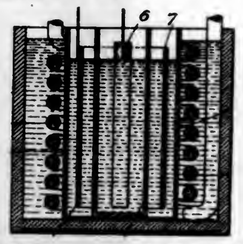
788,315. METHOD OF ELECTROLYTIC SEPARATION. WILLIAM HOOPES, Pittsburg, Pa. Filed Nov. 30, 1904. Serial No. 234,886.

Claim.—1. The method of electrolysis, which consists in passing an electric current through a solution of a compound in anhydrous ammonia.

2. The method of separating metal electrolytically, which consists in passing an electric current through a solution of a compound of such metal in anhydrous ammonia.

3. The method of separating metal electrolytically, which consists in passing an electric current through a solution of an anhydrous salt of such metal in anhydrous ammonia.

4. The method of separating metal electrolytically, which consists in passing an electric current through a solution of an anhydrous salt of such metal in anhydrous ammonia, a porous diaphragm being interposed between the electrodes.

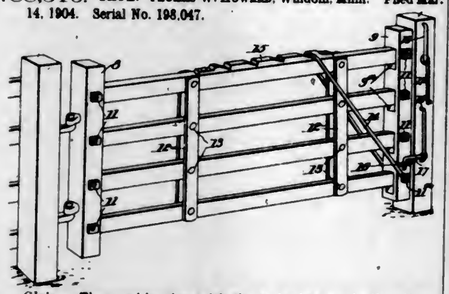


5. The method of separating magnesium electrolytically, which consists in passing an electric current through a solution of a compound of magnesium in anhydrous ammonia.

6. The method of separating metal electrolytically, which consists in passing an electric current through a solution of a compound of such metal in anhydrous ammonia, and applying a refrigerating medium to the solution to prevent or retard evaporation of the solvent.

7. The method of refining metals, which consists in electrolyzing a solution of the salt of the metal to be refined in anhydrous ammonia, by the passage of the current through such solution, using as an anode a mass of the metal containing impurities of such a nature that all of them will remain undissolved or if dissolved will remain in solution, the pure metal only being deposited on the cathode.

788,316. GATE. THOMAS W. HOWARD, Windom, Minn. Filed Mar. 14, 1904. Serial No. 198,047.



Claim.—The combination with the swinging vertically-adjustable gate, of the gate-post, elongated staples arranged vertically on said post, one above the other, and hooks slidable vertically on said staples and arranged to engage the gate, the upper hook being longer than the lower.

788,317. SEPARABLE FASTENER. WHITCOMB L. JUDSON, Chicago, Ill., assignor to The Universal Fastener Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 26, 1904. Serial No. 222,237.



Claim.—1. A pair of parallel coupling-chains, composed of a pair of continuous flexible stringers and a series of chain-links secured thereto and flexibly connected thereby, the opposite links of the two chains being provided with interlocking parts, adapting the chains to be coupled together, throughout their entire length, by a pivotal movement of the coupling-links, in a predetermined order of succession, and to be uncoupled, throughout the entire length of the chains, under an instantaneous action, by simply pulling apart the head ends of the chains, substantially as described.

2. The combination with a pair of continuous flexible stringers, of a series of chain-links composed of compressible tubes or clips, clamped to said stringers, and coöperating therewith, to form a pair of parallel chains the links of which are flexibly connected together, and the opposite links of which two chains are provided with interlocking parts, adapting said chains to be coupled together throughout their entire length, and to be uncoupled throughout their entire length, under an instantaneous action, by pulling apart the head ends of the chains, substantially as described.

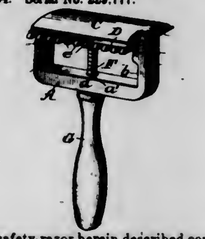
3. The combination with a pair of continuous flexible stringers, of a series of chain-links composed of compressible split tubes or clips, adapted to receive said stringers sidewise, through the split openings of the tubes or clips, and to be clamped fast thereto, the opposite links of which chains are provided with interlocking parts, adapting the chains to be coupled together throughout their entire length, and to be uncoupled, under an instantaneous action, by pulling apart the head ends of the chains, substantially as described.

4. The combination with a pair of continuous flexible stringers, of two series of chain-links having respectively male and female interlocking parts, the male links being clamped to one stringer, and having at their lower ends hook-like projections, and the female links being clamped to the other stringer, and having at their upper ends projecting eye-lugs, adapted to be engaged by the hooks of said male members, and having at their lower ends projecting lap-lugs, adapted to overlap the hooks of the last previously-coupled pair of links, substantially as and for the purposes set forth.

5. The combination with the pair of parallel coupling-chains composed of the continuous flexible stringers and the series of chain-links secured thereto and flexibly connected thereby, the opposite links of which two chains have interlocking or coupling parts, of the cam-action slider having the pair of cam-channels which converge into single channel at one end of the slider, below a triangular dividing-block, and diverge in the opposite direction, along the sides of said block, to the points of delivery at the opposite ends of the slider, and which slider works on the said chains under sufficient friction to remain in any position in which it may be set, substantially as and for the purposes set forth.

6. The combination with a pair of continuous flexible hard-cord stringers, of a series of chain-links composed of compressible tubes or clips, clamped to said stringers, and coöperating therewith to form a pair of parallel chains, the links of which are flexibly connected together, and the opposite links of which two chains are provided with interlocking parts, adapting said chains to be coupled together throughout their entire length, under an instantaneous action, by pulling apart the head ends of the chains, substantially as described.

788,318. SAFETY-RAZOR. BENJAMIN KIAM, New Orleans, La. Filed Oct. 24, 1904. Serial No. 229,777.



Claim.—1. The safety-razor herein described comprising a main frame having side bars provided in their inner sides with recesses *b* and with projecting portions *b'* and having the back plate rigid with said main frame and concaved on its inner face, the flexible blade and the guard-plate provided in their ends with notches to receive the inwardly-projecting portions *b'* on the inner sides of the side bars of the main frame, and the handle provided with a screw turning through the cross-bar of the main frame and bearing against the guard-plate and adapted to press the same toward the back plate, the guard-plate having a convex surface conforming to the concave surface of the back plate, substantially as set forth.

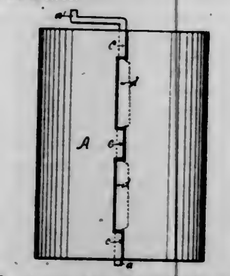
2. The combination in a safety-razor, of a main frame having side bars and a back plate rigid with said side bars and having a concaved inner face, a guard-plate movable within the main frame and having a convex face opposing the concave face of the back plate, a flexible blade fitting between said back plate and guard-plate, and means carried by the main frame for pressing the guard-plate toward the back plate, substantially as set forth.

3. The combination in a safety-razor, of the main frame having its side bars notched or cut away in their inner sides, and having a back plate connecting the ends of said side bars and concaved in its

inner face, the side bars being provided adjacent to the back plate with inwardly-projecting portions, the blade and convex guard-plate having end notches receiving said inwardly-projecting portions of the side bars, and means for pressing the guard-plate toward the back plate to secure the blade between said plates, substantially as set forth.

4. The combination in a safety-razor, of the main frame, the back plate rigid with the main frame and concaved in its inner face, the blade and convex guard-plate operating and guided in the main frame, and a screw independent of both back plate and guard-plate and supported by the main frame and operating against the guard-plate to press the same toward the back plate, substantially as set forth.

788,319. TRANSPLANTING PLANT-CAN. THEODORE L. KLAPPER. Boon township, Oklahoma county, Okla. Filed July 30, 1904. Serial No. 218,910.



Claim.—1. In an open-ended transplanting-can, the combination with the inclosing edges of a sheet-metal plate provided with interlocking inclosing parts c c c, and d d, of a rod a having a handle a' and provided with a swaged projection a'' midway its length, substantially as and for the purpose specified.

2. As an article of manufacture, an open-ended can, comprising the body A, formed of sheet metal, and having its closing edges provided with parts c c c and d d, the parts d d being curved to conform to rod a, having handle a', and a swaged portion a'', for engagement with parts d d, substantially as specified.

788,320. JOURNAL-BEARING. HENRY V. KUHLMAN, Chicago, Ill., assignor of one-half to George A. Woodman, Chicago, Ill. Filed Mar. 14, 1904. Serial No. 197,956.

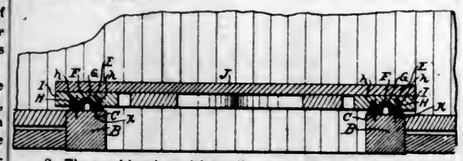


Claim.—1. A two-part "brass" for a journal-bearing comprising an imperforate tough-metal back of polygonal shape having a flat top and inclined sides to fit a wedge, a wearing part shaped accordingly to fit snugly into the back, there being projections on one part to fit snugly in recesses in the other part, said parts not being fastened together but interlocked against relative sidewise movement by the polygonal shape of the parts and the projections and against relative endwise movement by said projections.

2. A two-part "brass" for a journal-bearing comprising an imperforate tough-metal back of polygonal shape having a flat top and inclined sides to fit a wedge, a wearing part shaped accordingly to fit snugly into the back, there being projections on the inclined sides of one part to fit snugly in complementary recesses in the inclined sides of the other part, said parts not being fastened together but interlocked against relative sidewise movement by the polygonal shape of the parts and the projections and against relative endwise movement by said projections.

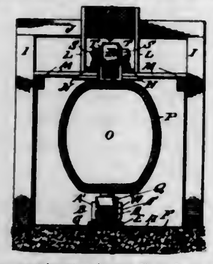
788,321. CAR-DOOR. EDWARD F. MARTIN, Milwaukee, Wis. Filed Aug. 22, 1904. Serial No. 221,653.

Claim.—1. In a railway-car provided with a suitable doorway and door-posts, the combination of a door adapted to move vertically along the inner faces of the door-posts; sets of interacting metallic sheaths secured to the opposing surfaces of the door and door-posts respectively and means for permitting a shifting horizontal movement of one of the sheaths of each interacting set along the surface to which it is secured.



2. The combination with a railway-car provided with a suitable doorway and door-posts; of a door adapted to move vertically along the inner faces of said posts; a set of interacting metallic sheaths interposed between each door-post and the opposing surface of the door; one of said sheaths being secured to the door and the other of said sheaths being secured to the post, one of said sheaths being provided with slots through which the securing devices are passed, whereby said sheath is permitted to move horizontally along the surface to which it is attached.

788,322. RAILROAD SYSTEM. CHARLES MEHRING, Charlottesville, Va. Filed June 25, 1904. Serial No. 214,502.



Claim.—The combination in a railroad system, of a superstructure, a single track-rail, spaced overhead rails on the superstructure, a car having supporting-trucks consisting of a body portion, a roller on said body portion adapted for rolling action upon the track-rail, depending arms on said body portion having rollers at their lower ends arranged for engagement with the under side of the track-rail head, arms extending upwardly from the top of the car and projecting between the spaced overhead rails, and rollers on the upwardly-extending arms arranged and adapted to travel upon the said overhead rails, substantially as described.

788,323. BLOWING-OFF APPARATUS FOR BOILERS. WILLIAM L. MILLER, Chicago, Ill. Filed Feb. 23, 1905. Serial No. 246,819.

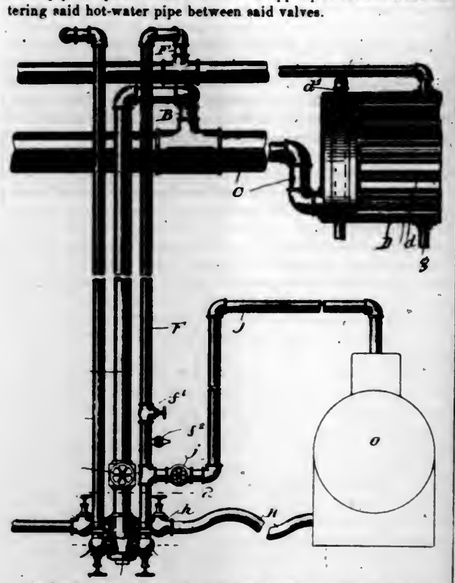
Claim.—1. In a device of the class described, the combination with a blow-off pipe and a valve controlling the same, of a blow-off box into which said pipe opens, means for connecting said box to a boiler, and hot and cold water pipes opening into said blow-off box.

2. In a device of the class described, the combination with a blow-off pipe and a valve controlling the same, of a blow-off box into which said pipe opens, means for connecting said box to a boiler, hot and cold water pipes opening into said blow-off box, and valves for controlling said hot and cold water pipes.

3. In a device of the class described, the combination with a blow-off pipe, of a heater connected therewith through which the blow-off water passes, a valve controlling said blow-off pipe, a blow-off box at the end of said blow-off pipe, a hot-water pipe running through said heater to said blow-off box and a cold-water pipe entering said blow-off box, valves for controlling said hot and cold water pipes, and means for connecting said blow-off box with a boiler.

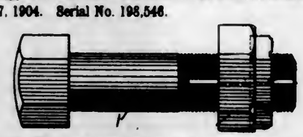
4. In a device of the class described, the combination with a blow-off pipe, a valve for controlling the same, of a blow-off box emptying into said blow-off pipe, hot and cold water pipes entering said blow-off box at one end, deflectors for causing a gyratory flow of the water entering through said box, and means for connecting the opposite end of said blow-off box with a boiler.

5. In a device of the class described, the combination with a blow-off box, a blow-off pipe connected therewith and a valve for controlling the blow-off pipe, hot and cold water pipes entering the blow-off box, a pipe adapted to connect the blow-off box with the lower portion of a boiler, two valves in the hot-water pipe, a petcock, and a pipe adapted to connect with the upper portion of a boiler entering said hot-water pipe between said valves.



6. In a device of the class described, the combination with a blow-off box, of a blow-off pipe and hot and cold water pipes entering the same, valves for independently controlling said pipes and means of connection between said blow-off box and a boiler.

788,324. NUT-LOCK. WILLIAM L. MORROW, Stockton, Cal. Filed Mar. 17, 1904. Serial No. 198,546.



Claim.—1. The combination of a bolt having a longitudinal groove in its threaded portion, a main nut having a series of radial key-sockets, a key in said groove with a head in one of said sockets, a jam-nut engaged and locked by the outer end of said key, and a cover inclosing the outer ends of said key-sockets, as set forth.

2. The combination of a bolt having a longitudinal groove in its threaded portion, a main nut having a series of radial key-sockets, a key in said groove with a head in one of said sockets, a jam-nut engaged and locked by the outer end of said key, and a cover carried by said main nut and inclosing the outer ends of said key-sockets, as set forth.

3. The combination of a bolt having a longitudinal groove in its threaded portion, a main nut having a series of radial key-sockets, a key in said groove with a head in one of said sockets, a jam-nut engaged and locked by the outer end of said key, and an annular flange extending from said main nut over the outer ends of said key-sockets, as set forth.

788,325. CIRCULAR-DOOR SAFE. MOSES MOSLER, New York, N. Y., assignor to The Mosler Safe Company, New York, N. Y. Filed Sept. 1, 1904. Serial No. 222,950.



Claim.—In a safe, the combination, substantially as set forth, of a safe-body having in its front wall a tapering circular opening with its smaller portion inward; a circular tapering door fitting said opening and free of peripheral projections and having in its periphery a plurality of recesses leading from its rear face forwardly and then in a circumferential direction with a helical lead toward the front; studs firmly secured in the wall of said opening and projecting thereinto in position to coöperate with said recesses and draw the door to its seat when the door is turned; and devices for supporting and turning the door.

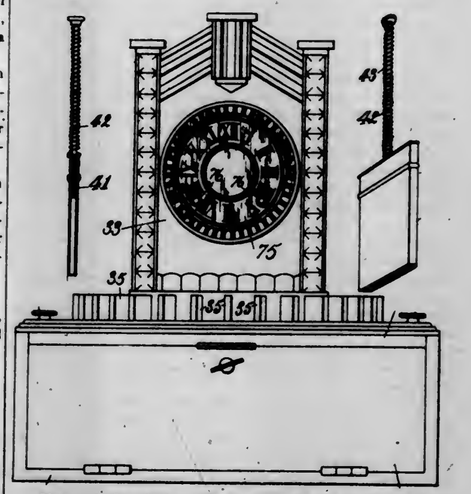
788,326. RAILWAY BRACE AND CHAIR. JAMES H. MCGUANE, Port Jervis, N. Y. Filed Oct. 20, 1904. Serial No. 229,315.

Claim.—1. A railway brace and chair, consisting of a strip of iron or steel having a plate to extend under the rail from one side to the other and having its outer end bent inwardly over and about the outer side of the base or lower flange of the rail with its end abutting or impinging against the web of the rail, openings formed in the outer side of said plate, spikes mounted in said openings and abutting or impinging against the outer side of the base of said rail, and studs or pins formed with the said plate near said openings but out of alinement therewith.

2. A railway brace and chair, consisting of a single piece of metal bent upon itself to form an outer inwardly-extending flange conforming to the upper contour of the outer side of the flange of the rail, and having the end of said flange abutting or impinging against the web of said rail, opening formed therein for the reception of spikes adapted to abut against the flange of said rail, and studs or pins formed integral with the base of said brace and chairs, adjacent to but out of alinement with said openings.

3. A railway brace and chair, consisting of a strip of metal having a plate to extend under the rail from side to side, an inwardly-extending flange formed integral therewith and over and about the outer flange of the rail, openings formed in said flange and plate and intersecting the recess formed by said plate and flange for the reception of the outer flange of said rail, spikes mounted in said openings and abutting against said flange of said rail, and studs or pins formed integral with said plate and out of alinement with said openings.

788,327. TIME, SAVINGS, AND SAFETY-DEPOSIT BOX. ALBERT NELSON, San Francisco, Cal. Filed Dec. 29, 1903. Serial No. 187,022.



Claim.—1. In a device of the character described, the combination of a receptacle having a circular series of compartments, clock-work mechanism for rotating said receptacle intermittently through the distance of one compartment at comparatively long intervals of

time, means whereby money or valuables may be deposited into a plurality of said compartments simultaneously, and means whereby the money can be withdrawn from only one of said compartments at one time without shifting the receptacle, substantially as described.

2. In a device of the character described, the combination of a receptacle having a circular series of compartments, clockwork mechanism for rotating said receptacle intermittently through the distance of one compartment at comparatively long intervals of time, means whereby money or valuables may be deposited into a plurality of said compartments simultaneously, and means whereby the money can be withdrawn only from a predetermined portion of said compartments at one time without shifting the receptacle, substantially as described.

3. In a device of the character described, the combination of a casing, a circular series of rollers in the bottom of the casing, a receptacle revolving upon said rollers, means for suitably guiding said receptacle in its rotary motion, clockwork or other mechanism for imparting revolution to said receptacle intermittently through a small portion only of its circumference, radial partitions in said receptacle, slots in the casing corresponding in number with said partitions, and an opening in the side of the casing admitting access to only one of the compartments of said receptacle at one time, substantially as described.

4. In a device of the character described, the combination of a casing, a revoluble receptacle therein divided into a circular series of compartments, and means for intermittently revolving said receptacle through one compartment only at a time, said casing having a circular series of narrow slots corresponding in number with the compartments and having in addition an opening admitting access to only one receptacle at a time, and sufficiently large to freely remove the contents of the compartments therethrough, substantially as described.

5. In a device of the character described, the combination of a casing, a revoluble receptacle therein divided into a circular series of compartments, and means for intermittently revolving said receptacle through one compartment only at a time, said casing having a circular series of narrow slots corresponding in number with the compartments and having in addition an opening admitting access to only one receptacle at a time, and sufficiently large to freely remove the contents of the compartments therethrough, means for closing said opening, substantially as described.

6. In a device of the character described, the combination of a casing, a revoluble receptacle therein divided into a circular series of compartments, and means for intermittently revolving said receptacle through one compartment only at a time, said casing having a circular series of narrow slots corresponding in number with the compartments and having in addition an opening admitting access to only one receptacle at a time, and sufficiently large to freely remove the contents of the compartments therethrough, means for closing said opening and a lock for locking said closure, substantially as described.

7. In a device of the character described, the combination of a casing, a revoluble receptacle therein divided into a circular series of compartments, a removable box in each compartment, and means for intermittently revolving said receptacle through one compartment only at a time, said casing having a circular series of narrow slots corresponding in number with the compartments and having in addition an opening admitting access to only one receptacle at a time, and sufficiently large to freely remove the box therethrough, substantially as described.

8. In a device of the character described, the combination of a casing, a revoluble receptacle therein divided into a circular series of compartments, means for intermittently revolving said receptacle through one compartment only at a time, said casing having a circular series of narrow slots corresponding in number with the compartments and having in addition an opening admitting access to only one receptacle at a time, and sufficiently large to freely remove the contents of the compartments therethrough, said casing also having a shutter, and means for locking said shutter, substantially as described.

9. In a device of the character described, the combination of a casing, a receptacle revoluble therein, partitions dividing the receptacle into compartments, clockwork mechanism revolving said receptacle intermittently through the distance of one compartment only at a time, a lid closing said casing and covering said receptacle, said lid having a circular series of slots corresponding in number to compartments in the receptacle, and means whereby access is had at one time to only one of said compartments, substantially as described.

10. In a device of the character described, the combination of a casing, a receptacle revoluble therein, partitions dividing the receptacle into compartments, clockwork mechanism revolving said receptacle intermittently through the distance of one compartment only at a time, a lid closing said casing and covering said receptacle, said lid having a series of slots corresponding in number to compartments in the receptacle, a chute upon said lid over each slot, means for preventing withdrawal of money or other valuables through said chutes after having been passed therethrough, and means whereby access is had at one time to only one of said compartments, substantially as described.

11. In a device of the character described, the combination of a casing, a receptacle revoluble therein, partitions dividing the receptacle into compartments, clockwork mechanism revolving said receptacle intermittently through the distance of one compartment only at a time, a lid closing said casing and covering said receptacle, said lid having a series of slots corresponding in number to compartments in the receptacle, a chute on said lid over each slot, and a flexible closure at the bottom of each chute, and means whereby access is had at one time to only one of said compartments, substantially as described.

12. In a device of the character described, the combination of a casing, a receptacle revoluble therein, partitions dividing the receptacle into compartments, clockwork mechanism revolving said receptacle intermittently through the distance of one compartment only at a time, a lid closing said casing and covering said receptacle, said lid having a series of slots corresponding in number to compartments in the receptacle, a chute on said lid over each slot, a metallic shutter at the bottom of the chute and a spring closing said shutter, and means whereby access is had at one time to only one of said compartments, substantially as described.

13. In a device of the character described, the combination of a casing, a receptacle revoluble therein, partitions dividing the receptacle into compartments, clockwork mechanism revolving said receptacle intermittently through the distance of one compartment only at a time, a lid closing said casing and covering said receptacle, said lid having a series of slots corresponding in number to compartments in the receptacle, a chute on said lid over each slot, a hollow pusher adapted to be inserted into said chute, and a bar in the pusher to expel therefrom the object placed therein, and means whereby access is had at one time to only one of said compartments, substantially as described.

14. In a device of the character described, the combination of an annular receptacle divided into a circular series of compartments, pins in number corresponding to the compartments projecting inwardly from said receptacle, a clockwork mechanism released at predetermined intervals engaging said pins to move the receptacle through the distance corresponding to one compartment, means whereby money or other valuables can be deposited in any of the compartments, and means whereby the contents of only one compartment can be withdrawn without shifting the receptacle, substantially as described.

15. In a device of the character described, the combination of an annular receptacle divided into a circular series of compartments, inwardly-extending pins corresponding in number to the compartments, a clockwork mechanism comprising a wheel having lugs engaging said pins, means for intermittently operating said clockwork mechanism whereby the receptacle is moved intermittently through the distance of one compartment, means whereby money or other valuables can be deposited at any time in one of the compartments, and means whereby the contents of only one compartment can be withdrawn until the receptacle is again shifted, substantially as described.

16. In a device of the character described, the combination of a revoluble annular receptacle divided into compartments, pins corresponding in number extending inward from the receptacle, a wheel having lugs engaging said pins, clockwork mechanism for operating said wheel, said mechanism comprising a wheel having a stop and an arm engaging said stop, a plate secured to said arm, a hammer arranged to strike said plate to withdraw the arm from the stop, and a clock arranged to swing the hammer and to release it at a proper moment to start said mechanism, substantially as described.

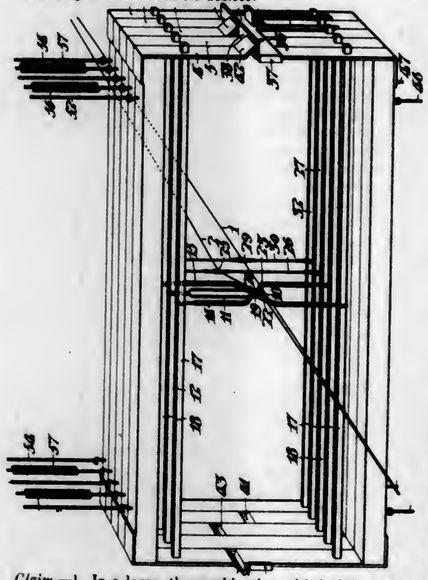
17. In a device of the character described, the combination of a revoluble annular receptacle divided into compartments, pins corresponding in number extending inward from the receptacle, a wheel having lugs engaging said pins, clockwork mechanism for operating said wheel, said mechanism comprising a wheel having a stop and an arm engaging said stop, a plate secured to said arm, a hammer arranged to strike said plate to withdraw the arm from the stop, and a clock having a pin thereon engaging the hammer to swing the same and adapted to release said hammer at the proper moment to start said mechanism, substantially as described.

18. In a device of the character described, in combination with a receptacle having a series of compartments, means for intermittently revolving said receptacle, a lid covering the receptacle and having a corresponding series of slots, and a ring movable around said slots having marks thereon to indicate the proper slot into which to deposit money, means for intermittently rotating said receptacle, and means whereby the contents of only one compartment can be withdrawn until the receptacle has again been shifted, substantially as described.

19. In combination with a receptacle divided into compartments and means for revolving the same intermittently, means whereby the contents of only one compartment can be withdrawn until the receptacle has again been shifted, an indicating device having a plurality of series of divisions corresponding in number to the compartments, all divisions indicating the same compartment being arranged transversely to the order of the divisions of the different compartments, substantially as described.

20. In a device of the character described, the combination of an annular receptacle having a plurality of compartments, clockwork mechanism wholly within said receptacle for rotating said receptacle intermittently through the distance of one compartment at comparatively long intervals of time, means for depositing money or valuables in any of said compartments at will, and means for preventing access to more than one of the compartments at a time to withdraw the money or valuables therefrom, substantially as described.

788,328. **LOOM FOR CROSS-WEAVING.** GEORGE H. L. PETTIE, Philadelphia, Pa., assignor to Richard H. Aiman, Philadelphia, Pa. Filed May 7, 1904. Serial No. 206,809.



Claim.—1. In a loom, the combination with heddle-shafts respectively having eyes for the ordinary warp-threads and for the doup-threads: of a heddle-shaft having eyes for the doup-threads located above the normal level specified, and arranged to relax said threads at the lower limit of their shedding movement, substantially as set forth.

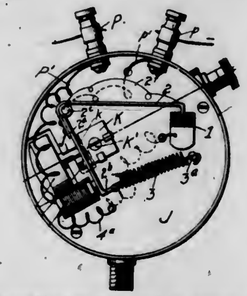
2. In a loom, the combination with a heddle-shaft having eyes for doup-threads at the normal level, supported by wire bights: of two shafts respectively arranged upon the opposite sides of said first shaft, having offset wires engaged with the respectively opposite strands of said bights; a fourth shaft having eyes for the doup-threads located above the normal level; and, a fifth shaft, arranged between said fourth shaft and the warp-beam, having eyes for the ordinary warp-threads at the normal level, substantially as set forth.

3. In a loom, the combination with heddle-shafts respectively having eyes for the ordinary warp-threads and for the doup-threads, at the normal level specified; of a shaft having eyes for the doup-threads located above the normal level, and arranged to relax said threads at the lower limit of their shedding movement, substantially as set forth.

4. In a loom, the combination with heddle-shafts respectively having eyes for the ordinary warp-threads and for the doup-threads, at the normal level specified; of a shaft having eyes for the doup-threads located above the normal level, and arranged to relax said threads at the lower limit of their shedding movement; end plates secured in stationary position upon one of said shafts; and, lugs projecting at the ends of another of said shafts arranged to encounter said plates; whereby, said shafts may be shifted in definite relation, substantially as set forth.

5. In a loom, the combination with heddle-shafts respectively having eyes for the ordinary warp-threads and for the doup-threads, at the normal level specified; of a shaft having eyes for the doup-threads located above the normal level, and arranged to relax said threads at the lower limit of their shedding movement; vertical end bars of metal on three of said shafts, having lugs projecting in the plane of said shafts; and, means carried by another of said shafts to engage said lugs to shift said shafts, substantially as set forth.

788,329. **PRESSURE-CONTROLLED ELECTRIC SWITCH AND AIR-GAGE.** WILLIAM J. PUGH, Davenport, Iowa, assignor to Automatic Electric Pump Co., Davenport, Iowa. Filed Aug. 30, 1904. Serial No. 221,579.



Claim.—1. In combination, a contact, an angular switch-lever pivoted at its bend and having a contact on one arm, means engaging the other arm of said lever to open the switch, more powerful opposing means for closing the switch, a pressure-controlled device engaging the latter arm of the lever for overcoming the more powerful means, and an electromagnet for holding the switch closed until the pressure-controlled device moves the switch until the weaker means can snap the switch open, substantially as described.

2. In combination, a contact, a switch-lever, a spring for throwing said lever open; a more powerful opposing spring for closing the switch, a pressure-operated device for overcoming the more powerful spring, said device having a pair of insulated fingers adapted to alternately engage the switch, and an electromagnet for holding the switch closed until the pressure-operating device has sufficiently overcome the powerful spring to enable the weaker spring to snap the switch open, substantially as described.

3. In a pressure-controlled electric switch, the combination of a plunger actuated in one direction by pressure, and in the opposite direction by a spring, an angular switch-lever pivoted at its bend and adapted to be closed by the spring-actuated movement of said plunger, an electromagnet adapted to engage an armature on said lever and hold the switch closed during the initial pressure-actuated movement of the plunger, and a spring for opening the switch, substantially as described.

4. In a pressure-controlled electric switch, the combination of a pivoted switch-lever, a mercury-contact, a spring for throwing the lever to open position, an electromagnet for holding said lever in closed position, and a pressure-controlled spring-retracted plunger, having a pair of separated fingers loosely embracing an arm of the switch and adapted to alternately contact with and move the lever to assist in the opening and closing of the switch, substantially as described.

5. In combination, a fixed contact, a pivoted switch-lever carrying the movable contact, a spring for throwing the switch open, an

electromagnet for holding the switch closed, a direct electrical connection between the switch and its pivot, said electromagnet being in circuit with the switch-contacts and energized when the switch is closed, and means for overcoming the electromagnet, substantially as described.

6. In combination, a fixed contact, a pivoted switch-lever carrying a movable contact, a direct electrical connection between the switch-lever and its pivot, a spring for throwing the switch open, an electromagnet for holding the switch closed, said electromagnet being energized when the switch is closed, and means for positively overcoming the spring and the magnet alternately to respectively cause the closing and opening of the switch.

7. In combination, an insulated plate, a fixed cup-contact thereon, a switch-lever pivoted on said plate and carrying a movable contact, a spring connected to said lever for throwing said switch open, and an electromagnet adapted to engage an arm of the lever to hold the switch closed against the action of said spring, said magnet being in circuit with the said contacts and energized only when the switch is closed; with a device for positively closing the switch by spring-pressure, and a pneumatically-controlled device for positively opening the switch, all substantially as and for the purpose described.

8. In a pressure-controlled electric switch, the combination of a contact, a switch-lever carrying a movable contact, a spring for moving the switch-lever to open the contact; and a magnet for holding the lever in closed position; with a plunger adapted to be moved one way by pneumatic pressure, a spring for moving the plunger in the opposite direction, an insulated block carried by the plunger, opposite fingers attached to said block on opposite sides of the switch-arm adapted to alternately and respectively positively close the switch, under the action of the plunger-spring, and open the switch under the action of the pneumatic pressure, substantially as described.

9. In an electric pressure-controlled switch, the combination of a cylinder, a plunger working therein, a spring for depressing said plunger, an adjustable means for varying the tension of said spring; a pivoted switch-lever, a finger connected to said plunger for closing the switch, and a second finger connected to said plunger to open the switch, and a spring for snapping the switch fully open; with an electromagnet engaging the switch-lever to hold said switch closed until the plunger has raised sufficiently to permit the switch to be snapped open, all substantially as described.

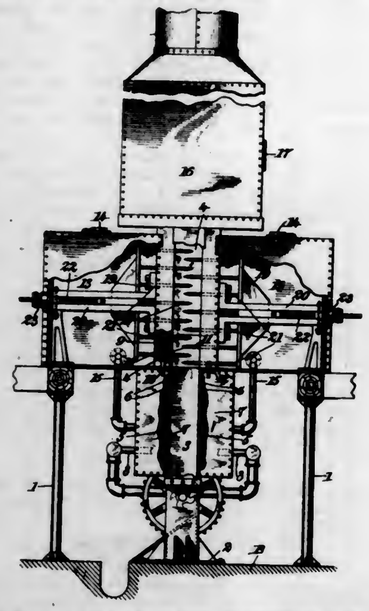
10. In a pressure-controlled electric switch, the combination of a plunger subjected to air-pressure on one side, a rotatable threaded rod, a traveling nut on said rod, and a spring interposed between said nut and plunger to counteract the air-pressure; with a switch-lever beside said plunger, an electromagnet for holding the switch-lever in closed position, and devices connected to said plunger, respectively adapted to positively close the switch under the spring-actuated movement of the plunger, and to disengage the switch from the magnet under the pressure-actuated movement of the plunger, and a spring to snap the switch open, substantially as described.

788,330. **APPARATUS FOR THE TREATMENT OF ORES.** ROBERT G. REILLY, Albuquerque, N. Mex., assignor of two-thirds to Thomas J. Curran, Albuquerque, N. Mex. Filed Apr. 15, 1904. Serial No. 203,343.

Claim.—1. In apparatus for treating ores, a vertical smelting-chamber comprising a lower and an upper section, the lower section being provided with lateral apertures above the bottom thereof, air-chambers adjacent to the lower section and communicating with the said apertures, air-chambers adjacent to the upper section, means for forcing cold air into the said upper and lower air-chambers, and agitating devices arranged in the upper air-chambers and having bars arranged to project through apertures in the walls of the upper section of the smelting-chamber.

2. In apparatus for treating ores, a vertical smelting-chamber comprising a lower and an upper section, the lower section being provided with lateral apertures, air-chambers adjacent to the lower section and communicating with the said apertures, air-chambers adjacent to the upper section of the smelting-chamber, means for forcing cold air into the said upper and lower air-chambers, means movable in the upper air-chambers and extending into the upper smelting-section to agitate the contents of said upper section, and means at the bottom of the smelting-chamber for discharging the contents thereof at a substantially uniform rate.

3. In apparatus for treating ores the combination with a vertical smelting-chamber having apertures in its side wall, of means for intermittently agitating the contents of the smelting-chamber during a portion of its descent, the said means comprising cross-heads mounted to reciprocate at opposite sides of the smelting-chamber, and each provided with a plurality of pointed arms or bars projecting through the apertures in the walls of the smelting-chamber, and means for reciprocating the cross-heads.



4. In apparatus for treating ores, the combination with a vertical smelting-chamber having water-jackets at its sides, of agitating devices having bars extending through said water-jackets and movable transversely within the chamber, the bars at one side being out of alinement with the bars at the other side.

5. In apparatus for treating ores, the combination with a vertical smelting-chamber having apertures in the side walls thereof, of agitating devices having bars projecting horizontally through said apertures, the bars at one side being out of alinement with the bars at the other side, and means for imparting movement to said agitators.

6. In apparatus for treating ores, the combination with a smelting-chamber, of water-jackets arranged adjacent thereto, tubes extending through said water-jackets into the smelting-chamber, and agitating devices having bars slidably arranged in said tubes and susceptible of introduction into said smelting-chamber and of retraction therefrom.

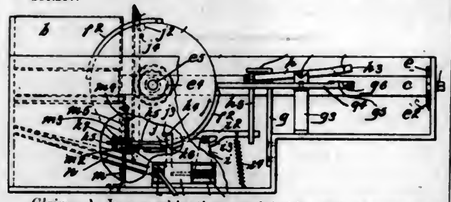
7. In apparatus for treating ores, the combination with a smelting-chamber, of water-jackets adjacent to said smelting-chamber, tubes extending through said water-jackets into said smelting-chamber, air-chambers external to said water-jackets with which said tubes communicate, agitating devices having bars of smaller diameter than said tubes slidably mounted in said tubes and susceptible of retraction into said air-chambers, and means for forcing air into said air-chambers.

8. In apparatus for treating ores, the combination with a vertical smelting-chamber provided with lateral apertures in its lower portion, of air-chambers communicating with said apertures, means for forcing air into the said air-chambers, devices for agitating the material in the upper part of the smelting-chamber, and a rotary discharging device at the lower end of said chamber.

9. In apparatus for treating ores, the combination with a vertical smelting-chamber, of means at the bottom of said chamber for discharging the contents thereof at a substantially uniform rate, means for forcing air into said chamber above the bottom thereof, agitating devices for the material arranged to be introduced into the upper part of the smelting-chamber and retracted therefrom, and means for cooling the agitating devices when retracted.

10. In apparatus for treating ores the combination with a vertical smelting-chamber, of water-jackets arranged at the sides thereof, a plurality of tubes extending transversely through said water-jackets and opening at one end into the smelting-chamber, air-chambers at the outer sides of said water-jackets and with which the other ends of said tubes communicate, agitating devices comprising cross-heads mounted to slide on suitable guideways located in the air-chambers, and each provided with a plurality of bars arranged to project through said tubes into the smelting-chamber, means for imparting movement to said cross-heads, to alternately introduce the said bars into the smelting-chamber and to retract them into the air-chambers, means for forcing air into said air-chambers, and a valve for each air-chamber.

788,331. **COMBINATION MATCH-SAFE AND CIGAR-CUTTER.** BERT RIVKIN, New York, N. Y. Filed July 12, 1904. Serial No. 216,217.



Claim.—1. In a combination match-holder and cigar-cutter, a main box or case, a match-receptacle in one corner thereof, the bottom of which is inclined downwardly from the opposite sides thereof and provided with a longitudinal opening, a spring-roller shaft mounted longitudinally in the main box or case and provided with a drum beneath said opening and having longitudinal grooves formed therein and provided at its opposite sides with casings, a crank-shaft mounted at one side of said drum and provided with a trap-door which is adapted to inclose the bottom of said drum, a gear-wheel mounted on the spring-roller shaft, a supplemental shaft mounted at right angles to the spring-roller shaft and provided with a small gear-wheel which meshes with the first-named gear-wheel, a drum mounted on the supplemental shaft and provided at its opposite sides with diagonal flanges or ribs, a cigar-cutting lever adapted to swing in a horizontal plane and to be operated by the flanges or rims on said drum, a lever mounted adjacent to the cigar-cutting lever and in a higher plane and adapted to swing in a vertical plane and provided with a head having an opening adapted to receive the tip of a cigar, a chute arranged below the match-receptacle and extending to the front side of the main box or case and communicating with the slot or opening formed therein, devices adapted to hold the drum on the supplemental shaft against rotation, means whereby the depression of the head of the lever over the cigar-cutting lever will release said devices and permit the said drum and the spring-roller shaft to turn through a part of a revolution, and other devices operated by the drum on the supplemental shaft to actuate the crank-shaft and cause the discharge of a match from the match-receptacle and to open and close the end of said chute, substantially as shown and described.

2. In an apparatus of the class described, a main box or case, a match-receptacle mounted in one corner thereof and the bottom of which is inclined downwardly from its opposite sides and provided with an opening, a spring-roller shaft mounted longitudinally of the main box or case and provided with a drum beneath said opening and having longitudinal grooves, said drum being also inclosed at its opposite sides, a trap-door mounted beneath said drum and adapted to inclose the bottom thereof, a gear-wheel mounted on the spring-roller shaft, a supplemental shaft mounted at right angles to the spring-roller shaft and provided with a gear-wheel which meshes with the first-named gear-wheel, a drum mounted on the supplemental shaft and provided at its opposite sides with diagonal ribs, a cigar-cutting lever mounted at right angles to the supplemental shaft and adapted to be operated in a horizontal plane by the flanges or ribs on said drum, a lever mounted over the cigar-cutting lever and adapted to swing in a vertical plane and provided with a head having an opening adapted to receive the tip of a cigar, a chute mounted beneath the match-receptacle and extending to the front of the main box or case and communicating with a slot or opening formed therein, a slide mounted in said slot or opening and adapted to close the end of said chute, devices whereby the drum on the supplemental shaft is locked against rotation, means whereby the depression of the head of the lever over the cigar-cutting lever will release said devices and allow said drum and the spring-roller shaft to turn though part of a revolution, and other devices actuated by said drum for operating the trap-door at the bottom of the drum on the spring-roller shaft and also for operating said slide, substantially as shown and described.

3. In a device of the class described, a main box or case, a match-receptacle mounted in one corner thereof and the bottom of which is provided with an opening toward which said bottom is inclined from the opposite sides of the match-receptacle, a spring-roller shaft mounted in the main box or case and provided with a drum beneath the opening in the match-receptacle and having longitudinal grooves adapted to receive matches, said drum being provided at its opposite sides with casings, a trap-door mounted beneath said drum and adapted to close the bottom thereof, a chute mounted beneath the match-receptacle and extending to the front of the main box or case and communicating with a slot or opening formed therein, means for holding the spring-roller shaft against rotation, devices for cutting off the tip of a cigar and for allowing the said shaft to rotate through part of a revolution, and other devices for operating the trap-door beneath the drum on the spring-roller shaft and for discharging a match in said chute, substantially as shown and described.

4. In an apparatus of the class described, a main box or case, a match-receptacle mounted in one corner thereof and provided in the bottom thereof with an opening toward which the opposite sides of said bottom are inclined, a spring-roller shaft mounted in the main box or case and provided with a drum beneath the opening in the bottom of the match-receptacle, said drum being provided longitudinally with grooves, and at the opposite sides thereof with segmental casings, a supplemental shaft mounted at right angles to the spring-roller shaft and geared in connection therewith, a drum mounted on the supplemental shaft, a cigar-cutting lever pivoted adjacent to said drum and adapted to swing in a horizontal plane and to be operated by said drum, another lever mounted over the cigar-cutting lever and provided with a head having an opening adapted to receive the tip of a cigar, a chute placed beneath the match-receptacle and extending to the front of the main box or case and communicating with a slot or opening formed therein, a slide mounted in said slot or opening and adapted to close the end of said chute, devices operating to prevent the rotation of the supplemental shaft means whereby the depression of the head of the lever over the cigar cutting lever will actuate said devices and permit the supplemental shaft to turn through part of a revolution, and devices connected with said drum to operate said slide, substantially as shown and described.

5. In an apparatus of the class described, a main box or case, a cigar-cutting lever pivoted therein and adapted to swing in a horizontal plane, a supplemental lever pivoted over the horizontal lever and provided with a head having an opening adapted to receive the tip of a cigar and to be depressed by the cigar, a shaft mounted at right angles to the cigar-cutting lever, a drum mounted on said shaft and adapted to operate said lever, a match-receptacle mounted in one corner of the main box or case, a chute arranged thereunder and extending to the front side of the main box or case and communicating with a slot or opening formed therein, devices whereby the depression of one end of the supplemental lever will rotate said shaft and the drum mounted thereon and operate the cigar-cutting lever, and other devices operated by said drum for discharging a match from said receptacle into said chute and for opening and closing the end of said chute, substantially as shown and described.

6. In an apparatus of the class described, a cigar-cutting lever adapted to swing in a horizontal plane, a supplemental lever mounted thereover and provided with a head having a hole adapted to receive the tip of a cigar, the head of said lever being adapted to be depressed in a vertical plane by the insertion of the tip of a cigar, a shaft mounted at right angles to the cigar-cutting lever and provided with a drum adapted to operate said lever, a match-receptacle in one corner of the main box or case and provided in the bottom with an opening toward which said bottom is inclined from the opposite sides of the receptacle, a spring-roller shaft mounted in the main box or case and provided with a drum beneath the opening in the bottom of the match-receptacle and having longitudinal grooves, a gear-wheel mounted on the spring-roller shaft and geared in connection with the first-named shaft, devices for locking the said shafts against rotation and adapted to be operated by the depression of the head of the supplemental lever, and other devices operated by the drum on the first-named shaft to discharge a match from the receptacle, a chute arranged beneath said receptacle and extending to the front of the main box or case and communicating with a slot formed therein, and devices operated by said drum for opening and closing said chute, substantially as shown and described.

788,332. MEANS FOR SHUTTING OR CLOSING HATCHWAYS. ERNST F. A. VON SCHRÖTTER, Hamburg, Germany. Filed Sept. 12, 1904. Serial No. 224,091.



Claim.—1. In a hatchway, the combination with a metallic coaming, of removable channel-shaped hood-supports and means on the ends of said supports to secure them to and flush with the outer face of the coaming, substantially as and for the purpose set forth.

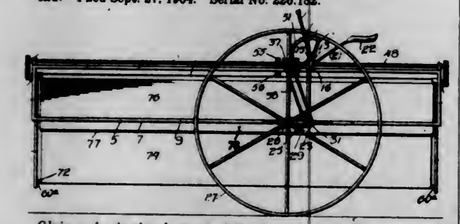
2. In a hatchway having coamings, the combination with a suitable number of hoods; of hood-supports U-shaped in section to divide the hatchway into as many portions as there are hoods to cover the hatchway, means to removably secure the supports at their ends in the hatchway-coamings, and means to make the joint between the supports and hatchway water-tight and to frictionally secure the ends of said supports in place in the coamings.

3. In a hatchway, the combination with a metallic coaming having cut-away portions and U-shaped plates, overlapping the sides of the cut-away portions, of a removable hood-support, an engaging member or plate on each end of the support seated and closing said cut-away portions flush with the outer face of the coaming, and a sealing member to effect a water-tight joint between the plates and securing members, substantially as and for the purpose set forth.

4. In a hatchway, the combination with a metallic coaming having cut-away portions and U-shaped plates overlapping the sides of said cut-away portions, of removable channel-shaped hood-supports, a securing-plate on each end of the supports to fit the cut-away portions flush with the outer face of the coaming, and adjustable sealing members secured to the supports and movable to and from the joint between the securing-plates and U-shaped plates, substantially as and for the purpose set forth.

5. In a hatchway, the combination with a metallic coaming having cut-away portions, of removable channel-shaped hood-supports whose ends are supported in and flush with the outer face of said coaming in the cut-away portions, and filling members adapted to fill the cut-away portions when the supports are removed, substantially as described.

788,333. INSECT-CATCHER. FLOYD W. SCOFIELD, Plymouth, Ind. Filed Sept. 27, 1904. Serial No. 226,182.



Claim.—1. An implement of the class described comprising a wheeled body, means for varying the height of the body with respect to the wheels, beaters carried by the body and arranged to lie one at either side of a row of plants, connections between the beaters and the wheels for operation thereby, carriers arranged to receive matter from the beaters, and receptacles disposed to receive matter discharged from the carriers.

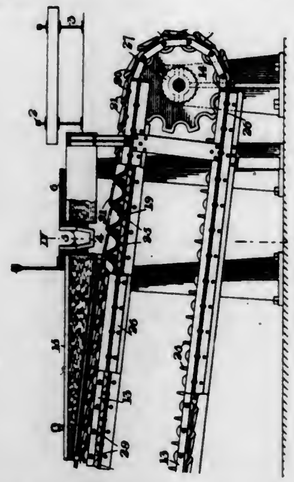
2. An implement of the class described, comprising a body, beaters mounted in the body and arranged to lie one at either side of a row of plants, carriers mounted in the body and arranged to receive matter from the beaters, means for varying the position of the carriers with respect to the beaters, and means for operating the beaters and the carriers.

3. An implement of the class described, comprising a body, beaters mounted in the body and arranged to lie one at either side of a row of plants, one of said beaters being disposed rearwardly of the other, adjustable carriers arranged to receive matter from the beaters, and receptacles arranged to receive matter from the carriers.

4. In a farm implement, the combination with a body containing operative mechanism, of stub-shafts carried by the body at either side thereof, arms pivotally engaged with the stub-shafts at one end, and having spindles projecting outwardly at right angles thereto at their remaining ends, ground-wheels rotatably mounted upon the spindles, wheels mounted upon the stub-shafts, connections between said wheels and the ground-wheels, a shaft rotatably mounted upon the body and having cranks at its ends, connections between the cranks and the arms for movement of the latter, a hand-lever connected with the last-named shaft for movement thereof, means for holding said shaft at different points of its movement, and connections between the wheels mounted upon the stub-shaft and the operative mechanism for operation of the latter through movement of the former.

5. An implement of the class described comprising a wheeled body, beaters mounted in the body and arranged to lie one at either side of a row of plants, said beaters comprising two separable sections, and wisps of flexible material secured between said sections, said flexible material extending beyond the sides of the sections, carriers arranged to receive matter from the beaters, and means for operating the beaters and the carriers.

788,334. APPARATUS FOR CASTING METAL. JAMES SCOTT, Pittsburg, Pa., assignor to American Casting Machine Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Aug. 31, 1899. Serial No. 729,097.



Claim.—1. In casting apparatus, the combination with two or more adjacent sets of molds, having mechanism for moving them, of an intermediate casting-pot provided with a well, and troughs integral with and leading from it, and means for tilting the pot, whereby the liquid metal may be directed into either set of molds, or in equal or varying streams into both sets; substantially as described.

2. In casting apparatus, the combination with one or more sets of molds, of mechanism for moving them, and a casting-pot arranged to receive molten metal, said pot having a well and one or more integral lateral troughs, substantially as described.

3. In casting apparatus, the combination with molds, of means for moving them horizontally, and a protective water-pan located above the line of movement of the molds, and sufficiently close thereto to aid in the cooling of the contained metal; substantially as described.

4. In casting apparatus, the combination with molds, of means for moving them, a pouring-pot having lateral discharge-troughs, and a water-pan extending above the molds and about the pot and arranged to protect the mold-carrier from the molten metal and aid in cooling the molten metal; substantially as described.

5. In casting apparatus, a mold having at its sides upwardly-projecting splashers; substantially as described.

6. In casting apparatus, the combination with an endless carrier, and molds carried thereon, of a discharge-chute consisting of inclined parallel bars, having a spring-supported carrying-rod; substantially as described.

7. In casting apparatus, the combination with an endless carrier having molds, of a discharge-chute composed of parallel bars having at one end a supporting-rod hinged to the frames, and at the other end a supporting-rod carried by a vertically-extending spring-support; substantially as described.

788,335. GARMENT ATTACHMENT. FRANK M. SHEPARD, Homestead, Pa. Filed July 2, 1904. Serial No. 215,106.



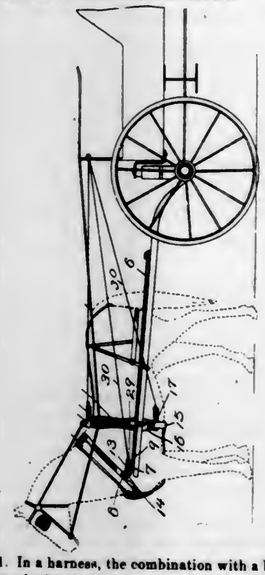
Claim.—1. An attachment of the character described, consisting of a single piece of metal of U shape and having on one side a downwardly-projecting spring-tongue, and on the other side an outwardly and upwardly projecting tongue, the last-named side being formed with a plurality of inwardly-projecting lugs with upwardly-extending points.

2. An attachment for garments consisting of a single piece of metal of U shape adapted to clasp the waistband of a garment and having on its outer side an integral tongue with its free end extending downwardly, said tongue being adapted to embrace a belt, and having on its inner side a second integral tongue with its free end extending upwardly, said last-named tongue being adapted to engage a garment and support the same.

3. A garment attachment composed of a single piece of metal having two integral tongues cut out of the body of the metal, said body being formed to approximately U shape, one of said tongues extending from near the bend of the body outwardly and downwardly adjacent one side of the body in a compound curve and forming a spring-clasp adapted to receive a belt, the other of said tongues extending inwardly and upwardly adjacent the other side of the body and being adapted to engage a garment.

4. An attachment for garments consisting of a clasp of approximately U shape and having on one side a tongue with its free end toward the end of the clasp and having on the other side a tongue with its free end toward the center of the clasp, said clasp having lugs on one side extending toward the other side.

788,336. HORSE-RELEASER. JAMES F. SHLEETER, Lake Linden, Mich. Filed Oct. 28, 1904. Serial No. 230,343.

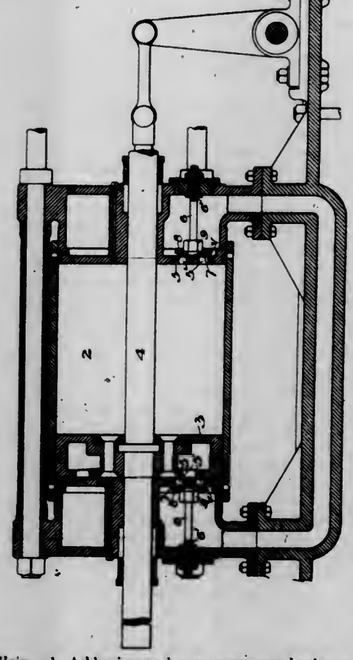


Claim.—1. In a harness, the combination with a back-strap, of a block connected with the back-strap and having a passage therethrough, a guide-plate secured to the block, a shaft slidably connected with the guide-plate and having a recess in its upper face adjacent to its forward end, said shaft being arranged for movement to bring its recessed portion into and out of the passage of the block, means for holding the shaft yieldably with its recessed portion in the passage, a block removably disposed in the recess and lying normally within the passage, a check-hook connected with the last-mentioned block and lying exteriorly of the passage, and a checkrein engaged with the hook, said shaft being movable against the action of the holding means to bring its recessed portion out of the passage to permit of the disengagement of the block therefrom.

2. A check-hook comprising a block having a passage therethrough, a guide-plate connected with the block and extending rearwardly therefrom, a shaft disposed upon the guide-plate for movement thereover into and out of the passage, said guide-plate having its rearward end turned upwardly and perforated, a rod secured to the shaft and slidably engaged in the perforation of the guide-plate, a spring disposed between the shaft and the upwardly-turned end of the guide-plate and arranged to hold the shaft normally within the passage, said shaft having a recess therein lying normally within the passage, a block removably disposed in the recess, and a hook connected with the block and lying outwardly of the passage when the block is in its normal position, said hook being adapted for the attachment of a checkrein thereto.

3. In a horse-releasing harness, the combination with a draft-yoke and a back-strap, of traces detachably connected with the yoke, a belly-band detachably connected with the back-strap, a block connected with the back-strap and having a passage therethrough, a guide-plate secured to the block, a shaft slidably connected with the guide-plate and having a recess in its upper face adjacent to its forward end, said shaft being arranged for movement to bring its recess portion into and out of the passage in the block, means for holding the shaft yieldably with its recess portion in the passage, a block removably disposed in the recess and lying normally within the passage, a check-hook connected with the last-named block and lying exteriorly of the passage, said hook being arranged for engagement with the checkrein, cords connected with the shaft and with the connections between the traces and the yoke and the band and back-strap, for movement of the latter into their inoperative positions, and for movement of the shaft to bring its recess portion out of the passage and release the second-named block.

788,337. VALVE. EDWIN E. SLICK, Pittsburg, Pa. Filed Aug. 26, 1903. Serial No. 170,821.



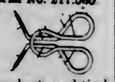
Claim.—1. A blowing-engine or compressor having a cylinder with a stationary head provided with an outlet-valve, said valve containing a thin resilient sheet-metal disk clamped at its center and arranged to bend backwardly on both sides in opening, and a curved

stop back of the disk having a substantially cylindrical surface arranged to contact therewith, substantially as described.

2. In a blowing-engine or compressor a cylinder having a stationary chambered head with ports at its inner end, a valve controlling said ports and containing a sheet-metal disk clamped at its center, a removable valve-seat containing the ports, a stem for said seat extending through the sheet-metal valve and secured by an external device, and a back-stop for the valve having a substantially cylindrical surface; substantially as described.

3. A blowing-engine or compressor having a stationary head, a removable seat therein with through-ports, said seat having a stem extending outwardly through a chamber in the head and provided with an external securing device, a valve containing a thin sheet-metal disk clamped at the center around the stem, and a back-stop surrounding the stem in the rear of the valve and having a substantially cylindrical surface arranged to prevent breaking of the valve in opening; substantially as described.

788,338. **NECKTIE-HOLDER.** WILLIAM B. SMITH, Buffalo, N. Y. Filed July 21, 1904. Serial No. 217,560.



Claim.—1. An independent necktie-holder for adjusting and holding the tie in any desired position consisting of a holding-loop, open at the bottom, for removable engagement with the shank of the collar-button, parallel vertical spring extensions of the loop, between which the shank of the collar-button is sprung upwardly into the holding-loop, side steadying-loops near the plane of the holding-loop and penetrating-prongs which lie in a plane located at right angles to the plane in which the holding-loop lies, for temporary holding insertion within the material of the tie, as and for the purpose stated

2. An independent necktie-holder for adjusting and holding the tie in any desired position consisting of a holding-loop, open at the bottom, for removable engagement with the shank of the collar-button, parallel vertical spring extensions of the loop, between which the shank of the collar-button is sprung upwardly into the holding-loop, side steadying-loops near the plane of the holding-loop and diverging penetrating-prongs which lie in a plane located at right angles to the plane in which the holding-loop lies, for temporary holding insertion within the material of the tie, as and for the purpose stated.

788,339. **INGOT-STRIPPING APPARATUS.** CLARENCE L. TAYLOR, Alliance, Ohio, assignor to The Morgan Engineering Company, Alliance, Ohio. Filed Sept. 30, 1903. Serial No. 125,418.

Claim.—1. In an ingot-stripper, the combination with a hollow rack-bar carrying tongs, and a screw within the bar, of a plunger also within the bar and carrying a nut which engages the screw and means for rotating the screw.

2. In an ingot-stripper, the combination with a counterweighted rack-bar, tongs carried by the bar, means for opening the tongs, a screw located within the bar and means for rotating the screw, of a plunger and a nut carried by the plunger and actuated by the screw.

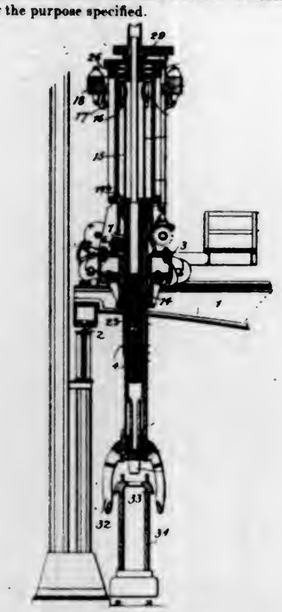
3. In an ingot-stripper, the combination with a rack-bar, tongs carried by the bar, a screw located within the bar, and means for opening the tongs, of a plunger carried by the bar and a nut carried by the plunger and engaging the screw.

4. In an ingot-stripper, the combination with a rack-bar, a support therefor, means for moving the rack-bar, and a counterweight for same, of a screw within the bar, a plunger also carried by said bar and moved longitudinally independently of the bar by the screw, and means for rotating the screw.

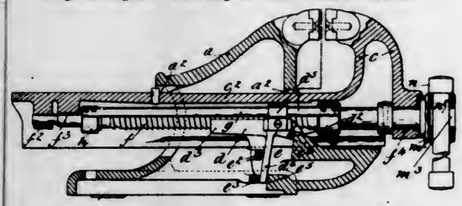
5. In an ingot-stripper, the combination with a bar, carrying tongs, a thrust-sleeve within the bar and a nut carried by said sleeve, of a plunger, a nut therein, and a single shaft having screw-threads for engaging the nut carried by the sleeve, and threads for engaging the nut on the plunger.

6. In an ingot-stripper, the combination with a bar, tongs carried thereby and means for opening the tongs, of a screw-shaft within the bar, means for rotating said shaft, a plunger passing through the lower end of said bar and engaging threads on the shaft, and a shield carried by said plunger and projecting upwardly above the screw-threaded section of the shaft and forming a receptacle for a lubricant.

7. In an ingot-stripper, the combination with a bar, tongs carried thereby, means for opening the tongs and a nut located within the bar, of a double screw-shaft, one threaded section of which engages said nut, a plunger carrying a nut which engages the other threaded section of the shaft, the said plunger extending through the lower end of the bar, and a shield secured to said plunger and projecting around and above the said nuts and threaded sections of the shaft, for the purpose specified.



788,340. **PARALLEL BENCH-VISE.** GEORGE B. TAYLOR, Birmingham, England. Filed Aug. 15, 1904. Serial No. 220,833.



Claim.—1. In a bench-vise, the combination of a fixed jaw, a movable jaw working in the fixed jaw, a rotatable screw carried by the movable jaw, a screw-box rising and falling in a guideway in the fixed jaw, a frictionally-operated coupling means having a fixed position on said screw relative to longitudinal movement, and means carried by the coupling means for actuating the said box.

2. In a bench-vise, the combination of a fixed jaw, a movable jaw working in the fixed jaw, a rotatable screw carried by the movable jaw, a screw-box rising and falling in a guideway in the fixed jaw, a plurality of clips encircling the screw and longitudinally immovable with respect thereto to frictionally grip the same, and a connecting-link between the said clips and the screw-box for actuating the latter.

3. In a bench-vise, the combination of a fixed jaw, a movable jaw working in the fixed jaw, a rotatable screw carried by the movable jaw, a screw-box rising and falling in a guideway in the fixed jaw, frictional gripping-clips on said screw, a bar connecting the said clips, and means for attaching said screw-box to said bar.

4. In a vise, the combination of a fixed jaw-section, a movable jaw-section having a rotatable screw in said movable section, a screw-box longitudinally immovable with respect to the fixed section, and an automatic means having a fixed position on said screw and movable therewith for causing the screw-box to engage and disengage the screw.

5. In a parallel bench-vise, the combination of a fixed jaw, a movable jaw working in said fixed jaw, a rotatable screw carried by the movable jaw, a screw-box rising and falling in a guideway in the fixed jaw so that when the screw engages the screw-box the thrust between the said box and the fixed jaw is below the lowest line of the screw engagement, frictionally-gripping clips on said screw and having a fixed position relative to longitudinal movement thereof, a bar connecting the said clips, and means for connecting the said screw-box to the said bar.

6. In a parallel bench-vise, the combination of a fixed jaw, a movable jaw working in said fixed jaw, a rotatable screw carried by the movable jaw, a screw-box rising and falling in a guideway in the fixed jaw, and means longitudinally immovable on the screw and provided with a member between the said screw and the said box for actuating the latter.

7. In a parallel bench-vise, the combination of a fixed jaw having upon the under side of its base a series of rigid bosses, a movable jaw working in said fixed jaw, a rotatable screw carried by the movable jaw, a movable member rising and falling in a guideway of the fixed jaw for gripping the said screw and a frictionally-operated connecting means coöperating with the movable member and the said screw, and longitudinally immovable with respect to the latter.

8. In a parallel bench-vise, the combination of a fixed jaw, a movable jaw working in said fixed jaw, a rotatable screw working in the movable jaw, a gripping member working in a guideway in the fixed jaw and an automatic frictionally-operated coupling means having an element longitudinally immovable on the screw for actuating the said member, said element coöperating with the rotatable screw and the said member.

9. In a vise the combination of a fixed jaw-section, a movable section, having a rotatable screw in said movable section, a movable screw-box in said first-mentioned section, means movable with the screw for causing the screw-box to engage and disengage the screw, and an automatic frictional means for gripping the screw.

10. In a vise the combination of a fixed jaw-section, a movable jaw-section, having a rotatable screw in said movable section, a movable screw-box in said first-mentioned section, means movable with the screw causing the screw-box to engage and disengage the screw, an automatic frictional means for gripping the screw, and guides for the screw-box.

11. In a vise having a movable jaw-section, a rotatable screw carried by the said movable section, a movable box having a fixed position relative to the longitudinal movement of the screw in one of the jaw-sections for engaging and disengaging the screw, automatic frictional grip-collars carried by the screw, a spring for regulating the friction, and means movable with the screw carried by the collars for causing the said box to engage and disengage the screw.

12. In a parallel bench-vise, a fixed jaw, a movable jaw having a hollow and open-bottom shank to work in and out of the said fixed jaw, a rotatable screw applied to the movable jaw in the interior of said shank to slide with the said movable jaw, a screw-box provided in the fixed jaw below the rotatable screw and disposed so that it will permit sliding of the movable jaw from the fixed jaw, and frictional means applied to the screw to lift the screw-box into engagement and allow it to fall out of engagement.

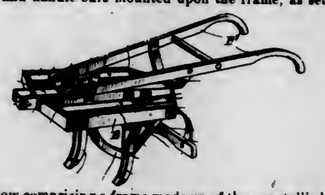
13. In a bench-vise, a fixed section having a jaw, a movable section having a jaw, mounted in the first-mentioned section, a rotatable screw in said movable section, means having a fixed position relative to the longitudinal movement of the screw for engaging and disengaging the same, and an automatic frictional gripping means having a member on the screw and movable therewith for actuating the first-mentioned means.

14. In a bench-vise, jaws, at least one of the same being movable, a rotatable screw carried by said movable jaw, a member having a fixed position relative to the longitudinal movement of the screw for engaging and disengaging the same, and a frictionally-gripping means including an element carried by the screw and movable therewith for automatically actuating the said member.

15. In a parallel bench-vise, the combination of a fixed jaw, a movable jaw working in the fixed jaw, a rotatable screw having a hand-operable means to actuate the same carried by the movable jaw, a gripping element longitudinally immovable with respect to the fixed jaw for engaging and disengaging the screw, and an automatic coupling means having a member moving with the screw for actuating the said element.

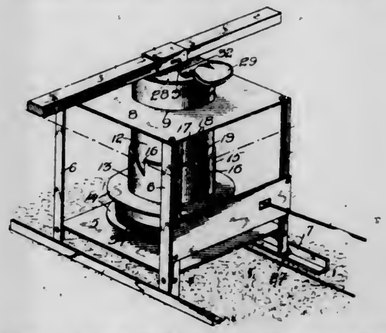
788,341. **PLOW-STOCK.** NARVEL C. WADE, Summerland, Miss. Filed Dec. 27, 1904. Serial No. 238,424.

Claim.—1. A plow comprising a frame made up of three metallic beams, a metallic guard-bar secured adjacent to the outer face of each of the outer beams and spaced apart therefrom, the ends of said guard-bars being secured to the central beam, and adjustable plow-standards mounted upon said outer beams and guided in their longitudinal movements by the adjacent faces of an outer beam and guard-bar, and handle-bars mounted upon the frame, as set forth.



2. A plow comprising a frame made up of three metallic beams, a metallic guard-bar secured adjacent to the outer face of each of the outer beams and spaced apart therefrom, the ends of said guard-bars being secured to the central beam, portions of said guards being bent to form braces which are fastened to said central beam, and the ends of the bars being angled and engaging over the ends of said central beam, adjustable plow-standards mounted upon the outer of said beams and guided in their longitudinal movements in the space intermediate the adjacent faces of the outer beams and said guards, and handle-bars mounted upon the frame, as set forth.

788,342. **POWER MECHANISM.** FRANK L. WILLIAMS and JOSEPH J. DUCHESNE, Portage, Wis. Filed Feb. 24, 1904. Serial No. 194,998.



Claim.—1. A power mechanism comprising a rotatably-mounted drum, a second drum rotatably disposed upon the first-named drum, and means carried by the first drum to at times prevent rotation of the second drum thereon.

2. A power mechanism comprising a rotatably-mounted drum, a second drum rotatably disposed upon the first drum, and a latch carried by the first drum and adapted for engagement of the second drum at times to prevent rotation thereof upon the first-named drum.

3. A power mechanism comprising a rotatably-mounted drum, a second drum rotatably disposed upon the first-named drum and having notches therein, and a latch carried by the first-named drum and lying normally in engagement with one of the notches of the second-named drum, said latch being movable out of engagement with the notches.

4. A power mechanism comprising a rotatably-mounted drum, a second drum rotatably disposed upon the first drum and having a flange surrounding the first-named drum, said flange having notches therein, a latch carried by the first-named drum and lying normally in engagement with one of the notches of the flange to prevent rotation of the two drums independently, said latch being movable out of engagement with the notches, and being adapted for engagement with said notches interchangeably.

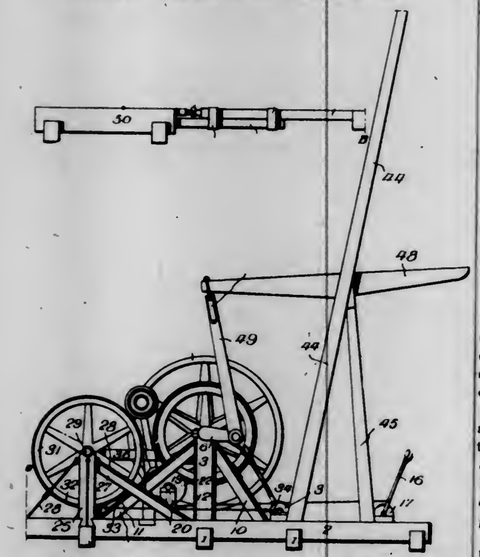
5. A power mechanism comprising a rotatably-mounted drum, a second drum rotatably mounted upon said drum, a flange carried by the second drum and having a plurality of notches therein, and a latch carried by the first-named drum and adapted for engagement with the notches of the flange interchangeably to prevent independent rotation of the two drums.

6. A power mechanism comprising a rotatably-mounted drum,

a second drum rotatably disposed upon said drum, a flange carried by the second drum and having a plurality of notches therein, the first-named drum having a slot therein, a latch pivoted in the slot and adapted for engagement with the notches of the flange interchangeably to prevent independent rotation of the two drums, said latch having a shank projecting inwardly of the first-named drum, a rod pivotally connected with the free end of the shank, and a lever mounted adjacent to the first-named drum and pivotally connected with the rod, said rod and lever being adapted for operation to disengage the latch from the notches.

7. A power mechanism comprising a rotatably-mounted drum, a second drum rotatably disposed upon said drum, the second drum having a flange having a plurality of notches therein, a latch carried by the first-named drum and adapted for engagement with the notches of the flange interchangeably to prevent independent rotation of the two drums, means for disengaging the latch from the notches and a supplemental means for disengaging the latch from the notches.

788,343. **WELL-DRILLING MACHINERY.** WILLIAM ACKERMAN, Chanute, Kans. Filed Aug. 20, 1904. Serial No. 221,589.



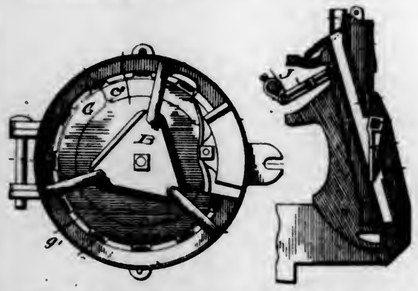
Claim.—1. In a rig of the character described, the combination with a platform having a main drive-shaft thereon, and a friction-wheel upon the shaft; of a second shaft above the platform, a bull-wheel mounted thereon, a slide interposed between the friction and bull wheels, a friction-pulley upon the slide adapted to move into or out of contact with the friction and bull wheels, and means for operating the slide.

2. In a rig of the character described, the combination with a platform having a mast thereon, and a sheave upon the mast; of a main drive-shaft journaled above the platform, a friction-wheel upon the shaft, a second shaft journaled above the platform, a bull and a brake wheel arranged thereon, a slide interposed between the friction and bull wheels, a power-transmitting pulley upon the slide, and means for shifting the pulley into and out of contact with the friction and bull wheels.

3. In a machine of the character described, the combination with a platform having a mast thereon, and a sheave upon the mast; of a main drive-shaft journaled above the platform, a friction-wheel thereon, a crank-revoluble with the shaft, a spudding-wheel on the crank, a second shaft journaled above the platform, a bull-wheel thereon, a slide interposed between the friction and bull wheels, a power-transmitting pulley on the slide, and means for moving the pulley into or out of contact with the adjacent wheels.

4. In a machine of the character described, the combination with a platform having a derrick thereon; of a shaft journaled above the platform, a brake-wheel and a bull-wheel upon the shaft and revoluble therewith, a brake-band inclosing the brake-wheel, a main drive-shaft, a friction-wheel thereon, a slide interposed between the bull and friction wheels, a friction-pulley upon the slide, means for moving the pulley into or out of contact with the friction and bull wheels simultaneously, a crank revoluble with the main drive-shaft, and a spudding-wheel upon the crank.

788,344. **CORN-PLANTER.** WILLIAM L. BRALL, Albion, Mich., assignor to Gale Manufacturing Company, Albion, Mich. Filed Jan. 31, 1905. Serial No. 243,479.



Claim.—1. In an edge-drop plate, the combination with a depressed rim provided with a series of seed-cells, of an inclined portion extending from the raised portion of said plate to said depressed rim and into said cells, whereby the kernels of corn are tilted and fed edgewise into said cells, substantially as described.

2. In an edge-drop plate, the combination with a depressed rim provided with a series of seed-cells, of an inclined portion extending from the raised portion of said plate to said depressed rim and into said cells and inclined faces near the edge of said plate between the cells whereby the kernels of corn are tilted and fed edgewise into said cells, substantially as described

3. In a corn-planter of the kind described, the combination with a hopper provided with a discharge-chute, of an edge-drop plate rotatably mounted in said hopper and adapted to feed the kernels of corn into said chute and a triangular plate stationarily mounted in said hopper above said drop-plate and adapted to force the kernels onto said plate, substantially as described.

4. In a corn-planter of the kind described, the combination with a hopper provided with a discharge-chute, of an edge-drop plate rotatably mounted in said hopper and adapted to feed the kernels of corn into said chute and a triangular plate secured to the hopper-casing by inverted-U-shaped braces, the brace opposite said discharge-chute being provided with a web portion whereby the kernels are guided into said drop-plate, substantially as described.

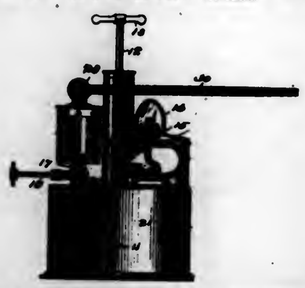
5. In a corn-planter of the class described, the combination of a hopper provided with a discharge-chute, of a plate rotatably mounted in said hopper and adapted to feed kernels of corn into said chute one by one, a tube pivotally mounted in said chute and adapted to be thrown into registration with the discharge-opening of the hopper for drill-planting, said tube being provided with a projection to close said discharge-opening when said tube is out of registration therewith, said discharge-chute being also provided with a projection constructed to close said tube when out of registration with said opening, a plate pivoted in said discharge-chute and extending into said tube to close said tube when out of registration with said opening, an arm outside of said chute connected with said pivoted plate, and means for holding said arm in different positions whereby said plate may be adjusted into operative and inoperative positions, and means for connecting said tube with the check-row mechanism, substantially as described.

788,345. **VAPORIZER.** GODFREY BEAUMONT, Dallas, Tex. Filed Oct. 3, 1904. Serial No. 227,053.

Claim.—1. In a vaporizer, the combination with a base constituting an air-reservoir and means for compressing air therein, of a casing upon said base, valved means for supporting the casing upon the base and for establishing communication between it and the base, a detachable receptacle within the casing, a crooked air-conducting means extending from the valved means to the interior of the receptacle, and an outlet-tube extending through the casing.

2. In a vaporizer, the combination with a base constituting an air-reservoir and means for compressing air therein, of a casing upon

the base, valved means for supporting the casing upon the base and for establishing communication between said casing and base, a detachable receptacle within the casing, a crooked air-conducting means extending from the valved means to the interior of the receptacle, an outlet-tube extending through the casing, and detachable heating means upon the base and below the tube.



3. In a vaporizer, the combination with a base constituting an air-reservoir, of a commpressing device at one side and communicating with the base, a supporting-stand for said compressing device, a casing upon the base, valved means connecting said casing with the reservoir and adapted to establish communication therebetween, a detachable receptacle within the casing, a detachable crooked air-conveyer extending from the valved means into the receptacle, an outlet-tube detachably connected to the casing, and a detachable heating device upon the base and below the tube.

4. In a vaporizer, the combination with a base constituting an air-reservoir and air-compressing means communicating with the base, of a casing, valved means for supporting the casing upon the base, said means serving to establish communication between the base and casing, a removable receptacle within the casing, a device for conducting air from the valved means to the interior of the receptacle, a heating device upon the base and an outlet-tube movably mounted upon the casing and adapted to be moved into position above the heating device.

5. In a vaporizer, the combination with a base constituting an air-reservoir and air-compressing means communicating with the base, of a casing, valved means for supporting the casing upon the base, said means serving to establish communication between the base and casing, a removable receptacle within the casing, a removable crooked air-conveyer extending from the valved means and into the receptacle, a heating device upon the base and an outlet-tube movably mounted upon the casing and adapted to be moved into position above the heating device.

788,346. **FORM FOR SALES-SLIPS.** WARREN F. BECK, Elmira, N. Y. Filed Aug. 22, 1904. Serial No. 221,602.



Claim.—1. A sales-slip having one end provided with a space containing a place designated to receive a customer's name, said space also containing a designated place of entry for the amount of the customer's account brought forward from a preceding slip, a designated place of entry for the footing of the items entered on the slip, and a designated place of entry for the total account.

2. A sales-slip having one end provided with a space containing designated name and date lines, together with places of entry for the amount of a cutsomer's account brought forward from a preceding slip, the footing of the items entered on the slip, and the total account, said places of entry being arranged in sequence at one side of said space and appropriately designated.

788,347. **ANTIFRICTION-BEARING.** JOHN BEVINGTON, Cordova, Nebr. Filed June 13, 1904. Serial No. 212,374.

Claim.—1. A device of the character described, comprising a spindle having a groove, the end walls of the groove being fixed with respect to the spindle, rolls disposed within said groove, and a laterally-removable box interposed between said rolls for normally maintaining the same in position, lateral movement of the box permitting removal of said rolls.



2. A device of the character described, comprising a spindle having a longitudinal groove of the same width throughout its depth, the end walls of the groove being fixed with respect to the spindle, rolls positioned within said groove, and a laterally-removable box provided with parallel sides interposed between said rolls for normally retaining the same within said groove, lateral movement of the box permitting removal of the rolls.

3. A device of the character described, comprising a spindle formed with a groove, the end walls of the groove being fixed with respect to the spindle, a plurality of rolls disposed longitudinally within said groove and arranged end to end, and a laterally-removable locking-box interposed between said rolls and engaging the ends thereof for normally maintaining the rolls within the groove.

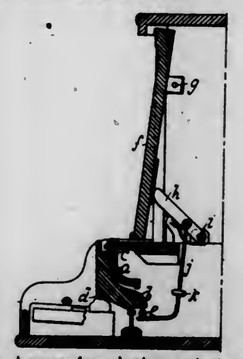
4. In a device of the character described, the combination of a spindle, provided with a longitudinal groove having a fixed closure at each end, a recess formed in said spindle at each end of said groove, a concaved, integral portion formed upon said spindle near each end of said groove, rolls provided with integral, annular extensions formed upon each end journaled within said grooved portion of the spindle, a laterally-removable box positioned between said rolls comprising a body portion provided with parallel sides, the ends of said box provided with recesses, and an intergal concaved portion projecting in opposite directions near the base of said box.

5. The combination with a spindle, of rolls carried thereby, and laterally-movable locking means interposed between said rolls for normally maintaining the same in position, said locking means being adapted to lie normally in approximately the same horizontal plane with the rolls, and being adapted to be moved laterally for permitting lateral removal of the rolls from the spindle.

6. In a device of the character described, the combination with a spindle formed with a groove, the end walls of the groove being fixed with respect to the spindle, of rolls journaled in said groove, and a laterally-removable box interposed between said rolls and formed with integral bearing extensions near the base thereof, lateral movement of said box being adapted to permit removal of said rolls from the groove.

7. A device of the character described, comprising an axle formed with a plurality of approximately horizontal grooves, the end walls of each of said grooves being fixed with respect to the spindle, rolls disposed within each of said grooves, and locking means interposed between said rolls and susceptible of lateral movement for releasing the rolls.

788,348. **MUSIC-DESK.** ARTHUR BOLLERMANN, New York, N. Y. Filed Nov. 14, 1904. Serial No. 232,770.



Claim.—1. A case or frame having a swinging front, an actuating-lever for the front, a link for the lever, and a fall free from and made to swing onto the link in opening so as to move the latter with the lever to open the front.

2. A case or frame having a swinging front, an actuating or opening lever for the front, a returning-spring for the lever, a link

for the lever, and a fall detached from the link and made to move the same in opening to cause the lever to press against the front.

3. A swinging front, a lever having a fixed pivot or fulcrum back of the front, a spring secured below the lever to lift or swing the same away from the front, an actuating-link for the lever, and a fall made to depress the link in opening to move the lever against the spring and open the front.

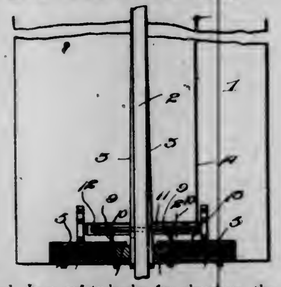
4. A case or frame having a front, a lever pivoted at one end and having its other end extended to the front, a returning-spring for the lever, a link connected to the lever intermediate its ends, and a fall made to act on the link in opening so as to move the lever and open the front.

5. A case or frame having a front, a lever for opening the front, a link having one end connected to the lever, and a fall, the other end of the link being bent into the path of the fall so that as the latter opens it strikes or contacts on the link to actuate the same with the lever.

6. A case or frame having a front and an opening-lever for the front, a suitably-guided reciprocating link connected to the lever, and a fall having a noiseless antifriction-roller made to press on the link as the fall opens to actuate the same with its lever and open the front.

7. A case or frame having an adjustable guide or eye, a link engaged by the guide, a fall clear of the link and made to engage the same in opening, a lever jointed to the link, a returning-spring for the lever, and a front engaged or opened by the lever.

788,349. **SAFETY-BRAKE FOR ELEVATORS.** THOMAS BOYLAN, Widdowfield, Wyo., assignor of one-half to Daniel Veitch, Widdowfield, Wyo. Filed Nov. 18, 1904. Serial No. 233,373.



Claim.—1. In a safety-brake for elevators, the combination with a fixed braking-surface, of a car carrying housings on opposite sides of said braking-surface, brake-shoes slidably mounted in said housings and adapted to be projected to engage said surfaces, stems carried by said shoes, springs in the housings surrounding said stems and bearing against said shoes, the shoes being provided with seat-recesses, dogs movable in said housings and adapted to engage the seat-recesses to hold the shoes retracted and to engage the rear ends of the shoes to hold them projected, and means for operating said dogs.

2. In a safety-brake for elevators, the combination with a fixed braking-surface, of a car, casings on the car, shoes slidably mounted in said casings and adapted to be projected to engage the braking-surface, said shoes being provided with seat-recesses, stems carried by the shoes, springs surrounding said stems and bearing against the shoes to project them from the casings, dogs slidably fitted in the casings and adapted to engage the seat-recesses to hold the shoes retracted and to engage behind the shoes to hold them projected, a rock-shaft provided with crank-arms to which the dogs are pivoted, and means for rocking said crank-shaft.

788,350. **DOLL ORNAMENTAL FIGURE.** DAGOBERT BUDWIG, Berlin, Germany, assignor to Berlin-Neuroder Kunstanstalten Actiengesellschaft, Berlin, Germany. Filed Dec. 23, 1903. Serial No. 186,291.

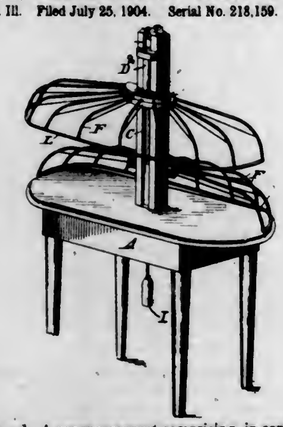
Claim.—1. The combination of a series of pieces of flexible material projecting outwardly in the form of radial sections from a common axis, said pieces being secured to each other along said axis and also, except two of them, to each other along radial lines, the radial lines of connection between each piece which is connected with neighboring pieces on both sides and its immediate neighbor on one side being staggered with reference to the radial lines of connection between said piece and its immediate neighbor on the other side, and means for detachably securing the two non-interconnected pieces of said series together, substantially as described.



2. The combination of a series of pieces of flexible material projecting outwardly in the form of radial sections from a common axis, said pieces being secured to each other along said axes and also, except two of them, to each other along radial lines, the radial lines of connection between each piece which is connected with neighboring pieces on both sides and its immediate neighbor on one side being staggered with reference to the radial lines of connection between said piece and its immediate neighbor on the other side, pieces of stiff material secured to the non-interconnected members of said series of pieces of flexible material, and means for detachably securing said pieces of stiff material together, substantially as described.

3. The combination of a series of pieces of flexible material projecting outwardly in the form of radial sections from a common axis, said pieces being secured to each other along said axis and also, except two of them, to each other along radial lines extending to their outer or peripheral edges, the radial lines of connection being arranged in transverse rings and connecting alternate pairs of pieces of flexible material in successive rings, pieces of stiff material secured to the non-interconnected members of said series of pieces of flexible material, and means for detachably securing said pieces of stiff material together, substantially as described.

788,351. **SCREEN-COVER FOR TABLES.** SAMUEL BURRELL, Carmi, Ill. Filed July 25, 1904. Serial No. 218,159.

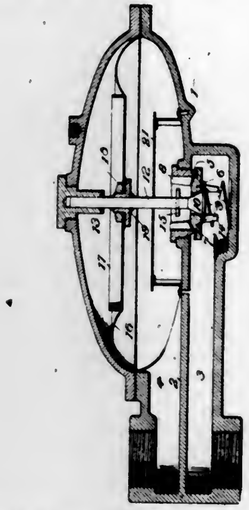


Claim.—1. A canopy-support comprising, in combination with a post having a groove in the face thereof, a slide guided in said groove, a skeleton frame supported by said slide, and a weighted member, a rope secured at one end to said member, a sheave over which the rope passes and the other end of the rope secured to said slide, as set forth.

2. In combination with a hollow post having an angular-outlined groove, a slide having an angular projection mounted in said groove, a shelf secured to said slide, a skeleton canopy-supporting frame fixed to said shelf, a sheave mounted upon the post, a rope secured at one end to said slide and passing over said sheave, and a weight fastened to said rope, as set forth.

3. In combination with a hollow post and support therefor, a slide having an angular tongue adapted to have a vertical play in an angular-outlined groove formed longitudinally in said post, a shelf recessed upon one face and having shouldered portions extending about the sides of the post, a skeleton frame supported by said shelf, a sheave upon the post, a rope secured to said slide and passing over said sheave, a weight secured to said rope which passes through the hollow post, as set forth.

788,352. **FLUID-PRESSURE REGULATOR.** ERNEST W. CRAWFORD, Pittsburg, Pa., assignor to The Chaplin-Fulton Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Aug. 26, 1904. Serial No. 222,297.



Claim.—1. A pressure-regulator comprising a casing having inlet and outlet chambers with a communicating passage-way of area corresponding to the respective inlet and outlet openings of said chambers, a valve normally closing said passage-way, a second valve controlling an opening between said chambers of considerably less area than that of said passage-way, means for unseating said second valve, such unseating movement within the full limit thereof admitting high inlet-pressure while said former valve is closed, the opening of said former valve occurring during the further movement of said second valve when the outlet-pressure is below a predetermined point.

2. A pressure-regulator comprising a casing having inlet and outlet chambers with a communicating passage-way of area corresponding to the respective inlet and outlet openings of said chambers, a valve for said passage-way, means for normally holding said valve seated, a second valve controlling an opening between said chambers of considerably less area than that of said passage-way, means for unseating said second valve to admit high inlet-pressure while said former valve is closed, such means being independent of that by which said former valve is held seated, and means carried by said second valve for engaging and unseating said former valve when the pressure at the outlet falls below a predetermined point.

3. A pressure-regulator comprising a casing having inlet and outlet chambers with a communicating passage-way of area corresponding to the respective inlet and outlet openings of said chambers, a valve fitted in said opening and normally held to its seat by the pressure in the inlet-chamber acting initially against its outer face, said valve having an opening forming a passage-way of reduced area between the two chambers, a second valve for closing said opening, means for unseating said second valve when the pressure in the outlet-chamber falls below a predetermined point, the first-mentioned valve remaining seated, and means for unseating said first-mentioned valve when it is necessary to maintain equal pressures in both chambers.

4. A pressure-regulator comprising a casing having inlet and outlet chambers with a communicating passage-way of area corresponding to the respective inlet and outlet openings of said chambers, a valve fitted in said opening and normally held to its seat by the pressure in the inlet-chamber acting initially against its outer face, said valve having an opening forming a passage-way of reduced area between the two chambers, a second valve for closing said opening, means for unseating said second valve when the pressure in the outlet-chamber falls below a predetermined point, the first-mentioned valve remaining seated, and means for also unseating said first-mentioned valve when the second valve is fully unseated.

5. The combination with the casing having inlet and outlet chambers, a communicating passage-way, and a diaphragm, of a valve for closing said passage-way having an opening forming a second passage-way between the two chambers, a high-pressure valve closing said opening, and having its stem connected to said diaphragm, means for weighting such stem, independent means for normally holding said first-mentioned valve seated, and means carried by the high-pressure valve for unseating the first-mentioned valve when the high-pressure valve is fully unseated.

788,353. **BOTTOM PACKING FOR OIL-WELLS.** WILLIAM H. DOWNING, Parkersburg, W. Va. Filed Dec. 16, 1904. Serial No. 237,141.



Claim.—1. A well casing or tubing, a packer, and set-screws connecting the tubing and packing to permit the packer to slide without operating the screws.

2. A well-casing coupling having a screwless end, the set-screws, and a packer slidably held to the coupling by the screws.

3. A well casing or tubing, a packer having telescopic connection with the casing or tubing, and set-screws making said connection and adapted to slide on the packer under pressure of the casing or tubing.

4. A well-casing coupling having set-screws, and a tube having an annular groove engaged by the screws to hold the coupling and the tube together and to permit telescopic movement thereof.

5. A well-casing coupling having set-screws, a tube having an annular groove engaged by the screws to make a telescopic connection, and a packing-ring carried by the tube and acted upon by the coupling to expand it on the bottom of the well.

6. The combination, with a well-casing having suitable couplings, and a terminal coupling having screw-threaded apertures, of a tube having an annular groove and slidable in the coupling, a packing-ring carried by the tube and expanded under pressure of the said coupling, and set-screws connecting the tube and the coupling and permitting a telescopic movement thereof.

7. The combination, with a well-casing having suitable couplings, and a coupling having screw-threaded apertures, of a tube having an annular depression overlapped by the said coupling to have the depression and the apertures register, a packing-ring exending from the end of the coupling to the bottom of the tube, and set-screws

engaging the depression and adapted to slide therefrom in set position under pressure applied to the coupling.

788,354. SHOE. KARL ENGEL, Lynn, Mass. Filed July 8, 1904. Serial No. 215,762.



Claim.—A shoe consisting of an upper, upper-lining, sock-lining, sole and welt, the upper-lining extending around the fore part to but not beyond the sock-lining and extending around the counter portion down for the full width of the upper, the upper-lining and sock-lining being united at their edges around the fore part by a continuous strong seam of stitches to take a substantial portion of the strain of the foot on the shoe, said parts being of such size that they are stretched tightly over the last during the construction of the shoe, the entire edge of the upper and the edge of the counter portion of the upper-lining being turned outwardly and secured to the edge of the sole by the welt and a seam of stitches extending entirely around the sole, substantially as described.

788,355. TIRE-TIGHTENER FOR VEHICLE-WHEELS. ROBERT F. FRAZIER, Cloverdale township, Putnam county, Ind. Filed Jan. 21, 1905. Serial No. 242,141.



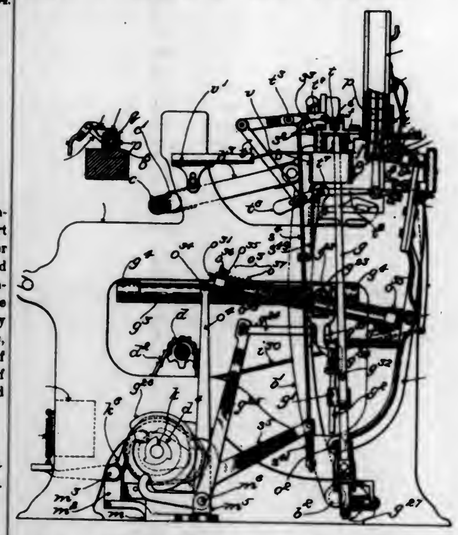
Claim.—1. In combination with a vehicle-wheel having the felly cut away and a tire cut opposite thereto, a tire-tightener mounted in said cut-away portion consisting of blocks secured to the ends of the tire and having bores therethrough, a part of said bores being screw-threaded and part being smooth, a right and left hand screw-threaded bolt to engage the screw-threads in said blocks, and washers bearing against the free ends of the felly having shanks to fit into the smooth parts of said bores, substantially as shown and described.

2. In combination with a vehicle-wheel having its felly cut away, the tire cut opposite said cut-away portion on beveled planes and having holes near the free ends thereof, blocks having studs integral therewith secured in the holes in the tire, a right and left hand screw-threaded bolt, bores in said blocks having threads to engage the threads on said bolt, the outer ends of said bores being smooth, and washers bearing against the free ends of the felly and having shanks to fit into the smooth parts of said bores, substantially as shown and described.

788,356. WEFT-REPLENISHING MECHANISM FOR LOOMS. HENRY I. HARRIMAN, New York, N. Y., assignor to The American Loom Company, Readville, Mass., a Corporation of New Jersey. Filed Mar. 24, 1902. Serial No. 99,578.

Claim.—1. In combination, the shuttle-body having the chamber to receive a filling-case, and having oblique or inclined surfaces or shoulders at opposite ends of the entrance to said chamber, the filling-case having correspondingly inclined or oblique surfaces or shoulders at opposite ends thereof, to coact with the said surfaces or shoulders of the shuttle-body in causing the filling-case to adjust itself longitudinally to the position of the shuttle, and a pusher for introducing said filling-case into said chamber constructed to permit the filling-case to shift in the direction of its length in entering said chamber.

2. In combination with the lay, an injector or pusher, the shuttle, and the filling-case, provided with means to shift the filling-case longitudinally so as to cause it to register with the entrance to said chamber, when the shuttle is misplaced relative to the filling-case, and the shuttle-box side having an opening of greater length than that of the filling-case so as to permit the longitudinal shift of the filling-case in being brought into register with the chamber.



3. In combination with the lay, and an injector or pusher, the shuttle having the chamber to receive a filling-case, the filling-case having oblique or inclined deflecting surfaces at opposite ends thereof to contact with shoulders at the respective ends of said chamber, when the shuttle is misplaced relative to the filling-case, and cause the filling-case to adjust itself longitudinally into register with the said chamber.

4. In combination with the lay, a filling-case, and an injector or pusher, the shuttle having the chamber to receive a filling-case, and provided with oblique or inclined deflecting surfaces or shoulders at opposite ends of said chamber to shift the filling-case longitudinally into register with said chamber when the shuttle is relatively misplaced.

5. In combination, the lay, the injector or pusher, the supports moving in unison therewith and also movable relative thereto, said supports engaging with the lay as the injector or pusher advances toward the latter, and a stop to arrest the said supports in the predetermined normal position thereof independently of the injector or pusher as the injector or pusher retracts.

6. In combination, the lay, the injector or pusher, the supports frictionally mounted and moving in unison with said injector or pusher, said supports engaging with the lay as the injector or pusher advances toward the latter, and a stop to arrest the said supports in the predetermined normal position thereof as the injector or pusher retracts.

7. In combination, the lay, the shuttle, a filling-case, an injector or pusher to introduce said filling-case into the chamber of said shuttle, and a filling-case-positioning device external to the shuttle to cause the filling-case to occupy the correct position in the shuttle after being introduced by the injector or pusher.

8. In combination, the lay, the shuttle, a filling-case, an injector or pusher to introduce said filling-case into the chamber of said shuttle, and a filling-case-positioning device coacting with the filling-case in the shuttle to correct misplacement thereof.

9. In combination, the lay, the shuttle, a filling-case, an injector or pusher to introduce said filling-case into the chamber of said shuttle, a filling-case-positioning device, and means to cause said device to act against the filling-case in the shuttle and correct misplacement thereof.

10. In combination, the lay, the shuttle, a filling-case, an injector or pusher to introduce said filling-case into the chamber of said shuttle, the filling-case-positioning rocker, and means to actuate said rocker.

11. In combination, the lay, the shuttle, a filling-case, an injector or pusher to introduce said filling-case into the chamber of said shuttle, the filling-case positioner, and the change-shaft in operative control of said injector or pusher and positioner.

12. In combination, the lay, the shuttle, a filling-case, an injector or pusher to introduce said filling-case into the chamber of said shuttle, the filling-case positioner, and operating means for said positioner containing a yielding member to obviate injury when the movement of said positioner is obstructed.

13. In a weft-replenishing loom, in combination, a reserve-filling magazine independent of the lay, an injector to transfer filling from said magazine to the lay, a detector acting in connection with the contents of said magazine, knocking-off devices, a going part, and a bunter in operative connection with said knocking-off devices and detector and automatically actuated from said detector to be moved into the path of the said going part when the detector indicates deficiency of reserve filling in the magazine.

14. In a weft-replenishing loom, in combination, a reserve-filling magazine independent of the lay, an injector to transfer filling from the magazine to the lay, the detector controlled by the reserve charge of filling next succeeding the one about to be fed by the injector, knocking-off devices, a going part, and the bunter in operative connection with said knocking-off devices and detector, and automatically actuated from said detector to cause the same to become engaged by said going part to operate the knocking-off devices when said reserve charge is lacking or absent from its place adjacent the detector.

15. In a weft-replenishing loom, in combination, a reserve-filling magazine, the injector for transferring reserve filling from said magazine to the lay, the detector controlled by the reserve charge of filling next succeeding the one about to be fed by the injector, the rock-shaft with which said feeler is connected, the knock-off lever, the bunter, the going part, and the arm on said rock-shaft controlling the engagement of said bunter with said going part.

16. In a weft-replenishing loom, in combination, the lay, means to transfer a reserve-filling carrier to the lay and cause the same to expel before it the filling-carrier previously upon the lay, a movable stop to engage the expelled filling-carrier and hold the same so as to arrest the freshly-fed filling-carrier in its proper position, and operating means for the movable stop, said operating means acting to withdraw the said stop after the aforesaid action has taken place, to permit the escape of the expelled filling-carrier.

17. In a weft-replenishing loom, in combination, the lay, means to transfer a reserve filling-case to the lay and cause the same to expel before it the filling-case previously contained in the shuttle on the lay, the rocker mounted on the lay, and operating means for said rocker whereby the same is caused to stop the latter filling-case in being expelled from the shuttle and thereby arrest the freshly-fed filling-case in proper position within the shuttle, and subsequently is withdrawn to permit the expelled filling-case to escape.

18. In a weft-replenishing loom, in combination, the lay, a support for expelled filling-cases, means to transfer a reserve filling-case to the lay and cause the same to expel before it the filling-case previously contained in the shuttle on the lay, the movable stop mounted on the lay, and operating means for said stop whereby the same is actuated to hold the latter filling-case in being expelled from the shuttle and thereby arrest the freshly-fed filling-case in proper position within the shuttle, and subsequently is withdrawn to permit the expelled filling-case to escape upon said support.

19. In a loom, in combination, picking mechanism comprising, essentially, motion-transmitting members arranged to move in unison in effecting the picking, one thereof having a shoulder which engages with another thereof to transmit movement thereto to effect the picking, and the change-shaft operatively connected with one of said members and acting to move the same transversely with relation to the coacting member to disestablish the engagement of the shoulder with the other member and thereby suspend the picking.

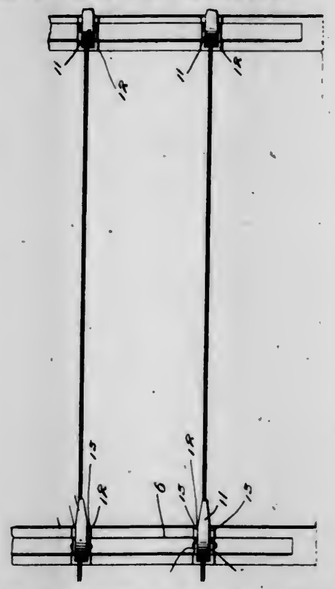
20. In a loom, in combination, picking mechanism comprising, essentially, motion-transmitting pivoted members mounted to swing in unison in effecting the picking, one thereof having a shoulder which engages with the other to transmit movement thereto to effect the picking, and the change-shaft operatively connected with one of said members and acting to move the same transversely with relation to the coacting member to disestablish the engagement of the shoulder with the other member and thereby suspend the picking.

21. In a loom, the swinging picking-arm, means to operate the same, the picker-stick, and the motion-transmitting connections between said picking-arm and picker-stick, the construction embracing essentially two arms, one whereof engages with the other to cause the two to swing in unison in effecting the picking, and in combination therewith means to swing one of said arms transversely with relation to the other, to disengage the arms from each other and suspend the picking.

22. In a loom, in combination, the swinging picking-arm, means to operate the same, the picker-stick, and the motion-transmitting connections between said picking-arm and picker-stick, the construction embracing essentially two members mounted to swing in the line of the pick, one whereof engages with the other to cause the two to swing in unison in effecting the picking, and in combination therewith means to swing one of said members in a direction from front to rear in the loom to disengage it from the coacting member and thereby suspend the picking.

23. In a loom, in combination, the swinging picking-arm, means to operate the same, the picker-stick, and the motion-transmitting connections between said picking-arm and picker-stick, the construction embracing essentially two members mounted to swing in the line of the pick, one whereof engages with the other to cause the two to swing in unison in effecting the picking, and in combination therewith the change-shaft in operative connection with one of said members and arranged to swing the same in a direction from front to rear in the loom to disengage it from the coacting member and thereby suspend the picking.

788,357. FENCE-WIRE FASTENER. SAMUEL L. HULSEY, Corridon, Mo. Filed July 9, 1904. Serial No. 215,907.

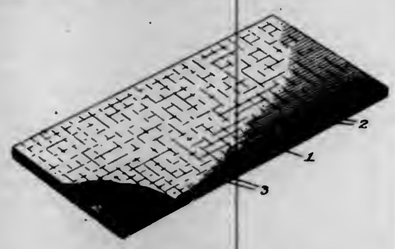


Claim.—In a fence-post, the combination with a slotted upright, of a member including a head having two spaced parallel arms extending laterally therefrom intermediate of its ends, said member being disposed with its arms projecting through the slot of the post and with the end portions of its head against the rearward face of the post at the sides of the slot, a plate having a reduced portion intermediate of its ends disposed with said reduced portion between the spaced arms and with its end portions projecting over the forward face of the post at the sides of the slot, and a cam-lever pivoted between the spaced portions beyond the plate, and movable into engagement with the plate to clamp the latter against a wire disposed between it and the upright, and to clamp the head of the member against the upright to prevent movement of the head with respect thereto.

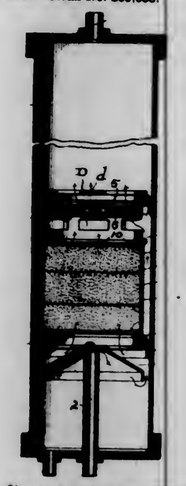
788,358. ROOFING AND SIDING MATERIAL. FRANK D. JACOBS, Northampton, Mass. Filed Mar. 9, 1905. Serial No. 249,296.

Claim.—1. A roofing and siding material, embodying a base or body portion consisting of a continuous sheet of metal, and having on each side a protective layer of fibrous fireproof material, *e. g.*, asbestos or mineral wool, cemented thereto.

2. A roofing and siding material, comprising a base or body portion consisting of a sheet of annealed steel, a protective layer of asbestos sheeting on each side of said base, and intermediate layers of uniting material, *e. g.*, rubber solution and asphalt.



788,359. **WATER-FILTER.** CHRISTIAN KASPER, Cleveland, Ohio. Filed May 26, 1904. Serial No. 209,533.



Claim.—1. In filters, a casing constructed to be set into the service-pipe from a water-main, in combination with a gravity-filter in said casing, said filter being disengaged from said casing at both ends and packed about its side, whereby when water is drawn the filter will rise under pressure from the main and expel the water above the same in the top of the casing, substantially as described.

2. A fluid-filter consisting of a casing having a fluid-inlet at one end and a fluid-outlet at the other end, and a filter in said casing constructed to filter by its own gravity, said casing having fluid-chambers both above and below the filter and the said filter disengaged from the casing at its ends, substantially as described.

3. A water-filter comprising a casing with inlet and outlet openings at its ends and a gravity-filter confined within said casing and constructed to discharge the filtered fluid into the upper end of the said casing, said filter provided with suitable packing about its side against the said casing and free to filter when the flow of water is shut off, substantially as described.

4. A fluid-filter comprising a cylindrical casing having inlet and outlet openings at its respective ends and a gravity-filter therein constructed to rise under pressure as the filtered fluid is withdrawn and to descend by its own gravity when withdrawal of fluid ceases, said filter packed about its side against the inside of the casing and wholly independent of the casing at its ends, whereby the filtered fluid is discharged directly into the top of the casing ready to be drawn off, substantially as described.

5. In filters, a gravity-filter having a chamber filled with granular filtering material and a fibrous material over said chamber to confine said granular material, and a casing in which said filter is confined, said casing having an outlet at its top wholly apart from the filter and the filter free from the casing except about its side, substantially as described.

6. In filters, a casing with an inlet at its bottom for unfiltered fluid and an outlet at its top for filtered fluid, in combination with a gravity-filter in said casing between the ends thereof, and a fluid-inlet pipe projecting into the casing at the bottom and serving as a rest for the filter, thereby also forming a sediment-chamber in the bottom of said casing, substantially as described.

7. In water-filters, a casing having inlet and outlet openings at its respective ends, a gravity-filter in said casing, a fixed stop for said filter projecting into the casing and a shield on the filter over said stop, thereby leaving a space beneath the filter for sedimentary deposits, substantially as described.

8. In water-filters, a casing having an inlet at its bottom and an outlet at its top, a gravity-filter in said casing and a shield interposed between the filter and the said inlet and fixed on said filter, substantially as described.

9. The filter-casing and the plunger-filter therein, and a shield fixed to the bottom of the filter, substantially as described.

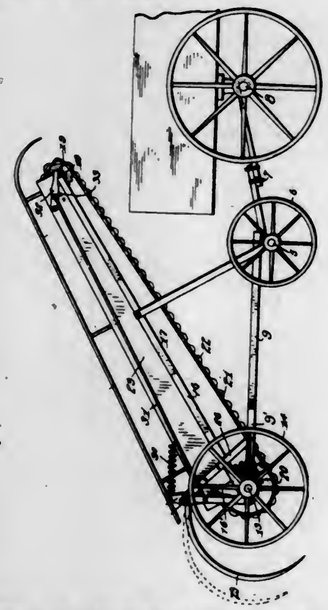
10. The filter-casing having a water-inlet below and a water-outlet above, a plunger-filter therein and a substantially dish-shaped shield fixed to the filter over said inlet, substantially as described.

11. The filter-casing having a water-inlet below and a water-outlet above, a gravity-filter in said casing and means controlled by said filter to substantially close said water-outlet when the filter rises to the top of the casing, substantially as described.

12. A water-filter casing having openings at its ends, and a plunger-filter in said casing having a body containing a granular filtering medium and a separate upper portion containing a fibrous filtering medium, and packing about said filter on the side of the casing, substantially as described.

13. In water-filters, a filter-casing provided with an inlet and an outlet at its respective ends, a filter within said casing between said inlet and outlet ends and disconnected from said ends and constructed to discharge the water within the upper end of the said casing, substantially as described.

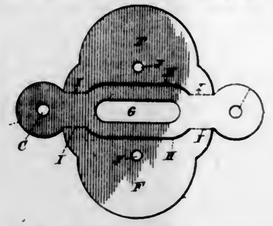
788,360. **HAY-LOADER.** JULES H. F. KUEHL, Iroquois, S. D. Filed July 25, 1904. Serial No. 218,132.



Claim.—1. In a hay-loader, the combination with a wheeled frame, of a shaft journaled in the frame, rake-teeth carried by the shaft, said shaft being movable to bring the teeth into position to gather hay from the ground, a carrier mounted upon the frame and extending upwardly therefrom and disposed with its upper end in position to discharge into a receptacle, connections between the carrier and the wheels for operation of the former, said carrier being disposed to receive hay from the teeth, a wall disposed at either side of the carrier, a cover secured to the outer edges of the walls, means for holding the shaft yieldably with the teeth in inoperative position and means for holding the shaft against the action of the first-mentioned holding means.

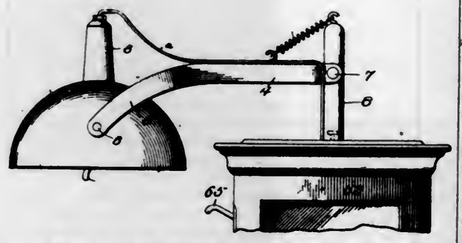
2. In a hay-loader, the combination with a wheeled frame, of a carrier mounted upon the frame and connected with the wheels thereof for operation thereby, the carrier being disposed to discharge into a receptacle, a wall disposed at either side of the carrier, a shaft journaled upon the frame, rake-teeth carried by the shaft, said shaft being movable to bring the teeth into and out of position to gather hay from the ground, oppositely-extending arms carried by each end of the shaft, a pair of springs secured to one arm at each end of the shaft at one end and at their remaining ends to the side walls to hold the shaft yieldably with the teeth in inoperative position, a rod pivoted at one end to the remaining arm at each end of the shaft, levers pivoted at one end to the walls, said rods being pivoted at their remaining ends to the levers between the ends thereof, said levers being movable upon their pivots to move the shaft against the action of the springs, pins disposed at one side of the pivot-points of the levers for engagement by the levers to hold them in position to maintain the shaft with the teeth in operative position, said levers being movable to bring the points of pivotal connection of the rods therewith to the opposite sides of the pivot-points of the levers to permit of movement of the shaft under the action of the springs.

788,361. **PULLEY-FRAME.** LAURENCE S. LACHMAN, New York, N. Y., assignor to Pressed Metal Manufacturing Company, a Corporation of New Jersey. Filed Mar. 4, 1904. Serial No. 196,524.



Claim.—A frame for pulleys and wheels constructed from one piece of sheet metal, and comprising a base portion having a central aperture, the metal at each side of the central aperture being cut on curved lines froming wings attached to the base at each end of the curved slits or cuts by portions of metal, said wings being bent substantially as right angles to the plane of the base to form bearings for the wheel, for substantially the purposes set forth.

788,362. **ANATOMICAL MEASURING AND RECORDING MACHINE.** HENRY C. LAVERY, Superior, Wis. Filed July 14, 1904. Serial No. 216,530.



Claim.—1. In a machine of the class described, a device having means for indicating the variations in development of an anatomical section, and a recording mechanism comprising means for automatically producing a record of each indication of said device and for delivering such record.

2. In a machine of the class described, a device having means for indicating the variations in development of an anatomical section, and a recording mechanism comprising means, controlled by said device, for automatically producing a record of the indications of said device and for delivering such record.

3. In a machine of the class described, a device having means for indicating the variations in development of an anatomical section, and means for selecting and making a record-reading of the indications of said device.

4. In a machine of the class described, a device having means for indicating the variations in development of an anatomical section, and means for selecting and delivering a record of each indication of said device.

5. In a machine of the class described, a device having means for indicating the variations in development of an anatomical section, and a recording mechanism having prepared records for each indication of said device, and means for selecting and printing the individual records.

6. In a machine of the class described, a plurality of devices each comprising means for indicating the variations in development of an anatomical section, and a recording mechanism comprising means for making a permanent record of the indication of each of said devices, and for delivering said record.

7. In a machine of the class described, a device having means for indicating the variations in development of an anatomical section, and a recording mechanism having prepared records for each indication of said device, and means for automatically selecting, printing, and delivering the individual records.

8. In a machine of the class described, a measuring device comprising means for indicating the measurement of an anatomical section, and a recording mechanism, controlled by said measuring device and comprising means for selecting a record corresponding to the indicated measurements of the measuring device, and means for delivering the record.

9. In a machine of the class described, a measuring device having a plurality of measurers for different anatomical sections, and a recording mechanism comprising means for selecting and printing a record for each measurer.

10. In a machine of the class described, a measuring device having a plurality of individual measurers for different anatomical sections, and a recording mechanism, controlled by said measuring device, and comprising means for automatically selecting and printing a separate record for each indicated measurement of each measurer.

11. In a machine of the class described, a device comprising means for indicating the physiological condition of an anatomical section, a recording mechanism having record-printing means, means for selecting a record for printing upon a blank, and means for delivering a printed blank.

12. In a machine of the class described, a measuring device having a plurality of individual measurers for different anatomical sections, and a recording mechanism having record-printing means, means for selecting a record corresponding to the indicated measurement of each measurer, and means for delivering a printed blank.

13. In a machine of the class described, a measuring device having a plurality of individual measurers for different anatomical sections, a recording mechanism comprising record-printing means, blank-tape-feeding means, means for selecting a record for printing corresponding to the indicated measurement of each measurer, and means for severing and delivering a printed record from the blank tape.

14. In a machine of the class described, a device comprising a plurality of indicators for different anatomical sections, and an automatic recording mechanism, operatively related to said device and comprising record-printing means, blank-tape-feeding means, means for selecting for printing a record corresponding to the indication of each of said indicators, and means for severing and delivering a printed record from the blank tape.

15. In a machine of the class described, a device comprising a plurality of indicators for indicating the physiological condition of different anatomical sections, and an automatic recording mechanism comprising a plurality of record-indicators complemental to said other indicators, record-printing means, blank-feeding means, means coöperating with all of the record-indicators for selecting for printing the record corresponding to the indications on the indicators, and means for delivering a printed record.

16. In a machine of the class described, a measuring device comprising a plurality of individual measurers each having measurement-indicating means set to variable positions by contact with an anatomical section, and a recording mechanism comprising means for automatically selecting and making a permanent record of the indications of each of said devices and for delivering such record.

17. In a machine of the class described, a measuring device comprising a plurality of individual measurers each having measurement-indicators including measurement-indicating means set by con-

tact with an anatomical section, and a recorder having a selective printing mechanism embodying indicators complemental to those of the measuring device.

18. In a machine of the class described, a measuring device comprising a plurality of individual measurers proportionately adjustable to different sizes of an anatomical member, and a recorder having selective printing mechanism for recording the measurement of each measurer.

19. In a machine of the class described, a measuring device comprising a plurality of individual measurers proportionately adjustable to various sizes of an anatomical member and each having measuring-indicating means set by contact with a section of said anatomical member, and a selective recording mechanism coöperating with each of the individual measurers, and comprising means for selecting and printing each record.

20. In a machine of the class described, a measuring device comprising a plurality of individual measurers each consisting of a measurement-indicator and a measuring-point, and an automatic recorder having selective printing mechanism embodying indicators complemental to those of the individual measurers.

21. In a machine of the class described, a measuring device comprising a plurality of individual measurers proportionately adjustable to various sizes of an anatomical member and each consisting of a measurement-indicator and a measuring-point, the latter contacting with a section of the anatomical member, and an automatic recorder having selective printing mechanism embodying indicators complemental to those of the individual measurers.

22. In a machine of the class described, a measuring device comprising a plurality of self-adjusting indicator-carriers, and a series of individual measurers carried by said carriers and each consisting of a measurement-indicator and a measuring-point, and an automatic recorder operatively related to the individual measurers.

23. In a machine of the class described, a measuring device comprising a plurality of adjustable indicator-carriers, a series of individual measurers carried by said carriers and having indicating means, an adjustable positioning member comprising means for imparting a proportional adjustment to the indicator-carriers.

24. In a machine of the class described, a plurality of indicator-carriers, individual measurers carried by said carriers and having indicating means, and positioning means operatively connected with said carriers for imparting a proportional adjustment thereto.

25. In a machine of the class described, a measuring device having a plurality of adjustable indicator-carriers carrying individual measurers for different anatomical sections, and adjustable positioning members having locating-elements and operatively related to the carriers for imparting thereto proportional adjustment.

26. In a machine of the class described, a measuring device comprising a plurality of adjustable indicator-carriers, individual measurers carried by said carriers, and a plurality of positioning members each having locating elements, all of said positioning members having a common operative connection with the indicator-carriers for imparting thereto a proportional adjustment according to the size of the anatomical member to be measured and delineated.

27. In a machine of the class described, a measuring device comprising a series of adjustable indicator-carriers, a plurality of individual measurers supported by said carriers and having measuring-points, and a plurality of positioning members having locating-points and operatively connected with said carriers for communicating a proportional adjustment thereto.

28. In a machine of the class described, a measuring device comprising a series of swinging indicating-carriers, each carrying a plurality of individual measurers having measuring-points, a plurality of swinging positioning members having locating elements for engagement with an anatomical member, said positioning members having a common adjustable connection with the several indicator-carriers for communicating thereto a proportional adjustment according to the size of the anatomical member to be measured.

29. In a machine of the class described, a measuring device comprising a series of swinging indicator-carriers each supporting a plurality of individual measurers having measuring-points for contact with a section of the anatomical member to be measured, a series of swinging positioning members having locating-points for engagement with said anatomical member, and adjusting connections between the positioning members and the carriers, said adjusting connections comprising means for spreading or contracting the indicator-carriers proportionately to the size of the anatomical member.

30. In a machine of the class described, a measuring device comprising a central support, a series of radially-arranged indicator-carriers pivotally hung from said support and each carrying a plurality of individual measurers having measuring-points, a series of radially-arranged self-adjusting positioning members also pivotally mounted upon said support and having locating elements for engagement with the part to be measured, a sliding runner, an adjusting element having a link connection with said runner, adjusting-levers extending from the positioning members, and sliding lifting-pins carried by said levers and having lapping wedge-faces operating beneath said adjusting element to provide for the movement of said sliding runner.

31. In a machine of the class described, a measuring device comprising a casing, a central supporting-post arranged within the casing, a series of swinging indicator-carriers pivotally hung from the post and each carrying a series of individual measurers having measuring-points, an extra individual measurer centrally arranged and having an independent carrier, a series of radially-arranged self-adjusting positioning members also pivotally hung from the post and having adjusting-levers and also locating elements for contact with the parts to be measured, a runner slidably mounted on said post and connected with the independent carrier for said extra measurer, spreader connections between the runner and the indicator-carriers, an adjusting element having operative link connections with the runner, and sliding lifting-pins connected with said adjusting-levers of the positioning members and provided with lapping wedge-faces operated beneath said adjusting element for communicating movement to the runner for spreading the indicator-carriers.

32. In a machine of the class described, a measuring device comprising a head-piece, indicator-carriers supported by the head-piece, and positioning members also supported by the head-piece and having locating elements for engagement with the head in the plane of the basilar circumference and the transcoronal line.

33. In a machine of the class described, a measuring device comprising a head-piece, a series of indicator-carriers supported by the head-piece, and a series of positioning members having an adjusting connection with the carriers, certain of said positioning members being arranged to lie over the front and back of the head and having inwardly-projecting locating-points, one for engagement with the nasion, and the other of said positioning members being arranged at opposite sides of the head and each carrying a centering-cuff for engagement with the ear.

34. In a machine of the class described, a measuring device comprising a head-piece having a case and a plurality of individual measurers for the different head-sections, and a recorder, controlled by said measurers, and comprising means for producing a record of each measurement.

35. In a machine of the class described, a measuring device comprising a head-piece carrying a plurality of individual measurers for the different head-sections, and a recorder having selective printing mechanism embodying indicators complemental to the individual measurers of the measuring device.

36. In a machine of the class described, a head-piece carrying a plurality of individual measurers each having measurement-indicating means set by contact with a head-section, and a recorder having selective printing mechanism embodying indicators complemental to the individual measurers.

37. In a machine of the class described, a measuring device comprising a head-piece carrying a plurality of individual measurers each having measurement-indicating means set by contact with a head-section, and an automatic recorder, controllable through the measuring device, and having selective printing mechanism embodying indicators complemental to the individual measurers.

38. In a machine of the class described, a measuring device comprising a head-piece carrying a plurality of individual measurers each consisting of a measurement-indicator and a measuring-point, and an automatic recording mechanism embodying indicators complemental to those of the individual measurers, and comprising means for selecting and printing a record of each measurement.

39. In a machine of the class described, a measuring device comprising a head-piece carrying a plurality of individual measurers each having a measurement-indicator, a recorder having selective printing mechanism embodying indicators complemental to those of the individual measurers, and electrical controlling means.

40. In a machine of the class described, a measuring device having a plurality of individual measurers each including a measurement-indicator, a recording mechanism having a plurality of record-indicators arranged in complemental relation to those of the individual measurers, a printing device including a traveling record-selector coöperating with the series of record-indicators, and a recording-circuit including said selector and separate wire connections between the individual elements of the complemental measurement and record-indicators.

41. In a machine of the class described, a measuring device having a series of individual measurers each including a measurement-indicator having a series of indicating-contacts and a pointer coöperating therewith, a recording mechanism comprising a series of separate record-indicators each complemental to one of the measurement-indicators and having a corresponding series of indicating-contacts, separate wire connections between the corresponding contacts of the complemental measurement and record indicators, printing devices having a plurality of records corresponding to all of the indications of the several indicators, a traveling record-selector coöperating with the record-indicators and the printing devices, and a recording-circuit including the selector, the complemental indicators, and the separate wire connections therewith.

42. In a machine of the class described, a measuring device comprising a plurality of individual measurers each having a measurement-indicator provided with a series of indicating-contacts, a recording mechanism including a successive series of individual record-indicators each complemental to one of the measurement-indicators and having a corresponding number of indicating-contacts, separate wire connections between the corresponding contacts of the complemental indicators, motor-actuated printing devices having a plurality of records corresponding to the indications of the several indicators, and a traveling record-selector arranged to move over and in contact with the contacts of the individual record-indicators, blank feeding and serving means, and recording-circuit connections including the complemental indicators and the traveling record-selector.

43. In a machine of the class described, a measuring device comprising a plurality of individual measurers each having measurement-indicating means set by contact with an anatomical section, and a recorder having selective printing mechanism embodying indicators complemental to those of the individual measurers, a traveling selector coöperating with said indicators, electrically-controlled recording printing means, blank feeding and severing means, and recording-circuit connections including the complemental indicators and the selector.

44. In a machine of the class described, a measuring device having a plurality of individual measurers, a recording mechanism comprising a plurality of individual record-indicators arranged in complemental relation to the individual measurers, circuit-wire connections between the complemental indicators, a motor-driven record-carrier, a traveling record-selector coöperating with the individual record-indicators, blank feeding and impression means, and an electrical controller for said blank feeding and impression means.

45. In a machine of the class described, a measuring device comprising a plurality of individual measurers, and a recording mechanism comprising a plurality of individual record-indicators arranged in complemental relation to the individual measurers, a motor-driven record-carrier, a traveling record-selector coöperating with the individual record-indicators, blank feeding and impression means, and an automatic controller and drive for the blank feeding and impression means.

46. In a machine of the class described, a measuring device comprising a plurality of individual measurers, and a recording mechanism comprising a plurality of individual measurers and a recording mechanism comprising a plurality of individual record-indicators arranged in complemental operative relation to the individual measurers, a motor-actuated printing-drum carrying the records, a similarly-actuated record-selector coöperating with the individual record-indicators, blank feeding and impression means coöperating with the printing-drum, and an automatic controller and drive for the blank feeding and impression means.

47. In a machine of the class described, a measuring device comprising a plurality of individual measurers and a recording mechanism comprising a plurality of individual record-indicators arranged in complemental operative relation to the individual measurers, a motor-driven printing-drum, a similarly-operated selector carried with the drum and coöperating with the record-indicators, blank-tape feeding and impression means, a cut-off device for the printed blank, an automatic controller for the blank feeding and impression means, and an automatic controller for the cut-off.

48. In a machine of the class described, a measuring device comprising a plurality of individual measurers and a recording mechanism comprising a plurality of individual record-indicators arranged in complemental operative relation to the individual measurers, a motor-actuated printing-drum, a similarly-actuated selector coöperating with the record-indicators, a normally inactive combined tape feeding and impression roller coöperating with the printing-drum and a blank tape, an automatic controller for releasing and stopping said combined feeding and impression roller, a cut-off for the printing-blank, and means, controlled by the drum, for actuating said cut-off.

49. In a machine of the class described, a measuring device comprising a plurality of individual measurers, and a recording mechanism comprising a plurality of individual record-indicators arranged in complemental operative relation to the measurers and wired thereto, a motor-driven printing-drum, a similarly-operated record-selector coöperating with the record-indicators, inking means for the drum, a normally inactive mutilated combined feeding and impression roller having a friction-drive from the drum-actuating motor, and carrying the detent member, a blank tape arranged to extend over said roller, a latch-controlling magnet having an armature-latch coöperating with said detent member, and a recording-circuit including said magnet, the record-selector, and the complemental record-indicators and measurers.

50. In a machine of the class described, a measuring device comprising a plurality of individual measurers, a recording mechanism comprising a plurality of individual record-indicators arranged in complemental operative relation to the individual measurers, printing means including a record-selector and a motor-actuated printing-drum carrying a release device, intermittently-operating blank feeding and impression means, cut-off shears for the printing-blank including a movable member, an operating device for the movable shear member, a setting device for the machine having means for setting the shear-operating device, and means, controlled by said release device for causing the shears to operate in the severing operation.

51. In a machine of the class described, a measuring device comprising a plurality of individual measurers, and recording mechanism comprising a plurality of individual record-indicators, record selecting and printing means including a motor-actuated printing-drum carrying a release-cam, a cut-off device comprising stationary and movable shear-blades, a spring-retracted operating-bar connected with the movable shear-blade and provided with a strike projection and a catch-shoulder-holding dog adapted to normally engage said catch-shoulder and to be released through engagement of the release-cam at the finish operation, and a setting device for the recording mechanism including a key member carrying a tappet or setting-pin adapted to move against the strike projection of said operating-bar.

52. In a machine of the class described, a measuring device comprising a plurality of individual measurers, a recording mechanism comprising a plurality of individual record-indicators arranged in complemental operative relation to the individual measurers, record selecting and printing means including a rotatable record-carrier, a motor for the record-carrier having a winding-gear, a toothed key member engaging said gear, an operating-handle, and a releasable coupling connection between said operating-handle and the key member.

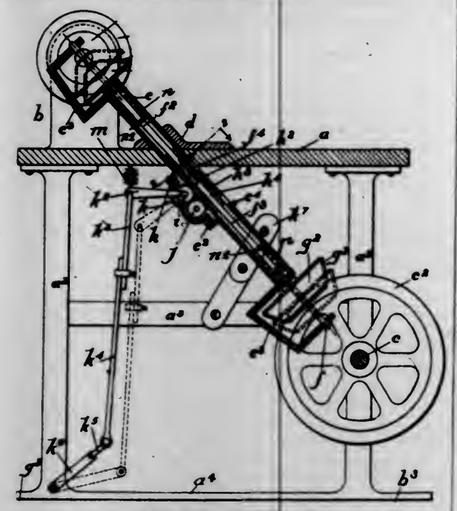
53. In a machine of the class described, the combination of a device comprising means for indicating the physiological condition of an anatomical section, a recording mechanism, controlled by said device, comprising means for making and delivering a record of the indications of said device, a setting member for starting the apparatus, an operating-handle, and a releasable coupling connection between said handle and the setting member.

788,363. DRIVING-GEAR FOR SEWING-MACHINES. MEYER MARGOLIN, New York, N. Y. Filed Jan. 5, 1905. Serial No. 239,704.

Claim.—1. In a power-transmitting mechanism, a tubular casing, a supplemental drive-shaft passing through said casing and composed of separate longitudinally-movable parts, said parts of the supplemental drive-shaft being provided with gears at their outer ends, and means for forcing the parts of the supplemental drive-shaft in opposite directions, comprising racks connected with said parts, intermeshing gears mounted in the central portion of the tubular casing and operating in connection with said racks, and a crank connected with one of said intermeshing gears, substantially as shown and described.

2. In a power-transmitting mechanism, a tubular casing, a supplemental drive-shaft passing through said casing and composed of separate longitudinally-movable parts, gear-wheels connected with the outer ends of said parts of the supplemental drive-shaft, means for forcing said parts of the supplemental drive-shaft outwardly,

and devices for forcing said parts of the supplemental drive-shaft inwardly, substantially as shown and described.



788,364. WARP-CLAMP. ROBERT MAUCHLINE, Phillipsburg, N. J. Filed Feb. 20, 1905. Serial No. 246,375.



Claim.—1. A clamp for maintaining threads in side-by-side disposition comprising two members one of which consists of a base and opposed abutments thereon, one of said abutments having a recess on the side thereof toward the other abutment, and the other member being received by said first-named member, fitting between the abutments thereof and projecting into said recess, substantially as described.

2. A clamp for maintaining threads in side-by-side disposition comprising two members one of which consists of a base and opposed abutments thereon, said abutments having recesses on their inner sides, and the other member being received by said first-named member, fitting between the abutments thereof and projecting into said recesses, substantially as described.

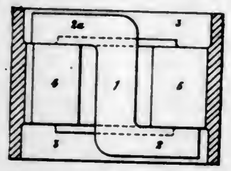
3. A clamp for maintaining threads in side-by-side disposition comprising two members one of which consists of a plate having its opposed ends bent up and forming opposed abutments, one of said ends being rebent to produce a recess, and the other member being received by said first-named member, fitting between the abutments thereof and projecting into said recess, substantially as described.

4. A clamp for maintaining threads in side-by-side disposition comprising two members one of which consists of a plate having one end rebent and forming an overhang and the opposed end bent up in the form of a roll, and the other member being received by said first-named member, fitting between the bent up ends thereof and projecting in under said overhang, substantially as described.

788,365. DYNAMO-ELECTRIC MACHINERY. JOHN H. ST. HILL MAWDSLEY, Taunton, England. Filed Sept. 17, 1902. Serial No. 123,729.

Claim.—1. In a dynamo-electric machine the combination of a Z-coil, the straight part 1 of which lies in the neutral zone and close over and parallel with the coil of the armature which is undergoing commutation, with two field-magnet cores in such manner that the two cores are excited by the said coil.

2. The combination of a Z-coil, the straight part 1 of which lies in the neutral zone and close over and parallel with the coil of the armature which is undergoing commutation, two field-magnet cores excited by the said coil, and a yoke substantially as set forth.



3. The combination of a Z-coil, the straight part 1 of which lies in the neutral zone and close over and parallel with the coil of the armature which is undergoing commutation, two field-magnet cores excited by said coil, a yoke and rings 6, 6, substantially as set forth.

788,366. CONCRETE BUILDING-BLOCK AND WALL. CHARLES A. MEYERS, Leipsic, Ohio. Filed July 8, 1904. Serial No. 215,755.



Claim.—1. The corner building-block consisting of the body portion with a web projecting laterally from both ends and having a recess formed on the end of one web and a recess formed at the corner from which the other web projects, substantially as described.

2. The wall having the body portion formed of a number of L-shaped blocks each having a recess in the corner of the L, equal in depth, from the face of the block inwardly, to the thickness of the body portion of the block, the blocks being arranged one opposite to the other with the end of one block fitting in the recess of the adjoining block and flush with the face of said block and with one member of the L bearing against the inner face of the opposite block at a point between the ends of the block, substantially as described.

3. The wall composed of a number of L-shaped blocks each having a recess in the corner of the L, the blocks being arranged one opposite to the other with the end of one block fitting in the recess of the adjoining block and with one member of the L bearing against the inner face of the opposite block at a point between the ends of the block, and corner-blocks each formed with a web at opposite ends and with a recess at one corner and a recess in the end of the web projecting from the other corner, said recesses receiving the ends of the adjoining blocks in the wall, substantially as described.

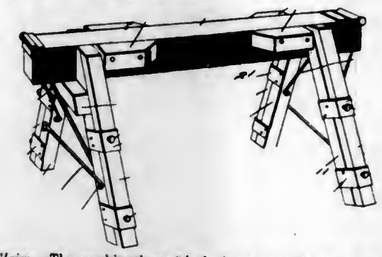
788,367. CURTAIN AND SHADE HOLDER. JOHN S. MOORE, Chester, W. Va. Filed Dec. 8, 1904. Serial No. 235,979.



Claim.—1. A shade and curtain holder comprising spaced arms having alining openings formed therethrough, a clamping-bolt engaged in the openings and extending outwardly beyond one of the arms, a slotted plate disposed with its slot engaged by the outwardly-extending portion of the bolt, a nut engaged with said outwardly-extending portion of the bolt beyond the slotted plate, and adapted for operation to clamp the plate against the adjacent arm and to move the arms toward each other, a shade-supporting member engaged with the clamping-bolt, and a pole-supporting arm connected with the slotted plate.

2. A device of the class described, comprising spaced arms, a clamping-bolt engaged in the arms and extending outwardly beyond one of said arms, a slotted plate disposed against the last-mentioned arm with the outwardly-extending portion of the bolt projecting through its slot, said portion of the bolt being slidably engaged in the slot, a roller-supporting member engaged with the bolt, a nut engaged with the bolt for operation to move the arms toward each other and to clamp the slotted plate against the adjacent arm simultaneously, and a pole-supporting arm carried by the plate.

788,368. TRESTLE. WILLIAM J. MUTTART, Seymour, Wis. Filed Aug. 24, 1904. Serial No. 221,972.



Claim.—The combination with the beam made in one piece and provided with the stop-pieces on each side near each end, of the folding extensible legs, each pair being connected by a cross-piece near the top, links pivoting each pair of legs to the under side of the beam, stay-rods adapted to be released, connecting each leg with the beam, and stay-rods adapted to be released connecting each leg with the other of its pair.

788,369. RETAINING DEVICE FOR BOTTLE-STOPPERS. JOHN J. O'NEILL, Boston, Mass., assignor of two-thirds to Annie O'Neill, Boston, Mass. Filed July 29, 1904. Serial No. 218,605.



Claim.—1. A stopper to normally close the bottle, an elongated stem connected with the stopper and adapted to enter and extend within the bottle-neck, and a flexible detent carried by the stem and adapted to frictionally engage the walls of the neck and limit outward movement of the stopper when the bottle is tipped.

2. A stopper to normally close the bottle, an elongated stem connected with the stopper and adapted to enter and extend within the bottle-neck, and a compressible, resilient, circular detent carried by the stem and adapted to be pushed into the neck beyond its contracted portion, the resumption of its normal shape by the detent preventing removal of the stopper when the bottle is tipped while permitting limited outward movement of said stopper.

3. A stopper to normally close the bottle, an elongated stem connected with the stopper and adapted to enter and extend within the bottle-neck, a flexible detent mounted on the stem and adapted to be pushed into the neck beyond its contracted portion, to limit outward movement of the stopper, and means to adjust the detent on the stem.

4. A stopper to normally close the bottle, an elongated annularly-grooved stem connected with the stopper and adapted to enter and extend within the bottle-neck, and a resilient detent adapted to embrace the stem and be positioned thereon in one of the annular grooves, the detent when pushed into the neck beyond its contracted portion limiting outward movement of the stopper when the bottle is tipped.

5. A bottle-stopper having an elongated, rigid stem connected therewith and adapted to enter and extend within the bottle-neck, a self-positioning detent carried by the stem and adapted to pass beyond the contracted portion of the neck and automatically position itself to prevent removal of the stopper while permitting limited outward movement thereof, and means to adjustably hold the detent on the stem.

6. A bottle-stopper having a conical base to enter the mouth of the bottle, a rigidly-connected, elongated stem projecting from the base and adapted to enter and extend within the bottle-neck, and a perforated, resilient and disk-like detent mounted on the stem and adapted to engage the walls of the neck below its contracted portion, to limit outward movement of the stopper when the bottle is tipped.

788,370. MATCH-BOX. THOMAS H. PAGE, Richmond, Va., assignor of one-half to William H. Burt, Lavergne, Tenn. Filed Oct. 21, 1904. Serial No. 229,462.



Claim.—1. A match-box, comprising side plates, blocks between said plates, an intermediate pivoted match-receptacle between said plates, an elastic connection between the inner lower end of said receptacle and one of said blocks, and a trigger for normally holding the receptacle in an inward position against said elastic connection, substantially as described.

2. A match-box, comprising side plates, blocks holding the same in their separated position, a receptacle between said plates, a ball-and-socket connection between said receptacle and one of said blocks, means normally tending to throw the receptacle into an outward position and locking means for normally holding the receptacle in an inward position between the plates, substantially as described.

3. A match-box, comprising side plates, blocks holding said plates in their separated position, a receptacle between said plates, a ball-and-socket connection between said receptacle and one of said blocks, locking means normally tending to throw the receptacle into an outward position, and a trigger having a ball-and-socket connection with one of said blocks and having a downwardly-extending member adapted to engage and hold the receptacle in an inward position between the plates, substantially as described.

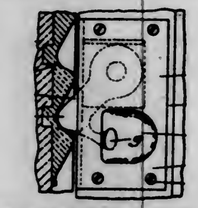
4. A match-box, comprising side plates, blocks holding the same in their separated position, a match-receptacle pivoted between said plates intermediate its ends, means normally tending to throw the receptacle in an outward position and locking means for normally holding the receptacle in an inward or closed position, substantially as described.

5. A match-box, comprising side plates, blocks holding the same in their separated position, a match-receptacle between said plates, a ball-and-socket connection between said receptacle and one of said blocks, means normally tending to throw the receptacle in an outward position, and a trigger having a ball-and-socket connection with one of said blocks, and means carried by the trigger for holding the receptacle in an inward position, substantially as described.

6. A match-box, comprising plates in the form of human figures and spaced apart by blocks, a match-receptacle pivoted to said block between the plates, intermediate its ends, an elastic connection between the lower end of said block and receptacle and normally tending to throw the upper end outwardly, and a cap pivoted between the upper end of said plates and having a downward-extending member adapted to engage the upper end of the receptacle and normally hold it in an inward position, substantially as described.

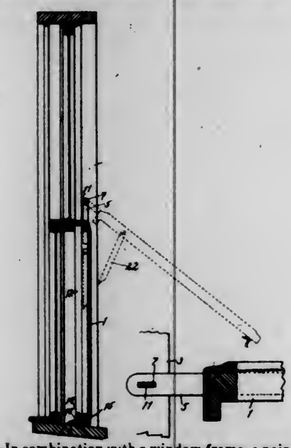
788,371. RAPID-RELEASE SASH-FASTENER. LOUIS PEARCE, Fremantle, Western Australia, Australia. Filed June 24, 1904. Serial No. 213,995.

Claim.—1. A sash-fastener, having a case formed with a lower cup and an upper integral trunnion, the case also being formed with a slot between the cup and trunnion, a drop-pawl having its upper portion held on the trunnion and its lower extremity exposed for operative engagement by the cup, and means with which the said pawl engages.



2. A sash-fastener, consisting of engaging means connected to a sash-frame, a case having an upper inwardly-extending trunnion, a lower cup, and a slot between the cup and trunnion, a pawl having its upper portion inclosed by the case and penetrated by the trunnion, the lower portion of the pawl being movable through the slot and having an operative button-piece located in the cup and deflected outwardly, the pawl being formed with a heel-piece, and a rack-bar carried by a window-frame and having curved teeth for engagement by the heel-piece.

788,372. WINDOW-SCREEN. DAVID T. PETERS, Kansas City, Mo., assignor of one-half to William C. Whitfield, Floyd W. Horton, and Clyde E. Hunt, Kansas City, Mo. Filed June 27, 1904. Serial No. 214,260.

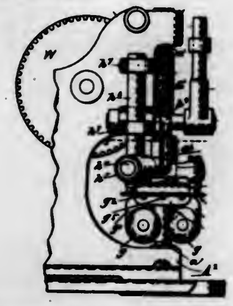


Claim.—In combination with a window-frame, a pair of supporting-pins, one on each side of said frame and each having a horizontal rectangular head forming a T-shaped key, a screen-frame having a pair of metal plates secured to the end edges thereof and projecting upwardly therefrom and having longitudinal grooves therein adapted to fit over the heads of said supporting-pins when the frame and plates are in a horizontal position to permit said plates to gain their pivotal seats thereon, the T-heads on said pins being adapted to retain said plates on their pivotal seats when said screen is in any other but a horizontal position, and a suitable catch for locking the lower portion of said screen, substantially as set forth.

788,373. GOVERNOR. CHRISTIAN PFEIFFER, New Britain, Conn., assignor to North & Pfeiffer Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed Oct. 11, 1904. Serial No. 228,014.

Claim.—1. The combination in a centrifugal governor, with the governor-shaft and its disk, of a horizontal, swiveled yoke or brake carrier straddling the shaft and provided in its ends with independently-adjustable brake-holders having brake-blocks to engage the said disk; substantially as described.

2. The combination, in a centrifugal governor with the governor-shaft and its disk, of a vertically-sliding rod, a horizontal yoke or brake carrier pivoted to the lower end of said rod to rock and straddling the said shaft, independently-adjustable brake-holders mounted in the ends of the yoke and provided with brake-blocks to engage said disk, and mechanism for operating said sliding rod; substantially as described.



3. The combination, in a centrifugal governor, with the governor-shaft and its disk, of a vertically-sliding rod having a bearing in its lower end, a horizontal yoke or brake carrier provided with a stem turning freely in said bearing; the ends of the yoke having threaded openings, threaded brake-carriers mounted in said openings and provided with brake-blocks to engage the disk at opposite sides of said shaft, and mechanism for operating said sliding rod; substantially as described.

4. The combination, in a centrifugal governor, with the governor shaft and its disk, of a vertically-sliding rod, a horizontal yoke or brake carrier swiveled to the lower end of said rod and straddling the said shaft, brake-blocks on said arms to engage the said disk, a rocking lever, and a link connecting said lever to the said sliding rod; substantially as described.

5. In a centrifugal governor, the combination with a governor-shaft and a sliding disk mounted thereon, of bearings at opposite sides of the shaft, weighted governor-arms pivoted to said bearings and provided on their outer sides beyond their pivots with cam-surfaces to engage the disk; substantially as described.

6. In a centrifugal governor, the combination with the governor-shaft and a sliding disk mounted thereon and having an arched center, of bearings at opposite sides of the shaft and normally lying within the said arched center, weighted governor-arms pivoted to said bearings with their axes in the plane of the horizontal outer portion of the disk and provided on their outer sides beyond their pivots with cam-surfaces to engage the disk first at the angle or corner formed by the juncture of its arched and horizontal portions; substantially as described.

7. A centrifugal governor and brake mechanism, comprising the governor-shaft, a sliding disk thereon arched at its center, bearings at opposite sides of the shaft and normally lying within said arched center, weighted governor-arms pivoted to said bearings with their axes in the plane of the horizontal outer portion of the disk, and provided beyond their pivots with cam-surfaces to engage the disk first at the angle or corner formed by the juncture of its arched and horizontal portions, a swiveled yoke or brake carrier having brake-blocks to engage the other face of the horizontal portion of the disk at opposite sides of the shaft, and a vertically-sliding rod to which said yoke or brake carrier is swiveled; substantially as described.

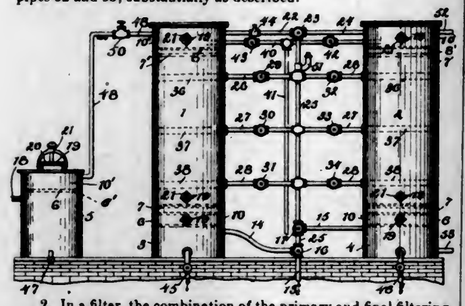
8. In a centrifugal governor, the combination with the disk of a brake-carrier provided with threaded apertures over the disk and threaded brake-block holders mounted adjustably in said apertures; substantially as described.

9. In a centrifugal governor, the combination with the disk, of a vertically-movable rod, a self-adjusting brake-carrier, at the lower end of the rod, having threaded apertures over the disk, and threaded brake-block holders mounted in said threaded apertures; substantially as described.

788,374. FILTER. JAMES R. PORTER and MARCELLUS COLE, Washington, D. C.; said Cole assignor to said Porter. Filed June 28, 1901.

Claim.—1. In a filtering apparatus comprising the auxiliary settling-chamber, connecting-pipes 48 and 49, the primary and final filtering-chambers, settling-chambers 3 and 4, perforated disks 6, 7 and 8, means for supporting the said disks, the sponge-receptacles

10 and 10′, at each end of the filtering-chambers and of a diameter equal to that of the respective chambers, pipes 13 and 14 connecting the main with the top of the settling-chamber 3, pipes 22, 24, 25 and 15, three-way valves 16, 17 and 23, arranged to place chamber 1 in communication with the top or bottom of chamber 2, and outlet-pipes 52 and 53, substantially as described.



2. In a filter, the combination of the primary and final filtering-chambers, sponge-compartments within said filtering-chambers, pipes and controlling-valves forming communications from the main to the bottom of said filters, through receivers 3 and 4 and sponge-receptacles 10, or to the top of the said filters through sponge-receptacle 10′, pipe 18 having communication with the water-main and with the upper portion of the auxiliary settling-chamber 5, pipes 48 and 49 connecting with sponge-compartments of the chamber 5 and the upper filtering-chambers 1 and 2 through sponge-receptacle 10′ operating-valve 50 and inlets 52 and 53, substantially as described.

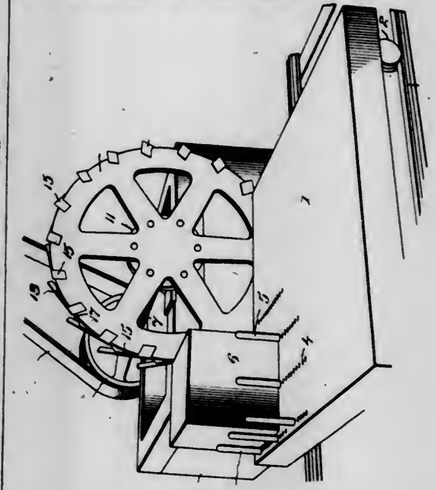
3. In a filter, comprising primary and final filtering-chambers, an auxiliary settling-chamber 5, a sponge-receptacle 10′ carried thereby and in communication therewith, sponge-receptacles 10 carried by filtering-chambers, a pipe 25 communicating with the water-main and the sponge-receptacles, transversely-extending rectangular clean-out strainers 36, 37 and 38 carried by the filtering-chambers, laterally-extended pipes 26, 27 and 28, in communication with pipe 25 and said strainers, operating-valves 29, 30, 31, 32, 33 and 34 adapted to direct the pressure through small sections of the material from one chamber to the other, waste-pipes 45 and 46 at the lower ends of the filtering-chamber, and waste-pipes 40 and 41 with valves 42 and 43 leading from the top of the filtering-chambers, substantially as described.

4. A filtering apparatus comprising primary and final filtering-chambers, an auxiliary settling-chamber and sponge-receptacles in communication with the upper ends of the primary and final filtering-chambers, waste-pipes 40, 41 extending from the upper ends of the filtering-chambers, valves 42 and 43 carried thereby, said chambers having openings, covers 20 and 21 closing said openings, a pipe 25 having communication with the water-main, strainers 36, 37 and 38 carried by the filters, a steam connection 51, pipes 14, 15, 22, 24, 26, 27 and 28 having communication with said steam connection and said strainers, valves 16, 17, 25, 29, 30, 31, 32, 33 and 34 by said pipes, a pipe 48 communicating with said steam connection and the auxiliary chamber, and valve 49 controlling said pipe 48, substantially as described.

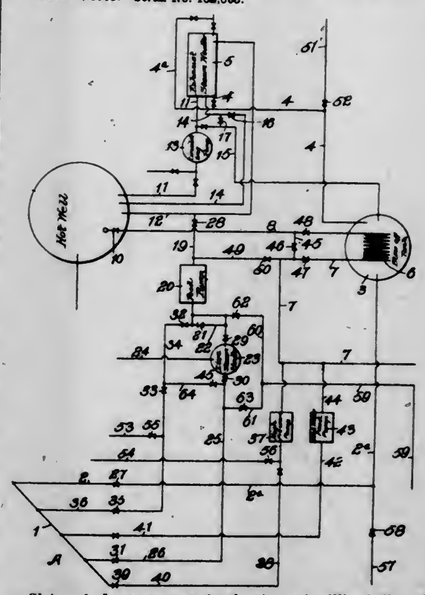
5. In a filter the combination with filtering-chambers 1 and 2, auxiliary settling-chamber 5, having compartments separated by disks 6, 7 and 8, settling-chambers 3 and 4, sponge-receptacles 10 and 10′, supply-pipes 13 and 18 communicating with the water-main, connecting-pipes 14, 15, 22, 24 and 25, operating-valves 16, 17 and 23 carried thereby for controlling the passage of water between the chambers 1 and 2, pipes 48, and 49 with operating-valve 50 for controlling the passage of water between the auxiliary chamber 5 and chambers 1 and 2, steam connection 51, a series of rectangular clean-out strainers having laterally-extending arms carried by the chambers 1 and 2, pipes 26, 27 and 28 with controlling-valves 29, 30, 31, 32, 33, and 34 in communication with pipe 25 waste-pipes 40, 41, 45, 46 and 47, and outlet-pipes 52 and 53, substantially as described.

788,375. STONE-CUTTING APPARATUS. WILLIAM C. QUINLEN, Barre, Vt. Filed Nov. 11, 1903. Serial No. 180,756.

Claim.—A stone-cutting apparatus comprising a carriage, a wheel revolubly mounted thereon and having on one of its side faces adjacent to its periphery a series of surrounding spaced-apart bearing-blocks, the bearing-faces of which are diagonally inclined downwardly and each terminating at their inner ends in a cutting-blade opening formed in the wheel and having its opposite side faces inclined to correspond with the inclined face of the block, a series of straight cutting-blades having inclined cutting ends arranged in line with the body of the blade, said blades being mounted on the blocks and having longitudinal slots therein, means passing through the slots and secured to the blocks which serve to give the blades an endwise-adjustable movement of the blocks so as to permit of the cutting edges of the blades passing through said openings and projecting beyond the periphery of the wheel, substantially as specified.



788,376. PLANT FOR CLEANING AND RESTORING BOILERS TO SERVICE CONDITION. ALBERT R. RAYNER, Beaver, Pa. Filed Nov. 27, 1903. Serial No. 183,863.



Claim.—1. In an apparatus for cleaning and refilling boilers, the combination of a blow-off tank, a coil of pipe arranged in said tank, means for forcing water through such coil, a hot-well connected to the coil, means for forcing the heated water from the hot-well to the boiler, substantially as set forth.

2. In an apparatus for cleaning and refilling boilers, the combination of a blow-off tank, a coil of pipe arranged in said tank, means for forcing water through the coil, a hot-well connected to the coil, means for forcing water from the hot-well to the boiler and means for heating the water above 212° Fahrenheit, substantially as set forth.

3. In an apparatus for cleaning and refilling boilers, the combination of a blow-off tank, a coil of pipe arranged in said tank, means for forcing water through said coil, a hot-well connected to the coil, a condenser or exhaust-steam heater, means for causing water to circulate from the hot-well through the heater and back to the well, and means for forcing the heated water from the hot-well to the boiler, substantially as set forth.

4. In an apparatus for cleaning and refilling boilers, the combination of a blow-off tank, a coil of pipe arranged in said tank, means for forcing water through said coil, a hot-well connected to the coil, an exhaust-steam heater having a steam connection to the blow-off tank, means for forcing water from the hot-well through the heater and back to the hot-well and means for forcing water from the hot-well to the boiler, substantially as set forth.

5. In an apparatus for cleaning and refilling boilers, the combination of a blow-off tank, a coil arranged in said tank, means for forcing water through said coil, a hot-well connected to the coil, an exhaust-steam heater, means for causing the water from the hot-well to circulate through the heater, means for forcing the water from the heater to the boiler, and means for heating the water above 21° Fahrenheit, substantially as set forth.

6. In a plant for cleaning and refilling locomotive-boilers, the combination of a manifold adapted to be connected to the boiler of a locomotive and having a series of branches provided with valves, a blow-off tank connected to one branch or member of the manifold, a coil arranged in said tank, means for forcing water through said coil, and a connection from the coil to another branch or member of the manifold, substantially as set forth.

7. In a plant for cleaning and refilling locomotive-boilers, the combination of a manifold adapted to be connected to the boiler of a locomotive and having a series of branches or members provided with valves, a blow-off tank connected to one branch or member of the manifold, a coil of pipe arranged in said tank, means for forcing water through said coil, a hot-well connected to the coil, means for heating the water above 212° Fahrenheit connected to another branch or member of the manifold, and means for forcing water from the hot-well through the superheater to the boiler, substantially as set forth.

8. In a plant for cleaning and refilling locomotive-boilers, the combination of a manifold adapted to be connected to the boiler of the locomotive and having a series of branches or members provided with valves, a blow-off tank, an exhaust-heater having a steam connection with the tank, a hot-well, means for forcing water into the hot-well, means for causing water from the hot-well to circulate through the heater, a connection from the hot-well to the manifold and means for forcing water from the hot-well to the boiler, substantially as set forth.

9. In a plant for cleaning and refilling locomotive-boilers, the combination of a manifold adapted to be connected to the locomotive-boiler, and provided with branches or members having valves, a blow-off tank connected to one member of the manifold, a coil of pipe arranged in said tank, a hot-well connected to the coil, means for forcing water through the coil into the hot-well, an exhaust-steam heater, means for the water in the hot-well to circulate through the heater, a superheater connected to the hot-well, the hot-well and superheater being connected to independent branches or members of the manifold, and means for forcing water from the hot-well into the boiler, substantially as set forth.

10. In a plant for cleaning and refilling locomotive-boilers, the combination of a manifold adapted to be connected to the boiler of a locomotive, and having a series of branches or members provided with valves, a blow-off tank connected to one branch or member, a supply of hot water connected to another branch and a supply of water heated above 212° Fahrenheit connected to a third branch, substantially as set forth.

11. In a plant for cleaning and refilling locomotive-boilers, the combination of a manifold adapted to be connected to the locomotive-boiler, and having a series of branches or members provided with valves, a blow-off tank connected to one branch or member, a supply of hot water connected to another branch or member and a supply of water under testing pressure connected to a third member of the manifold, substantially as set forth.

12. An apparatus for utilizing the blow-off products of boilers, comprising clarifying and separating tanks, water-heating means, means for delivering the steam from said tanks into a heating apparatus, and means for forcing the heated water into the boiler.

13. An apparatus for handling blow-off products of boilers, comprising a series of tanks, means for delivering the blow-off products therein, means for separating the said products, water-heating means, means for delivering the steam to the water-heating means, means for introducing water into each of said tanks for reducing their temperature and means for conducting such water to the water-heating means.

14. An apparatus for handling the blow-off products of boilers, comprising a tank for the separation of the elements of the blow-off of boilers, means for delivering the blow-off into said tank, a coil arranged in said tank and adapted to be connected to a water-supply and to a boiler, means for independently removing the elements of the blow-off, and means for applying the heat of one of said elements to the water as it passes from the coil to the boiler.

15. An apparatus of the character described comprising a water-heater, a reservoir to receive blow-off water from a boiler, a heating-coil for fresh water located within said reservoir, a pipe for admitting fresh water to said coil, a pipe connecting said coil to the water-heater and a pipe whereby water from a boiler may be delivered to said reservoir.

16. An apparatus of the character described comprising a water-heater, a pipe for delivering hot water from said heater, a mixing-chamber, a pipe for delivering cold water to said mixing-chamber and a pipe arranged to deliver water from said mixing-chamber to the boiler to be washed.

17. An apparatus of the character described comprising a water-heater, a reservoir having a closed top and adapted to receive blow-off water from the boiler, connections from the boiler to said reservoir, connections from the upper part of said reservoir to the water-heater, and connections for conducting the hot water from the water-heater to the boiler.

18. An apparatus of the character described comprising a reservoir having a closed top, a water-heater, connections from the top of said reservoir to said water-heater, a heating-coil within said reservoir having a pipe for admitting fresh water thereto, connections from said coil to the water-heater, a pipe for conducting blow-off water from the boiler to the reservoir, and connections for delivering hot water from the water-heater to the boiler.

19. An apparatus of the character described comprising a water-heater, a reservoir to receive blow-off water from the water-heater, a reservoir to receive blow-off water from the boiler, a heating-coil for fresh water located within said reservoir, a pipe for admitting fresh water to said coil, connections from said coil to the water-heater, connections from the top of said reservoir to the water-heater, and connections whereby hot water may be delivered from the water-heater to the boiler.

20. An apparatus of the character described comprising a water-heater, a reservoir to receive blow-off water from a boiler, a mixing-chamber, a pipe leading from said mixing-chamber and having its free end arranged to connect with the blow-off cock of a locomotive-boiler, a heating-coil within said reservoir, connections from said heating-coil to the water-heater, a pipe connecting the upper end of the reservoir with the water-heater, a pipe for admitting fresh water to said heating-coil, a pipe for delivering cold water to the mixing-chamber, hot-water connections leading from the water-heater to the mixing-chamber, and a pipe leading from the mixing-chamber to said reservoir, and several pipes connected to said mixing-chamber being provided with cocks.

788,377. **PHOTOMECHANICAL PRINTING.** HENRY L. RECKARD, New York, N. Y., assignor to Albert Henry Walker, trustee, New York, N. Y. Filed Jan. 31, 1905. Serial No. 243,453.



Claim.—1. The following process of photomechanical printing: making four sensitive gelatin plates on elastic and flexible celluloid bases, which are temporarily glued down upon flat and horizontal plates, while the gelatin is setting: exposing two of those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively, one of which counterpart sheets is made photographically from the other: exposing the other

two of those sensitive gelatin plates to light through those two partly-transparent and partly-opaque counterpart sheets, respectively, and contemporaneously through an opaque sheet provided with fine transparent lines or small transparent areas: developing those four exposed gelatin plates by bathing them in water and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those four developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of the first pair of those gelatin plates, respectively, to the corresponding respective surfaces of two metal rollers or plates: transferring ink from the depressed and grooved or pitted surfaces of the second pair of gelatin plates, respectively, to the corresponding respective surfaces of the same two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different colors to the depressed and grooved or pitted surfaces of those metal rollers or plates: transferring color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

2. The following process of photomechanical printing: making four sensitive gelatin plates on elastic and flexible celluloid bases: exposing two of those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively, one of which counterpart sheets is made photographically from the other: exposing the other two of those sensitive gelatin plates to light through those two partly-transparent and partly-opaque counterpart sheets, respectively, and contemporaneously through an opaque sheet provided with fine transparent lines or small transparent areas: developing those four exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those four developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of the first pair of those gelatin plates, respectively, to the corresponding respective surfaces of two metal rollers or plates: transferring ink from the depressed and grooved or pitted surfaces of the second pair of gelatin plates, respectively, to the corresponding respective surfaces of the same two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different colors to the depressed and grooved or pitted surfaces of those metal rollers or plates: transferring color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

3. The following process of photomechanical printing: making four sensitive gelatin plates on elastic bases: exposing two of those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively, one of which counterpart sheets is made photographically from the other: exposing the other two of those sensitive gelatin plates to light through those two partly-transparent and partly-opaque counterpart sheets, respectively, and contemporaneously through an opaque sheet provided with fine transparent lines or small transparent areas: developing those four exposed gelatin plates by bathing them in water and, thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those four developed gelatin plates in air; applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of the first pair of those gelatin plates, respectively, to the corresponding respective surfaces of two metal rollers or plates: transferring ink from the depressed and grooved or pitted surfaces of the second pair of gelatin plates, respectively, to the corresponding respective surfaces of the same two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different colors to the depressed and grooved or pitted surfaces of those metal rollers or plates: transferring color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

4. The following process of photomechanical printing: making four sensitive gelatin plates on elastic and flexible celluloid bases, which are temporarily glued down upon flat and horizontal plates, while the gelatin is setting: exposing two of those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively: exposing the other two of those sensitive gelatin plates to light through those two partly-transparent and partly-opaque counterpart sheets, respectively, and contemporaneously through an opaque sheet provided with fine transparent lines or small transparent areas: developing those four exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those four developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of the first pair of those gelatin plates, respectively, to the corresponding respective surfaces of two metal rollers or plates: transferring ink from the depressed and grooved or pitted surfaces of the second pair of gelatin plates, respectively, to the corresponding respective surfaces of the same two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different colors to the depressed and grooved or pitted surfaces of those metal rollers or plates: transferring color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

5. The following process of photomechanical printing: making four sensitive gelatin plates on elastic and flexible celluloid bases: exposing two of those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively: exposing the other two of those sensitive gelatin plates to light through those two partly-transparent and partly-opaque counterpart sheets, respectively, and contemporaneously through an opaque sheet provided with fine transparent lines or small transparent areas: developing those four exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those four developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of the first pair of those gelatin plates, respectively, to the corresponding respective surfaces of two metal rollers or plates: transferring ink from the depressed and grooved or pitted surfaces of the second pair of gelatin plates, respectively, to the corresponding respective surfaces of the same two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different colors to the depressed and grooved or pitted surfaces of those metal rollers or plates: transferring color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

6. The following process of photomechanical printing: making four sensitive gelatin plates on elastic bases: exposing two of those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively: exposing the other two of those sensitive gelatin plates to light through those two partly-transparent and partly-opaque counterpart sheets, respectively, and contemporaneously through an opaque sheet provided with fine transparent lines or small transparent areas: developing those four exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those four developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of the first pair of those gelatin plates, respectively, to the corresponding respective surfaces of two metal rollers or plates: transferring ink from the depressed and grooved or pitted surfaces of the second pair of gelatin plates, respectively, to the corresponding respective surfaces of the same two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different colors to the depressed and grooved or pitted surfaces of those metal rollers or plates: transferring color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

7. The following process of photomechanical printing: making

two sensitive gelatin plates on elastic and flexible celluloid bases, which are temporarily glued down upon flat and horizontal plates, while the gelatin is setting: exposing those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively, one of which counterpart sheets is made photographically from the other: developing those exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of those gelatin plates, respectively, to the respective surfaces of two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different-colored inks or colors to those metal rollers or plates: transferring ink or color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

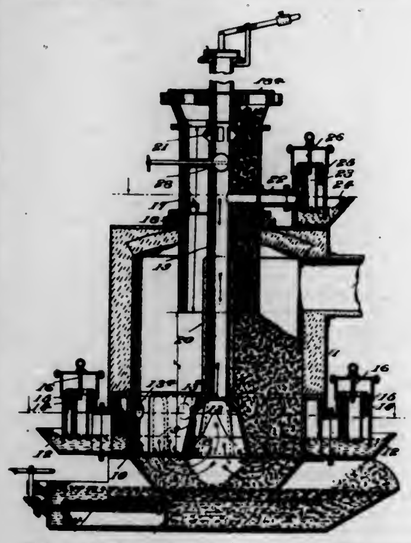
8. The following process of photomechanical printing: making two sensitive gelatin plates on elastic and flexible celluloid bases: exposing those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively, one of which counterpart sheets is made photographically from the other: developing those exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of those gelatin plates, respectively, to the respective surfaces of two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different-colored inks or colors to those metal rollers or plates: transferring ink or color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

9. The following process of photomechanical printing: making two sensitive gelatin plates on elastic bases: exposing those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively, one of which counterpart sheets is made photographically from the other: developing those exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of those gelatin plates, respectively, to the respective surfaces of two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different-colored inks or colors to those metal rollers or plates: transferring ink or color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

10. The following process of photomechanical printing: making two sensitive gelatin plates on elastic and flexible celluloid bases, which are temporarily glued down upon flat horizontal plates while the gelatin is setting: exposing those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively: developing those exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of those gelatin plates, respectively, to the respective surfaces of two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different-colored inks or colors to those metal rollers or plates: transferring ink or color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process: all substantially as described.

11. The following process of photomechanical printing: making two sensitive gelatin plates on elastic and flexible celluloid bases: exposing those sensitive gelatin plates to light, through two partly-transparent and partly-opaque counterpart sheets, respectively: developing those exposed gelatin plates by bathing them in water, and thereby swelling some parts of their surfaces into more or less relief, while leaving other parts of their surfaces in more or less depression: drying those developed gelatin plates in air: applying glycerin solution to the relief-surfaces of those developed gelatin plates: applying ink to the depressed surfaces of those developed gelatin plates: transferring ink from the depressed surfaces of those gelatin plates, respectively, to the respective surfaces of two metal rollers or plates: etching away the naked surfaces of those two metal rollers or plates: applying different-colored inks or colors to those metal rollers or plates: transferring ink or color from those rollers or plates successively, and with mutual registration, to whatever fabric, paper or other material constitutes the base of the colored print which results from the process, all substantially as described.

788,378. GAS-PRODUCER. JOSEF REULEAUX, Wilkinsburg, Pa., assignor to Alexander Laughlin, Sewickley, Pa. Filed Sept. 21, 1904. Serial No. 225,394.



Claim.—1. A gas-producer having an air-distributer located centrally of the fire-bed, an air-heating chamber surrounding the producer, and a series of lateral branches connecting the chamber and the distributer, said chamber and branches being constructed so as to contain a body of water.

2. A gas-producer having an air-distributer located centrally of the fire-bed, an air-heating chamber surrounding the producer, a series of lateral branches connecting the chamber and distributer, said chamber and branches being constructed so as to contain a body of water, and means for controlling the admission of air to the chamber, such means being sealed by the water.

3. A gas-producer having an air-distributer located centrally of the fire-bed, an air-heating chamber surrounding the producer, a series of lateral branches connecting the chamber and distributer, said chamber and branches being constructed so as to contain a body of water, and valves sealed by such water and through which the air is drawn to the distributer by the aspiratory action of an engine or exhauster

4. A gas-producer having an air-distributer located centrally of the fire-bed, an air-heating chamber surrounding the producer, a series of lateral branches connecting the chamber and distributer, said chamber and branches being constructed so as to contain a body of water, valves sealed by such water and through which the air is drawn to the distributer by the aspiratory action of an engine or an exhauster, and means for regulating the extent of the penetration of the valves into the water.

5. A gas-producer having an air-distributer closed at the top and open at its bottom and located centrally of the fire-bed, an air-heating chamber surrounding the producer, a series of lateral branches leading from the chamber and opening into the distributer above the lower end thereof, and means for controlling the admission of air to the chamber.

6. A gas-producer having a dome-shape air-distributer located centrally of the fire-bed, an air-heating chamber surrounding the producer, a series of lateral branches, connecting the chamber and the distributer, having walls over portions of their inner ends, said chamber and branches being constructed so as to contain a body of water, and air-inlet valves sealed by such water and through which air is drawn by the aspiratory action of an engine or exhauster.

7. A gas-producer having an air-distributer located centrally of the fire-bed, a series of air-passages opening into said distributer and extending radially therefrom, and an air-flue opening into said distributer and extended downwardly through the fire-bed, means for admitting air to said flue, and means for admitting air to said passages.

8. A gas-producer having an air-distributer located centrally of the fire-bed, a series of air-passages opening into said distributer and extending radially therefrom, and an air-flue opening into said distributer and communicating with the fuel-space of the producer some distance above the line of combustion.

9. A gas-producer having an air-distributer located centrally of the fire-bed, a series of air-passages opening into said distributer and extending radially therefrom, and an air-flue opening into said distributer and extended downwardly through the fire-bed and communicating with the fuel-space of the producer above the line of combustion, means for admitting air to said flue beneath the point of its communication with the fuel-space, and means for admitting air to said passages.

10. A gas-producer having a dome-shape air-distributer located centrally of the fire-bed, an air-flue opening into said distributer and extended downwardly through the fire-bed, an air-supply pipe opening into said flue at a point above the fire-bed, and a water-sealed valve through which the air is drawn to said flue by the aspiratory action of an engine or exhauster.

11. A gas-producer having a dome-shape air-distributer located centrally of the fire-bed, an air-flue opening into said distributer and extended downwardly through the fire-bed, an air-supply pipe opening into said flue at a point above the fire-bed, a water-sealed valve through which the air is drawn to said flue, a chamber surrounding the producer having a series of air-passages opening into said distributer, and water-sealed valves for controlling the admission of air to said chamber.

12. A gas-producer having a fuel-supply casing extending upwardly some distance from the line of combustion, an air-flue extended centrally through said casing and opening beneath the fire-bed, openings being formed in said flue near the upper end of the fuel-supply casing, and means for closing the upper end of said flue designed to be automatically opened to allow of the escape of surplus gases.

13. The herein-described gas-producer having a centrally-arranged air-distributer, means for supplying preheated and saturated air thereto, a fuel-supply casing extending some distance upwardly from the line of combustion, an air-flue extending downwardly through said casing and fire-bed and opening into said distributer, and means for controlling the admission of air to said flue.

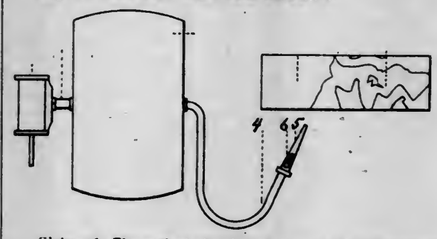
14. The herein-described gas-producer having a centrally-arranged air-distributer, a water-containing chamber having a series of air-passages opening into said distributer, valves sealed by such water and through which air is drawn to the distributer, a fuel-supply casing extended upwardly some distance beyond the line of combustion, an air-flue extended centrally through said casing and the fire-bed and opening at its lower end into said air-distributer, said flue having a series of openings into the casing at the upper end thereof, an air-supply pipe opening into said flue, and a water-sealed valve through which air is drawn to the flue.

15. The combination with a gas-producer having a centrally-arranged dome-shape air-distributer, of an air-heating chamber surrounding said casing, a series of lateral branches connecting the chamber to the distributer, and a series of water-sealed valves controlling the admission of air to said chamber, water being designed to circulate in the latter as well as in said branches, as set forth.

16. The combination with a gas-producer having a water-sealed bottom, of a dome-shape air-distributer located centrally of the fire-bed above said bottom, an air-heating chamber surrounding said producer, a series of lateral branches connecting the chamber and the distributer and having walls over the lower portions of their inner ends, water being designed to circulate in said chamber and branches, the overflow thereof falling from the distributer to said bottom, and air-admission valves sealed by such water.

17. A gas-producer having a centrally-arranged air-flue communicating with the producer above the line of combustion, a removable lid for said flue, and means for closing the latter at a point beneath the communication with the producer.

788,379. METHOD OF ROCK-FACING. ABRAHAM L. RICH, Pittsburg, Pa. Filed Jan. 9, 1905. Serial No. 240,170.



Claim.—1. The method of rock-facing, consisting of projecting fluid under pressure, so that it will impinge on the surface of the block and cut said surface away, thereby rock-facing it, substantially as herein set forth.

2. The method of rock-facing, consisting of projecting an aeriform fluid under pressure, so that it will impinge on the surface of the block and cut said surface away, thereby rock-facing it, substantially as herein set forth.

788,380. COVER FOR LATRINE-SEATS. JOHN SKIPRIZ and HENRY BALLINO, New York, N. Y. Filed Nov. 6, 1903. Serial No. 180,035.



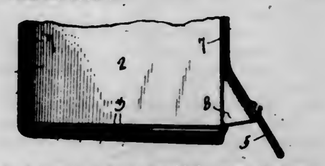
Claim.—1. A cover for latrine-seats, and which has a perforate body to which is attached a cupped pendent guard which has a crimped edge.

2. A cover for latrine-seats, and which is made of paper and has a perforate body to which is attached a cupped pendent guard which has a crimped edge.

3. A strip of flexible material which is formed as a plurality of connected perforate covers for latrine-seats to each of which covers is attached a cupped pendent guard which has a crimped edge.

4. A strip of paper which is formed as a plurality of connected perforate covers for latrine-seats to each of which covers is attached a cupped pendent guard which has a crimped edge; said covers being partially disconnected, one from another, by a line of perforations.

788,381. PAPER BOX. PETER G. SMITH, Roslyn, N. Y. Filed July 1, 1904. Serial No. 214,871.

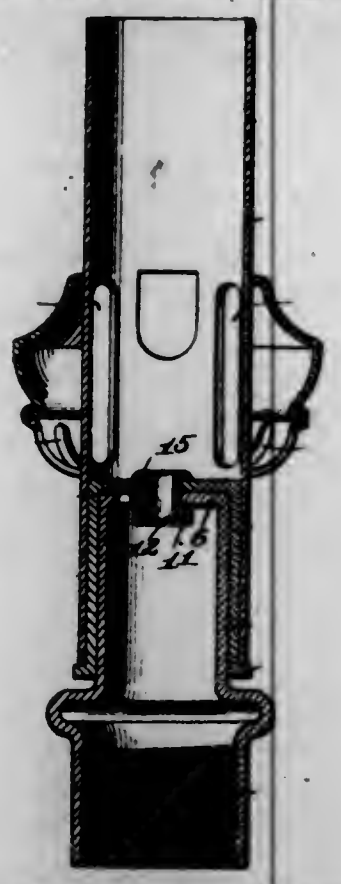


Claim.—1. A box or package provided with a discharge-opening, a tongue adapted to be bent outwardly to uncover said opening and when so bent to form the bottom of a discharge-chute, a fabric lining arranged in said box, said lining being cut and folded to form a fullness over said opening which when said tongue is pulled outwardly will form the sides of said chute, substantially as described.

2. A box or package provided with a discharge-opening, a tongue adapted to be bent outwardly to uncover said opening, and when so bent to form the bottom of a discharge-chute, a lip formed on said tongue whereby the same may be pulled open, said tongue and lip being entirely covered by a suitable label when the box or

package is in an original or unbroken condition, and a fabric connected to the inner side of said box, and to said tongue and folded so as to open with said tongue when the same is pulled out thereby forming sides to said chute, substantially as described.

788,382. GAS-REGULATING BURNER. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed Oct. 23, 1902. Serial No. 128,488.



Claim.—1. A gas-regulating device comprising a burner-tube, a coupling-sleeve provided with gas-supply outlets, means mounted upon the coupling-sleeve for regulating the flow of gas through the outlets of the coupling-sleeve and adapted to support the burner-tube, said means suitably connected to the burner-tube, and a hollow rivet connected to the coupling-sleeve and engaging the regulating means secured in the burner-tube for rotatably connecting the said regulating means and burner-tube to the coupling-sleeve.

2. A gas-regulating device comprising a burner-tube, a coupling-sleeve provided with gas-outlets, a regulating-thimble mounted upon and inclosing said coupling-sleeve and suitably connected to the burner-tube for supporting it, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, and a hollow rivet for rotatably connecting said burner-tube and thimble to the coupling-sleeve.

3. A gas-regulating device comprising a coupling-sleeve provided with a plurality of gas-outlets, a thimble mounted upon said coupling-sleeve and having its wall terminating in a supporting-flange, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, a hollow rivet for rotatably connecting the thimble with the coupling-sleeve, and a burner-tube mounted upon said flange and fixedly secured to the thimble so as to rotate therewith.

4. A gas-regulating device comprising a coupling-sleeve provided with a plurality of gas-outlets of different sizes, a thimble mounted upon said coupling-sleeve and having its wall terminating in a supporting-flange, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, means for rotatably connecting the thimble with the coupling-sleeve, and a burner-tube mounted upon said flange and fixedly secured to the thimble, so as to rotate therewith.

5. A gas-regulating device comprising a coupling-sleeve provided with a plurality of gas-outlets of different sizes, a thimble mounted upon said coupling-sleeve and having its wall terminating in a supporting-flange, said thimble provided with openings adapted to register with the outlets of the coupling-sleeve, a hollow rivet for rotatably connecting the thimble with the coupling-sleeve, and a burner-tube mounted upon said flange and fixedly secured to the thimble so as to rotate therewith.

6. A gas-regulating device comprising a coupling-sleeve provided with gas-outlets, a regulating means rotatably connected to and mounted upon the top of, the said coupling-sleeve, and a burner-tube fixedly connected to said regulating means and supported thereby, said burner-tube rotating with said regulating means.

7. A gas-regulating device comprising a rotatable burner-tube, regulating means fixedly secured within said tube, a coupling-sleeve provided with a plurality of gas-outlets, and means extending above the said sleeve and engaging with the regulating means for rotatably connecting the said regulating means and the burner-tube to the sleeve.

8. A gas-regulating device comprising a burner-tube, a regulating-thimble, an apertured coupling-sleeve, and a hollow rivet for rotatably connecting the burner-tube and regulating means to the sleeve.

9. A gas-regulating device comprising in combination with a burner-tube, a regulating means fixedly secured within said tube, a coupling-sleeve provided with a series of gas-outlets regulated by said means, and means forming a minimum supply-inlet carried by the coupling-sleeve and engaging the regulating means for rotatably connecting said regulating means and said burner-tube to the coupling-sleeve.

10. A gas-regulating device comprising a burner-tube, a gas-regulating means fixedly secured to the burner-tube and moving therewith, a coupling-sleeve communicating with a gas-supply and provided with an apertured diaphragm, said regulating means adapted to regulate the passage of the supply of gas through the said diaphragm, and means carried by the said diaphragm and engaging with the said regulating means for rotatably connecting it and said burner-tube with the sleeve.

11. A gas-regulating burner comprising a rotatable regulating means for the gas-supply, a coupling-sleeve for supporting said regulating means, and means forming a permanent opening for the minimum supply of gas connected to said regulating means and said sleeve, said connecting means adapted to permit of the rotation of said regulating means upon said sleeve.

12. A gas-regulating device comprising a coupling-sleeve provided with gas-supply openings, means mounted upon the coupling-sleeve and provided with openings of different sizes for regulating the supply of gas through the openings in the coupling-sleeve, and means carried by the coupling-sleeve for rotatably connecting the said regulating means thereto, said connecting means forming a permanent opening for the minimum gas-supply.

13. A gas-regulator comprising a tubular stem, provided with openings and a rotatable thimble seated on said stem and also provided with openings adapted to register with the openings in the tubular stem, one set of said openings remaining in permanent alinement, the relative positions of the other openings in the two parts being variant.

14. In a burner of the class described, a coupling having a fluid-outlet, a fluid-regulator for said outlet, and an apertured pivot member for said fluid-regulator.

15. In a burner of the class described, a coupling having a plurality of fluid-outlets and an apertured projection, the aperture of which communicates with the interior of the coupling, and a fluid-regulating sleeve inclosing the coupling and turnable upon said apertured projection as a pivot.

16. In a burner of the class described, the combination of a coupling having a central outlet and a plurality of outlets arranged in annular order about the central outlet, said coupling having an apertured projection, a fluid-regulator arranged to turn upon said projection as a pivot and having a series of perforations also arranged in annular order, and adapted to register with said annular outlets, and a burner-tube inclosing said regulator and connected thereto.

788,383. WRENCH. PAUL C. THAYER, Oroville, Cal. Filed Nov. 10, 1904. Serial No. 232,162.



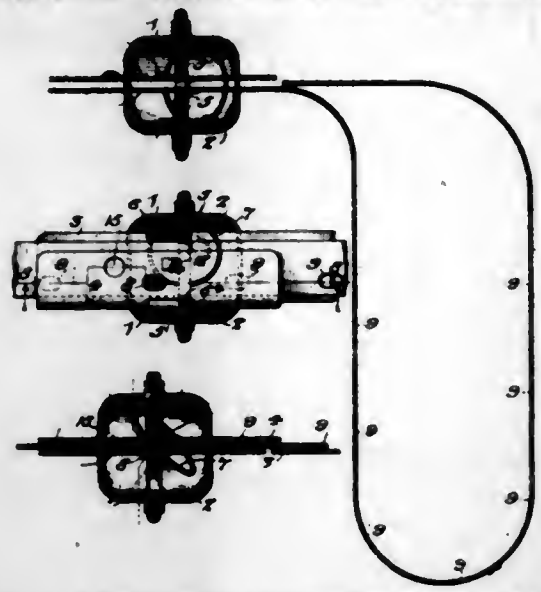
Claim.—1. A wrench comprising a jaw, a shank extending therefrom, serrations upon the shank, a handle provided with a sleeve the latter having teeth to engage said serrations and carrying a pawl adapted to engage a recess in the shank, a spring surrounding said shank and secured at one end to said sleeve and connected at its opposite end to a cap upon said shank, said handle adapted to be rotated by the spring to throw the serrations out of engagement with the teeth to engage a nut, substantially as described.

2. A wrench comprising a jaw, a sliding shank secured thereto

and provided with teeth or serrations, and a groove adjacent to the serrations, a handle provided with a sleeve carrying a fixed jaw and provided with serrations upon one side, and a pivoted pawl upon the other, a spring surrounding the shank of the sliding jaw, and adapted to rotate the shank relatively to the handle, substantially as described.

3. A wrench comprising a sliding and rotating shank, a jaw thereon, a handle provided with a sleeve carrying a fixed jaw, said shank adapted to slide and partially rotate within the sleeve and to be engaged at any point therein by serrations upon one side and a pivoted pawl upon the other, substantially as described.

788,384. **SELF-LOCKING SEAL.** EMIL TYDEN, Hastings, Mich. Filed Feb. 8, 1904. Renewed Mar. 30, 1905. Serial No. 252,917.



Claim.—1. A self-locking seal comprising a securing device; an engaging device; means which restrains the engaging device, said securing device and restraining means being adapted to be engaged and connected by the engaging device when it is released from said restraint; a shell or housing inclosing the engaging device movable with respect to the restraining means and having means which in such movement releases the engaging device.

2. A self-locking seal comprising a securing device; an engaging spring; means which restrains the engaging spring, said securing device and restraining means being adapted to be engaged and connected by the engaging spring when it is released from said restraint; a shell or housing inclosing the engaging spring, movable with respect to the restraining means, and having means which in such movement releases the engaging spring.

3. A self-locking seal comprising a securing device; a sheath into which it may be thrust; a spring which is spread to clasp the sheath and is restrained thereby from closing; the securing device and the sheath having apertures through which the spring when released may pass to engage and connect them; a shell or housing which incloses the spring and is movable on the sheath, and means by which in such movement the spring is released.

4. A self-locking seal comprising a securing strap or band having a sheath at one end and the other end adapted to be thrust through the sheath, and a plurality of apertures at intervals in its length; a housing or shell and movable onmounted the sheath; a spring which is spread to clasp the sheath and is restrained thereby from closing; the sheath having apertures in which the spring may engage when released adapted to be registered with the apertures of the strap successively as it is thrust through the sheath; and means by which the shell when moved on the sheath releases the spring.

5. A self-locking seal comprising a securing strap or band; an engaging device; means on one end of the strap which restrains the engaging device, having an aperture for engagement with the latter when said latter is released, the strap having a plurality of apertures at intervals in its length for like engagement; a shell or housing inclosing the engaging device and adapted to be entered by the other end of the securing-strap, said housing being movable with respect to the restraining means and adapted in such movement to release the engaging device.

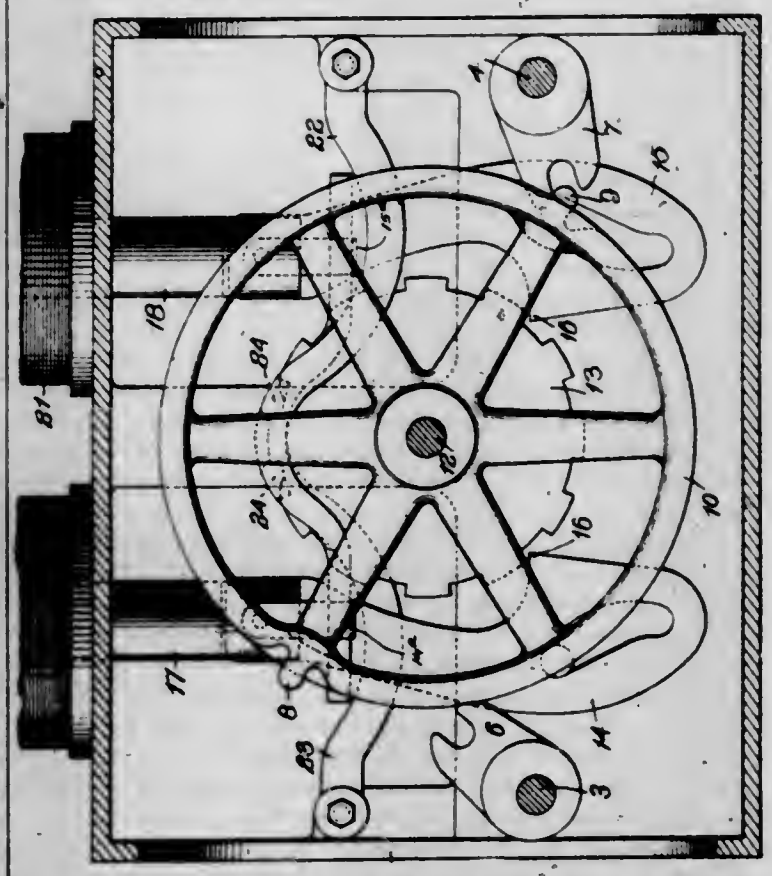
6. A self-locking seal comprising a securing device; a sheath into which it may be thrust; a spring which is spread to clasp the sheath and is restrained thereby from closing; the securing device and the sheath having apertures through which the spring when released may pass to engage and connect them; a shell or housing which incloses the spring and is movable on the sheath; the shell or housing having a diaphragm rigid with it and penetrated by the sheath and which in such movement of the housing moves the spring to the apertures of the sheath for releasing it from restraint.

7. A self-locking seal comprising a securing device; a sheath into which it may be thrust; a spring which is spread to clasp the sheath and is restrained thereby from closing; the securing device and the sheath having apertures through which the spring when released may pass to engage and connect them; a shell or housing which incloses the spring and is movable on the sheath, the shell or housing having a diaphragm rigid with it and penetrated by the sheath which in such movement of the housing moves the spring to the apertures of the sheath for releasing it from restraint, the sheath having a feature which is visible outside the shell before such movement, and is covered and concealed by the shell in such movement.

8. A self-locking seal comprising a securing device; a sheath into which it may be thrust; a spring which is spread to clasp the sheath and is restrained thereby from closing, the securing device and the sheath having apertures through which the spring when released may pass to engage and connect them; a shell or housing which incloses the spring and is movable on the sheath, the shell or housing having a diaphragm rigid with it and penetrated by the sheath which in such movement of the housing moves the spring to the apertures of the sheath for releasing it from restraint, the sheath having a ratchet-shaped projection which passes through the diaphragm in such movement and resists a reverse movement.

9. A self-locking seal comprising a securing device; a sheath into which it may be thrust; a spring which is spread to clasp the sheath and is restrained thereby from closing, the securing device and the sheath having apertures through which the spring when released may pass to engage and connect them; a shell or housing which incloses the spring and is movable on the sheath, the shell or housing having a diaphragm rigid with it and penetrated by the sheath, and which in such movement of the housing moves the spring to the apertures of the sheath for releasing it from restraint, the spring being spread to stride the diaphragm in clasping the sheath, and the apertures in the latter being wide enough to be exposed for entrance of the spring at both sides of the diaphragm at once.

788,385. **SIGNAL MECHANISM.** JAMES C. WALDO, Sharpsburg, Pa., assignor of one-fourth to John J. Forster, Avalon, Pa. Filed Oct. 19, 1903. Serial No. 177,687.



Claim.—1. In a signal apparatus, the combination of two signal-oscillating shafts, and means for operating said shafts in succession but in opposite directions, substantially as set forth.

2. In a signal apparatus, the combination of two signal-oscillating shafts, means for operating said shafts in succession but in opposite directions, and means for positively locking the shafts when shifted, substantially as set forth.

3. In a signal apparatus, the combination of two signal-operat-

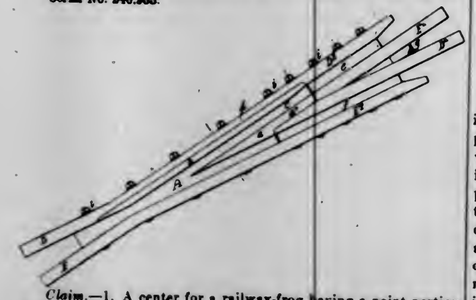
ing shafts, a disk provided with means for engaging both shafts and mechanism for imparting step-by-step movements to said disk, substantially as set forth.

4. In a signal apparatus, the combination of two signal-operating shafts, each provided with a notched arm, a disk provided with teeth arranged to engage the notches in said arms, said arms normally resting on the periphery of the disk and thereby locking the shaft as against accidental rotation, substantially as set forth.

5. In a signal apparatus the combination of two signal-operating shafts, a disk provided with means for engaging said shafts, a ratchet-wheel mounted on the shaft with the disk and two reciprocating heads arranged on opposite sides of the wheel and provided with teeth for engagement with the wheel, substantially as set forth.

6. In a signal mechanism of the character stated, a rotatable member, lock devices coöperating therewith to hold said member from rotation, a semaphore operable by said rotatable member, electromagnetically-operating means adapted on its initial movement to release the lock devices and upon further movement to impart rotary motion to said rotatable member, said electromagnetically-operating means and said rotatable member having a ratchet-and-pawl connection, for the purposes specified.

788,386. **RAILWAY-FROG.** WILLIAM WHARTON, Jr., Philadelphia, Pa., assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Feb. 23, 1905. Serial No. 246,933.



Claim.—1. A center for a railway-frog having a point portion with a longitudinal extension at its heel forming a continuation of one side only of the point, the said extension being tapered toward its free end, substantially as described.

2. The combination in a railway-frog, of a center having a stepped rear extension with two rails having tapered ends, the said rails being secured to each other and to the said extension so that the rail on one side will bridge the joint at the opposite side, substantially as described.

3. A center for a railway-frog having a point portion with a longitudinal extension at its heel or rear end forming a continuation of one side only of said point, in combination with two rails having tapered ends, one of said rails being mounted in advance of the other, the tapered end of the rail in advance being secured to one side of the said rear extension of the center, the tapered end of the other rail abutting against the end of the said extension, substantially as described.

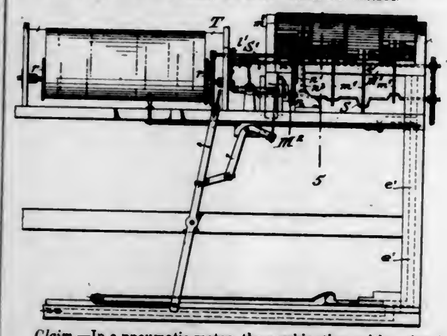
4. A center for a railway-frog having a point portion with a longitudinal extension at its heel or rear end forming a continuation of one side only of said point, in combination with two rails having tapered ends, one of said rails being mounted in advance of the other, the tapered end of the rail in advance being secured to one side of the said rear extension of the center, the tapered end of the other rail abutting against the end of the said extension, so that the joint on one side will be bridged by the said extension of the center, and the joint on the opposite side will be bridged by the rail which is in advance, substantially as described.

5. In a railway-frog, the combination of a hard-metal center having a point and a rear extension forming a continuation of one side only of said point, rails secured to each side of the said center, rails secured one in advance of the other at the heel of the hard-metal center, the rail in advance being attached to the side of the extension, the other rail abutting against the end of the extension, a filler or fillers mounted between the rails back of the center, and means for securing the parts together, substantially as described.

6. In a railway-frog, the combination of a hard-metal center having a point and one supplementary wing-rail only, with rails secured to each side of the said center, one of said rails being recessed to receive the said supplementary wing-rail, substantially as described.

7. In a railway-frog, a hard-metal center having a point formed with a longitudinal extension at its heel on one side only and having one supplementary wing-rail only, in combination with rails secured to each side of the said center, one of said rails being recessed to receive the said supplementary wing-rail, substantially as described.

788,387. **PNEUMATIC MOTOR FOR DRIVING MUSIC-SHEETS.** JOSEPH WIESER, New York, N. Y., assignor of one-half to Karl Fink, New York, N. Y. Filed May 21, 1903. Serial No. 158,214.



Claim.—In a pneumatic motor, the combination, with a plurality of pneumatics and a shaft operatively connected therewith, of a pneumatics-supporting block comprising a central part provided with grooves at either side of the same and a groove in the lower side in communication with the wind-chest, a top board for said central part having openings in communication with said groove and with the pneumatics, and a bottom board for said central part having openings at one end thereof, a second block at approximately right angles to said pneumatics-supporting block and provided with an opening and with grooves on each side, each of said grooves communicating with one of the openings of said bottom board and terminating alternately one on either side of said second block and equidistant from the shaft-opening, and provided on one side with a suction-groove connecting the suction-channel of the pneumatics-supporting block with the shaft-opening, side boards for said second block provided with openings corresponding to the ends of the grooves of said second block and to the shaft-opening, and valves having recesses and air-inlets in their faces, said valves being mounted on said shaft on either side of said second block and adapted to successively connect the channels leading to the pneumatics alternately with the wind-chest and with the atmosphere.

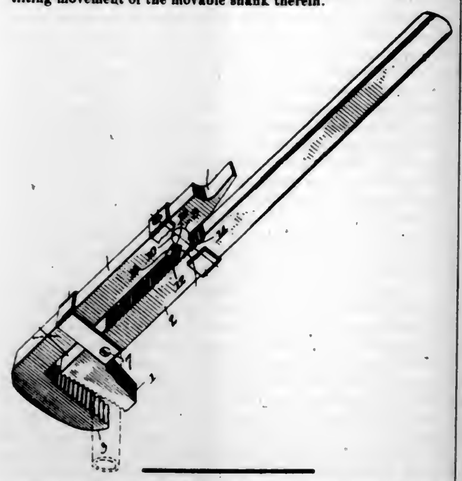
788,388. **PIPE-WRENCH.** BENJAMIN F. WOODWARD, Sarcoxie, Mo., assignor of one-third to Henry B. Boyd, Sarcoxie, Mo. Filed Nov. 19, 1904. Serial No. 233,560.

Claim.—1. A pipe-wrench comprising a fixed jaw and shank, the latter having its upper edge provided with ratchet-teeth, a movable jaw having a shank spaced from the shank of the fixed jaw and provided on its lower edge with a recess, a spring-pressed dog pivotally supported within said recess and adapted to engage the teeth for maintaining said shanks in spaced relation to each other, and means carried by the dog and serving as a fulcrum when pressure is applied to the movable shank to disengage said dog from the ratchet-teeth on the fixed shank.

2. A pipe-wrench comprising a fixed jaw and shank, a movable jaw and shank, yokes connecting said shanks, and a spring-pressed dog pivotally supported within a recess in the edge of the movable shank, and formed with a rounded lip to serve as a fulcrum when pressure is applied to the movable shank to disengage the dog from the ratchet-teeth on the fixed shank.

3. A pipe-wrench comprising a fixed jaw and shank, the latter having its upper edge provided with ratchet-teeth, a movable jaw having a shank extension recessed on its under edge to form a rounded seat, a spring-pressed dog having a rounded head, whereby it is pivotally supported within said seat, and a yoke for connecting said shanks, the sides of said yoke serving to prevent the displacement of said dog.

4. In a pipe-wrench, the combination with a fixed jaw and shank, the latter being provided with ratchet-teeth, of a movable jaw and shank, a spring-pressed dog having a rounded head and a rounded projection below the head, the under edge of said movable shank being recessed to receive said dog, and connecting means for said shanks comprising yokes secured respectively, one to each shank, and the forward yoke being of such length as to permit a tilting movement of the movable shank therein.



788,389. **SHUTTER-FASTENER.** OWEN D. ANDERSON, Barnwell, S. C. Filed July 14, 1904. Serial No. 216,555.



Claim.—1. A device of the class described, comprising a fixed catch or keeper having an interiorly-arranged shoulder and designed to be secured to a window-sill, a hinged catch constructed to interlock with the fixed catch and designed to be mounted on a shutter and provided with key-operated mechanism for engaging the shoulder of the fixed catch or keeper, said key-operated mechanism being concealed within the device when the parts are locked.

2. A device of the class described, comprising a fixed catch or keeper designed to be secured to a window-sill and provided at its lower face with a recess or cavity and having a slot or opening in its upper face communicating with the recess or cavity, a movable catch designed to be mounted on a shutter, and a bolt carried by the movable catch and provided with a head adapted to extend through the slot or opening for engaging the fixed catch or keeper at the recess or cavity thereof.

3. A device of the class described, comprising a fixed catch or keeper designed to be secured to a window-sill and provided at its lower face with a recess or cavity and having a slot or opening in its upper face communicating with the recess or cavity, a movable catch designed to be mounted on a shutter, a bolt carried by the movable catch and provided with a head adapted to extend through the slot or opening for engaging the fixed catch or keeper at the recess or cavity thereof, and projections located within the recess or cavity for limiting the movement of the head of the bolt.

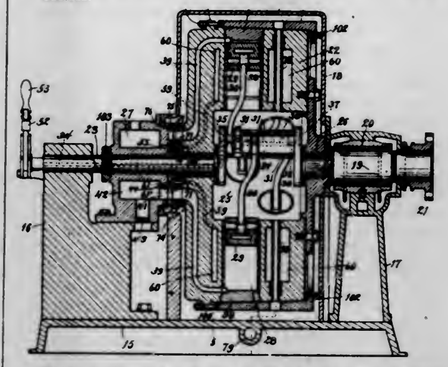
4. A device of the class described, comprising a fixed catch or keeper having a slot or opening, a movable catch for engaging the fixed catch or keeper, and a bolt carried by the movable catch or keeper and having a head arranged to extend through the slot or opening of the fixed catch or keeper for engaging the latter.

5. A device of the class described, comprising a fixed catch or keeper having an opening, a movable catch or keeper, a bolt mounted on the movable catch or keeper and having a head arranged to extend through the said opening, a spring disposed on the bolt within the movable catch, and a pin piercing the bolt for engaging the spring, said pin being also arranged to be engaged by a key, whereby the bolt is rotated.

6. A device of the class described, comprising a fixed catch or keeper having a beveled head, an attachment plate or block having an enlarged beveled portion forming a shoulder and adapted to fit against the head of the catch or keeper, and a hinged catch mounted on the attachment plate or block and provided with a head for engaging the fixed catch or keeper.

7. A device of the class described, comprising an attachment plate or block having an enlarged beveled head and provided at opposite sides with recesses, a bifurcated catch receiving the recessed portion of the attachment plate or block and pivoted to the same, and a fixed catch or keeper having a head.

788,390. **ROTARY MOTOR.** CHARLES H. BARDENWERPER, Milwaukee, Wis., assignor to American Steam Motor Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed July 29, 1904. Serial No. 218,613.



Claim.—1. In a rotary motor, the combination of a frame, a revoluble member provided with a hollow space and with a port leading to said space, means for supplying a heating agent to the port, the said port being in communication with the source of heating-agent supply when the motor is at a standstill, means for supplying an actuating fluid to the revoluble member, means, when said actuating fluid is supplied to the revoluble member, for throwing the port leading to the hollow space out of registration with the source of heating-agent supply, and means for exhausting the heating agent and for exhausting the actuating fluid.

2. In a rotary motor, the combination of a frame, a movable member, a two-part valve disposed between the movable member and the framework, the space between the inner opposed faces of the sections of the valve being adapted to be placed into communication with the source of actuating-fluid supply, whereby the two sections of the valve are adapted, upon the admission of the actuating fluid therebetween, to be spread apart and against the framework and the movable member, respectively, the two sections of said valve provided with registering inlet-ports for supplying the movable member, means for shifting the valve so as to cut the same into or out of communication with the source of actuating-fluid supply, and means for exhausting the actuating fluid from the movable member.

3. In a rotary motor, the combination of a frame, a movable member, a two-part valve disposed between the movable member and the framework, the sections of said valve provided with registering ports adapted to be brought into or out of registration with the source of actuating-fluid supply, the port of one of the sections communicating with a passage in the face of said section which is opposed to the face of the other section, whereby, when the registering ports of said valve-sections are brought into registration with the source of actuating fluid, the said fluid is admitted between the opposed faces of the valve-sections and into the passage of one of the sections, and said sections thereby spread apart and against the framework and the movable member, respectively, means for controlling the valve for admitting the actuating fluid to the movable member, or for cutting out the supply of the actuating fluid to said movable member, and means for exhausting the actuating fluid from the movable member.

4. In a rotary motor, the combination of a frame, a movable

member, a two-part valve disposed between the movable member and the framework, the sections of said valve provided with registering inlet-ports adapted to be brought into or out of registration with the source of actuating-fluid supply and when brought into registration, to supply said actuating fluid to the movable member, and the inlet-port of one of the sections communicating with the passage in the face of said section which is opposed to the face of the other section, whereby, when the registering ports of said valve-sections are brought into registration with the source of actuating-fluid supply, the said fluid is permitted to pass to the movable member, and is also admitted between the opposed faces of the valve-sections and into the passage of one of said sections, and said sections thereby spread apart and against the frame and the movable member, respectively, means for operating the valve-sections so as to bring the inlet-ports thereof into or out of registration with the source of actuating-fluid supply, and means for exhausting the actuating fluid from the movable member.

5. In a rotary motor, the combination of a frame, a movable member, an actuating-fluid chest formed in the framework and in communication with the source of actuating-fluid supply, and provided with a port leading therefrom, a two-part valve disposed between the movable member and the inner wall of said chest, the sections of said valve provided with registering ports adapted to be brought into or out of registration with the port of the fluid-chest, the port of one of these sections of the valve communicating with a passage in the face of said section which is opposed to the face of the other section, whereby, when the registering ports of said valve-sections are brought into registration with the port of the fluid-chest, the actuating fluid is admitted between the opposed faces of the valve-sections and into the passage of one of said sections, and said sections thereby spread apart and against the framework and the movable member, respectively, means controlled by the valve for admitting the actuating fluid to the movable member, or for cutting out the supply of the actuating fluid to said movable member, and means for exhausting the actuating fluid from the movable member.

6. In a rotary motor, the combination of a frame, a movable member, an actuating-fluid chest formed in the framework and in communication with the source of actuating-fluid supply, and provided with a port leading therefrom, a two-part valve disposed between the movable member and the inner wall of the fluid-chest, the sections of said valve provided with registering inlet-ports adapted to be brought into or out of registration with the port leading from the fluid-chest, the inlet-port of one of said sections of the valve communicating with a passage in the face of said section which is opposed to the face of the other section, whereby, when the registering inlet-ports of said valve-sections are brought into registration with the port of the chest, the actuating fluid is permitted to pass to the movable member and is also admitted between the opposed faces of the valve-sections and into the passage of one of said sections, and said sections thereby spread apart and against the framework and the movable member, respectively, means for operating the valve-sections so as to bring the inlet-ports thereof into or out of registration with the port of the actuating-fluid chest, and means for exhausting the actuating fluid from the movable member.

7. In a rotary motor, the combination of a frame, a revoluble member provided with a plurality of passages for the actuating fluid, an actuating-fluid chest formed in the framework and provided with a port through one wall thereof, an exhaust-chamber formed in the framework and having a port through one wall thereof, a two-part valve disposed between the revoluble member and the portion of the framework in which the fluid-chest and the exhaust-chamber are located, the space between the inner faces of said sections of the valve being in communication with the source of actuating-fluid supply, whereby the two sections of the valve are adapted, upon the admission of the actuating fluid therebetween, to be spread apart and against the framework and movable member, respectively, the two sections of said valve provided with registering inlet-ports adapted to be brought into registration with the port of the fluid-chest, and also provided with registering ports adapted to be brought into registration with the port leading to the exhaust-chamber, the several passages of the revoluble member being successively brought into registration with the registering inlet-openings of the two sections of the valve, when said valve is adjusted so as to bring either set of its inlet and exhaust ports into registration with the source of actuating-fluid supply and exhaust, and thereafter successively into registration with the exhaust-port leading to the exhaust-chamber, and means for shifting the valve so as to cut the registering inlet-ports thereof into or out of communication with the inlet-port of the fluid-chest.

8. In a rotary motor, the combination of a frame, a movable member, an actuating-fluid chest formed in the framework and in communication with the source of actuating-fluid supply, and provided in one wall with two ports, one of said ports adapted for supplying the actuating fluid to the revoluble member, a two-part valve disposed between the revoluble member and the portion of the framework in which the fluid-chest is located, the two sections of said valve provided with registering inlet-ports adapted to be brought into registration with the port of the fluid-chest which is adapted for supplying the fluid to the revoluble member, and means for shifting the valve-sections together, the said sections when in a position to cut off registration between the registering inlet-ports thereof and one of the ports of the fluid-chest, adapted to have the space between the opposed faces thereof brought into communication with the other port of the fluid-chest, whereby the fluid is admitted between said faces of the sections of the valve to thereby spread said sections apart and against the framework and movable member, respectively, and when shifted to a position to bring their registering inlet-openings into registration with the corresponding port of the fluid-chest, adapted to bring the space between the opposed faces of the sections of the valve into communication with the inlet fluid-supply, and to also permit said fluid to pass to the movable member, and means for exhausting the fluid from the movable member.

9. In a rotary motor, the combination of a frame, a movable member provided with a hollow space, and with a passage leading to said hollow space, a two-part valve disposed between the movable member and the framework, the space between the opposed inner faces of the sections of the valve being in communication with the source of actuating-fluid supply, whereby the sections are adapted, upon the admission of the actuating fluid therebetween, to be spread apart and against the framework and movable member, respectively, and the inner section of the valve provided with a port therethrough which is adapted to permit the actuating fluid to pass from between the opposed faces of the valve-sections and into the passage of the movable member which leads to the hollow communicating space of said movable member, and the two sections of the valve provided with registering inlet-ports for supplying the movable member, means for shifting the valve-sections together so as to cut the registered inlet-ports thereof into or out of communication with the source of actuating-fluid supply, and means for exhausting the actuating fluid from the movable member.

10. In a rotary motor, the combination of a frame, an exhaust-chamber in the framework and provided with a port through its inner wall, a movable member provided with a hollow space and with a passage leading to said space, a two-part valve disposed between the movable member and the framework, the space between the opposed inner faces of the sections of the valve being adapted to be placed into communication with the source of actuating-fluid supply when the motor is at a standstill, whereby the sections of the valve are adapted, upon the admission of the actuating fluid therebetween, to be spread apart and against the framework and movable member, respectively, and the inner section of the valve provided with a port therethrough which is adapted to permit the actuating fluid to pass from between the opposed faces of the valve-sections and into the passage of the movable member which leads to the hollow communicating space of said movable member, whereby when the motor is at a standstill the hollow space is heated by the inflowing actuating agent, and the two sections of the valve also provided with other registering ports adapted to be brought into registration with the passage of the movable member which leads to the hollow communicating space when the valve is shifted to such position as to provide for the running of the motor, and also to be brought into communication with the port leading to the exhaust-chamber, whereby during the running of the motor the said hollow space is heated by the exhausting fluid, and said sections of the valve further provided with registering inlet-ports for supplying the movable member, when the valve is shifted to admit the actuating fluid through the inlet-openings of the valve-sections, and means for shifting the valve-sections so as to cut the inlet-ports thereof into or out of communication with the source of fluid-supply.

11. In a rotary motor, the combination of a frame, a movable member, a two-part valve disposed between the movable member and the framework, the space between the inner opposed faces of the sections of the valve being adapted to be placed into communication with the source of actuating-fluid supply, whereby the two sections are adapted, upon the admission of the actuating fluid therebetween, to be spread apart and against the framework and the movable member, respectively, the two sections of the valve provided with registering inlet-ports for supplying the actuating fluid to the movable

member, and one section also provided with one or more annular recesses and the other with one or more annular ribs adapted to fit the recesses of the opposed face of the first-referred-to member, means for shifting the valve-sections together so as to cut the registering inlet-ports thereof into or out of communication with the source of actuating-fluid supply, and means for exhausting the actuating fluid from the movable member.

12. In a rotary motor, the combination of a frame, a movable member, a two-part valve disposed between the movable member and the framework, the space between the inner opposed faces of the sections of the valve being adapted to be placed into communication with the source of actuating-fluid supply, whereby the two sections are adapted, upon the admission of the actuating fluid therebetween, to be forced apart and against the framework and the movable member, respectively, the two sections of the valve provided with registering inlet-ports for supplying the actuating fluid to the movable member, and one section also provided with one or more annular recesses and the other with one or more annular ribs adapted to fit the recesses in the opposed faces of the first-referred-to members, packing between the inner ends of the ribs and the bottoms of the recesses, means for shifting the valve-sections together so as to cut the registering inlet-ports thereof into or out of communication with the source of actuating-fluid supply, and means for exhausting the actuating fluid from the movable member.

13. In a rotary motor, the combination of a frame, a movable member, a two-part valve disposed between the movable member and the framework, the space between the inner opposed faces of the sections of the valve being adapted to be placed into communication with the source of actuating-fluid supply whereby the two sections are adapted, upon the admission of the actuating fluid therebetween, to be forced apart and against the framework and the movable member, respectively, the two sections of the valve provided with registering inlet-ports for supplying the actuating fluid to the movable member, a packing between the outer face of the outer section of the valve and the framework, and a packing between the inner face of the inner section of the valve and the movable member, means for shifting the valve-sections together so as to cut the registering inlet-ports thereof into or out of communication with the source of actuating-fluid supply, and means for exhausting the actuating fluid from the movable member.

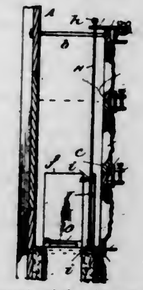
14. In a rotary motor, the combination of a frame, a movable member, a two-part valve disposed between the movable member and the framework and provided with registering discharge-ports adapted when the valve is shifted to one position to permit the steam which is supplied to the movable member to pass through said registering discharge-ports to the source of discharge, the face of one of the sections of the valve which is opposed to the face of the other section being provided with a recess which is adapted to be placed into communication with the source of fluid-supply whereby the two sections are adapted, upon the admission of the actuating fluid to said recess, to be spread apart and against the framework and the movable member, respectively, and said recessed section of the valve also provided with radial recesses extending across the first-referred-to recesses and between which the registering discharge-ports of the valve-sections lie, and the other section of the valve provided with radial ribs fitting said recesses, and both sections of the valve provided with registering inlet-ports for supplying the actuating fluid to the movable member, and means for shifting the valve-sections together so as to cut the registering inlet-ports thereof into and out of communication with the source of actuating-fluid supply.

15. In a rotary motor, the combination of a frame, a revoluble member provided with a central chamber, a shaft upon which the revoluble member is mounted, said shaft having an oil-passage extending longitudinally thereof and opening into the central chamber of the revoluble member for the purpose of lubricating parts of the mechanism, and one or more conduits leading from the central chamber, and through the revoluble member and adapted to discharge the oil which may accumulate in said central chamber.

16. The combination of a revoluble member provided with a series of cylinders and with passages leading to said cylinders for the purpose of supplying an actuating fluid thereto, pistons in the cylinders, heads fitted to the outer ends of the cylinders and extending a desired distance into said cylinders, the outer surfaces of the heads being tapered or beveled, an annulus or ring surrounding the revoluble member and having its inner surface bearing against the outer surfaces of the heads of the cylinder, and tapered oppositely thereto, and means for drawing the ring into or out of tight wedging engagement with the heads of the cylinders.

17. In a rotary motor, the combination of a frame, a revoluble member provided with an inlet for a heated actuating fluid, and with an exhaust for said fluid, the said inlet when in registration with the source of actuating-fluid supply adapted to conduct the actuating fluid to and actuate the revoluble member and said revoluble member further provided with a hollow space and with a port leading to said space, the said port being in registration with the source of actuating-fluid supply when the motor is at a standstill, whereby the revoluble member is heated during the period of inactivity of the motor, and said port being out of registration with the source of actuating-fluid supply, but in communication with the exhausting actuating fluid, when the motor is running, whereby during the period of running of the motor the hollow space is heated by the exhausting actuating fluid.

788,391. APPARATUS FOR THE CONSTRUCTION OF PLASTIC WALLS. DAVID W. BOYER, Waterloo, Iowa. Filed Sept. 28, 1904. Serial No. 226,369.



Claim.—1. An apparatus of the character described, comprising a backing, mold-sections carried thereby, rods carried by said mold-sections between the same, and a divisional plate vertically movable upon said rods.

2. An apparatus of the character described, comprising a backing, mold-sections carried thereby, rods carried by said mold-sections between the same, and a corrugated divisional plate vertically adjustable upon said rods.

3. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, rods carried by said mold-sections between the same, and a corrugated divisional plate vertically adjustable upon said rods.

4. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby, and a corrugated divisional plate vertically adjustable on said rods.

5. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby, corrugated divisional plates movable upon said rods, and means for holding said plates in their adjusted position on the rods.

6. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting said sections in an oblique or vertical alinement and separate means for holding said sections in their adjusted position.

7. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried by the mold-sections, means for adjusting said arms to or from each other and means for locking said arms in their adjusted position.

8. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried by the mold-sections, means for adjusting said arms to or from each other, and a link surrounding said arms and locking said sections in the adjusted position.

9. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, rods carried by said mold-sections between the same, and a divisional plate vertically movable upon said rods.

10. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, rods detachably carried by the mold-sections between them and the backing, and a divisional plate vertically adjustable upon said rods.

11. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, inwardly-projecting arms detachably carried by said mold-sections, rods detachably carried by said arms and a divisional plate vertically adjustable on said rods.

12. An apparatus of the character described, comprising mold-sections, detachable rods within said sections, and a divisional plate vertically adjustable on said rod.

13. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby and a divisional plate vertically adjustable on said rods.

14. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby, a divisional plate vertically movable upon said rods, and means for holding said plate in its adjusted position.

15. An apparatus of the character described, comprising mold-sections, detachable arms carried by said sections, detachable rods carried by said arm, and a divisional plate vertically movable upon said rods, and means for holding said plate in its adjusted position.

16. An apparatus of the character described, comprising a mold-section, a cylindrical member composed of two sections hinged together at their lower ends, a link connection at their upper ends, means whereby the upper ends of said sections telescope each other, and outwardly-spring-pressed members carried by the lower ends of said sections.

17. An apparatus of the character described, comprising a backing, mold-sections carried thereby, and outwardly-extending members carried by said sections, and means for securing the said members together

18. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried thereby and set-screws carried by the arms of one section and engaging the arms of the adjoining section.

19. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried thereby, set-screws carried by the arms of one section, and engaging the arms of the adjoining section, and links passing around said oppositely-arranged arms.

20. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending oppositely-arranged arms carried by said mold-sections, set-screws carried by the arms of one section and engaging the arms of the adjoining sections, and a link passing around said oppositely-arranged pairs of arms on the inside of said set-screws.

21. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending wedge-shaped oppositely-arranged arms carried by said mold-sections, set-screws carried by the arms of one section and engaging the arms of the adjoining sections, and a link passing around said oppositely-arranged pairs of arms on the inside of said set-screws, and adapted to wedge the two arms of each pair together

22. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending wedge-shaped oppositely-arranged arms carried by said mold-sections, set-screws carried by the arms of one section and engaging the arms of the adjoining sections, a link passing around each pair of said arms on the inside of the set-screws, a divisional plate between said mold-sections and the backing and vertically-movable and cylindrical collapsible members between the divisional plates, and the backing, and adapted to be raised as the wall is constructed.

23. An apparatus of the character described, comprising a backing, mold-sections carried thereby, an irregular divisional plate carried by the mold-sections, and a cylindrical member situated between the divisional plate and the backing and composed of two sections hinged together at their lower ends, links connecting the upper ends of said sections and means whereby the upper ends of said sections telescope each other.

24. An apparatus of the character described, comprising a backing, mold-sections carried thereby, vertically-disposed rods carried by the mold-sections, a corrugated plate carried by the rods, and vertically movable thereon, and a collapsible cylindrical member between said corrugated plate and the backing.

25. An apparatus of the character described, comprising a locking, detachable mold-sections carried thereby, and means for adjusting and holding said sections in either a vertical or oblique alinement.

26. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, and a vertically-adjustable corrugated plate carried by said mold-sections.

27. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, vertically-disposed rods carried by the inner faces of the mold-sections, and a corrugated plate vertically adjustable on said rods.

28. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, vertically-disposed rods adjustably carried by the mold-sections and a divisional plate vertically adjustable on said rod.

29. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, vertically-disposed rods adjustably carried by the inner faces of the mold-sections, a vertically-dispcsed corrugated plate adjacent said rods and having eyes through which the rods pass, and set-screws passing through the eyes and engaging the rods for holding the plates at the adjusted position.

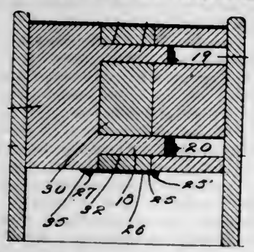
30. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending members carried by said sections, set-screws passing through the members of one section and abutting the members of the adjoining section and links passing around said oppositely-arranged members on the inside of said set-screws.

31. An apparatus of the character described, comprising a mold-section, a cylindrical member composed of two sections hinged together at their lower ends, and telescoping at their upper ends, links pivoted to the said sections and pivoted together intermediate their ends, the end of one link serving as a stop to limit the downward movement of the links and the end of the opposite link serving as a stop to limit the upward movement of the links, and outwardly-spring-pressed members carried by the lower ends of the sections.

32. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, detachable members carried by the outside of the mold-sections and having inwardly-projecting arms extending through said mold-sections, rods detachably carried by said arms, and a divisional plate vertically adjustable on said rods.

33. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, detachable members bolted to the outer face of said mold-sections and having inwardly-projecting arms extending through openings in the mold-sections, rods detachably carried by said arms, and a divisional plate vertically adjustable on said rod.

788,392. EXTENSION-BEDSTEAD. ROBERT H. BRADLEY, Winston Salem, N. C. Filed Dec. 31, 1904. Serial No. 239,148.

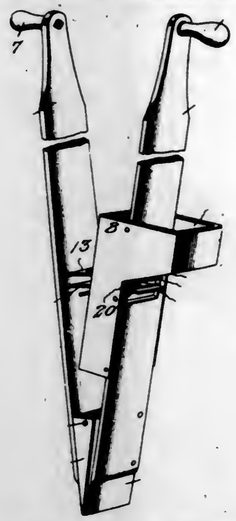


Claim.—1. A bedstead comprising side members each including a side rail, a headboard-section and a footboard-section, the board-sections of one member having tongues projecting therefrom and the board-sections of the other member having passages in which the corresponding tongues are slidably and removably engaged, and filling-blocks and passages corresponding to those of the boards and through which the corresponding tongues are slidably and removably engaged.

2. A bedstead comprising side members each including a side rail, a headboard-section and a footboard-section, the board-sections of one member having tongues projecting therefrom and the board-sections of the other member having passages in which the corresponding tongues are slidably and removably engaged, filling-blocks and passages corresponding to those of the boards and through which the corresponding tongues are slidably and removably engaged, and means for holding the members against separation.

3. A bedstead comprising side members each including a side rail and head and foot board sections, the board-sections of one member having longitudinally-projecting tongues and the board-sections of the other member having passages in which the corresponding tongues are slidably and removably received, filling-blocks having passages in which the corresponding tongues are slidably and removably received, the vertical edges of the filling-blocks being grooved and having the corresponding board-sections removably engaged therein and means for holding the members against separation.

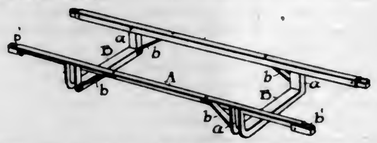
788,393. COMBINED POTATO CUTTER AND PLANTER. HARRY DINGMAN, Kimball, Minn., assignor of one-half to Walter Dixon, Kimball, Minn. Filed Nov. 7, 1904. Serial No. 231,725.



Claim.—1. A combined potato cutter and planter comprising pivotally-connected arms, having penetrating devices at their lower ends, a hopper connected with one of said arms, and cutting and limiting slides connected with the other of said arms, and each having an opening therein.

2. A combined potato cutter and planter comprising pivotally-connected arms, having penetrating devices at their lower ends, a hopper connected with one of said arms and being disposed between the two arms, an extension connected with said hopper and surrounding the arm to which the hopper is connected, said arm being formed with an opening, and said extension being formed with a bottom inclined toward said opening, a cutting-slide removably connected with the other arm and extending through a slot in said hopper, said slide being provided with an opening, and a limiting-slide removably connected with the arm to which the cutting-slide is connected, said limiting-slide being disposed below the cutting-slide and being formed with an opening out of line with the opening in the first-mentioned slide.

788,394. SKELETON FRAME FOR FARM-WAGONS. ARTHUR L. DUDLEY and CARL H. DUDLEY, Oberlin, Ohio. Filed Nov. 11, 1904. Serial No. 232,306.



Claim.—1. As a new article of manufacture, a rigid skeleton frame for wagons consisting of a set of metallic bolsters constructed along their bottom to seat upon the bolsters of the wagon and having their ends bent upward at right angles to form standards, and side rails rigidly fixed to the top of said standards, substantially as described.

2. A skeleton frame for wagons, comprising front and rear metallic bolsters having flanges along their bottom edges and their ends bent upward and constituting standards, and side rails extending from one bolster to the other and fixed on the tops of said standards, and braces in the angles of the said parts, substantially as described.

3. In frames for wagons, a metallic frame consisting of downwardly-flanged bolsters having integral right-angled ends constituting standards and flanged side rails rigid with said standards, in combination with a sectional platform resting upon said rails and means locking the platform to said rails, substantially as described.

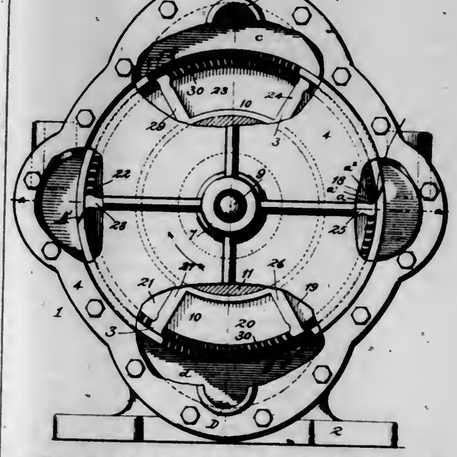
4. In appliances for wagons adapted to carry loads, a platform comprised of two sections horizontally and each section having a strengthening-strip along each of its edges, and said sections constructed to be converted into a rigid platform and to be used separately as sides for a wagon-body, substantially as described.

5. A platform for wagons consisting of two sections and each section having a cleat 2 lengthwise substantially midway between its edges and reinforcing-stripe along its edges, and removable cross-pieces connecting said sections at intervals and constituting a rigid structure, substantially as described.

6. A wagon-frame having front and rear standards and parallel bars fixed on the top of said standards, in combination with a platform resting on said bars and provided with stops on its bottom bearing against the inner sides of said bars and latches engaging the said platform with the outer edges of said rails, substantially as described.

7. A frame for a wagon having metallic bolsters with right-angled ends forming standards and flanges along the bottom and ends of said bolster and said standards, and angle-iron bars fixed lengthwise on the top of said standards and provided with means at their ends to support end-gates, substantially as described.

788,395. TURBINE-ENGINE. EMIL EINFELDT, Davenport, Iowa. Filed Dec. 23, 1904. Serial No. 238,109.



Claim.—1. In a turbine-engine the combination with a cylinder provided with induction and eduction ports, of a rotary piston mounted therein and provided with a plurality of non-communicating compartments, each formed with a plurality of openings for the entrance and exit of steam, said openings being adapted, by the rotation of the piston, to be brought successively into communication with the induction and eduction ports respectively.

2. In a turbine-engine the combination with a cylinder provided with an induction-port and with a peripheral exhaust-chamber formed with a plurality of peripheral openings affording a communication between the cylinder and exhaust-chamber, of a rotary piston mounted in said cylinder and formed with a compartment having a plurality of peripheral openings for the entrance and exit of steam, said compartment-openings being adapted to be placed in communication respectively with the induction-port, and the openings entering the exhaust-chamber.

3. In a turbine-engine, the combination with a cylinder formed with induction and eduction ports, of a rotary piston therein provided with a compartment formed with openings for the entrance of the steam from the induction-port, said openings increasing in area

toward the rear of the compartment, and means for exhausting the steam from said compartment.

4. In a turbine-engine, the combination with a cylinder formed with induction and eduction ports, of a rotary piston therein provided with a compartment formed with openings for the entrance of the steam from the induction-port, the spaces between said openings increasing in width toward the rear of the compartment, and means for exhausting the steam from said compartment.

5. In a turbine-engine, the combination with a cylinder formed with induction and eduction ports, of a rotary piston therein provided with a compartment formed with openings for the entrance of the steam from the induction-port, said openings increasing in area and being spaced farther apart toward the rear of the compartment, and means for exhausting the steam from said compartment.

6. In a turbine-engine, the combination with a cylinder provided with induction and eduction ports and formed with a plurality of openings affording a communication between the cylinder and eduction-port, of a rotary piston mounted in the cylinder and having a compartment provided with a plurality of openings for the entrance and exit of steam, said openings in the compartment increasing in area toward the rear of the same.

7. In a turbine-engine, the combination with a cylinder provided with induction and eduction ports, of a rotary piston therein formed with a plurality of compartments each having a plurality of openings for the entrance and exit of steam, said induction and eduction ports being so arranged with relation to the compartments in the piston, that the entrance of steam into one compartment and its exhaust from the next compartment in advance, will be initiated simultaneously.

8. In a turbine-engine, the combination with a cylinder provided with an induction-port and an eduction-port, of a rotary piston mounted in said cylinder and formed with a compartment having a plurality of openings for the entrance and exit of steam, said openings extending throughout the length of the compartment, the said eduction-port being formed with a plurality of openings extending at intervals a distance corresponding to the length of the compartment in the piston, the said compartment-openings and those through the eduction-port being adapted to be brought into register as the piston moves past the eduction-port.

9. In a turbine-engine, the combination with a cylinder provided with an induction-port, and with an exhaust-chamber having a plurality of openings therethrough communicating with the interior of the cylinder, said openings being of gradually-increasing area toward the end of the chamber, of a rotary piston mounted in said cylinder.

10. In a turbine-engine, the combination with a cylinder provided with an induction-port, and with an exhaust-chamber having a plurality of openings affording a gradually-decreasing resistance to the exhaust of the steam as the end of said chamber is approached, of a rotary piston mounted in said cylinder and formed with a compartment having a plurality of openings for the entrance and exit of steam, said openings affording a gradually-decreasing resistance to the passage of the steam as the rear end of the compartment is approached, and adapted to be brought into communication respectively with the induction-port and the exhaust-chamber.

11. In a turbine-engine, the combination with a cylinder provided with induction and eduction ports, of a rotary piston therein formed with a compartment having a plurality of openings therethrough, arranged so as to afford a decreasing resistance to the passage of the steam as the rear end of the compartment is approached.

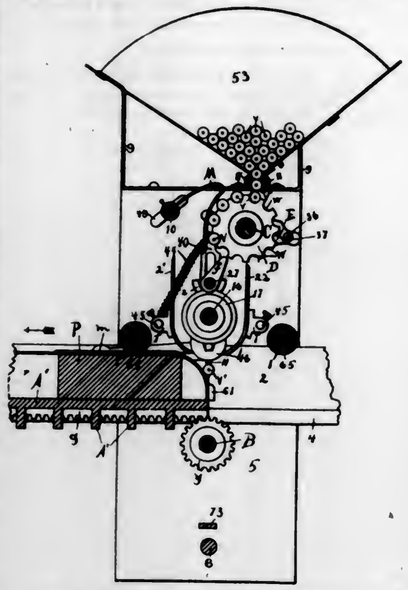
12. In a turbine-engine, the combination with a cylinder provided with an induction-port and with an exhaust-chamber, the latter being formed with a plurality of openings arranged so as to offer a decreasing resistance to the exit of the steam as the end of said chamber is approached, of a rotary piston mounted in said cylinder.

13. In a turbine-engine, the combination with a cylinder provided with an induction-port, of a rotary piston mounted therein and formed with a steam-storing compartment adapted to be filled with steam at the induction-port, means for exhausting the steam from said compartment, and means for presenting to the action of the exhaust-steam as the exhaust operation progresses, a continually-increasing number of impact-surfaces.

14. In a turbine-engine, the combination with a cylinder provided with an induction-port and an eduction-port, of a rotary piston mounted therein and formed with a steam-storing compartment adapted to be filled at the induction-port, and means situated at the eduction-port, for presenting to the action of the exhaust-steam a continuously-increasing number of exit-openings and a continuously-increasing number of impact-surfaces.

788,396. MECHANISM FOR PRINTING ON CYLINDERS.

GEORGE W. ELROD, Omaha, Nebr. Filed Jan. 24, 1903. Serial No. 140,415.



Claim.—1. The combination with a suitable supporting-frame, of a reciprocating table held by said frame, a hopper positioned above said reciprocating table, a feed mechanism below said hopper, a detent below said feed mechanism, a loosely-held platen-roller positioned above said table and adjacent said detent, and means to operate said table.

2. The combination with a suitable supporting-frame of a reciprocating table, supported by said frame, a hopper positioned above said reciprocating table, a feed mechanism below said hopper, guard-plates positioned above said reciprocating table, a platen-roller positioned between said guard-plates, valve-arms rocking from side to side alternately toward said guard-plates, and means to operate said instrumentalities.

3. The combination with a suitable supporting-standard, of a table reciprocating within said standard, a cam-plate secured to said table at each end, a hopper, a shaft provided below said hopper, a ratchet secured to said shaft, a pawl in engagement with said ratchet, an arm in connection with said pawl, said arm being actuated by said cam-plates, a loosely-held platen-roller positioned above said table and below said hopper, a detent positioned adjacent said platen-roller, and means to actuate said table.

4. The combination with a suitable supporting-standard, of a reciprocating table supported by said standard, a hopper above said table, a feed mechanism below said hopper, a rock-shaft, valve-arms secured to said rock-shaft, a bar secured to said rock-shaft, a cam-plate secured to one end of said table to actuate said bar, a loosely-held platen-roller, a detent positioned adjacent said platen-roller, guard-plates positioned adjacent said platen-roller, and means to reciprocate said table.

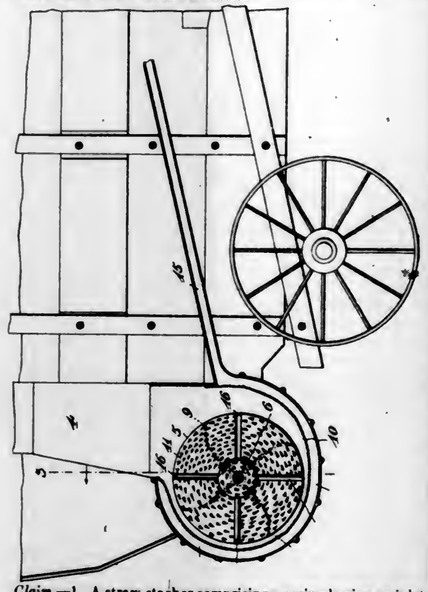
5. The combination with a suitable supporting-standard, of a table reciprocating upon said standard, rails secured to said table, a cam-plate secured at each end to said table, a hopper, a feed mechanism below said hopper, a ratchet-wheel secured to said feed mechanism, a pawl positioned adjacent said ratchet, said pawl being actuated by said cam-plates, a rock-shaft below said feed mechanism, valve-arms secured to said rock-shaft, an arm pendent from said shaft, said pendent arm being engaged by one of said cam-plates, a loosely-held platen-roller positioned below said feed mechanism, a detent positioned adjacent said platen-roller, guard-plates positioned adjacent said platen-roller, and means to actuate said table and feed mechanism.

6. The combination with a suitable supporting-standard, of a reciprocating table supported by said standard, a main driving-shaft

to actuate said reciprocating table, rails secured to said table, nosing-plates secured to said table upon opposite ends, a suitably-supported hopper positioned above said table, a movably-supported shaft below said hopper, feed-wheels secured to said shaft provided with suitable seatings, a ratchet-wheel secured to said shaft, a pawl in engagement with said ratchet-wheel said pawl being actuated by said nosing-plates, a rock-shaft below said shaft supporting said feed-wheels, valve-arms secured to said rock-shaft, a bar pendent from said rock-shaft adapted to be engaged by one of said cam-plates, a movably-supported platen-roller held under spring tension above said rails, a movable detent positioned adjacent said platen-roller, and guard-plates positioned adjacent said platen-roller, all arranged substantially as set forth.

788,397. STRAW-STACKER.

JOSIAH FAHRNEY, Waynesboro, Pa. Filed Jan. 4, 1905. Serial No. 239,602.



Claim.—1. A straw-stacker comprising a casing having an inlet and a discharge, a rotary fan in said casing, said fan having an apertured deflector-plate for separating grain from the straw discharged into said casing, and a screen in said casing partially around said fan, substantially as described.

2. A straw-stacker comprising a casing having an inlet and a discharge, a rotary fan in said casing, said fan having an apertured deflector-plate for separating grain from the straw discharged into said casing and having a substantially conical projecting central portion, and a screen in said casing partially surrounding said fan, substantially as described.

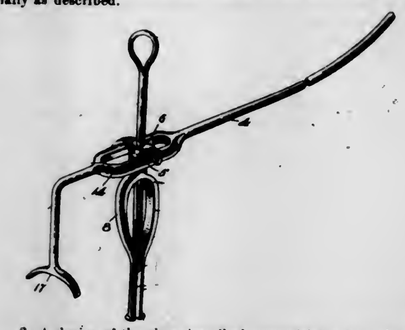
3. A straw-stacker comprising a casing having an inlet and an outlet, a shaft extending through said casing, curved fan-blades upon said shaft, an apertured deflector-plate upon said shaft at one side of said fan-blades, said plate having a centrally-disposed, inwardly-extending convex portion, substantially as described.

4. A pneumatic straw-stacker comprising a casing having an inlet and a discharge, a shaft extending through said casing, a fan upon said shaft within said casing, a screen partially surrounding said fan and spaced from the interior of said casing, a grain-discharge pipe for the space between said screen and said casing, a perforated deflector-plate secured to one side of said fan and having a centrally-disposed, inwardly-projecting, convex portion, and radially-extending blades upon the outer face of said deflector-plate, substantially as described and for the purpose set forth.

788,398. EXTRACTING-TOOL.

JOHN B. FLADBY, Rutland, N. D., assignor of one-half to James S. Peterson, Ludden, N. D. Filed Oct. 3, 1904. Serial No. 226,980.

Claim.—1. An extracting-tool comprising a lever having an engaging foot and a longitudinal slot, in combination with a grapple having spring-arms, and further provided with a portion which extends through and is shiftable in the slot of the lever, and devices to bear on the lever on opposite sides of the slot and fulcrum the grapple thereto, and a key carried by the grapple and adapted to be forced between the arms of the latter to spread said arms, substantially as described.

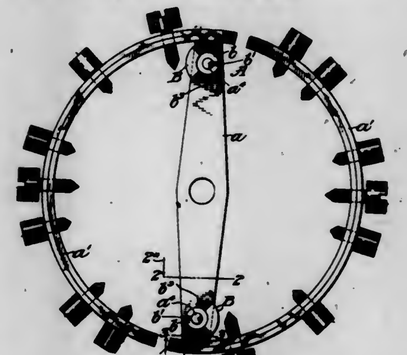


2. A device of the class described, comprising a grapple provided at one end with oppositely-projecting hook-arms and at its other end with spring-arms having jaws to engage the object to be extracted, a wedge for forcing and holding said jaws in engagement with said object, and a lever having a slotted portion engaged by said hook-arms upon said grapple to provide a shiftable fulcrum connection between the same, substantially as described.

3. A device of the class described, comprising a grapple having a tubular body formed at one end with oppositely-projecting hook-arms and at its other end with spring-arms having oppositely-projecting jaws, a tapered pin slidably mounted in said tubular body and adapted to enter between said spring-arms to force and hold their jaws in engagement with said object, and an angularly-bent lever having a foot at one end and a slotted or bifurcated portion adapted to be engaged by said hook-arms to provide a movable fulcrum connection between said grapple and said lever, substantially as described.

788,399. WATCH-BALANCE.

JOSEPH A. FREUND, New York, N. Y. Filed Aug. 22, 1904. Serial No. 221,620.



Claim.—1. The combination, with a watch or clock balance-wheel, of weights for regulating the movements of said balance-wheel mounted upon the arm thereof, and means by which these weights are frictionally held in adjusted positions on such arm and rendered adjustable from the upper or face side of said balance-wheel, along the said arm, toward and away from the axis, but always within the periphery, of the said balance-wheel, within the range of their adjustment, substantially as described.

2. The combination, with a watch or clock balance-wheel provided with studs, extending upward or outward from its arm, and with mean-time screws, of weights eccentrically mounted upon and frictionally held by these studs, whereby these weights are rendered

capable of adjustment around their respective studs from the upper or face side of such wheel and always within the periphery of the latter, and are firmly held in adjusted position by the friction between them and their respective studs, substantially as described.

3. The combination, with a watch or clock balance-wheel provided with studs extending from the arm thereof and with index-lines or arrows formed thereon, of weights constructed in the form of segments of circles and provided with slotted hubs applied to said studs with vertically-disposed graduating-lines formed around these hubs for coöperation with the index-lines or arrows, substantially as described.

788,400. **TRACK-END ADJUSTMENT FOR DRAWBRIDGES.** JACOB HARSEN, New York, N. Y. Filed July 12, 1904. Serial No. 216,302.



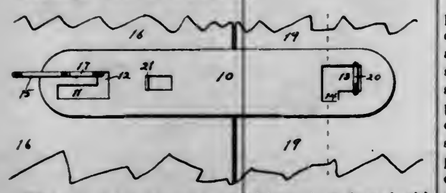
Claim.—1. In track-end adjustments for drawbridges, the combination with a drawbridge and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, and mechanism including pivoted cam-plates and means for operating them whereby the pivotal ends of the drawbridge-rails may be raised and lowered.

2. In track-end adjustments for drawbridges, the combination with a drawbridge and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, a transverse plate movably secured to the end of the drawbridge, pivotal connections between said plate and the pivoted ends of said drawbridge-rails, and mechanism whereby said transverse plate may be raised and lowered.

3. In track-end adjustments for drawbridges, the combination with a drawbridge and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, a transverse plate movably secured to the end of the drawbridge, pivotal connections between said plate and the pivoted ends of said drawbridge-rails, and mechanism including pivoted cam-plates and means for operating them whereby the pivotal ends of the drawbridge-rails may be raised and lowered.

4. In track-end adjustments for drawbridges, the combination with a drawbridge and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, a transverse plate movably secured to the end of the drawbridge, brackets pivotally secured to the said plate and rigidly secured to the pivoted ends of said drawbridge-rails, and mechanism whereby said transverse plate may be raised and lowered.

788,401. **HASP-FASTENER.** JOSEPH HARTSHORN, Stuart, Iowa. Filed July 25, 1904. Serial No. 218,160.

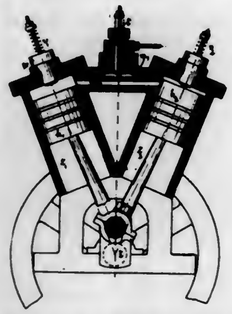


Claim.—1. A hasp-fastener, comprising a hasp formed with L-shaped slots in either end and inverted relative to each other, a staple passing through one of said slots and loosely embracing one end portion of said hasp, and a receiving device passing through the other slot and engaged by the opposite end portion of said hasp.

2. A hasp-fastener, comprising a hasp formed with a longitudinal slot 11 in one end portion and a notch 12 opening upward to one end of said slot, a supporting device adapted to be embraced at times by said slot, whereby the hasp may be moved longitudinally thereon, said supporting device also adapted to be engaged at times by said notch whereby longitudinal movement of the hasp is limited, said hasp also formed with a slot 13 longitudinally of its opposite end portion and a notch 14 opening downward at one end of the latter slot, and a headed receiving device adapted to pass through the combined slot 13 and notch 14 and being engaged by the slot 13 alone in the longitudinal movement of the hasp to interengage position of the hasp-notch 12 and supporting device.

3. A hasp formed with L-shaped slots in opposite end portions, said slots inverted relative to each other.

788,402. **INTERNAL-COMBUSTION ENGINE.** FRIEDRICH A. HASELWANDER, Mannheim, Germany. Filed May 23, 1901. Serial No. 61,585.



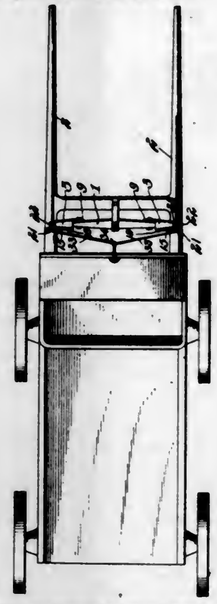
Claim.—1. In an internal-combustion engine two cylinders, a working piston in one of said cylinders and a displacing-piston in the other cylinder, a main port connecting said cylinders so that both pistons are driven during the expansion-stroke, a secondary port connecting said cylinders, and means for admitting combustible fluid into said secondary port, the main port being adapted to be closed by the displacing-piston toward the end of the compression-stroke, and the secondary port being adapted to inject the air or gas compressed above said displacing-piston in its cylinder into the other cylinder for the purpose of injecting and mixing the combustible, while the main port connecting the cylinders is not closed by the working piston, substantially as described.

2. In an internal-combustion engine two cylinders a working piston in one of said cylinders and a displacing-piston in the other cylinder a main port connecting said cylinders so that both pistons are driven during the expansion-stroke, a secondary port connecting said cylinders and means for admitting combustible fluid into said secondary port, the main port being adapted to be closed by the displacing-piston toward the end of the compression-stroke and the secondary port being adapted to inject the air or gas compressed above said displacing-piston in its cylinder into the other cylinder for the purpose of injecting and mixing the combustible, while the main port connecting the cylinders is not closed by the working piston, and a passage connecting the two cylinders said passage being arranged to be opened by the two pistons toward the end of the expansion-stroke substantially as and for the purposes described.

3. In an internal-combustion engine two cylinders a working piston in one of said cylinders and a displacing-piston in the other cylinder a main port connecting said cylinders so that both pistons are driven during the expansion-stroke, a secondary port connecting said cylinders, and means for admitting combustible fluid into said secondary port, the main port being adapted to be closed by the displacing-piston toward the end of the compression-stroke and the secondary port being adapted to inject the air or gas compressed above said displacing-piston in its cylinder into the other cylinder for the purpose of injecting and mixing the combustible while the main port connecting the cylinders is not closed by the working piston substantially as described.

4. In an internal-combustion engine two cylinders a working piston in one of said cylinders and a displacing-piston in the other cylinder a main port connecting said cylinders so that both pistons are driven during the expansion-stroke, a secondary port connecting said cylinders, and means for admitting combustible fluid into said secondary port, the main port being adapted to be closed by the displacing-piston toward the end of the compression-stroke and the secondary port being adapted to inject the air or gas compressed above said displacing-piston in its cylinder into the other cylinder for the purpose of injecting and mixing the combustible while the main port connecting the cylinders is not closed by the working piston a port opening in one of the cylinder-walls for the admission of compressed air adapted to be unclosed near the end of the working stroke and an exhaust-port opening in the other cylinder-wall, adapted to be unclosed when the air-admission port is unclosed substantially as described.

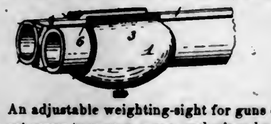
788,403. **HORSE-DETACHER.** BENJAMIN F. HATCHER, Moody, Ky. Filed Aug. 11, 1904. Serial No. 220,409.



Claim.—1. A horse-detaching device comprising a swingletree-cap having a longitudinal socket therein and openings in opposite sides communicating with opposite sides of the said socket, at the inner end thereof, a coil-spring seated in the socket, a releasing-lever pivoted to the cap and provided with an arm extending into the socket through one of said openings, said arm being provided with a loop or stud extending into said spring and said arm terminating in a pintle, and a trace-pusher pivoted on the said pintle and having its pivotal end in the other of said openings, substantially as described.

2. A horse-detaching device comprising a swingletree-cap having a trace-stud at its outer end and further provided with a longitudinal socket and openings in opposite sides communicating with the inner end of said socket, a coil-spring seated in said socket, a releasing-lever pivoted to the said cap at a point opposite one of said openings and having an arm extending through said openings and across the inner end of said socket, said arm having a stud extending into the spring and said arm terminating in a pintle, and a trace-pusher having a ring or an eye to fit the trace-stud, said trace-pusher being pivotally connected at its inner end to the said arm of the releasing-lever and on the pintle thereof, and having its pivoted end in the other opening of the cap, substantially as described.

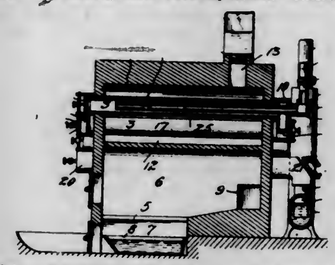
788,404. **ADJUSTABLE WEIGHTING-SIGHT FOR GUNS.** JAMES HIRST, Vineland, N. J. Filed Jan. 11, 1905. Serial No. 240,565.



Claim.—1. An adjustable weighting-sight for guns comprising a body having a set-screw to engage a gun, and wings having parallel edges to straddle the bead of a gun, said wings being longitudinally apertured and provided with sighting-ribs, substantially as described.

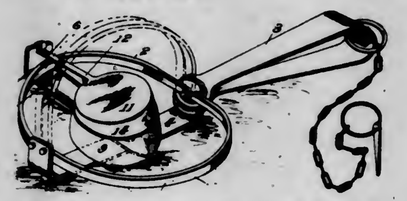
2. An adjustable weighting-sight for double guns comprising a body having a set-screw to engage the under side of the barrels, and wings having parallel edges to engage the sides of the top rib of the barrels, said wings being longitudinally apertured and provided with sighting-ribs, substantially as described.

788,405. **APPARATUS FOR MAKING GAS FROM OILS.** NICHOLAS G. HOCK, Greeley, Colo. Filed July 23, 1903. Serial No. 166,748.



Claim.—An apparatus of the class described having retorts at different elevation, return-elbows forming conduits detachably secured to the retorts and connecting the opposite ends thereof together in pairs, to secure a flow of the liquid lengthwise through a series of retorts, and a substantially horizontally disposed pipe extending through the return-elbows at one end of the upper retort and detachable from the said retort with the said elbow when the latter is removed from the said retort, the said pipe when the elbow is secured to said retort extending into the latter to supply material thereto.

788,406. **ANIMAL-TRAP.** CHARLES W. HOWE, Omega, Ala. Filed Dec. 9, 1904. Serial No. 236,140.



Claim.—1. An animal-trap treadle and guard-frame comprising a bottom web and an upwardly-extending guard-wall comprising an annular portion and two spaced laterally-extending portions, in combination with a treadle fitting within said walls and covering and closing the space within the same, said treadle comprising an arm fitting and fulcrumed between said laterally-extending portions of the guard-wall and a plate covering the space within said annular portion and having a depending flange within said annular portion and closing the same.

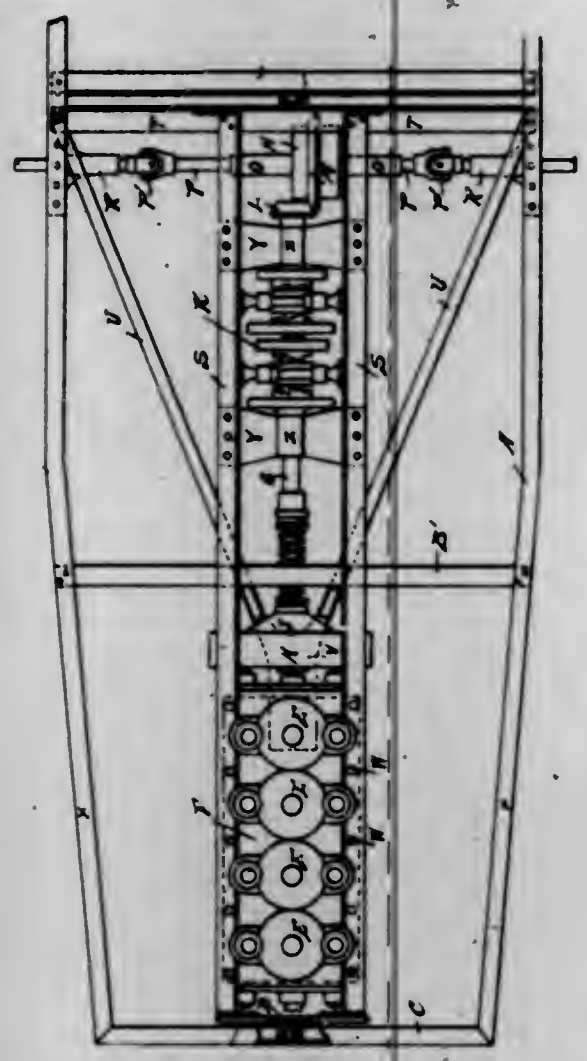
2. An animal-trap treadle and guard-frame comprising a bottom web having a longitudinal seat or socket on its under face to receive a part of the trap-frame, and a vertically-disposed encircling guard-wall having its two ends extended rearwardly and forming the parallel spaced guard-wall extensions, in combination with a vertically-movable treadle fitted and movable vertically within said wall and entirely covering and closing the space within the same, said treadle being pivoted to and between said walls.

3. In an animal-trap, in combination, the trap-frame, jaws and latch, a treadle frame and guard secured on the trap-frame and comprising an encircling guard-wall having its rear ends extended rearwardly, and a vertically-movable treadle closing and covering the space within said wall, and comprising a plate having a depending flange and an arm fulcrumed between said extended rear ends of said wall and covering the space between the same, said treadle being arranged on its downward movement to release said latch before the top face of the treadle reaches a position flush with the top edge of said wall.

4. In an animal-trap, a trap-frame, jaws, and latch, said frame comprising a bar carrying said latch, in combination with a treadle frame and guard having a seat on its under side formed with longitudinal abutments fitting the side edges of said bar, a single rivet se-

curing said treadle-frame on said bar, said treadle-frame having a vertical upwardly-beveled encircling guard-wall with its ends extended rearwardly, and a treadle covering and closing the space within said wall and having its arm fulcrumed between and guarded by said extended wall ends, the treadle-plate having an annular depending beveled flange fitting within said wall and of greater length at the front portion of the plate.

788,407. **FRAME FOR AUTOMOBILES.** EMIL HUBER, Detroit, Mich. Filed Nov. 12, 1902. Renewed Mar. 20, 1905. Serial No. 251,006.



Claim.—1. In a vehicle, the combination of a main frame, a subframe rotatably pivoted at its front end to the main frame and supported at its rear end by bearings resting upon but detached from the main frame, said subframe carrying the machinery of the driving mechanism, and whereby the twisting strains brought to bear upon the main frame are entirely relieved from the subframe and the machinery carried by it, substantially as described.

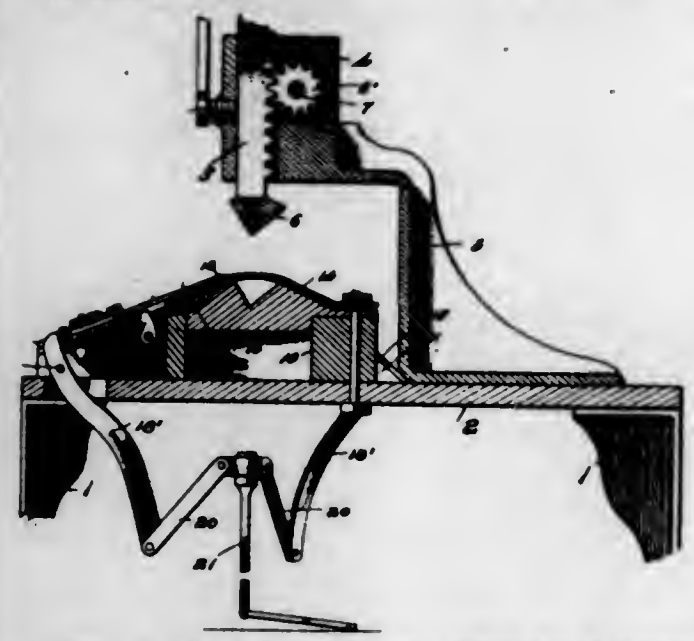
2. In a vehicle, the combination of a main frame, a subframe rotatably pivoted at its front end to the main frame and supported at its rear end by bearings resting upon but detached from the main frame, said subframe carrying the machinery of the driving mechanism, and a cross-shaft containing universal couplings whereby the twisting strains of the main frame are not transmitted to the cross-shaft, substantially as described.

3. In combination with the main frame of a vehicle, a subframe adapted to and carrying the driving mechanism, which subframe is supported upon three points forming a triangle, namely, a front support adapted to swivel in a perpendicular plane, and two rear bearing-points upon the main frame, substantially as described.

4. In a vehicle, a subframe supported on three points, one of which is rotatable in a perpendicular plane, and the other two supported by the main frame, and diagonal braces running from the supporting-points at the base of the triangle and to a common point in conjunction with the subframe, substantially as described.

5. In a vehicle, a subframe adapted to carry machinery, driving mechanism rigidly attached thereto, said subframe being supported on three points forming a triangle, the apex being a swiveled joint in a perpendicular plane, and the other two points at the base of the triangle being supported by the main frame, said subframe being substantially in the plane of the center of gravity of said driving mechanism, substantially as described.

788,408. **MACHINE FOR MAKING SUIT-CASE CORNERS.** FREDERICK F. IVINS, Burlington, N. J., assignor to Benjamin R. Ivins and Joseph R. Savidge, Burlington, N. J. Filed June 2, 1904. Serial No. 210,913.



Claim.—1. The combination with a female die, of a generally angular form in contour, a male die of similar contour, the edges of said dies at the completion of the forming operation being arranged in alinement with each other, a male-die carrier of less cross-sectional area than said die, and leaving the entire edge of the die exposed, and a plurality of trimmers movable inward over the edges of the female and male dies, and serving to sever the material protruding beyond the edges of said dies.

2. The combination with forming-dies, of an auxiliary-die member arranged to impress or indent material held between the dies, and an independent operating mechanism for said auxiliary die.

3. The combination with forming-dies, of a second die for effecting surface ornamentation on the material operated upon between said dies, and an independent operating mechanism for said auxiliary die.

4. The combination with a pair of forming-dies, one of which has an opening within the line of its edge, an auxiliary die movable through said opening for indenting the material held by said forming-dies, and an independent operating mechanism for said auxiliary die.

5. The combination with inner and outer forming-dies, of a beading-die extending through the outer die for indenting the material held by the forming-dies, and an independent operating mechanism for said beading-die.

6. In combination, an outer die formed of a plurality of spaced members, an inner die, and an auxiliary die working between the members of the outer die.

7. The combination with a pair of forming-dies, of a cutting-knife for the removal of surplus material, and a beading-die for indenting the material protruding from the edges of the dies held by the forming-dies at a point within the edges of said dies.

8. The combination with a pair of forming-dies, of a trimming-knife, an auxiliary embossing-die, means for operating the forming-dies, and means for successively operating the knife and the embossing-die.

9. The combination with a pair of forming-dies, of a frame, a slide guided therein, a knife carried by the slide, an embossing-die arranged below the slide, and means for successively operating the embossing-die and the knife.

10. The combination with a pair of dies, of a frame, a slide guided therein, a knife adjustably secured to the slide, an embossing-die, a cam arranged between the slide and the embossing-die, and means for reciprocating the slide.

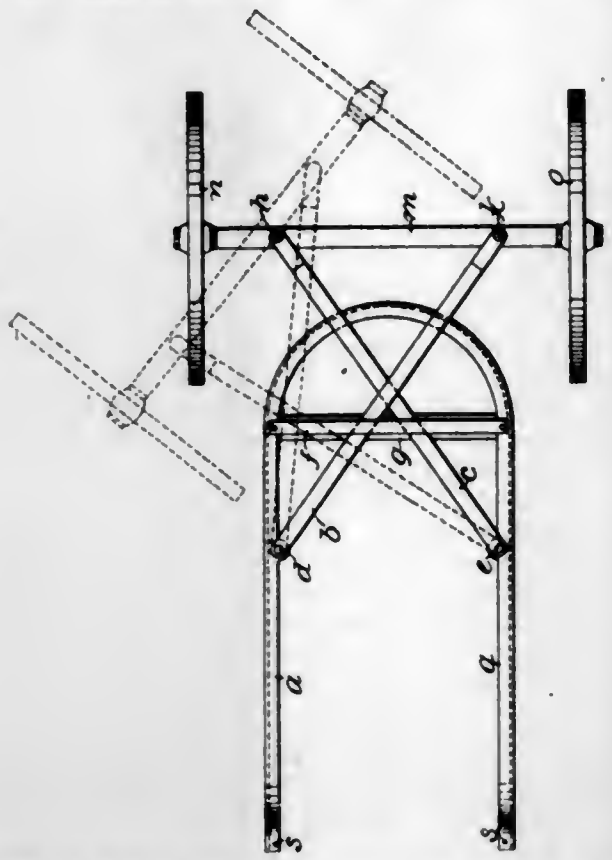
11. The combination with a pair of dies, of a frame, a slide guided therein, an adjustable knife carried by the slide, an embossing-die also guided in the frame, a pivotally-mounted cam serving to transmit the movement of the slide to the die, and means for operating said slide.

12. The combination with a pair of dies, of a frame, a slide guided therein, a cutting-knife carried by the slide, a reversible embossing-die for operating on the material within the edges of the dies, a block carrying the same, a cam for transmitting motion from the slide to the block, and means for operating said slide.

13. The combination with a supporting-frame, of a female die

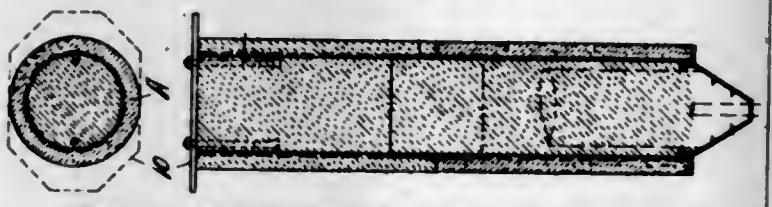
formed in two sections, a male die, one of said dies being movable with respect to the other, a plurality of trimming-knives arranged at an angle oblique to the plane of movement of the die, a plurality of embossing-dies, parallel with the knives, means for transmitting movement from the knives to the embossing-dies, a treadle-rod, a lever, and a plurality of levers connecting the rod to the knives and serving to transmit movement thereto.

788,409. **RIDING ATTACHMENT FOR HARROWS.** GEORGE P. KIRKPATRICK, Whittemore, Iowa, assignor of two-thirds to David J. Wilson, Waterloo, Iowa, and Charles Gange, Algona, Iowa. Filed July 9, 1904. Serial No. 215,914.



Claim.—A riding attachment, consisting of a frame, cross-bars on said frame, wheels rotatably mounted on an axle, an axle, and cross-pieces pivotally connected to said frame and to said axle and slidable over each other between said cross-bars, substantially as shown and described.

788,410. **CONCRETE CASING.** FREDERICK A. KOETITZ, San Francisco, Cal. Filed July 13, 1904. Serial No. 216,396.



Claim.—1. An independent hollow concrete casing capable of being sunk in the earth at the bottom, and a pile or filling-piece inserted in the casing, said casing serving as a guide for driving the pile.

2. An independent hollow concrete casing capable of being sunk in the earth at the bottom said casing having a reinforcing metal structure embedded therein, and a pile subsequently driven through the material of the casing, said casing forming a guide for the driven pile.

3. An independent hollow concrete casing capable of being sunk in the earth at the bottom said casing composed of sections axially in line and forming a vertical guide for a subsequently-driven pile, and sleeves by which said sections are secured together.

4. An independent hollow concrete casing, a shoe fitting the lower end of said casing whereby the casing as a hollow unitary structure may be pressed or driven into the earth at the bottom, said positioned casing forming a guide for a subsequently-driven pile or filling-piece.

5. An independent hollow concrete casing capable of initial sinking in the earth at the bottom, a shoe fitting the bottom of said casing and a water-jet passage through the bottom of the casing and the shoe, said casing, when in position, forming a vertical guide for a driven pile.

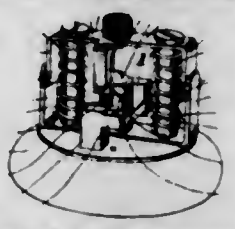
6. An independent hollow concrete casing capable of initial sinking in the earth at the bottom, means for sinking said casing into the earth forming the bottom, said casing forming a guide for a subsequently-introduced pile or filling and a filling of concrete within said casing.

7. The combination with an independent hollow concrete casing sunk in the earth forming the bottom of a pile driven through the casing into said bottom, after the casing is in position whereby the casing forms guiding means for the driven pile, and a filling of concrete between the pile and the inner walls of the casing.

8. A hollow concrete casing said casing being sunk in the earth forming the bottom, an interior filling of concrete tamped within the casing, anchors embedded in the concrete, one or more rods extending upward from said anchor and a cap-plate to which the rods are secured.

9. A hollow concrete casing composed of independent lengths axially in line, sleeves by which said sections are maintained in position, an interior pile driven through the casing, an intermediate filling of concrete tamped around the pile and anchor-bolts projecting upwardly from the concrete for the attachment of a cap.

788,411. **ELECTRIC SWITCH.** WESLEY D. R. MACDIARMID, Ottawa, Canada, assignor of four-tenths to Edward B. Bates, Ottawa, Canada. Filed Jan. 23, 1904. Serial No. 190,357.



Claim.—1. In a device of the class described the combination with a rotatable commutator having the body thereof formed with a plurality of conducting and non-conducting segments arranged alternately around a portion of its length and a brush contacting with the surface of said commutator, a portion of the commutator being also formed with longitudinal and inclined grooves connected together, a projection extending into said groove, a carrier having a sliding bearing for said projection, a spring secured to said carrier and engaging the end of the pin, spring means tending to hold the projection toward one end of the commutator and means for forcing the same toward the other end of the commutator whereby the commutator is rotated as and for the purpose specified.

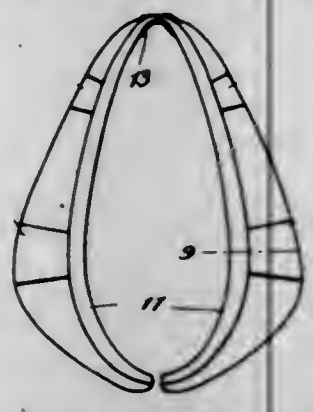
2. The combination with the commutator and a spindle or shaft upon which the same is rotatably mounted, said commutator having a portion of its surface formed with conducting and non-conducting segments arranged alternately around the same, and an adjacent portion formed with longitudinal and inclined grooves connected together, of a brush adapted to contact with the surface of the segments, a hollow push-button slidably mounted on the end of said spindle, a pin slidably held in a bearing carried by said hollow push-button, a spring adapted to engage the end of said pin and force the same inwardly, a spiral spring located in said hollow push-button between the outer end thereof and the outer extremity of the spindle as and for the purpose specified.

3. In a device of the class described the combination with the commutator and the shaft upon which the same is rotatably mounted, said commutator having conducting and non-conducting segments arranged alternately around the surface of a portion thereof, of a brush contacting with the surface of said segments, the adjacent portion of the surface of said commutator having longitudinal and inclined grooves therein connected together, a pin spring-held in engagement with said groove, a pair of electrical conductors, means for connecting one of said conductors directly with one terminal of a lamp or the like, means for connecting the other conductor through the brush and commutator with the other terminal of the lamp or the like when the brush is in contact with one of the conducting-segments and means for moving the pin in a direction parallel with the axis of the commutator whereby the commutator is rotated as and for the purpose specified.

4. In a device of the class described the combination with a commutator having conducting and non-conducting peripheral sections and coacting contacts connected to the circuit-wires, of longitudinal and inclined grooves arranged around a portion of the surface of the commutator and connected together, the inner portions of the inclined grooves and the outer portions of the longitudinal grooves

being deeper than the inner portions of the longitudinal grooves and the outer portions of the inclined grooves respectively, a projection spring-held in engagement with said groove, a push-button and means whereby each succeeding depression of the button will move the projection in a direction parallel with the axis of the commutator thereby opening and closing the electrical circuit through the switch as and for the purpose specified.

788,412. METHOD OF MAKING HORSE-COLLARS. THOMAS R. MASKEY, Atlanta, Ga. Filed Aug. 8, 1904. Serial No. 219,393.



Claim.—1. The process of manufacturing a horse-collar, which consists in first taking a blank having its longitudinal edges cut on similar compound-curved lines to provide a blank having enlarged end portions united by a reduced intermediate portion, then folding the blank to bring the curved edges into coincidence, inserting wear-pieces between the folds, running a line of stitches along said curved edges and across the wear-pieces, turning the tubular body thus formed to bring the wear-pieces outside thereof, and running a line of stitches lengthwise of the collar and across the free ends of the wear-pieces to form the rim and secure said wear-pieces in place, and finally filling the tubular body.

2. The process of manufacturing a horse-collar, which consists in first taking a blank having its longitudinal edges cut on proper curves to provide a blank having enlarged end portions united by a central reduced portion, folding said blank to bring the curved edges together, inserting wear-pieces between the folds, running a line of stitches along said curved edges and across one end of the wear-pieces, turning the tubular body thus formed to bring the wear-pieces outside thereof, running a line of stitches down the body parallel to the straight side thereof to form the rim portion, stitching the free ends of the wear-pieces in place, and finally filling the body.

3. The process of manufacturing a horse-collar, which consists in first taking a blank having its longitudinal edges cut on proper curves to provide a blank having enlarged end portions united by a central reduced portion, folding said blank to bring the curved edges together, inserting wear-pieces between the folds, running a line of stitches along said curved edges and across one end of the wear-pieces, turning the tubular body thus formed to bring the wear-pieces outside thereof, rolling the body to provide an enlarged bearing-surface, running a line of stitches down the body parallel to the straight edge thereof to maintain the body in rolled position and to form the rim portion, stitching the free ends of the wear-pieces in place and finally filling the body.

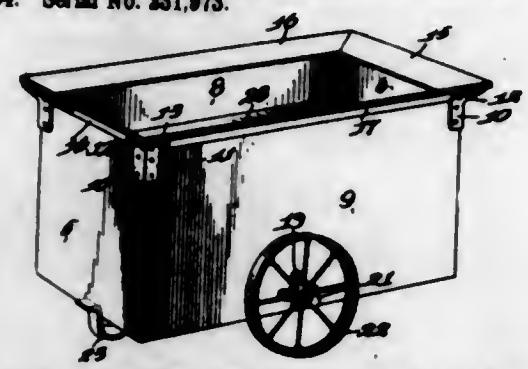
4. The process of manufacturing a horse-collar, which consists in first taking a blank having its longitudinal edges cut on proper curves to provide a blank having enlarged end portions united by a central reduced portion, folding said blank to bring the curved edges together, inserting wear-pieces between the folds, running a line of stitches along said curved edges and across one end of the wear-pieces, turning the tubular body thus formed to bring the wear-pieces outside thereof, rolling the body to provide an enlarged bearing-surface, running a line of stitches down the body parallel to the straight edge thereof and across the free ends of the wear-pieces to maintain the body in its rolled position to form the rim and to secure the free ends of the wear-pieces in place, and finally filling the body.

788,413. PENHOLDER. LINA MATTHEWS, Rosewood, Tex. Filed Oct. 8, 1904. Serial No. 227,637.



Claim.—In a penholder, the combination of a handle-stem provided with a flat spring-seat on its upper side, a tubular pen-bearing section fitting over said seat, and a flat bow-spring one end of which fits with a spring-pressure between the seat and the pen-bearing section so as to frictionally connect said parts, and the other end of which clasps the pen, both ends of the spring being disposed at the same side of the pen-bearing section.

788,414. TRUCK. HUBERT S. MERRELL, St. Louis, Mo. Filed Nov. 9, 1904. Serial No. 231,973.

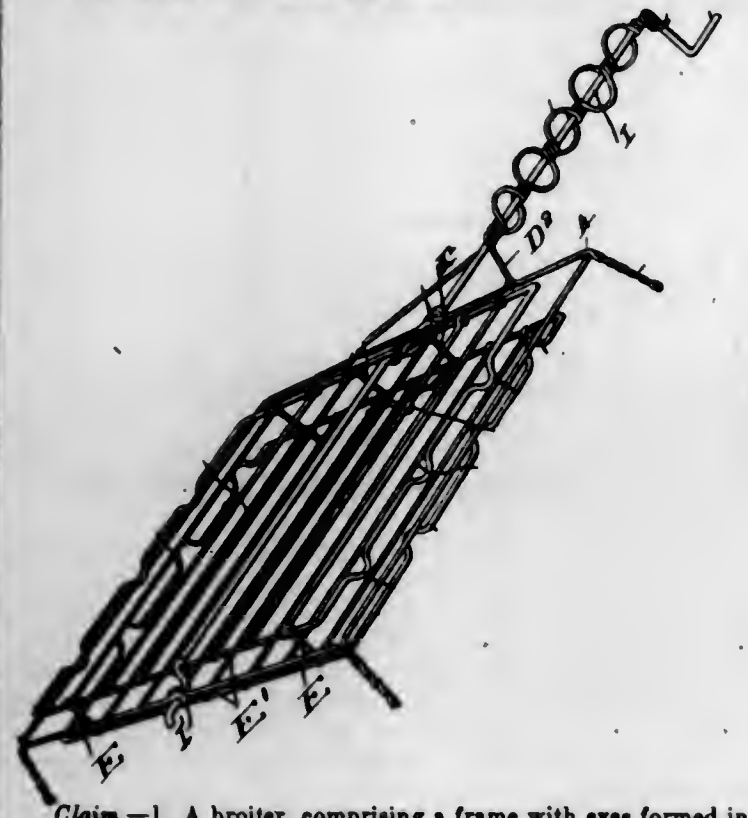


Claim.—1. In a truck: a suitable box; wheel-spindles projecting outwardly from the side of the box and at the longitudinal centers; wheels upon the wheel-spindles; and supporting the box; flaring sideboards removably attached to the box; supporting-cleats in the box; and a loose bottom adjustably mounted upon the supporting-cleats.

2. In a truck: a suitable box having openings 18 at the lower edges and longitudinal centers of its sides; the attaching-plates 19 secured to the sides of the box; the lugs 20 extending from the attaching-plates into the openings 18; and wheels mounted upon the spindles.

3. In a truck: the end walls 5 and 6; the side walls 8 and 9 connecting the end walls; the cleats 24 and 25 secured to the inner ends of the faces 5 and 6 near their centers; the cleats 26 and 27 secured to the inner faces of the ends 5 and 6 above their centers and the loose bottom 28 adapted to be mounted upon either pair of cleats as desired.

788,415. BROILER. CHRISTIAN C. MESSNER, Spokane, Wash. Filed June 25, 1904. Serial No. 214,192.

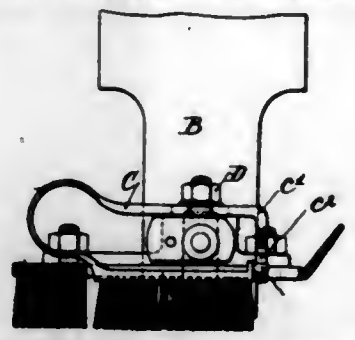


Claim.—1. A broiler, comprising a frame with eyes formed in two of the opposite sides thereof to form bearings, a shaft having an angled portion and mounted to rotate in said eyes and adapted to have a slight longitudinal movement, broiler-jaws secured to said shaft, said frame having an extension forming bearings for the projecting portion of said shaft, and a keeper at the outer end of said projection to engage the bent end of the shaft, whereby the angled portion of the shaft may engage or be released from said catch, as set forth.

2. A broiler, comprising a frame with eyes formed in two of the opposite sides thereof to form bearings, a shaft having an angled portion and mounted to rotate in said eyes and adapted to have a slight

longitudinal movement, broiler-jaws secured to said shaft, an extension of said frame being bent to form coils for bearings for the projecting portion of said shaft, the extreme end of said extension being downwardly bent and forming a keeper designed to receive the angled end of said shaft, as set forth.

788,416. CIRCULAR COMBING-MACHINE. EMILE MEUNIER, Roubaix, France. Filed Sept. 1, 1904. Serial No. 223,988.

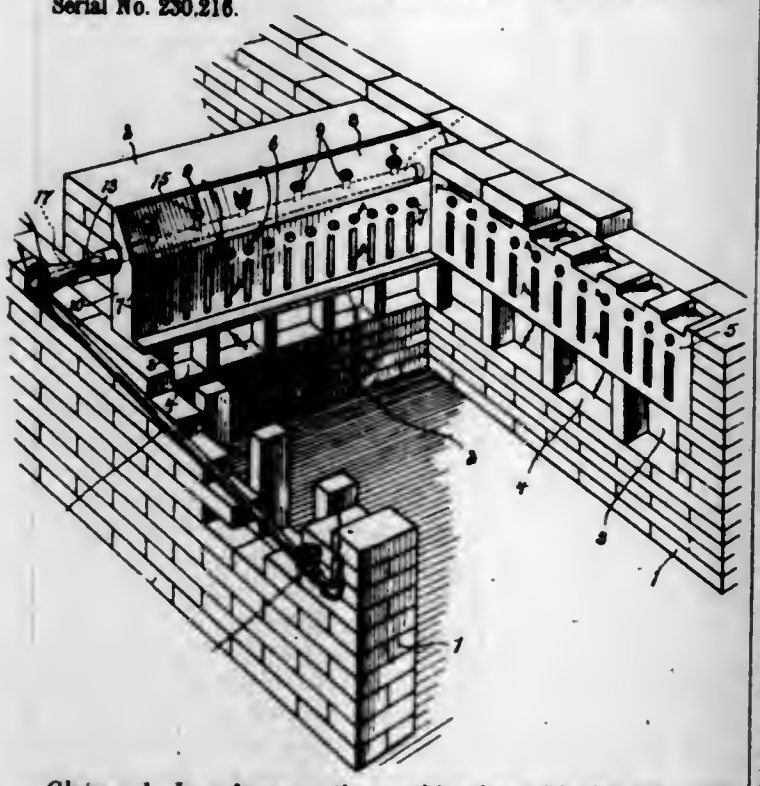


Claim.—1. A Noble or similar circular combing-machine, provided with an elastically-mounted dabbing-brush.

2. A dabbing-brush for combing-machines, comprising a reciprocatory support, a brush mounted thereon, and a spring between said support and brush.

3. A dabbing-brush for combing-machines, comprising a reciprocatory support, a brush mounted thereon, said brush being in two parts, one rigidly secured to said support, and a spring securing the other part of said brush to the support.

788,417. FURNACE. AUGUST J. F. MILLER, Centralia, Ill., assignor of one-half to Charles P. Marshall, Centralia, Ill. Filed Oct. 27, 1904. Serial No. 230,216.



Claim.—1. In a furnace, the combination with the side walls thereof, of a bridge-wall having a chamber communicating with the ash-pit below the grates, a casting forming a hollow bridge supported on the bridge-wall at the end of the grates and forming the front side of the chamber above the grates, said casting being formed with a grated front wall and an inclined top having a series of openings, a mixing-pipe supported within the hollow bridge and extended through the side wall of the furnace at one end, a funnel-shaped end on the outer end of the mixing-pipe, a series of jet-nozzles on the mixing-pipe opposite the openings in the top of the bridge, a steam-supply pipe and a nozzle on the steam-pipe projecting into the open end of the mixing-pipe.

2. In a furnace, the combination of side walls provided with chambers; grated linings in said chambers above the grate-bars; a bridge-wall having a chamber communicating with the ash-pit below the grates; a casting having an open side and bottom supported upon the bridge-wall with its open side against the wall and its open bottom communicating with the chamber and having a grated front wall above the grate-bars, an inclined top provided with a series of openings and end walls and strengthening-ribs formed integral with the front wall and top and having notches in their rear edges; a mixing-pipe supported within said notches and closed at one end and extended outward through the wall at its opposite end; a series of nozzles on said mixing-pipe opposite the openings in the top; a funnel-shaped end on the outer end of said pipe; a steam-supply pipe and a nozzle on said steam-supply pipe extending into the open funnel-shaped end.

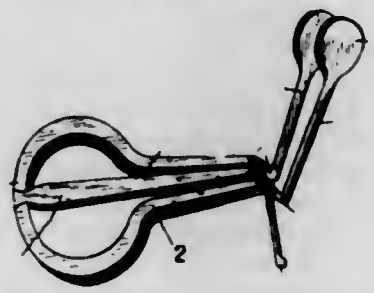
788,418. TOILET-CASE. EDWARD J. MILLIGAN, Salt Lake City, Utah, assignor of one-half to Herbert J. Cook, Salt Lake City, Utah. Filed June 11, 1904. Serial No. 212,204.



Claim.—1. A toilet-case comprising a box, a lid therefor having turned-down edges and a longitudinal rabbet, and a brush having its head secured between the turned-down edges of the lid, and formed with a longitudinal rabbet coincident with the one in the lid to form a comb-receptacle.

2. A toilet-case comprising a box, a lid therefor having turned-down edges and a longitudinal rabbet, a brush having its head secured between the turned edges of the lid and formed with a longitudinal rabbet coincident with the one in the lid to form a comb-receptacle, and a mirror secured on the inner face of the bottom of the box.

788,419. JEWS'-HARP. CHARLES E. MINCKS, Aberdeen, S. D. Filed Mar. 15, 1904. Serial No. 198,286.



Claim.—1. A jews'-harp provided with a resonator or sound-amplificator independent of the harp-tongue, substantially as described.

2. A jews'-harp having a frame formed or provided with a resonator or sound-amplificator that is independent of the tongue, substantially as described.

3. A jews'-harp having a frame provided with arms, at least one of the arms having a prolongation forming a resonator or sound-amplificator, substantially as described.

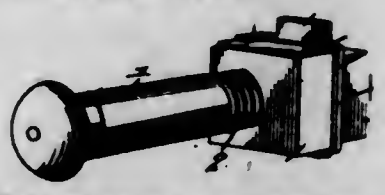
4. A jews'-harp having a frame provided with arms, and a resonator composed of tines extending from said arms, substantially as described.

5. A jews'-harp having a frame provided with arms, and a resonator composed of tines extending from said arms and having end enlargements, substantially as described.

6. A jews'-harp having a frame provided with arms, and a resonator composed of tines extending from said arms, said tines being offset from the plane of said arms, substantially as described.

7. A jews'-harp having a frame provided with arms, and a resonator composed of tines extending from said arms, offset from the plane thereof, and having enlargements at their free ends, substantially as described.

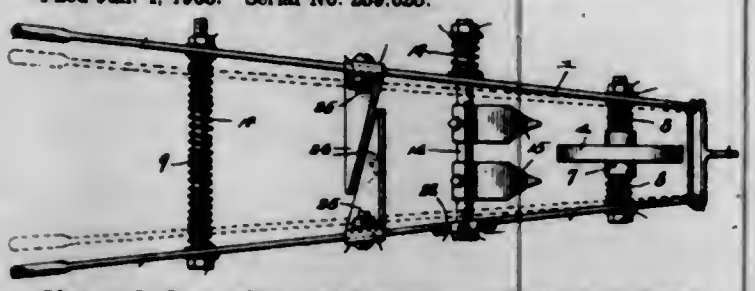
788,420. NUT-LOCK. JAMES J. MURPHY, Springfield, Ill. Filed Dec. 17, 1904. Serial No. 237,260.



Claim.—The combination with a fastening element having a shank provided with portions of different diameters and reversely threaded, of a securing-nut engaging the inner threaded portion and

having its outer face lying in rear of the outer convolution of said threaded portion, a smaller jam-nut engaging the outer threaded portion and having its inner face lying in rear of the inner convolution of said outer threaded portion, a rectangular spacing-washer disposed between the nuts and bearing against the outer face of the securing-nut and having its edges flush with the sides of the nut, and a rectangular locking-washer disposed between the spacing-washer and jam-nut and provided at opposite corners with tongues bent to engage the contiguous sides of the securing-nut and edges of the spacing-washer and intermediate tongues bent in the opposite direction to engage sides of the jam-nut, said washers being disposed to break joint with the contiguous threads of the reversely-threaded portions of the shank to limit the movement of the jam-nut, whereby the necessity of recessing said nut to adapt it to be screwed up to the desired position is avoided, substantially as described.

788,421. CULTIVATOR. MICHAEL MCINNERNY, Iowa City, Iowa. Filed Jan. 4, 1905. Serial No. 239,623.



Claim.—1. In a cultivating implement, a frame including two side members extended to form handles, a wheel-bearing shaft and a rung connecting said side members, springs upon said shaft and rung serving to force the side members apart from each other, and tightening-nuts upon said shaft and rung.

2. In a cultivating implement, a frame including adjustably-connected side members and spring means to force said side members from each other, a cross-bar extending through apertures in the side members, and earth-engaging members upon said cross-bar.

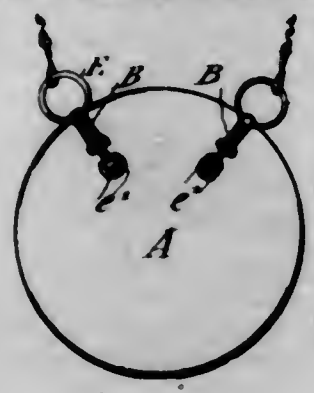
3. In a cultivating implement, a frame including adjustably-connected side members and spring means to force said side members apart from each other, a cross-bar extending through apertures in the side members, earth-engaging members upon said cross-bar, and spring means for retaining the latter in normal operative position.

4. In a cultivating implement, a frame including adjustably-connected side members and spring means to force said side members apart from each other, a cross-bar mounted for oscillation in said side members, an adjusting-nut upon said cross-bar, a spring between said nut and the outer side of the adjacent frame member, an arm extending from the rocking cross-bar, and a notched segment-plate engaging said arm.

5. In a cultivating implement, a frame including adjustably-connected side members and spring means to force said side members apart from each other, a cross-bar adjustably engaging said side members and carrying earth-engaging implements, and a link connecting the front ends of the side members of the frame and having a draft-hook.

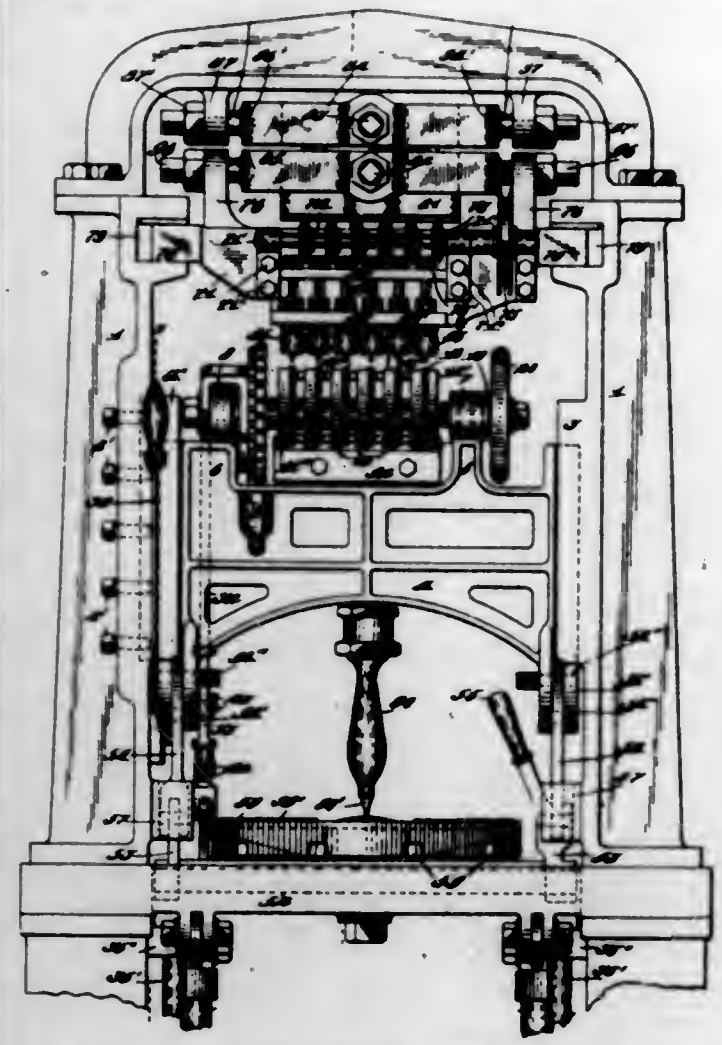
6. In a cultivating implement, a frame consisting of flexibly-connected side members, in combination with a cross-bar mounted for oscillation and carrying earth-engaging implements, means for retaining said cross-bar at various adjustments, and shanks connected with the side members of the frame and provided with inwardly-extending weed-cutters disposed in the same horizontal plane and breaking joints with each other.

788,422. SWIVEL FOR JEWELRY-PENDANTS. JOHN C. NORDT, West Hoboken, N. J. Filed May 17, 1904. Serial No. 208,329.



Claim.—A swivel for jewelry-pendants, comprising a stem having a terminal eye and an intermediate annular shoulder, and a swivel-socket provided with a ring at the closed end thereof, said socket being engaged by said stem and having an outer rim bent over the shoulder on the same.

788,423. ENGRAVING-MACHINE. FREDERICK J. NUTTING, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 19, 1903. Serial No. 162,194.



Claim.—1. In an engraving-machine, the combination with an engraving element, a tracing element, means for operating the former element by the movement of the latter element, and a pattern-support; of an operating-lever for adjusting the pattern-support into coöperative relation with the tracing element; a work-support carried upon said pattern-support; and a second operating-lever for adjusting the work-support to carry the work into and out of coöperative engagement with the engraving element.

2. In an engraving-machine, the combination with an engraving element, a tracing element, means for operating the former element by the movement of the latter element, and a pattern-support; of an operating-lever for adjusting the pattern-support into coöperative relation with the tracing element; a work-support carried upon said pattern-support; a second operating-lever for adjusting the work-support to carry the work into and out of coöperative engagement with the engraving element; a feed mechanism for advancing the work upon the work-support; an operating-lever for operating said feed mechanism; and an adjustable connection between said lever and said feed mechanism capable of adjustment to permit the feed when both the pattern-support and the work-support are raised into operative position, but to prevent the feed when only the pattern-support is raised into operative position.

3. In an engraving-machine, the combination with an engraving element, a tracing element, means for operating the former element by the movement of the latter element, and a work-support; of a feeding device for advancing the work; a link connected with said feeding device and carrying an operating-frame; an operating-lever for actuating said feeding device; a bolt connected with said operating-lever and extending through said frame and capable of movement independent of said frame; and an adjustable nut carried by said bolt for engaging said frame and operating the feeding device at a predetermined point in the movement of said operating-lever.

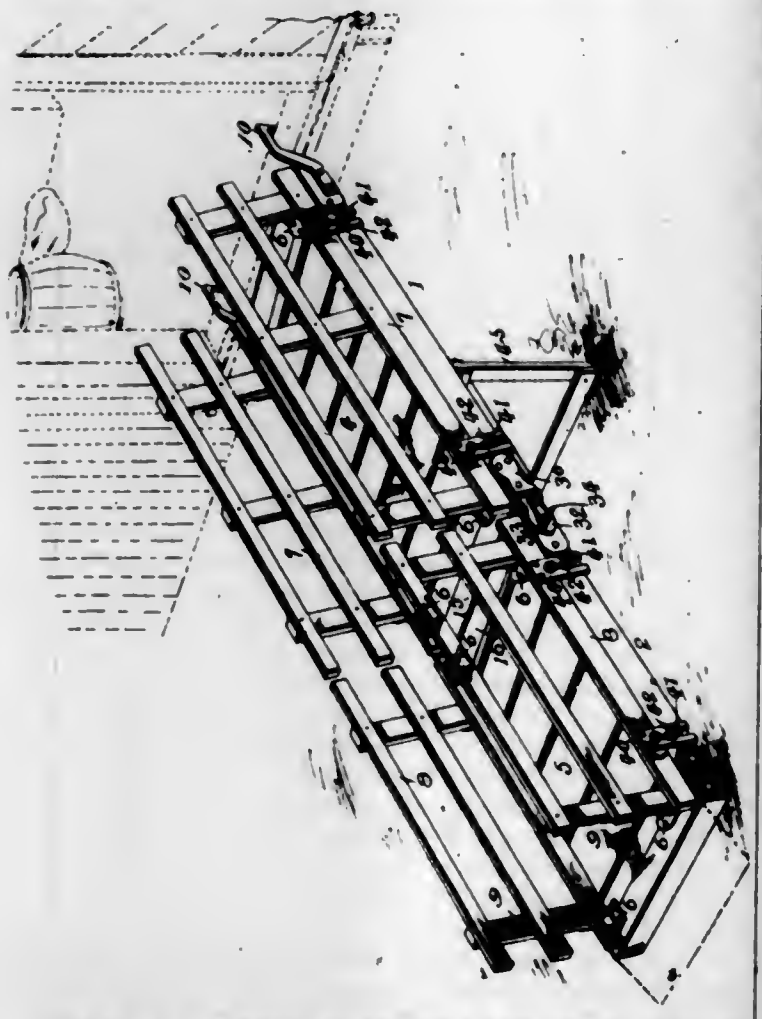
4. In an engraving-machine, the combination with a cutter, of a

movable work-holder including a shaft adapted to receive and retain the work, of a notched disk connected to said shaft, a series of feeding-pins arranged on said disk, a spring-pressed locking means for said disk, and a rocking frame carrying means whereby said disk is released from said locking means and fed forward.

5. In an engraving-machine, the combination with a cutter, of a vertically-movable carriage having a shaft arranged thereon, a disk connected to said shaft, a series of projections on the periphery of said disk, a series of pins extending laterally from said disk, a rock-frame arranged adjacent to said disk, a spring-pressed plunger in said movable carriage engaging the projections of said disk, a spring-actuated pawl on said frame whereby the disk is released from said plunger and moved forward when the frame is rocked.

6. In an engraving-machine, the combination with an engraving element, a tracing element, means for operating the former element by the movement of the latter element, and a pattern-support; of means for adjusting the pattern-support into coöperative relation with the tracing element; a work-support carried upon said pattern-support; means for adjusting the work-support to carry the work into and out of coöperative engagement with the engraving element; a feed mechanism for advancing the work upon the work-support; and an operating means for operating said feed mechanism constructed to actuate the feed when both the pattern-support and the work-support are raised into operative position but to prevent the feed when only the pattern-support is raised into operative position.

788,424. **DEVICE FOR LOADING OR UNLOADING CATTLE.** CHRISTIAN P. OCHS, Harrisburg, Pa. Filed Dec. 1, 1904. Serial No. 235,120.



Claim.—1. A gangway having sides hinged thereto, the pivots of the hinges of one side being near to the floor of the gangway and the pivots of the hinges of the other side being above the pivots of the first-named hinges, thus permitting the latter side to fold over the other.

2. In a knockdown gangway, in combination, a floor or tread portion, sides hinged thereto, and hasps for locking the same in upright position, said sides arranged to fold flat one over the other when the gangway is collapsed.

3. In a gangway, in combination, a floor or tread portion having sides hinged thereto, and hasps or catches for locking the sides in upright position, the pivots of the hinges of one side being near to the floor of the gangway and the pivots of the hinges of the other side being above the floor and thereby permitting the latter side to fold over the former.

4. In a gangway, a floor, sides hinged to said floor and provided with uprights, each upright being out of line with the corresponding upright of the opposite side and the hinges being located to permit the sides to fold flat one upon the other.

5. A gangway comprising a plurality of knockdown sections, and releasable means for retaining the same in coöperative relation.

6. In a gangway, a plurality of tread-sections, coöperating means at the abutting ends of adjacent sections locking the same firmly together as a unitary structure whereby said tread-sections are in the same plane or alinement.

7. In a gangway, a plurality of separable tread-sections, means for fastening together adjacent sections, and additional means for uniting said sections firmly.

8. In a gangway having a plurality of separable tread-sections, connecting-bars on one section, and holding means on the adjacent section coöperating therewith and locking the sections into a substantially rigid gangway whereby said tread-sections are in the same plane or alinement.

9. In a gangway having a plurality of separable tread-sections, simultaneously-operable connecting-bars and holding means on the adjacent section coöperating therewith.

10. In a gangway having a plurality of separable tread-sections, means for fastening together adjacent sections, and additional coöperating strengthening means disposed in part on each of two adjacent sections.

11. In a gangway having a plurality of separable tread-sections, bars pivoted near the end of one section, holding means on the other section coöperating therewith, and a bar connected to each of said bars to operate them simultaneously.

12. A gangway comprising separable knockdown tread-sections, one of said sections having means, when one end is in place, to support the other end in elevated position to permit the ready attachment to it of the adjacent section.

13. A gangway comprising a plurality of knockdown tread-sections, one of said sections being provided at one end with grappling means and having means to hold the other end elevated to permit the ready coupling to it of the adjacent section.

14. A gangway comprising separable knockdown sections, said sections when united constituting a single continuous gangway, and each of said sections when detached constituting in itself a complete gangway.

15. A gangway comprising separable knockdown sections, said sections when united constituting a single continuous gangway, and each of said sections when detached constituting in itself a complete gangway, one of said sections having special means for holding it in position for use.

16. A gangway comprising separable knockdown sections, said sections when united constituting a single continuous gangway, and each of said sections when detached constituting in itself a complete gangway, one of said sections having means for holding its end in position and means intermediate of its ends forming an additional support.

788,425. **CIGAR-CUTTER.** FREDERICK W. PARRIS, Brighton, Mass. Filed Oct. 17, 1904. Serial No. 228,699.



Claim.—1. A cigar-cutter comprising in its construction a hollow casing provided with a hole in each of the opposite sides thereof, a pair of cutters pivoted inside said casing with their cutting edges adjacent to said holes, a spring acting to hold said cutters apart and upon opposite sides, respectively, of said holes, and a spring-catch adapted to engage and hold said cutters with their cutting edges overlapping each other.

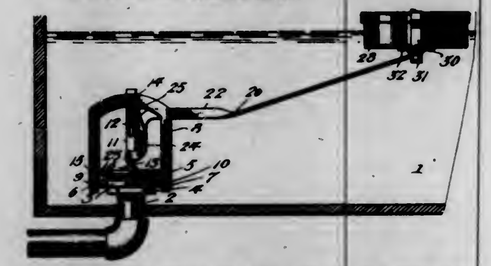
2. A cigar-cutter comprising in its construction a hollow casing provided with two cylindrical holes of different diameters upon opposite sides, respectively, thereof, a pair of cutters pivoted inside said casing, with their cutting edges adjacent to said holes, a spring acting to hold said cutters apart and upon opposite sides, respectively, of said holes, and a spring-catch adapted to engage and hold said cutters with their cutting edges overlapping each other.

3. A cigar-cutter comprising in its construction a hollow casing provided with a hole in each of the opposite sides thereof, a pair of cutters pivoted inside said casing with their cutting edges adjacent to said holes, each of said cutters provided with a hook on its free end, a spring acting to hold said cutters apart and upon opposite sides, respectively, of said holes, and a reciprocatory spring-catch provided with two hooks on opposite sides thereof adapted to engage the hooks of said cutters and hold said cutters with their cutting edges overlapping each other.

4. A cigar-cutter comprising in its construction a hollow disk-shaped casing provided with a hole in each of the opposite sides thereof, a pair of cutters pivoted inside said casing with their cutting edges adjacent to said holes, a spring acting to hold said cutters apart and upon opposite sides, respectively, of said holes, a spring-catch adapted to engage and hold said cutters with their cutting edges overlapping each other, said casing provided with slots in its edge through which said cutters project when disengaged from said catch.

5. A cigar-cutter comprising in its construction a hollow disk-shaped casing provided with a hole in each of the opposite sides thereof, a pair of cutters pivoted inside said casing with their cutting edges adjacent to said holes, a spring acting to hold said cutters apart and upon opposite sides, respectively, of said holes, each of said cutters provided with a hook on its free end, a reciprocatory spring-actuated catch projecting through the edge of said casing, the outer end of said catch provided with a flange, the inner end with two hooks on opposite sides thereof adapted to engage the hooks on said cutters and hold said cutters with their cutting edges overlapping each other.

788,426. **AUTOMATIC VALVE.** HENRY S. PINKERTON, Juno, TEX. Filed July 19, 1904. Serial No. 217,234.



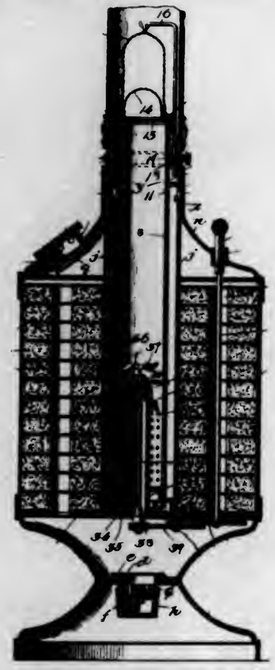
Claim.—1. In combination with a reservoir and a supply-pipe therefor, of a valve for the pipe comprising a valve-seat plate secured to the pipe and formed with a valve-seat, a frame comprising parallel strips secured to said plate, a guiding-plate formed with ears arranged to project between the frame-strips, a valve-disk secured to said plate, a lever having pivotal connection with the valve-plate and with the frame, and projecting between and guided by the frame-strips, and a float for the free end of the lever.

2. In combination with a reservoir and a supply-pipe therefor, of a valve for the pipe comprising a valve-seat plate secured to the pipe and formed with a valve-seat, said plate having projecting lips, a frame comprising parallel inverted-U-shaped strips secured to said plate, a guiding-plate formed with ears arranged to project between the frame-strips, a valve-stem secured to said plate and formed near its upper end with a slot, a pin passing through said slot and secured in the frame-strips, a valve-disk secured to the guiding-plate a lever pivoted to the valve-stem and projecting between and guided by the frame-strips, a float for the free end of the lever, and locking-links secured on said pin at one end and to the lever at the opposite end.

788,427. **SELF-CARBURETING LAMP.** HENRY M. REICHENBACH, New York, N. Y., assignor to General Safety Mantle Light Co., Brooklyn, N. Y., a Corporation of New York. Filed Apr. 30, 1904. Serial No. 205,788.

Claim.—1. In a self-contained and self-carbureting lamp, the combination of a burner, means for conducting air and carbureted air to said burner, a lamp-body, absorbent material packed in said lamp-body, and perforated non-absorbent partitions extending through said material and dividing it into layers, said partitions extending from the inside of the lamp-body into contact with said means, substantially as described.

2. In a self-contained and self-carbureting lamp, the combination of a burner, a lamp-body, absorbent material in said body, heat-conductors passing through said absorbent material to distribute the heat therethrough, said heat-conductors being in metallic thermal communication with said burner, means for causing currents of air and carbureted air to pass through said lamp, and means located within said lamp-body for shutting off the current of carbureted air in said lamp, substantially as described.



3. In a self-contained and self-carbureting lamp, the combination of a lamp-body, absorbent material therein, a mantle surmounting said lamp-body, means within said lamp-body for delivering the air and carbureted air to said mantle, means for regulating the supply of air and carbureted air to said mantle, and means located within said lamp-body for entirely cutting off the supply of carbureted air to said mantle, substantially as described.

4. In a self-contained and self-carbureting lamp, the combination of a burner, a lamp-body, absorbent material therein, heat-conductors extending through said absorbent material, means located within said lamp-body for delivernig air and carbureted air to the point of combustion, a fan in said lamp-body for starting the current of carbureted air, and hand-operated means for said fan, part of said means extending out through said lamp-body, substantially as described.

5. In a self-contained and self-carbureting lamp, the combination of a burner, a lamp-body, absorbent material in said body, heat-conductors extending through said material, said heat-conductors being in metallic thermal communication with said burner, a tube passing through said body to deliver carbureted air to the burner, a valve in said tube, and means for operating said valve from the outside of the lamp-body to cut off the flow of carbureted air, substantially as described.

6. In a self-contained and self-carbureting lamp, the combination of a lamp-body, absorbent material therein, a tube within said body for delivering air and carbureted air to the point of combustion, a valve within said tube, a gallery, and connections between said gallery and said tube, and between said tube and said valve, whereby the movement of the gallery opens or closes said valve, substantially as described.

7. In a self-contained and self-carbureting lamp, the combination of a lamp-body, absorbent material apertured for the purpose of drainage, located within said body, a tube within said body for delivering air and carbureted air from said absorbent material to the point of combustion, a fan mounted in said tube, a milled head on the outside of said lamp-body, and connections and gearing between said head and said fan, whereby the operator by revolving said head may start said fan in motion, thereby creating an upward draft when it is desired to start the lamp in operation., substantially as described.

8. In a self-contained and self-carbureting lamp, the combination of a lamp-body, perforated disks of absorbent material located within said body and in contact therewith, heat-conductors extending between such disks, said heat-conductors being in metallic thermal communication with said burner, means for draining said lamp, a tube within said absorbent material for conveying carbureted air to the point of combustion, and a valve located in said tube, substantially as described.

9. In a self-contained and self-carbureting lamp, the combination of a burner, a lamp-body, perforated annular disks of absorbent material located in said body, perforated non-absorbent disks located between and in contact with said disks of absorbent material, said non-absorbent disks being in metallic thermal communication with said burner, a tube located partially within said absorbent material for conveying air and carbureted air from said material to the point of combustion, a valve in said tube, and means for operating said valve from the outside of the lamp, substantially as described.

10. In a self-carbureting lamp, the combination of a lamp-body, perforated annular disks of absorbent material located therein, disks between said disks of absorbent material, a central tube around which said disks are located, a smaller tube located within said first-named tube and adapted to carry mixed air and gas to the point of combustion, a plurality of series of holes in said outer tube, a partition located between said series of holes, means for wholly or partially closing both of said series of holes, a gas-valve in said inner tube, and means for operating said gas-valve, substantially as described.

11. In a self-carbureting lamp, the combination of a lamp-body, disks of absorbent material located therein, a central tube on which said disks are mounted, a smaller tube within said first-named tube and adapted to convey the mixed air and gas to the point of combustion, a smaller tube within said second-named tube to convey gas to said second-named tube, a gas-valve mounted on said smallest inner tube, and connections between said second-named tube and said gas-valve, whereby the movement of said second-named tube will open or close said gas-valve, substantially as described.

12. In a self-carbureting lamp, the combination of a lamp-body, perforated disks of absorbent material therein, a tube around which said disks are located, a gallery mounted on the top of said tube, a cap mounted on said gallery, a gauze screen supported by said cap, a mantle mounted above said screen and supported on said gallery, a second tube within said first-named tube, means for clamping said second-named tube to the mantle-support, a gas-valve, and an arm engaging said second-named tube and said gas-valve whereby the movement of said gallery will open or close said gas-valve, substantially as described.

13. In a self-carbureting lamp, the combination of a lamp-body, disks of absorbent material located therein, a tube around which said disks are located, said tube being provided with two sets of air-openings, a cover for said lamp surrounding said tube, rings mounted above said cover and surrounding said tube, each ring being provided with a series of air-openings, a gallery mounted on the top of said tube, a second smaller tube located within said first-named tube, connections between said gallery and said second-named tube, a gas-valve located in said second-named tube, and an arm engaging said second-named tube and said gas-valve, whereby the movement of said gallery will operate said gas-valve, substantially as described.

14. In a self-carbureting lamp, the combination of a lamp-body, disks of absorbent material therein, a cover for said lamp-body provided with air-openings, a tube around which said disks are grouped, said tube being provided with two sets of air-openings, rings each provided with sets of air-openings mounted on said cover, a second smaller tube mounted within said first-named tube and adapted to deliver mixed air and gas to the point of combustion, a gas-valve in said second-named tube, an arm engaging said gas-valve and said second-named tube, a gallery mounted in said first-named tube, connections between said gallery and said second-named tube, a fan mounted in said second-named tube, and means for operating said fan to start said lamp, substantially as described.

15. In a self-carbureting lamp, the combination of a base provided with drainage devices, a lamp-body, perforated disks of absorbent material in said lamp-body, a perforated cover for said lamp-body, a tube in said lamp-body around which said disks are grouped and provided with sets of air-openings, a gallery supported by said tube, rings mounted above said cover around said tube, each ring being provided with a set of air-openings, a second and smaller tube mounted within said first-named tube and adapted to convey mixed air and gas to the point of combustion, a mantle, a mantle-support, means for fastening together said gallery, said mantle-support and said second-named tube, a gas-valve in said second-named tube, a connection engaging said second-named tube, and said gas-valve, a fan mounted in said second-named tube, and means for operating said fan from the outside of the lamp to start the same in operation, substantially as described.

16. In a self-contained and self-carbureting lamp, the combination of a burner, a lamp-body, absorbent material therein in thermal communication with said burner, illuminating devices on the top of said lamp, and heat-conductors for causing uniform volatilization of the liquid fuel held by said absorbent material, said heat-conductors being located beneath the illuminating devices and partially within said lamp-body, substantially as described.

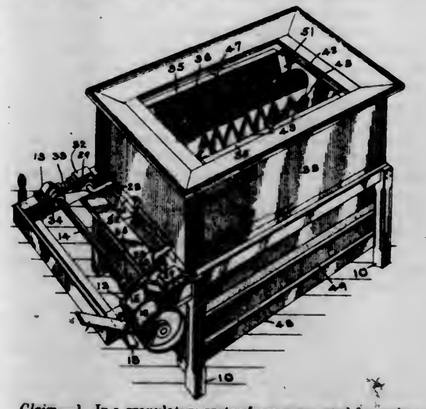
17. In a self-contained and self-carbureting lamp, the combination of a lamp-body, absorbent material therein, metal disks passing through said material, said material and disks being provided with passages, illuminating devices on the top of the lamp, and means for heating said disks from said illuminating devices, substantially as described.

788,428. **COMBINED DOOR AND GATE KEEPER FOR STREET-CAR VESTIBULES.** EDWARD T. ROBINSON, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo., a Corporation. Filed Dec. 5, 1903. Serial No. 183,994.



Claim.—In a combined door and gate keeper for street-car vestibules, the combination of a main plate provided in its front face with a door-bolt-receiving orifice and a pocket spaced from one another, and a gate-pin-receiving eye member provided with a shank pivoted within the pocket of the main plate.

788,429. **GRANULATOR.** FRANK A. RUF, St. Louis, Mo. Filed Oct. 5, 1904. Serial No. 227,303.



Claim.—1. In a granulator: grater-frames mounted for reciprocation; graters mounted in the grater-frames with their lower edges close together, and their upper edges wide apart; each grater comprising a frame and a sheet of woven-wire cloth attached to the frame; and a comb mounted between the graters with the edges o its teeth close to the graters; substantially as specified.

2. In a granulator: a suitable frame; graters mounted for reciprocation in the frame with their lower edges close together, and their

upper edges wide apart; each grater comprising a frame and a sheet of woven-wire cloth attached to the frame; a comb having teeth with their edges close to the graters; and rigidly mounted; and means for reciprocating the graters; substantially as specified.

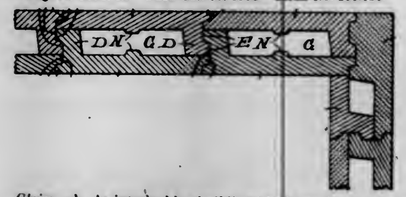
3. In a granulator: a pair of graters mounted with their lower edges close together, and their upper edges wide apart each; grater comprising a frame and a sheet of woven-wire cloth attached to the frame; means of reciprocating the graters in opposite directions; and a comb between the graters with the edges of its teeth close to the surface of the graters; substantially as specified.

4. In a granulator: grater-frames mounted for reciprocation; graters mounted in the grater-frames with their lower edges close together, and their upper edges wide apart; and a comb mounted between the graters with the edge of its teeth close to the graters; substantially as specified.

5. In a granulator: a suitable frame; graters mounted for reciprocation in the frame, with their lower edges close together, and their upper edges wide apart, a comb having teeth with their edges close to the graters and rigidly mounted; and means of reciprocating the graters; substantially as specified.

6. In a granulator: a pair of graters mounted with their lower edges close together, and their upper edges wide apart; means of reciprocating the graters in opposite directions; and a comb between the graters with the edges of its teeth close to the surface of the graters; substantially as specified.

788,430. **INTERLOCKING BUILDING-BLOCK.** JOSEPH SCHALL, Evergreen Park, Ill. Filed Oct. 31, 1904. Serial No. 230,826.



Claim.—1. An interlocking building-block provided at its ends with projections, said projections being disposed flush with opposite faces of said block, a flange at one end of said block oppositely disposed relatively to the projection at said end, and a projection at the free end of said flange parallel with the projection at said end.

2. An interlocking building-block, comprising a plate provided at one end with a flange, a projection at the free end of said flange, a projection at the said end of the plate disposed parallel with and opposite the projection of said flange, and a projection at the other end of said plate oppositely disposed relatively to the projection at the flanged end thereof.

3. An L-shaped interlocking building-block provided with a recess in its flange midway between the ends thereof and provided at its other end with a projection so disposed as to leave a cut-away portion at the outer face of said block.

4. An interlocking building-block comprising a plate provided at one end with a projection which is flush with one face thereof, a flange on the corresponding side of said plate at its other end, a projection at the free end of said flange, and a projection on the flanged end of said plate which is flush with the other face thereof, there being a recess between the two last-named projections adapted to receive the first-named projection of the next adjacent block in the course.

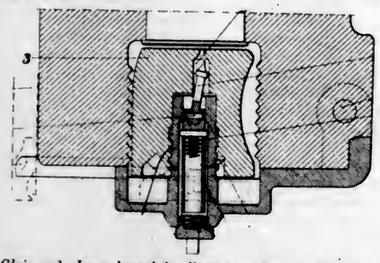
788,431. **DISH-DRAINER.** FREDERICK SCHNEIDER, New York, N. Y. Filed Nov. 28, 1904. Serial No. 234,400.



Claim.—1. A device of the class described, comprising a tray, a foraminous bottom therein, and braces united to the under side of the bottom, said braces being bent at points intermediate of their length and forming legs adapted to support the bottom, the ends of the braces being bent upwardly and forming suitable handles.

2. In a device of the class described, a foraminous false bottom provided with longitudinal braces on the under side thereof, said braces being bent downwardly at points intermediate their length to form supporting-legs, and the ends of the braces being bent upwardly and outwardly to produce the handles.

788,432. **FIRING MECHANISM FOR BREECH-LOADING GUNS.** CHARLES P. E. SCHNEIDER, Le Creusot, France. Filed Apr. 30, 1903. Serial No. 155,063.



Claim.—1. In a breech-loading gun, the combination of a breech-block revoluble eccentrically in the gun-breech, a carrier supporting said block, and a jointed firing-pin supported by the carrier in the gun's axis.

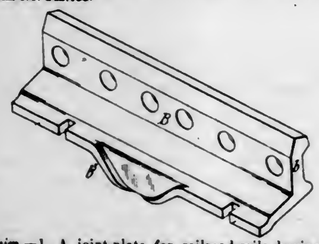
2. In a breech-loading gun, the combination of a revoluble breech-block having an opening therethrough eccentric to the axis of said block and in the gun's axis when the block is locked, a carrier also having an opening in the line of the gun's axis when the block is inserted in the breech, and a jointed firing-pin moving in said openings to discharge the gun.

3. In a breech-loading gun, the combination of an eccentrically-revoluble breech-block having an opening therethrough in the gun's axis when the block is locked, a carrier also having an opening in the line of the gun's axis when the block is inserted in the breech, and a jointed firing-pin supported in the opening in the carrier and having its nose projecting into the opening in the block.

4. In a breech-loading gun, the combination of a swinging breech-block carrier having an opening concentric with the gun's bore when the carrier is closed against the breech, a breech-block rotatably mounted on the carrier eccentrically to the breech and provided with a helical rearwardly-inclined surface, and a jointed firing-pin mounted in the opening in the carrier and provided with a shoulder projecting to the rear of the said helical surface.

5. In a breech-loading gun, the combination of a breech-block revoluble eccentrically in the gun-breech, a carrier supporting said block, a firing-pin supported by the carrier in the gun's axis, said breech-block being provided with a helical rearwardly-inclined surface, a shoulder on said firing-pin for engaging said inclined surface whereby the firing-pin may be cocked and a nose-piece articulated to said firing-pin.

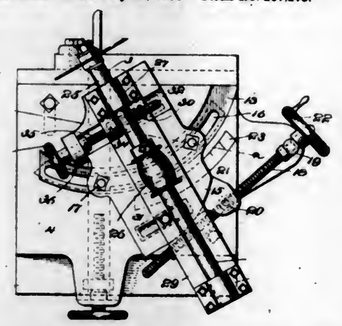
788,433. **RAIL-JOINT.** ALEXANDER C. SHAND, Narberth, Pa., assignor to Adolphus Bonzano, Philadelphia, Pa. Filed Jan. 21, 1905. Serial No. 242,133.



Claim.—1. A joint-plate for railroad-rails having an upper chord arranged to be secured to the webs of the rails, a lower chord projecting downwardly beyond the base-flanges of the rails, with feet on each side of the lower chord less in width than the depth of the lower chord, and webs connecting the feet with the lower chord, substantially as described.

2. The combination of abutting rails, joint-plates each having upper and lower chords, one arranged on one side of the rails and the other on the opposite side of the rails, the lower chords having inclined flanges at each end and each plate having feet at each end less in width than the depth of the lower chord, said feet being notched, with spikes driven through the notches so as to rest in close proximity to the base-flanges of the rails, substantially as described.

788,434. **ATTACHMENT FOR WOODWORKING-MACHINES.** DARIUS W. SHOLLENBERGER, Montgomery, Pa., assignor to The American Wood Working Machinery Co., New York, N. Y., a Corporation of Pennsylvania. Filed May 10, 1904. Serial No. 207,273.



Claim.—1. A resawing mechanism comprising a vertically-movable support, a pivotally-mounted support carried thereon, a laterally-moving bracket upon the pivoted support and a saw carried by the said bracket, the pivotal mounting of the pivotal support being such that the center of movement for said pivoted support shall lie in the plane of the cut made by the saw.

2. A resawing mechanism comprising a saw, means for adjusting the saw vertically, means for adjusting it horizontally, and means pivotally mounted for carrying the saw to different angles with respect to the work-bed of the machine, the saw always lying in the plane of the pivotal center of the pivot mechanism.

3. A sawing mechanism comprising a work-support, a saw, a swinging support therefor, the saw always extending across the pivotal center of movement of the said swinging support, and means for adjusting the swinging support to bring the center of movement above or below the plane of support for the material to be operated upon.

4. A sawing attachment for woodworking-machines, comprising a work-bed, a swinging plate having movement about a given center, a saw mounted thereon and held so as to always lie across the center of movement of said plate, means for adjusting the swinging plate to bring the said center of movement to different heights above or below the work-bed of the machine the adjustment of the plate not affecting the position of the saw with respect to the center of movement of said plate.

5. In combination with a support for material to be sawed, a sawing mechanism comprising a saw, a swinging plate carrying the same, the said plate having a pivotal movement about an axial line which is always in the plane of the saw, means for adjustably holding the saw in its own plane upon the plate, and means for adjusting the swinging plate vertically to bring the saw above or below the support for the material to be operated upon.

6. A sawing mechanism, comprising a material-support, a saw, a plate carrying the same having a pivotal movement about a given point, which point lies in the plane of the saw, means for adjusting the saw in its plane upon the said plate, and a vertically-adjustable support carrying the pivoted plate and capable of moving the saw to different heights both above and below the support for the material to be operated upon.

7. A resawing mechanism for woodworking-machines comprising a vertically-adjustable supporting-plate, a swinging plate mounted thereon and engaging a segmental guide formed upon the supporting-plate, a bracket adjustably mounted on the swinging plate and a saw carried by the said bracket, the saw always crossing the pivotal center of the swinging plate.

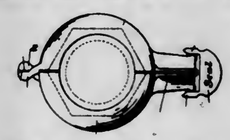
8. A resawing attachment for woodworking-machines, comprising a vertically-adjustable supporting-plate, a swinging plate mounted thereon and provided with a segmental projecting tongue, the supporting-plate having a segmental groove for receiving and guiding the said tongue, a saw-arbor, a saw carried thereby and extending across the center of pivotal movement of the swinging plate, and a bracket carrying the said arbor and adjustably secured to the swinging plate, the adjustment of said bracket being at right angles to the axis of the arbor.

9. A sawing attachment for woodworking-machines comprising a plate mounted upon the apron of the machine, said plate having a guiding-rib formed thereon, the said rib engaging a groove in the apron of the machine, a screw engaging the apron and carried by the said plate for adjusting the plate, a swinging cutter-carrying plate mounted on the supporting-plate and a cutter mounted upon the swinging plate so that its axis of movement extends approximately in a radial direction with respect to the center of movement of the swinging plate.

10. A sawing mechanism comprising a supporting-plate having a segmental groove formed therein, a swinging plate having a segmental rib for engaging the said groove, a screw carried by the supporting-plate and engaging the swinging plate for adjusting it to different angles, a bracket mounted upon the swinging plate, guiding means interposed between the bracket and the plate, an adjusting-screw carried by the swinging plate and engaging the bracket for moving it laterally, and a saw or cutter carried by the said bracket and extending radially with respect to the segmental slot of the supporting-plate.

11. A sawing mechanism comprising a vertically-adjustable supporting-plate, a swinging adjustable plate mounted thereon, a segmental guiding means interposed between the two plates, a saw and arbor carrying the same, a bracket carrying said arbor mounted upon the swinging plate and provided with a guide-rod extending parallel with the saw, a groove extending transversely of the swinging plate, and means for adjusting the plates with respect to each other, and means for adjusting the bracket laterally upon the swinging plate, the saw being thus maintained always in the same plane with respect to the swinging plate.

788,435. **SEALING DEVICE FOR PIPE-COUPLINGS OR THE LIKE.** ROBERT D. SIMPSON, Columbus, Ohio, assignor to Michael A. Corbett, Columbus, Ohio. Filed Jan. 8, 1904. Serial No. 188,196.



Claim.—1. In a sealing device for pipe-couplings and the like, a shell having a hooking member and a notch and a projection at the rear of the shell, and a bead and a recess at the front of the shell.

2. A sealing device for pipe-couplings and the like comprising two shells each composed of a shell portion proper having at its rear end a hooking member and a notch and a projection, and at its front end a bead and a recess and means for locking said shells together.

3. A sealing device for pipe-couplings and the like comprising two shells each composed of a shell portion proper having at its rear side a hooking member and a notch and a projection, and at its front side a bead and a recess, and separate breakable means for locking said shells together.

4. A sealing device for pipe-couplings and the like comprising two correspondingly-shaped separable shells having corresponding devices for latching them from separation at their rear sides when placed together, and a separate breakable key for engaging and locking the front sides together and thereby locking the rear sides together.

5. A sealing device for pipe-couplings and the like comprising two correspondingly-shaped separable shells constructed so that when placed together they are latched from separation horizontally and vertically at their rear sides and latched from separation vertically at their front sides, and a key adapted to embrace the outer portion of such shells and lock the same from separation in any direction at both sides.

6. A sealing device for pipe-couplings and the like composed of correspondingly-shaped shells having hooking members at their rear sides and matching projections and recesses at their front sides, and a separate device for engaging both shells to lock the same from separation in any direction.

7. A sealing device for pipe-couplings and the like composed of

correspondingly-shaped shells having hooking members at their rear sides, and matching projections and recesses and a socket for the reception of a locking-key at their front sides and projections to cover the line of separation between the shells adjacent the aforesaid socket, and a key constructed to enter and engage said socket and lock the shells from separation in any direction.

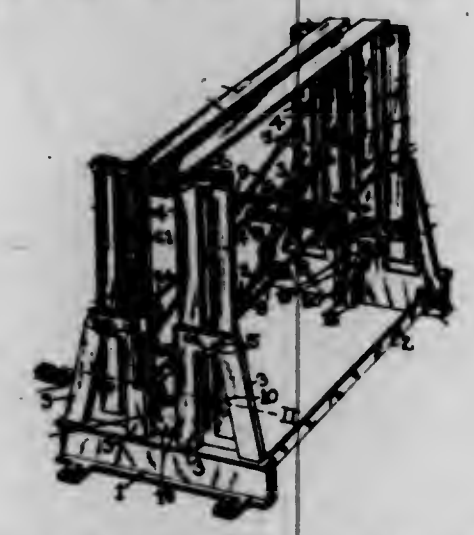
8. A sealing device for pipe-couplings and the like comprising two shells with means for latching them together, and a key having ears adapted to engage and lock both shells and a tongue to be automatically locked thereto.

9. A sealing device for pipe-couplings and the like, comprising two shells with means for latching them together at their rear ends, and a separate key adapted to be applied directly to the shells after they are placed together to engage and lock them against lateral separation at their front ends and be simultaneously automatically locked thereto.

10. A sealing device for pipe-couplings and the like comprising two correspondingly-formed shells having means for latching them together at their rear ends, and a key adapted to engage and lock both shells together at their front ends and be locked thereto.

11. A sealing device for pipe-couplings and the like composed of correspondingly-shaped shells having hooked members at their rear sides, arms on the front sides of said shells, one of said arms having a projection engaging the other arm to prevent lateral movement, and a separate device for engaging both shells to lock the same from separation in any direction.

788,436. PLANING OR MITERING TABLE. LOUIS R. SLEVIN. St. Louis, Mo. Filed Feb. 5, 1904. Serial No. 192,116.



Claim.—1. In a planing or mitering table, the combination of a pair of bench-jaws provided with plane top surfaces, and means whereby said bench-jaws are rockingly supported to maintain their clamping-faces and top surfaces in unchanging parallel planes, substantially as set forth.

2. In a planing or mitering table, the combination of two sets of swingingly-mounted uprights, bench-jaws at the upper ends of said uprights, means for swinging said uprights to impart movement to the bench-jaws, jaw-supporting means carried by said uprights so connected thereto as to maintain the clamping and top surfaces of said jaws respectively in unchanging parallel planes, and means for maintaining said uprights in alinement with each other, substantially as set forth.

3. In a planing or mitering table, the combination of two sets of swingingly-mounted uprights arranged in pairs for parallel movement, bench-jaws at the upper ends of said uprights, means for swinging said uprights, and jaw-supporting means carried by said uprights so connected thereto as to maintain the clamping and top surfaces of said jaws respectively in unchanging parallel planes, substantially as set forth.

4. In a planing or mitering table, the combination of two sets of swingingly-mounted uprights arranged in pairs, bench-jaws at the upper ends of said uprights, bearings carried by said uprights, screw-rods operating in said bearings to secure said uprights, and jaw-supporting means carried by said uprights so connected thereto as to maintain the clamping and top surfaces of said jaws respectively in unchanging parallel planes, substantially as set forth.

5. In a planing or mitering table, the combination of two sets of swingingly-mounted uprights, bench-jaws at the upper ends of said uprights, and equalizing-links for controlling said uprights, substantially as set forth.

6. In a planing or mitering table, the combination of a base, two sets of swingingly-mounted uprights pivoted to said base, bench-jaws at the upper ends of said uprights, means for swinging said uprights, equalizing-links connected to said uprights, guides projecting from said base, and slide-pins carried by said links and operating in said guides, substantially as set forth.

788,437. RAZOR-HANDLE. ALBERT W. SLEVIN, Milwaukee, Wis. Filed Sept. 2, 1904. Serial No. 223,114.



Claim.—1. In a razor, a handle provided with absorbent surfaces with which the blade is adapted to contact when the razor is closed.

2. In a razor, the combination of a handle and absorbent pads secured upon the opposing surfaces of the recess in said handle.

3. In a razor, the combination with a handle whose sides are provided with recesses, of absorbent pads secured to the opposing surfaces of said handle sides.

4. In a razor, the combination of a handle having sides that are provided with recesses in their opposing surfaces, and felt pads secured in said recesses, said pads being kept separate by a washer interposed therebetween, and a rivet passing through said handle sides, pads and washer.

788,438. MOUSE-PROOF PEDAL. FRED S. SMITH, Cincinnati, Ohio, assignor to The Baldwin Company, Cincinnati, Ohio. Filed Dec. 23, 1904. Serial No. 238,043.



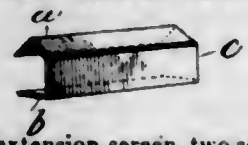
Claim.—1. A pedal for musical instruments having a drop and a lip projecting inwardly from the lower edge of said drop, substantially as described.

2. In a musical instrument the combination with a pedal having a drop and a lip projecting inwardly from the lower edge of said drop of a bottom board, to which said pedal is attached, said bottom board being protected at the exposed edge under the pedal with metal, substantially as described.

3. In a musical instrument the combination with a pedal having a drop and lip projecting inwardly from the lower edge of said drop of a bottom board to which said pedal is attached, a pedal-rail, and a pedal-guard adapted to be attached to said rail, said guard having openings for the pedals and a flange projecting at right angles to the same, substantially as described.

4. In a musical instrument the combination with a pedal 3 having a drop 5 and a lip 6 projecting inwardly from the lower edge of said drop, of a bottom board 4 to which said pedal is attached, a pedal-rail 1, and a pedal-guard 7 adapted to be attached to said rail, said guard having openings 9 for the pedals 3 and a flange 8 projecting at right angles to the same, said flange being adapted to rest on the exposed edge of the bottom board 4 immediately under the pedal, substantially as described.

788,439. WINDOW-SCREEN. HENRY E. SOUTHWORTH, Colchester, Vt., assignor to Porter Screen Manufacturing Company, Burlington, Vt. Filed Jan. 30, 1905. Serial No. 243,247.

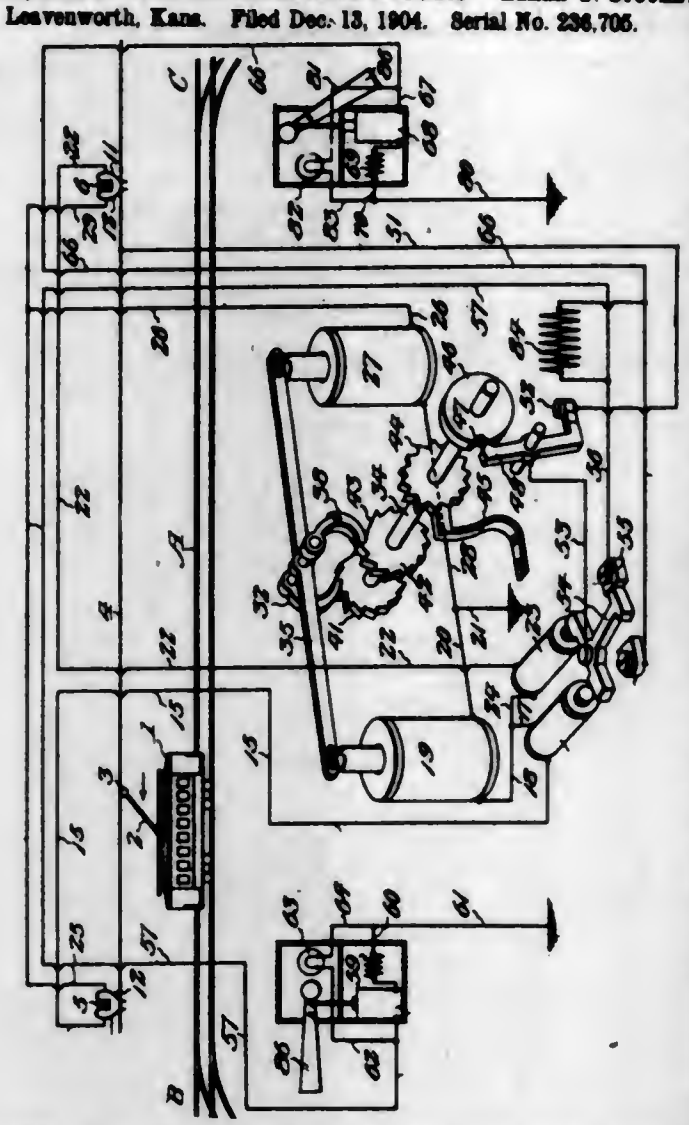


Claim.—1. In an extension-screen, two screen-sections the overlapping rails of which have in their meeting faces, each a longitudinal horizontal groove *g* and an inclined groove *f*, the two being separated from one another by a solid portion of the rail, in combination with two guides projecting from each rail and separated from each other by a corresponding interval, the one horizontal the other inclined, to engage the grooves *g*, *f*, respectively of the opposite rail, substantially as and for the purposes hereinbefore set forth.

2. In an extension-screen a sheet-metal clip consisting of the V-shaped limb *a*, the horizontal limb *b* and the vertical back *c* interposed between and connecting the same along one of their longitudinal edges in combination with overlapping screen-section rails hav-

ing separate grooves *f*, *g*, to engage the limbs *a*, *b*, respectively, substantially as and for the purposes hereinbefore set forth.

788,440. **BLOCK-SIGNALING SYSTEM.** ELMER G. STUCKEY, Leavenworth, Kans. Filed Dec. 13, 1904. Serial No. 236,705.



Claim.—1. An electric block-signaling system having an incoming circuit and an outgoing circuit for each end of the block, a common electromagnet for the two incoming circuits, a common electromagnet for the two outgoing circuits, a common circuit-controlling device operated by the two common electromagnets, a signal-actuating circuit for each end of the block, the two signal-actuating circuits being connected with the common circuit-controlling device, a common armature adapted simultaneously to open one of the signal-actuating circuits and to close the other, and an electromagnet in each of the incoming circuits adapted to actuate the common armature.

2. An electric block-signaling system having an incoming circuit and an outgoing circuit for each end of the block, a common electromagnet for the two incoming circuits, a common electromagnet for the two outgoing circuits, a step-by-step device adapted to be actuated by the two common electromagnets, a common circuit-controlling device adapted to be actuated by the step-by-step device, a signal-actuating circuit for each end of the block, the two signal-actuating circuits being connected with the common circuit-controlling device, a common armature adapted simultaneously to open one of the signal-actuating circuits and to close the other, and an electromagnet in each of the incoming circuits adapted to actuate the common armature.

3. An electric block-signaling system having an incoming circuit and an outgoing circuit for each end of the block, a common electromagnet for the two incoming circuits, a common electromagnet for the two outgoing circuits, a common circuit-controlling device adapted to be actuated by the two common electromagnets, a signal-actuating circuit for each end of the block, the two signal-actuating circuits being connected with the common circuit-controlling device, a common armature adapted simultaneously to open one of the signal-actuating circuits and to close the other, an electromagnet in each of the incoming circuits adapted to actuate the common armature, a resistance element connecting the two signal-actuating circuits, and signaling means actuated by the two signal-actuating circuits.

4. An electric block-signaling system comprising a step-by-step device, a circuit for actuating said step-by-step device each time a car enters or leaves the block, means for permitting a car within the block to leave the same without actuating the step-by-step device, and a signal-actuating circuit controlled by the step-by-step device.

5. An electric block-signaling system having a step-by-step device, a ratchet associated with said step-by-step device and having one of its teeth removed, an incoming and an outgoing circuit for actuating said step-by-step device each time a car enters or leaves the block, and a signal-actuating circuit controlled by the step-by-step device.

6. An electric block-signaling system having an incoming circuit and an outgoing circuit for each end of the block, means actuated by an incoming car for closing each of the incoming circuits, means actuated by an outgoing car for closing each of the outgoing circuits, a common electromagnet for the two incoming circuits, a common electromagnet for the two outgoing circuits, a step-by-step device having a ratchet adapted to be actuated by the common electromagnet of the incoming circuits, and a ratchet adapted to be actuated by the common electromagnet of the outgoing circuits, said last-mentioned ratchet having one of its teeth removed, a common circuit-controlling device adapted to be actuated by the step-by-step device, a signal-actuating circuit for each end of the block, the two signal-actuating circuits being connected with the common circuit-controlling device, and signal means controlled by each signal-actuating circuit.

7. An electric block-signaling system having an incoming circuit and an outgoing circuit for each end of the block, a circuit-controlling device at each end of the block, each of the said circuit-controlling devices comprising a body of insulating material pivotally mounted adjacent to the trolley and having downwardly-extending contact members, one of the contact members of each body of insulating material being connected with one of the incoming circuits and the other contact member being connected with one of the outgoing circuits, a common electromagnet for the two incoming circuits, a common electromagnet for the two outgoing circuits, a lever adapted to be actuated by the two common electromagnets, a step-by-step device adapted to be actuated by the lever, a ratchet associated with said step-by-step device and having one of its teeth removed, a common circuit-controlling device adapted to be actuated by the step-by-step device, a signal-actuating circuit for each end of the block, the two signal-actuating circuits being connected with the common circuit-controlling device, a common armature adapted simultaneously to open one of the signal-actuating circuits and to close the other, an electromagnet in each of the incoming circuits adapted to actuate the common armature, a resistance element connecting the two signal-actuating circuits, an electromagnet in each of the signal-actuating circuits, a signal-arm adapted to be actuated by each of the last-mentioned electromagnets, a resistance-coil in each of the signal-actuating circuits adjacent to the electromagnet thereof, a parallel circuit connected with each of the signal-actuating circuits, and a lamp connected with each of the parallel circuits.

788,441. **MANHOLE-COVER.** JOHN H. VANDERSLICE, Coatesville, Pa., assignor to Lukens Iron and Steel Company, Coatesville, Pa., a Corporation of Pennsylvania. Filed Jan. 18, 1905. Serial No. 241,679.



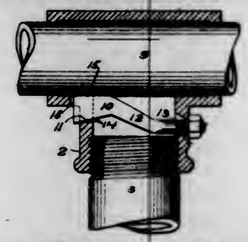
Claim.—1. The combination of a manhole-cover with a plate secured thereto by an overlapping portion of the cover, substantially as described.

2. The combination of a manhole-cover, having a depression and side flanges, with a plate recessed for the reception of a retaining-bolt, said plate being permanently secured to the cover by the overlapping side flanges thereof, substantially as described.

3. The combination of a manhole-cover, having a depression and side flanges, with a plate situated between the side flanges and secured to the cover by the overlapping portions of said flanges, said plate having notches in each end for the reception of retaining-bolts, substantially as described.

4. The combination of a manhole-cover, having a central longitudinal depression, and flanges at each side of the depression, with a plate notched at each end to receive securing-bolts, said plate being mounted between the side flanges of the cover and sufficiently above the bottom of the depression to allow the heads of the bolts to pass under the plate, the plate being secured to the cover by the overlapping side flanges, substantially as described.

788,442. **RAIL-FITTING.** MAX VERTSCHGER, New York, N. Y., assignor to John Simmons Company, New York, N. Y., a Corporation of New York. Filed Nov. 4, 1904. Serial No. 231,354.



Claim.—1. In a rail-fitting, the combination with a sleeve through which the rail passes, of a wedge-locking key having a stem, the stem being provided with means for holding the key in position, substantially as described.

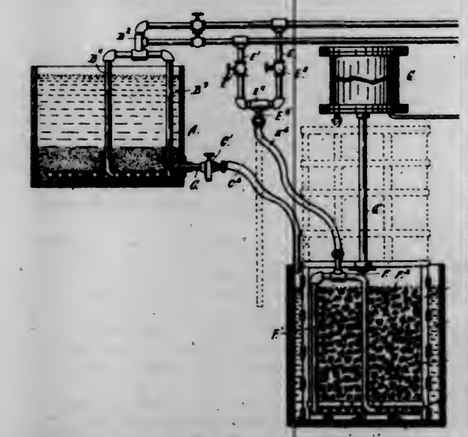
2. In a rail-fitting, the combination with a sleeve through which the rail passes, said sleeve having an attaching projection, of a wedge-locking key mounted in the projection, said key being provided with means for retaining it in locking position, substantially as described.

3. In a rail-fitting, the combination with a sleeve through which the rail passes, said sleeve having an attaching projection which is provided with a slot, said slot extending through the wall of the sleeve, of a wedge-locking key mounted in the slot and having a stem which extends through the projection, and means for locking the stem in position, substantially as described.

4. In a rail-fitting, the combination with a sleeve through which the rail passes, said sleeve having an attaching projection which is provided with a slot, said slot extending through the sleeve-wall, of a wedge-locking key mounted in the slot, and means for retaining the key in position in the projection before the rail is inserted in the sleeve, substantially as described.

5. In a rail-fitting, the combination with a sleeve through which the rail passes, said sleeve having an attaching projection which is provided with a slot, said slot extending through the sleeve-wall, of a wedge-locking key having a bent threaded stem mounted in the slot, the base of the key being exposed for driving purposes, and the threaded stem extending through a perforation in the opposite wall of the attaching projection, and a nut for holding the key in position, substantially as described.

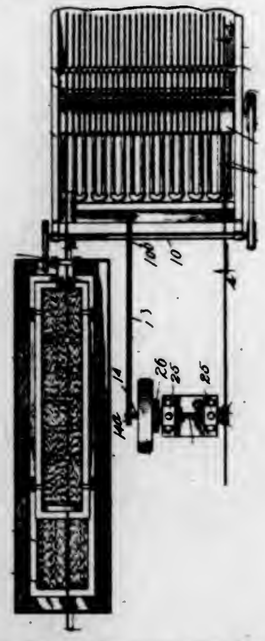
788,443. **PRECIPITATION PROCESS.** GEORGE H. WATERBURY, Denver, Colo., assignor to The Waterbury Metals Extraction Company, Spokane, Wash. Filed June 30, 1904. Serial No. 214,749.



Claim.—1. The herein-described process of precipitating copper in solution, consisting in placing the solution in a tank or receptacle containing pieces of aluminium of a shape to allow the solution to pass readily therethrough, and introducing air and steam simultaneously for agitating purposes.

2. The herein-described process of precipitating copper in solution, consisting in placing the solution in a tank or receptacle containing pieces of aluminium and steel of a shape to allow the solution to pass readily therethrough, and introducing fluid for agitating purposes.

788,444. **APPARATUS FOR MANUFACTURING FEATHERBONE.** OTTO J. WEIL, Chicago, Ill., assignor to American Featherbone Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 30, 1905. Serial No. 243,346.



Claim.—1. Apparatus for manufacturing featherbone strips comprising a drying-box having a plurality of drums therein around which the sized strip passes; and a rolling-machine for receiving said strip as it emerges from said drying-box, said rolling-machine and one of the drums of said drying-box being power-driven; and having positive connections between them for rotating them at the same rate of speed.

2. Apparatus for manufacturing featherbone strips comprising a heated drying-box, a plurality of drums journaled therein around which the sized strip is adapted to pass; a rolling-machine comprising a pair of rollers rotating in opposite directions and adapted to receive the dried strip between their adjacent surfaces, and said rolling-machine having means for heating its rollers; and a power device connected both to said rollers and to one of said drums for driving them all at the same peripheral speed.

3. Apparatus for manufacturing featherbone strips comprising a glue-box; means for guiding the strip through said glue-box; a drying-box through which the strip is adapted to pass; a compound heating and rolling machine adapted to receive the strip directly as it emerges from the drying-box; and means for advancing said strip with a continuous and uniform motion through the entire apparatus.

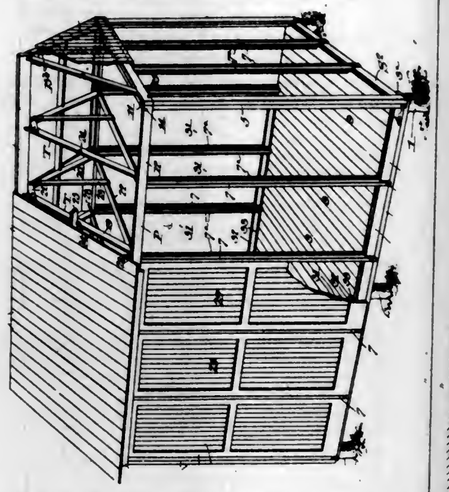
4. Apparatus for manufacturing featherbone strips comprising a glue-box; means for guiding the strip through said glue-box; means at the exit of said glue-box for removing the surplus wet glue from said strip; a drying-box through which the strip is adapted to pass; a compound heating and rolling machine adapted to receive the strip directly as it emerges from the drying-box; and means for advancing said strip with a continuous and uniform motion through the entire apparatus.

5. Apparatus for manufacturing featherbone strips comprisind a heated drying-box, a plurality of drums journaled therein aroung which the sized strip is adapted to pass, scrapers for removing glue from the surface of said drums; a rolling-machine comprising a pair

of rollers rotating in opposite directions and adapted to receive the dried strip between their adjacent surfaces, and said rolling-machine having means for heating its rollers; and a power device connected both to said rollers and to one of said drums for driving them all at the same peripheral speed.

6. Apparatus for manufacturing featherbone strips comprising a heated drying-box, a plurality of drums journaled therein around which the sized strip is adapted to pass; gratings adjacent to said drums for guiding the strip thereonto, a rolling-machine comprising a pair of rollers rotating in opposite directions and adapted to receive the dried strip between their adjacent surfaces, and said rolling-machine having means for heating said rollers; and a power device connected both to said rollers and to one of said drums for driving them all at the same peripheral speed.

788,445. **PORTABLE HOUSE.** GEORGE N. WHITE, Colorado Springs, Colo. Filed May 19, 1904. Serial No. 208,749.



Claim.—1. In a portable house, a sill having a bolt projecting from the end thereof, a second sill having a transversely-bored extension through which said bolt passes, the second sill being disposed at right angles to the first sill, and a corner-upright having a transverse bore for the reception of said bolt and having a recess formed in the lower end thereof for the reception of the extension of the second sill.

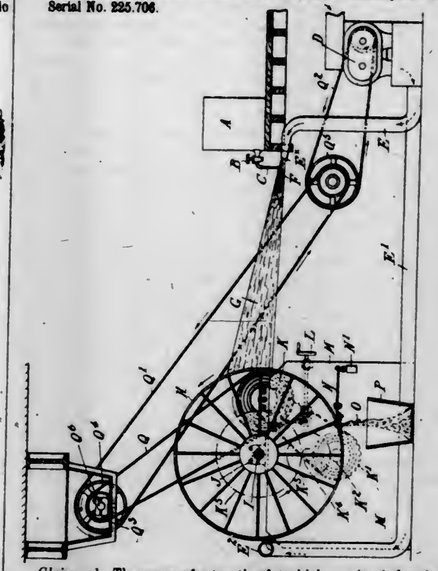
2. In a portable house, the combination with sills recessed on their outer surfaces, of top frame-plates recessed on their inner surfaces and side uprights having downward extensions at their lower ends to engage the recesses in the sills and upward extensions at their upper ends to engage the recesses in the top frame-plates, and bolts extending transversely through said side uprights and said sills and bolts extending through said side uprights and said top frame-plates to hold said side uprights in association with said sills and said top frame-plates.

3. In a portable house, sills having inwardly-extending ledges or flanges, joists supported upon said flanges, floor-sections supported upon said joists and upon the upper surfaces of the sills, said floor-sections having cleats upon their under sides and said floor-sections terminating at a distance from the outer edges of the latter, corner posts and uprights supported upon the sills, plates supported by said corner posts and uprights, and side sections supported upon the sills exteriorly of the floor-sections and having their upper ends extended under the plates.

4. In a portable house, a frame including sills, corner posts and uprights connected at their lower ends with the sills and set out beyond and overhanging the latter, plates supported squarely upon the corner posts and uprights, vertical side strips upon said corner posts and uprights, and side sections consisting of frames having a filling supported upon the sills, the lower ends of said frame abutting upon the outer sides of the sills and the upper ends of said frames being projected under the plates, means for securing said frames to the vertical side strips of the corner posts and uprights and strips secured to the plates and overlapping the upper ends of the frames of the side sections.

5. In a portable house, the combination with a frame including plates, each consisting of two members, the outer one of which is wider than, and extended above, the inner member, of a roof-supporting structure comprising a plurality of roof-trusses and a ridge-pole, and a roof composed of sections, each having near its upper end a cleat adapted to contact with the side of the ridge-pole and having near its lower edge a second cleat adapted to rest upon the inner member and to bear against the outer member of the plate.

788,446. **METHOD OF COOLING MELTED FATTY SUBSTANCES.** ARCHIBALD R. WILSON, Hove, Brighton, England, assignor to Albert Ernest Iveson, Gainsborough, England. Filed Sept. 23, 1904. Serial No. 225,706.



Claim.—1. The process for treating fat which consists in heating such fat to a liquid or semiliquid state, then while in this melted condition subjecting same to the action of a blast, and projecting said fat in a finely-divided condition by means of said blast onto a cooled moving surface adapted to receive same.

2. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same.

3. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast of aeriform fluid and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same.

4. The method of cooling melted fatty substances which consists in subjecting the substance to the action of an air-blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same.

5. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a cooled air-blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same.

6. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto the surface of a rotating drum adapted to receive it.

7. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a cooled air-blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto the surface of a rotating drum adapted to receive it.

8. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same and then removing said fat from said surface.

9. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a cooled air-blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same and then removing said fat from said surface.

10. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast, projecting the therein-contained fat in a finely-divided condition by means of said blast onto the periphery of a rotating drum at one point around its circumference and at another point scraping off said deposited fat from the periphery of said drum.

11. The method of cooling melted fatty substances which consists in subjecting the substance to the action of an air-blast, projecting the therein-contained fat in a finely-divided condition by means of said blast onto the periphery of a rotating drum at one point around its circumference and at another point scraping off said deposited fat from the periphery of said drum.

12. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a cooled air-blast projecting the therein-contained fat in a finely-divided condition by means of said blast onto the periphery of a rotating drum at one point around its circumference and at another point scraping off said deposited fat from the surface of said drum.

13. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same and then further cooling said fat locally on said surface.

14. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a cooled air-blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same and then further cooling said fat locally on said surface.

15. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a surface adapted to receive same, and then further cooling said fat locally on said surface at a point distant from the point of deposit.

16. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface adapted to receive same and then further cooling said fat locally on said surface at a point distant from the point of deposit.

17. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a moving surface, then further cooling said fat locally at a point distant from the point of deposit, and then removing said fat from said surface.

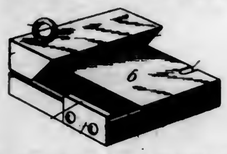
18. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto the surface of a rotating drum, then further cooling said fat locally at a point substantially diametrically opposite the point of deposit, and then removing said fat from said drum.

19. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto a previously-cooled moving surface, then further cooling said fat locally on said surface, and then removing said fat from said surface.

20. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a dry blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto the surface of a rotating drum, then further cooling said fat locally at a point substantially diametrically opposite the point of deposit, and then removing said fat from said drum.

21. The method of cooling melted fatty substances which consists in subjecting the substance to the action of a dry cool blast and projecting the therein-contained fat in a finely-divided condition by means of said blast onto the surface of a rotating drum, then further cooling said fat locally while on said drum, and then removing said fat from said drum.

788,447. SCISSORS-SHARPENER. CHARLES H. WINDSOR, Fort Totten, N. Y. Filed Oct. 24, 1903. Serial No. 178,375.



Claim.—In a scissors-sharpener, a base-block having a rabbet formed in its upper face, a sharpening element of smaller surface area than the adjacent surface of the block and seated in and adjustable longitudinally of the rabbet, a clip attached to the block and having an overturned portion engaging the outer edge of the sharpening element adjacent to one end thereof, a gage-block fixed upon the base-block and overlying to other end of the sharpening element, said gage-block having a beveled face, and a clamping member extended through the gage-block and adapted for engagement with the sharpening element to fix the same against movement.

788,448. COMBINED KEY-RING AND NAME-PLATE. LEON WOLFERMANN, St. Louis, Mo. Filed May 21, 1904. Serial No. 209,065.

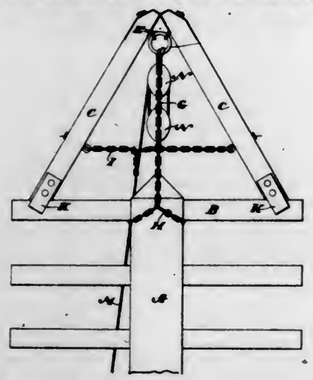


Claim.—1. A key-ring and name-plate comprising an open ring grooved interiorly and having eyes at each end thereof, and a non-circular notched name-plate rotatably seated in the groove of said ring, substantially as set forth.

2. The combination of an open ring, and a plate rotatably fitted within said ring and embraced by the ring throughout its edge; said plate being constructed to spread the ring into open condition to separate its ends when rotated, substantially as set forth.

3. The combination of an open ring, and a rotatable plate fitted within said ring and having a key-receiving notch therein; said plate being adapted to be rotated within said ring and constructed to spread the ends of the ring apart when the notch in the plate is brought thereto, substantially as set forth.

788,449. HOIST. EDWIN C. BOUQUET, Los Angeles, and CLIFFORD F. SWENEY, Pasadena, Cal. Filed July 5, 1904. Serial No. 215,334.

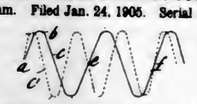


Claim.—1. The herein-described hoist comprising a pair of supports pivotally connected at their upper ends and being adjustably secured together at their lower ends and having means for the attachment to the upper end of block and tackle and having a guide-chain secured to their upper end, the said chain being adapted to encircle the supporting-pole and having on their lower ends cross-arm engaging straps in combination with block and tackle substantially as herein shown and described.

2. The herein-described hoist comprising a companion pair of supports having eyebolts in their upper ends; a metallic ring in the eyes of said bolts adapted to hold the supports together and forming means to secure thereto block and tackle; a guide-chain secured to said ring and having a hook on the free end thereof, the said supports being secured together at the lower end by adjustable stay-chains and having means to hold said supports on the cross-arms of the supporting-poles in combination with block and tackle.

3. The herein-described hoist for transformers comprising companion supports C carrying on their upper ends the connecting-ring D; stay-chains I secured to the lower ends of said supports and the guide-chain G secured to said ring and having a hook on the free end thereof in combination with block N and tackle M substantially as herein shown and described.

788,450. ELECTRIC RECIPROCATING TOOL. PAUL CENTNER, Verviers, Belgium. Filed Jan. 24, 1905. Serial No. 242,550.



Claim.—1. In electric percussive drills and like tools, a device for obtaining a magnetic field having a rectilinear reciprocating motion, consisting of a biphase winding in which are sent two alternating currents of different frequency.

2. In electric percussive drills and like tools, a device for obtaining a magnetic field having a rectilinear reciprocating motion, consisting of a stator formed of a group of iron laminæ secured side by side and having notches in which are arranged conductors forming a biphase winding through which two alternating currents of different frequency are made to pass, so as to produce a reciprocating field causing a reciprocating rectilinear motion to be imparted to a moving induced part arranged parallel to the stator and composed of iron laminæ, in notches of which is arranged a winding of a developed squirrel-cage form, substantially as described.

3. In electric percussvie drills and like tools, a device for obtaining a magnetic field having a rectilinear reciprocating motion, consisting of a stator formed of two parallel groups of iron laminæ secured side by side and having notches in which are arranged conductors forming a biphase winding through which two alternating currents of different frequency are made to pass, so as to produce a reciprocating rectilinear motion to be imparted to a moving induced part arranged parallel to the stator and composed of two sets of iron laminæ having notches in which is arranged a winding of a developed squirrel-cage form, substantially as described.

4. In electric percussive drills and like tools, a device for obtaining a magnetic field having a rectilinear reciprocating motion, consisting of a stator formed of two parallel groups of iron laminæ secured side by side and having notches in which are arranged conductors forming a biphase winding through which two alternating currents of different frequency are made to pass, so as to produce a rectilinear motion to be imparted to a moving induced part arranged parallel to the stator and composed of two sets of iron laminæ having notches in which is arranged a winding of a developed squirrel-cage form, the active surfaces of said stator and of said moving part being respectively of a concave and a convex form, substantially as described.

5. In combination in an electric percussive drill, a stator provided with notches, said notches locating a biphase winding in which are sent two alternating currents of different frequency producing a rectilineally-reciprocating magnetic field, a movable induced part rigidly connected to the drilling-tool, and provided with notches in which is arranged a winding of a developed squirrel-cage form, said movable part being mounted upon rods 5 and 10 which pass through journals 13 fixed to the framing of the stator, said rod 10 being of square section passing through a square hole in the rear journal 13, and penetrating at its back stroke into a cap 22 so as to compress the air therein, a cylinder 20, a tube 21 connecting said cap with said cylinder, a piston 19 in said cylinder, a pawl 18 carried by said piston, a ratchet-wheel 17 fixed to the framing of the stator, said ratchet-wheel being engaged by said pawl, whereby a step-by-step motion is imparted to said stator together with said movable part and said drilling-tool, substantially as described.

788,451. PROCESS OF MAKING MEAT EXTRACTS. UMBERTO CIANTAR and FREDERICK W. F. ROSS, London, England. Filed July 8, 1901. Serial No. 67,567.

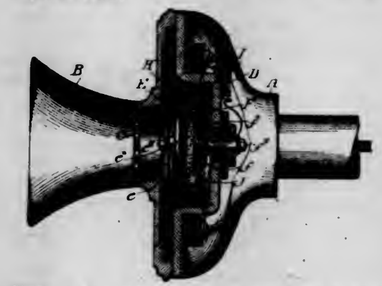
Claim.—1. The herein-described process for the recovery of coagulable muscle proteids from meat, consisting in reducing raw meat to a microscopic pulp, subjecting said pulp to the action of a saline solution, reducing said saline solution containing said pulp to a cold weak saline solution, filtering the solution thus produced to separate therefrom the meat fiber, subjecting the solution thus filtered to heat, and finally withdrawing the liquid from the coagulated proteids

2. The herein-described process for the recovery of coagulable muscle proteids from meat, consisting in subjecting raw meat to freezing action, subjecting said pulp to the action of a saline solution, reducing said saline solution containing said pulp to a cold weak saline solution, filtering the solution thus produced to separate therefrom the meat fiber, subjecting the solution thus filtered to heat, and finally withdrawing the liquid from the coagulated proteids.

3. The herein-described process for the recovery of coagulable muscle proteids from meat, consisting in subjecting raw meat to the action of a saline solution, reducing said saline solution containing said pulp to a cold weak saline solution, separating the fibrous meat from said solution by filtration, coagulating the proteids in the solution thus filtered, and in finally withdrawing the liquid from said coagulated proteids.

4. The process for the recovery of the muscle proteids contained in meat, which consists in freezing the meat to break up the inner cellular structure, moistening the same with a saline solution which enters into the interior of the walls of the cells, washing out the muscle proteids by fresh water before they can coagulate, separating the same from the meat residue, and finally coagulating the muscle proteids.

788,452. TELEPHONE-TRANSMITTER. HENRY P. CLAUSEN, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation. Filed Aug. 20, 1902. Renewed Feb. 8, 1905. Serial No. 244,753.



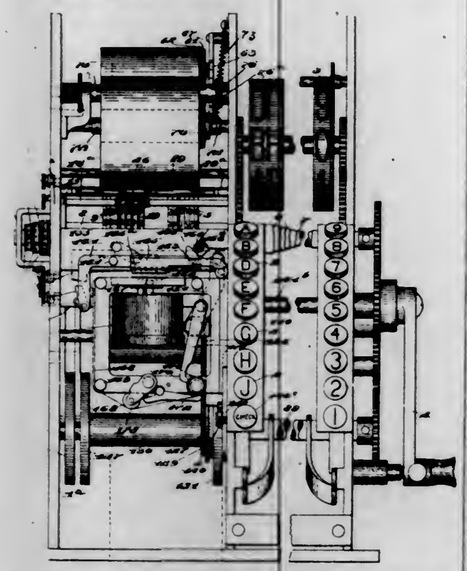
Claim.—1. A telephone-transmitter comprising a main diaphragm, supplemental front and back mica diaphragms, a non-yieldiug connection between the front supplemental diaphragm and the main diaphragm, a bridge back of all the diaphragms, a non-yielding connection between said bridge and the center of the back supplemental diaphragm, a non-yielding connection between the marginal portion of the two supplemental diaphragms, front and back electrodes in the chamber provided between the two supplemental diaphragms, the front electrode being movable with the main diaphragm, and the back electrode being rigid with the said bridge, and granular carbon interposed between said electrodes.

2. A telephone-transmitter comprising a main diaphragm, supplemental front and back diaphragms, a separating-ring between the marginal portions of the said supplemental diaphragms, threaded clamping-rings screwed onto said separating-ring to hold the supplemental diaphragms together, front and back electrodes in the chamber provided between the supplemental diaphragms, a solid backing connected with the back supplemental diaphragm, a non-yielding connection between the main diaphragm and the front supplemental diaphragm, the front electrode being movable with the main diaphragm, and the back electrode being rigid with said backing, and granular carbon interposed between said electrode-surfaces.

3. A telephone-transmitter comprising a main diaphragm, supplemental front and back mica diaphragms, a separating-ring between the supplemental diaphragms, a couple of flanged and threaded rings screwed onto the separating-ring to hold the two supplemental diaphragms together, a non-yielding connection between the

front supplemental diaphragm and the main diaphragm, a solid backing, a non-yielding connection between said backing and the said back supplemental diaphragm, front and back electrodes in the chamber provided between the two supplemental diaphragms, the front electrode being movable with said main diaphragm, and the back electrode being rigid with the said backing, and granular carbon interposed between said surfaces.

788,453. CASH-REGISTER. JOSEPH P. CLEAL and ALVAN MACAULEY, Dayton, Ohio, assignors to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 23, 1900. Serial No. 13,873.



Claim.—1. In a cash-register, the combination with devices for printing the amount registered, a check-strip, a knife for severing a check from the strip, a platen mounted independently of the knife, and movable means connecting the knife and platen whereby the operation of one causes the movement of the other.

2. In a check-printing cash-register, the combination with the type-carrier and coöperating devices for printing the amount of a recorded transaction upon the detail-strip, feed-rollers for leading the check to the type-carriers to receive an impression therefrom; a time-stamp for printing the time of the transaction upon the check-strip after it has received its impression from the type-carriers and means located between the time-stamp and the type-carriers for cutting off the printed end of the check-strip.

3. In a cash-register, the combination with type-carriers and coöperating devices for printing the amount of a recorded transaction, means for actuating the type-carriers and coöperating devices to print the amount of the recorded transaction upon the check-strip, a time-stamp and means for feeding the check-strip first to the type-carriers and then from the type-carriers to the time-stamp and for automatically operating the time-stamp to print the time of the recorded transaction upon the check-strip.

4. In a cash-register, the combination with the type-carriers and coöperating devices, of feed-rollers arranged to lead a check-strip to said type-carriers and operating devices, means for operating the type-carriers to thereupon print upon the check-strip the amount of the recorded transaction, a time-stamp, a knife, and means for leading the check-strip from the type-carriers to the time-stamp and knife and for operating the time-stamp and knife after the operation of the type-carriers to print the time of the recorded transaction upon the check-strip and to sever the printed end thereof.

5. In a cash-register, the combination with a registering mechanism, of devices for printing the amounts registered, a stationary knife-blade, a movable blade coöperating therewith, a pivoted lever arranged to be operated by said movable blade, a platen which receives motion from said lever, and a time-printing device coöperating with said platen.

6. In a cash-register, the combination with a printing mechanism, of two independent consecutive-number-printing devices, one of which is arranged to print upon both a check and a detail-strip and the other upon the check alone.

7. In a check-printing cash-register, the combination with feeding devices for the check-strip, of a knife for severing a check therefrom, a clock mechanism, printing-types connected to the same, a platen mounted independently of the knife for forcing a check into contact with said types, and movable means connecting said platen and knife so that they move together.

8. In a cash-register, the combination with devices for printing the amounts registered, of a printing-cylinder, a number of consecutive-numbering wheels mounted in said cylinder, a frame carrying pawls for operating said wheels and a crank-shaft mounted in said cylinder and arranged to operate said frame.

9. In a check-printing cash-register, the combination with a common operating mechanism, of devices for printing the amount registered, consecutive-numbering wheels having corresponding types upon diametrically opposite sides so as to print upon both a record-strip and a check, a knife for severing the check-strip and a time-printing device arranged to print upon the check alone.

10. In a cash-register, the combination with devices for printing the amounts registered, of a series of consecutive-number-printing wheels, a series of check-numbering wheels, a power-shaft, means for operating the consecutive-number-printing wheels from said shaft, devices for operating the check-number wheels loosely mounted on said shaft, a clutch for connecting these latter devices with the shaft and a check-key for controlling said clutch.

11. In a cash-register, the combination with devices for printing the amounts registered, of a series of consecutive-number-printing wheels arranged to print on both a record-strip and a check-strip, a series of check-numbering wheels arranged to print upon the check-strip alone, a power-shaft, two independent platens for the respective series of wheels, means for connecting the platen of one series permanently to the power-shaft, and a clutch device for connecting the other platen to the shaft.

12. In a cash-register, the combination with devices for printing the amounts registered, of a series of consecutive-number-printing wheels adapted to print duplicate impressions simultaneously upon a record-strip and a check-strip, platens located respectively on opposite sides of said wheels, a power device permanently connected to one of said platens and clutch devices between the remaining platen and the power device whereby it may be coupled or uncoupled at will.

13. In a cash-register, the combination with type-carriers for printing the amounts registered on both a record-strip and a check-strip, movable platens coöperating with said type-carriers at different points, a power device permanently connected to one of said platens, independent means for connecting the remaining platen to the power device and including movable coupling devices whereby this latter platen may be coupled or uncoupled at will.

14. In a cash-register, the combination with type-carriers for printing the amounts registered on both a record-strip and a check-strip, two platens pivoted upon the opposite sides of said type-carriers, a rotary power-shaft, a cam actuated thereby, a lever connected to one of said platens and having a projection which coöperates with the cam, a second cam loose on said shaft, a clutch for connecting this latter cam to said shaft at will, and a lever connecting this cam to the other platen.

15. In a cash-register, the combination with wheels for printing the amounts registered on both a record-strip and a check-strip, platens above and below said wheels, a power-shaft, means for operatively connecting one of said platens permanently to said shaft, a sleeve loose on said shaft, a clutch for connecting said sleeve to said shaft at will, a time-printing device, a platen therefor, a knife for cutting the check-strip and means connecting the latter platen and the said knife to the said sleeve.

16. In a cash-register, the combination with type-carriers, of a pivoted platen-lever carrying a pin, a pivoted operating-lever having a slot into which said pin projects, a pivoted pawl mounted on said operating-lever and a check-knife arranged to engage and operate said pawl.

17. In a cash-register, the combination with the type-carriers, of a pivoted platen-lever, a check-knife and an operating-lever for the platen-lever carrying a movable pawl which is operated by the knife mechanism.

18. In a cash-register, the combination with the type-carriers,

of operating devices, a clutch for connecting said type-carriers and operating devices, a pivoted lever for shifting said clutch, a slide for operating said lever, a check-key for operating said slide, and a latch for said slide arranged to be tripped by the operating devices.

19. In a cash-register, the combination with a check-printing mechanism, of operating devices, a clutch between said operating devices and printing mechanism, a check-key, a slide arranged to be operated by said key, means operated by said slide for setting the clutch and a latch for the slide arranged to be tripped by the operating devices.

20. In a cash-register, the combination with devices for printing the amounts registered, of a clock mechanism, time-printing types connected to said mechanism, a check-cutting device, and means for moving the check-strip forward after receiving a printing impression from the amount-printing devices so as to subsequently receive the impression from the time-printing types, and mechanism for operating the cutting device at a time intermediate the two impressions.

21. In a cash-register, the combination with devices for printing the amounts registered, of a clock mechanism, a type representing a clock-dial, type-pointers connected to the clock mechanism and coöperating with the clock-dial, and means for causing the check to be moved forward after receiving an impression from the amount-printing devices so as to subsequently receive the impression from the time-printing types.

22. In a cash-register, the combination with printing devices, of a check-knife hung on pivoted links, a pivoted lever, a cam for operating said lever, a link connecting said lever to the knife, an inking-ribbon and a pawl mounted on the connecting-link and arranged to feed said ribbon.

23. In a cash-register, the combination with printing devices, of a knife hung by pivoted links so as to have a shearing movement, a lever carrying a pivoted pawl arranged to be struck by said knife, a spring-pressed platen-lever and means connecting said platen-lever and the said pawl-carrying lever.

24. In a cash-register, the combination with printing devices, of a movable knife, a pivoted lever carrying a pawl which is arranged to be struck and operated by said knife, a pivoted spring-pressed platen-lever and a projection on said latter lever arranged to engage the first-mentioned lever.

25. In a cash-register, the combination with devices for printing the amounts registered, of a printing-cylinder, check-numbering wheels mounted in said cylinder, a rock-frame carrying pawls for operating said wheels, a crank-shaft mounted in the drum and arranged to operate said frame, and a stationary projection arranged to operate the crank-shaft when the cylinder is rotated.

26. In a cash-register, the combination with devices for feeding a check, of a knife for severing the check, pivoted links supporting said knife so that it has a shearing cut when depressed, a clock mechanism, printing-types connected to the clock mechanism, a platen for forcing the check into contact with said types, a pivoted lever arranged to be operated by the knife and means connecting said lever and platen.

27. In a cash-register, the combination with a registering mechanism, of devices for printing the amounts registered, a stationary knife-blade, a movable knife-blade, a pivoted lever arranged to be operated by said movable blade, and a platen actuated by said lever.

28. In a cash-register, the combination with a printing mechanism, of a series of consecutive-number-printing wheels having duplicate numerals upon opposite sides arranged to print respectively upon a detail-strip and a check-strip, and a check-numbering device arranged to print upon the check-strip alone.

29. In a cash-register, the combination with a printing mechanism, of two consecutive-number-printing devices, a check-feeding mechanism, a check-key, and means connected to said key for simultaneously controlling the feeding of the check and the operation of one of the consecutive-numbering devices.

30. In a cash-register, the combination with a printing mechanism, of two independent consecutive-number-printing devices, a strip-feeding mechanism and means for simultaneously turning off the feeding mechanism and one of the consecutive-numbering devices without disturbing the remaining numbering device.

31. In a cash-register, the combination with a check and detail strip printing mechanism, of a series of consecutive-number-printing wheels arranged to make duplicate impressions at two different points simultaneously upon the check and detail strip, and a time-printing device arranged to print upon the check which has received one of said duplicate impressions.

32. In a cash-register, the combination with a printing mechanism, of a check-strip device, a knife for severing a check therefrom a platen and means connecting the knife and platen whereby the operation of the former causes the movement of the latter.

33. In a cash-register, the combination with a printing mechanism, of a check-strip device, a knife for severing a check from the check-strip, a lever operated by said knife and a platen connected to and operated by said lever.

34. In a cash-register, the combination with a printing mechanism, of a check-strip device, a knife for severing a check from the check-strip, a lever operated by said knife through a portion of its stroke and then released while the knife continues its movement and a platen connected to said lever.

35. In a cash-register, the combination with a printing mechanism, of a check-strip device, a knife for severing a check from the strip, a platen, and means connecting the platen and knife whereby said platen is actuated during a portion of the movement of the knife and then released while the knife continues its movement.

36. In a cash-register, the combination with a printing mechanism, of a check-strip device, a knife for severing a check from the strip, a lever arranged to be operated by said knife through a portion of the movement of the latter and then be released while said knife continues its movement, and a spring-pressed platen connected to and moving with said lever.

37. In a cash-register, the combination with a printing mechanism, of a check-strip device, a knife for severing a check from the strip, a pivoted lever carrying a pivoted pawl which coöperates with the check-knife, and a platen connected to and operated by said lever.

38. In a cash-register, the combination with a printing mechanism, of a check-strip device, a movable knife-blade swung on pivoted links, a lever arranged to be operated by said knife-blade and a movable platen connected to said lever.

39. In a cash-register, the combination with devices for printing the amounts registered, of a printing-drum, check-numbering wheels mounted in said drum, a frame carrying pawls for operating said wheels, a crank-shaft mounted in said drum and arranged to operate said frame, a slotted crank-arm mounted on said shaft and a pin mounted on the frame and projecting into the slot of said arm.

40. In a cash-register, the combination with devices for printing the amounts registered, of a printing-drum, check-numbering wheels mounted in said drum, pawls for operating said wheels, a crank-shaft for operating said pawls, a slotted arm fast to said shaft and a stationary pin projecting into the slot of said arm.

41. In a cash-register, the combination with devices for printing the amounts registered, of a series of consecutive-number-printing wheels, a series of check-numbering wheels, an operating mechanism, means for operating the consecutive-number-printing wheels connected to said operating mechanism, devices for operating the check-numbering wheels, a clutch connecting said latter devices with the operating mechanism, and a check-key for controlling said clutch.

42. In a cash-register, the combination with a printing mechanism, of operating devices, a clutch between said operating devices and printing mechanism, clutch-operating devices, a slide for moving said clutch-operating devices, a key for operating said slide and a latch for said slide arranged to be tripped by the operating devices.

43. In a cash-register, the combination with a printing mechanism, of operating devices, means for throwing the printing mechanism into and out of connection with said operating devices, a slide for controlling said means, a key for operating said slide, and a latch for said slide controlled by the operating devices.

44. In a cash-register, the combination with operating devices, of a printing mechanism, means for throwing the printing mechanism into and out of connection with said operating devices, a slide for controlling said means, a spring for normally drawing the slide forward, a key for forcing the slide rearward and a latch coöperating with the operating devices and arranged to hold the slide in its rearmost position.

45. In a cash-register the combination with a printing mechanism movable platens coöperating with said mechanism, an operating device permanently connected to one of said platens, independent means for connecting the remaining platen to the operating device and including movable coupling devices whereby this latter platen may be coupled or uncoupled at will.

46. In a cash-register the combination with type-wheels having duplicate sets of types movable platens coöperating with said wheels at opposite points, a power device permanently connected to one of

the said platens, independent means for connecting the remaining platen to the power device and including movable coupling devices whereby this latter platen can be coupled or uncoupled at will.

47. In a check-printing cash-register, the combination with the printing mechanism, feeding devices for feeding a check to the printing mechanism, a time-stamp for printing the time of the transaction upon the check after it has received its impression from the regular printing mechanism and operating means for cutting off a printed check and concurrently operating the time-stamp

48. In a cash-register the combination with a printing mechanism, of two independent consecutive-numbering devices one of which is arranged to be advanced at every operation of the machine and the other one at will as predetermined before each operation of the machine.

49. In a cash-register the combination with a printing mechanism including check-issuing devices arranged to be adjusted to issue checks or not as desired and two consecutive-number-printing devices, one of which is actuated upon each operation of the machine and the other only when checks are issued.

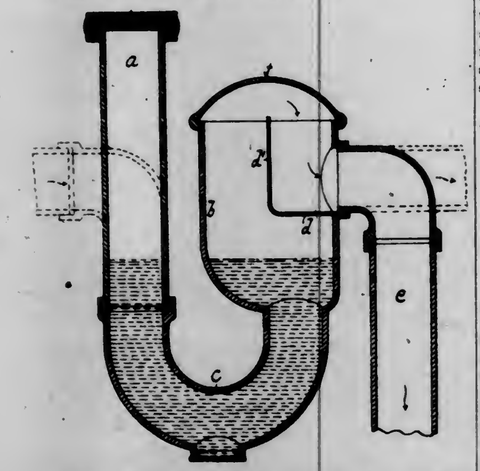
50. In a cash-register the combination with a printing mechanism, including devices for causing checks to issue or not as desired, of two independent consecutive-number-printing devices, one of which is arranged to be operated to print upon both a check and detail strip the number of times the machine has been operated, the other being arranged to print upon the check alone, the number of checks issued.

51. In a cash-register, the combination with a printing mechanism, of a consecutive-number-printing device having duplicate sets of types whereby duplicate numbers may be printed upon two separate slips, a second set of consecutive-numbering devices having a single set of types for printing on one of the slips only, and means for preventing the operation of the latter consecutive-numbering device at will.

52. In a cash-register, the combination with a printing mechanism, of a printing-cylinder, numbering-wheels mounted in the cylinder, operating devices for the numbering-wheels including operating-pawls, a rock-shaft and a slotted arm connected to the shaft, and a stationary projection arranged to engage the slotted arm to operate the numbering-wheels when the cylinder is rotated.

53. In a cash-register, the combination with a printing mechanism, of a printing-cylinder, consecutive-numbering wheels mounted in the cylinder, a rock-shaft and connections for operating said wheels, a slotted arm connected to the rock-shaft, and a stationary projection extending into the slot of said arm whereby the consecutive-numbering wheels are advanced upon each operation of the cylinder.

788,454. **NON-SIPHONABLE SELF-SCOURING TRAP.** GEORGE CODY, New York, N. Y., assignor to Louis Munzinger, New York, N. Y. Filed Mar. 26, 1904. Serial No. 200,206.



Claim.—1. A trap comprising an inlet and outlet, a shelf level with the outlet, and a baffle made to rise above the outlet to prevent siphonage, said shelf being extended across about one-half the body of the trap to overhang the inlet and the rest of the trap being left clear or unobstructed.

2. A trap having an inlet with an enlarged outer leg or chamber and an outlet, said inlet being made to enter the chamber through the bottom at one side thereof, and a shelf made to project at the outlet across the chamber over such inlet and extended upward therein.

3. A trap comprising a chamber having an inlet and an outlet, a lateral extending shelf arranged above and over the inlet at the outlet side of the chamber to prevent siphonage, said shelf provided with a vertically-extending projection arranged substantially centrally of said chamber at the front of the outlet and terminating at a point removed from the top wall of the chamber.

4. A trap comprising a chamber having an inlet and an outlet, and a siphonage-preventing member substantially L-shaped in cross-section, arranged in said chamber and positioned above and over the inlet and at the front of the outlet.

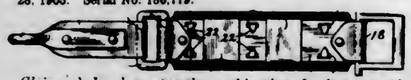
5. A trap comprising a chamber having an inlet and an outlet, and a laterally-extending shelf at one side of the chamber and arranged between the inlet and the outlet, said shelf adapted to prevent siphonage.

6. A trap comprising a chamber having an inlet and an outlet, spaced from and placed at an angle with respect to one another, and a laterally-extending shelf between the inlet and the outlet, said shelf on a level with the outlet.

7. A trap comprising a chamber having an intet and an outlet, and an antisiphon-baffle projecting from and extending above said outlet.

8. A trap comprising a chamber having an inlet in one side of the bottom thereof and an outlet in one side of said chamber, and an anti-siphon-baffle arranged over the inlet and projecting from and extending above said outlet.

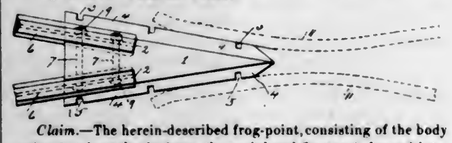
788,455. **HAME-TUG.** JAPHET S. CUSSON, Dekalb, Ill. Filed Dec. 28, 1903. Serial No. 186,779.



Claim.—1. In a hame-tug the combination of a sheet-metal base-plate, having its ends bent back on itself and provided with integral lateral-extending tongues near its two edges; a sheet-metal clamping-plate provided with perforations to receive said tongues; and a loop having its ends between said two plates; the ends of said base-plate being riveted to said plate and said tongues being bent down unto the clamping-plate to clamp said loop between said two plates.

2. In a hame-tug the combination of a sheet-metal base-plate, having its ends bent back on itself and provided with integral lateral-extending tongues near its two edges; a sheet-metal clamping-plate provided with perforations to receive said tongues; and a leather covering over the base-plate having its edges extending between the said two plates, said edges provided with perforations to receive said tongues; the ends of said base-plate and clamping-plate being riveted to said base-plate and said tongues being bent down unto said clamping-plate to clamp the said edges of leather between the said two plates.

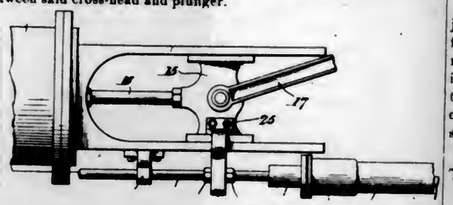
788,456. **FROG-POINT.** THOMAS DONOHOE, Carnegie, Pa. Filed May 21, 1904. Serial No. 209,020.



Claim.—The herein-described frog-point, consisting of the body portion 1, triangular in form, the peripheral flanges 4, formed integral with the base, the said flanges being formed with spike-openings 5, the recesses 2, formed at the rear arranged at the same angle as that of the sides of the point 1, and the vertical contour of which is similar to that of the sides of the rails 6, the bolt-openings 8 formed transversely through the rear of the point, and the bolts 9 as a means of connecting the rails to the same, all arranged and combined for service, substantially as and for the purpose described.

788,457. **CROSS-HEAD PUMP.** JAMES G. FAIRBANKS and GEORGE L. SAUER, Marion, Ohio. Filed Jan. 3, 1905. Serial No. 239,474.

Claim.—1. In a cross-head feed-pump, for traction-engines and the like, the combination with the engine having cross-head guides, of a cross-head, a feed-pump cylinder disposed in parallel relation with the cross-head guides, a plunger arranged within said cylinder, a plunger-rod, a plunger-rod guide secured to the cross-head guide, and a connecting-arm extending between the cross-head and the plunger-rod and arranged to permit variations in the distance between said cross-head and plunger.



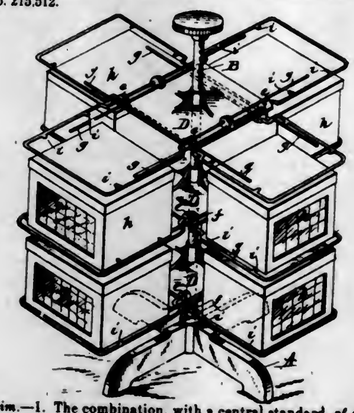
2. In feed-pumps for traction-engines, the combination with an engine having cross-head guides, of a cross-head, a feed-pump cylinder arranged below and in parallel relation with said cross-head guides, a plunger disposed within the cylinder, a plunger-rod, a plunger-rod guide secured to the cross-head guide and in alinement with the axis of the cylinder, a pair of collars on said plunger-rod, and an arm secured to the cross-head, said arm having a bifurcated lower end fitting snugly between said collars and over the plunger-rod, the length of the bifurcated portion of the arm being sufficient to permit variations in the distance between the cross-head and the plunger-rod.

788,458. **SAFETY-TREAD.** THEODORE P. FARMER, Southwest Harbor, Me., assignor to Protective Tread Company, Boston, Mass., a Corporation of Maine. Filed June 6, 1904. Serial No. 211,294.

Claim.—1. A safety-tread comprising a base-plate having a plurality of pairs of walls bent upward from the face thereof to form rows of holders, some of said pairs of walls in each row being angularly disposed to the remainder of the walls in said row, and a sheet of slip-resistant material covering substantially the entire face of said plate and held thereon by said walls.

2. A safety-tread comprising a base-plate having a plurality of apertures each formed by punching and bending upward straight parallel walls, the walls of some of the apertures being angular to those of the remaining apertures, and a sheet of slip-resistant material covering the face of said plate and filling said apertures, the upper surface of said sheet being substantially flush with the upper ends of said walls.

788,459. **DISPLAY-STAND.** JACOB W. FERLE, Lansing, and JOSEPH A. BRUSSELBACH, Haslett Park, Mich. Filed July 6, 1904. Serial No. 215,512.

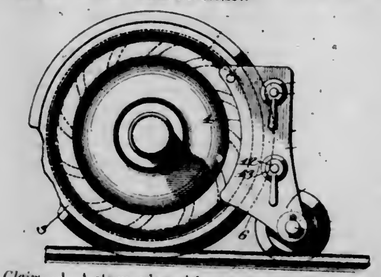


Claim.—1. The combination, with a central standard, of a central revoluble casting provided with projections having holes through the same, a carrier formed from a length of a rod bent into rectangular form at its center, and having its ends adjustable inward and outward in said holes.

2. The combination, with a central casting provided with projections and holes through the said projections, of a carrier formed from a rod bent into rectangular form at its center to form a seat for cans and boxes, its free ends extending through the said holes in the said projections.

3. The combination, with a central casting provided with projections and holes through the said projections, of a carrier formed from a rod bent into rectangular form at its center, with lugs on said rectangular portion to form a seat for cans and boxes and hold them in place on their seats, the free ends of the said rods extending through and beyond the said holes in said projections, whereby the carriers may be drawn out for a limited distance and sustained in position.

788,460. **WHEEL-CLAMP.** GEORGE F. FIELDS, Paducah, Ky. Filed Feb. 11, 1905. Serial No. 245,257.



Claim.—1. A clamp adapted for temporary engagement with a car-wheel, and having an auxiliary wheel

2. A device adapted for temporary engagement with a car-wheel and including clamping members, and an auxiliary wheel carried thereby.

3. A wheel, supporting means for the same, and means for securing said supporting means upon a car-wheel.

4. A device for temporarily repairing injured wheels including a wheel, supporting means for the same, and means for securing said supporting means upon the injured wheel.

5. An attachment for injured wheels including a pair of clamping members, means for clamping the same upon the injured wheel, and a wheel-carrying pin supported by said clamping members.

6. A wheel attachment comprising an auxiliary wheel, supporting means for the same, and means for mounting said supporting means upon the main wheel.

7. In a device of the class described, a pair of clamping members adapted to fit opposite sides of a wheel, means for connecting said clamping members together, and a wheel-carrying spindle supported by said side members.

8. In a device of the class described, a pair of side members adapted to engage opposite sides of a wheel, clamping means connecting said side members, an auxiliary wheel mounted upon a spindle supported by said side members, and a lug upon one of said side members engaging a permanent portion of the main wheel.

9. A pair of side members, means for clamping said side members upon a wheel, auxiliary means to prevent displacement of said side members, and an auxiliary wheel carried by the latter.

10. A pair of side members extended to form toes, a wheel-carrying spindle supported by said toes, and means for securing said side members upon a wheel.

11. A pair of side members extended to form reinforced toes having bosses and perforations, a wheel-carrying pin extending through said perforations, and means for clamping the side members upon a wheel.

12. An auxiliary-wheel-carrying clamp adapted for engagement with a wheel, and auxiliary means upon said clamp to engage a permanent portion of the wheel and to prevent displacement of said clamp.

13. An attachment for car-wheels including a rotary track-engaging member, and means for mounting said member upon the car-wheel to secure the latter against rotation.

14. An attachment for car-wheels including a rotary track-engaging member, and a clamping device adapted for detachable engagement with the car-wheel, said clamping device having supporting means for the rotary track-engaging member.

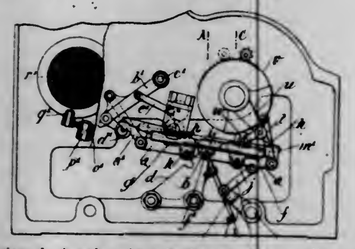
788,461. CLOTHES-PIN. JAMES B. POOTS, Walton, N. Y. Filed May 21, 1904. Serial No. 209,067.



Claim.—1. A clothes-pin constructed entirely of wood in a single piece, and comprising an enlarged bulging non-resilient upper portion and a narrower lower split portion, the latter being composed of two resilient sides separated by a space or slot which has its widest point at the outer ends of the sides, where it exceeds the diameter of a clothes-line and converges toward the inner ends thereof where the slot or space is less than the diameter of a clothes-line, said slot or space leading into a clothes-line-receiving groove formed in the bulged upper portion, which groove is of a sufficient diameter to receive the clothes-line and the clothes to be clamped, the walls of said groove presenting rigid clothes-engaging faces, the construction being such that the pins may be put on and taken off the line at any point, but may be allowed to remain on the line, substantially as described.

2. A clothes-pin, comprising a head having a neck, an upper enlarged bulging portion connected at the top with the neck and having a diameter greater than that of the head and provided with a clothes-line-receiving groove or opening and presenting rigid clothes-engaging faces and adapted to clamp the clothes on the line, and a lower portion split to provide two spaced sides which extend from the bulging upper portion, and which have a width less than the diameter of the same, the bulging portion being extended beyond the side edges of the lower portion, and the space between the sides of the latter being tapered upwardly from the lower or outer end of the clothes-pin to the said groove or opening, the lower end of the said space being of a width to receive the line, and the upper end of the said space being of a width to form a constricted entrance to the said clothes-line-receiving groove or opening for retaining a clothes-line in the same, the sides of the said lower portion being resilient and adapted to be sprung apart to permit the line to pass through the constricted entrance, whereby the pins may be put on and taken off at any point on the line.

788,462. ROCKING PRINTING-TABLE FOR CASH-REGISTERING APPARATUS. JULES FRYDMANE and LOUIS CHAMBON, Paris, France. Filed Mar. 10, 1904. Serial No. 197,582.



Claim.—1. A cash-register, having printing means in combination with a paper-carrying plate, means for rocking said plate to give a printed impression, means for transversely moving it into a different operative position with reference to the printing means, and means for then rocking it to give a second impression, all during the printing of a single transaction.

2. A cash-register, having printing means for the amounts registered and numbering or dating printing means, a plate and means to rock it against both said printing means, in combination with means for transversely moving said plate to bring a different portion thereof under the action of the printing means.

3. A cash-register, having a cam-shaft and printing means, in combination with a table and plate, a spindle on which the table is mounted, mechanism adapted to rock said table and actuated from said cam-shaft, and means also actuated from said cam-shaft for transversely moving said plate into different operative position beneath said printing means.

4. A cash-register, having printing means, in combination with a table and means for rocking it, a plate mounted for transaverse movement upon said table, springs between the table and plate, and means for rocking said table, and for transversely moving it.

5. A cash-register, having printing means in combination with a table and means for rocking it, a plate mounted for transverse movement upon said table, springs between the table and plate, and means for rocking said table and for transversely moving it automatically upon the movement of the plate against its springs.

6. A cash-register, having printing means in combination with a rocking table, a plate movable transversely thereon, springs between plate and table, locking-pawls adapted to engage said plate when moved against its springs, mechanism for transversely moving said pawls and the engaged plate and means for rocking the table.

7. A cash-register, having printing means in combination with a rocking table, a plate movable transversely thereon, springs between plate and table, locking-pawls adapted to engage said plate when moved against its springs, mechanism for transversely moving said pawls and the engaged plate and means for rocking the table, and means for automatically disengaging said pawls upon an excessive motion of said mechanism.

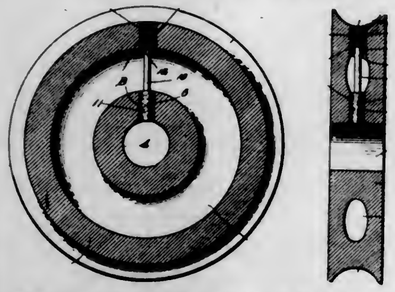
8. A cash-register, having printing means and a rocking table beneath them in combination with a plate transversely movable on said table and adapted to occupy a position free of the printing means, and also two different positions beneath the printing means.

9. A cash-register, having printing means and a rocking table beneath them in combination with a plate transversely movable on said table and adapted to occupy two different positions beneath the printing means.

10. A rocking printing-table for a cash-register, a plate mounted thereon, tubular rods and catches thereon mounted to slide transversely within the table, rods slidable on said tubular rods and springs secured to the plate and means for moving the catches to bring the plate into different transverse positions upon the table, in combination with printing means above the table and means for rocking said table.

11. A rocking printing-table for a cash-register, a plate mounted thereon, tubular rods and catches thereon mounted to slide transversely within the table, rods slidable on said tubular rods and springs secured to the plate, and means for moving the catches to bring the plate into different transverse positions upon the table, in combination with printing means above the table and means for rocking said table, and an automatic locking means adapted to be unlocked upon the movement of the plate by hand into its first position beneath the printing means.

788,463. SELF-LUBRICATING SHEAVE. JOHN E. GILCHRIST, Southbend, Wash. Filed Nov. 15, 1904. Serial No. 232,875.

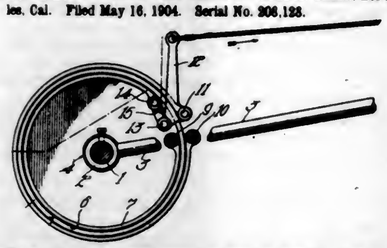


Claim.—1. A sheave having an annular oil-chamber, a transverse aperture, and a radial bore extending from said aperture to the periphery of the sheave, a rod having a winding of porous material engaging the section of the bore between the oil-chamber and the transverse aperture, and a screw-threaded plug engaging the section of the bore between the oil-chamber and the periphery of the sheave, said plug bearing against the outer end of said rod.

2. A sheave having an annular oil-chamber, a transverse aperture, and a radial bore extending from said aperture to the periphery of the sheave and intersecting the oil-chamber, a rod having a winding of porous material engaging the inner end of the bore, and a threaded plug mounted in the outer end of the bore and having a recess at its inner end engaging the outer end of the rod.

3. A sheave having an annular oil-chamber, a transverse aperture and a radial bore intersecting said oil-chamber, a rod having a winding of porous material engaging the inner end of the bore, a pin extending transversely through said rod, near the outer end of the latter, and a closure for the outer end of the bore.

788,464. FRICTION GRIP DEVICE. BURL H. GREEN, Los Angeles, Cal. Filed May 16, 1904. Serial No. 208,128.



Claim.—1. A rotatable member having concave and convex friction-surfaces, brake-bands for engaging said friction-surfaces, and means for simultaneously contracting one brake-band and expanding the other.

2. A drum, brake-bands for engaging the inner and outer surfaces of its shell and having fixed ends, a lever flexibly connected to the free end of one band, and means connecting the free end of the other band with the lever whereby when the lever is rocked one band is contracted and the other expanded.

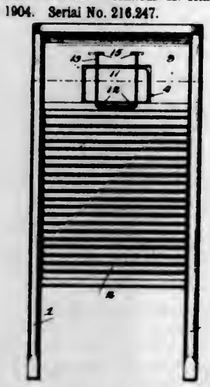
3. A drum, brake-bands for engaging the inner and outer surfaces of its shell and having fixed ends, a lever pivoted to the free end of one band, and a link connecting the free end of the other band with the lever.

4. A drum, brake-bands for engaging the inner and outer surfaces of its shell and having fixed ends, a T-lever pivoted to the free end of one band, a stud on the lever projecting into the drum, and a link connecting the stud with the free end of the other band.

5. A drum, expanding and contracting bands therefor, each band having a fixed point, and a lever connected with the bands for contracting and expanding them.

6. A drum, expanding and contracting bands therefor and non-rotatable with relation to each other, and a lever for expanding and contracting the bands.

788,465. WASHBOARD. HAROLD M. HAAS, Cincinnati, Ohio. Filed July 12, 1904. Serial No. 216,247.

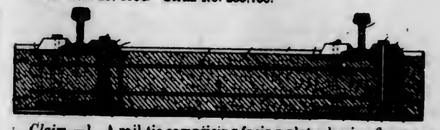


Claim.—1. A washboard having an aperture therethrough, a spring-pressure device in rear of the aperture, and a retaining member pivoted at one end to the front face of the board and having means at its other end for detachable engagement with the board, said device being adapted to overlie the aperture.

2. A washboard having an aperture formed therethrough, a spring-pressure device arranged in rear of the aperture, and a retaining device adapted to overlie the front face of the aperture, said retaining device comprising a U-shaped member having its crown portion pivotally connected with the board and the terminals of its arms formed for detachable engagement with the latter.

3. A washboard having an aperture formed therethrough and provided with a pair of spaced slots arranged at one side of the aperture, a spring-pressure device disposed in rear of the aperture, and a retaining device designed to extend across the front face of the aperture, said retaining device comprising a substantially U-shaped member and its crown portion pivotally connected with the board and the terminals of its arms angularly bent for engagement respectively with the slots.

788,466. RAIL-TIE. FRANCIS X. HARRISON, Schenectady, N. Y. Filed Nov. 21, 1904. Serial No. 233,706.



Claim.—1. A rail-tie comprising facing-plates having flanges on their lower and upper edges, connecting-rods between said facing-plates, anchor-plates resting upon the lower flanges, bed-plates resting against the upper flanges, spacing-sleeves between the anchor and bed plates, anchor-rods extending through the bed-plates, sleeves, and anchor-plates, rail-clamps connected with said anchor-rods, filling material between said facing-plates, and bracing-plates embedded in said material.

2. A rail-tie comprising facing-plates having flanges on their upper and lower edges, and being cut away at their upper edges to receive the base portions of the rails, connecting-rods between said facing-plates, anchor-plates resting upon the lower edges and having conical projections, bed-plates resting against the upper flanges, spacing-sleeves between the bed-plates and the conical projections of the anchor-plates, anchor-rods extending through the bed-plates, slots, and conical projections, rail-clamps connected with said anchor-rods, connecting-rods between the anchor and bed plates, filling material between said facing-plates, and longitudinally-extending bracing-plates embedded in said filling material.

788,467. SIGHT-FINDER. GEORGE HENDERSON, Washington D. C. Filed July 8, 1904. Serial No. 215,747.



Claim.—1. A sight-finder for firearms comprising a member constructed to be secured to the stock of the firearm and adapted to be inserted between the lips of the marksman.

2. A sight-finder for firearms comprising an adjustable member constructed to be secured to the stock of the firearm and adapted to be inserted between the lips of the marksman.

3. A sight-finder for firearms comprising a supporting-plate, and a lug or member carried by said plate and adapted to be inserted between the lips of the marksman.

4. A sight-finder for firearms comprising a supporting-plate, and a lug or member adjustably mounted in said plate and adapted to be inserted between the lips of the marksman.

5. A sight-finder for firearms comprising a supporting-plate, a lug or member slidingly mounted in said plate and adapted to be inserted between the lips of the marksman, and means for holding said lugs or member from movement.

6. A sight-finder for firearms comprising a slotted plate, and a lug or member mounted in the slot of said plate and adapted to be inserted between the lips of the marksman.

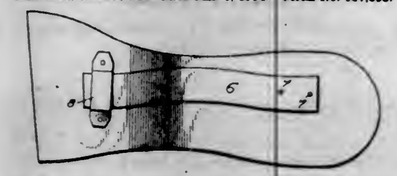
7. A sight-finder for firearms comprising a slotted plate, a clamp member adjustably secured therein, and a lug or button engaging said clamp member and adapted to be inserted between the lips of the marksman.

8. A sight-finder for firearms comprising means adapted to be inserted between the lips of the marksman, whereby a fixed point of rest is established with relation to the sighting-eye.

788,468. METHOD OF MANUFACTURING GOLF-BALLS. REGINALD HODGKINS, Malvern, Victoria, Australia. Filed June 4, 1904. Serial No. 211,183.

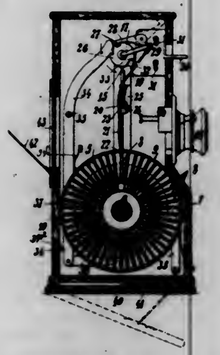
Claim.—The method of manufacturing golf-balls consisting in converting rubber and gutta-percha separately into a soluble condition, intimately admixing in or about the proportions stated, cooling, subsequently boiling in water, subjecting to pressure, heating in an oven until the melting-point is reached, again boiling in water, molding into balls, and covering with gutta-percha in a plastic condition, and finally submitting said balls to pressure in a ball-press substantially as described.

788,469. COMBINED INSOLE AND ARCH-SUPPORT. CHARLES HUETHER, Sharon, Pa. Filed Jan. 6, 1904. Serial No. 187,898.



Claim.—As an improved article of manufacture, a removable arch-support for boots and shoes formed of leather or like material and shaped to conform to the shoe at the heel and arch of the foot, the said piece having a strip of stiff elastic metal located at the arch of the foot and extending substantially longitudinally thereof, the said strip having a lateral curve whereby the ends are located approximately in the center of the line of the support and the center is located near the inside edge of the support, and whereby also said support is strongest at the inside edge, as set forth.

788,470. CHANGING MECHANISM FOR PICTURE-EXHIBITORS. EDOUARD JENN, Paris, France. Filed June 16, 1903. Serial No. 161,719.

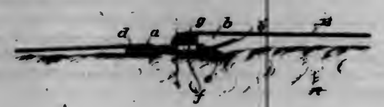


Claim.—1. Apparatus for use in viewing or projecting photographic or other views comprising a transversely-slotted casing, a rotatable drum therein, provided with a plurality of radial slide-receiving grooves, means for imparting to the drum an intermittent rotary motion, a slide-engaging hook, means for alternately raising and lowering said hook, and a device for releasing the raised slide from said hook substantially as described.

2. Apparatus for use in viewing or projecting photographic or other views comprising a transversely-slotted casing, a rotatable drum therein provided with a plurality of radial slide-receiving grooves, a slide-engaging hook, vertical guides therefor, a crank-shaft connected to the hook, a catch-disk mounted on the crank-shaft and means for securing and releasing said catch-disk: substantially as described.

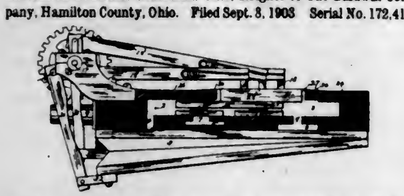
3. Apparatus for use in viewing or projecting photographic or other views, comprising a transversely-slotted casing, a rotatable drum therein provided with a plurality of radial slide-receiving grooves, a slide-engaging hook, vertical guides therefor, a crank-shaft connected to the hook, a catch-disk mounted on the crank-shaft, means for securing and releasing said catch-disk, in combination with a pivoted lever 34, a pawl 36, and a ratchet-wheel 37 mounted on the drum: substantially as described.

788,471. BALE-TIE BUCKLE. JOHN C. JENKINS, Terrell, Tex., assignor of one-half to W. H. Flowers, Terrell, Tex. Filed July 6, 1904. Serial No. 215,479.



Claim.—The herein-described bale-tie buckle comprising a frame made up of end bars *c* having ends *c'*, a side bar *d*, and a side bar *e* carried by the ends *c'* of bars *c*; all of the said frame except the end *c'* of the bars *c* and the side bar *e* being straight and disposed in a common horizontal plane, and the said end *c'* and bar *e* extending downwardly at an obtuse angle from the straight part of the frame, a horizontal arm *f* carried by and extending inwardly from one end bar *c* of the straight part of the frame and resting in the same horizontal plane as said straight part, and an arm *g* extending inwardly and upwardly from the other end bar *c* of the straight part of the frame.

788,472. PNEUMATIC MOTOR FOR MUSICAL INSTRUMENTS. LAWRENCE U. JOBES, Cincinnati, Ohio, assignor to The Baldwin Company, Hamilton County, Ohio. Filed Sept. 8, 1903. Serial No. 172,410.

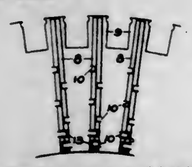


Claim.—1. In a pneumatic motor the combination of the cap 26 having a flexibly-held guide-plate 28 suspended in the opening 27 by means of the diaphragm 30, the channel-board 1 having valve-channels 2, two ports 7 and 8 leading from the valve-channels to the cross-channels 5 and 6, with the duplex valve consisting of the parts 12 and 12' connected by the yoke 11', said yoke being provided with an arm 13 passing through the same, and adapted to connect with the pitman 18, said arm being bent at right angles at the lower end, and secured in the recess 20 to the under side of said yoke, the said valves and yoke being adapted to move under the flexibly-held guide-plate 28 and over the ports 7 and 8, substantially as described.

2. In a pneumatic motor the combination of the cap 26 and the flexibly-held guide-plate 28 having a slot 29 for the movement of the yoke-arm 13, said guide-plate being suspended and held in position in the opening 27, in said cap by the diaphragm 30; said flexibly-held guide-plate being adapted to rest upon and guide the valve-yoke 11' and seal its upper surface from the outside air, substantially as described.

3. In a pneumatic motor the combination with a channel-board 1, having valve-channels 2 open at the surface, a transverse port-channel 5 connected with the channels 2 by the triangular ports 7 and the pipe 9 through the duct 10, and the transverse port-channel 6 open at both ends to the outer air and connected to the channels 2 by the ports 8, the bellows 3, connected with the channels 2 by the passage 4, the cap 26 secured to the upper surface of the channel-board 1 and having openings 27 in which are suspended the flexibly-held guide-plate 28 by means of the diaphragm 30, the duplex valve consisting of the parts 12 and 12' connected by the yoke 11' moving over the ports 7 and 8 and under the guide-plate 28, a crank-shaft having a crank-arm for each bellows 3 and a pitman 31 connecting each crank-arm and bellows, and a pitman 18 connecting each crank-arm and valve-yoke, substantially as described.

788,473. ARMATURE. CHARLES W. JOHNSON, Norwood, and WILLIAM COOPER, Cincinnati, Ohio, assignors, by mesne assignments, to The Bullock Electric Company, a Corporation of Ohio. Filed July 16, 1903. Serial No. 165,789.



Claim.—1. An armature-core comprising laminated sections, separators between said sections, said separators having cut-away portions, and said laminæ having lips integral therewith turned over said separators and into said cut-away portions.

2. An armature-core comprising sections, separators between sections, said separators consisting of rods triangular in cross-section, clamped to the sections.

3. An armature-core comprising sections, separators between sections, said separators consisting of rods triangular in cross-section, clamped to the sections by lips integral therewith.

4. An armature-core comprising sections, separators between sections, said separators consisting of rods triangular in cross-section, clamped to the sections by lips integral with the sections and engaging projecting portions on the rods.

5. An armature-core comprising sections, separators between sections, said separators consisting of rods triangular in cross-section, said rods having cut-away portions and lips integral with the sections turned into said cut-away portions.

6. A laminated armature-core comprising sections, separators between sections, said separators consisting of rods triangular in cross-section, clamped to the sections by lips punched out of the laminæ.

7. A laminated armature-core comprising sections, separators between sections, said separators consisting of rods triangular in cross-section, and having cut-away portions and lips punched out of laminæ turned into said cut-away portions.

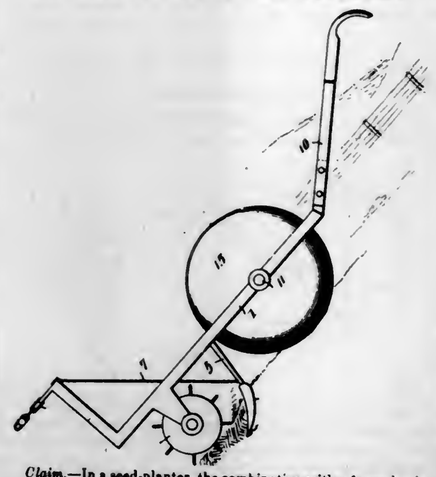
8. A laminated armature-core comprising sections of laminæ spaced from each other, rods triangular in cross-section between sections, the outer laminæ of the sections having projecting lips integral therewith clamping the rods in position, said rods having cut-away portions and lips of the laminæ bent into said cut-away portions.

788,474. CELERY-TRIMMER. LOUIS B. KELLER, Minneapolis, Minn. Filed Aug. 28, 1903. Serial No. 171,035.



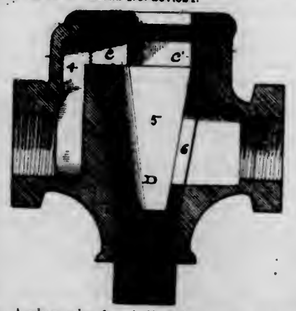
Claim.—In a celery-trimmer, the combination with a shaft, of a cup secured thereon and having a slot in its wall, and a knife-blade secured in said slot, said blade having a sickle-shaped edge and intersecting the axis of the revolution, the portion of the blade near its inner end being twisted forward in the direction of the open end of the cup, to adapt the blade to engage and trim the bottom of the plant-stalk before the knife-edge comes in contact with the upper portion of the stalk, substantially as and for the purposes described.

788,475. SEED DROPPER AND PLANTER. BARHAM F. KENNEDY, Jonesville, S. C. Filed July 1, 1904. Serial No. 214,947.



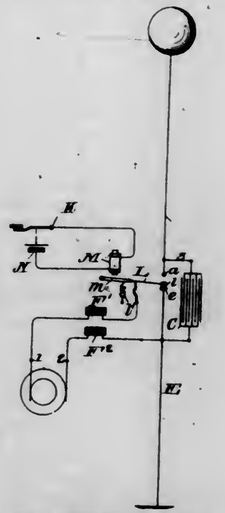
Claim.—In a seed-planter, the combination with a frame having supporting means and furrow-opening means, of an axle, a pair of interfitting sections on said axle, the distance of the axle above the ground being such as to cause the sections to contact with and roll upon the ground, each section having a cylindrical rim formed with discharge-openings, and having an outwardly-dished side wall, the cylindrical rim of one section fitting into the cylindrical rim of the other section, a hub attached to the outwardly-dished wall of each section and surrounding the axle, and a set-screw extending through each of the hubs for adjusting the dished sections longitudinally upon the axle.

788,476. PLUG-VALVE. HENRY KIEREN, Crystal Falls, Mich. Filed May 13, 1904. Serial No. 207,824.



Claim.—A plug-valve for air-lines for pneumatic drills consisting of three parts comprising a casing with an inlet-passage having a vertical portion 4 leading to the top thereof and an outlet on its opposite side, in combination with a plug-valve seated in said casing having a flaring hollow body widest at its upper end, and a cap screwed into the top of said casing and seated alike upon the end of said plug and upon a seat on the casing about said plug and having a recess in its inner portion at the top of said inlet-passage 4, whereby open communication is established through said plug, substantially as described.

788,477. AERIAL TELEGRAPHY. JAMES F. KING, New York, N. Y. Filed June 23, 1903. Serial No. 162,787.



Claim.—1. In aerial telegraphy, a vibration-circuit having capacity connected therein, of a normally closed generator-circuit, and means for creating an arc in said normally closed circuit and connecting the said arc in the oscillation-circuit in multiple with the capacity.

2. In aerial telegraphy, the combination with a vibration-circuit having capacity connected therein, of a normally closed generator-circuit, and common means for both creating an arc in said generator-circuit and connecting the said arc in the vibration-circuit in multiple with the capacity.

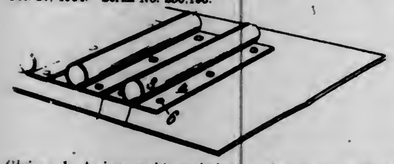
3. In aerial telegraphy, the combination with a vibration-circuit having capacity connected therein, of a normally closed generator-circuit, and means comprising a movable contact adapted to create an arc in said generator-circuit and connect the said arc in the vibration-circuit in multiple with said capacity.

4. In aerial telegraphy, the combination with a vibration-circuit having capacity connected therein, of a normally closed generator-circuit, and means comprising an electromagnetically-operated movable contact adapted to create an arc in said generator-circuit and connect the said arc in the vibration-circuit in multiple with said capacity

5. In aerial telegraphy, the combination with a vibration-circuit having capacity connected therein, of a normally closed generator-circuit, means comprising a movable contact adapted to create an arc in said generator-circuit and connect the said arc in the vibration-circuit in multiple with said capacity, and a transmitting-key and means operating in conjunction therewith for operating said movable contact.

6. In aerial telegraphy, a vibration-circuit having capacity connected therein, of a normally closed generator-circuit, means for creating an arc in said normally closed circuit and connecting the said arc in the oscillation-circuit in multiple with the capacity, and means for tuning said vibration-circuit.

788,478. CIGAR-MOLD. ALFRED S. KOCH, Lancaster, Pa. Filed Oct. 27, 1904. Serial No. 230,193.



Claim.—1. A cigar-mold consisting of a flexible strip and a plurality of molds attached thereto, each mold consisting of a pair of jaws fashioned to completely inclose a bunch, and shaped to impart the desired shape to the bunch, and each jaw of each pair of jaws constituting a mold attached directly to the flexible strip.

2. A cigar-mold consisting of a flexible strip, and a plurality of molds attached thereto, each mold consisting of a pair of jaws fashioned to completely inclose a bunch, and shaped to impart the desired shape to the bunch, the jaws comprising each mold being separated from each other, each jaw attached directly to the flexible strip, and the space of separation being bridged by the flexible strip.

3. A cigar-mold consisting of a flexible strip, and a plurality of molds attached thereto, each mold consisting of a pair of jaws fashioned to completely inclose a bunch, and shaped to impart the desired shape to the bunch, the jaws comprising each mold being separated from each other, each jaw attached directly to the flexible strip, and the space of separation being bridged by the flexible strip, each such mold being separated from others of such molds by a space, the space of separation being bridged by the flexible strip.

788,479. RAIL-JOINT. CHARLES E. LABADY, Michigan City, Ind. Filed Aug. 3, 1904. Serial No. 219,298.



Claim.—1. The combination with two rail-sections, of a joint therefor, comprising a girder, stringers on the girder, a rail-chair on the stringers, fish-plates, and U-bolts extending around the girder and through the chair and fish-plates for binding the parts together.

2. The combination with two rail-sections, of a joint therefor, comprising a girder, stringers on the girder, a rail-chair on the stringers, fish-plates, U-bolts extending around the girder and through the chair, and similar bolts extending around the girder and through the chair and fish-plates, for binding the parts together.

3. The combination with a rail and stringer, of a U-bolt on each side of the rail and extending lengthwise thereof, said U-bolt passing around the stringer and extending through the rail-base.

788,480. PRESERVED RADIO-ACTIVE ORGANIC MATTER AND FOOD. HUGO LIEBER, New York, N. Y. Original application filed Mar. 12, 1904, Serial No. 197,838. Divided and this application filed June 17, 1904. Serial No. 213,047.

Claim.—1. Preserved organic matter, consisting of organic matter and thorium emanations free from the thorium from which they were obtained in combination with the particles of the preserved matter throughout its mass, the organic matter being radio-active by reason of the thorium emanations embodied within it, substantially as described.

2. Preserved solid food, consisting of solid food and thorium emanations free from the thorium from which they were obtained, in combination with the particles of the preserved food throughout its mass, the food being radio-active by reason of the thorium emanations embodied within it, substantially as described.

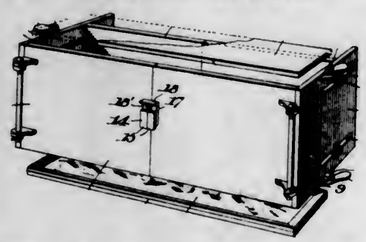
3. Preserved food, consisting of solid food contained within a liquid and thorium emanations free from the thorium from which they were obtained, in combination with the particles of the preserved food throughout its mass, the food being radio-active by reason of the thorium emanations embodied within it, substantially as described.

4. Preserved albuminous food, consisting of albuminous food and thorium emanations free from the thorium from which they were obtained, in combination with the particles of the preserved albuminous food throughout its mass, the albuminous food being radio-active by reason of the thorium emanations embodied within it, substantially as described.

5. Preserved nitrogenous food, consisting of nitrogenous food and thorium emanations free from the thorium from which they were obtained, in combination with the particles of the preserved nitrogenous food throughout its mass, the nitrogenous food being radio-active by reason of the thorium emanations embodied within it, substantially as described.

6. Preserved animal food, consisting of animal food and thorium emanations free from the thorium from which they were obtained, in combination with the particles of the preserved animal food throughout its mass, the animal food being radio-active by reason of the thorium emanations embodied within it, substantially as described.

788,481. CEMENT-BLOCK MOLD. HENRY F. LIGHTNER, Newcastle, Pa. Filed June 21, 1904. Serial No. 213,520.



Claim.—1. A mold-box comprising a stationary side wall, end walls pivoted thereto, and a movable side wall adjustably secured to the end walls and formed of a plurality of detachable sections movable laterally to open position.

2. A mold-box comprising a stationary sectional side wall, end walls pivoted thereto, a movable side wall adjustably secured to the end walls and formed of a plurality of detachable sections movable laterally to open position, and means for locking the sections comprising the side walls in alinement with each other.

3. A mold-box comprising a stationary side wall, end walls provided with slots or openings pivoted thereto, a movable wall arranged opposite the stationary wall, and fastening devices carried by the movable wall and engaging the slots in the end walls for locking said movable wall in adjusted position.

4. A mold-box having its side walls formed of a plurality of detachable sections, a pattern-plate forming the bottom of the box, end walls pivoted to one of the side walls, and means for locking the sections of each side wall in alinement with each other.

5. A mold-box comprising a stationary side wall, end walls pivoted thereto, a movable side wall adjustably secured to the end walls and formed of a plurality of detachable sections movable laterally to open position, lugs secured to the adjacent faces of the detachable sections, and locking-keys adapted to engage said lugs for locking the several sections in alinement with each other.

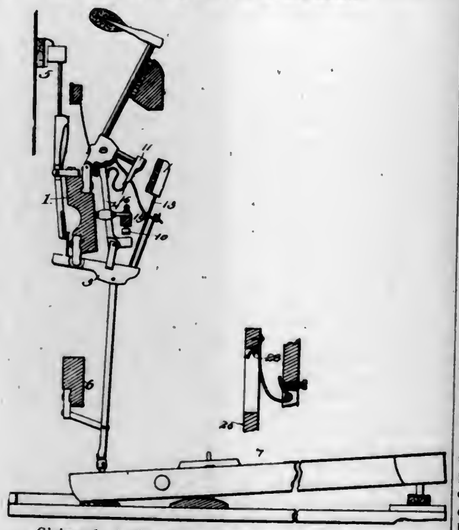
6. A mold-box having stationary and movable side walls each of which is formed of a plurality of detachable sections, tapering lugs provided with laterally-extending terminal flanges secured to the ends of said sections, and keys provided with wedge-shaped slots adapted to engage the lugs of adjacent sections for locking said sections in alinement with each other.

7. A mold-box comprising a stationary side wall, end walls pivoted thereto, a movable side wall slidably engaging the end walls, a removable pattern-plate forming the bottom of the box, a pallet, and means carried by the end walls for securing the pattern-plate and pallet in position.

8. A mold-box having its side walls formed of a plurality of detachable sections adapted to be swung laterally to open position, each section being provided with a terminal lug having an inclined or beveled face and a laterally-extending flange, and locking-keys engaging the inclined faces of adjacent lugs for locking the several sections in alinement with each other.

9. A mold-box comprising a stationary side wall, end walls provided with slots or openings pivoted thereto, a movable wall having its opposite ends provided with perforated lugs adapted to engage the end walls, and bolts passing through the slots in the end walls and engaging the perforations in said lugs for locking the movable wall in adjusted position.

788,482. PIANOFORTE-ACTION. FREDERICK A. LINGSCH, Van Nest, N. Y. Filed Aug. 8, 1904. Serial No. 219,961.



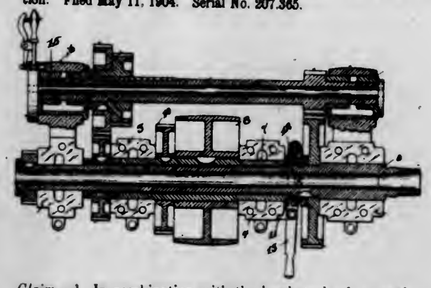
Claim.—1. A pianoforte-action comprising a hammer, a butt carrying the same and a counter-check secured to the butt, a hammer-actuating jack, a spring secured to the counter-check at one end and engaging the jack adjacent to the hammer-butt for quickly returning the jack to operative position, the said jack being provided with a guiding-groove for engaging the spring.

2. A pianoforte-action comprising a hammer and a counter-check carried thereby, an operating-jack, a spring mounted upon the counter-check at one end and engaging at its other end the jack, and a loop connecting the end of the said spring with the end of the jack.

3. A pianoforte-action comprising a hammer, a counter-check carried thereby, an operating-jack engaging the hammer and provided with a guide-groove near its upper end, a spring carried by the counter-check and a bearing portion formed upon the said spring and engaging the said groove in the jack.

4. A pianoforte-action comprising a hammer, a counter-check carried thereby, an operating-jack engaging the hammer, a spring carried by the counter-check at one end, the said jack being provided with an elongated slot for receiving the other end of the spring, and means mounted in one end of the said slot for engaging the end of the spring.

788,483. HEAD-STOCK FOR ENGINE-LATHES. WILLIAM LODGE and NICHOLAS D. CHARD, Cincinnati, Ohio, assignors to The Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, a Corporation. Filed May 11, 1904. Serial No. 207,365.



Claim.—1. In combination with the head-stock of an engine-lathe, two sets of bearings in axial alinement, a driving-sleeve journaled in the intermediate bearings, a spindle of lesser diameter than the internal diameter of said sleeve, passing through said sleeve without substantial contact, and journaled at each end of the sleeve in the end bearings, means for directly clutching the driving-sleeve to the spindle, and means for back gearing from the sleeve to the spindle, substantially as described.

2. In an engine-lathe, a head-stock having independent bearings in line axially for the purpose of independently supporting a driving member and spindle, a driving member journaled in one of the bearings, a spindle journaled in the other, said spindle and driving member being supported by their respective bearings substantially free from frictional contact with each other, a clutch member between said spindle and driving member adapetd to fix them to rotate together, means for throwing the clutch, back gearing from the driving member to the spindle, and means for throwing said back gear-wheels into or out of train, whereby when the said back gears are in commission, the spindle and driving member rotate substantially free from frictional contact with one another.

788,484. MUSICAL INSTRUMENT. GUSTAVE F. LYON, Paris, France. Filed Aug. 31, 1904. Serial No. 222,853.

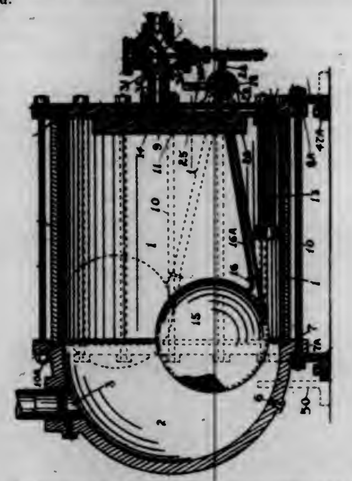
Claim.—1. A musical instrument having a sounding-board, a sonorous member composed of a sound-emitting portion, and springs connected with the opposite ends of said sound-emitting portion and extending oppositely therefrom, wires connected with the springs, bridges on the sounding-board over which said wires extend, and tuning devices connected with the wires.

2. A musical instrument having a hollow body provided with a sounding-board, a sonorous member composed of a sound-emitting portion, and springs connected with the opposite ends of said sound-emitting portion and extending oppositely therefrom, wires connected with and extending away from the springs, bridges on the hollow body over which the wires extend, and tuning-pins on the body connected with said wires.

788,485. STEAM-TRAP. JARARD W. LYTTON, Portsmouth, Va. Filed Dec. 30, 1904. Serial No. 238,934.

Claim.—1. In a steam-trap or similar apparatus, of a receptacle therefor comprising a single flangeless and continuous hollow member, a head or end member on each end thereof, and clamping-rods

arranged in a circular row around the circumference of the said cylindrical member and uniting the said end members thereto; as described.



2. In a steam-trap, of a receptacle therefor comprising a single flangeless continuous and hollow cylindrical member and flanged end members thereof, and tie-rods arranged in a circular row and surrounding the said cylindrical member; as described

3. In a steam-trap, of a chamber therefor comprising a single continuous hollow flangeless pipe-section, an end member closing each end thereof, and clamp-bolts inclosing the said pipe-section and uniting the said end members thereto; as described.

4. In a steam-trap, of a receptacle therefor comprising a single continuous hollow cylindrical or flangeless pipe member, an end member on each end thereof, bolt-clamping means for securing the said end members to the said pipe member, and means for forming a cylindrical cage with the said bolts and inclosing the pipe member therein; as described.

5. In a steam-trap or similar apparatus of a receptacle therefor comprising a single flangeless and continuous hollow member, a flanged cover on each end thereof, a series of rods or bolts surrounding the said hollow member and joining the covers thereto, and means for forming a tight joint between the edges of the hollow member and the face of the covers; as described.

6. In a steam-trap or like apparatus, of a receptacle therefor comprising a hollow intermediate member, a semispherical flanged head or cover on one end thereof, a ribbed flat cover on the other end of the hollow member, an annular groove on the flange portion of said covers, means for inserting the edges of the hollow member in the said grooves and forming a tight joint therebetween, and a series of screw-ended nut-adjusted rods or bars inclosing the hollow member and clamping the covers thereto; as described.

7. In a steam-trap or similar apparatus, a receptacle therefor comprising a hollow central member, a flanged semispherical or dished grooved cover member on one end thereof, a flanged grooved ported flat cover on the other end of the hollow member, a series of connecting-orifices in the said covers, a series of clamp bolts or rods arranged in circular form around the flanged portions of the said covers and inclosing the central member, means for clamping the said hollow central member between the covers for securing a tight joint therebetween; as described.

8. In a steam-trap or similar apparatus, of a receptacle therefor comprising a central pipe member, a flanged hollow semispherical member closing one end thereof, a flat cover closing the other end of the pipe member, a channel in the said flat cover extending at or near the edge of the cover to the center thereof, a series of openings in the said flat cover connecting with the channel therein, bolt means for joining the said flat and semispherical heads to the pipe members; as described.

9. In a steam-trap and the like, of a receptacle therefor comprising a central pipe member, a semispherical cover on one end thereof, a flat cover on the other end of the pipe member, a port within the wall or web of the said flat cover, a series of apertures connecting at the ends of the said port and opening on each side of the cover, bolt means for inclosing the said pipe member and joining the covers thereto, and a series of angle-ended plates for supporting the said receptacle in any position; as described.

10. In a steam-trap and in combination with a receptacle and covers therefor, a series of receptacle-supports comprising a series of angle-end or L-shaped detachable plates having an undulating upper edge, a series of attaching ears or lugs formed by the highest points of the said undulating edge, bolt means for fastening the said L-shaped plates to the receptacle-covers; as described.

11. In a steam-trap and like apparatus, the combination with a central hollow section, a series of flanged cover members, a plurality of supports for the said receptacle comprising detachable reversible angle-ended plates having an alternately concave and convex margin, bolt means for clamping the said supporting-plates by their convex portions, and bolt means for clamping the said receptacle members and the supporting-plates together; as described.

12. In a steam-trap, the combination with a closed receptacle having inlet and outlet connection, an automatic discharge-valve attached to the said outlet, a hollow closed float, a socket attached thereto at a tangent, a hollow stem connected to the socket, a partly solid and hollow spindle or shaft on the said float-stem at right angles thereto, means for connecting the said spindle with the float-stem to effect a communication therethrough to the float interior, means for causing a discharge of steam or vapor from the float interior through to the hollow spindle end to the atmosphere when the float becomes perforated or inoperative, a lever on the said spindle for actuating the float and the discharge-valve from the receptacle exterior, and spring compression means for opening the said discharge-valve to eject the contents of the said receptacle; as described.

13. In a steam-trap, the combination with a closed receptacle having inlet and outlet connection, an automatic discharge-valve exteriorly connected to the said outlet, a closed hollow float, a hollow stem connected at a tangent thereto, a semirotary plug attached at right angles to the said stem, a hollow and solid shaft axially extending on the ends of the plug, a fork-ended lever on one of the spindles for actuating the discharge-valve during liquid-level changes within the receptacle, a handle or lever on the other spindle for actuating the mechanism within the receptacle and the discharge-valve from the exterior of the said receptacle, means for effecting a communication to the float interior through the said float-stem, the plug and the spindles thereof from the atmosphere; as described.

14. In a steam-trap, the combination with a closed receptacle or chamber having inlet and outlet connection, a float-controlled outside-connected automatic discharge-valve mechanism, a hollow stem for the said float, an outside-connected interiorly-diverging plug-casing on one end of and opening into the chamber, a diametrically and axially perforated plug supported in the said casing adjacent to the inner surface thereof, a series of axially-extending hollow spindles on the ends of the said plug, a series of spindle-supporting screw-plugs and stuffing-boxes on the casing, means for connecting the said float-stem and the spindles and plug to effect an opening to the interior of the float from the exterior of the chamber, a forked lever for opening and closing the said discharge-valve with the rise and fall of the liquid in the chamber, and means for actuating the float and its attached mechanism from the exterior of the said chamber; as described.

15. In a steam-trap or similar apparatus, the combination comprising a receptacle having inlet and outlet connection, a float-controlled outside-connected automatic valve for discharging the receptacle at intervals, a hollow spindle connecting the said float, an exteriorly-disposed internally-diverging plug-casing on one end of the receptacle, a perforated cylindrical plug attached diametrically to the said stem, a hollow and solid spindle axially extending from the ends of the plug, a series of screw-threaded plugs on each side of the plug-casing, a series of stuffing-boxes on the said plugs, means for supporting the plug by the stuffing-boxes out of contact with the inner surface of the plug-casing a lever-handle for actuating the said plugs, float and the discharge-valve from the outside of the receptacle, and means for connecting the plug-spindles and the plug to effect a passage from the interior of the float to the exterior of the receptacle; as described.

16. In a steam-trap, the combination with a closed receptacle having inlet and outlet connection, a liquid-level-actuated float, a hollow stem therefor, a float-controlled exteriorly-disposed hollow spindle, an outside-connected automatic discharge-valve comprising among its members, a valve-casing, a normally closed puppet discharge-valve, an expansion-chamber, a piston working therein, the said piston being of a greater area than the puppet-valve, means for holding the puppet-valve to its seat by the piston when under pressure, float means for overcoming the pressure acting on the piston to unseat the puppet-valve for discharging the receptacle; as described.

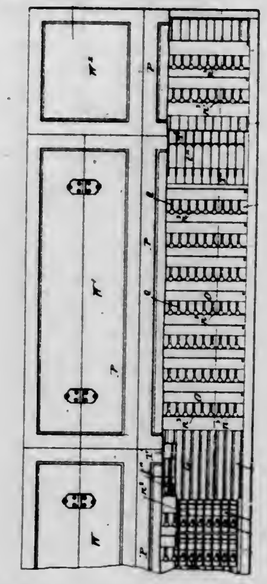
17. In a steam-trap and the like, the combination with a closed receptacle having inlet and outlet connection, an exteriorly-disposed spindle, a receptacle-inclosed liquid-supported float, hollow connecting means between the said float and spindle, a disk-ended float-controlled forked lever on the said spindle, an automatic receptacle-discharge valve located on one end of the said receptacle and actuated by the float-controlled forked lever, the said discharge-valve comprising among its members, a valve-casing a normally closed puppet-valve, an expansion-chamber formed by the valve-casing, a piston working therein having a larger area than the puppet-valve and holding thereof to its seat by the pressure in the receptacle, a stem connecting the said puppet-valve and piston, means for overcoming the pressure acting on the piston, and means for regulating the closing period of the said puppet-valve; as described.

18. In a steam-trap and the like, the combination with a closed receptacle having inlet and outlet connection, a hollow float and stem therefor, a spindle arranged transversely upon the stem and exteriorly disposed upon the receptacle, a liquid-level-controlled outside-connected discharge-valve attached to the said receptacle-outlet and comprising among its members, a valve-casing, an expansion-chamber therein, a piston working in the said expansion-chamber, the said piston formed of a series of disks clamping packing material therebetween, a puppet-valve of less area than the said piston, pressure means for holding the said puppet-valve in a closed position by the piston until the receptacle is to be discharged, a disk-ended forked lever attached to the said transverse spindle for actuating the puppet-valve and piston, an operating-stem for connecting the puppet-valve and the piston with the forked lever, and resilient means acting on the said puppet-valve and piston by the said float-controlled forked lever to quickly open the puppet-valve when the pressure on the piston is counterbalanced by the force of the rising liquid in the receptacle when acting on the float; as described.

19. In a steam-trap or the like, the combination with a liquid-receiving receptacle having inlet and outlet connection, a float-connected exteriorly-disposed hollow spindle adapted for semirotary movement, a liquid-level-operated outside-connected automatic discharge-valve attached to the said receptacle-outlet and comprising among its members, a valve-casing an expansion-chamber therein, a piston working in the said expansion-chamber, comprising a series of concentric perforated disks, a perforated concentric packing-disk therebetween, means for clamping the packing-disk by the said concentric disks, an operating-spindle connecting the said piston, a normally closed puppet-valve connected to the piston by the stem, means for allowing any leakage around the piston to pass to the discharge-valve outlet, a float-actuated disk-ended bifurcated lever on the spindle a spring surrounding the valve-operating stem, a loose collar or blank nut slidably positioned upon the spring, means for causing the disk ends of the bifurcated lever to compress the said collar and the spring to quickly open the puppet-valve against the pressure acting on the piston, means for closing the puppet-valve and the outlet of the receptacle by the bifurcated lever when the liquid recedes, a series of adjusting and lock nuts above the disk portion of the forked lever for regulating the closing period of the puppet-valve, and a series of adjusting and locking nuts on the lower end of the spindle for regulating the spring compression; as described.

20. In a steam-trap and like apparatus, the combination with a closed chamber having inlet and outlet connection, a closed hollow float controlling the said outlet, a hollow float-stem, an exteriorly-disposed transverse hollow spindle at right angles to the float-stem, communication means between the interior of the float to the ends of the spindles, a handle on one of the spindles for operating the float and its connected members non-automatically from the chamber exterior, a forked disk-ended arm on the other spindle, an automatic discharge-valve disposed upon the outside of the chamber, a valve-casing for the discharge-valve, an expansion-chamber in the valve-casing, a piston movably supported in the expansion-chamber, a channel in the valve-casing leading from the expansion-chamber to the outlet of the valve-casing, means for allowing any leakage around the piston to be discharged through the said channel, an operating valve-stem for the piston, a puppet-valve concentric with the piston attached to the said stem and having less area than the said piston, a spring surrounding the operating-spindle, a bearing-collar slidably located on the spindle and upon the spring, compression means actuated by the float to cause the spring to quickly open the puppet-valve to the discharge-outlet against the pressure acting on the piston, means for regulating the puppet-valve closing and adjustment means for increasing and decreasing the spring compression; as described.

788,486. VOTING-MACHINE. JOHN B. MAHANA, Tacoma, Wash., assignor to M-E Voting and Counting Machine Company, a Corporation of Washington. Filed Dec. 29, 1902. Serial No. 137,067.



Claim.—1. In an automatic voting-machine composed of two or more laterally-placed sections, the combination of a series of parallel shafts in each, keys yieldingly connected to each section of said shafts arranged in rows at right angles to the shafts and adapted to be depressed when the shafts are rocked, a sliding locking-bar beneath each row of keys in each section, each bar being adapted to lock in depressed position any one of the superposed keys, a hand-lever connected to each shaft in one of the sections for rocking said shafts, and connections extending from said shafts to corresponding shafts in another section, substantially as set forth.

2. In an automatic voting-machine, the combination with a series of parallel shafts, of keys yieldingly connected to said shafts, and arranged in rows at right angles thereto, means for individually rocking the shafts to depress the keys thereon, means for locking the depressed keys, and means for releasing any key thus depressed and locked and substituting therefor any other key in the same row, substantially as set forth.

3. In an automatic voting-machine, the combination with a series of parallel shafts, of keys, each containing a register, yieldingly connected to said shafts and arranged in rows at right angles thereto, means for individually rocking the shafts to depress the keys thereon, means for locking the depressed keys, means for releasing any key thus depressed and locked and substituting therefor any other key in the same row without operating the register, and means for operating said register after the voter has left the vicinity of the machine, substantially as set forth.

4. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles thereto, and means for operating each shaft which, when the shaft is moved in one direction depress the keys thereon and cause them to be locked in such depressed position, and when moved in the opposite direction produces a yielding connection under strain to raise the keys when unlocked, substantially as set forth.

5. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles to the shafts, a sliding bar beneath each row of keys for locking any one of said keys in a depressed posi-

tion, and means for disengaging a locked key should another key in the same row be depressed and locked, substantially as set forth.

6. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles to the shafts, a sliding bar beneath each row of keys for locking any one of said keys in depressed position, means for disengaging a locked key when another key in the same row is depressed and locked, and independent means for unlocking any depressed and locked key in the row, substantially as set forth.

7. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly mounted on said shafts and arranged in rows at right angles thereto, a sliding bar beneath each row of keys for locking any one of said keys in depressed position, and means separate from the keys for unlocking any depressed and locked key in the row, substantially as set forth.

8. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles thereto, a sliding bar beneath each row of keys for locking any one of said keys in depressed position and a hand-lever connected to each shaft, one of said hand-levers being capable of movement in one direction to rock the shaft, depress the keys and cause them to engage the locking-bar, and of being drawn in the opposite direction to return the shaft and place under tension said yielding devices, substantially as set forth.

9. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles to said shafts, a register carried by each key, a sliding bar beneath each row of keys for locking any one of said keys in depressed position, a register-operating bar placed over the key-locking bar for acting on the register, and means for actuating said bars, substantially as set forth.

10. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles thereto, each key having a notched finger, a sliding locking-bar having longitudinal slots therein of gradually-decreasing length from one end to the other into each of which one of said notched fingers is adapted to enter and lock the key when depressed, and means for moving the bar and disengaging the key, substantially as set forth.

11. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles thereto, each key having a notched finger, sliding locking-bars each having longitudinal slots therein of gradually-decreasing length from one end to the other, into one slot of each bar one of said notched fingers is adapted to enter and lock all the keys depressed, and means for simultaneously disengaging the keys, substantially as set forth.

12. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and arranged in rows at right angles thereto, a register carried by each key, sliding locking-bars each having slots of gradually-decreasing length from one end of said bar to the other, means on each key adapted to enter one of said slots and lock such keys as are depressed, register-operating bars placed over the locking-bars and provided with means for operating the registers of the locked keys, means for simultaneously operating the registers of all the depressed keys, and means for simultaneously disengaging the keys from the locking-bar, substantially as set forth.

13. An automatic voting-machine containing a series of parallel shafts and keys fulcrumed on said shafts in rows arranged at right angles thereto and adapted to be locked in depressed position, combined with independent voting mechanisms each mechanism being provided with a web of paper on which the name of a candidate may be written, and means for simultaneously releasing the locked keys and moving the paper, substantially as set forth.

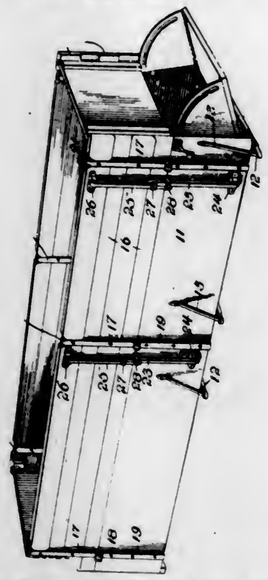
14. An automatic voting-machine containing a series of parallel shafts and keys fulcrumed on said shafts in rows arranged at right angles thereto, and adapted to be locked in depressed position, combined with an independent voting mechanism in line with each row of keys, each independent voting mechanism being provided with a web of paper on which a candidate's name may be written, means for exposing the paper and disengaging any key in the same row which may be locked, and means for simultaneously releasing all other locked keys and moving that portion of the paper written on from view, substantially as set forth.

15. In an automatic voting-machine, the combination of a series of parallel shafts, keys fulcrumed on said shafts and arranged in rows at right angles thereto, sliding bars below the keys with which the keys lock when depressed, and an adjustable slide for moving and retaining out of action certain sliding locking-bars and the keys coacting therewith from being locked when depressed, substantially as set forth.

16. In an automatic voting-machine, the combination of a series of parallel shafts, keys yieldingly connected to said shafts and springs serving the double purpose of holding the keys on the shaft and raising them when depressed, substantially as set forth.

17. A voting-machine containing a series of parallel shafts and having keys yieldingly connected thereto, combined with a series of removable covering-strips o, o', the strip o being longitudinally grooved and cross-slotted through which slots the key-operating stems pass, and the strip o' having oppositely-turned flanges on its edges, to form stops for the keys, substantially as set forth.

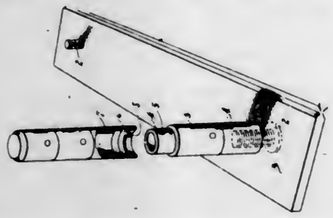
788,487. WAGON BOX. WILLIAM A. MELROSE, Elwood, Ind. Filed Nov. 14, 1904. Serial No. 232,717.



Claim.—1. The combination with a wagon-box, of wings hinged to the sides thereof, and braces for said wings comprising stems pivoted to the wagon-box and having loops at their free ends, stems pivoted to the wings and extending through the aforesaid loops, said stems also having loops at their free ends, through which the first-mentioned stems extend and pins extending through the loops and stems.

2. The combination with a wagon-box, of wings hinged to the sides thereof, said wings comprising folding slatted sections, the edges of the slats being beveled, and the slats of one section fitting between and in contact with the slats of the other section when the sections are folded.

788,488. TEMPORARY BINDER. JAMES MILLER, Detroit, Mich., assignor to James Barker, Detroit, Mich. Filed Feb. 8, 1904. Serial No. 192,551.



Claim.—In a sectional post for temporary binders, the combination of a cylindrical section provided with an extension of smaller diameter and with a locking means carried by said extension, a second section to be coupled to the first provided with a sleeve having an external diameter equal to the large diameter of the first section, and an internal diameter equal to the diameter of the extension and adapted to sleeve over the extension and also provided with a seat for said locking means, and with a longitudinal groove on the inner face of the sleeve adapted to guide the locking means to its seat, substantially as described.

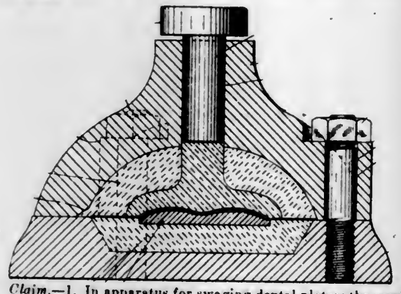
788,489. APRON. EDWARD C. MOORE, Detroit, Mich., assignor to E. C. Moore and Son, Detroit, Mich., a Firm. Filed May 27, 1903. Renewed Oct. 1, 1904. Serial No. 226,756.



Claim.—1. As an improved article of manufacture, an apron comprising a body and a bib portion and having a transverse pocket with a longitudinal slot near one end of said pocket, and a spring inserted in said pocket and having its ends doubled back upon themselves at substantially right angles to the body of the spring to form T-shaped heads, substantially as shown and described.

2. As an improved article of manufacture, an apron comprising a body and a bib portion the same being formed at their junction with a transverse pocket with a longitudinal slot near one end of said pocket, and a spring inserted in said pocket and having its ends doubled back upon themselves at substantially right angles to the body of the spring to form T-heads, substantially as described.

788,490. APPARATUS FOR SWAGING DENTAL PLATES. CARL L. NELSON, Seattle, Wash. Filed June 4, 1903. Serial No. 160,109.



Claim.—1. In apparatus for swaging dental plates; the combination of a separable casing inclosing a swaging-chamber and comprising a base having a centrally-located depression, and a dome-shaped cap having a boss at the top and a throat in said boss, a partial filling cast in said cap and consisting of a body of modeling compound having an opening leading from said throat, a die-seat cast in said depression and consisting of a bed of modeling compound, and a rammer fitting in said throat.

2. In apparatus for swaging dental plates; the combination of a separable casing inclosing a swaging-chamber and comprising a disk-shaped base-plate, and a dome-shaped cap having a throat and equidistantly-spaced bosses at the base with vertical bolt-receiving apertures, vertical tie-bolts consisting of equidistantly-spaced studs secured in said base, a partial filling cast in said cap and consisting of a body of modeling compound having an opening leading from said throat, a die-seat cast in said depression and consisting of a bed of modeling compound, and a rammer fitting in said throat.

788,491. MOP-WRINGER. JOHN R. NYE, Waterville, Me. Filed Jan. 15, 1903. Renewed Aug. 17, 1904. Serial No. 221,096.

Claim.—1. A mop-wringer comprising a pair of movable jaws, mechanism for operating the jaws mounted above said jaws and so connected as to cause the jaws to be moved together toward or from each other simultaneously, said mechanism comprising a crank-shaft, a connecting-rod connected to the crank-shaft and one jaw, arms connected to the shaft and extending rearwardly, connecting-rods connected to said arms and to the other jaw, and a guard to prevent the splattering of water when the mop is being wrung carried by one of the jaws.



2. A mop-wringer, comprising a base, sides rising therefrom an upper and a lower movable jaw secured to the base and adapted to move between the sides, means for simultaneously moving the jaws together, and a guard to prevent the splattering of the water while the mop is being wrung secured to the lower face of the upper jaw.

3. A mop-wringer comprising a base, sides rising therefrom, an upper and a lower movable jaw secured to the base and adapted to move between the sides, means for normally holding the jaws apart, means for simultaneously moving the jaws together, and a guard to prevent the splattering of the water while the mop is being wrung secured to the lower face of the upper jaw.

4. A mop-wringer, comprising a base, sides rising therefrom, arms secured to the sides and projecting rearwardly, a lower jaw having rearwardly-extending arms pivotally secured to the outer ends of the first-mentioned arms, an upper movable jaw having its rear end pivotally secured at substantially the same point as the arms of the lower movable jaw, a guard secured upon the lower face of the upper jaw, a spring connected to said guard for engaging the lower jaw to normally hold the jaws apart, and means for operating the jaws comprising a crank-shaft journaled in the upper ends of the sides, a connecting-rod connected intermediate of the shaft and to the upper face of the upper jaw, arms secured to the shaft upon opposite sides of said connecting-rod, and extending rearwardly, and a pair of connecting-rods connected to said arms and to the lower movable jaw, substantially as described.

5. A mop-wringer, comprising a base, sides rising upward therefrom, a pair of arms extending rearwardly therefrom, a lower movable jaw provided with a perforated bottom and having arms pivotally connected to said first-mentioned arms, an upper movable jaw pivotally connected at the same point as the lower movable jaw, the body of both of said jaws being between the sides and above the base, means for normally holding the jaws apart, mechanism for simultaneously moving the jaws together, and means to prevent the splattering of the water while the mop is being wrung carried by one of the jaws.

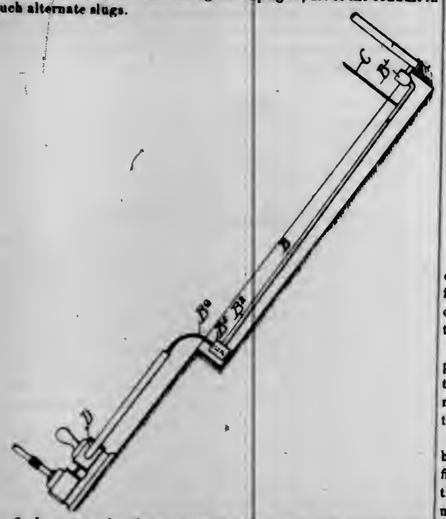
6. A mop-wringer, comprising a base, sides rising therefrom, arms secured to the sides and projecting rearwardly, a lower jaw having rearwardly-extending arms pivotally secured to the outer ends of the first-mentioned arms, an upper movable jaw having its rear end pivotally secured at substantially the same point as the arms of the lower movable jaw, a guard carried upon the lower face of the upper jaw and a spring connected to said guard engaging the lower jaw to normally hold the jaws apart and mechanism mounted in the upper portion of the sides for causing the jaws to move simultaneously together.

788,492. CONDENSE-WATER-RETURN APPARATUS FOR STEAM-HEATING SYSTEMS. EUGENE F. OSBORNE, Chicago, Ill. Original application filed Feb. 23, 1904. Serial No. 194,927. Divided and this application filed Apr. 30, 1904. Serial No. 205,727.

Claim.—1. In a steam-heating system, a return-conduit receiving and conducting condense-water and gaseous fluids, a pump located at a level higher than that of the receiving end of the conduit into which the other end of said conduit discharges, and means located intermediate the ends of said conduit for dividing said water and gaseous fluids in alternate slugs, whereby the lifting force of the pump is aided by the kinetic and expansive energy of the gaseous fluids to raise the water to the pump.

2. In a steam-heating system, means for raising the heated condense-water and associated gaseous fluids, comprising a return-conduit receiving and conveying condense-water and gaseous fluids, a

pump communicating with the higher end of the conduit, said conduit being provided intermediate its ends with an upright part and means located at the base of the upright part for dividing the contents of the conduit in alternate slugs of liquid and gaseous fluids, whereby said contents rise through the upright part of the conduit in such alternate slugs.



3. In a steam-heating system, the combination of a return-conduit receiving and conducting water and gaseous fluids, a pump located at a level higher than that of the receiving end of said conduit into which the other end of said conduit discharges, said conduit being provided intermediate its length with an upright restricted offset portion and means located at the base of the said offset portion for dividing said water and gaseous fluids in alternate slugs, whereby the contents of said conduit rises through said offset portion in such alternate slugs.

4. In a steam-heating system, the combination of a return-conduit receiving and conducting condense-water and gaseous fluids, a trap interposed between said conduit and system, a pump located at a level higher than that of the trap into which the other end of said conduit discharges, said conduit being provided intermediate its length with an upright restricted offset portion and means located at the base of the said offset portion for dividing said water and gaseous fluids in alternate slugs, whereby the contents of said conduit rise through said offset portion in such alternate slugs.

5. In a steam-heating system, the combination of a return-conduit receiving and conducting water and gaseous fluids, a pump located at a level higher than that of the receiving end of said conduit into which the other end of said conduit discharges, said conduit embracing a plurality of generally horizontal parts joined by restricted upright offset portions, and means at the bases of said offset portions for dividing said water and gaseous fluids in alternate slugs, whereby the contents of the conduit rise through said offset portions in such alternate slugs.

6. In a steam-heating system, the combination of a return-conduit receiving and conducting water and gaseous fluids, a pump located at a level higher than that of the receiving end of said conduit into which the other end of said conduit discharges, said conduit being provided intermediate its length with an upright restricted offset portion and means located at the base of the said offset portion for dividing said water and gaseous fluids in alternate slugs, whereby the contents of said conduit rise through said offset portion in such alternate slugs, the end of the conduit immediately adjacent to the pump being enlarged.

7. In a steam-heating system, an apparatus for raising condense-water associated with air and vapor comprising a return-conduit having one end higher than the other and receiving at its lower end condense-water and gaseous fluids, a pump into which the higher end of the conduit discharges, said conduit comprising generally horizontal and vertical parts, the latter of which are restricted, and traps at the lower ends of said vertical parts of the conduit.

8. In a system for raising heated water associated with a gaseous fluid from a lower to a higher level, the combination of a source supplying such heated water and gaseous fluid, a conduit communicating with said source at its lower end, a pump communicating with the other or higher end of the conduit, said conduit embracing a plurality of relatively long horizontal parts connected by short upright parts, the latter of which are restricted relatively to the horizontal parts, and means at the lower ends of said vertical parts for dividing the water and gaseous contents of the conduit in alternate slugs, whereby the contents of the conduit rise through said upright parts in such alternate slugs.

788,493. **INCANDESCENT ELECTRIC LAMP.** HERSCHEL C. PARKER, New York, N. Y. Continuation of Serial No. 201,643, filed Apr. 5, 1904. This application filed July 2, 1904. Serial No. 215,043.



Claim.—1. In an electric lamp, a highly-refractory non-conducting tube, permeable to light, a conductive but resisting core of free particles tightly packed within the tube, the ends of the core offering less resistance to current than the intermediate portion thereof, and circuit-terminals held in the end portions of the tube.

2. An electric lamp comprising a tube of quartz, a tightly-packed resisting but conductive core of free particles within the tube, the said core being less current resistant at the ends than at the middle portion and circuit-terminals connected with the end portions of the core.

3. An electric lamp comprising a tube of quartz, a conductive but resisting filling of free particles tightly packed in the tube, the filling at the ends of the tube offering less resistance to a current than the filling in the intermediate portion of the tube and suitable terminals connected to the said conductors.

4. An electric lamp comprising a tube of quartz, a conducting but resisting filling of free particles in the tube, the said filling comprising a stable oxid with a small percentage of graphite, the filling near the end portions of the tube containing a greater percentage of graphite than the filling in the intermediate portion of the tube, suitable conductors having their ends embedded in the filling at the ends of the tubes, and suitable seals for inclosing the ends of the tube.

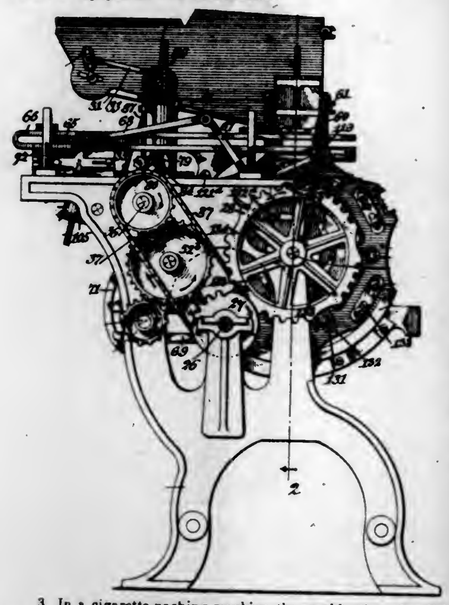
5. An electric lamp comprising a tube of quartz, a conducting but resisting filling of free particles in the tube, the said filling comprising a stable oxid with a small percentage of graphite, the filling near the end portion of the tube containing a greater percentage of graphite than the filling in the intermediate portion of the tube, suitable conductors having their ends embedded in the filling at the ends of the tubes, packing at each end of the filling and suitable seals for inclosing the ends of the tube.

6. An electric lamp comprising a tube of quartz, a conducting but resisting filling of free particles in the tube, the said filling comprising a stable oxid with a small percentage of graphite, the filling near the end portion of the tube containing a greater percentage of graphite than the filling in the intermediate portion of the tube, suitable conductors having their ends embedded in the filling at the ends of the tubes, asbestos packing at each end of the filling and suitable seals for inclosing the ends of the tube.

788,494. **CIGARETTE-PACKING MACHINE.** MANUEL PLACER, Havana, Cuba, assignor to Adolfo Moeller & Co., Havana, Cuba, a Firm. Filed Dec. 26, 1903. Serial No. 186,734.

Claim.—1. In a cigarette-packing machine, the combination of a disk having a series of pockets equidistant on its periphery and extending axially of the disk, a plurality of side bars each forming one of the opposite side walls of a pocket, means for supporting said bars for adjustment transversely of the pocket, an adjusting-plate arranged between the opposite bars of adjacent pockets, each bar having a dovetail connection with said plate, means for radially adjusting said plates simultaneously to thereby adjust said bars, and means for securing said plates in their adjusted positions.

2. In a cigarette-packing machine, the combination of a disk having a series of pockets equidistant on its periphery and extending axially of the disk, a plurality of side bars each forming one of the opposite side walls of a pocket, means for supporting said bars for adjustment transversely of the pocket, an adjusting-plate arranged between the opposite bars of adjacent pockets, each bar having a dovetail connection with said plate, means for radially adjusting said plates simultaneously to thereby adjust said bars, means for securing said plates in their adjusted positions, bars, connected one with the bottom of each of said pockets and extending radially of the disk, means for reciprocating each of said bottom bars and bottoms, strips engaging said side bars, lugs extending from each of the latter strips to said bottom bars and having a dovetail connection therewith, and springs interposed between said strips and arranged to retain the same in engagement with the side bars.



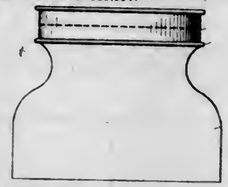
3. In a cigarette-packing machine, the combination of a disk having a series of transversely-arranged pockets in its periphery, a plurality of side bars each forming a side wall of one of said pockets, a series of adjusting-plates arranged intermediate of the pockets and having a dovetail connection with said side bars, a block secured to each of said adjusting-plates, an adjusting-disk arranged concentric with said first-named disk and having a series of eccentric curved slots symmetrically arranged in said adjusting-disk, and a pin on each of said blocks and disposed in one of said slots.

4. In a cigarette-packing machine, the combination of a cigarette-raceway, a cigarette-boxing device arranged at each end of said raceway, means for feeding cigarettes into the raceway at an intermediate portion of the same, and means for advancing the cigarettes fed into said part of the raceway to said boxing devices at both ends of the raceway.

5. In a cigarette-packing machine, the combination of a slidable carrier having blank-engaging portions on its under side, a gumming device consisting of a casing, a bearing at each end of the casing whereby the same may be oscillated, a drum pivotally supported inside the casing concentric therewith, said drum having longitudinal slots at its periphery, one journal member of the casing and drum having a bore therein, a reservoir to which said journal is connected and arranged to feed the gum through said bore into said drum, a gumming-roller pivotally supported in said casing and in engagement with said drum therein, said casing having a longitudinal opening opposite a portion of said drum, a lever secured to the casing, and a cam arranged to engage said lever and rock the casing to bring the roller into the path of the carrier at a certain stage in the movement of the carrier.

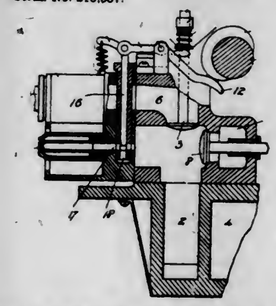
6. In a cigarette-packing machine, the combination of a slidable carrier having blank-engaging portions on its under side, a gumming device consisting of a casing, a bearing at each end of the casing whereby the same may be oscillated, a drum pivotally supported inside the casing concentric therewith, said drum having longitudinal slots at its periphery, one journal of the casing and drum having a bore therein, a reservoir to which said journal is connected and arranged to feed the gum through said bore into said drum, a gumming-roller pivotally supported in said casing and in engagement with said drum therein, said casing having a longitudinal opening opposite a portion of said drum, a lever secured to the casing, a cam arranged to engage said lever and rock the casing to bring the roller into the path of the carrier at a certain stage in the movement of the carrier, a plunger arranged to slide in said reservoir, and means for regularly advancing said plunger to thereby force the gum into the said drum in the casing.

788,495. **JAR-CLOSURE.** LEE C. SAWIN, Fullerton, Cal. Filed June 16, 1902. Serial No. 111,997.



Claim.—In combination, a receptacle having an external shoulder formed near its top, the portion of the receptacle above the shoulder being smooth and cylindrical upon its exterior and provided upon its interior with inclined recesses and a passage leading into each recess from the top, a cover for the receptacle having an annular ridge projecting from the upper edge and a cylindrical extension projecting from its lower face, said extension being of substantially the same diameter as the interior diameter of the mouth of the receptacle, the periphery of the cover being smooth, and cylindrical and of substantially the same diameter as the exterior diameter of the top of the receptacle, and registering therewith when in position, and a flexible band around the cylindrical portions of the receptacle and the cover and of a width substantially equal to the distance between said shoulder and ridge.

788,496. **OPERATING DEVICE FOR INLET AND IGNITION VALVES OF INTERNAL-COMBUSTION ENGINES.** JOHN W. SEAL, Hammersmith, London, England, assignor of two-thirds to John Bernard, Langford, Chiswick, England. Original application filed Oct. 23, 1903, Serial No. 178,298. Divided and this application filed July 25, 1904. Serial No. 218,057.



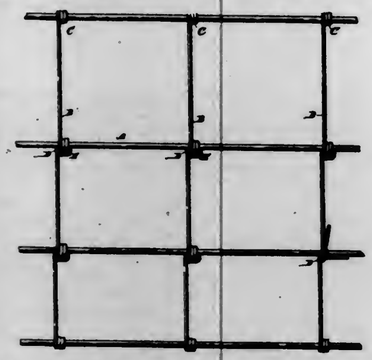
Claim.—1. In an internal-combustion engine the combination with the cylinder, crank-shaft, means for supplying the combustible mixture and means for exhausting the waste products of combustion, of an igniter, a valve therefor, an inlet-valve for the combustible mixture, a spring adapted to press said valve upon its seating, means adapted to open and close the valve of the igniter and to simultaneously relieve or enforce the spring-pressure on the inlet-valve, and a single device adapted to be moved by the crank-shaft to operate the valve opening and closing means aforesaid.

2. In an internal-combustion engine the combination with the cylinder, crank-shaft, means for supplying the combustible mixture and means for exhausting the waste products of combustion, of an igniter, a valve therefor, an inlet-valve for the combustible mixture, a spring adapted to press said valve upon its seating, a cam upon the crank-shaft, a three-armed lever connected by one arm to the valve of the igniter, by another arm adapted to enforce or relieve the spring-pressure on the inlet-valve, and by the third to be operated by the cam aforesaid, and means for maintaining the third arm in engagement with the cam-surface.

3. In an internal-combustion engine the combination with the cylinder, crank-shaft, means for supplying the combustible mixture and means for exhausting the waste products of combustion, of an

igniter, a valve therefor, an inlet-valve for the combustible mixture, a spring adapted to press said valve upon its seating, a cam upon the crank-shaft, a three-armed lever connected by one arm to the valve of the igniter, by another arm adapted to enforce or relieve the spring-pressure on the inlet-valve, and by the third to be operated by the cam aforesaid, and a second spring adapted to overcome the pressure of the spring of the inlet-valve and to cause said valve to be held on its seating when the lever is not moved by the cam in such manner as to relieve the pressure of said valve-spring.

788,497. **WIRE FENCE.** JUSTIN M. ST. JOHN, Cedar Rapids, Iowa, assignor to J. M. Denning, Cedar Rapids, Iowa. Filed Feb. 29, 1904. Serial No. 196,943.



Claim.—1. A wire fence comprising a plurality of longitudinal strand-wires, and a plurality of transverse stay-wires spanning the spaces between the strand-wires, the ends of the outer series of stay-wires being coiled around the outer strand-wires, and one end of each intermediate stay-wire being looped in the plane of the stay-wires, and the end of the connecting stay-wire being coiled to embrace the strand-wire and the adjacent part of said loop, the coil passing through said loop, substanialllly as shown and described.

2. In a wire fence composed of a plurality of longitudinal strand-wires, and transverse stay-wires spanning the spaces between said strand-wires, the described knot or tie for connecting ends of stay-wires, the same comprising a loop formed at the end of one stay-wire in the plane of the strand-wires, and a coil at the end of the connecting stay-wire embracing the strand-wire and the portion of said loop lying adjacent thereto, the coil passing through said loop, substantially as shown and described.

3. A wire fence composed of a plurality of longitudinal strand-wires, and a plurality of transverse stay-wires spanning the spaces between the strand-wires, said stay-wires being simply coiled around the outer strand-wires, but as to intermediate strand-wires being coiled at one end and looped at the other, the loop being in the plane of the strand-wires, and the coil passing through it and embracing the strand-wire and a part of said coil lying adjacent thereto.

788,498. **FIRE-EXTINGUISHER.** CHARLES W. ATON, Clairton, Pa. Filed Jan. 7, 1905. Serial No. 240,051.

Claim.—1. A fire-extinguisher having a nozzle, a discharge-tube communicating with the nozzle, said tube having two separated series of perforations, and means for closing one series of perforations.

2. A fire-extinguisher having a nozzle, a discharge-tube communicating with the nozzle, said tube having a set of perforations near the top thereof and a set of perforations near the bottom, and means for closing the perforations near the top of the tube.

3. A fire-extinguisher, comprising a frangible receptacle for chemicals, means for breaking the receptacle when the extinguisher is inverted, a nozzle, a tube located in the extinguisher and communicating with said nozzle, said tube having two sets of perforations one near the top of the extinguisher and one near the bottom, and a valve for closing the first-meationed perforations.

4. A fire-extinguisher, comprising a tube having two sets of perforations one near the bottom of the extinguisher and one near the top, a valve for the last-mentioned set of perforations, said valve being pivoted to the tube and adapted to cover the perforations, a receptacle for chemicals, and means for breaking said receptacle when the extinguisher is inverted.



5. A fire-extinguisher, comprising a tube having two sets of perforations one near the bottom of the extinguisher and one near the top, and a valve for the last-mentioned set of perforations, said valve being pivoted to the tube and adapted to cover the perforations and provided with a counterbalance-weight adapted to open and close the valve in different positions of the extinguisher.

6. In a fire-extinguisher, the combination of a casing, a removable cap therefor located at its upper end and provided with a nozzle, a tube movably located in said nozzle, a main tube connected with said first-mentioned tube and located longitudinally in the casing, said main tube having two series of perforations one located near its upper end and the other near its lower end, a valve pivoted to said main tube above the upper set of perforations, said valve being formed of a sheet of lead and provided with a plate adapted to cover the upper set of perforations and with a counterweight integral with the plate, said counterweight being adapted to operate the valve, and means for generating gas-pressure when the extinguisher is inverted.

7. A fire-extinguisher comprising a nozzle, a discharge-tube connected therewith and having perforations, and a valve for closing said perforations; said valve being pivoted to the tube and provided with a counterbalance-weight adapted to operate the valve in different positions of the extinguisher.

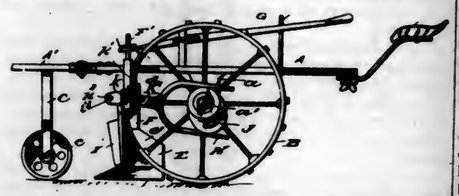
8. A fire-extinguisher comprising a nozzle, a discharge-tube connected therewith and having perforations, and a valve for closing said perforations; said valve being pivoted to the tube and provided with a counterbalance-weight adapted to operate the valve in different positions of the extinguisher, and being formed of a sheet of metal and provided with a curved plate adapted to cover the perforations, the counterweight being integral with the plate.

9. A fire-extinguisher comprising a casing, a generating-tube therein provided with oppositely-disposed indentations in its walls, and means within the casing for holding the tube, comprising a series of resilient clips having integral projections adapted to enter said indentations, and extensions projecting beyond said projections for the releasing of the projections from the indentations.

10. A fire-extinguisher comprising a tube having perforations in its walls, an acid-bottle in the tube having depressions opposite said perforations, and means for holding the tube and bottle adapted to project through said perforations and engage in the depressions.

788,499. **POTATO-DIGGER.** LLOYD W. BRABBLE, Deepcreek, Va., assignor of one-half to Charles S. Carter, Norfolk, Va. Filed Aug. 29, 1903. Serial No. 171,533.

Claim.—1. A vine-cutter, comprising a frame, a horizontal flat cutter at its forward end, a vertically-arranged oscillating cutter carried by said horizontal cutter, substantially as described.



2. A vine-cutter, comprising a frame, a vertically-movable vine-cutter, a vertical oscillating knife carried thereby, substantially as described.

3. A vine-cutter comprising a frame, draft-wheels supporting the same, a vertically-movable cutter, an intermediately-pivoted vertical oscillating knife carried by said cutter, and means operated by the draft-wheel for oscillating said knife, substantially as described.

4. A vine-cutter comprising a frame, draft-wheels supporting the same, a cutter carried thereby, an oscillating vertical knife pivoted to said cutter, an outwardly-extending arm carried by said knife and an eccentric operating said arm, substantially as described.

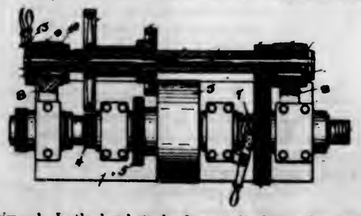
5. A vine-cutter comprising a frame, draft-wheels supporting the same, a cutter carried thereby, an oscillating vertical knife pivoted to said cutter, an outwardly-extending arm carried by said knife, an eccentric carried by one of said wheels, an intermediately-pivoted arm having one end connected to the arm carried by the knife, an eccentric-bar carried by the opposite end of said arm and operated by the eccentric, substantially as described.

6. A vine-cutter comprising a frame, draft-wheels supporting the same, a vertically-movable cutter, means for holding said cutter in the desired position, a vertical oscillating knife pivoted to said cutter, an outwardly-extending arm carried by said knife, an eccentric carried by one of said wheels, an intermediately-pivoted lever having one end connected to the arm carried by the knife, an eccentric-strap carried by the opposite end, substantially as described.

7. A vine-cutter comprising a frame, wheels supporting the same, a vertical cutter, an intermediately-pivoted lever operating said cutter, an oscillating knife carried by said cutter, means operated by the wheels for oscillating said knife, a pivoted frame, substantially as described.

8. A vine-cutter comprising a frame, a downwardly-extending stud carried by the forward end of said frame, a cutter having an upwardly-extending member having a vertical recess to receive said stud, a vertical knife pivoted at its upper end to said upwardly-extending member, an outwardly-extending arm carried by said knife, an eccentric for operating said arm, substantially as described.

788,500. **GEARING FOR LATHE HEAD-STOCKS.** NICHOLAS D. CHARD, Cincinnati, Ohio. Filed Sept. 12, 1904. Serial No. 224,076.

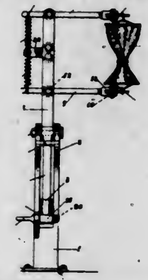


Claim.—1. In the head-stock of an engine-lathe, the combination of a driving-wheel and spindle, a gear fixed to rotate with the spindle, a gear fixed to rotate with the driving-wheel, bearings projected from the head-stock, a bearing-bushing revolubly journaled in each of said bearings, a sleeve-shaft eccentrically journaled at each end in said bearing-bushings, means within said sleeve-shaft connecting the bearing-bushings, gears on the said sleeve-shaft adapted to be intermeshed with the spindle and driving-wheel gears, and means for rotating and locking the said bearing-bushings in said head-stock bearings, substantially as described.

2. In the head-stock of an engine-lathe, the combination of a driving-wheel and spindle, a gear fixed to rotate with the spindle, a gear fixed to rotate with the driving-wheel, bearings projected from the head-stock, a bearing-bushing revolubly journaled in each of said bearings, a sleeve-shaft eccentrically journaled at each end in said bearing-bushings, a connecting-rod passing through said sleeve-shaft and uniting the bearing-bushings, gears on the said sleeve-shaft between the bearings adapted to be intermeshed with the spindle and driving-wheel gears, and means for rotating and locking the said bearing-bushings in said head-stock bearings, substantially as described.

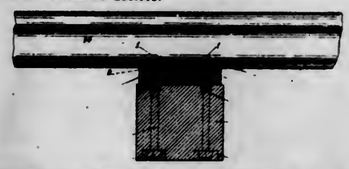
3. In the head-stock of an engine-lathe, a driving-wheel and spindle, a gear-wheel on one of said members, and a pair of gear-wheels of different diameter on the other member, a pair of bearings in the head-stock parallel with the spindle and driving-shaft, a bearing-bushing journaled in each of said bearings, a sleeve-shaft extending between said bearings and journaled at each end eccentrically in the said bushings, a rod passed through said sleeve-shaft and connected to the said bushings, the said sleeve-shaft being splined, three gear-wheels fixed to the sleeve-shaft to rotate therewith, two of which gear-wheels slidingly engage the splined portion of the sleeve-shaft, and means for rotating the said bushings in their bearings, substantially as described.

788,501. **MAIL-BAG HANGER.** GEORGE A. DEMAREST, Berwick, La., assignor, by mesne assignments, of one-half to Walter T. Gilmore, Berwick, La. Filed July 14, 1904. Serial No. 216,612.



Claim.—A mail-delivery apparatus comprising a standard with bifurcated end, pivotal bars mounted between the arms at the bifurcated end of said standard, a weight at the end of said bars, a forked locking member pivotally mounted upon and straddling said support, latches for holding said locking member, pivotal arms mounted between said bars, the ends of said arms being bifurcated, pivotal disks mounted horizontally in said bifurcated arms and provided with fingers designed to engage the loops of the mail-bag, a bracket secured to said bars, springs connecting the end of said bracket with the ends of said arms, a cross-piece projecting from said support and adapted to form a rest to limit the downward throw of said bars, as set forth.

788,502. **CLAMP AND KEY PLATE DEVICE FOR FASTENING RAILS.** GEORGE A. DEMAREST, Berwick, La., assignor, by mesne assignments, of one-half to Walter T. Gilmore, Berwick, La. Filed July 14, 1904. Serial No. 216,613.

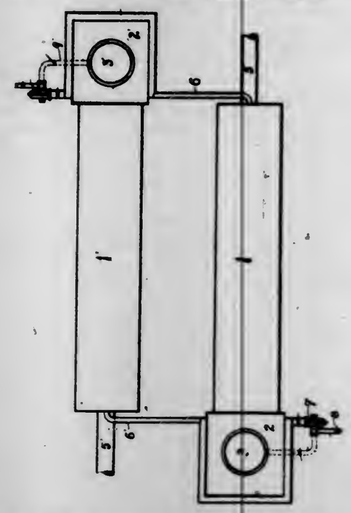


Claim.—1. A railway-rail fastening comprising, in combination with a tie, a plate mounted upon said tie, bolts securing said plate to the tie, keys engaging the opposite edges of the flange of a rail and the under surface of said plate, a second key, a rivet passing through registering grooves in the contact edges of said keys, as set forth.

2. A railway-rail fastening comprising, in combination with a tie, a plate mounted on said tie, bolts having heads countersunken in recesses in said plate and extending through said tie, nuts upon the bolts, a key having laterally-projecting portions adjacent to its ends, one of said projections adapted to overhang the flange of a rail

and the other projection to extend underneath the bottom of said plate, the outer edge of said key having a groove, a second key passing through an aperture in said plate, and a rivet engaging registering grooves in the adjacent edges of said keys, as set forth.

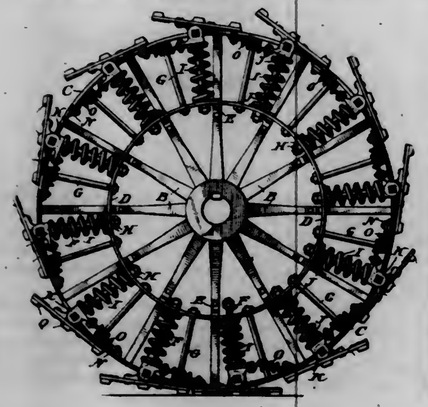
788,503. **CEMENT-KILN.** CARLETON ELLIS, New York, N. Y., assignor to Eldred Process Company, New York, N. Y., a Corporation of New York. Filed Feb. 17, 1905. Serial No. 246,045.



Claim.—1. The combination, in apparatus for burning cement, of a pair of long, rotary kilns so inclined that the material passing through one of said kilns travels in a direction approximately opposite to that of the flow of material in the other kiln, at the stack end of each kiln a continuous heat recuperator, means for passing air through said recuperator, and means for conveying the air, preheated by its passage through the recuperator of one kiln, into the juxtaposited fuel-feeding end of the other kiln.

2. The combination, in apparatus for burning cement, of a pair of long, rotary kilns so inclined that the material passing through one of said kilns travels in a direction approximately opposite to that of the flow of material in the other kiln, at the stack end of each kiln a heat-regenerator, means for passing air through said regenerator and means for conveying the air, preheated by its passage through the regenerator of one kiln, into the juxtaposited fuel-feeding end of the other kiln.

788,504. **WHEEL.** CHARLES M. GREEN, Wahpeton, N. D. Filed Dec. 9, 1903. Serial No. 184,422.



Claim.—1. In a wheel the combination of tread-plates having joints connecting the tread-plates to legs, said legs surrounded by coiled springs, which springs are adapted to support the wheel and load, and of springs connecting the lower part of the legs to the tire of the wheel.

2. In a wheel the combination of a hub, spokes, and tire, a circular band secured on opposite sides of the spokes, legs passing through the circular bands, said legs surrounded by spiral springs, said legs having spring-holders at each end, said legs connected by joints to the tread-plates, a connecting-bar between the lower part of each pair of legs, and jointed stay-bars placed to stay the said connecting-bars to the tire of the wheel.

3. In a wheel surrounded by a series of tread-plates, means for limiting the movement of said tread-plates crosswise of the wheel, consisting of a brace having jointed attachment to the wheel and tread-plates.

4. With a wheel the combination of a series of tread-plates surrounding said wheel and connected thereto by joints and lateral springs, said springs being adapted to limit the movement of the tread-plates and provide a flexible connection between the tread-plates and the wheel.

5. In a wheel the combination of bands secured to opposite sides of the wheel, bolts connecting said bands to the tire of the wheel, legs passing through the said bands, springs connected with said legs, said springs adapted to support the wheel and load, and of tread-plates connected by joints to the lower ends of the legs.

6. With a wheel surrounded by a series of tread-plates, the combination of supporting-springs and lateral springs connecting said tread-plates to the wheel, said lateral springs being adapted to limit the movement of the tread-plates around the wheel and in connection with the supporting-springs to provide a flexible connection between the tread-plates and the wheel.

7. With a wheel the combination of a series of tread-plates surrounding said wheel, said tread-plates connected by joints to the wheel and by lateral springs, said springs being adapted to limit the movement of the tread-plates around the wheel and provide a flexible connection between the tread-plates and wheel.

8. In a wheel the combination of peripheral tread-plates connected by joints to the legs, said tread-plates adapted to tread upon the surface of the ground, said legs placed around the wheel and converging from the central portion of the wheel to the peripheral tread-plates, and said legs provided with springs adapted to support the weight of the wheel and load.

788,505. **RAILWAY-RAIL.** EUGENE HAYWARD, Chicago, Ill., assignor of two-thirds to John B. Morris and Samuel F. Rush, Chicago, Ill. Filed June 25, 1904. Serial No. 214,114.

Claim.—1. A continuous rail comprising a continuous-rail base, a rail-head, a channel in one of said parts, a complemental rib on the other and internal bolts adapted to engage said parts together.

2. The combination with a rail-base of a rail-head of corresponding length, interfitting parts on said rail base and head and bolts extending vertically therethrough adapted to engage the same together, said rail-heads and said rail-bases being arranged for the abutting ends of the one to lie centrally of the other.

3. A continuous rail comprising a rail-base and a rail-head of equal length interfitting parts thereon, fish-bolts extending therethrough and adapted to rigidly connect the same, said rail-bases and rail-heads being so arranged that the ends of one are positioned remote from the ends of the other and a bolt engaged vertically in notches at the ends of the rail-heads acting to draw the same into positive engagement with the rail-base.

4. A rail-base having parallel fish-plates thereon extending approximately the length thereof and provided with elongated apertures therethrough intermediate said plates.

5. A rail-base having parallel integral fish-plates thereon extending for the entire length thereof and provided centrally with an elongated aperture intermediate said plates.

6. The combination with a rail-base, of parallel fish-plates integral therewith and having slotted bolt-holes therein, each fish-plate having a downwardly and outwardly beveled top adapted to engage beneath the rail-head and a bolt extending upwardly through said base intermediate said plates.

7. The combination with a longitudinally-channeled rail-base of a rail-head, a longitudinal rib on the rail-head, bolts extending transversely through the rail-base and rib, and a bolt extending vertically through the rail-base and engaging between the abutting ends of the rail-heads.



8. A continuous railway-rail comprising a plurality of rail-bases and rail-heads, of uniform length, each interfitting the other and arranged with the abutting ends of each disposed centrally of the other and bolts engaging the same into a continuous rail with a bolt extending upwardly through the base and engaging in seats in the ends of said heads.

9. A rail-head having a longitudinal rib thereon adapted to interfit a rail-base, said head having a notch in each end of said rib and having a bearing-surface on each side the rib.

10. A rail-head having a longitudinal rib on the under side thereof adapted to engage in a channeled rail-base, said rib being provided with a recess in each end thereof and inwardly-bearing faces on each side the rib adapted for engagement with complemental faces on the rail-base.

11. In a continuous rail, a plurality of rail-bases and rail-heads, each interfitting the other and arranged with the abutting ends of one intermediate the ends of the other, and means positively engaged in each rail-base, engaging between the abutting ends of the rail-heads and locking both to the base.

REISSUES.

12,339. **FASTENING DEVICE.** HARVEY E. BERKEY, Monongahela, Pa., assignor to the Pioneer Suspender Company, a Corporation of Pennsylvania. Filed Apr. 20, 1904. Serial No. 204,139. Original No. 732,372, dated Feb. 16, 1904.



Claim.—1. In a fastening device of the character described, the combination of two interlocking members, one member provided with a head, the other member provided with lips having margins for embracing the head, said margins convergent substantially throughout their length, and said lips being formed with open spaces between them and the intermediate portion of the member, said intermediate portion being slightly out of the plane of the margins of the lips.

2. In a fastening device of the character described, the combination of two interlocking members, one member provided with a head, the other member provided with lips having curved margins for embracing the head, said margins being convergent substantially throughout the length thereof, said lips being formed with open spaces between them and the intermediate portion of the member, said intermediate portion being slightly out of the plane of the margins of the lips.

3. In a fastening device of the character described, the combination of two interlocking members, one member provided with a head, the other member provided with lips having margins for embracing the head, said margins convergent substantially throughout their length, and said lips being formed by striking up the plate so as to leave slots between the lips and the intermediate portion of said member, and so as to leave the intermediate portion slightly out of the plane of the margins of said lips.

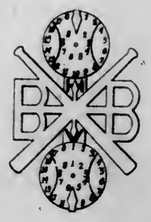
4. In a fastening device of the character described, the combination of two interlocking members, one member being provided with a head, the other member provided with lips having curved margins for coöperating with the head, said margins being convergent substantially throughout the length thereof, said lips being formed by striking up the plate so as to leave slots between the lips and the intermediate portion of said member, and so as to leave the intermediate portion slightly out of the plane of said margins of said lips.

5. In a fastening device of the character described, the combination of two interlocking members, one member provided with a head, the other member provided with lips and an intermediate portion, the said portion and the lips coacting with the head, said lips having margins convergent substantially throughout their length and formed with open spaces between them and the intermediate portion of the member, said intermediate portion being slightly out of the plane of the margins of the lips.

6. In a clasp of the kind described, the combination with a sheet-metal button member having a button thereon and also provided with means for the attachment of two webs, of a hook member adapted to pivotally engage the button member and having a large opening from which leads a reduced socket, said socket, when the hook is engaged with the button member, receiving the button, said hook member being also provided with a flexible central tongue to bear on the head of the button when said member is engaged with the button member.

DESIGNS.

37,415. **BASE-BALL-REGISTER BADGE.** ABRAM ALLAN HENDRICKSON, St. Albans, N. Y. Filed Mar. 6, 1905. Serial No. 248,766. Term of patent 7 years.



Claim.—The ornamental design for a base-ball-register badge, as shown.

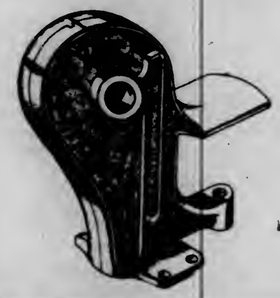
37,416. **BOOK-COVER.** WILLIAM M. RHOADS, Denver, Colo. Filed Feb. 20, 1905. Serial No. 246,638. Term of patent 7 years.

37,416.



Claim.—The ornamental design for a book-cover, as shown.

37,417. CORK-EXTRACTOR CASE. RAYMOND BEARDSLEY GILCHRIST, Newark, N. J. Filed Mar. 27, 1905. Serial No. 252,428. Term of patent 7 years.



Claim.—The ornamental design for a cork-extractor case, as shown.

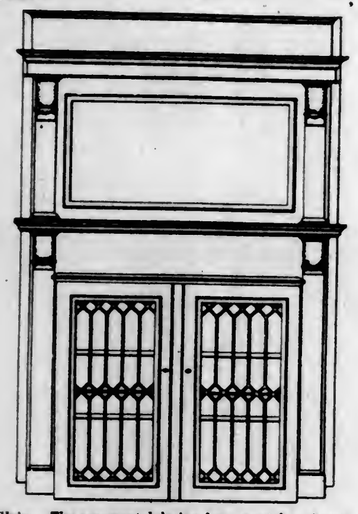
37,418. SHADE FOR INCANDESCENT ELECTRIC LAMPS. HENRY FORSEN, Cambridge, Ohio, assignor to Frank Yesbera, Toledo, Ohio. Filed Mar. 17, 1905. Serial No. 250,855. Term of patent 3½ years.



Claim.—The ornamental design for a shade for incandescent electric lamps, as shown.

37,419. MANTEL. PHILIPP A. BROADBENT, Baltimore, Md. Filed Mar. 16, 1905. Serial No. 250,477. Term of patent 7 years.

37,419.



Claim.—The ornamental design for a mantel as shown.

37,420. PILLOW-SHAM. NAJERA NAJA, New York, N. Y. Filed Feb. 10, 1905. Serial No. 245,138. Term of patent 3½ years.



Claim.—The ornamental design for a pillow-sham, as shown.

37,421. LADY'S BELT. MAUDE MARTIN, Chicago, Ill., assignor to Morris, Mann & Reilly, Chicago, Ill., a Firm. Filed Mar. 27, 1905. Serial No. 252,431. Term of patent 3½ years.



Claim.—The ornamental design for a lady's belt, as shown.

PHOTO-LITHOGRAPHED BY BACHRACH & WEINBERG, LITHO. & PTG. CO., NEW YORK.

LABELS

REGISTERED APRIL 25, 1905.

12,080.—*Title:* "TARGET RYE." (For Whisky.) FRANK W. PACKER, Lansing, Mich. Filed April 4, 1905.

12,081.—*Title:* "LIQUEUR SUPERFINE." (For Liqueurs.) CHARLES JACQUIN ET CIE., INC., New York, N. Y. Filed March 27, 1905.

12,082.—*Title:* "ACORN-CEREAL COFFEE." (For Cereal Coffee.) F. H. BENOLD, Chicago, Ill. Filed March 31, 1905.

12,083.—*Title:* "NATIONAL MALT COFFEE." (For Coffee Substitute.) CHARLES L. MEDINGER, Baltimore, Md. Filed March 27, 1905.

12,084.—*Title:* "SHILOH BAKING POWDER." (For Baking-Powder.) THE KENTON BAKING POWDER CO., Cincinnati, Ohio. Filed March 29, 1905.

12,085.—*Title:* "PEACOCK BAKING POWDER." (For Baking-Powder.) THE KENTON BAKING POWDER CO., Cincinnati, Ohio. Filed March 29, 1905.

12,086.—*Title:* "SNOW KING BAKING POWDER." (For Baking-Powder.) THE KENTON BAKING POWDER CO., Cincinnati, Ohio. Filed March 29, 1905.

12,087.—*Title:* "CAMPBELL'S BAKING POWDER." (For Baking-Powder.) THE KENTON BAKING POWDER CO., Cincinnati, Ohio. Filed March 29, 1905.

12,088.—*Title:* "YORKSHIRE." (For Lard.) KENTUCKY PACKING & PROVISION CO., Louisville, Ky. Filed March 31, 1905.

12,089.—*Title:* "SQUIRE PICKLES." (For Pickles.) SQUIRE DINGEE COMPANY, Chicago, Ill. Filed March 31, 1905.

12,090.—*Title:* "POMPEII." (For Confectionery.) STEPHEN ZANONE, New York, N. Y. Filed March 31, 1905.

12,091.—*Title:* "BOYD'S LUNCHEON CREAM MINTS." (For Mint Candy.) GEORGE BOYD & SONS., Philadelphia, Pa. Filed March 25, 1905.

12,092.—*Title:* "FORGET-ME-NOTS." (For Medicine.) J. B. SIMAS, Haverhill, Mass. Filed March 29, 1905.

12,093.—*Title:* "DR. SHARPS ℞ 1300." (For Medicine.) W. E. SNELLINGS, Norfolk, Va. Filed April 3, 1905.

12,094.—*Title:* "RADIUM CORN CURE." (For Corn Cure.) JOSEPH ZUCKERMAN, New York, N. Y. Filed January 18, 1905.

12,095.—*Title:* "DR. DICK'S MALTED STOCK FOOD." (For Stock-Food.) DR. DICK'S MALTED STOCK FOOD CO., Davenport, Iowa. Filed March 6, 1905.

12,096.—*Title:* "MOBO." (For Cleaning Compound.) JOHN T. STANLEY, New York, N. Y. Filed March 30, 1905.

12,097.—*Title:* "MOBO." (For Cleaning Compound.) JOHN T. STANLEY, New York, N. Y. Filed March 30, 1905.

12,098.—*Title:* "HUMAN LIFE, A MAGAZINE OF TO-DAY." (For Publication.) HUMAN LIFE PUBLISHING COMPANY, Boston, Mass. Filed March 31, 1905.

PRINTS

REGISTERED APRIL 25, 1905.

1,271.—*Title:* "CRÈME ELCAYA." (For Face-Creams.) JAMES C. CRANE, New York, N. Y. Filed March 25, 1905.

1,272—*Title:* "DUNLOP SUPERLATIVE PATENT FLOUR." (For Flour.) THE DUNLOP MILLS, Richmond, Va. Filed April 1, 1905.

1,273.—*Title:* "MEN'S APPAREL." (For Men's Apparel.) W. C. BOTH, Chicago, Ill. Filed April 3, 1905.

1,274.—*Title:* "A YARD OF RAZORS." (For Safety-Razors.) REICHARD & SCHEUBER MFG. CO., New York, N. Y. Filed April 3, 1905.

1,275.—*Title:* "HOW SHALL WE PAINT." (For Paint.) THE LOWE BROTHERS COMPANY, Dayton, Ohio. Filed March 27, 1905.

1,276.—*Title:* "CONOVER." (For Pianos.) FRED E. HALL, Boston, Mass. Filed April 3, 1905.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE NAEF.

Decided March 25, 1905.

1. ABANDONED APPLICATION—IMPROPER ACTION—CHANGE IN OFFICE PRACTICE.

The question whether an amendment presented was such proper action as the condition of the case required must be determined by the practice of the Office in force at the time, and it is not affected by a subsequent change of practice.

2. SAME—REPEATED DELAYS—RIGHTS STRICTLY CONSTRUED.

Where the record shows that the applicant is in the habit of waiting almost the full statutory period before amending, he is not in a position to rely on any matters of equity when a question is raised whether he has acted in time, but only upon his strict technical rights.

ON PETITION.

TREATING MATERIALS WITH GASES, APPLICABLE TO THE MANUFACTURE OF CHLORIN, ETC.

Mr. Henry A. Seymour for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner holding that the above-entitled application is abandoned.

On January 11, 1904, the applicant presented an amendment in reply to a rejection by the Examiner dated January 21, 1903. The amendment was refused admission, because it included claims to more than one invention, and the applicant was informed on January 27, 1904, that the case was abandoned.

No response was made by the applicant until January 25, 1905, when this petition was filed. In support of the petition it is urged that since it is now the practice to enter and act upon amendments including claims to two inventions the amendment of January 11, 1904, should be regarded as a proper action and such as to save the case from abandonment. In regard to this contention, however, it may be said that the sufficiency of an action is to be judged by the well-established practice at the time it was taken. This applicant should have known and will be presumed to have known that an amendment such as he presented was not admissible at the time and was not such action as the condition of the case required. He cannot avoid the effect of his failure to take proper action by a subsequent change of the practice of this Office in the matter of entering amendments.

It is to be noted that the applicant waited a full year, lacking one day, after being notified that this case was abandoned before bringing this petition. It is to be noted, further, that each of the four amendments made by him was presented exactly on or within a few days of the expiration of the year allowed him by law for action. He has apparently relied upon his technical right to delay action as long as possible in each instance, and therefore he is not in a position to rely on any matters of equity, but only upon a strict and technical compliance with the law. An examination of the record shows that some of his amendments prior to that of January 11, 1904, were totally inadequate to meet the requirements of the case as it then stood and that therefore the case was really abandoned before January 11, 1904, although no ruling to that effect had been made by the Examiner.

The petition is denied.

ROBERTS *v.* WEBSTER.

Decided March 25, 1905.

MOTION TO STRIKE OUT TESTIMONY—WHEN NOT GRANTED.

When a notice is served at ten a. m. that testimony is to be taken at two p. m. on the last day upon which testimony must be taken and all parties live in the same city and were present and the record shows that the testimony was very brief, and as nothing appears in the record to indicate that there was not sufficient time remaining to finish the cross-examination, *Held* that this testimony will not be stricken out, notwithstanding an objection on the record of insufficient notice and a refusal to cross-examine.

APPEAL on motion.

TELEPHONE-EXCHANGE SYSTEM.

Application of John G. Roberts. Application of Harry G. Webster.

Messrs. Barton & Tanner for Roberts.

Mr. Charles A. Brown for Webster.

ALLEN, *Commissioner:*

This is an appeal by Webster from a decision of the Examiner of Interferences denying Webster's motion that the deposition of Joseph J. O'Connell, which was given in behalf of Roberts, be stricken from the records.

It appears that O'Connell was called to testify at two p. m. December 16, 1904, and that notice was served on the opposing counsel about ten a. m. of the same day. It also appears that December 16, 1904, was the last day upon which Roberts could take testimony. Counsel for Webster objected to the taking of this testimony on the ground of insufficient notice and also for the reason that an insufficient time would be given for cross-examination in view of the fact that the witness was called to testify on the last day upon which testimony could be taken.

The record shows that counsel for both parties resided in the same city and that the direct testimony of O'Connell comprises but seven questions. The answers are short and specific, and the time consumed in the direct

examination of O'Connell could not have been great. Counsel for Webster declined to cross-examine the witness for the reasons which he had previously placed upon the record. It is by no means clear that there was not ample time for conducting a sufficient cross-examination.

The Examiner of Interferences was right in refusing to strike this deposition from the record, and his decision is affirmed.

EX PARTE HOLBERT.

Decided March 30, 1905.

TRADE-MARKS—"OPTINE" REJECTED ON "OPTAL."

The word "Optine" refused registration in view of the prior registered mark "Optal," since the resemblance between the marks is such as to cause confusion and to be likely to deceive purchasers as to the origin of the goods.

ON APPEAL.

TRADE-MARK FOR MEDICINE.

Messrs. Paul & Paul for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Optine" as a trade-mark in view of a prior registered mark, No. 34,990, July 31, 1900, for the word "Optal," applied to goods of substantially the same descriptive properties.

The only question for consideration here is whether the word "Optine" so nearly resembles the word "Optal" as to be likely to deceive purchasers and cause confusion in the trade as to the origin of the goods to which the words are applied. Section 3 of the Trade-Mark Act of 1881 provides that—

* * * no alleged trade-mark shall be registered * * * which so nearly resembles some other person's lawful trade-mark as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers.

Notwithstanding the differences in the style of the printing adopted by the parties, it is believed that these marks so nearly resemble each other as to cause confusion and to be likely to lead purchasers to accept the articles made by one manufacturer supposing them to be articles made by the other.

This case seems to fall within the principles announced in the following decisions: *Ex parte Sodafoam Baking Powder Co.*, (96 O. G., 1239;) *ex parte Vogel & Son*, (99 O. G., 2321;) *ex parte Ino Medicine Company*, (101 O. G., 887.)

The decision of the Examiner of Trade-Marks refusing registration is affirmed.

YARNALL v. POPE.

Decided March 30, 1905.

1. INTERFERENCE—APPLICANT AGAINST PATENTEE—PATENTABILITY OF ISSUE—RULE 126.

Where a tribunal of the Office calls attention to the fact that the issue is not regarded as patentable, the Office will not refuse to consider the matter because one of the parties is a patentee, but the case will be transmitted to the Examiner for action under Rule 126. (*Lipe* v. *Miller* distinguished.)

2. SAME—SAME—SAME—ADMISSION THAT ISSUE IS UNPATENTABLE.

Where an applicant in interference with a patentee moves to dissolve on the ground that the issue is not patentable, his motion will be granted without considering the merits of the question of patentability; but where the applicant does not admit that his claims are unpatentable it is necessary for this Office to consider and decide the matter for itself.

3. SAME—SAME—MOOT QUESTION—CLOUD UPON PATENT.

The Office will not conduct an interference as to an unpatentable issue merely because one of the parties is a patentee. It will not waste time deciding a moot question simply to avoid casting a cloud upon a patent.

ON PETITION.

EFFERVESCENT LAUNDRY BLUE.

Application of Elizabeth S. Yarnall. Patent granted William C. Pope.

Mr. George H. Knight for Yarnall.

Messrs. Bakewell & Cornwall for Pope.

ALLEN, *Commissioner:*

This is a petition by Pope for a reconsideration of the order made herein on March 18 transmitting the case to the Primary Examiner for a consideration of the question of patentability of the issue.

The Examiner of Interferences called attention under Rule 126 to the fact that in his opinion the issue is not patentable, and the case was, as a matter of course, transmitted to the Primary Examiner for consideration. It may be said here that it is not the practice to grant hearings in such cases upon the question whether the cases shall be transmitted to the Examiner; but they are transmitted to him, and he grants a hearing to the parties.

Pope is a patentee, and he urges that this Office should not raise a question as to the patentability of the issue, and thereby cast a cloud upon his patent. In support of this contention he cites the following recent decisions referring to a motion by an applicant in interference with a patentee alleging that the issue is not patentable: *Bellows* v. *King*, (106 O. G., 997,) *Robins* v. *Titus*, (110 O. G., 310,) and *Weissenthanner* v. *Goltstein*, (111 O. G., 810.) It is urged that since the applicant is not permitted to cast a cloud upon his opponent's patent this Office should not of its own motion cast such a cloud.

In this argument the petitioner seems to have overlooked the principle upon which the above-noted decisions are based. The applicant who is the only one before the Office seeking a patent is not entitled to move to dissolve on the ground that his own invention is unpatentable, since the only purpose of such motion is to cast a cloud upon his opponent's patent. Where the applicant admits that he is not entitled to a patent, this Office will not waste time in considering the question of patentability, but will accept the applicant's admission, dissolve the interference, and reject his claims. It is not necessary for the Office to consider the question of patentability in order to dispose of the interference, and it will not do it for the sole purpose of discrediting the patent which has been granted.

In the present case the applicant, Yarnall, does not admit that her claims are unpatentable, and therefore this Office must proceed to determine the question of priority of invention or must consider the question whether the issue is patentable. Neither law nor reason makes it necessary for this Office to waste time considering the question of priority as to an invention which it does not regard as patentable. The question of patentability is not a moot one, and there is no principle of estoppel which prevents this Office from considering it for fear that a patent previously granted will be discredited by the conclusion reached. In such case the discrediting of the patent is a mere incident to the decision of a matter which is of vital importance in the interference.

There was no error in transmitting this case to the Primary Examiner for decision, and this petition is denied.

EX PARTE THE CRESCENT OIL COMPANY.

Decided March 30, 1905.

TRADE-MARK—ANTICIPATION—GREYHOUND.

A trade-mark consisting of the picture of a greyhound with the word "Run-Lite" inclosed in a circle refused registration in view of a prior mark consisting of a picture of a greyhound together with certain other words inclosed within a circle.

ON APPEAL.

TRADE-MARK FOR LUBRICANTS.

The Crescent Oil Company pro se.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register a mark which consists—

* * * of the representation of a running greyhound inclosed in an annular band or figure and in the band above the greyhound is the hyphenated word "Run-Lite."

Registration has been refused in view of the prior registration No. 21,486, July 19, 1892, Henry W. Peabody & Co. The registered mark consists of the representation of a greyhound associated with the words "Greyhound Brand. Amber A. A. Machinery Oil" and inclosed in a circle.

The marks are applied to goods of substantially the same descriptive properties, and the question presented for determination is whether the inclusion of the greyhound in the two marks makes them so nearly resemble each other as to confuse the public or deceive purchasers as to the origin or ownership of the goods to which the marks are applied. The greyhound is undoubtedly the feature of both marks which would attract the attention of purchasers, and therefore it is believed that purchasers would be likely to be confused by the use of these marks upon the same class of goods.

The decision of the Examiner of Trade-Marks is affirmed.

CHERNEY v. CLAUSS.

Decided August 1, 1904.

1. INTERFERENCE—ORIGINALITY—APPLICANT *v.* PATENTEE.

Where some of the counts of the issue cover a rotating baking-surface and other counts include such a rotating baking-surface in combination with a peculiar arrangement of flues, *Held* that though the applicant is the original inventor of the rotating baking-surface he has presented no convincing evidence tending to prove originality of the combination claims, and priority upon these claims is awarded to the patentee.

2. SAME—EVIDENCE—IDENTIFYING FIGURES OF DRAWING.

Where a witness identifies a drawing showing a rotating baking-surface and was then asked on cross-examination if he had ever seen another drawing which illustrated, in addition to the rotating baking-surface, the flue construction called for by some of the counts and he identifies a certain part of one figure, which part shows merely the rotating baking-surface, *Held* that his testimony does not establish the fact that the flue construction was ever disclosed to him.

3. SAME—SAME—SAME—BURDEN OF PROOF—SUSTAINED ONLY BY CLEAR TESTIMONY.

With the burden of proof heavily upon the applicant it was clearly incumbent upon him, if he desired to establish a prior conception of the flue construction, to call this witness as his own, or at least when he was called by the other side to have him testify particularly to the flue construction.

4. SAME—SAME—SAME—NO TESTIMONY AS TO DATE OF DISCLOSURE—INSUFFICIENT.

Where the witness does not testify to the date on which the invention was alleged to have been disclosed to him, *Held* that the testimony is clearly insufficient to overcome a patent granted before the filing of the junior party's application.

5. SAME—SAME—ANCILLARY INVENTION—PRESUMPTION.

Where it appears that the junior party invented the main construction of supporting the entire rotating baking-support, including means for supporting the stone slabs upon the arms, and where it further appears that certain changes were made by the junior party in the castings for the arms, *Held* that two counts which include merely an improved manner of mounting the slabs upon the arms cover an invention ancillary to the junior party's invention, and priority of invention is awarded to him also upon these counts, particularly in the absence of testimony tending to establish that they were invented by the other party.

APPEAL from Examiners-in-Chief.

BAKE-OVENS.

Application of Anton F. Cherney filed March 23, 1903, No. 149,153. Patent granted William Clauss May 13, 1902, No. 700,018.

Messrs. Banning & Banning for Cherney.

Mr. John W. Strehli for Clauss.

MOORE, *Acting Commissioner:*

This is an appeal by Clauss from the decision of the Examiners-in-Chief reversing the decision of the Examiner of Interferences and awarding priority of invention to Cherney upon the following issue:

1. An oven having a baking-chamber, a fire-box at one side and below the baking-chamber, a partition below the baking-chamber and provided with a passage one end of which is extended to the outside of the oven and provided with a door, two flues at opposite sides of said partition, respectively, and extended from the fire-box toward the opposite side of the oven, other flues outside of and in the same vertical plane with and adapted for communication with the first-named flues, means for circulating the products of combustion from said flues above the baking-chamber, a shaft extended down through the baking-chamber and having its lower end in the passage below said chamber, a step-bearing for said shaft in said passage, driving means for said shaft and a plane on said shaft within the baking-chamber to support articles to be baked, substantially as set forth.

2. An oven having a baking-chamber, a fire-box at one side and below the baking-chamber, a partition below the baking-chamber and provided with a passage one end of which is extended to the outside of the oven and provided with a door, two flues at opposite sides, respectively, of said partition and extended from the fire-box toward the opposite side of the oven, other flues outside of and in the same vertical plane with and adapted for communication with the first-mentioned flues, upwardly-extended flues adapted for communication at their lower ends with the outside flues below the baking-chamber, two sets of flues in the same plane above the baking-chamber, the outer flue of each set having communication with one of said upwardly-extended flues and the inner flue of each set being adapted for communication with a smoke-outlet, a shaft extended down through the baking-chamber with its lower end in the passage below said chamber, a step-bearing for said shaft in said passage, driving means for said shaft and a plane on said shaft within the baking-chamber to support articles to be baked, substantially as set forth.

3. An oven having a baking-chamber, means for heating the same, a vertical shaft in said chamber, arms extended radially from the shaft and provided with depressions, plaster in said depressions and a covering for said arms held thereon by said plaster, substantially as set forth.

4. An oven having a baking-chamber, means for heating the same, a vertical shaft extended in said chamber, arms extended radially from the shaft, parts extended intermediate the outer ends of said arms, each of said arms and intermediate parts having a longitudinal flange and depressions, plaster in said depressions and a covering formed in sections held on said arms and intermediate parts between said longitudinal flanges, substantially as set forth.

5. An oven having a baking-chamber, means for heating the same, a vertical shaft in said chamber, driving means for said shaft, a plane for supporting articles to be baked and formed of a framework and a covering supported thereon, a collar on the shaft below said plane, diagonal braces extended from said collar up to said framework, a central collar on the shaft, and brace-rods having oppositely-screw-threaded ends, each such brace-rod having one end engaged with said central collar and its opposite end engaged with one of said diagonal braces, substantially as set forth.

6. An oven having a baking-chamber, a fire-box, a partition below the baking-chamber and forming on its opposite sides flues having communication with said fire-box, said partition having a passage one end of which is extended to the outside of the oven-wall and provided with a door, a vertical shaft in the baking-chamber with its lower end extended in said passage-way, a plane on the shaft in the baking-chamber, and a step-bearing for said shaft in said passage, substantially as set forth.

7. An oven having a baking-chamber, means for heating the same, a vertical shaft extended in said chamber, a plane within the chamber and on said shaft, braces having their lower ends supported adjacent to the shaft and below said plane, said braces being extended upward with their upper portions inclined out from the shaft and arranged to support said plane and devices for drawing the inclined upper portions of the braces toward said shaft for raising said plane, substantially as set forth.

8. An oven having a baking-chamber, means for heating the same, a shaft extended in said chamber, arms extended radially from said shaft, a covering rested on said arms and forming a plane for supporting articles to be baked, means for driving said shaft and an annular part rested on said arms at the center of said plane and provided with a raised flange against which the covering of the device has engagement to hold said covering against displacement, said annular part being also provided with downwardly-extended portions having engagement between said arms to hold said annular part in position on the arms, substantially as set forth.

9. An oven having a baking-chamber, means for heating the same, a vertical shaft extended in said chamber, a plane within the chamber and on said shaft, braces having their lower ends supported adjacent to the shaft and below said plane and having their upper portions extended upward and inclined out from the shaft, a collar held on the shaft and brace-rods having their inner ends engaged with the collar and having at their outer ends adjustable connection with said inclined braces substantially as set forth.

10. An oven having a baking-chamber, means for heating the same, a vertical shaft in the chamber, a plane on the shaft in the chamber, means for driving the shaft, the lower end of the shaft having a central recess and being provided with a flanged collar, an anchor-plate beneath the lower end of the shaft, a stirrup comprising upwardly-extended spaced arms produced on said anchor-plate, two correspondingly-grooved bearing-plates one above the other and provided with central openings alined with the central recess in the lower end of the shaft the lower bearing-plate being rested on the stirrup and the flanged collar of the shaft being rested on and secured to the upper bearing-plate, balls interposed between the bearing-plates and engaged in the grooves thereof, a stud having its upper end engaged in the central recess in the lower end of the shaft, said stud being passed down through the central openings in the bearing-plates, the stirrup having a central bearing at its upper part in which the lower end of said stud is engaged and a screw carried by the stirrup with its upper end engaged under the lower end of said stud and its lower end formed with a head at the under side of the upper part of the stirrup and between the two arms thereof, substantially as set forth.

The invention covered by this issue is a baker's oven having a rotating baking plane upon which the articles to be baked are placed and a certain arrangement of flues, as set forth in some of the counts.

The testimony taken in the case makes it material to have clearly in mind the invention set forth in the several counts. Counts 3, 4, 5, 7, 8, 9, and 10 are directed merely to the rotating baking-support of the oven. Counts 1, 2, and 6 cover, in addition to the rotating parts of the oven, a certain arrangement of flues.

These counts are the claims of Clauss's patent granted May 13, 1902, which were copied by Cherney in his application filed March 13, 1903. These dates are such as to require Cherney, the applicant, if he is to prevail against Clauss, the patentee, to prove his case beyond a reasonable doubt.

The question presented on this appeal is one of originality between these two parties. Each claims that he disclosed the invention covered by these counts to the other and to witnesses called in their behalf. The evidence fails to establish any oral disclosure of the specific counts from one contestant to the other or to any of their respective witnesses, and this was properly held by both the lower tribunals. Ignoring this indefinite testimony of oral disclosure, Clauss's case rests upon his patent and Cherney's case entirely upon certain exhibits filed by him. These are "Exhibit Cherney, 1900, Tracing," "Exhibit Blue Print Cherney, August, 1900, Tracing," "Exhibit Weydell Blue Print," none of which shows a flue construction, and "Exhibit Cherney, 1901, Tracing," which does show a flue construction. As to the first three of these exhibits the evidence is clear and convincing.

It appears that in the spring of 1900 Cherney was employed by the H. H. Kohlsaat Company, of Chicago, to repair one of their rotary bake-ovens. The record shows that this is his business, and while he was employed by the Kohlsaat Company it is evident, though the particulars do not appear in the record, that he interested Barnheisel, the president of the company, in an invention of his in bake-ovens. Certain it is that in June, 1900, he advertised for a pattern-maker to make patterns for his new oven and that Nichols answered this advertisement. (Qs. 4–7.) Certain receipts are in evidence showing that bench-room was rented June 20, 1900, by the H. H. Kohlsaat Company in Taylor's machine-shop (Cherney's record, p. 43) and that Nichols made certain patterns to be used in casting parts of a bake-oven. (Nichols, Q. 9.) Nichols was examined as to "Exhibit Cherney, 1900, Tracing," and testified:

A. Yes, sir. That is what he showed me when I went down there; that is what I was hired to make (pointing to the central sectional figure of the oven).
Q. 14. When did you first see this tracing?
A. When I answered the advertisement; I didn't see the tracing; I saw the paper drawing; such an original drawing from which tracings are made.

This figure referred to by Nichols is a section of the rotatable plane of the oven upon which the articles to be baked are placed. It later appears that while Nichols saw this drawing in June, 1900, he was employed in making certain castings for the oven, such as are known as outside castings, in contradistinction to those which are used within the oven. (X-Q. 32.) Nichols's testimony, supported by his receipts in evidence, shows that he worked upon patterns for outside castings until August, 1900.

Cherney testifies that the tracing in evidence was completed on the date which it bears—August 15, 1900—and that he then gave it to Barnheisel, of the Kohlsaat Company. In this he is corroborated by Aiken, the manager of the company, (X-Q. 86,) who states that he took the tracing and had blue-prints made from it, (Q. 16,) and these blue-prints are the blue-prints "Exhibit Blue Print, Cherney, August, 1900, Tracing," "Exhibit Weydell Blue Print." Cherney then took one of these blue-prints to another pattern-maker, Weydell, to have patterns made for the castings to be mounted within the oven to form the rotating plane or baking-support. In this he is corroborated by Weydell, who testifies that the identical exhibit "Exhibit Weydell Blue Print" was brought to him about October 10, 1900. (Qs. 4–9.) He identifies this exhibit by certain pencil-marks and by the order-number "1190," which he placed upon it. (Qs. 7 and 8.) He finished the seventeen patterns necessary on October 26, 1900, (Q. 11,) and identifies a bill for $80 to the H. H. Kohlsaat Company for these patterns. (Cherney's record, p. 168.) On this bill it is noted that the order is No. 1190, the same as the number stamped upon the blue-print.

After obtaining the patterns it was necessary to have castings made. The order was given to the Eddy Foundry Company, which was furnished both with the patterns and with a copy of the blue-prints in evidence. (Aiken, Q. 15; Eddy, Q. 4.) Eddy, the secretary and treasurer of this company, testifies that about November, 1900, (Q. 3,) Cherney and Aiken, the manager of the H. H. Kohlsaat Company, came to his place of business and ordered the castings and furnished him with the drawings and patterns. (Q. 4.) The castings were for the rotating plane or baking-support, such as is covered by counts 3, 4, 5, 7, 8, 9, and 10, were completed in January, 1901, and were assembled in his foundry at that time, where they stayed for a month or two. (Q. 9.) In assembling these castings it was found, however, that slight changes were necessary, for the reason that not sufficient allowance had been made in the patterns for the expansion of the metal. Rather than to machine the castings already made it was

determined to be cheaper to have new castings for some of the parts. These changes were ordered by Cherney, Aiken, and Cummings, the superintendent of the Eddy Company. The witness Haxton was then employed to make the changes in the patterns. This witness testifies that Cummings and Cherney saw to the changes, which his time-book indicates were made from February 5, 1901, to March 2, 1901, though he worked one hour upon certain of the casting upon March 4, 1901. (RD. Q. 23.)

Up to this point, which is prior to the entry of Clauss upon the field, the evidence is clear and convincing that it was Cherney who invented the rotating baking-support shown in the center of the tracing and of the blue prints in evidence.

The H. H. Kohlsaat Company, acting through Barnheisel, determined not to have Cherney erect the five new rotating ovens to be erected in their bakery, but to have the Schaller Patent Bake Oven Company, of which Clauss was treasurer, do this work. Barnheisel states that the reason for this was that the Schaller Patent Bake Oven Company had at that time workmen working upon other ovens at the Kohlsaat bakery and that he thought it was best, as long as they were there, that they should have the contract for building the five new ovens. Whatever the reason for the change was, the H. H. Kohlsaat Company, on March 2, 1901, entered into a contract with the Schaller Patent Bake Oven Company to erect their ovens. This contract is in evidence, (p. 18, Cherney's record,) and in it appears the following:

It is agreed that you (H. H. Kohlsaat & Company) shall furnish us the use of such patterns as you may own or control, and make no charge for same, from which to make castings to be used in the above five named ovens, and that we purchase from the R. M. Eddy Foundry Co. such castings as you may have ordered from them pertaining to the above-mentioned rotary ovens, and pay any bills they may have against you pertaining to the same.

Though this contract is dated March 2, 1901, there is testimony to the effect that it was not duly executed until March 4, 1901, (Clauss, Q. 63,) upon which date Clauss, representing the Schaller Patent Bake Oven Company, signed the following receipt:

H. H. KOHLSAAT & Co.

Chicago, Ill., March 4, 1901.

Received of H. H. Kohlsaat & Company one blue-print of detail drawing for rotary ovens, to be returned by me to them, also two general plans of rotary ovens, one a blue-print and one a tracing.

WM. CLAUSS.

The blue-print and the tracing referred to in this receipt are those in evidence. (Aiken, X-Q. 55; RD. Qs. 68–70, p. 158.) Clauss testifies that this blue print and tracing were forced upon him by Barnheisel and that he told Barnheisel at the time that they would be of no use to him, and, furthermore, returned them within a day or two of their receipt. (Q. 59.) Barnheisel, however, testified that Clauss not only did not return them within a day or two, but kept them for several weeks and used them to assist him in placing the castings in the ovens which he built under the contract previously referred to. (Q. 11, p. 141.) Aiken testified that he saw Kosicky, Clauss's foreman, using the blue-print in the erection of the ovens. (RD. Qs. 76–78.) After entering into the contract with the Kohlsaat Company Clauss agreed to give the said company $250 to reimburse them for their expenditure in having Cherney's patterns and castings made at the Eddy foundry. This agreement by Clauss, representing the Schaller Patent Bake Oven Company, is in evidence. (P. 20, Cherney's record.) Clauss testifies that he agreed to take these castings from the Kohlsaat Company at this figure for the reason that he did not desire them to fall into unauthorized hands. Exactly what he means by this does not appear. The record then discloses that Clauss and his foreman, Kosicky, went to the Eddy foundry to see the castings.

The testimony introduced by Clauss from this point is in many respects contradictory. He testifies that the rotating plane of the oven was not completely set up at the foundry and that he directed certain changes to be made in the castings before he ordered four duplicate castings for the other ovens. Kosicky testifies that as soon as he saw the castings at the Eddy foundry he turned to Clauss and said:

I see that they are using your ideas that you spoke to me about as to the ball-bearings and the arms taken off the top and placed underneath, (Q. 37,)

and that in answer thereto Clauss said that he did not think it was right for them to use his idea in these castings.

Eddy, (X-Q. 20,) the secretary and treasurer of the Eddy Foundry Company, and Cummings, (Q. 11, p. 175,) the manager, testify that the changes were made prior to the entry of Clauss on the scene and without any instructions from him. Haxton, the pattern-maker who made the changes in the patterns, testified that Cummings ordered the changes (Q. 10, p. 171) and Cherney "looked after them in getting them changed." (*Id.*) From the testimony of these witnesses it is clear that until Aiken had notified the Eddy Foundry Company of Clauss's contract, in which he agreed to pay the cost of the first castings and to order four more, no suggestions or orders from him would be honored, as he would clearly not be authorized to make alterations in Cherney's castings. The record shows that the castings for the other four ovens were made under Clauss's orders, but were duplicates of the first set. When they were taken to the Kohlsaat bakery to be mounted, some of the workmen from Eddy's foundry did the necessary work in setting them up.

After these castings had been mounted in the Kohlsaat bakery it was necessary to have them bricked in, so as to make a complete oven. In this bricking in the peculiar arrangement of the flues called for by counts 1, 2, and 6 was built into the oven. These ovens were completed and successfully used about June, 1901, and this is the reduction to practice claimed by both contestants.

Nichols, who made some of the castings for Cherney's oven, as testified by Cherney, was placed upon the stand by Clauss and, as previously noted, identified the rotating baking-surface in the center of the "Exhibit Cherney, 1900, Tracing." (Q. 13.) After his examination-in-chief identifying Cherney's Exhibit, 1900, Tracing, he was cross-examined by counsel for Cherney as to another exhibit, as follows:

X-Q. 28. Look at this tracing that I now show you, marked "Exhibit Cherney 1901 Tracing," and state whether you remember of ever having seen that tracing or a drawing like it?
A. I remember seeing a drawing similar to this (pointing to the *space* in the lower right-hand *figure* on the tracing exhibit).

This exhibit, unlike the other tracing or blue-prints, contains the flues for the bake-oven. It is Cherney's contention that this witness by this question identifies the lower right-hand figure of the tracing, and therefore entitles him to a date of conception and disclosure of the flues shown in this figure and in the other figures of the exhibit prior to any date established by Clauss. This is vigorously opposed, and correctly, by counsel for Clauss.

It is to be remembered that in the direct examination the witness identified merely the rotating baking-support of the oven. In the figure of this exhibit this rotating support is shown in conjunction with the flue system.

When the witness testified to this figure, as shown by the language of the officer taking the testimony, he pointed to the space in the lower right-hand figure on the tracing exhibit. The "space" in this figure of the tracing contains the rotating baking-support similar to that shown in "Cherney Exhibit, 1900, Tracing," and in the blue-print in evidence. After this alleged identification of the flue system the witness was cross-examined in cross-question 32 as to the rotating baking-support shown in Exhibit Cherney, 1900, Tracing. In no part of his testimony does he clearly and explicitly identify any flue construction. It is apparent from his testimony that he had merely in mind the construction shown in the center of the Exhibit Cherney, 1900, Tracing, and that he was very careful in testifying as to this 1901 tracing to specify that he could only identify that part of the figure, the rotating baking-surface, appearing in the center of the lower right-hand figure of this 1901 tracing.

With the burden of proof heavily upon Cherney it was clearly incumbent upon him, if he desired to establish a prior conception of the flue construction, to call Nichols as his own witness to identify such a construction, or at least, when he was called by the other side, to have him testify particularly to the flue construction and not seek to establish a conception of this construction upon such hazy and indefinite testimony as appears in this portion of Nichols's deposition. It is to be further noted that even granting that this testimony is sufficient to establish that Cherney had disclosed to Nichols a flue construction such as shown in the lower right-hand figure of this 1901 tracing the witness does not testify as to any date on which he saw such construction, and for this reason, also, the testimony is clearly insufficient to overcome a patent granted to Clauss before the filing of Cherney's application.

It is held that the Examiners-in-Chief erred in holding that this was a sufficient identification of this figure showing the flue construction and that therefore their holding that Cherney had established a conception of this flue construction at any date prior to that established by Clauss was incorrect. Ignoring all oral disclosures, it is clearly established by the witnesses, supported by such documentary evidence as has been introduced in the case, that it was Cherney who invented the rotating baking-support to be mounted within the center of the oven, such as shown in the center of Exhibit Cherney, 1900, Tracing, and that when Clauss's company obtained the contract from the H. H. Kohlsaat Company and built the five new rotary ovens they used one complete set of castings such as made under Cherney's directions and in addition thereto ordered four more similar ones, and that they were all used in the ovens built in the Kohlsaat bakery.

Counts 5, 7, 8, 9, and 10 cover merely such a rotating support regardless of what particular form of flue construction is used in conjunction therewith. Obviously such a rotating baking-support may be used with many different forms of flue construction. The flues shown are not necessary for the successful operation of the baking-support, as any well-known flue construction to heat the chamber and carry off the gases could be used with it. It must, therefore, be held that as to these counts Cherney has clearly proved beyond a reasonable doubt that he invented, disclosed, and had castings made for this construction under his own personal supervision prior to any date established by Clauss.

Counts 3 and 4 cover a certain way of mounting the stone slabs upon the radial arms extending out from the central shaft of the supporting rotating baking-surface. The specific way of mounting these slabs called for by those counts is not shown upon Exhibit Cherney, 1900, Tracing or upon the blue-print; but as it is clearly established that certain changes were made at the Eddy foundry which were suggested by Cherney and some of them by Aiken, the manager of the H. H. Kohlsaat Company, it is reasonable to suppose that as it was Cherney who had invented the main construction of supporting the entire rotating baking-support in the manner shown and had invented certain means for supporting the stone slabs upon the arms, whatever invention there is in these counts 3 and 4 is a mere carrying forward of Cherney's invention. The improved manner of mounting the slabs upon the arms is merely ancillary to Cherney's invention, and as it is established that Clauss made no changes in the original castings priority as to these counts should also be awarded to Cherney.

Counts 1, 2, and 6, which cover, in addition to the rotating baking-surface, the peculiar arrangement of flue construction, stand upon an entirely different footing from the other counts. Upon these counts Clauss has a patent, regularly issued. It was Clauss's company, as established by the evidence, that had the contract for building the ovens for the Kohlsaat Company. They erected the ovens in accordance with the contract. In performing the work this flue construction was placed within the oven. Cherney has failed utterly to show that he invented such a flue construction as covered by these counts. He had his opportunity, but failed to establish his inventorship as to such counts. It therefore must be held that not only has he not presented any testimony showing beyond a reasonable doubt that he is the inventor of them, but he has presented no testimony of such flue construction as herein claimed.

Upon an entire review of the case, giving due weight to exhibits and the testimony of the different witnesses, it is held that Cherney has established beyond a reasonable doubt that it was he who invented the rotating baking-support covered by counts 3, 4, 5, 7, 8, 9, and 10 and therefore priority of invention is awarded upon these counts to him.

Upon counts 1, 2, and 6 priority of invention is awarded to Clauss.

The decision of the Examiners-in-Chief is affirmed as to counts 3, 4, 5, 7, 8, 9, and 10 and reversed as to counts 1, 2, and 6.

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AND OF

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DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—MARCH–APRIL, 1905.

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*).]

ABANDONED APPLICATIONS.

(See Abandonment of Applications; Copies of Pending Applications.)

1. DELAY IN FILING PETITION FOR REVIVAL.
Where an applicant is notified that his application is *prima facie* abandoned for failure to act within the statutory period of one year and he delays presenting a petition for revival for one year and a half thereafter without excuse, *Held* that the petition will be denied. [*Ex parte* Naef, 1583.

2. EXCUSE FOR DELAY MUST COVER WHOLE PERIOD.
The showing to warrant the revival of an abandoned case must include a sufficient excuse for the delay after the expiration of the year allowed by law as well as that before. [Id.

3. FAILURE TO ACT—MINISTERIAL DUTY OF EXAMINER—RECONSIDERATION.
Where no action whatever is taken by the applicant within the time fixed by law, the Primary Examiner is empowered to exercise no discretion upon the question of abandonment, but acts in a ministerial capacity, and therefore a letter asking him to reconsider his action holding the case abandoned is ineffective and improper. [Id.

4 INSUFFICIENT ACTION—EXAMINER'S DISCRETION.
Where action is taken on a case within the statutory period, but the Examiner holds that it is insufficient to save the case from abandonment, it is proper to ask for reconsideration, but such request should be made with diligence. [Id.

5. PAST DELAYS—EXCUSE FOR DELAY STRICTLY CONSTRUED.
Where it appears that in the past the applicant has availed himself of the full statutory period allowed him by law, he is not entitled to leniency in the consideration of excuses offered for delay in the last action. [Id.

6. MISTAKE IN OFFICE ACTION IMMATERIAL.
The allegation of a clerical error in the last Office action furnishes no excuse for delay in responding unless it is made to appear that the error misled the applicant and caused the delay. [Id.

7. DELAY FOR PURPOSE OF IMPROVEMENT.
Delay in acting upon an application is not to be excused for the purpose of permitting the applicant to devise means for making the alleged invention practical and useful. The law does not contemplate the filing of applications upon incomplete or useless inventions. [*Ex parte* Murphy, 1848.

8. IMPROPER ACTION—CHANGE IN OFFICE PRACTICE.
The question whether an amendment presented was such proper action as the condition of the case required must be determined by the practice of the Office in force at the time, and it is not affected by a subsequent change of practice. [*Ex parte* Naef, 2135.

9. REPEATED DELAYS—RIGHTS STRICTLY CONSTRUED.
Where the record shows that the applicant is in the habit of waiting almost the full statutory period before amending, he is not in a position to rely on any matters of equity when a question is raised whether he has acted in time, but only upon his strict technical rights. [Id.

ABANDONED EXPERIMENTS.

(See Interference, 10.)

ABANDONED FILES.

(See Copies of Abandoned Applications.)

ABANDONMENT.

(See Interference, 13.)

ABANDONMENT OF APPLICATIONS.

1. SUFFICIENCY OF APPLICANT'S ACTION.
Where a proposed amendment was refused entry, under practice then existing, as one which would necessitate the requirement of division and attention was also directed to the fact that portions of said proposed amendment constituted new matter and the only action by the applicant in the ensuing year discusses the question of new matter, but ignores the question of division, *Held* that the case is abandoned. [*Ex parte* Gally, 802.

2. SAME.
Where the applicant directs matter to be inserted in his specification from the specification of a patent, but does not quote such matter, and the Examiner refuses to insert the matter until presented by amendment, *Held* that the statement by the applicant that the objection will be attended to at some future time is no proper response to save the case from abandonment. [Id.

3. SAME—PROPOSED AMENDMENT NECESSITATING DIVISION.
Where the only attempt to prosecute an application within the year following an Office action was by a proposed amendment, which was refused admission, under practice then existing, as one which would necessitate division, *Held* that the case became abandoned at the expiration of said year, providing that the Examiner's position holding claims in the proposed amendment to be drawn to independent inventions was well taken. [Id.

4. AMENDMENT—NECESSITATING DIVISION—INDEPENDENCE OF INVENTION NOT REVIEWED ON PETITION OR WITHOUT RECONSIDERATION.
Where the question of abandonment of an application for failure to act responsively depends upon the correctness of the Examiner's conclusion that claims in a proposed amendment are drawn to independent inventions, *Held* (1) that the question of independence of invention is not reviewable on petition, (*Steinmetz* v. *Allen*, 109 O. G., 549,) and (2) that this question should at no time be reviewed upon either petition or appeal except after reconsideration by the Examiner in connection with the specification of errors required by Rule 69. [Id.

ACCESS TO ABANDONED APPLICATIONS.

(See Copies of Abandoned Applications; Copies of Pending Applications.)

ACCESS TO PENDING APPLICATIONS.

(See Copies of Pending Applications.)

1. SUITS FOR INFRINGEMENT.
The following facts are not in themselves sufficient to entitle defendant in an infringement suit to have access to a pending application of the plaintiff therein: first, that testimony was taken by plaintiff to prove infringement of his patent by devices shown in the patent of another, the application for which was involved in interference with and prevailed over application to which access is requested; second, that the application to which access is requested also discloses the invention upon which suit is being maintained, and, third, that defendant has introduced the record of said interference into evidence as part of his defense in the suit. [*In re* Brown, 248.

2. SAME.
Where access to the pending application of another was requested for use in a suit, but the applicant opposed such access, had not waived the rule of secrecy by asserting his application in the suit or elsewhere, and the judge trying the suit had not certified that the application would probably be material and relevant evidence, *Held* that the request would be denied. [Id.

AFFIDAVITS.

(See Assignment Records; Examination of Applications, 4; Interference, 41; Rehearing; Reopening of Decided Cases.)

PROSECUTION OF APPLICATION—AFFIDAVITS—ADMISSIBILITY.
Where affidavits are filed comparing the applicant's device with other devices not referred to by the Examiner or otherwise made pertinent to the case, *Held* that such affidavits are inconsequential to the patentability of the applicant's device and will be refused admission to the case. [*Ex parte* Robinson, 1584.

AMBIGUOUS TERMS.

(See Amendments.)

AMENDMENTS.

(See Abandonment of Applications 1, 2, 3, 4, 8, 9; Examination of, Applications, 1, 2, 3; Interference, 3, 20, 21, 22; New Matter, 1, 2, 4, 5, 6, 7; Reconsideration, 5, 6.)

USE OF AMBIGUOUS TERMS CONDEMNED—SIMPLE INVENTION.
Since the applicant's ball-retaining ring is a simple invention, there is no warrant for introducing ambiguous terms, thereby failing to clearly and correctly describe it. [*In re* Dilg, 1067.

AMENDMENTS TO PRELIMINARY STATEMENTS.

(See Interference, 29, 30, 31, 32, 33.)

ANCILLARY INVENTION.

(See Interference, 63.)

ANTICIPATION.

(See Interference, 40; Invention.)

APPEAL FEES.

TWO COMPANION INTERFERENCES.
Where a party has a single application involved in two companion interferences and both are dissolved by the Examiner on the ground that the claims are not patentable, *Held* that the party may appeal in both cases upon payment of a single appeal fee. [Miller *v.* Miller *v.* Bacon *v.* Mann *v.* Torrance, 1063.

APPEAL FROM EXAMINER'S FAVORABLE ACTION.

(See Motion to Dissolve Interference, 2, 3.)

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Interference, 3; Rehearing.)

INTERFERENCE—MOOT QUESTION.
Where the Examiner dissolves the interference because the issue is not patentable, *Held* that an appeal relating to interference in fact involves a moot question and will not be determined. [Newell *v.* Hubbard, 1847.

APPEAL TO THE EXAMINERS-IN-CHIEF.

(See Burden of Proof; Reconsideration, 6; Rejection of Cases.)

APPLICANT AND PATENTEE.

(See Interference, 4, 13, 14, 28, 56, 57, 58, 59, 62.)

APPLICATIONS.

(See Abandoned Applications; Abandonment of Applications; Access to Pending Applications; Affidavits; Amendments; Copies of Abandoned Applications; Copies of Pending Applications; Designs; Drawings; Examination of Applications; New Matter; Notice of Allowance; Rejected Cases; Rejection of Cases; Reopening of Decided Cases.)

1. COMPLETE—PROCESS CASES—DRAWINGS UNNECESSARY.
An application claiming a process will be entered complete even where no drawing is filed, and the Examiner will call for a drawing when he examines the case if he finds one necessary. [*Ex parte* Schmidmer, 249.

2. OATH—STATEMENTS CONCERNING FOREIGN APPLICATIONS AND PATENTS OF SAME INVENTOR.
Where the applicant in his oath cited his foreign application and stated that no other foreign application had been filed and that no patent had been granted upon an application filed in any foreign country more than twelve months before the date of the domestic application, *Held* that the applicant has made every allegation respecting his foreign applications and patents required by the rule or by the decision in the case of *ex parte Levenstein and Naef* (110 O. G., 1726) and the notice concerning this decision in the OFFICIAL GAZETTE, volume 110, page 2239, when said decision and notice are properly construed, and the requirement that he should further state that the foreign application was not filed more than twelve months prior to the filing of the domestic application is improper. [*Ex parte* Girardot, 1584.

3. DATE OF UNDER INTERNATIONAL CONVENTION — FOREIGN MUST BE PROVED.
The benefit of the date of a foreign application filed under the International Convention cannot be secured by the mere allegation that such application has been filed, but only by proving such foreign application. [*Ex parte* Pauling, 1848.

4. SAME—SAME—PROOF NEED NOT BE MADE WITH.
There is no necessity for proving a foreign application and thereby securing the benefit of its date under section 4887 of the Revised Statutes until some occasion arises for wishing to secure the benefit of that date. Such proof need not be filed with the application. [Id.

5. SAME—DATE OF FILING IN THIS COUNTRY MUST APPEAR.
Even where a party secures for his application here the benefit of the filing date of a foreign application the actual filing date in this country must appear and cannot be changed to the foreign filing date. [Id.

6. PROPER USE OF TERMS.
Where the word "stretcher" has been applied by the applicant to a device used in pressing and stretching trousers, though the stretching is effected by the operator rather than by the device, but it appears that the invention can be readily understood from the language used, that the claims are not rendered indefinite by this word, and that this use of the word is not absurd or clearly erroneous, *Held* that the word as thus used is not objectionable. [*Ex parte* Welch, 1850.

ASSIGNMENT RECORDS.

LIEN—EX PARTE STATEMENTS NOT RECORDED.
An *ex parte* statement or affidavit by the beneficiary under an alleged lien as to his claimed rights under a patent will not be recorded in the assignment records of this Office.
In re Clark, 250.

BILL IN EQUITY UNDER SECTION 4915, REVISED STATUTES.

RIGHT TO PATENT.
Bill in equity filed under section 4915, Revised Statutes, asking an adjudication that the complainants are entitled to a patent upon an alleged improvement in Bourdon tubes for steam-pressure gages, dismissed.
[*Millett, Reed, and the Crosby Steam Gage & Valve Company *v.* Allen, Commissioner of Patents, 1586.

BURDEN OF PROOF.

(See Interference, 4, 5, 14, 61.)

MOTION TO SHIFT—JURISDICTION—PRACTICE.
As the question of shifting the burden of proof relates to a matter of evidence, which should be determined in the first instance by the Examiner of Interferences, *Held* that such motions should be made before that tribunal and that there is no appeal prior to the appeal on the final decision upon the question of priority of invention. (*Raulet and Nicholson* v. *Adams*, 114 O. G., 1827.) [Fennell *v.* Brown *v.* Borsch, Jr., 1328.

CANCELATION OF CLAIMS.

(See Examination of Applications, 1, 2, 3.)

CLAIMS.

(See Examination of Applications, 1, 2, 3; Interference, 13; New Matter, 5, 6.)

CLERICAL ERRORS.

(See New Matter, 3.)

COMMISSIONER OF PATENTS.

(See Appeal to the Commissioner of Patents; Petition to the Commissioner of Patents.)

COMPLETE APPLICATION.

(See Applications, 1.)

CONCEPTION OF INVENTION.

(See Interference, 47, 49.)

CONSTRUCTION OF RULES.

(See Abandonment of Applications, 4; Interference, 3, 13, 41, 56; Motion to Dissolve Interference, 3; Reconsideration, 2; Rejection of Cases; Reopening of Decided Cases.)

CONSTRUCTION OF STATUTES.

(See Applications, 3, 4, 5; Bill in Equity; Reconsideration, 2, 3.)

CONTINUOUS APPLICATIONS.

(See Copies of Abandoned Applications.)

COPIES OF ABANDONED APPLICATIONS.

1. PATENT GRANTED ON CONTINUOUS APPLICATION—RULE OF SECRECY NOT APPLICABLE TO ABANDONED FILE.
Where a patent is granted on an application filed as a substitute or a continuation of an application subsequently abandoned, *Held* that the proceedings in the abandoned application are, in fact, a part of the proceedings which led to the grant of the patent, and upon the grant of this patent the rule of secrecy no longer applies to these proceedings, and copies of the abandoned application should be furnished upon request. [*In re* Doman, 804.

2. PROCEEDINGS PUBLIC AFTER GRANT OF PATENT.
Where a patent is granted on an application filed as a substitute for an application subsequently abandoned, *Held* that the record made in the abandoned application should be as much open to the inspection of the public as the record in the patented file, and copies of the abandoned application should be furnished upon request. [Id.

COPIES OF PENDING APPLICATIONS.

1. SECRECY OF APPLICATION—NOT FURNISHED BECAUSE OF INTERFERENCE.
A copy of a pending or abandoned application will not be furnished to a party having no interest merely because he was once involved in an interference with that application [*In re* Mygatt, 1066.

2. SAME—NOT FURNISHED BECAUSE USEFUL IN SUIT.
A party cannot obtain a copy of a pending or abandoned application merely because he thinks it would be of assistance to him in a suit which he has brought against the applicant for infringement. [Id.

DELAY.

(See Interference, 23, 24, 34, 35, 45.)

DELAY IN FILING APPLICATION.

(See Abandoned Applications, 7; Interference, 10, 11, 12.)

DELAY IN PROSECUTING APPLICATION.

(See Abandoned Applications, 8, 9.)

DELAY IN REVIVING ABANDONED APPLICATIONS.

(See Abandoned Applications, 1, 2, 3, 4.)

DESCRIPTION.

(See Drawings.)

DESIGNS.

1. PATENTABILITY.
Where the applicant's design is for a font of Gothic letters characterized by minute ceriphs and Gothic letters are shown in one reference and minute ceriphs upon letters similar to the Gothic in another reference, *Held* no invention is involved in placing ceriphs upon the letters of the first reference in the same manner in which they have been previously applied to somewhat similar letters in the second reference. [*Ex parte* Barnhart, 247.

2. SAME.
In affirming the rejection of a design for Gothic letters provided with minute ceriphs upon two references, one showing the Gothic letters and the other showing minute ceriphs upon letters somewhat similar to Gothic, *Held* that the ground of rejection here is not aggregation, but lack of invention, by reason of the mere obviousness of the changes relied upon to distinguish over prior designs. [Id.

3. PATENTABILITY.
Differences upon which a design patent is granted must involve invention and be directed to the ornamentation of the device to which applied, and the officer or tribunal authorizing the issue of the patent must be satisfied upon both of these points. [*Ex parte* Schmohl, 505.

4. SAME—FONT OF PRINTING-TYPE.
There can be no invention in the application of an irregular outline to letters of one style when this has already been done upon letters of style not widely different unless some new effect of ornamentation is secured. [Id.

5. SAME—SAME.
Where the forms of certain letters in the applicant's font differ from those of the reference and these differences are easily observable and might alone enable the fonts to be distinguished, but produce no variation of the ornamental effect, *Held* that said differences are immaterial to the patentability of the design. [Id.

DILIGENCE.

(See Abandoned Applications, 5; Interference, 11, 23, 24, 34, 35, 37, 38, 39, 45.)

DISCLOSURE OF INVENTION.

(See Interference, 15, 16, 17, 47.)

DIVISION OF APPLICATION.

(See Abandonment of Applications, 1, 3, 4; Examination of Applications, 3.)

DOUBLE USE.

(See Invention, 2.)

DRAWINGS.

(See Applications, 1; Interference, 60.)

APPLICATION—SUPERFLUOUS ILLUSTRATION AND DESCRIPTION—APPARATUS AND ARTICLE.
Where certain figures of the drawing show apparatus for making an article and all claims to such apparatus have been divided from the case and these figures do not aid in obtaining an understanding of the article, *Held* that these figures and the description of the apparatus illustrated therein should be canceled. [*Ex parte* Crecelius, 1849.

EMPLOYER AND EMPLOYEE.

(See Interference, 15, 16, 17.)

EXAMINATION OF APPLICATION.

(See Affidavits; Reconsideration.)

1. AMENDMENT—SHIFTING GROUND—REQUIREMENT TO CANCEL CLAIMS CORRECT.
Where after prosecuting claims to each of two distinct features the claims to one of these features were voluntarily canceled, but after action upon the merits of the claims to the remaining feature claims to each feature were again presented and the Examiner required the claims to the reinstated feature to be canceled, *Held* the Examiner's action was based upon well-established practice regarding shifting ground, and if his conclusion that two features are independent inventions is correct his action refusing consideration upon the merits and requiring cancellation of the claims to the feature proposed for reinstatement was clearly proper. [*Ex parte* Barnes, 247.

2. SAME—SAME—EXAMINER'S ACTION NOT REVIEWABLE ON PETITION.
Where the Examiner refused to act upon the merits of a case as amended and required the cancellation of claims on the ground that they were drawn to an invention independent from that which the applicant had elected to prosecute in that case, *Held* the question of independence of invention in this case is the same as that which is raised when division is required and must follow the same course of appeals, wherefore the Examiner's conclusion upon this question will not be reviewed upon petition. [Id.

3. SAME—SAME—DIVISION SHOULD NOT BE REQUIRED AFTER ELECTION.
Where the Examiner refused further action upon the merits and required the cancellation of claims on the ground that they were for an invention independent from that which the applicant had elected to prosecute in that case, and the applicant contends that, as no requirement for division had been made, he should be permitted to try that question and elect, if necessary, which invention should be retained, *Held* the contention is not sound, since the applicant has already elected and since the fact that this election was not made in response to a requirement for division, but was voluntary, or even accidental, is immaterial. [Id.

4. PROSECUTION OF—AFFIDAVITS—ADMISSIBILITY.
Where the claims in an application have not been rejected, *Held* that affidavits upon the patentability of the device are not in order. [*Ex parte* Robinson, 1584.

5. SAME—FINAL REJECTION.
Where the application and the references present simple devices and the pertinence of the references and the Examiner's position with respect to the rejected claims has been repeatedly explained and it appears from the arguments filed that the issue between the applicant and the Examiner is clearly defined and the applicant is apparently not in doubt as to whether the features of his device upon which he relies to support the claims are disclosed in the references, but disagrees with the conclusion of the Examiner that these features do not render the claims allowable, and the claims were presented a second time with argument and without amendment, *Held* that the Examiner, adhering to his original opinion and having no new grounds of rejection to offer, very properly decided that the prosecution before him should close and made his action final. [*Ex parte* Almy, 1584.

EXAMINER'S ACTION.

(See Reconsideration, 1, 2.)

EXHIBITS.

(See Interference, 54.)

EXPERIMENTAL DEVICE

(See Interference, 6, 9, 55; Reduction to Practice, 8, 9.)

FEES.

(See Notice of Allowance, 1, 2, 3.)

FINAL FEES.

(See Notice of Allowance.)

FOREIGN APPLICATIONS.

(See Applications, 2, 3, 4, 5.)

FORFEITED APPLICATIONS.

(See Notice of Allowance.)

GUARDIAN.

(See Interference, 37, 38, 39.)

HOLIDAYS IN THE DISTRICT OF COLUMBIA.

(See Saturday Holidays.)

INFRINGEMENT.

(See Copies of Pending Applications, 2.)

INOPERATIVE DEVICES.

(See New Matter, 1, 2.)

INTERFERENCE.

(See Appeal Fees; Copies of Pending Applications, 2; Motion to Dissolve Interference; Motion to Reopen Interference; Reduction to Practice; Rehearing; Saturday Holidays; Testimony; Withdrawal of Cases from Issue.)

1. INTERFERENCE—MOTION TO TRANSMIT—INCLUSION OF NEW COUNTS—COUNTS SHOULD BE SPECIFIED.
Where a motion is brought to transmit an interference for the purpose of including therein as counts certain "allowable claims," which claims were not specified in the motion, *Held* that the interference should not be transmitted for the inclusion of some claims about which the opposing party had no notice. [Normand *v.* Krimmelbein, 249.

2. SAME—SAME—PRACTICE.
When an interference is transmitted to the Examiner to determine whether claims corresponding to certain claims made by the other party can be admitted as a part of the issue, *Held* that if there exists a broad invention which is common to both parties and a patentable claim can be agreed upon by all the parties at the hearing such claim may be included in the issue of the interference. [Id.

3. AMENDMENT UNDER RULE 109—APPEAL.
Where the Examiner refuses to admit claims for the purpose of interference under Rule 109 because, in his opinion, they are not patentable, *Held* that his decision will not be reviewed upon direct appeal to the Commissioner. [Lemp *v.* Ball, 249.

4. BURDEN OF PROOF—APPLICANT *v.* PATENTEE.
Where the senior party was a patentee, but the application of the junior party was pending when the patent issued, *Held* that no benefit accrued to the senior party from his possession of a patent in respect to the burden of proof imposed upon his adversary. [*Paul *v.* Hess, 251.

5. PRIORITY—OVERCOMING RECORD DATE OF SENIOR PARTY.
Where the senior party relies upon his record date, the burden is upon the junior party to show reduction to practice preceding that date or else earlier conception followed with due diligence to reduction to practice, either actual or constructive. [*Id.

6. REDUCTION TO PRACTICE—OPERATION.
Where the claim to reduction to practice is founded on a typewriting machine having six type-bars embodying the issue and the inventor testifies that he manipulated these bars, and thereby satisfied himself of the practical mechanism of the invention, but no paper was used and his satisfaction was derived from the operation of the bars singly, *Held* that this is not sufficient to show actual reduction to practice. [*Id.

7. SAME—SAME—SIMPLE DEVICES.
Where new devices are of an old type and the novelty resides in specific construction, it may be that practical utility may be determined without use under conditions of industry; but where the device is of a new type there is need for demonstration of utility under the conditions of practical operation. [*Id.

8. SAME—SAME—SAME—TYPE-WRITING.
Held that an improvement in type-bars of type-writers, upon the efficacy of which the successful operation of the whole machine depends, is not of that simple character which requires no test or operation in order to establish reduction to practice. [*Id.

9. SAME—EVIDENCE.
Where the machine claimed as a reduction to practice was submitted to the inventor's employers, but they adopted another machine, and this proving unsatisfactory was withdrawn and still another machine put on the market, *Held* that the circumstances point to the conclusion that the machine did not represent a complete and practical invention. [*Id.

10. SAME—SAME—DELAY AND INCONSISTENT CONDUCT.
Held long delay in making use of an invention claimed to have been reduced to practice or in applying for patent tend to show that the alleged reduction to practice was nothing more than an unsatisfactory or abandoned experiment, and this is especially the case where in the meantime the inventor has been engaged in prosecuting similar inventions or others, without reasonable explanation, have been adopted for manufacture and use. [*Id.

11. SAME—DILIGENCE.
Where an inventor relies upon the constructive reduction to practice, established by his application, and upon diligence, coupling this with an earlier conception, and urges in excuse of delay in filing the application that he could not come to terms with the company at whose expense the invention had been made, *Held* this excuse is insufficient, as it does not attempt to explain why an understanding could not have been reached earlier either that the company idle the application or allow the inventor to protect the invention himself. [*Id.

12. SAME—SAME—BUSINESS CONSIDERATIONS.
Where the excuse given for delay in filing application for patent is impossibility of agreement with employers concerning the invention, *Held* that the excuse is insufficient to establish diligence, as it involves business considerations rather than circumstances of a compelling nature. [*Id.

13. PRIORITY — PATENTEE — APPLICANT — PATENT REISSUED—OMISSION OF CLAIMS CORRESPONDING TO ISSUE—ABANDONMENT OF INVENTION—EFFECT OF—RULE 125—CONSTRUED.
Where an interference is declared between a patentee and an applicant and during the pendency of the interference the patentee obtains a reissue patent from which are omitted the claims corresponding to the issue, *Held* that this action of the patentee in surrendering to the public the right to the claims corresponding to the issue of the interference cannot be regarded in any other light than a formal written abandonment of the invention of the issue, and priority of invention as to the issue should be awarded to the applicant. (Rule 125.)
[Lattig and Goodrum *v.* Dean, 505.

14. PATENTEE—APPLICANT—BURDEN OF PROOF.
When an interference is declared between a patent granted prior to the date of filing of an interfering application, *Held* that if the applicant is to prevail he must establish his case by proofs which admit of no reasonable doubt (*Sharer* v. *McHenry*, 98 O. G., 585; *Meyer* v. *Sarfert*, 102 O. G., 1155.)
[French *v.* Halcomb, 506.

15. PRIORITY—DOCTRINE OF EMPLOYER AND EMPLOYEE—WHEN APPLICABLE.
Where the record clearly shows that H. not only exercised rigid and careful supervision of the work performed by F., but also gave many specific directions to F. as to what he should do in making tests, and it is apparent that F. did little more than carry out the suggestions and make reports of the results of the tests to H., and that H. was the president of the company of which F. was the chemist, *Held* that the relation of employer and employee existed between H. and F., and though the invention of the issue was actually reduced to practice it was the result of a general disclosure of the invention by H. to F., and that all F. did after the disclosure to him by H is what might have been expected from any person skilled in the art who was employed for the purpose of completing a general conception, and that priority of invention should be awarded to H. [Id.

16. SAME—ADMISSIONS—PRESUMPTIONS RAISED.
Where it is admitted by F. that H. furnished him with all mixes and made suggestions and exercised rigid oversight over all his work with the sole exception of the single specific invention of the issue and H. obtains a patent before F. files his application, which was only done after the knowledge came to him of H.'s patent, *Held* that the presumption is raised that H. also disclosed the invention of the issue to F. [Id.

17. ORIGINALITY—ABSENCE OF DENIAL OF ALLEGED DISCLOSURE—INVENTION MUST BE DISCLOSED—EFFECT OF.
Where F. testifies to a certain disclosure to H. and H. does not deny the fact of this alleged disclosure, *Held* the absence of this denial can have no effect upon the circumstances of the case, since the alleged disclosure, even if true, is not a disclosure of the invention of the issue, but a mere disclosure of something that was already well known by experts in the art. [Id.

18. MOTION TO AMEND APPLICATION—JURISDICTION.
Where motion was made before Examiner of Interferences to amend an application in interference by the addition of claims, *Held* that the Examiner of Interferences properly denied the motion as not within his jurisdiction.
[Moore *v.* Hewitt *v.* Potter, 509.

19. SAME—PROPOSED CLAIMS MUST BE MADE BY ALL PARTIES.
Where one party to an interference proposed to make and add to the issue claims from the patent of a second party to the interference, but a third party to the interference had not made nor offered to make these claims, *Held* that unless made by all parties the said claims could not be included in that interference. (*Maxwell* v. *Bryon* v. *Henry*, 98 O. G., 1968.) [Id.

20. APPLICATION—AMENDMENT—FILED DURING INTERFERENCE.
Where an amendment to an application in interference is filed which purports to put the application in condition for another interference, the Primary Examiner should give the amendment consideration sufficient to determine whether the application is, in fact, made ready for the additional interference. [Id.

21. SAME—SAME—SAME—CASE IN CONDITION FOR ADDITIONAL INTERFERENCE.
Where the Examiner finds that an amendment proposed for an application in interference puts the application in condition for another interference and the additional interference is otherwise ready for declaration, he should request authority to enter the proposed amendment and to declare the additional interference without waiting for the termination of the pending interference. [Id.

22. SAME—SAME—SAME—CASE NOT IN CONDITION FOR ADDITIONAL INTERFERENCE.
Where the Examiner finds that a proposed amendment to an application in interference purporting to put the application in condition for another interference does not, in fact, put the application in condition for the proposed interference or that it disturbs the condition of the application with respect to the pending interference or that for any other reason the proposed amendment should not be received and the proposed interference declared, he should refuse to enter said amendment or to further consider the same prior to the determination of the pending interference. [Id.

23. MOTION—DELAY IN PRESENTING—EXCUSE INSUFFICIENT.
Where motion for dissolution is made after the twenty days allowed by the rule and no showing is made why the grounds of the motion were not discovered and the motion brought within the twenty days except that the motion was delayed to await decision upon a motion by another party, *Held* that the motion will not be transmitted to the Primary Examiner.
[Jackson *v.* Cuntz, 510.

24. SAME—SAME—PENDENCY OF ANOTHER MOTION.
The pendency of one motion furnishes no excuse for delay in presenting another motion beyond the twenty days fixed by the rule. [Id.

25. PRIORITY.
Held that as the testimony presented by L. fails to establish that he had a conception of the invention prior to the date on which H. filed his application, H. is entitled to the award of priority of invention. [Lavery *v.* Heene, 801.

26. SAME.
Held that H. should be awarded priority of invention, as he is not only the first to reduce the invention to practice, but also the first to conceive. [Id.

27. PRIORITY—DECISION BASED UPON EVIDENCE—NOT SET ASIDE UPON SUBSEQUENT CONCESSION OF PRIORITY.
Where a decision on the question of priority of invention based upon the evidence has been rendered in favor of one party and that decision has become final, *Held* that the decision will not be set aside and priority of invention awarded to the other party in view of a concession of priority subsequently filed.
[Humphrey *v.* Fickert, 803.

28. PATENTEE—APPLICANT—CLAIMS UNDER REJECTION—INTERFERENCE NOT DECLARED.
Held that an interference should not be declared between a pending application and an unexpired patent when the claims corresponding to the proposed issue are under final rejection.
[*Ex parte* Dukes, 803.

29. PRELIMINARY STATEMENT—AMENDMENT.
Whether an amendment to preliminary statement shall be allowed in an interference proceeding under the rules of practice of the Patent Office calls for the exercise of a wide latitude of discretion by the Commissioner, and certainly nothing less than an abuse of that discretion, causing a palpable miscarriage of justice, would warrant the review and reversal of his action. (*Cross* v. *Phillips*, 14 App. D. C., 228, 237, 238.)
[*Hammond *v.* Basch, 804.

30. SAME—PARTIES HELD TO DATES GIVEN THEREIN.
The sworn preliminary statements required when an interference has been declared constitute the pleadings of the parties, and we have had occasion several times, and for reasons satisfactory now as then, to approve the practice of holding the parties strictly to the dates given therein. (*Bader* v. *Vajen*, 14 App. D. C., 241, 254; *Stevens* v. *Scher*, 11 App. D. C., 245, 251; *Cross* v. *Phillips*, 14 App. D. C., 228, 236.) [*Id.

31. SAME—SAME.
Where the allegation of the construction of a model is followed by a separate allegation of reduction to practice in a full-sized device upon a later date, the idea of intention to claim for the first construction anything more than conception is precluded. The opposing party may have rested his case on later dates in view of such statement, and to admit proof of an earlier date of reduction than that given would seriously impair, if not destroy, the rule of certainty in pleading long maintained in the Patent Office. [*Id.

32. REDUCTION TO PRACTICE—DEVICE INTENDED AS MODEL MAY BE.
There is no doubt that the construction of a full-size device capable of use to a sufficient extent to demonstrate the practical utility of the invention may often be regarded as a reduction to practice, notwithstanding it may have been called a model, as well as intended by the inventor to be used as a model for the construction of a like device of better and different materials, when there has been some test or application to use. (*Norden* v. *Spaulding*, present term; *Mason* v. *Hepburn*, 13 App. D. C., 86, 89.) [*Id.

33. SAME—SAME—BUT MUST BE DIFFERENT FROM ORDINARY MODEL.
Such a model, so called, must be quite different from the ordinary model which, while it may show the invention, is incapable of operation to effect its purpose, and the cases must be few, if any indeed, in which the construction and disclosure of a device intended as an illustrative model merely without some test of its capacity to perform the service intended could be accepted not only as evidence of conception, but of reduction to practice also. [*Id.

34. SAME—DILIGENCE.
Where a party presents evidence of completion of the invention prior to the date to which he is restricted by his preliminary statement, *Held* that such evidence is entitled to some consideration upon the question of diligence as tending to show that he had some reason to be satisfied with the practicability of his device. [*Id.

35. SAME—DILIGENCE—OPPONENT ESTOPPED FROM DENYING.
When the lapse of time between H.'s conception and his date of reduction to practice would be fatal if unexplained, but his delay is claimed to have been caused by an infringement suit and the same suit is relied upon by B. to explain delay, *Held* that B. is in no condition to take advantage of the omission to show what there was in that suit to excuse delay in the matter of this invention. [*Id.

36. MOTION TO EXTEND TIME OF TAKING TESTIMONY—DECISION OF EXAMINER OF INTERFERENCES FINAL.
Where the Examiner of Interferences grants a motion to extend times for taking testimony, *Held* that his decision is final, and no limit of appeal should be set.
[Goodfellow *v.* Jolly, 1064.

37. LACK OF DILIGENCE—RESPONSIBILITY OF MINOR.
Where a party who was a minor seeks to excuse his lack of diligence in perfecting the invention by the allegation that his guardian would not permit him to work on it, *Held* that the excuse is insufficient, and the opposing party, who was the first to reduce the invention to practice, must be regarded as the first inventor.
[Fuller *v.* Jones, 1066.

38. SAME—SAME.
A minor cannot claim the benefit of all that he does during his minority and at the same time avoid responsibility for all that he fails to do in regard to the same matter. [Id.

39. SAME—SAME—SHIFTING RESPONSIBILITY TO GUARDIAN.
The responsibility for the lack of diligence by a minor must rest upon some one and cannot be suspended during his minority, and therefore if he shifts the responsibility to his guardian we must look to the action of the guardian to determine whether there was reasonable diligence. [Id.

40. MOTION TO DISSOLVE—ANTICIPATION BY PATENT.
Where a motion to dissolve an interference is made upon the ground that the opposing party's claim is anticipated in a patent cited, but the preliminary statement of that party alleges invention before the date of the patent, *Held* that the interference will not be dissolved. [Forsyth *v.* Richards, 1327.

41. SAME—SAME—AFFIDAVIT UNDER RULE 75—PRELIMINARY STATEMENT AS SUBSTITUTE.
The preliminary statement of a party alleging invention prior to the date of a patent cited will be accepted as a substitute for an affidavit under Rule 75, making out a *prima facie* case justifying a continuance of the interference in which the facts will be more completely shown by the proofs. [Id.

42. MOTION TO DISSOLVE—REFUSED TRANSMISSION WHERE RELATING TO ORIGINALITY OF INVENTION.
A motion to dissolve an interference will be refused transmission to the Primary Examiner where based upon the allegation that one of the parties is not an original inventor, but derived his knowledge of it from the other party.
[Cory, Gebhart, and Martin, Jr., *v.* Blakey, 1328.

43. MOTION TO DISSOLVE—PATENTABILITY OF PATENTED INVENTION.
Where a patentee in interference with an applicant moves to dissolve upon the ground that the issue is not patentable, this Office will not refuse to entertain the motion on the ground that the decision may cast a cloud upon the patent. (*Bellows* v. *King* and *Lipe* v. *Miller* distinguished.)
[Baltzley *v.* Seeberger, 1329.

44. SAME—SAME—MOTION BY PATENTEE.
The Office does not refuse to entertain motions or decide questions upon the mere ground that the decision may cast a cloud upon a patent already issued, but does refuse where that is the only purpose and effect of the motion. [Id.

45. PRIORITY—LACK OF DILIGENCE.
Where it appears that for at least a year the only efforts of G. toward completing his invention consisted in more or less desultory talk about his invention, indecisive efforts to get his invention adopted by a corporation, and in a leisurely manner making drawings of the device, and where it is shown that it would have cost but little to have actually reduced the invention to practice and to have made proper tests and that he was free to take up this work if he so desired and he had ample means to have at least filed an application, *Held* that G. was not in the exercise of reasonable diligence in completing his invention.
[*Gallagher, Jr., *v.* Hien, 1330.

46. SAME—SAME—NECESSITY FOR TEST.
Where both parties subject their inventions to tests, *Held* that it is therefore, in effect, admitted by both parties that the device belongs to that class of inventions which requires actual use or thorough tests to demonstrate its practicability.
[*Id.

47. CONCEPTION—EVIDENCE OF.
Where claims are advanced by a party of conception and disclosure at dates several years before any dates satisfactorily proved and it appears that in the meantime manufacturers were demanding a device of the kind in issue and the party made no disclosure to such manufacturers nor any attempt to reduce to practice, but endeavored to sell patents upon prior devices and failed on the express ground that they did not possess the advantages found in the present invention, *Held* that said claims to early conception and disclosure are entitled to no consideration. [*Hope, Jr., *v.* Voight, 1585.

48. REDUCTION TO PRACTICE—PERFECTION OF EMBODIMENT OF THE INVENTION.
Where it was contended that a device was no more than a crude and experimental model, which was not fit for marketable use, the court found that it was a full-sized operative structure which, except for ornamentation and polish, was fit for commercial use and held the same to be a reduction to practice. [*Id.

49. PRIORITY.
Held that the appellee Voight had conceived and disclosed the invention and reduced it to practice by May 5, 1902, whereas there is no satisfactory proof in the record that at any time before May 26, 1902, the appellant Hope had a conception of the invention. The decision appealed from awarding priority of invention to Voight affirmed. [*Id.

50. MOTION TO VACATE JUDGMENT—PRELIMINARY STATEMENT.
Motion to vacate judgment on the record and permit the filing of a preliminary statement *denied* where it appears that the failure to file the statement before judgment and within the time fixed in notices from this Office was due to carelessness.
[White *v.* Hewitt and Nolen, 1847.

51. NOTICE TO ATTORNEY—PRELIMINARY STATEMENT.
Notice to a party's attorney of the declaration of an interference and the requirement for a preliminary statement must be taken as notice to him, and it is immaterial whether or not he has actual personal notice. [Id.

52. SAME—SAME—CARELESSNESS.
Where notices were sent by this Office to the attorney and the party himself admits actual knowledge of those notices before his time for filing a preliminary statement had expired, but he alleges that he did not know that it was necessary for him to take any personal action, *Held* that there was gross negligence by the party or his then attorney. [Id.

53. PRIORITY—REDUCTION TO PRACTICE.
A device which merely illustrates the mode of mechanical construction and operation of the conceived idea and which may be said to be an embodiment of the invention in visible form is not necessarily a reduction to practice, for though the device is operative as a mechanical movement there is no certainty that it will perform its function when put to use under full conditions of practical use. [*Ocumpaugh *v.* Norton, 1850.

54. SAME—SAME.
Where an exhibit embodies an invention and is operative as a mechanical movement, yet various parts of the structure which are the essence of a practical working machine are so crude and even certain of derangement that no one would seriously consider building machines in accordance with the exhibit without further experiments, *Held* that such device is not a reduction to practice. [*Id.

55. SAME—SAME.
Held that the proofs tending to establish a reduction to practice must be considered as a whole and the attendant circumstances of the case must be borne in mind, and the action of the inventor with respect to the exhibit prior to the necessity for its use in the interference proceeding, his failure to construct other machines or promptly file an application, and the fact that the application when filed discloses different features from those in the exhibit all tend to show that the device was not a reduction to practice, but merely an experimental device. [*Id.

56. APPLICANT AGAINST PATENTEE—PATENTABILITY OF ISSUE—RULE 126.
Where a tribunal of the Office calls attention to the fact that the issue is not regarded as patentable, the Office will not refuse to consider the matter because one of the parties is a patentee, but the case will be transmitted to the Examiner for action under Rule 126. (*Lipe* v. *Miller* distinguished.)
[Yarnall *v.* Pope, 2136.

57. SAME—SAME—ADMISSION THAT ISSUE IS UNPATENTABLE.
Where an applicant in interference with a patentee moves to dissolve on the ground that the issue is not patentable, his motion will be granted without considering the merits of the question of patentability; but where the applicant does not admit that his claims are unpatentable it is necessary for this Office to consider and decide the matter for itself. [Id.

58. SAME—MOOT QUESTION—CLOUD UPON PATENT.
The Office will not conduct an interference as to an unpatentable issue merely because one of the parties is a patentee. It will not waste time deciding a moot question simply to avoid casting a cloud upon a patent. [Id.

59. ORIGINALITY—APPLICANT *v.* PATENTEE.
Where some of the counts of the issue cover a rotating baking-surface and other counts include such a rotating baking-surface in combination with a peculiar arrangement of flues, *Held* that though the applicant is the original inventor of the rotating baking-surface he has presented no convincing evidence tending to prove originality of the combination claims, and priority upon these claims is awarded to the patentee.
[Cherney *v.* Clauss, 2137.

60. EVIDENCE—IDENTIFYING FIGURES OF DRAWING.
Where a witness identifies a drawing showing a rotating baking-surface and was then asked on cross-examination if he had ever seen another drawing which illustrated, in addition to the rotating baking-surface, the flue construction called for by some of the counts and he identifies a certain part of one figure, which part shows merely the rotating baking-surface, *Held* that his testimony does not establish the fact that the flue construction was ever disclosed to him. [Id.

61. SAME—SAME—BURDEN OF PROOF—SUSTAINED ONLY BY CLEAR TESTIMONY.
With the burden of proof heavily upon the applicant it was clearly incumbent upon him, if he desired to establish a prior conception of the flue construction, to call this witness as his own, or at least when he was called by the other side to have him testify particularly to the flue construction. [Id.

62. SAME—SAME—NO TESTIMONY AS TO DATE OF DISCLOSURE—INSUFFICIENT.
Where the witness does not testify to the date on which the invention was alleged to have been disclosed to him, *Held* that the testimony is clearly insufficient to overcome a patent granted before the filing of the junior party's application. [Id.

63. SAME—ANCILLARY INVENTION—PRESUMPTION.
Where it appears that the junior party invented the main construction of supporting the entire rotating baking-support, including means for supporting the stone slabs upon the arms, and where it further appears that certain changes were made by the junior party in the castings for the arms, *Held* that two counts which include merely an improved manner of mounting the slabs upon the arms cover an invention ancillary to the junior party's invention, and priority of invention is awarded to him also upon these counts, particularly in the absence of testimony tending to establish that they were invented by the other party. [Id.

INTERLOCUTORY MOTIONS.

(See Motion to Dissolve Interference, 4.)

INTERNATIONAL CONVENTION.

(See Applications, 3, 4, 5.)

INVENTION.

(See Designs.)

1. PATENTABILITY—STEAM-GAGE—LACK OF.
Where the complainants ask for a patent upon a Bourdon tube for a steam-gage having a thin flattened middle portion and thickened ends provided with tapering screw-threads and it appears that before their alleged invention it was common in hydraulic gages to have tubes with thin flattened middle portions and thickened screw-threaded ends, and it appears, further, that it was common to use tapered screw-threads to make a steam-tight joint, *Held* that the complainants are not entitled to a patent.
[*Millett, Reed, and the Crosby Steam Gage & Valve Company *v.* Allen, Commissioner of Patents, 1586.

2. SAME—SAME—DOUBLE USE.
Since it was common to use a tapered screw-threaded joint to make a steam-tight joint without solder, the substitution of this joint for the old soldered joint in a steam-gage when it was found desirable to make such gage without the use of solder was an obvious mechanical expedient involving no exercise of the inventive faculty. [*Id.

3. SAME—SAME—SAME—SUBSTITUTION OF MECHANICAL EQUIVALENTS.
The use of a tapered screw-threaded joint on the Bourdon tube of a steam-gage is not a patentable invention in view of a prior patent showing a union-joint on such tubes, since the two joints are recognized mechanical equivalents in the art. [*Id.

JURISDICTION.

(See Burden of Proof; Interference, 18.)

LIMIT OF APPEAL.

See Motion to Dissolve Interference, 1.)

MECHANICAL EQUIVALENT.

(See Invention, 3.)

MINOR AND GUARDIAN.

(See Interference, 37, 38, 39.)

MISTAKE OF THE OFFICE.

(See Abandoned Applications, 6.)

MODEL.

(See Interference, 31, 32, 33.)

MOOT QUESTION.

(See Appeal to the Commissioner of Patents; Interference, 58.)

MOTION TO AMEND APPLICATION.

(See Interference, 18.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 23, 24, 40, 43, 44, 57.)

1. EXAMINER SHOULD DECIDE ALL GROUNDS—REFUSAL TO SET A LIMIT OF APPEAL.
Where a motion to dissolve alleges no interference in fact and irregularity, *Held* that the Examiner is not at liberty to hold that it relates to the merits and refuse to set a limit of appeal from his decision merely because, in his opinion, the reasons given in support of the motion relate to the question of patentability.
[Puryea and White *v.* Rice, 803.

2. ACTION ON MERITS NOT APPEALABLE—APPEAL DISMISSED.
If an appeal is taken which in terms relates to appealable grounds, but in reality seeks to have reviewed the favorable decision of the Primary Examiner upon the merits, *Held* that the appeal will be dismissed. [Id.

3. SAME—RULE 124—FAVORABLE AND ADVERSE DECISIONS—APPEALS FROM.
Held that a favorable decision by the Primary Examiner that a party has the right to make the claim does not warrant entertaining an appeal from the other party upon the ground that such decision is adverse to him, for the present practice does not permit either party to appeal from a favorable decision upon the right to make the claim. [Id.

4. NOT PERMITTED ON QUESTIONS REQUIRING PROOFS.
Interlocutory motions to dissolve are not permitted upon matters which cannot be determined from a consideration of the application and Office records and which require the taking of proofs.
[Cory, Gebhart, and Martin, Jr., *v.* Blakey, 1328.

MOTION TO EXTEND TIME FOR TAKING TESTIMONY.

(See Interference, 36.)

MOTION TO REOPEN INTERFERENCE.

TESTIMONY NOT RELATING TO PRIORITY—MOTION DENIED.
Where the question of priority of invention has been decided in favor of the senior party on the ground that the junior party has failed to file his testimony within the time assigned for that purpose, *Held* that the case will not be reopened and the junior party permitted to file his testimony when it appears that the testimony which has been taken relates in no way to the question of priority of invention, but solely to the right of the opposing party to make the claims of the issue.
[Osborn *v.* Austin, 1065

MOTION TO STRIKE OUT TESTIMONY.

(See Testimony.)

MOTION TO TRANSMIT.

(See Interference, 1, 2, 42.)

MOTION TO VACATE JUDGMENT.

(See Interference, 50.)

NEGLIGENCE.

(See Interference, 52.)

NEW MATTER.

(See Abandonment of Applications, 1.)

1. AMENDMENTS—INOPERATIVE DEVICE.
New matter cannot be inserted in a case by amendment simply because the invention originally shown is inoperative and the amendment will make it operative. (*Ex parte Snyder*, 22 O. G., 1975, construed.) [*Ex parte* Willitts, 1064.

2. SAME—SAME—PATENT LIMITED TO ORIGINAL DISCLOSURE.
The patent cannot include new matter, but must be limited to the disclosure in the original application. Other improvements cannot be included, whether they are intended to make the device operative or merely to make it perform its functions better. [Id.

3. SAME—CLERICAL ERRORS.
Mere clerical or draftsman's errors may be corrected where the errors are clear from the application itself; but changes cannot be made in the application based upon allegations of fact not shown by the record. [Id.

4. AMENDMENT OF APPLICATION—NOT PERMITTED.
An applicant in his endeavor to protect his invention may amend the specification and claims so long as he keeps within the requirements of the statutes and the rules of the Patent Office; but he cannot be permitted at any time to introduce new matter into his application and obtain therefor a date as of the date of the original application. [*In re* Dilg, 1067.

5 SAME—SAME—CLAIMS PROPERLY REJECTED.
Held that the Commissioner was right in rejecting the appellant's claims to a ball-retaining ring, because they do not correctly describe his invention, but include new matter borrowed from a patent granted to another party. [*Id.

6. SAME—SAME—CLAIMS NOT CORRESPONDING WITH ORIGINAL DISCLOSURE.
Where the appellant originally disclosed standards springing from both edges of the annular base and according to the original disclosure both were necessary, *Held* that an amendment claiming a base having standards springing from one edge *only* involves new matter. [*Id.

7. SAME—SAME—SAME.
Where the original case disclosed the top pieces of the standards with straight sides, *Held* that an amendment stating that those top pieces are sector-shaped or flaring involves new matter. [*Id.

NOTICE OF ALLOWANCE.

1. NOT RECEIVED — FINAL FEE NOT ACCEPTED AFTER SIX MONTHS.
The allegation that notice of allowance was not received does not warrant the acceptance of the final fee more than six months after the date when the Office records indicate that the notice was sent. [*Ex parte* Pieper, 1063.

2. SAME—OFFICE RECORDS ACCEPTED AS CORRECT.
The Office records indicating that notice was sent must be accepted as correct, notwithstanding an affidavit by the attorney that to the best of his knowledge it was not received at his office, since it may have been lost in the mails or in the attorney's office. [Id.

3. SAME—FAILURE OF REPLY SUFFICIENT NOTICE.
Where the applicant fails to receive a reply from this Office to an action taken by him, it is his duty to make an investigation earlier than eight months after the action. [Id.

NOTICE OF MOTION.

(See Saturday Holidays.)

NOTICE TO ATTORNEY.

(See Interference, 51, 52.)

OATH.

(See Applications, 2.)

OLD ELEMENTS.

(See Invention.)

PATENTABILITY.

(See Bill in Equity; Invention.)

PETITION TO THE COMMISSIONER OF PATENTS.

(See Examination of Application, 2; Rejection of Decided Cases.)

PETITION PREMATURE—RECONSIDERATION BY EXAMINER NECESSARY.
Petition should not be taken from an Examiner's action until the matter has been presented to him for reconsideration, as required in Rule 145. [*Ex parte* Lendl, 250.

PRELIMINARY STATEMENTS.

(See Interference, 29, 30, 31, 32, 33, 34, 35, 40, 41, 42, 50, 51, 52.)

PRIORITY OF INVENTION.

(See Interference, 13, 15, 16, 17, 25, 26, 27, 34, 35, 47, 49, 53, 59, 63.)

RECONSIDERATION.

(See Petition to the Commissioner of Patents, 1.)

1. INSUFFICIENT ACTION—MERE REQUEST FOR.
Where an applicant merely requests a reconsideration and final action and fails to distinctly and specifically point out the supposed errors in the Examiner's action, as required by Rule 60, *Held* that the action made by the applicant was not such an action as the condition of the case required. [*Ex parte* Linde, 1329.

2. SAME—SECTION 4903, REVISED STATUTES, CONSTRUED.
Rule 69, providing that the applicant must distinctly and specifically point out the supposed errors in an Examiner's action in order to entitle him to a reëxamination, *Held* not to be inconsistent with section 4903, Revised Statutes, which provides for reëxamination of an application. [Id.

3. REËXAMINATION PROVIDED BY STATUTE—PURPOSE OF.
The reëxamination provided for by the statute is for the purpose of enabling an applicant to traverse a rejection by the Office and to show by argument that the rejection is erroneous, if such be the case. [Id.

4. SAME—NOT A USELESS PROVISION.
A reëxamination would become a mere formal and useless proceeding if it were given for the mere purpose of entering a second rejection so that the case will be in condition for appeal. [Id.

5. SAME—SAME.
In presenting cases without amendment for reconsideration applicants should contemplate the possibility of an adverse decision by the Examiner and be prepared thereupon to appeal to the Examiners-in-Chief or to abandon prosecution of the application except as may be necessary to put the case in condition for issue upon claims previously found by the Examiner to be allowable. [*Ex parte* Almy, 1584.

6. SUFFICIENCY OF ACTION—REASONS FOR.
Where an amendment is filed after an action on the merits and no reasons accompany that amendment in support of a request for reconsideration of claims not amended, but an argument is subsequently filed setting forth the reason of the applicant why, in his opinion, the Office should recede from its first rejection, and both the amendment and argument are filed within one year from the date of the rejection, *Held* that the actions taken by the applicant were sufficient to entitle him to further consideration. [*Ex parte* Wimmer, 1585.

RECORDS OF THE PATENT OFFICE.

(See Notice of Allowance.)

REDUCTION TO PRACTICE.

(See Interference, 5, 6, 7, 8, 9, 10, 11, 26, 31, 32, 33, 45, 46, 47, 48, 49, 53, 54, 55.)

1. PRIORITY—LACK OF DILIGENCE.
Where a device was actually used for the purposes for which it was intended and completely demonstrated its utility and practicability, *Held* that such device was the equivalent of a reduction to practice, even though it was but half the size of the commercial machine. [*Gallagher, Jr., *v.* Hien, 1330.

2. SAME—SAME—MECHANICAL PERFECTION NOT ESSENTIAL.
Held that it is not essential for a reduction to practice of an invention that the invention be mechanically perfect or that there are "possibilities of greater excellence in shape, location, arrangement, material, or adjustment." [*Id.

3. SAME—SAME.
Held that it is essential that a device to constitute a reduction to practice must show that the work of the inventor is finished, physically as well as mentally, and that nothing is left for the inventive genius of the public. [*Id.

4. SAME—SAME.
While it is not always essential that actual tests of the invention be made in order to complete the invention, (*Mason* v. *Hepburn*, 84 O. G., 147,) yet the device relied upon as a reduction to practice must, if it has not been worked, clearly be capable of work and not have been a mere experiment. [*Id.

5. SAME—SAME—RESULT OF TESTS MUST BE PROVED.
Where an invention undoubtedly belongs to that class which requires either actual use or thorough tests to determine its practicability, *Held* that there can be no actual reduction to practice until one or the other thing takes place and is proven. [*Id.

6. SAME—SAME—NATURE OF INVENTION—TESTS REQUIRED.
Where it appears that an invention is a radical departure from previous methods, *Held* that in order to establish the fact of reduction to practice thorough tests are necessary. [*Id.

7. SAME—SAME—FACTS SHOULD BE PROVED—CONCLUSION FOR COURT.
Where the invention in controversy is a friction-spring and it appears that a device embodying the invention was first put in a vise and subjected to pressure, but there are no facts appearing of record which show what the pressure was, nor are any facts stated which enable the court to determine whether the inventor's conclusion is justified that the result of the test was satisfactory, *Held* that the fact of reduction to practice is not proved. [*Id.

8. SAME—SAME—EXPERIMENTAL DEVICE.
Where a friction-spring was tested in a vise and under a steam-hammer and broken under the last test and no measurements were taken to show the tensile strength of the spring or the pressure to which they were subjected, and no facts appear of record upon which the court can have a conclusion that the device was adapted to perform the work for which it was built, *Held* that the device was a mere experimental device and not a reduction to practice. [*Id.

9. INTERFERENCE—PRIORITY.
Where the evidence is not convincing that the device under consideration is capable of being used for practical purposes and an examination of the device in connection with a consideration of the facts of record warrants the opinion that it is essentially an experimental device and never passed beyond that stage, *Held* that such device is not a reduction to practice. [*Ocumpaugh *v.* Norton, 1850.

REHEARING.

APPEAL—MATTER NOT CONSIDERED BY ORIGINAL TRIBUNAL—NOT REVIEWED ON APPEAL.
Where a decision is rendered by a tribunal and it appears that an affidavit relating to the matters at issue was filed too late to be considered, *Held* that the appellant should move for a rehearing, rather than appeal, since matters not considered by the tribunal of original jurisdiction will not be reviewed on appeal. [Ocumpaugh *v.* McElroy, 1847.

REISSUES.

(See Interference, 13.)

REJECTED CASES.

(See Affidavits; Reconsideration, 3, 4.)

1. PROSECUTION OF APPLICATION — AFFIDAVITS — ADMISSIBILITY.
Where claims are rejected on the ground of non-invention, affidavits offered in response to such rejection concerning the merits and efficiency of that for which a patent is sought will be admitted. [*Ex parte* Robinson, 1584.

2. SAME—AFTER FINAL REJECTION.
The mere cancellation of the finally-rejected claims does not reopen the case for the prosecution of other claims. [*Ex parte* Almy, 1584.

REJECTED CLAIMS.

(See Interference, 28.)

REJECTION OF CASES.

(See Examination of Applications, 5; New Matter, 5.)

RULE 75—SUFFICIENCY OF SHOWING—APPEAL TO EXAMINERS-IN-CHIEF.
Where an Examiner finally rejects a claim on the ground that the showing made under the provisions of Rule 75 is not sufficient to establish the fact of prior inventorship, *Held* that a review of this decision should be made by the Examiners-in-Chief on appeal. Petition to Commissioner dismissed. [*Ex parte* Nordstrom, 1327.

REOPENING OF DECIDED CASES.

REOPENING CASE AFTER APPEAL—AFFIDAVIT UNDER RULE 75.
Where the Examiners-in-Chief overruled all grounds of rejection given by the Examiner save one and relied upon a single reference, which the applicant wishes to overcome by an affidavit under Rule 75, *Held* that the case will be reopened to permit the filing of the affidavit. [*Ex parte* Parrish, 1327.

SATURDAY HOLIDAYS.

1. NOTICE OF MOTION—SERVICE ON SATURDAY AFTERNOON NOT VOID.
Held that a notice of a motion in an interference case received on a Saturday afternoon in the District of Columbia is valid, notwithstanding the fact that Saturday afternoon is a legal holiday. [Goodfellow *v.* Jolly, 1064.

2. SAME—SAME—SUFFICIENT NOTICE.
Where it appears that a notice of a motion was delivered by private messenger on a Saturday afternoon and received by a clerk in the office of counsel and counsel himself actually received the notice on Monday afternoon, which was ample time to prepare for the hearing on motion, *Held* that the notice was good and that the motion should be entertained. [Id.

TECHNICAL TERMS.

(See Amendments, 1; Applications, 6.)

TESTIMONY.

(See Interference, 60, 62; Motion to Reopen Interference.)

MOTION TO STRIKE OUT—WHEN NOT GRANTED.
When a notice is served at ten a. m. that testimony is to be taken at two p. m. on the last day upon which testimony must be taken and all parties live in the same city and were present and the record shows that the testimony was very brief, and as nothing appears in the record to indicate that there was not sufficient time remaining to finish the cross-examination, *Held* that this testimony will not be stricken out, notwithstanding an objection on the record of insufficient notice and a refusal to cross-examine. [Roberts *v.* Webster, 2135.

TRADE-MARKS.

1. "MATTAWAN"—GEOGRAPHICAL WORD.
The word "Mattawan" refused registration as a trade-mark, since its geographical meaning outweighs any fanciful meaning which may be ascribed to it. [*Ex parte* Falkenberg, 1065.

2. SAME—INDIAN WORD—MEANING NOT GENERALLY UNDERSTOOD.
While the word "Mattawan" has a meaning in the Indian language which would render it arbitrary if understood, such meaning would not be known to the general public, but only to students of the Indian languages. [Id.

3. "DIAMONDDUST" REFUSED ON "DIAMOND" AND "DIAMOND MILLS."
The word "Diamonddust" refused registration as a trade-mark in view of the prior marks "Diamond" and "Diamond Mills" applied to the same class of goods. [*Ex parte* Snyder, 1849.

4. "OZARK"—GEOGRAPHICAL NAME—REGISTRATION REFUSED.
The word "Ozark" refused registration as a trade-mark, since its meaning is primarily geographical. [*Ex parte* Keet & Rountree Drygoods Company, 1849.

5. SAME—SAME—SECONDARY MEANINGS NOT APPRECIATED.
While the word "Ozark" may have meanings other than geographical, such meanings would not be known or appreciated by the ordinary purchaser seeing the word used as a trade-mark upon goods. [Id.

6. "OPTINE" REJECTD ON "OPTAL."
The word "Optine" refused registration in view of the prior registered mark "Optal," since the resemblance between the marks is such as to cause confusion and to be likely to deceive purchasers as to the origin of the goods. [*Ex parte* Holbert, 2136.

7. ANTICIPATION—GREYHOUND.
A trade-mark consisting of the picture of a greyhound with the word "Run-Lite" inclosed in a circle refused registration in view of a prior mark consisting of a picture of a greyhound together with certain other words inclosed within a circle. [*Ex parte* Crescent Oil Company, 2137.

WITHDRAWAL OF CASE FROM ISSUE.

INTERFERENCE—WITHHOLDING COMPANION CASE FROM ISSUE—DIVISIBLE INVENTIONS.
An application will not be withdrawn from issue to await the termination of an interference involving another application by the same party when this Office is of the opinion that the two applications cover separate and divisible inventions. [*Ex parte* Carroll, 510.

WITNESSES.

(See Interference, 60, 61, 62.)

ALPHABETICAL LIST OF PATENTEES

FOR THE

MONTHS OF MARCH AND APRIL, 1905.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, Labels, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. B. Dick Company. (See Dick, Albert B., assignor.)						
A. I. Root Company. (See Marbach, Frank G., assignor.)						
Aarts, Jacobus G. (See Kramers and Aarts.)						
Aass, Hjalmar, and J. M. Monstad, Christiania, Norway. Fire-cock combined with the pipe	785,395	Mar. 21	2827	597	115	657
Abe, Kosuke. (See Yokouchi, Abe, and Matsuzaki.)						
Abell, Edward G., Brisbane, Queensland, Australia. Holder for window-sashes	788,182	Apr. 25	4017	868	115	1998
Abernethy, Samuel. (See Cummings and Abernethy.)						
Aborn, George P. (See Flinn, Richard J., assignor.)						
Acheson, Edward G., Stamford township, Ontario, Canada, assignor, by mesne assignments, to North American Trust Company, trustee. Making refractory bodies	787,869	Apr. 18	3374	.....	115	1834
Acker, Finley, Philadelphia, Pa. Percolator for coffee, &c	788,231	Apr. 25	4108	890	115	2017
Ackerman, William, Chanute, Kans. Well-drilling machinery	788,343	Apr. 25	4323	942–3	115	2066
Acklin, Alfred M., assignor to Heyl & Patterson, Pittsburg, Pa. Apparatus for handling glassware	785,928	Mar. 28	3900	829–30	115	906
Acklin, Alfred M., assignor to Heyl and Patterson, Pittsburg, Pa. Car-haul	787,605	Apr. 18	2831	616–17	115	1713
Acorn Brass Manufacturing Company. (See Doran, Robert L., assignor.)	787,885	Apr. 25	3415	748	115	1855
Actien-Gesellschaft der Maschinenfabriken von Escher Wyss & Co. (See Rambal, Pierre, assignor.)						
Actiengesellschaft "Magneta," (Electrische Uhren Ohne Batterie & Ohne Contacte.) (See Fischer, Martin, assignor.)						
Adam, Agnes S., Washington, D. C. Door-check	784,093	Mar. 7	168	31	115	41
Adams, Arthur J., Chicago, Ill. Wheel	787,815	Apr. 18	3262	712	115	1809
Adams, Charles P., Topeka, Kans. Cabinet	786,176	Mar. 28	4420	935	115	1022
Adams, Edward D., executor. (See Adams, Ernest K.)						
Adams, Ernest K., deceased, New York, N. Y.; E. D. Adams, executor. Electrically-operated station-indicator	784,019	Mar. 7	1	1	115	3
Adams, Ira E. (See Carman, Charles W., assignor.)						
Adams, Jabez, and C. A. Cross, Hamilton, Victoria, Australia. Pipe-wrench	784,771	Mar. 14	1590	328	115	372
Adams, Joseph W., Wissinoming, assignor of one-half to L. J. Fishel and A. J. Waterman, Bristol, Pa. Knitting-machine	786,938	Apr. 11	1468	310	115	1397
Adams-Randall, Charles, New York, N. Y. Induction-coil	786,396	Apr. 4	320	71	115	1141
Adcock, Edward A., assignor to Pulsometer Engineering Company, Limited, Reading, England. Type-setting machine	785,648	Mar. 21	3350	718	115	770
Adcock, Edward A., assignor to Pulsometer Engineering Company, Limited, Reading, England. Type-distributing machine	785,649	Mar. 21	3354	719–20	115	771
Addison, Robert, New York, N. Y. Pen-wiper	788,232	Apr. 25	4109	890	115	2017
Aden, Joseph, Ruralhall, N. C. Axle-lubricator	787,255	Apr. 11	2111	465–6	115	1535
Aden, Menhard G., Gothenburg, Nebr. Coupling	787,870	Apr. 18	3374	738	115	1834
Adriance, Platt & Company. (See Case, Henry J., assignor.)						
Advance Thresher Co. (See Bailey, Victor C., assignor.)						
Ahlrichs, Harm, Petersburg, Ill. Tilting gate	786,397	Apr. 4	322	71	115	1142
Aigrette Supply Company. (See McLaughlin, Robert L., assignor.)						
Aiman, Richard H. (See Pettie, George H. L., assignor.)						
Aitchison, James, London, England. Prismatic telescope, binocular, or the like	784,611	Mar. 14	1251	261–2	115	294
Aitken, Hugh W., Glasgow, Scotland. Steam-boiler	788,127	Apr. 25	3918	848–9	115	1976
Akers, James M., Gays, Ill. Pneumatic conveyer	786,791	Apr. 11	1177	246	115	1335
Akimoff, Nicholas W., Philadelphia, Pa. Mechanical speed-governor	785,587	Mar. 21	3244	668	115	748
Akins, Samuel W., Denver, Colo. Butt-hinge gage	785,847	Mar. 28	3747	797	115	872
Akre, John J., Bee, Minn. Gate-latch	784,510	Mar. 7	1033	213	115	232
Aktiebolaget Separator. (See Ljungström, Birger, assignor.)						
Aktien-Gesellschaft der Maschinenfabriken von Escher Wyss & Co. (See Zoelly, Heinrich, assignor.)						
Albach, Riley, Mount Gilead, Ohio. Stilt	784,020	Mar. 7	6	2	115	3
Albaugh, Gilbert R., Cleveland, Ohio, assignor, by mesne assignments, to Olds Motor Works, Detroit, Mich. Transmission-gear	786,939	Apr. 11	1470	311	115	1398
Albee, William H., New York, N. Y. Hose-coupling	784,372	Mar. 7	723	147	115	166
Albert and J. M. Anderson Manufacturing Company. (See Andersen, Johan M., assignor.)						
Alberty, Marcell, Braddock, assignor of one-half to J. A. Ferienčik, Pittsburg, Pa. Extension-table	785,848	Mar. 28	3748	797	115	872
Albertz, Heinrich, Cologne, Germany. Curtain-holder	787,816	Apr. 18	3263	713	115	1810

Alphqbetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Albrecht, Charles, Chicago, Ill. Adjustable keel for ships or boats	785,849	Mar. 28	3750	798	115	872
Albrecht, Christian A., Berlin, Germany, assignor to Mergenthaler Linotype Company. Linotype-machine	787,817	Apr. 18	3264	713-14	115	1810
Albright, Joseph J. (See Hindman and Albright.)						
Alderfer, John M. (See Kremer and Alderfer.)						
Alexander, John D., Troy, assignor to Franklin Boiler Works, Green Island, N. Y. Sheathing for boiler-tubes	784,094	Mar. 7	169	32	115	41
Alexander, John S., New York, N. Y. Railway-tie	786,254	Apr. 4	1	1	115	1071
Alexander, John S. L. (See Shiels and Alexander.)						
Alexander-Katz, Bruno. (See Gielow, Christian, assignor.)						
Alexanderson, Ernst F. W., Schenectady, N. Y., assignor to General Electric Company. Synchronous motor	785,532	Mar. 21	3126	660-1	115	724
Alexanderson, Ernst F. W., Schenectady, N. Y., assignor to General Electric Company. Two-speed winding for three-phase motors	785,533	Mar. 21	3129	661	115	725
Alexanderson, Ernst F. W., Schenectady, N. Y., assignor to General Electric Company. Winding for three-phase motors	785,995	Mar. 28	4057	860	115	942
Alexe, Frank, London, England. Apparatus for forming casks, barrels, or other similar receptacles made with staves	787,349	Apr. 18	2305	501	115	1591
Alford, Edwin P. (See Alford, William B. and E. P.)						
Alford, William B. and E. P., Sumter, S. C. Shaft attachment for dental motors	787,350	Apr. 18	2306	501	115	1591
Allen, Andrew J., Shadydale, Ga. Fertilizer-distributer	785,346	Mar. 21	2717	576	115	632
Allen, Charles H., assignor of one-half to J. D. Kops, Savannah, Ga. Standard for logging-cars	786,708	Apr. 4	1010	207	115	1286
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company. Thread-controlling device for sewing-machines	784,291	Mar. 7	550	113-14	115	126
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company. Buttonhole-sewing machine	785,061	Mar. 14	2119	447-9	115	488
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company. Buttonhole-clamp	785,146	Mar. 21	2328	488	115	548
Allen and Hansburys. (See Buckley, James F., assignor.)						
Allen, Henry A., Chicago, Ill. Steam-reheater	784,373	Mar. 7	724	148	115	166
Allen, Robert, Bigtimber, Mont. Type-writer word-registering device	788,011	Apr. 25	3682	802	115	1917
Allen, Samuel G., *et al.* (See MacBain, Donald R., assignor.)						
Allen, Samuel L., Moorestown, N. J. Cultivator	788,233	Apr. 25	4110	891-2	115	2017
Allen, Samuel L., Moorestown, N. J. Cultivator	788,234	Apr. 25	4115	892	115	2018
Alles, William, Muncie, Ind. Machine for making sheet-glass	786,476	Apr. 4	546	109-10	115	1187
Alleyn, Henry M., Maskeliya, Ceylon. Apparatus for breaking and grading made tea-leaves or the like	787,066	Apr. 11	1741	371	115	1456
Allgemeine Beleuchtungs und Heiz Industrie Actien Gesellschaft. (See Jackisch, Bruno, assignor.)						
Alliance Machine Company. (See Gilmore, George W., assignor.)						
Alline, Charles F., Fort Dodge, Iowa, assignor to Alline Photocycle Company, Washington, D. C. Illuminating device	786,709	Apr. 4	1011	208	115	1287
Alline Photocycle Company. (See Alline, Charles F., assignor.)						
Allison, Arthur J., East Liverpool, Ohio. Rake	784,095	Mar. 7	171	32	115	42
Allmond, Charles H., Seattle, Wash. Lubricator	787,654	Apr. 18	2930	637	115	1734
Allyn, Robert S., New York, N. Y. Incandescent-mantle support	784,612	Mar. 14	1253	262	115	295
Alston, Oscar W., Lanesboro, Pa. Stone-sawing machine	786,339	Apr. 4	182	41	115	1109
Altstock, Marcus, Lemberg, Austria-Hungary. Potato-digger	786,792	Apr. 11	1180	246	115	1335
Ambler, Joshua S. (See Walmsley and Ambler.)						
Ambrose, Thomas P., Cincinnati, Ohio. Fountain-pen	784,528	Mar. 14	1065	221	115	255
Ambroz, Joseph A., Chicago, Ill. Rotary steam-engine	786,083	Mar. 28	4255	897	115	986
American Bank Check and Cover Company. (See Exline and Bourke, assignors.)						
American Brake Shoe & Foundry Company. (See Carpenter, Paul, assignor.)						
American Brake Shoe & Foundry Company. (See Thompson, James S., assignor.)						
American Car & Foundry Company. (See Stevenson, John S., assignor.)						
American Car & Foundry Company. (See Sturdevant, Payne P., assignor.)						
American Casting Machine Company. (See Scott, James, assignor.)						
American Cigar Company. (See Daniels, John L., Jr., assignor.)						
American Coal Converting Company. (See Sullivan, James M., assignor.)						
American Dairy Products and Manufacturing Company. (See Kennedy, Samuel R., assignor.)						
American Electric Company. (See McDonnell, George P., assignor.)						
American Electric Telephone Company. (See Clausen, Henry P., assignor.)						
American Electric Telephone Company. (See Setter, Micheal, assignor.)						
American Featherbone Company. (See Weil, Otto J., assignor.)						
American Graphophone Company. (See Emerson, Victor H., assignor.)						
American Graphophone Company. (See Macdonald, Thomas H., assignor.)						
American Graphophone Company. (See Manwaring, Emerson, Norton, and Capps, assignors.)						
American Heating Co. (See Schweizer, Charles, assignor.)						
American Industrial Company. (See Moe, Rudolf, assignor.)						
American Inventions Company. (See Wagner, William F., assignor.)						
American Iron and Steel Manufacturing Company. (See Culliney, John V., assignor.)						
American Locomotive Company. (See Dalton, William, assignor.)						
American Loom Company. (See Harriman, Henry I., assignor.)						
American Metal Edge Box Company. (See Lewis, Robert B., assignor.)						
American Pneumatic Service Company. (See Pike, Otto S., assignor.)						
American Pulley Company. (See Bowen, Russell H., assignor.)						
American Pulley Company. (See Zamboni, Lawrence, assignor.)						
American Rattan & Reed Mfg. Co. (See Janson, Frederick H., assignor.)						
American Reduction Company. (See Hedburg, Eric, assignor.)						
American Sandstone Brick Machinery Co. (See Church, Edgar D., assignor.)						
American Sheet and Tin Plate Company. (See O'Brien and Long, assignors.)						
American Steam Gauge and Valve Manufacturing Company. (See Manning, Coleman J., assignor.)						
American Steam Motor Company. (See Bardenwerper, Charles H., assignor.)						
American Steel Package Company. (See Kruse, Alfred T., assignor.)						
American Steel & Wire Company. (See Bates, Albert J., assignor.)						
American Steel & Wire Company of New Jersey. (See Jewett, George, assignor.)						
American Telephone and Telegraph Company. (See Pickard and Fay, assignors.)						
American Tin Plate Company. (See Bray, Charles W., assignor.)						
American Wood Working Machinery Co. (See Shollenberger, Darius W., assignor.)						
American Zinc and Chemical Company. (See Dewey, Chauncey E., assignor.)						
American Electro-Hermatic Company. (See Dion, Léon, assignor.)						
Amies, Joseph H., Philadelphia, Pa. Bituminous or other pitch concrete pavement	785,396	Mar. 21	2828	.....	115	657

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Amies, Joseph H., Philadelphia, Pa. Pitch-cement concrete pavement	785,650	Mar. 21	3359	.....	115	773
Amsden, Hero M., Grand Rapids, Mich. Knockdown sectional bookcase	786,940	Apr. 11	1474	311	115	1399
Amsler Engineering Company. (See Amsler, Walter O., assignor.)						
Amsler, Walter O., assignor to Amsler Engineering Company, Pittsburg, Pa. Gas-producer	785,920	Mar. 28	3904	831	115	907
Andersen, Johan M., assignor of one-half to A. Anderson, Boston, Mass. Power-operated switch	785,397	Mar. 21	2831	597-8	115	658
Andersen, Johan M., Boston, Mass., assignor to Albert and J. M. Anderson Manufacturing Company, Portland, Me. Electric-conductor support	785,700	Mar. 28	3473	746	115	809
Anderson, Albert. (See Andersen, Johan M., assignor.)						
Anderson, Alfred, Bellingham, Wash. Adjustable shingle-gage	786,710	Apr. 4	1013	208-9	115	1287
Anderson, Andrew C., assignor of one-half to H. H. Anderson, Jackson, Minn. Machine-wrench	785,930	Mar. 28	3905	831	115	908
Anderson, August M., Moorhead, Minn. Theater appliance	786,711	Apr. 4	1015	209	115	1288
Anderson, Frank E., New York, N. Y. Mail-chute	788,084	Apr. 25	3815	830	115	1948
Anderson, Frank O., Jamestown, N. Y. Knockdown drawer	786,398	Apr. 4	323	71	115	1142
Anderson, Hans H. (See Anderson, Andrew C., assignor.)						
Anderson, James C., Victoria, Canada. Preserving-jar	787,606	Apr. 18	2834	617	115	1714
Anderson, John, Chicago, Ill. Gate	786,084	Mar. 28	4258	897-8	115	987
Anderson, John W., Jr., Woodland, Ill. Block system	785,031	Mar. 14	2065	434-5	115	476
Anderson, John W., Jefferson City, Tenn. Rail-joint	787,607	Apr. 18	2835	617	115	1714
Anderson, Joseph D., St. Marys, Ohio. Pull-wheel for operating well-pumps	786,399	Apr. 4	324	71	115	1142
Anderson, Joseph R., Philadelphia, Pa. Decorated article of ceramic or vitrified ware	785,534	Mar. 21	3130	661	115	725
Anderson, Julius L. (See Fowler, Edward, assignor.)						
Anderson, Milton B., Chicago, Ill. Vehicle-top	785,075	Mar. 21	2165	458	115	513
Anderson, Neal L., Montgomery, Ala. Type-writer	788,012	Apr. 25	3684	802-3	115	1917
Anderson, Owen D., Barnwell, S. C. Shutter-fastener	788,389	Apr. 25	4424	961	115	2087
Anderson, Samuel C., Whitewright, Tex. Deposit-file	786,477	Apr. 4	552	111	115	1188
Anderson, Walker G., Toronto, Canada. Wardrobe	784,021	Mar. 7	7	2	115	3
Anderson, William, Hoffman, Minn. Dumping-trap	784,465	Mar. 7	922	194	115	210
Andersson, Jöns, Brunshög, near Lund, Sweden. Bottle or other vessel with ground stopper	788,128	Apr. 25	3919	849	115	1976
Andresen, Ole J. (See Pederson and Andresen.)						
Andreu, Joseph G., Jacksonville, Fla. Wrapper-pasting device	785,701	Mar. 28	3475	746	115	809
Andrew, James, Saylesville, R. I. Date reference device	786,177	Mar. 28	4421	935	115	1022
Andrews, Adelbert H. (See Hennessy, Andrews, and Ross.)						
Andrews, Arthur J., Melbourne, Iowa. Corn-crib	787,550	Apr. 18	2714	590	115	1686
Andrews, Asa W., Winnebago City, Minn. Skin-stretcher	784,374	Mar. 7	726	148	115	167
Andrews, Herbert L. (See Schustek, Daniel, assignor.)						
Andrews, Lyman S. (See Mortenson, Hans, assignor.)						
Andriano, Albert K., San Francisco, Cal., and H. Herbstritt, New York, N. Y., assignors to Direct Line General Telephone Company, San Francisco, Cal. Direct-line circuit and switching mechanism for telephone systems	784,292	Mar. 7	555	114	115	128
Andrus, Curt C., *et al.* (See Fisher, Charles A., assignor.)						
Anet, Frederic J., York, Pa. Machine for making tape	787,886	Apr. 25	3416	748	115	1855
Angeletti, Joseph, Milwaukee, Wis. Bottle-washing machine	786,255	Apr. 4	4	1	115	1071
Angell, J. F. (See Embleton, James, assignor.)						
Anger, John E. (See Stanley and Anger.)						
Anglers Company. (See Wheeler, William R., assignor.)						
Anthony, Charley F., Ely, Iowa. Churn	787,655	Apr. 18	2931	637	115	1735
Anthony, Clarence O., Kennetcook Corner, Canada. Turbine water-wheel	786,617	Apr. 4	824	171	115	1245
Anthony, Edgar W., Brookline, Mass. Stove-door and name-plate	786,793	Apr. 11	1181	246	115	1335
Anthony, James S., New York, N. Y., assignor to General Electric Company. Direct-current meter	787,256	Apr. 11	2113	466	115	1536
Antoine, Aloise, New York, N. Y. Machine for printing clothing-tickets	784,375	Mar. 7	726	148	115	167
Arbingast, William E., Cedar Rapids, Iowa. Hat and coat locker	786,869	Apr. 11	1316	280	115	1363
Arble, Newton F., Pittsburg, Pa. Car-door	786,178	Mar. 28	4423	935	115	1023
Arco, Georg G. (See Slaby and Arco.)						
Aremac Manufacturing Company. (See Bolus, William G., assignor.)						
Arendt, Otto, Newark, N. J., and P. Holtzmann, New York, N. Y. Pump-valve	785,996	Mar. 28	4059	860	115	942
Argo, John T., Cynthiana, Ky. Lifting-jack	786,712	Apr. 4	1016	210	115	1288
Armijo, Catarino, Lascruces, N. Mex. Ter. File-holder	785,465	Mar. 21	2977	628	115	691
Armstrong, Elliphalet, assignor of one-half to L. D. Patten and S. S. Bricker, Mansfield, Ohio. Grain-separator sieve	784,828	Mar. 14	1707	355	115	398
Armstrong, Martin, St. Louis, Mo. Telegraphic transmitter	784,529	Mar. 14	1066	221	115	255
Arnold, Andrew O., Galesburg, Ill. Freight-car-door fastener	785,702	Mar. 28	3476	746-7	115	810
Arnold, Carl, Selb, Germany. Hand-rest for note-books	787,140	Apr. 11	1882	406	115	1487
Arnold, Clifton W., *et al.* (See Russell, Robert H., assignor.)						
Arnold, Collins, Albany, N. Y. Shelf-goods box	787,712	Apr. 18	3031	665	115	1756
Arnold-Creager Company. (See Arnold, Daniel J. C., assignor.)						
Arnold, Daniel J. C., assignor to Arnold-Creager Company, New London, Ohio. Brick-machine	787,019	Apr. 11	1640	349-50	115	1434
Arnold, Harry V., and A. H. Kress, San Francisco, Cal. Steam-drying device	784,293	Mar. 7	560	115	115	129
Arnold, Henry C., *et al.*, administrators. (See Elinoff and Axthelm.)						
Arnold Magnetic Clutch Company. (See Cutler, Henry H., assignor.)						
Arnold, Willard M., Wynnewood, Ind. Ter. Combined cotton chopper and cultivator	788,013	Apr. 25	3689	803-4	115	1918
Arsem, William C., Schenectady, N. Y., assignor to General Electric Company. Electric furnace	785,535	Mar. 21	3131	661-2	115	725
Art Metal Construction Company. (See Ohnstrand, Enoch, assignor.)						
Arthur, James B., Pittsburg, Pa. Weight	787,320	Apr. 11	2235	489	115	1564
Aschelm Buchdruckerei, Ferd. (See Stamm, Henry, assignor.)						
Ashert, William, Des Moines, Iowa. Detachable tool-handle	784,772	Mar. 14	1592	328	115	372
Ashley, Frank M., New York, N. Y. Gas-burner	787,321	Apr. 11	2237	490	115	1564
Ashley, Frank M., New York, N. Y. Gas-burner	788,235	Apr. 25	4119	893	115	2020
Askew, Charles B., Chicago, Ill. Electric switch	784,022	Mar. 7	9	3	115	4
Assel, Jacob, assignor to Berbecker & Rowland Manufacturing Company, Waterville, Conn. Knob	784,131	Mar. 7	232	46	115	56
Astalos, Samuel, Silverdale, Wash. Combined kitchen and dining table	784,728	Mar. 14	1506	308	115	354
Atchison, Fred E. (See Choate, Charles N., assignor.)						
Athey, Noah W., Williamstown, W. Va. Wrench	785,850	Mar. 28	3751	798	115	872
Atkinson, William B., assignor of one-half to E. R. Bagby, Bowling Green, Ky. Magazine-firearm	787,257	Apr. 11	2115	466	115	1536
Atlantic, Gulf and Pacific Co. (See Hindes, Stetson G., assignor.)						
Aton, Charles W., Clairton, Pa. Fire-extinguisher	788,498	Apr. 25	4622	1008	115	2128
Audet, Frank X., Boston, Mass. Stringed musical instrument	786,941	Apr. 11	1475	312	115	1399

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Aultman & Taylor Machinery Company. (See Brown, James M., assignor.)						
Aultman, Thomas G., Fairmont, W. Va., assignor to J. A. Jeffrey, Columbus, Ohio. Chain and cutter-carrying device	787,551	Apr. 18	2716	591	115	1686
Aurora Automatic Machinery Company. (See Norling, Reinhold A., assignor.)						
Austin, Charles R., Lind, Wash. Trace-fastener	787,713	Apr. 18	3033	665	115	1756
Austin, Francis B., Tombstone, Ariz. Ter. Safety device for elevators	787,258	Apr. 11	2117	467	115	1537
Austin, Herbert, Birmingham, England. Lever-and-quadrant apparatus	787,714	Apr. 18	3035	666	115	1756
Auto Stopper Company. (See Hicks, James M., assignor.)						
Auto Stopper Company. (See Hicks, John A., assignor.)						
Auto Stopper Company. (See Low, Abbot A., assignor.)						
Autocar Company. (See Lewis, Dean C., assignor.)						
Autocar Company. (See Lonn, Edward J., assignor.)						
Autocar Company. (See McComb, Henry G., assignor.)						
Automatic Electric Pump Co. (See Pugh, William J., assignor.)						
Automatic Railway Signal Company. (See Lemire, Joseph, assignor.)						
Automatic Telephone Company. (See Morstrom and Graif, assignors.)						
Automatic Ventilator Company. (See Taylor and Creamer, assignors.)						
Automobile Supply Manufacturing Company. (See Scognamillo, Salvatore, assignor.)						
Averbeck, Henry J., Covington, Ky. Automatic feed-regulator	786,942	Apr. 11	1476	312	115	1399
Avery, Henry W., assignor of one-half to Avery Stamping Company, Cleveland, Ohio. Metallic railway-tie	784,530	Mar. 14	1069	222	115	256
Avery Manufacturing Company. (See Springer, William N., assignor.)						
Avery Stamping Company. (See Avery, Henry W., assignor.)						
Axe, Dale W., Threecreek, Idaho. Mechanical motor	785,931	Mar. 28	3909	831	115	909
Axford, Harris W., Chicago, Ill. Incubating method	786,256	Apr. 4	7	1	115	1072
Axt, Charles W., and F. H. Borcherding, Fort Wayne, Ind. Cistern-cover	784,531	Mar. 14	1070	222	115	256
Axtheim, Ernst. (See Elinoff and Axtheim.)						
Axtheim, Theodore A., *et al.*, administrators. (See Elinoff and Axtheim.)						
Bachmann, Frederick, Cota Brilliant, Ky. Tag	786,943	Apr. 11	1478	312	115	1400
Backus, Quimby S., Brandon, Vt. Water-heater	787,656	Apr. 18	2932	638	115	1735
Backus, Quimby S., Brandon, Vt. Gas fireplace-heater	787,657	Apr. 18	2933	638	115	1735
Bacon, Earle C., New York, N. Y. Rock-crusher	787,322	Apr. 11	2238	490	115	1564
Bacon, Jesse D., and T. McGarrigal, Paducah, Ky. Fireplace-heater	786,713	Apr. 4	1017	210	115	1288
Badger Brass Manufacturing Company. (See Welles, Richard H., assignor.)						
Badger State Machine Company. (See Marsden, George E. W., assignor.)						
Badger, Walter A., Bellefontaine, assignor of one-half to P. Pegg, Quincy, Ohio. Hay-sling	785,536	Mar. 21	3133	662	115	725
Badische Anilin & Soda Fabrik. (See Bally, Oscar, assignor.)						
Badische Anilin & Soda Fabrik. (See Bohn, René, assignor.)						
Badische Anilin & Soda Fabrik. (See Julius, Paul, assignor.)						
Badische Anilin & Soda Fabrik. (See Julius and Fussenegger, assignors.)						
Badische Anilin & Soda Fabrik. (See Scholl and Bally, assignors.)						
Baertl, Auguste, executrix. (See Huch, Wilhelm.)						
Bagby, Eugene R. (See Atkinson, William B., assignor.)						
Baggaley, Ralph, Pittsburg, Pa. Smelting ore	784,651	Mar. 14	1343	278	115	316
Bailey, James G., Delavan, Ill. Wire reeler and unreeler	784,132	Mar. 7	233	46	115	56
Bailey, Percy D. (See Ramon, Ferdinand L., assignor.)						
Bailey, Samuel R., Amesbury, Mass. Vehicle-body	786,179	Mar. 28	4424	936	115	1023
Bailey, Victor C., Hallock, Minn., assignor to Advance Thresher Co., Battlecreek, Mich. Threshing-machine	784,971	Mar. 14	1967	413	115	454
Baillard, George C., Brooklyn, N. Y., assignor to General Electric Company. Incandescent-electric-lamp socket	785,997	Mar. 28	4059	860	115	942
Baker, David. (See Ladd and Baker.)						
Baker, David, Newton, Mass. Cooling-jacket for blast-furnaces	786,180	Mar. 28	4426	936	115	1023
Baker, George W., Wilmington, Del. Hide or leather working machine	787,259	Apr. 11	2119	467–8	115	1537
Baker, John. (See Lansberry, Edward L., assignor.)						
Baker, John A., Seguin, Tex. Induction-coil	787,658	Apr. 18	2934	638	115	1735
Baker, William J., Newport, Ky. Window-screen	787,818	Apr. 18	3269	714	115	1811
Baker, Winthrop M., Newton, Mass. Chocolate confection	787,887	Apr. 25	3417	748	115	1855
Bakewell, Paul, *et al.* (See McGregor, William A., assignor.)						
Balderston, Caleb C., Colora, Md., and N. H. Brown, assignors to Williams, Brown & Earle, Philadelphia, Pa. Reflecting-lantern	785,851	Mar. 28	3752	798	115	873
Baldwin Company. (See Jobes, Lawrence U., assignor.)						
Baldwin Company. (See Smith, Fred S., assignor.)						
Baldwin, Samuel S. (See Roever and Baldwin.)						
Baldy, James B. (See Turner, Granville, assignor.)						
Ball, Augustus A., Jr., Lynn, Mass., assignor, by mesne assignments, to General Electric Company. Pump	784,773	Mar. 14	1593	329	115	373
Ball Brothers Glass Manufacturing Company. (See Coddington, George D. C., assignor.)						
Ball, Jacob, Waterloo, and R. E. Ritz, Berlin, Canada. Calendar	786,618	Apr. 4	825	171–2	115	1246
Ballantyne, James, Boston, Mass. Automatic perpetual calendar	786,181	Mar. 28	4427	937	115	1023
Balling, Henry. (See Seifriz and Balling.)						
Bally, Oscar. (See Scholl and Bally.)						
Bally, Oscar, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Violet anthracene dye and making same	786,085	Mar. 28	4259		115	987
Baltzer, Henry P., and J. Johengen, assignors to Hamburg Planter Company, Hamburg, N. Y. Potato-planter	785,932	Mar. 28	3911	832	115	909
Bancroft, John S., assignor to Lanston Monotype Machine Company, Philadelphia, Pa. Die-case equipment for type-machines	784,245	Mar. 7	461	93	115	107
Banderob, John, Oshkosh, Wis. Adjustable mirror-support	787,260	Apr. 11	2121	468	115	1538
Bangs, William A., Kingston, Wis. Traction-wheel	788,014	Apr. 25	3692	804	115	1918
Banks, William C., New York, N. Y. Battery	787,715	Apr. 18	3037	666	115	1757
Banks, William C., New York, N. Y. Battery	787,716	Apr. 18	3039	666–7	115	1757
Barber, Henry F., assignor of seven-twelfths to J. G. Jones and F. M. Tefft, Fort Morgan, Colo. Beet-harvester	784,532	Mar. 14	1072	222–3	115	256
Barber, Howard M., Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Offset mechanism for printing-machines	787,141	Apr. 11	1883	406–7	115	1487
Barber, Lee W., assignor to Standard Car Truck Company, Chicago, Ill. Lateral-motion device for car-trucks	784,096	Mar. 7	171	32–3	115	42
Barber, Lee W., assignor to Standard Car Truck Company, Chicago, Ill. Car-truck	784,097	Mar. 7	174	33–4	115	42
Barber, Lyman L., Charlestown, Mass. Punching-press	784,774	Mar. 14	1596	329	115	373
Barclay, John C., New York, N. Y. Printing-telegraph	785,076	Mar. 21	2168	458	115	514
Barclay, John C., New York, N. Y. Printing-telegraph	787,608	Apr. 18	2836	618–19	115	1715
Bard, George R. (See Weimar, Fred, assignor.)						
Bardenwerper, Charles H., assignor to American Steam Motor Company, Milwaukee, Wis. Rotary motor	788,390	Apr. 25	4425	962–3	115	2087
Barfield, George W., North Birmingham, Ala. Car-coupling	787,819	Apr. 18	3271	715	115	1811

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bargamin, Clifford, assignor to Novelty Manufacturing Corporation, Newport News, Va. Cut-off attachment for gas-stoves	786,182	Mar. 28	4431	937–8	115	1024
Barker, Irving, Springfield, Ill. Apparatus for casting metals	784,023	Mar. 7	12	3	115	5
Barker, James. (See Miller, James, assignor.)						
Barker, Lewis W., Clinton, Iowa. Mail-pouch catcher	784,466	Mar. 7	923	194	115	210
Barker, Wendell A., assignor to E. A. Thomas, Chicago, Ill. Hoisting-machine	787,609	Apr. 18	2846	619–20	115	1716
Barker, William H. (See Snyder and Barker.)						
Barna, Joseph W., and V. Hoffman, Chicago, Ill. Shoe-fastener	785,789	Mar. 28	3634	776	115	844
Barna, Joseph W., and V. Hoffman, Chicago, Ill., assignors to Peerless Machinery Company, Boston, Mass. Eyeleting-machine	786,340	Apr. 4	183	42–3	115	1109
Barnabas, Leander, Albany, N. Y. Sanitary milk-pail	786,400	Apr. 4	326	72	115	1142
Barner, Robert. (See Maher, Michael M., assignor.)						
Barnes, Charles W., New York, N. Y. Cuff-fastener	784,829	Mar. 14	1708	355	115	398
Barnes, William M., Philadelphia, Pa. Neckband-stretcher	788,183	Apr. 25	4018	868–9	115	1998
Barnett, Daniel M., Melbourne, Victoria, Australia. Scribing-tool for carpenters, &c	787,142	Apr. 11	1889	408	115	1488
Barnett, George W., Chicago, Ill. Map-cabinet	784,613	Mar. 14	1255	262	115	295
Barnett, George W., Chicago, Ill. Adjustable table	785,147	Mar. 21	2331	488	115	548
Barney, Edwin E., Groton, N. Y. Type-writing machine	787,020	Apr. 11	1644	350	115	1435
Barnhart, Harry J. (See King, Barnhart, and King.)						
Barnum, Thomas E., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Controller for electric motors	786,401	Apr. 4	327	72	115	1143
Barrett, Albert, and W. Condon, Kansas City, Mo. Dynamo-electric massage instrument	784,024	Mar. 7	15	3	115	5
Barrett, Clinton H., Boston, Mass. Brass band instrument	784,201	Mar. 7	373	76	115	87
Barrett, James B., Washington, D. C., assignor to International Boiler Improvement Company, Pierre, S. D. Producing complete combustion of fuels	786,243	Mar. 28	4548	964–5	115	1049
Barrett, James B., Washington, D. C., assignor to International Boiler Improvement Company, Pierre, S. D. Means for producing complete combustion of fuels	787,552	Apr. 18	2718	591–2	115	1687
Barrett, John R., Chicago, Ill. Binder	785,651	Mar. 21	3361	720	115	773
Barrett, Robert A., Barberton, Ohio, assignor to Stirling Company, Jersey City, N. J. Apparatus for making serpentine boiler-headers	786,794	Apr. 11	1183	246–7	115	1335
Barrie, Robert C., Philadelphia, Pa. Vapor-burning stove	786,944	Apr. 11	1479	313	115	1400
Barringer, Lawrence E., Schenectady, N. Y., assignor to General Electric Company. Insulation for electric conductors	787,820	Apr. 18	3272	715	115	1811
Barrington, Richard L. (See Reisner, Fred F., assignor.)						
Barron, Walter J., Brooklyn, N. Y., and H. W. Merritt, Springfield, Mass., assignors to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	784,376	Mar. 7	729	149	115	168
Barros, Francisco D., São Paulo, Brazil. Machine for polishing and finishing coffee-beans	787,143	Apr. 11	1891	408	115	1489
Barry, Charles E., Schenectady, N. Y., assignor to General Electric Company. Triple valve	785,537	Mar. 21	3135	662	115	726
Barry, Edward H. (See De Rangis, Florence, assignor.)						
Barry, Richard V., Clinton, Iowa. Corn-planter	786,619	Apr. 4	829	172	115	1246
Bartholomew, Eugene E., Cleveland, assignor to Single Stave Barrel Company, Cleveland, Ohio. Saw	788,236	Apr. 25	4120	893	115	2020
Bartlebaugh, Henry L. (See Merritts and Bartlebaugh.)						
Bartley, Edward C., Mifflintown, Pa. Ice-creeper	788,302	Apr. 25	4246	920	115	2048
Bartley, Milton, *et al.* (See Bryce, Andrew V., assignor.)						
Barton, Delbert E., Minneapolis, Minn. Snap-hook	785,538	Mar. 21	3139	662	115	726
Barton, Thomas E., Des Moines, Iowa. School-book-holder strap	784,972	Mar. 14	1971	413–14	115	455
Barton, William S., Orangeburg, S. C. Straddle-row cultivator	787,261	Apr. 11	2122	468	115	1538
Baruch, Emile E., assignor of one-half to W. H. Wilds, New York, N. Y. Hook and eye	784,294	Mar. 7	561	115	115	129
Bass, Duncan M., Glenzodia, Ala. Baling-press	786,714	Apr. 4	1019	210–11	115	1289
Bass, John T., Daingerfield, Tex. Harness attachment	784,533	Mar. 14	1074	223	115	257
Bassett, John M., Dallas, Tex. Pump-valve	784,534	Mar. 14	1075	224	115	257
Bastiou, Pierre E. M., Lannion, France. Apparatus for transforming motion	786,715	Apr. 4	1020	211–12	115	1289
Bates, Albert J., Joliet, Ill., assignor to American Steel & Wire Company, Worcester, Mass. Wire-barbing machine	785,652	Mar. 21	3362	720–1	115	773
Bates, Edward B. (See MacDiarmid, Wesley D. R., assignor.)						
Bates, Edward T., Washington, D. C. Weighing-scale	786,478	Apr. 4	553	111	115	1188
Bates, Edwin G., assignor to Bates Machine Company, New York, N. Y. Perforating, embossing, or indenting device	784,025	Mar. 7	19	4	115	6
Bates, Edwin G., assignor to Bates Machine Company, New York, N. Y. Numbering-machine	784,729	Mar. 14	1507	308–9	115	354
Bates, Henry A., Middletown, Conn. Thread-brake	787,717	Apr. 18	3040	667	115	1758
Bates Machine Company. (See Bates, Edwin G., assignor.)						
Battenfeld, Harriet A. (See Battenfeld, John N. and H. A.)						
Battenfeld, Harriet A., assignor to Berkshire Manufacturing Company, Cleveland, Ohio. Molding-machine	784,535	Mar. 14	1077	224–5	115	257
Battenfeld, John N. and H. A., assignors to Berkshire Manufacturing Company, Cleveland, Ohio. Molding-machine	784,536	Mar. 14	1080	225	115	258
Baude, Johann H., and E. H. Hoppe, Montwy, Germany. Heat-exchange	786,341	Apr. 4	189	43	115	1111
Baudoux, Eugène, Genappe, Belgium. Glass-melting furnace	787,553	Apr. 18	2721	592	115	1687
Bauer, Carl E., Hammond, Ind., assignor to Simplex Railway Appliance Company, Chicago, Ill. Fulcrum-block for brake-beams	787,888	Apr. 25	3419	749	115	1855
Bauer, Herman. (See Giessler and Bauer.)						
Baxter, A. William, *et al.* (See Moore, John H., assignor.)						
Baxter, Anna Z., *et al.* (See Moore, John H., assignor.)						
Bayer, Henry, Schenectady, N. Y., assignor to General Electric Company. Lamp-socket	784,775	Mar. 14	1600	329	115	373
Bayrer, William J., assignor of one-half to F. R. Boynton, Hartford, Conn. Power-transmitting mechanism	785,703	Mar. 28	3479	747	115	810
Bays, Lafayette, Arbala, Tex. Wire-stretcher	786,945	Apr. 11	1480	313	115	1400
Bayston, Charles H., Chatsworth, Ill. Riding attachment for harrows	784,776	Mar. 14	1601	330	115	374
Beach, Thaddeus C., assignor to St. Johns Table Co., St. Johns, Mich. Extension-table	786,086	Mar. 28	4260	898	115	987
Beal, Alpha R., Rochester, N. Y. Attachment for dish-cleaning tables	786,402	Apr. 4	330	72	115	1144
Beal, John, Denver, Colo. Beet-harvester	787,262	Apr. 11	2123	468–9	115	1538
Beall, William L., assignor to Gale Manufacturing Company, Albion, Mich. Corn-planter	788,344	Apr. 25	4325	943	115	2066
Beard, Joseph A., Sr., Liberty, Miss. Harrow and cultivator	787,263	Apr. 11	2126	469	115	1539
Beardsley, Arthur L., Chicago, Ill. Gage or gaging-tool	784,652	Mar. 14	1347	278	115	317
Bearss, Eugene, Ellenville, N. Y. Deflector for air-brakes	784,537	Mar. 14	1083	225	115	259
Beatty, Joseph E., Huntingdon, Pa. Talking-machine	787,264	Apr. 11	2127	469–70	115	1539
Beaumont, Godfrey, Dallas, Tex. Vaporizer	788,345	Apr. 25	4327	944	115	2066
Beaver, Clarence E. (See Stevenson, Henry M., assignor.)						
Beazley, Walter S., Lancaster, Ky. Dental root-extractor	784,098	Mar. 7	176	34	115	43
Becher, Alfred, Bielefeld, Germany. Making waterproof transparent celluloid pictures	788,129	Apr. 25	3920	849	115	1977
Bechman, Henry F., assignor to Duplex Printing Press Company, Battlecreek, Mich. Multicolor duplex printing	786,620	Apr. 4	831	172	115	1247

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Bechman, Henry F., assignor to Duplex Printing Press Company, Battlecreek, Mich. Printing-press	786,716	Apr. 4	1023	212-13	115	1289
Beck, Warren F., Elmira, N. Y. Form for sales-slips	788,346	Apr. 25	4329	944	115	2067
Beckman, Burchard F., Redoak, Iowa. Anchor for railway-rails	787,871	Apr. 18	3376	738	115	1834
Beckwith, Arthur K., Dowagiac, Mich. Stove	787,425	Apr. 18	2460	532	115	1625
Bedell, Orlando W., Princess Bay, N. Y., and H. D. Hibbard, Plainfield, N. J., assignors to Manganese Steel Safe Company, New York, N. Y. Dogging mechanism for safe or vault bolting mechanisms	788,085	Apr. 25	3817	830	115	1948
Bedell, Richard M., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	787,821	Apr. 18	3275	715	115	1812
Beebe, Dillon, Newark, N. J. Racking apparatus	786,621	Apr. 4	833	173-4	115	1247
Beebe, Gaylord W., Minneapolis, Minn., assignor to G. W. Todd & Company, Rochester, N. Y. Check-protector	784,377	Mar. 7	732	149-50	115	168
Beebe, Gaylord W., Minneapolis, Minn., assignor to G. W. Todd & Company, Rochester, N. Y. Check-protector	785,466	Mar. 21	2978	628	115	691
Beebe, Murray C., assignor to G. Westinghouse, Pittsburg, Pa. Electric heater and manufacturing same	786,257	Apr. 4	8	2	115	1072
Beeby, William W., *et al.* (See Penberthy and Pitchford, assignors.)						
Beecher, W. L., *et al.* (See McCoy, Barney, assignor.)						
Beede, Herbert G., Pawtucket, R. I. Knotting attachment for twisting or spinning machines	787,426	Apr. 18	2462	532-3	115	1626
Beede, Herbert G., Pawtucket, R. I. Twisting or spinning machine	787,554	Apr. 18	2722	592	115	1688
Beede, Herbert G., Pawtucket, R. I. Adjustable bearing	788,184	Apr. 25	4019	869	115	1998
Beem, Glenn A. (See Campton and Beem.)						
Behrman, John F. (See Hair and Behrman.)						
Beistle, Martin L., Ingram, Pa. Medicine-spoon	784,830	Mar. 14	1710	355	115	398
Beistle, Martin L., Ingram, Pa. Machine for manufacturing artificial flowers	784,912	Mar. 14	1861	390	115	431
Belding, Thomas C., and R. B. Heldman, assignors to Canton Clothes Dryer and Manufacturing Company, Canton, Ohio. Heating and ventilating drying apparatus	784,026	Mar. 7	22	4	115	7
Bell, Carel, Hoboken, N. J. Non-refillable attachment for bottles	785,467	Mar. 21	2983	629	115	692
Bell, Edward, Teeswater, Canada. Beet-chopper	786,258	Apr. 4	9	2	115	1073
Bell, George H., assignor to H. L. Bell, Brooklyn, N. Y. Vaporizer	785,692	Mar. 21	3455	743	115	791
Bell, Hattie L. (See Bell, George H., assignor.)						
Bell, James E. (See King and Bell.)						
Bell, Matthew S., Mayfair, near Johannesburg, Transvaal. Anti-incrustation fluid	787,822	Apr. 18	3276	.....	115	1812
Bell, Oscar G., and R. C. Stofer, Norwich, N. Y. Clinical-thermometer case	786,717	Apr. 4	1027	213	115	1290
Bellamy, Charles J., Springfield, Mass. Feeding mechanism	784,295	Mar. 7	562	115	115	129
Bellis, Daniel K., Manton, Mich. Short harness-trace	787,265	Apr. 11	2129	470	115	1540
Bellis, Harry S., Webster Groves, Mo. Bottle	784,099	Mar. 7	177	34	115	43
Bellows, Benjamin F., Cleveland, Ohio, assignor to J. W. Simpson, New York, N. Y. Elevator mechanism for circulating-matrix machines	784,133	Mar. 7	235	46-7	115	56
Belyeu, John W., Alexander City, Ala. Automatic leveling instrument	784,511	Mar. 7	1035	214	115	232
Bemis, Thomas, Indianapolis, Ind. Pneumatic carrier	785,468	Mar. 21	2984	629	115	692
Bemis, Thomas, Indianapolis, Ind. Adjustable fence for saws	785,699	Mar. 21	3462	744	115	793
Bend, William B., St. Paul, Minn. Separable button	786,183	Mar. 28	4433	938	115	1024
Bender, Frederick W., Hoboken, N. J. Fountain-pen	784,538	Mar. 14	1084	226	115	259
Bender, Jacob. (See Whitehouse and Bender.)						
Benedetto, Antonio, Washington, D. C. Multiple-expansion vibratory steam-engine	788,066	Apr. 25	3820	830-2	115	1949
Benedetto, Antonio, Washington, D. C. Cylinder-jacket	788,087	Apr. 25	3827	832	115	1951
Benedict, Fred L., assignor of one-half to J. H. Cornell, deceased, Jersey City, N. J.; H. L. Cornell, administratrix. Stop attachment for shades	786,087	Mar. 28	4264	898	115	988
Benefield, Chauncey R., Dallas, Tex. Cotton-seed cleaner	786,184	Mar. 28	4434	938	115	1024
Benjamin, Edward H., Oakland, Cal. Ore-pulverizing apparatus	786,088	Mar. 28	4265	899	115	989
Benkert, William C., assignor to C. E. Schmidt, Philadelphia, Pa. Shoe-tree	786,783	Apr. 4	1152	242	115	1318
Benner, Elwood E., Sargent, Nebr. Building-block	785,539	Mar. 21	3140	663	115	727
Bennett, Edwin W., deceased, Rawlins, Wyo.; D. Clark, administrator. Apparatus for dipping animals	786,089	Mar. 28	4269	899-900	115	989
Bennett, Erastus S., New York, N. Y. Means for recovering magnetic iron from ore-separating tanks	786,946	Apr. 11	1481	313	115	1400
Bennett, John W. (See Willebrands and Bennett.)						
Bennington, John F., Laharpe, Ill. Velocipede	786,718	Apr. 4	1028	213	115	1290
Bennor, Joseph, Macon, Ga. Turpentine-still	786,469	Mar. 21	2985	629-30	115	692
Bent, George W., Hydepark, Mass. Mattress-tufting machine	787,555	Apr. 18	2724	592-3	115	1688
Bentley, Eddie, Lincoln, Ill. Velocipede	784,973	Mar. 14	1972	414	115	455
Benton, Arthur B. (See Brett and Benton.)						
Benton, Orlando F., assignor of one-half to J. Shimp, St. Marys, Ohio. Composition for preserving india-rubber goods	784,378	Mar. 7	740	.....	115	170
Bentsen, Peter A. (See Layman and Bentsen.)						
Berbecker & Rowland Manufacturing Company. (See Assel, Jacob, assignor.)						
Berg, Andrew, and J. A. Fray, Bridgeport, Conn., assignors to G. H. and C. H. W. Cliff, Philadelphia, Pa. Machine for cleansing and greasing baking-pans	784,202	Mar. 7	376	76-7	115	87
Berger, Charles B. (See Huntley, Jay M., assignor.)						
Bergh, Bror F., New York, N. Y. Controller for pneumatic compressors	787,480	Apr. 18	2592	558	115	1657
Bergh, Edwin O., Beloit, Wis. Stanchion-opening device	787,718	Apr. 18	3042	667	115	1758
Bergman, Ludwig, Cass Lake, Minn. Rotary engine	785,077	Mar. 21	2175	459	115	515
Bergman, Oscar, Two Harbors, Minn. Door and operating means therefor	788,015	Apr. 25	3693	804	115	1919
Berkey, Harvey E., Monongahela, Pa., assignor to Pioneer Suspender Company. Fastening device. (Reissue)	12,339	Apr. 25	4633	1011	115	2131
Berkshire Manufacturing Company. (See Battenfeld, Harriet A., assignor.)						
Berkshire Manufacturing Company. (See Battenfeld, John N. and H. A., assignors.)						
Berlin-Neuroder Kunstanstalten Actiengesellschaft. (See Budwig, Dagobert, assignor.)						
Berliner, Herbert S., Washington, D. C. Dramophone-record	785,191	Mar. 21	2424	509	115	570
Berndt, Jacob F., Fessenden, N. D. Concave and cylinder for threshing-machines	788,088	Apr. 25	3828	832	115	1951
Berns, Peter. (See Domann, Charles F., assignor.)						
Berolzheimer, Philip, assignor to Eagle Pencil Company, New York, N. Y. Display rack or holder	786,719	Apr. 4	1029	214	115	1290
Berry, Hiram N., Meridian, Miss. Plow-point	786,784	Apr. 4	1153	242	115	1318
Berszinsky, Friedrich, Essen, assignor to De Fries & Co., Actien-Gesellschaft, Düsseldorf, Germany. Groove and thread cutter	787,490	Apr. 18	2596	559	115	1658
Bertgen, Franz, assignor of two-thirds to G. J. Kobusch, St. Louis, Mo. Railway-rail	784,379	Mar. 7	740	151	115	170
Besoonet, George C., Channing Tex. Ink-pad	784,777	Mar. 14	1601	330	115	374
Best, Colin M., Lamar, S. C. Sad-iron heater	786,720	Apr. 4	1030	214	115	1290
Best, John, Jeannette, Pa. Paddle-wheel	785,286	Mar. 21	2617	553	115	610
Bethlehem Steel Company. (See Meigs and Hammar, assignors.)						
Bettendorf, William P., Davenport, Iowa. Side frame for car-trucks	785,790	Mar. 28	3635	777	115	845
Bettendorf, William P., Davenport, Iowa. Tank-car	788,016	Apr. 25	3695	805	115	1919
Betts, Anson G., Troy, N. Y. Making lead dithionate	785,791	Mar. 28	3638	.....	115	846

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Betzer, Anthony L., Kansas City, Mo. Washing-machine	786,090	Mar. 28	4272	900	115	990
Bevington, John, Cordova, Nebr. Wheel	785,908	Mar. 28	4061	861	115	943
Bevington, John, Cordova, Nebr. Antifriction-bearing	788,347	Apr. 25	4330	944	115	2067
Beyer, Otto S., East Rutherford, N. J., assignor to E. W. Bliss Company. Clutch	784,653	Mar. 14	1348	279	115	317
Beyer, Otto S., East Rutherford, N. J., assignor to E. W. Bliss Company. Double-seaming machine	785,347	Mar. 21	2718	576-7	115	632
Beythan, Otto F., Freeland, Mich. Bean-separating machine	785,032	Mar. 14	2071	435-6	115	477
Biber, Wilhelm, Washington, D. C. Device for preserving bread	787,021	Apr. 11	1647	350	115	1436
Bickerstaff, James P., assignor of one-half to S. McGivern, Monaca, Pa. Bath-tub mold	784,913	Mar. 14	1864	390-1	115	432
Bidle, William S., *et al.* (See Waggoner, William B., assignor.)						
Bieder, Jacob L., Chicago, Ill. Campaign-button	787,067	Apr. 11	1742	371	115	1457
Biel, Thies, Jersey City, N. J., assignor to C. N. Richardson, New York, N. Y. Clamping and attaching device	784,654	Mar. 14	1349	279	115	317
Biggert, Florence C., Jr., Idlewood, Pa. Sectional wheel	784,655	Mar. 14	1350	279	115	317
Biggs, John M., Glasgow, Ky. Calendar	784,974	Mar. 14	1974	415	115	455
Bille, Nels C., Balfour, N. D. Compound for exterminating gophers	784,512	Mar. 7	1037	.....	115	233
Bindler, Karl H., Dresden, Germany. Dividing-machine for paste, dough, or the like	787,427	Apr. 18	2466	533-4	115	1627
Binnig, Jacob, Boston, assignor of one-half to Mason & Hamlin Company, Cambridge, Mass. Organ	784,203	Mar. 7	380	77	115	88
Binns, Robert, South Windham, Conn. Paper-making machine and process	785,704	Mar. 28	3461	747	115	811
Bird, Charles S., East Walpole, Mass. Insulating sheet or structure	784,831	Mar. 14	1711	335	115	398
Birkholz, Richard, Milwaukee, Wis., assignor to E. Goldman & Co., Chicago, Ill. Apparatus for treating filter-pulp	787,971	Apr. 25	3594	785-6	115	1897
Bishop, Louis N., Dayton, Ky. Non-refillable bottle	784,975	Mar. 14	1975	415	115	456
Bispham, Elizabeth C., Philadelphia, Pa. Knee rest or support	787,068	Apr. 11	1743	371	115	1457
Bissell Carpet Sweeper Company. (See Starkweather, Dell F., assignor.)						
Bissell, Edgar J., Bartold, Mo. Splash-guard for bathing apparatus	788,237	Apr. 25	4121	893	115	2020
Bivins, James W., Topeka, Kans. Tank-cleaner	787,266	Apr. 11	2131	470	115	1540
Bixler, John F., assignor to E. H. Huenefeld, Cincinnati, Ohio. Deflector for ovens	786,947	Apr. 11	1483	313	115	1401
Black, Henry C., San Francisco, Cal. Can-topping machine	786,403	Apr. 4	331	73	115	1144
Black, Henry C., San Francisco, Cal. Can-testing apparatus	786,404	Apr. 4	333	73-4	115	1144
Blackburn, Frank H., Fostoria, assignor to National Electric Lamp Company, Cleveland, Ohio. Incandescent electric lamp	787,428	Apr. 18	2468	534	115	1627
Blackmore, Henry S., Mount Vernon, N. Y. Producing metals and alloys	786,185	Mar. 28	4437	939	115	1025
Blackmore, Henry S., Mount Vernon, N. Y. Extracting aluminium or other metals	786,244	Mar. 28	4551	965	115	1049
Blackmore, Henry S., Mount Vernon, N. Y. Liberating and separating fibers	786,721	Apr. 4	1031	.....	115	1291
Blackmore, Joseph J., Brooklyn, N. Y. Domestic water-heater and tank system	788,089	Apr. 25	3829	832	115	1951
Blackstone, Edward C., and R. E. Watts, Stamford, England. Swath-turner	784,540	Mar. 14	1087	226-7	115	259
Blair Camera Company. (See Dorr, George H., assignor.)						
Blair, John, Jr., Rock Springs, Wyo. Tent-fastener	787,719	Apr. 18	3043	667	115	1759
Blake, Dennis B. D. and W. F., Chicago, Ill. Washing-machine	784,541	Mar. 14	1089	227	115	260
Blake, William F. (See Blake, Dennis B. D. and W. F.)						
Blakeslee, Charles F., Farmington, Ill. Tellurian	787,720	Apr. 18	3045	668	115	1759
Blanton, Ambrose D., *et al.* (See Brown, Lloyd C., assignor.)						
Blanton, Llewellyn H., *et al.* (See Brown, Lloyd C., assignor.)						
Blashfield, Charles E., Salem, N. Y. Portable wardrobe	784,296	Mar. 7	564	116	115	130
Blauvelt, James P., Nyack, N. Y. Boiler	784,730	Mar. 14	1509	309	115	355
Bleoo, John H., assignor to A. B. Levy, New York, N. Y. Valve for regulating pressure	784,731	Mar. 14	1511	309	115	355
Blinn, Charles P., Boston, Mass. Pianissimo device	786,186	Mar. 28	4440	939	115	1025
Blocher, Samuel J., Bentonville, Ark. Fruit-jar holder and spiral wrench	787,823	Apr. 18	3277	715	115	1812
Block, Francis L., Sidney, Ill. Grain sorter or separator	784,134	Mar. 7	239	48	115	58
Block, Francis L., Sidney, Ill. Grain sorter or separator	784,135	Mar. 7	241	48	115	58
Blomgren, Nels J., Norway, Mich. Envelop-opener	784,136	Mar. 7	243	48	115	58
Bloom, Orvis M., Independence, Kans., assignor of one-half to Independence Iron Works Company, Lima, Ohio. Casing packer-shoe	785,933	Mar. 28	3913	832	115	909
Bloom, Samuel S., Philadelphia, Pa. Connection for artificial teeth and dental plates	785,999	Mar. 28	4062	861	115	943
Bloomberg, Casper, New York, N. Y. Cast-off	787,872	Apr. 18	3377	738	115	1834
Blowers, George H., San Francisco, Cal. Steam-boiler	784,976	Mar. 14	1977	415	115	456
Bly, Thearon S., Webb City, Mo. Boiler-scale remover	785,192	Mar. 21	2426	510	115	570
Blyth, James F., Brentford, England. Apparatus for displaying advertisements, &c	784,539	Mar. 14	1086	226	115	259
Bocock, Edwin M. (See Tarris, Andrew, assignor.)						
Boda, Lee M. (See Boda, William J., assignor.)						
Boda, William J., Dayton, assignor of one-half to L. M. Boda, Columbus, Ohio. Uniting woodwork	787,429	Apr. 18	2469	534	115	1627
Bode, Alfred, and K. Böttcher, Benrath, near Düsseldorf, Germany. Turning-shovel dredger	787,022	Apr. 11	1648	350-1	115	1436
Boeselt, Reinhold, Westphalia, Tex. Whip-handle	787,972	Apr. 25	3598	786	115	1898
Boggs, Henry P., Mosiertown, Pa. Trap-gun	785,792	Mar. 28	3639	777	115	846
Bohn, René, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Making black dyes	787,824	Apr. 18	3278	.....	115	1812
Boivin, Emile. (See Philippe and Boivin.)						
Boland, Frank K. (See Lutz, George A., assignor.)						
Boland, John P. (See Pence, Edward L., assignor.)						
Bole, William J., assignor to J. A. Brill, Philadelphia, Pa. Street-sprinkler	784,297	Mar. 7	566	116	115	130
Bollermann, Arthur, New York, N. Y. Music-desk	788,348	Apr. 25	4332	945	115	2067
Bollweber, Herman, Spokane, Wash. Fruit-press	786,091	Mar. 28	4273	901	115	990
Bolus, William G., assignor to Aremac Manufacturing Company, Peoria, Ill. Boiler-flue scraper	786,092	Mar. 28	4274	901	115	991
Boman, Claes W., assignor to Eagle Pencil Company, New York, N. Y. Fountain-pen	785,653	Mar. 21	3366	721	115	774
Boman, Claes W., assignor to Eagle Pencil Company, New York, N. Y. Fountain-pen	785,654	Mar. 21	3367	722	115	774
Bond, Charles L., Los Angeles, assignor to Bond Scale Company, Los Angeles county, Cal. Automatic weighing-scale. (Reissue)	12,335	Apr. 4	1171	244	115	1321
Bond, George T., Birmingham, Ala. Tram-car wheel	786,405	Apr. 4	336	74	115	1145
Bond, Hiram A., Springfield, Mass. Shuttle-moving device for wire-looms	785,655	Mar. 21	3368	722	115	774
Bond, John and L. H., Waterloo, N. Y. Attachment for spinning-mules	785,470	Mar. 21	2987	630	115	693
Bond, Levi H. (See Bond, John and L. H.)						
Bond Scale Company. (See Bond, Charles L., assignor.) (Reissue.)						
Bond, Sobieski L., Charleston, S. C. Cotton-picker	788,238	Apr. 25	4122	893-4	115	2021
Boner, George. (See Van Boxel, Mathew, assignor.)						
Boner, John T., Napoleon, Ohio. Portable mold	785,705	Mar. 28	3483	747	115	811
Bong, Martin O., Christianstad, Sweden. Temporary binder	785,078	Mar. 21	2176	459	115	515
Bonnel, Edward F., and J. H. McGowan, Denver, Colo. Shackle	787,430	Apr. 18	2470	534-5	115	1628
Bonnell, William R., *et al.* (See Flierboom Anton F., assignor.)						
Bonzano, Adolphus. (See Shand, Alexander C., assignor.)						
Book, Charles, Harpster, Ohio. Fence-post	784,137	Mar. 7	245	49	115	59

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Boone, Charles H., *et al.* (See Hoerichs, Edward, assignor.)						
Booth, Nathaniel E., Southold, N. Y. Bottle	785,656	Mar. 21	3371	722	115	775
Boothe, John, Fort Worth, Tex. Vehicle	784,138	Mar. 7	246	49	115	59
Borcherding, Ferdinand H. (See Axt and Borcherding.)						
Borden's Condensed Milk Company. (See Hopkins, Archibald E., assignor.)						
Border, Albert E., Los Angeles, Cal. Shears	785,934	Mar. 28	3915	832	115	909
Borg, Chris, Chicago, Ill. Manufacturing metal wheels	787,889	Apr. 25	3420	749	115	1855
Bornhoeft, Edward, New York, N. Y. Piano pedal-action	785,706	Mar. 28	3484	748	115	811
Bornhoeft, Edward New York, N. Y. Bracket for grand-piano actions	787,069	Apr. 11	1745	371	115	1457
Borstad, Bernt L., and E. P. Fiedler, St. Paul, Minn. Paper-bag holder	784,027	Mar. 7	26	5	115	7
Borsum, Louis, Plainfield, N. J. Photographic camera	784,028	Mar. 7	26	5	115	8
Bort, Charles G., Sterling, Ill. Band-cutter and feeder for corn-shredders	785,398	Mar. 21	2837	598	115	659
Boston Wire Stitcher Company. (See Briggs, Thomas A., assignor.)						
Bostrom, Ernst A., Atlanta, Ga. Ditching and terracing level	786,093	Mar. 28	4275	901–2	115	991
Botkin, Murray R., Denver, Colo. Sewing-awl	786,000	Mar. 28	4064	861	115	943
Botsford, Orvie F., Hammersley Fork, Pa. Rivet-holder	784,246	Mar. 7	463	93	115	107
Böttcher, Karl. (See Bode and Böttcher.)						
Bottgar, Adolph P., assignor of one-half to R. Sutton, Boone, Iowa. Swinging chair	787,556	Apr. 18	2726	593	115	1688
Boucher, Eugène, New York, N. Y. Rope-clutch for aerial-tramway carriages	784,100	Mar 7	178	35	115	43
Boughton, Arthur M., Harvey, Ill. Furnace	788,239	Apr. 25	4125	894–5	115	2021
Bouquet, Edwin C., Los Angeles, and C. F. Sweney, Pasadena, Cal. Hoist	788,449	Apr 25	4534	967	115	2110
Bourcart, Johan J., Colmar, Germany. Support for motor-cycles	787,070	Apr. 11	1745	372	115	1457
Bourget, Albert, and F. Roberts, Jr., Turners Falls, Mass. Boot or shoe jack	787,557	Apr. 18	2728	593	115	1689
Bourke, Edmund. (See Exline and Bourke.)						
Bournique, Adolphe, Chesterton, Ind. Machine for the manufacture of plate-glass and cylinders	786,259	Apr. 4	12	3–4	115	1073
Bournonville, Eugene M., Jersey City, N. J. Pressure-reducing valve	788,240	Apr. 25	4127	895	115	2022
Boutell Manufacturing Company. (See Boutell, William H., assignor.)						
Boutell, William H., assignor to Boutell Manufacturing Company, Rochester, N. Y. Fruit-slicer	784,029	Mar. 7	29	5–6	115	8
Boutteau, Maurice J., Anzin, France. Making cattle-food cake	784,778	Mar. 14	1602	330	115	374
Bovee, David W., Waterloo, Iowa. Apparatus for the construction of plastic walls	788,391	Apr. 25	4433	963–4	115	2089
Bowan, Alfred T. (See Moss, Frank B., assignor.)						
Bowen, Philip A., assignor of one-half to R. C. Bowen, Passaic, N. J. Loose-leaf binder	787,721	Apr. 18	3047	668	115	1759
Bowen, Roy C. (See Bowen, Philip A., assignor.)						
Bowen, Russell H., Palmyra, N. J., assignor to American Pulley Company. Sheet-metal pulley	788,185	Apr. 25	4021	869	115	1999
Bower, John A., Pittsburg, Pa. Shipping-package	785,079	Mar. 21	2178	459	115	516
Bowery, Frederick, *et al.* (See Bryce, Andrew V., assignor.)						
Bowling, Joseph R. (See Ingoldsby and Bowling.)						
Bowly, Frank H., New York, N. Y. Cartridge	784,977	Mar. 14	1979	416	115	456
Bowser, Sylvanus F., assignor to S. F. Bowser & Company, Inc., Fort Wayne, Ind. Heating device for storage-tanks	786,260	Apr. 4	15	4	115	1073
Boyce, John J., and J. McCormack, Chicago, Ill.; said McCormack assignor to said Boyce. Tube-sheet	784,542	Mar. 14	1091	227	115	260
Boyd, Henry B. (See Woodward, Benjamin F., assignor.)	784,543	Mar. 14	1093	228	115	260
Boyden, Fred G., Bradford, Ill. Burial-vault	786,094	Mar. 28	4277	902	115	991
Boylan, Thomas, assignor of one-half to D. Veitch, Widdowfield, Wyo. Safety-brake for elevators	788,349	Apr. 25	4333	945	115	2068
Boyle, William J., Lewiston, assignor of one-half to W. J. O'Brien, Bath, Me. Nursing-bottle holder	784,914	Mar. 14	1865	391	115	432
Boynton, Frederick R. (See Bayrer, William J., assignor.)						
Boynton, Joseph J., assignor of one-fourth to C. L. Smith, Princeton, Ky. Fastening for shoes, &c	786,406	Apr. 4	339	74	115	1145
Braasch, Robert, *et al.*, executors. (See Poyet and Goodwin.)						
Brabble, Lloyd W., Deepcreek, assignor of one-half to C. S. Carter, Norfolk, Va. Potato-digger	788,499	Apr. 25	4624	1008	115	2128
Bracegirdle, Philip, Southwick, England. Ship-ladder	784,832	Mar. 14	1712	356	115	398
Brackelsberg, Carl A., Düsseldorf, Germany. Tire	787,491	Apr. 18	2597	559	115	1658
Bradford, Chester, Indianapolis, Ind. Automatic weigher	786,785	Apr. 4	1154	242	115	1318
Bradford, Henry P. (See Ward and Furniss, assignors.)						
Bradley, Joseph H., National Soldiers Home, Va. Trousers-creaser	785,793	Mar. 28	3640	777	115	846
Bradley, Robert H., Winston Salem, N. C. Extension-bedstead	788,392	Apr. 25	4437	964	115	2090
Bradshaw, Ira J., assignor of one-half to J. J. Dietmeyer, Waukegan, Ill. Electrical annunciator for trolley-cars	784,139	Mar. 7	249	49–50	115	60
Bradshaw, William S., San Jose, Cal. Baling-press	786,948	Apr. 11	1484	314	115	1401
Bragg, James M., East Hartford, Conn. Chimney and lining therefor	787,267	Apr. 11	2133	471	115	1541
Braine, Bancroft G., New York, N. Y., assignor to Continuous Rail Joint Company of America. Insulated step-joint	785,657	Mar. 21	3372	722–4	115	775
Braine, Lawrence F., Newark, N. J. Tire	788,090	Apr. 25	3832	833	115	1952
Brandau, Ludwig, Cassel, Germany. Coupling for railway-vehicles	786,479	Apr. 4	555	112	115	1189
Brandt Cashier Company. (See Brandt, Edward J., assignor.)						
Brandt, Edward J., Watertown, Wis., assignor to Brandt Cashier Company, Chicago, Ill. Identification-tag	785,399	Mar. 21	2839	598	115	659
Brandt, Edward J., Watertown, Wis., assignor to Brandt Cashier Company, Chicago, Ill. Calendar	788,241	Apr. 25	4129	895–6	115	2022
Brantingham, Allen C., Toledo, Ohio. Dust-collector	784,140	Mar. 7	251	50–1	115	60
Brassert, Hermann A. (See Dinkey and Brassert.)						
Brattin, John T., Irvington, assignor of one-half to W. G. Ressland, Newark, N. J. Finger-exerciser for students of type-writing	787,825	Apr. 18	3279	716	115	1812
Braun, Frederick W. (See Calkins, Albert C., assignor.)						
Braune, Henry M., *et al.* (See Braune, Isidor D., assignor.)						
Braune, Isidor D., assignor of two-thirds to H. M. Braune, New York, N. Y., and S. J. Braune, Newark, N. J. Folding umbrella	785,658	Mar. 21	3373	724	115	776
Braune, Samuel J., *et al.* (See Braune, Isidor D., assignor.)						
Brauns, Hugo, Düsseldorf, Germany. Core for use in casting hollow cylinders in block-molds	785,148	Mar. 21	2332	489	115	548
Braunschweiger, Christian, assignor of one-half to J. Braunschweiger, Toledo, Ohio. Jar opener or closer	784,467	Mar. 7	927	195	115	210
Braunschweiger, John. (See Braunschweiger, Christian, assignor.)						
Bray, Charles W., Pittsburg, Pa., assignor to American Tin Plate Company, Orange, N. J. Matching device	786,245	Mar. 28	4555	965	115	1050
Bray, Charles W., Pittsburg, Pa., assignor to American Tin Plate Company, Orange, N. J. Matching device for metal sheets	786,246	Mar. 28	4556	966–7	115	1050
Brayton, Louis F., St. Paul, Minn. Form for constructing concrete-steel columns	786,622	Apr. 4	841	174	115	1250
Brechin, Helen S., county of Aberdeen, Scotland. Darning apparatus	787,431	Apr. 18	2474	535	115	1629
Breckwoldt, Julius, Dolgeville, N. Y. Back for pianos or other instruments	787,268	Apr. 11	2135	471	115	1541
Brelsford, John E. (See Lutz and Brelsford.)						
Brennan, James M. (See Brown, William E., assignor.)						
Brenner, Walter M. (See Tiffany, Albert R., assignor.)						
Brent, Charles, Rat Portage, Canada, assignor of two-thirds to A. Campbell and A. MacLaren, Detroit, Mich. Cement-mixer	787,071	Apr. 11	1747	372	115	1458
Brent, Harry W., and C. H. Sessions, Topeka, Kans. Branding-iron	785,588	Mar. 21	3245	688	115	748
Brent, Henry W., Jr., New York N. Y., assignor of one-fourth to C. S. Wilson, Washington, D. C. Non-refillable bottle	784,656	Mar. 14	1352	279	115	318
Breshnahan, Maurice V. (See Heys, John J., assignor.)						
Breslin, Andrew, and J. Lees, Summithill, Pa. Surgical appliance	786,722	Apr. 4	1032	214	115	1291
Bresnahan, Micheal, Colby, and L. H. Gaffney, Greenbay, Wis. Terret-ring for harness	785,060	Mar. 21	2179	460	115	516
Brest, Albert, Newcastle, Pa. Animal-trap	784,141	Mar. 7	254	51–2	115	61
Brett, Henry E., and A. B. Benton, assignors of one-third to W. L. Wills, Los Angeles, Cal. Cremating-furnace	787,432	Apr. 18	2475	535–6	115	1629
Breul, Richard A., Bridgeport, Conn. Square	788,017	Apr. 25	3701	806	115	1922
Brewer, Charles W., Racine, Wis. Piano-action	786,407	Apr. 4	340	75	115	1146
Brewster, John J., San Francisco, Cal. Casing-spear	786,480	Apr. 4	557	112	115	1189
Brichta, Florentius, Holzminden, Germany. Machine for making artificial stone	786,261	Apr. 4	17	4–5	115	1074
Bricker, Samuel S., *et al.* (See Armstrong, Eliphalet, assignor.)						
Briggs, Frank P. (See Crandall, Jesse A., assignor.)						
Briggs, Henry, Hasbrouck Heights, N. J. Waxing apparatus for sewing-machines	785,852	Mar 28	3754	798	115	873
Briggs, Herbert M. (See Collyer, Charles W., assignor.)						
Briggs, Thomas A., Arlington, Mass., assignor to Boston Wire Stitcher Company, East Greenwich, R. I. Stapling-machine	786,187	Mar. 28	4442	939–40	115	1026
Bright, Colonel E. (See Ricketts, William M., assignor.)						
Brill, George M., assignor to J. A. Brill, Philadelphia, Pa. Construction of railway-cars	784,298	Mar. 7	568	116–17	115	130
Brill, John A. (See Bole, William J., assignor.)						
Brill, John A. (See Brill, George M., assignor.)						
Brill, John A. (See Bucknam, Ezra S., assignor.)						
Brill, John A. (See Curwen, Samuel M., assignor.)						
Brill, John A. (See Haddock, Henry E., assignor.)						
Brill, John A. (See Pickles, Charles K., assignor.)						
Brill, John A. (See Smith, Warren M., assignor.)						
Brill, John A., Philadelphia, Pa. Motor-propulsion truck for street-cars or similar vehicles	784,299	Mar. 7	573	117–18	115	132
Brill, John A., and C. K. Pickles, Philadelphia, Pa.; said Pickles assignor to said Brill. Car-window	784,300	Mar. 7	575	118	115	133
Brining, Frank P., and J. Stackhouse, Philadelphia, Pa. Coffin-fastener	786,095	Mar. 28	4279	902	115	992
Brinkman, Louis H., assignor to Whitlock Coil Pipe Company, West Hartford, Conn. Apparatus for bending pipe	784,101	Mar. 7	180	35	115	44
Brinkman, Louis H., assignor to Whitlock Coil Pipe Company, West Hartford, Conn. Radiator for motor-vehicles	785,081	Mar. 21	2181	460	115	516
Brinkman, Louis H., assignor to Whitlock Coil Pipe Company, West Hartford, Conn. Apparatus for bending pipe	785,082	Mar. 21	2183	460	115	516
Brinkman, Louis H., assignor to Whitlock Coil Pipe Company, West Hartford, Conn. Apparatus for bending pipe	785,083	Mar. 21	2185	460	115	517
Brinton, Walter, Highbridge, N. J., assignor to Taylor Iron and Steel Company. Pulley, gear, and sheave	784,544	Mar. 14	1094	228–9	115	261
Briody, Thomas F., South Bethlehem, Pa. Device for dispensing liquids	784,247	Mar. 7	464	93	115	108
Britsch, Otto C., assignor to D. Wald, New York, N. Y. Motor controlling and regulating device	787,722	Apr. 18	3049	668–9	115	1760
Britz, János, Budapest, Austria-Hungary. Automatic railway-brake	788,091	Apr. 25	3833	833	115	1952
Broadbooks, Peter, Batavia, N. Y. Shears	784,978	Mar. 14	1980	416	115	457
Broadbooks, Peter, Batavia, N. Y. Nippers or cutting-pliers	786,723	Apr. 4	1034	215	115	1291
Broadhurst, Columbus F. (See Robinson and Broadhurst.)						
Broadwell, Edward C. (See Lyons and Broadwell.)						
Brockelbank, Augustus, Ossining, N. Y. Cap-fastening for vessels	784,513	Mar. 7	1037	214	115	233
Broga, William W., Springfield, Mass. Muffler	788,242	Apr. 25	4132	896	115	2023
Brooks, Everett W. (See Gifford and Nistle, assignors.)						
Brooks, Frank M., New York, N. Y. Pilot-light for Bunsen or other gas-burners using incandescent gas-mantles	787,659	Apr. 18	2937	638	115	1736
Brooks, Franklin W., Washington, D. C. Seal	786,541	Apr. 4	685	140	115	1215
Brooks, George H., assignor, by mesne assignments, to A. Knobel and F. H. Kappa, Louisville, Ky. Badge-button	786,262	Apr. 4	18	5	115	1074
Brooks, Lorenzo L. C., *et al.* (See Lappen, James E., assignor.)						
Brooks, Robert W., Louisville, Ky. Racing toy	785,149	Mar. 21	2333	489	115	549
Broome, Adam J., Madison, Fla. Fish-trap	785,287	Mar. 21	2618	554	115	610
Brophy, Luke V., Barberton, Ohio, assignor to National Drill & Manufacturing Company, Chicago, Ill. Grading and ditching machine	784,545	Mar. 14	1097	229–30	115	261
Bropson, James, Cleveland, Ohio. Pipe-union	787,144	Apr. 11	1892	408	115	1489
Brosius, Aaron, Evansville, Ind., assignor to Z. T. Robinson, Owensboro, Ky. Machine for sawing quartered oak or mahogany veneering	787,492	Apr. 18	2598	559–60	115	1659
Brosius, Aaron, Evansville, Ind., assignor to Z. T. Robinson, Owensboro, Ky. Machine for sawing quartered oak or mahogany veneering	787,493	Apr. 18	2600	560–1	115	1659
Brouk, Peter, Wilson, Kans. Stacker	785,471	Mar. 21	2989	631	115	693
Brower, Nelson P., *et al.* (See Wilson, Robert, assignor.)						
Brown, Alexander T., Syracuse, N. Y. Type-writing machine	784,380	Mar. 7	741	151	115	170
Brown, Charles S. (See Gunby and Brown.)						
Brown, Charlie E., Stayton, Oreg. Log-sawing machine	788,243	Apr. 25	4135	897–8	115	2023
Brown, Edgar P., Cottonwood Falls, Kans. Solar motor	787,145	Apr. 11	1892	408–9	115	1489
Brown, George A., assignor, by mesne assignments, to St. Johns Table Company, Incorporated, St. Johns, Mich. Extension-table	786,342	Apr. 4	191	43	115	1111
Brown, George L., Lee, Fla. Cotton-planter and fertilizer-distributer	784,468	Mar. 7	928	195	115	211
Brown, Goodwin, Yonkers, N. Y. Coffee-cartridge	785,659	Mar. 21	3375	724	115	776
Brown, Goodwin, Yonkers, N. Y. Coffee-dripper	785,693	Mar. 21	3455	743	115	791
Brown, Henry, Herne Hill, London, England. Rotary boiler	785,472	Mar. 21	2991	631	115	664
Brown, Idaho F., Litchfield, Minn. Neck-yoke and pole coupling	786,870	Apr. 11	1317	280	115	1363
Brown, James M., Southbend, Wash. Work-centering attachment for lathes	785,193	Mar. 21	2427	510	115	570
Brown, James M., assignor to Aultman & Taylor Machinery Company, Mansfield, Ohio. Tube-expander	787,269	Apr. 11	2135	471	115	1541
Brown, John B., Akron, Ohio. Automatic cut-off for gas	784,915	Mar. 14	1866	391	115	432
Brown, John K., Wichita, Kans. Currycomb	785,589	Mar. 21	3246	689	115	749

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brown, Lloyd C., Wichita, Kans., assignor of three-fourths to A. D. and L. H. Blanton, Indianapolis, Ind. Automatic railway-switch adjuster	788,186	Apr. 25	4022	869–70	115	1999
Brown, Louis P., and F. J. Holmes, Chicago, Ill. Electric heater	786,542	Apr. 4	687	140–1	115	1215
Brown, Nathaniel H. (See Balderston and Brown.)						
Brown, Richard B., Philadelphia, Pa. Exhaust heating or low-pressure system	785,473	Mar. 21	2992	632	115	694
Brown and Sharpe Manufacturing Company. (See Gabriel, Charles R., assignor.)						
Brown, Shellman B., Annapolis, Md. Chair for railway-rails	788,244	Apr. 25	4139	898	115	2024
Brown, Susan A. (See O'Donnell, Felix, assignor.)						
Brown, Theodore P., assignor to Simplex Piano Player Company, Worcester, Mass. Means for utilizing perforated music-sheets for controlling automatic musical instruments	787,558	Apr. 18	2730	594	115	1689
Brown, William E., assignor of one-half to J. M. Brennan, Los Angeles, Cal. Handle for demijohns, &c	785,660	Mar. 21	3376	725	115	776
Brown, William H., Erie, Pa. Friction-clutch	787,351	Apr. 18	2307	501	115	1591
Browne, William H., assignor to Stanley Instrument Company, Great Barrington, Mass. Meter-cover and means for securing same	786,724	Apr. 4	1035	215	115	1291
Browne, William L., Worcester, Mass. Lamp-guard	784,916	Mar. 14	1867	391	115	433
Brownell, Frank A., assignor, by mesne assignments, to Eastman Kodak Company, Rochester, N. Y. Photographic-plate holder	785,707	Mar. 28	3484	748	115	811
Brownell, James H., Chicago, assignor of one-fourth to R. Mickelsen, Oak Park, Ill. Chair	787,873	Apr. 18	3378	739	115	1834
Brownlee, James L., Pittsburg, Pa. Trolley	786,188	Mar. 28	4445	940	115	1026
Broyles, Robert E., assignor of one-half to L. W. Clark, Birmingham, Ala. Switch-stand	788,018	Apr. 25	3702	806	115	1922
Bruce, George L., assignor to F. Groshans, Baltimore, Md. Dental flask	787,826	Apr. 18	3283	716	115	1813
Bruce, John M., Yonkers, assignor to A. H. Magee, New York, N. Y. Pipe-hanger	784,979	Mar. 14	1981	416	115	457
Brückert, Firmin, Rousies-Maubeuge, France. Rotary pump	785,288	Mar. 21	2619	554	115	610
Bruner, David C., Caneyville, Ky. Horse-detacher	787,270	Apr. 11	2137	471	115	1541
Brush, Alanson P., Detroit, Mich. Muffler	784,833	Mar. 14	1714	356	115	399
Brush, Alanson P., Detroit, Mich. Friction-clutch	787,072	Apr. 11	1748	372	115	1458
Brusselbach, Joseph A. (See Ferle and Brusselbach.)						
Bryan, George F., assignor to M. M. Rineck, Chicago, Ill. Drop-light attachment	786,543	Apr. 4	692	141	115	1217
Bryan, Thomas A., *et al.* (See Hoerichs, Edward, assignor.)						
Bryant Electric Company. (See Goodridge, Gilbert W., assignor.)						
Bryant, John A., Oceola, Iowa. Clothes-hanger	787,559	Apr. 18	2731	594	115	1690
Bryce, Andrew V., Allegheny, assignor of two-thirds to M. Bartley, Pittsburg, and F. Bowery, Avalon, Pa. Locking-nut	786,725	Apr. 4	1036	215	115	1292
Bryce, Peter H. (See Quinn, Martin J., assignor.)						
Bubb, John S., Kittanning, Pa. Quick-action automatic fluid-pressure brake system	787,723	Apr. 18	3053	669–72	115	1761
Buboiz, Albert J., Chicago, Ill. Machine for making or covering cord	784,030	Mar. 7	33	6	115	10
Buchanan, J. F., *et al.* (See Buchanan, Sanford M., assignor.)						
Buchanan, John D., Memphis, Tenn. Rotary engine	784,614	Mar. 14	1256	263	115	295
Buchanan, John D., Memphis, Tenn. Excavating-machine	784,980	Mar. 14	1983	417	115	457
Buchanan, John D., Memphis, Tenn. Loading or unloading apparatus	785,400	Mar. 21	2839	599	115	660
Buchanan, John D., Memphis, Tenn. Excavating-machine	785,708	Mar. 28	3487	748	115	812
Buchanan, Sanford M., assignor of two-thirds to D. B. Cain and J. F. Buchanan, Yoakum, Tex. Vehicle-top support	787,073	Apr. 11	1750	372	115	1458
Buchner, Albert, and E. P. McClure, Chicago, Ill. Speed attachment for gas-engines	784,917	Mar. 14	1868	392	115	433
Buck, George W., Louisville, Ky. Fireplace-heater	785,401	Mar. 21	2842	600	115	660
Buck, Merrill E., Bowling Green, Fla. Bridle-bit	784,031	Mar. 7	36	7	115	11
Buckeye Engine Company. (See Cope, Edge T., assignor.)						
Buckeye Malleable Iron and Coupler Company. (See Wright, Harry, assignor.)						
Bücking, Georg, VIII, Alsfeld, Germany. Overalls	785,590	Mar. 21	3248	689	115	749
Buckingham, Avery, *et al.* (See Healey, Patrick, assignor.)						
Buckingham, George H, Pico Heights, Cal. Hen's nest	785,794	Mar 28	3641	777	115	846
Buckland, Alfred L., Marietta, Minn. Weighing apparatus	784,142	Mar. 7	255	52	115	61
Buckley, Daniel J., Newburyport, Mass. Hair-drier	784,981	Mar. 14	1985	417	115	458
Buckley, James F., Dartford, assignor to Allen and Hansburys, Limited, London, England. Machinery for the manufacture of tablets for medicinal or other purposes	785,402	Mar. 21	2844	600–1	115	660
Bucknam, Ezra S., assignor to J. A. Brill, Philadelphia, Pa. Door stop and catch for vestibule or other doors	784,381	Mar. 7	747	152	115	172
Bucknam, Ezra S., Llanerch, assignor to J. A. Brill, Philadelphia, Pa. Gong	784,382	Mar. 7	748	152	115	172
Budwig, Dagobert, assignor to Berlin-Neuroder Kunstanstalten Actiengesellschaft, Berlin, Germany. Doll, ornamental figure	788,350	Apr. 25	4334	945	115	2068
Buell, Adelbert E., Bayonne, N. J. Facing-block	787,023	Apr. 11	1649	351	115	1436
Buell, Edward A., assignor of one-half to T. F. McDermott, Dekalb, Ill. Mail-catcher	785,795	Mar. 28	3642	778	115	847
Buell, John L. (See Rogers, Winfield S., assignor.)						
Buffalo Pitts Company. (See Vraalstad, Edward J., assignor.)						
Buffington, Leroy S., assignor to Northern Light Company, Minneapolis, Minn. Acetylene-gas generator	785,853	Mar. 28	3756	799	115	873
Buffum, Frederick D., Newton, Mass. Machine for drawing coke	786,623	Apr. 4	842	174–6	115	1250
Bühne, Friedrich W., Freiburg, Germany. Pipe or like joint	787,074	Apr. 11	1751	373	115	1459
Bullard, Guy F. (See Johnson and Bullard.)						
Bulling, Anton, Munich, Germany, assignor to C. von Wessely, Vienna, Austria-Hungary. Atomizing-inhaler	787,874	Apr. 18	3380	739	115	1835
Bullock Electric Company. (See Johnson, Charles W., assignor.)						
Bullock Electric Company. (See Johnson and Cooper, assignors.)						
Büllough, Robert C., Manchester, England. Means for operating railway-switches	784,657	Mar. 14	1353	280	115	318
Bumann, Theodore, Litchfield, Ill. Animal-trap	786,949	Apr. 11	1485	314	115	1401
Bumgardner, Louis A., assignor of two-thirds to J. Dale and F. C. Peabody, St. Paul, Minn. Telephone attachment	786,263	Apr. 4	20	5	115	1075
Bundy, Willard L., Syracuse, N. Y. Awning	787,146	Apr. 11	1896	409	115	1490
Bundy, Willard L., Binghamton, N. Y., assignor, by mesne assignments, to International Time Recording Company. Time-recorder	785,084	Mar. 21	2187	461–3	115	518
Bunker, Ira S., Freewater, Oreg. Fire and burglar alarm. (Reissue)	12,329	Mar. 21	3468	745	115	794
Bunsick, Meyer, Phœnix, Ariz. Ter. Combination-garment	784,918	Mar. 14	1870	392	115	433
Burbank, Louis S., Worcester, Mass. Steam-heating system	785,194	Mar. 21	2429	510	115	570
Burckett, Charles H. and M. M., Glenridge, N. J.; said Charles H. Burckett assignor to said M. M. Burckett. Cocoa confection and making same	788,973	Apr. 25	3599	.....	115	1898
Burckett, Mary M. (See Burckett, Charles H. and M. M.)						
Burdick, Charles L., Wood Green, London, England. Stencil-printing machine	787,271	Apr. 11	2138	472	115	1542
Burdick & De Blois Manufacturing Company. (See Burdick, Leo J., assignor.)						
Burdick, Elmer F., Chicago, Ill. Sign	786,481	Apr. 4	559	112	115	1190
Burdick, Leo J., Sturgis, Mich., assignor to Burdick & De Blois Manufacturing Company, Incorporated, Hartford, Conn. Vending-machine	788,187	Apr. 25	4025	870	115	2000
Büren, Charles de, Geneva, Switzerland. Golf-ball	786,343	Apr. 4	192	.....	115	1111
Burge, Francis M., Linton, N. D. Calf-weaner	784,779	Mar. 14	1603	330	115	374
Burgess, Charles F., Madison, Wis. System for the rectification of alternating currents	785,403	Mar. 21	2846	601	115	661

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burgess, Frank. (See Toney, George W., assignor.)						
Burgess, Neilson, Highlands, N. J. Stage apparatus	784,919	Mar. 14	1871	392–3	115	433
Burgum, William C., assignor of one-half to H. H. Francies, Pittsburg, Pa. Attachment for brick-machines	787,075	Apr. 11	1752	373	115	1459
Burkdoll, Henry E. (See Chritton, Jose E., assignor.)						
Burke, Benjamin, Chicago, Ill. Music-leaf turner	787,272	Apr. 11	2143	473	115	1543
Burke Electric Company. (See Burke, James, assignor.)						
Burke, James, New York, N. Y., assignor to Burke Electric Company. Laminated core for dynamo-electric machines	784,032	Mar. 7	36	7	115	11
Burke, James, New York, N. Y., assignor to Burke Electric Company. Brush-holder for dynamo-electric machines	784,102	Mar 7	183	35	115	45
Burke, James, New York, N. Y., assignor to Burke Electric Company. Dynamo-electric machine	784,103	Mar. 7	185	35	115	45
Burke, John J., Cincinnati, Ohio. Rack for indexing-machines	784,658	Mar. 14	1356	280	115	318
Burke, Richard M., Utica, N. Y. Car-rail and bed	787,433	Apr. 18	2478	536	115	1630
Burke, Richard M., Utica, N. Y. Rail construction	787,434	Apr. 18	2480	536	115	1630
Burkhart, Daniel G., Dayton, Wash. Plow	785,474	Mar. 21	2995	632	115	695
Burks, Edwin H., Trent, Tex. Attachment for cultivators	784,514	Mar. 7	1039	215	115	233
Burlington Blanket Company. (See Wagner, William H., assignor.)						
Burnell, Arthur S., Marshalltown, Iowa. Flexible matting or fabric	786,544	Apr. 4	694	141	115	1217
Burnell, Arthur S., Marshalltown, Iowa. Flexible matting	786,545	Apr. 4	695	141–2	115	1218
Burnell, Harry M., and M. E. Mogg, Chicago, Ill. Valve mechanism for fluid-fuel burners	787,494	Apr. 18	2603	561	115	1660
Burnell, Harry M., and M. E. Mogg, Chicago, Ill. Flash-boiler	787,495	Apr. 18	2605	561	115	1660
Burnett, Henry C., Fort Maginnis, Mont. Windmill	786,408	Apr. 4	342	75	115	1146
Burnett, Samuel R. (See Herndon, Joseph R., assignor.)						
Burnham, Naomi C., Johnstown, N. Y. Mixing device	785,249	Mar. 21	2542	537	115	594
Burnop, Clara D. (See Simonds, Frank A., assignor.)						
Burns, Jeremiah D., Washington, D. C. Button attachment for garments	787,560	Apr. 18	2732	594	115	1690
Burns, Joseph H., Cleveland, Ohio. Dough-rolling or dough-spreading apparatus	787,273	Apr. 11	2144	473	115	1543
Burns, Joseph H., Cleveland, Ohio. Spreading dough for the making of pie-crusts	787,274	Apr. 11	2149	473–4	115	1545
Burrell & Company, D. H. (See Burrell, Loomis, assignor.)						
Burrell, Loomis, assignor to D. H. Burrell & Company, Littlefalls, N. Y. Milking-machine	784,780	Mar. 14	1605	331	115	374
Burrell, Samuel, Carmi, Ill. Screen-cover for tables	788,351	Apr. 25	4336	946	115	2068
Burridge, Lee S., New York, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	785,709	Mar. 28	3488	749	115	812
Burt, Milton P., Kansas City, Mo., assignor to Schwarzschild & Sulzberger Company, Kansas City, Kans. Meat-hanger	786,624	Apr. 4	848	176	115	1251
Burt, Stanley H. (See Pring, John R., assignor.)						
Burt, William H. (See Pace, Thomas H., assignor.)						
Burton, Bethel, deceased, Brooklyn, N. Y.; H. C. Burton, administrator. Automatic firearm	785,055	Mar. 21	2194	463	115	518
Burton, Elizabeth E., Santa Barbara, Cal. Ornamental leather-work	788,092	Apr. 25	3834	833	115	1952
Burton, Henry C., administrator. (See Burton, Bethel.)						
Burton, William J. (See Simpson and Burton.)						
Burtt, Albert F., assignor to Draper and Maynard Company, Plymouth, N. H. Punching-bag	788,245	Apr. 25	4140	898	115	2024
Busch, Louise, Munich, Germany. Process of and apparatus for saturating paper-rolls	785,195	Mar. 21	2432	511	115	571
Buschmann, Carl E., Glauchau, Germany. Brake for warp-beams	787,323	Apr. 11	2239	490	115	1565
Buschmann, Charles L., Indianapolis, Ind. Lock for electric switches	787,147	Apr. 11	1897	410	115	1490
Bush, Lewis K., Bonners Ferry, Idaho. Fence-post	787,275	Apr. 11	2153	474	115	1545
Bush, Samuel F., and J. Timms, Columbus, Ohio. Automatic car-coupling	785,086	Mar. 21	2198	463	115	519
Bushorr, Dorrick J., Galena, Kans. Cheese-cutter	785,348	Mar. 21	2724	577	115	633
Buss, John B. (See Mueller, Max, assignor.)						
Butcher, George W., San Antonio, Tex. Fluid-pressure brake	784,204	Mar. 7	382	77	115	89
Butler, Hugh M., Kirkstall Forge, near Leeds, England. Axle for wheels of road-vehicles	784,383	Mar. 7	750	152–3	115	172
Butler, Neal A., Hampton, Va. Fertilizer-distributer	784,659	Mar. 14	1357	280	115	319
Butterworth, Harry W., Philadelphia, Pa., assignor to H. W. Butterworth and Sons Company. Mercerizing-machine	786,264	Apr. 4	20	5–6	115	1075
Buttman, Alonzo C., Columbus City, Iowa. Crate	785,796	Mar. 28	3645	778	115	848
Byers, John F., Ravenna, Ohio. Tire	786,096	Mar. 28	4281	903	115	992
Byl, George N., Jersey City, N. J. Device for filling fountain-pens	784,982	Mar. 14	1987	417	115	458
Byrd, Britton E., assignor of one-half to F. L. Walker, J. I. Rose, Durham, N. C., and V. G. Davis, Bracey, Va. Watchmaker's and jeweler's pliers	786,189	Mar. 28	4447	941	115	1027
Byrd, Lauchlin D., Hillsdale, Miss. Turpentine-receptacle	786,950	Apr. 11	1486	314	115	1402
Byrd, William F. (See Phillips, Henry W., assignor.)						
C. Mattison Machine Works. (See Thorsby, Axel, assignor.)						
C. Roberts Rubber Company. (See Roberts and Coxe, assignors.)						
C. B. Cottrell & Sons Company. (See Barber, Howard M., assignor.)						
C. B. Cottrell & Sons Company (See Cottrell, Charles P., assignor.)						
C. B. Cottrell & Sons Company. (See Cottrell, Edgar H., assignor.)						
C. B. Cottrell & Sons Company. (See McKee, Milton A., assignor.)						
C. W. Hunt Company. (See Stivers, William D., assignor.)						
Cadman, Ralph W., Pittsburg, Pa. Plug-valve	785,854	Mar. 28	3758	799	115	874
Cadwell, Charles W., trustee. (See Hayes, Charles J. W., assignor.)						
Cady, Charlie B., Shennington, Wis. Hay fork and hook	788,019	Apr. 25	3704	806	115	1922
Cahill, Michael, San Francisco, Cal. Shovel or spade	787,660	Apr. 18	2938	639	115	1736
Cahill, Mortimer, Chicago, Ill. Thill-coupling	787,661	Apr. 18	2940	639	115	1737
Caille Bros. Company. (See Hamilton, Guy, assignor.)						
Cain, D. B., *et al.* (See Buchanan, Sanford M., assignor.)						
Cain, William F. (See Le Chard, William H., assignor.)						
Calderwood, William T. (See Lackie, Calderwood, and MacEwen.)						
Caldwell, Andrew J., assignor to Crane Company, Chicago, Ill. Valve	787,076	Apr. 11	1753	373	115	1459
Caldwell, Eugene W., New York, N. Y. Electrostatic apparatus	787,561	Apr. 18	2733	594	115	1690
Caldwell, Jerome, Los Angeles, Cal. Fruit-pitting machine	786,482	Apr. 4	560	112–13	115	1190
Caley, Charles J., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Sash-center	784,104	Mar. 7	187	36	115	46
Calhoun, William, New York, N. Y., assignor, by mesne assignments, to National Telephone Lock Company. Coin-operated telephone-locking device	784,546	Mar. 14	1101	230	115	262
Calkins, Albert C., assignor to Calkins Company, Los Angeles, Cal. Metal-cutting machine	784,515	Mar. 7	1040	215	115	233
Calkins, Albert C., assignor to F. W. Braun, Los Angeles, Cal. Ore-crusher	786,265	Apr. 4	22	6	115	1075
Calkins Company. (See Calkins, Albert C., assignor.)						
Callahan, Americus F. (See James, Roswell G., assignor.)						
Callahan, Cornelius, Canton, assignor to W. D. Ticknor, Boston, Mass. Lubricator	786,871	Apr. 11	1318	280	115	1364

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Callan, Lawrence A., Washington, D. C. Banjo-bridge	786,625	Apr. 4	849	176	115	1251
Callow, John M., Salt Lake City, Utah. Submerged screen sizer or separator	788,246	Apr. 25	4141	899	115	2025
Calocoff, Nathan, assignor of one-half to M. Krauss, Indianapolis, Ind. Cigar-bunching machine	786,247	Mar. 28	4558	967	115	1051
Cammillo, Gus, *et al.* (See Montgomery and Megenity, assignors.)						
Camp, Henry P., Maysville, Ga. Invalid-lifter	785,855	Mar. 28	3760	799	115	874
Camp, Thomas E. (See Root, Mancil V., assignor.)						
Campaigne, Samuel C., Niagara Falls, Canada. Brick-trimming tool	786,344	Apr. 4	193	44	115	1111
Campaigno Card Company. (See Higgins, William H., assignor.)						
Campbell, Allen, *et al.* (See Tait, Roderick H., assignor.)						
Campbell, Archibald, *et al.* (See Brent, Charles, assignor.)						
Campbell, Charles H., Philadelphia, Pa., assignor, by mesne assignments, to National Nutrient Company, Jersey City, N. J. Obtaining concentrated milk containing cream	786,626	Apr. 4	850	176	115	1251
Campbell, Colin T., Kentville, Canada. Artificial tooth	787,352	Apr. 18	2308	502	115	1592
Campbell, Edward, Rossland, Canada. Bottle-stopper	784,469	Mar. 7	930	195	115	211
Campbell, Henry B., Oak, Nebr. Track-liner	785,404	Mar. 21	2848	601	115	661
Campbell, Herbert R., Prospect, and F. Yahn, Haledon, N. J. Circular-knitting machine	786,345	Apr. 4	194	44–5	115	1112
Campbell, Newton, assignor of one-half to B. Hayhurst, Elizabethtown, Ohio. Tire-protector	786,097	Mar. 28	4282	903	115	992
Campbell, Solon O., East Peru, Iowa, assignor of one-half to E. C. Tilley, Kansas City, Mo. Fence-post	784,033	Mar. 7	38	7	115	11
Campbell, Thomas J., San Francisco, Cal. Outside hanging scaffold	785,289	Mar. 21	2621	554	115	611
Campton, Wilbur W., and G. A. Beem, Des Moines, Iowa. Cutting-board	787,724	Apr. 18	3084	672–3	115	1769
Canfield, Frank, assignor to P. F. Carney, G. Dodge, and W. H. Townsend, Denver, Colo. Jar-closure-fastening device	784,983	Mar. 14	1988	418	115	458
Cann, Frank W., Brooklyn, N. Y. Machine for beveling the edges of electrotype or stereotype printing-plates	785,349	Mar. 21	2726	577–8	115	633
Cannon, Luella C., and C. K. Morris, Chicago, Ill. Window-fastener for ventilation	785,710	Mar. 28	3493	749	115	814
Cannon, Riley E., Lexington, Ky. Display-rack	785,196	Mar. 21	2434	511–12	115	571
Cannon, Riley E., Lexington, Ky. Card-holder attachment for umbrellas, &c	786,001	Mar. 28	4065	861	115	944
Canton Clothes Dryer and Manufacturing Company. (See Belding and Heldman, assignors.)						
Capps, Charles A., *et al.* (See Hunt, John G., assignor.)						
Capps, Frank L. (See Manwaring, Emerson, Norton, and Capps.)						
Caps, John E., Kansas City, Mo. Printing-press	786,872	Apr. 11	1321	281	115	1364
Card, John F., assignor to Sheffield Car Company, Three Rivers, Mich. Brush-holder for dynamo-electric machines or motors	784,547	Mar. 14	1102	230	115	263
Carleton, John W., New Britain, assignor to A. R. Wells, Southington, Conn. Floor and ceiling plate	787,077	Apr. 11	1754	374	115	1459
Carley, Myron E. and W. O., Colfax, Wash. Current-motor	787,562	Apr. 18	2735	595	115	1690
Carley, William O. (See Carley, Myron E. and W. O.)						
Carll, Addison B, Boothwyn, Pa. Attachment for ratchet-drills	784,301	Mar. 7	577	118	115	133
Carlson, Andrew, New York, N. Y. Door-lock-marking gage	784,834	Mar. 14	1716	357	115	399
Carlson, Charles A., assignor to H. B. Mounsey, Chicago, Ill. Loose-leaf binder	787,353	Apr. 18	2309	502	115	1592
Carlson, Edward A., Rockford, Ill. Cabinet	786,483	Apr. 4	564	113	115	1191
Carlson, Oscar E. (See Langdon and Carlson.)						
Carlton, Robert, Searcy, Ark. Machine for cutting ellipses, ovals, or circles	785,087	Mar. 21	2200	464	115	520
Carman, Charles W., assignor of one-half to I. E. Adams, Sarcoxie, Mo. Rotary engine	784,248	Mar. 7	466	94	115	108
Carman, Isaac, St. Remy, N. Y. Fruit-picker	785,475	Mar. 21	2998	632	115	695
Carmichael, Cawood J. (See Saltzgaber and Carmichael.)						
Carney, Patrick F., *et al.* (See Canfield, Frank, assignor.)						
Caro, Nikodem. (See Frank and Caro.)						
Carpender, Ida. (See Gee and Carpender.)						
Carpenter, Charles H., assignor to J. L. White, South Bend, Ind. Composition fuel	784,302	Mar. 7	578		115	133
Carpenter, Charles R., Racine, Wis. Combined mop head and wringer	787,890	Apr. 25	3422	749	115	1856
Carpenter, Henry L. (See Sykes, William W., assignor.)						
Carpenter, James A., *et al.* (See Mahar, Matthew H., assignor.)						
Carpenter, Mason P., Mexico, Mo. Nut-lock. (Reissue)	12,333	Mar. 28	4577	970	115	1055
Carpenter, Paul, Chicago, Ill., assignor to American Brake Shoe & Foundry Company, Jersey City, N. J. Brake-shoe	785,290	Mar. 21	2622	555	115	611
Carr, Walter F., assignor to Falk Company, Milwaukee, Wis. Railway-frog	786,627	Apr. 4	854	177	115	1252
Carrick, Mary C., San Francisco, Cal. Piano-chair	786,484	Apr. 4	566	113	115	1191
Carroll, Elbert H., assignor to Morgan Construction Company, Worcester, Mass. Valve for shearing-machines	787,324	Apr. 11	2240	490–1	115	1565
Carroll, Phillip F., *et al.* (See Dietz, Christian F., assignor.)						
Carson, William L., Seattle, Wash. Tool	784,984	Mar 14	1989	418	115	459
Carter, Albert B., Hazlehurst, Miss. Boll-weevil exterminator	787,276	Apr. 11	2154	474	115	1545
Carter, Calvin, Eunola, Ala. Quilting-frame	787,277	Apr. 11	2156	475	115	1546
Carter, Charles S. (See Brabble, Lloyd W., assignor.)						
Carter, Daniel, and R. Mackerrow, Toronto, Canada. Stamp affixing and canceling machine	785,856	Mar. 28	3761	799–800	115	874
Cartmell, Nathan, Los Angeles, assignor of one-fourth to G. L. Finster, Santa Ana, Cal. Developing-tray	786,266	Apr. 4	24	7	115	1076
Cartwright, David J., Hull, assignor of one-half to W. S. Wait, Newton, Mass. Percussion-fuse	785,540	Mar. 21	3142	663	115	727
Cartwright, William J., assignor of one-half to F. L. Wing, New York, N. Y. Means for effecting combustion	787,725	Apr. 18	3088	673	115	1770
Case, Henry H., Bisbee, Ariz. Ter. Step-ladder	785,197	Mar. 21	2435	512	115	572
Case, Henry J., Owasco, assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Grain-harvester	787,496	Apr. 18	2607	562	115	1660
Casey, Michael E., Mansfield, Ohio. Air-feeding device for furnaces	786,726	Apr. 4	1039	216	115	1292
Casey, Thomas J., and F. H. Pickles, New York, N. Y. Third-rail electric-railway system	784,303	Mar 7	579	119	115	133
Casgrain, Louis A., Winchester, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Machine for dampening the soles of boots or shoes	784,249	Mar. 7	468	94	115	108
Casgrain, Louis A., Winchester, Mass., assignor, by mesne assignments, to United Shoe Machinery Company. Nailing-machine	786,190	Mar. 28	4449	941–2	115	1027
Cash, Arthur W., Newark, N. J. Clutch	787,726	Apr. 18	3090	674	115	1770
Caskey, Isaac I., assignor of one-half to M. L. Gaskill, Columbus, Ohio. Car-coupling	785,250	Mar. 21	2543	537	115	594
Cassel, Charles, Durbin, W. Va. Saw-handle	787,354	Apr. 18	2312	502	115	1593
Cassity, Anna V., Kansas City, Mo. Button-link	785,857	Mar. 28	3766	800	115	876
Casterline, Edwin D, assignor to Interlock Paper Company, San Francisco, Cal. Ribbon-paper feeder and cutter	787,662	Apr. 18	2941	639	115	1737
Castillon, Georga. (See Laine and Castillon.)						
Castle Braid Company. (See Klein, Charles, assignor.)						
Castle, Clarence E., Ogdensburg, N. Y. Mechanic's folding plumb and level	787,891	Apr. 25	3426	750	115	1856

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Castner, Emory O., Sprucecreek, Pa. Curtain-pole	785,858	Mar. 28	3767	800	115	876
Caswell, Carl F., Coon Rapids, Iowa. Device for hanging wall-paper	784,985	Mar. 14	1991	418	115	459
Catlin Frederick M., *et al.* (See Lappen, James E., assignor.)						
Cattermole, Arthur E., H. L. Sulman, and H. F. Kirkpatrick-Picard, London, England. Ore concentration	788,247	Apr. 25	4144		115	2025
Cazin, Francis M. F., Hoboken, N. J. Apparatus for the manufacture of glowers for electric lamps	786,727	Apr. 4	1040	216	115	1292
Cederstrom, John. (See Gorski, Peter P., assignor.)						
Centner, Paul, Verviers, Belgium. Electric reciprocating tool	788,450	Apr. 25	4535	987	115	2111
Chadwick, Lee S., Ridley Park, Pa. Band-brake	787,892	Apr. 25	3428	750	115	1857
Chamberlain, Rufus N., Depew, assignor to Gould Storage Battery Company, New York, N. Y. System of electrical distribution	784,732	Mar. 14	1513	309	115	356
Chamberlain, Rufus N., Depew, assignor to Gould Storage Battery Company, New York, N. Y. Means for controlling the charging of storage batteries	787,024	Apr. 11	1650	351	115	1437
Chamberlin, Charles C., Washington, Pa. Pipe-wrench	785,711	Mar. 28	3494	749	115	814
Chamberlin, Charles E., assignor to Joseph N. Smith & Company, Detroit, Mich. Movable front for automobiles	788,188	Apr. 25	4030	871	115	2001
Chamberlin, Harry G., Chicago, Ill. Meat-holder for carving-platters	786,546	Apr. 4	696	142	115	1218
Chamberlin, Harry G., Chicago, Ill. Shipping-package for potted plants	786,547	Apr. 4	697	142	115	1218
Chamberlin Metal Weatherstrip Company. (See Kenny, Hugh E., assignor.)						
Chambers, Robert. (See Edmonds, Frederick C., assignor.)						
Chambers, Samuel D., Blueridge, Ga. Cultivator attachment for plows	787,355	Apr. 18	2313	502	115	1593
Chambliss, Jeff, Jacksons Gap, assignor of one-fourth to S. Young, Island Home, Ala. Bicycle-brake	784,516	Mar. 7	1042	215	115	234
Chambon, Louis. (See Frydmane and Chambon.)						
Chandeysson, Pierre I., North Judson, assignor, by mesne assignments, to R. D. Peters, Knox, Ind. Electric indicator for railways	786,628	Apr. 4	857	177–8	115	1253
Chaney, Lee F., assignor of one-half to R. S. Chaney, Lynchburg, Ohio. Barometer	784,986	Mar. 14	1992	419	115	459
Chaney, Riley S. (See Chaney, Lee F., assignor.)						
Channon, James. (See Percival, William T., assignor.)						
Channon, James. (See Russell, John J., assignor.)						
Chaplin-Fulton Manufacturing Company. (See Crawford, Ernest W., assignor.)						
Chapman, Charles H., Groton, Mass. Retainer and spacer for ball-bearings	785,150	Mar. 21	2334	489–90	115	549
Chapman, Charles H., Groton, Mass. Bearing	785,661	Mar. 21	3377	725	115	776
Chapman, Charles H., Groton, Mass. Bearing	785,662	Mar. 21	3379	725	115	777
Chapman, Charles H., Winchester, Mass. Ball-retainer for ball-bearings	785,663	Mar. 21	3380	725	115	777
Chard, Nicholas D. (See Lodge and Chard.)						
Chard, Nicholas D., Cincinnati, Ohio. Gearing for lathe head-stocks	788,500	Apr. 25	4625	1009	115	2129
Chard, Nicholas D., and W. Lodge, assignors to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Clutch	785,251	Mar. 21	2545	537	115	594
Charles, Paul, and S. Faujat, assignors to J. Livingston, Frankfort-on-the-Main, Germany. Apparatus for the production of gelatin pictures	787,663	Apr. 18	2943	639–40	115	1738
Chase, Charles E., assignor to Draper Company, Hopedale, Mass. Warp stop-motion for looms	784,920	Mar. 14	1873	393	115	434
Chase, Eben S., Salt Lake City, Utah, assignor to Chase Smokeless Furnace Co. Furnace	786,098	Mar. 28	4284	903–4	115	993
Chase, Frank L., and B. M. Young, Jamestown, N. Y. Car-truck	785,151	Mar. 21	2336	490	115	550
Chase Machine Company. (See Dalgleish, Edmund, assignor.)						
Chase Smokeless Furnace Co. (See Chase, Eben S., assignor.)						
Chavasse, James J., Birmingham, England. Means for securing corks or like stoppers in bottles	785,859	Mar. 28	3768	801	115	876
Cheatham Electric Switching Device Company. (See Cheatham, Robert V., assignor.)						
Cheatham, Robert V., assignor to Cheatham Electric Switching Device Company, Louisville, Ky. Electrically-controlled railway-switch	787,827	Apr. 18	3285	717	115	1814
Cheevers, Thomas F., West Hoboken, N. J. Hair-drying comb	787,148	Apr. 11	1899	410	115	1491
Chemisch-Technische Fabrik, Dr. Alb. R. W. Braud & Co., G. M. B. H. (See Wultze, Adolph, assignor.)						
Chemische Fabrik Griesheim Electron. (See Suchy, Robert, assignor.)						
Chiappinelli, Vincenzo, assignor of two-thirds to S. Paterno and D. Dolce, Buffalo, N. Y. Machine for making macaroni	787,727	Apr. 18	3092	674	115	1771
Chicago Railway Equipment Company. (See O'Connor, John F., assignor.)						
Chirac, Edouard, assignor to C. Conza, Marseilles, France. Machine for printing on eggs	785,198	Mar. 21	2437	513	115	572
Chisholm, Donald J., East Hampton, N. Y. Electric-cable joint	785,712	Mar. 28	3496	750	115	815
Choate, Charles N., Windsor, Canada, assignor of one-half to F. E. Atchison, Detroit, Mich. Hoe	785,860	Mar. 28	3770	801	115	877
Choiniere, Arthur, Holyoke, Mass. Molding-machine	787,078	Apr. 11	1755	374	115	1459
Chorlton, Alan E. L. (See Hopkinson and Chorlton.)						
Christ, Isaac. (See Scott, John G., assignor.)						
Christensen, Jens H., Copenhagen, Denmark. Making matches	786,629	Apr. 4	860		115	1253
Christensen, Niels A., Milwaukee, Wis. Metallic piston-packing	788,303	Apr. 25	4247	921	115	2048
Christian, Clifford L., Savannah, Ga. Diaper-support	786,728	Apr. 4	1045	216	115	1294
Christianson, Christian H., Chicago, Ill. Antifriction-bearing	788,020	Apr. 25	3705	806–7	115	1923
Christoph, Emil A., Chicago, Ill. Center-jig	787,893	Apr. 25	3429	750–1	115	1857
Christopher, Coleman R., *et al.* (See Christopher, Giles, assignor.)						
Christopher, Dan E., *et al.* (See Christopher, Giles, assignor.)						
Christopher, Giles, assignor of three-fourths to C. R., W. L., and D. E. Christopher, Lone Wolf, Okla. Ter. Baling-press feeder and packer	786,873	Apr. 11	1325	281	115	1366
Christopher, William L., *et al.* (See Christopher, Giles, assignor.)						
Chritton, James M., assignor of two-thirds to C. L. Hushaw and J. E. Chritton, Rockyford, Colo. Fruit-gatherer	786,002	Mar. 28	4067	862	115	944
Chritton, Jose E., *et al.* (See Chritton, James M., assignor.)						
Chritton, Jose E., assignor of one-half to H. E. Burkdoll, Rockyford, Colo. Lumber-computer	784,660	Mar. 14	1358	281	115	319
Chrysler, Walter P., Trinidad, Colo. Piston-rod packing	785,152	Mar. 21	2339	490	115	551
Church, Edgar D., assignor to American Sandstone Brick Machinery Co., Saginaw, Mich. Brick-press	784,470	Mar. 7	931	196	115	211
Church, Lewis H., Stamford, Conn. Device for forming standard elbows in electric conduits or other pipes	784,471	Mar. 7	935	196	115	212
Churchill, Lucius R. (See Sharood, Samuel V., assignor.)						
Churchman, Henry C. (See Lay, Frank R., assignor.)						
Ciantar, Umberto, and F. W. F. Ross, London, England. Making meat extracts	788,451	Apr. 25	4537		115	2111
Cilley, Ithiel J. (See Linn and Cilley.)						
Cincinnati Car Company. (See Taggert, Daniel, assignor.) (Reissue.)						
Cirjean, Eugène, Paris, France. Safety-seal for newspapers	784,205	Mar. 7	385	78	115	90
Clancy, John R., Syracuse, N. Y. Auxiliary release for theatrical fire-curtains	784,835	Mar. 14	1718	357	115	399
Clanner, Stefan von, and C. von Jékey, Vienna, Austria-Hungary. Game apparatus	786,485	Apr. 4	567	113–14	115	1191
Clark, Alfred, London, England. Collapsible gate	786,951	Apr. 11	1487	314–15	115	1402

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Clark, Cornelius S., Norfolk, Va. Indicator	784,472	Mar. 7	936	196–7	115	213
Clark, Duncan, administrator. (See Bennett, Edwin W.)						
Clark, Edwin W., Columbus, Ga. Trolley-wheel	786,795	Apr. 11	1185	247	115	1336
Clark, Ernest G. (See Clark, Melville and E. G.)						
Clark, James H., assignor of one-half to F. M. Thompson, Richmond, Va. Railway-switch setting and locking mechanism	785,088	Mar. 21	2205	464–5	115	521
Clark, James H., assignor to H. M. Forbes, R. H. Dalton, and J. H. Clark Company, Portage, Wis. Means for controlling the speed of steam-engines	787,149	Apr. 11	1900	410–12	115	1491
Clark, John H., Pollock, Mo. Stack piler and inclosure	787,563	Apr. 18	2737	595	115	1690
Clark, John W, Wyoming, Del. Locomotive-cab signaling device	784,250	Mar. 7	472	95	115	109
Clark, Louther M., *et al.* (See Simons, Silas C., assignor.)						
Clark, Luther W. (See Broyles, Robert E., assignor.)						
Clark, Melville and E. G., Chicago, Ill. Spool for musical-instrument-controlling sheets	784,384	Mar. 7	753	153	115	173
Clark, Merrill E., Worcester, Mass. Compressed-air and gas motor	785,713	Mar. 28	3497	750	115	815
Clark, Norris E., Plainville, Conn. Manufacturing expanded metal	788,093	Apr. 25	3836	833–4	115	1952
Clark, Robert G., Brooklyn, assignor of one-half to U. L. Laughlin, Schenectady, N. Y. Electrical switch	785,405	Mar. 21	2849	602	115	661
Clark, Samuel B., assignor of one-half to J. W. Graham, Jr., and S. G. Shaw, Denver, Colo. Rock-drill bit	786,952	Apr. 11	1489	315	115	1402
Clark, Samuel H., *et al.* (See Simons, Silas C., assignor.)						
Clark, Silas I., Marshall, Mo. Tailor's buttonhole-ruler	787,974	Apr. 25	3600	786	115	1898
Clarke, David D., Newcastle, Pa. Tinning-machine	784,836	Mar. 14	1719	357	115	400
Clausen, Henry P., Chicago, Ill., assignor to American Electric Telephone Company. Telephone-transmitter	787,610	Apr. 18	2848	620–1	115	1717
Clausen, Henry P., assignor to American Electric Telephone Company, Chicago, Ill. Telephone-transmitter	788,452	Apr. 25	4539	988	115	2111
Clay, Oliver P. (See Flaherty, John F., assignor.)						
Clayton, David L., Amoret, Mo. Inking-pad	784,548	Mar. 14	1104	230	115	263
Clayton, Henry, Philadelphia, Pa. Anesthetic-mask	787,828	Apr. 18	3290	717	115	1815
Clayton, Herbert, Brooklyn, N. Y. Gas stove or heater	787,829	Apr. 18	3292	718	115	1815
Cleal, Joseph P., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	786,346	Apr. 4	196	45–6	115	1112
Cleal, Joseph P., and A. Macauley, Dayton, Ohio, assignors to National Cash Register Company, Jersey City, N. J. Cash-register	788,453	Apr. 25	4540	988–90	115	2112
Clément, Charles P., Liège, Belgium. Repeating pistol	785,062	Mar. 14	2125	449	115	489
Clement, Walter, Adrian, Mich. Rural-delivery mail-box	786,099	Mar. 28	4286	904	115	993
Clement, Walter, Adrian, Mich. Wire fence	785,714	Mar. 28	3500	751	115	816
Clements, George W., Washington, D. C. Combined drum and cymbal beating or actuating contrivance	785,861	Mar. 28	3771	801	115	877
Clemetson, Gabriel. (See Clemetson, Tobias and G.)	786,486	Apr. 4	570	114	115	1192
Clemetson, Tobias and G., Duluth, Minn. Horse or cattle blanket	784,921	Mar. 14	1877	394	115	435
Clermont, John B., Williams Bridge, N. Y. Device for attaching chains or cords	788,094	Apr. 25	3837	834	115	1953
Cleveland Clasp Company. (See Turner, George D., assignor.)						
Cliff, Charles H. W., *et al.* (See Berg and Fray, assignors.)						
Cliff, Charles H. W. (See Cliff, George H. and C. H. W.)						
Cliff, Edward, assignor to Vose and Cliff Manufacturing Company, New York, N. Y. Car-truck	784,837	Mar. 14	1720	357–8	115	400
Cliff, George H., *et al.* (See Berg and Fray, assignors.)						
Cliff, George H. and C. H. W., Philadelphia, Pa. Machine for cleansing and greasing baking-pans	784,206	Mar. 7	385	78	115	90
Cliffe, Walter R., Harrisburg, Pa. Dumping-car	784,105	Mar. 7	188	36	115	46
Clifford, William. (See Hayes and Clifford.)						
Clift, Ernest G., and E. E. Woosley, Mountainview, Mo. Railway-switch	785,664	Mar. 21	3381	726	115	777
Clingan, Preston H., Florence, assignor of one-half to J. H. Todd, Canon City, Colo. Fountain-brush	787,278	Apr. 11	2157	475	115	1546
Clough, George W., Cleveland, Ohio. Electroplating device	784,034	Mar. 7	39	7	115	11
Clough-Mauser Arms Company. (See Richards, Morris P., assignor.)						
Clover, Homer G., Denver, Colo. Ticket-holder for dairymen	784,733	Mar. 14	1514	310	115	356
Cobb, Lionel, Medford, assignor to M. E. Johnson, Fitchburg, Mass., executrix of Iver Johnson, deceased. Lock for firearms	786,796	Apr. 11	1186	247	115	1336
Cochran, Alfred L. (See Wolf, George H., assignor.)						
Cochran, Alfred W., New York, N. Y. Securing tool-handles or the like	786,630	Apr. 4	860	178	115	1253
Cochran, John J., San Francisco, Cal. Hanger for curtains	786,729	Apr. 4	1046	216	115	1294
Cochrane, Charles H., New York, N. Y. Keyboard	785,406	Mar. 21	2851	602	115	662
Cocker, George B., Frankford, Pa. Electrical stop-motion	786,797	Apr. 11	1188	248	115	1337
Codding, Charles R., San Rafael, Cal. Brick or tile cutting machine	786,003	Mar. 28	4068	862	115	944
Coddington, George D. C., Heno, Ohio, assignor to Ball Brothers Glass Manufacturing Company, Muncie, Ind. Machine for coating sealing-rings with wax	785,089	Mar. 21	2210	465	115	521
Cody, George, Flushing, assignor of one-half to L. Munzinger, New York, N. Y. Fresh-air inlet for sanitary ventilation of the drainage systems of houses, buildings, or the like. (Reissue)	12,338	Apr. 18	3412	747	115	1842
Cody, George, assignor to L. Munzinger, New York, N. Y. Non-siphonable self-scouring trap	788,454	Apr. 25	4551	991	115	2114
Coe, Addison, Newark, N. J. Puzzle or game apparatus	785,665	Mar. 21	3383	726–7	115	778
Coe, Charles T., Kearney, N. J. Steam-jet blower	787,279	Apr. 11	2158	475	115	1547
Coe, Walter H., Providence, R. I. Machine for forming package-rolls of metallic leaf	786,953	Apr. 11	1491	316	115	1403
Coffey, Nathan F., Blackrock, Ark. Woodworking-machine	787,280	Apr. 11	2159	476	115	1547
Coffin, Joel S., *et al.* (See MacBain, Donald R., assignor.)						
Coffin Valve Company. (See Walker, George S., assignor.)						
Coffman, Edward S., Cliftonforge, Va. Means for automatically applying air-brakes in derailments	785,153	Mar. 21	2341	491	115	551
Cohen, Reuben, San Francisco, Cal. Apparatus for exhibiting pictures	786,954	Apr. 11	1494	316–17	115	1403
Cohen, Samuel, San Francisco, Cal. Photographic-print exposure-meter	788,021	Apr. 25	3708	807	115	1923
Cohn, Adolph H., New York, N. Y. Hose-supporter	785,199	Mar. 21	2438	513	115	572
Cohn, Max, Berlin, Germany. Preparing dressings for bandages	786,004	Mar. 28	4070	.....	115	945
Cohn, Max G. (See Warburg, Julius, assignor.)						
Cohn, Max M., San Francisco, Cal. Combination statement and collection record	785,291	Mar. 21	2624	555	115	611
Cohn, Samuel, New York, N. Y. Machine for tying up the heads or tops of mantles	786,191	Mar. 28	4458	942	115	1029
Colburn, Frank E., and F. R. Culver, Medina, N. Y.; said Colburn assignor to said Culver. Suspenders	786,267	Apr. 4	25	7	115	1076
Cole, Marcellus. (See Porter and Cole.)						
Cole, William E., Norfolk, Va. Fuel-economizer	784,106	Mar. 7	189	36	115	46
Coleman, Samuel H., Villisca, Iowa. Cultivator	788,248	Apr. 25	4145	899–900	115	2025
Collier, Frank P., Wilmette, Ill. Brake-shoe	787,079	Apr. 11	1757	374	115	1460
Collier, Mary C., Washington, D. C. Folding crib	786,730	Apr. 4	1048	217	115	1294

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Collins, Henry and J. W., Pawtucket, R. I. Twisting-machine	784,922	Mar. 14	1878	394	115	435
Collins, Henry and J. W., Pawtucket, R. I. Starting or stopping device for twisting-machines	784,923	Mar. 14	1881	394–5	115	436
Collins, John, and J. Fraley, Paterson, N. J. Means for heating and melting	787,356	Apr. 18	2315	503	115	1503
Collins, Joseph W. (See Collins, Henry and J. W.)						
Collins, Robert H., Toronto, Canada. Perpetual or temporary binder for books, music, &c. (Reissue)	12,328	Mar. 21	3466	745	115	794
Collins, William, Rosecreek, Minn. Leveling device for threshing or similar machines	788,249	Apr. 25	4149	900	115	2026
Collyer, Charles W., assignor of one-half to H. M. Briggs, Randolph, Mass. Street-watering cart	785,033	Mar. 14	2074	436	115	478
Colstrom, Martha, Osage City, Kans. Overalls	784,615	Mar. 14	1259	263	115	296
Colthar, William C. (See Kay and Colthar.)						
Colton, Albert R., Newark, N. J. Invisible lacing	787,894	Apr. 25	3429	751	115	1858
Columbia Typewriter Manufacturing Company. (See Spiro, Walter J., assignor.)						
Columbian Hardware Company. (See Valentine, Harry J., assignor.)						
Columbus Meter Seal Manufacturing Company. (See Simpson, Robert D., assignor.)						
Colwell, Louis N. (See Parker and Colwell.)						
Combs, Isaac D. (See Combs, James G. O. and I. D.)						
Combs, James G. O. and I. D., Harold, Mo. Railway signal and gate	787,895	Apr. 25	3431	751–2	115	1858
Commonwealth Trust Company, trustee. (See Wardwell, Simon W., assignor.)						
Compagnie Internationale de l'Electro-Typographe Meray et Rozar. (See Pinard, Claude, assignor.)						
Compagnie Internationale de l'Electro-Typographe Meray & Rozar. (See Wehrlin, Maurice, assignor.)						
Compton, James R., Alexandria, Tenn. Pump	786,100	Mar. 28	4288	904	115	994
Comstock, Chester, Brooklyn, N. Y. Lubricator	788,095	Apr. 25	3838	834	115	1953
Conant, William C., Atlanta, Ga. Variable-speed gearing	787,080	Apr. 11	1759	375–6	115	1460
Conant, William C., Atlanta, Ga. Variable-speed gearing	787,830	Apr. 18	3294	718–19	115	1816
Condit, William D. (See Smith, Morris F., assignor.)						
Condon, William. (See Barrett and Condon.)						
Conez, Germain, assignor to J. G. Conez, St. Louis, Mo. Cabinet for pies	785,591	Mar. 21	3249	689	115	749
Conez, John G. (See Conez, Germain, assignor.)						
Congdon, George A., West Somerville, Mass. Tendon-pulling machine	787,025	Apr. 11	1652	351	115	1437
Conklin, Fred T., assignor, by mesne assignments, to Multi-Vending Company, Chicago, Ill. Multivending-machine	786,192	Mar. 28	4459	942–3	115	1029
Connard, Milton A., Decatur, Ill. Collapsible rack	784,035	Mar. 7	41	8	115	12
Conner, Lendell A., Jr. (See Krakau and Conner.)						
Connick, Harris D. (See Manson and Connick.)						
Connolly, Michael T., Jersey City, N. J. Sewer-cleaning device	784,304	Mar. 7	581	119	115	134
Conrad, John F., *et al.* (See Fierboom, Anton F., assignor.)						
Conrow, Henry S., Asbury Park, N. J. Staved column, shaft, or similar article	788,189	Apr. 25	4031	871	115	2001
Consolidated Fire Alarm Company. (See Latimer, John M., assignor.)						
Continental Paper Bag Company. (See Elsas, Herman, assignor.)						
Continental Paper Bag Company. (See Strasburg, Frederick E., assignor.)						
Continental Rubber Company. (See Lawrence, William A., assignor.)						
Continuous Glass Press Company. (See Shuman, Arno, assignor.)						
Continuous Rail Joint Company of America. (See Braine, Bancroft G., assignor.)						
Converse, Maschil D., Newark, N. J. Boring-tool	787,664	Apr. 18	2944	640	115	1738
Converse, Maschil D., Newark, N. J. Plumb-bob	787,896	Apr. 25	3434	752	115	1859
Conway, Austin, Sherbrooke, Canada. Vending-machine	784,838	Mar. 14	1723	358	115	401
Conza, Cesar. (See Chirac, Edouard, assignor.)						
Cook, Eugene, Kalamazoo, Mich. Lifting-jack	787,435	Apr. 18	2481	537	115	1631
Cook, Frank B., Chicago, Ill. Self-restoring heat-coil	785,407	Mar. 21	2854	602	115	663
Cook, Frank B., Chicago, Ill. Thermal cut-out for electrical circuits	785,797	Mar. 28	3646	778	115	848
Cook, Frank B., Chicago, Ill. Self-soldering heat-coil	785,798	Mar. 28	3649	778	115	849
Cook, Frank B., Chicago, Ill. Electric protector apparatus	786,005	Mar. 28	4071	862	115	945
Cook, Frank B., Chicago, Ill. Combined cable-head and pole-house	788,130	Apr. 25	3921	849–50	115	1977
Cook, Herbert J. (See Milligan, Edward J., assignor.)						
Cooke, Warner B., Jenkintown, assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Railway-crossing structure	786,193	Mar. 28	4460	943	115	1029
Coon, Charles N., Mattoon, Ill. Pneumatic jack	786,409	Apr. 4	343	75	115	1146
Coons, Charlee E., Fort Worth, Tex. Balancing attachment	784,924	Mar. 14	1883	395	115	436
Cooper, James E., Perry, N. Y., assignor to Robeson Cutlery Company. Leather-punch	788,022	Apr. 25	3708	808	115	1923
Cooper, John, Mount Vernon, Ohio. Elevated railway	786,874	Apr. 11	1327	282	115	1366
Cooper, John W., Boston, Mass. Pocketed glove	786,006	Mar. 28	4076	862	115	946
Cooper, Leslie A., Springfield, Mass. Rotary engine	785,408	Mar. 21	2856	603	115	663
Cooper, Louis A., Seneca, N. Y. Skimmer	786,101	Mar. 28	4289	905	115	994
Cooper, Robert N., Saybrook, Ill. Calculator	786,102	Mar. 28	4290	905	115	994
Cooper, William. (See Johnson and Cooper.)						
Cope, Edge T., assignor of one-half to Buckeye Engine Company, Salem, Ohio. Blue-printing machine	784,473	Mar. 7	941	197	115	213
Copeland, Ira, Newton, Mass. Railway-tie	786,548	Apr. 4	699	142	115	1218
Copeland, James C., Pottsville, Pa. Garment-supporter	786,194	Mar. 28	4462	944	115	1030
Copithorn, Walter E., Natick, Mass. Knockdown barrel	786,875	Apr. 11	1329	282	115	1366
Copland, Alexander W., Detroit, Mich. Dough-feeding mechanism	787,081	Apr. 11	1764	377	115	1462
Corbett, Michael A. (See Simpson, Robert D., assignor.)						
Cordeau, Gaston E., New York, N. Y. Hand air-pump	785,154	Mar. 21	2342	491	115	551
Cordes, John F., Chicago, Ill. Loose-leaf binder	785,155	Mar. 21	2343	491	115	552
Core, Ruth E., Boulder, Colo. Bottle	785,592	Mar. 21	3249	689	115	749
Corey, Fred B., Schenectady, N. Y., assignor to General Electric Company. Automatic air-brake system	786,007	Mar. 28	4078	863	115	946
Corey, Fred B., Schenectady, N. Y., assignor to General Electric Company. Air-brake control	786,008	Mar. 28	4085	863	115	947
Corey, Fred B., Schenectady, N. Y., assignor to General Electric Company. Emergency brake-valve	786,955	Apr. 11	1496	317	115	1403
Corey, Fred B., and A. C. Savage, Schenectady, N. Y. Golf-club	786,268	Apr. 4	26	7	115	1076
Corey, James A. (See Lewis and Corey.)						
Corkhill, William, Corona, Cal. Box-making machine	786,956	Apr. 11	1496	318–19	115	1404
Cornell, Frank G., assignor of one-fourth to A. E. Willson, Louisville, Ky. Nut-wrench	787,831	Apr. 18	3298	720	115	1816
Cornell, Harriet L., administratrix. (See Benedict, Fred L., assignor.)						
Cornforth, Robert G., assignor to H. A. Matthews Mfg. Co., Seymour, Conn. Stove-knob	784,305	Mar. 7	583	119	115	134
Cornwall, Frederick R., *et al.* (See McGregor, William A. assignor.)						
Corry, J. F. (See Holder, William J., assignor.)						
Corti, Arnold, Dübendorf, near Zurich, Switzerland. Paint-remover and making same	784,474	Mar. 7	942	.....	115	214

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Cortland Implement Company. (See Johnson and Rawley, assignors.)						
Coryell, Howard G., and J. E. Stephens, Marietta, Ga. Dry-pipe head	787,565	Apr. 18	2740	596	115	1692
Cosper, Leslie G. (See Griffith and Cosper.)						
Cosserat, Oscar, Amiens, France. Weft-replenishing mechanism for looms	787,497	Apr. 18	2610	563–4	115	1661
Costigan, Lawrence A., Philadelphia, Pa. Binder-frame for type-pages	785,200	Mar. 21	2439	513	115	573
Côté, Henry, West Warren, assignor to Draper Company, Hopedale, Mass. Shuttle-locking means for looms	787,832	Apr. 18	3300	720	115	1817
Cott, Charles M., Columbus, Ohio. Index	785,090	Mar. 21	2214	465–6	115	523
Cottom, Albert, Chillicothe, Iowa. Fence-wire fastener	787,897	Apr. 25	3436	752	115	1859
Cottom, Morris H., Junction, Idaho. Magazine attachment for rifles	786,798	Apr. 11	1190	248	115	1337
Cottrell, Charles P., Westerly, R. I., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Spring-controlling mechanism for the beds of printing-presses	785,862	Mar. 28	3772	802	115	877
Cottrell, Edgar H., Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Machinery for folding paper or other fabrics	785,935	Mar. 28	3916	832–4	115	910
Couch, Buel, and J. D. Kneedler, Sioux City, Iowa. Bill or invoice file	788,023	Apr. 25	3709	808	115	1923
Coudyser, Honoré, Milwaukee, Wis. Lock	786,195	Mar. 28	4464	944	115	1030
Coughlin, William T., Bessemer, Ala. Chimney construction	786,196	Mar. 28	4466	944	115	1031
Coulson, William A. (See Creed, Frederick G., assignor.)						
Coulter, Charles J., Denver, Colo. Leaf-turner	784,549	Mar. 14	1105	231	115	263
Coulter, William B., Waterbury, Conn. Electric time-switch	785,863	Mar. 28	3775	802–3	115	878
Couper, James C., assignor to Imperial Wheel Company, Flint, Mich. Wheel	787,564	Apr. 18	2738	595	115	1691
Cournand, Frédéric A. J., assignor to Ste. Ame. de Commentry-Tourchambault et Decazéville, Paris, France. Manufacture of artificial teeth or the like	785,715	Mar. 28	3502	751	115	816
Courtois, Fernand A., Newark, N. J., assignor to Fiske Brothers Refining Company, New York, N. Y. Flash-tester	788,250	Apr. 25	4151	901	115	2026
Courtois, Fernand A., Newark, N. J., assignor to Fiske Brothers Refining Company, New York, N. Y. Viscosimeter	788,251	Apr. 25	4151	901	115	2027
Covey, John R., Lizton, Ind. Fence-post	788,024	Apr. 25	3711	808	115	1924
Cowden, Frederick, assignor of one-half to R. S. Logan, Montreal, Canada. Casting	786,009	Mar. 28	4086	864	115	947
Cowden, Frederick, assignor of one-half to R. S. Logan, Montreal, Canada. Casting	786,248	Mar. 28	4562	968	115	1052
Cowden, Frederick, assignor of one-half to R. S. Logan, Montreal, Canada. Apparatus for casting	787,325	Apr. 11	2244	491	115	1566
Cowham, William F. (See Normandin, Levi P., assignor.)						
Cox, George E. (See Price, Cox, and Marshall.)						
Cox, William G., New York, N. Y. Hydraulic air-compressor	787,150	Apr. 11	1903	412	115	1491
Coxe, George S. (See Roberts and Coxe.)						
Crabtree, Frederick H., and A. G. McGregor, Anaconda, Mont. Valve	786,731	Apr. 4	1049	217	115	1294
Craft, Owen B., Hawthorn, assignor of three-eighths to J. A. F. Hoy, Clarion, Pa. Wrench	785,716	Mar. 28	3504	751	115	816
Craig, James, Garden City, Kans. Hay rake and stacker	784,036	Mar. 7	42	8	115	12
Craig, William M., Marion, Ohio. Grinding-machine	785,593	Mar. 21	3250	690	115	750
Cramond, George, Detroit, Mich. Smoke-consumer	787,728	Apr. 18	3094	675	115	1771
Crandall, Herman E., New Britain, Conn. Garment-supporter	786,876	Apr. 11	1331	283	115	1367
Crandall, Jesse A., assignor of one-half to C. Zornow, Brooklyn, N. Y. Swinging toy	785,201	Mar. 21	2440	513	115	573
Crandall, Jesse A., assignor of one-half to F. P. Briggs, New York, N. Y. Folding table	786,732	Apr. 4	1052	217	115	1295
Crandell, Edgar J., assignor of one-half to H. M. Thomas, Memphis, Tenn. Cattle-guard	786,197	Mar. 28	4467	945	115	1031
Crane, Clarence A., Warren, Ohio. Can-cover	786,957	Apr. 11	1503	319	115	1405
Crane Company. (See Caldwell, Andrew J., assignor.)						
Crane Company. (See Doolittle, William W., assignor.)						
Crary, Thomas F., Middleport, Ohio, assignor to S. W. Loller, McCracken, Pa. Flushing outfit for closets	787,833	Apr. 18	3301	720	115	1817
Craven, Peter H., Rossland, Canada. Ore-concentrator	786,799	Apr. 11	1191	249	115	1338
Cravens, Graham H., De Queen, Ark. Apparatus for raising superstructures and ballasting railway road-beds	785,252	Mar. 21	2546	537–8	115	595
Craver, Franklin W., Santa Rosa, Cal. Hop-picking basket	786,487	Apr. 4	572	114	115	1192
Crawford, Charles M., Hartford, Conn. Constructing water-tight masonry walls	784,925	Mar. 14	1884	395	115	436
Crawford, Charles M., Hartford, Conn. Water-tight joint for masonry walls	784,926	Mar. 14	1885	395	115	437
Crawford, Ernest W., assignor to Chaplin-Fulton Manufacturing Company, Pittsburg, Pa. Fluid-pressure regulator	788,352	Apr. 25	4337	946	115	2069
Crawford, James E. (See Thayer, Ellis T., assignor.)						
Creamer, William G. (See Taylor and Creamer.)						
Creed, Frederick G., Lenzie, assignor to himself, and W. A. Coulson, Mile End, Glasgow, Scotland. Apparatus for controlling type-writing machines	787,875	Apr. 18	3381	739–40	115	1835
Crenshaw, John T., Dermott, Ark. Nut-lock	787,834	Apr. 18	3304	720	115	1818
Cress, John R. (See Kyle and Cress.)						
Creter, George, New York, N. Y. Gas-cock	785,292	Mar. 21	2626	555	115	612
Crigler, Richard L., Columbus, Ohio. Shading device	784,306	Mar. 7	583	119	115	134
Crisler, Joseph L., Perth, Kans. Coupling	784,927	Mar. 14	1886	396	115	437
Crisler, Joseph L., Perth, Kans. Belt-guide	784,987	Mar. 14	1904	419	115	459
Crispin, Clarence G., Berwick, Pa. Valve	785,594	Mar. 21	3252	690	115	750
Criswell, Alexander P., Chicago, Ill. Aeroplane	785,717	Mar. 28	3505	751–2	115	817
Crompton, George, *et al.* (See Crompton, Randolph, assignor.)						
Crompton, George, *et al.* (See Crompton and Fitton, assignors.)						
Crompton & Knowles Loom Works. (See Cyr, Joseph T., assignor.)						
Crompton & Knowles Loom Works. (See Hutchins, George F., assignor.)						
Crompton & Knowles Loom Works. (See Ryon, Eppa H., assignor.)						
Crompton & Knowles Loom Works. (See Wattie, William, assignor.)						
Crompton, Randolph, *et al.* (See Crompton and Fitton, assignors.)						
Crompton, Randolph, assignor to R. and G. Crompton, E. D. Thayer, and W. B. Scofield, Worcester, Mass. Pattern mechanism for looms	784,550	Mar. 14	1107	231	115	264
Crompton, Randolph, and J. R. Fitton, assignors to R. and G. Crompton, E. D. Thayer, and W. B. Scofield, Worcester, Mass. Take-up mechanism for looms	787,281	Apr. 11	2160	476	115	1547
Crompton-Thayer Loom Company. (See O'Reilly, Anthony J., assignor.)						
Crompton-Thayer Loom Company. (See Thayer, Edward D., assignor.)						
Crone, Seth A., New York, N. Y. Brake-beam	784,839	Mar. 14	1725	358	115	401
Cronin, John J., *et al.* (See Pierce, Clarence A., assignor.)						
Crosby, Edward A., Minneapolis, Minn. Numbering device for storm-sash or screens	784,840	Mar. 14	1727	359	115	401
Crosby Steam Gage and Valve Company. (See Wolfe, Frank L., assignor.)						
Crosby, William H., Waterville, Me. Pulp-screening machine	788,025	Apr. 25	3713	809	115	1924
Cross, Charles A. (See Adams and Cross.)						
Crowell, Luther C., deceased, (L. F. Crowell, administrator,) South Wellfleet, assignor of one-third to R. W. Howard and C. F. A. Smith, Boston, Mass. Labeling-machine	787,876	Apr. 18	3390	741–2	115	1838
Crowell, Luther F., administrator. (See Crowell, Luther C.)						
Crowley, John H., Charlotte, N. C. Terry-loom	785,595	Mar. 21	3254	691	115	750
Crowther, Jennie, Shelton, Conn. Envelop-moistener	784,616	Mar. 14	1260	263	115	296
Cudell, Frank E., Cleveland, Ohio. Pavement-curb	784,661	Mar. 14	1361	281	115	319

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Culbreth, Rudisell, Baltimore, Md. Ribbon-runner	788,026	Apr. 25	3714	809	115	1925
Cullemore, William W., Brighton, England. Door for landaus or other vehicles	787,436	Apr. 18	2482	537	115	1631
Cullen, Joseph B. (See Zarwell and Cullen.)						
Culliney, John V., assignor to American Iron and Steel Manufacturing Company, Lebanon, Pa. Feeding apparatus for coal-dust	784,307	Mar. 7	585	120	115	134
Culver, Fred R. (See Colburn and Culver.)						
Culver, Ira. (See Steinacker and Culver.)						
Culver, Jacob H. (See Davis and Culver.)						
Culver Novelty Company. (See Young, David B., assignor.)						
Culver, Willard B., assignor to Hendrick Manufacturing Company, Carbondale, Pa. Steam-injector	785,409	Mar. 21	2859	603	115	664
Cummings, Henry H., Malden, Mass. Multiple-article holder and forming same	788,304	Apr. 25	4248	921	115	2049
Cummings, Henry H., Malden, assignor, by mesne assignments, to Union Lock Stitch Company, Boston, Mass. Thread-controlling mechanism for sewing-machines	786,410	Apr. 4	345	75	115	1147
Cummings, Lincoln C., Brookline, Mass. Vehicle-tire	787,898	Apr. 25	3437	752	115	1860
Cummings, William J., and S. Abernethy, Port Moody, Canada. Inserted-tooth saw	786,103	Mar. 28	4293	905	115	995
Cundall, Robert N., assignor to Draper Company, Hopedale, Mass. Switch for overhead trolley-tracks	784,037	Mar. 7	44	8	115	12
Cunnius, Alfred R., assignor of one-half to L. Kaiser, New York, N. Y. Trumpet for talking-machines	784,385	Mar. 7	755	153	115	173
Curran, Thomas J. (See Reilly, Robert G., assignor.)						
Currie, Frank R., Mason City, Iowa. Display cabinet or stand	786,104	Mar. 28	4294	906	115	995
Currier, Burleigh. (See Porter and Currier.)						
Currier, Charles W., and J. Leitschuh, assignors to Federal Manufacturing Company, Columbus, Ohio. Dampening-machine	786,958	Apr. 11	1505	320	115	1406
Currier, John W., Boston, Mass. Memorandum attachment for telephones	786,733	Apr. 4	1054	218	115	1296
Currier, John W., North Troy, Vt., assignor to E. F. Powers, Leominster, Mass. Combined tool	786,105	Mar. 28	4296	906	115	996
Curry, Florence A., Newtonville, Mass. Veil-pin	787,899	Apr. 25	3438	753	115	1860
Curry, James A. (See Taylor, Horace H., assignor.) (Reissue.)						
Curry, Lewis M., Brighton, Mich. Spirit-level	786,269	Apr. 4	28	7	115	1077
Curtain Supply Company. (See Hopkins, Charles L., assignor.)						
Curtain Supply Company. (See Sheldon, Frank L., assignor.)						
Curtin, Peter A., Buffalo, N. Y. Needle-case	784,841	Mar. 14	1728	359	115	401
Curtis, Albert B. (See Scott and Curtis.)						
Curtis, Lewis E., Chicago, Ill., assignor, by mesne assignments, to B. Jones, trustee, St. Louis, Mo. Expanding slitted sheet metal	784,517	Mar. 7	1043	216	115	234
Curtis, Nimrod J., Lisbon, Iowa. Mail-bag-delivery apparatus	785,156	Mar. 21	2346	492	115	552
Curtiss, Charles E., assignor to International Harvester Company, Chicago, Ill. Clutch-shifting device	784,551	Mar. 14	1110	232	115	265
Curtiss, William R. (See Hockney and Curtiss.)						
Curts, Robert P., *et al.* (See Gibson, Marion F., assignor.)						
Curwen, Samuel M., assignor to J. A. Brill, Philadelphia, Pa. Car-seat	784,386	Mar. 7	756	153–4	115	173
Curwen, Samuel M., Haverford, assignor to J. A. Brill, Philadelphia, Pa. Grab-handle for railway-cars	784,518	Mar. 7	1044	216	115	234
Curwen, Samuel M., Haverford, assignor to J. A. Brill, Philadelphia, Pa. Grab-handle for railway-cars	784,519	Mar. 7	1045	216	115	235
Curwen, Samuel M., Haverford, assignor to J. A. Brill, Philadelphia, Pa. Grab-handle for railway-cars	784,520	Mar. 7	1046	216	115	235
Cusson, Japhet S., Dekalb, Ill. Hame-tug	788,455	Apr. 25	4552	991	115	2114
Custer, Zora B., Bradford, Pa. Pipe-coupling	785,350	Mar. 21	2729	578	115	634
Cutler-Hammer Manufacturing Company. (See Barnum, Thomas E., assignor.)						
Cutler-Hammer Manufacturing Company. (See Cutler, Henry H., assignor.)						
Cutler, Henry H., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis. Magnetic clutch or speed-accelerator	786,411	Apr. 4	347	76	115	1147
Cutler, Henry H., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis. Magnetic clutch or speed-accelerator	786,412	Apr. 4	354	77	115	1148
Cutler, Henry H., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis. Magnetic clutch	786,413	Apr. 4	356	77	115	1149
Cutler, Henry H., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis. Electric speed-accelerator	786,420	Apr. 4	393	83	115	1157
Cutler, Henry H., assignor to Arnold Magnetic Clutch Company, Milwaukee, Wis. Magnetic clutch or speed-accelerator	786,425	Apr. 4	424	86	115	1163
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Power transmission	786,414	Apr. 4	361	78	115	1150
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Alternating-current power-transmitting apparatus	786,415	Apr. 4	366	79	115	1151
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Alternating-current power-transmitting apparatus	786,416	Apr. 4	370	79–80	115	1152
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Synchronous motor with clutch	786,417	Apr. 4	375	80	115	1153
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. Varying the speed of the load driven by an alternating-current motor	786,418	Apr. 4	379	81–2	115	1154
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. System for operating electric motors	786,419	Apr. 4	386	82–3	115	1155
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. System of and apparatus for motor control	786,421	Apr. 4	398	84	115	1158
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. System of controlling one or more electric motors	786,422	Apr. 4	402	84–5	115	1159
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. System for controlling electric motors	786,423	Apr. 4	411	85	115	1160
Cutler, Henry H., assignor to Cutler-Hammer Manufacturing Company, Milwaukee, Wis. System for controlling electric motors	786,424	Apr. 4	418	85–6	115	1162
Cutler, William, Birmingham, England. Furnace for bending and shaping sheet-glass, &c.	787,437	Apr. 18	2483	537	115	1631
Cutler, William, Birmingham, England. Mold for bending and shaping sheet-glass, &c.	787,438	Apr. 18	2484	538	115	1631
Cutting, Francis. (See Johnson, Joseph S., assignor.)						
Cyanide Company. (See Jacobs, Witherspoon, and Thurlow, assignors.)						
Cyr, Joseph T., Worcester, Mass., assignor to Crompton & Knowles Loom Works. Loom for making pile fabrics	786,734	Apr. 4	1055	218	115	1296
Czerweny, Franz, Deutschlandsberg, Austria-Hungary. Match-making machine	785,476	Mar. 21	2999	633	115	666
D'Aix, Fritz C. L., New York, N. Y. Linotype-machine	785,477	Mar. 21	3000	633–4	115	666
D'Aix, Fritz C. L., New York, N. Y. Matrix for linotype or line-casting machines	785,478	Mar. 21	3002	634–5	115	666
D'Arey, Frank P., Kalamazoo, Mich. Spring	785,410	Mar. 21	2860	603	115	665
D'Esposito, Giosué, assignor of one-half to S. Patterson, Pittsburg, Pa. Metallic pole	787,613	Apr. 18	2857	621	115	1719
D'Oller, Henry, Jr., Philadelphia, Pa. Portable electric lamp	785,481	Mar. 21	3006	635	115	666

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D'Oronzio, Raffaela, New York, N. Y. Fender	785,482	Mar. 21	3008	635–6	115	697
D'Ossone, Charles V., Philadelphia, Pa. Hair-roll	787,903	Apr. 25	3444	754	115	1861
Dahlquist, Laurentius, Salt Lake City, Utah. Brake for fire-escapes	785,202	Mar. 21	2442	514	115	573
Dahmer, Andrew W., Sonora, Cal. Dumping-car	788,096	Apr. 25	3841	835	115	1953
Dake, Charles W., assignor of one-half to W. Donker, Grand Rapids, Mich. Photographic exposure-meter	784,988	Mar. 14	1996	419	115	460
Dake, Charles W., and W. Donker, Grand Rapids, Mich. Steam-turbine	784,989	Mar. 14	1999	420	115	461
Dale, John, *et al.* (See Bumgardner, Louis A., assignor.)						
Daley, Michael H., Charles City, Iowa. Cleaning attachment for disk harrows or the like	785,596	Mar. 21	3256	691	115	751
Dalgleish, Edmund, assignor to Chase Machine Company, Cleveland, Ohio. Towing-machine	788,190	Apr. 25	4032	871–2	115	2002
Dalton, Edwin S., Auburn, N. Y. Napkin-holder	788,252	Apr. 25	4153	901	115	2027
Dalton, Richard H., *et al.* (See Clark, James H., assignor.)						
Dalton, Richard H., *et al.* (See Forbes, Henry M. assignor.)						
Dalton, William, Schenectady, assignor to American Locomotive Company, New York, N. Y. Railway-truck brake	786,488	Apr. 4	574	115	115	1193
Daly, Thomas. (See Richey and Daly.)						
Dalzell, Ira E., *et al.* (See Newland, Grant, assignor.)						
Dalzell, John W., *et al.* (See Newland, Grant, assignor.)						
Dancyger, Simon, Dayton, Ohio. Pin	785,479	Mar. 21	3004	635	115	696
Daniels, John L., Jr., New York, N. Y., assignor to American Cigar Company. Treating tobacco	787,611	Apr. 18	2856		115	1719
Daniels, Samuel, assignor of one-half to J. C. Reeder, Harvey, Ill. Air-pistol	786,426	Apr. 4	429	86	115	1164
Daniels, Thomas J., San Francisco, Cal. Awning-operating mechanism	784,475	Mar. 7	943	198	115	214
Danilevsky, Constantin, and S. Tourchaninoff, St. Petersburg, Russia. Metallizing fabrics	785,541	Mar. 21	3145	663	115	728
Darby, William S., Berlin, Germany, assignor to Victor Talking Machine Company. Record for sound-reproducing machines	786,347	Apr. 4	202	46	115	1113
Darlington, Frederick, Great Barrington, Mass. Electric meter	784,387	Mar. 7	758	154–5	115	174
Darnell, David E., Fulton, Tex. Baling-press	787,082	Apr. 11	1768	378	115	1463
Daves, William, assignor of two-fourths to W. A. Freese, Bloomington, Ill., and G. W. Quackenbush, Marshall, Mo. Rail-joint	784,928	Mar. 14	1888	396	115	437
Davey, Joseph M., St. Louis, Mo. Vacuum-lamp	785,157	Mar. 21	2348	492	115	553
David, William L. (See Poole, Clarence C., assignor.)						
Davidson, Marshall T. (See Drewett, William A., assignor.)						
Davignon, Francois, assignor of one-half to A. Herath, Schenectady, N. Y. Brake	787,151	Apr. 11	1906	412–13	115	1492
Davis, Benjamin W., Phillips, Wis. Building-block	784,476	Mar. 7	945	198	115	214
Davis, Calvin R., assignor to Oliver Chilled Plow Works, South Bend, Ind. Corn-planter	784,143	Mar. 7	258	52–3	115	62
Davis, Calvin R., assignor to Oliver Chilled Plow Works, South Bend, Ind. Foot-lift for plows	784,842	Mar. 14	1729	359–60	115	402
Davis, Calvin R., assignor to Oliver Chilled Plow Works, South Bend, Ind. Disk plow	786,427	Apr. 4	431	87–8	115	1164
Davis, Emry, New York, N. Y. Inkstand	786,959	Apr. 11	1506	320	115	1406
Davis, Ernest J. S., assignor of one-half to A. Vandrimmelen, Knoxville, Iowa. Thill-coupling	784,990	Mar. 14	2001	420	115	461
Davis, Evan C., Jackson, Ohio. Garden-plow	786,631	Apr. 4	862	178	115	1253
Davis, George H., West Orange, N. J. Note-sheet winding and controlling mechanism for musical instruments	785,799	Mar. 28	3654	779	115	851
Davis, George H., Portland, Me. Sanitary device	787,357	Apr. 18	2316	503	115	1593
Davis, Herman, New Orleans, La. Trunk	787,835	Apr. 18	3305	721	115	1818
Davis, Herman, New Orleans, La. Trunk	787,836	Apr. 18	3306	721	115	1818
Davis, Justus A., Rome, Kans. Harrow attachment	785,864	Mar. 28	3776	803	115	878
Davis, Leonard D., Erie, Pa. Shaping metallic ingots by transverse rolling	787,612	Apr. 18	2857	621	115	1719
Davis, Ovid S., Wynne, Ark. Car-door	785,800	Mar. 28	3657	779	115	851
Davis, Samuel D., Wilber, and J. H. Culver, Lincoln, Nebr. Combined intrenching implement and tent-pin puller	785,801	Mar. 28	3658	780	115	852
Davis, Spencer E., Minneapolis, Minn. Scraper for disk drills	785,865	Mar. 28	3778	803	115	879
Davis, Sterling P., Canyoncreek, Mont. Cockeye	787,498	Apr. 18	2614	565	115	1662
Davis, Stewart K., Denver, Colo. Combined ironing-board and table	784,781	Mar. 14	1611	332	115	376
Davis, Theodore E., Winston Salem, N. C. Warp-dyeing machine	785,597	Mar. 21	3258	692	115	751
Davis, V. G., *et al.* (See Byrd, Britton E., assignor.)						
Davison, John T., Brooklyn, N. Y. Self-filling fountain-pen	787,152	Apr. 11	1907	413	115	1492
Davitt, Patrick H., Bradford, Pa. Oil-elevator	784,901	Mar. 14	2003	421	115	461
Dawes, Robert, Philadelphia, Pa. Spinning, twisting, and winding machine	786,198	Mar. 28	4468	945	115	1031
Dawson, Christopher C., assignor of one-fourth to P. L. Webb, Washington, D. C. Safe for sleeping-cars	786,270	Apr. 4	30	8	115	1077
Dawson, Henry G. (See Westerling, Andrew, assignor.)						
Dawson, Jefferson D., and F. Hamilton, Beardstown, assignors of one-third to F. B. De Groot, Rock Island, Ill. Current-operated pump	787,153	Apr. 11	1909	413–14	115	1492
Day, Albert. (See Day, Charles H. and A.)						
Day, Alfred A., Brockton, Mass. Burglar-alarm	787,358	Apr. 18	2317	503	115	1594
Day, Charles H. and A., Leeds, England. Packaging-machine	785,203	Mar. 21	2443	514–15	115	573
Day, Howard D., Providence, R. I. Ball-cleaning device	784,662	Mar. 14	1361	281	115	319
Day, Michael O., Newcastle, Pa. Trolley	784,843	Mar. 14	1730	360	115	402
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
De Barthe, Emerson, Waltham, Mass. Apparatus for adjusting hair-springs	788,027	Apr. 25	3715	809–10	115	1925
De Bord, Isaac B., Winston, Mo. Water-motor	788,028	Apr. 25	3720	810	115	1926
De Ford, Henry. (See Knapp, Eugene R., assignor.)						
De Fries & Co., Actien-Gesellschaft. (See Berszinsky, Friedrich, assignor.)						
De Groot, Fred. B. (See Dawson and Hamilton, assignors.)						
De Lancey, Darragh, and H. M. Smith, assignors to Stanley Instrument Company, Great Barrington, Mass. Bearing for electric meters	786,366	Apr. 4	246	56	115	1122
De Long, Oscar A., New York, N. Y. Display-holder	785,253	Mar. 21	2552	538	115	596
De May, Louis F., Toledo, Ohio. Noiseless flushing apparatus for closets	785,542	Mar. 21	3146	663	115	728
De Minico, Charles, Cincinnati, Ohio, assignor to United Shoe Machinery Company, Paterson, N. J. Lasting-machine	784,251	Mar. 7	475	95	115	110
De Rangis, Florence, assignor of one-fourth to E. H. Barry, Haverhill, Mass. Reversible stove	785,063	Mar. 14	2127	449–50	115	489
De Vore, Clark A. W., Monongahela, Pa. Apparatus for boiling eggs	787,837	Apr. 18	3308	722	115	1819
De Witt, Charles A., Grand Rapids, Mich. Winding stair	786,431	Apr. 4	463	90	115	1171
De Zeng, Henry L., Philadelphia, Pa. Ophthalmoscope	787,063	Apr. 11	1770	378	115	1463
Dean, Henry S., London, England. Book with cloth leaves	784,477	Mar. 7	947	198	115	215
Dean, William W., assignor to Western Electric Company, Chicago, Ill. Plug and spring-jack switch	787,900	Apr. 25	3439	753	115	1860
Deeds, Reed and W. C., Cuyahoga Falls, Ohio. Building concrete walls	787,665	Apr. 18	2947	640–1	115	1738
Deeds, Wilbur C. (See Deeds, Reed and W. C.)						
Deere and Mansur Company. (See Friberg, Charles P. A., assignor.)						
Deery, Daniel H., assignor of one-half to C. J. Mercer, Bridgeport, Conn. Elastic heel-protector	788,191	Apr. 25	4035	872	115	2003

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Defiance Lantern & Stamping Company. (See Hill, James H., assignor.)						
Deis, Philip H., Washington, D. C., assignor to Deis Pump Company. Pump. (Reissue)	12,331	Mar. 28	4572	970	115	1054
Deis Pump Company. (See Deis, Philip H., assignor.) (Reissue.)						
Delaney, Joseph, assignor of one-half to F. A. Wise, Bucyrus, Ohio. Wrench	787,359	Apr. 18	2318	504	115	1594
Delane, John, Terre Haute, Ind. Automatic self-dropping trolley-pole	784,038	Mar. 7	46	9	115	13
Delehant, John J., Chicago, Ill. Hydraulic coupling	787,154	Apr. 11	1909	414	115	1493
Demarest, George A., assignor, by mesne assignments, of one-half to W. T. Gilmore, Berwick, La. Mail-bag hanger	788,501	Apr. 25	4627	1009	115	2129
Demarest, George A., assignor, by mesne assignments, of one-half to W. T. Gilmore, Berwick, La. Clamp and key-plate device for fastening rails	788,502	Apr. 25	4627	1009	115	2129
Demecq, Pedro de. (See Julien, Ramon G., assignor.)						
Dempsey, John, Millerton, N. Y. Tire-brake	788,192	Apr. 25	4037	872	115	2003
Denegre, Edward, assignor to McCord & Company, Chicago, Ill. Lubricator	787,155	Apr. 11	1911	414	115	1493
Deneif, George W., Lowell, Mass. Valve	786,960	Apr. 11	1509	320	115	1407
Dengler, George, and I. W. Schmidt, Detroit, Mich. Electric motor	784,308	Mar. 7	587	120	115	135
Denning, J. M. (See St. John, Justin M., assignor.)						
Denning, Joseph M., Cedar Rapids, Iowa. Wire-fence machine	788,305	Apr. 25	4250	921–3	115	2049
Dennis, Samuel K., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill. Mower	784,663	Mar. 14	1364	282	115	320
Dennis, Samuel K., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill. Harvester	784,664	Mar. 14	1367	282–3	115	321
Denniss, George L. T., Folkestone, England. Book-support	784,734	Mar. 14	1515	310	115	356
Densmore Typewriter Company. (See Barron and Merritt, assignors.)						
Densmore Typewriter Company. (See Woodward, Oscar, assignor.)						
Dentists' Supply Company. (See Whiteley, George H., assignor.)						
Denyes, Gaylord W., Chicago, Ill., assignor to International Harvester Company. Grain-drill	787,901	Apr. 25	3441	753	115	1860
Derby, Thomas N., Roundlake, assignor to C. H. Stockwell, Troy, N. Y. Alarm device	787,729	Apr. 18	3096	675	115	1772
Déri, Max, Vienna, Austria-Hungary, assignor to Stanley Electric Manufacturing Company. Commutating device for armatures of alternating-current machines	786,010	Mar. 28	4088	864	115	948
Derickson, George M., St. Louis, Mo. Switch-operating mechanism	785,158	Mar. 21	2349	492–3	115	553
Dern, Jasper L., Philadelphia, Pa. Dipping-machine	784,478	Mar. 7	948	198–9	115	215
Desmarais, John S., Brooklyn, N. Y. Album or book and stand therefor	786,271	Apr. 4	31	8	115	1077
Desobry, Charles W., Indianapolis, assignor of two-thirds to E. C. Perry, Jeffersonville, Ind. Bottle-washing machine	786,877	Apr. 11	1334	283–4	115	1367
Despradels, Louis, Paris, France. Apparatus for electrical signaling	784,388	Mar. 7	762	155–6	115	175
Dethlefson, Andrew N., and H. Grahn, San Francisco, Cal. Loose pulley and bearing therefor	784,252	Mar. 7	479	95	115	111
Detrick and Harvey Machine Company of Baltimore City. (See Easby, Francis H., assignor.)						
Deuben, Rudolph C., Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Selective signaling system	786,428	Apr. 4	434	88	115	1165
Deuben, Rudolph C., Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Selective signaling system	786,429	Apr. 4	446	89	115	1167
Deuel, H. A. (See Freebury, Theodore V., assignor.)						
Deutschmann, Charles O., Hampstead Heath, England. Motor	785,254	Mar. 21	2553	538–9	115	596
Devereaux, Daniel H., Brunswick, Ga. Combined door stop and holder	786,430	Apr. 4	462	89	115	1171
Devineau, Louis, Cleveland, Ohio. Phonograph	784,603	Mar. 14	1229	257–8	115	289
Devoll, George, Boston, Mass., and G. H. Risley, Brielle, N. J. Pneumatic tire	788,306	Apr. 25	4255	923	115	2050
Dewey, Chauncey F., assignor to American Zinc and Chemical Company, Denver, Colo. Leaching apparatus	787,902	Apr. 25	3442	754	115	1861
Dexter Folder Company. (See Dexter, Talbot C., assignor.)						
Dexter, Talbot C., Pearl River, N. Y. Tripping mechanism for printing-presses	784,479	Mar. 7	952	199	115	216
Dexter, Talbot C., Pearl River, N. Y. Paper-cutting machine	786,632	Apr. 4	864	178–9	115	1254
Dexter, Talbot C., assignor to Dexter Folder Company, Pearl River, N. Y. Paper assembling, stitching, and folding machine	787,730	Apr. 18	3098	675–81	115	1772
Dexter, Talbot C., assignor, by mesne assignments, to Dexter Folder Company, Pearl River, N. Y. Paper assembling, stitching, and folding machine	787,838	Apr. 18	3310	722–7	115	1819
Dey, Alexander. (See Dey, John and A.)						
Dey, John and A., Syracuse, N. Y. Time-recorder	786,011	Mar. 28	4090	864–5	115	948
Diamond Paste Company. (See Kelliher, Francis J., assignor.)						
Diatto, Alfredo, Turin, Italy. Electric tramway	785,293	Mar. 21	2627	556	115	612
Dice, Ephraim, Canton, Ohio. Hose-reel	785,159	Mar. 21	2353	493	115	554
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Stencil-duplicating apparatus	786,633	Apr. 4	875	180	115	1257
Dick, Albert B., Lake Forest, assignor to A. B. Dick Company, Chicago, Ill. Stencil-duplicating apparatus	786,634	Apr. 4	876	180	115	1258
Dickerson, Edward N. (See Kendall, Edward D., assignor.)						
Dickerson, Fred G., Chicago, Ill. Tipping-machine	787,499	Apr. 18	2615	565–6	115	1662
Dickson, James H., Polk, Pa. Mail-box	787,731	Apr. 18	3120	682	115	1777
Diden, William F., Santa Monica, Cal. Valve-gear	784,389	Mar. 7	767	157	115	176
Diebel, William, assignor to National Vending Machine Company, Philadelphia, Pa. Coin-operated vending-machine	785,666	Mar. 21	3386	727	115	778
Diebold, Charles J., assignor to Diebold Mine Supply Company, Cleveland, Ohio. Compound hinge for depressible rails	787,326	Apr. 11	2247	491	115	1566
Diebold Mine Supply Company. (See Diebold, Charles J., assignor.)						
Dierks, Henry, Eastport, Me. Can-body forming and soldering machine	787,439	Apr. 18	2485	538–9	115	1631
Diedrich, Ernst, Hamburg, Germany. Blinder	786,878	Apr. 11	1336	284	115	1368
Diesel, Louis, Chicago, Ill. Tin can	787,156	Apr. 11	1914	415	115	1494
Dietmeyer, Jacob J. (See Bradshaw, Ira J., assignor.)						
Dietrich, Carl, Schönebeck, Germany. Snow-plow	785,204	Mar. 21	2446	515	115	574
Dietz, Christian F., assignor of two-thirds to A. Junge, Chicago, and P. F. Carroll, Joliet, Ill. Dough-forming machine	786,879	Apr. 11	1337	284–5	115	1368
Dietz, Christian F., Chicago, assignor of two-thirds to P. F. Carroll, Joliet, B. Junge, Chicago, Ill., and A. Junge, Jr., Joplin, Mo., executors. Dough-forming machine	786,880	Apr. 11	1339	285	115	1368
Dietz, Conrad and J., Cincinnati, Ohio; said J. Dietz assignor to said Conrad Dietz. Gearing	784,309	Mar. 7	588	120	115	135
Dietz, Frank. (See Smith and Dietz.)						
Dietz, John. (See Dietz, Conrad and J.)						
Dietz, Paul, Philadelphia, Pa. Gearing	785,064	Mar. 14	2129	450	115	490
Dietz, Paul, Philadelphia, Pa. Shedding-motion for looms	787,026	Apr. 11	1653	352–3	115	1437
Differential Ore Crushing Machine Company. (See Knapp, George S., assignor.)						
Diffey, Thomas S. (See Tompkins, Diffey, and Simpson.)						
Dilday, Noble J., Indianapolis, Ind. Toy cigar for blowing smoke rings	786,012	Mar. 28	4101	865	115	952
Dilihoff, Clemens, and J. Hastreiter, Morgantown, W. Va. Trolley	785,598	Mar. 21	3262	692	115	752
Dillon, John, Milwaukee, Wis. Elevator mechanism	785,936	Mar. 28	3923	834–5	115	911
Dimmick, Homer K. and J. J., Appleton, Wis. Combined wheel truck and support	784,992	Mar. 14	2005	421	115	462

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Dimmick, Jaman J. (See Dimmick, Homer K. and J. J.)						
Dingendahl, Gustav, West Reading, assignor to Fleetwood Foundry and Machine Company, Fleetwood, Pa. Bobbin-carrier	785,718	Mar. 28	3507	752	115	817
Dingman, Harry, assignor of one-half to W. Dixon, Kimball, Minn. Combined potato cutter and planter	788,393	Apr. 25	4438	964	115	2091
Dinkey, Charles E., and H. A. Brassert, North Braddock, Pa. Means for protecting blast-furnace hearths	787,282	Apr. 11	2162	476	115	1548
Dion, Léon, assignor to Americus Electro-Hermatic Company, New York, N. Y. Filter and mechanism for cleaning it	786,549	Apr. 4	700	143	115	1219
Diplock, Bramah J., Westminster, England. Traction-engine	787,500	Apr. 18	2619	566–7	115	1663
Direct Line General Telephone Company. (See Andriano and Herbstritt, assignors.)						
Disney, George W., Richland, Kans. Cultivator attachment	784,480	Mar. 7	955	200	115	216
Dittenheimer, Isaac. (See Weinberg, Heyman, and Dittenheimer.)						
Dixon, Patrick, Bloomington, Ill. Flue-expander	784,481	Mar. 7	957	200	115	217
Dixon, Walter. (See Dingman, Harry, assignor.)						
Doak, John S., Brownwood, and A. G. Farrington, Yoakum, Tex. Boll-weevil or other insect destroyer	785,719	Mar. 28	3509	752	115	817
Dobberstein, Julius, Alma City, Minn. Draft-equalizer	784,993	Mar. 14	2007	421	115	463
Dobel, Nickolas J., Buffalo, N. Y. Shoe-tree	787,440	Apr. 18	2489	539	115	1632
Doble, William H., Quincy, Mass. Machine for closing and sealing the ends of cartons	787,877	Apr. 18	3395	743–4	115	1839
Doble, William H., Quincy, Mass., assignor, by mesne assignments, to Pneumatic Scale Corporation, Limited. Machine for closing and sealing the ends of cartons	785,411	Mar. 21	2861	604–5	115	665
Dodds, Ethan I., Avalon, assignor to Pressed Steel Car Company, Pittsburg, Pa. Car-frame	784,665	Mar. 14	1369	283	115	321
Dodds, Ethan I., Avalon, assignor to Pressed Steel Car Company, Pittsburg, Pa. Car-frame	785,866	Mar. 28	3780	804	115	879
Dodds, Ethan I., Avalon, assignor to Pressed Steel Car Company, Pittsburg, Pa. Stake-pocket for cars	785,867	Mar. 28	3781	804	115	879
Dodge, George, *et al.* (See Canfield, Frank, assignor.)						
Dodge, Philip T., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	784,253	Mar. 7	480	96	115	111
Dodge, Philip T., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	786,199	Mar. 28	4470	945	115	1022
Doemer, Robert R., Detroit, Mich. Bottle	784,144	Mar. 7	261	53	115	63
Dokkenwadel, Frederick G., Coshocton, Ohio, assignor of one-half to H. M. Grant, New York, N. Y. Blasting compound	785,480	Mar. 21	3005	.....	115	696
Dolce, Domenico, *et al.* (See Chiappinelli, Vincenzo, assignor.)						
Dolivo-Dobrowolsky, Michael von, Berlin, Germany. Monophase and polyphase alternating-current machine	787,027	Apr. 11	1657	353	115	1438
Dolman, Martin O., Los Angeles, Cal. Automatic trolley-pole controller	786,489	Apr. 4	575	115	115	1193
Domann, Charles F., assignor to P. Berns, Chicago, Ill. Jeweler's display-stand	786,013	Mar. 28	4103	865	115	952
Donahoo, James T., Edgar Nebr. Apparatus for forming cement tanks	787,157	Apr. 11	1915	415	115	1494
Donald, Donald, Masterton, New Zealand. Baling-press	787,501	Apr. 18	2624	567–9	115	1665
Donatz, Otto, Trenton, N. J. Boiler-flue cleaner	784,552	Mar. 14	1111	232	115	265
Donecker, Franklin C., Chicago, Ill. Educational device	784,145	Mar. 7	262	53	115	63
Donker, William. (See Dake, Charles W., assignor.)						
Donker, William. (See Dake and Donker.)						
Donnelly, Frederick W., deceased, and W. J. Smith, New York, N. Y.: said Smith assignor to T. Donnelly, administrator. Sign	786,550	Apr. 4	703	143	115	1219
Donnelly, Thomas, administrator. (See Donnelly and Smith.)						
Donnelly, William T., Brooklyn, N. Y. Apparatus for the propulsion of ships	787,084	Apr. 11	1772	378	115	1463
Donohoe, Thomas, Carnegie, Pa. Frog-point	788,456	Apr. 25	4552	991	115	2114
Doolittle, Elbridge C., assignor of one-half to W. Hassett, Wallingford, Conn. Compensating gearing	787,085	Apr. 11	1773	379	115	1464
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Tool-holder	785,351	Mar. 21	2730	578	115	634
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Attaching flanges to tubes	786,551	Apr. 4	705	143	115	1220
Doorenbos, Garrett G. (See Doorenbos, John and G. G.)						
Doorenbos, John, New York, N. Y. Gas-lamp	786,014	Mar. 28	4104	866	115	952
Doorenbos, John, New York, N. Y., and G. G. Doorenbos, Kalamazoo, Mich. Gas-lamp	787,086	Apr. 11	1775	379	115	1464
Doran, Robert L., Chicago, Ill., assignor to Acorn Brass Manufacturing Company. Fluid-delivery apparatus	786,881	Apr. 11	1341	286	115	1369
Doremus, Willard D., Washington, D. C. Clasp	785,720	Mar. 28	3511	753	115	818
Dorlon, Philip S., assignor of one-half to C. B. McMurray, Troy, N. Y. Railway-signal	785,294	Mar. 21	2629	556–7	115	612
Dorn, Christian, assignor to C. Rath, Philadelphia, Pa. Bottle-stopper	786,735	Apr. 4	1057	219	115	1296
Dornberger, Frank, and F. Reissmann, Westpoint, N. Y. Safety signal system	786,736	Apr. 4	1058	219	115	1297
Dorr, George H., New Rochelle, assignor to Blair Camera Company, Rochester, N. Y. Camera	788,307	Apr. 25	4256	923	115	2051
Dorsch, Heinrich. (See Heinrich and Dorsch.)						
Dorsey, Robert L., assignor to Tucker & Dorsey Manufacturing Company, Indianapolis, Ind. Vegetable-cutter	787,614	Apr. 18	2858	622	115	1720
Dort, Henry L., New York, N. Y. Cleaning apparatus	787,732	Apr. 18	3122	682	115	1778
Dosch, Peter, Bridgeport, Conn. Sash-pulley	786,800	Apr. 11	1193	249	115	1338
Dosch, Peter, Bridgeport, Conn. Sheet-metal sash-pulley	786,801	Apr. 11	1194	249	115	1338
Doud, Arthur N., North Stockholm, N. Y. Reinforcement for concrete structures	786,015	Mar. 28	4107	866	115	953
Dougherty, Owen T., Chicago, Ill. Jumping-rope figure toy	785,721	Mar. 28	3513	753	115	818
Douglass, John A., and C. A. Fagg, Palestine, Tex. Display-cabinet	786,737	Apr. 4	1060	220	115	1297
Dovas, George, New York, N. Y. Door-catch	788,193	Apr. 25	4038	873	115	2003
Dover, George W., Cranston, R. I. Setting	787,733	Apr. 18	3124	683	115	1778
Dow, Wallace L., Sioux Falls, S. D. Machine for molding concrete building-blocks	786,272	Apr. 4	32	8	115	1078
Dow, William R., Boulder Creek, Cal. Valve-gear	786,432	Apr. 4	464	90	115	1171
Dowker, John A., *et al.* (See Mahar, Matthew H., assignor.)						
Dowlen, Connell H., Hillsboro, Tex. Ribbon-guide for type-writers	787,566	Apr. 18	2741	596	115	1692
Downey, Harry C. (See Kay and Colthar, assignors.)						
Downie, Robert M., assignor to Keystone Driller Company, Beaverfalls, Pa. Brake mechanism	785,295	Mar. 21	2631	557	115	613
Downie, Robert M., assignor to Keystone Driller Company, Beaverfalls, Pa. Drilling-machine	785,352	Mar. 21	2732	578–9	115	634
Downie, Robert M., assignor to Keystone Driller Company, Beaverfalls, Pa. Twyer	787,666	Apr. 18	2949	641	115	1739
Downing, William H., Parkersburg, W. Va. Bottom packing for oil-wells	788,353	Apr. 25	4339	946	115	2069
Doyle, Bernard W., Leominster, Mass. Adjustable pompadour-puff comb	785,412	Mar. 21	2866	605	115	666
Doyle, John H., New Orleans, La. Domestic sink	786,738	Apr. 4	1061	220	115	1297
Drake, John T. H., Altavista, Mo. Motor for hand-cars	787,283	Apr. 11	2163	477	115	1548
Drakes, Thomas, Novinger, Mo. Car-door lock	786,961	Apr. 11	1510	320	115	1407
Draper, Clare H., assignor to Draper Company, Hopedale, Mass. Warp-guiding means for looms	784,310	Mar. 7	589	121	115	135

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Draper Company. (See Chase, Charles E., assignor.)						
Draper Company. (See Côté, Henry, assignor.)						
Draper Company. (See Cundall, Robert N., assignor.)						
Draper Company. (See Draper, Clare H., assignor.)						
Draper Company. (See Draper, William F., assignor.)						
Draper Company. (See Roper, Charles F., assignor.)						
Draper, George O., Hopedale, Mass., assignor to Sawyer Spindle Company, Portland, Me. Bobbin-clutching means for rotatable spindles	784,929	Mar. 14	1889	396	115	437
Draper and Maynard Company. (See Burtt, Albert F., assignor.)						
Draper, William F., assignor to Draper Company, Hopedale, Mass. Loom-temple	784,930	Mar. 14	1891	396	115	438
Dressel, Frederick W., assignor to Dressel Railway Lamp Works, New York, N. Y. Dash-headlight	787,158	Apr. 11	1917	415	115	1494
Dressel Railway Lamp Works. (See Dressel, Frederick W., assignor.)						
Drewett, William A., New York, assignor to M. T. Davidson, Brooklyn, N. Y. Compound steam-engine	784,254	Mar. 7	482	96–7	115	111
Dreyfus, Louis A., assignor to Muralo Company, New Brighton, N. Y. Paint	786,348	Apr. 4	203	.....	115	1114
Dring, John, London, England. Mechanism for the transmission of power or motion	787,904	Apr. 25	3444	754	115	1861
Drong, Jacob J., Browerville, Minn. Vegetable-cutter	787,734	Apr. 18	3125	683	115	1778
Droste, Oscar. (See Hammerschlag, Gerdes, and Droste.)						
Drummond, Charles S., London, England. Steam-turbine	785,802	Mar. 28	3659	789–1	115	852
Drummond, McCall & Co. (See Duncan, Gaylen R., assignor.)						
Dryden, George H. (See Patenall and Dryden.)						
Dryden, William W. (See Thompson, William H., assignor.)						
Du Brul, Napoleon, Cincinnati, Ohio. Radial cigar-bunch machine	787,735	Apr. 18	3126	683–4	115	1779
Dubes, Henry, Decatur, Ill. Power-hammer	785,937	Mar. 28	3926	835–6	115	911
Duc, Henry A., Jr., Charleston, S. C. Reversible fluid-motor	784,482	Mar. 7	958	200–1	115	217
Duchesne, Joseph J. (See Williams and Duchesne.)						
Duck, Joseph G., assignor of one-half to J. G. Thompson, Milwaukee, Wis. Steam-separator	786,273	Apr. 4	34	9	115	1078
Ducretet, Eugène, Paris, France. Telegraphic relay	787,905	Apr. 25	3445	755	115	1861
Dudley, Arthur L. and C. H., Oberlin, Ohio. Skeleton frame for farm-wagons	788,394	Apr. 25	4439	965	115	2091
Dudley, Carl H. (See Dudley, Arthur L. and C. H.)						
Dudley, William L., Nashville, Tenn. Separable buckle	788,194	Apr. 25	4039	873	115	2003
Duff, John T., assignor of two-thirds to W. H. Latshaw, Pittsburg, and J. Rhodes, Allegheny, Pa. Car-wheel	786,200	Mar. 28	4471	945	115	1032
Duff, John T., assignor of two-thirds to W. H. Latshaw, Pittsburg, and J. Rhodes, Allegheny, Pa. Sectional gear-wheel	785,034	Mar. 14	2075	436	115	478
Duffner, Matthew, Allegheny, Pa. Exercising device	786,274	Apr. 4	36	9	115	1079
Duisburger Maschinenbau-Actien-Gesellschaft, vormals Bechem & Keetman. (See Eigen, Otto, assignor.)	786,552	Apr. 4	706	144	115	1220
Duke, George H., Hotchkiss, Colo. Dam for irrigating-ditches	787,028	Apr. 11	1659	353	115	1438
Duke, George W., Powder Springs, Ga. Railway-switch	786,739	Apr. 4	1062	220	115	1297
Dulany, William T., Jr., Brooklyn, N. Y. Combined electric and mechanical signal apparatus for elevators	786,016	Mar. 28	4109	867	115	954
Dumas, Oliver, Fall River, Mass. Spinning-ring frame	787,087	Apr. 11	1777	379	115	1465
Dunbar, Charles A., Newark, N. J. Pipe-thimble	785,543	Mar. 21	3147	664	115	728
Dunbar, George B., Detroit, Mich. Plastic compound	785,091	Mar. 21	2217	.....	115	523
Duncan, Gaylen R., Three Rivers, Canada, assignor of three-fourths to Drummond, McCall & Co. Machine for concentrating mineral ores	784,146	Mar. 7	265	54	115	64
Duncan, Gustavus A., Deadwood, S. D. Filtering-cell for separating slimes in ore treatment	787,736	Apr. 18	3128	684	115	1780
Duncan, Gustavus A., Deadwood, S. D. Treating slimes in ore reduction	787,878	Apr. 18	3401	744	115	1840
Duncan, James R., New York, N. Y. Closure for plumbing-traps or the like	784,931	Mar. 14	1893	397	115	438
Duncan, Sylena A., New York, N. Y. Stand	786,740	Apr. 4	1065	220	115	1298
Dundon, Patrick F., San Francisco, Cal. Locomotive	785,035	Mar. 14	2077	436	115	479
Dunham, James F., assignor, by mesne assignments, to Waterloo Concrete Brick & Block Machine Company, Waterloo, Iowa. Machine for forming concrete building-blocks	786,249	Mar. 28	4564	968	115	1052
Dunham, James F., assignor, by mesne assignments, to Waterloo Concrete Brick & Block Machine Company, Waterloo, Iowa. Building-block	786,250	Mar. 28	4566	968	115	1053
Dunham, James F., assignor, by mesne assignments, to Waterloo Concrete Brick & Block Machine Company, Waterloo, Iowa. Machine for forming concrete building-blocks	786,251	Mar. 28	4567	969	115	1053
Dunham, William S., Sharpsville, Pa. Arm-rest	784,390	Mar. 7	770	158	115	176
Dunn, Albert E. (See Gagné, Jules, assignor.)						
Dunn, Frank P., Anderson, assignor to Stimpson Computing Scale Company, Elkhart, Ind. Cheese-cutter	784,553	Mar. 14	1113	232	115	265
Dunn, Frederick W., *et al.* (See Lund, John, assignor.)						
Dunn, Herbert H., Dayton, Ohio. Cork-extractor	785,722	Mar. 28	3514	753	115	819
Dunn, William E., *et al.* (See Lund, John, assignor.)						
Dunn, William H., Richmond, Va. Building-wall and concrete block for same	785,296	Mar. 21	2632	557	115	613
Dunn, William J., Chicopee Falls, Mass. Shoe-holding device	784,207	Mar. 7	391	79	115	91
Duplex Printing Press Company. (See Bechman, Henry F., assignor.)						
Duplex Rubber Company. (See Traves, Webster F., assignor.)						
Durafort, Victor E. J., Paris, France. Apparatus for dispensing beer or other liquids	784,994	Mar. 14	2009	421	115	463
Durand, Louis, New York, N. Y. Dough-kneading machine	786,553	Apr. 4	708	144	115	1220
Durand, Ulrich, Kankakee, Ill. Barb for wire fencing	784,782	Mar. 14	1613	332	115	376
Dürnholz, Jacob, Kalk, Germany. Driving device for pendulum-mills	787,737	Apr. 18	3131	685	115	1780
Duryea, James F., Springfield, Mass. Motor-vehicle	786,349	Apr. 4	205	47	115	1114
Dutchess Tool Company. (See Van Houten, Frank H., assignor.)						
Dutton, Charles S., Perth Amboy, N. J. Electric sparking device for explosive-engines	788,253	Apr. 25	4153	902	115	2027
Dutton, Edgar F., Schenectady, N. Y., assignor to General Electric Company. Starting-rheostat	786,017	Mar. 28	4113	867–8	115	955
Dworzek, Gustave H., San Francisco, Cal. Device for automatically reducing pressure in water-pipes	787,327	Apr. 11	2248	492	115	1567
Dyer, Benjamin R., Hobart, Tasmania, Australia. Sealing means for envelops, &c	788,029	Apr. 25	3722	811	115	1926
E. L. Mansure Company. (See Zengerl, Frederick E., assignor.)						
E. W. Bliss Company. (See Beyer, Otto S., assignor.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
E. W. Ross Company. (See Ross, Elmore P., assignor.)						
Eagle Glass and Manufacturing Company. (See Grotz, Albert R., assignor.)						
Eagle Pencil Company. (See Berolzheimer, Philip, assignor.)						
Eagle Pencil Company. (See Boman, Claes W., assignor.)						
Earhart, Mary F. (See Earhart, Thomas B. and M. F.)						
Earhart, Thomas B. and M. F., Stockton, Cal. Nut-lock	787,088	Apr. 11	1778	380	115	1465

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Earl, Le Grand, and W. L. Galvin, Youngstown, Ohio. Device for steaming and shaping garments	786,554	Apr. 4	709	144–5	115	1221
Earl, Ward D., Lead, S. D. Vegetable-cutter	785,599	Mar. 21	3264	693	115	753
Earnest, David F., and W. T. Gilchrist, West Norfolk, Va. Railway-tie	786,962	Apr. 11	1511	321	115	1407
Easby, Francis H., assignor to Detrick and Harvey Machine Company of Baltimore City, Baltimore, Md. Mechanical movement for controlling threading-dies	786,882	Apr. 11	1343	286–7	115	1369
Eastman Kodak Company. (See Brownell, Frank A., assignor.)						
Eastwood, Arthur C., Cleveland, Ohio. System of control for electric motors	786,635	Apr. 4	878	180–1	115	1258
Eastwood, Arthur C., Cleveland, Ohio. Motor-starting device	787,738	Apr. 18	3132	685	115	1780
Eaton, Harrison H., Cleveland, Ohio. Hook and eye	785,413	Mar. 21	2867	605	115	666
Eaton, Percy H., Newcastle, Canada. Fire-alarm	788,195	Apr. 25	4042	873	115	2003
Eberhardt, Hermann, Breslau, Germany. Adding-machine	786,490	Apr. 4	579	115–16	115	1194
Eberly, Levi B., Smithville, Ohio. Grain-shocking machine	787,906	Apr. 25	3447	755–7	115	1861
Ebert, John S., New York, N. Y. Cluteh	785,353	Mar. 21	2737	580	115	636
Eckhart, Frank E., Pullman, W. Va. Lubricator	787,567	Apr. 18	2742	596	115	1692
Eckstein, William, London, England. Transom-operator	786,106	Mar. 28	4297	906	115	996
Edelen, Frederick C., Kansas City, Mo. Combined house-trap and cellar-drain	787,975	Apr. 25	3602	786	115	1898
Edison Storage Battery Company. (See Edison, Thomas A., assignor.)						
Edison, Thomas A., assignor to Edison Storage Battery Company, Orange, N. J. Gas-separator for storage batteries	785,297	Mar. 21	2633	557	115	613
Edmands, Isaac R., and J. Scales, Sault Ste. Marie, Mich., assignors to Union Carbide Company, Niagara Falls, N. Y. Utilizing scale from calcium-carbid ingots	784,255	Mar. 7	483	.....	115	112
Edmonds, Frank M. (See Moody, Henry T., assignor.)						
Edmonds, Frederick C., assignor of one-half to R. Chambers, Lindsay, Canada. Slide-carrier for stereopticons	786,883	Apr. 11	1347	287	115	1370
Edwards, Edgar A., Cincinnati, Ohio, assignor, by mesne assignments, to Metropolitan Trust & Savings Bank, trustee. Signal-light	787,739	Apr. 18	3134	685	115	1781
Edwards, Edgar A., Cincinnati, Ohio, assignor, by mesne assignments, to Metropolitan Trust & Savings Bank, trustee. Signal-light	787,740	Apr. 18	3135	686	115	1781
Edwards, Everett S., Omaha, Nebr. Gas-burner	787,976	Apr. 25	3603	787	115	1899
Edwards, John, Homestead, and J. Jarrett, Pittsburg, Pa. Rail-joint	787,615	Apr. 18	2860	622	115	1720
Edwards, Thomas C., Salinas, Cal. Surgical needle	784,995	Mar. 14	2010	422	115	463
Edwards, William F., Covington, Ga. Plow attachment	787,977	Apr. 25	3604	787	115	1899
Egan, Charles E., Durham, N. C. Telephone call or ringer	787,879	Apr. 18	3404	744	115	1840
Egger, Leroy G., Buffalo, Iowa. Wrench	787,741	Apr. 18	3135	686	115	1781
Eggler, Charles H., New York, N. Y. Lubricator for elevator-guides	787,978	Apr. 25	3607	787	115	1899
Ehninger, Carl T., Kirchheim, Germany. Paper-cutting device	788,196	Apr. 25	4043	873–4	115	2004
Ehret, Cornelius D., Philadelphia, Pa. Transmitting intelligence	785,803	Mar. 28	3661	781	115	852
Ehret, Cornelius D., Rosemont, Pa. System of transmitting intelligence	785,804	Mar. 28	3666	781	115	853
Ehrhart Raymond N., Pittsburg, Pa., assignor to Westinghouse Machine Company. Fluid-pressure turbine	788,097	Apr. 25	3842	835	115	1954
Ehrsam, Meinrad, Zurich, Switzerland. Gas cooking-stove	787,159	Apr. 11	1918	416	115	1495
Eickemeyer, Carl, Yonkers, N. Y. Gas-range	784,391	Mar. 7	771	158	115	176
Eiden, Benedict A., Scranton, Pa. Connection for driving-rods	787,502	Apr. 18	2628	569	115	1666
Eigen, Otto, assignor to Duisburger Maschinenbau-Actien-Gesellschaft, vormals Bechem & Keetman, Duisburg, Germany. Welding	787,742	Apr. 18	3137	686	115	1782
Einfeldt, Emil, Davenport, Iowa. Turbine-engine	788,395	Apr. 25	4441	965–6	115	2091
Ekenberg, Martin, assignor to Martin Ekenberg's Aktiebolag, Stockholm, Sweden. Drying pasty substances	785,600	Mar. 21	3265	693	115	753
Ekman, Per E., Woburn, Mass. Harp	786,275	Apr. 4	38	9–10	115	1079
Elbeegee Syndicate. (See Leadbeater, Alfred and T., assignors.)						
Eldred Process Company. (See Ellis, Carleton, assignor.)						
Electric & Steam Railway Supply Company. (See Hoffman and Powers, assignors.)						
Electric Storage Battery Company. (See Entz, Justus B., assignor.)						
Electric Vehicle Company. (See Law, Fred A., assignor.)						
Elektromilitara Aktiebolaget. (See Lind, Arvid A., assignor.)						
Elgin, Paul H. (See Flesher, Paul, assignor.)						
Elinoff, Harry, and E. Axthelm, deceased, Pittsburg, Pa.; T. A. Axthelm and H. C. Arnold, administrators, assignors to Tengwall File & Ledger Company, Chicago, Ill. Loose-leaf ledger	784,311	Mar. 7	591	121	115	136
Ellie, C. H., *et al.* (See Sanford, Oliver P., assignor.)						
Ellie, J. H., *et al.* (See Sanford, Oliver P., assignor.)						
Elliott, Charley R., Denver, Colo. Water-gage	788,030	Apr. 25	3723	811	115	1926
Elliott, James W., South McAlester, Ind. Ter. Gate	784,344	Mar. 14	1731	360	115	402
Ellis, Aaron M. (See Hirschfeld, Benjamin, assignor.)						
Ellis, Augustin, Bedford, Ind. Watch-hand remover	788,031	Apr. 25	3724	811	115	1926
Ellis, Carleton, assignor to Eldred Process Company, New York, N. Y. Cement-kiln	788,503	Apr. 25	4628	1010	115	2130
Ellis, Oliver L., London, England. Apparatus for heating and drying staves	784,666	Mar. 14	1370	283	115	322
Ellithorpe, George H., Port Clinton, Ohio. Rotary pump	788,032	Apr. 25	3725	812	115	1927
Ellwood, William, Brooklyn, N. Y., assignor to Vitagraph Company of America. Flame-shield for kinetoscopes	785,205	Mar. 21	2447	516	115	574
Elmer, Virgil. (See Keywood and Elmer.)						
Elrod, George W., Omaha, Nebr. Mechanism for printing on cylinders	788,396	Apr. 25	4444	966–7	115	2092
Elsas, Herman, New York, N. Y., assignor to Continental Paper Bag Company. Paper-bag machine	787,667	Apr. 18	2952	641–3	115	1740
Ely, Billy, and J. I. Taylor, Rock Rapids, Iowa. Mold for forming cement building-blocks	787,743	Apr. 18	3138	686–7	115	1782
Ely, Clement, assignor to I. Storey and Sons Limited, Manchester, England. Means for securing valves to their spindles	784,996	Mar. 14	2011	422	115	464
Embleton, James, assignor to J. F. Angell, Columbus, Ohio. Mixing-machine	787,441	Apr. 18	2490	540	115	1632
Emerson, Gilbert D., Philadelphia, Pa. Binding or cover for books	788,033	Apr. 25	3728	812	115	1927
Emerson, Ralph W., assignor to Natural Food Company, Niagara Falls, N. Y. Heating and evaporating apparatus	785,544	Mar. 21	3149	664–6	115	728
Emerson, Victor H. (See Manwaring, Emerson, Norton, and Capps.)						
Emerson, Victor H., Newark, N. J., assignor to American Graphophone Company, Bridgeport, Conn. Graphophone-reproducer	785,723	Mar. 28	3515	753	115	819
Emery, Albert H., Stamford, Conn. Loading-tray	786,252	Mar. 28	4569	969	115	1054
Emery, Albert H., Stamford, Conn. Mounting and operating guns	786,963	Apr. 11	1512	321–6	115	1407
Emery, Albert H., Stamford, Conn. Recoil gun-carriage	786,964	Apr. 11	1536	326–8	115	1412
Emery, Frederick H., Scranton, Pa. Coal-separator	784,783	Mar. 14	1614	332–3	115	377
Emmert, Joseph F., Waynesboro, Pa. Vise	787,328	Apr. 11	2250	492	115	1567
Emrick, Frank C., Bluehill, Nebr. Steam-hammer	788,308	Apr. 25	4259	924–5	115	2051
Engel, Albert W., Chicago, Ill. Picture book or album	787,503	Apr. 18	2629	569	115	1666
Engel, Karl, Lynn, Mass. Shoe	788,354	Apr. 25	4340	946	115	2070
Engelhard, Frank and F. H., Springfield, Mass. Float	787,504	Apr. 18	2630	569–70	115	1667
Engelhard, Frederick H. (See Engelhard, Frank and F. H.)						
Engelmann, Max, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Making dialkyl-barbituric acid	787,360	Apr. 18	2320	.....	115	1594

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Engstrom, Jacob B., Manchester, Iowa. Fence-post mold	784,667	Mar. 14	1371	284	115	322
Ennis, Richard W., Buffalo, N. Y. Window	784,554	Mar. 14	1115	233	115	266
Enos Company. (See Hopton, Lemuel R., assignor.)						
Enterprise Machine Company. (See Westman, Emil, assignor.)						
Entz, Justus B., assignor to Electric Storage Battery Company, Philadelphia, Pa. System of electrical distribution	787,880	Apr. 18	3405	745	115	1840
Enz, William J., Cincinnati, Ohio. Cuspidor-lifter	786,276	Apr. 4	44	10	115	1080
Epple, George. (See Fisher, Helm, and Epple.)						
Epstein, Abraham N., Tompkinsville, assignor of one-half to Weinberg, Heyman & Company, New York, N. Y. Telescopic dust-protector	785,938	Mar. 28	3928	836	115	912
Erben, Hermann F. T., Schenectady, N. Y., assignor to General Electric Company. Speed-limiting device	787,284	Apr. 11	2164	477	115	1548
Erickson, John, Chicago, Ill., assignor to Strowger Automatic Telephone Exchange. Telephone-transmitter	787,361	Apr. 18	2320	504	115	1594
Erk, Martin J., Binghamton, N. Y. Device for testing gas-pipes	784,483	Mar. 7	961	201	115	217
Ernisse, James J., Rochester, N. Y. Souvenir device	785,092	Mar. 21	2218	466	115	523
Ernst, William H., Bloomington, Ind. Mechanical arm	787,539	Apr. 18	3322	727	115	1821
Errington, Franklin A., New York, N. Y. Collapsible tap	784,208	Mar. 7	393	79	115	92
Ervin, George M., Johnstown, Pa., assignor to Lorain Steel Company. Railway-track structure	784,735	Mar. 14	1517	311	115	357
Erwin, Thomas B., and H. C. Meyer, Britt, Iowa. Vending-machine	786,741	Apr. 4	1067	221	115	1208
Ette, Charles G., St. Louis, Mo. Packing-washer	787,160	Apr. 11	1920	416	115	1495
Eustice, Daniel L., Galena, Ill. Packing-machine	784,932	Mar. 14	1894	397–8	115	438
Evans, Frederic H., New York, N. Y. Expansion-bolt	784,845	Mar. 14	1732	361	115	402
Evans, Herbert G., Brighton, Mass. Buckle	784,736	Mar. 14	1519	311	115	357
Evans, Jesse T., St. Louis, Mo. System of decorating	787,616	Apr. 18	2861	622	115	1720
Evans, Lewis J., East Pittsburg, Pa. Car-brake	784,668	Mar. 14	1373	284	115	322
Evans, Lydia, Braddock, Pa. Curtain-pole	784,312	Mar. 7	592	121	115	136
Evans, Powell, Philadelphia, Pa. Fire-extinguishing system	786,742	Apr. 4	1071	222	115	1299
Evans, Quimby N., New York, N. Y. Heating system	787,617	Apr. 18	2862	623	115	1720
Everett, Benjamin. (See Wood, Charles D., assignor.)						
Everett, Daniel S., Macedon, N. Y. Dumping-bed for wagons	785,160	Mar. 21	2354	493–4	115	554
Eves, Frank, La Crosse, Wis. Band-cutter and feeder	784,313	Mar. 7	594	121–2	115	136
Ewing, Henry H., Wichita, Kans. Trousers-stretcher	785,868	Mar. 28	3781	804	115	879
Ewing, William M., Philadelphia, Pa. Rotary engine	784,392	Mar. 7	774	158–9	115	177
Ewins, George M., Cedar Rapids, Iowa. Railway-rail holder	786,277	Apr. 4	44	11	115	1081
Exline, Marcus P., and E. Bourke, Dallas, Tex., assignors to American Bank Check and Cover Company, St. Louis, Mo. Poll-tax receipt-book	786,743	Apr. 4	1073	222–3	115	1300
Eyermann, Peter, assignor of one-fourth to C. Huber, St. Louis, Mo. Furnace smoke-preventing device	785,724	Mar. 28	3516	754	115	819
Fagg, Carye A. (See Douglass and Fagg.)						
Fahl, Eugene, St. Louis, Mo. Game apparatus	787,161	Apr. 11	1921	416	115	1495
Fahrney, Josiah, Waynesboro, Pa. Straw-stacker	788,397	Apr. 25	4448	967	115	2093
Fahrney, William H., Chicago, Ill. Variable resistance or conductor for electric currents	787,089	Apr. 11	1779	380	115	1465
Fairbanks, Charles H. (See Fairbanks, Horace S. and C. H.)						
Fairbanks, Horace S. and C. H., Racine, Wis. Hat-fastener	788,197	Apr. 25	4044	874	115	2004
Fairbanks, James G., and G. L. Sauer, Marion, Ohio. Cross-head pump	788,457	Apr. 25	4553	991	115	2114
Falconer, Leroy D., Seattle, Wash. Water-motor	787,979	Apr. 25	3610	787–8	115	1900
Falding, Frederic J., New York, N. Y. Roasting-furnace	788,098	Apr. 25	3843	835	115	1954
Falk Company. (See Carr, Walter F., assignor.)						
Falkner, Allen, Gate City, Ala. Frogless switch	785,255	Mar. 21	2555	539	115	596
Fallnicht, Robert, Hamburg-Eidelstedt, Germany. Device for lubricating rails	785,939	Mar. 28	3929	836	115	912
Fallon, Margaret E., Spokane, Wash. Sad-iron	784,039	Mar. 7	49	9	115	13
Farbenfabriken of Elberfeld Co. (See Engelmann, Max, assignor.)						
Farbenfabriken of Elberfeld Co. (See Kantorowicz, Julius, assignor.)						
Farbenfabriken of Elberfeld Co. (See Kieser, Karl, assignor.)						
Farbenfabriken of Elberfeld Co. (See Kuhnke, Emil, assignor.)						
Farbenfabriken of Elberfeld Co. (See Schmidt, Robert E., assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Merling and Welde, assignors.)						
Farmer, Charles C., and J. J. Stuckey, Leavenworth, Kans. Apparatus for conveying mail	786,278	Apr. 4	45	11	115	1081
Farmer, Theodore P., Southwest Harbor, Me., assignor to Protective Tread Company, Boston, Mass. Safety-tread	788,458	Apr. 25	4554	992	115	2115
Farnsworth, Louis A., and S. G. Martin, assignors of one-third to A. W. Hine, Grand Rapids, Mich. Advertising device	786,018	Mar. 28	4115	868	115	955
Farrar, William A., assignor to Munson Bros. Co., Utica, N. Y. Quick-release mechanism for grinding-mills	785,206	Mar. 21	2448	516	115	575
Farrington, Alexander G. (See Doak and Farrington.)						
Farwell, Elmer S., Ridgewood, N. J., assignor to E. H. Ludeman, Brooklyn, N. Y. Bearing	785,036	Mar. 14	2078	437	115	479
Farwell, Elmer S., Ridgewood, N. J., assignor to E. H. Ludeman, Brooklyn, N. Y. Governor	785,065	Mar. 14	2131	450	115	490
Farwell, Elmer S., Ridgewood, N. J., assignor to E. H. Ludeman, Brooklyn, N. Y. Nozzle for turbine-engines	785,066	Mar. 14	2133	451	115	491
Farwell, Elmer S., Ridgewood, N. J., assignor to E. H. Ludeman, Brooklyn, N. Y. Turbine-engine	787,907	Apr. 25	3453	757	115	1863
Farwell, Elmer S., Ridgewood, N. J., assignor to E. H. Ludeman, Brooklyn, N. Y. Turbine-engine	787,980	Apr. 25	3611	788	115	1900
Farwell, Elmer S., Ridgewood, N. J., and E. F. Williams, New York, assignors to E. H. Ludeman, Brooklyn, N. Y. Governor for turbine-engines	785,037	Mar. 14	2080	437	115	480
Fasey, William R., Snaresbrook, England. Vehicle-wheel	788,034	Apr. 25	3729	812	115	1928
Fatchett, Robert. (See Oliver, Morgan L., assignor.)						
Faujat, Stephan. (See Charles and Faujat.)						
Faulkner, Robert P. (See Faulkner, William J., assignor.)						
Faulkner, William J., assignor to R. P. Faulkner, Chicago, Ill. Building-block	786,884	Apr. 11	1348	287–8	115	1370
Fauth, Philip, Washington, D. C. Damper	784,997	Mar. 14	2012	422	115	464
Favorite Fan and Utensil Company. (See Lundqvist, Alexius T., assignor.)						
Fawell, Joseph, Pittsburg, Pa. Valve for blowing-engines	787,568	Apr. 18	2743	597	115	1692
Fay, Charles N., and H. Hochklasen, assignors to Fay-Sholes Company, Chicago, Ill. Type-writing machine	786,885	Apr. 11	1350	288	115	1371
Fay, Harold J. W. (See Pickard and Fay.)						
Fay-Sholes Company. (See Fay and Hochklassen assignors.)						
Federal Automatic Refrigerating Co. (See Marshall, Albert T., assignor.)						
Federal Manufacturing Company. (See Currier and Leitschuh, assignors.)						
Feely, William C., New York, N. Y. Invalid-bedstead	787,162	Apr. 11	1922	417	115	1496
Fehrlin, Heinrich C., Schaffhausen, Switzerland. Making compounds of pyrocatechuic-monoalkyl ethers	784,107	Mar. 7	190	.....	115	47

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Feighner, Jonas, Shelby, Ohio. Incandescent-lamp holder	785,483	Mar. 21	3010	636	115	698
Feldhaus, Fred, assignor of one-half to P. Knierim, Akron, Ohio. Vehicle tire and rim	787,362	Apr. 18	2322	504	115	1595
Feldkamp, Fritz A., Newark, N. J. Commutator for electric machines and making same	784,521	Mar. 7	1047	217	115	235
Fellenz, Henry M., Fond du Lac, Wis. Beet-harvester	784,040	Mar. 7	50	9–10	115	14
Fellows, Olin S., and A. E. Hopkins, Middletown, N. Y. Can-end-soldering apparatus	785,484	Mar. 21	3011	636–8	115	698
Fenton, Charles H., assignor to N. K. Fairbank Company, Chicago, Ill. Riveting-machine	785,940	Mar. 28	3929	836–7	115	912
Ferger, John C., Albuquerque, N. Mex. Ter. Overall garment	788,198	Apr. 25	4045	874	115	2004
Ferguson, Robert W., West Orange, N. J. Tire	788,309	Apr. 25	4262	925	115	2052
Fergusson, Alan R., New York, N. Y. Joint	788,035	Apr. 25	3730	812	115	1928
Ferienčik, John A. (See Alberty, Marcell, assignor.)						
Ferland, Albert, Lawrence, Mass. Sling mechanism for tenpin games	785,667	Mar. 21	3389	727–8	115	779
Ferland, Albert, Lawrence, Mass. Registering mechanism for tenpin games	785,668	Mar. 21	3391	728–9	115	779
Ferle, Jacob W., Lansing, and J. A. Brusselbach, Haslett Park, Mich. Display-stand	788,459	Apr. 25	4555	992	115	2115
Ferrandini, Leon A., Baltimore, Md. Fastening device for garments	788,254	Apr. 25	4155	902	115	2027
Ferri, Geremias, Birkenhead, assignor of one-half to J. Forster, St. Helens, Lancashire, England. Turbine-motor	785,207	Mar. 21	2450	516–17	115	575
Ferris, Elmer C. (See Rousseau and Ferris.)						
Ferris, Henry L, assignor to Hunt, Helm, Ferris & Company, Harvard, Ill. Stanchion	786,350	Apr. 4	209	47	115	1115
Fetzer, William, Middletown, Ohio. Grain-drill	788,036	Apr. 25	3732	813	115	1928
Fetzer, William, Middletown, Ohio. Coupling and draw-bar for grain-drills	788,037	Apr. 25	3738	813–14	115	1930
Fevola, Antonio, assignor of one-half to T. Lisa, Yonkers, N. Y. Register system	787,163	Apr. 11	1926	418	115	1497
Fiddes, James, Aberdeen, Scotland. Means for automatically extinguishing fires in buildings	786,491	Apr. 4	581	116	115	1194
Fiddes, James, and J. F. Watt, Aberdeen, Scotland. Automatic fire sprinkler and alarm system	784,669	Mar. 14	1375	285	115	323
Fiddes, James, and J. F. Watt, Aberdeen, Scotland. Fire-extinguishing system	787,505	Apr. 18	2631	570	115	1667
Fiddes, James, and J. F. Watt, Aberdeen, Scotland. Fire-alarm	788,199	Apr. 25	4046	874–5	115	2005
Fiedler, Ernest P. (See Borstad and Fiedler.)						
Field, Stephen D., Stockbridge, Mass. Compound relay	785,941	Mar. 28	3933	837	115	913
Fields, George F., Paducah, Ky. Wheel-clamp	788,460	Apr. 25	4556	992	115	2115
Finch, Charles C., Newport News Va. Bar-fixture	785,942	Mar. 28	3935	837	115	913
Finch, Clark E., Forney, Tex. Boiler-feeder	786,107	Mar. 28	4298	907	115	996
Finch, Ernest, Richmond, Ind. Stovepipe-thimble	788,200	Apr. 25	4048	875	115	2005
Finch, Stanley W., Washington, D. C. Skate-clamp	787,090	Apr. 11	1780	380	115	1466
Fink, Karl. (See Wieser, Joseph, assignor.)						
Finn, George, and A. S. Pike, Wellington, New Zealand. Egg-carrier	786,888	Apr. 11	1356	289	115	1372
Finster, George L. (See Cartmell, Nathan, assignor.)						
Fisch, William, New York, N. Y. Combined fisherman's box and life-preserver	784,933	Mar. 14	1901	398	115	440
Fischer, Carl A., *et al.* (See Happe, Ernst, assignor.)						
Fischer, Martin, assignor to Actiengesellschaft "Magneta," (Electrische Uhren Ohne Batterie & Ohne Contacte,) Zurich, Switzerland. Electric clock	787,091	Apr. 11	1782	381	115	1466
Fischer Motor Vehicle Company. (See Nilson, Lars G., assignor.)						
Fischer, Robert E., Barmen, Germany. Folding apparatus for boxes or the like	784,147	Mar. 7	266	54	115	64
Fischer, William C., New York, N. Y. Caster	785,601	Mar. 21	3267	694	115	753
Fishack, Lincoln E., Toledo, Ohio. Lime-digester	785,725	Mar. 28	3518	754	115	819
Fishel, Leo J., *et al.* (See Adams, Joseph W., assignor.)						
Fisher, Charles A., assignor of seventy-three one-hundredths to L. Silberburg, Niagara Falls, and C. C. Andrus, North Tonawanda, N. Y. Car-brake	787,363	Apr. 18	2323	504	115	1595
Fisher, Frank, Jr., Oconto, Wis. Fruit-picker	787,164	Apr. 11	1928	418	115	1497
Fisher, Fred C., and P. Perdiue, Muncie, Ind. Labeling-machine	787,744	Apr. 18	3140	687	115	1782
Fisher, John W., assignor of one-half to F. Reifsnider, Akron, Ohio. Horseshoe	785,414	Mar. 21	2869	605	115	666
Fisher, Willis H., Los Angeles, Cal. Hydraulic pressing-machine	785,602	Mar. 21	3268	694–5	115	753
Fisher, Willis H., Memphis, Tenn., H. B. Helm and G. Epple, Shreveport, La. Hydraulic hand-car for railways	784,108	Mar. 7	193	36–7	115	47
Fiske Brothers Refining Company. (See Courtois, Fernand A., assignor.)						
Fitton, John R. (See Crompton and Fitton.)						
Fitton, John R., Worcester, Mass. Machine for making straps for loom-harness	784,148	Mar. 7	268	54	115	64
Fitz, Amos G., Auburn, Me. Last	784,149	Mar. 7	270	55	115	65
Fitzgerald, Richard. (See Hibbard, Maury W., assignor.)						
Fitzgibbon, John J., and J. M. Travis, St. Louis, Mo. Faucet	785,809	Mar. 28	3782	804	115	879
Fitzsimmons, John J., Paterson, N. J. Vehicle-tire	785,603	Mar. 21	3271	695	115	754
Fladby, John B., Rutland, assignor of one-half to J. S. Peterson, Ludden, N. D. Extracting-tool	788,398	Apr. 25	4449	968	115	2093
Flahavan, Maurice C., Cleveland, Ohio. Duplicated cash-fare receipt	784,256	Mar. 7	484	97	115	112
Flaherty, John F., Cleveland, assignor of one-fourth to O. P. Clay, Glenville, Ohio. Radiator	786,886	Apr. 11	1353	288	115	1372
Flanagan, Patrick, San Francisco, Cal. Train and station guide	784,257	Mar. 7	486	97–8	115	112
Fleck, Henry H. and J. G., Philadelphia, Pa. Automatic flushing-tank for water-closet hoppers	784,784	Mar. 14	1617	333	115	377
Fleck, John G. (See Fleck, Henry H. and J. G.)						
Fleenor, Joseph B., Houston, Mo. Buckle for cotton-bale ties	786,744	Apr. 4	1075	223	115	1300
Fleetwood Foundry and Machine Company. (See Dingendahl, Gustav, assignor.)						
Fleischer, Charles H. (See Fleischer, Herman and C. H.)						
Fleischer, George. (See Frenczel and Fleischer.)						
Fleischer, Herman and C. H., assignors to Stanley Works, New Britain, Conn. Electroplating apparatus	784,617	Mar. 14	1261	264	115	296
Fleischmann, Charles R., Chicago, Ill. Horseshoe attachment	788,255	Apr. 25	4156	902	115	2028
Fleming, Peter G. (See Wyman and Fleming.)						
Fleming, Sidney S., Brunswick, Ga. Apparatus for distilling turpentine	788,310	Apr. 25	4263	925	115	2052
Flesher, Paul, assignor of one-half to P. H. Elgin, Braman, Okla. Ter. Grain-separator	786,019	Mar. 28	4116	868–9	115	956
Fletcher, Addison C., New York, N. Y. Rail-joint	786,636	Apr. 4	882	181	115	1259
Fletcher, Addison C., New York, N. Y. Stamp	786,745	Apr. 4	1076	223	115	1300
Fletcher, James K. (See Wise, Charles E., assignor.)						
Fletcher, William H., Paterson, N. J. Skein-dyeing machine	787,285	Apr. 11	2166	478	115	1548
Flierboom, Anton F., assignor of one-half to J. F. Conrad and W. R. Bonnell, Elizabeth, N. J. Trolley device	786,887	Apr. 11	1354	288	115	1372
Flinn, Richard J., Boston, Mass. Water-level controller	786,638	Apr. 4	886	182	115	1259
Flinn, Richard J., assignor of one-half to G. P. Aborn, Boston, Mass. Lubricator	786,637	Apr. 4	885	181	115	1259
Florence Exhibitor System. (See Lewis, Herman J. S., assignor.)						
Flowers, Samuel R., assignor of part to W. S. Hume and G. W. Nelson, Richmond, Ky. Railway-switch	784,522	Mar. 7	1053	218	115	236
Flowers, W. H. (See Jenkins, John C., assignor.)						
Floyd, Fortune A., Merrill, Miss. Sawmill set-works	785,604	Mar. 21	3272	695	115	754

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Floyd, Joseph J., assignor of one-fourth to J. C. Kline, Washington township, Montgomery county, Ohio. Railway-tie	784,846	Mar. 14	1734	361	115	403
Flynt, Samuel B., and L. A. Malden, Meridian, Miss. Insulator for electric wires	787,442	Apr. 18	2492	540	115	1633
Foerg, Mathias, and J. E. Hall, Meridian, Miss. Canning-machine	786,351	Apr. 4	210	48	115	1115
Foersterling, Hans, and H. Philipp, Perth Amboy, N. J., assignors to Roessler & Hasslacher Chemical Company, New York, N. Y. Obtaining oxygen from alkali peroxid	788,256	Apr. 25	4156	.....	115	2028
Fogelberg, Peter. (See Peters, Joseph, assignor.)						
Fogler, George L., Pittsburg, Pa. Furnace	786,746	Apr. 4	1079	224	115	1301
Folger, Harry S., Chicago, Ill. Type-chase and furniture therefor	786 020	Mar. 28	4123	869	115	957
Fontaine, Patrick H., Bethel Hill, N. C. Thill-tug	787,364	Apr. 18	2326	505	115	1596
Foos, Thomas J., Marion, Ohio. Whipping device	785,726	Mar 28	3520	754	115	820
Foote, Arthur D. (See Oliver, Edwin L., assignor.)						
Foote, James B., Walton, N. Y. Clothes-pin	788,461	Apr. 25	4558	993	115	2116
Foote, John H., assignor to H. S. McLeod, Troy, N. Y. Front arch for furnaces	784,737	Mar. 14	1520	312	115	357
Footwarmer and Heater Co. (See Whitaker, Charles H., assignor.)						
Forbes, Andrew, Philadelphia, Pa. Bottle-washing machine	786,747	Apr. 4	1080	224–5	115	1301
Forbes, Charles L., *et al.* (See Kenly, George T., assignor.)						
Forbes, Henry M., *et al.* (See Clark, James H., assignor.)						
Forbes, Henry M., assignor of three-fourths to J. M. Russell, R. H. Dalton, and F. Thompson, Portage, Wis. Laundry dampening-tool	786,889	Apr. 11	1357	289	115	1372
Force, Jefferson, Craig, Nebr. Road-smoother	786,108	Mar. 28	4300	907	115	997
Ford, Albert J., assignor to Fuchst Lang Mfg. Co., New York, N. Y. Roller grinding-mill	785,485	Mar. 21	3019	638	115	701
Ford, Henry, Detroit, Mich. Automobile drive-gear	787,908	Apr. 25	3463	757–8	115	1866
Ford, John W., Denver, Colo. Foot-vise	784,847	Mar. 14	1736	362	115	403
Fordyce, Benson W., Bedford, Iowa. Artificial denture	784,041	Mar. 7	53	10	115	14
Forrester, Peter C., Streator, Ill. Gate	786,748	Apr. 4	1083	225	115	1302
Forster, John. (See Ferri, Geremias, assignor.)	786,109	Mar. 28	4302	907	115	997
Forster, John J. (See Waldo, James C., assignor.)						
Forsyth, George H., Chicago, Ill. Draft-rigging mechanism	785,943	Mar. 28	3936	837–8	115	913
Fosdick, Horace G., *et al.* (See Vandercook, Frank E., assignor.)						
Foss, Albert G., *et al.* (See Happe, Ernst, assignor.)						
Foster Engineering Co. (See Krichbaum, William F., assignor.)						
Foster, Freling C., Chicago, Ill. Railway safety device	785,208	Mar. 21	2454	517	115	576
Foster, James H., Arlie, Tex. Stovepipe, flue, and smoke-stack protector	786,555	Apr. 4	712	145	115	1221
Foster, Thomas G., Peterboro, Canada. Harness-breeching	786,433	Apr. 4	468	90	115	1172
Fountain, John, Jr., Elizabeth, N. J. Junction-box for electrical conductors	784,555	Mar. 14	1116	233	115	266
Fourneaux, Emile A., New York, assignor to H. A. Metz, Brooklyn, N. Y. Azo compound and making same. (Reissue)	12,330	Mar. 21	3469	.....	115	794
Fowler, Alfred B., Central Falls, R. I. Steering-gear	784,042	Mar. 7	55	10–11	115	14
Fowler, Edward, Cedargrove, Ga., assignor to J. L. Anderson, Ironton, Ohio. Plow	787,506	Apr. 18	2634	570	115	1668
Fowler, Edward, Cedargrove, Ga., assignor to J. L. Anderson, Ironton, Ohio. Plow	787,618	Apr. 18	2864	623	115	1721
Fowler, Horsce N., Philadelphia, Pa. Sterilizer	785,354	Mar. 21	2738	580	115	636
Fowler, James M. (See Zimmerman and Fowler.)						
Fownes, William C., Jr., Pittsburg, Pa. Roller-bearing	785,944	Mar. 28	3941	838	115	915
Fox, Herbert. (See Wooley and Fox.)						
Fox, Ivan, assignor to Fox Optical Manufacturing Company, Philadelphia, Pa. Eyeglass-mounting	785,298	Mar. 21	2635	558	115	613
Fox, Ivan, assignor to Fox Optical Manufacturing Company, Philadelphia, Pa. Eyeglass-mounting	785,299	Mar. 21	2636	558	115	614
Fox, Ivan, assignor to Fox Optical Manufacturing Company, Philadelphia, Pa. Eyeglass-mounting	785,300	Mar. 21	2637	558	115	614
Fox Optical Manufacturing Company. (See Fox, Ivan, assignor.)						
Fox, William C., assignor to Iowa Gasoline Engine Company, Waterloo, Iowa. Artificial-stone mold	785,093	Mar. 21	2219	466	115	524
Fox, William T., Rochester, N. Y. Boiler	787,909	Apr. 25	3466	758	115	1867
Fraizer, Robert F., Cloverdale township, Putnam county, Ind. Tire-tightener for vehicle-wheels	788,355	Apr. 25	4342	947	115	2070
Fraley, George B., Philadelphia, Pa. Vibratory massage appliance	788,038	Apr. 25	3740	814	115	1930
Fraley, John. (See Collins and Fraley.)						
Francia, Joseph F., Paris, France. Reinforce	786,749	Apr. 4	1084	225	115	1302
Francies, Harvey H. (See Burgum, William C., assignor.)						
Francisco, Charles E., Lowell, Mich. Device for extending lines from hollow fish-poles	786,639	Apr. 4	887	182	115	1259
Franey, James, Chicago, Ill. Steam and oil trap	787,365	Apr. 18	2328	505	115	1596
Frank, Adolph, Charlottenburg, and N. Caro, Berlin, Germany. Making nitrogen compounds	785,161	Mar. 21	2357	.....	115	555
Frankel, Harry, New York, N. Y. Display-fixture	788,257	Apr. 25	4157	902	115	2028
Frankenthal, Herman, New York, N. Y. Display-rack	786,201	Mar. 28	4472	946	115	1032
Franklin Boiler Works. (See Alexander, John D., assignor.)						
Franklin, George P., Philadelphia, Pa. Apparatus for making dentures	786,279	Apr. 4	47	11–12	115	1081
Frantz, Charles T., Chicago, Ill., assignor, by mesne assignments, to National Vending-Machine Company. Vending-machine	785,805	Mar. 28	3672	781–2	115	855
Frantz, Ezra A., Weatherford, Tex. Gin-saw gummer	786,750	Apr. 4	1066	225–6	115	1302
Frantz, Peter, Sterling, Ill. Wire-fence machine	784,209	Mar. 7	398	79	115	94
Franz, Ferdinand, San Francisco, Cal. Garment-fastener	784,258	Mar. 7	488	98	115	113
Fraser, George C. (See Fraser, Norman P., assignor.)						
Fraser, George H. (See Welkly, James N., assignor.)						
Fraser, Norman P., assignor of one-half to G. C. Fraser, Carsonville, Mich. Device for feeding hydrocarbon to vapor-burners	788,039	Apr. 25	3744	814	115	1931
Fray, James A. (See Berg and Fray.)						
Frazar, James A., Henrietta, Tex. Fumigator and insect-destroyer	786,965	Apr. 11	1542	328	115	1213
Fredeen, Frank, Taylors Falls, Minn. Band-cutter and feeder for threshing-machines	784,484	Mar. 7	962	201–2	115	218
Frederiksen, Hans C., Copenhagen, Denmark. Double friction-gear for motor-cars	787,910	Apr. 25	3468	758	115	1867
Freebury, Theodore V., assignor of one-half to H. A. Deuel, Pueblo, Colo. Prossering and flue-beading tool	784,934	Mar. 14	1902	398	115	440
Freeman, Charles, Scranton, Pa. Snow-plow	785,415	Mar. 21	2870	606	115	666
Freese, W. A., *et al.* (See Daves, William, assignor.)						
Freid, Calvin T., West Orange, N. J., assignor to Freid Engineering Company. Propeller	787,745	Apr. 18	3144	688	115	1783
Freid Engineering Company. (See Freid, Calvin T., assignor.)						
French, Alfred W., Piqua, Ohio. Press-plate	784,259	Mar. 7	490	98	115	113
French, Alton L., Brockton, Mass. Steam-trap	787,366	Apr. 18	2331	505	115	1597
French, Alton L., Brockton, Mass. Steam-trap	787,367	Apr. 18	2333	506	115	1597
French, Frederick R., deceased, San Francisco, Cal.; M. H. French, administratrix. Aerial cableway	787,569	Apr. 18	2744	597–9	115	1692
French, Martha H., administratrix. (See French, Frederick R.)						
Frenczel, Carl, Pittsburg, and G. Fleischer, Homestead, Pa. Horse-detacher	784,314	Mar. 7	596	122	115	137

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Fréund, Joseph A., New York, N. Y. Watch-balance	788,399	Apr. 25	4450	968	115	2093
Freytag, Emanuel, Hamburg, Germany. Internal pipe-wrench	785,162	Mar. 21	2359	494	115	555
Friberg, Charles P. A., assignor to Deere and Mansur Company, Moline, Ill. Scraper for disk harrows	787,840	Apr. 18	3324	727	115	1821
Fribourg, Amedée L., Denver, Colo. Liquid-soap reservoir	785,094	Mar. 21	2222	467	115	524
Frick, Abraham O., assignor to Frick Company, Waynesboro, Pa. Ice-making apparatus	784,315	Mar. 7	598	122	115	137
Frick Company. (See Frick, Abraham O., assignor.)						
Friedlaender, Jakob. (See Gros and Friedlaender.)						
Friedrich, Johann I., Düsseldorf, Germany. Centrifugal liquid-separator	787,746	Apr. 18	3147	688	115	1784
Friend, Calvin V., assignor of one-half to J. M. McKie, Altona, Ill. Adjustable biplane miter-box	788,040	Apr. 25	3746	815	115	1932
Friend, Roger B., Oakland, Cal. Paper folding and packaging machine	786,021	Mar. 28	4124	869	115	957
Friend, Samuel H. Kent, Ohio. Fish-hook	788,201	Apr. 25	4050	875	115	2005
Frink, Melvin L., St. Louis, Mo., assignor to C. R. Pope, East St. Louis, Ill. Cigar-vending machine	785,416	Mar. 21	2872	606–7	115	667
Friskey, Arthur W., Chicago, Ill. Binder	787,368	Apr. 18	2335	506	115	1598
Frizzell, Bernard F. (See Godman and Frizzell.)						
Fröberg, Magni G., assignor to S. L. Maskinbyra, Stockholm, Sweden. Coin-delivering device	785,605	Mar. 21	3275	606	115	755
Froehlich, David, New York, N. Y. Combination furniture	788,311	Apr. 25	4264	925–6	115	2052
Frost, Herbert J., New York, N. Y. Case or holder for fish-hooks	786,352	Apr. 4	211	48	115	1115
Frydmane, Jules, and L. Chambon, Paris, France. Rocking printing-table for cash-registering apparatus	788,462	Apr. 25	4559	993–4	115	2116
Fuchst Lang Mfg. Co. (See Ford, Albert J., assignor.)						
Füger, Joseph, New York, N. Y. Fire-escape	785,301	Mar. 21	2639	558	115	614
Fullagar, Hugh F., Newcastle-upon-Tyne, England. Fluid-pressure turbine	784,670	Mar. 14	1376	285	115	323
Fullard, William, Plainfield, N. J. Excavating and dredging machine	785,302	Mar. 21	2639	559	115	614
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company. Bag-fastener	785,870	Mar. 28	3784	805	115	880
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company. Bag-frame	787,165	Apr. 11	1929	418	115	1497
Fuller, Frank W., Boston, Mass. Apparatus for stamping checks	787,369	Apr. 18	2337	506	115	1598
Fuller, James T., Calvert, Tex. Cotton-gin	784,316	Mar. 7	600	123	115	138
Fuller, Morris E., Tagus, N. D. Rotary engine	787,370	Apr. 18	2339	507	115	1599
Fuller, Wallace W., assignor of two-thirds to G. S. Legare, Charleston, S. C., and T. R. Harney, Washington, D. C. Machine for wiring tags	784,150	Mar. 7	272	55–6	115	65
Fuller, William A., Marietta, Ohio. Brush or broom moistener	786,802	Apr. 11	1195	249	115	1338
Fullilove, Frank, Owenton, Ky. Fishing-reel	784 671	Mar. 14	1380	286	115	324
Füllipp, George A., East McKeesport, Pa. Pipe-coupling	784,848	Mar. 14	1738	362	115	404
Fultz, John M., assignor of one-half to A. H. Wehmeyer, Quincy, Ill. Top	788,041	Apr. 25	3747	815	115	1932
Funk, Captain P., Jeromeville, Ohio. Folding umbrella	784,672	Mar. 14	1382	286	115	325
Fuqua, Arthur L., Durham, N. C. Trap	784,949	Mar. 14	1739	362	115	404
Furniss, Harry C. (See Ward and Furniss.)						
Furukawa, Junkichi, Tokio, Japan. Sulfid-ore-smelting brick and making same	784,850	Mar. 14	1741	362	115	404
Fussenegger, Ernst. (See Julius and Fussenegger.)						
Gabriel, Charles R., assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Screw-machine	786,353	Apr. 4	212	48–51	115	1115
Gabrielson, Carl, Springfield, Mass., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	784,317	Mar. 7	601	123–4	115	138
Gadue, William G., Burlington, Vt. Flour-sifter	785,545	Mar. 21	3152	666	115	729
Gaehring, Jacob F., *et al.* (See Rittersbach, Albert, assignor.)						
Gaffney, Louis H. (See Bresnahan and Gaffney.)						
Gagné, Jules, Jackfish Lake, assignor of one-half to A. E. Dunn, Battleford, Canada. Mower or reaper	786,202	Mar. 28	4473	946	115	1032
Galley, Daniel, Philadelphia, Pa. Cover for drains, vent-boxes, washpaves, &c	786,203	Mar. 28	4475	946	115	1033
Gale Manufacturing Company. (See Beall, William L., assignor.)						
Galena-Signal Oil Company. (See Pape, William H., assignor.)						
Gallagher, Joseph D., Glenridge, N. J. Brake-shoe	785,303	Mar. 21	2642	559–60	115	615
Gallagher, Joseph D., Glenridge, N. J. Brake-shoe	785,355	Mar. 21	2739	580	115	636
Gallagher, Joseph D., Glenridge, N. J. Making brake-shoes	787,092	Apr. 11	1784	381	115	1467
Galloway, Samuel, Yale, Kans. Blanket-pin	787,286	Apr. 11	2168	478	115	1549
Galloway, William. (See Wilson, Dalton K., assignor.)						
Gally, Robert A., Brooklyn, N. Y. Self-playing musical apparatus	786,204	Mar. 28	4476	947	115	1033
Galvin, William L. (See Earl and Galvin.)						
Gambrell, Reid K. (See Turley and Gambrell.)						
Gange, Charles, *et al.* (See Kirkpatrick, George P., assignor.)						
Gans, Ludwig W. (See Hess, Wilhelm, assignor.)						
Ganster, Harry C. (See Michel, John F., assignor.)						
Garden, Emanuel C., Jacksonville Ill. Convertible cane and stool	787,166	Apr. 11	1932	419	115	1498
Gardner, Clarke E., Osage, Iowa. Paper-clip	788,099	Apr. 25	3847	836	115	1955
Gardner, Edmund E., Hamler, Ohio. Fence-post	785,417	Mar. 21	2875	607	115	667
Gardner, George C., Chicago, Ill. Sheet-metal pulley	785,256	Mar. 21	2557	539	115	597
Gardner, George C., Chicago, Ill. Sheet-metal pulley	785,257	Mar. 21	2558	540	115	597
Gardner, Henry W., Waukegan, Ill. Flushing apparatus	787,287	Apr. 11	2169	478–9	115	1549
Gardner, William H., Park City, Utah. Sash balance and fastener	786,434	Apr. 4	469	90–1	115	1172
Garimaldi, Carlo F., Baltimore, Md. Bottle-stopper extractor	786,492	Apr. 4	583	116–17	115	1195
Garman, William F., *et al.* (See Snyder, David F., assignor.)						
Garner, James C., Grayrock, Tex. Canning and cooking apparatus	786,803	Apr. 11	1197	250	115	1339
Garnett, Edward V. (See Parker and Garnett.)						
Garrels, William L., St. Louis, and C. Kimball, Kirkwood, Mo. Motor-vehicle	784,485	Mar. 7	967	202–3	115	219
Garrels, William L., St. Louis, and C. Kimball, Kirkwood, Mo. Motor-vehicle	784,486	Mar. 7	971	203–4	115	219
Garrett, Charles B., assignor of one-half to E. G. Garrett, Minneapolis, Minn. Automatic sprinkler	784,210	Mar. 7	400	79–80	115	94
Garrett, Emma G. (See Garrett, Charles B., assignor.)						
Garside, Irad L., assignor to Garside Manufacturing Company, Paterson, N. J. Slat-adjuster	785,945	Mar. 28	3942	838	115	915
Garside Manufacturing Company. (See Garside, Irad L., assignor.)						
Gartrell, Charles B., Kansas City, Mo. Adding and recording machine	786,493	Apr. 4	585	117–18	115	1195
Gartrell, Harry E., Chicago, Ill. Shoe-polisher	786,280	Apr. 4	49	12	115	1082
Gas Engine Starter Company. (See Hartman, Noble W., assignor.)						
Gaskill, Marion L. (See Caskey, Isaac L., assignor.)						
Gates, Lara M., Charlton, Iowa. Lightning-arrester	787,371	Apr. 18	2342	507	115	1599
Gates, William G., Fort Benton, Mont. Respirator	787,167	Apr. 11	1933	419	115	1498
Gathmann, Emil, Washington, D. C., assignor to G. W. McMullen, Picton, Canada. Drying vegetable, mineral, animal, and compound substances	787,093	Apr. 11	1786	381	115	1467
Gaum, William G., Panther, W. Va. Belt-tightener	786,354	Apr. 4	224	51	115	1118
Gee, Pattie W., and I. Carpender, New York, N. Y. Game apparatus	786,022	Mar. 28	4126	870	115	957

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Gégauff, Charles H. (See Wenning and Gégauff.)						
Gelbel, Fred E., Montgomery, Ala. Spring-shackle	787,288	Apr. 11	2171	479	115	1549
Geisel, John E. G., Lehighton, Pa. Horseshoe	784,935	Mar. 14	1902	398	115	440
Geltz, Albert H., Alliance, and L. L. Hosack, Youngstown, Ohio, assignors to C. B. McLean, Pittsburg, Pa. Air-brake	787,329	Apr. 11	2252	492–3	115	1567
Gemmill, James I., Cleveland, assignor to Gemmill Telephone and Manufacturing Co., Orrville, Ohio. Automatic annunciator-restorer	787,507	Apr. 18	2636	571	115	1668
Gemmill Telephone and Manufacturing Co. (See Gemmill, James I., assignor.)						
General Electric Company. (See Alexanderson, Ernst F. W., assignor.)						
General Electric Company. (See Anthony, James S., assignor.)						
General Electric Company. (See Arsem, William C., assignor.)						
General Electric Company. (See Baillard, George C., assignor.)						
General Electric Company. (See Ball, Augustus A., Jr., assignor.)						
General Electric Company. (See Barringer, Lawrence E., assignor.)						
General Electric Company. (See Barry, Charles E., assignor.)						
General Electric Company. (See Bayer, Henry, assignor.)						
General Electric Company. (See Corey, Fred B., assignor.)						
General Electric Company. (See Dutton, Edgar F., assignor.)						
General Electric Company. (See Erben, Hermann F. T., assignor.)						
General Electric Company. (See Getts, Frank E., assignor.)						
General Electric Company. (See Gomborow, Joel, assignor.)						
General Electric Company. (See Hawkins, Laurence A., assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Junggren, Oscar, assignor.)						
General Electric Company. (See Kruesi, August H., assignor.)						
General Electric Company. (See Kruh, Osias O., assignor.)						
General Electric Company. (See Latour, Marius C. A., assignor.)						
General Electric Company. (See Lundskog, Julius W., assignor.)						
General Electric Company. (See Mackintosh, Frederick, assignor.)						
General Electric Company. (See Milch, Maurice, assignor.)						
General Electric Company. (See Moody, Walter S., assignor.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Stewart, Samuel B., Jr., assignor.)						
General Electric Company. (See Stumpf, Johann, assignor.)						
General Electric Company. (See Tirrill, Leonard A., assignor.)						
General Electric Company. (See Watmough, Pendleton G., Jr., assignor.)						
General Electric Company. (See Yates, William C., assignor.)						
General Safety Mantle Light Co. (See Reichenbach, Henry M., assignor.)						
Generes, Albert D. de, Crowley, La. Automatic computing-machine	786,281	Apr. 4	51	12	115	1082
George A. Ohl & Co. (See Ohl, George A., Jr., assignor.)						
George, Richard F., Palmyra, Va. Force-pump	784,998	Mar. 14	2013	422	115	464
George, Thomas M., Cleveland, Ohio. Steering-gear for vehicles	784,673	Mar. 14	1383	286	115	325
Gerdes, Heinrich, assignor to Firm of J. Pintsch, Berlin, Germany. Gas-washer	784,556	Mar. 14	1117	233–4	115	266
Gerdes, Hermann S., Jr. (See Hammerschlag, Gerdes, and Droste.)						
Gerhardt, Alwin J., H. O'Connor, and C. A. Violet, Milwaukee, Wis. Receptacle-supporting attachment	787,911	Apr. 25	3471	759	115	1868
German, Isaac, Baltimore, Md. Lawn-mower	787,619	Apr. 18	2867	623	115	1721
Gerrity, William H., New York, N. Y. Leather-polishing roll	785,546	Mar. 21	3153	667	115	729
Gerrity, William H., New York, N. Y. Leather-polishing machine	786,110	Mar. 28	4302	907–8	115	998
Gerstmann, Heinrich, Charlottenburg, near Berlin, Germany. Apparatus for preventing collisions on railways	787,029	Apr. 11	1660	354	115	1438
Gerth, August, assignor of one-half to M. S. Liebenstein, Estelline, S. D. Fanning-mill	786,205	Mar. 28	4482	947	115	1035
Gesellschaft für Trockenzerstänbung Flüssiger Materien mit Beschränkter Haftung. (See Lessing, Wilhelm, assignor.)						
Gesner, George W., New York, N. Y. Paint	786,023	Mar. 28	4127	.....	115	958
Getts, Frank E., Chicago, Ill., assignor to General Electric Company. Shaft-packing	784,785	Mar. 14	1619	333	115	378
Getty, Fred I., assignor of one-fourth to W. H. Rowbotham, Jennings, La. Strainer for oil or water wells	787,912	Apr. 25	3472	759	115	1869
Getty, Fred I., assignor of one-fourth to W. H. Rowbotham, Jennings, La. Strainer for oil or water wells	787,913	Apr. 25	3473	759	115	1869
Getz, August, San Francisco, Cal. Sweeping compound	788,042	Apr. 25	3748	.....	115	1932
Geyer, Robert P., *et al.* (See Wulst, Carl, assignor.)						
Geyerman, Peter T., Brewster, Minn. Telephone-call	784,557	Mar. 14	1119	234	115	266
Giara, Tullio, Boston, Mass. Pneumatic tire	784,738	Mar. 14	1521	312	115	357
Gibbons, Henry A., Kansas City, Kans. Windproof lighting device	787,620	Apr. 18	2868	624	115	1722
Gibbs, Robert P., New York, N. Y. Night-lamp	785,486	Mar. 21	3021	638	115	701
Gibson, Alpheus C. (See Gibson, Sidney A. and A. C.)						
Gibson, Anna L., Philadelphia, Pa. Gas-stove	787,914	Apr. 25	3475	759	115	1869
Gibson, Marion E., assignor of one-half to A. J. Pembroke and R. P. Curts, Columbus, Ohio. Movement-cure apparatus	787,168	Apr. 11	1936	419	115	1499
Gibson, Sidney A. and A. C., Sharon, Pa. Platform-gear for vehicles	785,095	Mar. 21	2225	467	115	525
Gielow, Christian, assignor of one-half to B. Alexander-Katz, Görlitz, Germany. Edge-runner and pan	784,558	Mar. 14	1122	234	115	267
Gierding, Charles E., Newark, N. J. Trolley catcher and retriever	787,169	Apr. 11	1937	420–1	115	1499
Giessler, Hermann, and H. Bauer, Stuttgart, Germany. Soap and making same	786,556	Apr. 4	712	.....	115	1221
Gifford, Charles H. (See Middleton, Harry N., assignor.)						
Gifford, Robert L., and G. W. Nistle, assignors of one-third to E. W. Brooks, Chicago, Ill. Drain attachment for steam-heating systems, &c	787,094	Apr. 11	1788	381	115	1467
Gilbert, Israel B., Pittsburg, Pa. Revolving or three-way chuck	785,547	Mar. 21	3154	667	115	729
Gilchrist, John E., Southbend, Wash. Self-lubricating sheave	788,463	Apr. 25	4562	994	115	2116
Gilchrist, Raymond B., Newark, N. J. Squeezer	785,727	Mar. 28	3521	754	115	820
Gilchrist, William E., assignor of one-half to E. M. St. John, Rockford, Ill. Wrench	784,151	Mar. 7	277	57	115	66
Gilchrist, William T. (See Earnest and Gilchrist.)						
Giles, William, and H. Ramsey, Mammoth, W. Va. Burglar and fire alarm	787,372	Apr. 18	2343	507	115	1600
Gilgen, Adolph C., assignor to New York Automatic Telephone Company, Passaic, N. J. Telephone system	785,728	Mar. 28	3522	755	115	820
Gill, John E., Franklin, Pa. Lubricator	787,915	Apr. 25	3476	760	115	1870
Gille, Carl, Essen, Germany. Holder for umbrellas, brooms, or the like	785,304	Mar. 21	2644	560	115	615
Gillespie, Isaac G., Oakharbor, Ohio. Dredge	786,253	Mar. 28	4571	969	115	1054
Gillespie, Robert T., Rochester, Pa. Currycomb	786,751	Apr. 4	1067	226	115	1302
Gillett, May, London, England. Appliance for playing table foot-ball	786,206	Mar. 28	4484	947	115	1035
Gillette, Herbert B., Benton Harbor, Mich. Logging-truck	788,202	Apr. 25	4051	876	115	2006
Gillie, John W., North Shields, England. Apparatus for taking soundings at sea	787,090	Apr. 11	1663	354–5	115	1439
Gillin, Robert F., New York, N. Y. Self-closing valve	785,729	Mar. 28	3525	755	115	821

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Gillooly, William F., Coalton, assignor of one-half to P. F. King, Monroe, W. Va. Pick.	786,207	Mar. 28	4485	948	115	1035
Gilman, George E., West Newbury, Mass. Curtain-fixture for open cars	787,841	Apr. 18	3325	727	115	1821
Gilmore, Charles B. (See Miller and Gilmore.)						
Gilmore, Charles T., Chicago, Ill. Flexible metal fabric	787,747	Apr. 18	3148	688	115	1784
Gilmore, George W., assignor to Alliance Machine Company, Alliance, Ohio. Circuit-controlling device for motors	786,752	Apr. 4	1089	226	115	1303
Gilmore, Walter T. (See Demarest, George A., assignor.)						
Gilmour, John, and R. O'Flynn, Jr., Owensboro, Ky. Cask	786,208	Mar. 28	4485	948	115	1036
Girardot, Léonce, Puteaux, France. Friction-clutch for motor-cars or other vehicles	787,031	Apr. 11	1665	355	115	1440
Glaessel, Frederick M., Chicago, Ill. Device for removing internal bottle-caps	784,851	Mar. 14	1741	363	115	404
Glantzberg, Ernst, Springfield, Mass. Heating system	787,748	Apr. 18	3149	689	115	1785
Glaser, William, assignor of seven-eighths to P. Wuesthoff, Pittsburg, Pa. Engine-governor	786,435	Apr. 4	471	91	115	1172
Glasrud, Christian G., Sheyenne, N. D. Lubricator	785,606	Mar. 21	3276	696	115	755
Glass, Jacob. (See Sonnenfeld and Glass.)						
Glatt, Otto, assignor of one-half to W. J. Richardson, Toronto, Canada. Pianissimo device	788,203	Apr. 25	4052	876	115	2006
Glazier, Charles C. (See Glazier, John T. and C. C.)						
Glazier, John T. and C. C., assignors to Glazier Nozzle and Manufacturing Company, Indianapolis, Ind. Rotary head	785,871	Mar. 28	3788	805	115	881
Glazier Nozzle and Manufacturing Company. (See Glazier, John T. and C. C., assignors.)						
Gleason, Charles H., Smethport, Pa. Knockdown vessel	785,607	Mar. 21	3278	696	115	755
Gleason, Ira L., Hutchinson, Minn. Combined cot and tent	785,872	Mar. 28	3789	805–6	115	881
Glenn, John S., West Covington, Ky., and H. Henke, Cincinnati, Ohio. Fire-box boiler	785,418	Mar. 21	2876	607	115	667
Glenn, William, Mount Vernon, Iowa. Voting-machine	787,373	Apr. 18	2345	507–9	115	1600
Glenn, William, Mount Vernon, and A. D. Hill, Cedar Rapids, Iowa; said Glenn assignor to said Hill. Coat and hat hanger	785,305	Mar. 21	2644	560	115	616
Glew, Frederick H., London, England. Instrument for rendering visible the luminous effects produced by radio-active substances	787,170	Apr. 11	1944	421	115	1501
Glick, M. J. (See Hollis, Ezra, assignor.)						
Globe Jack Company. (See Wüstner, Ernest, assignor.)						
Glynn, Guilford C., Iola, Kans., assignor of one-third to F. B. Smith. Manufacturing refractory material	788,131	Apr. 25	3925	.....	115	1978
Glynn, Guilford C., Iola, Kans., assignor of one-third to F. B. Smith. Refractory material and making same	788,132	Apr. 25	3926	.....	115	1978
Godman, Emory J., and B. F. Frizzell, Baltimore, Md. Massaging apparatus	787,443	Apr. 18	2493	540	115	1633
Godman, James V., assignor of one-half to J. W. Nusbaum, Warsaw, Ind. Vehicle and track therefor	785,163	Mar. 21	2360	494–5	115	555
Goede, Rudolf H., Chicago, Ill. Folding feed-box	786,557	Apr. 4	713	145	115	1221
Goerz, Carl P., assignor to Optische Anstalt C. P. Goerz Aktiengesellschaft, Friedenau, Germany. Panorama-telescope	784,852	Mar. 14	1743	363	115	405
Goerz, Carl P., Friedenau, and H. Korrodi, Eisenach, assignors to Optische Anstalt C. P. Goerz Aktiengesellschaft, Friedenau, Germany. Tangent-scale telescope for guns	784,487	Mar. 7	974	204	115	220
Goetze, Johannes H. E., Heckkathen, near Bergedorf, Germany. Speed-controlling apparatus for motor-driven vehicles	788,204	Apr. 25	4054	876–7	115	2006
Goldberg, Joseph, New York, N. Y. Belt or long-waist pin adjuster	787,508	Apr. 18	2637	571	115	1668
Goldman & Co., E. (See Birkholz, Richard, assignor.)						
Goldman, Henry, Chicago, Ill., assignor to International Arithmograph Company, New York, N. Y. Calculating-machine	786,282	Apr. 4	54	12–13	115	1083
Goldman, Rutherford G., Los Angeles, Cal., assignor of one-half to C. R. Harris. Chain	785,873	Mar. 28	3790	806	115	881
Gollwitzer, Barth, Antwerp, Belgium. Alimentary composition	786,111	Mar. 28	4306	.....	115	998
Gomborow, Joel, Lynn, Mass., assignor to General Electric Company. System of distant electrical control	786,024	Mar. 28	4128	870	115	958
Gooch, Benjamin F. (See Raines and Gooch.)						
Good, John, New York, N. Y., assignor to John Good Cordage Co. Balling-machine	784,853	Mar. 14	1746	364	115	405
Good, Milton D., Kansas City, Mo. Inhaler	786,112	Mar. 28	4306	908	115	998
Goodacre, Henry, Flora, Ind. Acetylene-gas generator	784,152	Mar. 7	278	57	115	66
Goodall, Fred E., Chicago, Ill., assignor to Hanson & Van Winkle Company. Rheostat	787,032	Apr. 11	1666	355	115	1440
Goodall, George B., *et al.* (See Spence, Harry, assignor.)						
Goodall, John N., Portsmouth, N. H., assignor of one-half to C. A. Tolman, Kittery, Me. Pipe-coupling	786,558	Apr. 4	716	146	115	1222
Goodall, Louis B., *et al.* (See Spence, Harry, assignor.)						
Goodell, Alfred P., Highland, Mich. Fence-post	787,749	Apr. 18	3152	689	115	1785
Goodfellow, John H., assignor of one-half to E. P. Voll, St. Louis, Mo. Pleasure-railway	788,258	Apr. 25	4158	903	115	2028
Goodhue, James E., St. Charles, Ill. Snapping-rollers for corn-harvesters	787,750	Apr. 18	3153	689	115	1786
Goodhue, James E., St. Charles, Ill. Corn-harvester	788,205	Apr. 25	4057	877–8	115	2007
Goodman, Forest E., Waco, Tex. Horse-collar-rolling machine	785,608	Mar. 21	3279	696–7	115	755
Goodman, William, Sydney, New South Wales, Australia. Postal and commercial reply-card	786,436	Apr. 4	473	91	115	1173
Goodridge, Gilbert W., assignor to Bryant Electric Company, Bridgeport, Conn. Electrical fuse-box	785,306	Mar. 21	2647	561	115	616
Goodwin, George B. M. (See Poyet and Goodwin.)						
Goodwin, James A., assignor of one-half to G. W. Slaughter, San Augustine, Tex. Wagon-bolster attachment	785,609	Mar. 21	3280	697	115	756
Googins, Charles E., Brooklyn, N. Y. Steam-blower	784,488	Mar. 7	977	205	115	220
Gordon, John D., Riverside, Cal. Electric railway signaling system	786,209	Mar. 28	4486	948–9	115	1036
Gordon, Thomas G., Madera, Cal. Hame-hook	784,153	Mar. 7	280	57	115	67
Gorman, Mary C. (See Pollock, Walter H., assignor.)						
Gorski, Peter P., assignor of one-half to J. Cederstrom, Chicago, Ill. Device for filling valved receptacles with charged liquids	785,946	Mar. 28	3943	839	115	915
Gorton, Robert, Newton, Mass. Hose-supporter	786,753	Apr. 4	1091	227	115	1304
Goss Printing Press Company. (See Goss, Samuel G., assignor.)						
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press	786,283	Apr. 4	60	13–14	115	1084
Gottardi, Francesco, Innsbruck, Austria-Hungary. Device for indicating the number of cartridges in the magazines of firearms	784,786	Mar. 14	1621	334	115	378
Gottfried, Julius. (See Rischke, Jacob, assignor.)						
Gould, Aaron P., Canton, Ohio. Dental chair	785,548	Mar. 21	3156	667–8	115	730
Gould, Alexander H., Toledo, assignor of one-third to S. A. Snell, Elyria, Ohio. Campaign instrument	785,874	Mar. 28	3792	806	115	882
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould Coupler Company. (See Richards and Turbayne, assignors.)						
Gould Coupler Company. (See Turbayne, William A., assignor.)						
Gould, John, Sr., Clinton, Pa. Hog-ringing implement	786,786	Apr. 4	1157	243	115	1319
Gould, John F., New York, assignor to Muralo Company, New Brighton, Staten Island, N. Y. Method of and device for advertising coloring materials, paint, &c	786,210	Mar. 28	4488	949	115	1036

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Gould Storage Battery Company. (See Chamberlain, Rufus N., assignor.)						
Govers, Francis X., Owego, N. Y. Paper-coating	788,043	Apr. 25	3749	.....	115	1932
Gow, Charles R., and J. E. Palmer, Boston, Mass. Making concrete structures	785,356	Mar. 21	2740	581	115	636
Goyder, George A., and E. Laughton, Adelaide, South Australia, Australia. Apparatus for separating and concentrating minerals	784,999	Mar. 14	2014	423	115	464
Grabosch, Gustav, Berlin, Germany. Commutator	784,393	Mar. 7	779	160–1	115	178
Grace, Ralph, Battlecreek, Mich., assignor to S. A. Kohn, Chicago, Ill. Toasting-oven	784,854	Mar. 14	1749	364–5	115	405
Graff, Joseph, Calmar, Iowa. Rail-joint connection	784,855	Mar. 14	1752	365	115	406
Graham, Alfred, Denmark Hill, England. Telephonic apparatus	786,754	Apr. 4	1092	227–30	115	1304
Graham, Edwin R., Bakersfield, assignor of one-half to W. M. Graham, Santa Barbara, Cal. Adjuster for deep-well sucker-rods	787,621	Apr. 18	2869	624	115	1722
Graham, Elias, assignor of two-thirds to R. E. Graham and F. Schmoyer, Casey, Ill. Portable derrick	785,875	Mar. 28	3792	806	115	882
Graham, John L., Haakwood, Mich. Emergency-brake for sawmill-carriages	787,374	Apr. 18	2352	509–10	115	1602
Graham, John W., Jr., *et al.* (See Clark, Samuel B., assignor.)						
Graham, Ralph E., *et al.* (See Graham, Elias, assignor.)						
Graham, Robert, Greeley, Colo. Sack or bag	784,559	Mar. 14	1123	235	115	267
Graham, William M. (See Graham, Edwin R., assignor.)						
Grahn, Henry. (See Dethlefson and Grahn.)						
Graif, Henry M. (See Norstrom and Graif.)						
Gralapp, Earnest G., Cleveland, Ohio. Rail-joint	785,730	Mar. 28	3527	755	115	821
Grant, Charles W., Derby, Conn. Tool-post	788,206	Apr. 25	4059	878	115	2007
Grant, Harry M. (See Dokkenwadel, Frederick G., assignor.)						
Grant, Luman A., Syracuse, N. Y. Window-curtain fixture	787,751	Apr. 18	3155	689	115	1786
Grasberger, Boniface A., Richmond, Va. Trolley-stand	787,033	Apr. 11	1668	355	115	1441
Grasberger, Boniface A., Richmond, Va. Trolley-stand	787,034	Apr. 11	1669	356	115	1441
Grasberger, Julius A., Richmond, Va. Trolley-stand	787,035	Apr. 11	1670	356	115	1441
Graves, Salathiel V. (See McDaniel and Graves.)	787,036	Apr. 11	1672	356	115	1442
Grawert-Zellin, Fritz H., New York, N. Y. Ship's propeller	784,109	Mar. 7	195	37	115	48
Gray, David E., New York, N. Y. Electric switch	785,419	Mar. 21	2878	608	115	668
Gray, Norman A. (See Swanson, Peter, assignor.)						
Gray, Thomas J., assignor to National Drill and Manufacturing Company, Chicago, Ill. Crushing-machine	788,207	Apr. 25	4061	878–80	115	2008
Greatsinger, Jacob L., Brooklyn, N. Y. Filter	788,312	Apr. 25	4266	926	115	2053
Greeley, Mark H., Ottumwa, Iowa. Refining butter	784,394	Mar. 7	785	161	115	179
Green, Buel H., Los Angeles, Cal. Friction grip device	788,464	Apr. 25	4563	995	115	2117
Green, Charles M., Wahpeton, N. D. Wheel	788,504	Apr. 25	4630	1010	115	2130
Green, Felix G., Sedalia, Mo. Planting-machine	786,284	Apr. 4	62	14	115	1085
Green, Francis W., Wakefield, England. Fuel-economizer	784,560	Mar. 14	1123	235	115	267
Green, George F., Bazette, Tex. Combined buckle and hook	787,570	Apr. 18	2751	599	115	1693
Green, John R. (See Trussell, Wilbert C., assignor.)						
Green, Meredith R., Kensington Park, South Australia, Australia. Bottle for preventing the fraudulent refilling of same	785,357	Mar. 21	2742	581	115	637
Green, Stanley K., Baltimore, Md. Apparatus for unsoldering the joints of sheet-metal cans	784,856	Mar. 14	1754	365–6	115	406
Green, William F., Modesto, Cal. Dental disk-shield	788,981	Apr. 25	3617	789	115	1902
Greenawalt, Peter C., Reading, Pa. Sad-iron	787,289	Apr. 11	2173	479	115	1550
Greenbaum, Oscar, assignor to Raudnitz and Pollitz, New York, N. Y. Bag or the like	786,804	Apr. 11	1199	250	115	1339
Greene & Co., A. A. (See Rioux, Joseph F., assignor.)						
Greene, Harry S., Woonsocket, R. I. Napping-machine	787,095	Apr. 11	1790	382	115	1467
Greene, James G. (See Knupp and Greene.)						
Greenstreet, Jason H., Indianapolis, Ind. Nailing-machine	784,936	Mar. 14	1904	399–400	115	441
Greenway, Johne H., Greeneville, Tenn. Door-securing device	784,319	Mar. 7	607	124	115	139
Greenzweight, Thomas. (See Kunze and Greenzweight.)						
Gregg, Jerome S., Pomona, Mich. Composition of matter for forming pipes or tubes, &c	784,318	Mar. 7	606	124	115	139
Greggs, Bertrum, *et al.* (See Zumwalt, Joseph C., assignor.)						
Greth, John C. W., assignor to Wm. B. Scaife & Sons Company, Pittsburg, Pa. Water-purifying apparatus	786,559	Apr. 4	718	146	115	1222
Grey, Frank, Brooklyn, N. Y. Attachment for canes or umbrellas	786,755	Apr. 4	1099	230	115	1306
Grice, Arthur G., Carnoustie, Scotland. Sawing-machine	784,561	Mar. 14	1124	235	115	267
Griffen, William B., Franklin, Pa. Lubricating-block	787,752	Apr. 18	3156	690	115	1786
Griffin, Charles W., assignor to Taylor, Stiles & Company, Riegelsville, N. J. Mechanism for rag-cutters	787,290	Apr. 11	2175	479–80	115	1550
Griffin, Michael J., New Britain, Conn. Fifth-wheel	784,739	Mar. 14	1522	312	115	358
Griffin, Walter T., Limoges, France. Treating peat	788,100	Apr. 25	3848	836	115	1955
Griffis, French, McDonald township, Hardin county, assignor of one-half to C. Robbins, Springfield, Ohio. Onion-cleaner	784,618	Mar. 14	1264	264	115	297
Griffith, John R., and L. G. Cosper, Independence, Kans. Well-drilling machine	787,842	Apr. 18	3327	728	115	1822
Griffith, Richard H. (See Idris and Griffith.)						
Griffiths, William U., Philadelphia, Pa. Pump	786,285	Apr. 4	64	15	115	1085
Grigsby, Jesse J., Milroy, Ind. Air-brake coupling	785,420	Mar. 21	2879	608	115	668
Grimes, Thaddeus S., Atlanta, Ga. Rotary press	786,756	Apr. 4	1100	230 2	115	1306
Grimm, Morgan, West Alexander, Pa. Churn-power	786,805	Apr. 11	1200	250	115	1339
Grimsley, George A. (See Grimsley, Harmon E., assignor.)						
Grimsley, Harmon E., Winston Salem, assignor of one-half to G. A. Grimsley, Greensboro, N. C. Veneer-cutting machine	786,560	Apr. 4	721	146–7	115	1223
Griswold, Florence M., Essex Fells, N. J. Pneumatic distributing system for fluids	784,937	Mar. 14	1909	400	115	442
Groebli, Joseph A., assignor to Kursheedt Manufacturing Company, New York, N. Y. Punching-machine	786,890	Apr. 11	1358	289	115	1373
Grohman, Charles, Carteret, N. J. Apparatus for cooling liquids	786,113	Mar. 28	4307	908–9	115	999
Grohmann, Carl L., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	786,211	Mar. 28	4490	949–51	115	1036
Gropp, Gustav, Niezychowo, near Weissenhöhe, Germany. Screw-press	785,876	Mar. 28	3794	807	115	882
Gros, Oscar, and J. Friedlaender, Leipsic, Germany. Producing catalyzing pictures	786,640	Apr. 4	888	.....	115	1260
Grose, James E. H., Germiston, Transvaal. Valve for rock-drilling machines	784,320	Mar. 7	607	124	115	139
Grosbans, Ferdinand. (See Bruce, George L., assignor.)						
Gross, Andrew, New York, N. Y. Game apparatus	788,101	Apr. 25	3850	837	145	1956
Gross, Leon, *et al.*, executors. (See Liberman, Isadora.)						
Grossmann, Alexander J., London, England. Mechanism for preventing side slipping of pneumatic-tired wheels	786,494	Apr. 4	591	118	115	1196
Grotz, Albert R., assignor of one-half to Eagle Glass and Manufacturing Company, Wellsburg, W. Va. Blow-mold for handled glassware	786,641	Apr. 4	890	182	115	1260
Grotz, Albert R., assignor of one-half to Eagle Glass and Manufacturing Company, Wellsburg, W. Va. Making handled glassware	786,114	Mar. 28	4310	909	115	999
	786,115	Mar. 28	4311	909	115	1000

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Grotz, Albert R., assignor of one-half to Eagle Glass and Manufacturing Company, Wellsburg, W. Va. Press-mold for handled glassware	786,116	Mar. 28	4312	909	115	1000
Grout, Frederick E., Orange, Mass. Hydrocarbon-burner	784,787	Mar. 14	1623	334	115	378
Groves, Abraham. (See McQueen, Thomas K., assignor.)						
Grueneklee, Karl, New York, N. Y. Sugar-granulator	786,642	Apr. 4	891	182–3	115	1260
Gruhl, Frederick J., Milwaukee, Wis. Trousers-press and suit-hanger	786,806	Apr. 11	1202	251	115	1340
Grushoff, Wolf, New York, N. Y. Muff	784,857	Mar. 14	1756	366	115	407
Gruss, Robert L. J. (See Heath, Morrice, and Gruss.)						
Grutt, Charles, *et al.* (See Redfield, John H., assignor.)						
Grutt, Emil, *et al.* (See Redfield, John H., assignor.)						
Grutt, Fred, *et al.* (See Redfield, John H., assignor.)						
Guilbaud, Fernand E., Levallois-Perret, France. Means for feeding gas-generators	784,740	Mar. 14	1523	313	115	358
Guinzburg, Edwin A., New York, N. Y. Garment-supporter	788,259	Apr. 25	4162	904	115	2030
Gulliver, Arthur P., Brockton, Mass. Shoe-lacing stud	786,355	Apr. 4	225	51	115	1118
Gunby, Frank M., and C. S. Brown, Columbus, Ga. Pulley	786,757	Apr. 4	1105	232	115	1307
Gunn, Clarence B., Collinwood, Ohio. Signal apparatus	787,753	Apr. 18	3158	690	115	1786
Gurr, William P., assignor to Rose Manufacturing Company, Minneapolis, Minn. Shade and curtain supporting bracket	785,161	Mar. 21	2361	495	115	555
Gustafson, Charles J., Chattanooga, Tenn. Force-feed lubricator	784,788	Mar. 14	1626	335	115	379
Gutenkunst, William, Milwaukee, Wis. Pulley-block	785,338	Mar. 21	2744	581	115	637
Gutmann, Fannie, Rochester, N. Y. Tool-holder and case for scissors, shears, pliers, or other like articles	786,758	Apr. 4	1107	232	115	1307
Gutteridge, Frank, Seaforth, Canada. Mold for the manufacture of cement blocks	787,375	Apr. 18	2354	510	115	1602
Gutteridge, Henry, and J. H. McConnell, Hamiota, Canada. Machine for forming building-blocks	784,154	Mar. 7	281	58–9	115	67
H. A. Matthews Mfg. Co. (See Cornforth, Robert G., assignor.)						
H. B. Smith Machine Company. (See Perry, James L., assignor.)						
H. W. Butterworth and Sons Company. (See Butterworth, Harry W., assignor.)						
Haack, Emil, assignor of one-fourth to B. Wales, Howard, S. D. Corn picker and husker	786,286	Apr. 4	68	15–16	115	1086
Haag, Arthur, New York, N. Y. Combination-tool	784,674	Mar. 14	1384	286	115	325
Haas, Charles A., Pittsburg, Pa. Combined adjustable window-shade and curtain bracket	784,155	Mar. 7	283	59	115	67
Haas, Charles F., Orwell, Ohio. Fence-sign	786,025	Mar. 28	4130	870	115	958
Haas, Harold M., Cincinnati, Ohio. Washboard	788,465	Apr. 25	4564	995	115	2117
Hackenbroch, Anton, Chicago, Ill. Cabinet-head for sewing-machines	785,877	Mar. 28	3795	807	115	882
Hackett, Walter H., and W. T. Hodges, Attleboro, Mass.; said Hodges assignor to said Hackett. Currycomb	787,037	Apr. 11	1674	356	115	1442
Hadaway, John B., Brockton, Mass. Separating and indenting stitches of finished seams	786,891	Apr. 11	1360	290	115	1373
Haddock, Henry E., assignor to J. A. Brill, Philadelphia, Pa. Air-brake mechanism	784,321	Mar. 7	609	125	115	140
Haddorff, Charles A., assignor to Haddorff Piano Company, Rockford, Ill. Piano	788,044	Apr. 25	3750	816	115	1932
Haddorff Piano Company. (See Haddorff, Charles A., assignor.)						
Hadfield, Robert A., Sheffield, England. Steel	786,561	Apr. 4	724	.....	115	1224
Haerry, Paul. (See Holz and Haerry.)						
Haeske, Charles M., South Bend, Ind. Dump-wagon	784,156	Mar. 7	284	59	115	68
Haferland, Hermann. (See Jannoch, Paul W., assignor.)						
Hagen, Claude L., New York, N. Y. Observation-train	786,117	Mar. 28	4313	910	115	1000
Hagman, William J., Philadelphia, Pa., assignor to Niles-Bement-Pond Company, Jersey City, N. J. Rotary planer	784,157	Mar. 7	287	60	115	68
Hahn, John J., Kansas City, Mo. Door-fastening device for grain-doors	787,038	Apr. 11	1675	357	115	1443
Haines, Thomas, St. Louis, Mo. Truck-ladder	787,982	Apr. 25	3618	789	115	1902
Hair, Worthington, and J. F Behrman, Gaines, Pa. Collar or cuff button	784,322	Mar. 7	610	125	115	140
Haldeman, Charles B., Aurora, Kans. Snow or ice vehicle	786,026	Mar. 28	4131	870–1	115	959
Hale, Geo. C. (See Hawn, John W., assignor.)						
Hale, Henry S., Philadelphia, Pa. Car-seat	785,421	Mar. 21	2880	608	115	668
Hale and Kilburn Manufacturing Company. (See Old and Walker, assignors.)						
Hall, Alfred, Chicago, Ill. Type-cleaning attachment for type-writing machines	786,027	Mar. 28	4133	871	115	959
Hall, Arthur S. (See Howard and Hall.)						
Hall, Frank B., Wheeling, W. Va. Cable-box	785,096	Mar. 21	2226	467	115	525
Hall, George F., Newark, N. J. Rocking-chair	787,171	Apr. 11	1946	421–2	115	1501
Hall, George L., New York, N. Y. Insulated rail-joint	784,741	Mar. 14	1524	313	115	358
Hall, James B., Cleveland, Ohio. Grease-cup	784,395	Mar. 7	787	161	115	180
Hall, Joel F. (See Foerg and Hall.)						
Hall, John H., Patrick, W. Va. Lawn-mower	784,396	Mar. 7	788	161–2	115	180
Hall, Monroe C., Winchester, Idaho. Hoisting mechanism	787,444	Apr. 18	2495	541	115	1633
Hall, Tomas P., assignor of one-half to S. T. Hutton, Chicago, Ill. X-ray meter	788,151	Apr. 25	3964	857–8	115	1986
Hall, William L. R., Peak Hill, Western Australia, Australia. Grip driving appliance	784,938	Mar. 14	1911	401	115	442
Hallam, Edwin A., Macon, Ga. Conveyer	786,643	Apr. 4	893	183	115	1261
Hallberg, Lawrence G., Chicago, Ill. Compound block	784,158	Mar. 7	289	60	115	69
Hallé, Clifford R. S. J., London, England. Wheel for vehicles	784,397	Mar. 7	790	162–3	115	181
Hallot, Paul, Vincennes, France. Railway-brake	784,489	Mar. 7	979	205	115	221
Halsey, Charles W., Evansville, Ind. Ice-pick	787,509	Apr. 18	2639	571	115	1669
Hamburg Planter Company. (See Baltzer and Jobengen, assignors.)						
Hamilton, Andrew D., assignor of one-half to G. A. Pierce, Ebensburg, Pa. Hook	784,619	Mar. 14	1265	265	115	297
Hamilton, Frank. (See Dawson and Hamilton.)						
Hamilton, Guy, assignor to Caille Bros. Company, Detroit, Mich. Automatic beam-scale	785,209	Mar. 21	2455	518	115	576
Hamilton, John R., Mount Kisco, assignor to D. P. Sackett, New York, N. Y. Mechanical calculator	785,097	Mar. 21	2228	468–70	115	526
Hamilton, Joseph, Lowell, Mass. Basket or other receptacle	784,939	Mar. 14	1911	401	115	442
Hamilton, Joseph A., Duquesne, Pa. Rail-joint	784,260	Mar. 7	492	98	115	113
Hamler, Albert W., Lyons, Mich. Grain-spout	787,291	Apr. 11	2177	480	115	1551
Hammar, Sigard A. S. (See Meigs and Hammar.)						
Hammerschlag, Johann, Strassburg, H. S. Gerdes, Jr., and O. Droste, Bremen, Germany. Manufacturing bricks from refuse from coal or coke	786,028	Mar. 28	4134	.....	115	959
Hammond, Charles W. (See Hammond and Henderson, assignors.)						
Hammond, Frank, Washington, D. C. Receptacle for milk-bottles or the like	786,212	Mar. 28	4495	951	115	1037
Hammond, Frank W., and F. E. Henderson, assignors of one-third to C. W. Hammond, Comstock, Nebr. Floor-clamp	788,045	Apr. 25	3750	816	115	1932
Hammond, Owen E., Belvidere, Ill. Attachment for working buttonholes	785,422	Mar. 21	2883	609	115	669
Hamor, John M., Philadelphia, Pa., assignor to J. M. Rogers, Wilmington, Del. Rock-drill	787,376	Apr. 18	2356	510	115	1603
Handel, Christophar J., Buffalo, N. Y. Dumping-wagon	785,947	Mar. 28	3945	839	115	916
Handlan-Buck Manufacturing Company. (See Rolfes, George H., assignor.)						
Handly, Thomas F., Allegheny, Pa. Fire-extinguisher	785,610	Mar. 21	3281	697	115	756
Haney, Edward L., Nashville, Tenn. Regulator for alternating currents	785,487	Mar. 21	3022	639–40	115	701

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Hanlon, Marquis D., Wilkinsburg, Pa. Railway-signal	785,669	Mar. 21	3395	729–30	115	780
Hanlon, Marquis D., Wilkinsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Railway-signal	785,098	Mar. 21	2235	470–1	115	527
Hanna, Elmer E. (See Hoffman, Frank, assignor.)						
Hannah, Thomas, *et al.* (See Rosentreter, Albert J., assignor.)						
Hannay, Gerald, *et al.* (See Rosentreter, Albert J., assignor.)						
Hanney, Samuel D., Chicago, Ill. Ventilator	787,377	Apr. 18	2359	511	115	1604
Hansen, Ebbe J., Exira, Iowa. Interchangeable marker and punch	787,348	Apr. 11	2299	500	115	1577
Hansen, Hans C., Newton, Mass. Machine for trimming parallel surfaces	786,759	Apr. 4	1109	233	115	1308
Hansen, James C., Troy, N. Y. Automatic cut-off for gas-stoves	784,043	Mar. 7	57	11	115	15
Hansen, John M., Pittsburg, Pa. Metallic car-underframe	784,261	Mar. 7	493	99	115	114
Hansen, John M., Pittsburg, Pa. Low-side gondola car with drop ends	786,356	Apr. 4	226	51–2	115	1118
Hansen, John M., Pittsburg, Pa. Door arrangement for hopper-cars	787,571	Apr. 18	2752	600	115	1694
Hansmann, Paul, Long Prairie, Minn. Adjustable coupling	787,572	Apr. 18	2753	600–1	115	1692
Hanson, Carl L. and H. P., Anderson, Idaho. Stock-feeding device	786,437	Apr. 4	474	92	115	1173
Hanson, Herman P. (See Hanson, Carl L. and H. P.)						
Hanson, Joseph, Inwood, Iowa. Lubricator	786,357	Apr. 4	228	52	115	1118
Hanson, Paul, St. Paul, Minn. Grain-binder	785,165	Mar. 21	2362	495–6	115	556
Hanson, Stephen H., Akron, Ohio. Power transmission for motor-vehicles	787,096	Apr. 11	1791	382	115	1468
Hanson, Stephen H., Akron, Ohio. Gearing	787,330	Apr. 11	2255	493	115	1568
Hanson & Van Winkle Company. (See Goodall, Fred E., assignor.)						
Hantke, Gustaw, Warsaw, Russia. Apparatus for raising liquids	785,307	Mar. 21	2648	561	115	616
Happe, Ernst, Hamburg, assignor to C. A. Fischer and A. G. Foss, Altona, Germany. Capsule-cutter	786,892	Apr. 11	1362	290	115	1373
Harding, Fred D., Baldwin, Me. Garment-supporter clasp	784,323	Mar. 7	611	125	115	140
Hardman, Peck & Co. (See Hattemer, Justus, assignor.)						
Hardsocg, Martin, Ottumwa, Iowa. Miner's pick	784,044	Mar. 7	58	11	115	15
Hardsocg, Martin, Ottumwa, Iowa. Handle and connecting-plug for pneumatic hammers	787,916	Apr. 25	3478	760	115	1870
Harmet, Henri, St. Etienne, France. Press for compressing and drawing ingots in conical molds	785,210	Mar. 21	2463	519	115	578
Harney, Thomas R., *et al.* (See Fuller, Wallace W., assignor.)						
Harper, W. W. (See Peck, William, assignor.)						
Harpham, George E., *et al.* (See Powell, James R., assignor.)						
Harpstrite, Henry P., Maroa, Ill. Distributing device	787,917	Apr. 25	3481	760–1	115	1870
Harrigan, J. F., *et al.* (See Young, Joseph P., assignor.)						
Harriman, Henry L., New York, N. Y., assignor to American Loom Company, Readville, Mass. Weft-replenishing mechanism for looms	788,356	Apr. 25	4342	947–9	115	2070
Harrington, H. (See McDonald, John, assignor.)						
Harrington, Norman T., assignor to Olds Motor Works, Detroit, Mich. Brake mechanism	786,807	Apr. 11	1203	251	115	1340
Harris, C. R. (See Goldman, Rutherford G., assignor.)						
Harris, Elmo G., Rolla, Mo. Centrifugal pump	787,039	Apr. 11	1677	357–8	115	1443
Harris, John B., Nashville, Tenn. Smoke-consuming furnace	784,324	Mar. 7	612	125–6	115	140
Harris, Joseph. (See Sullivan, John L., assignor.) (Reissue.)						
Harris, Samuel R., Philadelphia, Pa. Bottle-capping machine	787,881	Apr. 18	3406	745	115	1841
Harris, Theodore G., Helena, Okla. Ter. Stock-feeder	784,940	Mar. 14	1912	401	115	442
Harrison, Elmer E., Herington, Kans. Rail-joint	786,118	Mar. 28	4315	911	115	1001
Harrison, Francis X., Schenectady, N. Y. Rail-tie	788,466	Apr. 25	4565	995	115	2117
Harrison, Joseph S., and R. L. Simpson, Greeley, Colo. Device for winding or unwinding goods	788,133	Apr. 25	3927	850	115	1978
Harsen, Jacob, New York, N. Y. Track-end adjustment for drawbridges	788,400	Apr. 25	4453	968	115	2094
Harsh, George E., Carrollton, Ohio. Storm-window	786,893	Apr. 11	1362	290	115	1374
Hart, Orlando W., Fall River, Mass. Railway-signal	786,894	Apr. 11	1364	290	115	1374
Hartley, Harry C., Washington, D. C. Classifying sheet-holder for type-writers	784,789	Mar. 14	1627	335	115	379
Hartley, James, Philadelphia, Pa. Fire-alarm and fire-extinguishing apparatus	788,152	Apr. 25	3969	858	115	1987
Hartman, Noble W., assignor to Gas Engine Starter Company, Toledo, Ohio. Gas-engine starter	787,918	Apr. 25	3483	761	115	1871
Hartmann Trunk Company. (See Hawley and Wheary, assignors.)						
Hartog Stencil Machine Company. (See Hartog, Stephen D., assignor.)						
Hartog, Stephen D., assignor to Hartog Stencil Machine Company, St. Louis, Mo. Stencil-cutting machine	784,675	Mar. 14	1385	287	115	325
Hartough, Edward W., Thayer, Mo. Draft-rigging	785,211	Mar. 21	2465	520	115	578
Hartough, Edward W., Thayer, Mo. Draft-rigging	785,212	Mar. 21	2468	521	115	579
Hartshorn Bros. (See Hartshorn, Guy C., assignor.)						
Hartshorn, Guy C., assignor to Hartshorn Bros., Fort Worth, Tex. Couch	786,760	Apr. 4	1112	233	115	1309
Hartshorn, Joseph, Stuart, Iowa. Hasp-fastener	788,401	Apr. 25	4454	968	115	2094
Hartson, William J. (See Methfessel and Hartson.)						
Harvey, George L., Chicago, Ill. Spring	788,134	Apr. 25	3928	850	115	1978
Harvey, George L., Chicago, Ill. Friction device	788,135	Apr. 25	3931	851	115	1979
Haselwander, Friedrich A., Mannheim, Germany. Internal-combustion engine	785,166	Mar. 21	2369	496	115	557
Haselwander, Friedrich A., Mannheim, Germany. Internal-combustion engine	788,402	Apr. 25	4455	969	115	2094
Haskell, Broderick, Franklin, Pa. Bumping-post for railways	786,808	Apr. 11	1205	252	115	1341
Hasman, Charles J., San Francisco, Cal. Blotting-pad	784,211	Mar. 7	403	80	115	94
Hassell, Gilbert, San Francisco, Cal. Photographic camera	786,562	Apr. 4	725	147–8	115	1224
Hassett, William. (See Doolittle, Elbridge C., assignor.)						
Hasson, George E., Toronto, Canada. Combination-tool	787,172	Apr. 11	1949	422	115	1502
Hastings, Charles E., Griffin, Cal. Engine	785,611	Mar. 21	3282	697–8	115	756
Hastings, Charles E., Griffin, Cal. Steam-generator	786,761	Apr. 4	1113	233	115	1309
Hastings, George H., Oporto, Portugal. Tire	787,173	Apr. 11	1951	422	115	1502
Hastings, Glover S., Plainville, Conn. Seamless combination ferrule and bolster for knives	784,742	Mar. 14	1525	314	115	358
Hastreiter, Joseph. (See Dilthoff and Hastreiter.)						
Hatch, Hordin, Des Moines, Iowa. Cabinet for stationery, &c	784,325	Mar. 7	614	126	115	140
Hatch, Tracy B., Los Angeles, Cal. Dynamo-electric machine	787,292	Apr. 11	2180	480	115	1552
Hatcher, Benjamin F., Moody, Ky. Horse-detacher	788,403	Apr. 25	4457	969–70	115	2095
Hattemer, Justus, assignor to Hardman, Peck & Co., New York, N. Y. Piano-player case	784,045	Mar. 7	59	11–12	115	15
Haubold, Bruno M., Oxford, N. C. Furniture-roll	787,754	Apr. 18	3160	690	115	1787
Haulick, Hermann, W. A. Walling, and G. J. Winkle, assignors to New York Labeling Machine Company, New York, N. Y. Labeling-machine	786,495	Apr. 4	593	118–19	115	1197
Havens, Mary F., New York, N. Y. Sprayer for the wounds of animals	787,174	Apr. 11	1951	423	115	1502
Hawkesworth, John, New York, N. Y., and R. A. McCulloch, Orange, N. J. Variable counterpoise for gates	787,175	Apr. 11	1953	423	115	1503
Hawkins, Elijah, *et al.* (See Saxton, Thomas G., assignor.)						
Hawkins, James B., Slater, Mo. Float-valve	786,895	Apr. 11	1366	291	115	1374

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hawkins, Laurence A., Schenectady, N. Y., assignor to General Electric Company. Air-brake system and emergency-valve	785,549	Mar. 21	3161	669	115	730
Hawkins, Laurence A., Schenectady, N. Y., assignor to General Electric Company. Control of bulkhead-doors	787,293	Apr. 11	2183	481	115	1552
Hawkins, W. B., *et al.* (See Saxton, Thomas G., assignor.)						
Hawley, Charles F., Heppner, Oreg. Guide for battery-stems	784,790	Mar. 14	1630	335–6	115	380
Hawley, Eugene W., Milwaukee, Wis. Clothes-hanger	787,622	Apr. 18	2870	624	115	1722
Hawley, Eugene W., Milwaukee, and G. H. Wheary, assignors to Hartmann Trunk Company, Racine, Wis. Garment-supporter for trunks, &c.	786,119	Mar. 28	4316	911	115	1001
Hawn, John W., assignor of one-half to G. C. Hale, Kansas City, Mo. Car-door	786,896	Apr. 11	1367	291	115	1375
Hay, John F., Erie, Pa. Comminuted-fuel-feeder device	786,120	Mar. 28	4317	911–12	115	1001
Hayee, Charles J. W., Detroit, Mich., assignor to C. W. Cadwell, trustee, Windsor, Ontario, Canada. Building-block	786,762	Apr. 4	1115	234	115	1309
Hayes, Frank, Superior, Wis., and W. Clifford, Duluth, Minn. Mooring-machine	786,287	Apr. 4	71	16	115	1086
Hayes, Neil B., Adrian, Mich. Tie for wire fencing	786,029	Mar. 28	4135	871	115	959
Haygood, Genous T., Mobile, Ala. Rail-joint	786,030	Mar. 28	4136	871	115	960
Hayhurst, Benjamin. (See Campbell, Newton, assignor.)						
Haynes, John L., St. Louis, Mo. Voting-machine	786,897	Apr. 11	1369	291–3	115	1375
Haynes, W. E. (See Whitley, Hiram C., assignor.)						
Hayward, Eugene, assignor of two-thirds to J. B. Morris and S. F. Rush, Chicago, Ill. Railway-rail	788,505	Apr. 25	4631	1011	115	2130
Hayward, John C., Selma, Ala. Oiler	785,612	Mar. 21	3284	698	115	756
Hazard, Henry T., *et al.* (See Powell, James R., assignor.)						
Healey, Patrick, assignor of one-half to J. D. Ireland and A. Buckingham, Campbird, Colo. Smelting-furnace	786,121	Mar. 28	4321	912	115	1002
Heart, Charles, assignor to Heart Metal Wheel & Gear Company, Alexandria, Ind. Metal horseshoe	787,097	Apr. 11	1795	383	115	1468
Heart Metal Wheel & Gear Company. (See Heart, Charles, assignor.)						
Heath, Horace M., Newton, Mass., G. Morrice, Sonora, and R. L. J. Gruss, Genesee, Cal., assignors to F. W. McAleer, Newton, Mass. Ore-roasting furnace	785,067	Mar. 14	2135	451	115	491
Heberlein, Ferdinand. (See Huntington and Heberlein.)						
Hecht, Frank J., assignor of one-half to M. Hecht, New York, N. Y. Muffler	788,313	Apr. 25	4269	927	115	2053
Hecht, Michael. (See Hecht, Frank J., assignor.)						
Heckeler, William, Meadville, Pa. Artificial fishing-bait	784,398	Mar. 7	794	163	115	182
Hedburg, Eric, Joplin, Mo., assignor, by mesne assignments, to American Reduction Company, Chicago, Ill. Separating and refining complex ores	785,167	Mar. 21	2372	437	115	558
Heffernan, Francis S., Springfield, Mo. Non-refillable bottle	784,941	Mar. 14	1914	402	115	443
Heffernan, Frank E., Salt Lake City, Utah. Hat-fastener	787,573	Apr. 18	2755	601	115	1694
Heffron, William, Cincinnati, Ohio. Apparatus for excavating trenches, &c.	787,040	Apr. 11	1682	358	115	1444
Hegener, Rudolph, Chicago, Ill. Column	788,153	Apr. 25	3971	858	115	1987
Heilprin, William A. (See Norton, James W., assignor.)						
Heilrath, Christian, Sacramento, Cal. Trace-holder	784,213	Mar. 7	406	81	115	95
Heilrath, Christian, Sacramento, Cal. Trace-holder	784,214	Mar. 7	407	81	115	95
Heilrath, Christian, Sacramento, Cal. Adjustable shade-bracket	784,490	Mar. 7	981	206	115	222
Heilrath, Christian, Sacramento, Cal. Spiral slip-loop for hitching ropes	788,136	Apr. 25	3933	851	115	1980
Helm, William J., Butler, assignor of one-half to W. W. Lesher, Mosserville, Pa. Window	786,213	Mar. 28	4497	951	115	1038
Heine, William F., Milton Junction, Wis. Garment-supporter	787,668	Apr. 18	2957	643	115	1740
Heinig, Frederick E., *et al.* (See Pope, Alfred T., assignor.)						
Heinkel, Christian F., Cleveland, Ohio. Means for converting electrical currents for induction-motors	785,731	Mar. 28	3528	755	115	822
Heinrich, Jacob, and H. Dorsch, Fürth, Germany. Power-hammer	787,331	Apr. 11	2257	493	115	1569
Heintze, Fritz, Greiz, assignor of one-half to M. Schuhmann, Gera Reuss, Germany. Shuttle-guard for looms	785,359	Mar. 21	2745	581	115	637
Helsey, Abraham G., Cushing, Okla. Ter. Corn-harvester	785,878	Mar. 28	3797	807	115	883
Heizmann, Jules, Strassburg, Germany. Heating or cooling apparatus	784,262	Mar. 7	495	99	115	114
Helander, Axel H., Pueblo, Colo., assignor to Mesta Machine Company, Pittsburg, Pa. Steam-condenser	785,613	Mar. 21	3287	698–9	115	757
Helander, Axel H., Pueblo, Colo., assignor to Mesta Machine Company, Pittsburg, Pa. Steam-condenser	785,614	Mar. 21	3289	699	115	757
Heldman, Rufus B. (See Belding and Heldman.)						
Heiflinger, Charles F., Elizabeth, N. J. Machine for cutting butter	785,488	Mar. 21	3026	640	115	702
Heiflinger, Charles F., Grand Rapids, Wis. Butter-cutting machine	785,489	Mar 21	3028	640	115	702
Helfrich, Michael D., Evansville, Ind. Water-closet bowl	787,755	Apr. 18	3162	691	115	1787
Helling, Charles H. S., Alameda, Cal. Wheel	785,670	Mar. 21	3398	730–1	115	780
Hellman, Maurice S., Los Angeles, Cal. Portable holder for ladies' hats	787,098	Apr. 11	1796	383	115	1469
Helm, Henry B. (See Fisher, Helm, and Epple.)						
Helvie, George M., Longbeach, Cal. Tide-motor	785,879	Mar. 28	3799	808	115	883
Hemings, Frederick E., Brownville, assignor of one-half to C. N. Sherman, Watertown, N. Y. Pulp-strainer	784,743	Mar. 14	1526	314	115	358
Hemleb, Martin, Elizabeth, N. J., assignor to Singer Manufacturing Company. Revolving-book sewing-machine	785,168	Mar. 21	2374	497	115	558
Hench, Samuel N., York, Pa. Cultivator	785,638	Mar. 14	2084	438–9	115	481
Henckler, William, St. Louis, Mo. Fish-hook	784,942	Mar. 14	1915	402	115	443
Henderson, Frank E. (See Hammond and Henderson.)						
Henderson, George, Washington, D. C. Sight-finder	788,467	Apr. 25	4566	995	115	2117
Henderson, George A., Chicago, Ill. Hair-pin	785,732	Mar. 28	3529	756	115	822
Henderson, George K., assignor of one-half to F. W. Nerge, New York, N. Y. Printing-press cylinder	786,031	Mar. 28	4137	872	115	960
Henderson, Thomas, Blackfoot, Tex. Plow and cultivator	785,213	Mar. 21	2470	521	115	579
Hendreckson, Helmer, Decorah, Iowa. Separating and threshing appliance	787,756	Apr. 18	3163	691	115	1788
Hendrick Manufacturing Company. (See Culver, Willard B., assignor.)						
Hendrickson, Magnus, assignor to J. Lauth, Chicago, Ill. Power-transmission mechanism	785,948	Mar. 28	3948	839–40	115	916
Hendrickson, Magnus, assignor to J. Lauth, Chicago, Ill. Gearing	786,214	Mar. 28	4498	951–2	115	1038
Hendry, Alexander. (See Hendry, James, A., and M. A.)						
Hendry, James, A., and M. A., Glasgow, Scotland. Machinery-driving belt	787,919	Apr. 25	3487	762	115	1872
Hendry, Malcolm A. (See Hendry, James, A., and M. A.)						
Hendryx, Wilbur A., Los Angeles, Cal. Apparatus for extracting metals from their ores	785,214	Mar. 21	2472	522	115	579
Hening, Chester E., North Baltimore, Ohio. Rain-water filter	788,102	Apr. 25	3851	837	115	1956
Henke, Harry. (See Glenn and Henke.)						
Hennessy, Edward A., A. H. Andrews, and C. E. Ross; said Ross assignor, by mesne assignments, to C. H. Pumphrey and J. F. Pixley, Columbus, Ohio. Horseshoe	786,966	Apr. 11	1543	328	115	1413
Henry, Esca W., Glasgow, Mo. Railway-switch	785,615	Mar. 21	3290	699	115	758
Henry, Eugene E., Georgetown, S. C. Lamp-holder	787,757	Apr. 18	3164	691	115	1788

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Henry, Ira W. (See Le Blanc, Alexis, assignor.)						
Hepburn, Harry L., New York, N. Y. Liquid-return system	788,314	Apr. 25	4271	927	115	2054
Hepinstall, Cyrus H., St. Thomas, Canada. Combined type-writer and telegraph-transmitter	784,858	Mar. 14	1757	366–7	115	407
Hepnar, Anton, Cassel, Germany. Apparatus for treating animal colics or gripes	786,215	Mar. 28	4501	952	115	1038
Herbener, John H., Providence, R. I. Outdoor bed	785,099	Mar. 21	2238	471	115	528
Herbert, Edward G., Manchester, England. Circular sawing machine	787,510	Apr. 18	2640	571–2	115	1669
Herbert, Michael E., Chicago, Ill. Water-heater with garbage-burner	787,176	Apr. 11	1955	423–4	115	1503
Herbstritt, Hermann. (See Andriano and Herbstritt.)						
Herman, Paul. (See Studabaker, Hugh D., assignor.)						
Herndon, Joseph R., assignor of one-eighth to S. R. Burnett, Marshall, Tex. Draft or buffing gear or rigging for cars	787,445	Apr. 18	2496	541–2	115	1633
Herr, Edwin M., Edgewood Park, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Retaining-valve	786,288	Apr. 4	72	17	115	1087
Herrenschmidt, Henri L., Le Genest, France. Treating products containing vanadium, molybdenum, titanium, and tungsten	787,758	Apr. 18	3166		115	1788
Herrick, James A., Philadelphia, Pa. System for the combustion of gas	786,032	Mar. 28	4139	872	115	960
Herrick, James A., Philadelphia, Pa. Reversing-valve	786,033	Mar. 28	4140	873	115	961
Hersey Manufacturing Company. (See Tilden, James A., assignor.)						
Hershey, William B. C., Columbus, Ohio. Vehicle body-corner	784,159	Mar. 7	290	60	115	69
Hershey, William B. C., Columbus, Ohio. Brace-iron for vehicle-seats	784,160	Mar. 7	291	61	115	69
Hertzog, Oscar S., Birdsboro, Pa. Automatic safety-switch for hoisting-machines	786,809	Apr. 11	1206	252	115	1345
Herzog, Fritz, Washington, D. C. Horseshoe	787,446	Apr. 18	2500	542	115	1631
Herzog, Louis, assignor to Stickerei Feldmühle, vormals Loeb, Schoenfeld & Co., Rorschach, Switzerland. Jacquard embroidering-machine	785,169	Mar. 21	2376	498–9	115	559
Hess, Charles W., and J. F. Matthews, Elreno, Okla. Ter. Self-closing gate	785,550	Mar. 21	3163	669	115	731
Hess, Henry K., Philadelphia, Pa. Steam motive power	786,122	Mar. 28	4322	913	115	1003
Hess, Henry K., Philadelphia, Pa. Burner	786,123	Mar. 28	4324	913	115	1003
Hess, Wilhelm, Frankfort-on-the-Main, Germany. Obtaining the contents of yeast-cells	785,733	Mar. 28	3530		115	822
Hess, Wilhelm, assignor to L. W. Gans, Frankfort-on-the-Main, Germany. Obtaining the contents of yeast-cells	785,734	Mar. 28	3531		115	822
Hesser, Otto, Cannstatt, Germany. Machine for making paper bags	787,759	Apr. 18	3167	692	115	1788
Hetland, Arthur, assignor of one-third to O. J. Oak, Henning, Minn. Scoop	784,562	Mar. 14	1126	236	115	268
Hewitson, David. (See Oliver, Robert, assignor.)						
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company. Double-throw electric switch with indicator	785,949	Mar. 28	3951	840	115	917
Heyl & Patterson. (See Acklin, Alfred M., assignor.)						
Heyl & Patterson. (See Robb, Lewis J., assignor.)						
Heyman, Louis. (See Weinberg, Heyman, and Dittenheimer.)						
Heys, John J., assignor of one-half to M. V. Breshnahan, Lynn, Mass. Stitch-indenting machine	784,263	Mar. 7	496	100	115	115
Hibbard, Henry D. (See Bodell and Hibbard.)						
Hibbard, Henry D., Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y. Safe or vault	788,103	Apr. 25	3853	837–8	115	1956
Hibbard, Henry D., Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y. Actuating locking means for safes or vaults	788,104	Apr. 25	3859	838–9	115	1958
Hibbard, Henry D., Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y. Bolting mechanism for safes or vaults	788,105	Apr. 25	3868	839	115	1962
Hibbard, Henry D., Plainfield, N. J., assignor to Manganese Steel Safe Company, New York, N. Y. Actuator-locking mechanism for safes or vaults	788,106	Apr. 25	3873	840	115	1964
Hibbard, Henry D., and W. C. Peck, Plainfield, N. J., assignors to Manganese Steel Safe Company, New York, N. Y. Actuator-locking means for safes or vaults	788,107	Apr. 25	3877	840	115	1966
Hibbard, Maury W., Chicago, Ill. Fluid-pressure brake	788,208	Apr. 25	4066	880	115	2009
Hibbard, Maury W., assignor to R. Fitzgerald, Chicago, Ill. Fluid-pressure brake system	787,332	Apr. 11	2258	494	115	1569
Hickler, John, Pasadena, Cal. Bilge-block	787,294	Apr. 11	2186	481	115	1553
Hickok, Lester E. (See Wilcox and Hickok.)						
Hicks, James M., Summit, N. J., assignor to Auto Stopper Company, New York, N. Y. Sealing means for vessels	785,000	Mar. 14	2016	423	115	465
Hicks, John A., Summit, N. J., assignor, by mesne assignments, to Auto Stopper Company, New York, N. Y. Machine for bottling liquids	785,001	Mar. 14	2017	423	115	465
Hicks, Rufus L., Stamford, Tex. Hub-wrench	784,563	Mar. 14	1127	236	115	268
Hickson, Frederick A., Atlanta, Ga. Refrigerator	786,810	Apr. 11	1209	252–3	115	1341
Hieber, Reynolds C., Chicago, Ill. Corned-beef press	786,438	Apr. 4	476	92	115	1173
Higgins, Elmer E., St. Paul, Minn. Portable invalid's chair	787,760	Apr. 18	3169	692–3	115	1789
Higgins, William H., assignor, by mesne assignments, to Campaigno Card Company, Atlanta, Ga. Playing-cards	787,295	Apr. 11	2187	481–2	115	1553
Hilde, Hermann, Rosswein, Germany. Glass-blowing machine	784,744	Mar. 14	1529	315	115	359
Hilker-Wiechers Manufacturing Company. (See Schneider, Cathrine, assignor.)						
Hill, Adelbert D. (See Glenn and Hill.)						
Hill, Benjamin B., Philadelphia, Pa. Hand-stamp	785,360	Mar. 21	2746	582	115	638
Hill, Charles E., Millington, Mich. Griddle	785,880	Mar. 28	3800	808	115	883
Hill, George W., Brookfield, Wash. Book-mark	785,215	Mar. 21	2481	523	115	582
Hill, James H., assignor to Defiance Lantern & Stamping Company, Limited, Rochester, N. Y. Tubular lantern	784,326	Mar. 7	616	126	115	141
Hill, James J., Ewing, Ill. Stovepipe-support	784,327	Mar. 7	616	127	115	141
Hill, Joseph W., assignor to S. C. Paul, Stourbridge, England. Connecting-link for chains and chain cables	785,881	Mar. 28	3802	808–9	115	884
Hill, William, Denver, Colo. Horseshoe	786,763	Apr. 4	1116	234	115	1309
Hiller, Gustav, Zittau, Germany. Warp-twisting machine	787,511	Apr. 18	2642	572–4	115	1669
Hiltscher, John F. and M., Fullerton, Cal. Carbureter for gas-engines	784,676	Mar. 14	1387	287	115	326
Hiltscher, Max. (See Hiltscher, John F. and M.)						
Himmelwright, Abraham L. A., New York, N. Y., assignor to New Jersey Wire Cloth Company, Trenton, N. J. Concrete beam protection	786,289	Apr. 4	74	17	115	1087
Himmelwright, Abraham L. A., New York, N. Y., assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction and making same	787,512	Apr. 18	2649	574	115	1671
Hindes, Stetson G., assignor of one half to Atlantic, Gulf and Pacific Co., San Francisco, Cal. Wharf or pier	785,950	Mar. 28	3952	840	115	917
Hindman, Isaiah E., and J. J. Albright, assignors of one-half to J. F. Weathers, Columbus, Ga. Sparking igniter for explosive-engines	784,677	Mar. 14	1389	288	115	326
Hine, Albert W. (See Farnsworth and Martin, assignors.)						
Hiner, Jacob J., Woodstock, Ill. Farm-gate	786,124	Mar. 28	4326	913–14	115	1003
Hines, James S., Macon, Ga. Paper-fastener	786,563	Apr. 4	728	148	115	1225

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Hines, Lewis M. (See Sartain, Louis M., assignor.)						
Hinkle, John N., Columbus, Ohio. Soap-mill	786,125	Mar. 28	4328	914	115	1003
Hiram W. French Company. (See Morse, George W., assignor.)						
Hirsch, Robert, Teplitz-Schönau, Austria-Hungary. Safety appliance for street-cars	787,574	Apr. 18	2755	601	115	1695
Hirschfeld, Benjamin, assignor of one-half to A. M. Ellis, Pittsburg, Pa. Safety-razor	786,898	Apr. 11	1377	293	115	1376
Hirst, James, Vineland, N. J. Adjustable weighting-sight for guns	788,404	Apr. 25	4459	970	115	20o5
Hirth, Michael, Butler, Pa. Hose-coupling	784,212	Mar. 7	404	80	115	94
Hisey, Edwin T., and J. W. Moore, Blairstown, Mo. Self-feeder for baling-presses	787,447	Apr. 18	2501	542	115	1635
Hislop, George R., Paisley, Scotland. Steam-boiler or like furnace	786,764	Apr. 4	1118	234–5	115	1310
Hiteshew, Harvey B., Pittsburg, Pa. Horizontally-pivoted window	787,378	Apr. 18	2361	511	115	1604
Hitt, Adrian, Jersey City, N. J. Knob-spindle attachment	784,620	Mar. 14	1266	265	115	297
Hjermstad, Christian O. (See Wenzel and Hjermstad.)						
Hoagland, Semon, Astor, Fla. Railway cross-tie	788,260	Apr. 25	4163	904	115	2030
Hobart, Adam J., St. Johnsville, assignor to Roth and Engelhardt, New York, N. Y. Coin-controlled actuating mechanism for autopneumatic pianos	786,809	Apr. 11	1378	293	115	1377
Hobart Electric Manufacturing Company. (See Johnston, Herbert L., assignor.)						
Hochklassen, Henry. (See Fay and Hochklassen.)						
Hock, Henry W. (See Hock, John A. and H. W.)						
Hock, John A. and H. W., Youngstown, Ohio. Mandrel	788,154	Apr. 25	3971	858	115	1988
Hock, Nicholas G., Greeley, Colo. Apparatus for making gas from oils	788,405	Apr. 25	4460	970–1	115	2095
Hockney, Chester L., and W. R. Curtiss, Silverlake, Wis. Coupling	787,296	Apr. 11	2188	482	115	1553
Hocquart, Edouard L., Paris, France. Traveling staircase or the like	785,882	Mar. 28	3803	809	115	884
Hodgdon Brass Works. (See Hodgdon, Charles W., assignor.)						
Hodgdon, Charles W., Somerville, assignor to Hodgdon Brass Works, Boston, Mass. Pipe-hanger	785,100	Mar. 21	2239	471	115	528
Hodge, Richard H. and W. C., Medford, Oreg. Stovepipe-fastener	786,900	Apr. 11	1379	294	115	1377
Hodge, Walter C. (See Hodge, Richard H. and W. C.)						
Hodges, Samuel H., South Glens Falls, N. Y. Fountain-pen	786,967	Apr. 11	1544	328	115	1413
Hodges, Walter T. (See Hackett and Hodges.)						
Hodgkin, Philip E. (See Hodgkin, Stanley H. and P. E.)						
Hodgkin, Stanley H. and P. E., Reading, England. Water-softening apparatus	784,046	Mar. 7	62	12	115	16
Hodgkins, Reginald, Malvern, Victoria, Australia. Manufacturing golf-balls	788,468	Apr. 25	4567	.....	115	2117
Hoeft, Frank A., Latona, Minn. Attachment for furnaces	788,046	Apr. 25	3753	816–17	115	1933
Hoerichs, Edward, assignor of two-thirds to T. A. Bryan and C. H. Boone, Baltimore, Md. Stopper for bottles	785,551	Mar. 21	3165	669–70	115	732
Hoetger, Mathias, Elkhart, Ind. Self-heating sad-iron	786,439	Apr. 4	478	92	115	1174
Hofeldt, Charles F., Lloyd, Mont. Wire-stretcher	786,765	Apr. 4	1119	235	115	1310
Hoff, Oliver G., Baltimore, Md. Mail-bag delivering and catching apparatus	787,983	Apr. 25	3620	789–90	115	1902
Hoffman, Frank, assignor of one-half to E. E. Hanna, Chicago, Ill. System of electrical distribution	784,328	Mar. 7	617	127	115	141
Hoffman, Frank, assignor of one-half to E. E. Hanna, Chicago, Ill. System of electrical distribution	784,523	Mar. 7	1056	218	115	237
Hoffman, Valentine. (See Barna and Hoffman.)						
Hoffman, William W. and F. W. Powets, West Lafayette, assignors to Electric & Steam Railway Supply Company, Lafayette, Ind. Trolley catcher and retriever	784,678	Mar. 14	1391	288	115	327
Hofmann, Frederick, New York, N. Y. Medical apparatus	787,920	Apr. 25	3487	762	115	1872
Hofstatter, William J., Toledo, Ohio. Combination fluid-pressure lock	787,575	Apr. 18	2757	602	115	1695
Hogan, James T., Jersey City, N. J., assignor to National Machine Company, Mamaroneck, N. Y. Buttonhole-sewing machine	787,177	Apr. 11	1956	424	115	1503
Hogan, John, Chippewa Falls, Wis. Gate	786,440	Apr. 4	480	92	115	1174
Hohein, George C., Norfolk, Va. Medicine-spoon	784,399	Mar. 7	795	163	115	182
Holcombe, Halsey S., Granby, Conn. Boarding-clamp	785,491	Mar. 21	3032	641	115	703
Holder, William J., assignor of one-half to J. F. Corry, Rockwall, Tex. Lamp-bracket	787,513	Apr. 18	2651	574–5	115	1671
Holland, Franklin. (See Moore and Holland.)						
Holland, Gerald E., and H. Johnston, Rangoon, Burma, India, assignors to Holland Johnston Patents Limited, London, England. Driving-gear for elevating machinery &c	785,552	Mar. 21	3169	670	115	732
Holland Johnston Patents. (See Holland and Johnston, assignors.)						
Hollander, David. (See Kacso, Sando, assignor.)						
Holle, Walter. (See Taylor and Holle.)						
Hollenbeck, James W., Riovista, Cal. Spud-grip for dredgers, &c	786,968	Apr. 11	1545	329	115	1414
Hollinrake, Joseph, *et al.* (See Spence, Harry, assignor.)						
Hollis, Ezra, Oilfield, assignor of four-fifths to M. J. Glick, Westfield, Ill. Corn harvester and husker	786,811	Apr. 11	1212	253	115	1342
Hollis, Herbert S. (See Hollis, William A. and H. S.)						
Hollis, William A. and H. S., Hove, England. Inner tube and means for inflating same	787,761	Apr. 18	3172	693	115	1789
Holmberg, Anna. (See Holmberg, Charles G., assignor.)						
Holmberg, Charles G., assignor of one-half to A. Holmberg, Woonsocket, S. D. Packing	785,492	Mar. 21	3033	641	115	704
Holmes, Frank J. (See Brown and Holmes.)						
Holtzmann, Philip. (See Arendt and Holtzmann.)						
Holz, Otto, and P. Haerry, Schenectady, N. Y. Bait-moving device	788,047	Apr. 25	3754	817	115	1933
Honabarger, John A., Warsaw, Ohio. Vending-machine	785,883	Mar. 28	3906	810	115	884
Honeywell, Henry F., St. Louis, Mo. Air-ship	784,151	Mar. 7	292	61	115	69
Honscheid, William, Elmira, N. Y. Lock for levers	787,843	Apr. 18	3329	728	115	1822
Hood, Delaware J., Philadelphia, Pa., assignor to Victor Talking Machine Company. Device for handling talking-machine needles	787,623	Apr. 18	2871	625	115	1722
Hood, Hiram Q., Webb City, Mo. Spike-puller	784,679	Mar. 14	1397	288	115	329
Hookham, George, Birmingham, England. Bottle-stopper	787,669	Apr. 18	2958	643	115	1740
Hooper, Frank E., Biddeford, Me. Snow-shovel	787,921	Apr. 25	3488	762	115	1872
Hooper, Frank W., Grass Valley, Cal. Stamp-stem guide	786,969	Apr. 11	1547	329	115	1414
Hoopes, William, Pittsburg, Pa. Electrolytic separation	788,315	Apr. 25	4273	927	115	2054
Hoornbeek Eugene, Riverside, Cal. Double-acting pump mechanism	785,553	Mar. 21	3170	670	115	732
Hoover, Frank K., and A. J. Mason, Chicago, Ill. Vessel for carrying ore or like material	784,943	Mar. 14	1916	402–3	115	443
Hope-Jones, Robert, Hartford, Conn. Sound-producing device	787,984	Apr. 25	3623	790	115	1903
Hopkins, Archibald E. (See Fellows and Hopkins.)						
Hopkins, Archibald E., Dixon, Ill., assignor to Borden's Condensed Milk Company, New York, N. Y. Wrapping-machine	787,379	Apr. 18	2363	511–12	115	1605
Hopkins, Charles L., Chicago, Ill., assignor to Curtain Supply Company, Newark, N. J. Curtain-fixture	785,806	Mar. 28	3677	782	115	856
Hopkins, Henry C., Lithonia, Ga. Well-bucket sinker	785,101	Mar. 21	2241	472	115	528
Hopkins, William B., Washington, D. C. Advertising device	787,178	Apr. 11	1959	425	115	1504
Hopkinson, Edward, and A. E. L. Chorlton, Salford, England. Rotary pump or turbine	785,039	Mar. 14	2067	439–40	115	481
Hopkirk, James, Seattle, Wash. Stave wooden pipe	785,423	Mar. 21	2886	609	115	670
Hoppe, Emil H. (See Baude and Hoppe.)						
Hopton, Lemuel R., Plainfield, N. J., assignor to Enos Company, New York, N. Y. Incandescent-lighting fixture	786,812	Apr. 11	1214	253	115	1342

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Horn, August P., Hamburg, Germany. Making neutral soap	786,496	Apr. 4	597	.....	115	1198
Horn, Ernest H., assignor to Waterbury Clock Co., Waterbury, Conn. Lantern-pinion	787,041	Apr. 11	1683	358	115	1444
Horner, Richard, York, England. Apparatus for conditioning grain, &c	785,554	Mar. 21	3171	670–1	115	733
Horner, Walter H., Seattle, Wash. Wire-stringer	786,216	Mar. 28	4504	953	115	1039
Horsley, Robert L., assignor to Worth Wire Works, Fort Worth, Tex. Mat	784,564	Mar. 14	1128	236	115	268
Horstschafer, August, Milwaukee, Wis. Block-signal system for railways	785,807	Mar. 28	3679	782–3	115	857
Horton, Floyd W., *et al.* (See Peters, David T., assignor.)						
Horton, James A., Providence, R. I., assignor to Iroquois Machine Company, New York, N. Y. Wire-drawing drum	784,264	Mar. 7	499	101	115	115
Horton Manufacturing Company. (See Sweet, Warren, assignor.)						
Horton, Oliver E., Jefferson, La. Composition for destroying pear blight	788,155	Apr. 25	3974	.....	115	1988
Hosack, Lee L. (See Geltz and Hosack.)						
Hoskins, Cicero, Quincy, Ill. Folding or knockdown crate	786,813	Apr. 11	1216	254	115	1343
Hoskins, George J., Ultimo, Sydney, New South Wales, Australia. Joint for the locking-bar type of rolled iron pipes	784,565	Mar. 14	1129	236	115	269
Hoskins, George J., Ultimo, Sydney, New South Wales, Australia. Locking-bar pipe	784,566	Mar. 14	1131	237	115	269
Hosse, William, and R. McEwen, Nashville, Tenn. Roundabout	786,290	Apr. 4	75	17–18	115	1087
Houget, Fernand, Verviers, Belgium. Self-acting mule	784,047	Mar. 7	66	12	115	17
Houghton, Elijah M., assignor to Parke, Davis & Co., Detroit, Mich. Vaccine case and holder	786,358	Apr. 4	230	52	115	1119
Hougland, Frank H., Nashville, Tenn. Box	785,102	Mar. 21	2242	472	115	529
House, William C., Vienna, Tex. Grubber	784,791	Mar. 14	1631	336	115	380
Houston, George D., Rushville, Ill. Cultivator	788,209	Apr. 25	4070	881	115	2009
Howard, Daniel E., and A. S. Hall, Saguache, Colo. Washing-machine	784,491	Mar. 7	983	206	115	221
Howard, Harlan S., Madison, Wis. Sulky disk harrow	785,493	Mar. 21	3034	642–3	115	704
Howard, James K., Brooklyn, N. Y. Watch-protector	786,217	Mar. 28	4506	953	115	1039
Howard, Robert W., *et al.* (See Crowell, Luther C., assignor.)						
Howard, Thomas W., Windom, Minn. Gate	788,316	Apr. 25	4274	928	115	2055
Howe, Charles W., Omega, Ala. Animal-trap	788,406	Apr. 25	4461	971	115	2095
Howe, Edward A., New York, N. Y. Hat-frame-forming device	787,042	Apr. 11	1683	358–9	115	1444
Howe, Elbridge G., Millbury, Mass. Device for operating the switches of street-railways	786,564	Apr. 4	729	148	115	1225
Howe, Frank F., Marietta, Ohio. Casing-head	784,400	Mar. 7	796	164	115	182
Hoxie, Arthur S., Brooklyn, N. Y. Perch-support	787,922	Apr. 25	3489	762	115	1872
Hoy, J. A. F. (See Craft, Owen B., assignor.)						
Hubbard, Henry D., Avalon, Pa. Vehicle-wheel tire	785,170	Mar. 21	2378	499	115	559
Hubbard, Richard W., Ashtabula, Ohio. Hinge	787,514	Apr. 18	2652	575	115	1671
Hubbell, Herbert G., Hector, N. Y. Bean-picker	786,291	Apr. 4	77	18	115	1088
Huber, Carl. (See Eyermann, Peter, assignor.)						
Huber, Emil, Detroit, Mich. Frame for automobiles	788,407	Apr. 25	4463	971	115	2096
Hubinger, John C., Keokuk, Iowa. Telephone-exchange system	786,901	Apr. 11	1381	294	115	1377
Huch, Wilhelm, deceased, Helmstedt, Germany; A. Baertl, executrix. Recovering sugar from masse-cuite	785,308	Mar. 21	2650	561	115	617
Hudson, Charles P., Lancaster, S. C. Ice-cream freezer	784,401	Mar. 7	797	164	115	182
Hudson, James J., Philadelphia, Pa. Manufacture of iron and steel	785,002	Mar. 14	2019	424	115	465
Hudson, Millard F., Los Angeles, Cal. Wrench	786,788	Apr. 4	1163	243–4	115	1320
Hudson, Millard F., and E. R. Langford, assignors to Hudson Tool Company, Los Angeles, Cal. Vise	786,787	Apr. 4	1160	243	115	1319
Hudson, Samuel I. (See McDaniel and Graves, assignors.)						
Hudson Tool Company. (See Hudson and Langford, assignors.)						
Huenefeld, Ernst H. (See Bixler, John F., assignor.)						
Huether, Charles, Sharon, Pa. Combined insole and arch-support	788,469	Apr. 25	4568	996	115	2118
Huff, Thomas J. (See Warren, Phineas M., assignor.)						
Hughes, Burton S., Lockland, and C. T. Hughes, Cincinnati, Ohio, assignors of one-third to T. K. Peters, St. Louis, Mo. Apparatus for cleaning tubes	787,333	Apr. 11	2262	494	115	1570
Hughes, Clarence T. (See Hughes, Burton S. and C. T.)						
Hughes, Denis D., Titusville, Pa. Furnace	784,048	Mar. 7	68	13	115	18
Hughes, Johnson, Wissahickon, Pa. Annealing-furnace	786,565	Apr. 4	731	149	115	1225
Hughes, William G., Pittsburg, Pa. Apparatus for making hollow concrete blocks	786,566	Apr. 4	732	149–50	115	1226
Huguenin, Numa. (See Leu, Jean A., assignor.)						
Hull, Nellie R., Asheville, N. C. Powder-puff	785,951	Mar. 28	3954	841	115	917
Hulsey, Samuel I., Corridon, Mo. Fence-wire fastener	788,357	Apr. 25	4351	949	115	2071
Hult, Carl A. and O. W., Stockholm, Sweden. Liner for centrifugal separators	787,179	Apr. 11	1961	425–6	115	1505
Hult, Carl A. and O. W., Stockholm, Sweden. Rotary engine	787,762	Apr. 18	3173	693	115	1790
Hult, Oscar W. (See Hult, Carl A. and O. W.)						
Hultquist, Charles, Denver, Colo. Combined lubricator and throttle-valve	784,049	Mar. 7	70	13	115	18
Hume, William S., *et al.* (See Flowers, Samuel R., assignor.)						
Hummel, Charles. (See Pernot and Hummel.)						
Hummer, Arthur C., Seattle, Wash. Butter-tray	785,952	Mar. 28	3955	841	115	918
Humphrey Company. (See Humphrey, Herbert S., assignor.)						
Humphrey, Ernest N., New Britain, Conn. Garment-clasp	784,745	Mar. 14	1531	315	115	359
Humphrey, Herbert S., assignor to Humphrey Company, Kalamazoo, Mich. Flash-pilot for gas-burners	786,292	Apr. 4	79	19	115	1088
Humphrey, James E., Aberdeen, S. D. Dinner-pail	784,215	Mar. 7	408	81	115	95
Humphreys, L. E. (See Landrus, Hiram, assignor.)						
Hundredmark, William H., Caledonia, Minn. Cultivator	787,763	Apr. 18	3175	694	115	1720
Hunt, Bertram, San Francisco, Cal. Gravity-filter	786,441	Apr. 4	480	93	115	1174
Hunt, Charles W., New York, N. Y. Means for handling merchandise, &c	784,162	Mar. 7	294	61	115	70
Hunt, Clyde E., *et al.* (See Peters, David T., assignor.)						
Hunt, Frederick C., Girard, Ohio. Combined shoulder-brace and suspender	785,494	Mar. 21	3039	643	115	705
Hunt, Helm, Ferris & Company. (See Ferris, Henry L., assignor.)						
Hunt, John G., Lenox, assignor of three-fourths to C. A. Capps, Beulah, and T. C. McGiboney, Licking, Mo. Pruning implement	786,766	Apr. 4	1121	235	115	1310
Hunt, Martin W., Portland, Oreg. Self-cleaning sieve	784,359	Mar. 14	1761	367	115	408
Hunt, Robert W., Chicago, Ill. Perfecting cast-steel ingots	786,359	Apr. 4	230	53	115	1119
Hunter, Henry H. and S. L., Berkeley Springs, W. Va. Churn	787,180	Apr. 11	1964	426	115	1505
Hunter, Lester H., San Francisco, Cal. Toy air-ship	787,515	Apr. 18	2653	575	115	1672
Hunter, Stewart L. (See Hunter, Henry H. and S. L.)						
Huntington, Thomas, and F. Heberlein, London, England. Treating sulfid ores or compounds preparatory to smelting	786,814	Apr. 11	1218	.....	115	1343
Huntington, Thomas S., assignor of two-thirds to J. P. Munn and H. A. Pardee, New York, N. Y. Rotary engine	785,884	Mar. 28	3810	810–12	115	885
Huntley, Jay M., assignor of one-half to C. B. Berger, Rockford, Ill. Utensil for truing and re-forming the metallic flanges of fruit-jar covers	786,789	Apr. 4	1167	244	115	1321
Hurd, Oscar P., Hooper, N. Y. Bootee	786,644	Apr. 4	897	184	115	1262
Huse, Leon C., assignor of two-thirds to W. D. and W. L. Huse, Laconia, N. H. Knitting-machine take-up	784,567	Mar. 14	1132	237	115	269

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Huse, Walter L., *et al.* (See Huse, Leon C., assignor.)						
Huse, Warren D., *et al.* (See Huse, Leon C., assignor.)						
Hushaw, Charles L., *et al.* (See Chrittos, James M., assignor.)						
Hussey, Levi, assignor of one-half to A. Miller, New York, N. Y. Steam-boiler	787,764	Apr. 18	3177	694–5	115	1790
Hussey, Patrick L., Cleveland, Ohio. Steering-wheel	785,073	Mar. 14	2156	455	115	495
Huston, Walter C., *et al.* (See Montgomery and Megenity, assignors.)						
Hutchings, Frank W., Detroit, Mich. Pedestal for writing-machines	787,985	Apr. 25	3626	790	115	1903
Hutchings, John, London, England. Wave-motor	787,181	Apr. 11	1966	426–7	115	1505
Hutchins, George F., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shuttle-box motion for looms	787,182	Apr. 11	1968	427–8	115	1506
Hutchison, Claude L., St. Joseph, Mo. Record device	787,448	Apr. 18	2503	543	115	1635
Hutchison, James P., Ellsworth, Ohio. Steam cooking and water-heating attachment for cooking-stoves	785,885	Mar. 28	3818	812	115	887
Hutchison, Joseph C., Philadelphia, Pa. Machine for making pies	786,815	Apr. 11	1219	254	115	1344
Hutton, David F., Piper, Kans. Combination column-support and sill-fastener	786,816	Apr. 11	1220	254	115	1344
Hutton, George, Richmond, Canada. Truck	786,497	Apr. 4	598	119	115	1198
Hutton, Samuel T. (See Hall, Tomas P., assignor.)	784,792	Mar. 14	1632	336–7	115	381
Hutzler, Otto, Zurich, Switzerland. Automatical cooking apparatus	784,402	Mar. 7	798	165	115	183
Huxford, Walter H., Huxford, Miss. Plow-point	788,137	Apr. 25	3934	851	115	1980
Huyck, Francis P., Swanton, Ohio. Sewing-machine motor attachment	784,680	Mar. 14	1398	289	115	329
Hyatt, John W., Newark, N. J. Juice-extracting machine	786,902	Apr. 11	1383	294–5	115	1378
Hyatt, John W., Newark, N. J. Link and chain for juice-extracting machines	786,903	Apr. 11	1387	295	115	1379
Hyatt, John W., Newark, N. J. Link for permeable chains	786,904	Apr. 11	1390	296	115	1379
Hyde, Eben W., New Haven, Conn. Velocipede	787,670	Apr. 18	2959	644	115	1740
Hyman, Louis. (See Szöllösy, Jules, assignor.)						
Hyman, Robert L. (See Turner and Hyman.)						
Idly, Christian, assignor to J. P. Idly, Oklahoma, Okla. Ter. Rake	788,261	Apr. 25	4164	904	115	2030
Idly, J. Paul. (See Idly, Christian, assignor.)						
Idris, Thomas H. W., and R. H. Griffith, London, England. Head of siphon for aerated liquids	787,449	Apr. 18	2508	544	115	1637
Imperial Wheel Company. (See Couper, James C., assignor.)						
Improved Paper Machinery Company (See Parker, Howard, assignor.)						
Independence Iron Works Company. (See Bloom, Orvis M., assignor.)						
Ingalls, Walter R., Lynn, Mass. Roasting-furnace	786,567	Apr. 4	734	150	115	1226
Ingoldsby Automatic Car Company. (See Ingoldsby and Bowling, assignors.)						
Ingoldsby, Frank S., and J. R. Bowling, assignors to Ingoldsby Automatic Car Company, St. Louis, Mo. Car	784,265	Mar. 7	501	101–2	115	116
Ingram, Archie T. and W. L., Doctortown, Ga. Annunciator	785,424	Mar. 21	2887	609–10	115	670
Ingram, Walter L. (See Ingram, Archie T. and W. L.)						
Interlock Paper Company. (See Casterline, Edwin D., assignor.)						
International Arithmograph Company. (See Goldman, Henry, assignor.)						
International Boiler Improvement Company. (See Barrett, James B., assignor.)						
International Harvester Company. (See Curtiss, Charles E., assignor.)						
International Harvester Company. (See Dennis, Samuel K., assignor.)						
International Harvester Company. (See Denyes, Gaylord W., assignor.)						
International Harvester Company. (See Kimbark, Edward H., assignor.)						
International Harvester Company. (See Plopper, James A., assignor.)						
International Harvester Company. (See Podlesak, Henry J., assignor.)						
International Harvester Company. (See Weber, William H., assignor.)						
International Machine Company. (See Keller, Albert K., assignor.)						
International Packing Machine Company. (See Lázaga, Ygnacio, assignor.)						
International Telegraph Construction Company. (See Shoemaker, Harry, assignor.)						
International Time Recording Company. (See Bundy, Willard L., assignor.)						
Inwood, William A., Colorado Springs, Colo. Traingraph	784,960	Mar. 14	1761	367	115	408
Iowa Gasoline Engine Company. (See Fox, William C., assignor.)						
Ippers, John W., assignor to A. H. Walker, trustee, New York, N. Y. Photomechanical printing	785,735	Mar. 28	3532	756	115	822
Ireland, James D., *et al.* (See Healey, Patrick, assignor.)						
Iroquois Machine Company. (See Horton, James A., assignor.)						
Irving, James H., Syracuse, N. Y. Bundling apparatus	787,183	Apr. 11	1971	428	115	1506
Ismer, Leopold, West Liberty, Pa. Clothes-holding device	786,645	Apr. 4	898	184	115	1262
Ivatts, Ernest A., assignor to La Compagnie Générale de Phonographes, Cinématographes & Appareils de Precision, Paris, France. Phonograph	787,765	Apr. 18	3179	695	115	1791
Ives, Frank R. (See Stauffer and Ives.)						
Ives, Louis, Dearborn, Mich. Door opening or closing apparatus	786,360	Apr. 4	234	53	115	1120
Iveson, Albert E. (See Wilson, Archibald R., assignor.)						
Ivins, Benjamin R., *et al.* (See Ivins, Frederick F., assignor.)						
Ivins, Frederick F., assignor to B. R. Ivins and J. R. Savidge, Burlington, N. J. Machine for making suit-case corners	788,408	Apr. 25	4465	972	115	2096
J. E. Mergott Company. (See Fuller, Albert F., assignor.)						
J. F. Parkhurst & Son Company. (See Parkhurst, Frederic H., assignor.)						
J. H. Clark Company *et al.* (See Clark, James H., assignor,)						
J. S. Metcalf Company. (See Spelman, James, assignor.)						
Jaakson, Jaan, Riga, Russia. Writing appliance	786,817	Apr. 11	1222	255	115	1344
Jackisch, Bruno, Charlottenburg, assignor to Allgemeine Beleuchtungs und Heiz Industrie Actien Gesellschaft, Berlin, Germany. Electric-arc lamp	787,043	Apr. 11	1686	359	115	1445
Jackman, Stephen E., New York, N. Y. Inclined railway	784,329	Mar. 7	619	127–8	115	141
Jackson, Charles F., Sherman, Tex. Passenger-recorder	784,216	Mar. 7	409	81–2	115	95
Jackson, Howard, Newton, Mass. Detonator or auxiliary protective alarm spark-gap for high-frequency apparatus	785,671	Mar. 21	3399	731	115	780
Jackson, John P., Orleans, Ind. Telephone selecting mechanism	785,103	Mar. 21	2245	473	115	530
Jackson, John P., Orleans, Ind. Attachment for spectacles	786,442	Apr. 4	482	93	115	1174
Jackson, William M., Jonesboro, Ark. Automatic fusee igniter and discharger	785,886	Mar. 28	3820	812	115	887
Jacob, Bartholomew, New Rochelle, N. Y. Match. (Reissue)	12,332	Mar. 28	4575	970	115	1055
Jacobs, Charles B., Port Chester, R. A. Witherspoon and N. Thurlow, Niagara Falls, N. Y., assignors, by mesne assignments, to Cyanide Company, Jersey City, N. J. Making alkali cyanids	787,380	Apr. 18	2369	.....	115	1606
Jacobs, Eva K., Everett, Wash. Reversible section-mattress	787,450	Apr. 18	2509	544	115	1637
Jacobs, Frank D., Northampton, Mass. Roofing and siding material	788,358	Apr. 25	4352	950	115	2071
Jacobs, William F., Ottawa, Ill. Hay-carrier	785,361	Mar. 21	2748	582	115	638
Jacobs, William H., assignor of one-half to J. Ranz, St. Louis, Mo. Exhibiting mechanism	785,736	Mar. 28	3540	756–7	115	823
Jacobson, Charles, Warren, Pa. Clutch	785,887	Mar. 28	3822	813	115	888
Jacobson, Edward B., assignor to Pittsfield Spark Coil Company, Pittsfield, Mass. Dynamo	787,184	Apr. 11	1972	429	115	1507

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Jacobson, John N., Mansfield Center, Conn. Chicken-brooder	787,671	Apr. 18	2960	644–5	115	1741
Jacobson, Samuel H., New York, N. Y. Ventilator	787,882	Apr. 18	3408	746	115	1841
Jaeger, Alexander, Philadelphia, Pa. Removable head for barrels	785,104	Mar. 21	2250	474	115	531
Jaeger, Otto, Philadelphia, Pa. Cigar-cutter and match-deliverer	785,672	Mar. 21	3402	732	115	781
James E. Blake Company. (See Saart, Albert G., assignor.)						
James, Roswell G., Louisville, Ky., assignor of one-half to A. F. Callahan, Chicago, Ill. Core element	787,451	Apr. 18	2511	544	115	1637
Jameson, Carrie J. (See Orton, Edward M., assignor.)						
Jameson, John F., Plimpton, Ohio. Trolley-guide	784,681	Mar. 14	1399	289	115	329
Jamison, William O. (See Rickords, Samuel B., assignor.)						
Jannoch, Paul W., Pasadena, Cal., assignor of one-half to H. Haferland. Game apparatus	787,516	Apr. 18	2654	576	115	1672
Janson, Frederick H., New York, assignor to American Rattan & Reed Mfg. Co., Brooklyn, N. Y. Machine for inserting diagonal strands in woven cane fabric	784,568	Mar. 14	1134	237	115	270
Jaquith, Eugene H., Clinton, Mass. Supporting-frame for kitchen-sinks	787,185	Apr. 11	1975	429–30	115	1507
Jarnberg, Joel, Minneapolis, Minn. Monkey-wrench	784,944	Mar. 14	1919	403	115	443
Jarrett, John. (See Edwards and Jarrett.)	785,953	Mar. 28	3958	841	115	918
Jarvis, Philip, Cedar Rapids, Nebr. Riding-cultivator	785,041	Mar. 14	2091	446–1	115	482
Jean, Robert W., *et al.* (See Scribner, Elbridge A., assignor.)						
Jebsen, Fridtjof. (See Walle, Ludwig S., assignor.)						
Jeffrey, Joseph A. (See Aultman Thomas G., assignor.)						
Jeffrey, Joseph A. (See Lynch, George E., assignor.)						
Jeffrey, Joseph A. (See Slocum, John C., assignor.)						
Jeffrey, Joseph A. (See Webster, Alfred J., assignor.)						
Jeffrey, Joseph A. (See Willson, Freeman R., Jr., assignor.)						
Jeffrey, Joseph A. (See Willson, William W., assignor.)						
Jeffrey Manufacturing Company. (See Sessions, Frank L., assignor.)						
Jeffries, Thomas C., Columbus, Ohio. Enriching earth	785,495	Mar. 21	3040	.....	115	705
Jehn, Edouard, Paris, France. Changing mechanism for picture-exhibitors	788,470	Apr. 25	4569	996	115	2118
Jékey, Carl von. (See Clanner and Jékey.)						
Jenkins, John C., assignor of one-half to W. H. Flowers, Terrell, Tex. Bale-tie buckle	788,471	Apr. 25	4571	997	115	2118
Jenkins, Robert M., Carney, Ala. Railway-gage	784,330	Mar. 7	620	128	115	142
Jenney, Robert T. (See Van de Walker and Jenney.)						
Jensen, Bernhardt J., Copenhagen, Denmark. Machine for making paper bags	788,262	Apr. 25	4165	904	115	2030
Jensen, Eldred G., Arlington, Mass. Puzzle	788,048	Apr. 25	3755	817	115	1933
Jensen, Richard, and P. Jungnickel, Berlin, Germany; said Jungnickel assignor to said Jensen. Beam-compass	787,766	Apr. 18	3180	695	115	1791
Jeton, Joseph, Lyons, France. Door closer and holder	786,498	Apr. 4	600	120	115	1198
Jewell, Eugene F. (See Phillips, Charles W., assignor.)						
Jewett, George, Pittsburg, Pa., assignor to American Steel & Wire Company of New Jersey, Worcester, Mass. Apparatus for feeding wire-nail machines	787,672	Apr. 18	2963	645	115	1741
Jirsa, James, Dorchester, Nebr. Self-feeder for threshing-machines	785,496	Mar. 21	3041	643–4	115	706
Jobes, Lawrence U., Cincinnati, assignor to Baldwin Company, Hamilton county, Ohio. Pneumatic motor for musical instruments	788,472	Apr. 25	4572	997	115	2118
Johansson, Frans J. E., Stockholm, Sweden. Tightening device for boiler-tubes	785,888	Mar. 28	3824	813	115	888
Johengen, Jacob. (See Baltzer and Johengen.)						
John C. Moore Corporation. (See Moore, Henry J., assignor.)						
John F. McCanna Company. (See McCanna, John F., assignor.)						
John Good Cordage Co. (See Good, John, assignor.)						
John Simmons Company. (See Vintschger, Max, assignor.)						
John Wyeth & Brother. (See Wipf, Herman J. D., assignor.)						
Johnson, Albert C., Baltimore, Md. Ore-roasting furnace	786,905	Apr. 11	1392	296	115	1380
Johnson, Albert H., Takoma, Md. Oil-displacer for journal-lubricators	787,576	Apr. 18	2764	602	115	1696
Johnson, Alfred, Chicago, Ill. Wrench	786,818	Apr. 11	1225	255	115	1344
Johnson, Andrew, Concord, N. H. Continuous draft-rigging for cars	786,034	Mar. 28	4142	874	115	961
Johnson, Arthur L., Seattle, Wash. Ticket or card holder	787,452	Apr. 18	2515	544	115	1638
Johnson, Charles, Butte, Mont. Supporting and attaching device for lamps	785,497	Mar. 21	3045	644	115	706
Johnson, Charles, and O. C. Rawley, assignors to Cortland Implement Company, Cortland, N. Y. Fertilizer-distributer	786,218	Mar. 28	4506	953–4	115	1039
Johnson, Charles T. (See Tverdahl, Ole, assignor.)						
Johnson, Charles W., Norwood, Ohio, assignor, by mesne assignments, to Bullock Electric Company. Reciprocating device for brushes	788,049	Apr. 25	3756	818	115	1934
Johnson, Charles W., Norwood, and W. Cooper, Cincinnati, Ohio, assignors, by mesne assignments, to Bullock Electric Company. Armature	788,473	Apr. 25	4574	997	115	2118
Johnson, Dewitt C., Hutchinson, Kans. Joint fish-plate for railways	785,042	Mar. 14	2093	441	115	482
Johnson, Eldridge R., Philadelphia, Pa., assignor to Victor Talking Machine Company. Talking-machine	785,362	Mar. 21	2753	582–3	115	639
Johnson, Eldridge R., Philadelphia, Pa., assignor to Victor Talking Machine Company. Talking-machine	785,363	Mar. 21	2757	583	115	640
Johnson, Everard L., Patchogue, N. Y. Apparatus for washing photographic prints	784,861	Mar. 14	1764	367–8	115	409
Johnson, Frederick W., assignor of one-half to J. P. Peterson, Dawson, Canada. Apparatus for marking sunken vessels	786,126	Mar. 28	4330	914–15	115	1004
Johnson, George T., Cambridge, assignor to G. F. Bullard, Boston, Mass. Toilet-paper fixture	788,263	Apr. 25	4167	905	115	2030
Johnson, Jackson, Rochester, N. Y. Shear-gage	786,646	Apr. 4	900	184–5	115	1262
Johnson, Jacob, Colorado Springs, Colo. Cuspidor	786,970	Apr. 11	1548	329	115	1414
Johnson, James H. (See Moran and Johnson.)						
Johnson, John F., Battlecreek, Mich. Overlay-table	786,443	Apr. 4	484	93	115	1175
Johnson, Joseph S., assignor of one-half to F. Cutting, San Francisco, Cal. Door and window fly-escape screen	785,309	Mar. 21	2652	561	115	617
Johnson, Louis W., Mount Vernon, Mo. Fence-post	786,558	Apr. 4	737	151	115	1226
Johnson, Mary E., executrix. (See Cobb, Lionel, assignor.)						
Johnson, Peter B., and J. E. McCoy, Hegewich, Ill. Pumping and mixing apparatus for carbureters	785,954	Mar. 28	3959	841–2	115	918
Johnson, Peter V. (See Leidy, Johnson, and Martin.)						
Johnson, Simon C., Dekalb, Ill. Roof-scaffold	786,499	Apr. 4	601	120	115	1198
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Gun	788,210	Apr. 25	4071	881	115	2010
Johnson, Walter F., Chattanooga, Tenn. Illuminated sign	788,050	Apr. 25	3759	818	115	1934
Johnson, William W., Memphis, Tenn. Register-actuating mechanism	784,862	Mar. 14	1766	368	115	409
Johnston, David K., Oil City, assignor to Oil Well Supply Company, Pittsburg, Pa. Slip-socket	785,105	Mar. 21	2251	474	115	531
Johnston, Edward H., Philadelphia, Pa. Railway-rail-guard clamp	787,186	Apr. 11	1981	431	115	1508
Johnston, George W., St. Joseph, Mo. Air or liquid reciprocating engine and pump having rotary operating mechanism	784,569	Mar. 14	1135	238	115	270
Johnston, Harry E., Oberlin, Ohio. Portable dark room	784,163	Mar. 7	295	62	115	70

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Johnston Harvester Company. (See Maul, Christian, assignor.)						
Johnston, Henry. (See Holland and Johnston.)						
Johnston, Herbert L., assignor to Hobart Electric Manufacturing Company, Troy, Ohio. Grinding-mill	786,293	Apr. 4	81	19	115	1089
Johnston, James S., and T. H. Murphy, assignors to Johnston Novelty & Mill Specialty Co., Utica, N. Y. Safety appliance for centrifugal machines	787,673	Apr. 18	2964	645	115	1742
Johnston, James W., Chicago, Ill. School-desk	784,050	Mar. 7	71	13	115	18
Johnston Novelty & Mill Specialty Co. (See Johnston and Murphy, assignors.)						
Johnstone, Francis W., Mexico, Mexico. Gas-producer	785,955	Mar. 28	3962	842	115	919
Jones, Alvah D., Louisville, Ky. Attachment for hand agricultural implements	784,682	Mar. 14	1401	289	115	330
Jones, Breckinridge, trustee. (See Curtis, Lewis E., assignor.)						
Jones, Clarence R., Pittsburg, Pa. Hydraulic air-compressor	785,889	Mar. 28	3827	813–14	115	889
Jones-Corbin Automobile Company. (See Jones, George H., assignor.)						
Jones, Edwin C., Woodstock, Canada. Gas-burning appliance	786,647	Apr. 4	901	185	115	1262
Jones, George H., assignor to Jones-Corbin Automobile Company, Philadelphia, Pa. Vehicle running-gear	788,108	Apr. 25	3879	841	115	1967
Jones, James W., West Haven, Conn. Locking mechanism for folding doors	786,569	Apr. 4	738	151	115	1226
Jones, John G., *et al.* (See Barber, Henry F., assignor.)						
Jones, John H., Fostoria, Ohio. Building-block	786,971	Apr. 11	1549	329	115	1414
Jones, John T. (See Vantine, Thomas, assignor.)						
Jones, Joseph C., Coffeen, Ill. Mining-car brake	786,361	Apr. 4	236	54	115	1120
Jones, Joseph F. (See Odena and Jones.)						
Jones, Lloyd, Philadelphia, Pa. Device for stopping leaks	785,737	Mar. 28	3544	757	115	823
Jones, Martin A., Oglesby, Tex. Cotton-chopping attachment for cultivators	785,171	Mar. 21	2380	499-500	115	560
Jones, Reuben, Chamblee, assignor of one-half to F. I. Stone & Co., Atlanta, Ga. Plow	785,890	Mar. 28	3829	814	115	889
Jones, Robert D., San Antonio, Tex. Electric time-switch	787,187	Apr. 11	1982	431	115	1509
Jones, Wallace B., Burroak, Kans. Acetylene-gas-generating apparatus	784,051	Mar. 7	72	14	115	18
Jones, William H. (See Mitchell, Andrew F., assignor.)						
Jones, William H. W., Waverly, N. Y. Jar or bottle closure	785,106	Mar. 21	2253	474	115	531
Jong, Corstiaan de, Huize Snippeschrik Amstelveensche Weg, near Amsterdam, Netherlands. Sterilizing milk or other fluids	786,819	Apr. 11	1226	255	115	1345
Jordan, Chasing H. C., Kansas City, Kans. Bathing apparatus	786,127	Mar. 28	4331	915	115	1004
Joseph N. Smith & Company. (See Chamberlin, Charles E., assignor.)						
Joy, John M., assignor to Page Machine Company, New York, N. Y. Clutch mechanism	786,294	Apr. 4	82	19	115	1089
Joyce, Frank I., Dayton, Ohio. Governor	785,498	Mar. 21	3047	645	115	706
Judge, James R., Anselmo, Nebr. Hay-sweep attachment	788,264	Apr. 25	4168	905	115	2030
Judik, Henry. (See Sawyer and Judik.)						
Judson, Whitcomb L., assignor to Universal Fastener Company, Chicago, Ill. Separable fastener	788,317	Apr. 25	4275	928	115	2055
Julien, Ramon G., assignor to P. de Demesq, Jerez de la Frontera, Spain. Bottle	786,295	Apr. 4	84	19	115	1089
Julius, Paul, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Dichlor-dimethyl-fluorane and making same	785,003	Mar. 14	2022	.....	115	466
Julius, Paul, and E. Fussenegger, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Blue-red azo dye	786,767	Apr. 4	1122	.....	115	1311
Julius, Paul, and E. Fussenegger, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Orange-red azo dye	787,767	Apr. 18	3181	.....	115	1791
Julius, Paul, and E. Fussenegger, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Blue-red azo dye	787,768	Apr. 18	3182	.....	115	1791
Junge, August, *et al.* (See Dietz, Christian F., assignor.)						
Junge, Bertha, *et al.*, executors. (See Dietz, Christian F., assignor.)						
Junggren, Oscar, Schenectady, N. Y., assignor to General Electric Company. Elastic-fluid turbine	787,297	Apr. 11	2189	482	115	1553
Jungnickel, Paul. (See Jensen and Jungnickel.)						
Kacso, Sando, assignor of one-half to D. Hollander, Allegheny, Pa. Trolley	786,219	Mar. 28	4509	954	115	1040
Kahn, Julius, Detroit, Mich. Lintel construction	786,820	Apr. 11	1227	255–6	115	1345
Kahn, Solomon, Cadillac, Mich. Stair-carpet fastener	784,683	Mar. 14	1402	289	115	330
Kaiser, Heinrich, Hilden, Germany. Child's pistol	787,844	Apr. 18	3330	729	115	1823
Kaiser, Lipman. (See Cunnius, Alfred R., assignor.)						
Kaisling, William, assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Electromagnetic device	784,052	Mar. 7	77	15	115	19
Kaisling, William, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester N. Y. Electric generator	785,499	Mar. 21	3052	645–6	115	708
Kaisling, William, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Telephone-transmitter	786,444	Apr. 4	485	94	115	1175
Kales, William R., Detroit, Mich. Gauntree-crane	786,362	Apr. 4	237	54–5	115	1120
Kalla, Alexander, New York, N. Y. Carpenter's plane	787,624	Apr. 18	2873	625	115	1723
Kammerer, Frank G., Chicago, Ill. Valved bottle-stopper	785,364	Mar. 21	2758	583	115	641
Kamper, Paul J., Sioux City, Iowa. Hand-car	787,381	Apr. 18	2372	512	115	1607
Kann, Albert, Heidelberg, Germany. Treating sheep's wool	787,923	Apr. 25	3491	.....	115	1873
Kantorowicz, Julius. Breslau, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Starch material	785,216	Mar. 21	2482	.....	115	582
Kaphingst, George, and P. Seith, Appleton, Wis., assignors of one-third to D. P. Nicholson. Paper-holder	787,883	Apr. 18	3409	746	115	1841
Kappa, F. H., *et al.* (See Brooks, George H., assignor.)						
Karlsen, Adolf, Röken, near Christiania, Norway. Device for protecting trees	784,684	Mar. 14	1403	290	115	330
Karpen, Julius, Chicago, Ill. Pocket safety-match holder	785,500	Mar. 21	3056	646	115	708
Karsten, Henry M., Clearlake, Minn. Fork attachment	785,555	Mar. 21	3174	671	115	733
Kasai, Tokuichiro, Aomori, Japan. Steam-actuated valve	785,172	Mar. 21	2385	500–1	115	561
Kasper, Christian, Cleveland, Ohio. Water-filter	788,359	Apr. 25	4353	950	115	2072
Kauffman, Jesse S., Degraff, Ohio. Mail-bag-delivery device	784,053	Mar. 7	82	15	115	21
Kaufmann, Anna. New York, N. Y. Sleeve-expander	785,217	Mar. 21	2483	523	115	582
Kay, Clarence H., and W. U. Colthar; said Colthar assignor to H. C. Downey, Springfield, Ohio. Vibrator	784,164	Mar. 7	297	62	115	70
Kay, William E., Lorain, Ohio. Water-heater	784,403	Mar. 7	799	165–6	115	183
Keagy, Edward, Newark, Ohio. Concrete-block-mold machine	787,099	Apr. 11	1797	383–4	115	1469
Kean, Thomas J., Philadelphia, assignor of one-half to J. C. Scott, Bryn Mawr, Pa. Driving-belt	785,107	Mar. 21	2255	474	115	532
Keating, Robert M., Middletown, Conn., assignor to R. M. Keating Motor Company, Portland, Me. Carbureter for hydrocarbon-engines	785,808	Mar. 28	3683	783	115	858
Keats, Charles H., Northampton, England. Machinery or apparatus for skiving leather, leather-board, &c.	784,165	Mar. 7	300	63–4	115	71
Keefer, Edward S., assignor to Keefer Railway-Tie Company, Cincinnati, Ohio. Concrete structure	786,648	Apr. 4	902	185	115	1263
Keefer Railway-Tie Company. (See Keefer, Edward S., assignor.)						
Keeler, Harry D., Marion, Ohio. Draw-brace for sulkies	785,218	Mar. 21	2483	523	115	582

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Keen, William W., assignor of one-half to J. W. McGriff, Richmond, Ind. Outing-cottage	784,492	Mar. 7	984	206–7	115	222
Keith, Calvin, and G. F. Lister, Mansfield, Ohio. Hinge	788,051	Apr. 25	3760	819	115	1935
Keller, Albert K., assignor to International Machine Company, Adrian, Mich. Fence	786,363	Apr. 4	239	55	115	1121
Keller, Albert K., assignor to International Machine Company, Adrian, Mich. Fence-making machine	786,364	Apr. 4	240	55–6	115	1121
Keller, Alfred, assignor to Mermod Frères, St. Croix, Switzerland. Operating mechanism for automatic musical instruments	788,265	Apr. 25	4170	905–6	115	2031
Keller, Edmon W., Cripplecreek, Colo. Jet-pump	787,453	Apr. 18	2516	545	115	1638
Keller, James M., Los Angeles, Cal. Condenser	784,685	Mar. 14	1403	290	115	330
Keller, John E., Jr., Litchfield, Conn. Inflation-valve	787,298	Apr. 11	2192	483	115	1554
Keller, John R., Pittsburg, Pa. Mailing-tube	786,296	Apr. 4	87	20	115	1090
Keller, Louis E., Oil City, Pa. Interchangeable railway-crossing frog	788,474	Apr. 25	4575	997	115	2119
Keller, Ludo H., Cleveland, Ohio. Ink-bottle holder	784,493	Mar. 7	986	207	115	222
Keller, Peter, assignor of one-half to J. M. Tierney, Chicago, Ill. Pressure-regulator	786,768	Apr. 4	1123	236	115	1311
Keller, Peter, and P. Seller, assignors to said Keller and J. M. Tierney, Chicago, Ill. Pressure-regulator	784,331	Mar. 7	621	128	115	142
Kelley, Richard J., Syracuse, N. Y. Lantern	786,769	Apr. 4	1124	236	115	1311
Kelliher, Francis J., assignor to Diamond Paste Company, Albany, N. Y. Receptacle for holding paste	785,956	Mar. 28	3964	842–3	115	919
Kellogg & Company, M. W. (See Luckett, Gustavus T., assignor.)	787,986	Apr. 25	3627	791	115	1903
Kellogg Switchboard and Supply Company. (See Kaisling, William, assignor.)						
Kellogg Switchboard & Supply Company. (See Manson, Ray H., assignor.)						
Kelly, Charles R., Louisville, Ky. Paragraphing-stop for type-writing machines	784,494	Mar. 7	990	207–8	115	223
Kelly, Edward, Dover, and A. Munson, Hibernia, N. J., assignors to J. Wharton, Philadelphia, Pa. Treating ore	786,570	Apr. 4	740	151–2	115	1227
Kelly, George, Mineralpoint, Wis. Leg-rest	787,674	Apr. 18	2965	646	115	1742
Kelly, George, Mineralpoint, Wis. Combination leg-support and carriage	787,675	Apr. 18	2966	646	115	1742
Kelly, George, Mineralpoint, Wis. Leg-rest	787,676	Apr. 18	2968	646	115	1743
Kelly, George, Mineralpoint, Wis. Leg-rest	787,677	Apr. 18	2969	646	115	1743
Kelly, Harold, Biddeford, Me., assignor to Sawyer Spindle Company. Spinning-spindle	785,738	Mar. 28	3545	757	115	824
Kelly, James, Providence, R. I. Ventilating and air-cooling mechanism	787,454	Apr. 18	2517	545	115	1638
Kemmerich, Wilhelm, Munich, Germany. Fire-box	784,495	Mar. 7	992	208	115	224
Kemper, Adolph. (See Kemper, Julius and A.)						
Kemper, Julius and A., Baltimore, Md. Hat-fastener	786,035	Mar. 28	4144	874	115	962
Kempf, Frederick E., Boston, Mass. Printing-couple appliance	786,220	Mar. 28	4510	954	115	1040
Kendall, Allen B., Maywood, Ill. Railway block-signal apparatus	785,891	Mar. 28	3830	814	115	889
Kendall, Edward D., Brooklyn, N. Y., assignor of one-third to E. N. Dickerson, Stovall, N. C. Electrodepositing metals	786,221	Mar. 28	4511	954	115	1041
Kendig, Witmer J., Lancaster, Pa. Needle-threader	786,649	Apr. 4	905	186	115	1263
Kenly, George T., assignor of two-thirds to F. V. Moale and C. L. Forbes, Baltimore, Md. Non-refillable bottle	787,188	Apr. 11	1983	431	115	1509
Kennedy, Andrew J., Chicago, Ill. Mail-carrier	784,266	Mar. 7	509	102–3	115	118
Kennedy, Barham F., Jonesville, S. C. Seed dropper and planter	788,475	Apr. 25	4576	998	115	2119
Kennedy, Charles L., and J. H. McGonigal, Sistersville, W. Va. Polish-rod fastener	785,501	Mar. 21	3057	647	115	708
Kennedy, David S., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	787,769	Apr. 18	3183	695	115	1792
Kennedy, Luther L., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	784,267	Mar. 7	510	103	115	118
Kennedy, Samuel R., assignor to American Dairy Products and Manufacturing Company, Philadelphia, Pa. Condensed milk	787,044	Apr. 11	1687	.....	115	1445
Kenny, Hugh E., assignor to Chamberlin Metal Weatherstrip Company, Detroit, Mich. Weather-strip	786,972	Apr. 11	1550	330	115	1415
Kenny, Michael J., East Walpole, Mass. Machine for end-seaming sheet-metal bodies	786,973	Apr. 11	1551	330–1	115	1415
Kent, Frank R., Montvale, Va. Loading-machine	785,957	Mar. 28	3966	843–4	115	920
Kent, George E., Centralia, Wash. Meat block and bench scraper	785,556	Mar. 21	3174	672	115	733
Kenworthy, Charles F., Waterbury, Conn. Non-oxidizing annealing-furnace	786,365	Apr. 4	244	56	115	1122
Kenworthy, Owen W., Oskaloosa, Iowa. Windmill	786,297	Apr. 4	88	20	115	1090
Kepner, Aaron E., Lemon, Cal. Pump	786,500	Apr. 4	603	120	115	1199
Kerlin, John, Montpelier, Ind. Rotary support for pull-rods	787,625	Apr. 18	2874	625	115	1723
Kerns, James, Defiance, Ohio, assignor to Model Gas Engine Company, Auburn, Ind. Valve mechanism for explosive-engines	785,108	Mar. 21	2256	475	115	532
Kerr, Karl, Victor, Iowa. Sash-pulley	787,517	Apr. 18	2655	576	115	1672
Kerr, William S. (See Sutton, Lord, and Kerr.)						
Kerst, Fredrick C., deceased; J. Kerst, Springfield, Ill., administratrix. Miner's dumping-cage	787,189	Apr. 11	1984	432	115	1509
Kerst, Julia, administratrix. (See Kerst, Fredrick C.)						
Kettnich, Albert, New York, N. Y. Taper-gage	785,739	Mar. 28	3547	757	115	824
Keyes, Martin L., Cambridge, Mass. Apparatus for making articles from pulp	788,138	Apr. 25	3935	852–3	115	1980
Keystone Driller Company. (See Downie, Robert M., assignor.)						
Keywood, William, and V. Elmer, Tacoma, Wash. Burning the roots of stumps	785,616	Mar. 21	3292	700	115	758
Kiam, Benjamin, New Orleans, La. Safety-razor	788,318	Apr. 25	4277	928	115	2055
Kiddoo, William, Laplata, Mo. Gate	784,404	Mar. 7	801	166	115	184
Kiel, Peter P., Oakland, Cal. Washing-machine	784,405	Mar. 7	803	167	115	184
Kieren, Conrad. (See Monahan and Kieren.)						
Kieren, Henry, Crystal Falls, Mich. Plug-valve	788,476	Apr. 25	4578	998	115	2119
Kieser, Karl, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Color-sensitive photographic emulsion and making same	785,219	Mar. 21	2485	.....	115	583
Killinger, John H., Steelton, Pa. Metallic railway-tie and rail-fastening device	784,793	Mar. 14	1634	337	115	381
Kilmer, Melvin D., Cleveland, Ohio. Woven-wire fence	786,445	Apr. 4	487	94	115	1175
Kilroy, Michael J., New York, N. Y. Self-adjusting cylinder-ring	786,446	Apr. 4	488	94	115	1176
Kimball, Charles B., Rocky River, Ohio. Shipping device for barbed wire	784,794	Mar. 14	1636	337	115	381
Kimball, Clinton. (See Garreis and Kimball.)						
Kimbark, Edward H., Oak Park, assignor, by mesne assignments, to International Harvester Company, Chicago, Ill. Release device for horse-rake ratchet mechanisms	786,447	Apr. 4	490	94–5	115	1176
Kinback, William J., Dunmore, Pa. Swing	785,557	Mar. 21	3175	672	115	734
Kindred, Zachra T. (See Smith and Kindred.)						
King, Charles, assignor of seven-twelfths to M. E. King, Port Huron, Mich. Table	784,945	Mar. 14	1920	403	115	444
King, Charles, assignor to M. E. King, Port Huron, Mich. Table	784,946	Mar. 14	1921	403	115	444
King, Charles B. (See King, Barnhart, and King.)						
King, Charles F., Pawtucket, R. I. Link cuff-button	787,455	Apr. 18	2519	545	115	1639
King, George W., H. J. Barnhart, and C. B. King, assignors to Marion Steam Shovel Company, Marion, Ohio. Steam-shovel	786,448	Apr. 4	492	95–6	115	1176
King, George W., H. J. Barnhart, and C. B. King, assignors to Marion Steam Shovel Company, Marion, Ohio. Lubricated pulley	786,790	Apr. 4	1169	244	115	1321
King, Henry N., Adrian, Mich. Trolley-wheel and holder	786,036	Mar. 28	4145	874	115	962

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King, Jacob W., assignor to A. J. Perry, trustee, Galesburg, Ill. Pipe-wrench	788,156	Apr. 25	3974	859	115	1988
King, James F., New York, N. Y. Aerial telegraphy	788,477	Apr. 25	4579	998	115	2119
King, James M., Nebraska City, Nebr. Pruning implement	785,109	Mar 21	22?8	475	115	532
King, John G., Pine Bluff, Ark. Vine-cutting attachment for mowing-machines	785,173	Mar. 21	2387	501-2	115	561
King, Mary E. (See King, Charles, assignor.)	785,174	Mar. 21	2391	502	115	562
King, Patrick F. (See Gillooly, William F., assignor.)						
King, Thomas S., and J. E. Bell, Washington, D. C. Short-range or gallery cartridge	788,266	Apr. 25	4172	906	115	2031
Kinnear-Hood Steel Company. (See Nowell, Herbert W., assignor.)						
Kinnear, William R., New York, N. Y. Sheet-metal radiator	787,845	Apr. 18	3331	729	115	1823
Kinney, Thomas E., Waverly, Ohio. Coated or impregnated fabric and making same	785,110	Mar. 21	2260	.....	115	533
Kinney, William H., Carbondale, assignor to R. B. Williams, Scranton, Pa. Tube-expander	785,892	Mar. 28	3832	814	115	890
Kinsolving, Charles J., Jr., Syosset, N. Y. Switch-throwing device	786,128	Mar. 28	4333	916	115	1004
Kintzing, William F., New Freedom, Pa. Shuttle-motion for looms	785,958	Mar. 28	3908	844	115	921
Kinzig, Louis D., and G. C. Riber, Dayton, Ohio. Sparking igniter for explosive-engines	785,809	Mar. 28	3684	784	115	858
Kipling, Charles G., and H. L. Worden, assignors of one-third to A. Meyer, Los Angeles, Cal. Oil-burner	787,045	Apr. 11	1688	359	115	1445
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Car basket-rack	787,456	Apr. 18	2520	545	115	1639
Kirkpatrick, George P., Whittemore, assignor of two-thirds to D. J. Wilson, Waterloo, and C. Gange, Algona, Iowa. Riding attachment for harrows	788,409	Apr. 25	4467	972	115	2097
Kirkpatrick-Picard, Hugh F. (See Cattermole, Sulman, and Kirkpatrick-Picard.)						
Kirsch, Bernhard, assignor of one-half to A. Pessl, Vienna, Austria-Hungary. Braiding-machine	784,686	Mar. 14	1406	290-1	115	331
Kistler, Samuel L., Los Angeles, and H. Symonds, Longbeach, assignors to Superior Light and Heat Co., Los Angeles, Cal. Acetylene-gas burner	784,687	Mar. 14	1412	292	115	332
Kitsee, Isidor, Philadelphia, Pa. Telephone system	785,673	Mar. 21	3403	732-3	115	781
Kitsee, Isidor, Philadelphia, Pa. Telephone system	785,674	Mar. 21	3412	733-4	115	783
Kitselman, Alva L., Muncie, Ind. Wire-fabric-making machine	787,457	Apr. 18	2522	546	115	1640
Klaffke, Theodore L., Boon township, Oklahoma county, Okla. Ter. Transplanting plant-can	788,319	Apr. 25	4279	928	115	2056
Klamborowski, Sigmund, Lodz, Russia. Trolley-wheel	786,222	Mar. 28	4512	955	115	1041
Klein, Charles, Brooklyn, N. Y., assignor to Castle Braid Company. Tubular braid	787,382	Apr. 18	2374	513	115	1608
Klein, Charles, Brooklyn, N. Y., assignor to Castle Braid Company. Braid-machine	787,383	Apr. 18	2375	513	115	1608
Klein, Paul, Riga, Russia. Manufacturing refractory articles	784,621	Mar. 14	1267	.....	115	298
Klein, Paul, Riga, Russia. Manufacturing fire-bricks, crucibles, retorts, or other refractory articles	787,770	Apr. 18	3184	.....	115	1792
Kleinhammer, Samuel, Marion county, Kans. Branding-iron	784,054	Mar. 7	86	16	115	22
Kleiser, Gustav L., Christiania, Norway. Corkscrew	784,688	Mar. 14	1413	292	115	332
Klemm, Rudolf, and F. Reiss, Berlin, Germany. Electric motor	785,004	Mar. 14	2023	424	115	466
Klepetko, Frank. (See Repath and Marcy, assignors.)						
Kline, John C. (See Floyd, Joseph J., assignor.)						
Kling, Frederick, Blandinsville, Ill. Window-sash antirattler	788,052	Apr. 25	3761	819	115	1935
Klumb, Gustav P., Sturgeon Bay, Wis. Finger-guard for pea-harvesters	784,570	Mar. 14	1137	238	115	270
Knaggs, George, Toronto, Canada. Folding bed	785,220	Mar. 21	2485	524	115	583
Knapp, Eugene R., assignor to H. De Ford, Brookline, Mass. Indirect-heating system	784,110	Mar. 7	196	37-8	115	48
Knapp, George S., assignor to Differential Ore Crushing Machine Company, Limited, Grand Rapids, Mich. Stone-crusher	785,617	Mar. 21	3293	700	115	758
Knecht, John, Bluffton, Ind. Oiler	787,846	Apr. 18	3333	729-30	115	1824
Kneedler, John D. (See Couch and Kneedler.)						
Kneppler, Charles M., assignor to L. E. Kneppler, New York, N. Y. Lithographic machine	788,139	Apr. 25	3942	853	115	1982
Kneppler, Louis E. (See Kneppler, Charles M., assignor.)						
Knierim, Phillip. (See Feldhaus, Fred, assignor.)						
Knight, Eugene E., Colo, Iowa. Adjustable hay-director for hay-loaders	784,332	Mar. 7	623	128	115	142
Knobel, Abraham, *et al.* (See Brooks, George H., assignor.)						
Knock Down Box Company. (See Thomas, John R., assignor.)						
Knothe, Charles F., Fort Wayne, Ind. Automatic regulator for windmills	787,924	Apr. 25	3493	763	115	1873
Knott, Jacob, Sr., Paterson, N. J. Thread-drying frame	784,863	Mar. 14	1768	368-9	115	410
Knupp, Jacob C., and J. G. Greene, Warren, Pa. Well-drilling mechanism	784,571	Mar. 14	1138	238	115	271
Kobusch, George J. (See Bertgen, Franz, assignor.)						
Koch, Alfred S., Lancaster, Pa. Cigar-mold	788,478	Apr. 25	4581	999	115	2120
Koch, Ferdinand, West Hazleton, Pa. Miner's lamp	787,678	Apr. 18	2971	647	115	1744
Koch, William E., Whitehall, N. Y. Fish-hook	787,679	Apr. 18	2972	647	115	1744
Koenig, George F., Lesueur, Minn. Machine for loading manure	786,501	Apr. 4	604	121	115	1199
Koepp, John F., assignor of one-half to F. W. Zillmer, New Kensington, Pa. Clothesline holder	784,217	Mar. 7	413	82	115	96
Koeser, Carl D., Oshkosh, Wis. Rocking-chair	787,299	Apr. 11	2195	483	115	1555
Koetitz, Frederick A., San Francisco, Cal. Concrete casing	788,410	Apr. 25	4468	972	115	2097
Kohn, Simon A. (See Grace, Ralph, assignor.)						
Kohousek, Josef, Budapest, Austria-Hungary. Keyhole-guard	784,947	Mar. 14	1922	404	115	444
Kolime, Theodore, East St. Louis, Ill. Door-fastener	787,847	Apr. 18	3334	730	115	1824
Kolshorn, Charles, Savannah, Ga. Necktie-fastener	787,680	Apr. 18	2973	647	115	1744
Konsalik, Arthur, Philadelphia, Pa. Window	786,650	Apr. 4	907	186	115	1263
Konsalik, Arthur, Philadelphia, Pa. Fireproof window	788,267	Apr. 25	4174	906	115	2031
Koons, John J., Saratoga Springs, N. Y. Case for storing bottles	787,300	Apr. 11	2198	483	115	1555
Koontz, Andrew J., Independence, Va. Heating-stove	786,821	Apr. 11	1228	256	115	1345
Koopman, Peter, Omaha, Nebr. Ladder	785,810	Mar. 28	3686	784	115	858
Kopperud, Anders H., assignor of one-fourth to R. L. McCabe, Byron, Cal. Cultivator. (Reissue)	12,336	Apr. 4	1173	245	115	1322
Kops, Daniel, New York, N. Y. Apparel-corset	785,502	Mar. 21	3059	647	115	709
Kops, Julian D. (See Allen, Charles H., assignor.)						
Korn, Arthur, Munich, Germany. Automatic telegraphy	785,221	Mar. 21	2489	525	115	584
Korns, Clarence C., Johnstown, Pa., assignor to Lorain Steel Company. Holding device for switch points or tongues	784,689	Mar. 14	1414	292	115	332
Korrodi, Heinrich. (See Goerz and Korrodi.)						
Kostenbader, Elias, Grandin, N. D. Dumping wagon-rack	785,310	Mar. 21	2653	562	115	617
Kraft, Henry P. (See Schweinert and Kraft.)						
Krakau, Harry T., Cleveland, Ohio, and L. A. Conner, Jr., Pittsburg, Pa., assignors to National Malleable Castings Company, Cleveland, Ohio. Draft-rigging	784,406	Mar. 7	804	167	115	184
Kramer, Emil M., Cissnapark, Ill. Grain-separator	785,222	Mar. 21	2493	525	115	584
Kramer, Emil M., Cissnapark, and J. E. Kramer, Peoria, Ill. Combined plow and harrow	785,223	Mar. 21	2496	526	115	585
Kramer, Joseph E. (See Kramer, Emil M., and J. E.)						
Kramers, Joannes C. H., Mastricht, and J. G. Aarts, Dongen, assignors to Water-Gas-Maatschappij Systeem Dr. Kramers & Aarts, Amsterdam, Netherlands. Making gas	784,407	Mar. 7	806	168	115	185

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Kramers, Joannes C. H., Maastricht, and J. G. Aarts, Dongen, near Breda, assignors to Watergas-Maatschappij Systeem Dr. Kramers & Aarts, Amsterdam, Netherlands. Apparatus for the manufacture of water-gas	785,040	Mar. 14	2089	440	115	482
Krantz, Hubert, New York, N. Y. Electrical panel-board	788,109	Apr. 25	3881	841	115	1967
Kratt, Charles. (See Steele and Kratt.)						
Krause, Henry C., Point Mills, Mich. Mineral-vanner	787,190	Apr. 11	1987	432-3	115	1510
Krauss, Morris. (See Calocoff, Nathan, assignor.)						
Krebs, Arthur, assignor to Société Anonyme des Anciens Etablissements Panhard et Levassor, Paris, France. Oil-engine	785,558	Mar. 21	3176	672	115	734
Krebs, Edward, Albany, N. Y. Wheel	786,223	Mar. 28	4513	955	115	1041
Kregczy, Florentine, Lodz, Russia. Protecting and ventilating cover for vessels	786,974	Apr. 11	1556	331	115	1415
Krekeler, John W., *et al.* (See Scribner, Elbridge A., assignor.)						
Kremer, Franklin W., Akron, and J. M. Alderfer, Sharon Center, Ohio. Injector	786,906	Apr. 11	1394	297	115	1380
Kress, Augustus H. (See Arnold and Kress.)						
Kreter, Charles. (See Kreter, William and C.)						
Kreter, William and C., New York, N. Y. Pianissimo device for piano-actions	785,005	Mar. 14	2025	424	115	467
Kretschmar, Hans A. von, and J. Krone, assignors to F. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Sighting-telescope	785,894	Mar. 28	3835	815-16	115	890
Kretschmar, Hans A. von, and J. Kurig, assignors to F. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Rear sight for guns	785,893	Mar. 28	3833	815	115	890
Krewson, William W., Lambertville, N. J. Water-motor	787,191	Apr. 11	1988	433	115	1510
Krichbaum, William F., assignor to Foster Engineering Co., Newark, N. J. Pressure-regulator	784,408	Mar. 7	808	168-9	115	185
Krieger, Alfred W., Santa Rosa, N. Mex. Ter. Clothes-pin	787,987	Apr. 25	3628	791	115	1904
Krieger, Gustave, Brooklyn, N. Y. Life-saving appliance	785,503	Mar. 21	3061	647-8	115	709
Kroening, Charles W., Stillwater, Minn. Well fishing-tool	784,055	Mar. 7	88	16	115	23
Krohn, John O. E., Barberton, Ohio, assignor to National Drill & Manufacturing Company, Chicago, Ill. Wheeled dumping-scraper	784,572	Mar. 14	1140	239	115	271
Krone, Johannes. (See Kretschmar and Krone.)						
Krone, Johannes, assignor to F. Krupp, Essen-on-the-Ruhr, Germany. Portable recoil-gun	785,895	Mar. 28	3836	816	115	890
Kronenwetter, William, St. Marys, Pa. Folding box	787,681	Apr. 18	2974	647	115	1744
Kroner, Hermann, Baltimore, Md. Governor	784,333	Mar. 7	623	129	115	142
Krueger, George, Johnstown, Pa. Disinfecting device	788,268	Apr. 25	4175	907	115	2032
Kruesi, August H., Schenectady, N. Y., assignor to General Electric Company. Water lubricating system for steam-turbines	784,795	Mar. 14	1637	337-8	115	381
Kruh, Osias O., Schenectady, N. Y., assignor to General Electric Company. Means for transforming direct current	787,192	Apr. 11	1990	433	115	1511
Kruh, Osias O., Schenectady, N. Y., assignor to General Electric Company. Frequency-changer	787,193	Apr. 11	1991	434	115	1511
Krupp, Aktiengesellschaft, Fried. (See Kretschmar and Krone, assignors.)						
Krupp, Aktiengesellschaft, Fried. (See Kretschmar and Kurig, assignors.)						
Krupp, Aktiengesellschaft, Fried. (See Mayer, Wilhelm, assignor.)						
Krupp, Aktiengesellschaft, Fried. (See Schleussner, Moritz, assignor.)						
Krupp, Aktiengesellschaft, Fried. (See Wieser, Karl, assignor.)						
Krupp, Aktiengesellschaft, Fried. (See Wratzke, Alfred, assignor.)						
Krupp, Fried. (See Krone, Johannes, assignor.)						
Kruse, Alfred T., assignor, by mesne assignments, to American Steel Package Company, Defiance, Ohio. Sheet-metal packing-case	786,298	Apr. 4	92	20-1	115	1092
Kruse, Alfred T., assignor, by mesne assignments, to American Steel Package Company, Defiance, Ohio. Box-fastener	786,299	Apr. 4	94	21	115	1092
Kruse, William, and T. M. Vanderwerth, Ledbetter, Tex. Baling-press	787,194	Apr. 11	1994	434	115	1511
Kuehl, Jules H. F., Iroquois, S. D. Hay-loader	788,360	Apr. 25	4355	950	115	2072
Kuhlman, Henry V., assignor of one-half to G. A. Woodman, Chicago, Ill. Journal-bearing	788,320	Apr. 25	4279	929	115	2056
Kuhlmann, Katie. (See Tourville, Charles B., assignor.)						
Kuhn, Harry H., Marshall, Ill. Talking-machine attachment	786,449	Apr. 4	498	97	115	1178
Kühnert, Hugo, Berlin, Germany. Candle holder and extinguisher	785,896	Mar. 28	3839	817	115	891
Kuhnke, Emil, Leverkusen, near Cologne, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Steam-meter	784,948	Mar. 14	1923	404	115	444
Kummerow, Ferdinand C., Chicago, Ill. Combined water-heater and garbage-burner	787,771	Apr. 18	3185	696	115	1792
Kunde, Albert G., Milwaukee, Wis. Clasp	784,573	Mar. 14	1142	239	115	271
Kunze, Frederick A., and T. Greenzweight, Williamsport, Pa. Horseshoe-calk	784,496	Mar. 7	994	208	115	224
Kurig, Josef. (See Kretschmar and Kurig.)						
Kursheedt Manufacturing Company. (See Groebli, Joseph A., assignor.)						
Kurzwernhart, Adalbert, Zuckmantel, near Teplitz, Austria-Hungary. Siemens regenerative furnace	786,770	Apr. 4	1125	236	115	1311
Kutcher, Michael, Philadelphia, Pa. Firearm	787,626	Apr. 18	2875	625-6	115	1723
Kvech, Frank W. (See Rath and Kvech.)						
Kyle, Preston, and J. R. Cress, Coalbluff, Ind. Railway-frog	785,559	Mar. 21	3178	673	115	734
L. Benedict Company. (See Leiger, George F., assignor.)						
L. S. Starrett Co. (See Walsh, Stafford P., assignor.)						
La Belle, Peter, Anderson, Ind. Combined match deliverer, lighter, and cigar-cutter	787,334	Apr. 11	2264	494	115	1570
La Clair, Norman W., assignor of one-half to I. M. Shuemaker, St. Paul, Minn. Nailless horseshoe	785,006	Mar. 14	2026	425	115	467
La Compagnie Générale de Phonographes, Cinématographes & Appareils de Precision. (See Ivatts, Ernest A., assignor.)						
La Rue, Abram, Danville, Pa. Curtain-hanger	785,560	Mar. 21	3180	673	115	735
La Sor, Herbert G., Washington, D. C. Pasting-box	786,975	Apr. 11	1557	331	115	1415
Laass, Robert, Lyons, N. Y. Sulky-shaft	785,959	Mar. 28	3970	844	115	921
Labady, Charles E., Michigan City, Ind. Rail-joint	788,479	Apr. 25	4582	999	115	2120
Laberge, Ephraim, Montreal, Canada. Gas-heater	786,300	Apr. 4	95	21	115	1092
Labofish, Charles S., Washington, D. C., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	787,772	Apr. 18	3186	696	115	1792
Lachman, Laurence S., New York, N. Y. Pulley or wheel	785,897	Mar. 28	3840	817	115	891
Lachman, Laurence S., New York, N. Y., assignor to Pressed Metal Manufacturing Company. Pulley-frame	788,361	Apr. 25	4357	951	115	2073
Lackawanna Lubricator and Manufacturing Company. (See Williams, Dick B., assignor.)						
Lackie, William W., W. T. Calderwood, and W. H. D. MacEwen, Glasgow, Scotland. Electric time relay-switch	786,907	Apr. 11	1396	297	115	1381
Ladd, James B., Wayne, Pa., and D. Baker, Newton, Mass. Distributing-bell	785,311	Mar. 21	2653	562	115	617
Lagonda Manufacturing Company. (See Weinland, Henry F., assignor.)						
Laine, Jules, and G. Castillon, New Orleans, La. Shipping crate or drum	787,773	Apr. 18	3190	697	115	1794
Lake Shore Novelty Company. (See Merkel, Arthur E., assignor.)						
Lakhovsky, Georges G., Paris, France. Means for fastening in position railway-spikes or the like	786,037	Mar. 28	4147	874-5	115	962

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Lamb, Joseph F., assignor to Landers, Frary and Clark, New Britain, Conn. Mixing vessel and clamp	787,774	Apr. 18	3192	697	115	1794
Lambert, Frank, Brooklyn, N. Y. Water-meter	787,577	Apr. 18	2766	603	115	1697
Lambert, Frank, Brooklyn, N. Y. Car-nut	787,578	Apr. 18	2767	603	115	1697
Lambert, Frank, Brooklyn, N. Y. Water-meter	787,579	Apr. 18	2768	603	115	1697
Lambert, John C., Tonica, Ill. Automatic railway-signal	784,497	Mar. 7	994	208	115	224
Lambert, William D., Haverhill, Mass. Strap-fastener	787,335	Apr. 11	2267	494	115	1570
Lamprecht et Cie., R. de. (See Lamprecht, Rodolphe de, assignor.)						
Lamprecht, Rodolphe de, assignor to R. de Lamprecht et Cie., Paris, France. Apparatus for closing electric circuits	786,038	Mar. 28	4149	875	115	963
Lancaster, Israel, Chicago, Ill. Covering for aeroplanes	785,740	Mar. 28	3548	758	115	824
Landale, Charles, Stoke-upon-Trent, England. Apparatus for cutting or sawing slate, stone, metal, wood, or other materials	785,175	Mar. 21	2394	502–4	115	563
Landers, Frary and Clark. (See Lamb, Joseph F., assignor.)						
Landis, Abraham B., Waynesboro, Pa. Grinding-machine	785,258	Mar. 21	2559	540–1	115	597
Landis, David E., Rockglen, Pa. Portable fire-escape	784,864	Mar. 14	1770	369	115	410
Landis, Israel L., Chicago, Ill. Adjustable molding-machine	784,690	Mar. 14	1414	292	115	333
Landis, Israel L., Chicago, Ill. Molding-machine	786,367	Apr. 4	248	57	115	1123
Landrus, Hiram, assignor, by mesne assignments, of one-half to L. E. Humphreys, Topeka, Kans. Heater	784,334	Mar. 7	625	129	115	143
Lane, Almeron M., Meriden, Conn. Pendulum-regulator	785,365	Mar. 21	2760	583	115	641
Lane Brothers Company. (See Lane, George, assignor.)						
Lane, Charles H., Cleveland, Ohio. Air-separator	785,811	Mar. 28	3686	784–5	115	859
Lane, George, assignor to Lane Brothers Company, Poughkeepsie, N. Y. Joist-hanger	784,218	Mar. 7	414	82	115	96
Lane, Thomas. (See Leech and Lane.)						
Lane, W. Britton, Evanston, Ill. Electric train signaling equipment	784,865	Mar. 14	1771	369–70	115	410
Langdon, Charles N., and O. E. Carlson, Newcastle, Pa. Pivoting device for ventilating-sashes	784,574	Mar. 14	1143	239	115	272
Langehennig, Fredrick W., assignor to St. Louis Car Company, St Louis, Mo. Car construction	787,682	Apr. 18	2975	648	115	1745
Langford, Edwin R. (See Hudson and Langford.)						
Langford, John B. (See Seal, John W., assignor.)						
Langlands, Daniel G., Winthrop, assignor to J. H. Roberts & Company, Boston, Mass. Keying device for pulleys	786,039	Mar. 28	4152	875	115	963
Langley, John W., Cleveland, Ohio. Purifying water	785,312	Mar. 21	2655	.....	115	618
Lanning, George R. W., and F. M. Tusia, Egan, S. D. Belt-tightener	786,651	Apr. 4	908	186	115	1263
Lansberry, Edward L., assignor of one-half to J. Baker, McDonaldton, Pa. Wrench	785,313	Mar. 21	2657	562	115	618
Lanston Monotype Machine Company. (See Bancroft, John S., assignor.)						
Lanston Monotype Machine Company. (See Pierpont, Frank H., assignor.)						
Lapp, Valentin, Leipsic, Germany. Manufacturing non-alcoholic beer	786,771	Apr. 4	1127	.....	115	1312
Lappan, Adam, Annandale, New South Wales, Australia. Riding-saddle	786,502	Apr. 4	606	121	115	1199
Lappen, James E., Decorah, Iowa, assignor to L. L. C. Brooks and F. M. Catlin, St. Paul, Minn. Retting fibrous stock	785,618	Mar. 21	3295	.....	115	759
Large, Ernest, Toronto, Canada. Pneumatic tire	784,166	Mar. 7	303	64	115	71
Larkin, Moses V., New York, N. Y. Artist's palette	785,898	Mar. 28	3842	818	115	892
Larson, William, *et al.* (See Mowry, Joseph B., assignor.)						
Larsson, Thure, Worcester, Mass., assignor to Standard Plunger Elevator Company. Pilot-valve for hydraulic elevators	786,652	Apr. 4	909	187	115	1264
Larsson, Thure, assignor to Standard Plunger Elevator Company, Worcester, Mass. Elevator-controlling mechanism	786,653	Apr. 4	912	187–8	115	1264
Larsson, Thure, assignor to Standard Plunger Elevator Company, Worcester, Mass. Valve mechanism for hydraulic elevators	786,654	Apr. 4	917	188	115	1265
Larzelere, Herbert L., Rochester, N. Y. Vapor or shower bath attachment for bath-tubs	787,683	Apr. 18	2976	648	115	1745
Laska, August L., assignor to K. Oehler, Anilin- & Anilinfarben- Fabrik, Offenbach-on-the-Main, Germany. Orange sulfur dye and making same	785,675	Mar. 21	3418	.....	115	784
Laska, August L., assignor to K. Oehler, Anilin & Anilinfarben-Fabrik, Offenbach-on-the-Main, Germany. Claret-red mordant dye and making same	787,046	Apr. 11	1689	.....	115	1446
Latham, Harry O., Campbell, Mo. Press	787,301	Apr. 11	2200	481	115	1556
Lathers, Reuben H., Detroit, Mich. Concrete fence-post	784,866	Mar. 14	1774	370	115	411
Latimer, John M., Weehawken, N. J., assignor to Consolidated Fire Alarm Company, New York, N. Y. Wiring-cleat	785,561	Mar. 21	3181	673	115	735
Latour, Marius C. A., Paris, France, assignor to General Electric Company. Single-phase dynamo-electric machine	787,302	Apr. 11	2201	484	115	1556
Latour, Marius C. A., Paris, France, assignor to General Electric Company. Alternating-current series motor	787,303	Apr. 11	2202	484	115	1557
Latshaw, William H., *et al.* (See Duff, John T., assignor.)						
Latulip, Fred, assignor to Syracuse Rawhide Manufacturing Company, Syracuse, N. Y. Rawhide bushing	784,524	Mar. 7	1058	219	115	238
Laube, Godfried, Los Angeles, assignor of one-half to J. R. Marsh, Santa Monica, Cal. Paper-holder	786,571	Apr. 4	742	152	115	1227
Lauer, Lillian M. (See Stebbins and Lauer.)						
Laughlin, Alexander. (See Reuleaux, Josef, assignor.)						
Laughlin, U. L. (See Clark, Robert G., assignor.)						
Laughton, Edward. (See Goyder and Laughton.)						
Laurick, Carl, Berlin, Germany, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	784,335	Mar. 7	627	129–31	115	143
Lauth, Jacob. (See Hendrickson, Magnus, assignor.)						
Lautner, Frank J., Jr., St. Louis, Mo. Candy-rolling machine	784,111	Mar. 7	199	38	115	48
Lavery, Henry C., Superior, Wis. Anatomical measuring and recording machine	788,362	Apr. 25	4358	951–2	115	2073
Law, Charles R., Shreveport, La. Rod-packing	784,867	Mar. 14	1776	370	115	411
Law, Fred A., Hartford, Conn., assignor to Electric Vehicle Company, Jersey City, N. J., and New York N. Y. Steering-gear for vehicles	788,053	Apr. 25	3762	819	115	1935
Law, William H., New York, N. Y. Metallic packing	786,976	Apr. 11	1558	332	115	1416
Lawler, William J., Charlestown, Mass. Pile-driver	785,899	Mar. 28	3844	818	115	892
Lawrence, William A., assignor to Continental Rubber Company, New York, N. Y. Cleaning rubber	787,518	Apr. 18	2656	576	115	1672
Lawrence, William C., Portland, Oreg. Loop-box	788,054	Apr. 25	3767	820	115	1937
Lawrence, William H., Glasgow, Scotland. Milking apparatus	784,796	Mar. 14	1639	338–40	115	382
Lay, Frank R., assignor of one-half to H. C. Churchman, Indianapolis, Ind. Broom	788,157	Apr. 25	3976	859	115	1989
Layman, Alfred C., and P. A. Bentsen, Wilmington, Del. Safety-gate for railway-crossings	784,691	Mar. 14	1417	293	115	333
Layman, Waldo A. St. Louis, Mo. Electric motor	784,056	Mar. 7	89	16–17	115	23
Layman, Waldo A., St. Louis, Mo. Operating alternating-current motors	787,336	Apr. 11	2260	495	115	1571
Layne, Mahlon E., Rock Rapids, Iowa. Well apparatus	786,301	Apr. 4	97	22	115	1093
Layton, Rawson H., and J. E. Pfeffer, South Bend, Ind. Explosive-engine	787,925	Apr. 25	3495	763	115	1873
Lázaga, Ygnacio, Havana, Cuba, assignor to International Packing Machine Company, New York, N. Y. Machine for making up cigarette-packages	787,100	Apr. 11	1800	334–5	115	1469

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Lazareff, Mathias A., assignor to Royal Glass Jar and Bottle Company, New York, N. Y. Fastening means for bottles or similar things	788,158	Apr. 25	3977	859	115	1989
Lazarus, Abraham, London, England. Opera-chair	787,337	Apr. 11	2271	495	115	1571
Lazarus, Henry E. (See Clemens, Earl, assignor.)						
Le Blanc, Alexis, assignor of one-third to I. W. Henry, New York, N. Y. Braiding-machine	787,384	Apr. 18	2377	514	115	1608
Le Chard, William H., assignor of one-half to W. F. Cain, Atlantic City, N. J. System of dredging	785,008	Mar. 14	2030	425–6	115	468
Le Sueur, Philip, Calabasas, Cal. Vehicle-axle	785,504	Mar. 21	3063	648	115	710
Leach, Arthur L. (See Leach, Frank P., J. D., and A. L.)						
Leach, Frank P., J. D., and A. L., Goldengate, Ill. Movable platform for excavating-machines, &c.	785,007	Mar. 14	2028	425	115	467
Leach, Joseph D. (See Leach, Frank P., J. D., and A. L.)						
Leadbeater, Alfred and T., Leeds, assignors to Elbeegee Syndicate, Limited, London, England. Manufacture of soles for boots or shoes	788,159	Apr. 25	3979	859	115	1989
Leadbeater, Alfred and T., Leeds, assignors to Elbeegee Syndicate, Limited, London, England. Sole for boots or shoes	788,160	Apr. 25	3981	860	115	1990
Leadbeater, Edward, Detroit, Mich. Automatic gas-safety-valve mechanism	787,195	Apr. 11	1995	435	115	1512
Leadbeater, Tom. (See Leadbeater, Alfred and T.)						
Leary, John F., Luzerne, Pa. Combined pump and piston rod	784,602	Mar. 14	1418	293	115	333
Leavitt, Frank M., New York, assignor to E. W. Bliss Company, Brooklyn, N. Y. Steering mechanism for torpedoes	785,425	Mar. 21	2889	610–11	115	670
Lecarme, Jean, Paris, France. Treating iron, cast-iron, and steel	787,926	Apr. 25	3497	.....	115	1874
Leckband Gas Company. (See Leckband, Theodor H. J., assignor.)						
Leckband, Theodor H. J., Des Moines, assignor to Leckband Gas Company, Mason City, Iowa. Air-pumping apparatus	784,575	Mar. 14	1146	240	115	272
Ledoux, John W., Swarthmore, Pa. Fluid-meter	784,112	Mar. 7	200	38–9	115	48
Leech, Thomas B., Leytonstone, and T. Lane, Blackwall, England; said Lane assignor to said Leech. Anvil for making tanks, cisterns, boxes, or the like	787,927	Apr. 25	3499	764	115	1874
Leeman, Horace E., Lynn, Mass. Spool-stand	786,572	Apr. 4	744	153	115	1228
Lees, Joseph. (See Breslin and Lees.)						
Lees, William T., Pawtucket, R. I. Hair-clipper	785,960	Mar. 28	3971	845	115	921
Leese, Thaddeus S., Bellevue, Pa. Air-baffler for lamps	787,196	Apr. 11	1998	435	115	1513
Lefebvre, Arthur J. H., Montreal, Canada. Safety-razor	784,336	Mar. 7	636	131	115	145
Lefferts, John A., Elizabeth, N. J. Bath-tub and attaching feet thereto	784,746	Mar. 14	1532	316	115	360
Leffingwell, Closson M., Littlefalls, Minn. Dental matrix-retainer	785,619	Mar. 21	3296	700	115	759
Legare, George S., *et al.* (See Fuller, Wallace W., assignor.)						
Legg, Roland H., Carthage, Mo. Bobbin-winder	785,812	Mar. 28	3689	785	115	860
Lehman, Benie, Dayton, Ohio. Picture-hook	786,977	Apr. 11	1561	332	115	1416
Lehmann, Ernst P., Brandenburg-on-the-Havel, Germany. Toy	788,110	Apr. 25	3882	841	115	1967
Leidy, Clement, P. V. Johnson, and J. G. Martin, Fostoria, Ohio. Corn-cutting machine	785,741	Mar. 28	3549	758	115	825
Leiger, George F., assignor, by mesne assignments, to L. Benedict Company, Chicago, Ill. Machine for making can-bodies	784,337	Mar. 7	637	131–2	115	146
Leighton, Herbert J., Syracuse, N. Y. Internal-combustion engine	786,302	Apr. 4	100	22–3	115	1093
Leincweber, Herman, South Chicago, Ill. Pneumatic tool	784,949	Mar. 14	1924	404	115	445
Leitschuh, Joseph. (See Currier and Leitschuh.)	784,338	Mar. 7	639	132	115	146
Lemire, Joseph, Drummondville, Canada, assignor to Automatic Railway Signal Company, Limited. Railway signaling system	786,368	Apr. 4	249	57–8	115	1123
Lemyre, Joseph E., Manchester, N. H., assignor, by mesne assignments, to H. H. Mawhinney, Boston, Mass. Warp stop-motion for looms	784,339	Mar. 7	641	132	115	146
Lenz, Herman, Philadelphia, Pa. Insecticide	787,385	Apr. 18	2384	.....	115	1610
Leonard, Harry W., Bronxville, N. Y. Electric resistance	787,047	Apr. 11	1689	359	115	1446
Leonard, Howard M., assignor of one-half to B. F. Shuart, Elyria, Ohio. Wood-fiber-cutting machine	784,797	Mar. 14	1648	340–1	115	384
Lesher, William W. (See Helm, William J., assignor.)						
Lessing, Wilhelm, Geseke, assignor to Gesellschaft für Trockenzerstänbung Flüssiger Materien mit Beschränkter Haftung, Berlin, Germany. Apparatus for spraying blast-furnace cinder	786,573	Apr. 4	745	153	115	1228
Letzig, William. (See Pearson and Letzig.)						
Leu, Jean A., assignor of one-half to N. Huguenin, Montreal, Canada. Bottle support and protector	784,868	Mar. 14	1777	370	115	412
Leuenberger, Louis, Van Ness, N. Y. Trolley	787,684	Apr. 18	2978	648	115	1745
Levi, Benjamin I. (See Rubens and Levi.)						
Levoy, Benjamin M., New York, N. Y. Eyeglasses	785,620	Mar. 21	3298	701	115	759
Levy, Abraham B. (See Bleoo, John H., assignor.)						
Lewin, Walter. (See Tabrett and Lewin.)						
Lewis, Charles H., Baltimore, Md. Combined dredge and mining sluice	788,211	Apr. 25	4074	882	115	2010
Lewis, Dean C., assignor to Autocar Company, Ardmore, Pa. Piston	787,775	Apr. 18	3193	697	115	1794
Lewis, Frederick J., Sacramento, Cal. Bottle-filling machine	784,219	Mar. 7	415	83	115	96
Lewis, Herman J. S., assignor, by mesne assignments, to Florence Exhibitor System, New York, N. Y. Show-case	787,048	Apr. 11	1696	360–61	115	1447
Lewis, Ivon E., and J. A. Corey, London, England. Deposition-tank	786,978	Apr. 11	1562	332–3	115	1417
Lewis, James W., Philadelphia, Pa. Punch-cutting machine	787,197	Apr. 11	2000	435	115	1513
Lewis, John F., Philadelphia, Pa. Automatic grease-cup	788,269	Apr. 25	4177	907	115	2032
Lewis, Lester L. (See Mitchell and Lewis.)						
Lewis, Robert B., assignor to American Metal Edge Box Company, Philadelphia, Pa. Die mechanism for cutting contiguous fasteners	786,503	Apr. 4	606	122	115	1200
Lewis, Robert B., assignor to American Metal Edge Box Company, Philadelphia, Pa. Die for cutting contiguous fasteners	786,504	Apr. 4	611	123	115	1200
Libbey, Mark A., South Berwick, Me. Detonating fire-alarm	786,655	Apr. 4	921	188	115	1266
Liberman, Bernard, *et al.*, executors. (See Liberman, Isadore.)						
Liberman, Isadore, deceased, Philadelphia, Pa.; B. Liberman and L. Gross, executors. Cigar-rolling table and wrapper-cutter	786,979	Apr. 11	1564	333	115	1417
Liberman, Oscar, and T. Scanlon, Pittsburg, Pa. Policeman's mace	786,040	Mar. 28	4154	876	115	964
Lichtentag, Morris, St. Louis, Mo. Ice-cream freezer	786,129	Mar. 28	4335	916	115	1005
Lichtfeld, Albert W., Libertyville, Ill. Milk-cooler	786,822	Apr. 11	1230	256	115	1345
Liebenstein, Morton S. (See Gerth, August, assignor.)						
Liebentritt, John F., Bankstown, near Sydney, New South Wales, Australia. Multitubular steam-boiler	785,009	Mar. 14	2034	426–7	115	469
Lieber, Hugo, New York, N. Y. Radio-active matter and making same	787,928	Apr. 25	3501	764	115	1874
Lieber, Hugo, New York, N. Y. Preserved radio-active organic matter and food	788,480	Apr. 25	4583	.....	115	2120
Liebknecht, Otto, Frankfort-on-the-Main, Germany, assignor to Roessler & Hasslacher Chemical Company, New York, N. Y. Antiseptic soap and making same	787,776	Apr. 18	3195	.....	115	1794
Lieser, William G., Bolivar, Ohio. Fence-post	785,259	Mar. 21	2566	541	115	600

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Lightner, Henry F., Newcastle, Pa. Cement-block mold	788,481	Apr. 25	4585	999	115	2120
Lind, Arvid A., assignor to Elektromilitara Aktiebolaget, Stockholm, Sweden. Vibrator for sound-telegraph apparatus	786,041	Mar. 28	4156	876	115	964
Linde, Ewald E., Slater, Colo. Engine	785,260	Mar. 21	2567	541-2	115	600
Lindemann, August S., Milwaukee, and H. F. Stock, Waukesha, assignors to Milwaukee-Waukesha Brewing Company, Milwaukee, Wis. Bottle-soaking machine	784,622	Mar. 14	1268	265	115	298
Linderoth, Herman A., Stjernsund, Sweden. Folding bedstead	785,621	Mar. 21	3299	701	115	759
Lindfors, Olaf E., Beaver, Utah. Saw-set	787,519	Apr. 18	2658	576	115	1673
Lindgren, Carl J., Warren, Pa. Vise	785,010	Mar. 14	2037	427	115	471
Lindsay, Ralph E., Davenport, Iowa. Basket	784,950	Mar. 14	1927	405	115	445
Lindström, Charles A., Allegheny, assignor to Pressed Steel Car Company, Pittsburg, Pa. Stringer-support for cars	785,043	Mar. 14	2094	441	115	483
Lindström, Charles A., Allegheny, and J. F. Streib, Avalon, assignors to Pressed Steel Car Company, Pittsburg, Pa. Car	786,224	Mar. 28	4514	955	115	1041
Lindstrom, Nils O., Jersey City, N. J., assignor to A. B. See and W. L. Tyler, New York, N. Y. Electric-elevator control	784,869	Mar. 14	1778	371	115	412
Linebaugh, Amos A., and C. Lyman, Clarinda, Iowa. Incubator	786,450	Apr. 4	499	97	115	1178
Lingsch, Frederick A., Van Nest, N. Y. Pianoforte-action	788,482	Apr. 25	4586	1000	115	2121
Linn, Allen D., and I. J. Cilley, Grand Rapids, Mich. Sprinkler-head for automatic fire-extinguishers	785,426	Mar. 21	2891	611	115	671
Linn, Christian F., Brooklyn, N. Y. Arm-clasp for carrying packages	787,520	Apr. 18	2659	577	115	1673
Linsley, Frank P., Gallipolis, Ohio. Shaving-cabinet	786,574	Apr. 4	747	154	115	1228
Linton, Frederick A., New Britain, Conn. Banjo	787,777	Apr. 18	3195	697-8	115	1795
Lippold, Henry, Erie, Pa. Valve	787,627	Apr. 18	2878	626	115	1724
Lipps, Louis P., Cleveland, Ohio. Graduated measure	785,742	Mar. 28	3550	758	115	825
Lipschutz, Arthur, St. Louis, Mo., assignor of one-half to M. Toltz, St. Paul, Minn. Draft-rigging. (Reissue)	12,334	Mar. 28	4579	970	115	1056
Lipschutz, Arthur, assignor of one-half to H. W. Wolff, St. Louis, Mo. Cast-steel car-truck	786,575	Apr. 4	748	154	115	1229
Lisa, Thomas. (See Fevola, Antonio, assignor.)						
Lister, George F. (See Keith and Lister.)						
Lister, John L., St. Louis, Mo. Indicator for letter-boxes	786,225	Mar. 28	4515	956	115	1042
Little, Charles R. (See Method and Stewart, assignors.)						
Little, Eldridge H., Oskaloosa, Iowa. Support for telephone-receivers	787,386	Apr. 18	2384	515	115	1611
Little, Henry C., Boston, Mass. Electric time-switch	786,226	Mar. 28	4517	956	115	1042
Little, John, Minneapolis, Minn. Coin-controlled vending-machine	785,813	Mar. 28	3691	785	115	860
Little, Joseph D., Springfield, Ohio. Threshing-machine	786,303	Apr. 4	104	23-4	115	1094
Little, William, Baltimore, Md. Necking and lipping machine for vials	784,798	Mar. 14	1651	341	115	385
Litz, Herman A., Danville, Pa. Wood-sawing machine	784,409	Mar. 7	811	169	115	186
Livingston, Charles G., *et al.* (See Reid, Charlie, assignor.)						
Livingston, Joe. (See Charles and Faujat, assignors.)						
Ljungström, Birger, assignor to Aktiebolaget Separator, Stockholm, Sweden. Centrifugal liquid-separator	786,369	Apr. 4	257	59	115	1124
Ljungström, Fredrik, Stockholm, Sweden. Milking-machine	784,693	Mar. 14	1419	293	115	334
Ljungström, Fredrik, Stockholm, Sweden. Supporting-harness for milking-machines	784,694	Mar. 14	1421	293	115	334
Lloyd, David W., Pittsburg, Pa. Molding-machine	787,198	Apr. 11	2002	436	115	1513
Lloyd, David W., Pittsburg, Pa. Manufacturing building-blocks	787,199	Apr. 11	2005	436	115	1514
Lobit, Jean M., New York, N. Y. Fishing-spear	784,747	Mar. 14	1534	316	115	360
Locke, Albert D., Newton, Mass. Clamping device	785,743	Mar. 28	3551	758	115	825
Lodge & Shipley Machine Tool Company. (See Chard and Lodge, assignors.)						
Lodge, William. (See Chard and Lodge.)						
Lodge, William, and N. D. Chard, assignors to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Head-stock for engine-lathes	788,483	Apr. 25	4588	1000	115	2121
Logan, Robert R., and S. P. Wetherill, Jr., New York, N. Y. Sight-illuminator	786,227	Mar. 28	4519	957	115	1042
Logan, Robert S. (See Cowden, Frederick, assignor.)						
Lohse, Hermann. (See Poth, Henry, assignor.)						
Loller, Silas W. (See Crary, Thomas E., assignor.)						
Loncaric, Vinzenz, New York, N. Y. Dough-shaping machine	786,042	Mar. 28	4158	876	115	964
Long, Adam A., Rochester, N. Y. Nut-lock	784,951	Mar. 14	1928	405	115	446
Long, William P. (See O'Brien and Long.)						
Longard, Clarence C., Halifax, Canada. Wrench	787,778	Apr. 18	3196	698	115	1795
Longdon, Alexander P., Atlanta, Ga. Device for assembling brooms into bundles	786,228	Mar. 28	4521	957	115	1043
Longsworth, Ira R. (See Waring, Fred B., assignor.)						
Longuemare, Amélie A., F., and G., Paris, France, assignors to said Amélie A. Longuemare. Carbureter for hydrocarbon-engines	785,622	Mar. 21	3300	701-2	115	759
Longuemare, Fernand. (See Longuemare, Amélie A., F., and G.)						
Longuemare, Georges. (See Longuemare, Amélie A., F., and G.)						
Lonn, Edward J., Laporte, Ind., assignor, by mesne assignments, to Autocar Company, Ardmore, Pa. Steering-wheel for motor-vehicles	786,772	Apr. 4	1129	237	115	1312
Loofbourrow, William T., Issaquah, Wash. Jar-top remover	786,505	Apr. 4	614	123	115	1201
Look, John C., Tudor, Cal. Mop or brush holder	786,576	Apr. 4	752	155	115	1229
Loomis, Allen, Jackson, Mich. Valve-gear	787,580	Apr. 18	2770	604	115	1697
Loomis, Allen, Ann Arbor, Mich. Automobile-engine	787,581	Apr. 18	2773	605	115	1698
Loomis, Burdett, Hartford, Conn., and H. Pettibone, New Rochelle, N. Y., assignors to Power and Mining Machinery Company. Apparatus for manufacturing gas	784,576	Mar. 14	1148	240	115	273
Loomis, Burdett, Hartford, Conn., and H. Pettibone, New Rochelle, N. Y., assignors to Power and Mining Machinery Company. Making and delivering gas	784,870	Mar. 14	1781	371-2	115	412
Lorain Steel Company. (See Ervin, George M., assignor.)						
Lorain Steel Company. (See Korns, Clarence C., assignor.)						
Lord, Samuel. (See Sutton, Lord, and Kerr.)						
Lorenz, Max, Honolulu, Hawaii. Intermediate apron conveyer for sugar-cane mills	787,101	Apr. 11	1804	385	115	1470
Lorenz, Max, Honolulu, Hawaii. Macerating sugar-cane	787,102	Apr. 11	1805	386	115	1470
Louden, William, Fairfield, Iowa. Elevated carrier	784,167	Mar. 7	305	64	115	72
Love, Lawrence, Toledo, Ohio. Barrel	785,505	Mar. 21	3066	648	115	710
Lovekin, Luther D., Philadelphia, Pa. Machine for expanding and flanging pipe	784,577	Mar. 14	1152	241-2	115	273
Lovekin, Luther D., Philadelphia, Pa. Tool for expanding and cutting pipe	784,578	Mar. 14	1154	242-3	115	274
Lovelace, Charles D., Hereford, Tex. Window or door fastener	784,057	Mar. 7	91	17	115	23
Low, Abbot A., Horseshoe, assignor to Auto Stopper Company, New York, N. Y. Secret sealing means for vessels	785,011	Mar. 14	2040	427	115	471
Low, Abbot A., Horseshoe, assignor to Auto Stopper Company, New York, N. Y. Bottle-mouth and neck	785,012	Mar. 14	2040	427	115	471
Low, Abbot A., Horseshoe, assignor to Auto Stopper Company, New York, N. Y. Bottle	785,013	Mar. 14	2041	428	115	471
Lowe, George. (See Schwarz and Lowe.)						
Lowe, John D. (See Ogilvie and Lowe.)						
Lowery, Frank J., Fort Fairfield, Me. Button	785,261	Mar. 21	2569	542	115	600

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Lowry, Frederick N., Midland, Mich. Automatic measuring-tank	785,224	Mar. 21	2498	526	115	585
Luce, Charles J., Niantic, Conn., assignor to Luce Compress & Cotton Company. Compressing cotton or other fibrous materials	784,579	Mar. 14	1156	243-4	115	274
Luce, Charles J., Niantic, Conn., assignor to Luce Compress & Cotton Company. Baling-press	785,068	Mar. 14	2138	451-3	115	492
Luce Compress & Cotton Company. (See Luce, Charles J., assignor.)						
Luce, George D., New Orleans, La. Cane-harvester	788,270	Apr. 25	4179	907-8	115	2033
Luckett, Gustavus T., assignor to M. W. Kellogg & Company, New York, N. Y. Gate-valve	786,043	Mar. 28	4158	877	115	964
Ludeman, Edwin H. (See Farwell, Elmer S., assignor.)						
Ludeman, Edwin H. (See Farwell and Williams, assignors.)						
Ludeman, Edwin H., New York, N. Y. Turbine-engine	785,014	Mar. 14	2041	428	115	471
Ludlow, William E., Cleveland, Ohio. Track-drill	787,685	Apr. 18	2979	649	115	1746
Ludwig, Johann N., Mainz, Germany. Developing photographic plates or the like in open daylight	787,103	Apr. 11	1806	.....	115	1470
Luitwieler, Clarence S. (See Merrick, Frank W., assignor.)						
Lukens, H. Reeves. (See Walmsley and Ambler, assignors.)						
Lukens Iron and Steel Company. (See Vanderslice, John H., assignor.)						
Lund, John, assignor of one-half to F. W. Dunn, Woodstock, Canada, and W. E. Dunn, Chicago, Ill. Molding-machine	785,262	Mar. 21	2571	542-3	115	600
Lundquist, Frank A., Brooklyn, N. Y. Folding umbrella	784,871	Mar. 14	1784	372	115	413
Lundqvist, Alexius T., assignor to Favorite Pan and Utensil Company, Paterson, N. J. Detachable lid controlling and locking mechanism for pans, kettles, or the like	785,111	Mar. 21	2260	473	115	533
Lundskog, Julius W., Lynn, Mass., assignor to General Electric Company. Winding-form	784,799	Mar. 14	1653	342	115	385
Lung, George A., U. S. Navy. Stretcher	787,848	Apr. 18	3335	730-1	115	1824
Luppino, Joseph. (See Storr and Luppino.)						
Luppino, Joseph, Los Angeles, Cal., assignor to Seng Company. Adjustable hinge	786,451	Apr. 4	502	97-8	115	1178
Luschar, Hermann, Cleveland, Ohio. Carving-machine	785,314	Mar. 21	2658	563-5	115	618
Luten, Daniel B., Indianapolis, Ind. Arch	785,676	Mar. 21	3419	734	115	784
Lutz, George A., assignor, by mesne assignments, of one-half to F. K. Boland, New York, N. Y. Rosette or receptacle for conduits for electric wires	787,338	Apr. 11	2272	495	115	1571
Lutz, John W., Trotwood, and J. E. Brelsford, Dayton, Ohio. Device for holding and handling tickets	785,744	Mar. 28	3553	759	115	825
Lutz, William F. J., Chicago, Ill. Connection for sewer and soil pipes. (Reissue)	12,337	Apr. 11	2300	500	115	1577
Lutzmann, Albert, Winz, near Hattingen, assignor to Vereinigte Flanschenfabriken & Stanzwerke Aktien-Gesellschaft, Hattingen, Germany. Machine for slicing meat, ham, sausage, or the like	785,745	Mar. 28	3555	759	115	826
Lux, Friedrich, Heidelberg, Germany. Electricity-meter	786,823	Apr. 11	1231	256-7	115	1346
Lyman, Charles. (See Linebaugh and Lyman.)						
Lyman, Charles M., Rutland, Vt. Stone-channeling machine	784,268	Mar. 7	512	103	115	119
Lynch, George E., assignor to J. A. Jeffrey, Columbus, Ohio. Rail-fastening	785,044	Mar. 14	2095	441-2	115	483
Lynn, Robert C., Yazoo City, Miss. Square	786,824	Apr. 11	1232	257	115	1346
Lyon, Gustave F., Paris, France. Musical instrument	788,484	Apr. 25	4590	1000	115	2121
Lyons, John A., and E. C. Broadwell, Chicago, Ill. Manufacture of carbon-tetrafluorid gas	785,961	Mar. 28	3973	845	115	922
Lyons, John A., and E. C. Broadwell, Chicago, Ill. Production of boron by electrolysis	785,962	Mar. 28	3974	845	115	922
Lyons, Robert L., Waltham, Mass. Thread-cutter for sewing-machines	788,212	Apr. 25	4077	883	115	2011
Lyons, Robert L., Waltham, Mass. Stitch-forming mechanism for button-sewing machines	788,213	Apr. 25	4080	883-4	115	2011
Lytton, Jarard W., Portsmouth, Va. Steam-trap	788,485	Apr. 25	4590	1001	115	2121
M-E Voting and Counting Machine Company. (See Mahana, John B., assignor.)						
Maas, Solomon, New York, N. Y. Combined stove and ash-sifter	786,825	Apr. 11	1233	257	115	1346
Mabee, Delvene W., Baltimore, Md. Folding umbrella	784,952	Mar. 14	1928	405	115	446
MacBain, Donald R., Jackson, Mich., assignor to J. S. Coffin and S. G. Allen, Franklin, Pa. Lubricator	784,953	Mar. 14	1930	406	115	446
MacDiarmid, Wesley D. R., assignor of four-tenths to E. B. Bates, Ottawa, Canada. Electric switch	788,411	Apr. 25	4469	973	115	2097
MacDonald, Singleton, Sherwood, Tex. Hat-fastener	786,131	Mar. 28	4338	917	115	1005
MacEwen, William H. D. (See Lackie, Calderwood, and MacEwen.)						
MacLaren, Archibald, *et al.* (See Brent, Charles, assignor.)						
MacMahon, James A., New York, N. Y. Fishing-reel brake	786,656	Apr. 4	923	189	115	1266
Macauley, Alvan. (See Cleal and Macauley.)						
Macdonald, Daniel J., Groton, Conn. Rail-joint	785,623	Mar. 21	3301	702	115	760
Macdonald, Thomas H., assignor to American Graphophone Company, Bridgeport, Conn. Graphophone-reproducer	785,746	Mar. 28	3555	760	115	826
Macdonell, Allan G., Chevy Chase, Md. Mining-dredge	785,263	Mar. 21	2575	543-4	115	602
Macfarlane, James W., Glasgow, Scotland. Regulator for water-wheels	785,900	Mar. 28	3847	818	115	893
Machlett, Robert, New York, N. Y. Vacuum-electrode	785,366	Mar. 21	2761	584	115	641
Machut, Charles J. A., Sheboygan Falls, Wis. Wagon-brake	788,214	Apr. 25	4082	884	115	2011
Mackerrow, Robert. (See Carter and Mackerrow.)						
Mackintosh, Frederick, Schenectady, N. Y., assignor to General Electric Company. Motor-controlling switch	786,506	Apr. 4	615	123-4	115	1201
Mackie, John J., Toronto, Canada. Folding cot	786,908	Apr. 11	1398	298	115	1381
Madden, Albert F., Newark, N. J., assignor to Vehicle Equipment Company, New York, N. Y. Steering-head for vehicles	788,271	Apr. 25	4180	906	115	2033
Magee, Alonzo H. (See Bruce, John M., assignor.)						
Magney Engine Company. (See Magney, Joseph P., assignor.)						
Magney, Joseph P., Los Angeles, Cal., assignor to Magney Engine Company. Rotary engine	787,521	Apr. 18	2660	577	115	1673
Magrini, Luigi, Milan, Italy. Means for obtaining redressed currents	788,272	Apr. 25	4181	909	115	2033
Mahana, John B., Tacoma, Wash., assignor to M-E Voting and Counting Machine Company. Voting-machine	788,486	Apr 25	4595	1001-2	115	2123
Mahar, Matthew H., West Bay City, assignor of two-thirds to J. A. Dowker and J. A. Carpenter, Bay City, Mich. Railway-tie	787,049	Apr. 11	1701	361	115	1448
Maher, Michael M., East Brady, assignor of one-half to R. Barner, Kittanning, Pa. Plate-glass-annealing leer	785,506	Mar. 21	3067	648-9	115	711
Maloney, Timothy, San Francisco, Cal. Electric railway	785,315	Mar. 21	2663	565	115	619
Maiden, Leaman A. (See Flynt and Maiden.)						
Maier, George E., Troy, Ohio. Razor-strop	785,264	Mar. 21	2580	544	115	603
Maier, George E., Troy, Ohio. Razor-strop	787,304	Apr. 11	2204	484	115	1557
Makant, Joseph, North Adams, Mass. Pencil	786,130	Mar. 28	4336	916	115	1005
Malick, Henry, Belmont, W. Va. Cuspidor	784,623	Mar. 14	1271	266	115	298
Malin, Richard T., Denver, Colo. Gas-burner	784,168	Mar. 7	307	64	115	72
Mallett, Joseph W., Terre Haute, Ind. Refrigerator	785,814	Mar. 28	3693	786	115	860
Mallory, Charles M., Albion, N. Y. Ladder	785,901	Mar. 28	3848	818	115	893

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Mallory, William H. (See Simpson, James, assignor.)						
Maloney, James F., Brookline, Mass. External screw-thread and worm cutter	787,582	Apr. 18	2782	606	115	1702
Manahan, George M. D., New York, N. Y. Mothproof bag	785,507	Mar. 21	3071	649-50	115	712
Manes, Ephraim, Chattanooga, Tenn. Reversible disk plow	785,963	Mar. 28	3975	845-6	115	922
Manganese Steel Safe Company. (See Bedell and Hibbard, assignors.)						
Manganese Steel Safe Company. (See Hibbard, Henry D., assignor.)						
Manganese Steel Safe Company. (See Hibbard and Peck, assignors.)						
Manker, Carey A., Pearl, Ill., assignor to Manker-Heavner Navigation Company, St. Louis, Mo. Hydromobile	785,427	Mar. 21	2892	611-12	115	671
Manker-Heavner Navigation Company. (See Manker, Carey A., assignor.)						
Manlove, George W., Cleveland, Ohio. Mine-curtain raiser	787,200	Apr. 11	2006	437	115	1514
Manly, James S., Taylor, Tex. Band-cutter	785,225	Mar. 21	2501	526	115	586
Mann, Charles L., assignor of one-half to T. R. Young, St. Louis, Mo. Tube-coupling	786,507	Apr. 4	618	124	115	1202
Manning, Coleman J., Medford, assignor to American Steam Gauge and Valve Manufacturing Company, Boston, Mass. Recording-gage	785,677	Mar. 21	3421	734	115	784
Mansell, George. (See Wilson and Mansell.)						
Manson, Marsden, and H. D. Connick, San Francisco, Cal. Globe	784,058	Mar. 7	92	17	115	24
Manson, Ray H., assignor to Kellogg Switchboard & Supply Company, Chicago, Ill. Relay	784,872	Mar. 14	1786	372	115	413
Manwaring, George A., Bayonne, V. H. Emerson, Newark, N. J., E. E. Norton, Nichols, Conn., and F. L. Capps, London, England, assignors to American Graphophone Company, Bridgeport, Conn. Production of sound-records	785,316	Mar. 21	2665	566	115	619
Manwaring, George A., Bayonne, V. H. Emerson, Newark, N. J., F. L. Capps, London, England, and E. E. Norton, Nichols, assignors to American Graphophone Company, Bridgeport, Conn. Sound-record	785,317	Mar. 21	2666	566	115	619
Marbach, Frank G., assignor to A. I. Root Company, Medina, Ohio. Honey-extractor	787,104	Apr. 11	1807	386-7	115	1471
Marceau, Ludger, assignor of one-half to J. Paulissen, Kankakee, Ill. Clamp	788,161	Apr. 25	3984	860	115	1990
Marchand, John G., Buffalo, N. Y. Shoe	784,580	Mar. 14	1160	244	115	275
Marchand, Louis, Roubaix, France. Yielding spring-wheel	786,657	Apr. 4	924	189	115	1267
Marchand, William L., Rolla, N. D. Wall construction	786,370	Apr. 4	258	59	115	1124
Marconi, Guglielmo, London, England, assignor to Marconi's Wireless Telegraph Company, Limited. Wireless telegraphy	786,132	Mar. 28	4339	917	115	1006
Marconi's Wireless Telegraph Company. (See Marconi, Guglielmo, assignor.)						
Marcy, Frank E. (See Repath and Marcy.)						
Margolin, Meyer, New York, N. Y. Driving-gear for sewing-machines	788,363	Apr. 25	4369	952	115	2075
Margolish, Matthew L., New York, N. Y. Hose-supporter	788,111	Apr. 25	3884	842	115	1968
Marion Steam Shovel Company. (See King, Barnhart, and King, assignors.)						
Markgraf, Rudolf, Kansas City, Mo. Partition construction	786,826	Apr. 11	1236	258	115	1347
Marks, Harry J., New York, N. Y. Vapor-burner	785,902	Mar. 28	3849	819	115	893
Marks, Harry J., New York, N. Y. Vapor-burner	785,903	Mar. 28	3851	819	115	894
Maries Carved Moulding Company. (See Tucker, Benjamin W., assignor.)						
Marosi, Elise, New York, N. Y. Hair-tonic	788,273	Apr. 25	4182	.....	115	2034
Marsden, George E. W., assignor to Badger State Machine Company, Janesville, Wis. Multiple punch	787,849	Apr. 18	3338	731	115	1825
Marsh, Albert L., Lake Bluff, assignor to W. A. Spinks & Company, Chicago, Ill. Thermo-electric couple	786,577	Apr. 4	753	155	115	1230
Marsh, Howard E., assignor of one-half to W. P. Wagy, Los Angeles, Cal. Briquet-machine	786,773	Apr. 4	1131	237-8	115	1313
Marsh, Joseph R. (See Laube, Godfried, assignor.)						
Marsh, Willis L., St. Louis, Mo. Stay-cutting attachment for sewing-machines	784,220	Mar. 7	416	83	115	96
Marshall, Albert T., Swampscott, Mass., assignor to Federal Automatic Refrigerating Co., New York, N. Y. Expansion-valve for refrigerating apparatus	785,265	Mar. 21	2581	545	115	603
Marshall, Charles P. (See Miller, August J. F., assignor.)						
Marshall, James G. (See Price, Cox, and Marshall.)						
Marshall, Norman, Newton, Mass. Insulating-lining	784,695	Mar. 14	1422	294	115	334
Marsteller, Aaron R., St. Louis, Mo. Composition of matter entering into the construction of foundry appliances	785,562	Mar. 21	3182	.....	115	735
Martin, Edward F., Milwaukee, Wis. Car-door	788,321	Apr. 25	4281	929	115	2056
Martin Ekenberg's Aktiebolag. (See Ekenberg, Martin, assignor.)						
Martin, Florian J., Milwaukee, Wis. Numbering-machine	785,964	Mar. 28	3979	846	115	924
Martin, Garland E., Norfolk, Va. Device for tightening wires	787,522	Apr. 18	2661	577	115	1674
Martin, George E., Ceresco, Nebr. Harness-pad	785,815	Mar. 28	3694	786	115	860
Martin, Joseph G. (See Leidy, Johnson, and Martin.)						
Martin, Nels, Brooklyn, N. Y. Ventilator	785,112	Mar. 21	2262	476	115	533
Martin, Stephen G. (See Farnsworth and Martin.)						
Martucci, Francesco, Jersey City, N. J. Hair-brush cleaner	787,201	Apr. 11	2008	437	115	1514
Marx, Richard, Hamburg, Germany. Braking device	787,779	Apr. 18	3198	698	115	1795
Mary, Louis, Fegersheim, Germany. Pottery-molding machine	784,059	Mar. 7	93	18	115	24
Maske, Henry, Chicago, Ill. Burglar alarm and trap	785,074	Mar. 14	2157	456	115	496
Maskinbyra, Sam L. (See Fröberg, Magni G., assignor.)						
Mason, Arthur J. (See Hoover and Mason.)						
Mason, Charles T., Sumter, S. C. Telephone desk set	785,624	Mar. 21	3302	702-3	115	760
Mason, Charles T., assignor to Sumter Telephone Manufacturing Company, Sumter, S. C. Telephone-receiver	787,583	Apr. 18	2784	606	115	1702
Mason, Charles T., assignor to Sumter Telephone Manufacturing Company, Sumter, S. C. Telephone-switchboard	787,929	Apr. 25	3503	765	115	1875
Mason, Charles T., assignor to Sumter Telephone Manufacturing Company, Sumter, S. C. Telephone-switchboard	787,930	Apr. 25	3506	765	115	1875
Mason, David, New York, assignor to J. A. Woods, Brooklyn, N. Y. Indicating apparatus for motor-vehicles	785,816	Mar. 28	3696	786	115	861
Mason, David, New York, assignor to J. A. Woods, Brooklyn, N. Y. Controlling apparatus for motor-vehicles	785,817	Mar. 28	3698	787	115	861
Mason, Gilbert M., Cambridge, Iowa. Combined pipe-wrench and pliers	787,523	Apr. 18	2662	577	115	1674
Mason & Hamlin Company. (See Binnig, Jacob, assignor.)						
Mason, Harry R., Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Fluid-pressure brake	788,112	Apr. 25	3885	842	115	1968
Mason, Rector T., St. Joseph, Mo. Window-sash fastener	785,367	Mar. 21	2763	584	115	642
Mason, Samuel J., Lincoln, Nebr. Grain-separating device	785,508	Mar. 21	3074	650	115	712
Mason, Volney W., Jr., New York, N. Y. Grinding or crushing head	784,581	Mar. 14	1162	244-5	115	276
Massa, Robert F., Chicago, Ill. Attachment for drop-hammers	787,339	Apr. 11	2274	496	115	1572
Massey, Thomas R., Atlanta, Ga. Making horse-collars	788,412	Apr. 25	4472	973	115	2008
Massie, Walter W., Providence, R. I. Combined condenser and leak-coil	786,578	Apr. 4	754	155	115	1230
Massie, Walter W., Providence, R. I. Wireless telegraphic system	787,780	Apr. 18	3199	698-9	115	1795
Masters, Alexander H., Greensboro, N. C. Pneumatic setting-machine for sawmill-carriages	785,015	Mar. 14	2043	428-9	115	472
Mater, Elmer L., Dowagiac, Mich. Safety device for elevators	784,410	Mar. 7	814	170	115	186

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mather, Alonzo C., Chicago, Ill. Construction of concrete railway-ties	787,931	Apr. 25	3508	766	115	1876
Matheret, Jean P., Paris, France. Manufacturing dental plates	784,060	Mar. 7	94	18	115	24
Mathewson, Arthur L., Norwich, Conn. Spinning mechanism	788,162	Apr. 25	3984	860	115	1990
Mathivet, Jean V., Cleveland, Ohio. Gas-pressure governor	785,747	Mar. 28	3556	760	115	826
Mathy, Joseph, Washington, D. C. Metallic crate	788,055	Apr. 25	3769	820	115	1937
Matlock, Jess, Ralph, Ark. Draft-equalizer	788,056	Apr. 25	3770	820	115	1937
Matsson, Erkes E., Mora, Sweden. Twine-holder	787,781	Apr. 18	3203	699	115	1796
Matsuzaki, Aiji. (See Yokouchi, Abe, and Matsuzaki.)						
Mattern, Anna E., Milesburg, Pa. Cover for flat-irons	785,016	Mar. 14	2046	429	115	472
Matteson, Arthur E., Chicago, Ill. Dental furnace	787,584	Apr. 18	2785	606-7	115	1702
Matthews, George E., Buffalo, N. Y. Making prints on dark backgrounds	788,274	Apr. 25	4183	909	115	2034
Matthews, James F. (See Hess and Matthews.)						
Matthews, Lina, Rosewood, Tex. Penholder	788,413	Apr. 25	4474	973	115	2098
Matthey, Edward H., and E. C. Reutlinger, New York, N. Y. Automatic photographic apparatus	785,113	Mar. 21	2263	476-7	115	533
Mattingly, William, Texarkana, Ark. Basin	787,202	Apr. 11	2009	437	115	1515
Mattison, Cyrus C., Chicago, Ill. Yieldable gear-wheel	787,524	Apr. 18	2664	578	115	1674
Mauchline, Robert, Phillipsburg, N. J. Warp-clamp	788,364	Apr. 25	4371	952	115	2076
Maul, Christian, assignor to Johnston Harvester Company, Batavia, N. Y. Disk harrow	786,508	Apr. 4	619	125	115	1202
Maull, Edward N., Crescent City, Fla. Fruit-grader	785,748	Mar. 28	3557	760	115	826
Mawdsley, John H. S., Taunton, England. Dynamo-electric machinery	788,365	Apr. 25	4372	952-3	115	2076
Mawhinney, Hugh H. (See Lemyre, Joseph E., assignor.)						
Maxim, Hudson, Brooklyn, N. Y. Means for manufacturing multiperforated bodies of smokeless powder	787,105	Apr. 11	1810	387	115	1472
Maxsted, Charles H., Oakland, Windermere, England. Loom for weaving narrow fabrics	785,625	Mar. 21	3303	703-6	115	760
Maxwell, James M., Pittsburg, Pa. Rotary motor	786,044	Mar. 28	4160	877	115	965
May, Andrew, St. Catherines, Canada. Waxing-up tool for dental trial-plates	785,904	Mar. 28	3852	819	115	894
Mayer, Gottfried. (See Williams and Mayer.)						
Mayer, Wilhelm, Rüttenscheid, near Essen-on-the-Ruhr, assignor to F. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Ammunition-wagon or limber	786,452	Apr. 4	503	98	115	1179
Mayhew, George S., assignor to G. W. Mellor, London, England. Wood-slicing machine	787,203	Apr. 11	2010	438-9	115	1515
Maynard, William T. (See Stanley and Maynard.)						
Maynard, Willie C. (See Stanley and Maynard.)						
Mayo, Benjamin F., Salem, assignor to United Shoe Machinery Company, Boston, Mass. Heel-trimming machine	784,340	Mar. 7	642	132-3	115	147
McAleer, Frank W. (See Heath, Morrice, and Gruss, assignors.)						
McArthur, Alexander P., New York N. Y. Combined lamp-shade and reflector	785,017	Mar. 14	2046	429	115	472
McAuley, Robert G., Pittsburg, Pa. Steam-trap	786,981	Apr. 11	1570	335	115	1419
McAuliffe, John W., assignor to McAuliffe Manufacturing Co., Providence, R. I. Sanitary trap	788,218	Apr. 25	4087	885	115	2012
McAuliffe Manufacturing Co. (See McAuliffe, John W., assignor.)						
McBean, Duncan D., New York, N. Y. Subaqueous tunnel construction	784,413	Mar. 7	821	170-1	115	187
McBee, Allan M. (See Smith, William A., assignor.)						
McBerty, Frank R. (See Scribner and McBerty.)						
McBride, Albert P., Independence, Kans. Casing packer and shoe for gas or oil wells	785,906	Mar. 28	3856	820	115	895
McBride, Albert P., Independence, Kans. Wall-anchor and packer for gas or oil wells	785,907	Mar. 28	3857	820	115	895
McBride, John H., Lompoc, Cal. Glass-beveling machine	787,783	Apr. 18	3206	700	115	1797
McCabe, Roy L. (See Kopperud, Anders H., assignor.) (Reissue.)						
McCadden, George, assignor to F. Zins, St. Cloud, Minn. Electric sparking igniter for explosive-engines	784,626	Mar. 14	1298	270	115	305
McCanna, John F., assignor to John F. McCanna Company, Chicago, Ill. Boiler-compound feeder	786,914	Apr. 11	1426	302	115	1388
McCarroll, F. Liberty U., *et al.* (See Wilson, Robert, assignor.)						
McCaskey, John A., Hubbard, Ohio. Tooth for dippers of excavators	784,116	Mar. 7	206	40	115	50
McCaskey, Perry A., Lisbon, Ohio. Credit-accounting appliance	788,164	Apr. 25	3990	861	115	1992
McClave-Brooks Company. (See McClave, William, assignor.)						
McClave, William, Scranton, Pa., assignor to McClave-Brooks Company. Conveying mechanism for furnaces	785,630	Mar. 21	3316	707-9	115	762
McClean, Samuel N., Cleveland, Ohio. Gas-actuated magazine-gun	785,971	Mar. 28	3998	850	115	928
McClean, Samuel N., Cleveland, Ohio. Means for preventing recoil of guns	785,972	Mar. 28	4003	851	115	929
McClean, Samuel N., Cleveland, Ohio. Device for counteracting recoil in guns	785,973	Mar. 28	4005	851	115	929
McClean, Samuel N., Cleveland, Ohio. Gas-operated gun	785,974	Mar. 28	4008	851	115	930
McClean, Samuel N., Cleveland, Ohio. Means for controlling the recoil and muzzle-blast of guns	785,975	Mar. 28	4012	852	115	931
McClean, Samuel N., Cleveland, Ohio. Recoil-controlling means for guns	786,230	Mar. 28	4524	958	115	1043
McClelland, James R. (See Turnor, Harry T., assignor.)						
McClelland, John J., assignor to Safety Tread Syndicate, Ltd., London, England. Sand-molding machine	785,908	Mar. 28	3858	820-1	115	895
McClinchie, Uriah, Brooklyn, N. Y. Hand-strap	784,696	Mar. 14	1424	294	115	335
McClure, Elmer P. (See Buchner and McClure.)						
McComb, Edward N., Hamilton, Canada. Felly tire-set	786,829	Apr. 11	1239	259	115	1347
McComb, Henry G., assignor to Autocar Company, Ardmore, Pa. Clutch for automobiles	787,530	Apr. 18	2675	582	115	1677
McCombie, Alexander, Grass Valley, Cal., assignor of one-half to J. McCombie, Chicago, Ill. Stamp-mill	786,590	Apr. 4	774	159	115	1235
McCombie, James. (See McCombie, Alexander, assignor.)						
McConnell, John H. (See Gutteridge and McConnell.)						
McConway & Torley Company. (See McConway, William, Jr., assignor.)						
McConway, William, Jr., assignor to McConway & Torley Company, Pittsburg, Pa. Car-coupling	787,531	Apr. 18	2676	582	115	1677
McConway, William, Jr., assignor to McConway & Torley Company, Pittsburg, Pa. Car-coupling	787,991	Apr. 25	3636	792	115	1905
McCord & Company. (See Denegre, Edward, assignor.)						
McCormac, Lafayette H., Mallard, Ill. Corn-planter	784,627	Mar. 14	1299	270	115	305
McCormack, John. (See Boyce and McCormack.)						
McCormick, Cyrus T., Fredericktown, Mo. Rock-drill	784,173	Mar. 7	320	66	115	75
McCormick, Harry T. and S. E., Winchester, Ky. Band-cutter and feeder for threshing-machines	787,784	Apr. 18	3208	700-1	115	1797
McCormick, Sam E. (See McCormick, Harry T. and S. E.)						
McCornack, Herbert, Westchester, Pa. Centrifugal liquid-separator	787,935	Apr. 25	3514	767	115	1877
McCoy, Barney, assignor of two-thirds to W. L. Beecher and C. G. Woods, St. Louis, Mo. Window-screen	785,226	Mar. 21	2503	527	115	586
McCoy, Charles W., Redbank Furnace, Pa. Rail-joint	785,631	Mar. 21	3320	709	115	763
McCoy, James E. (See Johnson and McCoy.)						
McCoy, William, New Harmony, Ind. Shell-digger	786,663	Apr. 4	931	191	115	1269

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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McCracken, George B., Willimantic, Conn. Spindle	784,414	Mar. 7	824	171	115	188
McCreery, Robert S., Huntington, N. Y. Portable handsaw	787,532	Apr. 18	2679	582–3	115	1678
McCulloch, Arthur B., Kapousin, Wash. Receding dog	787,992	Apr. 25	3641	793	115	1907
McCulloch, Robert A. (See Hawkesworth and McCulloch.)						
McCullough, William B., Monmouth, Iowa. Nut-lock	786,664	Apr. 4	934	191	115	1269
McDaniel, Nelson M., McFall, Mo. Machine for punching out rivets	784,117	Mar. 7	207	40	115	50
McDaniel, Robert J., and S. V. Graves, McFall, assignors to S. I. Hudson, Watkins, Mo. Telegraph or telephone wire insulator	787,107	Apr. 11	1816	389	115	1473
McDermott, Timothy F. (See Buell, Edward A., assignor.)						
McDonald, Charles B. (See McDonald, Charles D., assignor.)						
McDonald, Charles D., assignor of one-half to C. B. McDonald, Chicago, Ill. Automatic feed for die-presses, &c	784,415	Mar. 7	826	171–2	115	188
McDonald, Hiram W., Galion, Ohio. Catch-basin cover	784,271	Mar. 7	517	105	115	120
McDonald, John, assignor of one-half to H. Harrington, Bradford, Pa. Pipe-coupling	784,416	Mar. 7	831	172	115	190
McDonald, John C., New York, N. Y. Electric-railway system	785,909	Mar. 28	3859	821	115	895
McDonald, John J., Port Madison, Wash. Bootjack	785,045	Mar. 14	2099	442	115	484
McDonnell, George P., St. Louis Mo., assignor to American Electric Company, East Orange, N. J. Electric lamp	786,231	Mar. 28	4526	958	115	1044
McDowell, William, New York, N. Y. Chart	787,533	Apr. 18	2680	583	115	1678
McElfatrick, Samuel, Princeton, Ky. Railway-tie	786,982	Apr. 11	1572	336	115	1420
McElphatrick, Gusta D., Franklin, Pa. Pumping apparatus	786,665	Apr. 4	935	191	115	1269
McElroy, Patrick J., Cambridge, Mass. Syringe	786,059	Apr. 25	3774	821	115	1938
McEntee, Patrick, Spokane, Wash. Amalgamator	785,565	Mar. 21	3186	674–5	115	736
McEwen, Robert. (See Hoese and McEwen.)						
McFadden, Origen A., Fairfield, Me. Window-screen	788,165	Apr. 25	3993	862	115	1992
McFarland, Thomas W., Chicago, Ill. Machine for making paper-board	785,178	Mar. 21	2400	505	115	564
McFeely, Ronald F., Beverly, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Lasting-machine	786,047	Mar. 28	4165	878–9	115	966
McGahey, Calvert R., Covington, Va. Engine	786,983	Apr. 11	1574	336	115	1420
McGahey, Richard, Walla Walla, Wash. Hoisting device	784,586	Mar. 14	1171	247–8	115	278
McGarrigal, Thomas. (See Bacon and McGarrigal.)						
McGlboney, Thomas C., *et al.* (See Hunt, John G., assignor.)						
McGinnis, Frank, Higginsville, Mo. Speculum	786,457	Apr. 4	518	102	115	1182
McGivern, Samuel. (See Bickerstaff, James P., assignor.)						
McGlamery, William H., Georgetown, Tex. Window-screen	787,534	Apr. 18	2683	583	115	1679
McGonigal, James H. (See Kenned and McGonigal.)						
McGovney, Lewis E., Mokena, Ill. Potato-bug picker	784,622	Mar. 14	1301	271	115	306
McGowan, John H. (See Bonnel and McGowan.)						
McGowan, Robert B., Norwood, Ohio. Pump-governing device	786,915	Apr. 11	1427	302	115	1388
McGowan, Robert B., Cincinnati, Ohio. Governing device	786,984	Apr. 11	1576	336–7	115	1420
McGrail, Thomas, and J. Owens, Centralia, Wash. Hone	786,141	Mar. 28	4352	920	115	1009
McGrath, Timothy W., New York, N. Y., assignor to Scientific Toy Company, New Haven, Conn. Trick toy	787,535	Apr. 18	2684	584	115	1679
McGregor, Alexander G. (See Crabtree and McGregor.)						
McGregor, Willam A., Neame, La., assignor of one-half to P. Bakewell and F. R. Cornwall, St. Louis, Mo. Machine for baling cotton	784,063	Mar. 7	98	19	115	25
McGriff, Joseph W. (See Keen, William W., assignor.)						
McGuane, James H., Port Jervis, N. Y. Railway brace and chair	788,326	Apr. 25	4286	931	115	2057
McInnerny, Michael, Iowa City, Iowa. Cultivator	788,421	Apr. 25	4483	976	115	2100
McIntire, Hervey H., South Bend, Ind. Photographic-printing apparatus	784,587	Mar. 14	1175	248–9	115	278
McIntosh, Clayton A., assignor of one-half to B. Shafer, Washington, Kans. Traction-wheel	787,536	Apr. 18	2686	584	115	1679
McIntyre, Byron R., Grand Rapids, Mich. Shoe-lacing device	785,179	Mar. 21	2403	505	115	565
McIntyre, George T., Riverside, Cal. Apparatus for constructing irrigating-flumes	786,305	Apr. 4	107	24	115	1095
McKaig, Eddy T., Chicago, Ill., assignor to McKaig Friction Drive Vehicle Co., District of Columbia. Automobile	786,916	Apr. 11	1428	302–3	115	1389
McKaig Friction Drive Vehicle Co. (See McKaig, Eddy T., assignor.)						
McKee, Milton A., assignor to C. B. Cottrell & Sons Company, New York, N. Y. Color-printing	787,209	Apr. 11	2021	441	115	1517
McKee, Watson W., Tacoma, Wash. Combination shipping and show case	784,751	Mar. 14	1553	320	115	364
McKenzie, Charles, Butte, Mont. Device for making tea, coffee, or other infusions	786,666	Apr. 4	936	191	115	1269
McKie, John M. (See Friend, Calvin V., assignor.)						
McLaughlin, Robert L., Lakeview, assignor to Algrette Supply Company, Paterson, N. J. Artificial aigret	785,320	Mar. 21	2672	567	115	621
McLaughlin, Robert L., Lakeview, assignor to Algrette Supply Company, Paterson, N. J. Manufacturing artificial aigrets	785,321	Mar. 21	2674	568	115	621
McLaughlin, William, assignor to A. D. Rathbone, Grand Rapids, Mich. Gas-burner	786,830	Apr. 11	1241	260	115	1348
McLean, Andrew, Passaic, N. J. Tentering-machine	787,785	Apr. 18	3210	701–2	115	1798
McLean, Charles B. (See Geitz and Hosack, assignors.)						
McLean, Edward S., *et al.* (See McLean, Edwin D., assignor.)						
McLean, Edwin D., Marissa, Ill., assignor of three-fourths to W. W. McLean, Pittsburg, Pa., E. S. and J. M. McLean, Marissa, Ill. Jointed adjustable support for telephone-receivers	787,307	Apr. 11	2212	485–6	115	1558
McLean, James M., *et al.* (See McLean, Edwin D., assignor.)						
McLean, William W., *et al.* (See McLean, Edwin D., assignor.)						
McLeod, Harvey S. (See Foote, John H., assignor.)						
McMahon, Richard M., New York, N. Y. Combined portable door lock and check	786,831	Apr. 11	1242	260	115	1348
McMillan, Harry W., Stafford, Kans. Automatic label-affixer	785,322	Mar. 21	2676	568	115	622
McMullen, Arthur. (See Thomson, Thomas K. assignor.)						
McMullen, George W. (See Gathmann, Emil, assignor.)						
McMullen, Joseph B., Howard county, Md. Wheel	787,210	Apr. 11	2023	441	115	1518
McMullen, Stewart P., Sioux City, Iowa. Trolley-wire guide	786,832	Apr. 11	1243	260	115	1348
McMullin, John, Burlington, Iowa. Mold	785,753	Mar. 28	3571	762	115	829
McMurray, Charles B. (See Dorlon, Philip S., assignor.)						
McMurtry, Alden L., New York, N. Y. Speed-timing attachment for bicycles, &c	785,515	Mar. 21	3087	653	115	716
McNamara, Frederick W. (See Stewart and McNamara.)						
McNamara, William S., Philadelphia, Pa. Cushion-tire	786,591	Apr. 4	776	159	115	1235
McNeill, Frederic. (See O'Conor and McNeill.)						
McPhail, Hugh, Visalia, Cal. Basting device	785,267	Mar. 21	2585	545	115	604
McPherson, John, Jr. (See Stewart, Daniel N., assignor.)						
McPherson, Thomas C., Beaverfalls, Pa. Mat	784,222	Mar. 7	420	84–5	115	97
McQuarrie, James L., assignor to Western Electric Company, Chicago, Ill. Telephone-exchange apparatus	785,754	Mar. 28	3572	763	115	829
McQueen, Thomas K., Elora, assignor of one-half to A. Groves, Fergus, Canada. Cattle-guard	786,142	Mar. 28	4353	920	115	1009
McWhorter, Alfred D., Atlanta, Ga. Engineer's valve	784,417	Mar. 7	832	172–3	115	190

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Meagher, Michael F., Pittsfield, Mass. Work-table	785,965	Mar. 28	3981	847	115	924
Mebane, James A., South Boston, Va. Socket for electric lamps	785,626	Mar. 21	3309	706	115	761
Meckel, Frederick L., Chicago, Ill. Stiff-pole attachment for vehicles	785,368	Mar. 21	2764	584	115	642
Meehan, Patrick, Lowellville, Ohio. Gas-washer	784,748	Mar. 14	1536	316–17	115	360
Meeker, Frederick W., Rye, N. Y. Briquet-machine	787,387	Apr. 18	2386	515–16	115	1611
Meeker, Frederick W., Rye, N. Y. Artificial fuel and making same	787,458	Apr. 18	2527	.....	115	1641
Meer, Gustav ter, Hanover, Germany. Centrifugal machine	785,818	Mar. 28	3700	787–8	115	862
Megenity, Benjamin F. (See Montgomery and Megenity.)						
Megill, Edward L., New York, N. Y. Feed-gage	785,627	Mar. 21	3311	706	115	761
Meiring, Charles, Charlottesville, Va. Railway system	788,322	Apr. 25	4282	930	115	2056
Meigs, John F., and S. A. S. Hammar, assignors to Bethlehem Steel Company, South Bethlehem, Pa. Training and elevating mechanism for guns	785,966	Mar. 28	3983	847	115	925
Meikrantz, Henry A., Wapwallopen, Pa. Claw-bar for railway-spikes	785,563	Mar. 21	3183	674	115	735
Meinecke, Edward G., Alameda, Cal. Propeller	785,369	Mar. 21	2767	585	115	642
Mellor, George W. (See Mayhew, George S., assignor.)						
Melrose, William A., Elwood, Ind. Wagon-box	788,487	Apr. 25	4602	1002–3	115	2124
Memphis Motor Carriage Company. (See Pilcher, Herbert H., assignor.)						
Menier, Henri E., Paris, France. Grinding-machine	788,113	Apr. 25	3890	842	115	1970
Mercer, Charles J. (See Deery, Daniel H., assignor.)						
Mercer, Henry C., Doylestown, Pa. Producing pictures or designs	784,169	Mar. 7	308	65	115	73
Merchant, Huntington W. (See Thompson and Merchant.)						
Mergenthaler Linotype Company. (See Albrecht, Christian A., assignor.)						
Mergenthaler Linotype Company. (See Bedell, Richard M., assigner.)						
Mergenthaler Linotype Company. (See Dodge, Philip T., assignor.)						
Mergenthaler Linotype Company. (See Grohmann, Carl L., assignor.)						
Mergenthaler Linotype Company. (See Kennedy, David S., assignor.)						
Mergenthaler Linotype Company. (See Kennedy, Luther L., assignor.)						
Mergenthaler Linotype Company. (See Muehleisen, Carl, assignor.)						
Mergenthaler Linotype Company. (See Nielsen, Sigurd C., assignor.)						
Mergenthaler Linotype Company. (See Petri-Palmedo, David, assignor.)						
Mergenthaler Linotype Company. (See Rogers, John H., assignor.)						
Mergenthaler Linotype Company. (See Wallin, Gustaf E., assignor.)						
Merkel, Arthur E., Cleveland, assignor to Lake Shore Novelty Company, Findlay, Ohio. Magazine detonating device	785,967	Mar. 28	3985	848	115	925
Merling, Georg, Frankfort-on-the-Main, and R. Weide, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Materials for perfumes and making same	784,411	Mar. 7	815	.....	115	186
Merling, Georg, Frankfort-on-the-Main, and R. Weide, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Materials for perfumes and making same	784,412	Mar. 7	817	.....	115	187
Mermod Frères. (See Keller, Alfred, assignor.)						
Merrell, Hubert S., St. Louis, Mo. Truck	788,414	Apr. 25	4475	974	115	2098
Merrick, Frank W., Boston, Mass. Thread-waxing device for sewing-machines	786,774	Apr. 4	1135	238	115	1314
Merrick, Frank W., Boston, Mass. Feed mechanism for sewing-machines	786,909	Apr. 11	1400	298	115	1382
Merrick, Frank W., Boston, assignor to C. S. Luitwieler, Newton, Mass. Inking device for numbering or marking machines or the like	786,910	Apr. 11	1402	298–9	115	1382
Merrill, Buel L., Litchfield, Mc. Ladder	786,658	Apr. 4	926	189	115	1267
Merritt, Gordon, Ridgewood, N. J. Pivot	786,509	Apr. 4	620	125	115	1202
Merritt, Henry W. (See Barron and Merritt.)						
Merritts, Charles, and H. L. Bartlebaugh, Johnstown, Pa. Apparatus for coating molds	784,873	Mar. 14	1789	372	115	414
Merrow, Joseph M., Merrow, assignor to Merrow Machine Company, Hartford, Conn. Presser-foot-lifting mechanism for sewing-machines	785,069	Mar. 14	2144	453	115	493
Merrow Machine Company. (See Merrow, Joseph M., assignor.)						
Merrow Machine Company. (See Stedman, William H., assignor.)						
Merryman, Thomas J., Lincoln, Nebr. Fly-frightener	785,968	Mar. 28	3987	848–9	115	926
Mersfelder, William L., Norwood, Ohio. Water-heater	785,905	Mar. 28	3853	819	115	894
Meserve, Ashbel F., Danville, Ill. Brooder	784,954	Mar. 14	1933	406	115	447
Messick, Charles, Jr., Hackensack, N. J. Cable-tramway	784,955	Mar. 14	1934	406	115	447
Messmer, Christian C., Spokane, Wash. Broiler	788,415	Apr. 25	4476	974	115	2098
Mesta Machine Company. (See Helander, Axel H., assignor.)						
Metal Sectional Furniture Company. (See Shoemaker, George A., assignor.)						
Metcalf, Walton J., Leominster, Mass. Comb	785,420	Mar. 21	2901	613	115	672
Methfessel, Charles F., and W. J. Hartson, Milwaukee, Wis. Metallic cord-fastener	785,749	Mar. 28	3559	760	115	826
Method, Victor R., and A. W. Stewart, assignors to C. R. Little, Duluth, Minn. Reciprocating engine	785,318	Mar. 21	2668	566–7	115	620
Metropolitan Trust & Savings Bank, trustee. (See Edwards, Edgar A., assignor.)						
Metz, Herman A. (See Fourneaux, Emile A., assignor.) (Reissue.)						
Metze, Friedrich. (See Schuster and Metze.)						
Metzger, Charles A. (See Metzger, William E. and C. A.)						
Metzger, William E. and C. A., Rutland, Vt. Rod-holder	786,045	Mar. 28	4162	877	115	965
Meunier, Emile, Roubaix, France. Circular combing-machine	788,416	Apr. 25	4477	974	115	2099
Meyer, Alfred. (See Kipling and Worden, assignors.)						
Meyer, Daniel H. (See Walker and Meyer.)						
Meyer, Frederick W., Etiah, Mo. Removable partition for egg-cases	786,827	Apr. 11	1237	258	115	1347
Meyer, Henry C. (See Erwin and Meyer.)						
Meyer, Hermann, New York, N. Y. Compensating device	785,509	Mar. 21	3075	650–1	115	712
Meyer, Hermann, New York, N. Y. Magazine coin-controlled mechanism	787,884	Apr. 18	3410	746	115	1842
Meyer, Ralph J., assignor of one-half to G. Van Hoorebeke, Grand Junction, Colo. Pruning implement	786,371	Apr. 4	260	59	115	1125
Meyer, Willy, Hamein, Germany. Apparatus for the conveyance of grain to or from ships	787,459	Apr. 18	2530	546–7	115	1642
Meyers, Charles A., Leipsic, Ohio. Concrete building-block and wall	788,366	Apr. 25	4373	953	115	2076
Meyers, William J., Fort Collins, Colo. Dam	787,525	Apr. 18	2665	578	115	1674
Michaelsen, Charles O., Salt Lake City, Utah. Machine for separating gold from sand, &c	785,819	Mar. 28	3705	788	115	862
Michel, John F., assignor of one-half to H. C. Ganster, Pittsburg, Pa. Clothes-line holder	785,694	Mar. 21	3457	743	115	792
Mickelsen, Rasmus. (See Brownell, James H., assignor.)						
Middleton, Albert J., Indianapolis, Ind. Broom-corn fiber	786,579	Apr. 4	755	155	115	1230
Middleton, Harry N., Westville, N. J., assignor of one-half to C. H. Gifford, Philadelphia, Pa. Hood for grinding and polishing wheels	787,340	Apr. 11	2275	496	115	1572
Middleton, James F., assignor of one-half to E. S. Robison, Pittsfield, Mass. Vehicle-wheel	786,580	Apr. 4	756	156	115	1230
Midson, James D., South Brisbane, Queensland, Australia. Puzzle	787,204	Apr. 11	2014	439	115	1516
Milch, Maurice, Schenectady, N. Y., assignor to General Electric Company. Alternating-current motor	787,306	Apr. 11	2205	485	115	1557
Miles, William J., and J. Patterson, Buffalo, N. Y. Electric-conduit terminal	786,911	Apr. 11	1405	299	115	1382

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Miller, Alexander. (See Hussey, Levi, assignor.)						
Miller, Atwill D., Seattle, Wash. Air-brake attachment for logging-trains	787,932	Apr. 25	3509	766	115	1876
Miller, August J. F., assignor of one-half to C. P. Marshall, Centralia, Ill. Furnace	788,417	Apr. 25	4479	975	115	2099
Miller, Aurelia A., Kansas City, Mo. Nut-lock	786,372	Apr. 4	261	60	115	1125
Miller, Charles, Binghamton, N. Y. Mold	784,874	Mar. 14	1791	373	115	415
Miller, Charles H., Kankakee, Ill. Strainer-valve	784,170	Mar. 7	311	65	115	73
Miller, Charles K. (See Wright and Miller.)						
Miller, Charles O., assignor to Millers Electro-Pneumatic Burglar Alarm Company, Estherville, Iowa. Burglar-alarm	786,912	Apr. 11	1407	299-300	115	1383
Miller, Edward, Columbus, Ohio. Glass-molding machine	786,659	Apr. 4	927	190	115	1267
Miller, Edward, Columbus, Ohio. Glass-molding machine	787,050	Apr. 11	1702	362-3	115	1449
Miller, Edward, Columbus, Ohio. Glass-molding machine	787,526	Apr. 18	2666	578-9	115	1675
Miller, Francis M., Arcadia, Ind. Trolley-retriever	787,527	Apr. 18	2668	579-80	115	1675
Miller, Harry E., Oakland, Cal. Treating metallic lead	786,581	Apr. 4	758	.....	115	1231
Miller, James, assignor to J. Barker, Detroit, Mich. Temporary binder	788,488	Apr. 25	4603	1003	115	2124
Miller, Marcus A. (See Scott, Ralph, assignor.)						
Miller, Matthew, Jr., Trenton, Ill. Ventilator	785,820	Mar. 28	3706	789	115	863
Miller, Ray T., Defiance, Ohio. Flue or tube cutter	787,205	Apr. 11	2015	439	115	1516
Miller, Silas A., and C. B. Gilmore, Boston, Mass., assignors, by mesne assignments, to Palmer Brothers Company, Incorporated, New London, Conn. Looping and tying machine	784,749	Mar. 14	1541	317-19	115	362
Miller, Thomas S., South Orange, N. J. Conveying apparatus	786,510	Apr. 4	622	125-6	115	1203
Miller, Walter H., Orange, and A. N. Pierman, Newark, assignors to New Jersey Patent Company, Orange, N. J. Apparatus for producing molded records and blanks	785,319	Mar. 21	2671	567	115	620
Miller, Walter H., Orange, and A. N. Pierman, Newark, assignors, by mesne assignments, to New Jersey Patent Company, West Orange, N. J. Mold for duplicate phonograph-records	785,510	Mar. 21	3078	651	115	713
Miller, William D., Saco, Mont. Wire-stretching device	785,511	Mar. 21	3079	651	115	714
Miller, William L., Chicago, Ill. Blowing-off apparatus for boilers	788,323	Apr. 25	4283	930	115	2056
Millers Electro-Pneumatic Burglar Alarm Company. (See Miller, Charles O., assignor.)						
Millet, Josiah B. (See Mundy and Millet.)						
Milligan, Edward J., assignor of one-half to H. J. Cook, Salt Lake City, Utah. Toilet-case	788,418	Apr. 25	4480	975	115	2099
Milligan, Thomas, Fortuna, Cal. Bridle-bit	785,512	Mar. 21	3081	652	115	714
Mils, Anson, Washington, D. C. Cartridge-clip	787,850	Apr. 18	3339	731	115	1825
Mils, Anson, Washington, D. C. Seamless woven cartridge-pocket	787,851	Apr. 18	3340	731-2	115	1825
Mils, Anson, Washington, D. C. Woven pistol case or holster	787,852	Apr. 18	3341	732	115	1826
Mils, Anson, Washington, D. C. Woven-fabric cartridge-belt	787,853	Apr. 18	3343	732	115	1826
Mills, Edward N., assignor of one-half to N. H. Smith, San Francisco, Cal. Printing-press	785,821	Mar. 28	3707	789-90	115	863
Mills, John A., New York, N. Y. Machine for beveling spring-heels	786,133	Mar. 28	4341	917-18	115	1006
Mills, John F., Port Chester, N. Y. Gas-range	787,686	Apr. 18	2981	649	115	1746
Mils, Virgel H., Hubbard, Tex. Breast-connector	784,800	Mar. 14	1655	342	115	386
Milson, Augustin M., assignor to M. Raoul-Duval, Paris, France. Speed-regulator for explosive-engines	785,428	Mar. 21	2899	612	115	672
Milwaukee-Waukesha Brewing Company. (See Lindemann and Stock, assignors.)						
Mincks, Charles E., Aberdeen, S. D. Jews'-harp	788,419	Apr. 25	4481	975	115	2099
Miner, James H., Lumberton, Miss. Saw	784,113	Mar. 7	203	39	115	49
Miner, William H., assignor to W. H. Miner Company, Chicago, Ill. Draft-rigging for railway-cars	787,933	Apr. 25	3511	766	115	1877
Minnick, Hezekiah, Laredo, Tex. Air-brake	785,513	Mar. 21	3082	652	115	714
Misner, Edgar D., St. Louis, assignor to W. C. Renfrow, trustee, Joplin, Mo. Molding-machine	786,980	Apr. 11	1565	333-5	115	1417
Mitchel, William, Raymond, Wis. Carrier-track	784,061	Mar. 7	95	18	115	24
Mitchell, Andrew F., assignor of seven-twentieths to W. H. Jones, Homestead, Pa. Carburizing steel plates	784,171	Mar. 7	313	65	115	74
Mitchell, George E., Chelsea, Mass. Spare-tire receptacle for automobiles	788,215	Apr. 25	4063	885	115	2011
Mitchell, Reuben A., and L. L. Lewis, Oil City, Pa. Gas-engine starter	787,341	Apr. 11	2276	496	115	1573
Mitchell, Wade H., Rugby, Tex. Planter attachment for cultivators	785,514	Mar. 21	3086	652-3	115	716
Mitchell, William, North Yakima, Wash. Poultry-coop	788,163	Apr. 25	3989	861	115	1991
Mitchell, William M. (See Waters and Mitchell.)						
Mitchell, William M., Louisville, Ky. Inhaling compound for firemen's use	786,453	Apr. 4	505	.....	115	1179
Mitchem, Charles E., Harvard, Ill. Remnant-tube	785,822	Mar. 28	3710	790	115	863
Miyata, Siman, West Orange, N. J. Amusement apparatus	786,229	Mar. 28	4522	957-8	115	1043
Mniszewski, Anton, Posen, Germany. Cash-register	786,304	Apr. 4	106	24	115	1095
Moale, Francis V., *et al.* (See Kenly, George T., assignor.)						
Moats, Ortus E., Harvey, assignor to National Drill & Manufacturing Company, Chicago, Ill. Elevating-grader	784,582	Mar. 14	1164	245	115	276
Model Gas Engine Company. (See Kerns, James, assignor.)						
Modespacher, Robert J., Hoboken, N. J. Bottle	786,134	Mar. 28	4343	918	115	1006
Moe, Rudolf, assignor to American Industrial Company, Chicago, Ill. Pedal-action	785,969	Mar. 28	3989	849	115	926
Moeller & Co., Adolfo. (See Placer, Manuel, assignor.)						
Moeller, Julius, London, England. Bunsen burner for lighting and heating purposes	788,216	Apr. 25	4085	885	115	2012
Moffat, Henry E., Woodstock, Canada. Feed-water heater and purifier	788,114	Apr. 25	3891	843	115	1970
Mogg, Millard E. (See Burnell and Mogg.)						
Mohler, Henry F., *et al.* (See Schneider, Eugene W., assignor.)						
Mohn, John, and R. C. Yates, Detroit, Mich. Vending-machine	786,582	Apr. 4	759	156-7	115	1231
Mohr, William H., Plantsville, Conn. Washer-cutter	788,217	Apr. 25	4086	885	115	2012
Mole, John G., Batavia, Ill. Grinding-mill	784,221	Mar. 7	418	83-4	115	97
Mommertz, Peter, Marxloh, near Ruhrort, Germany. Lined pipe	785,176	Mar. 21	2398	504	115	564
Monahan, Louis J. (See Termaat and Monahan.)						
Monahan, Louis J., and C. Kieren, Oshkosh, Wis., assignors to Oshkosh Grass Matting Company. Automatic material-feeding device	785,070	Mar. 14	2146	453-4	115	493
Mondragon, Manuel, Courbevoie, France. Breech mechanism for quick-firing cannon	787,528	Apr. 18	2671	580-1	115	1676
Monnier, Dimitri, Paris, France. Construction of railways and vehicles for transporting light loads at high speed	784,269	Mar. 7	514	104	115	119
Monshausen, Nicolaus, Milwaukee, Wis. Enameled sheet-metal building-tile	784,062	Mar. 7	97	18	115	25
Monstad, Johan M. (See Aass and Monstad.)						
Montgomery, John H. (See Rowley and Montgomery.)						
Montgomery, Philip, Hartford, Conn. Loose-leaf binder	785,750	Mar. 28	3561	761	115	827
Montgomery, Walter R., and B. F. Megenity, assignors to said Megenity, W. C. Huston, and G. Cammillo, Shreveport, La. Wire-working tool	786,454	Apr. 4	506	98	115	1179
Moock, Jacob J., East Greenville, Ohio. Implement for applying bands	784,114	Mar. 7	203	39	115	49
Moody, Henry T., Newburyport, assignor of one-half to F. M. Edmonds, Holyoke, Mass. Fire-pail indicator	786,135	Mar. 28	4344	918	115	1007
Moody, Walter S., Schenectady, N. Y., assignor to General Electric Company. Means for regulating electric circuits	785,970	Mar. 28	3996	850	115	927

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Mooney Development Company. (See Mooney, Lawrence C., assignor.)						
Mooney, Lawrence C., Montgomery, Ala., assignor to Mooney Development Company. Smoke-consuming furnace	787,106	Apr. 11	1814	388	115	1472
Moore, Blair, Pittsburg, Pa. Whip and line lock	787,782	Apr. 18	3205	700	115	1797
Moore, Edward C., assignor to E. C. Moore and Son, Detroit, Mich. Apron	788,489	Apr. 25	4604	1003	115	2125
Moore, Edwin A., Philadelphia, Pa. Tar-dehydrater	786,828	Apr. 11	1238	258-9	115	1347
Moore, Ethelbert A., New Britain, Conn., and F. Holland, Baltimore, Md., assignors to Stanley Works, New Britain, Conn. Machine for heading bolts	784,624	Mar. 14	1272	266-8	115	299
Moore, Ethelbert A., New Britain, Conn., and F. Holland, Baltimore, Md., assignors to Stanley Works. Machine for heading bolts	784,625	Mar. 14	1289	268-70	115	303
Moore, Henry J., assignor to John C. Moore Corporation, Rochester, N. Y. Locking mechanism for the operating devices of loose-leaf binders	786,583	Apr. 4	765	157	115	1233
Moore, Isham S., and A. E. Pace, Charko, Tex.; said Pace assignor to said Moore. Insect-destroyer	786,584	Apr. 4	767	157	115	1233
Moore, James R., Harper, Tex. Tire-bolt wrench	786,660	Apr. 4	928	190	115	1268
Moore, James W. (See Hisey and Moore.)						
Moore, John H., assignor to A. Z. and A. W. Baxter, Cleveland, Ohio. Valve mechanism for engines	786,913	Apr. 11	1411	300-1	115	1383
Moore, John S., Chester, W. Va. Curtain and shade holder	788,367	Apr. 25	4375	953	115	2076
Moore, Samuel A., Pana, Ill. Friction-brake	786,661	Apr. 4	929	190	115	1268
Moore and Son, E. C. (See Moore, Edward C., assignor.)						
Moore, Theophilus W., Leesburg, Fla. Rotary engine	787,988	Apr. 25	3629	791	115	1904
Moore, William B., Jersey City, N. J. Soap-dispensing machine	787,342	Apr. 11	2279	497	115	1573
Moorhead, Albert E., Oakland, Cal. Carpet-cleaning apparatus	784,801	Mar. 14	1656	343	115	386
Moorhead, Albert E., Oakland, Cal. Carpet-cleaning apparatus	787,388	Apr. 18	2390	517	115	1612
Moorhead, Albert E., Oakland, Cal. Pneumatic cleaner	787,389	Apr. 18	2392	517	115	1612
Moran, Philip J., and J. H. Johnson, McKees Rocks, Pa. Door-stop	786,585	Apr. 4	768	158	115	1234
Morat, Jacques, New York, N. Y. Furnace for treating metal	784,956	Mar. 14	1937	407	115	448
Morehead, George W. (See Redden, George E., assignor.)						
Moreland, John H., Newhaven, Pa. Padlock	786,586	Apr. 4	769	158	115	1234
Morgan Construction Company. (See Carroll, Elbert H., assignor.)						
Morgan, Daniel F., Toledo, Ohio. Glove	784,115	Mar. 7	204	39	115	49
Morgan, Edward L., Little Rock, Ark. Railway-signal	784,750	Mar. 14	1551	320	115	364
Morgan Engineering Company. (See Taylor, Clarence L., assignor.)						
Morgan, Evelyn C., and F. B. Ostrom, Washington, D. C. Tray-support	786,587	Apr. 4	771	158	115	1234
Morgan, Jerome R., Coats, Kans. Dumping-wagon	787,934	Apr. 25	3512	767	115	1877
Morgan, John E., Emporia, Kans. Dental-engine attachment	786,662	Apr. 4	930	190	115	1268
Morgan, Juliette, Suffield, Conn. Garment-supporter	786,046	Mar. 28	4163	877	115	965
Morison, Emma C., New York, N. Y. Catamenial bandage	786,136	Mar. 28	4345	918	115	1007
Morral, John. (See Morral, Samuel E. and J.)						
Morral, Samuel E. and W. W., Morral, Ohio. Machine for cutting green corn from the cob	787,585	Apr. 18	2789	607-8	115	1703
Morral, Samuel E., Morral, and J. Morral, Larue, assignors to said Samuel E. and W. W. Morral, Morral, Ohio. Can-labeling machine	787,628	Apr. 18	2880	627	115	1724
Morral, William W. (See Morral, Samuel E. and J., assignors.)						
Morral, William W. (See Morral, Samuel E. and W. W.)						
Morrice, George. (See Heath, Morrice, and Gruss.)						
Morris, Charles K. (See Cannon and Morris.)						
Morris, John B., *et al.* (See Hayward, Eugene, assignor.)						
Morris, John R., Jewell, Kans. Combination-tool	784,959	Mar. 14	1945	408	115	449
Morris, William J., Marysville, Wash. Music-leaf turner	787,989	Apr. 25	3630	792	115	1904
Morrish, Thomas I., San Francisco, Cal. Adjustable saddletree	787,206	Apr. 11	2017	440	115	1516
Morrison, Dudley R., Hartford City, Ind. Crude-oil engine	788,057	Apr. 25	3772	820	115	1938
Morrison, James F., Chicago, Ill. Brake-shoe	786,372	Apr. 4	263	60	115	1125
Morrison, Reason R., Mineral City, Ohio. Rotary engine	785,177	Mar. 21	2398	505	115	564
Morrow, Lloyd S., Monessen, Pa. Switch	784,341	Mar. 7	646	133	115	148
Morrow, William L., Stockton, Cal. Nut-lock	788,058	Apr. 25	3773	821	115	1938
Morrow, William L., Stockton, Cal. Nut-lock	788,324	Apr. 25	4284	931	115	2057
Morse, Andrew D., Hopedale, Mass., assignor to Sawyer Spindle Company, Portland, Me. Bobbin-retaining means for rotatable spindles	784,957	Mar. 14	1941	407	115	448
Morse, George W., Pittsburg, assignor to Hiram W. French Company, Allegheny, Pa. Apparatus for the manufacture of felt	785,751	Mar. 28	3563	761	115	828
Morse, George W., and T. W. Plumb, Pittsburg, Pa., assignors, by mesne assignments, to Parish & Bingham Company, Cleveland, Ohio. Wheel	784,958	Mar. 14	1943	408	115	449
Morse, John J., Adrian, Mich. Dies for tying intersecting wires	786,374	Apr. 4	263	60	115	1125
Morss, Stephen B., Rahway, N. J. Lamp-burner	787,629	Apr. 18	2882	627	115	1725
Mortenson, Hans, assignor of two-thirds to L. S. Andrews, New York, N. Y. Sheathing-plate	787,207	Apr. 11	2018	440	115	1517
Morton, Albert H., Lowell, Mass. Pneumatic-conveyer system	784,270	Mar. 7	516	105	115	120
Moser, Edmund, East Mineral, Kans. Drill-bit	786,137	Mar. 28	4347	919	115	1007
Mosher, Charles D., New York, N. Y. Expansible plug	787,460	Apr. 18	2532	547	115	1642
Mosler, Moses, assignor to Mosler Safe Company, New York, N. Y. Circular-door safe	788,325	Apr. 25	4285	931	115	2057
Mosler Safe Company. (See Mosler, Moses, assignor.)						
Moss, Frank B., assignor of one-half to A. T. Bowen, Denver, Colo. Detachable heel	787,306	Apr. 11	2211	485	115	1558
Motor Traction Company. (See Rhodes, Levi, assignor.)						
Mounsey, Herbert B. (See Carlson, Charles A., assignor.)						
Mowat, Oliver M., McKeesport, Pa. Chuck	785,564	Mar. 21	3184	674	115	735
Mowry, Joseph B., assignor of ninety-eight two-hundredths to W. Larson and J. E. Smith, Cleveland, Ohio. Wagon	785,628	Mar. 21	3313	707	115	762
Moyer Buggy Corporation. (See Moyer, Perry W. and D. D., assignors.)						
Moyer, Doctor D. (See Moyer, Perry W. and D. D.)						
Moyer, Harold C., Springfield, Ill. Resonator-switch	785,266	Mar. 21	2582	545	115	603
Moyer, Perry W. and D. D., assignors to Moyer Buggy Corporation, Luray, Va. Buggy-top brace	786,138	Mar. 28	4349	919	115	1008
Moyer, Perry W. and D. D., assignors to Moyer Buggy Corporation, Luray, Va. Buggy-top brace	786,139	Mar. 28	4350	919	115	1008
Moylan, Alexander M. Century, Fla. Railway-tie	784,802	Mar. 14	1658	343-4	115	386
Moylan, Alexander M., Century, Fla. Combined pan and stove-lid lifter	784,803	Mar. 14	1660	344	115	387
Muckle, John S., assignor to Standard Elevator Interlock Company, Philadelphia, Pa. Locking mechanism for elevators	787,208	Apr. 11	2019	440-41	115	1517
Muehlberg, Karl O., Homestead, Pa. Hose-connector	787,529	Apr. 18	2673	581	115	1677
Muehleisen, Carl, Berlin, Germany, assignor to Mergenthaler Linotype Company Linotype-machine	786,140	Mar. 28	4351	920	115	1008
Muehler, Otto H., Mount Vernon, Ind. Display-rack	785,430	Mar. 21	2902	613	115	672
Mueller, Frederick, Mount Holly, N. J. Belt	786,375	Apr. 4	265	60	115	1126
Mueller, Max, St. Louis assignor to J. B. Buss, Jennings, Mo. Press	785,752	Mar. 28	3566	761-2	115	828
Mulholland, Richard, Dunkirk, N. Y. Rubber-tired wheel	784,875	Mar. 14	1792	373	115	415

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Muller, Frederick A., Oakland, Cal. Non-refillable bottle	788,115	Apr. 25	3893	843	115	1970
Müller, Hermann. (See Pfaffenbach and Müller.)						
Multi-Vending Company. (See Conklin, Fred T., assignor.)						
Mundy, Arthur J., and J. B. Millet, Boston, Mass. Finding the direction of sound	787,854	Apr. 18	3344	733	115	1826
Municipal Engineering Company. (See Smith, Fred P., assignor.)						
Munn, George M., Fitchburg, Mass. Egg-beater	785,114	Mar. 21	2271	477	115	535
Munn, John P., *et al.* (See Huntington, Thomas S., assignor.)						
Munns, Ernest A., New York, assignor to Muralo Company, New Brighton, N. Y. Column, pedestal, or similar decorative architectural structure	785,695	Mar. 21	3458	744	115	792
Munsing, George D., New York, N. Y. Vehicle-wheel	785,629	Mar. 21	3315	707	115	762
Munson, Augustus. (See Kelly and Munson.)						
Munson Bros. Co. (See Farrar, William A., assignor.)						
Munter, Charles, New York, N. Y. Abdominal corset	788,275	Apr. 25	4185	909	115	2034
Munzinger, Louis. (See Cody, George, assignor.)						
Munzinger, Louis. (See Cody, George, assignor.) (Reissue.)						
Muralo Company. (See Dreyfus, Louis A., assignor.)						
Muralo Company. (See Gould, John F., assignor.)						
Muralo Company. (See Munns, Ernest A., assignor.)						
Murdock, George J., Newark, N. J. Rotary fluid-pressure motor	784,172	Mar. 7	315	66	115	74
Murdock, William J., Boston, Mass. Telephone-receiver	786,588	Apr. 4	772	158	115	1234
Murdock, William J., Boston, Mass. Circuit closing and breaking device	786,589	Apr. 4	773	159	115	1234
Murphy, James J., Springfield, Ill. Nut-lock	788,420	Apr. 25	4482	976	115	2099
Murphy, Thomas H. (See Johnston and Murphy.)						
Murphy, Thomas J., New York, N. Y. Electrical interrupter	788,990	Apr. 25	3634	792	115	1905
Murray, Charles F., assignor to Murray's Patent Fixture Company, Los Angeles, Cal. Show-case	787,461	Apr. 18	2532	548	115	1642
Murray, Thomas S., Arkansas City, Kans. Cistern-cleaner and water-purifier	784,583	Mar. 14	1166	245–6	115	276
Murray's Patent Fixture Company. (See Murray, Charles F., assignor.)						
Mustin, Henry C., U. S. Navy. Telescopic ordnance-sight	787,855	Apr. 18	3346	733–4	115	1827
Muttart, William J., Seymour, Wis. Trestle	788,368	Apr. 25	4376	953–4	115	2077
Myers and Bro., F. E. (See Myers, Philip A., assignor.)						
Myers, John W., Johnstown, Pa. Screen	784,584	Mar. 14	1168	246	115	277
Myers, Louis, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y. Carriage-return mechanism for type-writers or the like	784,585	Mar. 14	1170	247	115	277
Myers, Philip A., assignor to F. E. Myers & Bro., Ashland, Ohio. Hay-carrier	786,455	Apr. 4	508	99–100	115	1180
Myers, Philip A., assignor to F. E. Myers and Brother, Ashland, Ohio. Hay-carrier	786,456	Apr. 4	514	100–1	115	1181
Myers, Philip A., assignor to F. E. Myers and Bro., Ashland, Ohio. Pump-jack	787,462	Apr. 18	2534	548	115	1642
N. K. Fairbank Company. (See Fenton, Charles H., assignor.)						
Nadrowski, Johannes, Dresden, Germany. Spring-shaft	785,323	Mar. 21	2677	568	115	622
Nagle, Augustus F., Montclair, N. J. Tabular-sheet holder	784,272	Mar. 7	519	106	115	120
Narragansett Machine Company. (See Thornley, Albert J., assignor.)						
Nash, Fredrick W., Minneapolis, Minn. Cutting-hat	787,390	Apr. 18	2393	517	115	1612
Nass, Robert, Thalkirchen, near Munich, Germany. Rotary engine	784,960	Mar. 14	1948	408	115	450
National Anchor Company. (See Witzner, John W., assignor.)						
National Biscuit Company. (See Scott and Curtis, assignors.)						
National Cash Register Company. (See Cleal, Joseph P., assignor.)						
National Cash Register Company. (See Cleal and Macauley, assignors.)						
National Cash Register Company. (See Laurick, Carl, assignor.)						
National Cash Register Company. (See Nutting, Frederick J., assignor.)						
National Cash Register Company. (See Osborn, Francis C., assignor.)						
National Drill & Manufacturing Company. (See Brophy, Luke V., assignor.)						
National Drill and Manufacturing Company. (See Gray, Thomas J., assignor.)						
National Drill & Manufacturing Company. (See Krohn, John O. E., assignor.)						
National Drill & Manufacturing Company. (See Moats, Ortus E., assignor.)						
National Electric Lamp Company. (See Blackburn, Frank H., assignor.)						
National Machine Company. (See Hogan, James T., assignor.)						
National Malleable Castings Company. (See Krakau and Conner, assignors.)						
National Malleable Castings Company. (See Tower, Clinton A., assignor.)						
National Malleable Castings Company. (See Willison, John, assignor.)						
National Novelty Corporation. (See Ribert, Joseph M., assignor.)						
National Nutrient Company. (See Campbell, Charles H., assignor.)						
National Telephone Lock Company. (See Calhoun, William, assignor.)						
National Vending Machine Company. (See Diebel, William, assignor.)						
National Vending Machine Company. (See Frantz, Charles T., assignor.)						
Natural Food Company. (See Emerson, Ralph W., assignor.)						
Nau, John B., New York, N. Y. Purifying pig metals	786,048	Mar. 28	4171	879	115	967
Naylor, Edwin C., Gloversville, N. Y. Hand-operated winding apparatus	786,049	Mar. 28	4173	879	115	967
Neabrey, Leonard M., Cincinnati, Ohio. Window frame and sash	785,370	Mar. 21	2768	585	115	643
Neckerman, William M., Pittsburg, Pa. Slip-gear	786,306	Apr. 4	109	25	115	1095
Nelson, Albert, San Francisco, Cal. Time, savings, and safety-deposit box	788,327	Apr. 25	4287	931–3	115	2057
Nelson, Carl L., Seattle, Wash. Apparatus for swaging dental plates	788,490	Apr. 25	4605	1003	115	2125
Nelson, Charles G. (See Nelson, Jack E. and C. G.)						
Nelson, George W., *et al.* (See Flowers, Samuel R., assignor.)						
Nelson, Jack E. and C. G., Colorado City, Colo. Stovepipe-ventilator	787,463	Apr. 18	2536	549	115	1643
Nelson, Lars, Chicago, Ill. Garment-stretcher	784,752	Mar. 14	1555	320	115	365
Nemo, Ben A., New York, N. Y. Safety attachment for gas-burners	787,687	Apr. 18	2982	650	115	1746
Nerge, Frederick W. (See Henderson, George K., assignor.)						
Neumann, Ludwig, Gleiwitz, Germany. Emergency throttle-valve	786,667	Apr. 4	937	192	115	1270
Neveux, Fortuné, San Ambrogio, near Turin, Italy, assignor to A. V. Rowley, Frankfort-on-the-Main, Germany. Machine for trimming and sewing fabrics	786,833	Apr. 11	1244	260–1	115	1348
New Haven Clock Co. (See Porter, Wilson E., assignor.)						
New Jersey Patent Company. (See Miller and Pierman, assignors.)						
New Jersey Wire Cloth Company. (See Himmelwright, Abraham L. A., assignor.)						
New York Automatic Telephone Company. (See Gilgen, Adolph C., assignor.)						
New York Labeling Machine Company. (See Haulick, Walling, and Winkle, assignors.)						
Newell, Frank C., Wilkinsburg, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Brake-switch locking device	785,180	Mar. 21	2404	506	115	565
Newland, Grant, assignor of two-thirds to J. W. and I. E. Dalzell, Panora, Iowa. Auxiliary journal for axles	785,678	Mar. 21	3423	734	115	785
Newton, Albert E., assignor to Prentice Brothers Company, Worcester, Mass. Change-speed-gearing for engine-lathes	787,537	Apr. 18	2689	584–5	115	1680
Newton, Arthur D., Hartford, Conn. Electrical system of heating	788,166	Apr. 25	3994	862	115	1992
Niagara Machine & Tool Works. (See Zeh, Edmund, assignor.)						
Nicholas, William, Thompsonville, Conn., assignor to United States Graphotype Company, New York, N. Y. Squirt-preventer for type-casting machines	785,823	Mar. 28	3711	791	115	864
Nicholls, Albert W., Chicago, Ill. Spray bath-brush and connection	785,824	Mar. 28	3713	791	115	864

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Nicholls, Albert W., Chicago, Ill. Conversation-tube	786,458	Apr. 4	520	102	115	1182
Nicholls, Albert W., Chicago Ill. Fountain-brush and connection	786,985	Apr. 11	1578	337	115	1421
Nicholls, Albert W., New York, N. Y., assignor of one-half to F. P. Noera, Waterbury, Conn. Gooseneck connection	787,211	Apr. 11	2025	442	115	1518
Nicholls, George T., Providence, R. I., assignor to Palmer-Nicholls Company, Cheraw, S. C. Machine for covering wire	784,753	Mar. 14	1556	321–2	115	365
Nicholson, D. P. (See Kaphingst and Seith, assignors.)						
Nickel, Adam, New York, N. Y. Repeating action for grand pianos	785,181	Mar. 21	2406	506	115	566
Niederlander, Nicholas F., St. Louis, Mo., assignor to Westinghouse Automatic Air & Steam Coupler Company. Ball-and-socket pipe-joint	787,391	Apr. 18	2394	518	115	1613
Nielsen, Carl, Copenhagen, Denmark. Gas-burner	784,754	Mar. 14	1563	322	115	366
Nielsen, Sigurd C., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Line-type-machine	787,786	Apr. 18	3213	702	115	1798
Niles-Bement-Pond Company. (See Hagman, William J., assignor.)						
Niles, Glenn H., New York, N. Y. Gas-furnace-retort setting	785,268	Mar. 21	2586	545–6	115	604
Niles, Walter L. C., Saugus, Mass. Shoe-form	785,115	Mar. 21	2273	478	115	536
Nilson, Lars G., New York, N. Y., assignor, by mesne assignments, to Fischer Motor Vehicle Company. Electrogasolene-vehicle	786,376	Apr. 4	267	61	115	1126
Nilson, Lars G., Hoboken, N. J., assignor, by mesne assignments, to Fischer Motor Vehicle Company. Electric-motor controlling apparatus	786,775	Apr. 4	1138	239	115	1314
Nilsson, Karl P., Stockholm, Sweden. Centrifugal machine	785,910	Mar. 28	3866	821	115	898
Nistle, George W. (See Gifford and Nistle.)						
Nix, John B., Nix, Ark. Cotton-chopper	784,118	Mar. 7	208	40	115	50
Noera, F. P. (See Nicholls, Albert W., assignor.)						
Noid, Frank L., Louisville, Ky. Temporary binder	785,911	Mar. 28	3868	822	115	898
Noll, Henry J., Milwaukee, Wis. Train-pipe coupling	787,630	Apr. 18	2884	627	115	1725
Nordenberg, John, assignor of one-half to O. J. Rundahl, Canon City, Colo. Electrically-operated locking mechanism	784,064	Mar. 7	102	19	115	26
Nordlindh, Ernst A., assignor to Svenska Centrifugaktiebolaget, Stockholm, Sweden. Rotating or centrifugal churn	786,459	Apr. 4	521	102–3	115	1182
Nordt, John C., West Hoboken, N. J. Swivel for jewelry-pendants	788,422	Apr. 25	4485	976	115	2100
Norling, Reinhold A., assignor to Aurora Automatic Machinery Company, Aurora, Ill. Pneumatic hammer	785,324	Mar. 21	2678	569	115	623
Norling, Reinhold A., assignor to Aurora Automatic Machinery Company, Aurora, Ill. Portable pneumatic motor	787,586	Apr. 18	2791	608	115	1704
Norlund, Olof A., and W. K. Wakenhut, Williamsport, Pa. Ice-creeper	784,119	Mar. 7	209	40	115	50
Normandin, Levi P., assignor of three-fourths to W. F. Cowham, Jackson, Mich. Tamper	785,755	Mar. 28	3575	763	115	830
Norris, Edward M., Baltimore, Md. Swath-gatherer attachment for binders	785,431	Mar. 21	2902	613	115	673
Norris, Henry M., Cincinnati, Ohio. Variable-speed mechanism	787,392	Apr. 18	2395	518	115	1613
Norstrom, John K., and H. M. Graif, assignors to Automatic Telephone Company, Chicago, Ill. Automatic-telephone-exchange system	784,498	Mar. 7	997	209	115	225
North American Trust Company, trustee. (See Acheson, Edward G., assignor.)						
North, Charles H., assignor to North Electric Company, Cleveland, Ohio. Selective signaling device	787,936	Apr. 25	3515	767	115	1878
North Electric Company. (See North, Charles H., assignor.)						
North & Pfeiffer Manufacturing Company. (See Pfeiffer, Christian, assignor.)						
Northern Light Company. (See Buffington, Leroy S., assignor.)						
Northoff, Henry N., San Francisco, Cal. Spirit-level	784,418	Mar. 7	835	173	115	191
Norton, Eugene E. (See Manwaring, Emerson, Norton, and Capps.)						
Norton, Frederick L., Bath, Me. Operative dental instrument	787,937	Apr. 25	3517	768	115	1878
Norton, Ira P., Laporte, Ind. Dental forceps	785,018	Mar. 14	2048	429	115	473
Norton, James W., assignor of one-half to W. A. Heilprin, Washington, D. C. Combined safety attachment and flue-cleaner for steam-boilers	786,511	Apr. 4	628	126–7	115	1204
Norton, Julius R., San Antonio, Tex. Double rotary force-pump	786,143	Mar. 28	4355	920–1	115	1009
Nott, William G., Toronto, Canada. Tubular skate	785,325	Mar. 21	2686	570	115	625
Novelty Manufacturing Corporation. (See Bargamin, Clifford, assignor.)						
Novess, Frank, Flatrock, Mich. Fence-post	786,307	Apr. 4	110	25	115	1096
Novet, Claude, Zurich, Switzerland. Jacquard loom	785,679	Mar. 21	3423	735–6	115	785
Nowell, Herbert W., assignor to Kinnear-Hood Steel Company, New York, N. Y. Connection for sheet-metal radiators	788,140	Apr. 25	3945	853	115	1982
Nowotny, John S., Madisonville, Ohio. Card-index file or cabinet	788,276	Apr. 25	4186	909	115	2034
Nuss, Adolph J., Williamsport, Pa. Adjustable and reclining chair	786,308	Apr. 4	111	25–6	115	1096
Nusbaum, John W. (See Godman, James V., assignor.)						
Nussbeck, Richard, assignor of one-half to L. Saltiel, Chicago, Ill. Latch	786,668	Apr. 4	938	192	115	1270
Nussberger, Richard, Zurich, Switzerland. Clock striking mechanism	784,273	Mar. 7	521	106–7	115	120
Nutting, Frederick J., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Punching-machine	786,834	Apr. 11	1246	261–3	115	1349
Nutting, Frederick J., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Engraving-machine	788,423	Apr. 25	4486	976–7	115	2100
Nutz, Susanna N., Kansas City, Mo. Adjustable measuring and ruling device	785,756	Mar. 28	3576	763	115	831
Nye, John R., Waterville, Me. Mop-wringer	788,491	Apr. 25	4606	1004	115	2125
Nye Tool and Machine Works. (See Jansen, Henry, assignor.)						
Nylén, Erik, Stocksund, Sweden. Liner for centrifugal separators	788,116	Apr. 25	3894	843	115	1971
O'Brien, John O. (See Thornton, John E., assignor.)						
O'Brien, John O. (See Thornton and Rothwell, assignors.)						
O'Brien, Patrick, South Bend, Ind. Oil-press pan	785,681	Mar. 21	3428	737	115	786
O'Brien, Thomas, and W. P. Long, Elwood, Ind., assignors to American Sheet and Tin Plate Company, Pittsburg, Pa. Coloring steel or iron plate	788,167	Apr. 25	3995	862	115	1993
O'Brien, William J. (See Boyle, William J., assignor.)						
O'Connor, Henry. (See Gerhardt, O'Connor, and Violet.)						
O'Connor, John F., assignor to W. H. Miner Company, Chicago, Ill. Draft-rigging for railway-cars	784,697	Mar. 14	1425	294	115	335
O'Connor, John F., assignor to W. H. Miner Company, Chicago, Ill. Roller side bearing for railway-cars	787,938	Apr. 25	3518	768	115	1878
O'Connor, John F., assignor to Chicago Railway Equipment Company, Chicago Ill. Brake-beam	784,698	Mar. 14	1428	295	115	336
O'Conor, Frank P., and F. McNeill, Lasalle, Ill. Party-line selective system	784,588	Mar. 14	1180	249	115	279
O'Donnell, Felix, assignor of one-half to S. A. Brown, Pawtucket, R. I. Stop-motion for cloth-take-up rolls	788,168	Apr. 25	3996	862	115	1993
O'Flynn, Richard, Jr. (See Gilmour and O'Flynn.)						
O'Keefe, William H., Athlone, Ireland. Automatic safety-extinguisher adapted to single and duplex burners for oil-lamps	786,917	Apr. 11	1432	303	115	1300
O'Kell, Charles L. (See Walters, Nils P., assignor.)						
O'Laughlin, John, Racine, Wis. Screening-machine	784,877	Mar. 14	1796	374–5	115	416
O'Malley, William L. (See Richards, Alva C., assignor.)						
O'Meara, Jeremiah, New York, N. Y. Valve	786,512	Apr. 4	629	127	115	1204

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
O'Meara, Jeremiah, New York, N. Y. Boot or shoe heel	786,986	Apr. 11	1579	337	115	1421
O'Neil, Adam J., and F. L. Wrenn, Scranton, Pa. Metal-tired car-wheel	785,759	Mar. 28	3581	764	115	832
O'Neill, Annie. (See O'Neill, John J., assignor.)						
O'Neill, John J., assignor of two-thirds to A. O'Neill, Boston, Mass. Retaining device for bottle-stoppers	788,369	Apr. 25	4376	954	115	2077
O'Quinn, Alexander H., Jessup, Ga. Spark-arrester	787,631	Apr. 18	2884	628	115	1725
O'Reilly, Anthony J., assignor to Crompton-Thayer Loom Company, Worcester, Mass. Shuttle-box-actuating mechanism	786,232	Mar. 28	4526	958	115	1044
O'Sullivan, Humphrey, Lowell, Mass. Overshoe	785,371	Mar. 21	2769	585	115	643
Oak, Otto J. (See Hetland, Arthur, assignor.)						
Oberlies, Albert W., Philadelphia, Pa. Flush-tank	785,680	Mar. 21	3427	736–7	115	785
Obermeir, Wolfgong, Lost Lake, Wis. Harness-buckle	784,804	Mar. 14	1661	344	115	387
Ochs, Christian P., Harrisburg, Pa. Device for loading or unloading cattle	788,424	Apr. 25	4490	977–8	115	2101
Odell, Melancthon H., Cincinnati, Ohio. Keyboard	786,669	Apr. 4	940	193	115	1270
Odenda, Charles T., and J. F. Jones, Hampton, Miss. Shoe-fastening	784,419	Mar. 7	836	173	115	191
Odendahl, Henry, Paterson, N. J. Rail-splice bar	785,757	Mar. 28	3577	764	115	831
Oehler, Anilin & Anilinfarben-Fabrik, K. (See Laska, August L., assignor.)						
Offermann, Joseph, Minneapolis, Minn. Wrench	784,876	Mar. 14	1794	374	115	415
Ogilvie, James, and J. D. Lowe, Glasgow, Scotland. Clip for holding programs for use in theaters, &c.	785,632	Mar. 21	3321	709	115	763
Ogilvy, David J., Cincinnati, Ohio. Producing black or dark carbonaceous pigments	785,696	Mar. 21	3459	744	115	792
Ogilvy, David J., Cincinnati, Ohio. Producing black or dark carbonaceous pigments	785,697	Mar. 21	3460		115	792
Ogle, Graham L., Louisville, Ky. Screen	788,219	Apr. 25	4089	886	115	2013
Ohl, George A., Jr., Newark, N. J., assignor to George A. Ohl & Co. Means for preventing tipping of tables of machines	786,592	Apr. 4	777	159	115	1235
Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Fire-door	786,593	Apr. 4	779	160	115	1236
Oil Well Supply Company. (See Johnston, David K., assignor.)						
Old, Ausborn F., and S. A. Walker, New York, N. Y., assignors to Hale and Kilburn Manufacturing Company, Philadelphia, Pa. Couch	786,594	Apr. 4	780	160	115	1236
Olds Motor Works. (See Albaugh, Gilbert R., assignor.)						
Olds Motor Works. (See Harrington, Norman T., assignor.)						
Olinger, George W., Orchard, Ohio. Electric-railway system and conduit	785,758	Mar. 28	3578	764	115	831
Oliver, Charles, Woolwich, England. Electric-arc lamp	785,516	Mar. 21	3089	653	115	716
Oliver, Charles E., Northwood, N. D. Grain-conditioner	787,108	Apr. 11	1816	389	115	1475
Oliver Chilled Plow Works. (See Davis, Calvin R., assignor.)						
Oliver, Edwin L., Oakland, assignor of one-half to A. D. Foote, Grass Valley, Cal. Apparatus for cyanid treatment	784,120	Mar. 7	211	41	115	50
Oliver, Morgan L., assignor of one-half to R. Fatchett, Mulberry, Mich. Fence-post	784,420	Mar. 7	836	173	115	191
Oliver, Robert, assignor of one-half to D. Hewitson, Portage la Prairie, Canada. Shocking-machine	787,939	Apr. 25	3519	768–9	115	1879
Olsen, Gustav C., Medina, N. D. Roller printing-frame	784,589	Mar. 14	1185	250	115	280
Olson, John A., Pawtucket, R. I. Safety attachment for gas-cocks	785,566	Mar. 21	3189	675	115	736
Olson, John A., and P. D. Sherwin, Minneapolis, Minn. Attachment for theater-seats	788,220	Apr. 25	4090	886	115	2013
Oneida Fishing Reel Co. (See Van Horn, John H., assignor.)	784,590	Mar. 14	1188	250	115	281
Oneida Steel Pulley Company. (See Shepard, Edgar T., assignor.)						
Opp, Thomas E., Cambria, Iowa. Hame-staple and clip	787,538	Apr. 18	2691	585	115	1680
Oppenheimer, Julius, Cologne, Germany. Curling-iron	786,987	Apr. 11	1581	338	115	1421
Optische Anstalt C. P. Goerz Aktiengesellschaft. (See Goerz, Carl P., assignor.)						
Optische Anstalt C. P. Goerz Aktiengesellschaft. (See Goerz and Korrodi, assignors.)						
Ord, William, Brooklyn, Ohio. Packing-ring	784,065	Mar. 7	107	20	115	26
Orton, Collins K., San Francisco, Cal. Pressure-roller for wood-planing machines	785,825	Mar. 28	3714	791	115	864
Orton, Edward M., assignor of one-half to C. J. Jameson, Minneapolis, Minn. Hay gatherer and stacker	786,513	Apr. 4	631	127–8	115	1205
Osborn, Francis C., Detroit, Mich., assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J. Cash-register	786,377	Apr. 4	270	61–3	115	1127
Osborne, Eugene F., Chicago, Ill. Condense-water-return apparatus for steam-heating systems	788,492	Apr. 25	4608	1004	115	2125
Oshkosh Grass Matting Company. (See Monahan and Kieren, assignors.)						
Ostrom, Fannie B. (See Morgan and Ostrom.)						
Otto, George J., Rochester, N. Y. Molding-press	785,567	Mar. 21	3191	675–6	115	737
Otto, Horace Y., Williamsport, Pa. Bill-holder	788,060	Apr. 25	3776	821	115	1939
Overland, Knudt G., Fertile, Minn. Wrench	787,587	Apr. 18	2792	609	115	1704
Owens, John. (See McGrail and Owens.)						
Pace, Azie E. (See Moore and Pace.)						
Pace, Thomas H., Richmond, Va., assignor of one-half to W. H. Burt, Lavergne, Tenn. Match-box	788,370	Apr. 25	4378	954	115	2077
Pacific Steel & Wire Company. (See Scarles, Benjamin, assignor.)						
Packard, James W. assignor to Packard Motor Car Company, Warren, Ohio. Sparking igniting device for hydrocarbon-engines	787,212	Apr. 11	2026	442	115	1518
Packard Motor Car Company. (See Packard, James W., assignor.)						
Padgett, James M., Topeka, Kans. Rubber-tire repairer	785,633	Mar. 21	3322	709	115	764
Padmore, Arthur M., Lead, S. D. Rack	784,499	Mar. 7	1009	209	115	226
Paduveri, Felix, San Francisco, Cal. Street-car-register protector	786,988	Apr. 11	1581	338	115	1421
Paeth, William H., and C. Phersich, Chicago, Ill. Gate for elevator-shafts	785,517	Mar. 21	3094	654	115	717
Page Machine Company. (See Joy, John M., assignor.)						
Paige, James W., Chicago, Ill., assignor to A. Van Ness, Rochester, Ind. Feed mechanism for corn husking and shredding machines	786,460	Apr. 4	523	103	115	1182
Paige, James W., Chicago, Ill., assignor to A. Van Ness, Rochester, Ind. Corn-husking machine	786,461	Apr. 4	525	103–4	115	1183
Painter, Emerick H., Alpha, Wash. String-cutter	784,421	Mar. 7	838	174	115	191
Palladino, Benjamin, assignor to Whitehead & Hoag Company, Newark, N. J. Toy	787,109	Apr. 11	1819	389	115	1473
Palmer Brothers Company. (See Miller and Gilmore, assignors.)						
Palmer, Charles M., New London, N. C. Wood-distilling plant	786,144	Mar. 28	4357	921–2	115	1010
Palmer, Charlie C., Osceola, Iowa. Thermostatic alarm	785,326	Mar. 21	2688	570	115	625
Palmer, Isaac E., Middletown, Conn. Stretcher or spreader	787,632	Apr. 18	2885	628	115	1726
Palmer, Isaac E., Middletown, Conn. Hammock	787,633	Apr. 18	2887	628	115	1726
Palmer, John E. (See Gow and Palmer.)						
Palmer-Nicholls Company. (See Nicholls, George T., assignor.)						
Palmer, Norman A., Plain City, Ohio. Fluid-motor	784,591	Mar. 14	1189	250–1	115	281
Palmer, Walter W., Erie, Pa. Stocking-supporter	784,500	Mar. 7	1010	210	115	226
Palmer, Walter W., Erie, Pa. Clasp for stocking-supporters	786,233	Mar. 28	4528	959	115	1044
Pape, William H., assignor to Galena-Signal Oil Company, Franklin, Pa. Lubricator	785,826	Mar. 28	3715	791	115	865
Paramore, Edward C., Philadelphia, Pa. Treating and utilizing chlorin	786,595	Apr. 4	782	160	115	1236

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pardee, Howard A., *et al.* (See Huntington, Thomas S., assignor.)						
Parish & Bingham Company. (See Morse and Plumb, assignors.)						
Park, John W., Kendallville, Ind. Pump	785,912	Mar. 28	3870	822	115	899
Park, William R., Taunton, Mass., assignor, by mesne assignments, to United Injector Company. Inspirator	784,066	Mar. 7	112	20	115	28
Park, William R., Taunton, Mass., assignor, by mesne assignments, to United Injector Company. Valve-fitting	784,067	Mar. 7	114	20	115	29
Parke, Davis & Co. (See Houghton, Elijah M., assignor.)						
Parker, Charles F., Washington Court-House, Ohio. Cabinet-kitchen	786,670	Apr. 4	941	193	115	1271
Parker, Charles J., Havre de Grace, Md. Cooker	787,688	Apr. 18	2984	650	115	1746
Parker, Eugene J., and L. N. Colwell, Providence, R. I. Trolley-head	785,372	Mar. 21	2771	585	115	643
Parker, Frank A., Spencer, Iowa. Fire-escape	785,019	Mar. 14	2049	430	115	473
Parker, George H., and W. A. Twiss, New Bedford, Mass. Weft-replenishing mechanism for looms	787,634	Apr. 18	2888	628–9	115	1726
Parker, George N., Boston, Mass. Surface-finishing machine	786,309	Apr. 4	113	26	115	1096
Parker, George W., New York, N. Y. Apparatus for generating gas	787,539	Apr. 18	2692	586	115	1680
Parker, Harry E., *et al.* (See Pierce, Clarence A., assignor.)						
Parker, Harry G., Liberty, Mo., and E. V. Garnett, Pueblo county, Colo. Self-heating branding-iron	785,827	Mar. 28	3716	792	115	865
Parker, Herschel C., New York, N. Y. Incandescent electric lamp	788,493	Apr. 25	4611	1004	115	2126
Parker, Howard, Nashua, N. H., assignor to Improved Paper Machinery Company, Castine, Me., and Nashua, N. H. Paper-making roll	784,223	Mar. 7	422	85	115	98
Parker, Thomas H., Dallas, Tex. Water cut-off	786,671	Apr. 4	943	193	115	1271
Parker, William H., Maben, Miss., assignor of one-half to C. N. Rix, Hot Springs, Ark. Lock-washer for nuts	784,422	Mar. 7	838	174	115	191
Parker, William H., Maben, Miss., assignor of one-half to C. N. Rix, Hot Springs, Ark. Lock-washer for nuts	784,423	Mar. 7	839	174	115	192
Parkhurst, Frederic H., assignor to J. F. Parkhurst & Son Company, Bangor, Me. Skirt-hanger	784,174	Mar. 7	322	67	115	76
Parris, Frederick W., Brighton, Mass. Cigar-cutter	788,425	Apr. 25	4493	978	115	2101
Parson, Henry E., New York, N. Y. Automatic boiler-pressure regulator	784,121	Mar. 7	213	41	115	51
Parson, Henry E., New York, N. Y. Blower	786,234	Mar. 28	4529	959	115	1045
Parsons, Emory, Chicago, Ill. Automatic telephone-repeater	784,175	Mar. 7	324	67	115	76
Parsons, Frederick W. Tarrytown, assignor to Rand Drill Company, New York, N. Y. Unloading device for compressors	784,961	Mar. 14	1949	409	115	450
Parsons, James L., Washington, D. C. Derrick	785,518	Mar. 21	3095	654–5	115	718
Parsons, James W., Slater, Colo. Steel trap	786,145	Mar. 28	4360	922	115	1010
Pascal, Francisque, Montplaisir, France. Liquid-meter	787,464	Apr. 18	2538	549	115	1643
Pascoe, Thomas J., Norway, Mich. Boiler-cleaner	787,689	Apr. 18	2985	650	115	1747
Patch, James S., Milledgeville, Ill. Manure-spreader	785,227	Mar. 21	2504	527	115	587
Patenall, Frank P. J., and G. H. Dryden, Baltimore, Md. Signal system and apparatus therefor	787,393	Apr. 18	2398	518–19	115	1614
Paterno, Salvatore, *et al.* (See Chiappinelli, Vincenzo, assignor.)						
Paterson, James T., New York, N. Y. Cigar-cutter	786,514	Apr. 4	634	128	115	1205
Patizer, Steven, Hamel, Minn. Cushioning device for draft-equalizers	785,046	Mar. 14	2100	442	115	484
Pattee, Edwin G., Chicago, Ill. Valve for automatic fire-extinguishers	788,061	Apr. 25	3777	821	115	1939
Patten, James S., Baltimore, Md. Dust-guard for journal-boxes	785,976	Mar. 28	4015	852	115	932
Patten, Lorenzo D., *et al.* (See Armstrong, Eliphalet, assignor.)						
Patterson, Anthony, Cardiff, England. Water-jacketed blast or other furnace	785,634	Mar. 21	3323	710	115	764
Patterson, James B., Philadelphia, Pa. Hammock	784,342	Mar. 7	648	133	115	148
Patterson, Jesse. (See Miles and Patterson.)						
Patterson, Robert M., Athens, Ohio. Fence-post	785,913	Mar. 28	3871	822	115	899
Patterson, Seely B., Phillipsburg, N. J. Roasting ores	787,540	Apr. 18	2693	586	115	1681
Patterson, Stuart. (See D'Esposito, Giosue, assignor.)						
Patterson, Thomas S., assignor to himself, A. A. Pratt, and E. J. Selley, New York, N. Y. Lifting-jack	786,310	Apr. 4	115	26	115	1097
Paul, Stanley C. (See Hill, Joseph W., assignor.)						
Paulero, Louis, Petersburg, Va. Electric hammer	786,146	Mar 28	4361	923	115	1010
Paull, Knut M., Washington, D. C. Multiple-scale ruler	784,274	Mar. 7	523	107	115	121
Paulissen, John. (See Marceau, Ludger, assignor.)						
Pawling, Harry J., New Columbia, Pa. Wrench	788,141	Apr. 25	3946	854	115	1983
Peabody, Francis C., *et al.* (See Bumgardner, Louis A., assignor.)						
Peabody, George L., Pittsburg, Pa. Concrete building-block	787,787	Apr. 18	3214	702	115	1799
Peace, John G., Micanopy, Fla. Folding bed	784,343	Mar. 7	649	134	115	148
Peacock, J. W. (See Varnedoe, Robert M., assignor.)						
Pealing, Joseph J., Liverpool, England. Lathe	787,690	Apr. 18	2986	651	115	1747
Pearce, Louis, Fremantle Western Australia, Australia. Rapid-release sash-fastener	788,371	Apr. 25	4380	954	115	2077
Pearson, George F., Lowell, Mass. Spike-extractor	785,020	Mar. 14	2049	430	115	473
Pearson, John A., Boston, Mass. Revolving-door apparatus	785,047	Mar. 14	2101	442–3	115	484
Pearson, Raleigh M., and W. Letzig, Little Rock, Ark. Sign	784,344	Mar. 7	650	134	115	148
Pease, Charles F., Cincinnati, Ohio. Apparatus for washing and drying blue-prints	786,596	Apr. 4	784	161	115	1237
Pease, Roger S., Rose, Minn. Manufacturing bodies of glass	788,142	Apr. 25	3947	854	115	1983
Pease, Roger S., Rose, Minn. Glass-making apparatus	788,143	Apr. 25	3950	854–5	115	1983
Pease, Roger S., Rose, Minn. Apparatus for the manufacture of glass	788,144	Apr. 25	3952	855	115	1984
Pecheur, Henri, assignor to Société Anonyme pour le Travail Electrique des Metaux, Paris, France. Continuous-current electric motor	786,918	Apr. 11	1435	304	115	1390
Peck, Cassius C., Rochester, N. Y. Power system	784,068	Mar. 7	116	21	115	29
Peck, William, Steubenville, assignor of one-half to W. W. Harper, Toronto, Ohio. Wire-replacer for trolleys	787,343	Apr. 11	2280	497	115	1574
Peck, William C. (See Hibbard and Peck.)						
Peckham Manufacturing Company. (See Price, William G., assignor.)						
Peckham, W. L., *et al.* (See Young, Joseph P., assignor.)						
Pederson, Christian, and O. J. Andresen, North La Crosse, Wis. Feed-valve for gasolene-engines	784,699	Mar. 14	1430	295	115	336
Peelle, John, Indianapolis, Ind. Boring attachment for lathes	785,828	Mar. 28	3718	792	115	865
Peerless Machinery Company. (See Barna and Hoffman, assignors.)						
Pegg, Philena. (See Badger, Walter A., assignor.)						
Pein, Henry, Jersey City, N. J., assignor of one-half to A. M. Sloss, New York, N. Y. Glass-rinsing means	784,755	Mar. 14	1566	322	115	367
Peirce, George E., Providence, R. I. Shoe-fastening device	784,224	Mar. 7	422	85	115	98
Peitier, Sellers H., Ottawa, Ill. Working glass and mechanism therefor	787,588	Apr. 18	2794	609	115	1704
Pembroke, Andrew J., *et al.* (See Gibson, Marion E., assignor.)						
Penberthy, Henry A., Randfontein, and J. B. Pitchford, Johannesburg, assignors of one-half to C. Robinson and W. W. Beeby, Randfontein, Transvaal. Portable loop for dump-cars	784,700	Mar. 14	1431	295–6	115	336
Pence, Edward L., assignor of one-half to J. F. Boland, Memphis, Tenn. Bale-tie	786,147	Mar. 28	4364	923	115	1011

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Pendergast, Frederic W., Waltham, Mass. Filter	788,145	Apr. 25	3956	855	115	1984
Peoria Drill and Seeder Co. (See Sester, Charles M., assignor.)						
Pepper, Bruce R., Yazoo City, Miss. Bicycle attachment	784,345	Mar. 7	651	134	115	149
Pepple Brake Company. (See Pepple, John W., assignor.)						
Pepple, John W., assignor to Pepple Brake Company, Hillsboro, Tex. Car-brake	787,691	Apr. 18	2988	651	115	1747
Percival, Herbert E., Galveston, Tex. Fence-post	786,462	Apr. 4	526	104	115	1183
Percival, William T., Penshurst, assignor to J. Channon, Packenham, New South Wales, Australia. Seal-lock	785,568	Mar. 21	3193	676	115	737
Perdiue, Perry. (See Fisher and Perdiue.)						
Perkins, Charles S., Chicago, Ill. Gage for perforating-machines	785,432	Mar. 21	2904	614	115	673
Perkins, Julian L., West Springfield, Mass. Nail-feeding mechanism	786,835	Apr. 11	1252	263	115	1350
Perks, Albert J., assignor to Webster & Perks Tool Co., Springfield, Ohio. Spirit-level attachment for straight-edges	787,940	Apr. 25	3528	769	115	1881
Pernot, Jules, and C. Hummel, Paterson, N. J. Reeding-machine	786,515	Apr. 4	636	128	115	1206
Perotti, Louis, Newark, N. J. Hat-fastener	788,117	Apr. 25	3895	843	115	1971
Perotti, Louis, Newark, N. J. Liquid-distributer	788,118	Apr. 25	3896	844	115	1971
Perrins, Thomas A., Seymour, Conn. Machine for japanning small articles	787,213	Apr. 11	2028	442	115	1519
Perry, Albert J., trustee. (See King, Jacob W., assignor.)						
Perry, Alvy G., Coldwater, Miss. Plow	786,836	Apr. 11	1254	263–4	115	1350
Perry, Earle C. (See Desobry, Charles W., assignor.)						
Perry, Edward L., Paterson, N. J. Gasket or packing-ring and apron therefor	785,116	Mar. 21	2274	478	115	536
Perry, James L., assignor to H. B. Smith Machine Company, Smithville, N. J. Drum for sandpapering-machines	785,117	Mar. 21	2275	478–9	115	536
Perry, William S., New York, N. Y., assignor to Universal Talking Machine Manufacturing Company. Talking-machine motor and governor	785,182	Mar. 21	2407	506–7	115	566
Pessl, Adolf. (See Kirsch, Bernhard, assignor.)						
Peters, David T., assignor of one-half to W. C. Whitfield, F. W. Horton, and C. E. Hunt, Kansas City, Mo. Window-screen	788,372	Apr. 25	4381	955	115	2078
Peters, Frank M., Chicago, Ill. Cake-machine	785,914	Mar. 28	3872	823–4	115	899
Peters, Johan H. E., Wauwatosa, Wis. Lawn-trimmer	787,214	Apr. 11	2032	443	115	1520
Peters, Joseph, assignor of one-fourth to P. Fogelberg, Chicago, Ill. Fire-escape	787,394	Apr. 18	2402	519	115	1614
Peters, Robert D. (See Chandeysson, Pierre I., assignor.)						
Peters, Thomas K. (See Hughes, Burton S. and C. T., assignors.)						
Petersen, Arnold A., Muscatine, Iowa. Apparatus for marking currency for safes, &c	784,905	Mar. 14	1662	344	115	387
Peterson, Aaron, Kane, Pa. Can-opener	784,424	Mar. 7	841	174	115	192
Peterson, James S. (See Fladby, John B., assignor.)						
Peterson, Jens, Tacoma, Wash. Instrument for shaking down the mercurial columns in clinical thermometers	785,635	Mar. 21	3324	710	115	764
Peterson, John P. (See Johnson, Frederick W., assignor.)						
Petri-Palmedo, David, Hoboken, N. J., assignor to Mergenthaler Linotype Company. Linotype-machine	784,275	Mar. 7	524	107–8	115	121
Petrie, Edward R., Brooklyn, N. Y. Printing-frame	785,373	Mar. 21	2771	586	115	644
Petrie, John B., Celina, Ohio. Mold	784,701	Mar. 14	1435	296	115	338
Petsche, Gustav B., assignor to Southwark Foundry & Machine Company, Philadelphia, Pa. Blowing-engine or compressor	784,122	Mar. 7	215	42–3	115	53
Petsel, Frank B., Iowa City, Iowa. Fish-hook	788,062	Apr. 25	3779	822	115	1940
Pettengill, Alden M., assignor to Pine Tree Book Company, Portland, Me. Scrap-book	786,235	Mar. 28	4530	959	115	1045
Pettibone, Hawley. (See Loomis and Pettibone.)						
Pettie, Charles A., New York, N. Y. Vehicle-tire	785,118	Mar. 21	2278	479	115	537
Pettie, George H. L., assignor to R. H. Alman, Philadelphia, Pa. Loom for cross-weaving	788,328	Apr. 25	4293	933–4	115	2059
Pfaffenbach, Rudolf, Leipsic, and H. Müller, Leipsic-Gohlis, Germany. Switch for suspended electric railways	787,856	Apr. 18	3351	734	115	1829
Pfau, Charles, assignor to Pfau Manufacturing Company, Cincinnati, Ohio. Water-closet	787,110	Apr. 11	1821	390	115	1474
Pfau Manufacturing Company. (See Pfau, Charles, assignor.)						
Pfeffer, John E. (See Layton and Pfeffer.)						
Pfeiffer, Alois, Chicago, Ill. Fireproof floor and ceiling construction	784,878	Mar. 14	1798	375	115	417
Pfeiffer, Alois, Chicago, Ill. Building-tile	787,215	Apr. 11	2033	443	115	1520
Pfeiffer, Christian, assignor to North & Pfeiffer Manufacturing Company, New Britain, Conn. Governor	788,373	Apr. 25	4382	955	115	2078
Pfingst Electric Manufacturing Company. (See Pfingst, Louis, assignor.)						
Pfingst, Louis, New Dorchester, Mass. Compound-geared brake-spindle and ratchet-handle	786,989	Apr. 11	1585	338	115	1422
Pfingst, Louis, Boston, Mass., assignor to Pfingst Electric Manufacturing Company, Kittery, Me. Mechanical power-brake	786,378	Apr. 4	277	63	115	1129
Pfingst, Louis, Boston, Mass., assignor to Pfingst Electric Manufacturing Company, Kittery, Me. Power-brake	786,379	Apr. 4	284	64	115	1131
Pfund, Gebhard H., San Francisco, Cal. Exercising apparatus	786,672	Apr. 4	945	194	115	1271
Phelan, Joseph C., Lynn, Mass. Pipe-coupling	786,516	Apr. 4	639	129	115	1206
Phelps, Byron, Seattle, Wash. Lock and latch	785,228	Mar. 21	2507	528	115	587
Phelps, Edwin B. (See Worden, Dudley, assignor.)						
Phelps, Sidney W., Globe Village, Mass. Sand-box for street-railway cars	784,879	Mar. 14	1799	375	115	417
Phenice, Millroy M., Columbus, Ohio. Means for separating and purifying water of condensation	787,395	Apr. 18	2404	519	115	1615
Phersich, Charles. (See Paeth and Phersich.)						
Philadelphia Pneumatic Tool Company. (See Templin, Joseph H. assignor.)						
Philipp, Herbert. (See Foersterling and Philipp.)						
Philipp, Herbert, Wyandotte, Mich. Apparatus for effecting electrolysis	784,592	Mar. 14	1191	251	115	281
Philippe, Amédée, and E. Bolvin, Paris, France. Steam-generator	787,941	Apr. 25	3529	770	115	1881
Phillimore, Walter N., Philadelphia, assignor of one-half to W. W. Wood, Honesdale, Pa. Elevator-gate	786,311	Apr. 4	115	26	115	1097
Phillips, Charles R., Mannington, W. Va. Rope-knife	785,433	Mar. 21	2906	614	115	673
Phillips, Charles W., Omaha, Nebr. Controller-bit	785,327	Mar. 21	2689	570	115	625
Phillips, Charles W., assignor of one-half to E. F. Jewell, Milwaukee, Wis. Screw-cutting tool	786,990	Apr. 11	1587	339	115	1423
Phillips, George W., and W. H. Way, Cleveland, Ohio. Horse-boot	785,977	Mar. 28	4017	852	115	932
Phillips, Henry W., assignor of one-half to W. F. Byrd, Norfolk, Va. Surgical apparatus	784,425	Mar. 7	842	175	115	192
Phillips, Homer, Gloucester, Ohio. Railway-switch	787,216	Apr. 11	2034	443–4	115	1520
Phillips, John A., *et al.* (See Riddle, Milford, assignor.)						
Phinney, Albert, San Francisco, Cal. Hydrocarbon-burner	787,635	Apr. 18	2890	629	115	1726
Pickard, Greenleaf W., Amesbury, and H. J. W. Fay, Westboro, Mass., assignors to American Telephone and Telegraph Company. Signal system for electric railways	786,148	Mar. 28	4366	924	115	1011
Pickée, Daniel J. (See Röcker and Pickée.)						
Picken, Helen A., New York, N. Y. Fishing line and float	786,597	Apr. 4	786	161	115	1237

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Pickles, Charles K. (See Brill and Pickles.)						
Pickles, Charles K., assignor to J. A. Brill, Philadelphia, Pa. Walk-over car-seat	784,426	Mar. 7	844	175–6	115	193
Pickles, Charles K., assignor to J. A. Brill, Philadelphia, Pa. Curtain-fixture	784,427	Mar. 7	847	176	115	193
Pickles, Charles K., assignor to J. A. Brill, Philadelphia, Pa. Car-seat and guard	784,428	Mar. 7	848	176	115	193
Pickles, Charles K., assignor to J. A. Brill, Philadelphia Pa. Car-seat	784,429	Mar. 7	849	177	115	194
Pickles, Fred H. (See Casey and Pickles.)						
Pierce, Clarence A., Manchester, N. H. Thread-guide for spinning-frames	786,380	Apr. 4	293	64	115	1135
Pierce, Clarence A., assignor of two-thirds to H. E. Parker and J. J. Cronin, Manchester, N. H. Top-roll saddle	784,276	Mar. 7	526	108	115	121
Pierce, Gurney A. (See Hamilton, Andrew D., assignor.)						
Pierce, Simeon F., St. Paul, Minn. Boiler-furnace	784,880	Mar. 14	1801	375–6	115	417
Pierce, Simeon F., St. Paul, Minn. Smoke-consuming apparatus for locomotive-boilers	784,881	Mar. 14	1803	376–7	115	418
Pierce, Theodore S., Walla Walla, Wash. Compound for paving-bricks	787,942	Apr. 25	3531	.....	115	1881
Pierman, Alexander N. (See Miller and Pierman.)						
Pierpont, Frank H., Horley, England, assignor to Lanston Monotype Machine Company, Philadelphia, Pa. Type-mold	785,374	Mar. 21	2773	586	115	644
Pierpont, Frank H., Horley, England, assignor to Lanston Monotype Machine Company, Philadelphia, Pa. Die-case equipment for type-machines	785,375	Mar. 21	2777	587	115	645
Pieser, Isaac, *et al.* (See Redd, Charile, assignor.)						
Pigeon, Albert M., assignor of one-half to C. S. Weierman, Philadelphia, Pa. Hosiery-knitting machine	784,882	Mar. 14	1806	377–8	115	418
Pike, Arthur S. (See Finn and Pike.)						
Pike, Harvey A., Philadelphia, Pa. Dress-suit case	786,312	Apr. 4	117	27	115	1097
Pike, Otto S., Malden, Mass., assignor to American Pneumatic Service Company, Dover, Del. Pneumatic-despatch apparatus	784,225	Mar. 7	425	85–6	115	98
Pilcher, Herbert H., assignor to Memphis Motor Carriage Company, Memphis, Tenn. Compound steam-engine	785,376	Mar. 21	2779	587	115	645
Pilger, George J., Scranton, Pa. Air-brake-gasket-replacing tool	787,857	Apr. 18	3352	734	115	1829
Pilling, James L., Bucyrus, Ohio. Air-motor	787,692	Apr. 18	2990	652	115	1747
Pilling, James L., Bucyrus, Ohio. Motor for turn-tables or similar structures	787,693	Apr. 18	2992	652–3	115	1748
Pilsoudsky, Eugène, and E. Ragozine, St. Petersburg, Russia. Cultivating plants by electricity	784,346	Mar. 7	654	134–5	115	149
Pinard, Claude, Chalon-sur-Saône, assignor to Compagnie Internationale de l'Electro-Typographe Meray et Rozar, Paris, France. Clutch device	787,788	Apr. 18	3215	703	115	1799
Pine Tree Book Company. (See Pettengill, Alden M., assignor.)						
Pinel, Joseph, Altrincham, England. Type casting and composing machine	786,313	Apr. 4	118	27–33	115	1097
Pinkerton, Henry S., Juno, Tex. Automatic valve	788,426	Apr. 25	4494	978	115	2102
Pintsch, Firm of Julius. (See Gerdes, Heinrich, assignor.)						
Pioneer Suspender Company. (See Berkey, Harvey E., assignor.) (Reissue.)						
Pirie, James, assignor to Pirie Tool Sharpening Machine Company, Montpelier, Vt. Apparatus for heating tools	784,883	Mar. 14	1809	378	115	419
Pirie Tool Sharpening Machine Company. (See Pirie, James, assignor.)						
Pitchford, John B. (See Penberthy and Pitchford.)						
Pitman, Amos C., Brooklyn, Canada. Fruit-picking machine	786,673	Apr. 4	946	194	115	1272
Pitner, Marion W., Chicago, Ill. Vapor-lamp	786,149	Mar. 28	4370	924	115	1012
Pittsfield Spark Coil Company. (See Jacobson, Edward B., assignor.)						
Pixley, J. F., *et al.* (See Hennessy, Andrews, and Ross, assignors.)						
Placer, Manuel, assignor to A. Moeller & Co., Havana, Cuba. Cigarette-packing machine	788,494	Apr. 25	4613	1004–6	115	2126
Plank, John E., Palmer, Nebr. Nail-holder	787,217	Apr. 11	2035	444	115	1520
Plattenberger, Jacob P., Savanna, Ill. Mold	784,176	Mar. 7	326	67	115	77
Pless, Anton, Karbitz, Austria-Hungary. Device applied to circular saws	785,328	Mar. 21	2690	570	115	626
Plopper, James A., assignor, by mesne assignments, to International Harvester Company, Chicago, Ill. Binding mechanism	784,702	Mar. 14	1436	297–8	115	338
Plumb, Theodore W. (See Morse and Plumb.)						
Plunket, David D. D., New Southampton, England. Extension-conveyer	785,569	Mar. 21	3194	676–7	115	737
Pneumatic Scale Corporation. (See Doble, William H., assignor.)						
Podlesák, Henry J., assignor to International Harvester Company, Chicago, Ill. Elbow for conveyer-conduits	786,991	Apr. 11	1588	339	115	1423
Pohl, Richard C., Detroit, Mich. Book-indexing	787,111	Apr. 11	1822	390	115	1474
Polkowski, John, New York, N. Y. Shears	784,069	Mar. 7	120	21	115	30
Poll, George L., New York, N. Y. Operating-table or similar structure	788,277	Apr. 25	4189	910	115	2035
Pollard, Frederick, Cleveland, Ohio. Show-case	786,837	Apr. 11	1256	264	115	1350
Pollock, Robert L., Sterling, Kans. Hydrant	785,269	Mar. 21	2588	546	115	604
Pollock, Walter H., assignor to M. C. Gorman, New York, N. Y. Package-wrap	787,465	Apr. 18	2539	549	115	1643
Polski, Joseph J., Duluth, Minn. Box	786,674	Apr. 4	948	194	115	1272
Poltock, John A., East Rutherford, N. J. Folding awning and frame	785,915	Mar. 28	3875	824	115	900
Pontious, William H., Chicago, Ill. Syringe	787,694	Apr. 18	2994	653	115	1748
Poole, Clarence C., assignor to W. L. David, Findlay, Ohio. Casing-head	786,838	Apr. 11	1257	264	115	1351
Pope, Alfred T., assignor of two-thirds to C. Pope and F. E. Heinig, Louisville, Ky. Hydraulic tube expanding and compressing machine	788,119	Apr. 25	3898	844	115	1971
Pope, Clarence R. (See Frink, Melvin L., assignor.)						
Pope, Curran, *et al.* (See Pope, Alfred T., assignor.)						
Poppenhusen, Herman A., Evanston, Ill. Furnace	787,636	Apr. 18	2891	630	115	1727
Poppert, Jesse G., Milwaukee, Wis. Cigar-holder and ash-receptacle	785,377	Mar. 21	2781	587	115	646
Porten, William, St. Paul, Minn. Building-block wall construction	786,598	Apr. 4	787	161	115	1238
Porter, Edwin H., and B. Currier, Philadelphia, Pa. Potential-regulator	788,278	Apr. 25	4191	910	115	2035
Porter, Edwin H., and B. Currier, Philadelphia, Pa. Alternating-current rectifier	788,279	Apr. 25	4194	910–11	115	2036
Porter, James R., and M. Cole, Washington, D. C.; said Cole assignor to said Porter. Filter	788,374	Apr. 25	4385	956	115	2078
Porter Screen Manufacturing Company. (See Southworth, Henry E., assignor.)						
Porter, Wilson E., assignor to New Haven Clock Co., New Haven, Conn. Automobile-clock	785,830	Mar. 28	3721	792	115	866
Porter, Wilson E., assignor to New Haven Clock Co., New Haven, Conn. Automobile-clock	785,831	Mar. 28	3722	793	115	866
Porter, Wilson E., assignor to New Haven Clock Co., New Haven, Conn. Watchcase	787,637	Apr. 18	2893	630	115	1727
Postans, Arthur J., South Kensington, London, England. Adding-machine	786,839	Apr. 11	1258	264–5	115	1351
Poth, Henry, Elliott, assignor of one-half to H. Lohse, Knoxville, Pa. Car-brake	785,570	Mar. 21	3197	678	115	738
Potter, Frank W. (See Westcott and Potter.)						
Potter, Henry, Bromley, England. Percussive hand-tool	784,703	Mar. 14	1440	298	115	338
Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Elastic-fluid turbine	784,806	Mar. 14	1664	345	115	388
Potthoff, Louis, Flushing, N. Y. Electroplating apparatus	786,776	Apr. 4	1141	239–40	115	1315
Poutet, Victor J., Marseilles, France. Naval gun-sight	785,434	Mar. 21	2908	615	115	674
Powell, Alfred E., assignor of one-half to M. Wise, Pen Argyl, Pa. Pipe-wrench	786,992	Apr. 11	1589	339	115	1423
Powell, Grahame H., Buffalo, assignor to H. C. Wilson, trustee, New York, N. Y. Combined knife and intrenching-tool	785,829	Mar. 28	3719	792	115	865

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Powell, James R., Los Angeles, Cal., assignor of one-half to H. T. Hazard and G. E. Harpham. Awning-frame	785,435	Mar. 21	2913	615	115	675
Powell, Leighton, U. S. Army. Gun-aling	784,430	Mar. 7	850	177	115	194
Power and Mining Machinery Company. (See Loomis and Pettibone, assignors.)						
Powers, Evander F. (See Currier, John W., assignor.)						
Powers, Francis W. (See Hoffman and Powers.)						
Powers, George V., *et al.* (See Powers, James J., assignor.)						
Powers, James J., assignor to J. G. and G. V. Powers, Centralpark, N. Y. Siphon	786,150	Mar. 28	4372	924	115	1013
Powers, Joseph G., *et al.* (See Powers, James J., assignor.)						
Powers, Richard J., Chicago, Ill. Gate-valve	784,347	Mar. 7	655	135	115	150
Poyet, Claude, deceased, (R. Braasch and C. Triller, executors,) and G. B. M. Goodwin, New York, N. Y. Confectionery-coating machine	785,436	Mar. 21	2914	615–16	115	675
Prahar, Louis B., New York, N. Y. Bearing for handle-caps	786,675	Apr. 4	948	195	115	1272
Prahar, Louis B., New York, N. Y. Mirror-frame	786,676	Apr. 4	949	195	115	1272
Pratt, Allison A., *et al.* (See Patterson, Thomas S., assignor.)						
Preece, Richard J., Ansonia, Conn. Oil-cup for quick-moving bearings	787,466	Apr. 18	2541	550	115	1644
Prentice Brothers Company. (See Newton, Albert E., assignor.)						
Pressed Metal Manufacturing Company. (See Lachman, Laurence S., assignor.)						
Pressed Steel Car Company. (See Dodds, Ethan I., assignor.)						
Pressed Steel Car Company. (See Lindström, Charles A., assignor.)						
Pressed Steel Car Company. (See Lindström and Streib, assignors.)						
Price, Edgar F., G. E. Cox, and J. G. Marshall, assignors to Union Carbide Company, Niagara Falls, N. Y. Electrode for electric furnaces	785,832	Mar. 28	3724	793	115	866
Price, John H., near Mount Cory, Ohio. Wagon-rack	785,760	Mar. 28	3581	765	115	832
Price, John J., Cement City, Mich. Tube-cleaner	784,884	Mar. 14	1811	379	115	420
Price, Larkin G., Kings Valley, Oreg. Gate	787,943	Apr. 25	3531	770	115	1881
Price, William G., assignor to Peckham Manufacturing Company, Kingston, N. Y. Motor suspension for trucks, &c.	788,944	Apr. 25	3533	771	115	1882
Price, William M., Oshkosh, Wis. Pump	787,308	Apr. 11	2214	486	115	1559
Pridmore, Henry E., Chicago, Ill. Molding-machine	784,123	Mar. 7	219	43	115	53
Pries, Herman. (See Williamson and Pries.)						
Priest, Edward L., Oakland, Cal. Extracting metals from ore by electricity	784,885	Mar. 14	1812	379	115	420
Priest, Frank L., Houston, Tex. Hook and eye	785,833	Mar. 28	3726	793	115	867
Prindle, Edwin J., administrator. (See Thomson, Johnston A.)						
Pring, John R., Shawnee, Okla. Ter., assignor of forty-nine one-hundredths to S. H. Burt, Toledo, Ohio. Whiffletree-coupling	787,219	Apr. 11	2037	444	115	1521
Pritchard, Thomas H., London, England. Eyeglasses	784,886	Mar. 14	1813	379	115	421
Probst, John, Milwaukee, Wis. Rotary-piston engine	784,177	Mar. 7	327	67–8	115	77
Procházka, Gustav and K., Velim Austria-Hungary. Hydraulic support for ships	786,840	Apr. 11	1260	265–6	115	1351
Procházka, Karel. (See Procházka, Gustav and K.)						
Proeger, Julius, Pittsburg, Pa. Drawing apparatus for glass-tank furnaces	787,638	Apr. 18	2895	630	115	1727
Protective Tread Company. (See Farmer, Theodore P., assignor.)						
Provost, Peter, Menominee, Mich. Grain-steamer	785,119	Mar. 21	2282	479	115	538
Provost, Peter, Menominee, Mich. Grain-heater	787,396	Apr. 18	2405	520	115	1615
Prue, Frank J., Woonsocket, R. I. Overhead trolley	785,183	Mar. 21	2409	507	115	567
Pugh, John V., Allesley, England. Fastening for wheels, shafts, and cranks	785,071	Mar. 14	2152	454–5	115	495
Pugh, William J., assignor to Automatic Electric Pump Co., Davenport, Iowa. Pressure-controlled electric switch and air-gage	788,329	Apr. 25	4295	934	115	2059
Pullen, Leon W., Philadelphia, Pa., assignor to Wireless Railway Company. Electric railway	788,280	Apr. 25	4197	911	115	2036
Pulsometer Engineering Company. (See Adcock, Edward A., assignor.)						
Pult, Casper J., North Tonawanda, N. Y. Florist's bench	784,756	Mar. 14	1567	323	115	367
Pumphrey, C. H., *et al.* (See Hennessy, Andrews, and Ross, assignors.)						
Punches, Oscar J., Toledo, Ohio. Liquid-container	784,704	Mar. 14	1442	298	115	339
Purdy, Joseph B., Hilo, Hawaii. Triple valve	787,695	Apr. 18	2995	653	115	1749
Pye, Bertram J., Astoria, Oreg. Handhold-sawing machine	784,348	Mar. 7	656	135–6	115	150
Quackenbush, G. W., *et al.* (See Daves, William, assignor.)						
Quaintance, Elsworth E., Como, Colo. Combination-lock	785,834	Mar. 28	3728	794	115	867
Qualk, Jordan T., Duquesne, Pa. Rail-joint	787,220	Apr. 11	2038	445	115	1521
Queen & Co. (See Sayen, Henry L., assignor.)						
Quehl, Herman H., Newport, Ky. Trace-lock	785,378	Mar. 21	2782	587	115	646
Quigley, Wirt S., Philadelphia, Pa. Incandescent vapor-burner	786,381	Apr. 4	295	64	115	1135
Quinlen, William C., Barre, Vt. Stone-cutting apparatus	788,375	Apr. 25	4388	956	115	2079
Quinn, Francis M., Silverking, Idaho. Electrical fuse-primer	784,226	Mar. 7	429	87	115	100
Quinn, Marcus L., Chicago, Ill. Device for teaching music	788,063	Apr. 25	3781	822	115	1940
Quinn, Martin J., assignor of one-half to P. H. Bryce, Toronto, Canada. Automatic flushing apparatus	785,682	Mar. 21	3429	737	115	786
Quinn, Thomas A., Yonkers, N. Y. Reversing-gear for mandrels or other shafts	784,277	Mar. 7	527	108	115	121
Quinn, Thomas H., Cleveland, Ohio. Wheel-fender	787,051	Apr. 11	1707	363	115	1449
Quist, Jacob, *et al.* (See Soderberg, Josef, assignor.)						
R. Thomas and Sons Company. (See Thomas, George W., assignor.)						
R. M. Keating Motor Company. (See Keating, Robert M., assignor.)						
Radovanovic, Andreas, Zurich, Switzerland. Pump	784,178	Mar. 7	329	68	115	77
Ragan, Charles E., Grotto, Tex. Mechanical movement	786,677	Apr. 4	950	195	115	1273
Ragozine, Eugène. (See Pilsoudsky and Ragozine.)						
Railway Materials Company. (See Simpson, William M., assignor.)						
Raines, Henry, and B. F. Gooch, Mason, Tex. Canopy-support	785,571	Mar. 21	3199	678	115	738
Raines, Robert, Chicago, Ill. Self-heating lunch or dinner pail	787,789	Apr. 18	3216	703	115	1799
Ramage, Alexander S., Detroit, Mich. Electrolytic method	787,221	Apr. 11	2040		115	1521
Ramage, Alexander S., Detroit, Mich. Converting lead sulfate into lead hydroxid	787,541	Apr. 18	2695	586	115	1681
Ramage, Alexander S., Detroit, Mich. Utilizing spent pickle liquor	788,064	Apr. 25	3784	822	115	1940
Rambal, Pierre, assignor to Actien-Gesellschaft der Maschinenfabriken von Escher Wyss & Co., Zurich, Switzerland. Steam-turbine	784,431	Mar. 7	853	177–8	115	195
Rambaud, Lucien. (See Tixier and Rambaud.)						
Ramon, Ferdinand L., assignor of one-half to P. D. Bailey, San Francisco, Cal. Hardening iron	784,124	Mar. 7	222		115	53
Ramsey, Henry. (See Giles and Ramsey.)						
Rand, Charles A. A., Chicago, Ill. Harvester	785,761	Mar. 28	3584	765	115	833
Rand Drill Company. (See Parsons, Frederick W., assignor.)						
Randall, Jeremiah B., Elmira, N. Y. Talking-board	785,916	Mar. 28	3876	824	115	900
Ranney, Charles T., assignor to Ranney Refrigerator Company, Greenville, Mich. Bin	784,887	Mar. 14	1815	379	115	421
Ranney Refrigerator Company. (See Ranney, Charles T., assignor.)						
Ranz, Jacob. (See Jacobs, William H., assignor.)						
Raoul-Duval, Maurice. (See Milson, Augustin M., assignor.)						
Rasmussen, Charles O., New York, N. Y. Rule	785,329	Mar. 21	2691	571	115	626

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Rath, Charles. (See Dorn, Christian, assignor.)						
Rath, Henry J., and F. W. Kvech, Pine City, Minn. Cross-line buckle	786,463	Apr. 4	528	104	115	1183
Rathbone, Alfred D. (See McLaughlin, William, assignor.)						
Rathbun, Stephen B., assignor of one-half to J. M. Schofield, Stockton, Cal. Churn-dasher	785,330	Mar. 21	2693	571	115	627
Raudnitz and Pollitz. (See Greenbaum, Oscar, assignor.)						
Rautenberg, Bernard, Toronto, Canada. Head, face, and neck muffler	787,945	Apr. 25	3534	771	115	1882
Rawley, Oren C. (See Johnson and Rawley.)						
Rawlins, Clifton M., Cleveland, Ohio. Dental-floss holder	786,678	Apr. 4	952	196	115	1273
Ray, Fellix G., Roanoke, Tex. Gang-plow	786,679	Apr. 4	953	196	115	1273
Raymer, Albert R., Beaver, Pa. Plant for cleaning and restoring boilers to service condition	788,376	Apr. 25	4389	957	115	2079
Raymond Manufacturing Company. (See Roser, Samuel D., assignor.)						
Rea, Edmund K., Kansas City, Mo. Seeder	787,467	Apr. 18	2542	550	115	1644
Reach, Milton B., assignor to Spalding Manufacturing Co., Chicopee Falls, Mass. Chest-weight apparatus	784,278	Mar. 7	529	109	115	122
Reams, Aron O., Concord, Ill. Fence-post	785,270	Mar. 21	2589	546	115	605
Rearick, Charles B., New York, N. Y. Steam-generator	787,397	Apr. 18	2406	520–1	115	1615
Reckard, Henry L., assignor to A. H. Walker, trustee, New York, N. Y. Photomechanical printing	788,377	Apr. 25	4394	957	115	2080
Record, George J., Conneaut, Ohio. Door, screen, or curtain	786,841	Apr. 11	1262	267	115	1352
Rector, Enoch J., Parkersburg, W. Va. Reversing driving mechanism	784,705	Mar. 14	1443	299	115	339
Redd, Charlie, assignor to I. Pieser and C. G. Livingston, Chicago, Ill. Machine for closing and sealing the tops of cartons	787,696	Apr. 18	2997	654–7	115	1749
Redd, Charlie, Rockford, assignor to I. Pieser and C. G. Livingston, Chicago, Ill. Machine for closing and sealing the bottom flaps of cartons	787,697	Apr. 18	3005	657–60	115	1750
Redden, George E., New York, assignor of one-fourth to G. W. Morehead, Brooklyn, N. Y. Latching device for safety exit-doors	786,680	Apr. 4	955	196	115	1274
Redfield, John H., assignor of one-half to F. Grutt, Denver, Colo., C. and E. Grutt, Davenport, Wash. Means for coupling motors to rock-drills	784,757	Mar. 14	1570	323–4	115	368
Redman, Thomas, Bradford, England. Apparatus for purifying gas	786,681	Apr. 4	956	197	115	1274
Redpath, Robert C., Johnson county, Kans. Force-feed stacker	785,519	Mar. 21	3098	655–6	115	718
Reed, John C., Allegheny, assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Lavatory and lavatory-support	784,962	Mar. 14	1950	409	115	450
Reed, John D., assignor of one-half to M. E. Reed, Boston, Mass. Nut-lock	786,777	Apr. 4	1144	240	115	1316
Reed, Mary E. (See Reed, John D., assignor.)						
Reeder, James C. (See Daniels, Samuel, assignor.)						
Reese, Mark, Augusta, Ark. Fence-stretcher	784,629	Mar. 14	1302	271	115	306
Reeves, Milton O., assignor to Reeves Pulley Company, Columbus, Ind. Speed-varying mechanism	784,758	Mar. 14	1574	324	115	368
Reeves, Milton O., assignor to Reeves Pulley Company, Columbus, Ind. Roller-bearing	785,120	Mar. 21	2283	480	115	538
Reeves, Milton O., assignor to Reeves Pulley Company, Columbus, Ind. Speed-varying mechanism	785,917	Mar. 28	3877	825	115	900
Reeves Pulley Company. (See Reeves, Milton O., assignor.)						
Reichenbach, Henry M., New York, assignor to General Safety Mantle Light Co., Brooklyn, N. Y. Self-carbureting lamp	788,427	Apr. 25	4496	979	115	2102
Reid, Ella M. (See Reid, Samuel D. and E. M.)						
Reid, Samuel D. and E. M., Burlington, Kans. Animal-blanket	785,021	Mar. 14	2051	430	115	473
Reifsneider, Peter W., Limerick township, Montgomery county, Pa. Plow	784,279	Mar. 7	530	109	115	122
Reifsnider, Frank. (See Fisher John W., assignor.)						
Reilly, Robert G., assignor of two-thirds to T. J. Curran, Albuquerque, N. Mex. Ter. Apparatus for the treatment of ores	788,330	Apr. 25	4298	934–5	115	2060
Reiman, George W., Murphysboro, Ill. Weed-hook for plows	788,065	Apr. 25	3785	823	115	1941
Reinecker, Frederick L., Kansas City, Mo. Paper-straightener	785,520	Mar. 21	3104	656	115	720
Reisner, Fred F., assignor to R. L. Barrington, St. Louis, Mo. Toy	784,888	Mar. 14	1817	380	115	421
Reiss, Felix. (See Klemm and Reiss.)						
Reissmann, Frederick. (See Dornberger and Reissmann.)						
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company. Dynamo-electric machine	784,807	Mar. 14	1666	345	115	388
Remick, Harry W., Silverstar, Mont. Stovepipe thimble and clamp	788,066	Apr. 25	3786	823	115	1941
Renard, Charles, Meudon, France. Steam-generator	784,432	Mar. 7	854	178	115	195
Renfrow, William C., trustee. (See Misner, Edgar D., assignor.)						
Renick, James L., Hardyville, Ky. Hanger for quilting-frames	787,790	Apr. 18	3218	703	115	1800
Reno, Jesse W., New York, N. Y. Subway construction	786,382	Apr. 4	297	65	115	1136
Renshaw, William. (See Sullivan and Renshaw.)						
Repath, Charles H., and F. E. Marcy, assignors to F. Klepetko, New York, N. Y. Roasting-furnace	785,437	Mar. 21	2919	616–17	115	676
Repath, Charles H., and F. E. Marcy, assignors to F. Klepetko, New York, N. Y. Roasting-furnace	786,599	Apr. 4	788	162	115	1238
Resor, Edward E., Vanwert, Ohio. Pump	784,593	Mar. 14	1194	251	115	282
Ressland, William G. (See Brattin, John T., assignor.)						
Reuleaux, Josef, Wilkinsburg, assignor to A. Laughlin, Sewickley, Pa. Reversing-valve for regenerative furnaces	787,222	Apr. 11	2040	445–6	115	1521
Reuleaux, Josef, Wilkinsburg, assignor to A. Laughlin, Sewickley, Pa. Gas-producer	788,378	Apr. 25	4404	957	115	2082
Reutlinger, Emil C. (See Matthey and Reutlinger.)						
Reynolds, George H., Mansfield Depot, Conn. Pipe-coupling	787,791	Apr. 18	3219	703–4	115	1800
Reynolds, William N., Pierre, S. D. Ventilating apparatus for buildings	784,963	Mar. 14	1952	409	115	450
Rhoads, Arthur, Coyle, Okla. Ter. Display-rack	784,070	Mar. 7	121	21	115	30
Rhodes, Jay B., Harvey, Ill. Fluid-actuated valve	785,918	Mar. 28	3879	825	115	901
Rhodes, Joshua, *et al.* (See Duff, John T., assignor.)						
Rhodes, Levi, assignor to Motor Traction Company, Spokane, Wash. Vapor-burner	788,067	Apr. 25	3788	823	115	1941
Rhodes, Levi, assignor to Motor Traction Company, Spokane, Wash. Steam-boiler	788,068	Apr. 25	3789	824	115	1941
Rhoy, Con P., Stirling City, Cal. Rotary engine	784,179	Mar. 7	331	68–9	115	78
Riber, George C. (See Kinzig and Riber.)						
Ribert, Joseph M., assignor to National Novelty Corporation, New York, N. Y. Coffee-mill	786,151	Mar. 28	4373	924–5	115	1013
Riblet, Byron C., Spokane, Wash. Search-light for revolvers or other firearms	784,227	Mar. 7	430	87	115	100
Rice, Blanchard F., Milford, N. H. Curtain-fixture	786,682	Apr. 4	958	198	115	1274
Rich, Abraham L., Pittsburg, Pa. Method of rock-facing	788,379	Apr. 25	4407	958	115	2083
Richards, Alva C., Tomah, Wis., assignor of one-half to W. L. O'Malley, Davenport, Iowa. Air-brake system	786,383	Apr. 4	299	65	115	1136
Richards, John, San Francisco, Cal., assignor to Turbine Pump Company, Jersey City, N. J. Turbine-pump	786,384	Apr. 4	301	65–6	115	1137
Richards, Morris P., Utica, N. Y., assignor to Clough-Mauser Arms Company. Magazine bolt-gun	784,630	Mar. 14	1303	272	115	307

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Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-axle box	786,993	Apr. 11	1590	339–40	115	1423
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-axle box	786,994	Apr. 11	1591	340	115	1423
Richards, Willard F., Buffalo, and W. A. Turbayne, Lancaster, assignors, by mesne assignments, to Gould Coupler Company, New York, N. Y. Electric-lighting apparatus for railway-cars	784,071	Mar. 7	122	22	115	31
Richards, William J., Rockwood, Tenn. Mine water-car	787,112	Apr. 11	1823	390	115	1474
Richardson, C. N. (See Biel, Thies, assignor.)						
Richardson, George G., Sayre, Okla. Ter. Cotton-picker's wagon	786,995	Apr. 11	1593	340	115	1424
Richardson, Henry, New York, N. Y. Weighing-machine	786,152	Mar. 28	4374	925	115	1013
Richardson, Henry B., assignor to Smith & Richardson, Attleboro, Mass. Bracelet	788,221	Apr. 25	4091	886	115	2013
Richardson, Mark F., New York, N. Y. Piano-case	784,631	Mar. 14	1309	272	115	308
Richardson, Solon O., Jr., Toledo, Ohio. Globe. (Reissue)	12,326	Mar. 21	3464	745	115	793
Richardson, William J. (See Glatt, Otto, assignor.)						
Richey, William F., and T. Daly, Paris, Tex.; said Richey assignor to said Daly. Liquid-fuel burner	785,271	Mar. 21	2591	547	115	605
Richie, John N., Allerton, Iowa. Knife and shears sharpener	785,048	Mar. 14	2103	443	115	485
Richmond, Rexford B., Malvern, Iowa. Shoulder-brace and suspenders	786,153	Mar. 28	4378	926	115	1014
Richwood, Clarence H., Boston, Mass. Regulating and indicating device for compressed air	784,228	Mar. 7	432	87	115	100
Richwood, Clarence H., Dorchester, Mass. Fluid-actuated vibrator	786,050	Mar. 28	4174	879	115	968
Ricketts, William M., assignor of one-half to C. E. Bright, Columbus, Ohio. Inhaler	784,632	Mar. 14	1310	273	115	308
Rickords, Samuel B., assignor of one-half to W. O. Jamison, Seymour, Iowa. Coping for graves	785,072	Mar. 14	2155	455	115	495
Riddle, Milford, assignor of two-thirds to J. F. Slinkard and J. A. Phillips, Bloomfield, Ind. Lifting-jack	785,572	Mar. 21	3201	679	115	739
Riebensahm, Walter, Berlin, Germany. Manufacturing limpid solutions of agar-agar and product of same	784,349	Mar. 7	658	.....	115	150
Rieger, Herman M. (See Sackett and Rieger.)						
Rieger, Jean J., Lure, France. Apparatus for disconnecting belt-gearing	787,398	Apr. 18	2410	521	115	1616
Rietzel, Adolph F., assignor to Thomson Electric Welding Company, Lynn, Mass. Electric welding-machine	785,379	Mar. 21	2784	588–9	115	646
Rigney, Joseph, New York, N. Y. Apparatus for extracting sugar-juice	786,154	Mar. 28	4380	926	115	1015
Riley, Frank T., Kansas City, Mo. Amusement device	787,792	Apr. 18	3221	704	115	1800
Riley, James E. (See Vanderslice and Riley.)						
Riley, John, Scio, N. Y. Bag-holder	784,594	Mar. 14	1196	252	115	283
Rineck, Michael M. (See Bryan, George F., assignor.)						
Rinehart, Bentley L., Camden, N. J., assignor to Victor Talking Machine Company. Device for securing sound-box needles	788,281	Apr. 25	4199	911	115	2037
Ringo, Claude T., Little Rock, Ark. Paper-weight	785,573	Mar. 21	3205	679	115	739
Ringset Company. (See Ford, William H., assignor.)						
Rioux, Joseph F., assignor of one-half to A. A. Greene & Co., Providence, R. I. Bracelet	787,639	Apr. 18	2897	631	115	1728
Ripson, John D., East Pepperell, Mass. Casket-inclosing case	785,380	Mar. 21	2791	589	115	647
Risbridger, Milton W. (See Risbridger, William C. and M. W.)						
Risbridger, William C. and M. W., Cleveland, Ohio. Explosive-engine	785,229	Mar. 21	2509	528–9	115	587
Rischke, Jacob, Idlewood, assignor of one-third to J. Gottfried, Pittsburg, Pa. Floor-polishing apparatus	785,762	Mar. 28	3586	766	115	833
Rishel, William H., Danville, Pa. Boltless rail-chair	787,468	Apr. 18	2544	551	115	1645
Risley, George H. (See Devoll and Risley.)						
Ritchie, Albert J., Minneapolis, Minn. Combination cozy-corner seat and bed	785,763	Mar. 28	3587	766–7	115	834
Rittersbach, Albert, assignor of three-eighths to J. F. Gaehring and R. B. Rittersbach, Philadelphia, Pa. Car-coupling	784,889	Mar. 14	1818	380	115	421
Rittersbach, Robert B., *et al.* (See Rittersbach, Albert, assignor.)						
Ritz, Robert E. (See Ball and Ritz.)						
Rivers, Julian H., assignor to United States Fiber Stopper Company, St. Louis, Mo. Hollow pulp article	785,683	Mar. 21	3431	737	115	786
Rivkin, Bert, New York, N. Y. Combination match-safe and cigar-cutter	788,331	Apr. 25	4301	935	115	2061
Rix, Charles N. (See Parker, William H., assignor.)						
Roach, Robert C., Hutchinson, Kans. Storehouse for grain or the like	785,521	Mar. 21	3106	657	115	720
Roath, William S., Canton, Ohio. Water-heater	784,964	Mar. 14	1954	410	115	451
Robb, Lewis J., assignor to Heyl & Patterson, Pittsburg, Pa. Car-haul	786,517	Apr. 4	641	129	115	1206
Robbins, Chandler. (See Griffis, French, assignor.)						
Robbins, Cordilleras L., Pekin, Ill. Grain-car door	786,314	Apr. 4	142	33	115	1101
Robbins, Hezekiah A., Bedford, Iowa. Machine for molding hollow cement blocks	785,272	Mar. 21	2593	547	115	605
Robbins, Zenas C., Washington, D. C. Railway-tie	787,399	Apr. 18	2412	521	115	1617
Roberts, Clarence V., Philadelphia, Pa. Burner-support for gas or vapor stoves	784,433	Mar. 7	856	178	115	195
Roberts & Company, James H. (See Langlands, Daniel G., assignor.)						
Roberts, Frank, Jr. (See Bourget and Roberts.)						
Roberts, Frederick A., Somerville, Mass. Combined bolt-clipper and shears	785,230	Mar. 21	2511	529	115	588
Roberts, Isaiah L., New York, N. Y. Electrode for arc-lamps and making same	786,518	Apr. 4	644	130	115	1207
Roberts, James L., Winfield, Mo. Bee-feeder	784,072	Mar. 7	124	22	115	31
Roberts, John, New York, N. Y. Pulley clothes-line	787,698	Apr. 18	3009	660	115	1751
Roberts, John G., assignor to Western Electric Company, Chicago, Ill. Apparatus for telephone-exchange systems	787,113	Apr. 11	1825	390	115	1474
Roberts, Weldon, Glenridge, and G. S. Coxe, Newark, N. J., assignors to C. Roberts Rubber Company. Composition for polishing and abrading tools	785,231	Mar. 21	2513	529	115	588
Robertshaw, Frederick W., Pittsburg, Pa. Heating system	784,073	Mar. 7	125	22–3	115	31
Robertson, Dennis R., Leadville, Colo. Reducing ores	786,051	Mar. 28	4176	880	115	969
Robertson, George F., assignor of one-half to A. N. Rodgers, Paris, Tex. Nut-lock	785,919	Mar. 28	3884	825	115	902
Robertson, James P., Sydney, New South Wales, Australia. Electrical fire-alarm apparatus	787,344	Apr. 11	2282	497–8	115	1574
Robeson Cutlery Company. (See Cooper, James E., assignor.)						
Robeson, Robert I., South Omaha, Nebr. Keyhole-guard	786,842	Apr. 11	1267	267	115	1353
Robin, Max, New York, N. Y. Hook or hanger	785,381	Mar. 21	2792	589	115	648
Robinson, Charles, *et al.* (See Penberthy and Pitchford, assignors.)						
Robinson, Edward T., St. Louis, Mo. Window-sash for street-cars	784,706	Mar. 14	1444	299	115	339
Robinson, Edward T., St. Louis, Mo. Window construction	784,707	Mar. 14	1446	300	115	340
Robinson, Edward T., assignor to St. Louis Car Company, St. Louis, Mo. Combined vestibule door and gate for railway-cars	787,640	Apr. 18	2899	631	115	1728
Robinson, Edward T., assignor to St. Louis Car Company, St. Louis, Mo. Guard and sash-retainer for street-cars	787,641	Apr. 18	2901	631–2	115	1728
Robinson, Edward T., assignor to St. Louis Car Company, St. Louis, Mo. Combined door and gate keeper for street-car vestibules	788,428	Apr. 25	4500	979	115	2103
Robinson, Edwin L., North Attleboro, Mass. Billiard-cue tip	788,069	Apr. 25	3793	824	115	1943
Robinson, Glenn A., Geneseo, Ill. Umbrella-holder	784,501	Mar. 7	1011	210	115	226

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Robinson, Harry S., Toledo, Ohio. Combined steam-cooker and hot-air oven	785,764	Mar. 28	3589	767	115	834
Robinson, Joshua, Lawrence, Mass. Loom-protecting-mechanism controller	787,114	Apr. 11	1828	391	115	1475
Robinson, Verner A., Florence, Colo. Ore agitator and filter	785,522	Mar. 21	3111	657	115	721
Robinson, William F., and C. F. Broadhurst, Kansas City, Mo. Electric signaling system	786,843	Apr. 11	1268	267–8	115	1353
Robinson, Z. T. (See Brosius, Aaron, assignor.)						
Robison, Elmer S. (See Middleton, James F., assignor.)						
Rocke, John, Meadows, Ill. Portable grain dump and elevator	784,180	Mar. 7	332	69	115	78
Rodd, Charles, *et al.* (See Wood, Norman B., assignor.)						
Rodd, Robert J., *et al.* (See Wood, Norman B., assignor.)						
Rodgers, Archie N. (See Robertson, George F., assignor.)						
Roe, Noble H., Marceline, Mo. Yoke construction	787,642	Apr. 18	2902	632	115	1729
Roebuck, Alvah C., Chicago, Ill. Lens-box for stereopticons, &c	786,052	Mar 28	4178	880	115	969
Roediger, Jacob, assignor to St. Louis Car Company, St. Louis, Mo. Car-brake	787,643	Apr. 18	2903	632	115	1729
Roessler & Hasslacher Chemical Company. (See Foerstering and Philipp, assignors.)						
Roessler & Hasslacher Chemical Company. (See Liebknecht, Otto, assignor.)						
Roevens, Albert E., New Orleans, La. Pipe-covering	785,765	Mar. 28	3590	767	115	835
Roever, Julius, and S. S. Baldwin, New York, N. Y. Moving-picture exhibitor	786,683	Apr. 4	959	198–9	115	1274
Rogan, Daniel. (See Thompson, John H., assignor.)						
Rogers, John M. (See Hamor, John M., assignor.)						
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	786,155	Mar. 28	4382	926–7	115	1015
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	786,156	Mar. 28	4387	927	115	1016
Rogers, Knight E., South Manchester, Conn. Paper-machine	786,996	Apr. 11	1594	341	115	1424
Rogers, Winfield S., Bantam, assignor to J. L. Buell, Litchfield, Conn. Ball-bearing hanger	786,315	Apr. 4	143	33	115	1101
Rohrdantz, Henry, Buffalo, N. Y. Guard for scarf-pins, &c	787,993	Apr. 25	3642	793	115	1907
Rokusek, Anton J., Tabor, S. D. Corn-husker	787,793	Apr. 18	3224	704	115	1801
Rolfes, George H., assignor to Handlan-Buck Manufacturing Company, St. Louis, Mo. Font for lamps or lanterns	787,644	Apr. 18	2904	632–3	115	1729
Romoach, John, Weston, W. Va. Pouch-transferring means	786,519	Apr. 4	645	130	115	1207
Rommer, Isaac A., Newark, N. J. Bottle-stopper	784,350	Mar. 7	660	136	115	151
Rood, John, Danvers, Mass. Operating-tool for leather-working machines or the like	785,022	Mar. 14	2053	431	115	473
Roome, William G., Los Angeles, Cal. Signal system for railways	786,316	Apr. 4	145	33	115	1101
Roos, Theophilus, Newark, N. J. Manufacturing hair-pins or the like	787,400	Apr. 18	2413	522	115	1617
Root, Mancil V., Sheboygan, assignor to T. E. Camp, Milwaukee, Wis. Harness attachment	784,965	Mar. 14	1956	410	115	451
Roper, Charles F., assignor to Draper Company, Hopedale, Mass. Shuttle-positioning means for filling-replenishing looms	787,469	Apr. 18	2546	551	115	1645
Rose, Henry J. F., Chesham, England. Machine for dressing or separating flour, &c	784,229	Mar. 7	434	87	115	101
Rose, Jonn L., *et al.* (See Byrd, Britton E., assignor.)						
Rose, Lawrence J., St. Louis, Mo. Music-leaf turner	786,157	Mar. 28	4388	927–8	115	1016
Rose Manufacturing Company. (See Gurr, William P., assignor.)						
Rosenfeld, Carl, Berlin, Germany. Illusion apparatus	787,589	Apr. 18	2795	609	115	1704
Rosenfeld, Carl, Berlin, Germany. Apparatus for producing illusory effects	787,946	Apr. 25	3535	772	115	1883
Rosenthal, Edward, Cincinnati, Ohio. Ball-and-bat game	786,997	Apr. 11	1596	341	115	1425
Rosentreter, Albert J., Boonton, assignor to himself, G. Hannay, East Orange, N. J., and T. Hannah, Pittsburg, Pa. Hinge for double-swing doors	787,699	Apr. 18	3011	661	115	1751
Roser, Samuel D., assignor to Raymond Manufacturing Company, Los Angeles, Cal. Oil-burner	784,434	Mar. 7	857	179	115	196
Ross, Charles B., Parma, Idaho. Device for cleaning combs	787,470	Apr. 18	2550	551	115	1646
Ross, Charles E. (See Hennessy, Andrews, and Ross.)						
Ross, Charles P., Seattle, Wash. Butter-cutter	785,978	Mar. 28	4019	852–3	115	932
Ross, Elmore P., assignor to E. W. Ross Company, Springfield, Ohio. Manure-spreader	787,401	Apr. 18	2413	522–3	115	1617
Ross, Frederick S., *et al.* (See Scribner, Elbridge A., assignor.)						
Ross, Frederick W. F. (See Ciantar and Ross.)						
Ross, Henry W. Springfield, Mass. Door-stop	786,158	Mar. 28	4391	928	115	1017
Ross, Joseph. (See Travis, James E., assignor.)						
Ross, William, Montreal, Canada. Metal-shaping machine	786,033	Mar. 28	4179	880–1	115	969
Ross, William, Montreal, Canada. Hydraulic motor for presses	786,236	Mar. 28	4331	960	115	1045
Ross, William, Montreal, Canada. Punch	787,052	Apr. 11	1708	364	115	1450
Roth and Engelhardt. (See Hobart, Adam J., assignor.)						
Roth, Henry G., Minneapolis, Minn. Display-bin	785,232	Mar. 21	2514	530	115	588
Roth, Ludwig, St. Louis, Mo. Mechanical stoker	785,835	Mar. 28	3731	794	115	968
Roth, Samuel, Winnemucca, Nev. Hay-rake	784,230	Mar. 7	435	88	115	101
Rothschild, Moses L., New York, N. Y. Suspender-buckle	785,920	Mar. 28	3885	826	115	903
Rothschild, Moses L., New York, N. Y. Triangle clasp	786,385	Apr. 4	303	66	115	1137
Rothwell, Charles F. S. (See Thornton and Rothwell.)						
Rought, Cordean A., assignor of one-half to F. N. Schoonmaker, Lestershire, N. Y. Curtain and shade fixture	786,998	Apr. 11	1597	341	115	1425
Rounds, Guy U., Maryville, Mo. Axle-skein	786,159	Mar. 28	4393	928	115	1017
Rounseville, Christine N., Chicago, Ill. Heat-storage box	786,999	Apr. 11	1598	342	115	1425
Rousseau, Canfield J., Bridgeport, and E. C. Ferris, Stamford, Conn., assignors, by mesne assignments, to Universal Kerosene Engine Company. Gas-engine	784,759	Mar. 14	1575	325	115	369
Rousseau, Canfield J., Bridgeport, and E. C. Ferris, Stamford, Conn., assignors, by mesne assignments, to Universal Kerosene Engine Company. Gas-engine	784,760	Mar. 14	1576	325	115	369
Rowand, Lewis G., Camden, N. J., assignor to Wetherill Separating Company. Magnetic ore-separator	784,502	Mar 7	1012	210	115	226
Rowbotham, William H. (See Getty, Fred I., assignor.)						
Rowe, Alfred N., Donaldson, Minn. Churn	788,070	Apr. 25	3793	824	115	1943
Rowe, Samuel C., Somersworth, N. H. Machine for automatically folding cloths in vats	786,160	Mar. 28	4394	928–9	115	1017
Rowlett, Hickman, Jackson, Tenn. Umbrella-support	786,600	Apr. 4	791	162	115	1239
Rowley, Aaron V. (See Neveux, Fortuné, assignor.)						
Rowley, Willson H., and J. H. Montgomery, assignors of one-third to M. Shaughnessy, St. Louis, Mo. Manufacturing white lead	785,023	Mar. 14	2054	431	115	474
Roy, Charles J., Pasadena, Cal. Scaffold	786,054	Mar. 28	4184	881	115	971
Roy, Henry, Paris, France. Preparing masse-cuite	786,601	Apr. 4	793	163	115	1239
Roy, Sylvanus B., Worcester, Mass. Card-grinding machine	787,794	Apr. 18	3225	705	115	1801
Royal Glass Jar and Bottle Company. (See Lazaref, Mathias A., assignor.)						
Royle, Vernon, Paterson, N. J. Oil-cup	784,280	Mar. 7	532	109	115	123
Rubens, Léon F., and B. I. Levi, New York, N. Y. Coin-controlled mechanism	784,351	Mar. 7	664	137	115	152
Rubin, William, South Omaha, Nebr. Can-cleaning machine	784,504	Mar. 7	1015	211	115	227

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rücker, Karl, and D. J. Pickée, Berlin, Germany. Preservative for foods, &c.	784,503	Mar. 7	1014	.....	115	227
Rüdiger, Karl, Obermassfeld, Germany. Fish-net	786,055	Mar. 28	4187	881-2	115	971
Rudisch, Phineas, New York, N. Y. Bag-fastening	787,000	Apr. 11	1601	342	115	1426
Rudolph, Joseph E., Upper Darby, Pa. Suction-roll for paper-making machines	787,402	Apr. 18	2417	523	115	1617
Rudometoff, Michael, Gottschina, Russia. Wiper for copper-plate-printing machines	787,542	Apr. 18	2606	586	115	1681
Rue, Ross, Alliance, Ohio. Ditching-jact	784,890	Mar. 14	1819	380	115	422
Ruf, Frank A., St. Louis, Mo. Granulator	788,429	Apr. 25	4501	979-80	115	2103
Runbeck, William B., Washington, D. C. Fire-hose nozzle	786,684	Apr. 4	962	199	115	1275
Rundahl, Olof J. (See Nordenberg, John, assignor.)						
Rush, Allan C., Los Angeles, Cal. Injector-burner	784,505	Mar. 7	1017	211-12	115	228
Rush, Samuel F., *et al.* (See Hayward, Eugene, assignor.)						
Rushmore, Samuel W., Plainfield, N. J. Power-transmitting device	784,352	Mar. 7	666	137	115	152
Russ, Harvey M., Woodstock, Canada. Machine for piling lumber or timber	784,181	Mar. 7	336	69	115	79
Russell, Clayton W., Springfield, Ohio. Steering mechanism for motor-vehicles	787,471	Apr. 18	2551	552	115	1646
Russell & Erwin Manufacturing Company. (See Caley, Charles J., assignor.)						
Russell, James M., Flora, Ill. Folding crate	787,645	Apr. 18	2906	633	115	1730
Russell, Jesse M., *et al.* (See Forbes, Henry M., assignor.)						
Russell, John J., Milton, assignor to J. Channon, Pakenham, New South Wales, Australia. Seal-lock	785,574	Mar. 21	3206	680	115	739
Russell, Robert H., assignor of one-half to C. W. Arnold and W. L. Sheldon, Galveston, Tex. Hydraulic pump	784,435	Mar. 7	859	179	115	196
Russell, Thomas W., Storrs, Mont. Bottle	787,309	Apr. 11	2215	486	115	1559
Rutenber, Edwin A., assignor to Western Motor Company, Logansport, Ind. Internal-combustion engine	785,684	Mar. 21	3432	738-9	115	787
Ruth Automatic Knitting Machine Company. (See Ruth, George W., assignor.)						
Ruth, George W., York, Pa., assignor to Ruth Automatic Knitting Machine Company. Stop-motion for knitting-machines	787,115	Apr. 11	1830	391-2	115	1475
Rydquist, Adolph, Rochester, N. Y. Vending-machine	787,795	Apr. 18	3227	705	115	1801
Rydquist, Adolph, Rochester, N. Y. Puzzle	787,796	Apr. 18	3230	706	115	1802
Ryon, Eppa H., Worcester, Mass., assignor to Crompton & Knowles Loom Works. Pick-finder mechanism	785,575	Mar. 21	3207	680	115	740
Ryther, Frank A., Chicago, Ill. Shield for rice-harvesters	786,520	Apr. 4	647	130	115	1208
S. F. Bowser & Company. (See Bowser, Sylvanus F., assignor.)						
Saart, Albert G., Attleboro, Mass., assignor to James E. Blake Company. Girdle	784,891	Mar. 14	1820	380	115	422
Sackett, Charles E., assignor to Sackett-Marshall Shuttle Company, Fall River, Mass. Hand-threading loom-shuttle	784,761	Mar. 14	1578	325	115	370
Sackett, Darius P. (See Hamilton, John R., assignor.)						
Sackett-Marshall Shuttle Company. (See Sackett, Charles E., assignor.)						
Sackett, Orville R., and H. M. Rieger, Niagara Falls, N. Y. Draft-regulator for steam-boilers	785,049	Mar. 14	2104	443	115	485
Safety Tread Syndicate. (See McClelland, John J., assignor.)						
Salenius, Eric G. N., Stockholm, Sweden. Centrifugal separating apparatus	784,231	Mar. 7	437	88	115	102
Salomon, Mark, Chicago, Ill. Store-front	787,053	Apr. 11	1711	364	115	1451
Salsgiver, Linis H., Salem, Ohio. Water-heater	785,576	Mar. 21	3209	680	115	740
Saltiel, Leopold. (See Nussbeck, Richard, assignor.)						
Saltzgaber, Will R., and C. J. Carmichael, Knoxville, Tenn. Soap-dispensing apparatus	787,700	Apr. 18	3013	661	115	1752
Sanborn, Cora A., Chicago, Ill. Railway-track appliance	786,919	Apr. 11	1435	304	115	1390
Sanborn, Cora A., Chicago, Ill. Railway-track appliance	786,920	Apr. 11	1437	304	115	1390
Sanden, Albert T., New York, N. Y. Galvanic-battery cell	784,125	Mar. 7	223	44	115	54
Sanders, Elias P., Pana, Ill. Foot-warmer	787,403	Apr. 18	2418	523	115	1618
Sanders, Joseph, Washington, D. C. Gramophone	785,766	Mar. 28	3591	767	115	835
Sanders, Joseph, Washington, D. C. Composition of matter for sound-record tablets	787,001	Apr. 11	1602	342	115	1426
Sanders, William J., Murfreesboro, Tenn. Wrench	786,844	Apr. 11	1270	268	115	1353
Sandfield, Auguste, Swissvale, Pa. Rubber horseshoe	785,577	Mar. 21	3211	681	115	740
Sands, Robert. (See Thomas, John, assignor.)						
Sanford, Oliver P., assignor of three-fifths to J. H. and C. H. Ellie and S. O. Sanford, Dadeville, Ala. Seeder and planter	786,161	Mar. 28	4397	929-30	115	1017
Sanford, S. O., *et al* (See Sanford, Oliver P., assignor.)						
Sanger, Roderick M., East Orange, N. J. Dental pliers for shaping clasps and half-collar crowns	787,947	Apr. 25	3536	772	115	1883
Särchinger, Paul A., Plauen, Germany. Brush	785,273	Mar. 21	2594	547	115	606
Sarfert, Max, Philadelphia, Pa. Dyeing-machine	786,162	Mar. 28	4399	930	115	1018
Sargent, Charles E., Chicago, Ill. Pressure-gage	785,438	Mar. 21	2923	617	115	677
Sartain, Louis M., Clouse Hill, assignor to L. M. Hines, Tracy City, Tenn. Train-pipe coupling	784,182	Mar. 7	338	70	115	79
Sauer, George L. (See Fairbanks and Sauer.)						
Saunders, Addison T., Akron, Ohio. Manufacture of playing-balls	785,184	Mar. 21	2411	507	115	567
Saunders, Samuel L., Winthrop, Mass. Bow-gun	785,050	Mar. 14	2105	444	115	485
Savage, Arthur C. (See Corey and Savage.)						
Savage, Thomas A., Kansas City, Mo. Car-coupling	785,382	Mar. 21	2793	590	115	648
Savey, Louis J. B., Chamousset, France. Driving and change-speed gear for velocipedes, &c.	787,002	Apr. 11	1603	343	115	1426
Savidge, Joseph R., *et al.* (See Ivins, Frederick F., assignor.)						
Savoye, Emile, Paris, France. Corset	786,685	Apr. 4	964	199	115	1275
Sawin, Lee C., Fullerton, Cal. Jar-closure	788,495	Apr. 25	4618	1007	115	2127
Saworski, Frederick W., Walpole, Mass. Spindle and bobbin connector	788,282	Apr. 25	4201	911	115	2038
Sawtelle, Charles A., assignor to Sawtelle Rotary Motor Company, San Francisco, Cal. Revoluble explosive-engine	784,808	Mar. 14	1667	345-6	115	388
Sawtelle Rotary Motor Company (See Sawtelle, Charles A., assignor.)						
Sawyer, Edward H., Jr., and H. Judik, Baltimore, Md. Smoke-house	786,602	Apr. 4	795	163	115	1239
Sawyer, Frank M., Charlotte, N. C. Mold	785,578	Mar. 21	3212	681	115	741
Sawyer, Frank M., Charlotte, N. C. Mold for molding roofing or other tiles	785,636	Mar. 21	3326	711	115	765
Sawyer Spindle Company. (See Draper, George O., assignor.)						
Sawyer Spindle Company. (See Kelly, Harold, assignor.)						
Sawyer Spindle Company. (See Morse, Andrew D., assignor.)						
Sawyer, Walter P., Jonesport, Me. Harness-saddle	787,994	Apr. 25	3643	793	115	1907
Saxton, Thomas G., Lexington, assignor of two-thirds to E. and W. B. Hawkins, Fayette county, Ky. Rotary motor	784,074	Mar. 7	127	23	115	32
Sayen, Henry L., Philadelphia, Pa., assignor to Queen & Co. Perimeter	785,439	Mar. 21	2925	617-18	115	678
Scales, Joseph. (See Edmands and Scales.)						
Scanlon, Timothy. (See Liberman and Scanlon.)						
Scarles, Benjamin, Stockton, assignor to Pacific Steel & Wire Company, San Francisco, Cal. Wire fabric	784,892	Mar. 14	1822	381	115	422
Schacht, Frank, Limespring, Iowa. Pneumatic grain-elevator	784,281	Mar. 7	533	110	115	123

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Schade, Albert F. (See Schade, Edmund A. and A. F.)						
Schade, Edmund A. and A. F., assignors to Stanley Rule & Level Company, New Britain, Conn. Plane	787,054	Apr. 11	1712	364	115	1451
Schafer, Louis, St. Louis, Mo. Bottle-cleaning machine	787,858	Apr. 18	3353	734-5	115	1829
Schaffer, John T., assignor, by mesne assignments, to Schaffer Press Company, Rochester, N. Y. Hydraulic press	784,183	Mar. 7	340	70	115	79
Schaffer Press Company. (See Schaffer, John T., assignor.)						
Schalkenbach, Robert N., Jersey City, N. J. Astragal bracket	784,232	Mar. 7	439	88	115	102
Schall, Joseph, Evergreen Park, Ill. Building-block	788,283	Apr. 25	4203	912	115	2038
Schall, Joseph, Evergreen Park, Ill. Interlocking building-block	788,430	Apr. 25	4502	980	115	2104
Schaller, Wilhelm, New York, N. Y. Whirling toy	787,404	Apr. 18	2420	523	115	1618
Schantz, Edwin M., Zimmerman, Ohio. Duplicating defect-tracer	784,633	Mar. 14	1311	273	115	309
Schatzmann, Arnold S., Chaux-de-Fonds, Switzerland. Watch	785,440	Mar. 21	2929	618	115	679
Schaum, Otto W., Philadelphia, Pa. Narrow-ware loom	786,237	Mar. 28	4533	960-1	115	1046
Schenck, Rudolph, assignor to J. Williamson, Chicago, Ill. Valve for gas-generators	786,603	Apr. 4	796	163-4	115	1240
Schieble, William E., Miamisburg, Ohio. Railway signal system	784,893	Mar. 14	1823	381	115	422
Schielke, Herman, Cleveland, Ohio, and E. Steinmann, Davenport, Iowa. Corn-planter	786,604	Apr. 4	799	164-5	115	1240
Schierberg, Frederick A., St. Louis, Mo. Car-register	784,353	Mar. 7	668	137-8	115	153
Schiffbauer, Daniel, Stauffer, Pa. Combined engine and air-compressor	784,595	Mar. 14	1197	252	115	283
Schirra, Julius, assignor of one-half to G. S. Wilson, Pittsburg, Pa. Fireproof building construction	788,071	Apr. 25	3795	825	115	1943
Schlangen, Simon, Chicago, Ill. Filling apparatus for liquids	785,579	Mar. 21	3213	681	115	741
Schleussner, Moritz, Bredeney, near Essen-on-the-Ruhr, assignor to F. Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Metallic piling	784,596	Mar. 14	1199	252-4	115	283
Schlickeysen, Carl, Steglitz, Germany. Peat-compressing machine	785,274	Mar. 21	2595	547	115	606
Schliepmann, Karl, St. Charles, assignor to St. Louis Car Company, St. Louis, Mo. Trap-door for car-vestibule floors	785,637	Mar. 21	3327	711	115	765
Schliepmann, Karl, St. Charles, assignor to St. Louis Car Company, St. Louis, Mo. Convertible car seat and berth	787,646	Apr. 18	2907	633	115	1730
Schlueter, Henry, Scribner, Nebr. Device for the breaking in of horses	787,797	Apr. 18	3232	706	115	1802
Schmalz, Otto H., Huntley, Ill. Berry-box	787,116	Apr. 11	1833	392-3	115	1476
Schmidt, Albert, Rome, N. Y. Metal-plating	786,605	Apr. 4	802	165	115	1241
Schmidt, Charles E. (See Benkert, William C., assignor.)	785,979	Mar. 28	4025	853	115	934
Schmidt, Ferdinand, Breslau, Germany. Safety tap or cock	785,331	Mar. 21	2695	571	115	627
Schmidt, Fredrick R., San Francisco, Cal. Cake-mixer	785,332	Mar. 21	2696	571-2	115	627
Schmidt, Ida W. (See Dengler and Schmidt.)						
Schmidt, Robert E., Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Greenish-blue anthraquinone dye	785,121	Mar. 21	2284	.....	115	538
Schmidt, Robert E., Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Green-blue anthraquinone dye	785,122	Mar. 21	2285	.....	115	538
Schmidt, Robert E., Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Green anthraquinone dye	785,123	Mar. 21	2286	.....	115	538
Schmidt, Wilhelm, Lambrecht, Germany. Rag-engine	787,543	Apr. 18	2698	587	115	1682
Schmidt, Wilhelm, Wilhelmshöhe, near Cassel, Germany. Superheater for tube-boilers	788,169	Apr. 25	3997	863	115	1993
Schmidt, Wilhelm, Wilhelmshöhe, near Cassel, Germany. Superheater for flue-boilers	788,170	Apr. 25	3999	863	115	1994
Schmieder, Frederick, New York, N. Y. Dish-drainer	788,431	Apr. 25	4503	980	115	2104
Schmittle, George, Altoona, Pa. Trap	786,163	Mar. 28	4401	930	115	1018
Schmoyer, Frank, *et al.* (See Graham, Elias, assignor.)						
Schneider, Cathrine, assignor to Hilker-Wiechers Manufacturing Company, Racine, Wis. Wearing-apparel	785,124	Mar. 21	2287	480	115	538
Schneider, Charles P. E., Le Creuzot, France. Firing mechanism for breech-loading guns	788,432	Apr. 25	4505	981	115	2104
Schneider, Eugene W., New York, N. Y., assignor of three-fourths to H. Wertheim, H. F. Mohler, and M. Wertheim. Massage apparatus	784,809	Mar. 14	1671	346	115	390
Schneider, John C., Winona, Minn. Steam-boiler	784,894	Mar. 14	1824	381-2	115	423
Schoelkopf, William C., Madison, Wis. Shaft and plunger connection	785,767	Mar. 28	3594	768	115	835
Schofield, James M. (See Rathbun, Stephen B., assignor.)						
Scholl, John, Joplin, Mo. Pump	787,117	Apr. 11	1836	393	115	1475
Scholl, Roland H., Karlsruhe, and O. Bally, Mannheim, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Anthracene compound and making same	787,859	Apr. 18	3356	.....	115	1830
Schommer, Nicholas C., Chicago, Ill. Lifting-door	784,895	Mar. 14	1825	382	115	423
Schommer, Nicholas C., Chicago, Ill. Hinged lifting-door	784,896	Mar. 14	1826	382	115	423
Schoonmaker, Fred N. (See Rought, Cordean A., assignor.)						
Schouboe, Jens T. S., Copenhagen, Denmark. Self-loading small-arms	785,275	Mar. 21	2596	548-9	115	606
Schrader, Ernest C., Pittsburg, Pa. Grinding and polishing machine	787,405	Apr. 18	2420	524	115	1618
Schreidt, Frank, Mansfield, Ohio. Safety-valve	786,317	Apr. 4	146	34	115	1102
Schreidt, Frank, Mansfield, Ohio. Fishing-pole and reel	787,055	Apr. 11	1713	364-5	115	1451
Schroeder, Conrad, Milwaukee, Wis. Receptacle-closure	786,521	Apr. 4	649	131	115	1208
Schroeder, Frederick W., London, England. Variable-speed gear	786,845	Apr. 11	1271	268	115	1354
Schroeder, Richard F., Sacramento, Cal. Hydrocarbon-feeder system	784,436	Mar. 7	862	180	115	197
Schrötter, Ernst F. A. von, Hamburg, Germany. Means for shutting or closing hatchways	788,332	Apr. 25	4305	935	115	2062
Schuchardt, Rudolph F., Chicago, Ill. Phase-rotation indicator	787,545	Apr. 11	2294	498	115	1576
Schuette, Hermann, St. Louis, Mo. Nut-lock	784,634	Mar. 14	1314	273	115	309
Schuhmann, Max. (See Heintze, Fritz, assignor.)						
Schuler, John J., Rome, N. Y. Covered receptacle	784,282	Mar. 7	535	110	115	123
Schulte, Louis, New York, N. Y. Plating apparatus	787,701	Apr. 18	3014	661-2	115	1752
Schultz, Anders C., Camden, N. J. Journal-bearing	785,051	Mar. 14	2107	444	115	485
Schumacher, Henry, Buffalo, N. Y. Asphalt-cutting machine	786,522	Apr. 4	651	131-2	115	1209
Schurs, John, Los Angeles, Cal. Hydrocarbon-burner for brick-kilns	784,126	Mar. 7	224	44	115	54
Schustek, Daniel, assignor to H. L. Andrews, Chicago, Ill. Reed-organ	787,056	Apr. 11	1715	365-6	115	1452
Schuster, Hermann, and F. Metze, Halle-on-the-Saale, Germany. Transporting device	787,472	Apr. 18	2553	552	115	1646
Schwade, Otto, Erfurt, Germany. Valve-gear for engines	787,223	Apr. 11	2044	446	115	1522
Schwalenberg, Carl R., Mannheim, Germany. Air-cushion	787,473	Apr. 18	2553	552	115	1646
Schwarz, George, Brooklyn, N. Y., and G. Lowe, Jersey City, N. J. Cutting-stick	786,606	Apr. 4	803	165	115	1241
Schwarzschild & Sulzberger Company. (See Burt, Milton P., assignor.)						
Schweinert, Maximilian C., West Hoboken, N. J., and H. P. Kraft, New York, N. Y. Water-bottle stopper	787,118	Apr. 11	1838	393	115	1477
Schweizer, Charles, Maplewood, assignor to American Heating Co., Boston, Mass. Stove	787,310	Apr. 11	2216	497	115	1559
Schwerin, Oswald, Chicago, Ill. Scaffold	788,171	Apr. 25	4000	864	115	1994
Schwinger, Abraham I., New York, N. Y. Automatic awning attachment	784,897	Mar. 14	1828	382	115	424
Scientific Toy Company. (See McGrath, Timothy W., assignor.)						
Scofield, Floyd W., Plymouth, Ind. Insect-catcher	788,333	Apr. 25	4307	936	115	2062

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scofield, John R., Dallas, Tex. Rotary engine	787,224	Apr. 11	2045	446–8	115	1523
Scofield, William B., *et al.* (See Crompton, Randolph, assignor.)						
Scofield, William B., *et al.* (See Crompton and Fitton, assignors.)						
Scognamillo, Salvatore, New York, assignor to Automobile Supply Manufacturing Company, Brooklyn, N. Y. Machine for forming flexible tubing	785,523	Mar. 21	3113	658	115	721
Scott, Campbell, East Orange, N. J. Extensible car-platform	784,233	Mar. 7	441	89	115	102
Scott, Gerard C., Columbus, Ohio. Poultry-house	787,948	Apr. 25	3538	772–3	115	1883
Scott, James, assignor to American Casting Machine Company, Pittsburg, Pa. Apparatus for casting metal	788,334	Apr. 25	4309	936–8	115	2062
Scott, James L., Lair, Ky. Pitman-rod connection	786,686	Apr. 4	965	199	115	1276
Scott, Job F., and A. B. Curtis, Toledo, Ohio, assignors to National Biscuit Company, Jersey City, N. J. Machine for icing cakes	788,222	Apr. 25	4092	886–7	115	2013
Scott, John C. (See Kean, Thomas J., assignor.)						
Scott, John G., Girardville, assignor of one-half to I. Christ, Tamaqua, Pa. Mechanism for hauling and controlling cars	784,898	Mar. 14	1830	383	115	424
Scott, Ralph, Wilkesbarre, Pa., assignor of one-half to M. A. Miller, New York, N. Y. Electric-arc lamp	785,980	Mar. 28	4026	853	115	934
Scott, Thomas Q., Baltimore, Md. Desk-telephone bracket	787,119	Apr. 11	1839	394	115	1478
Scribner, Charles E., Chicago, and F. R. McBerty, Downers Grove, assignors to Western Electric Company, Chicago, Ill. Trunk-line for telephone-exchanges	787,120	Apr. 11	1842	394	115	1478
Scribner, Elbridge A., assignor of four-fifths to J. W. Krekeler, W. W. Walters, R. W. Jean, and F. S. Ross, Detroit, Mich. Tire for vehicle-wheels	787,311	Apr. 11	2218	487	115	1560
Scritchfield, Amos J., Janesville, Wis. Hot-water bottle	785,638	Mar. 21	3331	711	115	766
Scriven, Andrew J., St. Joseph, Mo. Skate ankle-supporter	787,225	Apr. 11	2051	419	115	1524
Scudder, Isaiah C., Middletown, N. Y. Puzzle	786,164	Mar. 28	4402	931	115	1019
Seal, John W., Hammersmith, London, assignor of two-thirds to J. B. Langford, Chiswick, England. Operating device for inlet and ignition valves of internal-combustion engines	788,496	Apr. 25	4619	1007	115	2127
Seaman, Kate C., New Orleans, La. Telephone-receiver holder	786,523	Apr. 4	655	132	115	1210
Seamans, Frank M., New York, N. Y. Means for attaching rods and their supports or other similar devices together	786,846	Apr. 11	1273	269	115	1354
Searles, James M., Vicksburg, Miss. Cotton-picker	784,899	Mar. 14	1833	383–4	115	425
Seaver, John W. (See Wellman and Seaver.)						
Sebrell, George T., Alsea, Oreg. Wood-sawing machine	784,184	Mar. 7	343	70–1	115	80
Secor, Jerome B., assignor to Williams Typewriter Company, Derby, Conn. Aligning device for type-writing machines	786,056	Mar. 28	4188	882	115	972
Secor, Jerome B., assignor to Williams Typewriter Company, Derby, Conn. Tabulating device for type-writing machines	786,607	Apr. 4	805	166	115	1241
See, Alonzo B., *et al.* (See Lindstrom, Nils O., assignor.)						
Seelye, Byron T., Chicago, Ill. Full-stroke mechanism	786,386	Apr. 4	305	66	115	1138
Seep, William J., Albany, Ind. Measuring-tape holder	785,052	Mar. 14	2109	444	115	486
Seery, Peter H., Newark, N. J. Steam-boiler fire-tube	786,847	Apr. 11	1275	269	115	1354
Seiberling, Frank A., Akron, Ohio. Golf-ball	786,524	Apr. 4	656	132	115	1210
Seide, Henry, New York, N. Y. Cap	787,121	Apr. 11	1847	394	115	1479
Seidel, William, Wheeling, Ill. Mashing-machine	786,608	Apr. 4	808	167	115	1242
Seidler, William W., Bowie, Tex. Body-stretcher	785,639	Mar. 21	3332	712	115	766
Seifriz, John, and H. Balling, New York, N. Y. Cover for latrine-seats	788,380	Apr. 25	4408	958	115	2083
Seiler, Clayton A., Washington, D. C. Air-coupling	788,172	Apr. 25	4000	864	115	1994
Seiler, Philipp. (See Keller and Seiler.)						
Seith, Paul. (See Kaphingst and Seith.)						
Seitz, Charles S., Tiffin, Ohio. Railway construction	787,003	Apr. 11	1604	343	115	1427
Sekowsky, Hermann, Milwaukee, Wis. Extensible water-tower	786,687	Apr. 4	966	201–2	115	1276
Selg, Otto, New York, N. Y. Bottle-filling machine	784,234	Mar. 7	442	89	115	103
Selley, Edwin J., *et al.* (See Patterson, Thomas S., assignor.)						
Sells, James B., Greensboro, N. C. Water elevator and purifier	786,165	Mar. 28	4403	931	115	1019
Semmer, Phillip, Pittsburg, Pa. Splitting longitudinally-scored glass strips	787,122	Apr. 11	1848	395	115	1479
Semple, Robert W., Brooklyn, N. Y. Combined artist's palette and color-dish	787,123	Apr. 11	1849	395	115	1480
Senan, Eugene de, Cape Town, Cape Colony. Railway danger signaling device	784,900	Mar. 14	1834	384	115	425
Seng Company. (See Luppino, Joseph, assignor.)						
Sessions, Charles H. (See Brent and Sessions.)						
Sessions, Frank L., assignor to Jeffrey Manufacturing Company, Columbus, Ohio. Switch mechanism for railway rack-rails	787,590	Apr. 18	2796	609	115	1705
Sester, Charles M., assignor, by mesne assignments, to Peoria Drill and Seeder Co., Peoria, Ill. Broadcast seeding-machine	787,949	Apr. 25	3539	773	115	1883
Setter, Micheal, assignor to American Electric Telephone Company, Chicago, Ill. Relay	784,635	Mar. 14	1315	273	115	309
Sewall, James H., Keene, N. H., assignor to Star Brass Manufacturing Company, Boston, Mass. Means for operating cylinder-cocks	784,354	Mar. 7	671	138	115	154
Sexton, Henry, Sioux City, Iowa. Banana-crate	787,124	Apr. 11	1850	395	115	1480
Shafer, Bond. (See McIntosh, Clayton A., assignor.)						
Shafer, Harry B., Allegheny, Pa., assignor of one-half to J. Wainwright, Jr., Washington, D. C. Water-screen	785,125	Mar. 21	2288	480–1	115	539
Shaffner, Lizzie, Vanwert, Ohio. Handle attachment for brooms	786,166	Mar. 28	4404	931	115	1019
Shand, Alexander C., Narberth, assignor to A. Bonzano, Philadelphia, Pa. Rail-joint	788,433	Apr. 25	4506	981	115	2104
Shannon, John J., Bangor, Me. Lifting-jack	785,981	Mar. 28	4029	854	115	935
Sharman, David, Brandon, Canada. Wheeled vehicle	788,146	Apr. 25	3957	856	115	1985
Sharood, Samuel V., assignor of one-half to L. R. Churchill, Brockton, Mass. Air-separator and water-seal fitting	784,185	Mar. 7	346	71	115	81
Sharp, Bird H. (See Sharp, Marvin A. and B. H.)						
Sharp, Lee C., Plattsmouth, Nebr. Metallic post	784,437	Mar. 7	865	180	115	198
Sharp, Leslie G., Chicago, Ill. Roofing-tile	787,474	Apr. 18	2554	553	115	1647
Sharp, Leslie G., Chicago, Ill. Roofing-shingle	787,475	Apr. 18	2559	553	115	1647
Sharp, Marvin A. and B. H., Laporte, Tex. Wind-wheel	787,346	Apr. 11	2296	499	115	1577
Sharpe, Nathan W. H., London, England. Exhaust-muffler	787,960	Apr. 18	3358	735	115	1830
Sharples, David T., Westchester, Pa. Division device for centrifugal separators and means for cleaning same	787,950	Apr. 25	3545	774	115	1884
Shaughnessy, Martin. (See Rowley and Montgomery, assignors.)						
Shaver, Clyde. (See Spencer, James M., assignor.)						
Shaver, Joseph, Milwaukee, Wis. Polishing-machine	785,024	Mar. 14	2055	431–2	115	474
Shaw, Stephen G., *et al.* (See Clark, Samuel B., assignor.)						
Shaw, William, West Allis, Wis. Fifth-wheel	786,057	Mar. 28	4190	882	115	972
Shea, John J., Beverly, Mass. Surgical saline-infusion apparatus	785,524	Mar. 21	3115	658	115	722
Sheffield Car Company. (See Card, John F., assignor.)						
Sheldon, Frank L., Chicago, Ill., assignor to Curtain Supply Company, Newark, N. J. Gun-case	784,901	Mar. 14	1837	385	115	426

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sheldon, Henry L., Sharon Springs, Kans. Cross-line buckle	784,810	Mar. 14	1672	346	115	390
Sheldon, Roscoe S., West Allis, Wis. Grading implement	786,848	Apr. 11	1275	269	115	1354
Sheldon, Walter L., *et al.* (See Russell, Robert H., assignor.)						
Sheley, Peter A., Louisville, Ky. Mail-box	787,476	Apr. 18	2565	554	115	1649
Shelp, Willard B., St. Louis, Mo. Apparatus for straightening teeth	787,861	Apr. 18	2360	735	115	1830
Shelton, Charles L., Columbus, Ohio. Filler or packing device	787,702	Apr. 18	3016	662	115	1752
Shepard, Charles H., Brooklyn, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	786,464	Apr. 4	529	104	115	1184
Shepard, Edgar T., assignor to Oneida Steel Pulley Company, Oneida, N. Y. Rawhide bushing	784,762	Mar. 14	1580	325	115	370
Shepard, Frank M., Homestead, Pa. Garment attachment	788,335	Apr. 25	4311	938	115	2063
Shepherd, Frank D., Salt Lake City, Utah. Smokeless furnace	787,406	Apr. 18	2422	524	115	1618
Shepherd, George H., Paris, France. Dumb-bell	786,318	Apr. 4	148	34	115	1102
Shepherd, George H., Paris, France. Dumb-bell	787,407	Apr. 18	2423	524	115	1618
Shepherd, John E., Chicago, Ill. Thermostat	784,186	Mar. 7	348	71	115	81
Sheppard, Frank, Edwardsville, Ill. Riveting device	786,778	Apr. 4	1145	240	115	1316
Sheppard, John L. and T. C., Charleston, S. C. Drum or barrel head cutter	786,849	Apr. 11	1276	269–70	115	1355
Sheppard, Thomas C. (See Sheppard, John L. and T. C.)						
Sherman, Charles N. (See Hemings, Frederick E., assignor.)						
Sherman, Willis S., Milwaukee, Wis., assignor to Sight Feed Oil Pump Co. Oil-pump	786,167	Mar. 28	4405	931	115	1019
Sherrerd, John M. (See Smith and Sherrerd.)						
Sherven, Lars O., Marshalltown, Iowa. Draft-equalizer	787,703	Apr. 18	3017	662	115	1753
Sherwin, Perry D. (See Olson and Sherwin.)						
Sherwood, George R., Oak Park, Ill. Stock-washer	785,025	Mar. 14	2057	432	115	474
Shields, George F., Kern, Cal. Curling-iron	784,438	Mar. 7	867	180	115	198
Shiels, Alexander, and J. S. L. Alexander, London, England. Apparatus for condensing purposes	785,580	Mar. 21	3215	682–3	115	741
Shilling, William W., Sharon, Pa. Water-tube boiler	784,075	Mar. 7	132	24	115	33
Shimp, Jesse. (See Benton, Orlando F., assignor.)						
Shleeter, James F., Lake Linden, Mich. Horse-releaser	788,336	Apr. 25	4312	938	115	2063
Shoemaker, George A., Chicago, Ill., assignor to Metal Sectional Furniture Company, Portland, Me. Filing-cabinet	788,072	Apr. 25	3796	825	115	1943
Shoemaker, Harry, Jersey City, N. J., assignor to International Telegraph Construction Company, New York, N. Y. Wireless-telegraph transmitter	787,057	Apr. 11	1724	367	115	1453
Sholleneberger, Darius W., Montgomery, Pa., assignor to American Wood Working Machinery Co., New York, N. Y. Attachment for woodworking-machines	788,434	Apr. 25	4507	981–2	115	2105
Shorts, Alvertus V., Allegheny, Pa. Level	785,581	Mar. 21	3218	683	115	742
Shuart, Benjamin F. (See Leonard, Howard M., assignor.)						
Shuemaker, Ida M. (See La Clair, Norman W., assignor.)						
Shuman, Alexander F., Chicago, Ill. Composite paving-block	786,319	Apr. 4	149	34	115	1102
Shuman, Arno, Philadelphia, Pa., assignor to Continuous Glass Press Company. Manufacturing wire prism-glass	788,147	Apr. 25	3957	856	115	1985
Shuman, Frank, Philadelphia, Pa. Manufacturing wire-glass	786,058	Mar. 28	4192	883	115	972
Shute, John W., Igerna, Cal. Cuff-holder	784,076	Mar. 7	134	24	115	33
Sieber & Trussell Manufacturing Company. (See Trussell, Emory A., assignor.)						
Siegfried, Robert, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Means for rectifying alternating currents	786,320	Apr. 4	151	34	115	1103
Sieverkropp, Henry F. J., Hood River, Oreg. Steel fence-post	786,850	Apr. 11	1279	270	115	1355
Sievert, Paul T., Dresden, Germany. Apparatus for producing hollow glass articles	784,439	Mar. 7	868	181	115	198
Sievert, Paul T., Dresden, Germany. Producing hollow glass articles	785,441	Mar. 21	2930	618–19	115	679
Siferd, James A., Warren, Ind. Railway-tie	785,053	Mar. 14	2110	445	115	486
Sight Feed Oil Pump Co (See Sherman, Willis S., assignor.)						
Silberburg, Louis, *et al.* (See Fisher, Charles A., assignor.)						
Siler, Aaron V., Newark, Ohio. Screen	787,312	Apr. 11	2220	487	115	1560
Sill, Alfred N., Philadelphia, Pa. Blotter	785,896	Mar. 28	3732	794	115	868
Silver, William, Tamworth, New South Wales, Australia. Sheep-shearing machine	785,640	Mar. 21	3333	712–14	115	766
Silverman, Louis, San Francisco, and W. Vincent, Oakland, Cal. Sanitary shaving-brush	784,763	Mar. 14	1581	326	115	370
Sim, William, Underwood, New Zealand. Milking-machine	787,951	Apr. 25	3547	774–5	115	1884
Simmons, Oscar D., Sugargrove, W. Va. Device for turning logs	787,125	Apr. 11	1851	395	115	1480
Simonds, Frank A., Grand Rapids, Mich., assignor of one-third to C. D. Burnop, Albany, N. Y. Balanced steam-trap	786,238	Mar. 28	4537	961	115	1046
Simonds, Llewellyn J. (See Simonds, Royal H., assignor.)						
Simonds, Royal H., assignor of one-half to L. J. Simonds, Southbridge, Mass. Spectacle-frame	785,442	Mar. 21	2932	619	115	680
Simons, Isaac M., Youngstown, Ohio. Air-brake system	784,506	Mar. 7	1026	212	115	231
Simons, Silas C., assignor of one-half to S. H. and L. M. Clark, Risingstar, Tex. Churn-dasher	786,525	Apr. 4	658	133	115	1210
Simplex Piano Player Company. (See Brown, Theodore P., assignor.)						
Simplex Railway Appliance Company. (See Bauer, Carl E., assignor.)						
Simpson, George, Richmond, near Melbourne, and W. J. Burton, Richmond, Victoria, Australia. Dust-collector	785,525	Mar. 21	3116	659	115	722
Simpson, James, Jr., Hamilton, Canada. Shower-bath apparatus	785,233	Mar. 21	2516	530	115	589
Simpson, James, assignor of one-half to W. H. Mallory, Veedersburg, Ind. Subway structure	786,059	Mar. 28	4193	883	115	972
Simpson, John R. (See Vogt, Louis, assignor.)						
Simpson, John R., Chicago, Ill. Carpenter's square	788,223	Apr. 25	4098	888	115	2015
Simpson, John W. (See Bellows, Benjamin F., assignor.)						
Simpson, Robert D., assignor, by mesne assignments, to Columbus Meter Seal Manufacturing Company, Columbus, Ohio. Seal-lock for pipe-couplings	785,526	Mar. 21	3118	659	115	722
Simpson, Robert D., assignor to M. A. Corbett, Columbus, Ohio. Sealing device for pipe-couplings or the like	788,435	Apr. 25	4510	982	115	2105
Simpson, Robert L. (See Harrison and Simpson.)						
Simpson, Tallaferro S. (See Tompkins, Diffey, and Simpson.)						
Simpson, William M., assignor to Railway Materials Company, Chicago, Ill. Brake-shoe	786,465	Apr. 4	530	105	115	1184
Simpson, William P. (See Slater, Howard C., assignor.)						
Sinclair, William, San Antonio, Tex. Carbid-feeding device	784,811	Mar. 14	1673	346	115	390
Sine, William R., Williamsport, Pa. Manufacture of articles from hard rubber	785,234	Mar. 21	2517	531	115	589
Singer Manufacturing Company. (See Allen, Edward B., assignor.)						
Singer Manufacturing Company. (See Hemleb, Martin, assignor.)						
Single Stave Barrel Company. (See Bartholomew, Eugene E., assignor.)						
Sippel, Charles B., Chicago, Ill. Collar-button	785,768	Mar. 28	3595	768	115	836
Skinner, Ernest M., Boston, Mass. Organ-action	784,440	Mar. 7	870	181–3	115	198
Skow, Andrew, Newton, Iowa. Hand-punch	787,862	Apr. 18	3360	735	115	1830

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Slaby, Adolf, Charlottenburg, and G. G. Arco, Berlin, Germany. System of wireless telegraphy with tuned microphone-receivers	785,276	Mar. 21	2600	549	115	606
Slater, Frederick R. (See Stillwell and Slater.)						
Slater, Howard C., Ridley Park, assignor to W. P. Simpson, Overbrook, Pa. Lawn roller and mower	787,952	Apr. 25	3549	775	115	1885
Slattery, Charles H., Southpark, Ohio. Plunger for press-moids	785,235	Mar. 21	2518	531	115	589
Slaughter, Geo. W. (See Goodwin, James A., assignor.)						
Slevin, Albert W., Milwaukee, Wis. Razor-handle	788,437	Apr. 25	4513	982	115	2106
Slevin, Louis R., St. Louis, Mo. Planing or mitering table	788,436	Apr. 25	4512	962	115	2106
Slick, Edwin E., Pittsburg, Pa. Furnace-door	786,851	Apr. 11	1290	270	115	1355
Slick, Edwin E., Pittsburg, Pa. Valve	788,337	Apr. 25	4314	939	115	2063
Slinkard, John F., *et al.* (See Riddle, Milford, assignor.)						
Slocum, John C., assignor to J. A. Jeffrey, Columbus, Ohio. Hoisting apparatus	785,641	Mar. 21	3336	714–15	115	767
Sloss, Aaron M. (See Pein, Henry, assignor.)						
Small, Dexter M., Providence, R. I. Combined engine and boiler	786,321	Apr. 4	152	35	115	1103
Smethurst Furnace & Ore Treatment Syndicate. (See Smethurst, William, assignor.)						
Smethurst, William, Dolgelly, assignor to Smethurst Furnace & Ore Treatment Syndicate, Limited, London, England. Burner	785,236	Mar. 21	2519	531	115	589
Smiley, John B., South Omaha, Nebr. Electric open-switch and stop signal	785,026	Mar. 14	2060	432	115	475
Smith, Albert, Bowie, Md. Roughener-shoe for horseshoes	781,441	Mar. 7	874	183	115	199
Smith, Albert E., Brooklyn, N. Y., assignor to Vitagraph Company of America. Film-holder for kinetoscopes	785,237	Mar. 21	2521	531–2	115	590
Smith, Ambrose N., Chicago, Ill. Dredging-machine	787,953	Apr. 25	3550	776	115	1885
Smith, Andrew A., Paonia, Colo. Step-ladder	785,277	Mar. 21	2601	549	115	607
Smith, Andrew A., Paonia, Colo. Step-stool	788,148	Apr. 25	3959	856	115	1985
Smith, Arthur L., Auburn, N. Y. Crutch	786,921	Apr. 11	1438	304	115	1390
Smith, Arthur W., New York, assignor to Yost Writing Machine Company, Ilion, N. Y. Type-writing machine	785,278	Mar. 21	2602	550	115	607
Smith, C. F., *et al.* (See Young, Joseph P., assignor.)						
Smith, Charles A., Philadelphia, Pa. Table-adjuster	785,982	Mar. 28	4030	854	115	935
Smith, Charles A., Crandon, S. D. Portable flour-mill	786,168	Mar. 28	4409	932	115	1020
Smith, Charles F. A., *et al.* (See Crowell, Luther C., assignor.)						
Smith, Charles H., Richmond, Va. Nozzle	784,283	Mar. 7	537	110	115	124
Smith, Charles L. (See Boynton, Joseph J., assignor.)						
Smith, Clement, Topeka, Kans. Engine-cylinder	784,636	Mar. 14	1317	274	115	310
Smith, David, and Z. T. Kindred, Overcup, Ark. Harrow	787,004	Apr. 11	1607	343	115	1427
Smith, De Calvus, Colebrook, Ohio. Felt-boot heel-plate	787,226	Apr. 11	2052	449	115	1524
Smith, Edward A., Denver, Colo. Rotary turbine-pump	786,466	Apr. 4	532	105–6	115	1184
Smith, Edward L., Breckenridge, Colo., and J. M. Sherrerd, Easton, Pa. Centrifugal pump	786,922	Apr. 11	1440	305	115	1391
Smith, Frank B. (See Glynn, Guilford C., assignor.)						
Smith, Frank E., Munnsville, N. Y. Slide-valve mechanism for steam-engines	786,060	Mar. 28	4194	884	115	973
Smith, Frank G., Shelby, Ohio. Car-coupling	784,764	Mar. 14	1582	326	115	370
Smith, Fred P., assignor to Municipal Engineering Company, New York, N. Y. Apparatus for purifying sewage and consuming garbage	784,597	Mar. 14	1214	255	115	286
Smith, Fred P., assignor to Municipal Engineering Company, New York, N. Y. Apparatus for handling sewage and clarifying septic matter	785,185	Mar. 21	2415	507–8	115	568
Smith, Fred P., assignor to Municipal Engineering Company, New York, N. Y. Apparatus for purifying septic matter and manipulating sewage	785,769	Mar. 28	3596	768	115	836
Smith, Fred S., assignor to Baldwin Company, Cincinnati, Ohio. Mouse-proof pedal	788,438	Apr. 25	4514	983	115	2106
Smith, Harry, Philadelphia, Pa. Printing apparatus	784,235	Mar. 7	443	89	115	103
Smith, Harry F., Lexington, Ohio. Regulating air and steam supplied to gas-producers	786 061	Mar. 28	4199	885	115	974
Smith, Harry F., Lexington, Ohio. Grate for gas-producers	786,062	Mar. 28	4202	885	115	974
Smith, Harry F., Lexington, Ohio. Suction gas-producer	786,063	Mar. 28	4203	886	115	974
Smith, Herbert M. (See De Lancey and Smith.)						
Smith, Herbert M., assignor to Stanley Instrument Company, Great Barrington, Mass. Bearing	786,387	Apr. 4	306	66–7	115	1138
Smith, Herbert M., assignor to Stanley Instrument Company, Great Barrington, Mass. Spring support-pivot	786,388	Apr. 4	309	67–8	115	1138
Smith, Herman E., and R. E. Weinland, Indianapolis, Ind.; said Weinland assignor to said Smith. Changeable advertising-button	784,077	Mar. 7	135	25	115	33
Smith, Hinsdale, Springfield, Mass. Extension top or canopy for vehicles	787,798	Apr. 18	3233	706	115	1802
Smith, Isadore L., San Francisco, Cal. Support for globes or chimneys	787,799	Apr. 18	3235	706	115	1803
Smith, James P., Raeford, N. C. Plow	787,647	Apr. 18	2908	633	115	1730
Smith, Jefferson D., Stafford, Kans. Disk listing-plow	784,765	Mar. 14	1583	326	115	370
Smith, John B., and F. Dietz, Tucson, Ariz. Ter. Liquid-fuel burner	784,525	Mar. 7	1058	219	115	238
Smith, John L., Eureka Springs, Ark. Tool for operating upon boiler-tubes	786,064	Mar. 28	4206	886	115	975
Smith, Joseph C., *et al.* (See Snyder, David F., assignor.)						
Smith, Julius G., Liberty, N. Y. Fruit-picker	787,477	Apr. 18	2568	554	115	1650
Smith, Lester C., Rome, N. Y. Forming tubes	786,923	Apr. 11	1444	305	115	1392
Smith, Morris F., Philadelphia, Pa., assignor of three-fourths to W. D. Condit, Des Moines, Iowa. Gas-operated machine-gun	784,966	Mar. 14	1957	411	115	452
Smith, N. H. (See Mills, Edward N., assignor.)						
Smith, Peter G., Roslyn, N. Y. Paper box	788,381	Apr. 25	4409	958	115	2083
Smith & Richardson. (See Richardson, Henry B., assignor.)						
Smith, Sim R., Asheville, Ala. Car-coupling	786,169	Mar. 28	4411	932	115	1020
Smith, Warren M., Philadelphia, assignor to J. A. Brill, Prospect Park, Pa. Car construction	784,355	Mar. 7	673	138–9	115	154
Smith, Warren M., Prospect Park, assignor to J. A. Brill, Philadelphia, Pa. Car construction	784,356	Mar. 7	675	139	115	155
Smith, William, Duluth, Minn. Window-cleaner	784,127	Mar. 7	226	44	115	54
Smith, William A., assignor of one-half to A. M. McBee, Sherman, Tex. Device for pressing trousers	784,187	Mar. 7	350	71–2	115	82
Smith, William B., Buffalo, N. Y. Necktie-fastener	785,837	Mar. 28	3733	795	115	868
Smith, William B., Buffalo, N. Y. Necktie-holder	788,338	Apr. 25	4314	939	115	2064
Smith, William D., Denver, Colo. Watchmaker's device	787,313	Apr. 11	2220	487	115	1560
Smith, William H., St. Paul, Minn. Can-opener	787,478	Apr. 18	2569	554	115	1650
Smith, William J. (See Donnelly and Smith.)						
Smith, William J., Amos, W. Va. Stuffing-box	784,442	Mar. 7	876	183	115	199
Smitt, Joseph E., *et al.* (See Mowry, Joseph B., assignor.)						
Snell, Harry B., Jackson, Mich. Circuit-controller for electric railway-signals	784,357	Mar. 7	676	139	115	155
Snell, Samuel A. (See Gould, Alexander H., assignor.)						
Snider, Clarence A., assignor to Snider-Hughes Company, Cleveland, Ohio. Duplex steam-pump	786,467	Apr. 4	533	106–7	115	1184

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Snider-Hughes Company. (See Snider, Clarence A., assignor.)						
Snodgrass, Arthur T., Patterson, La., assignor of one-half to W. C. Snodgrass, Thomasville, Ga. Cotton-compressor	785,383	Mar. 21	2794	590–1	115	648
Snodgrass, Walter C. (See Snodgrass, Arthur T., assignor.)						
Snyder, David F., assignor of one-fourth to J. C. Smith and W. F. Garman, Harrisburg, Pa. Air-brake	788,149	Apr. 25	3960	856–7	115	1985
Snyder, Joseph, Harrisburg, Pa. Car-coupling	787,954	Apr. 25	3552	776	115	1886
Snyder, Joseph, Harrisburg, Pa. Car-coupling	788,173	Apr. 25	4002	864	115	1995
Snyder, William S., and W. H. Barker, Pittsburg, Pa. Automatic street-railway switch	786,688	Apr. 4	972	201	115	1277
Société Alsacienne de Constructions Mécaniques. (See Wenning and Gégauff, assignors.)						
Société Anonyme des Anciens Etablissements Panhard et Levassor. (See Krebs, Arthur, assignor.)						
Société Anonyme pour le Travail Électrique des Metaux. (See Pecheur, Henri, assignor.)						
Soderberg, Josef, assignor of two-thirds to I. Unger and J. Quist, Iron Mountain, Mich. Pole-guard	784,902	Mar. 14	1838	385	115	427
Soderstrom, Frank O., Chicago, Ill. Water-heater	785,333	Mar. 21	2698	572	115	628
Sollom, Vincent P., San Francisco, Cal. Combined fire-screen and table	786,526	Apr. 4	659	133	115	1211
Somerwill, William J., Cleveland, Ohio. Toy bank	786,689	Apr. 4	974	201	115	1278
Sommer, Henry O., Washington, D. C. Surgical pad	788,073	Apr. 25	3798	826	115	1944
Sonnenberg, William, Winona, Minn. Magazine-firearm	787,800	Apr. 18	3235	707	115	1803
Sonnenfeld, Franck, and J. Glass, New York, N. Y. Antiseptic bottle	787,591	Apr. 18	2798	610	115	1705
Sorg, Fredrick W., Englewood, N. J. Electric-conductor union	784,766	Mar. 14	1584	326	115	371
Soss, Joseph, New York, N. Y. Sash-balance	785,334	Mar. 21	2700	572	115	628
Southwark Foundry & Machine Company. (See Petsche, Gustav B., assignor.)						
Southworth, Henry E., Colchester, assignor to Porter Screen Manufacturing Company, Burlington, Vt. Window-screen	788,439	Apr. 25	4515	983	115	2106
Sox, David A., Atlanta, Ga. Platform-ladder	785,335	Mar. 21	2702	573	115	628
Spalding Manufacturing Co. (See Resch, Milton B., assignor.)						
Spatz, Heinrich, Schöneberg, Germany. Manufacture of a substitute for caoutchouc	786,527	Apr. 4	660	.....	115	1211
Spelman, James, assignor to J. S. Metcalf Company, Chicago, Ill. Hoisting apparatus	787,058	Apr. 11	1726	367–8	115	1454
Spence, Harry, assignor of three-fourths to G. B. and L. B. Goodall and J. Hollinrake, Sanford, Me. Cop-tube for spinning	786,528	Apr. 4	661	133	115	1211
Spencer, James M., assignor of one-half to C. Shaver, Smith, Mich. Curtain and drapery support	786,468	Apr. 4	535	107	115	1185
Spencer, John L., Elmira Heights, N. Y. Variable-speed gearing	787,863	Apr. 18	3361	736	115	1831
Spengler, Charles C., Rockford, Ill. Filing device	784,812	Mar. 14	1675	347	115	391
Spicer, Franklin H., Washington, D. C. Holder for oil-cans	785,054	Mar. 14	2111	445	115	486
Spicer, Regina R., Washington, D. C. Means for preserving and exhibiting flowers	785,055	Mar. 14	2112	445	115	486
Spielmann, Charles. (See Wicht and Spielmann.)						
Spiller, William H., assignor to Wilcox Manufacturing Company, Aurora, Ill. Wire-stretcher	784,813	Mar. 14	1677	347	115	391
Spinks & Company, William A. (See Marsh, Albert L., assignor.)						
Spiro, Walter J., assignor to Columbia Typewriter Manufacturing Company, New York, N. Y. Tabulating attachment	785,983	Mar. 28	4031	854–5	115	936
Splitdorf, Charles F., New York, N. Y. Vibrator-regulator	785,056	Mar. 14	2113	446	115	487
Sprague, Daniel A., Poland, N. Y. Churn	784,078	Mar. 7	136	25	115	34
Sprague, Daniel A., Poland, N. Y. Butter-working churn	787,408	Apr. 18	2424	525	115	1618
Sprague, Franklin S., Boston, Mass. Spring bed-bottom	788,224	Apr. 25	4099	888	115	2015
Springer, Samuel, Alton, Ill. Hammer	785,921	Mar. 28	3887	826	115	903
Springer, William N., assignor to Avery Manufacturing Company, Peoria, Ill. Variable-speed governor	785,126	Mar. 21	2290	481	115	539
Springer, William N., assignor to Avery Manufacturing Company, Peoria, Ill. Engine-governor	785,127	Mar. 21	2294	482	115	540
Spurgin, Robert, Chicago, Ill. Vest-protector	786,924	Apr. 11	1445	306	115	1392
St. John, Edwin M. (See Gilchrist, William E., assignor.)						
St. John, Justin M., assignor to J. M. Denning, Cedar Rapids, Iowa. Wire fence	788,497	Apr. 25	4621	1007	115	2128
St. Johns Table Co. (See Beach, Thaddeus C., assignor.)						
St. Johns Table Company. (See Brown, George A., assignor.)						
St. Louis Car Company. (See Langehennig, Fredrick W., assignor.)						
St. Louis Car Company. (See Robinson, Edward T., assignor.)						
St. Louis Car Company. (See Roediger, Jacob, assignor.)						
St. Louis Car Company. (See Schliepmann, Karl, assignor.)						
St. Louis Car Company. (See Witte, Hubert, assignor.)						
Stackhouse, John. (See Brining and Stackhouse.)						
Stafford, James M., Petersburg, Ind. Coffin	785,186	Mar. 21	2416	508	115	568
Stake, Charles R., Worcester, Mass. Mangle	785,770	Mar. 28	3598	769	115	836
Stakemann, Oscar H., Christiansted, St. Croix Island, Danish West Indies. Apparatus for raising liquids	785,443	Mar. 21	2933	619	115	680
Stallings, Edgar L., Columbia, S. C. Connection or joint for water-closet bowls	785,984	Mar. 28	4036	855	115	937
Stamm, Henry, Plauen, assignor to F. Ashelm Buchdruckerei, Berlin, Germany. Machine for the printing of calendars, cash-blocks, ticket-blocks, or the like	786,852	Apr. 11	1280	271	115	1356
Stancliff, Edwin, New York, N. Y. Driver-wheel	788,284	Apr. 25	4205	912	115	2039
Standard Car Truck Company. (See Barber, Lee W., assignor.)						
Standard Elevator Interlock Company. (See Muckle, John S., assignor.)						
Standard Plunger Elevator Company. (See Larson, Thure, assignor.)						
Standard Sanitary Manufacturing Company. (See Reed, John C., assignor.)						
Stanford, Arthur L., Chicago, Ill. Lifting-jack	787,995	Apr. 25	3644	794	115	1908
Stanley Electric Manufacturing Company. (See Déri, Max, assignor.)						
Stanley Electric Manufacturing Company. (See Wilson, Leonard, assignor.)						
Stanley, Ellis J., Champaign, Ill. Gate	784,236	Mar. 7	445	90	115	104
Stanley, Ethelbert A. and J. E. Anger, Preston, England. Ventilating device for tram-cars or other vehicles	787,126	Apr. 11	1852	396	115	1480
Stanley Instrument Company. (See Browne, William H., assignor.)						
Stanley Instrument Company. (See De Lancey and Smith, assignors.)						
Stanley Instrument Company. (See Smith, Herbert M., assignor.)						
Stanley Rule & Level Company. (See Schade, Edmund A. and A. F., assignors.)						
Stanley, Simon K., W. C. and W. T. Maynard, Rhea Mills, Tex. Harrow	786,170	Mar. 28	4412	933	115	1020
Stanley Works. (See Fleischer, Herman and C. H., assignors.)						
Stanley Works. (See Moore and Holland, assignors.)						
Stansill, Thomas H., Roseville, W. Va. Sand-box for vehicles	787,409	Apr. 18	2426	525	115	1619
Stapf, Thomas, Fernitz, Austria-Hungary. Fastening wheel-tires to the wheel-bodies in wheels for railway-vehicles	787,801	Apr. 18	3240	707	115	1804
Stapler, Desiderius A., San Francisco, Cal. Device for applying remedies	786,529	Apr. 4	662	133	115	1211
Star Brass Manufacturing Company. (See Sewall, James H., assignor.)						
Starbard, Raymond C., Milford, Mass. Brake for baby-carriages	784,443	Mar. 7	877	184	115	200
Starke, Friedrich, Chicago, Ill. Mouthpiece for clarinets	787,127	Apr. 11	1853	396	115	1480

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Starkweather, Dell F., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Device for attaching handles to carpet-sweeper balls	785,027	Mar. 14	2061	433	115	475
Stauffer, Benjamin B., Kansas City, Mo. Traction-engine	788,285	Apr. 25	4207	912–13	115	2039
Stauffer, Peter S., Springfield, Mass., and F. R. Ives, Wallingford, Conn. Sash-cord fastener	787,592	Apr. 18	2800	610	115	1706
Ste. Ame. de Commentry-Tourchambault et Decazéville. (See Cournand, Frédéric A. J., assignor.)						
Stebbins, Ambrose S., Palmyra, and L. M. Lauer, New York, N. Y. Finger-bowl	788,286	Apr. 25	4209	913	115	2040
Stedman, William H., assignor to Merrow Machine Company, Hartford, Conn. Needle-plate and support for sewing-machines	785,187	Mar. 21	2417	508	115	568
Steele, David J., and C. Kratt, Glasgow, Scotland. Electric recording instrument	787,005	Apr. 11	1609	344	115	1428
Steele, Leslie P., Washington, Pa. Measure	786,609	Apr. 4	811	168	115	1243
Steere, Merrill O., Pawtucket, R. I. Stop-motion detector for looms	784,188	Mar. 7	352	72	115	82
Stegall, George W., Paris, Tenn. Cattle-guard	786,530	Apr. 4	663	134	115	1211
Stein, William F., Fort Collins, Colo. Ore separator and concentrator	786,171	Mar. 28	4413	933	115	1021
Steinacker, Frank W., and I. Culver, Cleveland, Ohio. Cash-register	786,322	Apr. 4	153	35	115	1103
Steinacker, Frank W., and I. Culver, Cleveland, Ohio. Cash-register	785,384	Mar. 21	2796	591–2	115	649
Steinbart, Alfred, Carlstadt, N. J. Gas-purifier	785,385	Mar. 21	2805	592–4	115	651
Steinberg, Charles S., New York, N. Y. Combination gas and electric fixture	787,593	Apr. 18	2802	610	115	1706
Steinberger, Louis, New York, N. Y. Multiple-hood insulator	787,802	Apr. 18	3241	708	115	1804
Steinberger, Louis, New York, N. Y. Strain	786,690	Apr. 4	975	201	115	1278
Steiner, Louis, New York, N. Y. Sheet-metal box	786,691	Apr. 4	977	202	115	1278
Steinmann, Charles W. F., San Francisco, Cal. System of pipes with furnace for drying sprouted grain	785,279	Mar. 21	2606	550	115	608
Steinmann, Eduard. (See Schielke and Steinmann.)	785,771	Mar. 28	3599	769	115	837
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company. Railway-motor control	784,814	Mar. 14	1679	347–8	115	392
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company. Electric-motor system	787,227	Apr. 11	2053	449	115	1524
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company. Means for transforming direct current	787,228	Apr. 11	2058	450	115	1525
Stemmrich, Frederick J., Turtlecreek, Pa. Combination-gage	784,903	Mar. 14	1839	385	115	427
Stempel, Carl H., Fort Madison, Iowa. Tent	785,582	Mar. 21	3219	683	115	742
Stempel, Hugo A., Chicago, Ill. Ruler for cutting cloth on the bias	784,079	Mar. 7	139	25	115	34
Stempel, Omar A., Clearwater, Fla. Mold	784,967	Mar. 14	1962	412	115	453
Stemski, Stanislaus, Brooklyn, N. Y. Electric time-switch	784,358	Mar. 7	678	140	115	155
Stephens, Joseph E. (See Coryell and Stephens.)	784,359	Mar. 7	682	140	115	156
Stephenson, John F., Albany, N. Y. Tube-cleaning device						
Sternau & Co., S. (See Sternau and Strassburger, assignors.)						
Sternau, Sigmund, and L. Strassburger, assignors to S. Sternau & Co., New York, N. Y. Alcohol-lamp	787,006	Apr. 11	1610	344	115	1428
Sterner, Fritz A., Abo, Russia. Damask Jacquard loom	786,389	Apr. 4	310	68	115	1139
Stévenot, Eugène J., Davisville, Cal. Envelop-fastener	786,692	Apr. 4	979	202	115	1279
Stevens, Benjamin A., Toledo, Ohio. Pin-resetting device for bowling-alleys	784,360	Mar. 7	683	141	115	156
Stevens, Eugene, Leadville, Colo. Cyanid-agitator	784,598	Mar. 14	1216	255	115	287
Stevenson, Alfred H., Chunchula, Ala. Rail-joint	787,544	Apr. 18	2700	587	115	1682
Stevenson, George, Riversdale, New Zealand. Draw-bar	785,057	Mar. 14	2114	446	115	487
Stevenson, Henry M., assignor of one-half to C. E. Beaver, Perry, Iowa. Veterinary instrument	787,594	Apr. 18	2804	611	115	1706
Stevenson, John, Jr., Portobello, Scotland. Flexible support for street-light hangers	787,410	Apr. 18	2427	525	115	1619
Stevenson, John S., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Ladder-handle-forming machine	787,128	Apr. 11	1854	396–8	115	1481
Stevenson, Samuel P., Chester, Pa. Door and doorway and threshold therefor for air-tight inclosures	784,904	Mar. 14	1842	386	115	427
Stevenson, William N. (See Wallace, Thomas, assignor.)						
Stewart, Alexander W. (See Method and Stewart.)						
Stewart, Daniel N., assignor of one-half to J. McPherson, Jr., Detroit, Mich. Door-securer and alarm combined	784,637	Mar. 14	1319	274	115	310
Stewart, Edwin F., and F. W. McNamara, Madison, Me. Automatic stock-regulator	787,955	Apr. 25	3553	776–7	115	1886
Stewart, Elmer, Kansas City, Mo. Combination door-knob, door-bell, and burglar-alarm	787,996	Apr. 25	3647	794	115	1908
Stewart, John K., Chicago, Ill. Hand-directed tool, &c	786,390	Apr. 4	312	69	115	1139
Stewart, John N., Chicago, Ill. Stamping device	784,638	Mar. 14	1321	274	115	310
Stewart, Samuel B., Jr., Schenectady, N. Y., assignor to General Electric Company. Switch	785,985	Mar. 28	4037	855	115	937
Stickerei Feldmühle, vormals Loeb, Schoenfeld & Co. (See Herzog, Louis, assignor.)						
Stickfort, Henry. (See Wehmeier and Stickfort.)						
Stickney, Burnham C., Elizabeth, assignor, by mesne assignments, to Union Typewriter Company, Jersey City, N. J. Type-writing machine	784,444	Mar. 7	879	184	115	200
Stickney, Edgar A., Sacramento, Cal. Multiple punching-machine	786,853	Apr. 11	1284	272	115	1356
Stieff, Michael, assignor to G. H. Withey, Fremont, Ohio. Storm-front for vehicles	784,080	Mar. 7	141	26	115	35
Stillwell, Lewis B., Lakewood, N. J., and F. R. Slater, Yonkers, N. Y. Electrical-rail guard	784,237	Mar. 7	448	90	115	104
Stillwell, Lewis B., Lakewood, N. J., and F. R. Slater, Yonkers, N. Y. Electrical-rail guard	784,238	Mar. 7	449	90	115	104
Stimpson Computing Scale Company. (See Dunn, Frank P., assignor.)						
Stirling Company. (See Barrett, Robert A., assignor.)						
Stirn, Henry J., Milwaukee, Wis. Stamp-retaining envelop	786,469	Apr. 4	537	107	115	1185
Stirton, James E., Monroe, Wash. Operating mechanism for gates	787,129	Apr. 11	1858	398	115	1481
Stivers, William D., Jersey City, N. J., assignor to C. W. Hunt Company, West New Brighton, N. Y. Electric-motor control	786,323	Apr. 4	155	35–6	115	1104
Stock, Henry F. (See Lindemann and Stock.)						
Stocker, John, Muscatine, Iowa. Belt-stud tool	786,065	Mar. 28	4208	887	115	975
Stockwell, Charles H. (See Derby, Thomas N., assignor.)						
Stoddard, Edgar R., Detroit, Mich. Dies for drawing sheet-metal vessels	787,059	Apr. 11	1729	368	115	1454
Stoddard, Seneca R., Glens Falls, N. Y. Electrical trolley	784,639	Mar. 14	1322	274	115	311
Stoelting, Christian H., Chicago, Ill. Laboratory-weights	788,074	Apr. 25	3799	826	115	1944
Stofer, Richard C. (See Bell and Stofer.)						
Stols, Joseph, New Orleans, La. Boltless crossing	784,189	Mar. 7	354	72	115	83
Stone & Co., F. I. (See Jones, Reuben, assignor.)						
Stone, Gilbert E., *et al.* (See Zumwalt, Joseph C., assignor.)						
Stone, John A., Chicago, Ill. Corn harvester and husker	786,239	Mar. 28	4538	961–2	115	1047
Stone, John A., Chicago, Ill. Bevel-rearing	787,956	Apr. 25	3557	777	115	1887
Stone, Junius H., Darien, Conn. Making non-conducting walls	784,284	Mar. 7	538	111	115	124
Stone, Nathaniel B., Outlook, Wash. Convertible sofa and table	786,693	Apr. 4	982	202	115	1279
Stone, William H., Jr., South Chicago, Ill. Bag holder and filler	784,708	Mar. 14	1449	300	115	341

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Stonebridge, Charles H., New York, N. Y. Collapsible box	785,772	Mar. 28	3601	769	115	837
Stoneking, John E., Bertram, Iowa. Combined ironing-board and step-ladder	784,190	Mar. 7	355	72–3	115	83
Stoner, Albert R., Thayer, Iowa. Transformable wagon-bed	787,704	Apr. 18	3019	662–3	115	1753
Stopple, John J., Dallas, Tex. Baling-press	785,642	Mar. 21	3339	715–16	115	768
Storey and Sons, Isaac. (See Ely, Clement, assignor.)						
Storle, Ole O., Burlington, Wis. Valve	784,081	Mar. 7	143	26	115	36
Storle, Ole O., Tacoma, Wash. Pumping-engine	785,336	Mar. 21	2703	573	115	629
Storr, David C., New York, N. Y., and J. Luppino, New Haven, Conn. Adjustable support for sofa-bedsteads or the like	788,075	Apr. 25	3799	826	115	1944
Storrs, Aaron P., assignor to Storrs Mica Company, Owego, N. Y. Lantern-globe	785,773	Mar. 28	3603	770	115	837
Storrs Mica Company. (See Storrs, Aaron P., assignor.)						
Stout, Albert L., Jenkins, Okla. Ter. Hen's nest	786,531	Apr. 4	664	134	115	1212
Straight, Asa W., Chicago, Ill. Safety-pin	784,968	Mar. 14	1964	412	115	453
Strait, James W., Bowling Green, Ky. Gate	785,337	Mar. 21	2706	573	115	629
Strasburg, Frederick E., Rumford Falls, Me., assignor to Continental Paper Bag Company. Paper-bag machine	787,648	Apr. 18	2909	634–5	115	1730
Strassburger, Lionel. (See Sternau and Strassburger.)						
Strehlow, Theodore H., Chicago, Ill. Clothes-pole tip	785,774	Mar. 28	3605	770	115	838
Streib, John F. (See Lindström and Streib.)						
Strickland, Orien S., Cooper, Tex. Churning-machine	785,775	Mar. 28	3606	770	115	838
Stringer, William L., Cooperstown, N. D. Hame-tug	787,229	Apr. 11	2060	450	115	1525
Stromberg-Carlson Telephone Manufacturing Company. (See Deuben, Rudolph C., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Kaisling, William, assignor.)						
Stromberg, Oscar, Chicago, Ill. Edge-protector	786,066	Mar. 28	4209	887	115	975
Strother, Rolland G., Findlay, Ohio. Pumping-jack for oil-wells	786,854	Apr. 11	1286	273	115	1356
Strowger Automatic Telephone Exchange. (See Erickson, John, assignor.)						
Stuart, Charles H., Newark, N. Y. Type-writer platen	786,067	Mar. 28	4210	887	115	976
Stuart, John M., Elmo, Tex. Valve-operating mechanism for presses	787,007	Apr. 11	1612	344	115	1428
Stuart, Metzgar, Sheridan, Pa. Rail-joint	786,324	Apr. 4	158	36	115	1104
Stuckey, Elmer G., Leavenworth, Kans. Block-signaling system	788,440	Apr. 25	4516	983–4	115	2107
Stuckey, John J. (See Farmer and Stuckey.)						
Studabaker, Hugh D., assignor of one-half to P. Herman, Bluffton, Ind. Carbureter	784,599	Mar. 14	1218	255–6	115	287
Stuebe, Henry F., St. Louis, Mo. Miter-box	787,230	Apr. 11	2062	450	115	1526
Stuebner, Gustavus L., Flushing, N. Y. Dumping-bucket	784,815	Mar. 14	1682	348	115	392
Stuhler, Max, Brooklyn, N. Y. Car-indicator	784,361	Mar. 7	684	141	115	157
Stumpf, Friedrich, Munich, Germany. Door-check	786,532	Apr. 4	667	134	115	1212
Stumpf, Johann, Charlottenburg, Germany, assignor to General Electric Company. Steam-turbine	787,231	Apr. 11	2064	451	115	1526
Sturdevant, Payne P., Passaic, N. J., assignor to American Car & Foundry Company, St. Louis, Mo. Tank-support	784,600	Mar. 14	1221	256	115	287
Sturdevant, Payne P., Passaic, N. J., assignor to American Car & Foundry Company, St. Louis, Mo. Tank-car	787,130	Apr. 11	1859	398–9	115	1481
Sturtevant Mill Company. (See Sturtevant, Thomas L. and T. J., assignors.)						
Sturtevant, Thomas J. (See Sturtevant, Thomas L. and T. J.)						
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Wellesley, Mass., assignors to Sturtevant Mill Company, Portland, Me. Combined cooler and muffler for gas-engines	784,191	Mar. 7	356	73	115	83
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Wellesley, Mass., assignors to Sturtevant Mill Company, Portland, Me. Power-transmitting mechanism	784,285	Mar. 7	540	111	115	124
Suchy, Robert, Griesheim-on-the-Main, assignor to Chemische Fabrik Griesheim Electron, Frankfort-on-the-Main, Germany. Making chromates	784,640	Mar. 14	1325		115	312
Sullivan, Albert W., and W. Renshaw, Chicago, Ill. Electric train-signal	787,595	Apr. 18	2805	611	115	1706
Sullivan, Albert W., and W. Renshaw, Chicago Ill. Draft-rigging for railway-cars	787,864	Apr. 18	3366	736	115	1832
Sullivan, James M., assignor to American Coal Converting Company, Chicago, Ill. Coking-oven	786,694	Apr. 4	986	203	115	1281
Sullivan, John L., assignor of one-half to J. Harris, Warren, R. I. Trolley-wheel guard for electric wires. (Reissue)	12,324	Mar. 14	2159	456	115	496
Sulman, Henry L. (See Cattermole, Sulman, and Kirkpatrick-Picard.)						
Summerfield, John, Dallas Tex. Cotton-picker	787,314	Apr. 11	2222	488	115	1560
Sumter Telephone Manufacturing Company. (See Mason, Charles T., assignor.)						
Superior Light and Heat Co. (See Kistler and Symonds, assignors.)						
Susanka, Bert B., Chicago, Ill. Water-purifying apparatus	787,803	Apr. 18	3243	708	115	1804
Sutor, John P., Scarsdale, N. Y. Manufacture of sanitary antiseptic mats	785,838	Mar. 28	3734		115	868
Sutton, James M., Redboiling Springs, Tenn. Cotton-chopper	787,060	Apr. 11	1731	368–9	115	1455
Sutton, R. (See Bottgar, Adolph P., assignor.)						
Sutton, Wesley, S. Lord, Liverpool, and W. S. Kerr, Southport, England. Electric exercising appliance	786,533	Apr. 4	668	135–6	115	1212
Suzuki, Tozaburo, Sunamura, Japan. Vacuum evaporating apparatus	785,238	Mar. 21	2522	532	115	590
Suzuki, Tozaburo, Sunamura, Japan. Apparatus for making soy extracts	785,776	Mar. 28	3607	771	115	838
Suzuki, Tozaburo, Sunamura, Japan. Vertical boiler	788,174	Apr. 25	4003	864–5	115	1995
Svenska Centrifugaktiebolaget. (See Nordlindh, Ernst A., assignor.)						
Swan, John W., Lima, Ohio. Stuffing-box	787,411	Apr. 18	2429	526	115	1620
Swanson, Peter, Soudan, assignor of one-half to N. A. Gray, St. Paul, Minn. Device for removing oil-cellars from the driving-axle boxes of locomotives	788,287	Apr. 25	4211	913	115	2040
Sweet, Edgar A., Peacedale, R. I. Explosive fire-alarm button	788,225	Apr. 25	4101	888	115	2015
Sweet, Warren, Fort Wayne, Ind., assignor to Horton Manufacturing Company. Mechanical movement	788,226	Apr. 25	4102	888–9	115	2015
Sweet, Warren, Fort Wayne, Ind., assignor to Horton Manufacturing Company. Mechanical movement for washing-machines	788,227	Apr. 25	4103	889	115	2016
Sweney, Clifford F. (See Bouquet and Sweney.)						
Swezey, George H., Irvington, N. J. Means for moistening and sealing envelops	785,527	Mar. 21	3120	659	115	723
Swigert, Edward F., Lima, Ohio. Resonator	784,082	Mar. 7	145	26	115	36
Swindell, John C., Allegheny, Pa. Gas-furnace	787,131	Apr. 11	1861	399	115	1482
Swing, David J., Hagan, Ga. Railway frog and guard-rail	786,068	Mar. 28	4211	887–8	115	976
Swope, Abijah Y., Winlock, Wash. Mole-trap	788,076	Apr. 25	3801	826	115	1944
Sykes, William W., assignor, by mesne assignments, of one-half to H. L. Carpenter, Minneapolis, Minn. Fire-extinguisher	786,779	Apr. 4	1146	241	115	1316
Sykora, Charles, Amo, Minn. Threshing-machine	786,172	Mar. 28	4415	934	115	1021
Sylvester, Frank M., Hamilton, Wash. Ratchet pipe-cutter	784,445	Mar. 7	883	184–5	115	201
Sylvester, Joseph H., and P. Weckbecker, Quincy, Fla. Tobacco-hanger	785,777	Mar. 28	3610	771	115	839
Symonds, Henry. (See Kistler and Symonds.)						
Syracuse Rawhide Manufacturing Company. (See Latulip, Fred, assignor.)						
Szöllösy, Jules, assignor of one-half to L. Hyman, Brighton, England. Electrically-heated curling-iron	787,957	Apr. 25	3558	778	115	1887

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tabor, Clinton D., New York, N. Y., assignor to Tabor Sash Company, Newark, N. J. Window	785,778	Mar. 28	3611	772	115	839
Tabor Sash Company. (See Tabor, Clinton D., assignor.)						
Tabrett, Henry C., and W. Lewin, San Francisco, Cal. Combined feed-water filter and heater	787,958	Apr. 25	3559	778	115	1887
Taggert, Daniel, Indianapolis, Ind., assignor, by mesne assignments, to Cincinnati Car Company, Cincinnati, Ohio. Car-brake appliance. (Reissue)	12,327	Mar. 21	3465	745	115	794
Talt, Roderick H., St. Louis, Mo., assignor of one-half to J. M. Westerlin and A. Campbell, Chicago, Ill. Automatic controlling-valve	785,444	Mar. 21	2938	620	115	681
Talbert, Daniel H., Indianapolis, Ind. Game apparatus	784,709	Mar. 14	1450	300–1	115	341
Talcott, Richard H. L., Brookline, Mass. Soap-pulverizing machine	784,767	Mar. 14	1585	327	115	371
Tallman, Horace M., Shelbyville, Ill. Hay-press	787,132	Apr. 11	1863	400	115	1482
Tandy, George G., San Francisco, Cal. Hook and eye	784,710	Mar. 14	1453	301	115	342
Tanner, Julius R., Pittsburg, Pa. Centering-motor	787,479	Apr. 18	2570	555	115	1651
Tanner, Julius R., Pittsburg, Pa. Centering-motor	787,480	Apr. 18	2572	555	115	1651
Tarris, Andrew, assignor of one half to E. M. Bocock, Marion, Ind. Swinging gate	787,315	Apr. 11	2224	488	115	1561
Tashjian, Armenag K., New York, N. Y. Traveling-case	785,188	Mar. 21	2419	508	115	569
Tasker, Vernon C., assignor to United States Ordnance Company, Washington, D. C. Recoil-operated gun	784,362	Mar. 7	686	141–3	115	157
Tatterson, Arthur P., *et al.* (See Tillinghast, Joseph H., assignor.)						
Tatterson, George W., *et al.* (See Tillinghast, Joseph H., assignor.)						
Tatum, Elwood, Westbranch, Iowa. Fruit-gathering device	786,855	Apr. 11	1287	273	115	1357
Taussig, John H., Newark, N. J., assignor to United Gas Improvement Company, Philadelphia, Pa. Gas-retort stand-pipe	787,061	Apr. 11	1732	369	115	1455
Taylor, Alfred, Victoria, Canada. Bedstead construction	786,173	Mar. 28	4416	934	115	1021
Taylor Burner and Electroplating Company. (See Taylor, William G., assignor.)						
Taylor, Clarence L., assignor to Morgan Engineering Company, Alliance, Ohio. Ingot-stripping apparatus	788,339	Apr. 25	4315	939–40	115	2064
Taylor, Clarence W., Sioux City, Iowa. Gas-regulating burner	788,382	Apr. 25	4411	958	115	2084
Taylor, Edgar H., Birmingham, Ala. Baling-press	787,008	Apr. 11	1615	345–6	115	1429
Taylor, Eugene H., Lynn, Mass. Machine for mitering and cornering box-blanks	788,288	Apr. 25	4213	914	115	2040
Taylor George B., Birmingham, England. Hinge-cutting machine	787,232	Apr. 11	2065	451–2	115	1526
Taylor, George B., Birmingham, England. Parallel bench-vise	788,340	Apr. 25	4317	941	115	2064
Taylor, George H., Joliet, Ill. Mold for sewer-traps, &c	788,175	Apr. 25	4006	865	115	1996
Taylor, Horace H., assignor of one-tenth to J. A. Curry, San Jose, Cal. Vehicle-wheel. (Reissue)	12,325	Mar. 14	2161	456–7	115	497
Taylor Iron and Steel Company. (See Brinton, Walter, assignor.)						
Taylor, James H., Chicago, Ill. Spiral pipe	784,128	Mar. 7	227	45	115	54
Taylor, James H. and J. B., Toledo, Ohio. Gear for washing-machines	786,856	Apr. 11	1288	273	115	1357
Taylor, James I. (See Ely and Taylor.)						
Taylor, John L., Benton Harbor, Mich. Weighing-scoop	784,641	Mar. 14	1326	275	115	312
Taylor, Julius B. (See Taylor, James H. and J. B.)						
Taylor, Lloyd B., Chicago, Ill. Gun-trunk	784,601	Mar. 14	1222	256	115	288
Taylor, Rose, and W. G. Creamer, assignors to Automatic Ventilator Company, New York, N. Y. Ventilating device	787,997	Apr. 25	3648	794	115	1908
Taylor, Stiles & Company. (See Griffin, Charles W., assignor.)						
Taylor, William G., assignor to Taylor Burner and Electroplating Company, Pittsburg, Pa. Water-heater	785,189	Mar. 21	2421	509	115	569
Taylor, William M., Weston, and W. Holle, St. Clara, W. Va. Sash-fastener	784,446	Mar. 7	887	185	115	202
Teft, Frank M., *et al.* (See Barber, Henry F., assignor.)						
Tempie, Frederick L., Prince George, Va. Awning	787,865	Apr. 18	3368	736–7	115	1832
Temple Gas Engine & Machine Company. (See Temple, Robert, assignor.)						
Temple, Robert, assignor to Temple Gas Engine & Machine Company, Denver, Colo. Pneumatically-actuated tool	787,959	Apr. 25	3562	779	115	1888
Temple, Robert, assignor to Temple Gas Engine & Machine Company, Denver, Colo. Pneumatically-actuated tool	787,960	Apr. 25	3565	779	115	1889
Temple, Robert, assignor to Temple Gas Engine & Machine Company, Denver, Colo. Pneumatically-actuated tool	787,961	Apr. 25	3568	779–81	115	1890
Temple, Robert, assignor to Temple Gas Engine & Machine Company, Denver, Colo. Pneumatically-actuated tool	787,962	Apr. 25	3571	781	115	1891
Temple, Robert, assignor to Temple Gas Engine & Machine Company, Denver, Colo. Pneumatically-actuated tool	787,963	Apr. 25	3574	781	115	1892
Templin, Joseph H., New York, N. Y., assignor to Philadelphia Pneumatic Tool Company. Handle for pneumatic tools	787,347	Apr. 11	2298	499	115	1577
Templin, Joseph H., New York, N. Y., assignor to Philadelphia Pneumatic Tool Company. Handle for pneumatic tools	787,705	Apr. 18	3021	663	115	1754
Tengwall File & Ledger Company. (See Elinoff and Axthelm, assignors.)						
Tennant Auto-Tire Company. (See Tennant, Irvin, assignor.)						
Tennant, Irvin, assignor to Tennant Auto-Tire Company, Springfield, Ohio. Pneumatic tire	786,470	Apr. 4	538	108	115	1185
Termaat, John D., and L. J. Monahan, Oshkosh, Wis., assignors to Termaat and Monahan Company. Reversing means for explosive-engines	785,922	Mar. 28	3888	826	115	903
Termaat and Monahan Company. (See Termaat and Monahan, assignors.)						
Terry, Eugene, Ithaca, N. Y. Adjustable foot-rest for radiators, &c	784,711	Mar. 14	1454	301	115	342
Terry, Eugene, Ithaca, N. Y. Toy	786,610	Apr. 4	812	168	115	1243
Tesla, Nikola, New York, N. Y. Transmitting electrical energy through the natural mediums	787,412	Apr. 18	2431	526	115	1620
Thayer, Edward D., *et al.* (See Crompton, Randolph, assignor.)						
Thayer, Edward D., *et al.* (See Crompton and Fitton, assignors.)						
Thayer, Edward D., assignor to Crompton-Thayer Loom Company, Worcester, Mass. Weft-replenishing mechanism for looms	786,240	Mar. 28	4541	962–3	115	1047
Thayer, Ellis T., assignor of one-third to J. E. Crawford, Charleston, W. Va. Self-oiling car-wheel	785,128	Mar. 21	2296	482	115	541
Thayer, John W., Los Angeles, Cal. Corset-shield	788,289	Apr. 25	4219	915	115	2042
Thayer, Paul C., Oroville, Cal. Wrench	788,383	Apr. 25	4413	959	115	2084
Thiemann, Heinrich, Dessau, Germany. Slipper	787,481	Apr. 18	2573	555	115	1651
Thierfelder, Martin, Zwickau, Germany. Resilient handle-bar for bicycles or the like	786,857	Apr. 11	1289	273	115	1357
Thirsk, George H., Philadelphia, Pa. Constructing chimneys or stacks	785,779	Mar. 28	3616	772–3	115	840
Thode, Gustav A., Middlebranch, Nebr. Transmission-gear for automobiles	784,642	Mar. 14	1328	275	115	313
Thomas, Emmet A. (See Barker, Wendell A., assignor.)						
Thomas, George W., assignor to R. Thomas and Sons Company, East Liverpool, Ohio. Press for plastic material	788,120	Apr. 25	3900	844–5	115	1972
Thomas, Henry M. (See Crandell, Edgar J., assignor.)						
Thomas, John Summer Hill, near Sydney, assignor of one-half to R. Sands, Sydney, New South Wales, Australia. Computing apparatus for weighing-scales	787,413	Apr. 18	2435	526	115	1620

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Thomas, John R., Pittsburg, assignor to Knock Down Box Company, Connellsville, Pa. Knockdown box or crate	786,858	Apr. 11	1290	274	115	1357
Thomas, Paul, Charlottenburg, near Berlin, Germany. Means for maintaining synchronism in electric motors	784,447	Mar. 7	889	185–6	115	202
Thomas, Percy H., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Electrical condenser	786,325	Apr. 4	159	37	115	1104
Thomas, William M., Greensboro, Ala. Vehicle-seat	784,239	Mar. 7	450	91	115	105
Thompson, Burchard D., Bradford, Pa. Nut-lock	787,804	Apr. 18	3246	708	115	1805
Thompson, Charles R., Pocatello, Idaho. Nut-lock	785,528	Mar. 21	3121	659	115	723
Thompson, Frank, *et al.* (See Forbes, Henry M., assignor.)						
Thompson, Frank M. (See Clark, James H., assignor.)						
Thompson, Guion, Duluth, Minn., assignor to Thompson Safety Appliance Company. Bridging circuits for electric circuits	785,445	Mar. 21	2940	620	115	682
Thompson, Guion, Duluth, Minn., assignor to Thompson Safety Appliance Company. Electromagnetic block system	785,446	Mar. 21	2942	621	115	683
Thompson, Guion, Duluth, Minn., assignor to Thompson Safety Appliance Company. Partial circuits for electric currents	785,447	Mar. 21	2945	621	115	683
Thompson, Guion, Duluth, Minn., assignor to Thompson Safety Appliance Company. Means for progressively establishing and dissolving magnetic spheres of influence	785,448	Mar. 21	2948	621	115	684
Thompson, Guion, and H. W. Merchant, New York, N. Y., assignors to Thompson Safety Appliance Company, Jersey City, N. J. Means for progressively establishing and dissolving spheres of magnetic influence	785,338	Mar. 21	2707	574	115	629
Thompson, James S., Chicago, Ill., assignor to American Brake Shoe & Foundry Company, Jersey City, N. J. Brake-shoe	784,363	Mar. 7	691	143	115	158
Thompson, John G. (See Duck, Joseph G., assignor.)						
Thompson, John H., Charleston, W. Va., assignor of one-half to D. Rogan, Birmingham, Ala. Trolley	784,448	Mar. 7	891	186	115	202
Thompson, Patrick, Beaverfalls, Pa. Saw	785,583	Mar. 21	3221	684	115	742
Thompson Safety Appliance Company. (See Thompson, Guion, assignor.)						
Thompson Safety Appliance Company. (See Thompson and Merchant, assignors.)						
Thompson, Thomas H., Starbuck, Minn. Adjustable rack and shelf support	785,449	Mar. 21	2949	621	115	684
Thompson, William H., assignor of one-half to W. W. Dryden, Philadelphia, Pa. Bulb-manipulator	787,805	Apr. 18	3248	709	115	1806
Thomson, Charles A., Belleville, N. J. Dental jaw-brace	785,529	Mar. 21	3122	660	115	723
Thomson Electric Welding Company. (See Rietzel, Adolph F., assignor.)						
Thomson, Johnston A., deceased, Montreal, Canada; E. J. Prindle, administrator. Printing-machine	786,069	Mar. 28	4213	888–91	115	976
Thomson, Luther M., St. Louis Park, Minn. Grain-weighing device for threshing-machines	787,009	Apr. 11	1624	346	115	1431
Thomson, Thomas K., Yonkers, assignor of one-half to A. McMullen, New York, N. Y. Constructing subaqueous tunnels	784,816	Mar. 14	1684	348	115	393
Thomson, William S., Plantsville, Conn. Screw-driver or kindred tool	788,228	Apr. 25	4104	889	115	2016
Thordarson, Chester H., Chicago, Ill. Electric central-station recording mechanism for meters	784,712	Mar. 14	1455	302	115	342
Thordarson, Chester H., Chicago, Ill. Electric meter recording mechanism	784,713	Mar. 14	1468	302–3	115	345
Thorne, Isaac C., Glencove, N. Y. Protected third-rail system	788,290	Apr. 25	4219	915	115	2042
Thornley, Albert J., assignor to Narraganett Machine Company, Pawtucket, R. I. Warp-beam for looms	785,386	Mar. 21	2816	594	115	654
Thornton, John E., Altrincham, assignor to J. O. O'Brien, Manchester, England. Photographic camera	785,239	Mar. 21	2526	533	115	591
Thornton, John E., and C. F. S. Rothwell, assignors to J. O. O'Brien, Manchester, England. Transparent-paper stripping-film for photographs	786,534	Apr. 4	670	136	115	1213
Thornton, John E., and C. F. S. Rothwell, assignors to J. O. O'Brien, Manchester, England. Photographic plate or film for daylight development and fixing	786,535	Apr. 4	671	136	115	1213
Thornton, John E., and C. F. S. Rothwell, assignors to J. O. O'Brien, Manchester, England. Self-developing sensitive paper	786,536	Apr. 4	672	136	115	1213
Thorsby, Axel, assignor to C. Mattison Machine Works, Beloit, Wis. Chuck for spindle-turning machines	787,133	Apr. 11	1866	400–2	115	1483
Threlfall, Robert, Newton, Mass. Tire-shoe setter	786,611	Apr. 4	813	168	115	1243
Throop, Charles E., Buffalo, N. Y. Boiler-tube fastening	784,192	Mar. 7	358	73	115	84
Thurlow, Harry W., San Francisco, Cal. Corset-fastening	785,685	Mar. 21	3436	739	115	787
Thurlow, Nathaniel. (See Jacobs, Witherspoon, and Thurlow.)						
Ticknor, William D. (See Callahan, Cornelius, assignor.)						
Tierney, John M. (See Keller, Peter, assignor.)						
Tierney, John M. (See Keller and Seller, assignors.)						
Tiffany, Albert R., assignor to W. M. Brenner, Dayton, Ohio. Tobacco-leaf-sizing machine	788,077	Apr. 25	3802	827	115	1945
Tilden, James A., Hydepark, assignor to Hersey Manufacturing Company, South Boston, Mass. Meter system	785,923	Mar. 28	3891	827	115	904
Tilley, E. C. (See Campbell, Solon O., assignor.)						
Tillinghast, Joseph H., assignor to A. P. and G. W. Tatterson, Stockton, Cal. Wool-washing machine	784,240	Mar. 7	451	91	115	105
Timms, James. (See Bush and Timms.)						
Tingleaf, Arthur, Altona, Ill. Scaffolding	787,233	Apr. 11	2067	452	115	1526
Tingley, Charles O., Rahway, N. J. Rubber patch	787,010	Apr. 11	1625	347	115	1431
Tirrill, Leonard A., Lynn, Mass., assignor to General Electric Company. Back-geared motor	787,482	Apr. 18	2574	555	115	1652
Tisch, Emil. (See Tisch, Julius and E.)						
Tisch, Julius and E., Grand Rapids, Mich. Window screen and ventilator	786,391	Apr. 4	314	69	115	1139
Titzel, John A., Sr., Franklin, Pa. Dynamo or motor	788,291	Apr. 25	4223	915–16	115	2043
Tixier, August, Billancourt, and L. Rambaud, Paris, France. Manufacturing varnishes	785,450	Mar. 21	2950	.....	115	684
Toborg, George, Chicago, Ill. Breakdown gun	784,193	Mar. 7	360	73	115	84
Todd & Company, G. W. (See Beebe, Gaylord W., assignor.)						
Todd and Company, G. W. (See Todd, Libanus M., assignor.)						
Todd, John H. (See Clingan, Preston H., assignor.)						
Todd, Libanus M., assignor to G. W. Todd and Company, Rochester, N. Y. Printing-stamp	784,602	Mar. 14	1224	256–7	115	288
Tolman, Charles A. (See Goodall, John N., assignor.)						
Toltz, Max. (See Lipschutz, Arthur, assignor.) (Reissue.)						
Tomlinson, Joseph, Cedar Rapids, Iowa. Cantaliver suspension-bridge	785,686	Mar. 21	3438	739	115	787
Tompkins, Daniel A., T. S. Diffey, and T. S. Simpson, Charlotte, N. C. Oil-press	787,483	Apr. 18	2575	556	115	1652
Tone, Frank J., Niagara Falls, N. Y. Heating carbon articles	786,850	Apr. 11	1291	274	115	1358
Toney, George W., Waltham, assignor to F. Burgess, Quincy, Mass. Universal joint	785,839	Mar. 28	3735	795	115	868
Tooley, James A., Stamford, N. Y. Steam-engine	787,134	Apr. 11	1871	402	115	1484
Topeters, Paul W., *et al.* (See Wulst, Carl, assignor.)						
Torgerson, Halvor, Kelvin, N. D. Fish-hook	787,806	Apr. 18	3249	709	115	1806

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Torrance, Francis C., Erie, Pa. Ratchet-drill	787,234	Apr. 11	2068	452	115	1527
Torrey, Augustus, deceased; C. F. Torrey, Detroit, Mich., administratrix. Ballast-spreader	787,964	Apr. 25	3578	782	115	1893
Torrey, Charlotte F., administratrix. (See Torrey, Augustus.)						
Tourchaninoff, Stephan. (See Danilevsky and Tourchaninoff.)						
Tourville, Charles B., assignor of one-half to K. Kuhlmann, St. Louis, Mo. Live-fish box	785,451	Mar. 21	2952	622	115	685
Tower, Clinton A., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	784,768	Mar. 14	1587	327	115	371
Tower, Clinton A., assignor to National Malleable Castings Company, Cleveland, Ohio. Device for supporting pivot-pins in couplings	785,698	Mar. 21	3461	744	115	793
Tower, Oscar, Wilson, N. Y. Harrow	787,011	Apr. 11	1627	347	115	1431
Townsend, Richard S., Union City, Mich. Sprocket-wheel	784,241	Mar. 7	453	92	115	106
Townsend, Samuel B., Brewster, N. Y. Can-capping tool	788,121	Apr. 25	3902	845	115	1972
Townsend, Samuel B., Brewster, N. Y. Seal for cans	788,122	Apr. 25	3905	845	115	1973
Townsend, W. H., *et al.* (See Canfield, Frank, assignor.)						
Trabue, Luther, Girard, Ill. Baling-press	787,235	Apr. 11	2069	453	115	1527
Tracy, Thomas H., Jacksonville, Fla. Railway-joint	784,449	Mar. 7	895	186	115	203
Trapp, Edward A., New York, N. Y. Railway-car	784,817	Mar. 14	1687	349	115	393
Travers, Charles J., Milwaukee, Wis. Spring-back for chairs	786,326	Apr. 4	161	37	115	1104
Traves, Webster F., assignor to Duplex Rubber Company, Cleveland, Ohio. Syringe	788,176	Apr. 25	4007	865	115	1996
Travis, James E., Westgrove, assignor to J. Ross, Philadelphia, Pa. Producing artificial wood surfaces	784,242	Mar. 7	454	92	115	106
Travis, John M. (See Fitzgibbon and Travis.)						
Traxler, Cisco R., Winston Salem, N. C. Stay-log for veneer-cutting machines	786,241	Mar. 28	4544	963	115	1048
Traxler, Cisco R., assignor to United States Veneer Company, Winston Salem, N. C. Veneer-cutting machine	785,966	Mar. 28	4039	856–7	115	938
Treadwell, John, San Francisco, Cal. Briquet-press	784,083	Mar. 7	146	27	115	37
Tregellas, Josiah, Crippiecreek, Colo. Neck-yoke holdback	788,177	Apr. 25	4008	865	115	1996
Tremaine, Jay B., Iuka, Kans. Wagon-body	786,695	Apr. 4	988	203	115	1281
Triller, Charles, *et al.*, executors. (See Poyet and Goodwin.)						
Trinkler, Gustaf, St. Petersburg, Russia. Thermic motor	785,240	Mar. 21	2527	534	115	591
Troost, Marinus J., Rotterdam, Netherlands. Steam-turbine	785,643	Mar. 21	3341	716	115	768
Tropf, Julius, Frankenthal, Germany. Device for forming stave-casks	787,807	Apr. 18	3250	709	115	1806
Trotter, George F., assignor to Universal Manufacturing Company, Louisville, Ky. Massage-machine	784,643	Mar. 14	1332	276	115	314
Trotter, James, Sycamore, Ill. Lubricator	785,452	Mar. 21	2953	622	115	685
Trout, William H., Milwaukee, Wis. Sawmill set-works	787,135	Apr. 11	1875	403–4	115	1485
Trowbridge, Roy G., Chicago, Ill. Coin-controlled dispensing apparatus	784,905	Mar. 14	1843	386	115	428
Trudeau, Eugene J., Chicago, Ill. Automatic hoist and dump	787,998	Apr. 25	3650	795	115	1908
Truemper, Charles J., Indianapolis, Ind. Awning	786,327	Apr. 4	163	37–8	115	1105
Trussell, Emory A., St. Louis, Mo., assignor to Sieber & Trussell Mfg. Co. Loose-sheet holder	785,339	Mar. 21	2708	574	115	630
Trussell, Emory A., assignor to Sieber & Trussell Manufacturing Company, St. Louis, Mo. Temporary binder	785,453	Mar. 21	2954	622	115	685
Trussell, Wilbert C., Boston, assignor of one-half to J. R. Green, Somerville, Mass. Safety-pocket	785,454	Mar. 21	2956	622	115	686
Truxell, George H., Greensburg, Pa. Concrete-wall-forming machine	784,084	Mar. 7	148	27–8	115	37
Tuck, Nelson L. and W. W., Brooklyn, N. Y. Fuel-injector for oil-engines	785,387	Mar. 21	2817	594	115	654
Tuck, Nelson L. and W. W., Brooklyn, N. Y. Vaporizer and igniter for oil-engines	785,388	Mar. 21	2818	594	115	655
Tuck, Nelson L. and W. W., Brooklyn, N. Y. Vaporizer and igniter for oil-engines	785,389	Mar. 21	2819	595	115	655
Tuck, Nelson L. and W. W., Brooklyn, N. Y. Internal-combustion engine	785,687	Mar. 21	3439	740	115	788
Tuck, William W. (See Tuck, Nelson L. and W. W.)						
Tucker, Benjamin W., Newark, N. J., assignor to Marles Carved Moulding Company, Philadelphia, Pa. Carving-machine	784,714	Mar. 14	1479	303–4	115	348
Tucker & Dorsey Manufacturing Company. (See Dorsey, Robert L., assignor.)						
Turbayne, William A. (See Richards and Turbayne.)						
Turbayne, William A., Lancaster, assignor to Gould Coupler Company, New York, N. Y. System of electrical distribution	787,012	Apr. 11	1628	347	115	1432
Turbine Pump Company. (See Richards, John, assignor.)						
Turck, Frederick M., New York, N. Y. Desk-calendar	787,649	Apr. 18	2913	635	115	1731
Turley, Ralph H., and R. K. Gambrell, Greeley, Colo. Wire-stretcher	785,280	Mar. 21	2608	551	115	608
Turner, Charles E., Rochester, N. Y. Air-brake apparatus	784,526	Mar. 7	1059	219	115	238
Turner, Charles E., and R. L. Hyman, Macon, Ga.; said Hyman assignor to said Turner. Trunk	787,236	Apr. 11	2070	453	115	1527
Turner, Charles H., assignor of one-half to W. C. Turner, New York, N. Y. Car-fender	785,840	Mar. 28	3736	795–6	115	869
Turner, George D., assignor, by mesne assignments, to Cleveland Clasp Company, Cleveland, Ohio. Veil-brooch	786,328	Apr. 4	165	38	115	1106
Turner Granville, assignor of one-fourth to J. B. Baldy, Tacoma, Wash. Umbrella	787,237	Apr. 11	2073	453	115	1528
Turner, Henry G., London, England. Material for furnace-linings	785,841	Mar. 28	3738	.....	115	869
Turner, Will C. (See Turner, Charles H., assignor.)						
Turney, Eugene T., San Rafael, Cal. Speed-indicator	787,650	Apr. 18	2915	635–6	115	1731
Turnor, Harry T., Roewen, England, assignor to J. R. McClelland, New Haven, Conn. Toy	787,062	Apr. 11	1733	369	115	1455
Turver, Charles H., New York, N. Y. Soot-arrester and draft-regulator	787,808	Apr. 18	3251	709–10	115	1806
Tusia, Frank M. (See Lanning and Tusia.)						
Tverdahl, Ole, assignor to C. T. Johnson, Canal Dover, Ohio. Sad-iron	787,316	Apr. 11	2224	488	115	1561
Tweedt, Harry T., Slater, Iowa. Steel trap	787,013	Apr. 11	1632	347	115	1433
Twiss, William A. (See Parker and Twiss.)						
Twyman, Tucker A. and W. G., Kansas City, Mo. Air-feeding device for stoves or furnaces	787,014	Apr. 11	1633	348	115	1433
Twyman, William G. (See Twyman, Tucker A. and W. G.)						
Tyden, Emil, Hastings, Mich. Pedestal-table locking device	786,070	Mar. 28	4229	891	115	981
Tyden, Emil, Hastings, Mich. Self-locking seal	788,384	Apr. 25	4414	959	115	2085
Tyler, Walter L., *et al.* (See Lindstrom, Nils O., assignor.)						
Tynan, Joseph E., Paterson, N. J. Doubling and twisting machine	784,364	Mar. 7	692	143–4	115	158
Tynan, Joseph E., Paterson, N. J. Reeling-machine	784,365	Mar. 7	696	144–5	115	159
Uhland, Wilhelm H., Leipsic-Gohlis, Germany. Apparatus for making starch	784,450	Mar. 7	896	187	115	204
Uhtbrock, Frederick, New York, N. Y. Railway-switch	785,780	Mar. 28	3619	773	115	841
Ulrich, Tomey D., Marion, Ohio. Straw-stacker	785,241	Mar. 21	2529	534	115	591
Uncapher, John R., Plumville, Pa. Combination checkrein-ease	785,129	Mar. 21	2298	482	115	541
Underwood, Joseph B., Fayetteville, N. C. Thread cutter and tier	787,238	Apr. 11	2074	453	115	1528
Underwood Typewriter Company. (See Myers, Louis, assignor.)						
Underwood and Underwood. (See Wyman and Fleming, assignors.)						
Unge, Wilhelm T., Stockholm, Sweden. Self-rotating air-torpedo	785,644	Mar. 21	3342	716	115	768

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Unger, Isaac, *et al.* (See Soderberg Josef, assignor.)						
Union Carbide Company. (See Edmands and Scales, assignors.)						
Union Carbide Company. (See Price, Cox, and Marshall, assignors.)						
Union Lock Stitch Company. (See Cummings, Henry H., assignor.)						
Union Special Sewing Machine Company. (See Woodward, Russel G., assignor.)						
Union Switch and Signal Company. (See Hanlon, Marquis D., assignor.)						
Union Switch and Signal Company. (See Wilson, Asbury G., assignor.)						
Union Typewriter Company. (See Burridge, Lee S., assignor.)						
Union Typewriter Company. (See Gabrielson, Carl, assignor.)						
Union Typewriter Company. (See Laboñsh, Charles S., assignor.)						
Union Typewriter Company. (See Stickney, Burnham C., assignor.)						
United Fast Color Eyelet Company. (See Walden, Henry, assignor.)						
United Gas Improvement Company. (See Taussig, John H., assignor.)						
United Injector Company. (See Park, William R., assignor.)						
United Shoe Machinery Company. (See Casgrain, Louis A., assignor.)						
United Shoe Machinery Company. (See De Minico, Charles, assignor.)						
United Shoe Machinery Company. (See Mayo, Benjamin F., assignor.)						
United Shoe Machinery Company. (See McFeely, Ronald F., assignor.)						
United States Fiber Stopper Company. (See Rivers, Julian H., assignor.)						
United States Graphotype Company. (See Nicholas, William, assignor.)						
United States Graphotype Company. (See West, Kirke, assignor.)						
United States Ordnance Company. (See Tasker, Vernon C., assignor.)						
United States Veneer Company. (See Traxler, Cisco R., assignor.)						
Universal Fastener Company. (See Judson, Whitcomb L., assignor.)						
Universal Kerosene Engine Company. (See Rousseau and Ferris, assignors.)						
Universal Manufacturing Company. (See Trotter, George F., assignor.)						
Universal Talking Machine Manufacturing Company. (See Perry, William S., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., assignor.)						
Upson, Theron A., New York, N. Y. Blind-fastener	784,085	Mar. 7	152	28	115	38
Urie, James W. (See Warram and Urie.)						
Urwick, Henry, Worcester, England. Glove	785,190	Mar. 21	2423	509	115	569
Vacha, Joseph L. (See Walton, Russell, assignor.)						
Valentine, Harry J., assignor to Columbian Hardware Company, Cleveland, Ohio. Spring-hinge	787,999	Apr. 25	3652	795	115	1909
Van Alstyne, Edward P., Jr., Kinderhook, and H. Van Alstyne, Old Chatham, N. Y. Calf-weaner	785,058	Mar. 14	2115	446	115	487
Van Alstyne, Hugh. (See Van Alstyne, Edward P., Jr., and H.)						
Van Boxel, Mathew, assignor of sixty-five one-hundredths to G. Boner, Cleveland, Ohio. Window-shade and curtain hanger	787,239	Apr. 11	2075	454	115	1528
Van de Walker, Charles W., and R. T Jenney, assignors to Western Steel Gate Company, Two Rivers, Wis. Gate	787,242	Apr. 11	2090	461	115	1531
Van Doren, Ogden R., Newark, N. J. Automobile or bicycle wheel	786,612	Apr. 4	816	168	115	1244
Van Gaasbeek, Washington, Brooklyn, N. Y. Adjustable stop-bead fastener	787,596	Apr. 18	2808	611	115	1707
Van Hoorebeke, Gustave. (See Meyer, Ralph J., assignor.)						
Van Horn, John H., Syracuse, N. Y., assignor to Oneida Fishing Reel Co. Automatic fishing-reel	787,317	Apr. 11	2226	488–9	115	1561
Van Houten, Frank H., Fishkill-on-the-Hudson, N. Y. Dough-divider	788,124	Apr. 25	3910	846	115	1975
Van Houten, Frank H., assignor to Dutchess Tool Company, Fishkill-on-the-Hudson, N. Y. Dough-dividing machine	784,451	Mar. 7	899	187–8	115	204
Van Houten, Frank H., assignor to Dutchess Tool Company, Fishkill-on-the-Hudson, N. Y. Dough-dividing machine	788,123	Apr. 25	3907	845–6	115	1974
Van Ness, Albert. (See Paige, James W., assignor.)						
Van Nostran, Samuel W., Minneapolis, Minn. Attachment for theater-seats	785,987	Mar. 28	4044	857–8	115	939
Van Trump, Charles R., Wilmington, Del. Means for signaling and telephoning on electric-trolley or other systems	786,925	Apr. 11	1446	306	115	1392
Van Wye, Charles W., Freeport, Kans. Sieve for threshing-machines	787,867	Apr. 18	3372	737	115	1833
Vance, Philip M., Birmingham, Ala. Tool	786,860	Apr. 11	1292	274	115	1358
Vandenburgh, Walter, Melrose, Mass. Lubricator for axle-spindles	785,242	Mar. 21	2531	535	115	592
Vanderbilt, Cornelius, New York, N. Y. Steam-generating appliance and adaptation of same to locomotives	787,240	Apr. 11	2076	454–9	115	1528
Vanderbilt, Cornelius, New York, N. Y. Locomotive fire-box	787,241	Apr. 11	2086	459–61	115	1530
Vandercook, Frank E., Waterbury, assignor of two-thirds to W. E. Vandercook and H. G. Fosdick, Ansonia, Conn. Corset-eye	787,866	Apr. 18	3370	737	115	1833
Vandercook, William E., *et al.* (See Vandercook, Frank E., assignor.)						
Vanderkloot, Mathias R., assignor to Vanderkloot Steel Piling Company, Chicago, Ill. Piling	786,329	Apr. 4	166	38	115	1106
Vanderkloot Steel Piling Company. (See Vanderkloot, Mathias R., assignor.)						
Vanderman, William, Willimantic, Conn. Pipe-fitting	785,130	Mar. 21	2299	482	115	541
Vanderslice, George W., Clayton, N. J., and J. E. Riley, Trenton, Mo. Manufacturing lubricants	787,545	Apr. 18	2701	.....	115	1682
Vanderslice, John H., assignor to Lukens Iron and Steel Company, Coatesville, Pa. Manhole-cover	788,441	Apr. 25	4520	984	115	2107
Vanderveld, Anthony, Grand Rapids, Mich. Brush-making machine	786,537	Apr. 4	674	137	115	1213
Vanderwerth, Theodor M. (See Kruse and Vanderwerth.)						
Vandrimmelen, Andrew. (See Davis, Ernest J. S., assignor.)						
Vantine, Thomas, assignor of one-half to J. T. Jones, New Cambria, Mo. Oil or gas burner	784,507	Mar. 7	1028	212	115	231
Varnedoe, Robert M., assignor of one-half to J. W. Peacock, Thomasville, Ga. Vine-cutter	785,028	Mar. 14	2062	433	115	476
Varnum, Marcus F., Amorita, Okla. Ter. Wire-stretcher	785,131	Mar. 21	2302	483	115	542
Vaughan, Henry H., Cleveland, Ohio. Car structure and bolster	788,125	Apr. 25	3913	847	115	1975
Vehicle Equipment Company. (See Madden, Albert F., assignor.)						
Veitch, Daniel. (See Boylan, Thomas, assignor.)						
Vereinigte Flanschenfabriken & Stanzwerke Aktien-Gesellschaft. (See Lutzmann, Albert, assignor.)						
Verhoeven, Felix, Forestgrove, Oreg. Wire stretcher and fastener	784,452	Mar. 7	902	188	115	205
Verlenden, Jacob S., Darby, Pa. Machine for twisting and doubling yarns	788,292	Apr. 25	4226	917	115	2043
Vernon, Charles J., Fresno, Cal. Peeling fruit	784,527	Mar. 7	1062	220	115	239
Victor, Fannie S., Atlanta, Ga. Medicine-bottle	784,194	Mar. 7	360	74	115	84
Victor Talking Machine Company. (See Darby, William S., assignor.)						
Victor Talking Machine Company. (See Hood, Delaware J., assignor.)						
Victor Talking Machine Company. (See Johnson, Eldridge R., assignor.)						
Victor Talking Machine Company. (See Rinehart, Bentley L., assignor.)						
Vieweg, Fred J., Plainfield, N. J. Lock	785,132	Mar. 21	2303	483	115	542
Vieweg, Fred J., Plainfield, N. J. Lock	785,842	Mar. 28	3738	796	115	869
Vigié, Georges, Marseilles, France. Support for ships' berths	785,455	Mar. 21	2958	623	115	686

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Villani, Gaetano, Milan, Italy. Signaling-screen	786,613	Apr. 4	817	169	115	1244
Vincent, James H., Littlefalls, N. Y. Machine for cutting woven or knitted fabrics	784,086	Mar. 7	154	29	115	38
Vincent, William. (See Silverman and Vincent.)						
Vincent, William, Oakland, Cal. Combination hammock and canopy support	784,769	Mar. 14	1588	328	115	371
Vintschger, Max, assignor to John Simmons Company, New York, N. Y. Rail-fitting	788,442	Apr. 25	4520	984	115	2108
Violet, Charles A. (See Gerhardt, O'Connor, and Violet.)						
Virtue, Dennis E., Owatonna, Minn. Rotary pump	784,715	Mar. 14	1485	304	115	349
Vitagraph Company of America. (See Ellwood, William, assignor.)						
Vitagraph Company of America. (See Smith, Albert E., assignor.)						
Voelkerding, Frederick H. (See Voelkerding, Otto H. and F. H.)						
Voelkerding, Otto H. and F. H., Augusta, Mo. Bird-trap	784,453	Mar. 7	903	189	115	205
Vogel, Ralph, Germantown, Pa. Car-brake	784,906	Mar. 14	1845	386	115	428
Vogt, Louis, assignor of one-half to J. R. Simpson, Conneaut, Ohio. Hose-coupling	788,178	Apr. 25	4009	866	115	1996
Volckening, Carl K., New York, N. Y. Bottle-washing brush	787,706	Apr. 18	3023	663	115	1754
Volker-Tyszoon, Jan, Dordrecht, Netherlands. Hopper-barge	784,286	Mar. 7	543	111-12	115	125
Voll, Edgar P. (See Goodfellow, John H., assignor.)						
Voorhees, Gardner T., Boston, Mass. Heat-interchanging apparatus	784,716	Mar. 14	1487	305	115	349
Vore, Byron L., Vanwert, Ohio. Box roller or truck	785,029	Mar. 14	2062	433	115	476
Vose and Cliff Manufacturing Company. (See Cliff, Edward, assignor.)						
Voss, Samuel, Charlottenburg, near Berlin, Germany. Device for setting freestones	786,861	Apr. 11	1294	274-5	115	1358
Vraalstad, Edward J., assignor to Buffalo Pitts Company, Buffalo, N. Y. Straw-stacker	786,071	Mar. 28	4232	891-2	115	982
Vreeland, Frederick K., Montclair, N. J., assignor to Wireless Telegraph Exploitation Company, New York, N. Y. Signal-relay	786,696	Apr. 4	989	203-4	115	1281
W. H. Miner Company. (See Miner, William H., assignor.)						
W. H. Miner Company. (See O'Connor, John F., assignor.)						
Wackenhuth, Frederick, New York, N. Y. Syringe	786,697	Apr. 4	993	204	115	1282
Wade, Narvel C., Summerland, Miss. Plow-stock	788,341	Apr. 25	4321	941	115	2065
Waggoner, William B., Chicago, Ill., assignor of two-thirds to W. S. Bidle and G. L. Weiss, Cleveland, Ohio. Car construction	785,781	Mar. 28	3621	774	115	841
Wagner, William F., assignor to American Inventions Company, New York, N. Y. Electric tool-driver	787,707	Apr. 18	3024	663	115	1754
Wagner, William H., assignor to Burlington Blanket Company, Burlington, Wis. Gromet-setting machine	785,133	Mar. 21	2309	483-4	115	544
Wagy, William P. (See Marsh, Howard E., assignor.)						
Wahl, Jules, Nancy, France. Spindle	787,809	Apr. 18	3253	710	115	1807
Wahle, Adolph, Davenport, Iowa. Turbine-engine	788,000	Apr. 25	3653	796	115	1909
Wahlgren, Frithiof E., New York, N. Y. Shaft-supporter for wagons	785,340	Mar. 21	2709	574	115	630
Wainwright, Jonathan, Jr. (See Shafer, Harry B., assignor.)						
Wait, Walter S. (See Cartwright, David J., assignor.)						
Waite, Charles M., New York, N. Y. Railway-car gate	785,456	Mar. 21	2959	623	115	686
Waite, Fred, Otley, England. Platen printing-press	786,072	Mar. 28	4233	892	115	982
Waite, William T. (See Williams, William J., assignor.)						
Wakeman, Robert P., Southport, Conn. Window-screen	785 530	Mar. 21	3123	660	115	723
Wakenhut, William K. (See Norlund and Wakenhut.)						
Walcott, George H. (See Wiser and Walcott.)						
Wald, David. (See Britsch, Otto C., assignor.)						
Walden, Henry, Philadelphia, Pa. Buttonhole	788,078	Apr. 25	3805	828	115	1945
Walden, Henry, Philadelphia, Pa., assignor to United Fast Color Eyelet Company, Portland, Me. Eyelet	785,281	Mar. 21	2609	551	115	608
Waldo, James C., Sharpsburg, assignor of one-fourth to J. J. Forster, Avalon, Pa. Signal mechanism	788,385	Apr. 25	4417	959	115	2085
Wales, Boyd. (See Haack, Emil, assignor.)						
Wales, Robert, Dunedin, New Zealand. Miter-cutting machine	786,538	Apr. 4	677	137-8	115	1214
Wales, Robert, Dunedin, New Zealand. Cutting material for forming miter or bevel joints	786,539	Apr. 4	680	138-9	115	1215
Walker, Albert H., trustee. (See Ippers, John W., assignor.)						
Walker, Albert H., trustee. (See Reckard, Henry L., assignor.)						
Walker, F. L., *et al.* (See Byrd, Britton E., assignor.)						
Walker, George S., assignor to Coffin Valve Company, Boston, Mass. Flushing-gate for sewers, &c	785,134	Mar 21	2312	484	115	544
Walker, George W., St. Albans, W. Va. Mail-bag catcher	787,651	Apr. 18	2918	636	115	1732
Walker, Jacob P., Havre de Grace, Md. Tomato-scalder	787,484	Apr. 18	2578	556	115	1652
Walker, John B., New York, N. Y. Automatic piano-player	788,293	Apr. 25	4229	917-18	115	2044
Walker, John H., Lexington, Ky. Trolley-pole catcher	787,810	Apr. 18	3254	710-11	115	1807
Walker, Mathias, and D. H. Meyer, Dundee Lake, N. J. Sanitary stall for cattle	785,341	Mar. 21	2710	574	115	630
Walker, Sheridan A. (See Old and Walker.)						
Wall, John L., Newton, Kans. Railway safety appliance	786,392	Apr. 4	315	69	115	1140
Wall, Louisa, Boise, Idaho. Chair-table	784,604	Mar. 14	1231	258	115	290
Wallace, Thomas, Brooklyn, N. Y., assignor to W. N. Stevenson, South Orange, N. J. Umbrella-frame	786,471	Apr. 4	539	108	115	1156
Wallace, William A., Collinsville, Tex. Acetylene-gas generator	786,330	Apr. 4	167	38-9	115	1106
Wallbillich, Anthony F., Princebay, N. Y. Cigar-rolling machine	785,688	Mar. 21	3440	740-1	115	788
Walle, Ludwig S., Brooklyn, N. Y., assignor to F. Jebsen, Bergen, Norway. Controlling device	784,717	Mar. 14	1489	305	115	350
Walle, Ludwig S., Brooklyn, N. Y., assignor to F. Jebsen, Bergen, Norway. Electric solenoid	784,718	Mar. 14	1491	305	115	351
Walle, Ludwig S., Brooklyn, N. Y., assignor to F. Jebsen, Bergen, Norway. Electric signal device	787,318	Apr. 11	2231	489	115	1563
Wallin, Gustaf E., Pocatello, Idaho, assignor to Mergenthaler Linotype Company. Linotype-machine	784,287	Mar. 7	545	112	115	125
Walling, William A. (See Haulick, Walling, and Winkle.)						
Wallwork, Rougheedge, Manchester, England. Construction of the bodies of lamps	786,331	Apr. 4	170	39	115	1106
Walmsley, Benjamin M. (See Yancey, Arthur, assignor.)						
Walmsley, Harry, and J. S. Ambler, assignors of one-half to H. R. Lukens, Philadelphia, Pa. Connector for sweep-sticks and picker-sticks of looms	784,195	Mar. 7	362	74	115	85
Walsh, Arthur Q., New York, N. Y. Cover for receptacles	788,294	Apr. 25	4236	918	115	2045
Walsh, Stafford P., San Francisco, Cal., assignor to L. S. Starrett Co., Athol, Mass. Speed-indicator	786,073	Mar. 28	4235	892	115	982
Walter, George A., Prescott, Wis. Twyer-iron	787,868	Apr. 18	3373	738	115	1833
Walters, John W., Webster City, Iowa. Combined mop-head and wringer	787,708	Apr. 18	3026	664	115	1753
Walters, Nils P., assignor of one-half to C. L. O'Kell, Fort Madison, Iowa. Ballast-handling device	785,135	Mar. 21	2313	484	115	545
Walters, William W., *et al.* (See Scribner, Elbridge A., assignor.)						
Walton, Russell, assignor of one-half to J. I. Vacha, Cleveland, Ohio. Pliers	787,414	Apr. 18	2437	527	115	1621
Walton, William L., Neche, N. D. Trace-buckle	787,015	Apr. 11	1634	348	115	1433

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wanda, John C., St. Louis, Mo. Sign-letter	785,988	Mar. 28	4046	858	115	939
Wanemaker, Louis W., Genoa, Ill. Telephone-operator's key	784,605	Mar. 14	1232	258	115	290
Wang, Eysteyn G., Christiania, Norway. Ordnance projectile for gunnery practice	784,087	Mar. 7	157	29	115	39
Warburg, Julius, assignor to M. G. Cohn, New York, N. Y. Hair-dressing device	784,719	Mar. 14	1493	305	115	351
Ward, Arthur J., and C. Wragg, Sheffield, England. Machine for cutting or punching girders, angle-irons, &c	785,282	Mar. 21	2610	551-2	115	609
Ward, Frank D., and H. C. Furniss, Hanwell, assignors of one-third to H. P. Bradford, London, England. Insulator for the conductors of electric railways	786,472	Apr. 4	540	108	115	1186
Ward, Frederick G., Pittsburg, Pa. Sectional gear-wheel	786,074	Mar. 28	4236	892	115	983
Wardwell, Simon W., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Cop-tube	786,698	Apr. 4	994	204	115	1283
Wardwell, Simon W., Providence, R. I., assignor, by mesne assignments, to Commonwealth Trust Company, trustee. Winding-machine	786,862	Apr. 11	1295	275-7	115	1358
Wardwell, Simon W., Providence, R. I., assignor, by mesne assignments, to Commonwealth Trust Company, trustee. Cop or cord-package	786,863	Apr. 11	1303	277	115	1360
Wardwell, Simon W., Providence, R. I., assignor, by mesne assignments, to Commonwealth Trust Company, trustee. Self-lubricating pulley	786,864	Apr. 11	1306	278	115	1361
Waring, Fred B., assignor of one-half to I. R. Longsworth, Lima, Ohio. Electric heater for oil or gas wells	784,454	Mar. 7	905	189	115	206
Warner, Charles M., Memphis, Tenn. Pneumatic control of doors	784,644	Mar. 14	1334	276	115	314
Warner, William W., Cincinnati, Ohio. Storm-shield for vehicles	787,415	Apr. 18	2438	527	115	1621
Warram, William H., Kent county, and J. W. Urie, Baltimore, Md. Nail-placer	785,136	Mar. 21	2315	485	115	545
Warren & Company, S. D. (See Warren, John E., assignor.)						
Warren, George B., Spokane, Wash. Feed-rack and manger	784,455	Mar. 7	907	189	115	206
Warren, George W., Hastings, Nebr. Wardrobe	787,243	Apr. 11	2092	462	115	1531
Warren, Henry E., Newton, Mass. Mechanism for operating valves or other controllers	787,136	Apr. 11	1877	404	115	1486
Warren, John E., Westbrook, Me., assignor to S. D. Warren & Company. Beating-engine	787,063	Apr. 11	1734	370	115	1455
Warren, Phineas M., assignor of one-half to T. J. Huff, Nyssa, Oreg. Floating current-wheel	787,811	Apr. 18	3258	711	115	1808
Warren Sheet Metal Co. (See Winfield, William C., assignor.)						
Warther, Fred, Canal Dover, Ohio. Pneumatic actuating device for the reversing-gears of locomotives	786,075	Mar. 28	4238	893	115	983
Warwick, Frank R., Lapeer, Mich. Tail-holding attachment for harness	785,457	Mar. 21	2961	623	115	687
Washburn, Edwin C., Minneapolis, Minn. Draft-rigging	787,416	Apr. 18	2439	527	115	1621
Wasserman, William A., Baltimore, Md. Combined strainer and holder for coffee-pots	786,865	Apr. 11	1308	278	115	1361
Water-Gas-Maatschappij Systeem Dr. Kramers & Aarts. (See Kramers and Aarts, assignors.)						
Waterbury Clock Co. (See Horn, Ernest H., assignor.).						
Waterbury, George H., Denver, Colo., assignor to Waterbury Metals Extraction Company, Spokane, Wash. Precipitation process	788,443	Apr. 25	4522	984	115	2108
Waterbury Metals Extraction Company. (See Waterbury, George H., assignor.)						
Waterloo Concrete Brick & Block Machine Company. (See Dunham, James F., assignor.)						
Waterman, Arthur J., *et al.* (See Adams, Joseph W., assignor.)						
Waters, Daniel F., Philadelphia, Pa. Dyeing apparatus	785,283	Mar. 21	2612	552	115	609
Waters, Minor, New Albany, Ind., and W. M. Mitchell, Louisville, Ky. Foot-guard for railway frogs and guard-rails	786,076	Mar. 28	4241	893	115	984
Waters, Minor, New Albany, Ind., and W. M. Mitchell, Louisville, Ky. Railway-switch	786,780	Apr. 4	1147	241	115	1316
Watkins Manufacturing Company. (See Watkins, William D., assignor.)						
Watkins, Thestor O., Hattiesburg, Miss. Axle	787,597	Apr. 18	2809	612	115	1707
Watkins, William D., assignor to Watkins Manufacturing Company, San Jose, Cal. Telephone system	784,088	Mar. 7	158	29-30	115	39
Watmough, Pendleton G., Jr., Schenectady, N. Y., assignor to General Electric Company. Phase-indicator	785,458	Mar. 21	2962	624	115	687
Watson, Daniel M., Portland, Oreg. Pump	787,244	Apr. 11	2093	462	115	1532
Watson, David S., assignor to Watson Wagon Company, Canastota, N. Y. Pole-coupling for vehicles	788,001	Apr. 25	3656	796	115	1910
Watson, David S., assignor to Watson Wagon Company, Canastota N. Y. Dumping-wagon	788,002	Apr. 25	3657	797	115	1911
Watson Wagon Company. (See Watson, David S., assignor.)						
Watt, John F. (See Fiddes and Watt.)						
Watters, John H., Augusta, Ga. Track-sanding device	785,284	Mar. 21	2614	553	115	609
Watters, William J., Chicago, Ill. Binder-frame	785,924	Mar. 28	3893	827-8	115	904
Wattie, William, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Pile-wire	788,229	Apr. 25	4105	890	115	2016
Watts, Richard E. (See Blackstone and Watts.)						
Watts, Walter P., Covina, Cal. Counting apparatus	785,989	Mar. 28	4047	858	115	940
Way, William H. (See Phillips and Way.)						
Weathers, John F. (See Hindman and Albright, assignors.)						
Webb, Frank, Reading, Mass. Stay for pneumatic mattresses, &c	787,137	Apr. 11	1879	404	115	1486
Webb, George B., Westfield, N. J., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	784,366	Mar. 7	700	145	115	160
Webb, John S., Disputanta, Va. Combined rail joint and chair	785,782	Mar. 28	3622	774	115	841
Webb, Paul L. (See Dawson, Christopher C., assignor.)						
Webber, Edmund F., New York, N. Y. Automatic wrapper seal and lock	784,770	Mar. 14	1589	328	115	372
Webber, William, Wessington Springs, S. D. Wagon-spring	786,614	Apr. 4	819	169	115	1244
Weber, Joseph, Brooklyn, N. Y. Electromagnet and armature	784,456	Mar. 7	909	190	115	206
Weber, Joseph, Brooklyn, N. Y. Electrical attachment for musical instruments	784,457	Mar. 7	910	190	115	207
Weber, Joseph, Brooklyn, N. Y. Electrically-actuated piano	784,508	Mar. 7	1029	212-13	115	231
Weber, William H., Chicago, Ill., assignor to International Harvester Company. Wagon-brake	787,965	Apr. 25	3582	783	115	1804
Webster, Alfred J., assignor to J. A. Jeffrey, Columbus, Ohio. Conveyer	787,598	Apr. 18	2810	612-13	115	1707
Webster & Perks Tool Co. (See Perks, Albert J., assignor.)						
Weckbecker, Peter. (See Sylvester and Weckbecker.)						
Wegener, Carl, Berlin, Germany. Smokeless combustion-furnace	785,689	Mar. 21	3448	741	115	789
Wehmeier, Fredrick, and H. Stickfort, St. Louis, Mo. Sportsman's packing-case	786,077	Mar. 28	4242	894	115	984
Wehmeyer, Aug. H. (See Fultz, John M., assignor.)						
Wehrenberg, Charles E., Mound City, Ill. Hay-press	785,645	Mar. 21	3345	717	115	769
Wehrlin, Maurice, assignor to Compagnie Internationale de l'Electro-Typographe Meray & Rozar, Paris, France. Intermittent clutch device for type-casting and type-composing machines	787,138	Apr. 11	1880	405	115	1486
Weidinger, Eda, *et al.* (See Weidinger, William G. G., assignor.)						
Weidinger, Emma, *et al.* (See Weidinger, William G. G., assignor.)						
Weidinger, William G. G., assignor of two-thirds to E. and E. Weidinger, Chicago, Ill. Fan	785,390	Mar. 21	2819	595	115	655

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Weierman, Charles S. (See Pigeon, Albert M., assignor.)						
Weigel, Robert, Passaic, N. J. Garment-pin	785,843	Mar. 28	3743	796	115	871
Weightman, William T., Dunham-upon-Trent, England. Appliance for use in building chimneys, &c	784,606	Mar. 14	1237	259	115	291
Welkly, James N., Jersey City, N. J., assignor to G. H. Fraser, Brooklyn, N. Y. Car-brake or the like	787,652	Apr. 18	2921	636	115	1733
Weil, Otto J., assignor to American Featherbone Company, Chicago, Ill. Apparatus for manufacturing featherbone	788,444	Apr. 25	4523	985	115	2108
Weiler, John, St. Louis, Mo. Detachable handle for handsaws	785,459	Mar. 21	2963	624	115	687
Weiman, Fred, assignor of one-half to G. R. Bard, Chicago, Ill. Device for preventing incrustation in boilers	786,781	Apr. 4	1150	241	115	1317
Weinberg, George, Pittsfield, Mass. Shoe-lace fastener	787,812	Apr. 18	3259	711	115	1809
Weinberg, Heyman & Company. (See Epstein, Abraham N., assignor.)						
Weinberg, Isaac H., L. Heyman, and I. Dittenheimer, New York, N. Y. Portable work-stand	784,288	Mar. 7	546	112	115	126
Weinland, Henry F., assignor to Lagonda Manufacturing Company, Springfield, Ohio. Boiler-tube cleaner	784,129	Mar. 7	229	45	115	55
Weinland, Rutherford E. (See Smith and Weinland.)						
Weir, William A., London, England. Collapsible brush	785,342	Mar. 21	2711	575	115	630
Weis, John P., Nyack, N. Y. Massage-steamer	785,391	Mar. 21	2820	595	115	655
Weiss, Carl W., New York, N. Y. Internal-combustion engine	784,818	Mar. 14	1691	350	115	394
Weiss, Carl W., New York, N. Y. Internal-combustion engine	787,709	Apr. 18	3027	664	115	1755
Weiss, Fred J., Flint, Mich. Axle-bearing	785,243	Mar. 21	2533	535	115	592
Weiss, George L., *et al.* (See Waggoner, William B., assignor.)						
Weitzel, Isaac N., Rochester, N. Y. Attachment for smoking-pipes	786,078	Mar. 28	4243	894	115	984
Weixler, Mathias, Louisville, Ky. Portable punching-machine	788,295	Apr. 25	4237	919	115	2046
Welch, Herman, Addington, Ind. Ter. Shocker for grain-binders	784,819	Mar. 14	1692	350-1	115	394
Welde, Robert. (See Merling and Welde.)						
Weller, Calvin G., Idaho Springs, Colo. Ore-concentrator	785,531	Mar. 21	3125	660	115	724
Welles, George S., Chicago, Ill. Method of firing	785,990	Mar. 28	4049	859	115	940
Welles, George S., Chicago, Ill. Furnace	785,991	Mar. 28	4051	859	115	940
Welles, Richard H., assignor to Badger Brass Manufacturing Company, Kenosha, Wis. Spring-clasp	788,230	Apr. 25	4106	890	115	2016
Wellman, Charles H., and J. W. Seaver, assignors to Wellman-Seaver-Morgan Company, Cleveland, Ohio. Lorry or dumping-car	786,926	Apr. 11	1449	306-7	115	1393
Wellman-Seaver-Morgan Company. (See Wellman and Seaver, assignors.)						
Wells, Albert R. (See Carleton, John W., assignor.)						
Wells, Joel B., Moylan, Pa. Skirt or coat gage	784,820	Mar. 14	1696	351	115	395
Wells, John V., Braddock, Pa. Recharging device	786,332	Apr. 4	171	39	115	1106
Wells, William J., Decatur, Ill. Drying apparatus	786,079	Mar. 28	4244	894-5	115	984
Welsh, Charles C., Fostoria, Ohio. Corn-husking apparatus	784,907	Mar. 14	1847	386-7	115	429
Welsh, Charles C., Fostoria, Ohio. Fodder-shredder	784,908	Mar. 14	1850	387	115	429
Welter, Sebastian J., Chicago, Ill. Hand-tool	787,064	Apr. 11	1737	370	115	1456
Weman, Klas, New York, N. Y. Telephone signaling means	784,720	Mar. 14	1494	306	115	351
Wemple, Leonard C., Chicago, Ill. Trench-cutter	784,458	Mar. 7	912	190	115	207
Wendler, Julius, Berlin, Germany. Revolving door	784,459	Mar. 7	913	191	115	207
Wendt, Louis C., Blackhawk, Colo. Whiffletree-hook	786,699	Apr. 4	996	205	115	1283
Wenigmann, Carl, Leipsic-Stötteritz, Germany. Safety device for machine-tools	786,473	Apr. 4	541	109	115	1186
Wenning, Alfred, and C. H. Gégauff, assignors to Société Alsacienne de Constructions Mécaniques, Mulhouse, Germany. Combing-machine	787,139	Apr. 11	1881	405	115	1486
Wentworth, Samuel J., Newport, Ky. Stitch-separator and welt-indentor	788,003	Apr. 25	3659	797	115	1911
Wentz, John A., Paola, Kans. Corn-husking implement	786,700	Apr. 4	997	205	115	1283
Wenzel, Frederick A. E., and C. O. Hjermstad, Red Wing, Minn. Trousers-leg support	784,721	Mar. 14	1496	306	115	352
Werle, Kate A., Nazareth, Pa. Fabric-marking machine	784,089	Mar. 7	163	30	115	40
Werner, Henry E., Grand Haven, Mich. Fluid-motor	785,343	Mar. 21	2713	575	115	631
Wertheim, Hippolyte, *et al.* (See Schneider, Eugene W., assignor.)						
Wertheim, Michel, *et al.* (See Schneider, Eugene W., assignor.)						
Wessely, Carl von. (See Bulling, Anton, assignor.)						
West, Augustus A., New York, N. Y. Hair curler or crimper	785,844	Mar. 28	3743	796	115	871
West, Howard S., Council Bluffs, Iowa. Fish-hook	788,296	Apr. 25	4238	919	115	2046
West, Kirke, assignor to United States Graphotype Company, New York, N. Y. Paper slack provider and winding mechanism	785,783	Mar. 28	3624	774	115	842
Westbrook, James G., Ogdensburg, N. Y. Valve	785,137	Mar. 21	2316	485	115	545
Westbrook, James G., Ogdensburg, N. Y. Valve	785,646	Mar. 21	3347	717	115	769
Westcott, Valorus S., Pawtucket, and F. W. Potter, Central Falls, R. I. Sliver-evening device for drawing-frames	786,242	Mar. 28	4546	963-4	115	1048
Westerlin, J. M., *et al.* (See Tait, Roderick H., assignor.)						
Westerling, Andrew, assignor to H. G. Dawson, Chicago, Ill. Hollow wooden column	784,909	Mar. 14	1853	388	115	429
Western Electric Company. (See Dean, William W., assignor.)						
Western Electric Company. (See McQuarrie, James L., assignor.)						
Western Electric Company. (See Roberts, John G., assignor.)						
Western Electric Company. (See Scribner and McBerty, assignors.)						
Western Motor Company. (See Rintenber, Edwin A., assignor.)						
Western Steel Gate Company. (See Van de Walker and Jenney, assignors.)						
Westinghouse Air Brake Company. (See Herr, Edwin M., assignor.)						
Westinghouse Air Brake Company. (See Mason, Harry R., assignor.)						
Westinghouse Air Brake Company. (See Newell, Frank C., assignor.)						
Westinghouse Automatic Air & Steam Coupler Company. (See Niederlander, Nicholas F., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Siegfried, Robert, assignor.)						
Westinghouse Electric & Manufacturing Company. (See Thomas, Percy H., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Zimmermann, John H., assignor.)						
Westinghouse, George. (See Beebe, Murray C., assignor.)						
Westinghouse, George, Pittsburg, Pa., assignor to Westinghouse Machine Company. Fluid-pressure turbine	787,485	Apr. 18	2579	557	115	1653
Westinghouse Machine Company. (See Ehrhart, Raymond N., assignor.)						
Westinghouse Machine Company. (See Westinghouse, George, assignor.)						
Westman, Emil, assignor to Enterprise Machine Company, Minneapolis, Minn. Governing device for valve and igniter gear for explosive-engines	787,417	Apr. 18	2441	528	115	1622
Westman, Emil, assignor to Enterprise Machine Company, Minneapolis, Minn. Reversible driving mechanism	787,418	Apr. 18	2444	528-9	115	1622
Weston, Lon, Brockton, assignor to F. W. Whitcher, Boston, Mass. Knife-blade holder	784,289	Mar. 7	547	112	115	126
Wetherill, Samuel P., Jr. (See Logan and Wetherill.)						
Wetherill Separating Company. (See Rowand, Lewis G., assignor.)						
Wetmore, Earl P., Wolverhampton, England. Automatic circuit-breaker	784,722	Mar. 14	1496	306	115	352
Whaley, William, assignor of one-half to H. S. Winkler, Lafollette, Tenn. Wrench	784,243	Mar. 7	456	92	115	106

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wharton, Joseph. (See Kelly and Munson, assignors.)						
Wharton, William, Jr., assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Railway-frog	788,386	Apr. 25	4418	960	115	2066
Wheary, George H. (See Hawley and Wheary.)						
Wheaton, Milton A., San Francisco, Cal. Machine for manufacturing sheet-metal can-bodies	785,584	Mar. 21	3222	684-7	115	742
Wheeler, Amos B., Manchester, Conn. Window-fixture	785,138	Mar. 21	2317	485	115	545
Wheeler, Ferdinand, Los Angeles, Cal. Gas-regulator	788,079	Apr. 25	3806	828	115	1945
Wheeler, Webster B., Fullerton, Nebr. Check-controlled apparatus	786,866	Apr. 11	1309	278-9	115	1362
Wheeler, William R., assignor to Anglers Company, Hartford, Conn. Fishing-rod	785,845	Mar. 28	3745	797	115	871
Wheeler, William W., Meriden, Conn. Rotary engine	788,179	Apr. 25	4010	866	115	1996
Whipple, Durand, Little Rock, Ark. Support for umbrellas	787,486	Apr. 18	2585	557	115	1655
Whitaker, Charles H., Bordentown, N. J., assignor to Footwarmer and Heater Co., Philadelphia, Pa. Foot-warmer	787,245	Apr. 11	2094	462	115	1532
Whitcher, Frank W. (See Weston, Lon, assignor.)						
White, Frank C., assignor to Wilcox & White Company, Meriden, Conn. Valve-guide for mechanical musical instruments	785,784	Mar. 28	3626	775	115	842
White, Frank G., Chicago, Ill. Armor-plate	787,065	Apr. 11	1739	370	115	1456
White, George N., Colorado Springs, Colo. Portable house	788,445	Apr. 25	4526	986	115	2109
White, Herbert C., Valdosta, Ga. Tool for budding	787,710	Apr. 18	3029	664	115	1755
White, Hubert L., Utica, N. Y. Inhaler	784,645	Mar. 14	1335	276	115	315
White, John, Edinburgh, Scotland. Apparatus for removing water from paper-drying cylinders	784,821	Mar. 14	1697	352	115	396
White, John, Edinburgh, Scotland. Pulp-heating engine	784,822	Mar. 14	1699	352	115	396
White, John H., Tuscola, Ill. Gate	785,059	Mar. 14	2116	446-7	115	487
White, John L. (See Carpenter, Charles H., assignor.)						
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Transmission mechanism for automobiles	784,607	Mar. 14	1239	259	115	291
White Sewing Machine Company. (See White, Rollin H., assignor.)						
White, Warren B., Boston, Mass. Trousers-stretcher	786,333	Apr. 4	174	40	115	1107
Whitehead, Alfred, Fall River, Mass. Loom-shuttle	785,925	Mar. 28	3894	828	115	905
Whitehead & Hoag Company. (See Palladino, Benjamin, assignor.)						
Whitehill, Mary E., administratrix. (See Whitehill, Robert.)						
Whitehill, Robert, deceased, Newburgh, N. Y.; M. E. Whitehill, administratrix. Engine	784,200	Mar. 7	549	113	115	126
Whitehouse, John N., and J. Bender, New York, N. Y. Billiard-cue	784,090	Mar. 7	164	31	115	40
Whitehurst, George W., Ellisville, Miss. Plow-stock	785,244	Mar. 21	2534	535	115	592
Whiteley, George H., York, Pa., assignor to Dentists' Supply Company, New York, N. Y. Shade-guide for artificial teeth	785,992	Mar. 28	4052	859	115	941
Whiteley, George H., York, Pa., assignor to Dentists' Supply Company, New York, N. Y. Mold for artificial teeth	785,993	Mar. 28	4054	859	115	941
Whitfield, Charles, Kettering, England. Gas-producer	786,474	Apr. 4	542	109	115	1187
Whitfield, William C., *et al.* (See Peters, David T., assignor.)						
Whitley, Hiram C., assignor to W. E. Haynes, Emporia, Kans. Fire-escape	788,297	Apr. 25	4239	919	115	2046
Whitlock Coil Pipe Company. (See Brinkman, Louis H., assignor.)						
Whitney, Joseph B., Brooklyn, N. Y. Mechanism for detecting irregularities in silk thread	787,599	Apr. 18	2814	613	115	1708
Whitney, Joseph B., New York, N. Y. Electrical stop-motion mechanism for textile machinery	787,653	Apr. 18	2928	637	115	1734
Whitsett, Charles T., Indianapolis, Ind. Expansible reminder-ring	784,823	Mar. 14	1700	353	115	396
Whitsett, Charles T., Indianapolis, Ind. Memorandum-button	785,460	Mar. 21	2964	624	115	688
Whitsett, Charles T., Indianapolis, Ind. Flexible elastic binder	788,298	Apr. 25	4240	919	115	2047
Whittemore, John R., Erie, Pa. Tire-tread	787,600	Apr. 18	2816	614	115	1709
Whittington, George W., Indianapolis, Ind. Wire-fence-weaving machine	786,927	Apr. 11	1450	307	115	1393
Wicht, Frank W., and C. Spielmann, Brooklyn, N. Y. Numbering-machine	784,196	Mar. 7	363	74	115	85
Wiesener, Carl, Solingen, Germany. Machine for grinding or polishing metal articles	784,460	Mar. 7	914	191	115	207
Wieser, Joseph, assignor of one-half to K. Fink, New York, N. Y. Pneumatic motor for driving music-sheets	788,387	Apr. 25	4420	960-1	115	2086
Wieser, Karl, Rüttenscheid, near Essen-on-the-Ruhr, assignor to F. Krupp, Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Impact-fuse	785,846	Mar. 28	3745	797	115	871
Wiet, Eugene, assignor to Wiet-Goethe Company, Sacramento, Cal. Combination gage-tool	785,245	Mar. 21	2535	535	115	592
Wiet-Goethe Company. (See Wiet, Eugene, assignor.)						
Wikoff, William W., Maysville, Ky. Memoranda attachment for watches	784,969	Mar. 14	1965	412	115	453
Wilcox, Frank E., and L. E. Hickok, Mechanicsburg, Pa. Vehicle-gear	786,867	Apr. 11	1313	279	115	1362
Wilcox, Jacob, Amlin, Ohio. Attachment for corn-harvesters	787,246	Apr. 11	2096	463	115	1533
Wilcox Manufacturing Company. (See Spiller, William H., assignor.)						
Wilcox & White Company. (See White, Frank C., assignor.)						
Wildermuth, William, Rochester, Ind. Vegetable-cutter	784,723	Mar. 14	1499	307	115	353
Wilhelmi, Johannes, Hamburg, Germany. Electrically-driven hoist or coal-whip	785,139	Mar. 21	2318	485-6	115	546
Wilkinson, James, assignor to Wilkinson Turbine Company, Birmingham, Ala. Controller mechanism for marine turbines	788,004	Apr. 25	3662	798	115	1911
Wilkinson, James, assignor to Wilkinson Turbine Company, Birmingham, Ala. Controller mechanism for turbines	788,005	Apr. 25	3666	798-9	115	1913
Wilkinson, James, assignor to Wilkinson Turbine Company, Birmingham, Ala. Compound marine turbine	788,006	Apr. 25	3670	799-800	115	1914
Wilkinson Turbine Company. (See Wilkinson, James, assignor.)						
Willard, Charles A., St. Louis, Mo. Street-car safety-guard	786,393	Apr. 4	316	70	115	1140
Willcoxen, William G., Burlington, Iowa. Rail tie and fastening	785,647	Mar. 21	3349	718	115	770
Willebrands, George W., Detroit, and J. W. Bennett, Sturgis, Mich. Railway-crossing	787,966	Apr. 25	3584	783	115	1804
Willey, Abram E., Atlanta, Ga. Switch	785,030	Mar. 14	2064	433-4	115	476
William Wharton, Jr., & Company, Incorporated. (See Cooke, Warner B., assignor.)						
William Wharton, Jr., & Company, Incorporated. (See Wharton, William, Jr., assignor.)						
Williams, Albert, Joliet, Mont. Binder attachment	788,299	Apr. 25	4241	920	115	2047
Williams, Arthur F., Berkeley, Cal. Gas-lighting device	786,928	Apr. 11	1452	307	115	1394
Williams, Augustine F., New York, N. Y. Dumb-bell	784,367	Mar. 7	704	145	115	161
Williams, Brown & Earle. (See Balderston and Brown, assignors.)						
Williams, Charles H., Springfield, Mo. Emergency switch and frog	787,711	Apr. 18	3030	664	115	1755
Williams, Dick B., Scottdale, Pa., assignor to Lackawanna Lubricator and Manufacturing Company. Automatic compression-lubricator	786,701	Apr. 4	998	205	115	1283
Williams, Dick B., Scottdale, Pa., assignor to Lackawanna Lubricator and Manufacturing Company. Automatic compression-lubricator	786,702	Apr. 4	1000	205	115	1284
Williams, Edwin F. (See Farwell and Williams.)						
Williams, Frank L., and J. J. Duchesne, Portage, Wis. Power mechanism	788,342	Apr. 25	4322	942	115	2055
Williams, Harry A., Akron, Ohio. Friction-clutch	785,926	Mar. 28	3895	828-9	115	906

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Williams, James B., Minden, La. Machine for bagging and weighing grain	786,475	Apr. 4	544	109	115	1187
Williams, Jesse D., Plymouth, Ind. Automatic fire-extinguisher	784,461	Mar. 7	916	191	115	208
Williams, John F., St. Louis, Mo. Tool for removing insulation from wires	785,392	Mar. 21	2823	596	115	656
Williams, John H., and G. Mayer, Indianapolis, Ind. Advancing-shelf display-stand	786,540	Apr. 4	682	140	115	1215
Williams, Maud L., St. Louis, Mo. Drinking utensil	784,970	Mar. 14	1966	412	115	454
Williams, Robert M., Perkins, Okla. Ter. Rail-joint	788,080	Apr. 25	3809	828	115	1946
Williams, Russell B. (See Kinney, William H., assignor.)						
Williams Typewriter Company. (See Secor, Jerome B., assignor.)						
Williams, Walter, Wadesville, Ind. Electric block-signal	787,419	Apr. 18	2447	529	115	1623
Williams, William J., Baldwin township, Allegheny county, assignor of one-half to W. T. Waite, Pittsburg, Pa. Pipe or hose coupling	786,929	Apr. 11	1453	307	115	1394
Williamson, Bailey F., Chicago, Ill. Graining-tank for fats	784,091	Mar. 7	165	31	115	40
Williamson, Henry C., and H. Pries, Michigan City, Ind. Body-bolster for railway-cars	785,344	Mar. 21	2715	575	115	631
Williamson, Henry C., and H. Pries, Michigan City, Ind. Draft-rigging	785,345	Mar. 21	2716	576	115	631
Williamson, Henry C., and H. Pries, Michigan City, Ind. Journal-box cover	785,927	Mar. 28	3899	829	115	906
Williamson, Henry C., and H. Pries, Michigan City, Ind. Car journal-box	788,007	Apr. 25	3675	800	115	1915
Williamson, Jacob F., St. Louis, Mo. Chain and button for pumps	785,140	Mar. 21	2321	486	115	546
Williamson, John. (See Schenck, Rudolph, assignor.)						
Williamson, William C., Chicago, Ill. Hook and eye	785,785	Mar. 28	3628	775	115	843
Willis, William H. (See Baruch, Emile E., assignor.)						
Willison, John, Derby, England, assignor to National Malleable Castings Company, Cleveland, Ohio. Automatic coupling for railway-carriages	786,868	Apr. 11	1314	279–80	115	1363
Willmer, Arnold, Linden, near Hanover, Germany. Internal-combustion engine	787,487	Apr. 18	2587	558	115	1656
Willoughby, Alfred B., Philadelphia, Pa. Rocking or shaking grate-bar	788,008	Apr. 25	3676	800	115	1915
Wills, William L. (See Brett and Benton, assignors.)						
Willson, Augustus E. (See Cornell, Frank G., assignor.)						
Willson, Freeman R., Jr., assignor to J. A. Jeffrey, Columbus, Ohio. Portable conveyer	787,601	Apr. 18	2817	614–15	115	1709
Willson, Freeman R., Jr., assignor to J. A. Jeffrey, Columbus, Ohio. Conveyer-loading device	788,180	Apr. 25	4012	867	115	1997
Willson, Freeman R., Jr., Worthington, assignor to J. A. Jeffrey, Columbus, Ohio. Elevator	787,602	Apr. 18	2820	615	115	1710
Willson, William W., assignor to J. A. Jeffrey, Columbus, Ohio. Self-oiling wheel	784,646	Mar. 14	1336	276	115	315
Wilson, Archibald R., Hove, Brighton, assignor to A. E. Iveson, Gainsborough, England. Cooling melted fatty substances	788,446	Apr. 25	4530	986	115	2109
Wilson, Asbury G., Wilkinsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Railway-signal	787,967	Apr. 25	3585	783	115	1895
Wilson, Charles S. (See Brent, Henry W., Jr., assignor.)						
Wilson, Chester A., Pleasant Valley, Va. Sawmill set-works	786,703	Apr. 4	1001	206	115	1284
Wilson, Dalton K., Gladbrook, assignor to W. Galloway, Waterloo, Iowa. Riding attachment for harrows	784,130	Mar. 7	231	45–6	115	55
Wilson, David J., *et al.* (See Kirkpatrick, George P., assignor.)						
Wilson, Douglas S., Mound Bayou, Miss. Multiple driving-reins	784,824	Mar. 14	1702	353	115	396
Wilson, Frank R., and O. Mansell, Llano, Tex. Pump	787,247	Apr. 11	2097	463	115	1533
Wilson, Generous L., Chicago, Ill. Square	787,248	Apr. 11	2099	463	115	1533
Wilson, George S. (See Schirra, Julius, assignor.)						
Wilson, Harry L., Erie, Pa. Water-tube boiler	787,240	Apr. 11	2102	463	115	1533
Wilson, Henry C., trustee. (See Powell, Grahame H., assignor.)						
Wilson, Henry P., New York, N. Y. Machine for forming wire loops	785,461	Mar. 21	2966	624–6	115	688
Wilson, James B., Philadelphia, Pa. Stone-molding tool	787,546	Apr. 18	2701	588	115	1682
Wilson, John M., Kansas City, Mo. Baling-press	788,009	Apr. 25	3678	801	115	1916
Wilson, Leonard, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Protective device for electric apparatus	787,319	Apr. 11	2234	489	115	1564
Wilson, Melville C., Oil City, Pa. Adjustable wrench	788,300	Apr. 25	4241	920	115	2047
Wilson, Robert, St. Louis, Mo. Advertising apparatus	787,420	Apr. 18	2451	530	115	1623
Wilson, Robert, assignor to F. L. U. McCarroll, Newark, and N. P. Brower, Rahway, N. J. Age and number indicator	785,585	Mar. 21	3240	687–8	115	747
Wilson, Stephen G., Philadelphia, Pa. Broom-guard	787,813	Apr. 18	3260	712	115	1809
Wiltsie, Roy B., Toledo, Ohio. Pneumatic mattress	786,930	Apr. 11	1455	308	115	1394
Wimer, William O., Portland, Oreg. Adjustable scraper for rotary-disk plows	787,016	Apr. 11	1635	348	115	1433
Wimpee, George C., Rome, Ga. Lifting-jack	785,141	Mar. 21	2321	486	115	547
Winchester Repeating Arms Company. (See Johnson, Thomas C., assignor.)						
Windsor, Charles H., Fort Totten, N. Y. Scissors-sharpener	788,447	Apr. 25	4532	987	115	2110
Winfield, William C., assignor to Warren Sheet Metal Co., Warren, Ohio. Hand-rake	784,724	Mar. 14	1501	307	115	353
Wing, Charles P., Hinsdale, Ill. Hitching-strap	786,080	Mar. 28	4248	895	115	985
Wing, Frank L. (See Cartwright, William J., assignor.)						
Winger, Josiah G., Grand Valley, Pa. Tongs	785,462	Mar. 21	2972	626	115	689
Winkle, George J. (See Haulick, Walling, and Winkle.)						
Winkler, Haywood S. (See Whaley, William, assignor.)						
Winn, Chester B., Buffalo, N. Y. Artificial leg	787,250	Apr. 11	2104	464	115	1534
Winn, James W., New Orleans, La. Baby-holder	788,150	Apr. 25	3963	857	115	1986
Winnie, George R., Traverse City, Mich. Brush-bridle	785,463	Mar. 21	2973	627	115	690
Winslow, George H., Bellevue, Pa. Holder for lenses of eyeglasses, &c	784,197	Mar. 7	366	74	115	86
Winsor, John, Brooklyn, N. Y. Type-bar and support	787,068	Apr. 25	3587	782–4	115	1895
Winter, Rudolph G., Milwaukee, Wis. Hinge	785,142	Mar. 21	2322	486	115	547
Winter, Rudolph G., Milwaukee, Wis. Hinge	785,143	Mar. 21	2323	487	115	547
Winters, David L., Chicago, Ill. Galvanic battery	786,704	Apr. 4	1004	206	115	1285
Wipf, Herman J. D., Narberth, assignor to John Wyeth & Brother, Incorporated, Philadelphia, Pa. Bottle-closure	787,547	Apr. 18	2702	588	115	1683
Wireless Railway Company. (See Pullen, Leon W., assignor.)						
Wireless Telegraph Exploitation Company. (See Vreeland, Frederick K., assignor.)						
Wise, Charles E., assignor of one-half to J. K. Fletcher, Parkersburg, W. Va. Car-replacer	784,647	Mar. 14	1337	277	115	315
Wise, F. A. (See Delaney, Joseph, assignor.)						
Wise, Monroe. (See Powell, Alfred E., assignor.)						
Wise, William, Kansas City, Mo. Window-frame screen	785,144	Mar. 21	2325	487	115	547
Wiser, George L., and G. H. Walcott, Elkhart, Ind. Musical wind instrument	784,608	Mar. 14	1242	260	115	292
Wisner, Andrew J., Philadelphia, Pa. Air-brake	784,910	Mar. 14	1855	388	115	430
Witek, Anthony G., assignor of one-fifth to J. T. Witek, New York, N. Y. Weighing-machine	786,081	Mar. 28	4251	896	115	985
Witek, John T. (See Witek, Anthony G., assignor.)						
Witherspoon, Robert A. (See Jacobs, Witherspoon, and Thurlow.)						
Withey, George H. (See Stieff, Michael, assignor.)						
Withington, Sherman S., Adrian, Mich. Tie for wire fencing	786,931	Apr. 11	1457	308	115	1394
Witmer, John W., assignor to National Anchor Company, Lima, Ohio. Anchor	787,017	Apr. 11	1637	348	115	1434
Witte, Hubert, assignor to St. Louis Car Company, St. Louis, Mo. Car-seat	787,603	Apr. 18	2826	615	115	1712
Wittekind, Henry, Chicago, Ill. Wooden sheet-piling	785,246	Mar. 21	2537	536	115	593

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wm. B. Scaife & Sons Company. (See Greth, John C. W., assignor.)						
Woerner, Leo, St. Louis, Mo. Fluid-pressure device	787,421	Apr. 18	2452	530	115	1624
Wolf, George H., assignor of one-fourth to A. L. Cochran, Washington, Pa. Adjustable door-stop	786,782	Apr. 4	1151	242	115	1317
Wolf, Jacob D., London, England. Separation of metals from their ores	787,814	Apr. 18	3260	712	115	1809
Wolfe, Clinton L., New York, N. Y. Window bar or grating	785,690	Mar. 21	3449	741-2	115	790
Wolfe, Frank L., Medford, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Whistle-valve	787,422	Apr. 18	2454	530–1	115	1624
Wolfermann, Leon, St. Louis, Mo. Combined key-ring and name-plate	788,448	Apr. 25	4533	987	115	2110
Wolff, Eduard, Habelschwerdt, Germany. Machine for making corrugated wood sliver	785,786	Mar. 28	3628	775	115	843
Wolff, Herbert W. (See Lipschutz, Arthur, assignor.)						
Wolkau, William, Portland, Oreg. Plaiting-machine	788,081	Apr. 25	3810	828–9	115	1947
Wolter, Gustav A., Chicago, Ill. Washing-machine	784,825	Mar. 14	1704	353–4	115	397
Wood Changing Sign Company. (See Wood, Nathan B., assignor.)						
Wood, Charles D., assignor of one-half to B. Everett, Boston, Mass. Noise-deadening means	785,247	Mar. 21	2539	536	115	593
Wood, Edwin F., Colfax, Iowa. Air-ship	786,932	Apr. 11	1458	308	115	1395
Wood, Franc O., South Pasadena, Cal. Clamp	786,174	Mar. 28	4417	934	115	1021
Wood, George A., Worcester, assignor of three-fourths to C. S. Young, Newton, Mass. Oil-cup	786,175	Mar. 28	4419	934	115	1022
Wood, George H., Tyler, Tex. Side bearing for railway rolling-stock	788,082	Apr. 25	3813	829	115	1947
Wood, Nathan B., New York, N. Y., assignor to Wood Changing Sign Company. Sign	786,334	Apr. 4	175	40	115	1107
Wood, Nathan B., New York, N. Y., assignor to Wood Changing Sign Company. Sign	788,126	Apr. 25	3915	847–8	115	1976
Wood, Norman B., assignor of two-thirds to R. J. and C. Rodd, Cuyahoga Falls, Ohio. Nut-threading machine	785,464	Mar. 21	2975	627	115	690
Wood, Walter W. (See Phillimore, Walter N., assignor.)						
Woodbury, Edward, Kalamazoo, Mich. Pencil-sharpener	786,933	Apr. 11	1459	309	115	1395
Woodbury, Frederick E., Milwaukee, Wis. Ore-crusher	787,604	Apr. 18	2828	616	115	1712
Woodman, George A. (See Kuhlman, Henry V., assignor.)						
Woods, Charles G., *et al.* (See McCoy, Barney, assignor.)						
Woods, James G., Hattiesburg, Miss. Logging-wagon	784,198	Mar. 7	368	75	115	86
Woods, John A. (See Mason, David, assignor.)						
Woodward, Amos P., Franklin, Mass. Lamp-burner	784,092	Mar. 7	167	31	115	41
Woodward, Benjamin F., assignor of one-third to H. B. Boyd, Sarcoxie, Mo. Pipe-wrench	788,388	Apr. 25	4422	961	115	2086
Woodward, Charles J., New York, N. Y. Hanger for smoke-bells	785,060	Mar. 14	2118	447	115	487
Woodward, Oscar, New York, assignor to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	784,368	Mar. 7	705	146	115	161
Woodward, Oscar, New York, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	784,369	Mar. 7	713	146	115	164
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Company, Chicago, Ill. Seam for sewed articles	786,934	Apr. 11	1463	309	115	1396
Woodworth, Frederick E., Grafton, Canada. Feeding mechanism for sawmills	787,423	Apr. 18	2456	531	115	1625
Wooley, Thomas A., and H. Fox, Hamilton, Canada. Shocking-machine	784,609	Mar. 14	1244	260–1	115	293
Woosley, Emery E. (See Clift and Woosley.)						
Worden, Dudley, assignor of one-half to E. B. Phelps, Whatcom, Wash. Saw-handle	786,335	Apr. 4	177	40	115	1108
Worden, Horace L. (See Kipling and Worden.)						
Work, Robert D., Philadelphia, Pa. Vending-machine	787,251	Apr. 11	2106	464	115	1534
Workman, Earle B., Woodward, Okla. Ter. Pneumatic tire	788,083	Apr. 25	3814	829	115	1947
Worth Wire Works. (See Horseley, Robert L., assignor.)						
Worthington, George C., Elyria, Ohio. Making rubber-cored golf-balls	784,648	Mar. 14	1338		115	315
Worthington, William A., Dallas, Tex. Shade-hanger	787,252	Apr. 11	2107	464	115	1534
Worthy, Willis B., Chicago, Ill. Advertising apparatus	784,649	Mar. 14	1339	277	115	315
Wottring, Sylvanus L., Prospect, Ohio. Water-heater	787,253	Apr. 11	2109	465	115	1535
Wragg, Charles. (See Ward and Wragg.)						
Wratzke, Alfred, Rüttenscheid, near Essen-on-the-Ruhr, assignor to F. Krupp Aktiengesellschaft, Essen-on-the-Ruhr, Germany. Shrapnel	785,285	Mar. 21	2616	553	115	610
Wrenn, Frank L. (See O'Neil and Wrenn.)						
Wright, Flavius C., Logan, Ohio. Railway-tie	784,826	Mar. 14	1705	354	115	397
Wright, Frederick K., Syracuse, N. Y. Signal-lamp	785,145	Mar. 21	2326	487–8	115	547
Wright, George C., Cleveland, Ohio. Show-case bracket and fixture	786,935	Apr. 11	1464	309	115	1396
Wright, George W., Laurinburg, N. C. Burglar-trap	788,181	Apr. 25	4014	868	115	1997
Wright, Harry, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Furnace-charging box	788,010	Apr. 25	3682	801	115	1917
Wright, John S., Duxbury, Mass. Light-seal for photographic-plate holders	787,424	Apr. 18	2458	532	115	1625
Wright, Nelson C., Colorado Springs, Colo. Sash-fastener	786,936	Apr. 11	1465	309	115	1397
Wright, Robert I., and C. K. Miller, St. Joseph, Mo. Bottle-shipping case	786,705	Apr. 4	1005	206	115	1285
Wuest, Philip, Jr., Philadelphia, Pa. Mechanical musical instrument	785,393	Mar. 21	2824	596	115	656
Wuest, Philip, Jr., Philadelphia, Pa. Mechanical musical instrument	785,394	Mar. 21	2826	597	115	657
Wuesthoff, Paul. (See Glaser, William, assignor.)						
Wulst, Carl, assignor of two-thirds to P. W. Topeters and R. P. Geyer, Paterson, N. J. Wrench	785,586	Mar. 21	3243	688	115	748
Wultze, Adolph, assignor to Chemisch-Technische Fabrik, Dr. Alb. R. W. Braud & Co., G. M. B. H., Charlottenburg, Germany. Coloring natural compact crystalline stones	786,082	Mar. 28	4253	896	115	986
Wüstenhöfer, Julius, Dortmund, Germany. Pendulum-mill	787,018	Apr. 11	1638	349	115	1434
Wüstner, Ernest, assignor to Globe Jack Company, Philadelphia, Pa. Lifting-jack	786,706	Apr. 4	1006	207	115	1285
Wyckoff, Seamans & Benedict. (See Shepard, Charles H., assignor.)						
Wyckoff, Seamans & Benedict. (See Webb, George B., assignor.)						
Wyckoff, Seamans & Benedict. (See Woodward, Oscar, assignor.)						
Wyman, Charles O., Anoka, Minn. Harvester-reel	785,091	Mar. 21	3451	742–3	115	790
Wyman, Nehemiah D., Arlington, and P. G. Fleming, Elizabeth, assignors to Underwood and Underwood, Arlington, N. J. Photographic-printing apparatus	787,548	Apr. 18	2702	588–9	115	1683
Yahn, Frederick. (See Campbell and Yahn.)						
Yancey, Arthur, Dermott, Ark. Feeding device for acetylene-generators	784,463	Mar. 7	919	192–3	115	209
Yancey, Arthur, Dermott, Ark., assignor to B. M. Walmsley, New Orleans, La. Acetylene-generator	784,462	Mar. 7	917	192	115	208
Yates, John W., New York, N. Y. Cornice-making machine	784,725	Mar. 14	1502	307	115	353
Yates, John W., New York, N. Y. Cornice-making machine	784,726	Mar. 14	1503	308	115	354
Yates, Odaville, Portland, Oreg. Non-refillable bottle	784,199	Mar. 7	370	75	115	86
Yates, Robert C. (See Mohn and Yates.)						
Yates, William C., Schenectady, N. Y., assignor to General Electric Company. Rheostat for starting and controlling electric motors	785,994	Mar. 28	4055	860	115	941
Yawman, Frederick G., Rochester, N. Y. Instrument for removing eyes from fruit or vegetables	787,488	Apr. 18	2501	558	115	1657
Ycre, Baptiste, New York, N. Y. Baker's oven	786,615	Apr. 4	820	169–70	115	1245
Yoder, David A., Toledo, Ohio. Registering apparatus for telephone-exchanges	787,969	Apr. 25	3590	784	115	1896

Alphabetical list of patentees for March and April—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Yokouchi, Namijiro, K. Abe, Tokio, and A. Matsuzaki, Nagano, Japan. Rotary pump.	785,248	Mar. 21	2540	536	115	593
Yost Writing Machine Company. (See Smith, Arthur W., assignor.)						
Young, Bertrand M. (See Chase and Young.)						
Young, Charles S. (See Wood, George A., assignor.)						
Young, David B., assignor to Culver Novelty Company, Culver, Ind. Rotary carbureter.	787,254	Apr. 11	2110	465	115	1535
Young, Ernest J., Fleming, N. Y. Beet-blocking machine	784,911	Mar. 14	1858	389	115	431
Young, Flavius J., Fort Wayne, Ind. Oil-pump	786,937	Apr. 11	1466	310	115	1397
Young, Frank L., Boston, Mass. Apparatus for tin-plating	786,336	Apr. 4	178	40	115	1106
Young, George R., Ridgewood, N. J. Type-writing machine	786,394	Apr. 4	318	70	115	1141
Young, John M., Keremeos, Canada. Rail-chair	784,727	Mar. 14	1504	308	115	354
Young, Joseph P., assignor of three-fourths to W. L. Peckham, C. F. Smith, and J. F. Harrigan, Marshalltown, Iowa. Jar closure and fastener	784,509	Mar. 7	1032	213	115	232
Young, Sol. (See Chambliss, Jeff, assignor.)						
Young, Taylor R. (See Mann, Charles L., assignor.)						
Zamboni, Lawrence, assignor to American Pulley Company, Philadelphia, Pa. Roller-stand for switch-rods	786,616	Apr. 4	823	170	115	1245
Zapf, Georg, Cologne-Nippes, Germany. Means for protecting electric cables against excess pressure	784,464	Mar. 7	922	194	115	209
Zarwell, William F., and J. B. Cullen, Milwaukee, Wis. Heel	784,650	Mar. 14	1341	277	115	316
Zeh, Edmund, assignor to Niagara Machine & Tool Works, Buffalo, N. Y. Machine for screw-threading sheet-metal pipes	784,244	Mar. 7	457	92-3	115	106
Zeh, Edmund, assignor to Niagara Machine & Tool Works, Buffalo, N. Y. Corrugated-pipe-bending machine	785,787	Mar. 28	3629	775-6	115	843
Zeh, Edmund, assignor to Niagara Machine & Tool Works, Buffalo, N. Y. Double-seaming machine	787,549	Apr. 18	2710	589-90	115	1685
Zellers, Claude M., Cleveland, Ohio. Folding trumpet or megaphone	786,395	Apr. 4	319	70	115	1141
Zengerl, Frederick E., Philadelphia, Pa., assignor to E. L. Mansure Company. Loom	784,370	Mar. 7	718	146-7	115	165
Zenner, John P., Chicago, Ill. Steam-exhaust head	786,707	Apr. 4	1007	207	115	1286
Zentner, Raimund, Wiesbaden, Germany. Dental tool	785,788	Mar. 28	3632	776	115	844
Zillmer, Frank W. (See Koepp, John F., assignor.)						
Zimmer, George F., London, England. Conveyer	786,337	Apr. 4	180	41	115	1108
Zimmerli, Charles, Rochester, N. Y. Follower-block and clutch therefor for card-indexes, document-files, &c	788,301	Apr. 25	4242	920	115	2047
Zimmerman, Oliver B., Madison, Wis., and J. M. Fowler, Chicago, Ill.; said Fowler assignor to said Zimmerman. Candy or biscuit cutting machine	787,970	Apr. 25	3592	784-5	115	1896
Zimmerman, Robert M., Chicago, Ill. Draft-rigging for railway-cars	784,610	Mar. 14	1248	261	115	294
Zimmermann, Jens M. A. W., Copenhagen, Denmark. Safety-pin	784,827	Mar. 14	1706	354	115	397
Zimmermann, John H., Newark, N. J., assignor to Westinghouse Electric & Manufacturing Company. Transformer receptacle or case	786,338	Apr. 4	181	41	115	1109
Zins, Frank. (See McCadden, George, assignor.)						
Zoelly, Heinrich, assignor to Aktien-Gesellschaft der Maschinenfabriken von Escher Wyss & Co., Zurich, Switzerland. Elastic-fluid turbine	784,371	Mar. 7	721	147	115	166
Zornow, Charles. (See Crandall, Jesse A., assignor.)						
Zumwalt, Joseph C., Clay Center, assignor of one-half to G. E. Stone, Harvard, and B. Greggs, Clay Center Nebr. Wrench attachment	784,200	Mar. 7	372	75	115	87

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette.	
			Volume.	Page.
Ahrenfeldt, Charles J., New York, N. Y. Covered dish or similar article	37,360	Mar. 7	115	239
Ahrenfeldt, Charles J., New York, N. Y. Plate or similar article	37,361	Mar. 7	115	239
Ahrenfeldt, Charles J., New York, N. Y. Plate or similar article	37,362	Mar. 7	115	240
Ahrenfeldt, Charles J., New York, N. Y. Plate or similar article	37,363	Mar. 7	115	240
Ahrenfeldt, Charles J., New York, N. Y. Plate or similar article	37,364	Mar. 7	115	240
Allingham, James, Chicago, Ill. Stove	37,367	Mar. 7	115	241
American Type Founders Company. (See Bradley, Will, assignor.)				
Andrew B. Hendryx Co. (See Glahn, George A., assignor.)				
Atkins, William H., Medford, Mass., assignor to J. B. McCall, president, Philadelphia, Pa. Badge.	37,404	Apr. 18	115	1842
Austin, David W., Brooklyn, N. Y. Tiling	37,412	Apr. 18	115	1844
Barnhart Brothers & Spindler. (See Ottley, George O., assignor.)				
Blackinton & Co., R. (See Codman, Edwin E., assignor.)				
Bradley, Will, Concord, Mass., assignor to American Type Founders Company, Jersey City, N. J. Font of type	37,396	Apr. 11	115	1579
Broadbent, Felippe A., Baltimore, Md. Mantel	37,419	Apr. 25	115	2132
Codman, Edwin E., Providence, R. I., assignor to R. Blackinton & Co., North Attleboro, Mass. Handle for spoons, forks, or similar articles	37,388	Apr. 4	115	1325
Codman, William C., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, forks, or similar articles	37,406	Apr. 18	115	1843
Condon, James J., Atlanta, Ga. Spoon, fork, or similar article	37,392	Apr. 11	115	1578
Crane Company. (See Lloyd, William H., assignor.)				
Excelsior Stove & Manufacturing Company. (See Frey, Frank J., assignor.)				
Excelsior Stove & Manufacturing Company. (See Lehman, Max R., assignor.)				
Fahys Watch Case Company. (See Habensack, Frederick, assignor.)				
Forger, Henry, Cambridge, assignor to F. Yesbera, Toledo, Ohio. Shade for incandescent electric lamps	37,418	Apr. 25	115	2132
Frey, Frank J., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill. Cooking stove or range	37,397	Apr. 11	115	1579
Gilchrist, Raymond B., Newark, N. J. Cork-extractor case	37,417	Apr. 25	115	2132
Glahn, George A., Wallingford, assignor to Andrew B. Hendryx Co., New Haven, Conn. Base for bird-cages	37,365	Mar. 7	115	240
Glahn, George A., Wallingford, assignor to Andrew B. Hendryx Co., New Haven, Conn. Base for bird-cages	37,366	Mar. 7	115	240
Goldsmith, Byron B., New York, N. Y. Lead-pencil tip	37,381	Mar. 28	115	1057
Goldsmith, Marcus T., New York, N. Y. Back for hand-mirrors, brushes, or similar articles	37,382	Mar. 28	115	1057
Gorham Manufacturing Company. (See Codman, William C., assignor.)				
Gray, Samuel C., assignor of one-half to J. O'Donovan, Pittsburg, Pa. Gas-stove	37,378	Mar. 21	115	795
Gray, William, Amesbury, Mass. Lamp	37,409	Apr. 18	115	1843
Habensack, Frederick, Sag Harbor, assignor to Fahys Watch Case Company, New York, N. Y. Handle for spoons forks, or similar articles	37,393	Apr. 11	115	1578
Hagen, Rudolph von, assignor to S. L. and G. H. Rogers Co., Wallingford, Conn. Handle for spoons, forks, or similar articles	37,407	Apr. 18	115	1843
Hendrickson, Abram A., St. Albans, N. Y. Base-ball-register badge	37,415	Apr. 25	115	2131
Inland Type Foundry (See Schraubstadter, William A., assignor.)				
Keystone Type Foundry. (See Smith, Charles W., assignor.)				
Lehman, Max R., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill. Cooking stove or range	37,398	Apr. 11	115	1579
Lehman, Max R., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill. Cooking stove or range	37,399	Apr. 11	115	1579
Lehman, Max R., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill. Cooking stove or range	37,400	Apr. 11	115	1579
Lehman, Max R., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill. Stove	37,401	Apr. 11	115	1580
Lehman, Max R., assignor to Excelsior Stove & Manufacturing Company, Quincy, Ill. Heating-stove	37,402	Apr. 11	115	1580
Lloyd, William H., Evanston, assignor to Crane Company, Chicago, Ill. Lavatory-basin	37,371	Mar. 14	115	498
Loring, Benjamin D., Plymouth, Mass. Spoon	37,405	Apr. 18	115	1842
Martin, Maude, assignor to Morris, Mann & Reilly, Chicago, Ill. Lady's belt	37,421	Apr. 25	115	2132
McCall, Joseph B., president. (See Atkins, William H., assignor.)				
McGraw, Walter E., Everett, Mass. Clock-support	37,411	Apr. 18	115	1844
McMechen, William B., McMechen, W. Va. Textile fabric	37,403	Apr. 11	115	1580
Miyata, Siman, West Orange, N. J. Portable dancing-pavilion	37,368	Mar. 7	115	241
Miyata, Siman, West Orange, N. J. Portable dancing-pagoda	37,369	Mar. 7	115	241
Morris, Mann & Reilly. (See Martin, Maude, assignor.)				
Naja, Najeeb, New York, N. Y. Pillow-sham	37,420	Apr. 25	115	2132
Nuezel, Charles F., Cincinnati, Ohio. Coat and hat hook	37,390	Apr. 4	115	1324
O'Bryan, John D., Pittsburg, Pa. Electric-light cluster	37,410	Apr. 18	115	1844
O'Donovan, John. (See Gray, Samuel C., assignor.)				
Ottley, George O., Detroit, Mich., assignor to Barnhart Brothers & Spindler, Chicago Ill. Font of type	37,413	Apr. 18	115	1844
Rhoads, William M., Denver, Colo. Book-cover	37,416	Apr. 25	115	2131
Rockford Silver Plate Company. (See Taylor Edward, assignor.)				
Rogers Co., Simeon L. and George H. (See Hagen, Rudolph von, assignor.)				
Rogers, William H., Plainfield, N. J. Spoon, fork, or similar article	37,370	Mar. 14	115	497
Ryerson, Jay C., Wichita, Kans. Pocket-book	37,394	Apr. 11	115	1578
Schaffer, William R., Fort Lee, N. J., assignor to L. Straus & Sons, New York, N. Y. Glass vessel.	37,389	Apr. 4	115	1324
Schraubstadter, William A., assignor to Inland Type Foundry, St. Louis, Mo. Font of type	37,414	Apr. 18	115	1844
Smith, Charles W., assignor to Keystone Type Foundry, Philadelphia, Pa. Font of type	37,379	Mar. 21	115	795
Straus, Oscar S., assignor to L. Straus & Sons, New York, N. Y. Dish	37,408	Apr. 18	115	1843
Straus & Sons, L. (See Schaffer, William R., assignor.)				
Straus & Sons, L. (See Straus, Oscar S., assignor.)				
Taylor, Edward, assignor to Rockford Silver Plate Company, Rockford, Ill. Spoon	37,387	Apr. 4	115	1323

Alphabetical list of patentees of designs for March and April—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Todd & Company, Edward. (See Todd, Edward, Jr., assignor.)				
Todd, Edward, Jr., assignor to E. Todd & Company, New York, N. Y. Handle for spoons, forks, or similar articles	37,377	Mar. 21	115	795
Vandergaw, Edward B., New York, N. Y. Printed textile fabric	37,372	Mar. 14	115	498
Vandergaw, Edward B., New York, N. Y. Printed textile fabric	37,373	Mar. 14	115	498
Vandergaw, Edward B., New York, N. Y. Printed textile fabric	37,374	Mar. 14	115	498
Vandergaw, Edward B., New York, N. Y. Printed textile fabric	37,375	Mar. 14	115	499
Vandergaw, Edward B., Brooklyn, N. Y. Printed textile fabric	37,376	Mar. 14	115	499
Vandergaw, Edward B., Brooklyn, N. Y. Printed textile fabric	37,380	Mar. 21	115	795
Vandergaw, Edward B., Brooklyn, N. Y. Printed textile fabric	37,383	Mar. 28	115	1057
Vandergaw, Edward B., Brooklyn, N. Y. Printed textile fabric	37,384	Mar. 28	115	1057
Vandergaw, Edward B., Brooklyn, N. Y. Printed textile fabric	37,385	Mar. 28	115	1058
Vandergaw, Edward B., Brooklyn, N. Y. Printed textile fabric	37,386	Mar. 28	115	1058
Williams, Adam C., Ravenna, Ohio. Toy bank	37,391	Apr. 4	115	1324
Yesbera, Frank. (See Forger, Henry, assignor.)	37,395	Apr. 11	115	1579

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. Wittnauer Co., New York, N. Y. Watches, parts of watches, and watchcases	44,325	Mar. 21	115	796
Acme Wagon Company, Emigsville, Pa. Wagons, carts, and trucks	44,323	Mar. 14	115	502
Atkinson, Robert E., Leicester, England. Certain named heating apparatus	44,354	Mar. 28	115	1060
Austin Cartridge Co., Cleveland, Ohio. Cartridges	44,317	Mar. 14	115	501
Austin Cartridge Co., Cleveland, Ohio. Cartridges	44,318	Mar. 14	115	501
Beckel & Co., Joseph, New York, N. Y. Corsets	44,329	Mar. 21	115	796
Behrens & Co., E. H., New York, N. Y. Certain named dry goods	44,328	Mar. 21	115	796
Berger & Co., Albert, New York, N. Y. Watch-glasses and spectacle and eyeglass lenses	44,344	Mar. 28	115	1059
Berguer, Reinhold, Argyle, Minn. Salve	44,282	Mar. 7	115	242
Blumenkrohn Crochet Button Works, New York, N. Y. Hand-crocheted buttons, braids, and hand-crocheted trimmings	44,303	Mar. 14	115	500
Bradley, Edwin M., New Haven, Conn. Certain named liquid dressing	44,338	Mar. 21	115	797
Buckbee, Hiram W., Rockford, Ill. Seeds, bulbs, and plants	44,352	Mar. 28	115	1060
Buhne Metal Packing Co., New York, N. Y. Metallic packing	44,296	Mar. 7	115	244
Carender & Gates, Jerico Springs, Mo. Preparation for the treatment of certain named diseases	44,311	Mar. 14	115	500
Carter's Ink Company, Boston, Mass., and New York, N. Y. Type-writer ribbons and carbon-papers	44,345	Mar. 28	115	1059
Carter's Ink Company, Boston, Mass., and New York, N. Y. Ink	44,350	Mar. 28	115	1059
Caswell, William L., Lowell, Mass. Candles	44,288	Mar. 7	115	243
Checkers Medicine Co., Winston Salem, N. C. Liquid tonic medicine	44,277	Mar. 7	115	242
Chelsea Clock Company, Boston, Mass. Clocks, their parts, repairs, and findings	44,326	Mar. 21	115	796
Cotterel, John W., Harrisburg, Pa. Liquid preparation for the treatment of certain named diseases	44,312	Mar. 14	115	501
Dieckerhoff, Raffloer & Co., New York, N. Y. Buttons	44,300	Mar. 7	115	244
Dissinger & Bro., C. H. A., Wrightsville, Pa. Explosive internal-combustion motors and gas and gasolene engines	44,356	Mar. 28	115	1060
Dr. J. A. Deane Company, Kingston, N. Y. Certain named preparations for the teeth	44,346	Mar. 28	115	1059
Dr. T. W. Wood Medicine Company, Des Moines, Iowa. Remedies for certain named diseases	44,347	Mar. 28	115	1059
Dr. Taylor Remedy Company, Philadelphia, Pa. Remedial preparations for diseases of the blood	44,278	Mar. 7	115	242
Elliott Varnish Co., Chicago, Ill. Certain named liquid roofing paint or coating	44,315	Mar. 14	115	501
Enterprise Enamel Co., Bellaire, Ohio. Enameled steel and iron kitchen-ware	44,353	Mar. 28	115	1060
Faust, Jacob N., Chicago, Ill. Combined shoulder-brace and suspenders	44,273	Mar. 7	115	242
Fink, Diederich, New York, N. Y. Brooms	44,297	Mar. 7	115	244
Finke, John F., St. Louis, Mo. Rheumatic tonics	44,332	Mar. 21	115	796
Frazer Lubricator Co., Chicago, Ill. Soap	44,307	Mar. 14	115	500
Galena-Signal Oil Company, Franklin, Pa. Lubricating engine-oil	44,295	Mar. 7	115	244
Geetzy Co., Chicago, Ill. Air moistening and purifying compositions	44,292	Mar. 7	115	244
Georgiadi, George A., New York, N. Y. Preparation for rheumatism cure	44,313	Mar. 14	115	501
Gerstendorfer Bros., New York, N. Y. Enamels	44,341	Mar. 21	115	797
Grove Co., Salem, Ohio. Remedy for indigestion, dyspepsia, and similar complaints	44,331	Mar. 21	115	796
Harps Manufacturing Co., J. A., Greenfield, Ohio. Oil and gasolene cans	44,298	Mar. 7	115	244
Huard, Joseph E., Fall River, Mass. Liquid petroleum	44,339	Mar. 21	115	797
Hughes Anti-Friction Company, Boston, Mass. Lubricating oils and greases	44,340	Mar. 21	115	797
Ineeda-Cofpho Company, Louisville, Ky. Antiseptic and emollient medicine	44,280	Mar. 7	115	242
Jacobson, Fritz, Brooklyn, N. Y. Certain named internal remedies	44,348	Mar. 28	115	1059
Jenkins, Harry L., Minneapolis, Minn. Lumber, lath, and shingles	44,324	Mar. 14	115	502
Johnson-Richardson Co., Limited, Montreal, Canada. Dyes, dyestuffs, stains, and coloring-matters	44,314	Mar. 14	115	501
Knickerbocker Company, Jackson, Mich Centrifugal dust-collectors	44,355	Mar. 28	115	1060
Landers, Frary and Clark, New Britain, Conn. Table and carving knives, butchers' knives, and butchers' cleavers	44,319	Mar. 14	115	501
Lennox & Briggs, Haverhill, Mass. Tanned goatskins	44,276	Mar. 7	115	242
Lever Brothers Company, Portland, Me., and Cambridge, Mass. Preparation in powder form for polishing, scouring, and cleansing purposes	44,294	Mar. 7	115	244
Lickel, William J., Brooklyn, N. Y. Moderately adhesive salve	44,281	Mar. 7	115	242
Lumière, Claude A., Burlington, Vt. Chemicals for photographic purposes	44,293	Mar. 7	115	244
Lyle & Kinahan, Limited, Belfast, Ireland. Irish whisky	44,334	Mar. 21	115	797
Lyon & Healy, Chicago, Ill. Accordions and concertinas, their cases, fittings, and parts	44,301	Mar. 14	115	500
Lyon & Healy, Chicago, Ill. Concertinas and accordions, their cases, fittings, and parts	44,327	Mar. 21	115	796
Metz, Herman A., New York, N. Y. Screw-drivers	44,299	Mar. 7	115	244
Mitchell, William J., Waco, Tex. Hats	44,275	Mar. 7	115	242
Moses, Joseph, New York, N. Y. Women's hats, hat-frames, trimmed hats, and hat-trimmings	44,274	Mar. 7	115	242
O'Neil Oil & Paint Co., Milwaukee, Wis. Paints	44,342	Mar. 21	115	798
Palmer, Isaac E., Middletown, Conn. Hammocks, hammock supports and canopies	44,330	Mar. 21	115	796
Pearson, Albert M., Cleveland, Ohio. Tooth and mouth cleansing preparations	44,309	Mar. 14	115	500
Plows Candy Co., St. Louis, Mo. Candy, candied fruit, and candied popcorn	44,289	Mar. 7	115	243
Porter Medicine Co., Paris, Tenn. Remedy for certain named diseases	44,279	Mar. 7	115	242
Porto Rico Co., San Francisco, Cal. Coffee	44,287	Mar. 7	115	243
Pratt Food Co., Philadelphia, Pa. Hoof-ointment	44,283	Mar. 7	115	243
Pratt Food Co., Philadelphia, Pa. Condition-powder	44,284	Mar. 7	115	243
Pratt Food Co., Philadelphia, Pa. Heave, cough, and cold cure	44,285	Mar. 7	115	243
Pratt Food Co., Philadelphia, Pa. Lice-killer	44,286	Mar. 7	115	243
Read Brothers Limited, London, England. Whisky	44 357	Mar. 28	115	1060
Reinschild, Carl, New York, N. Y. Tonic	44,333	Mar. 21	115	797
Robinson, Greenwood, New York, N. Y. Silk and silk-mixture textiles	44,302	Mar. 14	115	500
Saville, Somes & Co., Boston, Mass. Coffee	44,336	Mar. 21	115	797
Saville, Somes & Co., Boston, Mass. Tea	44,337	Mar. 21	115	797
Schmiedendorf, Henry R., Buffalo, N. Y. Stovepipe-thimbles	44,343	Mar. 21	115	798
Scribner, Frank, New York, N. Y. Harmonicas	44,272	Mar. 7	115	242

Alphabetical list of registrants of trade-marks for March and April—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Sol Sul Chemical Co., New York, N. Y. Soluble sulfur and sulfur in liquid form for certain named purposes	44,349	Mar. 28	115	1059
Spencer, Clinton A., Boston, Mass. Clarified extract of hemlock-bark	44,308	Mar. 14	115	500
Spencer, Clinton A., Boston, Mass. Certain named extracts for tanning and dyeing	44,351	Mar. 28	115	1059
Tennessee Packing & Provision Company, Nashville, Tenn. Certain named meats	44,290	Mar. 7	115	243
Tennessee Packing & Provision Company, Nashville, Tenn. Lard	44,291	Mar. 7	115	244
Trowbridge Chocolate Chip Co. Boston, Mass. Milk-chocolate preparations	44,335	Mar. 21	115	797
Tucker, Frederick J., Chicago, Ill. Receptacles for evaporating liquids	44,322	Mar. 14	115	502
Usona Light Co., New York, N. Y. Mantles for gas-burners and gas-burners	44,320	Mar. 14	115	501
Wagner Baking Co., Detroit, Mich. Bread, cakes, biscuits, and crackers	44,306	Mar. 14	115	500
Warren Chemical & Manufacturing Co., New York, N. Y. Asphalt	44,316	Mar. 14	115	501
Wigmore & Kenefick Company, Middletown, Conn. Ladies' leather boots and shoes	44,305	Mar. 14	115	500
Zelner, William J., San Francisco, Cal. Remedies for certain named diseases	44,310	Mar. 14	115	500

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. J. Reach Co., Philadelphia, Pa. "Reach Official American League Base Ball Guide." (For Pamphlets or Booklets)	11,996	Apr. 4	115	1325
Albers Bros. Milling Co., Portland, Oreg. "Violet Oats." (For Rolled Oats)	12,059	Apr. 18	115	1845
Allison, Edwin H., and H. L. Marshall, Stronghurst, Ill. "German Hog Remedy." (For Hog Remedies)	11,995	Mar. 28	115	1061
American Lithographic Company, New York, N. Y. "The Codex Cigar." (For Cigars)	11,979	Mar. 28	115	1061
American Lithographic Company, New York, N. Y. "The Forelock Cigar." (For Cigars)	11,980	Mar. 28	115	1061
American Lithographic Company, New York, N. Y. "Legal Value." (For Cigars)	11,981	Mar. 28	115	1061
American Lithographic Company, New York, N. Y. "Panetelas." (For Cigars)	11,982	Mar. 28	115	1061
American Rice Cereal Co., Kansas City, Mo. "Livon Rice." (For Rice)	12,058	Apr. 18	115	1845
Andreas & Co., Geo., St. Louis, Mo. "Si Perkins." (For Whisky)	12,068	Apr. 18	115	1845
Batastini and Pacella Co., Chicago, Ill. "Union Twist." (For Cigars)	12,030	Apr. 11	115	1581
Beckwith-Chandler Company, Newark, N. J. "Jap-o-size." (For a Color-Drier)	12,076	Apr. 18	115	1845
Benold, F. H., Chicago, Ill. "Acorn-Cereal Coffee." (For Cereal Coffee)	12,082	Apr. 25	115	2133
Bente, William F., Denver, Colo. "Owlarino." (For Medicine)	12,034	Apr. 11	115	1581
Besley's Waukegan Brewing Co., Waukegan, Ill. "Malt Essence." (For Malt Tonic)	11,954	Mar. 14	115	503
Biever, Henry, Port Washington, Wis. "20th Century." (For Glass-Polish)	12,022	Apr 4	115	1325
Biever, Henry, Port Washington, Wis. "Superior Gloss." (For Furniture-Polish)	12,023	Apr. 4	115	1325
Blewett Bros. Co., Minneapolis, Minn. "Pine Tree Salve." (For Salve)	12,054	Apr. 18	115	1845
Boyd, Charles L., Chicago, Ill. "Boyd's C. A. T.s Carbon-Albumen Tablets." (For Medicine)	11,957	Mar. 14	115	503
Boyd & Sons, George, Philadelphia, Pa. "Boyd's Luncheon Cream Mints." (For Mint Candy)	12,091	Apr. 25	115	2133
Brock, W. H., Birmingham, Ala. "Jiu-Jitsu Water—'Little Jap' Foot Ease." (For Medicine)	12,039	Apr. 11	115	1581
Brockman, Henry, Evansville, Ind. "Usona." (For Cigars)	11,947	Mar. 14	115	503
Carson, Pirie, Scott and Company, Chicago, Ill. "Glo-Silk." (For Umbrellas)	11,959	Mar. 14	115	503
Carson, Pirie, Scott and Company, Chicago, Ill. "Tasma." (For Double-Woven Finger-Tip Gloves)	11,960	Mar. 14	115	503
Carson, Pirie, Scott and Company, Chicago, Ill. "Glo-Silk." (For Mercerized Crochet-Cotton)	11,963	Mar. 14	115	503
Carson, Pirie, Scott & Company, Chicago, Ill. "Little Folks." (For Hose-Supporters)	11,978	Mar. 28	115	1061
Carson, Pirie, Scott & Company, Chicago, Ill. "Australian." (For Underwear)	11,999	Apr. 4	115	1325
Carson, Pirie, Scott and Company, Chicago, Ill. "Bon Ton." (For Hose-Supporters)	12,040	Apr. 11	115	1581
Cawley, Clark & Co., Inc., Newark, N. J. "Lac-er-all." (For Varnish Stains)	12,077	Apr. 18	115	1845
Cawley, Clark & Co., Inc., Newark, N. J. "Crescent Mixed Paints." (For Mixed Paints)	12,078	Apr. 18	115	1845
Charles Jacquin et Cie., Inc., New York, N. Y. "Liqueur Superfine." (For Liqueurs)	12,081	Apr. 25	115	2133
Cincovin Company, Chicago, Ill. "Cincovin." (For Medicine)	11,955	Mar. 14	115	503
Coke, Hartwell F., Norfolk, Va. "Portsmouth Luxury." (For Cigars)	11,948	Mar. 14	115	503
Coke, Hartwell F., Norfolk, Va. "Norfolk Luxury." (For Cigars)	11,949	Mar. 14	115	503
Cole Lithographing Co., Chicago, Ill. "Legation." (For Cigars)	11,926	Mar. 7	115	245
Covington Grocery & Grain Co., Ltd., Covington, La. "U. S. Fancy Patent." (For Flour)	12,042	Apr. 11	115	1581
Craddock-Terry Company, Lynchburg, Va. "Autograph." (For Shoes)	12,002	Apr. 4	115	1325
Crites Broom Manufacturing Company, Wichita Falls, Tex. "Little Star." (For Brooms)	12,045	Apr. 11	115	1581
Crites Broom Manufacturing Company, Wichita Falls, Tex. "Little Lady." (For Brooms)	12,046	Apr. 11	115	1581
Cross, Guy C., Watervliet, Mich. "Paw-Paw." (For Card Games)	11,997	Apr. 4	115	1325
Crysco Drug Company, Harrisburg, Pa. "Ka-Be." (For Stomach-Bitters)	11,965	Mar. 21	115	799
De Bary & Co., Frederick, New York, N. Y. "Otard, Dupuy & Co., Cognac." (For Cognac and Brandy)	11,952	Mar. 14	115	503
Deutsch, Lazar, New York, N. Y. "Osmanin." (For Coffee)	11,933	Mar. 7	115	245
Dr. Dick's Malted Stock Food Co., Davenport, Iowa. "Dr. Dick's Malted Stock Food." (For Stock-Food)	12,095	Apr. 25	115	2133
Dr. Madden Eye Medicin Co., Fargo, N. D. "Madden Eye Medicin." (For Eye-Medicine)	12,009	Apr. 4	115	1325
Dyer, Thomas, Providence, R. I. "Talpa." (For Medicine)	12,036	Apr. 11	115	1581
Egyptian Spray Manfg. Co., Boston, Mass. "Egyptian Spray." (For Chemical Compound)	12,025	Apr. 4	115	1325
Erb, Ludwig G. B., New York, N. Y. "Er-bo Tooth Powder." (For Tooth-Powder)	12,011	Apr. 4	115	1325
Erdman & Co., Philadelphia, Pa. "Erdman's German Herb Cures." (For Medicine)	11,939	Mar. 7	115	245
Fagan, Thomas F. E., Brooklyn, N. Y. "Fagan's Compound Wine of Tar." (For Proprietary Medicines)	12,035	Apr. 11	115	1581
Fan Craze Co., Cincinnati, Ohio. "The Katzenjammer Mixup." (For a Game)	12,079	Apr. 18	115	1845
Ferris, Alonzo K., New York, N. Y. "Roulette Cards." (For Playing-Cards)	12,048	Apr. 11	115	1581
Fidelity Co., Philadelphia, Pa. "Heal-Quick." (For an External Remedy)	11,968	Mar. 21	115	799
Fitz Patrick, Lawrence I., Milwaukee Wis. "Fitzpatrick's Rheumatic Cure." (For Medicine)	11,967	Mar. 21	115	799
Gelpi, Louis J., New Orleans, La. "Sure Grip." (For a Certain Named Preparation)	12,075	Apr. 18	115	1845
Gerstendorfer Bros., New York, N. Y. "Decora Gilt." (For Paint)	11,944	Mar. 7	115	245
Goodrich Drug Co., Omaha, Nebr. "Nebraska Cough Cure." (For Medicine)	11,956	Mar. 14	115	503
Greenberg, Moses. (See Tortorello and Greenberg.)				
Gutmann, Emil, New York, N. Y. "Bridal." (For Hose-Supporters)	12,005	Apr. 4	115	1325
Guyer Medicine Co., Hudson, Mich. "Parsley Compound." (For Medicine)	12,052	Apr. 18	115	1845
H. P. Engeln Company, Cleveland, Ohio. "Velo." (For Massage Cream or Lotion)	11,938	Mar. 7	115	245
Harden & Co., Acheson, New York, N. Y. "Crescent Label." (For Handkerchiefs)	11,998	Apr. 4	115	1325
Harrison & Gore Silk Co., Newburgh, N. Y. "H. & G. Anti-Tearable Taffeta." (For Silk Goods)	11,940	Mar. 7	115	245
Harrison & Gore Silk Co., Newburgh, N. Y. "H. & G. Anti-Fadeable Taffeta." (For Silk Goods)	11,941	Mar. 7	115	245
Hausfeld & Huennekens, Milwaukee, Wis. "Sunny Castle." (For Cigars and Tobacco)	12,071	Apr. 18	115	1845
Heigho, George W., Detroit, Mich. "Campomor." (For Cigars)	11,946	Mar. 14	115	503
Heiner, Harry W., Chicago, Ill. "Genii Oil." (For Medicinal Oil)	11,990	Mar 28	115	1061
Hires Condensed Milk Company, Malvern and Philadelphia, Pa. "Gold Cream." (For Evaporated Cream)	12,043	Apr. 11	115	1581
Hostelley & Co., W. H., Collingdale, Pa. "Phospho-Ferrum." (For a Medicinal Preparation)	12,008	Apr. 4	115	1325
Hough, Thomas C., Minneapolis, Minn. "Crown Phonograph Oil." (For Oil)	12,074	Apr. 18	115	1845
Human Life Publishing Company, Boston, Mass. "Human Life, A Magazine of To-day." (For Publication)	12,096	Apr. 25	115	2133
Hurth, Edmond C., Los Angeles, Cal. "Buttercup Bread." (For Bread)	11,970	Mar. 21	115	799
International Record Company, Yonkers and New York, N. Y. "Excelsior Record." (For Talking-Machine Records)	12,049	Apr. 11	115	1581

Alphabetical list of registrants of labels for March and April—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Iris Face Cream Co., Berkeley, Cal. "Iris Face Cream." (For Face-Cream)	11,937	Mar. 7	115	245
Japamer Pharmacal Company, St. Louis, Mo. "Japanese Rapid Headache Powders." (For Medicine)	12,033	Apr. 11	115	1581
John S. Brittain Dry Goods Company, St. Joseph, Mo. "Bleached Muslin." (For Bleached Cotton Goods)	12,038	Apr. 11	115	1581
Johnson, Gerrit J., Grand Rapids, Mich. "S. C. W." (For Cigars)	12,017	Apr. 4	115	1325
Kelly, Phil G., Richmond, Va. "Westover Rye." (For Whisky)	11,953	Mar. 14	115	503
Kenton Baking Powder Co., Cincinnati, Ohio. "Shiloh Baking Powder." (For Baking-Powder)	12,084	Apr. 25	115	2133
Kenton Baking Powder Co., Cincinnati, Ohio. "Peacock Baking Powder." (For Baking-Powder)	12,085	Apr. 25	115	2133
Kenton Baking Powder Co., Cincinnati, Ohio. "Snow King Baking Powder." (For Baking-Powder)	12,086	Apr. 25	115	2133
Kenton Baking Powder Co., Cincinnati, Ohio. "Campbell's Baking Powder." (For Baking-Powder)	12,087	Apr. 25	115	2133
Kentucky Packing & Provision Co., Louisville, Ky. "Yorkshire." (For Breakfast-Bacon)	11,936	Mar. 7	115	245
Kentucky Packing & Provision Co., Louisville, Ky. "Kentucky." (For Breakfast-Bacon)	11,971	Mar. 21	115	799
Kentucky Packing & Provision Co., Louisville, Ky. "Kentucky." (For Hams)	11,972	Mar. 21	115	799
Kentucky Packing & Provision Co., Louisville, Ky. "Yorkshire." (For Hams)	11,973	Mar. 21	115	799
Kentucky Packing & Provision Co., Louisville, Ky. "Kentucky." (For Lard)	11,974	Mar. 21	115	799
Kentucky Packing & Provision Co., Louisville, Ky. "Yorkshire." (For Lard)	12,088	Apr. 25	115	2133
Klepser, Fred, Buffalo, N. Y. "Shell Heal." (For Medicine)	11,993	Mar. 28	115	1061
Kline & Co., M., New York, N. Y. "El Mito." (For Cigars)	11,964	Mar. 21	115	799
Koch, Christopher, Philadelphia, Pa. "Flee-Flea Dog Soap." (For Dog-Soap)	12,055	Apr. 18	115	1845
Kouba, Anton V., Boulder, Colo. "Paramel." (For Medicine)	11,966	Mar. 21	115	799
L. Wolff Manufacturing Company, Chicago, Ill. "1855 1905 Fifty Years' of Quality Wolff's Plumbing Goods." (For Plumbing Goods)	12,027	Apr. 4	115	1325
Ladwig & Schranck Co., Milwaukee, Wis. "Cremo." (For Non-Alcoholic Beverages)	12,014	Apr. 4	115	1325
Lambert, Anna M., St. Paul, Minn. "Hand & Home Made French Dainties." (For Dainties)	11,969	Mar. 21	115	799
Larkin, Peter C., Toronto, Canada. "Salada." (For Tea)	12,061	Apr. 18	115	1845
Larkin, Peter C., Toronto, Canada. "Salada." (For Tea)	12,062	Apr. 18	115	1845
Larkin, Peter C., Toronto, Canada. "Salada." (For Tea)	12,063	Apr. 18	115	1845
Larkin, Peter C., Toronto, Canada. "Salada." (For Tea)	12,064	Apr. 18	115	1845
Larkin, Peter C., Toronto, Canada. "Salada." (For Tea)	12,065	Apr. 18	115	1845
Leonard, Robert P., Hazleton, Pa "Horn Blowers Trombone Valve & Slide Oil." (For Lubricating-Oil)	11,989	Mar. 28	115	1061
Levinson & Co., S., Seattle, Wash. "Blue Eagle." (For Cigars)	11,927	Mar. 7	115	245
Levy & Bros., William, New York, N. Y. "Columbia Goodclothes for Boys." (For Clothing)	12,000	Apr. 4	115	1325
Levy, Louis J., Dover, Del. "Diamond State Rye Whiskey." (For Whisky)	12,067	Apr. 18	115	1845
Lewis, Israel, New York, N. Y., and Newark, N. J. "Golden Eagle." (For Cigars)	11,928	Mar. 7	115	245
Lewis, Israel, Newark, N. J. "Josh Billings." (For Cigars)	12,069	Apr. 18	115	1845
Liberty Inc. Light Co., New York, N. Y. "Justice." (For Mantles)	12,026	Apr. 4	115	1325
Maar & Johnson, New York, N. Y. "Mexican Rheumatic Oil." (For Rheumatic Oil)	12,037	Apr. 11	115	1581
Magee, J. H., Chicago, Ill. "American Hair Grower." (For Hair-Grower)	11,991	Mar. 28	115	1061
Magic Curler Company, Philadelphia, Pa. "The Magic Curler." (For Hair-Curlers)	12,073	Apr. 18	115	1845
Magic Lustre Furniture Polish Company, Atlantic City, N. J. "The Magic Lustre Furniture Polish." (For Furniture-Polish)	12,024	Apr. 4	115	1325
Maloney & Co., James C., Chicago, Ill. "Millionaire Champagne." (For Champagne)	11,951	Mar. 14	115	503
Martin, William E., Chicago, Ill. "E-Z-Ola." (For Polish)	11,976	Mar. 21	115	799
Maxwell, George H., Carthage, N. Y. "Signal." (For Cigars)	12,070	Apr. 18	115	1845
Medinger, Charles L., Baltimore, Md. "National Malt Coffee." (For Coffee Substitute)	12,083	Apr. 25	115	2133
Michigan Paint Company, Flint, Mich. "Clingstone Floor Varnish." (For Varnish)	11,943	Mar. 7	115	245
Montanye, Charles H., New York, N. Y. "Tiger Head." (For Coffee and Spices)	11,934	Mar. 7	115	245
Mullen, Mathiase J., Pittsburg, Pa. "Boy's Friend." (For Boots and Shoes)	12,041	Apr. 11	115	1581
Mullen, Mathiase J., Pittsburg, Pa. "Academy." (For Boots and Shoes)	12,056	Apr. 18	115	1845
Mullen, Mathiase J., Pittsburg, Pa. "Old Hickory." (For Boots and Shoes)	12,057	Apr. 18	115	1845
National Chemical Co., Canal Fulton, Ohio. "U. S. Stock Food." (For Stock-Food)	12,019	Apr. 4	115	1325
Packer, Frank W., Lansing, Mich. "Target Rye." (For Whisky)	12,080	Apr. 25	115	2133
Pangburn, Edward F., Battlecreek, Mich. "Japanese Rheumatism Cure, Kaspaug." (For Medical Preparations)	11,994	Mar. 28	115	1061
Peacock, Josiah C., Philadelphia, Pa. "Korexills." (For Medicinal Compound)	12,007	Apr. 4	115	1325
Pratt Cereal Company, Boston, Mass. "Pratt's Wheat." (For Cereal Products)	11,935	Mar. 7	115	245
Reamer, Alexander K. V., Philadelphia, Pa. "Y-Kof." (For Medicine)	12,006	Apr. 4	115	1325
Reighter, Frank C., Chicago, Ill. "Liquid Thyrinoids." (For Medicine)	12,051	Apr. 18	115	1845
Reymer & Brothers, Inc, Pittsburg, Pa. "Colonial Chocolates." (For Confectionery)	12,044	Apr. 11	115	1581
Roberts & Son, J. W., Tampa, Fla. "J. W. Roberts & Son." (For Cigars)	11,950	Mar. 14	115	503
Robinson, F. H., Philadelphia, Pa. "Pimplexion Skin Food." (For an Ointment)	12,013	Apr. 4	115	1325
Royal Coffee Co., Fort Worth, Tex. "Royal Liquid Coffee." (For Liquid Coffee)	12,066	Apr. 18	115	1845
Russell, Calvin, Penn Yan, N. Y. "Buckskin." (For Building or Sheathing Paper)	11,977	Mar. 21	115	799
Ryan, Michael B., Boston, Mass. "The Owl Clip." (For Wire Paper-Clips)	11,942	Mar. 7	115	245
S. S. Pierce Co., Boston, Mass. "Swansdown." (For Gloss-Starch)	11,967	Mar. 28	115	1061
S. S. Pierce Co., Boston Mass. "Swansdown." (For Corn-Starch)	11,988	Mar. 28	115	1061
Salt Lake Knitting Works, Salt Lake City, Utah. "Temple Brand Garments." (For Garments)	11,951	Mar. 14	115	503
Salt Lake Knitting Works, Salt Lake City, Utah. "Rama Head Sweaters." (For Sweaters)	11,952	Mar. 14	115	503
Schive, George W. Scranton, Pa. "Schive's Rheumatic Remedy." (For Medicine)	11,958	Mar. 14	115	503
Schmelzel and Gallop, Boise, Idaho. "Sa-lv-ia." (For Hair-Tonic)	12,010	Apr. 4	115	1325
Schmidt & Co., New York, N. Y. "D. Mendes Habana." (For Cigars)	12,015	Apr. 4	115	1325
Schmidt & Co., New York, N. Y. "D. Mendes Habana." (For Cigars)	12,016	Apr. 4	115	1325
Schutt, John, Jr., Buffalo, N. Y. "Anti-Fade." (For a Certain Named Preparation)	12,047	Apr. 11	115	1581
Scott Paper Co. Philadelphia, Pa. "Wirthmor." (For Toilet-Paper)	11,975	Mar. 21	115	799
Shaw, William B., Cleveland, Ohio. "Lemon Skin Lotion." (For Skin-Lotion)	12,012	Apr. 4	115	1325
Simas, J. B., Haverhill, Mass. "Forget-me-nots." (For Medicine)	12,092	Apr. 25	115	2133
Singley, Bernard, Glens Falls, N. Y. "Singley's Hair Strength." (For Medicine)	12,082	Apr. 11	115	1581
Smith, J. L., Chicago, Ill. "The Kobolo Tonic." (For Medicine)	12,060	Apr. 18	115	1845
Snellings, W. E., Norfolk, Va. "Dr. Sharps B 1200." (For Medicine)	12,093	Apr. 25	115	2133
Squire Dingee Company, Chicago, Ill. "Squire Pickles." (For Pickles)	12,089	Apr. 25	115	2133
Stanley, John T., New York, N. Y. "Mobo." (For Cleaning Compound)	12,096	Apr. 25	115	2133
Stanley, John T., New York, N. Y. "Mobo." (For Cleaning Compound)	12,097	Apr. 25	115	2133
Stutz, Emil, Columbus, Ohio. "Goose." (For Cigars)	12,029	Apr. 11	115	1581
Swestwater Woolen Mills, Swestwater, Tenn. "Gold Medal." (For Doeskins)	12,003	Apr. 4	115	1325
Swestwater Woolen Mills, Swestwater, Tenn. "Gold Medal." (For Jeans and Doeskins)	12,004	Apr. 4	115	1325
Swift Manufacturing Company, Columbus, Ga. "Columbus Mitchaline Quilt." (For Quilts)	11,945	Mar. 7	115	245
Switzer, D. A., Tampa, Fla. "Tampa Custom House." (For Cigars)	12,028	Apr. 11	115	1581
Tampier, Edward, Chicago, Ill. "Quickshine." (For Shoe-Dressing)	12,072	Apr. 18	115	1845
Toledo Biscuit Co., Toledo, Ohio. "Puritan Wafers." (For Biscuits, Crackers, and Wafers)	12,060	Apr. 18	115	1845
Tortorello, Vincent, and M Greenberg, Philadelphia, Pa. "Tamar-Indian." (For Carbonated Beverages)	11,985	Mar. 28	115	1061

Alphabetical list of registrants of labels for March and April—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Townsend, Bertram H., Salt Lake City, Utah. "Townsend's Latter Day Saints or Temple Brand Olive Oil." (For Olive-Oil)	12,020	Apr. 4	115	1325
United Wine & Trading Co., New York, N. Y. "Rhein Blume." (For Rhein Wine)	11,931	Mar. 7	115	245
Walter M. Lowney Company, Boston, Mass. "Lowney Chocolate." (For Chocolate Bonbons)	11,984	Mar. 28	115	1061
Warren, Burton H., Chicago, Ill. "Scalpine, Nature's Own Cure." (For Medicine)	11,992	Mar. 28	115	1061
Wegener, H. O., Saginaw, Mich. "Grand Jury Box." (For Cigars)	11,983	Mar. 28	115	1061
Wendel, Henry E., Philadelphia, Pa. "Wendel's Swiss Lozenges." (For Swiss Lozenges)	12,031	Apr. 11	115	1581
Wetzel, Thomas C., Cambridge Springs, Pa. "Cambridge Springs Mineral Water." (For Mineral Water)	11,929	Mar. 7	115	245
Wetzel, Thomas C., Cambridge Springs, Pa. "De Vita Mineral Water." (For Mineral Water)	11,930	Mar. 7	115	245
Wiesenthal & Co., New York, N. Y. "Ys Cleaning Fluid." (For Cleaning Fluid)	12,021	Apr. 4	115	1325
Wilmanns, Adolph, Milwaukee, Wis. "Tosetti." (For Hop Products)	11,932	Mar. 7	115	245
Wilmanns, Adolph, Milwaukee, Wis. "Breakfast Blend." (For Coffee)	11,986	Mar. 28	115	1061
Wright, Thomas K., Cleveland, Ohio. "Mocha Cereal." (For Cereal Mixture)	12,018	Apr. 4	115	1325
Wurtzburger, Jos., Baltimore, Md. "University Clothing." (For Clothing)	12,001	Apr. 4	115	1325
Young, John S., Louisville, Ky. "H-Y-O-C-H." (For a Remedy for Rheumatism)	12,053	Apr. 18	115	1845
Zanone, Stephen, New York, N. Y. "Pompeii." (For Confectionery)	12,090	Apr. 25	115	2133
Zuckerman, Joseph, New York, N. Y. "Radium Corn Cure." (For Corn Cure)	12,094	Apr. 25	115	2133

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Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Allen, Joseph C., Plainfield, N. J. "Allen's Royal Remedy, A Foot Powder." (For Powder for the Feet)	1,237	Mar. 7	115	245
Bemis Bro. Bag Co., St. Louis, Mo. "Santa Claus." (For Signs)	1,253	Mar. 28	115	1061
Bloch Brothers Tobacco Co. Wheeling, W. Va. "Chew and Smoke Mail Pouch." (For Tobacco)	1,263	Apr. 11	115	1585
Both, W. C., Chicago, Ill. "Men's Apparel." (For Men's Apparel)	1,256	Apr. 4	115	1323
Both, W. C., Chicago, Ill. "Men's Apparel." (For Men's Apparel)	1,273	Apr. 25	115	2131
Brokaw Brothers, New York, N. Y. "Prince Albert and English Walking Frocks." (For Clothing)	1,260	Apr. 11	115	1581
Brunswick, George, New York, N. Y. "Birthstones Ringsizes" (For Rings)	1,250	Mar. 28	115	1061
Chattanooga Medicine Co., Chattanooga, Tenn. "Wine of Cardui." (For Medicine)	1,265	Apr. 11	115	1581
Crane, James C., New York, N. Y. "Créme Elcaya." (For Face-Creams)	1,271	Apr. 25	115	2133
Curtiss Manufacturing Co., Denver, Colo "C. C. C. Tablets." (For Tablet Remedies)	1,252	Mar. 28	115	1061
David Adler & Sons Clothing Co., Milwaukee, Wis. "Adler's Latest Spring Clothes." (For Spring Apparel)	1,247	Mar. 21	115	799
David Adler & Sons Clothing Co., Milwaukee, Wis. "Typical College Clothes." (For Spring Apparel)	1,248	Mar. 21	115	799
David Adler & Sons Clothing Co., Milwaukee, Wis. "Adler's Nobby Clothes for Spring." (For Men's Spring Apparel)	1,249	Mar. 28	115	1061
Dunlop Mills, Richmond, Va. "Dunlop Superlative Patent Flour." (For Flour)	1,272	Apr. 25	115	2133
Electric Candy Machine Co., Nashville, Tenn. "The Wonderful Electric Candy Machine." (For Candy-Machines)	1,269	Apr. 18	115	1845
Fechteler, William, Kansas City, Mo. "Maverick." (For Cigars)	1,264	Apr. 11	115	1581
Federal Lithograph Company, New York, N. Y. "Mail Pouch." (For Tobacco)	1,259	Apr. 4	115	1325
Ferguson-McKinney Dry Goods Co., St. Louis, Mo. "Buy Mascot Hosiery." (For Hosiery)	1,243	Mar. 14	115	503
Gile, Ernest S., Boston, Mass. "Tannery, Shoe Factory, Jobbing House, Shoe Store." (For Shoes)	1,236	Mar. 7	115	245
Gray Lithograph Co., New York, N. Y. "Nation's Dolls Series No. 1." (For Newspaper Novelty)	1,255	Apr. 4	115	1325
Guyer Medicine Co., Hudson, Mich. "Parsley Compound." (For Medicinal Compound)	1,258	Apr. 4	115	1325
Hall, Fred E., Boston, Mass. "Conover." (For Pianos)	1,276	Apr. 25	115	2133
Harvard Brewing Co., Lowell, Mass. "Harvard." (For Beer)	1,234	Mar. 7	115	245
Heartsease Remedy Co., Ashland, Ohio. "Heartsease." (For Medicine)	1,235	Mar. 7	115	245
Jennings Company, Greenport, N. Y. "Makes the Duty Agreeable." (For Dentifrice)	1,242	Mar. 14	115	503
Kuppenheimer & Co., B., Chicago, Ill. "Wearing Apparel." (For Wearing-Apparel)	1,246	Mar. 21	115	799
Loring B. Hall Company, Boston, Mass. "Hallcrest." (For Shoes)	1,257	Apr. 4	115	1325
Lowe Brothers Company, Dayton, Ohio. "How Shall We Paint." (For Paint)	1,275	Apr. 25	115	2133
McElroy Elizabeth Cincinnati Ohio. "Blue Ribbon Hair Restorer." (For Hair-Restorer)	1,245	Mar. 21	115	799
Pillsbury-Washburn Flour Mills Co., Ltd., Minneapolis, Minn. "Have You Vitos, Good." (For Wheat Food)	1,261	Apr. 11	115	1581
Pillsbury-Washburn Flour Mills Co., Ltd., Minneapolis, Minn. "Pillsbury's Vitos." (For Wheat Food)	1,262	Apr. 11	115	1581
R. A. Patterson Tobacco Company, Richmond, Va. "Patterson's Seal Cut Plug." (For Tobacco)	1,239	Mar. 14	115	503
Reichard & Scheuber Mfg. Co., New York, N. Y. "A Yard of Razors." (For Safety-Razors)	1,274	Apr. 25	115	2133
Rumford Chemical Works, Providence, R. I. "Horsford's Bread Preparation." (For Bread Preparation)	1,241	Mar. 14	115	503
Stahl, George H., Quincy, Ill. "The Wooden Hen Weather Cock." (For Incubators)	1,254	Mar. 28	115	1061
Swift, Edwin H., New York, N. Y. "Swift's Return Tubular Portable Boiler." (For Boilers)	1,267	Apr. 11	115	1581
Toledo Rubber Company, Toledo, Ohio. "Bull Frog Brand." (For India-Rubber Hose)	1,270	Apr. 18	115	1845
United States Playing Card Company, Cincinnati, Ohio. "U. S. Bridge Whist Score Pads." (For Score-Pads)	1,251	Mar. 28	115	1061
United States Playing Card Company, Cincinnati, Ohio. "U. S. Score Pad for the Game of Five Hundred." (For Score-Pads)	1,266	Apr. 11	115	1581
Washburn, Crosby Company, Minneapolis, Minn. "Very Cleanly Maid." (For Flour)	1,240	Mar. 14	115	503
Washburn-Crosby Company, Minneapolis, Minn. "Kneaded Everywhere." (For Flour)	1,268	Apr. 18	115	1845
White & Bagley Company, Worcester, Mass. "The King of Lubricants." (For Cutting Compound)	1,238	Mar. 7	115	245
Wright, Ernest A., Philadelphia, Pa. "London Fashion Plates." (For Clothing)	1,244	Mar. 14	115	503

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
Alton, George H., Lynn, Mass.; disclaimer filed by assignee. Bearing for electric meters	733,611	Mar. 30, 1905	115	1069
Mellin, Carl J., Richmond, Va.; disclaimer filed by patentee. Compound engine	756,673	Mar. 18, 1905	115	807

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Specification.	Drawing.	Volume.	Page.
Accounting appliance. Credit-	P. A. McCaskey	788,164	Apr. 25	3990	861	115	1992
Acetylene-generator	A. Yancey	784,462	Mar. 7	917	192	115	208
Acetylene-generator feeding device	A. Yancey	784,463	Mar. 7	919	192-3	115	209
Acid. Making dialkyl-barbituric	M. Engelmann	787,360	Apr. 18	2320	.....	115	1594
Adding and recording machine	C. B. Gartrell	786,493	Apr. 4	585	117-18	115	1195
Adding-machine	H. Eberhardt	786,490	Apr. 4	579	115-16	115	1194
Adding-machine	A. J. Postans	786,839	Apr. 11	1258	264-5	115	1351
Adjustable and reclining chair	A. J. Nuse	786,308	Apr. 4	111	25-6	115	1096
Adjustable coupling	P. Hanemann	787,572	Apr. 18	2753	600-1	115	1694
Adjustable rack and shelf support	T. H. Thompson	785,449	Mar. 21	2049	621	115	548
Adjustable table	G. W. Barnett	785,147	Mar. 21	2331	488	115	684
Adjustable wrench	M. C. Wilson	788,300	Apr. 25	4241	920	115	2047
Advertising apparatus	W. B. Worthy	784,649	Mar. 14	1339	277	115	315
Advertising apparatus	R. Wilson	787,420	Apr. 18	2451	530	115	1623
Advertising-button. Changeable	H. E. Smith and R. E. Weinland.	784,077	Mar. 7	135	25	115	33
Advertising coloring materials, paints, &c. Method of and device for	J. F. Gould	786,210	Mar. 28	4488	949	115	1030
Advertising device	L. A. Farnsworth and S. G. Martin.	786,018	Mar. 28	4115	868	115	955
Advertising device	W. B. Hopkins	787,178	Apr. 11	1959	425	115	1504
Aeroplane	A. P. Criswell	785,717	Mar. 28	3505	751-2	115	817
Aeroplane-covering	I. Lancaster	785,740	Mar. 28	3548	758	115	824
Agar-agar and product of same. Manufacturing limpid solutions of	W. Riebensahm	784,349	Mar. 7	658	.....	115	150
Age and number indicator	R. Wilson	785,585	Mar. 21	3240	687-8	115	747
Agricultural-implement attachment. Hand-	A. D. Jones	784,682	Mar. 14	1401	289	115	330
Aigret. Artificial	R. L. McLaughlin	785,320	Mar. 21	2672	567	115	621
Aigrets. Manufacturing artificial	R. L. McLaughlin	785,321	Mar. 21	2674	568	115	621
Air and gas motor. Compressed-	M. E. Clark	785,713	Mar. 28	3497	750	115	815
Air-brake	A. J. Wisner	784,910	Mar. 14	1855	388	115	430
Air-brake	H. Minnick	785,513	Mar. 21	3082	652	115	714
Air-brake	A. H. Goltz and L. L. Hosack	787,329	Apr. 11	2252	492-3	115	1567
Air-brake	D. F. Snyder	788,149	Apr. 25	3960	856-7	115	1985
Air-brake apparatus	C. E. Turner	784,526	Mar. 7	1059	219	115	238
Air-brake control	F. B. Corey	786,008	Mar. 28	4085	863	115	947
Air-brake coupling	J. J. Grigsby	785,420	Mar. 21	2879	608	115	668
Air-brake deflector	E. Bearss	784,537	Mar. 14	1083	225	115	259
Air-brake-gasket-replacing tool	G. J. Pilger	787,857	Apr. 18	3352	734	115	1829
Air-brake mechanism	H. E. Haddock	784,321	Mar. 7	609	125	115	140
Air-brake system	I. M. Simons	784,506	Mar. 7	1026	212	115	231
Air-brake system	A. C. Richards	786,383	Apr. 4	299	65	115	1136
Air-brake system and emergency-valve	L. A. Hawkins	785,549	Mar. 21	3161	669	115	730
Air-brake system. Automatic	F. B. Corey	786,007	Mar. 28	4078	863	115	946
Air-brakes in derailments. Means for automatically applying	E. S. Coffman	785,153	Mar. 21	2341	491	115	551
Air-compressor. Hydraulic	C. R. Jones	785,889	Mar. 28	3827	813-14	115	889
Air-compressor. Hydraulic	W. G. Cox	787,150	Apr. 11	1903	412	115	1491
Air-coupling	C. A. Seiler	788,172	Apr. 25	4000	864	115	1994
Air-cushion	C. R. Schwalenberg	787,473	Apr. 18	2553	552	115	1646
Air inlet for sanitary ventilation of the drainage systems of houses, buildings, or the like. Fresh-	G. Cody. (Reissue)	12,338	Apr. 18	3412	747	115	1842
Air-motor	J. L. Pilling	787,692	Apr. 18	2990	652	115	1747
Air regulating and indicating device. Compressed-	C. H. Richwood	784,228	Mar. 7	432	87	115	100
Air-separator	C. H. Lane	785,811	Mar. 28	3686	784-5	115	859
Air-separator and water-seal fitting	S. V. Sharood	784,185	Mar. 7	346	71	115	81
Air-ship	H. F. Honeywell	784,161	Mar. 7	292	61	115	69
Air-ship	E. F. Wood	786,932	Apr. 11	1458	308	115	1395
Alarm: *See* Burglar-alarm. Fire and burglar alarm. Burglar and fire alarm. Thermostatic alarm. Fire-alarm.							
Alarm device	T. N. Derby	787,729	Apr. 18	3096	675	115	1772
Album or book and stand therefor	J. S. Desmarais	786,271	Apr. 4	31	8	115	1077
Alimentary composition	B. Gollwitzer	786,111	Mar. 28	4306	.....	115	998
Alkali cyanids. Making	C. B. Jacobs, R. A. Witherspoon, and N. Thurlow.	787,380	Apr. 18	2369	.....	115	1606
Aluminium or other metals. Extracting	H. S. Blackmore	786,244	Mar. 28	4551	955	115	1049
Amalgamator	P. McEntee	785,565	Mar. 21	3186	674-5	115	736
Ammunition-wagon or limber	W. Mayer	786,452	Apr. 4	503	98	115	1178
Amusement apparatus	S. Miyata	786,229	Mar. 28	4522	967-8	115	1043
Amusement device	F. T. Riley	787,792	Apr. 18	3221	704	115	1800
Anchor	J. W. Witmer	787,017	Apr. 11	1637	348	115	1434
Anesthetic-mask	H. Clayton	787,828	Apr. 18	3290	777	115	1815
Animal colics or gripes. Apparatus for treating	A. Hepnar	786,215	Mar. 28	4501	952	115	1038
Animal-dipping apparatus	E. W. Bennett	786,089	Mar. 28	4269	899-900	115	989
Animal-trap	A. Brest	784,141	Mar. 7	254	51-2	115	61
Animal-trap	T. Bumann	786,949	Apr. 11	1485	314	115	1401
Animal-trap	C. W. Howe	788,408	Apr. 25	4461	971	115	2045
Annealing-furnace	J. Hughes	786,565	Apr. 4	731	149	115	1223
Annealing-furnace. Non-oxidizing	C. F. Kenworthy	786,365	Apr. 4	244	56	115	1122

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Annunciator	A. T. and W. L. Ingram	785,424	Mar. 21	2887	609–10	115	670
Annunciator-restorer. Automatic	J. 1. Gemmill	787,507	Apr. 18	2636	571	115	1668
Anthracene compound and making same	R. H. Scholl and O. Baily	787,859	Apr. 18	3356	.....	115	1830
Anti-incrustation fluid	M. S. Bell	787,822	Apr. 18	3276	.....	115	1812
Antiseptic mats. Manufacture of sanitary	J. P. Sutor	785,838	Mar. 28	3734	.....	115	868
Anvil for making tanks, cisterns, boxes, &c	T. B. Leech and T. Lane	787,927	Apr. 25	3499	761	115	1874
Apparel. Wearing-	C. Schneider	785,124	Mar. 21	2287	480	115	538
Apron	E. C. Moore	788,489	Apr. 25	4604	1003	115	2125
Arch	D. B. Luten	785,676	Mar. 21	3419	734	115	784
Arm-rest	W. S. Dunham	784,390	Mar. 7	770	158	115	176
Armature	C. W. Johnson and W. Cooper	788,473	Apr. 25	4574	997	115	2118
Armatures. Commutating device for alternating-current-machine	M. Déri	786,010	Mar. 28	4088	864	115	948
Armor-plate	F. G. White	787,065	Apr. 11	1739	370	115	1456
Article holder and forming same. Multiple-	H. H. Cummings	788,304	Apr. 25	4248	921	115	2049
Asphalt-cutting machine	H. Schumacher	786,522	Apr. 4	651	131–2	115	1209
Astragal bracket	R. N. Schalkenbach	784,232	Mar. 7	439	88	115	102
Automatic sprinkler	C B. Garrett	784,210	Mar. 7	400	79–80	115	94
Automobile	E. T. McKaig	786,916	Apr. 11	1428	302–3	115	1389
Automobile drive-gear	H. Ford	787,908	Apr. 25	3463	757–8	115	1866
Automobile-engine	A. Loomis	787,581	Apr. 18	2773	605	115	1698
Automobile-frame	E. Huber	788,407	Apr. 25	4463	971	115	2096
Automobile-front. Movable	C. E. Chamberlin	788,188	Apr. 25	4030	871	115	2001
Automobile or bicycle wheel	O. R. Van Doren	786,612	Apr. 4	816	168	115	1244
Automobile spare-tire receptacle	G. E. Mitchell	788,215	Apr. 25	4083	885	115	2011
Automobile transmission-gear	G. A. Thode	784,642	Mar. 14	1328	275	115	312
Automobile transmission mechanism	R. H. White	784,607	Mar. 14	1239	259	115	291
Awl. Sewing-	M. R. Botkin	786,000	Mar. 28	4064	861	115	943
Awning	C. J. Truemper	786,327	Apr. 4	163	37–8	115	1105
Awning	W. L. Bundy	787,146	Apr. 11	1896	409	115	1490
Awning	F. L. Temple	787,865	Apr. 18	3368	736–7	115	1832
Awning and frame. Folding	J. A. Poltock	785,915	Mar. 28	3875	824	115	900
Awning attachment. Automatic	A. I. Schwinger	784,897	Mar. 14	1828	382	115	424
Awning-frame	J. R. Powell	785,435	Mar. 21	2913	615	115	675
Awning-operating mechanism	T. J. Daniels	784,475	Mar. 7	943	198	115	214
Axle	T. O. Watkins	787,597	Apr. 18	2809	612	115	1707
Axle box. Car-	W. F. Richards	786,993	Apr. 11	1590	339–40	115	1423
Axle box. Car-	W. F. Richards	786,994	Apr. 11	1591	340	115	1423
Axle-boxes. Device for removing oil-cellars from locomotive	P. Swanson	788,287	Apr. 25	4211	913	115	2040
Axle-journal. Auxiliary	G. Newland	785,678	Mar. 21	3423	734	115	785
Axle-lubricator	J. Aden	787,255	Apr. 11	2111	465–6	115	1535
Axle. Road-vehicle	H. M. Butler	784,383	Mar. 7	750	152–3	115	172
Axle-skein	G. U. Rounds	786,159	Mar. 28	4393	928	115	1017
Axle-spindle lubricator	W. Vandenburgh	785,242	Mar. 21	2531	535	115	592
Axle. Vehicle-	P. L. Sueur	785,504	Mar. 21	3063	648	115	710
Azo compound and making same	E. A. Fourneaux. (Reissue)	12,330	Mar. 21	3469	.....	115	794
Baby-holder	J. W. Winn	788,150	Apr. 25	3963	857	115	1986
Back-geared motor	L. A. Tirrill	787,482	Apr. 18	2574	555	115	1652
Bag:							
See Mothproof bag. Punching-bag.							
Bag-fastener	A. F. Fuller	785,870	Mar. 28	3784	805	115	880
Bag-fastening	P. Rudisch	787,000	Apr. 11	1601	342	115	1426
Bag-frame	A. F. Fuller	787,165	Apr. 11	1929	418	115	1497
Bag-holder	J. Riley	784,594	Mar. 14	1196	252	115	283
Bag holder and filler	W. H. Stone, Jr	784,708	Mar. 14	1449	300	115	341
Bag or the like	O. Greenbaum	786,804	Apr. 11	1199	250	115	1339
Bait-moving device	O. Holz and P. Haerry	788,047	Apr. 25	3754	817	115	1933
Baking-pan cleansing and greasing machine	A. Berg and J. A. Fray	784,202	Mar 7	376	76–7	115	87
Baking-pan cleansing and greasing machine	G. H. and C. H. W. Cliff	784,206	Mar. 7	385	78	115	90
Balancing attachment	C. E. Coons	784,924	Mar. 14	1883	395	115	436
Bale-tie	E. L. Pence	786,147	Mar. 28	4364	923	115	1011
Baling machine. Cotton-	W. A. McGregor	784,063	Mar. 7	98	19	115	25
Baling-press	C. J. Luce	785,068	Mar. 14	2138	451–3	115	492
Baling-press	J. J. Stopple	785,642	Mar. 21	3330	715–16	115	768
Baling-press	D M. Bass	786,714	Apr. 4	1019	210–11	115	1289
Baling-press	W. S. Bradshaw	786,948	Apr. 11	1484	314	115	1401
Baling-press	E. H. Taylor	787,008	Apr. 11	1615	345–6	115	1429
Baling-press	D. E. Darnell	787,082	Apr. 11	1768	378	115	1463
Baling-press	W. Kruse and T. M. Vanderwerth.	787,194	Apr. 11	1994	434	115	1511
Baling-press	L. Trabue	787,235	Apr. 11	2069	453	115	1527
Baling-press	D. Donald	787,501	Apr. 18	2624	567–9	115	1665
Baling-press	J. M. Wilson	788,009	Apr. 25	3678	801	115	1916
Baling-press feeder and packer	G. Christopher	786,873	Apr. 11	1325	281	115	1366
Baling-press self-feeder	E. T. Hisey and J. W. Moore	787,447	Apr. 18	2501	542	115	1635
Ball:							
See Golf-ball.							
Ball. Appliance for playing table foot-	M. Gillett	786,206	Mar. 28	4484	947	115	1035
Ball-cleaning device	H. D. Day	784,662	Mar. 14	1361	281	115	319
Balls. Making rubber-cored golf-	G. C. Worthington	784,648	Mar. 14	1338	.....	115	315
Balls. Manufacture of playing-	A. T. Saunders	785,184	Mar. 21	2411	507	115	567
Balls. Manufacturing golf-	R. Hodgkins	788,468	Apr. 25	4567	.....	115	2117
Balling-machine	J. Good	784,853	Mar. 14	1746	364	115	405
Ballast-handling device	N. P. Walters	785,135	Mar. 21	2313	484	115	545
Ballast-spreader	A. Torrey	787,964	Apr. 25	3578	782	115	1893
Band-applying implement	J. J. Moock	784,114	Mar. 7	203	39	115	49
Band-brake	L. S. Chadwick	787,892	Apr. 25	3428	752	115	1857
Band-cutter	J. S. Manly	785,225	Mar. 21	2501	526	115	586
Band-cutter and feeder	F. Eves	784,313	Mar. 7	594	121–2	115	136
Bandage-dressings. Preparing	M. Cohn	786,004	Mar. 28	4070	.....	115	945
Banjo	F. A. Linton	787,777	Apr. 18	3195	697–8	115	1795
Banjo-bridge	L. A. Callan	786,625	Apr. 4	849	176	115	1251
Bar-fixture	C. C. Finch	785,942	Mar. 28	3935	837	115	913
Barge. Hopper-	J. Volker-Tyszoon	784,286	Mar. 7	543	111–12	115	125
Barometer	L. F. Chaney	784,998	Mar. 14	1992	419	115	459

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Barrel	L. Love	785,505	Mar. 21	3066	648	115	710
Barrel-head. Removable	A. Jaeger	785,104	Mar. 21	2250	474	115	531
Barrel. Knockdown	W. E. Copithorn	786,875	Apr. 11	1329	282	115	1366
Basin	W. Mattingly	787,202	Apr. 11	2009	437	115	1515
Basin cover. Catch-	H. W. McDonald	784,271	Mar. 7	517	105	115	120
Basket	R. E. Lindsay	784,950	Mar. 14	1927	405	115	445
Basket. Hop-picking	F. W. Craver	786,487	Apr. 4	572	114	115	1192
Basket or other receptacle	J. Hamilton	784,939	Mar. 14	1911	401	115	442
Basting device	H. McPhaill	785,267	Mar. 21	2585	545	115	604
Bath apparatus. Shower-	J. Simpson, Jr	785 233	Mar. 21	2516	530	115	589
Bath-brush and connection. Spray	A. W. Nicholls	785,824	Mar. 28	3713	791	115	864
Bath-tub and attaching feet thereto	J. A. Lefferts	784,746	Mar. 14	1532	316	115	360
Bath-tub mold	J. P. Bickerstaff	784,913	Mar. 14	1864	390–1	115	432
Bath-tub vapor or shower bath attachment	H. L. Larzelere	787,683	Apr. 18	2976	648	115	1745
Bathing apparatus	C. H. C. Jordan	786,127	Mar. 28	4331	915	115	1004
Bathing-apparatus splash-guard	E. J. Bissell	788,237	Apr. 25	4121	893	115	2020
Batteries. Means for controlling the charging of storage	R. N. Chamberlain	787,024	Apr. 11	1650	351	115	1437
Battery:							
See Galvanic battery.							
Battery	W. C. Banks	787,715	Apr. 18	3037	666	115	1757
Battery	W. C. Banks	787,716	Apr. 18	3039	666–7	115	1757
Battery cell. Galvanic-	A. T. Sanden	784,425	Mar. 7	223	44	115	54
Battery gas-separator. Storage-	T. A. Edison	785,297	Mar. 21	2633	557	115	613
Battery-stem guide	C. F. Hawley	784,790	Mar. 14	1630	335–6	115	380
Bean-picker	H. G. Hubbell	786,291	Apr. 4	77	18	115	1088
Bean-separating machine	O. F. Beythan	785,032	Mar. 14	2071	435–6	115	477
Bearing	E. S. Farwell	785,036	Mar. 14	2078	437	115	479
Bearing	C. H. Chapman	785,661	Mar. 21	3377	725	115	776
Bearing	C. H. Chapman	785,662	Mar. 21	3379	725	115	777
Bearing	H. M. Smith	786,387	Apr. 4	306	66–7	115	1138
Bearing. Adjustable	H. G. Beede	788,184	Apr. 25	4019	869	115	1908
Bearing. Antifriction-	C. H. Christianson	788,020	Apr. 25	3705	806–7	115	1923
Bearing. Antifriction-	J. Bevington	788,347	Apr. 25	4330	944	115	2067
Bearing. Axle-	F. J. Weiss	785,243	Mar. 21	2533	535	115	592
Bearing ball-retainer. Ball-	C. H. Chapman	785,663	Mar. 21	3380	725	115	777
Bearing hanger. Ball-	W. S. Rogers	786,315	Apr. 4	143	33	115	1101
Bearing retainer and spacer. Ball-	C. H. Chapman	785,150	Mar. 21	2334	489–90	115	549
Bearing. Roller-	M. O. Reeves	785,120	Mar. 21	2283	480	115	538
Bearing. Roller-	W. C. Fownes, Jr	785,944	Mar. 28	3941	838	115	915
Beating-engine	J. E. Warren	787,063	Apr. 11	1734	370	115	1455
Bed-bottom. Spring	F. S. Sprague	788,224	Apr. 25	4099	888	115	2015
Bed. Folding	J. G. Peace	784,343	Mar. 7	649	134	115	148
Bed. Folding	G. Knaggs	785,220	Mar. 21	2485	524	115	583
Bed. Outdoor	J. H. Herbener	785,099	Mar. 21	2238	471	115	528
Bedstead construction	A. Taylor	786,173	Mar. 28	4416	934	115	1021
Bedstead. Extension-	R. H. Bradley	788,392	Apr. 25	4437	964	115	2090
Bedstead. Folding	H. A. Linderoth	785,621	Mar. 21	3299	701	115	759
Bedstead. Invalid-	W. C. Feely	787,162	Apr. 11	1922	417	115	1496
Bedsteads or the like. Adjustable support for sofa-	D. C. Storr and J. Luppino	788,075	Apr. 25	3799	826	115	1944
Bee-feeder	J. L. Roberts	784,072	Mar. 7	124	22	115	31
Beef press. Corned-	R. C. Hieber	786,438	Apr. 4	476	92	115	1173
Beer. Manufacturing non-alcoholic	V. Lapp	786,771	Apr. 4	1127	.....	115	1312
Beer or other liquid dispensing apparatus	V. E. J. Durafort	784,904	Mar. 14	2009	421	115	463
Beet-blocking machine	E. J. Young	784,911	Mar. 14	1858	389	115	431
Beet-chopper	E. Bell	786,258	Apr. 4	9	2	115	1073
Belt	F. Mueller	786,375	Apr. 4	265	60	115	1126
Belt. Driving-	T. J. Kean	785,107	Mar. 21	2255	474	115	532
Belt-guide	J. L. Crisler	784,987	Mar. 14	1994	419	115	459
Belt. Machinery-driving	J., A., and M. A. Hendry	787,919	Apr. 25	3487	762	115	1872
Belt or long-waist pin adjuster	J. Goldberg	787,508	Apr. 18	2637	571	115	1668
Belt-stud tool	J. Stocker	786,065	Mar. 28	4208	887	115	975
Belt-tightener	W. G. Gaum	786,354	Apr. 4	224	51	115	1118
Belt-tightener	G. R. W. Lanning and F. M. Tusja.	786,651	Apr. 4	908	186	115	1263
Bench:							
See Florist's bench.							
Berry-box	O. H. Schmalz	786,605	Apr. 4	802	165	115	1241
Berth support. Ship's-	G. Vigié	785,455	Mar. 21	2958	623	115	686
Bicycle attachment	B. R. Pepper	784,345	Mar. 7	651	134	115	149
Bicycle-brake	J. Chambliss	784,516	Mar. 7	1042	215	115	234
Bicycles, &c. Resilient handle-bar for	M. Thierfelder	786,857	Apr. 11	1289	273	115	1357
Bicycles, &c. Speed-timing attachment for	A. L. McMurtry	785,515	Mar. 21	3087	653	115	716
Bilge-block	J. Hickler	787,294	Apr. 11	2186	481	115	1553
Bill-holder	H. Y. Otto	788,060	Apr. 25	3776	821	115	1939
Billiard-cue	J. N. Whitehouse and J. Bender	784,090	Mar. 7	164	31	115	40
Billiard-cue tip	E. L. Robinson	788,069	Apr. 25	3793	824	115	1943
Bin:							
See Display-bin.							
Bin	C. T. Ranney	784,887	Mar. 14	1815	379	115	421
Binder	J. R. Barrett	785,651	Mar. 21	3361	720	115	773
Binder attachment	A. W. Friskey	787,308	Apr. 18	2335	506	115	1598
Binder. Flexible elastic	A. Williams	788,299	Apr. 25	4241	920	115	2047
Binder for books, music, &c. Perpetual or temporary	C. T. Whitsett	788,298	Apr. 25	4240	919	115	2047
Binder-frame	R. H. Collins. (Reissue)	12,328	Mar. 21	3466	745	115	794
Binder. Loose-leaf	W. J. Watters	785,924	Mar. 28	3803	827–8	115	904
Binder. Loose-leaf	J. F. Cordes	785,155	Mar. 21	2343	491	115	552
Binder. Loose-leaf	P. Montgomery	785,750	Mar. 28	3561	761	115	827
Binder. Loose-leaf	C. A. Carlson	787,353	Apr. 18	2309	502	115	1592
Binder. Temporary	P. A. Bowen	787,721	Apr. 18	3047	668	115	1759
Binder. Temporary	M. O. Bong	785,078	Mar. 21	2176	490	115	515
Binder. Temporary	E. A. Trussell	785,453	Mar. 21	2954	622	115	685
Binder. Temporary	F. L. Nold	785,911	Mar. 28	3968	822	115	898
	J. Miller	788,488	Apr. 25	4603	1003	115	2124

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Binders. Locking mechanism for the operating devices of loose-leaf	H. J. Moore	786,583	Apr. 4	765	157	115	1233
Binders. Swath-gatherer attachment for	E. M. Norris	785,431	Mar. 21	2902	613	115	673
Binding mechanism	J. A. Plopper	784,702	Mar. 14	1436	297–8	115	338
Bird-trap	O. H. and F. H. Voelkerding	784,453	Mar. 7	903	189	115	205
Bit:							
See Bridle-bit. Drill-bit. Controller-bit.							
Blanket. Animal-	S. D. and E. M. Reid	785,021	Mar. 14	2051	430	115	473
Blanket-pin	S. Galloway	787,286	Apr. 11	2168	478	115	1549
Blast or other furnace. Water-jacketed	A. Patterson	785,634	Mar. 21	3323	710	115	764
Blasting compound	F. G. Dokkenwadel	785,480	Mar. 21	3005	.....	115	696
Blind-fastener	T. A. Upson	784,065	Mar. 7	152	28	115	38
Blinder	E. Diedrich	786,878	Apr. 11	1336	284	115	1368
Block:							
See Bilge-block. Facing-block. Building-block. Lubricating-block. Compound block. Paving-block. Concrete building-block. Pulley-block.							
Block-signal Electric	W. Williams	787,419	Apr. 18	2447	529	115	1623
Block system	J. W. Anderson, Jr	785,031	Mar. 14	2065	434–5	115	476
Block system. Electromagnetic	G. Thompson	785,446	Mar. 21	2942	621	115	683
Blotter	A. N. Sill	785,836	Mar. 28	3732	794	115	868
Blotting-pad	C. J. Hasman	784,211	Mar. 7	403	80	115	94
Blower	H. E. Parson	786,234	Mar. 28	4529	959	115	1045
Blower. Steam-	C. F. Googins	784,488	Mar. 7	977	205	115	220
Blower. Steam-jet	C. T. Coe	787,279	Apr. 11	2158	475	115	1547
Blowing-engine or compressor	G. B. Petsche	784,122	Mar. 7	215	42–3	115	52
Board:							
See Cutting-board. Talking-board. Ironing-board.							
Boarding-clamp	H. S. Holcombe	785,491	Mar. 21	3032	641	115	703
Bobbin-carrier	G. Dingendahl	785,718	Mar. 28	3507	752	115	817
Body-stretcher	W. W. Seidler	785,639	Mar. 21	3332	712	115	766
Boiler:							
See Fire-box boiler. Steam-boiler. Flash-boiler. Vertical boiler. Rotary boiler. Water-tube boiler.							
Boiler	J. P. Blauvelt	784,730	Mar. 14	1509	309	115	355
Boiler	W. T. Fox	787,909	Apr. 25	3466	758	115	1867
Boiler blowing-off apparatus	W. L. Miller	788,323	Apr. 25	4283	930	115	2056
Boiler-cleaner	T. J. Pascoe	787,689	Apr. 18	2985	650	115	1747
Boiler draft-regulator. Steam-	O. R. Sackett and H. M. Rieger	785,049	Mar. 14	2104	443	115	485
Boiler fire-tube. Steam-	P. H. Seery	786,847	Apr. 11	1275	269	115	1354
Boiler-flue cleaner	O. Donatz	784,552	Mar. 14	1111	232	115	265
Boiler-flue scraper	W. G. Bolus	786,092	Mar. 28	4274	901	115	991
Boiler-furnace	S. F. Pierce	784,880	Mar. 14	1801	375–6	115	417
Boiler-headers. Apparatus for making serpentine	R. A. Barrett	786,794	Apr. 11	1183	246–7	115	1335
Boiler-incrustation-preventing device	F. Weimar	786,781	Apr. 4	1150	241	115	1317
Boiler or like furnace. Steam-	G. R. Hislop	786,764	Apr. 4	1118	234–5	115	1310
Boiler-pressure regulator. Automatic	H. E. Parson	784,121	Mar. 7	213	41	115	51
Boiler-scale remover	T. S. Bly	785,192	Mar. 21	2426	510	115	570
Boiler superheater. Flue-	W. Schmidt	788,170	Apr. 25	3999	863	115	1994
Boiler superheater. Tube-	W. Schmidt	788,169	Apr. 25	3997	863	115	1993
Boiler-tube cleaner	H. F. Weinland	784,129	Mar. 7	229	45	115	55
Boiler-tube fastening	C. E. Throop	784,192	Mar. 7	358	73	115	84
Boiler-tube sheathing	J. D. Alexander	784,094	Mar. 7	169	32	115	41
Boiler-tube-tightening device	F. J. E. Johansson	785,888	Mar. 28	3824	813	115	888
Boiler-tubes. Tool for operating upon	J. L. Smith	786,064	Mar. 28	4206	886	115	975
Boilers. Combined safety attachment and flue-cleaner for steam-	J. W. Norton	786,511	Apr. 4	628	126–7	115	1204
Boilers to service condition. Plant for cleaning and restoring	A. R. Raymer	788,376	Apr. 25	4389	957	115	2079
Boll-weevil exterminator	A. B. Carter	787,276	Apr. 11	2154	474	115	1545
Bolt:							
See Expansion-bolt.							
Bolt-clipper and shears. Combined	F. A. Roberts	785,230	Mar. 21	2511	529	115	588
Bolt-heading machine	E. A. Moore and F. Holland	784,624	Mar. 14	1272	266–8	115	299
Bolt-heading machine	E. A. Moore and F. Holland	784,625	Mar. 14	1290	268–70	115	303
Book binding or cover	G. D. Emerson	788,033	Apr. 25	3728	812	115	1927
Book hand-rest. Note-	C. Arnold	787,140	Apr. 11	1882	406	115	1487
Book-holder strap. School-	T. E. Barton	784,972	Mar. 14	1971	413–14	115	455
Book-mark	G. W. Hill	785,215	Mar. 21	2481	523	115	582
Book or album. Picture	A. W. Engel	787,503	Apr. 18	2629	569	115	1666
Book. Poll-tax receipt-	M. P. Exline and E. Bourke	786,743	Apr. 4	1073	222–3	115	1300
Book. Scrap-	A. M. Pettengill	786,235	Mar 28	4530	959	115	1045
Book-support	G. L. T. Dennis	784,734	Mar. 14	1515	310	115	356
Book with cloth leaves	H. S. Dean	784,477	Mar. 7	947	198	115	215
Bookcase. Knockdown sectional	H. M. Amsden	786,940	Apr. 11	1474	311	115	1399
Boot or shoe jack	A. Bourget and F. Roberts, Jr	787,557	Apr. 18	2728	593	115	1680
Bootee	O. P. Hurd	786,644	Apr. 4	897	184	115	1262
Bootjack	J. J. McDonald	785,045	Mar. 14	2099	442	115	484
Boring-tool	M. D. Converse	787,664	Apr. 18	2944	640	115	1738
Boron by electrolysis. Production of	J. A. Lyons and E. C. Broadwell	785,962	Mar. 28	3974	845	115	922
Bottle	H. S. Bellis	784,099	Mar. 7	177	34	115	43
Bottle	R. R. Doemer	784,144	Mar. 7	261	53	115	63
Bottle	A. A. Low	785,012	Mar. 14	2040	427	115	471
Bottle	R. E. Core	785,592	Mar. 21	3249	689	115	749
Bottle	N. E. Booth	785,656	Mar. 21	3371	722	115	775
Bottle	R. J. Modespacher	786,134	Mar. 28	4343	918	115	1006
Bottle	R. G. Julien	786,295	Apr. 4	84	19	115	1089
Bottle	T. W. Russell	787,309	Apr. 11	2215	486	115	1559
Bottle. Antiseptic	F. Sonnenfeld and J. Glass	787,591	Apr. 18	2798	610	115	1705
Bottle-capping machine	S. R. Harris	787,881	Apr. 18	3406	745	115	1841

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Bottle-caps. Device for removing internal	F. M. Glaessel	784,851	Mar. 14	1741	363	115	404
Bottle-cleaning machine	L. Schafer	787,858	Apr. 18	3353	734–5	115	1829
Bottle-closure	H. J. D. Wipf	787,547	Apr. 18	2702	588	115	1683
Bottle-corks or like stoppers. Means for securing	J. J. Chavasse	785,859	Mar. 28	3768	801	115	876
Bottle-filling machine	F. J. Lewis	784,219	Mar. 7	415	83	115	96
Bottle-filling machine	O. Selg	784,234	Mar. 7	442	89	115	103
Bottle for preventing the fraudulent refilling of same	M. R. Green	785,357	Mar. 21	2742	75	115	86
Bottle holder. Ink-	L. H. Keller	786,768	Apr. 4	1123	236	115	1311
Bottle holder. Nursing-	W. J. Boyle	784,914	Mar. 14	1865	391	115	432
Bottle. Hot-water	A. J. Scritchfield	785,638	Mar. 21	3331	711	115	[illegible]
Bottle. Medicine-	F. S. Victor	784,194	Mar. 7	360	74	115	84
Bottle mouth and neck	A. A. Low	785,013	Mar. 14	2041	428	115	471
Bottle. Non-refillable	O. Yates	784,199	Mar. 7	370	75	115	86
Bottle. Non-refillable	H. W. Brent, Jr	784,656	Mar. 14	1352	279	115	318
Bottle. Non-refillable	F. S. Heffernan	784,941	Mar. 14	1914	402	115	443
Bottle. Non-refillable	L. N. Bishop	784,975	Mar. 14	1975	415	115	456
Bottle. Non-refillable	G. T. Kenly	787,188	Apr. 11	1983	431	115	1509
Bottle. Non-refillable	F. A. Muller	788,115	Apr. 25	3893	843	115	1970
Bottle non-refillable attachment	C. Bell	785,467	Mar. 21	2983	629	115	692
Bottle or other vessel with ground stopper	J. Andersson	788,128	Apr. 25	3919	849	115	1976
Bottle or the like receptacle. Milk-	F. Hammond	786,212	Mar. 28	4495	951	115	1037
Bottle-shipping case	R. I. Wright and C. K. Miller	786,705	Apr. 4	1005	206	115	1285
Bottle-soaking machine	A. S. Lindemann and H. F. Stock	784,622	Mar. 14	1268	265	115	298
Bottle-stopper	I. A. Rommer	784,350	Mar. 7	660	136	115	151
Bottle-stopper	E. Campbell	784,469	Mar. 7	930	195	115	211
Bottle-stopper	E. Clemens	785,062	Mar. 14	2125	449	115	489
Bottle-stopper	E. Hoerichs	785,551	Mar. 21	3165	669–70	115	732
Bottle-stopper	C. Dorn	786,735	Apr. 4	1057	219	115	1296
Bottle-stopper	G. Hookham	787,669	Apr. 18	2958	643	115	1740
Bottle-stopper extractor	C. F. Garimaldi	786,492	Apr. 4	583	116–17	115	1195
Bottle-stopper-retaining device	J. J. O'Neill	788,369	Apr. 25	4376	954	115	2077
Bottle-stopper. Valved	N. Q. Kammerer	785,364	Mar. 21	2758	583	115	641
Bottle stopper. Water-	M. C. Schweinert and H. P. Kraft	787,118	Apr. 11	1838	393	115	1477
Bottle-storing case	J. J. Koons	787,300	Apr. 11	2198	483	115	1555
Bottle support and protector	J. A. Leu	784,868	Mar. 14	1777	370	115	412
Bottle-washing machine	J. Angeletti	786,255	Apr. 4	4	1	115	1071
Bottle-washing machine	A. Forbes	786,747	Apr. 4	1080	224–5	115	1301
Bottle-washing machine	C. W. Desobry	786,877	Apr. 11	1334	283–4	115	1367
Bottles, &c. Fastening means for	M. A. Jazaref	788,158	Apr. 25	3977	859	115	1989
Bottling machine. Liquid-	J. A. Hicks	785,001	Mar. 14	2017	423	115	465
Bowling-alley pin-resetting device	B. A. Stevens	784,360	Mar. 7	683	141	115	156
Box:							
See Berry-box. Match-box. Collapsible box. Miter-box. Feed-box. Paper box. Fish-box. Pasting-box. Fisherman's box. Savings and safety-deposit box. Folding box. Knockdown box. Sheet-metal box. Mail-box. Shelf-goods box.							
Box	F. H. Houghland	785,102	Mar. 21	2242	472	115	529
Box	J. J Polski	786,674	Apr. 4	948	194	115	1272
Box-blank mitering and cornering machine	E. H. Taylor	788,288	Apr. 25	4213	914	115	2040
Box-fastener	A. T. Kruse	786,299	Apr. 4	94	21	115	1092
Box-making machine	W. Corkhill	786,856	Apr. 11	1498	318–19	115	1404
Box roller or truck	B. L. Vore	785,029	Mar. 14	2062	433	115	476
Boxes, &c. Folding apparatus for	R. E. Fischer	784,147	Mar. 7	266	54	115	64
Brace:							
See Buggy-top brace.							
Bracelet	J. F. Rioux	787,639	Apr. 18	2897	631	115	1728
Bracelet	H. B. Richardson	788,221	Apr. 25	4091	886	115	2013
Bracket:							
See Astragal bracket. Show-case bracket. Lamp-bracket. Telephone-bracket. Shade-bracket. Shade and curtain bracket.							
Braid-machine	C. Klein	787,383	Apr. 18	2375	513	115	1608
Braid. Tubular	C. Klein	787,382	Apr. 18	2374	513	115	1608
Braiding-machine	B. Kirsch	784,686	Mar. 14	1406	290–1	115	331
Braiding-machine	A. Le Blanc	787,384	Apr. 18	2377	514	115	1608
Brake:							
See Air-brake. Power-brake. Bicycle-brake. Railway-brake. Car-brake. Thread-brake. Carriage-brake. Tire-brake. Elevator safety-brake. Truck-brake. Fire-escape brake. Wagon-brake. Fluid-pressure brake. Warp-beam brake. Friction-brake.							
Brake	F. Davignon	787,151	Apr. 11	1906	412–13	115	1492
Brake-beam	J. F. O'Connor	784,698	Mar. 14	1428	295	115	336
Brake-beam	S. A. Crone	784,839	Mar. 14	1725	358	115	401
Brake-beam fulcrum-block	C. E. Bauer	787,888	Apr. 25	3419	749	115	1855
Brake mechanism	R. M. Downie	785,295	Mar. 21	2631	557	115	613
Brake mechanism	N. T. Harrington	786,807	Apr. 11	1203	251	115	1340
Brake-shoe	J. S. Thompson	784,363	Mar. 7	691	143	115	158
Brake-shoe	P. Carpenter	785,290	Mar. 21	2622	555	115	611
Brake-shoe	J. D. Gallagher	785,303	Mar. 21	2642	559–60	115	615
Brake-shoe	J. D. Gallagher	785,355	Mar. 21	2739	580	115	636
Brake-shoe	J. F. Morrison	786,373	Apr. 4	263	60	115	1125
Brake-shoe	W. M. Simpson	786,465	Apr. 4	530	105	115	1184
Brake-shoe	F. P. Collier	787,079	Apr. 11	1757	374	115	1460
Brake-shoes. Making	J. D. Gallagher	787,092	Apr. 11	1784	381	115	1467
Brake-spindle and ratchet-handle. Compound-geared	L. Pfingst	786,969	Apr. 11	1585	338	115	1422
Brake-switch locking device	F. C. Newell	785,180	Mar. 21	2404	506	115	565

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Brake system. Fluid-pressure	M. W. Hibbard	787,332	Apr. 11	2258	494	115	1569
Brake system. Quick-action automatic fluid-pressure	J. S. Bubb	787,723	Apr. 18	3053	669–72	115	1761
Braking device	R. Marx	787,779	Apr. 18	3198	698	115	1795
Branding-iron	S. Kleinhammer	784,054	Mar. 7	86	16	115	22
Branding-iron	H. W. Brent and C. H. Sessions	785,588	Mar. 21	3245	688	115	748
Branding-iron. Self-heating	H. G. Parker and E. V. Garnett	785,827	Mar. 28	3716	792	115	865
Brass band instrument	C. H. Barrett	784,201	Mar. 7	373	76	115	87
Bread-preserving device	W. Biber	787,021	Apr. 11	1647	350	115	1436
Breast-connector	V. H. Mills	784,800	Mar. 14	1655	342	115	386
Brick compound. Paving	T. S. Pierce	787,942	Apr. 25	3531	.....	115	1881
Brick-kiln hydrocarbon-burner	J. Schurs	784,126	Mar. 7	224	44	115	54
Brick-machine	D. J. C. Arnold	787,019	Apr. 11	1640	349–50	115	1434
Brick-machine attachment	W. C. Burgum	787,075	Apr. 11	1752	373	115	1459
Brick or tile cutting machine	C. R. Codding	786,003	Mar. 28	4068	862	115	944
Brick-press	E. D. Church	784,470	Mar. 7	931	196	115	211
Brick-trimming tool	S. C. Campaigne	786,344	Apr. 4	193	44	115	1111
Bricks, crucibles, retorts, or other refractory articles. Manufacturing fire-	P. Klein	787,770	Apr. 18	3184	.....	115	1792
Bricks from coal or coke refuse. Manufacturing	J. Hammerschlag H. S. Gerdes, Jr., and O. Droste	786,028	Mar. 28	4134	.....	115	959
Bridge. Cantaliver suspension	J. Tomlinson	785,686	Mar. 21	3438	739	115	787
Bridge track-end adjustment. Draw	J. Harsen	788,400	Apr. 25	4453	968	115	2094
Bridle-bit	M. E. Buck	784,031	Mar. 7	36	7	115	11
Bridle-bit	T. Milligan	785,512	Mar. 21	3061	652	115	714
Briquet-machine	H. E. Marsh	786,773	Apr. 4	1131	237–8	115	1313
Briquet-machine	F. W. Meeker	787,387	Apr. 18	2386	515–16	115	1611
Briquet-press	J. Treadwell	784,083	Mar. 7	146	27	115	37
Broiler	C. C. Messmer	788,415	Apr. 25	4476	974	115	2098
Brooch. Veil	G. D. Turner	786,328	Apr. 4	165	38	115	1106
Brooder	A. F. Meserve	784,954	Mar. 14	1933	406	115	447
Brooder. Chicken	J. N. Jacobson	787,671	Apr. 18	2960	644–5	115	1741
Broom	F. R. Lay	788,157	Apr. 25	3976	859	115	1989
Broom-corn fiber	A. J. Middleton	786,579	Apr. 4	755	155	115	1230
Broom-guard	S. G. Wilson	787,813	Apr. 18	3260	712	115	1809
Broom handle attachment	L. Shaffner	786,166	Mar. 28	4404	931	115	1019
Brooms into bundles. Device for assembling	A. P. Longdon	786,228	Mar. 28	4521	957	115	1043
Brush	P. A. Särchinger	785,273	Mar. 21	2594	547	115	606
Brush and connection. Fountain	A. W. Nicholls	786,985	Apr. 11	1578	337	115	1421
Brush. Bottle-washing	C. K. Volckening	787,706	Apr. 18	3023	663	115	1754
Brush-bridle	G. R. Winnie	785,463	Mar. 21	2973	627	115	690
Brush cleaner. Hair	F. Martucci	787,201	Apr. 11	2008	437	115	1514
Brush. Collapsible	W. A. Weir	785,342	Mar. 21	2711	575	115	630
Brush. Fountain	P. H. Clingan	787,278	Apr. 11	2157	475	115	1546
Brush-making machine	A. Vanderveld	786,537	Apr. 4	674	137	115	1213
Brush or broom moistener	W. A. Fuller	786,802	Apr. 11	1195	249	115	1338
Brush-reciprocating device	C. W. Johnson	788,049	Apr. 25	3756	818	115	1934
Brush. Sanitary shaving	L. Silverman and W. Vincent	784,763	Mar. 14	1581	326	115	370
Bucket. Dumping	G. L. Stuebner	784,815	Mar. 14	1682	348	115	392
Bucket sinker. Well	H. C. Hopkins	785,101	Mar. 21	2241	472	115	528
Buckle	H. G. Evans	784,736	Mar. 14	1519	311	115	357
Buckle and hook. Combined	G. F. Green	787,570	Apr. 18	2751	599	115	1693
Buckle. Bale-tie	J. C. Jenkins	788,471	Apr. 25	4571	997	115	2118
Buckle. Cotton-bale-tie	J. B. Fleenor	786,744	Apr. 4	1075	223	115	1300
Buckle. Cross-line	H. L. Sheldon	784,810	Mar. 14	1672	346	115	390
Buckle. Cross-line	H. J. Rath and F. W. Kvech	786,463	Apr. 4	528	104	115	1183
Buckle. Harness	W. Obermeir	784,804	Mar. 14	1661	344	115	387
Buckle. Separable	W. L. Dudley	788,194	Apr. 25	4039	873	115	2003
Buckle. Suspender	M. L. Rothschild	785,920	Mar 28	3885	826	115	903
Buckle. Trace	W. L. Walton	787,015	Apr. 11	1634	348	115	1433
Budding-tool	H. C. White	787,710	Apr. 18	3029	664	115	1755
Buggy-top brace	P. W. and D. D. Moyer	786,138	Mar. 28	4349	919	115	1008
Buggy-top brace	P. W. and D. D. Moyer	786,139	Mar. 28	4350	919	115	1008
Building-block	B. W. Davis	784,476	Mar. 7	945	198	115	214
Building-block	E. E. Benner	785,539	Mar. 21	3141	663	115	727
Building-block	J. F. Dunham	786,250	Mar. 28	4566	968	115	1053
Building-block	C. J. W. Hayes	786,762	Apr. 4	1115	234	115	1309
Building-block	W. J. Faulkner	786,884	Apr. 11	1348	287–8	115	1370
Building-block	J. H. Jones	786,971	Apr. 11	1549	329	115	1414
Building-block	J. Schall	788,283	Apr. 25	4203	912	115	2038
Building-block-forming machine	H. Gutteridge and J. H. McConnell	784,154	Mar. 7	281	58–9	115	67
Building-block. Interlocking	J. Schall	788,430	Apr. 25	4502	980	115	2104
Building-blocks. Manufacturing	D. W. Lloyd	787,199	Apr. 11	2005	436	115	1514
Bulb-manipulator	W. H. Thompson	787,805	Apr. 18	3248	709	115	1806
Bulkhead-door control	L. A. Hawkins	787,293	Apr. 11	2183	481	115	1552
Bundling apparatus	J. H. Irving	787,183	Apr. 11	1971	428	115	1506
Bunsen burner for lighting and heating	J. Moeller	788,216	Apr. 25	4085	885	115	2012
Burglar-alarm	C. O. Miller	786,912	Apr. 11	1407	299–300	115	1383
Burglar alarm and trap	A. A. Day	787,358	Apr. 18	2317	503	115	1594
Burglar and fire alarm	H. Maske	785,074	Mar. 14	2157	456	115	496
Burglar-trap	W. Giles and H. Ramsey	787,372	Apr. 18	2343	507	115	1600
Burner:	G. W. Wright	788,181	Apr. 25	4014	868	115	1997
See Bunsen burner. Gas-burner. Gas-regulating burner. Hydrocarbon-burner. Injector-burner. Liquid-fuel burner. Oil-burner. Oil or gas burner. Vapor-burner.							
Burner	W. Smethurst	785,236	Mar. 21	2519	531	115	589
Burner	H. K. Hess	786,123	Mar. 28	4324	913	115	1003
Bushing. Rawhide	F. Latulip	784,524	Mar. 7	1058	219	115	238
Bushing. Rawhide	E. T. Shepard	784,762	Mar. 14	1580	325	115	370
Butter-cutter	C. P. Ross	785,978	Mar. 28	4019	852–3	115	932
Butter-cutting machine	C. F. Helflinger	785,488	Mar. 21	3026	640	115	702
Butter-cutting machine	C. F. Helflinger	785,489	Mar. 21	3028	640	115	702

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Butter. Refining	M. H. Greeley	784,394	Mar. 7	785	161	115	179
Butter-tray	A. C. Hummer	785,952	Mar. 28	3955	841	115	918
Button	F. J. Lowery	785,261	Mar. 21	2569	542	115	600
Button attachment. Garment	J. D. Burns	787,560	Apr. 18	2732	594	115	1690
Button. Badge	G. H. Brooks	786,262	Apr. 4	18	5	115	1074
Button. Campaign	J. L. Bieder	787,067	Apr. 11	1742	371	115	1457
Button. Collar	C. B. Sippel	785,766	Mar. 28	3595	768	115	836
Button. Collar or cuff	W. Hair and J. F. Behrman	784,322	Mar. 7	610	125	115	140
Button-link	A. V. Cassity	785,857	Mar. 28	3766	800	115	876
Button. Link cuff	C. F. King	787,455	Apr. 18	2519	545	115	1639
Button. Memorandum	C. T. Whitsett	785,460	Mar. 21	2964	624	115	688
Button. Separable	W. B. Bend	786,183	Mar. 28	4433	938	115	1024
Buttonhole	H. Walden	788,078	Apr. 25	3805	828	115	1945
Buttonhole-clamp	E. B. Allen	785,146	Mar. 21	2328	488	115	548
Buttonhole-working attachment	O. E. Hammond	785,422	Mar. 21	2853	609	115	669
Cabinet	C. P. Adams	786,176	Mar. 28	4420	935	115	1022
Cabinet	E. A. Carlson	786,483	Apr. 4	564	113	115	1191
Cabinet for stationery, &c	H. Hatch	784,325	Mar. 7	614	126	115	140
Cabinet. Pie	G. Conez	785,591	Mar. 21	3240	689	115	749
Cabinet. Shaving	F. P. Linsley	786,574	Apr. 4	747	154	115	1228
Cable-box	F. B. Hall	785,096	Mar. 21	2226	467	115	525
Cable-head and pole-house. Combined	F. B. Cook	788,130	Apr. 25	3921	849–50	115	1977
Cableway. Aerial	F. R. French	787,569	Apr. 18	2744	597–9	115	1692
Cake-icing machine	J. F. Scott and A. B. Curtis	788,222	Apr. 25	4092	886–7	115	2013
Cake-machine	F. M. Peters	785,914	Mar. 28	3872	823–4	115	899
Cake-mixer	F. R. Schmidt	785,332	Mar. 21	2696	571–2	115	627
Calculating-machine	I. R. Edmands and J. Scales	784,255	Mar. 7	483	.....	115	112
Calculator	H. Goldman	786,282	Apr. 4	54	12–13	115	1083
Calculator. Mechanical	R. N. Cooper	786,102	Mar. 28	4290	905	115	994
Calendar	J. R. Hamilton	785,097	Mar. 21	2224	468–70	115	526
Calendar	J. M. Biggs	784,974	Mar. 14	1974	415	115	455
Calendar	J. Ball and R. E. Ritz	786,618	Apr. 4	825	171–2	115	1216
Calendar. Automatic perpetual	E. J. Brandt	788,241	Apr. 25	4129	895–6	115	2022
Calendar. Desk	J. Ballantyne	786,181	Mar. 28	4427	937	115	1023
Camera	F. M. Turck	787,649	Apr. 18	2913	635	115	1731
Camera. Photographic	G. H. Dorr	788,307	Apr. 25	4256	923	115	2051
Camera. Photographic	L. Borsum	784,028	Mar. 7	26	5	115	8
Camera. Photographic	J. E. Thornton	785,239	Mar. 21	2526	533	115	591
Camera-stand	G. Hassell	786,562	Apr. 4	725	147–8	115	1224
Campaign instrument	E. A. Steetzer	786,530	Apr. 4	663	134	115	1211
Can:	A. H. Gould	785,874	Mar. 28	3792	806	115	882
See Plant-can. Tin can.							
Can-body forming and soldering machine	H. Diecks	787,439	Apr. 18	2485	538–9	115	1631
Can-body-making machine	G. F. Leiger	786,302	Apr. 4	100	22–3	115	1063
Can-body-manufacturing machine. Sheet-metal	M. A. Wheaton	785,584	Mar. 21	3222	684–7	115	742
Can-capping tool	S. B. Townsend	788,121	Apr. 25	3902	845	115	1972
Can-cleaning machine	W. Rubin	784,504	Mar. 7	1015	211	115	227
Can-cover	C. A. Crane	786,957	Apr. 11	1503	319	115	1405
Can joints. Apparatus for unsoldering sheet-metal	S. K. Green	784,856	Mar. 14	1754	365–6	115	406
Can-opener	A. Peterson	784,424	Mar. 7	841	174	115	192
Can-opener	W. H. Smith	787,478	Apr. 18	2569	551	115	1650
Can-testing apparatus	H. C. Black	786,404	Apr. 4	333	73–4	115	1144
Can-topping machine	H. C. Black	786,403	Apr. 4	331	73	115	1144
Canning and cooking apparatus	J. C. Garner	786,803	Apr. 11	1197	250	115	1339
Canning-machine	M. Foerg and J. E. Hall	786,351	Apr. 4	210	48	115	1115
Candle holder and extinguisher	H. Kühnert	785,896	Mar. 28	3839	817	115	891
Candy or biscuit cutting machine	O. B. Zimmerman and J. M. Fowler	787,970	Apr. 25	3592	784–5	115	1896
Candy-rolling machine	F. J. Lautner, Jr	784,111	Mar. 7	199	38	115	48
Cane and stool. Convertible	S. C. Garden	787,166	Apr. 11	1932	419	115	1498
Cane fabric. Machine for inserting diagonal strands in woven	F. H. Janson	787,185	Apr. 11	1975	429–30	115	1507
Cane. Macerating sugar	M. Lorenz	787,102	Apr. 11	1805	386	115	1470
Cane mills. Intermediate apron conveyer for sugar	M. Lorenz	787,101	Apr. 11	1804	385	115	1470
Cane or umbrella attachment	F. Grey	786,755	Apr. 4	1099	230	115	1306
Cannon. Breech mechanism for quick-firing	M. Mondragon	787,528	Apr. 18	2671	580–1	115	1676
Canopy-support	H. Raines and B. F. Gooch	785,571	Mar. 21	3199	678	115	738
Caoutchouc. Manufacture of a substitute for	H. Spatz	786,527	Apr. 4	660	.....	115	1211
Cap	H. Seide	787,121	Apr. 11	1847	394	115	1479
Capsule-cutter	E. Happe	786,892	Apr. 11	1362	290	115	1373
Car	F. S. Ingoldsby and J. R. Bowling	784,265	Mar. 7	501	101–2	115	116
Car	C. A. Lindström and J. F. Streib	786,224	Mar. 28	4514	955	115	1041
Car basket-rack	J. Kirby, Jr	787,456	Apr. 18	2520	545	115	1639
Car body-bolster. Railway	H. C. Williamson and H. Pries	785,344	Mar. 21	2715	575	115	631
Car-brake	L. J. Evans	784,668	Mar. 14	1373	284	115	322
Car-brake	R. Vogel	784,906	Mar. 14	1845	386	115	428
Car-brake	H. Poth	785,570	Mar. 21	3197	678	115	738
Car-brake	C. A. Fisher	787,363	Apr. 18	2323	504	115	1595
Car-brake, &c	J. Roediger	787,643	Apr. 18	2903	632	115	1729
Car-brake	J. N. Welkly	787,652	Apr. 18	2921	636	115	1733
Car-brake appliance	J. W. Pepple	787,691	Apr. 18	2988	651	115	1747
Car brake. Mining	D. Taggart. (Reissue)	12,327	Mar. 21	3465	745	115	794
Car construction	J. C. Jones	786,361	Apr. 4	236	54	115	1120
Car construction	W. M. Smith	784,355	Mar. 7	673	138–9	115	154
Car construction	W. M. Smith	784,356	Mar. 7	675	139	115	155
Car construction	W. B. Waggoner	785,781	Mar. 28	3621	774	115	841
Car construction. Railway	F. W. Langebennig	787,682	Apr. 18	2975	648	115	1745
Car-coupling	F. G. Smith	784,296	Mar. 7	568	116–17	115	130
Car-coupling	M. A. Tower	784,764	Mar. 14	1582	326	115	370
Car-coupling	A. Rittersbach	784,768	Mar. 14	1587	327	115	371
Car-coupling	I. I. Caskey	784,889	Mar. 14	1818	380	115	421
Car-coupling	T. A. Savage	785,250	Mar. 21	2543	537	115	594
Car-coupling	S. R. Smith	785,382	Mar. 21	2793	590	115	648
Car-coupling	W. McConway, Jr	786,109	Mar. 28	4411	932	115	1020
		787,531	Apr. 18	2676	562	115	1677

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Car-coupling	G. W. Barfield	787,819	Apr. 18	3271	715	115	1811
Car-coupling	J. Snyder	787,954	Apr. 25	3552	776	115	1886
Car-coupling	W. McConway, Jr	787,991	Apr. 25	3636	792	115	1905
Car-coupling	J. Snyder	788,173	Apr. 25	4002	864	115	1995
Car-coupling. Automatic	S. P. Bush and J. Timms	785,086	Mar. 21	2198	463	115	519
Car-door	O. S. Davis	785,800	Mar. 28	3657	779	115	851
Car-door	N. F. Arble	786,178	Mar. 28	4423	935	115	1023
Car-door	J. W. Hawn	786,896	Apr. 11	1367	291	115	1375
Car-door	E. F. Martin	788,321	Apr. 25	4281	929	115	2056
Car door arrangement. Hopper-	J. M. Hansen	787,571	Apr. 18	2752	600	115	1694
Car-door fastener. Freight-	A. O. Arnold	785,702	Mar. 28	3476	746–7	115	810
Car door. Grain-	C. L. Robbins	786,314	Apr. 4	142	33	115	1101
Car-door lock	T. Drakes	786,961	Apr. 11	1510	320	115	1407
Car double friction-gear. Motor-	H. C. Frederiksen	787,910	Apr. 25	3468	758	115	1867
Car draft or buffing gear or rigging	J. R. Herndon	787,445	Apr. 18	2496	541–2	115	1633
Car draft-rigging. Continuous	A. Johnson	786,034	Mar. 28	4142	874	115	961
Car draft-rigging. Railway-	R. M. Zimmerman	784,610	Mar. 14	1248	261	115	291
Car draft-rigging. Railway-	J. F. O'Connor	784,697	Mar. 14	1425	294	115	335
Car draft-rigging. Railway-	A. W. Sullivan and W. Renshaw	787,864	Apr. 18	3366	736	115	1832
Car draft-rigging. Railway-	W. H. Miner	787,933	Apr. 25	3511	766	115	1877
Car. Dumping-	W. R. Cliffe	784,105	Mar. 7	188	36	115	46
Car. Dumping-	A. W. Dahmer	788,096	Apr. 25	3841	835	115	1953
Car electric-lighting apparatus. Railway-	W. F. Richards and W. A. Turbayne.	784,071	Mar. 7	122	22	115	31
Car-fender	C. H. Turner	785,840	Mar. 28	3736	795–6	115	869
Car for railways. Hydraulic hand-	W. H. Fisher, H. B. Helm, and G. Epple.	784,108	Mar. 7	193	36–7	115	47
Car-frame	E. I. Dodds	784,665	Mar. 14	1369	283	115	321
Car-frame	E. I. Dodds	785,866	Mar. 28	3780	804	115	879
Car gate. Railway-	C. M. Waite	785,456	Mar. 21	2959	623	115	686
Car grab-handle. Railway-	S. M. Curwen	784,518	Mar. 7	1044	216	115	234
Car grab-handle. Railway-	S. M. Curwen	784,519	Mar. 7	1045	216	115	235
Car grab-handle. Railway-	S. M. Curwen	784,520	Mar. 7	1046	216	115	235
Car guard and sash-retainer. Street-	E. T. Robinson	787,641	Apr. 18	2901	631–2	115	1728
Car. Hand-	P. J. Kamper	787,381	Apr. 18	2372	512	115	1607
Car-haul	L. J. Robb	786,517	Apr. 4	641	129	115	1206
Car-haul	A. M. Acklin	787,605	Apr. 18	2831	616–17	115	1713
Car hauling and controlling mechanism	J. G. Scott	784 898	Mar. 14	1830	383	115	424
Car-indicator	M. Stuhler	784,361	Mar. 7	684	141	115	157
Car. Mine water-	W. J. Richards	787,112	Apr. 11	1823	390	115	1474
Car motor. Hand-	J. T. H. Drake	787,283	Apr. 11	2163	477	115	1548
Car-platform. Extensible	C. Scott	784,233	Mar. 7	441	89	115	102
Car. Railway-	E. A. Trapp	784,817	Mar. 14	1687	349	115	393
Car. Railway-	J. W. King	785,174	Mar. 21	2391	502	115	562
Car-register	F. A. Schierberg	784,595	Mar. 14	1197	252	115	283
Car-register protector. Street-	F. Paduveri	786,968	Apr. 11	1581	338	115	1421
Car-replacer	C. E. Wise	784,647	Mar. 14	1337	277	115	315
Car roller side bearing. Railway-	J. F. O'Connor	787,938	Apr. 25	3518	768	115	1878
Car safe. Sleeping-	C. C. Dawson	786,270	Apr. 4	30	8	115	1077
Car safety appliance. Street-	R. Hirsch	787,574	Apr. 18	2755	601	115	1695
Car safety-guard. Street-	C. A. Willard	786,393	Apr. 4	316	70	115	1140
Car sand-box. Street-	S. W. Phelps	784,879	Mar. 14	1799	375	115	417
Car-seat	S. M. Curwen	784,386	Mar. 7	756	153–4	115	173
Car-seat	C. K. Pickles	784,429	Mar. 7	849	177	115	194
Car-seat	H. S. Hale	785,421	Mar. 21	2880	608	115	668
Car-seat	H. Witte	787,603	Apr. 18	2826	615	115	1712
Car seat and berth. Convertible	K. Schliepmann	787,797	Apr. 18	3232	706	115	1802
Car-seat and guard	C. K. Pickles	784,428	Mar. 7	848	176	115	193
Car-seat. Walk-over	C. K. Pickles	784,426	Mar. 7	844	175–6	115	193
Car stake-pocket	E. I. Dodds	785,867	Mar. 28	3781	804	115	879
Car stringer-support	C. A. Lindström	785,043	Mar. 14	2094	441	115	483
Car structure and bolster	H. H. Vaughan	788,125	Apr. 25	3913	847	115	1975
Car. Tank-	P. P. Sturdevant	787,130	Apr. 11	1859	398–9	115	1481
Car. Tank-	W. P. Bettendorf	788,016	Apr. 25	3695	805	115	1919
Car-underframe. Metallic	J. M. Hansen	784,261	Mar. 7	493	99	115	114
Car vestibule door and gate combined. Railway-	E. T. Robinson	787,640	Apr. 18	2899	631	115	1728
Car-vestibule floors. Trap-door for	K. Schliepmann	787,646	Apr. 18	2907	633	115	1730
Car vestibules. Combined door and gate keeper for street-	E. T. Robinson	788,428	Apr. 25	4500	979	115	2103
Car-wheel	J. T. Duff	785,034	Mar. 14	2075	436	115	478
Car-wheel. Metal-tired	A. J. O'Neil and F. L. Wrenn	785,750	Mar. 28	3581	764	115	832
Car-wheel. Self-oiling	E. T. Thayer	785,128	Mar. 21	2296	482	115	541
Car wheel. Tram-	G. T Bond	786,405	Apr. 4	336	74	115	1145
Car-window	J. A. Brill and C. K. Pickles	784,300	Mar. 7	575	118	115	133
Car window-sash. Street-	E. T. Robinson	784,709	Mar. 14	1444	299	115	339
Car with drop ends. Low-side gondola	J. M. Hansen	786,356	Apr. 4	226	51–2	115	1118
Cars. Curtain-fixture for open	G. E. Gilman	787,841	Apr. 18	3325	727	115	1821
Cars. Electrical annunciator for trolley-	I. J. Bradshaw	784,139	Mar. 7	249	49–50	115	60
Cars or other vehicles. Ventilating device for tram-	E. A. Stanley and J. E. Anger	787,126	Apr. 11	1852	396	115	1480
Cars. Portable loop for dump-	H. A. Penberthy and J. B. Pitchford.	784,700	Mar. 14	1431	295–6	115	336
Carbid-feeding device	W. Sinclair	784,811	Mar. 14	1673	346	115	390
Carbon articles. Heating	F. J. Tone	786,859	Apr. 11	1291	274	115	1358
Carburetor	H. D. Studabaker	784,599	Mar. 14	1218	255–6	115	287
Carburetor for hydrocarbon-engines	A. A., F., and G. Longuemare	785,622	Mar. 21	3300	701–2	115	759
Carburetor. Gas-engine	J. F. and M. Hiltacher	784,676	Mar. 14	1387	287	115	326
Carburetor. Hydrocarbon-engine	R. M. Keating	785,808	Mar. 28	3663	783	115	858
Carburetor pumping and mixing apparatus	P. B. Johnson and J. E. McCoy	785,954	Mar. 28	3959	841–2	115	918
Carburetor. Rotary	D. B. Young	787,254	Apr. 11	2110	465	115	1535
Card-holder attachment for umbrellas, &c	R. E. Cannon	786,001	Mar. 28	4065	861	115	944
Cards. Playing-	W. H. Higgins	787,295	Apr. 11	2187	481–2	115	1553
Carpet-cleaning apparatus	A. E. Moorhead	784,801	Mar. 14	1656	343	115	386
Carpet-cleaning apparatus	A. E. Moorhead	787,388	Apr. 18	2390	517	115	1612
Carpet fastener. Stair-	S. Kahn	784,683	Mar. 14	1402	289	115	330
Carpet-sweeper balls. Device for attaching handles to	D. F. Starkweather	785,027	Mar. 14	2061	433	115	475
Carriage brake. Baby-	R. C. Starbard	784,443	Mar. 7	877	184	115	200

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Carrier: *See* Egg-carrier. Mail-carrier. Elevated carrier. Pneumatic carrier. Hay-carrier.							
Carrier-track	W. Mitchel	784,061	Mar. 7	95	18	115	24
Carton-bottom-flap closing and sealing machine	C. Redd	787,697	Apr. 18	3005	657–60	115	1750
Carton closing and sealing machine	W. H. Doble	785,411	Mar. 21	2861	604–5	115	665
Carton-end closing and sealing machine	W. H. Doble	787,877	Apr. 18	3395	743–4	115	1839
Carton-top closing and sealing machine	C. Redd	787,696	Apr. 18	2997	654–7	115	1749
Cartridge	F. H. Bowly	784,977	Mar. 14	1979	416	115	456
Cartridge-belt. Woven-fabric	A. Mills	787,853	Apr. 18	3343	732	115	1826
Cartridge-clip	A. Mills	787,850	Apr. 18	3339	731	115	1825
Cartridge-pocket. Seamless woven	A. Mills	787,851	Apr. 18	3340	731–2	115	1825
Cartridge. Short-range or gallery	T. S. King and J. E. Bell	788,266	Apr. 25	4172	906	115	2031
Carving-machine	B. W. Tucker	784,714	Mar. 14	1479	303–4	115	348
Carving-machine	H. Luschar	785,314	Mar. 21	2658	563–5	115	618
Carving-platter meat-holder	H. G. Chamberlin	786,546	Apr. 4	696	142	115	1218
Case: *See* Bookcase. Packing-case. Bottle-shipping case. Pistol-case. Bottle-storing case. Shipping and show case. Casket-inclosing case. Show-case. Dress-suit case. Toilet-case. Fish-hook case. Traveling-case. Gun-case. Vaccine-case. Needle-case.							
Casing-head	F. F. Howe	784,400	Mar. 7	796	164	115	182
Casing-head	C. C. Poole	786,838	Apr. 11	1257	264	115	1351
Casing packer-shoe	O. M. Bloom	785,933	Mar. 28	3913	832	115	909
Casing-spear	J. J. Brewster	786,480	Apr. 4	557	112	115	1189
Cash-register	C. Laurick	784,335	Mar. 7	627	129–31	115	143
Cash-register	F. W. Steinacker and I. Culver	785,384	Mar. 21	2796	591–2	115	649
Cash-register	F. W. Steinacker and I. Culver	785,385	Mar. 21	2805	592–4	115	651
Cash-register	A. Miszewski	786,304	Apr. 4	106	24	115	1095
Cash-register	J. P. Cleal	786,346	Apr. 4	196	45–6	115	1112
Cash-register	F. C. Osborn	786,377	Apr. 4	270	61–3	115	1127
Cash-registering apparatus. Rocking printing-table for	J. P. Cleal and A. Macauley	788,453	Apr. 25	4540	988–90	115	2112
Cask	J. Frydmane and L. Chambon	788,462	Apr. 25	4559	993–4	115	2116
Cask-forming device. Stave-	J. Gilmour and R. O'Flynn, Jr	786,208	Mar. 28	4485	948	115	1036
Casks, barrels, &c., made with staves. Apparatus for forming	J. Tropf	787,807	Apr. 18	3250	709	115	1806
Casket-inclosing case	F. Alexe	787,349	Apr. 18	2305	501	115	1591
Cast-off	J. D. Ripson	785,380	Mar. 21	2791	589	115	647
Caster	C. Bloomberg	787,872	Apr. 18	3177	738	115	1834
Casting	W. C. Fischer	785,601	Mar. 21	3267	694	115	753
Casting	F. Cowden	786,009	Mar. 28	4086	864	115	947
Casting apparatus	F. Cowden	786,248	Mar. 28	4562	968	115	1052
Casting apparatus. Metal-	F. Cowden	787,325	Apr. 11	2244	491	115	1566
Casting apparatus. Metal-	I. Barker	784,023	Mar. 7	12	3	115	5
Casting hollow cylinders. Core for	J. Scott	788,334	Apr. 25	4309	936–8	115	2062
Catamenial bandage	H. Brauns	785,148	Mar. 21	2332	489	115	548
Cattle-guard	E. C. Morison	786,136	Mar. 28	4345	918	115	1007
Cattle-guard	T. K. McQueen	786,142	Mar. 28	4353	920	115	1009
Cattle-guard	G. W. Stegall	786,171	Mar. 28	4413	933	115	1021
Cattle loading or unloading device	E. J. Crandell	786,197	Mar. 28	4467	945	115	1031
Celery-trimmer	C. P. Ochs	788,424	Apr. 25	4490	977–8	115	2101
Cement-block mold	L. B. Keller	788,474	Apr. 25	4575	997	115	2119
Cement-block mold	F. Gutteridge	787,375	Apr. 18	2354	510	115	1602
Cement-block-molding machine. Hollow-	H. F. Lightner	788,481	Apr. 25	4585	999	115	2120
Cement-building-block-forming mold	H. A. Robbins	785,272	Mar. 21	2593	547	115	605
Cement-kiln	B. Ely and J. I. Taylor	787,743	Apr. 18	3138	686–7	115	1782
Cement-mixer	C. Ellis	788,503	Apr. 25	4628	1010	115	2130
Cement tanks. Apparatus for forming	C. Brent	787,071	Apr. 11	1747	372	115	1458
Centering-motor	J. T. Donahoo	787,157	Apr. 11	1915	415	115	1494
Centering-motor	J. R. Tanner	787,479	Apr. 18	2570	555	115	1651
Centrifugal machine	J. R. Tanner	787,480	Apr. 18	2572	555	115	1651
Centrifugal machine	G. ter Meer	785,818	Mar. 28	3700	787–8	115	862
Centrifugal-machine safety appliance	K. P. Nilsson	785,910	Mar. 28	3866	821	115	898
Ceramic or vitrified ware. Decorated article of	J. S. Johnston and T. H. Murphy	787,673	Apr. 18	2964	645	115	1742
Chain	J. R. Anderson	785,534	Mar. 21	3130	661	115	725
Chain and cutter-carrying device	R. G. Goldman	785 873	Mar. 28	3790	806	115	881
Chain-link. Permeable	T. G. Aultman	787,551	Apr. 18	2716	591	115	1686
Chain or cord attaching device	J. W. Hyatt	786,904	Apr. 11	1390	296	115	1379
Chains and chain cables. Connecting-link for	J. B. Clermont	788,094	Apr. 25	3837	834	115	1953
Chair: *See* Adjustable and reclining chair. Opera-chair. Dental chair. Piano-chair. Invalid's chair. Rocking-chair. Swinging chair.	J. W. Hill	785,881	Mar. 28	3802	808–9	115	884
Chair	J. H. Brownell	787,873	Apr. 18	3378	739	115	1834
Chair spring-back	C. J. Travers	786,326	Apr. 4	161	37	115	1104
Chair-table	L. Wall	784,604	Mar. 14	1231	258	115	290
Chart	W. McDowell	787,533	Apr. 18	2690	583	115	1678
Check-controlled apparatus	W. B. Wheeler	786,866	Apr. 11	1309	278–9	115	1362
Check-protector	G. W. Beebe	784,377	Mar. 7	732	149–50	115	168
Check-protector	G. W. Beebe	785,466	Mar. 21	2978	628	115	691
Checkrein-ease. Combination	J. R. Uncapher	785,129	Mar. 21	2298	482	115	541
Cheese-cutter	F. P. Dunn	784,553	Mar. 14	1113	232	115	265
Cheese-cutter	D. J. Busborr	785 348	Mar. 21	2724	577	115	633
Chest-weight apparatus	M. B. Reach	784,278	Mar. 7	529	109	115	122
Chimney and lining therefor	J. M. Bragg	787,267	Apr. 11	2133	471	115	1541
Chimney construction	W. T. Coughlin	786,196	Mar. 28	4466	944	115	1031
Chimneys, &c. Appliance for use in building	W. T. Weightman	784,606	Mar. 14	1237	259	115	291
Chimneys or stacks. Constructing	G. H. Thirsk	785,779	Mar. 28	3616	772–3	115	840

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Chlorin. Treating and utilizing	E. C. Paramore	786,595	Apr. 4	782	160	115	1236
Chopper:							
See Beet-chopper. Cotton-chopper.							
Chromates. Making	R. Suchy	784,640	Mar. 14	1325	.....	115	312
Chuck	O. M. Mowat	785,564	Mar. 21	3184	674	115	735
Chuck. Revolving or three-way	I. B. Gilbert	785,547	Mar. 21	3154	667	115	729
Chuck. Spindle-turning-machine	A. Thorsby	787,133	Apr. 11	1866	400–2	115	1483
Churn	D. A. Sprague	784,078	Mar. 7	136	25	115	34
Churn	H. H. and S. L. Hunter	787,180	Apr. 11	1964	426	115	1505
Churn	C. F. Anthony	787,655	Apr. 18	2931	637	115	1735
Churn	A. N. Rowe	788,070	Apr. 25	3793	824	115	1943
Churn. Butter-working	D. A. Sprague	787,408	Apr. 18	2424	525	115	1618
Churn-dasher	S. B. Rathbun	785,330	Mar. 21	2693	571	115	627
Churn-dasher	S. C. Simons	786,525	Apr. 4	658	133	115	1210
Churn-power	M. Grimm	786,805	Apr. 11	1200	250	115	1339
Churn. Rotating or centrifugal	E. A. Nordlindh	786,459	Apr. 4	521	102–3	115	1182
Churning-machine	O. S. Strickland	785,775	Mar. 28	3606	770	115	838
Cigar-bunch machine. Radial	N. Du Brul	787,735	Apr. 18	3126	683–4	115	1779
Cigar-bunching machine	N. Calocoff	786,247	Mar. 28	4558	967	115	1051
Cigar-cutter	J. T. Paterson	786,514	Apr. 4	634	128	115	1205
Cigar-cutter	F. W. Parris	788,425	Apr. 25	4493	978	115	2101
Cigar-cutter and match-deliverer	O. Jaeger	785,672	Mar. 21	3402	732	115	781
Cigar-holder and ash-receptacle	J. G. Poppert	785,377	Mar. 21	2781	587	115	646
Cigar-mold	A. S. Koch	788,478	Apr. 25	4581	999	115	2120
Cigar-rolling machine	A. F. Wallbillich	785,688	Mar. 21	3440	740–1	115	788
Cigar-rolling table and wrapper-cutter	I. Liberman	786,979	Apr. 11	1564	333	115	1417
Cigarette-packages. Machine for making up	Y. Lázaga	787,100	Apr. 11	1800	384–5	115	1469
Cigarette-packing machine	M. Placer	788,494	Apr. 25	4613	1004–6	115	2126
Cinder. Apparatus for spraying blast-furnace	W. Lessing	786,573	Apr. 4	745	153	115	1228
Circuit-breaker. Automatic	E. P. Wetmore	784,722	Mar. 14	1496	306	115	352
Circuit closing and breaking device	W. J. Murdock	786,589	Apr. 4	773	159	115	1234
Cistern-cleaner and water-purifier	T. S. Murray	784,583	Mar. 14	1166	245–6	115	276
Cistern-cover	C. W. Axt and F. H. Borcherding.	784,531	Mar. 14	1070	222	115	256
Clamp:							
See Boarding-clamp. Skate-clamp. Buttonhole-clamp. Warp-clamp. Floor-clamp. Wheel-clamp. Railway-rail-guard clamp.							
Clamp	F. O. Wood	786,174	Mar. 28	4417	934	115	1021
Clamp	L. Marceau	788,161	Apr. 25	3984	860	115	1990
Clamping and attaching device	T. Biel	784,654	Mar. 14	1349	279	115	317
Clamping device	A. D. Locke	785,743	Mar. 28	3551	758	115	825
Clarinet-mouthpiece	F. Starke	787,127	Apr. 11	1853	396	115	1480
Clasp:							
See Garment-clasp. Stocking-supporter clasp. Garment-supporter clasp. Triangle clasp. Spring-clasp.							
Clasp	A. G. Kunde	784,573	Mar. 14	1142	239	115	271
Clasp	W. D. Doremus	785,720	Mar. 28	3511	753	115	818
Cleaner:							
See Boiler-cleaner. Pneumatic cleaner. Boiler-flue cleaner. Seed-cleaner. Boiler-tube cleaner. Tank-cleaner. Brush-cleaner. Tube-cleaner. Cistern-cleaner. Window-cleaner. Onion-cleaner.							
Cleaning apparatus	H. L. Dort	787,732	Apr. 18	3122	682	115	1778
Cleat. Wiring	J. M. Latimer	785,561	Mar. 21	3181	673	115	735
Clip:							
See Cartridge-clip. Paper-clip.							
Clipper. Hair	W. T. Lees	785,960	Mar. 28	3971	845	115	921
Clock. Automobile	W. E. Porter	785,830	Mar. 28	3721	792	115	866
Clock. Automobile	W. E. Porter	785,831	Mar. 28	3722	793	115	866
Clock. Electric	M. Fischer	787,091	Apr. 11	1782	381	115	1466
Clock striking mechanism	R. Nussberger	784,273	Mar. 7	521	106–7	115	120
Clothes-hanger	J. A. Bryant	787,559	Apr. 18	2731	594	115	1690
Clothes-hanger	E. W. Hawley	787,622	Apr. 18	2870	624	115	1722
Clothes-holding device	L. Ismer	786,645	Apr. 4	898	184	115	1262
Clothes-line holder	J. F. Koepp	784,217	Mar. 7	413	82	115	96
Clothes-line holder	J. F. Michel	785,694	Mar. 21	3457	743	115	792
Clothes-line. Pulley	J. Roberts	787,698	Apr. 18	3009	660	115	1751
Clothes-pin	A. W. Krieger	787,987	Apr. 25	3628	791	115	1904
Clothes-pin	J. B. Foote	788,461	Apr. 25	4558	993	115	2116
Clothes-pole tip	T. H. Strehlow	785,774	Mar. 28	3605	770	115	838
Cloths in vats. Machine for automatically folding	S. C. Rowe	786,160	Mar. 28	4304	928–9	115	1017
Clutch	O. S. Beyer	784,653	Mar. 14	1348	279	115	317
Clutch	N. D. Chard and W. Lodge	785,251	Mar. 21	2545	537	115	594
Clutch	J. S. Ebert	785,353	Mar. 21	2737	580	115	636
Clutch	C. Jacobson	785,887	Mar. 28	3822	813	115	888
Clutch	A. W. Cash	787,726	Apr. 18	3090	674	115	1770
Clutch. Automobile	H. G. McComb	787,530	Apr. 18	2675	582	115	1677
Clutch device	C. Pinard	787,788	Apr. 18	3215	703	115	1799
Clutch for motor-cars, &c. Friction	L. Girardot	787,031	Apr. 11	1665	355	115	1440
Clutch. Friction	H. A. Williams	785,926	Mar. 28	3895	828–9	115	905
Clutch. Friction	A. P. Brush	787,072	Apr. 11	1748	372	115	1458
Clutch. Friction	W. H. Brown	787,351	Apr. 18	2307	501	115	1591
Clutch. Magnetic	H. H. Cutler	786,413	Apr 4	356	77	115	1149
Clutch mechanism	J. M. Joy	786,294	Apr. 4	82	19	115	1089
Clutch or speed-accelerator. Magnetic	H. H. Cutler	786,411	Apr. 4	347	76	115	1147
Clutch or speed-accelerator. Magnetic	H. H. Cutler	786,412	Apr. 4	354	77	115	1148
Clutch or speed-accelerator. Magnetic	H. H. Cutler	786,425	Apr. 4	424	86	115	1163
Clutch-shifting device	C. E. Curtiss	784,551	Mar. 14	1110	232	115	265
Coal-breaker	A. M. Acklin	787,885	Apr. 25	3415	748	115	1855
Coal-dust-feeding apparatus	J. V. Cullinev	784,307	Mar. 7	885	120	115	134

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Coal-separator	F. H. Emery	784,783	Mar. 14	1614	332–3	115	377
Coat and hat hanger	W. Glenn and A. D. Hill	785,305	Mar. 21	2644	560	115	616
Cock. Gas	G. Creter	785,292	Mar. 21	2626	555	115	612
Cock-operating means. Cylinder	J. H. Sewall	784,354	Mar. 7	671	138	115	154
Cock safety attachment. Gas	J. A. Olson	788,220	Apr. 25	4090	886	115	2013
Cockeye	S. P. Davis	787,498	Apr. 18	2614	565	115	1662
Coffee-bean polishing and finishing machine	F. D. Barros	787,143	Apr. 11	1891	408	115	1480
Coffee-cartridge	G. Brown	785,659	Mar. 21	3375	724	115	776
Coffee-dripper	G. Brown	785,693	Mar. 21	3455	743	115	791
Coffee-mill	J. M. Ribert	786,151	Mar. 28	4373	924–5	115	1013
Coffee, &c., percolator	F. Acker	788,231	Apr. 25	4108	890	115	2017
Coffee-pot strainer and holder combined	W. A. Wasserman	786,865	Apr. 11	1308	278	115	1361
Coffin	J. M. Stafford	785,196	Mar. 21	2416	508	115	565
Coffin-fastener	F. P. Brining and J. Stackhouse	786,095	Mar. 28	4279	902	115	992
Coil. Self-restoring heat	F. B. Cook	785,407	Mar. 21	2854	602	115	663
Coil. Self-soldering heat	F. B. Cook	785,798	Mar. 28	3649	778	115	849
Coin-controlled mechanism	L. F. Rubens and B. I. Levi	784,351	Mar. 7	664	137	115	152
Coin-controlled mechanism. Magazine	H. Meyer	787,884	Apr. 18	3410	746	115	1842
Coin-delivering device	M. G. Fröberg	785,605	Mar. 21	3275	696	115	755
Coke-drawing machine	F. D. Buffum	786,623	Apr. 4	842	174–6	115	1250
Coking-oven	J. M. Sullivan	786,694	Apr. 4	986	203	115	1281
Collapsible box	C. H. Stonebridge	785,772	Mar. 28	3601	769	115	837
Collapsible gate	A. Clark	786,951	Apr. 11	1487	314–15	115	1402
Collapsible rack	M. A. Connard	784,035	Mar. 7	41	8	115	12
Collar-rolling machine. Horse	F. E. Goodman	785,608	Mar. 21	3279	696–7	115	755
Collars. Making horse	T. R. Massey	788,412	Apr. 25	4472	973	115	2098
Column	R. Hegener	788,153	Apr. 25	3971	858	115	1987
Column. Hollow wooden	A. Westemling	784,909	Mar. 14	1853	388	115	429
Column, pedestal, or similar decorative architectural structure.	E. A. Munns	785,695	Mar. 21	3458	744	115	792
Column, shaft, &c. Staved	H. S. Conrow	788,189	Apr. 25	4031	871	115	2001
Column-support and sill-fastener. Combination	D. F. Hutton	786,497	Apr. 4	598	119	115	1198
Comb:							
See Currycomb. Puff-comb. Hair-drying comb.							
Comb	W. J. Metcalf	785,429	Mar. 21	2901	613	115	672
Comb-cleaning device	C. B. Ross	787,470	Apr. 18	2550	551	115	1646
Combing-machine	A. Wenning and C. H. Gégauff	787,139	Apr. 11	1881	405	115	1486
Combing-machine. Circular	E. Meunier	788,416	Apr. 25	4477	974	115	2099
Combination-gage	F. J. Stemmrich	784,903	Mar. 14	1839	385	115	427
Combination-lock	E. E. Quaintance	785,834	Mar. 28	3728	794	115	867
Combustion. Means for effecting	W. J. Cartwright	787,725	Apr. 18	3068	673	115	1770
Commutator	G. Grabosch	784,393	Mar. 7	779	160–1	115	178
Commutator for electric machines and making same	F. A. Feldkamp	784,521	Mar. 7	1047	217	115	235
Compass. Beam	R. Jensen and P. Jungnickel	787,766	Apr. 18	3180	695	115	1791
Compensating device	H. Meyer	785,505	Mar. 21	3075	650–1	115	712
Compound block	L. G. Hallberg	784,158	Mar. 7	289	60	115	69
Compression-lubricator. Automatic	D. B. Williams	786,701	Apr. 4	998	205	115	1283
Compression-lubricator. Automatic	D. B. Williams	786,702	Apr. 4	1000	205	115	1284
Compressor-unloading device	F. W. Parsons	784,961	Mar. 14	1949	409	115	450
Computer. Lumber	J. E. Chritton	784,660	Mar. 14	1358	281	115	319
Computing-machine. Automatic	A. D. de Generes	786,281	Apr. 4	51	12	115	1082
Concrete beam protection	A. L. A. Himmelwright	786,289	Apr. 4	74	17	115	1087
Concrete-block-making apparatus. Hollow	W. G. Hughes	786,566	Apr. 4	732	149–50	115	1226
Concrete-block-mold machine	E. Keagy	787,099	Apr. 11	1797	383–4	115	1469
Concrete building-block	G. L. Peabody	787,787	Apr. 18	3214	702	115	1799
Concrete building-block and wall	C. A. Meyers	788,366	Apr. 25	4373	953	115	2076
Concrete-building-block-forming machine	J. F. Dunham	786,249	Mar. 28	4564	968	115	1052
Concrete-building-block-forming machine	J. F. Dunham	786,251	Mar. 28	4567	969	115	1053
Concrete-building-block-molding machine	W. L. Dow	786,272	Apr. 4	32	8	115	1078
Concrete casing	F. A. Koetitz	788,410	Apr. 25	4468	972	115	2097
Concrete-steel columns. Form for constructing	L. F. Brayton	786,622	Apr. 4	841	174	115	1250
Concrete structure	E. S. Keefer	786,648	Apr. 4	902	185	115	1263
Concrete-structure reinforcement	A. N. Doud	786,015	Mar. 28	4107	866	115	953
Concrete structures. Making	C. R. Gow and J. E. Palmer	785,356	Mar. 21	2740	581	115	636
Concrete-wall-forming machine	G. H. Truxell	784,084	Mar. 7	148	27–8	115	37
Concrete walls. Building	R. and W. C. Deeds	787,665	Apr. 18	2947	640–1	115	1738
Condenser	J. M. Keller	784,685	Mar. 14	1403	290	115	330
Condenser and leak-coil. Combined	W. W. Massie	786,578	Apr. 4	754	155	115	1230
Condenser. Steam	A. H. Helander	785,613	Mar. 21	3287	698–9	115	757
Condenser. Steam	A. H. Helander	785,614	Mar. 21	3289	699	115	757
Condensing apparatus	A. Shiels and J. S. L. Alexander	785,580	Mar. 21	3215	682–3	115	741
Confection and making same. Cocoa	C. H. and M. M. Burckett	787,973	Apr. 25	3599	.....	115	1898
Confection. Chocolate	W. M. Baker	787,887	Apr. 25	3417	748	115	1855
Confectionery-coating machine	C. Foyet and G. B. M. Goodwin	785,436	Mar. 21	2914	615–16	115	675
Controller-bit	C. W. Phillips	785,327	Mar. 21	2689	570	115	625
Controlling device	L. S. Walle	784,717	Mar. 14	1489	305	115	350
Conversation-tube	A. W. Nicholls	786,458	Apr. 4	520	102	115	1182
Conveyer	G. F. Zimmer	786,337	Apr. 4	180	41	115	1108
Conveyer	E. A. Hallam	786,643	Apr. 4	893	183	115	1261
Conveyer	A. J. Webster	787,598	Apr. 18	2810	612–13	115	1707
Conveyer-conduit elbow	H. J. Podlesák	786,991	Apr. 11	1588	339	115	1423
Conveyer. Extension	D. D. D. Plunket	785,569	Mar. 21	3194	676–7	115	737
Conveyer-loading device	F. R. Willson, Jr.	788,180	Apr. 25	4012	867	115	1997
Conveyer. Pneumatic	J. M. Akers	786,791	Apr. 11	1177	246	115	1335
Conveyer. Portable	F. R. Willson, Jr.	787,601	Apr. 18	2817	614–15	115	1709
Conveyer system. Pneumatic	A. H. Morton	784,270	Mar. 7	516	105	115	120
Conveying apparatus	T. S. Miller	786,510	Apr. 4	622	125–6	115	1202
Cooker	C. J. Parker	787,688	Apr. 18	2984	650	115	1746
Cooker and hot-air oven. Combined steam	H. S. Robinson	785,764	Mar. 28	3580	767	115	834
Cooking apparatus. Automatical	O. Hutzler	784,402	Mar. 7	798	165	115	183
Cooler:							
See Engine-cooler. Milk-cooler.							
Coop. Poultry	W. Mitchell	788,163	Apr. 25	3989	861	115	1991
Cop or cord-package	S. W. Wardwell	786,863	Apr. 11	1303	277	115	1360
Cop-tube	S. W. Wardwell	786,698	Apr. 4	994	204	115	1283

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cord-fastener. Metallic	C.F.Methfessel and W.J.Hartson.	785,749	Mar. 28	3559	760	115	826
Cord making or covering machine	A. J. Bubolz	784,030	Mar. 7	33	6	115	10
Core element	R. G. James	787,451	Apr. 18	2511	544	115	1637
Cork-extractor	H. H. Dunn	785,722	Mar. 28	3514	753	115	819
Corkscrew	G. L. Kleiser	784,688	Mar. 14	1413	292	115	332
Corn-crib	A. J. Andrews	787,550	Apr. 18	2714	590	115	1686
Corn-cutting machine	C. Leidy, P.V. Johnson, and J. G. Martin.	784,337	Mar. 7	637	131-2	115	146
Corn from the cob. Machine for cutting green	S. E. and W. W. Morral	787,585	Apr. 18	2789	607-8	115	1703
Corn-husker	A. J. Rokusek	787,793	Apr. 18	3224	704	115	1801
Corn husking and shredding machine feed mechanism.	J. W. Paige	786,460	Apr. 4	523	103	115	1182
Corn-husking apparatus	C. C. Welsh	784,907	Mar. 14	1847	386-7	115	429
Corn-husking implement	J. A. Wentz	786,700	Apr. 4	997	205	115	1283
Corn-husking machine	J. W. Paige	786,461	Apr. 4	525	103-4	115	1183
Corn picker and husker	E. Haack	786,286	Apr. 4	68	15-16	115	1086
Corn-shredder band-cutter and feeder	C. G. Bort	785,398	Mar. 21	2837	598	115	659
Cornice-making machine	J. W. Yates	784,725	Mar. 14	1502	307	115	353
Cornice-making machine	J. W. Yates	784,726	Mar. 14	1503	308	115	354
Corset	E. Savoye	786,685	Apr. 4	964	199	115	1275
Corset. Abdominal	C. Munter	788,275	Apr. 25	4185	909	115	2034
Corset. Apparel	D. Kops	785,502	Mar. 21	3059	647	115	709
Corset-eye	F. E. Vandercook	787,866	Apr. 18	3370	737	115	1833
Corset-fastening	H. W. Thurlow	785,685	Mar. 21	3436	739	115	787
Corset-shield	J. W. Thayer	788,289	Apr. 25	4219	915	115	2042
Cot and tent. Combined	I. L. Gleason	785,872	Mar. 28	3789	805-6	115	861
Cot. Folding	J. J. Mackle	786,908	Apr. 11	1398	298	115	1381
Cottage. Outing	W. W. Keen	784,492	Mar. 7	984	206-7	115	222
Cotton-chopper	J. B. Nix	784,118	Mar. 7	208	40	115	50
Cotton-chopper	J. M. Sutton	787,060	Apr. 11	1731	368-9	115	1455
Cotton chopper and cultivator. Combined	W. M. Arnold	788,013	Apr. 25	3689	803-4	115	1918
Cotton, &c. Compressing	C. J. Luce	784,579	Mar. 14	1156	243-4	115	274
Cotton-compressor	A. T. Snodgrass	785,383	Mar. 21	2794	590-1	115	648
Cotton-gin	J. T. Fuller	784,316	Mar. 7	600	123	115	138
Cotton-picker	J. M. Searles	784,899	Mar. 14	1833	383-4	115	425
Cotton-picker	J. Summerfield	787,314	Apr. 11	2222	488	115	1560
Cotton-picker	S. L. Bond	788,238	Apr. 25	4122	803-4	115	2021
Cotton-picker's wagon	G. G. Richards	786,995	Apr. 11	1593	340	115	1424
Couch	A. F. Old and S. A. Walker	786,594	Apr. 4	780	160	115	1236
Couch	G. C. Hartshorn	786,760	Apr. 4	1112	233	115	1309
Counting apparatus	W. P. Watts	785,989	Mar. 28	4047	858	115	940
Coupling: *See* Adjustable coupling. Air-coupling. Air-brake coupling. Car-coupling. Grain-drill coupling. Hose-coupling. Hydraulic coupling. Pipe-coupling. Pipe or hose coupling. Pole-coupling. Railway-carriage coupling. Railway-vehicle coupling. Thill-coupling. Tube-coupling. Whiffletree-coupling. Yoke and pole coupling.							
Coupling	J. L. Crisler	784,927	Mar. 14	1886	396	115	437
Coupling	C. L. Hockney and W. R. Curtiss.	787,296	Apr. 11	2188	482	115	1553
Coupling	M. G. Aden	787,870	Apr. 18	3374	738	115	1834
Couplings. Device for supporting pivot-pins in	C. A. Tower	785,698	Mar. 21	3461	744	115	793
Cover for vessels. Protecting and ventilating	F. Kregczy	786,974	Apr. 11	1556	331	115	1415
Cover. Receptacle	A. Q. Walsh	788,294	Apr. 25	4236	918	115	2045
Cozy-corner seat and bed. Combination	A. J. Ritchie	785,763	Mar. 28	3587	766-7	115	834
Crane. Gauntree	W. R. Kales	786,362	Apr. 4	237	54-5	115	1120
Crate	A. C. Buttman	785,796	Mar. 28	3645	778	115	848
Crate. Banana	H. Sexton	787,124	Apr. 11	1850	395	115	1480
Crate. Folding	J. M. Russell	787,645	Apr. 18	2906	633	115	1730
Crate. Folding or knockdown	C. Hoskins	786,813	Apr. 11	1216	254	115	1343
Crate. Metallic	J. Mathy	788,055	Apr. 25	3769	820	115	1937
Crate or drum. Shipping	J. Laine and G. Castillon	787,773	Apr. 18	3190	697	115	1794
Cremating-furnace	H. E. Brett and A. B. Benton	787,432	Apr. 18	2475	535-6	115	1629
Crib. Folding	M. C. Collier	786,730	Apr. 4	1048	217	115	1294
Crossing. Boltless	J. Stolz	784,189	Mar. 7	354	72	115	83
Crusher: *See* Ore-crusher. Rock-crusher. Stone-crusher.							
Crushing-machine	T. J. Gray	788,207	Apr. 25	4061	878-80	115	2008
Crutch	A. L. Smith	786,921	Apr. 11	1438	304	115	1390
Cuff-fastener	C. W. Barnes	784,829	Mar. 14	1708	355	115	398
Cuff-holder	J. W. Shute	784,076	Mar. 7	134	24	115	33
Cultivating plants by electricity	E. Pilsoudsky and E. Ragozine	784,346	Mar. 7	654	134-5	115	149
Cultivator	S. N. Hench	785,038	Mar. 14	2084	438-9	115	481
Cultivator	A. H. Kopperud. (Reissue)	12,336	Apr. 4	1173	245	115	1322
Cultivator	W. H. Hundredmark	787,763	Apr. 18	3175	694	115	1790
Cultivator	G. D. Houston	788,209	Apr. 25	4070	881	115	2009
Cultivator	S. L. Allen	788,233	Apr. 25	4110	891-2	115	2017
Cultivator	S. L. Allen	788,234	Apr. 25	4115	892	115	2018
Cultivator	S. H. Coleman	788,248	Apr. 25	4145	899-900	115	2025
Cultivator	M. McInnerny	788,421	Apr. 25	4483	976	115	2100
Cultivator attachment	G. W. Disney	784,480	Mar. 7	955	200	115	216
Cultivator attachment	E. H. Burks	784,514	Mar. 7	1039	215	115	233
Cultivator cotton-chopping attachment	M. A. Jones	785,171	Mar. 21	2380	499-500	115	560
Cultivator planter attachment	W. H. Mitchell	785,514	Mar. 21	3086	652-3	115	716
Cultivator. Riding	P. Jarvis	785,041	Mar. 14	2091	440-1	115	482
Cultivator. Straddle-row	W. S. Barton	787,261	Apr. 11	2122	468	115	1538
Cup: *See* Grease-cup. Oil-cup.							
Curb. Pavement	F. E. Cudell	784,661	Mar. 14	1361	281	115	319
Curler and crimper. Hair	A. A. West	785,844	Mar. 28	3743	796	115	871
Curling-iron	G. F. Shields	784,438	Mar. 7	867	180	115	198

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Curling-iron	J. Oppenheimer	786,987	Apr. 11	1581	338	115	1421
Curling-iron. Electrically-heated	J. Szöllösy	787,957	Apr. 25	3558	778	115	1887
Currency for safes, &c. Apparatus for marking	A. A. Petersen	784,805	Mar. 14	1662	344	115	387
Current machine. Monophase and polyphase alternating	M. von Dolivo-Dobrowolsky	787,027	Apr. 11	1657	353	115	1438
Current meter. Direct	J. S. Anthony	787,256	Apr. 11	2113	466	115	1536
Current-motor	M. E. and W. O. Carley	787,562	Apr. 18	2735	595	115	1690
Current motor. Alternating	M. Milch	787,305	Apr. 11	2205	485	115	1587
Current rectifier. Alternating	E. H. Porter and B. Currier	788,279	Apr. 25	4194	910-11	115	2036
Current regulator. Alternating	E. L. Haney	785,487	Mar. 21	3022	639-40	115	701
Current series motor. Alternating	M. C. A. Latour	787,303	Apr. 11	2202	484	115	1557
Current-transforming means. Direct	O. O. Kruh	787,192	Apr. 11	1990	433	115	1511
Current-transforming means. Direct	C. P. Steinmetz	787,228	Apr. 11	2058	450	115	1525
Current-wheel. Floating	P. M. Warren	787,811	Apr. 18	3258	711	115	1808
Currents. Means for obtaining redressed	L. Magrini	788,272	Apr. 25	4181	909	115	2033
Currents. Means for rectifying alternating	R. Siegfried	786,320	Apr. 4	151	34	115	1103
Currents. System for the rectification of alternating	C. F. Burgess	785,403	Mar. 21	2846	601	115	661
Currycomb	J. K. Brown	785,589	Mar. 21	3246	689	115	749
Currycomb	R. T. Gillespie	786,751	Apr. 4	1087	226	115	1302
Currycomb	W. H. Hackett and W. T. Hodges.	787,037	Apr. 11	1674	356	115	1442
Curtain and drapery support	J. M. Spencer	786,468	Apr. 4	535	107	115	1185
Curtain and shade fixture	C. A. Rought	786,998	Apr. 11	1597	341	115	1425
Curtain and shade holder	J. S. Moore	788,367	Apr. 25	4375	953	115	2076
Curtain-fixture	C. K. Pickles	784,427	Mar. 7	847	176	115	193
Curtain-fixture	C. L. Hopkins	785,806	Mar. 28	3677	782	115	856
Curtain-fixture	B. F. Rice	786,682	Apr. 4	958	198	115	1274
Curtain fixture. Window	L. A. Grant	787,751	Apr. 18	3155	689	115	1786
Curtain-hanger	A. La Rue	785,560	Mar. 21	3180	673	115	735
Curtain-hanger	J. J. Cochran	786,729	Apr. 4	1046	216	115	1294
Curtain-holder	H. Albertz	787,816	Apr. 18	3263	713	115	1810
Curtain-pole	L. Evans	784,312	Mar. 7	592	121	115	136
Curtain-pole	E. O. Castner	785,858	Mar. 28	3767	800	115	876
Cushion: *See* Air-cushion.							
Cuspidor	H. Malick	784,023	Mar. 14	1271	266	115	298
Cuspidor	J. Johnson	786,970	Apr. 11	1548	329	115	1414
Cuspidor-lifter	W. J. Enz	786,276	Apr. 4	44	10	115	1080
Cut-off. Water	T. H. Parker	786,671	Apr. 4	943	193	115	1271
Cutter: *See* Band-cutter. Butter-cutter. Capsule-cutter. Cheese-cutter. Cigar-cutter. Flue or tube cutter. Groove and thread cutter. Mold-cutter. Pipe-cutter. Potato-cutter. Sewing-machine thread-cutter. String-cutter. Thread-cutter. Threshing-machine band-cutter. Trench-cutter. Vegetable-cutter. Vine-cutter. Washer-cutter.							
Cutting-board	W. W. Campton and G. A. Beem.	787,724	Apr. 18	3084	672-3	115	1769
Cutting-stick	G. Schwarz and G. Lowe	786,606	Apr. 4	803	165	115	1241
Cyanid-agitator	E. Stevens	784,598	Mar. 14	1216	255	115	287
Cyanid-treatment apparatus	E. L. Oliver	784,120	Mar. 7	211	41	115	50
Cycle support. Motor	J. J. Bourcart	787,070	Apr. 11	1745	372	115	1457
Cylinder-jacket	A. Benedetto	788,087	Apr. 25	3827	832	115	1951
Cylinder-ring. Self-adjusting	M. J. Kilroy	786,446	Apr. 4	488	94	115	1176
Dam	W. J. Meyers	787,525	Apr. 18	2665	578	115	1674
Dam for irrigating-ditches	G. H. Duke	787,028	Apr. 11	1659	353	115	1438
Dampening-machine	C. W. Currier and J. Leitschuh.	786,958	Apr. 11	1505	320	115	1406
Damper	P. Fauth	784,997	Mar. 14	2012	422	115	464
Dark room. Portable	H. E. Johnston	784,163	Mar. 7	295	62	115	70
Darning apparatus	H. S. Brechin	787,431	Apr. 18	2474	535	115	1629
Date reference device	J. Andrew	786,177	Mar. 28	4421	935	115	1022
Decorating system	J. T. Evans	787,616	Apr. 18	2861	622	115	1720
Dental chair	A. P. Gould	785,548	Mar. 21	3156	667-8	115	730
Dental disk-shield	W. F. Green	787,981	Apr. 25	3617	789	115	1902
Dental-engine attachment	J. E. Morgan	786,662	Apr. 4	930	190	115	1268
Dental flask	G. L. Bruce	787,826	Apr. 18	3283	716	115	1813
Dental-floss holder	C. M. Rawlins	786,678	Apr. 4	952	196	115	1273
Dental forceps	I. P. Norton	785,018	Mar. 14	2048	429	115	473
Dental furnace	A. E. Matteson	787,584	Apr. 18	2785	606-7	115	1702
Dental instrument. Operative	F. L. Norton	787,937	Apr. 25	3517	768	115	1878
Dental jaw-brace	C. A. Thomson	785,529	Mar. 21	3122	660	115	723
Dental matrix-retainer	C. M. Leffingwell	785,619	Mar. 21	3206	700	115	759
Dental-motor shaft attachment	W. B. and E. P. Alford	787,350	Apr. 18	2306	501	115	1591
Dental-plate-swaging apparatus	C. L. Nelson	788,490	Apr. 25	4605	1003	115	2125
Dental plates. Manufacturing	J. P. Matheret	784,060	Mar. 7	94	18	115	24
Dental pliers for shaping clasps and half-collar crowns.	R. M. Sanger	787,947	Apr. 25	3536	772	115	1883
Dental root-extractor	W. S. Beazley	784,098	Mar. 7	176	34	115	43
Dental tool	R. Zentner	785,788	Mar. 28	3632	776	115	844
Dental trial-plates. Waxing-up tool for	A. May	785,904	Mar. 28	3852	819	115	894
Denture. Artificial	B. W. Fordyce	786,748	Apr. 4	1063	223	115	1302
Denture-making apparatus	G. P. Franklin	786,279	Apr. 4	47	11-12	115	1081
Deposition-tank	I. E. Lewis and J. A. Corey	786,978	Apr. 11	1562	332-3	115	1417
Derrick	J. L. Parsons	785,518	Mar. 21	3095	654-5	115	718
Derrick. Portable	E. Graham	785,875	Mar. 28	3792	806	115	882
Desk. School	J. W. Johnston	784,050	Mar. 7	71	13	115	18
Detonating device. Magazine	A. E. Merkel	785,967	Mar. 28	3985	848	115	925
Detonator or auxiliary protective alarm spark-gap for high-frequency apparatus.	H. Jackson	785,671	Mar. 21	3399	731	115	780
Developing-tray	N. Cartmell	786,266	Apr. 4	24	7	115	1076
Diaper-support	C. L. Christian	786,728	Apr. 4	1045	216	115	1294
Dichlor-dimethyl-fluorane and making same	P. Julius	785,003	Mar. 14	2022		115	466

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drf'g.	Official Gazette. Vol.	Page
Die:							
See Pipe-threading die.							
Die for cutting contiguous fasteners	R. B. Lewis	786,504	Apr. 4	611	123	115	1200
Die mechanism for cutting contiguous fasteners	R. B. Lewis	786,503	Apr. 4	606	122	115	1200
Die-presses, &c. Automatic feed for	C. D. McDonald	784,415	Mar. 7	826	171–2	115	188
Digger:							
See Potato-digger. Shell-digger.							
Dipping-machine	J. L. Dern	784,478	Mar. 7	948	198–9	115	215
Dish-cleaning-table attachment	A. R. Beal	786,402	Apr. 4	330	72	115	1144
Dish-drainer	F. Schmieder	788,431	Apr. 25	4503	990	115	2104
Disinfecting device	G. Krueger	788,268	Apr. 25	4175	907	115	2032
Dispensing apparatus. Coin-controlled	R. G. Trowbridge	784,905	Mar. 14	1843	396	115	428
Display-bin	H. G. Roth	785,232	Mar. 21	2514	530	115	588
Display-cabinet	J. A. Douglass and C. A. Fagg	786,737	Apr. 4	1060	220	115	1297
Display cabinet or stand	F. R. Currie	786,104	Mar. 28	4294	906	115	995
Display-fixture	H. Frankel	788,257	Apr. 25	4157	902	115	2028
Display-holder	O. A. De Long	785,253	Mar. 21	2552	538	115	596
Display-rack	A. Rhoads	784,070	Mar. 7	121	21	115	30
Display-rack	R. E. Cannon	785,196	Mar. 21	2434	511–12	115	571
Display-rack	O. H. Muehler	785,430	Mar. 21	2902	613	115	672
Display rack or holder	H. Frankenthal	786,201	Mar. 28	4472	946	115	1032
Display-stand	P. Berolzheimer	786,719	Apr. 4	1029	214	115	1290
Display-stand. Advancing-shelf	J. W. Ferle and J. A. Brusselbach	788,459	Apr. 25	4555	992	115	2115
Display-stand. Jeweler's	J. H. Williams and G. Mayer	786,540	Apr. 4	682	140	115	1215
Displaying advertisements, &c. Apparatus for	C. F. Domann	786,013	Mar. 28	4103	865	115	952
Distilling apparatus. Turpentine-	J. F. Blyth	784,539	Mar. 14	1086	226	115	259
Distilling plant. Wood-	S. S. Fleming	788,310	Apr. 25	4263	925	115	2052
Distributing-bell	C. M. Palmer	786,144	Mar. 28	4357	921–2	115	1010
Distributing device	J. B. Ladd and D. Baker	785,311	Mar. 21	2653	562	115	617
Ditching-jack	H. P. Harpstrite	787,917	Apr. 25	3481	760–1	115	1870
Dog. Receding	R. Rue	784,890	Mar. 14	1819	390	115	422
Doll, ornamental figure	A. B. McCulloch	787,902	Apr. 25	3641	793	115	1907
Door and operating means therefor	D. Budwig	788,350	Apr. 25	4334	945	115	2068
Door and window fly-escape screen	O. Bergman	788,015	Apr. 25	3693	804	115	1919
Door apparatus. Revolving-	J. S. Johnson	785,309	Mar. 21	2652	561	115	617
Door-catch	J. A. Pearson	785,047	Mar. 14	2101	442–3	115	484
Door-check	G. Dovas	788,193	Apr. 25	4038	873	115	2003
Door-check	A. S. Adam	784,093	Mar. 7	168	31	115	41
Door closer and holder	F. Stumpf	786,532	Apr. 4	667	134	115	1212
Door control. Pneumatic	J. Jeton	786,498	Apr. 4	600	120	115	1198
Door, doorway, and threshold for air-tight inclosures	C. M. Warner	784,644	Mar. 14	1334	276	115	314
Door-fastener	S. P. Stevenson	784,904	Mar. 14	1842	386	115	427
Door-fastening device. Grain-	T. Kollme	787,847	Apr. 18	3334	730	115	1824
Door for landaus, &c	J. J. Hahn	787,038	Apr. 11	1675	357	115	1443
Door. Hinged lifting	W. W. Cullemore	787,436	Apr. 18	2482	537	115	1631
Door latching device. Safety-exit-	N. C. Schommer	784,896	Mar. 14	1826	382	115	423
Door. Lifting	G. E. Redden	786,680	Apr. 4	955	196	115	1274
Door lock and check. Combined portable	N. C. Schommer	784,895	Mar. 14	1825	382	115	423
Door locking mechanism. Folding-	R. M. McMahon	786,831	Apr. 11	1242	260	115	1348
Door opening or closing apparatus	J. W. Jones	786,569	Apr. 4	738	151	115	1226
Door. Revolving	L. Ives	786,360	Apr. 4	234	53	115	1120
Door, screen, or curtain	J. Wendler	784,459	Mar. 7	913	191	115	207
Door-securer and alarm combined	G. J. Record	786,841	Apr. 11	1262	267	115	1352
Door-securing device	D. N. Stewart	784,637	Mar. 14	1319	274	115	310
Door-stop	J. H. Greenway	784,319	Mar. 7	607	124	115	139
Door-stop	H. W. Ross	786,158	Mar. 28	4391	928	115	1017
Door-stop. Adjustable	P. J. Moran and J. H. Johnson	786,585	Apr. 4	768	158	115	1234
Door stop and catch for vestibule or other doors	G. H. Wolf	786,782	Apr. 4	1151	242	115	1317
Door stop and holder. Combined	E. S. Bucknam	784,381	Mar. 7	747	152	115	172
Doubling and twisting machine	D. H. Devereux	786,430	Apr. 4	462	89	115	1171
Dough-divider	J. E. Tynan	784,364	Mar. 7	692	143–4	115	158
Dough-dividing machine	F. H. Van Houten	788,124	Apr. 25	3910	846	115	1975
Dough-dividing machine	F. H. Van Houten	784,451	Mar. 7	809	187–8	115	204
Dough-feeding mechanism	F. H. Van Houten	788,123	Apr. 25	3907	845–6	115	1974
Dough for making pie-crusts. Spreading	A. W. Copland	787,081	Apr. 11	1764	377	115	1462
Dough-forming machine	J. H. Burns	787,274	Apr. 11	2149	473–4	115	1545
Dough-forming machine	C. F. Dietz	786,879	Apr. 11	1337	284–5	115	1368
Dough rolling or spreading apparatus	C. F. Dietz	786,880	Apr. 11	1339	285	115	1368
Dough-shaping machine	J. H. Burns	787,273	Apr. 11	2144	473	115	1543
Draft-equalizer	V. Loncaric	786,042	Mar. 28	4158	876	115	964
Draft-equalizer	J. Dobberstein	784,993	Mar. 14	2007	421	115	463
Draft-equalizer	L. O. Sherven	787,703	Apr. 18	3017	662	115	1753
Draft-equalizer cushioning device	J. Matlock	788,056	Apr. 25	3770	820	115	1937
Draft-rigging	S. Patizer	785,046	Mar. 14	2100	442	115	484
Draft-rigging	H. T. Krakau and L. A. Conner, Jr.	784,406	Mar. 7	804	167	115	184
Draft-rigging	E. W. Hartough	785,211	Mar. 21	2465	520	115	578
Draft-rigging	E. W. Hartough	785,212	Mar. 21	2468	521	115	579
Draft-rigging	H. C. Williamson and H. Pries	785,345	Mar. 21	2716	578	115	631
Draft-rigging	A. Lipschutz. (Reissue)	12,334	Mar. 28	4579	970	115	1056
Draft-rigging mechanism	E. C. Washburn	787,416	Apr. 18	2439	527	115	1621
Drains, vent-boxes, washpaves, &c. Cover for	G. H. Forsyth	785,943	Mar. 28	3936	837–8	115	913
Draw-bar	D. Galley	786,203	Mar. 28	4475	946	115	1033
Drawer. Knockdown	G. Stevenson	785,057	Mar. 14	2114	446	115	487
Drawing-frame sliver-evening device	F. O. Anderson	786,398	Apr. 4	323	71	115	1142
Dredge	V. S. Westcott and F. W. Potter	786,242	Mar. 28	4546	963–4	115	1048
Dredge and mining-sluice. Combined	I. G. Gillespie	786,253	Mar. 28	4571	969	115	1054
Dredger. Turning-shovel	C. H. Lewis	788,211	Apr. 25	4074	882	115	2010
Dredgers, &c. Spud-grip for	A. Bode and K. Böttcher	787,022	Apr. 11	1648	350–1	115	1436
Dredging-machine	J. W. Hollenbeck	786,968	Apr. 11	1545	329	115	1414
Dredging system	A. N. Smith	787,953	Apr. 25	3550	776	115	1885
Dress-suit case	W. H. Le Chard	785,078	Mar. 14	2030	425–6	115	468
Drier:	H. A. Pike	786,312	Apr. 4	117	27	115	1097
See Hair-drier.							
Drying apparatus	W. J. Wells	786,079	Mar. 28	4244	894–5	115	984
Drying apparatus. Heating and ventilating	T. C. Belding and R. B. Heldman	784,026	Mar. 7	22	4	115	7

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drf'g.	Official Gazette. Vol.	Page.
Drying vegetable, mineral, animal, and compound substances.	E. Gathmann	787,093	Apr. 11	1786	381	115	1467
Drill:							
See Grain-drill. Rock-drill. Ratchet-drill. Track-drill.							
Drill attachment. Ratchet-	A. B. Carll	784,301	Mar. 7	577	118	115	133
Drill-bit	E. Moser	786,137	Mar. 28	4347	919	115	1007
Drill bit. Rock-	S. B. Clark	786,952	Apr. 11	1489	315	115	1402
Drill scraper. Disk-	S. E. Davis	785,865	Mar. 28	3778	803	115	879
Drilling-machine	R. M. Downie	785,352	Mar. 21	2732	578–9	115	634
Drinking utensil	M. L. Williams	784,970	Mar. 14	1966	412	115	454
Driver-wheel	E. Stancliff	788,284	Apr. 25	4205	912	115	2039
Driving mechanism. Reversible	E. Westman	787,418	Apr. 18	2444	528–9	115	1622
Driving mechanism. Reversing	E. J. Rector	784,705	Mar. 14	1443	299	115	339
Driving-rod connection	B. A. Eiden	787,502	Apr. 18	2628	569	115	1666
Drop-light attachment	G. F. Bryan	786,543	Apr. 4	692	141	115	1217
Dropper:							
See Seed-dropper.							
Drum and cymbal beating or actuating contrivance. Combined	G. W. Clements	786,486	Apr. 4	570	114	115	1192
Drum or barrel head cutter	J. L. and T. C. Sheppard	786,849	Apr. 11	1276	269–70	115	1355
Dumb-bell	A. F. Williams	784,367	Mar. 7	704	145	115	161
Dumb-bell	G. H. Shepherd	786,318	Apr. 4	148	34	115	1102
Dumb-bell	G. H. Shepherd	787,407	Apr. 18	2423	524	115	1618
Dumping-trap	W. Anderson	784,465	Mar. 7	922	194	115	210
Duplicating apparatus. Stencil-	A. B. Dick	786,633	Apr. 4	875	180	115	1257
Duplicating apparatus. Stencil-	A. B. Dick	786,634	Apr. 4	876	180	115	1258
Dust-collector	A. C. Brantingham	784,140	Mar. 7	251	50–1	115	60
Dust-collector	G. Simpson and W. J. Burton	785,525	Mar. 21	3116	659	115	722
Dust-protector. Telescopic	A. N. Epstein	785,938	Mar. 28	3928	836	115	912
Dye and making same. Claret-red mordant	A. L. Laska	787,046	Apr. 11	1689	.....	115	1446
Dye and making same. Orange sulfur	A. L. Laska	785,675	Mar. 21	3418	.....	115	784
Dye and making same. Violet anthracene	O. Bally	786,065	Mar. 28	4259	.....	115	987
Dye. Blue-red azo	P. Julius and E. Fussenegger	786,767	Apr. 4	1122	.....	115	1311
Dye. Blue-red azo	P. Julius and E. Fussenegger	787,768	Apr. 18	3182	.....	115	1791
Dye. Green anthraquinone	R. E. Schmidt	785,123	Mar. 21	2286	.....	115	538
Dye. Green-blue anthraquinone	R. E. Schmidt	785,122	Mar. 21	2285	.....	115	538
Dye. Greenish-blue anthraquinone	R. E. Schmidt	785,121	Mar. 21	2284	.....	115	538
Dye. Orange-red azo	P. Julius and E. Fussenegger	787,767	Apr. 18	3181	.....	115	1791
Dyes. Making black	R. Bohn	787,824	Apr. 18	3278	.....	115	1812
Dyeing apparatus	D. F. Waters	785,283	Mar. 21	2612	552	115	609
Dyeing-machine	M. Sarfert	786,162	Mar. 28	4399	930	115	1018
Dyeing machine. Skein-	W. H. Fletcher	787,285	Apr. 11	2166	478	115	1548
Dyeing machine. Warp-	T. E. Davis	785,597	Mar. 21	3258	692	115	751
Dynamo	E. B. Jacobson	787,184	Apr. 11	1972	429	115	1507
Dynamo or motor	J. A. Titzel, Sr.	788,291	Apr. 25	4223	915–16	115	2043
Earth. Enriching	T. C. Jeffries	785,495	Mar. 21	3040	.....	115	705
Edge-protector	O. Stromborg	786,066	Mar. 28	4209	887	115	975
Edge-runner and pan	C. Gielow	784,558	Mar. 14	1122	234	115	267
Educational device	F. C. Donecker	784,145	Mar. 7	262	53	115	63
Egg-beater	G. M. Munn	785,114	Mar. 21	2271	477	115	535
Egg-boiling apparatus	C. A. W. De Vore	787,837	Apr. 18	3308	722	115	1819
Egg-carrier	G. Finn and A. S. Pike	786,888	Apr. 11	1356	289	115	1372
Egg-case partition. Removable	F. W. Meyer	786,827	Apr. 11	1237	258	115	1347
Electric-apparatus protective device	L. Wilson	787,319	Apr. 11	2234	489	115	1564
Electric-cable joint	D. J. Chisholm	785,712	Mar. 28	3496	750	115	815
Electric cables against excess pressure. Means for protecting	G. Zapf	784,464	Mar. 7	922	194	115	209
Electric-circuit-closing apparatus	R. de Lamprecht	786,038	Mar. 28	4149	875	115	963
Electric-circuit-regulating means	W. S. Moody	785,970	Mar. 28	3996	850	115	927
Electric circuits. Bridging circuits for	G. Thompson	785,445	Mar. 21	2940	620	115	682
Electric-conductor support	J. M. Andersen	785,700	Mar. 28	3473	746	115	809
Electric-conductor union	F. W. Sorg	784,766	Mar. 14	1584	326	115	371
Electric-conduit terminal	W. J. Miles and J. Patterson	786,911	Apr. 11	1405	299	115	1382
Electric currents. Partial circuits for	G. Thompson	785,447	Mar. 21	2945	621	115	683
Electric currents. Variable resistance or conductor for	W. H. Fahrney	787,089	Apr. 11	1779	380	115	1465
Electric furnace	W. C. Arsem	785,535	Mar. 21	3131	661–2	115	725
Electric generator	W. Kaisling	785,499	Mar. 21	3052	645–6	115	708
Electric heater	L. P. Brown and F. J. Holmes	786,542	Apr. 4	687	140–1	115	1215
Electric heater and manufacturing same	M. C. Beebe	786,257	Apr. 4	8	2	115	1072
Electric-machine brush-holder. Dynamo-	J. Burke	784,102	Mar. 7	183	35	115	45
Electric machine. Dynamo-	J. Burke	784,103	Mar. 7	185	35	115	45
Electric machine. Dynamo-	H. G. Re[illegible]	784,807	Mar. 14	1666	345	115	388
Electric machine. Single-phase dynamo-	T. B. Ha[illegible]	787,202	Apr. 11	2180	490	115	1552
Electric machines. Laminated core for dynamo-	M. C. A. Latour	787,302	Apr. 11	2201	494	115	1556
Electric machines or motors. Brush-holder for dynamo-	J. Burke	784,032	Mar. 7	36	7	115	11
Electric machinery. Dynamo-	J. F. Card	784,547	Mar. 14	1102	230	115	263
Electric meter	J. H. S. Mawdsley	788,365	Apr. 25	4372	952–3	115	2076
Electric-meter bearing	F. Darlington	784,387	Mar. 7	758	154–5	115	174
Electric motor	D. de Lancey and H. M. Smith	786,366	Apr. 4	246	56	115	1122
Electric motor	W. A. Layman	784,056	Mar. 7	89	16–17	115	23
Electric motor	G. Dengler and J. W. Schmidt	784,308	Mar. 7	587	120	115	135
Electric motor	R. Klemm and F. Reiss	785,004	Mar. 14	2023	424	115	466
Electric motor. Continuous-current	H. Pecheur	786,918	Apr. 11	1435	304	115	1390
Electric-motor control	W. D. Stivers	786,323	Apr. 4	155	35–6	115	1104
Electric-motor control system	A. C. Eastwood	786,635	Apr. 4	878	180–1	115	1258
Electric-motor controller	T. E. Barnum	786,401	Apr. 4	327	72	115	1143
Electric-motor controlling apparatus	L. G. Nilson	786,775	Apr. 4	1138	239	115	1314
Electric-motor controlling system	H. H. Cutler	786,423	Apr. 4	411	85	115	1160
Electric-motor controlling system	H. H. Cutler	786,424	Apr. 4	418	85–6	115	1162
Electric-motor system	C. P. Steinmetz	787,227	Apr. 11	2053	449	115	1524
Electric motors. Means for maintaining synchronism in	P. Thomas	784,447	Mar. 7	889	185–6	115	202
Electric motors. System of controlling one or more	H. H. Cutler	786,422	Apr. 4	402	84–5	115	1159

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Electric open-switch and stop signal	J. B. Smiley	785,026	Mar. 14	2060	432	115	475
Electric protector apparatus	F. B. Cook	786,005	Mar. 28	4071	862	115	945
Electric recording instrument	D. J. Steele and C. Kratt	787,005	Apr. 11	1609	344	115	1428
Electric resistance	H. W. Leonard	787,047	Apr. 11	1689	359	115	1446
Electric solenoid	L. S. Walle	784,718	Mar. 14	1491	305	115	351
Electric switch	C. B. Askew	784,022	Mar. 7	9	3	115	4
Electric switch	D. E. Gray	785,419	Mar. 21	2878	608	115	668
Electric switch and air-gage. Pressure-controlled	W. D. R. MacDiarmid	788,411	Apr. 25	4469	973	115	2097
Electric switch with indicator. Double-throw	W. J. Pugh	788,329	Apr. 25	4295	934	115	2059
Electric time relay-switch	E. M. Hewlett	785,949	Mar. 28	3951	840	115	917
	W. W. Lackie, W. T. Calderwood, and W. H. D. MacEwen.	786,907	Apr. 11	1396	297	115	1381
Electric time-switch	S. Stemski	784,358	Mar. 7	678	140	115	155
Electric time-switch	W. B. Coulter	785,863	Mar. 28	3775	802-3	115	878
Electric time-switch	H. C. Little	786,226	Mar. 28	4517	956	115	1042
Electric time-switch	R. D. Jones	787,187	Apr. 11	1982	431	115	1509
Electric-wire conduits. Rosette or receptacle for	G. A. Lutz	787,338	Apr. 11	2272	495	115	1571
Electrical circuits. Thermal cut-out for	F. B. Cook	785,797	Mar. 28	3646	778	115	848
Electrical condenser	P. H. Thomas	786,325	Apr. 4	159	37	115	1104
Electrical-conductor junction-box	J. Fountain, Jr	784,555	Mar. 14	1116	233	115	266
Electrical-control system. Distant	J. Gomborow	786,024	Mar. 28	4128	870	115	958
Electrical currents for induction-motors. Means for converting	C. F. Heinkel	785,731	Mar. 28	3528	755	115	822
Electrical-distribution system	F. Hoffman	784,328	Mar. 7	617	127	115	141
Electrical-distribution system	F. Hoffman	784,523	Mar. 7	1056	218	115	237
Electrical-distribution system	R. N. Chamberlain	784,732	Mar. 14	1513	309	115	356
Electrical-distribution system	W. A. Turbayne	787,012	Apr. 11	1628	347	115	1432
Electrical-distribution system	J. B. Entz	787,880	Apr. 18	3405	745	115	1840
Electrical energy through the natural mediums. Transmitting	N. Tesla	787,412	Apr. 18	2431	526	115	1620
Electrical interrupter	T. J. Murphy	787,990	Apr. 25	3634	792	115	1905
Electrical panel-board	H. Krantz	788,109	Apr. 25	3881	841	115	1967
Electrical switch	R. G. Clark	785,405	Mar. 21	2849	602	115	661
Electricity-meter	F. Lux	786,823	Apr. 11	1231	256-7	115	1346
Electrode. Electric-furnace	E. F. Price, G. E. Cox, and J. G. Marshall.	785,832	Mar. 28	3724	793	115	866
Electrode for arc-lamps and making same	I. L. Roberts	786,518	Apr. 4	644	130	115	1207
Electrode. Vacuum	R. Machlett	785,366	Mar. 21	2761	584	115	641
Electrolysis. Apparatus for effecting	H. Philipp	784,592	Mar. 14	1101	251	115	281
Electrolytic method	A. S. Ramage	787,221	Apr. 11	2040	.....	115	1521
Electrolytic separation	W. Hoopes	788,315	Apr. 25	4273	927	115	2054
Electromagnet and armature	J. Weber	784,456	Mar. 7	909	190	115	206
Electromagnetic device	W. Kaisling	784,052	Mar. 7	77	15	115	19
Electroplating apparatus	H. and C. H. Fleischer	784,617	Mar. 14	1261	264	115	296
Electroplating apparatus	L. Potthoff	786,776	Apr. 4	1141	239-40	115	1315
Electroplating device	G. W. Clough	784,034	Mar. 7	39	7	115	11
Electrostatic apparatus	E. W. Caldwell	787,561	Apr. 18	2733	594	115	1690
Elevated carrier	W. Louden	784,167	Mar. 7	305	64	115	72
Elevator: *See* Grain-elevator. Water-elevator. Oil-elevator.							
Elevator	F. R. Willson, Jr	787,602	Apr. 18	2820	615	115	1710
Elevator control. Electric	N. O. Lindstrom	784,869	Mar. 14	1778	371	115	412
Elevator-controlling mechanism	T. Larsson	786,653	Apr. 4	912	187-8	115	1264
Elevator-gate	W. N. Phillimore	786,311	Apr. 4	115	26	115	1097
Elevator-guide lubricator	C. H. Eggler	787,978	Apr. 25	3607	787	115	1899
Elevator-locking mechanism	J. S. Mucklé	787,208	Apr. 11	2019	440-1	115	1517
Elevator mechanism	J. Dillon	785,936	Mar. 28	3923	834-5	115	911
Elevator pilot-valve. Hydraulic	T. Larsson	786,652	Apr. 4	909	187	115	1264
Elevator safety-brake	T. Boylan	788,349	Apr. 25	4333	945	115	2068
Elevator safety device	E. L. Mater	784,410	Mar. 7	814	170	115	186
Elevator safety device	F. B. Austin	787,258	Apr. 11	2117	467	115	1537
Elevator-shaft gate	W. H. Paeth and C. Phersich	785,517	Mar. 21	3094	654	115	717
Elevator valve mechanism. Hydraulic	T. Larsson	786,654	Apr. 4	917	188	115	1265
Elevators. Combined electric and mechanical signal apparatus for	W. T. Dulany, Jr	786,016	Mar. 28	4109	867	115	954
Ellipse, oval, or circle cutting machine	R. Carlton	785,087	Mar. 21	2200	464	115	520
Embroidering-machine. Jacquard	L. Herzog	785,169	Mar. 21	2276	498-9	115	559
Emergency switch and frog	C. H. Williams	787,711	Apr. 18	3030	664	115	1755
Engine: *See* Automobile-engine. Pumping-engine. Beating-engine. Rag-engine. Blowing-engine. Reciprocating engine. Explosive-engine. Rotary engine. Gas-engine. Rotary-piston engine. Internal-combustion engine. Rotary steam-engine. Oil-engine. Steam-engine. Pulp-beating engine. Traction-engine. Turbine-engine.							
Engine	R. Whitehill	784,290	Mar. 7	549	113	115	126
Engine	E. E. Linde	785,260	Mar. 21	2567	541-2	115	600
Engine	C. E. Hastings	785,611	Mar. 21	3282	697-8	115	756
Engine	C. R. McGahey	786,983	Apr. 11	1574	336	115	1420
Engine and air-compressor. Combined	D. Schiffbauer	788,071	Apr. 25	3795	825	115	1943
Engine and boiler. Combined	D. M. Small	786,321	Apr. 4	152	35	115	1103
Engine cooler and muffler combined. Gas	T. L. and T. J. Sturtevant	784,191	Mar. 7	356	73	115	83
Engine-cylinder	C. Smith	784,636	Mar. 14	1317	274	115	310
Engine fuel-injector. Oil	N. L. and W. W. Tuck	785,387	Mar. 21	2817	594	115	654
Engine nozzle. Turbine	E. S. Farwell	785,066	Mar. 14	2133	451	115	491
Engine reversing means. Explosive	J. D. Termaat and L. J. Monahan.	785,922	Mar. 28	3888	826	115	903
Engine sparking igniter. Explosive	I. E. Hindman and J. J. Albright.	784,677	Mar. 14	1389	288	115	326
Engine sparking igniter. Explosive	L. D. Kinzig and G. C. Riber	785,809	Mar. 28	3684	784	115	858
Engine sparking igniting device. Hydrocarbon	J. W. Packard	787,212	Apr. 11	2026	442	115	1518
Engine speed attachment. Gas	A. Buchner and E. P. McClure	784,917	Mar. 14	1868	392	115	433

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Engine speed-controlling means. Steam	J. H. Clark	787,149	Apr. 11	1900	410-12	115	1491
Engine speed-regulator. Explosive	A. M. Milson	785,428	Mar. 21	2899	612	115	672
Engine starter. Gas	R. A. Mitchell and L. L. Lewis	787,341	Apr. 11	2276	496	115	1573
Engine starter. Gas	N. W. Hartman	787,918	Apr. 25	3483	761	115	1871
Engine vaporizer and igniter. Oil	N. L. and W. W. Tuck	785,388	Mar. 21	2818	594	115	655
Engine vaporizer and igniter. Oil	N. L. and W. W. Tuck	785,389	Mar. 21	2819	595	115	655
Engines. Electric sparking device for explosive	C. S. Dutton	788,253	Apr. 25	4153	902	115	2027
Engines. Electric sparking igniter for explosive	G. McCadden	784,626	Mar. 14	1298	270	115	305
Engraving-machine	F. J. Nutting	788,423	Apr. 25	4486	976-7	115	2100
Envelop-fastener	E. J. Stévenot	786,692	Apr. 4	979	202	115	1279
Envelop-opener	N. J. Blomgren	784,136	Mar. 7	243	48	115	58
Envelop. Stamp-retaining	H. J. Stirn	786,469	Apr. 4	537	107	115	1185
Evaporating apparatus. Vacuum	T. Suzuki	785,238	Mar. 21	2522	532	115	590
Excavating and dredging machine	W. Fullard	785,302	Mar. 21	2639	559	115	614
Excavating-machine	J. D. Buchanan	784,980	Mar. 14	1983	417	115	457
Excavating-machine	J. D. Buchanan	785,708	Mar. 28	3487	748	115	812
Excavating-machines, &c. Movable platform for	F. P. J. D., and A. L. Leach	785,007	Mar. 14	2028	425	115	467
Excavating trenches, &c. Apparatus for	W. Heffron	787,040	Apr. 11	1682	358	115	1444
Excavator-dipper tooth	J. A. McCaskey	784,118	Mar. 7	206	40	115	50
Exercising apparatus	G. H. Pfund	786,672	Apr. 4	945	194	115	1271
Exercising appliance. Electric	W. Sutton, S. Lord, and W. S. Kerr.	786,533	Apr. 4	668	135-6	115	1212
Exercising device	M. Duffner	786,552	Apr. 4	706	144	115	1220
Exhibiting mechanism	W. H. Jacobs	785,736	Mar. 28	3540	756-7	115	823
Expansion-bolt	F. H. Evans	784,845	Mar. 14	1732	361	115	402
Explosive-engine	W. C. and M. W. Risbridger	785,229	Mar. 21	2509	528-9	115	587
Explosive-engine	R. H. Layton and J. E. Pfeffer	787,925	Apr. 25	3495	763	115	1873
Explosive-engine. Revoluble	C. A. Sawtelle	784,808	Mar. 14	1667	345-6	115	388
Extension-table	M. Alberty	785,848	Mar. 28	3748	797	115	872
Extension-table	T. C. Beach	786,086	Mar. 28	4260	898	115	987
Extension-table	G. A. Brown	786,342	Apr. 4	191	43	115	1111
Extractor: *See* Cork-extractor. Honey-extractor. Dental tooth-extractor. Spike-extractor.							
Eyeglass-mounting	I. Fox	785,298	Mar. 21	2635	558	115	613
Eyeglass-mounting	I. Fox	785,299	Mar. 21	2636	558	115	614
Eyeglass-mounting	I. Fox	785,300	Mar. 21	2637	558	115	614
Eyeglasses	T. H. Pritchard	784,886	Mar. 14	1813	379	115	421
Eyeglasses	B. M. Levoy	785,620	Mar. 21	3298	701	115	759
Eyeglasses, &c. Holder for lenses of	G. H. Winslow	784,197	Mar. 7	366	74	115	86
Eyelet	H. Walden	785,281	Mar. 21	2609	551	115	608
Eyeleting-machine	J. W. Barna and V. Hoffman	786,340	Apr. 4	183	42-3	115	1109
Fabric: *See* Metal fabric. Wire fabric.							
Fabric and making same. Coated or impregnated	T. F. Kinney	785,110	Mar. 21	2260	.....	115	533
Fabric cutting machine. Woven or knitted	J. H. Vincent	784,086	Mar. 7	154	29	115	38
Fabric-marking machine	K. A. Werle	784,089	Mar. 7	163	30	115	40
Fabric trimming and sewing machine	F. Neveux	786,833	Apr. 11	1244	260-1	115	1348
Fabrics. Metallizing	C. Danilevsky and S. Tourchanoff.	785,541	Mar. 21	3145	663	115	728
Facing-block	A. E. Buell	787,023	Apr. 11	1649	351	115	1436
Fan	W. G. G. Weidinger	785,390	Mar. 21	2819	595	115	655
Fanning-mill	A. Gerth	786,205	Mar. 28	4482	947	115	1035
Fare receipt. Duplicated cash	M. C. Flahavan	784,256	Mar. 7	484	97	115	112
Farm-gate	J. J. Hiner	786,124	Mar. 28	4326	913-14	115	1003
Fastener. Separable	W. L. Judson	788,317	Apr. 25	4275	928	115	2055
Fastening device	H. E. Berkey. (Reissue)	12,339	Apr. 25	4633	1011	115	2131
Fat-graining tank	B. F. Williamson	784,091	Mar. 7	165	31	115	40
Fatty substances. Cooling melted	A. R. Wilson	788,446	Apr. 25	4530	986	115	2109
Faucet	J. J. Fitzgibbon and J. M. Travis	785,869	Mar. 28	3782	804	115	879
Featherbone-manufacturing apparatus	O. J. Weil	788,444	Apr. 25	4523	985	115	2108
Feed-box. Folding	R. H. Goede	786,557	Apr. 4	713	145	115	1221
Feed-gage	E. L. Megill	785,627	Mar. 21	3311	706	115	761
Feed-rack and manger	G. B. Warren	784,455	Mar. 7	907	189	115	206
Feed-regulator. Automatic	H. J. Averbeck	786,942	Apr. 11	1476	312	115	1399
Feed-water filter and heater. Combined	H. C. Tabrett and W. Lewin	787,958	Apr. 25	3559	778	115	1887
Feed-water heater and purifier	H. E. Moffat	788,114	Apr. 25	3891	843	115	1970
Feeder. Boiler	C. E. Finch	786,107	Mar. 28	4298	907	115	996
Feeder. Boiler-compound	J. F. McCanna	786,914	Apr. 11	1426	302	115	1388
Feeder. Stock	T. G. Harris	784,940	Mar. 14	1912	401	115	442
Feeding device. Automatic material	L. J. Monahan and C. Kieren	785,070	Mar. 14	2146	453-4	115	493
Feeding device. Stock	C. L. and H. P. Hanson	786,437	Apr. 4	474	92	115	1173
Feeding mechanism	C. J. Bellamy	784,295	Mar. 7	562	115	115	129
Felt. Apparatus for the manufacture of	G. W. Morse	785,751	Mar. 28	3563	761	115	828
Fence	A. K. Keller	786,363	Apr. 4	239	55	115	1121
Fence machine. Wire	P. Frantz	784,209	Mar. 7	398	79	115	94
Fence machine. Wire	J. M. Denning	786,305	Apr. 25	4250	921-3	115	2049
Fence-making machine	A. K. Keller	786,364	Apr. 4	240	55-6	115	1121
Fence-post	S. O. Campbell	784,033	Mar. 7	38	7	115	11
Fence-post	C. Book	784,137	Mar. 7	245	49	115	59
Fence-post	M. L. Oliver	784,420	Mar. 7	836	173	115	191
Fence-post	W. G. Lieser	785,259	Mar. 21	2566	541	115	600
Fence-post	A. O. Reams	785,270	Mar. 21	2589	546	115	605
Fence-post	E. E. Gardner	785,417	Mar. 21	2875	607	115	667
Fence-post	R. M. Patterson	785,913	Mar. 28	3871	822	115	899
Fence-post	F. Novess	786,307	Apr. 4	110	25	115	1096
Fence-post	H. E. Percival	786,462	Apr. 4	526	104	115	1183
Fence-post	L. W. Johnson	786,568	Apr. 4	737	151	115	1226
Fence-post	L. K. Bush	787,275	Apr. 11	2153	474	115	1545
Fence-post	A. P. Goodell	787,749	Apr. 18	3152	689	115	1785
Fence-post	J. R Covey	788,024	Apr. 25	3711	808	115	1924
Fence-post. Concrete	R. H. Lathers	784,866	Mar. 14	1774	370	115	411
Fence-post mold	J. B. Engstrom	784,667	Mar. 14	1371	284	115	322
Fence-post. Steel	H. F. J. Sieverkropp	786,850	Apr. 11	1279	270	115	1355
Fence-stretcher	M. Reese	784,629	Mar. 14	1302	271	115	306
Fence-weaving machine. Wire	G. W. Whittington	786,927	Apr. 11	1450	307	115	1393

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fence. Wire	W. Clement	785,861	Mar. 28	3771	801	115	877
Fence. Wire	J. M. St. John	788,497	Apr. 25	4621	1007	115	2128
Fence-wire fastener	A. Cottom	787,897	Apr. 25	3436	752	115	1859
Fence-wire fastener	S. L. Hulsey	788,357	Apr. 25	4351	949	115	2071
Fence. Woven-wire	M. D. Kilmer	786,445	Apr. 4	487	94	115	1175
Fencing barb. Wire	U. Durand	784,782	Mar. 14	1613	332	115	376
Fencing tie. Wire	N. B. Hayes	786,029	Mar. 28	4135	871	115	959
Fencing tie. Wire	S. S. Withington	786,931	Apr. 11	1457	308	115	1394
Fender:							
See Wheel-fender.							
Fender	R. D'Oronzio	785,482	Mar. 21	3008	635–6	115	697
Fertilizer-distributer	N. A. Butler	784,659	Mar. 14	1357	290	115	319
Fertilizer-distributer	A. J. Allen	785,346	Mar. 21	2717	576	115	632
Fertilizer-distributer	C. Johnson and O. C. Rawley	786,218	Mar. 28	4506	953–4	115	1039
Fibers. Liberating and separating	H. S. Blackmore	786,721	Apr. 4	1031	.....	115	1291
Fibrous stock. Retting	J. E. Lappen	785,618	Mar. 21	3295	.....	115	759
Fifth-wheel	M. J. Griffin	784,739	Mar. 14	1522	312	115	358
Fifth-wheel	W. Shaw	786,057	Mar. 28	4190	882	115	972
File. Bill or invoice	B. Couch and J. D. Kneedler	788,023	Apr. 25	3709	808	115	1923
File. Deposit	S. C. Anderson	786,477	Apr. 4	552	111	115	1188
File-holder	C. Armijo	785,465	Mar. 21	2977	628	115	691
File or cabinet. Card-index	J. S. Nowotny	788,276	Apr. 25	4186	909	115	2034
Filing-cabinet	G. A. Shoemaker	788,072	Apr. 25	3796	825	115	1943
Filing device	C. C. Spengler	784,812	Mar. 14	1675	347	115	391
Filler or packing device	C. L. Shelton	787,702	Apr. 18	3016	662	115	1752
Filter	F. W. Pendergast	788,145	Apr. 25	3956	855	115	1984
Filter	J. L. Greatsinger	788,312	Apr. 25	4266	926	115	2053
Filter	J. R. Porter and M. Cole	788,374	Apr. 25	4385	956	115	2078
Filter and mechanism for cleaning it	L. Dion	786,549	Apr. 4	700	143	115	1219
Filter. Gravity	B. Hunt	786,441	Apr. 4	480	93	115	1174
Filter-pulp. Apparatus for treating	R. Birkholz	787,971	Apr. 25	3594	785–6	115	1897
Filter. Rain-water	C. E. Hening	788,102	Apr. 25	3851	837	115	1956
Filter. Water	C. Kasper	788,359	Apr. 25	4353	950	115	2072
Finger-bowl	A. S. Stebbins and L. M. Lauer	788,286	Apr. 25	4209	913	115	2040
Finger-ring	L. Lehr	785,741	Mar. 28	3549	758	115	825
Fire-alarm	P. H. Eaton	788,195	Apr. 25	4042	873	115	2003
Fire-alarm	J. Fiddes and J. F. Watt	788,199	Apr. 25	4046	874–5	115	2005
Fire-alarm and fire-extinguishing apparatus	J. Hartley	788,152	Apr. 25	3969	858	115	1987
Fire-alarm apparatus. Electrical	J. P. Robertson	787,344	Apr. 11	2289	497–8	115	1574
Fire-alarm button. Explosive	E. A. Sweet	788,225	Apr. 25	4101	888	115	2015
Fire-alarm. Detonating	M. A. Libbey	786,655	Apr. 4	921	188	115	1266
Fire and burglar alarm	I. S. Bunker. (Reissue)	12,329	Mar. 21	3468	745	115	794
Fire-box	W. Kemmerich	784,495	Mar. 7	992	208	115	224
Fire-box boiler	J. S. Glenn and H. Henke	785,418	Mar. 21	2876	607	115	667
Fire-cock combined with the pipe	H. Aass and J. M. Monstad	785,395	Mar. 21	2827	597	115	657
Fire-curtains. Auxiliary release for theatrical	J. R. Clancy	784,835	Mar. 14	1718	357	115	399
Fire-door	E. Ohnstrand	786,593	Apr. 4	779	160	115	1236
Fire-escape	F. A. Parker	785,019	Mar. 14	2049	430	115	473
Fire-escape	J. Füger	785,301	Mar. 21	2639	558	115	614
Fire-escape	L. Grossmann	786,641	Apr. 4	890	182	115	1260
Fire-escape	J. Peters	787,394	Apr. 18	2402	519	115	1614
Fire-escape	H. C. Whitley	788,297	Apr. 25	4239	919	115	2046
Fire-escape brake	L. Dahlquist	785,202	Mar. 21	2442	514	115	573
Fire-escape. Portable	D. E. Landis	784,864	Mar. 14	1770	369	115	410
Fire-extinguisher	T. F. Handly	785,610	Mar. 21	3281	697	115	756
Fire-extinguisher	W. W. Sykes	786,779	Apr. 4	1146	241	115	1316
Fire-extinguisher	C. W. Aton	788,498	Apr. 25	4622	1008	115	2128
Fire-extinguisher. Automatic	J. D. Williams	784,461	Mar. 7	916	191	115	208
Fire-extinguisher sprinkler-head. Automatic	A. D. Linn and I. J. Cilley	785,426	Mar. 21	2891	611	115	671
Fire-extinguisher valve. Automatic	E. G. Pattee	788,061	Apr. 25	3777	821	115	1939
Fire-extinguishing system	P. Evans	786,742	Apr. 4	1071	222	115	1299
Fire-extinguishing system	J. Fiddes and J. F. Watt	787,505	Apr. 18	2631	570	115	1667
Fire-hose nozzle	W. B. Runbeck	786,684	Apr. 4	962	199	115	1275
Fire-pail indicator	H. T. Moody	786,135	Mar. 28	4344	918	115	1007
Fire-screen and table. Combined	V. P. Sollom	786,526	Apr. 4	659	133	115	1211
Fire sprinkler and alarm system. Automatic	J. Fiddes and J. F. Watt	784,669	Mar. 14	1375	285	115	323
Fires in buildings. Means for automatically extinguishing	J. Fiddes	786,491	Apr. 4	581	116	115	1194
Firing. Method of	G. S. Welles	785,990	Mar. 28	4049	859	115	940
Firearm	M. Kutcher	787,626	Apr. 18	2875	625–6	115	1723
Firearm. Automatic	B. Burton	785,085	Mar. 21	2194	463	115	518
Firearm-lock	L. Cobb	786,796	Apr. 11	1186	247	115	1336
Firearm. Magazine	W. B. Atkinson	787,257	Apr. 11	2115	466	115	1536
Firearm. Magazine	W. Sonnenberg	787,800	Apr. 18	3235	707	115	1803
Firearm-magazines. Device for indicating the number of cartridges in	F. Gottardi	784,786	Mar. 14	1621	334	115	378
Firemen. Inhaling compound for	W. M. Mitchell	786,453	Apr. 4	505	.....	115	1179
Fireplace-heater	G. W. Buck	785,401	Mar. 21	2842	600	115	660
Fireplace-heater	J. D. Bacon and T. McGarrigal	786,713	Apr. 4	1017	210	115	1288
Fireproof building construction	J. Schirra	785,579	Mar. 21	3213	681	115	741
Fireproof construction and making same	A. L. A. Himmelwright	787,512	Apr. 18	2649	574	115	1671
Fireproof floor and ceiling construction	A. Pfeiffer	784,878	Mar. 14	1798	375	115	417
Fireproof window	A. Konsalik	788,267	Apr. 25	4174	906	115	2031
Fish box. Live	C. B. Tourville	785,451	Mar. 21	2952	622	115	685
Fish-hook	W. Henckler	784,942	Mar. 14	1915	402	115	443
Fish-hook	W. E. Koch	787,679	Apr. 18	2972	647	115	1744
Fish-hook	H. Torgerson	787,806	Apr. 18	3249	709	115	1806
Fish-hook	F. B. Petsel	788,062	Apr. 25	3779	822	115	1940
Fish-hook	S. H. Friend	788,201	Apr. 25	4050	875	115	2005
Fish-hook	H. S. West	788,296	Apr. 25	4238	919	115	2046
Fish-hook case or holder	H. J. Frost	786,352	Apr. 4	211	48	115	1115
Fish-net	K. Rüdiger	786,055	Mar. 28	4187	881–2	115	971
Fish-trap	A. J. Broome	785,267	Mar. 21	2618	554	115	610
Fisherman's box and life-preserver. Combined	W. Fisch	784,933	Mar. 14	1901	398	115	440
Fishing-bait. Artificial	W. Heckeler	784,398	Mar. 7	794	163	115	182
Fishing line and float	H. A. Picken	786,597	Apr. 4	786	161	115	1237

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fishing-pole and reel	F. Schreidt	787,055	Apr. 11	1713	364–5	115	1451
Fishing-reel	F. Fullilove	784,671	Mar. 14	1380	286	115	324
Fishing-reel. Automatic	J. H. Van Horn	787,317	Apr. 11	2226	488–9	115	1561
Fishing-reel brake	J. A. MacMahon	786,656	Apr. 4	923	189	115	1266
Fishing-rod	W. R. Wheeler	785,845	Mar. 28	3745	797	115	871
Fishing-spear	J. M. Lobit	784,747	Mar. 14	1534	316	115	360
Fishpoles. Device for extending lines from hollow	C. E. Francisco	786,639	Apr. 4	887	182	115	1259
Flash-boiler	H. M. Burnell and M. E. Mogg	787,495	Apr. 18	2605	561	115	1660
Flash-tester	F. A. Courtois	788,250	Apr. 25	4151	901	115	2026
Flask:							
See Dental flask.							
Flat-iron cover	A. E. Mattern	785,016	Mar. 14	2046	429	115	472
Float	F. and F. H. Engelhard	787,504	Apr. 18	2630	569–70	115	1667
Floor and ceiling plate	J. W. Carleton	787,077	Apr. 11	1754	374	115	1459
Floor-clamp	F. W. Hammond and F. E. Henderson.	788,045	Apr. 25	3750	816	115	1932
Floor-polishing apparatus	J. Rischke	785,762	Mar. 28	3586	766	115	833
Florist's bench	C. J. Pult	784,756	Mar. 14	1567	323	115	367
Flour, &c. Machine for dressing or separating	H. J. F. Rose	784,229	Mar. 7	434	87	115	101
Flour-mill. Portable	C. A. Smith	786,168	Mar. 28	4409	932	115	1020
Flowers. Machine for manufacturing artificial	M. L. Beistle	784,912	Mar. 14	1861	390	115	431
Flowers. Means for preserving and exhibiting	R. R. Spicer	785,055	Mar. 14	2112	445	115	486
Flue-expander	P. Dixon	784,481	Mar. 7	957	200	115	217
Flue or tube cutter	R. T. Miller	787,205	Apr. 11	2015	439	115	1516
Fluid-delivery apparatus	R. L. Doran	786,881	Apr. 11	1341	286	115	1369
Fluid-distributing system. Pneumatic	F. M. Griswold	784,937	Mar. 14	1909	400	115	442
Fluid-fuel-burner valve mechanism	H. M. Burnell and M. E. Mogg	787,494	Apr. 18	2603	561	115	1660
Fluid-meter	J. W. Ledoux	784,112	Mar. 7	200	38–9	115	48
Fluid-motor	N. A. Palmer	784,591	Mar. 14	1189	250–1	115	281
Fluid-motor	H. E. Werner	785,343	Mar. 21	2713	575	115	631
Fluid-motor. Reversible	H. A. Duc, Jr.	784,482	Mar. 7	958	200–1	115	217
Fluid-pressure brake	G. W. Butcher	784,204	Mar. 7	382	77	115	89
Fluid-pressure brake	H. R. Mason	788,112	Apr. 25	3885	842	115	1968
Fluid-pressure brake	M. W. Hibbard	788,208	Apr. 25	4066	880	115	2009
Fluid-pressure device	L. Woerner	787,421	Apr. 18	2452	530	115	1624
Fluid-pressure lock. Combination	W. J. Hofstatter	787,575	Apr. 18	2757	602	115	1695
Fluid-pressure motor. Rotary	G. J. Murdock	784,172	Mar. 7	315	66	115	74
Fluid-pressure regulator	E. W. Crawford	788,352	Apr. 25	4337	946	115	2009
Flush-tank	A. W. Oberlies	785,680	Mar. 21	3427	736–7	115	785
Flushing apparatus	H. W. Gardner	787,287	Apr. 11	2169	478–9	115	1549
Flushing apparatus. Automatic	M. J. Quinn	785,682	Mar. 21	3429	737	115	786
Flushing apparatus for closets. Noiseless	L. F. De May	785,542	Mar. 21	3146	663	115	728
Flushing-gate for sewers, &c	G. S. Walker	785,134	Mar. 21	2312	484	115	544
Flushing outfit. Closet	T. F. Crary	787,833	Apr. 18	3301	720	115	1817
Fly-frightener	T. J. Merryman	785,968	Mar. 28	3987	848–9	115	926
Fodder-shredder	C. C. Welsh	784,908	Mar. 14	1850	387	115	429
Folding box	W. Kronenwetter	787,681	Apr. 18	2974	647	115	1744
Folding table	J. A. Crandall	786,732	Apr. 4	1052	217	115	1295
Food cake. Making cattle	M. J. Boutteau	784,778	Mar. 14	1602	330	115	374
Foot-warmer	C. H. Whitaker	787,245	Apr. 11	2094	462	115	1532
Foot-warmer	E. P. Sanders	787,403	Apr. 18	2418	523	115	1618
Force-feed lubricator	C. J. Gustafson	784,788	Mar. 14	1626	335	115	379
Fork:							
See Hay-fork.							
Fork attachment	H. M. Karsten	785,555	Mar. 21	3174	671	115	733
Foundry appliances. Composition of matter for	A. R. Marsteller	785,562	Mar. 21	3182	.....	115	735
Frame:							
See Mirror-frame. Thread-drying frame. Quilting-frame.							
Frequency-changer	O. O. Kruh	787,193	Apr. 11	1991	334	115	1511
Friction-brake	S. A. Moore	786,661	Apr. 4	929	190	115	1268
Friction device	G. L. Harvey	788,135	Apr. 25	3931	851	115	1979
Frog-point	T. Donahoe	788,456	Apr. 25	4552	991	115	2114
Frogless switch	A. Falkner	785,255	Mar. 21	2555	539	115	596
Fruit-gatherer	J. M. Chritton	786,002	Mar. 28	4067	862	115	944
Fruit-gathering device	E. Tatum	786,855	Apr. 11	1287	273	115	1357
Fruit-grader	E. N. Maull	785,748	Mar. 28	3557	760	115	826
Fruit or vegetable eyes. Instrument for removing	F. G. Yawman	787,488	Apr. 18	2591	558	115	1657
Fruit-picker	I. Carman	785,475	Mar. 21	2998	632	115	695
Fruit-picker	F. Fisher, Jr	787,164	Apr. 11	1928	418	115	1497
Fruit-picker	J. G. Smith	787,477	Apr. 18	2568	554	115	1650
Fruit-picking machine	A. C. Pitman	786,673	Apr. 4	946	194	115	1272
Fruit-pitting machine	J. Caldwell	786,482	Apr. 4	560	112–13	115	1190
Fruit-press	H. Bollweber	786,091	Mar. 28	4273	901	115	990
Fuel and making same. Artificial	F. W. Mecker	787,458	Apr. 18	2527	.....	115	1641
Fuel. Composition	C. H. Carpenter	784,302	Mar. 7	578	.....	115	133
Fuel-economizer	W. E. Cole	784,106	Mar. 7	189	36	115	46
Fuel-economizer	F. W. Green	784,560	Mar. 14	1123	235	115	267
Fuel-feeder device. Comminuted	J. F. Hay	786,120	Mar. 28	4317	911–12	115	1001
Fuels. Means for producing complete combustion of	J. B. Barrett	787,552	Apr. 18	2718	591–2	115	1687
Fuels. Producing complete combustion of	J. B. Barrett	786,243	Mar. 28	4548	964–5	115	1049
Full-stroke mechanism	B. T. Seelye	786,386	Apr. 4	305	66	115	1138
Fumigator and insect-destroyer	J. A. Frazar	786,965	Apr. 11	1542	328	115	1413
Furnace:							
See Annealing-furnace. Blast or other furnace. Boiler-furnace. Boiler or like furnace. Cremating-furnace. Dental furnace. Electric furnace. Gas-furnace. Glass-melting furnace. Metal-treating furnace. Ore-roasting furnace. Regenerative furnace. Roasting-furnace. Smelting-furnace. Smoke consuming furnace. Smokeless furnace. Smokeless combustion-furnace.							
Furnace	D. D. Hughes	784,048	Mar. 7	68	13	115	18
Furnace	G. S. Welles	785,991	Mar. 28	4051	859	115	940

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Furnace	E. S. Chase	786,098	Mar. 28	4284	903–4	115	993
Furnace	G. L. Fogler	786,746	Apr. 4	1079	224	115	1301
Furnace	H. A. Poppenhusen	787,636	Apr. 18	2891	630	115	1727
Furnace	A. M. Boughton	788,239	Apr. 25	4125	894–5	115	2021
Furnace	A. J. F. Miller	788,417	Apr. 25	4479	975	115	2099
Furnace air-feeding device	M. E. Casey	786,726	Apr. 4	1039	216	115	1292
Furnace attachment	F. A. Hoeft	788,046	Apr. 25	3753	816–17	115	1933
Furnace-charging box	H. Wright	788,010	Apr. 25	3682	801	115	1917
Furnace conveying mechanism	W. McClave	785,630	Mar. 21	3316	707–9	115	762
Furnace cooling-jacket. Blast-	D. Baker	786,180	Mar. 28	4426	936	115	1023
Furnace-door	E. F. Slick	786,851	Apr. 11	1280	270	115	1355
Furnace front arch	J. H. Foote	784,737	Mar. 14	1520	312	115	357
Furnace hearths. Means for protecting blast-	C. E. Dinkey and H. A. Brassert	787,282	Apr. 11	2162	476	115	1548
Furnace-lining material	H. G. Turner	785,841	Mar. 28	3738	.....	115	869
Furnaces. Reversing-valve for regenerative	J. Reuleaux	787,222	Apr. 11	2040	445–6	115	1521
Furniture. Combination	D. Froehlich	788,311	Apr. 25	4264	925–6	115	2052
Furniture-roll	B. M. Haubold	787,751	Apr. 18	3160	690	115	1787
Fuse-box. Electrical	G. W. Goodridge	785,306	Mar. 21	2647	561	115	616
Fuse. Impact-	K. Wieser	785,846	Mar. 28	3745	797	115	871
Fuse. Percussion-	D. J. Cartwright	785,540	Mar. 21	3142	663	115	727
Fuse-primer. Electrical	F. M. Quinn	784,226	Mar. 7	429	87	115	100
Fusee igniter and discharger. Automatic	W. M. Jackson	785,886	Mar. 28	3820	812	115	887
Gage: *See* Combination-gage. Recording-gage. Feed-gage. Shear-gage. Hinge-gage. Shingle-gage. Perforating-machine gage. Skirt or coat gage. Taper-gage. Pressure-gage. Water-gage. Railway-gage.							
Gage or gaging-tool	A. L. Beardsley	784,652	Mar. 14	1347	278	115	317
Gage-tool. Combination	E. Wiet	785,245	Mar. 21	2535	535	115	592
Galvanic battery	D. L. Winters	786,704	Apr. 4	1004	206	115	1285
Game apparatus	D. H. Talbert	784,709	Mar. 14	1450	300-1	115	341
Game apparatus	P. W. Gee and I. Carpender	786,022	Mar. 28	4126	870	115	957
Game apparatus	S. von Clanner and C. von Jékey	786,485	Apr. 4	567	113–14	115	1191
Game apparatus	E. Fahl	787,161	Apr. 11	1921	416	115	1495
Game apparatus	P. W. Jannoch	787,516	Apr. 18	2654	576	115	1672
Game apparatus	A. Gross	788,101	Apr. 25	3850	837	115	1956
Game. Ball-and-bat	E. Rosenthal	786,997	Apr. 11	1596	341	115	1425
Game registering mechanism. Tenpin-	A. Ferland	785,668	Mar. 21	3391	728–9	115	779
Games. Sling mechanism for tenpin	A. Ferland	785,667	Mar. 21	3389	727–8	115	779
Garment attachment	F. M. Shepard	788,335	Apr. 25	4311	938	115	2063
Garment-clasp	E. N. Humphrey	784,745	Mar. 14	1531	315	115	359
Garment. Combination-	M. Bunsick	784,918	Mar. 14	1870	392	115	423
Garment-fastener	F. Franz	784,258	Mar. 7	488	98	115	113
Garment-fastening device	L. A. Ferrandini	788,254	Apr. 25	4155	902	115	2027
Garment-pin	R. Weigel	785,843	Mar. 28	3743	796	115	871
Garment steaming and shaping device	L. Earl and W. L. Galvin	786,554	Apr. 4	709	144–5	115	1221
Garment-stretcher	L. Nelson	784,752	Mar. 14	1555	320	115	365
Garment-supporter	J. Morgan	786,046	Mar. 28	4163	877	115	965
Garment-supporter	J. C. Copeland	786,194	Mar. 28	4462	944	115	1030
Garment-supporter	H. E. Crandall	786,876	Apr. 11	1331	283	115	1367
Garment-supporter	W. F. Heine	787,668	Apr. 18	2957	643	115	1740
Garment-supporter	E. A. Guinzburg	788,259	Apr. 25	4162	904	115	2030
Garment-supporter clasp	F. D. Harding	784,323	Mar. 7	611	125	115	140
Garment-supporter for trunks, &c	E. W. Hawley and G. H. Wheary	786,119	Mar. 28	4316	911	115	1001
Gas and electric fixture. Combination	C. S. Steinberg	787,802	Apr. 18	3241	708	115	1804
Gas. Apparatus for the manufacture of water-	J. C. H. Kramers and J. G. Aarts	785,040	Mar. 14	2089	440	115	482
Gas-burner	R. T. Malin	784,168	Mar. 7	307	61	115	72
Gas-burner	C. Nielsen	784,754	Mar. 14	1563	322	115	366
Gas-burner	W. McLaughlin	786,830	Apr. 11	1241	260	115	1348
Gas-burner	F. M. Ashley	787,321	Apr. 11	2237	490	115	1564
Gas-burner	E. S. Edwards	787,976	Apr. 25	3603	787	115	1899
Gas-burner	F. M. Ashley	788,235	Apr. 25	4119	893	115	2020
Gas burner. Acetylene-	S. L. Kistler and H. Symonds	784,687	Mar. 14	1412	292	115	332
Gas-burner flash-pilot	H. S. Humphrey	786,292	Apr. 4	79	19	115	1088
Gas-burner safety attachment	B. A. Nemo	787,687	Apr. 18	2982	650	115	1746
Gas-burners using incandescent gas-mantles. Pilot-light for Bunsen or other	F. M. Brooks	787,659	Apr. 18	2937	638	115	1736
Gas-burning appliance	E. C. Jones	786,647	Apr. 4	901	185	115	1262
Gas cut-off. Automatic	J. B. Brown	784,915	Mar. 14	1866	391	115	432
Gas-engine	C. J. Rousseau and E. C. Ferris	784,759	Mar. 14	1575	325	115	369
Gas-engine	C. J. Rousseau and E. C. Ferris	784,760	Mar. 14	1576	325	115	369
Gas from oils. Apparatus for making	N. G. Hock	788,405	Apr. 25	4460	970–1	115	2095
Gas-furnace	J. C. Swindell	787,131	Apr. 11	1861	399	115	1482
Gas-furnace-retort setting	G. H. Niles	785,268	Mar. 21	2586	545–6	115	604
Gas-generating apparatus	G. W. Parker	787,539	Apr. 18	2692	596	115	1680
Gas-generating apparatus. Acetylene-	W. B. Jones	784,051	Mar. 7	72	14	115	18
Gas generator. Acetylene-	H. Goodacre	784,152	Mar. 7	278	57	115	66
Gas generator. Acetylene-	L. S. Buffington	785,853	Mar. 28	3756	799	115	873
Gas generator. Acetylene-	W. A. Wallace	786,330	Apr. 4	167	38–9	115	1106
Gas-generator-feeding means	F. E. Guilbaud	784,740	Mar. 14	1523	313	115	358
Gas-generator valve	R. Schenck	786,603	Apr. 4	796	163–4	115	1240
Gas-heater	E. Laberge	786,300	Apr. 4	95	21	115	1092
Gas-heater. Fireplace	Q. S. Backus	787,657	Apr. 18	2933	638	115	1735
Gas-lighting device	A. F. Williams	786,928	Apr. 11	1452	307	115	1394
Gas. Making	J. C. H. Kramers and J. G. Aarts	784,407	Mar. 7	806	168	115	185
Gas. Making and delivering	B. Loomis and H. Pettibone	784,870	Mar. 14	1781	371–2	115	412
Gas. Manufacture of carbon-tetrafluorid	J. A. Lyons and E. C. Broadwell	785,961	Mar. 28	3973	845	115	922
Gas-manufacturing apparatus	B. Loomis and H. Pettibone	784,576	Mar. 14	1148	240	115	273
Gas-pipe-testing device	M. J. Erk	784,483	Mar. 7	961	201	115	217
Gas-pressure governor	J. V. Mathivet	785,747	Mar. 28	3556	760	115	826
Gas-producer	W. O. Amsler	785,929	Mar. 28	3904	831	115	907
Gas-producer	F. W. Johnstone	785,955	Mar. 28	3962	842	115	919
Gas-producer	A. B. Duff	786,200	Mar. 28	4471	945	115	1032

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gas-producer	C. Whitfield	786,474	Apr. 4	542	109	115	1187
Gas-producer	J. Reuleaux	788,378	Apr. 25	4404	957	115	2082
Gas-producer grate	H. F. Smith	786,062	Mar. 28	4202	885	115	974
Gas-producer. Suction	H. F. Smith	786,063	Mar. 28	4203	886	115	974
Gas-producers. Regulating air and steam supplied to	H. F. Smith	786,061	Mar. 28	4199	885	115	974
Gas-purifier	A. Steinbart	787,503	Apr. 18	2802	610	115	1706
Gas-purifying apparatus	T. Redman	786,681	Apr. 4	956	197	115	1274
Gas-regulating burner	C. W. Taylor	788,382	Apr. 25	4411	958	115	2084
Gas-regulator	F. Wheeler	788,079	Apr. 25	3806	828	115	1945
Gas-retort stand-pipe	J. H. Taussig	787,061	Apr. 11	1732	369	115	1455
Gas-safety-valve mechanism. Automatic	E. Leadbeater	787,195	Apr. 11	1995	435	115	1512
Gas. System for the combustion of	J. A. Herrick	786,032	Mar. 28	4139	872	115	960
Gas-washer	H. Gerdes	784,556	Mar. 14	1117	233–4	115	266
Gas-washer	P. Meehan	784,748	Mar. 14	1536	316–17	115	360
Gasket or packing-ring and apron therefor	E. L. Perry	785,116	Mar. 21	2274	478	115	536
Gate: *See* Car-gate. Flushing-gate. Collapsible gate. Self-closing gate. Elevator-gate. Swinging gate. Elevator-shaft gate. Tilting gate. Farm-gate.							
Gate	E. J. Stanley	784,236	Mar. 7	445	90	115	104
Gate	W. Kiddoo	784,434	Mar. 7	801	166	115	184
Gate	J. W. Elliott	784,844	Mar. 14	1731	360	115	402
Gate	J. H. White	785,059	Mar. 14	2116	446–7	115	487
Gate	J. W. Strait	785,337	Mar. 21	2706	573	115	629
Gate	J. Anderson	786,084	Mar. 28	4258	897–8	115	987
Gate	P. C. Forrester	786,109	Mar. 28	4302	907	115	997
Gate	J. Hogan	786,440	Apr. 4	480	92	115	1174
Gate	C. W. Van de Walker and R. T. Jenney	787,242	Apr. 11	2090	461	115	1531
Gate	L. G. Price	787,943	Apr. 25	3531	770	115	1881
Gate	T. W. Howard	788,316	Apr. 25	4274	928	115	2055
Gate-operating mechanism	J. E. Stirton	787,129	Apr. 11	1858	389	115	1481
Gates. Variable counterpoise for	J. Hawkesworth and R. A. McCulloch	787,175	Apr. 11	1953	423	115	1503
Gear for elevating machinery, &c. Driving-	G. E. Holland and H. Johnston	785,552	Mar. 21	3169	670	115	732
Gear for mandrels or other shafts. Reversing-	T. A. Quinn	784,277	Mar. 7	527	108	115	121
Gear. Slip-	W. M. Neckerman	786,306	Apr. 4	109	25	115	1095
Gear. Transmission-	G. R. Albaugh	786,939	Apr. 11	1470	311	115	1398
Gear. Variable-speed	F. W. Schroeder	786,845	Apr. 11	1271	268	115	1354
Gear-wheel. Sectional	F. G. Ward	786,074	Mar. 28	4236	892	115	983
Gear-wheel. Sectional	J. T. Duff	786,274	Apr. 4	36	9	115	1079
Gear-wheel. Yieldable	C. C. Mattison	787,524	Apr. 18	2664	578	115	1674
Gearing	C. and J. Dietz	784,309	Mar. 7	588	120	115	135
Gearing	P. Dietz	785,064	Mar. 14	2129	450	115	490
Gearing	M. Hendrickson	786,214	Mar. 28	4498	951–2	115	1038
Gearing	S. H. Hanson	787,330	Apr. 11	2255	493	115	1568
Gearing. Bevel-	J. A. Stone	787,956	Apr. 25	3557	777	115	1887
Gearing. Compensating	E. C. Doolittle	787,085	Apr. 11	1773	379	115	1464
Gearing-disconnecting apparatus. Belt-	J. J. Rieger	787,398	Apr. 18	2410	521	115	1616
Gearing. Variable-speed	W. C. Conant	787,088	Apr. 11	1759	375–6	115	1460
Gearing. Variable-speed	W. C. Conant	787,830	Apr. 18	3294	718–19	115	1816
Gearing. Variable-speed	J. L. Spencer	787,863	Apr. 18	3361	736	115	1831
Generator: *See* Acetylene-generator. Gas-generator. Electric generator. Steam-generator.							
Gin-saw gummer	E. A. Frantz	786,750	Apr. 4	1086	225–6	115	1302
Girders, angle-irons, &c. Machine for cutting or punching	A. J. Ward and C. Wragg	785,282	Mar. 21	2610	551–2	115	609
Girdle	A. G. Saart	784,891	Mar. 14	1820	380	115	422
Glass and cylinders. Machine for the manufacture of plate-	A. Bournique	786,259	Apr. 4	12	3–4	115	1073
Glass and mechanism therefor. Working	S. H. Peltier	787,588	Apr. 18	2794	609	115	1704
Glass-annealing leer. Plate-	M. M. Maher	785,506	Mar. 21	3067	648–9	115	711
Glass. Apparatus for the manufacture of	R. S. Pease	788,144	Apr. 25	3952	855	115	1984
Glass articles. Apparatus for producing hollow	P. T. Sievert	784,439	Mar. 7	868	181	115	198
Glass articles. Producing hollow	P. T. Sievert	785,441	Mar. 21	2930	618–19	115	679
Glass-beveling machine	J. H. McBride	787,783	Apr. 18	3206	700	115	1797
Glass-blowing machine	H. Hilde	784,744	Mar. 14	1529	315	115	359
Glass bodies. Manufacturing	R. S. Pease	788,142	Apr. 25	3947	854	115	1983
Glass, &c. Furnace for bending and shaping sheet-	W. Cutler	787,437	Apr. 18	2483	537	115	1631
Glass-making apparatus	R. S. Pease	788,143	Apr. 25	3950	854–5	115	1983
Glass-making machine. Sheet-	W. Alles	786,476	Apr. 4	546	109–10	115	1187
Glass. Manufacturing wire-	F. Shuman	786,058	Mar. 28	4192	883	115	972
Glass. Manufacturing wire prism-	A. Shuman	788,147	Apr. 25	3957	856	115	1985
Glass-melting furnace	E. Baudoux	787,553	Apr. 18	2721	592	115	1687
Glass, &c. Mold for bending and shaping sheet-	W. Cutler	787,438	Apr. 18	2484	538	115	1631
Glass-molding machine	E. Miller	786,659	Apr. 4	927	190	115	1267
Glass-molding machine	E. Miller	787,050	Apr. 11	1702	362–3	115	1449
Glass-molding machine	E. Miller	787,526	Apr. 18	2666	578–9	115	1675
Glass-rinsing means	H. Pein	784,755	Mar. 14	1566	322	115	367
Glass strips. Splitting longitudinally-scored	P. Semmer	787,122	Apr. 11	1848	395	115	1479
Glass-tank furnaces. Drawing apparatus for	J. Proeger	787,638	Apr. 18	2895	630	115	1727
Glassware blow-mold. Handled-	A. R. Grotz	786,114	Mar. 28	4310	909	115	999
Glassware-handling apparatus	A. M. Acklin	785,928	Mar. 28	3900	829–30	115	906
Glassware. Making handled	A. R. Grotz	786,115	Mar. 28	4311	909	115	1000
Glassware press-mold. Handled-	A. R. Grotz	786,116	Mar. 28	4312	909	115	1000
Globe	M. Manson and H. D. Connick	784,058	Mar. 7	92	17	115	24
Globe	S. O. Richardson, Jr. (Reissue)	12,326	Mar. 21	3464	745	115	793
Globe or chimney support	I. L. Smith	787,799	Apr. 18	3235	706	115	1803
Glove	D. F. Morgan	784,115	Mar. 7	204	39	115	49
Glove	H. Urwick	785,190	Mar. 21	2423	509	115	569
Glove. Pocketed	J. W. Cooper	786,006	Mar. 28	4076	862	115	946
Gold from sand, &c. Machine for separating	C. O. Michaelsen	785,819	Mar. 28	3705	788	115	862
Golf-ball	C. de Büren	786,343	Apr. 4	192	.....	115	1111

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Golf-ball	F. A. Selberling	786,524	Apr. 4	656	132	115	1210
Golf-club	F. B. Corey and A. C. Savage	786,268	Apr. 4	26	7	115	1076
Gong	E. S. Bucknam	784,382	Mar. 5	748	152	115	172
Gooseneck connection	A. W. Nicholls	787,211	Apr. 11	2025	442	115	1518
Gopher-exterminating compound	N. C. Bille	784,512	Mar. 7	1037	.....	115	233
Governing device	R. B. McGowan	786,984	Apr. 11	1576	336–7	115	1420
Governing device for valve and igniter gear for explosive-engines	E. Westman	787,417	Apr. 18	2441	528	115	1622
Governor	H. Kroner	784,333	Mar. 7	623	129	115	142
Governor	E. S. Farwell	785,065	Mar. 14	2131	450	115	490
Governor	F. I. Joyce	785,406	Mar. 21	3047	645	115	706
Governor	C. Pfeiffer	786,373	Apr. 25	4382	955	115	2078
Governor. Engine-	W. N. Springer	785,127	Mar. 21	2294	482	115	540
Governor. Engine-	W. Glaser	786,435	Apr. 4	471	91	115	1172
Governor. Mechanical speed-	N. W. Akimoff	785,587	Mar. 21	3244	688	115	748
Governor. Turbine-engine	E. S. Farwell and E. F. Williams	785,037	Mar. 14	2080	437	115	480
Governor. Variable-speed	W. N. Springer	785,126	Mar. 21	2290	481	115	539
Grader. Elevating-	O. E. Moats	784,582	Mar. 14	1164	245	115	276
Grading and ditching machine	L. V. Brophy	784,545	Mar. 14	1097	229–30	115	261
Grading implement	R. S. Sheldon	786,848	Apr. 11	1275	269	115	1354
Grain, &c. Apparatus for conditioning	R. Horner	785,554	Mar. 21	3171	670–1	115	733
Grain bagging and weighing machine	J. B. Williams	786,475	Apr. 4	544	109	115	1187
Grain-binder	P. Hanson	785,165	Mar. 21	2362	495–6	115	556
Grain-binder shocker	H. Welch	784,819	Mar. 14	1692	350–1	115	394
Grain-conditioner	C. E. Oliver	787,108	Apr. 11	1816	389	115	1473
Grain-drill	G. W. Denyes	787,901	Apr. 25	3441	753	115	1860
Grain-drill coupling and draw-bar	W. Fetzer	788,036	Apr. 25	3732	813	115	1928
Grain dump and elevator. Portable	W. Fetzer	788,037	Apr. 25	3738	813–14	115	1930
Grain-elevator. Pneumatic	J. Rocke	784,180	Mar. 7	332	69	115	78
Grain-heater	F. Schacht	784,281	Mar. 7	533	110	115	123
Grain-separating device	P. Provost	787,396	Apr. 18	2405	520	115	1615
Grain-separator	S. J. Mason	785,506	Mar. 21	3074	650	115	712
Grain-separator	E. M. Kramer	785,222	Mar. 21	2493	525	115	584
Grain-separator sieve	P. Flesher	786,019	Mar. 28	4116	868–9	115	956
Grain-shocking machine	E. Armstrong	784,828	Mar. 14	1707	355	115	398
Grain sorter or separator	L. B. Eberly	787,906	Apr. 25	3447	755–7	115	1861
Grain sorter or separator	F. L. Block	784,134	Mar. 7	239	48	115	58
Grain-spout	F. L. Block	784,135	Mar. 7	241	48	115	58
Grain. System of pipes with furnace for drying sprouted	A. W. Hamler	787,291	Apr. 11	2177	480	115	1551
Grain to or from ships. Apparatus for the conveyance of	C. W. F. Steinmann	785,771	Mar. 28	3599	769	115	837
Gramophone	W. Meyer	787,459	Apr. 18	2530	546–7	115	1642
Gramophone-record	J. Sanders	785,766	Mar. 28	3591	767	115	835
Granulator	H. S. Berliner	785,191	Mar. 21	2424	509	115	570
Graphophone-reproducer	F. A. Ruf	788,429	Apr. 25	4501	979–80	115	2103
Graphophone-reproducer	V. H. Emerson	785,723	Mar. 28	3515	753	115	819
Grate-bar. Rocking or shaking	T. H. Macdonald	785,746	Mar. 28	3555	760	115	826
Grave-coping	A. B. Willoughby	788,008	Apr. 25	3676	800	115	1015
Grease-cup	S. B. Rickords	785,072	Mar. 14	2155	455	115	495
Grease-cup. Automatic	J. B. Hall	784,395	Mar. 7	787	161	115	180
Griddle	J. F. Lewis	788,209	Apr. 25	4177	907	115	2032
Grinding and polishing machine	C. E. Hill	785,880	Mar. 28	3800	808	115	883
Grinding and polishing wheel hood	E. C. Schrader	787,405	Apr. 18	2420	524	115	1618
Grinding-machine	H. N. Middleton	787,340	Apr. 11	2275	496	115	1572
Grinding-machine	A. B. Landis	785,258	Mar. 21	2559	540–1	115	597
Grinding-machine	W. M. Craig	785,593	Mar. 21	3250	690	115	750
Grinding machine. Card-	H. E. Menler	788,113	Apr. 25	3890	842	115	1970
Grinding-mill	S. B. Roy	787,794	Apr. 18	3225	705	115	1801
Grinding-mill	J. G. Mole	784,221	Mar. 7	418	83–4	115	97
Grinding-mill quick-release mechanism	H. L. Johnston	786,203	Apr. 4	81	19	115	1089
Grinding-mill. Roller	W. A. Farrar	788,206	Mar. 21	3448	516	115	575
Grinding or crushing head	A. J. Ford	785,485	Mar. 21	3019	638	115	701
Grip device. Friction	V. W. Mason, Jr	784,581	Mar. 14	1162	244–5	115	276
Grip driving appliance	B. H. Green	785,464	Apr. 25	4563	995	115	2117
Gromet-setting machine	W. L. R. Hall	784,938	Mar. 14	1911	401	115	442
Groove and thread cutter	W. H. Wagner	785,133	Mar. 21	2309	483–4	115	544
Grubber	F. Berezinsky	787,490	Apr. 18	2596	550	115	1658
Gum	W. C. House	784,791	Mar. 14	1631	336	115	390
Gun. Bow-	T. C. Johnson	788,210	Apr. 25	4071	881	115	2010
Gun. Breakdown	S. L. Saunders	785,050	Mar. 14	2105	444	115	485
Gun-carriage. Recoil	G. Toborg	784,193	Mar. 7	360	73	115	84
Gun-case	A. H. Emery	786,964	Apr. 11	1536	326–8	115	1412
Gun firing mechanism. Breech-loading-	F. L. Sheldon	784,901	Mar. 14	1837	385	115	426
Gun. Gas-actuated magazine-	C. P. E. Schneider	788,432	Apr. 25	4505	961	115	2104
Gun. Gas-operated	S. N. McClean	785,971	Mar. 28	3998	411	115	928
Gun. Gas-operated machine-	S. N. McClean	785,974	Mar. 28	4008	850	115	930
Gun. Magazine bolt-	M. F. Smith	784,966	Mar. 14	1957	851	115	452
Gun. Portable recoil-	M. P. Richards	784,630	Mar. 14	1303	272	115	307
Gun rear sight	J. Krone	785,895	Mar. 28	3836	816	115	890
Gun recoil-controlling means	H. A. von Kretschmar and J. Kurig	785,893	Mar. 28	3833	815	115	890
Gun. Recoil-operated	S. N. McClean	786,230	Mar. 28	4524	958	115	1043
Gun-sight. Naval	V. C. Tasker	784,262	Mar. 7	686	141–3	115	157
Gun-sling	V. J. Poutet	785,434	Mar. 21	2908	615	115	674
Gun tangent-scale telescope	L. Powell	784,430	Mar. 7	850	177	115	194
Gun training and elevating mechanism	C. F. Goers and H. Korrodi	784,487	Mar. 7	974	204	115	220
Gun. Trap-	J. F. Meigs and S. A. S. Hammar	785,966	Mar. 28	3963	847	115	925
Gun-trunk	H. P. Boggs	785,792	Mar. 28	3630	777	115	846
Guns. Adjustable weighting-sight for	L. B. Taylor	784,601	Mar. 14	1222	256	115	288
Guns. Device for counteracting recoil in	J. Hirst	788,404	Apr. 25	4450	970	115	2096
Guns. Means for controlling the recoil and muzzle-blast of	S. N. McClean	785,973	Mar. 28	4005	851	115	929
Guns. Means for preventing recoil of	S. N. McClean	785,975	Mar. 28	4012	852	115	931
Guns. Mounting and operating	S. N. McClean	785,972	Mar. 28	4003	851	115	929
	A. H. Emery	786,963	Apr. 11	1512	321–6	115	1407

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Hair-dressing device	J. Warburg	784,719	Mar. 14	1493	305	115	351
Hair-drier	D. J. Buckley	784,961	Mar. 14	1985	417	115	458
Hair-drying comb	T. P. Cheevers	787,148	Apr. 11	1899	410	115	1491
Hair-pin	G. A. Henderson	785,732	Mar. 28	3529	756	115	822
Hair-pins, &c. Manufacturing	T. Roos	787,400	Apr. 18	2413	522	115	1617
Hair-roll	C. V. D'Ossone	787,903	Apr. 25	3444	754	115	1861
Hair-spring-adjusting apparatus	E. De Barthe	788,027	Apr. 25	3715	809–10	115	1925
Hair-tonic	E. Marosi	788,273	Apr. 25	4182	.....	115	2034
Hame-hook	T. G. Gordon	784,153	Mar. 7	280	57	115	67
Hame-staple and clip	T. E. Opp	787,538	Apr. 18	2691	585	115	1680
Hammer	S. Springer	785,921	Mar. 28	3887	826	115	903
Hammer attachment. Drop-	R. F. Massa	787,339	Apr. 11	2274	496	115	1572
Hammer. Electric	L. Paulero	786,146	Mar. 28	4361	923	115	1010
Hammer handle and connecting-plug. Pneumatic-	M. Hardsocg	787,916	Apr. 25	3478	760	115	1870
Hammer. Pneumatic	R. A. Norling	785,324	Mar. 21	2678	569	115	623
Hammer. Power-	H. Dubes	785,937	Mar. 28	3926	835–6	115	911
Hammer. Power-	J. Heinrich and H. Dorsch	787,331	Apr. 11	2257	493	115	1569
Hammer. Steam-	F. C. Emrick	788,308	Apr. 25	4259	924–5	115	2057
Hammock	J. B. Patterson	784,242	Mar. 7	648	133	115	148
Hammock	I. E. Palmer	787,633	Apr. 18	2687	628	115	1726
Hammock and canopy support. Combination	W. Vincent	784,769	Mar. 14	1588	328	115	371
Hand-rake	W. C. Winfield	784,724	Mar. 14	1501	307	115	353
Hand-strap	U. McClinchie	784,696	Mar. 14	1424	294	115	335
Handle: *See* Car grab-handle. Hammer-handle. Razor-handle. Saw-handle. Tool-handle. Whip-handle.							
Handle-cap bearing	L. B. Prahar	786,675	Apr. 4	948	195	115	1272
Handle for demijohns, &c	W. E. Brown	785,660	Mar. 21	3376	725	115	776
Hanger: *See* Clothes-hanger. Coat and hat hanger. Curtain-hanger. Joist-hanger. Mail-bag hanger. Meat-hanger. Pipe-hanger. Quilting-frame hanger. Shade-hanger. Shade and curtain hanger. Skirt-hanger. Smoke-bell hanger. Tobacco-hanger.							
Harness attachment	J. T. Bass	784,533	Mar. 14	1074	223	115	257
Harness attachment	M. V. Root	784,965	Mar. 14	1956	410	115	451
Harness-breeching	T. G. Foster	786,433	Apr. 4	468	90	115	1172
Harness-pad	G. E. Martin	785,815	Mar. 28	3694	786	115	860
Harness tail-holding attachment	F. R. Warwick	785,457	Mar. 21	2961	623	115	687
Harness terret-ring	M. Bresnahan and L. H. Gaffney	785,080	Mar. 21	2179	460	115	516
Harp	P. E. Ekman	786,275	Apr. 4	38	9–10	115	1079
Harrow	S. K. Stanley, W. C. and W. T. Maynard	786,170	Mar. 28	4412	933	115	1020
Harrow	D. Smith and Z. T. Kindred	787,004	Apr. 11	1607	343	115	1427
Harrow	O. Tower	787,011	Apr. 11	1627	347	115	1431
Harrow and cultivator	J. A. Beard, Sr	787,263	Apr. 11	2126	469	115	1539
Harrow attachment	J. A. Davis	785,864	Mar. 28	3776	803	115	878
Harrow. Disk	C. Maul	786,508	Apr. 4	619	125	115	1202
Harrow riding attachment	D. K. Wilson	784,130	Mar. 7	231	45–6	115	55
Harrow riding attachment	C. H. Bayston	784,776	Mar. 14	1601	330	115	374
Harrow riding attachment	G. P. Kirkpatrick	788,409	Apr. 25	4467	972	115	2097
Harrow scraper. Disk-	C. P. A. Friberg	787,840	Apr. 18	3324	727	115	1821
Harrow. Sulky disk	H. S. Howard	785,493	Mar. 21	3034	642–3	115	704
Harrows, &c. Cleaning attachment for disk	M. H. Daley	785,596	Mar. 21	3256	691	115	751
Harvester	S. K. Dennis	784,664	Mar. 14	1367	282–3	115	321
Harvester	C. A. A. Rand	785,761	Mar. 28	3584	765	115	833
Harvester and husker. Corn-	J. A. Stone	786,239	Mar. 28	4538	961–2	115	1047
Harvester and husker. Corn-	E. Hollis	786,811	Apr. 11	1212	253	115	1342
Harvester attachment. Corn-	J. Wilcox	787,246	Apr. 11	2096	463	115	1533
Harvester. Beet-	H. M. Fellenz	784,040	Mar. 7	50	9–10	115	14
Harvester. Beet-	H. F. Barber	784,532	Mar. 14	1072	222–3	115	256
Harvester. Beet-	J. Beal	787,262	Apr. 11	2123	468–9	115	1538
Harvester. Cane-	G. D. Luce	788,270	Apr. 25	4179	907–8	115	2033
Harvester. Corn-	A. G. Heisey	785,878	Mar. 28	3797	807	115	883
Harvester. Corn-	J. E. Goodhue	788,205	Apr. 25	4057	877–8	115	2007
Harvester finger-guard. Pea-	G. P. Klumb	784,570	Mar. 14	1137	238	115	270
Harvester. Grain-	H. J. Case	787,496	Apr. 18	2607	562	115	1660
Harvester-reel	C. O. Wyman	785,691	Mar. 21	3451	742–3	115	790
Harvester shield. Rice-	F. A. Ryther	786,520	Apr. 4	647	130	115	1208
Harvester snapping-rollers. Corn-	J. E. Goodhue	787,750	Apr. 18	3153	689	115	1786
Hasp-fastener	J. Hartshorn	788,401	Apr. 25	4454	968	115	2094
Hat and coat locker	W. E. Arbingast	786,909	Apr. 11	1316	280	115	1363
Hat-fastener	J. and A. Kemper	786,035	Mar. 28	4144	874	115	962
Hat-fastener	S. MacDonald	786,131	Mar. 28	4338	917	115	1005
Hat-fastener	F. E. Heffernan	787,573	Apr. 18	2755	601	115	1694
Hat-fastener	L. Perotti	788,117	Apr. 25	3895	843	115	1971
Hat-fastener	H. S. and C. H. Fairbanks	788,197	Apr. 25	4044	874	115	2004
Hat-frame-forming device	E. A. Howe	787,042	Apr. 11	1683	358–9	115	1444
Hat. Outing-	F. W. Nash	787,390	Apr. 18	2393	517	115	1612
Hats. Portable holder for ladies'	M. S. Hellman	787,098	Apr. 11	1796	383	115	1469
Hatchway shutting or closing means	E. F. A. von Schrötter	788,332	Apr. 25	4305	935	115	2062
Hay-carrier	W. F. Jacobs	785,361	Mar. 21	2748	582	115	638
Hay-carrier	P. A. Myers	786,455	Apr. 4	508	99–100	115	1180
Hay-carrier	P. A. Myers	786,456	Apr. 4	514	100–1	115	1181
Hay fork and hook	C. B. Cady	788,019	Apr. 25	3704	806	115	1922
Hay gatherer and stacker	E. M. Orton	786,513	Apr. 4	631	127–8	115	1205
Hay-loader	J. H. F. Kuehl	788,360	Apr. 25	4355	950	115	2072
Hay-loaders. Adjustable hay-director for	E. E. Knight	784,332	Mar. 7	623	128	115	142
Hay-press	C. E. Wehrenberg	785,645	Mar. 21	3345	717	115	780
Hay-press	H. M. Tallman	787,132	Apr. 11	1863	400	115	1482
Hay-rake	S. Roth	784,220	Mar. 7	435	88	115	101
Hay rake and stacker	J. Craig	784,036	Mar. 7	42	8	115	12
Hay-sling	W. A. Badger	785,536	Mar. 21	3133	662	115	725

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hay-sweep attachment	J. R. Judge	788,264	Apr. 25	4168	905	115	2030
Headlight. Dash-	F. W. Dressel	787,158	Apr. 11	1917	415	115	1494
Heat-exchange	J. H. Baude and E. H. Hoppe	786,341	Apr. 4	189	43	115	1111
Heat-interchanging apparatus	G. T. Voorhees	784,716	Mar. 14	1487	305	115	349
Heat-storage box	C. N. Rounseville	786,999	Apr. 11	1508	342	115	1425
Heater: *See* Electric heater. Grain-heater. Feed-water heater. Sad-iron heater. Fireplace-heater. Water-heater. Gas-heater.							
Heater	H. Landrus	784,334	Mar. 7	625	129	115	143
Heating and evaporating apparatus	R. W. Emerson	785,544	Mar. 21	3149	664–6	115	728
Heating and melting means	J. Collins and J. Fraley	787,356	Apr. 18	2315	503	115	1593
Heating or cooling apparatus	J. Heizmann	784,262	Mar. 7	495	99	115	114
Heating or low-pressure system. Exhaust	R. B. Brown	785,473	Mar. 21	2992	632	115	694
Heating system	F. W. Robertshaw	784,073	Mar. 7	125	22–3	115	21
Heating system	O. N. Evans	787,617	Apr. 18	2862	623	115	1720
Heating system	E. Glantzberg	787,748	Apr. 18	3149	689	115	1785
Heating system. Electrical	A. D. Newton	788,166	Apr. 25	3994	862	115	1992
Heating system. Indirect-	E. R. Knapp	784,110	Mar. 7	196	37–8	115	48
Heating system. Steam-	L. S. Burbank	785,194	Mar. 21	2429	510	115	570
Heating systems. Condense-water-return apparatus for steam-	E. F. Osborne	788,492	Apr. 25	4608	1004	115	2125
Heating systems, &c. Drain attachment for steam-	R. L. Gifford and G. W. Nistle	787,094	Apr. 11	1788	381	115	1467
Heel	W. F. Zarwell and J. B. Cullen	784,650	Mar. 14	1341	277	115	316
Heel-beveling machine. Spring-	J. A. Mills	786,133	Mar. 28	4341	917–18	115	1006
Heel. Boot or shoe	J. O'Meara	786,996	Apr. 11	1579	337	115	1421
Heel. Detachable	F. B. Moss	787,306	Apr. 11	2211	485	115	1558
Heel-plate. Felt-boot	D. Smith	787,226	Apr. 11	2052	449	115	1524
Heel-protector. Elastic	D. H. Deery	788,191	Apr. 25	4035	872	115	2003
Heel-trimming machine	B. F. Mayo	784,340	Mar. 7	642	132–3	115	147
Hide or leather working machine	G. W. Baker	787,259	Apr. 11	2119	467–8	115	1537
Hinge	R. G. Winter	785,142	Mar. 21	2322	486	115	547
Hinge	R. G. Winter	785,143	Mar. 21	2323	487	115	547
Hinge	R. W. Hubbard	787,514	Apr. 18	2652	575	115	1671
Hinge. Adjustable	C. Keith and G. F. Lister	788,051	Apr. 25	3760	819	115	1935
Hinge-cutting machine	J. Luppino	786,451	Apr. 4	502	97–8	115	1178
Hinge. Double-swing-door	G. B. Taylor	787,232	Apr. 11	2065	451–2	115	1526
Hinge gage. Butt-	A. J. Rosentreter	787,699	Apr. 18	3011	661	115	1751
Hinge. Spring-	S. W. Akins	785,847	Mar. 28	3747	797	115	872
Hitching-rope spiral slip-loop	H. J. Valentine	787,999	Apr. 25	3652	795	115	1909
Hitching-strap	C. Heilrath	788,136	Apr. 25	3933	851	115	1980
Hoe	C. P. Wing	786,080	Mar. 28	4248	895	115	985
Hog-ringing implement	C. N. Choate	785,860	Mar. 28	3770	801	115	877
Hoist	J. Gould, Sr	786,786	Apr. 4	1157	243	115	1319
Hoist and dump. Automatic	E. C. Bouquet and C. F. Sweney	788,449	Apr. 25	4534	987	115	2110
Hoist or coal-whip. Electrically-driven	E. J. Trudeau	787,998	Apr. 25	3650	795	115	1908
Hoisting apparatus	J. Wilhelmi	785,139	Mar. 21	2318	485–6	115	546
Hoisting apparatus	J. C. Slocum	785,641	Mar. 21	3336	714–15	115	767
Hoisting device	J. Spelman	787,058	Apr. 11	1726	367–8	115	1454
Hoisting-machine	R. McGahey	784,586	Mar. 14	1171	247–8	115	278
Hoisting-machines. Automatic safety-switch for	W. A. Barker	787,609	Apr. 18	2846	619–20	115	1716
Hoisting mechanism	O. S. Hertzog	786,809	Apr. 11	1206	252	115	1341
Holdback. Neck-yoke	M. C. Hall	787,444	Apr. 18	2495	541	115	1633
Hone	J. Tregellas	788,177	Apr. 25	4008	865	115	1996
Honey-extractor	T. McGrail and J. Owens	786,141	Mar. 28	4352	920	115	1009
Hook: *See* Fish-hook. Plow weed-hook. Hame-hook. Snap-hook. Picture-hook. Whiffletree-hook.	F. G. Marbach	787,104	Apr. 11	1807	386–7	115	1471
Hook	A. D. Hamilton	784,619	Mar. 14	1265	265	115	297
Hook and eye	E. E. Baruch	784,294	Mar. 7	561	115	115	129
Hook and eye	G. G. Tandy	784,710	Mar. 14	1453	301	115	342
Hook and eye	H. H. Eaton	785,413	Mar. 21	2867	605	115	666
Hook and eye	W. C. Williamson	785,785	Mar. 28	3628	775	115	843
Hook or hanger	F. L. Priest	785,833	Mar. 28	3726	793	115	867
Horse-boot	M. Robin	785,361	Mar. 21	2792	589	115	648
Horse-detacher	G. W. Phillips and W. H. Way	785,977	Mar. 28	4017	852	115	932
Horse-detacher	C. Franczel and G. Fleischer	784,314	Mar. 7	596	122	115	137
Horse-detacher	D. C. Bruner	787,270	Apr. 11	2137	471	115	1541
Horse-detacher	B. F. Hatcher	788,403	Apr. 25	4457	969–70	115	2095
Horse or cattle blanket	T. and G. Clemetson	784,921	Mar. 14	1877	394	115	435
Horse-releaser	J. F. Shleeter	788,336	Apr. 25	4312	938	115	2063
Horses. Device for the breaking in of	H. Schlueter	787,116	Apr. 11	1833	392–3	115	1476
Horseshoe	J. E. G. Geisel	784,935	Mar. 14	1902	398	115	440
Horseshoe	J. W. Fisher	785,414	Mar. 21	2860	605	115	666
Horseshoe	W. Hill	786,763	Apr. 4	1116	234	115	1309
Horseshoe	E. A. Hennessy, A. H. Andrews, and C. E. Ross.	786,966	Apr. 11	1543	328	115	1413
Horseshoe attachment	F. Herzog	787,446	Apr. 18	2500	542	115	1635
Horseshoe-calk	C. R. Fleischmann	788,255	Apr. 25	4156	902	115	2028
Horseshoe. Metal	F. A. Kunze and T. Greenz-weight.	784,496	Mar. 7	994	208	115	224
Horseshoe. Nailless	C. Heart	787,097	Apr. 11	1795	383	115	1468
Horseshoe roughener-shoe	N. W. La Clair	785,006	Mar. 14	2026	425	115	467
Horseshoe. Rubber	A. Smith	784,441	Mar. 7	874	183	115	199
Hose-connector	A. Sandfield	785,577	Mar. 21	3211	681	115	740
Hose-coupling	K. O. Muehlberg	787,529	Apr. 18	2673	581	115	1677
Hose-coupling	M. Hirth	784,212	Mar. 7	404	80	115	94
Hose-coupling	W. H. Albee	784,372	Mar. 7	723	147	115	166
Hose-reel	L. Vogt	788,178	Apr. 25	4009	866	115	1996
Hose-supporter	E. Dice	785,189	Mar. 21	2353	493	115	554
Hose-supporter	A. H. Cohn	785,190	Mar. 21	2436	513	115	572
Hose-supporter	R. Gorton	786,753	Apr. 4	1091	227	115	1304
Hose-supporter	M. L. Margolish	788,111	Apr. 25	3884	842	115	1988

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
House: *See* Portable house. Smoke-house. Poultry-house. Store-house.							
House-trap and cellar-drain. Combined	F. C. Edelen	787,975	Apr. 25	3602	786	115	1898
Hub-wrench	R. L. Hicks	784,563	Mar. 14	1127	236	115	268
Hydrant	R. L. Pollock	785,269	Mar. 21	2588	546	115	604
Hydraulic coupling	J. J. Delehant	787,154	Apr. 11	1909	414	115	1493
Hydraulic motor for presses	W. Ross	786,236	Mar. 28	4531	960	115	1045
Hydraulic press	J. T. Schaffer	784,183	Mar. 7	340	70	115	79
Hydrocarbon-burner	F. E. Grout	784,787	Mar. 14	1623	334	115	378
Hydrocarbon-burner	A. Phinney	787,635	Apr. 18	2890	629	115	1726
Hydrocarbon-feeder system	R. F. Schroeder	784,436	Mar. 7	862	180	115	197
Hydrocarbon vapor-burner feeding device	N. P. Fraser	788,039	Apr. 25	3744	814	115	1931
Hydromobile	C. A. Manker	785,427	Mar. 21	2892	611–12	115	671
Ice-cream freezer	C. P. Hudson	784,401	Mar. 7	797	164	115	182
Ice-cream freezer	M. Lichtentag	786,129	Mar. 28	4335	916	115	1005
Ice-creeper	O. A. Norlund and W. K. Wakenhut.	784,119	Mar. 7	209	40	115	50
Ice-creeper	E. C. Bartley	788,302	Apr. 25	4246	920	115	2048
Ice-making apparatus	A. O. Frick	784,315	Mar. 7	598	122	115	137
Ice-pick	C. W. Halsey	787,509	Apr. 18	2639	571	115	1669
Identification-tag	E. J. Brandt	785,399	Mar. 21	2839	598	115	659
Illuminating device	C. F. Alline	786,709	Apr. 4	1011	208	115	1267
Illusion apparatus	C. Rosenfeld	787,589	Apr. 18	2795	609	115	1704
Illusory effects. Apparatus for producing	C. Rosenfeld	787,946	Apr. 25	3535	772	115	1883
Incandescent-lighting fixture	L. R. Hopton	786,812	Apr. 11	1214	253	115	1342
Incandescent-mantle support	R. S. Allyn	784,612	Mar. 14	1253	262	115	295
Incubating method	H. W. Axford	786,256	Apr. 4	7	1	115	1072
Incubator	A. A. Linebaugh and C. Lyman	786,450	Apr. 4	499	97	115	1178
Index	C. M. Cott	785,090	Mar. 21	2214	465–6	115	523
Indexes, document-files, &c. Follower-block and clutch therefor for card-	C. Zimmerli	788,301	Apr. 25	4242	920	115	2047
Indexing. Book-	R. C. Pohl	787,111	Apr. 11	1822	390	115	1474
Indexing-machine rack	J. J. Burke	784,658	Mar. 14	1356	280	115	318
Indicator: *See* Age and number indicator. Phase-rotation indicator. Car-indicator. Railway-indicator. Fire-pail indicator. Speed-indicator. Letter-box indicator. Station-indicator. Phase-indicator.							
Indicator	C. S. Clark	784,472	Mar. 7	936	196–7	115	213
Induction-coil	C. Adams-Randall	786,396	Apr. 4	320	71	115	1141
Induction-coil	J. A. Baker	787,658	Apr. 18	2934	638	115	1735
Ingot-stripping apparatus	C. L. Taylor	788,339	Apr. 25	4315	939–40	115	2064
Ingots in conical molds. Press for compressing and drawing	H. Harmet	785,210	Mar. 21	2463	519	115	578
Ingots. Perfecting cast-steel	R. W. Hunt	786,359	Apr. 4	230	53	115	1119
Inhaler	W. M. Ricketts	784,632	Mar. 14	1310	273	115	308
Inhaler	H. L. White	784,645	Mar. 14	1335	276	115	315
Inhaler	M. D. Good	786,112	Mar. 28	4306	908	115	998
Inhaler. Atomizing-	A. Bulling	787,874	Apr. 18	3380	739	115	1835
Injector	F. W. Kremer and J. M. Alderfer	786,906	Apr. 11	1394	297	115	1380
Injector-burner	A. C. Rush	784,505	Mar. 7	1017	211–12	115	228
Injector. Steam-	W. B. Culver	785,409	Mar. 21	2859	603	115	664
Ink-pad	G. C. Bessonet	784,777	Mar. 14	1601	330	115	374
Inking device for numbering or marking machines, &c.	F. W. Merrick	786,910	Apr. 11	1402	298–9	115	1382
Inking-pad	D L. Clayton	784,548	Mar. 14	1104	230	115	263
Inkstand	E. Davis	786,959	Apr. 11	1506	320	115	1406
Inner tube and means for inflating same	W. A. and H. S. Hollis	787,761	Apr. 18	3172	693	115	1789
Insect-catcher	F. W. Scofield	788,333	Apr. 25	4307	936	115	2062
Insect-destroyer	I. S. Moore and A. E. Pace	786,584	Apr. 4	767	157	115	1233
Insect destroyer. Boll-weevil or other	J. S. Doak and A. G. Farrington	785,719	Mar. 28	3509	752	115	817
Insecticide	H. Lenz	787,385	Apr. 18	2384	.....	115	1610
Insole and arch-support. Combined	C. Huether	788,469	Apr. 25	4568	996	115	2118
Inspirator	W. R. Park	784,066	Mar. 7	112	20	115	28
Insulated rail-joint	G. L. Hall	784,741	Mar. 14	1524	313	115	358
Insulated step-joint	B. G. Braine	785,657	Mar. 21	3372	722–4	115	775
Insulating-lining	N. Marshall	784,695	Mar. 14	1422	294	115	334
Insulating sheet or structure	C. S. Bird	784,831	Mar. 14	1711	355	115	398
Insulation for electric conductors	L. E. Barringer	787,520	Apr. 18	3272	715	115	1811
Insulation from wires. Tool for removing	J. E. Williams	785,392	Mar. 21	2823	596	115	656
Insulator. Electric-railway-conductor	F. D. Ward and H. C. Furniss	786,472	Apr. 4	540	108	115	1186
Insulator. Electric-wire	S. B. Flynt and L. A. Maiden	787,442	Apr. 18	2492	540	115	1633
Insulator. Multiple-hood	L. Steinberger	786,690	Apr. 4	975	201	115	1278
Insulator. Telegraph or telephone wire	R. J. McDaniel and S. V. Graves	787,107	Apr. 11	1816	389	115	1473
Internal-combustion engine	C. W. Weiss	784,818	Mar. 14	1691	350	115	394
Internal-combustion engine	H. J. Leighton	784,949	Mar. 14	1924	404	115	445
Internal-combustion engine	F. A. Haselwander	785,166	Mar. 21	2369	496	115	557
Internal-combustion engine	E. A. Rutenber	785,684	Mar. 21	3432	738–9	115	787
Internal-combustion engine	N. L. and W. W. Tuck	785,687	Mar. 21	3430	740	115	788
Internal-combustion engine	A. Willmer	787,487	Apr. 18	2587	558	115	1656
Internal-combustion engine	C. W. Weiss	787,700	Apr. 18	3027	664	115	1755
Internal-combustion engine	F. A. Haselwander	788,402	Apr. 25	4455	969	115	2004
Intrenching implement and tent-pin puller. Combined	S. D. Davis and J. H. Culver	785,801	Mar. 28	3658	780	115	852
Invalid-lifter	H. P. Camp	785,855	Mar. 28	3760	799	115	874
Invalid's chair. Portable	E. E. Higgins	787,760	Apr. 18	3169	692–3	115	1789
Iron: *See* Branding-iron. Sad-iron. Curling-iron.							
Iron and steel. Manufacture of	J. J. Hudson	785,002	Mar. 14	2019	424	115	465
Iron, cast-iron, and steel. Treating	J. Lecarme	787,926	Apr. 25	3497	.....	115	1874
Iron from ore-separating tanks. Means for recovering magnetic	E. S. Bennett	786,946	Apr. 11	1481	315	115	1400
Iron. Hardening	F. L. Ramon	784,124	Mar. 7	222	.....	115	53

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ironing-board and step-ladder. Combined	J. E. Stoneking	784,190	Mar. 7	355	72–3	115	83
Ironing-board and table. Combined	S. K. Davis	784,781	Mar. 14	1611	332	115	376
Irrigating-flumes. Apparatus for constructing	G. T. McIntyre	786,306	Apr. 4	107	24	115	1095
Jack:							
See Boot-jack. Boot or shoe jack. Ditching-jack. Lifting-jack. Pneumatic jack. Pump-jack. Pumping-jack.							
Japanning small articles. Machine for	T. A. Perrins	787,213	Apr. 11	2028	413	115	1519
Jar:							
See Preserving-jar.							
Jar-closure	L. C. Sawin	788,495	Apr. 25	4618	1007	115	2127
Jar closure and fastener	J. P. Young	784,509	Mar. 7	1032	213	115	232
Jar-closure-fastening device	F. Canfield	784,983	Mar. 14	1988	418	115	458
Jar covers. Utensil for truing and re-forming the metallic flanges of fruit-	J. M. Huntley	786,789	Apr. 4	1167	244	115	1321
Jar holder and spiral wrench. Fruit-	S. J. Blocher	787,823	Apr. 18	3277	715	115	1812
Jar opener or closer	C. Braunschweiger	784,467	Mar. 7	927	195	115	210
Jar or bottle closure	W. H. W. Jones	785,106	Mar. 21	2253	474	115	531
Jar-top remover	W. T. Loofbourrow	786,505	Apr. 4	614	123	115	1201
Jewelry-pendant swivel	J. C. Nordt	788,422	Apr. 25	4485	976	115	2100
Jews'-harp	C. E. Mincks	788,419	Apr. 25	4481	975	115	2099
Jig. Center-	E. A. Christoph	787,893	Apr. 25	3429	750–1	115	1857
Joint:							
See Electric-cable joint. Insulated rail-joint. Insulated step-joint. Pipe-joint. Pipe or like joint. Rail-joint. Railway-joint. Universal joint.							
Joint	A. R. Fergusson	788,035	Apr. 25	3730	812	115	1928
Joist-hanger	G. Lane	784,218	Mar. 7	414	82	115	96
Journal-bearing	A. C. Schultz	785,051	Mar. 14	2107	444	115	485
Journal-bearing	H. V. Kuhlman	788,320	Apr. 25	4279	929	115	2056
Journal-box. Car	H. C. Williamson and H. Pries	788,007	Apr. 25	3675	800	115	1915
Journal-box cover	H. C. Williamson and H. Pries	785,927	Mar. 28	3990	829	115	906
Journal-box dust-guard	J. S. Patten	785,976	Mar. 28	4015	852	115	932
Journal-lubricator oil-displacer	A. H. Johnson	787,576	Apr. 18	2764	602	115	1696
Juice-extracting machine	J. W. Hyatt	786,902	Apr. 11	1383	294–5	115	1378
Juice-extracting-machine link and chain	J. W. Hyatt	786,903	Apr. 11	1387	295	115	1379
Keel for ships or boats. Adjustable	C. Albrecht	785,849	Mar. 28	3750	798	115	872
Key-ring and name-plate. Combined	L. Wolfermann	788,448	Apr. 25	4533	967	115	2110
Keyboard	C. H. Cochrane	785,406	Mar. 21	2851	602	115	662
Keyboard	M. H. Odell	786,669	Apr. 4	940	193	115	1270
Keyhole-guard	J. Kohousek	784,947	Mar. 14	1922	404	115	444
Keyhole-guard	R. I. Robeson	786,842	Apr. 11	1267	267	115	1353
Kiln:							
See Cement-kiln.							
Kinetoscope film-holder	A. E. Smith	785,237	Mar. 21	2521	531–2	115	590
Kinetoscope flame-shield	W. Ellwood	785,205	Mar. 21	2447	516	115	574
Kitchen and dining table. Combined	S. Astalos	784,728	Mar. 14	1506	308	115	354
Kitchen. Cabinet-	C. F. Parker	786,670	Apr. 4	941	193	115	1271
Kneading machine. Dough-	L. Durand	786,553	Apr. 4	708	144	115	1220
Knee rest or support	E. C. Bispham	787,068	Apr. 11	1743	371	115	1457
Knife:							
See Rope-knife.							
Knife and intrenching-tool. Combined	G. H. Powell	785,829	Mar. 28	3719	792	115	865
Knife-blade holder	L. Weston	784,289	Mar. 7	547	112	115	126
Knives. Seamless combination ferrule and bolster for	G. S. Hastings	784,742	Mar. 14	1525	314	115	358
Knitting-machine	J. W. Adams	786,938	Apr. 11	1468	310	115	1397
Knitting machine. Circular-	H. R. Campbell and F. Yahn	786,345	Apr. 4	194	44–5	115	1112
Knitting machine. Hosiery-	A. M. Pigeon	784,882	Mar. 14	1806	377–8	115	418
Knitting-machine stop-motion	G. W. Ruth	787,115	Apr. 11	1830	391–2	115	1475
Knitting-machine take-up	L. C. Huse	784,567	Mar. 14	1132	237	115	269
Knob	J. Assel	784,131	Mar. 7	232	46	115	56
Knob, door-bell, and burglar-alarm. Combination door-	E. Stewart	787,996	Apr. 25	3647	794	115	1908
Knob-spindle attachment	A. Hitt	784,620	Mar. 14	1266	265	115	297
Knob. Stove-	R. G. Cornforth	784,305	Mar. 7	583	119	115	134
Knockdown box or crate	J. R. Thomas	786,858	Apr. 11	1290	274	115	1357
Label-affixer. Automatic	H. W. McMillan	785,322	Mar. 21	2676	568	115	622
Labeling-machine	H. Haulick, W. A. Walling, and G. J. Winkle.	786,495	Apr. 4	593	118–19	115	1197
Labeling-machine	F. C. Fisher and P. Perdue	787,744	Apr. 18	3140	667	115	1782
Labeling machine. Can-	L. C. Crowell	787,876	Apr. 18	3360	741–2	115	1838
Laboratory-weights	S. E. and J. Morral	787,628	Apr. 18	2880	627	115	1724
Lace fastener. Shoe-	C. H. Stoelting	788,074	Apr. 25	3799	826	115	1944
Lacing device. Shoe-	G. Weinberg	787,812	Apr. 18	3259	711	115	1809
Lacing. Invisible	B. R. McIntyre	785,179	Mar. 21	2403	505	115	565
Lacing stud. Shoe-	A. R. Colton	787,894	Apr. 25	3429	751	115	1858
Ladder	A. P. Gulliver	786,355	Apr. 4	225	51	115	1118
Ladder	P. Koopman	785,810	Mar. 28	3696	784	115	858
Ladder	C. M. Mallory	785,901	Mar. 28	3848	818	115	903
Ladder-handle-forming machine	B. L. Merrill	786,658	Apr. 4	926	189	115	1267
Ladder. Platform-	J. S. Stevenson	787,128	Apr. 11	1854	396–8	115	1481
Ladder. Ship-	D. A. Sox	785,335	Mar. 21	2702	573	115	628
Ladder. Step-	P. Bracegirdle	784,832	Mar 14	1712	356	115	398
Ladder. Step-	H. H. Case	785,197	Mar. 21	2435	512	115	572
Ladder. Truck-	A. A. Smith	785,277	Mar. 21	2601	549	115	607
Lamp air-baffler	T. Haines	787,962	Apr. 25	3618	780	115	1902
Lamp. Alcohol-	T. S. Leese	787,196	Apr. 11	1998	435	115	1513
Lamp-bodies. Construction of	S. Sternau and L. Strassburger	787,006	Apr. 11	1610	344	115	1428
Lamp-bracket	R. Wallwork	786,331	Apr. 4	170	39	115	1106
Lamp-burner	W. J. Holder	787,513	Apr. 18	2651	574–5	115	1671
Lamp-burner	A. P. Woodward	784,092	Mar. 7	167	31	115	41
Lamp. Electric	S. B. Morse	787,629	Apr. 18	2882	627	115	1725
	G. P. McDonnell	786,231	Mar. 28	4526	958	115	1044

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp. Electric-arc	C. Oliver	785,516	Mar. 21	3089	653	115	716
Lamp. Electric-arc	R. Scott	785,980	Mar. 28	4026	853	115	934
Lamp. Electric-arc	B. Jackisch	787,043	Apr. 11	1686	359	115	1445
Lamp. Gas-	J. Doorenbos	786,014	Mar. 28	4104	866	115	952
Lamp-glowers. Apparatus for the manufacture of	J. and G. G. Doorenbos	787,086	Apr. 11	1775	379	115	1464
Lamp-guard	F. M. F. Cazin	786,727	Apr. 4	1040	216	115	1292
Lamp-holder	W. L. Browne	784,916	Mar. 14	1867	391	115	433
Lamp holder. Incandescent-	E. E. Henry	787,757	Apr. 18	3164	691	115	1788
Lamp. Incandescent electric	J. Feighner	785,483	Mar. 21	3010	636	115	698
Lamp. Incandescent electric	F. H. Blackburn	787,428	Apr. 18	2468	534	115	1627
Lamp. Miner's	H. C. Parker	788,493	Apr. 25	4611	1004	115	2126
Lamp. Night-	F. Koch	787,678	Apr. 18	2971	647	115	1744
Lamp or lantern font	R. P. Gibbs	785,486	Mar. 21	3021	638	115	701
Lamp. Portable electric	G. H. Rolfes	787,644	Apr. 18	2904	632–3	115	1729
Lamp. Self-carbureting	H. D'Olier, Jr.	785,481	Mar. 21	3006	635	115	696
Lamp-shade and reflector. Combined	H. M. Reichenbach	788,427	Apr. 25	4496	979	115	2102
Lamp. Signal-	A. P. McArthur	785,017	Mar. 14	2046	429	115	472
Lamp-socket	F. K. Wright	785,145	Mar. 21	2326	487–8	115	547
Lamp socket. Electric-	H. Bayer	784,775	Mar. 14	1600	329	115	373
Lamp socket. Incandescent-electric-	J. A. Mebane	785,626	Mar. 21	3309	706	115	761
Lamp supporting and attaching device	G. C. Baillard	785,997	Mar. 28	4059	860	115	942
Lamp. Vacuum-	C. Johnson	785,497	Mar. 21	3045	644	115	706
Lamp. Vapor-	J. M. Davey	785,157	Mar. 21	2348	492	115	553
Lamps. Automatic safety-extinguisher adapted to single and duplex burners for oil-	M. W. Pitner	786,149	Mar. 28	4370	924	115	1012
Lantern	W. H. O'Keefe	786,917	Apr. 11	1432	303	115	1360
Lantern-globe	R. J. Kelley	785,956	Mar. 28	3964	842–3	115	919
Lantern-pinion	A. P. Storrs	785,773	Mar. 28	3803	777	115	837
Lantern. Reflecting-	E. W. Horn	787,041	Apr. 11	1683	358	115	1444
Lantern. Tubular	C. C. Balderston and N. H. Brown	785,851	Mar. 28	3752	798	115	873
Last	J. H. Hill	784,326	Mar. 7	616	126	115	141
Lasting-machine	A. G. Fitz	784,149	Mar. 7	270	55	115	65
Lasting-machine	C. De Minico	784,251	Mar. 7	475	95	115	110
Latch	R. F. McFeely	786,047	Mar. 28	4165	878–9	115	966
Latch. Gate-	R. Nussbeck	786,668	Apr. 4	938	192	115	1270
Lathe	J. J. Akre	784,510	Mar. 7	1033	213	115	232
Lathe boring attachment	J. J. Pealing	787,090	Apr. 18	2986	651	115	1747
Lathe change-speed gearing. Engine-	J. Peelle	785,828	Mar. 28	3718	792	115	865
Lathe head-stock. Engine-	A. E. Newton	787,537	Apr. 18	2689	584–5	115	1680
Lathe-head-stock gearing	W. Lodge and N. D. Chard	788,483	Apr. 25	4588	1000	115	2121
Lathe work-centering attachment	N. D. Chard	788,500	Apr. 25	4625	1009	115	2129
Latrine-seat cover	J. M. Brown	785,193	Mar. 21	2427	510	115	570
Laundry dampening-tool	J. Seifriz and H. Balling	788,380	Apr. 25	4408	958	115	2063
Lavatory and lavatory-support	H. M. Forbes	786,889	Apr. 11	1357	289	115	1372
Lawn roller and mower	J. C. Reed	784,962	Mar. 14	1950	409	115	450
Lawn-trimmer	H. C. Slater	787,952	Apr. 25	3549	775	115	1885
Lawn-trimmer	C. H. Schick	784,893	Mar. 14	1823	381	115	422
Leaching apparatus	J. H. F. Peters	787,214	Apr. 11	2032	443	115	1520
Lead dithionate. Making	C. E. Dewey	787,902	Apr. 25	3442	754	115	1861
Lead. Manufacturing white	A. G. Betts	785,791	Mar. 28	3638	.....	115	846
	W. H. Rowley and J. H. Montgomery.	785,023	Mar. 14	2054	431	115	474
Lead sulfate into lead hydroxid. Converting	A. S. Ramage	787,541	Apr. 18	2695	586	115	1681
Lead. Treating metallic	H. E. Miller	786,581	Apr. 4	758	.....	115	1231
Leaf-turner	C. J. Coulter	784,549	Mar. 14	1105	231	115	263
Leak-stopping device	L. Jones	785,737	Mar. 28	3544	757	115	823
Leather, leather-board, &c. Machinery or apparatus for skiving	C. H. Keats	784,165	Mar. 7	300	63–4	115	71
Leather-polishing machine	W. H. Gerrity	786,110	Mar. 28	4302	907–8	115	998
Leather-polishing roll	W. H. Gerrity	785,546	Mar. 21	3153	667	115	729
Leather-work. Ornamental	E. E. Burton	788,092	Apr. 25	3834	833	115	1952
Leather-working machines or the like. Operating-tool for	J. Rood	785,022	Mar. 14	2053	431	115	473
Ledger. Loose-leaf	H. Elinoff and E. Axtheim	784,311	Mar. 7	591	121	115	136
Leg. Artificial	C. B. Winn	787,250	Apr. 11	2104	464	115	1534
Leg-rest	G. Kelly	787,674	Apr. 18	2965	646	115	1742
Leg-rest	G. Kelly	787,676	Apr. 18	2968	646	115	1743
Leg-rest	G. Kelly	787,677	Apr. 18	2969	646	115	1743
Leg-support and carriage. Combination	G. Kelly	787,675	Apr. 18	2966	646	115	1742
Letter-box indicator	J. L. Lister	786,225	Mar. 28	4515	956	115	1042
Letter. Sign-	J. C. Wands	785,988	Mar. 28	4046	858	115	939
Level	A. V. Shorts	785,581	Mar. 21	3218	683	115	742
Level attachment for straight-edges. Spirit-	A. J. Perks	787,940	Apr. 25	3528	769	115	1881
Level. Ditching and terracing	E. A. Bostrom	786,093	Mar. 28	4275	901–2	115	991
Level. Spirit-	H. N. Northoff	784,418	Mar. 7	835	173	115	191
Level. Spirit-	L. M. Curry	786,269	Apr. 4	28	7	115	1077
Leveling instrument. Automatic	J. W. Belyeu	784,511	Mar. 7	1035	214	115	232
Lever-and-quadrant apparatus	H. Austin	787,714	Apr. 18	3035	666	115	1756
Lever-lock	W. Honscheid	787,843	Apr. 18	3329	728	115	1822
Life-saving appliance	G. Krieger	785,503	Mar. 21	3061	647–8	115	709
Lifter:							
See Cuspidor-lifter. Invalid-lifter.							
Lifting-jack	W. H. Oliver	784,589	Mar. 14	1185	250	115	260
Lifting-jack	G. C. Wimpee	785,141	Mar. 21	2321	486	115	647
Lifting-jack	M. Riddle	785,572	Mar. 21	3201	679	115	730
Lifting-jack	J. J. Shannon	785,981	Mar. 28	4029	854	115	935
Lifting-jack	T. S. Patterson	786,310	Apr. 4	115	26	115	1097
Lifting-jack	E. Wüstner	786,706	Apr. 4	1006	207	115	1285
Lifting-jack	J. T. Argo	786,712	Apr. 4	1016	210	115	1288
Lifting-jack	E. Cook	787,435	Apr. 18	2481	537	115	1631
Light:	A. L. Stanford	787,995	Apr. 25	3644	704	115	1908
See Signal-light.							
Lighting device. Windproof	H. A. Gibbons	787,620	Apr. 18	2988	624	115	1722
Lightning-arrester	L. M. Gates	787,371	Apr. 18	2342	507	115	1599
Lime-digester	L. E. Fishack	785,725	Mar. 28	3518	754	115	819

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Line selective system. Party-	F. P. O'Conor and F. McNeill	784,588	Mar. 14	1180	249	115	279
Lined pipe	P. Mommertz	785,176	Mar. 21	2398	504	115	564
Linotype-machine	P. T. Dodge	784,253	Mar. 7	480	96	115	111
Linotype-machine	L. L. Kennedy	784,267	Mar. 7	510	103	115	118
Linotype-machine	D. Petri-Palmedo	784,275	Mar. 7	524	107–8	115	121
Linotype-machine	G. E. Wallin	784,287	Mar. 7	545	112	115	125
Linotype-machine	F. C. L. D'Aix	785,477	Mar. 21	3000	633–4	115	696
Linotype-machine	C. Muehleisen	786,140	Mar. 28	4351	920	115	1008
Linotype-machine	J. R. Rogers	786,155	Mar. 28	4382	926–7	115	1015
Linotype-machine	J. R. Rogers	786,156	Mar. 28	4387	927	115	1016
Linotype-machine	P. T. Dodge	786,199	Mar. 28	4470	945	115	1032
Linotype-machine	C. L. Grohmann	786,211	Mar. 28	4490	949–51	115	1036
Linotype-machine	D. S. Kennedy	787,769	Apr. 18	3183	665	115	1792
Linotype-machine	S. C. Nielsen	787,786	Apr. 18	3213	702	115	1798
Linotype-machine	C. A. Albrecht	787,817	Apr. 18	3264	713–14	115	1810
Linotype or line-casting machines. Matrix for	R. M. Bedell	787,821	Apr. 18	3275	715	115	1812
Lintel construction	F. C. L. D'Aix	785,478	Mar. 21	3002	634–5	115	696
Liquid-container	J. Kahn	786,820	Apr. 11	1227	255–6	115	1345
Liquid-cooling apparatus	O. J. Punches	784,704	Mar. 14	1442	298	115	339
Liquid-dispensing device	C. Grohman	786,113	Mar. 28	4307	908–9	115	999
Liquid-distributer	T. P. Briody	784,247	Mar. 7	464	93	115	108
Liquid-filling apparatus	L. Perotti	788,118	Apr. 25	3896	844	115	1971
Liquid-fuel burner	S. Schlangen	784,596	Mar. 14	1199	252–4	115	283
Liquid-fuel burner	J. B. Smith and F. Dietz	784,525	Mar. 7	1058	219	115	238
Liquid-meter	W. F. Richey and T. Daly	785,271	Mar. 21	2591	547	115	605
Liquid-raising apparatus	F. Pascal	787,464	Apr. 18	2538	549	115	1643
Liquid-raising apparatus	G. Hantke	785,307	Mar. 21	2648	561	115	616
Liquid-return system	O. H. Stakemann	785,443	Mar. 21	2933	619	115	680
Liquid-separator. Centrifugal	H. L. Hepburn	788,314	Apr. 25	4271	927	115	2054
Liquid-separator. Centrifugal	B. Ljungström	786,369	Apr. 4	257	59	115	1124
Liquid-separator. Centrifugal	J. L. Friedrich	787,746	Apr. 18	3147	688	115	1784
Liquids. Device for filling valved receptacles with charged	H. McCornack	787,935	Apr. 25	3514	767	115	1877
Lithographic machine	P. P. Gorski	785,946	Mar. 28	3943	839	115	915
Loading-machine	C. M. Kneppler	788,139	Apr. 25	3942	853	115	1982
Loading or unloading apparatus	F. R. Kent	785,957	Mar. 28	3966	843–4	115	920
Loading-tray	J. D. Buchanan	785,400	Mar. 21	2839	599	115	660
Lock:	A. H. Emery	786,252	Mar. 28	4569	969	115	1054
See Combination-lock. Padlock. Door-lock. Seal-lock. Fluid-pressure lock. Switch-lock. Lever-lock. Trace-lock. Nut-lock.							
Lock	F. J. Vieweg	785,132	Mar. 21	2303	483	115	542
Lock	F. J. Vieweg	785,842	Mar. 28	3738	796	115	869
Lock	H. Coudyser	786,195	Mar. 28	4464	944	115	1030
Lock and latch	B. Phelps	785,228	Mar. 21	2507	528	115	587
Lock-marking gage. Door-	A. Carlson	784,834	Mar. 14	1716	357	115	399
Locking-bar pipe	G. J. Hoskins	784,566	Mar. 14	1171	237	115	269
Locking mechanism. Electrically-operated	J. Nordenberg	784,064	Mar. 7	102	19	115	26
Locomotive	P. F. Dundon	785,035	Mar. 14	2077	436	115	479
Locomotive fire-box	C. Vanderbilt	787,241	Apr. 11	2066	459–61	115	1530
Locomotive reversing-gears. Pneumatic actuating device for	F. Warther	786,075	Mar. 28	4238	893	115	983
Log-turning device	O. D. Simmons	787,125	Apr. 11	1851	395	115	1480
Logging-car standard	C. H. Allen	786,708	Apr. 4	1010	207	115	1296
Logging-train air-brake attachment	A. D. Miller	787,932	Apr. 25	3509	766	115	1876
Logging-truck	H. B. Gillette	788,202	Apr. 25	4051	876	115	2006
Loom	F. E. Zengerl	784,370	Mar. 7	718	146–7	115	165
Loom. Damask Jacquard	F. A. Sterner	786,389	Apr. 4	310	68	115	1139
Loom for cross-weaving	G. H. L. Pettie	788,328	Apr. 25	4293	933–4	115	2059
Loom for making pile fabrics	J. T. Cyr	786,734	Apr. 4	1055	218	115	1296
Loom for weaving narrow fabrics	C. H. Maxsted	785,625	Mar. 21	3303	703–6	115	760
Loom-harness straps. Machine for making	J. R. Fitton	784,148	Mar. 7	268	54	115	64
Loom. Jacquard	C. Novet	785,679	Mar. 21	3423	735–6	115	785
Loom. Narrow-ware	O. W. Schaum	786,237	Mar 28	4533	960–1	115	1046
Loom pattern mechanism	R. Crompton	784,550	Mar. 14	1107	231	115	264
Loom-protecting-mechanism controller	J. Robinson	787,114	Apr. 11	1828	391	115	1475
Loom shedding-motion	P. Dietz	787,026	Apr. 11	1653	352–3	115	1437
Loom-shuttle	A. Whitehead	785,925	Mar. 28	3894	828	115	905
Loom shuttle-box motion	G. F. Hutchins	787,448	Apr. 18	2503	543	115	1635
Loom shuttle-guard	F. Heintze	785,359	Mar. 21	2745	581	115	637
Loom-shuttle. Hand-threading	C. F. Sackett	784,761	Mar. 14	1578	325	115	370
Loom shuttle-locking means	H. Côté	787,832	Apr. 18	3300	720	115	1817
Loom shuttle-motion	W. F. Kintzing	785,958	Mar. 28	3968	844	115	921
Loom stop-motion detector	M. O. Steere	784,188	Mar. 7	352	72	115	82
Loom sweep-sticks and picker-sticks. Connector for	H. Walmsley and J. S. Ambler	784,195	Mar. 7	362	74	115	85
Loom take-up mechanism	R. Crompton and J. R. Fitton	787,281	Apr. 11	2160	476	115	1547
Loom-temple	W. F. Draper	784,930	Mar. 14	1801	396	115	438
Loom. Terry-	J. H. Crowley	785,595	Mar. 21	3254	691	115	750
Loom warp-beam	A. J. Thornley	785,386	Mar. 21	2816	594	115	654
Loom warp-guiding means	C. H. Draper	784,310	Mar. 7	580	121	115	135
Loom warp stop-motion	J. E. Lemyre	784,339	Mar. 7	641	132	115	146
Loom warp stop-motion	C. E. Chase	784,920	Mar. 14	1873	393	115	434
Loom weft-replenishing mechanism	E. D. Thayer	786,240	Mar. 28	4541	962–3	115	1047
Loom weft-replenishing mechanism	O. Cosserat	787,497	Apr. 18	2610	563–4	115	1661
Loom weft-replenishing mechanism	G. H. Parker and W. A. Twiss	787,634	Apr. 18	2888	628–9	115	1726
Loom weft-replenishing mechanism	H. I. Harriman	788,356	Apr. 25	4342	947–9	115	1726
Looms. Shuttle-positioning means for filling-replenishing	C. F. Roper	787,409	Apr. 18	2546	551	115	1645
Loop-box	W. C. Lawrence	788,054	Apr. 25	3767	820	115	1937
Looping and tying machine	S. A. Miller and C. B. Gilmore	784,749	Mar. 14	1541	317–19	115	362
Lorry or dumping-car	C. H. Wellman and J. W. Seaver	786,926	Apr. 11	1449	306–7	115	1393
Lubricants. Manufacturing	G. W. Vanderalice and J. E. Riley	787,545	Apr. 18	2701	.....	115	1682
Lubricating-block	W. B. Griffen	787,752	Apr. 18	3156	690	115	1786

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Lubricator:							
See Axle-lubricator. Elevator-guide lubricator. Axle-spindle lubricator. Force-feed lubricator. Compression-lubricator.							
Lubricator	D. R. MacBain	784,953	Mar. 14	1930	406	115	446
Lubricator	J. Trotter	785,452	Mar. 21	2953	622	115	685
Lubricator	C. G. Glasrud	785,606	Mar 21	3276	696	115	755
Lubricator	W. H. Pape	785,826	Mar. 28	3715	791	115	865
Lubricator	J. Hanson	786,357	Apr. 4	228	52	115	1118
Lubricator	R. J. Flinn	786,637	Apr. 4	885	187	115	1259
Lubricator	C. Callahan	786,871	Apr. 11	1318	280	115	1364
Lubricator	E. Denegre	787,155	Apr. 11	1911	414	115	1493
Lubricator	F. E. Eckhart	787,567	Apr. 18	2742	596	115	1692
Lubricator	C. H. Allmond	787,654	Apr. 18	2930	637	115	1734
Lubricator	J. E. Gill	787,915	Apr. 25	3476	760	115	1870
Lubricator and throttle-valve. Combined	C. Comstock	788,095	Apr. 25	3838	834	115	1953
Lumber or timber piling machine	C. Hultquist	784,049	Mar. 7	70	13	115	18
Macaroni-making machine	H. M. Russ	784,181	Mar. 7	336	69	115	79
Mace. Policeman's	V. Chiappinelli	787,727	Apr. 18	3092	674	115	1771
Machine-tables. Means for preventing tipping of	O. Liberman and T. Scanlon	786,040	Mar. 28	4154	876	115	964
Machine-wrench	G. A. Ohl, Jr.	786,592	Apr. 4	777	159	115	1235
Magnetic spheres of influence. Means for progressively establishing and dissolving	A. C. Anderson	785,930	Mar. 28	3905	831	115	908
Magnetic spheres of influence. Means for progressively establishing and dissolving	G. Thompson and H. W. Merchant.	785,338	Mar. 21	2707	574	115	629
Mail-bag catcher	G. Thompson	785,448	Mar. 21	2948	621	115	684
Mail-bag deliverer	G. W. Walker	787,651	Apr. 18	2918	636	115	1732
Mail-bag delivering and catching apparatus	N. K. Bowman	786,260	Apr. 4	15	4	115	1073
Mail-bag-delivery apparatus	O. G. Hoff	787,983	Apr. 25	3620	789–90	115	1902
Mail-bag-delivery device	N. J. Curtis	785,156	Mar. 21	2346	492	115	552
Mail-bag hanger	J. S. Kauffman	784,053	Mar. 7	82	15	115	21
Mail-box	G. A. Demarest	788,501	Apr. 25	4627	1009	115	2129
Mail-box	P. A. Sheley	787,476	Apr. 18	2565	554	115	1649
Mail-box. Rural-delivery	J. H. Dickson	787,731	Apr. 18	3120	682	115	1777
Mail-box. Trolley	W. Clement	785,714	Mar. 28	3500	751	115	816
Mail-carrier	W. Hills	785,490	Mar. 21	3030	641	115	703
Mail-catcher	A. J. Kennedy	784,266	Mar. 7	509	102–3	115	118
Mail-chute	E. A. Buell	785,795	Mar. 28	3642	778	115	847
Mail-conveying apparatus	F. E. Anderson	788,084	Apr. 25	3815	830	115	1948
Mail-pouch catcher	C. C. Farmer and J. J. Stuckey	786,278	Apr. 4	45	11	115	1081
Mailing-tube	L. W. Barker	784,466	Mar. 7	923	194	115	210
Mandrel	J. R. Keller	786,296	Apr. 4	87	20	115	1090
Mangle	J. A. and H. W. Hock	788,154	Apr. 25	3971	858	115	1988
Manhole-cover	C. R. Stake	785,770	Mar. 28	3598	769	115	836
Mantle heads or tops. Machine for tying up	J. H. Vanderalice	788,441	Apr. 25	4520	984	115	2107
Manure-loading machine	S. Cohn	786,191	Mar. 28	4458	942	115	1029
Manure-spreader	G. F. Koenig	786,501	Apr. 4	604	121	115	1199
Manure-spreader	J. S. Patch	785,227	Mar. 21	2504	527	115	587
Map-cabinet	E. P. Ross	787,401	Apr. 18	2413	522–3	115	1617
Marker and punch. Interchangeable	G. W. Barnett	784,613	Mar. 14	1255	262	115	295
Mashing-machine	E. J. Hansen	787,348	Apr. 11	2209	500	115	1577
Massage apparatus	W. Seidel	786,606	Apr. 4	808	167	115	1242
Massage appliance. Vibratory	E. W. Schneider	784,809	Mar. 14	1671	346	115	390
Massage instrument. Dynamo-electric	G. B. Fraley	788,038	Apr. 25	3740	814	115	1930
Massage-machine	A. Barrett and W. Condon	784,024	Mar. 7	15	3	115	5
Massage-steamer	G. F. Trotter	784,643	Mar. 14	1332	276	115	314
Massaging apparatus	J. P. Wels	785,391	Mar. 21	2820	595	115	655
Masse-cuite. Preparing	F. J. Godman and B. F. Frizzell	787,443	Apr. 18	2493	540	115	1633
Mat	H. Roy	786,601	Apr. 4	793	163	115	1239
Mat	T. C. McPherson	784,222	Mar. 7	420	84–5	115	97
Match	R. L. Horsley	784,564	Mar. 14	1128	236	115	268
Match-box	B. Jacob. (Reissue)	12,332	Mar. 28	4575	970	115	1055
Match deliverer, lighter, and cigar-cutter. Combined	T. H. Pace	788,370	Apr. 25	4378	954	115	2077
Match holder. Pocket safety-	P. La Belle	787,334	Apr. 11	2264	494	115	1570
Match-making machine	J. Karpen	785,500	Mar. 21	3056	646	115	708
Match-safe and cigar-cutter. Combination	F. Czerweny	785,476	Mar. 21	2909	633	115	696
Matches. Making	B. Rivkin	788,331	Apr. 25	4301	935	115	2061
Matching device	J. H. Christensen	786,629	Apr. 4	860	.....	115	1253
Matrix machines. Elevator mechanism for circulating-	C. W. Bray	786,245	Mar. 28	4555	963	115	1050
Matting. Flexible	B. F. Bellows	784,133	Mar. 7	235	46–7	115	56
Matting or fabric. Flexible	A. S. Burnell	786,545	Apr. 4	695	141–2	115	1218
Mattress. Pneumatic	A. S. Burnell	786,544	Apr. 4	694	141	115	1217
Mattress. Reversible section	R. B. Wiltsie	786,930	Apr. 11	1455	308	115	1394
Mattresses, &c. Stay for pneumatic	E. K. Jacobs	787,450	Apr. 18	2509	544	115	1637
Measure	F. Webb	787,137	Apr. 11	1879	404	115	1486
Measure. Graduated	L. P. Steele	786,609	Apr. 4	811	168	115	1243
Measuring and recording machine. Anatomical	L. P. Lipps	785,742	Mar. 28	3550	758	115	825
Measuring and ruling device. Adjustable	H. C. Lavery	788,362	Apr. 25	4358	951–2	115	2073
Measuring-tank. Automatic	S. N. Nutz	785,756	Mar. 28	3576	763	115	831
Measuring-tape holder	F. N Lowry	785,224	Mar. 21	2498	526	115	585
Meat block and bench scraper	W. J. Seep	785,052	Mar. 14	2109	444	115	486
Meat extracts. Making	G. E. Kent	785,556	Mar. 21	3174	672	115	733
Meat-hanger	U. Clantar and F. W. F. Ross	788,451	Apr. 25	4537	.....	115	2111
Mechanical arm	M. P. Burt	786,624	Apr. 4	848	176	115	1251
Mechanical motor	W. H. Ernst	787,830	Apr. 18	3322	727	115	1821
Mechanical movement	D. W. Axe	785,931	Mar. 28	3900	831	115	909
Mechanical movement	C. E. Ragan	786,677	Apr. 4	950	195	115	1273
Mechanical movement for controlling threading-dies	W. Sweet	788,226	Apr. 25	4102	868–9	115	2015
Medical apparatus	F. H. Easby	786,852	Apr. 11	1343	286–7	115	1360
Medicinal or other purposes. Machinery for the manufacture of tablets for	F. Hofmann	787,920	Apr. 25	3487	762	115	1872
Mercerizing-machine	J. F. Buckley	785,402	Mar. 21	2844	600–1	115	660
	H. W. Butterworth	786,264	Apr. 4	20	5–6	115	1075

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Merchandise, &c. Means for handling	C. W. Hunt	784,162	Mar. 7	294	61	115	70
Metal-article grinding or polishing machine	C. Wiesener	784,460	Mar. 7	914	191	115	207
Metal-cutting machine	A. C. Calkins	784,515	Mar. 7	1040	215	115	233
Metal fabric. Flexible	C. T. Gilmore	787,747	Apr. 18	3148	688	115	1784
Metal. Manufacturing expanded	N. E. Clark	788,093	Apr. 25	3836	833–4	115	1952
Metal-shaping machine	W. Ross	786,053	Mar. 28	4179	880–1	115	969
Metal-sheet-matching device	C. W. Bray	786,246	Mar. 28	4556	966–7	115	1050
Metal-treating furnace	J. Morat	784,956	Mar. 14	1937	407	115	448
Metal wheels. Manufacturing	C. Borg	787,889	Apr. 25	3420	749	115	1855
Metals and alloys. Producing	H. S. Blackmore	786,185	Mar. 28	4437	939	115	1025
Metals. Electrodepositing	E. D. Kendall	786,221	Mar. 28	4511	954	115	1041
Metals from ore by electricity. Extracting	E. L. Priest	784,885	Mar. 14	1812	379	115	420
Metals from their ores. Apparatus for extracting	W. A. Hendryx	785,214	Mar. 21	2472	522	115	579
Metals from their ores. Separation of	J. D. Wolf	787,814	Apr. 18	3261	712	115	1809
Metals. Purifying pig	J. B. Nau	786,048	Mar. 28	4171	879	115	967
Metallic leaf. Machine for forming package-rolls of	W. H. Coe	786,953	Apr. 11	1491	316	115	1403
Metallic post	L. C. Sharp	784,437	Mar. 7	865	180	115	198
Meter:							
See Current-meter. Photographic exposure-meter.							
Electric meter. Steam-meter.							
Electricity-meter. Water-meter.							
Fluid-meter. X-ray meter.							
Liquid-meter.							
Meter-cover and means for securing same	W. H. Browne	786,724	Apr. 4	1035	215	115	1291
Meter recording mechanism. Electric	C. H. Thordarson	784,713	Mar. 14	1468	302–3	115	345
Meter system	J. A. Tilden	785,923	Mar. 28	3891	827	115	904
Meters. Electric central-station recording mechanism for	C. H. Thordarson	784,712	Mar. 14	1455	302	115	342
Milk. Condensed	S. R. Kennedy	787,044	Apr. 11	1687	.....	115	1445
Milk containing cream. Obtaining concentrated	C. H. Campbell	786,626	Apr. 4	850	176	115	1251
Milk-cooler	A. W. Lichtfeld	786,822	Apr. 11	1230	256	115	1345
Milking apparatus	W. H. Lawrence	784,796	Mar. 14	1639	338–40	115	382
Milking-machine	F. Ljungström	784,693	Mar. 14	1419	293	115	334
Milking-machine	L. Burrell	784,780	Mar. 14	1605	331	115	374
Milking-machine supporting-harness	W. Sim	787,951	Apr. 25	3547	774–5	115	1884
Mill:	F. Ljungström	784,694	Mar. 14	1421	293	115	334
See Coffee-mill. Pendulum-mill.							
Fanning-mill. Soap-mill.							
Flour-mill. Stamp-mill.							
Grinding-mill. Windmill.							
Mine-curtain raiser	G. W. Manlove	787,200	Apr. 11	2006	437	115	1514
Miner's dumping-cage	F. C. Kerst	787,189	Apr. 11	1964	432	115	1509
Mining-dredge	A. G. Macdonell	785,263	Mar. 21	2575	543–4	115	602
Mineral separating and concentrating apparatus	G. A. Goyder and E. Laughton	784,999	Mar. 14	2014	423	115	464
Mirror-frame	L. B. Prahar	786,676	Apr. 4	949	195	115	1272
Mirror-support. Adjustable	J. Banderob	787,260	Apr. 11	2121	468	115	1538
Miter-box	H. F. Stuebe	787,230	Apr. 11	2062	450	115	1526
Miter-box. Adjustable biplane	C. V. Friend	788,040	Apr. 25	3746	815	115	1932
Miter-cutting machine	R. Wales	786,538	Apr. 4	677	137–8	115	1214
Miter or bevel joints. Cutting material for forming	R Wales	786,539	Apr. 4	680	138–9	115	1215
Mixer:							
See Cake-mixer. Cement-mixer.							
Mixing device	N. C. Burnham	785,249	Mar. 21	2542	537	115	594
Mixing-machine	J. Embleton	787,441	Apr. 18	2490	540	115	1632
Mixing vessel and clamp	J. F. Lamb	787,774	Apr. 18	3192	697	115	1794
Moistener. Envelop-	J. Crowther	784,616	Mar. 14	1260	263	115	296
Moistening and sealing envelops. Means for	G. H. Swezey	785,527	Mar. 21	3120	659	115	723
Mold:							
See Bath-tub mold. Glassware press-mold.							
Cement-block mold. Portable mold.							
Cement-building-block mold. Sewer-trap mold.							
Cigar-mold. Stone-mold.							
Fence-post mold. Tile-mold.							
Glassware blow-mold. Type-mold.							
Mold	J. P. Plattenberger	784,176	Mar. 7	326	67	115	77
Mold	J. B. Petrie	784,701	Mar. 14	1435	296	115	338
Mold	C. Miller	784,874	Mar. 14	1791	373	115	415
Mold	O. A. Stempel	784,967	Mar. 14	1962	412	115	453
Mold	F. M. Sawyer	785,578	Mar. 21	3212	681	115	741
Mold	J. McMullin	785,753	Mar. 28	3571	762	115	829
Mold-coating apparatus	C. Merritts and H. L. Bartlebaugh	784,873	Mar. 14	1789	372	115	414
Mold-cutter	W. H. Ford	784,041	Mar. 7	53	10	115	14
Molding-machine	H. E. Pridmore	784,123	Mar. 7	219	43	115	53
Molding-machine	H. A. Battenfeld	784,535	Mar. 14	1077	224–5	115	257
Molding-machine	J. N. and H. A. Battenfeld	784,536	Mar. 14	1080	225	115	258
Molding-machine	J. Lund	785,262	Mar. 21	2571	542–3	115	600
Molding-machine	I. L. Landis	786,367	Apr. 4	248	57	115	1123
Molding-machine	E. D. Misner	786,980	Apr. 11	1565	333–5	115	1417
Molding-machine	A. Choiniere	787,078	Apr. 11	1755	374	115	1459
Molding-machine	D. W. Lloyd	787,196	Apr. 11	2002	436	115	1513
Molding machine. Adjustable	I. L. Landis	784,690	Mar. 14	1414	292	115	333
Molding machine. Sand-	J. J. McClelland	785,908	Mar. 28	3858	820–1	115	895
Molding-press	G. J. Otto	785,567	Mar. 21	3191	675–6	115	737
Mole-trap	A. Y. Swope	785,076	Apr. 25	3801	826	115	1944
Monkey-wrench	J. Jarnberg	785,953	Mar. 28	3958	841	115	918
Mooring-machine	F. Hayes and W. Clifford	786,287	Apr. 4	71	16	115	1086
Mop head and wringer. Combined	J. W. Walters	787,708	Apr. 18	3026	664	115	1755
Mop head and wringer. Combined	C. R. Carpenter	787,800	Apr. 25	3422	749	115	1856
Mop or brush holder	J. C. Look	786,576	Apr. 4	752	155	115	1229
Mop-wringer	J. R. Nye	788,491	Apr. 25	4606	1004	115	2125
Mosquito bag	G. M. D. Manahan	785,507	Mar. 21	3071	649–50	115	712
Motion-transforming apparatus	P. E. M. Bastion	786,715	Apr. 4	1020	211–12	115	1289

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Motor:							
See Air-motor. Pneumatic motor.							
Air and gas motor. Rotary motor.							
Back-geared motor. Solar motor.							
Car-motor. Synchronous motor.							
Centering-motor. Talking-machine motor.							
Current-motor.							
Current series motor. Thermic motor.							
Electric motor. Tide-motor.							
Fluid-motor. Turbine-motor.							
Fluid-pressure motor. Water-motor.							
Hydraulic motor. Wave-motor.							
Mechanical motor.							
Musical-instrument pneumatic motor.							
Motor	C. O. Deutschmann	785,254	Mar. 21	2553	588–9	115	596
Motor circuit-controlling device	G. W. Gilmore	786,752	Apr. 4	1089	226	115	1303
Motor-control system and apparatus	H. H. Cutler	786,421	Apr. 4	398	84	115	1158
Motor controlling and regulating device	O. C. Britsch	787,722	Apr. 18	3049	668–9	115	1760
Motor-controlling switch	F. Mackintosh	786,506	Apr. 4	615	123–4	115	1201
Motor for turn-tables or similar structures	J. L. Pilling	787,693	Apr. 18	2992	652–3	115	1748
Motor-starting device	A. C. Eastwood	787,738	Apr. 18	3132	685	115	1780
Motor suspension for trucks, &c	W. G. Price	787,944	Apr. 25	3533	771	115	1882
Motor. Varying the speed of the load driven by an alternating-current	H. H. Cutler	786,418	Apr. 4	379	81–2	115	1154
Motor winding. Three-phase	E. F. W. Alexanderson	785,995	Mar. 28	4057	860	115	942
Motors. Operating alternating-current	W. A. Layman	787,336	Apr. 11	2269	495	115	1511
Motors. Two-speed winding for three-phase	E. F. W. Alexanderson	785,533	Mar. 21	3129	661	115	725
Movement-cure apparatus	M. E. Gibson	787,168	Apr. 11	1936	419	115	1499
Mower	S. K. Dennis	784,663	Mar. 14	1364	282	115	320
Mower. Lawn-	J. H. Hall	784,396	Mar. 7	788	161–2	115	180
Mower. Lawn-	I. German	787,619	Apr. 18	2867	623	115	1721
Mower or reaper	J. Gagné	786,202	Mar. 28	4473	946	115	1032
Mowing-machine vine-cutting attachment	J. G. King	785,173	Mar. 21	2387	501–2	115	561
Muff	W. Grushoff	784,857	Mar. 14	1756	366	115	407
Muffler	A. P. Brush	784,833	Mar. 14	1714	356	115	399
Muffler	W. W. Broga	788,242	Apr. 25	4132	896	115	2023
Muffler. Exhaust-	F. J. Hecht	788,313	Apr. 25	4269	927	115	2053
Muffler. Head, face, and neck	N. W. H. Sharpe	787,860	Apr. 18	3358	735	115	1830
Mule. Self-acting	B. Rautenberg	787,945	Apr. 25	3534	771	115	1882
Music-desk	F. Houget	784,047	Mar. 7	66	12	115	17
Music-leaf turner	A. Bollermann	788,348	Apr. 25	4332	945	115	2067
Music-leaf turner	L. J. Rose	786,157	Mar. 28	4388	927–8	115	1016
Music-leaf turner	B. Burke	787,272	Apr. 11	2143	473	115	1543
Music-sheets	W. J. Morris	787,989	Apr. 25	3630	792	115	1904
Music-sheets. Pneumatic motor for driving	J. Wieser	788,387	Apr. 25	4420	960–1	115	2086
Musical apparatus. Self-playing	R. A. Gally	786,204	Mar. 28	4476	947	115	1033
Musical instrument	G. F. Lyon	788,484	Apr. 25	4590	1000	115	2121
Musical-instrument-controlling sheets. Spool for	M. and E. G. Clark	784,384	Mar. 7	753	153	115	173
Musical instrument. Mechanical	P. Wuest, Jr.	785,393	Mar. 21	2824	596	115	656
Musical instrument. Mechanical	P. Wuest, Jr.	785,394	Mar. 21	2826	597	115	657
Musical-instrument note-sheet winding and controlling mechanism	G. H. Davis	785,799	Mar. 28	3654	779	115	851
Musical-instrument operating mechanism. Automatic	A. Keller	788,265	Apr. 25	4170	905–6	115	2031
Musical-instrument pneumatic motor	L. U. Jobes	788,472	Apr. 25	4572	997	115	2118
Musical instrument. Stringed	F. X. Audet	786,941	Apr. 11	1475	312	115	1399
Musical instruments. Electrical attachment for	J. Weber	784,457	Mar. 7	910	190	115	207
Musical instruments. Means for utilizing perforated music-sheets for controlling automatic	T. P. Brown	787,558	Apr. 18	2730	594	115	1689
Musical instruments. Valve-guide for mechanical	F. C. White	785,784	Mar. 28	3626	775	115	842
Musical wind instrument	G. L. Wiser and G. H. Walcott	784,608	Mar. 14	1242	260	115	292
Nail-feeding mechanism	J. L. Perkins	786,835	Apr. 11	1252	263	115	1350
Nail-holder	J. E. Plank	787,217	Apr. 11	2035	444	115	1520
Nail machines. Apparatus for feeding wire	G. Jewett	787,672	Apr. 18	2963	645	115	1741
Nail-placer	W. H. Warram and J. W. Urie	785,136	Mar. 21	2315	485	115	545
Nailing-machine	J. H. Greenstreet	784,936	Mar. 14	1904	399–400	115	441
Nailing-machine	L. A. Casgrain	786,190	Mar. 28	4449	941–2	115	1027
Napkin-holder	E. S. Dalton	788,252	Apr. 25	4153	901	115	2027
Napping-machine	H. S. Greene	787,095	Apr. 11	1790	382	115	1467
Neckband-stretcher	W. M. Barnes	788,183	Apr. 25	4018	868–9	115	1998
Necktie-fastener	C. Kolshorn	787,690	Apr. 18	2973	647	115	1744
Necktie-fastener	W. B. Smith	785,837	Mar. 28	3733	795	115	863
Necktie-holder	W. B. Smith	788,338	Apr. 25	4314	939	115	2064
Needle-case	P. A. Curtin	784,841	Mar. 14	1728	359	115	401
Needle-threader	W. J. Kendig	786,649	Apr. 4	905	186	115	1263
Neat. Hen's	G. H. Buckingham	785,794	Mar. 28	3641	777	115	846
Nippers or cutting-pliers	A. L. Stout	786,531	Apr. 4	664	134	115	1212
Nitrogen compounds. Making	P. Broadbooks	786,723	Apr. 4	1034	215	115	1291
Noise-deadening means	A. Frank and N. Caro	785,161	Mar. 21	2357	.....	115	555
Nozzle	C. D. Wood	785,247	Mar. 21	2539	536	115	593
Numbering-machine	C. H. Smith	784,283	Mar. 7	537	110	115	124
Numbering-machine	F. W. Wicht and C. Spielmann	784,196	Mar. 7	363	74	115	85
Numbering-machine	E. G. Bates	784,729	Mar. 14	1507	308–9	115	354
Nut. Cap-	F. J. Martin	785,964	Mar. 28	3979	846	115	924
Nut-lock	F. Lambert	787,578	Apr. 18	2767	603	115	1697
Nut-lock	H. Schuette	784,634	Mar. 14	1314	273	115	309
Nut-lock	A. A. Long	784,951	Mar. 14	1928	405	115	446
Nut-lock	C. R. Thompson	785,528	Mar. 21	3121	659	115	723
Nut-lock	G. F. Robertson	785,919	Mar. 28	3884	825	115	902
Nut-lock	M. P. Carpenter. (Reissue)	12,333	Mar. 28	4577	970	115	1055
Nut-lock	A. A. Miller	786,372	Apr. 4	261	60	115	1125
Nut-lock	W. B. McCullough	786,664	Apr. 4	934	191	115	1269
Nut-lock	J. D. Reed	786,777	Apr. 4	1144	240	115	1316
Nut-lock	T. B. and M. F. Earhart	787,088	Apr. 11	1778	380	115	1465
Nut-lock	B. D. Thompson	787,804	Apr. 18	3246	708	115	1805
Nut-lock	J. T. Crenshaw	787,834	Apr. 18	3304	720	115	1818

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Nut-lock	W. L. Morrow	788,058	Apr. 25	3773	821	115	1938
Nut-lock	W. L. Morrow	788,324	Apr. 25	4284	931	115	2057
Nut-lock	J. J. Murphy	788,420	Apr. 25	4482	976	115	2099
Nut lock-washer	W. H. Parker	784,422	Mar. 7	838	174	115	191
Nut lock-washer	W. H. Parker	748,423	Mar. 7	839	174	115	192
Nut. Locking-	A. V. Bryce	786,725	Apr. 4	1036	215	115	1292
Nut-threading machine	N. B. Wood	785,464	Mar. 21	2975	627	115	690
Nut-wrench	F. G. Cornell	787,831	Apr. 18	3298	720	115	1816
Oil-burner	S. D. Roser	784,434	Mar. 7	857	179	115	196
Oil-burner	C. G. Kipling and H. L. Worden	787,045	Apr. 11	1688	359	115	1445
Oil-can holder	F. H. Spicer	785,054	Mar. 14	2111	445	115	486
Oil-cup	V. Royle	784,280	Mar. 7	532	109	115	123
Oil-cup	G. A. Wood	786,175	Mar. 28	4419	934	115	1022
Oil-cup for quick-moving bearings	R. J. Preece	787,466	Apr. 18	2541	550	115	1644
Oil-elevator	P. H. Davitt	784,991	Mar. 14	2003	421	115	461
Oil-engine	A. Krebs	785,558	Mar. 21	3176	672	115	734
Oil engine. Crude-	D. R. Morrison	788,057	Apr. 25	3772	820	115	1938
Oil or gas burner	T. Vantine	784,507	Mar. 7	1028	212	115	231
Oil-press	D. A. Tompkins, T. S. Diffey, and T. S. Simpson.	787,483	Apr. 18	2575	556	115	1652
Oil-press pan	P. O'Brien	785,681	Mar. 21	3428	737	115	786
Oiler	J. C. Hayward	785,612	Mar. 21	3284	698	115	756
Oiler	J. Knecht	787,846	Apr. 18	3333	729–30	115	1824
Onion-cleaner	F. Griffis	784,618	Mar. 14	1264	264	115	297
Opera-chair	A. Lazarus	787,337	Apr. 11	2271	495	115	1571
Operating-table or similar structure	G. L. Poll	788,277	Apr. 25	4189	910	115	2035
Ophthalmoscope	H. L. De Zeng	787,083	Apr. 11	1770	378	115	1463
Ordnance-sight. Telescopic	H. C. Mustin	787,855	Apr. 18	3346	733–4	115	1827
Ore agitator and filter	V. A. Robinson	785,522	Mar. 21	3111	657	115	721
Ore. Apparatus for the treatment of	R. G. Reilly	788,330	Apr. 25	4298	934–5	115	2060
Ore-concentrating machine. Mineral-	G. R. Duncan	784,146	Mar. 7	265	54	115	64
Ore concentration	A. E. Cattermole, H. L. Sulman, and H. F. Kirkpatrick-Picard.	788,247	Apr. 25	4144	.....	115	2025
Ore-concentrator	C. G. Weller	785,531	Mar. 21	3125	660	115	724
Ore-concentrator	P. H. Craven	786,799	Apr. 11	1191	249	115	1338
Ore-crusher	A. C. Calkins	786,265	Apr. 4	22	6	115	1075
Ore-crusher	F. E. Woodbury	787,604	Apr. 18	2828	616	115	1712
Ore-pulverizing apparatus	E. H. Benjamin	786,088	Mar. 28	4265	899	115	989
Ore-roasting furnace	H. M. Heath, G. Morrice, and R. L. J. Gruss.	785,067	Mar. 14	2135	451	115	491
Ore-roasting furnace	A. C. Johnson	786,905	Apr. 11	1392	296	115	1380
Ore separator and concentrator	W. F. Stein	786,322	Apr. 4	153	35	115	1103
Ore-separator. Magnetic	L. G. Rowand	784,502	Mar. 7	1012	210	115	226
Ore. Treating	E. Kelly and A. Munson	786,570	Apr. 4	740	151–2	115	1227
Ores or compounds preparatory to smelting. Treating sulfid	T. Huntington and F. Heberlein.	786,814	Apr. 11	1218	.....	115	1343
Ores. Reducing	D. R. Robertson	786,051	Mar. 28	4176	880	115	969
Ores. Roasting	S. B. Patterson	787,540	Apr. 18	2693	586	115	1681
Ores. Separating and refining complex	E. Hedburg	785,167	Mar. 21	2372	497	115	558
Organ	J. Binnig	784,203	Mar. 7	380	77	115	88
Organ-action	E. M. Skinner	784,440	Mar. 7	870	181–3	115	196
Organ. Reed-	D. Schustek	787,056	Apr. 11	1715	365–6	115	1452
Oven. Baker's	B. Ycre	786,615	Apr. 4	820	169–70	115	1245
Oven-deflector	J. F. Bixler	786,947	Apr. 11	1483	313	115	1401
Oven. Toasting-	R. Grace	784,854	Mar. 14	1749	364–5	115	405
Overall garment	J. C. Ferger	785,198	Apr. 25	4045	874	115	2004
Overalls	M. Colstrom	784,615	Mar. 14	1259	263	115	296
Overalls	G. Bücking VIII	785,560	Mar. 21	3248	689	115	749
Overlay-table	J. F. Johnson	786,443	Apr. 4	484	93	115	1175
Overshoe	H. O'Sullivan	785,371	Mar. 21	2769	585	115	643
Oxygen from alkali peroxid. Obtaining	H. Foersterling and H. Philipp	788,256	Apr. 25	4156	.....	115	2028
Package. Shipping-	J. A. Bower	785,079	Mar. 21	2178	459	115	516
Packages. Arm-clasp for carrying	C. F. Linn	787,520	Apr. 18	2659	577	115	1673
Packaging-machine	C. H. and A. Day	785,203	Mar. 21	2443	514–15	115	573
Packing	C. O. Holmberg	785,492	Mar. 21	3033	641	115	704
Packing-case. Sheet-metal	A. T. Kruse	786,296	Apr. 4	92	20–1	115	1092
Packing-case. Sportsman's	F. Wehmeier and H. Stickfort	786,077	Mar. 28	4242	894	115	984
Packing-machine	D. L. Eustice	784,932	Mar. 14	1894	397–8	115	438
Packing. Metallic	W. H. Law	786,976	Apr. 11	1558	332	115	1416
Packing. Metallic piston-	N. A. Christensen	788,303	Apr. 25	4247	921	115	2048
Packing. Piston-rod	W. P. Chrysler	785,152	Mar. 21	2339	490	115	551
Packing-ring	W. Ord	784,065	Mar. 7	107	20	115	26
Packing. Rod-	C. R. Law	784,867	Mar. 14	1776	370	115	411
Packing. Shaft-	F. E. Getts	784,785	Mar. 14	1619	333	115	378
Packing-washer	C. G. Ette	787,160	Apr. 11	1920	416	115	1495
Pad: *See* Blotting-pad. Harness-pad. Ink-pad. Inking-pad. Surgical pad.							
Paddle-wheel	J. Best	785,286	Mar. 21	2617	553	115	610
Padlock	J. H. Moreland	786,586	Apr. 4	769	158	115	1234
Pail. Dinner-	J. E. Humphrey	784,215	Mar. 7	408	81	115	95
Pail. Sanitary milk-	L. Barnabas	786,400	Apr. 4	326	72	115	1142
Pail. Self-heating lunch or dinner	R. Raines	787,789	Apr. 18	3216	703	115	1799
Paint	G. W. Gesner	786,023	Mar. 28	4127	.....	115	958
Paint-remover and making same	L. A. Dreyfus	786,348	Apr. 4	203	.....	115	1114
Palette and color-dish. Combined artist's	A. Corti	784,474	Mar. 7	942	.....	115	214
Palette. Artist's	R. W. Semple	787,123	Apr. 11	1349	395	115	1480
Pan and stove-lid lifter. Combined	M. V. Larkin	785,808	Mar. 28	3842	818	115	802
Pans, kettles, &c. Detachable lid controlling and locking mechanism for	A. M. Moylan	784,803	Mar. 14	1660	344	115	397
Paper assembling, stitching, and folding machine	A. T. Lundqvist	785,111	Mar. 21	2260	475	115	533
Paper assembling, stitching, and folding machine	T. C. Dexter	787,730	Apr. 18	3006	675–81	115	1772
Paper-bag holder	T. C. Dexter	787,838	Apr. 18	3310	722–7	115	1819
Paper-bag machine	B. L. Borstad and E. P. Fiedler	784,027	Mar. 7	26	5	115	7
	F. E. Strasburg	787,643	Apr. 18	2909	634–5	115	1730

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Paper-bag machine	H. Elsas	787,667	Apr. 18	2952	641–3	115	1740
Paper-bag-making machine	O. Hesser	787,759	Apr. 18	3167	692	115	1788
Paper-bag-making machine	B. J. Jensen	788,262	Apr. 25	4165	904	115	2030
Paper-board. Machine for making	T. W. McFarland	785,178	Mar. 21	2400	505	115	564
Paper box	P. G. Smith	788,381	Apr. 25	4409	958	115	2063
Paper-clip	C. E. Gardner	788,099	Apr. 25	3847	836	115	1955
Paper-coating	F. X. Govers	788,043	Apr. 25	3749	.....	115	1932
Paper-cutting device	C. T. Ehninger	788,196	Apr. 25	4043	873–4	115	2004
Paper-cutting machine	T. C. Dexter	786,632	Apr. 4	864	178–9	115	1254
Paper-drying cylinders. Apparatus for removing water from	J. White	784,821	Mar. 14	1697	352	115	396
Paper-fastener	J. S. Hines	786,563	Apr. 4	728	148	115	1225
Paper feeder and cutter. Ribbon-	E. D. Casterline	787,662	Apr. 18	2941	639	115	1737
Paper fixture. Toilet-	G. T. Johnson and G. F. Bullard	788,263	Apr. 25	4167	905	115	2030
Paper folding and packaging machine	R. B. Friend	786,021	Mar. 28	4124	869	115	957
Paper, &c., folding machinery	E. H. Cottrell	785,935	Mar. 28	3916	832–4	115	910
Paper-hanging device. Wall-	C. F. Caswell	784,985	Mar. 14	1991	418	115	459
Paper-holder	G. Laube	786,571	Apr. 4	742	152	115	1227
Paper-holder	G. Kaphingst and P. Seith	787,883	Apr. 18	3409	746	115	1841
Paper-machine	K. E. Rogers	786,996	Apr. 11	1594	341	115	1424
Paper-making machine and process	R. Binns	785,704	Mar. 28	3481	747	115	811
Paper-making-machine suction-roll	J. E. Rudolph	787,402	Apr. 18	2417	523	115	1617
Paper-making roll	H. Parker	784,223	Mar. 7	422	85	115	98
Paper-roll-saturating process and apparatus	L. Busch	785,195	Mar. 21	2432	511	115	571
Paper. Self-developing sensitive	J. E. Thornton and C. F. S. Rothwell.	786,536	Apr. 4	673	136	115	1213
Paper slack provider and winding mechanism	K. West	785,783	Mar. 28	3624	774	115	842
Paper-straightener	F. L. Reinecker	785,520	Mar. 21	3104	656	115	720
Paper-weight	C. T. Ringo	785,573	Mar. 21	3205	679	115	739
Partition construction	R. Markgraf	786,826	Apr. 11	1236	258	115	1347
Passenger-recorder	C. F. Jackson	784,216	Mar. 7	409	81–2	115	95
Paste, dough, or the like dividing machine	K. H. Bindler	787,427	Apr. 18	2466	533–4	115	1627
Paste-receptacle	F. J. Kelliher	787,986	Apr. 25	3627	791	115	1903
Pasting-box	H. G. La Sor	786,975	Apr. 11	1557	331	115	1415
Pasting device. Wrapper-	J. G. Andreu	785,701	Mar. 28	3475	746	115	809
Pasty substances. Drying	M. Ekenberg	785,600	Mar. 21	3265	693	115	753
Pavement. Bituminous or other pitch concrete	J. H. Amies	785,396	Mar. 21	2828	.....	115	657
Pavement. Pitch-cement concrete	J. H. Amies	785,650	Mar. 21	3359	.....	115	773
Paving-block. Composite	A. F. Shuman	786,319	Apr. 4	149	34	115	1102
Pear-blight-destroying composition	O. E. Horton	788,155	Apr. 25	3974	.....	115	1988
Peat-compressing machine	C. Schlickeysen	785,637	Mar. 21	3327	711	115	765
Peat. Treating	W. T. Griffin	788,100	Apr. 25	3848	836	115	1955
Pedal-action	R. Moe	785,969	Mar. 28	3980	849	115	926
Pedal. Mouse-proof	F. S. Smith	788,438	Apr. 25	4514	983	115	2106
Peeling fruit	C. J. Vernon	784,527	Mar. 7	1062	220	115	239
Pen-filling device. Fountain-	G. N. Byl	784,982	Mar. 14	1987	417	115	458
Pen. Fountain-	T. P. Ambrose	784,528	Mar. 14	1065	221	115	255
Pen. Fountain-	F. W. Bender	784,538	Mar. 14	1084	226	115	259
Pen. Fountain-	C. W. Boman	785,653	Mar. 21	3366	721	115	774
Pen. Fountain-	C. W. Boman	785,654	Mar. 21	3367	722	115	774
Pen. Fountain-	S. H. Hodges	786,967	Apr. 11	1544	328	115	1413
Pen. Self-filling fountain-	J. T. Davison	787,152	Apr. 11	1907	413	115	1492
Pen-wiper	R. Addison	788,232	Apr. 25	4109	890	115	2017
Penholder	L. Matthews	788,413	Apr. 25	4474	973	115	2098
Pencil	J. Makant	786,130	Mar. 28	4336	916	115	1005
Pencil-sharpener	E. Woodbury	786,933	Apr. 11	1459	309	115	1395
Pendulum-mill	J. Wüstenhöfer	787,018	Apr. 11	1638	349	115	1434
Pendulum-mill driving device	J. Dürnholz	787,737	Apr. 18	3131	685	115	1780
Pendulum-regulator	A. M. Lane	785,365	Mar. 21	2760	583	115	641
Perch-support	A. S. Hoxie	787,922	Apr. 25	3489	762	115	1872
Perforating, embossing, or indenting device	E. G. Bates	784,025	Mar. 7	19	4	115	6
Perforating-machine gage	C. S. Perkins	785,432	Mar. 21	2904	614	115	673
Perfumes and making same. Materials for	G. Merling and R. Welde	784,411	Mar. 7	815	.....	115	186
Perfumes and making same. Materials for	G. Merling and R. Welde	784,412	Mar. 7	817	.....	115	187
Perimeter	H. L. Sayen	785,439	Mar. 21	2925	617–18	115	678
Phase-indicator	P. G. Watmough, Jr	785,458	Mar. 21	2962	624	115	687
Phase-rotation indicator	R. F. Schuchardt	787,345	Apr. 11	2294	498	115	1576
Phonograph	L. Devineau	784,603	Mar. 14	1229	257–8	115	289
Phonograph	E. A. Ivatts	787,765	Apr. 18	3179	695	115	1791
Phonograph-records. Mold for duplicate	W. H. Miller and A. N. Pierman	785,510	Mar. 21	3078	651	115	713
Photographic apparatus. Automatic	E. H. Matthey and E. C. Reutlinger.	785,113	Mar. 21	2263	476–7	115	533
Photographic emulsion and making same. Color-sensitive	K. Kieser	785,219	Mar. 21	2485	.....	115	583
Photographic exposure-meter	C. W. Dake	784,988	Mar. 14	1996	419	115	460
Photographic-plate holder	F. A. Brownell	785,707	Mar. 28	3484	748	115	811
Photographic-plate holders. Light-seal for	J. S. Wright	787,424	Apr. 18	2458	532	115	1625
Photographic plate or film for daylight development and fixing	J. E. Thornton and C. F. S. Rothwell.	786,535	Apr. 4	671	136	115	1213
Photographic plates or the like in open daylight. Developing	J. N. Ludwig	787,103	Apr. 11	1806	.....	115	1470
Photographic-print exposure-meter	S. Cohen	788,021	Apr. 25	3708	807	115	1923
Photographic-print-washing apparatus	E. L. Johnson	784,861	Mar. 14	1764	367–8	115	409
Photographic-printing apparatus	H. H. McIntire	784,587	Mar. 14	1175	248–9	115	278
Photographic-printing apparatus	N. D. Wyman and P. G. Fleming.	787,548	Apr. 18	2702	588–9	115	1683
Photographs. Transparent-paper stripping-film for	J. E. Thornton and C F. S. Rothwell.	786,534	Apr. 4	670	136	115	1213
Pianissimo device	C. P. Blinn	786,186	Mar. 28	4440	939	115	1025
Pianissimo device	O. Glatt	788,203	Apr. 25	4052	876	115	2006
Piano	C. A. Haddorff	788,044	Apr. 25	3750	816	115	1932
Piano-action	C. W. Brewer	786,407	Apr. 4	340	78	115	1146
Piano actions. Bracket for grand-	E. Bornhoeft	787,069	Apr. 11	1745	371	115	1457
Piano-actions. Pianissimo device for	W. and C. Kreter	785,005	Mar. 14	2025	424	115	467
Piano, &c., back	J. Brockwoldt	787,268	Apr. 11	2135	471	115	1541

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Piano-case	M. F. Richardson	784,631	Mar. 14	1309	272	115	308
Piano-chair	M. C. Carrick	786,484	Apr. 4	566	113	115	1191
Piano. Electrically-actuated	J. Weber	784,508	Mar. 7	1029	212–13	115	231
Piano pedal-action	E. Bornhoeft	785,706	Mar. 28	3484	748	115	811
Piano-player. Automatic	J. B. Walker	786,293	Apr. 25	4229	917–18	115	2044
Piano-player case	J. Hattemer	784,045	Mar. 7	59	11–12	115	15
Piano repeating action. Grand	A. Nickel	785,151	Mar. 21	2406	506	115	566
Pianos. Coin-controlled actuating mechanism for autopneumatic	A. J. Hobart	786,899	Apr. 11	1378	293	115	1377
Pianoforte-action	F. A. Lingsch	788,482	Apr. 25	4586	1000	115	2121
Pick	W. F. Gillooly	786,207	Mar. 28	4485	948	115	1035
Pick-finder mechanism	E. H. Ryon	785,575	Mar. 21	3207	680	115	740
Pick. Miner's	M. Hardsocg	784,044	Mar. 7	58	11	115	15
Picker: *See* Bean-picker. Fruit-picker. Corn-picker. Potato-bug picker. Cotton-picker.							
Pickle liquor. Utilizing spent	A. S. Ramage	788,064	Apr. 25	3784	822	115	1940
Picture-exhibiting apparatus	R. Cohen	786,954	Apr. 11	1494	316–17	115	1403
Picture-exhibitor changing mechanism	E. Jehn	788,470	Apr. 25	4569	996	115	2118
Picture exhibitor. Moving	J. Roever and S. S. Baldwin	786,683	Apr. 4	959	198–9	115	1274
Picture-hook	B. Lehman	786,977	Apr. 11	1561	332	115	1416
Pictures. Apparatus for the production of gelatin	P. Charles and S. Faujat	787,663	Apr. 18	2943	639–40	115	1738
Pictures. Making waterproof transparent celluloid	A. Becher	788,129	Apr. 25	3920	849	115	1977
Pictures or designs. Producing	H. C. Mercer	784,169	Mar. 7	308	65	115	73
Pictures. Producing catalyzing	O. Gros and J. Friedlaender	786,640	Apr. 4	888		115	1260
Pie-making machine	J. C. Hutchison	786,816	Apr. 11	1220	254	115	1344
Pigments. Producing black or dark carbonaceous	D. J. Ogilvy	785,696	Mar. 21	3459	744	115	792
Pigments. Producing black or dark carbonaceous	D. J. Ogilvy	785,697	Mar. 21	3460		115	792
Pile-driver	W. J. Lawler	785,899	Mar. 28	3844	818	115	892
Pile-wire	W. Wattie	788,229	Apr. 25	4105	890	115	2016
Piling	M. R. Vanderkloot	786,329	Apr. 4	166	38	115	1106
Piling. Metallic	M. Schleussner	785,274	Mar. 21	2595	547	115	606
Piling. Wooden sheet	H. Wittekind	785,246	Mar. 21	2537	536	115	593
Pin: *See* Blanket-pin. Hair-pin. Clothes-pin. Safety-pin. Garment-pin. Veil-pin.							
Pin	S. Dancyger	785,479	Mar. 21	3004	635	115	696
Pipe: *See* Lined pipe. Spiral pipe. Locking-bar pipe. Wooden pipe.							
Pipe-bending apparatus	L. H. Brinkman	784,101	Mar. 7	180	35	115	44
Pipe-bending apparatus	L. H. Brinkman	785,082	Mar. 21	2183	460	115	516
Pipe-bending apparatus	L. H. Brinkman	785,083	Mar. 21	2185	460	115	517
Pipe-bending machine. Corrugated	E. Zeh	785,787	Mar. 28	3629	775–6	115	843
Pipe connection. Sewer and soil	W. F. J. Lutz. (Reissue)	12,337	Apr. 11	2200	500	115	1577
Pipe-coupling	J. McDonald	784,416	Mar. 7	831	172	115	190
Pipe-coupling	G. A. Füllipp	784,848	Mar. 14	1738	362	115	404
Pipe-coupling	Z. B. Custer	785,350	Mar. 21	2729	578	115	634
Pipe-coupling	J. C. Phelan	786,516	Apr. 4	639	129	115	1206
Pipe-coupling	J. N. Goodall	786,558	Apr. 4	716	146	115	1222
Pipe coupling. Train	G. H. Reynolds	787,791	Apr. 18	3219	703–4	115	1800
Pipe coupling. Train	L. M. Sartain	784,182	Mar. 7	338	70	115	79
Pipe-couplings, &c. Sealing device for	H. J. Noll	787,630	Apr. 18	2884	627	115	1725
Pipe-covering	R. D. Simpson	788,435	Apr. 25	4510	982	115	2105
Pipe-cutter. Ratchet	A. E. Roevens	785,765	Mar. 28	3590	767	115	835
Pipe-elbows. Device for forming standard	F. M. Sylvester	784,445	Mar. 7	883	184–5	115	201
Pipe expanding and cutting tool	L. H. Church	784,471	Mar. 7	935	196	115	212
Pipe expanding and flanging machine	L. D. Lovekin	784,578	Mar. 14	1154	242–3	115	274
Pipe-fitting	L. D. Lovekin	784,577	Mar. 14	1152	241–2	115	273
Pipe-hanger	W. Vanderman	785,130	Mar. 21	2299	482	115	541
Pipe-hanger	J. M. Bruce	784,979	Mar. 14	1981	416	115	457
Pipe head. Dry	C. W. Hodgdon	785,100	Mar. 21	2239	471	115	526
Pipe-joint. Ball-and-socket	H. G. Coryell and J. E. Stephens	787,565	Apr. 18	2740	596	115	1692
Pipe-joint. Locking-bar	N. F. Niederlander	787,391	Apr. 18	2394	518	115	1613
Pipe or hose coupling	G. J. Hoskins	784,565	Mar. 14	1129	236	115	269
Pipe or like joint	W. J. Williams	786,929	Apr. 11	1453	307	115	1394
Pipe screw-threading machine. Sheet-metal	F. W. Bühne	787,074	Apr. 11	1751	373	115	1459
Pipe-thimble	E. Zeh	784,244	Mar. 7	457	92–3	115	106
Pipe-threading die	C. A. Dunbar	785,543	Mar. 21	3147	664	115	728
Pipe-union	H. Jansen	784,568	Mar. 14	1134	237	115	270
Pipe-wrench	J. Bropson	787,144	Apr. 11	1802	408	115	1489
Pipe-wrench	J. Adams and C. A. Cross	784,771	Mar. 14	1560	328	115	372
Pipe-wrench	C. C. Chamberlin	785,711	Mar. 28	3494	749	115	814
Pipe-wrench	A. E. Powell	788,922	Apr. 11	1589	339	115	1423
Pipe-wrench	J. W. King	788,156	Apr. 25	3974	859	115	1988
Pipe-wrench	B. F. Woodward	788,388	Apr. 25	4422	961	115	2086
Pipe-wrench and pliers. Combined	G. M. Mason	787,523	Apr. 18	2662	577	115	1674
Pipe-wrench. Internal	E. Freytag	785,162	Mar. 21	2359	494	115	555
Pipes or tubes, &c. Composition of matter for forming	J. S. Gregg	784,318	Mar. 7	606	124	115	139
Pistol. Air	S. Daniels	786,426	Apr. 4	429	86	115	1164
Pistol case or holster. Woven	A. Mills	787,852	Apr. 18	3341	732	115	1826
Pistol. Child's	H. Kaiser	787,844	Apr. 18	3330	729	115	1823
Pistol. Repeating	C. P. Clément	786,099	Mar. 28	4286	904	115	993
Piston	D. C. Lewis	787,775	Apr. 18	3193	697	115	1794
Pitman-rod connection	J. L. Scott	786,686	Apr. 4	965	199	115	1276
Pivot	G. Merritt	788,509	Apr. 4	620	125	115	1202
Pivot. Spring support	H. M. Smith	788,388	Apr. 4	300	67–8	115	1138
Plaiting-machine	W. Wolkau	788,081	Apr. 25	3810	828–9	115	1947
Plane	E. A. and A. F. Schade	787,094	Apr. 11	1712	364	115	1451
Plane. Carpenter's	A. Kalla	787,624	Apr. 18	2873	625	115	1723
Planer. Rotary	W. J. Hagman	784,157	Mar. 7	287	60	115	66
Planing-machine pressure-roller. Wood	C. K. Orton	785,625	Mar. 28	3714	791	115	864

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Planing or mitering table	L. R. Slevin	788,436	Apr. 25	4512	982	115	2106
Plant-can. Transplanting	T. L. Klaffke	788,319	Apr. 25	4279	928	115	2056
Plant-shipping package. Potted	H. G. Chamberlin	786,547	Apr. 4	697	142	115	1218
Planter and fertilizer-distributer. Cotton	G. L. Brown	784,468	Mar. 7	928	195	115	211
Planter. Corn	C. R. Davis	784,143	Mar. 7	258	52–3	115	62
Planter. Corn	H. Schielke and E. Steinmann	784,353	Mar. 7	668	137–8	115	153
Planter. Corn	L. H. McCormac	784,627	Mar. 14	1299	270	115	305
Planter. Corn	R. V. Barry	786,619	Apr. 4	829	172	115	1246
Planter. Corn	W. L. Beall	788,344	Apr. 25	4325	943	115	2066
Planter. Potato	H. P. Baltzer and J. Johengen	785,932	Mar. 28	3911	832	115	909
Planting-machine	F. G. Green	786,284	Apr. 4	62	14	115	1085
Plastic compound	G. B. Dunbar	785,091	Mar. 21	2217		115	523
Plastic-material press	G. W. Thomas	785,120	Apr. 25	3000	844–5	115	1972
Plating apparatus	L. Schulte	787,701	Apr. 18	3014	661–2	115	1752
Plating. Metal	A. Schmidt	785,979	Mar. 28	4025	853	115	934
Pliers	R. Walton	787,414	Apr. 18	2437	527	115	1621
Pliers. Watchmaker's and jeweler's	B. E. Byrd	786,189	Mar. 28	4447	941	115	1027
Plow	P. W. Reifsneider	784,279	Mar. 7	530	109	115	122
Plow	D. G. Burkhart	785,474	Mar. 21	2995	632	115	695
Plow	R. Jones	785,890	Mar. 28	3829	814	115	889
Plow	A. G. Perry	786,836	Apr. 11	1254	263–4	115	1350
Plow	E. Fowler	787,506	Apr. 18	2634	570	115	1668
Plow	E. Fowler	787,618	Apr. 18	2864	623	115	1721
Plow	J. P. Smith	787,647	Apr. 18	2908	633	115	1730
Plow and cultivator	T. Henderson	785,213	Mar. 21	2470	521	115	579
Plow and harrow. Combined	E. M. and J. E. Kramer	785,223	Mar. 21	2496	526	115	585
Plow attachment	W. F. Edwards	787,977	Apr. 25	3604	787	115	1899
Plow cultivator attachment	S. D. Chambers	787,355	Apr. 18	2313	502	115	1593
Plow. Disk	C. R. Davis	786,427	Apr. 4	431	87–8	115	1164
Plow. Disk listing	J. D. Smith	784,765	Mar. 14	1583	326	115	370
Plow foot-lift	C. R. Davis	784,842	Mar. 14	1729	359–60	115	402
Plow. Gang	F. G. Ray	786,679	Apr. 4	953	196	115	1273
Plow. Garden	E. C. Davis	786,631	Apr. 4	862	178	115	1253
Plow-point	H. N. Berry	786,784	Apr. 4	1153	242	115	1318
Plow-point	W. H. Huxford	788,137	Apr. 25	3934	851	115	1980
Plow. Reversible disk	E. Manes	785,963	Mar. 28	3975	845–6	115	922
Plow-stock	G. W. Whitehurst	785,244	Mar. 21	2534	535	115	592
Plow-stock	N. C. Wade	788,341	Apr. 25	4321	941	115	2065
Plow weed-hook	G. W. Reiman	788,065	Apr. 25	3785	823	115	1941
Plows. Adjustable scraper for rotary-disk	W. O. Wimer	787,016	Apr. 11	1635	348	115	1433
Plug and spring-jack switch	W. W. Dean	787,900	Apr. 25	3439	753	115	1860
Plug. Expansible	C. D. Mosher	787,460	Apr. 18	2532	547	115	1642
Plumb and level. Mechanic's folding	C. E. Castle	787,891	Apr. 25	3426	750	115	1856
Plumb-bob	M. D. Converse	787,896	Apr. 25	3434	752	115	1859
Plumbing-traps or the like. Closure for	J. R. Duncan	784,931	Mar. 14	1893	397	115	438
Plunger. Press-mold	C. H. Slattery	785,235	Mar. 21	2518	531	115	589
Pneumatic carrier	T. Bemis	785,468	Mar. 21	2984	629	115	692
Pneumatic cleaner	A. E. Moorhead	787,389	Apr. 18	2392	517	115	1612
Pneumatic-compressor controller	B. F. Bergh	787,489	Apr. 18	2592	558	115	1657
Pneumatic-despatch apparatus	O. S. Pike	784,225	Mar. 7	425	85–6	115	98
Pneumatic jack	C. N. Coon	786,409	Apr. 4	343	75	115	1146
Pneumatic motor. Portable	R. A. Norling	787,596	Apr. 18	2791	608	115	1704
Pocket. Safety	W. C. Trussell	785,454	Mar. 21	2956	622	115	686
Pole attachment. Vehicle stiff	F. L. Meckel	785,368	Mar. 21	2764	584	115	642
Pole-coupling. Vehicle	D. S. Watson	788,001	Apr. 25	3656	796	115	1910
Pole-guard	J. Soderberg	784,902	Mar. 14	1838	385	115	427
Pole. Metallic	G. D'Esposito	787,613	Apr. 18	2857	621	115	1719
Polish-rod fastener	C. L. Kennedy and J. H. McGonigal.	785,501	Mar. 21	3057	647	115	708
Polishing-machine	J. Shaver	785,024	Mar. 14	2055	431–2	115	474
Portable house	G. N. White	788,445	Apr. 25	4526	986	115	2109
Portable mold	J. T. Boner	785,705	Mar. 28	3483	747	115	811
Post: *See* Fence-post. Metallic post.							
Postal and commercial reply-card	W. Goodman	786,436	Apr. 4	473	91	115	1173
Potato-bug picker	L. E. McGovney	784,628	Mar. 14	1301	271	115	306
Potato cutter and planter. Combined	H. Dingman	788,393	Apr. 25	4438	964	115	2091
Potato-digger	M. Altstock	786,792	Apr. 11	1180	246	115	1335
Potato-digger	L. W. Brabble	788,499	Apr. 25	4624	1006	115	2128
Potential-regulator	E. H. Porter and B. Currier	788,278	Apr. 25	4191	910	115	2035
Pottery-molding machine	L. Mary	784,059	Mar. 7	93	18	115	24
Pouch-transferring means	J. Rombach	786,519	Apr. 4	645	130	115	1207
Poultry-house	G. C. Scott	787,948	Apr 25	3538	772–3	115	1883
Powder. Means for manufacturing multiperforated bodies of smokeless	H. Maxim	787 105	Apr. 11	1810	387	115	1472
Powder-puff	N. R. Hull	785,951	Mar. 28	3954	841	115	917
Power: *See* Churn-power. Steam motive power.							
Power-brake	L. Pfingst	786,379	Apr. 4	284	64	115	1131
Power-brake. Mechanical	L. Pfingst	786,378	Apr. 4	277	63	115	1129
Power mechanism	F. L. Williams and J. J. Duchesne	788,342	Apr. 25	4322	942	115	2065
Power-operated switch	J. M. Andersen	785,307	Mar. 21	2831	597–8	115	658
Power or motion transmission mechanism	J. Dring	787,904	Apr. 25	3444	754	115	1861
Power system	C. C. Peck	784,088	Mar. 7	116	21	115	29
Power transmission	H. H. Cutler	786,414	Apr. 4	361	78	115	1150
Power-transmission mechanism	M. Hendrickson	785,948	Mar. 28	3948	839–40	115	916
Power-transmitting apparatus. Alternating-current	H. H. Cutler	786,415	Apr. 4	366	79	115	1151
Power-transmitting apparatus. Alternating-current	H. H. Cutler	786,416	Apr. 4	370	79–80	115	1152
Power-transmitting device	S. W. Rushmore	784,352	Mar. 7	666	127	115	182
Power-transmitting mechanism	T. L. and T. J. Sturtevant	784,285	Mar. 7	540	111	115	124
Power-transmitting mechanism	W. J. Bayrer	785,703	Mar. 28	3479	747	115	810
Precipitation process	G. H. Waterbury	788,443	Apr. 25	4522	984	115	2108
Preservative for foods, &c	K. Rücker and D. J. Pickés	784,503	Mar. 7	1014		115	227
Preserving-jar	J. C. Anderson	787,806	Apr. 18	2834	617	115	1714

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Press:							
See Baling-press. Oil-press.							
Beef-press. Plastic-material press.							
Brick-press. Printing-press.							
Briquet-press. Punching-press.							
Fruit-press. Rotary press.							
Hay-press. Screw-press.							
Hydraulic press. Trousers-press.							
Molding-press.							
Press	M. Mueller	785,752	Mar. 28	3566	761–2	115	828
Press	H. O. Latham	787,301	Apr. 11	2200	484	115	1556
Press-plate	A. W. French	784,259	Mar. 7	490	98	115	113
Press valve-operating mechanism	J. M. Stuart	787,007	Apr. 11	1612	344	115	1428
Pressing-machine. Hydraulic	W. H. Fisher	785,602	Mar. 21	3268	604–5	115	753
Pressure-gage	C. E. Sargent	785,438	Mar. 21	2923	617	115	677
Pressure-regulator	P. Keller	784,331	Mar. 7	621	128	115	142
Pressure-regulator	W. F. Krichbaum	784,406	Mar. 7	808	168–9	115	185
Pressure-regulator	P. Keller and P. Seller	786,769	Apr. 4	1124	236	115	1311
Print washing and drying apparatus. Blue-	C. F. Pease	786,598	Apr. 4	784	161	115	1237
Prints on dark backgrounds. Making	G. E. Matthews	785,274	Apr. 25	4183	909	115	2034
Printing apparatus	H. Smith	784,235	Mar. 7	443	89	115	103
Printing clothing-tickets. Machine for	A. Antoine	784,375	Mar. 7	726	148	115	167
Printing. Color-	M. A. McKee	787,200	Apr. 11	2021	441	115	1517
Printing-couple appliance	F. E. Kempf	786,220	Mar. 28	4510	954	115	1040
Printing-frame	E. R. Petrie	785,373	Mar. 21	2771	586	115	644
Printing-frame. Roller	G. C. Olsen	785,566	Mar. 21	3189	675	115	736
Printing-machine	J. A. Thomson	786,069	Mar. 28	4213	889–91	115	976
Printing machine. Blue-	E. T. Cope	784,473	Mar. 7	941	197	115	213
Printing-machine offset mechanism	H. M. Barber	787,141	Apr. 11	1883	406–7	115	1487
Printing machine. Stencil-	C. L. Burdick	787,271	Apr. 11	2138	472	115	1542
Printing-machine wiper. Copper-plate-	M. Rudometoff	787,542	Apr. 18	2696	586	115	1681
Printing. Multicolor duplex	H. F. Bechman	786,620	Apr. 4	831	172	115	1247
Printing of calendars, cash and ticket blocks, &c. Machine for the	H. Stamm	786,852	Apr. 11	1290	271	115	1356
Printing on cylinders. Mechanism for	G. W. Elrod	788,396	Apr. 25	4444	966–7	115	2092
Printing on eggs. Machine for	E. Chirac	785,198	Mar. 21	2437	513	115	572
Printing. Photomechanical	J. W. Ippers	785,735	Mar. 28	3532	756	115	822
Printing. Photomechanical	H. L. Reckard	788,377	Apr. 25	4394	957	115	2080
Printing-plates. Machine for beveling the edges of electrotype or stereotype	F. W. Cann	785,349	Mar. 21	2726	577–8	115	633
Printing-press	E. N. Mills	785,821	Mar. 28	3707	789–90	115	863
Printing-press	S. G. Goss	786,283	Apr. 4	60	13–14	115	1084
Printing-press	H. F. Bechman	786,716	Apr. 4	1023	212–13	115	1289
Printing-press	J. E. Capa	786,872	Apr. 11	1321	281	115	1364
Printing-press beds. Spring-controlling mechanism for	C. P. Cottrell	785,862	Mar. 28	3772	802	115	877
Printing-press cylinder	G. K. Henderson	786,031	Mar. 28	4137	872	115	960
Printing-press. Platen	F. Walte	786,072	Mar. 28	4233	892	115	962
Printing-press tripping mechanism	T. C. Dexter	784,479	Mar. 7	952	199	115	216
Programs for use in theaters, &c. Clip for holding	J. Ogilvie and J. D. Lowe	785,632	Mar. 21	3321	709	115	763
Projectile for gunnery practice. Ordnance	E. G. Wang	784,087	Mar. 7	157	29	115	39
Propeller	E. G. Meinecke	785,369	Mar. 21	2767	585	115	642
Propeller	C. T. Freid	787,745	Apr. 18	3144	688	115	1783
Propeller. Ship's	F. H. Grawert-Zellin	784,109	Mar. 7	195	37	115	48
Propulsion of ships. Apparatus for	W. T. Donnelly	787,064	Apr. 11	1772	378	115	1463
Prossering and flue-beading tool	T. V. Freebury	784,934	Mar. 14	1902	398	115	440
Pruning implement	J. M. King	785,109	Mar. 21	2258	475	115	532
Pruning implement	R. J. Meyer	786,371	Apr. 4	260	59	115	1125
Pruning implement	J. G. Hunt	786,766	Apr. 4	1121	235	115	1310
Puff comb. Adjustable pompadour-	B. W. Doyle	785,412	Mar. 21	2866	605	115	666
Pull-rod rotary support	J. Kerlin	787,625	Apr. 18	2874	625	115	1723
Puller:							
See Spike-puller.							
Pulley	F. M. Gunby and C. S. Brown	786,757	Apr. 4	1105	232	115	1307
Pulley and bearing therefor. Loose	A. N. Dethlefson and H. Grahn	784,252	Mar. 7	479	95	115	111
Pulley-block	W. Gutenkunst	785,358	Mar. 21	2744	581	115	637
Pulley-frame	L. S. Lachman	786,361	Apr. 25	4357	951	115	2073
Pulley, gear, and sheave	W. Brinton	784,544	Mar. 14	1094	228–9	115	261
Pulley keying device	D. G. Langlands	786,039	Mar. 28	4152	875	115	963
Pulley. Lubricated	G. W. King, H. J. Barnhart, and C. B. King.	786,790	Apr. 4	1169	244	115	1321
Pulley or wheel	L. S. Lachman	785,897	Mar. 28	3840	817	115	891
Pulley. Sash-	P. Dosch	786,800	Apr. 11	1193	249	115	1338
Pulley. Sash-	K. Kerr	787,517	Apr. 18	2655	576	115	1672
Pulley. Self-lubricating	S. W. Wardwell	786,864	Apr. 11	1306	278	115	1361
Pulley. Sheet-metal	G. C. Gardner	785,256	Mar. 21	2557	539	115	597
Pulley. Sheet-metal	G. C. Gardner	785,257	Mar. 21	2558	540	115	597
Pulley. Sheet-metal	R. H. Bowen	788,185	Apr. 25	4021	869	115	1999
Pulley. Sheet-metal sash-	P. Dosch	786,801	Apr. 11	1194	249	115	1338
Pulp article. Hollow	J. H. Rivers	785,683	Mar. 21	3431	737	115	786
Pulp articles. Apparatus for making	M. L. Keyes	788,138	Apr. 25	3935	852–3	115	1980
Pulp-beating engine	J. White	784,522	Mar. 14	1699	352	115	396
Pulp-screening machine	W. H. Crosby	788,025	Apr. 25	3713	800	115	1924
Pulp-strainer	F. E. Hemings	784,743	Mar. 14	1526	314	115	358
Pump	A. Radovanovic	784,178	Mar. 7	329	68	115	77
Pump	E. E. Resor	784,563	Mar. 14	1194	251	115	282
Pump	A. A. Ball, Jr.	784,773	Mar. 14	1593	329	115	373
Pump	J. W. Park	785,912	Mar. 28	3870	822	115	899
Pump	J. R. Compton	786,100	Mar. 28	4288	904	115	994
Pump	A. H. Deis. (Reissue)	12,331	Mar. 28	4572	970	115	1054
Pump	W. U. Griffiths	786,285	Apr. 4	64	15	115	1085
Pump	A. E. Kepner	786,500	Apr. 4	603	120	115	1199
Pump	J. Scholl	787,117	Apr. 11	1536	393	115	1477
Pump	D. M. Watson	787,244	Apr. 11	2093	462	115	1532
Pump	F. R. Wilson and G. Mansell	787,247	Apr. 11	2097	463	115	1533
Pump	W. M. Price	787,308	Apr. 11	2214	486	115	1559
Pump and piston rod. Combined	J. F. Leary	784,602	Mar. 14	1418	293	115	333
Pump. Centrifugal	E. L. Smith and J. M. Sherrerd	786,922	Apr. 11	1449	305	115	1391
Pump. Centrifugal	E. G. Harris	787,039	Apr. 11	1677	357–8	115	1443
Pump chain and button	J. F. Williamson	785,140	Mar. 21	2321	486	115	546
Pump. Cross-head	J. G. Fairbanks and G. L. Sauer	788,457	Apr. 25	4553	991	115	2114
Pump. Current-operated	J. D. Dawson and F. Hamilton	787,153	Apr. 11	1969	413–14	115	1492
Pump. Double rotary force-	J. R. Norton	786,143	Mar. 28	4355	920–1	115	1009
Pump. Duplex steam-	C. A. Snider	786,467	Apr. 4	533	106–7	115	1184
Pump. Force-	R. F. George	784,998	Mar. 14	2013	422	115	464
Pump-governing device	R. B. McGowan	786,915	Apr. 11	1427	302	115	1388
Pump. Hand air-	G. E. Cordeau	785,154	Mar. 21	2342	491	115	551
Pump. Hydraulic	R. H. Russell	784,435	Mar. 7	859	179	115	196
Pump-jack	P. A. Myers	787,462	Apr. 18	2534	548	115	1642
Pump. Jet-	E. W. Keller	787,453	Apr. 18	2516	545	115	1638
Pump mechanism. Double-acting	E. Hoornbeek	785,553	Mar. 21	3170	670	115	732
Pump. Oil-	W. S. Sherman	786,167	Mar. 28	4405	931	115	1019
Pump. Oil-	F. J. Young	786,937	Apr. 11	1466	310	115	1397
Pump or turbine. Rotary	E. Hopkinson and A. E. L. Chorlton.	785,039	Mar. 14	2087	439–40	115	481
Pump. Rotary	D. E. Virtue	784,715	Mar. 14	1485	304	115	349
Pump. Rotary	N. Yokouchi, K. Abe, and A. Matsuzaki.	785,248	Mar. 21	2540	536	115	593
Pump. Rotary	F. Brückert	785,288	Mar. 21	2619	554	115	610
Pump. Rotary	G. H. Ellithorpe	788,032	Apr. 25	3725	812	115	1927
Pump. Rotary turbine-	E. A. Smith	786,466	Apr. 4	532	105–6	115	1184
Pump. Turbine-	J. Richards	786,384	Apr. 4	301	65–6	115	1137
Pump-valve	J. M. Bassett	784,534	Mar. 14	1075	224	115	257
Pump-valve	O. Arendt and P. Holtzmann	785,996	Mar. 28	4059	860	115	942
Pumps. Pull-wheel for operating well-	J. D. Anderson	786,399	Apr. 4	324	71	115	1142
Pumping apparatus	G. D. McElphatrick	786,665	Apr. 4	935	191	115	1269
Pumping apparatus. Air-	T. H. J. Leckband	784,575	Mar. 14	1146	240	115	272
Pumping-engine	O. O. Storie	785,336	Mar. 21	2703	573	115	629
Pumping-jack. Oil-well	R. G. Strother	786,854	Apr. 11	1286	273	115	1356
Punch	W. Ross	787,052	Apr. 11	1708	364	115	1450
Punch-cutting machine	J. W. Lewis	787,197	Apr. 11	2000	435	115	1513
Punch. Hand-	A. Skow	787,862	Apr. 18	3360	735	115	1830
Punch. Leather-	J. E. Cooper	788,022	Apr. 25	3708	808	115	1923
Punch. Multiple	G. E. W. Marsden	787,849	Apr. 18	3338	731	115	1825
Punching-bag	A. F. Burtt	788,245	Apr. 25	4140	898	115	2024
Punching-machine	F. J. Nutting	786,834	Apr. 11	1246	261–3	115	1349
Punching-machine	J. A. Groebli	786,890	Apr. 11	1358	289	115	1373
Punching-machine. Multiple	E. A. Stickney	786,853	Apr. 11	1284	272	115	1356
Punching-machine. Portable	M. Weixler	788,295	Apr. 25	4237	919	115	2046
Punching-press	L. L. Barber	784,774	Mar. 14	1598	329	115	373
Puzzle	I. C. Scudder	786,164	Mar. 28	4402	931	115	1019
Puzzle	J. D. Midson	787,204	Apr. 11	2014	439	115	1516
Puzzle	A. Rydquist	787,796	Apr. 18	3230	706	115	1802
Puzzle	E. G. Jensen	788,048	Apr. 25	3755	817	115	1933
Puzzle or game apparatus	A. Coe	785,665	Mar. 21	3383	726–7	115	778
Pyrocatechulcmonoalkyl ethers. Making compounds of	H. C. Fehrlin	784,107	Mar. 7	190	.....	115	47
Quilting-frame	C. Carter	787,277	Apr. 11	2156	475	115	1546
Quilting-frame hanger	J. L. Renick	787,790	Apr. 18	3218	703	115	1800
Rack:							
See Adjustable rack. Feed-rack.							
Car basket-rack. Indexing-machine rack.							
Collapsible rack. Wagon-rack.							
Display-rack.							
Rack	A. M. Padmore	784,499	Mar. 7	1009	209	115	226
Racking apparatus	D. Beebe	786,621	Apr. 4	833	173–4	115	1247
Radiator	J. F. Flaherty	786,886	Apr. 11	1353	288	115	1372
Radiator connection. Sheet-metal-	H. W. Nowell	788,140	Apr. 25	3945	853	115	1982
Radiator for motor-vehicles	L. H. Brinkman	785,081	Mar. 21	2181	460	115	516
Radiator. Sheet-metal	W. R. Kinnear	787,845	Apr. 18	3331	729	115	1823
Radiators, &c. Adjustable foot-rest for	E. Terry	784,711	Mar. 14	1454	301	115	342
Radio-active matter and making same	H. Lieber	787,928	Apr. 25	3501	764	115	1874
Radio-active organic matter and food. Preserved	H. Lieber	788,480	Apr. 25	4583	.....	115	2120
Radio-active substances. Instrument for rendering visible the luminous effects produced by	F. H. Glew	787,170	Apr. 11	1944	421	115	1501
Rag-cutter mechanism	C. W. Griffin	787,290	Apr. 11	2175	479–80	115	1550
Rag-engine	W. Schmidt	787,543	Apr. 18	2698	587	115	1682
Rail and bed. Car-	R. M. Burke	787,433	Apr. 18	2478	536	115	1630
Rail-chair	J. M. Young	784,727	Mar. 14	1504	308	115	354
Rail-chair. Boltless	W. H. Rishel	787,468	Apr. 18	2544	551	115	1645
Rail construction	R. M. Burke	787,434	Apr. 18	2480	536	115	1630
Rail-fastening	G. E. Lynch	785,044	Mar. 14	2095	441–2	115	483
Rail-fitting	M. Vintschger	788,442	Apr. 25	4520	984	115	2108
Rail guard. Electrical-	L. B. Stillwell and F. R. Slater	784,237	Mar. 7	448	90	115	104
Rail guard. Electrical-	L. B. Stillwell and F. R. Slater	784,238	Mar. 7	449	90	115	104
Rail-joint	J. A. Hamilton	784,260	Mar. 7	492	98	115	113
Rail-joint	W. Daves	784,928	Mar. 14	1888	396	115	437
Rail-joint	D. J. Macdonald	785,623	Mar. 21	3301	702	115	760
Rail-joint	C. W. McCoy	785,631	Mar. 21	3320	709	115	763
Rail-joint	E. G. Gralapp	785,730	Mar. 28	3527	755	115	821
Rail-joint	G. T. Haygood	786,030	Mar. 28	4136	871	115	980
Rail-joint	E. E. Harrison	786,118	Mar. 28	4315	911	115	1001
Rail-joint	M. Stuart	786,324	Apr. 4	158	36	115	1104
Rail-joint	A. C. Fletcher	786,636	Apr. 4	882	181	115	1259
Rail-joint	J. T. Qualk	787,220	Apr. 11	2038	445	115	1521
Rail-joint	A. H. Stevenson	787,544	Apr. 18	2700	587	115	1682
Rail-joint	J. W. Anderson	787,607	Apr. 18	2835	617	115	1714
Rail-joint	J. Edwards and J. Jarrett	787,615	Apr. 18	2860	622	115	1720
Rail-joint	R. M. Williams	788,080	Apr. 25	3809	828	115	1946
Rail-joint	A. C. Shand	788,433	Apr. 25	4506	981	115	2104
Rail-joint	C. E. Labady	788,479	Apr. 25	4582	999	115	2120
Rail joint and chair	J. S. Webb	785,782	Mar. 28	3622	774	115	841

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Rail-joint connection	J. Graff	784,855	Mar. 14	1752	365	115	406
Rail-lubricating device	R. Fallnicht	785,939	Mar. 28	3929	836	115	912
Rail splice-bar	H. Odendahl	785,757	Mar. 28	3577	764	115	831
Rail system. Protected third-	I. C. Thorne	788,290	Apr. 25	4219	915	115	2042
Rail-tie	F. X. Harrison	788,466	Apr. 25	4565	995	115	2117
Rail tie and fastening	W. G. Willcoxen	785,647	Mar. 21	3349	718	115	770
Rails. Clamp and key plate device for fastening	G. A. Demarest	788,502	Apr. 25	4627	1009	115	2129
Rails. Compound hinge for depressible	C. J. Diebold	787,326	Apr. 11	2247	491	115	1566
Railway-ballasting and superstructure-raising apparatus	G. H. Cravens	785,252	Mar. 21	2546	537–8	115	595
Railway block-signal apparatus	A. B. Kendall	785,891	Mar 28	3830	814	115	889
Railway block-signal system	A. Horstachafer	785,807	Mar. 28	3679	782–3	115	857
Railway brace and chair	J. H. McGuane	788,326	Apr. 25	4286	931	115	2057
Railway-brake	P. Hallot	784,489	Mar. 7	979	205	115	221
Railway-brake. Automatic	J. Britz	788,091	Apr. 25	3833	833	115	1952
Railway bumping-post	B. Haskell	786,808	Apr. 11	1205	252	115	1341
Railway-carriage coupling. Automatic	J. Willison	786,868	Apr. 11	1314	279–80	115	1363
Railway collisions. Apparatus for preventing	H. Gerstmann	787,029	Apr. 11	1660	354	115	1438
Railway construction	C. S. Seitz	787,003	Apr. 11	1604	343	115	1427
Railway cross-tie	S. Hoagland	788,260	Apr. 25	4163	904	115	2030
Railway-crossing	G. W. Willebrands and J. W. Bennett.	787,966	Apr. 25	3584	783	115	1894
Railway-crossing frog. Interchangeable	L. E. Keller	784,493	Mar. 7	986	207	115	222
Railway-crossing safety-gate	A. C. Layman and P. A. Bentsen	784,691	Mar. 14	1417	293	115	333
Railway-crossing structure	W. B. Cooke	786,193	Mar 28	4460	943	115	1029
Railway danger signaling device	E. de Senan	784,900	Mar. 14	1834	384	115	425
Railway. Electric	T. Mahoney	785,315	Mar. 21	2663	565	115	619
Railway. Electric	L. W. Pullen	788,280	Apr. 25	4197	911	115	2036
Railway. Elevated	J. Cooper	786,874	Apr. 11	1327	282	115	1366
Railway-frog	P. Kyle and J. R. Cress	785,559	Mar. 21	3178	673	115	734
Railway-frog	W. F. Carr	786,627	Apr. 4	854	177	115	1252
Railway-frog	W. Wharton, Jr	788,386	Apr. 25	4418	960	115	2086
Railway frog and guard-rail	D. J. Swing	786,068	Mar. 28	4211	887–8	115	976
Railway frog and guard-rail foot-guard	M. Waters and W. M. Mitchell	786,076	Mar. 28	4241	893	115	984
Railway-gage	R. M. Jenkins	784,330	Mar. 7	620	128	115	142
Railway. Inclined	S. E. Jackman	784,329	Mar. 7	619	127–8	115	141
Railway-indicator. Electric	P. J. Chandeysson	786,628	Apr. 4	857	177–8	115	1253
Railway-joint	T. H. Tracy	784,449	Mar. 7	985	186	115	203
Railway-joint fish-plate	D. C. Johnson	785,042	Mar. 14	2093	441	115	482
Railway-motor control	C. P. Steinmetz	784,814	Mar. 14	1679	347–8	115	392
Railway. Pleasure-	J. H. Goodfellow	788,258	Apr. 25	4158	903	115	2028
Railway-rack-rail switch mechanism	F. L. Sessions	787,590	Apr. 18	2796	609	115	1705
Railway-rail	F. Bertgen	784,379	Mar. 7	740	151	115	170
Railway-rail	E. Hayward	788,505	Apr. 25	4631	1011	115	2130
Railway-rail anchor	B. F. Beckman	787,871	Apr. 18	3376	738	115	1834
Railway-rail chair	S. B. Brown	788,244	Apr. 25	4139	898	115	2024
Railway-rail-guard clamp	E. H. Johnston	787,186	Apr. 11	1981	431	115	1508
Railway-rail holder	G. M. Ewins	786,277	Apr. 4	44	11	115	1081
Railway rolling-stock. Side bearing for	G. H. Wood	788,082	Apr. 25	3813	829	115	1947
Railway safety appliance	J. L. Wall	786,392	Apr. 4	315	69	115	1140
Railway safety device	F. C. Foster	785,208	Mar. 21	2454	517	115	576
Railway-signal	E. L. Morgan	784,750	Mar. 14	1551	320	115	364
Railway-signal	M. D. Hanlon	785,098	Mar. 21	2235	470–1	115	527
Railway-signal	P. S. Dorlon	785,294	Mar. 21	2629	556–7	115	612
Railway-signal	M. D. Hanlon	785,669	Mar. 21	3395	729–30	115	780
Railway-signal	O. W. Hart	786,894	Apr. 11	1364	290	115	1374
Railway-signal	A. G. Wilson	787,967	Apr. 25	3585	783	115	1895
Railway signal and gate	J. G. O. and I. D. Combs	787,895	Apr. 25	3431	751–2	115	1858
Railway-signal. Automatic	J. C. Lambert	784,497	Mar. 7	994	208	115	224
Railway signal system	W. G. Roome	786,316	Apr. 4	145	33	115	1101
Railway signal system	W. E. Schieble	786,604	Apr. 4	799	164–5	115	1240
Railway signal system. Electric-	G. W. Pickard and H. J. W. Fay	786,148	Mar. 28	4366	924	115	1011
Railway-signals. Circuit-controller for electric	H. B. Snell	784,357	Mar. 7	676	139	115	155
Railway signaling system	J. Lemire	786,368	Apr. 4	249	57–8	115	1123
Railway signaling system. Electric	J. D. Gordon	786,209	Mar. 28	4486	948–9	115	1036
Railway-spike claw-bar	H. A. Meikrantz	785,583	Mar. 21	3183	674	115	735
Railway-spikes, &c. Means for fastening	G. G. Lakhovsky	786,037	Mar. 28	4147	874–5	115	962
Railway-switch	S. R. Flowers	784,522	Mar. 7	1053	218	115	226
Railway-switch	E. W. Henry	785,615	Mar. 21	3290	699	115	758
Railway-switch	E. G. Clift and E. E. Woosley	785,664	Mar. 21	3381	726	115	777
Railway-switch	F. Uhtbrock	785,780	Mar. 28	3619	773	115	841
Railway-switch	G. W. Duke	786,739	Apr. 4	1062	220	115	1297
Railway-switch	M. Waters and W. M. Mitchell	786,780	Apr. 4	1147	241	115	1316
Railway-switch	H. Phillipe	787,216	Apr. 11	2034	443–4	115	1520
Railway-switch adjuster. Automatic	L. C. Brown	788,186	Apr. 25	4022	869–70	115	1999
Railway switch. Automatic street-	W. S. Snyder and W. H. Barker	786,688	Apr. 4	972	201	115	1277
Railway-switch. Electrically-controlled	R. V. Cheatham	787,827	Apr. 18	3285	717	115	1814
Railway-switch-operating device. Street-	E. G. Howe	786,564	Apr. 4	729	148	115	1225
Railway-switch-operating means	R. C. Bullough	784,657	Mar. 14	1353	280	115	318
Railway-switch setting and locking mechanism	J. H. Clark	785,088	Mar. 21	2205	464–5	115	521
Railway switch. Suspended-electric-	R. Pfaffenbach and H. Müller	787,856	Apr. 18	3351	734	115	1829
Railway system	C. Mehring	788,322	Apr. 25	4282	930	115	2056
Railway system and conduit. Electric-	G. W. Ollinger	785,758	Mar. 28	3578	764	115	831
Railway system. Electric-	J. C. McDonald	785,909	Mar 28	3859	821	115	895
Railway system. Third-rail electric-	T. J. Casey and F. H. Pickles	784,303	Mar. 7	579	119	115	133
Railway-tie	A. M. Moylan	784,802	Mar. 14	1658	343–4	115	386
Railway-tie	F. C. Wright	784,826	Mar. 14	1705	354	115	397
Railway-tie	J. J. Floyd	784,846	Mar. 14	1734	361	115	403
Railway-tie	J. A. Biferd	785,053	Mar. 14	2110	445	115	486
Railway-tie	J. S. Alexander	786,254	Apr. 4	1	1	115	1071
Railway-tie	I. Copeland	786,548	Apr. 4	699	142	115	1218
Railway-tie	D. F. Earnest and W. T. Gilchrist	786,902	Apr. 11	1511	321	115	1407
Railway-tie	S. McElfatrick	786,982	Apr. 11	1572	336	115	1420
Railway-tie	M. H. Mahar	787,040	Apr. 11	1701	361	115	1448
Railway-tie	Z. C. Robbins	787,390	Apr. 18	2412	521	115	1617
Railway-tie and rail-fastening device. Metallic	J. H. Killinger	784,793	Mar. 14	1634	337	115	381

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Railway-tie. Metallic	H. W. Avery	784,530	Mar. 14	1089	222	115	256
Railway-ties. Construction of concrete	A. C. Mather	787,931	Apr. 25	3508	766	115	1876
Railway-track appliance	C. A. Sanborn	786,919	Apr. 11	1435	304	115	1390
Railway-track appliance	C. A. Sanborn	786,920	Apr. 11	1437	304	115	1390
Railway-track structure	G. M. Ervin	784,735	Mar. 14	1517	311	115	357
Railway-vehicle coupling	L. Brandau	786,479	Apr. 4	555	112	115	1189
Railway-vehicle wheels. Fastening tires to	T. Stapf	787,801	Apr. 18	3240	707	115	1804
Railways and vehicles for transporting light loads. Construction of	D. Monnier	784,269	Mar. 7	514	104	115	119
Rake: *See* Hand-rake. Hay-rake.							
Rake	A. J. Allison	784,095	Mar. 7	171	32	115	42
Rake	C. Idly	788,261	Apr. 25	4164	904	115	2030
Rake ratchet mechanisms. Release device for horse-	E. H. Kimbark	786,447	Apr. 4	490	94–5	115	1176
Range. Gas-	C. Eickemeyer	784,391	Mar. 7	771	158	115	176
Range. Gas-	J. F. Mills	787,686	Apr. 18	2981	649	115	1746
Ratchet-drill	F. C. Torrance	787,234	Apr. 11	2068	452	115	1527
Razor-handle	A. W. Slevin	788,437	Apr. 25	4513	982	115	2106
Razor. Safety-	A. J. H. Lefebvre	784,336	Mar. 7	636	131	115	145
Razor. Safety-	B. Hirschfeld	786,808	Apr. 11	1377	293	115	1376
Razor. Safety-	B. Klam	788,318	Apr. 25	4277	928	115	2055
Razor-strop	G. E. Maier	785,264	Mar. 21	2580	544	115	603
Razor-strop	G. E. Maier	787,304	Apr. 11	2204	484	115	1557
Receptacle-closure	C. Schroeder	786,521	Apr. 4	649	131	115	1208
Receptacle. Covered	J. J. Schuler	784,282	Mar. 7	535	110	115	123
Receptacle-supporting attachment	A. J. Gerhardt, H. O'Connor, and C. A. Violet.	787,911	Apr. 25	3471	759	115	1868
Recharging device	J. V. Wells	786,332	Apr. 4	171	39	115	1106
Reciprocating engine	V. R. Method and A. W. Stewart.	785,318	Mar. 21	2668	566–7	115	620
Reciprocating engine and pump having rotary operating mechanism. Air or liquid	G. W. Johnston	784,569	Mar. 14	1135	238	115	270
Record. Combination statement and collection	M. M. Cohn	785,291	Mar. 21	2624	555	115	611
Record device	C. L. Hutchison	785,885	Mar. 28	3818	812	115	887
Records and blanks. Apparatus for producing molded	W. H. Miller and A. N. Pierman	785,319	Mar. 21	2671	567	115	620
Recorder: *See* Passenger-recorder. Time-recorder.							
Recording-gage	C. J. Manning	785,677	Mar. 21	3421	734	115	784
Reeding-machine	J. Pernot and C. Hummel	786,515	Apr. 4	636	128	115	1206
Reel: *See* Fishing-reel. Hose-reel. Harvester-reel.							
Reeling-machine	J. E. Tynan	784,365	Mar. 7	696	144–5	115	189
Refractory articles. Manufacturing	P. Klein	784,621	Mar. 14	1267	.....	115	298
Refractory bodies. Making	E. G. Acheson	787,869	Apr. 18	3374	.....	115	1834
Refractory material and making same	G. C. Glynn	788,132	Apr. 25	3926	.....	115	1978
Refractory material. Manufacturing	G. C. Glynn	788,131	Apr. 25	3925	.....	115	1978
Refrigerating apparatus. Expansion-valve for	A. T. Marshall	785,265	Mar. 21	2581	545	115	603
Refrigerator	J. W. Mallett	785,814	Mar. 28	3693	786	115	860
Refrigerator	F. A. Hickson	786,810	Apr. 11	1209	252–3	115	1341
Regenerative furnace. Siemens	A. Kurzwernhart	786,770	Apr. 4	1125	236	115	1311
Register: *See* Car-register. Cash-register.							
Register-actuating mechanism	W. W. Johnson	784,862	Mar. 14	1766	368	115	409
Register system	A. Fevola	787,163	Apr. 11	1926	418	115	1497
Regulator: *See* Boiler-pressure regulator. Pendulum-regulator. Potential-regulator. Current-regulator. Pressure-regulator. Feed-regulator. Stock-regulator. Gas-regulator. Windmill-regulator.							
Reinforce	J. F. Francia	786,749	Apr. 4	1064	225	115	1302
Reins. Multiple driving-	D. S. Wilson	784,824	Mar. 14	1702	353	115	306
Relay	M. Setter	784,635	Mar. 14	1315	273	115	309
Relay	R. H. Manson	784,872	Mar. 14	1786	372	115	413
Relay. Compound	S. D. Field	785,941	Mar. 28	3933	837	115	913
Relay. Signal-	F. K. Vreeland	786,666	Apr. 4	989	203–4	115	1281
Remedy-applying device	D. A. Stapler	786,529	Apr. 4	662	133	115	1211
Reminder-ring. Expansible	C. T. Whitsett	784,823	Mar. 14	1700	353	115	306
Remnant-tube	C. E. Mitchem	785,822	Mar. 28	3710	790	115	863
Resonator	F. F. Swigert	784,082	Mar. 7	145	26	115	36
Resonator-switch	H. C. Moyer	785,266	Mar. 21	2582	545	115	603
Respirator	W. G. Gates	787,167	Apr. 11	1933	419	115	1498
Revolvers, &c. Search-light for	B. C. Riblet	784,227	Mar. 7	430	87	115	100
Rheostat	F. E. Goodall	787,032	Apr. 11	1666	355	115	1440
Rheostat for starting and controlling electric motors	W. C. Yates	785,994	Mar. 28	4055	860	115	941
Rheostat. Starting-	E. F. Dutton	786,017	Mar. 28	4113	867–8	115	955
Ribbon-runner	R. Culbreth	786,026	Apr. 25	3714	809	115	1925
Rifle magazine attachment	M. H. Cottom	786,798	Apr. 11	1190	248	115	1337
Ring: *See* Finger-ring. Key-ring. Harness terret-ring. Reminder-ring.							
Rivet-holder	O. F. Botsford	784,246	Mar. 7	463	93	115	107
Rivet-punching-out machine	N. M. McDaniel	784,117	Mar. 7	207	40	115	80
Riveting device	F. Sheppard	788,778	Apr. 4	1145	240	115	1316
Riveting-machine	C. H. Fenton	785,940	Mar. 28	3929	836–7	115	912
Road-smoother	J. Force	785,108	Mar. 28	4300	907	115	907
Roasting-furnace	C. H. Repath and F. E. Marcy	785,457	Mar. 21	2919	616–17	115	676
Roasting-furnace	W. R. Ingalls	786,567	Apr. 4	734	150	115	1226
Roasting-furnace	C. H. Repath and F. E. Marcy	786,599	Apr. 4	783	162	115	1236
Roasting-furnace	F. J. Falding	788,088	Apr. 25	3843	835	115	1954
Rock-crusher	E. C. Bacon	787,322	Apr. 11	2228	460	115	1554
Rock-drill	C. T. McCormick	784,173	Mar. 7	320	69	115	75
Rock-drill	J. M. Hamor	787,376	Apr. 18	2360	510	115	1603
Rock-drill motors. Means for coupling	J. H. Redfield	784,787	Mar. 14	1570	323–4	115	368
Rock-drilling-machine valve	J. E. H. Gross	784,220	Mar. 7	607	124	115	130

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rock-facing. Method of	A. L. Rich	788,379	Apr. 25	4407	958	115	2083
Rocking-chair	G. F. Hall	787,171	Apr. 11	1946	421–2	115	1501
Rocking-chair	C. D. Koeser	787,299	Apr. 11	2195	483	115	1555
Rod-holder	W. E. and C. A. Metzger	786,045	Mar. 28	4162	877	115	965
Rods and their supports or other similar devices together. Means for attaching	F. M. Seamans	786,846	Apr. 11	1273	269	115	1354
Roller:							
See Box-roller. Lawn-roller.							
Rolling. Shaping metallic ingots by transverse	L. D. Davis	787,612	Apr. 18	2857	621	115	1719
Roofing and siding material	F. D. Jacobs	788,358	Apr. 25	4352	950	115	2071
Rope-knife	C. R. Phillips	785,433	Mar. 21	2906	614	115	673
Rotary boiler	H. Brown	785,472	Mar. 21	2991	631	115	694
Rotary engine	C. P. Rhoy	784,179	Mar. 7	331	68–9	115	78
Rotary engine	C. W. Carman	784,248	Mar. 7	466	94	115	108
Rotary engine	W. M. Ewing	784,392	Mar. 7	774	158–9	115	177
Rotary engine	J. D. Buchanan	784,614	Mar. 14	1256	263	115	295
Rotary engine	R. Nass	784,960	Mar. 14	1948	408	115	450
Rotary engine	L. Bergman	785,077	Mar. 21	2175	450	115	515
Rotary engine	R. R. Morrison	785,177	Mar. 21	2398	505	115	564
Rotary engine	L. A. Cooper	785,408	Mar. 21	2856	603	115	663
Rotary engine	T. S. Huntington	785,884	Mar. 28	3810	810–12	115	885
Rotary engine	J. R. Scofield	787,224	Apr. 11	2045	446–8	115	1523
Rotary engine	M. E. Fuller	787,370	Apr. 18	2339	507	115	1599
Rotary engine	J. P. Magney	787,521	Apr. 18	2660	577	115	1673
Rotary engine	C. A. and O. W. Hult	787,762	Apr. 18	3173	693	115	1790
Rotary engine	T. W. Moore	787,988	Apr. 25	3629	791	115	1904
Rotary engine	W. W. Wheeler	788,179	Apr. 25	4010	866	115	1996
Rotary head	J. T. and C. C. Glazier	785,871	Mar. 28	3788	805	115	881
Rotary motor	T. G. Saxton	784,074	Mar. 7	127	23	115	32
Rotary motor	J. M. Maxwell	786,044	Mar. 28	4160	877	115	965
Rotary motor	C. H. Bardenwerper	788,390	Apr. 25	4425	962–3	115	2067
Rotary-piston engine	J. Probst	784,177	Mar. 7	327	67–8	115	77
Rotary press	T. S. Grimes	786,756	Apr. 4	1100	230–2	115	1306
Rotary steam-engine	J. A. Ambroz	786,083	Mar. 28	4255	897	115	986
Roundabout	W. Hosse and R. McEwen	786,290	Apr. 4	75	17–18	115	1087
Rubber articles. Manufacture of hard-	W. R. Sine	785,234	Mar. 21	2517	531	115	589
Rubber. Cleaning	W. A. Lawrence	787,518	Apr. 18	2656	576	115	1672
Rubber goods. Composition for preserving india-	O. F. Benton	784,378	Mar. 7	740	.....	115	170
Rubber patch	C. O. Tingley	787,010	Apr. 11	1625	347	115	1431
Rubber-tired wheel	R. Mulholland	784,875	Mar. 14	1792	373	115	415
Rule	C. O. Rasmussen	785,329	Mar. 21	2691	571	115	626
Ruler for cutting cloth on the bias	H. A. Stempel	784,079	Mar. 7	139	25	115	34
Ruler. Multiple-scale	K. M. Paull	784,274	Mar. 7	523	107	115	121
Ruler. Tailor's buttonhole-	S. I. Clark	787,974	Apr. 25	3600	786	115	1898
Sack or bag	R. Graham	784,559	Mar. 14	1123	235	115	267
Sad-iron	M. E. Fallon	784,039	Mar. 7	49	9	115	13
Sad-iron	P. C. Greenawalt	787,289	Apr. 11	2173	479	115	1550
Sad-iron	O. Tverdahl	787,316	Apr. 11	2224	488	115	1561
Sad-iron heater	C. M. Best	786,720	Apr. 4	1030	214	115	1290
Sad-iron. Self-heating	M. Hoetger	786,439	Apr. 4	478	92	115	1174
Saddle. Harness-	W. P. Sawyer	787,904	Apr. 25	3643	793	115	1907
Saddle. Riding-	A. Lappan	786,502	Apr. 4	606	121	115	1199
Saddletree. Adjustable	T. I. Morrish	787,206	Apr. 11	2017	440	115	1516
Safe. Circular-door	M. Mosler	788,325	Apr. 25	4285	931	115	2057
Safe or vault	H. D. Hibbard	788,103	Apr. 25	3853	837–8	115	1956
Safe or vault actuating locking means	H. D. Hibbard	788,104	Apr. 25	3859	838–9	115	1958
Safe or vault actuator locking means	H. D. Hibbard and W. C. Peck	788,107	Apr. 25	3877	840	115	1966
Safe or vault actuator locking mechanism	H. D. Hibbard	788,106	Apr. 25	3873	840	115	1964
Safe or vault bolting mechanism	H. D. Hibbard	788,105	Apr. 25	3868	839	115	1962
Safe or vault bolting mechanisms. Dogging mechanism for	O. W. Bedell and H. D. Hibbard	788,085	Apr. 25	3817	830	115	1948
Safety-pin	J. M. A. W. Zimmermann	784,827	Mar. 14	1706	354	115	397
Safety-pin	A. W. Straight	784,968	Mar. 14	1964	412	115	453
Sales-slip form	W. F. Beck	788,346	Apr. 25	4329	944	115	2067
Sandpapering-machine drum	J. L. Perry	785,117	Mar. 21	2275	478–9	115	536
Sanitary device	G. H. Davis	787,357	Apr. 18	2316	503	115	1593
Sanitary trap	J. W. McAuliffe	788,218	Apr. 25	4067	895	115	2012
Sash antirattler. Window-	F. Kling	788,052	Apr. 25	3761	819	115	1935
Sash-balance	J. Soss	785,334	Mar. 21	2709	572	115	628
Sash balance and fastener	W. H. Gardner	786,434	Apr. 4	469	90–1	115	1172
Sash-center	C. J. Caley	784,104	Mar. 7	187	36	115	46
Sash-cord fastener	P. S. Stauffer and F. R. Ives	787,592	Apr. 18	2900	610	115	1706
Sash-fastener	W. M. Taylor and W. Holle	784,446	Mar. 7	887	185	115	202
Sash-fastener	R. C. Wright	786,936	Apr. 11	1465	300	115	1397
Sash-fastener. Rapid-release	L. Pearce	788,371	Apr. 25	4380	954	115	2077
Sash fastener. Window-	R. T. Mason	785,367	Mar. 21	2763	584	115	642
Sash holder. Window-	E. G. Abell	788,182	Apr. 25	4017	868	115	1998
Sash or screens. Numbering device for storm-	E. A. Crosby	784,840	Mar. 14	1727	359	115	401
Sash pivoting device. Ventilating-	C. N. Langdon and O. E. Carlson	784,574	Mar. 14	1143	239	115	272
Savings, and safety-deposit box. Time,	A. Nelson	788,327	Apr. 25	4287	931–3	115	2057
Saw	J. H. Miner	784,113	Mar. 7	203	39	115	49
Saw	P. Thompson	785,583	Mar. 21	3221	684	115	742
Saw	E. E. Bartholomew	788,236	Apr. 25	4120	893	115	2020
Saw-handle	D. Worden	786,335	Apr. 4	177	40	115	1108
Saw-handle	C. Cassel	787,354	Apr. 18	2312	502	115	1593
Saw handle. Detachable hand-	J. Weller	785,459	Mar. 21	2963	624	115	687
Saw. Inserted-tooth	W. J. Cummings and S. Abernethy	786,103	Mar. 28	4293	905	115	905
Saw. Portable hand-	R. S. McCreery	787,532	Apr. 18	2679	582–3	115	1678
Saw-set	O. E. Lindfors	787,519	Apr. 18	2658	576	115	1673
Saws. Adjustable fence for	T. Bemis	785,699	Mar. 21	3462	744	115	793
Saws. Device applied to circular	A. Place	785,228	Mar. 21	2690	570	115	626
Sawing-machine	A. G. Grice	784,561	Mar. 14	1124	235	115	267
Sawing machine. Circular	E. G. Herbert	787,510	Apr. 18	2640	571–2	115	1669
Sawing machine. Handhold-	B. J. Pye	784,348	Mar. 7	656	135–6	115	150
Sawing machine. Log-	C. E. Brown	788,243	Apr. 25	4135	897–8	115	2023

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Sawing machine. Wood-	G. T. Sebrell	784,184	Mar. 7	343	70–1	115	80
Sawing machine. Wood-	H. A. Litz	784,409	Mar. 7	811	169	115	186
Sawmill-carriage emergency-brake	J. L. Graham	787,374	Apr. 18	2352	509–10	115	1602
Sawmill-carriages Pneumatic setting-machine for	A. H. Masters	785,015	Mar. 14	2043	428–9	115	472
Sawmill feeding mechanism	F. E. Woodworth	787,423	Apr. 18	2456	531	115	1625
Sawmill set-works	F. A. Floyd	785,604	Mar. 21	3272	695	115	754
Sawmill set-works	C. A. Wilson	786,703	Apr. 4	1001	206	115	1284
Sawmill set-works	W. H. Trout	787,135	Apr. 11	1875	403–4	115	1485
Scaffold	C. J. Roy	786,054	Mar. 28	4184	881	115	971
Scaffold	O. Schwerin	788,171	Apr. 25	4000	864	115	1994
Scaffold. Outside hanging	T. J. Campbell	785 289	Mar. 21	2621	554	115	611
Scaffold. Roof-	S. C. Johnson	786,499	Apr. 4	601	120	115	1198
Scaffolding	A. Tingleaf	787,233	Apr. 11	2067	452	115	1526
Scale. Automatic beam-	G. Hamilton	785,200	Mar. 21	2455	518	115	576
Scale. Automatic weighing-	C. L. Bond. (Reissue)	12,335	Apr. 4	1171	244	115	1321
Scale computing apparatus. Weighing-	J. Thomas	787,413	Apr. 18	2435	526	115	1620
Scale. Weighing-	E. T. Bates	786,478	Apr. 4	553	111	115	1188
Scarf-pins, &c. Guard for	H. Rohrdantz	787,993	Apr. 25	3642	793	115	1907
Scoop	A. Hetland	784,562	Mar. 14	1126	236	115	268
Scraper. Wheeled dumping-	J. O. E. Krohn	784,572	Mar. 14	1140	239	115	271
Screen:							
See Fire-screen. Water-screen. Signaling-screen. Window-screen.							
Screen	J. W. Myers	784,584	Mar. 14	1168	246	115	277
Screen	A. V. Siler	787,312	Apr. 11	2220	487	115	1560
Screen-cover. Table	G. L. Ogle	788,219	Apr. 25	4089	896	115	2013
Screen sizer or separator. Submerged	S. Burrell	788,351	Apr. 25	4336	946	115	2068
Screening-machine	J. M. Callow	788,246	Apr. 25	4141	899	115	2025
Screw-cutting tool	J. O'Laughlin	784,877	Mar. 14	1796	374–5	115	416
Screw-driver or kindred tool	C. W. Phillips	786,990	Apr. 11	1587	339	115	1423
Screw-machine	W. S. Thomson	788,228	Apr. 25	4104	889	115	2016
Screw-press	C. R. Gabriel	786,353	Apr. 4	212	48–51	115	1115
Screw-thread and worm cutter. External	G. Gropp	785,876	Mar. 28	3794	807	115	882
Scribing-tool for carpenters, &c	J. F. Maloney	787,582	Apr. 18	2782	606	115	1702
Seal	D. M. Barnett	787,142	Apr. 11	1889	408	115	1488
Seal and lock. Automatic wrapper	F. W. Brooks	786,541	Apr. 4	685	140	115	1215
Seal. Can-	E. F. Webber	784,770	Mar. 14	1589	328	115	372
Seal-lock	S. B. Townsend	788,122	Apr. 25	3905	845	115	1973
Seal-lock	W. T. Percival	785,568	Mar. 21	3193	676	115	737
Seal-lock for pipe-couplings	J. J. Russell	785,574	Mar. 21	3206	680	115	739
Seal. Newspaper safety-	R. D. Simpson	785,526	Mar. 21	3118	659	115	722
Seal. Self-locking	E. Cirjean	784,205	Mar. 7	385	78	115	90
Sealing means for envelops, &c	E. Tyden	788,384	Apr. 25	4414	959	115	2085
Sealing means for vessels	B. R. Dyer	788,029	Apr. 25	3722	811	115	1926
Sealing means for vessels. Secret-	J. M. Hicks	785,000	Mar. 14	2016	423	115	465
Sealing-rings with wax. Machine for coating	A. A. Low	785,011	Mar. 14	2040	427	115	471
Seaming machine. Double-	G. D. C. Coddington	785,089	Mar. 21	2210	465	115	521
Seaming machine. Double-	O. S. Beyer	785,347	Mar. 21	2718	576–7	115	632
Seaming sheet-metal bodies. Machine for end-	E. Zeh	787,549	Apr. 18	2710	589–90	115	1685
Seat:	M. J. Kenny	786,973	Apr. 11	1551	330–1	115	1415
See Car-seat. Vehicle-seat. Cosy-corner seat.							
Sectional wheel	F. C. Biggert, Jr	784,655	Mar. 14	1350	279	115	317
Seed cleaner. Cotton-	C. R. Benefield	786,184	Mar. 28	4434	938	115	1024
Seed dropper and planter	B. F. Kennedy	788,475	Apr. 25	4576	998	115	2119
Seeder	E. K. Rea	787,467	Apr. 18	2542	550	115	1644
Seeder and planter	O. P. Sanford	786,161	Mar. 28	4397	929–30	115	1017
Seeding-machine. Broadcast	C. M. Sester	787,949	Apr. 25	3539	773	115	1883
Self-closing gate	C. W. Hess and J. F. Matthews	785,550	Mar. 21	3163	669	115	731
Self-oiling wheel	W. W. Willson	784,646	Mar. 14	1336	276	115	315
Separating and threshing appliance	H. Hendreckson	787,756	Apr. 18	3163	691	115	1788
Separating apparatus. Centrifugal	E. G. N. Salenius	784,231	Mar. 7	437	88	115	102
Separator:							
See Air-separator. Ore-separator. Coal-separator. Steam-separator. Grain-separator. Stitch-separator. Liquid-separator.							
Separator liner. Centrifugal-	C. A. and O. W. Hult	787,179	Apr. 11	1961	425–6	115	1505
Separator liner. Centrifugal-	E. Nylén	788,116	Apr. 25	3804	843	115	1971
Separators and means for cleaning same. Division device for centrifugal	D. T. Sharples	787,950	Apr. 25	3545	774	115	1884
Septic-matter-purifying and sewage-manipulating apparatus.	F. P. Smith	785,769	Mar. 28	3596	768	115	836
Setting	G. W. Dover	787,733	Apr. 18	3124	683	115	1778
Sewage-handling and septic-matter-clarifying apparatus.	F. P. Smith	785,185	Mar. 21	2415	507–8	115	568
Sewage-purifying and garbage-consuming apparatus.	F. P. Smith	784,597	Mar. 14	1214	255	115	286
Sewer-cleaning device	M. T. Connolly	784,304	Mar. 7	581	119	115	134
Sewer-trap, &c., mold	G. H. Taylor	788,175	Apr. 25	4006	865	115	1996
Sewed-article seam	R. G. Woodward	786,934	Apr. 11	1463	309	115	1396
Sewing machine. Buttonhole-	E. B. Allen	785,061	Mar. 14	2119	447–9	115	488
Sewing machine. Buttonhole-	J. T. Hogan	787,177	Apr. 11	1956	424	115	1503
Sewing-machine cabinet-head	A. Hackenbroch	785,877	Mar. 28	3795	807	115	882
Sewing-machine driving-gear	M. Margolin	788,363	Apr. 25	4369	952	115	2075
Sewing-machine feed mechanism	F. W. Merrick	786,909	Apr. 11	1400	298	115	1382
Sewing-machine motor attachment	F. P. Huycke	784,680	Mar. 14	1398	289	115	329
Sewing-machine needle-plate and support	W. H. Stedman	785,187	Mar. 21	2417	508	115	568
Sewing-machine presser-foot-lifting mechanism	J. M. Merrow	785,069	Mar. 14	2144	453	115	493
Sewing-machine. Revolving-hook	M. Hemleb	785,168	Mar. 21	2374	497	115	558
Sewing-machine stay-cutting attachment	W. L. Marsh	784,220	Mar. 7	416	83	115	96
Sewing-machine stitch-forming mechanism. Button-	R. L. Lyons	788,213	Apr. 25	4080	883–4	115	2011
Sewing-machine thread-controlling device	E. B. Allen	784,291	Mar. 7	550	113–14	115	126
Sewing-machine thread-controlling mechanism	H. H. Cummings	786,410	Apr. 4	345	75	115	1147
Sewing-machine thread-cutter	R. L. Lyons	788,212	Apr. 25	4077	883	115	2011

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Sewing-machine thread-waxing device	F. W. Merrick	786,774	Apr. 4	1135	238	115	1314
Sewing-machine waxing apparatus	H. Briggs	785,852	Mar. 28	3754	798	115	873
Shackle	E. F. Bonnel and J. H. McGowan	787,430	Apr. 18	2470	534–5	115	1628
Shackle. Spring-	F. E. Geibel	787,288	Apr. 11	2171	479	115	1549
Shade and curtain bracket. Combined adjustable window-	C. A. Haas	784,155	Mar. 7	283	59	115	67
Shade and curtain hanger. Window-	M. Van Boxel	787,239	Apr. 11	2075	454	115	1528
Shade and curtain supporting bracket	W. P. Gurr	785,164	Mar. 21	2361	495	115	555
Shade-bracket. Adjustable	C. Hellrath	784,490	Mar. 7	981	206	115	221
Shade-hanger	W. A. Worthington	787,252	Apr. 11	2107	464	115	1534
Shade stop attachment	F. L. Benedict	786,087	Mar. 28	4264	898	115	988
Shading device	R. L. Crigler	784,306	Mar. 7	583	119	115	134
Shaft and plunger connection	W. C. Schoelkopf	785,767	Mar. 28	3594	768	115	835
Shaft. Spring-	J. Nadrowski	785,323	Mar. 21	2677	568	115	622
Shaft. Sulky-	R. Laase	785,959	Mar. 28	3970	844	115	921
Shaft supporter. Wagon-	F. E. Wahlgren	785,340	Mar. 21	2709	574	115	630
Sharpener. Knife and shears	J. N. Richie	785,048	Mar. 14	2103	443	115	485
Sharpener. Scissors-	C. H. Windsor	788,447	Apr. 25	4532	967	115	2110
Shear-gage	J. Johnson	786,646	Apr. 4	900	184–5	115	1262
Shears	J. Polkowski	784,069	Mar. 7	120	21	115	30
Shears	P. Broadbooks	784,978	Mar. 14	1980	416	115	457
Shears	A. E. Border	785,934	Mar. 28	3915	832	115	909
Shearing-machine valve	E. H. Carroll	787,324	Apr. 11	2240	490–1	115	1565
Sheathing-plate	H. Mortenson	787,207	Apr. 11	2018	440	115	1517
Sheave. Self-lubricating	J. E. Gilchrist	788,463	Apr. 25	4562	994	115	2116
Sheep-shearing machine	W. Silver	785,640	Mar. 21	3333	712–14	115	766
Sheet holder. Loose-	E. A. Trussell	785,339	Mar. 21	2708	574	115	630
Sheet holder. Tabular-	A. F. Nagle	784,272	Mar. 7	519	106	115	120
Sheet-metal box	L. Steiner	785,279	Mar. 21	2606	550	115	608
Sheet metal. Expanding slitted	L. E. Curtis	784,517	Mar. 7	1043	216	115	234
Sheet-metal vessels. Dies for drawing	E. R. Stoddard	787,059	Apr. 11	1729	368	115	1454
Shelf-goods box	C. Arnold	787,712	Apr. 18	3031	665	115	1756
Shell-digger	W. McCoy	786,663	Apr. 4	931	191	115	1269
Shingle-gage. Adjustable	A. Anderson	786,710	Apr. 4	1013	208–9	115	1287
Shingle. Roofing-	L. G. Sharp	787,475	Apr. 18	2559	553	115	1647
Shipping and show case. Combination	W. W. McKee	784,751	Mar. 14	1553	320	115	364
Ships. Hydraulic support for	G. and K. Procházka	786,840	Apr. 11	1260	265–6	115	1351
Shocking-machine	T. A. Wooley and H. Fox	784,609	Mar. 14	1244	260–1	115	293
Shocking-machine	R. Oliver	787,939	Apr. 25	3519	768–9	115	1879
Shoe	J. G. Marchand	784,580	Mar. 14	1160	244	115	275
Shoe	K. Engel	788,354	Apr. 25	4340	946	115	2060
Shoe-fastener	J. W. Barna and V. Hoffman	785,789	Mar. 28	3634	776	115	844
Shoe-fastening	C. T. Odena and J. F. Jones	784,419	Mar. 7	836	173	115	191
Shoe, &c., fastening	J. J. Boynton	786,406	Apr. 4	339	74	115	1145
Shoe-fastening device	G. E. Peirce	784,224	Mar. 7	422	85	115	98
Shoe-form	W. L. C. Niles	785,115	Mar. 21	2273	478	115	536
Shoe-holding device	W. J. Dunn	784,207	Mar. 7	391	79	115	91
Shoe-polisher	H. E. Gartrell	786,280	Apr. 4	49	12	115	1062
Shoe-tree	W. C. Benkert	786,783	Apr. 4	1152	242	115	1318
Shoe-tree	N. J. Dobel	787,440	Apr. 18	2489	539	115	1632
Shoulder-brace and suspender. Combined	F. C. Hunt	785,494	Mar. 21	3039	643	115	705
Shoulder-brace and suspenders	R. B. Richmond	786,153	Mar. 28	4378	926	115	1014
Shovel: *See* Snow-shovel. Steam-shovel.							
Shovel or spade	M. Cahill	787,660	Apr. 18	2938	639	115	1736
Show-case	F. Pollard	786,837	Apr. 11	1256	264	115	1350
Show-case	H. J. S. Lewis	787,048	Apr. 11	1696	360–1	115	1447
Show-case	C. F. Murray	787,461	Apr. 18	2532	548	115	1642
Show-case bracket and fixture	G. C. Wright	786,935	Apr. 11	1464	309	115	1396
Shrapnel	A. Wratzke	785,285	Mar. 21	2616	553	115	610
Shutter-fastener	A. J. O'Reilly	786,232	Mar. 28	4526	958	115	1044
Shuttle-box-actuating mechanism	M. W. Hunt	784,859	Mar. 14	1761	367	115	408
Sieve. Self-cleaning	O. D. Anderson	788,389	Apr. 25	4424	961	115	2087
Sifter. Flour-	W. G. Gadue	785,545	Mar. 21	3152	666	115	729
Sight-finder	G. Henderson	788,467	Apr. 25	4566	995	115	2117
Sight-illuminator	R. R. Logan and S. P. Wetherill, Jr.	786,227	Mar. 28	4519	957	115	1042
Sign	R. M. Pearson and W. Letzig	784,344	Mar. 7	650	134	115	148
Sign	N. B. Wood	786,334	Apr. 4	175	40	115	1107
Sign	E. F. Burdick	786,481	Apr. 4	559	112	115	1190
Sign	F. W. Donnelly and W. J. Smith	786,550	Apr. 4	703	143	115	1219
Sign	N. B. Wood	788,126	Apr. 25	3915	847–8	115	1976
Sign. Fence-	C. F. Haas	786,025	Mar. 28	4130	870	115	958
Sign. Illuminated	W. F. Johnson	788 050	Apr. 25	3759	818	115	1934
Signal: *See* Block-signal. Railway-signal. Electric open-switch and stop signal. Train-signal.							
Signal apparatus	C. B. Gunn	787,753	Apr. 18	3158	690	115	1786
Signal device. Electric	L. S. Walls	787,318	Apr. 11	2231	489	115	1563
Signal-light	E. A. Edwards	787,739	Apr. 18	3134	685	115	1781
Signal-light	E. A. Edwards	787,740	Apr. 18	3135	686	115	1781
Signal mechanism	J. C. Waldo	788,385	Apr. 25	4417	959	115	2085
Signal system and apparatus therefor	F. P. J. Patenall and G. H. Drydeo.	787,393	Apr. 18	2396	518–19	115	1614
Signal system. Safety	F. Dornberger and F. Reissmann	786,736	Apr. 4	1058	219	115	1297
Signaling and telephoning on electric-trolley or other systems. Means for	C. R. Van Trump	786,925	Apr. 11	1446	306	115	1392
Signaling apparatus. Electrical-	L. Despradels	784,388	Mar. 7	762	155–6	115	175
Signaling device. Locomotive-cab	J. W. Clark	784,250	Mar. 7	472	95	115	109
Signaling device. Selective	C. H. North	787,936	Apr. 25	3515	767	115	1878
Signaling-screen	G. Villani	786,613	Apr. 4	817	169	115	1244
Signaling system. Block-	E. G. Stuckey	788,440	Apr. 25	4516	983–4	115	2107
Signaling system. Electric	W. F. Robinson and C. F. Broadhurst.	788,843	Apr. 11	1268	267–8	115	1353
Signaling system. Selective	R. C. Deuben	786,428	Apr. 4	434	88	115	1165

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Signaling system. Selective	R. C. Deuben	786,429	Apr. 4	446	89	115	1167
Sink. Domestic	J. H. Doyle	786,738	Apr. 4	1061	220	115	1297
Sink supporting-frame. Kitchen-	E. H. Jaquith	784,944	Mar. 14	1919	403	115	443
Siphon	J. J. Powers	786,150	Mar. 28	4372	924	115	1013
Siphon-head for aerated liquids	T. H. W. Idris and R. H. Grimth	787,449	Apr. 18	2508	544	115	1637
Skate ankle-supporter	A. J. Scriven	787,225	Apr. 11	2051	449	115	1524
Skate-clamp	S. W. Finch	787,000	Apr. 11	1780	380	115	1466
Skate. Tubular	W. G. Nott	785,325	Mar. 21	2696	570	115	625
Skimmer	L. A. Cooper	788,101	Mar. 28	4299	905	115	994
Skin-stretcher	A. W. Andrews	784,374	Mar. 7	726	148	115	167
Skirt-hanger	F. H. Parkhurst	784,174	Mar. 7	322	67	115	76
Skirt or coat gage	J. B. Wells	784,820	Mar. 14	1696	351	115	395
Slat-adjuster	I. L. Garside	785,945	Mar. 28	3942	838	115	915
Slate, stone, metal, wood, &c. Apparatus for cutting or sawing	C. Landale	785,175	Mar. 21	2394	502–4	115	563
Sleeve-expander	A. Kaufmann	785,217	Mar. 21	2483	523	115	582
Slicer. Fruit-	W. H. Boutell	784,029	Mar. 7	29	5–6	115	8
Slicing meat, ham, sausage, &c. Machine for	A. Lutzmann	785,745	Mar. 28	3555	759	115	826
Slimes in ore reduction. Treating	G. A. Duncan	787 878	Apr. 18	3401	744	115	1840
Slimes in ore treatment. Filtering-cell for separating	G. A. Duncan	787,736	Apr. 18	3128	684	115	1780
Slipper	H. Thiemann	787,481	Apr. 18	2573	555	115	1651
Small-arms. Self-loading	J. T. S. Schouboe	785,275	Mar. 21	2596	548–9	115	606
Smelting brick and making same. Sulfid-ore	J. Furukawa	784,850	Mar. 14	1741	362	115	404
Smelting-furnace	P. Healey	786,121	Mar. 28	4321	912	115	1002
Smelting ore	R. Baggaley	784,651	Mar. 14	1343	278	115	316
Smoke-bell hanger	C. J. Woodward	785,060	Mar. 14	2118	447	115	487
Smoke-consumer	G. Cramond	787,728	Apr. 18	3094	675	115	1771
Smoke-consuming apparatus for locomotive-boilers	S. F. Pierce	784,881	Mar. 14	1803	376–7	115	418
Smoke-consuming furnace	J. B. Harris	784,324	Mar. 7	612	125–6	115	140
Smoke-consuming furnace	L. C. Mooney	787,106	Apr. 11	1814	388	115	1472
Smoke-house	E. H. Sawyer, Jr., and H. Judik	786,602	Apr. 4	795	163	115	1239
Smoke-preventing device. Furnace	P. Eyermann	785,724	Mar. 28	3516	754	115	819
Smoking-pipe attachment	I. N. Weltzel	786,078	Mar. 28	4243	894	115	964
Smokeless combustion-furnace	C. Wegener	785,689	Mar. 21	3448	741	115	789
Smokeless furnace	F. D. Shepherd	787,406	Apr. 18	2422	524	115	1618
Snap-hook	D. E. Barton	785,538	Mar. 21	3139	662	115	726
Snow-plow	C. Dietrich	785,204	Mar. 21	2446	515	115	574
Snow-plow	C. Freeman	785,415	Mar. 21	2870	606	115	666
Snow-shovel	F. E. Hooper	787,921	Apr. 25	3488	762	115	1872
Soap and making same	H. Giessler and H. Bauer	786,556	Apr. 4	712	.....	115	1221
Soap and making same. Antiseptic	O. Liebknecht	787,776	Apr. 18	3195	.....	115	1794
Soap-dispensing apparatus	W. R. Saltzgaber and C. J. Carmichael.	787,700	Apr. 18	3013	661	115	1752
Soap-dispensing machine	W. B. Moore	787,342	Apr. 11	2279	497	115	1573
Soap. Making neutral	A. P. Horn	786,496	Apr. 4	597	.....	115	1198
Soap-mill	J. N. Hinkle	786,125	Mar. 28	4328	914	115	1003
Soap-pulverizing machine	R. H. L. Talcott	784,767	Mar. 14	1585	327	115	371
Soap reservoir. Liquid-	A. L. Fribourg	785,094	Mar. 21	2222	467	115	524
Socket. Slip-	D. K. Johnston	785,105	Mar. 21	2251	474	115	531
Sofa and table. Convertible	N. B. Stone	786,693	Apr. 4	982	202	115	1279
Solar motor	E. P. Brown	787,145	Apr. 11	1892	408–9	115	1489
Soldering apparatus. Can-	O. S. Fellows and A. E. Hopkins	785,484	Mar. 21	3011	636–8	115	698
Sole. Boot or shoe	A. and T. Leadbeater	788,160	Apr. 25	3981	860	115	1990
Sole dampening machine. Boot or shoe	L. A. Casgrain	784,249	Mar. 7	468	94	115	108
Soles. Manufacture of boot or shoe	A. and T. Leadbeater	788,159	Apr. 25	3979	859	115	1989
Soot-arrester and draft-regulator	C. H. Turver	787,808	Apr. 18	3251	709–10	115	1806
Sound-box needles. Device for securing	B. L. Rinehart	788,281	Apr. 25	4199	911	115	2037
Sound. Finding the direction of	A. J. Mundy and J. B. Millet	787,854	Apr. 18	3344	733	115	1826
Sound-producing device	R. Hope-Jones	787,984	Apr. 25	3623	790	115	1903
Sound-record	G. A. Manwaring, V. H. Emerson, F. L. Capps, and E. E. Norton.	785,317	Mar. 21	2666	566	115	619
Sound-record tablets. Composition of matter for	J. Sanders	787,001	Apr. 11	1602	342	115	1426
Sound-records. Production of	G. A. Manwaring, V. H. Emerson, E. E. Norton, and F. L. Capps.	785,316	Mar. 21	2665	566	115	619
Sound-reproducing-machine record	W. S. Darby	786,347	Apr. 4	202	46	115	1113
Soundings at sea. Apparatus for taking	J. W. Giffie	787,030	Apr. 11	1663	354–5	115	1439
Souvenir device	J. J. Ernisse	785,092	Mar. 21	2218	466	115	523
Soy extracts. Apparatus for making	T. Suzuki	785,776	Mar. 28	3607	771	115	838
Spark-arrester	A. H. O'Quinn	787,831	Apr. 18	2884	628	115	1725
Spectacle attachment	J. P. Jackson	786,442	Apr. 4	482	93	115	1174
Spectacle-frame	R. H. Simonds	785,442	Mar. 21	2932	619	115	685
Speculum	F. McGinnis	786,457	Apr. 4	518	102	115	1182
Speed-accelerator. Electric	H. H. Cutler	786,420	Apr. 4	393	83	115	1157
Speed-indicator	S. P. Walsh	786,073	Mar. 28	4235	892	115	982
Speed-indicator	E. T. Turney	787,650	Apr. 18	2915	635–6	115	1731
Speed-limiting device	H. F. T. Erben	787,284	Apr. 11	2164	477	115	1548
Speed mechanism. Variable-	H. M. Norris	787,392	Apr. 18	2395	518	115	1613
Speed-varying mechanism	M. O. Reeves	784,758	Mar. 14	1574	324	115	368
Speed-varying mechanism	M. O. Reeves	785,917	Mar. 28	3877	825	115	900
Spike-extractor	G. F. Pearson	785,020	Mar. 14	2049	430	115	473
Spike-puller	H. Q. Hood	784,679	Mar. 14	1397	288	115	329
Spindle: *See* Spinning-spindle.							
Spindle	G. B. McCracken	784,414	Mar. 7	824	171	115	188
Spindle	J. Wahl	787,809	Apr. 18	3253	710	115	1807
Spindle and bobbin connector	F. W. Saworski	788,282	Apr. 25	4201	911	115	2038
Spindle bobbin-clutching means. Rotatable-	G. O. Draper	784,920	Mar. 14	1889	396	115	437
Spindle bobbin-retaining means. Rotatable-	A. D. Morse	784,957	Mar. 14	1941	407	115	448
Spinning cop-tube	H. Spence	786,528	Apr. 4	661	133	115	1211
Spinning-frame thread-guide	C. A. Pierce	786,380	Apr. 4	293	64	115	1135
Spinning mechanism	A. L. Mathewson	788,162	Apr. 25	3084	860	115	1990
Spinning-mule attachment	J. and L. H. Bond	785,470	Mar. 21	2987	630	115	693
Spinning-ring frame	O. Dumas	787,087	Apr. 11	1777	279	115	1465
Spinning-spindle	H. Kelly	785,738	Mar. 28	3545	757	115	824
Spinning, twisting, and winding machine	R. Dawes	786,198	Mar. 28	4468	945	115	1031

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spiral pipe	J. H. Taylor	784,128	Mar. 7	227	45	115	54
Spool-stand	H. E. Leeman	786,572	Apr. 4	744	153	115	1228
Spoon. Medicine-	G. C. Hohein	784,309	Mar. 7	795	163	115	182
Spoon. Medicine-	M. L. Beistle	784,830	Mar. 14	1710	355	115	398
Sprayer for the wounds of animals	M. F. Havens	787,174	Apr. 11	1951	423	115	1502
Spring: *See* Wagon-spring.							
Spring	F. P. D'Arcy	785,410	Mar. 21	2860	603	115	665
Spring	G. L. Harvey	788,134	Apr. 25	3928	850	115	1978
Spring-clasp	R. H. Welles	788,230	Apr. 25	4106	890	115	2016
Spring-wheel. Yielding	L. Marchand	786,657	Apr. 4	924	189	115	1267
Sprinkler: *See* Automatic sprinkler. Street-sprinkler.							
Sprocket-wheel	R. S. Townsend	784 241	Mar. 7	453	92	115	106
Square	R. C. Lynn	786,824	Apr. 11	1232	257	115	1346
Square	G. L. Wilson	787,248	Apr. 11	2099	463	115	1533
Square	R. A. Breul	788,017	Apr. 25	3701	806	115	1922
Square. Carpenter's	J. R. Simpson	788,223	Apr. 25	4098	888	115	2015
Squeezer	R. B. Gilchrist	785,727	Mar. 28	3521	754	115	820
Stack piler and inclosure	J. H. Clark	787,563	Apr. 18	2737	595	115	1690
Stacker	P. Brouk	785,471	Mar. 21	2989	631	115	693
Stacker. Force-feed	R. C. Redpath	785,519	Mar. 21	3098	655–6	115	718
Stacker. Straw-	T. D. Ulrich	785,241	Mar. 21	2529	534	115	591
Stacker. Straw-	E. J. Vraalstad	786,071	Mar. 28	4232	891–2	115	982
Stacker. Straw-	J. Fahrney	788,397	Apr. 25	4448	967	115	2093
Stage apparatus	N. Burgess	784,919	Mar. 14	1871	392–3	115	433
Stair. Winding	C. A. De Witt	786,431	Apr. 4	463	90	115	1171
Staircase or the like. Traveling	E. L. Hocquart	785,582	Mar. 28	3803	809	115	884
Stall for cattle. Sanitary	M. Walker and D. H. Meyer	785,341	Mar. 21	2710	574	115	630
Stamp	A. C. Fletcher	786,745	Apr. 4	1076	223	115	1300
Stamp affixing and canceling machine	D. Carter and R. Mackerrow	785,856	Mar. 28	3761	799–800	115	874
Stamp. Hand-	B. B. Hill	785,360	Mar. 21	2746	582	115	638
Stamp-mill	A. McComble	786,590	Apr. 4	774	159	115	1235
Stamp. Printing-	L. M. Todd	784,602	Mar. 14	1224	256–7	115	288
Stamp-stem guide	F. W. Hooper	786,969	Apr. 11	1547	329	115	1414
Stamping apparatus. Check-	F. W. Fuller	787,369	Apr. 18	2337	506	115	1598
Stamping device	J. N. Stewart	784,638	Mar. 14	1321	274	115	310
Stanchion	H. L. Ferris	786,350	Apr. 4	209	47	115	1115
Stanchion-opening device	E. O. Bergh	787,718	Apr. 18	3042	667	115	1758
Stand: *See* Camera-stand. Trolley-stand. Display-stand. Work-stand. Spool-stand.							
Stand	S. A. Duncan	786,740	Apr. 4	1065	220	115	1298
Stapling-machine	T. A. Briggs	786,187	Mar. 28	4442	939–40	115	1026
Starch-making apparatus	W. H. Uhland	784,450	Mar. 7	896	187	115	204
Starch material	J. Kantorowicz	785,216	Mar. 21	2482	.....	115	582
Station-indicator. Electrically-operated	E. K. Adams	784,019	Mar. 7	1	1	115	3
Stave heating and drying apparatus	O. L. Ellis	784,666	Mar. 14	1370	283	115	322
Steam and oil trap	J. Franey	787,365	Apr. 18	2328	505	115	1596
Steam-boiler	J. C. Schneider	784,894	Mar. 14	1824	381–2	115	423
Steam-boiler	G. H. Blowers	784,976	Mar. 14	1977	415	115	456
Steam-boiler	L. Hussey	787,764	Apr. 18	3177	694–5	115	1790
Steam-boiler	L. Rhodes	788,068	Apr. 25	3789	824	115	1941
Steam-boiler	H. W. Aitken	788,127	Apr. 25	3918	848–9	115	1976
Steam-boiler. Multitubular	J. F. Liebentritt	785,009	Mar. 14	2034	426–7	115	469
Steam-drying device	H. V. Arnold and A. H. Kress	784,293	Mar. 7	560	115	115	129
Steam-engine	J. A. Tooley	787,134	Apr. 11	1871	402	115	1484
Steam-engine. Compound	W. A. Drewett	784,254	Mar. 7	482	96–7	115	111
Steam-engine. Compound	H. H. Pilcher	785,376	Mar. 21	2779	587	115	645
Steam-engine. Multiple-expansion vibratory	A. Benedetto	788,086	Apr. 25	3820	830–2	115	1949
Steam-exhaust head	J. P. Zenner	786,707	Apr. 4	1007	207	115	1286
Steam-generating appliance and adaptation of same to locomotives	C. Vanderbilt	787,240	Apr. 11	2076	454–9	115	1528
Steam-generator	C. Renard	784,432	Mar. 7	854	178	115	195
Steam-generator	C. E. Hastings	786,761	Apr. 4	1113	233	115	1309
Steam-generator	C. B. Rearick	787,397	Apr. 18	2406	520–1	115	1615
Steam-generator	A. Philippe and E. Boivin	787,941	Apr. 25	3529	770	115	1881
Steam-meter	E. Kuhnke	784,948	Mar. 14	1923	404	115	444
Steam motive power	H. K. Hess	786,122	Mar. 28	4322	913	115	1003
Steam-reheater	H. A. Allen	784,373	Mar. 7	724	148	115	166
Steam-separator	J. G. Duck	786,273	Apr. 4	34	9	115	1078
Steam-shovel	G. W. King, H. J. Barnhart, and C. B. King.	786,448	Apr. 4	492	95–6	115	1176
Steam-trap	R. G. McAuley	786,981	Apr. 11	1570	335	115	1419
Steam-trap	A. L. French	787,366	Apr. 18	2331	505	115	1597
Steam-trap	A. L. French	787,367	Apr. 18	2333	506	115	1597
Steam-trap	J. W. Lytton	788,485	Apr. 25	4590	1001	115	2121
Steam-trap. Balanced	F. A. Simonds	786,228	Mar. 28	4537	981	115	1046
Steamer. Grain-	P. Provost	785,119	Mar. 21	2282	479	115	536
Steel	R. A. Hadfield	786,561	Apr. 4	724	.....	115	1224
Steel or iron plate. Coloring	T. O'Brien and W. P. Long	788,167	Apr. 25	3995	862	115	1993
Steel plates. Carburizing	A. F. Mitchell	784,171	Mar. 7	313	65	115	74
Steel trap	J. W. Parsons	786,145	Mar. 28	4360	922	115	1010
Steel trap	H. T. Tweedt	787,013	Apr. 11	1632	347	115	1433
Steering-gear	A. B. Fowler	784,042	Mar. 7	55	10–11	115	14
Steering-wheel	P. L. Hussey	785,073	Mar. 14	2156	455	115	495
Stencil-cutting machine	S. D. Hartog	784,675	Mar. 14	1385	287	115	325
Stereopticon slide-carrier	F. C. Edmonds	786,883	Apr. 11	1347	287	115	1370
Stereopticons, &c. Lens-box for	A. C. Roebuck	786,052	Mar. 28	4178	880	115	969
Sterilizer	H. N. Fowler	785,354	Mar. 21	2738	580	115	636
Sterilizing milk or other fluids	C. de Jong	786,819	Apr. 11	1226	255	115	1345
Still. Turpentine-	J. Bennor	785,469	Mar. 21	2985	629–30	115	692
Stilt	R. Albach	784,020	Mar. 7	6	2	115	3
Stitch-indenting machine	J. J. Heys	784,263	Mar. 7	496	100	115	115
Stitch-separator and welt-indentor	S. J. Wentworth	788,003	Apr. 25	3659	797	115	1911

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stitches of finished seams. Separating and indenting	J. B. Hadaway	786,891	Apr. 11	1360	290	115	1373
Stock-regulator. Automatic	E. F. Stewart and F. W. McNamara.	787,955	Apr. 25	3553	776–7	115	1886
Stock-washer	G. R. Sherwood	785,025	Mar. 14	2057	432	115	474
Stocking-supporter	W. W. Palmer	784,500	Mar. 7	1010	210	115	226
Stocking-supporter clasp	W. W. Palmer	786,233	Mar. 28	4528	959	115	1044
Stoker. Mechanical	L. Roth	785,835	Mar. 28	3731	794	115	868
Stone-channeling machine	C. M. Lyman	784,268	Mar. 7	512	103	115	119
Stone-crusher	G. S. Knapp	785,617	Mar. 21	3293	700	115	758
Stone-cutting apparatus	W. C. Quinlen	788,375	Apr. 25	4388	956	115	2079
Stone-making machine. Artificial-	F. Brichta	786,261	Apr. 4	17	4–5	115	1074
Stone mold. Artificial-	W. C. Fox	785,003	Mar. 21	2219	466	115	524
Stone-molding tool	J. B. Wilson	787,546	Apr. 18	2701	588	115	1682
Stone-sawing machine	O. W. Alston	786,339	Apr. 4	182	41	115	1109
Stone-setting device. Free-	S. Voss	786,861	Apr. 11	1294	274–5	115	1358
Stones. Coloring natural compact crystalline	A. Wultze	786,082	Mar. 28	4253	896	115	986
Stool. Step-	A. A. Smith	788,148	Apr. 25	3959	856	115	1985
Stop-bead fastener. Adjustable	W. Van Gaasbeek	787,596	Apr. 18	2808	611	115	1707
Stop-motion. Electrical	G. B. Cocker	786,797	Apr. 11	1188	248	115	1337
Stop-motion for cloth-take-up rolls	F. O'Donnell	788,168	Apr. 25	3996	862	115	1993
Stop-motion mechanism for textile machinery. Electrical	J. B. Whitney	787,653	Apr. 18	2928	637	115	1734
Stopper: *See* Bottle-stopper.							
Store-front	M. Salomon	787,053	Apr. 11	1711	364	115	1451
Storehouse for grain or the like	R. C. Roach	785,521	Mar. 21	3106	657	115	720
Stove	C. Schweizer	787,310	Apr. 11	2216	487	115	1559
Stove	A. K. Beckwith	787,425	Apr. 18	2460	532	115	1625
Stove and ash-sifter. Combined	S. Maas	786,825	Apr. 11	1233	257	115	1346
Stove burner-support. Gas or vapor	C. V. Roberts	784,433	Mar. 7	856	178	115	195
Stove cut-off attachment. Gas-	C. Bargamin	786,182	Mar. 28	4431	937–8	115	1024
Stove-door and name-plate	E. W. Anthony	786,793	Apr. 11	1181	246	115	1335
Stove. Gas-	A. L. Gibson	787,914	Apr. 25	3475	759	115	1869
Stove. Gas cooking-	M. Ehrsam	787,159	Apr. 11	1918	416	115	1495
Stove. Heating-	A. J Koontz	786,821	Apr. 11	1228	256	115	1345
Stove or heater. Gas	H. Clayton	787,829	Apr. 18	3292	718	115	1815
Stove. Reversible	F. De Rangis	785,063	Mar. 14	2127	449–50	115	489
Stove steam cooking and water-heating attachment	J. P. Hutchison	787,815	Apr. 11	1219	254	115	1344
Stove. Vapor-burning	R. C. Barrie	786,944	Apr. 11	1479	313	115	1400
Stoves. Automatic cut-off for gas-	J. C. Hansen	784,043	Mar. 7	57	11	115	15
Stoves or furnaces. Air-feeding device for	T. A. and W. G. Twyman	787,014	Apr. 11	1633	348	115	1433
Stovepipe-fastener	R. H. and W. C. Hodge	786,900	Apr. 11	1379	294	115	1377
Stovepipe, flue, and smoke-stack protector	J. H. Foster	786,555	Apr. 4	712	145	115	1221
Stovepipe-support	J. J. Hill	784,327	Mar. 7	616	127	115	141
Stovepipe-thimble	E. Finch	788,200	Apr. 25	4048	875	115	2005
Stovepipe thimble and clamp	H. W. Remick	788,066	Apr. 25	3786	823	115	1941
Stovepipe-ventilator	J. E. and C. G. Nelson	787,463	Apr. 18	2536	549	115	1643
Strain	L. Steinberger	786,691	Apr. 4	977	202	115	1278
Strainer-valve	C. H. Miller	784,170	Mar. 7	311	65	115	73
Strap: *See* Book-holder strap. Hitching-strap. Hand-strap.							
Strap-fastener	W. D. Lambert	787,335	Apr. 11	2267	494	115	1570
Street-light hangers. Flexible support for	J. Stevenson, Jr	787,410	Apr. 18	2427	525	115	1619
Street-sprinkler	W. J. Bole	784,297	Mar. 7	566	116	115	130
Street-watering cart	C. W. Collyer	785,033	Mar. 14	2074	436	115	478
Stretcher	G. A. Lung	787,848	Apr. 18	3335	730–1	115	1824
Stretcher or spreader	I. E. Palmer	787,632	Apr. 18	2885	628	115	1726
String-cutter	E. H. Painter	784,421	Mar. 7	838	174	115	191
Stuffing-box	W. J. Smith	784,442	Mar. 7	876	183	115	199
Stuffing-box	J. W. Swan	787,411	Apr. 18	2429	526	115	1620
Stump-roots. Burning	W. Keywood and V. Elmer	785,616	Mar. 21	3292	700	115	758
Subway construction	J. W. Reno	786,382	Apr. 4	297	65	115	1136
Subway structure	J. Simpson	786,059	Mar. 28	4193	883	115	972
Sucker-rod adjuster. Deep-well	E. R. Graham	787,621	Apr. 18	2869	624	115	1722
Sugar from masse-cuite. Recovering	W. Huch	785,308	Mar. 21	2650	561	115	617
Sugar-granulator	K. Grueneklee	786,042	Apr. 4	991	182–3	115	1260
Sugar-juice-extracting apparatus	J. Rigney	786,154	Mar. 28	4380	926	115	1015
Suit-case corners. Machine for making	F. F. Ivins	788,408	Apr. 25	4465	972	115	2096
Sulky draw-brace	H. D. Keeler	785,218	Mar. 21	2483	523	115	582
Surface-finishing machine	G. N. Parker	786,309	Apr. 4	113	26	115	1096
Surface-trimming machine. Parallel-	H. C. Hansen	786,759	Apr. 4	1109	233	115	1308
Surgical apparatus	H. W. Phillips	784,425	Mar. 7	842	175	115	192
Surgical appliance	A. Breslin and J. Lees	786,722	Apr. 4	1032	214	115	1291
Surgical needle	T. C. Edwards	784,995	Mar. 14	2010	422	115	463
Surgical pad	H. O Sommer	788,073	Apr. 25	3798	826	115	1944
Surgical saline-infusion apparatus	J. J. Shea	785,524	Mar. 21	3115	658	115	722
Suspenders	F. E. Colburn and F. R. Culver	786,267	Apr. 4	25	7	115	1076
Swath-turner	E. C. Blackstone and R. E. Watts	784,540	Mar. 14	1067	226–7	115	259
Sweeping compound	A. Getz	788,042	Apr. 25	3748	.....	115	1932
Swing	W. J. Kinback	785,557	Mar. 21	3175	672	115	734
Swinging chair	A. P. Bottgar	787,556	Apr. 18	2726	503	115	1688
Swinging gate	A. Tarris	787,315	Apr. 11	2224	488	115	1561
Switch: *See* Electric switch. Plug and spring-jack switch. Electric time-switch. Electric time relay-switch. Power-operated switch. Railway-switch. Electrical switch. Resonator-switch. Emergency-switch. Trolley-track switch. Frogless switch.							
Switch	L. S. Morrow	784,341	Mar. 7	646	133	115	148
Switch	A. E. Willey	785,030	Mar. 14	2064	433–4	115	476
Switch	S. B. Stewart, Jr	785,985	Mar. 28	4037	855	115	957
Switch lock. Electric-	C. L. Buschmann	787,147	Apr. 11	1897	410	115	1490

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drg.	Vol.	Page.
Switch-operating mechanism	G. M. Derickson	785,158	Mar. 21	2349	492-3	115	553
Switch points or tongues. Holding device for	C. C. Korns	784,689	Mar. 14	1414	292	115	332
Switch-rod roller-stand	L. Zamboni	786,616	Apr. 4	823	170	115	1245
Switch-stand	R. E. Broyles	788,018	Apr. 25	3702	806	115	1922
Switch-throwing device	C. J. Kinsolving, Jr.	786,128	Mar. 28	4333	916	115	1004
Synchronous motor	E. F. W. Alexanderson	785,532	Mar. 21	3126	660-1	115	724
Synchronous motor with clutch	H. H. Cutler	786,417	Apr. 4	375	80	115	1153
Syringe	F. Wackenhuth	786,697	Apr. 4	993	204	115	1282
Syringe	W. H. Pontious	787,694	Apr. 18	2994	653	115	1748
Syringe	P. J. McElroy	788,059	Apr. 25	3774	821	115	1938
Table: *See* Adjustable table. Kitchen and dining table. Chair-table. Cigar-rolling table. Operating-table. Extension-table. Overlay-table. Folding table. Work-table.	W. F. Traves	788,176	Apr. 25	4007	865	115	1996
Table	C. King	784,945	Mar. 14	1920	403	115	444
Table	C. King	784,946	Mar. 14	1921	403	115	444
Table-adjuster	C. A. Smith	785,982	Mar. 28	4030	854	115	935
Table locking device. Pedestal-	E. Tyden	786,070	Mar. 28	4229	891	115	981
Tabulating attachment	W. J. Spiro	785,983	Mar. 28	4031	854-5	115	936
Tag	F. Bachmann	786,943	Apr. 11	1478	312	115	1400
Tag-wiring machine	W. W. Fuller	784,150	Mar. 7	272	55-6	115	65
Talking-board	J. B. Randall	785,916	Mar. 28	3876	824	115	900
Talking-machine	E. R. Johnson	785,362	Mar. 21	2753	582-3	115	639
Talking-machine	E. R. Johnson	785,363	Mar. 21	2757	583	115	640
Talking-machine	J. E. Beatty	787,264	Apr. 11	2127	469-70	115	1539
Talking-machine attachment	H. H. Kuhn	786,449	Apr. 4	498	97	115	1178
Talking-machine motor and governor	W. S. Perry	785,182	Mar. 21	2407	506-7	115	566
Talking-machine needles. Device for handling	D. J. Hood	787,623	Apr. 18	2871	625	115	1722
Talking-machine trumpet	A. R. Cunnius	784,385	Mar. 7	755	153	115	173
Tamper	L. P. Normandin	785,755	Mar. 28	3575	763	115	830
Tank: *See* Deposition-tank. Flush-tank. Fat-graining tank. Measuring-tank.							
Tank-cleaner	J. W. Bivins	787,266	Apr. 11	2131	470	115	1540
Tank heating device. Storage-	S. F. Bowser	784,542	Mar. 14	1091	227	115	260
Tank-support	P. P. Sturdevant	784,600	Mar. 14	1221	256	115	287
Tap. Collapsible	F. A. Errington	784,208	Mar. 7	393	79	115	92
Tap or cock. Safety	F. Schmidt	785,331	Mar. 21	2695	571	115	627
Tape-making machine	F. J. Anet	787,886	Apr. 25	3416	748	115	1855
Taper-gage	A. Kettnich	785,739	Mar. 28	3547	757	115	824
Tar-dehydrater	E. A. Moore	786,828	Apr. 11	1238	258-9	115	1347
Tea, coffee, or other infusions. Device for making	C. McKenzie	786,666	Apr. 4	936	191	115	1269
Tea-leaves or the like. Apparatus for breaking and grading made	H. M. Alleyn	787,066	Apr. 11	1741	371	115	1456
Teaching device. Music-	M. L. Quinn	788,063	Apr. 25	3781	822	115	1940
Teeth and dental plates. Connection for artificial	S. S. Bloom	785,999	Mar. 28	4062	861	115	943
Teeth, &c. Manufacture of artificial	F. A. J. Cournand	785,715	Mar. 28	3502	751	115	816
Teeth. Shade-guide for artificial	G. H. Whiteley	785,992	Mar. 28	4052	859	115	941
Telegraph-apparatus vibrator. Sound-	A. A. Lind	786,041	Mar. 28	4156	876	115	964
Telegraph. Printing-	J. C. Barclay	785,076	Mar. 21	2168	458	115	514
Telegraph. Printing-	J. C. Barclay	787,608	Apr. 18	2836	618-19	115	1715
Telegraph transmitter. Wireless-	H. Shoemaker	787,057	Apr. 11	1724	367	115	1453
Telegraphic relay	F. Ducretet	787,905	Apr. 25	3445	755	115	1861
Telegraphic system. Wireless	W. W. Massie	787,780	Apr. 18	3199	698-9	115	1795
Telegraphic transmitter	M. Armstrong	784,529	Mar. 14	1066	221	115	255
Telegraphy. Aerial	J. F. King	788,477	Apr. 25	4579	998	115	2119
Telegraphy. Automatic	A. Korn	785,221	Mar. 21	2489	525	115	584
Telegraphy. Wireless	G. Marconi	786,132	Mar. 28	4339	917	115	1006
Telegraphy with tuned microphone-receivers. System of wireless	A. Slaby and G. G. Arco	785,276	Mar. 21	2600	549	115	606
Telephone attachment	L. A. Bumgardner	786,263	Apr. 4	20	5	115	1075
Telephone bracket. Desk-	T. O. Scott	787,119	Apr. 11	1839	394	115	1478
Telephone-call	P. T. Geyerman	784,557	Mar. 14	1119	234	115	266
Telephone call or ringer	C. E. Egan	787,879	Apr. 18	3404	744	115	1840
Telephone desk set	C. T. Mason	785,624	Mar. 21	3302	702-3	115	760
Telephone-exchange apparatus	J. L. McQuarrie	785,754	Mar. 28	3572	763	115	829
Telephone-exchange registering apparatus	D. A. Yoder	787,969	Apr. 25	3590	784	115	1899
Telephone-exchange system	J. C. Hubinger	786,901	Apr 11	1381	294	115	1377
Telephone-exchange-system apparatus	J. G. Roberts	787,113	Apr. 11	1825	390	115	1474
Telephone-exchange system. Automatic	J. K. Norstrom and H. M. Graif	784,498	Mar. 7	997	209	115	225
Telephone-exchange trunk-line	C. E. Scribner and F. R. McBerty	787,120	Apr. 11	1842	394	115	1478
Telephone-locking device. Coin-operated	W. Calhoun	784,546	Mar. 14	1101	230	115	262
Telephone memorandum attachment	J. W. Currier	786,733	Apr. 4	1054	218	115	1296
Telephone-operator's key	L. W. Wanemaker	784,605	Mar. 14	1232	258	115	290
Telephone-receiver	W. J. Murdock	786,598	Apr. 4	772	158	115	1234
Telephone-receiver	C. T. Mason	787,583	Apr. 18	2784	606	115	1702
Telephone-receiver holder	K. C. Seaman	786,523	Apr. 4	655	132	115	1210
Telephone-receiver support	E. H. Little	787,386	Apr. 18	2384	515	115	1611
Telephone-receivers. Jointed adjustable support for	E. D. McLean	787,307	Apr. 11	2212	485-6	115	1558
Telephone-repeater. Automatic	E. Parsons	784,175	Mar. 7	324	67	115	76
Telephone selecting mechanism	J. P. Jackson	785,103	Mar. 21	2245	473	115	530
Telephone signaling means	K. Weman	784,720	Mar. 14	1494	306	115	351
Telephone-switchboard	C. T. Mason	787,929	Apr. 25	3503	765	115	1875
Telephone-switchboard	C. T. Mason	787,930	Apr. 25	3506	765	115	1875
Telephone system	W. D. Watkins	784,088	Mar. 7	158	29-30	115	39
Telephone system	I. Kitsee	785,673	Mar. 21	3403	732-3	115	781
Telephone system	I. Kitsee	785,674	Mar. 21	3412	733-4	115	783
Telephone system	A. C. Gilgen	785,728	Mar. 28	3522	755	115	820
Telephone systems. Direct-line circuit and switching mechanism for	A. K. Andriano and H. Herbstritt	784,292	Mar. 7	555	114	115	128
Telephone-transmitter	W. Kaisling	786,444	Apr. 4	485	94	115	1175
Telephone-transmitter	J. Erickson	787,361	Apr. 18	2120	504	115	1594
Telephone-transmitter	H. P. Clausen	787,610	Apr. 18	2848	620-1	115	1717

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Telephone-transmitter	H. P. Clausen	788,452	Apr. 25	4539	968	115	2111
Telephonic apparatus	A. Graham	786,754	Apr. 4	1092	227-30	115	1304
Telescope, binocular, &c. Prismatic	J. Aitchison	784,611	Mar. 14	1251	261-2	115	294
Telescope. Panorama-	C. P. Goerz	784,852	Mar. 14	1743	363	115	405
Telescope. Sighting-	H. A. von Kretschmar and J. Krone	785,894	Mar. 28	3834	815-16	115	890
Tellurian	C. F. Blakeslee	787,720	Apr. 18	3045	668	115	1759
Tendon-pulling machine	G. A. Congdon	787,025	Apr. 11	1652	351	115	1437
Tent	C. H. Stempel	785,582	Mar. 21	3219	683	115	742
Tent-fastener	J. Blair, Jr.	787,719	Apr. 18	3043	667	115	1759
Tentering-machine	A. McLean	787,785	Apr. 18	3210	701-2	115	1798
Theater appliance	A. M. Anderson	786,711	Apr. 4	1015	209	115	1288
Theater-seat attachment	J. A. Olson and P. D. Sherwin	784,560	Mar. 14	1188	250	115	281
Theater-seat attachment	S. W. Van Nostran	785,987	Mar. 28	4044	857-8	115	939
Thermic motor	G. Trinkler	785,240	Mar. 21	2527	534	115	591
Thermo-electric couple	A. L. Marsh	786,577	Apr. 4	753	155	115	1230
Thermometer case. Clinical-	O. G. Bell and R. C. Stofer	786,717	Apr. 4	1027	213	115	1290
Thermometers. Instrument for shaking down the mercurial columns in clinical	J. Peterson	785,635	Mar. 21	3324	710	115	764
Thermostat	J. E. Shepherd	784,186	Mar. 7	348	71	115	81
Thermostatic alarm	C. C. Palmer	785,326	Mar. 21	2688	570	115	625
Thill-coupling	E. J. S. Davis	784,990	Mar. 14	2001	420	115	461
Thill-coupling	M. Cahill	787,661	Apr. 18	2940	639	115	1737
Thread-brake	H. A. Bates	787,717	Apr. 18	3040	667	115	1758
Thread cutter and tier	J. B. Underwood	787,238	Apr. 11	2074	453	115	1528
Thread-drying frame	J. Knott, Sr.	784,863	Mar. 14	1768	368-9	115	410
Thread. Mechanism for detecting irregularities in silk	J. B. Whitney	787,599	Apr. 18	2814	613	115	1708
Threshing-machine	V. C. Bailey	784,971	Mar. 14	1967	413	115	454
Threshing-machine	C. Sykora	786,172	Mar. 28	4415	934	115	1021
Threshing-machine	J. D. Little	786,303	Apr. 4	104	23-4	115	1094
Threshing-machine band-cutter and feeder	F. Fredeen	784,484	Mar. 7	962	201-2	115	218
Threshing-machine band-cutter and feeder	H. T. and S. E. McCormick	787,784	Apr. 18	3208	700-1	115	1797
Threshing-machine concave and cylinder	J. F. Berndt	788,088	Apr. 25	3828	832	115	1951
Threshing-machine grain-weighing device	L. M. Thomson	787,009	Apr. 11	1624	346	115	1431
Threshing-machine self-feeder	J. Jirsa	785,496	Mar. 21	3041	643-4	115	706
Threshing-machine sieve	C. W. Van Wye	787,867	Apr. 18	3372	737	115	1833
Threshing or similar machines. Leveling device for	W. Collins	788,249	Apr. 25	4149	900	115	2026
Ticket-holder. Dairyman's	H. G. Clover	784,733	Mar. 14	1514	310	115	356
Ticket holding and handling device	J. W. Lutz and J. E. Breisford	785,744	Mar. 28	3553	759	115	825
Ticket or card holder	A. L. Johnson	787,452	Apr. 18	2515	544	115	1638
Tide-motor	G. M. Helvie	785,879	Mar. 28	3799	808	115	883
Tie: *See* Bale-tie. Railway-tie. Fencing-tie. Railway cross-tie. Rail-tie.							
Tile. Building-	A. Pfeiffer	787,215	Apr. 11	2033	443	115	1520
Tile. Enameled sheet-metal building-	N. Monshausen	784,062	Mar. 7	97	18	115	25
Tile mold. Roofing or other	F. M. Sawyer	785,636	Mar. 21	3326	711	115	765
Tile. Roofing-	L. G. Sharp	787,474	Apr. 18	2554	553	115	1647
Tilting gate	H. Ahlrichs	786,397	Apr. 4	322	71	115	1142
Time-recorder	W. L. Bundy	785,084	Mar. 21	2187	461-3	115	518
Time-recorder	J. and A. Dey	786,011	Mar. 28	4090	864-5	115	948
Tin can	L. Diesel	787,156	Apr. 11	1914	415	115	1494
Tin-plating apparatus	F. L. Young	786,336	Apr. 4	178	40	115	1108
Tinning-machine	D. D. Clarke	784,836	Mar. 14	1719	357	115	400
Tipping-machine	F. G. Dickerson	787,499	Apr. 18	2615	565-6	115	1662
Tire	J. F. Byers	786,096	Mar. 28	4281	903	115	992
Tire	G. H. Hastings	787,173	Apr. 11	1951	422	115	1502
Tire	C. A. Brackelsberg	787,491	Apr. 18	2597	559	115	1658
Tire	L. F. Braine	788,090	Apr. 25	3832	833	115	1952
Tire	R. W. Ferguson	788,309	Apr. 25	4262	925	115	2052
Tire and rim. Vehicle	F. Feldhaus	787,362	Apr. 18	2322	504	115	1595
Tire-bolt wrench	J. R. Moore	786,660	Apr. 4	928	190	115	1268
Tire-brake	J. Dempsey	788,192	Apr. 25	4037	872	115	2003
Tire. Cushion-	W. S. McNamara	786,501	Apr. 4	776	159	115	1235
Tire. Pneumatic	E. Large	784,186	Mar. 7	303	64	115	71
Tire. Pneumatic	T. Giara	784,738	Mar. 14	1521	312	115	357
Tire. Pneumatic	I. Tennant	786,470	Apr. 4	538	108	115	1185
Tire. Pneumatic	E. B. Workman	788,083	Apr. 25	3814	829	115	1947
Tire. Pneumatic	G. Devoll and G. H. Risley	788,308	Apr. 25	4255	923	115	2050
Tire-protector	N. Campbell	786,097	Mar. 28	4282	903	115	992
Tire repairer. Rubber-	J. M. Padgett	785,633	Mar. 21	3322	709	115	764
Tire-set. Felly	E. N. McComb	786,829	Apr. 11	1239	259	115	1347
Tire-shoe setter	R. Threlfall	786,611	Apr. 4	813	168	115	1243
Tire-tightener. Vehicle-wheel	R. F. Fraizer	788,355	Apr. 25	4342	947	115	2070
Tire-tread	J. R. Whittemore	787,600	Apr. 18	2816	614	115	1709
Tire. Vehicle-	C. A. Pettie	785,118	Mar. 21	2278	479	115	537
Tire. Vehicle-	J. J. Fitzsimmons	785,603	Mar. 21	3271	695	115	754
Tire. Vehicle-	L. C. Cummings	787,898	Apr. 25	3437	752	115	1860
Tire. Vehicle-wheel	H. D. Hubbard	785,170	Mar. 21	2378	499	115	559
Tire. Vehicle-wheel	E. A. Scribner	787,311	Apr. 11	2218	487	115	1560
Tobacco-hanger	J. H. Sylvester and P. Weckbecker	785,777	Mar. 28	3610	771	115	839
Tobacco-leaf-sizing machine	A. R. Tiffany	788,077	Apr. 25	3802	827	115	1945
Tobacco. Treating	J. L. Daniels, Jr.	787,611	Apr. 18	2856	.....	115	1719
Toilet-case	E. J. Milligan	788,418	Apr. 25	4480	975	115	2089
Tomato-scalder	J. P. Walker	787,484	Apr. 18	2578	556	115	1652
Tongs	J. G. Winger	785,462	Mar. 21	2972	626	115	680
Tool	W. L. Carson	784,964	Mar. 14	1969	418	115	459
Tool	P. M. Vance	786,860	Apr. 11	1292	274	115	1288
Tool. Combination-	A. Haag	784,674	Mar. 14	1384	286	115	325
Tool. Combination-	J. R. Morris	784,959	Mar. 14	1945	406	115	449
Tool. Combination-	G. E. Hasson	787,172	Apr. 11	1949	422	115	1502
Tool. Combined	J. W. Currier	786,105	Mar. 28	4296	906	115	998
Tool-driver. Electric	W. F. Wagner	787,707	Apr. 18	3024	663	115	1764
Tool. Electric reciprocating	P. Centner	788,450	Apr. 25	4535	987	115	2111

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tool. Extracting	J. B. Fladby	788,398	Apr. 25	4449	968	115	2093
Tool. Hand	S. J. Welter	787,064	Apr. 11	1737	370	115	1456
Tool, &c. Hand-directed	J. K. Stewart	786,390	Apr. 4	312	69	115	1139
Tool-handle. Detachable	W. Ashert	784,772	Mar. 14	1592	328	115	372
Tool handle. Pneumatic	J. H. Templin	787,347	Apr. 11	2296	499	115	1577
Tool handle. Pneumatic	J. H. Templin	787,705	Apr. 18	3021	663	115	1754
Tool-handles, &c. Securing	A. W. Cochran	786,630	Apr. 4	860	178	115	1253
Tool-heating apparatus	J. Pirie	784,883	Mar. 14	1809	378	115	419
Tool-holder	W. W. Doolittle	785,351	Mar. 21	2730	578	115	634
Tool-holder and case for scissors, shears, pliers, &c.	F. Gutmann	786,758	Apr. 4	1107	232	115	1307
Tool. Percussive hand	H. Potter	784,703	Mar. 14	1440	298	115	338
Tool. Pneumatic	H. Leineweber	784,338	Mar. 7	639	132	115	146
Tool. Pneumatically-actuated	R. Temple	787,959	Apr. 25	3562	779	115	1888
Tool. Pneumatically-actuated	R. Temple	787,960	Apr. 25	3565	779	115	1889
Tool. Pneumatically-actuated	R. Temple	787,961	Apr. 25	3568	779–81	115	1890
Tool. Pneumatically-actuated	R. Temple	787,962	Apr. 25	3571	781	115	1891
Tool. Pneumatically-actuated	R. Temple	787,963	Apr. 25	3574	781	115	1892
Tool polishing and abrading composition	W. Roberts and G. S. Coxe	785,231	Mar. 21	2513	529	115	588
Tool-post	C. W. Grant	788,206	Apr. 25	4059	878	115	2007
Tool safety device. Machine	C. Wenigmann	786,473	Apr. 4	541	109	115	1186
Tooth. Artificial	C. T. Campbell	787,352	Apr. 18	2308	502	115	1592
Tooth mold. Artificial	G. H. Whiteley	785,993	Mar. 28	4054	859	115	941
Tooth-straightening apparatus	W. B. Shelp	787,861	Apr. 18	3360	735	115	1830
Top	J. M. Fultz	788,041	Apr. 25	3747	815	115	1932
Top-roll saddle	C. A. Pierce	784,276	Mar. 7	526	108	115	121
Torpedo. Self-rotating air	W. T. Unge	785,644	Mar. 21	3342	716	115	768
Torpedo-steering mechanism	F. M. Leavitt	785,425	Mar. 21	2889	610–11	115	670
Towing-machine	E. Dalgleish	788,190	Apr. 25	4032	871–2	115	2002
Toy	F. F. Reisner	784,888	Mar. 14	1817	380	115	421
Toy	E. Terry	786,610	Apr. 4	812	168	115	1243
Toy	H. T. Turnor	787,062	Apr. 11	1733	369	115	1455
Toy	B. Palladino	787,109	Apr. 11	1819	389	115	1473
Toy	E. P. Lehmann	788,110	Apr. 25	3882	841	115	1967
Toy air-ship	L. H. Hunter	787,515	Apr. 18	2653	575	115	1672
Toy bank	W. J. Somerwill	786,689	Apr. 4	974	201	115	1278
Toy cigar for blowing smoke rings	N. J. Dilday	786,012	Mar. 28	4101	865	115	952
Toy. Jumping-rope figure	O. T. Dougherty	785,721	Mar. 28	3513	753	115	818
Toy. Racing	R. W. Brooks	785,149	Mar. 21	2333	489	115	549
Toy. Swinging	J. A. Crandall	785,201	Mar. 21	2440	513	115	573
Toy. Trick	T. W. McGrath	787,535	Apr. 18	2684	584	115	1679
Toy. Whirling	W. Schaller	787,404	Apr. 18	2420	523	115	1618
Trace-fastener	C. R. Austin	787,713	Apr. 18	3033	665	115	1756
Trace-holder	C. Heilrath	784,213	Mar. 7	406	81	115	95
Trace-holder	C. Heilrath	784,214	Mar. 7	407	81	115	95
Trace-lock	H. H. Quehl	785,378	Mar. 21	2782	587	115	646
Trace. Short harness	D. K. Bellis	787,265	Apr. 11	2129	470	115	1540
Tracer. Duplicating defect	E. M. Schantz	784,633	Mar. 14	1311	273	115	309
Track-drill	W. E. Ludlow	787,685	Apr. 18	2979	649	115	1746
Track-liner	H. B. Campbell	785,404	Mar. 21	2848	601	115	661
Track-sanding device	J. H. Watters	785,284	Mar. 21	2614	553	115	609
Traction-engine	B. J. Diplock	787,500	Apr. 18	2619	566–7	115	1663
Traction-engine	B. B. Stauffer	788,285	Apr. 25	4207	912–13	115	2039
Traction-wheel	C. A. McIntosh	787,536	Apr. 18	2686	584	115	1679
Traction-wheel	W. A. Bangs	788,014	Apr. 25	3892	804	115	1918
Train and station guide	P. Flanagan	784,257	Mar. 7	486	97–8	115	112
Train. Observation	C. L. Hagen	786,117	Mar. 28	4313	910	115	1000
Train-signal. Electric	A. W. Sullivan and W. Renshaw	787,595	Apr. 18	2805	611	115	1706
Train signaling equipment. Electric	W. B. Lane	784,965	Mar. 14	1771	369–70	115	410
Trainigraph	W. A. Inwood	784,960	Mar. 14	1761	367	115	408
Tramway. Cable	C. Messick, Jr.	784,955	Mar. 14	1934	406	115	447
Tramway carriages. Rope-clutch for aerial	E. Boucher	784,100	Mar. 7	178	35	115	43
Tramway. Electric	A. Diatto	785,293	Mar. 21	2627	556	115	612
Transformer receptacle or case	J. H. Zimmermann	786,338	Apr. 4	181	41	115	1109
Transmitting intelligence	C. D. Ebret	785,803	Mar. 28	3661	781	115	852
Transmitting intelligence. System of	C. D. Ehret	785,804	Mar. 28	3666	781	115	853
Transom-operator	W. Eckstein	786,106	Mar. 28	4297	906	115	996
Transporting device	H. Schuster and F. Metze	787,472	Apr. 18	2553	552	115	1646
Trap:							
See Animal-trap. Bird-trap. Burglar-trap. Dumping-trap. Fish-trap. House-trap. Mole-trap. Sanitary trap. Steam-trap. Steam and oil trap. Steel trap.							
Trap	A. L. Fuqua	784,849	Mar. 14	1739	362	115	404
Trap	G. Schmittle	786,163	Mar. 28	4401	930	115	1018
Trap. Non-siphonable self-scouring	G. Cody	788,454	Apr. 25	4551	991	116	2114
Traveling-case	A. K. Tashjian	785,188	Mar. 21	2419	508	115	599
Tray-support	E. C. Morgan and F. B. Ostrom	786,587	Apr. 4	771	158	115	1234
Tread. Safety	T. P. Farmer	788,458	Apr. 25	4554	992	115	2115
Tree-protecting device	A. Karlsen	784,684	Mar. 14	1403	290	115	330
Trench-cutter	L. C. Wemple	784,458	Mar. 7	912	190	115	207
Trestle	W. J. Muttart	788,368	Apr. 25	4376	953–4	115	2077
Triangle clasp	M. L. Rothschild	786,385	Apr. 4	303	66	115	1137
Trimmer:							
See Celery-trimmer. Lawn-trimmer.							
Trolley	J. H. Thompson	784,448	Mar. 7	891	186	115	202
Trolley	M. O. Day	784,843	Mar. 14	1730	360	115	402
Trolley	C. Dillhoff and J. Hastreiter	785,508	Mar. 21	3262	692	115	752
Trolley	J. L. Brownlee	786,188	Mar. 28	4445	940	115	1026
Trolley	S. Kacso	786,219	Mar. 28	4509	954	115	1040
Trolley	L. Leuenberger	787,684	Apr. 18	2978	648	115	1745
Trolley catcher and retriever	W. W. Hoffman and F. W. Powers	784,678	Mar. 14	1391	288	115	327
Trolley catcher and retriever	C. E. Giesding	787,100	Apr. 11	1937	420–1	115	1499
Trolley device	A. F. Fliegboom	786,887	Apr. 11	1354	288	115	1372

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Trolley. Electrical	S. R. Stoddard	784,639	Mar. 14	1322	274	115	311
Trolley-guide	J. F. Jameson	784,681	Mar. 14	1399	289	115	329
Trolley-head	E. J. Parker and L. N. Colwell	785,372	Mar. 21	2771	585	115	643
Trolley. Overhead	F. J. Prue	785,183	Mar. 21	2409	507	115	567
Trolley-pole. Automatic self-dropping	J. Delane	784,038	Mar. 7	46	9	115	13
Trolley-pole catcher	J. H. Walker	787,810	Apr. 18	3254	710–11	115	1807
Trolley-pole controller. Automatic	M. O. Dolson	786,489	Apr. 4	575	115	115	1193
Trolley-retriever	F. M. Miller	787,527	Apr. 18	2668	579–80	115	1675
Trolley-stand	B. A. Grasberger	787,033	Apr. 11	1668	355	115	1441
Trolley-stand	B. A. Grasberger	787,034	Apr. 11	1669	356	115	1441
Trolley-stand	J. A. Grasberger	787,035	Apr. 11	1670	356	115	1441
Trolley-stand	J. A. Grasberger	787,036	Apr. 11	1672	356	115	1442
Trolley-track switch. Overhead	R. N. Cundall	784,037	Mar. 7	44	8	115	12
Trolley-wheel	S. Klamborowski	786,222	Mar. 28	4512	955	115	1041
Trolley-wheel	E. W. Clark	786,795	Apr. 11	1185	247	115	1336
Trolley-wheel and holder	H. N. King	786,036	Mar. 28	4145	874	115	962
Trolley-wheel guard for electric wires	J. L. Sullivan. (Reissue)	12,324	Mar. 14	2159	456	115	496
Trolley-wire guide	S. F. McMullen	786,832	Apr. 11	1243	260	115	1348
Trolley-wire replacer	W. Peck	787,343	Apr. 11	2280	497	115	1574
Trousers-creaser	J. H. Bradley	785,793	Mar. 28	3640	777	115	846
Trousers-leg support	F. A. E. Wenzel and C. O. Hjermstad	784,721	Mar. 14	1496	306	115	352
Trousers-press and suit-hanger	F. J. Gruhl	786,806	Apr. 11	1202	251	115	1340
Trousers-pressing device	W. A. Smith	784,187	Mar. 7	350	71–2	115	82
Trousers-stretcher	H. H. Ewing	785,868	Mar. 28	3781	804	115	879
Trousers-stretcher	W. B. White	786,333	Apr. 4	174	40	115	1107
Truck	G. Hutton	784,792	Mar. 14	1632	336–7	115	381
Truck	H. S. Merrell	788,414	Apr. 25	4475	974	115	2098
Truck and support. Combined wheel	H. K. and J. J. Dimmick	784,992	Mar. 14	2005	421	115	462
Truck brake. Railway	W. Dalton	786,488	Apr. 4	574	115	115	1193
Truck. Car	L. W. Barber	784,097	Mar. 7	174	33–4	115	42
Truck. Car	E. Cliff	784,837	Mar. 14	1720	357–8	115	400
Truck. Car	F. L. Chase and B. M. Young	785,151	Mar. 21	2336	490	115	550
Truck. Cast-steel car	A. Lipschutz	786,575	Apr. 4	748	154	115	1229
Truck for street-cars or similar vehicles. Motor-propulsion	J. A. Brill	784,299	Mar. 7	573	117–18	115	132
Truck lateral-motion device. Car	L. W. Barber	784,096	Mar. 7	171	32–3	115	42
Truck side frame. Car	W. P. Bettendorf	785,790	Mar. 28	3635	777	115	845
Trumpet or megaphone. Folding	C. M. Zellers	786,395	Apr. 4	319	70	115	1141
Trunk	C. E. Turner and R. L. Hyman	787,236	Apr. 11	2070	453	115	1527
Trunk	H. Davis	787,835	Apr. 18	3305	721	115	1818
Trunk	H. Davis	787,836	Apr. 18	3306	721	115	1818
Tube:							
See Boiler fire-tube. Conversation-tube. Cop-tube. Inner tube. Mailing-tube. Remnant-tube.							
Tube-cleaner	J. J. Price	784,884	Mar. 14	1811	379	115	420
Tube-cleaning apparatus	B. S. and C. T. Hughes	787,333	Apr. 11	2262	494	115	1570
Tube-cleaning device	J. F. Stephenson	784,359	Mar. 7	682	140	115	156
Tube-coupling	C. L. Mann	786,507	Apr. 4	618	124	115	1202
Tube-expander	W. H. Kinney	785,892	Mar. 28	3832	814	115	890
Tube-expander	J. M. Brown	787,269	Apr. 11	2135	471	115	1541
Tube expanding and compressing machine. Hydraulic	A. T. Pope	788,119	Apr. 25	3898	844	115	1971
Tube-sheet	J. J. Boyce and J. McCormack	784,543	Mar. 14	1093	228	115	260
Tubes. Attaching flanges to	W. W. Doolittle	786,551	Apr. 4	705	143	115	1220
Tubes. Forming	L. C. Smith	786,923	Apr. 11	1444	305	115	1392
Tubing. Machine for forming flexible	S. Scognamillo	785,523	Mar. 21	3113	658	115	721
Tufting machine. Mattress	G. W. Bent	787,555	Apr. 18	2724	592–3	115	1688
Tug. Hame	W. L. Stringer	787,229	Apr. 11	2060	450	116	1525
Tug. Hame	J. S. Cusson	788,455	Apr. 25	4552	991	115	2114
Tug. Thill	P. H. Fontaine	787,364	Apr. 18	2326	505	115	1596
Tunnel construction. Subaqueous	D. D. McBean	784,413	Mar. 7	821	170–1	115	187
Tunnels. Constructing subaqueous	T. K. Thomson	784,816	Mar. 14	1684	348	115	393
Turbine. Compound marine	J. Wilkinson	788,006	Apr. 25	3670	799–800	115	1914
Turbine controller mechanism	J. Wilkinson	788,005	Apr. 25	3666	798–9	115	1913
Turbine controller mechanism. Marine	J. Wilkinson	788,004	Apr. 25	3662	798	115	1911
Turbine. Elastic-fluid	H. Zoelly	784,371	Mar. 7	721	147	115	166
Turbine. Elastic-fluid	W. B. Potter	784,806	Mar. 14	1664	345	115	388
Turbine. Elastic-fluid	O. Junggren	787,297	Apr. 11	2189	482	115	1553
Turbine-engine	E. H. Ludeman	785,014	Mar. 14	2041	428	115	471
Turbine-engine	E. S. Farwell	787,907	Apr. 25	3453	757	115	1863
Turbine-engine	F. S. Farwell	787,980	Apr. 25	3611	788	115	1900
Turbine-engine	A. Wahle	788,000	Apr. 25	3653	796	115	1909
Turbine-engine	E. Einfeldt	788,395	Apr. 25	4441	965–6	115	2091
Turbine. Fluid-pressure	H. F. Fullagar	784,670	Mar. 14	1376	285	115	323
Turbine. Fluid-pressure	G. Westinghouse	787,485	Apr. 18	2579	557	115	1653
Turbine. Fluid-pressure	R. N. Ehrhart	788,097	Apr. 25	3842	835	115	1964
Turbine-motor	G. Ferri	785,207	Mar. 21	2450	516–17	115	575
Turbine. Steam	P. Rambal	784,431	Mar. 7	853	177–8	115	195
Turbine. Steam	C. W. Dake and W. Donker	784,989	Mar. 14	1999	420	115	461
Turbine. Steam	M. J. Troost	785,643	Mar. 21	3341	716	115	768
Turbine. Steam	C. S. Drummond	785,802	Mar. 28	3659	780–1	115	852
Turbine. Steam	J. Stumpf	787,231	Apr. 11	2064	451	115	1526
Turbines. Water lubricating system for steam	A. H. Kruesi	784,795	Mar. 14	1637	337–8	115	381
Turpentine-receptacle	L. D. Byrd	786,980	Apr. 11	1498	314	115	1402
Twine-holder	E. E. Mateson	787,781	Apr. 18	3203	699	115	1798
Twisting and doubling machine. Yarn	J. S. Verlenden	788,202	Apr. 25	4226	917	115	2043
Twisting-machine	H. and J. W. Collins	784,922	Mar. 14	1878	394	115	435
Twisting-machine starting or stopping device	H. and J. W. Collins	784,923	Mar. 14	1881	394–5	115	436
Twisting machine. Warp	G. Hiller	787,511	Apr. 18	2642	572–4	115	1669
Twisting or spinning machine	H. G. Beede	787,554	Apr. 18	2722	592	115	1688
Twisting or spinning machine knotting attachment	H. G. Beede	787,426	Apr. 18	2462	532–3	115	1628
Twyer	R. M. Downie	787,866	Apr. 18	3049	641	115	1739
Twyer-iron	G. A. Walter	787,868	Apr. 18	3373	738	115	1833

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Type bar and support	J. Winsor	787,968	Apr. 25	3587	783–4	115	1895
Type casting and composing machine	J. Pinel	786,313	Apr. 4	118	27–33	115	1097
Type casting and composing machines. Intermittent clutch device for	M. Wehrlin	787,138	Apr. 11	1880	405	115	1486
Type-casting-machine squirt-preventer	W. Nicholas	785,823	Mar. 28	3711	791	115	864
Type-chase and furniture therefor	H. S. Folger	786,020	Mar. 28	4123	860	115	957
Type-distributing machine	E. A. Adcock	785,649	Mar. 21	3354	719–20	115	771
Type-machine die-case equipment	J. S Bancroft	784,245	Mar. 7	461	93	115	107
Type-machine die-case equipment	F. H. Pierpont	785,375	Mar. 21	2777	587	115	645
Type-mold	F. H. Pierpont	785,374	Mar. 21	2773	586	115	644
Type-page binder-frame	L. A. Costigan	785,200	Mar. 21	2439	513	115	573
Type-setting machine	E. A. Adcock	785,648	Mar. 21	3350	718	115	770
Type-writer	N. L. Anderson	788,012	Apr. 25	3684	802	115	1917
Type-writer and telegraph-transmitter. Combined	C. H. Hepinstall	784,858	Mar. 14	1757	366–7	115	407
Type-writer classifying sheet-holder	H. C. Hartley	784,789	Mar. 14	1627	335	115	379
Type-writer platen	C. H. Stuart	786,067	Mar. 28	4210	887	115	976
Type-writer ribbon-guide	C. H. Dowlen	787,566	Apr. 18	2741	596	115	1692
Type-writer word-registering device	R. Allen	788,011	Apr. 25	3682	802	115	1917
Type-writers, &c. Carriage-return mechanism for	L. Myers	784,585	Mar. 14	1170	247	115	277
Type-writing. Finger-exerciser for students of	J. T. Brattin	787,825	Apr. 18	3280	716	115	1812
Type-writing machine	C. Gabrielson	784,317	Mar. 7	601	123–4	115	138
Type-writing machine	G. B. Webb	784,366	Mar. 7	700	145	115	160
Type-writing machine	O. Woodward	784,368	Mar. 7	705	146	115	161
Type-writing machine	O. Woodward	784,369	Mar. 7	713	146	115	164
Type-writing machine	W. J. Barron and H. W. Merritt	784,376	Mar. 7	729	149	115	168
Type-writing machine	A. T. Brown	784,380	Mar. 7	741	151	115	170
Type-writing machine	B. C. Stickney	784,444	Mar. 7	879	184	115	200
Type-writing machine	A. W. Smith	785,278	Mar. 21	2602	550	115	607
Type-writing machine	L. S. Burridge	785,709	Mar. 28	3488	749	115	812
Type-writing machine	G. R. Young	786,394	Apr. 4	318	70	115	1141
Type-writing machine	C. H. Shepard	786,464	Apr. 4	529	104	115	1184
Type-writing machine	C. N. Fay and H. Hochklassen	786,885	Apr. 11	1350	288	115	1371
Type-writing machine	E. E. Barney	787,020	Apr. 11	1644	350	115	1435
Type-writing machine	C. S. Labofish	787,772	Apr. 18	3186	696	115	1792
Type-writing-machine aligning device	J. B. Secor	786,056	Mar. 28	4188	882	115	972
Type-writing-machine controlling apparatus	F. G. Creed	787,875	Apr. 18	3381	739–40	115	1835
Type-writing-machine paragraphing-stop	C. R. Kelly	784,494	Mar. 7	990	207–8	115	223
Type-writing-machine tabulating device	J. B. Secor	786,607	Apr. 4	805	166	115	1241
Type-writing-machine type-cleaning attachment	A. Hall	786,027	Mar. 28	4133	871	115	959
Umbrella	G. Turner	787,237	Apr. 11	2073	453	115	1528
Umbrella, broom, &c., holder	C. Gille	785,304	Mar. 21	2644	560	115	615
Umbrella. Folding	C. P. Funk	784,672	Mar. 14	1382	286	115	325
Umbrella. Folding	F. A. Lundquist	784,871	Mar. 14	1784	372	115	413
Umbrella. Folding	D. W. Mabee	784,952	Mar. 14	1928	405	115	446
Umbrella. Folding	I. D. Braune	785,658	Mar. 21	3373	724	115	776
Umbrella-frame	T. Wallace	786,471	Apr. 4	539	108	115	1186
Umbrella-holder	G. A. Robinson	784,501	Mar. 7	1011	210	115	226
Umbrella-support	H. Rowlett	786,600	Apr. 4	791	162	115	1239
Umbrella-support	D. Whipple	787,486	Apr. 18	2585	557	115	1655
Universal joint	G. W. Toney	785,839	Mar. 28	3735	795	115	868
Vaccine case and holder	E. M. Houghton	786,358	Apr. 4	230	52	115	1119
Valve	O. O. Storie	784,081	Mar. 7	143	26	115	36
Valve	J. G. Westbrook	785,137	Mar. 21	2316	485	115	545
Valve	C G. Crispin	785,594	Mar. 21	3252	690	115	750
Valve	J. G. Westbrook	785,646	Mar. 21	3347	717	115	769
Valve	J. O'Meara	786,512	Apr. 4	629	127	115	1204
Valve	F. H. Crabtree and A. G. McGregor.	786,731	Apr. 4	1049	217	115	1294
Valve	G. W. Denief	786,960	Apr. 11	1509	320	115	1407
Valve	A. J. Caldwell	787,076	Apr. 11	1753	373	115	1459
Valve	H. Lippold	787,627	Apr. 18	2878	626	115	1724
Valve	E. E. Slick	788,337	Apr. 25	4314	939	115	2063
Valve. Automatic	H. S. Pinkerton	788,426	Apr. 25	4494	978	115	2102
Valve. Automatic controlling	R. H. Tait	785,444	Mar. 21	2938	620	115	681
Valve. Blowing-engine	J. Fawell	787,568	Apr. 18	2743	597	115	1692
Valve. Emergency brake	F. B. Corey	786,955	Apr. 11	1496	317	115	1403
Valve. Emergency throttle	L. Neumann	786,667	Apr. 4	937	192	115	1270
Valve. Engineer's	A. D. McWhorter	784,417	Mar. 7	832	172–3	115	190
Valve-fitting	W. R. Park	784,067	Mar. 7	114	20	115	29
Valve. Float	J. B. Hawkins	786,895	Apr. 11	1366	291	115	1374
Valve. Fluid-actuated	J. B. Rhodes	785,918	Mar. 28	3879	825	115	901
Valve. Gasolene-engine feed	C. Pederson and O. J. Andresen	784,699	Mar. 14	1430	295	115	336
Valve. Gate	R. J. Powers	784,347	Mar. 7	655	135	115	150
Valve. Gate	G. T. Luckett	786,043	Mar. 28	4158	877	115	964
Valve-gear	W. F. Diden	784,389	Mar. 7	767	157	115	176
Valve-gear	W. R. Dow	786,432	Apr. 4	464	90	115	1171
Valve-gear	A. Loomis	787,580	Apr 18	2770	604	115	1697
Valve-gear. Engine	O. Schwade	787,223	Apr. 11	2044	446	115	1522
Valve. Inflation	J. E. Keller, Jr	787,298	Apr. 11	2192	483	115	1554
Valve mechanism. Engine	J. H. Moore	786,913	Apr. 11	1411	300–1	115	1383
Valve mechanism. Explosive-engine	J. Kerns	785,108	Mar. 21	2256	475	115	532
Valve mechanism. Steam-engine slide	F. E. Smith	786,060	Mar. 28	4194	884	115	973
Valve. Plug	R. W. Cadman	785,854	Mar. 28	3758	799	115	874
Valve. Plug	H. Kieren	788,476	Apr. 25	4578	998	115	2119
Valve. Pressure-reducing	E. M. Bournonville	788,240	Apr. 25	4127	895	115	2022
Valve. Pressure-regulating	J. H. Bleoo	784,731	Mar. 14	1511	309	115	355
Valve. Retaining	E. M. Herr	786,268	Apr. 4	72	17	115	1087
Valve. Reversing	J. A. Herrick	786,033	Mar. 28	4140	873	115	961
Valve. Safety	F. Schreidt	786,317	Apr. 4	146	34	115	1102
Valve. Self-closing	R. F. Gillin	785,720	Mar. 28	3525	755	115	821
Valve. Steam-actuated	T. Kasai	785,172	Mar. 21	2385	500–1	115	561
Valve. Triple	C. E. Barry	785,537	Mar. 21	3135	662	115	726
Valve. Triple	J. B. Purdy	787,605	Apr. 18	2906	653	115	1749
Valve. Whistle	F. L. Wolfe	787,422	Apr. 18	2454	530–1	115	1624
Valves, &c. Mechanism for operating	H. E. Warren	787,136	Apr. 11	1877	404	115	1486

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Valves. Operating device for internal-combustion-engine inlet and ignition	J. W. Seal	788,496	Apr. 25	4619	1007	115	2127
Valves to their spindles. Means for securing	C. Ely	784,996	Mar. 14	2011	422	115	464
Vanadium, molybdenum, titanium, and tungsten. Treating products containing	H. L. Herrenschmidt	787,758	Apr. 18	3166	.....	115	1788
Vanner. Mineral-	H. C. Krause	787,190	Apr. 11	1967	432-3	115	1510
Vapor-burner	H. J. Marks	785,902	Mar. 28	3849	819	115	893
Vapor-burner	H. J. Marks	785,903	Mar. 28	3851	819	115	894
Vapor-burner	L. Rhodes	788,067	Apr. 25	3788	823	115	1941
Vapor-burner. Incandescent	W. S. Quigley	786,381	Apr. 4	295	64	115	1135
Vaporizer	G. H. Bell	785,692	Mar. 21	3455	743	115	791
Vaporizer	G. Beaumont	788,345	Apr. 25	4326	944	115	2066
Varnishes. Manufacturing	A. Tixier and L. Rambaud	785,450	Mar. 21	2950	.....	115	684
Vault. Burial-	F. G. Boyden	786,094	Mar. 28	4277	902	115	991
Vegetable-cutter	W. Wildermuth	784,723	Mar. 14	1499	307	115	353
Vegetable-cutter	W. D. Earl	785,599	Mar. 21	3264	693	115	753
Vegetable-cutter	R. L. Dorsey	787,614	Apr. 18	2858	622	115	1720
Vegetable-cutter	J. J. Drong	787,734	Apr. 18	3125	683	115	1778
Vehicle	J. Boothe	784,138	Mar. 7	246	49	115	59
Vehicle and track therefor	J. V. Godman	785,163	Mar. 21	2360	494-5	115	555
Vehicle-body	S. R. Bailey	786,179	Mar. 28	4424	936	115	1023
Vehicle-body corner	W. B. C. Hershey	784,159	Mar. 7	290	60	115	69
Vehicle controlling apparatus. Motor-	D. Mason	785,817	Mar. 28	3698	787	115	861
Vehicle. Electrogasolene-	L. G. Nilson	786,376	Apr. 4	267	61	115	1126
Vehicle extension top or canopy	H. Smith	787,798	Apr. 18	3233	706	115	1802
Vehicle-gear	F. E. Wilcox and L. E. Hickok	786,867	Apr. 11	1313	279	115	1362
Vehicle indicating apparatus. Motor-	D. Mason	785,816	Mar. 28	3696	786	115	861
Vehicle. Motor-	W. L. Garrels and C. Kimball	784,485	Mar. 7	967	202-3	115	219
Vehicle. Motor-	W. L. Garrels and C. Kimball	784,486	Mar. 7	971	203-4	115	219
Vehicle. Motor-	J. F. Duryea	786,349	Apr. 4	205	47	115	1114
Vehicle-operating system. Electric-	H. H. Cutler	786,419	Apr. 4	386	82-3	115	1155
Vehicle platform-gear	S. A. and A. C. Gibson	785,095	Mar. 21	2225	467	115	525
Vehicle running-gear	G. H. Jones	788,108	Apr. 25	3879	841	115	1967
Vehicle sand-box	T. H. Stansill	787,409	Apr. 18	2426	525	115	1619
Vehicle-seat	W. M. Thomas	784,239	Mar. 7	450	91	115	105
Vehicle-seat brace-iron	W. B. C. Hershey	784,160	Mar. 7	291	61	115	69
Vehicle. Snow or ice	C. B. Haldeman	786,026	Mar. 28	4131	870-1	115	959
Vehicle speed-controlling apparatus. Motor-driven-	J. H. E. Goetze	788,204	Apr. 25	4054	876-7	115	2006
Vehicle steering-gear	T. M. George	784,673	Mar. 14	1383	286	115	325
Vehicle steering-gear	F. A. Law	788,053	Apr. 25	3762	819	115	1935
Vehicle steering-head	A. F. Madden	788,271	Apr. 25	4180	908	115	2033
Vehicle steering mechanism. Motor-	C. W. Russell	787,471	Apr. 18	2551	552	115	1646
Vehicle steering-wheel. Motor-	E. J. Lonn	786,772	Apr. 4	1129	237	115	1312
Vehicle storm-front	M. Stieff	784,080	Mar. 7	141	26	115	35
Vehicle storm-shield	W. W. Warner	787,415	Apr. 18	2438	527	115	1621
Vehicle-top	M. B. Anderson	785,075	Mar. 21	2165	458	115	513
Vehicle-top support	S. M. Buchanan	787,073	Apr. 11	1750	372	115	1458
Vehicle-wheel	C. R. S. J. Hallé	784,397	Mar. 7	790	162-3	115	181
Vehicle-wheel	H. H. Taylor. (Reissue)	12,325	Mar. 14	2161	456-7	115	497
Vehicle-wheel	G. D. Munsing	785,629	Mar. 21	3315	707	115	762
Vehicle-wheel	J. F. Middleton	786,580	Apr. 4	756	156	115	1230
Vehicle-wheel	W. R. Fasey	788,034	Apr. 25	3729	812	115	1928
Vehicle. Wheeled	D. Sharman	788,146	Apr. 25	3957	856	115	1985
Vehicles. Power-transmission for motor-	S. H. Hanson	787,096	Apr. 11	1791	382	115	1463
Veil-pin	F. A. Curry	787,899	Apr. 25	3438	753	115	1860
Velocipede	E. Bentley	784,973	Mar. 14	1972	414	115	455
Velocipede	J. F. Bennington	786,718	Apr. 4	1028	213	115	1290
Velocipede	E. W. Hyde	787,670	Apr. 18	2959	644	115	1740
Velocipedes, &c. Driving and change-speed gear for	L. J. B. Savey	787,002	Apr. 11	1603	343	115	1426
Vending-machine	A. Conway	784,838	Mar. 14	1723	358	115	401
Vending-machine	C. T. Frantz	785,805	Mar. 28	3672	781-2	115	855
Vending-machine	J. A. Honabarger	785,883	Mar. 28	3806	810	115	884
Vending-machine	J. Mohn and R. C. Yates	786,582	Apr. 4	759	156-7	115	1231
Vending-machine	T. B. Erwin and H. C. Meyer	786,741	Apr. 4	1067	221	115	1298
Vending-machine	R. D. Work	787,251	Apr. 11	2106	464	115	1534
Vending-machine	A. Rydquist	787,795	Apr. 18	3227	705	115	1801
Vending-machine	L. J. Burdick	788,187	Apr. 25	4025	870	115	2000
Vending machine. Cigar-	M. L. Frink	785,416	Mar. 21	2872	606-7	115	667
Vending-machine. Coin-controlled	J. Little	785,813	Mar. 28	3691	785	115	860
Vending-machine. Coin-operated	W. Diebel	785,666	Mar. 21	3386	727	115	778
Vending machine. Multi-	F. T. Conklin	786,192	Mar. 28	4459	942-3	115	1029
Veneer-cutting machine	C. R. Traxler	785,986	Mar. 28	4039	856-7	115	938
Veneer-cutting machine	H. E. Grimsley	786,560	Apr. 4	721	146-7	115	1223
Veneer-cutting-machine stay-log	C. R. Traxler	786,241	Mar. 28	4544	963	115	1048
Veneering. Machine for sawing quartered oak or mahogany	A. Brosius	787,492	Apr. 18	2598	559-60	115	1659
Veneering. Machine for sawing quartered oak or mahogany	A. Brosius	787,493	Apr. 18	2600	560-1	115	1660
Ventilating and air-cooling mechanism	J. Kelly	787,454	Apr. 18	2517	545	115	1638
Ventilating apparatus. Building-	W. N. Reynolds	784,963	Mar. 14	1952	409	115	450
Ventilating device	R. Taylor and W. G. Creamer	787,997	Apr. 25	3648	794	115	1908
Ventilator: *See* Stovepipe-ventilator.							
Ventilator	N. Martin	785,112	Mar. 21	2262	476	115	533
Ventilator	M. Miller, Jr.	785,820	Mar. 28	3706	789	115	863
Ventilator	S. D. Hanney	787,377	Apr. 18	2350	511	115	1604
Ventilator	S. H. Jacobson	787,382	Apr. 18	3408	746	115	1841
Vertical boiler	T. Suzuki	788,174	Apr. 25	4003	884-5	115	1995
Vessel cap-fastening	A. Brockelbank	784,513	Mar. 7	1037	214	115	233
Vessel for carrying ore or like material	F. K. Hoover and A. J. Mason	784,943	Mar. 14	1916	402-3	115	443
Vessel. Knockdown	C. H. Gleason	785,607	Mar. 21	3278	680	115	755
Vessels. Apparatus for marking sunken	F. W. Johnson	786,126	Mar. 28	4330	914-15	115	1004
Vest-protector	R. Spurgin	788,924	Apr. 11	1445	308	115	1282
Veterinary instrument	H. M. Stevenson	787,594	Apr. 18	2804	611	115	1706
Vial necking and lipping machine	W. Little	784,796	Mar. 14	1651	341	115	385
Vibrator	C. H. Kay and W. U. Colthar	784,164	Mar. 7	297	62	115	70

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Vibrator. Fluid-actuated	C. H. Richwood	786,050	Mar. 28	4174	879	115	968
Vibrator-regulator	C. F. Splitdorf	785,056	Mar. 14	2113	446	115	487
Vine-cutter	R. M. Varnedoe	785,028	Mar. 14	2062	433	115	476
Viscosimeter	F. A. Courtois	788,251	Apr. 25	4151	901	115	2027
Vise	C. J. Lindgren	785,010	Mar. 14	2037	427	115	471
Vise	M. F. Hudson and E. R. Langford	786,787	Apr. 4	1160	243	115	1319
Vise	J. F. Emmert	787,328	Apr. 11	2250	492	115	1567
Vise. Foot-	J. W. Ford	784,847	Mar. 14	1736	362	115	403
Vise. Parallel bench-	G. B. Taylor	788,340	Apr. 25	4317	941	115	2064
Voting-machine	J. I. Haynes	786,807	Apr. 11	1309	291–3	115	1375
Voting-machine	W. Glenn	787,373	Apr. 18	2345	507–9	115	1600
Voting-machine	J. B. Mahana	788,486	Apr. 25	4595	1001–2	115	2123
Wagon	J. B. Mowry	785,628	Mar. 21	3313	707	115	762
Wagon-bed. Transformable	A. R. Stoner	787,704	Apr. 18	3019	662–3	115	1753
Wagon-body	J. B. Tremaine	786,695	Apr. 4	988	203	115	1281
Wagon-bolster attachment	J. A. Goodwin	785,609	Mar. 21	3280	697	115	756
Wagon-box	W. A. Melrose	788,487	Apr. 25	4602	1002–3	115	2124
Wagon-brake	W. H. Weber	787,965	Apr. 25	3582	783	115	1894
Wagon-brake	C. J. A. Machut	788,214	Apr. 25	4062	884	115	2011
Wagon. Dump-	C. M. Haeske	784,156	Mar. 7	284	59	115	68
Wagon. Dumping-	C. J. Handel	785,947	Mar. 28	3945	839	115	916
Wagon. Dumping-	J. R. Morgan	787,934	Apr. 25	3512	767	115	1877
Wagon. Dumping-	D. S. Watson	788,002	Apr. 25	3657	797	115	1911
Wagon dumping-bed	D. S. Everett	785,160	Mar. 21	2354	493–4	115	554
Wagon. Logging-	J. G. Woods	784,198	Mar. 7	368	75	115	86
Wagon-rack	J. H. Price	785,760	Mar. 28	3581	765	115	832
Wagon-rack. Dumping	E. Kostenbader	785,310	Mar. 21	2653	562	115	617
Wagon skeleton frame. Farm-	A. L. and C. H. Dudley	788,394	Apr. 25	4439	965	115	2091
Wagon-spring	W. Webber	786,614	Apr. 4	819	169	115	1244
Wall and concrete block for same. Building-	W. H. Dunn	785,296	Mar. 21	2632	557	115	613
Wall construction	W. L. Marchand	786,370	Apr. 4	258	59	115	1124
Wall construction. Building-block	W. Porten	786,598	Apr. 4	787	161	115	1238
Walls. Apparatus for the construction of plastic	D. W. Bovee	788,391	Apr. 25	4433	963–4	115	2089
Walls. Constructing water-tight masonry	C. M. Crawford	784,925	Mar. 14	1884	395	115	436
Walls. Making non-conducting	J. H. Stone	784,284	Mar. 7	538	111	115	124
Walls. Water-tight joint for masonry	C. M. Crawford	784,926	Mar. 14	1885	395	115	437
Wardrobe	W. G. Anderson	784,021	Mar. 7	7	2	115	3
Wardrobe	G. W. Warren	787,243	Apr. 11	2092	462	115	1531
Wardrobe. Portable	C. E. Blashfield	784,296	Mar. 7	564	116	115	130
Warp-beam brake	C. E. Buschmann	787,323	Apr. 11	2239	490	115	1565
Warp-clamp	R. Mauchline	788,364	Apr. 25	4371	952	115	2076
Washer:							
See Gas-washer. Packing-washer. Nut lock-washer. Stock-washer.							
Washer-cutter	W. H. Mohr	788,217	Apr. 25	4086	885	115	2012
Washing-machine	P. P. Kiel	784,405	Mar. 7	803	167	115	184
Washing-machine	D. E. Howard and A. S. Hall	784,491	Mar. 7	983	206	115	221
Washing-machine	D. B. D. and W. F. Blake	784,541	Mar. 14	1089	227	115	260
Washing-machine	G. A. Wolter	784,825	Mar. 14	1704	353–4	115	397
Washing-machine	A. L. Betzer	786,090	Mar. 28	4272	900	115	990
Washing-machine gear	J. H. and J. B. Taylor	786,856	Apr. 11	1288	273	115	1357
Washing-machine mechanical movement	W. Sweet	788,227	Apr. 25	4103	889	115	2016
Washboard	H. M. Haas	788,465	Apr. 25	4564	995	115	2117
Watch	A. S. Schatzmann	785,440	Mar. 21	2929	618	115	679
Watch-balance	J. A. Fréund	788,309	Apr. 25	4450	968	115	2093
Watch-hand remover	A. Ellis	788,031	Apr. 25	3724	811	115	1926
Watch memoranda attachment	W. W. Wikoff	784,969	Mar. 14	1965	412	115	453
Watch-protector	J. K. Howard	786,217	Mar. 28	4506	953	115	1039
Watchcase	W. E. Porter	787,637	Apr. 18	2993	630	115	1727
Watchmaker's device	W. D. Smith	787,313	Apr. 11	2220	487	115	1560
Water-closet	C. Pfau	787,110	Apr. 11	1821	390	115	1474
Water-closet bowl	M. D. Helfrich	787,755	Apr. 18	3162	691	115	1787
Water-closet-bowl connection or joint	E. L. Stallings	785,984	Mar. 28	4036	855	115	937
Water-closet flushing-tank. Automatic	H. H. and J. G. Fleck	784,784	Mar. 14	1617	333	115	377
Water elevator and purifier	J. B. Sells	786,165	Mar. 28	4403	931	115	1019
Water-gage	C. R. Filliott	788,030	Apr. 25	3723	811	115	1926
Water-heater	W. E. Kay	784,403	Mar. 7	799	165–6	115	153
Water-heater	W. S. Roath	784,964	Mar. 14	1954	410	115	451
Water-heater	W. G. Taylor	785,189	Mar. 21	2421	509	115	569
Water-heater	F. O. Soderstrom	785,333	Mar. 21	2698	572	115	628
Water-heater	L. H. Salsgiver	785,576	Mar. 21	3209	680	115	740
Water-heater	W. L. Mersfelder	785,905	Mar. 28	3853	819	115	894
Water-heater	S. L. Wottring	787,253	Apr. 11	2109	465	115	1535
Water-heater	Q. S. Backus	787,636	Apr. 18	2932	638	115	1735
Water-heater and garbage-burner. Combined	F. C. Kummerow	787,771	Apr. 18	3185	696	115	1792
Water-heater and tank system. Domestic	J. J. Blackmore	788,089	Apr. 25	3829	832	115	1951
Water-heater with garbage-burner	M. E. Herbert	787,176	Apr. 11	1955	423–4	115	1503
Water-level controller	R. J. Flinn	786,638	Apr. 4	886	182	115	1259
Water-meter	F. Lambert	787,577	Apr. 18	2766	603	115	1697
Water-meter	F. Lambert	787,579	Apr. 18	2768	603	115	1697
Water-motor	W. W. Krewson	787,191	Apr. 11	1988	433	115	1510
Water-motor	L. D. Falconer	787,979	Apr. 25	3610	787–8	115	1900
Water-motor	I. B. De Bord	788,028	Apr. 25	3720	810	115	1926
Water of condensation. Means for separating and purifying	M. M. Phenice	787,305	Apr. 18	2404	519	115	1615
Water-pipes. Device for automatically reducing pressure in	G. H. Dworzak	787,327	Apr. 11	2248	492	115	1567
Water. Purifying	J. W. Langley	785,312	Mar. 21	2655	.....	115	618
Water-purifying apparatus	J. C. W. Greth	786,559	Apr. 4	718	146	115	1222
Water-purifying apparatus	B. B. Susanka	787,803	Apr. 18	3243	708	115	1804
Water-screen	H. B. Shafer	785,125	Mar. 21	2288	480–1	115	539
Water-softening apparatus	S. H. and P. E. Hodgkin	784,046	Mar. 7	62	12	115	16
Water-tower. Extensible	H. Sekowsky	786,687	Apr. 4	966	200–1	115	1276
Water-tube boiler	W. W. Shilling	784,075	Mar. 7	132	24	115	33
Water-tube boiler	H. L. Wilson	787,249	Apr. 11	2102	463	115	1533
Water-wheel regulator	J. W. Macfarlane	785,900	Mar. 28	3847	818	115	893

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Water-wheel. Turbine	C. O. Anthony	786,617	Apr. 4	824	171	115	1245
Wave-motor	J. Hutchings	787,181	Apr. 11	1966	426–7	115	1505
Wave-motor	J. Hutchings	787,182	Apr. 11	1968	427–8	115	1506
Weaner. Calf-	F. M. Burge	784,779	Mar. 14	1603	330	115	374
Weaner. Calf-	E. P., Jr., and H. Van Alstyne	785,058	Mar. 14	2115	446	115	467
Weather-strip	H. E. Kenny	786,972	Apr. 11	1550	330	115	1415
Weigher. Automatic	C. Bradford	786,785	Apr. 4	1154	242	115	1318
Weighing apparatus	A. L. Buckland	784,142	Mar. 7	255	52	115	61
Weighing-machine	A. G. Witek	786,081	Mar. 28	4251	896	115	985
Weighing-machine	H. Richardson	786,152	Mar. 28	4374	925	115	1013
Weighing-scoop	J. L. Taylor	784,641	Mar. 14	1326	275	115	312
Weight	J. B. Arthur	787,320	Apr. 11	2235	480	115	1564
Welding	O. Eigen	787,742	Apr. 18	3137	686	115	1782
Welding-machine. Electric	A. F. Rietzel	785,379	Mar. 21	2784	588–9	115	646
Well apparatus	M. E. Layne	786,301	Apr. 4	97	22	115	1093
Well bottom packing. Oil-	W. H. Downing	788,353	Apr. 25	4339	948	115	2069
Well casing packer and shoe. Gas or oil	A. P. McBride	785,906	Mar. 28	3856	820	115	895
Well-drilling machine	J. R. Griffith and L. G. Cosper	787,842	Apr. 18	3327	728	115	1822
Well-drilling machinery	W. Ackerman	788,343	Apr. 25	4323	942–3	115	2066
Well-drilling mechanism	J. C. Knupp and J. G. Greene	784,571	Mar. 14	1138	238	115	271
Well fishing-tool	C. W. Kroening	784,055	Mar. 7	88	16	115	23
Well strainer. Oil or water	F. I. Getty	787,912	Apr. 25	3472	759	115	1869
Well strainer. Oil or water	F. I. Getty	787,913	Apr. 25	3473	759	115	1869
Well wall-anchor and packer. Gas or oil	A. P. McBride	785,907	Mar. 28	3857	820	115	895
Wells. Electric heater for oil or gas	F. B. Waring	784,454	Mar. 7	905	189	115	206
Wharf or pier	S. G. Hindes	785,950	Mar. 28	3952	840	115	917
Wheel:							
See Automobile or bicycle wheel. Car-wheel. Current-wheel. Driver-wheel. Fifth-wheel. Gear-wheel. Paddle-wheel. Rubber-tired wheel. Sectional wheel. Self-oiling wheel. Spring-wheel. Sprocket-wheel. Steering-wheel. Traction-wheel. Trolley-wheel. Vehicle-wheel. Vehicle steering-wheel. Water-wheel. Wind-wheel.							
Wheel	G. W. Morse and T. W. Plumb	784,958	Mar. 14	1943	408	115	449
Wheel	C. H. S. Helling	785,670	Mar. 21	3398	730–1	115	780
Wheel	J. Bevington	785,998	Mar. 28	4061	861	115	943
Wheel	E. Krebs	786,223	Mar. 28	4513	955	115	1041
Wheel	J. B. McMullen	787,210	Apr. 11	2023	441	115	1518
Wheel	J. C. Couper	787,564	Apr. 18	2738	595	115	1691
Wheel	A. J. Adams	787,815	Apr. 18	3262	712	115	1809
Wheel	C. M. Green	788,504	Apr. 25	4630	1010	115	2130
Wheel-clamp	G. F. Fields	788,460	Apr. 25	4556	992	115	2115
Wheel-fender	T. H. Quinn	787,051	Apr. 11	1707	363	115	1449
Wheels. Mechanism for preventing side slipping of pneumatic-tired	A. J. Grossmann	786,494	Apr. 4	591	118	115	1196
Wheels, shafts, and cranks. Fastening for	J. V. Pugh	785,071	Mar. 14	2152	454–5	115	495
Whiffletree-coupling	J. R. Pring	787,219	Apr. 11	2037	444	115	1521
Whiffletree-hook	L. C. Wendt	786,699	Apr. 4	996	205	115	1283
Whip and line lock	B. Moore	787,782	Apr. 18	3205	700	115	1797
Whip-handle	R. Boeselt	787,972	Apr. 25	3598	786	115	1908
Whipping device	T. J. Foos	785,726	Mar. 28	3520	754	115	820
Wind-wheel	M. A. and B. H. Sharp	787,340	Apr. 11	2296	499	115	1577
Windmill	O. W. Kenworthy	786,297	Apr. 4	88	20	115	1090
Windmill	H. C. Burnett	786,408	Apr. 4	342	75	115	1146
Windmill-regulator. Automatic	C. F. Knothe	787,924	Apr. 25	3493	763	115	1873
Winder. Bobbin-	R. H. Legg	785,812	Mar. 28	3689	785	115	860
Winding apparatus. Hand-operated	E. C. Naylor	786,049	Mar. 28	4173	879	115	907
Winding-form	J. W. Lundskog	784,799	Mar. 14	1653	342	115	385
Winding-machine	S. W. Wardwell	786,862	Apr. 11	1295	275–7	115	1358
Winding or unwinding goods. Device for	J. S. Harrison and R. L. Simpson	788,133	Apr. 25	3927	850	115	1978
Window	R. W. Ennis	784,554	Mar. 14	1115	233	115	266
Window	C. D. Tabor	785,778	Mar. 28	3611	772	115	839
Window	W. J. Heim	786,213	Mar. 28	4497	951	115	1038
Window	A. Konsalik	786,650	Apr. 4	907	186	115	1263
Window bar or grating	C. L. Wolfe	785,690	Mar. 21	3449	741–2	115	790
Window-cleaner	W. Smith	784,127	Mar. 7	226	44	115	54
Window construction	E. T. Robinson	784,707	Mar. 14	1446	300	115	340
Window-fastener for ventilation	L. C. Cannon and C. K. Morris	785,710	Mar. 28	3493	749	115	814
Window-fixture	A. B. Wheeler	785,138	Mar. 21	2317	485	115	545
Window frame and sash	L. M. Neabrey	785,370	Mar. 21	2768	585	115	643
Window. Horizontally-pivoted	H. B. Hiteshew	787,378	Apr. 18	2361	511	115	1604
Window or door fastener	C. D. Lovelace	784,057	Mar. 7	91	17	115	23
Window-screen	W. Wise	785,144	Mar. 21	2325	487	115	547
Window-screen	B. McCoy	785,226	Mar. 21	2503	527	115	566
Window-screen	R. P. Wakeman	785,530	Mar. 21	3123	660	115	723
Window-screen	W. H. McGlamery	787,534	Apr. 18	2683	583	115	1679
Window-screen	W. J. Baker	787,818	Apr. 18	3269	714	115	1811
Window-screen	O. A. McFadden	788,163	Apr. 25	3993	862	115	1992
Window-screen	D. T. Peters	788,372	Apr. 25	4381	955	115	2078
Window-screen	H. E. Southworth	788,439	Apr. 25	4518	983	115	2106
Window screen and ventilator	J. and E. Tisch	786,301	Apr. 4	314	69	115	1139
Window. Storm-	G. E. Harsh	786,893	Apr. 11	1962	260	115	1274
Wire-barbing machine	A. J. Bates	785,652	Mar. 21	3362	720–1	115	773
Wire-covering machine	G. T. Nicholls	784,753	Mar. 14	1596	321–2	115	365
Wire-drawing drum	J. A. Horton	784,304	Mar. 7	499	101	115	115
Wire fabric	B. Scarles	784,892	Mar. 14	1822	381	115	422
Wire-fabric-making machine	A. L. Kitselman	787,457	Apr. 18	2522	546	115	1640
Wire-loom shuttle-moving device	H. A. Bond	785,655	Mar. 21	3366	722	115	774
Wire-loop-forming machine	H. P. Wilson	785,461	Mar. 21	2966	634–6	115	668
Wire reeler and unreeler	J. G. Bailey	784,132	Mar. 7	233	46	115	56
Wire-shipping device. Barbed-	C. B. Kimball	784,794	Mar. 14	1636	337	115	381
Wire-stretcher	W. H. Spiller	784,813	Mar. 14	1677	347	115	391

Alphabetical list of inventions for March and April—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol	Official Gazette. Page.
Wire-stretcher	M. F. Varnum	785,131	Mar. 21	2302	483	115	542
Wire-stretcher	R. H. Turley and R. K. Gambrell	785,280	Mar. 21	2608	551	115	608
Wire-stretcher	C. F. Hofeldt	786,765	Apr. 4	1119	235	115	1310
Wire-stretcher	L. Bays	786,945	Apr. 11	1480	313	115	1400
Wire stretcher and fastener	F. Verhoeven	784,452	Mar. 7	902	188	115	205
Wire-stretching device	W. D. Miller	785,511	Mar. 21	3079	651	115	714
Wire-stringer	W. H. Horner	786,216	Mar. 28	4504	953	115	1039
Wire-tightening device	G. E. Martin	787,522	Apr. 18	2661	577	115	1674
Wire-tying dies. Intersecting	J. J. Morse	786,374	Apr. 4	263	60	115	1125
Wire-working tool	W. R. Montgomery and B. F. Megenity	786,454	Apr. 4	506	98	115	1179
Wood-fiber-cutting machine	H. M. Leonard	784,797	Mar. 14	1648	340–1	115	384
Wood-slicing machine	G. S. Mayhew	787,203	Apr. 11	2010	438–9	115	1515
Wood sliver. Machine for making corrugated	E. Wolff	785,786	Mar. 28	3628	775	115	843
Wood surfaces. Producing artificial	J. E. Travis	784,242	Mar. 7	454	92	115	106
Wooden pipe. Stave	J. Hopkirk	785,423	Mar. 21	2886	609	115	670
Woodwork. Uniting	W. J. Boda	787,429	Apr. 18	2469	534	115	1627
Woodworking-machine	N. F. Coffey	787,280	Apr. 11	2159	476	115	1547
Woodworking-machine attachment	D. W. Shollenberger	788,434	Apr. 25	4507	981–2	115	2105
Wool. Treating sheep's	A. Kann	787,923	Apr. 25	3491	.....	115	1873
Wool-washing machine	J. H. Tillinghast	784,240	Mar. 7	451	91	115	105
Work-stand. Portable	I. H. Weinberg, L. Heyman, and I. Dittenheimer.	784,288	Mar. 7	546	112	115	126
Work-table	M. F. Meagher	785,965	Mar. 28	3981	847	115	924
Wrap. Package	W. H. Pollock	787,465	Apr. 18	2539	549	115	1643
Wrapping-machine	A. E. Hopkins	787,379	Apr. 18	2363	511-12	115	1605
Wrench: *See* Adjustable wrench. Hub-wrench. Machine-wrench. Monkey-wrench. Nut-wrench. Pipe-wrench. Tire-bolt wrench.							
Wrench	W. E. Gilchrist	784,151	Mar. 7	277	57	115	66
Wrench	W. Whaley	784,243	Mar. 7	456	92	115	106
Wrench	J. Offermann	784,576	Mar. 14	1794	374	115	415
Wrench	E. L. Lansberry	785,313	Mar. 21	2657	562	115	618
Wrench	C. Wulst	785,586	Mar. 21	3243	688	115	748
Wrench	O. B. Craft	785,716	Mar. 28	3504	751	115	816
Wrench	N. W. Athey	785,850	Mar. 28	3757	798	115	872
Wrench	M. F. Hudson	786,788	Apr. 4	1163	243–4	115	1320
Wrench	A. Johnson	786,818	Apr. 11	1225	255	115	1344
Wrench	W. J. Sanders	786,844	Apr. 11	1270	268	115	1353
Wrench	J. Delaney	787,359	Apr. 18	2318	504	115	1594
Wrench	K. G. Overland	787,587	Apr. 18	2792	609	115	1704
Wrench	L. G. Egger	787,741	Apr. 18	3135	686	115	1781
Wrench	C. C. Longard	787,778	Apr. 18	3196	698	115	1795
Wrench	H. J. Pawling	788,141	Apr. 25	3946	854	115	1983
Wrench	P. C. Thayer	788,383	Apr. 25	4413	959	115	2064
Wrench attachment	J. C. Zumwalt	784,200	Mar. 7	372	75	115	87
Wringer: *See* Mop-wringer.							
Writing appliance	J. Jaakson	786,817	Apr. 11	1222	255	115	1344
Writing-machine pedestal	F. W. Hutchings	787,995	Apr. 25	3626	790	115	1903
X-ray meter	T. P. Hall	788,151	Apr. 25	3964	857–8	115	1986
Yeast-cells. Obtaining the contents of	W. Hess	785,733	Mar. 28	3530	.....	115	822
Yeast-cells. Obtaining the contents of	W. Hess	785,734	Mar. 28	3531	.....	115	822
Yoke and pole coupling. Neck	I. F. Brown	786,870	Apr. 11	1317	280	115	1363
Yoke construction	N. H. Roe	787,642	Apr. 18	2902	632	115	1729

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Badge	W. H. Atkins	37,404	Apr. 18	115	1842
Badge. Base-ball-register	A. A. Hendrickson	37,415	Apr. 25	115	2131
Basin. Lavatory	W. H. Lloyd	37,371	Mar. 14	115	498
Belt. Lady's	M. Martin	37,421	Apr. 25	115	2132
Bird-cage base	G. A. Glahn	37,365	Mar. 7	115	240
Bird-cage base	G. A. Glahn	37,366	Mar. 7	115	240
Book-cover	W. M. Rhoads	37,416	Apr. 25	115	2131
Clock-support	W. E. McGraw	37,411	Apr. 18	115	1844
Cork-extractor case	R. B. Gilchrist	37,417	Apr. 25	115	2132
Dancing-pagoda. Portable	S. Miyata	37,369	Mar. 7	115	241
Dancing-pavilion. Portable	S. Miyata	37,368	Mar. 7	115	241
Dish	O. S. Straus	37,408	Apr. 18	115	1843
Dish or similar article. Covered	C. J. Ahrenfeldt	37,360	Mar. 7	115	239
Electric-light cluster	J. D. O'Bryan	37,410	Apr. 18	115	1844
Fabric. Printed textile	E. B. Vandergaw	37,372	Mar. 14	115	498
Fabric. Printed textile	E. B. Vandergaw	37,373	Mar. 14	115	498
Fabric. Printed textile	E. B. Vandergaw	37,374	Mar. 14	115	498
Fabric. Printed textile	E. B. Vandergaw	37 375	Mar. 14	115	499
Fabric. Printed textile	E. B. Vandergaw	37,376	Mar. 14	115	499
Fabric. Printed textile	E. B. Vandergaw	37,380	Mar. 21	115	795
Fabric. Printed textile	E. B. Vandergaw	37,383	Mar. 28	115	1057
Fabric. Printed textile	E. B. Vandergaw	37,384	Mar. 28	115	1057
Fabric. Printed textile	E. B. Vandergaw	37,385	Mar. 28	115	1058
Fabric. Printed textile	E. B. Vandergaw	37,386	Mar. 28	115	1058
Fabric. Textile	W. B. McMechen	37,391	Apr. 4	115	1324
Glass vessel	W. R. Schaffer	37,403	Apr. 11	115	1580
Hook. Coat and hat	C. F. Nuezel	37,389	Apr. 4	115	1324
Lamp	W. Gray	37,390	Apr. 4	115	1324
Lamp shade. Incandescent-electric	H. Forger	37,409	Apr. 18	115	1843
Mantel	F. A. Broadbent	37,418	Apr. 25	115	2132
Mirrors, brushes, or similar articles. Back for hand	M. T. Goldsmith	37,419	Apr. 25	115	2132
Pencil tip. Lead	B. B. Goldsmith	37,382	Mar. 28	115	1057
Pillow-sham	N. Naja	37,381	Mar. 28	115	1057
Plate or similar article	C. J. Ahrenfeldt	37,420	Apr. 25	115	2132
Plate or similar article	C. J. Ahrenfeldt	37,361	Mar. 7	115	239
Plate or similar article	C. J. Ahrenfeldt	37,362	Mar. 7	115	240
Plate or similar article	C. J. Ahrenfeldt	37,363	Mar. 7	115	240
Pocket-book	J. C. Ryerson	37,364	Mar. 7	115	240
Spoon	E. Taylor	37,394	Apr. 11	115	1578
Spoon	B. D. Loring	37,387	Apr. 4	115	1323
Spoon, fork, or similar article	W. H. Rogers	37,405	Apr. 18	115	1842
Spoon, fork, or similar article	J. J. Condon	37,370	Mar. 14	115	497
Spoons, forks, or similar articles. Handle for	E. Todd, Jr	37,392	Apr. 11	115	1578
Spoons, forks, or similar articles. Handle for	E. E. Codman	37,377	Mar. 21	115	795
Spoons, forks, or similar articles. Handle for	F. Habensack	37,388	Apr. 4	115	1323
Spoons, forks, or similar articles. Handle for	W. C. Codman	37,393	Apr. 11	115	1578
Spoons, forks, or similar articles. Handle for	R. von Hagen	37,406	Apr. 18	115	1843
Stove	J. Allingham	37,407	Apr. 18	115	1843
Stove	M. R. Lehman	37,367	Mar. 7	115	241
Stove. Gas	S. C. Gray	37,401	Apr. 11	115	1580
Stove. Heating	M. R. Lehman	37,378	Mar. 21	115	795
Stove or range. Cooking	F. J. Frey	37,402	Apr. 11	115	1580
Stove or range. Cooking	M. R. Lehman	37,397	Apr. 11	115	1579
Stove or range. Cooking	M. R. Lehman	37,398	Apr. 11	115	1579
Stove or range. Cooking	M. R. Lehman	37,399	Apr. 11	115	1579
Tiling	D. W. Austin	37,400	Apr. 11	115	1579
Toy bank	A. C. Williams	37,412	Apr. 18	115	1844
Type. Font of	C. W. Smith	37,395	Apr. 11	115	1579
Type. Font of	W. Bradley	37,370	Mar. 21	115	795
Type. Font of	G. O. Ottley	37,396	Apr. 11	115	1579
Type. Font of	W. A. Schraubstadter	37,413	Apr. 18	115	1844
		37,414	Apr. 18	115	1844

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Accordions and concertinas, their cases, fittings, and parts	Lyon & Healy	44,301	Mar. 14	115	500
Air moistening and purifying compositions	Geetzy Co	44,292	Mar. 7	115	244
Asphalt	Warren Chemical & Manufacturing Co.	44,316	Mar. 14	115	501
Boots and shoes. Ladies' leather	Wigmore & Kenefick Company	44,305	Mar. 14	115	500
Bread, cakes, biscuits, and crackers	Wagner Baking Co	44,306	Mar. 14	115	500
Brooms	D. Fink	44,297	Mar. 7	115	244
Buttons	Dieckerhoff, Raffloer & Co	44,300	Mar. 7	115	244
Buttons, braids, and hand-crocheted trimmings. Hand-crocheted	Blumenkrohn Crochet Button Works.	44,303	Mar. 14	115	500
Candies	W. L. Caswell	44,288	Mar. 7	115	243
Candy, candied fruit, and candied popcorn	Plows Candy Co	44,289	Mar. 7	115	243
Cans. Oil and gasolene	J. A. Harps Manufacturing Co	44,298	Mar. 7	115	244
Cartridges	Austin Cartridge Co	44,317	Mar. 14	115	501
Cartridges	Austin Cartridge Co	44,318	Mar. 14	115	501
Chocolate preparations. Milk	Trowbridge Chocolate Chip Co	44,335	Mar. 21	115	797
Clocks, their parts, repairs, and findings	Chelsea Clock Company	44,326	Mar. 21	115	796
Coffee	Porto Rico Co	44,287	Mar. 7	115	243
Coffee	Saville, Somes & Co	44,336	Mar. 21	115	797
Concertinas and accordions, their cases, fittings, and parts	Lyon & Healy	44,327	Mar. 21	115	796
Condition-powder	Pratt Food Co	44,284	Mar. 7	115	243
Corsets	J. Beckel & Co	44,329	Mar. 21	115	796
Dressing. Certain named liquid	E. M. Bradley	44,338	Mar. 21	115	797
Dry goods. Certain named	E. H. Behrens & Co	44,328	Mar. 21	115	796
Dust-collectors. Centrifugal	Knickerbocker Company	44,355	Mar. 28	115	1060
Dyes, dyestuffs, stains, and coloring-matters	Johnson-Richardson Co	44,314	Mar. 14	115	501
Enameled steel and iron kitchen-ware	Enterprise Enamel Co	44,353	Mar. 28	115	1060
Enamels	Gerstendorfer Bros	44,341	Mar. 21	115	797
Extract of hemlock-bark. Clarified	C. A. Spencer	44,308	Mar. 14	115	500
Gas-burners and gas-burner mantles	Usona Light Co	44,320	Mar. 14	115	501
Hammocks, hammock supports and canopies	I. E. Palmer	44,330	Mar. 21	115	796
Harmonicas	F. Scribner	44,272	Mar. 7	115	242
Hats	W. J. Mitchell	44,275	Mar. 7	115	242
Hats, hat-frames, trimmed hats, and hat-trimmings. Women's	J. Moses	44,274	Mar. 7	115	242
Heating apparatus. Certain named	R. E. Atkinson	44,354	Mar. 28	115	1060
Heave, cough, and cold cure	Pratt Food Co	44,285	Mar. 7	115	243
Ink	Carter's Ink Company	44,350	Mar. 28	115	1059
Knives, butchers' knives and cleavers. Table and carving	Landers, Frary and Clark	44,319	Mar. 14	115	501
Lard	Tennessee Packing & Provision Company.	44,291	Mar. 7	115	244
Lice-killer	Pratt Food Co	44,286	Mar. 7	115	243
Liquids. Receptacles for evaporating	F. J. Tucker	44,322	Mar. 14	115	502
Lumber, lath, and shingles	H. L. Jenkins	44,324	Mar. 14	115	502
Meats. Certain named	Tennessee Packing & Provision Company.	44,290	Mar. 7	115	243
Medicine. Antiseptic and emolient	Ineeda-Colpho Company	44,280	Mar. 7	115	242
Medicine. Liquid tonic	Checkers Medicine Co	44,277	Mar. 7	115	242
Motors, gas and gasolene engines. Explosive internal-combustion	C. H. A. Dissinger & Bro	44,356	Mar. 28	115	1060
Oil. Lubricating engine	Galena-Signal Oil Company	44,295	Mar. 7	115	244
Oils and greases. Lubricating	Hughes Anti-Friction Company	44,340	Mar. 21	115	797
Ointment. Hoof	Pratt Food Co	44,283	Mar. 7	115	243
Packing. Metallic	Buhne Metal Packing Co	44,296	Mar. 7	115	244
Paint or coating. Certain named liquid roofing	Elliott Varnish Co	44,315	Mar. 14	115	501
Paints	O'Neil Oil & Paint Co	44,342	Mar. 21	115	798
Petroleum. Liquid	J. E. Huard	44,339	Mar. 21	115	797
Photographic purposes. Chemicals for	C. A. Lumière	44,293	Mar. 7	115	244
Polishing, scouring, and cleansing purposes. Preparation in powder form for	Lever Brothers Company	44,294	Mar. 7	115	244
Preparation for the treatment of certain named diseases	Carender & Gates	44,311	Mar. 14	115	500
Preparation for the treatment of certain named diseases. Liquid	J. W. Cotterel	44,312	Mar. 14	115	501
Remedial preparations for diseases of the blood	Dr. Taylor Remedy Company	44,278	Mar. 7	115	242
Remedies. Certain named internal	F. Jacobson	44,348	Mar. 28	115	1059
Remedies for certain named diseases	W. J. Zelner	44,310	Mar. 14	115	500
Remedies for certain named diseases	Dr. T. W. Wood Medicine Company.	44,347	Mar. 28	115	1059
Remedy for certain named diseases	Porter Medicine Co	44,279	Mar. 7	115	242
Remedy for indigestion, dyspepsia, and similar complaints	Grove Co	44,331	Mar. 21	115	796
Rheumatism cure. Preparation for	G. A. Georgiadi	44,313	Mar. 14	115	501
Salve	R. Bergner	44,282	Mar. 7	115	242
Salve. Moderately-adhesive	W. J. Lickel	44,281	Mar. 7	115	242
Screw-drivers	H. A. Metz	44,299	Mar. 7	115	244
Seeds, bulbs, and plants	H. W. Buckbee	44,352	Mar. 28	115	1060
Shoulder-brace and suspenders. Combined	J. N. Faust	44,273	Mar. 7	115	242
Silk and silk-mixture textiles	G. Robinson	44,302	Mar. 14	115	500
Skins. Tanned goat	Lennox & Briggs	44,276	Mar. 7	115	242
Soap	Frazer Lubricator Co	44,307	Mar. 14	115	500
Stovepipe-thimbles	H. R. Schmiedendorf	44,343	Mar. 21	115	798

Alphabetical list of trade-marks for March and April—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Sulfur and sulfur in liquid form for certain named purposes. Soluble	Sol Sul Chemical Co	44,349	Mar. 28	115	1059
Tanning and dyeing extracts. Certain named	C. A. Spencer	44,351	Mar. 28	115	1059
Tea	Saville, Somes & Co	44,337	Mar. 21	115	797
Teeth. Certain named preparations for the	Dr. J. A. Deane Company	44,346	Mar. 28	115	1059
Tonic	C. Reinschild	44,333	Mar. 21	115	797
Tonics. Rheumatic	J. F. Finke	44,332	Mar. 21	115	796
Tooth and mouth cleansing preparations	A. M. Pearson	44,309	Mar. 14	115	500
Type-writer ribbons and carbon-papers	Carter's Ink Company	44,345	Mar. 28	115	1059
Wagons, carts, and trucks	Acme Wagon Company	44,323	Mar. 14	115	502
Watch-glasses and spectacle and eyeglass lenses	A. Berger & Co	44,344	Mar 28	115	1059
Watches, parts of watches, and watchcases	A. Wittnauer Co	44,325	Mar. 21	115	796
Whisky	Read Brothers	44,357	Mar. 28	115	1060
Whisky Irish	Lyle & Kinahan	44,334	Mar. 21	115	797

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Academy." (For Boots and Shoes)	M. J. Mullen	12,056	Apr. 18	115	1845
"Acorn-Cereal Coffee." (For Cereal Coffee)	F. H. Benold	12,082	Apr. 25	115	2133
"American Hair Grower." (For Hair-Grower)	J. H. Magee	11,991	Mar. 28	115	1061
"Anti-Fade." (For a Certain Named Preparation)	J. Schutt, Jr	12,047	Apr. 11	115	1581
"Australian." (For Underwear)	Carson, Pirie, Scott & Company	11,999	Apr. 4	115	1325
"Autograph." (For Shoes)	Craddock-Terry Company	12,002	Apr. 4	115	1325
"Bleached Muslin." (For Bleached Cotton Goods)	John S. Brittain Dry Goods Company.	12,038	Apr. 11	115	1581
"Blue Eagle." (For Cigars)	S. Levinson & Co	11,927	Mar. 7	115	245
"Bon Ton." (For Hose-Supporters)	Carson Pirie, Scott and Company	12,040	Apr. 11	115	1581
"Boyd's C. A. T.s Carbon Albumen-Tablets." (For Medicine)	C. L. Boyd	11,957	Mar. 14	115	503
"Boyd's Luncheon Cream Mints." (For Mint Candy)	G. Boyd & Sons	12,091	Apr. 25	115	2133
"Boy's Friend." (For Boots and Shoes)	M. J. Mullen	12,041	Apr. 11	115	1581
"Breakfast Blend." (For Coffee)	A. Wilmanns	11,986	Mar. 28	115	1061
"Bridal." (For Hose-Supporters)	E. Gutmann	12,005	Apr. 4	115	1325
"Buckskin." (For Building or Sheathing Paper)	C. Russell	11,977	Mar. 21	115	799
"Buttercup Bread." (For Bread)	E. C. Hurth	11,970	Mar. 21	115	799
"Cambridge Springs Mineral Water." (For Mineral Water)	T. C. Wetzel	11,929	Mar. 7	115	245
"Campbell's Baking Powder." (For Baking-Powder)	Kenton Baking Powder Co	12,087	Apr. 25	115	2133
"Campomor." (For Cigars)	G. W. Helgho	11,946	Mar. 14	115	503
"Cincovin." (For Medicine)	Cincovin Company	11,955	Mar. 14	115	503
"Clingstone Floor Varnish." (For Varnish)	Michigan Paint Company	11,943	Mar. 7	115	245
"Colonial Chocolates." (For Confectionery)	Reymer & Brothers	12,044	Apr. 11	115	1581
"Columbia Goodclothes for Boys." (For Clothing)	W. Levy & Bros	12,000	Apr. 4	115	1325
"Columbus Mitcheline Quilt." (For Quilts)	Swift Manufacturing Company	11,945	Mar. 7	115	245
"Cremo." (For Non-Alcoholic Beverages)	Ladwig & Schranck Co	12,014	Apr. 4	115	1325
"Crescent Label." (For Handkerchiefs)	A. Harden & Co	11,998	Apr. 4	115	1325
"Crescent Mixed Paints." (For Mixed Paints)	Cawley, Clark & Co	12,078	Apr. 18	115	1845
"Crown Phonograph Oil." (For Oil)	T. C. Hough	12,074	Apr. 18	115	1845
"D. Mendez Habana." (For Cigars)	Schmidt & Co	12,015	Apr. 4	115	1325
"D. Mendez Habana." (For Cigars)	Schmidt & Co	12,016	Apr. 4	115	1325
"De Vita Mineral Water." (For Mineral Water)	T. C. Wetzel	11,930	Mar. 7	115	245
"Decora Gilt." (For Paint)	Gerstendorfer Bros	11,944	Mar. 7	115	245
"Diamond State Rye Whiskey." (For Whisky)	L. J. Levy	12,067	Apr. 18	115	1845
"Dr. Dick's Malted Stock Food." (For Stock-Food)	Dr. Dick's Malted Stock Food Co	12,095	Apr. 25	115	2133
"Dr. Sharps Rx 1300." (For Medicine)	W. E. Snellings	12,093	Apr. 25	115	2133
"E-Z-Ola." (For Polish)	W. E. Martin	11,976	Mar. 21	115	799
"Egyptian Spray." (For Chemical Compound)	Egyptian Spray Manfg. Co	12,025	Apr. 4	115	1325
"1855 1905 Fifty Years' of Quality Wolff's Plumbing Goods." (For Plumbing Goods.)	L. Wolff Manufacturing Company.	12,027	Apr. 4	115	1325
"El Mito." (For Cigars)	M. Kline & Co	11,964	Mar. 21	115	799
"Er-bo Tooth Powder." (For Tooth-Powder)	L. G. B. Erb	12 011	Apr. 4	115	1325
"Erdman's German Herb Cures." (For Medicine)	Erdman & Co	11,939	Mar. 7	115	245
"Excelsior Record." (For Talking-Machine Records)	International Record Company	12,049	Apr. 11	115	1581
"Fagan's Compound Wine of Tar." (For Proprietary Medicine)	T. F. E. Fagan	12,035	Apr. 11	115	1581
"Fitzpatrick's Rheumatic Cure." (For Medicine)	L. L. Fitz Patrick	11,967	Mar. 21	115	799
"Flee-Flea Dog Soap." (For Dog-Soap)	C. Koch	12,055	Apr. 18	115	1845
"Forget-me-nots." (For Medicine)	J. B. Simas	12,092	Apr. 25	115	2133
"Genll Oil." (For Medicinal Oil)	H. W. Heiner	11,990	Mar. 28	115	1061
"German Hog Remedy." (For Hog Remedies)	E. H. Allison and H. L. Marshall	11,995	Mar. 28	115	1061
"Glo-Silk." (For Umbrellas)	Carson, Pirie, Scott and Company	11,959	Mar. 14	115	503
"Glo-Silk." (For Mercerized Crochet-Cotton)	Carson, Pirie, Scott and Company	11,963	Mar. 14	115	503
"Gold Cream." (For Evaporated Cream)	Hires Condensed Milk Company	12,043	Apr. 11	115	1581
"Gold Medal." (For Doeskins)	Sweetwater Woolen Mills	12,003	Apr. 4	115	1325
Gold Medal." (For Jeans and Doeskins)	Sweetwater Woolen Mills	12,004	Apr. 4	115	1325
"Golden Eagle." (For Cigars)	I. Lewis	11,928	Mar. 7	115	245
"Goose." (For Cigars)	E. Stutz	12,020	Apr. 11	115	1581
"Grand Jury Box." (For Cigars)	H. O. Wegener	11,983	Mar. 28	115	1061
"H. & G. Anti-Fadeable Taffeta." (For Silk Goods)	Harrison & Gore Silk Co	11,941	Mar. 7	115	245
"H. & G. Anti-Tearable Taffeta." (For Silk Goods)	Harrison & Gore Silk Co	11,940	Mar. 7	115	245
"H-Y-O-C-H." (For a Remedy for Rheumatism)	J. S. Young	12,053	Apr. 18	115	1845
"Hand & Home Made French Dainties." (For Dainties)	A. M. Lambert	11,989	Mar. 21	115	799
"Heal-Quick." (For an External Remedy)	Fidelity Co	11,968	Mar. 21	115	799
"Horn Blowers Trombone Valve & Slide Oil." (For Lubricating-Oil.)	R. P. Leonard	11,980	Mar. 28	115	1061
"Human Life, A Magazine of To-day." (For Publication)	Human Life Publishing Company	12,096	Apr. 25	115	2133
"Iris Face Cream." (For Face-Cream)	Iris Face Cream Co	11,937	Mar. 7	115	245
"J. W. Roberts & Son." (For Cigars)	J. W. Roberts & Son	11,950	Mar. 14	115	503
"Jap-o-size." (For a Color-Drier)	Beckwith-Chandler Company	12,076	Apr. 18	115	1845
"Japanese Rapid Headache Powders." (For Medicine)	Japamer Pharmacal Company	12,033	Apr. 11	115	1581
"Japanese Rheumatism Cure, Kaspang" (For Medical Preparations.)	E. F. Pangburn	11,994	Mar. 28	115	1061
"Jiu-Jitsu Water—'Little Jap' Foot Ease." (For Medicine)	W. M. Brock	12,039	Apr. 11	115	1581
"Josh Billings." (For Cigars)	I. Lewis	12,069	Apr. 18	115	1845
"Justice." (For Mantles)	Liberty Inc. Light Co	12,026	Apr. 4	115	1325
"Ka-Be." (For Stomach-Bitters)	Crysco Drug Company	11,965	Mar. 21	115	799
"Kentucky." (For Breakfast-Bacon)	Kentucky Packing & Provision Co.	11,971	Mar. 21	115	799
"Kentucky." (For Hams)	Kentucky Packing & Provision Co.	11,972	Mar. 21	115	799
"Kentucky." (For Lard)	Kentucky Packing & Provision Co.	11,974	Mar. 21	115	799
"Korexilla." (For Medicinal Compound)	J. C. Peacock	12,007	Apr. 4	115	1325

Alphabetical list of labels for March and April—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Lac-er-all." (For Varnish Stains)	Cawley, Clark & Co	12,077	Apr. 18	115	1845
"Legal Value" (For Cigars)	American Lithographic Company.	11,961	Mar. 28	115	1061
"Legation." (For Cigars)	Cole Lithographing Co	11,926	Mar. 7	115	245
"Lemon Skin Lotion." (For Skin-Lotion)	W. B. Shaw	12,012	Apr. 4	115	1325
"Liqueur Superfine." (For Liqueurs)	Charles Jacquin et Cie	12,081	Apr. 25	115	2133
"Liquid Thyrinoids." (For Medicine)	F. C. Reighter	12,051	Apr. 18	115	1845
"Little Folks." (For Hose-Supporters)	Carson, Pirie, Scott & Company.	11,978	Mar. 28	115	1061
"Little Lady." (For Brooms)	Crites Broom Manufacturing Company.	12,046	Apr. 11	115	1581
"Little Star." (For Brooms)	Crites Broom Manufacturing Company.	12,045	Apr. 11	115	1581
"Livon Rice." (For Rice)	American Rice Cereal Co	12,058	Apr. 18	115	1845
"Lowney Chocolate." (For Chocolate Bonbons)	Walter M. Lowney Company	11,984	Mar. 28	115	1061
"Madden Eye Medicin." (For Eye Medicine)	Dr. Madden Eye Medicin Co	12,009	Apr. 4	115	1325
"Malt Essence." (For Malt Tonic)	Besley's Waukegan Brewing Co.	11,954	Mar. 14	115	503
"Mexican Rheumatic Oil." (For Rheumatic Oil)	Maar & Johnson	12,037	Apr. 11	115	1581
"Millionaire Champagne." (For Champagne)	J. C. Maloney & Co	11,951	Mar. 14	115	503
"Mobo." (For Cleaning Compound)	J. T. Stanley	12,096	Apr. 25	115	2133
"Mobo." (For Cleaning Compound)	J. T. Stanley	12,097	Apr. 25	115	2133
"Mocha Cereal." (For Cereal Mixture)	T. K. Wright	12,018	Apr. 4	115	1325
"National Malt Coffee." (For Coffee Substitute)	C. L. Medinger	12,083	Apr. 25	115	2133
"Nebraska Cough Cure." (For Medicine)	Goodrich Drug Co	11,956	Mar. 14	115	503
"Norfolk Luxury." (For Cigars)	H. F. Coke	11,949	Mar. 14	115	503
"Old Hickory." (For Boots and Shoes)	M. J. Mullen	12,057	Apr. 18	115	1845
"Osmanin." (For Coffee)	L. Deutsch	11,933	Mar. 7	115	245
"Otard, Dupuy & Co., Cognac." (For Cognac and Brandy)	F. de Bary & Co	11,932	Mar. 14	115	503
"Owlarino." (For Medicine)	W. F. Bente	12,044	Apr. 11	115	1581
"Panetelas." (For Cigars)	American Lithographic Company.	11,982	Mar. 28	115	1061
"Paramel." (For Medicine)	A. V. Kouba	11,966	Mar. 21	115	799
"Parsley Compound." (For Medicine)	Guyer Medicine Co	12,052	Apr. 18	115	1845
"Paw-Paw." (For Card Games)	G. C. Cross	11,997	Apr. 4	115	1325
"Peacock Baking Powder." (For Baking-Powder)	Kenton Baking Powder Co	12,085	Apr. 25	115	2133
"Phospho-Ferrum." (For a Medicinal Preparation)	W. H. Hostelley & Co	12,008	Apr. 4	115	1325
"Pimplexion Skin Food." (For an Ointment)	F. M. Robinson	12,013	Apr. 4	115	1325
"Pine Tree Salve." (For Salve)	Blewett Bros. Co	12,054	Apr. 18	115	1845
"Pompeii." (For Confectionery)	S. Zanone	12,090	Apr. 25	115	2133
"Portsmouth Luxury." (For Cigars)	H. F. Coke	11,948	Mar. 14	115	503
"Pratt's Wheat." (For Cereal Products)	Pratt Cereal Company	11,935	Mar. 7	115	245
"Puritan Wafers." (For Biscuits, Crackers, and Wafers)	Toledo Biscuit Co	12,060	Apr. 18	115	1845
"Quickshine." (For Shoe-Dressing)	E. Templar	12,072	Apr. 18	115	1845
"Radium Corn Cure." (For Corn Cure)	J. Zuckerman	12,094	Apr 25	115	2133
"Rams Head Sweaters." (For Sweaters)	Salt Lake Knitting Works	11,962	Mar. 14	115	503
"Reach Official American League Base Ball Guide." (For Pamphlets or Booklets.)	A. J. Reach Co	11,996	Apr. 4	115	1325
"Rhein Blume." (For Rhein Wine)	United Wine & Trading Co	11,931	Mar. 7	115	245
"Roulette Cards." (For Playing-Cards)	A. K. Ferris	12,048	Apr. 11	115	1581
"Royal Liquid Coffee." (For Liquid Coffee)	Royal Coffee Co	12,066	Apr. 18	115	1845
"S. C. W." (For Cigars)	G. J. Johnson	12,017	Apr. 4	115	1325
"Sa-iv-la." (For Hair-Tonic)	Schmelzel and Gallop	12,010	Apr. 4	115	1325
"Salada." (For Tea)	P. C. Larkin	12,061	Apr. 18	115	1845
"Salada." (For Tea)	P. C. Larkin	12,062	Apr. 18	115	1845
"Salada." (For Tea)	P. C. Larkin	12,063	Apr. 18	115	1845
"Salada." (For Tea)	P. C. Larkin	12,064	Apr. 18	115	1845
"Salada." (For Tea)	P. C. Larkin	12,065	Apr. 18	115	1845
"Scalpine, Nature's Own Cure." (For Medicines)	B. H. Warren	11,992	Mar. 28	115	1061
"Schive's Rheumatic Remedy." (For Medicine)	G. W. Schive	11,958	Mar. 14	115	503
"Shell Heal." (For Medicine)	F. Kiepser	11,993	Mar. 28	115	1061
"Shiloh Baking Powder." (For Baking-Powder)	Kenton Baking Powder Co	12,084	Apr. 25	115	2133
"Si Perkins." (For Whisky)	G. Andreas & Co	12,068	Apr. 18	115	1845
"Signal." (For Cigars)	G. H. Maxwell	12,070	Apr. 18	115	1845
"Singley's Hair Strength." (For Medicine)	B. Singley	12,032	Apr. 11	115	1581
"Snow King Baking Powder." (For Baking-Powder)	Kenton Baking Powder Co	12,086	Apr. 25	115	2133
"Squire Pickles." (For Pickles)	Squire Dingee Company	12,089	Apr. 25	115	2133
"Sunny Castle." (For Cigars and Tobacco)	Hausfeld & Huennekens	12,071	Apr. 18	115	1845
"Superior Gloss." (For Furniture-Polish)	H. Biever	12,023	Apr. 4	115	1325
"Sure Grip." (For a Certain Named Preparation)	L. J. Gelpi	12,075	Apr. 18	115	1845
"Swansdown." (For Gloss-Starch)	S. S. Pierce Co	11,987	Mar. 28	115	1061
"Swansdown." (For Corn-Starch)	S. S. Pierce Co	11,988	Mar. 28	115	1061
"Talpa." (For Medicine)	T. Dyer	12,036	Apr. 11	115	1581
"Tamar-Indian." (For Carbonated Beverages)	V. Tortorello and M. Greenberg	11,985	Mar. 28	115	1061
"Tampa Custom House." (For Cigars)	D. A. Switzer	12,028	Apr. 11	115	1581
"Target Rye." (For Whisky)	F. W. Packer	12,080	Apr. 25	115	2133
"Tasma." (For Double-Woven Finger-Tip Gloves)	Carson, Pirie, Scott and Company.	11,960	Mar. 14	115	503
"Temple Brand Garments." (For Garments)	Salt Lake Knitting Works	11,961	Mar. 14	115	503
"The Codex Cigar." (For Cigars)	American Lithographic Company.	11,979	Mar. 28	115	1061
"The Forelock Cigar." (For Cigars)	American Lithographic Company.	11,980	Mar. 28	115	1061
"The Katzenjammer Mixup." (For a Game)	Fan Craze Co	12,079	Apr. 18	115	1845
"The Kobolo Tonic." (For Medicine)	J. L. Smith	12,050	Apr. 18	115	1845
"The Magic Curler." (For Hair-Curlers)	Magic Curler Company	12,073	Apr. 18	115	1845
"The Magic Lustre Furniture Polish." (For Furniture-Polish)	Magic Lustre Furniture Polish Company.	12,024	Apr. 4	115	1325
"The Owl Clip." (For Wire Paper-Clips)	M. B. Ryan	11,942	Mar. 7	115	245
"Tiger Head." (For Coffee and Spices)	C. H. Montanye	11,934	Mar. 7	115	245
"Toasti." (For Hop Products)	A. Wilmanns	11,932	Mar. 7	115	245
"Townsend's Latter Day Saints or Temple Brand Olive Oil." (For Olive-Oil.)	B. H. Townsend	12,020	Apr. 4	115	1325
"20th Century." (For Glass-Polish)	H. Biever	12,022	Apr. 4	115	1325
"U. S. Fancy Patent." (For Flour)	Covington Grocery & Grain Co	12,042	Apr. 11	115	1581
"U. S. Stock Food." (For Stock-Food)	National Chemical Co	12,019	Apr. 4	115	1325
"Union Twist." (For Cigars)	Batastini and Pacella Co	12,030	Apr. 11	115	1581
"University Clothing." (For Clothing)	J. Wurtzburger	12,001	Apr. 4	115	1325
"Usona." (For Cigars)	H. Brockman	11,947	Mar. 14	115	503

Alphabetical list of labels for March and April—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Velo." (For Massage Cream or Lotion)	H. P. Engeln Company	11,938	Mar. 7	115	245
"Violet Oats." (For Rolled Oats)	Albers Bros. Milling Co	12,059	Apr. 18	115	1845
"Wendel's Swiss Lozenges." (For Swiss Lozenges)	H. F. Wendel	12,031	Apr. 11	115	1581
"Westover Rye." (For Whisky)	P. G. Kelly	11,953	Mar. 14	115	503
"Wirthmor." (For Toilet-Paper)	Scott Paper Co	11,975	Mar. 21	115	799
"Y-Kof." (For Medicine)	A. K. V. Reamer	12,006	Apr. 4	115	1325
"Yorkshire." (For Breakfast-Bacon)	Kentucky Packing & Provision Co.	11,936	Mar. 7	115	245
"Yorkshire." (For Hams)	Kentucky Packing & Provision Co.	11,973	Mar. 21	115	799
"Yorkshire." (For Lard)	Kentucky Packing & Provision Co.	12,086	Apr. 25	115	2133
"Ys Cleaning Fluid." (For Cleaning Fluid)	Wiesenthal & Co	12,021	Apr. 4	115	1325

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"A Yard of Razors." (For Safety-Razors)	Reichard & Scheuber Mfg. Co.	1,274	Apr. 25	115	2133
"Adler's Latest Spring Clothes." (For Spring Apparel)	David Adler & Sons Clothing Co.	1,247	Mar. 21	115	799
"Adler's Nobby Clothes for Spring." (For Men's Spring Apparel.)	David Adler & Sons Clothing Co.	1,249	Mar. 28	115	1061
"Allen's Royal Remedy, A Foot Powder." (For Powder for the Feet.)	J. C. Allen	1,237	Mar. 7	115	245
"Birthstones Ringsizes." (For Rings)	G. Brunswick	1,250	Mar. 28	115	1061
"Blue Ribbon Hair Restorer." (For Hair-Restorer)	F. McElroy	1,245	Mar. 21	115	799
"Bull Frog Brand." (For India-Rubber Hose)	Toledo Rubber Company	1,270	Apr. 18	115	1845
"Buy Mascot Hosiery." (For Hosiery)	Ferguson-McKinney Dry Goods Co.	1,243	Mar. 14	115	503
"C. C. C. Tablets." (For Tablet Remedies)	Curtiss Manufacturing Co	1,252	Mar. 28	115	1061
"Chew and Smoke Mail Pouch." (For Tobacco)	Bloch Brothers Tobacco Co	1,263	Apr. 11	115	1581
"Conover." (For Pianos)	F. E. Hall	1,276	Apr. 25	115	2133
"Créme Elcaya." (For Face-Creams)	J. C. Crane	1,271	Apr. 25	115	2133
"Dunlop Superlative Patent Flour." (For Flour)	Dunlop Mills	1,272	Apr. 25	115	2133
"Halkrest." (For Shoes)	Loring B. Hall Company	1,257	Apr. 4	115	1325
"Harvard." (For Beer)	Harvard Brewing Co	1,234	Mar. 7	115	245
"Have You Vitos, Good." (For Wheat Food)	Pillsbury-Washburn Flour Mills Co.	1,261	Apr. 11	115	1581
"Heartsease." (For Medicine)	Heartsease Remedy Co	1,235	Mar. 7	115	245
"Horsford's Bread Preparation." (For Bread Preparation)	Rumford Chemical Works	1,241	Mar. 14	115	503
"How Shall We Paint." (For Paint)	Lowe Brothers Company	1,275	Apr. 25	115	2133
"Kneaded Everywhere." (For Flour)	Washburn-Crosby Company	1,268	Apr. 18	115	1845
"London Fashion Plates." (For Clothing)	E. A. Wright	1,244	Mar. 14	115	503
"Mail Pouch." (For Tobacco)	Federal Lithograph Company	1,259	Apr. 4	115	1325
"Makes the Duty Agreeable." (For Dentifrice)	Jennings Company	1,242	Mar. 14	115	503
"Maverick." (For Cigars)	W. Fechteler	1,264	Apr. 11	115	1581
"Men's Apparel." (For Men's Apparel)	W. C. Both	1,256	Apr. 4	115	1325
"Men's Apparel." (For Men's Apparel)	W. C. Both	1,273	Apr. 25	115	2133
"Nations' Dolls Series No. 1." (For Newspaper Novelty)	Gray Lithograph Co	1,255	Apr. 4	115	1325
"Parsley Compound." (For Medicinal Compound)	Guyer Medicine Co	1,258	Apr. 4	115	1325
"Patterson's Seal Cut Plug." (For Tobacco)	R. A. Patterson Tobacco Company.	1,239	Mar. 14	115	503
"Pillsbury's Vitos." (For Wheat Food)	Pillsbury-Washburn Flour Mills Co.	1,262	Apr. 11	115	1581
"Prince Albert and English Walking Frocks." (For Clothing)	Brokaw Brothers	1,260	Apr. 11	115	1581
"Santa Claus." (For Signs)	Bemis Bro. Bag Co	1,253	Mar. 28	115	1061
"Swift's Return Tubular Portable Boiler." (For Boilers)	E. H. Swift	1,267	Apr. 11	115	1581
"Tannery, Shoe Factory, Jobbing House, Shoe Store." (For Shoes.)	E. S. Gile	1,236	Mar. 7	115	245
"The King of Lubricants." (For Cutting Compound)	White & Bagley Company	1,238	Mar. 7	115	245
"The Wonderful Electric Candy Machine." (For Candy-Machines.)	Electric Candy Machine Co	1,269	Apr. 18	115	1845
"The Wooden Hen Weather Cock." (For Incubators)	G. H. Stahl	1,254	Mar. 28	115	1061
"Typical College Clothes." (For Spring Apparel)	David Adler & Sons Clothing Co.	1,248	Mar. 21	115	799
"U. S. Bridge Whist Score Pads." (For Score-Pads)	United States Playing Card Company.	1,251	Mar. 28	115	1061
"U. S. Score Pad for the Game of Five Hundred." (For Score-Pads.)	United States Playing Card Company.	1,266	Apr. 11	115	1581
"Very Cleanly Maid." (For Flour)	Washburn, Crosby Company	1,240	Mar. 14	115	503
"Wearing Apparel." (For Wearing-Apparel)	B. Kuppenheimer & Co	1,246	Mar. 21	115	799
"Wine of Cardui." (For Medicine)	Chattanooga Medicine Co	1,265	Apr 11	115	1581

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Bearing for electric meters	G. H. Alton	733,611	July 14, 1903	Mar. 30, 1905	115	1069
Compound engine	C. J. Mellin	756,673	Apr. 5, 1904	Mar. 18, 1905	115	807

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